



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 7, 2026 – 01:51 AM UTC

PDB ID : 4V8P / pdb\_00004v8p  
Title : T.thermophila 60S ribosomal subunit in complex with initiation factor 6.  
Authors : Klinge, S.; Voigts-Hoffmann, F.; Leibundgut, M.; Arpagaus, S.; Ban, N.  
Deposited on : 2011-09-14  
Resolution : 3.52 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

|                                |   |                                                                  |
|--------------------------------|---|------------------------------------------------------------------|
| MolProbity                     | : | 4-5-2 with Phenix2.0                                             |
| Xtriage (Phenix)               | : | 2.0                                                              |
| EDS                            | : | 3.0                                                              |
| Percentile statistics          | : | 20250101.v01 (using entries in the PDB archive January 1st 2025) |
| CCP4                           | : | 9.0.010 (Gargrove)                                               |
| Density-Fitness                | : | 1.0.12                                                           |
| Ideal geometry (proteins)      | : | Engh & Huber (2001)                                              |
| Ideal geometry (DNA, RNA)      | : | Parkinson et al. (1996)                                          |
| Validation Pipeline (wwPDB-VP) | : | 2.49                                                             |

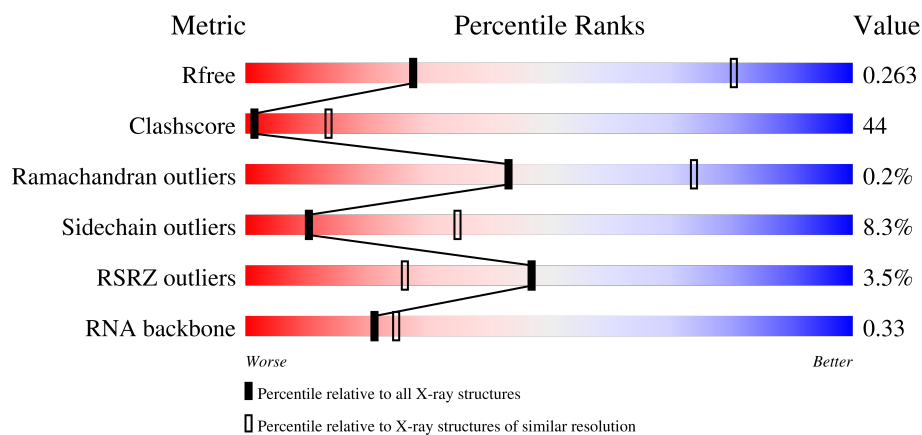
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.52 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



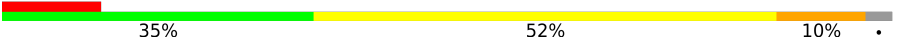
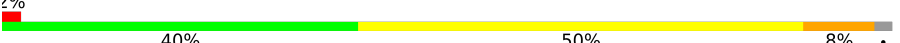
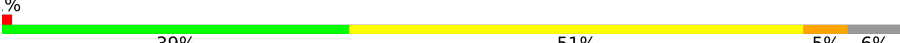
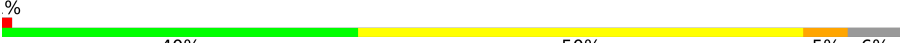
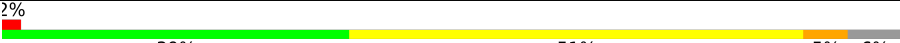
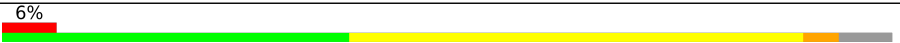
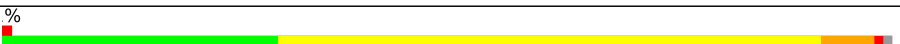
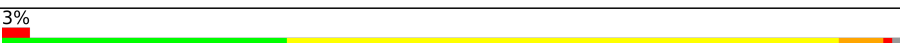
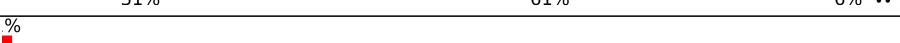
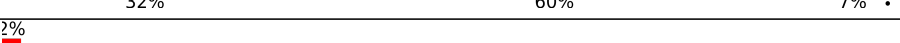
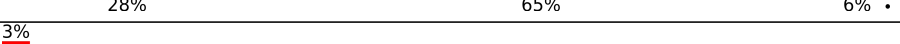
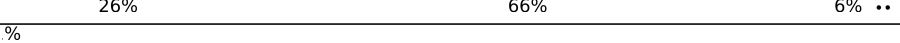
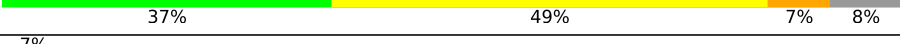
| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-------------------------------------------------------|
| $R_{free}$            | 180053                      | 1025 (3.56-3.48)                                      |
| Clashscore            | 190562                      | 1079 (3.56-3.48)                                      |
| Ramachandran outliers | 187476                      | 1052 (3.56-3.48)                                      |
| Sidechain outliers    | 187428                      | 1053 (3.56-3.48)                                      |
| RSRZ outliers         | 180081                      | 1024 (3.56-3.48)                                      |
| RNA backbone          | 3983                        | 1018 (4.00-3.04)                                      |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A1    | 3354   |                  |
| 1   | D1    | 3354   |                  |
| 1   | F1    | 3354   |                  |
| 1   | H1    | 3354   |                  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 2   | AA    | 94     |    |
| 2   | DA    | 94     |    |
| 2   | FA    | 94     |    |
| 2   | HA    | 94     |    |
| 3   | AB    | 52     |    |
| 3   | DB    | 52     |    |
| 3   | FB    | 52     |    |
| 3   | HB    | 52     |    |
| 4   | AC    | 109    |    |
| 4   | DC    | 109    |    |
| 4   | FC    | 109    |    |
| 4   | HC    | 109    |    |
| 5   | AE    | 191    |  |
| 5   | DE    | 191    |  |
| 5   | FE    | 191    |  |
| 5   | HE    | 191    |  |
| 6   | AF    | 126    |  |
| 6   | DF    | 126    |  |
| 6   | FF    | 126    |  |
| 6   | HF    | 126    |  |
| 7   | AG    | 104    |  |
| 7   | DG    | 104    |  |
| 7   | FG    | 104    |  |
| 7   | HG    | 104    |  |
| 8   | AH    | 113    |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 8   | DH    | 113    |                  |
| 8   | FH    | 113    |                  |
| 8   | HH    | 113    |                  |
| 9   | AJ    | 248    |                  |
| 9   | DJ    | 248    |                  |
| 9   | FJ    | 248    |                  |
| 9   | HJ    | 248    |                  |
| 10  | AK    | 129    |                  |
| 10  | DK    | 129    |                  |
| 10  | FK    | 129    |                  |
| 10  | HK    | 129    |                  |
| 11  | AL    | 123    |                  |
| 11  | DL    | 123    |                  |
| 11  | FL    | 123    |                  |
| 11  | HL    | 123    |                  |
| 12  | AM    | 118    |                  |
| 12  | DM    | 118    |                  |
| 12  | FM    | 118    |                  |
| 12  | HM    | 118    |                  |
| 13  | AN    | 144    |                  |
| 13  | DN    | 144    |                  |
| 13  | FN    | 144    |                  |
| 13  | HN    | 144    |                  |
| 14  | AO    | 134    |                  |
| 14  | DO    | 134    |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 14  | FO    | 134    |                  |
| 14  | HO    | 134    |                  |
| 15  | AP    | 89     |                  |
| 15  | DP    | 89     |                  |
| 15  | FP    | 89     |                  |
| 15  | HP    | 89     |                  |
| 16  | AQ    | 104    |                  |
| 16  | DQ    | 104    |                  |
| 16  | FQ    | 104    |                  |
| 16  | HQ    | 104    |                  |
| 17  | AT    | 66     |                  |
| 17  | DT    | 66     |                  |
| 17  | FT    | 66     |                  |
| 17  | HT    | 66     |                  |
| 18  | AU    | 206    |                  |
| 18  | DU    | 206    |                  |
| 18  | FU    | 206    |                  |
| 18  | HU    | 206    |                  |
| 19  | AX    | 189    |                  |
| 19  | DX    | 189    |                  |
| 19  | FX    | 189    |                  |
| 19  | HX    | 189    |                  |
| 20  | B2    | 154    |                  |
| 20  | C2    | 154    |                  |
| 20  | E2    | 154    |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 20  | G2    | 154    |                  |
| 21  | B3    | 120    |                  |
| 21  | C3    | 120    |                  |
| 21  | E3    | 120    |                  |
| 21  | G3    | 120    |                  |
| 22  | BA    | 264    |                  |
| 22  | CA    | 264    |                  |
| 22  | EA    | 264    |                  |
| 22  | GA    | 264    |                  |
| 23  | BB    | 391    |                  |
| 23  | CB    | 391    |                  |
| 23  | EB    | 391    |                  |
| 23  | GB    | 391    |                  |
| 24  | BC    | 410    |                  |
| 24  | CC    | 410    |                  |
| 24  | EC    | 410    |                  |
| 24  | GC    | 410    |                  |
| 25  | BD    | 172    |                  |
| 25  | CD    | 172    |                  |
| 25  | ED    | 172    |                  |
| 25  | GD    | 172    |                  |
| 26  | BE    | 188    |                  |
| 26  | CE    | 188    |                  |
| 26  | EE    | 188    |                  |
| 26  | GE    | 188    |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 27  | BF    | 255    |                  |
| 27  | CF    | 255    |                  |
| 27  | EF    | 255    |                  |
| 27  | GF    | 255    |                  |
| 28  | BG    | 123    |                  |
| 28  | CG    | 123    |                  |
| 28  | EG    | 123    |                  |
| 28  | GG    | 123    |                  |
| 29  | BH    | 215    |                  |
| 29  | CH    | 215    |                  |
| 29  | EH    | 215    |                  |
| 29  | GH    | 215    |                  |
| 30  | BI    | 198    |                  |
| 30  | CI    | 198    |                  |
| 30  | EI    | 198    |                  |
| 30  | GI    | 198    |                  |
| 31  | BJ    | 141    |                  |
| 31  | CJ    | 141    |                  |
| 31  | EJ    | 141    |                  |
| 31  | GJ    | 141    |                  |
| 32  | BK    | 149    |                  |
| 32  | CK    | 149    |                  |
| 32  | EK    | 149    |                  |
| 32  | GK    | 149    |                  |
| 33  | BL    | 204    |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 33  | CL    | 204    |                  |
| 33  | EL    | 204    |                  |
| 33  | GL    | 204    |                  |
| 34  | BM    | 301    |                  |
| 34  | CM    | 301    |                  |
| 34  | EM    | 301    |                  |
| 34  | GM    | 301    |                  |
| 35  | BN    | 181    |                  |
| 35  | CN    | 181    |                  |
| 35  | EN    | 181    |                  |
| 35  | GN    | 181    |                  |
| 36  | BO    | 185    |                  |
| 36  | EO    | 185    |                  |
| 36  | GO    | 185    |                  |
| 37  | BP    | 157    |                  |
| 37  | CP    | 157    |                  |
| 37  | EP    | 157    |                  |
| 37  | GP    | 157    |                  |
| 38  | BQ    | 183    |                  |
| 38  | CQ    | 183    |                  |
| 38  | EQ    | 183    |                  |
| 38  | GQ    | 183    |                  |
| 39  | BR    | 150    |                  |
| 39  | CR    | 150    |                  |
| 39  | ER    | 150    |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 39  | GR    | 150    |                  |
| 40  | BS    | 135    |                  |
| 40  | CS    | 135    |                  |
| 40  | ES    | 135    |                  |
| 40  | GS    | 135    |                  |
| 41  | BT    | 158    |                  |
| 41  | CT    | 158    |                  |
| 41  | ET    | 158    |                  |
| 41  | GT    | 158    |                  |
| 42  | BU    | 124    |                  |
| 42  | CU    | 124    |                  |
| 42  | EU    | 124    |                  |
| 42  | GU    | 124    |                  |
| 43  | BV    | 239    |                  |
| 43  | CV    | 239    |                  |
| 43  | EV    | 239    |                  |
| 43  | GV    | 239    |                  |
| 44  | BW    | 111    |                  |
| 44  | CW    | 111    |                  |
| 44  | EW    | 111    |                  |
| 44  | GW    | 111    |                  |
| 45  | BX    | 134    |                  |
| 45  | CX    | 134    |                  |
| 45  | EX    | 134    |                  |
| 45  | GX    | 134    |                  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 46  | BY    | 103    |                  |
| 46  | CY    | 103    |                  |
| 46  | EY    | 103    |                  |
| 46  | GY    | 103    |                  |
| 47  | CO    | 185    |                  |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res  | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|------|-----------|----------|---------|------------------|
| 48  | MG   | H1    | 3551 | -         | -        | -       | X                |

## 2 Entry composition

There are 50 unique types of molecules in this entry. The entry contains 511395 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a RNA chain called 26S RRNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|---------|-------|
| 1   | A1    | 3119     | Total | C     | N     | O     | P    | 0       | 0       | 0     |
|     |       |          | 66769 | 29861 | 12195 | 21594 | 3119 |         |         |       |
| 1   | D1    | 3119     | Total | C     | N     | O     | P    | 0       | 0       | 0     |
|     |       |          | 66769 | 29861 | 12195 | 21594 | 3119 |         |         |       |
| 1   | F1    | 3119     | Total | C     | N     | O     | P    | 0       | 0       | 0     |
|     |       |          | 66769 | 29861 | 12195 | 21594 | 3119 |         |         |       |
| 1   | H1    | 3119     | Total | C     | N     | O     | P    | 0       | 0       | 0     |
|     |       |          | 66769 | 29861 | 12195 | 21594 | 3119 |         |         |       |

- Molecule 2 is a protein called RIBOSOMAL PROTEIN L37.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 2   | AA    | 91       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 721   | 440 | 158 | 116 | 7 |         |         |       |
| 2   | DA    | 91       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 721   | 440 | 158 | 116 | 7 |         |         |       |
| 2   | FA    | 91       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 721   | 440 | 158 | 116 | 7 |         |         |       |
| 2   | HA    | 91       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 721   | 440 | 158 | 116 | 7 |         |         |       |

- Molecule 3 is a protein called RPL39.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 3   | AB    | 51       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 456   | 288 | 97 | 70 | 1 |         |         |       |
| 3   | DB    | 51       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 456   | 288 | 97 | 70 | 1 |         |         |       |
| 3   | FB    | 51       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 456   | 288 | 97 | 70 | 1 |         |         |       |
| 3   | HB    | 51       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 456   | 288 | 97 | 70 | 1 |         |         |       |

- Molecule 4 is a protein called 60S RIBOSOMAL PROTEIN L36A.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 4   | AC    | 103      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 836   | 526 | 163 | 140 | 7 |         |         |       |
| 4   | DC    | 103      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 836   | 526 | 163 | 140 | 7 |         |         |       |
| 4   | FC    | 103      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 836   | 526 | 163 | 140 | 7 |         |         |       |
| 4   | HC    | 103      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 836   | 526 | 163 | 140 | 7 |         |         |       |

- Molecule 5 is a protein called RPL6.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 5   | AE    | 190      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1525  | 966 | 286 | 272 | 1 |         |         |       |
| 5   | DE    | 190      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1525  | 966 | 286 | 272 | 1 |         |         |       |
| 5   | FE    | 190      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1525  | 966 | 286 | 272 | 1 |         |         |       |
| 5   | HE    | 190      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1525  | 966 | 286 | 272 | 1 |         |         |       |

- Molecule 6 is a protein called RPL14.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 6   | AF    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1021  | 659 | 192 | 169 | 1 |         |         |       |
| 6   | DF    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1021  | 659 | 192 | 169 | 1 |         |         |       |
| 6   | FF    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1021  | 659 | 192 | 169 | 1 |         |         |       |
| 6   | HF    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1021  | 659 | 192 | 169 | 1 |         |         |       |

- Molecule 7 is a protein called RPL30.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 7   | AG    | 96       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 727   | 455 | 129 | 138 | 5 |         |         |       |
| 7   | DG    | 96       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 727   | 455 | 129 | 138 | 5 |         |         |       |
| 7   | FG    | 96       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 727   | 455 | 129 | 138 | 5 |         |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 7   | HG    | 96       | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 727   | 455 | 129 | 138 | 5 |         |         |       |

- Molecule 8 is a protein called RPL35A.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 8   | AH    | 107      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 850   | 540 | 167 | 142 | 1 |         |         |       |
| 8   | DH    | 107      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 850   | 540 | 167 | 142 | 1 |         |         |       |
| 8   | FH    | 107      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 850   | 540 | 167 | 142 | 1 |         |         |       |
| 8   | HH    | 107      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 850   | 540 | 167 | 142 | 1 |         |         |       |

- Molecule 9 is a protein called TRANSLATION INITIATION FACTOR EIF-6, PUTATIVE FAMILY PROTEIN.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
| 9   | AJ    | 226      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 1716  | 1068 | 302 | 336 | 10 |         |         |       |
| 9   | DJ    | 226      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 1716  | 1068 | 302 | 336 | 10 |         |         |       |
| 9   | FJ    | 226      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 1716  | 1068 | 302 | 336 | 10 |         |         |       |
| 9   | HJ    | 226      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 1716  | 1068 | 302 | 336 | 10 |         |         |       |

There are 12 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| AJ    | -2      | GLY      | -      | expression tag | UNP Q245F2 |
| AJ    | -1      | THR      | -      | expression tag | UNP Q245F2 |
| AJ    | 0       | SER      | -      | expression tag | UNP Q245F2 |
| DJ    | -2      | GLY      | -      | expression tag | UNP Q245F2 |
| DJ    | -1      | THR      | -      | expression tag | UNP Q245F2 |
| DJ    | 0       | SER      | -      | expression tag | UNP Q245F2 |
| FJ    | -2      | GLY      | -      | expression tag | UNP Q245F2 |
| FJ    | -1      | THR      | -      | expression tag | UNP Q245F2 |
| FJ    | 0       | SER      | -      | expression tag | UNP Q245F2 |
| HJ    | -2      | GLY      | -      | expression tag | UNP Q245F2 |
| HJ    | -1      | THR      | -      | expression tag | UNP Q245F2 |

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| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| HJ    | 0       | SER      | -      | expression tag | UNP Q245F2 |

- Molecule 10 is a protein called UBIQUITIN-60S RIBOSOMAL PROTEIN L40.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 10  | AK    | 52       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 415   | 257 | 83 | 69 | 6 |         |         |       |
| 10  | DK    | 52       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 415   | 257 | 83 | 69 | 6 |         |         |       |
| 10  | FK    | 52       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 415   | 257 | 83 | 69 | 6 |         |         |       |
| 10  | HK    | 52       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 415   | 257 | 83 | 69 | 6 |         |         |       |

- Molecule 11 is a protein called RPL34.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 11  | AL    | 108      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 852   | 529 | 170 | 147 | 6 |         |         |       |
| 11  | DL    | 108      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 852   | 529 | 170 | 147 | 6 |         |         |       |
| 11  | FL    | 108      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 852   | 529 | 170 | 147 | 6 |         |         |       |
| 11  | HL    | 108      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 852   | 529 | 170 | 147 | 6 |         |         |       |

- Molecule 12 is a protein called RIBOSOMAL PROTEIN L22.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 12  | AM    | 100      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 819   | 530 | 137 | 151 | 1 |         |         |       |
| 12  | DM    | 100      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 819   | 530 | 137 | 151 | 1 |         |         |       |
| 12  | FM    | 100      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 819   | 530 | 137 | 151 | 1 |         |         |       |
| 12  | HM    | 100      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 819   | 530 | 137 | 151 | 1 |         |         |       |

- Molecule 13 is a protein called RPL27.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 13  | AN    | 143      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1170  | 755 | 213 | 199 | 3 |         |         |       |
| 13  | DN    | 143      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1170  | 755 | 213 | 199 | 3 |         |         |       |
| 13  | FN    | 143      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1170  | 755 | 213 | 199 | 3 |         |         |       |
| 13  | HN    | 143      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1170  | 755 | 213 | 199 | 3 |         |         |       |

- Molecule 14 is a protein called RPL28.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 14  | AO    | 134      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1034  | 650 | 204 | 179 | 1 |         |         |       |
| 14  | DO    | 134      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1034  | 650 | 204 | 179 | 1 |         |         |       |
| 14  | FO    | 134      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1034  | 650 | 204 | 179 | 1 |         |         |       |
| 14  | HO    | 134      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1034  | 650 | 204 | 179 | 1 |         |         |       |

- Molecule 15 is a protein called RPL38.

| Mol | Chain | Residues | Atoms |     |    |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|---------|-------|
| 15  | AP    | 66       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 551   | 367 | 93 | 90 | 1 |         |         |       |
| 15  | DP    | 66       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 551   | 367 | 93 | 90 | 1 |         |         |       |
| 15  | FP    | 66       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 551   | 367 | 93 | 90 | 1 |         |         |       |
| 15  | HP    | 66       | Total | C   | N  | O  | S | 0       | 0       | 0     |
|     |       |          | 551   | 367 | 93 | 90 | 1 |         |         |       |

- Molecule 16 is a protein called 60S RIBOSOMAL PROTEIN L36.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 16  | AQ    | 102      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 803   | 506 | 165 | 132 |         |         |       |
| 16  | DQ    | 102      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 803   | 506 | 165 | 132 |         |         |       |
| 16  | FQ    | 102      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 803   | 506 | 165 | 132 |         |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 16  | HQ    | 102      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 803   | 506 | 165 | 132 |         |         |       |

- Molecule 17 is a protein called RPL29.

| Mol | Chain | Residues | Atoms |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---------|---------|-------|
| 17  | AT    | 65       | Total | C   | N   | O  | 0       | 0       | 0     |
|     |       |          | 533   | 324 | 117 | 92 |         |         |       |
| 17  | DT    | 65       | Total | C   | N   | O  | 0       | 0       | 0     |
|     |       |          | 533   | 324 | 117 | 92 |         |         |       |
| 17  | FT    | 65       | Total | C   | N   | O  | 0       | 0       | 0     |
|     |       |          | 533   | 324 | 117 | 92 |         |         |       |
| 17  | HT    | 65       | Total | C   | N   | O  | 0       | 0       | 0     |
|     |       |          | 533   | 324 | 117 | 92 |         |         |       |

- Molecule 18 is a protein called RPL13.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 18  | AU    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1624  | 1015 | 328 | 279 | 2 |         |         |       |
| 18  | DU    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1624  | 1015 | 328 | 279 | 2 |         |         |       |
| 18  | FU    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1624  | 1015 | 328 | 279 | 2 |         |         |       |
| 18  | HU    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1624  | 1015 | 328 | 279 | 2 |         |         |       |

- Molecule 19 is a protein called RPL18A.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 19  | AX    | 188      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1536  | 972 | 287 | 271 | 6 |         |         |       |
| 19  | DX    | 188      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1536  | 972 | 287 | 271 | 6 |         |         |       |
| 19  | FX    | 188      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1536  | 972 | 287 | 271 | 6 |         |         |       |
| 19  | HX    | 188      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1536  | 972 | 287 | 271 | 6 |         |         |       |

- Molecule 20 is a RNA chain called 5.8S RRNA.



| Mol | Chain | Residues | Atoms |      |     |      |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|---------|-------|
| 20  | B2    | 154      | Total | C    | N   | O    | P   | 0       | 0       | 0     |
|     |       |          | 3300  | 1475 | 602 | 1069 | 154 |         |         |       |
| 20  | C2    | 154      | Total | C    | N   | O    | P   | 0       | 0       | 0     |
|     |       |          | 3300  | 1475 | 602 | 1069 | 154 |         |         |       |
| 20  | E2    | 154      | Total | C    | N   | O    | P   | 0       | 0       | 0     |
|     |       |          | 3300  | 1475 | 602 | 1069 | 154 |         |         |       |
| 20  | G2    | 154      | Total | C    | N   | O    | P   | 0       | 0       | 0     |
|     |       |          | 3300  | 1475 | 602 | 1069 | 154 |         |         |       |

- Molecule 21 is a RNA chain called 5S RRNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|---------|-------|
| 21  | B3    | 120      | Total | C    | N   | O   | P   | 0       | 0       | 0     |
|     |       |          | 2566  | 1145 | 463 | 838 | 120 |         |         |       |
| 21  | C3    | 120      | Total | C    | N   | O   | P   | 0       | 0       | 0     |
|     |       |          | 2566  | 1145 | 463 | 838 | 120 |         |         |       |
| 21  | E3    | 120      | Total | C    | N   | O   | P   | 0       | 0       | 0     |
|     |       |          | 2566  | 1145 | 463 | 838 | 120 |         |         |       |
| 21  | G3    | 120      | Total | C    | N   | O   | P   | 0       | 0       | 0     |
|     |       |          | 2566  | 1145 | 463 | 838 | 120 |         |         |       |

- Molecule 22 is a protein called RPL8.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 22  | BA    | 257      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1977  | 1226 | 400 | 343 | 8 |         |         |       |
| 22  | CA    | 257      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1977  | 1226 | 400 | 343 | 8 |         |         |       |
| 22  | EA    | 257      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1977  | 1226 | 400 | 343 | 8 |         |         |       |
| 22  | GA    | 257      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1977  | 1226 | 400 | 343 | 8 |         |         |       |

- Molecule 23 is a protein called RIBOSOMAL PROTEIN L3.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
| 23  | BB    | 386      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 3080  | 1944 | 595 | 530 | 11 |         |         |       |
| 23  | CB    | 386      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 3080  | 1944 | 595 | 530 | 11 |         |         |       |
| 23  | EB    | 386      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 3080  | 1944 | 595 | 530 | 11 |         |         |       |

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| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
| 23  | GB    | 386      | Total | C    | N   | O   | S  | 0       | 0       | 0     |
|     |       |          | 3080  | 1944 | 595 | 530 | 11 |         |         |       |

- Molecule 24 is a protein called RPL4.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 24  | BC    | 409      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 3172  | 1975 | 622 | 571 | 4 |         |         |       |
| 24  | CC    | 409      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 3172  | 1975 | 622 | 571 | 4 |         |         |       |
| 24  | EC    | 409      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 3172  | 1975 | 622 | 571 | 4 |         |         |       |
| 24  | GC    | 409      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 3172  | 1975 | 622 | 571 | 4 |         |         |       |

- Molecule 25 is a protein called 60S RIBOSOMAL PROTEIN L11.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 25  | BD    | 169      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1357  | 851 | 254 | 243 | 9 |         |         |       |
| 25  | CD    | 169      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1357  | 851 | 254 | 243 | 9 |         |         |       |
| 25  | ED    | 169      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1357  | 851 | 254 | 243 | 9 |         |         |       |
| 25  | GD    | 169      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1357  | 851 | 254 | 243 | 9 |         |         |       |

- Molecule 26 is a protein called 60S RIBOSOMAL PROTEIN L9.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 26  | BE    | 186      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1481  | 939 | 272 | 264 | 6 |         |         |       |
| 26  | CE    | 186      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1481  | 939 | 272 | 264 | 6 |         |         |       |
| 26  | EE    | 186      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1481  | 939 | 272 | 264 | 6 |         |         |       |
| 26  | GE    | 186      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1481  | 939 | 272 | 264 | 6 |         |         |       |

- Molecule 27 is a protein called RPL7A.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 27  | BF    | 231      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1860  | 1191 | 341 | 327 | 1 |         |         |       |
| 27  | CF    | 231      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1860  | 1191 | 341 | 327 | 1 |         |         |       |
| 27  | EF    | 231      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1860  | 1191 | 341 | 327 | 1 |         |         |       |
| 27  | GF    | 231      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1860  | 1191 | 341 | 327 | 1 |         |         |       |

- Molecule 28 is a protein called RPLP0.

| Mol | Chain | Residues | Atoms |     |     |     | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|---------|-------|
| 28  | BG    | 123      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 711   | 465 | 123 | 123 |         |         |       |
| 28  | CG    | 123      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 711   | 465 | 123 | 123 |         |         |       |
| 28  | EG    | 123      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 711   | 465 | 123 | 123 |         |         |       |
| 28  | GG    | 123      | Total | C   | N   | O   | 0       | 0       | 0     |
|     |       |          | 711   | 465 | 123 | 123 |         |         |       |

- Molecule 29 is a protein called 60S RIBOSOMAL PROTEIN L10.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 29  | BH    | 201      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1620  | 1027 | 319 | 271 | 3 |         |         |       |
| 29  | CH    | 201      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1620  | 1027 | 319 | 271 | 3 |         |         |       |
| 29  | EH    | 201      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1620  | 1027 | 319 | 271 | 3 |         |         |       |
| 29  | GH    | 201      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1620  | 1027 | 319 | 271 | 3 |         |         |       |

- Molecule 30 is a protein called 60S RIBOSOMAL PROTEIN L13A.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 30  | BI    | 198      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1594  | 1019 | 308 | 263 | 4 |         |         |       |
| 30  | CI    | 198      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1594  | 1019 | 308 | 263 | 4 |         |         |       |
| 30  | EI    | 198      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1594  | 1019 | 308 | 263 | 4 |         |         |       |

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| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 30  | GI    | 198      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1594  | 1019 | 308 | 263 | 4 |         |         |       |

- Molecule 31 is a protein called RPL23.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 31  | BJ    | 138      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1022  | 643 | 193 | 179 | 7 |         |         |       |
| 31  | CJ    | 138      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1022  | 643 | 193 | 179 | 7 |         |         |       |
| 31  | EJ    | 138      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1022  | 643 | 193 | 179 | 7 |         |         |       |
| 31  | GJ    | 138      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1022  | 643 | 193 | 179 | 7 |         |         |       |

- Molecule 32 is a protein called 60S RIBOSOMAL PROTEIN L27A.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 32  | BK    | 148      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1161  | 739 | 234 | 182 | 6 |         |         |       |
| 32  | CK    | 148      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1161  | 739 | 234 | 182 | 6 |         |         |       |
| 32  | EK    | 148      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1161  | 739 | 234 | 182 | 6 |         |         |       |
| 32  | GK    | 148      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1161  | 739 | 234 | 182 | 6 |         |         |       |

- Molecule 33 is a protein called RIBOSOMAL PROTEIN L15.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 33  | BL    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1691  | 1061 | 351 | 275 | 4 |         |         |       |
| 33  | CL    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1691  | 1061 | 351 | 275 | 4 |         |         |       |
| 33  | EL    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1691  | 1061 | 351 | 275 | 4 |         |         |       |
| 33  | GL    | 203      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1691  | 1061 | 351 | 275 | 4 |         |         |       |

- Molecule 34 is a protein called 60S RIBOSOMAL PROTEIN L5.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 34  | BM    | 298      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 2409  | 1530 | 445 | 430 | 4 |         |         |       |
| 34  | CM    | 300      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 2424  | 1541 | 447 | 432 | 4 |         |         |       |
| 34  | EM    | 300      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 2424  | 1541 | 447 | 432 | 4 |         |         |       |
| 34  | GM    | 300      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 2424  | 1541 | 447 | 432 | 4 |         |         |       |

- Molecule 35 is a protein called RPL18.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 35  | BN    | 180      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1441  | 909 | 280 | 249 | 3 |         |         |       |
| 35  | CN    | 180      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1441  | 909 | 280 | 249 | 3 |         |         |       |
| 35  | EN    | 180      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1441  | 909 | 280 | 249 | 3 |         |         |       |
| 35  | GN    | 180      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1441  | 909 | 280 | 249 | 3 |         |         |       |

- Molecule 36 is a protein called RPL19.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 36  | BO    | 184      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1491  | 924 | 311 | 251 | 5 |         |         |       |
| 36  | EO    | 146      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1192  | 745 | 249 | 193 | 5 |         |         |       |
| 36  | GO    | 153      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1234  | 772 | 256 | 201 | 5 |         |         |       |

- Molecule 37 is a protein called 60S RIBOSOMAL PROTEIN L21.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 37  | BP    | 156      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1272  | 804 | 251 | 215 | 2 |         |         |       |
| 37  | CP    | 156      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1272  | 804 | 251 | 215 | 2 |         |         |       |
| 37  | EP    | 156      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1272  | 804 | 251 | 215 | 2 |         |         |       |
| 37  | GP    | 156      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1272  | 804 | 251 | 215 | 2 |         |         |       |

- Molecule 38 is a protein called RPL17.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 38  | BQ    | 157      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1239  | 771 | 249 | 216 | 3 |         |         |       |
| 38  | CQ    | 157      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1239  | 771 | 249 | 216 | 3 |         |         |       |
| 38  | EQ    | 157      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1239  | 771 | 249 | 216 | 3 |         |         |       |
| 38  | GQ    | 157      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1239  | 771 | 249 | 216 | 3 |         |         |       |

- Molecule 39 is a protein called RPL23A.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 39  | BR    | 121      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 965   | 613 | 176 | 173 | 3 |         |         |       |
| 39  | CR    | 121      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 965   | 613 | 176 | 173 | 3 |         |         |       |
| 39  | ER    | 121      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 965   | 613 | 176 | 173 | 3 |         |         |       |
| 39  | GR    | 121      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 965   | 613 | 176 | 173 | 3 |         |         |       |

- Molecule 40 is a protein called RPL26.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 40  | BS    | 126      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1013  | 638 | 200 | 173 | 2 |         |         |       |
| 40  | CS    | 126      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1013  | 638 | 200 | 173 | 2 |         |         |       |
| 40  | ES    | 126      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1013  | 638 | 200 | 173 | 2 |         |         |       |
| 40  | GS    | 126      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1013  | 638 | 200 | 173 | 2 |         |         |       |

- Molecule 41 is a protein called RPL24.

| Mol | Chain | Residues | Atoms |     |     |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 41  | BT    | 61       | Total | C   | N   | O  | S | 0       | 0       | 0     |
|     |       |          | 510   | 331 | 100 | 76 | 3 |         |         |       |
| 41  | CT    | 61       | Total | C   | N   | O  | S | 0       | 0       | 0     |
|     |       |          | 510   | 331 | 100 | 76 | 3 |         |         |       |
| 41  | ET    | 61       | Total | C   | N   | O  | S | 0       | 0       | 0     |
|     |       |          | 510   | 331 | 100 | 76 | 3 |         |         |       |

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| Mol | Chain | Residues | Atoms |     |     |    |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|---------|-------|
| 41  | GT    | 61       | Total | C   | N   | O  | S | 0       | 0       | 0     |
|     |       |          | 510   | 331 | 100 | 76 | 3 |         |         |       |

- Molecule 42 is a protein called RPL35.

| Mol | Chain | Residues | Atoms |     |     |     |  | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|--|---------|---------|-------|
| 42  | BU    | 123      | Total | C   | N   | O   |  | 0       | 0       | 0     |
|     |       |          | 990   | 629 | 196 | 165 |  |         |         |       |
| 42  | CU    | 123      | Total | C   | N   | O   |  | 0       | 0       | 0     |
|     |       |          | 990   | 629 | 196 | 165 |  |         |         |       |
| 42  | EU    | 123      | Total | C   | N   | O   |  | 0       | 0       | 0     |
|     |       |          | 990   | 629 | 196 | 165 |  |         |         |       |
| 42  | GU    | 123      | Total | C   | N   | O   |  | 0       | 0       | 0     |
|     |       |          | 990   | 629 | 196 | 165 |  |         |         |       |

- Molecule 43 is a protein called 60S RIBOSOMAL PROTEIN L7.

| Mol | Chain | Residues | Atoms |      |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|---------|-------|
| 43  | BV    | 234      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1910  | 1221 | 362 | 323 | 4 |         |         |       |
| 43  | CV    | 234      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1910  | 1221 | 362 | 323 | 4 |         |         |       |
| 43  | EV    | 234      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1910  | 1221 | 362 | 323 | 4 |         |         |       |
| 43  | GV    | 234      | Total | C    | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1910  | 1221 | 362 | 323 | 4 |         |         |       |

- Molecule 44 is a protein called 60S RIBOSOMAL PROTEIN L31.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 44  | BW    | 110      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 901   | 563 | 171 | 164 | 3 |         |         |       |
| 44  | CW    | 110      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 901   | 563 | 171 | 164 | 3 |         |         |       |
| 44  | EW    | 110      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 901   | 563 | 171 | 164 | 3 |         |         |       |
| 44  | GW    | 110      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 901   | 563 | 171 | 164 | 3 |         |         |       |

- Molecule 45 is a protein called 60S RIBOSOMAL PROTEIN L32.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 45  | BX    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1012  | 639 | 205 | 165 | 3 |         |         |       |
| 45  | CX    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1012  | 639 | 205 | 165 | 3 |         |         |       |
| 45  | EX    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1012  | 639 | 205 | 165 | 3 |         |         |       |
| 45  | GX    | 125      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1012  | 639 | 205 | 165 | 3 |         |         |       |

- Molecule 46 is a protein called RPL37A.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 46  | BY    | 102      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 786   | 502 | 148 | 131 | 5 |         |         |       |
| 46  | CY    | 102      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 786   | 502 | 148 | 131 | 5 |         |         |       |
| 46  | EY    | 102      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 786   | 502 | 148 | 131 | 5 |         |         |       |
| 46  | GY    | 102      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 786   | 502 | 148 | 131 | 5 |         |         |       |

- Molecule 47 is a protein called RPL19.

| Mol | Chain | Residues | Atoms |     |     |     |   | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 47  | CO    | 175      | Total | C   | N   | O   | S | 0       | 0       | 0     |
|     |       |          | 1366  | 861 | 278 | 222 | 5 |         |         |       |

- Molecule 48 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

| Mol | Chain | Residues | Atoms |     | ZeroOcc | AltConf |
|-----|-------|----------|-------|-----|---------|---------|
| 48  | A1    | 200      | Total | Mg  | 0       | 0       |
|     |       |          | 200   | 200 |         |         |
| 48  | AA    | 2        | Total | Mg  | 0       | 0       |
|     |       |          | 2     | 2   |         |         |
| 48  | AK    | 1        | Total | Mg  | 0       | 0       |
|     |       |          | 1     | 1   |         |         |
| 48  | B2    | 8        | Total | Mg  | 0       | 0       |
|     |       |          | 8     | 8   |         |         |
| 48  | B3    | 3        | Total | Mg  | 0       | 0       |
|     |       |          | 3     | 3   |         |         |
| 48  | BJ    | 1        | Total | Mg  | 0       | 0       |
|     |       |          | 1     | 1   |         |         |

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| Mol | Chain | Residues | Atoms        |           | ZeroOcc | AltConf |
|-----|-------|----------|--------------|-----------|---------|---------|
| 48  | BL    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | BN    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | BP    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | BQ    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | BW    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | C2    | 6        | Total<br>6   | Mg<br>6   | 0       | 0       |
| 48  | C3    | 7        | Total<br>7   | Mg<br>7   | 0       | 0       |
| 48  | CD    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | CJ    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | CL    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | CN    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | CQ    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | CW    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | CY    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | D1    | 232      | Total<br>232 | Mg<br>232 | 0       | 0       |
| 48  | DA    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | DJ    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | DK    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | DQ    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | E2    | 7        | Total<br>7   | Mg<br>7   | 0       | 0       |
| 48  | E3    | 6        | Total<br>6   | Mg<br>6   | 0       | 0       |

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| Mol | Chain | Residues | Atoms        |           | ZeroOcc | AltConf |
|-----|-------|----------|--------------|-----------|---------|---------|
| 48  | EJ    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | EL    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | EN    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | EQ    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | EW    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | F1    | 184      | Total<br>184 | Mg<br>184 | 0       | 0       |
| 48  | FA    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | FK    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | FT    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | G2    | 6        | Total<br>6   | Mg<br>6   | 0       | 0       |
| 48  | G3    | 5        | Total<br>5   | Mg<br>5   | 0       | 0       |
| 48  | GA    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | GJ    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | GL    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | GN    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | GO    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | GP    | 2        | Total<br>2   | Mg<br>2   | 0       | 0       |
| 48  | GQ    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | GW    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |
| 48  | H1    | 155      | Total<br>155 | Mg<br>155 | 0       | 0       |
| 48  | HT    | 1        | Total<br>1   | Mg<br>1   | 0       | 0       |

- Molecule 49 is ZINC ION (CCD ID: ZN) (formula: Zn).

| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 49  | AA    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | AC    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | AK    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | AL    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | BY    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | CY    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | DA    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | DC    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | DK    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | DL    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | EY    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | FA    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | FC    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | FK    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | FL    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | GY    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | HA    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | HC    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | HK    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 49  | HL    | 1        | Total | Zn | 0       | 0       |
|     |       |          | 1     | 1  |         |         |

- Molecule 50 is water.

| Mol | Chain | Residues | Atoms         |           | ZeroOcc | AltConf |
|-----|-------|----------|---------------|-----------|---------|---------|
| 50  | A1    | 1134     | Total<br>1134 | O<br>1134 | 0       | 0       |
| 50  | AA    | 8        | Total<br>8    | O<br>8    | 0       | 0       |
| 50  | AB    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | AH    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | AK    | 3        | Total<br>3    | O<br>3    | 0       | 0       |
| 50  | AM    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | AP    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | AT    | 3        | Total<br>3    | O<br>3    | 0       | 0       |
| 50  | AU    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | B2    | 54       | Total<br>54   | O<br>54   | 0       | 0       |
| 50  | B3    | 23       | Total<br>23   | O<br>23   | 0       | 0       |
| 50  | BA    | 12       | Total<br>12   | O<br>12   | 0       | 0       |
| 50  | BB    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | BC    | 7        | Total<br>7    | O<br>7    | 0       | 0       |
| 50  | BE    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | BI    | 3        | Total<br>3    | O<br>3    | 0       | 0       |
| 50  | BJ    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | BK    | 3        | Total<br>3    | O<br>3    | 0       | 0       |
| 50  | BL    | 8        | Total<br>8    | O<br>8    | 0       | 0       |
| 50  | BM    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | BN    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | BO    | 2        | Total<br>2    | O<br>2    | 0       | 0       |

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| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 50  | BP    | 5        | Total | O  | 0       | 0       |
|     |       |          | 5     | 5  |         |         |
| 50  | BQ    | 7        | Total | O  | 0       | 0       |
|     |       |          | 7     | 7  |         |         |
| 50  | BU    | 1        | Total | O  | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 50  | BV    | 7        | Total | O  | 0       | 0       |
|     |       |          | 7     | 7  |         |         |
| 50  | BW    | 5        | Total | O  | 0       | 0       |
|     |       |          | 5     | 5  |         |         |
| 50  | BX    | 6        | Total | O  | 0       | 0       |
|     |       |          | 6     | 6  |         |         |
| 50  | BY    | 5        | Total | O  | 0       | 0       |
|     |       |          | 5     | 5  |         |         |
| 50  | C2    | 46       | Total | O  | 0       | 0       |
|     |       |          | 46    | 46 |         |         |
| 50  | C3    | 39       | Total | O  | 0       | 0       |
|     |       |          | 39    | 39 |         |         |
| 50  | CA    | 11       | Total | O  | 0       | 0       |
|     |       |          | 11    | 11 |         |         |
| 50  | CB    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | CC    | 7        | Total | O  | 0       | 0       |
|     |       |          | 7     | 7  |         |         |
| 50  | CD    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | CE    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 50  | CI    | 1        | Total | O  | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 50  | CJ    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | CK    | 3        | Total | O  | 0       | 0       |
|     |       |          | 3     | 3  |         |         |
| 50  | CL    | 12       | Total | O  | 0       | 0       |
|     |       |          | 12    | 12 |         |         |
| 50  | CM    | 6        | Total | O  | 0       | 0       |
|     |       |          | 6     | 6  |         |         |
| 50  | CN    | 7        | Total | O  | 0       | 0       |
|     |       |          | 7     | 7  |         |         |
| 50  | CO    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |

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| Mol | Chain | Residues | Atoms         |           | ZeroOcc | AltConf |
|-----|-------|----------|---------------|-----------|---------|---------|
| 50  | CP    | 6        | Total<br>6    | O<br>6    | 0       | 0       |
| 50  | CQ    | 7        | Total<br>7    | O<br>7    | 0       | 0       |
| 50  | CU    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | CV    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | CW    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | CX    | 6        | Total<br>6    | O<br>6    | 0       | 0       |
| 50  | CY    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | D1    | 1341     | Total<br>1341 | O<br>1341 | 0       | 0       |
| 50  | DA    | 10       | Total<br>10   | O<br>10   | 0       | 0       |
| 50  | DB    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | DE    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | DJ    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | DK    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | DP    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | DQ    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | DT    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | DU    | 3        | Total<br>3    | O<br>3    | 0       | 0       |
| 50  | DX    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | E2    | 44       | Total<br>44   | O<br>44   | 0       | 0       |
| 50  | E3    | 34       | Total<br>34   | O<br>34   | 0       | 0       |
| 50  | EA    | 4        | Total<br>4    | O<br>4    | 0       | 0       |

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| Mol | Chain | Residues | Atoms         |           | ZeroOcc | AltConf |
|-----|-------|----------|---------------|-----------|---------|---------|
| 50  | EB    | 3        | Total<br>3    | O<br>3    | 0       | 0       |
| 50  | EC    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | EE    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | EJ    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | EK    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | EL    | 10       | Total<br>10   | O<br>10   | 0       | 0       |
| 50  | EM    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | EN    | 7        | Total<br>7    | O<br>7    | 0       | 0       |
| 50  | EP    | 6        | Total<br>6    | O<br>6    | 0       | 0       |
| 50  | EQ    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | EV    | 6        | Total<br>6    | O<br>6    | 0       | 0       |
| 50  | EW    | 7        | Total<br>7    | O<br>7    | 0       | 0       |
| 50  | EX    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | EY    | 5        | Total<br>5    | O<br>5    | 0       | 0       |
| 50  | F1    | 1076     | Total<br>1076 | O<br>1076 | 0       | 0       |
| 50  | FA    | 7        | Total<br>7    | O<br>7    | 0       | 0       |
| 50  | FB    | 4        | Total<br>4    | O<br>4    | 0       | 0       |
| 50  | FE    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | FH    | 1        | Total<br>1    | O<br>1    | 0       | 0       |
| 50  | FK    | 2        | Total<br>2    | O<br>2    | 0       | 0       |
| 50  | FL    | 3        | Total<br>3    | O<br>3    | 0       | 0       |

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| Mol | Chain | Residues | Atoms |    | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 50  | FP    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 50  | FT    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | FU    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | G2    | 34       | Total | O  | 0       | 0       |
|     |       |          | 34    | 34 |         |         |
| 50  | G3    | 26       | Total | O  | 0       | 0       |
|     |       |          | 26    | 26 |         |         |
| 50  | GA    | 6        | Total | O  | 0       | 0       |
|     |       |          | 6     | 6  |         |         |
| 50  | GB    | 3        | Total | O  | 0       | 0       |
|     |       |          | 3     | 3  |         |         |
| 50  | GC    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 50  | GE    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 50  | GI    | 1        | Total | O  | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 50  | GJ    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | GK    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 50  | GL    | 5        | Total | O  | 0       | 0       |
|     |       |          | 5     | 5  |         |         |
| 50  | GM    | 1        | Total | O  | 0       | 0       |
|     |       |          | 1     | 1  |         |         |
| 50  | GN    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 50  | GO    | 2        | Total | O  | 0       | 0       |
|     |       |          | 2     | 2  |         |         |
| 50  | GP    | 5        | Total | O  | 0       | 0       |
|     |       |          | 5     | 5  |         |         |
| 50  | GQ    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | GV    | 3        | Total | O  | 0       | 0       |
|     |       |          | 3     | 3  |         |         |
| 50  | GW    | 4        | Total | O  | 0       | 0       |
|     |       |          | 4     | 4  |         |         |
| 50  | GX    | 5        | Total | O  | 0       | 0       |
|     |       |          | 5     | 5  |         |         |

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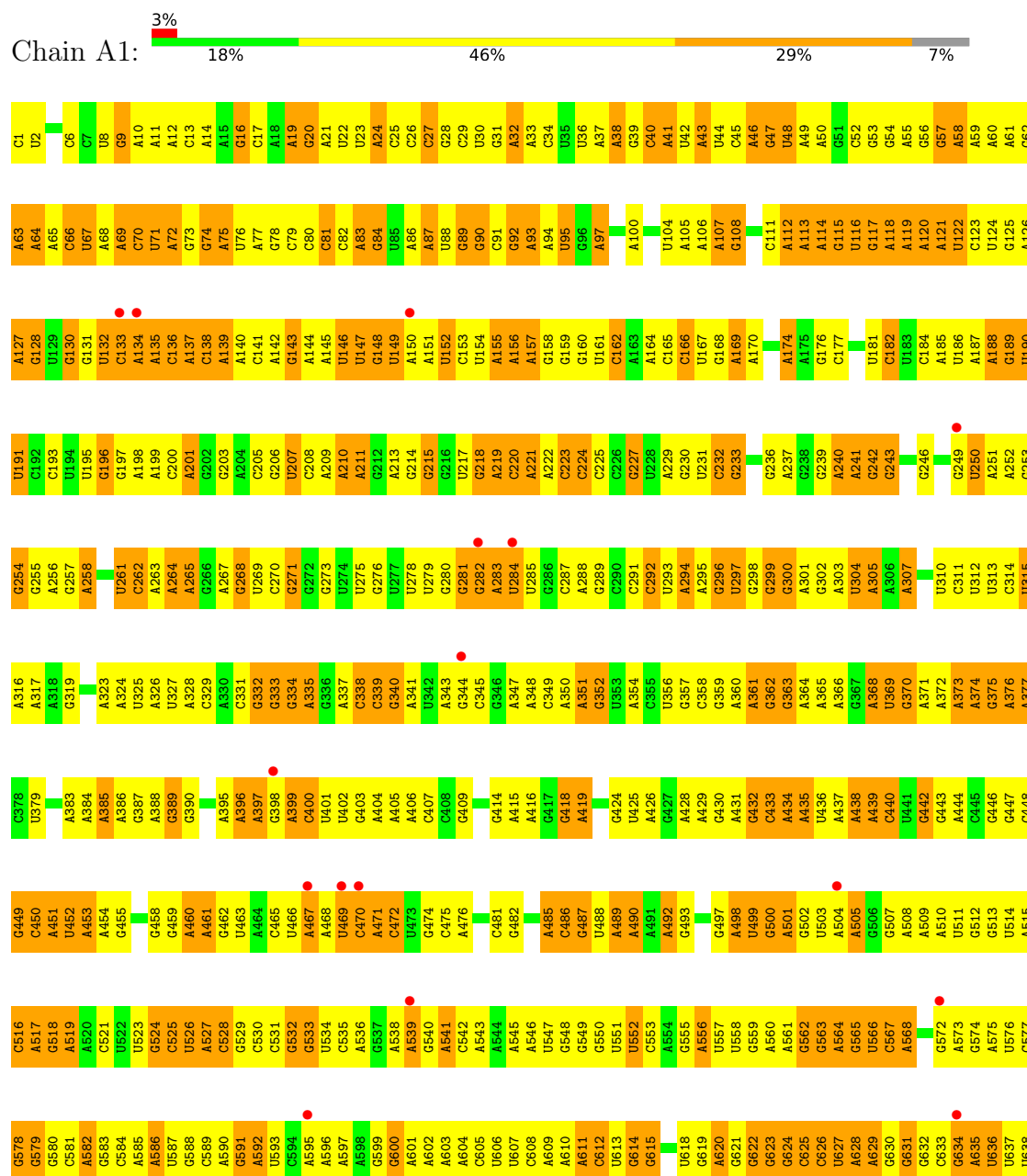
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| Mol | Chain | Residues | Atoms        |          | ZeroOcc | AltConf |
|-----|-------|----------|--------------|----------|---------|---------|
| 50  | GY    | 1        | Total<br>1   | O<br>1   | 0       | 0       |
| 50  | H1    | 924      | Total<br>924 | O<br>924 | 0       | 0       |
| 50  | HA    | 4        | Total<br>4   | O<br>4   | 0       | 0       |
| 50  | HB    | 4        | Total<br>4   | O<br>4   | 0       | 0       |
| 50  | HJ    | 2        | Total<br>2   | O<br>2   | 0       | 0       |
| 50  | HK    | 2        | Total<br>2   | O<br>2   | 0       | 0       |
| 50  | HP    | 1        | Total<br>1   | O<br>1   | 0       | 0       |
| 50  | HT    | 5        | Total<br>5   | O<br>5   | 0       | 0       |
| 50  | HU    | 2        | Total<br>2   | O<br>2   | 0       | 0       |

### 3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

#### • Molecule 1: 26S RRNA

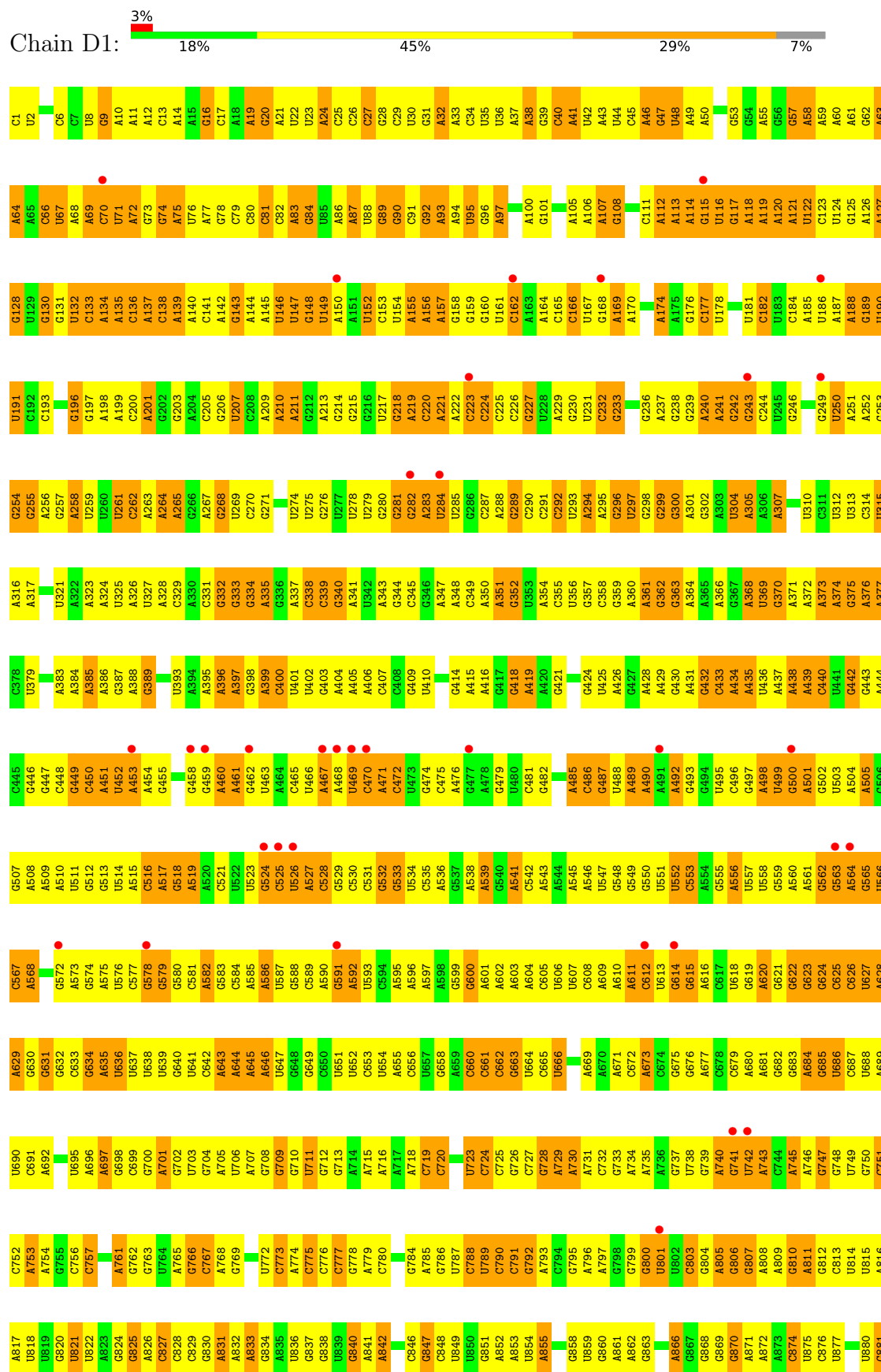


|       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| U1468 | U1469 | G1470 | U1471 | A1472 | G1473 | U1474 | U1475 | G1476 | G1477 | A1478 | A1479 | A1480 | U1481 | A1482 | U1483 | U1488 | U1489 | G1490 | A1491 | U1492 | G1493 | A1494 | U1495 | U1496 | U1497 | U1498 | G1499 | A1500 | U1503 | C1504 | U1505 | G1506 | A1507 | U1508 | U1509 | U1510 | G1511 | U1512 | A1513 | U1516 | U1517 | G1518 | U1519 | U1520 | U1521 | U1524 | U1525 | U1526 | G1527 | G1528 | U1531 | A1532 | G1533 | U1534 | U1535 |       |       |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G1401 | G1402 | G1403 | G1404 | U1405 | G1406 | A1407 | U1408 | C1409 | G1410 | U1411 | U1412 | G1413 | C1414 | C1415 | U1416 | U1417 | U1418 | A1423 | U1424 | U1425 | G1426 | A1427 | G1428 | C1429 | U1430 | U1431 | U1432 | A1433 | G1434 | C1435 | C1436 | U1437 | A1438 | U1439 | U1440 | U1441 | U1442 | U1445 | U1446 | A1447 | U1448 | U1449 | U1453 | U1454 | A1455 | U1456 | U1457 | C1458 | U1459 | G1460 | A1461 | U1462 | U1463 | U1464 | U1465 | U1466 | U1467 |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| G1340 | C1341 | G1342 | G1343 | U1344 | A1345 | U1348 | U1349 | G1350 | U1351 | U1352 | G1353 | C1354 | C1355 | U1356 | U1357 | U1358 | U1359 | A1360 | A1361 | U1362 | C1363 | A1364 | U1365 | U1366 | U1367 | U1368 | U1369 | A1370 | G1371 | C1372 | G1373 | C1374 | U1375 | U1376 | U1377 | U1378 | G1379 | C1380 | G1381 | A1382 | U1383 | U1384 | U1385 | U1386 | U1387 | U1388 | U1389 | U1390 | U1391 | G1392 | U1393 | U1394 | U1395 | U1396 | U1397 | U1398 | A1399 | U1400 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| A     | G     | A     | U     | U     | C     | C     | G     | C     | U     | A     | G     | G     | A     | G     | U     | G     | G     | U     | G     | U     | C     | A     | C     | U     | C     | U     | C     | A     | C1306 | C1307 | U1308 | G1309 | C1310 | C1311 | G1312 | A1313 | C1314 | U1315 | C1316 | A1317 | A1318 | C1319 | U1320 | G     | U     | C     | U     | A     | U1330 | G1333 | G1334 | A1335 | U1336 | U1337 | U1338 | C1339 | U1340 |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| C1216 | A1217 | U1218 | U1219 | U1220 | G1221 | U1222 | U1223 | U1224 | G1225 | U1226 | A1227 | C1228 | U1229 | A1230 | U1231 | A1232 | G1233 | U1234 | U1235 | U1236 | U1237 | U1238 | C1239 | U1240 | U1241 | U1242 | U1243 | U1244 | U1245 | A1246 | U1247 | G1248 | U1249 | U1250 | C1251 | U1252 | G1253 | C1254 | U1255 | U1256 | G1257 | A     | C     | G     | U     | U     | U     | U     | U     | U     | U     | U     | U     | U     | U     | U     | U     | U     | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U | U |  |

|       |       |       |       |       |       |   |       |       |       |       |       |       |       |
|-------|-------|-------|-------|-------|-------|---|-------|-------|-------|-------|-------|-------|-------|
| U2383 | A2321 | A2257 | C2190 | C2125 | G     | G | C1941 | A1865 | G1797 | C1783 | G1664 | U1802 | A1586 |
| C2384 | U2322 | C2258 | C2191 | G2126 | U     | C | C1942 | A1866 | U1798 | A1734 | G1665 | U1603 | U1537 |
| A2385 | U2323 | U2259 | C2192 | A2127 | U     | U | G1943 | C1867 | C1799 | U1735 | A1666 | C1604 | U1538 |
| G2386 | C2320 | C2260 | A2193 | C2128 | U     | U | C1943 | C1868 | A1800 | G1736 | G1667 | G1605 | G1539 |
| C2387 | C2325 | C2261 | G2194 | U2129 | C     | G | U1944 | G1869 | G1801 | A1737 | A1668 | U1606 | U1540 |
| G2388 | C2326 | C2262 | U2195 | G2130 | G     | U | A1945 | C1870 | U1802 | A1738 | G1669 | U1607 | U1541 |
| C2389 | A2327 | U2263 | G2196 | U2131 | G     | U | A1946 | A1871 | U1803 | A1739 | C1542 | G1608 | C1542 |
| G2390 | C2328 | U2264 | C2197 | U2132 | C     | U | C1947 | U1872 | G1804 | U1740 | A1543 | U1609 | A1543 |
| C2391 | U2329 | A2265 | U2198 | U2133 | C     | G | U1948 | U1873 | C1805 | U1741 | C1674 | C1610 | U1544 |
| A2392 | G2330 | A2266 | C2199 | A2134 | G     | U | U1949 | A1874 | G1806 | G1742 | G1675 | G1546 | G1546 |
| C2393 | U2331 | C2267 | U2200 | C2135 | U     | U | C1950 | G1875 | C1807 | G1743 | G1676 | G1547 | G1547 |
| A2394 | C2332 | G2268 | G2201 | U2136 | C     | A | G1951 | A1808 | A1808 | A1744 | G1677 | G1615 | U1548 |
| G2395 | C2333 | U2269 | A2202 | G2137 | U     | U | G1952 | C1809 | C1809 | U1745 | A1680 | G1616 | U1549 |
| A2396 | C2334 | A2270 | A2203 | A2138 | U     | U | G1953 | C1880 | G1810 | U1746 | A1681 | A1550 | A1550 |
| C2397 | U2335 | C2271 | U2204 | A2139 | U     | U | U1954 | A1882 | U1811 | A1747 | G1682 | G1617 | A1551 |
| G2398 | A2336 | C2272 | U2205 | A2140 | A     | A | U1955 | G1883 | G1812 | U1748 | U1618 | A1552 | U1552 |
| A2399 | C2337 | C2273 | A2206 | A2141 | U     | G | A1956 | G1884 | U1813 | A1749 | U1619 | U1620 | G1553 |
| G2400 | U2339 | A2274 | A2207 | A2142 | C     | C | G1958 | U1885 | A1814 | A1751 | G1684 | U1621 | G1554 |
| U2403 | A2340 | C2275 | A2208 | A2143 | A     | A | G1963 | C1890 | A1816 | G1752 | A1685 | G1621 | G1554 |
| G2404 | U2341 | A2276 | G2210 | A2144 | A     | A | G1964 | A1817 | A1817 | A1753 | A1686 | A1822 | A1561 |
| U2405 | C2342 | U2277 | G2211 | G2145 | U     | U | C1965 | C1818 | C1818 | A1755 | U1691 | U1625 | G1562 |
| U2406 | A2343 | C2278 | G2212 | C2147 | U     | C | G1966 | U1895 | C1819 | A1756 | G1692 | U1626 | A1563 |
| G2407 | U2344 | C2279 | A2213 | A2148 | U     | A | U1967 | C1896 | U1820 | A1757 | G1693 | A1627 | C1564 |
| A2408 | C2345 | C2280 | G2215 | U2149 | A     | U | C1967 | U1897 | U1821 | U1758 | C1694 | A1628 | A1565 |
| G2409 | U2346 | U2281 | G2216 | U2150 | C     | C | G1971 | C1901 | G1822 | C1759 | A1695 | U1629 | U1566 |
| C2410 | A2347 | C2282 | A2217 | G2153 | G     | G | U1972 | C1902 | A1823 | G1760 | C1696 | U1630 | A1567 |
| U2411 | G2348 | U2283 | A2218 | A2154 | A     | A | A1973 | C1903 | A1824 | U1761 | U1697 | U1631 | U1570 |
| G2412 | C2349 | C2284 | U2219 | C2155 | U     | U | U1974 | U1904 | A1825 | A1766 | G1698 | U1632 | U1571 |
| C2413 | A2351 | C2285 | U2220 | G2156 | C     | U | C     | A1905 | C1828 | U1767 | G1699 | C1633 | A1572 |
| A2414 | C2352 | C2286 | C2222 | C2157 | A     | A | G     | A1906 | G1832 | G1768 | A1700 | G1634 | A1573 |
| C2415 | G2353 | U2289 | A2223 | C2158 | A     | A | G     | A1907 | G1833 | U1769 | U1635 | U1635 | A1574 |
| U2416 | C2354 | A2290 | G2224 | C2159 | A     | A | G     | A1908 | G1834 | A1770 | C1636 | A1637 | U1575 |
| G2417 | U2355 | C2291 | C2225 | A2162 | C2097 | C | G     | A1909 | U1839 | G1772 | G1704 | C1638 | C1576 |
| U2418 | A2356 | U2292 | A2226 | A2163 | U2098 | U | U     | A1910 | U1840 | G1773 | C1639 | U1577 | C1577 |
| A2419 | C2357 | U2293 | G2227 | C2164 | C2099 | U | U     | G1913 | U1841 | C1774 | C1640 | U1578 | U1578 |
| G2420 | A2358 | A2294 | G2228 | A2165 | A2101 | G | A     | A1917 | A1842 | A1775 | U1641 | U1579 | U1579 |
| U2421 | C2359 | C2295 | G2229 | A2166 | A2102 | C | A     | U1918 | U1843 | A1776 | G1642 | G1580 | G1580 |
| C2422 | U2360 | A2298 | G2235 | G2167 | C2103 | G | A     | A1919 | U1844 | A1777 | G1643 | A1581 | A1581 |
| U2423 | G2361 | C2299 | A2237 | U2168 | C2104 | A | A     | U1920 | U1845 | G1778 | C1645 | A1583 | A1583 |
| A2424 | A2362 | C2300 | A2238 | C2169 | G2105 | A | G     | A1921 | U1846 | C1779 | G1646 | U1584 | U1584 |
| A2425 | A2363 | C2301 | C2239 | C2170 | U2106 | C | C     | G1922 | A1847 | G1781 | U1647 | A1585 | A1585 |
| C2426 | G2364 | C2302 | G2240 | A2171 | A2107 | A | U     | G1923 | C1848 | U1782 | G1648 | C1586 | C1586 |
| U2429 | U2365 | C2303 | C2241 | G2172 | G2108 | U | U     | A1924 | G1849 | C1783 | U1649 | A1587 | A1587 |
| G2430 | A2366 | U2304 | G2242 | A2173 | C2110 | G | G     | C1784 | U1852 | A1785 | U1650 | G1588 | G1588 |
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| U2436 | U2372 | G2311 | A2247 | U2181 | A2115 | U | U     | C     | G1857 | A     | C1656 | A1595 | A1595 |
| G2437 | U2375 | A2312 | G2248 | G2182 | A2116 | G | G     | C     | U1858 | A     | G1657 | U1596 | U1596 |
| U2438 | A2376 | C2313 | U2249 | U2183 | G2117 | C | U     | C     | U1859 | A     | U1727 | U1597 | U1597 |
| G2439 | C2377 | U2314 | A2250 | U2184 | G2118 | A | U     | C     | U1861 | A     | U1728 | C1598 | C1598 |
| C2440 | A2378 | C2252 | A2251 | U2185 | U2120 | G | U     | C     | C1862 | A     | U1729 | G1599 | G1599 |
| U2440 | U2379 | U2253 | U2254 | U2186 | A2121 | G | C     | C     | C1863 | A     | G1730 | U1600 | U1600 |
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| U     | U2318 | U2256 | U2256 | U2188 | A2123 | U | A     | A     | U1865 | A     | G1732 | U1601 | U1601 |
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|       |       |       |       |       |       |       |       |       |       |       |       |   |
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| G3303 | U3167 | C3107 | A3042 | A2975 | A2914 | U2842 | G2775 | U2705 | C2640 | U2574 | G2507 | G |
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|       | C3215 | A3152 | G3091 | C3023 | G2960 | C2899 | A2825 | A2624 | U2559 |       |       | C |
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|       | U3222 | A3156 | A3095 | A3028 | A2964 | U2902 | U2830 | U2763 | U2563 |       |       | A |
|       | G3223 | G3157 | U3096 | A3029 | G2965 | U2903 | U2831 | A2631 | A2564 |       |       | C |
|       | U3224 | C3158 | G3097 | A3030 | U2966 | U2904 | U2832 | A2632 | A2565 |       |       | C |
|       | U3225 | A3159 | U3098 | U3031 | U2967 | G2906 | A2833 | A2633 | C2566 |       |       | C |
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|       | A3227 | A3161 | U3100 | A3033 | U2969 | U2908 | C2837 | C2635 | G2568 |       |       | C |
|       | U3228 | A3162 | G3101 | G3034 | A2970 | U2909 | U2838 | A2636 | A2569 |       |       | C |
|       | A3163 | A3102 | A3102 | A3035 | C2971 | G2910 | U2771 | U2701 | U2570 |       |       | C |
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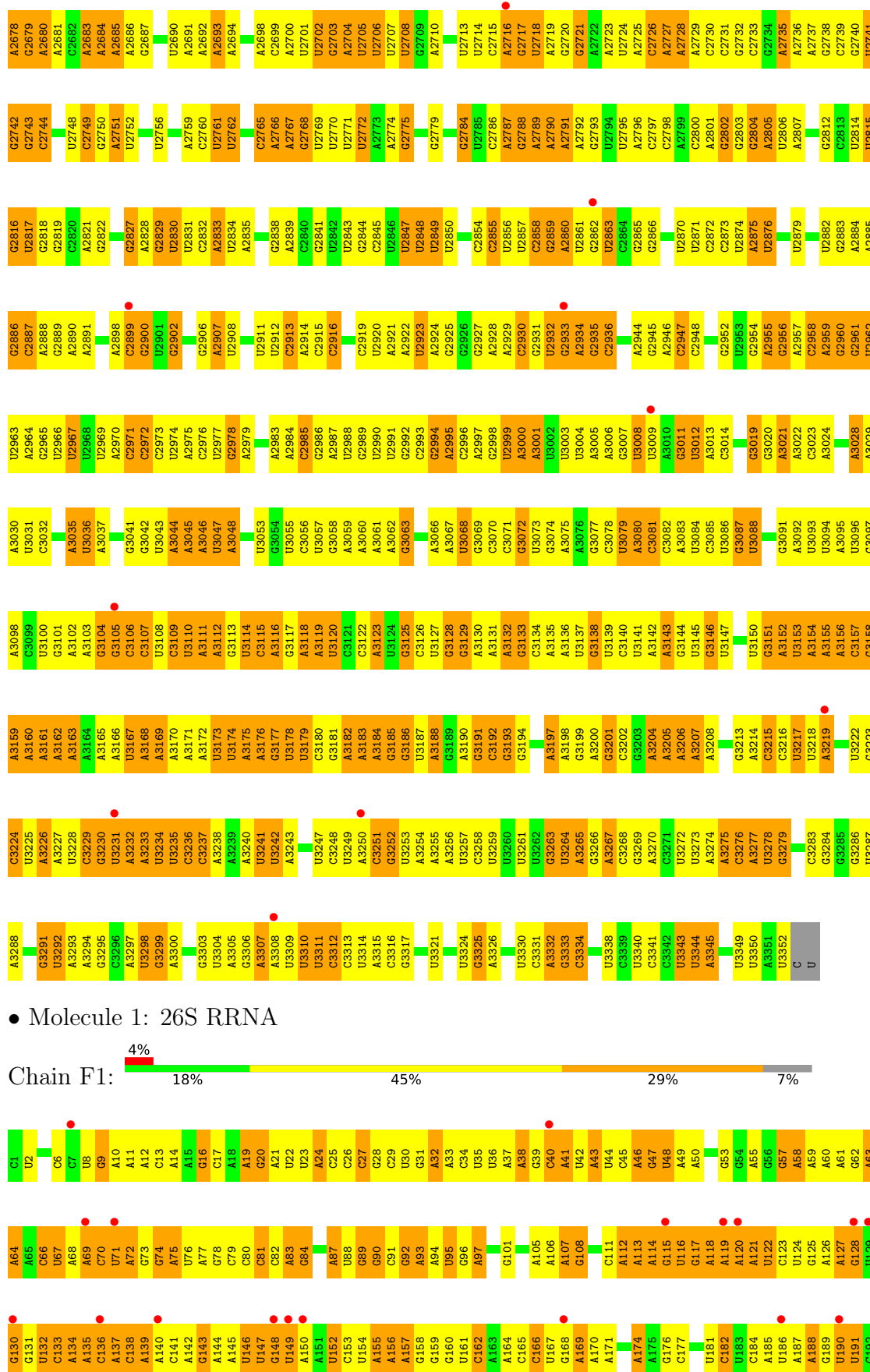
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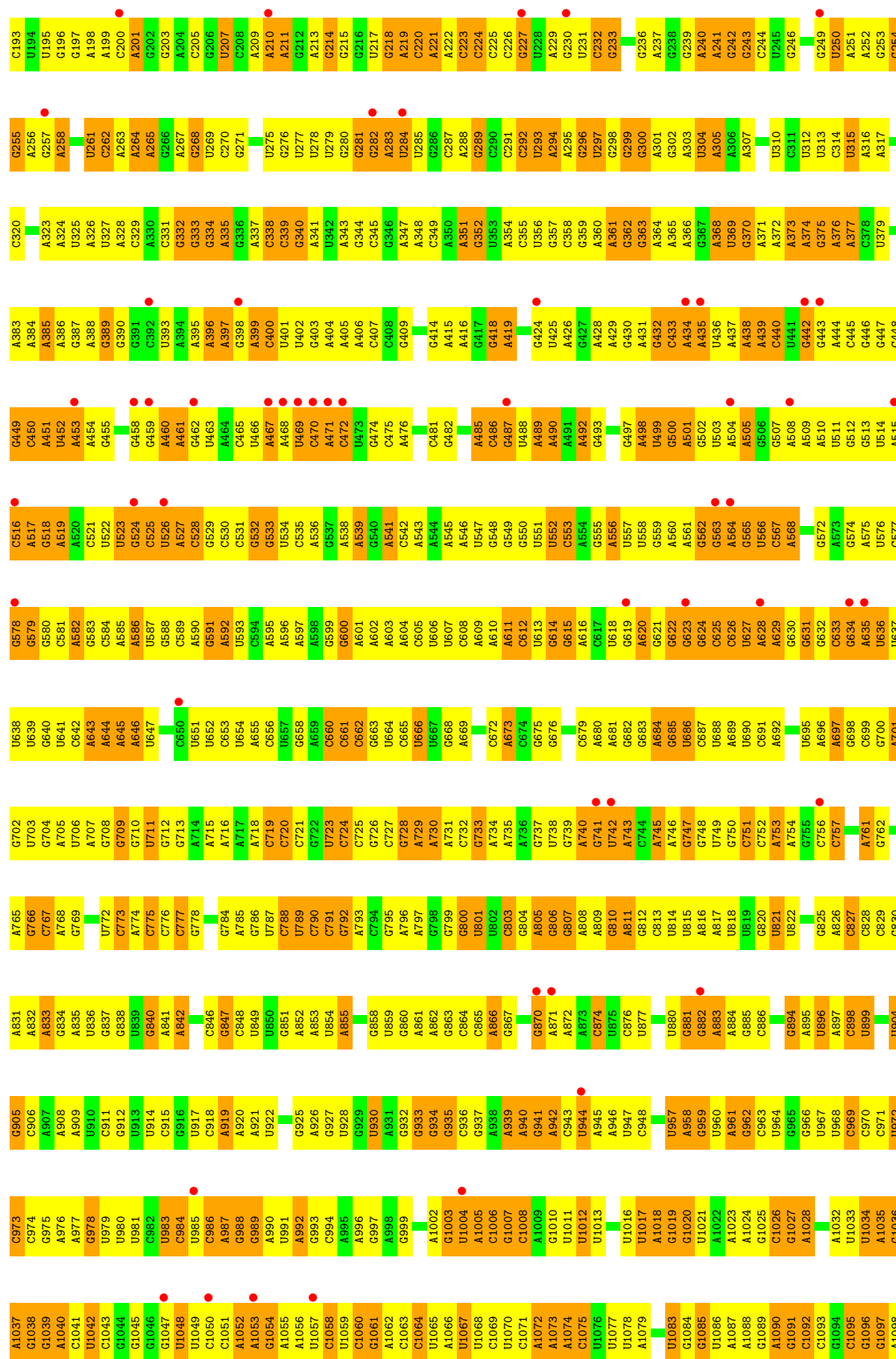


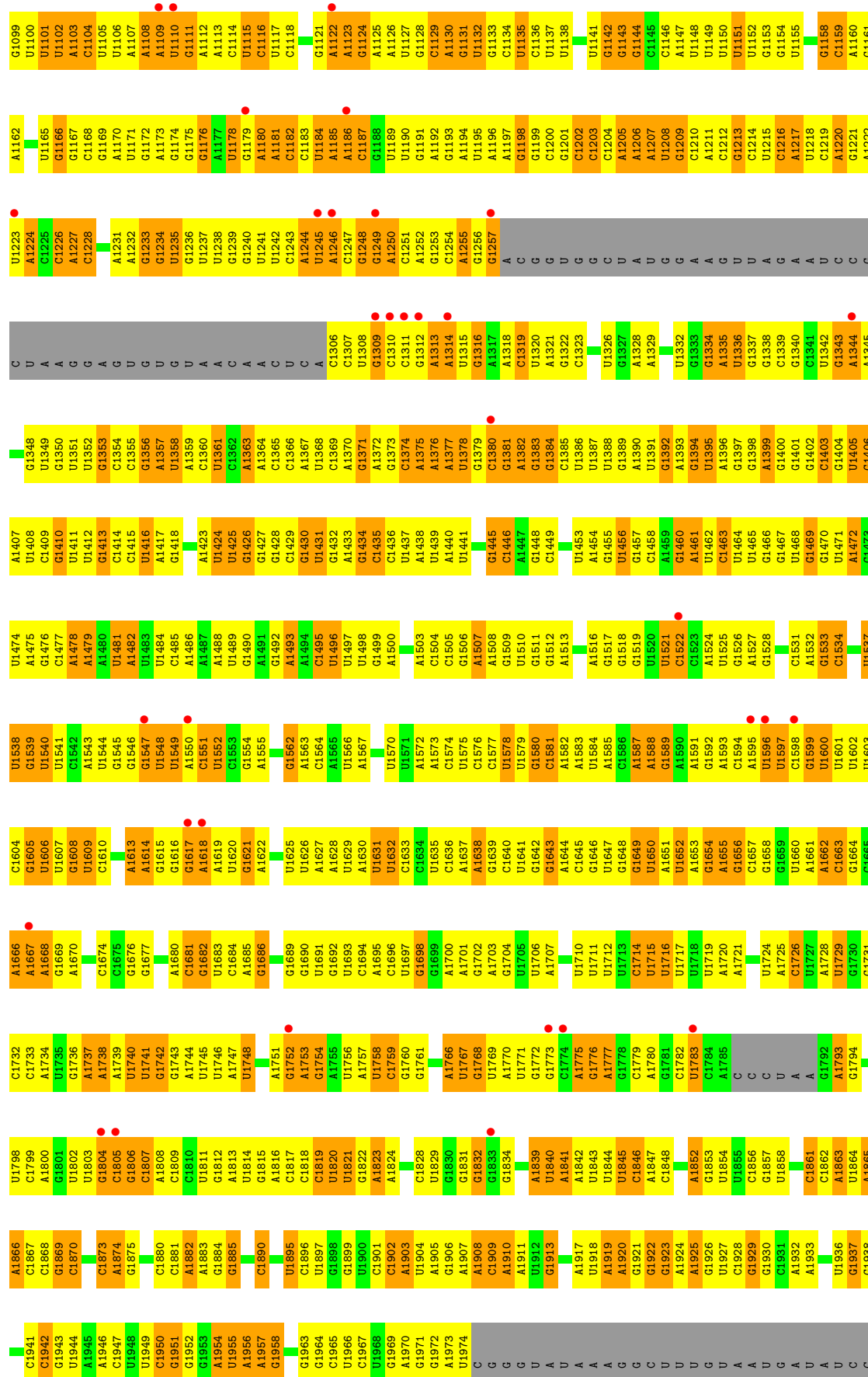
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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
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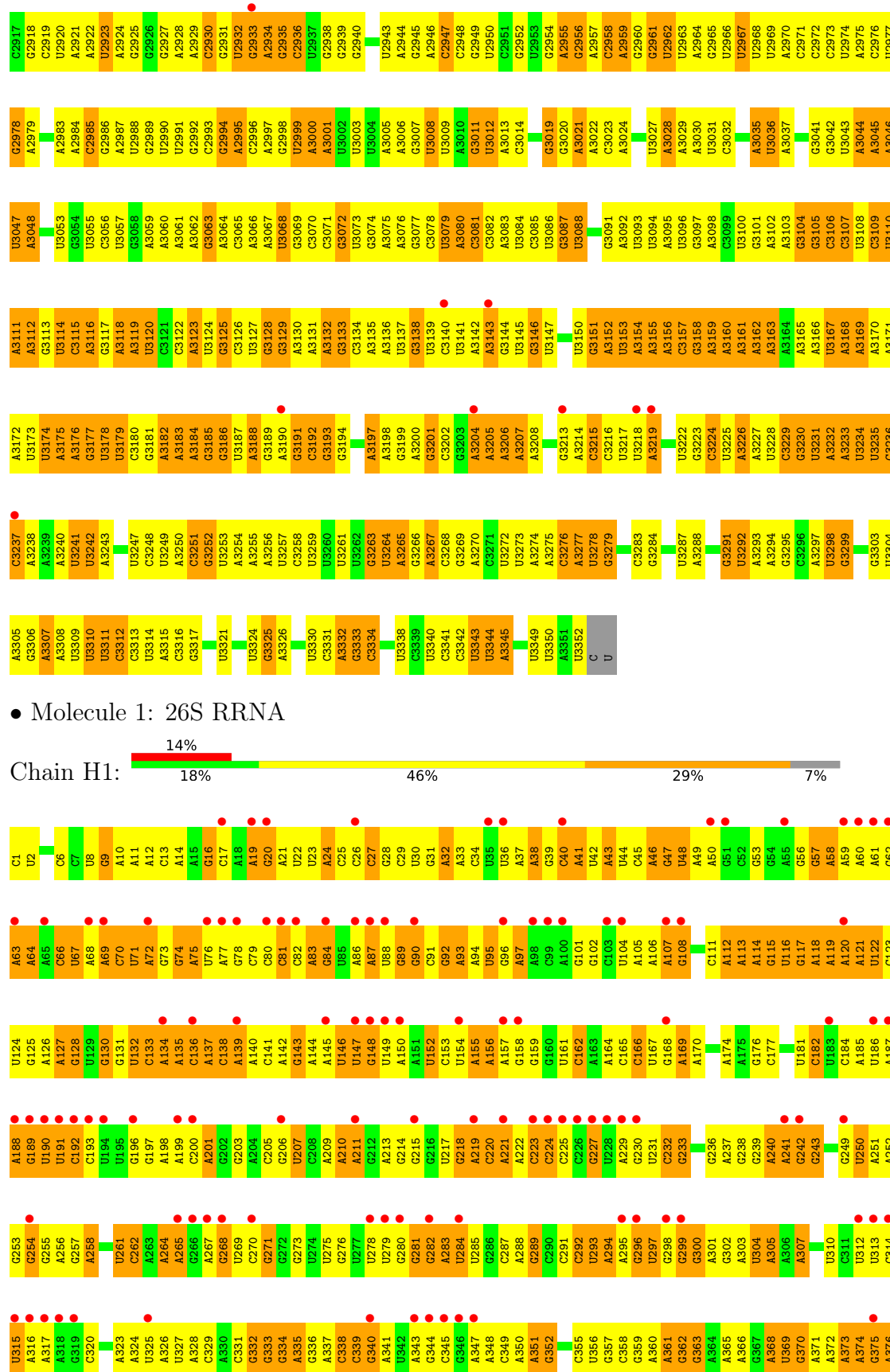










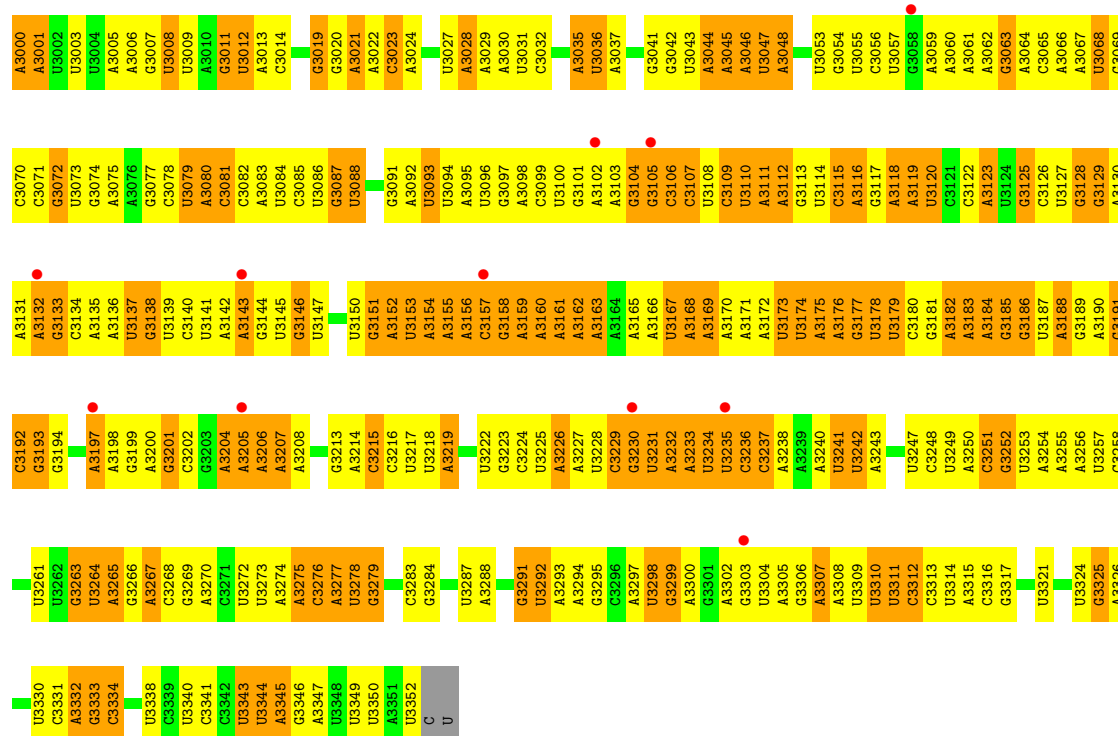


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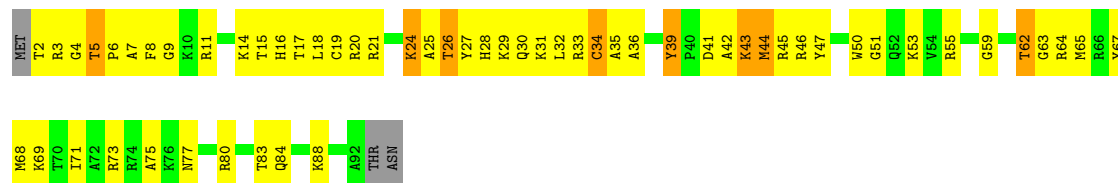
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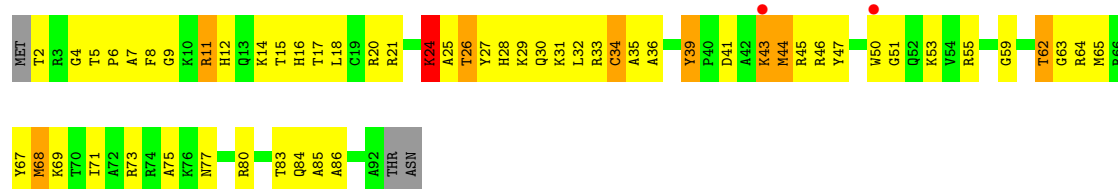
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Chain AA: 35% 53% 9%



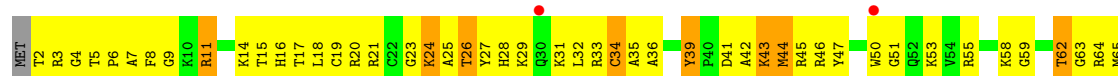
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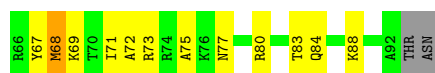
Chain DA: 2% 36% 51% 9%



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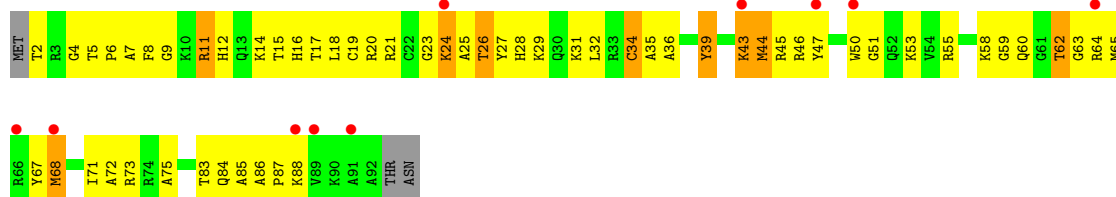
Chain FA: 2% 33% 54% 10%





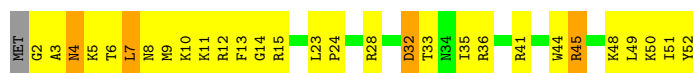
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Chain HA: 11% 35% 52% 10%



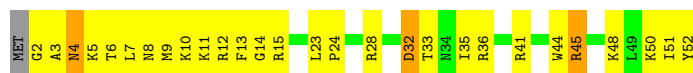
• Molecule 3: RPL39

Chain AB: 42% 48% 8%



• Molecule 3: RPL39

Chain DB: 44% 48% 6%



• Molecule 3: RPL39

Chain FB: 2% 42% 48% 8%



• Molecule 3: RPL39

Chain HB: 2% 40% 50% 8%



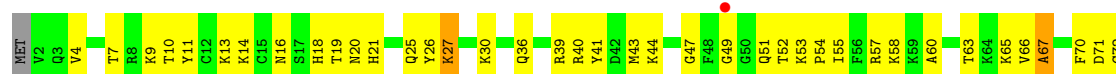
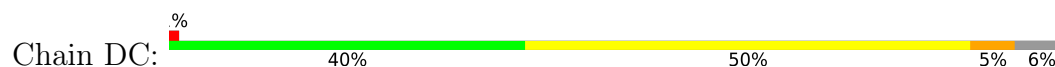
• Molecule 4: 60S RIBOSOMAL PROTEIN L36A

Chain AC: % 39% 51% 5% 6%

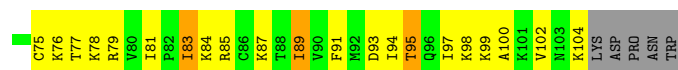
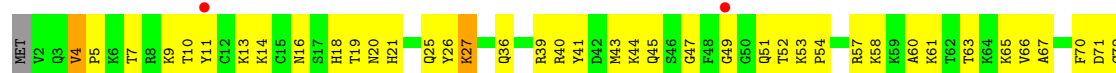




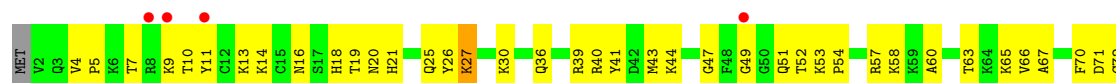
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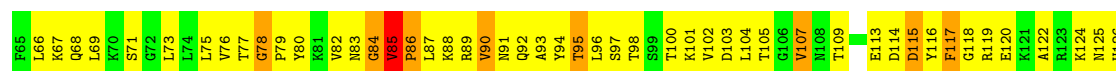
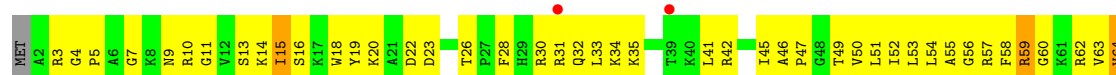
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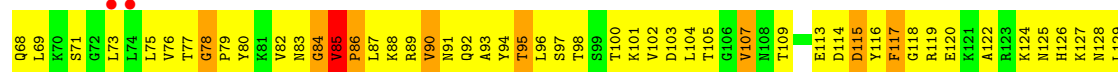
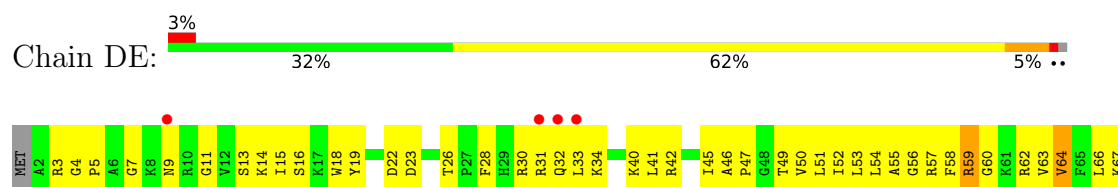
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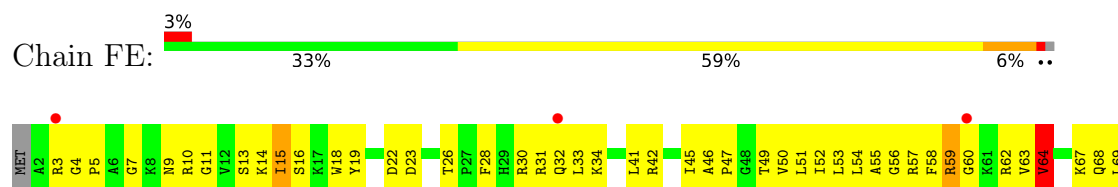
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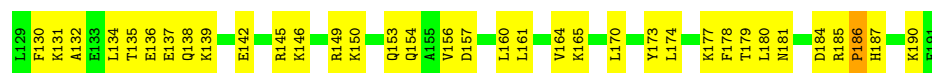
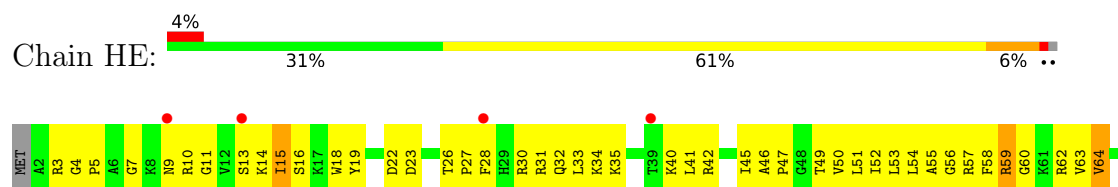
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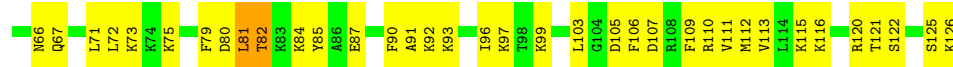
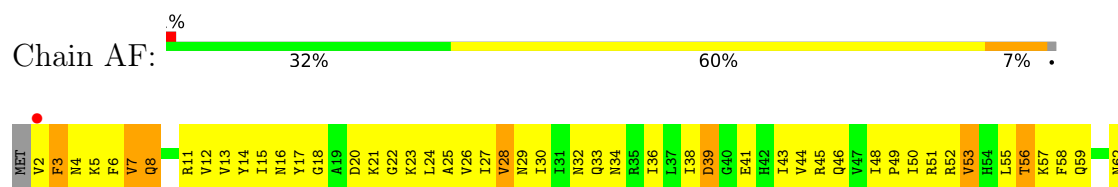
• Molecule 5: RPL6



• Molecule 5: RPL6



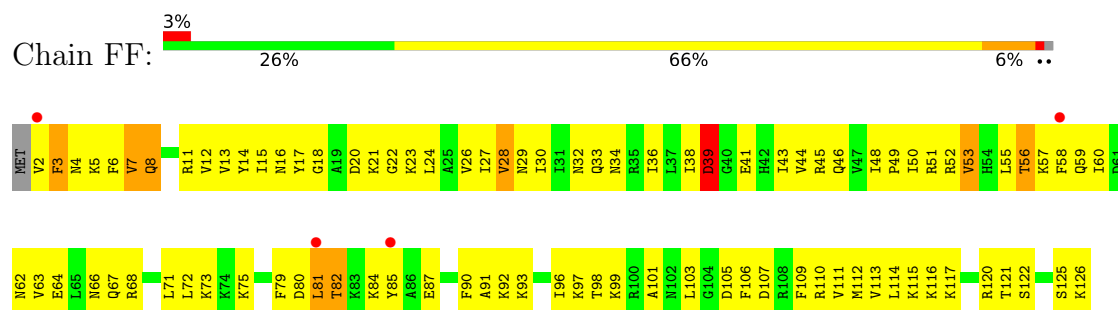
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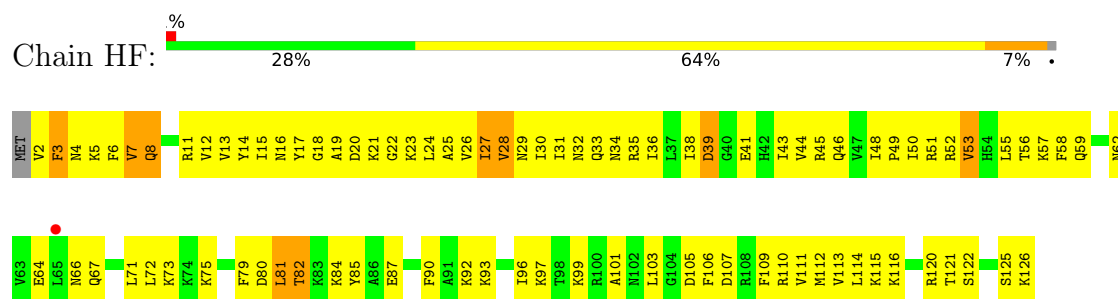
- Molecule 6: RPL14



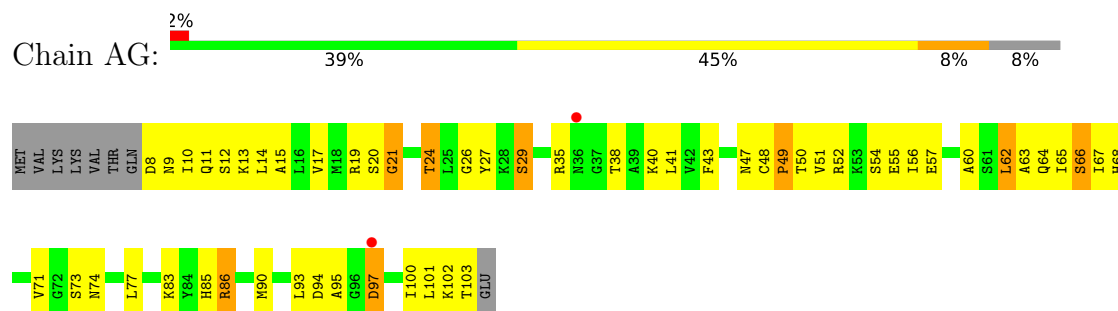
- Molecule 6: RPL14



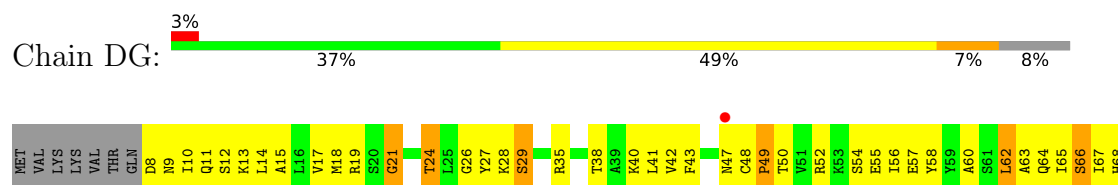
- Molecule 6: RPL14

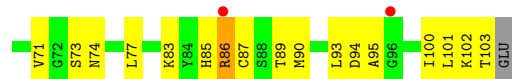


- Molecule 7: RPL30

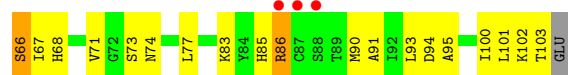
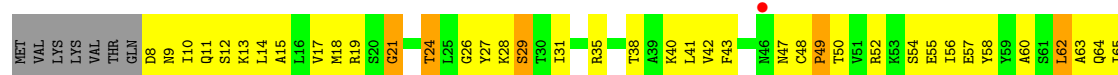


- Molecule 7: RPL30

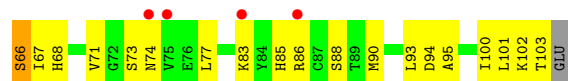
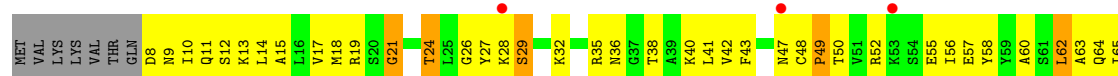




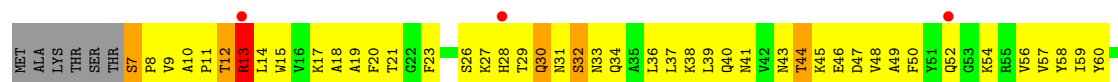
• Molecule 7: RPL30



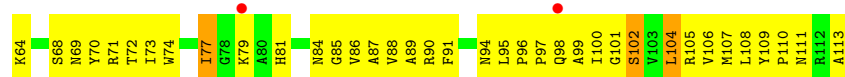
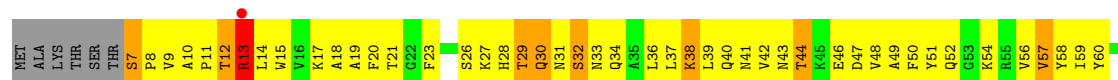
• Molecule 7: RPL30



• Molecule 8: RPL35A

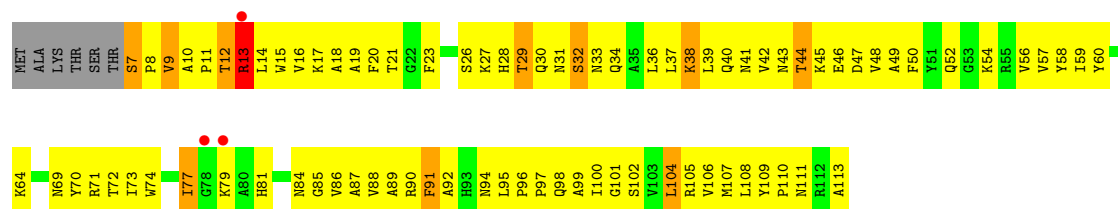


• Molecule 8: RPL35A

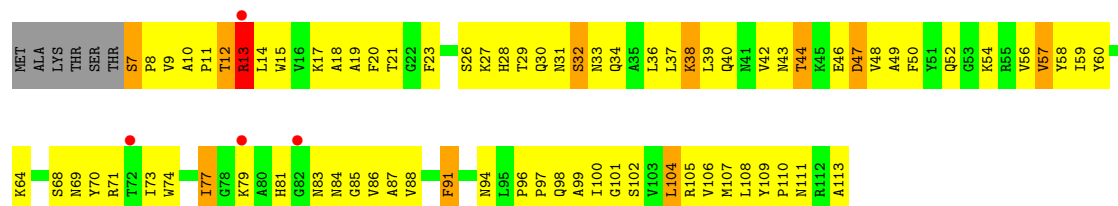


• Molecule 8: RPL35A

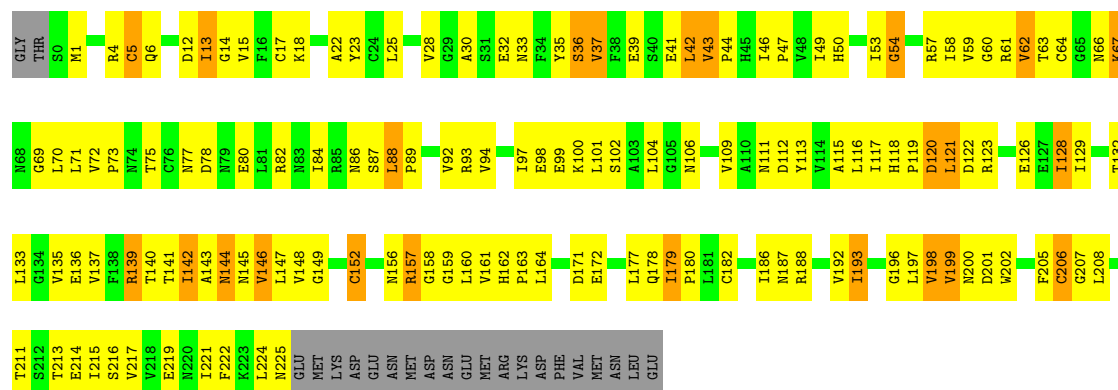




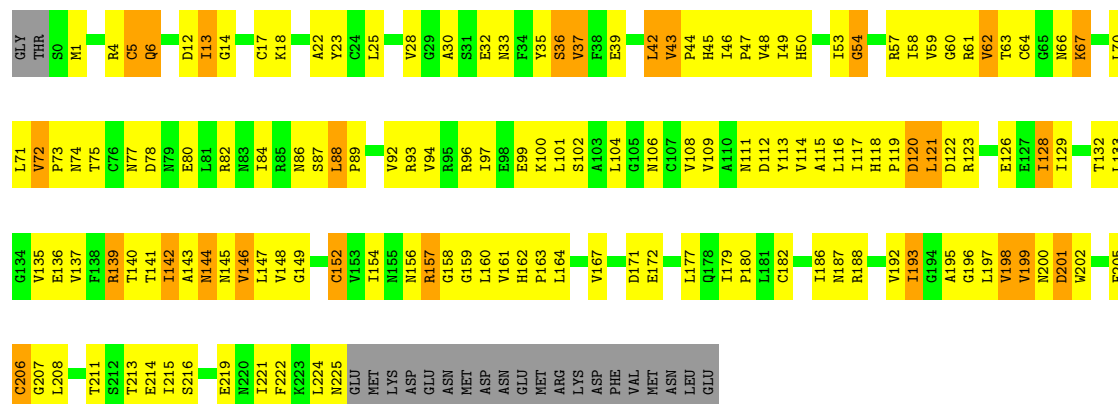
• Molecule 8: RPL35A



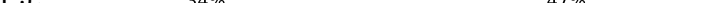
• Molecule 9: TRANSLATION INITIATION FACTOR EIF-6, PUTATIVE FAMILY PROTEIN

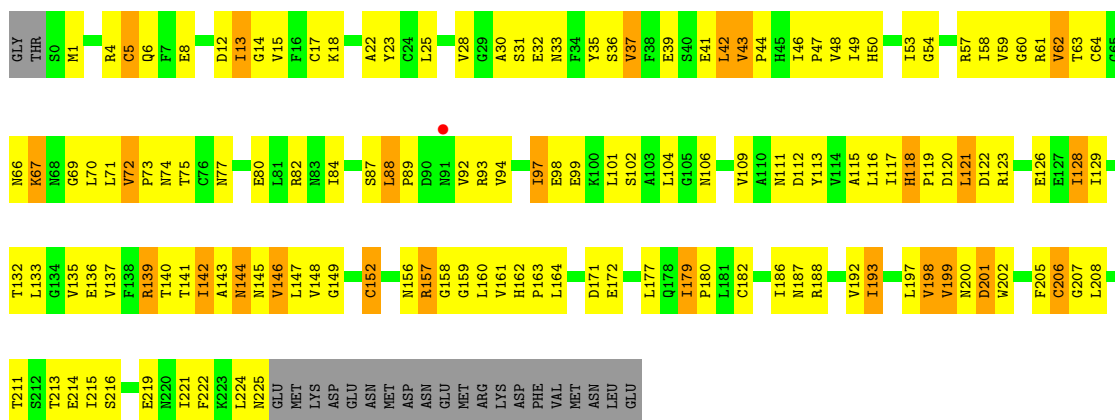


• Molecule 9: TRANSLATION INITIATION FACTOR EIF-6, PUTATIVE FAMILY PROTEIN



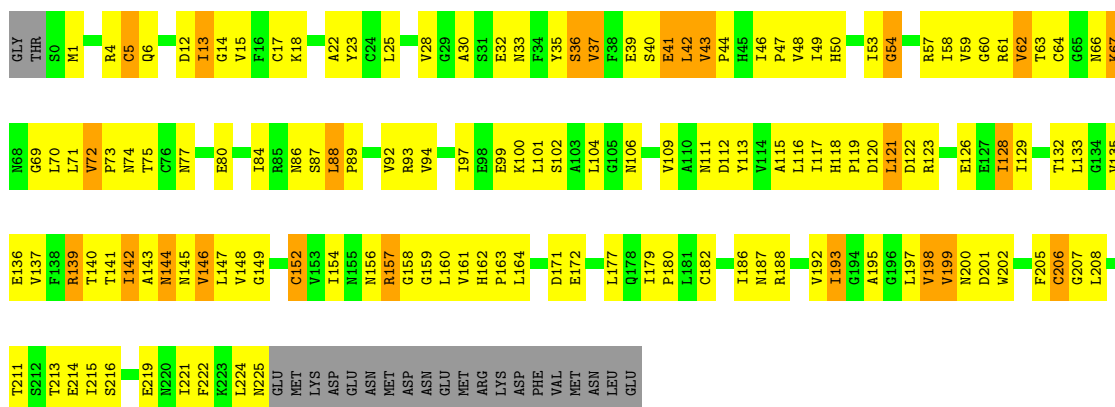
● Molecule 9: TRANSLATION INITIATION FACTOR EIF-6, PUTATIVE FAMILY PROTEIN

Chain FJ:  34% 47% 10% 9%

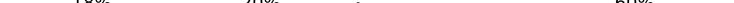


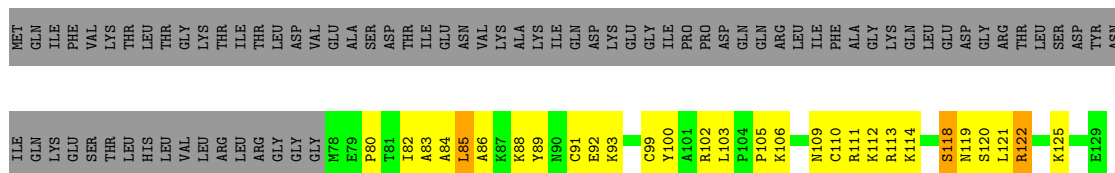
● Molecule 9: TRANSLATION INITIATION FACTOR EIF-6, PUTATIVE FAMILY PROTEIN

Chain HJ:  34% 48% 10% 9%

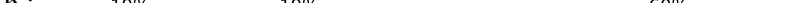


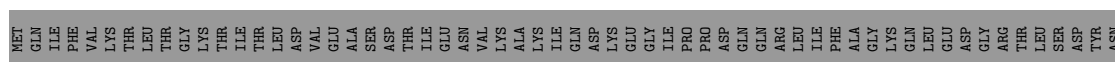
- Molecule 10: UBIQUITIN-60S RIBOSOMAL PROTEIN L40

Chain AK:  18% 20% 60%



- Molecule 10: UBIQUITIN-60S RIBOSOMAL PROTEIN L40

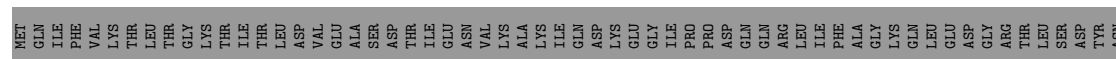
Chain DK: 



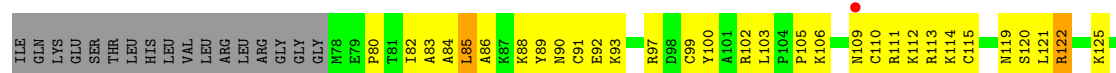
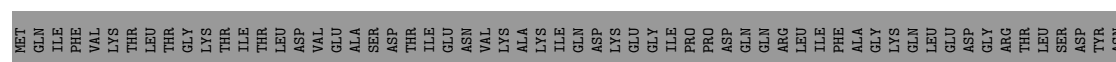




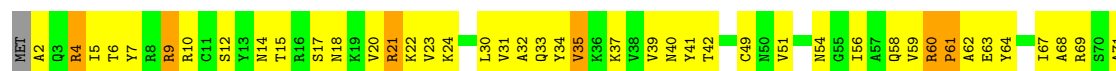
• Molecule 10: UBIQUITIN-60S RIBOSOMAL PROTEIN L40



• Molecule 10: UBIQUITIN-60S RIBOSOMAL PROTEIN L40



• Molecule 11: RPL34

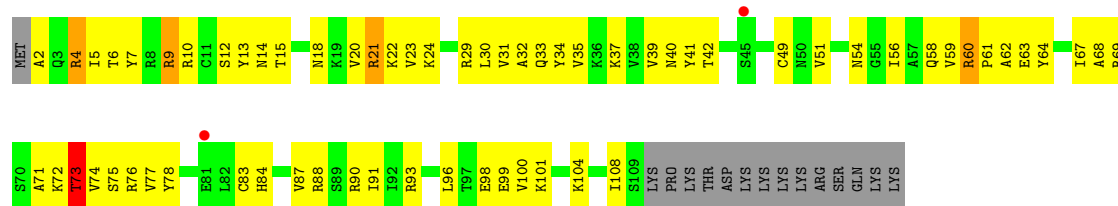


• Molecule 11: RPL34

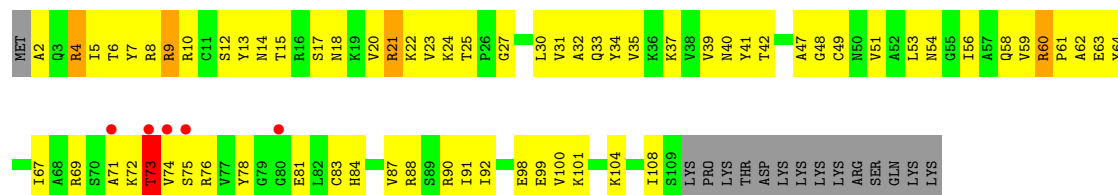


• Molecule 11: RPL34

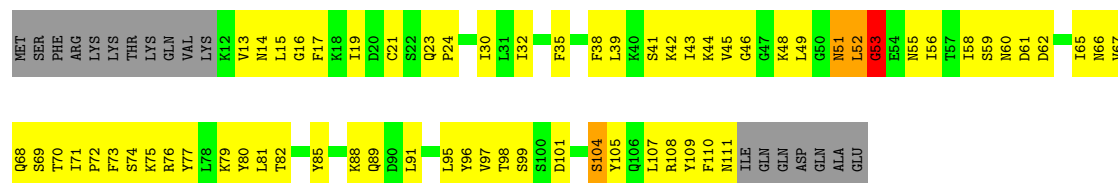




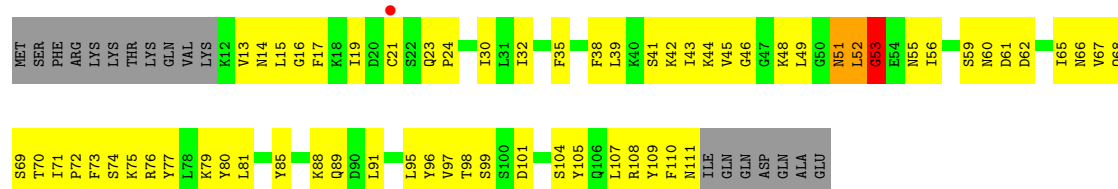
• Molecule 11: RPL34



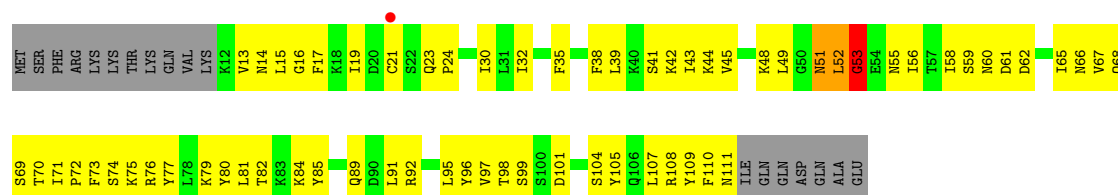
• Molecule 12: RIBOSOMAL PROTEIN L22



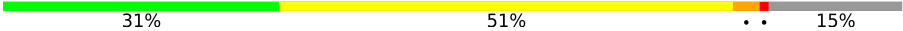
• Molecule 12: RIBOSOMAL PROTEIN L22

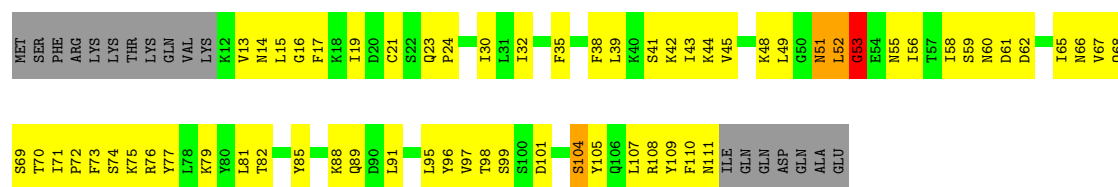


• Molecule 12: RIBOSOMAL PROTEIN L22



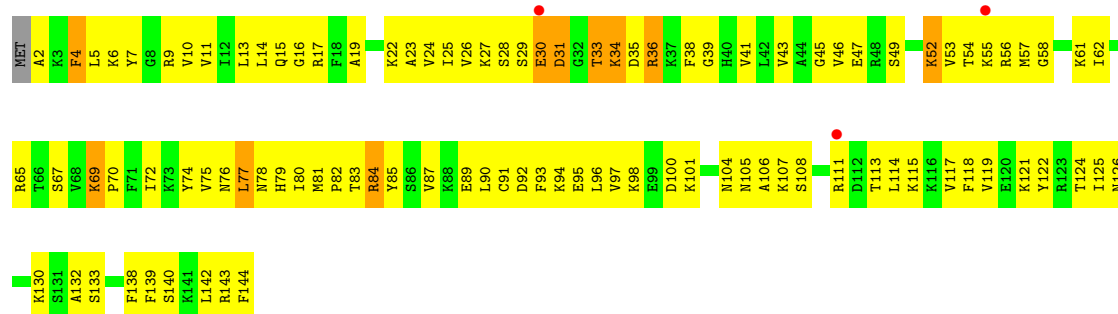
• Molecule 12: RIBOSOMAL PROTEIN L22

Chain HM: 



• Molecule 13: RPL27

Chain AN: 



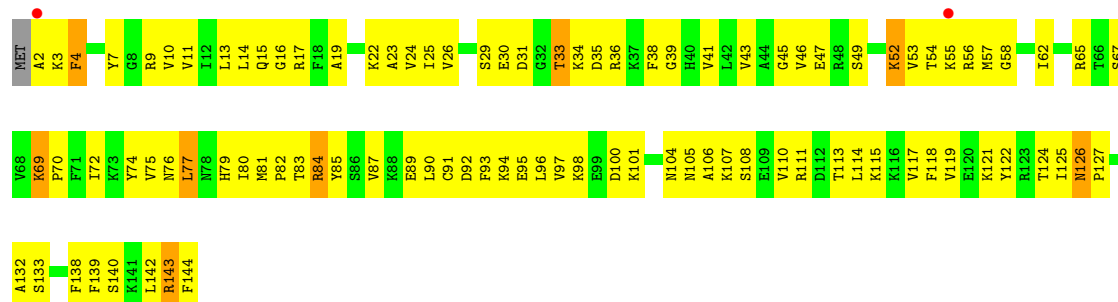
• Molecule 13: RPL27

Chain DN: 

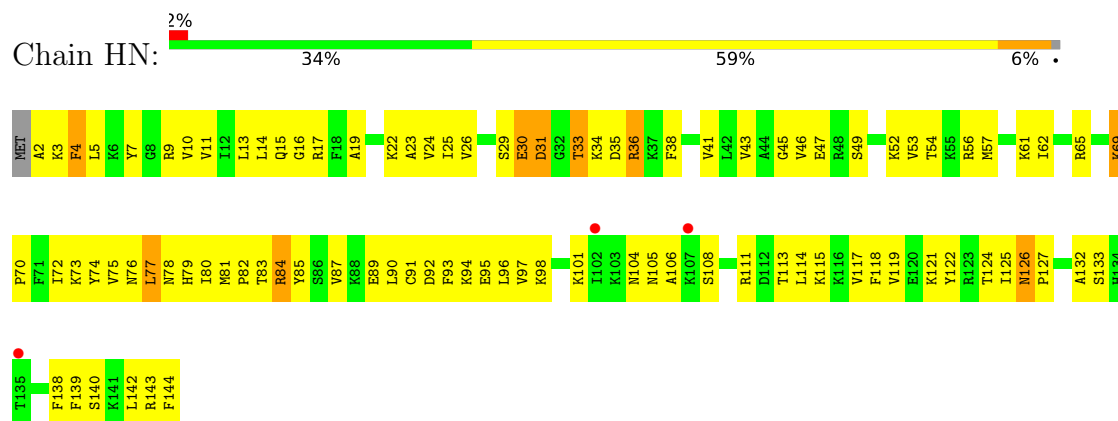


• Molecule 13: RPL27

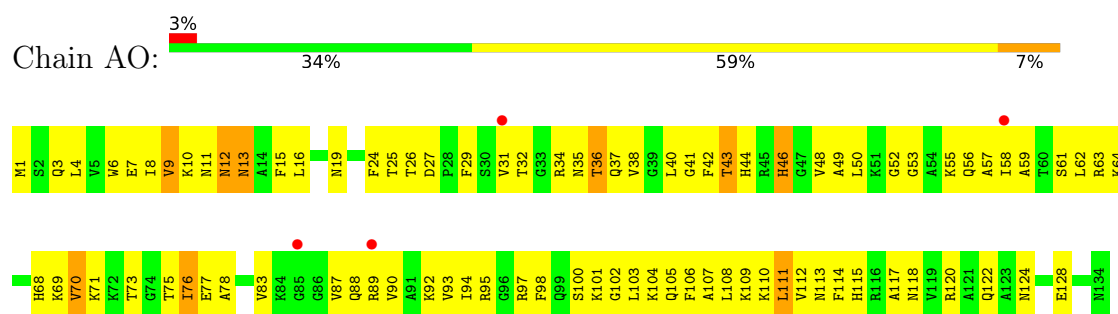
Chain FN: 



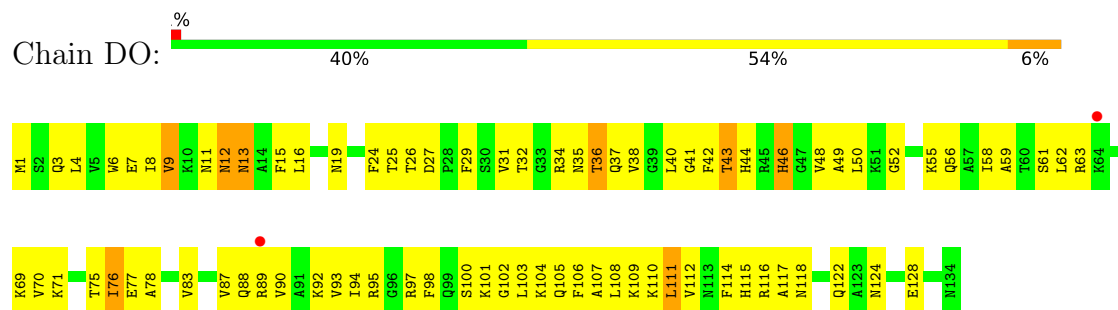
## ● Molecule 13: RPL27



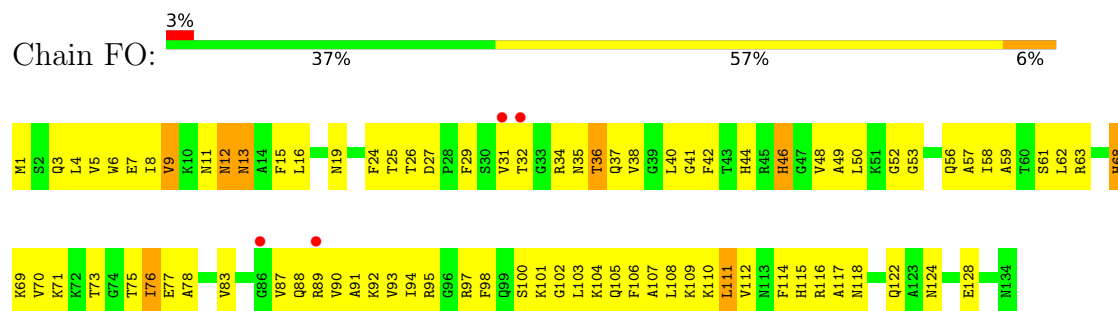
## ● Molecule 14: RPL28



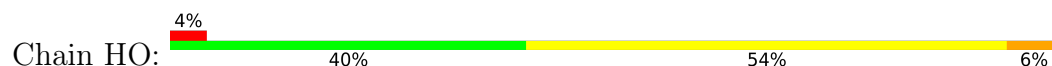
## ● Molecule 14: RPL28

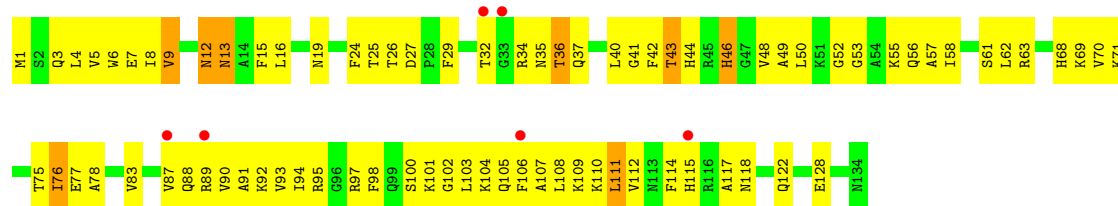


## ● Molecule 14: RPL28

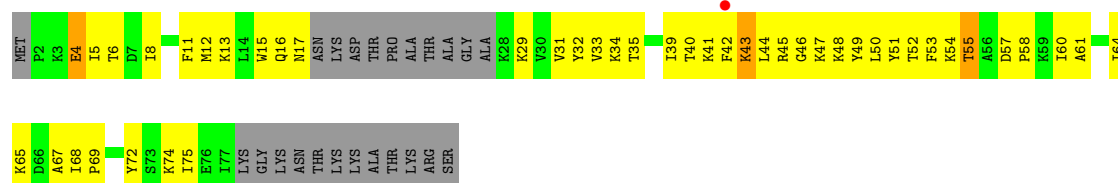


## ● Molecule 14: RPL28

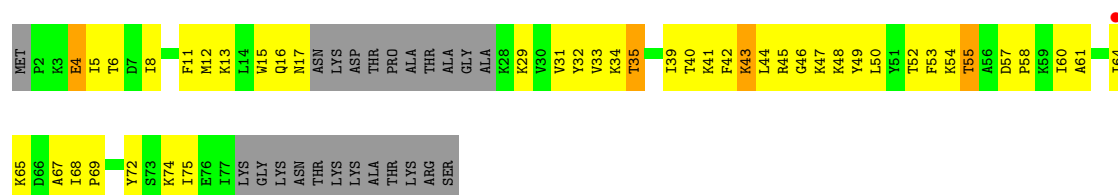




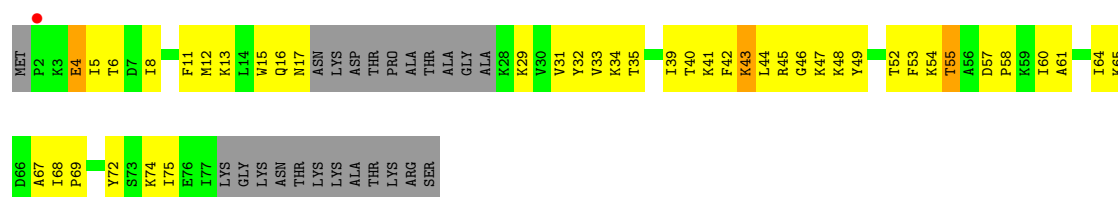
• Molecule 15: RPL38



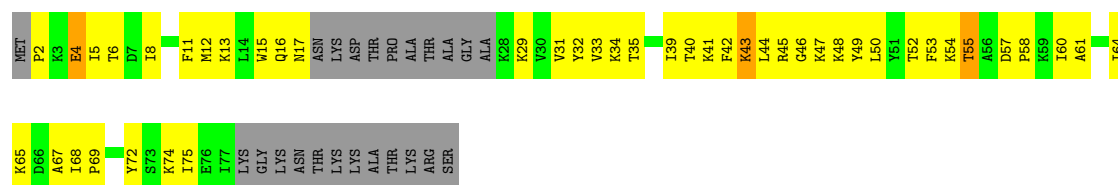
• Molecule 15: RPL38



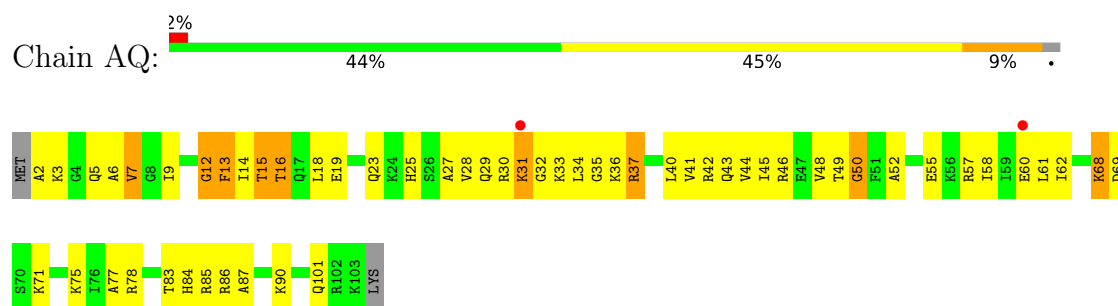
• Molecule 15: RPL38



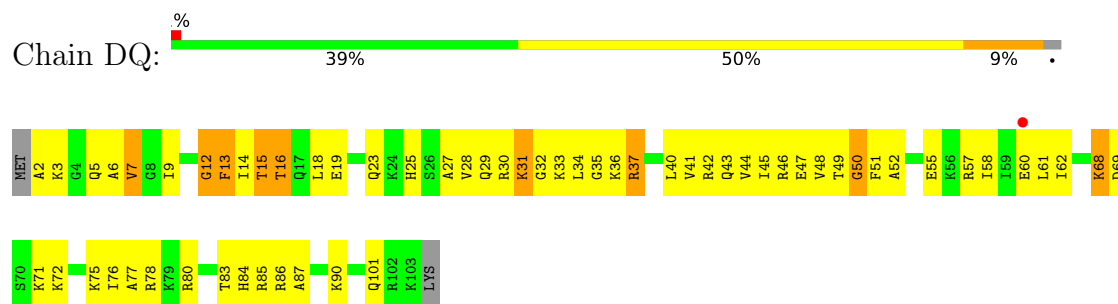
• Molecule 15: RPL38



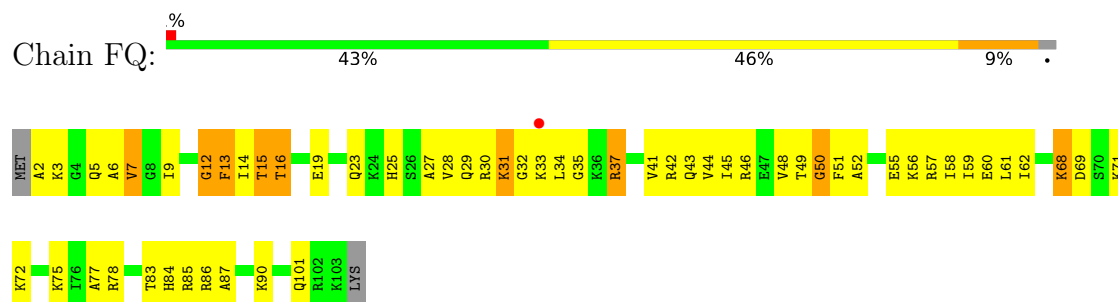
• Molecule 16: 60S RIBOSOMAL PROTEIN L36



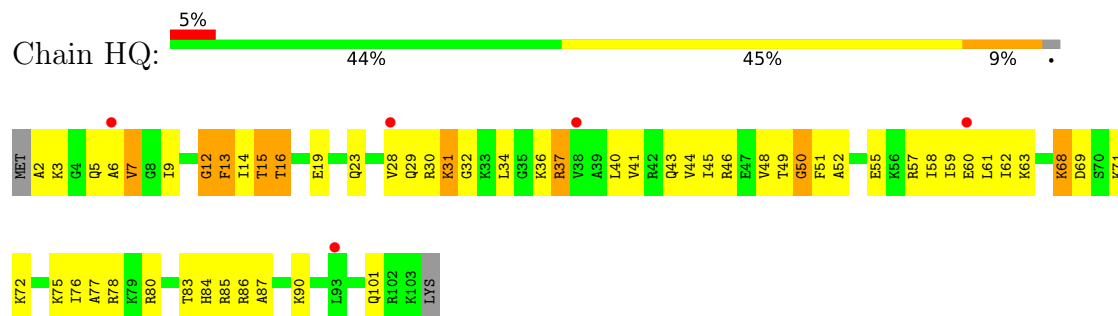
- Molecule 16: 60S RIBOSOMAL PROTEIN L36



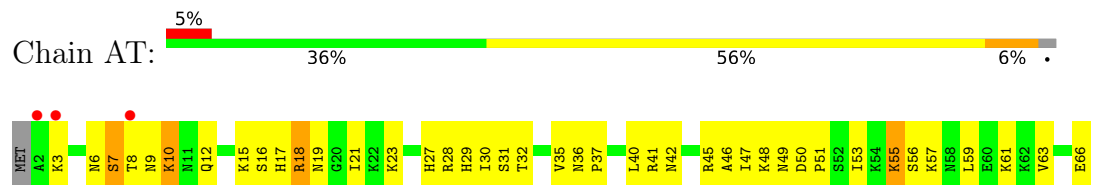
- Molecule 16: 60S RIBOSOMAL PROTEIN L36



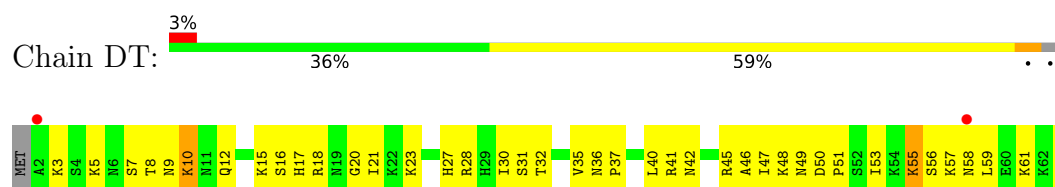
- Molecule 16: 60S RIBOSOMAL PROTEIN L36



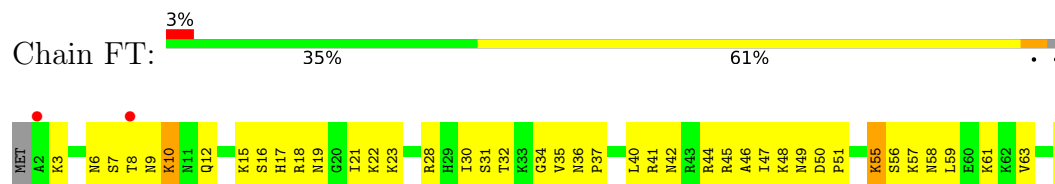
- Molecule 17: RPL29



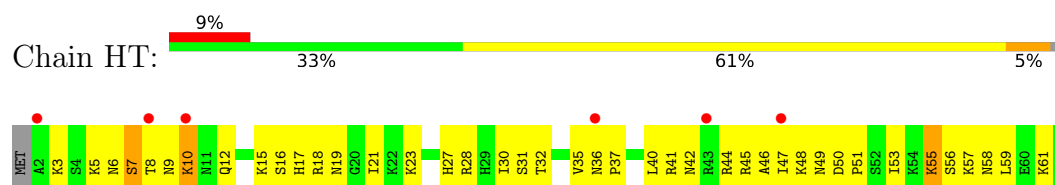
- Molecule 17: RPL29



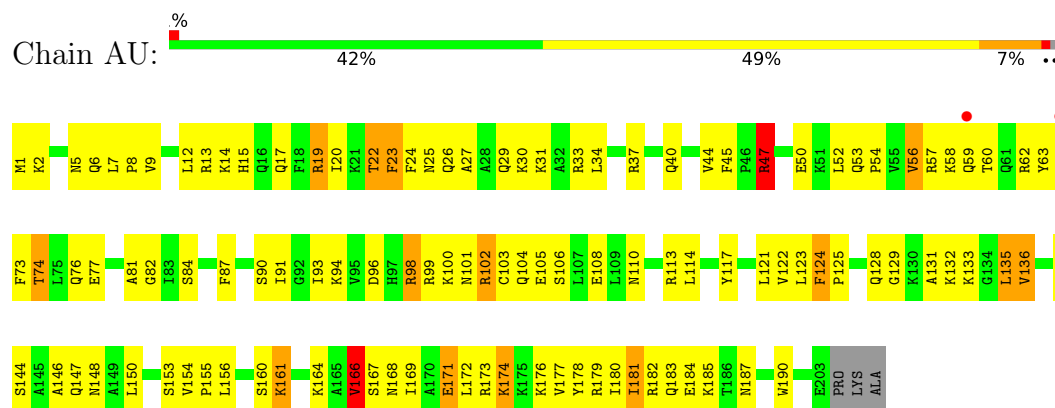
• Molecule 17: RPL29



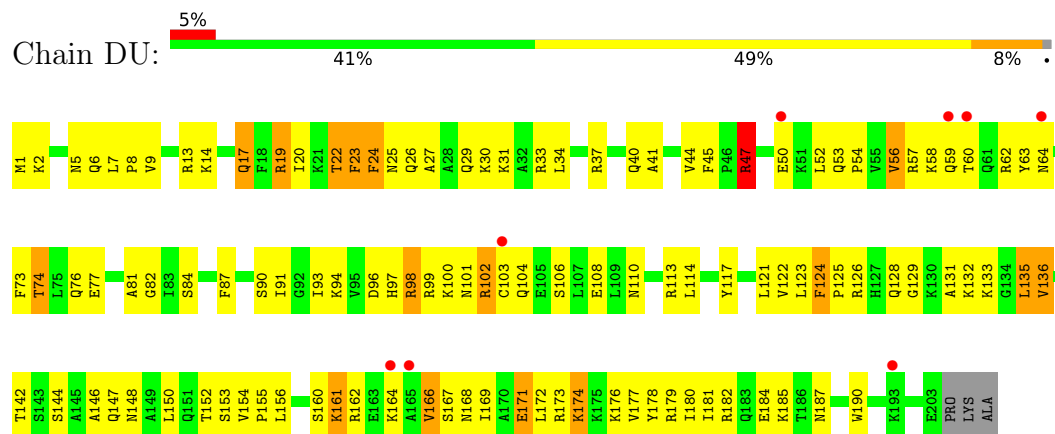
• Molecule 17: RPL29



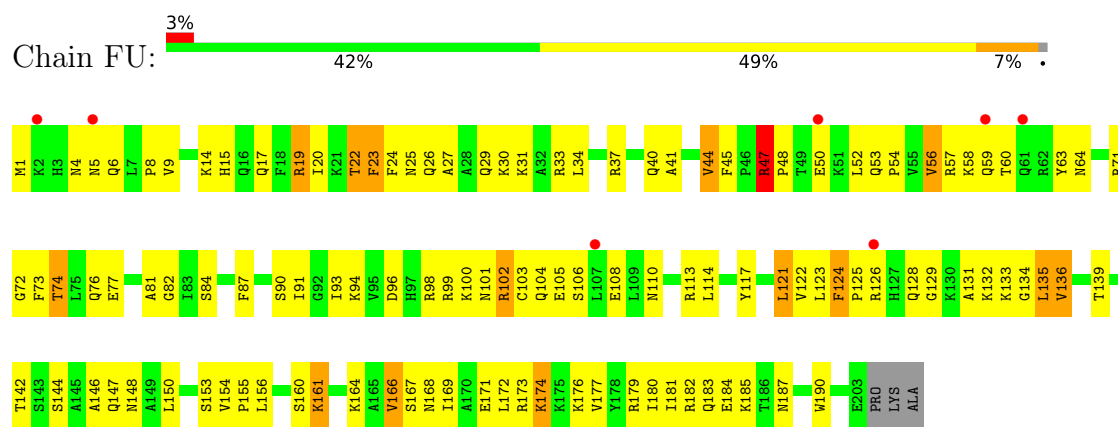
• Molecule 18: RPL13



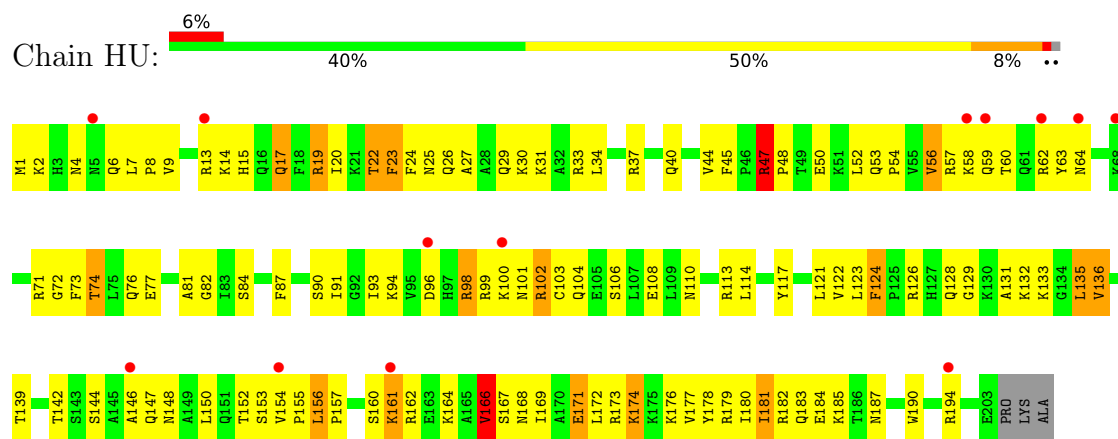
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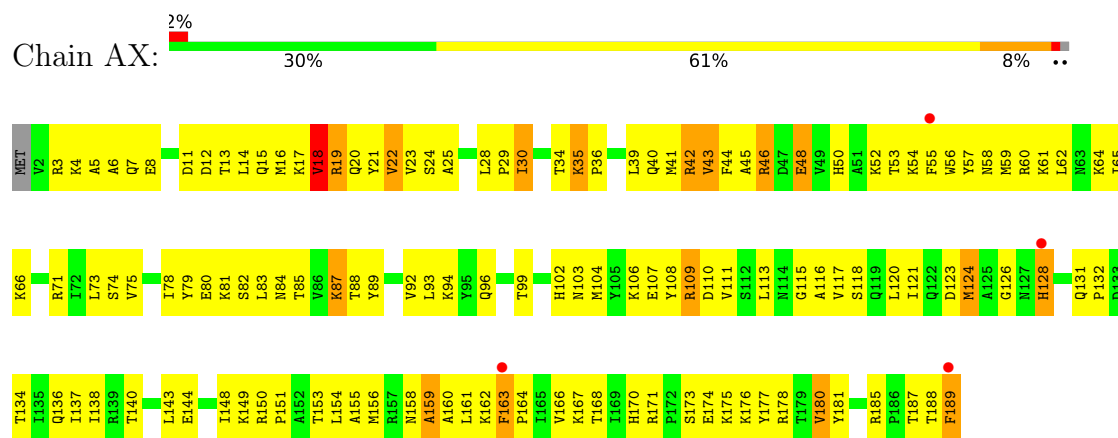
• Molecule 18: RPL13



• Molecule 18: RPL13



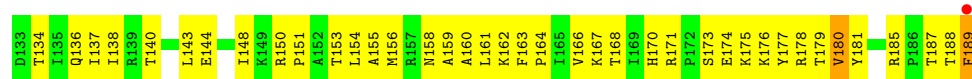
• Molecule 19: RPL18A



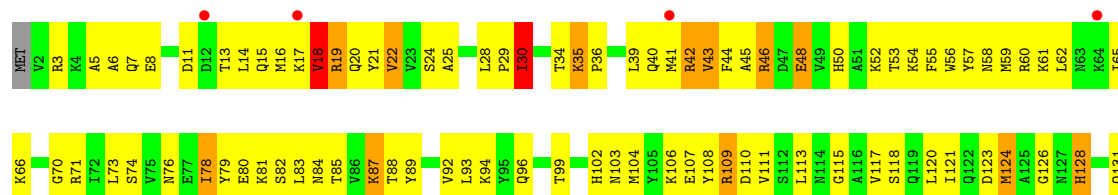
• Molecule 19: RPL18A



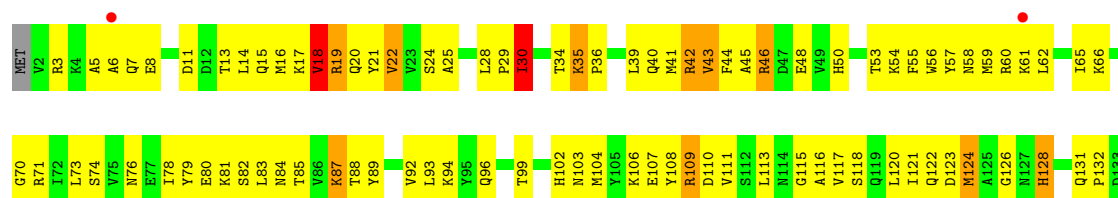




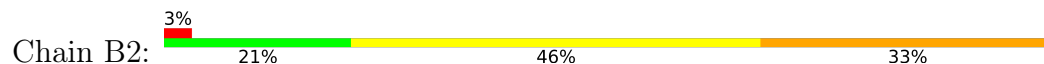
• Molecule 19: RPL18A



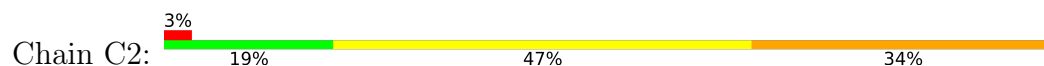
• Molecule 19: RPL18A



• Molecule 20: 5.8S RRNA

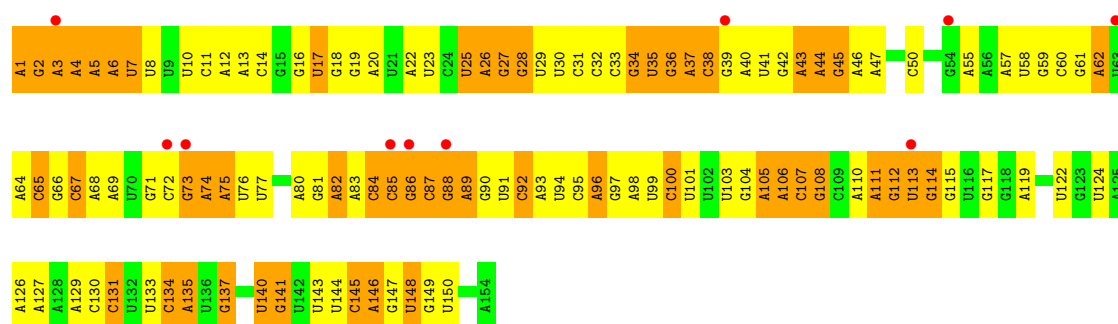
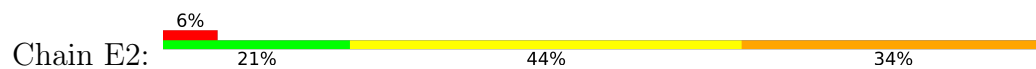


• Molecule 20: 5.8S RRNA

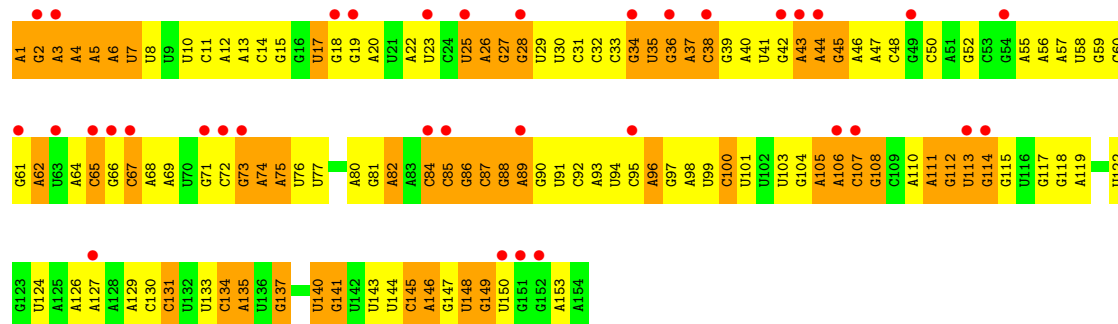
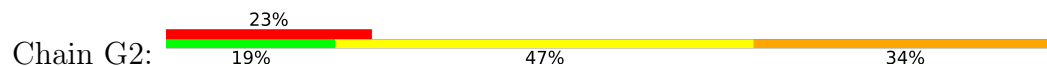




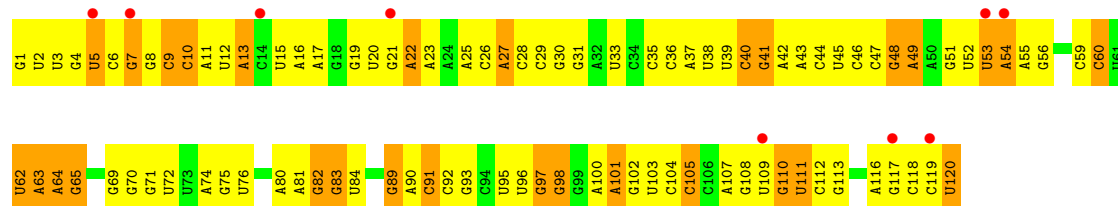
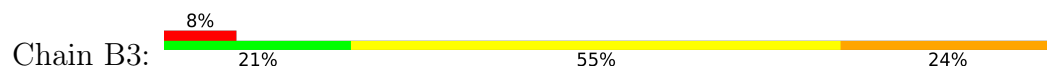
• Molecule 20: 5.8S rRNA



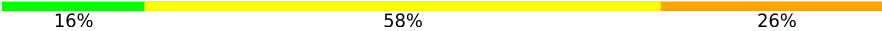
• Molecule 20: 5.8S rRNA

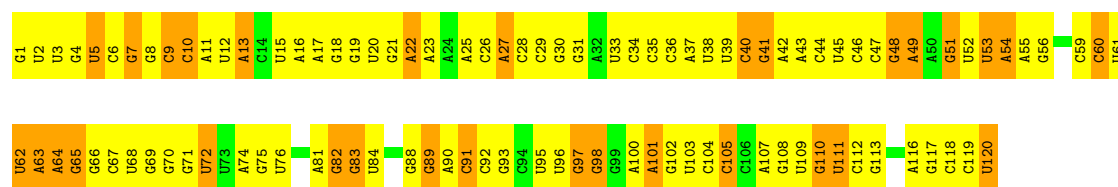


• Molecule 21: 5S rRNA

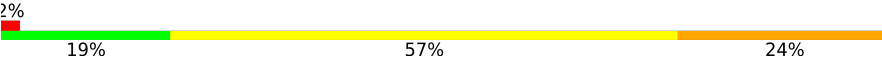


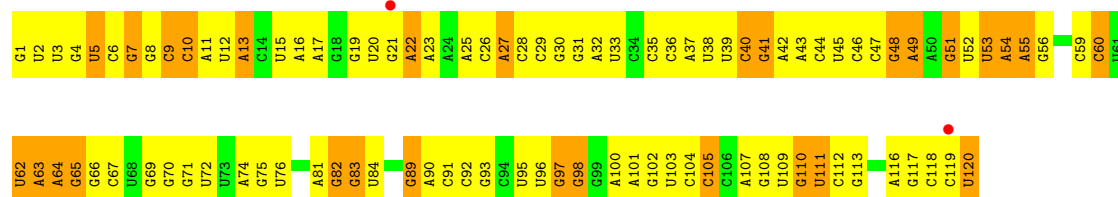
• Molecule 21: 5S rRNA

Chain C3: 

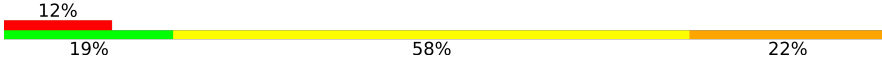


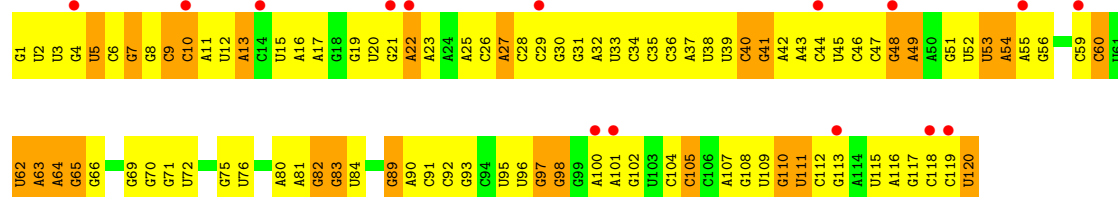
• Molecule 21: 5S RRNA

Chain E3: 



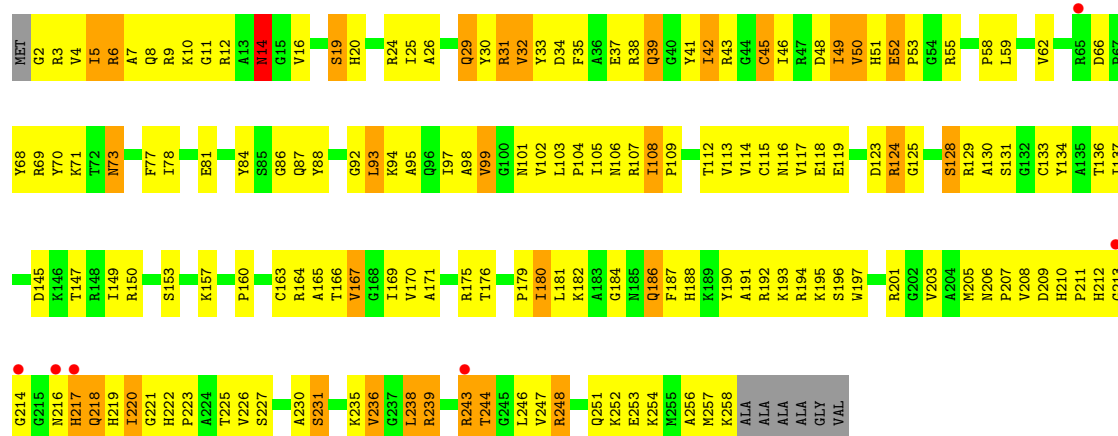
• Molecule 21: 5S RRNA

Chain G3: 



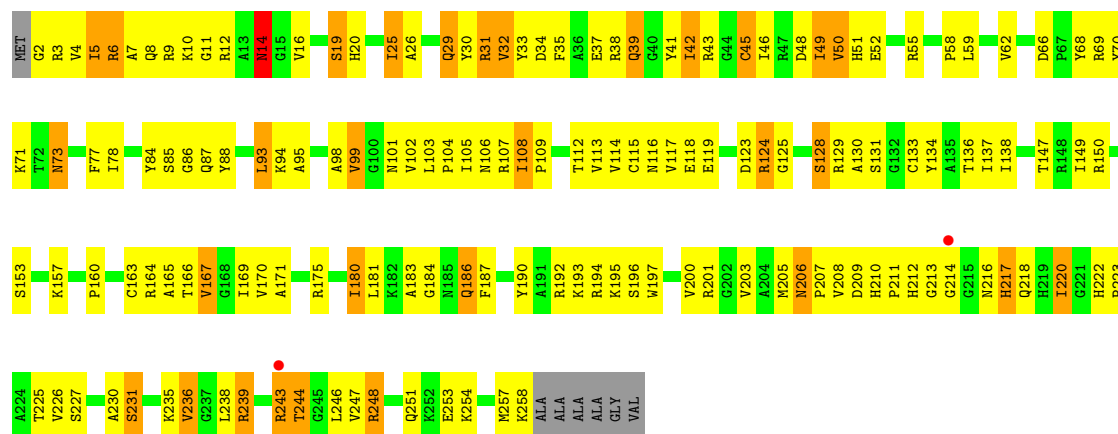
• Molecule 22: RPL8

Chain BA: 

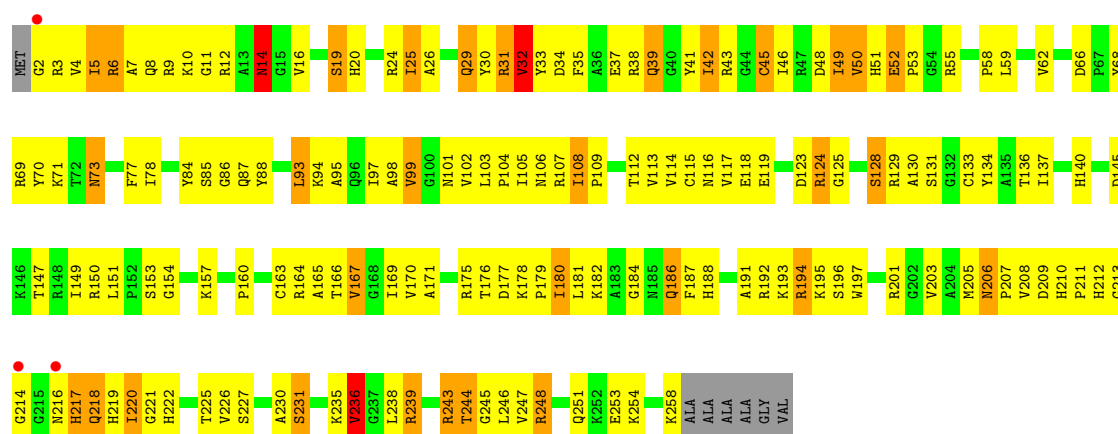


• Molecule 22: RPL8

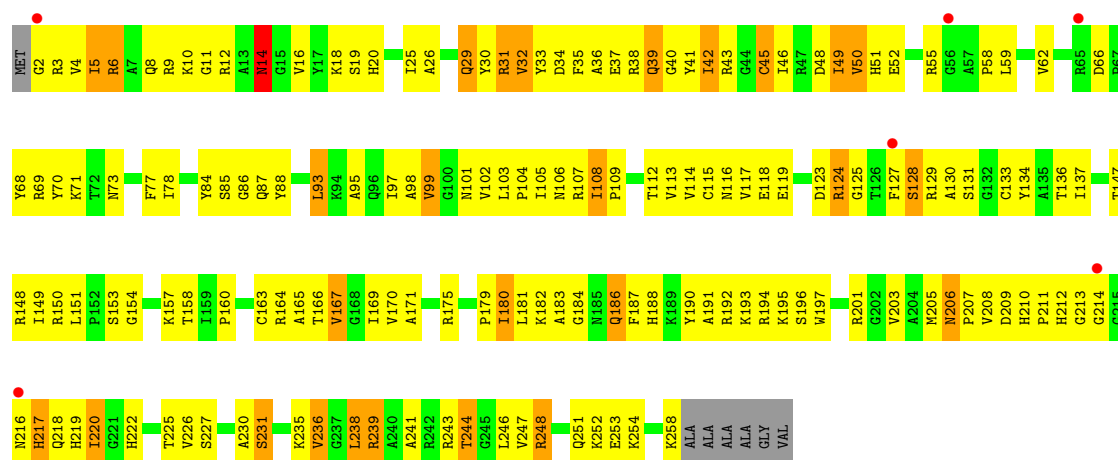
Chain CA: 



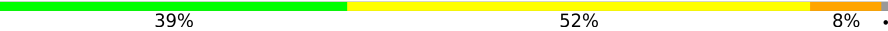
### • Molecule 22: RPL8

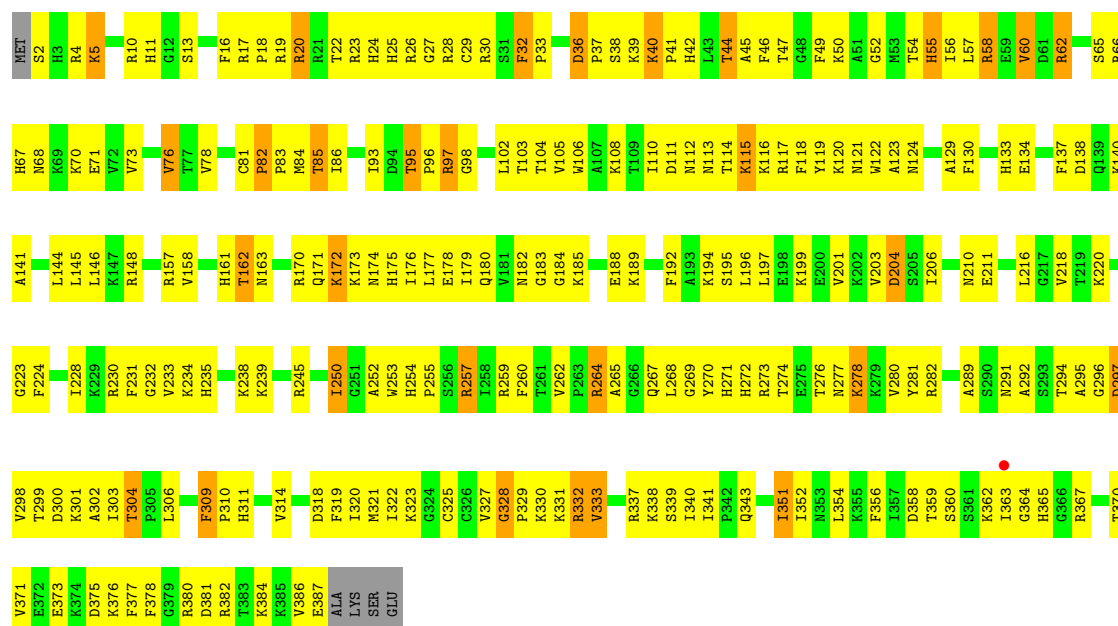


### • Molecule 22: RPL8



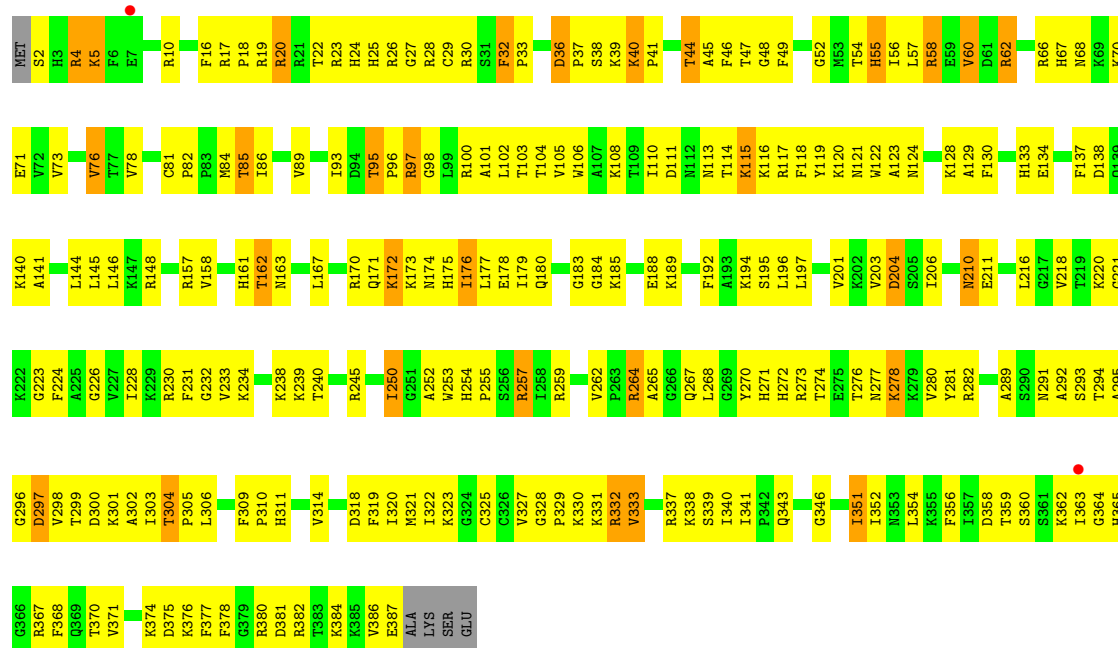
### • Molecule 23: RIBOSOMAL PROTEIN L3

Chain BB: 



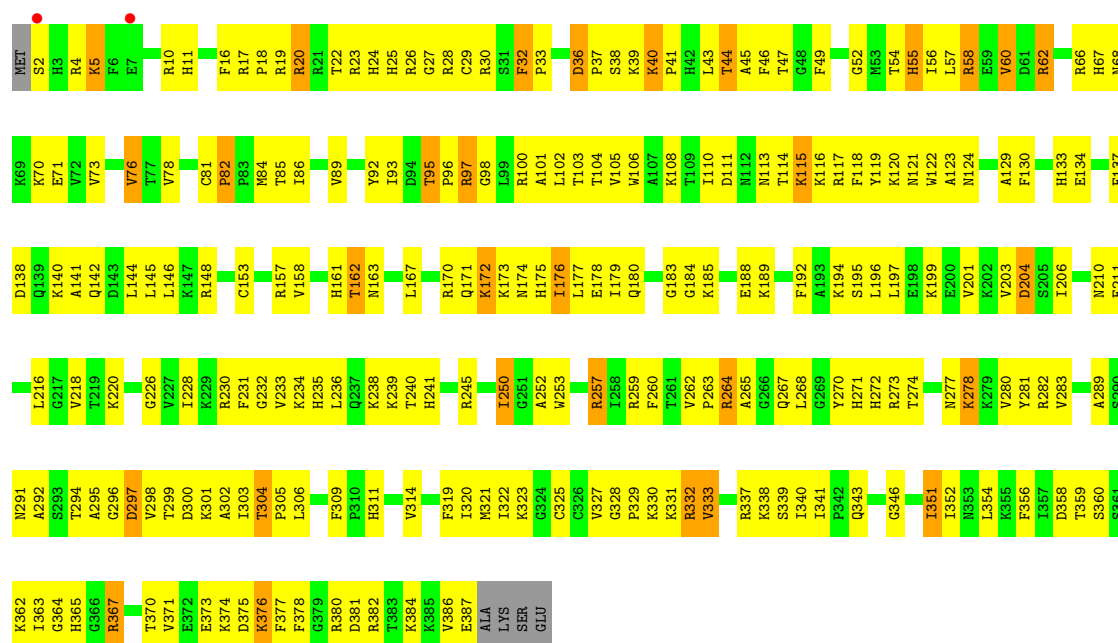
• Molecule 23: RIBOSOMAL PROTEIN L3

Chain CB: 

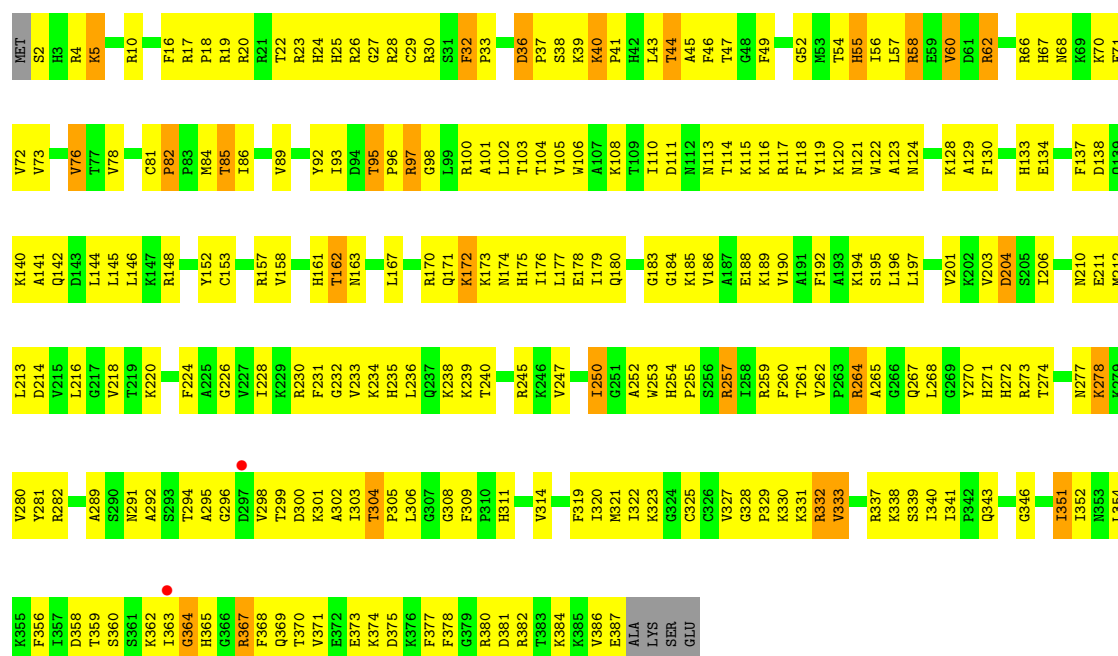


• Molecule 23: RIBOSOMAL PROTEIN L3

Chain EB: 

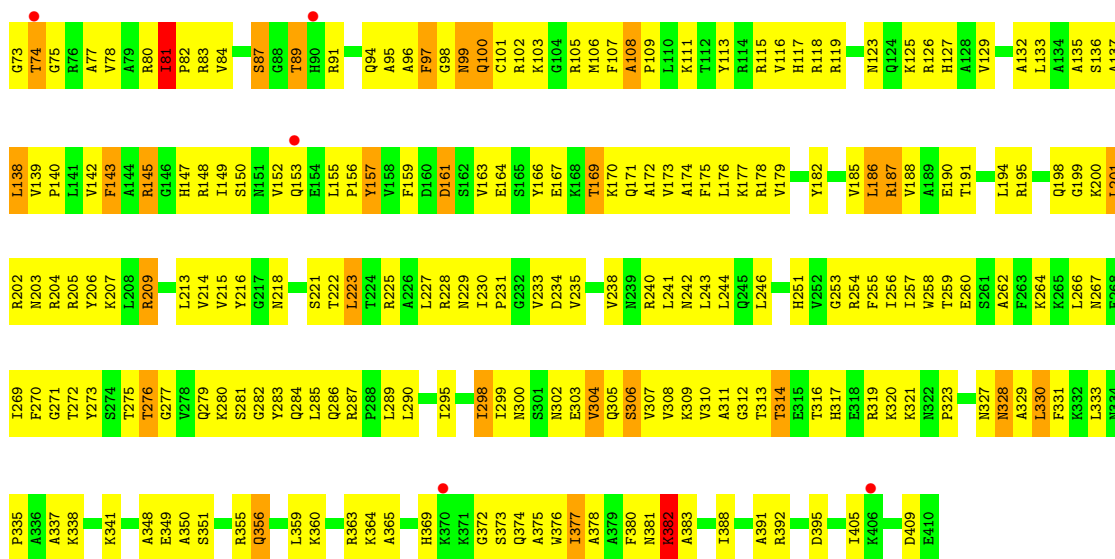


### • Molecule 23: RIBOSOMAL PROTEIN L3



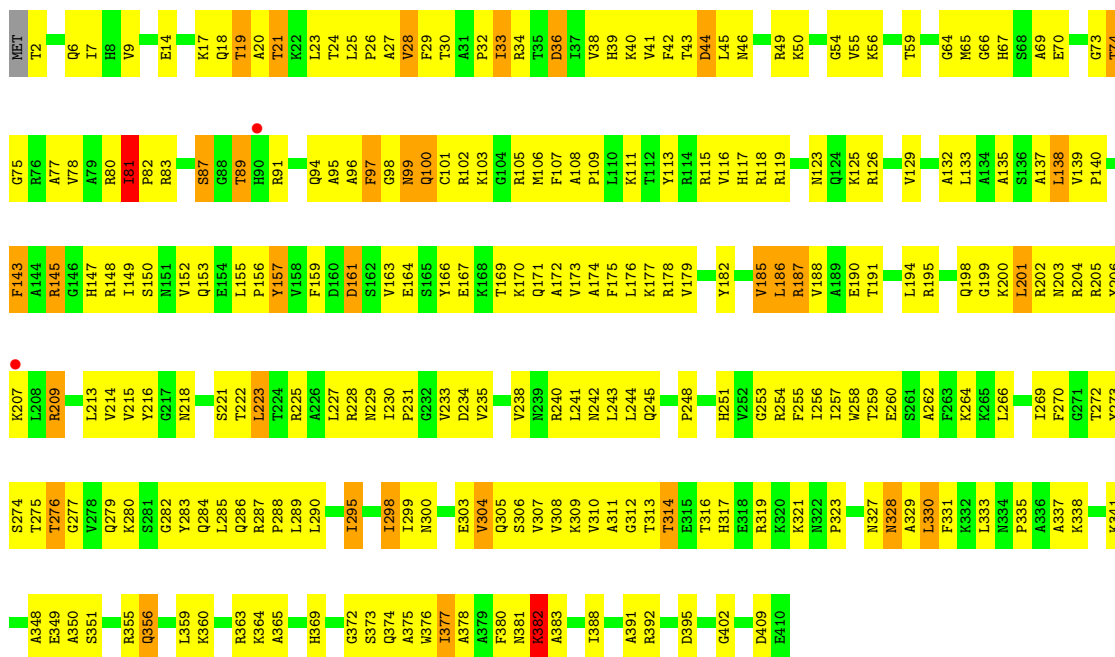
### • Molecule 24: RPL4





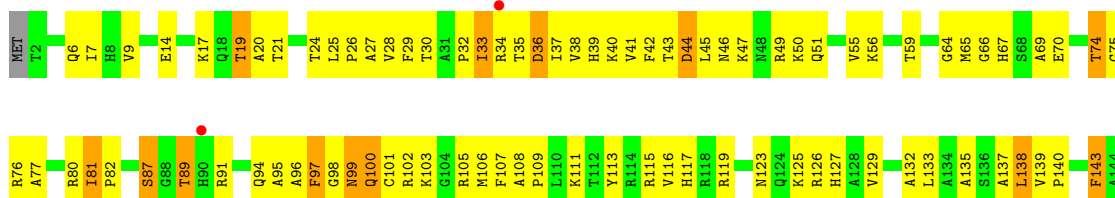
### • Molecule 24: RPL4

Chain CC: 38% 53% 8%

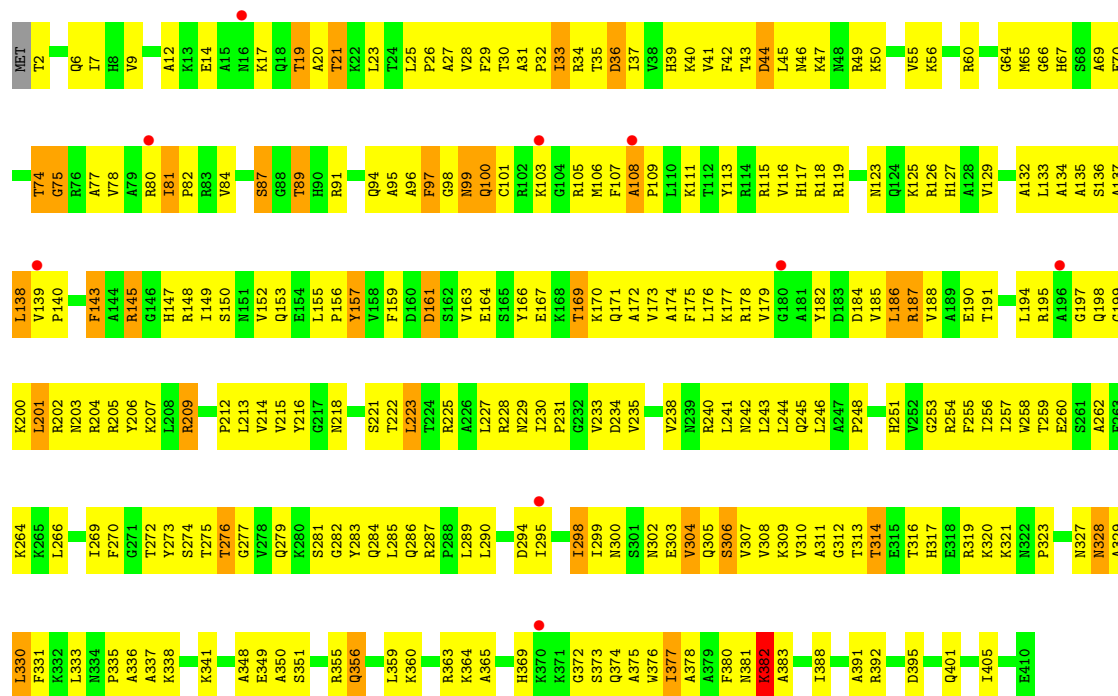


### • Molecule 24: RPL4

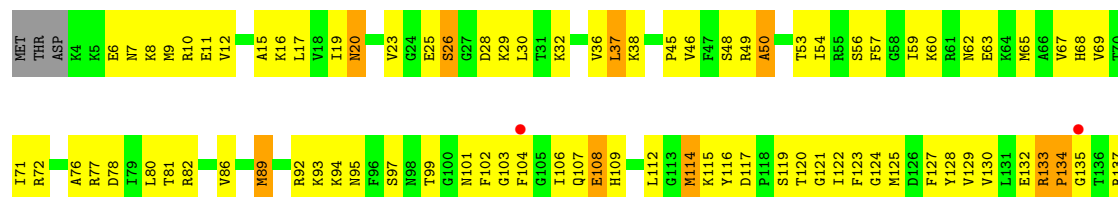
Chain EC: 3% 38% 54% 8%



- Molecule 24: RPL4



- Molecule 25: 60S RIBOSOMAL PROTEIN L11

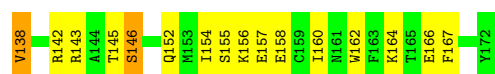






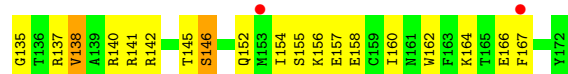
• Molecule 25: 60S RIBOSOMAL PROTEIN L11

Chain CD: 41% 51% 6%



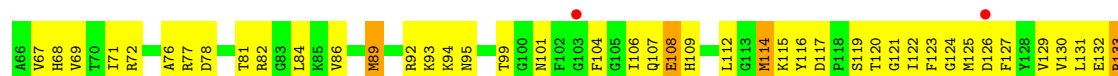
• Molecule 25: 60S RIBOSOMAL PROTEIN L11

Chain ED: 2% 39% 52% 7%



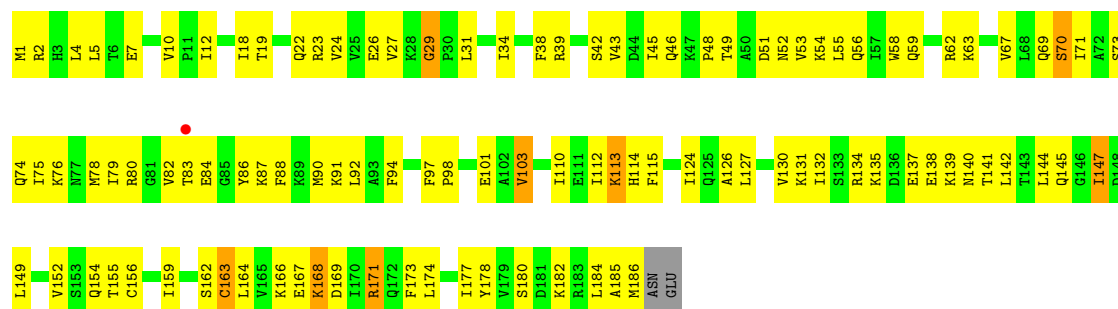
• Molecule 25: 60S RIBOSOMAL PROTEIN L11

Chain GD: 3% 41% 50% 8%



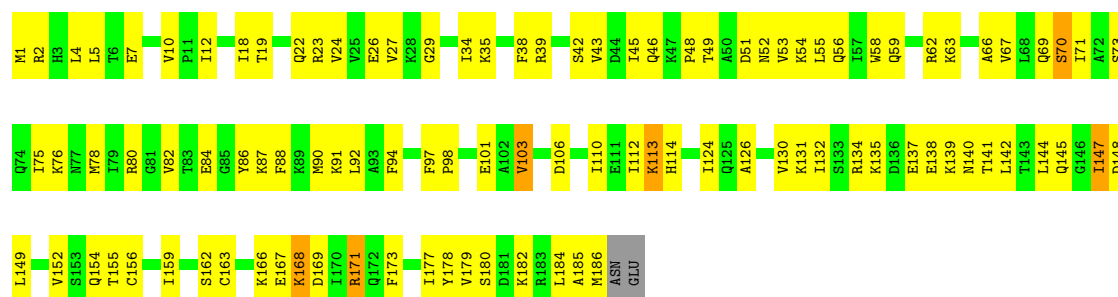
• Molecule 26: 60S RIBOSOMAL PROTEIN L9

Chain BE: % 43% 52%



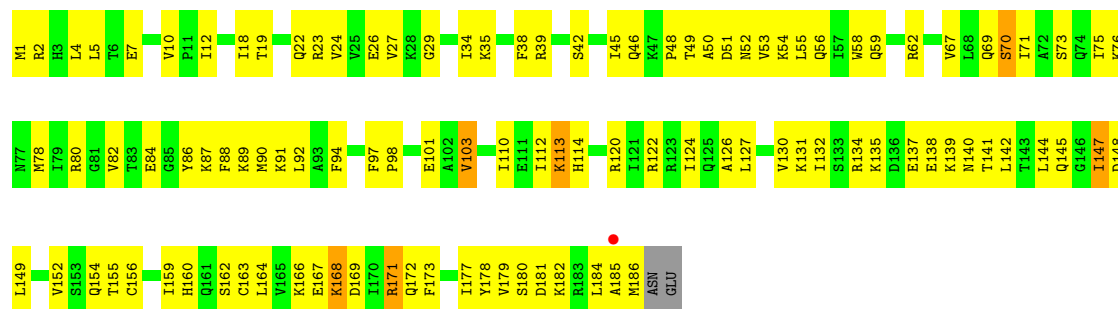
• Molecule 26: 60S RIBOSOMAL PROTEIN L9

Chain CE: 45% 51% ..



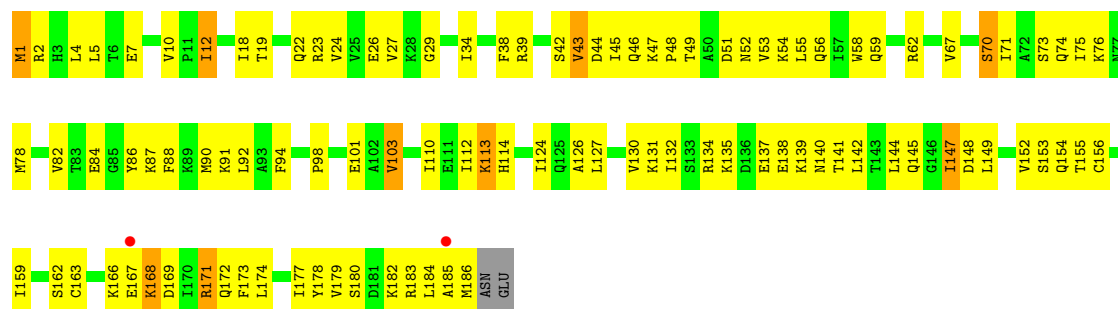
• Molecule 26: 60S RIBOSOMAL PROTEIN L9

Chain EE: 42% 54% ..

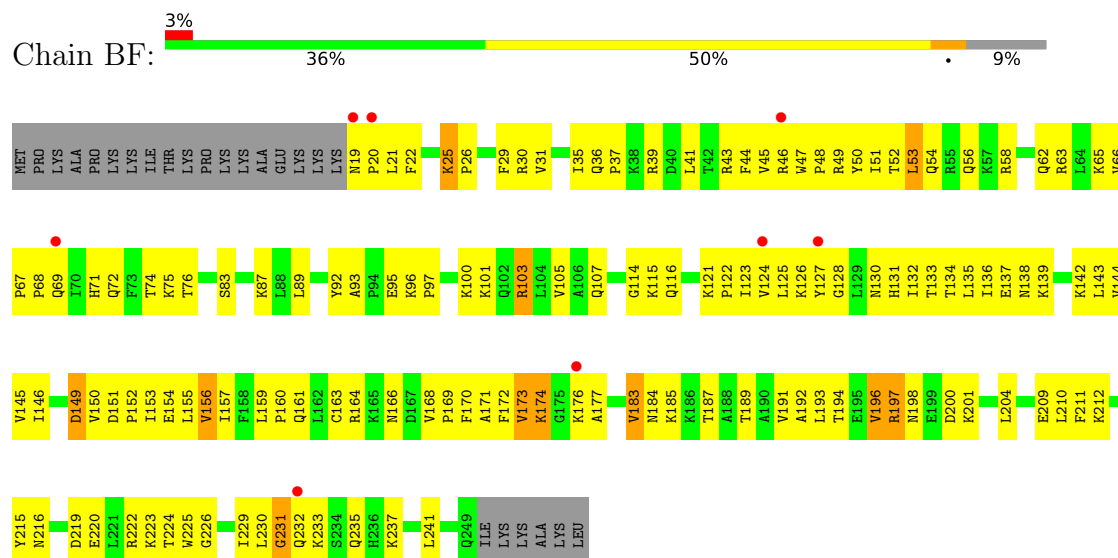


• Molecule 26: 60S RIBOSOMAL PROTEIN L9

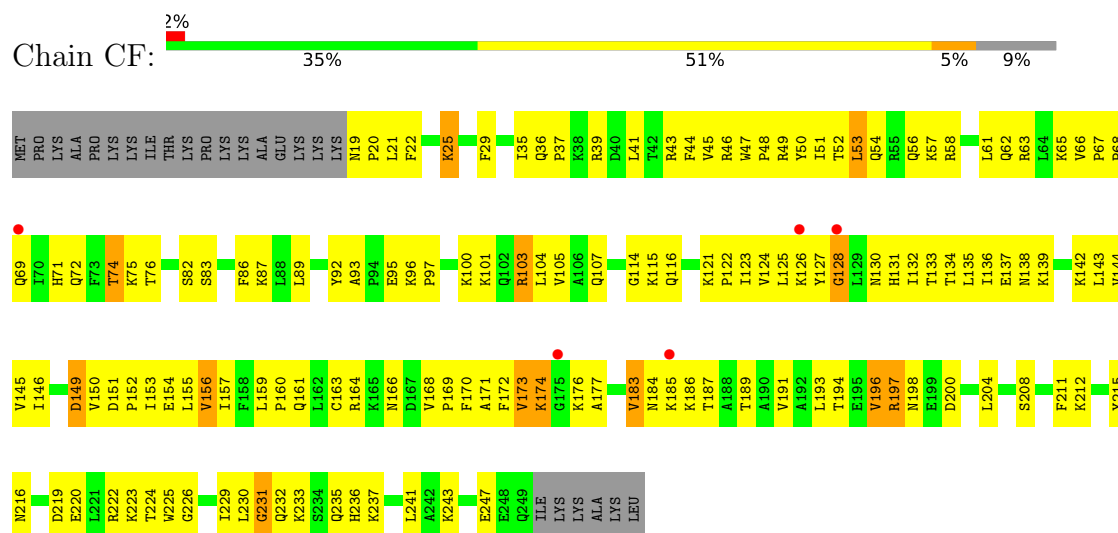
Chain GE: 44% 50% 5% .



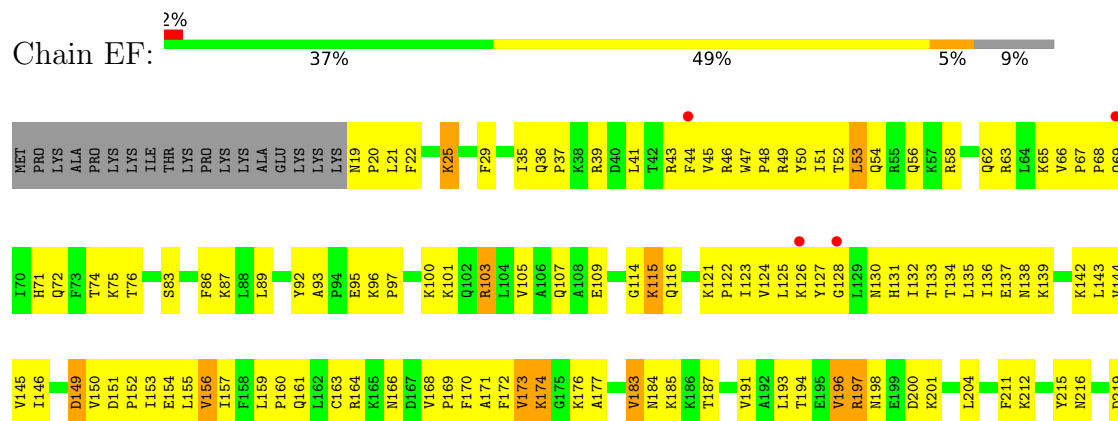
## • Molecule 27: RPL7A



## • Molecule 27: RPL7A

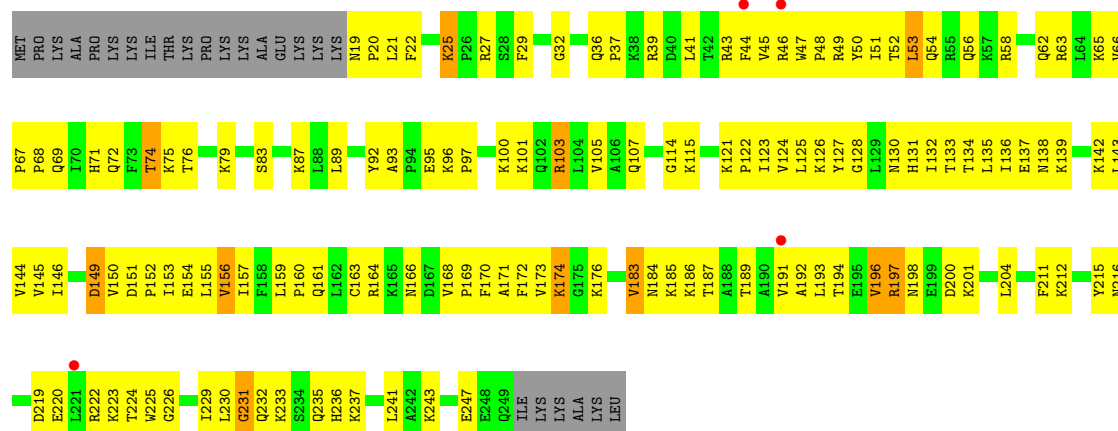


## • Molecule 27: RPL7A

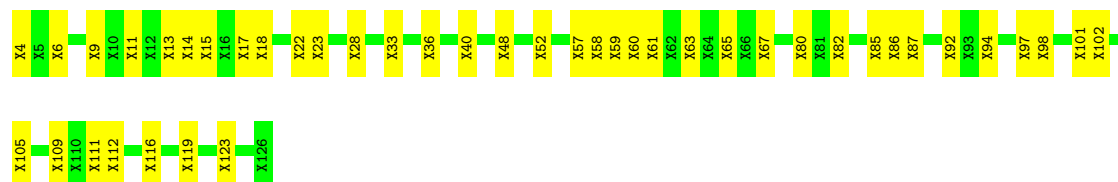




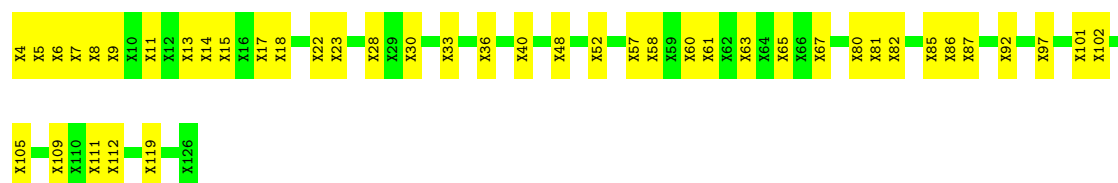
• Molecule 27: RPL7A



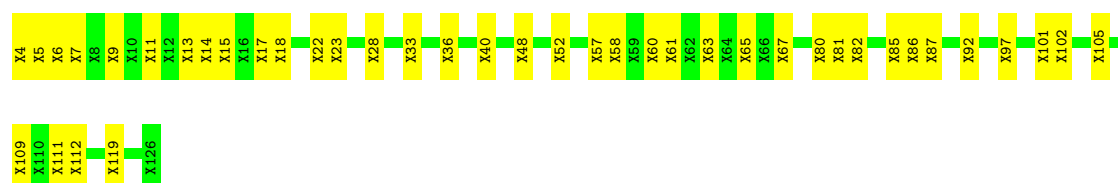
• Molecule 28: RPLP0



• Molecule 28: RPLP0

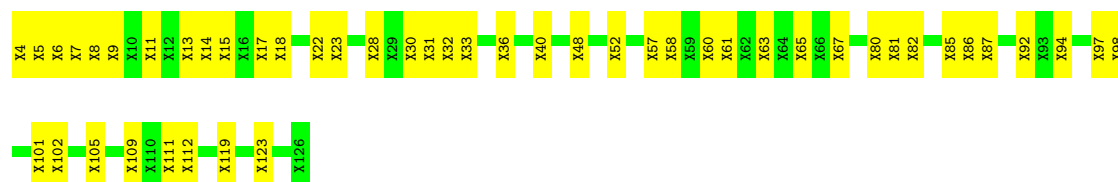


• Molecule 28: RPLP0



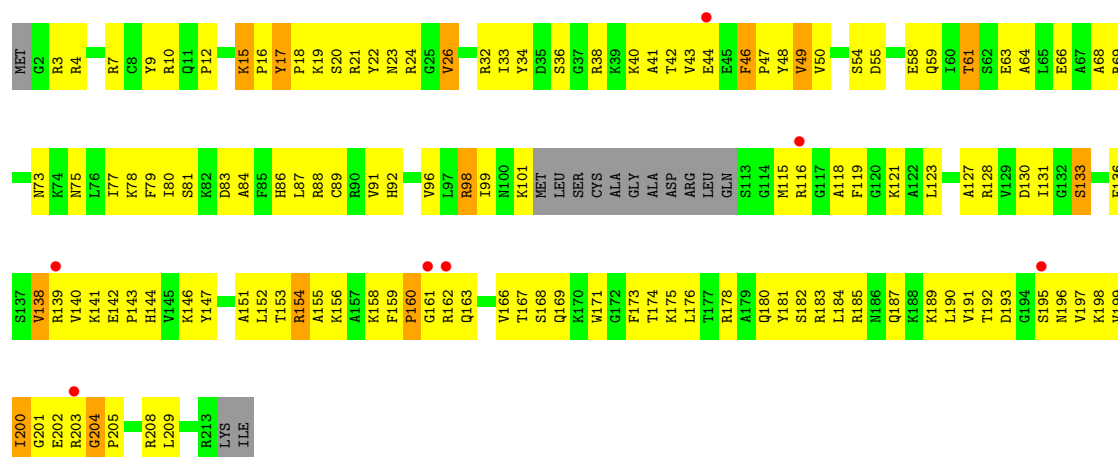
- Molecule 28: RPLP0

Chain GG: 



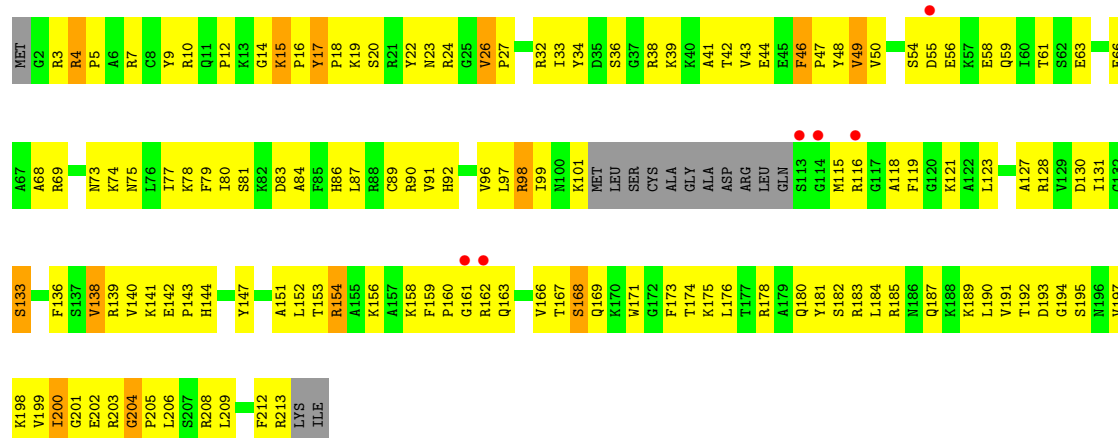
- Molecule 29: 60S RIBOSOMAL PROTEIN L10

Chain BH: 



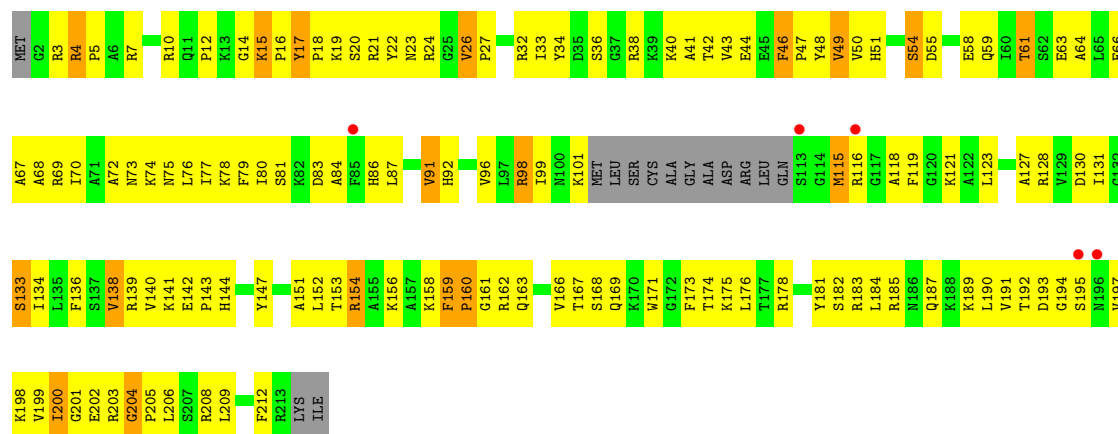
- Molecule 29: 60S RIBOSOMAL PROTEIN L10

Chain CH: 

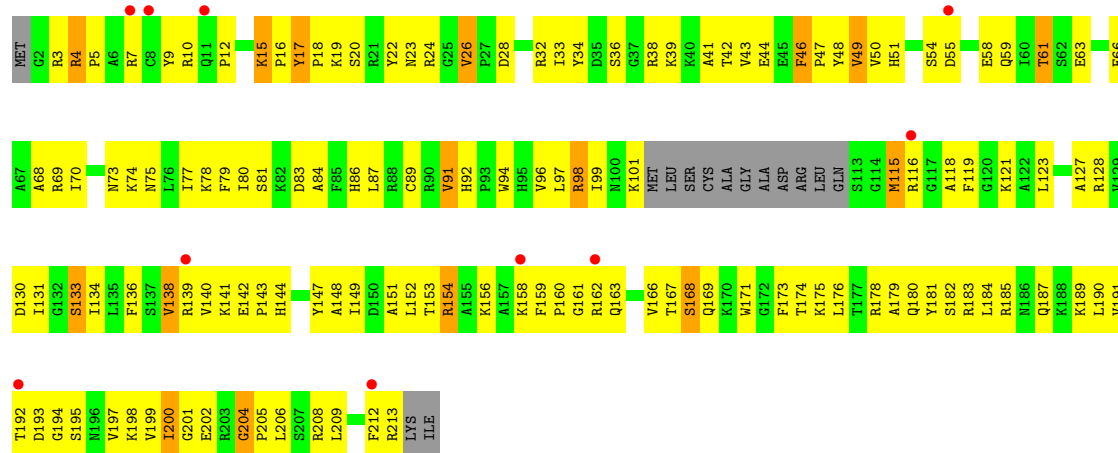


- Molecule 29: 60S RIBOSOMAL PROTEIN L10

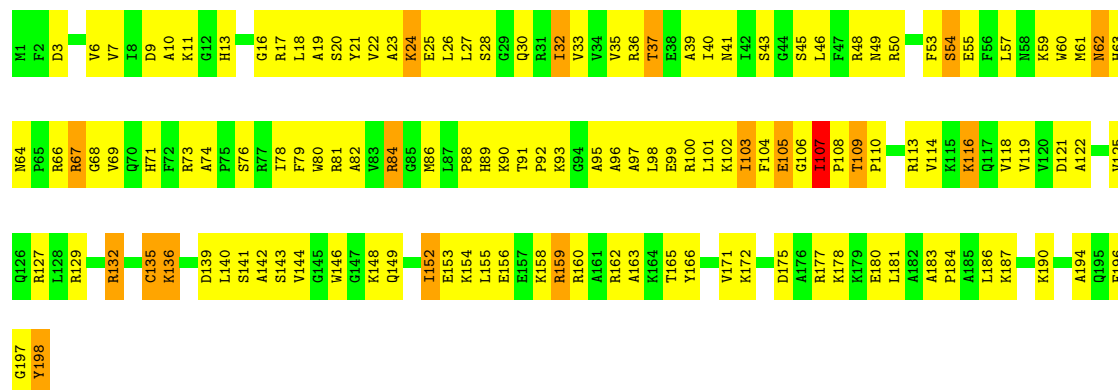
Chain EH: 



• Molecule 29: 60S RIBOSOMAL PROTEIN L10

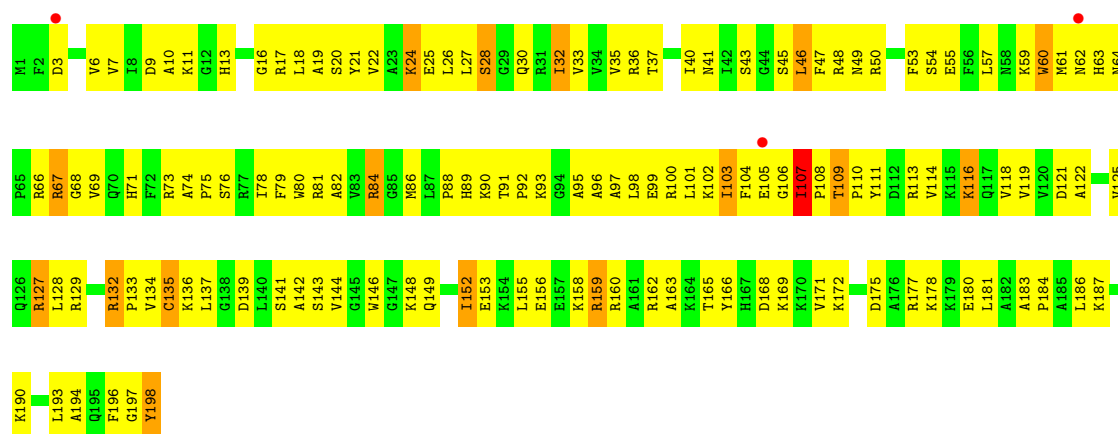


• Molecule 30: 60S RIBOSOMAL PROTEIN L13A

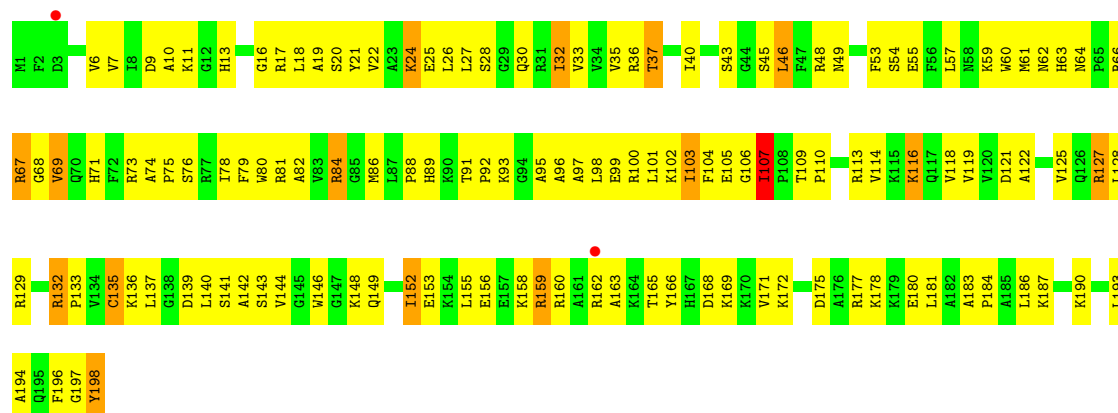


• Molecule 30: 60S RIBOSOMAL PROTEIN L13A

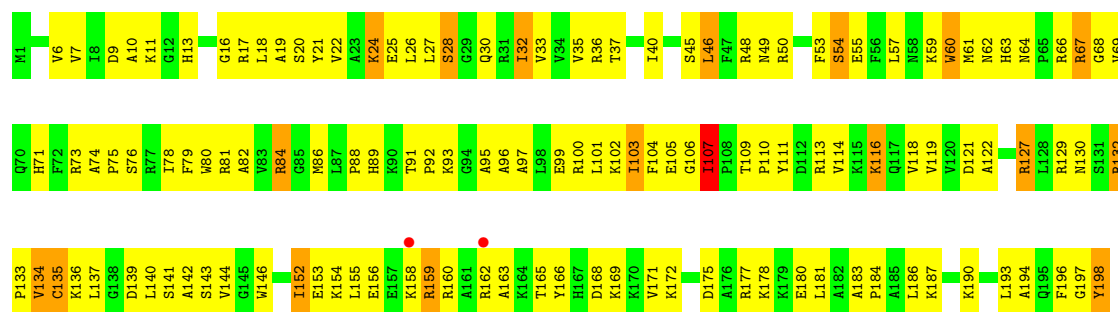




• Molecule 30: 60S RIBOSOMAL PROTEIN L13A

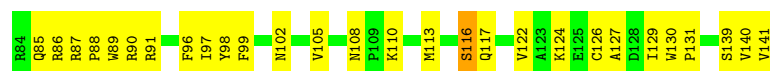


• Molecule 30: 60S RIBOSOMAL PROTEIN L13A



• Molecule 31: RPL23

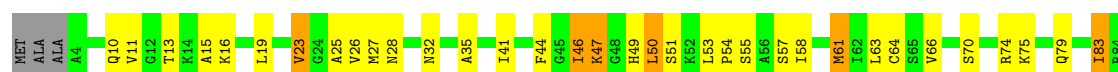




- Molecule 31: RPL23



- Molecule 31: RPL23



- Molecule 31: RPL23



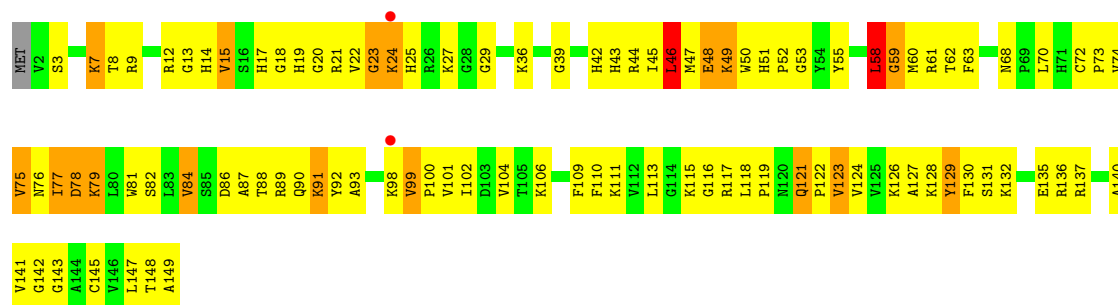
- Molecule 32: 60S RIBOSOMAL PROTEIN L27A



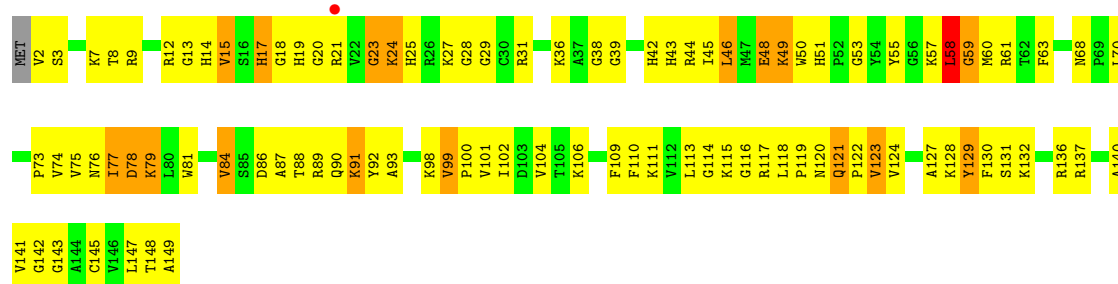
- Molecule 32: 60S RIBOSOMAL PROTEIN L27A



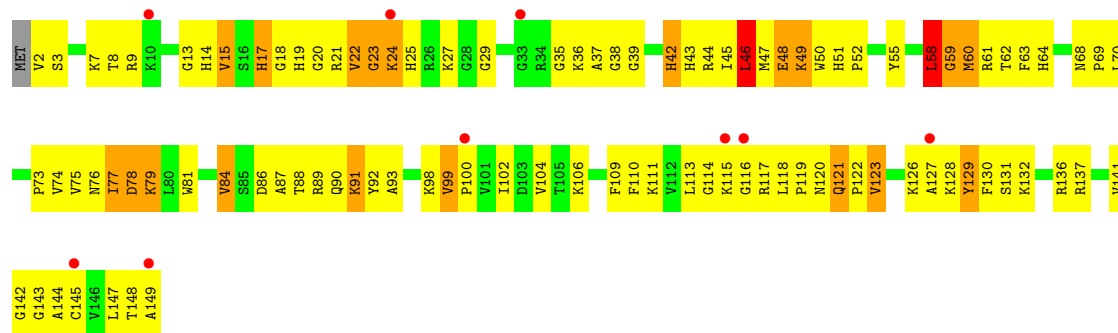




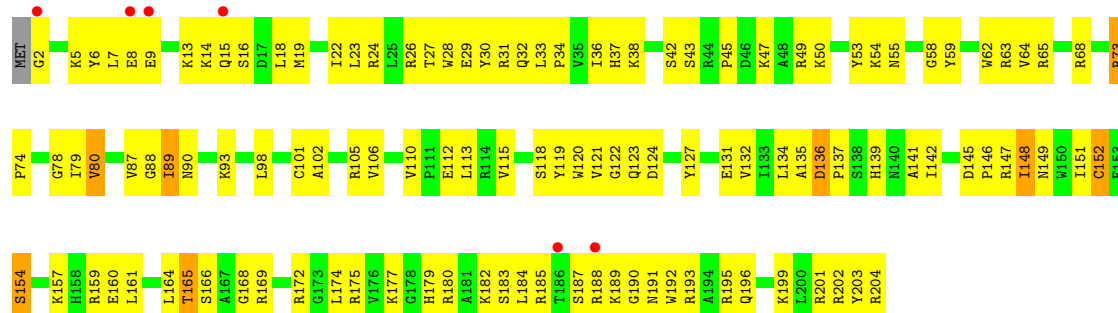
• Molecule 32: 60S RIBOSOMAL PROTEIN L27A



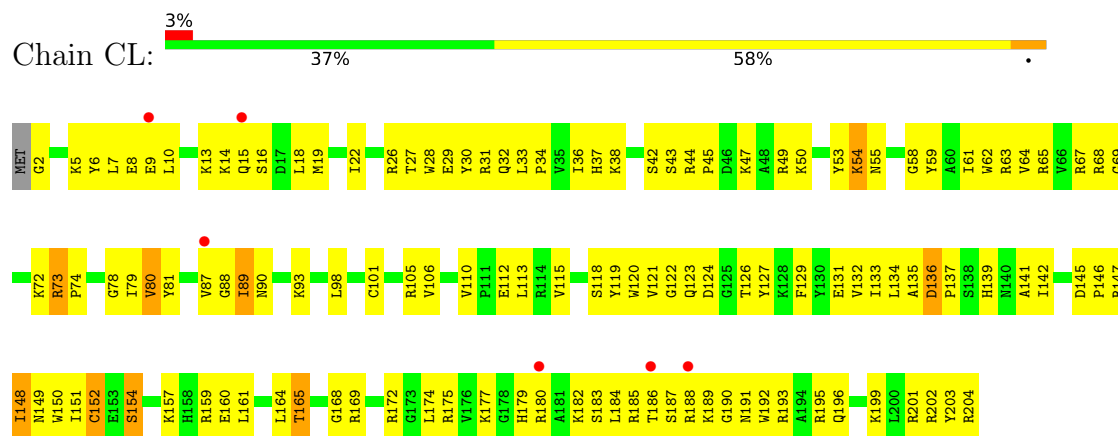
• Molecule 32: 60S RIBOSOMAL PROTEIN L27A



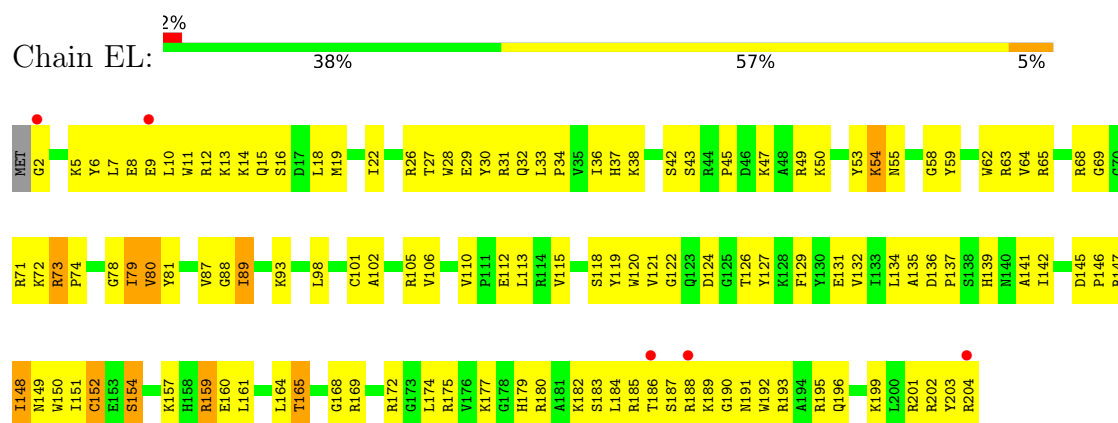
• Molecule 33: RIBOSOMAL PROTEIN L15



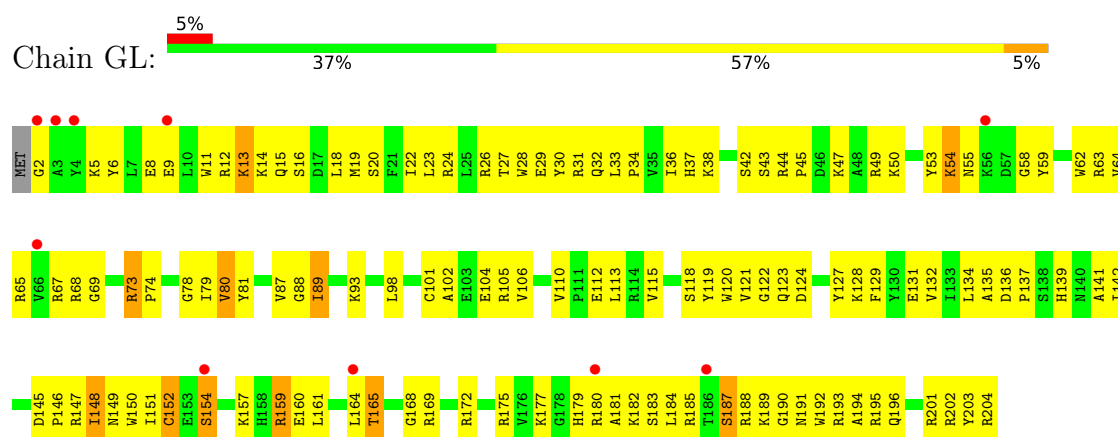
• Molecule 33: RIBOSOMAL PROTEIN L15



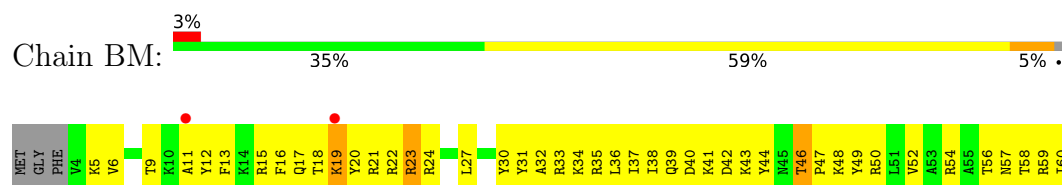
• Molecule 33: RIBOSOMAL PROTEIN L15

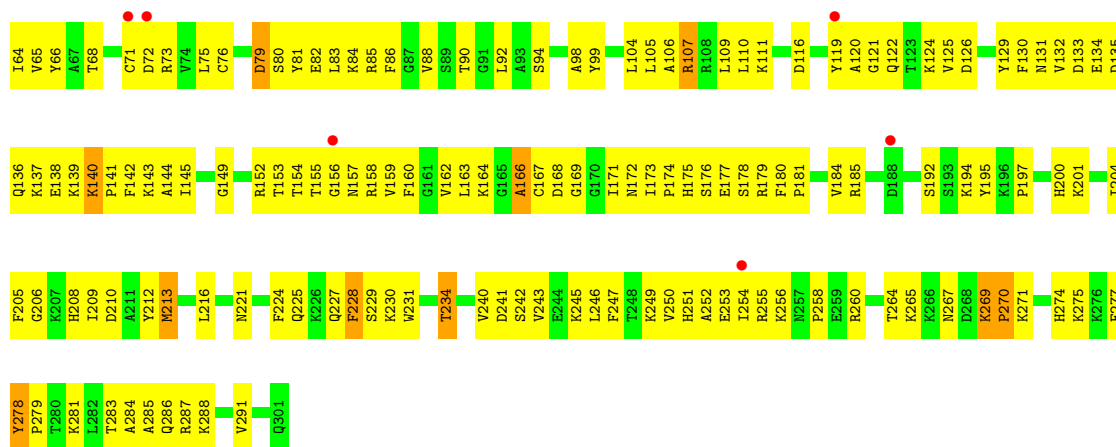


• Molecule 33: RIBOSOMAL PROTEIN L15

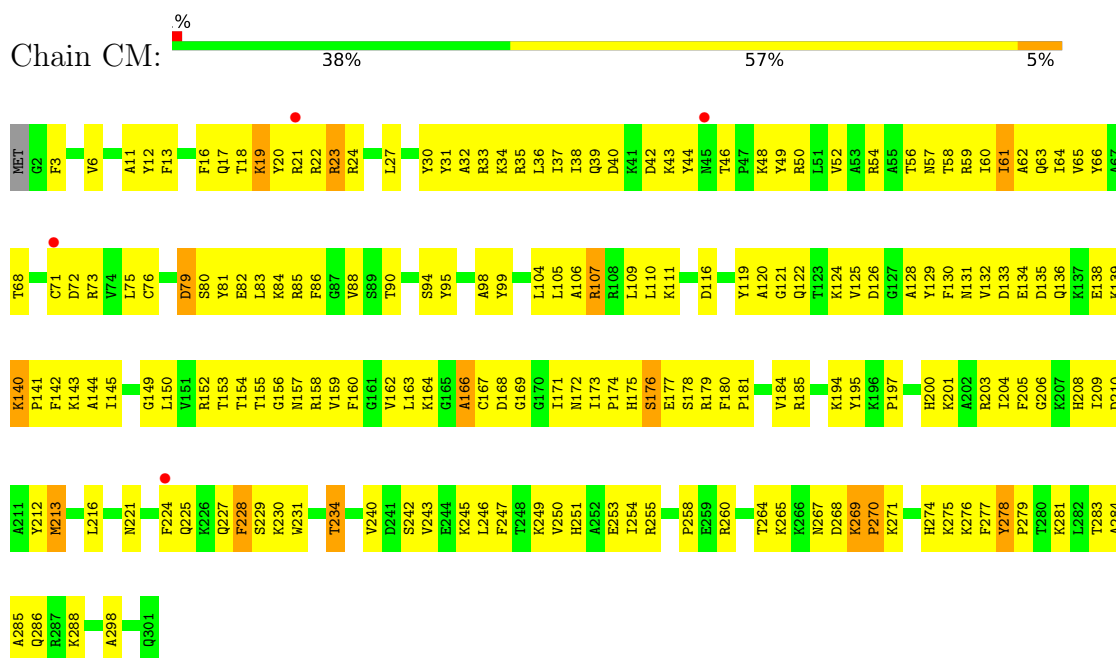


• Molecule 34: 60S RIBOSOMAL PROTEIN L5

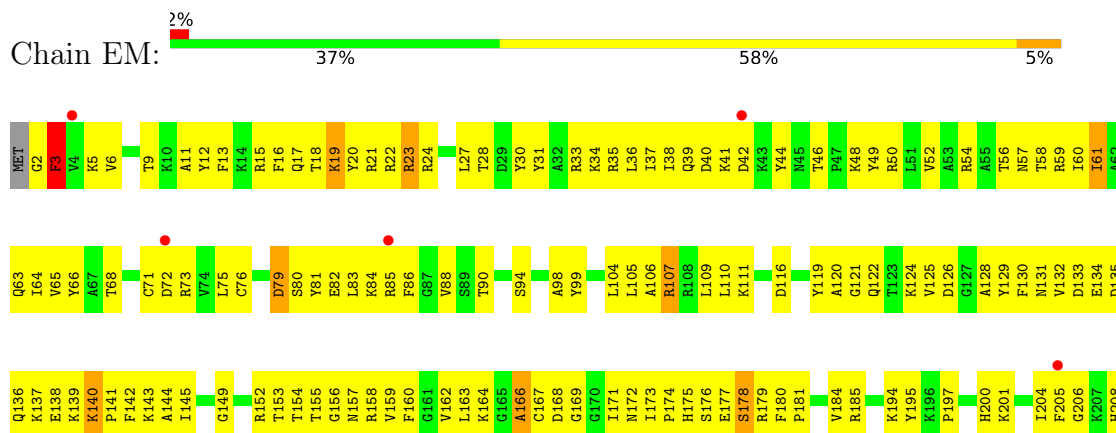


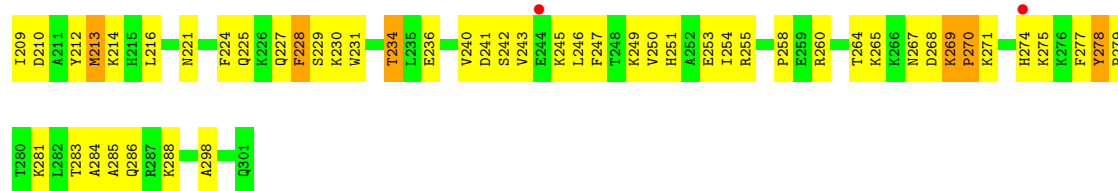


• Molecule 34: 60S RIBOSOMAL PROTEIN L5

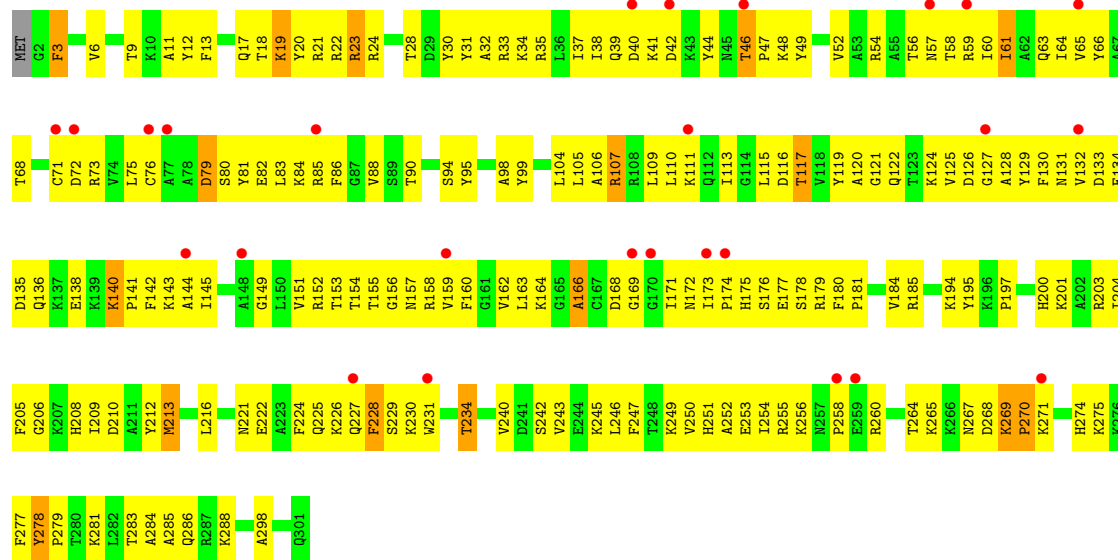


• Molecule 34: 60S RIBOSOMAL PROTEIN L5

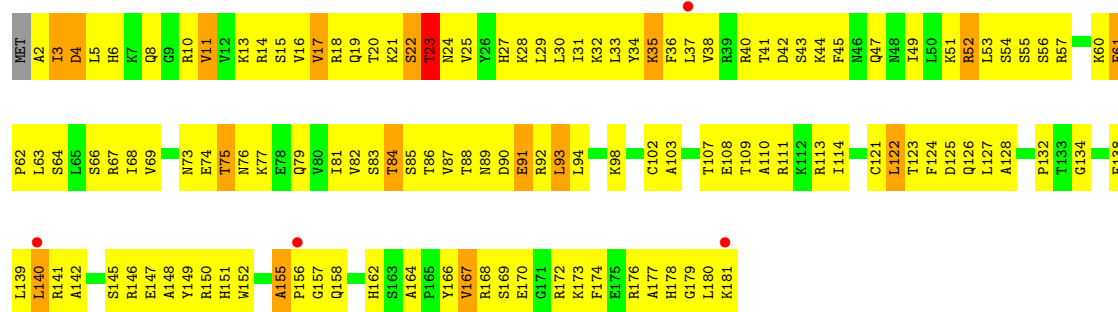




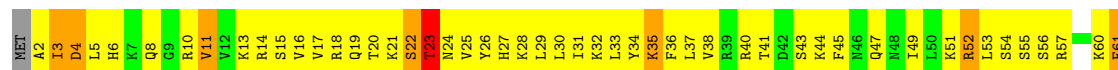
• Molecule 34: 60S RIBOSOMAL PROTEIN L5

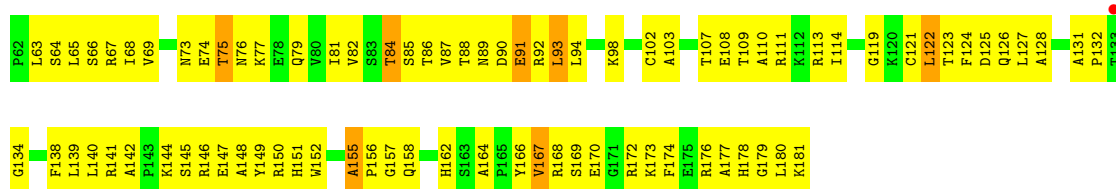


• Molecule 35: RPL18

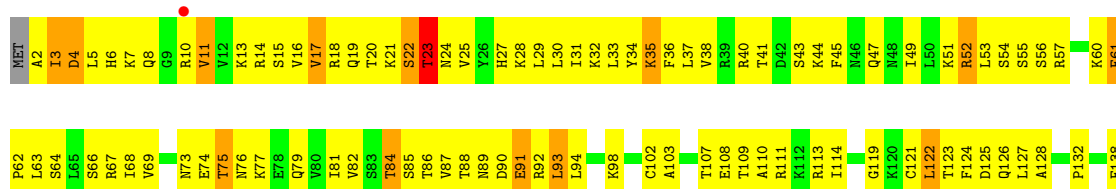


• Molecule 35: RPL18

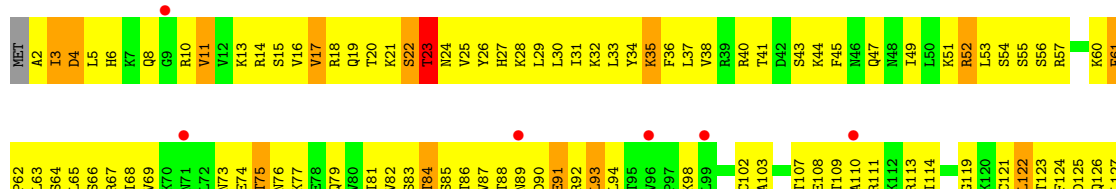




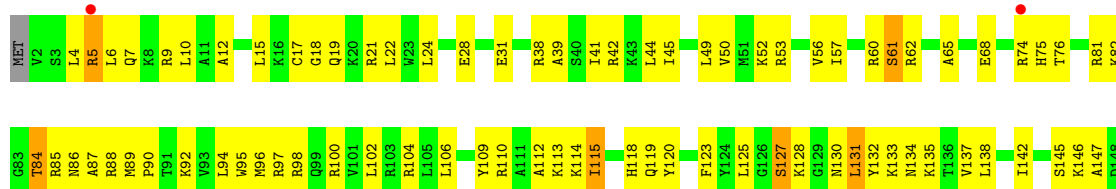
• Molecule 35: RPL18



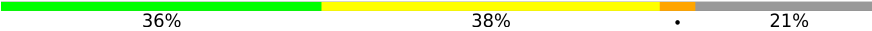
• Molecule 35: RPL18

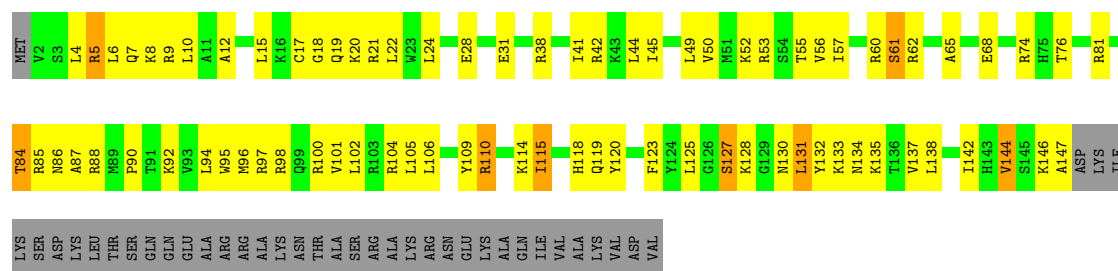


• Molecule 36: RPL19



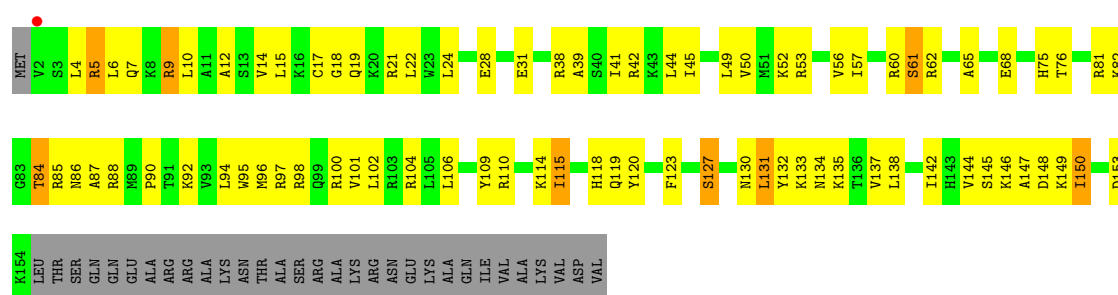
• Molecule 36: RPL19

Chain EO:  36% 38% 21%

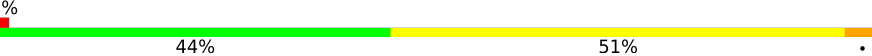


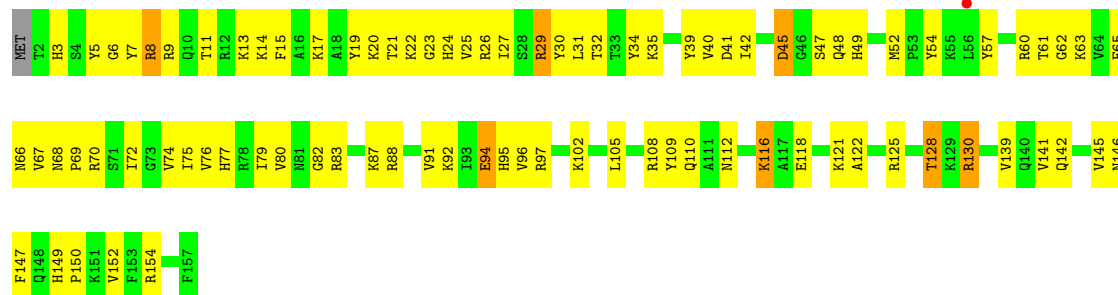
• Molecule 36: RPL19

Chain GO:  39% 39% 17%



• Molecule 37: 60S RIBOSOMAL PROTEIN L21

Chain BP:  44% 51% 5% 2%



• Molecule 37: 60S RIBOSOMAL PROTEIN L21

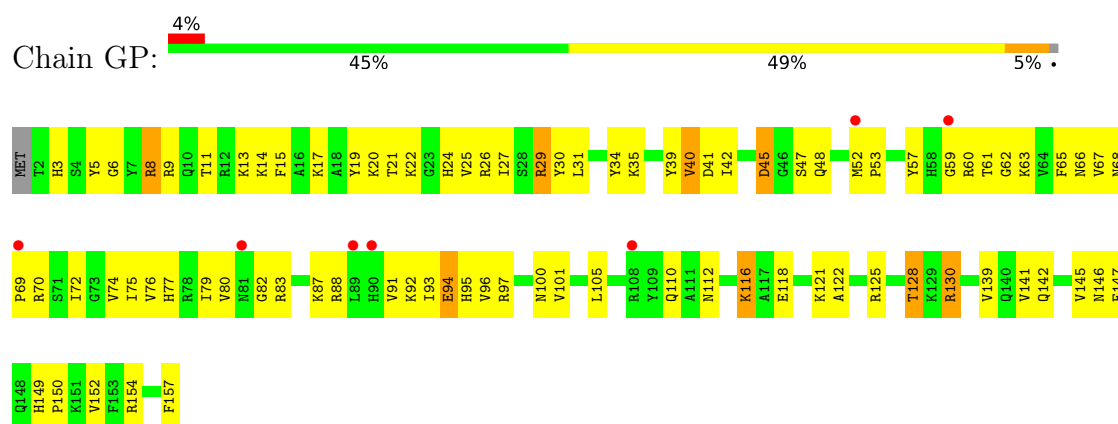
Chain CP:  45% 48% 6%



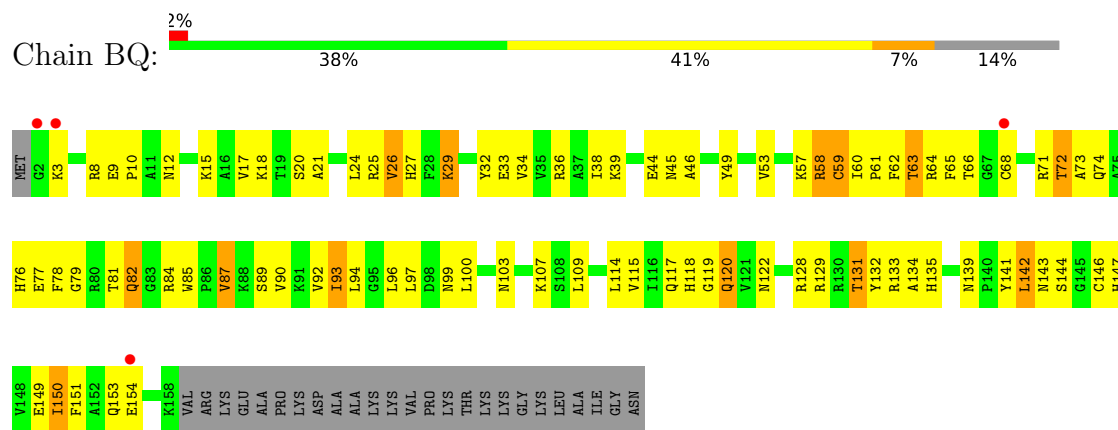
• Molecule 37: 60S RIBOSOMAL PROTEIN L21



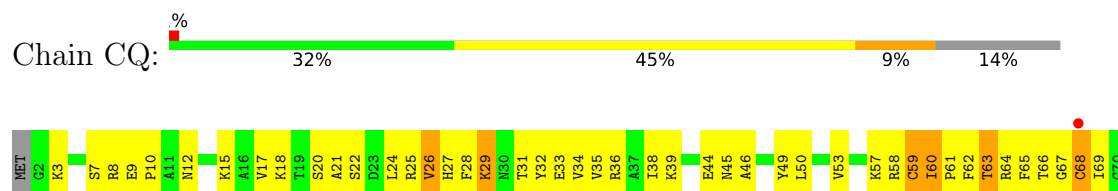
• Molecule 37: 60S RIBOSOMAL PROTEIN L21

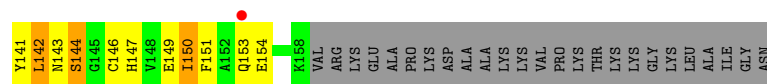


• Molecule 38: RPL17

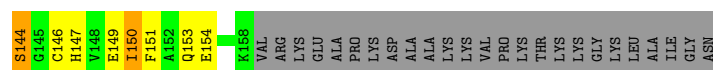
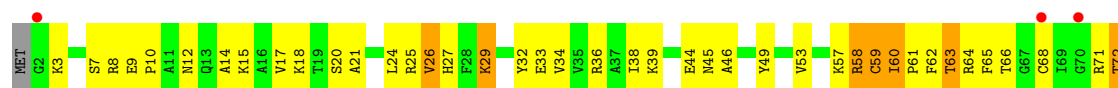


• Molecule 38: RPL17

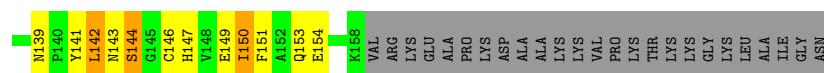
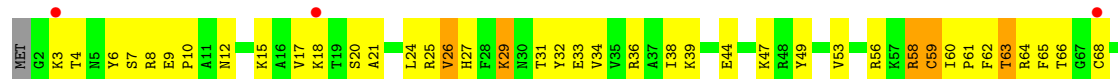




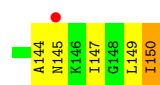
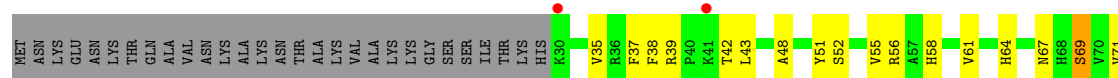
• Molecule 38: RPL17



• Molecule 38: RPL17

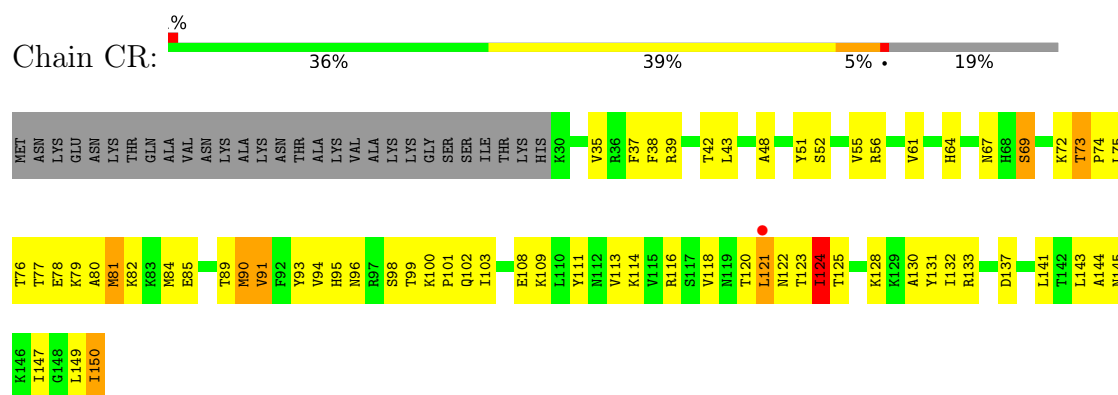


• Molecule 39: RPL23A

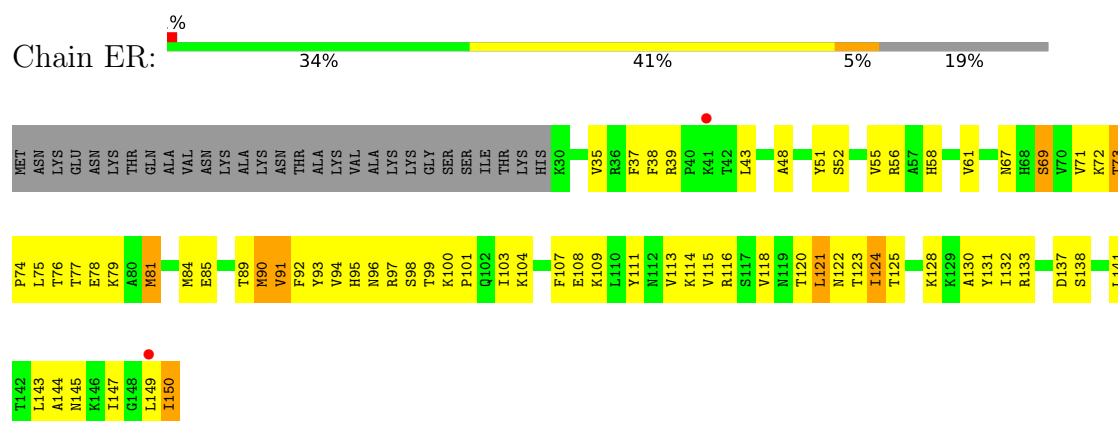


• Molecule 39: RPL23A

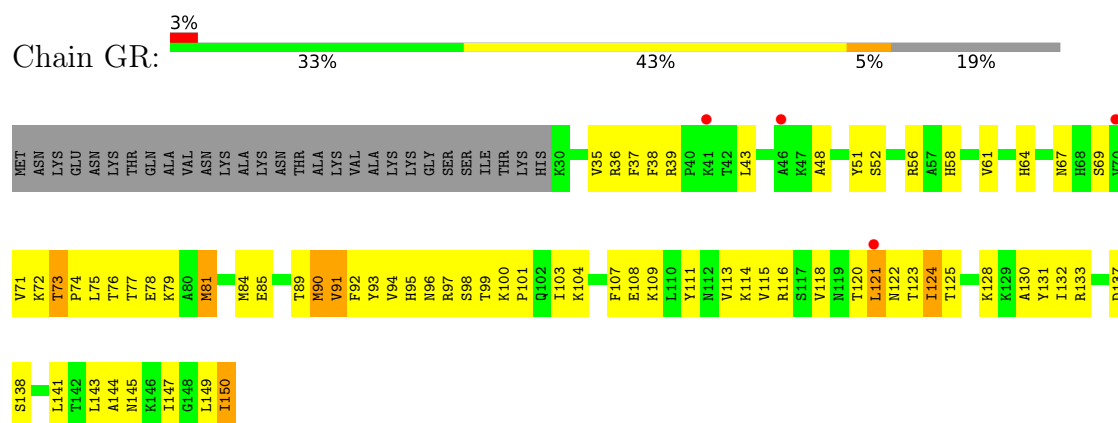




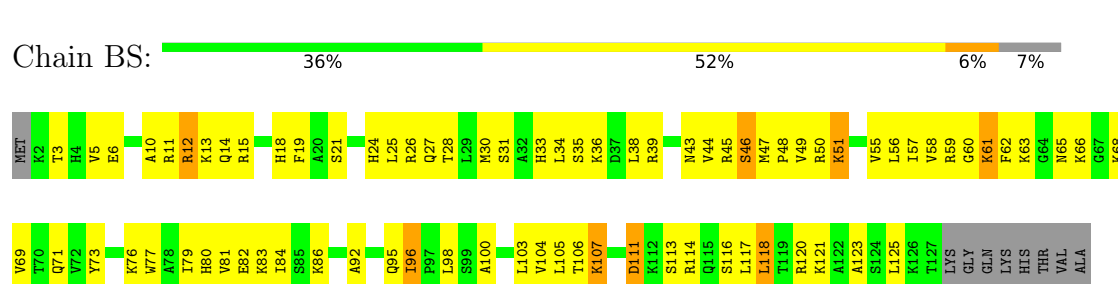
## • Molecule 39: RPL23A



## • Molecule 39: RPL23A



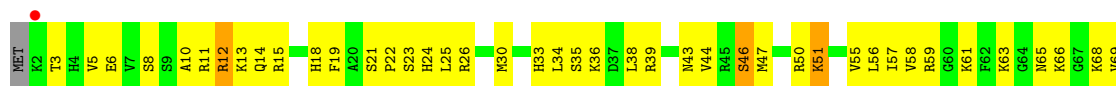
## • Molecule 40: RPL26



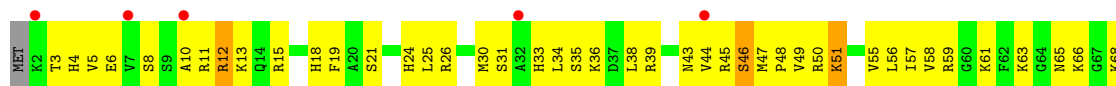
## • Molecule 40: RPL26



• Molecule 40: RPL26



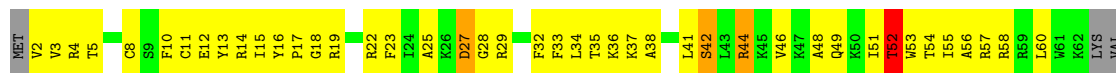
• Molecule 40: RPL26

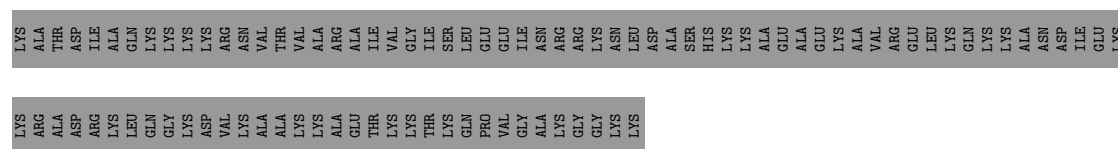


• Molecule 41: RPL24



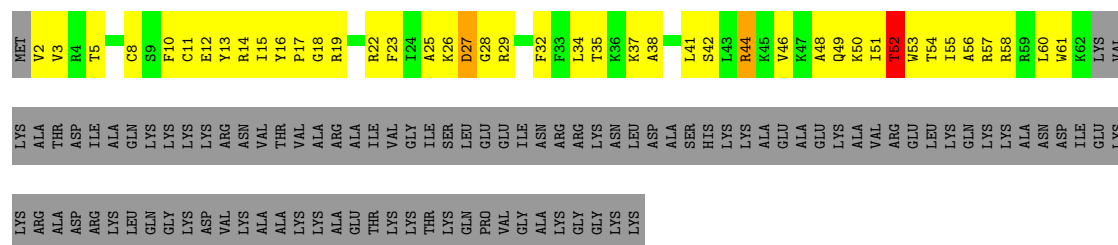
• Molecule 41: RPL24





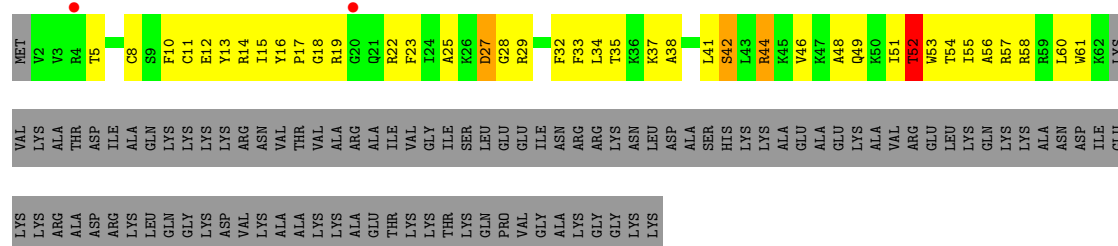
### • Molecule 41: RPL24

Chain ET: 11% 25% 61%



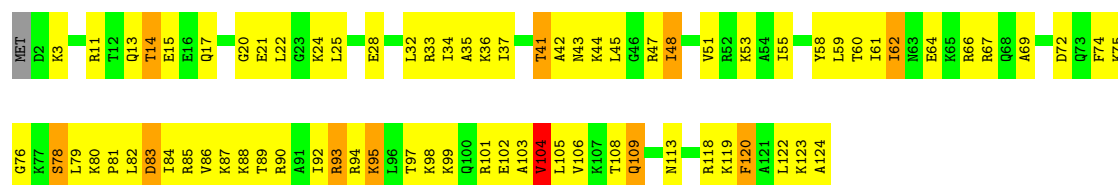
### • Molecule 41: RPL24

Chain GT: 13% 23% 61%



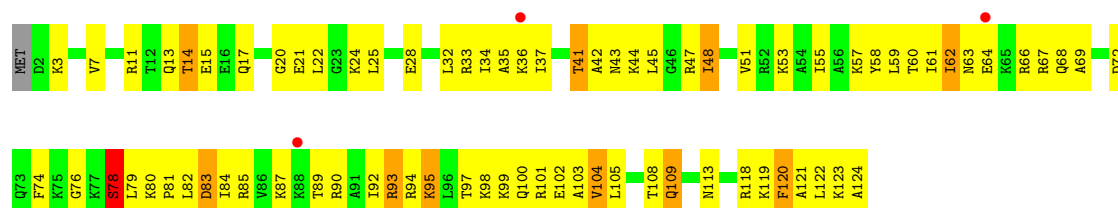
### • Molecule 42: RPL35

Chain BU: 38% 52% 8%

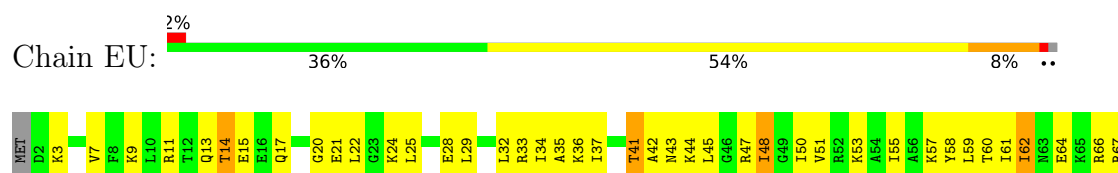


### • Molecule 42: RPL35

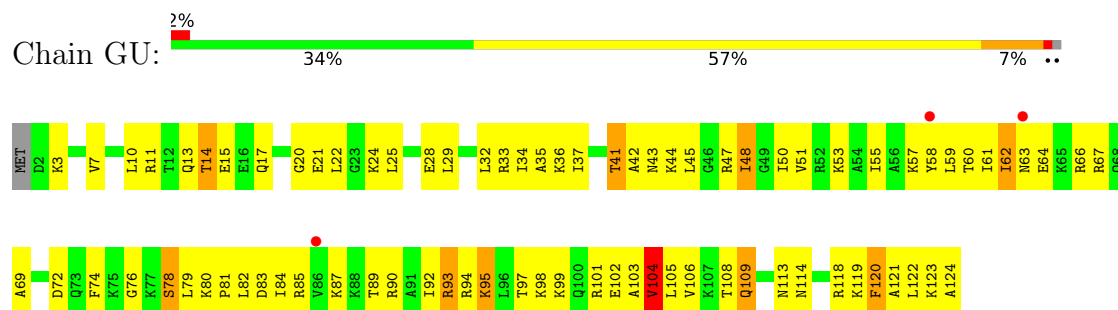
Chain CU: 2% 36% 54% 8%



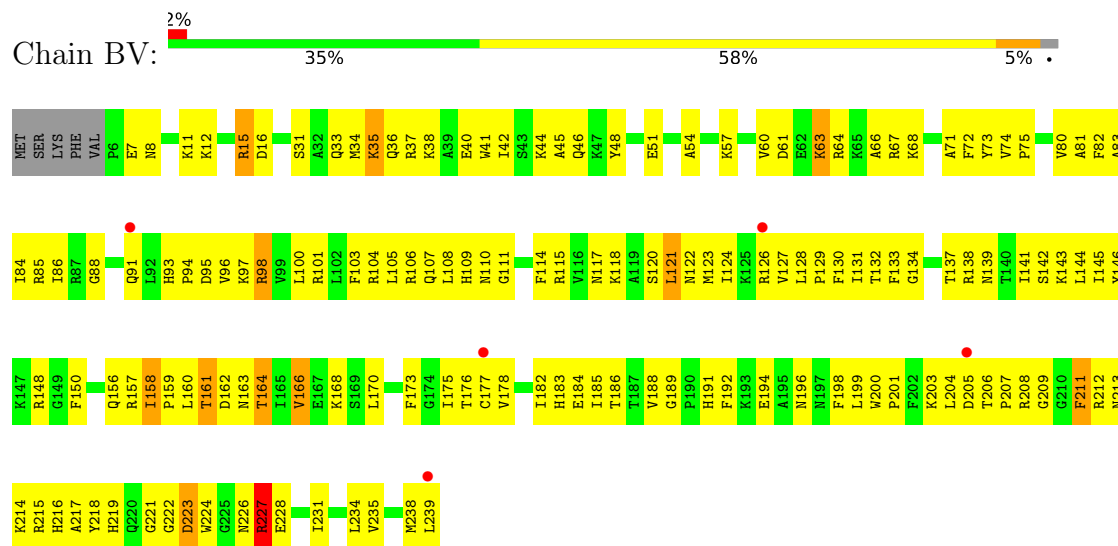
### • Molecule 42: RPL35



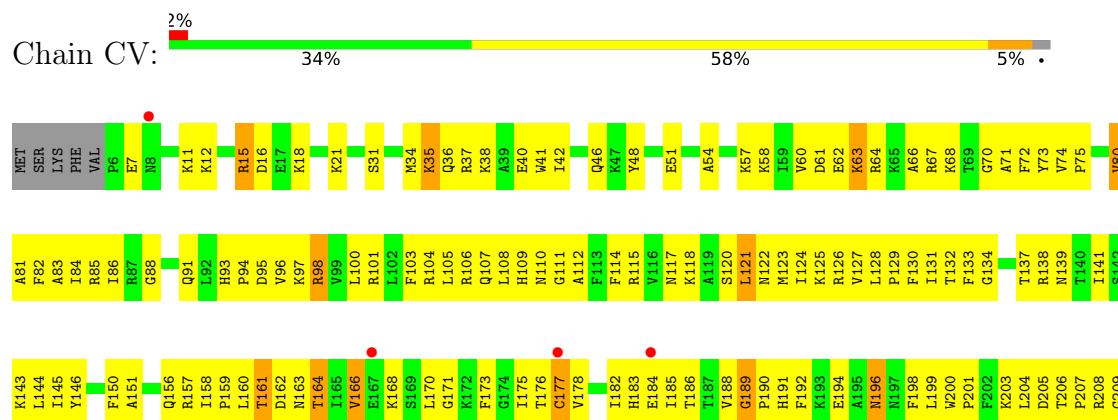
• Molecule 42: RPL35

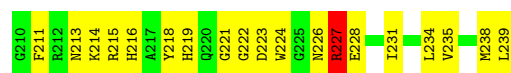


• Molecule 43: 60S RIBOSOMAL PROTEIN L7

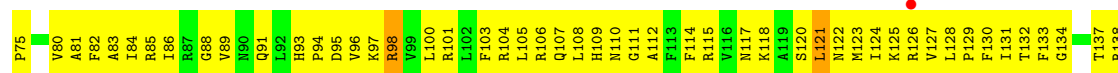


• Molecule 43: 60S RIBOSOMAL PROTEIN L7

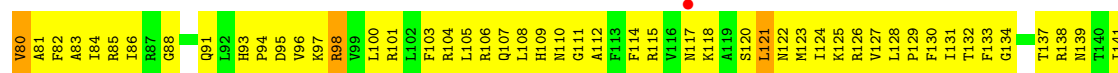
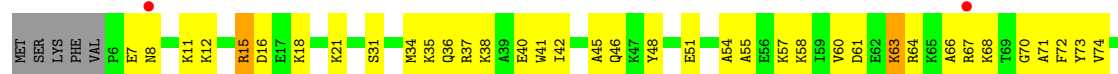




• Molecule 43: 60S RIBOSOMAL PROTEIN L7



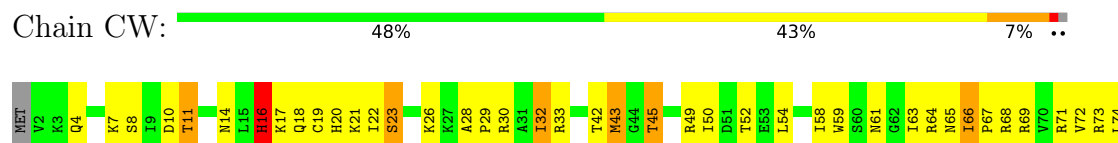
• Molecule 43: 60S RIBOSOMAL PROTEIN L7



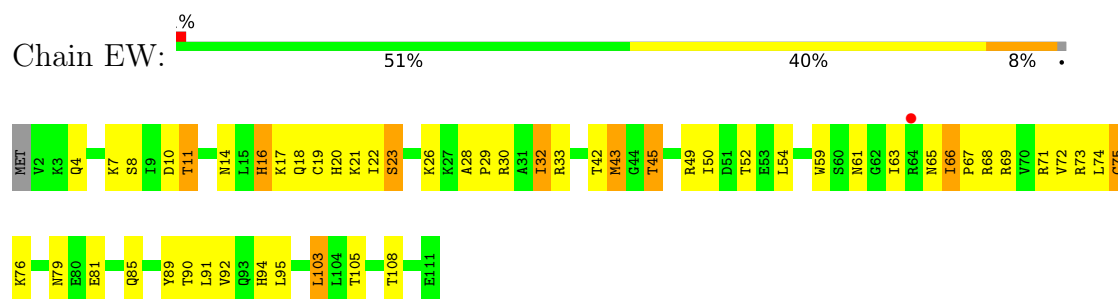
• Molecule 44: 60S RIBOSOMAL PROTEIN L31



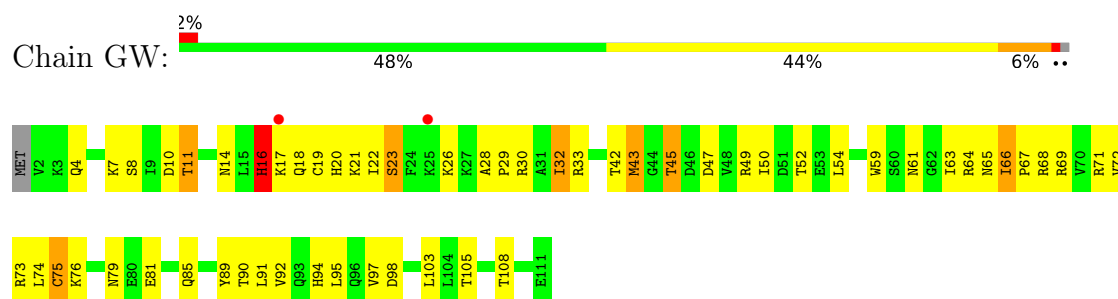
• Molecule 44: 60S RIBOSOMAL PROTEIN L31



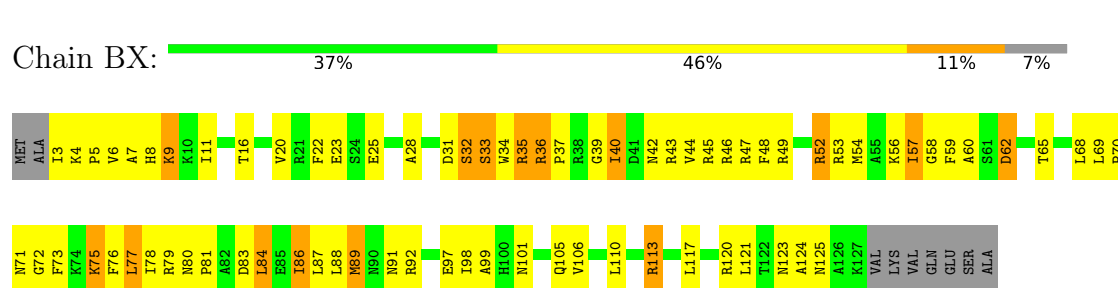
• Molecule 44: 60S RIBOSOMAL PROTEIN L31



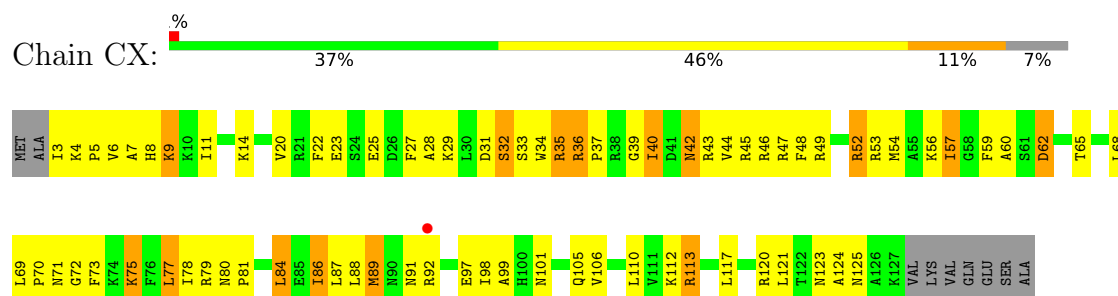
• Molecule 44: 60S RIBOSOMAL PROTEIN L31



• Molecule 45: 60S RIBOSOMAL PROTEIN L32



• Molecule 45: 60S RIBOSOMAL PROTEIN L32



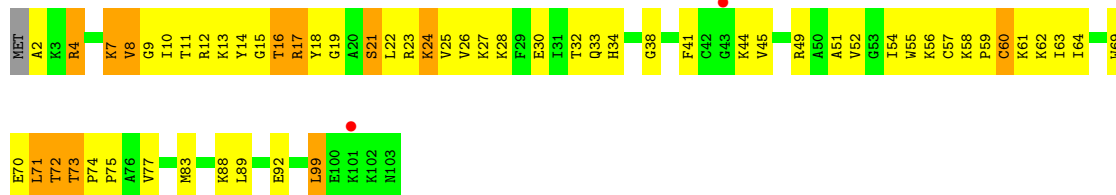
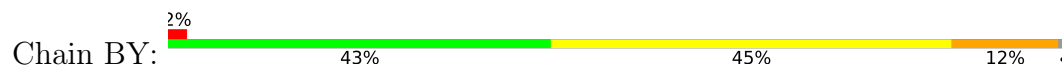
• Molecule 45: 60S RIBOSOMAL PROTEIN L32



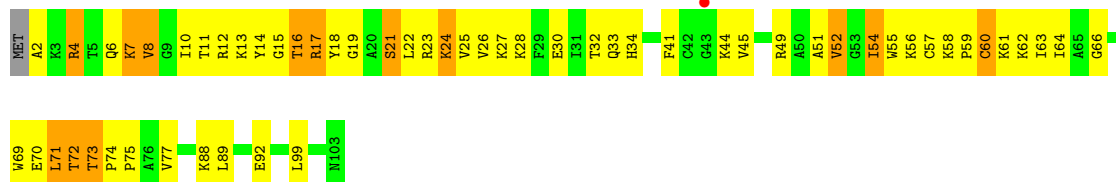
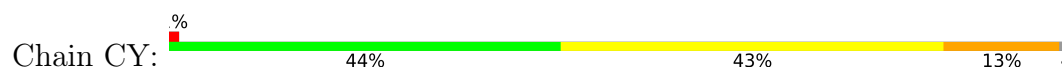
• Molecule 45: 60S RIBOSOMAL PROTEIN L32



• Molecule 46: RPL37A



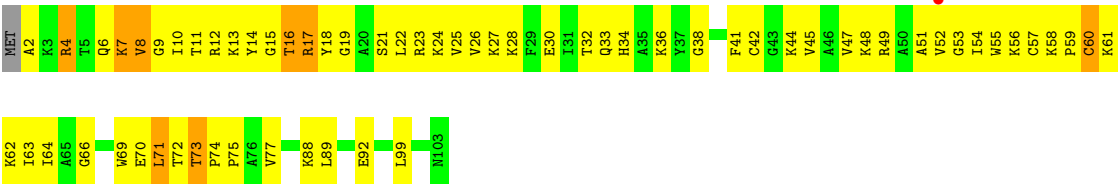
• Molecule 46: RPL37A



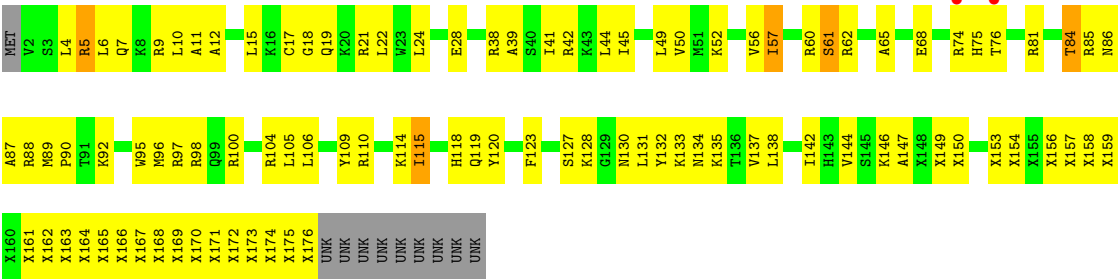
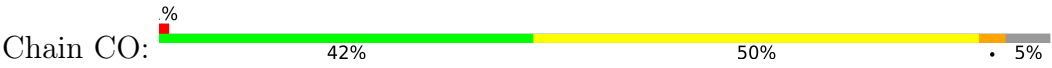
• Molecule 46: RPL37A



● Molecule 46: RPL37A



● Molecule 47: RPL19





## 4 Data and refinement statistics

| Property                                                                | Value                                                       | Source           |
|-------------------------------------------------------------------------|-------------------------------------------------------------|------------------|
| Space group                                                             | P 1 21 1                                                    | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 320.19Å 289.25Å 535.04Å<br>90.00° 91.22° 90.00°             | Depositor        |
| Resolution (Å)                                                          | 20.00 – 3.52<br>20.00 – 3.52                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 99.4 (20.00-3.52)<br>98.9 (20.00-3.52)                      | Depositor<br>EDS |
| $R_{merge}$                                                             | 0.13                                                        | Depositor        |
| $R_{sym}$                                                               | (Not available)                                             | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 1.87 (at 3.48Å)                                             | Xtriage          |
| Refinement program                                                      | PHENIX (PHENIX.REFINE)                                      | Depositor        |
| R, $R_{free}$                                                           | 0.216 , 0.244<br>0.237 , 0.263                              | Depositor<br>DCC |
| $R_{free}$ test set                                                     | 10000 reflections (0.84%)                                   | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 96.9                                                        | Xtriage          |
| Anisotropy                                                              | 0.228                                                       | Xtriage          |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.27 , 80.5                                                 | EDS              |
| L-test for twinning <sup>2</sup>                                        | $\langle  L  \rangle = 0.45$ , $\langle L^2 \rangle = 0.28$ | Xtriage          |
| Estimated twinning fraction                                             | 0.028 for h,-k,-l                                           | Xtriage          |
| $F_o, F_c$ correlation                                                  | 0.91                                                        | EDS              |
| Total number of atoms                                                   | 511395                                                      | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 108.0                                                       | wwPDB-VP         |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.51% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality ⓘ

### 5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Chain | Bond lengths |                | Bond angles |                 |
|-----|-------|--------------|----------------|-------------|-----------------|
|     |       | RMSZ         | # Z  >5        | RMSZ        | # Z  >5         |
| 1   | A1    | 0.43         | 0/74792        | 0.48        | 0/116594        |
| 1   | D1    | 0.46         | 6/74792 (0.0%) | 0.48        | 0/116594        |
| 1   | F1    | 0.43         | 5/74792 (0.0%) | 0.48        | 3/116594 (0.0%) |
| 1   | H1    | 0.44         | 1/74792 (0.0%) | 0.49        | 0/116594        |
| 2   | AA    | 0.79         | 1/734 (0.1%)   | 1.15        | 4/972 (0.4%)    |
| 2   | DA    | 0.76         | 1/734 (0.1%)   | 1.15        | 4/972 (0.4%)    |
| 2   | FA    | 0.71         | 0/734          | 1.13        | 2/972 (0.2%)    |
| 2   | HA    | 0.72         | 0/734          | 1.11        | 2/972 (0.2%)    |
| 3   | AB    | 0.70         | 0/466          | 0.92        | 0/619           |
| 3   | DB    | 0.61         | 0/466          | 0.92        | 0/619           |
| 3   | FB    | 0.59         | 0/466          | 0.92        | 0/619           |
| 3   | HB    | 0.58         | 0/466          | 0.90        | 0/619           |
| 4   | AC    | 0.70         | 0/848          | 1.04        | 5/1123 (0.4%)   |
| 4   | DC    | 0.67         | 1/848 (0.1%)   | 1.03        | 5/1123 (0.4%)   |
| 4   | FC    | 0.65         | 0/848          | 1.04        | 5/1123 (0.4%)   |
| 4   | HC    | 0.70         | 0/848          | 1.03        | 3/1123 (0.3%)   |
| 5   | AE    | 0.59         | 0/1550         | 1.10        | 10/2077 (0.5%)  |
| 5   | DE    | 0.58         | 0/1550         | 1.11        | 9/2077 (0.4%)   |
| 5   | FE    | 0.59         | 0/1550         | 1.13        | 9/2077 (0.4%)   |
| 5   | HE    | 0.58         | 0/1550         | 1.13        | 10/2077 (0.5%)  |
| 6   | AF    | 0.67         | 0/1033         | 1.04        | 5/1380 (0.4%)   |
| 6   | DF    | 0.67         | 0/1033         | 1.04        | 6/1380 (0.4%)   |
| 6   | FF    | 0.69         | 0/1033         | 1.04        | 6/1380 (0.4%)   |
| 6   | HF    | 0.70         | 0/1033         | 1.06        | 6/1380 (0.4%)   |
| 7   | AG    | 0.70         | 0/736          | 1.12        | 3/990 (0.3%)    |
| 7   | DG    | 0.66         | 0/736          | 1.10        | 3/990 (0.3%)    |
| 7   | FG    | 0.65         | 0/736          | 1.12        | 3/990 (0.3%)    |
| 7   | HG    | 0.62         | 0/736          | 1.12        | 3/990 (0.3%)    |
| 8   | AH    | 0.82         | 3/870 (0.3%)   | 1.22        | 7/1175 (0.6%)   |
| 8   | DH    | 0.83         | 2/870 (0.2%)   | 1.23        | 9/1175 (0.8%)   |
| 8   | FH    | 0.84         | 3/870 (0.3%)   | 1.22        | 9/1175 (0.8%)   |
| 8   | HH    | 0.76         | 2/870 (0.2%)   | 1.21        | 7/1175 (0.6%)   |

| Mol | Chain | Bond lengths |         | Bond angles |                |
|-----|-------|--------------|---------|-------------|----------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5        |
| 9   | AJ    | 0.68         | 0/1739  | 1.06        | 6/2368 (0.3%)  |
| 9   | DJ    | 0.65         | 0/1739  | 1.05        | 6/2368 (0.3%)  |
| 9   | FJ    | 0.70         | 0/1739  | 1.05        | 11/2368 (0.5%) |
| 9   | HJ    | 0.72         | 0/1739  | 1.05        | 7/2368 (0.3%)  |
| 10  | AK    | 0.60         | 0/421   | 1.06        | 0/558          |
| 10  | DK    | 0.61         | 0/421   | 1.07        | 0/558          |
| 10  | FK    | 0.60         | 0/421   | 1.05        | 0/558          |
| 10  | HK    | 0.62         | 0/421   | 1.07        | 0/558          |
| 11  | AL    | 0.80         | 0/861   | 1.10        | 5/1154 (0.4%)  |
| 11  | DL    | 0.72         | 0/861   | 1.08        | 4/1154 (0.3%)  |
| 11  | FL    | 0.66         | 0/861   | 1.06        | 4/1154 (0.3%)  |
| 11  | HL    | 0.61         | 0/861   | 1.06        | 4/1154 (0.3%)  |
| 12  | AM    | 0.55         | 0/832   | 0.97        | 2/1113 (0.2%)  |
| 12  | DM    | 0.52         | 0/832   | 0.99        | 1/1113 (0.1%)  |
| 12  | FM    | 0.50         | 0/832   | 0.99        | 1/1113 (0.1%)  |
| 12  | HM    | 0.50         | 0/832   | 0.98        | 2/1113 (0.2%)  |
| 13  | AN    | 0.55         | 0/1190  | 1.00        | 6/1582 (0.4%)  |
| 13  | DN    | 0.47         | 0/1190  | 0.98        | 5/1582 (0.3%)  |
| 13  | FN    | 0.46         | 0/1190  | 0.98        | 4/1582 (0.3%)  |
| 13  | HN    | 0.44         | 0/1190  | 0.97        | 4/1582 (0.3%)  |
| 14  | AO    | 0.62         | 0/1047  | 1.08        | 4/1400 (0.3%)  |
| 14  | DO    | 0.66         | 0/1047  | 1.09        | 4/1400 (0.3%)  |
| 14  | FO    | 0.62         | 0/1047  | 1.07        | 4/1400 (0.3%)  |
| 14  | HO    | 0.65         | 0/1047  | 1.08        | 3/1400 (0.2%)  |
| 15  | AP    | 0.55         | 0/561   | 0.98        | 2/745 (0.3%)   |
| 15  | DP    | 0.51         | 0/561   | 1.02        | 2/745 (0.3%)   |
| 15  | FP    | 0.52         | 0/561   | 1.00        | 2/745 (0.3%)   |
| 15  | HP    | 0.52         | 0/561   | 1.01        | 2/745 (0.3%)   |
| 16  | AQ    | 0.64         | 0/808   | 1.00        | 2/1068 (0.2%)  |
| 16  | DQ    | 0.66         | 0/808   | 0.98        | 3/1068 (0.3%)  |
| 16  | FQ    | 0.67         | 0/808   | 1.01        | 3/1068 (0.3%)  |
| 16  | HQ    | 0.65         | 0/808   | 0.99        | 2/1068 (0.2%)  |
| 17  | AT    | 0.63         | 0/539   | 1.06        | 0/711          |
| 17  | DT    | 0.62         | 0/539   | 1.04        | 0/711          |
| 17  | FT    | 0.63         | 0/539   | 1.04        | 0/711          |
| 17  | HT    | 0.65         | 0/539   | 1.08        | 0/711          |
| 18  | AU    | 0.71         | 0/1647  | 1.18        | 13/2201 (0.6%) |
| 18  | DU    | 0.70         | 0/1647  | 1.19        | 13/2201 (0.6%) |
| 18  | FU    | 0.70         | 0/1647  | 1.21        | 13/2201 (0.6%) |
| 18  | HU    | 0.75         | 0/1647  | 1.20        | 13/2201 (0.6%) |
| 19  | AX    | 0.62         | 0/1563  | 1.11        | 16/2104 (0.8%) |
| 19  | DX    | 0.67         | 0/1563  | 1.11        | 10/2104 (0.5%) |
| 19  | FX    | 0.66         | 0/1563  | 1.10        | 10/2104 (0.5%) |

| Mol | Chain | Bond lengths |               | Bond angles |                |
|-----|-------|--------------|---------------|-------------|----------------|
|     |       | RMSZ         | # Z  >5       | RMSZ        | # Z  >5        |
| 19  | HX    | 0.66         | 0/1563        | 1.11        | 11/2104 (0.5%) |
| 20  | B2    | 0.40         | 0/3696        | 0.48        | 0/5761         |
| 20  | C2    | 0.42         | 0/3696        | 0.48        | 0/5761         |
| 20  | E2    | 0.37         | 0/3696        | 0.48        | 0/5761         |
| 20  | G2    | 0.46         | 0/3696        | 0.49        | 0/5761         |
| 21  | B3    | 0.38         | 0/2870        | 0.39        | 0/4473         |
| 21  | C3    | 0.36         | 0/2870        | 0.39        | 0/4473         |
| 21  | E3    | 0.33         | 0/2870        | 0.38        | 0/4473         |
| 21  | G3    | 0.35         | 0/2870        | 0.39        | 0/4473         |
| 22  | BA    | 0.79         | 0/2019        | 1.14        | 13/2712 (0.5%) |
| 22  | CA    | 0.76         | 0/2019        | 1.11        | 9/2712 (0.3%)  |
| 22  | EA    | 0.75         | 0/2019        | 1.13        | 14/2712 (0.5%) |
| 22  | GA    | 0.70         | 0/2019        | 1.11        | 10/2712 (0.4%) |
| 23  | BB    | 0.75         | 0/3144        | 1.11        | 21/4213 (0.5%) |
| 23  | CB    | 0.70         | 0/3144        | 1.09        | 17/4213 (0.4%) |
| 23  | EB    | 0.70         | 0/3144        | 1.10        | 23/4213 (0.5%) |
| 23  | GB    | 0.67         | 0/3144        | 1.10        | 17/4213 (0.4%) |
| 24  | BC    | 0.61         | 0/3222        | 1.03        | 11/4338 (0.3%) |
| 24  | CC    | 0.65         | 0/3222        | 1.02        | 9/4338 (0.2%)  |
| 24  | EC    | 0.62         | 0/3222        | 1.02        | 9/4338 (0.2%)  |
| 24  | GC    | 0.65         | 0/3222        | 1.02        | 6/4338 (0.1%)  |
| 25  | BD    | 0.60         | 0/1376        | 0.98        | 4/1833 (0.2%)  |
| 25  | CD    | 0.59         | 0/1376        | 0.98        | 5/1833 (0.3%)  |
| 25  | ED    | 0.58         | 0/1376        | 0.97        | 4/1833 (0.2%)  |
| 25  | GD    | 0.60         | 0/1376        | 0.99        | 5/1833 (0.3%)  |
| 26  | BE    | 0.60         | 0/1501        | 1.03        | 5/2015 (0.2%)  |
| 26  | CE    | 0.60         | 0/1501        | 1.03        | 4/2015 (0.2%)  |
| 26  | EE    | 0.61         | 0/1501        | 1.02        | 3/2015 (0.1%)  |
| 26  | GE    | 0.63         | 0/1501        | 1.05        | 5/2015 (0.2%)  |
| 27  | BF    | 0.63         | 0/1893        | 1.02        | 9/2548 (0.4%)  |
| 27  | CF    | 0.63         | 0/1893        | 1.03        | 10/2548 (0.4%) |
| 27  | EF    | 0.62         | 0/1893        | 1.02        | 9/2548 (0.4%)  |
| 27  | GF    | 0.61         | 0/1893        | 1.04        | 6/2548 (0.2%)  |
| 29  | BH    | 0.58         | 0/1652        | 1.12        | 12/2213 (0.5%) |
| 29  | CH    | 0.60         | 0/1652        | 1.10        | 10/2213 (0.5%) |
| 29  | EH    | 0.57         | 0/1652        | 1.11        | 15/2213 (0.7%) |
| 29  | GH    | 0.59         | 0/1652        | 1.11        | 11/2213 (0.5%) |
| 30  | BI    | 0.63         | 0/1624        | 1.03        | 7/2176 (0.3%)  |
| 30  | CI    | 0.63         | 1/1624 (0.1%) | 1.04        | 8/2176 (0.4%)  |
| 30  | EI    | 0.64         | 0/1624        | 1.05        | 7/2176 (0.3%)  |
| 30  | GI    | 0.93         | 5/1624 (0.3%) | 1.14        | 12/2176 (0.6%) |
| 31  | BJ    | 0.84         | 2/1038 (0.2%) | 1.11        | 6/1394 (0.4%)  |
| 31  | CJ    | 0.88         | 2/1038 (0.2%) | 1.12        | 7/1394 (0.5%)  |

| Mol | Chain | Bond lengths |               | Bond angles |                |
|-----|-------|--------------|---------------|-------------|----------------|
|     |       | RMSZ         | # Z  >5       | RMSZ        | # Z  >5        |
| 31  | EJ    | 0.83         | 1/1038 (0.1%) | 1.13        | 6/1394 (0.4%)  |
| 31  | GJ    | 0.90         | 3/1038 (0.3%) | 1.13        | 6/1394 (0.4%)  |
| 32  | BK    | 0.67         | 0/1189        | 1.22        | 6/1589 (0.4%)  |
| 32  | CK    | 0.69         | 0/1189        | 1.24        | 9/1589 (0.6%)  |
| 32  | EK    | 0.69         | 0/1189        | 1.24        | 7/1589 (0.4%)  |
| 32  | GK    | 0.74         | 0/1189        | 1.24        | 8/1589 (0.5%)  |
| 33  | BL    | 0.64         | 0/1727        | 1.12        | 5/2308 (0.2%)  |
| 33  | CL    | 0.64         | 0/1727        | 1.09        | 5/2308 (0.2%)  |
| 33  | EL    | 0.63         | 0/1727        | 1.14        | 6/2308 (0.3%)  |
| 33  | GL    | 0.68         | 0/1727        | 1.14        | 5/2308 (0.2%)  |
| 34  | BM    | 0.61         | 0/2453        | 1.05        | 10/3285 (0.3%) |
| 34  | CM    | 0.61         | 0/2469        | 1.06        | 11/3306 (0.3%) |
| 34  | EM    | 0.62         | 1/2469 (0.0%) | 1.06        | 11/3306 (0.3%) |
| 34  | GM    | 0.70         | 2/2469 (0.1%) | 1.08        | 14/3306 (0.4%) |
| 35  | BN    | 0.64         | 0/1464        | 1.20        | 7/1965 (0.4%)  |
| 35  | CN    | 0.66         | 0/1464        | 1.20        | 7/1965 (0.4%)  |
| 35  | EN    | 0.63         | 0/1464        | 1.19        | 7/1965 (0.4%)  |
| 35  | GN    | 0.67         | 0/1464        | 1.19        | 7/1965 (0.4%)  |
| 36  | BO    | 0.80         | 0/1507        | 1.00        | 5/2001 (0.2%)  |
| 36  | EO    | 0.58         | 0/1208        | 0.96        | 1/1604 (0.1%)  |
| 36  | GO    | 0.63         | 1/1250 (0.1%) | 0.99        | 2/1660 (0.1%)  |
| 37  | BP    | 0.62         | 0/1300        | 0.94        | 1/1743 (0.1%)  |
| 37  | CP    | 0.60         | 0/1300        | 0.93        | 2/1743 (0.1%)  |
| 37  | EP    | 0.59         | 0/1300        | 0.92        | 1/1743 (0.1%)  |
| 37  | GP    | 0.64         | 0/1300        | 0.93        | 2/1743 (0.1%)  |
| 38  | BQ    | 0.79         | 0/1259        | 1.13        | 3/1693 (0.2%)  |
| 38  | CQ    | 0.78         | 0/1259        | 1.12        | 4/1693 (0.2%)  |
| 38  | EQ    | 0.70         | 0/1259        | 1.15        | 5/1693 (0.3%)  |
| 38  | GQ    | 0.68         | 0/1259        | 1.15        | 2/1693 (0.1%)  |
| 39  | BR    | 0.69         | 0/981         | 1.01        | 3/1320 (0.2%)  |
| 39  | CR    | 0.61         | 0/981         | 1.02        | 4/1320 (0.3%)  |
| 39  | ER    | 0.57         | 0/981         | 1.00        | 2/1320 (0.2%)  |
| 39  | GR    | 0.60         | 0/981         | 1.01        | 2/1320 (0.2%)  |
| 40  | BS    | 0.53         | 0/1028        | 0.98        | 5/1372 (0.4%)  |
| 40  | CS    | 0.53         | 0/1028        | 0.97        | 5/1372 (0.4%)  |
| 40  | ES    | 0.52         | 0/1028        | 0.96        | 4/1372 (0.3%)  |
| 40  | GS    | 0.58         | 0/1028        | 0.98        | 5/1372 (0.4%)  |
| 41  | BT    | 0.66         | 0/521         | 1.01        | 4/693 (0.6%)   |
| 41  | CT    | 0.65         | 0/521         | 1.00        | 3/693 (0.4%)   |
| 41  | ET    | 0.63         | 0/521         | 1.00        | 3/693 (0.4%)   |
| 41  | GT    | 0.62         | 0/521         | 0.99        | 3/693 (0.4%)   |
| 42  | BU    | 0.57         | 0/995         | 0.96        | 4/1318 (0.3%)  |
| 42  | CU    | 0.56         | 0/995         | 0.96        | 2/1318 (0.2%)  |

| Mol | Chain | Bond lengths |                  | Bond angles |                   |
|-----|-------|--------------|------------------|-------------|-------------------|
|     |       | RMSZ         | # Z  >5          | RMSZ        | # Z  >5           |
| 42  | EU    | 0.52         | 0/995            | 0.98        | 4/1318 (0.3%)     |
| 42  | GU    | 0.61         | 0/995            | 0.99        | 4/1318 (0.3%)     |
| 43  | BV    | 0.57         | 0/1950           | 1.00        | 8/2614 (0.3%)     |
| 43  | CV    | 0.63         | 0/1950           | 1.01        | 10/2614 (0.4%)    |
| 43  | EV    | 0.61         | 0/1950           | 1.01        | 10/2614 (0.4%)    |
| 43  | GV    | 0.61         | 0/1950           | 1.01        | 8/2614 (0.3%)     |
| 44  | BW    | 0.80         | 0/913            | 0.92        | 0/1222            |
| 44  | CW    | 0.71         | 0/913            | 0.93        | 2/1222 (0.2%)     |
| 44  | EW    | 0.62         | 0/913            | 0.92        | 1/1222 (0.1%)     |
| 44  | GW    | 0.61         | 0/913            | 0.91        | 1/1222 (0.1%)     |
| 45  | BX    | 0.59         | 0/1028           | 0.98        | 1/1371 (0.1%)     |
| 45  | CX    | 0.63         | 0/1028           | 0.98        | 2/1371 (0.1%)     |
| 45  | EX    | 0.57         | 0/1028           | 0.96        | 2/1371 (0.1%)     |
| 45  | GX    | 0.63         | 0/1028           | 1.01        | 2/1371 (0.1%)     |
| 46  | BY    | 0.79         | 0/799            | 1.19        | 5/1069 (0.5%)     |
| 46  | CY    | 0.74         | 1/799 (0.1%)     | 1.16        | 5/1069 (0.5%)     |
| 46  | EY    | 0.73         | 0/799            | 1.15        | 3/1069 (0.3%)     |
| 46  | GY    | 0.71         | 0/799            | 1.14        | 3/1069 (0.3%)     |
| 47  | CO    | 0.65         | 0/1208           | 0.94        | 1/1604 (0.1%)     |
| All | All   | 0.53         | 44/540737 (0.0%) | 0.75        | 951/795620 (0.1%) |

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 2   | AA    | 0                   | 1                   |
| 2   | DA    | 0                   | 1                   |
| 2   | FA    | 0                   | 1                   |
| 2   | HA    | 0                   | 1                   |
| 8   | AH    | 0                   | 1                   |
| 12  | AM    | 0                   | 1                   |
| 12  | DM    | 0                   | 1                   |
| 12  | FM    | 0                   | 1                   |
| 12  | HM    | 0                   | 1                   |
| 16  | AQ    | 0                   | 1                   |
| 16  | DQ    | 0                   | 1                   |
| 16  | FQ    | 0                   | 1                   |
| 16  | HQ    | 0                   | 1                   |
| 18  | FU    | 0                   | 1                   |
| 27  | BF    | 0                   | 1                   |

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| Mol | Chain | #Chirality outliers | #Planarity outliers |
|-----|-------|---------------------|---------------------|
| 27  | CF    | 0                   | 1                   |
| 27  | EF    | 0                   | 1                   |
| 27  | GF    | 0                   | 1                   |
| 32  | BK    | 0                   | 2                   |
| 32  | CK    | 0                   | 2                   |
| 32  | EK    | 0                   | 2                   |
| 32  | GK    | 0                   | 2                   |
| 38  | CQ    | 0                   | 1                   |
| 38  | GQ    | 0                   | 1                   |
| 42  | CU    | 0                   | 1                   |
| 45  | GX    | 0                   | 1                   |
| All | All   | 0                   | 30                  |

All (44) bond length outliers are listed below:

| Mol | Chain | Res  | Type | Atoms   | Z      | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|--------|-------------|----------|
| 30  | GI    | 60   | TRP  | NE1-CE2 | -21.64 | 1.13        | 1.37     |
| 1   | F1    | 2239 | A    | O3'-P   | 20.53  | 1.92        | 1.61     |
| 34  | GM    | 117  | THR  | CA-CB   | -11.77 | 1.35        | 1.53     |
| 30  | GI    | 60   | TRP  | CG-CD2  | 11.01  | 1.63        | 1.43     |
| 30  | GI    | 60   | TRP  | CD2-CE2 | 9.77   | 1.57        | 1.41     |
| 31  | GJ    | 89   | TRP  | NE1-CE2 | -8.18  | 1.28        | 1.37     |
| 31  | CJ    | 89   | TRP  | NE1-CE2 | -7.98  | 1.28        | 1.37     |
| 34  | GM    | 117  | THR  | CA-C    | -7.79  | 1.43        | 1.52     |
| 31  | BJ    | 89   | TRP  | NE1-CE2 | -7.33  | 1.29        | 1.37     |
| 31  | EJ    | 89   | TRP  | NE1-CE2 | -7.28  | 1.29        | 1.37     |
| 30  | GI    | 60   | TRP  | CD2-CE3 | -7.09  | 1.28        | 1.40     |
| 31  | BJ    | 83   | ILE  | CA-CB   | -7.09  | 1.48        | 1.55     |
| 1   | D1    | 2252 | C    | N1-C2   | 6.79   | 1.53        | 1.40     |
| 34  | EM    | 3    | PHE  | CE2-CZ  | 6.55   | 1.58        | 1.38     |
| 1   | F1    | 2255 | U    | N1-C2   | 6.43   | 1.51        | 1.38     |
| 1   | F1    | 2253 | U    | N1-C2   | 6.33   | 1.51        | 1.38     |
| 8   | FH    | 12   | THR  | CA-C    | -6.16  | 1.45        | 1.52     |
| 1   | D1    | 2254 | A    | C5-C4   | 6.06   | 1.50        | 1.38     |
| 4   | DC    | 67   | ALA  | CA-CB   | -5.88  | 1.45        | 1.53     |
| 8   | AH    | 12   | THR  | CA-C    | -5.81  | 1.45        | 1.52     |
| 8   | AH    | 77   | ILE  | CA-CB   | -5.64  | 1.47        | 1.53     |
| 1   | F1    | 2255 | U    | C4-C5   | 5.62   | 1.54        | 1.43     |
| 31  | CJ    | 83   | ILE  | CA-CB   | -5.58  | 1.49        | 1.55     |
| 31  | GJ    | 83   | ILE  | CA-CB   | -5.58  | 1.49        | 1.55     |
| 1   | D1    | 2254 | A    | C5-C6   | 5.49   | 1.52        | 1.41     |
| 1   | D1    | 2253 | U    | C4-C5   | 5.48   | 1.54        | 1.43     |

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| Mol | Chain | Res  | Type | Atoms   | Z     | Observed(Å) | Ideal(Å) |
|-----|-------|------|------|---------|-------|-------------|----------|
| 1   | H1    | 192  | C    | C1'-N1  | -5.44 | 1.40        | 1.48     |
| 8   | HH    | 12   | THR  | CA-C    | -5.43 | 1.46        | 1.52     |
| 8   | FH    | 13   | ARG  | N-CA    | -5.38 | 1.40        | 1.46     |
| 1   | D1    | 2253 | U    | N1-C2   | 5.37  | 1.49        | 1.38     |
| 1   | F1    | 2253 | U    | C4-C5   | 5.34  | 1.54        | 1.43     |
| 2   | AA    | 30   | GLN  | CA-C    | 5.33  | 1.59        | 1.52     |
| 8   | DH    | 13   | ARG  | N-CA    | -5.26 | 1.40        | 1.46     |
| 36  | GO    | 150  | ILE  | CB-CG1  | -5.21 | 1.43        | 1.53     |
| 1   | D1    | 2250 | A    | C5-C4   | 5.19  | 1.49        | 1.38     |
| 31  | GJ    | 58   | ILE  | CA-CB   | -5.15 | 1.49        | 1.54     |
| 30  | GI    | 60   | TRP  | CD1-NE1 | 5.14  | 1.48        | 1.37     |
| 8   | FH    | 77   | ILE  | CA-CB   | -5.13 | 1.47        | 1.53     |
| 8   | AH    | 13   | ARG  | N-CA    | -5.13 | 1.40        | 1.46     |
| 2   | DA    | 30   | GLN  | CA-C    | 5.12  | 1.59        | 1.52     |
| 30  | CI    | 60   | TRP  | NE1-CE2 | -5.10 | 1.31        | 1.37     |
| 8   | HH    | 13   | ARG  | N-CA    | -5.09 | 1.40        | 1.46     |
| 46  | CY    | 52   | VAL  | CA-CB   | -5.08 | 1.49        | 1.54     |
| 8   | DH    | 12   | THR  | CA-C    | -5.07 | 1.46        | 1.52     |

All (951) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms      | Z      | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|--------|-------------|----------|
| 33  | EL    | 73  | ARG  | CA-C-N     | 14.37  | 133.91      | 119.82   |
| 33  | EL    | 73  | ARG  | C-N-CA     | 14.37  | 133.91      | 119.82   |
| 33  | GL    | 73  | ARG  | CA-C-N     | 13.63  | 133.18      | 119.82   |
| 33  | GL    | 73  | ARG  | C-N-CA     | 13.63  | 133.18      | 119.82   |
| 33  | BL    | 73  | ARG  | CA-C-N     | 12.90  | 132.47      | 119.82   |
| 33  | BL    | 73  | ARG  | C-N-CA     | 12.90  | 132.47      | 119.82   |
| 35  | BN    | 155 | ALA  | CA-C-N     | 12.85  | 135.91      | 119.84   |
| 35  | BN    | 155 | ALA  | C-N-CA     | 12.85  | 135.91      | 119.84   |
| 35  | CN    | 155 | ALA  | CA-C-N     | 12.70  | 135.72      | 119.84   |
| 35  | CN    | 155 | ALA  | C-N-CA     | 12.70  | 135.72      | 119.84   |
| 35  | GN    | 155 | ALA  | CA-C-N     | 12.62  | 135.62      | 119.84   |
| 35  | GN    | 155 | ALA  | C-N-CA     | 12.62  | 135.62      | 119.84   |
| 35  | EN    | 155 | ALA  | CA-C-N     | 12.59  | 135.57      | 119.84   |
| 35  | EN    | 155 | ALA  | C-N-CA     | 12.59  | 135.57      | 119.84   |
| 46  | BY    | 8   | VAL  | N-CA-C     | 12.55  | 122.99      | 110.82   |
| 46  | EY    | 8   | VAL  | N-CA-C     | 12.34  | 122.79      | 110.82   |
| 30  | GI    | 60  | TRP  | CE2-CD2-CG | -12.34 | 92.39       | 107.20   |
| 32  | CK    | 121 | GLN  | CA-C-N     | 11.98  | 131.75      | 119.76   |
| 32  | CK    | 121 | GLN  | C-N-CA     | 11.98  | 131.75      | 119.76   |
| 22  | GA    | 217 | HIS  | N-CA-C     | 11.97  | 127.32      | 112.23   |

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| Mol | Chain | Res  | Type | Atoms       | Z      | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|--------|-------------|----------|
| 32  | EK    | 121  | GLN  | CA-C-N      | 11.71  | 131.47      | 119.76   |
| 32  | EK    | 121  | GLN  | C-N-CA      | 11.71  | 131.47      | 119.76   |
| 46  | CY    | 8    | VAL  | N-CA-C      | 11.67  | 122.14      | 110.82   |
| 30  | GI    | 60   | TRP  | CD2-CE2-CZ2 | -11.52 | 110.88      | 122.40   |
| 22  | CA    | 217  | HIS  | N-CA-C      | 11.48  | 127.46      | 113.23   |
| 22  | BA    | 217  | HIS  | N-CA-C      | 11.41  | 127.38      | 113.23   |
| 32  | BK    | 121  | GLN  | CA-C-N      | 11.34  | 131.10      | 119.76   |
| 32  | BK    | 121  | GLN  | C-N-CA      | 11.34  | 131.10      | 119.76   |
| 22  | EA    | 217  | HIS  | N-CA-C      | 11.28  | 127.21      | 113.23   |
| 32  | GK    | 121  | GLN  | CA-C-N      | 11.18  | 130.94      | 119.76   |
| 32  | GK    | 121  | GLN  | C-N-CA      | 11.18  | 130.94      | 119.76   |
| 33  | CL    | 73   | ARG  | CA-C-N      | 10.81  | 133.35      | 119.84   |
| 33  | CL    | 73   | ARG  | C-N-CA      | 10.81  | 133.35      | 119.84   |
| 46  | GY    | 8    | VAL  | N-CA-C      | 10.54  | 121.05      | 110.82   |
| 1   | F1    | 2239 | A    | O3'-P-O5'   | -10.19 | 88.72       | 104.00   |
| 29  | BH    | 15   | LYS  | CA-C-N      | 9.96   | 130.58      | 119.93   |
| 29  | BH    | 15   | LYS  | C-N-CA      | 9.96   | 130.58      | 119.93   |
| 5   | FE    | 78   | GLY  | CA-C-N      | -9.87  | 108.53      | 119.98   |
| 5   | FE    | 78   | GLY  | C-N-CA      | -9.87  | 108.53      | 119.98   |
| 32  | CK    | 99   | VAL  | CA-C-N      | 9.84   | 129.93      | 119.90   |
| 32  | CK    | 99   | VAL  | C-N-CA      | 9.84   | 129.93      | 119.90   |
| 29  | GH    | 15   | LYS  | CA-C-N      | 9.66   | 130.26      | 119.93   |
| 29  | GH    | 15   | LYS  | C-N-CA      | 9.66   | 130.26      | 119.93   |
| 29  | EH    | 15   | LYS  | CA-C-N      | 9.65   | 130.26      | 119.93   |
| 29  | EH    | 15   | LYS  | C-N-CA      | 9.65   | 130.26      | 119.93   |
| 29  | CH    | 15   | LYS  | CA-C-N      | 9.51   | 130.11      | 119.93   |
| 29  | CH    | 15   | LYS  | C-N-CA      | 9.51   | 130.11      | 119.93   |
| 5   | AE    | 78   | GLY  | CA-C-N      | -9.51  | 108.95      | 119.98   |
| 5   | AE    | 78   | GLY  | C-N-CA      | -9.51  | 108.95      | 119.98   |
| 5   | HE    | 78   | GLY  | CA-C-N      | -9.47  | 108.99      | 119.98   |
| 5   | HE    | 78   | GLY  | C-N-CA      | -9.47  | 108.99      | 119.98   |
| 5   | DE    | 78   | GLY  | CA-C-N      | -9.46  | 109.00      | 119.98   |
| 5   | DE    | 78   | GLY  | C-N-CA      | -9.46  | 109.00      | 119.98   |
| 32  | EK    | 99   | VAL  | CA-C-N      | 9.39   | 129.48      | 119.90   |
| 32  | EK    | 99   | VAL  | C-N-CA      | 9.39   | 129.48      | 119.90   |
| 5   | DE    | 118  | GLY  | N-CA-C      | -9.35  | 99.91       | 112.81   |
| 32  | CK    | 49   | LYS  | N-CA-C      | 9.22   | 121.02      | 110.97   |
| 5   | HE    | 118  | GLY  | N-CA-C      | -9.16  | 100.16      | 112.81   |
| 5   | FE    | 118  | GLY  | N-CA-C      | -9.10  | 100.26      | 112.81   |
| 32  | BK    | 99   | VAL  | CA-C-N      | 9.05   | 129.13      | 119.90   |
| 32  | BK    | 99   | VAL  | C-N-CA      | 9.05   | 129.13      | 119.90   |
| 5   | AE    | 118  | GLY  | N-CA-C      | -8.97  | 100.43      | 112.81   |

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| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 32  | GK    | 99   | VAL  | CA-C-N      | 8.96  | 128.99      | 119.76   |
| 32  | GK    | 99   | VAL  | C-N-CA      | 8.96  | 128.99      | 119.76   |
| 35  | BN    | 22   | SER  | N-CA-C      | -8.95 | 95.81       | 109.41   |
| 11  | FL    | 9    | ARG  | N-CA-C      | 8.92  | 124.41      | 113.17   |
| 32  | EK    | 49   | LYS  | N-CA-C      | 8.86  | 120.63      | 110.97   |
| 1   | F1    | 2239 | A    | P-O3'-C3'   | -8.80 | 106.99      | 120.20   |
| 11  | AL    | 9    | ARG  | N-CA-C      | 8.76  | 125.03      | 113.30   |
| 32  | BK    | 49   | LYS  | N-CA-C      | 8.66  | 120.41      | 110.97   |
| 46  | BY    | 17   | ARG  | N-CA-C      | 8.65  | 121.94      | 110.53   |
| 7   | HG    | 49   | PRO  | CA-C-O      | -8.62 | 111.52      | 121.34   |
| 5   | FE    | 85   | VAL  | CA-C-N      | -8.60 | 109.09      | 119.84   |
| 5   | FE    | 85   | VAL  | C-N-CA      | -8.60 | 109.09      | 119.84   |
| 27  | GF    | 93   | ALA  | CA-C-N      | 8.57  | 128.44      | 120.21   |
| 27  | GF    | 93   | ALA  | C-N-CA      | 8.57  | 128.44      | 120.21   |
| 18  | FU    | 19   | ARG  | N-CA-C      | 8.46  | 122.36      | 112.72   |
| 30  | GI    | 60   | TRP  | NE1-CE2-CZ2 | -8.45 | 117.43      | 130.10   |
| 11  | HL    | 9    | ARG  | N-CA-C      | 8.40  | 123.75      | 113.17   |
| 18  | HU    | 23   | PHE  | N-CA-C      | 8.39  | 123.25      | 112.92   |
| 18  | FU    | 124  | PHE  | CA-C-N      | 8.37  | 128.24      | 120.21   |
| 18  | FU    | 124  | PHE  | C-N-CA      | 8.37  | 128.24      | 120.21   |
| 7   | AG    | 49   | PRO  | CA-C-O      | -8.36 | 111.81      | 121.34   |
| 46  | EY    | 17   | ARG  | N-CA-C      | 8.33  | 121.52      | 110.53   |
| 18  | DU    | 23   | PHE  | N-CA-C      | 8.25  | 123.07      | 112.92   |
| 18  | FU    | 23   | PHE  | N-CA-C      | 8.24  | 123.06      | 112.92   |
| 11  | DL    | 9    | ARG  | N-CA-C      | 8.24  | 124.34      | 113.30   |
| 23  | GB    | 328  | GLY  | CA-C-N      | 8.23  | 128.11      | 120.21   |
| 23  | GB    | 328  | GLY  | C-N-CA      | 8.23  | 128.11      | 120.21   |
| 18  | AU    | 23   | PHE  | N-CA-C      | 8.22  | 123.04      | 112.92   |
| 32  | GK    | 49   | LYS  | N-CA-C      | 8.22  | 121.06      | 111.02   |
| 23  | BB    | 328  | GLY  | CA-C-N      | 8.13  | 128.01      | 120.21   |
| 23  | BB    | 328  | GLY  | C-N-CA      | 8.13  | 128.01      | 120.21   |
| 30  | EI    | 107  | ILE  | CA-C-N      | 8.13  | 128.01      | 120.21   |
| 30  | EI    | 107  | ILE  | C-N-CA      | 8.13  | 128.01      | 120.21   |
| 27  | EF    | 93   | ALA  | CA-C-N      | 8.13  | 128.57      | 120.52   |
| 27  | EF    | 93   | ALA  | C-N-CA      | 8.13  | 128.57      | 120.52   |
| 27  | CF    | 93   | ALA  | CA-C-N      | 8.11  | 128.55      | 120.52   |
| 27  | CF    | 93   | ALA  | C-N-CA      | 8.11  | 128.55      | 120.52   |
| 5   | HE    | 85   | VAL  | CA-C-N      | -8.08 | 109.74      | 119.84   |
| 5   | HE    | 85   | VAL  | C-N-CA      | -8.08 | 109.74      | 119.84   |
| 43  | CV    | 189  | GLY  | CA-C-N      | 8.08  | 127.37      | 118.97   |
| 43  | CV    | 189  | GLY  | C-N-CA      | 8.08  | 127.37      | 118.97   |
| 7   | DG    | 49   | PRO  | CA-C-O      | -8.04 | 112.18      | 121.34   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 43  | GV    | 189 | GLY  | CA-C-N  | 8.00  | 127.29      | 118.97   |
| 43  | GV    | 189 | GLY  | C-N-CA  | 8.00  | 127.29      | 118.97   |
| 33  | CL    | 136 | ASP  | CA-C-N  | 7.97  | 128.15      | 119.87   |
| 33  | CL    | 136 | ASP  | C-N-CA  | 7.97  | 128.15      | 119.87   |
| 5   | AE    | 85  | VAL  | CA-C-N  | -7.93 | 109.93      | 119.84   |
| 5   | AE    | 85  | VAL  | C-N-CA  | -7.93 | 109.93      | 119.84   |
| 30  | CI    | 132 | ARG  | CA-C-N  | 7.92  | 127.85      | 119.85   |
| 30  | CI    | 132 | ARG  | C-N-CA  | 7.92  | 127.85      | 119.85   |
| 35  | GN    | 22  | SER  | N-CA-C  | -7.92 | 97.37       | 109.41   |
| 18  | HU    | 124 | PHE  | CA-C-N  | 7.92  | 127.81      | 120.21   |
| 18  | HU    | 124 | PHE  | C-N-CA  | 7.92  | 127.81      | 120.21   |
| 31  | GJ    | 83  | ILE  | CB-CA-C | -7.91 | 104.99      | 111.71   |
| 5   | DE    | 85  | VAL  | CA-C-N  | -7.89 | 109.98      | 119.84   |
| 5   | DE    | 85  | VAL  | C-N-CA  | -7.89 | 109.98      | 119.84   |
| 18  | FU    | 134 | GLY  | N-CA-C  | -7.89 | 105.17      | 115.59   |
| 18  | DU    | 124 | PHE  | CA-C-N  | 7.88  | 128.32      | 120.52   |
| 18  | DU    | 124 | PHE  | C-N-CA  | 7.88  | 128.32      | 120.52   |
| 27  | BF    | 93  | ALA  | CA-C-N  | 7.84  | 128.29      | 120.52   |
| 27  | BF    | 93  | ALA  | C-N-CA  | 7.84  | 128.29      | 120.52   |
| 31  | BJ    | 83  | ILE  | CB-CA-C | -7.84 | 105.04      | 111.71   |
| 23  | CB    | 304 | THR  | CA-C-N  | 7.84  | 127.86      | 119.78   |
| 23  | CB    | 304 | THR  | C-N-CA  | 7.84  | 127.86      | 119.78   |
| 7   | FG    | 49  | PRO  | CA-C-O  | -7.80 | 112.45      | 121.34   |
| 13  | FN    | 69  | LYS  | CA-C-N  | 7.79  | 127.95      | 120.31   |
| 13  | FN    | 69  | LYS  | C-N-CA  | 7.79  | 127.95      | 120.31   |
| 30  | BI    | 132 | ARG  | CA-C-N  | 7.77  | 127.70      | 119.85   |
| 30  | BI    | 132 | ARG  | C-N-CA  | 7.77  | 127.70      | 119.85   |
| 23  | EB    | 328 | GLY  | CA-C-N  | 7.77  | 127.67      | 120.21   |
| 23  | EB    | 328 | GLY  | C-N-CA  | 7.77  | 127.67      | 120.21   |
| 33  | EL    | 136 | ASP  | CA-C-N  | 7.76  | 127.95      | 119.87   |
| 33  | EL    | 136 | ASP  | C-N-CA  | 7.76  | 127.95      | 119.87   |
| 27  | CF    | 231 | GLY  | N-CA-C  | -7.75 | 103.10      | 112.48   |
| 23  | BB    | 304 | THR  | CA-C-N  | 7.73  | 127.74      | 119.78   |
| 23  | BB    | 304 | THR  | C-N-CA  | 7.73  | 127.74      | 119.78   |
| 13  | DN    | 126 | ASN  | CA-C-N  | 7.73  | 127.44      | 119.56   |
| 13  | DN    | 126 | ASN  | C-N-CA  | 7.73  | 127.44      | 119.56   |
| 24  | BC    | 75  | GLY  | N-CA-C  | 7.72  | 122.97      | 114.40   |
| 18  | HU    | 19  | ARG  | N-CA-C  | 7.71  | 122.41      | 112.92   |
| 31  | EJ    | 53  | LEU  | CA-C-N  | 7.70  | 128.17      | 119.93   |
| 31  | EJ    | 53  | LEU  | C-N-CA  | 7.70  | 128.17      | 119.93   |
| 31  | CJ    | 83  | ILE  | CB-CA-C | -7.69 | 105.18      | 111.71   |
| 46  | CY    | 17  | ARG  | N-CA-C  | 7.68  | 120.67      | 110.53   |

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| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 29  | EH    | 4   | ARG  | CA-C-N    | 7.68  | 127.73      | 119.90   |
| 29  | EH    | 4   | ARG  | C-N-CA    | 7.68  | 127.73      | 119.90   |
| 30  | GI    | 132 | ARG  | CA-C-N    | 7.62  | 127.55      | 119.85   |
| 30  | GI    | 132 | ARG  | C-N-CA    | 7.62  | 127.55      | 119.85   |
| 13  | FN    | 126 | ASN  | CA-C-N    | 7.61  | 127.32      | 119.56   |
| 13  | FN    | 126 | ASN  | C-N-CA    | 7.61  | 127.32      | 119.56   |
| 27  | EF    | 231 | GLY  | N-CA-C    | -7.61 | 103.28      | 112.48   |
| 13  | HN    | 126 | ASN  | CA-C-N    | 7.59  | 127.31      | 119.56   |
| 13  | HN    | 126 | ASN  | C-N-CA    | 7.59  | 127.31      | 119.56   |
| 13  | AN    | 69  | LYS  | CA-C-N    | 7.58  | 127.74      | 120.31   |
| 13  | AN    | 69  | LYS  | C-N-CA    | 7.58  | 127.74      | 120.31   |
| 31  | EJ    | 83  | ILE  | CB-CA-C   | -7.56 | 105.28      | 111.71   |
| 30  | EI    | 132 | ARG  | CA-C-N    | 7.55  | 127.47      | 119.85   |
| 30  | EI    | 132 | ARG  | C-N-CA    | 7.55  | 127.47      | 119.85   |
| 39  | CR    | 73  | THR  | CA-C-N    | 7.51  | 127.46      | 120.03   |
| 39  | CR    | 73  | THR  | C-N-CA    | 7.51  | 127.46      | 120.03   |
| 13  | AN    | 126 | ASN  | CA-C-N    | 7.50  | 127.21      | 119.56   |
| 13  | AN    | 126 | ASN  | C-N-CA    | 7.50  | 127.21      | 119.56   |
| 30  | GI    | 60  | TRP  | CB-CG-CD2 | -7.49 | 116.31      | 126.80   |
| 33  | BL    | 136 | ASP  | CA-C-N    | 7.48  | 127.65      | 119.87   |
| 33  | BL    | 136 | ASP  | C-N-CA    | 7.48  | 127.65      | 119.87   |
| 14  | AO    | 12  | ASN  | N-CA-C    | 7.48  | 122.12      | 112.92   |
| 42  | BU    | 95  | LYS  | N-CA-C    | 7.47  | 120.16      | 110.53   |
| 43  | BV    | 189 | GLY  | CA-C-N    | 7.46  | 126.73      | 118.97   |
| 43  | BV    | 189 | GLY  | C-N-CA    | 7.46  | 126.73      | 118.97   |
| 14  | DO    | 12  | ASN  | N-CA-C    | 7.45  | 122.09      | 112.92   |
| 8   | FH    | 96  | PRO  | CA-C-N    | 7.43  | 126.95      | 118.85   |
| 8   | FH    | 96  | PRO  | C-N-CA    | 7.43  | 126.95      | 118.85   |
| 11  | DL    | 73  | THR  | N-CA-C    | 7.42  | 119.33      | 108.86   |
| 11  | HL    | 73  | THR  | N-CA-C    | 7.42  | 118.98      | 108.74   |
| 43  | EV    | 189 | GLY  | CA-C-N    | 7.42  | 126.69      | 118.97   |
| 43  | EV    | 189 | GLY  | C-N-CA    | 7.42  | 126.69      | 118.97   |
| 46  | GY    | 17  | ARG  | N-CA-C    | 7.41  | 120.31      | 110.53   |
| 14  | FO    | 12  | ASN  | N-CA-C    | 7.40  | 122.02      | 112.92   |
| 39  | GR    | 73  | THR  | CA-C-N    | 7.39  | 127.35      | 120.03   |
| 39  | GR    | 73  | THR  | C-N-CA    | 7.39  | 127.35      | 120.03   |
| 29  | GH    | 4   | ARG  | CA-C-N    | 7.38  | 127.43      | 119.90   |
| 29  | GH    | 4   | ARG  | C-N-CA    | 7.38  | 127.43      | 119.90   |
| 18  | DU    | 19  | ARG  | N-CA-C    | 7.38  | 121.99      | 112.92   |
| 39  | ER    | 73  | THR  | CA-C-N    | 7.37  | 127.33      | 120.03   |
| 39  | ER    | 73  | THR  | C-N-CA    | 7.37  | 127.33      | 120.03   |
| 39  | BR    | 73  | THR  | CA-C-N    | 7.36  | 127.52      | 120.31   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 39  | BR    | 73  | THR  | C-N-CA  | 7.36  | 127.52      | 120.31   |
| 23  | EB    | 304 | THR  | CA-C-N  | 7.35  | 127.35      | 119.78   |
| 23  | EB    | 304 | THR  | C-N-CA  | 7.35  | 127.35      | 119.78   |
| 14  | HO    | 12  | ASN  | N-CA-C  | 7.31  | 121.91      | 112.92   |
| 29  | CH    | 46  | PHE  | CA-C-N  | 7.29  | 126.80      | 118.85   |
| 29  | CH    | 46  | PHE  | C-N-CA  | 7.29  | 126.80      | 118.85   |
| 13  | DN    | 69  | LYS  | CA-C-N  | 7.29  | 127.46      | 120.31   |
| 13  | DN    | 69  | LYS  | C-N-CA  | 7.29  | 127.46      | 120.31   |
| 31  | GJ    | 53  | LEU  | CA-C-N  | 7.29  | 127.73      | 119.93   |
| 31  | GJ    | 53  | LEU  | C-N-CA  | 7.29  | 127.73      | 119.93   |
| 18  | AU    | 19  | ARG  | N-CA-C  | 7.28  | 121.88      | 112.92   |
| 23  | CB    | 328 | GLY  | CA-C-N  | 7.27  | 127.19      | 120.21   |
| 23  | CB    | 328 | GLY  | C-N-CA  | 7.27  | 127.19      | 120.21   |
| 34  | BM    | 271 | LYS  | N-CA-C  | 7.25  | 122.29      | 113.38   |
| 35  | EN    | 22  | SER  | N-CA-C  | -7.24 | 98.30       | 109.52   |
| 42  | BU    | 78  | SER  | N-CA-C  | -7.23 | 98.93       | 110.14   |
| 27  | GF    | 231 | GLY  | N-CA-C  | -7.23 | 103.73      | 112.48   |
| 34  | GM    | 271 | LYS  | N-CA-C  | 7.22  | 122.26      | 113.38   |
| 11  | DL    | 60  | ARG  | CA-C-N  | 7.21  | 127.84      | 119.47   |
| 11  | DL    | 60  | ARG  | C-N-CA  | 7.21  | 127.84      | 119.47   |
| 42  | CU    | 95  | LYS  | N-CA-C  | 7.21  | 119.83      | 110.53   |
| 18  | AU    | 124 | PHE  | CA-C-N  | 7.21  | 127.66      | 120.52   |
| 18  | AU    | 124 | PHE  | C-N-CA  | 7.21  | 127.66      | 120.52   |
| 35  | CN    | 23  | THR  | N-CA-C  | 7.13  | 122.99      | 113.72   |
| 36  | EO    | 144 | VAL  | N-CA-C  | 7.13  | 117.23      | 110.53   |
| 27  | GF    | 183 | VAL  | N-CA-C  | 7.13  | 119.89      | 112.83   |
| 34  | CM    | 271 | LYS  | N-CA-C  | 7.11  | 122.13      | 113.38   |
| 19  | DX    | 22  | VAL  | CB-CA-C | -7.11 | 100.58      | 110.96   |
| 35  | CN    | 22  | SER  | N-CA-C  | -7.11 | 98.50       | 109.52   |
| 8   | AH    | 96  | PRO  | CA-C-N  | 7.11  | 126.60      | 118.85   |
| 8   | AH    | 96  | PRO  | C-N-CA  | 7.11  | 126.60      | 118.85   |
| 34  | EM    | 271 | LYS  | N-CA-C  | 7.09  | 122.10      | 113.38   |
| 35  | GN    | 23  | THR  | N-CA-C  | 7.08  | 122.93      | 113.72   |
| 5   | AE    | 105 | THR  | N-CA-C  | -7.08 | 104.45      | 113.23   |
| 5   | DE    | 105 | THR  | N-CA-C  | -7.08 | 104.45      | 113.23   |
| 42  | CU    | 78  | SER  | N-CA-C  | -7.08 | 99.17       | 110.14   |
| 5   | HE    | 105 | THR  | N-CA-C  | -7.07 | 104.47      | 113.23   |
| 11  | AL    | 73  | THR  | N-CA-C  | 7.06  | 119.48      | 108.96   |
| 27  | BF    | 231 | GLY  | N-CA-C  | -7.05 | 103.94      | 112.48   |
| 9   | AJ    | 121 | LEU  | N-CA-C  | -7.05 | 98.36       | 109.07   |
| 23  | BB    | 289 | ALA  | N-CA-C  | -7.03 | 104.44      | 113.16   |
| 42  | EU    | 95  | LYS  | N-CA-C  | 7.01  | 119.58      | 110.53   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 29  | BH    | 4   | ARG  | CA-C-N  | 7.01  | 127.43      | 119.93   |
| 29  | BH    | 4   | ARG  | C-N-CA  | 7.01  | 127.43      | 119.93   |
| 29  | EH    | 46  | PHE  | CA-C-N  | 7.01  | 126.49      | 118.85   |
| 29  | EH    | 46  | PHE  | C-N-CA  | 7.01  | 126.49      | 118.85   |
| 31  | GJ    | 49  | HIS  | N-CA-C  | -7.01 | 99.60       | 109.69   |
| 29  | CH    | 4   | ARG  | CA-C-N  | 7.00  | 127.42      | 119.93   |
| 29  | CH    | 4   | ARG  | C-N-CA  | 7.00  | 127.42      | 119.93   |
| 31  | CJ    | 53  | LEU  | CA-C-N  | 6.99  | 127.41      | 119.93   |
| 31  | CJ    | 53  | LEU  | C-N-CA  | 6.99  | 127.41      | 119.93   |
| 12  | FM    | 52  | LEU  | N-CA-C  | -6.99 | 105.10      | 112.93   |
| 23  | CB    | 44  | THR  | N-CA-C  | 6.99  | 118.69      | 111.14   |
| 38  | GQ    | 79  | GLY  | N-CA-C  | -6.98 | 104.56      | 116.01   |
| 45  | CX    | 9   | LYS  | N-CA-C  | -6.98 | 100.16      | 110.48   |
| 6   | AF    | 7   | VAL  | CB-CA-C | -6.97 | 102.40      | 111.25   |
| 19  | DX    | 35  | LYS  | CA-C-N  | 6.96  | 126.95      | 119.78   |
| 19  | DX    | 35  | LYS  | C-N-CA  | 6.96  | 126.95      | 119.78   |
| 19  | HX    | 48  | GLU  | N-CA-C  | -6.96 | 103.77      | 111.36   |
| 18  | FU    | 56  | VAL  | N-CA-C  | 6.96  | 117.02      | 108.53   |
| 45  | BX    | 9   | LYS  | N-CA-C  | -6.95 | 100.19      | 110.48   |
| 5   | FE    | 105 | THR  | N-CA-C  | -6.94 | 104.62      | 113.23   |
| 2   | FA    | 39  | TYR  | CA-C-N  | -6.93 | 111.66      | 119.28   |
| 2   | FA    | 39  | TYR  | C-N-CA  | -6.93 | 111.66      | 119.28   |
| 6   | FF    | 3   | PHE  | N-CA-C  | 6.92  | 121.43      | 112.92   |
| 9   | FJ    | 121 | LEU  | N-CA-C  | -6.91 | 98.56       | 109.07   |
| 31  | EJ    | 49  | HIS  | N-CA-C  | -6.91 | 99.74       | 109.69   |
| 41  | ET    | 28  | GLY  | N-CA-C  | -6.91 | 105.53      | 115.27   |
| 38  | EQ    | 79  | GLY  | N-CA-C  | -6.90 | 104.69      | 116.01   |
| 6   | HF    | 3   | PHE  | N-CA-C  | 6.90  | 121.40      | 112.92   |
| 23  | GB    | 304 | THR  | CA-C-N  | 6.89  | 126.87      | 119.78   |
| 23  | GB    | 304 | THR  | C-N-CA  | 6.89  | 126.87      | 119.78   |
| 31  | CJ    | 49  | HIS  | N-CA-C  | -6.88 | 99.78       | 109.69   |
| 31  | GJ    | 47  | LYS  | N-CA-C  | -6.87 | 97.14       | 108.76   |
| 18  | AU    | 129 | GLY  | N-CA-C  | -6.86 | 99.06       | 110.80   |
| 29  | GH    | 46  | PHE  | CA-C-N  | 6.85  | 126.31      | 118.85   |
| 29  | GH    | 46  | PHE  | C-N-CA  | 6.85  | 126.31      | 118.85   |
| 2   | DA    | 39  | TYR  | CA-C-N  | -6.83 | 111.76      | 119.28   |
| 2   | DA    | 39  | TYR  | C-N-CA  | -6.83 | 111.76      | 119.28   |
| 35  | BN    | 23  | THR  | N-CA-C  | 6.82  | 122.59      | 113.72   |
| 23  | GB    | 289 | ALA  | N-CA-C  | -6.82 | 104.92      | 113.18   |
| 33  | GL    | 136 | ASP  | CA-C-N  | 6.82  | 126.97      | 119.87   |
| 33  | GL    | 136 | ASP  | C-N-CA  | 6.82  | 126.97      | 119.87   |
| 12  | HM    | 52  | LEU  | N-CA-C  | -6.82 | 105.30      | 112.93   |

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| Mol | Chain | Res | Type | Atoms  | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 31  | BJ    | 53  | LEU  | CA-C-N | 6.80  | 127.21      | 119.93   |
| 31  | BJ    | 53  | LEU  | C-N-CA | 6.80  | 127.21      | 119.93   |
| 11  | HL    | 60  | ARG  | CA-C-N | 6.80  | 127.36      | 119.47   |
| 11  | HL    | 60  | ARG  | C-N-CA | 6.80  | 127.36      | 119.47   |
| 13  | HN    | 69  | LYS  | CA-C-N | 6.79  | 126.97      | 120.31   |
| 13  | HN    | 69  | LYS  | C-N-CA | 6.79  | 126.97      | 120.31   |
| 45  | EX    | 9   | LYS  | N-CA-C | -6.79 | 100.44      | 110.48   |
| 23  | CB    | 36  | ASP  | CA-C-N | 6.78  | 126.47      | 119.82   |
| 23  | CB    | 36  | ASP  | C-N-CA | 6.78  | 126.47      | 119.82   |
| 27  | BF    | 183 | VAL  | N-CA-C | 6.76  | 119.53      | 112.83   |
| 23  | GB    | 44  | THR  | N-CA-C | 6.76  | 118.44      | 111.14   |
| 34  | GM    | 166 | ALA  | N-CA-C | 6.75  | 120.73      | 112.23   |
| 18  | FU    | 129 | GLY  | N-CA-C | -6.75 | 99.27       | 110.80   |
| 11  | FL    | 73  | THR  | N-CA-C | 6.74  | 119.19      | 109.14   |
| 42  | EU    | 78  | SER  | N-CA-C | -6.74 | 99.69       | 110.14   |
| 18  | DU    | 129 | GLY  | N-CA-C | -6.72 | 99.31       | 110.80   |
| 18  | HU    | 129 | GLY  | N-CA-C | -6.69 | 99.35       | 110.80   |
| 6   | DF    | 81  | LEU  | N-CA-C | -6.68 | 103.24      | 111.33   |
| 19  | HX    | 128 | HIS  | N-CA-C | 6.68  | 121.59      | 113.17   |
| 27  | CF    | 183 | VAL  | N-CA-C | 6.68  | 119.44      | 112.83   |
| 18  | DU    | 56  | VAL  | N-CA-C | 6.67  | 116.67      | 108.53   |
| 34  | EM    | 228 | PHE  | N-CA-C | 6.66  | 121.56      | 113.17   |
| 31  | BJ    | 49  | HIS  | N-CA-C | -6.65 | 100.11      | 109.69   |
| 38  | CQ    | 68  | CYS  | N-CA-C | 6.65  | 120.56      | 111.39   |
| 38  | BQ    | 68  | CYS  | N-CA-C | 6.64  | 120.33      | 111.30   |
| 19  | FX    | 35  | LYS  | CA-C-N | 6.64  | 126.62      | 119.78   |
| 19  | FX    | 35  | LYS  | C-N-CA | 6.64  | 126.62      | 119.78   |
| 18  | HU    | 56  | VAL  | N-CA-C | 6.62  | 116.60      | 108.53   |
| 29  | BH    | 46  | PHE  | CA-C-N | 6.61  | 126.05      | 118.85   |
| 29  | BH    | 46  | PHE  | C-N-CA | 6.61  | 126.05      | 118.85   |
| 2   | AA    | 39  | TYR  | CA-C-N | -6.61 | 112.01      | 119.28   |
| 2   | AA    | 39  | TYR  | C-N-CA | -6.61 | 112.01      | 119.28   |
| 23  | CB    | 5   | LYS  | N-CA-C | 6.60  | 118.36      | 111.03   |
| 6   | DF    | 3   | PHE  | N-CA-C | 6.60  | 121.03      | 112.92   |
| 9   | DJ    | 121 | LEU  | N-CA-C | -6.60 | 99.04       | 109.07   |
| 31  | CJ    | 47  | LYS  | N-CA-C | -6.59 | 98.15       | 108.90   |
| 34  | CM    | 46  | THR  | CA-C-N | 6.59  | 126.57      | 119.78   |
| 34  | CM    | 46  | THR  | C-N-CA | 6.59  | 126.57      | 119.78   |
| 31  | EJ    | 46  | ILE  | N-CA-C | 6.58  | 117.60      | 108.12   |
| 25  | CD    | 133 | ARG  | CA-C-N | 6.57  | 126.34      | 119.05   |
| 25  | CD    | 133 | ARG  | C-N-CA | 6.57  | 126.34      | 119.05   |
| 6   | FF    | 81  | LEU  | N-CA-C | -6.57 | 103.38      | 111.33   |

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| Mol | Chain | Res | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|-----------|-------|-------------|----------|
| 18  | AU    | 56  | VAL  | N-CA-C    | 6.56  | 116.53      | 108.53   |
| 38  | CQ    | 79  | GLY  | N-CA-C    | -6.56 | 105.25      | 116.01   |
| 9   | HJ    | 121 | LEU  | N-CA-C    | -6.56 | 99.10       | 109.07   |
| 35  | CN    | 61  | PHE  | CA-C-N    | 6.56  | 126.91      | 119.83   |
| 35  | CN    | 61  | PHE  | C-N-CA    | 6.56  | 126.91      | 119.83   |
| 23  | GB    | 5   | LYS  | N-CA-C    | 6.56  | 118.12      | 110.97   |
| 9   | HJ    | 28  | VAL  | N-CA-C    | 6.55  | 117.34      | 110.72   |
| 35  | CN    | 35  | LYS  | N-CA-C    | -6.55 | 104.06      | 111.07   |
| 27  | EF    | 183 | VAL  | N-CA-C    | 6.55  | 119.31      | 112.83   |
| 4   | HC    | 89  | ILE  | CB-CA-C   | -6.54 | 101.59      | 110.42   |
| 43  | BV    | 158 | ILE  | N-CA-C    | 6.54  | 115.19      | 107.73   |
| 42  | GU    | 95  | LYS  | N-CA-C    | 6.54  | 119.38      | 110.55   |
| 8   | DH    | 96  | PRO  | CA-C-N    | 6.53  | 125.97      | 118.85   |
| 8   | DH    | 96  | PRO  | C-N-CA    | 6.53  | 125.97      | 118.85   |
| 38  | EQ    | 68  | CYS  | N-CA-C    | 6.52  | 120.16      | 111.30   |
| 35  | EN    | 23  | THR  | N-CA-C    | 6.51  | 122.18      | 113.72   |
| 6   | FF    | 7   | VAL  | CB-CA-C   | -6.50 | 103.00      | 111.25   |
| 23  | BB    | 36  | ASP  | CA-C-N    | 6.49  | 126.18      | 119.82   |
| 23  | BB    | 36  | ASP  | C-N-CA    | 6.49  | 126.18      | 119.82   |
| 24  | CC    | 75  | GLY  | N-CA-C    | 6.49  | 121.81      | 114.67   |
| 23  | EB    | 5   | LYS  | N-CA-C    | 6.48  | 118.23      | 111.03   |
| 8   | DH    | 77  | ILE  | CB-CA-C   | -6.47 | 102.65      | 111.33   |
| 23  | BB    | 5   | LYS  | N-CA-C    | 6.46  | 118.20      | 111.03   |
| 22  | CA    | 39  | GLN  | N-CA-C    | 6.45  | 121.95      | 113.30   |
| 34  | GM    | 117 | THR  | CA-CB-OG1 | -6.45 | 99.93       | 109.60   |
| 6   | HF    | 81  | LEU  | N-CA-C    | -6.44 | 103.54      | 111.33   |
| 22  | GA    | 26  | ALA  | CA-C-N    | -6.43 | 113.35      | 119.85   |
| 22  | GA    | 26  | ALA  | C-N-CA    | -6.43 | 113.35      | 119.85   |
| 25  | ED    | 133 | ARG  | CA-C-N    | 6.40  | 126.16      | 119.05   |
| 25  | ED    | 133 | ARG  | C-N-CA    | 6.40  | 126.16      | 119.05   |
| 24  | BC    | 73  | GLY  | CA-C-O    | -6.40 | 118.06      | 122.22   |
| 35  | EN    | 61  | PHE  | CA-C-N    | 6.40  | 126.74      | 119.83   |
| 35  | EN    | 61  | PHE  | C-N-CA    | 6.40  | 126.74      | 119.83   |
| 11  | AL    | 60  | ARG  | CA-C-N    | 6.39  | 127.83      | 119.84   |
| 11  | AL    | 60  | ARG  | C-N-CA    | 6.39  | 127.83      | 119.84   |
| 19  | AX    | 35  | LYS  | CA-C-N    | 6.39  | 126.36      | 119.78   |
| 19  | AX    | 35  | LYS  | C-N-CA    | 6.39  | 126.36      | 119.78   |
| 23  | EB    | 44  | THR  | N-CA-C    | 6.38  | 118.03      | 111.14   |
| 8   | HH    | 7   | SER  | CA-C-N    | 6.37  | 126.12      | 119.05   |
| 8   | HH    | 7   | SER  | C-N-CA    | 6.37  | 126.12      | 119.05   |
| 43  | BV    | 227 | ARG  | N-CA-C    | -6.37 | 98.16       | 108.41   |
| 31  | EJ    | 47  | LYS  | N-CA-C    | -6.37 | 98.53       | 108.90   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 9   | AJ    | 28  | VAL  | N-CA-C  | 6.36  | 117.14      | 110.72   |
| 23  | BB    | 44  | THR  | N-CA-C  | 6.36  | 118.01      | 111.14   |
| 40  | ES    | 92  | ALA  | CA-C-N  | 6.36  | 126.85      | 119.99   |
| 40  | ES    | 92  | ALA  | C-N-CA  | 6.36  | 126.85      | 119.99   |
| 23  | CB    | 289 | ALA  | N-CA-C  | -6.33 | 105.52      | 113.18   |
| 41  | CT    | 28  | GLY  | N-CA-C  | -6.32 | 106.36      | 115.27   |
| 38  | BQ    | 79  | GLY  | N-CA-C  | -6.32 | 105.64      | 116.01   |
| 22  | EA    | 39  | GLN  | N-CA-C  | 6.32  | 121.77      | 113.30   |
| 23  | CB    | 115 | LYS  | N-CA-C  | -6.32 | 104.45      | 111.71   |
| 19  | HX    | 35  | LYS  | CA-C-N  | 6.32  | 126.29      | 119.78   |
| 19  | HX    | 35  | LYS  | C-N-CA  | 6.32  | 126.29      | 119.78   |
| 25  | GD    | 133 | ARG  | CA-C-N  | 6.30  | 126.04      | 119.05   |
| 25  | GD    | 133 | ARG  | C-N-CA  | 6.30  | 126.04      | 119.05   |
| 43  | EV    | 221 | GLY  | N-CA-C  | -6.29 | 106.45      | 115.64   |
| 34  | CM    | 228 | PHE  | N-CA-C  | 6.29  | 121.10      | 113.17   |
| 31  | BJ    | 47  | LYS  | N-CA-C  | -6.28 | 98.67       | 108.90   |
| 24  | CC    | 314 | THR  | N-CA-C  | 6.27  | 118.65      | 110.43   |
| 6   | AF    | 3   | PHE  | N-CA-C  | 6.27  | 120.64      | 112.92   |
| 8   | HH    | 96  | PRO  | CA-C-N  | 6.27  | 125.69      | 118.85   |
| 8   | HH    | 96  | PRO  | C-N-CA  | 6.27  | 125.69      | 118.85   |
| 42  | GU    | 78  | SER  | N-CA-C  | -6.26 | 100.43      | 110.14   |
| 19  | HX    | 22  | VAL  | CB-CA-C | -6.26 | 101.82      | 110.96   |
| 5   | HE    | 78  | GLY  | N-CA-C  | -6.26 | 99.57       | 112.34   |
| 12  | DM    | 52  | LEU  | N-CA-C  | -6.25 | 105.93      | 112.93   |
| 30  | CI    | 107 | ILE  | CA-C-N  | 6.25  | 126.21      | 120.21   |
| 30  | CI    | 107 | ILE  | C-N-CA  | 6.25  | 126.21      | 120.21   |
| 34  | CM    | 278 | TYR  | CA-C-N  | 6.25  | 126.22      | 119.78   |
| 34  | CM    | 278 | TYR  | C-N-CA  | 6.25  | 126.22      | 119.78   |
| 6   | AF    | 81  | LEU  | N-CA-C  | -6.24 | 103.78      | 111.33   |
| 30  | GI    | 107 | ILE  | CA-C-N  | 6.24  | 126.20      | 120.21   |
| 30  | GI    | 107 | ILE  | C-N-CA  | 6.24  | 126.20      | 120.21   |
| 43  | EV    | 158 | ILE  | N-CA-C  | 6.22  | 114.83      | 107.73   |
| 9   | FJ    | 28  | VAL  | N-CA-C  | 6.22  | 117.01      | 110.72   |
| 30  | CI    | 127 | ARG  | N-CA-C  | 6.21  | 119.33      | 111.69   |
| 19  | DX    | 128 | HIS  | N-CA-C  | 6.20  | 120.98      | 113.17   |
| 31  | GJ    | 46  | ILE  | N-CA-C  | 6.19  | 117.21      | 108.17   |
| 43  | CV    | 158 | ILE  | N-CA-C  | 6.19  | 114.79      | 107.73   |
| 8   | AH    | 7   | SER  | CA-C-N  | 6.19  | 125.92      | 119.05   |
| 8   | AH    | 7   | SER  | C-N-CA  | 6.19  | 125.92      | 119.05   |
| 5   | DE    | 78  | GLY  | N-CA-C  | -6.17 | 99.75       | 112.34   |
| 31  | CJ    | 46  | ILE  | N-CA-C  | 6.17  | 117.00      | 108.12   |
| 43  | EV    | 223 | ASP  | N-CA-C  | 6.17  | 120.96      | 113.38   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 34  | BM    | 269 | LYS  | CA-C-N     | -6.16 | 112.14      | 119.84   |
| 34  | BM    | 269 | LYS  | C-N-CA     | -6.16 | 112.14      | 119.84   |
| 40  | CS    | 92  | ALA  | CA-C-N     | 6.16  | 126.64      | 119.99   |
| 40  | CS    | 92  | ALA  | C-N-CA     | 6.16  | 126.64      | 119.99   |
| 15  | FP    | 68  | ILE  | CA-C-N     | 6.16  | 126.62      | 120.52   |
| 15  | FP    | 68  | ILE  | C-N-CA     | 6.16  | 126.62      | 120.52   |
| 4   | AC    | 49  | GLY  | N-CA-C     | -6.16 | 106.42      | 115.72   |
| 23  | CB    | 32  | PHE  | N-CA-C     | -6.16 | 101.14      | 110.50   |
| 22  | EA    | 26  | ALA  | CA-C-N     | -6.15 | 113.64      | 119.85   |
| 22  | EA    | 26  | ALA  | C-N-CA     | -6.15 | 113.64      | 119.85   |
| 34  | GM    | 278 | TYR  | CA-C-N     | 6.15  | 126.11      | 119.78   |
| 34  | GM    | 278 | TYR  | C-N-CA     | 6.15  | 126.11      | 119.78   |
| 15  | HP    | 68  | ILE  | CA-C-N     | 6.14  | 126.60      | 120.52   |
| 15  | HP    | 68  | ILE  | C-N-CA     | 6.14  | 126.60      | 120.52   |
| 34  | BM    | 269 | LYS  | N-CA-C     | 6.13  | 125.09      | 112.40   |
| 5   | HE    | 35  | LYS  | N-CA-C     | 6.12  | 118.92      | 111.82   |
| 24  | BC    | 314 | THR  | N-CA-C     | 6.12  | 118.45      | 110.43   |
| 11  | FL    | 60  | ARG  | CA-C-N     | 6.11  | 127.48      | 119.84   |
| 11  | FL    | 60  | ARG  | C-N-CA     | 6.11  | 127.48      | 119.84   |
| 14  | DO    | 78  | ALA  | N-CA-C     | 6.11  | 116.14      | 108.45   |
| 16  | AQ    | 50  | GLY  | N-CA-C     | -6.10 | 105.82      | 112.04   |
| 18  | HU    | 171 | GLU  | N-CA-C     | 6.09  | 117.61      | 110.97   |
| 30  | GI    | 60  | TRP  | CG-CD1-NE1 | -6.09 | 102.28      | 110.20   |
| 15  | DP    | 68  | ILE  | CA-C-N     | 6.08  | 126.54      | 120.52   |
| 15  | DP    | 68  | ILE  | C-N-CA     | 6.08  | 126.54      | 120.52   |
| 6   | HF    | 7   | VAL  | CB-CA-C    | -6.08 | 103.53      | 111.25   |
| 19  | HX    | 74  | SER  | N-CA-C     | 6.08  | 118.09      | 108.79   |
| 41  | GT    | 28  | GLY  | N-CA-C     | -6.07 | 106.71      | 115.27   |
| 5   | AE    | 78  | GLY  | N-CA-C     | -6.07 | 99.96       | 112.34   |
| 34  | EM    | 166 | ALA  | N-CA-C     | 6.06  | 119.86      | 112.23   |
| 22  | BA    | 39  | GLN  | N-CA-C     | 6.05  | 121.41      | 113.30   |
| 19  | AX    | 74  | SER  | N-CA-C     | 6.05  | 118.05      | 108.79   |
| 24  | EC    | 314 | THR  | N-CA-C     | 6.05  | 118.36      | 110.43   |
| 41  | BT    | 44  | ARG  | N-CA-C     | -6.05 | 105.66      | 113.16   |
| 35  | BN    | 35  | LYS  | N-CA-C     | -6.05 | 104.61      | 111.14   |
| 27  | BF    | 177 | ALA  | N-CA-C     | -6.05 | 104.25      | 111.69   |
| 23  | EB    | 289 | ALA  | N-CA-C     | -6.04 | 105.87      | 113.18   |
| 29  | EH    | 17  | TYR  | CA-C-N     | 6.03  | 126.00      | 120.21   |
| 29  | EH    | 17  | TYR  | C-N-CA     | 6.03  | 126.00      | 120.21   |
| 34  | EM    | 269 | LYS  | CA-C-N     | -6.03 | 112.31      | 119.84   |
| 34  | EM    | 269 | LYS  | C-N-CA     | -6.03 | 112.31      | 119.84   |
| 23  | BB    | 82  | PRO  | CA-C-N     | 6.03  | 126.05      | 119.90   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 23  | BB    | 82  | PRO  | C-N-CA   | 6.03  | 126.05      | 119.90   |
| 14  | HO    | 111 | LEU  | CA-CB-CG | -6.02 | 95.22       | 116.30   |
| 40  | BS    | 92  | ALA  | CA-C-N   | 6.02  | 126.50      | 119.99   |
| 40  | BS    | 92  | ALA  | C-N-CA   | 6.02  | 126.50      | 119.99   |
| 19  | FX    | 22  | VAL  | CB-CA-C  | -6.02 | 102.17      | 110.96   |
| 46  | CY    | 41  | PHE  | N-CA-C   | 6.02  | 117.64      | 111.14   |
| 25  | CD    | 50  | ALA  | N-CA-C   | -6.01 | 98.61       | 108.41   |
| 29  | BH    | 17  | TYR  | CA-C-N   | 6.01  | 125.98      | 120.21   |
| 29  | BH    | 17  | TYR  | C-N-CA   | 6.01  | 125.98      | 120.21   |
| 24  | CC    | 243 | LEU  | N-CA-C   | -6.01 | 104.53      | 112.34   |
| 34  | EM    | 269 | LYS  | N-CA-C   | 6.01  | 124.84      | 112.40   |
| 43  | EV    | 227 | ARG  | N-CA-C   | -6.01 | 98.74       | 108.41   |
| 15  | AP    | 68  | ILE  | CA-C-N   | 6.00  | 126.46      | 120.52   |
| 15  | AP    | 68  | ILE  | C-N-CA   | 6.00  | 126.46      | 120.52   |
| 43  | GV    | 227 | ARG  | N-CA-C   | -6.00 | 98.75       | 108.41   |
| 8   | AH    | 96  | PRO  | O-C-N    | 6.00  | 124.07      | 121.31   |
| 9   | DJ    | 28  | VAL  | N-CA-C   | 6.00  | 116.78      | 110.72   |
| 24  | EC    | 243 | LEU  | N-CA-C   | -6.00 | 104.54      | 112.34   |
| 18  | DU    | 171 | GLU  | N-CA-C   | 5.99  | 117.50      | 110.97   |
| 4   | FC    | 49  | GLY  | N-CA-C   | -5.99 | 106.67      | 115.72   |
| 35  | GN    | 35  | LYS  | N-CA-C   | -5.99 | 104.67      | 111.14   |
| 19  | AX    | 144 | GLU  | CA-C-N   | 5.99  | 126.41      | 119.47   |
| 19  | AX    | 144 | GLU  | C-N-CA   | 5.99  | 126.41      | 119.47   |
| 35  | GN    | 61  | PHE  | CA-C-N   | 5.98  | 126.29      | 119.83   |
| 35  | GN    | 61  | PHE  | C-N-CA   | 5.98  | 126.29      | 119.83   |
| 14  | HO    | 78  | ALA  | N-CA-C   | 5.98  | 115.99      | 108.45   |
| 31  | BJ    | 46  | ILE  | N-CA-C   | 5.98  | 116.73      | 108.12   |
| 14  | DO    | 11  | ASN  | N-CA-C   | 5.97  | 119.04      | 111.69   |
| 34  | GM    | 228 | PHE  | N-CA-C   | 5.97  | 120.69      | 113.17   |
| 14  | DO    | 111 | LEU  | CA-CB-CG | -5.96 | 95.44       | 116.30   |
| 19  | AX    | 128 | HIS  | N-CA-C   | 5.96  | 120.68      | 113.17   |
| 29  | CH    | 204 | GLY  | CA-C-N   | 5.96  | 126.31      | 119.93   |
| 29  | CH    | 204 | GLY  | C-N-CA   | 5.96  | 126.31      | 119.93   |
| 34  | CM    | 269 | LYS  | CA-C-N   | -5.96 | 112.40      | 119.84   |
| 34  | CM    | 269 | LYS  | C-N-CA   | -5.96 | 112.40      | 119.84   |
| 19  | FX    | 74  | SER  | N-CA-C   | 5.95  | 117.89      | 108.79   |
| 14  | FO    | 78  | ALA  | N-CA-C   | 5.95  | 116.09      | 108.24   |
| 34  | CM    | 166 | ALA  | N-CA-C   | 5.94  | 119.71      | 112.23   |
| 43  | GV    | 221 | GLY  | N-CA-C   | -5.94 | 106.97      | 115.64   |
| 40  | BS    | 61  | LYS  | N-CA-C   | -5.93 | 105.14      | 112.38   |
| 29  | GH    | 204 | GLY  | CA-C-N   | 5.93  | 126.28      | 119.93   |
| 29  | GH    | 204 | GLY  | C-N-CA   | 5.93  | 126.28      | 119.93   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 34  | CM    | 269 | LYS  | N-CA-C   | 5.93  | 124.67      | 112.40   |
| 19  | HX    | 18  | VAL  | CB-CA-C  | -5.93 | 101.66      | 111.32   |
| 18  | AU    | 171 | GLU  | N-CA-C   | 5.92  | 117.42      | 110.97   |
| 18  | DU    | 156 | LEU  | N-CA-C   | 5.92  | 122.01      | 108.81   |
| 19  | FX    | 128 | HIS  | N-CA-C   | 5.92  | 120.63      | 113.17   |
| 18  | FU    | 156 | LEU  | N-CA-C   | 5.91  | 122.00      | 108.81   |
| 27  | BF    | 25  | LYS  | CA-C-N   | 5.91  | 126.25      | 119.92   |
| 27  | BF    | 25  | LYS  | C-N-CA   | 5.91  | 126.25      | 119.92   |
| 19  | FX    | 65  | ILE  | N-CA-C   | 5.90  | 117.19      | 109.58   |
| 23  | GB    | 40  | LYS  | CA-C-N   | -5.90 | 113.70      | 119.90   |
| 23  | GB    | 40  | LYS  | C-N-CA   | -5.90 | 113.70      | 119.90   |
| 5   | HE    | 84  | GLY  | N-CA-C   | -5.90 | 106.50      | 115.00   |
| 14  | FO    | 111 | LEU  | CA-CB-CG | -5.90 | 95.65       | 116.30   |
| 23  | EB    | 36  | ASP  | CA-C-N   | 5.90  | 125.58      | 119.56   |
| 23  | EB    | 36  | ASP  | C-N-CA   | 5.90  | 125.58      | 119.56   |
| 6   | AF    | 28  | VAL  | N-CA-C   | 5.90  | 117.83      | 111.58   |
| 5   | FE    | 78  | GLY  | N-CA-C   | -5.90 | 100.31      | 112.34   |
| 34  | GM    | 269 | LYS  | N-CA-C   | 5.88  | 124.58      | 112.40   |
| 19  | AX    | 22  | VAL  | CB-CA-C  | -5.88 | 102.38      | 110.96   |
| 22  | EA    | 124 | ARG  | N-CA-C   | -5.88 | 105.69      | 112.86   |
| 23  | BB    | 269 | GLY  | CA-C-O   | -5.88 | 118.22      | 122.45   |
| 24  | GC    | 243 | LEU  | N-CA-C   | -5.88 | 105.21      | 112.38   |
| 19  | DX    | 74  | SER  | N-CA-C   | 5.87  | 117.77      | 108.79   |
| 23  | GB    | 36  | ASP  | CA-C-N   | 5.85  | 125.56      | 119.82   |
| 23  | GB    | 36  | ASP  | C-N-CA   | 5.85  | 125.56      | 119.82   |
| 24  | GC    | 314 | THR  | N-CA-C   | 5.85  | 118.09      | 110.43   |
| 22  | GA    | 39  | GLN  | N-CA-C   | 5.85  | 121.14      | 113.30   |
| 27  | GF    | 25  | LYS  | CA-C-N   | 5.84  | 126.17      | 119.92   |
| 27  | GF    | 25  | LYS  | C-N-CA   | 5.84  | 126.17      | 119.92   |
| 26  | BE    | 147 | ILE  | CB-CA-C  | -5.84 | 104.42      | 112.24   |
| 41  | BT    | 28  | GLY  | N-CA-C   | -5.84 | 107.04      | 115.27   |
| 45  | GX    | 9   | LYS  | N-CA-C   | -5.84 | 101.84      | 110.48   |
| 5   | HE    | 82  | VAL  | N-CA-C   | 5.84  | 116.48      | 110.82   |
| 8   | HH    | 77  | ILE  | CB-CA-C  | -5.84 | 103.51      | 111.33   |
| 18  | FU    | 47  | ARG  | CA-C-N   | 5.83  | 125.81      | 120.03   |
| 18  | FU    | 47  | ARG  | C-N-CA   | 5.83  | 125.81      | 120.03   |
| 12  | AM    | 52  | LEU  | N-CA-C   | -5.83 | 106.39      | 112.93   |
| 40  | ES    | 96  | ILE  | CA-C-N   | 5.83  | 125.74      | 119.85   |
| 40  | ES    | 96  | ILE  | C-N-CA   | 5.83  | 125.74      | 119.85   |
| 2   | HA    | 39  | TYR  | CA-C-N   | -5.83 | 112.87      | 119.28   |
| 2   | HA    | 39  | TYR  | C-N-CA   | -5.83 | 112.87      | 119.28   |
| 23  | EB    | 32  | PHE  | N-CA-C   | -5.83 | 101.65      | 110.50   |

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| Mol | Chain | Res | Type | Atoms  | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|--------|-------|-------------|----------|
| 34  | BM    | 278 | TYR  | CA-C-N | 5.82  | 125.78      | 119.78   |
| 34  | BM    | 278 | TYR  | C-N-CA | 5.82  | 125.78      | 119.78   |
| 8   | DH    | 7   | SER  | CA-C-N | 5.82  | 125.51      | 119.05   |
| 8   | DH    | 7   | SER  | C-N-CA | 5.82  | 125.51      | 119.05   |
| 47  | CO    | 75  | HIS  | N-CA-C | 5.82  | 120.50      | 113.17   |
| 22  | BA    | 26  | ALA  | CA-C-N | -5.81 | 113.98      | 119.85   |
| 22  | BA    | 26  | ALA  | C-N-CA | -5.81 | 113.98      | 119.85   |
| 27  | CF    | 25  | LYS  | CA-C-N | 5.81  | 126.14      | 119.92   |
| 27  | CF    | 25  | LYS  | C-N-CA | 5.81  | 126.14      | 119.92   |
| 43  | EV    | 211 | PHE  | N-CA-C | -5.81 | 102.86      | 110.53   |
| 34  | GM    | 269 | LYS  | CA-C-N | -5.80 | 112.58      | 119.84   |
| 34  | GM    | 269 | LYS  | C-N-CA | -5.80 | 112.58      | 119.84   |
| 29  | GH    | 17  | TYR  | CA-C-N | 5.79  | 125.77      | 120.21   |
| 29  | GH    | 17  | TYR  | C-N-CA | 5.79  | 125.77      | 120.21   |
| 6   | HF    | 28  | VAL  | N-CA-C | 5.79  | 117.72      | 111.58   |
| 40  | GS    | 92  | ALA  | CA-C-N | 5.79  | 126.24      | 119.99   |
| 40  | GS    | 92  | ALA  | C-N-CA | 5.79  | 126.24      | 119.99   |
| 5   | DE    | 82  | VAL  | N-CA-C | 5.79  | 116.44      | 110.82   |
| 35  | BN    | 61  | PHE  | CA-C-N | 5.77  | 126.06      | 119.83   |
| 35  | BN    | 61  | PHE  | C-N-CA | 5.77  | 126.06      | 119.83   |
| 23  | EB    | 283 | VAL  | CA-C-N | -5.77 | 115.40      | 121.35   |
| 23  | EB    | 283 | VAL  | C-N-CA | -5.77 | 115.40      | 121.35   |
| 43  | CV    | 227 | ARG  | N-CA-C | -5.77 | 99.12       | 108.41   |
| 34  | EM    | 278 | TYR  | CA-C-N | 5.77  | 125.72      | 119.78   |
| 34  | EM    | 278 | TYR  | C-N-CA | 5.77  | 125.72      | 119.78   |
| 34  | BM    | 228 | PHE  | N-CA-C | 5.77  | 120.44      | 113.17   |
| 27  | EF    | 25  | LYS  | CA-C-N | 5.75  | 126.08      | 119.92   |
| 27  | EF    | 25  | LYS  | C-N-CA | 5.75  | 126.08      | 119.92   |
| 18  | AU    | 156 | LEU  | N-CA-C | 5.75  | 121.64      | 108.81   |
| 18  | HU    | 156 | LEU  | N-CA-C | 5.75  | 121.64      | 108.81   |
| 18  | AU    | 166 | VAL  | N-CA-C | 5.75  | 116.40      | 110.82   |
| 46  | BY    | 41  | PHE  | N-CA-C | 5.75  | 117.35      | 111.14   |
| 19  | FX    | 48  | GLU  | N-CA-C | -5.75 | 104.39      | 111.40   |
| 34  | GM    | 46  | THR  | CA-C-N | 5.74  | 125.69      | 119.78   |
| 34  | GM    | 46  | THR  | C-N-CA | 5.74  | 125.69      | 119.78   |
| 4   | DC    | 60  | ALA  | N-CA-C | 5.73  | 120.27      | 113.28   |
| 25  | GD    | 50  | ALA  | N-CA-C | -5.73 | 99.07       | 108.41   |
| 4   | HC    | 49  | GLY  | N-CA-C | -5.73 | 107.06      | 115.72   |
| 41  | GT    | 44  | ARG  | N-CA-C | -5.73 | 106.06      | 113.16   |
| 24  | BC    | 243 | LEU  | N-CA-C | -5.72 | 104.42      | 111.75   |
| 38  | GQ    | 68  | CYS  | N-CA-C | 5.72  | 119.29      | 111.39   |
| 14  | AO    | 78  | ALA  | N-CA-C | 5.72  | 115.66      | 108.45   |

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| Mol | Chain | Res  | Type | Atoms     | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-----------|-------|-------------|----------|
| 16  | FQ    | 35   | GLY  | N-CA-C    | -5.72 | 104.76      | 112.14   |
| 6   | FF    | 28   | VAL  | N-CA-C    | 5.72  | 117.64      | 111.58   |
| 41  | CT    | 44   | ARG  | N-CA-C    | -5.71 | 106.08      | 113.16   |
| 45  | EX    | 42   | ASN  | N-CA-C    | 5.71  | 118.86      | 110.30   |
| 23  | BB    | 32   | PHE  | N-CA-C    | -5.71 | 101.82      | 110.50   |
| 44  | EW    | 103  | LEU  | N-CA-C    | 5.71  | 118.55      | 110.50   |
| 27  | BF    | 173  | VAL  | CA-C-N    | -5.70 | 114.92      | 122.85   |
| 27  | BF    | 173  | VAL  | C-N-CA    | -5.70 | 114.92      | 122.85   |
| 46  | EY    | 41   | PHE  | N-CA-C    | 5.70  | 117.36      | 111.03   |
| 23  | EB    | 153  | CYS  | N-CA-C    | 5.70  | 118.77      | 109.59   |
| 29  | GH    | 91   | VAL  | N-CA-C    | 5.70  | 116.96      | 109.21   |
| 7   | AG    | 21   | GLY  | N-CA-C    | 5.70  | 120.38      | 112.57   |
| 34  | GM    | 117  | THR  | CB-CA-C   | -5.70 | 101.93      | 110.88   |
| 5   | AE    | 82   | VAL  | N-CA-C    | 5.70  | 116.34      | 110.82   |
| 1   | F1    | 2239 | A    | OP2-P-O3' | 5.69  | 125.06      | 108.00   |
| 22  | CA    | 26   | ALA  | CA-C-N    | -5.69 | 114.11      | 119.85   |
| 22  | CA    | 26   | ALA  | C-N-CA    | -5.69 | 114.11      | 119.85   |
| 4   | DC    | 49   | GLY  | N-CA-C    | -5.69 | 107.13      | 115.72   |
| 19  | AX    | 65   | ILE  | N-CA-C    | 5.68  | 117.36      | 109.80   |
| 24  | CC    | 382  | LYS  | N-CA-C    | -5.68 | 104.78      | 110.97   |
| 6   | DF    | 7    | VAL  | CB-CA-C   | -5.68 | 104.03      | 111.25   |
| 18  | FU    | 20   | ILE  | N-CA-C    | 5.68  | 116.94      | 109.21   |
| 34  | BM    | 46   | THR  | CA-C-N    | 5.68  | 125.63      | 119.78   |
| 34  | BM    | 46   | THR  | C-N-CA    | 5.68  | 125.63      | 119.78   |
| 16  | DQ    | 3    | LYS  | N-CA-C    | 5.68  | 117.47      | 111.28   |
| 8   | FH    | 92   | ALA  | N-CA-C    | -5.68 | 105.01      | 111.14   |
| 19  | AX    | 48   | GLU  | N-CA-C    | -5.68 | 104.47      | 111.40   |
| 8   | FH    | 77   | ILE  | CB-CA-C   | -5.67 | 103.73      | 111.33   |
| 24  | BC    | 382  | LYS  | N-CA-C    | -5.67 | 104.79      | 110.97   |
| 41  | ET    | 52   | THR  | N-CA-C    | 5.67  | 117.54      | 111.36   |
| 23  | GB    | 32   | PHE  | N-CA-C    | -5.67 | 101.89      | 110.50   |
| 30  | EI    | 127  | ARG  | N-CA-C    | 5.66  | 118.65      | 111.69   |
| 9   | AJ    | 69   | GLY  | N-CA-C    | 5.66  | 119.34      | 110.91   |
| 4   | DC    | 89   | ILE  | CB-CA-C   | -5.66 | 102.07      | 110.33   |
| 30  | GI    | 127  | ARG  | N-CA-C    | 5.65  | 118.64      | 111.69   |
| 33  | CL    | 90   | ASN  | N-CA-C    | 5.65  | 117.24      | 111.14   |
| 26  | GE    | 147  | ILE  | CB-CA-C   | -5.65 | 104.67      | 112.24   |
| 6   | HF    | 19   | ALA  | N-CA-C    | -5.65 | 105.64      | 112.54   |
| 22  | CA    | 14   | ASN  | N-CA-C    | -5.64 | 106.39      | 113.28   |
| 18  | AU    | 20   | ILE  | N-CA-C    | 5.64  | 116.88      | 109.21   |
| 4   | AC    | 89   | ILE  | CB-CA-C   | -5.64 | 101.37      | 110.28   |
| 22  | GA    | 124  | ARG  | N-CA-C    | -5.63 | 105.99      | 112.86   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 8   | FH    | 7   | SER  | CA-C-N   | 5.63  | 125.30      | 119.05   |
| 8   | FH    | 7   | SER  | C-N-CA   | 5.63  | 125.30      | 119.05   |
| 43  | BV    | 221 | GLY  | N-CA-C   | -5.63 | 107.49      | 115.43   |
| 14  | AO    | 111 | LEU  | CA-CB-CG | -5.63 | 96.59       | 116.30   |
| 30  | BI    | 107 | ILE  | CA-C-N   | 5.63  | 125.61      | 120.21   |
| 30  | BI    | 107 | ILE  | C-N-CA   | 5.63  | 125.61      | 120.21   |
| 4   | FC    | 89  | ILE  | CB-CA-C  | -5.63 | 102.12      | 110.33   |
| 9   | HJ    | 41  | GLU  | N-CA-C   | 5.62  | 118.61      | 111.69   |
| 14  | AO    | 11  | ASN  | N-CA-C   | 5.62  | 118.60      | 111.69   |
| 9   | DJ    | 54  | GLY  | N-CA-C   | -5.62 | 105.62      | 114.10   |
| 32  | EK    | 93  | ALA  | N-CA-C   | -5.61 | 105.08      | 111.14   |
| 14  | FO    | 11  | ASN  | N-CA-C   | 5.60  | 118.58      | 111.69   |
| 23  | GB    | 153 | CYS  | N-CA-C   | 5.60  | 118.61      | 109.59   |
| 25  | ED    | 50  | ALA  | N-CA-C   | -5.60 | 99.28       | 108.41   |
| 32  | GK    | 42  | HIS  | N-CA-C   | -5.59 | 106.29      | 113.23   |
| 16  | FQ    | 50  | GLY  | N-CA-C   | -5.59 | 106.34      | 112.04   |
| 18  | HU    | 20  | ILE  | N-CA-C   | 5.58  | 116.80      | 109.21   |
| 19  | HX    | 65  | ILE  | N-CA-C   | 5.57  | 116.77      | 109.58   |
| 5   | DE    | 84  | GLY  | N-CA-C   | -5.57 | 106.98      | 115.00   |
| 36  | GO    | 75  | HIS  | N-CA-C   | 5.56  | 120.18      | 113.17   |
| 8   | DH    | 57  | VAL  | CB-CA-C  | -5.55 | 102.01      | 110.95   |
| 25  | GD    | 42  | GLY  | N-CA-C   | -5.55 | 107.66      | 115.32   |
| 8   | AH    | 77  | ILE  | CB-CA-C  | -5.54 | 103.90      | 111.33   |
| 18  | AU    | 47  | ARG  | CA-C-N   | 5.54  | 125.52      | 120.03   |
| 18  | AU    | 47  | ARG  | C-N-CA   | 5.54  | 125.52      | 120.03   |
| 43  | CV    | 221 | GLY  | N-CA-C   | -5.54 | 107.55      | 115.64   |
| 16  | DQ    | 35  | GLY  | N-CA-C   | -5.54 | 105.00      | 112.14   |
| 22  | GA    | 6   | ARG  | N-CA-C   | -5.53 | 105.41      | 111.82   |
| 8   | DH    | 102 | SER  | N-CA-C   | 5.53  | 117.65      | 109.69   |
| 24  | CC    | 295 | ILE  | N-CA-C   | -5.53 | 104.82      | 112.50   |
| 43  | BV    | 223 | ASP  | N-CA-C   | 5.53  | 120.18      | 113.38   |
| 23  | CB    | 297 | ASP  | N-CA-C   | 5.51  | 118.13      | 111.40   |
| 39  | CR    | 82  | LYS  | N-CA-C   | -5.51 | 105.37      | 111.71   |
| 19  | DX    | 18  | VAL  | CB-CA-C  | -5.51 | 102.34      | 111.32   |
| 35  | EN    | 35  | LYS  | N-CA-C   | -5.51 | 105.19      | 111.14   |
| 23  | EB    | 20  | ARG  | N-CA-C   | 5.51  | 117.02      | 110.19   |
| 24  | EC    | 76  | ARG  | N-CA-C   | 5.50  | 119.69      | 112.92   |
| 29  | BH    | 204 | GLY  | CA-C-N   | 5.50  | 125.82      | 119.93   |
| 29  | BH    | 204 | GLY  | C-N-CA   | 5.50  | 125.82      | 119.93   |
| 12  | HM    | 104 | SER  | N-CA-C   | 5.50  | 117.75      | 109.23   |
| 32  | CK    | 59  | GLY  | N-CA-C   | 5.50  | 126.21      | 113.18   |
| 22  | GA    | 248 | ARG  | N-CA-C   | -5.50 | 101.05      | 109.41   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 29  | BH    | 160 | PRO  | CB-CA-C | -5.50 | 104.72      | 111.64   |
| 26  | CE    | 163 | CYS  | N-CA-C  | 5.50  | 119.68      | 112.92   |
| 8   | HH    | 96  | PRO  | O-C-N   | 5.50  | 123.84      | 121.31   |
| 34  | EM    | 46  | THR  | CA-C-N  | 5.49  | 125.40      | 119.85   |
| 34  | EM    | 46  | THR  | C-N-CA  | 5.49  | 125.40      | 119.85   |
| 25  | BD    | 133 | ARG  | CA-C-N  | 5.49  | 125.14      | 119.05   |
| 25  | BD    | 133 | ARG  | C-N-CA  | 5.49  | 125.14      | 119.05   |
| 41  | GT    | 52  | THR  | N-CA-C  | 5.49  | 117.34      | 111.36   |
| 19  | AX    | 149 | LYS  | N-CA-C  | 5.48  | 120.25      | 113.50   |
| 9   | FJ    | 118 | HIS  | CA-C-N  | 5.48  | 124.94      | 119.24   |
| 9   | FJ    | 118 | HIS  | C-N-CA  | 5.48  | 124.94      | 119.24   |
| 24  | EC    | 382 | LYS  | N-CA-C  | -5.48 | 105.00      | 110.97   |
| 25  | CD    | 42  | GLY  | N-CA-C  | -5.48 | 107.76      | 115.32   |
| 24  | CC    | 73  | GLY  | N-CA-C  | -5.47 | 106.75      | 111.95   |
| 19  | DX    | 144 | GLU  | CA-C-N  | 5.47  | 125.82      | 119.47   |
| 19  | DX    | 144 | GLU  | C-N-CA  | 5.47  | 125.82      | 119.47   |
| 6   | DF    | 28  | VAL  | N-CA-C  | 5.46  | 117.37      | 111.58   |
| 19  | DX    | 48  | GLU  | N-CA-C  | -5.46 | 104.74      | 111.40   |
| 32  | EK    | 59  | GLY  | N-CA-C  | 5.46  | 126.11      | 113.18   |
| 19  | FX    | 144 | GLU  | CA-C-N  | 5.46  | 125.80      | 119.47   |
| 19  | FX    | 144 | GLU  | C-N-CA  | 5.46  | 125.80      | 119.47   |
| 27  | CF    | 173 | VAL  | CA-C-N  | -5.45 | 115.27      | 122.85   |
| 27  | CF    | 173 | VAL  | C-N-CA  | -5.45 | 115.27      | 122.85   |
| 43  | CV    | 70  | GLY  | N-CA-C  | -5.45 | 108.59      | 115.08   |
| 9   | FJ    | 179 | ILE  | N-CA-C  | 5.45  | 113.66      | 109.19   |
| 29  | CH    | 17  | TYR  | CA-C-N  | 5.45  | 125.44      | 120.21   |
| 29  | CH    | 17  | TYR  | C-N-CA  | 5.45  | 125.44      | 120.21   |
| 34  | BM    | 166 | ALA  | N-CA-C  | 5.44  | 119.09      | 112.23   |
| 46  | BY    | 24  | LYS  | N-CA-C  | -5.44 | 105.00      | 111.03   |
| 26  | GE    | 24  | VAL  | CB-CA-C | -5.43 | 104.36      | 111.25   |
| 23  | GB    | 82  | PRO  | CA-C-N  | 5.43  | 125.44      | 119.90   |
| 23  | GB    | 82  | PRO  | C-N-CA  | 5.43  | 125.44      | 119.90   |
| 24  | BC    | 73  | GLY  | N-CA-C  | -5.42 | 106.80      | 111.95   |
| 18  | DU    | 24  | PHE  | N-CA-C  | 5.42  | 117.19      | 111.28   |
| 41  | BT    | 36  | LYS  | N-CA-C  | -5.41 | 105.38      | 111.28   |
| 32  | GK    | 93  | ALA  | N-CA-C  | -5.41 | 105.30      | 111.14   |
| 42  | EU    | 104 | VAL  | N-CA-C  | 5.41  | 116.52      | 108.46   |
| 26  | EE    | 163 | CYS  | N-CA-C  | 5.41  | 119.57      | 112.92   |
| 36  | BO    | 176 | LYS  | N-CA-C  | 5.40  | 117.61      | 111.02   |
| 18  | DU    | 20  | ILE  | N-CA-C  | 5.40  | 116.56      | 109.21   |
| 23  | EB    | 82  | PRO  | CA-C-N  | 5.40  | 125.41      | 119.90   |
| 23  | EB    | 82  | PRO  | C-N-CA  | 5.40  | 125.41      | 119.90   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 16  | FQ    | 3   | LYS  | N-CA-C  | 5.40  | 117.86      | 111.33   |
| 16  | DQ    | 50  | GLY  | N-CA-C  | -5.39 | 105.80      | 112.33   |
| 22  | EA    | 52  | GLU  | CA-C-N  | 5.38  | 125.20      | 119.28   |
| 22  | EA    | 52  | GLU  | C-N-CA  | 5.38  | 125.20      | 119.28   |
| 29  | EH    | 204 | GLY  | CA-C-N  | 5.38  | 125.69      | 119.93   |
| 29  | EH    | 204 | GLY  | C-N-CA  | 5.38  | 125.69      | 119.93   |
| 22  | CA    | 124 | ARG  | N-CA-C  | -5.38 | 106.29      | 112.86   |
| 22  | GA    | 52  | GLU  | CA-C-N  | 5.38  | 125.20      | 119.28   |
| 22  | GA    | 52  | GLU  | C-N-CA  | 5.38  | 125.20      | 119.28   |
| 4   | DC    | 4   | VAL  | CA-C-N  | 5.38  | 125.64      | 119.83   |
| 4   | DC    | 4   | VAL  | C-N-CA  | 5.38  | 125.64      | 119.83   |
| 2   | AA    | 5   | THR  | CA-C-N  | -5.38 | 113.49      | 119.19   |
| 2   | AA    | 5   | THR  | C-N-CA  | -5.38 | 113.49      | 119.19   |
| 27  | CF    | 177 | ALA  | N-CA-C  | -5.37 | 105.08      | 111.69   |
| 46  | CY    | 24  | LYS  | N-CA-C  | -5.37 | 105.07      | 111.03   |
| 7   | FG    | 42  | VAL  | N-CA-C  | 5.37  | 115.62      | 108.11   |
| 30  | BI    | 109 | THR  | CA-C-N  | -5.35 | 114.10      | 119.56   |
| 30  | BI    | 109 | THR  | C-N-CA  | -5.35 | 114.10      | 119.56   |
| 40  | CS    | 61  | LYS  | N-CA-C  | -5.35 | 105.86      | 112.38   |
| 23  | GB    | 82  | PRO  | O-C-N   | 5.35  | 123.66      | 121.15   |
| 23  | BB    | 20  | ARG  | N-CA-C  | 5.34  | 116.81      | 110.19   |
| 22  | BA    | 248 | ARG  | N-CA-C  | -5.34 | 101.30      | 109.41   |
| 24  | BC    | 81  | ILE  | CA-C-N  | 5.34  | 125.34      | 119.90   |
| 24  | BC    | 81  | ILE  | C-N-CA  | 5.34  | 125.34      | 119.90   |
| 19  | DX    | 65  | ILE  | N-CA-C  | 5.33  | 116.46      | 109.58   |
| 23  | EB    | 115 | LYS  | N-CA-C  | -5.33 | 105.58      | 111.71   |
| 6   | DF    | 19  | ALA  | N-CA-C  | -5.32 | 106.04      | 112.54   |
| 22  | EA    | 248 | ARG  | N-CA-C  | -5.32 | 101.32      | 109.41   |
| 37  | BP    | 122 | ALA  | N-CA-C  | 5.32  | 119.76      | 113.16   |
| 7   | HG    | 21  | GLY  | N-CA-C  | 5.32  | 119.86      | 112.57   |
| 41  | CT    | 52  | THR  | N-CA-C  | 5.32  | 117.16      | 111.36   |
| 22  | EA    | 6   | ARG  | N-CA-C  | -5.32 | 105.65      | 111.82   |
| 22  | EA    | 32  | VAL  | N-CA-C  | 5.31  | 119.50      | 112.76   |
| 18  | FU    | 134 | GLY  | CA-C-O  | 5.31  | 124.20      | 118.95   |
| 29  | EH    | 21  | ARG  | N-CA-C  | -5.30 | 106.78      | 113.20   |
| 26  | GE    | 12  | ILE  | N-CA-C  | 5.30  | 113.27      | 107.60   |
| 8   | DH    | 96  | PRO  | O-C-N   | 5.29  | 123.75      | 121.31   |
| 19  | AX    | 159 | ALA  | N-CA-C  | -5.29 | 106.83      | 113.28   |
| 26  | CE    | 147 | ILE  | CB-CA-C | -5.29 | 105.15      | 112.24   |
| 25  | ED    | 134 | PRO  | CB-CA-C | -5.29 | 103.89      | 112.62   |
| 4   | AC    | 34  | HIS  | N-CA-C  | 5.28  | 119.82      | 113.17   |
| 22  | BA    | 14  | ASN  | N-CA-C  | -5.28 | 106.79      | 113.18   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 25  | BD    | 134 | PRO  | CB-CA-C | -5.28 | 103.91      | 112.62   |
| 4   | HC    | 60  | ALA  | N-CA-C  | 5.28  | 119.72      | 113.28   |
| 36  | BO    | 135 | LYS  | N-CA-C  | -5.27 | 105.61      | 111.36   |
| 22  | EA    | 14  | ASN  | N-CA-C  | -5.27 | 106.80      | 113.18   |
| 6   | FF    | 56  | THR  | N-CA-C  | 5.27  | 119.81      | 113.17   |
| 19  | AX    | 163 | PHE  | CA-C-N  | -5.27 | 114.82      | 120.03   |
| 19  | AX    | 163 | PHE  | C-N-CA  | -5.27 | 114.82      | 120.03   |
| 44  | CW    | 103 | LEU  | N-CA-C  | 5.27  | 117.93      | 110.50   |
| 43  | GV    | 70  | GLY  | N-CA-C  | -5.26 | 108.82      | 115.08   |
| 23  | BB    | 297 | ASP  | N-CA-C  | 5.26  | 117.82      | 111.40   |
| 23  | CB    | 40  | LYS  | CA-C-N  | -5.26 | 114.38      | 119.90   |
| 23  | CB    | 40  | LYS  | C-N-CA  | -5.26 | 114.38      | 119.90   |
| 40  | BS    | 96  | ILE  | CA-C-N  | 5.25  | 125.16      | 119.85   |
| 40  | BS    | 96  | ILE  | C-N-CA  | 5.25  | 125.16      | 119.85   |
| 22  | CA    | 6   | ARG  | N-CA-C  | -5.25 | 105.73      | 111.82   |
| 7   | FG    | 21  | GLY  | N-CA-C  | 5.25  | 119.77      | 112.57   |
| 9   | AJ    | 179 | ILE  | N-CA-C  | 5.25  | 113.50      | 109.19   |
| 36  | BO    | 75  | HIS  | N-CA-C  | 5.25  | 119.78      | 113.17   |
| 13  | DN    | 6   | LYS  | N-CA-C  | 5.25  | 117.06      | 110.24   |
| 26  | EE    | 147 | ILE  | CB-CA-C | -5.25 | 105.21      | 112.24   |
| 43  | EV    | 70  | GLY  | N-CA-C  | -5.25 | 108.83      | 115.08   |
| 43  | EV    | 177 | CYS  | N-CA-C  | 5.25  | 117.36      | 109.23   |
| 43  | CV    | 177 | CYS  | N-CA-C  | 5.25  | 117.36      | 109.23   |
| 7   | DG    | 21  | GLY  | N-CA-C  | 5.25  | 119.76      | 112.57   |
| 37  | GP    | 122 | ALA  | N-CA-C  | 5.25  | 119.66      | 113.16   |
| 5   | AE    | 84  | GLY  | N-CA-C  | -5.24 | 107.45      | 115.00   |
| 42  | BU    | 104 | VAL  | N-CA-C  | 5.24  | 116.27      | 108.46   |
| 13  | AN    | 6   | LYS  | N-CA-C  | 5.24  | 117.05      | 110.24   |
| 24  | BC    | 108 | ALA  | CA-C-N  | -5.24 | 114.32      | 119.93   |
| 24  | BC    | 108 | ALA  | C-N-CA  | -5.24 | 114.32      | 119.93   |
| 43  | CV    | 196 | ASN  | N-CA-C  | 5.24  | 116.68      | 110.97   |
| 37  | GP    | 31  | LEU  | N-CA-C  | 5.24  | 119.67      | 113.28   |
| 24  | EC    | 211 | GLY  | CA-C-N  | 5.24  | 125.00      | 119.76   |
| 24  | EC    | 211 | GLY  | C-N-CA  | 5.24  | 125.00      | 119.76   |
| 29  | EH    | 160 | PRO  | CB-CA-C | -5.24 | 105.04      | 111.64   |
| 38  | EQ    | 60  | ILE  | CA-C-N  | 5.24  | 125.24      | 119.90   |
| 38  | EQ    | 60  | ILE  | C-N-CA  | 5.24  | 125.24      | 119.90   |
| 4   | AC    | 4   | VAL  | CA-C-N  | 5.23  | 125.48      | 119.83   |
| 4   | AC    | 4   | VAL  | C-N-CA  | 5.23  | 125.48      | 119.83   |
| 18  | HU    | 47  | ARG  | CA-C-N  | 5.23  | 125.21      | 120.03   |
| 18  | HU    | 47  | ARG  | C-N-CA  | 5.23  | 125.21      | 120.03   |
| 24  | GC    | 75  | GLY  | N-CA-C  | 5.23  | 120.68      | 113.99   |

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| Mol | Chain | Res | Type | Atoms    | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 18  | AU    | 13  | ARG  | N-CA-C   | 5.22  | 117.64      | 111.33   |
| 8   | HH    | 57  | VAL  | CB-CA-C  | -5.22 | 102.55      | 110.95   |
| 23  | BB    | 309 | PHE  | CA-C-N   | 5.22  | 125.47      | 119.83   |
| 23  | BB    | 309 | PHE  | C-N-CA   | 5.22  | 125.47      | 119.83   |
| 22  | CA    | 73  | ASN  | N-CA-C   | 5.22  | 117.25      | 108.96   |
| 25  | GD    | 154 | ILE  | N-CA-C   | 5.22  | 116.21      | 108.23   |
| 23  | EB    | 40  | LYS  | CA-C-N   | -5.21 | 114.42      | 119.90   |
| 23  | EB    | 40  | LYS  | C-N-CA   | -5.21 | 114.42      | 119.90   |
| 23  | BB    | 115 | LYS  | N-CA-C   | -5.21 | 105.72      | 111.71   |
| 39  | BR    | 86  | ASP  | N-CA-C   | 5.21  | 118.09      | 111.69   |
| 24  | BC    | 409 | ASP  | N-CA-C   | 5.21  | 117.88      | 109.40   |
| 8   | FH    | 96  | PRO  | O-C-N    | 5.21  | 123.70      | 121.31   |
| 26  | CE    | 24  | VAL  | CB-CA-C  | -5.20 | 104.64      | 111.25   |
| 45  | GX    | 42  | ASN  | N-CA-C   | 5.20  | 117.89      | 110.24   |
| 46  | GY    | 41  | PHE  | N-CA-C   | 5.20  | 116.76      | 111.14   |
| 16  | HQ    | 50  | GLY  | N-CA-C   | -5.20 | 106.04      | 112.33   |
| 26  | GE    | 43  | VAL  | N-CA-C   | 5.20  | 117.99      | 109.78   |
| 9   | HJ    | 69  | GLY  | N-CA-C   | 5.20  | 118.65      | 110.91   |
| 26  | BE    | 163 | CYS  | N-CA-C   | 5.19  | 119.31      | 112.92   |
| 26  | BE    | 24  | VAL  | CB-CA-C  | -5.19 | 104.66      | 111.25   |
| 7   | AG    | 97  | ASP  | N-CA-C   | 5.19  | 119.71      | 113.17   |
| 23  | BB    | 40  | LYS  | CA-C-N   | -5.18 | 114.46      | 119.90   |
| 23  | BB    | 40  | LYS  | C-N-CA   | -5.18 | 114.46      | 119.90   |
| 8   | DH    | 29  | THR  | N-CA-C   | 5.18  | 117.88      | 109.06   |
| 32  | CK    | 72  | CYS  | N-CA-C   | 5.18  | 116.22      | 108.76   |
| 9   | AJ    | 54  | GLY  | N-CA-C   | -5.18 | 106.28      | 114.10   |
| 19  | AX    | 18  | VAL  | CB-CA-C  | -5.18 | 102.88      | 111.32   |
| 46  | BY    | 54  | ILE  | N-CA-C   | 5.18  | 115.31      | 107.75   |
| 30  | CI    | 109 | THR  | CA-C-N   | -5.18 | 113.37      | 119.84   |
| 30  | CI    | 109 | THR  | C-N-CA   | -5.18 | 113.37      | 119.84   |
| 5   | FE    | 64  | VAL  | N-CA-C   | 5.18  | 115.42      | 108.17   |
| 9   | FJ    | 41  | GLU  | N-CA-C   | 5.18  | 118.06      | 111.69   |
| 43  | BV    | 211 | PHE  | N-CA-C   | -5.17 | 103.66      | 110.43   |
| 23  | EB    | 297 | ASP  | N-CA-C   | 5.17  | 117.70      | 111.40   |
| 22  | GA    | 14  | ASN  | N-CA-C   | -5.17 | 106.93      | 113.18   |
| 7   | DG    | 42  | VAL  | N-CA-C   | 5.17  | 115.34      | 108.11   |
| 36  | GO    | 148 | ASP  | CA-CB-CG | 5.17  | 117.77      | 112.60   |
| 9   | DJ    | 72  | VAL  | CA-C-N   | 5.16  | 125.63      | 120.52   |
| 9   | DJ    | 72  | VAL  | C-N-CA   | 5.16  | 125.63      | 120.52   |
| 26  | EE    | 24  | VAL  | CB-CA-C  | -5.16 | 104.69      | 111.25   |
| 41  | ET    | 44  | ARG  | N-CA-C   | -5.16 | 106.76      | 113.16   |
| 9   | FJ    | 69  | GLY  | N-CA-C   | 5.16  | 118.60      | 110.91   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 32  | GK    | 59  | GLY  | N-CA-C  | 5.16  | 125.41      | 113.18   |
| 24  | GC    | 382 | LYS  | N-CA-C  | -5.15 | 105.35      | 110.97   |
| 23  | CB    | 20  | ARG  | N-CA-C  | 5.15  | 116.58      | 110.19   |
| 43  | CV    | 80  | VAL  | CB-CA-C | -5.15 | 102.81      | 110.33   |
| 18  | DU    | 47  | ARG  | CA-C-N  | 5.15  | 125.13      | 120.03   |
| 18  | DU    | 47  | ARG  | C-N-CA  | 5.15  | 125.13      | 120.03   |
| 30  | EI    | 46  | LEU  | N-CA-C  | -5.15 | 105.67      | 111.28   |
| 29  | EH    | 91  | VAL  | N-CA-C  | 5.14  | 116.21      | 109.21   |
| 42  | BU    | 106 | VAL  | N-CA-C  | 5.14  | 115.58      | 110.23   |
| 18  | FU    | 121 | LEU  | N-CA-C  | 5.14  | 118.09      | 110.48   |
| 43  | BV    | 35  | LYS  | N-CA-C  | -5.14 | 105.37      | 110.97   |
| 46  | CY    | 54  | ILE  | N-CA-C  | 5.14  | 115.25      | 107.75   |
| 43  | GV    | 177 | CYS  | N-CA-C  | 5.14  | 117.62      | 109.50   |
| 16  | AQ    | 35  | GLY  | N-CA-C  | -5.13 | 105.52      | 112.14   |
| 24  | EC    | 295 | ILE  | N-CA-C  | -5.13 | 105.36      | 112.50   |
| 9   | FJ    | 97  | ILE  | CB-CA-C | -5.13 | 103.56      | 111.31   |
| 5   | AE    | 35  | LYS  | N-CA-C  | 5.13  | 118.69      | 112.23   |
| 32  | CK    | 93  | ALA  | N-CA-C  | -5.13 | 105.60      | 111.14   |
| 18  | HU    | 13  | ARG  | N-CA-C  | 5.13  | 117.54      | 111.33   |
| 22  | BA    | 92  | GLY  | N-CA-C  | 5.13  | 116.94      | 110.38   |
| 5   | FE    | 84  | GLY  | N-CA-C  | -5.13 | 107.62      | 115.00   |
| 19  | HX    | 149 | LYS  | N-CA-C  | 5.12  | 119.68      | 113.38   |
| 33  | BL    | 90  | ASN  | N-CA-C  | 5.12  | 116.72      | 111.03   |
| 27  | EF    | 173 | VAL  | CA-C-N  | -5.12 | 115.73      | 122.85   |
| 27  | EF    | 173 | VAL  | C-N-CA  | -5.12 | 115.73      | 122.85   |
| 25  | BD    | 50  | ALA  | N-CA-C  | -5.12 | 99.07       | 108.02   |
| 25  | CD    | 134 | PRO  | CB-CA-C | -5.12 | 104.18      | 112.62   |
| 30  | CI    | 46  | LEU  | N-CA-C  | -5.12 | 105.70      | 111.28   |
| 22  | EA    | 73  | ASN  | N-CA-C  | 5.12  | 117.09      | 108.96   |
| 23  | GB    | 364 | GLY  | N-CA-C  | -5.12 | 101.89      | 111.66   |
| 16  | HQ    | 3   | LYS  | N-CA-C  | 5.11  | 117.52      | 111.33   |
| 37  | CP    | 31  | LEU  | N-CA-C  | 5.11  | 119.52      | 113.28   |
| 38  | EQ    | 14  | ALA  | N-CA-C  | -5.11 | 106.89      | 113.23   |
| 40  | GS    | 4   | HIS  | N-CA-C  | 5.11  | 116.74      | 108.41   |
| 8   | FH    | 29  | THR  | N-CA-C  | 5.11  | 117.74      | 109.06   |
| 31  | CJ    | 133 | VAL  | CB-CA-C | -5.11 | 105.35      | 111.88   |
| 45  | CX    | 42  | ASN  | N-CA-C  | 5.11  | 117.75      | 110.24   |
| 13  | AN    | 34  | LYS  | N-CA-C  | -5.10 | 105.90      | 111.82   |
| 37  | EP    | 31  | LEU  | N-CA-C  | 5.10  | 119.51      | 113.28   |
| 19  | FX    | 18  | VAL  | CB-CA-C | -5.10 | 103.00      | 111.32   |
| 8   | AH    | 92  | ALA  | N-CA-C  | -5.10 | 105.80      | 111.36   |
| 40  | GS    | 96  | ILE  | CA-C-N  | 5.10  | 125.00      | 119.85   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 40  | GS    | 96  | ILE  | C-N-CA  | 5.10  | 125.00      | 119.85   |
| 43  | GV    | 80  | VAL  | CB-CA-C | -5.10 | 102.89      | 110.33   |
| 4   | FC    | 4   | VAL  | CA-C-N  | 5.10  | 125.34      | 119.83   |
| 4   | FC    | 4   | VAL  | C-N-CA  | 5.10  | 125.34      | 119.83   |
| 38  | CQ    | 60  | ILE  | CA-C-N  | 5.09  | 125.09      | 119.90   |
| 38  | CQ    | 60  | ILE  | C-N-CA  | 5.09  | 125.09      | 119.90   |
| 23  | EB    | 176 | ILE  | N-CA-C  | 5.09  | 114.90      | 107.37   |
| 24  | EC    | 409 | ASP  | N-CA-C  | 5.09  | 117.69      | 109.40   |
| 30  | BI    | 62  | ASN  | N-CA-C  | 5.09  | 116.51      | 110.97   |
| 43  | GV    | 223 | ASP  | N-CA-C  | 5.08  | 120.33      | 113.72   |
| 2   | DA    | 24  | LYS  | CA-C-N  | -5.08 | 115.25      | 122.77   |
| 2   | DA    | 24  | LYS  | C-N-CA  | -5.08 | 115.25      | 122.77   |
| 22  | EA    | 236 | VAL  | N-CA-C  | 5.08  | 119.91      | 109.34   |
| 12  | AM    | 104 | SER  | N-CA-C  | 5.08  | 117.69      | 109.06   |
| 34  | EM    | 268 | ASP  | N-CA-C  | 5.07  | 116.68      | 108.41   |
| 44  | GW    | 16  | HIS  | N-CA-C  | -5.07 | 105.02      | 111.11   |
| 11  | AL    | 75  | SER  | N-CA-C  | 5.07  | 119.11      | 113.02   |
| 29  | EH    | 159 | PHE  | CA-C-N  | 5.07  | 125.31      | 119.83   |
| 29  | EH    | 159 | PHE  | C-N-CA  | 5.07  | 125.31      | 119.83   |
| 24  | GC    | 108 | ALA  | CA-C-N  | -5.07 | 114.51      | 119.93   |
| 24  | GC    | 108 | ALA  | C-N-CA  | -5.07 | 114.51      | 119.93   |
| 22  | BA    | 52  | GLU  | CA-C-N  | 5.07  | 124.85      | 119.28   |
| 22  | BA    | 52  | GLU  | C-N-CA  | 5.07  | 124.85      | 119.28   |
| 22  | BA    | 73  | ASN  | N-CA-C  | 5.06  | 117.01      | 108.96   |
| 44  | CW    | 16  | HIS  | N-CA-C  | -5.06 | 105.03      | 111.11   |
| 6   | DF    | 56  | THR  | N-CA-C  | 5.06  | 119.55      | 113.17   |
| 42  | GU    | 106 | VAL  | N-CA-C  | 5.06  | 115.50      | 110.23   |
| 9   | HJ    | 54  | GLY  | N-CA-C  | -5.06 | 106.46      | 114.10   |
| 26  | BE    | 29  | GLY  | CA-C-N  | 5.06  | 125.09      | 119.32   |
| 26  | BE    | 29  | GLY  | C-N-CA  | 5.06  | 125.09      | 119.32   |
| 26  | CE    | 43  | VAL  | N-CA-C  | 5.06  | 117.77      | 109.78   |
| 23  | EB    | 376 | LYS  | N-CA-C  | -5.06 | 105.66      | 111.07   |
| 24  | EC    | 75  | GLY  | N-CA-C  | 5.06  | 120.23      | 114.67   |
| 42  | EU    | 106 | VAL  | N-CA-C  | 5.06  | 115.49      | 110.23   |
| 30  | EI    | 69  | VAL  | CB-CA-C | -5.05 | 103.72      | 111.71   |
| 23  | CB    | 176 | ILE  | N-CA-C  | 5.05  | 114.85      | 107.37   |
| 9   | HJ    | 72  | VAL  | CA-C-N  | 5.05  | 125.52      | 120.52   |
| 9   | HJ    | 72  | VAL  | C-N-CA  | 5.05  | 125.52      | 120.52   |
| 33  | EL    | 54  | LYS  | CA-C-N  | -5.05 | 114.98      | 122.41   |
| 33  | EL    | 54  | LYS  | C-N-CA  | -5.05 | 114.98      | 122.41   |
| 43  | EV    | 89  | VAL  | N-CA-C  | 5.05  | 116.50      | 111.00   |
| 38  | BQ    | 79  | GLY  | CA-C-O  | 5.04  | 123.51      | 118.77   |

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| Mol | Chain | Res | Type | Atoms   | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|---------|-------|-------------|----------|
| 18  | DU    | 13  | ARG  | N-CA-C  | 5.04  | 117.43      | 111.33   |
| 30  | GI    | 134 | VAL  | N-CA-C  | 5.04  | 114.91      | 107.75   |
| 37  | CP    | 122 | ALA  | N-CA-C  | 5.04  | 119.41      | 113.16   |
| 22  | BA    | 6   | ARG  | N-CA-C  | -5.04 | 105.97      | 111.82   |
| 6   | AF    | 56  | THR  | N-CA-C  | 5.04  | 119.52      | 113.17   |
| 40  | CS    | 96  | ILE  | CA-C-N  | 5.04  | 125.48      | 120.14   |
| 40  | CS    | 96  | ILE  | C-N-CA  | 5.04  | 125.48      | 120.14   |
| 9   | AJ    | 41  | GLU  | N-CA-C  | 5.04  | 117.88      | 111.69   |
| 27  | EF    | 177 | ALA  | N-CA-C  | -5.04 | 105.50      | 111.69   |
| 9   | FJ    | 201 | ASP  | N-CA-C  | 5.04  | 117.42      | 111.33   |
| 36  | BO    | 154 | LYS  | N-CA-C  | 5.03  | 117.31      | 111.02   |
| 22  | BA    | 124 | ARG  | N-CA-C  | -5.03 | 106.72      | 112.86   |
| 19  | HX    | 144 | GLU  | CA-C-N  | 5.03  | 125.31      | 119.47   |
| 19  | HX    | 144 | GLU  | C-N-CA  | 5.03  | 125.31      | 119.47   |
| 24  | CC    | 409 | ASP  | N-CA-C  | 5.03  | 117.60      | 109.40   |
| 32  | CK    | 75  | VAL  | CB-CA-C | -5.03 | 103.08      | 110.82   |
| 6   | FF    | 39  | ASP  | N-CA-C  | 5.03  | 116.45      | 108.96   |
| 6   | HF    | 27  | ILE  | N-CA-C  | 5.03  | 115.27      | 107.28   |
| 9   | DJ    | 201 | ASP  | N-CA-C  | 5.03  | 117.41      | 111.33   |
| 19  | AX    | 22  | VAL  | CA-C-N  | -5.02 | 116.13      | 123.06   |
| 19  | AX    | 22  | VAL  | C-N-CA  | -5.02 | 116.13      | 123.06   |
| 22  | BA    | 218 | GLN  | N-CA-C  | 5.02  | 116.79      | 110.91   |
| 23  | BB    | 11  | HIS  | N-CA-C  | 5.02  | 119.05      | 113.02   |
| 32  | BK    | 93  | ALA  | N-CA-C  | -5.02 | 105.72      | 111.14   |
| 34  | CM    | 268 | ASP  | N-CA-C  | 5.02  | 116.59      | 108.41   |
| 24  | CC    | 81  | ILE  | CA-C-N  | 5.02  | 125.02      | 119.90   |
| 24  | CC    | 81  | ILE  | C-N-CA  | 5.02  | 125.02      | 119.90   |
| 9   | FJ    | 72  | VAL  | CA-C-N  | 5.02  | 125.49      | 120.52   |
| 9   | FJ    | 72  | VAL  | C-N-CA  | 5.02  | 125.49      | 120.52   |
| 33  | GL    | 13  | LYS  | N-CA-C  | 5.02  | 118.44      | 112.72   |
| 29  | BH    | 21  | ARG  | N-CA-C  | -5.02 | 107.13      | 113.20   |
| 23  | CB    | 376 | LYS  | N-CA-C  | -5.02 | 105.70      | 111.07   |
| 18  | HU    | 166 | VAL  | N-CA-C  | 5.02  | 116.47      | 111.00   |
| 43  | CV    | 35  | LYS  | N-CA-C  | -5.02 | 105.50      | 110.97   |
| 30  | GI    | 46  | LEU  | N-CA-C  | -5.02 | 105.81      | 111.28   |
| 36  | BO    | 153 | ASP  | N-CA-C  | 5.01  | 117.57      | 110.50   |
| 41  | BT    | 52  | THR  | N-CA-C  | 5.01  | 116.83      | 111.36   |
| 42  | GU    | 104 | VAL  | N-CA-C  | 5.01  | 115.93      | 108.46   |
| 26  | GE    | 163 | CYS  | N-CA-C  | 5.01  | 119.09      | 112.92   |
| 22  | EA    | 218 | GLN  | N-CA-C  | 5.01  | 116.77      | 110.91   |
| 27  | CF    | 128 | GLY  | N-CA-C  | 5.01  | 118.89      | 112.18   |
| 23  | EB    | 241 | HIS  | N-CA-C  | 5.01  | 116.82      | 111.36   |

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| Mol | Chain | Res | Type | Atoms      | Z     | Observed(°) | Ideal(°) |
|-----|-------|-----|------|------------|-------|-------------|----------|
| 34  | GM    | 117 | THR  | OG1-CB-CG2 | 5.01  | 119.31      | 109.30   |
| 34  | GM    | 127 | GLY  | N-CA-C     | -5.01 | 108.17      | 115.63   |
| 39  | CR    | 124 | ILE  | CB-CA-C    | -5.00 | 104.40      | 112.16   |
| 7   | HG    | 42  | VAL  | N-CA-C     | 5.00  | 115.12      | 108.11   |
| 22  | CA    | 248 | ARG  | N-CA-C     | -5.00 | 101.81      | 109.41   |
| 4   | FC    | 60  | ALA  | N-CA-C     | 5.00  | 119.53      | 113.38   |
| 8   | FH    | 72  | THR  | N-CA-C     | 5.00  | 116.99      | 109.23   |

There are no chirality outliers.

All (30) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 2   | AA    | 51  | GLY  | Peptide |
| 8   | AH    | 101 | GLY  | Peptide |
| 12  | AM    | 53  | GLY  | Peptide |
| 16  | AQ    | 12  | GLY  | Peptide |
| 27  | BF    | 174 | LYS  | Peptide |
| 32  | BK    | 23  | GLY  | Peptide |
| 32  | BK    | 58  | LEU  | Peptide |
| 27  | CF    | 174 | LYS  | Peptide |
| 32  | CK    | 23  | GLY  | Peptide |
| 32  | CK    | 58  | LEU  | Peptide |
| 38  | CQ    | 118 | HIS  | Peptide |
| 42  | CU    | 78  | SER  | Peptide |
| 2   | DA    | 51  | GLY  | Peptide |
| 12  | DM    | 53  | GLY  | Peptide |
| 16  | DQ    | 12  | GLY  | Peptide |
| 27  | EF    | 174 | LYS  | Peptide |
| 32  | EK    | 23  | GLY  | Peptide |
| 32  | EK    | 58  | LEU  | Peptide |
| 2   | FA    | 51  | GLY  | Peptide |
| 12  | FM    | 53  | GLY  | Peptide |
| 16  | FQ    | 12  | GLY  | Peptide |
| 18  | FU    | 44  | VAL  | Peptide |
| 27  | GF    | 174 | LYS  | Peptide |
| 32  | GK    | 23  | GLY  | Peptide |
| 32  | GK    | 58  | LEU  | Peptide |
| 38  | GQ    | 118 | HIS  | Peptide |
| 45  | GX    | 8   | HIS  | Peptide |
| 2   | HA    | 51  | GLY  | Peptide |
| 12  | HM    | 53  | GLY  | Peptide |
| 16  | HQ    | 12  | GLY  | Peptide |



## 5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A1    | 66769 | 0        | 33570    | 4651    | 2            |
| 1   | D1    | 66769 | 0        | 33568    | 4668    | 1            |
| 1   | F1    | 66769 | 0        | 33568    | 4673    | 3            |
| 1   | H1    | 66769 | 0        | 33570    | 4690    | 4            |
| 2   | AA    | 721   | 0        | 744      | 102     | 0            |
| 2   | DA    | 721   | 0        | 744      | 104     | 0            |
| 2   | FA    | 721   | 0        | 744      | 108     | 0            |
| 2   | HA    | 721   | 0        | 744      | 114     | 0            |
| 3   | AB    | 456   | 0        | 483      | 52      | 0            |
| 3   | DB    | 456   | 0        | 483      | 55      | 0            |
| 3   | FB    | 456   | 0        | 483      | 56      | 0            |
| 3   | HB    | 456   | 0        | 483      | 53      | 0            |
| 4   | AC    | 836   | 0        | 912      | 67      | 0            |
| 4   | DC    | 836   | 0        | 911      | 65      | 0            |
| 4   | FC    | 836   | 0        | 911      | 68      | 0            |
| 4   | HC    | 836   | 0        | 911      | 68      | 0            |
| 5   | AE    | 1525  | 0        | 1600     | 240     | 0            |
| 5   | DE    | 1525  | 0        | 1600     | 238     | 0            |
| 5   | FE    | 1525  | 0        | 1600     | 230     | 0            |
| 5   | HE    | 1525  | 0        | 1600     | 241     | 0            |
| 6   | AF    | 1021  | 0        | 1119     | 154     | 0            |
| 6   | DF    | 1021  | 0        | 1119     | 154     | 0            |
| 6   | FF    | 1021  | 0        | 1119     | 159     | 0            |
| 6   | HF    | 1021  | 0        | 1119     | 156     | 0            |
| 7   | AG    | 727   | 0        | 747      | 106     | 0            |
| 7   | DG    | 727   | 0        | 747      | 95      | 0            |
| 7   | FG    | 727   | 0        | 747      | 91      | 0            |
| 7   | HG    | 727   | 0        | 747      | 90      | 0            |
| 8   | AH    | 850   | 0        | 870      | 139     | 0            |
| 8   | DH    | 850   | 0        | 870      | 144     | 0            |
| 8   | FH    | 850   | 0        | 870      | 145     | 0            |
| 8   | HH    | 850   | 0        | 870      | 138     | 0            |
| 9   | AJ    | 1716  | 0        | 1712     | 168     | 0            |
| 9   | DJ    | 1716  | 0        | 1712     | 187     | 0            |
| 9   | FJ    | 1716  | 0        | 1712     | 182     | 0            |
| 9   | HJ    | 1716  | 0        | 1712     | 181     | 0            |
| 10  | AK    | 415   | 0        | 446      | 42      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 10  | DK    | 415   | 0        | 446      | 40      | 0            |
| 10  | FK    | 415   | 0        | 446      | 36      | 0            |
| 10  | HK    | 415   | 0        | 446      | 36      | 0            |
| 11  | AL    | 852   | 0        | 906      | 93      | 0            |
| 11  | DL    | 852   | 0        | 906      | 97      | 0            |
| 11  | FL    | 852   | 0        | 906      | 91      | 0            |
| 11  | HL    | 852   | 0        | 906      | 92      | 0            |
| 12  | AM    | 819   | 0        | 855      | 77      | 0            |
| 12  | DM    | 819   | 0        | 855      | 74      | 0            |
| 12  | FM    | 819   | 0        | 855      | 78      | 0            |
| 12  | HM    | 819   | 0        | 855      | 75      | 0            |
| 13  | AN    | 1170  | 0        | 1259     | 162     | 0            |
| 13  | DN    | 1170  | 0        | 1259     | 140     | 0            |
| 13  | FN    | 1170  | 0        | 1259     | 161     | 0            |
| 13  | HN    | 1170  | 0        | 1259     | 139     | 0            |
| 14  | AO    | 1034  | 0        | 1101     | 146     | 0            |
| 14  | DO    | 1034  | 0        | 1101     | 133     | 0            |
| 14  | FO    | 1034  | 0        | 1101     | 135     | 0            |
| 14  | HO    | 1034  | 0        | 1101     | 124     | 0            |
| 15  | AP    | 551   | 0        | 614      | 53      | 0            |
| 15  | DP    | 551   | 0        | 614      | 57      | 2            |
| 15  | FP    | 551   | 0        | 614      | 50      | 0            |
| 15  | HP    | 551   | 0        | 614      | 58      | 0            |
| 16  | AQ    | 803   | 0        | 907      | 88      | 2            |
| 16  | DQ    | 803   | 0        | 907      | 100     | 0            |
| 16  | FQ    | 803   | 0        | 907      | 98      | 0            |
| 16  | HQ    | 803   | 0        | 907      | 83      | 0            |
| 17  | AT    | 533   | 0        | 578      | 67      | 0            |
| 17  | DT    | 533   | 0        | 578      | 56      | 0            |
| 17  | FT    | 533   | 0        | 578      | 58      | 0            |
| 17  | HT    | 533   | 0        | 578      | 62      | 0            |
| 18  | AU    | 1624  | 0        | 1733     | 212     | 0            |
| 18  | DU    | 1624  | 0        | 1733     | 221     | 0            |
| 18  | FU    | 1624  | 0        | 1733     | 214     | 0            |
| 18  | HU    | 1624  | 0        | 1733     | 242     | 0            |
| 19  | AX    | 1536  | 0        | 1613     | 224     | 0            |
| 19  | DX    | 1536  | 0        | 1613     | 224     | 0            |
| 19  | FX    | 1536  | 0        | 1613     | 229     | 0            |
| 19  | HX    | 1536  | 0        | 1613     | 219     | 0            |
| 20  | B2    | 3300  | 0        | 1657     | 220     | 1            |
| 20  | C2    | 3300  | 0        | 1657     | 224     | 0            |
| 20  | E2    | 3300  | 0        | 1657     | 229     | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 20  | G2    | 3300  | 0        | 1657     | 234     | 0            |
| 21  | B3    | 2566  | 0        | 1294     | 181     | 0            |
| 21  | C3    | 2566  | 0        | 1294     | 194     | 0            |
| 21  | E3    | 2566  | 0        | 1294     | 192     | 0            |
| 21  | G3    | 2566  | 0        | 1294     | 187     | 0            |
| 22  | BA    | 1977  | 0        | 2000     | 242     | 0            |
| 22  | CA    | 1977  | 0        | 2000     | 229     | 0            |
| 22  | EA    | 1977  | 0        | 2000     | 250     | 0            |
| 22  | GA    | 1977  | 0        | 2000     | 251     | 0            |
| 23  | BB    | 3080  | 0        | 3187     | 348     | 0            |
| 23  | CB    | 3080  | 0        | 3187     | 340     | 0            |
| 23  | EB    | 3080  | 0        | 3187     | 372     | 0            |
| 23  | GB    | 3080  | 0        | 3187     | 370     | 0            |
| 24  | BC    | 3172  | 0        | 3274     | 438     | 0            |
| 24  | CC    | 3172  | 0        | 3274     | 444     | 0            |
| 24  | EC    | 3172  | 0        | 3274     | 454     | 0            |
| 24  | GC    | 3172  | 0        | 3274     | 457     | 0            |
| 25  | BD    | 1357  | 0        | 1400     | 129     | 0            |
| 25  | CD    | 1357  | 0        | 1400     | 124     | 0            |
| 25  | ED    | 1357  | 0        | 1400     | 131     | 0            |
| 25  | GD    | 1357  | 0        | 1400     | 130     | 0            |
| 26  | BE    | 1481  | 0        | 1574     | 130     | 0            |
| 26  | CE    | 1481  | 0        | 1574     | 126     | 0            |
| 26  | EE    | 1481  | 0        | 1574     | 133     | 0            |
| 26  | GE    | 1481  | 0        | 1574     | 129     | 0            |
| 27  | BF    | 1860  | 0        | 1968     | 211     | 0            |
| 27  | CF    | 1860  | 0        | 1968     | 223     | 0            |
| 27  | EF    | 1860  | 0        | 1968     | 199     | 1            |
| 27  | GF    | 1860  | 0        | 1968     | 213     | 0            |
| 28  | BG    | 711   | 0        | 644      | 56      | 0            |
| 28  | CG    | 711   | 0        | 644      | 44      | 0            |
| 28  | EG    | 711   | 0        | 644      | 46      | 0            |
| 28  | GG    | 711   | 0        | 644      | 86      | 0            |
| 29  | BH    | 1620  | 0        | 1701     | 162     | 0            |
| 29  | CH    | 1620  | 0        | 1701     | 159     | 0            |
| 29  | EH    | 1620  | 0        | 1701     | 170     | 0            |
| 29  | GH    | 1620  | 0        | 1701     | 167     | 0            |
| 30  | BI    | 1594  | 0        | 1701     | 184     | 0            |
| 30  | CI    | 1594  | 0        | 1701     | 192     | 0            |
| 30  | EI    | 1594  | 0        | 1701     | 179     | 0            |
| 30  | GI    | 1594  | 0        | 1701     | 189     | 0            |
| 31  | BJ    | 1022  | 0        | 1078     | 68      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 31  | CJ    | 1022  | 0        | 1079     | 69      | 0            |
| 31  | EJ    | 1022  | 0        | 1079     | 71      | 0            |
| 31  | GJ    | 1022  | 0        | 1078     | 74      | 0            |
| 32  | BK    | 1161  | 0        | 1227     | 193     | 0            |
| 32  | CK    | 1161  | 0        | 1227     | 186     | 0            |
| 32  | EK    | 1161  | 0        | 1227     | 185     | 0            |
| 32  | GK    | 1161  | 0        | 1227     | 202     | 0            |
| 33  | BL    | 1691  | 0        | 1762     | 189     | 0            |
| 33  | CL    | 1691  | 0        | 1762     | 195     | 0            |
| 33  | EL    | 1691  | 0        | 1762     | 202     | 0            |
| 33  | GL    | 1691  | 0        | 1762     | 206     | 0            |
| 34  | BM    | 2409  | 0        | 2497     | 331     | 0            |
| 34  | CM    | 2424  | 0        | 2509     | 320     | 1            |
| 34  | EM    | 2424  | 0        | 2509     | 319     | 4            |
| 34  | GM    | 2424  | 0        | 2509     | 293     | 2            |
| 35  | BN    | 1441  | 0        | 1534     | 223     | 0            |
| 35  | CN    | 1441  | 0        | 1534     | 236     | 0            |
| 35  | EN    | 1441  | 0        | 1534     | 229     | 0            |
| 35  | GN    | 1441  | 0        | 1534     | 241     | 0            |
| 36  | BO    | 1491  | 0        | 1618     | 109     | 0            |
| 36  | EO    | 1192  | 0        | 1296     | 88      | 0            |
| 36  | GO    | 1234  | 0        | 1323     | 90      | 0            |
| 37  | BP    | 1272  | 0        | 1310     | 133     | 0            |
| 37  | CP    | 1272  | 0        | 1310     | 127     | 0            |
| 37  | EP    | 1272  | 0        | 1310     | 137     | 0            |
| 37  | GP    | 1272  | 0        | 1310     | 123     | 0            |
| 38  | BQ    | 1239  | 0        | 1276     | 129     | 0            |
| 38  | CQ    | 1239  | 0        | 1276     | 138     | 0            |
| 38  | EQ    | 1239  | 0        | 1276     | 126     | 0            |
| 38  | GQ    | 1239  | 0        | 1276     | 136     | 0            |
| 39  | BR    | 965   | 0        | 1020     | 100     | 0            |
| 39  | CR    | 965   | 0        | 1020     | 87      | 0            |
| 39  | ER    | 965   | 0        | 1020     | 95      | 0            |
| 39  | GR    | 965   | 0        | 1020     | 99      | 0            |
| 40  | BS    | 1013  | 0        | 1101     | 95      | 0            |
| 40  | CS    | 1013  | 0        | 1101     | 101     | 1            |
| 40  | ES    | 1013  | 0        | 1101     | 98      | 0            |
| 40  | GS    | 1013  | 0        | 1101     | 96      | 0            |
| 41  | BT    | 510   | 0        | 546      | 51      | 0            |
| 41  | CT    | 510   | 0        | 546      | 51      | 0            |
| 41  | ET    | 510   | 0        | 546      | 59      | 0            |
| 41  | GT    | 510   | 0        | 546      | 52      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 42  | BU    | 990   | 0        | 1123     | 100     | 0            |
| 42  | CU    | 990   | 0        | 1123     | 107     | 0            |
| 42  | EU    | 990   | 0        | 1123     | 109     | 0            |
| 42  | GU    | 990   | 0        | 1123     | 120     | 0            |
| 43  | BV    | 1910  | 0        | 1983     | 211     | 0            |
| 43  | CV    | 1910  | 0        | 1983     | 209     | 0            |
| 43  | EV    | 1910  | 0        | 1983     | 224     | 0            |
| 43  | GV    | 1910  | 0        | 1983     | 209     | 0            |
| 44  | BW    | 901   | 0        | 937      | 68      | 0            |
| 44  | CW    | 901   | 0        | 937      | 69      | 0            |
| 44  | EW    | 901   | 0        | 937      | 70      | 0            |
| 44  | GW    | 901   | 0        | 937      | 72      | 0            |
| 45  | BX    | 1012  | 0        | 1079     | 115     | 0            |
| 45  | CX    | 1012  | 0        | 1079     | 116     | 0            |
| 45  | EX    | 1012  | 0        | 1079     | 122     | 0            |
| 45  | GX    | 1012  | 0        | 1079     | 128     | 0            |
| 46  | BY    | 786   | 0        | 851      | 87      | 0            |
| 46  | CY    | 786   | 0        | 849      | 92      | 0            |
| 46  | EY    | 786   | 0        | 851      | 111     | 0            |
| 46  | GY    | 786   | 0        | 851      | 99      | 0            |
| 47  | CO    | 1366  | 0        | 1470     | 143     | 0            |
| 48  | A1    | 200   | 0        | 0        | 0       | 0            |
| 48  | AA    | 2     | 0        | 0        | 0       | 0            |
| 48  | AK    | 1     | 0        | 0        | 0       | 0            |
| 48  | B2    | 8     | 0        | 0        | 0       | 0            |
| 48  | B3    | 3     | 0        | 0        | 0       | 0            |
| 48  | BJ    | 1     | 0        | 0        | 0       | 0            |
| 48  | BL    | 1     | 0        | 0        | 0       | 0            |
| 48  | BN    | 1     | 0        | 0        | 0       | 0            |
| 48  | BP    | 1     | 0        | 0        | 0       | 0            |
| 48  | BQ    | 2     | 0        | 0        | 0       | 0            |
| 48  | BW    | 1     | 0        | 0        | 0       | 0            |
| 48  | C2    | 6     | 0        | 0        | 0       | 0            |
| 48  | C3    | 7     | 0        | 0        | 0       | 0            |
| 48  | CD    | 1     | 0        | 0        | 0       | 0            |
| 48  | CJ    | 1     | 0        | 0        | 0       | 0            |
| 48  | CL    | 2     | 0        | 0        | 0       | 0            |
| 48  | CN    | 1     | 0        | 0        | 0       | 0            |
| 48  | CQ    | 2     | 0        | 0        | 0       | 0            |
| 48  | CW    | 1     | 0        | 0        | 0       | 0            |
| 48  | CY    | 1     | 0        | 0        | 0       | 0            |
| 48  | D1    | 232   | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 48  | DA    | 2     | 0        | 0        | 0       | 0            |
| 48  | DJ    | 1     | 0        | 0        | 0       | 0            |
| 48  | DK    | 1     | 0        | 0        | 0       | 0            |
| 48  | DQ    | 1     | 0        | 0        | 0       | 0            |
| 48  | E2    | 7     | 0        | 0        | 0       | 0            |
| 48  | E3    | 6     | 0        | 0        | 0       | 0            |
| 48  | EJ    | 1     | 0        | 0        | 0       | 0            |
| 48  | EL    | 2     | 0        | 0        | 0       | 0            |
| 48  | EN    | 2     | 0        | 0        | 0       | 0            |
| 48  | EQ    | 1     | 0        | 0        | 0       | 0            |
| 48  | EW    | 2     | 0        | 0        | 0       | 0            |
| 48  | F1    | 184   | 0        | 0        | 0       | 0            |
| 48  | FA    | 2     | 0        | 0        | 0       | 0            |
| 48  | FK    | 1     | 0        | 0        | 0       | 0            |
| 48  | FT    | 1     | 0        | 0        | 0       | 0            |
| 48  | G2    | 6     | 0        | 0        | 0       | 0            |
| 48  | G3    | 5     | 0        | 0        | 0       | 0            |
| 48  | GA    | 1     | 0        | 0        | 0       | 0            |
| 48  | GJ    | 1     | 0        | 0        | 0       | 0            |
| 48  | GL    | 1     | 0        | 0        | 0       | 0            |
| 48  | GN    | 1     | 0        | 0        | 0       | 0            |
| 48  | GO    | 1     | 0        | 0        | 0       | 0            |
| 48  | GP    | 2     | 0        | 0        | 0       | 0            |
| 48  | GQ    | 1     | 0        | 0        | 0       | 0            |
| 48  | GW    | 1     | 0        | 0        | 0       | 0            |
| 48  | H1    | 155   | 0        | 0        | 0       | 0            |
| 48  | HT    | 1     | 0        | 0        | 0       | 0            |
| 49  | AA    | 1     | 0        | 0        | 0       | 0            |
| 49  | AC    | 1     | 0        | 0        | 0       | 0            |
| 49  | AK    | 1     | 0        | 0        | 0       | 0            |
| 49  | AL    | 1     | 0        | 0        | 0       | 0            |
| 49  | BY    | 1     | 0        | 0        | 0       | 0            |
| 49  | CY    | 1     | 0        | 0        | 0       | 0            |
| 49  | DA    | 1     | 0        | 0        | 0       | 0            |
| 49  | DC    | 1     | 0        | 0        | 0       | 0            |
| 49  | DK    | 1     | 0        | 0        | 0       | 0            |
| 49  | DL    | 1     | 0        | 0        | 0       | 0            |
| 49  | EY    | 1     | 0        | 0        | 0       | 0            |
| 49  | FA    | 1     | 0        | 0        | 0       | 0            |
| 49  | FC    | 1     | 0        | 0        | 0       | 0            |
| 49  | FK    | 1     | 0        | 0        | 0       | 0            |
| 49  | FL    | 1     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 49  | GY    | 1     | 0        | 0        | 0       | 0            |
| 49  | HA    | 1     | 0        | 0        | 0       | 0            |
| 49  | HC    | 1     | 0        | 0        | 0       | 0            |
| 49  | HK    | 1     | 0        | 0        | 0       | 0            |
| 49  | HL    | 1     | 0        | 0        | 0       | 0            |
| 50  | A1    | 1134  | 0        | 0        | 292     | 0            |
| 50  | AA    | 8     | 0        | 0        | 2       | 0            |
| 50  | AB    | 5     | 0        | 0        | 2       | 0            |
| 50  | AH    | 1     | 0        | 0        | 0       | 0            |
| 50  | AK    | 3     | 0        | 0        | 1       | 0            |
| 50  | AM    | 1     | 0        | 0        | 0       | 0            |
| 50  | AP    | 2     | 0        | 0        | 0       | 0            |
| 50  | AT    | 3     | 0        | 0        | 3       | 0            |
| 50  | AU    | 4     | 0        | 0        | 3       | 0            |
| 50  | B2    | 54    | 0        | 0        | 5       | 0            |
| 50  | B3    | 23    | 0        | 0        | 6       | 0            |
| 50  | BA    | 12    | 0        | 0        | 3       | 0            |
| 50  | BB    | 4     | 0        | 0        | 1       | 0            |
| 50  | BC    | 7     | 0        | 0        | 0       | 0            |
| 50  | BE    | 1     | 0        | 0        | 0       | 0            |
| 50  | BI    | 3     | 0        | 0        | 1       | 0            |
| 50  | BJ    | 5     | 0        | 0        | 1       | 0            |
| 50  | BK    | 3     | 0        | 0        | 1       | 0            |
| 50  | BL    | 8     | 0        | 0        | 0       | 0            |
| 50  | BM    | 2     | 0        | 0        | 1       | 0            |
| 50  | BN    | 5     | 0        | 0        | 0       | 0            |
| 50  | BO    | 2     | 0        | 0        | 2       | 0            |
| 50  | BP    | 5     | 0        | 0        | 2       | 0            |
| 50  | BQ    | 7     | 0        | 0        | 3       | 0            |
| 50  | BU    | 1     | 0        | 0        | 0       | 0            |
| 50  | BV    | 7     | 0        | 0        | 1       | 0            |
| 50  | BW    | 5     | 0        | 0        | 0       | 0            |
| 50  | BX    | 6     | 0        | 0        | 1       | 0            |
| 50  | BY    | 5     | 0        | 0        | 0       | 0            |
| 50  | C2    | 46    | 0        | 0        | 3       | 0            |
| 50  | C3    | 39    | 0        | 0        | 10      | 0            |
| 50  | CA    | 11    | 0        | 0        | 3       | 0            |
| 50  | CB    | 4     | 0        | 0        | 0       | 0            |
| 50  | CC    | 7     | 0        | 0        | 0       | 0            |
| 50  | CD    | 4     | 0        | 0        | 0       | 0            |
| 50  | CE    | 2     | 0        | 0        | 1       | 0            |
| 50  | CI    | 1     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 50  | CJ    | 4     | 0        | 0        | 3       | 0            |
| 50  | CK    | 3     | 0        | 0        | 1       | 0            |
| 50  | CL    | 12    | 0        | 0        | 2       | 0            |
| 50  | CM    | 6     | 0        | 0        | 1       | 0            |
| 50  | CN    | 7     | 0        | 0        | 5       | 0            |
| 50  | CO    | 2     | 0        | 0        | 1       | 0            |
| 50  | CP    | 6     | 0        | 0        | 1       | 0            |
| 50  | CQ    | 7     | 0        | 0        | 5       | 0            |
| 50  | CU    | 1     | 0        | 0        | 0       | 0            |
| 50  | CV    | 4     | 0        | 0        | 1       | 0            |
| 50  | CW    | 5     | 0        | 0        | 0       | 0            |
| 50  | CX    | 6     | 0        | 0        | 0       | 0            |
| 50  | CY    | 5     | 0        | 0        | 0       | 0            |
| 50  | D1    | 1341  | 0        | 0        | 313     | 0            |
| 50  | DA    | 10    | 0        | 0        | 1       | 0            |
| 50  | DB    | 4     | 0        | 0        | 2       | 0            |
| 50  | DE    | 1     | 0        | 0        | 0       | 0            |
| 50  | DJ    | 2     | 0        | 0        | 1       | 0            |
| 50  | DK    | 2     | 0        | 0        | 0       | 0            |
| 50  | DP    | 1     | 0        | 0        | 0       | 0            |
| 50  | DQ    | 2     | 0        | 0        | 2       | 0            |
| 50  | DT    | 4     | 0        | 0        | 3       | 0            |
| 50  | DU    | 3     | 0        | 0        | 0       | 0            |
| 50  | DX    | 2     | 0        | 0        | 0       | 0            |
| 50  | E2    | 44    | 0        | 0        | 8       | 0            |
| 50  | E3    | 34    | 0        | 0        | 4       | 0            |
| 50  | EA    | 4     | 0        | 0        | 4       | 0            |
| 50  | EB    | 3     | 0        | 0        | 0       | 0            |
| 50  | EC    | 2     | 0        | 0        | 0       | 0            |
| 50  | EE    | 2     | 0        | 0        | 0       | 0            |
| 50  | EJ    | 4     | 0        | 0        | 1       | 0            |
| 50  | EK    | 5     | 0        | 0        | 1       | 0            |
| 50  | EL    | 10    | 0        | 0        | 1       | 0            |
| 50  | EM    | 2     | 0        | 0        | 0       | 0            |
| 50  | EN    | 7     | 0        | 0        | 7       | 0            |
| 50  | EP    | 6     | 0        | 0        | 1       | 0            |
| 50  | EQ    | 4     | 0        | 0        | 4       | 0            |
| 50  | EV    | 6     | 0        | 0        | 1       | 0            |
| 50  | EW    | 7     | 0        | 0        | 0       | 0            |
| 50  | EX    | 5     | 0        | 0        | 2       | 0            |
| 50  | EY    | 5     | 0        | 0        | 0       | 0            |
| 50  | F1    | 1076  | 0        | 0        | 268     | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 50  | FA    | 7      | 0        | 0        | 2       | 0            |
| 50  | FB    | 4      | 0        | 0        | 1       | 0            |
| 50  | FE    | 1      | 0        | 0        | 0       | 0            |
| 50  | FH    | 1      | 0        | 0        | 0       | 0            |
| 50  | FK    | 2      | 0        | 0        | 0       | 0            |
| 50  | FL    | 3      | 0        | 0        | 1       | 0            |
| 50  | FP    | 2      | 0        | 0        | 0       | 0            |
| 50  | FT    | 4      | 0        | 0        | 4       | 0            |
| 50  | FU    | 4      | 0        | 0        | 0       | 0            |
| 50  | G2    | 34     | 0        | 0        | 2       | 0            |
| 50  | G3    | 26     | 0        | 0        | 9       | 0            |
| 50  | GA    | 6      | 0        | 0        | 6       | 0            |
| 50  | GB    | 3      | 0        | 0        | 0       | 0            |
| 50  | GC    | 2      | 0        | 0        | 0       | 0            |
| 50  | GE    | 2      | 0        | 0        | 0       | 0            |
| 50  | GI    | 1      | 0        | 0        | 0       | 0            |
| 50  | GJ    | 4      | 0        | 0        | 2       | 0            |
| 50  | GK    | 2      | 0        | 0        | 2       | 0            |
| 50  | GL    | 5      | 0        | 0        | 1       | 0            |
| 50  | GM    | 1      | 0        | 0        | 1       | 0            |
| 50  | GN    | 2      | 0        | 0        | 1       | 0            |
| 50  | GO    | 2      | 0        | 0        | 1       | 0            |
| 50  | GP    | 5      | 0        | 0        | 0       | 0            |
| 50  | GQ    | 4      | 0        | 0        | 2       | 0            |
| 50  | GV    | 3      | 0        | 0        | 0       | 0            |
| 50  | GW    | 4      | 0        | 0        | 0       | 0            |
| 50  | GX    | 5      | 0        | 0        | 1       | 0            |
| 50  | GY    | 1      | 0        | 0        | 0       | 0            |
| 50  | H1    | 924    | 0        | 0        | 218     | 0            |
| 50  | HA    | 4      | 0        | 0        | 1       | 0            |
| 50  | HB    | 4      | 0        | 0        | 2       | 0            |
| 50  | HJ    | 2      | 0        | 0        | 0       | 0            |
| 50  | HK    | 2      | 0        | 0        | 0       | 0            |
| 50  | HP    | 1      | 0        | 0        | 0       | 0            |
| 50  | HT    | 5      | 0        | 0        | 5       | 0            |
| 50  | HU    | 2      | 0        | 0        | 0       | 0            |
| All | All   | 511395 | 0        | 371708   | 38211   | 12           |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 44.

All (38211) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.



| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 28:GG:8:UNK:CG    | 1:H1:1248:G:N2    | 1.82                     | 1.41              |
| 28:GG:8:UNK:HG3   | 1:H1:1248:G:N2    | 1.34                     | 1.40              |
| 1:F1:452:U:H5'    | 14:FO:56:GLN:NE2  | 1.41                     | 1.35              |
| 13:AN:130:LYS:HG2 | 1:H1:2664:C:OP1   | 1.22                     | 1.33              |
| 46:CY:28:LYS:NZ   | 1:F1:2252:C:OP1   | 1.60                     | 1.33              |
| 32:GK:142:GLY:HA2 | 18:HU:173:ARG:NH2 | 1.44                     | 1.31              |
| 1:A1:987:A:H2'    | 50:A1:3776:HOH:O  | 1.30                     | 1.31              |
| 24:EC:376:TRP:CD1 | 1:F1:564:A:H1'    | 1.67                     | 1.29              |
| 1:D1:452:U:H5'    | 14:DO:56:GLN:NE2  | 1.48                     | 1.29              |
| 1:D1:2859:G:N7    | 50:D1:4455:HOH:O  | 1.59                     | 1.29              |
| 28:GG:31:UNK:C    | 1:H1:1257:G:H4'   | 1.62                     | 1.29              |
| 16:AQ:48:VAL:O    | 27:BF:69:GLN:NE2  | 1.62                     | 1.28              |
| 28:GG:8:UNK:CG    | 1:H1:1248:G:H22   | 1.42                     | 1.27              |
| 22:EA:219:HIS:HA  | 50:EA:302:HOH:O   | 1.33                     | 1.26              |
| 1:A1:1308:U:H5''  | 28:BG:58:UNK:CB   | 1.65                     | 1.26              |
| 35:EN:158:GLN:NE2 | 50:EN:306:HOH:O   | 1.57                     | 1.26              |
| 1:H1:1380:C:O2'   | 1:H1:1381:G:OP1   | 1.54                     | 1.25              |
| 1:A1:3109:C:H3'   | 10:AK:111:ARG:NH1 | 1.51                     | 1.24              |
| 1:D1:1561:A:OP2   | 50:D1:4137:HOH:O  | 1.53                     | 1.24              |
| 7:AG:11:GLN:NE2   | 1:H1:2249:U:O3'   | 1.71                     | 1.23              |
| 1:D1:3044:A:O2'   | 1:D1:3046:A:OP2   | 1.54                     | 1.23              |
| 1:A1:451:A:O2'    | 14:AO:56:GLN:NE2  | 1.72                     | 1.22              |
| 1:H1:273:G:OP2    | 50:H1:3676:HOH:O  | 1.57                     | 1.22              |
| 1:H1:1183:C:OP1   | 50:H1:3757:HOH:O  | 1.52                     | 1.22              |
| 38:GQ:133:ARG:HD3 | 50:GQ:303:HOH:O   | 1.31                     | 1.22              |
| 1:H1:3044:A:O2'   | 1:H1:3046:A:OP2   | 1.57                     | 1.22              |
| 1:D1:3109:C:H3'   | 10:DK:111:ARG:NH1 | 1.55                     | 1.22              |
| 1:A1:842:A:OP2    | 50:A1:4006:HOH:O  | 1.56                     | 1.22              |
| 1:H1:1207:A:O2'   | 1:H1:1208:U:OP1   | 1.58                     | 1.22              |
| 1:F1:2930:C:OP1   | 50:F1:4026:HOH:O  | 1.53                     | 1.21              |
| 1:H1:2717:G:OP1   | 50:H1:4321:HOH:O  | 1.52                     | 1.21              |
| 1:A1:452:U:H5'    | 14:AO:56:GLN:NE2  | 1.53                     | 1.21              |
| 1:A1:1064:C:OP1   | 34:BM:5:LYS:NZ    | 1.71                     | 1.21              |
| 33:CL:2:GLY:N     | 16:DQ:37:ARG:HH21 | 1.38                     | 1.21              |
| 1:D1:2310:G:OP1   | 50:D1:4277:HOH:O  | 1.55                     | 1.21              |
| 1:F1:1207:A:O2'   | 1:F1:1208:U:OP1   | 1.56                     | 1.21              |
| 1:F1:2252:C:C5    | 1:F1:2253:U:C5    | 2.28                     | 1.21              |
| 28:GG:8:UNK:CA    | 1:H1:1248:G:H21   | 1.53                     | 1.21              |
| 1:H1:451:A:O2'    | 14:HO:56:GLN:NE2  | 1.74                     | 1.21              |
| 1:D1:986:C:OP2    | 50:D1:3772:HOH:O  | 1.58                     | 1.21              |
| 1:D1:2944:A:OP2   | 50:D1:4281:HOH:O  | 1.59                     | 1.21              |
| 27:CF:69:GLN:NE2  | 16:DQ:48:VAL:O    | 1.73                     | 1.20              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:47:G:OP2      | 50:A1:3729:HOH:O   | 1.58                     | 1.20              |
| 1:D1:1513:A:OP2    | 50:D1:4485:HOH:O   | 1.54                     | 1.20              |
| 1:H1:452:U:H5'     | 14:HO:56:GLN:NE2   | 1.56                     | 1.20              |
| 1:A1:1209:G:OP2    | 50:A1:4287:HOH:O   | 1.56                     | 1.20              |
| 1:A1:3044:A:O2'    | 1:A1:3046:A:OP2    | 1.60                     | 1.20              |
| 38:BQ:132:TYR:O    | 50:BQ:305:HOH:O    | 1.59                     | 1.20              |
| 1:F1:40:C:H2'      | 1:F1:41:A:H5''     | 1.22                     | 1.19              |
| 23:BB:114:THR:HB   | 23:BB:161:HIS:NE2  | 1.55                     | 1.19              |
| 23:CB:114:THR:HB   | 23:CB:161:HIS:NE2  | 1.55                     | 1.19              |
| 1:F1:2900:G:OP1    | 50:F1:4274:HOH:O   | 1.57                     | 1.19              |
| 33:EL:2:GLY:N      | 16:FQ:37:ARG:HH21  | 1.38                     | 1.19              |
| 27:GF:176:LYS:HB2  | 27:GF:187:THR:HG23 | 1.25                     | 1.19              |
| 21:B3:83:G:OP1     | 50:B3:305:HOH:O    | 1.59                     | 1.19              |
| 37:GP:116:LYS:NZ   | 1:H1:1123:A:OP1    | 1.75                     | 1.19              |
| 1:D1:451:A:O2'     | 14:DO:56:GLN:NE2   | 1.75                     | 1.18              |
| 1:H1:40:C:H2'      | 1:H1:41:A:H5''     | 1.21                     | 1.18              |
| 1:D1:1207:A:O2'    | 1:D1:1208:U:OP1    | 1.56                     | 1.18              |
| 18:AU:173:ARG:NH2  | 32:BK:142:GLY:HA2  | 1.57                     | 1.18              |
| 24:CC:152:VAL:HG13 | 24:CC:157:TYR:CE2  | 1.79                     | 1.18              |
| 1:D1:1662:A:H5'    | 11:DL:76:ARG:NH2   | 1.57                     | 1.18              |
| 23:EB:114:THR:HB   | 23:EB:161:HIS:NE2  | 1.54                     | 1.18              |
| 1:F1:2544:U:C1'    | 7:FG:50:THR:HG21   | 1.72                     | 1.18              |
| 23:GB:114:THR:HB   | 23:GB:161:HIS:NE2  | 1.57                     | 1.18              |
| 1:A1:3228:U:H4'    | 1:A1:3229:C:H5'    | 1.24                     | 1.17              |
| 27:EF:126:LYS:HE2  | 27:EF:135:LEU:HD13 | 1.23                     | 1.17              |
| 32:CK:142:GLY:HA2  | 18:DU:173:ARG:NH2  | 1.58                     | 1.17              |
| 1:D1:672:C:O2'     | 50:D1:4018:HOH:O   | 1.63                     | 1.17              |
| 23:BB:30:ARG:O     | 50:BB:402:HOH:O    | 1.60                     | 1.17              |
| 20:C2:2:G:O6       | 1:D1:3132:A:O2'    | 1.57                     | 1.17              |
| 1:D1:265:A:N6      | 16:DQ:30:ARG:O     | 1.78                     | 1.17              |
| 27:GF:47:TRP:HB3   | 27:GF:51:ILE:HD11  | 1.25                     | 1.17              |
| 44:GW:42:THR:HG22  | 44:GW:43:MET:HE3   | 1.27                     | 1.17              |
| 1:H1:2544:U:H1'    | 7:HG:50:THR:HG21   | 1.23                     | 1.17              |
| 1:A1:1207:A:O2'    | 1:A1:1208:U:OP1    | 1.62                     | 1.16              |
| 44:BW:42:THR:HG22  | 44:BW:43:MET:HE3   | 1.25                     | 1.16              |
| 26:GE:1:MET:HG3    | 26:GE:2:ARG:H      | 1.00                     | 1.16              |
| 1:H1:2347:A:N7     | 50:H1:4254:HOH:O   | 1.76                     | 1.16              |
| 1:A1:40:C:H2'      | 1:A1:41:A:H5''     | 1.22                     | 1.16              |
| 1:A1:273:G:OP2     | 50:A1:3834:HOH:O   | 1.63                     | 1.16              |
| 1:F1:987:A:H2'     | 50:F1:4481:HOH:O   | 1.43                     | 1.16              |
| 1:F1:1895:U:OP1    | 50:F1:4010:HOH:O   | 1.63                     | 1.16              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3044:A:O2'    | 1:F1:3046:A:OP2    | 1.59                     | 1.16              |
| 22:EA:239:ARG:NH1  | 1:F1:2158:C:H5'    | 1.60                     | 1.16              |
| 27:EF:69:GLN:NE2   | 16:FQ:48:VAL:O     | 1.78                     | 1.16              |
| 1:F1:1445:G:H2'    | 1:F1:1446:C:H5''   | 1.25                     | 1.16              |
| 1:F1:1920:A:OP2    | 50:F1:4312:HOH:O   | 1.59                     | 1.16              |
| 7:FG:10:ILE:HA     | 7:FG:13:LYS:CD     | 1.75                     | 1.16              |
| 1:D1:964:U:OP1     | 50:D1:4024:HOH:O   | 1.60                     | 1.16              |
| 1:F1:981:U:OP1     | 50:F1:4089:HOH:O   | 1.62                     | 1.16              |
| 1:H1:3109:C:H3'    | 10:HK:111:ARG:NH1  | 1.60                     | 1.16              |
| 1:A1:3132:A:O2'    | 20:B2:2:G:O6       | 1.64                     | 1.16              |
| 23:BB:376:LYS:HZ3  | 9:DJ:44:PRO:CD     | 1.57                     | 1.16              |
| 1:D1:3228:U:H4'    | 1:D1:3229:C:H5'    | 1.24                     | 1.16              |
| 8:HH:13:ARG:HH22   | 8:HH:17:LYS:HG2    | 1.04                     | 1.16              |
| 1:A1:964:U:OP1     | 50:A1:3949:HOH:O   | 1.63                     | 1.15              |
| 1:A1:3230:G:N2     | 5:AE:142:GLU:OE2   | 1.79                     | 1.15              |
| 24:EC:152:VAL:HG13 | 24:EC:157:TYR:CE2  | 1.81                     | 1.15              |
| 1:F1:3109:C:H3'    | 10:FK:111:ARG:NH1  | 1.61                     | 1.15              |
| 24:GC:152:VAL:HG13 | 24:GC:157:TYR:CE2  | 1.80                     | 1.15              |
| 1:H1:1662:A:H5'    | 11:HL:76:ARG:NH2   | 1.61                     | 1.15              |
| 18:AU:82:GLY:O     | 18:AU:133:LYS:NZ   | 1.77                     | 1.15              |
| 1:D1:1909:C:O2'    | 1:D1:1910:A:OP2    | 1.62                     | 1.15              |
| 28:EG:15:UNK:HG3   | 28:EG:65:UNK:HA    | 1.18                     | 1.15              |
| 24:GC:395:ASP:OD1  | 37:GP:154:ARG:NH2  | 1.80                     | 1.15              |
| 32:EK:142:GLY:HA2  | 18:FU:173:ARG:HH22 | 1.07                     | 1.15              |
| 1:F1:361:A:H2'     | 1:F1:362:G:H5''    | 1.28                     | 1.15              |
| 7:AG:10:ILE:HA     | 7:AG:13:LYS:CD     | 1.75                     | 1.15              |
| 1:D1:240:A:H4'     | 1:D1:241:A:OP2     | 1.43                     | 1.15              |
| 1:D1:1642:G:H2'    | 1:D1:1643:G:H5''   | 1.25                     | 1.15              |
| 1:F1:1084:G:H2'    | 1:F1:1085:G:H5''   | 1.17                     | 1.15              |
| 1:A1:2743:G:H3'    | 1:A1:2744:C:C5'    | 1.76                     | 1.14              |
| 7:AG:10:ILE:CA     | 7:AG:13:LYS:HD3    | 1.76                     | 1.14              |
| 44:CW:42:THR:HG22  | 44:CW:43:MET:HE3   | 1.23                     | 1.14              |
| 7:DG:10:ILE:CA     | 7:DG:13:LYS:HD3    | 1.77                     | 1.14              |
| 7:DG:10:ILE:HA     | 7:DG:13:LYS:CD     | 1.75                     | 1.14              |
| 1:F1:304:U:O2'     | 1:F1:305:A:OP2     | 1.64                     | 1.14              |
| 1:H1:1478:A:N7     | 50:H1:3945:HOH:O   | 1.78                     | 1.14              |
| 1:A1:2158:C:H5'    | 22:BA:239:ARG:NH1  | 1.61                     | 1.14              |
| 24:BC:152:VAL:HG13 | 24:BC:157:TYR:CE2  | 1.81                     | 1.14              |
| 1:A1:696:A:H2'     | 1:A1:697:A:H5''    | 1.20                     | 1.14              |
| 1:A1:1445:G:H2'    | 1:A1:1446:C:H5''   | 1.26                     | 1.14              |
| 27:CF:131:HIS:CD2  | 27:CF:135:LEU:HD11 | 1.82                     | 1.14              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:CF:176:LYS:HB2  | 27:CF:187:THR:HG23 | 1.24                     | 1.14              |
| 1:D1:1445:G:H2'    | 1:D1:1446:C:H5''   | 1.25                     | 1.14              |
| 24:EC:376:TRP:HD1  | 1:F1:564:A:C1'     | 1.61                     | 1.14              |
| 1:F1:2394:A:OP2    | 50:F1:4137:HOH:O   | 1.62                     | 1.14              |
| 1:F1:3228:U:H4'    | 1:F1:3229:C:H5'    | 1.23                     | 1.14              |
| 1:D1:2743:G:H3'    | 1:D1:2744:C:C5'    | 1.77                     | 1.14              |
| 38:EQ:133:ARG:HD3  | 50:EQ:303:HOH:O    | 1.44                     | 1.14              |
| 4:FC:44:LYS:HD3    | 4:FC:52:THR:HG21   | 1.23                     | 1.14              |
| 38:GQ:133:ARG:HG3  | 38:GQ:139:ASN:ND2  | 1.63                     | 1.14              |
| 1:H1:3228:U:H4'    | 1:H1:3229:C:H5'    | 1.24                     | 1.14              |
| 1:A1:1957:A:OP2    | 50:A1:4526:HOH:O   | 1.65                     | 1.13              |
| 38:CQ:133:ARG:HG3  | 38:CQ:139:ASN:ND2  | 1.63                     | 1.13              |
| 1:H1:304:U:O2'     | 1:H1:305:A:OP2     | 1.63                     | 1.13              |
| 7:HG:10:ILE:HA     | 7:HG:13:LYS:CD     | 1.79                     | 1.13              |
| 18:AU:173:ARG:HH22 | 32:BK:142:GLY:HA2  | 0.99                     | 1.13              |
| 27:CF:126:LYS:HE2  | 27:CF:135:LEU:HD13 | 1.30                     | 1.13              |
| 1:F1:2862:G:OP2    | 50:F1:4140:HOH:O   | 1.66                     | 1.13              |
| 8:FH:64:LYS:HG2    | 8:FH:69:ASN:HD21   | 1.12                     | 1.13              |
| 1:H1:1054:G:H2'    | 1:H1:1055:A:C8     | 1.83                     | 1.13              |
| 1:H1:1084:G:H2'    | 1:H1:1085:G:H5''   | 1.19                     | 1.13              |
| 18:HU:82:GLY:O     | 18:HU:133:LYS:NZ   | 1.82                     | 1.13              |
| 1:A1:396:A:H4'     | 1:A1:397:A:OP1     | 1.40                     | 1.13              |
| 1:D1:750:G:H2'     | 1:D1:751:C:H5''    | 1.28                     | 1.13              |
| 7:FG:10:ILE:CA     | 7:FG:13:LYS:HD3    | 1.78                     | 1.13              |
| 27:BF:47:TRP:HB3   | 27:BF:51:ILE:HD11  | 1.28                     | 1.13              |
| 38:BQ:133:ARG:HG3  | 38:BQ:139:ASN:ND2  | 1.62                     | 1.13              |
| 23:CB:16:PHE:HD2   | 23:CB:273:ARG:NH1  | 1.47                     | 1.13              |
| 1:D1:291:C:H2'     | 1:D1:292:C:H5''    | 1.31                     | 1.13              |
| 1:A1:1926:G:OP1    | 50:A1:4486:HOH:O   | 1.67                     | 1.12              |
| 1:A1:2544:U:C1'    | 7:AG:50:THR:HG21   | 1.79                     | 1.12              |
| 24:EC:319:ARG:NH1  | 1:F1:620:A:N7      | 1.96                     | 1.13              |
| 1:D1:304:U:O2'     | 1:D1:305:A:OP2     | 1.65                     | 1.12              |
| 1:D1:2900:G:OP1    | 50:D1:4562:HOH:O   | 1.66                     | 1.12              |
| 32:EK:142:GLY:HA2  | 18:FU:173:ARG:NH2  | 1.63                     | 1.12              |
| 1:F1:451:A:O2'     | 14:FO:56:GLN:NE2   | 1.82                     | 1.12              |
| 1:H1:2944:A:OP2    | 50:H1:3967:HOH:O   | 1.65                     | 1.12              |
| 23:BB:16:PHE:HD2   | 23:BB:273:ARG:NH1  | 1.44                     | 1.12              |
| 1:H1:361:A:H2'     | 1:H1:362:G:H5''    | 1.31                     | 1.12              |
| 1:H1:1059:U:H2'    | 1:H1:1060:C:H5''   | 1.28                     | 1.12              |
| 1:H1:1445:G:H2'    | 1:H1:1446:C:H5''   | 1.31                     | 1.12              |
| 1:H1:2875:A:OP2    | 50:H1:4048:HOH:O   | 1.66                     | 1.12              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1442:G:OP1    | 50:A1:3865:HOH:O   | 1.66                     | 1.12              |
| 1:F1:1662:A:H5'    | 11:FL:76:ARG:NH2   | 1.64                     | 1.12              |
| 6:FF:11:ARG:HH21   | 6:FF:57:LYS:HA     | 1.14                     | 1.12              |
| 27:GF:122:PRO:HG2  | 1:H1:119:A:C2      | 1.84                     | 1.12              |
| 27:GF:131:HIS:CD2  | 27:GF:135:LEU:HD11 | 1.84                     | 1.12              |
| 1:D1:40:C:H2'      | 1:D1:41:A:H5''     | 1.22                     | 1.12              |
| 1:F1:240:A:H4'     | 1:F1:241:A:OP2     | 1.42                     | 1.12              |
| 1:H1:696:A:H2'     | 1:H1:697:A:H5''    | 1.17                     | 1.12              |
| 16:HQ:9:ILE:HD11   | 18:HU:187:ASN:HB3  | 1.32                     | 1.12              |
| 1:A1:145:A:N6      | 50:A1:3807:HOH:O   | 1.83                     | 1.12              |
| 1:A1:564:A:H1'     | 24:BC:376:TRP:HD1  | 1.04                     | 1.12              |
| 1:D1:2932:U:OP2    | 50:D1:4236:HOH:O   | 1.67                     | 1.12              |
| 27:EF:47:TRP:HB3   | 27:EF:51:ILE:HD11  | 1.28                     | 1.12              |
| 1:F1:396:A:H4'     | 1:F1:397:A:OP1     | 1.38                     | 1.12              |
| 1:H1:590:A:H2'     | 1:H1:591:G:H5''    | 1.32                     | 1.12              |
| 1:H1:1909:C:O2'    | 1:H1:1910:A:OP2    | 1.65                     | 1.12              |
| 23:BB:376:LYS:HZ3  | 9:DJ:44:PRO:HD2    | 0.95                     | 1.11              |
| 28:BG:15:UNK:HG3   | 28:BG:65:UNK:HA    | 1.14                     | 1.11              |
| 5:DE:41:LEU:HD13   | 5:DE:45:ILE:HD13   | 1.32                     | 1.11              |
| 1:F1:1642:G:H2'    | 1:F1:1643:G:H5''   | 1.25                     | 1.11              |
| 16:FQ:9:ILE:HD11   | 18:FU:187:ASN:HB3  | 1.29                     | 1.11              |
| 1:A1:304:U:O2'     | 1:A1:305:A:OP2     | 1.68                     | 1.11              |
| 6:AF:11:ARG:HH21   | 6:AF:57:LYS:HA     | 1.13                     | 1.11              |
| 1:D1:1054:G:H2'    | 1:D1:1055:A:C8     | 1.83                     | 1.11              |
| 1:D1:2390:G:N7     | 50:D1:4151:HOH:O   | 1.83                     | 1.11              |
| 1:F1:1909:C:O2'    | 1:F1:1910:A:OP2    | 1.65                     | 1.11              |
| 1:H1:1642:G:H2'    | 1:H1:1643:G:H5''   | 1.27                     | 1.11              |
| 1:A1:44:U:OP1      | 50:A1:3728:HOH:O   | 1.69                     | 1.11              |
| 1:A1:750:G:H2'     | 1:A1:751:C:H5''    | 1.30                     | 1.11              |
| 1:A1:905:G:H5'     | 38:BQ:134:ALA:HB2  | 1.30                     | 1.11              |
| 1:A1:1409:C:OP2    | 24:BC:195:ARG:NH2  | 1.82                     | 1.11              |
| 1:A1:2362:A:OP2    | 50:A1:3888:HOH:O   | 1.64                     | 1.11              |
| 26:BE:1:MET:HG3    | 26:BE:2:ARG:H      | 0.97                     | 1.11              |
| 27:CF:232:GLN:HE22 | 1:D1:2573:U:H4'    | 1.00                     | 1.11              |
| 18:FU:82:GLY:O     | 18:FU:133:LYS:NZ   | 1.82                     | 1.11              |
| 28:GG:8:UNK:HA     | 1:H1:1248:G:N2     | 1.65                     | 1.11              |
| 1:H1:979:U:H1'     | 17:HT:12:GLN:NE2   | 1.66                     | 1.11              |
| 5:HE:41:LEU:HD13   | 5:HE:45:ILE:HD13   | 1.31                     | 1.11              |
| 1:A1:1561:A:OP2    | 50:A1:4047:HOH:O   | 1.67                     | 1.11              |
| 38:CQ:133:ARG:HA   | 50:CQ:306:HOH:O    | 1.49                     | 1.11              |
| 1:D1:1392:G:OP2    | 50:D1:3983:HOH:O   | 1.65                     | 1.11              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:2964:A:N1    | 50:H1:3969:HOH:O   | 1.80                     | 1.11              |
| 6:HF:11:ARG:HH21  | 6:HF:57:LYS:HA     | 1.14                     | 1.11              |
| 28:CG:15:UNK:HG3  | 28:CG:65:UNK:HA    | 1.15                     | 1.11              |
| 1:D1:396:A:H4'    | 1:D1:397:A:OP1     | 1.40                     | 1.11              |
| 23:GB:16:PHE:HD2  | 23:GB:273:ARG:NH1  | 1.48                     | 1.11              |
| 1:A1:240:A:H4'    | 1:A1:241:A:OP2     | 1.41                     | 1.10              |
| 18:AU:166:VAL:HA  | 18:AU:169:ILE:HD12 | 1.29                     | 1.10              |
| 27:BF:131:HIS:CD2 | 27:BF:135:LEU:HD11 | 1.86                     | 1.10              |
| 27:BF:176:LYS:HB2 | 27:BF:187:THR:HG23 | 1.28                     | 1.10              |
| 34:EM:274:HIS:HA  | 34:EM:277:PHE:HD1  | 1.15                     | 1.10              |
| 1:F1:696:A:H2'    | 1:F1:697:A:H5''    | 1.21                     | 1.10              |
| 24:GC:376:TRP:HD1 | 1:H1:564:A:H1'     | 1.13                     | 1.10              |
| 27:GF:126:LYS:HE2 | 27:GF:135:LEU:HD13 | 1.25                     | 1.10              |
| 7:HG:10:ILE:CA    | 7:HG:13:LYS:HD3    | 1.81                     | 1.10              |
| 1:A1:1662:A:H5'   | 11:AL:76:ARG:NH2   | 1.66                     | 1.10              |
| 1:A1:2677:U:OP1   | 34:BM:12:TYR:OH    | 1.69                     | 1.10              |
| 24:BC:395:ASP:OD1 | 37:BP:154:ARG:NH2  | 1.84                     | 1.10              |
| 1:F1:339:C:OP1    | 50:F1:3747:HOH:O   | 1.70                     | 1.10              |
| 1:F1:2411:U:OP1   | 50:F1:3912:HOH:O   | 1.67                     | 1.10              |
| 18:FU:166:VAL:HA  | 18:FU:169:ILE:HD12 | 1.26                     | 1.10              |
| 1:A1:590:A:H2'    | 1:A1:591:G:H5''    | 1.32                     | 1.10              |
| 1:A1:1123:A:OP1   | 37:BP:116:LYS:NZ   | 1.84                     | 1.10              |
| 1:A1:2544:U:H1'   | 7:AG:50:THR:HG21   | 1.13                     | 1.10              |
| 1:D1:527:A:H2'    | 1:D1:528:C:H5''    | 1.12                     | 1.10              |
| 37:EP:116:LYS:NZ  | 1:F1:1123:A:OP1    | 1.84                     | 1.10              |
| 1:F1:2743:G:H3'   | 1:F1:2744:C:C5'    | 1.79                     | 1.10              |
| 8:FH:13:ARG:HH22  | 8:FH:17:LYS:HG2    | 1.00                     | 1.10              |
| 1:H1:313:U:OP1    | 18:HU:100:LYS:NZ   | 1.82                     | 1.10              |
| 1:A1:1642:G:H2'   | 1:A1:1643:G:H5''   | 1.26                     | 1.10              |
| 38:EQ:133:ARG:HG3 | 38:EQ:139:ASN:ND2  | 1.67                     | 1.10              |
| 1:F1:590:A:H2'    | 1:F1:591:G:H5''    | 1.30                     | 1.10              |
| 1:H1:2394:A:N7    | 50:H1:4021:HOH:O   | 1.80                     | 1.10              |
| 25:CD:133:ARG:HB3 | 25:CD:134:PRO:HD2  | 1.34                     | 1.10              |
| 23:EB:16:PHE:HD2  | 23:EB:273:ARG:NH1  | 1.48                     | 1.10              |
| 1:F1:527:A:H2'    | 1:F1:528:C:H5''    | 1.13                     | 1.10              |
| 1:F1:2211:G:O6    | 50:F1:4398:HOH:O   | 1.69                     | 1.10              |
| 1:H1:2743:G:H3'   | 1:H1:2744:C:C5'    | 1.78                     | 1.10              |
| 4:HC:44:LYS:HD3   | 4:HC:52:THR:HG21   | 1.26                     | 1.10              |
| 1:A1:2573:U:H4'   | 27:BF:232:GLN:HE22 | 0.98                     | 1.09              |
| 1:D1:2651:A:OP1   | 50:D1:4769:HOH:O   | 1.68                     | 1.09              |
| 18:DU:82:GLY:O    | 18:DU:133:LYS:NZ   | 1.83                     | 1.09              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:E3:83:G:OP1     | 50:E3:305:HOH:O    | 1.69                     | 1.09              |
| 19:FX:16:MET:HE3   | 19:FX:18:VAL:HG22  | 1.33                     | 1.09              |
| 45:GX:15:ARG:O     | 50:GX:205:HOH:O    | 1.68                     | 1.09              |
| 1:H1:3230:G:N2     | 5:HE:142:GLU:OE2   | 1.85                     | 1.09              |
| 1:A1:2944:A:OP2    | 50:A1:4192:HOH:O   | 1.68                     | 1.09              |
| 1:D1:1084:G:H2'    | 1:D1:1085:G:H5''   | 1.16                     | 1.09              |
| 1:D1:3127:U:H2'    | 1:D1:3128:G:H5''   | 1.33                     | 1.09              |
| 27:EF:176:LYS:HB2  | 27:EF:187:THR:HG23 | 1.28                     | 1.09              |
| 27:EF:232:GLN:HE22 | 1:F1:2573:U:H4'    | 1.05                     | 1.09              |
| 1:F1:962:G:H1'     | 50:F1:4480:HOH:O   | 1.52                     | 1.09              |
| 1:A1:1337:G:N7     | 50:A1:4280:HOH:O   | 1.83                     | 1.09              |
| 1:A1:2932:U:OP2    | 50:A1:4147:HOH:O   | 1.70                     | 1.09              |
| 4:AC:44:LYS:HD3    | 4:AC:52:THR:HG21   | 1.26                     | 1.09              |
| 22:BA:218:GLN:O    | 50:BA:304:HOH:O    | 1.68                     | 1.09              |
| 26:CE:1:MET:HG3    | 26:CE:2:ARG:H      | 0.97                     | 1.09              |
| 34:CM:12:TYR:OH    | 1:D1:2677:U:OP1    | 1.70                     | 1.09              |
| 1:D1:146:U:H4'     | 1:D1:147:U:C5'     | 1.82                     | 1.09              |
| 1:F1:146:U:H4'     | 1:F1:147:U:C5'     | 1.82                     | 1.09              |
| 1:F1:2932:U:OP2    | 50:F1:4026:HOH:O   | 1.69                     | 1.09              |
| 28:GG:8:UNK:HA     | 1:H1:1248:G:H21    | 1.00                     | 1.09              |
| 1:H1:527:A:H2'     | 1:H1:528:C:H5''    | 1.10                     | 1.09              |
| 1:A1:299:G:H2'     | 1:A1:300:G:H5''    | 1.35                     | 1.09              |
| 1:A1:1909:C:O2'    | 1:A1:1910:A:OP2    | 1.69                     | 1.09              |
| 13:AN:100:ASP:OD1  | 1:H1:1053:A:C2     | 2.05                     | 1.09              |
| 1:D1:339:C:OP1     | 50:D1:3881:HOH:O   | 1.69                     | 1.09              |
| 1:F1:2209:A:OP2    | 50:F1:4399:HOH:O   | 1.69                     | 1.09              |
| 27:GF:232:GLN:HE22 | 1:H1:2573:U:H4'    | 1.08                     | 1.09              |
| 1:H1:2932:U:OP2    | 50:H1:3937:HOH:O   | 1.68                     | 1.09              |
| 18:HU:166:VAL:HA   | 18:HU:169:ILE:HD12 | 1.26                     | 1.09              |
| 1:A1:291:C:H2'     | 1:A1:292:C:H5''    | 1.33                     | 1.08              |
| 22:CA:239:ARG:HH11 | 1:D1:2158:C:H5'    | 1.18                     | 1.08              |
| 1:D1:1046:G:O3'    | 13:FN:3:LYS:NZ     | 1.85                     | 1.08              |
| 3:DB:33:THR:HG22   | 3:DB:35:ILE:H      | 1.18                     | 1.08              |
| 6:DF:11:ARG:HH21   | 6:DF:57:LYS:HA     | 1.14                     | 1.08              |
| 24:EC:363:ARG:NH2  | 1:F1:602:A:OP2     | 1.85                     | 1.08              |
| 1:F1:1958:G:N7     | 50:F1:4375:HOH:O   | 1.83                     | 1.08              |
| 1:A1:313:U:OP1     | 18:AU:100:LYS:NZ   | 1.86                     | 1.08              |
| 1:A1:527:A:H2'     | 1:A1:528:C:H5''    | 1.10                     | 1.08              |
| 1:A1:1460:G:OP2    | 50:A1:3957:HOH:O   | 1.71                     | 1.08              |
| 35:CN:52:ARG:HB2   | 35:CN:84:THR:HG21  | 1.09                     | 1.08              |
| 1:D1:3230:G:N2     | 5:DE:142:GLU:OE2   | 1.84                     | 1.08              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 27:EF:131:HIS:CD2 | 27:EF:135:LEU:HD11 | 1.87                     | 1.08              |
| 35:EN:52:ARG:HB2  | 35:EN:84:THR:HG21  | 1.09                     | 1.08              |
| 1:F1:2393:A:OP2   | 50:F1:4147:HOH:O   | 1.70                     | 1.08              |
| 1:F1:3127:U:H2'   | 1:F1:3128:G:H5''   | 1.32                     | 1.08              |
| 19:FX:16:MET:HE1  | 19:FX:121:ILE:HD12 | 1.34                     | 1.08              |
| 31:GJ:51:SER:OG   | 50:GJ:303:HOH:O    | 1.71                     | 1.08              |
| 1:H1:146:U:H4'    | 1:H1:147:U:C5'     | 1.83                     | 1.08              |
| 1:A1:1766:A:H4'   | 1:A1:1767:U:OP1    | 1.52                     | 1.08              |
| 1:F1:291:C:H2'    | 1:F1:292:C:H5''    | 1.30                     | 1.08              |
| 23:GB:264:ARG:NH2 | 1:H1:2387:C:O2'    | 1.87                     | 1.08              |
| 1:H1:750:G:H2'    | 1:H1:751:C:H5''    | 1.26                     | 1.08              |
| 1:A1:3127:U:H2'   | 1:A1:3128:G:H5''   | 1.33                     | 1.08              |
| 29:CH:168:SER:OG  | 37:CP:157:PHE:O    | 1.70                     | 1.08              |
| 37:CP:116:LYS:NZ  | 1:D1:1123:A:OP1    | 1.86                     | 1.08              |
| 1:F1:1513:A:OP2   | 50:F1:4238:HOH:O   | 1.69                     | 1.08              |
| 5:FE:41:LEU:HD13  | 5:FE:45:ILE:HD13   | 1.32                     | 1.08              |
| 25:GD:51:ARG:NH2  | 1:H1:2656:A:OP1    | 1.85                     | 1.08              |
| 34:GM:274:HIS:HA  | 34:GM:277:PHE:HD2  | 1.17                     | 1.08              |
| 1:A1:1478:A:N7    | 50:A1:4152:HOH:O   | 1.85                     | 1.08              |
| 1:A1:1918:U:C2'   | 1:A1:1919:A:H5''   | 1.84                     | 1.08              |
| 25:BD:133:ARG:HB3 | 25:BD:134:PRO:HD2  | 1.36                     | 1.08              |
| 26:EE:1:MET:HG3   | 26:EE:2:ARG:H      | 0.98                     | 1.08              |
| 22:GA:218:GLN:O   | 50:GA:403:HOH:O    | 1.72                     | 1.08              |
| 1:A1:2411:U:OP1   | 50:A1:4029:HOH:O   | 1.72                     | 1.07              |
| 19:AX:16:MET:HE3  | 19:AX:18:VAL:HG22  | 1.33                     | 1.07              |
| 24:CC:195:ARG:NH2 | 1:D1:1409:C:OP2    | 1.87                     | 1.07              |
| 24:CC:376:TRP:HD1 | 1:D1:564:A:H1'     | 1.08                     | 1.07              |
| 27:CF:47:TRP:HB3  | 27:CF:51:ILE:HD11  | 1.29                     | 1.07              |
| 1:D1:1895:U:OP1   | 50:D1:4214:HOH:O   | 1.71                     | 1.07              |
| 4:DC:44:LYS:HD3   | 4:DC:52:THR:HG21   | 1.28                     | 1.07              |
| 8:DH:13:ARG:HH22  | 8:DH:17:LYS:HG2    | 1.06                     | 1.07              |
| 19:DX:16:MET:HE1  | 19:DX:121:ILE:HD12 | 1.33                     | 1.07              |
| 28:GG:15:UNK:HG3  | 28:GG:65:UNK:HA    | 1.17                     | 1.07              |
| 1:A1:146:U:H4'    | 1:A1:147:U:C5'     | 1.82                     | 1.07              |
| 1:A1:1517:G:OP2   | 50:A1:4403:HOH:O   | 1.69                     | 1.07              |
| 1:A1:2900:G:OP1   | 50:A1:4436:HOH:O   | 1.69                     | 1.07              |
| 27:BF:126:LYS:HE2 | 27:BF:135:LEU:HD13 | 1.30                     | 1.07              |
| 29:CH:159:PHE:HB3 | 29:CH:163:GLN:HE22 | 1.19                     | 1.07              |
| 32:CK:142:GLY:HA2 | 18:DU:173:ARG:HH22 | 1.00                     | 1.07              |
| 1:D1:1208:U:H5'   | 19:DX:178:ARG:HH22 | 1.16                     | 1.07              |
| 1:D1:1868:C:OP2   | 50:D1:4515:HOH:O   | 1.70                     | 1.07              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2275:A:OP1    | 50:D1:4627:HOH:O   | 1.71                     | 1.07              |
| 1:F1:2647:G:OP1    | 50:F1:4482:HOH:O   | 1.68                     | 1.07              |
| 28:GG:81:UNK:HG3   | 1:H1:1308:U:O2'    | 1.52                     | 1.07              |
| 4:HC:66:VAL:CG1    | 4:HC:89:ILE:HD11   | 1.85                     | 1.07              |
| 1:A1:1370:A:H2'    | 1:A1:1371:G:H5''   | 1.37                     | 1.07              |
| 8:AH:64:LYS:HG2    | 8:AH:69:ASN:HD21   | 1.14                     | 1.07              |
| 16:AQ:37:ARG:HH21  | 33:BL:2:GLY:N      | 1.51                     | 1.07              |
| 1:D1:696:A:H2'     | 1:D1:697:A:H5''    | 1.21                     | 1.07              |
| 5:DE:86:PRO:HB2    | 5:DE:153:GLN:HE22  | 1.18                     | 1.07              |
| 24:EC:376:TRP:HB3  | 1:F1:564:A:O2'     | 1.52                     | 1.07              |
| 44:EW:42:THR:HG22  | 44:EW:43:MET:HE3   | 1.29                     | 1.07              |
| 1:F1:3227:A:C5'    | 5:FE:57:ARG:HH12   | 1.67                     | 1.07              |
| 20:G2:100:C:OP2    | 39:GR:56:ARG:NH2   | 1.88                     | 1.07              |
| 1:A1:525:C:O2      | 1:A1:525:C:H2'     | 1.54                     | 1.07              |
| 20:B2:37:A:H4'     | 20:B2:38:C:OP1     | 1.53                     | 1.07              |
| 38:CQ:133:ARG:HG3  | 38:CQ:139:ASN:HD22 | 1.16                     | 1.07              |
| 1:D1:1920:A:OP2    | 50:D1:4600:HOH:O   | 1.70                     | 1.07              |
| 1:F1:1918:U:H2'    | 1:F1:1919:A:H5''   | 1.37                     | 1.07              |
| 4:FC:66:VAL:CG1    | 4:FC:89:ILE:HD11   | 1.85                     | 1.07              |
| 22:GA:239:ARG:HH11 | 1:H1:2158:C:H5'    | 1.13                     | 1.07              |
| 24:GC:74:THR:HG21  | 1:H1:2397:A:H2'    | 1.19                     | 1.07              |
| 28:GG:81:UNK:HG2   | 1:H1:1309:G:O4'    | 1.52                     | 1.07              |
| 1:H1:1477:C:OP1    | 50:H1:3945:HOH:O   | 1.70                     | 1.07              |
| 1:A1:1084:G:H2'    | 1:A1:1085:G:H5''   | 1.15                     | 1.07              |
| 1:A1:2347:A:N7     | 50:A1:4562:HOH:O   | 1.86                     | 1.07              |
| 16:AQ:9:ILE:HD11   | 18:AU:187:ASN:HB3  | 1.34                     | 1.07              |
| 23:BB:376:LYS:NZ   | 9:DJ:44:PRO:HD2    | 1.69                     | 1.07              |
| 35:BN:52:ARG:HB2   | 35:BN:84:THR:HG21  | 1.09                     | 1.07              |
| 47:CO:104:ARG:NH1  | 1:D1:1973:A:OP1    | 1.85                     | 1.07              |
| 43:CV:101:ARG:NH1  | 1:D1:1131:G:O6     | 1.88                     | 1.07              |
| 4:DC:66:VAL:CG1    | 4:DC:89:ILE:HD11   | 1.84                     | 1.07              |
| 45:EX:57:ILE:HG13  | 1:F1:972:U:H5''    | 1.36                     | 1.07              |
| 1:F1:750:G:H2'     | 1:F1:751:C:H5''    | 1.28                     | 1.07              |
| 1:F1:3230:G:N2     | 5:FE:142:GLU:OE2   | 1.87                     | 1.07              |
| 46:GY:64:ILE:HD11  | 46:GY:71:LEU:HD11  | 1.32                     | 1.07              |
| 1:H1:240:A:H4'     | 1:H1:241:A:OP2     | 1.45                     | 1.07              |
| 1:H1:1197:A:OP2    | 50:H1:4068:HOH:O   | 1.73                     | 1.07              |
| 3:HB:33:THR:HG22   | 3:HB:35:ILE:H      | 1.20                     | 1.07              |
| 8:HH:64:LYS:HG2    | 8:HH:69:ASN:HD21   | 1.12                     | 1.07              |
| 1:A1:63:A:OP1      | 33:BL:177:LYS:NZ   | 1.86                     | 1.06              |
| 1:A1:1064:C:H5'    | 34:BM:5:LYS:CD     | 1.85                     | 1.06              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:299:G:H2'     | 1:D1:300:G:H5''    | 1.37                     | 1.06              |
| 18:DU:166:VAL:HA   | 18:DU:169:ILE:HD12 | 1.31                     | 1.06              |
| 1:F1:1766:A:H4'    | 1:F1:1767:U:OP1    | 1.55                     | 1.06              |
| 28:BG:15:UNK:CG    | 28:BG:65:UNK:HA    | 1.85                     | 1.06              |
| 24:CC:395:ASP:OD1  | 37:CP:154:ARG:NH2  | 1.88                     | 1.06              |
| 28:CG:15:UNK:CG    | 28:CG:65:UNK:HA    | 1.86                     | 1.06              |
| 1:D1:525:C:H2'     | 1:D1:525:C:O2      | 1.54                     | 1.06              |
| 28:GG:81:UNK:CG    | 1:H1:1308:U:O2'    | 2.02                     | 1.06              |
| 1:H1:299:G:H2'     | 1:H1:300:G:H5''    | 1.33                     | 1.06              |
| 1:A1:672:C:O2'     | 50:A1:3946:HOH:O   | 1.69                     | 1.06              |
| 1:A1:2775:G:H4'    | 32:BK:59:GLY:O     | 1.56                     | 1.06              |
| 24:BC:215:VAL:HG12 | 24:BC:238:VAL:HG22 | 1.35                     | 1.06              |
| 1:D1:590:A:H2'     | 1:D1:591:G:H5''    | 1.31                     | 1.06              |
| 1:D1:643:A:O2'     | 1:D1:644:A:OP2     | 1.73                     | 1.06              |
| 1:D1:2544:U:H1'    | 7:DG:50:THR:HG21   | 1.16                     | 1.06              |
| 1:A1:284:U:H5      | 1:A1:305:A:H5''    | 1.21                     | 1.06              |
| 23:CB:264:ARG:NH2  | 1:D1:2387:C:O2'    | 1.88                     | 1.06              |
| 47:CO:156:UNK:O    | 47:CO:159:UNK:HG3  | 1.56                     | 1.06              |
| 47:CO:167:UNK:O    | 47:CO:170:UNK:HG3  | 1.54                     | 1.06              |
| 24:EC:215:VAL:HG12 | 24:EC:238:VAL:HG22 | 1.37                     | 1.06              |
| 28:EG:15:UNK:CG    | 28:EG:65:UNK:HA    | 1.85                     | 1.06              |
| 1:F1:2931:G:OP1    | 50:F1:4028:HOH:O   | 1.73                     | 1.06              |
| 20:G2:2:G:O6       | 1:H1:3132:A:O2'    | 1.70                     | 1.06              |
| 1:H1:1766:A:H4'    | 1:H1:1767:U:OP1    | 1.55                     | 1.06              |
| 1:H1:1918:U:C2'    | 1:H1:1919:A:H5''   | 1.85                     | 1.06              |
| 1:H1:3127:U:C2'    | 1:H1:3128:G:H5''   | 1.85                     | 1.06              |
| 1:A1:1620:U:O4     | 50:A1:4394:HOH:O   | 1.71                     | 1.06              |
| 20:C2:37:A:H4'     | 20:C2:38:C:OP1     | 1.54                     | 1.06              |
| 30:CI:186:LEU:HD11 | 6:DF:122:SER:HB3   | 1.37                     | 1.06              |
| 1:D1:3127:U:C2'    | 1:D1:3128:G:H5''   | 1.85                     | 1.06              |
| 1:H1:2718:U:OP1    | 50:H1:4322:HOH:O   | 1.73                     | 1.06              |
| 1:A1:361:A:H2'     | 1:A1:362:G:H5''    | 1.35                     | 1.05              |
| 1:A1:2181:U:OP1    | 50:A1:4185:HOH:O   | 1.74                     | 1.05              |
| 3:AB:33:THR:HG22   | 3:AB:35:ILE:H      | 1.18                     | 1.05              |
| 8:AH:13:ARG:HH22   | 8:AH:17:LYS:HG2    | 0.98                     | 1.05              |
| 24:CC:215:VAL:HG12 | 24:CC:238:VAL:HG22 | 1.36                     | 1.05              |
| 1:H1:1370:A:H2'    | 1:H1:1371:G:H5''   | 1.37                     | 1.05              |
| 1:A1:560:A:H2'     | 1:A1:561:A:H8      | 1.19                     | 1.05              |
| 34:BM:119:TYR:CD1  | 34:BM:132:VAL:HG11 | 1.91                     | 1.05              |
| 24:EC:74:THR:HG21  | 1:F1:2397:A:H2'    | 1.34                     | 1.05              |
| 1:F1:3127:U:C2'    | 1:F1:3128:G:H5''   | 1.85                     | 1.05              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:215:VAL:HG12 | 24:GC:238:VAL:HG22 | 1.32                     | 1.05              |
| 25:GD:133:ARG:HB3  | 25:GD:134:PRO:HD2  | 1.36                     | 1.05              |
| 1:H1:284:U:H5      | 1:H1:305:A:H5''    | 1.21                     | 1.05              |
| 1:H1:964:U:OP1     | 50:H1:3768:HOH:O   | 1.70                     | 1.05              |
| 1:H1:1918:U:H2'    | 1:H1:1919:A:H5''   | 1.37                     | 1.05              |
| 1:H1:3127:U:H2'    | 1:H1:3128:G:H5''   | 1.34                     | 1.05              |
| 19:HX:42:ARG:NH2   | 19:HX:140:THR:HB   | 1.71                     | 1.05              |
| 1:A1:2100:A:H2'    | 1:A1:2101:G:H5''   | 1.36                     | 1.05              |
| 1:A1:2717:G:H5''   | 37:BP:83:ARG:HH22  | 1.22                     | 1.05              |
| 1:D1:2862:G:OP1    | 50:D1:4365:HOH:O   | 1.75                     | 1.05              |
| 6:DF:56:THR:O      | 6:DF:57:LYS:HG2    | 1.57                     | 1.05              |
| 1:F1:1918:U:C2'    | 1:F1:1919:A:H5''   | 1.86                     | 1.05              |
| 33:GL:93:LYS:HE2   | 1:H1:276:G:H1'     | 1.34                     | 1.05              |
| 4:AC:66:VAL:CG1    | 4:AC:89:ILE:HD11   | 1.87                     | 1.05              |
| 1:D1:361:A:H2'     | 1:D1:362:G:H5''    | 1.32                     | 1.05              |
| 19:DX:16:MET:HE3   | 19:DX:18:VAL:HG22  | 1.35                     | 1.05              |
| 19:FX:42:ARG:NH2   | 19:FX:140:THR:HB   | 1.72                     | 1.05              |
| 35:GN:52:ARG:HB2   | 35:GN:84:THR:HG21  | 1.07                     | 1.05              |
| 1:H1:396:A:H4'     | 1:H1:397:A:OP1     | 1.46                     | 1.05              |
| 14:DO:75:THR:HG22  | 14:DO:77:GLU:H     | 1.19                     | 1.05              |
| 22:EA:239:ARG:HH11 | 1:F1:2158:C:H5'    | 1.10                     | 1.05              |
| 1:F1:3061:A:OP2    | 50:F1:4245:HOH:O   | 1.74                     | 1.05              |
| 32:GK:142:GLY:HA2  | 18:HU:173:ARG:HH22 | 0.91                     | 1.05              |
| 1:H1:485:A:H4'     | 1:H1:486:C:OP1     | 1.55                     | 1.05              |
| 5:HE:86:PRO:HB2    | 5:HE:153:GLN:HE22  | 1.16                     | 1.05              |
| 1:A1:1047:G:H2'    | 1:A1:1048:U:H5''   | 1.37                     | 1.04              |
| 1:D1:1918:U:C2'    | 1:D1:1919:A:H5''   | 1.86                     | 1.04              |
| 1:F1:485:A:H4'     | 1:F1:486:C:OP1     | 1.54                     | 1.04              |
| 1:F1:555:G:H2'     | 1:F1:556:A:H5''    | 1.38                     | 1.04              |
| 1:F1:1175:G:N7     | 50:F1:3798:HOH:O   | 1.90                     | 1.04              |
| 5:FE:86:PRO:HB2    | 5:FE:153:GLN:HE22  | 1.16                     | 1.04              |
| 1:A1:622:G:O2'     | 5:AE:26:THR:O      | 1.75                     | 1.04              |
| 1:A1:2397:A:H2'    | 24:BC:74:THR:HG21  | 1.35                     | 1.04              |
| 19:AX:16:MET:HE1   | 19:AX:121:ILE:HD12 | 1.27                     | 1.04              |
| 20:B2:105:A:H5'    | 20:B2:106:A:H5''   | 1.39                     | 1.04              |
| 26:BE:1:MET:CG     | 26:BE:2:ARG:H      | 1.68                     | 1.04              |
| 1:D1:560:A:H2'     | 1:D1:561:A:H8      | 1.20                     | 1.04              |
| 1:D1:2370:G:OP2    | 50:D1:4016:HOH:O   | 1.76                     | 1.04              |
| 1:F1:979:U:H1'     | 17:FT:12:GLN:NE2   | 1.72                     | 1.04              |
| 28:BG:4:UNK:HG3    | 28:BG:6:UNK:HG2    | 1.39                     | 1.04              |
| 20:C2:84:C:OP1     | 42:CU:3:LYS:HG2    | 1.57                     | 1.04              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 33:CL:177:LYS:NZ   | 1:D1:63:A:OP1      | 1.90                     | 1.04              |
| 1:D1:1059:U:H2'    | 1:D1:1060:C:H5''   | 1.33                     | 1.04              |
| 1:D1:1370:A:H2'    | 1:D1:1371:G:H5''   | 1.38                     | 1.04              |
| 29:EH:159:PHE:HB3  | 29:EH:163:GLN:HE22 | 1.23                     | 1.04              |
| 1:F1:1504:C:OP2    | 50:F1:4007:HOH:O   | 1.75                     | 1.04              |
| 6:FF:56:THR:O      | 6:FF:57:LYS:HG2    | 1.56                     | 1.04              |
| 24:GC:195:ARG:NH2  | 1:H1:1409:C:OP2    | 1.88                     | 1.04              |
| 28:GG:80:UNK:C     | 1:H1:1309:G:H4'    | 1.87                     | 1.04              |
| 35:GN:158:GLN:HB3  | 50:H1:4322:HOH:O   | 1.55                     | 1.04              |
| 34:CM:274:HIS:HA   | 34:CM:277:PHE:HD1  | 1.16                     | 1.04              |
| 38:CQ:8:ARG:HH11   | 38:CQ:118:HIS:HB2  | 1.23                     | 1.04              |
| 1:D1:987:A:H2'     | 50:D1:4787:HOH:O   | 1.57                     | 1.04              |
| 25:ED:133:ARG:HB3  | 25:ED:134:PRO:HD2  | 1.35                     | 1.04              |
| 28:EG:60:UNK:HG1   | 1:F1:1249:G:H5''   | 1.35                     | 1.04              |
| 1:F1:265:A:N6      | 16:FQ:30:ARG:O     | 1.91                     | 1.04              |
| 1:F1:2100:A:H2'    | 1:F1:2101:G:H5''   | 1.35                     | 1.04              |
| 8:FH:54:LYS:HA     | 8:FH:110:PRO:HG3   | 1.39                     | 1.04              |
| 26:GE:1:MET:CG     | 26:GE:2:ARG:H      | 1.70                     | 1.04              |
| 28:GG:15:UNK:CG    | 28:GG:65:UNK:HA    | 1.86                     | 1.04              |
| 38:GQ:134:ALA:HB2  | 1:H1:905:G:H5'     | 1.36                     | 1.04              |
| 1:A1:455:G:OP2     | 14:AO:92:LYS:NZ    | 1.89                     | 1.04              |
| 1:A1:1064:C:H5'    | 34:BM:5:LYS:HD2    | 1.37                     | 1.04              |
| 21:B3:12:U:O3'     | 21:B3:109:U:O2'    | 1.76                     | 1.04              |
| 34:BM:274:HIS:HA   | 34:BM:277:PHE:HD1  | 1.19                     | 1.04              |
| 38:BQ:133:ARG:HG3  | 38:BQ:139:ASN:HD22 | 1.18                     | 1.04              |
| 1:D1:957:U:H4'     | 1:D1:958:A:H5'     | 1.39                     | 1.04              |
| 1:D1:2100:A:H2'    | 1:D1:2101:G:H5''   | 1.35                     | 1.04              |
| 38:GQ:133:ARG:HG3  | 38:GQ:139:ASN:HD22 | 1.16                     | 1.04              |
| 1:H1:2211:G:O6     | 50:H1:4252:HOH:O   | 1.74                     | 1.04              |
| 1:A1:1131:G:O6     | 43:BV:101:ARG:NH1  | 1.90                     | 1.03              |
| 1:A1:1593:A:H2'    | 1:A1:1594:C:C6     | 1.93                     | 1.03              |
| 5:AE:86:PRO:HB2    | 5:AE:153:GLN:HE22  | 1.18                     | 1.03              |
| 22:CA:239:ARG:NH1  | 1:D1:2158:C:H5'    | 1.73                     | 1.03              |
| 16:DQ:9:ILE:HD11   | 18:DU:187:ASN:HB3  | 1.39                     | 1.03              |
| 32:EK:59:GLY:O     | 1:F1:2775:G:H4'    | 1.58                     | 1.03              |
| 1:F1:964:U:OP1     | 50:F1:3825:HOH:O   | 1.75                     | 1.03              |
| 1:A1:682:G:OP2     | 50:A1:3845:HOH:O   | 1.74                     | 1.03              |
| 1:A1:906:C:OP1     | 50:A1:4154:HOH:O   | 1.72                     | 1.03              |
| 24:CC:74:THR:HG21  | 1:D1:2397:A:H2'    | 1.38                     | 1.03              |
| 24:CC:152:VAL:HG13 | 24:CC:157:TYR:HE2  | 1.13                     | 1.03              |
| 30:CI:73:ARG:HD3   | 30:CI:144:VAL:HG12 | 1.39                     | 1.03              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 8:DH:64:LYS:HG2    | 8:DH:69:ASN:HD21  | 1.13                     | 1.03              |
| 24:GC:152:VAL:HG13 | 24:GC:157:TYR:HE2 | 1.14                     | 1.03              |
| 6:HF:56:THR:O      | 6:HF:57:LYS:HG2   | 1.56                     | 1.03              |
| 1:A1:2859:G:N7     | 50:A1:4336:HOH:O  | 1.89                     | 1.03              |
| 1:A1:3177:G:H4'    | 1:A1:3178:U:OP2   | 1.58                     | 1.03              |
| 1:A1:3185:G:C8     | 8:AH:11:PRO:HD3   | 1.94                     | 1.03              |
| 5:AE:41:LEU:HD13   | 5:AE:45:ILE:HD13  | 1.34                     | 1.03              |
| 6:AF:11:ARG:NH2    | 6:AF:57:LYS:HA    | 1.74                     | 1.03              |
| 20:C2:105:A:H5'    | 20:C2:106:A:H5''  | 1.37                     | 1.03              |
| 1:D1:2693:A:OP2    | 50:D1:5041:HOH:O  | 1.74                     | 1.03              |
| 19:DX:42:ARG:HH22  | 19:DX:140:THR:HB  | 1.24                     | 1.03              |
| 37:EP:116:LYS:HZ1  | 37:EP:128:THR:HB  | 1.20                     | 1.03              |
| 1:F1:560:A:H2'     | 1:F1:561:A:H8     | 1.22                     | 1.03              |
| 1:F1:741:G:OP2     | 1:F1:776:C:O2'    | 1.76                     | 1.03              |
| 1:H1:525:C:H2'     | 1:H1:525:C:O2     | 1.54                     | 1.03              |
| 1:H1:560:A:H2'     | 1:H1:561:A:H8     | 1.21                     | 1.03              |
| 19:HX:16:MET:HE3   | 19:HX:18:VAL:HG22 | 1.38                     | 1.03              |
| 14:AO:75:THR:HG22  | 14:AO:77:GLU:H    | 1.21                     | 1.03              |
| 21:C3:8:G:P        | 34:CM:33:ARG:HH12 | 1.82                     | 1.03              |
| 20:E2:37:A:H4'     | 20:E2:38:C:OP1    | 1.57                     | 1.03              |
| 33:EL:177:LYS:NZ   | 1:F1:63:A:OP1     | 1.90                     | 1.03              |
| 1:F1:299:G:H2'     | 1:F1:300:G:H5''   | 1.36                     | 1.03              |
| 1:F1:525:C:H2'     | 1:F1:525:C:O2     | 1.53                     | 1.03              |
| 1:F1:682:G:OP2     | 50:F1:3739:HOH:O  | 1.74                     | 1.03              |
| 19:FX:42:ARG:HH22  | 19:FX:140:THR:HB  | 1.23                     | 1.03              |
| 19:DX:42:ARG:NH2   | 19:DX:140:THR:HB  | 1.73                     | 1.03              |
| 20:E2:100:C:OP2    | 39:ER:56:ARG:NH2  | 1.91                     | 1.03              |
| 1:F1:1861:C:OP1    | 50:F1:4234:HOH:O  | 1.77                     | 1.03              |
| 1:F1:2309:U:O2'    | 50:F1:4059:HOH:O  | 1.77                     | 1.03              |
| 3:FB:33:THR:HG22   | 3:FB:35:ILE:H     | 1.19                     | 1.03              |
| 1:H1:643:A:O2'     | 1:H1:644:A:OP2    | 1.76                     | 1.03              |
| 1:H1:2100:A:H2'    | 1:H1:2101:G:H5''  | 1.36                     | 1.03              |
| 1:A1:2275:A:OP1    | 50:A1:4495:HOH:O  | 1.76                     | 1.02              |
| 8:AH:54:LYS:HA     | 8:AH:110:PRO:HG3  | 1.40                     | 1.02              |
| 46:CY:64:ILE:HD11  | 46:CY:71:LEU:HD11 | 1.41                     | 1.02              |
| 1:D1:1766:A:H4'    | 1:D1:1767:U:OP1   | 1.51                     | 1.02              |
| 6:DF:11:ARG:NH2    | 6:DF:57:LYS:HA    | 1.74                     | 1.02              |
| 24:EC:195:ARG:NH2  | 1:F1:1409:C:OP2   | 1.91                     | 1.02              |
| 1:F1:2899:C:H5''   | 50:F1:4274:HOH:O  | 1.58                     | 1.02              |
| 1:H1:741:G:OP2     | 1:H1:776:C:O2'    | 1.76                     | 1.02              |
| 1:A1:555:G:H2'     | 1:A1:556:A:H5''   | 1.40                     | 1.02              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:957:U:H4'     | 1:A1:958:A:H5'     | 1.37                     | 1.02              |
| 1:A1:3127:U:C2'    | 1:A1:3128:G:H5''   | 1.87                     | 1.02              |
| 33:BL:120:TRP:CZ2  | 33:BL:122:GLY:HA2  | 1.95                     | 1.02              |
| 1:D1:2394:A:N7     | 50:D1:4362:HOH:O   | 1.91                     | 1.02              |
| 1:D1:3177:G:H4'    | 1:D1:3178:U:OP2    | 1.58                     | 1.02              |
| 23:EB:264:ARG:NH2  | 1:F1:2387:C:O2'    | 1.91                     | 1.02              |
| 1:H1:291:C:H2'     | 1:H1:292:C:H5''    | 1.36                     | 1.02              |
| 1:A1:1064:C:C5'    | 34:BM:5:LYS:HZ2    | 1.72                     | 1.02              |
| 21:B3:104:C:H2'    | 21:B3:105:C:H5''   | 1.41                     | 1.02              |
| 23:BB:376:LYS:NZ   | 9:DJ:44:PRO:CD     | 2.22                     | 1.02              |
| 21:E3:104:C:H2'    | 21:E3:105:C:H5''   | 1.42                     | 1.02              |
| 30:EI:186:LEU:HD11 | 6:FF:122:SER:HB3   | 1.40                     | 1.02              |
| 36:EO:104:ARG:NH1  | 1:F1:1973:A:OP1    | 1.92                     | 1.02              |
| 1:F1:895:A:OP1     | 50:F1:3993:HOH:O   | 1.76                     | 1.02              |
| 1:F1:2544:U:H1'    | 7:FG:50:THR:CG2    | 1.88                     | 1.02              |
| 1:F1:3207:A:OP2    | 1:F1:3207:A:H4'    | 1.59                     | 1.02              |
| 21:G3:12:U:O3'     | 21:G3:109:U:O2'    | 1.76                     | 1.02              |
| 19:HX:42:ARG:HH22  | 19:HX:140:THR:HB   | 1.20                     | 1.02              |
| 1:A1:643:A:O2'     | 1:A1:644:A:OP2     | 1.75                     | 1.02              |
| 4:AC:66:VAL:HG11   | 4:AC:89:ILE:HD11   | 1.02                     | 1.02              |
| 1:D1:741:G:OP2     | 1:D1:776:C:O2'     | 1.77                     | 1.02              |
| 30:EI:73:ARG:HD3   | 30:EI:144:VAL:HG12 | 1.40                     | 1.02              |
| 1:F1:2944:A:OP2    | 50:F1:4069:HOH:O   | 1.78                     | 1.02              |
| 22:GA:62:VAL:HG21  | 22:GA:77:PHE:HD2   | 1.25                     | 1.02              |
| 30:GI:73:ARG:HD3   | 30:GI:144:VAL:HG12 | 1.39                     | 1.02              |
| 19:HX:16:MET:HE1   | 19:HX:121:ILE:HD12 | 1.41                     | 1.02              |
| 1:A1:564:A:H1'     | 24:BC:376:TRP:CD1  | 1.93                     | 1.02              |
| 1:A1:1918:U:H2'    | 1:A1:1919:A:H5''   | 1.36                     | 1.02              |
| 1:A1:2743:G:H3'    | 1:A1:2744:C:H5''   | 1.41                     | 1.02              |
| 1:A1:3207:A:H4'    | 1:A1:3207:A:OP2    | 1.60                     | 1.02              |
| 6:AF:56:THR:O      | 6:AF:57:LYS:HG2    | 1.60                     | 1.02              |
| 18:AU:144:SER:HB2  | 42:BU:123:LYS:NZ   | 1.74                     | 1.02              |
| 28:CG:4:UNK:HG3    | 28:CG:6:UNK:HG2    | 1.41                     | 1.02              |
| 33:CL:120:TRP:CZ2  | 33:CL:122:GLY:HA2  | 1.94                     | 1.02              |
| 43:GV:101:ARG:NH1  | 1:H1:1131:G:O6     | 1.90                     | 1.02              |
| 1:H1:1593:A:H2'    | 1:H1:1594:C:C6     | 1.95                     | 1.02              |
| 8:HH:64:LYS:HG2    | 8:HH:69:ASN:ND2    | 1.73                     | 1.02              |
| 1:A1:1376:A:H3'    | 43:BV:12:LYS:HE2   | 1.41                     | 1.01              |
| 19:AX:42:ARG:NH2   | 19:AX:140:THR:HB   | 1.75                     | 1.01              |
| 24:CC:204:ARG:NH1  | 1:D1:1408:U:OP1    | 1.91                     | 1.01              |
| 47:CO:168:UNK:O    | 47:CO:171:UNK:HG3  | 1.60                     | 1.01              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1773:G:OP1    | 15:DP:43:LYS:NZ    | 1.92                     | 1.01              |
| 1:F1:1208:U:H5'    | 19:FX:178:ARG:HH22 | 1.23                     | 1.01              |
| 27:GF:69:GLN:NE2   | 16:HQ:48:VAL:O     | 1.92                     | 1.01              |
| 30:GI:86:MET:HE2   | 1:H1:1202:C:H1'    | 1.41                     | 1.01              |
| 19:AX:93:LEU:HD11  | 19:AX:120:LEU:HD11 | 1.42                     | 1.01              |
| 21:C3:12:U:O3'     | 21:C3:109:U:O2'    | 1.78                     | 1.01              |
| 1:D1:2362:A:OP2    | 50:D1:3937:HOH:O   | 1.78                     | 1.01              |
| 24:EC:152:VAL:HG13 | 24:EC:157:TYR:HE2  | 1.15                     | 1.01              |
| 38:EQ:8:ARG:HH11   | 38:EQ:118:HIS:HB2  | 1.18                     | 1.01              |
| 1:F1:957:U:H4'     | 1:F1:958:A:H5'     | 1.40                     | 1.01              |
| 1:H1:2666:G:H4'    | 1:H1:2667:A:OP2    | 1.60                     | 1.01              |
| 1:A1:846:C:OP1     | 50:A1:4023:HOH:O   | 1.77                     | 1.01              |
| 1:A1:2253:U:H2'    | 1:A1:2254:A:C8     | 1.95                     | 1.01              |
| 1:A1:2387:C:O2'    | 23:BB:264:ARG:NH2  | 1.93                     | 1.01              |
| 1:A1:2666:G:H4'    | 1:A1:2667:A:OP2    | 1.59                     | 1.01              |
| 1:D1:1918:U:H2'    | 1:D1:1919:A:H5''   | 1.42                     | 1.01              |
| 20:E2:105:A:H5'    | 20:E2:106:A:H5''   | 1.40                     | 1.01              |
| 33:EL:120:TRP:CZ2  | 33:EL:122:GLY:HA2  | 1.95                     | 1.01              |
| 1:F1:643:A:O2'     | 1:F1:644:A:OP2     | 1.77                     | 1.01              |
| 1:F1:1004:U:H6     | 1:F1:1004:U:H5'    | 1.26                     | 1.01              |
| 1:F1:1593:A:H2'    | 1:F1:1594:C:C6     | 1.95                     | 1.01              |
| 1:A1:485:A:H4'     | 1:A1:486:C:OP1     | 1.55                     | 1.01              |
| 34:CM:119:TYR:CD1  | 34:CM:132:VAL:HG11 | 1.95                     | 1.01              |
| 1:D1:682:G:OP2     | 50:D1:3873:HOH:O   | 1.75                     | 1.01              |
| 1:D1:1926:G:OP1    | 50:D1:4618:HOH:O   | 1.76                     | 1.01              |
| 21:E3:12:U:O3'     | 21:E3:109:U:O2'    | 1.79                     | 1.01              |
| 1:F1:958:A:H3'     | 1:F1:959:G:H5'     | 1.42                     | 1.01              |
| 1:H1:1208:U:H5'    | 19:HX:178:ARG:HH22 | 1.26                     | 1.01              |
| 1:H1:2404:G:H5''   | 50:H1:4323:HOH:O   | 1.59                     | 1.01              |
| 1:A1:741:G:OP2     | 1:A1:776:C:O2'     | 1.78                     | 1.01              |
| 21:B3:26:C:OP1     | 34:BM:56:THR:HG21  | 1.59                     | 1.01              |
| 21:C3:21:G:H4'     | 34:CM:277:PHE:CD2  | 1.95                     | 1.01              |
| 33:CL:14:LYS:NZ    | 1:D1:268:G:H5''    | 1.76                     | 1.01              |
| 1:D1:485:A:H4'     | 1:D1:486:C:OP1     | 1.58                     | 1.01              |
| 1:D1:2300:G:H4'    | 1:D1:2301:C:OP1    | 1.60                     | 1.01              |
| 1:D1:2544:U:C1'    | 7:DG:50:THR:HG21   | 1.90                     | 1.01              |
| 8:FH:64:LYS:HG2    | 8:FH:69:ASN:ND2    | 1.76                     | 1.01              |
| 14:FO:75:THR:HG22  | 14:FO:77:GLU:H     | 1.25                     | 1.01              |
| 19:FX:93:LEU:HD11  | 19:FX:120:LEU:HD11 | 1.43                     | 1.01              |
| 28:GG:4:UNK:HG3    | 28:GG:6:UNK:HG2    | 1.41                     | 1.01              |
| 1:H1:622:G:O2'     | 5:HE:26:THR:O      | 1.78                     | 1.01              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:2647:G:OP1   | 50:H1:4333:HOH:O   | 1.78                     | 1.01              |
| 1:H1:2862:G:O6    | 1:H1:2933:G:H2'    | 1.61                     | 1.01              |
| 13:AN:4:PHE:HD1   | 13:AN:4:PHE:N      | 1.59                     | 1.00              |
| 27:CF:232:GLN:NE2 | 1:D1:2573:U:H4'    | 1.76                     | 1.00              |
| 1:D1:284:U:H5     | 1:D1:305:A:H5''    | 1.20                     | 1.00              |
| 26:EE:1:MET:CG    | 26:EE:2:ARG:H      | 1.70                     | 1.00              |
| 35:EN:155:ALA:HB3 | 35:EN:158:GLN:NE2  | 1.76                     | 1.00              |
| 1:F1:2100:A:C2'   | 1:F1:2101:G:H5''   | 1.91                     | 1.00              |
| 1:F1:2275:A:OP1   | 50:F1:4339:HOH:O   | 1.77                     | 1.00              |
| 6:FF:11:ARG:NH2   | 6:FF:57:LYS:HA     | 1.74                     | 1.00              |
| 22:GA:239:ARG:NH1 | 1:H1:2158:C:H5'    | 1.74                     | 1.00              |
| 29:GH:159:PHE:HB3 | 29:GH:163:GLN:HE22 | 1.24                     | 1.00              |
| 1:H1:2300:G:H4'   | 1:H1:2301:C:OP1    | 1.58                     | 1.00              |
| 1:A1:2158:C:H5'   | 22:BA:239:ARG:HH11 | 1.10                     | 1.00              |
| 23:BB:114:THR:HB  | 23:BB:161:HIS:HE2  | 0.85                     | 1.00              |
| 26:CE:1:MET:CG    | 26:CE:2:ARG:H      | 1.69                     | 1.00              |
| 1:D1:555:G:H2'    | 1:D1:556:A:H5''    | 1.39                     | 1.00              |
| 1:D1:1048:U:H2'   | 1:D1:1049:U:H5''   | 1.38                     | 1.00              |
| 1:D1:2100:A:C2'   | 1:D1:2101:G:H5''   | 1.91                     | 1.00              |
| 1:D1:2797:C:N3    | 50:D1:4293:HOH:O   | 1.92                     | 1.00              |
| 1:F1:3185:G:C8    | 8:FH:11:PRO:HD3    | 1.94                     | 1.00              |
| 32:GK:99:VAL:HB   | 18:HU:169:ILE:CD1  | 1.91                     | 1.00              |
| 1:H1:47:G:O6      | 50:H1:3619:HOH:O   | 1.77                     | 1.00              |
| 1:H1:957:U:H4'    | 1:H1:958:A:H5'     | 1.39                     | 1.00              |
| 1:H1:2900:G:OP1   | 50:H1:4147:HOH:O   | 1.79                     | 1.00              |
| 1:A1:1308:U:H5''  | 28:BG:58:UNK:HB2   | 1.00                     | 1.00              |
| 1:A1:2576:C:H2'   | 1:A1:2577:G:H5'    | 1.42                     | 1.00              |
| 1:A1:2703:G:O2'   | 1:A1:2740:G:H2'    | 1.62                     | 1.00              |
| 1:A1:3167:U:H4'   | 1:A1:3168:A:O5'    | 1.60                     | 1.00              |
| 30:BI:73:ARG:HD3  | 30:BI:144:VAL:HG12 | 1.40                     | 1.00              |
| 43:BV:218:TYR:HA  | 43:BV:222:GLY:O    | 1.59                     | 1.00              |
| 1:D1:2743:G:H3'   | 1:D1:2744:C:H5''   | 1.42                     | 1.00              |
| 1:F1:1370:A:H2'   | 1:F1:1371:G:H5''   | 1.38                     | 1.00              |
| 33:GL:120:TRP:CZ2 | 33:GL:122:GLY:HA2  | 1.96                     | 1.00              |
| 38:GQ:8:ARG:HH11  | 38:GQ:118:HIS:HB2  | 1.23                     | 1.00              |
| 1:H1:1004:U:H6    | 1:H1:1004:U:H5'    | 1.25                     | 1.00              |
| 1:H1:3291:G:HO2'  | 1:H1:3292:U:H6     | 1.01                     | 1.00              |
| 1:A1:809:A:H4'    | 35:BN:92:ARG:NH2   | 1.76                     | 1.00              |
| 38:CQ:132:TYR:O   | 50:CQ:305:HOH:O    | 1.80                     | 1.00              |
| 1:D1:3167:U:H4'   | 1:D1:3168:A:O5'    | 1.61                     | 1.00              |
| 44:EW:22:ILE:HD13 | 44:EW:30:ARG:HG2   | 1.44                     | 1.00              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2576:C:H2'    | 1:F1:2577:G:H5'    | 1.44                     | 1.00              |
| 21:G3:104:C:H2'    | 21:G3:105:C:H5''   | 1.40                     | 1.00              |
| 1:A1:2651:A:N7     | 50:A1:4832:HOH:O   | 1.94                     | 1.00              |
| 35:CN:155:ALA:HB3  | 35:CN:158:GLN:NE2  | 1.76                     | 1.00              |
| 1:D1:1654:G:H4'    | 1:D1:1655:A:OP1    | 1.62                     | 1.00              |
| 1:D1:2405:U:OP2    | 50:D1:4786:HOH:O   | 1.80                     | 1.00              |
| 37:EP:139:VAL:HG21 | 19:FX:30:ILE:HD11  | 1.44                     | 1.00              |
| 13:FN:4:PHE:HD1    | 13:FN:4:PHE:N      | 1.59                     | 1.00              |
| 32:GK:60:MET:O     | 35:GN:172:ARG:NH1  | 1.93                     | 1.00              |
| 33:GL:177:LYS:NZ   | 1:H1:63:A:OP1      | 1.93                     | 1.00              |
| 38:GQ:103:ASN:HD21 | 1:H1:388:A:C1'     | 1.74                     | 1.00              |
| 20:B2:100:C:OP2    | 39:BR:56:ARG:NH2   | 1.93                     | 1.00              |
| 1:D1:957:U:H4'     | 1:D1:958:A:C5'     | 1.91                     | 1.00              |
| 19:DX:93:LEU:HD11  | 19:DX:120:LEU:HD11 | 1.40                     | 1.00              |
| 23:EB:114:THR:HB   | 23:EB:161:HIS:HE2  | 0.83                     | 1.00              |
| 28:EG:4:UNK:HG3    | 28:EG:6:UNK:HG2    | 1.44                     | 1.00              |
| 35:EN:92:ARG:NH2   | 1:F1:809:A:H4'     | 1.76                     | 1.00              |
| 1:F1:2362:A:OP2    | 50:F1:3771:HOH:O   | 1.79                     | 1.00              |
| 19:HX:93:LEU:HD11  | 19:HX:120:LEU:HD11 | 1.43                     | 1.00              |
| 1:A1:265:A:N6      | 16:AQ:30:ARG:O     | 1.93                     | 1.00              |
| 26:BE:1:MET:HG3    | 26:BE:2:ARG:N      | 1.72                     | 1.00              |
| 1:D1:1593:A:H2'    | 1:D1:1594:C:C6     | 1.95                     | 1.00              |
| 21:E3:8:G:P        | 34:EM:33:ARG:HH12  | 1.84                     | 1.00              |
| 1:F1:1517:G:OP2    | 50:F1:4256:HOH:O   | 1.78                     | 1.00              |
| 1:F1:2310:G:OP1    | 50:F1:4064:HOH:O   | 1.80                     | 1.00              |
| 8:AH:64:LYS:HG2    | 8:AH:69:ASN:ND2    | 1.75                     | 0.99              |
| 45:CX:42:ASN:HD22  | 45:CX:45:ARG:H     | 1.05                     | 0.99              |
| 1:D1:1004:U:H6     | 1:D1:1004:U:H5'    | 1.24                     | 0.99              |
| 1:H1:958:A:H3'     | 1:H1:959:G:H5'     | 1.44                     | 0.99              |
| 1:A1:957:U:C4'     | 1:A1:958:A:H5'     | 1.91                     | 0.99              |
| 1:A1:2390:G:N7     | 50:A1:4062:HOH:O   | 1.94                     | 0.99              |
| 1:D1:957:U:C4'     | 1:D1:958:A:H5'     | 1.91                     | 0.99              |
| 1:D1:1208:U:H5'    | 19:DX:178:ARG:NH2  | 1.76                     | 0.99              |
| 13:DN:4:PHE:HD1    | 13:DN:4:PHE:N      | 1.60                     | 0.99              |
| 22:EA:62:VAL:HG21  | 22:EA:77:PHE:HD2   | 1.25                     | 0.99              |
| 29:EH:193:ASP:HB2  | 1:F1:1036:G:H21    | 1.24                     | 0.99              |
| 33:EL:183:SER:HA   | 33:EL:191:ASN:ND2  | 1.77                     | 0.99              |
| 46:EY:64:ILE:HD11  | 46:EY:71:LEU:HD11  | 1.44                     | 0.99              |
| 26:CE:1:MET:HG3    | 26:CE:2:ARG:N      | 1.71                     | 0.99              |
| 1:H1:986:C:OP2     | 50:H1:4324:HOH:O   | 1.79                     | 0.99              |
| 1:A1:957:U:H4'     | 1:A1:958:A:C5'     | 1.91                     | 0.99              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 14:AO:25:THR:HG22 | 14:AO:27:ASP:H     | 1.27                     | 0.99              |
| 24:CC:376:TRP:CD1 | 1:D1:564:A:H1'     | 1.97                     | 0.99              |
| 45:CX:57:ILE:HG13 | 1:D1:972:U:H5''    | 1.42                     | 0.99              |
| 4:DC:66:VAL:HG11  | 4:DC:89:ILE:CD1    | 1.91                     | 0.99              |
| 1:F1:2743:G:H3'   | 1:F1:2744:C:H5''   | 1.42                     | 0.99              |
| 20:G2:37:A:H4'    | 20:G2:38:C:OP1     | 1.56                     | 0.99              |
| 32:GK:142:GLY:CA  | 18:HU:173:ARG:NH2  | 2.24                     | 0.99              |
| 1:H1:1617:G:O2'   | 1:H1:1618:A:OP1    | 1.80                     | 0.99              |
| 1:H1:3109:C:H3'   | 10:HK:111:ARG:HH12 | 1.22                     | 0.99              |
| 1:A1:107:A:H4'    | 1:A1:108:G:OP1     | 1.61                     | 0.99              |
| 1:A1:1004:U:H5'   | 1:A1:1004:U:H6     | 1.24                     | 0.99              |
| 1:A1:2100:A:C2'   | 1:A1:2101:G:H5''   | 1.91                     | 0.99              |
| 1:A1:2717:G:C5'   | 37:BP:83:ARG:HH22  | 1.74                     | 0.99              |
| 2:AA:62:THR:O     | 50:AA:203:HOH:O    | 1.77                     | 0.99              |
| 38:BQ:8:ARG:HH11  | 38:BQ:118:HIS:HB2  | 1.24                     | 0.99              |
| 1:F1:2300:G:H4'   | 1:F1:2301:C:OP1    | 1.58                     | 0.99              |
| 1:H1:118:A:H4'    | 1:H1:119:A:O5'     | 1.59                     | 0.99              |
| 1:H1:2362:A:OP2   | 50:H1:3711:HOH:O   | 1.79                     | 0.99              |
| 1:H1:3182:A:H4'   | 1:H1:3183:A:OP1    | 1.63                     | 0.99              |
| 4:HC:66:VAL:HG11  | 4:HC:89:ILE:HD11   | 0.99                     | 0.99              |
| 33:CL:30:TYR:CE2  | 33:CL:63:ARG:HD3   | 1.97                     | 0.99              |
| 41:CT:35:THR:HG22 | 41:CT:37:LYS:H     | 1.25                     | 0.99              |
| 1:D1:276:G:H5'    | 4:DC:47:GLY:HA2    | 1.44                     | 0.99              |
| 1:D1:707:A:OP2    | 50:D1:4794:HOH:O   | 1.78                     | 0.99              |
| 21:G3:46:C:OP1    | 34:GM:158:ARG:HG3  | 1.60                     | 0.99              |
| 1:H1:842:A:OP2    | 50:H1:3805:HOH:O   | 1.80                     | 0.99              |
| 1:H1:2100:A:C2'   | 1:H1:2101:G:H5''   | 1.91                     | 0.99              |
| 1:A1:2300:G:H4'   | 1:A1:2301:C:OP1    | 1.61                     | 0.99              |
| 33:BL:30:TYR:CE2  | 33:BL:63:ARG:HD3   | 1.97                     | 0.99              |
| 1:F1:284:U:H5     | 1:F1:305:A:H5''    | 1.23                     | 0.99              |
| 1:F1:2717:G:OP1   | 50:F1:4475:HOH:O   | 1.78                     | 0.99              |
| 21:G3:65:G:OP2    | 50:G3:318:HOH:O    | 1.78                     | 0.99              |
| 1:A1:1064:C:H5''  | 34:BM:5:LYS:HZ2    | 1.24                     | 0.99              |
| 1:A1:1208:U:H5'   | 19:AX:178:ARG:HH22 | 1.22                     | 0.99              |
| 45:BX:42:ASN:HD22 | 45:BX:45:ARG:H     | 1.10                     | 0.99              |
| 31:EJ:10:GLN:HG3  | 31:EJ:129:ILE:HG23 | 1.44                     | 0.99              |
| 1:F1:1235:U:H6    | 10:FK:109:ASN:HD21 | 1.11                     | 0.99              |
| 1:H1:527:A:C2'    | 1:H1:528:C:H5''    | 1.93                     | 0.99              |
| 6:HF:11:ARG:NH2   | 6:HF:57:LYS:HA     | 1.77                     | 0.99              |
| 1:A1:452:U:H5'    | 14:AO:56:GLN:HE22  | 1.28                     | 0.99              |
| 24:EC:395:ASP:OD1 | 37:EP:154:ARG:NH2  | 1.95                     | 0.99              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2666:G:H4'    | 1:F1:2667:A:OP2    | 1.62                     | 0.99              |
| 20:G2:105:A:H5'    | 20:G2:106:A:H5''   | 1.44                     | 0.99              |
| 33:GL:2:GLY:N      | 16:HQ:37:ARG:HH21  | 1.60                     | 0.99              |
| 1:A1:3109:C:H3'    | 10:AK:111:ARG:HH12 | 1.16                     | 0.99              |
| 6:AF:99:LYS:HD3    | 30:BI:197:GLY:HA2  | 1.44                     | 0.99              |
| 44:BW:22:ILE:HD13  | 44:BW:30:ARG:HG2   | 1.44                     | 0.99              |
| 22:CA:210:HIS:HD2  | 22:CA:212:HIS:H    | 1.00                     | 0.99              |
| 1:D1:2703:G:O2'    | 1:D1:2740:G:H2'    | 1.63                     | 0.99              |
| 1:D1:2875:A:OP2    | 50:D1:4406:HOH:O   | 1.80                     | 0.99              |
| 14:DO:25:THR:HG22  | 14:DO:27:ASP:H     | 1.27                     | 0.99              |
| 43:EV:218:TYR:HA   | 43:EV:222:GLY:O    | 1.63                     | 0.99              |
| 38:GQ:99:ASN:O     | 38:GQ:103:ASN:HB2  | 1.62                     | 0.99              |
| 1:H1:555:G:H2'     | 1:H1:556:A:H5''    | 1.41                     | 0.99              |
| 1:A1:2890:A:OP2    | 50:A1:4589:HOH:O   | 1.80                     | 0.98              |
| 11:DL:76:ARG:NH2   | 11:DL:84:HIS:HB3   | 1.78                     | 0.98              |
| 1:F1:276:G:H5'     | 4:FC:47:GLY:HA2    | 1.43                     | 0.98              |
| 1:H1:38:A:O2'      | 50:H1:3640:HOH:O   | 1.81                     | 0.98              |
| 1:H1:3177:G:H4'    | 1:H1:3178:U:OP2    | 1.63                     | 0.98              |
| 35:CN:92:ARG:NH2   | 1:D1:809:A:H4'     | 1.76                     | 0.98              |
| 38:CQ:99:ASN:O     | 38:CQ:103:ASN:HB2  | 1.62                     | 0.98              |
| 1:H1:1868:C:OP2    | 50:H1:4112:HOH:O   | 1.80                     | 0.98              |
| 4:HC:66:VAL:HG11   | 4:HC:89:ILE:CD1    | 1.93                     | 0.98              |
| 1:A1:979:U:H1'     | 17:AT:12:GLN:NE2   | 1.78                     | 0.98              |
| 1:A1:2301:C:N4     | 1:H1:873:A:C2      | 2.31                     | 0.98              |
| 21:C3:104:C:H2'    | 21:C3:105:C:H5''   | 1.42                     | 0.98              |
| 1:D1:622:G:O2'     | 5:DE:26:THR:O      | 1.80                     | 0.98              |
| 8:DH:64:LYS:HG2    | 8:DH:69:ASN:ND2    | 1.76                     | 0.98              |
| 1:F1:1054:G:H2'    | 1:F1:1055:A:C8     | 1.99                     | 0.98              |
| 1:F1:1376:A:H5''   | 1:F1:1377:A:C5'    | 1.93                     | 0.98              |
| 7:HG:35:ARG:NH1    | 13:HN:77:LEU:HB2   | 1.77                     | 0.98              |
| 22:BA:210:HIS:HD2  | 22:BA:212:HIS:H    | 0.98                     | 0.98              |
| 36:BO:119:GLN:HE21 | 36:BO:150:ILE:HD11 | 1.25                     | 0.98              |
| 34:EM:119:TYR:CD1  | 34:EM:132:VAL:HG11 | 1.97                     | 0.98              |
| 1:F1:765:A:N7      | 50:F1:3860:HOH:O   | 1.94                     | 0.98              |
| 29:GH:101:LYS:HB3  | 29:GH:121:LYS:NZ   | 1.79                     | 0.98              |
| 1:A1:118:A:H4'     | 1:A1:119:A:O5'     | 1.63                     | 0.98              |
| 1:A1:868:G:H2'     | 1:A1:869:G:H5'     | 1.45                     | 0.98              |
| 8:DH:54:LYS:HA     | 8:DH:110:PRO:HG3   | 1.43                     | 0.98              |
| 27:GF:126:LYS:NZ   | 27:GF:194:THR:OG1  | 1.97                     | 0.98              |
| 1:A1:2816:G:OP1    | 29:BH:7:ARG:NH2    | 1.96                     | 0.98              |
| 22:BA:62:VAL:HG21  | 22:BA:77:PHE:HD2   | 1.27                     | 0.98              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:118:A:H4'    | 1:D1:119:A:O5'     | 1.63                     | 0.98              |
| 1:D1:2793:G:O6    | 50:D1:3765:HOH:O   | 1.81                     | 0.98              |
| 38:EQ:134:ALA:HB2 | 1:F1:905:G:H5'     | 1.41                     | 0.98              |
| 43:EV:101:ARG:NH1 | 1:F1:1131:G:O6     | 1.95                     | 0.98              |
| 45:EX:42:ASN:HD22 | 45:EX:45:ARG:H     | 1.08                     | 0.98              |
| 1:F1:842:A:OP2    | 50:F1:3889:HOH:O   | 1.81                     | 0.98              |
| 4:FC:66:VAL:HG11  | 4:FC:89:ILE:HD11   | 0.99                     | 0.98              |
| 31:GJ:10:GLN:HG3  | 31:GJ:129:ILE:HG23 | 1.45                     | 0.98              |
| 1:H1:1048:U:H2'   | 1:H1:1049:U:H5''   | 1.44                     | 0.98              |
| 1:A1:527:A:C2'    | 1:A1:528:C:H5''    | 1.93                     | 0.98              |
| 1:A1:1504:C:OP2   | 50:A1:4127:HOH:O   | 1.80                     | 0.98              |
| 12:AM:61:ASP:OD1  | 12:AM:62:ASP:N     | 1.97                     | 0.98              |
| 1:D1:313:U:OP1    | 18:DU:100:LYS:NZ   | 1.97                     | 0.98              |
| 38:EQ:133:ARG:HG3 | 38:EQ:139:ASN:HD22 | 1.19                     | 0.98              |
| 1:F1:2310:G:P     | 50:F1:4060:HOH:O   | 2.19                     | 0.98              |
| 18:FU:171:GLU:O   | 18:FU:174:LYS:HG3  | 1.64                     | 0.98              |
| 19:AX:42:ARG:HH22 | 19:AX:140:THR:HB   | 1.29                     | 0.98              |
| 1:D1:2666:G:H4'   | 1:D1:2667:A:OP2    | 1.62                     | 0.98              |
| 23:EB:37:PRO:HA   | 23:EB:184:GLY:HA2  | 1.46                     | 0.98              |
| 1:F1:2693:A:OP2   | 50:F1:4676:HOH:O   | 1.79                     | 0.98              |
| 34:GM:119:TYR:CD1 | 34:GM:132:VAL:HG11 | 1.97                     | 0.98              |
| 46:GY:7:LYS:HE3   | 1:H1:1950:C:H2'    | 1.43                     | 0.98              |
| 1:H1:107:A:H4'    | 1:H1:108:G:OP1     | 1.63                     | 0.98              |
| 1:D1:958:A:H3'    | 1:D1:959:G:H5'     | 1.42                     | 0.98              |
| 1:D1:2307:A:H3'   | 50:D1:4663:HOH:O   | 1.63                     | 0.98              |
| 45:EX:6:VAL:HG12  | 45:EX:7:ALA:H      | 1.26                     | 0.98              |
| 1:F1:2415:C:H2'   | 1:F1:2416:U:H5''   | 1.45                     | 0.98              |
| 33:GL:34:PRO:HG2  | 33:GL:37:HIS:HB3   | 1.45                     | 0.98              |
| 33:GL:183:SER:HA  | 33:GL:191:ASN:ND2  | 1.77                     | 0.98              |
| 1:H1:1211:A:P     | 19:HX:171:ARG:HH22 | 1.87                     | 0.98              |
| 11:HL:76:ARG:NH2  | 11:HL:84:HIS:HB3   | 1.79                     | 0.98              |
| 1:A1:1654:G:H4'   | 1:A1:1655:A:OP1    | 1.61                     | 0.98              |
| 1:A1:3047:U:H5    | 44:BW:65:ASN:OD1   | 1.46                     | 0.98              |
| 18:AU:171:GLU:O   | 18:AU:174:LYS:HG3  | 1.62                     | 0.98              |
| 1:D1:2684:A:H5''  | 1:D1:2685:A:OP2    | 1.64                     | 0.98              |
| 21:E3:98:G:OP2    | 19:FX:66:LYS:NZ    | 1.97                     | 0.98              |
| 19:FX:22:VAL:HG23 | 19:FX:78:ILE:HD11  | 1.45                     | 0.98              |
| 37:GP:116:LYS:HZ1 | 37:GP:128:THR:HB   | 1.27                     | 0.98              |
| 1:H1:2705:U:O2'   | 4:HC:79:ARG:NH2    | 1.95                     | 0.98              |
| 1:A1:2128:C:OP1   | 50:A1:4098:HOH:O   | 1.82                     | 0.97              |
| 38:BQ:133:ARG:HA  | 50:BQ:307:HOH:O    | 1.62                     | 0.97              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:CQ:134:ALA:HB2  | 1:D1:905:G:H5'     | 1.46                     | 0.97              |
| 43:GV:218:TYR:HA   | 43:GV:222:GLY:O    | 1.64                     | 0.97              |
| 41:BT:35:THR:HG22  | 41:BT:37:LYS:H     | 1.27                     | 0.97              |
| 31:CJ:10:GLN:HG3   | 31:CJ:129:ILE:HG23 | 1.44                     | 0.97              |
| 1:D1:706:U:OP1     | 50:D1:4798:HOH:O   | 1.79                     | 0.97              |
| 1:D1:2902:G:OP2    | 50:D1:4723:HOH:O   | 1.81                     | 0.97              |
| 1:F1:118:A:H4'     | 1:F1:119:A:O5'     | 1.61                     | 0.97              |
| 1:H1:1920:A:OP2    | 50:H1:4174:HOH:O   | 1.80                     | 0.97              |
| 1:A1:2209:A:OP2    | 50:A1:4561:HOH:O   | 1.82                     | 0.97              |
| 1:A1:2906:G:H2'    | 1:A1:2907:A:H5''   | 1.43                     | 0.97              |
| 22:CA:62:VAL:HG21  | 22:CA:77:PHE:HD2   | 1.27                     | 0.97              |
| 1:D1:1376:A:H5''   | 1:D1:1377:A:C5'    | 1.94                     | 0.97              |
| 1:D1:2930:C:OP2    | 50:D1:4237:HOH:O   | 1.80                     | 0.97              |
| 1:H1:2415:C:H2'    | 1:H1:2416:U:H5''   | 1.45                     | 0.97              |
| 1:A1:826:A:OP1     | 32:BK:27:LYS:NZ    | 1.96                     | 0.97              |
| 1:A1:958:A:H3'     | 1:A1:959:G:H5'     | 1.43                     | 0.97              |
| 38:BQ:99:ASN:O     | 38:BQ:103:ASN:HB2  | 1.64                     | 0.97              |
| 28:CG:60:UNK:HG1   | 1:D1:1249:G:H5''   | 1.44                     | 0.97              |
| 1:D1:981:U:OP1     | 50:D1:4302:HOH:O   | 1.82                     | 0.97              |
| 1:F1:2890:A:OP2    | 50:F1:4429:HOH:O   | 1.79                     | 0.97              |
| 2:FA:44:MET:HE2    | 2:FA:44:MET:HA     | 1.45                     | 0.97              |
| 29:GH:184:LEU:HD22 | 29:GH:189:LYS:HD3  | 1.45                     | 0.97              |
| 17:HT:16:SER:O     | 50:HT:205:HOH:O    | 1.81                     | 0.97              |
| 18:HU:171:GLU:O    | 18:HU:174:LYS:HG3  | 1.64                     | 0.97              |
| 1:A1:268:G:H5''    | 33:BL:14:LYS:NZ    | 1.79                     | 0.97              |
| 1:D1:2906:G:H2'    | 1:D1:2907:A:H5''   | 1.47                     | 0.97              |
| 20:E2:39:G:C2      | 42:EU:90:ARG:NH1   | 2.32                     | 0.97              |
| 1:F1:2252:C:C6     | 1:F1:2253:U:C5     | 2.53                     | 0.97              |
| 1:F1:2906:G:H2'    | 1:F1:2907:A:H5''   | 1.46                     | 0.97              |
| 1:F1:3167:U:H4'    | 1:F1:3168:A:O5'    | 1.61                     | 0.97              |
| 7:AG:40:LYS:HG3    | 7:AG:93:LEU:O      | 1.64                     | 0.97              |
| 26:EE:1:MET:HG3    | 26:EE:2:ARG:N      | 1.72                     | 0.97              |
| 34:EM:2:GLY:N      | 1:F1:1042:U:O2     | 1.97                     | 0.97              |
| 1:F1:38:A:O2'      | 50:F1:3661:HOH:O   | 1.81                     | 0.97              |
| 23:GB:111:ASP:O    | 23:GB:114:THR:HG22 | 1.63                     | 0.97              |
| 1:H1:276:G:H5'     | 4:HC:47:GLY:HA2    | 1.45                     | 0.97              |
| 1:H1:1654:G:H4'    | 1:H1:1655:A:OP1    | 1.62                     | 0.97              |
| 5:AE:55:ALA:HB2    | 8:AH:109:TYR:HE1   | 1.30                     | 0.97              |
| 1:D1:1798:U:O4     | 50:D1:4879:HOH:O   | 1.81                     | 0.97              |
| 19:DX:175:LYS:HZ2  | 19:DX:178:ARG:HH11 | 1.13                     | 0.97              |
| 1:F1:2905:G:OP1    | 50:F1:4352:HOH:O   | 1.81                     | 0.97              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:972:U:H5''    | 45:BX:57:ILE:HG13  | 1.47                     | 0.97              |
| 18:AU:60:THR:HG23  | 32:BK:68:ASN:HB3   | 1.44                     | 0.97              |
| 1:D1:3185:G:C8     | 8:DH:11:PRO:HD3    | 1.98                     | 0.97              |
| 29:EH:101:LYS:HB3  | 29:EH:121:LYS:NZ   | 1.79                     | 0.97              |
| 4:FC:66:VAL:HG11   | 4:FC:89:ILE:CD1    | 1.94                     | 0.97              |
| 21:G3:1:G:N3       | 34:GM:274:HIS:NE2  | 2.10                     | 0.97              |
| 1:D1:1027:G:O2'    | 1:D1:1028:A:OP2    | 1.81                     | 0.97              |
| 1:F1:527:A:C2'     | 1:F1:528:C:H5''    | 1.95                     | 0.97              |
| 1:F1:2703:G:O2'    | 1:F1:2740:G:H2'    | 1.64                     | 0.97              |
| 32:GK:99:VAL:HB    | 18:HU:169:ILE:HD11 | 1.45                     | 0.97              |
| 1:H1:2703:G:O2'    | 1:H1:2740:G:H2'    | 1.64                     | 0.97              |
| 1:A1:2952:G:N7     | 50:A1:4178:HOH:O   | 1.96                     | 0.97              |
| 1:A1:3182:A:H4'    | 1:A1:3183:A:OP1    | 1.64                     | 0.97              |
| 45:BX:6:VAL:HG12   | 45:BX:7:ALA:H      | 1.29                     | 0.97              |
| 27:CF:126:LYS:NZ   | 27:CF:194:THR:OG1  | 1.96                     | 0.97              |
| 45:CX:6:VAL:HG12   | 45:CX:7:ALA:H      | 1.30                     | 0.97              |
| 43:EV:208:ARG:NH2  | 1:F1:1354:C:OP1    | 1.98                     | 0.97              |
| 1:F1:107:A:H4'     | 1:F1:108:G:OP1     | 1.60                     | 0.97              |
| 43:GV:133:PHE:CZ   | 43:GV:226:ASN:HB3  | 1.99                     | 0.97              |
| 1:H1:332:G:H2'     | 1:H1:333:G:H5''    | 1.46                     | 0.97              |
| 5:AE:89:ARG:NH2    | 5:AE:114:ASP:OD1   | 1.98                     | 0.96              |
| 27:CF:122:PRO:HG2  | 1:D1:119:A:C2      | 2.00                     | 0.96              |
| 1:D1:2862:G:O6     | 1:D1:2933:G:H2'    | 1.64                     | 0.96              |
| 5:DE:41:LEU:HB3    | 5:DE:45:ILE:HG21   | 1.47                     | 0.96              |
| 5:DE:89:ARG:NH2    | 5:DE:114:ASP:OD1   | 1.98                     | 0.96              |
| 1:F1:1211:A:P      | 19:FX:171:ARG:HH22 | 1.87                     | 0.96              |
| 1:F1:3177:G:H4'    | 1:F1:3178:U:OP2    | 1.60                     | 0.96              |
| 1:F1:3227:A:H5''   | 5:FE:57:ARG:HH12   | 1.26                     | 0.96              |
| 1:H1:3227:A:C5'    | 5:HE:57:ARG:HH12   | 1.78                     | 0.96              |
| 15:HP:43:LYS:HD3   | 15:HP:52:THR:HG23  | 1.47                     | 0.96              |
| 43:EV:133:PHE:CZ   | 43:EV:226:ASN:HB3  | 1.99                     | 0.96              |
| 20:B2:112:G:H4'    | 20:B2:113:U:OP1    | 1.63                     | 0.96              |
| 44:CW:10:ASP:OD1   | 44:CW:108:THR:HG22 | 1.65                     | 0.96              |
| 1:D1:1051:C:H2'    | 1:D1:1052:A:O4'    | 1.63                     | 0.96              |
| 19:DX:22:VAL:CG2   | 19:DX:78:ILE:HD11  | 1.95                     | 0.96              |
| 23:EB:114:THR:CB   | 23:EB:161:HIS:HE2  | 1.78                     | 0.96              |
| 1:F1:313:U:OP1     | 18:FU:100:LYS:NZ   | 1.97                     | 0.96              |
| 7:FG:13:LYS:HD2    | 7:FG:100:ILE:CD1   | 1.95                     | 0.96              |
| 32:GK:68:ASN:HB3   | 18:HU:60:THR:CG2   | 1.94                     | 0.96              |
| 43:GV:100:LEU:HD21 | 43:GV:127:VAL:HG11 | 1.47                     | 0.96              |
| 1:H1:971:C:C2'     | 1:H1:972:U:H5'     | 1.95                     | 0.96              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:281:G:H5''    | 1:A1:282:G:OP1     | 1.66                     | 0.96              |
| 1:A1:655:A:N3      | 8:AH:97:PRO:HG3    | 1.80                     | 0.96              |
| 1:A1:1617:G:O2'    | 1:A1:1618:A:OP1    | 1.79                     | 0.96              |
| 31:BJ:10:GLN:HG3   | 31:BJ:129:ILE:HG23 | 1.46                     | 0.96              |
| 33:BL:183:SER:HA   | 33:BL:191:ASN:ND2  | 1.79                     | 0.96              |
| 29:CH:101:LYS:HB3  | 29:CH:121:LYS:HZ2  | 1.31                     | 0.96              |
| 1:D1:146:U:H4'     | 1:D1:147:U:H5'     | 1.47                     | 0.96              |
| 1:D1:1442:G:OP1    | 50:D1:3894:HOH:O   | 1.82                     | 0.96              |
| 7:DG:13:LYS:HD2    | 7:DG:100:ILE:CD1   | 1.95                     | 0.96              |
| 1:F1:1517:G:OP2    | 50:F1:4258:HOH:O   | 1.82                     | 0.96              |
| 1:F1:2651:A:N7     | 50:F1:4674:HOH:O   | 1.99                     | 0.96              |
| 1:F1:3008:U:O4     | 50:F1:4439:HOH:O   | 1.82                     | 0.96              |
| 21:G3:98:G:OP2     | 19:HX:66:LYS:NZ    | 1.97                     | 0.96              |
| 45:GX:42:ASN:HD22  | 45:GX:45:ARG:H     | 1.04                     | 0.96              |
| 1:H1:351:A:H4'     | 1:H1:352:G:OP1     | 1.61                     | 0.96              |
| 1:D1:527:A:C2'     | 1:D1:528:C:H5''    | 1.95                     | 0.96              |
| 1:D1:1084:G:C2'    | 1:D1:1085:G:H5''   | 1.95                     | 0.96              |
| 1:D1:1777:A:OP2    | 50:D1:4880:HOH:O   | 1.81                     | 0.96              |
| 19:DX:188:THR:O    | 19:DX:189:PHE:CG   | 2.19                     | 0.96              |
| 1:F1:146:U:H4'     | 1:F1:147:U:H5'     | 1.47                     | 0.96              |
| 1:F1:2252:C:H6     | 1:F1:2252:C:O5'    | 1.48                     | 0.96              |
| 7:HG:13:LYS:HD2    | 7:HG:100:ILE:CD1   | 1.94                     | 0.96              |
| 8:HH:54:LYS:HA     | 8:HH:110:PRO:HG3   | 1.44                     | 0.96              |
| 8:HH:58:TYR:HD1    | 8:HH:104:LEU:HD21  | 1.31                     | 0.96              |
| 1:A1:1308:U:C5'    | 28:BG:58:UNK:HB2   | 1.94                     | 0.96              |
| 1:A1:1920:A:OP2    | 50:A1:4463:HOH:O   | 1.84                     | 0.96              |
| 26:CE:124:ILE:HD13 | 26:CE:159:ILE:HA   | 1.48                     | 0.96              |
| 14:FO:25:THR:HG22  | 14:FO:27:ASP:H     | 1.26                     | 0.96              |
| 22:GA:78:ILE:HD11  | 22:GA:129:ARG:HD3  | 1.44                     | 0.96              |
| 26:GE:124:ILE:HD13 | 26:GE:159:ILE:HA   | 1.47                     | 0.96              |
| 1:A1:439:A:H5''    | 5:AE:126:HIS:ND1   | 1.81                     | 0.96              |
| 1:A1:1084:G:C2'    | 1:A1:1085:G:H5''   | 1.95                     | 0.96              |
| 44:CW:22:ILE:HD13  | 44:CW:30:ARG:HG2   | 1.48                     | 0.96              |
| 24:EC:376:TRP:HD1  | 1:F1:564:A:H1'     | 0.79                     | 0.96              |
| 34:EM:5:LYS:HD3    | 1:F1:1064:C:H5'    | 1.46                     | 0.96              |
| 1:F1:284:U:H1'     | 50:F1:3728:HOH:O   | 1.66                     | 0.96              |
| 1:F1:655:A:N3      | 8:FH:97:PRO:HG3    | 1.81                     | 0.96              |
| 11:FL:76:ARG:NH2   | 11:FL:84:HIS:HB3   | 1.80                     | 0.96              |
| 19:FX:188:THR:O    | 19:FX:189:PHE:CG   | 2.19                     | 0.96              |
| 33:GL:30:TYR:CE2   | 33:GL:63:ARG:HD3   | 2.01                     | 0.96              |
| 36:GO:104:ARG:NH1  | 1:H1:1973:A:OP1    | 1.97                     | 0.96              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:H1:2639:C:H5'    | 1:H1:2640:G:OP2   | 1.65                     | 0.96              |
| 9:HJ:118:HIS:CE1   | 9:HJ:146:VAL:HB   | 2.01                     | 0.96              |
| 18:HU:53:GLN:O     | 18:HU:113:ARG:NH1 | 1.98                     | 0.96              |
| 1:A1:1710:U:OP1    | 12:AM:44:LYS:NZ   | 1.99                     | 0.96              |
| 1:A1:2573:U:H4'    | 27:BF:232:GLN:NE2 | 1.80                     | 0.96              |
| 1:A1:2589:U:OP1    | 33:BL:93:LYS:NZ   | 1.99                     | 0.96              |
| 1:A1:2639:C:H5'    | 1:A1:2640:G:OP2   | 1.65                     | 0.96              |
| 4:AC:66:VAL:HG11   | 4:AC:89:ILE:CD1   | 1.95                     | 0.96              |
| 22:CA:78:ILE:HD11  | 22:CA:129:ARG:HD3 | 1.48                     | 0.96              |
| 29:CH:184:LEU:HD22 | 29:CH:189:LYS:HD3 | 1.48                     | 0.96              |
| 37:CP:83:ARG:HH22  | 1:D1:2717:G:C5'   | 1.78                     | 0.96              |
| 1:D1:987:A:O2'     | 50:D1:4784:HOH:O  | 1.82                     | 0.96              |
| 1:D1:1477:C:OP1    | 50:D1:4244:HOH:O  | 1.83                     | 0.96              |
| 1:D1:2390:G:C8     | 50:D1:4151:HOH:O  | 2.15                     | 0.96              |
| 20:E2:2:G:O6       | 1:F1:3132:A:O2'   | 1.80                     | 0.96              |
| 20:E2:112:G:H4'    | 20:E2:113:U:OP1   | 1.62                     | 0.96              |
| 33:EL:30:TYR:CE2   | 33:EL:63:ARG:HD3  | 2.01                     | 0.96              |
| 1:H1:2684:A:H5''   | 1:H1:2685:A:OP2   | 1.64                     | 0.96              |
| 1:H1:2743:G:H3'    | 1:H1:2744:C:H5''  | 1.43                     | 0.96              |
| 11:HL:91:ILE:HG12  | 13:HN:144:PHE:HE2 | 1.31                     | 0.96              |
| 13:HN:4:PHE:HD1    | 13:HN:4:PHE:N     | 1.60                     | 0.96              |
| 43:BV:133:PHE:CZ   | 43:BV:226:ASN:HB3 | 2.01                     | 0.96              |
| 33:CL:183:SER:HA   | 33:CL:191:ASN:ND2 | 1.81                     | 0.96              |
| 1:D1:2602:U:O4     | 50:D1:3768:HOH:O  | 1.83                     | 0.96              |
| 1:F1:2261:U:O4     | 50:F1:4389:HOH:O  | 1.81                     | 0.96              |
| 1:H1:2109:G:O6     | 50:H1:4243:HOH:O  | 1.84                     | 0.96              |
| 1:H1:2544:U:C1'    | 7:HG:50:THR:HG21  | 1.96                     | 0.96              |
| 1:A1:548:G:H22     | 1:A1:619:G:N2     | 1.62                     | 0.96              |
| 1:A1:1840:U:H4'    | 1:A1:1841:A:O5'   | 1.66                     | 0.96              |
| 1:A1:2405:U:OP2    | 50:A1:3771:HOH:O  | 1.83                     | 0.96              |
| 1:A1:2862:G:O6     | 1:A1:2933:G:H2'   | 1.66                     | 0.96              |
| 23:BB:16:PHE:CD2   | 23:BB:273:ARG:NH1 | 2.34                     | 0.96              |
| 29:BH:184:LEU:HD22 | 29:BH:189:LYS:HD3 | 1.46                     | 0.96              |
| 38:BQ:34:VAL:HG22  | 38:BQ:60:ILE:HD13 | 1.47                     | 0.96              |
| 33:CL:2:GLY:N      | 16:DQ:37:ARG:NH2  | 2.13                     | 0.96              |
| 1:D1:1906:G:N7     | 50:D1:4469:HOH:O  | 1.98                     | 0.96              |
| 1:D1:3207:A:H4'    | 1:D1:3207:A:OP2   | 1.60                     | 0.96              |
| 1:F1:832:A:H2      | 1:F1:2406:U:HO2'  | 1.09                     | 0.96              |
| 1:F1:2239:A:OP2    | 50:F1:4078:HOH:O  | 1.83                     | 0.96              |
| 19:FX:22:VAL:CG2   | 19:FX:78:ILE:HD11 | 1.96                     | 0.96              |
| 1:H1:2411:U:OP1    | 50:H1:3822:HOH:O  | 1.84                     | 0.96              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 5:HE:89:ARG:NH2    | 5:HE:114:ASP:OD1  | 1.98                     | 0.96              |
| 11:DL:91:ILE:HG12  | 13:DN:144:PHE:HE2 | 1.29                     | 0.95              |
| 45:GX:42:ASN:ND2   | 45:GX:45:ARG:H    | 1.62                     | 0.95              |
| 1:H1:655:A:N3      | 8:HH:97:PRO:HG3   | 1.81                     | 0.95              |
| 1:H1:3227:A:H1'    | 5:HE:86:PRO:HG3   | 1.48                     | 0.95              |
| 7:HG:40:LYS:HG3    | 7:HG:93:LEU:O     | 1.65                     | 0.95              |
| 8:AH:13:ARG:NH2    | 8:AH:17:LYS:HG2   | 1.80                     | 0.95              |
| 8:AH:58:TYR:HD1    | 8:AH:104:LEU:HD21 | 1.31                     | 0.95              |
| 35:BN:155:ALA:HB3  | 35:BN:158:GLN:NE2 | 1.81                     | 0.95              |
| 1:D1:1642:G:C2'    | 1:D1:1643:G:H5''  | 1.97                     | 0.95              |
| 1:F1:1016:U:H2'    | 1:F1:1017:U:H5''  | 1.48                     | 0.95              |
| 1:H1:282:G:H22     | 1:H1:304:U:C4'    | 1.78                     | 0.95              |
| 1:A1:846:C:H2'     | 1:A1:847:G:H5''   | 1.49                     | 0.95              |
| 32:CK:60:MET:O     | 35:CN:172:ARG:NH1 | 2.00                     | 0.95              |
| 1:D1:504:A:HO2'    | 1:D1:505:A:H8     | 0.96                     | 0.95              |
| 1:D1:1752:G:H5'    | 1:D1:1754:G:H5''  | 1.47                     | 0.95              |
| 1:D1:2576:C:H2'    | 1:D1:2577:G:H5'   | 1.46                     | 0.95              |
| 21:E3:26:C:OP1     | 34:EM:56:THR:HG21 | 1.65                     | 0.95              |
| 1:F1:1617:G:O2'    | 1:F1:1618:A:OP1   | 1.84                     | 0.95              |
| 5:FE:89:ARG:NH2    | 5:FE:114:ASP:OD1  | 1.98                     | 0.95              |
| 27:GF:128:GLY:HA2  | 1:H1:146:U:O2'    | 1.65                     | 0.95              |
| 1:H1:957:U:H4'     | 1:H1:958:A:C5'    | 1.97                     | 0.95              |
| 1:H1:2273:C:H2'    | 1:H1:2274:A:H5''  | 1.48                     | 0.95              |
| 20:C2:112:G:H4'    | 20:C2:113:U:OP1   | 1.66                     | 0.95              |
| 23:CB:37:PRO:HA    | 23:CB:184:GLY:HA2 | 1.47                     | 0.95              |
| 1:D1:3227:A:C5'    | 5:DE:57:ARG:HH12  | 1.80                     | 0.95              |
| 22:EA:78:ILE:HD11  | 22:EA:129:ARG:HD3 | 1.47                     | 0.95              |
| 1:F1:2862:G:O6     | 1:F1:2933:G:H2'   | 1.66                     | 0.95              |
| 1:H1:1840:U:H4'    | 1:H1:1841:A:O5'   | 1.66                     | 0.95              |
| 1:H1:2576:C:H2'    | 1:H1:2577:G:H5'   | 1.48                     | 0.95              |
| 12:HM:61:ASP:OD1   | 12:HM:62:ASP:N    | 1.99                     | 0.95              |
| 1:A1:971:C:C2'     | 1:A1:972:U:H5'    | 1.97                     | 0.95              |
| 23:BB:24:HIS:CE1   | 23:BB:28:ARG:HH11 | 1.85                     | 0.95              |
| 26:EE:124:ILE:HD13 | 26:EE:159:ILE:HA  | 1.48                     | 0.95              |
| 1:F1:1208:U:H5'    | 19:FX:178:ARG:NH2 | 1.80                     | 0.95              |
| 7:FG:95:ALA:HB3    | 7:FG:101:LEU:HD11 | 1.48                     | 0.95              |
| 27:GF:41:LEU:HD21  | 1:H1:2519:A:N3    | 1.80                     | 0.95              |
| 1:H1:2294:A:OP2    | 50:H1:4201:HOH:O  | 1.84                     | 0.95              |
| 19:HX:22:VAL:CG2   | 19:HX:78:ILE:HD11 | 1.96                     | 0.95              |
| 5:AE:41:LEU:HB3    | 5:AE:45:ILE:HG21  | 1.47                     | 0.95              |
| 19:AX:22:VAL:CG2   | 19:AX:78:ILE:HD11 | 1.96                     | 0.95              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 20:C2:100:C:OP2   | 39:CR:56:ARG:NH2   | 1.99                     | 0.95              |
| 1:D1:107:A:H4'    | 1:D1:108:G:OP1     | 1.63                     | 0.95              |
| 1:F1:282:G:H22    | 1:F1:304:U:C4'     | 1.79                     | 0.95              |
| 24:GC:82:PRO:HB2  | 24:GC:96:ALA:HB3   | 1.48                     | 0.95              |
| 1:H1:842:A:C8     | 2:HA:15:THR:HG23   | 2.02                     | 0.95              |
| 11:AL:41:TYR:HB3  | 11:AL:58:GLN:NE2   | 1.82                     | 0.95              |
| 7:DG:40:LYS:HG3   | 7:DG:93:LEU:O      | 1.65                     | 0.95              |
| 1:F1:957:U:C4'    | 1:F1:958:A:H5'     | 1.97                     | 0.95              |
| 1:F1:1183:C:OP1   | 50:F1:3815:HOH:O   | 1.83                     | 0.95              |
| 1:F1:1654:G:H4'   | 1:F1:1655:A:OP1    | 1.63                     | 0.95              |
| 44:GW:22:ILE:HD13 | 44:GW:30:ARG:HG2   | 1.48                     | 0.95              |
| 1:A1:127:A:OP2    | 50:A1:3814:HOH:O   | 1.84                     | 0.95              |
| 1:A1:1051:C:H2'   | 1:A1:1052:A:O4'    | 1.65                     | 0.95              |
| 1:A1:1101:U:H5'   | 17:AT:49:ASN:HD22  | 1.32                     | 0.95              |
| 29:BH:159:PHE:HB3 | 29:BH:163:GLN:HE22 | 1.29                     | 0.95              |
| 24:GC:65:MET:HE3  | 24:GC:105:ARG:HD3  | 1.48                     | 0.95              |
| 33:GL:182:LYS:NZ  | 1:H1:280:G:O6      | 2.00                     | 0.95              |
| 1:H1:957:U:C4'    | 1:H1:958:A:H5'     | 1.96                     | 0.95              |
| 1:H1:1752:G:H5'   | 1:H1:1754:G:H5''   | 1.46                     | 0.95              |
| 1:H1:2242:G:O2'   | 1:H1:2265:A:N6     | 2.00                     | 0.95              |
| 14:HO:25:THR:HG22 | 14:HO:27:ASP:H     | 1.28                     | 0.95              |
| 1:A1:2101:G:N7    | 50:A1:4513:HOH:O   | 1.98                     | 0.95              |
| 19:AX:22:VAL:HG23 | 19:AX:78:ILE:HD11  | 1.48                     | 0.95              |
| 21:B3:13:A:N3     | 34:BM:24:ARG:NH2   | 2.13                     | 0.95              |
| 1:D1:971:C:C2'    | 1:D1:972:U:H5'     | 1.97                     | 0.95              |
| 9:DJ:118:HIS:CE1  | 9:DJ:146:VAL:HB    | 2.02                     | 0.95              |
| 41:ET:35:THR:HG22 | 41:ET:37:LYS:H     | 1.30                     | 0.95              |
| 1:H1:1051:C:H2'   | 1:H1:1052:A:O4'    | 1.66                     | 0.95              |
| 1:A1:624:G:O2'    | 1:A1:625:C:O5'     | 1.85                     | 0.95              |
| 1:A1:2684:A:H5''  | 1:A1:2685:A:OP2    | 1.67                     | 0.95              |
| 5:AE:41:LEU:HG    | 5:AE:68:GLN:OE1    | 1.67                     | 0.95              |
| 43:CV:218:TYR:HA  | 43:CV:222:GLY:O    | 1.65                     | 0.95              |
| 1:D1:351:A:H4'    | 1:D1:352:G:OP1     | 1.65                     | 0.95              |
| 1:D1:2639:C:H5'   | 1:D1:2640:G:OP2    | 1.66                     | 0.95              |
| 38:EQ:33:GLU:OE1  | 38:EQ:62:PHE:HA    | 1.66                     | 0.95              |
| 42:EU:123:LYS:NZ  | 18:FU:144:SER:HB2  | 1.82                     | 0.95              |
| 1:F1:1084:G:C2'   | 1:F1:1085:G:H5''   | 1.97                     | 0.95              |
| 1:F1:2273:C:H2'   | 1:F1:2274:A:H5''   | 1.48                     | 0.95              |
| 23:GB:162:THR:O   | 23:GB:174:ASN:HB3  | 1.67                     | 0.95              |
| 45:CX:42:ASN:ND2  | 45:CX:45:ARG:H     | 1.64                     | 0.94              |
| 1:D1:2899:C:OP1   | 50:D1:4561:HOH:O   | 1.84                     | 0.94              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:F1:2239:A:P      | 50:F1:4078:HOH:O  | 2.24                     | 0.94              |
| 1:F1:2744:C:OP2    | 50:F1:4484:HOH:O  | 1.83                     | 0.94              |
| 1:H1:1059:U:C2'    | 1:H1:1060:C:H5''  | 1.96                     | 0.94              |
| 18:DU:171:GLU:O    | 18:DU:174:LYS:HG3 | 1.65                     | 0.94              |
| 22:EA:114:VAL:HG11 | 22:EA:165:ALA:HB1 | 1.48                     | 0.94              |
| 1:F1:452:U:C5'     | 14:FO:56:GLN:HE22 | 1.80                     | 0.94              |
| 1:F1:1642:G:C2'    | 1:F1:1643:G:H5''  | 1.97                     | 0.94              |
| 1:F1:2544:U:H1'    | 7:FG:50:THR:HG21  | 0.97                     | 0.94              |
| 30:GI:196:PHE:CE2  | 6:HF:110:ARG:HD2  | 2.01                     | 0.94              |
| 1:H1:265:A:N6      | 16:HQ:30:ARG:O    | 2.00                     | 0.94              |
| 22:BA:78:ILE:HD11  | 22:BA:129:ARG:HD3 | 1.45                     | 0.94              |
| 23:BB:62:ARG:HG3   | 23:BB:62:ARG:HH11 | 1.33                     | 0.94              |
| 35:CN:158:GLN:OE1  | 50:CN:307:HOH:O   | 1.83                     | 0.94              |
| 1:D1:2408:A:O2'    | 50:D1:4292:HOH:O  | 1.86                     | 0.94              |
| 1:F1:2349:C:N4     | 50:F1:4403:HOH:O  | 1.99                     | 0.94              |
| 1:F1:3182:A:H4'    | 1:F1:3183:A:OP1   | 1.64                     | 0.94              |
| 1:H1:2906:G:H2'    | 1:H1:2907:A:H5''  | 1.48                     | 0.94              |
| 1:A1:1208:U:H5'    | 19:AX:178:ARG:NH2 | 1.81                     | 0.94              |
| 1:D1:2128:C:OP1    | 50:D1:4190:HOH:O  | 1.85                     | 0.94              |
| 1:D1:2365:G:N7     | 50:D1:3989:HOH:O  | 2.00                     | 0.94              |
| 1:F1:2684:A:H5''   | 1:F1:2685:A:OP2   | 1.67                     | 0.94              |
| 11:AL:76:ARG:NH2   | 11:AL:84:HIS:HB3  | 1.82                     | 0.94              |
| 25:BD:26:SER:OG    | 25:BD:63:GLU:OE2  | 1.84                     | 0.94              |
| 29:CH:101:LYS:HB3  | 29:CH:121:LYS:NZ  | 1.83                     | 0.94              |
| 1:D1:3182:A:H4'    | 1:D1:3183:A:OP1   | 1.64                     | 0.94              |
| 8:DH:58:TYR:HD1    | 8:DH:104:LEU:HD21 | 1.31                     | 0.94              |
| 33:EL:182:LYS:HE3  | 1:F1:97:A:O2'     | 1.65                     | 0.94              |
| 38:EQ:34:VAL:HG22  | 38:EQ:60:ILE:HD13 | 1.48                     | 0.94              |
| 38:EQ:99:ASN:O     | 38:EQ:103:ASN:HB2 | 1.66                     | 0.94              |
| 1:F1:971:C:C2'     | 1:F1:972:U:H5'    | 1.97                     | 0.94              |
| 5:FE:54:LEU:O      | 5:FE:59:ARG:HB2   | 1.66                     | 0.94              |
| 37:GP:83:ARG:HH22  | 1:H1:2717:G:C5'   | 1.79                     | 0.94              |
| 38:GQ:33:GLU:OE1   | 38:GQ:62:PHE:HA   | 1.68                     | 0.94              |
| 2:HA:28:HIS:HD2    | 2:HA:31:LYS:H     | 1.14                     | 0.94              |
| 1:A1:905:G:C5'     | 38:BQ:134:ALA:HB2 | 1.98                     | 0.94              |
| 1:A1:2394:A:OP2    | 50:A1:4261:HOH:O  | 1.84                     | 0.94              |
| 7:AG:95:ALA:HB3    | 7:AG:101:LEU:HD11 | 1.47                     | 0.94              |
| 19:AX:188:THR:O    | 19:AX:189:PHE:CG  | 2.19                     | 0.94              |
| 1:D1:2250:A:OP1    | 46:EY:74:PRO:HB3  | 1.66                     | 0.94              |
| 21:E3:21:G:H4'     | 34:EM:277:PHE:CD2 | 2.02                     | 0.94              |
| 7:FG:40:LYS:HG3    | 7:FG:93:LEU:O     | 1.66                     | 0.94              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 8:FH:13:ARG:NH2    | 8:FH:17:LYS:HG2   | 1.83                     | 0.94              |
| 8:FH:49:ALA:O      | 8:FH:52:GLN:HG3   | 1.66                     | 0.94              |
| 1:H1:750:G:C2'     | 1:H1:751:C:H5''   | 1.98                     | 0.94              |
| 1:A1:2273:C:H2'    | 1:A1:2274:A:H5''  | 1.49                     | 0.94              |
| 15:AP:43:LYS:HD3   | 15:AP:52:THR:HG23 | 1.50                     | 0.94              |
| 37:CP:116:LYS:HZ1  | 37:CP:128:THR:HB  | 1.32                     | 0.94              |
| 1:D1:70:C:O2       | 1:D1:70:C:H2'     | 1.68                     | 0.94              |
| 37:EP:83:ARG:HH22  | 1:F1:2717:G:H5''  | 1.28                     | 0.94              |
| 46:EY:7:LYS:HE3    | 1:F1:1950:C:H2'   | 1.49                     | 0.94              |
| 12:FM:61:ASP:OD1   | 12:FM:62:ASP:N    | 2.00                     | 0.94              |
| 15:FP:43:LYS:HD3   | 15:FP:52:THR:HG23 | 1.50                     | 0.94              |
| 33:GL:182:LYS:HE3  | 1:H1:97:A:O2'     | 1.68                     | 0.94              |
| 37:GP:13:LYS:HD2   | 1:H1:1020:G:H3'   | 1.50                     | 0.94              |
| 46:GY:7:LYS:HG3    | 1:H1:1950:C:H3'   | 1.47                     | 0.94              |
| 1:H1:2310:G:OP1    | 50:H1:3958:HOH:O  | 1.83                     | 0.94              |
| 1:H1:3207:A:OP2    | 1:H1:3207:A:H4'   | 1.64                     | 0.94              |
| 1:A1:70:C:H2'      | 1:A1:70:C:O2      | 1.65                     | 0.94              |
| 1:A1:3228:U:C4'    | 1:A1:3229:C:H5'   | 1.98                     | 0.94              |
| 23:BB:162:THR:O    | 23:BB:174:ASN:HB3 | 1.66                     | 0.94              |
| 38:CQ:33:GLU:OE1   | 38:CQ:62:PHE:HA   | 1.67                     | 0.94              |
| 1:D1:842:A:C8      | 2:DA:15:THR:HG23  | 2.03                     | 0.94              |
| 1:D1:1047:G:P      | 13:FN:3:LYS:NZ    | 2.41                     | 0.94              |
| 1:D1:1895:U:H5'    | 50:D1:4214:HOH:O  | 1.66                     | 0.94              |
| 43:EV:12:LYS:HE2   | 1:F1:1376:A:H3'   | 1.46                     | 0.94              |
| 1:F1:70:C:O2       | 1:F1:70:C:H2'     | 1.66                     | 0.94              |
| 1:F1:3227:A:H5''   | 5:FE:57:ARG:NH1   | 1.82                     | 0.94              |
| 23:GB:37:PRO:HA    | 23:GB:184:GLY:HA2 | 1.48                     | 0.94              |
| 35:GN:155:ALA:HB3  | 35:GN:158:GLN:NE2 | 1.83                     | 0.94              |
| 1:A1:2717:G:H5''   | 37:BP:83:ARG:NH2  | 1.80                     | 0.94              |
| 1:A1:2839:A:OP1    | 50:A1:4220:HOH:O  | 1.85                     | 0.94              |
| 46:BY:64:ILE:HD11  | 46:BY:71:LEU:HD11 | 1.46                     | 0.94              |
| 22:CA:114:VAL:HG11 | 22:CA:165:ALA:HB1 | 1.49                     | 0.94              |
| 1:D1:281:G:H5''    | 1:D1:282:G:OP1    | 1.65                     | 0.94              |
| 1:D1:3227:A:H5''   | 5:DE:57:ARG:HH12  | 1.31                     | 0.94              |
| 23:EB:24:HIS:CE1   | 23:EB:28:ARG:HH11 | 1.84                     | 0.94              |
| 1:F1:1101:U:H5'    | 17:FT:49:ASN:HD22 | 1.33                     | 0.94              |
| 1:F1:2639:C:H5'    | 1:F1:2640:G:OP2   | 1.68                     | 0.94              |
| 1:F1:2964:A:N1     | 50:F1:4070:HOH:O  | 2.01                     | 0.94              |
| 1:F1:3228:U:C4'    | 1:F1:3229:C:H5'   | 1.97                     | 0.94              |
| 24:GC:204:ARG:NH1  | 1:H1:1408:U:OP1   | 1.99                     | 0.94              |
| 1:A1:787:U:O2      | 18:AU:179:ARG:NH2 | 2.00                     | 0.94              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 18:AU:60:THR:CG2   | 32:BK:68:ASN:HB3   | 1.97                     | 0.94              |
| 32:BK:122:PRO:HA   | 32:BK:142:GLY:O    | 1.67                     | 0.94              |
| 1:D1:635:A:O2'     | 1:D1:636:U:O5'     | 1.86                     | 0.94              |
| 1:D1:2273:C:H2'    | 1:D1:2274:A:H5''   | 1.50                     | 0.94              |
| 1:D1:2715:C:OP1    | 50:D1:4299:HOH:O   | 1.86                     | 0.94              |
| 24:EC:229:ASN:HD21 | 1:F1:211:A:H3'     | 1.33                     | 0.94              |
| 1:F1:351:A:H4'     | 1:F1:352:G:OP1     | 1.67                     | 0.94              |
| 1:F1:2244:G:H2'    | 1:F1:2245:G:H8     | 1.31                     | 0.94              |
| 20:G2:112:G:H4'    | 20:G2:113:U:OP1    | 1.65                     | 0.94              |
| 30:GI:186:LEU:HD11 | 6:HF:122:SER:HB3   | 1.47                     | 0.94              |
| 8:HH:56:VAL:HG22   | 8:HH:106:VAL:HA    | 1.51                     | 0.94              |
| 12:HM:51:ASN:O     | 12:HM:51:ASN:ND2   | 2.01                     | 0.94              |
| 27:CF:128:GLY:HA2  | 1:D1:146:U:O2'     | 1.68                     | 0.93              |
| 1:D1:3228:U:C4'    | 1:D1:3229:C:H5'    | 1.97                     | 0.93              |
| 5:DE:54:LEU:O      | 5:DE:59:ARG:HB2    | 1.68                     | 0.93              |
| 43:EV:100:LEU:HD21 | 43:EV:127:VAL:HG11 | 1.48                     | 0.93              |
| 22:GA:42:ILE:HD12  | 22:GA:43:ARG:N     | 1.82                     | 0.93              |
| 19:HX:188:THR:O    | 19:HX:189:PHE:CG   | 2.21                     | 0.93              |
| 1:D1:1211:A:P      | 19:DX:171:ARG:HH22 | 1.90                     | 0.93              |
| 18:DU:56:VAL:HG12  | 18:DU:57:ARG:N     | 1.84                     | 0.93              |
| 29:EH:184:LEU:HD22 | 29:EH:189:LYS:HD3  | 1.47                     | 0.93              |
| 1:F1:2693:A:OP2    | 50:F1:4673:HOH:O   | 1.86                     | 0.93              |
| 5:FE:41:LEU:HB3    | 5:FE:45:ILE:HG21   | 1.47                     | 0.93              |
| 18:FU:53:GLN:O     | 18:FU:113:ARG:NH1  | 2.01                     | 0.93              |
| 41:GT:5:THR:HG21   | 41:GT:14:ARG:HG3   | 1.50                     | 0.93              |
| 45:GX:57:ILE:HG13  | 1:H1:972:U:H5''    | 1.47                     | 0.93              |
| 1:H1:2859:G:N7     | 50:H1:4081:HOH:O   | 2.00                     | 0.93              |
| 1:A1:698:G:OP1     | 24:BC:34:ARG:NH1   | 2.00                     | 0.93              |
| 33:EL:93:LYS:HE2   | 1:F1:276:G:H1'     | 1.51                     | 0.93              |
| 1:F1:452:U:H5'     | 14:FO:56:GLN:HE22  | 1.10                     | 0.93              |
| 1:F1:729:A:O2'     | 1:F1:810:G:N2      | 2.01                     | 0.93              |
| 1:F1:1101:U:H5'    | 17:FT:49:ASN:ND2   | 1.83                     | 0.93              |
| 1:F1:2958:C:H4'    | 1:F1:2959:A:N7     | 1.84                     | 0.93              |
| 1:H1:70:C:O2       | 1:H1:70:C:H2'      | 1.65                     | 0.93              |
| 11:HL:41:TYR:HB3   | 11:HL:58:GLN:NE2   | 1.83                     | 0.93              |
| 1:A1:696:A:C2'     | 1:A1:697:A:H5''    | 1.99                     | 0.93              |
| 1:A1:2334:C:H4'    | 1:A1:2335:U:OP1    | 1.69                     | 0.93              |
| 1:A1:2693:A:OP2    | 50:A1:4831:HOH:O   | 1.86                     | 0.93              |
| 7:AG:35:ARG:NH1    | 13:AN:77:LEU:HB2   | 1.83                     | 0.93              |
| 21:C3:83:G:OP1     | 50:C3:303:HOH:O    | 1.86                     | 0.93              |
| 1:D1:904:U:O2'     | 1:D1:905:G:P       | 2.26                     | 0.93              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1840:U:H4'    | 1:F1:1841:A:O5'    | 1.66                     | 0.93              |
| 1:F1:2408:A:N7     | 50:F1:3666:HOH:O   | 2.00                     | 0.93              |
| 1:H1:2353:C:N3     | 50:H1:4085:HOH:O   | 2.02                     | 0.93              |
| 1:A1:114:A:C4'     | 16:AQ:37:ARG:HH22  | 1.82                     | 0.93              |
| 1:D1:282:G:H22     | 1:D1:304:U:C4'     | 1.81                     | 0.93              |
| 1:D1:452:U:H5'     | 14:DO:56:GLN:HE22  | 1.20                     | 0.93              |
| 1:D1:1923:G:O6     | 50:D1:4597:HOH:O   | 1.85                     | 0.93              |
| 1:D1:3109:C:H3'    | 10:DK:111:ARG:HH12 | 1.17                     | 0.93              |
| 12:DM:61:ASP:OD1   | 12:DM:62:ASP:N     | 1.99                     | 0.93              |
| 15:DP:43:LYS:HD3   | 15:DP:52:THR:HG23  | 1.48                     | 0.93              |
| 27:EF:126:LYS:NZ   | 27:EF:194:THR:OG1  | 2.01                     | 0.93              |
| 9:FJ:118:HIS:CE1   | 9:FJ:146:VAL:HB    | 2.04                     | 0.93              |
| 22:GA:114:VAL:HG11 | 22:GA:165:ALA:HB1  | 1.47                     | 0.93              |
| 1:H1:682:G:OP2     | 50:H1:3688:HOH:O   | 1.84                     | 0.93              |
| 1:A1:941:G:C6      | 22:BA:208:VAL:HG21 | 2.02                     | 0.93              |
| 19:AX:30:ILE:HD11  | 37:BP:139:VAL:HG21 | 1.46                     | 0.93              |
| 32:CK:59:GLY:O     | 1:D1:2775:G:H4'    | 1.66                     | 0.93              |
| 43:CV:133:PHE:CZ   | 43:CV:226:ASN:HB3  | 2.03                     | 0.93              |
| 1:D1:1016:U:H2'    | 1:D1:1017:U:H5''   | 1.50                     | 0.93              |
| 1:D1:1863:A:OP1    | 50:D1:4491:HOH:O   | 1.86                     | 0.93              |
| 11:DL:91:ILE:HG12  | 13:DN:144:PHE:CE2  | 2.04                     | 0.93              |
| 19:DX:22:VAL:HG23  | 19:DX:78:ILE:HD11  | 1.49                     | 0.93              |
| 22:EA:218:GLN:O    | 50:EA:302:HOH:O    | 1.84                     | 0.93              |
| 29:EH:7:ARG:NH2    | 1:F1:2816:G:OP1    | 2.02                     | 0.93              |
| 33:EL:93:LYS:NZ    | 1:F1:2589:U:OP1    | 2.02                     | 0.93              |
| 35:EN:90:ASP:OD1   | 35:EN:92:ARG:HG2   | 1.68                     | 0.93              |
| 1:F1:846:C:H2'     | 1:F1:847:G:H5''    | 1.50                     | 0.93              |
| 1:F1:957:U:H4'     | 1:F1:958:A:C5'     | 1.98                     | 0.93              |
| 1:F1:2999:U:O4     | 50:F1:4505:HOH:O   | 1.85                     | 0.93              |
| 9:FJ:187:ASN:HD21  | 9:FJ:207:GLY:HA3   | 1.34                     | 0.93              |
| 15:FP:12:MET:HA    | 15:FP:15:TRP:NE1   | 1.84                     | 0.93              |
| 1:H1:1054:G:H2'    | 1:H1:1055:A:H8     | 1.33                     | 0.93              |
| 1:A1:3277:A:H4'    | 1:A1:3278:U:OP1    | 1.68                     | 0.93              |
| 23:BB:37:PRO:HA    | 23:BB:184:GLY:HA2  | 1.48                     | 0.93              |
| 43:CV:100:LEU:HD21 | 43:CV:127:VAL:HG11 | 1.49                     | 0.93              |
| 45:CX:43:ARG:NH1   | 1:D1:662:C:OP2     | 2.02                     | 0.93              |
| 1:D1:2543:C:H5'    | 1:D1:2544:U:OP2    | 1.69                     | 0.93              |
| 1:F1:281:G:H5''    | 1:F1:282:G:OP1     | 1.69                     | 0.93              |
| 1:F1:2933:G:O2'    | 1:F1:2936:C:OP2    | 1.87                     | 0.93              |
| 22:GA:49:ILE:HD12  | 46:GY:63:ILE:HG22  | 1.50                     | 0.93              |
| 22:GA:210:HIS:HD2  | 22:GA:212:HIS:H    | 0.96                     | 0.93              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:229:ASN:HD21 | 1:H1:211:A:H3'     | 1.30                     | 0.93              |
| 27:GF:232:GLN:NE2  | 1:H1:2573:U:H4'    | 1.84                     | 0.93              |
| 1:H1:2310:G:OP1    | 50:H1:3964:HOH:O   | 1.84                     | 0.93              |
| 8:HH:49:ALA:O      | 8:HH:52:GLN:HG3    | 1.67                     | 0.93              |
| 9:AJ:140:THR:HG22  | 9:AJ:141:THR:H     | 1.31                     | 0.93              |
| 38:BQ:33:GLU:OE1   | 38:BQ:62:PHE:HA    | 1.69                     | 0.93              |
| 32:CK:27:LYS:NZ    | 1:D1:826:A:OP1     | 1.99                     | 0.93              |
| 1:D1:1059:U:C2'    | 1:D1:1060:C:H5''   | 1.98                     | 0.93              |
| 23:EB:111:ASP:O    | 23:EB:114:THR:HG22 | 1.67                     | 0.93              |
| 24:EC:204:ARG:NH1  | 1:F1:1408:U:OP1    | 2.02                     | 0.93              |
| 1:H1:146:U:H4'     | 1:H1:147:U:H5'     | 1.48                     | 0.93              |
| 1:H1:1208:U:H5'    | 19:HX:178:ARG:NH2  | 1.82                     | 0.93              |
| 15:HP:12:MET:HA    | 15:HP:15:TRP:NE1   | 1.84                     | 0.93              |
| 1:A1:1011:U:OP1    | 50:A1:4235:HOH:O   | 1.85                     | 0.93              |
| 1:A1:1016:U:H2'    | 1:A1:1017:U:H5''   | 1.51                     | 0.93              |
| 1:A1:1833:G:O6     | 50:A1:4418:HOH:O   | 1.86                     | 0.93              |
| 1:A1:2390:G:C8     | 50:A1:4062:HOH:O   | 2.22                     | 0.93              |
| 7:AG:13:LYS:HD2    | 7:AG:100:ILE:CD1   | 1.99                     | 0.93              |
| 41:BT:5:THR:HG21   | 41:BT:14:ARG:HG3   | 1.51                     | 0.93              |
| 23:CB:62:ARG:HG3   | 23:CB:62:ARG:HH11  | 1.34                     | 0.93              |
| 1:D1:2651:A:N7     | 50:D1:5039:HOH:O   | 2.00                     | 0.93              |
| 24:EC:65:MET:HE3   | 24:EC:105:ARG:HD3  | 1.51                     | 0.93              |
| 33:EL:14:LYS:NZ    | 1:F1:268:G:H5''    | 1.84                     | 0.93              |
| 37:GP:83:ARG:HH22  | 1:H1:2717:G:H5''   | 1.28                     | 0.93              |
| 5:HE:41:LEU:HB3    | 5:HE:45:ILE:HG21   | 1.47                     | 0.93              |
| 1:A1:146:U:H4'     | 1:A1:147:U:H5'     | 1.48                     | 0.93              |
| 1:A1:332:G:H2'     | 1:A1:333:G:H5''    | 1.49                     | 0.93              |
| 19:AX:175:LYS:HZ2  | 19:AX:178:ARG:HH11 | 1.12                     | 0.93              |
| 37:CP:83:ARG:NH2   | 1:D1:2717:G:H5''   | 1.84                     | 0.93              |
| 44:CW:65:ASN:OD1   | 1:D1:3047:U:H5     | 1.51                     | 0.93              |
| 22:EA:42:ILE:HD12  | 22:EA:43:ARG:N     | 1.84                     | 0.93              |
| 1:H1:1376:A:H5''   | 1:H1:1377:A:C5'    | 1.98                     | 0.93              |
| 1:H1:3227:A:H5''   | 5:HE:57:ARG:HH12   | 1.32                     | 0.93              |
| 1:A1:268:G:H5''    | 33:BL:14:LYS:HZ1   | 1.28                     | 0.92              |
| 1:A1:2573:U:C4'    | 27:BF:232:GLN:HE22 | 1.81                     | 0.92              |
| 1:D1:1710:U:OP1    | 12:DM:44:LYS:NZ    | 2.02                     | 0.92              |
| 1:F1:443:G:OP1     | 5:FE:16:SER:OG     | 1.86                     | 0.92              |
| 1:F1:2518:A:H4'    | 1:F1:2519:A:OP2    | 1.69                     | 0.92              |
| 8:FH:58:TYR:HD1    | 8:FH:104:LEU:HD21  | 1.33                     | 0.92              |
| 26:GE:1:MET:HG3    | 26:GE:2:ARG:N      | 1.73                     | 0.92              |
| 32:GK:59:GLY:O     | 1:H1:2775:G:H4'    | 1.68                     | 0.92              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:H1:3167:U:H4'    | 1:H1:3168:A:O5'   | 1.65                     | 0.92              |
| 9:HJ:160:LEU:HG    | 9:HJ:193:ILE:HD13 | 1.51                     | 0.92              |
| 20:B2:147:G:H21    | 27:BF:54:GLN:HE22 | 1.14                     | 0.92              |
| 26:BE:124:ILE:HD13 | 26:BE:159:ILE:HA  | 1.49                     | 0.92              |
| 24:CC:119:ARG:NH2  | 1:D1:704:G:O2'    | 2.02                     | 0.92              |
| 1:D1:455:G:OP2     | 14:DO:92:LYS:NZ   | 2.00                     | 0.92              |
| 23:EB:16:PHE:CD2   | 23:EB:273:ARG:NH1 | 2.37                     | 0.92              |
| 2:FA:28:HIS:HD2    | 2:FA:31:LYS:H     | 1.13                     | 0.92              |
| 32:GK:68:ASN:HB3   | 18:HU:60:THR:HG23 | 1.51                     | 0.92              |
| 1:H1:2958:C:H4'    | 1:H1:2959:A:N7    | 1.83                     | 0.92              |
| 1:A1:729:A:O2'     | 1:A1:810:G:N2     | 2.03                     | 0.92              |
| 1:A1:1308:U:H4'    | 28:BG:58:UNK:HA   | 1.51                     | 0.92              |
| 37:CP:83:ARG:HH22  | 1:D1:2717:G:H5''  | 1.33                     | 0.92              |
| 31:EJ:51:SER:OG    | 50:EJ:303:HOH:O   | 1.56                     | 0.92              |
| 1:F1:3230:G:N7     | 5:FE:119:ARG:NH1  | 2.17                     | 0.92              |
| 23:GB:162:THR:HG21 | 23:GB:175:HIS:HD2 | 1.30                     | 0.92              |
| 1:H1:452:U:H5'     | 14:HO:56:GLN:HE22 | 1.21                     | 0.92              |
| 1:H1:1642:G:C2'    | 1:H1:1643:G:H5''  | 1.99                     | 0.92              |
| 1:H1:3228:U:C4'    | 1:H1:3229:C:H5'   | 1.98                     | 0.92              |
| 1:A1:1376:A:H5''   | 1:A1:1377:A:C5'   | 1.98                     | 0.92              |
| 1:A1:1408:U:OP1    | 24:BC:204:ARG:NH1 | 2.01                     | 0.92              |
| 23:BB:95:THR:HG23  | 23:BB:98:GLY:O    | 1.69                     | 0.92              |
| 23:CB:16:PHE:CD2   | 23:CB:273:ARG:NH1 | 2.36                     | 0.92              |
| 28:CG:8:UNK:HG3    | 1:D1:1248:G:N2    | 1.84                     | 0.92              |
| 1:D1:2899:C:H5''   | 1:D1:2900:G:OP1   | 1.68                     | 0.92              |
| 11:DL:41:TYR:HB3   | 11:DL:58:GLN:NE2  | 1.84                     | 0.92              |
| 19:DX:158:ASN:HD21 | 19:DX:160:ALA:HB3 | 1.34                     | 0.92              |
| 22:EA:210:HIS:HD2  | 22:EA:212:HIS:H   | 0.98                     | 0.92              |
| 1:F1:332:G:H2'     | 1:F1:333:G:H5''   | 1.50                     | 0.92              |
| 1:F1:504:A:HO2'    | 1:F1:505:A:H8     | 0.95                     | 0.92              |
| 1:F1:624:G:O2'     | 1:F1:625:C:O5'    | 1.86                     | 0.92              |
| 24:GC:70:GLU:O     | 24:GC:82:PRO:HA   | 1.69                     | 0.92              |
| 32:GK:27:LYS:NZ    | 1:H1:826:A:OP1    | 2.02                     | 0.92              |
| 1:H1:696:A:C2'     | 1:H1:697:A:H5''   | 1.99                     | 0.92              |
| 23:CB:24:HIS:CE1   | 23:CB:28:ARG:HH11 | 1.87                     | 0.92              |
| 27:CF:196:VAL:HG13 | 27:CF:200:ASP:HB2 | 1.52                     | 0.92              |
| 41:CT:5:THR:HG21   | 41:CT:14:ARG:HG3  | 1.51                     | 0.92              |
| 1:D1:548:G:H22     | 1:D1:619:G:N2     | 1.68                     | 0.92              |
| 1:D1:2251:A:H1'    | 46:EY:74:PRO:HB2  | 1.51                     | 0.92              |
| 27:EF:232:GLN:NE2  | 1:F1:2573:U:H4'   | 1.85                     | 0.92              |
| 7:FG:74:ASN:HB3    | 7:FG:86:ARG:HB2   | 1.52                     | 0.92              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:GC:167:GLU:H    | 24:GC:171:GLN:NE2 | 1.67                     | 0.92              |
| 24:GC:242:ASN:HD21 | 1:H1:718:A:H4'    | 1.35                     | 0.92              |
| 46:GY:2:ALA:N      | 1:H1:877:U:O4     | 2.03                     | 0.92              |
| 1:H1:624:G:O2'     | 1:H1:625:C:O5'    | 1.88                     | 0.92              |
| 5:HE:54:LEU:O      | 5:HE:59:ARG:HB2   | 1.70                     | 0.92              |
| 1:A1:504:A:HO2'    | 1:A1:505:A:H8     | 0.95                     | 0.92              |
| 1:A1:2543:C:H5'    | 1:A1:2544:U:OP2   | 1.70                     | 0.92              |
| 23:BB:114:THR:CB   | 23:BB:161:HIS:HE2 | 1.79                     | 0.92              |
| 29:BH:101:LYS:HB3  | 29:BH:121:LYS:NZ  | 1.83                     | 0.92              |
| 46:CY:7:LYS:HE3    | 1:D1:1950:C:H2'   | 1.51                     | 0.92              |
| 1:D1:1617:G:O2'    | 1:D1:1618:A:OP1   | 1.88                     | 0.92              |
| 1:D1:2958:C:H4'    | 1:D1:2959:A:N7    | 1.84                     | 0.92              |
| 9:DJ:187:ASN:HD21  | 9:DJ:207:GLY:HA3  | 1.35                     | 0.92              |
| 23:EB:162:THR:HG21 | 23:EB:175:HIS:HD2 | 1.35                     | 0.92              |
| 1:F1:696:A:C2'     | 1:F1:697:A:H5''   | 2.00                     | 0.92              |
| 1:F1:1868:C:OP2    | 50:F1:4255:HOH:O  | 1.86                     | 0.92              |
| 32:GK:122:PRO:HA   | 32:GK:142:GLY:O   | 1.69                     | 0.92              |
| 46:GY:15:GLY:O     | 46:GY:23:ARG:NH1  | 2.02                     | 0.92              |
| 2:HA:44:MET:HA     | 2:HA:44:MET:HE2   | 1.49                     | 0.92              |
| 21:B3:83:G:H1      | 21:B3:93:G:H22    | 1.15                     | 0.92              |
| 22:BA:42:ILE:HD12  | 22:BA:43:ARG:N    | 1.84                     | 0.92              |
| 23:BB:282:ARG:NH1  | 23:BB:291:ASN:O   | 2.03                     | 0.92              |
| 34:BM:32:ALA:HB2   | 50:BM:401:HOH:O   | 1.66                     | 0.92              |
| 1:D1:114:A:H4'     | 16:DQ:37:ARG:HH22 | 1.34                     | 0.92              |
| 1:D1:1054:G:H2'    | 1:D1:1055:A:H8    | 1.31                     | 0.92              |
| 1:D1:3067:A:O2'    | 1:D1:3068:U:OP1   | 1.86                     | 0.92              |
| 8:DH:54:LYS:HA     | 8:DH:110:PRO:CG   | 1.98                     | 0.92              |
| 1:F1:3067:A:O2'    | 1:F1:3068:U:OP1   | 1.88                     | 0.92              |
| 11:FL:41:TYR:HB3   | 11:FL:58:GLN:NE2  | 1.85                     | 0.92              |
| 20:G2:39:G:C2      | 42:GU:90:ARG:NH1  | 2.38                     | 0.92              |
| 23:GB:62:ARG:HG3   | 23:GB:62:ARG:HH11 | 1.31                     | 0.92              |
| 25:GD:65:MET:HE1   | 1:H1:2670:U:C4'   | 2.00                     | 0.92              |
| 1:A1:1513:A:OP2    | 50:A1:4370:HOH:O  | 1.87                     | 0.92              |
| 27:BF:126:LYS:NZ   | 27:BF:194:THR:OG1 | 2.02                     | 0.92              |
| 24:CC:319:ARG:NH1  | 1:D1:620:A:N7     | 2.18                     | 0.92              |
| 1:D1:1504:C:OP2    | 50:D1:4216:HOH:O  | 1.87                     | 0.92              |
| 2:DA:44:MET:HE2    | 2:DA:44:MET:HA    | 1.52                     | 0.92              |
| 23:EB:162:THR:O    | 23:EB:174:ASN:HB3 | 1.70                     | 0.92              |
| 1:F1:1469:G:N7     | 50:F1:3836:HOH:O  | 2.02                     | 0.92              |
| 1:H1:1027:G:O2'    | 1:H1:1028:A:OP2   | 1.88                     | 0.92              |
| 1:A1:280:G:O6      | 33:BL:182:LYS:NZ  | 2.02                     | 0.92              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:282:G:H22     | 1:A1:304:U:C4'     | 1.81                     | 0.92              |
| 1:A1:351:A:H4'     | 1:A1:352:G:OP1     | 1.70                     | 0.92              |
| 1:A1:2330:G:OP2    | 50:A1:4464:HOH:O   | 1.87                     | 0.92              |
| 1:A1:2908:U:H5''   | 50:A1:4501:HOH:O   | 1.70                     | 0.92              |
| 1:A1:2958:C:H4'    | 1:A1:2959:A:N7     | 1.84                     | 0.92              |
| 18:AU:56:VAL:HG12  | 18:AU:57:ARG:N     | 1.82                     | 0.92              |
| 21:C3:46:C:OP1     | 34:CM:158:ARG:HG3  | 1.69                     | 0.92              |
| 23:CB:282:ARG:NH1  | 23:CB:291:ASN:O    | 2.03                     | 0.92              |
| 29:CH:159:PHE:HB3  | 29:CH:163:GLN:NE2  | 1.83                     | 0.92              |
| 34:CM:176:SER:O    | 34:CM:177:GLU:HG2  | 1.69                     | 0.92              |
| 45:CX:69:LEU:HD11  | 45:CX:75:LYS:HG3   | 1.52                     | 0.92              |
| 7:DG:95:ALA:HB3    | 7:DG:101:LEU:HD11  | 1.52                     | 0.92              |
| 25:ED:82:ARG:HB3   | 25:ED:112:LEU:HD22 | 1.52                     | 0.92              |
| 33:GL:93:LYS:NZ    | 1:H1:2589:U:OP1    | 2.02                     | 0.92              |
| 23:BB:162:THR:HG21 | 23:BB:175:HIS:HD2  | 1.35                     | 0.92              |
| 20:C2:85:C:H4'     | 20:C2:85:C:OP1     | 1.69                     | 0.92              |
| 24:CC:65:MET:HE3   | 24:CC:105:ARG:HD3  | 1.50                     | 0.92              |
| 1:D1:321:U:OP2     | 50:D1:3751:HOH:O   | 1.86                     | 0.92              |
| 1:D1:978:G:OP1     | 17:DT:12:GLN:NE2   | 2.03                     | 0.92              |
| 1:D1:1443:G:O6     | 50:D1:3900:HOH:O   | 1.86                     | 0.92              |
| 1:F1:672:C:O2'     | 50:F1:3819:HOH:O   | 1.78                     | 0.92              |
| 1:F1:2217:C:H4'    | 1:F1:2218:A:OP2    | 1.69                     | 0.92              |
| 2:FA:64:ARG:HA     | 50:FA:204:HOH:O    | 1.69                     | 0.92              |
| 23:GB:24:HIS:CE1   | 23:GB:28:ARG:HH11  | 1.87                     | 0.92              |
| 37:GP:83:ARG:NH2   | 1:H1:2717:G:H5''   | 1.85                     | 0.92              |
| 1:A1:795:G:HO2'    | 1:A1:796:A:H8      | 0.95                     | 0.91              |
| 1:A1:1183:C:OP1    | 50:A1:3941:HOH:O   | 1.85                     | 0.91              |
| 1:A1:1973:A:OP1    | 36:BO:104:ARG:NH1  | 2.03                     | 0.91              |
| 22:CA:205:MET:HG2  | 1:D1:939:A:C2      | 2.06                     | 0.91              |
| 30:CI:159:ARG:HD2  | 30:CI:162:ARG:NH2  | 1.85                     | 0.91              |
| 1:D1:1840:U:H4'    | 1:D1:1841:A:O5'    | 1.67                     | 0.91              |
| 4:DC:66:VAL:HG11   | 4:DC:89:ILE:HD11   | 0.97                     | 0.91              |
| 45:EX:42:ASN:ND2   | 45:EX:45:ARG:H     | 1.67                     | 0.91              |
| 1:F1:1752:G:H5'    | 1:F1:1754:G:H5''   | 1.50                     | 0.91              |
| 1:F1:2307:A:H3'    | 50:F1:4378:HOH:O   | 1.68                     | 0.91              |
| 45:GX:6:VAL:HG12   | 45:GX:7:ALA:H      | 1.35                     | 0.91              |
| 1:H1:635:A:O2'     | 1:H1:636:U:O5'     | 1.87                     | 0.91              |
| 1:H1:672:C:O2'     | 50:H1:3762:HOH:O   | 1.79                     | 0.91              |
| 1:A1:978:G:OP1     | 17:AT:12:GLN:NE2   | 2.02                     | 0.91              |
| 1:A1:1101:U:H5'    | 17:AT:49:ASN:ND2   | 1.84                     | 0.91              |
| 1:A1:2716:A:O3'    | 1:A1:2717:G:H4'    | 1.70                     | 0.91              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:AN:122:TYR:CE2  | 27:BF:21:LEU:HD21  | 2.04                     | 0.91              |
| 21:B3:1:G:N3       | 34:BM:274:HIS:NE2  | 2.17                     | 0.91              |
| 44:BW:43:MET:HA    | 44:BW:43:MET:HE2   | 1.51                     | 0.91              |
| 2:DA:28:HIS:HD2    | 2:DA:31:LYS:H      | 1.17                     | 0.91              |
| 25:ED:26:SER:OG    | 25:ED:63:GLU:OE2   | 1.87                     | 0.91              |
| 1:F1:1026:C:O2'    | 1:F1:1027:G:OP2    | 1.89                     | 0.91              |
| 23:GB:16:PHE:CD2   | 23:GB:273:ARG:NH1  | 2.38                     | 0.91              |
| 23:GB:95:THR:HG23  | 23:GB:98:GLY:O     | 1.69                     | 0.91              |
| 25:GD:26:SER:OG    | 25:GD:63:GLU:OE2   | 1.87                     | 0.91              |
| 27:GF:121:LYS:HD3  | 1:H1:118:A:N7      | 1.85                     | 0.91              |
| 34:GM:106:ALA:HA   | 34:GM:171:ILE:HD11 | 1.50                     | 0.91              |
| 1:H1:1101:U:H5'    | 17:HT:49:ASN:HD22  | 1.32                     | 0.91              |
| 1:H1:2519:A:H2'    | 1:H1:2520:G:H8     | 1.35                     | 0.91              |
| 14:HO:75:THR:HG22  | 14:HO:77:GLU:H     | 1.34                     | 0.91              |
| 6:AF:107:ASP:O     | 6:AF:111:VAL:HG23  | 1.70                     | 0.91              |
| 1:F1:115:G:H4'     | 1:F1:116:U:OP1     | 1.70                     | 0.91              |
| 1:F1:795:G:HO2'    | 1:F1:796:A:H8      | 0.94                     | 0.91              |
| 45:GX:69:LEU:HD11  | 45:GX:75:LYS:HG3   | 1.50                     | 0.91              |
| 1:H1:2575:G:H4'    | 1:H1:2576:C:OP2    | 1.71                     | 0.91              |
| 5:HE:42:ARG:O      | 5:HE:45:ILE:HG22   | 1.70                     | 0.91              |
| 15:AP:12:MET:HA    | 15:AP:15:TRP:NE1   | 1.84                     | 0.91              |
| 1:D1:624:G:O2'     | 1:D1:625:C:O5'     | 1.88                     | 0.91              |
| 1:D1:696:A:C2'     | 1:D1:697:A:H5''    | 2.00                     | 0.91              |
| 1:D1:2933:G:O2'    | 1:D1:2936:C:OP2    | 1.88                     | 0.91              |
| 23:EB:62:ARG:HG3   | 23:EB:62:ARG:HH11  | 1.33                     | 0.91              |
| 33:EL:2:GLY:N      | 16:FQ:37:ARG:NH2   | 2.18                     | 0.91              |
| 1:F1:635:A:O2'     | 1:F1:636:U:O5'     | 1.87                     | 0.91              |
| 1:A1:2933:G:O2'    | 1:A1:2936:C:OP2    | 1.88                     | 0.91              |
| 1:A1:3227:A:H5''   | 5:AE:57:ARG:HH12   | 1.36                     | 0.91              |
| 13:AN:130:LYS:CG   | 1:H1:2664:C:OP1    | 2.15                     | 0.91              |
| 37:BP:116:LYS:HZ1  | 37:BP:128:THR:HB   | 1.33                     | 0.91              |
| 45:BX:80:ASN:HB2   | 45:BX:81:PRO:HD2   | 1.53                     | 0.91              |
| 33:CL:55:ASN:OD1   | 50:CL:403:HOH:O    | 1.86                     | 0.91              |
| 1:D1:2519:A:H2'    | 1:D1:2520:G:H8     | 1.36                     | 0.91              |
| 24:EC:82:PRO:HB2   | 24:EC:96:ALA:HB3   | 1.51                     | 0.91              |
| 27:EF:232:GLN:HE22 | 1:F1:2573:U:C4'    | 1.82                     | 0.91              |
| 5:FE:41:LEU:HG     | 5:FE:68:GLN:OE1    | 1.71                     | 0.91              |
| 19:AX:188:THR:O    | 19:AX:189:PHE:CD2  | 2.24                     | 0.91              |
| 45:BX:42:ASN:ND2   | 45:BX:45:ARG:H     | 1.68                     | 0.91              |
| 1:D1:979:U:H1'     | 17:DT:12:GLN:NE2   | 1.84                     | 0.91              |
| 1:D1:1507:A:O2'    | 1:D1:1882:A:H2'    | 1.70                     | 0.91              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2693:A:OP2    | 50:D1:5038:HOH:O   | 1.87                     | 0.91              |
| 5:DE:42:ARG:O      | 5:DE:45:ILE:HG22   | 1.70                     | 0.91              |
| 34:EM:176:SER:O    | 34:EM:177:GLU:HG2  | 1.70                     | 0.91              |
| 1:F1:2932:U:H5''   | 1:F1:2933:G:OP2    | 1.71                     | 0.91              |
| 9:FJ:140:THR:HG22  | 9:FJ:141:THR:H     | 1.34                     | 0.91              |
| 11:FL:91:ILE:HG12  | 13:FN:144:PHE:HE2  | 1.34                     | 0.91              |
| 23:GB:118:PHE:HE2  | 1:H1:2989:G:H21    | 1.16                     | 0.91              |
| 28:GG:8:UNK:HG2    | 1:H1:1248:G:N2     | 1.83                     | 0.91              |
| 8:HH:54:LYS:HA     | 8:HH:110:PRO:CG    | 2.00                     | 0.91              |
| 1:A1:805:A:H4'     | 1:A1:806:G:OP2     | 1.69                     | 0.91              |
| 1:A1:1376:A:H3'    | 43:BV:12:LYS:CE    | 1.99                     | 0.91              |
| 24:CC:167:GLU:H    | 24:CC:171:GLN:NE2  | 1.69                     | 0.91              |
| 1:D1:1247:C:H5''   | 1:D1:1248:G:H5''   | 1.52                     | 0.91              |
| 1:D1:2309:U:OP2    | 50:D1:4290:HOH:O   | 1.87                     | 0.91              |
| 1:D1:2348:G:N7     | 50:D1:4693:HOH:O   | 2.02                     | 0.91              |
| 12:DM:51:ASN:O     | 12:DM:51:ASN:ND2   | 2.03                     | 0.91              |
| 1:F1:842:A:C8      | 2:FA:15:THR:HG23   | 2.05                     | 0.91              |
| 1:F1:3277:A:H4'    | 1:F1:3278:U:OP1    | 1.69                     | 0.91              |
| 5:FE:102:VAL:HG22  | 5:FE:170:LEU:HD21  | 1.52                     | 0.91              |
| 20:G2:74:A:N6      | 20:G2:88:G:H1'     | 1.85                     | 0.91              |
| 1:H1:2932:U:H5''   | 1:H1:2933:G:OP2    | 1.71                     | 0.91              |
| 1:H1:3176:A:H4'    | 1:H1:3177:G:C5'    | 2.00                     | 0.91              |
| 1:A1:2217:C:H4'    | 1:A1:2218:A:OP2    | 1.70                     | 0.91              |
| 1:A1:2544:U:H1'    | 7:AG:50:THR:CG2    | 1.98                     | 0.91              |
| 21:C3:26:C:OP1     | 34:CM:56:THR:HG21  | 1.69                     | 0.91              |
| 42:CU:34:ILE:HA    | 42:CU:37:ILE:HD12  | 1.53                     | 0.91              |
| 1:D1:1505:C:OP1    | 50:D1:4224:HOH:O   | 1.86                     | 0.91              |
| 18:DU:53:GLN:O     | 18:DU:113:ARG:NH1  | 2.02                     | 0.91              |
| 1:F1:55:A:OP2      | 50:F1:3616:HOH:O   | 1.86                     | 0.91              |
| 8:FH:54:LYS:HA     | 8:FH:110:PRO:CG    | 2.00                     | 0.91              |
| 34:GM:163:LEU:HD21 | 34:GM:175:HIS:CG   | 2.05                     | 0.91              |
| 19:AX:158:ASN:HD21 | 19:AX:160:ALA:HB3  | 1.34                     | 0.91              |
| 23:BB:111:ASP:O    | 23:BB:114:THR:HG22 | 1.69                     | 0.91              |
| 33:CL:93:LYS:HE2   | 1:D1:276:G:H1'     | 1.53                     | 0.91              |
| 1:D1:750:G:C2'     | 1:D1:751:C:H5''    | 1.99                     | 0.91              |
| 31:EJ:10:GLN:HG3   | 31:EJ:129:ILE:CG2  | 2.00                     | 0.91              |
| 1:F1:622:G:H4'     | 1:F1:623:G:OP1     | 1.69                     | 0.91              |
| 19:FX:175:LYS:HZ2  | 19:FX:178:ARG:HH11 | 1.09                     | 0.91              |
| 27:GF:232:GLN:HE22 | 1:H1:2573:U:C4'    | 1.84                     | 0.91              |
| 1:H1:979:U:H1'     | 17:HT:12:GLN:HE21  | 1.32                     | 0.91              |
| 1:H1:1881:C:H5''   | 1:H1:1882:A:OP2    | 1.70                     | 0.91              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:HE:41:LEU:HG     | 5:HE:68:GLN:OE1    | 1.70                     | 0.91              |
| 7:HG:95:ALA:HB3    | 7:HG:101:LEU:HD11  | 1.53                     | 0.91              |
| 1:A1:219:A:C2      | 1:A1:1416:U:H2'    | 2.06                     | 0.91              |
| 1:A1:560:A:H2'     | 1:A1:561:A:C8      | 2.05                     | 0.91              |
| 1:A1:1533:G:H22    | 38:BQ:131:THR:HG23 | 1.36                     | 0.91              |
| 26:BE:29:GLY:H     | 26:BE:82:VAL:HG11  | 1.34                     | 0.91              |
| 20:C2:4:A:OP1      | 50:C2:332:HOH:O    | 1.88                     | 0.91              |
| 1:D1:591:G:O6      | 50:D1:4914:HOH:O   | 1.88                     | 0.91              |
| 1:D1:1360:C:H2'    | 1:D1:1361:U:H5''   | 1.52                     | 0.91              |
| 22:EA:207:PRO:O    | 50:EA:301:HOH:O    | 1.89                     | 0.91              |
| 43:EV:162:ASP:OD1  | 43:EV:164:THR:N    | 2.02                     | 0.91              |
| 1:F1:805:A:H4'     | 1:F1:806:G:OP2     | 1.71                     | 0.91              |
| 1:F1:2267:G:H4'    | 1:F1:2268:G:OP1    | 1.71                     | 0.91              |
| 9:FJ:93:ARG:NH2    | 9:HJ:93:ARG:HG3    | 1.85                     | 0.91              |
| 1:H1:2933:G:O2'    | 1:H1:2936:C:OP2    | 1.89                     | 0.91              |
| 1:A1:276:G:H1'     | 33:BL:93:LYS:HE2   | 1.51                     | 0.90              |
| 1:A1:711:U:H3      | 1:A1:718:A:H61     | 1.18                     | 0.90              |
| 1:A1:939:A:C2      | 22:BA:205:MET:HG2  | 2.06                     | 0.90              |
| 22:BA:71:LYS:HE3   | 22:BA:73:ASN:OD1   | 1.71                     | 0.90              |
| 21:C3:83:G:H1      | 21:C3:93:G:H22     | 1.18                     | 0.90              |
| 28:CG:15:UNK:HG3   | 28:CG:65:UNK:CA    | 2.01                     | 0.90              |
| 1:D1:332:G:H2'     | 1:D1:333:G:H5''    | 1.50                     | 0.90              |
| 1:D1:439:A:N6      | 1:D1:538:A:C2      | 2.39                     | 0.90              |
| 1:D1:2347:A:N7     | 50:D1:4690:HOH:O   | 2.02                     | 0.90              |
| 42:EU:123:LYS:HZ3  | 18:FU:144:SER:HB2  | 1.32                     | 0.90              |
| 45:GX:79:ARG:HH12  | 1:H1:1448:G:C4'    | 1.84                     | 0.90              |
| 7:HG:74:ASN:HB3    | 7:HG:86:ARG:HB2    | 1.53                     | 0.90              |
| 1:A1:1063:C:O3'    | 34:BM:5:LYS:HD3    | 1.71                     | 0.90              |
| 1:A1:1642:G:C2'    | 1:A1:1643:G:H5''   | 1.99                     | 0.90              |
| 5:AE:54:LEU:O      | 5:AE:59:ARG:HB2    | 1.72                     | 0.90              |
| 46:BY:32:THR:HG22  | 46:BY:69:TRP:O     | 1.69                     | 0.90              |
| 32:CK:68:ASN:HB3   | 18:DU:60:THR:HG23  | 1.54                     | 0.90              |
| 43:CV:162:ASP:OD1  | 43:CV:164:THR:N    | 2.03                     | 0.90              |
| 1:D1:2518:A:H4'    | 1:D1:2519:A:OP2    | 1.70                     | 0.90              |
| 27:EF:36:GLN:HG3   | 27:EF:37:PRO:HD2   | 1.53                     | 0.90              |
| 18:FU:56:VAL:HG12  | 18:FU:57:ARG:N     | 1.85                     | 0.90              |
| 27:GF:196:VAL:HG13 | 27:GF:200:ASP:HB2  | 1.53                     | 0.90              |
| 1:H1:2243:C:O2'    | 1:H1:2268:G:N7     | 2.04                     | 0.90              |
| 1:A1:2666:G:O6     | 1:A1:2669:A:N6     | 2.04                     | 0.90              |
| 12:AM:51:ASN:ND2   | 12:AM:51:ASN:O     | 2.05                     | 0.90              |
| 20:B2:39:G:C2      | 42:BU:90:ARG:NH1   | 2.40                     | 0.90              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:BA:114:VAL:HG11 | 22:BA:165:ALA:HB1  | 1.52                     | 0.90              |
| 28:BG:15:UNK:HG3   | 28:BG:65:UNK:CA    | 2.00                     | 0.90              |
| 46:CY:28:LYS:NZ    | 1:F1:2252:C:P      | 2.43                     | 0.90              |
| 1:D1:560:A:H2'     | 1:D1:561:A:C8      | 2.05                     | 0.90              |
| 1:D1:846:C:H2'     | 1:D1:847:G:H5''    | 1.52                     | 0.90              |
| 7:DG:38:THR:HG22   | 7:DG:93:LEU:HD22   | 1.53                     | 0.90              |
| 1:F1:1957:A:OP2    | 50:F1:4373:HOH:O   | 1.88                     | 0.90              |
| 7:FG:38:THR:HG22   | 7:FG:93:LEU:HD22   | 1.53                     | 0.90              |
| 1:H1:560:A:H2'     | 1:H1:561:A:C8      | 2.07                     | 0.90              |
| 9:HJ:187:ASN:HD21  | 9:HJ:207:GLY:HA3   | 1.37                     | 0.90              |
| 43:BV:162:ASP:OD1  | 43:BV:164:THR:N    | 2.03                     | 0.90              |
| 35:CN:90:ASP:OD1   | 35:CN:92:ARG:HG2   | 1.70                     | 0.90              |
| 8:DH:49:ALA:O      | 8:DH:52:GLN:HG3    | 1.71                     | 0.90              |
| 24:EC:290:LEU:HD21 | 35:EN:30:LEU:HD13  | 1.53                     | 0.90              |
| 43:EV:12:LYS:CE    | 1:F1:1376:A:H3'    | 2.01                     | 0.90              |
| 1:F1:2390:G:N7     | 50:F1:3945:HOH:O   | 2.03                     | 0.90              |
| 1:F1:2519:A:H2'    | 1:F1:2520:G:H8     | 1.35                     | 0.90              |
| 24:GC:65:MET:CE    | 24:GC:97:PHE:HB2   | 2.01                     | 0.90              |
| 24:GC:242:ASN:HD21 | 1:H1:718:A:C4'     | 1.84                     | 0.90              |
| 30:GI:53:PHE:CE2   | 30:GI:144:VAL:HG11 | 2.06                     | 0.90              |
| 1:H1:895:A:OP1     | 50:H1:3902:HOH:O   | 1.89                     | 0.90              |
| 1:A1:115:G:H4'     | 1:A1:116:U:OP1     | 1.69                     | 0.90              |
| 1:A1:2518:A:H4'    | 1:A1:2519:A:OP2    | 1.70                     | 0.90              |
| 1:A1:2932:U:H5''   | 1:A1:2933:G:OP2    | 1.71                     | 0.90              |
| 35:BN:90:ASP:OD1   | 35:BN:92:ARG:HG2   | 1.71                     | 0.90              |
| 1:D1:1346:G:O6     | 50:D1:4383:HOH:O   | 1.89                     | 0.90              |
| 1:F1:978:G:OP1     | 17:FT:12:GLN:NE2   | 2.02                     | 0.90              |
| 1:F1:1445:G:C2'    | 1:F1:1446:C:H5''   | 2.00                     | 0.90              |
| 1:F1:3176:A:H4'    | 1:F1:3177:G:C5'    | 2.01                     | 0.90              |
| 24:GC:107:PHE:HE1  | 1:H1:827:C:HO2'    | 1.18                     | 0.90              |
| 34:GM:6:VAL:HG12   | 1:H1:1065:U:OP1    | 1.71                     | 0.90              |
| 42:GU:123:LYS:NZ   | 18:HU:144:SER:HB2  | 1.87                     | 0.90              |
| 43:GV:162:ASP:OD1  | 43:GV:164:THR:N    | 2.03                     | 0.90              |
| 1:H1:1016:U:H2'    | 1:H1:1017:U:H5''   | 1.52                     | 0.90              |
| 1:H1:2518:A:H4'    | 1:H1:2519:A:OP2    | 1.69                     | 0.90              |
| 1:A1:2239:A:O4'    | 22:BA:244:THR:HG21 | 1.71                     | 0.90              |
| 8:AH:49:ALA:O      | 8:AH:52:GLN:HG3    | 1.70                     | 0.90              |
| 23:CB:162:THR:HG21 | 23:CB:175:HIS:HD2  | 1.35                     | 0.90              |
| 1:D1:707:A:P       | 50:D1:4794:HOH:O   | 2.30                     | 0.90              |
| 9:DJ:140:THR:HG22  | 9:DJ:141:THR:H     | 1.37                     | 0.90              |
| 6:FF:107:ASP:O     | 6:FF:111:VAL:HG23  | 1.72                     | 0.90              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:GE:23:ARG:HG3   | 1:H1:3169:A:OP1    | 1.70                     | 0.90              |
| 39:GR:35:VAL:CG1   | 1:H1:2518:A:H3'    | 2.01                     | 0.90              |
| 1:H1:1247:C:H5''   | 1:H1:1248:G:H5''   | 1.53                     | 0.90              |
| 1:H1:2275:A:OP1    | 50:H1:4206:HOH:O   | 1.89                     | 0.90              |
| 1:A1:2899:C:H5''   | 1:A1:2900:G:OP1    | 1.72                     | 0.90              |
| 27:BF:196:VAL:HG13 | 27:BF:200:ASP:HB2  | 1.51                     | 0.90              |
| 1:D1:1445:G:C2'    | 1:D1:1446:C:H5''   | 2.00                     | 0.90              |
| 5:DE:41:LEU:HG     | 5:DE:68:GLN:OE1    | 1.69                     | 0.90              |
| 22:EA:205:MET:HG2  | 1:F1:939:A:C2      | 2.06                     | 0.90              |
| 1:F1:750:G:C2'     | 1:F1:751:C:H5''    | 2.01                     | 0.90              |
| 1:F1:1434:G:H2'    | 1:F1:1435:C:C5'    | 2.02                     | 0.90              |
| 41:GT:35:THR:HG22  | 41:GT:37:LYS:H     | 1.35                     | 0.90              |
| 1:H1:219:A:C2      | 1:H1:1416:U:H2'    | 2.05                     | 0.90              |
| 1:H1:504:A:HO2'    | 1:H1:505:A:H8      | 0.98                     | 0.90              |
| 1:H1:3185:G:C8     | 8:HH:11:PRO:HD3    | 2.06                     | 0.90              |
| 12:HM:45:VAL:HB    | 12:HM:51:ASN:HD21  | 1.34                     | 0.90              |
| 1:A1:1211:A:P      | 19:AX:171:ARG:HH22 | 1.94                     | 0.90              |
| 33:CL:182:LYS:HE3  | 1:D1:97:A:O2'      | 1.71                     | 0.90              |
| 46:CY:32:THR:HG22  | 46:CY:69:TRP:O     | 1.70                     | 0.90              |
| 1:D1:1562:G:N7     | 50:D1:4137:HOH:O   | 2.05                     | 0.90              |
| 29:EH:159:PHE:HB3  | 29:EH:163:GLN:NE2  | 1.86                     | 0.90              |
| 38:EQ:132:TYR:O    | 50:EQ:302:HOH:O    | 1.89                     | 0.90              |
| 1:F1:455:G:OP2     | 14:FO:92:LYS:NZ    | 2.04                     | 0.90              |
| 1:H1:622:G:H4'     | 1:H1:623:G:OP1     | 1.70                     | 0.90              |
| 1:H1:729:A:O2'     | 1:H1:810:G:N2      | 2.04                     | 0.90              |
| 1:A1:1460:G:OP1    | 50:A1:3955:HOH:O   | 1.89                     | 0.90              |
| 5:AE:42:ARG:O      | 5:AE:45:ILE:HG22   | 1.72                     | 0.90              |
| 34:BM:56:THR:HG22  | 34:BM:58:THR:H     | 1.35                     | 0.90              |
| 21:C3:83:G:OP1     | 50:C3:304:HOH:O    | 1.90                     | 0.90              |
| 30:CI:61:MET:HE1   | 30:CI:68:GLY:HA3   | 1.54                     | 0.90              |
| 19:DX:188:THR:O    | 19:DX:189:PHE:CD2  | 2.25                     | 0.90              |
| 1:F1:2353:C:N3     | 50:F1:4213:HOH:O   | 2.02                     | 0.90              |
| 1:F1:2716:A:O3'    | 1:F1:2717:G:H4'    | 1.72                     | 0.90              |
| 9:FJ:160:LEU:HG    | 9:FJ:193:ILE:HD13  | 1.50                     | 0.90              |
| 28:GG:32:UNK:O     | 1:H1:1257:G:O2'    | 1.88                     | 0.90              |
| 1:H1:3067:A:O2'    | 1:H1:3068:U:OP1    | 1.88                     | 0.90              |
| 1:H1:3227:A:H5''   | 5:HE:57:ARG:NH1    | 1.85                     | 0.90              |
| 19:HX:22:VAL:HG23  | 19:HX:78:ILE:HD11  | 1.50                     | 0.90              |
| 1:A1:284:U:C5      | 1:A1:305:A:H5''    | 2.05                     | 0.90              |
| 1:A1:635:A:O2'     | 1:A1:636:U:O5'     | 1.90                     | 0.90              |
| 1:A1:2575:G:H4'    | 1:A1:2576:C:OP2    | 1.72                     | 0.90              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 20:C2:74:A:N6     | 20:C2:88:G:H1'    | 1.87                     | 0.90              |
| 24:CC:107:PHE:HE2 | 1:D1:686:U:H1'    | 1.36                     | 0.90              |
| 34:CM:274:HIS:HA  | 34:CM:277:PHE:CD1 | 2.07                     | 0.90              |
| 7:DG:74:ASN:HB3   | 7:DG:86:ARG:HB2   | 1.53                     | 0.90              |
| 41:ET:5:THR:HG21  | 41:ET:14:ARG:HG3  | 1.54                     | 0.90              |
| 1:F1:1562:G:C8    | 50:F1:3931:HOH:O  | 2.23                     | 0.90              |
| 28:GG:8:UNK:CA    | 1:H1:1248:G:N2    | 2.22                     | 0.90              |
| 33:GL:201:ARG:NH2 | 1:H1:79:C:O3'     | 2.04                     | 0.90              |
| 34:GM:176:SER:O   | 34:GM:177:GLU:HG2 | 1.71                     | 0.90              |
| 45:GX:80:ASN:HB2  | 45:GX:81:PRO:HD2  | 1.54                     | 0.90              |
| 1:H1:2902:G:OP2   | 50:H1:4271:HOH:O  | 1.90                     | 0.90              |
| 6:HF:107:ASP:O    | 6:HF:111:VAL:HG23 | 1.72                     | 0.90              |
| 1:A1:114:A:H4'    | 16:AQ:37:ARG:HH22 | 1.36                     | 0.89              |
| 23:CB:162:THR:O   | 23:CB:174:ASN:HB3 | 1.70                     | 0.89              |
| 30:CI:196:PHE:CE2 | 6:DF:110:ARG:HD2  | 2.07                     | 0.89              |
| 15:DP:12:MET:HA   | 15:DP:15:TRP:NE1  | 1.87                     | 0.89              |
| 44:EW:43:MET:HA   | 44:EW:43:MET:HE2  | 1.54                     | 0.89              |
| 1:F1:277:U:O2'    | 50:F1:3632:HOH:O  | 1.88                     | 0.89              |
| 1:F1:2543:C:H5'   | 1:F1:2544:U:OP2   | 1.71                     | 0.89              |
| 38:GQ:134:ALA:HB2 | 1:H1:905:G:C5'    | 2.01                     | 0.89              |
| 1:H1:1832:G:OP2   | 50:H1:4130:HOH:O  | 1.90                     | 0.89              |
| 8:HH:13:ARG:NH2   | 8:HH:17:LYS:HG2   | 1.86                     | 0.89              |
| 13:HN:4:PHE:N     | 13:HN:4:PHE:CD1   | 2.34                     | 0.89              |
| 1:A1:1360:C:H2'   | 1:A1:1361:U:H5''  | 1.54                     | 0.89              |
| 9:AJ:118:HIS:CE1  | 9:AJ:146:VAL:HB   | 2.06                     | 0.89              |
| 33:CL:26:ARG:HB3  | 33:CL:30:TYR:HE1  | 1.37                     | 0.89              |
| 1:D1:1096:G:H2'   | 1:D1:1097:G:H5''  | 1.53                     | 0.89              |
| 30:EI:86:MET:HE2  | 1:F1:1202:C:H1'   | 1.52                     | 0.89              |
| 1:F1:766:G:O6     | 50:F1:3864:HOH:O  | 1.91                     | 0.89              |
| 12:FM:45:VAL:HB   | 12:FM:51:ASN:HD21 | 1.36                     | 0.89              |
| 22:GA:30:TYR:HB2  | 22:GA:124:ARG:HA  | 1.54                     | 0.89              |
| 24:GC:34:ARG:NH1  | 1:H1:698:G:OP1    | 2.04                     | 0.89              |
| 31:GJ:51:SER:OG   | 50:GJ:302:HOH:O   | 1.88                     | 0.89              |
| 1:A1:57:G:H2'     | 20:B2:36:G:C5'    | 2.02                     | 0.89              |
| 1:A1:704:G:O2'    | 24:BC:119:ARG:NH2 | 2.06                     | 0.89              |
| 1:A1:1392:G:OP2   | 50:A1:3918:HOH:O  | 1.90                     | 0.89              |
| 1:A1:1752:G:H2'   | 7:AG:85:HIS:CD2   | 2.08                     | 0.89              |
| 5:AE:178:PHE:O    | 8:AH:14:LEU:HD21  | 1.72                     | 0.89              |
| 1:D1:253:G:H2'    | 1:D1:254:G:H5''   | 1.54                     | 0.89              |
| 1:D1:532:G:H2'    | 1:D1:533:G:C8     | 2.07                     | 0.89              |
| 1:D1:3227:A:H5''  | 5:DE:57:ARG:NH1   | 1.87                     | 0.89              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:DH:56:VAL:HG22  | 8:DH:106:VAL:HA    | 1.51                     | 0.89              |
| 34:EM:64:ILE:HD13 | 34:EM:109:LEU:HD22 | 1.54                     | 0.89              |
| 35:EN:82:VAL:HG22 | 35:EN:102:CYS:HB3  | 1.54                     | 0.89              |
| 40:ES:81:VAL:HB   | 40:ES:84:ILE:HG13  | 1.54                     | 0.89              |
| 12:FM:51:ASN:O    | 12:FM:51:ASN:ND2   | 2.06                     | 0.89              |
| 19:FX:167:LYS:HA  | 19:FX:188:THR:CG2  | 2.03                     | 0.89              |
| 24:GC:395:ASP:CG  | 37:GP:154:ARG:HH22 | 1.80                     | 0.89              |
| 1:H1:284:U:C5     | 1:H1:305:A:H5''    | 2.08                     | 0.89              |
| 1:H1:2217:C:H4'   | 1:H1:2218:A:OP2    | 1.71                     | 0.89              |
| 1:A1:1752:G:H5'   | 1:A1:1754:G:H5''   | 1.54                     | 0.89              |
| 1:A1:3291:G:O2'   | 1:A1:3292:U:O5'    | 1.89                     | 0.89              |
| 12:AM:45:VAL:HB   | 12:AM:51:ASN:HD21  | 1.37                     | 0.89              |
| 13:AN:54:THR:HB   | 13:AN:57:MET:HG3   | 1.55                     | 0.89              |
| 24:BC:65:MET:CE   | 24:BC:97:PHE:HB2   | 2.03                     | 0.89              |
| 22:CA:42:ILE:HD12 | 22:CA:43:ARG:N     | 1.86                     | 0.89              |
| 23:CB:95:THR:HG23 | 23:CB:98:GLY:O     | 1.72                     | 0.89              |
| 23:CB:111:ASP:O   | 23:CB:114:THR:HG22 | 1.72                     | 0.89              |
| 33:CL:34:PRO:HG2  | 33:CL:37:HIS:HB3   | 1.54                     | 0.89              |
| 33:CL:201:ARG:NH2 | 1:D1:79:C:O3'      | 2.04                     | 0.89              |
| 1:D1:655:A:N3     | 8:DH:97:PRO:HG3    | 1.87                     | 0.89              |
| 1:D1:1321:A:O2'   | 1:D1:1322:G:O5'    | 1.90                     | 0.89              |
| 1:D1:1503:A:H5''  | 50:D1:4213:HOH:O   | 1.71                     | 0.89              |
| 1:D1:1580:G:H4'   | 1:D1:1581:C:OP1    | 1.71                     | 0.89              |
| 45:EX:31:ASP:OD1  | 45:EX:32:SER:N     | 2.05                     | 0.89              |
| 1:F1:560:A:H2'    | 1:F1:561:A:C8      | 2.06                     | 0.89              |
| 1:F1:1477:C:OP1   | 50:F1:4036:HOH:O   | 1.90                     | 0.89              |
| 1:F1:1562:G:N7    | 50:F1:3931:HOH:O   | 2.04                     | 0.89              |
| 20:G2:32:C:H2'    | 20:G2:33:C:H6      | 1.37                     | 0.89              |
| 25:GD:135:GLY:O   | 25:GD:138:VAL:HG23 | 1.73                     | 0.89              |
| 28:GG:33:UNK:HG3  | 28:GG:36:UNK:HG2   | 1.55                     | 0.89              |
| 1:H1:1084:G:C2'   | 1:H1:1085:G:H5''   | 2.01                     | 0.89              |
| 1:H1:1432:G:OP1   | 50:H1:3729:HOH:O   | 1.89                     | 0.89              |
| 9:HJ:140:THR:HG22 | 9:HJ:141:THR:H     | 1.34                     | 0.89              |
| 1:A1:276:G:H5'    | 4:AC:47:GLY:HA2    | 1.55                     | 0.89              |
| 1:A1:1445:G:C2'   | 1:A1:1446:C:H5''   | 2.00                     | 0.89              |
| 1:A1:3067:A:O2'   | 1:A1:3068:U:OP1    | 1.88                     | 0.89              |
| 20:B2:134:C:O2'   | 20:B2:135:A:OP1    | 1.90                     | 0.89              |
| 27:BF:36:GLN:HG3  | 27:BF:37:PRO:HD2   | 1.54                     | 0.89              |
| 27:BF:62:GLN:HE21 | 27:BF:229:ILE:HD13 | 1.37                     | 0.89              |
| 44:BW:10:ASP:OD1  | 44:BW:108:THR:HG22 | 1.72                     | 0.89              |
| 25:CD:26:SER:OG   | 25:CD:63:GLU:OE2   | 1.89                     | 0.89              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:1046:G:H5''   | 13:FN:3:LYS:HE2   | 1.54                     | 0.89              |
| 32:EK:122:PRO:HA   | 32:EK:142:GLY:O   | 1.71                     | 0.89              |
| 1:F1:467:A:C6      | 1:F1:512:G:C2     | 2.61                     | 0.89              |
| 30:GI:61:MET:HE1   | 30:GI:68:GLY:HA3  | 1.53                     | 0.89              |
| 46:GY:32:THR:HG22  | 46:GY:69:TRP:O    | 1.72                     | 0.89              |
| 1:H1:1073:A:O2'    | 1:H1:1074:A:O5'   | 1.90                     | 0.89              |
| 1:H1:2543:C:H5'    | 1:H1:2544:U:OP2   | 1.72                     | 0.89              |
| 1:A1:388:A:N7      | 50:A1:4771:HOH:O  | 2.05                     | 0.89              |
| 20:C2:86:G:O6      | 40:CS:113:SER:OG  | 1.90                     | 0.89              |
| 27:CF:232:GLN:HE22 | 1:D1:2573:U:C4'   | 1.84                     | 0.89              |
| 32:CK:68:ASN:HB3   | 18:DU:60:THR:CG2  | 2.03                     | 0.89              |
| 1:D1:1901:C:H5''   | 1:D1:1902:C:H5'   | 1.54                     | 0.89              |
| 20:E2:84:C:OP1     | 42:EU:3:LYS:HG2   | 1.73                     | 0.89              |
| 20:E2:96:A:O2'     | 2:FA:83:THR:O     | 1.89                     | 0.89              |
| 23:EB:95:THR:HG23  | 23:EB:98:GLY:O    | 1.73                     | 0.89              |
| 26:EE:38:PHE:CE2   | 26:EE:71:ILE:HG23 | 2.06                     | 0.89              |
| 27:EF:19:ASN:HB3   | 27:EF:20:PRO:HD3  | 1.55                     | 0.89              |
| 30:EI:61:MET:HE1   | 30:EI:68:GLY:HA3  | 1.53                     | 0.89              |
| 32:EK:36:LYS:HA    | 18:FU:1:MET:HE1   | 1.52                     | 0.89              |
| 42:EU:92:ILE:O     | 42:EU:95:LYS:HG2  | 1.73                     | 0.89              |
| 1:F1:518:G:H4'     | 1:F1:519:A:OP1    | 1.73                     | 0.89              |
| 1:F1:1881:C:H5''   | 1:F1:1882:A:OP2   | 1.73                     | 0.89              |
| 1:F1:2899:C:H5''   | 1:F1:2900:G:OP1   | 1.72                     | 0.89              |
| 24:GC:376:TRP:CD1  | 1:H1:564:A:H1'    | 2.05                     | 0.89              |
| 34:GM:56:THR:HG22  | 34:GM:58:THR:H    | 1.37                     | 0.89              |
| 1:H1:2744:C:OP2    | 50:H1:4333:HOH:O  | 1.90                     | 0.89              |
| 1:H1:3277:A:H4'    | 1:H1:3278:U:OP1   | 1.70                     | 0.89              |
| 1:A1:904:U:O2'     | 1:A1:905:G:P      | 2.31                     | 0.89              |
| 1:A1:1434:G:H2'    | 1:A1:1435:C:C5'   | 2.03                     | 0.89              |
| 19:AX:167:LYS:HA   | 19:AX:188:THR:CG2 | 2.02                     | 0.89              |
| 1:D1:1918:U:H2'    | 1:D1:1919:A:C5'   | 2.01                     | 0.89              |
| 1:D1:3226:A:C2     | 5:DE:84:GLY:HA3   | 2.08                     | 0.89              |
| 22:EA:71:LYS:HE3   | 22:EA:73:ASN:OD1  | 1.72                     | 0.89              |
| 25:ED:133:ARG:HG3  | 25:ED:152:GLN:O   | 1.73                     | 0.89              |
| 45:EX:80:ASN:HB2   | 45:EX:81:PRO:HD2  | 1.54                     | 0.89              |
| 1:F1:439:A:N6      | 1:F1:538:A:C2     | 2.40                     | 0.89              |
| 1:H1:1773:G:OP2    | 15:HP:41:LYS:NZ   | 2.06                     | 0.89              |
| 19:HX:167:LYS:HA   | 19:HX:188:THR:CG2 | 2.03                     | 0.89              |
| 1:A1:97:A:O2'      | 33:BL:182:LYS:HE3 | 1.72                     | 0.89              |
| 1:A1:1059:U:H2'    | 1:A1:1060:C:H5''  | 1.55                     | 0.89              |
| 1:A1:1247:C:H5''   | 1:A1:1248:G:H5''  | 1.52                     | 0.89              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:AG:38:THR:HG22   | 7:AG:93:LEU:HD22   | 1.54                     | 0.89              |
| 47:CO:106:LEU:HD21 | 47:CO:138:LEU:HD21 | 1.55                     | 0.89              |
| 1:D1:61:A:OP2      | 50:D1:3752:HOH:O   | 1.89                     | 0.89              |
| 1:D1:1186:A:O2'    | 1:D1:1187:C:OP2    | 1.89                     | 0.89              |
| 1:F1:1096:G:H2'    | 1:F1:1097:G:H5''   | 1.54                     | 0.89              |
| 1:F1:2334:C:H4'    | 1:F1:2335:U:OP1    | 1.71                     | 0.89              |
| 1:H1:75:A:H8       | 18:HU:71:ARG:HH12  | 1.20                     | 0.89              |
| 1:H1:281:G:H5''    | 1:H1:282:G:OP1     | 1.72                     | 0.89              |
| 1:H1:548:G:H22     | 1:H1:619:G:N2      | 1.71                     | 0.89              |
| 16:HQ:57:ARG:O     | 16:HQ:60:GLU:HG2   | 1.73                     | 0.89              |
| 34:BM:176:SER:O    | 34:BM:177:GLU:HG2  | 1.71                     | 0.89              |
| 38:CQ:34:VAL:HG22  | 38:CQ:60:ILE:HD13  | 1.52                     | 0.89              |
| 1:D1:219:A:C2      | 1:D1:1416:U:H2'    | 2.07                     | 0.89              |
| 1:D1:1469:G:N7     | 50:D1:4035:HOH:O   | 2.05                     | 0.89              |
| 12:DM:45:VAL:HB    | 12:DM:51:ASN:HD21  | 1.37                     | 0.89              |
| 45:EX:69:LEU:HD11  | 45:EX:75:LYS:HG3   | 1.54                     | 0.89              |
| 45:EX:79:ARG:HH12  | 1:F1:1448:G:C4'    | 1.86                     | 0.89              |
| 1:A1:1235:U:H6     | 10:AK:109:ASN:HD21 | 1.17                     | 0.89              |
| 1:D1:3277:A:H4'    | 1:D1:3278:U:OP1    | 1.72                     | 0.89              |
| 20:G2:85:C:H4'     | 20:G2:85:C:OP1     | 1.73                     | 0.89              |
| 22:GA:205:MET:HG2  | 1:H1:939:A:C2      | 2.07                     | 0.89              |
| 25:GD:133:ARG:HG3  | 25:GD:152:GLN:O    | 1.73                     | 0.89              |
| 38:GQ:34:VAL:HG22  | 38:GQ:60:ILE:HD13  | 1.55                     | 0.89              |
| 1:H1:1918:U:H2'    | 1:H1:1919:A:C5'    | 2.02                     | 0.89              |
| 1:H1:2716:A:O3'    | 1:H1:2717:G:H4'    | 1.71                     | 0.89              |
| 1:A1:71:U:O2'      | 1:A1:72:A:OP1      | 1.90                     | 0.88              |
| 1:A1:1918:U:H2'    | 1:A1:1919:A:C5'    | 2.02                     | 0.88              |
| 1:A1:3169:A:OP1    | 26:BE:23:ARG:HG3   | 1.73                     | 0.88              |
| 29:BH:101:LYS:HB3  | 29:BH:121:LYS:HZ2  | 1.38                     | 0.88              |
| 34:CM:64:ILE:HD13  | 34:CM:109:LEU:HD22 | 1.55                     | 0.88              |
| 1:F1:1580:G:H4'    | 1:F1:1581:C:OP1    | 1.70                     | 0.88              |
| 18:FU:166:VAL:HA   | 18:FU:169:ILE:CD1  | 2.03                     | 0.88              |
| 19:FX:188:THR:O    | 19:FX:189:PHE:CD2  | 2.25                     | 0.88              |
| 22:GA:114:VAL:CG1  | 22:GA:165:ALA:HB1  | 2.02                     | 0.88              |
| 25:GD:65:MET:SD    | 1:H1:2669:A:O2'    | 2.31                     | 0.88              |
| 28:GG:81:UNK:CG    | 1:H1:1309:G:O4'    | 2.21                     | 0.88              |
| 31:GJ:16:LYS:NZ    | 1:H1:3081:C:C5     | 2.40                     | 0.88              |
| 1:H1:1181:A:H4'    | 1:H1:1182:C:OP2    | 1.71                     | 0.88              |
| 1:A1:1197:A:OP2    | 50:A1:4314:HOH:O   | 1.90                     | 0.88              |
| 1:A1:1869:G:OP2    | 50:A1:3855:HOH:O   | 1.89                     | 0.88              |
| 1:A1:3098:A:OP1    | 10:AK:93:LYS:NZ    | 2.06                     | 0.88              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:AN:33:THR:HG23  | 1:H1:1047:G:OP1    | 1.74                     | 0.88              |
| 18:AU:166:VAL:HA   | 18:AU:169:ILE:CD1  | 2.04                     | 0.88              |
| 24:BC:290:LEU:HD21 | 35:BN:30:LEU:HD13  | 1.55                     | 0.88              |
| 25:BD:82:ARG:HB3   | 25:BD:112:LEU:HD22 | 1.55                     | 0.88              |
| 1:D1:284:U:C1'     | 50:D1:3848:HOH:O   | 2.20                     | 0.88              |
| 23:EB:282:ARG:NH1  | 23:EB:291:ASN:O    | 2.05                     | 0.88              |
| 27:EF:126:LYS:CE   | 27:EF:135:LEU:HD13 | 2.04                     | 0.88              |
| 28:EG:33:UNK:HG3   | 28:EG:36:UNK:HG2   | 1.54                     | 0.88              |
| 1:F1:548:G:H22     | 1:F1:619:G:N2      | 1.70                     | 0.88              |
| 1:F1:2256:G:H2'    | 1:F1:2257:A:H5''   | 1.52                     | 0.88              |
| 26:GE:38:PHE:CE2   | 26:GE:71:ILE:HG23  | 2.06                     | 0.88              |
| 29:GH:159:PHE:HB3  | 29:GH:163:GLN:NE2  | 1.87                     | 0.88              |
| 1:H1:1434:G:H2'    | 1:H1:1435:C:C5'    | 2.03                     | 0.88              |
| 18:AU:132:LYS:HA   | 18:AU:135:LEU:HD12 | 1.55                     | 0.88              |
| 24:BC:152:VAL:HG13 | 24:BC:157:TYR:HE2  | 1.15                     | 0.88              |
| 22:CA:114:VAL:CG1  | 22:CA:165:ALA:HB1  | 2.04                     | 0.88              |
| 33:CL:182:LYS:NZ   | 1:D1:280:G:O6      | 2.06                     | 0.88              |
| 8:DH:13:ARG:NH2    | 8:DH:17:LYS:HG2    | 1.87                     | 0.88              |
| 9:DJ:88:LEU:HD12   | 9:DJ:89:PRO:HD2    | 1.55                     | 0.88              |
| 13:DN:83:THR:HG22  | 13:DN:85:TYR:H     | 1.39                     | 0.88              |
| 24:EC:167:GLU:H    | 24:EC:171:GLN:NE2  | 1.70                     | 0.88              |
| 33:EL:34:PRO:HG2   | 33:EL:37:HIS:HB3   | 1.53                     | 0.88              |
| 1:F1:3291:G:O2'    | 1:F1:3292:U:O5'    | 1.91                     | 0.88              |
| 21:G3:1:G:H4'      | 34:GM:275:LYS:HZ3  | 1.37                     | 0.88              |
| 35:GN:90:ASP:OD1   | 35:GN:92:ARG:HG2   | 1.71                     | 0.88              |
| 1:H1:958:A:H3'     | 1:H1:959:G:C5'     | 2.04                     | 0.88              |
| 1:H1:1114:C:H2'    | 1:H1:1115:U:H5'    | 1.54                     | 0.88              |
| 8:AH:54:LYS:HA     | 8:AH:110:PRO:CG    | 2.02                     | 0.88              |
| 24:BC:167:GLU:H    | 24:BC:171:GLN:NE2  | 1.70                     | 0.88              |
| 30:BI:159:ARG:HD2  | 30:BI:162:ARG:NH2  | 1.88                     | 0.88              |
| 33:BL:30:TYR:HE2   | 33:BL:63:ARG:HD3   | 1.39                     | 0.88              |
| 20:C2:39:G:C2      | 42:CU:90:ARG:NH1   | 2.41                     | 0.88              |
| 27:CF:233:LYS:HB2  | 1:D1:2575:G:O6     | 1.74                     | 0.88              |
| 1:D1:467:A:C6      | 1:D1:512:G:C2      | 2.61                     | 0.88              |
| 1:D1:2275:A:O2'    | 1:D1:2276:A:O5'    | 1.91                     | 0.88              |
| 5:DE:55:ALA:HB2    | 8:DH:109:TYR:HE1   | 1.36                     | 0.88              |
| 30:EI:53:PHE:HE2   | 30:EI:144:VAL:HG11 | 1.38                     | 0.88              |
| 1:F1:219:A:C2      | 1:F1:1416:U:H2'    | 2.08                     | 0.88              |
| 1:F1:749:U:O4      | 50:F1:3856:HOH:O   | 1.91                     | 0.88              |
| 1:F1:1247:C:H5''   | 1:F1:1248:G:H5''   | 1.51                     | 0.88              |
| 5:FE:42:ARG:O      | 5:FE:45:ILE:HG22   | 1.73                     | 0.88              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:FX:175:LYS:NZ   | 19:FX:178:ARG:HH11 | 1.71                     | 0.88              |
| 20:G2:38:C:H4'     | 2:HA:71:ILE:HD13   | 1.55                     | 0.88              |
| 34:GM:274:HIS:HA   | 34:GM:277:PHE:CD2  | 2.08                     | 0.88              |
| 44:GW:65:ASN:OD1   | 1:H1:3047:U:H5     | 1.56                     | 0.88              |
| 1:H1:846:C:H2'     | 1:H1:847:G:H5''    | 1.55                     | 0.88              |
| 1:H1:1235:U:H6     | 10:HK:109:ASN:HD21 | 1.12                     | 0.88              |
| 7:HG:47:ASN:ND2    | 7:HG:73:SER:HB3    | 1.88                     | 0.88              |
| 1:A1:433:C:H5''    | 1:A1:434:A:OP1     | 1.74                     | 0.88              |
| 1:A1:1507:A:O2'    | 1:A1:1882:A:H2'    | 1.73                     | 0.88              |
| 1:A1:2840:C:N3     | 29:BH:158:LYS:NZ   | 2.21                     | 0.88              |
| 2:AA:44:MET:HE2    | 2:AA:44:MET:HA     | 1.53                     | 0.88              |
| 46:BY:10:ILE:HD11  | 46:BY:30:GLU:HB2   | 1.54                     | 0.88              |
| 1:D1:395:A:O2'     | 50:D1:3893:HOH:O   | 1.90                     | 0.88              |
| 24:EC:89:THR:HG22  | 24:EC:91:ARG:H     | 1.38                     | 0.88              |
| 30:EI:53:PHE:CE2   | 30:EI:144:VAL:HG11 | 2.08                     | 0.88              |
| 30:EI:159:ARG:HD2  | 30:EI:162:ARG:NH2  | 1.87                     | 0.88              |
| 37:EP:83:ARG:HH22  | 1:F1:2717:G:C5'    | 1.85                     | 0.88              |
| 1:F1:625:C:C2'     | 1:F1:626:C:H5'     | 2.04                     | 0.88              |
| 1:F1:1185:A:C2'    | 1:F1:1186:A:H5''   | 2.04                     | 0.88              |
| 1:F1:2859:G:N7     | 50:F1:4203:HOH:O   | 2.05                     | 0.88              |
| 34:GM:125:VAL:HG21 | 34:GM:205:PHE:CE1  | 2.09                     | 0.88              |
| 42:GU:34:ILE:HA    | 42:GU:37:ILE:HD12  | 1.56                     | 0.88              |
| 1:H1:421:G:OP1     | 50:H1:3720:HOH:O   | 1.91                     | 0.88              |
| 1:H1:2293:U:OP2    | 50:H1:4202:HOH:O   | 1.91                     | 0.88              |
| 1:A1:1434:G:H2'    | 1:A1:1435:C:H5''   | 1.53                     | 0.88              |
| 1:A1:2415:C:H2'    | 1:A1:2416:U:H5''   | 1.54                     | 0.88              |
| 9:AJ:143:ALA:O     | 9:AJ:144:ASN:ND2   | 2.07                     | 0.88              |
| 20:B2:4:A:OP1      | 50:B2:338:HOH:O    | 1.90                     | 0.88              |
| 22:CA:119:GLU:N    | 22:CA:123:ASP:OD2  | 2.06                     | 0.88              |
| 31:CJ:10:GLN:HG3   | 31:CJ:129:ILE:CG2  | 2.03                     | 0.88              |
| 32:CK:122:PRO:HA   | 32:CK:142:GLY:O    | 1.73                     | 0.88              |
| 46:CY:10:ILE:HD11  | 46:CY:30:GLU:HB2   | 1.56                     | 0.88              |
| 1:D1:2716:A:O3'    | 1:D1:2717:G:H4'    | 1.70                     | 0.88              |
| 23:EB:22:THR:HG22  | 23:EB:24:HIS:H     | 1.37                     | 0.88              |
| 23:EB:376:LYS:NZ   | 9:HJ:40:SER:O      | 2.07                     | 0.88              |
| 34:EM:274:HIS:HA   | 34:EM:277:PHE:CD1  | 2.06                     | 0.88              |
| 1:F1:253:G:H2'     | 1:F1:254:G:H5''    | 1.56                     | 0.88              |
| 1:F1:1918:U:H2'    | 1:F1:1919:A:C5'    | 2.04                     | 0.88              |
| 25:GD:82:ARG:HB3   | 25:GD:112:LEU:HD22 | 1.53                     | 0.88              |
| 36:GO:106:LEU:HD21 | 36:GO:138:LEU:HD21 | 1.56                     | 0.88              |
| 1:H1:253:G:H2'     | 1:H1:254:G:H5''    | 1.55                     | 0.88              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:3291:G:O2'    | 1:H1:3292:U:O5'    | 1.90                     | 0.88              |
| 1:A1:439:A:N6      | 1:A1:538:A:C2      | 2.41                     | 0.88              |
| 1:A1:1895:U:OP1    | 50:A1:4125:HOH:O   | 1.91                     | 0.88              |
| 20:B2:32:C:H2'     | 20:B2:33:C:H6      | 1.38                     | 0.88              |
| 33:BL:34:PRO:HG2   | 33:BL:37:HIS:HB3   | 1.53                     | 0.88              |
| 24:CC:34:ARG:NH1   | 1:D1:698:G:OP1     | 2.04                     | 0.88              |
| 25:CD:82:ARG:HB3   | 25:CD:112:LEU:HD22 | 1.56                     | 0.88              |
| 20:E2:74:A:N6      | 20:E2:88:G:H1'     | 1.87                     | 0.88              |
| 1:F1:532:G:H2'     | 1:F1:533:G:C8      | 2.09                     | 0.88              |
| 1:F1:2666:G:O6     | 1:F1:2669:A:N6     | 2.07                     | 0.88              |
| 1:F1:2766:A:H2'    | 1:F1:2767:A:H5'    | 1.55                     | 0.88              |
| 33:GL:202:ARG:HH12 | 18:HU:27:ALA:HB2   | 1.39                     | 0.88              |
| 35:GN:92:ARG:NH2   | 1:H1:809:A:H4'     | 1.89                     | 0.88              |
| 1:H1:459:G:H22     | 1:H1:517:A:H2'     | 1.39                     | 0.88              |
| 1:H1:795:G:HO2'    | 1:H1:796:A:H8      | 0.92                     | 0.88              |
| 1:H1:1920:A:OP2    | 50:H1:4179:HOH:O   | 1.92                     | 0.88              |
| 1:A1:511:U:H5''    | 14:AO:70:VAL:HG21  | 1.56                     | 0.88              |
| 1:A1:842:A:C8      | 2:AA:15:THR:HG23   | 2.08                     | 0.88              |
| 1:A1:1901:C:H5''   | 1:A1:1902:C:H5'    | 1.56                     | 0.88              |
| 1:A1:2862:G:OP2    | 50:A1:4262:HOH:O   | 1.90                     | 0.88              |
| 43:BV:100:LEU:HD21 | 43:BV:127:VAL:HG11 | 1.55                     | 0.88              |
| 1:D1:2246:G:H2'    | 1:D1:2247:A:C8     | 2.08                     | 0.88              |
| 29:EH:101:LYS:HB3  | 29:EH:121:LYS:HZ2  | 1.36                     | 0.88              |
| 1:F1:1360:C:H2'    | 1:F1:1361:U:H5''   | 1.55                     | 0.88              |
| 20:G2:36:G:C5'     | 1:H1:57:G:H2'      | 2.04                     | 0.88              |
| 28:GG:15:UNK:HG3   | 28:GG:65:UNK:CA    | 2.03                     | 0.88              |
| 31:GJ:10:GLN:HG3   | 31:GJ:129:ILE:CG2  | 2.03                     | 0.88              |
| 1:H1:1901:C:H5''   | 1:H1:1902:C:H5'    | 1.55                     | 0.88              |
| 9:HJ:143:ALA:O     | 9:HJ:144:ASN:ND2   | 2.05                     | 0.88              |
| 1:A1:532:G:H2'     | 1:A1:533:G:C8      | 2.08                     | 0.88              |
| 1:A1:1370:A:C2'    | 1:A1:1371:G:H5''   | 2.04                     | 0.88              |
| 1:A1:2404:G:H4'    | 50:A1:3771:HOH:O   | 1.73                     | 0.88              |
| 18:AU:53:GLN:O     | 18:AU:113:ARG:NH1  | 2.06                     | 0.88              |
| 20:B2:85:C:H4'     | 20:B2:85:C:OP1     | 1.73                     | 0.88              |
| 20:C2:147:G:H21    | 27:CF:54:GLN:HE22  | 1.22                     | 0.88              |
| 27:CF:62:GLN:OE1   | 1:D1:2574:U:N3     | 2.07                     | 0.88              |
| 1:D1:47:G:O6       | 50:D1:3735:HOH:O   | 1.91                     | 0.88              |
| 1:D1:1185:A:H2'    | 1:D1:1186:A:H5''   | 1.54                     | 0.88              |
| 19:DX:167:LYS:HA   | 19:DX:188:THR:CG2  | 2.03                     | 0.88              |
| 20:E2:147:G:H21    | 27:EF:54:GLN:HE22  | 1.20                     | 0.88              |
| 35:EN:24:ASN:OD1   | 35:EN:27:HIS:HB2   | 1.74                     | 0.88              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:GH:101:LYS:HB3  | 29:GH:121:LYS:HZ3  | 1.38                     | 0.88              |
| 34:GM:64:ILE:HD13  | 34:GM:109:LEU:HD22 | 1.56                     | 0.88              |
| 46:GY:10:ILE:HD11  | 46:GY:30:GLU:HB2   | 1.56                     | 0.88              |
| 1:H1:615:G:H21     | 8:HH:79:LYS:CE     | 1.85                     | 0.88              |
| 1:H1:2899:C:H5''   | 1:H1:2900:G:OP1    | 1.73                     | 0.88              |
| 1:A1:459:G:H22     | 1:A1:517:A:H2'     | 1.37                     | 0.88              |
| 1:A1:750:G:C2'     | 1:A1:751:C:H5''    | 2.04                     | 0.88              |
| 1:A1:832:A:H2      | 1:A1:2406:U:HO2'   | 1.14                     | 0.88              |
| 1:A1:2180:G:H1'    | 50:A1:4198:HOH:O   | 1.73                     | 0.88              |
| 1:A1:2255:U:O2'    | 1:A1:2256:G:H5'    | 1.74                     | 0.88              |
| 13:AN:130:LYS:NZ   | 1:H1:2663:A:OP2    | 2.06                     | 0.88              |
| 18:DU:132:LYS:HA   | 18:DU:135:LEU:HD12 | 1.56                     | 0.88              |
| 20:E2:36:G:C5'     | 1:F1:57:G:H2'      | 2.04                     | 0.88              |
| 27:EF:100:LYS:NZ   | 1:F1:119:A:H2'     | 1.89                     | 0.88              |
| 33:EL:182:LYS:NZ   | 1:F1:280:G:O6      | 2.06                     | 0.88              |
| 45:EX:79:ARG:HH12  | 1:F1:1448:G:H4'    | 1.38                     | 0.88              |
| 1:F1:979:U:H1'     | 17:FT:12:GLN:HE21  | 1.35                     | 0.88              |
| 1:F1:987:A:O2'     | 50:F1:4478:HOH:O   | 1.91                     | 0.88              |
| 1:F1:1901:C:H5''   | 1:F1:1902:C:H5'    | 1.56                     | 0.88              |
| 22:GA:208:VAL:HG21 | 1:H1:941:G:C6      | 2.08                     | 0.88              |
| 1:H1:71:U:O2'      | 1:H1:72:A:OP1      | 1.92                     | 0.88              |
| 1:H1:1360:C:H2'    | 1:H1:1361:U:H5''   | 1.52                     | 0.88              |
| 1:H1:2275:A:O2'    | 1:H1:2276:A:O5'    | 1.91                     | 0.88              |
| 1:H1:2766:A:H2'    | 1:H1:2767:A:H5'    | 1.55                     | 0.88              |
| 1:A1:958:A:H3'     | 1:A1:959:G:C5'     | 2.03                     | 0.87              |
| 1:A1:1202:C:H1'    | 30:BI:86:MET:HE2   | 1.55                     | 0.87              |
| 1:A1:1881:C:H5''   | 1:A1:1882:A:OP2    | 1.74                     | 0.87              |
| 1:A1:2575:G:O6     | 27:BF:233:LYS:HB2  | 1.74                     | 0.87              |
| 1:A1:3055:U:O4     | 50:A1:4133:HOH:O   | 1.91                     | 0.87              |
| 1:A1:3226:A:C2     | 5:AE:84:GLY:HA3    | 2.09                     | 0.87              |
| 24:BC:70:GLU:O     | 24:BC:82:PRO:HA    | 1.74                     | 0.87              |
| 33:CL:93:LYS:NZ    | 1:D1:2589:U:OP1    | 2.06                     | 0.87              |
| 1:D1:115:G:H4'     | 1:D1:116:U:OP1     | 1.70                     | 0.87              |
| 1:D1:1710:U:OP2    | 12:DM:42:LYS:NZ    | 2.07                     | 0.87              |
| 1:D1:2256:G:OP2    | 1:D1:2256:G:H2'    | 1.73                     | 0.87              |
| 7:DG:35:ARG:NH1    | 13:DN:77:LEU:HB2   | 1.90                     | 0.87              |
| 24:EC:65:MET:CE    | 24:EC:97:PHE:HB2   | 2.03                     | 0.87              |
| 1:F1:3109:C:H3'    | 10:FK:111:ARG:HH12 | 1.34                     | 0.87              |
| 21:G3:83:G:OP1     | 50:G3:302:HOH:O    | 1.90                     | 0.87              |
| 30:GI:159:ARG:HD2  | 30:GI:162:ARG:NH2  | 1.89                     | 0.87              |
| 1:H1:433:C:H5''    | 1:H1:434:A:OP1     | 1.73                     | 0.87              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:579:G:H1'     | 19:HX:158:ASN:N    | 1.88                     | 0.87              |
| 1:H1:3162:A:H4'    | 1:H1:3163:A:OP1    | 1.75                     | 0.87              |
| 1:A1:622:G:H4'     | 1:A1:623:G:OP1     | 1.74                     | 0.87              |
| 1:A1:2693:A:OP2    | 50:A1:4834:HOH:O   | 1.91                     | 0.87              |
| 1:A1:2931:G:OP1    | 50:A1:4150:HOH:O   | 1.91                     | 0.87              |
| 7:AG:74:ASN:HB3    | 7:AG:86:ARG:HB2    | 1.54                     | 0.87              |
| 8:AH:13:ARG:HH22   | 8:AH:17:LYS:CG     | 1.85                     | 0.87              |
| 31:BJ:10:GLN:HG3   | 31:BJ:129:ILE:CG2  | 2.03                     | 0.87              |
| 22:CA:71:LYS:HE3   | 22:CA:73:ASN:OD1   | 1.73                     | 0.87              |
| 1:D1:71:U:O2'      | 1:D1:72:A:OP1      | 1.91                     | 0.87              |
| 1:D1:729:A:O2'     | 1:D1:810:G:N2      | 2.06                     | 0.87              |
| 1:D1:3176:A:H4'    | 1:D1:3177:G:C5'    | 2.03                     | 0.87              |
| 13:DN:54:THR:HB    | 13:DN:57:MET:HG3   | 1.54                     | 0.87              |
| 22:EA:114:VAL:CG1  | 22:EA:165:ALA:HB1  | 2.04                     | 0.87              |
| 1:F1:291:C:C2'     | 1:F1:292:C:H5''    | 2.04                     | 0.87              |
| 1:H1:615:G:H21     | 8:HH:79:LYS:HE2    | 1.35                     | 0.87              |
| 1:H1:711:U:H3      | 1:H1:718:A:H61     | 1.16                     | 0.87              |
| 1:H1:1580:G:H4'    | 1:H1:1581:C:OP1    | 1.73                     | 0.87              |
| 1:A1:1185:A:C2'    | 1:A1:1186:A:H5''   | 2.05                     | 0.87              |
| 1:A1:3176:A:H4'    | 1:A1:3177:G:C5'    | 2.03                     | 0.87              |
| 9:AJ:187:ASN:HD21  | 9:AJ:207:GLY:HA3   | 1.36                     | 0.87              |
| 37:BP:27:ILE:HA    | 37:BP:30:TYR:HD2   | 1.40                     | 0.87              |
| 24:CC:65:MET:CE    | 24:CC:97:PHE:HB2   | 2.04                     | 0.87              |
| 1:D1:790:C:H4'     | 1:D1:791:C:OP1     | 1.74                     | 0.87              |
| 29:EH:158:LYS:NZ   | 1:F1:2840:C:N3     | 2.23                     | 0.87              |
| 44:EW:10:ASP:OD1   | 44:EW:108:THR:HG22 | 1.74                     | 0.87              |
| 13:FN:83:THR:HG22  | 13:FN:85:TYR:H     | 1.39                     | 0.87              |
| 21:G3:26:C:OP1     | 34:GM:56:THR:HG21  | 1.73                     | 0.87              |
| 35:GN:91:GLU:HG2   | 1:H1:701:A:H3'     | 1.56                     | 0.87              |
| 1:H1:439:A:N6      | 1:H1:538:A:C2      | 2.42                     | 0.87              |
| 1:H1:1392:G:OP2    | 50:H1:3727:HOH:O   | 1.93                     | 0.87              |
| 1:H1:2416:U:H5'    | 1:H1:2416:U:H6     | 1.40                     | 0.87              |
| 18:HU:56:VAL:HG12  | 18:HU:57:ARG:N     | 1.87                     | 0.87              |
| 1:A1:3061:A:OP2    | 50:A1:4383:HOH:O   | 1.91                     | 0.87              |
| 20:C2:32:C:H2'     | 20:C2:33:C:H6      | 1.37                     | 0.87              |
| 22:CA:208:VAL:HG21 | 1:D1:941:G:C6      | 2.09                     | 0.87              |
| 23:CB:278:LYS:NZ   | 23:CB:325:CYS:O    | 2.06                     | 0.87              |
| 43:CV:85:ARG:HA    | 43:CV:131:ILE:HG12 | 1.57                     | 0.87              |
| 1:D1:1181:A:H4'    | 1:D1:1182:C:OP2    | 1.73                     | 0.87              |
| 1:D1:2128:C:OP1    | 50:D1:4187:HOH:O   | 1.90                     | 0.87              |
| 1:D1:3291:G:O2'    | 1:D1:3292:U:O5'    | 1.92                     | 0.87              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 26:EE:178:TYR:HB2 | 10:FK:85:LEU:HD13  | 1.56                     | 0.87              |
| 34:EM:179:ARG:HE  | 34:EM:185:ARG:HH22 | 1.21                     | 0.87              |
| 37:EP:83:ARG:NH2  | 1:F1:2717:G:H5''   | 1.89                     | 0.87              |
| 23:GB:282:ARG:NH1 | 23:GB:291:ASN:O    | 2.06                     | 0.87              |
| 1:H1:40:C:C2'     | 1:H1:41:A:H5''     | 2.04                     | 0.87              |
| 1:H1:467:A:C6     | 1:H1:512:G:C2      | 2.62                     | 0.87              |
| 1:H1:625:C:C2'    | 1:H1:626:C:H5'     | 2.05                     | 0.87              |
| 1:A1:46:A:O3'     | 50:A1:3725:HOH:O   | 1.93                     | 0.87              |
| 1:A1:79:C:O3'     | 33:BL:201:ARG:NH2  | 2.06                     | 0.87              |
| 1:A1:2348:G:O6    | 50:A1:4566:HOH:O   | 1.93                     | 0.87              |
| 29:BH:159:PHE:HB3 | 29:BH:163:GLN:NE2  | 1.90                     | 0.87              |
| 1:D1:433:C:H5''   | 1:D1:434:A:OP1     | 1.74                     | 0.87              |
| 1:D1:1379:G:N1    | 5:DE:22:ASP:OD2    | 2.07                     | 0.87              |
| 1:D1:2217:C:H4'   | 1:D1:2218:A:OP2    | 1.71                     | 0.87              |
| 1:D1:2862:G:OP2   | 50:D1:4363:HOH:O   | 1.93                     | 0.87              |
| 5:DE:102:VAL:HG22 | 5:DE:170:LEU:HD21  | 1.56                     | 0.87              |
| 13:DN:4:PHE:N     | 13:DN:4:PHE:CD1    | 2.33                     | 0.87              |
| 21:E3:40:C:H5''   | 21:E3:41:G:OP2     | 1.74                     | 0.87              |
| 24:EC:308:VAL:CG1 | 35:EN:40:ARG:HH11  | 1.85                     | 0.87              |
| 1:F1:114:A:C4'    | 16:FQ:37:ARG:HH22  | 1.87                     | 0.87              |
| 1:F1:2390:G:C5    | 50:F1:3945:HOH:O   | 2.26                     | 0.87              |
| 40:GS:81:VAL:HB   | 40:GS:84:ILE:HG13  | 1.56                     | 0.87              |
| 1:H1:40:C:H2'     | 1:H1:41:A:C5'      | 2.03                     | 0.87              |
| 1:A1:1184:U:OP2   | 50:A1:3942:HOH:O   | 1.93                     | 0.87              |
| 28:BG:33:UNK:HG3  | 28:BG:36:UNK:HG2   | 1.56                     | 0.87              |
| 24:CC:82:PRO:HB2  | 24:CC:96:ALA:HB3   | 1.56                     | 0.87              |
| 32:CK:48:GLU:OE1  | 32:CK:48:GLU:HA    | 1.74                     | 0.87              |
| 1:D1:1185:A:C2'   | 1:D1:1186:A:H5''   | 2.04                     | 0.87              |
| 29:EH:55:ASP:O    | 29:EH:131:ILE:HG12 | 1.73                     | 0.87              |
| 44:EW:65:ASN:OD1  | 1:F1:3047:U:H5     | 1.58                     | 0.87              |
| 1:F1:1109:A:H1'   | 1:F1:1110:U:OP2    | 1.74                     | 0.87              |
| 1:F1:1418:G:O6    | 50:F1:4632:HOH:O   | 1.92                     | 0.87              |
| 27:GF:126:LYS:CE  | 27:GF:135:LEU:HD13 | 2.05                     | 0.87              |
| 42:GU:92:ILE:O    | 42:GU:95:LYS:HG2   | 1.71                     | 0.87              |
| 7:HG:38:THR:HG22  | 7:HG:93:LEU:HD22   | 1.56                     | 0.87              |
| 1:A1:2253:U:H2'   | 1:A1:2254:A:H8     | 1.37                     | 0.87              |
| 5:AE:102:VAL:HG22 | 5:AE:170:LEU:HD21  | 1.54                     | 0.87              |
| 32:BK:48:GLU:OE1  | 32:BK:48:GLU:HA    | 1.72                     | 0.87              |
| 34:BM:64:ILE:HD13 | 34:BM:109:LEU:HD22 | 1.57                     | 0.87              |
| 33:CL:14:LYS:HZ2  | 1:D1:268:G:H5''    | 1.35                     | 0.87              |
| 45:CX:31:ASP:OD1  | 45:CX:32:SER:N     | 2.06                     | 0.87              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:DJ:143:ALA:O     | 9:DJ:144:ASN:ND2   | 2.08                     | 0.87              |
| 1:F1:433:C:H5''    | 1:F1:434:A:OP1     | 1.74                     | 0.87              |
| 13:FN:54:THR:HB    | 13:FN:57:MET:HG3   | 1.55                     | 0.87              |
| 27:GF:19:ASN:HB3   | 27:GF:20:PRO:HD3   | 1.55                     | 0.87              |
| 13:HN:54:THR:HB    | 13:HN:57:MET:HG3   | 1.56                     | 0.87              |
| 1:A1:211:A:H3'     | 24:BC:229:ASN:HD21 | 1.40                     | 0.87              |
| 1:A1:1923:G:O6     | 50:A1:4465:HOH:O   | 1.93                     | 0.87              |
| 1:A1:2944:A:OP2    | 50:A1:4193:HOH:O   | 1.93                     | 0.87              |
| 22:BA:230:ALA:HB3  | 22:BA:235:LYS:HG3  | 1.55                     | 0.87              |
| 24:BC:89:THR:HG22  | 24:BC:91:ARG:H     | 1.39                     | 0.87              |
| 32:BK:61:ARG:HA    | 35:BN:172:ARG:HH12 | 1.39                     | 0.87              |
| 33:BL:26:ARG:HB3   | 33:BL:30:TYR:HE1   | 1.38                     | 0.87              |
| 45:BX:44:VAL:HG12  | 45:BX:54:MET:HE2   | 1.56                     | 0.87              |
| 44:CW:43:MET:HA    | 44:CW:43:MET:HE2   | 1.57                     | 0.87              |
| 1:D1:1108:A:H4'    | 1:D1:1109:A:OP1    | 1.75                     | 0.87              |
| 1:D1:1895:U:C5'    | 50:D1:4214:HOH:O   | 2.21                     | 0.87              |
| 22:EA:30:TYR:HB2   | 22:EA:124:ARG:HA   | 1.56                     | 0.87              |
| 22:EA:35:PHE:CE1   | 1:F1:2520:G:H2'    | 2.10                     | 0.87              |
| 34:EM:106:ALA:HA   | 34:EM:171:ILE:HD11 | 1.55                     | 0.87              |
| 46:EY:32:THR:HG22  | 46:EY:69:TRP:O     | 1.74                     | 0.87              |
| 38:GQ:103:ASN:ND2  | 1:H1:388:A:H1'     | 1.90                     | 0.87              |
| 1:A1:620:A:N7      | 24:BC:319:ARG:NH1  | 2.21                     | 0.87              |
| 1:A1:790:C:H4'     | 1:A1:791:C:OP1     | 1.74                     | 0.87              |
| 11:AL:5:ILE:HG22   | 11:AL:6:THR:N      | 1.89                     | 0.87              |
| 24:BC:65:MET:HE3   | 24:BC:105:ARG:HD3  | 1.56                     | 0.87              |
| 22:CA:30:TYR:HB2   | 22:CA:124:ARG:HA   | 1.56                     | 0.87              |
| 30:CI:84:ARG:HE    | 30:CI:89:HIS:CD2   | 1.92                     | 0.87              |
| 32:CK:142:GLY:CA   | 18:DU:173:ARG:NH2  | 2.38                     | 0.87              |
| 34:CM:56:THR:HG22  | 34:CM:58:THR:H     | 1.37                     | 0.87              |
| 38:CQ:103:ASN:HD21 | 1:D1:388:A:C1'     | 1.87                     | 0.87              |
| 45:CX:80:ASN:HB2   | 45:CX:81:PRO:HD2   | 1.54                     | 0.87              |
| 1:D1:749:U:O4      | 50:D1:4055:HOH:O   | 1.92                     | 0.87              |
| 1:F1:1370:A:C2'    | 1:F1:1371:G:H5''   | 2.04                     | 0.87              |
| 1:F1:2575:G:H4'    | 1:F1:2576:C:OP2    | 1.71                     | 0.87              |
| 37:GP:152:VAL:HG22 | 19:HX:138:ILE:HD13 | 1.56                     | 0.87              |
| 41:GT:22:ARG:HE    | 41:GT:32:PHE:HD2   | 1.23                     | 0.87              |
| 1:H1:1186:A:O2'    | 1:H1:1187:C:OP2    | 1.93                     | 0.87              |
| 1:H1:1932:A:OP2    | 50:H1:3908:HOH:O   | 1.92                     | 0.87              |
| 19:HX:188:THR:O    | 19:HX:189:PHE:CD2  | 2.27                     | 0.87              |
| 1:A1:1753:A:H4'    | 1:A1:1754:G:OP2    | 1.74                     | 0.86              |
| 24:BC:105:ARG:HH11 | 24:BC:105:ARG:HG2  | 1.37                     | 0.86              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:BN:82:VAL:HG22  | 35:BN:102:CYS:HB3  | 1.56                     | 0.86              |
| 38:BQ:120:GLN:HB3  | 38:BQ:149:GLU:HG2  | 1.57                     | 0.86              |
| 25:CD:133:ARG:HG3  | 25:CD:152:GLN:O    | 1.75                     | 0.86              |
| 35:CN:158:GLN:HB3  | 50:D1:4779:HOH:O   | 1.72                     | 0.86              |
| 1:D1:625:C:C2'     | 1:D1:626:C:H5'     | 2.04                     | 0.86              |
| 1:D1:2411:U:OP1    | 50:D1:4114:HOH:O   | 1.92                     | 0.86              |
| 32:EK:60:MET:O     | 35:EN:172:ARG:NH1  | 2.08                     | 0.86              |
| 34:EM:125:VAL:HG21 | 34:EM:205:PHE:CE1  | 2.10                     | 0.86              |
| 35:EN:73:ASN:H     | 35:EN:76:ASN:HB2   | 1.40                     | 0.86              |
| 38:EQ:120:GLN:HB3  | 38:EQ:149:GLU:HG2  | 1.57                     | 0.86              |
| 41:ET:22:ARG:HE    | 41:ET:32:PHE:HD2   | 1.19                     | 0.86              |
| 1:F1:904:U:O2'     | 1:F1:905:G:P       | 2.32                     | 0.86              |
| 24:GC:319:ARG:NH1  | 1:H1:620:A:N7      | 2.23                     | 0.86              |
| 27:GF:43:ARG:NH1   | 1:H1:2521:A:N1     | 2.21                     | 0.86              |
| 29:GH:55:ASP:O     | 29:GH:131:ILE:HG12 | 1.73                     | 0.86              |
| 46:GY:45:VAL:O     | 46:GY:45:VAL:HG23  | 1.75                     | 0.86              |
| 1:A1:47:G:C6       | 50:A1:3732:HOH:O   | 2.27                     | 0.86              |
| 25:BD:37:LEU:HD12  | 25:BD:67:VAL:HG12  | 1.55                     | 0.86              |
| 34:BM:274:HIS:HA   | 34:BM:277:PHE:CD1  | 2.09                     | 0.86              |
| 41:BT:47:LYS:NZ    | 9:HJ:171:ASP:OD2   | 2.07                     | 0.86              |
| 23:CB:81:CYS:HB3   | 23:CB:203:VAL:HG21 | 1.57                     | 0.86              |
| 46:CY:7:LYS:HG3    | 1:D1:1950:C:H3'    | 1.55                     | 0.86              |
| 1:D1:114:A:C4'     | 16:DQ:37:ARG:HH22  | 1.87                     | 0.86              |
| 1:D1:958:A:H3'     | 1:D1:959:G:C5'     | 2.03                     | 0.86              |
| 1:D1:1902:C:O2'    | 1:D1:1903:A:OP1    | 1.93                     | 0.86              |
| 1:D1:2519:A:H2'    | 1:D1:2520:G:C8     | 2.10                     | 0.86              |
| 22:EA:244:THR:HG21 | 1:F1:2239:A:O4'    | 1.75                     | 0.86              |
| 24:EC:319:ARG:HH22 | 1:F1:620:A:H8      | 1.18                     | 0.86              |
| 27:EF:21:LEU:HD21  | 13:FN:122:TYR:CE2  | 2.09                     | 0.86              |
| 33:EL:6:TYR:HA     | 16:FQ:45:ILE:HD11  | 1.57                     | 0.86              |
| 1:F1:2128:C:OP1    | 50:F1:3986:HOH:O   | 1.92                     | 0.86              |
| 45:GX:31:ASP:OD1   | 45:GX:32:SER:N     | 2.06                     | 0.86              |
| 1:H1:630:G:H2'     | 1:H1:631:G:O4'     | 1.75                     | 0.86              |
| 1:H1:1448:G:H2'    | 1:H1:1449:C:H6     | 1.40                     | 0.86              |
| 1:A1:3227:A:C5'    | 5:AE:57:ARG:HH12   | 1.87                     | 0.86              |
| 21:B3:40:C:H5''    | 21:B3:41:G:OP2     | 1.74                     | 0.86              |
| 45:BX:31:ASP:OD1   | 45:BX:32:SER:N     | 2.08                     | 0.86              |
| 22:CA:244:THR:HG21 | 1:D1:2239:A:O4'    | 1.75                     | 0.86              |
| 24:CC:163:VAL:HA   | 24:CC:166:TYR:CE2  | 2.10                     | 0.86              |
| 1:D1:443:G:OP1     | 5:DE:16:SER:OG     | 1.93                     | 0.86              |
| 1:D1:2411:U:OP1    | 50:D1:4112:HOH:O   | 1.93                     | 0.86              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2890:A:OP2    | 50:D1:4728:HOH:O   | 1.94                     | 0.86              |
| 20:E2:58:U:H3      | 20:E2:65:C:H5      | 1.18                     | 0.86              |
| 22:EA:208:VAL:HG21 | 1:F1:941:G:C6      | 2.10                     | 0.86              |
| 24:EC:107:PHE:HE2  | 1:F1:686:U:H1'     | 1.39                     | 0.86              |
| 24:EC:242:ASN:HD21 | 1:F1:718:A:H4'     | 1.39                     | 0.86              |
| 31:EJ:16:LYS:NZ    | 1:F1:3081:C:C5     | 2.43                     | 0.86              |
| 1:F1:459:G:H22     | 1:F1:517:A:H2'     | 1.41                     | 0.86              |
| 1:F1:1186:A:O2'    | 1:F1:1187:C:OP2    | 1.93                     | 0.86              |
| 1:F1:2519:A:H2'    | 1:F1:2520:G:C8     | 2.10                     | 0.86              |
| 4:FC:95:THR:HG22   | 4:FC:99:LYS:HE3    | 1.58                     | 0.86              |
| 5:FE:69:LEU:HD23   | 5:FE:71:SER:OG     | 1.75                     | 0.86              |
| 23:GB:121:ASN:HB3  | 1:H1:3275:A:N6     | 1.90                     | 0.86              |
| 30:GI:86:MET:CE    | 1:H1:1201:G:H21    | 1.88                     | 0.86              |
| 44:GW:43:MET:HA    | 44:GW:43:MET:HE2   | 1.57                     | 0.86              |
| 1:H1:281:G:H4'     | 1:H1:282:G:C8      | 2.11                     | 0.86              |
| 1:H1:832:A:H62     | 1:H1:959:G:H1      | 1.20                     | 0.86              |
| 1:A1:47:G:H1'      | 1:A1:48:U:OP2      | 1.74                     | 0.86              |
| 1:A1:253:G:H2'     | 1:A1:254:G:H5''    | 1.54                     | 0.86              |
| 1:A1:1920:A:OP2    | 50:A1:4468:HOH:O   | 1.93                     | 0.86              |
| 1:A1:2114:C:OP1    | 50:A1:4140:HOH:O   | 1.93                     | 0.86              |
| 11:AL:91:ILE:HG12  | 13:AN:144:PHE:HE2  | 1.36                     | 0.86              |
| 36:BO:106:LEU:HD21 | 36:BO:138:LEU:HD21 | 1.56                     | 0.86              |
| 33:CL:15:GLN:OE1   | 16:DQ:52:ALA:HB1   | 1.74                     | 0.86              |
| 1:D1:518:G:H4'     | 1:D1:519:A:OP1     | 1.73                     | 0.86              |
| 1:D1:2347:A:OP2    | 50:D1:4691:HOH:O   | 1.92                     | 0.86              |
| 9:DJ:160:LEU:HG    | 9:DJ:193:ILE:HD13  | 1.54                     | 0.86              |
| 11:DL:5:ILE:HG22   | 11:DL:6:THR:N      | 1.88                     | 0.86              |
| 1:F1:1185:A:C3'    | 1:F1:1186:A:H5''   | 2.03                     | 0.86              |
| 1:F1:1185:A:H2'    | 1:F1:1186:A:H5''   | 1.56                     | 0.86              |
| 1:F1:1599:G:C2'    | 1:F1:1600:U:H5'    | 2.06                     | 0.86              |
| 9:FJ:143:ALA:O     | 9:FJ:144:ASN:ND2   | 2.08                     | 0.86              |
| 22:GA:210:HIS:CD2  | 22:GA:212:HIS:H    | 1.89                     | 0.86              |
| 24:GC:238:VAL:HG21 | 24:GC:262:ALA:HA   | 1.57                     | 0.86              |
| 1:H1:532:G:H2'     | 1:H1:533:G:C8      | 2.08                     | 0.86              |
| 1:H1:1096:G:H2'    | 1:H1:1097:G:H5''   | 1.58                     | 0.86              |
| 1:H1:2149:U:H2'    | 1:H1:2150:U:H5'    | 1.57                     | 0.86              |
| 12:HM:45:VAL:HB    | 12:HM:51:ASN:ND2   | 1.90                     | 0.86              |
| 1:A1:3162:A:H4'    | 1:A1:3163:A:OP1    | 1.75                     | 0.86              |
| 33:BL:19:MET:HA    | 33:BL:19:MET:HE2   | 1.57                     | 0.86              |
| 21:C3:65:G:OP2     | 50:C3:331:HOH:O    | 1.90                     | 0.86              |
| 1:D1:291:C:C2'     | 1:D1:292:C:H5''    | 2.05                     | 0.86              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:E3:83:G:H1      | 21:E3:93:G:H22     | 1.22                     | 0.86              |
| 43:EV:141:ILE:O    | 43:EV:145:ILE:HG13 | 1.75                     | 0.86              |
| 1:F1:958:A:H3'     | 1:F1:959:G:C5'     | 2.03                     | 0.86              |
| 1:F1:2415:C:C2'    | 1:F1:2416:U:H5''   | 2.06                     | 0.86              |
| 21:G3:21:G:H4'     | 34:GM:277:PHE:CD1  | 2.09                     | 0.86              |
| 24:GC:89:THR:HG22  | 24:GC:91:ARG:H     | 1.38                     | 0.86              |
| 1:H1:971:C:H2'     | 1:H1:972:U:H5'     | 1.56                     | 0.86              |
| 1:H1:978:G:OP1     | 17:HT:12:GLN:NE2   | 2.09                     | 0.86              |
| 1:H1:1168:C:OP1    | 50:H1:3755:HOH:O   | 1.93                     | 0.86              |
| 1:H1:1313:A:H4'    | 1:H1:1314:A:OP1    | 1.75                     | 0.86              |
| 1:A1:1185:A:H2'    | 1:A1:1186:A:H5''   | 1.56                     | 0.86              |
| 1:A1:1365:C:O3'    | 45:BX:62:ASP:HB2   | 1.73                     | 0.86              |
| 1:A1:3044:A:H2'    | 1:A1:3074:G:H1     | 1.38                     | 0.86              |
| 9:AJ:160:LEU:HG    | 9:AJ:193:ILE:HD13  | 1.58                     | 0.86              |
| 34:BM:125:VAL:HG21 | 34:BM:205:PHE:CE1  | 2.11                     | 0.86              |
| 27:CF:62:GLN:HE21  | 27:CF:229:ILE:HD13 | 1.41                     | 0.86              |
| 40:CS:81:VAL:HB    | 40:CS:84:ILE:HG13  | 1.56                     | 0.86              |
| 46:CY:15:GLY:O     | 46:CY:23:ARG:NH1   | 2.08                     | 0.86              |
| 1:D1:40:C:C2'      | 1:D1:41:A:H5''     | 2.06                     | 0.86              |
| 1:D1:452:U:C5'     | 14:DO:56:GLN:HE22  | 1.87                     | 0.86              |
| 1:D1:459:G:H22     | 1:D1:517:A:H2'     | 1.40                     | 0.86              |
| 1:D1:671:A:O2'     | 50:D1:4020:HOH:O   | 1.94                     | 0.86              |
| 1:D1:1434:G:H2'    | 1:D1:1435:C:C5'    | 2.04                     | 0.86              |
| 24:EC:36:ASP:OD1   | 35:EN:23:THR:HB    | 1.75                     | 0.86              |
| 35:EN:91:GLU:HG2   | 1:F1:701:A:H3'     | 1.56                     | 0.86              |
| 1:F1:361:A:C2'     | 1:F1:362:G:H5''    | 2.03                     | 0.86              |
| 1:F1:2275:A:O2'    | 1:F1:2276:A:O5'    | 1.94                     | 0.86              |
| 16:FQ:57:ARG:O     | 16:FQ:60:GLU:HG2   | 1.75                     | 0.86              |
| 18:FU:132:LYS:HA   | 18:FU:135:LEU:HD12 | 1.55                     | 0.86              |
| 21:G3:44:C:O2'     | 34:GM:152:ARG:HD3  | 1.76                     | 0.86              |
| 1:H1:3226:A:C2     | 5:HE:84:GLY:HA3    | 2.10                     | 0.86              |
| 1:A1:518:G:H4'     | 1:A1:519:A:OP1     | 1.73                     | 0.86              |
| 1:A1:820:G:O6      | 50:A1:3969:HOH:O   | 1.93                     | 0.86              |
| 18:AU:173:ARG:NH2  | 32:BK:142:GLY:CA   | 2.38                     | 0.86              |
| 35:BN:73:ASN:H     | 35:BN:76:ASN:HB2   | 1.41                     | 0.86              |
| 45:BX:69:LEU:HD11  | 45:BX:75:LYS:HG3   | 1.56                     | 0.86              |
| 27:CF:19:ASN:HB3   | 27:CF:20:PRO:HD3   | 1.54                     | 0.86              |
| 1:D1:622:G:H4'     | 1:D1:623:G:OP1     | 1.73                     | 0.86              |
| 1:D1:711:U:H3      | 1:D1:718:A:H61     | 1.22                     | 0.86              |
| 1:D1:1478:A:N7     | 50:D1:4241:HOH:O   | 2.09                     | 0.86              |
| 1:D1:1658:G:N7     | 13:DN:17:ARG:NH1   | 2.23                     | 0.86              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2334:C:H4'    | 1:D1:2335:U:OP1    | 1.73                     | 0.86              |
| 9:DJ:123:ARG:NH2   | 9:FJ:123:ARG:HG2   | 1.90                     | 0.86              |
| 17:DT:16:SER:O     | 50:DT:104:HOH:O    | 1.93                     | 0.86              |
| 24:EC:163:VAL:HA   | 24:EC:166:TYR:CE2  | 2.10                     | 0.86              |
| 30:GI:53:PHE:HE2   | 30:GI:144:VAL:HG11 | 1.36                     | 0.86              |
| 35:GN:52:ARG:CB    | 35:GN:84:THR:HG21  | 2.01                     | 0.86              |
| 1:H1:2519:A:H2'    | 1:H1:2520:G:C8     | 2.10                     | 0.86              |
| 7:HG:62:LEU:HB3    | 13:HN:4:PHE:CE2    | 2.11                     | 0.86              |
| 18:HU:166:VAL:HA   | 18:HU:169:ILE:CD1  | 2.06                     | 0.86              |
| 1:A1:1354:C:OP1    | 43:BV:208:ARG:NH2  | 2.08                     | 0.86              |
| 14:AO:19:ASN:HD21  | 45:BX:77:LEU:H     | 1.18                     | 0.86              |
| 14:AO:90:VAL:HG12  | 14:AO:111:LEU:HD11 | 1.58                     | 0.86              |
| 18:AU:169:ILE:CD1  | 32:BK:99:VAL:HB    | 2.06                     | 0.86              |
| 24:CC:89:THR:HG22  | 24:CC:91:ARG:H     | 1.41                     | 0.86              |
| 34:CM:163:LEU:HD21 | 34:CM:175:HIS:CG   | 2.11                     | 0.86              |
| 1:D1:1101:U:H5'    | 17:DT:49:ASN:HD22  | 1.39                     | 0.86              |
| 1:D1:1753:A:H4'    | 1:D1:1754:G:OP2    | 1.74                     | 0.86              |
| 1:D1:1881:C:H5''   | 1:D1:1882:A:OP2    | 1.75                     | 0.86              |
| 33:EL:26:ARG:HB3   | 33:EL:30:TYR:HE1   | 1.37                     | 0.86              |
| 43:EV:162:ASP:OD1  | 43:EV:163:ASN:N    | 2.09                     | 0.86              |
| 1:F1:1181:A:H4'    | 1:F1:1182:C:OP2    | 1.75                     | 0.86              |
| 19:FX:25:ALA:HA    | 19:FX:73:LEU:HG    | 1.58                     | 0.86              |
| 23:GB:171:GLN:HB2  | 1:H1:3273:U:H4'    | 1.55                     | 0.86              |
| 38:GQ:103:ASN:HD21 | 1:H1:388:A:H1'     | 1.39                     | 0.86              |
| 1:H1:2576:C:C5'    | 1:H1:2576:C:H6     | 1.88                     | 0.86              |
| 1:H1:2999:U:O4     | 50:H1:4347:HOH:O   | 1.93                     | 0.86              |
| 1:A1:146:U:O2'     | 27:BF:128:GLY:HA2  | 1.74                     | 0.86              |
| 1:A1:467:A:C6      | 1:A1:512:G:C2      | 2.63                     | 0.86              |
| 9:AJ:152:CYS:HB2   | 9:AJ:161:VAL:HG22  | 1.56                     | 0.86              |
| 24:BC:82:PRO:HB2   | 24:BC:96:ALA:HB3   | 1.55                     | 0.86              |
| 38:CQ:134:ALA:HB2  | 1:D1:905:G:C5'     | 2.05                     | 0.86              |
| 1:D1:1370:A:C2'    | 1:D1:1371:G:H5''   | 2.05                     | 0.86              |
| 4:DC:95:THR:HG22   | 4:DC:99:LYS:HE3    | 1.56                     | 0.86              |
| 23:EB:81:CYS:HB3   | 23:EB:203:VAL:HG21 | 1.55                     | 0.86              |
| 30:EI:196:PHE:CE2  | 6:FF:110:ARG:HD2   | 2.11                     | 0.86              |
| 34:EM:56:THR:HG22  | 34:EM:58:THR:H     | 1.40                     | 0.86              |
| 1:F1:40:C:H2'      | 1:F1:41:A:C5'      | 2.04                     | 0.86              |
| 1:F1:1383:G:OP2    | 1:F1:1383:G:H4'    | 1.76                     | 0.86              |
| 35:GN:82:VAL:HG22  | 35:GN:102:CYS:HB3  | 1.55                     | 0.86              |
| 1:H1:439:A:H5''    | 5:HE:126:HIS:ND1   | 1.91                     | 0.86              |
| 1:H1:1379:G:N1     | 5:HE:22:ASP:OD2    | 2.08                     | 0.86              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:HX:175:LYS:NZ   | 19:HX:178:ARG:HH11 | 1.73                     | 0.86              |
| 1:A1:215:G:N7      | 50:A1:3823:HOH:O   | 2.06                     | 0.86              |
| 1:A1:2273:C:C2'    | 1:A1:2274:A:H5''   | 2.05                     | 0.86              |
| 1:A1:2519:A:H2'    | 1:A1:2520:G:H8     | 1.39                     | 0.86              |
| 1:A1:2542:U:H4'    | 1:A1:2543:C:OP1    | 1.73                     | 0.86              |
| 6:AF:110:ARG:HD2   | 30:BI:196:PHE:CE2  | 2.11                     | 0.86              |
| 8:AH:56:VAL:HG22   | 8:AH:106:VAL:HA    | 1.58                     | 0.86              |
| 27:BF:19:ASN:HB3   | 27:BF:20:PRO:HD3   | 1.56                     | 0.86              |
| 30:BI:53:PHE:CE2   | 30:BI:144:VAL:HG11 | 2.11                     | 0.86              |
| 24:CC:105:ARG:HH11 | 24:CC:105:ARG:HG2  | 1.39                     | 0.86              |
| 35:CN:24:ASN:OD1   | 35:CN:27:HIS:HB2   | 1.76                     | 0.86              |
| 41:CT:22:ARG:HE    | 41:CT:32:PHE:HD2   | 1.19                     | 0.86              |
| 1:D1:2415:C:H2'    | 1:D1:2416:U:H5''   | 1.57                     | 0.86              |
| 23:EB:210:ASN:HD22 | 23:EB:351:ILE:HA   | 1.41                     | 0.86              |
| 29:EH:47:PRO:HB3   | 29:EH:171:TRP:CH2  | 2.10                     | 0.86              |
| 45:EX:44:VAL:HG12  | 45:EX:54:MET:HE2   | 1.56                     | 0.86              |
| 1:F1:1392:G:OP2    | 50:F1:3784:HOH:O   | 1.94                     | 0.86              |
| 27:GF:36:GLN:HG3   | 27:GF:37:PRO:HD2   | 1.57                     | 0.86              |
| 32:GK:81:TRP:CZ2   | 32:GK:123:VAL:HG22 | 2.11                     | 0.86              |
| 33:GL:14:LYS:NZ    | 1:H1:268:G:H5''    | 1.89                     | 0.86              |
| 1:H1:1374:C:H5''   | 1:H1:1375:A:OP1    | 1.76                     | 0.86              |
| 1:H1:1599:G:C2'    | 1:H1:1600:U:H5'    | 2.06                     | 0.86              |
| 1:A1:625:C:C2'     | 1:A1:626:C:H5'     | 2.05                     | 0.85              |
| 1:A1:971:C:H2'     | 1:A1:972:U:H5'     | 1.55                     | 0.85              |
| 1:A1:1832:G:OP2    | 50:A1:4419:HOH:O   | 1.92                     | 0.85              |
| 1:A1:1902:C:O2'    | 1:A1:1903:A:OP1    | 1.94                     | 0.85              |
| 1:A1:2416:U:H6     | 1:A1:2416:U:H5'    | 1.41                     | 0.85              |
| 22:BA:42:ILE:HD12  | 22:BA:43:ARG:H     | 1.41                     | 0.85              |
| 22:BA:119:GLU:N    | 22:BA:123:ASP:OD2  | 2.09                     | 0.85              |
| 25:BD:135:GLY:O    | 25:BD:138:VAL:HG23 | 1.76                     | 0.85              |
| 21:C3:96:U:O4      | 50:C3:313:HOH:O    | 1.94                     | 0.85              |
| 24:CC:6:GLN:HE21   | 1:D1:471:A:H4'     | 1.40                     | 0.85              |
| 27:CF:36:GLN:HG3   | 27:CF:37:PRO:HD2   | 1.57                     | 0.85              |
| 1:D1:654:U:OP2     | 50:D1:3922:HOH:O   | 1.93                     | 0.85              |
| 1:D1:1062:A:H2'    | 1:D1:1063:C:H5'    | 1.58                     | 0.85              |
| 1:D1:2416:U:H5'    | 1:D1:2416:U:H6     | 1.40                     | 0.85              |
| 20:E2:85:C:H4'     | 20:E2:85:C:OP1     | 1.74                     | 0.85              |
| 21:E3:46:C:OP1     | 34:EM:158:ARG:HG3  | 1.75                     | 0.85              |
| 24:EC:70:GLU:O     | 24:EC:82:PRO:HA    | 1.75                     | 0.85              |
| 32:EK:81:TRP:CZ2   | 32:EK:123:VAL:HG22 | 2.10                     | 0.85              |
| 1:F1:284:U:C5      | 1:F1:305:A:H5''    | 2.10                     | 0.85              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1507:A:O2'    | 1:F1:1882:A:H2'    | 1.74                     | 0.85              |
| 8:FH:56:VAL:HG22   | 8:FH:106:VAL:HA    | 1.56                     | 0.85              |
| 22:GA:244:THR:HG21 | 1:H1:2239:A:O4'    | 1.75                     | 0.85              |
| 24:GC:74:THR:CG2   | 1:H1:2397:A:H2'    | 2.06                     | 0.85              |
| 1:H1:1682:G:N7     | 50:H1:3829:HOH:O   | 2.09                     | 0.85              |
| 1:A1:832:A:H62     | 1:A1:959:G:H1      | 1.22                     | 0.85              |
| 24:CC:70:GLU:O     | 24:CC:82:PRO:HA    | 1.76                     | 0.85              |
| 42:CU:92:ILE:O     | 42:CU:95:LYS:HG2   | 1.76                     | 0.85              |
| 1:D1:1374:C:H5''   | 1:D1:1375:A:OP1    | 1.75                     | 0.85              |
| 1:D1:2390:G:C5     | 50:D1:4151:HOH:O   | 2.26                     | 0.85              |
| 7:DG:47:ASN:ND2    | 7:DG:73:SER:HB3    | 1.91                     | 0.85              |
| 24:EC:376:TRP:CB   | 1:F1:564:A:O2'     | 2.24                     | 0.85              |
| 34:EM:12:TYR:OH    | 1:F1:2677:U:OP1    | 1.92                     | 0.85              |
| 1:F1:47:G:H1'      | 1:F1:48:U:OP2      | 1.76                     | 0.85              |
| 1:F1:1710:U:OP1    | 12:FM:44:LYS:NZ    | 2.07                     | 0.85              |
| 22:GA:119:GLU:N    | 22:GA:123:ASP:OD2  | 2.08                     | 0.85              |
| 1:H1:361:A:C2'     | 1:H1:362:G:H5''    | 2.06                     | 0.85              |
| 1:H1:2415:C:C2'    | 1:H1:2416:U:H5''   | 2.05                     | 0.85              |
| 1:A1:1599:G:C2'    | 1:A1:1600:U:H5'    | 2.06                     | 0.85              |
| 9:AJ:23:TYR:HA     | 9:AJ:46:ILE:CG2    | 2.06                     | 0.85              |
| 21:B3:21:G:H4'     | 34:BM:277:PHE:CD2  | 2.10                     | 0.85              |
| 42:BU:92:ILE:O     | 42:BU:95:LYS:HG2   | 1.77                     | 0.85              |
| 35:CN:73:ASN:H     | 35:CN:76:ASN:HB2   | 1.41                     | 0.85              |
| 1:D1:1109:A:H1'    | 1:D1:1110:U:OP2    | 1.75                     | 0.85              |
| 1:D1:1235:U:H6     | 10:DK:109:ASN:HD21 | 1.19                     | 0.85              |
| 1:D1:2246:G:H2'    | 1:D1:2247:A:H8     | 1.41                     | 0.85              |
| 1:D1:2666:G:O6     | 1:D1:2669:A:N6     | 2.09                     | 0.85              |
| 23:EB:121:ASN:HB3  | 1:F1:3275:A:N6     | 1.91                     | 0.85              |
| 32:EK:27:LYS:NZ    | 1:F1:826:A:OP1     | 2.09                     | 0.85              |
| 46:EY:45:VAL:O     | 46:EY:45:VAL:HG23  | 1.73                     | 0.85              |
| 1:F1:630:G:H2'     | 1:F1:631:G:O4'     | 1.77                     | 0.85              |
| 8:FH:13:ARG:HH22   | 8:FH:17:LYS:CG     | 1.88                     | 0.85              |
| 9:FJ:54:GLY:HA3    | 9:FJ:75:THR:HG22   | 1.58                     | 0.85              |
| 27:GF:44:PHE:O     | 1:H1:2518:A:O2'    | 1.93                     | 0.85              |
| 33:GL:26:ARG:HB3   | 33:GL:30:TYR:HE1   | 1.39                     | 0.85              |
| 1:H1:904:U:O2'     | 1:H1:905:G:P       | 2.34                     | 0.85              |
| 1:H1:2666:G:O6     | 1:H1:2669:A:N6     | 2.09                     | 0.85              |
| 1:H1:3008:U:O4     | 50:H1:4286:HOH:O   | 1.94                     | 0.85              |
| 11:HL:91:ILE:HG12  | 13:HN:144:PHE:CE2  | 2.09                     | 0.85              |
| 1:A1:26:C:H2'      | 1:A1:27:C:H5'      | 1.58                     | 0.85              |
| 1:A1:1201:G:H21    | 30:BI:86:MET:CE    | 1.89                     | 0.85              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1758:U:H4'    | 1:A1:1759:C:OP2    | 1.74                     | 0.85              |
| 18:AU:169:ILE:HD11 | 32:BK:99:VAL:HB    | 1.56                     | 0.85              |
| 29:CH:47:PRO:HB3   | 29:CH:171:TRP:CH2  | 2.12                     | 0.85              |
| 1:D1:2353:C:N3     | 50:D1:4465:HOH:O   | 2.08                     | 0.85              |
| 2:DA:44:MET:HA     | 2:DA:44:MET:CE     | 2.05                     | 0.85              |
| 24:EC:25:LEU:HD12  | 24:EC:26:PRO:HD2   | 1.59                     | 0.85              |
| 30:EI:86:MET:CE    | 1:F1:1201:G:H21    | 1.89                     | 0.85              |
| 1:F1:47:G:OP2      | 50:F1:3626:HOH:O   | 1.93                     | 0.85              |
| 1:F1:622:G:O2'     | 5:FE:26:THR:O      | 1.94                     | 0.85              |
| 20:G2:134:C:O2'    | 20:G2:135:A:OP1    | 1.94                     | 0.85              |
| 28:GG:81:UNK:HG3   | 1:H1:1308:U:C2'    | 2.07                     | 0.85              |
| 34:GM:177:GLU:HA   | 34:GM:180:PHE:HD2  | 1.41                     | 0.85              |
| 37:GP:139:VAL:HG21 | 19:HX:30:ILE:HD11  | 1.57                     | 0.85              |
| 1:H1:299:G:C2'     | 1:H1:300:G:H5''    | 2.07                     | 0.85              |
| 1:H1:2181:U:OP1    | 50:H1:3957:HOH:O   | 1.94                     | 0.85              |
| 1:A1:686:U:H1'     | 24:BC:107:PHE:HE2  | 1.40                     | 0.85              |
| 1:A1:1114:C:H2'    | 1:A1:1115:U:H5'    | 1.58                     | 0.85              |
| 12:AM:45:VAL:HB    | 12:AM:51:ASN:ND2   | 1.90                     | 0.85              |
| 24:CC:25:LEU:HD12  | 24:CC:26:PRO:HD2   | 1.59                     | 0.85              |
| 24:CC:311:ALA:H    | 35:CN:40:ARG:NH2   | 1.74                     | 0.85              |
| 34:CM:6:VAL:HG12   | 1:D1:1065:U:OP1    | 1.75                     | 0.85              |
| 1:D1:2247:A:H2'    | 1:D1:2248:G:C8     | 2.11                     | 0.85              |
| 2:DA:28:HIS:CD2    | 2:DA:31:LYS:H      | 1.94                     | 0.85              |
| 24:EC:119:ARG:NH2  | 1:F1:704:G:O2'     | 2.09                     | 0.85              |
| 27:EF:196:VAL:HG13 | 27:EF:200:ASP:HB2  | 1.56                     | 0.85              |
| 1:F1:40:C:C2'      | 1:F1:41:A:H5''     | 2.05                     | 0.85              |
| 30:GI:184:PRO:O    | 30:GI:187:LYS:HG2  | 1.77                     | 0.85              |
| 45:GX:44:VAL:HG12  | 45:GX:54:MET:HE2   | 1.57                     | 0.85              |
| 1:H1:115:G:H4'     | 1:H1:116:U:OP1     | 1.73                     | 0.85              |
| 1:A1:1096:G:H2'    | 1:A1:1097:G:H5''   | 1.56                     | 0.85              |
| 22:BA:114:VAL:CG1  | 22:BA:165:ALA:HB1  | 2.05                     | 0.85              |
| 23:BB:81:CYS:HB3   | 23:BB:203:VAL:HG21 | 1.59                     | 0.85              |
| 35:BN:24:ASN:OD1   | 35:BN:27:HIS:HB2   | 1.75                     | 0.85              |
| 20:C2:58:U:H3      | 20:C2:65:C:H5      | 1.23                     | 0.85              |
| 24:CC:227:LEU:HA   | 24:CC:230:ILE:HD12 | 1.58                     | 0.85              |
| 32:CK:14:HIS:ND1   | 50:CK:203:HOH:O    | 2.10                     | 0.85              |
| 38:CQ:82:GLN:NE2   | 1:D1:2383:U:O2'    | 2.09                     | 0.85              |
| 1:D1:1185:A:C3'    | 1:D1:1186:A:H5''   | 2.07                     | 0.85              |
| 1:D1:1337:G:OP1    | 50:D1:4382:HOH:O   | 1.94                     | 0.85              |
| 1:D1:1383:G:H4'    | 1:D1:1383:G:OP2    | 1.76                     | 0.85              |
| 1:D1:1518:G:OP1    | 2:DA:14:LYS:NZ     | 2.09                     | 0.85              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1599:G:C2'    | 1:D1:1600:U:H5'    | 2.06                     | 0.85              |
| 1:D1:2934:A:H5''   | 1:D1:2935:G:O5'    | 1.77                     | 0.85              |
| 18:DU:166:VAL:HA   | 18:DU:169:ILE:CD1  | 2.06                     | 0.85              |
| 20:E2:4:A:N6       | 50:E2:329:HOH:O    | 2.09                     | 0.85              |
| 1:F1:711:U:H3      | 1:F1:718:A:H61     | 1.20                     | 0.85              |
| 4:FC:19:THR:HG21   | 4:FC:72:CYS:SG     | 2.16                     | 0.85              |
| 21:G3:40:C:H5''    | 21:G3:41:G:OP2     | 1.75                     | 0.85              |
| 23:GB:81:CYS:HB3   | 23:GB:203:VAL:HG21 | 1.55                     | 0.85              |
| 23:GB:171:GLN:NE2  | 1:H1:3273:U:OP1    | 2.09                     | 0.85              |
| 34:GM:3:PHE:HZ     | 1:H1:1041:C:C2     | 1.94                     | 0.85              |
| 35:GN:73:ASN:H     | 35:GN:76:ASN:HB2   | 1.40                     | 0.85              |
| 45:GX:43:ARG:NH1   | 1:H1:662:C:OP2     | 2.09                     | 0.85              |
| 45:GX:45:ARG:HA    | 45:GX:54:MET:HE1   | 1.58                     | 0.85              |
| 1:H1:1434:G:H2'    | 1:H1:1435:C:H5''   | 1.58                     | 0.85              |
| 1:H1:1445:G:C2'    | 1:H1:1446:C:H5''   | 2.06                     | 0.85              |
| 1:H1:1595:A:C5     | 1:H1:1596:U:H1'    | 2.12                     | 0.85              |
| 9:AJ:54:GLY:HA3    | 9:AJ:75:THR:HG22   | 1.59                     | 0.85              |
| 20:B2:58:U:H3      | 20:B2:65:C:H5      | 1.24                     | 0.85              |
| 34:CM:125:VAL:HG21 | 34:CM:205:PHE:CE1  | 2.11                     | 0.85              |
| 30:EI:196:PHE:CE1  | 6:FF:111:VAL:HG22  | 2.11                     | 0.85              |
| 32:EK:99:VAL:HB    | 18:FU:169:ILE:CD1  | 2.07                     | 0.85              |
| 37:EP:27:ILE:HA    | 37:EP:30:TYR:HD2   | 1.41                     | 0.85              |
| 46:EY:10:ILE:HD11  | 46:EY:30:GLU:HB2   | 1.56                     | 0.85              |
| 1:F1:1321:A:O2'    | 1:F1:1322:G:O5'    | 1.93                     | 0.85              |
| 1:F1:2416:U:H5'    | 1:F1:2416:U:H6     | 1.42                     | 0.85              |
| 1:F1:3162:A:H4'    | 1:F1:3163:A:OP1    | 1.76                     | 0.85              |
| 7:FG:63:ALA:HB1    | 13:FN:2:ALA:HB1    | 1.59                     | 0.85              |
| 20:G2:96:A:O2'     | 2:HA:83:THR:O      | 1.94                     | 0.85              |
| 46:GY:61:LYS:NZ    | 11:HL:49:CYS:O     | 2.09                     | 0.85              |
| 1:H1:1185:A:C3'    | 1:H1:1186:A:H5''   | 2.06                     | 0.85              |
| 1:A1:2766:A:H2'    | 1:A1:2767:A:H5'    | 1.58                     | 0.85              |
| 22:BA:134:TYR:HB3  | 22:BA:169:ILE:HG12 | 1.58                     | 0.85              |
| 24:BC:36:ASP:OD1   | 35:BN:23:THR:HB    | 1.76                     | 0.85              |
| 26:CE:38:PHE:CE2   | 26:CE:71:ILE:HG23  | 2.12                     | 0.85              |
| 1:D1:1758:U:H4'    | 1:D1:1759:C:OP2    | 1.77                     | 0.85              |
| 20:E2:134:C:O2'    | 20:E2:135:A:OP1    | 1.95                     | 0.85              |
| 34:EM:163:LEU:HD21 | 34:EM:175:HIS:CG   | 2.12                     | 0.85              |
| 43:EV:93:HIS:CD2   | 43:EV:95:ASP:HB2   | 2.12                     | 0.85              |
| 45:EX:77:LEU:H     | 14:FO:19:ASN:HD21  | 1.24                     | 0.85              |
| 1:F1:2244:G:H2'    | 1:F1:2245:G:C8     | 2.11                     | 0.85              |
| 1:F1:3047:U:H4'    | 1:F1:3048:A:OP1    | 1.75                     | 0.85              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:GC:376:TRP:HB3 | 1:H1:564:A:O2'     | 1.75                     | 0.85              |
| 28:GG:31:UNK:CA   | 1:H1:1257:G:H4'    | 2.06                     | 0.85              |
| 35:GN:21:LYS:O    | 1:H1:696:A:H5''    | 1.76                     | 0.85              |
| 1:H1:790:C:H4'    | 1:H1:791:C:OP1     | 1.75                     | 0.85              |
| 1:H1:832:A:H2     | 1:H1:2406:U:HO2'   | 0.91                     | 0.85              |
| 1:H1:1507:A:O2'   | 1:H1:1882:A:H2'    | 1.76                     | 0.85              |
| 1:H1:1902:C:O2'   | 1:H1:1903:A:OP1    | 1.95                     | 0.85              |
| 1:H1:2295:G:N7    | 50:H1:4198:HOH:O   | 2.07                     | 0.85              |
| 6:HF:32:ASN:OD1   | 6:HF:34:ASN:N      | 2.09                     | 0.85              |
| 1:A1:718:A:C4'    | 24:BC:242:ASN:HD21 | 1.89                     | 0.85              |
| 1:A1:718:A:H4'    | 24:BC:242:ASN:HD21 | 1.41                     | 0.85              |
| 1:A1:1181:A:H4'   | 1:A1:1182:C:OP2    | 1.76                     | 0.85              |
| 1:A1:3151:G:OP1   | 8:AH:64:LYS:HG3    | 1.77                     | 0.85              |
| 2:AA:44:MET:HA    | 2:AA:44:MET:CE     | 2.07                     | 0.85              |
| 18:AU:144:SER:HB2 | 42:BU:123:LYS:HZ3  | 1.38                     | 0.85              |
| 20:B2:84:C:OP1    | 42:BU:3:LYS:HG2    | 1.77                     | 0.85              |
| 45:BX:45:ARG:HA   | 45:BX:54:MET:HE1   | 1.59                     | 0.85              |
| 20:C2:36:G:C5'    | 1:D1:57:G:H2'      | 2.06                     | 0.85              |
| 1:D1:971:C:H2'    | 1:D1:972:U:H5'     | 1.56                     | 0.85              |
| 1:D1:2544:U:H1'   | 7:DG:50:THR:CG2    | 2.06                     | 0.85              |
| 45:EX:98:ILE:N    | 45:EX:123:ASN:HD21 | 1.73                     | 0.85              |
| 1:F1:75:A:H8      | 18:FU:71:ARG:HH12  | 1.23                     | 0.85              |
| 1:F1:1108:A:H4'   | 1:F1:1109:A:OP1    | 1.74                     | 0.85              |
| 1:F1:1753:A:H4'   | 1:F1:1754:G:OP2    | 1.75                     | 0.85              |
| 21:G3:63:A:N7     | 29:GH:209:LEU:HD11 | 1.91                     | 0.85              |
| 28:GG:40:UNK:HG2  | 28:GG:102:UNK:HG1  | 1.59                     | 0.85              |
| 1:H1:2128:C:OP1   | 50:H1:3897:HOH:O   | 1.94                     | 0.85              |
| 1:H1:2370:G:OP2   | 50:H1:3762:HOH:O   | 1.95                     | 0.85              |
| 19:HX:168:THR:H   | 19:HX:188:THR:HG23 | 1.41                     | 0.85              |
| 1:A1:1580:G:H4'   | 1:A1:1581:C:OP1    | 1.74                     | 0.85              |
| 1:A1:2254:A:C6    | 1:A1:2255:U:C4     | 2.65                     | 0.85              |
| 25:BD:50:ALA:HB1  | 25:BD:59:ILE:CG2   | 2.07                     | 0.85              |
| 34:BM:179:ARG:HE  | 34:BM:185:ARG:HH22 | 1.25                     | 0.85              |
| 28:CG:33:UNK:HG3  | 28:CG:36:UNK:HG2   | 1.57                     | 0.85              |
| 43:CV:93:HIS:CD2  | 43:CV:95:ASP:HB2   | 2.12                     | 0.85              |
| 1:D1:1731:G:H21   | 11:DL:54:ASN:ND2   | 1.75                     | 0.85              |
| 8:DH:54:LYS:NZ    | 8:DH:108:LEU:O     | 2.09                     | 0.85              |
| 19:DX:7:GLN:OE1   | 19:DX:79:TYR:HB3   | 1.77                     | 0.85              |
| 20:E2:32:C:H2'    | 20:E2:33:C:H6      | 1.39                     | 0.85              |
| 1:F1:1430:G:N7    | 50:F1:3789:HOH:O   | 2.10                     | 0.85              |
| 9:FJ:88:LEU:HD12  | 9:FJ:89:PRO:HD2    | 1.58                     | 0.85              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:FX:158:ASN:HD21 | 19:FX:160:ALA:HB3  | 1.38                     | 0.85              |
| 29:GH:18:PRO:O     | 29:GH:23:ASN:ND2   | 2.10                     | 0.85              |
| 32:GK:88:THR:HG23  | 18:HU:164:LYS:HZ2  | 1.41                     | 0.85              |
| 34:GM:3:PHE:HZ     | 1:H1:1041:C:O2     | 1.57                     | 0.85              |
| 1:A1:388:A:C1'     | 38:BQ:103:ASN:HD21 | 1.88                     | 0.84              |
| 1:A1:1186:A:O2'    | 1:A1:1187:C:OP2    | 1.94                     | 0.84              |
| 24:BC:283:TYR:CE1  | 24:BC:285:LEU:HD23 | 2.12                     | 0.84              |
| 34:CM:106:ALA:HA   | 34:CM:171:ILE:HD11 | 1.58                     | 0.84              |
| 45:CX:98:ILE:N     | 45:CX:123:ASN:HD21 | 1.73                     | 0.84              |
| 1:D1:1434:G:H2'    | 1:D1:1435:C:H5''   | 1.59                     | 0.84              |
| 11:DL:5:ILE:HG22   | 11:DL:6:THR:H      | 1.41                     | 0.84              |
| 12:DM:45:VAL:HB    | 12:DM:51:ASN:ND2   | 1.92                     | 0.84              |
| 26:EE:126:ALA:HB2  | 26:EE:132:ILE:HD11 | 1.56                     | 0.84              |
| 28:EG:22:UNK:HG2   | 28:EG:92:UNK:HB1   | 1.59                     | 0.84              |
| 28:EG:40:UNK:HG2   | 28:EG:102:UNK:HG1  | 1.59                     | 0.84              |
| 1:F1:1114:C:H2'    | 1:F1:1115:U:H5'    | 1.57                     | 0.84              |
| 1:F1:2576:C:C5'    | 1:F1:2576:C:H6     | 1.89                     | 0.84              |
| 2:FA:28:HIS:CD2    | 2:FA:31:LYS:H      | 1.94                     | 0.84              |
| 12:FM:45:VAL:HB    | 12:FM:51:ASN:ND2   | 1.91                     | 0.84              |
| 24:GC:167:GLU:HG2  | 24:GC:222:THR:HG21 | 1.58                     | 0.84              |
| 24:GC:242:ASN:ND2  | 1:H1:718:A:H4'     | 1.92                     | 0.84              |
| 30:GI:61:MET:CE    | 30:GI:68:GLY:HA3   | 2.07                     | 0.84              |
| 32:GK:88:THR:HG23  | 18:HU:164:LYS:NZ   | 1.90                     | 0.84              |
| 1:H1:1037:A:H2'    | 1:H1:1038:G:H8     | 1.42                     | 0.84              |
| 18:HU:132:LYS:HA   | 18:HU:135:LEU:HD12 | 1.58                     | 0.84              |
| 1:A1:1313:A:H4'    | 1:A1:1314:A:OP1    | 1.77                     | 0.84              |
| 1:A1:2521:A:N1     | 27:BF:43:ARG:NH1   | 2.25                     | 0.84              |
| 17:AT:47:ILE:O     | 17:AT:55:LYS:NZ    | 2.09                     | 0.84              |
| 22:BA:210:HIS:CD2  | 22:BA:212:HIS:H    | 1.91                     | 0.84              |
| 23:CB:210:ASN:HD22 | 23:CB:351:ILE:HA   | 1.42                     | 0.84              |
| 27:CF:121:LYS:HD3  | 1:D1:118:A:N7      | 1.91                     | 0.84              |
| 30:CI:86:MET:HE2   | 1:D1:1202:C:H1'    | 1.56                     | 0.84              |
| 32:CK:36:LYS:HA    | 18:DU:1:MET:HE1    | 1.58                     | 0.84              |
| 1:D1:284:U:C5      | 1:D1:305:A:H5''    | 2.09                     | 0.84              |
| 1:D1:2576:C:C5'    | 1:D1:2576:C:H6     | 1.90                     | 0.84              |
| 24:EC:242:ASN:HD21 | 1:F1:718:A:C4'     | 1.89                     | 0.84              |
| 27:EF:100:LYS:NZ   | 1:F1:120:A:OP1     | 2.10                     | 0.84              |
| 45:EX:62:ASP:HB2   | 1:F1:1365:C:O3'    | 1.77                     | 0.84              |
| 32:GK:48:GLU:OE1   | 32:GK:48:GLU:HA    | 1.74                     | 0.84              |
| 35:GN:24:ASN:OD1   | 35:GN:27:HIS:HB2   | 1.75                     | 0.84              |
| 37:GP:13:LYS:NZ    | 1:H1:1021:U:OP2    | 2.09                     | 0.84              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1101:U:H5'    | 17:HT:49:ASN:ND2   | 1.91                     | 0.84              |
| 1:H1:2334:C:H4'    | 1:H1:2335:U:OP1    | 1.75                     | 0.84              |
| 1:A1:444:A:C2      | 1:A1:533:G:N2      | 2.45                     | 0.84              |
| 1:A1:643:A:O2'     | 5:AE:131:LYS:HE2   | 1.77                     | 0.84              |
| 1:A1:2394:A:N7     | 50:A1:4263:HOH:O   | 2.08                     | 0.84              |
| 7:AG:13:LYS:HB2    | 7:AG:100:ILE:HD12  | 1.58                     | 0.84              |
| 7:AG:47:ASN:ND2    | 7:AG:73:SER:HB3    | 1.91                     | 0.84              |
| 9:AJ:88:LEU:HD12   | 9:AJ:89:PRO:HD2    | 1.59                     | 0.84              |
| 16:AQ:37:ARG:NH2   | 33:BL:2:GLY:N      | 2.24                     | 0.84              |
| 29:BH:47:PRO:HB3   | 29:BH:171:TRP:CH2  | 2.12                     | 0.84              |
| 42:BU:34:ILE:HA    | 42:BU:37:ILE:HD12  | 1.58                     | 0.84              |
| 24:CC:36:ASP:OD1   | 35:CN:23:THR:HB    | 1.78                     | 0.84              |
| 38:CQ:120:GLN:HB3  | 38:CQ:149:GLU:HG2  | 1.58                     | 0.84              |
| 38:CQ:131:THR:HG23 | 1:D1:1533:G:H22    | 1.42                     | 0.84              |
| 1:D1:2596:G:OP2    | 50:D1:4111:HOH:O   | 1.95                     | 0.84              |
| 27:EF:44:PHE:O     | 1:F1:2518:A:O2'    | 1.94                     | 0.84              |
| 1:F1:842:A:OP2     | 50:F1:3892:HOH:O   | 1.94                     | 0.84              |
| 7:FG:47:ASN:ND2    | 7:FG:73:SER:HB3    | 1.92                     | 0.84              |
| 30:GI:84:ARG:HE    | 30:GI:89:HIS:CD2   | 1.95                     | 0.84              |
| 9:HJ:54:GLY:HA3    | 9:HJ:75:THR:HG22   | 1.59                     | 0.84              |
| 1:A1:1534:C:OP1    | 38:BQ:129:ARG:NH2  | 2.10                     | 0.84              |
| 1:A1:2899:C:OP1    | 50:A1:4435:HOH:O   | 1.95                     | 0.84              |
| 32:CK:81:TRP:CZ2   | 32:CK:123:VAL:HG22 | 2.12                     | 0.84              |
| 34:CM:3:PHE:HZ     | 1:D1:1041:C:O2     | 1.60                     | 0.84              |
| 1:D1:1114:C:H2'    | 1:D1:1115:U:H5'    | 1.59                     | 0.84              |
| 1:D1:1597:U:H2'    | 1:D1:1598:C:C6     | 2.13                     | 0.84              |
| 1:D1:2542:U:H4'    | 1:D1:2543:C:OP1    | 1.76                     | 0.84              |
| 23:EB:171:GLN:NE2  | 1:F1:3273:U:OP1    | 2.10                     | 0.84              |
| 1:F1:71:U:O2'      | 1:F1:72:A:OP1      | 1.96                     | 0.84              |
| 6:FF:32:ASN:OD1    | 6:FF:34:ASN:N      | 2.09                     | 0.84              |
| 35:GN:89:ASN:HD22  | 35:GN:109:THR:CG2  | 1.90                     | 0.84              |
| 1:H1:1109:A:H1'    | 1:H1:1110:U:OP2    | 1.77                     | 0.84              |
| 1:H1:1321:A:O2'    | 1:H1:1322:G:O5'    | 1.94                     | 0.84              |
| 1:H1:3044:A:H2'    | 1:H1:3074:G:H1     | 1.42                     | 0.84              |
| 1:A1:1185:A:C3'    | 1:A1:1186:A:H5''   | 2.05                     | 0.84              |
| 1:A1:1595:A:C5     | 1:A1:1596:U:H1'    | 2.12                     | 0.84              |
| 45:CX:62:ASP:HB2   | 1:D1:1365:C:O3'    | 1.78                     | 0.84              |
| 1:D1:2932:U:H5''   | 1:D1:2933:G:OP2    | 1.76                     | 0.84              |
| 19:DX:25:ALA:HB1   | 19:DX:71:ARG:O     | 1.77                     | 0.84              |
| 28:EG:15:UNK:HG3   | 28:EG:65:UNK:CA    | 2.03                     | 0.84              |
| 1:F1:2273:C:C2'    | 1:F1:2274:A:H5''   | 2.06                     | 0.84              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2720:G:C2'    | 1:F1:2721:G:H5'    | 2.07                     | 0.84              |
| 17:FT:8:THR:HG22   | 17:FT:10:LYS:H     | 1.43                     | 0.84              |
| 24:GC:119:ARG:NH2  | 1:H1:704:G:O2'     | 2.09                     | 0.84              |
| 1:H1:219:A:H2      | 1:H1:1416:U:H2'    | 1.42                     | 0.84              |
| 1:H1:1370:A:C2'    | 1:H1:1371:G:H5''   | 2.06                     | 0.84              |
| 19:HX:158:ASN:HD21 | 19:HX:160:ALA:HB3  | 1.40                     | 0.84              |
| 1:A1:1379:G:N1     | 5:AE:22:ASP:OD2    | 2.11                     | 0.84              |
| 5:AE:69:LEU:HD23   | 5:AE:71:SER:OG     | 1.77                     | 0.84              |
| 29:BH:18:PRO:O     | 29:BH:23:ASN:ND2   | 2.09                     | 0.84              |
| 21:C3:40:C:H5''    | 21:C3:41:G:OP2     | 1.78                     | 0.84              |
| 29:CH:55:ASP:O     | 29:CH:131:ILE:HG12 | 1.78                     | 0.84              |
| 22:EA:210:HIS:CD2  | 22:EA:212:HIS:H    | 1.90                     | 0.84              |
| 27:EF:103:ARG:HG3  | 27:EF:107:GLN:NE2  | 1.93                     | 0.84              |
| 1:F1:220:C:H4'     | 1:F1:221:A:OP2     | 1.78                     | 0.84              |
| 1:F1:707:A:OP2     | 50:F1:4488:HOH:O   | 1.95                     | 0.84              |
| 1:F1:1051:C:H2'    | 1:F1:1052:A:O4'    | 1.78                     | 0.84              |
| 27:GF:122:PRO:CG   | 1:H1:119:A:C2      | 2.61                     | 0.84              |
| 1:H1:418:G:O6      | 1:H1:2378:A:O2'    | 1.95                     | 0.84              |
| 1:H1:2694:A:H4'    | 50:H1:4330:HOH:O   | 1.77                     | 0.84              |
| 7:HG:13:LYS:HB2    | 7:HG:100:ILE:HD12  | 1.60                     | 0.84              |
| 9:HJ:152:CYS:HB2   | 9:HJ:161:VAL:HG22  | 1.58                     | 0.84              |
| 1:A1:57:G:O3'      | 1:A1:58:A:H4'      | 1.78                     | 0.84              |
| 1:A1:701:A:H3'     | 35:BN:91:GLU:HG2   | 1.57                     | 0.84              |
| 1:A1:728:G:OP2     | 50:A1:3782:HOH:O   | 1.93                     | 0.84              |
| 1:A1:1434:G:C2'    | 1:A1:1435:C:H5''   | 2.07                     | 0.84              |
| 1:A1:2310:G:OP1    | 50:A1:4189:HOH:O   | 1.94                     | 0.84              |
| 4:AC:95:THR:HG22   | 4:AC:99:LYS:HE3    | 1.59                     | 0.84              |
| 20:B2:74:A:N6      | 20:B2:88:G:H1'     | 1.91                     | 0.84              |
| 21:B3:8:G:P        | 34:BM:33:ARG:HH12  | 2.00                     | 0.84              |
| 34:BM:106:ALA:HA   | 34:BM:171:ILE:HD11 | 1.58                     | 0.84              |
| 21:C3:13:A:O2'     | 34:CM:24:ARG:NH2   | 2.11                     | 0.84              |
| 30:CI:86:MET:CE    | 1:D1:1201:G:H21    | 1.91                     | 0.84              |
| 33:CL:30:TYR:HE2   | 33:CL:63:ARG:HD3   | 1.38                     | 0.84              |
| 1:D1:805:A:H4'     | 1:D1:806:G:OP2     | 1.78                     | 0.84              |
| 1:D1:2766:A:H2'    | 1:D1:2767:A:H5'    | 1.57                     | 0.84              |
| 6:DF:107:ASP:O     | 6:DF:111:VAL:HG23  | 1.76                     | 0.84              |
| 23:EB:278:LYS:NZ   | 23:EB:325:CYS:O    | 2.10                     | 0.84              |
| 30:EI:84:ARG:HE    | 30:EI:89:HIS:CD2   | 1.96                     | 0.84              |
| 35:EN:89:ASN:HD22  | 35:EN:109:THR:CG2  | 1.91                     | 0.84              |
| 1:F1:971:C:H2'     | 1:F1:972:U:H5'     | 1.57                     | 0.84              |
| 13:FN:24:VAL:HG23  | 13:FN:138:PHE:CE1  | 2.13                     | 0.84              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:GV:141:ILE:O    | 43:GV:145:ILE:HG13 | 1.77                     | 0.84              |
| 1:H1:531:C:C2'     | 1:H1:532:G:H5'     | 2.08                     | 0.84              |
| 1:H1:2665:G:H4'    | 1:H1:2666:G:O5'    | 1.78                     | 0.84              |
| 1:A1:291:C:C2'     | 1:A1:292:C:H5''    | 2.06                     | 0.84              |
| 1:A1:591:G:H2'     | 1:A1:592:A:C8      | 2.12                     | 0.84              |
| 1:A1:1374:C:H5''   | 1:A1:1375:A:OP1    | 1.77                     | 0.84              |
| 1:A1:1597:U:H2'    | 1:A1:1598:C:C6     | 2.13                     | 0.84              |
| 1:A1:2320:G:N7     | 50:A1:4085:HOH:O   | 2.11                     | 0.84              |
| 17:AT:8:THR:HG22   | 17:AT:10:LYS:H     | 1.43                     | 0.84              |
| 27:BF:126:LYS:CE   | 27:BF:135:LEU:HD13 | 2.06                     | 0.84              |
| 1:D1:284:U:H1'     | 50:D1:3848:HOH:O   | 1.75                     | 0.84              |
| 24:EC:238:VAL:HG21 | 24:EC:262:ALA:HA   | 1.57                     | 0.84              |
| 1:F1:531:C:C2'     | 1:F1:532:G:H5'     | 2.08                     | 0.84              |
| 1:F1:2265:A:H8     | 1:F1:2265:A:H5''   | 1.42                     | 0.84              |
| 2:FA:44:MET:HA     | 2:FA:44:MET:CE     | 2.08                     | 0.84              |
| 30:GI:197:GLY:HA2  | 6:HF:99:LYS:HD3    | 1.59                     | 0.84              |
| 34:GM:179:ARG:HE   | 34:GM:185:ARG:HH22 | 1.26                     | 0.84              |
| 41:GT:15:ILE:HG12  | 41:GT:34:LEU:HD13  | 1.60                     | 0.84              |
| 1:H1:447:G:O6      | 50:H1:4465:HOH:O   | 1.95                     | 0.84              |
| 1:H1:1753:A:H4'    | 1:H1:1754:G:OP2    | 1.75                     | 0.84              |
| 1:A1:2370:G:OP2    | 50:A1:3944:HOH:O   | 1.95                     | 0.84              |
| 2:AA:83:THR:O      | 20:B2:96:A:O2'     | 1.96                     | 0.84              |
| 13:AN:83:THR:HG22  | 13:AN:85:TYR:H     | 1.41                     | 0.84              |
| 43:BV:93:HIS:CD2   | 43:BV:95:ASP:HB2   | 2.13                     | 0.84              |
| 28:CG:40:UNK:HG2   | 28:CG:102:UNK:HG1  | 1.58                     | 0.84              |
| 47:CO:162:UNK:O    | 47:CO:165:UNK:HG3  | 1.78                     | 0.84              |
| 1:D1:2575:G:H4'    | 1:D1:2576:C:OP2    | 1.75                     | 0.84              |
| 21:E3:13:A:N3      | 34:EM:24:ARG:NH2   | 2.24                     | 0.84              |
| 32:EK:68:ASN:HB3   | 18:FU:60:THR:HG23  | 1.60                     | 0.84              |
| 1:F1:610:A:H2'     | 1:F1:611:A:C8      | 2.13                     | 0.84              |
| 1:F1:1313:A:H4'    | 1:F1:1314:A:OP1    | 1.75                     | 0.84              |
| 1:F1:3227:A:H1'    | 5:FE:86:PRO:HG3    | 1.59                     | 0.84              |
| 21:G3:28:C:H2'     | 21:G3:29:C:H5'     | 1.60                     | 0.84              |
| 24:GC:304:VAL:O    | 24:GC:308:VAL:HG23 | 1.77                     | 0.84              |
| 38:GQ:131:THR:HG23 | 1:H1:1533:G:H22    | 1.43                     | 0.84              |
| 4:HC:95:THR:HG22   | 4:HC:99:LYS:HE3    | 1.59                     | 0.84              |
| 5:HE:102:VAL:HG22  | 5:HE:170:LEU:HD21  | 1.57                     | 0.84              |
| 8:HH:13:ARG:HH22   | 8:HH:17:LYS:CG     | 1.90                     | 0.84              |
| 1:A1:1383:G:H4'    | 1:A1:1383:G:OP2    | 1.77                     | 0.84              |
| 21:B3:83:G:H22     | 21:B3:93:G:N2      | 1.76                     | 0.84              |
| 24:BC:304:VAL:O    | 24:BC:308:VAL:HG23 | 1.77                     | 0.84              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 47:CO:161:UNK:O    | 47:CO:164:UNK:HG3  | 1.77                     | 0.84              |
| 45:CX:44:VAL:HG12  | 45:CX:54:MET:HE2   | 1.60                     | 0.84              |
| 1:D1:630:G:H2'     | 1:D1:631:G:O4'     | 1.78                     | 0.84              |
| 1:D1:3008:U:O4     | 50:D1:4738:HOH:O   | 1.96                     | 0.84              |
| 1:D1:3236:C:O2'    | 1:D1:3237:C:OP1    | 1.96                     | 0.84              |
| 9:DJ:23:TYR:HA     | 9:DJ:46:ILE:CG2    | 2.07                     | 0.84              |
| 16:DQ:57:ARG:O     | 16:DQ:60:GLU:HG2   | 1.77                     | 0.84              |
| 32:EK:68:ASN:HB3   | 18:FU:60:THR:CG2   | 2.08                     | 0.84              |
| 38:EQ:134:ALA:HB2  | 1:F1:905:G:C5'     | 2.07                     | 0.84              |
| 1:F1:26:C:H2'      | 1:F1:27:C:H5'      | 1.59                     | 0.84              |
| 1:F1:1758:U:H4'    | 1:F1:1759:C:OP2    | 1.75                     | 0.84              |
| 1:F1:2665:G:H4'    | 1:F1:2666:G:O5'    | 1.78                     | 0.84              |
| 11:FL:91:ILE:HG12  | 13:FN:144:PHE:CE2  | 2.12                     | 0.84              |
| 19:FX:22:VAL:CG1   | 19:FX:40:GLN:HE21  | 1.91                     | 0.84              |
| 20:G2:3:A:OP1      | 20:G2:4:A:N7       | 2.11                     | 0.84              |
| 43:GV:93:HIS:CD2   | 43:GV:95:ASP:HB2   | 2.13                     | 0.84              |
| 1:H1:2273:C:C2'    | 1:H1:2274:A:H5''   | 2.08                     | 0.84              |
| 16:HQ:37:ARG:O     | 16:HQ:41:VAL:HG23  | 1.78                     | 0.84              |
| 1:A1:146:U:H4'     | 1:A1:147:U:O5'     | 1.76                     | 0.83              |
| 1:A1:299:G:C2'     | 1:A1:300:G:H5''    | 2.08                     | 0.83              |
| 1:A1:1201:G:N2     | 30:BI:86:MET:HE3   | 1.93                     | 0.83              |
| 1:A1:2255:U:O2'    | 1:A1:2301:C:H5''   | 1.75                     | 0.83              |
| 1:A1:3237:C:N4     | 8:AH:10:ALA:HA     | 1.92                     | 0.83              |
| 24:BC:227:LEU:HA   | 24:BC:230:ILE:HD12 | 1.60                     | 0.83              |
| 24:BC:238:VAL:HG21 | 24:BC:262:ALA:HA   | 1.57                     | 0.83              |
| 21:C3:10:C:C2      | 34:CM:20:TYR:HD1   | 1.96                     | 0.83              |
| 30:CI:53:PHE:CE2   | 30:CI:144:VAL:HG11 | 2.12                     | 0.83              |
| 32:CK:99:VAL:HB    | 18:DU:169:ILE:HD11 | 1.59                     | 0.83              |
| 37:CP:27:ILE:HA    | 37:CP:30:TYR:HD2   | 1.40                     | 0.83              |
| 38:CQ:103:ASN:ND2  | 1:D1:388:A:O2'     | 2.11                     | 0.83              |
| 9:DJ:54:GLY:HA3    | 9:DJ:75:THR:HG22   | 1.60                     | 0.83              |
| 23:EB:210:ASN:HD21 | 23:EB:352:ILE:H    | 1.25                     | 0.83              |
| 24:EC:304:VAL:O    | 24:EC:308:VAL:HG23 | 1.77                     | 0.83              |
| 43:EV:211:PHE:O    | 50:EV:305:HOH:O    | 1.96                     | 0.83              |
| 1:F1:114:A:H4'     | 16:FQ:37:ARG:HH22  | 1.43                     | 0.83              |
| 1:F1:1798:U:H5''   | 1:F1:1799:C:H5'    | 1.60                     | 0.83              |
| 1:F1:2246:G:O6     | 50:F1:4292:HOH:O   | 1.95                     | 0.83              |
| 1:F1:2576:C:C2'    | 1:F1:2577:G:H5'    | 2.08                     | 0.83              |
| 7:FG:13:LYS:HB2    | 7:FG:100:ILE:HD12  | 1.58                     | 0.83              |
| 27:GF:21:LEU:HD21  | 13:HN:122:TYR:CE2  | 2.13                     | 0.83              |
| 1:H1:591:G:H2'     | 1:H1:592:A:C8      | 2.12                     | 0.83              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:40:C:H2'      | 1:A1:41:A:C5'      | 2.05                     | 0.83              |
| 1:A1:219:A:H2      | 1:A1:1416:U:H2'    | 1.42                     | 0.83              |
| 1:A1:1109:A:H1'    | 1:A1:1110:U:OP2    | 1.78                     | 0.83              |
| 1:A1:1321:A:O2'    | 1:A1:1322:G:O5'    | 1.95                     | 0.83              |
| 34:BM:163:LEU:HD21 | 34:BM:175:HIS:CG   | 2.12                     | 0.83              |
| 37:BP:21:THR:HA    | 37:BP:24:HIS:CD2   | 2.13                     | 0.83              |
| 21:C3:7:G:O3'      | 34:CM:33:ARG:NH1   | 2.11                     | 0.83              |
| 24:CC:304:VAL:O    | 24:CC:308:VAL:HG23 | 1.78                     | 0.83              |
| 1:D1:219:A:H2      | 1:D1:1416:U:H2'    | 1.42                     | 0.83              |
| 43:EV:133:PHE:CE1  | 43:EV:226:ASN:HB3  | 2.13                     | 0.83              |
| 46:EY:7:LYS:HG3    | 1:F1:1950:C:H3'    | 1.59                     | 0.83              |
| 1:F1:1374:C:H5''   | 1:F1:1375:A:OP1    | 1.78                     | 0.83              |
| 1:F1:1597:U:H2'    | 1:F1:1598:C:C6     | 2.14                     | 0.83              |
| 1:F1:2370:G:OP2    | 50:F1:3817:HOH:O   | 1.96                     | 0.83              |
| 33:GL:2:GLY:N      | 16:HQ:37:ARG:NH2   | 2.24                     | 0.83              |
| 34:GM:125:VAL:HG21 | 34:GM:205:PHE:HE1  | 1.42                     | 0.83              |
| 39:GR:73:THR:HG23  | 42:GU:37:ILE:HD13  | 1.58                     | 0.83              |
| 1:H1:1737:A:N1     | 1:H1:1754:G:O2'    | 2.11                     | 0.83              |
| 1:H1:2542:U:H4'    | 1:H1:2543:C:OP1    | 1.76                     | 0.83              |
| 2:HA:28:HIS:CD2    | 2:HA:31:LYS:H      | 1.95                     | 0.83              |
| 20:B2:25:U:H4'     | 20:B2:26:A:OP1     | 1.76                     | 0.83              |
| 22:BA:30:TYR:HB2   | 22:BA:124:ARG:HA   | 1.58                     | 0.83              |
| 22:BA:219:HIS:HA   | 50:BA:304:HOH:O    | 1.78                     | 0.83              |
| 30:CI:61:MET:CE    | 30:CI:68:GLY:HA3   | 2.07                     | 0.83              |
| 36:EO:106:LEU:HD21 | 36:EO:138:LEU:HD21 | 1.59                     | 0.83              |
| 5:FE:55:ALA:HB2    | 8:FH:109:TYR:HE1   | 1.44                     | 0.83              |
| 11:FL:5:ILE:HG22   | 11:FL:6:THR:N      | 1.93                     | 0.83              |
| 21:G3:104:C:C2'    | 21:G3:105:C:H5''   | 2.08                     | 0.83              |
| 30:GI:86:MET:HE3   | 1:H1:1201:G:N2     | 1.92                     | 0.83              |
| 30:GI:113:ARG:HH11 | 1:H1:3162:A:N6     | 1.76                     | 0.83              |
| 1:H1:787:U:O2      | 18:HU:179:ARG:NH2  | 2.11                     | 0.83              |
| 1:A1:55:A:OP2      | 50:A1:3718:HOH:O   | 1.96                     | 0.83              |
| 1:A1:1108:A:H4'    | 1:A1:1109:A:OP1    | 1.76                     | 0.83              |
| 1:A1:1776:G:H5''   | 50:A1:4698:HOH:O   | 1.78                     | 0.83              |
| 1:A1:3167:U:H4'    | 1:A1:3168:A:C5'    | 2.08                     | 0.83              |
| 6:AF:11:ARG:HH21   | 6:AF:57:LYS:CA     | 1.91                     | 0.83              |
| 29:BH:75:ASN:O     | 29:BH:79:PHE:HD1   | 1.62                     | 0.83              |
| 1:D1:444:A:C2      | 1:D1:533:G:N2      | 2.45                     | 0.83              |
| 1:D1:1011:U:OP1    | 50:D1:4329:HOH:O   | 1.94                     | 0.83              |
| 1:D1:1048:U:H2'    | 1:D1:1049:U:C5'    | 2.07                     | 0.83              |
| 1:D1:2720:G:C2'    | 1:D1:2721:G:H5'    | 2.08                     | 0.83              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:3227:A:H1'   | 5:DE:86:PRO:HG3    | 1.60                     | 0.83              |
| 21:E3:8:G:OP1     | 34:EM:33:ARG:NH1   | 2.10                     | 0.83              |
| 25:ED:50:ALA:HB1  | 25:ED:59:ILE:CG2   | 2.08                     | 0.83              |
| 1:F1:1054:G:H2'   | 1:F1:1055:A:H8     | 1.43                     | 0.83              |
| 1:F1:2328:C:OP2   | 50:F1:4301:HOH:O   | 1.95                     | 0.83              |
| 23:GB:278:LYS:NZ  | 23:GB:325:CYS:O    | 2.10                     | 0.83              |
| 27:GF:47:TRP:HB3  | 27:GF:51:ILE:CD1   | 2.06                     | 0.83              |
| 29:GH:47:PRO:HB3  | 29:GH:171:TRP:CH2  | 2.13                     | 0.83              |
| 40:GS:55:VAL:HG22 | 40:GS:105:LEU:HD23 | 1.59                     | 0.83              |
| 13:HN:24:VAL:HG23 | 13:HN:138:PHE:CE1  | 2.14                     | 0.83              |
| 1:A1:75:A:H8      | 18:AU:71:ARG:HH12  | 1.21                     | 0.83              |
| 1:A1:418:G:H8     | 1:A1:418:G:H3'     | 1.42                     | 0.83              |
| 1:A1:2519:A:H2'   | 1:A1:2520:G:C8     | 2.14                     | 0.83              |
| 24:BC:308:VAL:CG1 | 35:BN:40:ARG:HH11  | 1.91                     | 0.83              |
| 20:C2:25:U:H4'    | 20:C2:26:A:OP1     | 1.76                     | 0.83              |
| 22:CA:210:HIS:CD2 | 22:CA:212:HIS:H    | 1.92                     | 0.83              |
| 29:CH:18:PRO:O    | 29:CH:23:ASN:ND2   | 2.10                     | 0.83              |
| 46:CY:45:VAL:O    | 46:CY:45:VAL:HG23  | 1.77                     | 0.83              |
| 1:D1:591:G:H2'    | 1:D1:592:A:C8      | 2.13                     | 0.83              |
| 1:D1:1313:A:H4'   | 1:D1:1314:A:OP1    | 1.77                     | 0.83              |
| 1:D1:1504:C:OP2   | 50:D1:4211:HOH:O   | 1.96                     | 0.83              |
| 1:D1:1798:U:H5''  | 1:D1:1799:C:H5'    | 1.60                     | 0.83              |
| 5:DE:69:LEU:HD23  | 5:DE:71:SER:OG     | 1.79                     | 0.83              |
| 24:EC:34:ARG:NH1  | 1:F1:698:G:OP1     | 2.12                     | 0.83              |
| 33:EL:19:MET:HA   | 33:EL:19:MET:HE2   | 1.59                     | 0.83              |
| 33:EL:201:ARG:NH2 | 1:F1:79:C:O3'      | 2.11                     | 0.83              |
| 1:F1:1047:G:H1    | 1:F1:1057:U:H3     | 1.25                     | 0.83              |
| 1:F1:1168:C:OP1   | 50:F1:3813:HOH:O   | 1.95                     | 0.83              |
| 1:F1:1448:G:H2'   | 1:F1:1449:C:H6     | 1.43                     | 0.83              |
| 15:FP:12:MET:HA   | 15:FP:15:TRP:CD1   | 2.14                     | 0.83              |
| 23:GB:28:ARG:NH2  | 1:H1:3129:G:O6     | 2.11                     | 0.83              |
| 44:GW:10:ASP:OD1  | 44:GW:108:THR:HG22 | 1.77                     | 0.83              |
| 1:H1:444:A:C2     | 1:H1:533:G:N2      | 2.45                     | 0.83              |
| 1:H1:610:A:H2'    | 1:H1:611:A:C8      | 2.14                     | 0.83              |
| 1:H1:3297:A:H5''  | 1:H1:3298:U:OP1    | 1.78                     | 0.83              |
| 2:HA:44:MET:HA    | 2:HA:44:MET:CE     | 2.07                     | 0.83              |
| 4:AC:10:THR:HG22  | 4:AC:21:HIS:CD2    | 2.13                     | 0.83              |
| 22:BA:253:GLU:OE2 | 22:GA:252:LYS:CG   | 2.26                     | 0.83              |
| 24:BC:163:VAL:HA  | 24:BC:166:TYR:CE2  | 2.13                     | 0.83              |
| 27:BF:50:TYR:CE1  | 27:BF:51:ILE:HG23  | 2.14                     | 0.83              |
| 28:BG:40:UNK:HG2  | 28:BG:102:UNK:HG1  | 1.61                     | 0.83              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:CA:42:ILE:HD12  | 22:CA:43:ARG:H     | 1.41                     | 0.83              |
| 1:D1:40:C:H2'      | 1:D1:41:A:C5'      | 2.08                     | 0.83              |
| 1:D1:47:G:H1'      | 1:D1:48:U:OP2      | 1.79                     | 0.83              |
| 1:D1:428:A:H2'     | 1:D1:429:A:H8      | 1.44                     | 0.83              |
| 1:D1:2637:G:O6     | 50:D1:4905:HOH:O   | 1.97                     | 0.83              |
| 19:DX:168:THR:H    | 19:DX:188:THR:HG23 | 1.43                     | 0.83              |
| 32:EK:48:GLU:OE1   | 32:EK:48:GLU:HA    | 1.77                     | 0.83              |
| 34:EM:3:PHE:CE2    | 1:F1:1041:C:N3     | 2.47                     | 0.83              |
| 1:F1:57:G:O3'      | 1:F1:58:A:H4'      | 1.78                     | 0.83              |
| 1:F1:444:A:C2      | 1:F1:533:G:N2      | 2.46                     | 0.83              |
| 1:F1:986:C:OP2     | 50:F1:3671:HOH:O   | 1.95                     | 0.83              |
| 1:F1:2130:G:OP2    | 50:F1:3965:HOH:O   | 1.97                     | 0.83              |
| 1:F1:2718:U:OP1    | 50:F1:4473:HOH:O   | 1.96                     | 0.83              |
| 1:F1:3185:G:H8     | 8:FH:11:PRO:HD3    | 1.43                     | 0.83              |
| 9:FJ:23:TYR:HA     | 9:FJ:46:ILE:CG2    | 2.08                     | 0.83              |
| 19:FX:168:THR:H    | 19:FX:188:THR:HG23 | 1.44                     | 0.83              |
| 20:G2:147:G:H21    | 27:GF:54:GLN:HE22  | 1.26                     | 0.83              |
| 21:G3:83:G:H1      | 21:G3:93:G:H22     | 1.26                     | 0.83              |
| 23:GB:162:THR:HG21 | 23:GB:175:HIS:CD2  | 2.13                     | 0.83              |
| 25:GD:65:MET:HE1   | 1:H1:2670:U:H4'    | 1.59                     | 0.83              |
| 1:H1:1597:U:H2'    | 1:H1:1598:C:C6     | 2.13                     | 0.83              |
| 1:H1:1758:U:H4'    | 1:H1:1759:C:OP2    | 1.74                     | 0.83              |
| 5:HE:55:ALA:HB2    | 8:HH:109:TYR:HE1   | 1.43                     | 0.83              |
| 8:HH:54:LYS:NZ     | 8:HH:108:LEU:O     | 2.11                     | 0.83              |
| 9:HJ:23:TYR:HA     | 9:HJ:46:ILE:CG2    | 2.08                     | 0.83              |
| 1:A1:610:A:H2'     | 1:A1:611:A:C8      | 2.13                     | 0.83              |
| 1:A1:1598:C:H3'    | 1:A1:1599:G:H8     | 1.44                     | 0.83              |
| 19:AX:25:ALA:HA    | 19:AX:73:LEU:HG    | 1.61                     | 0.83              |
| 32:BK:81:TRP:CZ2   | 32:BK:123:VAL:HG22 | 2.13                     | 0.83              |
| 22:CA:230:ALA:HB3  | 22:CA:235:LYS:HG3  | 1.61                     | 0.83              |
| 43:CV:208:ARG:NH2  | 1:D1:1354:C:OP1    | 2.11                     | 0.83              |
| 46:CY:4:ARG:NH1    | 1:D1:881:G:N2      | 2.26                     | 0.83              |
| 38:EQ:131:THR:HG23 | 1:F1:1533:G:H22    | 1.43                     | 0.83              |
| 30:GI:196:PHE:CE1  | 6:HF:111:VAL:HG22  | 2.14                     | 0.83              |
| 37:GP:27:ILE:HA    | 37:GP:30:TYR:HD2   | 1.41                     | 0.83              |
| 1:H1:26:C:H2'      | 1:H1:27:C:H5'      | 1.61                     | 0.83              |
| 1:H1:2396:A:N6     | 50:H1:4023:HOH:O   | 2.10                     | 0.83              |
| 19:HX:25:ALA:HA    | 19:HX:73:LEU:HG    | 1.60                     | 0.83              |
| 1:A1:1146:C:H42    | 17:AT:10:LYS:NZ    | 1.76                     | 0.83              |
| 1:A1:2576:C:C2'    | 1:A1:2577:G:H5'    | 2.08                     | 0.83              |
| 1:A1:3325:G:C4     | 41:BT:58:ARG:NH2   | 2.46                     | 0.83              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:AH:13:ARG:HG2   | 8:AH:15:TRP:CE3    | 2.13                     | 0.83              |
| 20:B2:86:G:O6     | 40:BS:113:SER:OG   | 1.97                     | 0.83              |
| 21:B3:28:C:H2'    | 21:B3:29:C:H5'     | 1.59                     | 0.83              |
| 20:C2:96:A:O2'    | 2:DA:83:THR:O      | 1.97                     | 0.83              |
| 20:C2:105:A:H5'   | 20:C2:106:A:C5'    | 2.09                     | 0.83              |
| 22:CA:130:ALA:HB3 | 22:CA:133:CYS:SG   | 2.19                     | 0.83              |
| 43:CV:98:ARG:CG   | 43:CV:98:ARG:HH11  | 1.92                     | 0.83              |
| 1:D1:452:U:C5'    | 14:DO:56:GLN:NE2   | 2.38                     | 0.83              |
| 1:D1:1448:G:H2'   | 1:D1:1449:C:H6     | 1.44                     | 0.83              |
| 1:D1:3058:G:OP1   | 50:D1:4511:HOH:O   | 1.96                     | 0.83              |
| 6:DF:11:ARG:HH21  | 6:DF:57:LYS:CA     | 1.92                     | 0.83              |
| 1:F1:790:C:H4'    | 1:F1:791:C:OP1     | 1.75                     | 0.83              |
| 1:F1:2542:U:H4'   | 1:F1:2543:C:OP1    | 1.76                     | 0.83              |
| 19:FX:22:VAL:HG23 | 19:FX:78:ILE:CD1   | 2.09                     | 0.83              |
| 1:H1:2371:G:O2'   | 1:H1:2372:G:C8     | 2.32                     | 0.83              |
| 7:HG:62:LEU:HD11  | 13:HN:84:ARG:HB2   | 1.61                     | 0.83              |
| 16:AQ:57:ARG:O    | 16:AQ:60:GLU:HG2   | 1.77                     | 0.83              |
| 25:BD:133:ARG:HG3 | 25:BD:152:GLN:O    | 1.79                     | 0.83              |
| 27:BF:103:ARG:HG3 | 27:BF:107:GLN:NE2  | 1.94                     | 0.83              |
| 30:BI:61:MET:HE1  | 30:BI:68:GLY:HA3   | 1.58                     | 0.83              |
| 25:CD:135:GLY:O   | 25:CD:138:VAL:HG23 | 1.78                     | 0.83              |
| 30:CI:184:PRO:O   | 30:CI:187:LYS:HG2  | 1.78                     | 0.83              |
| 1:D1:220:C:H4'    | 1:D1:221:A:OP2     | 1.78                     | 0.83              |
| 1:D1:610:A:H2'    | 1:D1:611:A:C8      | 2.14                     | 0.83              |
| 1:D1:2273:C:C2'   | 1:D1:2274:A:H5''   | 2.09                     | 0.83              |
| 1:D1:2330:G:OP2   | 50:D1:4596:HOH:O   | 1.96                     | 0.83              |
| 1:D1:3162:A:H4'   | 1:D1:3163:A:OP1    | 1.77                     | 0.83              |
| 7:DG:13:LYS:HB2   | 7:DG:100:ILE:HD12  | 1.59                     | 0.83              |
| 20:E2:3:A:OP1     | 20:E2:4:A:N7       | 2.12                     | 0.83              |
| 23:EB:118:PHE:HE2 | 1:F1:2989:G:H21    | 1.19                     | 0.83              |
| 35:EN:170:GLU:OE2 | 50:EN:301:HOH:O    | 1.95                     | 0.83              |
| 1:F1:1667:A:O2'   | 1:F1:1668:A:OP1    | 1.97                     | 0.83              |
| 1:F1:2219:A:OP1   | 16:FQ:78:ARG:NH2   | 2.12                     | 0.83              |
| 1:F1:3227:A:C5'   | 5:FE:57:ARG:NH1    | 2.40                     | 0.83              |
| 20:G2:58:U:H3     | 20:G2:65:C:H5      | 1.21                     | 0.83              |
| 21:G3:13:A:O2'    | 34:GM:24:ARG:NH2   | 2.12                     | 0.83              |
| 35:GN:16:VAL:HG12 | 35:GN:17:VAL:N     | 1.93                     | 0.83              |
| 1:H1:1185:A:C2'   | 1:H1:1186:A:H5''   | 2.08                     | 0.83              |
| 1:H1:1504:C:OP2   | 50:H1:3917:HOH:O   | 1.95                     | 0.83              |
| 1:H1:1798:U:H5''  | 1:H1:1799:C:H5'    | 1.59                     | 0.83              |
| 1:A1:531:C:C2'    | 1:A1:532:G:H5'     | 2.09                     | 0.83              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2576:C:C5'    | 1:A1:2576:C:H6     | 1.92                     | 0.83              |
| 1:A1:3227:A:H5''   | 5:AE:57:ARG:NH1    | 1.94                     | 0.83              |
| 13:AN:24:VAL:HG23  | 13:AN:138:PHE:CE1  | 2.13                     | 0.83              |
| 14:AO:69:LYS:HG2   | 14:AO:70:VAL:H     | 1.44                     | 0.83              |
| 43:BV:133:PHE:CE1  | 43:BV:226:ASN:HB3  | 2.14                     | 0.83              |
| 24:CC:238:VAL:HG21 | 24:CC:262:ALA:HA   | 1.61                     | 0.83              |
| 34:CM:179:ARG:HE   | 34:CM:185:ARG:HH22 | 1.25                     | 0.83              |
| 1:D1:645:A:H1'     | 1:D1:646:A:OP2     | 1.79                     | 0.83              |
| 32:EK:142:GLY:CA   | 18:FU:173:ARG:NH2  | 2.40                     | 0.83              |
| 1:F1:3044:A:H2'    | 1:F1:3074:G:H1     | 1.42                     | 0.83              |
| 20:G2:100:C:P      | 39:GR:56:ARG:HH22  | 2.01                     | 0.83              |
| 22:GA:71:LYS:HE3   | 22:GA:73:ASN:OD1   | 1.79                     | 0.83              |
| 24:GC:36:ASP:OD1   | 35:GN:23:THR:HB    | 1.77                     | 0.83              |
| 45:GX:79:ARG:HH12  | 1:H1:1448:G:H4'    | 1.43                     | 0.83              |
| 1:H1:1185:A:H2'    | 1:H1:1186:A:H5''   | 1.60                     | 0.83              |
| 7:HG:63:ALA:HB1    | 13:HN:2:ALA:HB1    | 1.60                     | 0.83              |
| 1:A1:868:G:C2'     | 1:A1:869:G:H5'     | 2.09                     | 0.82              |
| 1:A1:905:G:OP2     | 38:BQ:133:ARG:HD2  | 1.79                     | 0.82              |
| 1:A1:1753:A:H3'    | 1:A1:1754:G:H5''   | 1.60                     | 0.82              |
| 1:A1:3175:A:N6     | 6:AF:16:ASN:HD21   | 1.76                     | 0.82              |
| 2:AA:20:ARG:NH1    | 20:B2:111:A:C6     | 2.46                     | 0.82              |
| 6:AF:32:ASN:OD1    | 6:AF:34:ASN:N      | 2.11                     | 0.82              |
| 11:AL:91:ILE:HG12  | 13:AN:144:PHE:CE2  | 2.13                     | 0.82              |
| 35:BN:52:ARG:NH1   | 35:BN:141:ARG:HE   | 1.77                     | 0.82              |
| 24:CC:290:LEU:HD21 | 35:CN:30:LEU:HD13  | 1.58                     | 0.82              |
| 1:D1:1047:G:OP1    | 13:FN:3:LYS:NZ     | 2.11                     | 0.82              |
| 1:D1:1595:A:C5     | 1:D1:1596:U:H1'    | 2.14                     | 0.82              |
| 1:D1:2255:U:H1'    | 1:D1:2256:G:OP1    | 1.79                     | 0.82              |
| 1:D1:2991:U:O4     | 50:D1:4819:HOH:O   | 1.97                     | 0.82              |
| 1:D1:3230:G:N7     | 5:DE:119:ARG:NH1   | 2.26                     | 0.82              |
| 19:DX:25:ALA:HA    | 19:DX:73:LEU:HG    | 1.60                     | 0.82              |
| 22:EA:70:TYR:HD2   | 1:F1:1674:C:H4'    | 1.44                     | 0.82              |
| 22:EA:119:GLU:N    | 22:EA:123:ASP:OD2  | 2.10                     | 0.82              |
| 38:EQ:103:ASN:HD21 | 1:F1:388:A:C1'     | 1.90                     | 0.82              |
| 42:EU:34:ILE:HA    | 42:EU:37:ILE:HD12  | 1.59                     | 0.82              |
| 1:F1:591:G:H2'     | 1:F1:592:A:C8      | 2.14                     | 0.82              |
| 1:F1:3167:U:H4'    | 1:F1:3168:A:C5'    | 2.08                     | 0.82              |
| 24:GC:107:PHE:HE2  | 1:H1:686:U:H1'     | 1.42                     | 0.82              |
| 1:H1:470:C:O2      | 1:H1:509:A:N6      | 2.11                     | 0.82              |
| 1:H1:2695:G:OP1    | 50:H1:4334:HOH:O   | 1.96                     | 0.82              |
| 1:H1:2720:G:C2'    | 1:H1:2721:G:H5'    | 2.09                     | 0.82              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:AH:54:LYS:NZ    | 8:AH:108:LEU:O     | 2.12                     | 0.82              |
| 23:BB:22:THR:HG22 | 23:BB:24:HIS:H     | 1.42                     | 0.82              |
| 24:BC:25:LEU:HD12 | 24:BC:26:PRO:HD2   | 1.61                     | 0.82              |
| 27:CF:21:LEU:HD21 | 13:DN:122:TYR:CE2  | 2.13                     | 0.82              |
| 28:CG:22:UNK:HG2  | 28:CG:92:UNK:HB1   | 1.61                     | 0.82              |
| 34:CM:221:ASN:O   | 34:CM:225:GLN:HG2  | 1.77                     | 0.82              |
| 43:CV:141:ILE:O   | 43:CV:145:ILE:HG13 | 1.79                     | 0.82              |
| 1:D1:146:U:H4'    | 1:D1:147:U:O5'     | 1.77                     | 0.82              |
| 1:D1:1234:G:OP1   | 10:DK:119:ASN:ND2  | 2.12                     | 0.82              |
| 1:D1:1594:C:C4    | 1:D1:1595:A:N7     | 2.47                     | 0.82              |
| 1:D1:1922:G:O6    | 50:D1:4599:HOH:O   | 1.97                     | 0.82              |
| 38:EQ:129:ARG:NH2 | 1:F1:1534:C:OP1    | 2.11                     | 0.82              |
| 1:F1:1682:G:N7    | 50:F1:3919:HOH:O   | 2.13                     | 0.82              |
| 9:FJ:109:VAL:HG22 | 9:FJ:149:GLY:HA2   | 1.61                     | 0.82              |
| 22:GA:134:TYR:HB3 | 22:GA:169:ILE:HG12 | 1.61                     | 0.82              |
| 24:GC:163:VAL:HA  | 24:GC:166:TYR:CE2  | 2.14                     | 0.82              |
| 28:GG:33:UNK:CG   | 28:GG:36:UNK:HG2   | 2.09                     | 0.82              |
| 43:GV:85:ARG:HA   | 43:GV:131:ILE:HG12 | 1.60                     | 0.82              |
| 1:H1:34:C:O2      | 50:H1:3632:HOH:O   | 1.95                     | 0.82              |
| 1:H1:3344:U:H4'   | 1:H1:3345:A:OP2    | 1.78                     | 0.82              |
| 1:A1:696:A:H2'    | 1:A1:697:A:C5'     | 2.08                     | 0.82              |
| 5:AE:181:ASN:N    | 5:AE:184:ASP:OD2   | 2.10                     | 0.82              |
| 43:CV:95:ASP:OD2  | 50:CV:302:HOH:O    | 1.96                     | 0.82              |
| 1:D1:361:A:C2'    | 1:D1:362:G:H5''    | 2.09                     | 0.82              |
| 1:D1:531:C:C2'    | 1:D1:532:G:H5'     | 2.10                     | 0.82              |
| 20:E2:16:G:O6     | 50:E2:317:HOH:O    | 1.97                     | 0.82              |
| 34:EM:5:LYS:HD3   | 1:F1:1064:C:C5'    | 2.09                     | 0.82              |
| 11:FL:76:ARG:CZ   | 11:FL:84:HIS:HB3   | 2.08                     | 0.82              |
| 19:FX:25:ALA:HB1  | 19:FX:71:ARG:O     | 1.79                     | 0.82              |
| 22:GA:42:ILE:HD12 | 22:GA:43:ARG:H     | 1.39                     | 0.82              |
| 45:GX:79:ARG:NH1  | 1:H1:1448:G:C4'    | 2.43                     | 0.82              |
| 1:H1:753:A:N6     | 1:H1:766:G:H1'     | 1.93                     | 0.82              |
| 1:H1:775:C:H5'    | 1:H1:776:C:OP2     | 1.79                     | 0.82              |
| 9:HJ:88:LEU:HD12  | 9:HJ:89:PRO:HD2    | 1.60                     | 0.82              |
| 1:A1:283:A:OP1    | 4:AC:39:ARG:NH1    | 2.11                     | 0.82              |
| 1:A1:471:A:H4'    | 24:BC:6:GLN:HE21   | 1.44                     | 0.82              |
| 23:BB:194:LYS:HA  | 23:BB:197:LEU:HD12 | 1.61                     | 0.82              |
| 34:BM:129:TYR:HE1 | 34:BM:175:HIS:O    | 1.61                     | 0.82              |
| 46:BY:45:VAL:O    | 46:BY:45:VAL:HG23  | 1.78                     | 0.82              |
| 1:D1:26:C:H2'     | 1:D1:27:C:H5'      | 1.58                     | 0.82              |
| 1:D1:299:G:C2'    | 1:D1:300:G:H5''    | 2.10                     | 0.82              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2931:G:OP1    | 50:D1:4239:HOH:O   | 1.97                     | 0.82              |
| 1:D1:3167:U:H4'    | 1:D1:3168:A:C5'    | 2.08                     | 0.82              |
| 1:D1:3233:A:O2'    | 1:D1:3234:U:OP2    | 1.98                     | 0.82              |
| 11:DL:76:ARG:CZ    | 11:DL:84:HIS:HB3   | 2.08                     | 0.82              |
| 19:DX:22:VAL:HG23  | 19:DX:78:ILE:CD1   | 2.10                     | 0.82              |
| 23:EB:171:GLN:HB2  | 1:F1:3273:U:H4'    | 1.60                     | 0.82              |
| 27:EF:62:GLN:HE21  | 27:EF:229:ILE:HD13 | 1.42                     | 0.82              |
| 1:F1:1660:U:O2'    | 13:FN:79:HIS:HD2   | 1.63                     | 0.82              |
| 1:F1:1773:G:OP1    | 15:FP:43:LYS:NZ    | 2.12                     | 0.82              |
| 1:F1:2671:C:H2'    | 1:F1:2672:U:H5'    | 1.62                     | 0.82              |
| 24:GC:213:LEU:HD12 | 24:GC:234:ASP:O    | 1.77                     | 0.82              |
| 1:H1:220:C:H4'     | 1:H1:221:A:OP2     | 1.77                     | 0.82              |
| 1:H1:2344:U:H6     | 1:H1:2344:U:H5'    | 1.44                     | 0.82              |
| 1:A1:220:C:H4'     | 1:A1:221:A:OP2     | 1.79                     | 0.82              |
| 1:A1:630:G:H2'     | 1:A1:631:G:O4'     | 1.78                     | 0.82              |
| 1:A1:1798:U:O4     | 50:A1:4702:HOH:O   | 1.97                     | 0.82              |
| 1:A1:2671:C:H2'    | 1:A1:2672:U:H5'    | 1.62                     | 0.82              |
| 1:A1:3291:G:O2'    | 1:A1:3292:U:P      | 2.38                     | 0.82              |
| 19:AX:113:LEU:HD21 | 19:AX:140:THR:HG21 | 1.61                     | 0.82              |
| 20:B2:3:A:OP1      | 20:B2:4:A:N7       | 2.13                     | 0.82              |
| 40:BS:81:VAL:HB    | 40:BS:84:ILE:HG13  | 1.60                     | 0.82              |
| 20:C2:3:A:OP1      | 20:C2:4:A:N7       | 2.13                     | 0.82              |
| 1:D1:992:A:OP2     | 50:D1:4064:HOH:O   | 1.96                     | 0.82              |
| 1:D1:2325:C:OP1    | 50:D1:4645:HOH:O   | 1.97                     | 0.82              |
| 6:DF:32:ASN:OD1    | 6:DF:34:ASN:N      | 2.11                     | 0.82              |
| 14:DO:69:LYS:HG2   | 14:DO:70:VAL:H     | 1.44                     | 0.82              |
| 30:EI:61:MET:CE    | 30:EI:68:GLY:HA3   | 2.08                     | 0.82              |
| 5:FE:178:PHE:O     | 8:FH:14:LEU:HD21   | 1.79                     | 0.82              |
| 24:GC:25:LEU:HD12  | 24:GC:26:PRO:HD2   | 1.60                     | 0.82              |
| 28:GG:22:UNK:HG2   | 28:GG:92:UNK:HB1   | 1.61                     | 0.82              |
| 11:HL:5:ILE:HG22   | 11:HL:6:THR:N      | 1.94                     | 0.82              |
| 1:A1:1373:G:H4'    | 24:BC:312:GLY:O    | 1.80                     | 0.82              |
| 1:A1:1951:G:O3'    | 46:BY:12:ARG:NH1   | 2.13                     | 0.82              |
| 20:B2:67:C:OP1     | 42:BU:53:LYS:NZ    | 2.12                     | 0.82              |
| 26:BE:34:ILE:HD11  | 26:BE:147:ILE:HG22 | 1.61                     | 0.82              |
| 41:BT:22:ARG:HE    | 41:BT:32:PHE:HD2   | 1.23                     | 0.82              |
| 23:CB:250:ILE:HG13 | 23:CB:264:ARG:HH21 | 1.44                     | 0.82              |
| 24:CC:242:ASN:HD21 | 1:D1:718:A:H4'     | 1.45                     | 0.82              |
| 1:D1:2247:A:H2'    | 1:D1:2248:G:H8     | 1.43                     | 0.82              |
| 23:EB:250:ILE:HG13 | 23:EB:264:ARG:HH21 | 1.44                     | 0.82              |
| 1:F1:299:G:C2'     | 1:F1:300:G:H5''    | 2.10                     | 0.82              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1737:A:N1     | 1:F1:1754:G:O2'    | 2.10                     | 0.82              |
| 24:GC:327:ASN:HB3  | 24:GC:331:PHE:HE2  | 1.44                     | 0.82              |
| 28:GG:8:UNK:CB     | 1:H1:1248:G:N2     | 2.40                     | 0.82              |
| 33:GL:55:ASN:HD22  | 1:H1:148:G:H5'     | 1.44                     | 0.82              |
| 1:H1:1863:A:OP1    | 50:H1:4100:HOH:O   | 1.98                     | 0.82              |
| 4:HC:10:THR:HG22   | 4:HC:21:HIS:CD2    | 2.14                     | 0.82              |
| 1:A1:14:A:H5''     | 39:BR:48:ALA:O     | 1.80                     | 0.82              |
| 1:A1:740:A:OP2     | 32:BK:113:LEU:HB3  | 1.78                     | 0.82              |
| 1:A1:2181:U:OP1    | 50:A1:4183:HOH:O   | 1.97                     | 0.82              |
| 1:A1:3233:A:O2'    | 1:A1:3234:U:OP2    | 1.97                     | 0.82              |
| 19:AX:175:LYS:NZ   | 19:AX:178:ARG:HH11 | 1.77                     | 0.82              |
| 21:B3:104:C:C2'    | 21:B3:105:C:H5''   | 2.10                     | 0.82              |
| 24:BC:167:GLU:HG2  | 24:BC:222:THR:HG21 | 1.62                     | 0.82              |
| 24:BC:327:ASN:HB3  | 24:BC:331:PHE:HE2  | 1.44                     | 0.82              |
| 34:BM:125:VAL:HG21 | 34:BM:205:PHE:HE1  | 1.44                     | 0.82              |
| 34:BM:180:PHE:HD1  | 34:BM:200:HIS:CE1  | 1.98                     | 0.82              |
| 43:BV:141:ILE:O    | 43:BV:145:ILE:HG13 | 1.78                     | 0.82              |
| 21:C3:120:U:H4'    | 34:CM:265:LYS:HZ1  | 1.45                     | 0.82              |
| 35:CN:16:VAL:HG12  | 35:CN:17:VAL:N     | 1.94                     | 0.82              |
| 35:CN:82:VAL:HG22  | 35:CN:102:CYS:HB3  | 1.61                     | 0.82              |
| 1:D1:1517:G:OP2    | 50:D1:4529:HOH:O   | 1.97                     | 0.82              |
| 1:D1:3047:U:H4'    | 1:D1:3048:A:OP1    | 1.78                     | 0.82              |
| 1:D1:3297:A:H5''   | 1:D1:3298:U:OP1    | 1.80                     | 0.82              |
| 38:EQ:20:SER:O     | 1:F1:387:G:H4'     | 1.79                     | 0.82              |
| 1:F1:1595:A:C5     | 1:F1:1596:U:H1'    | 2.14                     | 0.82              |
| 1:F1:2310:G:OP1    | 50:F1:4060:HOH:O   | 1.96                     | 0.82              |
| 1:F1:2310:G:OP2    | 50:F1:4060:HOH:O   | 1.97                     | 0.82              |
| 29:GH:75:ASN:O     | 29:GH:79:PHE:HD1   | 1.63                     | 0.82              |
| 33:GL:19:MET:HA    | 33:GL:19:MET:HE2   | 1.60                     | 0.82              |
| 34:GM:221:ASN:O    | 34:GM:225:GLN:HG2  | 1.79                     | 0.82              |
| 1:H1:3167:U:H4'    | 1:H1:3168:A:C5'    | 2.08                     | 0.82              |
| 5:HE:69:LEU:HD23   | 5:HE:71:SER:OG     | 1.78                     | 0.82              |
| 9:HJ:145:ASN:HD22  | 9:HJ:146:VAL:H     | 1.28                     | 0.82              |
| 1:A1:564:A:C1'     | 24:BC:376:TRP:HD1  | 1.90                     | 0.82              |
| 4:AC:66:VAL:HG23   | 4:AC:83:ILE:HB     | 1.61                     | 0.82              |
| 1:D1:283:A:OP1     | 4:DC:39:ARG:NH1    | 2.11                     | 0.82              |
| 1:D1:1047:G:H2'    | 1:D1:1048:U:H5'    | 1.61                     | 0.82              |
| 1:D1:2671:C:H2'    | 1:D1:2672:U:H5'    | 1.61                     | 0.82              |
| 8:DH:13:ARG:HG2    | 8:DH:15:TRP:CE3    | 2.14                     | 0.82              |
| 20:E2:86:G:O6      | 40:ES:113:SER:OG   | 1.95                     | 0.82              |
| 22:EA:130:ALA:HB3  | 22:EA:133:CYS:SG   | 2.19                     | 0.82              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 25:ED:135:GLY:O    | 25:ED:138:VAL:HG23 | 1.80                     | 0.82              |
| 34:EM:177:GLU:HA   | 34:EM:180:PHE:HD2  | 1.43                     | 0.82              |
| 1:F1:2128:C:OP1    | 50:F1:3983:HOH:O   | 1.96                     | 0.82              |
| 1:H1:918:C:H5''    | 1:H1:919:A:OP1     | 1.79                     | 0.82              |
| 1:A1:979:U:H1'     | 17:AT:12:GLN:HE21  | 1.42                     | 0.82              |
| 1:A1:988:G:O4'     | 50:A1:3772:HOH:O   | 1.97                     | 0.82              |
| 1:A1:2552:A:N3     | 27:BF:25:LYS:N     | 2.27                     | 0.82              |
| 6:AF:122:SER:HB3   | 30:BI:186:LEU:HD11 | 1.60                     | 0.82              |
| 7:AG:35:ARG:HH12   | 13:AN:77:LEU:C     | 1.86                     | 0.82              |
| 10:AK:85:LEU:HD13  | 26:BE:178:TYR:HB2  | 1.61                     | 0.82              |
| 16:AQ:37:ARG:O     | 16:AQ:41:VAL:HG23  | 1.80                     | 0.82              |
| 19:AX:25:ALA:HB1   | 19:AX:71:ARG:O     | 1.79                     | 0.82              |
| 29:BH:55:ASP:O     | 29:BH:131:ILE:HG12 | 1.80                     | 0.82              |
| 43:BV:162:ASP:OD1  | 43:BV:163:ASN:N    | 2.12                     | 0.82              |
| 24:CC:152:VAL:HG21 | 24:CC:255:PHE:HE1  | 1.45                     | 0.82              |
| 34:CM:177:GLU:HA   | 34:CM:180:PHE:HD2  | 1.45                     | 0.82              |
| 1:D1:304:U:HO2'    | 1:D1:305:A:P       | 2.03                     | 0.82              |
| 4:DC:10:THR:HG22   | 4:DC:21:HIS:CD2    | 2.14                     | 0.82              |
| 22:EA:33:TYR:H     | 22:EA:164:ARG:HH22 | 1.27                     | 0.82              |
| 30:EI:184:PRO:O    | 30:EI:187:LYS:HG2  | 1.80                     | 0.82              |
| 1:F1:1640:C:H2'    | 1:F1:1641:U:C6     | 2.14                     | 0.82              |
| 8:FH:13:ARG:HG2    | 8:FH:15:TRP:CE3    | 2.15                     | 0.82              |
| 26:GE:42:SER:O     | 1:H1:3168:A:C4     | 2.32                     | 0.82              |
| 27:GF:62:GLN:HE21  | 27:GF:229:ILE:HD13 | 1.45                     | 0.82              |
| 35:GN:89:ASN:HD22  | 35:GN:109:THR:HG22 | 1.45                     | 0.82              |
| 1:A1:775:C:H5'     | 1:A1:776:C:OP2     | 1.80                     | 0.82              |
| 1:A1:1053:A:H1'    | 1:A1:1054:G:OP2    | 1.79                     | 0.82              |
| 1:A1:1843:U:H2'    | 1:A1:1844:U:H6     | 1.45                     | 0.82              |
| 1:A1:2902:G:OP2    | 50:A1:4582:HOH:O   | 1.98                     | 0.82              |
| 20:C2:134:C:O2'    | 20:C2:135:A:OP1    | 1.98                     | 0.82              |
| 1:D1:1719:U:H3     | 1:D1:1775:A:H2     | 1.26                     | 0.82              |
| 1:D1:3044:A:H2'    | 1:D1:3074:G:H1     | 1.45                     | 0.82              |
| 29:EH:18:PRO:O     | 29:EH:23:ASN:ND2   | 2.13                     | 0.82              |
| 1:F1:470:C:O2      | 1:F1:509:A:N6      | 2.11                     | 0.82              |
| 1:F1:531:C:H2'     | 1:F1:532:G:H5'     | 1.62                     | 0.82              |
| 1:F1:2101:G:N7     | 50:F1:4358:HOH:O   | 2.11                     | 0.82              |
| 1:F1:2805:A:N7     | 50:F1:3822:HOH:O   | 2.12                     | 0.82              |
| 1:F1:3297:A:H5''   | 1:F1:3298:U:OP1    | 1.80                     | 0.82              |
| 24:GC:376:TRP:HD1  | 1:H1:564:A:C1'     | 1.93                     | 0.82              |
| 26:GE:178:TYR:HB2  | 10:HK:85:LEU:HD13  | 1.62                     | 0.82              |
| 9:HJ:109:VAL:HG22  | 9:HJ:149:GLY:HA2   | 1.60                     | 0.82              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:HL:76:ARG:CZ    | 11:HL:84:HIS:HB3   | 2.10                     | 0.82              |
| 13:HN:83:THR:HG22  | 13:HN:85:TYR:H     | 1.43                     | 0.82              |
| 1:A1:877:U:O4      | 46:BY:2:ALA:N      | 2.13                     | 0.81              |
| 1:A1:3008:U:O4     | 50:A1:4601:HOH:O   | 1.95                     | 0.81              |
| 1:A1:3297:A:H5''   | 1:A1:3298:U:OP1    | 1.79                     | 0.81              |
| 41:BT:15:ILE:HG12  | 41:BT:34:LEU:HD13  | 1.61                     | 0.81              |
| 28:CG:80:UNK:O     | 28:CG:82:UNK:HG2   | 1.80                     | 0.81              |
| 1:D1:332:G:OP2     | 50:D1:3866:HOH:O   | 1.98                     | 0.81              |
| 1:D1:1134:C:H2'    | 1:D1:1135:U:H5''   | 1.62                     | 0.81              |
| 28:EG:80:UNK:O     | 28:EG:82:UNK:HG2   | 1.78                     | 0.81              |
| 37:EP:150:PRO:HG2  | 19:FX:138:ILE:HA   | 1.60                     | 0.81              |
| 1:F1:143:G:OP2     | 50:F1:3705:HOH:O   | 1.96                     | 0.81              |
| 1:F1:1719:U:H3     | 1:F1:1775:A:H2     | 1.27                     | 0.81              |
| 1:F1:1753:A:H3'    | 1:F1:1754:G:H5''   | 1.62                     | 0.81              |
| 1:F1:2569:A:O2'    | 1:F1:2570:U:P      | 2.38                     | 0.81              |
| 1:F1:3128:G:H8     | 1:F1:3128:G:H5'    | 1.45                     | 0.81              |
| 23:GB:250:ILE:HG13 | 23:GB:264:ARG:HH21 | 1.42                     | 0.81              |
| 33:GL:80:VAL:HG13  | 33:GL:87:VAL:HG13  | 1.62                     | 0.81              |
| 34:GM:59:ARG:HD3   | 34:GM:61:ILE:HG12  | 1.62                     | 0.81              |
| 38:GQ:20:SER:O     | 1:H1:387:G:H4'     | 1.80                     | 0.81              |
| 38:GQ:132:TYR:O    | 50:GQ:301:HOH:O    | 1.96                     | 0.81              |
| 1:H1:1134:C:H2'    | 1:H1:1135:U:H5''   | 1.61                     | 0.81              |
| 1:H1:1234:G:OP1    | 10:HK:119:ASN:ND2  | 2.13                     | 0.81              |
| 1:H1:1667:A:O2'    | 1:H1:1668:A:OP1    | 1.98                     | 0.81              |
| 24:BC:283:TYR:HE1  | 24:BC:285:LEU:HD23 | 1.45                     | 0.81              |
| 27:BF:151:ASP:OD1  | 27:BF:152:PRO:HA   | 1.80                     | 0.81              |
| 24:CC:298:ILE:CD1  | 35:CN:125:ASP:HB2  | 2.10                     | 0.81              |
| 27:CF:171:ALA:HA   | 27:CF:215:TYR:CE2  | 2.15                     | 0.81              |
| 35:CN:91:GLU:HG2   | 1:D1:701:A:H3'     | 1.62                     | 0.81              |
| 9:DJ:152:CYS:HB2   | 9:DJ:161:VAL:HG22  | 1.62                     | 0.81              |
| 22:EA:134:TYR:HB3  | 22:EA:169:ILE:HG12 | 1.61                     | 0.81              |
| 1:F1:114:A:C6      | 1:F1:264:A:N6      | 2.49                     | 0.81              |
| 1:F1:775:C:H5'     | 1:F1:776:C:OP2     | 1.80                     | 0.81              |
| 21:G3:8:G:P        | 34:GM:33:ARG:HH12  | 2.01                     | 0.81              |
| 21:G3:42:A:C8      | 25:GD:72:ARG:NH1   | 2.48                     | 0.81              |
| 22:GA:33:TYR:N     | 22:GA:164:ARG:HH22 | 1.79                     | 0.81              |
| 24:GC:290:LEU:HD21 | 35:GN:30:LEU:HD13  | 1.60                     | 0.81              |
| 34:GM:129:TYR:HE1  | 34:GM:175:HIS:O    | 1.61                     | 0.81              |
| 1:H1:805:A:H4'     | 1:H1:806:G:OP2     | 1.76                     | 0.81              |
| 1:H1:2933:G:H5''   | 1:H1:2933:G:N3     | 1.93                     | 0.81              |
| 8:HH:13:ARG:HG2    | 8:HH:15:TRP:CE3    | 2.15                     | 0.81              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 14:HO:16:LEU:HD13  | 14:HO:35:ASN:HD22  | 1.45                     | 0.81              |
| 1:A1:1354:C:O2'    | 1:A1:1355:C:H5'    | 1.81                     | 0.81              |
| 1:A1:1932:A:OP2    | 50:A1:4117:HOH:O   | 1.98                     | 0.81              |
| 1:A1:3344:U:H4'    | 1:A1:3345:A:OP2    | 1.81                     | 0.81              |
| 9:AJ:143:ALA:C     | 9:AJ:144:ASN:HD22  | 1.88                     | 0.81              |
| 9:AJ:145:ASN:HD22  | 9:AJ:146:VAL:H     | 1.28                     | 0.81              |
| 19:AX:168:THR:H    | 19:AX:188:THR:HG23 | 1.45                     | 0.81              |
| 23:BB:332:ARG:HG3  | 23:BB:332:ARG:HH11 | 1.46                     | 0.81              |
| 24:BC:152:VAL:HG21 | 24:BC:255:PHE:HE1  | 1.46                     | 0.81              |
| 28:BG:80:UNK:O     | 28:BG:82:UNK:HG2   | 1.81                     | 0.81              |
| 30:BI:84:ARG:HE    | 30:BI:89:HIS:CD2   | 1.98                     | 0.81              |
| 34:BM:246:LEU:O    | 34:BM:250:VAL:HG23 | 1.79                     | 0.81              |
| 20:C2:77:U:O4      | 40:CS:71:GLN:NE2   | 2.13                     | 0.81              |
| 23:CB:162:THR:HG21 | 23:CB:175:HIS:CD2  | 2.15                     | 0.81              |
| 24:CC:283:TYR:CE1  | 24:CC:285:LEU:HD23 | 2.15                     | 0.81              |
| 43:CV:162:ASP:OD1  | 43:CV:163:ASN:N    | 2.12                     | 0.81              |
| 45:CX:79:ARG:HH12  | 1:D1:1448:G:H4'    | 1.46                     | 0.81              |
| 1:D1:792:G:O2'     | 1:D1:793:A:O5'     | 1.98                     | 0.81              |
| 1:D1:1553:C:OP1    | 50:D1:4533:HOH:O   | 1.97                     | 0.81              |
| 1:D1:1667:A:O2'    | 1:D1:1668:A:OP1    | 1.98                     | 0.81              |
| 1:D1:2295:G:OP1    | 50:D1:4630:HOH:O   | 1.97                     | 0.81              |
| 1:D1:2999:U:O4     | 50:D1:4810:HOH:O   | 1.98                     | 0.81              |
| 1:D1:3055:U:O4     | 50:D1:4219:HOH:O   | 1.97                     | 0.81              |
| 14:DO:75:THR:HG22  | 14:DO:77:GLU:N     | 1.95                     | 0.81              |
| 21:E3:13:A:O2'     | 34:EM:24:ARG:NH2   | 2.12                     | 0.81              |
| 21:E3:28:C:H2'     | 21:E3:29:C:H5'     | 1.61                     | 0.81              |
| 27:EF:233:LYS:HB2  | 1:F1:2575:G:O6     | 1.79                     | 0.81              |
| 29:EH:204:GLY:HA3  | 29:EH:208:ARG:CZ   | 2.10                     | 0.81              |
| 30:EI:197:GLY:HA2  | 6:FF:99:LYS:HD3    | 1.62                     | 0.81              |
| 33:EL:15:GLN:OE1   | 16:FQ:52:ALA:HB1   | 1.80                     | 0.81              |
| 37:EP:41:ASP:OD1   | 37:EP:61:THR:OG1   | 1.98                     | 0.81              |
| 1:F1:2310:G:OP1    | 50:F1:4065:HOH:O   | 1.99                     | 0.81              |
| 1:F1:3226:A:C2     | 5:FE:84:GLY:HA3    | 2.15                     | 0.81              |
| 7:FG:13:LYS:HD2    | 7:FG:100:ILE:HD11  | 1.62                     | 0.81              |
| 14:FO:69:LYS:HG2   | 14:FO:70:VAL:H     | 1.45                     | 0.81              |
| 20:G2:27:G:OP2     | 40:GS:12:ARG:HD3   | 1.80                     | 0.81              |
| 21:G3:63:A:H2'     | 29:GH:202:GLU:O    | 1.80                     | 0.81              |
| 21:G3:63:A:O5'     | 29:GH:206:LEU:HG   | 1.80                     | 0.81              |
| 22:GA:35:PHE:CE1   | 1:H1:2520:G:H2'    | 2.16                     | 0.81              |
| 24:GC:227:LEU:HA   | 24:GC:230:ILE:HD12 | 1.61                     | 0.81              |
| 28:GG:80:UNK:O     | 28:GG:82:UNK:HG2   | 1.79                     | 0.81              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 30:GI:196:PHE:HE2 | 6:HF:110:ARG:HD2   | 1.41                     | 0.81              |
| 32:GK:113:LEU:HB3 | 1:H1:740:A:OP2     | 1.78                     | 0.81              |
| 34:GM:246:LEU:O   | 34:GM:250:VAL:HG23 | 1.81                     | 0.81              |
| 1:H1:88:U:H2'     | 1:H1:89:G:H5'      | 1.62                     | 0.81              |
| 1:H1:101:G:O5'    | 50:H1:3650:HOH:O   | 1.98                     | 0.81              |
| 1:H1:291:C:C2'    | 1:H1:292:C:H5''    | 2.10                     | 0.81              |
| 1:H1:443:G:OP1    | 5:HE:16:SER:OG     | 1.98                     | 0.81              |
| 1:H1:518:G:H4'    | 1:H1:519:A:OP1     | 1.77                     | 0.81              |
| 1:H1:1775:A:H8    | 1:H1:1776:G:H2'    | 1.45                     | 0.81              |
| 1:H1:3230:G:N7    | 5:HE:119:ARG:NH1   | 2.29                     | 0.81              |
| 19:HX:22:VAL:CG1  | 19:HX:40:GLN:HE21  | 1.92                     | 0.81              |
| 19:HX:25:ALA:HB1  | 19:HX:71:ARG:O     | 1.80                     | 0.81              |
| 1:A1:1047:G:C2'   | 1:A1:1048:U:H5''   | 2.11                     | 0.81              |
| 1:A1:2648:U:H4'   | 1:A1:2740:G:O2'    | 1.81                     | 0.81              |
| 34:BM:177:GLU:HA  | 34:BM:180:PHE:HD2  | 1.44                     | 0.81              |
| 36:BO:173:ARG:NH1 | 1:H1:2831:U:O4     | 2.14                     | 0.81              |
| 27:CF:126:LYS:CE  | 27:CF:135:LEU:HD13 | 2.08                     | 0.81              |
| 45:CX:45:ARG:HA   | 45:CX:54:MET:HE1   | 1.60                     | 0.81              |
| 1:D1:57:G:O3'     | 1:D1:58:A:H4'      | 1.81                     | 0.81              |
| 1:D1:1434:G:C2'   | 1:D1:1435:C:H5''   | 2.11                     | 0.81              |
| 1:D1:1849:G:OP1   | 15:DP:47:LYS:HB2   | 1.80                     | 0.81              |
| 1:D1:2576:C:C2'   | 1:D1:2577:G:H5'    | 2.11                     | 0.81              |
| 8:DH:13:ARG:HH22  | 8:DH:17:LYS:CG     | 1.92                     | 0.81              |
| 21:E3:83:G:H22    | 21:E3:93:G:N2      | 1.78                     | 0.81              |
| 35:EN:16:VAL:HG12 | 35:EN:17:VAL:N     | 1.93                     | 0.81              |
| 45:EX:6:VAL:HG12  | 45:EX:7:ALA:N      | 1.94                     | 0.81              |
| 1:F1:73:G:P       | 18:FU:56:VAL:HG11  | 2.21                     | 0.81              |
| 1:F1:146:U:H4'    | 1:F1:147:U:O5'     | 1.79                     | 0.81              |
| 1:F1:428:A:H2'    | 1:F1:429:A:H8      | 1.45                     | 0.81              |
| 1:F1:2797:C:N3    | 50:F1:4080:HOH:O   | 2.13                     | 0.81              |
| 9:FJ:152:CYS:HB2  | 9:FJ:161:VAL:HG22  | 1.62                     | 0.81              |
| 19:FX:22:VAL:HG11 | 19:FX:40:GLN:HE21  | 1.45                     | 0.81              |
| 22:GA:33:TYR:H    | 22:GA:164:ARG:HH22 | 1.28                     | 0.81              |
| 27:GF:103:ARG:HG3 | 27:GF:107:GLN:NE2  | 1.95                     | 0.81              |
| 32:GK:36:LYS:HB2  | 1:H1:94:A:OP2      | 1.80                     | 0.81              |
| 1:H1:1108:A:H4'   | 1:H1:1109:A:OP1    | 1.77                     | 0.81              |
| 1:A1:1562:G:C8    | 50:A1:4044:HOH:O   | 2.34                     | 0.81              |
| 23:BB:278:LYS:NZ  | 23:BB:325:CYS:O    | 2.14                     | 0.81              |
| 25:CD:50:ALA:HB1  | 25:CD:59:ILE:CG2   | 2.11                     | 0.81              |
| 26:CE:34:ILE:HD11 | 26:CE:147:ILE:HG22 | 1.62                     | 0.81              |
| 1:D1:1598:C:H3'   | 1:D1:1599:G:H8     | 1.45                     | 0.81              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:3344:U:H4'   | 1:D1:3345:A:OP2    | 1.78                     | 0.81              |
| 9:DJ:123:ARG:HD3  | 9:FJ:123:ARG:NH2   | 1.95                     | 0.81              |
| 17:DT:8:THR:HG22  | 17:DT:10:LYS:H     | 1.46                     | 0.81              |
| 21:E3:89:G:H2'    | 21:E3:90:A:C8      | 2.16                     | 0.81              |
| 34:EM:129:TYR:HE1 | 34:EM:175:HIS:O    | 1.64                     | 0.81              |
| 1:F1:1337:G:N7    | 50:F1:4156:HOH:O   | 2.13                     | 0.81              |
| 7:FG:35:ARG:NH1   | 13:FN:77:LEU:HB2   | 1.96                     | 0.81              |
| 19:FX:7:GLN:OE1   | 19:FX:79:TYR:HB3   | 1.80                     | 0.81              |
| 1:H1:467:A:N6     | 1:H1:468:A:C6      | 2.49                     | 0.81              |
| 1:H1:645:A:H1'    | 1:H1:646:A:OP2     | 1.80                     | 0.81              |
| 1:A1:1737:A:H4'   | 1:A1:1738:A:OP1    | 1.79                     | 0.81              |
| 1:A1:1773:G:OP2   | 15:AP:41:LYS:NZ    | 2.13                     | 0.81              |
| 1:A1:1798:U:H5''  | 1:A1:1799:C:H5'    | 1.63                     | 0.81              |
| 1:A1:2211:G:O6    | 50:A1:4560:HOH:O   | 1.98                     | 0.81              |
| 1:A1:2383:U:O2'   | 38:BQ:82:GLN:NE2   | 2.13                     | 0.81              |
| 1:A1:2415:C:C2'   | 1:A1:2416:U:H5''   | 2.09                     | 0.81              |
| 1:A1:2994:G:HO2'  | 1:A1:2995:A:H8     | 1.27                     | 0.81              |
| 37:CP:13:LYS:NZ   | 1:D1:1021:U:OP2    | 2.14                     | 0.81              |
| 39:CR:73:THR:HG23 | 42:CU:37:ILE:CD1   | 2.10                     | 0.81              |
| 1:D1:1052:A:H2    | 1:D1:1053:A:C5     | 1.98                     | 0.81              |
| 1:D1:1460:G:OP2   | 50:D1:4029:HOH:O   | 1.99                     | 0.81              |
| 1:D1:1753:A:H3'   | 1:D1:1754:G:H5''   | 1.62                     | 0.81              |
| 34:EM:6:VAL:HG12  | 1:F1:1065:U:OP1    | 1.79                     | 0.81              |
| 35:EN:52:ARG:NH1  | 35:EN:141:ARG:HE   | 1.79                     | 0.81              |
| 23:GB:22:THR:HG22 | 23:GB:24:HIS:H     | 1.46                     | 0.81              |
| 32:GK:61:ARG:NH2  | 1:H1:88:U:OP1      | 2.13                     | 0.81              |
| 33:GL:55:ASN:HD22 | 1:H1:148:G:C5'     | 1.92                     | 0.81              |
| 1:H1:2391:G:H5'   | 1:H1:2392:A:H4'    | 1.63                     | 0.81              |
| 1:A1:664:U:OP1    | 32:BK:21:ARG:NH2   | 2.12                     | 0.81              |
| 1:A1:1546:G:O3'   | 39:BR:77:THR:HG21  | 1.80                     | 0.81              |
| 1:A1:2247:A:H2'   | 1:A1:2248:G:H8     | 1.45                     | 0.81              |
| 11:AL:5:ILE:HG22  | 11:AL:6:THR:H      | 1.45                     | 0.81              |
| 15:AP:12:MET:HA   | 15:AP:15:TRP:CD1   | 2.14                     | 0.81              |
| 21:B3:59:C:O2'    | 34:BM:279:PRO:HD2  | 1.81                     | 0.81              |
| 30:BI:184:PRO:O   | 30:BI:187:LYS:HG2  | 1.81                     | 0.81              |
| 35:BN:16:VAL:HG12 | 35:BN:17:VAL:N     | 1.95                     | 0.81              |
| 23:CB:22:THR:HG22 | 23:CB:24:HIS:H     | 1.46                     | 0.81              |
| 27:CF:47:TRP:HB3  | 27:CF:51:ILE:CD1   | 2.10                     | 0.81              |
| 34:CM:129:TYR:HE1 | 34:CM:175:HIS:O    | 1.63                     | 0.81              |
| 42:CU:36:LYS:HZ3  | 42:CU:45:LEU:HD22  | 1.46                     | 0.81              |
| 24:EC:105:ARG:HG2 | 24:EC:105:ARG:HH11 | 1.45                     | 0.81              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 41:ET:15:ILE:HG12  | 41:ET:34:LEU:HD13  | 1.62                     | 0.81              |
| 45:EX:43:ARG:NH1   | 1:F1:662:C:OP2     | 2.12                     | 0.81              |
| 20:G2:75:A:OP2     | 40:GS:51:LYS:HB3   | 1.80                     | 0.81              |
| 26:GE:126:ALA:HB2  | 26:GE:132:ILE:HD11 | 1.61                     | 0.81              |
| 38:GQ:120:GLN:HB3  | 38:GQ:149:GLU:HG2  | 1.61                     | 0.81              |
| 39:GR:73:THR:HG23  | 42:GU:37:ILE:CD1   | 2.10                     | 0.81              |
| 43:GV:162:ASP:OD1  | 43:GV:163:ASN:N    | 2.14                     | 0.81              |
| 1:H1:1598:C:H3'    | 1:H1:1599:G:H8     | 1.45                     | 0.81              |
| 1:H1:3151:G:OP1    | 8:HH:64:LYS:HG3    | 1.80                     | 0.81              |
| 12:HM:21:CYS:SG    | 12:HM:30:ILE:HG21  | 2.21                     | 0.81              |
| 1:A1:470:C:O2      | 1:A1:509:A:N6      | 2.12                     | 0.81              |
| 1:A1:1775:A:H8     | 1:A1:1776:G:H2'    | 1.46                     | 0.81              |
| 1:A1:1868:C:OP2    | 50:A1:4389:HOH:O   | 1.99                     | 0.81              |
| 1:A1:2238:A:O3'    | 50:A1:4202:HOH:O   | 1.98                     | 0.81              |
| 2:AA:20:ARG:HH12   | 20:B2:111:A:N6     | 1.78                     | 0.81              |
| 2:AA:28:HIS:HD2    | 2:AA:31:LYS:H      | 1.28                     | 0.81              |
| 22:BA:30:TYR:HA    | 22:BA:77:PHE:CE1   | 2.16                     | 0.81              |
| 27:CF:44:PHE:O     | 1:D1:2518:A:O2'    | 1.99                     | 0.81              |
| 29:CH:204:GLY:HA3  | 29:CH:208:ARG:CZ   | 2.10                     | 0.81              |
| 30:CI:53:PHE:HE2   | 30:CI:144:VAL:HG11 | 1.44                     | 0.81              |
| 34:CM:35:ARG:HB2   | 1:D1:2737:A:C2     | 2.14                     | 0.81              |
| 1:D1:1448:G:H2'    | 1:D1:1449:C:C6     | 2.16                     | 0.81              |
| 7:DG:13:LYS:HD2    | 7:DG:100:ILE:HD11  | 1.63                     | 0.81              |
| 19:DX:175:LYS:NZ   | 19:DX:178:ARG:HH11 | 1.78                     | 0.81              |
| 20:E2:36:G:H5''    | 1:F1:57:G:H2'      | 1.62                     | 0.81              |
| 23:EB:203:VAL:HG11 | 23:EB:320:ILE:HD11 | 1.62                     | 0.81              |
| 24:EC:376:TRP:HB3  | 1:F1:564:A:HO2'    | 1.43                     | 0.81              |
| 28:EG:33:UNK:CG    | 28:EG:36:UNK:HG2   | 2.10                     | 0.81              |
| 32:EK:113:LEU:HB3  | 1:F1:740:A:OP2     | 1.79                     | 0.81              |
| 37:EP:27:ILE:HA    | 37:EP:30:TYR:CD2   | 2.16                     | 0.81              |
| 46:EY:10:ILE:HG22  | 1:F1:862:A:H4'     | 1.63                     | 0.81              |
| 1:F1:226:C:OP2     | 50:F1:3717:HOH:O   | 1.98                     | 0.81              |
| 1:F1:1598:C:H3'    | 1:F1:1599:G:H8     | 1.46                     | 0.81              |
| 1:F1:2149:U:H2'    | 1:F1:2150:U:H5'    | 1.60                     | 0.81              |
| 24:GC:308:VAL:CG1  | 35:GN:40:ARG:HH11  | 1.93                     | 0.81              |
| 43:GV:133:PHE:CE1  | 43:GV:226:ASN:HB3  | 2.16                     | 0.81              |
| 1:H1:126:A:H5'     | 1:H1:127:A:OP1     | 1.80                     | 0.81              |
| 1:H1:1434:G:C2'    | 1:H1:1435:C:H5''   | 2.11                     | 0.81              |
| 1:H1:2671:C:H2'    | 1:H1:2672:U:H5'    | 1.62                     | 0.81              |
| 1:H1:2717:G:H3'    | 50:H1:4320:HOH:O   | 1.80                     | 0.81              |
| 1:A1:564:A:O2'     | 24:BC:376:TRP:HB3  | 1.81                     | 0.81              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1184:U:H6     | 1:A1:1184:U:H5'    | 1.45                     | 0.81              |
| 1:A1:1594:C:C4     | 1:A1:1595:A:N7     | 2.49                     | 0.81              |
| 1:A1:1640:C:H2'    | 1:A1:1641:U:C6     | 2.16                     | 0.81              |
| 1:A1:2275:A:O2'    | 1:A1:2276:A:O5'    | 1.96                     | 0.81              |
| 34:BM:17:GLN:OE1   | 37:BP:20:LYS:HA    | 1.80                     | 0.81              |
| 35:BN:89:ASN:HD22  | 35:BN:109:THR:HG22 | 1.46                     | 0.81              |
| 29:CH:75:ASN:O     | 29:CH:79:PHE:HD1   | 1.63                     | 0.81              |
| 33:CL:19:MET:HA    | 33:CL:19:MET:HE2   | 1.62                     | 0.81              |
| 34:CM:125:VAL:HG21 | 34:CM:205:PHE:HE1  | 1.44                     | 0.81              |
| 1:D1:2149:U:H2'    | 1:D1:2150:U:H5'    | 1.62                     | 0.81              |
| 14:DO:90:VAL:HG12  | 14:DO:111:LEU:HD11 | 1.63                     | 0.81              |
| 1:F1:418:G:H3'     | 1:F1:418:G:H8      | 1.42                     | 0.81              |
| 1:F1:590:A:C2'     | 1:F1:591:G:H5''    | 2.09                     | 0.81              |
| 1:F1:904:U:HO2'    | 1:F1:905:G:P       | 2.04                     | 0.81              |
| 1:F1:1448:G:H2'    | 1:F1:1449:C:C6     | 2.14                     | 0.81              |
| 1:F1:2718:U:P      | 50:F1:4473:HOH:O   | 2.39                     | 0.81              |
| 22:GA:130:ALA:HB3  | 22:GA:133:CYS:SG   | 2.21                     | 0.81              |
| 23:GB:210:ASN:HD22 | 23:GB:351:ILE:HA   | 1.46                     | 0.81              |
| 32:GK:21:ARG:NH2   | 1:H1:664:U:OP1     | 2.14                     | 0.81              |
| 1:H1:1184:U:H5'    | 1:H1:1184:U:H6     | 1.44                     | 0.81              |
| 1:H1:1448:G:H2'    | 1:H1:1449:C:C6     | 2.15                     | 0.81              |
| 1:H1:1719:U:H3     | 1:H1:1775:A:H2     | 1.29                     | 0.81              |
| 1:H1:3170:A:N7     | 6:HF:2:VAL:N       | 2.29                     | 0.81              |
| 1:H1:3236:C:O2'    | 1:H1:3237:C:OP1    | 1.99                     | 0.81              |
| 1:A1:120:A:OP1     | 27:BF:100:LYS:NZ   | 2.14                     | 0.81              |
| 1:A1:1010:G:H2'    | 43:BV:98:ARG:HD3   | 1.62                     | 0.81              |
| 1:A1:1366:C:H2'    | 1:A1:1367:A:C8     | 2.16                     | 0.81              |
| 11:AL:76:ARG:CZ    | 11:AL:84:HIS:HB3   | 2.11                     | 0.81              |
| 23:BB:250:ILE:HG13 | 23:BB:264:ARG:HH21 | 1.43                     | 0.81              |
| 26:BE:126:ALA:HB2  | 26:BE:132:ILE:HD11 | 1.61                     | 0.81              |
| 21:C3:104:C:C2'    | 21:C3:105:C:H5''   | 2.10                     | 0.81              |
| 22:CA:33:TYR:H     | 22:CA:164:ARG:HH22 | 1.28                     | 0.81              |
| 24:CC:242:ASN:HD21 | 1:D1:718:A:C4'     | 1.94                     | 0.81              |
| 32:CK:99:VAL:HB    | 18:DU:169:ILE:CD1  | 2.10                     | 0.81              |
| 35:CN:114:ILE:HD11 | 35:CN:121:CYS:SG   | 2.21                     | 0.81              |
| 1:D1:75:A:H8       | 18:DU:71:ARG:HH12  | 1.25                     | 0.81              |
| 1:D1:619:G:H4'     | 1:D1:620:A:C2      | 2.16                     | 0.81              |
| 24:EC:327:ASN:HB3  | 24:EC:331:PHE:HE2  | 1.45                     | 0.81              |
| 3:FB:2:GLY:N       | 50:FB:103:HOH:O    | 2.12                     | 0.81              |
| 43:GV:12:LYS:HE2   | 1:H1:1376:A:H3'    | 1.63                     | 0.81              |
| 1:H1:146:U:H4'     | 1:H1:147:U:O5'     | 1.79                     | 0.81              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:873:A:H2'     | 1:H1:874:C:O4'     | 1.80                     | 0.81              |
| 1:H1:1662:A:C5'    | 11:HL:76:ARG:NH2   | 2.44                     | 0.81              |
| 1:H1:1843:U:H2'    | 1:H1:1844:U:H6     | 1.44                     | 0.81              |
| 2:HA:62:THR:O      | 50:HA:203:HOH:O    | 1.99                     | 0.81              |
| 6:HF:106:PHE:HD2   | 6:HF:110:ARG:HE    | 1.29                     | 0.81              |
| 1:A1:452:U:C5'     | 14:AO:56:GLN:HE22  | 1.93                     | 0.80              |
| 1:A1:3128:G:H8     | 1:A1:3128:G:H5'    | 1.45                     | 0.80              |
| 21:B3:64:A:O2'     | 29:BH:205:PRO:HG3  | 1.81                     | 0.80              |
| 1:D1:1184:U:H6     | 1:D1:1184:U:H5'    | 1.45                     | 0.80              |
| 30:EI:86:MET:HE3   | 1:F1:1201:G:N2     | 1.96                     | 0.80              |
| 1:F1:2508:U:H4'    | 1:F1:2509:U:OP1    | 1.81                     | 0.80              |
| 1:F1:3237:C:N4     | 8:FH:10:ALA:HA     | 1.96                     | 0.80              |
| 2:FA:28:HIS:CD2    | 2:FA:31:LYS:HG3    | 2.15                     | 0.80              |
| 25:GD:37:LEU:HD12  | 25:GD:67:VAL:HG12  | 1.63                     | 0.80              |
| 27:GF:43:ARG:NH1   | 1:H1:2521:A:C2     | 2.48                     | 0.80              |
| 30:GI:6:VAL:HG23   | 30:GI:30:GLN:NE2   | 1.96                     | 0.80              |
| 35:GN:52:ARG:NH1   | 35:GN:141:ARG:HE   | 1.79                     | 0.80              |
| 39:GR:43:LEU:HD12  | 1:H1:1599:G:OP1    | 1.81                     | 0.80              |
| 1:H1:57:G:O3'      | 1:H1:58:A:H4'      | 1.81                     | 0.80              |
| 1:H1:1737:A:H4'    | 1:H1:1738:A:OP1    | 1.79                     | 0.80              |
| 1:H1:2319:A:OP1    | 50:H1:3877:HOH:O   | 1.99                     | 0.80              |
| 1:H1:2744:C:OP2    | 50:H1:4331:HOH:O   | 1.99                     | 0.80              |
| 1:H1:3227:A:C1'    | 5:HE:86:PRO:HG3    | 2.11                     | 0.80              |
| 11:HL:6:THR:HG22   | 11:HL:7:TYR:O      | 1.81                     | 0.80              |
| 1:A1:114:A:C6      | 1:A1:264:A:N6      | 2.49                     | 0.80              |
| 1:A1:649:G:O6      | 50:A1:3902:HOH:O   | 1.99                     | 0.80              |
| 1:A1:3185:G:H8     | 8:AH:11:PRO:HD3    | 1.45                     | 0.80              |
| 28:CG:8:UNK:HG3    | 1:D1:1248:G:H21    | 1.44                     | 0.80              |
| 32:CK:29:GLY:HA3   | 1:D1:962:G:H5'     | 1.60                     | 0.80              |
| 43:CV:91:GLN:HE21  | 1:D1:1167:G:H4'    | 1.46                     | 0.80              |
| 20:E2:105:A:H5'    | 20:E2:106:A:C5'    | 2.11                     | 0.80              |
| 1:F1:696:A:H2'     | 1:F1:697:A:C5'     | 2.09                     | 0.80              |
| 1:F1:1963:G:N7     | 50:F1:4366:HOH:O   | 2.14                     | 0.80              |
| 1:F1:2944:A:OP2    | 50:F1:4068:HOH:O   | 1.98                     | 0.80              |
| 24:GC:152:VAL:HG21 | 24:GC:255:PHE:HE1  | 1.46                     | 0.80              |
| 27:GF:46:ARG:HG3   | 1:H1:2518:A:H2'    | 1.64                     | 0.80              |
| 32:GK:36:LYS:HA    | 18:HU:1:MET:HE1    | 1.61                     | 0.80              |
| 45:GX:98:ILE:N     | 45:GX:123:ASN:HD21 | 1.80                     | 0.80              |
| 1:H1:3233:A:O2'    | 1:H1:3234:U:OP2    | 1.99                     | 0.80              |
| 1:A1:1054:G:H2'    | 1:A1:1055:A:C8     | 2.17                     | 0.80              |
| 1:A1:2934:A:H5''   | 1:A1:2935:G:O5'    | 1.80                     | 0.80              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A1:3266:G:OP1    | 23:BB:267:GLN:NE2 | 2.14                     | 0.80              |
| 4:AC:19:THR:HG21   | 4:AC:72:CYS:SG    | 2.21                     | 0.80              |
| 23:CB:210:ASN:HD21 | 23:CB:352:ILE:H   | 1.26                     | 0.80              |
| 26:CE:178:TYR:HB2  | 10:DK:85:LEU:HD13 | 1.62                     | 0.80              |
| 27:CF:151:ASP:OD1  | 27:CF:152:PRO:HA  | 1.81                     | 0.80              |
| 1:D1:1843:U:H2'    | 1:D1:1844:U:H6    | 1.47                     | 0.80              |
| 1:D1:2509:U:OP2    | 1:D1:2575:G:N2    | 2.14                     | 0.80              |
| 6:DF:106:PHE:HD2   | 6:DF:110:ARG:HE   | 1.29                     | 0.80              |
| 21:E3:104:C:C2'    | 21:E3:105:C:H5''  | 2.11                     | 0.80              |
| 31:EJ:16:LYS:NZ    | 1:F1:3081:C:H5    | 1.79                     | 0.80              |
| 35:EN:114:ILE:HD11 | 35:EN:121:CYS:SG  | 2.22                     | 0.80              |
| 1:F1:645:A:H1'     | 1:F1:646:A:OP2    | 1.81                     | 0.80              |
| 1:F1:792:G:O2'     | 1:F1:793:A:O5'    | 1.97                     | 0.80              |
| 1:F1:1016:U:C2'    | 1:F1:1017:U:H5''  | 2.11                     | 0.80              |
| 1:F1:2994:G:HO2'   | 1:F1:2995:A:H8    | 1.29                     | 0.80              |
| 1:H1:418:G:H3'     | 1:H1:418:G:H8     | 1.46                     | 0.80              |
| 1:H1:1945:A:N1     | 50:H1:3848:HOH:O  | 2.12                     | 0.80              |
| 1:A1:40:C:C2'      | 1:A1:41:A:H5''    | 2.08                     | 0.80              |
| 1:A1:57:G:H2'      | 20:B2:36:G:H5''   | 1.62                     | 0.80              |
| 1:A1:753:A:N6      | 1:A1:766:G:H1'    | 1.96                     | 0.80              |
| 1:A1:1932:A:OP2    | 50:A1:4120:HOH:O  | 2.00                     | 0.80              |
| 1:A1:2574:U:H4'    | 1:A1:2575:G:OP1   | 1.82                     | 0.80              |
| 9:AJ:109:VAL:HG22  | 9:AJ:149:GLY:HA2  | 1.63                     | 0.80              |
| 28:BG:33:UNK:CG    | 28:BG:36:UNK:HG2  | 2.11                     | 0.80              |
| 37:BP:27:ILE:HA    | 37:BP:30:TYR:CD2  | 2.15                     | 0.80              |
| 28:CG:33:UNK:CG    | 28:CG:36:UNK:HG2  | 2.11                     | 0.80              |
| 30:CI:64:ASN:HD21  | 30:CI:66:ARG:HG2  | 1.47                     | 0.80              |
| 30:CI:196:PHE:CE1  | 6:DF:111:VAL:HG22 | 2.17                     | 0.80              |
| 1:D1:418:G:H3'     | 1:D1:418:G:H8     | 1.46                     | 0.80              |
| 1:D1:979:U:H1'     | 17:DT:12:GLN:HE21 | 1.44                     | 0.80              |
| 1:D1:3185:G:H8     | 8:DH:11:PRO:HD3   | 1.45                     | 0.80              |
| 12:DM:21:CYS:SG    | 12:DM:30:ILE:HG21 | 2.21                     | 0.80              |
| 23:EB:162:THR:HG21 | 23:EB:175:HIS:CD2 | 2.16                     | 0.80              |
| 34:EM:180:PHE:HD1  | 34:EM:200:HIS:CE1 | 1.99                     | 0.80              |
| 1:F1:1594:C:C4     | 1:F1:1595:A:N7    | 2.49                     | 0.80              |
| 1:F1:1902:C:O2'    | 1:F1:1903:A:OP1   | 1.99                     | 0.80              |
| 1:F1:2252:C:C6     | 1:F1:2253:U:H5    | 1.98                     | 0.80              |
| 43:GV:98:ARG:CG    | 43:GV:98:ARG:HH11 | 1.93                     | 0.80              |
| 1:H1:527:A:O2'     | 14:HO:88:GLN:NE2  | 2.12                     | 0.80              |
| 1:H1:974:C:O2'     | 1:H1:996:A:OP1    | 1.99                     | 0.80              |
| 1:H1:1594:C:C4     | 1:H1:1595:A:N7    | 2.49                     | 0.80              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2640:G:O2'    | 1:H1:2784:G:O6     | 1.97                     | 0.80              |
| 19:HX:22:VAL:HG11  | 19:HX:40:GLN:HE21  | 1.44                     | 0.80              |
| 1:A1:555:G:C2'     | 1:A1:556:A:H5''    | 2.12                     | 0.80              |
| 1:A1:662:C:OP2     | 45:BX:43:ARG:NH1   | 2.14                     | 0.80              |
| 1:A1:1710:U:OP2    | 12:AM:42:LYS:NZ    | 2.13                     | 0.80              |
| 1:A1:3230:G:N7     | 5:AE:119:ARG:NH1   | 2.29                     | 0.80              |
| 20:B2:105:A:H5'    | 20:B2:106:A:C5'    | 2.12                     | 0.80              |
| 23:BB:210:ASN:HD22 | 23:BB:351:ILE:HA   | 1.44                     | 0.80              |
| 44:BW:14:ASN:OD1   | 44:BW:17:LYS:HG3   | 1.82                     | 0.80              |
| 45:BX:98:ILE:N     | 45:BX:123:ASN:HD21 | 1.79                     | 0.80              |
| 1:D1:470:C:O2      | 1:D1:509:A:N6      | 2.15                     | 0.80              |
| 1:D1:1698:G:N7     | 50:D1:4956:HOH:O   | 2.13                     | 0.80              |
| 1:D1:1775:A:H4'    | 1:D1:1776:G:OP1    | 1.81                     | 0.80              |
| 1:D1:1875:G:N7     | 50:D1:4253:HOH:O   | 2.13                     | 0.80              |
| 1:D1:2665:G:H4'    | 1:D1:2666:G:O5'    | 1.80                     | 0.80              |
| 21:E3:83:G:OP1     | 50:E3:304:HOH:O    | 2.00                     | 0.80              |
| 38:EQ:29:LYS:HD2   | 38:EQ:65:PHE:CD2   | 2.17                     | 0.80              |
| 1:F1:281:G:H4'     | 1:F1:282:G:C8      | 2.16                     | 0.80              |
| 1:F1:1078:U:C5     | 1:F1:1079:A:N7     | 2.50                     | 0.80              |
| 1:F1:1518:G:OP1    | 2:FA:14:LYS:NZ     | 2.15                     | 0.80              |
| 1:F1:2705:U:O2'    | 4:FC:79:ARG:NH2    | 2.14                     | 0.80              |
| 1:F1:2822:G:OP2    | 50:F1:4170:HOH:O   | 2.00                     | 0.80              |
| 6:FF:106:PHE:HD2   | 6:FF:110:ARG:HE    | 1.28                     | 0.80              |
| 28:GG:81:UNK:CB    | 1:H1:1308:U:O2'    | 2.29                     | 0.80              |
| 38:GQ:133:ARG:HD2  | 1:H1:905:G:OP2     | 1.81                     | 0.80              |
| 1:H1:682:G:OP2     | 50:H1:3686:HOH:O   | 1.99                     | 0.80              |
| 1:H1:1354:C:O2'    | 1:H1:1355:C:H5'    | 1.82                     | 0.80              |
| 1:H1:1737:A:N6     | 7:HG:28:LYS:HD2    | 1.97                     | 0.80              |
| 1:H1:3168:A:OP1    | 1:H1:3168:A:H8     | 1.64                     | 0.80              |
| 23:BB:24:HIS:CE1   | 23:BB:28:ARG:HD2   | 2.17                     | 0.80              |
| 21:C3:83:G:H22     | 21:C3:93:G:N2      | 1.79                     | 0.80              |
| 23:CB:24:HIS:CE1   | 23:CB:28:ARG:HD2   | 2.17                     | 0.80              |
| 23:CB:121:ASN:HB3  | 1:D1:3275:A:N6     | 1.96                     | 0.80              |
| 24:CC:107:PHE:HE1  | 1:D1:827:C:HO2'    | 1.29                     | 0.80              |
| 30:CI:67:ARG:HH21  | 1:D1:418:G:H21     | 1.30                     | 0.80              |
| 1:D1:91:C:H4'      | 1:D1:92:G:H5''     | 1.64                     | 0.80              |
| 1:D1:827:C:OP2     | 50:D1:4048:HOH:O   | 1.98                     | 0.80              |
| 1:D1:1775:A:H8     | 1:D1:1776:G:H2'    | 1.47                     | 0.80              |
| 1:D1:2966:U:O2'    | 1:D1:2967:U:H5''   | 1.81                     | 0.80              |
| 5:DE:178:PHE:O     | 8:DH:14:LEU:HD21   | 1.81                     | 0.80              |
| 36:EO:97:ARG:HH21  | 1:F1:1805:C:H5'    | 1.47                     | 0.80              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:563:G:H4'     | 1:F1:564:A:OP2     | 1.81                     | 0.80              |
| 21:G3:27:A:OP2     | 34:GM:56:THR:HG23  | 1.81                     | 0.80              |
| 24:GC:311:ALA:H    | 35:GN:40:ARG:NH2   | 1.79                     | 0.80              |
| 36:GO:146:LYS:HA   | 36:GO:149:LYS:HB3  | 1.63                     | 0.80              |
| 1:H1:531:C:H2'     | 1:H1:532:G:H5'     | 1.63                     | 0.80              |
| 4:HC:19:THR:HG21   | 4:HC:72:CYS:SG     | 2.22                     | 0.80              |
| 7:HG:58:TYR:OH     | 13:HN:84:ARG:HB3   | 1.82                     | 0.80              |
| 1:A1:718:A:H4'     | 24:BC:242:ASN:ND2  | 1.95                     | 0.80              |
| 1:A1:862:A:O2'     | 46:BY:10:ILE:HG22  | 1.81                     | 0.80              |
| 1:A1:1864:U:H5'    | 50:A1:4164:HOH:O   | 1.80                     | 0.80              |
| 1:A1:2518:A:O2'    | 27:BF:44:PHE:O     | 1.98                     | 0.80              |
| 1:A1:3237:C:H41    | 8:AH:10:ALA:HA     | 1.44                     | 0.80              |
| 5:AE:19:TYR:OH     | 14:AO:109:LYS:HG2  | 1.80                     | 0.80              |
| 14:AO:75:THR:HG22  | 14:AO:77:GLU:N     | 1.97                     | 0.80              |
| 19:AX:22:VAL:CG1   | 19:AX:40:GLN:HE21  | 1.94                     | 0.80              |
| 22:BA:30:TYR:HA    | 22:BA:77:PHE:HE1   | 1.45                     | 0.80              |
| 32:BK:60:MET:O     | 35:BN:172:ARG:NH1  | 2.15                     | 0.80              |
| 35:BN:114:ILE:HD11 | 35:BN:121:CYS:SG   | 2.21                     | 0.80              |
| 21:C3:28:C:H2'     | 21:C3:29:C:H5'     | 1.61                     | 0.80              |
| 24:CC:19:THR:HG22  | 24:CC:21:THR:H     | 1.46                     | 0.80              |
| 37:CP:21:THR:HA    | 37:CP:24:HIS:CD2   | 2.17                     | 0.80              |
| 1:D1:396:A:C4'     | 1:D1:397:A:OP1     | 2.28                     | 0.80              |
| 5:DE:181:ASN:N     | 5:DE:184:ASP:OD2   | 2.13                     | 0.80              |
| 22:EA:33:TYR:N     | 22:EA:164:ARG:HH22 | 1.80                     | 0.80              |
| 1:F1:988:G:O4'     | 50:F1:4477:HOH:O   | 1.99                     | 0.80              |
| 1:F1:1184:U:H6     | 1:F1:1184:U:H5'    | 1.47                     | 0.80              |
| 23:GB:16:PHE:HD2   | 23:GB:273:ARG:HH12 | 1.29                     | 0.80              |
| 38:GQ:133:ARG:CG   | 38:GQ:139:ASN:HD22 | 1.95                     | 0.80              |
| 1:H1:3047:U:H4'    | 1:H1:3048:A:OP1    | 1.78                     | 0.80              |
| 1:H1:3175:A:N6     | 6:HF:16:ASN:HD21   | 1.79                     | 0.80              |
| 1:A1:459:G:N2      | 1:A1:517:A:H2'     | 1.96                     | 0.80              |
| 1:A1:2517:G:H4'    | 1:A1:2518:A:OP2    | 1.82                     | 0.80              |
| 16:AQ:43:GLN:HA    | 16:AQ:43:GLN:OE1   | 1.81                     | 0.80              |
| 19:AX:7:GLN:OE1    | 19:AX:79:TYR:HB3   | 1.81                     | 0.80              |
| 19:AX:22:VAL:HG23  | 19:AX:78:ILE:CD1   | 2.11                     | 0.80              |
| 20:B2:100:C:P      | 39:BR:56:ARG:HH22  | 2.04                     | 0.80              |
| 23:BB:162:THR:HG21 | 23:BB:175:HIS:CD2  | 2.16                     | 0.80              |
| 27:BF:171:ALA:HA   | 27:BF:215:TYR:CE2  | 2.16                     | 0.80              |
| 29:BH:204:GLY:HA3  | 29:BH:208:ARG:CZ   | 2.11                     | 0.80              |
| 23:CB:2:SER:HB3    | 1:D1:2931:G:N7     | 1.97                     | 0.80              |
| 23:CB:267:GLN:NE2  | 1:D1:3266:G:OP1    | 2.14                     | 0.80              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 47:CO:156:UNK:O    | 47:CO:159:UNK:CG   | 2.28                     | 0.80              |
| 37:CP:82:GLY:HA3   | 50:DT:104:HOH:O    | 1.80                     | 0.80              |
| 1:D1:88:U:H2'      | 1:D1:89:G:H5'      | 1.62                     | 0.80              |
| 13:DN:24:VAL:HG23  | 13:DN:138:PHE:CE1  | 2.17                     | 0.80              |
| 24:EC:227:LEU:HA   | 24:EC:230:ILE:HD12 | 1.61                     | 0.80              |
| 32:EK:29:GLY:HA3   | 1:F1:962:G:H5'     | 1.62                     | 0.80              |
| 35:EN:158:GLN:HB3  | 50:EN:307:HOH:O    | 1.80                     | 0.80              |
| 1:F1:467:A:N6      | 1:F1:468:A:C6      | 2.49                     | 0.80              |
| 1:F1:1051:C:H2'    | 1:F1:1052:A:C8     | 2.16                     | 0.80              |
| 1:F1:1059:U:H2'    | 1:F1:1060:C:H5''   | 1.63                     | 0.80              |
| 1:F1:3291:G:O2'    | 1:F1:3292:U:H6     | 1.63                     | 0.80              |
| 8:FH:13:ARG:NH1    | 8:FH:15:TRP:O      | 2.15                     | 0.80              |
| 9:FJ:143:ALA:C     | 9:FJ:144:ASN:HD22  | 1.89                     | 0.80              |
| 23:GB:113:ASN:HB2  | 23:GB:174:ASN:HD21 | 1.47                     | 0.80              |
| 30:GI:132:ARG:HH12 | 1:H1:1216:C:H2'    | 1.46                     | 0.80              |
| 1:H1:450:C:H2'     | 1:H1:451:A:H8      | 1.47                     | 0.80              |
| 1:H1:1640:C:H2'    | 1:H1:1641:U:C6     | 2.16                     | 0.80              |
| 1:H1:2517:G:H4'    | 1:H1:2518:A:OP2    | 1.81                     | 0.80              |
| 1:H1:2934:A:H5''   | 1:H1:2935:G:O5'    | 1.81                     | 0.80              |
| 9:HJ:143:ALA:C     | 9:HJ:144:ASN:HD22  | 1.89                     | 0.80              |
| 1:A1:590:A:C2'     | 1:A1:591:G:H5''    | 2.12                     | 0.80              |
| 1:A1:1518:G:OP1    | 2:AA:14:LYS:NZ     | 2.13                     | 0.80              |
| 1:A1:1895:U:H5'    | 50:A1:4125:HOH:O   | 1.80                     | 0.80              |
| 2:AA:28:HIS:CD2    | 2:AA:31:LYS:H      | 2.00                     | 0.80              |
| 21:B3:101:A:N1     | 50:B3:314:HOH:O    | 2.15                     | 0.80              |
| 42:BU:36:LYS:HZ3   | 42:BU:45:LEU:HD22  | 1.46                     | 0.80              |
| 20:C2:67:C:OP1     | 42:CU:53:LYS:NZ    | 2.14                     | 0.80              |
| 26:CE:126:ALA:HB2  | 26:CE:132:ILE:HD11 | 1.62                     | 0.80              |
| 37:CP:27:ILE:HA    | 37:CP:30:TYR:CD2   | 2.15                     | 0.80              |
| 45:CX:98:ILE:O     | 45:CX:123:ASN:ND2  | 2.14                     | 0.80              |
| 1:D1:832:A:H62     | 1:D1:959:G:H1      | 1.27                     | 0.80              |
| 1:D1:1052:A:C2     | 1:D1:1053:A:N7     | 2.49                     | 0.80              |
| 1:D1:3128:G:H5'    | 1:D1:3128:G:H8     | 1.45                     | 0.80              |
| 22:EA:230:ALA:HB3  | 22:EA:235:LYS:HG3  | 1.64                     | 0.80              |
| 45:EX:45:ARG:HA    | 45:EX:54:MET:HE1   | 1.64                     | 0.80              |
| 1:F1:1737:A:H4'    | 1:F1:1738:A:OP1    | 1.82                     | 0.80              |
| 22:GA:30:TYR:HA    | 22:GA:77:PHE:CE1   | 2.17                     | 0.80              |
| 34:GM:180:PHE:HD1  | 34:GM:200:HIS:CE1  | 2.00                     | 0.80              |
| 1:H1:753:A:H61     | 1:H1:766:G:H1'     | 1.46                     | 0.80              |
| 1:H1:2830:U:O2     | 1:H1:2830:U:H2'    | 1.81                     | 0.80              |
| 1:A1:396:A:C4'     | 1:A1:397:A:OP1     | 2.28                     | 0.80              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:645:A:H1'     | 1:A1:646:A:OP2     | 1.81                     | 0.80              |
| 1:A1:1201:G:H21    | 30:BI:86:MET:HE3   | 1.45                     | 0.80              |
| 1:A1:1518:G:P      | 2:AA:14:LYS:HZ2    | 2.04                     | 0.80              |
| 1:A1:2640:G:O2'    | 1:A1:2784:G:O6     | 2.00                     | 0.80              |
| 1:A1:3236:C:O2'    | 1:A1:3237:C:OP1    | 2.00                     | 0.80              |
| 24:BC:213:LEU:HD12 | 24:BC:234:ASP:O    | 1.81                     | 0.80              |
| 29:BH:16:PRO:HG3   | 29:BH:128:ARG:NH1  | 1.97                     | 0.80              |
| 29:BH:86:HIS:HB3   | 29:BH:139:ARG:HG2  | 1.64                     | 0.80              |
| 21:C3:8:G:OP1      | 34:CM:33:ARG:NH1   | 2.14                     | 0.80              |
| 27:CF:29:PHE:CD2   | 27:CF:37:PRO:HD3   | 2.16                     | 0.80              |
| 27:CF:41:LEU:HD21  | 1:D1:2519:A:N3     | 1.96                     | 0.80              |
| 30:CI:109:THR:CG2  | 30:CI:110:PRO:HD3  | 2.12                     | 0.80              |
| 1:D1:26:C:C2'      | 1:D1:27:C:H5'      | 2.11                     | 0.80              |
| 1:D1:1662:A:C5'    | 11:DL:76:ARG:NH2   | 2.42                     | 0.80              |
| 1:D1:2517:G:H4'    | 1:D1:2518:A:OP2    | 1.79                     | 0.80              |
| 27:EF:47:TRP:HB3   | 27:EF:51:ILE:CD1   | 2.10                     | 0.80              |
| 30:EI:64:ASN:HD21  | 30:EI:66:ARG:HG2   | 1.45                     | 0.80              |
| 30:EI:109:THR:CG2  | 30:EI:110:PRO:HD3  | 2.12                     | 0.80              |
| 34:EM:125:VAL:HG21 | 34:EM:205:PHE:HE1  | 1.44                     | 0.80              |
| 36:EO:4:LEU:HD22   | 36:EO:7:GLN:HG3    | 1.64                     | 0.80              |
| 21:G3:13:A:P       | 21:G3:109:U:O2'    | 2.40                     | 0.80              |
| 24:GC:65:MET:HE3   | 24:GC:105:ARG:CD   | 2.11                     | 0.80              |
| 24:GC:99:ASN:ND2   | 1:H1:828:C:O2'     | 2.15                     | 0.80              |
| 29:GH:15:LYS:NZ    | 1:H1:2624:A:OP2    | 2.15                     | 0.80              |
| 32:GK:142:GLY:CA   | 18:HU:173:ARG:HH22 | 1.84                     | 0.80              |
| 35:GN:146:ARG:HA   | 1:H1:812:G:OP1     | 1.82                     | 0.80              |
| 42:GU:123:LYS:HZ3  | 18:HU:144:SER:HB2  | 1.47                     | 0.80              |
| 45:GX:79:ARG:NH1   | 1:H1:1448:G:H4'    | 1.95                     | 0.80              |
| 46:GY:49:ARG:HH21  | 46:GY:52:VAL:HA    | 1.46                     | 0.80              |
| 46:GY:64:ILE:CD1   | 46:GY:71:LEU:HD11  | 2.12                     | 0.80              |
| 1:H1:47:G:H1'      | 1:H1:48:U:OP2      | 1.81                     | 0.80              |
| 1:H1:851:G:HO2'    | 1:H1:1614:A:H8     | 1.24                     | 0.80              |
| 1:H1:2576:C:C2'    | 1:H1:2577:G:H5'    | 2.12                     | 0.80              |
| 2:HA:2:THR:HB      | 2:HA:6:PRO:HG2     | 1.62                     | 0.80              |
| 17:HT:8:THR:HG22   | 17:HT:10:LYS:H     | 1.45                     | 0.80              |
| 1:A1:73:G:P        | 18:AU:56:VAL:HG11  | 2.22                     | 0.79              |
| 1:A1:1134:C:H2'    | 1:A1:1135:U:H5''   | 1.64                     | 0.79              |
| 19:AX:22:VAL:HG11  | 19:AX:40:GLN:HE21  | 1.47                     | 0.79              |
| 22:BA:33:TYR:H     | 22:BA:164:ARG:HH22 | 1.30                     | 0.79              |
| 28:BG:11:UNK:O     | 28:BG:15:UNK:HG2   | 1.82                     | 0.79              |
| 28:BG:22:UNK:HG2   | 28:BG:92:UNK:HB1   | 1.62                     | 0.79              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 43:BV:86:ILE:HG12 | 43:BV:131:ILE:HA   | 1.64                     | 0.79              |
| 31:CJ:51:SER:OG   | 50:CJ:303:HOH:O    | 1.85                     | 0.79              |
| 1:D1:801:U:H5'    | 17:DT:37:PRO:HB3   | 1.62                     | 0.79              |
| 1:D1:2803:G:H5''  | 1:D1:2804:G:OP2    | 1.81                     | 0.79              |
| 22:EA:42:ILE:HD12 | 22:EA:43:ARG:H     | 1.42                     | 0.79              |
| 24:EC:283:TYR:CE1 | 24:EC:285:LEU:HD23 | 2.17                     | 0.79              |
| 32:EK:76:ASN:CG   | 32:EK:115:LYS:HB2  | 2.08                     | 0.79              |
| 45:EX:98:ILE:O    | 45:EX:123:ASN:ND2  | 2.15                     | 0.79              |
| 1:F1:396:A:C4'    | 1:F1:397:A:OP1     | 2.25                     | 0.79              |
| 1:F1:2933:G:H4'   | 1:F1:2934:A:OP1    | 1.81                     | 0.79              |
| 6:FF:11:ARG:HH21  | 6:FF:57:LYS:CA     | 1.91                     | 0.79              |
| 8:FH:54:LYS:NZ    | 8:FH:108:LEU:O     | 2.15                     | 0.79              |
| 24:GC:283:TYR:CE1 | 24:GC:285:LEU:HD23 | 2.17                     | 0.79              |
| 25:GD:50:ALA:HB1  | 25:GD:59:ILE:CG2   | 2.11                     | 0.79              |
| 1:H1:452:U:C5'    | 14:HO:56:GLN:HE22  | 1.95                     | 0.79              |
| 1:H1:800:G:H4'    | 1:H1:801:U:OP1     | 1.81                     | 0.79              |
| 1:H1:2270:A:H5''  | 1:H1:2271:G:OP2    | 1.82                     | 0.79              |
| 1:A1:2665:G:H4'   | 1:A1:2666:G:O5'    | 1.80                     | 0.79              |
| 1:A1:3047:U:H4'   | 1:A1:3048:A:OP1    | 1.80                     | 0.79              |
| 38:BQ:133:ARG:CG  | 38:BQ:139:ASN:HD22 | 1.93                     | 0.79              |
| 24:CC:373:SER:HA  | 1:D1:564:A:O2'     | 1.81                     | 0.79              |
| 31:CJ:51:SER:OG   | 50:CJ:304:HOH:O    | 1.99                     | 0.79              |
| 40:CS:59:ARG:NH1  | 1:D1:200:C:OP2     | 2.15                     | 0.79              |
| 1:D1:83:A:H4'     | 1:D1:84:G:OP1      | 1.80                     | 0.79              |
| 1:D1:1101:U:H5'   | 17:DT:49:ASN:ND2   | 1.97                     | 0.79              |
| 9:DJ:143:ALA:C    | 9:DJ:144:ASN:HD22  | 1.89                     | 0.79              |
| 23:EB:113:ASN:HB2 | 23:EB:174:ASN:HD21 | 1.47                     | 0.79              |
| 27:EF:151:ASP:OD1 | 27:EF:152:PRO:HA   | 1.82                     | 0.79              |
| 34:EM:17:GLN:HB3  | 1:F1:2677:U:O2     | 1.82                     | 0.79              |
| 35:EN:89:ASN:HD22 | 35:EN:109:THR:HG22 | 1.46                     | 0.79              |
| 44:EW:28:ALA:HA   | 44:EW:66:ILE:HD11  | 1.64                     | 0.79              |
| 1:F1:2270:A:H5''  | 1:F1:2271:G:OP2    | 1.82                     | 0.79              |
| 1:F1:2371:G:O2'   | 1:F1:2372:G:C8     | 2.34                     | 0.79              |
| 1:F1:2703:G:OP2   | 1:F1:2705:U:H1'    | 1.83                     | 0.79              |
| 18:FU:133:LYS:C   | 18:FU:135:LEU:H    | 1.88                     | 0.79              |
| 20:G2:67:C:OP1    | 42:GU:53:LYS:NZ    | 2.14                     | 0.79              |
| 38:GQ:103:ASN:ND2 | 1:H1:388:A:O2'     | 2.15                     | 0.79              |
| 1:H1:1753:A:N6    | 7:HG:47:ASN:O      | 2.14                     | 0.79              |
| 1:H1:2695:G:OP1   | 50:H1:4332:HOH:O   | 2.00                     | 0.79              |
| 1:H1:3291:G:O2'   | 1:H1:3292:U:H6     | 1.64                     | 0.79              |
| 5:HE:41:LEU:CD1   | 5:HE:45:ILE:HD13   | 2.12                     | 0.79              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 14:HO:69:LYS:HG2   | 14:HO:70:VAL:H     | 1.46                     | 0.79              |
| 1:A1:1655:A:N3     | 1:A1:1655:A:H2'    | 1.98                     | 0.79              |
| 7:AG:62:LEU:HB3    | 13:AN:4:PHE:CE2    | 2.17                     | 0.79              |
| 7:AG:62:LEU:HD11   | 13:AN:84:ARG:HB2   | 1.63                     | 0.79              |
| 20:B2:100:C:P      | 39:BR:56:ARG:NH2   | 2.56                     | 0.79              |
| 32:BK:76:ASN:CG    | 32:BK:115:LYS:HB2  | 2.07                     | 0.79              |
| 43:BV:85:ARG:HA    | 43:BV:131:ILE:HG12 | 1.64                     | 0.79              |
| 23:CB:203:VAL:HG11 | 23:CB:320:ILE:HD11 | 1.64                     | 0.79              |
| 43:CV:133:PHE:CE1  | 43:CV:226:ASN:HB3  | 2.16                     | 0.79              |
| 1:D1:114:A:C6      | 1:D1:264:A:N6      | 2.51                     | 0.79              |
| 1:D1:467:A:N6      | 1:D1:468:A:C6      | 2.50                     | 0.79              |
| 1:D1:1737:A:H4'    | 1:D1:1738:A:OP1    | 1.82                     | 0.79              |
| 1:D1:2508:U:H4'    | 1:D1:2509:U:OP1    | 1.80                     | 0.79              |
| 1:D1:3175:A:N6     | 6:DF:16:ASN:HD21   | 1.80                     | 0.79              |
| 11:DL:6:THR:HG22   | 11:DL:7:TYR:O      | 1.82                     | 0.79              |
| 16:DQ:37:ARG:O     | 16:DQ:41:VAL:HG23  | 1.81                     | 0.79              |
| 24:EC:213:LEU:HD12 | 24:EC:234:ASP:O    | 1.82                     | 0.79              |
| 1:F1:555:G:C2'     | 1:F1:556:A:H5''    | 2.11                     | 0.79              |
| 1:F1:2245:G:H2'    | 1:F1:2246:G:H8     | 1.48                     | 0.79              |
| 1:F1:2544:U:H4'    | 7:FG:50:THR:OG1    | 1.81                     | 0.79              |
| 20:G2:1:A:H2'      | 20:G2:3:A:C8       | 2.18                     | 0.79              |
| 31:GJ:16:LYS:NZ    | 1:H1:3081:C:H5     | 1.79                     | 0.79              |
| 34:GM:274:HIS:O    | 34:GM:278:TYR:HD1  | 1.65                     | 0.79              |
| 1:H1:2862:G:OP2    | 50:H1:4022:HOH:O   | 1.99                     | 0.79              |
| 1:H1:3291:G:O2'    | 1:H1:3292:U:P      | 2.40                     | 0.79              |
| 5:HE:181:ASN:N     | 5:HE:184:ASP:OD2   | 2.14                     | 0.79              |
| 19:HX:113:LEU:HD21 | 19:HX:140:THR:HG21 | 1.63                     | 0.79              |
| 1:A1:361:A:C2'     | 1:A1:362:G:H5''    | 2.12                     | 0.79              |
| 1:A1:453:A:N6      | 1:A1:524:G:H2'     | 1.98                     | 0.79              |
| 1:A1:517:A:H4'     | 1:A1:518:G:OP1     | 1.81                     | 0.79              |
| 1:A1:531:C:H2'     | 1:A1:532:G:H5'     | 1.63                     | 0.79              |
| 1:A1:918:C:H5''    | 1:A1:919:A:OP1     | 1.83                     | 0.79              |
| 1:A1:1657:C:OP1    | 13:AN:111:ARG:NH1  | 2.12                     | 0.79              |
| 1:A1:2933:G:H4'    | 1:A1:2934:A:OP1    | 1.81                     | 0.79              |
| 23:BB:332:ARG:HH11 | 23:BB:332:ARG:CG   | 1.95                     | 0.79              |
| 26:BE:91:LYS:HG2   | 26:BE:180:SER:HB3  | 1.63                     | 0.79              |
| 30:BI:53:PHE:HE2   | 30:BI:144:VAL:HG11 | 1.43                     | 0.79              |
| 20:C2:1:A:H2'      | 20:C2:3:A:C8       | 2.16                     | 0.79              |
| 20:C2:111:A:C6     | 2:DA:20:ARG:NH1    | 2.51                     | 0.79              |
| 24:CC:327:ASN:HB3  | 24:CC:331:PHE:HE2  | 1.47                     | 0.79              |
| 30:CI:86:MET:HE3   | 1:D1:1201:G:N2     | 1.97                     | 0.79              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:38:A:O2'      | 50:D1:3762:HOH:O   | 2.00                     | 0.79              |
| 1:D1:281:G:H4'     | 1:D1:282:G:C8      | 2.18                     | 0.79              |
| 1:D1:1366:C:H2'    | 1:D1:1367:A:C8     | 2.16                     | 0.79              |
| 1:D1:1773:G:OP2    | 15:DP:41:LYS:NZ    | 2.15                     | 0.79              |
| 1:D1:1776:G:H5''   | 50:D1:4875:HOH:O   | 1.81                     | 0.79              |
| 1:D1:2703:G:OP2    | 1:D1:2705:U:H1'    | 1.83                     | 0.79              |
| 37:EP:60:ARG:NH2   | 1:F1:2627:C:O2     | 2.16                     | 0.79              |
| 1:F1:3344:U:H4'    | 1:F1:3345:A:OP2    | 1.80                     | 0.79              |
| 16:FQ:16:THR:HB    | 18:FU:104:GLN:HB2  | 1.65                     | 0.79              |
| 30:GI:67:ARG:HH21  | 1:H1:418:G:H21     | 1.30                     | 0.79              |
| 37:GP:27:ILE:HA    | 37:GP:30:TYR:CD2   | 2.18                     | 0.79              |
| 4:HC:39:ARG:O      | 4:HC:43:MET:HG3    | 1.82                     | 0.79              |
| 6:HF:11:ARG:HH21   | 6:HF:57:LYS:CA     | 1.93                     | 0.79              |
| 1:A1:467:A:N6      | 1:A1:468:A:C6      | 2.50                     | 0.79              |
| 1:A1:2149:U:H2'    | 1:A1:2150:U:H5'    | 1.64                     | 0.79              |
| 1:A1:2247:A:H2'    | 1:A1:2248:G:C8     | 2.17                     | 0.79              |
| 9:AJ:126:GLU:OE1   | 9:HJ:123:ARG:NH2   | 2.14                     | 0.79              |
| 18:AU:164:LYS:NZ   | 32:BK:88:THR:HG23  | 1.96                     | 0.79              |
| 27:BF:67:PRO:HB2   | 27:BF:68:PRO:HD2   | 1.65                     | 0.79              |
| 35:BN:89:ASN:HD22  | 35:BN:109:THR:CG2  | 1.93                     | 0.79              |
| 24:CC:234:ASP:OD2  | 24:CC:254:ARG:NH2  | 2.12                     | 0.79              |
| 47:CO:109:TYR:HB3  | 47:CO:115:ILE:HG13 | 1.65                     | 0.79              |
| 38:CQ:141:TYR:CE1  | 1:D1:2350:G:H4'    | 2.18                     | 0.79              |
| 46:CY:10:ILE:HG22  | 1:D1:862:A:H4'     | 1.64                     | 0.79              |
| 1:D1:1737:A:N1     | 1:D1:1754:G:O2'    | 2.15                     | 0.79              |
| 1:F1:753:A:N6      | 1:F1:766:G:H1'     | 1.97                     | 0.79              |
| 1:F1:1184:U:OP1    | 50:F1:3814:HOH:O   | 2.01                     | 0.79              |
| 1:F1:1197:A:OP2    | 50:F1:4185:HOH:O   | 2.00                     | 0.79              |
| 1:F1:1775:A:H8     | 1:F1:1776:G:H2'    | 1.46                     | 0.79              |
| 1:F1:2966:U:O2'    | 1:F1:2967:U:H5''   | 1.83                     | 0.79              |
| 29:GH:42:THR:HG22  | 29:GH:44:GLU:H     | 1.47                     | 0.79              |
| 34:GM:175:HIS:CD2  | 34:GM:180:PHE:HE2  | 2.01                     | 0.79              |
| 1:H1:1731:G:H21    | 11:HL:54:ASN:ND2   | 1.79                     | 0.79              |
| 1:A1:707:A:OP2     | 50:A1:4630:HOH:O   | 1.99                     | 0.79              |
| 1:A1:1512:G:N7     | 50:A1:4375:HOH:O   | 2.15                     | 0.79              |
| 1:A1:2521:A:C2     | 27:BF:43:ARG:NH1   | 2.50                     | 0.79              |
| 1:A1:2635:C:H5'    | 1:A1:2635:C:H6     | 1.47                     | 0.79              |
| 20:B2:3:A:H4'      | 20:B2:4:A:OP2      | 1.82                     | 0.79              |
| 23:BB:210:ASN:HD21 | 23:BB:352:ILE:H    | 1.27                     | 0.79              |
| 34:BM:221:ASN:O    | 34:BM:225:GLN:HG2  | 1.80                     | 0.79              |
| 1:D1:1660:U:O2'    | 13:DN:79:HIS:HD2   | 1.66                     | 0.79              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:E3:4:G:H4'      | 21:E3:26:C:H4'     | 1.63                     | 0.79              |
| 33:EL:55:ASN:HD22  | 1:F1:148:G:C5'     | 1.95                     | 0.79              |
| 46:EY:15:GLY:O     | 46:EY:23:ARG:NH1   | 2.16                     | 0.79              |
| 1:F1:996:A:OP2     | 50:F1:3873:HOH:O   | 2.01                     | 0.79              |
| 1:F1:1168:C:OP1    | 50:F1:3808:HOH:O   | 2.01                     | 0.79              |
| 1:F1:1434:G:H2'    | 1:F1:1435:C:H5''   | 1.64                     | 0.79              |
| 1:F1:1434:G:C2'    | 1:F1:1435:C:H5''   | 2.12                     | 0.79              |
| 1:F1:2542:U:H6     | 1:F1:2542:U:H5''   | 1.44                     | 0.79              |
| 20:G2:77:U:O4      | 40:GS:71:GLN:NE2   | 2.15                     | 0.79              |
| 1:H1:1413:G:O2'    | 1:H1:1414:C:H5'    | 1.83                     | 0.79              |
| 1:H1:1658:G:N7     | 13:HN:17:ARG:NH1   | 2.31                     | 0.79              |
| 1:H1:3128:G:H8     | 1:H1:3128:G:H5'    | 1.46                     | 0.79              |
| 1:A1:610:A:H2'     | 1:A1:611:A:H8      | 1.47                     | 0.79              |
| 1:A1:2275:A:OP1    | 50:A1:4493:HOH:O   | 2.00                     | 0.79              |
| 1:A1:2310:G:OP1    | 50:A1:4184:HOH:O   | 2.00                     | 0.79              |
| 1:A1:2720:G:C2'    | 1:A1:2721:G:H5'    | 2.12                     | 0.79              |
| 27:BF:47:TRP:HB3   | 27:BF:51:ILE:CD1   | 2.10                     | 0.79              |
| 38:BQ:8:ARG:HH12   | 38:BQ:117:GLN:HG3  | 1.47                     | 0.79              |
| 34:CM:246:LEU:O    | 34:CM:250:VAL:HG23 | 1.83                     | 0.79              |
| 1:D1:428:A:H2'     | 1:D1:429:A:C8      | 2.17                     | 0.79              |
| 1:D1:439:A:H5''    | 5:DE:126:HIS:ND1   | 1.97                     | 0.79              |
| 2:DA:2:THR:HB      | 2:DA:6:PRO:HG2     | 1.65                     | 0.79              |
| 22:EA:16:VAL:CG2   | 1:F1:936:C:H5''    | 2.13                     | 0.79              |
| 1:F1:453:A:N6      | 1:F1:524:G:H2'     | 1.98                     | 0.79              |
| 1:F1:3237:C:N4     | 8:FH:9:VAL:O       | 2.16                     | 0.79              |
| 14:FO:16:LEU:HD13  | 14:FO:35:ASN:HD22  | 1.47                     | 0.79              |
| 32:GK:76:ASN:CG    | 32:GK:115:LYS:HB2  | 2.08                     | 0.79              |
| 34:GM:52:VAL:HG22  | 34:GM:63:GLN:HB2   | 1.65                     | 0.79              |
| 35:GN:114:ILE:HD11 | 35:GN:121:CYS:SG   | 2.22                     | 0.79              |
| 35:GN:123:THR:HG23 | 35:GN:125:ASP:OD1  | 1.83                     | 0.79              |
| 1:H1:1256:G:H2'    | 1:H1:1257:G:C8     | 2.18                     | 0.79              |
| 1:H1:1383:G:OP2    | 1:H1:1383:G:H4'    | 1.78                     | 0.79              |
| 1:H1:2966:U:O2'    | 1:H1:2967:U:C5'    | 2.31                     | 0.79              |
| 1:H1:2966:U:O2'    | 1:H1:2967:U:H5''   | 1.82                     | 0.79              |
| 4:HC:66:VAL:HG23   | 4:HC:83:ILE:HB     | 1.65                     | 0.79              |
| 1:A1:2743:G:C3'    | 1:A1:2744:C:C5'    | 2.61                     | 0.79              |
| 20:B2:1:A:H2'      | 20:B2:3:A:C8       | 2.17                     | 0.79              |
| 22:BA:130:ALA:HB3  | 22:BA:133:CYS:SG   | 2.23                     | 0.79              |
| 30:CI:197:GLY:HA2  | 6:DF:99:LYS:HD3    | 1.63                     | 0.79              |
| 35:CN:155:ALA:HB3  | 35:CN:158:GLN:CD   | 2.07                     | 0.79              |
| 38:CQ:38:ILE:HD11  | 38:CQ:93:ILE:HG21  | 1.65                     | 0.79              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3043:U:O4     | 50:D1:4573:HOH:O   | 2.01                     | 0.79              |
| 4:DC:70:PHE:HE2    | 4:DC:81:ILE:HD12   | 1.47                     | 0.79              |
| 24:EC:152:VAL:HG21 | 24:EC:255:PHE:HE1  | 1.48                     | 0.79              |
| 24:EC:163:VAL:O    | 24:EC:166:TYR:HD2  | 1.66                     | 0.79              |
| 24:EC:242:ASN:ND2  | 1:F1:718:A:H4'     | 1.96                     | 0.79              |
| 26:EE:124:ILE:CD1  | 26:EE:159:ILE:HA   | 2.13                     | 0.79              |
| 27:EF:171:ALA:HA   | 27:EF:215:TYR:CE2  | 2.17                     | 0.79              |
| 34:EM:221:ASN:O    | 34:EM:225:GLN:HG2  | 1.83                     | 0.79              |
| 1:F1:918:C:H5''    | 1:F1:919:A:OP1     | 1.83                     | 0.79              |
| 1:F1:1223:U:H2'    | 1:F1:1223:U:O2     | 1.83                     | 0.79              |
| 1:F1:1843:U:H2'    | 1:F1:1844:U:H6     | 1.47                     | 0.79              |
| 4:FC:66:VAL:HG23   | 4:FC:83:ILE:HB     | 1.65                     | 0.79              |
| 13:FN:23:ALA:HB1   | 13:FN:43:VAL:HG12  | 1.65                     | 0.79              |
| 35:GN:5:LEU:HD23   | 43:GV:106:ARG:HD2  | 1.65                     | 0.79              |
| 1:H1:552:U:O2'     | 1:H1:553:C:H5'     | 1.81                     | 0.79              |
| 1:H1:1050:C:H2'    | 1:H1:1051:C:C1'    | 2.13                     | 0.79              |
| 1:H1:2367:A:O2'    | 50:H1:3761:HOH:O   | 2.00                     | 0.79              |
| 1:A1:281:G:H4'     | 1:A1:282:G:C8      | 2.18                     | 0.79              |
| 1:A1:962:G:H5'     | 32:BK:29:GLY:HA3   | 1.62                     | 0.79              |
| 7:AG:13:LYS:HD2    | 7:AG:100:ILE:HD11  | 1.63                     | 0.79              |
| 14:AO:16:LEU:HD13  | 14:AO:35:ASN:HD22  | 1.46                     | 0.79              |
| 17:AT:9:ASN:OD1    | 17:AT:12:GLN:HB2   | 1.83                     | 0.79              |
| 23:CB:113:ASN:HB2  | 23:CB:174:ASN:HD21 | 1.47                     | 0.79              |
| 24:CC:163:VAL:O    | 24:CC:166:TYR:HD2  | 1.66                     | 0.79              |
| 35:CN:89:ASN:HD22  | 35:CN:109:THR:CG2  | 1.95                     | 0.79              |
| 47:CO:175:UNK:O    | 29:EH:83:ASP:HB3   | 1.83                     | 0.79              |
| 37:CP:5:TYR:O      | 1:D1:2619:C:OP1    | 2.01                     | 0.79              |
| 1:D1:1223:U:H2'    | 1:D1:1223:U:O2     | 1.83                     | 0.79              |
| 1:D1:1909:C:O2'    | 1:D1:1910:A:P      | 2.41                     | 0.79              |
| 1:D1:1927:U:OP2    | 50:D1:4614:HOH:O   | 2.01                     | 0.79              |
| 15:DP:12:MET:HA    | 15:DP:15:TRP:CD1   | 2.18                     | 0.79              |
| 29:EH:75:ASN:O     | 29:EH:79:PHE:HD1   | 1.66                     | 0.79              |
| 40:ES:55:VAL:HG22  | 40:ES:105:LEU:HD23 | 1.65                     | 0.79              |
| 1:F1:467:A:N6      | 1:F1:512:G:C2      | 2.51                     | 0.79              |
| 1:F1:518:G:O2'     | 1:F1:519:A:O4'     | 2.00                     | 0.79              |
| 1:F1:527:A:H5'     | 5:FE:13:SER:OG     | 1.81                     | 0.79              |
| 1:F1:2347:A:OP2    | 50:F1:4402:HOH:O   | 2.00                     | 0.79              |
| 1:F1:2391:G:H5'    | 1:F1:2392:A:H4'    | 1.65                     | 0.79              |
| 23:GB:194:LYS:HA   | 23:GB:197:LEU:HD12 | 1.65                     | 0.79              |
| 24:GC:405:ILE:HD12 | 29:GH:183:ARG:HG2  | 1.65                     | 0.79              |
| 34:GM:212:TYR:HD2  | 34:GM:228:PHE:HZ   | 1.31                     | 0.79              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 42:GU:89:THR:OG1  | 42:GU:92:ILE:HG12  | 1.83                     | 0.79              |
| 45:GX:28:ALA:HB3  | 1:H1:679:C:H5''    | 1.65                     | 0.79              |
| 1:H1:24:A:N3      | 1:H1:327:U:O2'     | 2.15                     | 0.79              |
| 1:H1:696:A:H2'    | 1:H1:697:A:C5'     | 2.07                     | 0.79              |
| 7:HG:10:ILE:O     | 7:HG:13:LYS:HG2    | 1.82                     | 0.79              |
| 1:A1:1477:C:OP1   | 50:A1:4157:HOH:O   | 1.99                     | 0.79              |
| 1:A1:1562:G:N7    | 50:A1:4048:HOH:O   | 2.14                     | 0.79              |
| 1:A1:1654:G:C4'   | 1:A1:1655:A:OP1    | 2.31                     | 0.79              |
| 1:A1:2188:U:O2'   | 1:A1:2189:G:P      | 2.41                     | 0.79              |
| 18:AU:164:LYS:NZ  | 32:BK:100:PRO:HB3  | 1.97                     | 0.79              |
| 23:BB:16:PHE:HD2  | 23:BB:273:ARG:HH12 | 1.28                     | 0.79              |
| 26:BE:38:PHE:CE2  | 26:BE:71:ILE:HG23  | 2.17                     | 0.79              |
| 27:CF:43:ARG:NH1  | 1:D1:2521:A:N1     | 2.31                     | 0.79              |
| 39:CR:48:ALA:O    | 1:D1:14:A:H5''     | 1.81                     | 0.79              |
| 1:D1:555:G:C2'    | 1:D1:556:A:H5''    | 2.12                     | 0.79              |
| 28:EG:101:UNK:O   | 28:EG:105:UNK:HG2  | 1.82                     | 0.79              |
| 33:EL:30:TYR:HE2  | 33:EL:63:ARG:HD3   | 1.45                     | 0.79              |
| 33:EL:55:ASN:HD22 | 1:F1:148:G:H5'     | 1.46                     | 0.79              |
| 44:EW:14:ASN:ND2  | 44:EW:17:LYS:HE3   | 1.97                     | 0.79              |
| 1:F1:26:C:C2'     | 1:F1:27:C:H5'      | 2.13                     | 0.79              |
| 1:F1:418:G:H3'    | 1:F1:418:G:C8      | 2.17                     | 0.79              |
| 1:F1:1775:A:H4'   | 1:F1:1776:G:OP1    | 1.81                     | 0.79              |
| 1:F1:2803:G:OP2   | 50:F1:4198:HOH:O   | 2.01                     | 0.79              |
| 1:F1:3175:A:N6    | 6:FF:16:ASN:HD21   | 1.81                     | 0.79              |
| 18:FU:72:GLY:O    | 18:FU:99:ARG:NH1   | 2.16                     | 0.79              |
| 27:GF:151:ASP:OD1 | 27:GF:152:PRO:HA   | 1.83                     | 0.79              |
| 27:GF:171:ALA:HA  | 27:GF:215:TYR:CE2  | 2.18                     | 0.79              |
| 29:GH:118:ALA:HB3 | 1:H1:1153:G:O2'    | 1.83                     | 0.79              |
| 29:GH:204:GLY:HA3 | 29:GH:208:ARG:CZ   | 2.12                     | 0.79              |
| 32:GK:76:ASN:HB2  | 32:GK:79:LYS:HE2   | 1.65                     | 0.79              |
| 35:GN:5:LEU:CD2   | 43:GV:106:ARG:HD2  | 2.14                     | 0.79              |
| 1:H1:563:G:H4'    | 1:H1:564:A:OP2     | 1.82                     | 0.79              |
| 1:H1:792:G:O2'    | 1:H1:793:A:O5'     | 2.00                     | 0.79              |
| 1:H1:2803:G:H5''  | 1:H1:2804:G:OP2    | 1.83                     | 0.79              |
| 1:H1:3008:U:OP2   | 50:H1:4305:HOH:O   | 2.01                     | 0.79              |
| 1:H1:3176:A:H4'   | 1:H1:3177:G:H5'    | 1.65                     | 0.79              |
| 1:A1:615:G:H21    | 8:AH:79:LYS:CE     | 1.96                     | 0.78              |
| 1:A1:1002:A:H2'   | 1:A1:1003:G:H5'    | 1.65                     | 0.78              |
| 1:A1:1128:G:H5''  | 43:BV:104:ARG:HD2  | 1.65                     | 0.78              |
| 33:BL:154:SER:O   | 33:BL:157:LYS:HG3  | 1.83                     | 0.78              |
| 46:BY:49:ARG:HH21 | 46:BY:52:VAL:HA    | 1.48                     | 0.78              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 25:CD:37:LEU:HD12  | 25:CD:67:VAL:HG12  | 1.65                     | 0.78              |
| 32:CK:106:LYS:HD3  | 18:DU:160:SER:HB2  | 1.65                     | 0.78              |
| 47:CO:4:LEU:HD22   | 47:CO:7:GLN:HG3    | 1.65                     | 0.78              |
| 1:D1:447:G:O6      | 50:D1:4953:HOH:O   | 2.01                     | 0.78              |
| 1:D1:467:A:N6      | 1:D1:512:G:C2      | 2.52                     | 0.78              |
| 1:D1:2344:U:H5'    | 1:D1:2344:U:H6     | 1.49                     | 0.78              |
| 1:D1:2542:U:H6     | 1:D1:2542:U:H5''   | 1.48                     | 0.78              |
| 1:D1:2830:U:H2'    | 1:D1:2830:U:O2     | 1.82                     | 0.78              |
| 22:EA:49:ILE:HD12  | 46:EY:63:ILE:HG22  | 1.64                     | 0.78              |
| 23:EB:210:ASN:ND2  | 23:EB:352:ILE:H    | 1.80                     | 0.78              |
| 26:EE:1:MET:HE3    | 1:F1:1214:C:OP1    | 1.83                     | 0.78              |
| 27:EF:100:LYS:HZ3  | 1:F1:119:A:H2'     | 1.45                     | 0.78              |
| 27:EF:128:GLY:HA2  | 1:F1:146:U:O2'     | 1.82                     | 0.78              |
| 29:EH:86:HIS:HB3   | 29:EH:139:ARG:HG2  | 1.66                     | 0.78              |
| 30:EI:67:ARG:HH21  | 1:F1:418:G:H21     | 1.29                     | 0.78              |
| 34:EM:17:GLN:OE1   | 37:EP:20:LYS:HA    | 1.83                     | 0.78              |
| 1:F1:733:G:O6      | 50:F1:3696:HOH:O   | 1.99                     | 0.78              |
| 1:F1:1710:U:OP2    | 12:FM:42:LYS:NZ    | 2.14                     | 0.78              |
| 21:G3:89:G:H2'     | 21:G3:90:A:C8      | 2.19                     | 0.78              |
| 22:GA:62:VAL:HG21  | 22:GA:77:PHE:CD2   | 2.16                     | 0.78              |
| 30:GI:159:ARG:O    | 30:GI:162:ARG:HG2  | 1.83                     | 0.78              |
| 1:H1:1654:G:H2'    | 1:H1:1654:G:N3     | 1.97                     | 0.78              |
| 1:H1:2703:G:OP2    | 1:H1:2705:U:H1'    | 1.83                     | 0.78              |
| 1:A1:1667:A:O2'    | 1:A1:1668:A:OP1    | 1.99                     | 0.78              |
| 1:A1:1719:U:H3     | 1:A1:1775:A:H2     | 1.31                     | 0.78              |
| 1:A1:2261:U:O4     | 50:A1:4551:HOH:O   | 1.99                     | 0.78              |
| 2:AA:17:THR:HG22   | 2:AA:18:LEU:N      | 1.99                     | 0.78              |
| 21:B3:4:G:H4'      | 21:B3:26:C:H4'     | 1.63                     | 0.78              |
| 21:B3:83:G:H1      | 21:B3:93:G:N2      | 1.81                     | 0.78              |
| 21:C3:83:G:P       | 50:C3:304:HOH:O    | 2.40                     | 0.78              |
| 22:CA:186:GLN:OE1  | 22:CA:186:GLN:HA   | 1.83                     | 0.78              |
| 29:CH:42:THR:HG22  | 29:CH:44:GLU:H     | 1.48                     | 0.78              |
| 1:D1:418:G:O6      | 1:D1:2378:A:O2'    | 2.01                     | 0.78              |
| 1:D1:459:G:N2      | 1:D1:517:A:H2'     | 1.98                     | 0.78              |
| 1:D1:842:A:OP2     | 50:D1:4092:HOH:O   | 1.99                     | 0.78              |
| 1:D1:2862:G:OP1    | 50:D1:4370:HOH:O   | 2.00                     | 0.78              |
| 5:DE:83:ASN:ND2    | 5:DE:174:LEU:O     | 2.15                     | 0.78              |
| 23:EB:303:ILE:HD12 | 23:EB:303:ILE:H    | 1.47                     | 0.78              |
| 34:EM:246:LEU:O    | 34:EM:250:VAL:HG23 | 1.83                     | 0.78              |
| 1:F1:1655:A:N3     | 1:F1:1655:A:H2'    | 1.99                     | 0.78              |
| 22:GA:201:ARG:HD2  | 1:H1:2182:G:O6     | 1.83                     | 0.78              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:GI:64:ASN:HD21  | 30:GI:66:ARG:HG2   | 1.47                     | 0.78              |
| 32:GK:106:LYS:HD3  | 18:HU:160:SER:HB2  | 1.63                     | 0.78              |
| 44:GW:28:ALA:HA    | 44:GW:66:ILE:HD11  | 1.63                     | 0.78              |
| 45:GX:62:ASP:HB2   | 1:H1:1365:C:O3'    | 1.84                     | 0.78              |
| 1:H1:1184:U:OP2    | 50:H1:3758:HOH:O   | 2.01                     | 0.78              |
| 7:HG:13:LYS:HD2    | 7:HG:100:ILE:HD11  | 1.63                     | 0.78              |
| 1:A1:563:G:H4'     | 1:A1:564:A:OP2     | 1.82                     | 0.78              |
| 1:A1:1654:G:H2'    | 1:A1:1654:G:N3     | 1.98                     | 0.78              |
| 1:A1:2625:A:H5'    | 1:A1:2626:A:C5'    | 2.13                     | 0.78              |
| 21:B3:44:C:O2'     | 34:BM:152:ARG:HD3  | 1.84                     | 0.78              |
| 28:BG:101:UNK:O    | 28:BG:105:UNK:HG2  | 1.83                     | 0.78              |
| 43:BV:98:ARG:CG    | 43:BV:98:ARG:HH11  | 1.97                     | 0.78              |
| 24:CC:259:THR:HG22 | 24:CC:260:GLU:N    | 1.97                     | 0.78              |
| 24:CC:283:TYR:HE1  | 24:CC:285:LEU:HD23 | 1.49                     | 0.78              |
| 31:CJ:16:LYS:NZ    | 1:D1:3081:C:C5     | 2.50                     | 0.78              |
| 35:CN:123:THR:HG23 | 35:CN:125:ASP:OD1  | 1.83                     | 0.78              |
| 1:D1:1376:A:H5''   | 1:D1:1377:A:H5'    | 1.66                     | 0.78              |
| 1:D1:3291:G:O2'    | 1:D1:3292:U:H6     | 1.67                     | 0.78              |
| 11:DL:59:VAL:CG1   | 11:DL:63:GLU:HB3   | 2.13                     | 0.78              |
| 39:ER:150:ILE:HD12 | 39:ER:150:ILE:H    | 1.49                     | 0.78              |
| 1:F1:126:A:H5'     | 1:F1:127:A:OP1     | 1.84                     | 0.78              |
| 1:F1:1047:G:C2'    | 1:F1:1048:U:H5'    | 2.14                     | 0.78              |
| 1:F1:1053:A:H1'    | 1:F1:1054:G:OP2    | 1.81                     | 0.78              |
| 1:F1:2101:G:OP2    | 50:F1:4361:HOH:O   | 2.00                     | 0.78              |
| 1:F1:2509:U:OP2    | 1:F1:2575:G:N2     | 2.15                     | 0.78              |
| 4:FC:10:THR:HG22   | 4:FC:21:HIS:CD2    | 2.19                     | 0.78              |
| 5:FE:181:ASN:N     | 5:FE:184:ASP:OD2   | 2.14                     | 0.78              |
| 24:GC:80:ARG:NH2   | 1:H1:2802:G:OP1    | 2.17                     | 0.78              |
| 1:H1:1037:A:H2'    | 1:H1:1038:G:C8     | 2.17                     | 0.78              |
| 1:H1:1537:U:H5'    | 1:H1:1538:U:C5     | 2.17                     | 0.78              |
| 15:HP:12:MET:HA    | 15:HP:15:TRP:CD1   | 2.17                     | 0.78              |
| 1:A1:447:G:O6      | 50:A1:4759:HOH:O   | 2.00                     | 0.78              |
| 1:A1:552:U:O2'     | 1:A1:553:C:H5'     | 1.84                     | 0.78              |
| 1:A1:827:C:HO2'    | 24:BC:107:PHE:HE1  | 1.31                     | 0.78              |
| 1:A1:1203:C:H4'    | 30:BI:88:PRO:HD3   | 1.65                     | 0.78              |
| 1:A1:1737:A:N1     | 1:A1:1754:G:O2'    | 2.14                     | 0.78              |
| 1:A1:2803:G:H5''   | 1:A1:2804:G:OP2    | 1.83                     | 0.78              |
| 2:AA:2:THR:HB      | 2:AA:6:PRO:HG2     | 1.65                     | 0.78              |
| 8:AH:11:PRO:HG2    | 8:AH:12:THR:H      | 1.47                     | 0.78              |
| 26:BE:73:SER:HA    | 26:BE:76:LYS:HE2   | 1.65                     | 0.78              |
| 37:BP:94:GLU:N     | 37:BP:94:GLU:OE1   | 2.16                     | 0.78              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:C3:13:A:N3      | 34:CM:24:ARG:NH2   | 2.30                     | 0.78              |
| 23:CB:332:ARG:HG3  | 23:CB:332:ARG:HH11 | 1.47                     | 0.78              |
| 30:CI:159:ARG:O    | 30:CI:162:ARG:HG2  | 1.82                     | 0.78              |
| 34:CM:180:PHE:HD1  | 34:CM:200:HIS:CE1  | 2.02                     | 0.78              |
| 35:CN:89:ASN:HD22  | 35:CN:109:THR:HG22 | 1.46                     | 0.78              |
| 1:D1:1197:A:OP2    | 50:D1:4427:HOH:O   | 2.01                     | 0.78              |
| 20:E2:37:A:O3'     | 50:E2:306:HOH:O    | 2.00                     | 0.78              |
| 37:EP:94:GLU:N     | 37:EP:94:GLU:OE1   | 2.16                     | 0.78              |
| 43:EV:85:ARG:HA    | 43:EV:131:ILE:HG12 | 1.64                     | 0.78              |
| 1:F1:3170:A:N7     | 6:FF:2:VAL:N       | 2.31                     | 0.78              |
| 2:FA:62:THR:O      | 50:FA:203:HOH:O    | 2.00                     | 0.78              |
| 25:GD:50:ALA:O     | 25:GD:62:ASN:N     | 2.17                     | 0.78              |
| 1:A1:1129:C:H5''   | 1:A1:1130:A:OP1    | 1.83                     | 0.78              |
| 1:A1:1223:U:H2'    | 1:A1:1223:U:O2     | 1.81                     | 0.78              |
| 1:A1:2520:G:H2'    | 22:BA:35:PHE:CE1   | 2.18                     | 0.78              |
| 18:AU:133:LYS:C    | 18:AU:135:LEU:H    | 1.89                     | 0.78              |
| 40:BS:55:VAL:HG22  | 40:BS:105:LEU:HD23 | 1.63                     | 0.78              |
| 21:C3:21:G:H4'     | 34:CM:277:PHE:HD2  | 1.48                     | 0.78              |
| 23:CB:303:ILE:HD12 | 23:CB:303:ILE:H    | 1.46                     | 0.78              |
| 40:CS:55:VAL:HG22  | 40:CS:105:LEU:HD23 | 1.64                     | 0.78              |
| 43:CV:104:ARG:HD2  | 1:D1:1128:G:H5''   | 1.65                     | 0.78              |
| 1:D1:906:C:OP1     | 50:D1:4243:HOH:O   | 2.01                     | 0.78              |
| 1:D1:1002:A:H2'    | 1:D1:1003:G:H5'    | 1.66                     | 0.78              |
| 1:D1:2371:G:O2'    | 1:D1:2372:G:C8     | 2.35                     | 0.78              |
| 1:D1:2569:A:O2'    | 1:D1:2570:U:P      | 2.42                     | 0.78              |
| 1:D1:2635:C:H5'    | 1:D1:2635:C:H6     | 1.47                     | 0.78              |
| 4:DC:66:VAL:HG23   | 4:DC:83:ILE:HB     | 1.65                     | 0.78              |
| 20:E2:25:U:H4'     | 20:E2:26:A:OP1     | 1.82                     | 0.78              |
| 23:EB:272:HIS:HD2  | 1:F1:3127:U:OP1    | 1.67                     | 0.78              |
| 38:EQ:33:GLU:CD    | 38:EQ:63:THR:H     | 1.92                     | 0.78              |
| 1:F1:219:A:H2      | 1:F1:1416:U:H2'    | 1.44                     | 0.78              |
| 1:F1:1840:U:C4'    | 1:F1:1841:A:O5'    | 2.32                     | 0.78              |
| 1:F1:2574:U:H4'    | 1:F1:2575:G:OP1    | 1.82                     | 0.78              |
| 1:F1:2637:G:N7     | 50:F1:4573:HOH:O   | 2.15                     | 0.78              |
| 1:F1:3176:A:H4'    | 1:F1:3177:G:H5'    | 1.65                     | 0.78              |
| 11:FL:67:ILE:HD12  | 11:FL:71:ALA:HB3   | 1.65                     | 0.78              |
| 30:GI:88:PRO:HD3   | 1:H1:1203:C:H4'    | 1.65                     | 0.78              |
| 32:GK:61:ARG:HA    | 35:GN:172:ARG:HH12 | 1.45                     | 0.78              |
| 1:H1:1366:C:H2'    | 1:H1:1367:A:C8     | 2.18                     | 0.78              |
| 1:A1:418:G:H3'     | 1:A1:418:G:C8      | 2.17                     | 0.78              |
| 1:A1:525:C:O2      | 1:A1:525:C:C2'     | 2.32                     | 0.78              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:1448:G:H2'   | 1:A1:1449:C:C6     | 2.18                     | 0.78              |
| 5:AE:55:ALA:HB2   | 8:AH:109:TYR:CE1   | 2.17                     | 0.78              |
| 30:BI:159:ARG:O   | 30:BI:162:ARG:HG2  | 1.84                     | 0.78              |
| 35:BN:5:LEU:HD23  | 43:BV:106:ARG:HD2  | 1.65                     | 0.78              |
| 21:C3:27:A:OP2    | 34:CM:56:THR:HG23  | 1.83                     | 0.78              |
| 23:CB:171:GLN:HB2 | 1:D1:3273:U:H4'    | 1.64                     | 0.78              |
| 27:CF:103:ARG:HG3 | 27:CF:107:GLN:NE2  | 1.99                     | 0.78              |
| 45:CX:79:ARG:HH12 | 1:D1:1448:G:C4'    | 1.96                     | 0.78              |
| 1:D1:1737:A:O2'   | 1:D1:1738:A:C8     | 2.37                     | 0.78              |
| 1:D1:2595:G:C8    | 50:D1:4099:HOH:O   | 2.35                     | 0.78              |
| 6:DF:8:GLN:HE21   | 6:DF:11:ARG:HH11   | 1.31                     | 0.78              |
| 23:EB:332:ARG:HG3 | 23:EB:332:ARG:HH11 | 1.49                     | 0.78              |
| 1:F1:83:A:H4'     | 1:F1:84:G:OP1      | 1.84                     | 0.78              |
| 1:F1:851:G:HO2'   | 1:F1:1614:A:H8     | 1.28                     | 0.78              |
| 1:F1:1146:C:H42   | 17:FT:10:LYS:NZ    | 1.81                     | 0.78              |
| 1:F1:2517:G:H4'   | 1:F1:2518:A:OP2    | 1.81                     | 0.78              |
| 1:F1:3233:A:O2'   | 1:F1:3234:U:OP2    | 2.01                     | 0.78              |
| 1:F1:3291:G:O2'   | 1:F1:3292:U:P      | 2.42                     | 0.78              |
| 17:FT:47:ILE:O    | 17:FT:55:LYS:NZ    | 2.16                     | 0.78              |
| 22:GA:30:TYR:HA   | 22:GA:77:PHE:HE1   | 1.48                     | 0.78              |
| 42:GU:90:ARG:O    | 42:GU:94:ARG:HG2   | 1.83                     | 0.78              |
| 1:H1:518:G:O2'    | 1:H1:519:A:O4'     | 2.01                     | 0.78              |
| 1:H1:1655:A:N3    | 1:H1:1655:A:H2'    | 1.98                     | 0.78              |
| 1:H1:3055:U:O4    | 50:H1:3923:HOH:O   | 2.01                     | 0.78              |
| 1:H1:3176:A:H4'   | 1:H1:3177:G:O5'    | 1.84                     | 0.78              |
| 14:HO:90:VAL:HG12 | 14:HO:111:LEU:HD11 | 1.65                     | 0.78              |
| 1:A1:1016:U:C2'   | 1:A1:1017:U:H5''   | 2.13                     | 0.78              |
| 1:A1:1221:G:H2'   | 1:A1:1222:A:C8     | 2.18                     | 0.78              |
| 21:C3:4:G:H4'     | 21:C3:26:C:H4'     | 1.65                     | 0.78              |
| 23:CB:118:PHE:HE2 | 1:D1:2989:G:H21    | 1.29                     | 0.78              |
| 23:CB:194:LYS:HA  | 23:CB:197:LEU:HD12 | 1.66                     | 0.78              |
| 24:CC:150:SER:O   | 14:DO:75:THR:HG23  | 1.82                     | 0.78              |
| 47:CO:167:UNK:O   | 47:CO:170:UNK:CG   | 2.32                     | 0.78              |
| 38:CQ:133:ARG:CG  | 38:CQ:139:ASN:HD22 | 1.95                     | 0.78              |
| 1:D1:126:A:H5'    | 1:D1:127:A:OP1     | 1.83                     | 0.78              |
| 1:D1:145:A:N6     | 50:D1:3811:HOH:O   | 2.14                     | 0.78              |
| 1:D1:518:G:O2'    | 1:D1:519:A:O4'     | 2.01                     | 0.78              |
| 1:D1:1053:A:C2    | 13:FN:94:LYS:NZ    | 2.51                     | 0.78              |
| 1:D1:1222:A:C2    | 1:D1:1336:U:N3     | 2.52                     | 0.78              |
| 1:D1:1737:A:N6    | 7:DG:28:LYS:HD2    | 1.99                     | 0.78              |
| 1:D1:2743:G:C3'   | 1:D1:2744:C:C5'    | 2.62                     | 0.78              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2994:G:HO2'   | 1:D1:2995:A:H8     | 1.29                     | 0.78              |
| 8:DH:13:ARG:NH1    | 8:DH:15:TRP:O      | 2.17                     | 0.78              |
| 22:EA:16:VAL:HG23  | 1:F1:936:C:OP1     | 1.83                     | 0.78              |
| 24:EC:6:GLN:HE21   | 1:F1:471:A:H4'     | 1.48                     | 0.78              |
| 24:EC:167:GLU:HG2  | 24:EC:222:THR:HG21 | 1.66                     | 0.78              |
| 1:F1:138:C:C2'     | 1:F1:139:A:H5'     | 2.14                     | 0.78              |
| 1:F1:832:A:H62     | 1:F1:959:G:H1      | 1.29                     | 0.78              |
| 8:FH:11:PRO:HG2    | 8:FH:12:THR:H      | 1.49                     | 0.78              |
| 14:FO:75:THR:HG22  | 14:FO:77:GLU:N     | 1.98                     | 0.78              |
| 16:FQ:43:GLN:HA    | 16:FQ:43:GLN:OE1   | 1.82                     | 0.78              |
| 34:GM:12:TYR:OH    | 1:H1:2677:U:OP1    | 2.01                     | 0.78              |
| 1:H1:1146:C:H42    | 17:HT:10:LYS:HZ3   | 1.31                     | 0.78              |
| 1:H1:2294:A:OP1    | 50:H1:4205:HOH:O   | 2.01                     | 0.78              |
| 8:HH:13:ARG:NH1    | 8:HH:15:TRP:O      | 2.16                     | 0.78              |
| 1:A1:119:A:C2      | 27:BF:122:PRO:HG2  | 2.18                     | 0.78              |
| 1:A1:2301:C:N4     | 1:H1:873:A:H2      | 1.82                     | 0.78              |
| 1:A1:3291:G:O2'    | 1:A1:3292:U:H6     | 1.67                     | 0.78              |
| 5:AE:83:ASN:ND2    | 5:AE:174:LEU:O     | 2.17                     | 0.78              |
| 12:AM:21:CYS:SG    | 12:AM:30:ILE:HG21  | 2.24                     | 0.78              |
| 18:AU:160:SER:HB2  | 32:BK:106:LYS:HD3  | 1.64                     | 0.78              |
| 19:AX:96:GLN:H     | 19:AX:134:THR:HG21 | 1.49                     | 0.78              |
| 23:BB:303:ILE:HD12 | 23:BB:303:ILE:H    | 1.48                     | 0.78              |
| 32:BK:117:ARG:HD3  | 32:BK:137:ARG:NH1  | 1.98                     | 0.78              |
| 34:BM:274:HIS:O    | 34:BM:278:TYR:HD2  | 1.67                     | 0.78              |
| 45:CX:98:ILE:H     | 45:CX:123:ASN:HD21 | 1.32                     | 0.78              |
| 1:D1:517:A:H4'     | 1:D1:518:G:OP1     | 1.82                     | 0.78              |
| 1:D1:590:A:C2'     | 1:D1:591:G:H5''    | 2.10                     | 0.78              |
| 1:D1:775:C:H5'     | 1:D1:776:C:OP2     | 1.82                     | 0.78              |
| 20:E2:77:U:O4      | 40:ES:71:GLN:NE2   | 2.16                     | 0.78              |
| 26:EE:91:LYS:HG2   | 26:EE:180:SER:HB3  | 1.66                     | 0.78              |
| 1:F1:2766:A:C2'    | 1:F1:2767:A:H5'    | 2.13                     | 0.78              |
| 21:G3:3:U:H2'      | 21:G3:4:G:C8       | 2.19                     | 0.78              |
| 21:G3:4:G:H4'      | 21:G3:26:C:H4'     | 1.64                     | 0.78              |
| 23:GB:378:PHE:HA   | 1:H1:3325:G:N2     | 1.99                     | 0.78              |
| 24:GC:309:LYS:O    | 35:GN:40:ARG:NH1   | 2.17                     | 0.78              |
| 32:GK:142:GLY:C    | 18:HU:173:ARG:HH21 | 1.91                     | 0.78              |
| 1:H1:26:C:C2'      | 1:H1:27:C:H5'      | 2.14                     | 0.78              |
| 1:H1:83:A:H4'      | 1:H1:84:G:OP1      | 1.82                     | 0.78              |
| 1:H1:91:C:H4'      | 1:H1:92:G:H5''     | 1.65                     | 0.78              |
| 1:H1:428:A:H2'     | 1:H1:429:A:H8      | 1.48                     | 0.78              |
| 1:H1:2267:G:H4'    | 1:H1:2268:G:OP1    | 1.84                     | 0.78              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:26:C:C2'     | 1:A1:27:C:H5'      | 2.13                     | 0.78              |
| 1:A1:1046:G:H2'   | 1:A1:1047:G:H8     | 1.49                     | 0.78              |
| 1:A1:1376:A:H5''  | 1:A1:1377:A:O4'    | 1.84                     | 0.78              |
| 1:A1:1805:C:H5'   | 36:BO:97:ARG:HH21  | 1.47                     | 0.78              |
| 1:A1:2391:G:H5'   | 1:A1:2392:A:H4'    | 1.64                     | 0.78              |
| 1:A1:2737:A:C2    | 34:BM:35:ARG:HB2   | 2.18                     | 0.78              |
| 1:A1:2907:A:OP2   | 50:A1:4483:HOH:O   | 2.02                     | 0.78              |
| 1:A1:3227:A:H1'   | 5:AE:86:PRO:HG3    | 1.63                     | 0.78              |
| 8:AH:13:ARG:NH1   | 8:AH:15:TRP:O      | 2.17                     | 0.78              |
| 11:AL:59:VAL:CG1  | 11:AL:63:GLU:HB3   | 2.13                     | 0.78              |
| 22:CA:30:TYR:HA   | 22:CA:77:PHE:CE1   | 2.18                     | 0.78              |
| 24:CC:167:GLU:H   | 24:CC:171:GLN:HE22 | 1.32                     | 0.78              |
| 24:CC:363:ARG:NH2 | 1:D1:602:A:OP2     | 2.14                     | 0.78              |
| 34:CM:3:PHE:CZ    | 1:D1:1041:C:O2     | 2.37                     | 0.78              |
| 1:D1:1062:A:C2'   | 1:D1:1063:C:H5'    | 2.14                     | 0.78              |
| 1:D1:1183:C:H2'   | 1:D1:1184:U:H5''   | 1.66                     | 0.78              |
| 1:D1:2391:G:H5'   | 1:D1:2392:A:H4'    | 1.65                     | 0.78              |
| 32:EK:61:ARG:HA   | 35:EN:172:ARG:HH12 | 1.47                     | 0.78              |
| 38:EQ:132:TYR:O   | 50:EQ:301:HOH:O    | 2.01                     | 0.78              |
| 1:F1:452:U:C5'    | 14:FO:56:GLN:NE2   | 2.34                     | 0.78              |
| 1:F1:1909:C:O2'   | 1:F1:1910:A:P      | 2.42                     | 0.78              |
| 1:F1:2252:C:C5    | 1:F1:2253:U:C4     | 2.71                     | 0.78              |
| 1:F1:2803:G:H5''  | 1:F1:2804:G:OP2    | 1.82                     | 0.78              |
| 1:F1:2875:A:OP2   | 50:F1:4159:HOH:O   | 2.02                     | 0.78              |
| 1:F1:3222:U:O2'   | 1:F1:3223:G:H5'    | 1.84                     | 0.78              |
| 25:GD:92:ARG:H    | 25:GD:95:ASN:ND2   | 1.81                     | 0.78              |
| 35:GN:162:HIS:O   | 1:H1:805:A:H5'     | 1.84                     | 0.78              |
| 1:H1:555:G:C2'    | 1:H1:556:A:H5''    | 2.14                     | 0.78              |
| 1:H1:1840:U:C4'   | 1:H1:1841:A:O5'    | 2.32                     | 0.78              |
| 1:H1:2188:U:O2'   | 1:H1:2189:G:P      | 2.42                     | 0.78              |
| 14:HO:50:LEU:HD13 | 14:HO:111:LEU:HD21 | 1.65                     | 0.78              |
| 1:A1:20:G:N7      | 50:A1:3719:HOH:O   | 2.17                     | 0.78              |
| 1:A1:1752:G:H5''  | 1:A1:1753:A:H3'    | 1.65                     | 0.78              |
| 1:A1:1840:U:C4'   | 1:A1:1841:A:O5'    | 2.31                     | 0.78              |
| 1:A1:2371:G:O2'   | 1:A1:2372:G:C8     | 2.35                     | 0.78              |
| 1:A1:2519:A:N3    | 27:BF:41:LEU:HD21  | 1.99                     | 0.78              |
| 1:A1:2569:A:O2'   | 1:A1:2570:U:P      | 2.40                     | 0.78              |
| 1:A1:3325:G:C5    | 41:BT:58:ARG:CZ    | 2.66                     | 0.78              |
| 21:C3:44:C:O2'    | 34:CM:152:ARG:HD3  | 1.84                     | 0.78              |
| 32:CK:76:ASN:HB2  | 32:CK:79:LYS:HE2   | 1.66                     | 0.78              |
| 39:CR:150:ILE:H   | 39:CR:150:ILE:HD12 | 1.49                     | 0.78              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:95:U:O2'     | 50:D1:3726:HOH:O   | 2.01                     | 0.78              |
| 1:D1:1221:G:H2'   | 1:D1:1222:A:C8     | 2.19                     | 0.78              |
| 1:D1:1840:U:C4'   | 1:D1:1841:A:O5'    | 2.32                     | 0.78              |
| 1:D1:3291:G:O2'   | 1:D1:3292:U:P      | 2.42                     | 0.78              |
| 20:E2:1:A:H2'     | 20:E2:3:A:C8       | 2.18                     | 0.78              |
| 24:EC:65:MET:HE3  | 24:EC:105:ARG:CD   | 2.14                     | 0.78              |
| 32:EK:76:ASN:HB2  | 32:EK:79:LYS:HE2   | 1.65                     | 0.78              |
| 34:EM:52:VAL:HG22 | 34:EM:63:GLN:HB2   | 1.66                     | 0.78              |
| 41:ET:58:ARG:NH2  | 1:F1:3325:G:C4     | 2.51                     | 0.78              |
| 1:F1:1518:G:P     | 2:FA:14:LYS:HZ1    | 2.07                     | 0.78              |
| 1:F1:1654:G:H2'   | 1:F1:1654:G:N3     | 1.98                     | 0.78              |
| 1:F1:2830:U:H2'   | 1:F1:2830:U:O2     | 1.81                     | 0.78              |
| 22:GA:230:ALA:HB3 | 22:GA:235:LYS:HG3  | 1.66                     | 0.78              |
| 37:GP:150:PRO:HG2 | 19:HX:138:ILE:HA   | 1.66                     | 0.78              |
| 1:H1:138:C:C2'    | 1:H1:139:A:H5'     | 2.14                     | 0.78              |
| 1:H1:1129:C:H5''  | 1:H1:1130:A:OP1    | 1.83                     | 0.78              |
| 1:H1:2509:U:OP2   | 1:H1:2575:G:N2     | 2.16                     | 0.78              |
| 1:A1:428:A:H2'    | 1:A1:429:A:H8      | 1.48                     | 0.77              |
| 17:AT:16:SER:O    | 50:AT:103:HOH:O    | 2.02                     | 0.77              |
| 23:BB:84:MET:HE1  | 23:BB:179:ILE:HD11 | 1.66                     | 0.77              |
| 24:BC:19:THR:HG22 | 24:BC:21:THR:H     | 1.48                     | 0.77              |
| 34:BM:156:GLY:HA2 | 34:BM:181:PRO:HG3  | 1.65                     | 0.77              |
| 45:BX:6:VAL:HG12  | 45:BX:7:ALA:N      | 1.99                     | 0.77              |
| 45:BX:98:ILE:O    | 45:BX:123:ASN:ND2  | 2.17                     | 0.77              |
| 22:CA:134:TYR:HB3 | 22:CA:169:ILE:HG12 | 1.67                     | 0.77              |
| 23:CB:210:ASN:ND2 | 23:CB:352:ILE:H    | 1.82                     | 0.77              |
| 44:CW:14:ASN:ND2  | 44:CW:17:LYS:HE3   | 1.99                     | 0.77              |
| 1:D1:1016:U:C2'   | 1:D1:1017:U:H5''   | 2.13                     | 0.77              |
| 34:EM:212:TYR:HD2 | 34:EM:228:PHE:CZ   | 2.02                     | 0.77              |
| 1:F1:525:C:O2     | 1:F1:525:C:C2'     | 2.31                     | 0.77              |
| 1:F1:1057:U:H2'   | 1:F1:1058:C:H6     | 1.49                     | 0.77              |
| 1:F1:1134:C:H2'   | 1:F1:1135:U:H5''   | 1.65                     | 0.77              |
| 1:F1:1183:C:C2'   | 1:F1:1184:U:H5''   | 2.14                     | 0.77              |
| 7:FG:58:TYR:OH    | 13:FN:84:ARG:HB3   | 1.84                     | 0.77              |
| 36:GO:87:ALA:O    | 50:GO:302:HOH:O    | 2.02                     | 0.77              |
| 43:GV:104:ARG:HD2 | 1:H1:1128:G:H5''   | 1.66                     | 0.77              |
| 1:H1:838:G:H1'    | 2:HA:50:TRP:HZ2    | 1.49                     | 0.77              |
| 1:H1:1002:A:H2'   | 1:H1:1003:G:H5'    | 1.66                     | 0.77              |
| 1:H1:1752:G:H5''  | 1:H1:1753:A:H3'    | 1.66                     | 0.77              |
| 1:H1:2766:A:C2'   | 1:H1:2767:A:H5'    | 2.14                     | 0.77              |
| 6:HF:8:GLN:HE21   | 6:HF:11:ARG:HH11   | 1.30                     | 0.77              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 13:HN:4:PHE:HB2   | 13:HN:9:ARG:HH21   | 1.48                     | 0.77              |
| 1:A1:126:A:H5'    | 1:A1:127:A:OP1     | 1.85                     | 0.77              |
| 1:A1:2254:A:C6    | 1:A1:2255:U:O4     | 2.37                     | 0.77              |
| 1:A1:2508:U:H4'   | 1:A1:2509:U:OP1    | 1.83                     | 0.77              |
| 1:A1:3266:G:H2'   | 1:A1:3267:A:H5''   | 1.67                     | 0.77              |
| 13:AN:26:VAL:HG21 | 13:AN:97:VAL:HG21  | 1.64                     | 0.77              |
| 1:D1:531:C:H2'    | 1:D1:532:G:H5'     | 1.65                     | 0.77              |
| 1:D1:753:A:N6     | 1:D1:766:G:H1'     | 1.98                     | 0.77              |
| 1:D1:1752:G:H5''  | 1:D1:1753:A:H3'    | 1.64                     | 0.77              |
| 1:D1:2375:U:O4    | 50:D1:3930:HOH:O   | 2.01                     | 0.77              |
| 1:D1:3098:A:OP1   | 10:DK:93:LYS:NZ    | 2.18                     | 0.77              |
| 13:DN:26:VAL:HG21 | 13:DN:97:VAL:HG21  | 1.67                     | 0.77              |
| 16:DQ:16:THR:HB   | 18:DU:104:GLN:HB2  | 1.65                     | 0.77              |
| 26:EE:168:LYS:NZ  | 1:F1:3021:A:N3     | 2.32                     | 0.77              |
| 34:EM:156:GLY:HA2 | 34:EM:181:PRO:HG3  | 1.67                     | 0.77              |
| 43:EV:98:ARG:CG   | 43:EV:98:ARG:HH11  | 1.96                     | 0.77              |
| 1:F1:91:C:H4'     | 1:F1:92:G:H5''     | 1.65                     | 0.77              |
| 1:F1:120:A:H4'    | 1:F1:121:A:O5'     | 1.85                     | 0.77              |
| 1:F1:610:A:H2'    | 1:F1:611:A:H8      | 1.49                     | 0.77              |
| 1:F1:1062:A:H2'   | 1:F1:1063:C:H5'    | 1.66                     | 0.77              |
| 1:F1:1183:C:H2'   | 1:F1:1184:U:H5''   | 1.65                     | 0.77              |
| 1:F1:2805:A:N6    | 50:F1:3824:HOH:O   | 2.15                     | 0.77              |
| 11:FL:59:VAL:CG1  | 11:FL:63:GLU:HB3   | 2.14                     | 0.77              |
| 34:GM:3:PHE:CZ    | 1:H1:1041:C:O2     | 2.36                     | 0.77              |
| 1:H1:459:G:N2     | 1:H1:517:A:H2'     | 1.99                     | 0.77              |
| 1:H1:1376:A:H5''  | 1:H1:1377:A:O4'    | 1.83                     | 0.77              |
| 1:H1:2651:A:OP1   | 50:H1:4311:HOH:O   | 2.02                     | 0.77              |
| 1:H1:3297:A:C5'   | 1:H1:3298:U:OP1    | 2.33                     | 0.77              |
| 2:HA:28:HIS:CD2   | 2:HA:31:LYS:HG3    | 2.18                     | 0.77              |
| 1:A1:91:C:H4'     | 1:A1:92:G:H5''     | 1.66                     | 0.77              |
| 1:A1:3170:A:N7    | 6:AF:2:VAL:N       | 2.32                     | 0.77              |
| 1:A1:3330:U:OP1   | 44:BW:16:HIS:HD2   | 1.68                     | 0.77              |
| 18:AU:1:MET:HE1   | 32:BK:36:LYS:HA    | 1.64                     | 0.77              |
| 21:B3:83:G:H22    | 21:B3:93:G:H21     | 1.33                     | 0.77              |
| 21:C3:13:A:P      | 21:C3:109:U:O2'    | 2.41                     | 0.77              |
| 22:CA:30:TYR:HA   | 22:CA:77:PHE:HE1   | 1.50                     | 0.77              |
| 32:CK:61:ARG:HA   | 35:CN:172:ARG:HH12 | 1.48                     | 0.77              |
| 1:D1:138:C:C2'    | 1:D1:139:A:H5'     | 2.14                     | 0.77              |
| 20:E2:100:C:P     | 39:ER:56:ARG:HH22  | 2.06                     | 0.77              |
| 26:EE:23:ARG:HG3  | 1:F1:3169:A:OP1    | 1.84                     | 0.77              |
| 34:EM:212:TYR:HD2 | 34:EM:228:PHE:HZ   | 1.31                     | 0.77              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:73:G:OP1      | 18:FU:56:VAL:HG11  | 1.84                     | 0.77              |
| 20:G2:105:A:H5'    | 20:G2:106:A:C5'    | 2.13                     | 0.77              |
| 29:GH:16:PRO:HG3   | 29:GH:128:ARG:NH1  | 1.99                     | 0.77              |
| 33:GL:30:TYR:HE2   | 33:GL:63:ARG:HD3   | 1.45                     | 0.77              |
| 1:H1:590:A:C2'     | 1:H1:591:G:H5''    | 2.11                     | 0.77              |
| 1:H1:732:C:O2      | 1:H1:778:G:O2'     | 2.02                     | 0.77              |
| 1:H1:1052:A:C2     | 1:H1:1053:A:N7     | 2.53                     | 0.77              |
| 1:H1:1183:C:C3'    | 1:H1:1184:U:H5''   | 2.15                     | 0.77              |
| 1:H1:3115:C:H5'    | 1:H1:3115:C:H6     | 1.48                     | 0.77              |
| 1:A1:792:G:O2'     | 1:A1:793:A:O5'     | 2.03                     | 0.77              |
| 1:A1:2625:A:H5'    | 1:A1:2626:A:H5'    | 1.64                     | 0.77              |
| 2:AA:14:LYS:HD3    | 3:AB:52:TYR:CD1    | 2.19                     | 0.77              |
| 11:AL:6:THR:HG22   | 11:AL:7:TYR:O      | 1.84                     | 0.77              |
| 43:BV:41:TRP:CD1   | 43:BV:177:CYS:HG   | 2.03                     | 0.77              |
| 24:CC:167:GLU:HG2  | 24:CC:222:THR:HG21 | 1.66                     | 0.77              |
| 38:CQ:32:TYR:HD2   | 38:CQ:33:GLU:HG2   | 1.49                     | 0.77              |
| 1:D1:552:U:O2'     | 1:D1:553:C:H5'     | 1.83                     | 0.77              |
| 1:D1:738:U:OP1     | 18:DU:182:ARG:NH1  | 2.16                     | 0.77              |
| 23:EB:194:LYS:HA   | 23:EB:197:LEU:HD12 | 1.66                     | 0.77              |
| 30:EI:88:PRO:HD3   | 1:F1:1203:C:H4'    | 1.66                     | 0.77              |
| 35:EN:52:ARG:CB    | 35:EN:84:THR:HG21  | 2.04                     | 0.77              |
| 1:F1:459:G:N2      | 1:F1:517:A:H2'     | 2.00                     | 0.77              |
| 1:F1:2250:A:H1'    | 1:F1:2251:A:OP2    | 1.81                     | 0.77              |
| 23:GB:210:ASN:HD21 | 23:GB:352:ILE:H    | 1.31                     | 0.77              |
| 1:A1:119:A:H2'     | 27:BF:100:LYS:NZ   | 1.99                     | 0.77              |
| 1:A1:3297:A:C5'    | 1:A1:3298:U:OP1    | 2.32                     | 0.77              |
| 13:AN:4:PHE:N      | 13:AN:4:PHE:CD1    | 2.32                     | 0.77              |
| 24:BC:259:THR:HG22 | 24:BC:260:GLU:N    | 2.00                     | 0.77              |
| 35:BN:52:ARG:HH12  | 35:BN:141:ARG:NE   | 1.83                     | 0.77              |
| 36:BO:87:ALA:O     | 50:BO:202:HOH:O    | 2.02                     | 0.77              |
| 22:CA:35:PHE:CE1   | 1:D1:2520:G:H2'    | 2.19                     | 0.77              |
| 25:CD:108:GLU:HA   | 25:CD:122:ILE:HG23 | 1.65                     | 0.77              |
| 30:CI:6:VAL:HG23   | 30:CI:30:GLN:NE2   | 2.00                     | 0.77              |
| 32:CK:24:LYS:NZ    | 1:D1:967:U:O4      | 2.16                     | 0.77              |
| 42:CU:90:ARG:O     | 42:CU:94:ARG:HG2   | 1.85                     | 0.77              |
| 14:DO:16:LEU:HD13  | 14:DO:35:ASN:HD22  | 1.48                     | 0.77              |
| 24:EC:234:ASP:OD2  | 24:EC:254:ARG:NH2  | 2.13                     | 0.77              |
| 1:F1:619:G:H4'     | 1:F1:620:A:C2      | 2.20                     | 0.77              |
| 1:F1:994:C:OP1     | 50:F1:4107:HOH:O   | 2.03                     | 0.77              |
| 19:FX:113:LEU:HD21 | 19:FX:140:THR:HG21 | 1.64                     | 0.77              |
| 24:GC:234:ASP:OD2  | 24:GC:254:ARG:NH2  | 2.14                     | 0.77              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 28:GG:101:UNK:O    | 28:GG:105:UNK:HG2 | 1.83                     | 0.77              |
| 30:GI:109:THR:CG2  | 30:GI:110:PRO:HD3 | 2.15                     | 0.77              |
| 32:GK:29:GLY:HA3   | 1:H1:962:G:H5'    | 1.66                     | 0.77              |
| 37:GP:116:LYS:NZ   | 37:GP:128:THR:HB  | 1.99                     | 0.77              |
| 39:GR:150:ILE:HD12 | 39:GR:150:ILE:H   | 1.49                     | 0.77              |
| 1:H1:428:A:H2'     | 1:H1:429:A:C8     | 2.20                     | 0.77              |
| 1:H1:1513:A:OP2    | 50:H1:4094:HOH:O  | 2.02                     | 0.77              |
| 18:HU:133:LYS:C    | 18:HU:135:LEU:H   | 1.89                     | 0.77              |
| 19:HX:7:GLN:OE1    | 19:HX:79:TYR:HB3  | 1.85                     | 0.77              |
| 19:HX:22:VAL:HG23  | 19:HX:78:ILE:CD1  | 2.13                     | 0.77              |
| 1:A1:138:C:C2'     | 1:A1:139:A:H5'    | 2.14                     | 0.77              |
| 1:A1:654:U:H2'     | 1:A1:655:A:C8     | 2.19                     | 0.77              |
| 1:A1:1047:G:H2'    | 1:A1:1048:U:C5'   | 2.13                     | 0.77              |
| 1:A1:1737:A:O2'    | 1:A1:1738:A:C8    | 2.37                     | 0.77              |
| 23:BB:157:ARG:HG2  | 23:BB:180:GLN:HA  | 1.66                     | 0.77              |
| 31:CJ:11:VAL:HG12  | 31:CJ:11:VAL:O    | 1.85                     | 0.77              |
| 35:CN:5:LEU:HD23   | 43:CV:106:ARG:HD2 | 1.66                     | 0.77              |
| 1:D1:1050:C:H2'    | 1:D1:1051:C:C1'   | 2.14                     | 0.77              |
| 1:D1:1640:C:H2'    | 1:D1:1641:U:C6    | 2.18                     | 0.77              |
| 1:D1:1864:U:H5'    | 50:D1:4254:HOH:O  | 1.82                     | 0.77              |
| 1:D1:2310:G:OP1    | 50:D1:4278:HOH:O  | 2.02                     | 0.77              |
| 1:F1:142:A:N7      | 50:F1:3716:HOH:O  | 2.17                     | 0.77              |
| 1:F1:418:G:O6      | 1:F1:2378:A:O2'   | 2.02                     | 0.77              |
| 1:F1:428:A:H2'     | 1:F1:429:A:C8     | 2.19                     | 0.77              |
| 1:F1:444:A:N1      | 1:F1:533:G:N2     | 2.33                     | 0.77              |
| 1:F1:3020:G:O2'    | 1:F1:3021:A:H5''  | 1.85                     | 0.77              |
| 13:FN:4:PHE:HB2    | 13:FN:9:ARG:HH21  | 1.49                     | 0.77              |
| 16:FQ:37:ARG:O     | 16:FQ:41:VAL:HG23 | 1.82                     | 0.77              |
| 21:G3:59:C:O2'     | 34:GM:279:PRO:HD2 | 1.84                     | 0.77              |
| 28:GG:31:UNK:C     | 1:H1:1257:G:C4'   | 2.56                     | 0.77              |
| 31:GJ:46:ILE:CD1   | 31:GJ:54:PRO:HB3  | 2.14                     | 0.77              |
| 31:GJ:46:ILE:HD11  | 31:GJ:54:PRO:HB3  | 1.64                     | 0.77              |
| 42:GU:58:TYR:O     | 42:GU:62:ILE:HD12 | 1.84                     | 0.77              |
| 46:GY:4:ARG:NH1    | 1:H1:881:G:N2     | 2.31                     | 0.77              |
| 1:H1:1518:G:OP1    | 2:HA:14:LYS:NZ    | 2.17                     | 0.77              |
| 1:H1:1753:A:H3'    | 1:H1:1754:G:H5''  | 1.64                     | 0.77              |
| 1:H1:2542:U:H5''   | 1:H1:2542:U:H6    | 1.49                     | 0.77              |
| 1:H1:3226:A:H5''   | 5:HE:80:TYR:OH    | 1.85                     | 0.77              |
| 16:HQ:16:THR:HB    | 18:HU:104:GLN:HB2 | 1.66                     | 0.77              |
| 1:A1:61:A:OP2      | 50:A1:3753:HOH:O  | 2.02                     | 0.77              |
| 1:A1:1183:C:C3'    | 1:A1:1184:U:H5''  | 2.14                     | 0.77              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1308:U:C5'    | 28:BG:58:UNK:CB    | 2.57                     | 0.77              |
| 1:A1:1448:G:H4'    | 45:BX:79:ARG:HH12  | 1.50                     | 0.77              |
| 1:A1:3273:U:OP1    | 23:BB:171:GLN:NE2  | 2.18                     | 0.77              |
| 24:BC:298:ILE:CD1  | 35:BN:125:ASP:HB2  | 2.15                     | 0.77              |
| 44:BW:10:ASP:OD1   | 44:BW:73:ARG:HG2   | 1.83                     | 0.77              |
| 24:CC:308:VAL:CG1  | 35:CN:40:ARG:HH11  | 1.97                     | 0.77              |
| 26:CE:7:GLU:HG2    | 26:CE:56:GLN:HG2   | 1.66                     | 0.77              |
| 26:CE:91:LYS:HG2   | 26:CE:180:SER:HB3  | 1.64                     | 0.77              |
| 32:CK:100:PRO:HB3  | 18:DU:164:LYS:NZ   | 1.99                     | 0.77              |
| 35:CN:52:ARG:NH1   | 35:CN:141:ARG:HE   | 1.82                     | 0.77              |
| 47:CO:167:UNK:C    | 47:CO:170:UNK:HG3  | 2.15                     | 0.77              |
| 44:CW:10:ASP:OD1   | 44:CW:73:ARG:HG2   | 1.85                     | 0.77              |
| 45:CX:6:VAL:HG12   | 45:CX:7:ALA:N      | 1.98                     | 0.77              |
| 1:D1:439:A:P       | 1:D1:439:A:H8      | 2.07                     | 0.77              |
| 1:D1:532:G:OP1     | 5:DE:127:LYS:NZ    | 2.17                     | 0.77              |
| 1:D1:1037:A:H2'    | 1:D1:1038:G:H8     | 1.49                     | 0.77              |
| 1:D1:1461:A:H5''   | 1:D1:1462:U:H5''   | 1.67                     | 0.77              |
| 18:DU:56:VAL:HG12  | 18:DU:57:ARG:H     | 1.49                     | 0.77              |
| 23:EB:28:ARG:NH2   | 1:F1:3129:G:O6     | 2.18                     | 0.77              |
| 29:EH:140:VAL:HG11 | 29:EH:144:HIS:HB2  | 1.66                     | 0.77              |
| 1:F1:1307:C:H2'    | 1:F1:1308:U:H6     | 1.49                     | 0.77              |
| 1:F1:1700:A:H2'    | 1:F1:1701:A:H8     | 1.49                     | 0.77              |
| 1:F1:2966:U:O2'    | 1:F1:2967:U:C5'    | 2.32                     | 0.77              |
| 1:F1:3236:C:O2'    | 1:F1:3237:C:OP1    | 2.01                     | 0.77              |
| 21:G3:62:U:H4'     | 21:G3:63:A:OP2     | 1.85                     | 0.77              |
| 26:GE:34:ILE:HD11  | 26:GE:147:ILE:HG22 | 1.67                     | 0.77              |
| 1:H1:792:G:H5'     | 18:HU:190:TRP:CD2  | 2.20                     | 0.77              |
| 1:H1:2308:A:OP2    | 50:H1:4237:HOH:O   | 2.02                     | 0.77              |
| 1:H1:2390:G:C8     | 50:H1:3854:HOH:O   | 2.38                     | 0.77              |
| 6:AF:13:VAL:CG1    | 6:AF:53:VAL:HG22   | 2.15                     | 0.77              |
| 7:AG:10:ILE:O      | 7:AG:13:LYS:HG2    | 1.85                     | 0.77              |
| 42:BU:90:ARG:O     | 42:BU:94:ARG:HG2   | 1.84                     | 0.77              |
| 46:BY:15:GLY:O     | 46:BY:23:ARG:NH1   | 2.17                     | 0.77              |
| 23:CB:16:PHE:HD2   | 23:CB:273:ARG:HH12 | 1.28                     | 0.77              |
| 24:CC:152:VAL:HG21 | 24:CC:255:PHE:CE1  | 2.19                     | 0.77              |
| 28:CG:101:UNK:O    | 28:CG:105:UNK:HG2  | 1.85                     | 0.77              |
| 1:D1:1183:C:C2'    | 1:D1:1184:U:H5''   | 2.15                     | 0.77              |
| 1:D1:1442:G:OP1    | 50:D1:3895:HOH:O   | 2.02                     | 0.77              |
| 1:D1:2415:C:C2'    | 1:D1:2416:U:H5''   | 2.14                     | 0.77              |
| 1:D1:2933:G:H5''   | 1:D1:2933:G:N3     | 1.99                     | 0.77              |
| 20:E2:12:A:H2'     | 20:E2:13:A:C8      | 2.20                     | 0.77              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 25:ED:32:LYS:O     | 25:ED:36:VAL:HG23  | 1.85                     | 0.77              |
| 26:EE:34:ILE:HD11  | 26:EE:147:ILE:HG22 | 1.66                     | 0.77              |
| 26:EE:52:ASN:OD1   | 26:EE:53:VAL:N     | 2.18                     | 0.77              |
| 26:EE:73:SER:HA    | 26:EE:76:LYS:HE2   | 1.67                     | 0.77              |
| 31:EJ:46:ILE:HD11  | 31:EJ:54:PRO:HB3   | 1.66                     | 0.77              |
| 44:EW:10:ASP:OD1   | 44:EW:73:ARG:HG2   | 1.84                     | 0.77              |
| 1:F1:1129:C:H5''   | 1:F1:1130:A:OP1    | 1.84                     | 0.77              |
| 1:F1:1376:A:H5''   | 1:F1:1377:A:H5'    | 1.65                     | 0.77              |
| 1:F1:1434:G:H2'    | 1:F1:1435:C:H5'    | 1.66                     | 0.77              |
| 1:H1:564:A:H2'     | 1:H1:564:A:N3      | 2.00                     | 0.77              |
| 1:H1:1024:A:O2'    | 1:H1:1025:G:H5'    | 1.83                     | 0.77              |
| 1:A1:57:G:H2'      | 20:B2:36:G:H5'     | 1.67                     | 0.77              |
| 1:A1:1046:G:H2'    | 1:A1:1047:G:C8     | 2.20                     | 0.77              |
| 18:AU:72:GLY:O     | 18:AU:99:ARG:NH1   | 2.17                     | 0.77              |
| 30:BI:64:ASN:HD21  | 30:BI:66:ARG:HG2   | 1.48                     | 0.77              |
| 23:CB:332:ARG:HH11 | 23:CB:332:ARG:CG   | 1.98                     | 0.77              |
| 24:CC:152:VAL:HG13 | 24:CC:157:TYR:CD2  | 2.20                     | 0.77              |
| 30:CI:88:PRO:HD3   | 1:D1:1203:C:H4'    | 1.67                     | 0.77              |
| 35:CN:52:ARG:CB    | 35:CN:84:THR:HG21  | 2.04                     | 0.77              |
| 1:D1:1918:U:O2'    | 1:D1:1919:A:H5''   | 1.83                     | 0.77              |
| 5:DE:63:VAL:HG11   | 5:DE:76:VAL:CG1    | 2.14                     | 0.77              |
| 21:E3:1:G:N3       | 34:EM:274:HIS:NE2  | 2.29                     | 0.77              |
| 21:E3:10:C:C2      | 34:EM:20:TYR:HD1   | 2.03                     | 0.77              |
| 21:E3:27:A:H5''    | 34:EM:57:ASN:HD21  | 1.50                     | 0.77              |
| 30:EI:64:ASN:ND2   | 30:EI:66:ARG:HG2   | 2.00                     | 0.77              |
| 33:EL:80:VAL:HG13  | 33:EL:87:VAL:HG13  | 1.65                     | 0.77              |
| 1:F1:638:U:H2'     | 1:F1:639:U:H6      | 1.50                     | 0.77              |
| 1:F1:1461:A:H5''   | 1:F1:1462:U:H5''   | 1.67                     | 0.77              |
| 1:F1:1927:U:OP2    | 50:F1:4326:HOH:O   | 2.02                     | 0.77              |
| 6:FF:30:ILE:HG21   | 19:FX:163:PHE:HE2  | 1.49                     | 0.77              |
| 19:FX:96:GLN:H     | 19:FX:134:THR:HG21 | 1.49                     | 0.77              |
| 21:G3:64:A:O2'     | 29:GH:205:PRO:HG3  | 1.83                     | 0.77              |
| 24:GC:126:ARG:HB3  | 24:GC:283:TYR:CE2  | 2.20                     | 0.77              |
| 26:GE:166:LYS:NZ   | 1:H1:2882:U:OP1    | 2.12                     | 0.77              |
| 37:GP:94:GLU:OE1   | 37:GP:94:GLU:N     | 2.18                     | 0.77              |
| 37:GP:142:GLN:OE1  | 43:GV:71:ALA:HB2   | 1.84                     | 0.77              |
| 1:H1:332:G:C2'     | 1:H1:333:G:H5''    | 2.14                     | 0.77              |
| 1:H1:467:A:N6      | 1:H1:512:G:C2      | 2.53                     | 0.77              |
| 1:H1:1831:G:OP2    | 50:H1:4131:HOH:O   | 2.03                     | 0.77              |
| 1:H1:1843:U:H2'    | 1:H1:1844:U:C6     | 2.19                     | 0.77              |
| 1:H1:3222:U:O2'    | 1:H1:3223:G:H5'    | 1.85                     | 0.77              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:HG:24:THR:HG21   | 7:HG:29:SER:OG     | 1.85                     | 0.77              |
| 1:A1:439:A:P       | 1:A1:439:A:H8      | 2.08                     | 0.77              |
| 1:A1:1049:U:H2'    | 1:A1:1050:C:C6     | 2.20                     | 0.77              |
| 1:A1:1598:C:H2'    | 1:A1:1599:G:O4'    | 1.85                     | 0.77              |
| 21:B3:43:A:OP1     | 25:BD:137:ARG:HD2  | 1.84                     | 0.77              |
| 34:BM:212:TYR:HD2  | 34:BM:228:PHE:HZ   | 1.30                     | 0.77              |
| 37:CP:152:VAL:HG22 | 19:DX:138:ILE:HD13 | 1.67                     | 0.77              |
| 1:D1:73:G:P        | 18:DU:56:VAL:HG11  | 2.25                     | 0.77              |
| 1:D1:120:A:H4'     | 1:D1:121:A:O5'     | 1.84                     | 0.77              |
| 1:D1:800:G:H4'     | 1:D1:801:U:OP1     | 1.83                     | 0.77              |
| 1:D1:1376:A:H5''   | 1:D1:1377:A:O4'    | 1.84                     | 0.77              |
| 14:DO:6:TRP:HZ3    | 14:DO:40:LEU:HD12  | 1.50                     | 0.77              |
| 23:EB:332:ARG:HH11 | 23:EB:332:ARG:CG   | 1.98                     | 0.77              |
| 24:EC:319:ARG:NH2  | 1:F1:620:A:C8      | 2.53                     | 0.77              |
| 25:ED:108:GLU:HA   | 25:ED:122:ILE:HG23 | 1.67                     | 0.77              |
| 27:EF:43:ARG:NH1   | 1:F1:2521:A:N1     | 2.32                     | 0.77              |
| 29:EH:42:THR:HG22  | 29:EH:44:GLU:H     | 1.49                     | 0.77              |
| 42:EU:36:LYS:HZ3   | 42:EU:45:LEU:HD22  | 1.50                     | 0.77              |
| 1:F1:654:U:H2'     | 1:F1:655:A:C8      | 2.19                     | 0.77              |
| 1:F1:1073:A:O2'    | 1:F1:1074:A:O5'    | 2.03                     | 0.77              |
| 13:FN:26:VAL:HG21  | 13:FN:97:VAL:HG21  | 1.67                     | 0.77              |
| 20:G2:25:U:H4'     | 20:G2:26:A:OP1     | 1.82                     | 0.77              |
| 20:G2:36:G:H5''    | 1:H1:57:G:H2'      | 1.65                     | 0.77              |
| 21:G3:43:A:OP1     | 25:GD:137:ARG:HD2  | 1.84                     | 0.77              |
| 24:GC:107:PHE:HE1  | 1:H1:827:C:O2'     | 1.67                     | 0.77              |
| 29:GH:86:HIS:HB3   | 29:GH:139:ARG:HG2  | 1.67                     | 0.77              |
| 29:GH:140:VAL:HG11 | 29:GH:144:HIS:HB2  | 1.67                     | 0.77              |
| 32:GK:100:PRO:HB3  | 18:HU:164:LYS:NZ   | 2.00                     | 0.77              |
| 1:H1:1048:U:H2'    | 1:H1:1049:U:C5'    | 2.14                     | 0.77              |
| 1:A1:282:G:H22     | 1:A1:304:U:C5'     | 1.98                     | 0.76              |
| 1:A1:518:G:O2'     | 1:A1:519:A:O4'     | 2.03                     | 0.76              |
| 1:A1:1430:G:N7     | 50:A1:3922:HOH:O   | 2.17                     | 0.76              |
| 1:A1:2344:U:H5'    | 1:A1:2344:U:H6     | 1.49                     | 0.76              |
| 1:A1:3222:U:O2'    | 1:A1:3223:G:H5'    | 1.84                     | 0.76              |
| 6:AF:3:PHE:CD1     | 19:AX:164:PRO:HB3  | 2.21                     | 0.76              |
| 24:BC:152:VAL:HG21 | 24:BC:255:PHE:CE1  | 2.19                     | 0.76              |
| 26:CE:124:ILE:CD1  | 26:CE:159:ILE:HA   | 2.14                     | 0.76              |
| 28:CG:11:UNK:O     | 28:CG:15:UNK:HG2   | 1.85                     | 0.76              |
| 34:CM:52:VAL:HG22  | 34:CM:63:GLN:HB2   | 1.68                     | 0.76              |
| 37:CP:94:GLU:N     | 37:CP:94:GLU:OE1   | 2.18                     | 0.76              |
| 1:D1:1129:C:H5''   | 1:D1:1130:A:OP1    | 1.83                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2640:G:O2'    | 1:D1:2784:G:O6     | 2.02                     | 0.76              |
| 1:D1:3061:A:OP2    | 50:D1:4503:HOH:O   | 2.03                     | 0.76              |
| 9:DJ:145:ASN:HD22  | 9:DJ:146:VAL:H     | 1.31                     | 0.76              |
| 24:EC:251:HIS:HD2  | 1:F1:1410:G:O2'    | 1.68                     | 0.76              |
| 31:EJ:127:ALA:HB1  | 9:FJ:58:ILE:HD13   | 1.66                     | 0.76              |
| 46:EY:4:ARG:NH1    | 1:F1:881:G:N2      | 2.33                     | 0.76              |
| 1:F1:635:A:O2'     | 5:FE:33:LEU:HD13   | 1.85                     | 0.76              |
| 1:F1:1002:A:H2'    | 1:F1:1003:G:H5'    | 1.65                     | 0.76              |
| 1:F1:1909:C:HO2'   | 1:F1:1910:A:P      | 2.07                     | 0.76              |
| 1:F1:3098:A:OP1    | 10:FK:93:LYS:NZ    | 2.17                     | 0.76              |
| 5:FE:41:LEU:CD1    | 5:FE:45:ILE:HD13   | 2.13                     | 0.76              |
| 14:FO:90:VAL:HG12  | 14:FO:111:LEU:HD11 | 1.67                     | 0.76              |
| 30:GI:86:MET:HE3   | 1:H1:1201:G:H21    | 1.49                     | 0.76              |
| 39:GR:48:ALA:O     | 1:H1:14:A:H5''     | 1.85                     | 0.76              |
| 43:GV:36:GLN:O     | 43:GV:40:GLU:HG2   | 1.84                     | 0.76              |
| 1:H1:591:G:H2'     | 1:H1:592:A:H8      | 1.49                     | 0.76              |
| 1:H1:1223:U:H2'    | 1:H1:1223:U:O2     | 1.83                     | 0.76              |
| 11:HL:88:ARG:HG3   | 13:HN:14:LEU:HD13  | 1.67                     | 0.76              |
| 13:HN:26:VAL:HG21  | 13:HN:97:VAL:HG21  | 1.67                     | 0.76              |
| 1:A1:467:A:N6      | 1:A1:512:G:C2      | 2.54                     | 0.76              |
| 1:A1:526:U:O2'     | 1:A1:527:A:C8      | 2.38                     | 0.76              |
| 1:A1:619:G:H4'     | 1:A1:620:A:C2      | 2.20                     | 0.76              |
| 1:A1:857:G:OP1     | 50:BO:202:HOH:O    | 2.04                     | 0.76              |
| 1:A1:1461:A:H5''   | 1:A1:1462:U:H5''   | 1.66                     | 0.76              |
| 1:A1:1566:U:H2'    | 1:A1:1567:A:H8     | 1.48                     | 0.76              |
| 24:CC:327:ASN:HB3  | 24:CC:331:PHE:CE2  | 2.21                     | 0.76              |
| 27:CF:50:TYR:CE1   | 27:CF:51:ILE:HG23  | 2.19                     | 0.76              |
| 40:CS:43:ASN:O     | 40:CS:125:LEU:HD12 | 1.85                     | 0.76              |
| 1:D1:1307:C:H2'    | 1:D1:1308:U:H6     | 1.49                     | 0.76              |
| 21:E3:120:U:H4'    | 34:EM:265:LYS:HZ1  | 1.48                     | 0.76              |
| 24:EC:376:TRP:CD1  | 1:F1:564:A:C1'     | 2.48                     | 0.76              |
| 24:EC:405:ILE:CD1  | 29:EH:183:ARG:HE   | 1.99                     | 0.76              |
| 30:EI:113:ARG:HH11 | 1:F1:3162:A:N6     | 1.81                     | 0.76              |
| 42:EU:90:ARG:O     | 42:EU:94:ARG:HG2   | 1.84                     | 0.76              |
| 1:F1:738:U:OP1     | 18:FU:182:ARG:NH1  | 2.17                     | 0.76              |
| 1:F1:2140:A:P      | 50:F1:3985:HOH:O   | 2.42                     | 0.76              |
| 1:F1:2188:U:O2'    | 1:F1:2189:G:P      | 2.42                     | 0.76              |
| 1:F1:3115:C:H5'    | 1:F1:3115:C:H6     | 1.51                     | 0.76              |
| 21:G3:56:G:H4'     | 25:GD:146:SER:OG   | 1.86                     | 0.76              |
| 1:H1:832:A:C2      | 1:H1:2406:U:O2'    | 2.38                     | 0.76              |
| 1:H1:2366:G:H5''   | 1:H1:2367:A:OP2    | 1.85                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2931:G:OP1    | 50:H1:3939:HOH:O   | 2.02                     | 0.76              |
| 1:A1:19:A:H4'      | 1:A1:20:G:OP2      | 1.85                     | 0.76              |
| 16:AQ:16:THR:HB    | 18:AU:104:GLN:HB2  | 1.68                     | 0.76              |
| 1:D1:304:U:O2'     | 1:D1:305:A:P       | 2.43                     | 0.76              |
| 1:D1:564:A:H2'     | 1:D1:564:A:N3      | 2.00                     | 0.76              |
| 5:DE:63:VAL:CG1    | 5:DE:76:VAL:HG13   | 2.15                     | 0.76              |
| 27:EF:41:LEU:HD21  | 1:F1:2519:A:N3     | 2.00                     | 0.76              |
| 38:EQ:32:TYR:HD2   | 38:EQ:33:GLU:HG2   | 1.51                     | 0.76              |
| 1:F1:358:C:H4'     | 1:F1:842:A:N6      | 2.00                     | 0.76              |
| 34:GM:212:TYR:HD2  | 34:GM:228:PHE:CZ   | 2.02                     | 0.76              |
| 45:GX:112:LYS:NZ   | 14:HO:128:GLU:OE2  | 2.17                     | 0.76              |
| 1:H1:358:C:H4'     | 1:H1:842:A:N6      | 2.00                     | 0.76              |
| 1:H1:991:U:O4      | 1:H1:1142:G:N2     | 2.18                     | 0.76              |
| 1:H1:1771:U:O2'    | 15:HP:54:LYS:NZ    | 2.14                     | 0.76              |
| 1:H1:2439:C:H2'    | 1:H1:2440:A:C8     | 2.20                     | 0.76              |
| 19:HX:96:GLN:H     | 19:HX:134:THR:HG21 | 1.51                     | 0.76              |
| 1:A1:120:A:H4'     | 1:A1:121:A:O5'     | 1.84                     | 0.76              |
| 1:A1:874:C:H4'     | 1:H1:2301:C:H41    | 1.48                     | 0.76              |
| 1:A1:1035:A:C2     | 1:A1:1068:U:H1'    | 2.21                     | 0.76              |
| 1:A1:1809:C:OP1    | 50:A1:4092:HOH:O   | 2.03                     | 0.76              |
| 1:A1:2830:U:H2'    | 1:A1:2830:U:O2     | 1.84                     | 0.76              |
| 7:AG:11:GLN:HE22   | 1:H1:2249:U:C3'    | 1.98                     | 0.76              |
| 35:BN:123:THR:HG23 | 35:BN:125:ASP:OD1  | 1.85                     | 0.76              |
| 38:BQ:29:LYS:HD2   | 38:BQ:65:PHE:CD2   | 2.20                     | 0.76              |
| 21:C3:27:A:H5''    | 34:CM:57:ASN:HD21  | 1.50                     | 0.76              |
| 1:D1:47:G:OP2      | 50:D1:3727:HOH:O   | 2.03                     | 0.76              |
| 1:D1:418:G:H3'     | 1:D1:418:G:C8      | 2.21                     | 0.76              |
| 1:D1:563:G:H4'     | 1:D1:564:A:OP2     | 1.84                     | 0.76              |
| 1:D1:1654:G:C4'    | 1:D1:1655:A:OP1    | 2.33                     | 0.76              |
| 1:D1:2933:G:H4'    | 1:D1:2934:A:OP1    | 1.84                     | 0.76              |
| 7:DG:10:ILE:O      | 7:DG:13:LYS:HG2    | 1.84                     | 0.76              |
| 21:E3:65:G:OP2     | 50:E3:328:HOH:O    | 2.03                     | 0.76              |
| 27:EF:67:PRO:HB2   | 27:EF:68:PRO:HD2   | 1.67                     | 0.76              |
| 29:EH:43:VAL:HG11  | 29:EH:197:VAL:HG23 | 1.67                     | 0.76              |
| 32:EK:99:VAL:HB    | 18:FU:169:ILE:HD11 | 1.66                     | 0.76              |
| 1:F1:1752:G:H5''   | 1:F1:1753:A:H3'    | 1.65                     | 0.76              |
| 1:F1:2216:G:O6     | 16:FQ:75:LYS:NZ    | 2.18                     | 0.76              |
| 7:FG:10:ILE:O      | 7:FG:13:LYS:HG2    | 1.85                     | 0.76              |
| 9:FJ:145:ASN:HD22  | 9:FJ:146:VAL:H     | 1.30                     | 0.76              |
| 13:FN:4:PHE:N      | 13:FN:4:PHE:CD1    | 2.32                     | 0.76              |
| 19:FX:180:VAL:HG13 | 19:FX:181:TYR:HD1  | 1.50                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:G3:81:A:C2'     | 21:G3:82:G:H5''    | 2.16                     | 0.76              |
| 22:GA:16:VAL:HG23  | 1:H1:936:C:OP1     | 1.84                     | 0.76              |
| 24:GC:152:VAL:HG21 | 24:GC:255:PHE:CE1  | 2.19                     | 0.76              |
| 32:GK:68:ASN:HB3   | 18:HU:60:THR:HG21  | 1.67                     | 0.76              |
| 1:H1:610:A:H2'     | 1:H1:611:A:H8      | 1.49                     | 0.76              |
| 1:H1:789:U:H4'     | 1:H1:790:C:OP1     | 1.85                     | 0.76              |
| 1:H1:1004:U:H5'    | 1:H1:1004:U:C6     | 2.17                     | 0.76              |
| 1:H1:1909:C:O2'    | 1:H1:1910:A:P      | 2.44                     | 0.76              |
| 16:HQ:43:GLN:OE1   | 16:HQ:43:GLN:HA    | 1.84                     | 0.76              |
| 1:A1:418:G:O6      | 1:A1:2378:A:O2'    | 2.02                     | 0.76              |
| 1:A1:809:A:H4'     | 35:BN:92:ARG:HH21  | 1.49                     | 0.76              |
| 1:A1:1477:C:OP1    | 50:A1:4155:HOH:O   | 2.02                     | 0.76              |
| 1:A1:2619:C:OP1    | 37:BP:5:TYR:O      | 2.03                     | 0.76              |
| 1:A1:3158:G:H3'    | 1:A1:3159:A:H5'    | 1.67                     | 0.76              |
| 24:BC:327:ASN:HB3  | 24:BC:331:PHE:CE2  | 2.20                     | 0.76              |
| 34:BM:59:ARG:HB2   | 34:BM:81:TYR:CE2   | 2.21                     | 0.76              |
| 34:BM:212:TYR:HD2  | 34:BM:228:PHE:CZ   | 2.02                     | 0.76              |
| 36:BO:109:TYR:HB3  | 36:BO:115:ILE:HG13 | 1.67                     | 0.76              |
| 24:CC:213:LEU:HD12 | 24:CC:234:ASP:O    | 1.86                     | 0.76              |
| 47:CO:164:UNK:O    | 47:CO:168:UNK:HG2  | 1.85                     | 0.76              |
| 1:D1:138:C:H2'     | 1:D1:139:A:H5'     | 1.68                     | 0.76              |
| 1:D1:1909:C:HO2'   | 1:D1:1910:A:P      | 2.07                     | 0.76              |
| 1:D1:2439:C:H2'    | 1:D1:2440:A:C8     | 2.20                     | 0.76              |
| 1:D1:3297:A:C5'    | 1:D1:3298:U:OP1    | 2.34                     | 0.76              |
| 8:DH:11:PRO:HG2    | 8:DH:12:THR:H      | 1.51                     | 0.76              |
| 21:E3:13:A:P       | 21:E3:109:U:O2'    | 2.43                     | 0.76              |
| 38:EQ:82:GLN:NE2   | 1:F1:2383:U:O2'    | 2.18                     | 0.76              |
| 1:F1:1376:A:H5''   | 1:F1:1377:A:O4'    | 1.85                     | 0.76              |
| 24:GC:152:VAL:HG13 | 24:GC:157:TYR:CD2  | 2.20                     | 0.76              |
| 24:GC:164:GLU:OE2  | 24:GC:259:THR:HG21 | 1.86                     | 0.76              |
| 28:GG:11:UNK:O     | 28:GG:15:UNK:HG2   | 1.85                     | 0.76              |
| 34:GM:254:ILE:O    | 34:GM:258:PRO:HD3  | 1.85                     | 0.76              |
| 1:H1:1016:U:C2'    | 1:H1:1017:U:H5''   | 2.15                     | 0.76              |
| 1:H1:1183:C:C2'    | 1:H1:1184:U:H5''   | 2.15                     | 0.76              |
| 1:H1:3266:G:H2'    | 1:H1:3267:A:H5''   | 1.68                     | 0.76              |
| 9:HJ:112:ASP:H     | 9:HJ:156:ASN:HD21  | 1.31                     | 0.76              |
| 15:HP:48:LYS:HG3   | 15:HP:49:TYR:CE2   | 2.21                     | 0.76              |
| 1:A1:38:A:O2'      | 50:A1:3762:HOH:O   | 1.87                     | 0.76              |
| 1:A1:753:A:H61     | 1:A1:766:G:H1'     | 1.50                     | 0.76              |
| 1:A1:1130:A:H5'    | 1:A1:1131:G:OP2    | 1.86                     | 0.76              |
| 1:A1:2542:U:H6     | 1:A1:2542:U:H5''   | 1.49                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3230:G:O2'    | 1:A1:3231:U:P      | 2.43                     | 0.76              |
| 9:AJ:58:ILE:HD13   | 31:BJ:127:ALA:HB1  | 1.66                     | 0.76              |
| 32:BK:118:LEU:CB   | 32:BK:141:VAL:HG21 | 2.16                     | 0.76              |
| 34:BM:52:VAL:HG22  | 34:BM:63:GLN:HB2   | 1.68                     | 0.76              |
| 35:BN:82:VAL:CG2   | 35:BN:127:LEU:HD11 | 2.16                     | 0.76              |
| 36:BO:152:SER:HB3  | 36:BO:163:ARG:HH12 | 1.48                     | 0.76              |
| 20:C2:18:G:H1'     | 1:D1:406:A:H61     | 1.51                     | 0.76              |
| 22:CA:58:PRO:HD2   | 22:CA:171:ALA:HB3  | 1.66                     | 0.76              |
| 24:CC:65:MET:HE3   | 24:CC:105:ARG:CD   | 2.15                     | 0.76              |
| 25:CD:99:THR:CG2   | 1:D1:2673:C:O2'    | 2.34                     | 0.76              |
| 34:CM:212:TYR:HD2  | 34:CM:228:PHE:CZ   | 2.02                     | 0.76              |
| 37:CP:139:VAL:HG21 | 19:DX:30:ILE:HD11  | 1.67                     | 0.76              |
| 1:D1:55:A:OP2      | 50:D1:3717:HOH:O   | 2.02                     | 0.76              |
| 1:D1:1054:G:C2'    | 1:D1:1055:A:C8     | 2.67                     | 0.76              |
| 4:DC:19:THR:HG21   | 4:DC:72:CYS:SG     | 2.25                     | 0.76              |
| 18:DU:133:LYS:C    | 18:DU:135:LEU:H    | 1.89                     | 0.76              |
| 23:EB:16:PHE:HD2   | 23:EB:273:ARG:HH12 | 1.32                     | 0.76              |
| 24:EC:164:GLU:OE2  | 24:EC:259:THR:HG21 | 1.85                     | 0.76              |
| 28:EG:60:UNK:HG1   | 1:F1:1249:G:C5'    | 2.13                     | 0.76              |
| 30:EI:6:VAL:HG23   | 30:EI:30:GLN:NE2   | 2.00                     | 0.76              |
| 37:EP:116:LYS:NZ   | 37:EP:128:THR:HB   | 2.00                     | 0.76              |
| 1:F1:283:A:OP1     | 4:FC:39:ARG:NH1    | 2.17                     | 0.76              |
| 1:F1:526:U:O2'     | 1:F1:527:A:C8      | 2.39                     | 0.76              |
| 1:F1:579:G:H1'     | 19:FX:158:ASN:N    | 2.01                     | 0.76              |
| 1:F1:2640:G:O2'    | 1:F1:2784:G:O6     | 2.02                     | 0.76              |
| 19:FX:16:MET:HE3   | 19:FX:18:VAL:CG2   | 2.15                     | 0.76              |
| 23:GB:24:HIS:CE1   | 23:GB:28:ARG:HD2   | 2.20                     | 0.76              |
| 27:GF:154:GLU:OE2  | 33:GL:26:ARG:NH2   | 2.18                     | 0.76              |
| 32:GK:51:HIS:HE1   | 18:HU:6:GLN:HA     | 1.51                     | 0.76              |
| 1:H1:73:G:P        | 18:HU:56:VAL:HG11  | 2.26                     | 0.76              |
| 1:H1:1460:G:OP2    | 50:H1:3773:HOH:O   | 2.01                     | 0.76              |
| 14:HO:6:TRP:HZ3    | 14:HO:40:LEU:HD12  | 1.50                     | 0.76              |
| 1:A1:88:U:H2'      | 1:A1:89:G:H5'      | 1.66                     | 0.76              |
| 1:A1:591:G:H2'     | 1:A1:592:A:H8      | 1.50                     | 0.76              |
| 1:A1:974:C:O2'     | 1:A1:996:A:OP1     | 2.03                     | 0.76              |
| 1:A1:1063:C:O2'    | 34:BM:5:LYS:HA     | 1.85                     | 0.76              |
| 1:A1:1307:C:H2'    | 1:A1:1308:U:H6     | 1.48                     | 0.76              |
| 1:A1:1448:G:H2'    | 1:A1:1449:C:H6     | 1.50                     | 0.76              |
| 1:A1:2989:G:H21    | 23:BB:118:PHE:HE2  | 1.31                     | 0.76              |
| 21:B3:11:A:C8      | 34:BM:18:THR:HB    | 2.20                     | 0.76              |
| 24:BC:311:ALA:H    | 35:BN:40:ARG:NH2   | 1.82                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 25:BD:29:LYS:HA    | 25:BD:32:LYS:HD2   | 1.68                     | 0.76              |
| 25:BD:108:GLU:HA   | 25:BD:122:ILE:HG23 | 1.68                     | 0.76              |
| 26:BE:124:ILE:CD1  | 26:BE:159:ILE:HA   | 2.16                     | 0.76              |
| 33:BL:182:LYS:HG2  | 33:BL:183:SER:N    | 2.01                     | 0.76              |
| 41:BT:5:THR:HG21   | 41:BT:14:ARG:CG    | 2.15                     | 0.76              |
| 41:CT:15:ILE:HG12  | 41:CT:34:LEU:HD13  | 1.67                     | 0.76              |
| 1:D1:284:U:O4'     | 50:D1:3848:HOH:O   | 2.01                     | 0.76              |
| 1:D1:1700:A:H2'    | 1:D1:1701:A:H8     | 1.50                     | 0.76              |
| 1:D1:2766:A:C2'    | 1:D1:2767:A:H5'    | 2.16                     | 0.76              |
| 2:DA:17:THR:HG22   | 2:DA:18:LEU:N      | 2.00                     | 0.76              |
| 17:DT:47:ILE:O     | 17:DT:55:LYS:NZ    | 2.16                     | 0.76              |
| 19:DX:96:GLN:H     | 19:DX:134:THR:HG21 | 1.50                     | 0.76              |
| 23:EB:118:PHE:HE2  | 1:F1:2989:G:N2     | 1.84                     | 0.76              |
| 30:EI:159:ARG:O    | 30:EI:162:ARG:HG2  | 1.84                     | 0.76              |
| 32:EK:88:THR:HG23  | 18:FU:164:LYS:NZ   | 2.01                     | 0.76              |
| 36:EO:133:LYS:HG3  | 36:EO:134:ASN:H    | 1.51                     | 0.76              |
| 41:ET:58:ARG:CZ    | 1:F1:3325:G:C5     | 2.69                     | 0.76              |
| 1:F1:567:C:N4      | 1:F1:603:A:C6      | 2.54                     | 0.76              |
| 1:F1:1354:C:O2'    | 1:F1:1355:C:H5'    | 1.85                     | 0.76              |
| 1:F1:1657:C:OP1    | 13:FN:111:ARG:NH1  | 2.14                     | 0.76              |
| 1:F1:2362:A:OP2    | 50:F1:3767:HOH:O   | 2.02                     | 0.76              |
| 12:FM:21:CYS:SG    | 12:FM:30:ILE:HG21  | 2.25                     | 0.76              |
| 24:GC:65:MET:CE    | 24:GC:105:ARG:HH11 | 1.97                     | 0.76              |
| 27:GF:67:PRO:HB2   | 27:GF:68:PRO:HD2   | 1.68                     | 0.76              |
| 30:GI:64:ASN:ND2   | 30:GI:66:ARG:HG2   | 2.01                     | 0.76              |
| 38:GQ:32:TYR:HD1   | 38:GQ:33:GLU:HG2   | 1.51                     | 0.76              |
| 42:GU:104:VAL:HG13 | 42:GU:108:THR:HB   | 1.67                     | 0.76              |
| 43:GV:86:ILE:HG12  | 43:GV:131:ILE:HA   | 1.68                     | 0.76              |
| 44:GW:10:ASP:OD1   | 44:GW:73:ARG:HG2   | 1.86                     | 0.76              |
| 45:GX:98:ILE:O     | 45:GX:123:ASN:ND2  | 2.19                     | 0.76              |
| 46:GY:7:LYS:O      | 46:GY:27:LYS:NZ    | 2.16                     | 0.76              |
| 1:H1:120:A:H4'     | 1:H1:121:A:O5'     | 1.84                     | 0.76              |
| 1:H1:517:A:H4'     | 1:H1:518:G:OP1     | 1.84                     | 0.76              |
| 1:H1:1307:C:H2'    | 1:H1:1308:U:H6     | 1.49                     | 0.76              |
| 1:H1:2890:A:OP2    | 50:H1:4276:HOH:O   | 2.04                     | 0.76              |
| 5:HE:63:VAL:HG11   | 5:HE:76:VAL:CG1    | 2.16                     | 0.76              |
| 1:A1:127:A:OP2     | 50:A1:3813:HOH:O   | 2.03                     | 0.76              |
| 1:A1:357:G:OP2     | 50:A1:3856:HOH:O   | 2.04                     | 0.76              |
| 1:A1:418:G:H21     | 30:BI:67:ARG:HH21  | 1.31                     | 0.76              |
| 1:A1:564:A:N3      | 1:A1:564:A:H2'     | 1.99                     | 0.76              |
| 1:A1:1064:C:C2'    | 1:A1:1065:U:H5'    | 2.14                     | 0.76              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:1413:G:O2'   | 1:A1:1414:C:H5'    | 1.86                     | 0.76              |
| 1:A1:3115:C:H6    | 1:A1:3115:C:H5'    | 1.50                     | 0.76              |
| 19:AX:16:MET:HE3  | 19:AX:18:VAL:CG2   | 2.13                     | 0.76              |
| 19:AX:16:MET:HE1  | 19:AX:121:ILE:CD1  | 2.14                     | 0.76              |
| 19:AX:158:ASN:ND2 | 19:AX:160:ALA:HB3  | 2.00                     | 0.76              |
| 24:BC:284:GLN:HG2 | 35:BN:108:GLU:OE2  | 1.85                     | 0.76              |
| 27:BF:29:PHE:CD2  | 27:BF:37:PRO:HD3   | 2.21                     | 0.76              |
| 29:BH:42:THR:HG22 | 29:BH:44:GLU:H     | 1.49                     | 0.76              |
| 30:BI:109:THR:CG2 | 30:BI:110:PRO:HD3  | 2.16                     | 0.76              |
| 32:BK:122:PRO:CA  | 32:BK:142:GLY:O    | 2.33                     | 0.76              |
| 21:C3:120:U:H4'   | 34:CM:265:LYS:NZ   | 2.01                     | 0.76              |
| 30:CI:86:MET:HE3  | 1:D1:1201:G:H21    | 1.51                     | 0.76              |
| 35:CN:155:ALA:O   | 35:CN:158:GLN:HG3  | 1.86                     | 0.76              |
| 39:CR:73:THR:HG23 | 42:CU:37:ILE:HD13  | 1.66                     | 0.76              |
| 42:CU:76:GLY:HA2  | 1:D1:133:C:H2'     | 1.67                     | 0.76              |
| 43:CV:12:LYS:CE   | 1:D1:1376:A:H3'    | 2.15                     | 0.76              |
| 1:D1:453:A:N6     | 1:D1:524:G:H2'     | 2.01                     | 0.76              |
| 1:D1:1478:A:N7    | 50:D1:4244:HOH:O   | 2.17                     | 0.76              |
| 7:DG:63:ALA:HB1   | 13:DN:2:ALA:HB1    | 1.66                     | 0.76              |
| 13:DN:87:VAL:CG1  | 13:DN:90:LEU:HB2   | 2.16                     | 0.76              |
| 27:EF:127:TYR:CD1 | 27:EF:127:TYR:C    | 2.64                     | 0.76              |
| 37:EP:21:THR:HA   | 37:EP:24:HIS:CD2   | 2.21                     | 0.76              |
| 1:F1:517:A:H4'    | 1:F1:518:G:OP1     | 1.83                     | 0.76              |
| 1:F1:654:U:H2'    | 1:F1:655:A:H8      | 1.51                     | 0.76              |
| 1:F1:800:G:H4'    | 1:F1:801:U:OP1     | 1.84                     | 0.76              |
| 1:F1:3176:A:H4'   | 1:F1:3177:G:O5'    | 1.86                     | 0.76              |
| 27:GF:62:GLN:OE1  | 1:H1:2574:U:N3     | 2.19                     | 0.76              |
| 27:GF:130:ASN:HB2 | 1:H1:148:G:O6      | 1.84                     | 0.76              |
| 34:GM:83:LEU:HB3  | 34:GM:88:VAL:CG2   | 2.16                     | 0.76              |
| 43:GV:208:ARG:NH2 | 1:H1:1354:C:OP1    | 2.19                     | 0.76              |
| 1:H1:508:A:O2'    | 1:H1:509:A:C8      | 2.38                     | 0.76              |
| 1:H1:1862:C:H5''  | 1:H1:1863:A:O5'    | 1.85                     | 0.76              |
| 1:A1:304:U:O2'    | 1:A1:305:A:C8      | 2.38                     | 0.76              |
| 1:A1:332:G:C2'    | 1:A1:333:G:H5''    | 2.16                     | 0.76              |
| 1:A1:800:G:H4'    | 1:A1:801:U:OP1     | 1.85                     | 0.76              |
| 1:A1:1958:G:N7    | 50:A1:4528:HOH:O   | 2.18                     | 0.76              |
| 9:AJ:30:ALA:HB3   | 9:AJ:35:TYR:CZ     | 2.20                     | 0.76              |
| 23:BB:113:ASN:HB2 | 23:BB:174:ASN:HD21 | 1.49                     | 0.76              |
| 24:BC:163:VAL:O   | 24:BC:166:TYR:HD2  | 1.68                     | 0.76              |
| 25:BD:50:ALA:O    | 25:BD:62:ASN:N     | 2.18                     | 0.76              |
| 20:C2:36:G:H5''   | 1:D1:57:G:H2'      | 1.68                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:CH:86:HIS:HB3   | 29:CH:139:ARG:HG2  | 1.67                     | 0.76              |
| 47:CO:109:TYR:HB3  | 47:CO:115:ILE:CG1  | 2.15                     | 0.76              |
| 46:CY:12:ARG:NH1   | 1:D1:1951:G:O3'    | 2.19                     | 0.76              |
| 1:D1:1354:C:O2'    | 1:D1:1355:C:H5'    | 1.86                     | 0.76              |
| 1:D1:2188:U:O2'    | 1:D1:2189:G:P      | 2.43                     | 0.76              |
| 16:DQ:43:GLN:HA    | 16:DQ:43:GLN:OE1   | 1.83                     | 0.76              |
| 22:EA:30:TYR:HA    | 22:EA:77:PHE:CE1   | 2.20                     | 0.76              |
| 23:EB:292:ALA:HB3  | 23:EB:301:LYS:HB3  | 1.68                     | 0.76              |
| 29:EH:48:TYR:HE1   | 29:EH:178:ARG:CZ   | 1.99                     | 0.76              |
| 38:EQ:103:ASN:HD21 | 1:F1:388:A:H1'     | 1.50                     | 0.76              |
| 38:EQ:133:ARG:HD2  | 1:F1:905:G:OP2     | 1.86                     | 0.76              |
| 1:F1:753:A:H61     | 1:F1:766:G:H1'     | 1.50                     | 0.76              |
| 1:F1:991:U:O4      | 1:F1:1142:G:N2     | 2.19                     | 0.76              |
| 1:F1:3297:A:C5'    | 1:F1:3298:U:OP1    | 2.34                     | 0.76              |
| 20:G2:105:A:C8     | 20:G2:106:A:C8     | 2.74                     | 0.76              |
| 24:GC:327:ASN:HB3  | 24:GC:331:PHE:CE2  | 2.20                     | 0.76              |
| 32:GK:122:PRO:CA   | 32:GK:142:GLY:O    | 2.34                     | 0.76              |
| 1:H1:282:G:H22     | 1:H1:304:U:C5'     | 1.98                     | 0.76              |
| 1:H1:434:A:H5''    | 1:H1:435:A:OP1     | 1.85                     | 0.76              |
| 1:H1:526:U:O2'     | 1:H1:527:A:C8      | 2.37                     | 0.76              |
| 1:H1:1654:G:C4'    | 1:H1:1655:A:OP1    | 2.34                     | 0.76              |
| 1:H1:2250:A:OP2    | 1:H1:2251:A:N7     | 2.19                     | 0.76              |
| 11:HL:5:ILE:HG22   | 11:HL:6:THR:H      | 1.50                     | 0.76              |
| 1:A1:444:A:N1      | 1:A1:533:G:N2      | 2.32                     | 0.76              |
| 1:A1:1875:G:N7     | 50:A1:4163:HOH:O   | 2.18                     | 0.76              |
| 1:A1:3234:U:O2'    | 8:AH:105:ARG:NH1   | 2.19                     | 0.76              |
| 21:B3:46:C:OP1     | 34:BM:158:ARG:HG3  | 1.85                     | 0.76              |
| 42:BU:104:VAL:CG1  | 42:BU:108:THR:HB   | 2.16                     | 0.76              |
| 44:BW:28:ALA:HA    | 44:BW:66:ILE:HD11  | 1.68                     | 0.76              |
| 29:CH:16:PRO:HG3   | 29:CH:128:ARG:NH1  | 2.00                     | 0.76              |
| 30:CI:159:ARG:HD2  | 30:CI:162:ARG:HH21 | 1.46                     | 0.76              |
| 32:CK:117:ARG:HD3  | 32:CK:137:ARG:NH1  | 2.01                     | 0.76              |
| 38:CQ:33:GLU:CD    | 38:CQ:63:THR:H     | 1.93                     | 0.76              |
| 38:CQ:132:TYR:O    | 50:CQ:306:HOH:O    | 2.04                     | 0.76              |
| 42:CU:123:LYS:NZ   | 18:DU:144:SER:HB2  | 2.00                     | 0.76              |
| 1:D1:1654:G:H2'    | 1:D1:1654:G:N3     | 1.98                     | 0.76              |
| 1:D1:3168:A:H8     | 1:D1:3168:A:OP1    | 1.67                     | 0.76              |
| 7:DG:10:ILE:HG23   | 7:DG:13:LYS:HE2    | 1.67                     | 0.76              |
| 9:DJ:162:HIS:CD2   | 9:DJ:164:LEU:H     | 2.04                     | 0.76              |
| 17:DT:9:ASN:OD1    | 17:DT:12:GLN:HB2   | 1.85                     | 0.76              |
| 22:EA:30:TYR:HA    | 22:EA:77:PHE:HE1   | 1.51                     | 0.76              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:EC:152:VAL:HG21 | 24:EC:255:PHE:CE1  | 2.21                     | 0.76              |
| 43:EV:122:ASN:ND2  | 1:F1:1013:U:OP1    | 2.19                     | 0.76              |
| 1:F1:564:A:H2'     | 1:F1:564:A:N3      | 2.00                     | 0.76              |
| 1:F1:681:A:H3'     | 50:F1:3739:HOH:O   | 1.86                     | 0.76              |
| 1:F1:3183:A:O2'    | 1:F1:3184:A:O5'    | 2.04                     | 0.76              |
| 23:GB:303:ILE:HD12 | 23:GB:303:ILE:H    | 1.52                     | 0.76              |
| 23:GB:332:ARG:CG   | 23:GB:332:ARG:HH11 | 1.98                     | 0.76              |
| 36:GO:95:TRP:CH2   | 1:H1:880:U:H4'     | 2.21                     | 0.76              |
| 1:H1:1047:G:H2'    | 1:H1:1048:U:C5'    | 2.16                     | 0.76              |
| 1:H1:1183:C:H2'    | 1:H1:1184:U:H5''   | 1.67                     | 0.76              |
| 1:H1:2574:U:H4'    | 1:H1:2575:G:OP1    | 1.85                     | 0.76              |
| 1:H1:3020:G:O2'    | 1:H1:3021:A:H5''   | 1.87                     | 0.76              |
| 1:A1:1064:C:H2'    | 1:A1:1065:U:H5'    | 1.66                     | 0.75              |
| 1:A1:2703:G:OP2    | 1:A1:2705:U:H1'    | 1.86                     | 0.75              |
| 1:A1:3176:A:H4'    | 1:A1:3177:G:H5'    | 1.66                     | 0.75              |
| 1:A1:3185:G:C2     | 1:A1:3237:C:C2     | 2.74                     | 0.75              |
| 1:A1:3232:A:OP1    | 5:AE:88:LYS:NZ     | 2.18                     | 0.75              |
| 26:BE:7:GLU:HG2    | 26:BE:56:GLN:HG2   | 1.68                     | 0.75              |
| 34:BM:209:ILE:O    | 34:BM:213:MET:HG2  | 1.87                     | 0.75              |
| 20:C2:32:C:H2'     | 20:C2:33:C:C6      | 2.21                     | 0.75              |
| 21:C3:48:G:OP2     | 34:CM:94:SER:HB3   | 1.85                     | 0.75              |
| 46:CY:19:GLY:HA2   | 1:D1:1949:U:O2     | 1.86                     | 0.75              |
| 1:D1:223:C:O2'     | 1:D1:224:C:OP2     | 2.03                     | 0.75              |
| 1:D1:1256:G:H2'    | 1:D1:1257:G:C8     | 2.22                     | 0.75              |
| 1:D1:1321:A:HO2'   | 1:D1:1322:G:P      | 2.09                     | 0.75              |
| 1:D1:2256:G:H1'    | 1:D1:2257:A:H5'    | 1.66                     | 0.75              |
| 1:D1:2625:A:H5'    | 1:D1:2626:A:H5'    | 1.67                     | 0.75              |
| 34:EM:254:ILE:O    | 34:EM:258:PRO:HD3  | 1.86                     | 0.75              |
| 1:F1:552:U:O2'     | 1:F1:553:C:H5'     | 1.85                     | 0.75              |
| 1:F1:1862:C:H5''   | 1:F1:1863:A:O5'    | 1.87                     | 0.75              |
| 6:FF:30:ILE:HG21   | 19:FX:163:PHE:CE2  | 2.21                     | 0.75              |
| 9:FJ:112:ASP:H     | 9:FJ:156:ASN:HD21  | 1.32                     | 0.75              |
| 1:H1:453:A:N6      | 1:H1:524:G:H2'     | 2.00                     | 0.75              |
| 1:H1:1321:A:HO2'   | 1:H1:1322:G:P      | 2.09                     | 0.75              |
| 5:HE:47:PRO:O      | 5:HE:101:LYS:HE3   | 1.86                     | 0.75              |
| 5:HE:120:GLU:OE2   | 5:HE:138:GLN:HA    | 1.86                     | 0.75              |
| 1:A1:138:C:H2'     | 1:A1:139:A:H5'     | 1.68                     | 0.75              |
| 1:A1:388:A:O2'     | 38:BQ:103:ASN:ND2  | 2.18                     | 0.75              |
| 1:A1:638:U:H2'     | 1:A1:639:U:H6      | 1.50                     | 0.75              |
| 1:A1:1132:U:H2'    | 1:A1:1133:G:C8     | 2.21                     | 0.75              |
| 6:AF:106:PHE:HD2   | 6:AF:110:ARG:HE    | 1.31                     | 0.75              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:BA:118:GLU:OE2  | 22:BA:164:ARG:HD2  | 1.86                     | 0.75              |
| 24:BC:152:VAL:HG13 | 24:BC:157:TYR:CD2  | 2.20                     | 0.75              |
| 24:BC:234:ASP:OD2  | 24:BC:254:ARG:NH2  | 2.13                     | 0.75              |
| 25:BD:92:ARG:H     | 25:BD:95:ASN:ND2   | 1.83                     | 0.75              |
| 41:CT:58:ARG:NH2   | 1:D1:3325:G:C4     | 2.54                     | 0.75              |
| 1:D1:591:G:H2'     | 1:D1:592:A:H8      | 1.50                     | 0.75              |
| 1:D1:2574:U:H4'    | 1:D1:2575:G:OP1    | 1.84                     | 0.75              |
| 19:DX:22:VAL:HG11  | 19:DX:40:GLN:HE21  | 1.50                     | 0.75              |
| 21:E3:83:G:H1      | 21:E3:93:G:N2      | 1.84                     | 0.75              |
| 24:EC:126:ARG:HB3  | 24:EC:283:TYR:CE2  | 2.22                     | 0.75              |
| 24:EC:251:HIS:CD2  | 1:F1:1410:G:O2'    | 2.39                     | 0.75              |
| 26:EE:7:GLU:HG2    | 26:EE:56:GLN:HG2   | 1.68                     | 0.75              |
| 36:EO:109:TYR:HB3  | 36:EO:115:ILE:HG13 | 1.68                     | 0.75              |
| 1:F1:2252:C:C4     | 1:F1:2253:U:C5     | 2.74                     | 0.75              |
| 1:F1:2930:C:H3'    | 50:F1:4029:HOH:O   | 1.85                     | 0.75              |
| 2:FA:14:LYS:HD3    | 3:FB:52:TYR:CD1    | 2.20                     | 0.75              |
| 23:GB:121:ASN:HB2  | 1:H1:3275:A:N7     | 2.01                     | 0.75              |
| 24:GC:167:GLU:H    | 24:GC:171:GLN:HE22 | 1.31                     | 0.75              |
| 33:GL:147:ARG:NH2  | 1:H1:111:C:OP1     | 2.19                     | 0.75              |
| 37:GP:14:LYS:HE3   | 1:H1:1020:G:OP1    | 1.85                     | 0.75              |
| 1:H1:47:G:OP2      | 50:H1:3613:HOH:O   | 2.03                     | 0.75              |
| 9:HJ:77:ASN:HB3    | 9:HJ:80:GLU:HG3    | 1.68                     | 0.75              |
| 1:A1:2964:A:N1     | 50:A1:4194:HOH:O   | 2.18                     | 0.75              |
| 6:AF:8:GLN:HE21    | 6:AF:11:ARG:HH11   | 1.34                     | 0.75              |
| 20:B2:50:C:N4      | 50:B2:321:HOH:O    | 2.20                     | 0.75              |
| 22:BA:186:GLN:OE1  | 22:BA:186:GLN:HA   | 1.87                     | 0.75              |
| 29:CH:15:LYS:NZ    | 1:D1:2624:A:OP2    | 2.17                     | 0.75              |
| 29:CH:43:VAL:HG11  | 29:CH:197:VAL:HG23 | 1.68                     | 0.75              |
| 34:CM:142:PHE:CD1  | 1:D1:1107:A:C8     | 2.74                     | 0.75              |
| 1:D1:100:A:HO2'    | 18:DU:60:THR:HG1   | 1.23                     | 0.75              |
| 1:D1:2966:U:O2'    | 1:D1:2967:U:C5'    | 2.34                     | 0.75              |
| 1:D1:3185:G:C2     | 1:D1:3237:C:C2     | 2.74                     | 0.75              |
| 20:E2:3:A:C2       | 1:F1:3243:A:O4'    | 2.40                     | 0.75              |
| 24:EC:19:THR:HG22  | 24:EC:21:THR:H     | 1.50                     | 0.75              |
| 27:EF:25:LYS:N     | 1:F1:2552:A:N3     | 2.35                     | 0.75              |
| 29:EH:194:GLY:HA3  | 1:F1:1036:G:O2'    | 1.87                     | 0.75              |
| 32:EK:117:ARG:HD3  | 32:EK:137:ARG:NH1  | 2.01                     | 0.75              |
| 34:EM:209:ILE:O    | 34:EM:213:MET:HG2  | 1.86                     | 0.75              |
| 43:EV:98:ARG:HD3   | 1:F1:1010:G:H2'    | 1.69                     | 0.75              |
| 1:F1:88:U:H2'      | 1:F1:89:G:H5'      | 1.69                     | 0.75              |
| 1:F1:138:C:H2'     | 1:F1:139:A:H5'     | 1.68                     | 0.75              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:527:A:O2'    | 14:FO:88:GLN:NE2   | 2.20                     | 0.75              |
| 1:F1:1057:U:H2'   | 1:F1:1058:C:C6     | 2.22                     | 0.75              |
| 1:F1:1737:A:O2'   | 1:F1:1738:A:C8     | 2.39                     | 0.75              |
| 1:F1:2344:U:H6    | 1:F1:2344:U:H5'    | 1.52                     | 0.75              |
| 1:F1:3124:U:OP1   | 50:F1:4504:HOH:O   | 2.05                     | 0.75              |
| 13:FN:76:ASN:HB3  | 13:FN:79:HIS:CD2   | 2.22                     | 0.75              |
| 20:G2:12:A:H2'    | 20:G2:13:A:C8      | 2.20                     | 0.75              |
| 20:G2:74:A:H5'    | 40:GS:50:ARG:CG    | 2.16                     | 0.75              |
| 36:GO:4:LEU:HD22  | 36:GO:7:GLN:HG3    | 1.66                     | 0.75              |
| 43:GV:12:LYS:CE   | 1:H1:1376:A:H3'    | 2.16                     | 0.75              |
| 1:H1:138:C:H2'    | 1:H1:139:A:H5'     | 1.68                     | 0.75              |
| 1:H1:444:A:N1     | 1:H1:533:G:N2      | 2.32                     | 0.75              |
| 1:H1:619:G:H4'    | 1:H1:620:A:C2      | 2.22                     | 0.75              |
| 1:H1:1461:A:H5''  | 1:H1:1462:U:H5''   | 1.66                     | 0.75              |
| 1:H1:1598:C:H2'   | 1:H1:1599:G:O4'    | 1.86                     | 0.75              |
| 1:A1:936:C:OP1    | 22:BA:16:VAL:HG23  | 1.86                     | 0.75              |
| 1:A1:1343:G:H4'   | 1:A1:1344:A:OP2    | 1.86                     | 0.75              |
| 1:A1:1843:U:H2'   | 1:A1:1844:U:C6     | 2.21                     | 0.75              |
| 1:A1:2129:U:OP2   | 50:A1:4101:HOH:O   | 2.03                     | 0.75              |
| 30:BI:6:VAL:HG23  | 30:BI:30:GLN:NE2   | 2.01                     | 0.75              |
| 43:BV:80:VAL:HG22 | 43:BV:188:VAL:CG2  | 2.16                     | 0.75              |
| 22:CA:33:TYR:N    | 22:CA:164:ARG:HH22 | 1.82                     | 0.75              |
| 23:CB:36:ASP:OD1  | 23:CB:38:SER:N     | 2.16                     | 0.75              |
| 24:CC:376:TRP:HB3 | 1:D1:564:A:O2'     | 1.87                     | 0.75              |
| 34:CM:3:PHE:HZ    | 1:D1:1041:C:C2     | 2.04                     | 0.75              |
| 1:D1:526:U:O2'    | 1:D1:527:A:C8      | 2.39                     | 0.75              |
| 1:D1:941:G:H5'    | 1:D1:942:A:OP1     | 1.87                     | 0.75              |
| 1:D1:1598:C:H2'   | 1:D1:1599:G:O4'    | 1.86                     | 0.75              |
| 1:D1:3158:G:H3'   | 1:D1:3159:A:H5'    | 1.69                     | 0.75              |
| 2:DA:14:LYS:HD3   | 3:DB:52:TYR:CD1    | 2.21                     | 0.75              |
| 13:DN:36:ARG:NH1  | 13:DN:74:TYR:CG    | 2.54                     | 0.75              |
| 23:EB:54:THR:HG22 | 23:EB:55:HIS:N     | 2.02                     | 0.75              |
| 35:EN:155:ALA:HB3 | 35:EN:158:GLN:CD   | 2.12                     | 0.75              |
| 42:EU:89:THR:OG1  | 42:EU:92:ILE:HG12  | 1.87                     | 0.75              |
| 46:EY:49:ARG:HH21 | 46:EY:52:VAL:HA    | 1.50                     | 0.75              |
| 1:F1:363:G:H8     | 1:F1:363:G:C5'     | 1.98                     | 0.75              |
| 1:F1:1366:C:H2'   | 1:F1:1367:A:C8     | 2.22                     | 0.75              |
| 1:F1:2252:C:C6    | 1:F1:2252:C:O5'    | 2.38                     | 0.75              |
| 5:FE:102:VAL:CG2  | 5:FE:170:LEU:HD21  | 2.17                     | 0.75              |
| 13:FN:4:PHE:CB    | 13:FN:9:ARG:HH21   | 1.99                     | 0.75              |
| 20:G2:111:A:C6    | 2:HA:20:ARG:NH1    | 2.53                     | 0.75              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:GC:163:VAL:O    | 24:GC:166:TYR:HD2 | 1.70                     | 0.75              |
| 24:GC:298:ILE:CD1  | 35:GN:125:ASP:HB2 | 2.15                     | 0.75              |
| 35:GN:22:SER:HB3   | 1:H1:697:A:OP1    | 1.85                     | 0.75              |
| 35:GN:52:ARG:HB2   | 35:GN:84:THR:CG2  | 2.03                     | 0.75              |
| 1:H1:439:A:P       | 1:H1:439:A:H8     | 2.09                     | 0.75              |
| 1:H1:1710:U:OP1    | 12:HM:44:LYS:NZ   | 2.20                     | 0.75              |
| 1:H1:3230:G:O2'    | 1:H1:3231:U:P     | 2.44                     | 0.75              |
| 17:HT:47:ILE:O     | 17:HT:55:LYS:NZ   | 2.20                     | 0.75              |
| 1:A1:358:C:H4'     | 1:A1:842:A:N6     | 2.01                     | 0.75              |
| 1:A1:564:A:O2'     | 24:BC:373:SER:HA  | 1.84                     | 0.75              |
| 1:A1:789:U:H4'     | 1:A1:790:C:OP1    | 1.85                     | 0.75              |
| 1:A1:1002:A:C2     | 1:A1:1004:U:H5''  | 2.22                     | 0.75              |
| 1:A1:1183:C:C2'    | 1:A1:1184:U:H5''  | 2.15                     | 0.75              |
| 1:A1:2390:G:C5     | 50:A1:4062:HOH:O  | 2.33                     | 0.75              |
| 1:A1:2548:G:O2'    | 1:A1:2549:U:OP1   | 2.04                     | 0.75              |
| 1:A1:2966:U:O2'    | 1:A1:2967:U:C5'   | 2.35                     | 0.75              |
| 5:AE:63:VAL:HG11   | 5:AE:76:VAL:CG1   | 2.17                     | 0.75              |
| 13:AN:54:THR:HG22  | 13:AN:56:ARG:H    | 1.52                     | 0.75              |
| 14:AO:6:TRP:HZ3    | 14:AO:40:LEU:HD12 | 1.51                     | 0.75              |
| 21:B3:10:C:C2      | 34:BM:20:TYR:HD1  | 2.04                     | 0.75              |
| 21:B3:13:A:P       | 21:B3:109:U:O2'   | 2.45                     | 0.75              |
| 24:BC:126:ARG:HB3  | 24:BC:283:TYR:CE2 | 2.21                     | 0.75              |
| 24:CC:229:ASN:HD21 | 1:D1:211:A:H3'    | 1.52                     | 0.75              |
| 26:CE:10:VAL:HB    | 26:CE:53:VAL:HB   | 1.67                     | 0.75              |
| 33:CL:55:ASN:HD22  | 1:D1:148:G:H5'    | 1.51                     | 0.75              |
| 33:CL:182:LYS:HG2  | 33:CL:183:SER:N   | 2.00                     | 0.75              |
| 34:CM:32:ALA:HB2   | 50:CM:405:HOH:O   | 1.85                     | 0.75              |
| 34:CM:142:PHE:CE1  | 1:D1:1107:A:N7    | 2.55                     | 0.75              |
| 42:CU:89:THR:OG1   | 42:CU:92:ILE:HG12 | 1.87                     | 0.75              |
| 42:CU:104:VAL:CG1  | 42:CU:108:THR:HB  | 2.16                     | 0.75              |
| 44:CW:14:ASN:OD1   | 44:CW:17:LYS:HG3  | 1.86                     | 0.75              |
| 46:CY:49:ARG:HH21  | 46:CY:52:VAL:HA   | 1.52                     | 0.75              |
| 1:D1:421:G:OP1     | 50:D1:3946:HOH:O  | 2.03                     | 0.75              |
| 1:D1:567:C:N4      | 1:D1:603:A:C6     | 2.54                     | 0.75              |
| 1:D1:610:A:H2'     | 1:D1:611:A:H8     | 1.48                     | 0.75              |
| 5:DE:120:GLU:OE2   | 5:DE:138:GLN:HA   | 1.86                     | 0.75              |
| 9:DJ:123:ARG:HH22  | 9:FJ:123:ARG:HG2  | 1.49                     | 0.75              |
| 1:F1:1221:G:H2'    | 1:F1:1222:A:C8    | 2.21                     | 0.75              |
| 1:F1:1598:C:H2'    | 1:F1:1599:G:O4'   | 1.86                     | 0.75              |
| 1:F1:3230:G:O2'    | 1:F1:3231:U:P     | 2.44                     | 0.75              |
| 11:FL:5:ILE:HG22   | 11:FL:6:THR:H     | 1.49                     | 0.75              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:FL:6:THR:HG22   | 11:FL:7:TYR:O      | 1.86                     | 0.75              |
| 25:GD:108:GLU:HA   | 25:GD:122:ILE:HG23 | 1.68                     | 0.75              |
| 31:GJ:127:ALA:HB1  | 9:HJ:58:ILE:HD13   | 1.69                     | 0.75              |
| 40:GS:80:HIS:ND1   | 40:GS:95:GLN:HB3   | 2.01                     | 0.75              |
| 42:GU:104:VAL:CG1  | 42:GU:108:THR:HB   | 2.16                     | 0.75              |
| 1:H1:1773:G:OP1    | 15:HP:43:LYS:NZ    | 2.19                     | 0.75              |
| 1:H1:2545:A:H4'    | 1:H1:2546:A:OP2    | 1.87                     | 0.75              |
| 13:HN:4:PHE:CB     | 13:HN:9:ARG:HH21   | 1.99                     | 0.75              |
| 1:A1:508:A:O2'     | 1:A1:509:A:C8      | 2.40                     | 0.75              |
| 1:A1:1862:C:H5''   | 1:A1:1863:A:O5'    | 1.86                     | 0.75              |
| 20:B2:32:C:H2'     | 20:B2:33:C:C6      | 2.22                     | 0.75              |
| 21:B3:83:G:P       | 50:B3:306:HOH:O    | 2.44                     | 0.75              |
| 32:BK:76:ASN:HB2   | 32:BK:79:LYS:HE2   | 1.68                     | 0.75              |
| 30:CI:196:PHE:HE2  | 6:DF:110:ARG:HD2   | 1.48                     | 0.75              |
| 33:CL:55:ASN:HD22  | 1:D1:148:G:C5'     | 2.00                     | 0.75              |
| 1:D1:304:U:O2'     | 1:D1:305:A:C8      | 2.39                     | 0.75              |
| 1:D1:638:U:H2'     | 1:D1:639:U:H6      | 1.50                     | 0.75              |
| 5:DE:69:LEU:HD21   | 5:DE:114:ASP:CB    | 2.16                     | 0.75              |
| 7:DG:62:LEU:HD11   | 13:DN:84:ARG:HB2   | 1.68                     | 0.75              |
| 19:DX:113:LEU:HD21 | 19:DX:140:THR:HG21 | 1.67                     | 0.75              |
| 21:E3:44:C:O2'     | 34:EM:152:ARG:HD3  | 1.86                     | 0.75              |
| 26:EE:10:VAL:HB    | 26:EE:53:VAL:HB    | 1.67                     | 0.75              |
| 42:EU:124:ALA:HB2  | 18:FU:153:SER:OG   | 1.87                     | 0.75              |
| 43:EV:133:PHE:O    | 43:EV:226:ASN:HA   | 1.87                     | 0.75              |
| 1:F1:1343:G:H4'    | 1:F1:1344:A:OP2    | 1.87                     | 0.75              |
| 7:FG:62:LEU:HD11   | 13:FN:84:ARG:HB2   | 1.68                     | 0.75              |
| 17:FT:63:VAL:O     | 17:FT:66:GLU:HG2   | 1.87                     | 0.75              |
| 20:G2:84:C:OP1     | 42:GU:3:LYS:HG2    | 1.86                     | 0.75              |
| 27:GF:29:PHE:CD2   | 27:GF:37:PRO:HD3   | 2.21                     | 0.75              |
| 1:H1:304:U:O2'     | 1:H1:305:A:C8      | 2.39                     | 0.75              |
| 1:H1:304:U:HO2'    | 1:H1:305:A:P       | 2.09                     | 0.75              |
| 1:H1:2569:A:O2'    | 1:H1:2570:U:P      | 2.43                     | 0.75              |
| 1:H1:2899:C:H5''   | 50:H1:4147:HOH:O   | 1.86                     | 0.75              |
| 18:HU:60:THR:HB    | 18:HU:63:TYR:HD2   | 1.50                     | 0.75              |
| 1:A1:304:U:O2'     | 1:A1:305:A:P       | 2.44                     | 0.75              |
| 1:A1:1307:C:H2'    | 1:A1:1308:U:C6     | 2.22                     | 0.75              |
| 11:AL:37:LYS:HB2   | 11:AL:60:ARG:NH2   | 2.02                     | 0.75              |
| 34:BM:119:TYR:HD1  | 34:BM:132:VAL:HG11 | 1.51                     | 0.75              |
| 22:CA:70:TYR:HD2   | 1:D1:1674:C:H4'    | 1.51                     | 0.75              |
| 23:CB:84:MET:HE1   | 23:CB:179:ILE:HD11 | 1.67                     | 0.75              |
| 24:CC:157:TYR:CD1  | 24:CC:159:PHE:CE1  | 2.74                     | 0.75              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:CF:176:LYS:HB2  | 27:CF:187:THR:CG2  | 2.13                     | 0.75              |
| 47:CO:163:UNK:O    | 47:CO:166:UNK:HG3  | 1.87                     | 0.75              |
| 42:CU:47:ARG:O     | 42:CU:51:VAL:HG23  | 1.85                     | 0.75              |
| 1:D1:3020:G:O2'    | 1:D1:3021:A:H5''   | 1.86                     | 0.75              |
| 1:D1:3230:G:O2'    | 1:D1:3231:U:P      | 2.44                     | 0.75              |
| 14:DO:13:ASN:OD1   | 14:DO:15:PHE:N     | 2.17                     | 0.75              |
| 18:DU:72:GLY:O     | 18:DU:99:ARG:NH1   | 2.20                     | 0.75              |
| 25:ED:92:ARG:H     | 25:ED:95:ASN:ND2   | 1.84                     | 0.75              |
| 33:EL:14:LYS:HZ1   | 1:F1:268:G:H5''    | 1.50                     | 0.75              |
| 34:EM:59:ARG:HD3   | 34:EM:61:ILE:HG12  | 1.67                     | 0.75              |
| 1:F1:1109:A:H4'    | 1:F1:1110:U:O5'    | 1.87                     | 0.75              |
| 1:F1:1130:A:H5'    | 1:F1:1131:G:OP2    | 1.87                     | 0.75              |
| 1:F1:3110:U:H4'    | 1:F1:3111:A:OP1    | 1.86                     | 0.75              |
| 7:FG:10:ILE:HG23   | 7:FG:13:LYS:HE2    | 1.67                     | 0.75              |
| 20:G2:18:G:H1'     | 1:H1:406:A:H61     | 1.51                     | 0.75              |
| 26:GE:124:ILE:CD1  | 26:GE:159:ILE:HA   | 2.16                     | 0.75              |
| 36:GO:109:TYR:HB3  | 36:GO:115:ILE:HG13 | 1.67                     | 0.75              |
| 1:H1:88:U:O4'      | 1:H1:280:G:O2'     | 2.05                     | 0.75              |
| 1:H1:339:C:O2'     | 1:H1:340:G:H5'     | 1.86                     | 0.75              |
| 1:H1:363:G:H8      | 1:H1:363:G:C5'     | 1.99                     | 0.75              |
| 9:HJ:162:HIS:CD2   | 9:HJ:164:LEU:H     | 2.04                     | 0.75              |
| 13:HN:14:LEU:O     | 13:HN:19:ALA:HB1   | 1.87                     | 0.75              |
| 16:HQ:71:LYS:HE2   | 16:HQ:75:LYS:HE2   | 1.66                     | 0.75              |
| 1:A1:388:A:H1'     | 38:BQ:103:ASN:HD21 | 1.52                     | 0.75              |
| 1:A1:443:G:OP1     | 5:AE:16:SER:OG     | 2.04                     | 0.75              |
| 1:A1:637:U:H2'     | 1:A1:638:U:H6      | 1.51                     | 0.75              |
| 1:A1:654:U:H2'     | 1:A1:655:A:H8      | 1.51                     | 0.75              |
| 21:B3:105:C:H5'    | 21:B3:105:C:H6     | 1.52                     | 0.75              |
| 23:BB:210:ASN:ND2  | 23:BB:352:ILE:H    | 1.84                     | 0.75              |
| 30:CI:64:ASN:ND2   | 30:CI:66:ARG:HG2   | 2.02                     | 0.75              |
| 37:CP:116:LYS:NZ   | 37:CP:128:THR:HB   | 2.02                     | 0.75              |
| 38:CQ:29:LYS:HD2   | 38:CQ:65:PHE:CD2   | 2.21                     | 0.75              |
| 44:CW:28:ALA:HA    | 44:CW:66:ILE:HD11  | 1.67                     | 0.75              |
| 1:D1:1478:A:H5'    | 1:D1:1479:A:OP2    | 1.87                     | 0.75              |
| 1:D1:2625:A:H5'    | 1:D1:2626:A:C5'    | 2.17                     | 0.75              |
| 1:D1:3222:U:O2'    | 1:D1:3223:G:H5'    | 1.86                     | 0.75              |
| 33:EL:202:ARG:HH12 | 18:FU:27:ALA:HB2   | 1.52                     | 0.75              |
| 34:EM:3:PHE:HE2    | 1:F1:1041:C:N3     | 1.84                     | 0.75              |
| 1:F1:1004:U:H5'    | 1:F1:1004:U:C6     | 2.18                     | 0.75              |
| 1:F1:2625:A:H5'    | 1:F1:2626:A:H5'    | 1.69                     | 0.75              |
| 4:FC:70:PHE:CE2    | 4:FC:81:ILE:HD12   | 2.22                     | 0.75              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:G2:44:A:H5'     | 2:HA:68:MET:HG3    | 1.67                     | 0.75              |
| 36:GO:109:TYR:HB3  | 36:GO:115:ILE:CG1  | 2.17                     | 0.75              |
| 43:GV:170:LEU:HB3  | 43:GV:175:ILE:HD12 | 1.69                     | 0.75              |
| 1:H1:418:G:H3'     | 1:H1:418:G:C8      | 2.21                     | 0.75              |
| 1:H1:1221:G:H2'    | 1:H1:1222:A:C8     | 2.22                     | 0.75              |
| 1:H1:1700:A:H2'    | 1:H1:1701:A:H8     | 1.52                     | 0.75              |
| 8:HH:58:TYR:CD1    | 8:HH:104:LEU:HD21  | 2.19                     | 0.75              |
| 1:A1:961:A:H5''    | 32:BK:27:LYS:HB2   | 1.69                     | 0.75              |
| 1:A1:1210:C:O2'    | 19:AX:13:THR:HG21  | 1.87                     | 0.75              |
| 1:A1:3162:A:N6     | 30:BI:113:ARG:HH11 | 1.84                     | 0.75              |
| 16:AQ:2:ALA:HB2    | 18:AU:184:GLU:OE2  | 1.87                     | 0.75              |
| 16:AQ:7:VAL:HG11   | 18:AU:185:LYS:HG3  | 1.69                     | 0.75              |
| 20:B2:12:A:H2'     | 20:B2:13:A:C8      | 2.22                     | 0.75              |
| 22:BA:33:TYR:N     | 22:BA:164:ARG:HH22 | 1.84                     | 0.75              |
| 34:BM:254:ILE:O    | 34:BM:258:PRO:HD3  | 1.86                     | 0.75              |
| 42:BU:104:VAL:HG13 | 42:BU:108:THR:HB   | 1.69                     | 0.75              |
| 43:BV:170:LEU:HB3  | 43:BV:175:ILE:HD12 | 1.69                     | 0.75              |
| 33:CL:80:VAL:HG13  | 33:CL:87:VAL:HG13  | 1.68                     | 0.75              |
| 46:CY:7:LYS:O      | 46:CY:27:LYS:NZ    | 2.20                     | 0.75              |
| 1:D1:619:G:C4'     | 1:D1:620:A:H2      | 2.00                     | 0.75              |
| 1:D1:735:A:OP1     | 50:D1:3800:HOH:O   | 2.05                     | 0.75              |
| 1:D1:1566:U:H2'    | 1:D1:1567:A:H8     | 1.51                     | 0.75              |
| 1:D1:1655:A:N3     | 1:D1:1655:A:H2'    | 1.99                     | 0.75              |
| 23:EB:277:ASN:HD21 | 23:EB:343:GLN:HE21 | 1.34                     | 0.75              |
| 24:EC:327:ASN:HB3  | 24:EC:331:PHE:CE2  | 2.21                     | 0.75              |
| 27:EF:29:PHE:CD2   | 27:EF:37:PRO:HD3   | 2.20                     | 0.75              |
| 28:EG:22:UNK:CG    | 28:EG:92:UNK:HB1   | 2.15                     | 0.75              |
| 1:F1:508:A:O2'     | 1:F1:509:A:C8      | 2.40                     | 0.75              |
| 1:F1:511:U:H5''    | 14:FO:70:VAL:HG21  | 1.69                     | 0.75              |
| 1:F1:1537:U:H5'    | 1:F1:1538:U:C5     | 2.21                     | 0.75              |
| 2:FA:17:THR:HG22   | 2:FA:18:LEU:N      | 2.02                     | 0.75              |
| 4:FC:70:PHE:HE2    | 4:FC:81:ILE:HD12   | 1.49                     | 0.75              |
| 8:FH:58:TYR:CD1    | 8:FH:104:LEU:HD21  | 2.20                     | 0.75              |
| 35:GN:25:VAL:HG13  | 14:HO:7:GLU:HB3    | 1.67                     | 0.75              |
| 35:GN:52:ARG:HH12  | 35:GN:141:ARG:NE   | 1.84                     | 0.75              |
| 35:GN:147:GLU:O    | 35:GN:150:ARG:HG2  | 1.87                     | 0.75              |
| 1:H1:546:A:H2'     | 1:H1:547:U:C6      | 2.22                     | 0.75              |
| 1:H1:933:G:H4'     | 1:H1:934:G:H5''    | 1.69                     | 0.75              |
| 1:H1:2648:U:H4'    | 1:H1:2740:G:O2'    | 1.87                     | 0.75              |
| 2:HA:21:ARG:CD     | 2:HA:44:MET:HE1    | 2.17                     | 0.75              |
| 7:HG:27:TYR:CD2    | 7:HG:52:ARG:HD3    | 2.22                     | 0.75              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:439:A:H5''    | 5:AE:126:HIS:CG    | 2.22                     | 0.74              |
| 5:AE:120:GLU:OE2   | 5:AE:138:GLN:HA    | 1.85                     | 0.74              |
| 13:AN:4:PHE:HB2    | 13:AN:9:ARG:HH21   | 1.51                     | 0.74              |
| 13:AN:24:VAL:HG23  | 13:AN:138:PHE:HE1  | 1.52                     | 0.74              |
| 26:BE:144:LEU:HD12 | 26:BE:156:CYS:SG   | 2.26                     | 0.74              |
| 36:BO:149:LYS:O    | 36:BO:163:ARG:NH2  | 2.20                     | 0.74              |
| 40:BS:73:TYR:CD1   | 40:BS:76:LYS:HB2   | 2.22                     | 0.74              |
| 43:BV:36:GLN:O     | 43:BV:40:GLU:HG2   | 1.86                     | 0.74              |
| 21:C3:63:A:H2'     | 29:CH:202:GLU:O    | 1.87                     | 0.74              |
| 30:CI:132:ARG:HH12 | 1:D1:1216:C:H2'    | 1.52                     | 0.74              |
| 33:CL:65:ARG:HB2   | 33:CL:127:TYR:HD2  | 1.52                     | 0.74              |
| 38:CQ:133:ARG:HD3  | 50:CQ:306:HOH:O    | 1.86                     | 0.74              |
| 46:CY:64:ILE:CD1   | 46:CY:71:LEU:HD11  | 2.15                     | 0.74              |
| 1:D1:789:U:H4'     | 1:D1:790:C:OP1     | 1.86                     | 0.74              |
| 1:D1:1183:C:C3'    | 1:D1:1184:U:H5''   | 2.16                     | 0.74              |
| 1:D1:2394:A:OP2    | 50:D1:4360:HOH:O   | 2.04                     | 0.74              |
| 1:D1:2705:U:O2'    | 4:DC:79:ARG:NH2    | 2.20                     | 0.74              |
| 13:DN:4:PHE:HB2    | 13:DN:9:ARG:HH21   | 1.51                     | 0.74              |
| 13:DN:54:THR:HG22  | 13:DN:56:ARG:H     | 1.52                     | 0.74              |
| 24:EC:152:VAL:HG13 | 24:EC:157:TYR:CD2  | 2.22                     | 0.74              |
| 24:EC:259:THR:HG22 | 24:EC:260:GLU:N    | 2.02                     | 0.74              |
| 26:EE:144:LEU:HD12 | 26:EE:156:CYS:SG   | 2.27                     | 0.74              |
| 1:F1:439:A:P       | 1:F1:439:A:H8      | 2.10                     | 0.74              |
| 1:F1:775:C:O2      | 1:F1:775:C:H2'     | 1.87                     | 0.74              |
| 1:F1:1752:G:H2'    | 7:FG:85:HIS:CD2    | 2.22                     | 0.74              |
| 1:F1:2934:A:H5''   | 1:F1:2935:G:O5'    | 1.86                     | 0.74              |
| 24:GC:214:VAL:HG21 | 24:GC:227:LEU:CD1  | 2.17                     | 0.74              |
| 33:GL:65:ARG:HB2   | 33:GL:127:TYR:HD2  | 1.51                     | 0.74              |
| 35:GN:82:VAL:CG2   | 35:GN:127:LEU:HD11 | 2.16                     | 0.74              |
| 38:GQ:38:ILE:HD11  | 38:GQ:93:ILE:HG21  | 1.69                     | 0.74              |
| 8:HH:11:PRO:HG2    | 8:HH:12:THR:H      | 1.51                     | 0.74              |
| 18:HU:72:GLY:O     | 18:HU:99:ARG:NH1   | 2.20                     | 0.74              |
| 1:A1:962:G:H1'     | 50:A1:3775:HOH:O   | 1.87                     | 0.74              |
| 1:A1:2433:A:H2'    | 1:A1:2434:A:C8     | 2.22                     | 0.74              |
| 1:A1:2595:G:C8     | 50:A1:4016:HOH:O   | 2.39                     | 0.74              |
| 1:A1:2685:A:H2'    | 1:A1:2686:A:C8     | 2.21                     | 0.74              |
| 1:A1:2766:A:C2'    | 1:A1:2767:A:H5'    | 2.17                     | 0.74              |
| 8:AH:58:TYR:CD1    | 8:AH:104:LEU:HD21  | 2.19                     | 0.74              |
| 9:AJ:86:ASN:OD1    | 9:DJ:82:ARG:HD3    | 1.86                     | 0.74              |
| 36:BO:169:SER:HB3  | 1:H1:2886:G:O2'    | 1.86                     | 0.74              |
| 21:C3:3:U:H2'      | 21:C3:4:G:C8       | 2.22                     | 0.74              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:CB:26:ARG:NH1  | 23:CB:176:ILE:O    | 2.17                     | 0.74              |
| 23:CB:265:ALA:O   | 1:D1:2977:U:O2'    | 2.04                     | 0.74              |
| 29:CH:33:ILE:HB   | 29:CH:69:ARG:NH2   | 2.02                     | 0.74              |
| 1:D1:19:A:H4'     | 1:D1:20:G:OP2      | 1.86                     | 0.74              |
| 1:D1:974:C:O2'    | 1:D1:996:A:OP1     | 2.05                     | 0.74              |
| 1:D1:1843:U:H2'   | 1:D1:1844:U:C6     | 2.22                     | 0.74              |
| 1:D1:3176:A:H4'   | 1:D1:3177:G:H5'    | 1.68                     | 0.74              |
| 19:DX:93:LEU:HD21 | 19:DX:120:LEU:HD21 | 1.67                     | 0.74              |
| 20:E2:33:C:C2'    | 20:E2:34:G:H5'     | 2.16                     | 0.74              |
| 31:EJ:46:ILE:CD1  | 31:EJ:54:PRO:HB3   | 2.17                     | 0.74              |
| 37:EP:13:LYS:O    | 50:EP:204:HOH:O    | 2.05                     | 0.74              |
| 38:EQ:38:ILE:HD11 | 38:EQ:93:ILE:HG21  | 1.69                     | 0.74              |
| 43:EV:93:HIS:ND1  | 43:EV:94:PRO:HD2   | 2.02                     | 0.74              |
| 1:F1:1027:G:H4'   | 1:F1:1028:A:OP2    | 1.85                     | 0.74              |
| 1:F1:1051:C:H2'   | 1:F1:1052:A:H8     | 1.49                     | 0.74              |
| 1:F1:3110:U:OP2   | 10:FK:111:ARG:NH1  | 2.20                     | 0.74              |
| 6:FF:8:GLN:HE21   | 6:FF:11:ARG:HH11   | 1.32                     | 0.74              |
| 13:FN:25:ILE:HG23 | 13:FN:41:VAL:HG13  | 1.69                     | 0.74              |
| 14:FO:6:TRP:HZ3   | 14:FO:40:LEU:HD12  | 1.50                     | 0.74              |
| 15:FP:48:LYS:HG3  | 15:FP:49:TYR:CE2   | 2.22                     | 0.74              |
| 23:GB:264:ARG:NH2 | 1:H1:2387:C:HO2'   | 1.84                     | 0.74              |
| 23:GB:267:GLN:NE2 | 1:H1:3266:G:OP1    | 2.20                     | 0.74              |
| 26:GE:52:ASN:OD1  | 26:GE:53:VAL:N     | 2.20                     | 0.74              |
| 44:GW:16:HIS:HD2  | 1:H1:3330:U:OP1    | 1.70                     | 0.74              |
| 45:GX:6:VAL:HG12  | 45:GX:7:ALA:N      | 2.02                     | 0.74              |
| 1:H1:161:U:H2'    | 1:H1:162:C:H5''    | 1.69                     | 0.74              |
| 1:H1:2219:A:OP1   | 16:HQ:78:ARG:NH2   | 2.20                     | 0.74              |
| 1:H1:2251:A:H2'   | 1:H1:2253:U:OP2    | 1.86                     | 0.74              |
| 1:H1:2393:A:OP2   | 50:H1:4029:HOH:O   | 2.05                     | 0.74              |
| 1:A1:83:A:H4'     | 1:A1:84:G:OP1      | 1.85                     | 0.74              |
| 1:A1:1379:G:OP1   | 14:AO:102:GLY:N    | 2.19                     | 0.74              |
| 1:A1:1404:G:OP1   | 50:A1:4325:HOH:O   | 2.06                     | 0.74              |
| 1:A1:3226:A:H5''  | 5:AE:80:TYR:OH     | 1.87                     | 0.74              |
| 7:AG:95:ALA:HB3   | 7:AG:101:LEU:CD1   | 2.16                     | 0.74              |
| 18:AU:164:LYS:HB3 | 32:BK:99:VAL:O     | 1.87                     | 0.74              |
| 20:B2:33:C:C2'    | 20:B2:34:G:H5'     | 2.17                     | 0.74              |
| 30:BI:61:MET:CE   | 30:BI:68:GLY:HA3   | 2.15                     | 0.74              |
| 20:C2:3:A:H4'     | 20:C2:4:A:OP2      | 1.86                     | 0.74              |
| 25:CD:32:LYS:O    | 25:CD:36:VAL:HG23  | 1.87                     | 0.74              |
| 35:CN:5:LEU:CD2   | 43:CV:106:ARG:HD2  | 2.18                     | 0.74              |
| 1:D1:821:U:H5'    | 1:D1:821:U:H6      | 1.53                     | 0.74              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:DJ:109:VAL:HG22  | 9:DJ:149:GLY:HA2   | 1.69                     | 0.74              |
| 21:E3:11:A:C8      | 34:EM:18:THR:HB    | 2.22                     | 0.74              |
| 25:ED:50:ALA:O     | 25:ED:62:ASN:N     | 2.19                     | 0.74              |
| 30:EI:132:ARG:HH12 | 1:F1:1216:C:H2'    | 1.50                     | 0.74              |
| 30:EI:159:ARG:HD2  | 30:EI:162:ARG:HH21 | 1.50                     | 0.74              |
| 32:EK:106:LYS:HD3  | 18:FU:160:SER:HB2  | 1.70                     | 0.74              |
| 34:EM:176:SER:OG   | 1:F1:2735:A:O3'    | 2.04                     | 0.74              |
| 46:EY:73:THR:HG22  | 46:EY:75:PRO:HD2   | 1.68                     | 0.74              |
| 1:F1:304:U:O2'     | 1:F1:305:A:P       | 2.46                     | 0.74              |
| 1:F1:1654:G:C4'    | 1:F1:1655:A:OP1    | 2.34                     | 0.74              |
| 1:F1:2352:A:H2'    | 1:F1:2353:C:H6     | 1.51                     | 0.74              |
| 5:FE:83:ASN:ND2    | 5:FE:174:LEU:O     | 2.20                     | 0.74              |
| 24:GC:259:THR:HG22 | 24:GC:260:GLU:N    | 2.03                     | 0.74              |
| 28:GG:60:UNK:HG1   | 1:H1:1249:G:H8     | 1.52                     | 0.74              |
| 37:GP:8:ARG:O      | 37:GP:11:THR:OG1   | 2.03                     | 0.74              |
| 37:GP:57:TYR:HA    | 37:GP:60:ARG:HG3   | 1.69                     | 0.74              |
| 1:H1:1513:A:OP2    | 50:H1:4099:HOH:O   | 2.04                     | 0.74              |
| 1:H1:2209:A:OP2    | 50:H1:4253:HOH:O   | 2.03                     | 0.74              |
| 1:A1:435:A:N3      | 1:A1:435:A:H2'     | 2.02                     | 0.74              |
| 1:A1:1950:C:H2'    | 46:BY:7:LYS:HE3    | 1.69                     | 0.74              |
| 1:A1:2574:U:N3     | 27:BF:62:GLN:OE1   | 2.20                     | 0.74              |
| 1:A1:2977:U:O2'    | 23:BB:265:ALA:O    | 2.05                     | 0.74              |
| 1:A1:3008:U:O4     | 50:A1:4596:HOH:O   | 2.03                     | 0.74              |
| 1:A1:3275:A:N6     | 23:BB:121:ASN:HB3  | 2.03                     | 0.74              |
| 8:AH:57:VAL:HG22   | 8:AH:74:TRP:CZ3    | 2.21                     | 0.74              |
| 18:AU:60:THR:HB    | 18:AU:63:TYR:HD2   | 1.51                     | 0.74              |
| 38:BQ:33:GLU:CD    | 38:BQ:63:THR:H     | 1.95                     | 0.74              |
| 24:CC:242:ASN:ND2  | 1:D1:718:A:H4'     | 2.01                     | 0.74              |
| 1:D1:508:A:O2'     | 1:D1:509:A:C8      | 2.41                     | 0.74              |
| 1:D1:1132:U:H2'    | 1:D1:1133:G:C8     | 2.23                     | 0.74              |
| 1:D1:1360:C:C2'    | 1:D1:1361:U:H5''   | 2.16                     | 0.74              |
| 1:D1:2765:C:H2'    | 1:D1:2765:C:O2     | 1.87                     | 0.74              |
| 2:DA:28:HIS:CD2    | 2:DA:31:LYS:HG3    | 2.22                     | 0.74              |
| 4:DC:51:GLN:HG3    | 4:DC:52:THR:N      | 2.02                     | 0.74              |
| 22:EA:35:PHE:CD1   | 1:F1:2520:G:H2'    | 2.22                     | 0.74              |
| 44:EW:14:ASN:OD1   | 44:EW:17:LYS:HG3   | 1.87                     | 0.74              |
| 1:F1:591:G:H2'     | 1:F1:592:A:H8      | 1.52                     | 0.74              |
| 1:F1:1413:G:O2'    | 1:F1:1414:C:H5'    | 1.87                     | 0.74              |
| 1:F1:1562:G:O6     | 50:F1:3928:HOH:O   | 2.06                     | 0.74              |
| 1:F1:2669:A:O3'    | 1:F1:2670:U:H6     | 1.71                     | 0.74              |
| 1:F1:3332:A:O2'    | 1:F1:3333:G:OP1    | 2.05                     | 0.74              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:FH:58:TYR:HA     | 8:FH:104:LEU:HD22  | 1.69                     | 0.74              |
| 19:FX:180:VAL:HG13 | 19:FX:181:TYR:CD1  | 2.23                     | 0.74              |
| 20:G2:100:C:P      | 39:GR:56:ARG:NH2   | 2.58                     | 0.74              |
| 20:G2:111:A:N6     | 2:HA:20:ARG:HH12   | 1.85                     | 0.74              |
| 24:GC:19:THR:HG22  | 24:GC:21:THR:H     | 1.53                     | 0.74              |
| 24:GC:77:ALA:N     | 1:H1:2397:A:OP1    | 2.20                     | 0.74              |
| 24:GC:229:ASN:HD21 | 1:H1:211:A:C3'     | 2.00                     | 0.74              |
| 26:GE:91:LYS:HG2   | 26:GE:180:SER:HB3  | 1.68                     | 0.74              |
| 31:GJ:83:ILE:HG23  | 31:GJ:122:VAL:HG13 | 1.69                     | 0.74              |
| 33:GL:27:THR:HG21  | 33:GL:124:ASP:HB3  | 1.69                     | 0.74              |
| 37:GP:60:ARG:NH2   | 1:H1:2627:C:O2     | 2.21                     | 0.74              |
| 1:H1:283:A:OP1     | 4:HC:39:ARG:NH1    | 2.20                     | 0.74              |
| 1:H1:1245:U:H5'    | 1:H1:1245:U:H6     | 1.51                     | 0.74              |
| 1:H1:2295:G:OP2    | 50:H1:4207:HOH:O   | 2.05                     | 0.74              |
| 5:HE:135:THR:HG22  | 5:HE:136:GLU:H     | 1.51                     | 0.74              |
| 1:A1:428:A:H2'     | 1:A1:429:A:C8      | 2.21                     | 0.74              |
| 1:A1:1183:C:H2'    | 1:A1:1184:U:H5''   | 1.68                     | 0.74              |
| 1:A1:1222:A:C2     | 1:A1:1336:U:N3     | 2.55                     | 0.74              |
| 1:A1:3037:A:OP2    | 23:BB:220:LYS:NZ   | 2.14                     | 0.74              |
| 4:AC:51:GLN:HG3    | 4:AC:52:THR:N      | 2.01                     | 0.74              |
| 25:BD:101:ASN:ND2  | 25:BD:130:VAL:HG13 | 2.03                     | 0.74              |
| 33:BL:65:ARG:HB2   | 33:BL:127:TYR:HD2  | 1.51                     | 0.74              |
| 25:CD:92:ARG:H     | 25:CD:95:ASN:ND2   | 1.84                     | 0.74              |
| 31:CJ:46:ILE:CD1   | 31:CJ:54:PRO:HB3   | 2.18                     | 0.74              |
| 43:CV:36:GLN:O     | 43:CV:40:GLU:HG2   | 1.87                     | 0.74              |
| 43:CV:122:ASN:ND2  | 1:D1:1013:U:OP1    | 2.21                     | 0.74              |
| 1:D1:904:U:O2'     | 1:D1:905:G:OP2     | 2.05                     | 0.74              |
| 1:D1:1012:U:OP2    | 50:D1:4329:HOH:O   | 2.05                     | 0.74              |
| 1:D1:1537:U:H5'    | 1:D1:1538:U:C5     | 2.23                     | 0.74              |
| 1:D1:3266:G:H2'    | 1:D1:3267:A:H5''   | 1.67                     | 0.74              |
| 13:DN:41:VAL:HG23  | 13:DN:77:LEU:HD23  | 1.70                     | 0.74              |
| 21:E3:7:G:O3'      | 34:EM:33:ARG:NH1   | 2.19                     | 0.74              |
| 33:EL:13:LYS:NZ    | 16:FQ:46:ARG:HA    | 2.03                     | 0.74              |
| 45:EX:98:ILE:H     | 45:EX:123:ASN:HD21 | 1.34                     | 0.74              |
| 1:F1:637:U:H2'     | 1:F1:638:U:H6      | 1.52                     | 0.74              |
| 1:F1:2242:G:C2'    | 1:F1:2243:C:H5'    | 2.17                     | 0.74              |
| 1:F1:2743:G:C3'    | 1:F1:2744:C:C5'    | 2.63                     | 0.74              |
| 24:GC:312:GLY:O    | 1:H1:1373:G:H4'    | 1.88                     | 0.74              |
| 34:GM:209:ILE:O    | 34:GM:213:MET:HG2  | 1.86                     | 0.74              |
| 35:GN:158:GLN:NE2  | 50:GN:302:HOH:O    | 2.20                     | 0.74              |
| 38:GQ:71:ARG:HD2   | 1:H1:3268:C:O2     | 1.86                     | 0.74              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:H1:442:G:C2     | 1:H1:536:A:C2     | 2.75                     | 0.74              |
| 1:H1:450:C:H2'    | 1:H1:451:A:C8     | 2.21                     | 0.74              |
| 1:H1:455:G:OP2    | 14:HO:92:LYS:NZ   | 2.17                     | 0.74              |
| 1:H1:1343:G:H4'   | 1:H1:1344:A:OP2   | 1.87                     | 0.74              |
| 1:H1:2393:A:OP2   | 50:H1:4025:HOH:O  | 2.06                     | 0.74              |
| 1:H1:2743:G:C3'   | 1:H1:2744:C:C5'   | 2.63                     | 0.74              |
| 13:HN:87:VAL:CG1  | 13:HN:90:LEU:HB2  | 2.17                     | 0.74              |
| 1:A1:638:U:H2'    | 1:A1:639:U:C6     | 2.23                     | 0.74              |
| 1:A1:1109:A:H4'   | 1:A1:1110:U:O5'   | 1.87                     | 0.74              |
| 1:A1:2126:G:N3    | 50:A1:4102:HOH:O  | 2.19                     | 0.74              |
| 1:A1:2405:U:OP2   | 50:A1:3775:HOH:O  | 2.05                     | 0.74              |
| 1:A1:3153:U:H5''  | 1:A1:3154:A:OP2   | 1.88                     | 0.74              |
| 5:AE:69:LEU:HD21  | 5:AE:114:ASP:CB   | 2.16                     | 0.74              |
| 13:AN:10:VAL:O    | 13:AN:83:THR:HB   | 1.88                     | 0.74              |
| 20:B2:105:A:C8    | 20:B2:106:A:C8    | 2.75                     | 0.74              |
| 22:BA:62:VAL:HG21 | 22:BA:77:PHE:CD2  | 2.18                     | 0.74              |
| 36:BO:4:LEU:HD22  | 36:BO:7:GLN:HG3   | 1.68                     | 0.74              |
| 38:BQ:32:TYR:HD2  | 38:BQ:33:GLU:HG2  | 1.53                     | 0.74              |
| 42:BU:89:THR:OG1  | 42:BU:92:ILE:HG12 | 1.86                     | 0.74              |
| 34:CM:156:GLY:HA2 | 34:CM:181:PRO:HG3 | 1.70                     | 0.74              |
| 1:D1:497:G:C2'    | 1:D1:498:A:H5'    | 2.17                     | 0.74              |
| 1:D1:654:U:H2'    | 1:D1:655:A:C8     | 2.22                     | 0.74              |
| 1:D1:1430:G:N7    | 50:D1:3987:HOH:O  | 2.19                     | 0.74              |
| 1:D1:2211:G:O6    | 50:D1:4688:HOH:O  | 2.01                     | 0.74              |
| 11:DL:67:ILE:HD12 | 11:DL:71:ALA:HB3  | 1.69                     | 0.74              |
| 20:E2:44:A:H5'    | 2:FA:68:MET:HG3   | 1.70                     | 0.74              |
| 27:EF:43:ARG:NH1  | 1:F1:2521:A:C2    | 2.55                     | 0.74              |
| 34:EM:5:LYS:HA    | 1:F1:1064:C:H4'   | 1.68                     | 0.74              |
| 43:EV:80:VAL:HG22 | 43:EV:188:VAL:CG2 | 2.18                     | 0.74              |
| 1:F1:871:A:H2'    | 1:F1:872:A:C8     | 2.23                     | 0.74              |
| 1:F1:1222:A:C2    | 1:F1:1336:U:N3    | 2.56                     | 0.74              |
| 1:F1:3168:A:OP1   | 1:F1:3168:A:H8    | 1.69                     | 0.74              |
| 1:F1:3261:U:O4    | 50:F1:4516:HOH:O  | 2.06                     | 0.74              |
| 20:G2:86:G:N1     | 40:GS:111:ASP:OD2 | 2.20                     | 0.74              |
| 21:G3:11:A:O2'    | 21:G3:12:U:H3'    | 1.88                     | 0.74              |
| 21:G3:48:G:OP2    | 34:GM:94:SER:HB3  | 1.88                     | 0.74              |
| 28:GG:8:UNK:HG3   | 1:H1:1248:G:H22   | 0.62                     | 0.74              |
| 33:GL:15:GLN:OE1  | 16:HQ:52:ALA:HB1  | 1.88                     | 0.74              |
| 46:GY:73:THR:HG22 | 46:GY:75:PRO:HD2  | 1.67                     | 0.74              |
| 8:HH:57:VAL:HG22  | 8:HH:74:TRP:CZ3   | 2.23                     | 0.74              |
| 11:HL:67:ILE:HD12 | 11:HL:71:ALA:HB3  | 1.69                     | 0.74              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 17:HT:9:ASN:OD1    | 17:HT:12:GLN:HB2  | 1.87                     | 0.74              |
| 1:A1:200:C:OP2     | 40:BS:59:ARG:NH1  | 2.21                     | 0.74              |
| 1:A1:363:G:H8      | 1:A1:363:G:C5'    | 2.01                     | 0.74              |
| 1:A1:749:U:O4      | 50:A1:3983:HOH:O  | 2.05                     | 0.74              |
| 1:A1:1430:G:H5'    | 1:A1:1431:U:OP2   | 1.87                     | 0.74              |
| 9:AJ:140:THR:HG22  | 9:AJ:141:THR:N    | 2.02                     | 0.74              |
| 21:B3:62:U:H4'     | 21:B3:63:A:OP2    | 1.87                     | 0.74              |
| 20:C2:33:C:C2'     | 20:C2:34:G:H5'    | 2.17                     | 0.74              |
| 21:C3:64:A:O2'     | 29:CH:205:PRO:HG3 | 1.88                     | 0.74              |
| 22:CA:16:VAL:HG23  | 1:D1:936:C:OP1    | 1.87                     | 0.74              |
| 29:CH:140:VAL:HG11 | 29:CH:144:HIS:HB2 | 1.68                     | 0.74              |
| 33:CL:187:SER:OG   | 1:D1:27:C:OP1     | 2.05                     | 0.74              |
| 1:D1:861:A:N6      | 1:D1:882:G:H1'    | 2.03                     | 0.74              |
| 1:D1:918:C:H5''    | 1:D1:919:A:OP1    | 1.88                     | 0.74              |
| 1:D1:1165:U:O2     | 50:D1:3796:HOH:O  | 2.06                     | 0.74              |
| 1:D1:1495:C:H4'    | 1:D1:1496:U:OP2   | 1.87                     | 0.74              |
| 22:EA:157:LYS:NZ   | 1:F1:2154:A:OP2   | 2.18                     | 0.74              |
| 23:EB:24:HIS:CE1   | 23:EB:28:ARG:HD2  | 2.22                     | 0.74              |
| 33:EL:9:GLU:HB2    | 16:FQ:45:ILE:HD13 | 1.70                     | 0.74              |
| 38:EQ:103:ASN:ND2  | 1:F1:388:A:O2'    | 2.21                     | 0.74              |
| 43:EV:36:GLN:O     | 43:EV:40:GLU:HG2  | 1.88                     | 0.74              |
| 45:EX:79:ARG:NH1   | 1:F1:1448:G:H4'   | 2.01                     | 0.74              |
| 1:F1:47:G:O6       | 50:F1:3634:HOH:O  | 2.04                     | 0.74              |
| 1:F1:789:U:H4'     | 1:F1:790:C:OP1    | 1.84                     | 0.74              |
| 1:F1:1256:G:H2'    | 1:F1:1257:G:C8    | 2.22                     | 0.74              |
| 1:F1:1840:U:H1'    | 1:F1:1841:A:OP2   | 1.87                     | 0.74              |
| 1:F1:2405:U:OP2    | 50:F1:4476:HOH:O  | 2.06                     | 0.74              |
| 1:F1:3073:U:OP2    | 50:F1:4313:HOH:O  | 2.06                     | 0.74              |
| 1:F1:3158:G:H3'    | 1:F1:3159:A:H5'   | 1.68                     | 0.74              |
| 13:FN:36:ARG:NH1   | 13:FN:74:TYR:CG   | 2.55                     | 0.74              |
| 21:G3:13:A:N3      | 34:GM:24:ARG:NH2  | 2.34                     | 0.74              |
| 25:GD:32:LYS:O     | 25:GD:36:VAL:HG23 | 1.87                     | 0.74              |
| 34:GM:283:THR:HB   | 34:GM:286:GLN:HG3 | 1.70                     | 0.74              |
| 36:GO:97:ARG:HH21  | 1:H1:1805:C:H5'   | 1.53                     | 0.74              |
| 1:H1:852:A:H5''    | 11:HL:14:ASN:O    | 1.87                     | 0.74              |
| 1:H1:1132:U:H2'    | 1:H1:1133:G:C8    | 2.23                     | 0.74              |
| 1:H1:2669:A:O3'    | 1:H1:2670:U:H6    | 1.70                     | 0.74              |
| 4:HC:27:LYS:HD3    | 4:HC:27:LYS:H     | 1.53                     | 0.74              |
| 1:A1:812:G:OP1     | 35:BN:146:ARG:HA  | 1.88                     | 0.74              |
| 1:A1:1495:C:H4'    | 1:A1:1496:U:OP2   | 1.88                     | 0.74              |
| 1:A1:1700:A:H2'    | 1:A1:1701:A:H8    | 1.53                     | 0.74              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:1918:U:O2'   | 1:A1:1919:A:H5''   | 1.87                     | 0.74              |
| 1:A1:2356:A:H8    | 1:A1:2356:A:H5'    | 1.52                     | 0.74              |
| 1:A1:2520:G:H2'   | 22:BA:35:PHE:CD1   | 2.23                     | 0.74              |
| 5:AE:102:VAL:CG2  | 5:AE:170:LEU:HD21  | 2.17                     | 0.74              |
| 20:B2:147:G:N2    | 27:BF:54:GLN:HE22  | 1.85                     | 0.74              |
| 29:BH:48:TYR:HE1  | 29:BH:178:ARG:CZ   | 2.00                     | 0.74              |
| 30:BI:64:ASN:ND2  | 30:BI:66:ARG:HG2   | 2.02                     | 0.74              |
| 35:BN:147:GLU:O   | 35:BN:150:ARG:HG2  | 1.87                     | 0.74              |
| 44:BW:14:ASN:ND2  | 44:BW:17:LYS:HE3   | 2.03                     | 0.74              |
| 21:C3:83:G:H1     | 21:C3:93:G:N2      | 1.84                     | 0.74              |
| 24:CC:312:GLY:O   | 1:D1:1373:G:H4'    | 1.86                     | 0.74              |
| 39:CR:43:LEU:HD12 | 1:D1:1599:G:OP1    | 1.88                     | 0.74              |
| 40:CS:80:HIS:ND1  | 40:CS:95:GLN:HB3   | 2.03                     | 0.74              |
| 1:D1:1862:C:H5''  | 1:D1:1863:A:O5'    | 1.87                     | 0.74              |
| 22:EA:62:VAL:HG21 | 22:EA:77:PHE:CD2   | 2.16                     | 0.74              |
| 24:EC:284:GLN:HG2 | 35:EN:108:GLU:OE2  | 1.87                     | 0.74              |
| 1:F1:339:C:O2'    | 1:F1:340:G:H5'     | 1.88                     | 0.74              |
| 1:F1:532:G:OP1    | 5:FE:127:LYS:NZ    | 2.21                     | 0.74              |
| 7:FG:95:ALA:HB3   | 7:FG:101:LEU:CD1   | 2.18                     | 0.74              |
| 23:GB:84:MET:HE1  | 23:GB:179:ILE:HD11 | 1.69                     | 0.74              |
| 23:GB:118:PHE:HE2 | 1:H1:2989:G:N2     | 1.85                     | 0.74              |
| 23:GB:210:ASN:ND2 | 23:GB:352:ILE:H    | 1.85                     | 0.74              |
| 23:GB:325:CYS:HB2 | 1:H1:3036:U:O2'    | 1.88                     | 0.74              |
| 25:GD:101:ASN:ND2 | 25:GD:130:VAL:HG13 | 2.03                     | 0.74              |
| 30:GI:132:ARG:NH1 | 1:H1:1216:C:H2'    | 2.02                     | 0.74              |
| 1:H1:638:U:H2'    | 1:H1:639:U:H6      | 1.52                     | 0.74              |
| 1:H1:972:U:H2'    | 1:H1:973:C:H6      | 1.52                     | 0.74              |
| 1:H1:1615:G:OP1   | 11:HL:15:THR:HG21  | 1.87                     | 0.74              |
| 1:H1:1840:U:H1'   | 1:H1:1841:A:OP2    | 1.88                     | 0.74              |
| 14:HO:75:THR:HG22 | 14:HO:77:GLU:N     | 2.02                     | 0.74              |
| 1:A1:567:C:N4     | 1:A1:603:A:C6      | 2.55                     | 0.74              |
| 1:A1:821:U:H5'    | 1:A1:821:U:H6      | 1.53                     | 0.74              |
| 1:A1:1166:G:O6    | 17:AT:10:LYS:NZ    | 2.18                     | 0.74              |
| 2:AA:17:THR:CG2   | 2:AA:18:LEU:N      | 2.51                     | 0.74              |
| 4:AC:39:ARG:O     | 4:AC:43:MET:HG3    | 1.87                     | 0.74              |
| 23:BB:54:THR:HG22 | 23:BB:55:HIS:N     | 2.02                     | 0.74              |
| 34:BM:175:HIS:CD2 | 34:BM:180:PHE:HE2  | 2.05                     | 0.74              |
| 21:C3:81:A:C2'    | 21:C3:82:G:H5''    | 2.18                     | 0.74              |
| 23:CB:185:LYS:HB2 | 23:CB:188:GLU:HG3  | 1.69                     | 0.74              |
| 29:CH:48:TYR:HE1  | 29:CH:178:ARG:CZ   | 2.00                     | 0.74              |
| 33:CL:6:TYR:HA    | 16:DQ:45:ILE:HD11  | 1.68                     | 0.74              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:CM:59:ARG:HB2   | 34:CM:81:TYR:CE2   | 2.22                     | 0.74              |
| 1:D1:410:U:O4      | 50:D1:4901:HOH:O   | 2.04                     | 0.74              |
| 1:D1:3176:A:H4'    | 1:D1:3177:G:O5'    | 1.87                     | 0.74              |
| 1:D1:3237:C:N4     | 8:DH:10:ALA:HA     | 2.03                     | 0.74              |
| 19:DX:22:VAL:CG1   | 19:DX:40:GLN:HE21  | 2.00                     | 0.74              |
| 23:EB:265:ALA:O    | 1:F1:2977:U:O2'    | 2.03                     | 0.74              |
| 25:ED:37:LEU:HD12  | 25:ED:67:VAL:HG12  | 1.69                     | 0.74              |
| 27:EF:50:TYR:CE1   | 27:EF:51:ILE:HG23  | 2.22                     | 0.74              |
| 30:EI:132:ARG:NH1  | 1:F1:1216:C:H2'    | 2.02                     | 0.74              |
| 32:EK:84:VAL:HG21  | 32:EK:102:ILE:HG12 | 1.69                     | 0.74              |
| 34:EM:59:ARG:HB2   | 34:EM:81:TYR:CE2   | 2.22                     | 0.74              |
| 1:F1:974:C:O2'     | 1:F1:996:A:OP1     | 2.06                     | 0.74              |
| 1:F1:1615:G:OP1    | 11:FL:15:THR:HG21  | 1.86                     | 0.74              |
| 1:F1:1798:U:C5'    | 1:F1:1799:C:H5'    | 2.18                     | 0.74              |
| 4:FC:39:ARG:O      | 4:FC:43:MET:HG3    | 1.88                     | 0.74              |
| 18:FU:56:VAL:HG12  | 18:FU:57:ARG:H     | 1.51                     | 0.74              |
| 20:G2:36:G:H5'     | 1:H1:57:G:H2'      | 1.68                     | 0.74              |
| 21:G3:83:G:H22     | 21:G3:93:G:N2      | 1.85                     | 0.74              |
| 26:GE:10:VAL:HB    | 26:GE:53:VAL:HB    | 1.70                     | 0.74              |
| 30:GI:159:ARG:HD2  | 30:GI:162:ARG:HH21 | 1.52                     | 0.74              |
| 1:H1:497:G:C2'     | 1:H1:498:A:H5'     | 2.18                     | 0.74              |
| 1:H1:654:U:H2'     | 1:H1:655:A:C8      | 2.22                     | 0.74              |
| 7:HG:10:ILE:HA     | 7:HG:13:LYS:HD3    | 0.86                     | 0.74              |
| 1:A1:832:A:N6      | 1:A1:959:G:H1      | 1.85                     | 0.74              |
| 1:A1:1013:U:OP1    | 43:BV:122:ASN:ND2  | 2.20                     | 0.74              |
| 1:A1:1216:C:H2'    | 30:BI:132:ARG:NH1  | 2.03                     | 0.74              |
| 1:A1:1909:C:O2'    | 1:A1:1910:A:P      | 2.45                     | 0.74              |
| 1:A1:2352:A:H2'    | 1:A1:2353:C:H6     | 1.53                     | 0.74              |
| 25:BD:32:LYS:O     | 25:BD:36:VAL:HG23  | 1.86                     | 0.74              |
| 33:BL:80:VAL:HG13  | 33:BL:87:VAL:HG13  | 1.70                     | 0.74              |
| 35:BN:82:VAL:HG21  | 35:BN:127:LEU:HD11 | 1.70                     | 0.74              |
| 25:CD:65:MET:SD    | 1:D1:2669:A:O2'    | 2.45                     | 0.74              |
| 30:CI:113:ARG:HH11 | 1:D1:3162:A:N6     | 1.85                     | 0.74              |
| 34:CM:212:TYR:HD2  | 34:CM:228:PHE:HZ   | 1.32                     | 0.74              |
| 38:CQ:33:GLU:OE2   | 38:CQ:64:ARG:N     | 2.21                     | 0.74              |
| 43:CV:86:ILE:HG12  | 43:CV:131:ILE:HA   | 1.68                     | 0.74              |
| 1:D1:933:G:H4'     | 1:D1:934:G:H5''    | 1.69                     | 0.74              |
| 1:D1:1620:U:O4     | 50:D1:4524:HOH:O   | 2.05                     | 0.74              |
| 1:D1:3234:U:O2'    | 8:DH:105:ARG:NH1   | 2.21                     | 0.74              |
| 19:DX:16:MET:HE3   | 19:DX:18:VAL:CG2   | 2.16                     | 0.74              |
| 21:E3:64:A:O2'     | 29:EH:205:PRO:HG3  | 1.87                     | 0.74              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:E3:105:C:H5'    | 21:E3:105:C:H6     | 1.52                     | 0.74              |
| 42:EU:104:VAL:CG1  | 42:EU:108:THR:HB   | 2.18                     | 0.74              |
| 1:F1:1183:C:C3'    | 1:F1:1184:U:H5''   | 2.17                     | 0.74              |
| 1:F1:1843:U:H2'    | 1:F1:1844:U:C6     | 2.23                     | 0.74              |
| 1:F1:2516:U:H3     | 1:F1:2518:A:H8     | 1.36                     | 0.74              |
| 1:F1:3185:G:C2     | 1:F1:3237:C:C2     | 2.75                     | 0.74              |
| 5:FE:63:VAL:HG11   | 5:FE:76:VAL:CG1    | 2.18                     | 0.74              |
| 5:FE:135:THR:HG22  | 5:FE:136:GLU:H     | 1.53                     | 0.74              |
| 13:FN:54:THR:HG22  | 13:FN:56:ARG:H     | 1.52                     | 0.74              |
| 24:GC:123:ASN:ND2  | 1:H1:698:G:O2'     | 2.19                     | 0.74              |
| 26:GE:7:GLU:HG2    | 26:GE:56:GLN:HG2   | 1.67                     | 0.74              |
| 37:GP:145:VAL:HG21 | 19:HX:40:GLN:OE1   | 1.88                     | 0.74              |
| 38:GQ:29:LYS:HD2   | 38:GQ:65:PHE:CD2   | 2.22                     | 0.74              |
| 44:GW:33:ARG:HH22  | 1:H1:1906:G:H5''   | 1.51                     | 0.74              |
| 46:GY:7:LYS:CE     | 1:H1:1950:C:H2'    | 2.17                     | 0.74              |
| 1:H1:114:A:C6      | 1:H1:264:A:N6      | 2.55                     | 0.74              |
| 1:H1:1579:U:H5''   | 1:H1:1580:G:OP1    | 1.88                     | 0.74              |
| 3:HB:23:LEU:HD12   | 3:HB:24:PRO:HD2    | 1.70                     | 0.74              |
| 16:HQ:6:ALA:O      | 16:HQ:7:VAL:HB     | 1.87                     | 0.74              |
| 1:A1:148:G:H5'     | 33:BL:55:ASN:HD22  | 1.53                     | 0.73              |
| 1:A1:387:G:H4'     | 38:BQ:20:SER:O     | 1.88                     | 0.73              |
| 1:A1:525:C:H4'     | 1:A1:526:U:OP1     | 1.88                     | 0.73              |
| 9:AJ:112:ASP:H     | 9:AJ:156:ASN:HD21  | 1.36                     | 0.73              |
| 31:BJ:87:ARG:HD2   | 31:BJ:88:PRO:HD2   | 1.70                     | 0.73              |
| 43:BV:133:PHE:O    | 43:BV:226:ASN:HA   | 1.88                     | 0.73              |
| 25:CD:50:ALA:O     | 25:CD:62:ASN:N     | 2.21                     | 0.73              |
| 1:D1:682:G:OP2     | 50:D1:3875:HOH:O   | 2.04                     | 0.73              |
| 1:D1:1711:U:H1'    | 12:DM:77:TYR:CD2   | 2.23                     | 0.73              |
| 1:D1:2253:U:H1'    | 1:D1:2254:A:OP2    | 1.88                     | 0.73              |
| 1:D1:2576:C:H6     | 1:D1:2576:C:H5''   | 1.50                     | 0.73              |
| 5:DE:41:LEU:HA     | 5:DE:92:GLN:NE2    | 2.02                     | 0.73              |
| 6:DF:13:VAL:CG1    | 6:DF:53:VAL:HG22   | 2.18                     | 0.73              |
| 21:E3:62:U:H4'     | 21:E3:63:A:OP2     | 1.88                     | 0.73              |
| 36:EO:115:ILE:HG22 | 36:EO:119:GLN:HB2  | 1.70                     | 0.73              |
| 40:ES:55:VAL:HG11  | 40:ES:103:LEU:HD13 | 1.70                     | 0.73              |
| 1:F1:1245:U:H6     | 1:F1:1245:U:H5'    | 1.53                     | 0.73              |
| 1:F1:3266:G:H2'    | 1:F1:3267:A:H5''   | 1.70                     | 0.73              |
| 2:FA:2:THR:HB      | 2:FA:6:PRO:HG2     | 1.68                     | 0.73              |
| 19:FX:93:LEU:HD21  | 19:FX:120:LEU:HD21 | 1.69                     | 0.73              |
| 24:GC:369:HIS:CE1  | 43:GV:68:LYS:HZ1   | 2.06                     | 0.73              |
| 27:GF:233:LYS:HB2  | 1:H1:2575:G:O6     | 1.88                     | 0.73              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 38:GQ:3:LYS:NZ    | 1:H1:398:G:N7      | 2.34                     | 0.73              |
| 44:GW:14:ASN:ND2  | 44:GW:17:LYS:HE3   | 2.03                     | 0.73              |
| 1:H1:61:A:N7      | 50:H1:3627:HOH:O   | 2.20                     | 0.73              |
| 1:H1:2369:C:H2'   | 1:H1:2369:C:O2     | 1.88                     | 0.73              |
| 1:H1:2635:C:H5'   | 1:H1:2635:C:H6     | 1.53                     | 0.73              |
| 1:H1:2803:G:OP1   | 50:H1:4078:HOH:O   | 2.04                     | 0.73              |
| 4:HC:51:GLN:HG3   | 4:HC:52:THR:N      | 2.01                     | 0.73              |
| 18:HU:100:LYS:CE  | 18:HU:102:ARG:HH21 | 1.99                     | 0.73              |
| 1:A1:362:G:H3'    | 1:A1:363:G:H5''    | 1.70                     | 0.73              |
| 1:A1:450:C:H2'    | 1:A1:451:A:H8      | 1.52                     | 0.73              |
| 1:A1:972:U:H2'    | 1:A1:973:C:H6      | 1.53                     | 0.73              |
| 1:A1:1256:G:H2'   | 1:A1:1257:G:C8     | 2.23                     | 0.73              |
| 1:A1:1548:U:H3'   | 39:BR:121:LEU:HD11 | 1.69                     | 0.73              |
| 1:A1:2999:U:O4    | 50:A1:4646:HOH:O   | 2.05                     | 0.73              |
| 1:A1:3128:G:H5'   | 1:A1:3128:G:C8     | 2.22                     | 0.73              |
| 27:BF:126:LYS:HZ2 | 27:BF:194:THR:HG1  | 1.36                     | 0.73              |
| 32:BK:19:HIS:CD2  | 32:BK:25:HIS:HB2   | 2.23                     | 0.73              |
| 38:BQ:8:ARG:NH1   | 38:BQ:117:GLN:HG3  | 2.03                     | 0.73              |
| 42:BU:58:TYR:O    | 42:BU:62:ILE:HD12  | 1.88                     | 0.73              |
| 43:BV:118:LYS:O   | 43:BV:122:ASN:HB2  | 1.86                     | 0.73              |
| 20:C2:100:C:P     | 39:CR:56:ARG:HH22  | 2.11                     | 0.73              |
| 28:CG:22:UNK:CG   | 28:CG:92:UNK:HB1   | 2.18                     | 0.73              |
| 30:CI:132:ARG:NH1 | 1:D1:1216:C:H2'    | 2.02                     | 0.73              |
| 33:CL:26:ARG:HB3  | 33:CL:30:TYR:CE1   | 2.23                     | 0.73              |
| 38:CQ:133:ARG:HD2 | 1:D1:905:G:OP2     | 1.87                     | 0.73              |
| 41:CT:58:ARG:CZ   | 1:D1:3325:G:C5     | 2.72                     | 0.73              |
| 1:D1:1073:A:O2'   | 1:D1:1074:A:O5'    | 2.05                     | 0.73              |
| 1:D1:1593:A:C6    | 1:D1:1594:C:N4     | 2.57                     | 0.73              |
| 1:D1:1720:A:H2'   | 1:D1:1721:A:C8     | 2.23                     | 0.73              |
| 8:DH:57:VAL:HG22  | 8:DH:74:TRP:CZ3    | 2.24                     | 0.73              |
| 8:DH:58:TYR:CD1   | 8:DH:104:LEU:HD21  | 2.20                     | 0.73              |
| 18:DU:60:THR:HB   | 18:DU:63:TYR:HD2   | 1.53                     | 0.73              |
| 20:E2:111:A:C6    | 2:FA:20:ARG:NH1    | 2.56                     | 0.73              |
| 1:F1:161:U:H2'    | 1:F1:162:C:H5''    | 1.70                     | 0.73              |
| 1:F1:332:G:C2'    | 1:F1:333:G:H5''    | 2.17                     | 0.73              |
| 1:F1:1432:G:OP1   | 50:F1:3786:HOH:O   | 2.05                     | 0.73              |
| 1:F1:1700:A:H2'   | 1:F1:1701:A:C8     | 2.23                     | 0.73              |
| 1:F1:2180:G:O2'   | 50:F1:4077:HOH:O   | 2.07                     | 0.73              |
| 1:F1:2715:C:OP1   | 50:F1:4086:HOH:O   | 2.04                     | 0.73              |
| 1:F1:2765:C:O2    | 1:F1:2765:C:H2'    | 1.88                     | 0.73              |
| 20:G2:3:A:H4'     | 20:G2:4:A:OP2      | 1.86                     | 0.73              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:GC:275:THR:OG1  | 1:H1:498:A:H5''   | 1.89                     | 0.73              |
| 33:GL:187:SER:OG   | 1:H1:27:C:OP1     | 2.06                     | 0.73              |
| 34:GM:213:MET:HB3  | 34:GM:224:PHE:HE1 | 1.53                     | 0.73              |
| 1:H1:2685:A:H2'    | 1:H1:2686:A:C8    | 2.23                     | 0.73              |
| 9:HJ:140:THR:HG22  | 9:HJ:141:THR:N    | 2.03                     | 0.73              |
| 1:A1:768:A:C1'     | 35:BN:141:ARG:HD3 | 2.19                     | 0.73              |
| 1:A1:1667:A:HO2'   | 1:A1:1668:A:P     | 2.10                     | 0.73              |
| 1:A1:1840:U:H1'    | 1:A1:1841:A:OP2   | 1.89                     | 0.73              |
| 1:A1:2919:C:N3     | 1:A1:2923:U:C5    | 2.56                     | 0.73              |
| 13:AN:87:VAL:CG1   | 13:AN:90:LEU:HB2  | 2.19                     | 0.73              |
| 18:AU:56:VAL:HG12  | 18:AU:57:ARG:H    | 1.48                     | 0.73              |
| 24:BC:188:VAL:HG21 | 24:BC:231:PRO:O   | 1.87                     | 0.73              |
| 22:CA:10:LYS:HD2   | 1:D1:2178:A:OP1   | 1.88                     | 0.73              |
| 46:CY:73:THR:HG22  | 46:CY:75:PRO:HD2  | 1.70                     | 0.73              |
| 1:D1:71:U:O2'      | 1:D1:72:A:P       | 2.46                     | 0.73              |
| 1:D1:161:U:H2'     | 1:D1:162:C:H5''   | 1.70                     | 0.73              |
| 1:D1:243:G:H8      | 1:D1:243:G:H5'    | 1.52                     | 0.73              |
| 1:D1:526:U:HO2'    | 1:D1:527:A:H8     | 1.32                     | 0.73              |
| 1:D1:2177:A:H2'    | 1:D1:2178:A:H5''  | 1.70                     | 0.73              |
| 1:D1:3153:U:H5''   | 1:D1:3154:A:OP2   | 1.88                     | 0.73              |
| 13:DN:4:PHE:CB     | 13:DN:9:ARG:HH21  | 2.01                     | 0.73              |
| 28:EG:11:UNK:O     | 28:EG:15:UNK:HG2  | 1.88                     | 0.73              |
| 29:EH:33:ILE:HB    | 29:EH:69:ARG:NH2  | 2.03                     | 0.73              |
| 32:EK:19:HIS:CD2   | 32:EK:25:HIS:HB2  | 2.23                     | 0.73              |
| 33:EL:55:ASN:OD1   | 50:EL:404:HOH:O   | 2.06                     | 0.73              |
| 38:EQ:141:TYR:CE1  | 1:F1:2350:G:H4'   | 2.23                     | 0.73              |
| 1:F1:1430:G:H5'    | 1:F1:1431:U:OP2   | 1.87                     | 0.73              |
| 1:F1:1667:A:HO2'   | 1:F1:1668:A:P     | 2.11                     | 0.73              |
| 4:FC:27:LYS:HD3    | 4:FC:27:LYS:H     | 1.53                     | 0.73              |
| 9:FJ:140:THR:HG22  | 9:FJ:141:THR:N    | 2.03                     | 0.73              |
| 22:GA:78:ILE:CD1   | 22:GA:129:ARG:HD3 | 2.18                     | 0.73              |
| 34:GM:17:GLN:HB3   | 1:H1:2677:U:O2    | 1.87                     | 0.73              |
| 38:GQ:33:GLU:CD    | 38:GQ:63:THR:H    | 1.96                     | 0.73              |
| 42:GU:47:ARG:O     | 42:GU:51:VAL:HG23 | 1.87                     | 0.73              |
| 1:H1:637:U:H2'     | 1:H1:638:U:H6     | 1.53                     | 0.73              |
| 1:H1:801:U:H5'     | 17:HT:37:PRO:HB3  | 1.69                     | 0.73              |
| 1:H1:1130:A:H2     | 1:H1:1390:A:O2'   | 1.70                     | 0.73              |
| 1:H1:2508:U:H4'    | 1:H1:2509:U:OP1   | 1.87                     | 0.73              |
| 11:HL:59:VAL:CG1   | 11:HL:63:GLU:HB3  | 2.18                     | 0.73              |
| 12:HM:21:CYS:SG    | 12:HM:30:ILE:HD13 | 2.28                     | 0.73              |
| 1:A1:602:A:OP2     | 24:BC:363:ARG:NH2 | 2.15                     | 0.73              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:801:U:H5'     | 17:AT:37:PRO:HB3   | 1.68                     | 0.73              |
| 1:A1:1579:U:H5''   | 1:A1:1580:G:OP1    | 1.88                     | 0.73              |
| 1:A1:2397:A:OP2    | 50:A1:4709:HOH:O   | 2.05                     | 0.73              |
| 6:AF:30:ILE:HG21   | 19:AX:163:PHE:HE2  | 1.54                     | 0.73              |
| 10:AK:99:CYS:O     | 10:AK:100:TYR:HB2  | 1.88                     | 0.73              |
| 13:AN:36:ARG:NH1   | 13:AN:74:TYR:CG    | 2.56                     | 0.73              |
| 16:AQ:7:VAL:CG1    | 18:AU:185:LYS:HG3  | 2.18                     | 0.73              |
| 29:BH:140:VAL:HG11 | 29:BH:144:HIS:HB2  | 1.69                     | 0.73              |
| 36:BO:152:SER:CB   | 36:BO:163:ARG:HH12 | 1.99                     | 0.73              |
| 37:BP:116:LYS:NZ   | 37:BP:128:THR:HB   | 2.03                     | 0.73              |
| 21:C3:119:C:H2'    | 34:CM:270:PRO:HG2  | 1.70                     | 0.73              |
| 34:CM:254:ILE:O    | 34:CM:258:PRO:HD3  | 1.87                     | 0.73              |
| 1:D1:439:A:H5''    | 5:DE:126:HIS:CG    | 2.23                     | 0.73              |
| 1:D1:1027:G:O2'    | 1:D1:1028:A:P      | 2.46                     | 0.73              |
| 6:DF:3:PHE:CD1     | 19:DX:164:PRO:HB3  | 2.23                     | 0.73              |
| 20:E2:105:A:C8     | 20:E2:106:A:C8     | 2.77                     | 0.73              |
| 23:EB:210:ASN:ND2  | 23:EB:351:ILE:HA   | 2.02                     | 0.73              |
| 34:EM:175:HIS:CD2  | 34:EM:180:PHE:HE2  | 2.06                     | 0.73              |
| 1:F1:435:A:N3      | 1:F1:435:A:H2'     | 2.04                     | 0.73              |
| 1:F1:1002:A:C2'    | 1:F1:1003:G:H5'    | 2.19                     | 0.73              |
| 1:F1:1566:U:H2'    | 1:F1:1567:A:H8     | 1.51                     | 0.73              |
| 1:F1:1875:G:O6     | 50:F1:4045:HOH:O   | 2.07                     | 0.73              |
| 13:FN:14:LEU:O     | 13:FN:19:ALA:HB1   | 1.88                     | 0.73              |
| 22:GA:102:VAL:C    | 22:GA:103:LEU:HD23 | 2.12                     | 0.73              |
| 36:GO:95:TRP:CZ3   | 1:H1:880:U:H4'     | 2.23                     | 0.73              |
| 43:GV:133:PHE:O    | 43:GV:226:ASN:HA   | 1.87                     | 0.73              |
| 45:GX:69:LEU:HB3   | 45:GX:70:PRO:HD2   | 1.71                     | 0.73              |
| 1:H1:1173:A:H2'    | 1:H1:1174:G:H8     | 1.53                     | 0.73              |
| 1:H1:1503:A:H5''   | 50:H1:3914:HOH:O   | 1.86                     | 0.73              |
| 1:H1:2352:A:H2'    | 1:H1:2353:C:H6     | 1.52                     | 0.73              |
| 1:H1:3105:G:N2     | 50:H1:4046:HOH:O   | 2.22                     | 0.73              |
| 1:H1:3185:G:H8     | 8:HH:11:PRO:HD3    | 1.53                     | 0.73              |
| 1:H1:3232:A:H4'    | 5:HE:55:ALA:HB1    | 1.70                     | 0.73              |
| 1:H1:3269:G:N3     | 1:H1:3269:G:H5''   | 2.03                     | 0.73              |
| 5:HE:178:PHE:O     | 8:HH:14:LEU:HD21   | 1.88                     | 0.73              |
| 1:A1:775:C:H2'     | 1:A1:775:C:O2      | 1.89                     | 0.73              |
| 1:A1:1360:C:C2'    | 1:A1:1361:U:H5''   | 2.18                     | 0.73              |
| 1:A1:1503:A:H5''   | 50:A1:4124:HOH:O   | 1.88                     | 0.73              |
| 1:A1:1533:G:N2     | 38:BQ:131:THR:HG23 | 2.02                     | 0.73              |
| 1:A1:2509:U:OP2    | 1:A1:2575:G:N2     | 2.21                     | 0.73              |
| 1:A1:3020:G:O2'    | 1:A1:3021:A:H5''   | 1.88                     | 0.73              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:BB:277:ASN:HD21 | 23:BB:343:GLN:HE21 | 1.37                     | 0.73              |
| 29:BH:48:TYR:CE2   | 29:BH:142:GLU:HG3  | 2.23                     | 0.73              |
| 20:C2:36:G:H5'     | 1:D1:57:G:H2'      | 1.68                     | 0.73              |
| 20:C2:111:A:N6     | 2:DA:20:ARG:HH12   | 1.87                     | 0.73              |
| 23:CB:54:THR:HG22  | 23:CB:55:HIS:N     | 2.01                     | 0.73              |
| 23:CB:121:ASN:HB2  | 1:D1:3275:A:N7     | 2.03                     | 0.73              |
| 24:CC:163:VAL:HA   | 24:CC:166:TYR:CD2  | 2.23                     | 0.73              |
| 30:CI:109:THR:HG23 | 30:CI:110:PRO:HD3  | 1.71                     | 0.73              |
| 41:CT:54:THR:HG22  | 41:CT:56:ALA:H     | 1.54                     | 0.73              |
| 1:D1:332:G:C2'     | 1:D1:333:G:H5''    | 2.17                     | 0.73              |
| 1:D1:3151:G:OP1    | 8:DH:64:LYS:HG3    | 1.89                     | 0.73              |
| 1:D1:3165:A:H2'    | 1:D1:3166:A:H8     | 1.53                     | 0.73              |
| 13:DN:14:LEU:O     | 13:DN:19:ALA:HB1   | 1.88                     | 0.73              |
| 21:E3:21:G:H4'     | 34:EM:277:PHE:HD2  | 1.54                     | 0.73              |
| 24:EC:123:ASN:ND2  | 1:F1:698:G:O2'     | 2.21                     | 0.73              |
| 24:EC:167:GLU:H    | 24:EC:171:GLN:HE22 | 1.34                     | 0.73              |
| 30:EI:109:THR:HG23 | 30:EI:110:PRO:HD3  | 1.69                     | 0.73              |
| 32:EK:88:THR:HG23  | 18:FU:164:LYS:HZ2  | 1.54                     | 0.73              |
| 38:EQ:39:LYS:HE2   | 38:EQ:119:GLY:H    | 1.54                     | 0.73              |
| 1:F1:1343:G:O6     | 19:FX:167:LYS:HD2  | 1.88                     | 0.73              |
| 1:F1:2954:G:OP1    | 50:F1:4057:HOH:O   | 2.07                     | 0.73              |
| 18:FU:60:THR:HB    | 18:FU:63:TYR:HD2   | 1.53                     | 0.73              |
| 29:GH:43:VAL:HG11  | 29:GH:197:VAL:HG23 | 1.69                     | 0.73              |
| 43:GV:97:LYS:O     | 43:GV:101:ARG:HG3  | 1.89                     | 0.73              |
| 1:H1:1360:C:C2'    | 1:H1:1361:U:H5''   | 2.19                     | 0.73              |
| 1:H1:1737:A:O2'    | 1:H1:1738:A:C8     | 2.39                     | 0.73              |
| 1:H1:2576:C:H6     | 1:H1:2576:C:H5''   | 1.53                     | 0.73              |
| 1:A1:517:A:O2'     | 1:A1:518:G:H3'     | 1.88                     | 0.73              |
| 1:A1:897:A:C2'     | 1:A1:898:C:H5'     | 2.19                     | 0.73              |
| 1:A1:2177:A:H2'    | 1:A1:2178:A:H5''   | 1.70                     | 0.73              |
| 1:A1:2246:G:H2'    | 1:A1:2247:A:H8     | 1.52                     | 0.73              |
| 1:A1:2375:U:O4     | 50:A1:3885:HOH:O   | 2.01                     | 0.73              |
| 1:A1:3021:A:N3     | 26:BE:168:LYS:NZ   | 2.36                     | 0.73              |
| 3:AB:23:LEU:HD12   | 3:AB:24:PRO:HD2    | 1.71                     | 0.73              |
| 13:AN:23:ALA:HB1   | 13:AN:43:VAL:HG12  | 1.70                     | 0.73              |
| 20:B2:27:G:OP2     | 40:BS:12:ARG:HD3   | 1.89                     | 0.73              |
| 20:B2:147:G:H21    | 27:BF:54:GLN:NE2   | 1.87                     | 0.73              |
| 21:B3:3:U:H2'      | 21:B3:4:G:C8       | 2.23                     | 0.73              |
| 23:BB:210:ASN:ND2  | 23:BB:351:ILE:HA   | 2.04                     | 0.73              |
| 32:CK:78:ASP:N     | 32:CK:78:ASP:OD1   | 2.22                     | 0.73              |
| 34:CM:274:HIS:O    | 34:CM:278:TYR:HD2  | 1.71                     | 0.73              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:CN:141:ARG:HD3  | 1:D1:768:A:C1'     | 2.19                     | 0.73              |
| 1:D1:1002:A:C2'    | 1:D1:1003:G:H5'    | 2.19                     | 0.73              |
| 5:DE:102:VAL:CG2   | 5:DE:170:LEU:HD21  | 2.18                     | 0.73              |
| 9:DJ:112:ASP:H     | 9:DJ:156:ASN:HD21  | 1.34                     | 0.73              |
| 16:DQ:25:HIS:CD2   | 50:DQ:302:HOH:O    | 2.41                     | 0.73              |
| 20:E2:32:C:H2'     | 20:E2:33:C:C6      | 2.22                     | 0.73              |
| 29:EH:16:PRO:HG3   | 29:EH:128:ARG:NH1  | 2.04                     | 0.73              |
| 38:EQ:133:ARG:CG   | 38:EQ:139:ASN:HD22 | 1.99                     | 0.73              |
| 40:ES:43:ASN:O     | 40:ES:125:LEU:HD12 | 1.88                     | 0.73              |
| 1:F1:621:G:H21     | 1:F1:634:G:H5''    | 1.52                     | 0.73              |
| 1:F1:986:C:P       | 50:F1:3671:HOH:O   | 2.47                     | 0.73              |
| 1:F1:1579:U:H5''   | 1:F1:1580:G:OP1    | 1.87                     | 0.73              |
| 1:F1:2242:G:H2'    | 1:F1:2243:C:H5'    | 1.68                     | 0.73              |
| 4:FC:51:GLN:HG3    | 4:FC:52:THR:N      | 2.03                     | 0.73              |
| 5:FE:69:LEU:HD21   | 5:FE:114:ASP:CB    | 2.18                     | 0.73              |
| 14:FO:89:ARG:O     | 14:FO:93:VAL:HG23  | 1.89                     | 0.73              |
| 23:GB:54:THR:HG22  | 23:GB:55:HIS:N     | 2.02                     | 0.73              |
| 23:GB:203:VAL:HG11 | 23:GB:320:ILE:HD11 | 1.68                     | 0.73              |
| 27:GF:126:LYS:HE2  | 27:GF:135:LEU:CD1  | 2.12                     | 0.73              |
| 40:GS:43:ASN:O     | 40:GS:125:LEU:HD12 | 1.89                     | 0.73              |
| 44:GW:73:ARG:HG3   | 44:GW:95:LEU:HD11  | 1.71                     | 0.73              |
| 1:H1:1370:A:C2     | 1:H1:1389:G:C2     | 2.77                     | 0.73              |
| 5:HE:63:VAL:CG1    | 5:HE:76:VAL:HG13   | 2.19                     | 0.73              |
| 16:HQ:9:ILE:HD11   | 18:HU:187:ASN:CB   | 2.13                     | 0.73              |
| 1:A1:434:A:H4'     | 1:A1:435:A:C8      | 2.23                     | 0.73              |
| 1:A1:1124:G:C8     | 37:BP:116:LYS:NZ   | 2.57                     | 0.73              |
| 1:A1:1731:G:H21    | 11:AL:54:ASN:ND2   | 1.87                     | 0.73              |
| 1:A1:2890:A:OP2    | 50:A1:4585:HOH:O   | 2.06                     | 0.73              |
| 1:A1:3183:A:O2'    | 1:A1:3184:A:O5'    | 2.06                     | 0.73              |
| 24:BC:214:VAL:HG21 | 24:BC:227:LEU:CD1  | 2.18                     | 0.73              |
| 27:BF:126:LYS:HE2  | 27:BF:135:LEU:CD1  | 2.15                     | 0.73              |
| 36:BO:109:TYR:HB3  | 36:BO:115:ILE:CG1  | 2.19                     | 0.73              |
| 20:C2:100:C:P      | 39:CR:56:ARG:NH2   | 2.62                     | 0.73              |
| 22:CA:115:CYS:HB2  | 22:CA:166:THR:HB   | 1.70                     | 0.73              |
| 26:CE:73:SER:HA    | 26:CE:76:LYS:HE2   | 1.69                     | 0.73              |
| 27:CF:67:PRO:HB2   | 27:CF:68:PRO:HD2   | 1.69                     | 0.73              |
| 27:CF:122:PRO:CG   | 1:D1:119:A:C2      | 2.70                     | 0.73              |
| 34:CM:283:THR:HB   | 34:CM:286:GLN:HG3  | 1.70                     | 0.73              |
| 43:CV:41:TRP:CD1   | 43:CV:177:CYS:HG   | 2.06                     | 0.73              |
| 1:D1:3183:A:O2'    | 1:D1:3184:A:O5'    | 2.06                     | 0.73              |
| 1:D1:3332:A:O2'    | 1:D1:3333:G:OP1    | 2.05                     | 0.73              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:DA:64:ARG:HA     | 50:DA:204:HOH:O    | 1.88                     | 0.73              |
| 6:DF:20:ASP:OD2    | 6:DF:46:GLN:NE2    | 2.20                     | 0.73              |
| 23:EB:46:PHE:CE2   | 23:EB:203:VAL:HG22 | 2.24                     | 0.73              |
| 24:EC:229:ASN:HD21 | 1:F1:211:A:C3'     | 2.01                     | 0.73              |
| 27:EF:62:GLN:OE1   | 1:F1:2574:U:N3     | 2.21                     | 0.73              |
| 35:EN:52:ARG:HH12  | 35:EN:141:ARG:NE   | 1.85                     | 0.73              |
| 41:ET:37:LYS:HE3   | 41:ET:53:TRP:CZ2   | 2.24                     | 0.73              |
| 46:EY:4:ARG:NH2    | 1:F1:863:G:O6      | 2.22                     | 0.73              |
| 1:F1:324:A:H5''    | 1:F1:325:U:OP2     | 1.89                     | 0.73              |
| 1:F1:1132:U:H2'    | 1:F1:1133:G:C8     | 2.24                     | 0.73              |
| 1:F1:1307:C:H2'    | 1:F1:1308:U:C6     | 2.23                     | 0.73              |
| 1:F1:1478:A:H5'    | 1:F1:1479:A:OP2    | 1.89                     | 0.73              |
| 3:FB:23:LEU:HD12   | 3:FB:24:PRO:HD2    | 1.71                     | 0.73              |
| 5:FE:41:LEU:HB3    | 5:FE:45:ILE:CG2    | 2.19                     | 0.73              |
| 20:G2:2:G:O2'      | 1:H1:2983:A:O2'    | 2.00                     | 0.73              |
| 25:GD:48:SER:HB3   | 1:H1:2671:C:OP1    | 1.89                     | 0.73              |
| 41:GT:37:LYS:HE3   | 41:GT:53:TRP:CZ2   | 2.23                     | 0.73              |
| 1:H1:525:C:O2      | 1:H1:525:C:C2'     | 2.32                     | 0.73              |
| 1:H1:1002:A:C2'    | 1:H1:1003:G:H5'    | 2.18                     | 0.73              |
| 1:H1:1186:A:H2'    | 1:H1:1186:A:N3     | 2.01                     | 0.73              |
| 1:H1:3158:G:H3'    | 1:H1:3159:A:H5'    | 1.69                     | 0.73              |
| 1:A1:147:U:H4'     | 1:A1:148:G:OP2     | 1.87                     | 0.73              |
| 1:A1:981:U:OP1     | 50:A1:4207:HOH:O   | 2.06                     | 0.73              |
| 1:A1:1149:U:C2'    | 1:A1:1150:U:H5'    | 2.18                     | 0.73              |
| 1:A1:2931:G:N7     | 23:BB:2:SER:HB3    | 2.03                     | 0.73              |
| 6:AF:13:VAL:HG11   | 6:AF:53:VAL:CG2    | 2.19                     | 0.73              |
| 21:B3:110:G:O6     | 34:BM:21:ARG:HD2   | 1.88                     | 0.73              |
| 22:BA:115:CYS:HB2  | 22:BA:166:THR:HB   | 1.70                     | 0.73              |
| 26:BE:29:GLY:N     | 26:BE:82:VAL:HG11  | 2.03                     | 0.73              |
| 32:BK:118:LEU:HB2  | 32:BK:141:VAL:HG21 | 1.71                     | 0.73              |
| 20:C2:86:G:N1      | 40:CS:111:ASP:OD2  | 2.22                     | 0.73              |
| 43:CV:215:ARG:NH2  | 1:D1:1197:A:O3'    | 2.22                     | 0.73              |
| 46:CY:2:ALA:N      | 1:D1:877:U:O4      | 2.21                     | 0.73              |
| 1:D1:2393:A:OP2    | 50:D1:4370:HOH:O   | 2.06                     | 0.73              |
| 23:EB:157:ARG:HG2  | 23:EB:180:GLN:HA   | 1.70                     | 0.73              |
| 32:EK:118:LEU:CB   | 32:EK:141:VAL:HG21 | 2.19                     | 0.73              |
| 33:EL:154:SER:O    | 33:EL:157:LYS:HG3  | 1.88                     | 0.73              |
| 35:EN:123:THR:HG23 | 35:EN:125:ASP:OD1  | 1.88                     | 0.73              |
| 35:EN:146:ARG:HA   | 1:F1:812:G:OP1     | 1.89                     | 0.73              |
| 37:EP:13:LYS:HD2   | 1:F1:1020:G:H3'    | 1.70                     | 0.73              |
| 38:EQ:8:ARG:HH12   | 38:EQ:117:GLN:HG3  | 1.54                     | 0.73              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:EQ:33:GLU:OE2   | 38:EQ:64:ARG:N     | 2.22                     | 0.73              |
| 42:EU:120:PHE:HE2  | 18:FU:90:SER:O     | 1.71                     | 0.73              |
| 1:F1:1599:G:C6     | 1:F1:1600:U:C4     | 2.77                     | 0.73              |
| 1:F1:1720:A:H2'    | 1:F1:1721:A:C8     | 2.23                     | 0.73              |
| 1:F1:2625:A:H5'    | 1:F1:2626:A:C5'    | 2.18                     | 0.73              |
| 6:FF:13:VAL:CG1    | 6:FF:53:VAL:HG22   | 2.19                     | 0.73              |
| 9:FJ:53:ILE:HA     | 9:FJ:80:GLU:OE1    | 1.89                     | 0.73              |
| 22:GA:186:GLN:OE1  | 22:GA:186:GLN:HA   | 1.87                     | 0.73              |
| 24:GC:150:SER:O    | 14:HO:75:THR:HG23  | 1.88                     | 0.73              |
| 1:H1:147:U:H4'     | 1:H1:148:G:OP2     | 1.88                     | 0.73              |
| 1:H1:704:G:H2'     | 1:H1:705:A:O4'     | 1.89                     | 0.73              |
| 1:H1:1107:A:H3'    | 1:H1:1108:A:H8     | 1.53                     | 0.73              |
| 1:H1:1307:C:H2'    | 1:H1:1308:U:C6     | 2.23                     | 0.73              |
| 1:H1:1592:G:H2'    | 1:H1:1593:A:C8     | 2.24                     | 0.73              |
| 1:H1:1700:A:H2'    | 1:H1:1701:A:C8     | 2.23                     | 0.73              |
| 5:HE:80:TYR:CD2    | 5:HE:86:PRO:HB3    | 2.24                     | 0.73              |
| 13:HN:23:ALA:HB1   | 13:HN:43:VAL:HG12  | 1.70                     | 0.73              |
| 1:A1:2669:A:O2'    | 25:BD:65:MET:SD    | 2.46                     | 0.73              |
| 1:A1:2686:A:H2'    | 1:A1:2687:G:C8     | 2.24                     | 0.73              |
| 21:B3:89:G:H2'     | 21:B3:90:A:C8      | 2.24                     | 0.73              |
| 27:BF:127:TYR:CD1  | 27:BF:127:TYR:C    | 2.66                     | 0.73              |
| 21:C3:62:U:H4'     | 21:C3:63:A:OP2     | 1.87                     | 0.73              |
| 23:CB:46:PHE:CE2   | 23:CB:203:VAL:HG22 | 2.24                     | 0.73              |
| 27:CF:127:TYR:CD1  | 27:CF:127:TYR:C    | 2.66                     | 0.73              |
| 33:CL:110:VAL:HG12 | 33:CL:113:LEU:HG   | 1.70                     | 0.73              |
| 38:CQ:20:SER:O     | 1:D1:387:G:H4'     | 1.88                     | 0.73              |
| 38:CQ:103:ASN:ND2  | 1:D1:388:A:H1'     | 2.04                     | 0.73              |
| 1:D1:1307:C:H2'    | 1:D1:1308:U:C6     | 2.23                     | 0.73              |
| 19:DX:158:ASN:ND2  | 19:DX:160:ALA:HB3  | 2.02                     | 0.73              |
| 31:EJ:11:VAL:HG12  | 31:EJ:11:VAL:O     | 1.88                     | 0.73              |
| 34:EM:274:HIS:O    | 34:EM:278:TYR:HD2  | 1.70                     | 0.73              |
| 35:EN:22:SER:HB3   | 1:F1:697:A:OP1     | 1.88                     | 0.73              |
| 40:ES:73:TYR:CD1   | 40:ES:76:LYS:HB2   | 2.22                     | 0.73              |
| 1:F1:282:G:H22     | 1:F1:304:U:C5'     | 2.01                     | 0.73              |
| 1:F1:447:G:O6      | 50:F1:4606:HOH:O   | 2.06                     | 0.73              |
| 1:F1:528:C:H5'     | 1:F1:528:C:H6      | 1.54                     | 0.73              |
| 1:F1:1662:A:H5'    | 11:FL:76:ARG:HH21  | 1.52                     | 0.73              |
| 5:FE:173:TYR:CG    | 6:FF:106:PHE:HD1   | 2.07                     | 0.73              |
| 26:GE:144:LEU:HD12 | 26:GE:156:CYS:SG   | 2.29                     | 0.73              |
| 27:GF:46:ARG:NE    | 1:H1:2518:A:H5'    | 2.02                     | 0.73              |
| 35:GN:21:LYS:O     | 1:H1:696:A:C5'     | 2.37                     | 0.73              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 37:GP:91:VAL:HG12  | 37:GP:92:LYS:O     | 1.89                     | 0.73              |
| 38:GQ:8:ARG:HH12   | 38:GQ:117:GLN:HG3  | 1.53                     | 0.73              |
| 1:H1:324:A:H5''    | 1:H1:325:U:OP2     | 1.88                     | 0.73              |
| 1:H1:567:C:N4      | 1:H1:603:A:C6      | 2.57                     | 0.73              |
| 1:H1:615:G:N2      | 8:HH:79:LYS:HE2    | 2.04                     | 0.73              |
| 1:H1:1593:A:C6     | 1:H1:1594:C:N4     | 2.57                     | 0.73              |
| 1:H1:1895:U:OP1    | 50:H1:3917:HOH:O   | 2.06                     | 0.73              |
| 15:HP:4:GLU:OE1    | 15:HP:54:LYS:HE2   | 1.88                     | 0.73              |
| 19:HX:180:VAL:HG13 | 19:HX:181:TYR:HD1  | 1.53                     | 0.73              |
| 18:AU:27:ALA:HB2   | 33:BL:202:ARG:HH12 | 1.54                     | 0.73              |
| 18:AU:56:VAL:CG1   | 18:AU:57:ARG:N     | 2.51                     | 0.73              |
| 29:BH:43:VAL:HG11  | 29:BH:197:VAL:HG23 | 1.69                     | 0.73              |
| 34:BM:59:ARG:HD3   | 34:BM:61:ILE:HG12  | 1.70                     | 0.73              |
| 34:BM:83:LEU:HB3   | 34:BM:88:VAL:CG2   | 2.18                     | 0.73              |
| 44:BW:73:ARG:HG3   | 44:BW:95:LEU:HD11  | 1.70                     | 0.73              |
| 23:CB:210:ASN:ND2  | 23:CB:351:ILE:HA   | 2.04                     | 0.73              |
| 32:CK:61:ARG:NH2   | 1:D1:88:U:OP1      | 2.20                     | 0.73              |
| 34:CM:83:LEU:HB3   | 34:CM:88:VAL:CG2   | 2.18                     | 0.73              |
| 42:CU:124:ALA:HB2  | 18:DU:153:SER:OG   | 1.88                     | 0.73              |
| 1:D1:339:C:O2'     | 1:D1:340:G:H5'     | 1.87                     | 0.73              |
| 1:D1:641:U:H2'     | 1:D1:642:C:H6      | 1.54                     | 0.73              |
| 1:D1:649:G:O6      | 50:D1:3949:HOH:O   | 2.07                     | 0.73              |
| 1:D1:1109:A:H4'    | 1:D1:1110:U:O5'    | 1.86                     | 0.73              |
| 1:D1:1255:A:C2     | 1:D1:1309:G:C5     | 2.77                     | 0.73              |
| 1:D1:1775:A:O5'    | 15:DP:34:LYS:NZ    | 2.22                     | 0.73              |
| 1:D1:2219:A:OP1    | 16:DQ:78:ARG:NH2   | 2.22                     | 0.73              |
| 4:DC:70:PHE:CE2    | 4:DC:81:ILE:HD12   | 2.24                     | 0.73              |
| 5:DE:41:LEU:HB3    | 5:DE:45:ILE:CG2    | 2.19                     | 0.73              |
| 27:EF:19:ASN:HB3   | 27:EF:20:PRO:CD    | 2.19                     | 0.73              |
| 30:EI:196:PHE:HE2  | 6:FF:110:ARG:HD2   | 1.52                     | 0.73              |
| 32:EK:118:LEU:HB2  | 32:EK:141:VAL:HG21 | 1.71                     | 0.73              |
| 39:ER:48:ALA:O     | 1:F1:14:A:H5''     | 1.89                     | 0.73              |
| 42:EU:104:VAL:HG13 | 42:EU:108:THR:HB   | 1.71                     | 0.73              |
| 1:F1:3269:G:H5''   | 1:F1:3269:G:N3     | 2.04                     | 0.73              |
| 9:FJ:162:HIS:CD2   | 9:FJ:164:LEU:H     | 2.06                     | 0.73              |
| 20:G2:32:C:H2'     | 20:G2:33:C:C6      | 2.21                     | 0.73              |
| 27:GF:50:TYR:CE1   | 27:GF:51:ILE:HG23  | 2.23                     | 0.73              |
| 32:GK:24:LYS:NZ    | 1:H1:967:U:O4      | 2.20                     | 0.73              |
| 32:GK:99:VAL:HB    | 18:HU:169:ILE:HD13 | 1.70                     | 0.73              |
| 32:GK:117:ARG:HD3  | 32:GK:137:ARG:NH1  | 2.03                     | 0.73              |
| 34:GM:156:GLY:HA2  | 34:GM:181:PRO:HG3  | 1.69                     | 0.73              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 36:GO:42:ARG:NH2   | 1:H1:1626:U:P      | 2.62                     | 0.73              |
| 1:H1:842:A:H8      | 2:HA:15:THR:HG23   | 1.52                     | 0.73              |
| 1:H1:1918:U:O2'    | 1:H1:1919:A:H5''   | 1.89                     | 0.73              |
| 1:H1:2411:U:OP1    | 50:H1:3824:HOH:O   | 2.06                     | 0.73              |
| 1:H1:2413:G:H4'    | 1:H1:2414:A:OP1    | 1.89                     | 0.73              |
| 1:H1:2805:A:N7     | 50:H1:3765:HOH:O   | 2.21                     | 0.73              |
| 15:HP:48:LYS:HG3   | 15:HP:49:TYR:CD2   | 2.24                     | 0.73              |
| 1:A1:742:U:O4      | 17:AT:61:LYS:HB3   | 1.88                     | 0.72              |
| 1:A1:1448:G:H4'    | 45:BX:79:ARG:NH1   | 2.04                     | 0.72              |
| 1:A1:1478:A:N7     | 50:A1:4155:HOH:O   | 2.22                     | 0.72              |
| 30:BI:49:ASN:ND2   | 30:BI:135:CYS:SG   | 2.60                     | 0.72              |
| 33:CL:27:THR:HG21  | 33:CL:124:ASP:HB3  | 1.70                     | 0.72              |
| 35:CN:141:ARG:HD3  | 1:D1:768:A:H1'     | 1.71                     | 0.72              |
| 1:D1:637:U:H2'     | 1:D1:638:U:H6      | 1.53                     | 0.72              |
| 1:D1:1046:G:O3'    | 13:FN:3:LYS:CE     | 2.37                     | 0.72              |
| 1:D1:2251:A:H1'    | 46:EY:74:PRO:CB    | 2.19                     | 0.72              |
| 1:D1:2648:U:H4'    | 1:D1:2740:G:O2'    | 1.89                     | 0.72              |
| 1:D1:2669:A:O3'    | 1:D1:2670:U:H6     | 1.71                     | 0.72              |
| 9:DJ:186:ILE:HD12  | 9:DJ:197:LEU:HB2   | 1.70                     | 0.72              |
| 20:E2:111:A:N6     | 2:FA:20:ARG:HH12   | 1.87                     | 0.72              |
| 46:EY:10:ILE:CG2   | 1:F1:862:A:H4'     | 2.18                     | 0.72              |
| 1:F1:61:A:OP2      | 50:F1:3652:HOH:O   | 2.06                     | 0.72              |
| 1:F1:450:C:H2'     | 1:F1:451:A:H8      | 1.53                     | 0.72              |
| 1:F1:904:U:O2'     | 1:F1:905:G:OP2     | 2.07                     | 0.72              |
| 1:F1:2301:C:H2'    | 1:F1:2301:C:O2     | 1.88                     | 0.72              |
| 1:F1:2545:A:H4'    | 1:F1:2546:A:OP2    | 1.88                     | 0.72              |
| 5:FE:41:LEU:HA     | 5:FE:92:GLN:NE2    | 2.03                     | 0.72              |
| 14:FO:13:ASN:OD1   | 14:FO:15:PHE:N     | 2.22                     | 0.72              |
| 19:FX:158:ASN:ND2  | 19:FX:160:ALA:HB3  | 2.03                     | 0.72              |
| 20:G2:105:A:H5''   | 20:G2:106:A:H8     | 1.53                     | 0.72              |
| 34:GM:153:THR:HG22 | 34:GM:179:ARG:HH11 | 1.54                     | 0.72              |
| 37:GP:21:THR:HA    | 37:GP:24:HIS:CD2   | 2.23                     | 0.72              |
| 1:H1:434:A:H4'     | 1:H1:435:A:C8      | 2.24                     | 0.72              |
| 1:H1:439:A:H5''    | 5:HE:126:HIS:CG    | 2.23                     | 0.72              |
| 1:H1:1109:A:H4'    | 1:H1:1110:U:O5'    | 1.87                     | 0.72              |
| 1:H1:1775:A:H4'    | 1:H1:1776:G:OP1    | 1.87                     | 0.72              |
| 1:H1:2540:G:H4'    | 1:H1:2541:U:OP2    | 1.89                     | 0.72              |
| 1:H1:3183:A:O2'    | 1:H1:3184:A:O5'    | 2.06                     | 0.72              |
| 2:HA:21:ARG:NH1    | 2:HA:44:MET:HE1    | 2.04                     | 0.72              |
| 14:HO:89:ARG:O     | 14:HO:93:VAL:HG23  | 1.89                     | 0.72              |
| 18:HU:56:VAL:HG12  | 18:HU:57:ARG:H     | 1.52                     | 0.72              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A1:406:A:H61     | 20:B2:18:G:H1'    | 1.51                     | 0.72              |
| 1:A1:1397:G:C8     | 50:A1:4228:HOH:O  | 2.42                     | 0.72              |
| 1:A1:1592:G:H2'    | 1:A1:1593:A:C8    | 2.25                     | 0.72              |
| 1:A1:1599:G:OP1    | 39:BR:43:LEU:HD12 | 1.88                     | 0.72              |
| 1:A1:2875:A:OP2    | 50:A1:4293:HOH:O  | 2.07                     | 0.72              |
| 1:A1:3106:C:H2'    | 1:A1:3107:C:H5'   | 1.70                     | 0.72              |
| 1:A1:3273:U:H4'    | 23:BB:171:GLN:HB2 | 1.70                     | 0.72              |
| 5:AE:41:LEU:HB3    | 5:AE:45:ILE:CG2   | 2.19                     | 0.72              |
| 5:AE:41:LEU:CD1    | 5:AE:45:ILE:HD13  | 2.16                     | 0.72              |
| 7:AG:11:GLN:CD     | 1:H1:2249:U:O3'   | 2.32                     | 0.72              |
| 24:BC:195:ARG:HD3  | 24:BC:199:GLY:HA3 | 1.71                     | 0.72              |
| 21:C3:53:U:H4'     | 21:C3:54:A:O5'    | 1.88                     | 0.72              |
| 24:CC:295:ILE:HD11 | 35:CN:29:LEU:HB3  | 1.70                     | 0.72              |
| 27:CF:68:PRO:HD3   | 27:CF:225:TRP:HE1 | 1.54                     | 0.72              |
| 37:CP:13:LYS:HD2   | 1:D1:1020:G:H3'   | 1.70                     | 0.72              |
| 43:CV:80:VAL:HG22  | 43:CV:188:VAL:CG2 | 2.19                     | 0.72              |
| 43:CV:93:HIS:ND1   | 43:CV:94:PRO:HD2  | 2.05                     | 0.72              |
| 1:D1:442:G:C2      | 1:D1:536:A:C2     | 2.77                     | 0.72              |
| 1:D1:1130:A:H5'    | 1:D1:1131:G:OP2   | 1.89                     | 0.72              |
| 1:D1:1700:A:H2'    | 1:D1:1701:A:C8    | 2.23                     | 0.72              |
| 1:D1:1798:U:C5'    | 1:D1:1799:C:H5'   | 2.20                     | 0.72              |
| 1:D1:2540:G:H4'    | 1:D1:2541:U:OP2   | 1.89                     | 0.72              |
| 9:DJ:77:ASN:HB3    | 9:DJ:80:GLU:HG3   | 1.71                     | 0.72              |
| 22:EA:131:SER:OG   | 22:EA:175:ARG:NH1 | 2.21                     | 0.72              |
| 22:EA:186:GLN:OE1  | 22:EA:186:GLN:HA  | 1.86                     | 0.72              |
| 30:EI:86:MET:HE3   | 1:F1:1201:G:H21   | 1.50                     | 0.72              |
| 33:EL:182:LYS:HG2  | 33:EL:183:SER:N   | 2.04                     | 0.72              |
| 1:F1:88:U:O4'      | 1:F1:280:G:O2'    | 2.07                     | 0.72              |
| 1:F1:1593:A:C6     | 1:F1:1594:C:N4    | 2.57                     | 0.72              |
| 17:FT:9:ASN:OD1    | 17:FT:12:GLN:HB2  | 1.89                     | 0.72              |
| 26:GE:73:SER:HA    | 26:GE:76:LYS:HE2  | 1.71                     | 0.72              |
| 28:GG:31:UNK:CA    | 1:H1:1257:G:C4'   | 2.67                     | 0.72              |
| 43:GV:93:HIS:HD2   | 43:GV:95:ASP:HB2  | 1.55                     | 0.72              |
| 1:H1:2368:A:OP1    | 50:H1:3763:HOH:O  | 2.07                     | 0.72              |
| 1:H1:2891:A:N7     | 50:H1:4278:HOH:O  | 2.21                     | 0.72              |
| 6:HF:3:PHE:CD1     | 19:HX:164:PRO:HB3 | 2.24                     | 0.72              |
| 6:HF:30:ILE:HG21   | 19:HX:163:PHE:HE2 | 1.53                     | 0.72              |
| 7:HG:43:PHE:CE1    | 7:HG:68:HIS:CD2   | 2.78                     | 0.72              |
| 9:HJ:30:ALA:HB3    | 9:HJ:35:TYR:CZ    | 2.24                     | 0.72              |
| 1:A1:223:C:O2'     | 1:A1:224:C:OP2    | 2.07                     | 0.72              |
| 1:A1:339:C:O2'     | 1:A1:340:G:H5'    | 1.88                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1775:A:H4'    | 1:A1:1776:G:OP1    | 1.88                     | 0.72              |
| 1:A1:2348:G:C6     | 50:A1:4566:HOH:O   | 2.41                     | 0.72              |
| 1:A1:2788:G:N7     | 32:BK:44:ARG:NH2   | 2.38                     | 0.72              |
| 1:A1:2875:A:OP2    | 50:A1:4288:HOH:O   | 2.06                     | 0.72              |
| 5:AE:88:LYS:HG2    | 5:AE:90:VAL:HG23   | 1.71                     | 0.72              |
| 38:BQ:39:LYS:HE2   | 38:BQ:119:GLY:H    | 1.54                     | 0.72              |
| 39:BR:150:ILE:HD12 | 39:BR:150:ILE:H    | 1.51                     | 0.72              |
| 21:C3:105:C:H5'    | 21:C3:105:C:H6     | 1.54                     | 0.72              |
| 25:CD:101:ASN:ND2  | 25:CD:130:VAL:HG13 | 2.04                     | 0.72              |
| 33:CL:172:ARG:HD3  | 1:D1:28:G:OP1      | 1.89                     | 0.72              |
| 33:CL:202:ARG:HH12 | 18:DU:27:ALA:HB2   | 1.52                     | 0.72              |
| 42:CU:58:TYR:O     | 42:CU:62:ILE:HD12  | 1.88                     | 0.72              |
| 1:D1:1168:C:OP1    | 50:D1:4011:HOH:O   | 2.07                     | 0.72              |
| 1:D1:1599:G:C6     | 1:D1:1600:U:C4     | 2.77                     | 0.72              |
| 2:DA:17:THR:CG2    | 2:DA:18:LEU:N      | 2.52                     | 0.72              |
| 14:DO:89:ARG:O     | 14:DO:93:VAL:HG23  | 1.90                     | 0.72              |
| 17:DT:63:VAL:O     | 17:DT:66:GLU:HG2   | 1.89                     | 0.72              |
| 20:E2:3:A:H4'      | 20:E2:4:A:OP2      | 1.88                     | 0.72              |
| 21:E3:42:A:C8      | 25:ED:72:ARG:NH1   | 2.57                     | 0.72              |
| 32:EK:122:PRO:CA   | 32:EK:142:GLY:O    | 2.37                     | 0.72              |
| 34:EM:19:LYS:HE3   | 1:F1:2677:U:C4     | 2.25                     | 0.72              |
| 45:EX:121:LEU:HB2  | 45:EX:124:ALA:HB2  | 1.70                     | 0.72              |
| 1:F1:19:A:H4'      | 1:F1:20:G:OP2      | 1.89                     | 0.72              |
| 1:F1:638:U:H2'     | 1:F1:639:U:C6      | 2.24                     | 0.72              |
| 1:F1:2343:A:H3'    | 1:F1:2344:U:H5''   | 1.70                     | 0.72              |
| 1:F1:2500:C:H2'    | 1:F1:2501:A:H8     | 1.53                     | 0.72              |
| 5:FE:47:PRO:O      | 5:FE:101:LYS:HE3   | 1.89                     | 0.72              |
| 5:FE:120:GLU:OE2   | 5:FE:138:GLN:HA    | 1.88                     | 0.72              |
| 8:FH:54:LYS:HD3    | 8:FH:110:PRO:HG2   | 1.71                     | 0.72              |
| 23:GB:36:ASP:OD1   | 23:GB:38:SER:N     | 2.20                     | 0.72              |
| 23:GB:272:HIS:HD2  | 1:H1:3127:U:OP1    | 1.72                     | 0.72              |
| 27:GF:183:VAL:CG1  | 27:GF:185:LYS:HE3  | 2.19                     | 0.72              |
| 36:GO:133:LYS:HG3  | 36:GO:134:ASN:H    | 1.54                     | 0.72              |
| 4:HC:7:THR:HB      | 4:HC:94:ILE:HD11   | 1.69                     | 0.72              |
| 5:HE:69:LEU:HD21   | 5:HE:114:ASP:CB    | 2.20                     | 0.72              |
| 6:HF:20:ASP:OD2    | 6:HF:46:GLN:NE2    | 2.22                     | 0.72              |
| 13:HN:54:THR:HG22  | 13:HN:56:ARG:H     | 1.53                     | 0.72              |
| 1:A1:438:A:O3'     | 1:A1:439:A:C8      | 2.43                     | 0.72              |
| 1:A1:548:G:H22     | 1:A1:619:G:H21     | 1.34                     | 0.72              |
| 1:A1:852:A:H5''    | 11:AL:14:ASN:O     | 1.88                     | 0.72              |
| 1:A1:1321:A:HO2'   | 1:A1:1322:G:P      | 2.12                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1376:A:H5''   | 1:A1:1377:A:H5'    | 1.70                     | 0.72              |
| 13:AN:11:VAL:HG12  | 13:AN:82:PRO:HA    | 1.71                     | 0.72              |
| 14:AO:90:VAL:CG1   | 14:AO:111:LEU:HD11 | 2.18                     | 0.72              |
| 16:AQ:71:LYS:HE2   | 16:AQ:75:LYS:HE2   | 1.71                     | 0.72              |
| 38:BQ:34:VAL:HG22  | 38:BQ:60:ILE:CD1   | 2.20                     | 0.72              |
| 45:BX:84:LEU:HD12  | 45:BX:110:LEU:HD22 | 1.72                     | 0.72              |
| 27:CF:19:ASN:HB3   | 27:CF:20:PRO:CD    | 2.19                     | 0.72              |
| 31:CJ:46:ILE:HD11  | 31:CJ:54:PRO:HB3   | 1.71                     | 0.72              |
| 41:CT:37:LYS:HE3   | 41:CT:53:TRP:CZ2   | 2.24                     | 0.72              |
| 1:D1:284:U:H1'     | 50:D1:3850:HOH:O   | 1.88                     | 0.72              |
| 1:D1:579:G:H1'     | 19:DX:158:ASN:N    | 2.04                     | 0.72              |
| 1:D1:1413:G:O2'    | 1:D1:1414:C:H5'    | 1.88                     | 0.72              |
| 1:D1:1840:U:H1'    | 1:D1:1841:A:OP2    | 1.89                     | 0.72              |
| 1:D1:2301:C:H2'    | 1:D1:2301:C:O2     | 1.89                     | 0.72              |
| 1:D1:3128:G:H5'    | 1:D1:3128:G:C8     | 2.24                     | 0.72              |
| 6:DF:13:VAL:HG21   | 6:DF:27:ILE:HD11   | 1.70                     | 0.72              |
| 9:DJ:33:ASN:O      | 9:DJ:37:VAL:HG23   | 1.89                     | 0.72              |
| 20:E2:41:U:C2      | 42:EU:93:ARG:NH2   | 2.57                     | 0.72              |
| 21:E3:81:A:C2'     | 21:E3:82:G:H5''    | 2.20                     | 0.72              |
| 21:E3:110:G:O6     | 34:EM:21:ARG:HD2   | 1.89                     | 0.72              |
| 1:F1:3093:U:OP2    | 50:F1:4461:HOH:O   | 2.07                     | 0.72              |
| 8:FH:57:VAL:HG22   | 8:FH:74:TRP:CZ3    | 2.25                     | 0.72              |
| 22:GA:35:PHE:CD1   | 1:H1:2520:G:H2'    | 2.24                     | 0.72              |
| 23:GB:145:LEU:O    | 23:GB:148:ARG:HB2  | 1.90                     | 0.72              |
| 35:GN:141:ARG:HD3  | 1:H1:768:A:C1'     | 2.19                     | 0.72              |
| 38:GQ:103:ASN:HD21 | 1:H1:388:A:C2'     | 2.01                     | 0.72              |
| 45:GX:43:ARG:HH22  | 1:H1:660:C:H2'     | 1.53                     | 0.72              |
| 45:GX:84:LEU:HD12  | 45:GX:110:LEU:HD22 | 1.69                     | 0.72              |
| 1:H1:612:C:O2'     | 1:H1:613:U:H5'     | 1.90                     | 0.72              |
| 1:H1:1660:U:O2'    | 13:HN:79:HIS:HD2   | 1.71                     | 0.72              |
| 5:HE:88:LYS:HG2    | 5:HE:90:VAL:HG23   | 1.72                     | 0.72              |
| 6:HF:2:VAL:HG12    | 6:HF:3:PHE:H       | 1.55                     | 0.72              |
| 6:HF:30:ILE:HG21   | 19:HX:163:PHE:CE2  | 2.25                     | 0.72              |
| 1:A1:827:C:O2'     | 24:BC:107:PHE:HE1  | 1.70                     | 0.72              |
| 1:A1:2516:U:H3     | 1:A1:2518:A:H8     | 1.36                     | 0.72              |
| 1:A1:3269:G:H5''   | 1:A1:3269:G:N3     | 2.04                     | 0.72              |
| 24:CC:284:GLN:HG2  | 35:CN:108:GLU:OE2  | 1.89                     | 0.72              |
| 32:CK:104:VAL:HG12 | 32:CK:109:PHE:HB2  | 1.71                     | 0.72              |
| 43:CV:133:PHE:O    | 43:CV:226:ASN:HA   | 1.89                     | 0.72              |
| 1:D1:1580:G:C4'    | 1:D1:1581:C:OP1    | 2.37                     | 0.72              |
| 1:D1:2309:U:H4'    | 1:D1:2310:G:OP2    | 1.88                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2362:A:OP2    | 50:D1:3933:HOH:O   | 2.06                     | 0.72              |
| 1:D1:3125:G:OP2    | 50:D1:4809:HOH:O   | 2.06                     | 0.72              |
| 6:DF:8:GLN:HE21    | 6:DF:11:ARG:NH1    | 1.86                     | 0.72              |
| 20:E2:58:U:N3      | 20:E2:65:C:H5      | 1.87                     | 0.72              |
| 23:EB:121:ASN:HB2  | 1:F1:3275:A:N7     | 2.05                     | 0.72              |
| 23:EB:185:LYS:HB2  | 23:EB:188:GLU:HG3  | 1.70                     | 0.72              |
| 24:EC:65:MET:CE    | 24:EC:105:ARG:HH11 | 2.03                     | 0.72              |
| 24:EC:227:LEU:HD12 | 24:EC:235:VAL:HG22 | 1.71                     | 0.72              |
| 30:EI:194:ALA:HA   | 30:EI:198:TYR:HB2  | 1.72                     | 0.72              |
| 32:EK:81:TRP:HZ2   | 32:EK:123:VAL:HG22 | 1.53                     | 0.72              |
| 37:EP:26:ARG:O     | 37:EP:29:ARG:HG3   | 1.88                     | 0.72              |
| 43:EV:31:SER:HA    | 1:F1:628:A:OP1     | 1.89                     | 0.72              |
| 1:F1:434:A:H4'     | 1:F1:435:A:C8      | 2.24                     | 0.72              |
| 1:F1:442:G:C2      | 1:F1:536:A:C2      | 2.78                     | 0.72              |
| 9:FJ:35:TYR:O      | 9:FJ:39:GLU:HG3    | 1.89                     | 0.72              |
| 20:G2:33:C:C2'     | 20:G2:34:G:H5'     | 2.19                     | 0.72              |
| 23:GB:265:ALA:O    | 1:H1:2977:U:O2'    | 2.06                     | 0.72              |
| 28:GG:81:UNK:HB1   | 1:H1:1308:U:O2'    | 1.89                     | 0.72              |
| 38:GQ:82:GLN:NE2   | 1:H1:2383:U:O2'    | 2.22                     | 0.72              |
| 39:GR:35:VAL:HG11  | 1:H1:2518:A:H3'    | 1.72                     | 0.72              |
| 41:GT:5:THR:HG21   | 41:GT:14:ARG:CG    | 2.20                     | 0.72              |
| 1:H1:713:G:O6      | 1:H1:716:A:OP2     | 2.07                     | 0.72              |
| 1:H1:2994:G:HO2'   | 1:H1:2995:A:H8     | 1.35                     | 0.72              |
| 1:H1:3227:A:C5'    | 5:HE:57:ARG:NH1    | 2.47                     | 0.72              |
| 5:HE:102:VAL:CG2   | 5:HE:170:LEU:HD21  | 2.19                     | 0.72              |
| 6:HF:8:GLN:HE21    | 6:HF:11:ARG:NH1    | 1.86                     | 0.72              |
| 6:HF:13:VAL:CG1    | 6:HF:53:VAL:HG22   | 2.19                     | 0.72              |
| 9:HJ:33:ASN:O      | 9:HJ:37:VAL:HG23   | 1.89                     | 0.72              |
| 1:A1:148:G:C5'     | 33:BL:55:ASN:HD22  | 2.03                     | 0.72              |
| 1:A1:439:A:H5''    | 5:AE:126:HIS:HD1   | 1.53                     | 0.72              |
| 1:A1:615:G:H21     | 8:AH:79:LYS:HE2    | 1.54                     | 0.72              |
| 1:A1:1562:G:C6     | 50:A1:4048:HOH:O   | 2.43                     | 0.72              |
| 1:A1:3109:C:C3'    | 10:AK:111:ARG:HH12 | 1.98                     | 0.72              |
| 13:AN:130:LYS:HG2  | 1:H1:2664:C:P      | 2.29                     | 0.72              |
| 18:AU:144:SER:HB2  | 42:BU:123:LYS:HZ1  | 1.51                     | 0.72              |
| 21:B3:42:A:C8      | 25:BD:72:ARG:NH1   | 2.58                     | 0.72              |
| 36:BO:115:ILE:HG22 | 36:BO:119:GLN:HB2  | 1.71                     | 0.72              |
| 46:BY:73:THR:HG22  | 46:BY:75:PRO:HD2   | 1.71                     | 0.72              |
| 23:CB:19:ARG:O     | 23:CB:271:HIS:HE1  | 1.73                     | 0.72              |
| 24:CC:188:VAL:HG21 | 24:CC:231:PRO:O    | 1.89                     | 0.72              |
| 24:CC:376:TRP:HD1  | 1:D1:564:A:C1'     | 1.94                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:612:C:O2'     | 1:D1:613:U:H5'     | 1.90                     | 0.72              |
| 1:D1:1053:A:H1'    | 1:D1:1054:G:OP2    | 1.89                     | 0.72              |
| 1:D1:1149:U:C2'    | 1:D1:1150:U:H5'    | 2.20                     | 0.72              |
| 1:D1:1662:A:H5'    | 11:DL:76:ARG:HH21  | 1.47                     | 0.72              |
| 1:D1:3227:A:C1'    | 5:DE:86:PRO:HG3    | 2.20                     | 0.72              |
| 1:D1:3232:A:C6     | 1:D1:3233:A:C2     | 2.78                     | 0.72              |
| 25:ED:29:LYS:HA    | 25:ED:32:LYS:HD2   | 1.72                     | 0.72              |
| 27:EF:154:GLU:OE2  | 33:EL:26:ARG:NH2   | 2.22                     | 0.72              |
| 32:EK:104:VAL:HG12 | 32:EK:109:PHE:HB2  | 1.72                     | 0.72              |
| 33:EL:27:THR:HG21  | 33:EL:124:ASP:HB3  | 1.72                     | 0.72              |
| 43:EV:156:GLN:OE1  | 1:F1:1389:G:H1'    | 1.90                     | 0.72              |
| 1:F1:612:C:O2'     | 1:F1:613:U:H5'     | 1.89                     | 0.72              |
| 1:F1:1731:G:H21    | 11:FL:54:ASN:ND2   | 1.86                     | 0.72              |
| 21:G3:83:G:H1      | 21:G3:93:G:N2      | 1.88                     | 0.72              |
| 21:G3:105:C:H5'    | 21:G3:105:C:H6     | 1.54                     | 0.72              |
| 22:GA:118:GLU:OE2  | 22:GA:164:ARG:HD2  | 1.89                     | 0.72              |
| 23:GB:19:ARG:O     | 23:GB:271:HIS:HE1  | 1.72                     | 0.72              |
| 23:GB:332:ARG:HH11 | 23:GB:332:ARG:HG3  | 1.54                     | 0.72              |
| 24:GC:105:ARG:HH11 | 24:GC:105:ARG:HG2  | 1.53                     | 0.72              |
| 30:GI:194:ALA:HA   | 30:GI:198:TYR:HB2  | 1.71                     | 0.72              |
| 32:GK:81:TRP:HZ2   | 32:GK:123:VAL:HG22 | 1.55                     | 0.72              |
| 1:H1:655:A:H2'     | 1:H1:656:C:C6      | 2.24                     | 0.72              |
| 1:H1:684:A:C2      | 1:H1:1461:A:C2     | 2.77                     | 0.72              |
| 1:H1:1052:A:H2     | 1:H1:1053:A:C5     | 2.08                     | 0.72              |
| 1:H1:1173:A:H2'    | 1:H1:1174:G:C8     | 2.23                     | 0.72              |
| 1:H1:1210:C:O3'    | 19:HX:171:ARG:NH2  | 2.23                     | 0.72              |
| 5:HE:41:LEU:HB3    | 5:HE:45:ILE:CG2    | 2.19                     | 0.72              |
| 5:HE:83:ASN:ND2    | 5:HE:174:LEU:O     | 2.22                     | 0.72              |
| 8:HH:9:VAL:HG12    | 8:HH:10:ALA:N      | 2.05                     | 0.72              |
| 1:A1:161:U:H2'     | 1:A1:162:C:H5''    | 1.69                     | 0.72              |
| 1:A1:768:A:H1'     | 35:BN:141:ARG:HD3  | 1.70                     | 0.72              |
| 1:A1:2669:A:O3'    | 1:A1:2670:U:H6     | 1.73                     | 0.72              |
| 33:BL:110:VAL:HG12 | 33:BL:113:LEU:HG   | 1.72                     | 0.72              |
| 34:BM:180:PHE:CD1  | 34:BM:200:HIS:CE1  | 2.78                     | 0.72              |
| 40:BS:80:HIS:ND1   | 40:BS:95:GLN:HB3   | 2.04                     | 0.72              |
| 43:BV:96:VAL:HG22  | 43:BV:126:ARG:HG3  | 1.71                     | 0.72              |
| 21:C3:43:A:OP1     | 25:CD:137:ARG:HD2  | 1.89                     | 0.72              |
| 24:CC:272:THR:HG22 | 24:CC:273:TYR:N    | 2.04                     | 0.72              |
| 1:D1:753:A:H61     | 1:D1:766:G:H1'     | 1.53                     | 0.72              |
| 1:D1:1579:U:H5''   | 1:D1:1580:G:OP1    | 1.89                     | 0.72              |
| 20:E2:90:G:O6      | 50:E2:341:HOH:O    | 2.07                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:E3:3:U:H2'      | 21:E3:4:G:C8       | 2.24                     | 0.72              |
| 25:ED:65:MET:SD    | 1:F1:2669:A:O2'    | 2.48                     | 0.72              |
| 30:EI:158:LYS:HD3  | 30:EI:158:LYS:C    | 2.15                     | 0.72              |
| 1:F1:147:U:H4'     | 1:F1:148:G:OP2     | 1.90                     | 0.72              |
| 1:F1:933:G:H4'     | 1:F1:934:G:H5''    | 1.70                     | 0.72              |
| 1:F1:2576:C:H6     | 1:F1:2576:C:H5''   | 1.55                     | 0.72              |
| 1:F1:2648:U:H4'    | 1:F1:2740:G:O2'    | 1.90                     | 0.72              |
| 1:F1:2714:U:O2'    | 50:F1:4090:HOH:O   | 2.07                     | 0.72              |
| 21:G3:27:A:H5''    | 34:GM:57:ASN:HD21  | 1.53                     | 0.72              |
| 22:GA:205:MET:HE3  | 1:H1:939:A:N1      | 2.05                     | 0.72              |
| 22:GA:218:GLN:OE1  | 50:GA:405:HOH:O    | 2.06                     | 0.72              |
| 25:GD:124:GLY:HA3  | 1:H1:2663:A:C6     | 2.25                     | 0.72              |
| 33:GL:148:ILE:O    | 33:GL:151:ILE:HG22 | 1.90                     | 0.72              |
| 36:GO:115:ILE:HG22 | 36:GO:119:GLN:HB2  | 1.72                     | 0.72              |
| 41:GT:58:ARG:NH2   | 1:H1:3325:G:C4     | 2.58                     | 0.72              |
| 1:H1:362:G:H3'     | 1:H1:363:G:H5''    | 1.72                     | 0.72              |
| 1:H1:419:A:C2      | 1:H1:2358:A:H4'    | 2.25                     | 0.72              |
| 1:H1:2371:G:O2'    | 1:H1:2372:G:H8     | 1.72                     | 0.72              |
| 5:HE:69:LEU:HD11   | 5:HE:114:ASP:N     | 2.04                     | 0.72              |
| 7:HG:47:ASN:HD21   | 7:HG:73:SER:HB3    | 1.54                     | 0.72              |
| 17:HT:55:LYS:HB3   | 17:HT:59:LEU:HD23  | 1.72                     | 0.72              |
| 19:HX:93:LEU:HD21  | 19:HX:120:LEU:HD21 | 1.70                     | 0.72              |
| 1:A1:768:A:H5'     | 35:BN:141:ARG:O    | 1.89                     | 0.72              |
| 1:A1:1037:A:OP1    | 29:BH:40:LYS:NZ    | 2.22                     | 0.72              |
| 1:A1:1216:C:H2'    | 30:BI:132:ARG:HH12 | 1.55                     | 0.72              |
| 1:A1:1593:A:C6     | 1:A1:1594:C:N4     | 2.58                     | 0.72              |
| 1:A1:2246:G:H2'    | 1:A1:2247:A:C8     | 2.25                     | 0.72              |
| 1:A1:2301:C:H2'    | 1:A1:2301:C:O2     | 1.89                     | 0.72              |
| 4:AC:70:PHE:HE2    | 4:AC:81:ILE:HD12   | 1.55                     | 0.72              |
| 5:AE:42:ARG:HH12   | 8:AH:111:ASN:ND2   | 1.87                     | 0.72              |
| 19:AX:93:LEU:HD21  | 19:AX:120:LEU:HD21 | 1.69                     | 0.72              |
| 20:B2:137:G:H21    | 33:BL:112:GLU:HG2  | 1.53                     | 0.72              |
| 31:BJ:11:VAL:HG12  | 31:BJ:11:VAL:O     | 1.88                     | 0.72              |
| 31:BJ:83:ILE:HG23  | 31:BJ:122:VAL:HG13 | 1.72                     | 0.72              |
| 23:CB:157:ARG:HG2  | 23:CB:180:GLN:HA   | 1.72                     | 0.72              |
| 26:CE:52:ASN:OD1   | 26:CE:53:VAL:N     | 2.23                     | 0.72              |
| 34:CM:142:PHE:CE1  | 1:D1:1107:A:C8     | 2.78                     | 0.72              |
| 38:CQ:71:ARG:HD2   | 1:D1:3268:C:O2     | 1.90                     | 0.72              |
| 43:CV:170:LEU:HB3  | 43:CV:175:ILE:HD12 | 1.72                     | 0.72              |
| 43:CV:208:ARG:O    | 1:D1:1195:U:OP1    | 2.08                     | 0.72              |
| 44:CW:73:ARG:HG3   | 44:CW:95:LEU:HD11  | 1.70                     | 0.72              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:525:C:O2     | 1:D1:525:C:C2'     | 2.32                     | 0.72              |
| 1:D1:852:A:H5''   | 11:DL:14:ASN:O     | 1.89                     | 0.72              |
| 1:D1:2101:G:H8    | 1:D1:2101:G:H5'    | 1.55                     | 0.72              |
| 1:D1:2516:U:H3    | 1:D1:2518:A:H8     | 1.38                     | 0.72              |
| 1:D1:2600:U:H2'   | 1:D1:2601:U:C6     | 2.24                     | 0.72              |
| 36:EO:109:TYR:HB3 | 36:EO:115:ILE:CG1  | 2.19                     | 0.72              |
| 41:ET:5:THR:HG21  | 41:ET:14:ARG:CG    | 2.20                     | 0.72              |
| 1:F1:846:C:OP1    | 50:F1:3910:HOH:O   | 2.08                     | 0.72              |
| 1:F1:1035:A:H2'   | 1:F1:1036:G:H8     | 1.54                     | 0.72              |
| 1:F1:1149:U:C2'   | 1:F1:1150:U:H5'    | 2.19                     | 0.72              |
| 1:F1:1592:G:H2'   | 1:F1:1593:A:C8     | 2.25                     | 0.72              |
| 1:F1:2254:A:H4'   | 1:F1:2255:U:OP2    | 1.90                     | 0.72              |
| 1:F1:2413:G:H4'   | 1:F1:2414:A:OP1    | 1.90                     | 0.72              |
| 1:F1:2741:U:H4'   | 1:F1:2742:G:OP2    | 1.90                     | 0.72              |
| 1:F1:3234:U:O2'   | 8:FH:105:ARG:NH1   | 2.22                     | 0.72              |
| 14:FO:52:GLY:HA3  | 14:FO:118:ASN:HD21 | 1.53                     | 0.72              |
| 24:GC:99:ASN:HD22 | 24:GC:100:GLN:HE21 | 1.36                     | 0.72              |
| 43:GV:80:VAL:HG22 | 43:GV:188:VAL:CG2  | 2.19                     | 0.72              |
| 1:H1:304:U:O2'    | 1:H1:305:A:P       | 2.47                     | 0.72              |
| 1:H1:832:A:N6     | 1:H1:959:G:H1      | 1.87                     | 0.72              |
| 1:H1:1047:G:H2'   | 1:H1:1048:U:H5'    | 1.69                     | 0.72              |
| 1:H1:1090:A:O2'   | 1:H1:1091:G:OP2    | 2.08                     | 0.72              |
| 4:HC:27:LYS:HD3   | 4:HC:27:LYS:N      | 2.05                     | 0.72              |
| 4:HC:70:PHE:HE2   | 4:HC:81:ILE:HD12   | 1.55                     | 0.72              |
| 11:HL:37:LYS:HB2  | 11:HL:60:ARG:HH21  | 1.53                     | 0.72              |
| 13:HN:36:ARG:NH1  | 13:HN:74:TYR:CG    | 2.57                     | 0.72              |
| 1:A1:434:A:H5''   | 1:A1:435:A:OP1     | 1.89                     | 0.72              |
| 1:A1:497:G:C2'    | 1:A1:498:A:H5'     | 2.20                     | 0.72              |
| 1:A1:682:G:O6     | 50:A1:3960:HOH:O   | 2.07                     | 0.72              |
| 1:A1:1580:G:C4'   | 1:A1:1581:C:OP1    | 2.38                     | 0.72              |
| 1:A1:1779:C:N4    | 50:A1:4699:HOH:O   | 2.22                     | 0.72              |
| 1:A1:1845:U:H4'   | 1:A1:1846:C:OP2    | 1.90                     | 0.72              |
| 6:AF:20:ASP:OD2   | 6:AF:46:GLN:NE2    | 2.23                     | 0.72              |
| 7:AG:10:ILE:HG23  | 7:AG:13:LYS:HE2    | 1.71                     | 0.72              |
| 13:AN:25:ILE:HG23 | 13:AN:41:VAL:HG13  | 1.72                     | 0.72              |
| 21:B3:4:G:H4'     | 21:B3:26:C:C4'     | 2.20                     | 0.72              |
| 22:BA:78:ILE:CD1  | 22:BA:129:ARG:HD3  | 2.20                     | 0.72              |
| 28:BG:22:UNK:CG   | 28:BG:92:UNK:HB1   | 2.19                     | 0.72              |
| 30:BI:16:GLY:O    | 30:BI:19:ALA:HB3   | 1.88                     | 0.72              |
| 30:BI:159:ARG:HD2 | 30:BI:162:ARG:HH21 | 1.51                     | 0.72              |
| 33:BL:27:THR:HG21 | 33:BL:124:ASP:HB3  | 1.71                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 42:CU:104:VAL:HG13 | 42:CU:108:THR:HB   | 1.72                     | 0.72              |
| 1:D1:450:C:H2'     | 1:D1:451:A:H8      | 1.54                     | 0.72              |
| 1:D1:1446:C:C6     | 1:D1:1446:C:H5'    | 2.25                     | 0.72              |
| 1:D1:3106:C:H2'    | 1:D1:3107:C:H5'    | 1.72                     | 0.72              |
| 6:DF:28:VAL:HG12   | 6:DF:66:ASN:H      | 1.54                     | 0.72              |
| 24:EC:157:TYR:CD1  | 24:EC:159:PHE:CE1  | 2.77                     | 0.72              |
| 26:EE:45:ILE:HA    | 26:EE:55:LEU:HD23  | 1.71                     | 0.72              |
| 33:EL:187:SER:OG   | 1:F1:27:C:OP1      | 2.07                     | 0.72              |
| 1:F1:906:C:OP1     | 50:F1:4033:HOH:O   | 2.07                     | 0.72              |
| 1:F1:1360:C:C2'    | 1:F1:1361:U:H5''   | 2.19                     | 0.72              |
| 14:FO:75:THR:HG21  | 14:FO:77:GLU:CD    | 2.15                     | 0.72              |
| 28:GG:22:UNK:CG    | 28:GG:92:UNK:HB1   | 2.18                     | 0.72              |
| 29:GH:48:TYR:HE1   | 29:GH:178:ARG:CZ   | 2.02                     | 0.72              |
| 32:GK:118:LEU:CB   | 32:GK:141:VAL:HG21 | 2.20                     | 0.72              |
| 43:GV:122:ASN:ND2  | 1:H1:1013:U:OP1    | 2.22                     | 0.72              |
| 45:GX:121:LEU:HB2  | 45:GX:124:ALA:HB2  | 1.72                     | 0.72              |
| 46:GY:10:ILE:HG22  | 1:H1:862:A:H4'     | 1.72                     | 0.72              |
| 1:H1:525:C:H4'     | 1:H1:526:U:OP1     | 1.88                     | 0.72              |
| 1:H1:1210:C:O2'    | 19:HX:13:THR:HG21  | 1.88                     | 0.72              |
| 9:HJ:142:ILE:HD13  | 9:HJ:152:CYS:HB3   | 1.72                     | 0.72              |
| 11:HL:37:LYS:HB2   | 11:HL:60:ARG:NH2   | 2.05                     | 0.72              |
| 1:A1:71:U:O2'      | 1:A1:72:A:P        | 2.48                     | 0.72              |
| 1:A1:282:G:H22     | 1:A1:304:U:H5'     | 1.54                     | 0.72              |
| 1:A1:936:C:H5''    | 22:BA:16:VAL:CG2   | 2.20                     | 0.72              |
| 1:A1:1594:C:H2'    | 1:A1:1595:A:H5'    | 1.72                     | 0.72              |
| 1:A1:2332:C:OP2    | 23:BB:238:LYS:HE3  | 1.90                     | 0.72              |
| 1:A1:2439:C:H2'    | 1:A1:2440:A:C8     | 2.25                     | 0.72              |
| 15:AP:48:LYS:HG3   | 15:AP:49:TYR:CE1   | 2.25                     | 0.72              |
| 19:AX:13:THR:HG22  | 19:AX:14:LEU:HD23  | 1.72                     | 0.72              |
| 22:CA:62:VAL:HG21  | 22:CA:77:PHE:CD2   | 2.19                     | 0.72              |
| 24:CC:227:LEU:HD12 | 24:CC:235:VAL:HG22 | 1.72                     | 0.72              |
| 26:CE:144:LEU:HD12 | 26:CE:156:CYS:SG   | 2.29                     | 0.72              |
| 34:CM:209:ILE:O    | 34:CM:213:MET:HG2  | 1.89                     | 0.72              |
| 35:CN:141:ARG:O    | 1:D1:768:A:H5'     | 1.90                     | 0.72              |
| 40:CS:55:VAL:HG11  | 40:CS:103:LEU:HD13 | 1.71                     | 0.72              |
| 42:CU:32:LEU:O     | 42:CU:35:ALA:HB3   | 1.90                     | 0.72              |
| 43:CV:93:HIS:HD2   | 43:CV:95:ASP:HB2   | 1.54                     | 0.72              |
| 1:D1:851:G:HO2'    | 1:D1:1614:A:H8     | 1.37                     | 0.72              |
| 9:DJ:123:ARG:HD3   | 9:FJ:123:ARG:HH21  | 1.53                     | 0.72              |
| 13:DN:76:ASN:HB3   | 13:DN:79:HIS:CD2   | 2.25                     | 0.72              |
| 15:DP:48:LYS:HG3   | 15:DP:49:TYR:CE2   | 2.24                     | 0.72              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 16:DQ:25:HIS:NE2   | 50:DQ:302:HOH:O    | 2.22                     | 0.72              |
| 20:E2:100:C:P      | 39:ER:56:ARG:NH2   | 2.62                     | 0.72              |
| 21:E3:11:A:O2'     | 21:E3:12:U:H3'     | 1.90                     | 0.72              |
| 46:EY:64:ILE:CD1   | 46:EY:71:LEU:HD11  | 2.18                     | 0.72              |
| 1:F1:232:C:H4'     | 1:F1:233:G:OP2     | 1.89                     | 0.72              |
| 1:F1:3237:C:H41    | 8:FH:10:ALA:HA     | 1.50                     | 0.72              |
| 9:FJ:77:ASN:HB3    | 9:FJ:80:GLU:HG3    | 1.72                     | 0.72              |
| 24:GC:157:TYR:CD1  | 24:GC:159:PHE:CE1  | 2.77                     | 0.72              |
| 25:GD:124:GLY:HA3  | 1:H1:2663:A:C5     | 2.25                     | 0.72              |
| 26:GE:169:ASP:OD1  | 26:GE:171:ARG:HG3  | 1.89                     | 0.72              |
| 34:GM:19:LYS:HE3   | 1:H1:2677:U:C4     | 2.25                     | 0.72              |
| 37:GP:74:VAL:HG12  | 37:GP:75:ILE:N     | 2.05                     | 0.72              |
| 1:H1:279:U:C2      | 1:H1:281:G:OP2     | 2.42                     | 0.72              |
| 1:H1:821:U:H6      | 1:H1:821:U:H5'     | 1.53                     | 0.72              |
| 1:H1:1146:C:H42    | 17:HT:10:LYS:NZ    | 1.88                     | 0.72              |
| 1:H1:1313:A:C4'    | 1:H1:1314:A:OP1    | 2.38                     | 0.72              |
| 1:H1:1495:C:H4'    | 1:H1:1496:U:OP2    | 1.89                     | 0.72              |
| 1:H1:2416:U:H2'    | 1:H1:2417:C:O4'    | 1.90                     | 0.72              |
| 1:H1:2544:U:H1'    | 7:HG:50:THR:CG2    | 2.13                     | 0.72              |
| 2:HA:17:THR:HG22   | 2:HA:18:LEU:N      | 2.05                     | 0.72              |
| 13:HN:76:ASN:HB3   | 13:HN:79:HIS:CD2   | 2.25                     | 0.72              |
| 1:A1:1107:A:H3'    | 1:A1:1108:A:H8     | 1.55                     | 0.71              |
| 1:A1:2545:A:H4'    | 1:A1:2546:A:OP2    | 1.88                     | 0.71              |
| 1:A1:3168:A:H8     | 1:A1:3168:A:OP1    | 1.72                     | 0.71              |
| 1:A1:3275:A:N7     | 23:BB:121:ASN:HB2  | 2.05                     | 0.71              |
| 7:AG:27:TYR:CD2    | 7:AG:52:ARG:HD3    | 2.24                     | 0.71              |
| 23:BB:203:VAL:HG11 | 23:BB:320:ILE:HD11 | 1.71                     | 0.71              |
| 26:BE:169:ASP:OD1  | 26:BE:171:ARG:HG3  | 1.90                     | 0.71              |
| 39:BR:73:THR:HG23  | 42:BU:37:ILE:HD13  | 1.71                     | 0.71              |
| 21:C3:30:G:O2'     | 21:C3:31:G:H5'     | 1.89                     | 0.71              |
| 27:CF:25:LYS:N     | 1:D1:2552:A:N3     | 2.37                     | 0.71              |
| 47:CO:174:UNK:HB2  | 29:EH:81:SER:CB    | 2.20                     | 0.71              |
| 1:D1:766:G:O6      | 50:D1:4059:HOH:O   | 2.07                     | 0.71              |
| 1:D1:1343:G:H4'    | 1:D1:1344:A:OP2    | 1.89                     | 0.71              |
| 1:D1:1598:C:C2'    | 1:D1:1599:G:H5'    | 2.20                     | 0.71              |
| 1:D1:2180:G:H1'    | 50:D1:4287:HOH:O   | 1.89                     | 0.71              |
| 1:D1:2239:A:O5'    | 50:D1:4288:HOH:O   | 2.06                     | 0.71              |
| 1:D1:2251:A:O2'    | 46:EY:75:PRO:HD3   | 1.89                     | 0.71              |
| 1:D1:3115:C:H5'    | 1:D1:3115:C:H6     | 1.55                     | 0.71              |
| 13:DN:10:VAL:O     | 13:DN:83:THR:HB    | 1.89                     | 0.71              |
| 21:E3:33:U:C4      | 34:EM:212:TYR:CE1  | 2.78                     | 0.71              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:EA:78:ILE:CD1   | 22:EA:129:ARG:HD3  | 2.19                     | 0.71              |
| 24:EC:281:SER:OG   | 1:F1:721:C:OP1     | 2.04                     | 0.71              |
| 31:EJ:90:ARG:HB2   | 31:EJ:96:PHE:CE2   | 2.25                     | 0.71              |
| 32:EK:21:ARG:NH2   | 1:F1:664:U:OP1     | 2.23                     | 0.71              |
| 33:EL:65:ARG:HB2   | 33:EL:127:TYR:HD2  | 1.54                     | 0.71              |
| 33:EL:147:ARG:NH2  | 1:F1:111:C:OP1     | 2.23                     | 0.71              |
| 35:EN:4:ASP:OD1    | 43:EV:106:ARG:HD3  | 1.89                     | 0.71              |
| 44:EW:16:HIS:HD2   | 1:F1:3330:U:OP1    | 1.73                     | 0.71              |
| 1:F1:517:A:O2'     | 1:F1:518:G:H3'     | 1.90                     | 0.71              |
| 1:F1:1580:G:C4'    | 1:F1:1581:C:OP1    | 2.37                     | 0.71              |
| 1:F1:2500:C:H2'    | 1:F1:2501:A:C8     | 2.25                     | 0.71              |
| 1:F1:3128:G:H5'    | 1:F1:3128:G:C8     | 2.24                     | 0.71              |
| 2:FA:17:THR:CG2    | 2:FA:18:LEU:N      | 2.52                     | 0.71              |
| 2:FA:21:ARG:CD     | 2:FA:44:MET:HE1    | 2.20                     | 0.71              |
| 7:FG:27:TYR:CD2    | 7:FG:52:ARG:HD3    | 2.25                     | 0.71              |
| 9:FJ:33:ASN:O      | 9:FJ:37:VAL:HG23   | 1.90                     | 0.71              |
| 19:FX:176:LYS:HE2  | 19:FX:177:TYR:CZ   | 2.24                     | 0.71              |
| 21:G3:8:G:OP1      | 34:GM:33:ARG:NH1   | 2.22                     | 0.71              |
| 30:GI:196:PHE:CD1  | 6:HF:111:VAL:HG22  | 2.25                     | 0.71              |
| 32:GK:44:ARG:NH2   | 1:H1:2788:G:N7     | 2.37                     | 0.71              |
| 40:GS:84:ILE:O     | 40:GS:96:ILE:HD12  | 1.90                     | 0.71              |
| 40:GS:86:LYS:HG3   | 40:GS:96:ILE:HD11  | 1.71                     | 0.71              |
| 43:GV:86:ILE:HG22  | 43:GV:214:LYS:HE3  | 1.72                     | 0.71              |
| 1:H1:1255:A:C2     | 1:H1:1309:G:C5     | 2.78                     | 0.71              |
| 1:H1:2625:A:H5'    | 1:H1:2626:A:C5'    | 2.20                     | 0.71              |
| 1:H1:3106:C:H2'    | 1:H1:3107:C:H5'    | 1.72                     | 0.71              |
| 1:A1:1376:A:H4'    | 1:A1:1377:A:OP2    | 1.89                     | 0.71              |
| 1:A1:1561:A:OP2    | 50:A1:4044:HOH:O   | 2.08                     | 0.71              |
| 1:A1:1599:G:C6     | 1:A1:1600:U:C4     | 2.78                     | 0.71              |
| 1:A1:1700:A:H2'    | 1:A1:1701:A:C8     | 2.25                     | 0.71              |
| 1:A1:2126:G:N2     | 50:A1:4102:HOH:O   | 2.10                     | 0.71              |
| 1:A1:2178:A:OP1    | 22:BA:10:LYS:HD2   | 1.90                     | 0.71              |
| 12:AM:55:ASN:HD22  | 12:AM:71:ILE:HD11  | 1.53                     | 0.71              |
| 19:AX:180:VAL:HG13 | 19:AX:181:TYR:HD1  | 1.56                     | 0.71              |
| 21:B3:81:A:C2'     | 21:B3:82:G:H5''    | 2.20                     | 0.71              |
| 24:BC:167:GLU:H    | 24:BC:171:GLN:HE22 | 1.36                     | 0.71              |
| 46:BY:12:ARG:HD2   | 46:BY:12:ARG:O     | 1.90                     | 0.71              |
| 24:CC:242:ASN:ND2  | 1:D1:718:A:O2'     | 2.23                     | 0.71              |
| 35:CN:147:GLU:O    | 35:CN:150:ARG:HG2  | 1.89                     | 0.71              |
| 43:CV:12:LYS:HE2   | 1:D1:1376:A:H3'    | 1.71                     | 0.71              |
| 1:D1:438:A:O3'     | 1:D1:439:A:C8      | 2.43                     | 0.71              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:527:A:O2'    | 14:DO:88:GLN:NE2   | 2.23                     | 0.71              |
| 1:D1:559:G:O2'    | 1:D1:560:A:H5'     | 1.90                     | 0.71              |
| 1:D1:2265:A:H5''  | 1:D1:2265:A:H8     | 1.54                     | 0.71              |
| 1:D1:3109:C:C3'   | 10:DK:111:ARG:HH12 | 1.99                     | 0.71              |
| 5:DE:47:PRO:O     | 5:DE:101:LYS:HE3   | 1.89                     | 0.71              |
| 14:DO:90:VAL:CG1  | 14:DO:111:LEU:HD11 | 2.20                     | 0.71              |
| 29:EH:116:ARG:O   | 1:F1:2633:C:O2'    | 2.09                     | 0.71              |
| 33:EL:172:ARG:HD3 | 1:F1:28:G:OP1      | 1.90                     | 0.71              |
| 42:EU:82:LEU:HA   | 42:EU:85:ARG:HG3   | 1.71                     | 0.71              |
| 43:EV:86:ILE:HG22 | 43:EV:214:LYS:HE3  | 1.72                     | 0.71              |
| 43:EV:208:ARG:O   | 1:F1:1195:U:OP1    | 2.08                     | 0.71              |
| 1:F1:832:A:C2     | 1:F1:2406:U:O2'    | 2.42                     | 0.71              |
| 1:F1:1050:C:H2'   | 1:F1:1051:C:C1'    | 2.20                     | 0.71              |
| 1:F1:1255:A:C2    | 1:F1:1309:G:C5     | 2.77                     | 0.71              |
| 1:F1:1754:G:O6    | 7:FG:29:SER:HB2    | 1.90                     | 0.71              |
| 4:FC:7:THR:HB     | 4:FC:94:ILE:HD11   | 1.71                     | 0.71              |
| 4:FC:27:LYS:HD3   | 4:FC:27:LYS:N      | 2.05                     | 0.71              |
| 6:FF:13:VAL:HG21  | 6:FF:27:ILE:HD11   | 1.71                     | 0.71              |
| 9:FJ:186:ILE:HD12 | 9:FJ:197:LEU:HB2   | 1.72                     | 0.71              |
| 13:FN:87:VAL:CG1  | 13:FN:90:LEU:HB2   | 2.20                     | 0.71              |
| 24:GC:284:GLN:HG2 | 35:GN:108:GLU:OE2  | 1.91                     | 0.71              |
| 33:GL:6:TYR:CE1   | 16:HQ:41:VAL:HG13  | 2.26                     | 0.71              |
| 39:GR:94:VAL:HG11 | 39:GR:103:ILE:HD11 | 1.72                     | 0.71              |
| 44:GW:72:VAL:HG11 | 44:GW:92:VAL:HG13  | 1.73                     | 0.71              |
| 1:H1:359:G:OP1    | 3:HB:50:LYS:NZ     | 2.22                     | 0.71              |
| 1:H1:775:C:O2     | 1:H1:775:C:H2'     | 1.90                     | 0.71              |
| 1:A1:88:U:O4'     | 1:A1:280:G:O2'     | 2.08                     | 0.71              |
| 1:A1:1020:G:H3'   | 37:BP:13:LYS:HD2   | 1.72                     | 0.71              |
| 1:A1:1064:C:P     | 34:BM:5:LYS:HZ3    | 2.10                     | 0.71              |
| 1:A1:1674:C:H4'   | 22:BA:70:TYR:HD2   | 1.55                     | 0.71              |
| 6:AF:110:ARG:HD2  | 30:BI:196:PHE:HE2  | 1.55                     | 0.71              |
| 12:AM:21:CYS:SG   | 12:AM:30:ILE:HD13  | 2.30                     | 0.71              |
| 13:AN:4:PHE:CB    | 13:AN:9:ARG:HH21   | 2.02                     | 0.71              |
| 14:AO:89:ARG:O    | 14:AO:93:VAL:HG23  | 1.90                     | 0.71              |
| 16:AQ:45:ILE:HD11 | 33:BL:6:TYR:HA     | 1.72                     | 0.71              |
| 29:BH:33:ILE:HB   | 29:BH:69:ARG:NH2   | 2.05                     | 0.71              |
| 30:BI:194:ALA:HA  | 30:BI:198:TYR:HB2  | 1.70                     | 0.71              |
| 36:BO:119:GLN:NE2 | 36:BO:150:ILE:HD11 | 2.04                     | 0.71              |
| 43:BV:97:LYS:O    | 43:BV:101:ARG:HG3  | 1.90                     | 0.71              |
| 24:CC:107:PHE:HE2 | 1:D1:686:U:C1'     | 2.02                     | 0.71              |
| 42:CU:76:GLY:HA2  | 1:D1:133:C:C2'     | 2.20                     | 0.71              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:73:G:OP1     | 18:DU:56:VAL:HG11  | 1.89                     | 0.71              |
| 1:D1:2413:G:H4'   | 1:D1:2414:A:OP1    | 1.89                     | 0.71              |
| 1:D1:2819:G:N7    | 50:D1:4416:HOH:O   | 2.23                     | 0.71              |
| 13:DN:16:GLY:N    | 13:DN:19:ALA:HB2   | 2.05                     | 0.71              |
| 18:DU:56:VAL:CG1  | 18:DU:57:ARG:N     | 2.52                     | 0.71              |
| 23:EB:26:ARG:NH1  | 23:EB:176:ILE:O    | 2.21                     | 0.71              |
| 23:EB:84:MET:HE1  | 23:EB:179:ILE:HD11 | 1.71                     | 0.71              |
| 33:EL:26:ARG:HB3  | 33:EL:30:TYR:CE1   | 2.23                     | 0.71              |
| 33:EL:165:THR:O   | 33:EL:169:ARG:HG3  | 1.90                     | 0.71              |
| 38:EQ:103:ASN:ND2 | 1:F1:388:A:H1'     | 2.05                     | 0.71              |
| 43:EV:170:LEU:HB3 | 43:EV:175:ILE:HD12 | 1.70                     | 0.71              |
| 45:EX:57:ILE:CG1  | 1:F1:972:U:H5''    | 2.19                     | 0.71              |
| 1:F1:826:A:O2'    | 50:F1:3847:HOH:O   | 2.07                     | 0.71              |
| 1:F1:1370:A:C2    | 1:F1:1389:G:C2     | 2.79                     | 0.71              |
| 1:F1:1495:C:H4'   | 1:F1:1496:U:OP2    | 1.89                     | 0.71              |
| 1:F1:2635:C:H5'   | 1:F1:2635:C:H6     | 1.54                     | 0.71              |
| 1:F1:2685:A:H2'   | 1:F1:2686:A:C8     | 2.24                     | 0.71              |
| 1:F1:2686:A:H2'   | 1:F1:2687:G:C8     | 2.25                     | 0.71              |
| 5:FE:63:VAL:CG1   | 5:FE:76:VAL:HG13   | 2.20                     | 0.71              |
| 6:FF:28:VAL:HG12  | 6:FF:66:ASN:H      | 1.55                     | 0.71              |
| 13:FN:91:CYS:SG   | 13:FN:92:ASP:N     | 2.62                     | 0.71              |
| 18:FU:128:GLN:OE1 | 18:FU:139:THR:OG1  | 2.07                     | 0.71              |
| 23:GB:46:PHE:CE2  | 23:GB:203:VAL:HG22 | 2.25                     | 0.71              |
| 23:GB:185:LYS:HB2 | 23:GB:188:GLU:HG3  | 1.71                     | 0.71              |
| 32:GK:100:PRO:HB3 | 18:HU:164:LYS:HZ1  | 1.55                     | 0.71              |
| 36:GO:56:VAL:HG23 | 1:H1:1897:U:OP1    | 1.90                     | 0.71              |
| 38:GQ:39:LYS:HE2  | 38:GQ:119:GLY:H    | 1.55                     | 0.71              |
| 42:GU:36:LYS:HZ3  | 42:GU:45:LEU:HD22  | 1.54                     | 0.71              |
| 42:GU:76:GLY:HA2  | 1:H1:133:C:H2'     | 1.72                     | 0.71              |
| 1:H1:842:A:OP2    | 50:H1:3808:HOH:O   | 2.07                     | 0.71              |
| 1:H1:2310:G:OP1   | 50:H1:3959:HOH:O   | 2.07                     | 0.71              |
| 1:H1:2364:G:H2'   | 1:H1:2365:G:C8     | 2.24                     | 0.71              |
| 1:A1:232:C:H4'    | 1:A1:233:G:OP2     | 1.89                     | 0.71              |
| 1:A1:268:G:C5'    | 33:BL:14:LYS:HZ1   | 2.01                     | 0.71              |
| 1:A1:1044:G:O2'   | 1:A1:1045:G:H5'    | 1.90                     | 0.71              |
| 1:A1:2793:G:O6    | 50:A1:3768:HOH:O   | 2.07                     | 0.71              |
| 4:AC:27:LYS:HD3   | 4:AC:27:LYS:H      | 1.55                     | 0.71              |
| 5:AE:63:VAL:CG1   | 5:AE:76:VAL:HG13   | 2.20                     | 0.71              |
| 5:AE:69:LEU:HD11  | 5:AE:114:ASP:N     | 2.05                     | 0.71              |
| 14:AO:13:ASN:OD1  | 14:AO:15:PHE:N     | 2.22                     | 0.71              |
| 21:B3:7:G:O3'     | 34:BM:33:ARG:NH1   | 2.23                     | 0.71              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:163:VAL:HA   | 24:BC:166:TYR:CD2  | 2.25                     | 0.71              |
| 44:CW:54:LEU:HD22  | 44:CW:92:VAL:HG12  | 1.73                     | 0.71              |
| 1:D1:434:A:H5''    | 1:D1:435:A:OP1     | 1.90                     | 0.71              |
| 1:D1:641:U:H2'     | 1:D1:642:C:C6      | 2.25                     | 0.71              |
| 1:D1:795:G:HO2'    | 1:D1:796:A:H8      | 1.38                     | 0.71              |
| 1:D1:861:A:H62     | 1:D1:882:G:H1'     | 1.53                     | 0.71              |
| 1:D1:1492:G:H2'    | 1:D1:1493:A:H5''   | 1.72                     | 0.71              |
| 1:D1:2362:A:N7     | 50:D1:3935:HOH:O   | 2.22                     | 0.71              |
| 1:D1:2433:A:H2'    | 1:D1:2434:A:C8     | 2.25                     | 0.71              |
| 20:E2:67:C:OP1     | 42:EU:53:LYS:NZ    | 2.20                     | 0.71              |
| 33:EL:110:VAL:HG12 | 33:EL:113:LEU:HG   | 1.71                     | 0.71              |
| 43:EV:63:LYS:NZ    | 1:F1:562:G:O3'     | 2.23                     | 0.71              |
| 44:EW:73:ARG:HG3   | 44:EW:95:LEU:HD11  | 1.71                     | 0.71              |
| 1:F1:684:A:C2      | 1:F1:1461:A:C2     | 2.77                     | 0.71              |
| 1:F1:732:C:O2      | 1:F1:778:G:O2'     | 2.08                     | 0.71              |
| 1:F1:1107:A:H3'    | 1:F1:1108:A:H8     | 1.55                     | 0.71              |
| 1:F1:1313:A:C4'    | 1:F1:1314:A:OP1    | 2.38                     | 0.71              |
| 1:F1:1503:A:H5''   | 50:F1:4009:HOH:O   | 1.89                     | 0.71              |
| 1:F1:2876:U:OP2    | 50:F1:4161:HOH:O   | 2.08                     | 0.71              |
| 7:FG:24:THR:HG21   | 7:FG:29:SER:OG     | 1.90                     | 0.71              |
| 22:GA:192:ARG:NH1  | 1:H1:1821:U:OP1    | 2.22                     | 0.71              |
| 27:GF:176:LYS:HB2  | 27:GF:187:THR:CG2  | 2.14                     | 0.71              |
| 42:GU:74:PHE:HB3   | 42:GU:80:LYS:HG2   | 1.73                     | 0.71              |
| 1:H1:1752:G:H5'    | 1:H1:1754:G:C5'    | 2.19                     | 0.71              |
| 1:H1:2128:C:OP1    | 50:H1:3894:HOH:O   | 2.08                     | 0.71              |
| 5:HE:19:TYR:OH     | 14:HO:109:LYS:HG2  | 1.91                     | 0.71              |
| 14:HO:69:LYS:HG2   | 14:HO:70:VAL:N     | 2.05                     | 0.71              |
| 19:HX:180:VAL:HG13 | 19:HX:181:TYR:CD1  | 2.25                     | 0.71              |
| 1:A1:442:G:C2      | 1:A1:536:A:C2      | 2.78                     | 0.71              |
| 1:A1:828:C:O2'     | 24:BC:99:ASN:ND2   | 2.24                     | 0.71              |
| 1:A1:1002:A:C2'    | 1:A1:1003:G:H5'    | 2.19                     | 0.71              |
| 1:A1:1313:A:C4'    | 1:A1:1314:A:OP1    | 2.39                     | 0.71              |
| 1:A1:1492:G:H2'    | 1:A1:1493:A:H5''   | 1.73                     | 0.71              |
| 1:A1:1562:G:C5     | 50:A1:4048:HOH:O   | 2.43                     | 0.71              |
| 6:AF:30:ILE:HG21   | 19:AX:163:PHE:CE2  | 2.25                     | 0.71              |
| 25:BD:104:PHE:HE1  | 25:BD:106:ILE:HD11 | 1.56                     | 0.71              |
| 26:BE:10:VAL:HB    | 26:BE:53:VAL:HB    | 1.72                     | 0.71              |
| 32:BK:84:VAL:HG21  | 32:BK:102:ILE:HG12 | 1.71                     | 0.71              |
| 40:BS:55:VAL:HG11  | 40:BS:103:LEU:HD13 | 1.72                     | 0.71              |
| 23:CB:264:ARG:NH2  | 1:D1:2387:C:HO2'   | 1.85                     | 0.71              |
| 24:CC:126:ARG:HB3  | 24:CC:283:TYR:CE2  | 2.25                     | 0.71              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 26:CE:45:ILE:HA   | 26:CE:55:LEU:HD23  | 1.72                     | 0.71              |
| 33:CL:14:LYS:HZ1  | 1:D1:268:G:H5''    | 1.55                     | 0.71              |
| 43:CV:97:LYS:O    | 43:CV:101:ARG:HG3  | 1.89                     | 0.71              |
| 1:D1:284:U:H5     | 1:D1:305:A:C5'     | 1.99                     | 0.71              |
| 1:D1:638:U:H2'    | 1:D1:639:U:C6      | 2.24                     | 0.71              |
| 1:D1:1051:C:C2    | 1:D1:1052:A:C8     | 2.79                     | 0.71              |
| 1:D1:1215:U:H3    | 1:D1:1344:A:H62    | 1.36                     | 0.71              |
| 1:D1:1430:G:H5'   | 1:D1:1431:U:OP2    | 1.90                     | 0.71              |
| 1:D1:3269:G:H5''  | 1:D1:3269:G:N3     | 2.06                     | 0.71              |
| 23:EB:93:ILE:HD11 | 23:EB:102:LEU:HD22 | 1.73                     | 0.71              |
| 24:EC:107:PHE:HE1 | 1:F1:827:C:HO2'    | 1.35                     | 0.71              |
| 24:EC:223:LEU:O   | 24:EC:227:LEU:HG   | 1.91                     | 0.71              |
| 27:EF:126:LYS:HE2 | 27:EF:135:LEU:CD1  | 2.11                     | 0.71              |
| 34:EM:83:LEU:HB3  | 34:EM:88:VAL:CG2   | 2.21                     | 0.71              |
| 40:ES:80:HIS:ND1  | 40:ES:95:GLN:HB3   | 2.05                     | 0.71              |
| 45:EX:6:VAL:CG1   | 45:EX:7:ALA:H      | 2.02                     | 0.71              |
| 1:F1:434:A:H5''   | 1:F1:435:A:OP1     | 1.90                     | 0.71              |
| 1:F1:497:G:C2'    | 1:F1:498:A:H5'     | 2.20                     | 0.71              |
| 1:F1:519:A:H5''   | 14:FO:89:ARG:HH11  | 1.55                     | 0.71              |
| 1:F1:1504:C:OP2   | 50:F1:4012:HOH:O   | 2.09                     | 0.71              |
| 1:F1:1598:C:C2'   | 1:F1:1599:G:H5'    | 2.20                     | 0.71              |
| 24:GC:251:HIS:HD2 | 1:H1:1410:G:O2'    | 1.73                     | 0.71              |
| 36:GO:92:LYS:NZ   | 1:H1:882:G:OP2     | 2.23                     | 0.71              |
| 41:GT:54:THR:HG22 | 41:GT:56:ALA:H     | 1.56                     | 0.71              |
| 43:GV:91:GLN:HE21 | 1:H1:1167:G:H4'    | 1.53                     | 0.71              |
| 44:GW:72:VAL:CG1  | 44:GW:92:VAL:HG13  | 2.21                     | 0.71              |
| 1:H1:1130:A:H5'   | 1:H1:1131:G:OP2    | 1.90                     | 0.71              |
| 1:H1:1518:G:P     | 2:HA:14:LYS:HZ1    | 2.12                     | 0.71              |
| 1:H1:2439:C:H2'   | 1:H1:2440:A:H8     | 1.55                     | 0.71              |
| 15:HP:12:MET:O    | 15:HP:16:GLN:HG2   | 1.90                     | 0.71              |
| 1:A1:637:U:H2'    | 1:A1:638:U:C6      | 2.24                     | 0.71              |
| 1:A1:671:A:O2'    | 50:A1:3948:HOH:O   | 2.08                     | 0.71              |
| 1:A1:861:A:H1'    | 1:A1:883:A:C2      | 2.26                     | 0.71              |
| 1:A1:1213:G:N3    | 19:AX:126:GLY:HA3  | 2.05                     | 0.71              |
| 1:A1:3227:A:C1'   | 5:AE:86:PRO:HG3    | 2.20                     | 0.71              |
| 21:B3:8:G:OP1     | 34:BM:33:ARG:NH1   | 2.23                     | 0.71              |
| 32:CK:100:PRO:HB3 | 18:DU:164:LYS:HZ1  | 1.55                     | 0.71              |
| 38:CQ:133:ARG:NH2 | 1:D1:2351:A:N3     | 2.38                     | 0.71              |
| 43:CV:63:LYS:NZ   | 1:D1:562:G:O3'     | 2.24                     | 0.71              |
| 44:CW:59:TRP:CZ3  | 44:CW:63:ILE:HG12  | 2.26                     | 0.71              |
| 3:DB:23:LEU:HD12  | 3:DB:24:PRO:HD2    | 1.73                     | 0.71              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:DF:13:VAL:HG11  | 6:DF:53:VAL:HG22   | 1.73                     | 0.71              |
| 9:DJ:63:THR:HG22  | 9:DJ:72:VAL:HA     | 1.73                     | 0.71              |
| 13:DN:91:CYS:SG   | 13:DN:92:ASP:N     | 2.63                     | 0.71              |
| 18:DU:128:GLN:OE1 | 18:DU:139:THR:OG1  | 2.07                     | 0.71              |
| 27:EF:183:VAL:CG1 | 27:EF:185:LYS:HE3  | 2.21                     | 0.71              |
| 37:EP:74:VAL:HG12 | 37:EP:75:ILE:N     | 2.06                     | 0.71              |
| 45:EX:79:ARG:NH1  | 1:F1:1448:G:C4'    | 2.53                     | 0.71              |
| 45:EX:84:LEU:HD12 | 45:EX:110:LEU:HD22 | 1.73                     | 0.71              |
| 1:F1:114:A:C5     | 1:F1:264:A:C6      | 2.78                     | 0.71              |
| 1:F1:563:G:C4'    | 1:F1:564:A:OP2     | 2.39                     | 0.71              |
| 1:F1:2548:G:O2'   | 1:F1:2549:U:OP1    | 2.09                     | 0.71              |
| 1:F1:2933:G:H5''  | 1:F1:2933:G:N3     | 2.05                     | 0.71              |
| 1:F1:3106:C:H2'   | 1:F1:3107:C:H5'    | 1.72                     | 0.71              |
| 1:F1:3165:A:H2'   | 1:F1:3166:A:H8     | 1.54                     | 0.71              |
| 5:FE:3:ARG:HB3    | 5:FE:5:PRO:HD2     | 1.73                     | 0.71              |
| 26:GE:7:GLU:CD    | 26:GE:54:LYS:HE2   | 2.14                     | 0.71              |
| 27:GF:19:ASN:HB3  | 27:GF:20:PRO:CD    | 2.20                     | 0.71              |
| 32:GK:84:VAL:HG21 | 32:GK:102:ILE:HG12 | 1.72                     | 0.71              |
| 45:GX:34:TRP:CZ2  | 45:GX:54:MET:HB2   | 2.25                     | 0.71              |
| 45:GX:98:ILE:H    | 45:GX:123:ASN:HD21 | 1.39                     | 0.71              |
| 1:H1:71:U:O2'     | 1:H1:72:A:P        | 2.49                     | 0.71              |
| 1:H1:71:U:C5      | 18:HU:64:ASN:HB3   | 2.26                     | 0.71              |
| 1:H1:223:C:O2'    | 1:H1:224:C:OP2     | 2.08                     | 0.71              |
| 1:H1:643:A:O2'    | 5:HE:131:LYS:HE2   | 1.90                     | 0.71              |
| 1:H1:1251:C:H1'   | 1:H1:1315:U:O2'    | 1.90                     | 0.71              |
| 1:H1:1376:A:H5''  | 1:H1:1377:A:H5'    | 1.71                     | 0.71              |
| 1:H1:1478:A:H5'   | 1:H1:1479:A:OP2    | 1.91                     | 0.71              |
| 1:H1:1599:G:C6    | 1:H1:1600:U:C4     | 2.78                     | 0.71              |
| 1:H1:1798:U:C5'   | 1:H1:1799:C:H5'    | 2.19                     | 0.71              |
| 1:H1:2415:C:H2'   | 1:H1:2416:U:C5'    | 2.21                     | 0.71              |
| 1:H1:2516:U:H3    | 1:H1:2518:A:H8     | 1.38                     | 0.71              |
| 1:H1:3110:U:H4'   | 1:H1:3111:A:OP1    | 1.90                     | 0.71              |
| 8:HH:15:TRP:CD1   | 8:HH:105:ARG:HG2   | 2.26                     | 0.71              |
| 19:HX:158:ASN:ND2 | 19:HX:160:ALA:HB3  | 2.05                     | 0.71              |
| 1:A1:243:G:H8     | 1:A1:243:G:H5'     | 1.54                     | 0.71              |
| 1:A1:655:A:H2'    | 1:A1:656:C:C6      | 2.25                     | 0.71              |
| 1:A1:941:G:H5'    | 1:A1:942:A:OP1     | 1.90                     | 0.71              |
| 13:AN:14:LEU:O    | 13:AN:19:ALA:HB1   | 1.91                     | 0.71              |
| 13:AN:41:VAL:HG23 | 13:AN:77:LEU:HD23  | 1.72                     | 0.71              |
| 24:BC:99:ASN:HD22 | 24:BC:100:GLN:HE21 | 1.38                     | 0.71              |
| 44:BW:72:VAL:HG11 | 44:BW:92:VAL:HG13  | 1.73                     | 0.71              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:C3:89:G:H2'     | 21:C3:90:A:C8      | 2.26                     | 0.71              |
| 24:CC:251:HIS:HD2  | 1:D1:1410:G:O2'    | 1.74                     | 0.71              |
| 25:CD:19:ILE:CG2   | 25:CD:125:MET:HE2  | 2.21                     | 0.71              |
| 30:CI:109:THR:HG23 | 30:CI:110:PRO:CD   | 2.20                     | 0.71              |
| 34:CM:175:HIS:CD2  | 34:CM:180:PHE:HE2  | 2.08                     | 0.71              |
| 41:CT:11:CYS:HG    | 41:CT:13:TYR:HD2   | 1.37                     | 0.71              |
| 1:D1:1370:A:C2     | 1:D1:1389:G:C2     | 2.79                     | 0.71              |
| 1:D1:1901:C:H5''   | 1:D1:1902:C:C5'    | 2.20                     | 0.71              |
| 1:D1:2548:G:O2'    | 1:D1:2549:U:OP1    | 2.09                     | 0.71              |
| 24:EC:163:VAL:HA   | 24:EC:166:TYR:CD2  | 2.25                     | 0.71              |
| 24:EC:283:TYR:HE1  | 24:EC:285:LEU:HD23 | 1.54                     | 0.71              |
| 1:F1:170:A:H61     | 1:F1:249:G:H1'     | 1.55                     | 0.71              |
| 1:F1:279:U:N3      | 1:F1:281:G:OP2     | 2.23                     | 0.71              |
| 1:F1:1918:U:O2'    | 1:F1:1919:A:H5''   | 1.91                     | 0.71              |
| 1:F1:2251:A:H5''   | 1:F1:2252:C:OP2    | 1.90                     | 0.71              |
| 1:F1:2875:A:OP2    | 50:F1:4164:HOH:O   | 2.08                     | 0.71              |
| 6:FF:8:GLN:HE21    | 6:FF:11:ARG:NH1    | 1.88                     | 0.71              |
| 23:GB:2:SER:HB3    | 1:H1:2931:G:N7     | 2.06                     | 0.71              |
| 24:GC:65:MET:HE2   | 24:GC:97:PHE:HB2   | 1.72                     | 0.71              |
| 27:GF:127:TYR:CD1  | 27:GF:127:TYR:C    | 2.68                     | 0.71              |
| 34:GM:35:ARG:HB2   | 1:H1:2737:A:C2     | 2.25                     | 0.71              |
| 1:H1:526:U:HO2'    | 1:H1:527:A:H8      | 1.35                     | 0.71              |
| 1:H1:1062:A:H2'    | 1:H1:1063:C:H5'    | 1.71                     | 0.71              |
| 1:H1:3185:G:C2     | 1:H1:3237:C:C2     | 2.79                     | 0.71              |
| 5:HE:67:LYS:O      | 5:HE:75:LEU:HB2    | 1.91                     | 0.71              |
| 7:HG:13:LYS:HD2    | 7:HG:100:ILE:HD13  | 1.71                     | 0.71              |
| 1:A1:579:G:H1'     | 19:AX:158:ASN:N    | 2.06                     | 0.71              |
| 1:A1:939:A:N1      | 22:BA:205:MET:HE3  | 2.05                     | 0.71              |
| 1:A1:1021:U:OP2    | 37:BP:13:LYS:NZ    | 2.19                     | 0.71              |
| 1:A1:1255:A:C2     | 1:A1:1309:G:C5     | 2.79                     | 0.71              |
| 1:A1:1655:A:C2     | 1:A1:1669:G:C6     | 2.78                     | 0.71              |
| 1:A1:2385:A:H2'    | 1:A1:2386:G:O5'    | 1.91                     | 0.71              |
| 1:A1:2765:C:H2'    | 1:A1:2765:C:O2     | 1.89                     | 0.71              |
| 1:A1:3165:A:H2'    | 1:A1:3166:A:H8     | 1.55                     | 0.71              |
| 1:A1:3237:C:H41    | 8:AH:10:ALA:CA     | 2.03                     | 0.71              |
| 7:AG:13:LYS:O      | 7:AG:17:VAL:HG23   | 1.90                     | 0.71              |
| 7:AG:24:THR:HG21   | 7:AG:29:SER:OG     | 1.90                     | 0.71              |
| 7:AG:40:LYS:CG     | 7:AG:93:LEU:O      | 2.38                     | 0.71              |
| 8:AH:15:TRP:NE1    | 8:AH:105:ARG:HG2   | 2.06                     | 0.71              |
| 11:AL:37:LYS:HB2   | 11:AL:60:ARG:HH21  | 1.56                     | 0.71              |
| 13:AN:27:LYS:HZ2   | 1:H1:1045:G:C3'    | 2.03                     | 0.71              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 18:AU:164:LYS:HZ2 | 32:BK:88:THR:HG23  | 1.56                     | 0.71              |
| 22:BA:38:ARG:O    | 22:BA:93:LEU:HG    | 1.91                     | 0.71              |
| 24:BC:405:ILE:CD1 | 29:BH:183:ARG:HE   | 2.03                     | 0.71              |
| 25:BD:133:ARG:CB  | 25:BD:134:PRO:HD2  | 2.19                     | 0.71              |
| 26:CE:167:GLU:C   | 26:CE:168:LYS:HG2  | 2.15                     | 0.71              |
| 27:CF:126:LYS:HE2 | 27:CF:135:LEU:CD1  | 2.17                     | 0.71              |
| 32:CK:36:LYS:HB2  | 1:D1:94:A:OP2      | 1.89                     | 0.71              |
| 1:D1:633:C:H2'    | 1:D1:634:G:OP1     | 1.90                     | 0.71              |
| 1:D1:1037:A:H2'   | 1:D1:1038:G:C8     | 2.25                     | 0.71              |
| 1:D1:1141:U:O4    | 1:D1:1142:G:N2     | 2.23                     | 0.71              |
| 1:D1:1562:G:N7    | 50:D1:4135:HOH:O   | 2.24                     | 0.71              |
| 1:D1:2685:A:H2'   | 1:D1:2686:A:C8     | 2.26                     | 0.71              |
| 1:D1:3155:A:N6    | 8:DH:98:GLN:O      | 2.19                     | 0.71              |
| 5:DE:69:LEU:HD11  | 5:DE:114:ASP:N     | 2.06                     | 0.71              |
| 6:DF:13:VAL:HG11  | 6:DF:53:VAL:CG2    | 2.20                     | 0.71              |
| 9:DJ:142:ILE:HD13 | 9:DJ:152:CYS:HB3   | 1.73                     | 0.71              |
| 1:F1:44:U:OP1     | 50:F1:3627:HOH:O   | 2.09                     | 0.71              |
| 1:F1:525:C:H4'    | 1:F1:526:U:OP1     | 1.89                     | 0.71              |
| 1:F1:559:G:O2'    | 1:F1:560:A:H5'     | 1.91                     | 0.71              |
| 1:F1:1662:A:C5'   | 11:FL:76:ARG:NH2   | 2.50                     | 0.71              |
| 1:F1:3232:A:C6    | 1:F1:3233:A:C2     | 2.78                     | 0.71              |
| 5:FE:125:ASN:OD1  | 5:FE:128:ASN:N     | 2.22                     | 0.71              |
| 24:GC:195:ARG:HD3 | 24:GC:199:GLY:HA3  | 1.73                     | 0.71              |
| 1:H1:994:C:OP1    | 50:H1:4001:HOH:O   | 2.08                     | 0.71              |
| 1:A1:46:A:H4'     | 1:A1:47:G:O5'      | 1.90                     | 0.71              |
| 1:A1:1598:C:C2'   | 1:A1:1599:G:H5'    | 2.20                     | 0.71              |
| 1:A1:1901:C:H5''  | 1:A1:1902:C:C5'    | 2.21                     | 0.71              |
| 1:A1:2673:C:O2'   | 25:BD:99:THR:HG23  | 1.89                     | 0.71              |
| 14:AO:52:GLY:HA3  | 14:AO:118:ASN:HD21 | 1.55                     | 0.71              |
| 14:AO:69:LYS:HG2  | 14:AO:70:VAL:N     | 2.06                     | 0.71              |
| 21:B3:27:A:H5''   | 34:BM:57:ASN:HD21  | 1.55                     | 0.71              |
| 45:BX:121:LEU:HB2 | 45:BX:124:ALA:HB2  | 1.72                     | 0.71              |
| 21:C3:83:G:H22    | 21:C3:93:G:H21     | 1.39                     | 0.71              |
| 45:CX:79:ARG:NH1  | 1:D1:1448:G:H4'    | 2.05                     | 0.71              |
| 1:D1:324:A:H5''   | 1:D1:325:U:OP2     | 1.91                     | 0.71              |
| 1:D1:3275:A:O2'   | 1:D1:3276:C:OP2    | 2.09                     | 0.71              |
| 5:DE:3:ARG:HB3    | 5:DE:5:PRO:HD2     | 1.73                     | 0.71              |
| 1:F1:1130:A:H2    | 1:F1:1390:A:O2'    | 1.74                     | 0.71              |
| 9:FJ:30:ALA:HB3   | 9:FJ:35:TYR:CZ     | 2.26                     | 0.71              |
| 12:FM:77:TYR:HE1  | 12:FM:81:LEU:HD21  | 1.55                     | 0.71              |
| 13:FN:11:VAL:HG12 | 13:FN:82:PRO:HA    | 1.73                     | 0.71              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:FP:48:LYS:HG3   | 15:FP:49:TYR:CD2   | 2.24                     | 0.71              |
| 17:FT:55:LYS:HB3   | 17:FT:59:LEU:HD23  | 1.73                     | 0.71              |
| 19:FX:13:THR:HG22  | 19:FX:14:LEU:HD23  | 1.72                     | 0.71              |
| 21:G3:83:G:OP1     | 50:G3:303:HOH:O    | 2.08                     | 0.71              |
| 24:GC:369:HIS:ND1  | 43:GV:68:LYS:NZ    | 2.39                     | 0.71              |
| 33:GL:154:SER:O    | 33:GL:157:LYS:HG3  | 1.89                     | 0.71              |
| 43:GV:93:HIS:ND1   | 43:GV:94:PRO:HD2   | 2.06                     | 0.71              |
| 1:H1:155:A:O2'     | 16:HQ:28:VAL:HG22  | 1.90                     | 0.71              |
| 1:H1:1234:G:P      | 10:HK:119:ASN:HD21 | 2.14                     | 0.71              |
| 1:H1:3235:U:O4     | 8:HH:13:ARG:HA     | 1.91                     | 0.71              |
| 5:HE:3:ARG:HB3     | 5:HE:5:PRO:HD2     | 1.71                     | 0.71              |
| 9:HJ:186:ILE:HD12  | 9:HJ:197:LEU:HB2   | 1.73                     | 0.71              |
| 17:HT:63:VAL:O     | 17:HT:66:GLU:HG2   | 1.90                     | 0.71              |
| 18:HU:22:THR:HG23  | 18:HU:24:PHE:HD1   | 1.54                     | 0.71              |
| 1:A1:628:A:H4'     | 1:A1:629:A:OP2     | 1.91                     | 0.71              |
| 1:A1:2906:G:C2'    | 1:A1:2907:A:H5''   | 2.20                     | 0.71              |
| 6:AF:12:VAL:HB     | 6:AF:58:PHE:HB2    | 1.73                     | 0.71              |
| 16:AQ:41:VAL:HG13  | 33:BL:6:TYR:CE1    | 2.26                     | 0.71              |
| 24:BC:157:TYR:CD1  | 24:BC:159:PHE:CE1  | 2.79                     | 0.71              |
| 30:BI:101:LEU:HD12 | 30:BI:102:LYS:N    | 2.05                     | 0.71              |
| 20:C2:38:C:H4'     | 2:DA:71:ILE:HD13   | 1.73                     | 0.71              |
| 21:C3:62:U:O2'     | 21:C3:63:A:OP1     | 2.08                     | 0.71              |
| 26:CE:168:LYS:NZ   | 1:D1:3021:A:N3     | 2.39                     | 0.71              |
| 35:CN:52:ARG:HH12  | 35:CN:141:ARG:NE   | 1.89                     | 0.71              |
| 47:CO:115:ILE:HG22 | 47:CO:119:GLN:HB2  | 1.73                     | 0.71              |
| 37:CP:74:VAL:HG12  | 37:CP:75:ILE:N     | 2.06                     | 0.71              |
| 37:CP:83:ARG:HH22  | 1:D1:2717:G:H5'    | 1.56                     | 0.71              |
| 1:D1:11:A:H2'      | 1:D1:12:A:C8       | 2.26                     | 0.71              |
| 1:D1:128:G:N7      | 50:D1:3824:HOH:O   | 2.24                     | 0.71              |
| 1:D1:517:A:O2'     | 1:D1:518:G:H3'     | 1.90                     | 0.71              |
| 1:D1:1173:A:H2'    | 1:D1:1174:G:C8     | 2.26                     | 0.71              |
| 1:D1:2542:U:C4'    | 1:D1:2543:C:OP1    | 2.39                     | 0.71              |
| 1:D1:3237:C:N4     | 8:DH:9:VAL:O       | 2.23                     | 0.71              |
| 9:DJ:53:ILE:HA     | 9:DJ:80:GLU:OE1    | 1.90                     | 0.71              |
| 14:DO:69:LYS:HG2   | 14:DO:70:VAL:N     | 2.05                     | 0.71              |
| 16:DQ:6:ALA:O      | 16:DQ:7:VAL:HB     | 1.91                     | 0.71              |
| 24:EC:214:VAL:HG21 | 24:EC:227:LEU:CD1  | 2.20                     | 0.71              |
| 24:EC:333:LEU:HD21 | 43:EV:161:THR:O    | 1.91                     | 0.71              |
| 1:F1:70:C:N4       | 1:F1:72:A:C5       | 2.59                     | 0.71              |
| 1:F1:641:U:H2'     | 1:F1:642:C:H6      | 1.56                     | 0.71              |
| 1:F1:1062:A:C2'    | 1:F1:1063:C:H5'    | 2.21                     | 0.71              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3153:U:H5''   | 1:F1:3154:A:OP2    | 1.90                     | 0.71              |
| 8:FH:9:VAL:HG12    | 8:FH:10:ALA:N      | 2.06                     | 0.71              |
| 15:FP:12:MET:O     | 15:FP:16:GLN:HG2   | 1.91                     | 0.71              |
| 16:FQ:71:LYS:HE2   | 16:FQ:75:LYS:HE2   | 1.71                     | 0.71              |
| 23:GB:2:SER:HB3    | 1:H1:2931:G:C8     | 2.26                     | 0.71              |
| 23:GB:117:ARG:HA   | 23:GB:173:LYS:HE3  | 1.71                     | 0.71              |
| 24:GC:6:GLN:HE21   | 1:H1:471:A:H4'     | 1.56                     | 0.71              |
| 24:GC:163:VAL:HA   | 24:GC:166:TYR:CD2  | 2.26                     | 0.71              |
| 24:GC:227:LEU:HD12 | 24:GC:235:VAL:HG22 | 1.71                     | 0.71              |
| 25:GD:65:MET:CE    | 1:H1:2670:U:H4'    | 2.21                     | 0.71              |
| 45:GX:43:ARG:NH2   | 1:H1:660:C:H2'     | 2.06                     | 0.71              |
| 1:H1:1062:A:C2'    | 1:H1:1063:C:H5'    | 2.20                     | 0.71              |
| 1:H1:2301:C:H2'    | 1:H1:2301:C:O2     | 1.90                     | 0.71              |
| 1:H1:3153:U:H5''   | 1:H1:3154:A:OP2    | 1.90                     | 0.71              |
| 5:HE:41:LEU:HA     | 5:HE:92:GLN:NE2    | 2.06                     | 0.71              |
| 9:HJ:35:TYR:O      | 9:HJ:39:GLU:HG3    | 1.90                     | 0.71              |
| 1:A1:27:C:OP1      | 33:BL:187:SER:OG   | 2.07                     | 0.70              |
| 1:A1:2250:A:H2     | 1:A1:2256:G:H1     | 1.37                     | 0.70              |
| 1:A1:3237:C:N4     | 8:AH:9:VAL:O       | 2.23                     | 0.70              |
| 5:AE:3:ARG:HB3     | 5:AE:5:PRO:HD2     | 1.73                     | 0.70              |
| 6:AF:28:VAL:HG12   | 6:AF:66:ASN:H      | 1.56                     | 0.70              |
| 6:AF:111:VAL:HG22  | 30:BI:196:PHE:CE1  | 2.26                     | 0.70              |
| 9:AJ:33:ASN:O      | 9:AJ:37:VAL:HG23   | 1.90                     | 0.70              |
| 9:AJ:186:ILE:HD12  | 9:AJ:197:LEU:HB2   | 1.71                     | 0.70              |
| 16:AQ:6:ALA:O      | 16:AQ:7:VAL:HB     | 1.91                     | 0.70              |
| 17:AT:63:VAL:O     | 17:AT:66:GLU:HG2   | 1.90                     | 0.70              |
| 24:CC:223:LEU:O    | 24:CC:227:LEU:HG   | 1.91                     | 0.70              |
| 25:CD:99:THR:HG23  | 1:D1:2673:C:O2'    | 1.89                     | 0.70              |
| 33:CL:14:LYS:HZ2   | 1:D1:268:G:C5'     | 2.04                     | 0.70              |
| 35:CN:158:GLN:HB3  | 50:CN:307:HOH:O    | 1.91                     | 0.70              |
| 47:CO:173:UNK:HG2  | 47:CO:174:UNK:N    | 2.05                     | 0.70              |
| 44:CW:16:HIS:HD2   | 1:D1:3330:U:OP1    | 1.73                     | 0.70              |
| 1:D1:525:C:H4'     | 1:D1:526:U:OP1     | 1.89                     | 0.70              |
| 1:D1:832:A:N6      | 1:D1:959:G:H1      | 1.88                     | 0.70              |
| 1:D1:3112:A:H2'    | 1:D1:3113:G:H5'    | 1.72                     | 0.70              |
| 7:DG:95:ALA:HB3    | 7:DG:101:LEU:CD1   | 2.21                     | 0.70              |
| 15:DP:12:MET:O     | 15:DP:16:GLN:HG2   | 1.91                     | 0.70              |
| 20:E2:36:G:H5'     | 1:F1:57:G:H2'      | 1.71                     | 0.70              |
| 33:EL:14:LYS:HZ3   | 1:F1:268:G:H5''    | 1.54                     | 0.70              |
| 35:EN:158:GLN:CB   | 50:EN:307:HOH:O    | 2.36                     | 0.70              |
| 1:F1:304:U:O2'     | 1:F1:305:A:C8      | 2.44                     | 0.70              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:1114:C:C2'   | 1:F1:1115:U:H5'    | 2.21                     | 0.70              |
| 6:FF:3:PHE:CD1    | 19:FX:164:PRO:HB3  | 2.25                     | 0.70              |
| 13:FN:10:VAL:O    | 13:FN:83:THR:HB    | 1.90                     | 0.70              |
| 24:GC:319:ARG:NE  | 1:H1:634:G:N7      | 2.39                     | 0.70              |
| 30:GI:113:ARG:NH1 | 1:H1:3162:A:H61    | 1.89                     | 0.70              |
| 32:GK:118:LEU:HB2 | 32:GK:141:VAL:HG21 | 1.72                     | 0.70              |
| 1:H1:132:U:HO2'   | 1:H1:133:C:P       | 2.14                     | 0.70              |
| 1:H1:282:G:H22    | 1:H1:304:U:H5'     | 1.54                     | 0.70              |
| 1:H1:517:A:O2'    | 1:H1:518:G:H3'     | 1.90                     | 0.70              |
| 1:H1:637:U:H2'    | 1:H1:638:U:C6      | 2.26                     | 0.70              |
| 1:H1:654:U:H2'    | 1:H1:655:A:H8      | 1.56                     | 0.70              |
| 1:H1:1002:A:C2    | 1:H1:1004:U:H5''   | 2.26                     | 0.70              |
| 2:HA:14:LYS:HD3   | 3:HB:52:TYR:CD1    | 2.26                     | 0.70              |
| 5:HE:41:LEU:HD13  | 5:HE:45:ILE:HG21   | 1.72                     | 0.70              |
| 13:HN:11:VAL:HG12 | 13:HN:82:PRO:HA    | 1.73                     | 0.70              |
| 1:A1:114:A:C5     | 1:A1:264:A:C6      | 2.78                     | 0.70              |
| 1:A1:397:A:H5'    | 50:A1:3862:HOH:O   | 1.91                     | 0.70              |
| 1:A1:805:A:C4'    | 1:A1:806:G:OP2     | 2.38                     | 0.70              |
| 1:A1:838:G:N7     | 50:A1:4011:HOH:O   | 2.22                     | 0.70              |
| 1:A1:967:U:O4     | 32:BK:24:LYS:NZ    | 2.24                     | 0.70              |
| 1:A1:1251:C:H1'   | 1:A1:1315:U:O2'    | 1.89                     | 0.70              |
| 1:A1:1597:U:H2'   | 1:A1:1598:C:O4'    | 1.91                     | 0.70              |
| 1:A1:2254:A:N6    | 1:A1:2255:U:O4     | 2.24                     | 0.70              |
| 1:A1:2413:G:H4'   | 1:A1:2414:A:OP1    | 1.89                     | 0.70              |
| 1:A1:2540:G:H4'   | 1:A1:2541:U:OP2    | 1.89                     | 0.70              |
| 1:A1:2738:G:O3'   | 34:BM:38:ILE:HD11  | 1.91                     | 0.70              |
| 1:A1:2775:G:O3'   | 32:BK:59:GLY:HA2   | 1.91                     | 0.70              |
| 1:A1:3232:A:N1    | 1:A1:3233:A:C2     | 2.59                     | 0.70              |
| 24:BC:65:MET:HE3  | 24:BC:105:ARG:CD   | 2.20                     | 0.70              |
| 24:BC:89:THR:HG22 | 24:BC:91:ARG:N     | 2.06                     | 0.70              |
| 43:BV:93:HIS:ND1  | 43:BV:94:PRO:HD2   | 2.06                     | 0.70              |
| 25:CD:104:PHE:HE1 | 25:CD:106:ILE:HD11 | 1.56                     | 0.70              |
| 31:CJ:127:ALA:HB1 | 9:DJ:58:ILE:HD13   | 1.73                     | 0.70              |
| 47:CO:174:UNK:HB2 | 29:EH:81:SER:HB2   | 1.73                     | 0.70              |
| 1:D1:113:A:C2'    | 1:D1:114:A:OP1     | 2.39                     | 0.70              |
| 1:D1:331:C:H2'    | 1:D1:332:G:H5''    | 1.72                     | 0.70              |
| 1:D1:434:A:H4'    | 1:D1:435:A:C8      | 2.26                     | 0.70              |
| 1:D1:615:G:H21    | 8:DH:79:LYS:CE     | 2.04                     | 0.70              |
| 1:D1:897:A:C2'    | 1:D1:898:C:H5'     | 2.20                     | 0.70              |
| 1:D1:1446:C:H5'   | 1:D1:1446:C:H6     | 1.54                     | 0.70              |
| 1:D1:1850:C:OP1   | 15:DP:47:LYS:HE3   | 1.90                     | 0.70              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 5:DE:41:LEU:CD1   | 5:DE:45:ILE:HD13   | 2.14                     | 0.70              |
| 13:DN:24:VAL:O    | 13:DN:43:VAL:HG13  | 1.91                     | 0.70              |
| 22:EA:102:VAL:C   | 22:EA:103:LEU:HD23 | 2.17                     | 0.70              |
| 32:EK:111:LYS:HG3 | 32:EK:129:TYR:HB2  | 1.72                     | 0.70              |
| 35:EN:92:ARG:HH21 | 1:F1:809:A:H4'     | 1.56                     | 0.70              |
| 1:F1:450:C:H2'    | 1:F1:451:A:C8      | 2.26                     | 0.70              |
| 1:F1:2101:G:H8    | 1:F1:2101:G:H5'    | 1.54                     | 0.70              |
| 1:F1:2385:A:H2'   | 1:F1:2386:G:O5'    | 1.90                     | 0.70              |
| 1:F1:2540:G:H4'   | 1:F1:2541:U:OP2    | 1.89                     | 0.70              |
| 6:FF:20:ASP:OD2   | 6:FF:46:GLN:NE2    | 2.24                     | 0.70              |
| 20:G2:74:A:H61    | 20:G2:88:G:H1'     | 1.56                     | 0.70              |
| 38:GQ:62:PHE:CE1  | 38:GQ:84:ARG:HB2   | 2.25                     | 0.70              |
| 45:GX:47:ARG:NH1  | 1:H1:1187:C:C2     | 2.59                     | 0.70              |
| 1:H1:1597:U:H2'   | 1:H1:1598:C:O4'    | 1.92                     | 0.70              |
| 1:A1:904:U:O2'    | 1:A1:905:G:OP2     | 2.08                     | 0.70              |
| 1:A1:1004:U:H5'   | 1:A1:1004:U:C6     | 2.17                     | 0.70              |
| 1:A1:1064:C:C5'   | 34:BM:5:LYS:NZ     | 2.52                     | 0.70              |
| 1:A1:1798:U:C5'   | 1:A1:1799:C:H5'    | 2.21                     | 0.70              |
| 1:A1:2267:G:H4'   | 1:A1:2268:G:OP1    | 1.92                     | 0.70              |
| 1:A1:2370:G:H3'   | 50:A1:3891:HOH:O   | 1.90                     | 0.70              |
| 1:A1:2542:U:C4'   | 1:A1:2543:C:OP1    | 2.38                     | 0.70              |
| 1:A1:2633:C:H5''  | 1:A1:2634:G:OP1    | 1.91                     | 0.70              |
| 1:A1:2966:U:O2'   | 1:A1:2967:U:H5''   | 1.91                     | 0.70              |
| 6:AF:13:VAL:HG21  | 6:AF:27:ILE:HD11   | 1.74                     | 0.70              |
| 7:AG:35:ARG:HH12  | 13:AN:78:ASN:N     | 1.89                     | 0.70              |
| 9:AJ:142:ILE:HD13 | 9:AJ:152:CYS:HB3   | 1.73                     | 0.70              |
| 15:AP:4:GLU:OE1   | 15:AP:54:LYS:HE2   | 1.91                     | 0.70              |
| 23:BB:19:ARG:O    | 23:BB:271:HIS:HE1  | 1.74                     | 0.70              |
| 23:BB:117:ARG:HA  | 23:BB:173:LYS:HE3  | 1.73                     | 0.70              |
| 25:BD:19:ILE:CG2  | 25:BD:125:MET:HE2  | 2.21                     | 0.70              |
| 34:BM:283:THR:HB  | 34:BM:286:GLN:HG3  | 1.73                     | 0.70              |
| 20:C2:44:A:H5'    | 2:DA:68:MET:HG3    | 1.73                     | 0.70              |
| 23:CB:292:ALA:HB3 | 23:CB:301:LYS:HB3  | 1.73                     | 0.70              |
| 32:CK:76:ASN:CG   | 32:CK:115:LYS:HB2  | 2.15                     | 0.70              |
| 1:D1:147:U:H4'    | 1:D1:148:G:OP2     | 1.89                     | 0.70              |
| 1:D1:170:A:H61    | 1:D1:249:G:H1'     | 1.56                     | 0.70              |
| 1:D1:1055:A:H2'   | 1:D1:1056:A:H8     | 1.56                     | 0.70              |
| 1:D1:2275:A:OP1   | 50:D1:4629:HOH:O   | 2.10                     | 0.70              |
| 20:E2:98:A:OP1    | 42:EU:67:ARG:NH1   | 2.23                     | 0.70              |
| 21:E3:119:C:H2'   | 34:EM:270:PRO:HG2  | 1.73                     | 0.70              |
| 23:EB:378:PHE:HA  | 1:F1:3325:G:N2     | 2.06                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:EH:42:THR:HG23  | 29:EH:192:THR:HG21 | 1.73                     | 0.70              |
| 30:EI:109:THR:HG23 | 30:EI:110:PRO:CD   | 2.20                     | 0.70              |
| 1:F1:362:G:H3'     | 1:F1:363:G:H5''    | 1.72                     | 0.70              |
| 1:F1:787:U:O2      | 18:FU:179:ARG:NH2  | 2.23                     | 0.70              |
| 1:F1:820:G:H2'     | 1:F1:821:U:H5'     | 1.72                     | 0.70              |
| 1:F1:1376:A:C5'    | 1:F1:1377:A:H5'    | 2.22                     | 0.70              |
| 1:F1:1618:A:H2'    | 1:F1:1619:A:C8     | 2.25                     | 0.70              |
| 1:F1:2651:A:H2'    | 1:F1:2652:G:C8     | 2.26                     | 0.70              |
| 13:FN:22:LYS:HZ2   | 13:FN:140:SER:HB3  | 1.56                     | 0.70              |
| 16:FQ:6:ALA:O      | 16:FQ:7:VAL:HB     | 1.90                     | 0.70              |
| 23:GB:20:ARG:HB2   | 1:H1:2979:A:OP1    | 1.91                     | 0.70              |
| 24:GC:125:LYS:O    | 24:GC:129:VAL:HG23 | 1.92                     | 0.70              |
| 24:GC:188:VAL:HG21 | 24:GC:231:PRO:O    | 1.90                     | 0.70              |
| 42:GU:32:LEU:O     | 42:GU:35:ALA:HB3   | 1.90                     | 0.70              |
| 1:H1:972:U:H2'     | 1:H1:973:C:C6      | 2.27                     | 0.70              |
| 1:H1:2625:A:H5'    | 1:H1:2626:A:H5'    | 1.72                     | 0.70              |
| 7:HG:95:ALA:HB3    | 7:HG:101:LEU:CD1   | 2.21                     | 0.70              |
| 13:HN:15:GLN:HE21  | 13:HN:79:HIS:CE1   | 2.09                     | 0.70              |
| 1:A1:388:A:H1'     | 38:BQ:103:ASN:ND2  | 2.05                     | 0.70              |
| 1:A1:2343:A:H3'    | 1:A1:2344:U:H5''   | 1.72                     | 0.70              |
| 1:A1:2576:C:H6     | 1:A1:2576:C:H5''   | 1.56                     | 0.70              |
| 1:A1:3047:U:C5     | 44:BW:65:ASN:OD1   | 2.37                     | 0.70              |
| 9:AJ:77:ASN:HB3    | 9:AJ:80:GLU:HG3    | 1.73                     | 0.70              |
| 11:AL:98:GLU:OE1   | 11:AL:101:LYS:HD2  | 1.91                     | 0.70              |
| 19:AX:113:LEU:HD11 | 19:AX:140:THR:HG21 | 1.74                     | 0.70              |
| 24:BC:309:LYS:HG2  | 35:BN:40:ARG:O     | 1.91                     | 0.70              |
| 34:BM:163:LEU:HD21 | 34:BM:175:HIS:CB   | 2.22                     | 0.70              |
| 40:BS:43:ASN:O     | 40:BS:125:LEU:HD12 | 1.90                     | 0.70              |
| 23:CB:277:ASN:HD21 | 23:CB:343:GLN:HE21 | 1.39                     | 0.70              |
| 25:CD:133:ARG:CB   | 25:CD:134:PRO:HD2  | 2.17                     | 0.70              |
| 30:CI:194:ALA:HA   | 30:CI:198:TYR:HB2  | 1.73                     | 0.70              |
| 33:CL:26:ARG:O     | 33:CL:30:TYR:HD1   | 1.73                     | 0.70              |
| 41:CT:5:THR:HG21   | 41:CT:14:ARG:CG    | 2.20                     | 0.70              |
| 1:D1:282:G:H22     | 1:D1:304:U:C5'     | 2.04                     | 0.70              |
| 1:D1:696:A:H2'     | 1:D1:697:A:C5'     | 2.10                     | 0.70              |
| 1:D1:1373:G:H2'    | 1:D1:1374:C:H6     | 1.57                     | 0.70              |
| 1:D1:2439:C:H2'    | 1:D1:2440:A:H8     | 1.55                     | 0.70              |
| 1:D1:2500:C:H2'    | 1:D1:2501:A:H8     | 1.54                     | 0.70              |
| 24:EC:319:ARG:CZ   | 1:F1:620:A:N7      | 2.54                     | 0.70              |
| 25:ED:104:PHE:HE1  | 25:ED:106:ILE:HD11 | 1.55                     | 0.70              |
| 25:ED:124:GLY:HA3  | 1:F1:2663:A:C2     | 2.26                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:EH:48:TYR:CE2   | 29:EH:142:GLU:HG3  | 2.25                     | 0.70              |
| 43:EV:86:ILE:HG12  | 43:EV:131:ILE:HA   | 1.72                     | 0.70              |
| 1:F1:1051:C:C2     | 1:F1:1052:A:C8     | 2.79                     | 0.70              |
| 1:F1:1215:U:H3     | 1:F1:1344:A:H62    | 1.39                     | 0.70              |
| 7:FG:47:ASN:HD21   | 7:FG:73:SER:HB3    | 1.57                     | 0.70              |
| 7:FG:102:LYS:O     | 7:FG:103:THR:OG1   | 2.10                     | 0.70              |
| 21:G3:119:C:H2'    | 34:GM:270:PRO:HG2  | 1.74                     | 0.70              |
| 24:GC:240:ARG:CZ   | 1:H1:712:G:H4'     | 2.21                     | 0.70              |
| 29:GH:33:ILE:HB    | 29:GH:69:ARG:NH2   | 2.05                     | 0.70              |
| 30:GI:107:ILE:HG13 | 30:GI:159:ARG:NH1  | 2.07                     | 0.70              |
| 42:GU:122:LEU:O    | 18:HU:148:ASN:ND2  | 2.24                     | 0.70              |
| 1:H1:638:U:H2'     | 1:H1:639:U:C6      | 2.26                     | 0.70              |
| 1:H1:1366:C:H2'    | 1:H1:1367:A:H8     | 1.57                     | 0.70              |
| 1:H1:1382:A:H4'    | 1:H1:1383:G:O5'    | 1.92                     | 0.70              |
| 1:H1:2356:A:H2'    | 1:H1:2357:C:O5'    | 1.92                     | 0.70              |
| 1:H1:3128:G:H5'    | 1:H1:3128:G:C8     | 2.25                     | 0.70              |
| 6:HF:6:PHE:O       | 6:HF:11:ARG:HD3    | 1.90                     | 0.70              |
| 8:HH:13:ARG:HG2    | 8:HH:15:TRP:CZ3    | 2.27                     | 0.70              |
| 13:HN:25:ILE:HG23  | 13:HN:41:VAL:HG13  | 1.73                     | 0.70              |
| 18:HU:54:PRO:HD3   | 18:HU:73:PHE:CE2   | 2.26                     | 0.70              |
| 1:A1:269:U:O2'     | 1:A1:317:A:H1'     | 1.91                     | 0.70              |
| 1:A1:563:G:C4'     | 1:A1:564:A:OP2     | 2.39                     | 0.70              |
| 1:A1:684:A:C2      | 1:A1:1461:A:C2     | 2.79                     | 0.70              |
| 1:A1:2265:A:H5''   | 1:A1:2265:A:H8     | 1.55                     | 0.70              |
| 1:A1:2414:A:H2'    | 1:A1:2415:C:C6     | 2.27                     | 0.70              |
| 1:A1:3128:G:OP1    | 23:BB:22:THR:HG23  | 1.89                     | 0.70              |
| 1:A1:3307:A:H61    | 1:A1:3312:C:H42    | 1.40                     | 0.70              |
| 7:AG:11:GLN:NE2    | 1:H1:2250:A:P      | 2.64                     | 0.70              |
| 11:AL:5:ILE:HD11   | 11:AL:22:LYS:HG2   | 1.74                     | 0.70              |
| 24:BC:105:ARG:HG2  | 24:BC:105:ARG:NH1  | 2.04                     | 0.70              |
| 27:BF:68:PRO:HD3   | 27:BF:225:TRP:HE1  | 1.57                     | 0.70              |
| 23:CB:2:SER:HB3    | 1:D1:2931:G:C8     | 2.26                     | 0.70              |
| 27:CF:131:HIS:CE1  | 1:D1:117:G:H2'     | 2.26                     | 0.70              |
| 43:CV:98:ARG:HD3   | 1:D1:1010:G:H2'    | 1.73                     | 0.70              |
| 45:CX:98:ILE:H     | 45:CX:123:ASN:ND2  | 1.88                     | 0.70              |
| 1:D1:546:A:H2'     | 1:D1:547:U:C6      | 2.26                     | 0.70              |
| 1:D1:1382:A:H4'    | 1:D1:1383:G:O5'    | 1.90                     | 0.70              |
| 1:D1:1594:C:H2'    | 1:D1:1595:A:H5'    | 1.73                     | 0.70              |
| 1:D1:3226:A:H5''   | 5:DE:80:TYR:OH     | 1.91                     | 0.70              |
| 16:DQ:71:LYS:HE2   | 16:DQ:75:LYS:HE2   | 1.73                     | 0.70              |
| 24:EC:99:ASN:HD22  | 24:EC:100:GLN:HE21 | 1.37                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:EK:100:PRO:HB3  | 18:FU:164:LYS:HZ1  | 1.56                     | 0.70              |
| 35:EN:21:LYS:O     | 1:F1:696:A:H5''    | 1.91                     | 0.70              |
| 1:F1:71:U:O2'      | 1:F1:72:A:P        | 2.49                     | 0.70              |
| 1:F1:210:A:HO2'    | 1:F1:229:A:HO2'    | 1.38                     | 0.70              |
| 5:FE:67:LYS:O      | 5:FE:75:LEU:HB2    | 1.91                     | 0.70              |
| 6:FF:13:VAL:HG11   | 6:FF:53:VAL:HG22   | 1.71                     | 0.70              |
| 7:FG:43:PHE:CE1    | 7:FG:68:HIS:CD2    | 2.79                     | 0.70              |
| 18:FU:56:VAL:CG1   | 18:FU:57:ARG:N     | 2.53                     | 0.70              |
| 23:GB:22:THR:HG23  | 1:H1:3128:G:OP1    | 1.90                     | 0.70              |
| 23:GB:210:ASN:ND2  | 23:GB:351:ILE:HA   | 2.06                     | 0.70              |
| 24:GC:223:LEU:O    | 24:GC:227:LEU:HG   | 1.91                     | 0.70              |
| 26:GE:34:ILE:HG22  | 26:GE:78:MET:HE3   | 1.71                     | 0.70              |
| 31:GJ:83:ILE:HD11  | 31:GJ:105:VAL:HG23 | 1.73                     | 0.70              |
| 35:GN:16:VAL:CG1   | 35:GN:17:VAL:H     | 2.04                     | 0.70              |
| 35:GN:34:TYR:O     | 35:GN:38:VAL:HG23  | 1.92                     | 0.70              |
| 38:GQ:8:ARG:NH1    | 38:GQ:117:GLN:HG3  | 2.07                     | 0.70              |
| 43:GV:98:ARG:HH11  | 43:GV:98:ARG:HG3   | 1.55                     | 0.70              |
| 1:H1:46:A:H4'      | 1:H1:47:G:O5'      | 1.90                     | 0.70              |
| 1:H1:232:C:H4'     | 1:H1:233:G:OP2     | 1.91                     | 0.70              |
| 1:H1:2765:C:O2     | 1:H1:2765:C:H2'    | 1.90                     | 0.70              |
| 1:H1:3275:A:O2'    | 1:H1:3276:C:OP2    | 2.09                     | 0.70              |
| 1:A1:225:C:H5''    | 40:BS:46:SER:HB3   | 1.74                     | 0.70              |
| 1:A1:621:G:H21     | 1:A1:634:G:H5''    | 1.56                     | 0.70              |
| 1:A1:707:A:P       | 50:A1:4630:HOH:O   | 2.48                     | 0.70              |
| 1:A1:895:A:OP1     | 50:A1:4108:HOH:O   | 2.09                     | 0.70              |
| 1:A1:1549:U:C2     | 39:BR:131:TYR:CD2  | 2.80                     | 0.70              |
| 1:A1:1566:U:H2'    | 1:A1:1567:A:C8     | 2.27                     | 0.70              |
| 1:A1:1863:A:OP1    | 50:A1:4371:HOH:O   | 2.09                     | 0.70              |
| 1:A1:3110:U:H4'    | 1:A1:3111:A:OP1    | 1.90                     | 0.70              |
| 1:A1:3127:U:OP1    | 23:BB:272:HIS:HD2  | 1.74                     | 0.70              |
| 8:AH:54:LYS:HD3    | 8:AH:110:PRO:HG2   | 1.72                     | 0.70              |
| 24:BC:227:LEU:HD12 | 24:BC:235:VAL:HG22 | 1.74                     | 0.70              |
| 29:BH:42:THR:HG23  | 29:BH:192:THR:HG21 | 1.72                     | 0.70              |
| 32:BK:91:LYS:HE2   | 32:BK:92:TYR:CZ    | 2.27                     | 0.70              |
| 32:CK:113:LEU:HB3  | 1:D1:740:A:OP2     | 1.91                     | 0.70              |
| 40:CS:30:MET:HE3   | 40:CS:77:TRP:CE3   | 2.26                     | 0.70              |
| 1:D1:114:A:C5      | 1:D1:264:A:C6      | 2.80                     | 0.70              |
| 1:D1:1091:G:H4'    | 1:D1:1092:C:OP2    | 1.89                     | 0.70              |
| 1:D1:1186:A:N3     | 1:D1:1186:A:H2'    | 2.06                     | 0.70              |
| 1:D1:1477:C:OP1    | 50:D1:4246:HOH:O   | 2.07                     | 0.70              |
| 1:D1:1597:U:H2'    | 1:D1:1598:C:O4'    | 1.91                     | 0.70              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:1771:U:O2'   | 15:DP:54:LYS:NZ    | 2.19                     | 0.70              |
| 1:D1:3110:U:H4'   | 1:D1:3111:A:OP1    | 1.91                     | 0.70              |
| 9:DJ:39:GLU:HB3   | 9:DJ:43:VAL:HG23   | 1.73                     | 0.70              |
| 14:DO:52:GLY:HA3  | 14:DO:118:ASN:HD21 | 1.54                     | 0.70              |
| 46:EY:62:LYS:NZ   | 1:F1:2545:A:N7     | 2.39                     | 0.70              |
| 1:F1:279:U:C2     | 1:F1:281:G:OP2     | 2.44                     | 0.70              |
| 1:F1:1382:A:H4'   | 1:F1:1383:G:O5'    | 1.91                     | 0.70              |
| 1:F1:1434:G:C2'   | 1:F1:1435:C:C5'    | 2.69                     | 0.70              |
| 1:F1:3232:A:N1    | 1:F1:3233:A:C2     | 2.59                     | 0.70              |
| 5:FE:69:LEU:HD11  | 5:FE:114:ASP:N     | 2.06                     | 0.70              |
| 12:FM:21:CYS:SG   | 12:FM:30:ILE:HD13  | 2.30                     | 0.70              |
| 21:G3:64:A:H5'    | 50:G3:320:HOH:O    | 1.90                     | 0.70              |
| 35:GN:45:PHE:HE1  | 35:GN:139:LEU:HB2  | 1.56                     | 0.70              |
| 44:GW:19:CYS:HA   | 44:GW:22:ILE:HD12  | 1.72                     | 0.70              |
| 1:H1:131:G:N1     | 1:H1:133:C:H1'     | 2.07                     | 0.70              |
| 1:H1:1052:A:N3    | 1:H1:1053:A:N7     | 2.39                     | 0.70              |
| 1:H1:1492:G:H2'   | 1:H1:1493:A:H5''   | 1.73                     | 0.70              |
| 1:H1:1594:C:H2'   | 1:H1:1595:A:H5'    | 1.72                     | 0.70              |
| 1:H1:1901:C:H5''  | 1:H1:1902:C:C5'    | 2.22                     | 0.70              |
| 1:H1:2933:G:H4'   | 1:H1:2934:A:OP1    | 1.91                     | 0.70              |
| 1:H1:3157:C:H1'   | 8:HH:9:VAL:HG13    | 1.73                     | 0.70              |
| 1:A1:395:A:O2'    | 50:A1:3864:HOH:O   | 2.10                     | 0.70              |
| 1:A1:612:C:O2'    | 1:A1:613:U:H5'     | 1.90                     | 0.70              |
| 1:A1:633:C:H2'    | 1:A1:634:G:OP1     | 1.92                     | 0.70              |
| 1:A1:1186:A:N3    | 1:A1:1186:A:H2'    | 2.05                     | 0.70              |
| 1:A1:1448:G:C4'   | 45:BX:79:ARG:HH12  | 2.03                     | 0.70              |
| 1:A1:1562:G:O6    | 50:A1:4048:HOH:O   | 2.10                     | 0.70              |
| 1:A1:1950:C:H3'   | 46:BY:7:LYS:HG3    | 1.71                     | 0.70              |
| 2:AA:17:THR:CG2   | 2:AA:18:LEU:H      | 2.03                     | 0.70              |
| 5:AE:125:ASN:OD1  | 5:AE:128:ASN:N     | 2.23                     | 0.70              |
| 23:BB:185:LYS:HB2 | 23:BB:188:GLU:HG3  | 1.72                     | 0.70              |
| 34:BM:181:PRO:HD2 | 34:BM:200:HIS:CE1  | 2.27                     | 0.70              |
| 37:BP:40:VAL:CG1  | 37:BP:96:VAL:HG13  | 2.21                     | 0.70              |
| 44:BW:59:TRP:CZ3  | 44:BW:63:ILE:HG12  | 2.27                     | 0.70              |
| 24:CC:311:ALA:N   | 35:CN:40:ARG:NH2   | 2.39                     | 0.70              |
| 32:CK:104:VAL:CG1 | 32:CK:109:PHE:HB2  | 2.21                     | 0.70              |
| 40:CS:84:ILE:O    | 40:CS:96:ILE:HD12  | 1.92                     | 0.70              |
| 45:CX:69:LEU:HB3  | 45:CX:70:PRO:HD2   | 1.71                     | 0.70              |
| 45:CX:84:LEU:HD12 | 45:CX:110:LEU:HD22 | 1.73                     | 0.70              |
| 1:D1:635:A:O2'    | 5:DE:33:LEU:HD13   | 1.92                     | 0.70              |
| 1:D1:1245:U:H6    | 1:D1:1245:U:H5'    | 1.57                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3177:G:C4'    | 1:D1:3178:U:OP2    | 2.39                     | 0.70              |
| 1:D1:3232:A:N1     | 1:D1:3233:A:C2     | 2.60                     | 0.70              |
| 4:DC:27:LYS:HD3    | 4:DC:27:LYS:H      | 1.55                     | 0.70              |
| 9:DJ:30:ALA:HB3    | 9:DJ:35:TYR:CZ     | 2.26                     | 0.70              |
| 23:EB:22:THR:HG22  | 23:EB:24:HIS:N     | 2.07                     | 0.70              |
| 23:EB:145:LEU:O    | 23:EB:148:ARG:HB2  | 1.91                     | 0.70              |
| 24:EC:89:THR:HG22  | 24:EC:91:ARG:N     | 2.05                     | 0.70              |
| 24:EC:99:ASN:ND2   | 1:F1:828:C:O2'     | 2.24                     | 0.70              |
| 26:EE:166:LYS:NZ   | 1:F1:2882:U:OP1    | 2.17                     | 0.70              |
| 31:EJ:10:GLN:CG    | 31:EJ:129:ILE:HG23 | 2.22                     | 0.70              |
| 42:EU:47:ARG:O     | 42:EU:51:VAL:HG23  | 1.92                     | 0.70              |
| 45:EX:60:ALA:HA    | 1:F1:1431:U:H5'    | 1.73                     | 0.70              |
| 46:EY:12:ARG:NH1   | 1:F1:1951:G:O3'    | 2.24                     | 0.70              |
| 1:F1:911:C:O2'     | 1:F1:912:G:H5'     | 1.91                     | 0.70              |
| 1:F1:1448:G:OP1    | 50:F1:4195:HOH:O   | 2.08                     | 0.70              |
| 11:FL:37:LYS:HB2   | 11:FL:60:ARG:HH21  | 1.55                     | 0.70              |
| 19:FX:113:LEU:HD11 | 19:FX:140:THR:HG21 | 1.73                     | 0.70              |
| 21:G3:70:G:O6      | 50:G3:322:HOH:O    | 2.08                     | 0.70              |
| 22:GA:115:CYS:HB2  | 22:GA:166:THR:HB   | 1.74                     | 0.70              |
| 24:GC:272:THR:HG22 | 24:GC:273:TYR:N    | 2.06                     | 0.70              |
| 24:GC:283:TYR:HE1  | 24:GC:285:LEU:HD23 | 1.54                     | 0.70              |
| 25:GD:101:ASN:HD21 | 25:GD:130:VAL:HG13 | 1.57                     | 0.70              |
| 26:GE:1:MET:HE3    | 1:H1:1214:C:OP1    | 1.92                     | 0.70              |
| 33:GL:14:LYS:HZ1   | 1:H1:268:G:H5''    | 1.56                     | 0.70              |
| 38:GQ:103:ASN:ND2  | 1:H1:388:A:C1'     | 2.49                     | 0.70              |
| 1:H1:279:U:N3      | 1:H1:281:G:OP2     | 2.25                     | 0.70              |
| 1:H1:635:A:O2'     | 5:HE:33:LEU:HD13   | 1.91                     | 0.70              |
| 1:H1:978:G:C8      | 1:H1:1144:G:C8     | 2.80                     | 0.70              |
| 1:H1:986:C:OP2     | 50:H1:4328:HOH:O   | 2.10                     | 0.70              |
| 1:H1:1505:C:OP1    | 50:H1:3927:HOH:O   | 2.09                     | 0.70              |
| 1:H1:1927:U:OP2    | 50:H1:4193:HOH:O   | 2.09                     | 0.70              |
| 1:H1:2686:A:H2'    | 1:H1:2687:G:C8     | 2.26                     | 0.70              |
| 1:H1:2732:G:H2'    | 1:H1:2733:C:C6     | 2.26                     | 0.70              |
| 1:H1:3061:A:OP2    | 50:H1:4106:HOH:O   | 2.08                     | 0.70              |
| 7:HG:57:GLU:HA     | 7:HG:67:ILE:CD1    | 2.21                     | 0.70              |
| 1:A1:897:A:O2'     | 1:A1:898:C:H5'     | 1.92                     | 0.70              |
| 1:A1:1193:G:H2'    | 1:A1:1194:A:C8     | 2.27                     | 0.70              |
| 1:A1:1597:U:H2'    | 1:A1:1598:C:H6     | 1.56                     | 0.70              |
| 1:A1:1921:G:O6     | 50:A1:4467:HOH:O   | 2.06                     | 0.70              |
| 1:A1:1963:G:N7     | 50:A1:4521:HOH:O   | 2.24                     | 0.70              |
| 6:AF:13:VAL:HG11   | 6:AF:53:VAL:HG22   | 1.73                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:AH:9:VAL:HG12    | 8:AH:10:ALA:N      | 2.05                     | 0.70              |
| 11:AL:67:ILE:HD12  | 11:AL:71:ALA:HB3   | 1.73                     | 0.70              |
| 24:BC:287:ARG:HD2  | 35:BN:111:ARG:HH12 | 1.56                     | 0.70              |
| 27:BF:183:VAL:CG1  | 27:BF:185:LYS:HE3  | 2.22                     | 0.70              |
| 33:BL:45:PRO:O     | 33:BL:49:ARG:HG3   | 1.92                     | 0.70              |
| 37:BP:40:VAL:HG11  | 37:BP:96:VAL:HG13  | 1.73                     | 0.70              |
| 43:BV:93:HIS:HD2   | 43:BV:95:ASP:HB2   | 1.54                     | 0.70              |
| 21:C3:11:A:C8      | 34:CM:18:THR:HB    | 2.25                     | 0.70              |
| 32:CK:81:TRP:HZ2   | 32:CK:123:VAL:HG22 | 1.54                     | 0.70              |
| 32:CK:88:THR:HG23  | 18:DU:164:LYS:NZ   | 2.05                     | 0.70              |
| 32:CK:122:PRO:CA   | 32:CK:142:GLY:O    | 2.39                     | 0.70              |
| 47:CO:133:LYS:HG3  | 47:CO:134:ASN:H    | 1.55                     | 0.70              |
| 38:CQ:103:ASN:HD21 | 1:D1:388:A:H1'     | 1.53                     | 0.70              |
| 19:DX:180:VAL:HG13 | 19:DX:181:TYR:HD1  | 1.56                     | 0.70              |
| 20:E2:105:A:H5''   | 20:E2:106:A:H8     | 1.57                     | 0.70              |
| 21:E3:83:G:H22     | 21:E3:93:G:H21     | 1.37                     | 0.70              |
| 22:EA:10:LYS:HD2   | 1:F1:2178:A:OP1    | 1.91                     | 0.70              |
| 22:EA:20:HIS:HE1   | 1:F1:847:G:O2'     | 1.74                     | 0.70              |
| 34:EM:180:PHE:CD1  | 34:EM:200:HIS:CE1  | 2.79                     | 0.70              |
| 42:EU:51:VAL:O     | 42:EU:55:ILE:HG13  | 1.91                     | 0.70              |
| 1:F1:637:U:H2'     | 1:F1:638:U:C6      | 2.26                     | 0.70              |
| 1:F1:805:A:C4'     | 1:F1:806:G:OP2     | 2.38                     | 0.70              |
| 1:F1:1901:C:H5''   | 1:F1:1902:C:C5'    | 2.22                     | 0.70              |
| 11:FL:37:LYS:HB2   | 11:FL:60:ARG:NH2   | 2.06                     | 0.70              |
| 13:FN:7:TYR:CE2    | 13:FN:94:LYS:HG3   | 2.26                     | 0.70              |
| 22:GA:16:VAL:CG2   | 1:H1:936:C:H5''    | 2.22                     | 0.70              |
| 26:GE:167:GLU:C    | 26:GE:168:LYS:HG2  | 2.16                     | 0.70              |
| 30:GI:49:ASN:ND2   | 30:GI:135:CYS:SG   | 2.62                     | 0.70              |
| 34:GM:119:TYR:HD1  | 34:GM:132:VAL:HG11 | 1.57                     | 0.70              |
| 42:GU:51:VAL:O     | 42:GU:55:ILE:HG13  | 1.91                     | 0.70              |
| 46:GY:10:ILE:CG2   | 1:H1:862:A:H4'     | 2.22                     | 0.70              |
| 1:H1:70:C:N4       | 1:H1:72:A:C5       | 2.59                     | 0.70              |
| 1:H1:74:G:H4'      | 1:H1:75:A:OP1      | 1.91                     | 0.70              |
| 1:H1:628:A:H4'     | 1:H1:629:A:OP2     | 1.92                     | 0.70              |
| 1:H1:941:G:H5'     | 1:H1:942:A:OP1     | 1.91                     | 0.70              |
| 1:H1:1598:C:C2'    | 1:H1:1599:G:H5'    | 2.21                     | 0.70              |
| 1:H1:2602:U:O4     | 50:H1:3644:HOH:O   | 2.09                     | 0.70              |
| 7:HG:40:LYS:CG     | 7:HG:93:LEU:O      | 2.38                     | 0.70              |
| 11:HL:98:GLU:OE1   | 11:HL:101:LYS:HD2  | 1.91                     | 0.70              |
| 11:HL:99:GLU:OE1   | 11:HL:99:GLU:HA    | 1.90                     | 0.70              |
| 1:A1:186:U:N3      | 1:A1:230:G:O6      | 2.24                     | 0.70              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:619:G:C4'    | 1:A1:620:A:H2      | 2.05                     | 0.70              |
| 1:A1:742:U:H5     | 17:AT:61:LYS:HD2   | 1.56                     | 0.70              |
| 1:A1:1186:A:H3'   | 35:BN:2:ALA:HB2    | 1.74                     | 0.70              |
| 1:A1:1548:U:OP1   | 39:BR:79:LYS:NZ    | 2.23                     | 0.70              |
| 1:A1:3112:A:H2'   | 1:A1:3113:G:H5'    | 1.72                     | 0.70              |
| 4:AC:7:THR:HB     | 4:AC:94:ILE:HD11   | 1.71                     | 0.70              |
| 15:AP:48:LYS:HG3  | 15:AP:49:TYR:CD1   | 2.27                     | 0.70              |
| 20:B2:41:U:C2     | 42:BU:93:ARG:NH2   | 2.60                     | 0.70              |
| 23:BB:114:THR:HB  | 23:BB:161:HIS:CD2  | 2.26                     | 0.70              |
| 26:BE:52:ASN:OD1  | 26:BE:53:VAL:N     | 2.24                     | 0.70              |
| 34:BM:33:ARG:NH2  | 34:BM:72:ASP:OD2   | 2.24                     | 0.70              |
| 37:BP:26:ARG:O    | 37:BP:29:ARG:HG3   | 1.91                     | 0.70              |
| 20:C2:12:A:H2'    | 20:C2:13:A:C8      | 2.26                     | 0.70              |
| 30:CI:158:LYS:HD3 | 30:CI:158:LYS:C    | 2.17                     | 0.70              |
| 32:CK:21:ARG:NH2  | 1:D1:664:U:OP1     | 2.24                     | 0.70              |
| 34:CM:17:GLN:OE1  | 37:CP:20:LYS:HA    | 1.91                     | 0.70              |
| 1:D1:1376:A:C5'   | 1:D1:1377:A:H5'    | 2.22                     | 0.70              |
| 1:D1:1553:C:OP2   | 50:D1:4531:HOH:O   | 2.09                     | 0.70              |
| 1:D1:2255:U:C1'   | 1:D1:2256:G:OP1    | 2.40                     | 0.70              |
| 1:D1:2545:A:H4'   | 1:D1:2546:A:OP2    | 1.90                     | 0.70              |
| 6:DF:6:PHE:O      | 6:DF:11:ARG:HD3    | 1.90                     | 0.70              |
| 6:DF:30:ILE:HG21  | 19:DX:163:PHE:CE2  | 2.27                     | 0.70              |
| 6:DF:45:ARG:NH2   | 6:DF:67:GLN:O      | 2.25                     | 0.70              |
| 8:DH:9:VAL:HG12   | 8:DH:10:ALA:N      | 2.07                     | 0.70              |
| 9:DJ:162:HIS:HD2  | 9:DJ:164:LEU:H     | 1.40                     | 0.70              |
| 22:EA:66:ASP:OD1  | 22:EA:68:TYR:N     | 2.23                     | 0.70              |
| 23:EB:2:SER:HB3   | 1:F1:2931:G:N7     | 2.07                     | 0.70              |
| 25:ED:99:THR:CG2  | 1:F1:2673:C:O2'    | 2.40                     | 0.70              |
| 32:EK:24:LYS:NZ   | 1:F1:967:U:O4      | 2.24                     | 0.70              |
| 43:EV:97:LYS:O    | 43:EV:101:ARG:HG3  | 1.91                     | 0.70              |
| 45:EX:98:ILE:H    | 45:EX:123:ASN:ND2  | 1.90                     | 0.70              |
| 1:F1:2356:A:H8    | 1:F1:2356:A:H5'    | 1.55                     | 0.70              |
| 1:F1:2415:C:H2'   | 1:F1:2416:U:C5'    | 2.21                     | 0.70              |
| 1:F1:3275:A:C2'   | 1:F1:3276:C:OP2    | 2.40                     | 0.70              |
| 7:FG:13:LYS:HD2   | 7:FG:100:ILE:HD13  | 1.74                     | 0.70              |
| 21:G3:64:A:O2'    | 29:GH:205:PRO:CG   | 2.39                     | 0.70              |
| 23:GB:120:LYS:HD2 | 1:H1:3257:U:OP1    | 1.91                     | 0.70              |
| 33:GL:169:ARG:NH2 | 1:H1:62:G:OP2      | 2.25                     | 0.70              |
| 35:GN:82:VAL:HG21 | 35:GN:127:LEU:HD11 | 1.74                     | 0.70              |
| 1:H1:563:G:C4'    | 1:H1:564:A:OP2     | 2.40                     | 0.70              |
| 1:H1:1054:G:C2'   | 1:H1:1055:A:C8     | 2.69                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2600:U:H2'    | 1:H1:2601:U:C6     | 2.26                     | 0.70              |
| 1:H1:2678:A:H1'    | 1:H1:2691:A:N6     | 2.06                     | 0.70              |
| 1:H1:2897:A:OP2    | 50:H1:4051:HOH:O   | 2.10                     | 0.70              |
| 9:HJ:39:GLU:HB3    | 9:HJ:43:VAL:HG23   | 1.74                     | 0.70              |
| 13:HN:91:CYS:SG    | 13:HN:92:ASP:N     | 2.65                     | 0.70              |
| 1:A1:284:U:C5      | 1:A1:305:A:C5'     | 2.75                     | 0.70              |
| 1:A1:362:G:C3'     | 1:A1:363:G:H5''    | 2.22                     | 0.70              |
| 1:A1:450:C:H2'     | 1:A1:451:A:C8      | 2.26                     | 0.70              |
| 1:A1:498:A:H5''    | 24:BC:275:THR:OG1  | 1.91                     | 0.70              |
| 1:A1:639:U:O2'     | 1:A1:640:G:H5'     | 1.92                     | 0.70              |
| 1:A1:1245:U:H6     | 1:A1:1245:U:H5'    | 1.57                     | 0.70              |
| 1:A1:2553:G:H5''   | 27:BF:22:PHE:O     | 1.91                     | 0.70              |
| 1:A1:2859:G:O6     | 50:A1:4332:HOH:O   | 2.05                     | 0.70              |
| 1:A1:2983:A:O2'    | 20:B2:2:G:O2'      | 2.01                     | 0.70              |
| 1:A1:3192:C:O2     | 6:AF:120:ARG:HD3   | 1.92                     | 0.70              |
| 1:A1:3275:A:O2'    | 1:A1:3276:C:OP2    | 2.06                     | 0.70              |
| 9:AJ:162:HIS:CD2   | 9:AJ:164:LEU:H     | 2.10                     | 0.70              |
| 50:AT:103:HOH:O    | 37:BP:82:GLY:HA3   | 1.92                     | 0.70              |
| 23:BB:46:PHE:CE2   | 23:BB:203:VAL:HG22 | 2.25                     | 0.70              |
| 27:BF:19:ASN:HB3   | 27:BF:20:PRO:CD    | 2.21                     | 0.70              |
| 37:BP:13:LYS:O     | 50:BP:302:HOH:O    | 2.08                     | 0.70              |
| 40:BS:84:ILE:O     | 40:BS:96:ILE:HD12  | 1.92                     | 0.70              |
| 24:CC:157:TYR:CD1  | 24:CC:159:PHE:HE1  | 2.10                     | 0.70              |
| 30:CI:37:THR:OG1   | 30:CI:104:PHE:O    | 2.10                     | 0.70              |
| 1:D1:994:C:OP1     | 50:D1:4326:HOH:O   | 2.10                     | 0.70              |
| 1:D1:1074:A:H5''   | 1:D1:1075:C:C5'    | 2.22                     | 0.70              |
| 1:D1:1618:A:H5''   | 11:DL:62:ALA:HB2   | 1.73                     | 0.70              |
| 1:D1:1845:U:H4'    | 1:D1:1846:C:OP2    | 1.92                     | 0.70              |
| 1:D1:1921:G:C2'    | 1:D1:1922:G:H5'    | 2.22                     | 0.70              |
| 1:D1:2149:U:H2'    | 1:D1:2150:U:C5'    | 2.22                     | 0.70              |
| 1:D1:2254:A:OP1    | 1:D1:2254:A:H4'    | 1.90                     | 0.70              |
| 1:D1:2395:G:OP1    | 50:D1:4891:HOH:O   | 2.09                     | 0.70              |
| 23:EB:119:TYR:CE2  | 23:EB:122:TRP:HZ3  | 2.09                     | 0.70              |
| 37:EP:63:LYS:HD2   | 37:EP:63:LYS:H     | 1.57                     | 0.70              |
| 43:EV:93:HIS:HD2   | 43:EV:95:ASP:HB2   | 1.55                     | 0.70              |
| 1:F1:1146:C:H42    | 17:FT:10:LYS:HZ3   | 1.38                     | 0.70              |
| 1:F1:1597:U:H2'    | 1:F1:1598:C:H6     | 1.57                     | 0.70              |
| 7:FG:40:LYS:CG     | 7:FG:93:LEU:O      | 2.39                     | 0.70              |
| 13:FN:24:VAL:O     | 13:FN:43:VAL:HG13  | 1.92                     | 0.70              |
| 14:FO:50:LEU:HD13  | 14:FO:111:LEU:HD21 | 1.72                     | 0.70              |
| 33:GL:110:VAL:HG12 | 33:GL:113:LEU:HG   | 1.71                     | 0.70              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 40:GS:73:TYR:CD1   | 40:GS:76:LYS:HB2   | 2.27                     | 0.70              |
| 1:H1:362:G:C3'     | 1:H1:363:G:H5''    | 2.22                     | 0.70              |
| 1:H1:1045:G:H2'    | 1:H1:1046:G:H8     | 1.57                     | 0.70              |
| 1:H1:1446:C:H5'    | 1:H1:1446:C:C6     | 2.27                     | 0.70              |
| 1:H1:2100:A:H2'    | 1:H1:2101:G:C5'    | 2.20                     | 0.70              |
| 1:H1:2994:G:O2'    | 1:H1:2995:A:H8     | 1.74                     | 0.70              |
| 7:HG:10:ILE:HG23   | 7:HG:13:LYS:HE2    | 1.72                     | 0.70              |
| 12:HM:77:TYR:HE1   | 12:HM:81:LEU:HD21  | 1.55                     | 0.70              |
| 18:HU:58:LYS:HB2   | 18:HU:63:TYR:HB3   | 1.74                     | 0.70              |
| 1:A1:439:A:C5'     | 5:AE:126:HIS:HD1   | 2.05                     | 0.69              |
| 1:A1:528:C:H6      | 1:A1:528:C:H5'     | 1.57                     | 0.69              |
| 1:A1:559:G:O2'     | 1:A1:560:A:H5'     | 1.91                     | 0.69              |
| 1:A1:864:C:N4      | 46:BY:4:ARG:HH21   | 1.90                     | 0.69              |
| 1:A1:1132:U:O5'    | 1:A1:1132:U:H6     | 1.74                     | 0.69              |
| 1:A1:1308:U:O3'    | 28:BG:58:UNK:HG2   | 1.92                     | 0.69              |
| 1:A1:2101:G:H8     | 1:A1:2101:G:H5'    | 1.57                     | 0.69              |
| 1:A1:2351:A:N3     | 38:BQ:133:ARG:NH2  | 2.40                     | 0.69              |
| 1:A1:2410:C:H5'    | 22:BA:208:VAL:HG22 | 1.74                     | 0.69              |
| 1:A1:2635:C:H4'    | 29:BH:119:PHE:CE2  | 2.27                     | 0.69              |
| 1:A1:3176:A:H4'    | 1:A1:3177:G:O5'    | 1.90                     | 0.69              |
| 1:A1:3275:A:C2'    | 1:A1:3276:C:OP2    | 2.39                     | 0.69              |
| 7:AG:47:ASN:HD21   | 7:AG:73:SER:HB3    | 1.57                     | 0.69              |
| 9:AJ:99:GLU:HG3    | 9:AJ:101:LEU:H     | 1.57                     | 0.69              |
| 17:AT:55:LYS:HB3   | 17:AT:59:LEU:HD23  | 1.74                     | 0.69              |
| 24:BC:295:ILE:HD11 | 35:BN:29:LEU:HB3   | 1.74                     | 0.69              |
| 34:BM:119:TYR:CD1  | 34:BM:132:VAL:CG1  | 2.73                     | 0.69              |
| 42:BU:47:ARG:O     | 42:BU:51:VAL:HG23  | 1.91                     | 0.69              |
| 22:CA:78:ILE:CD1   | 22:CA:129:ARG:HD3  | 2.22                     | 0.69              |
| 23:CB:171:GLN:NE2  | 1:D1:3273:U:OP1    | 2.24                     | 0.69              |
| 47:CO:159:UNK:O    | 47:CO:162:UNK:HG3  | 1.92                     | 0.69              |
| 37:CP:19:TYR:HE1   | 37:CP:20:LYS:HE3   | 1.57                     | 0.69              |
| 37:CP:57:TYR:HA    | 37:CP:60:ARG:HG3   | 1.73                     | 0.69              |
| 40:CS:73:TYR:CD1   | 40:CS:76:LYS:HB2   | 2.26                     | 0.69              |
| 41:CT:35:THR:HG22  | 41:CT:37:LYS:N     | 2.03                     | 0.69              |
| 1:D1:279:U:N3      | 1:D1:281:G:OP2     | 2.24                     | 0.69              |
| 1:D1:435:A:N3      | 1:D1:435:A:H2'     | 2.07                     | 0.69              |
| 1:D1:654:U:H2'     | 1:D1:655:A:H8      | 1.56                     | 0.69              |
| 1:D1:1313:A:C4'    | 1:D1:1314:A:OP1    | 2.39                     | 0.69              |
| 1:D1:2126:G:O2'    | 50:D1:4187:HOH:O   | 2.10                     | 0.69              |
| 1:D1:2356:A:H2'    | 1:D1:2357:C:O5'    | 1.92                     | 0.69              |
| 1:D1:3116:A:OP2    | 50:D1:4762:HOH:O   | 2.10                     | 0.69              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 7:DG:24:THR:HG21  | 7:DG:29:SER:OG     | 1.91                     | 0.69              |
| 7:DG:40:LYS:CG    | 7:DG:93:LEU:O      | 2.39                     | 0.69              |
| 21:E3:62:U:O2'    | 21:E3:63:A:OP1     | 2.10                     | 0.69              |
| 22:EA:70:TYR:HD2  | 1:F1:1674:C:C4'    | 2.04                     | 0.69              |
| 34:EM:140:LYS:HD3 | 1:F1:1108:A:P      | 2.31                     | 0.69              |
| 34:EM:210:ASP:HA  | 34:EM:213:MET:HG3  | 1.74                     | 0.69              |
| 35:EN:16:VAL:CG1  | 35:EN:17:VAL:H     | 2.05                     | 0.69              |
| 35:EN:147:GLU:O   | 35:EN:150:ARG:HG2  | 1.91                     | 0.69              |
| 37:EP:91:VAL:HG12 | 37:EP:92:LYS:O     | 1.91                     | 0.69              |
| 43:EV:41:TRP:CD1  | 43:EV:177:CYS:HG   | 2.09                     | 0.69              |
| 1:F1:71:U:C5      | 18:FU:64:ASN:HB3   | 2.27                     | 0.69              |
| 1:F1:2163:A:H5''  | 50:F1:3622:HOH:O   | 1.92                     | 0.69              |
| 1:F1:3251:C:H4'   | 1:F1:3252:G:OP2    | 1.90                     | 0.69              |
| 6:FF:45:ARG:NH2   | 6:FF:67:GLN:O      | 2.25                     | 0.69              |
| 13:FN:16:GLY:N    | 13:FN:19:ALA:HB2   | 2.07                     | 0.69              |
| 18:FU:52:LEU:HD23 | 18:FU:93:ILE:HG23  | 1.73                     | 0.69              |
| 22:GA:14:ASN:HB3  | 1:H1:930:U:H5'     | 1.72                     | 0.69              |
| 23:GB:157:ARG:HG2 | 23:GB:180:GLN:HA   | 1.74                     | 0.69              |
| 30:GI:113:ARG:NH1 | 1:H1:3162:A:N6     | 2.39                     | 0.69              |
| 33:GL:183:SER:HA  | 33:GL:191:ASN:HD21 | 1.55                     | 0.69              |
| 35:GN:16:VAL:CG1  | 35:GN:17:VAL:N     | 2.54                     | 0.69              |
| 41:GT:58:ARG:CZ   | 1:H1:3325:G:C5     | 2.75                     | 0.69              |
| 1:H1:269:U:H2'    | 1:H1:270:C:H6      | 1.57                     | 0.69              |
| 1:H1:331:C:H2'    | 1:H1:332:G:H5''    | 1.74                     | 0.69              |
| 1:H1:1114:C:C2'   | 1:H1:1115:U:H5'    | 2.21                     | 0.69              |
| 1:H1:1343:G:O6    | 19:HX:167:LYS:HD2  | 1.92                     | 0.69              |
| 1:H1:1566:U:H2'   | 1:H1:1567:A:H8     | 1.57                     | 0.69              |
| 1:H1:2411:U:H2'   | 1:H1:2412:U:C6     | 2.27                     | 0.69              |
| 1:H1:3232:A:C6    | 1:H1:3233:A:C2     | 2.80                     | 0.69              |
| 9:HJ:162:HIS:HD2  | 9:HJ:164:LEU:H     | 1.40                     | 0.69              |
| 18:HU:52:LEU:HD23 | 18:HU:93:ILE:HG23  | 1.73                     | 0.69              |
| 1:A1:1007:G:O6    | 50:A1:4795:HOH:O   | 2.10                     | 0.69              |
| 18:AU:58:LYS:HB2  | 18:AU:63:TYR:HB3   | 1.74                     | 0.69              |
| 23:BB:119:TYR:CD2 | 23:BB:122:TRP:HZ3  | 2.10                     | 0.69              |
| 23:BB:145:LEU:O   | 23:BB:148:ARG:HB2  | 1.92                     | 0.69              |
| 30:BI:158:LYS:HD3 | 30:BI:158:LYS:C    | 2.17                     | 0.69              |
| 33:BL:183:SER:HA  | 33:BL:191:ASN:HD21 | 1.56                     | 0.69              |
| 46:BY:71:LEU:O    | 46:BY:71:LEU:HD12  | 1.92                     | 0.69              |
| 21:C3:33:U:C4     | 34:CM:212:TYR:CE1  | 2.79                     | 0.69              |
| 24:CC:309:LYS:O   | 35:CN:40:ARG:NH1   | 2.25                     | 0.69              |
| 1:D1:70:C:N4      | 1:D1:72:A:C5       | 2.60                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:209:A:N1      | 50:D1:4435:HOH:O   | 2.25                     | 0.69              |
| 1:D1:450:C:H2'     | 1:D1:451:A:C8      | 2.27                     | 0.69              |
| 1:D1:1418:G:N7     | 50:D1:4991:HOH:O   | 2.25                     | 0.69              |
| 1:D1:3157:C:H4'    | 1:D1:3158:G:C5'    | 2.22                     | 0.69              |
| 15:DP:31:VAL:HG22  | 15:DP:44:LEU:CD2   | 2.21                     | 0.69              |
| 19:DX:180:VAL:HG13 | 19:DX:181:TYR:CD1  | 2.27                     | 0.69              |
| 23:EB:54:THR:CG2   | 23:EB:55:HIS:N     | 2.55                     | 0.69              |
| 23:EB:119:TYR:CD2  | 23:EB:122:TRP:HZ3  | 2.10                     | 0.69              |
| 24:EC:89:THR:CG2   | 24:EC:91:ARG:H     | 2.04                     | 0.69              |
| 24:EC:188:VAL:HG21 | 24:EC:231:PRO:O    | 1.92                     | 0.69              |
| 24:EC:319:ARG:NE   | 1:F1:634:G:N7      | 2.40                     | 0.69              |
| 31:EJ:83:ILE:HG23  | 31:EJ:122:VAL:HG13 | 1.74                     | 0.69              |
| 42:EU:58:TYR:O     | 42:EU:62:ILE:HD12  | 1.91                     | 0.69              |
| 44:EW:54:LEU:HD22  | 44:EW:92:VAL:HG12  | 1.74                     | 0.69              |
| 1:F1:223:C:O2'     | 1:F1:224:C:OP2     | 2.09                     | 0.69              |
| 1:F1:439:A:H5''    | 5:FE:126:HIS:ND1   | 2.06                     | 0.69              |
| 1:F1:655:A:H2'     | 1:F1:656:C:C6      | 2.27                     | 0.69              |
| 1:F1:1173:A:H2'    | 1:F1:1174:G:C8     | 2.27                     | 0.69              |
| 1:F1:2343:A:C3'    | 1:F1:2344:U:H5''   | 2.22                     | 0.69              |
| 1:F1:2839:A:OP1    | 50:F1:4095:HOH:O   | 2.10                     | 0.69              |
| 11:FL:88:ARG:HG3   | 13:FN:14:LEU:HD13  | 1.74                     | 0.69              |
| 18:FU:124:PHE:HE2  | 18:FU:142:THR:HA   | 1.56                     | 0.69              |
| 30:GI:62:ASN:ND2   | 1:H1:1332:U:H1'    | 2.07                     | 0.69              |
| 30:GI:196:PHE:CZ   | 6:HF:110:ARG:HD2   | 2.27                     | 0.69              |
| 34:GM:180:PHE:CD1  | 34:GM:200:HIS:CE1  | 2.79                     | 0.69              |
| 43:GV:118:LYS:O    | 43:GV:122:ASN:HB2  | 1.90                     | 0.69              |
| 44:GW:54:LEU:HD22  | 44:GW:92:VAL:HG12  | 1.73                     | 0.69              |
| 1:H1:641:U:H2'     | 1:H1:642:C:C6      | 2.26                     | 0.69              |
| 1:H1:1091:G:H4'    | 1:H1:1092:C:OP2    | 1.91                     | 0.69              |
| 1:H1:1222:A:C2     | 1:H1:1336:U:N3     | 2.60                     | 0.69              |
| 1:H1:1580:G:C4'    | 1:H1:1581:C:OP1    | 2.39                     | 0.69              |
| 1:H1:2633:C:H5''   | 1:H1:2634:G:OP1    | 1.92                     | 0.69              |
| 1:A1:94:A:OP2      | 32:BK:36:LYS:HB2   | 1.91                     | 0.69              |
| 1:A1:2663:A:C2     | 25:BD:124:GLY:HA3  | 2.26                     | 0.69              |
| 1:A1:3157:C:H4'    | 1:A1:3158:G:C5'    | 2.22                     | 0.69              |
| 1:A1:3251:C:H4'    | 1:A1:3252:G:OP2    | 1.91                     | 0.69              |
| 9:AJ:18:LYS:HE2    | 9:AJ:64:CYS:HA     | 1.73                     | 0.69              |
| 24:BC:230:ILE:O    | 24:BC:233:VAL:HG22 | 1.93                     | 0.69              |
| 25:BD:37:LEU:HD13  | 25:BD:69:VAL:HG23  | 1.74                     | 0.69              |
| 36:BO:165:LYS:NZ   | 1:H1:2893:U:H1'    | 2.07                     | 0.69              |
| 38:BQ:38:ILE:HD11  | 38:BQ:93:ILE:HG21  | 1.73                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:C2:137:G:H21    | 33:CL:112:GLU:HG2  | 1.57                     | 0.69              |
| 23:CB:294:THR:HG22 | 23:CB:295:ALA:N    | 2.07                     | 0.69              |
| 27:CF:100:LYS:NZ   | 1:D1:120:A:OP1     | 2.25                     | 0.69              |
| 31:CJ:16:LYS:NZ    | 1:D1:3081:C:H5     | 1.87                     | 0.69              |
| 32:CK:118:LEU:HB2  | 32:CK:141:VAL:HG21 | 1.74                     | 0.69              |
| 35:CN:45:PHE:HE1   | 35:CN:139:LEU:HB2  | 1.57                     | 0.69              |
| 1:D1:519:A:H5''    | 14:DO:89:ARG:HH11  | 1.57                     | 0.69              |
| 1:D1:756:C:H2'     | 1:D1:757:C:H5''    | 1.74                     | 0.69              |
| 1:D1:964:U:OP1     | 50:D1:4026:HOH:O   | 2.10                     | 0.69              |
| 1:D1:986:C:P       | 50:D1:3772:HOH:O   | 2.39                     | 0.69              |
| 1:D1:1592:G:H2'    | 1:D1:1593:A:C8     | 2.27                     | 0.69              |
| 4:DC:27:LYS:HD3    | 4:DC:27:LYS:N      | 2.07                     | 0.69              |
| 7:DG:13:LYS:HD2    | 7:DG:100:ILE:HD13  | 1.73                     | 0.69              |
| 14:DO:50:LEU:HD13  | 14:DO:111:LEU:HD21 | 1.72                     | 0.69              |
| 15:DP:48:LYS:HG3   | 15:DP:49:TYR:CD2   | 2.26                     | 0.69              |
| 23:EB:281:TYR:HB2  | 23:EB:321:MET:HE3  | 1.74                     | 0.69              |
| 36:EO:92:LYS:NZ    | 1:F1:882:G:OP2     | 2.25                     | 0.69              |
| 37:EP:5:TYR:O      | 1:F1:2619:C:OP1    | 2.09                     | 0.69              |
| 37:EP:14:LYS:HE3   | 1:F1:1020:G:OP1    | 1.91                     | 0.69              |
| 44:EW:19:CYS:HA    | 44:EW:22:ILE:HD12  | 1.74                     | 0.69              |
| 1:F1:376:A:N6      | 1:F1:398:G:H2'     | 2.07                     | 0.69              |
| 1:F1:619:G:C4'     | 1:F1:620:A:H2      | 2.05                     | 0.69              |
| 1:F1:641:U:H2'     | 1:F1:642:C:C6      | 2.27                     | 0.69              |
| 1:F1:2411:U:P      | 50:F1:3912:HOH:O   | 2.44                     | 0.69              |
| 1:F1:2542:U:C4'    | 1:F1:2543:C:OP1    | 2.39                     | 0.69              |
| 6:FF:13:VAL:HG11   | 6:FF:53:VAL:CG2    | 2.22                     | 0.69              |
| 20:G2:149:G:N7     | 50:G2:306:HOH:O    | 2.25                     | 0.69              |
| 21:G3:30:G:O2'     | 21:G3:31:G:H5'     | 1.91                     | 0.69              |
| 23:GB:162:THR:HB   | 23:GB:175:HIS:HB2  | 1.74                     | 0.69              |
| 24:GC:107:PHE:HE2  | 1:H1:686:U:C1'     | 2.05                     | 0.69              |
| 30:GI:69:VAL:HG23  | 1:H1:2377:G:O2'    | 1.93                     | 0.69              |
| 34:GM:31:TYR:O     | 34:GM:35:ARG:HG2   | 1.92                     | 0.69              |
| 37:GP:26:ARG:O     | 37:GP:29:ARG:HG3   | 1.91                     | 0.69              |
| 1:H1:2651:A:H2'    | 1:H1:2652:G:C8     | 2.28                     | 0.69              |
| 5:HE:125:ASN:OD1   | 5:HE:128:ASN:N     | 2.23                     | 0.69              |
| 7:HG:13:LYS:O      | 7:HG:17:VAL:HG23   | 1.92                     | 0.69              |
| 19:HX:13:THR:HG22  | 19:HX:14:LEU:HD23  | 1.72                     | 0.69              |
| 1:A1:660:C:H2'     | 45:BX:43:ARG:HH22  | 1.57                     | 0.69              |
| 1:A1:832:A:C2      | 1:A1:2406:U:O2'    | 2.43                     | 0.69              |
| 1:A1:933:G:H4'     | 1:A1:934:G:H5''    | 1.74                     | 0.69              |
| 1:A1:1091:G:H4'    | 1:A1:1092:C:OP2    | 1.91                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1215:U:H3     | 1:A1:1344:A:H62    | 1.40                     | 0.69              |
| 1:A1:1382:A:H4'    | 1:A1:1383:G:O5'    | 1.90                     | 0.69              |
| 1:A1:1537:U:H5'    | 1:A1:1538:U:C5     | 2.26                     | 0.69              |
| 1:A1:1745:U:O4     | 36:BO:128:LYS:NZ   | 2.25                     | 0.69              |
| 1:A1:2343:A:C3'    | 1:A1:2344:U:H5''   | 2.22                     | 0.69              |
| 1:A1:2786:C:H5''   | 1:A1:2787:A:OP1    | 1.92                     | 0.69              |
| 1:A1:3263:G:H4'    | 1:A1:3264:U:O5'    | 1.92                     | 0.69              |
| 6:AF:6:PHE:O       | 6:AF:11:ARG:HD3    | 1.92                     | 0.69              |
| 8:AH:15:TRP:CD1    | 8:AH:105:ARG:HG2   | 2.27                     | 0.69              |
| 24:BC:272:THR:HG22 | 24:BC:273:TYR:N    | 2.06                     | 0.69              |
| 25:BD:101:ASN:HD21 | 25:BD:130:VAL:HG13 | 1.57                     | 0.69              |
| 35:BN:52:ARG:CB    | 35:BN:84:THR:HG21  | 2.04                     | 0.69              |
| 22:CA:12:ARG:HH21  | 22:CA:14:ASN:HD22  | 1.39                     | 0.69              |
| 22:CA:16:VAL:CG2   | 1:D1:936:C:H5''    | 2.23                     | 0.69              |
| 22:CA:118:GLU:OE2  | 22:CA:164:ARG:HD2  | 1.92                     | 0.69              |
| 25:CD:29:LYS:HA    | 25:CD:32:LYS:HD2   | 1.74                     | 0.69              |
| 29:CH:193:ASP:CB   | 1:D1:1037:A:H1'    | 2.22                     | 0.69              |
| 32:CK:118:LEU:CB   | 32:CK:141:VAL:HG21 | 2.22                     | 0.69              |
| 37:CP:116:LYS:NZ   | 1:D1:1124:G:C8     | 2.60                     | 0.69              |
| 43:CV:86:ILE:HG22  | 43:CV:214:LYS:HE3  | 1.73                     | 0.69              |
| 1:D1:46:A:H4'      | 1:D1:47:G:O5'      | 1.91                     | 0.69              |
| 1:D1:1213:G:N3     | 19:DX:126:GLY:HA3  | 2.06                     | 0.69              |
| 1:D1:2264:U:H2'    | 1:D1:2264:U:O2     | 1.91                     | 0.69              |
| 1:D1:2961:G:C3'    | 1:D1:2962:U:H5''   | 2.22                     | 0.69              |
| 1:D1:2964:A:N1     | 50:D1:4283:HOH:O   | 2.25                     | 0.69              |
| 19:DX:7:GLN:HE22   | 19:DX:80:GLU:HB3   | 1.58                     | 0.69              |
| 39:ER:43:LEU:CD1   | 1:F1:1599:G:H5''   | 2.23                     | 0.69              |
| 45:EX:43:ARG:NH2   | 1:F1:660:C:H2'     | 2.08                     | 0.69              |
| 1:F1:546:A:H2'     | 1:F1:547:U:C6      | 2.27                     | 0.69              |
| 1:F1:832:A:N6      | 1:F1:959:G:H1      | 1.90                     | 0.69              |
| 1:F1:2330:G:OP2    | 50:F1:4308:HOH:O   | 2.08                     | 0.69              |
| 14:FO:62:LEU:HD11  | 14:FO:97:ARG:HG2   | 1.74                     | 0.69              |
| 26:GE:154:GLN:NE2  | 1:H1:3115:C:H1'    | 2.06                     | 0.69              |
| 27:GF:233:LYS:HG2  | 1:H1:2522:A:H1'    | 1.73                     | 0.69              |
| 29:GH:48:TYR:CE2   | 29:GH:142:GLU:HG3  | 2.27                     | 0.69              |
| 32:GK:99:VAL:O     | 18:HU:164:LYS:HB3  | 1.92                     | 0.69              |
| 34:GM:59:ARG:HB2   | 34:GM:81:TYR:CE2   | 2.27                     | 0.69              |
| 1:H1:10:A:H2'      | 1:H1:11:A:C8       | 2.27                     | 0.69              |
| 1:H1:348:A:H4'     | 1:H1:349:C:OP2     | 1.92                     | 0.69              |
| 1:H1:866:A:H5''    | 1:H1:866:A:H8      | 1.57                     | 0.69              |
| 1:H1:2177:A:H2'    | 1:H1:2178:A:H5''   | 1.73                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2356:A:H8     | 1:H1:2356:A:H5'    | 1.57                     | 0.69              |
| 2:HA:26:THR:HG22   | 2:HA:35:ALA:HB3    | 1.73                     | 0.69              |
| 6:HF:13:VAL:HG21   | 6:HF:27:ILE:HD11   | 1.73                     | 0.69              |
| 8:HH:84:ASN:O      | 8:HH:86:VAL:HG23   | 1.92                     | 0.69              |
| 19:HX:113:LEU:HD11 | 19:HX:140:THR:HG21 | 1.74                     | 0.69              |
| 1:A1:1130:A:H2     | 1:A1:1390:A:O2'    | 1.74                     | 0.69              |
| 1:A1:1618:A:H5''   | 11:AL:62:ALA:HB2   | 1.74                     | 0.69              |
| 1:A1:2154:A:OP2    | 22:BA:157:LYS:NZ   | 2.21                     | 0.69              |
| 5:AE:47:PRO:O      | 5:AE:101:LYS:HE3   | 1.92                     | 0.69              |
| 5:AE:135:THR:HG22  | 5:AE:136:GLU:H     | 1.56                     | 0.69              |
| 12:AM:66:ASN:HD21  | 12:AM:68:GLN:HE21  | 1.41                     | 0.69              |
| 19:AX:94:LYS:HG2   | 19:AX:136:GLN:HB3  | 1.75                     | 0.69              |
| 21:B3:11:A:O5'     | 34:BM:18:THR:HG21  | 1.91                     | 0.69              |
| 23:BB:119:TYR:CE2  | 23:BB:122:TRP:HZ3  | 2.09                     | 0.69              |
| 23:CB:377:PHE:CD2  | 1:D1:3325:G:N2     | 2.60                     | 0.69              |
| 24:CC:107:PHE:CE2  | 1:D1:686:U:H1'     | 2.23                     | 0.69              |
| 24:CC:319:ARG:HH22 | 1:D1:620:A:H8      | 1.39                     | 0.69              |
| 1:D1:274:U:O4      | 50:D1:3862:HOH:O   | 2.10                     | 0.69              |
| 1:D1:563:G:C4'     | 1:D1:564:A:OP2     | 2.40                     | 0.69              |
| 1:D1:2356:A:H5'    | 1:D1:2356:A:H8     | 1.56                     | 0.69              |
| 7:DG:43:PHE:CE1    | 7:DG:68:HIS:CD2    | 2.80                     | 0.69              |
| 13:DN:23:ALA:HB1   | 13:DN:43:VAL:HG12  | 1.73                     | 0.69              |
| 24:EC:276:THR:CG2  | 24:EC:277:GLY:N    | 2.55                     | 0.69              |
| 38:EQ:34:VAL:HG22  | 38:EQ:60:ILE:CD1   | 2.21                     | 0.69              |
| 40:ES:84:ILE:O     | 40:ES:96:ILE:HD12  | 1.91                     | 0.69              |
| 41:ET:54:THR:HG22  | 41:ET:56:ALA:H     | 1.57                     | 0.69              |
| 1:F1:2309:U:H4'    | 1:F1:2310:G:OP2    | 1.92                     | 0.69              |
| 1:F1:2439:C:H2'    | 1:F1:2440:A:C8     | 2.26                     | 0.69              |
| 1:F1:3155:A:N6     | 8:FH:98:GLN:O      | 2.25                     | 0.69              |
| 7:FG:13:LYS:O      | 7:FG:17:VAL:HG23   | 1.92                     | 0.69              |
| 24:GC:240:ARG:NH2  | 1:H1:712:G:H4'     | 2.08                     | 0.69              |
| 33:GL:26:ARG:HB3   | 33:GL:30:TYR:CE1   | 2.24                     | 0.69              |
| 35:GN:45:PHE:CE2   | 35:GN:49:ILE:HD11  | 2.27                     | 0.69              |
| 1:H1:186:U:N3      | 1:H1:230:G:O6      | 2.25                     | 0.69              |
| 1:H1:738:U:OP1     | 18:HU:182:ARG:NH1  | 2.24                     | 0.69              |
| 1:H1:2542:U:C4'    | 1:H1:2543:C:OP1    | 2.40                     | 0.69              |
| 13:HN:7:TYR:CE2    | 13:HN:94:LYS:HG3   | 2.28                     | 0.69              |
| 14:HO:62:LEU:HD11  | 14:HO:97:ARG:HG2   | 1.74                     | 0.69              |
| 1:A1:47:G:O6       | 50:A1:3735:HOH:O   | 2.08                     | 0.69              |
| 1:A1:698:G:O2'     | 24:BC:123:ASN:ND2  | 2.22                     | 0.69              |
| 1:A1:2415:C:H2'    | 1:A1:2416:U:C5'    | 2.22                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2902:G:OP2    | 50:A1:4584:HOH:O   | 2.10                     | 0.69              |
| 1:A1:2933:G:N3     | 1:A1:2933:G:H5''   | 2.07                     | 0.69              |
| 5:AE:18:TRP:HB2    | 14:AO:95:ARG:HH21  | 1.58                     | 0.69              |
| 18:AU:90:SER:O     | 42:BU:120:PHE:HE2  | 1.75                     | 0.69              |
| 19:AX:36:PRO:HD2   | 37:BP:142:GLN:O    | 1.92                     | 0.69              |
| 21:B3:53:U:H4'     | 21:B3:54:A:O5'     | 1.92                     | 0.69              |
| 29:BH:34:TYR:CZ    | 29:BH:92:HIS:ND1   | 2.61                     | 0.69              |
| 35:BN:4:ASP:OD1    | 43:BV:106:ARG:HD3  | 1.92                     | 0.69              |
| 22:CA:195:LYS:O    | 22:CA:195:LYS:HG3  | 1.91                     | 0.69              |
| 23:CB:54:THR:CG2   | 23:CB:55:HIS:N     | 2.56                     | 0.69              |
| 23:CB:325:CYS:HB2  | 1:D1:3036:U:O2'    | 1.93                     | 0.69              |
| 24:CC:164:GLU:OE2  | 24:CC:259:THR:HG21 | 1.92                     | 0.69              |
| 29:CH:166:VAL:HG11 | 37:CP:157:PHE:CD2  | 2.28                     | 0.69              |
| 37:CP:26:ARG:O     | 37:CP:29:ARG:HG3   | 1.92                     | 0.69              |
| 1:D1:232:C:H4'     | 1:D1:233:G:OP2     | 1.91                     | 0.69              |
| 1:D1:1107:A:H3'    | 1:D1:1108:A:H8     | 1.57                     | 0.69              |
| 1:D1:1376:A:H4'    | 1:D1:1377:A:OP2    | 1.91                     | 0.69              |
| 1:D1:2249:U:H3     | 1:D1:2257:A:H61    | 1.38                     | 0.69              |
| 1:D1:2369:C:O2     | 1:D1:2369:C:H2'    | 1.90                     | 0.69              |
| 1:D1:2396:A:N6     | 50:D1:4364:HOH:O   | 2.26                     | 0.69              |
| 5:DE:135:THR:HG22  | 5:DE:136:GLU:H     | 1.57                     | 0.69              |
| 12:DM:77:TYR:HE1   | 12:DM:81:LEU:HD21  | 1.56                     | 0.69              |
| 15:DP:4:GLU:OE1    | 15:DP:54:LYS:HE2   | 1.92                     | 0.69              |
| 21:E3:27:A:OP2     | 34:EM:56:THR:HG23  | 1.92                     | 0.69              |
| 23:EB:253:TRP:CE3  | 1:F1:2929:A:C8     | 2.80                     | 0.69              |
| 27:EF:68:PRO:HD3   | 27:EF:225:TRP:HE1  | 1.58                     | 0.69              |
| 30:EI:196:PHE:CD1  | 6:FF:111:VAL:HG22  | 2.27                     | 0.69              |
| 39:ER:94:VAL:HG11  | 39:ER:103:ILE:HD11 | 1.73                     | 0.69              |
| 43:EV:104:ARG:HD2  | 1:F1:1128:G:H5''   | 1.74                     | 0.69              |
| 1:F1:639:U:O2'     | 1:F1:640:G:H5'     | 1.92                     | 0.69              |
| 1:F1:1594:C:H2'    | 1:F1:1595:A:H5'    | 1.74                     | 0.69              |
| 17:FT:16:SER:O     | 50:FT:204:HOH:O    | 2.09                     | 0.69              |
| 21:G3:2:U:H4'      | 34:GM:278:TYR:CZ   | 2.28                     | 0.69              |
| 24:GC:215:VAL:CG1  | 24:GC:238:VAL:HG22 | 2.18                     | 0.69              |
| 30:GI:53:PHE:CD2   | 30:GI:144:VAL:HG21 | 2.27                     | 0.69              |
| 34:GM:19:LYS:HE3   | 1:H1:2677:U:O4     | 1.91                     | 0.69              |
| 37:GP:19:TYR:CE2   | 1:H1:1077:U:H4'    | 2.27                     | 0.69              |
| 1:H1:1130:A:C5'    | 1:H1:1131:G:OP2    | 2.40                     | 0.69              |
| 1:H1:1181:A:C4'    | 1:H1:1182:C:OP2    | 2.39                     | 0.69              |
| 1:H1:1361:U:H6     | 1:H1:1361:U:H5'    | 1.57                     | 0.69              |
| 1:H1:1752:G:C5'    | 1:H1:1754:G:H5''   | 2.22                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2731:C:H4'    | 4:HC:18:HIS:HD2    | 1.58                     | 0.69              |
| 1:A1:620:A:H8      | 24:BC:319:ARG:HH22 | 1.38                     | 0.69              |
| 1:A1:1197:A:O3'    | 43:BV:215:ARG:NH2  | 2.25                     | 0.69              |
| 1:A1:1446:C:C6     | 1:A1:1446:C:H5'    | 2.27                     | 0.69              |
| 1:A1:2270:A:H5''   | 1:A1:2271:G:OP2    | 1.92                     | 0.69              |
| 1:A1:2377:G:O2'    | 30:BI:69:VAL:HG23  | 1.93                     | 0.69              |
| 8:AH:13:ARG:HG2    | 8:AH:15:TRP:CZ3    | 2.27                     | 0.69              |
| 19:AX:176:LYS:HE2  | 19:AX:177:TYR:CZ   | 2.27                     | 0.69              |
| 20:B2:77:U:O4      | 40:BS:71:GLN:NE2   | 2.24                     | 0.69              |
| 24:BC:65:MET:HE2   | 24:BC:97:PHE:HB2   | 1.73                     | 0.69              |
| 36:BO:114:LYS:O    | 36:BO:146:LYS:HE2  | 1.91                     | 0.69              |
| 37:CP:19:TYR:CE2   | 1:D1:1077:U:H4'    | 2.28                     | 0.69              |
| 38:CQ:103:ASN:HD21 | 1:D1:388:A:C2'     | 2.05                     | 0.69              |
| 1:D1:787:U:O2      | 18:DU:179:ARG:NH2  | 2.25                     | 0.69              |
| 1:D1:1011:U:OP1    | 50:D1:4332:HOH:O   | 2.11                     | 0.69              |
| 1:D1:1215:U:H3     | 1:D1:1344:A:N6     | 1.90                     | 0.69              |
| 1:D1:2295:G:P      | 50:D1:4630:HOH:O   | 2.51                     | 0.69              |
| 13:DN:25:ILE:HG23  | 13:DN:41:VAL:HG13  | 1.73                     | 0.69              |
| 25:ED:99:THR:HG23  | 1:F1:2673:C:O2'    | 1.93                     | 0.69              |
| 32:EK:36:LYS:HB2   | 1:F1:94:A:OP2      | 1.93                     | 0.69              |
| 37:EP:19:TYR:HE1   | 37:EP:20:LYS:HE3   | 1.58                     | 0.69              |
| 1:F1:1186:A:N3     | 1:F1:1186:A:H2'    | 2.08                     | 0.69              |
| 1:F1:1773:G:OP2    | 15:FP:41:LYS:NZ    | 2.24                     | 0.69              |
| 1:F1:2703:G:H4'    | 1:F1:2704:A:H5'    | 1.75                     | 0.69              |
| 21:G3:1:G:H4'      | 34:GM:275:LYS:NZ   | 2.08                     | 0.69              |
| 31:GJ:139:SER:HB3  | 9:HJ:102:SER:H     | 1.57                     | 0.69              |
| 32:GK:19:HIS:CD2   | 32:GK:25:HIS:HB2   | 2.26                     | 0.69              |
| 36:GO:145:SER:O    | 36:GO:149:LYS:HB2  | 1.92                     | 0.69              |
| 45:GX:45:ARG:NH2   | 1:H1:1171:U:OP2    | 2.25                     | 0.69              |
| 46:GY:4:ARG:NH2    | 1:H1:863:G:O6      | 2.25                     | 0.69              |
| 1:H1:2548:G:O2'    | 1:H1:2549:U:OP1    | 2.09                     | 0.69              |
| 2:HA:8:PHE:O       | 2:HA:11:ARG:HG3    | 1.93                     | 0.69              |
| 5:HE:173:TYR:CE2   | 6:HF:106:PHE:HA    | 2.27                     | 0.69              |
| 6:HF:13:VAL:HG11   | 6:HF:53:VAL:CG2    | 2.22                     | 0.69              |
| 10:HK:103:LEU:HD13 | 10:HK:110:CYS:HA   | 1.74                     | 0.69              |
| 13:HN:24:VAL:HG23  | 13:HN:138:PHE:HE1  | 1.55                     | 0.69              |
| 1:A1:116:U:O2      | 1:A1:119:A:H5''    | 1.93                     | 0.69              |
| 1:A1:126:A:H2      | 1:A1:141:C:N4      | 1.91                     | 0.69              |
| 1:A1:338:C:H6      | 1:A1:338:C:H5''    | 1.57                     | 0.69              |
| 1:A1:452:U:C5'     | 14:AO:56:GLN:NE2   | 2.43                     | 0.69              |
| 1:A1:738:U:OP1     | 18:AU:182:ARG:NH1  | 2.25                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:790:C:C4'     | 1:A1:791:C:OP1     | 2.41                     | 0.69              |
| 1:A1:851:G:HO2'    | 1:A1:1614:A:H8     | 1.38                     | 0.69              |
| 1:A1:1505:C:OP1    | 50:A1:4139:HOH:O   | 2.10                     | 0.69              |
| 1:A1:2308:A:P      | 50:A1:4538:HOH:O   | 2.49                     | 0.69              |
| 1:A1:2364:G:H2'    | 1:A1:2365:G:C8     | 2.28                     | 0.69              |
| 7:AG:43:PHE:CE1    | 7:AG:68:HIS:CD2    | 2.81                     | 0.69              |
| 11:AL:73:THR:HG22  | 11:AL:74:VAL:H     | 1.57                     | 0.69              |
| 15:AP:31:VAL:HG22  | 15:AP:44:LEU:CD2   | 2.23                     | 0.69              |
| 15:AP:60:ILE:O     | 15:AP:64:ILE:HG13  | 1.92                     | 0.69              |
| 18:AU:22:THR:HG23  | 18:AU:24:PHE:HD1   | 1.56                     | 0.69              |
| 18:AU:56:VAL:CG1   | 18:AU:57:ARG:H     | 2.05                     | 0.69              |
| 23:BB:294:THR:HG22 | 23:BB:295:ALA:N    | 2.07                     | 0.69              |
| 29:BH:38:ARG:HD3   | 29:BH:41:ALA:HB2   | 1.74                     | 0.69              |
| 34:BM:213:MET:HB3  | 34:BM:224:PHE:HE1  | 1.57                     | 0.69              |
| 43:BV:211:PHE:HB3  | 43:BV:223:ASP:OD2  | 1.92                     | 0.69              |
| 46:BY:64:ILE:CD1   | 46:BY:71:LEU:HD11  | 2.22                     | 0.69              |
| 24:CC:214:VAL:HG21 | 24:CC:227:LEU:CD1  | 2.23                     | 0.69              |
| 29:CH:118:ALA:HB3  | 1:D1:1153:G:O2'    | 1.93                     | 0.69              |
| 33:CL:169:ARG:NH2  | 1:D1:62:G:OP2      | 2.25                     | 0.69              |
| 34:CM:59:ARG:HD3   | 34:CM:61:ILE:HG12  | 1.73                     | 0.69              |
| 34:CM:179:ARG:HE   | 34:CM:185:ARG:NH2  | 1.90                     | 0.69              |
| 35:CN:2:ALA:HB2    | 1:D1:1186:A:H3'    | 1.74                     | 0.69              |
| 1:D1:284:U:C5      | 1:D1:305:A:C5'     | 2.75                     | 0.69              |
| 1:D1:628:A:H4'     | 1:D1:629:A:OP2     | 1.92                     | 0.69              |
| 1:D1:655:A:H2'     | 1:D1:656:C:C6      | 2.28                     | 0.69              |
| 1:D1:1366:C:H2'    | 1:D1:1367:A:H8     | 1.56                     | 0.69              |
| 1:D1:1379:G:OP1    | 14:DO:102:GLY:N    | 2.26                     | 0.69              |
| 1:D1:2703:G:H4'    | 1:D1:2704:A:H5'    | 1.75                     | 0.69              |
| 1:D1:2961:G:H2'    | 1:D1:2962:U:H5''   | 1.75                     | 0.69              |
| 5:DE:42:ARG:HH12   | 8:DH:111:ASN:ND2   | 1.90                     | 0.69              |
| 21:E3:4:G:H4'      | 21:E3:26:C:C4'     | 2.22                     | 0.69              |
| 21:E3:53:U:H4'     | 21:E3:54:A:O5'     | 1.91                     | 0.69              |
| 22:EA:195:LYS:O    | 22:EA:195:LYS:HG3  | 1.92                     | 0.69              |
| 22:EA:205:MET:HE3  | 1:F1:939:A:N1      | 2.08                     | 0.69              |
| 23:EB:2:SER:HB3    | 1:F1:2931:G:C8     | 2.28                     | 0.69              |
| 23:EB:36:ASP:OD1   | 23:EB:38:SER:N     | 2.25                     | 0.69              |
| 23:EB:170:ARG:NH1  | 1:F1:3273:U:O2     | 2.26                     | 0.69              |
| 24:EC:107:PHE:HE1  | 1:F1:827:C:O2'     | 1.76                     | 0.69              |
| 25:ED:101:ASN:ND2  | 25:ED:130:VAL:HG13 | 2.07                     | 0.69              |
| 27:EF:71:HIS:CE1   | 27:EF:226:GLY:HA3  | 2.28                     | 0.69              |
| 30:EI:101:LEU:HD12 | 30:EI:102:LYS:N    | 2.08                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:EM:33:ARG:NH2   | 34:EM:72:ASP:OD2   | 2.26                     | 0.69              |
| 34:EM:213:MET:HB3  | 34:EM:224:PHE:HE1  | 1.56                     | 0.69              |
| 34:EM:283:THR:HG22 | 34:EM:285:ALA:H    | 1.58                     | 0.69              |
| 1:F1:363:G:H8      | 1:F1:363:G:H5'     | 1.58                     | 0.69              |
| 1:F1:1049:U:H2'    | 1:F1:1050:C:C6     | 2.28                     | 0.69              |
| 1:F1:1227:A:H4'    | 1:F1:1228:C:O5'    | 1.92                     | 0.69              |
| 1:F1:1376:A:H4'    | 1:F1:1377:A:OP2    | 1.91                     | 0.69              |
| 1:F1:1425:U:H4'    | 1:F1:1426:G:OP1    | 1.92                     | 0.69              |
| 1:F1:1640:C:H2'    | 1:F1:1641:U:H6     | 1.58                     | 0.69              |
| 1:F1:2149:U:H2'    | 1:F1:2150:U:C5'    | 2.23                     | 0.69              |
| 1:F1:2600:U:H2'    | 1:F1:2601:U:C6     | 2.27                     | 0.69              |
| 1:F1:2651:A:OP1    | 50:F1:4466:HOH:O   | 2.09                     | 0.69              |
| 1:F1:2994:G:O2'    | 1:F1:2995:A:O5'    | 2.11                     | 0.69              |
| 1:F1:3112:A:H2'    | 1:F1:3113:G:H5'    | 1.75                     | 0.69              |
| 1:F1:3307:A:H61    | 1:F1:3312:C:H42    | 1.40                     | 0.69              |
| 5:FE:88:LYS:HG2    | 5:FE:90:VAL:HG23   | 1.74                     | 0.69              |
| 6:FF:2:VAL:HG12    | 6:FF:3:PHE:H       | 1.57                     | 0.69              |
| 12:FM:55:ASN:HD22  | 12:FM:71:ILE:HD11  | 1.57                     | 0.69              |
| 23:GB:239:LYS:HG3  | 1:H1:899:U:OP2     | 1.93                     | 0.69              |
| 23:GB:277:ASN:HD21 | 23:GB:343:GLN:HE21 | 1.38                     | 0.69              |
| 24:GC:251:HIS:CD2  | 1:H1:1410:G:O2'    | 2.44                     | 0.69              |
| 26:GE:38:PHE:CD2   | 26:GE:71:ILE:HG23  | 2.28                     | 0.69              |
| 28:GG:8:UNK:HG3    | 1:H1:1248:G:C2     | 2.23                     | 0.69              |
| 31:GJ:87:ARG:HD2   | 31:GJ:88:PRO:HD2   | 1.75                     | 0.69              |
| 35:GN:93:LEU:O     | 35:GN:113:ARG:NH2  | 2.19                     | 0.69              |
| 1:H1:19:A:H4'      | 1:H1:20:G:OP2      | 1.92                     | 0.69              |
| 1:H1:170:A:H61     | 1:H1:249:G:H1'     | 1.56                     | 0.69              |
| 1:H1:633:C:H2'     | 1:H1:634:G:OP1     | 1.91                     | 0.69              |
| 1:H1:641:U:H2'     | 1:H1:642:C:H6      | 1.58                     | 0.69              |
| 1:H1:1376:A:H4'    | 1:H1:1377:A:OP2    | 1.91                     | 0.69              |
| 1:H1:2365:G:N7     | 50:H1:3733:HOH:O   | 2.24                     | 0.69              |
| 1:H1:2433:A:H2'    | 1:H1:2434:A:C8     | 2.28                     | 0.69              |
| 1:H1:3165:A:H2'    | 1:H1:3166:A:H8     | 1.57                     | 0.69              |
| 1:H1:3232:A:N1     | 1:H1:3233:A:C2     | 2.61                     | 0.69              |
| 6:HF:12:VAL:HB     | 6:HF:58:PHE:HB2    | 1.75                     | 0.69              |
| 9:HJ:53:ILE:HA     | 9:HJ:80:GLU:OE1    | 1.91                     | 0.69              |
| 19:HX:7:GLN:NE2    | 19:HX:80:GLU:HB3   | 2.07                     | 0.69              |
| 19:HX:175:LYS:HZ3  | 19:HX:178:ARG:HH11 | 1.40                     | 0.69              |
| 1:A1:113:A:C2'     | 1:A1:114:A:OP1     | 2.40                     | 0.69              |
| 1:A1:526:U:O2'     | 1:A1:527:A:H8      | 1.75                     | 0.69              |
| 1:A1:548:G:H1      | 1:A1:619:G:H22     | 1.40                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1334:G:C2     | 1:A1:1335:A:C2     | 2.81                     | 0.69              |
| 1:A1:1662:A:H5'    | 11:AL:76:ARG:HH21  | 1.57                     | 0.69              |
| 1:A1:2651:A:H2'    | 1:A1:2652:G:C8     | 2.27                     | 0.69              |
| 4:AC:27:LYS:HD3    | 4:AC:27:LYS:N      | 2.08                     | 0.69              |
| 13:AN:16:GLY:N     | 13:AN:19:ALA:HB2   | 2.08                     | 0.69              |
| 18:AU:124:PHE:HE2  | 18:AU:142:THR:HA   | 1.57                     | 0.69              |
| 23:BB:93:ILE:HD11  | 23:BB:102:LEU:HD22 | 1.75                     | 0.69              |
| 35:BN:45:PHE:HE1   | 35:BN:139:LEU:HB2  | 1.58                     | 0.69              |
| 42:BU:32:LEU:O     | 42:BU:35:ALA:HB3   | 1.91                     | 0.69              |
| 44:BW:19:CYS:HA    | 44:BW:22:ILE:HD12  | 1.75                     | 0.69              |
| 20:C2:98:A:OP1     | 42:CU:67:ARG:NH1   | 2.26                     | 0.69              |
| 20:C2:111:A:N1     | 2:DA:20:ARG:NH1    | 2.41                     | 0.69              |
| 21:C3:11:A:O2'     | 21:C3:12:U:H3'     | 1.92                     | 0.69              |
| 23:CB:58:ARG:NH1   | 23:CB:281:TYR:OH   | 2.25                     | 0.69              |
| 23:CB:145:LEU:O    | 23:CB:148:ARG:HB2  | 1.92                     | 0.69              |
| 26:CE:169:ASP:OD1  | 26:CE:171:ARG:HG3  | 1.92                     | 0.69              |
| 29:CH:41:ALA:HB3   | 29:CH:139:ARG:NH2  | 2.07                     | 0.69              |
| 34:CM:283:THR:HG22 | 34:CM:285:ALA:H    | 1.57                     | 0.69              |
| 35:CN:16:VAL:CG1   | 35:CN:17:VAL:N     | 2.56                     | 0.69              |
| 1:D1:1251:C:H1'    | 1:D1:1315:U:O2'    | 1.93                     | 0.69              |
| 1:D1:2399:A:H2'    | 1:D1:2399:A:N3     | 2.08                     | 0.69              |
| 5:DE:67:LYS:O      | 5:DE:75:LEU:HB2    | 1.93                     | 0.69              |
| 8:DH:15:TRP:CD1    | 8:DH:105:ARG:HG2   | 2.28                     | 0.69              |
| 23:EB:19:ARG:O     | 23:EB:271:HIS:HE1  | 1.75                     | 0.69              |
| 24:EC:272:THR:HG22 | 24:EC:273:TYR:N    | 2.08                     | 0.69              |
| 29:EH:15:LYS:HE3   | 1:F1:1152:U:OP1    | 1.93                     | 0.69              |
| 1:F1:718:A:O2'     | 1:F1:719:C:H5'     | 1.93                     | 0.69              |
| 1:F1:2919:C:N3     | 1:F1:2923:U:C5     | 2.60                     | 0.69              |
| 11:FL:99:GLU:OE1   | 11:FL:99:GLU:HA    | 1.91                     | 0.69              |
| 20:G2:2:G:O2'      | 1:H1:2983:A:H1'    | 1.92                     | 0.69              |
| 24:GC:126:ARG:HH21 | 1:H1:720:C:H5''    | 1.57                     | 0.69              |
| 25:GD:19:ILE:CG2   | 25:GD:125:MET:HE2  | 2.22                     | 0.69              |
| 27:GF:92:TYR:HE2   | 27:GF:123:ILE:HG21 | 1.58                     | 0.69              |
| 32:GK:104:VAL:HG12 | 32:GK:109:PHE:HB2  | 1.73                     | 0.69              |
| 32:GK:148:THR:HG22 | 32:GK:149:ALA:N    | 2.08                     | 0.69              |
| 43:GV:215:ARG:NH2  | 1:H1:1197:A:O3'    | 2.26                     | 0.69              |
| 1:H1:438:A:O3'     | 1:H1:439:A:C8      | 2.46                     | 0.69              |
| 1:H1:756:C:H2'     | 1:H1:757:C:H5''    | 1.74                     | 0.69              |
| 1:H1:2839:A:OP2    | 50:H1:3993:HOH:O   | 2.09                     | 0.69              |
| 1:H1:3251:C:H4'    | 1:H1:3252:G:OP2    | 1.92                     | 0.69              |
| 2:HA:17:THR:CG2    | 2:HA:18:LEU:N      | 2.56                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:HE:41:LEU:HD13   | 5:HE:45:ILE:CD1    | 2.18                     | 0.69              |
| 10:HK:105:PRO:O    | 10:HK:106:LYS:HG2  | 1.92                     | 0.69              |
| 1:A1:621:G:OP1     | 45:BX:9:LYS:HD2    | 1.92                     | 0.69              |
| 1:A1:635:A:O2'     | 5:AE:33:LEU:HD13   | 1.93                     | 0.69              |
| 1:A1:704:G:H2'     | 1:A1:705:A:O4'     | 1.92                     | 0.69              |
| 1:A1:713:G:O6      | 1:A1:716:A:OP2     | 2.11                     | 0.69              |
| 1:A1:2100:A:H2'    | 1:A1:2101:G:C5'    | 2.20                     | 0.69              |
| 1:A1:2994:G:O2'    | 1:A1:2995:A:H8     | 1.76                     | 0.69              |
| 7:AG:35:ARG:HH11   | 13:AN:77:LEU:HB2   | 1.58                     | 0.69              |
| 13:AN:91:CYS:SG    | 13:AN:92:ASP:N     | 2.64                     | 0.69              |
| 18:AU:164:LYS:HZ1  | 32:BK:100:PRO:HB3  | 1.52                     | 0.69              |
| 20:B2:137:G:N2     | 33:BL:112:GLU:HG2  | 2.08                     | 0.69              |
| 23:BB:58:ARG:NH1   | 23:BB:281:TYR:OH   | 2.26                     | 0.69              |
| 32:BK:104:VAL:CG1  | 32:BK:109:PHE:HB2  | 2.22                     | 0.69              |
| 32:BK:148:THR:HG22 | 32:BK:149:ALA:N    | 2.07                     | 0.69              |
| 21:C3:4:G:H4'      | 21:C3:26:C:C4'     | 2.23                     | 0.69              |
| 23:CB:141:ALA:HA   | 23:CB:144:LEU:HD12 | 1.74                     | 0.69              |
| 24:CC:65:MET:CE    | 24:CC:105:ARG:HH11 | 2.06                     | 0.69              |
| 27:CF:46:ARG:HG3   | 1:D1:2518:A:H2'    | 1.74                     | 0.69              |
| 47:CO:170:UNK:O    | 47:CO:174:UNK:HG3  | 1.92                     | 0.69              |
| 37:CP:8:ARG:O      | 37:CP:11:THR:OG1   | 2.10                     | 0.69              |
| 42:CU:118:ARG:HH11 | 18:DU:123:LEU:HD21 | 1.58                     | 0.69              |
| 1:D1:832:A:H2      | 1:D1:2406:U:HO2'   | 1.39                     | 0.69              |
| 1:D1:1047:G:OP1    | 13:FN:3:LYS:CE     | 2.41                     | 0.69              |
| 1:D1:1667:A:HO2'   | 1:D1:1668:A:P      | 2.15                     | 0.69              |
| 1:D1:2500:C:H2'    | 1:D1:2501:A:C8     | 2.26                     | 0.69              |
| 4:DC:39:ARG:O      | 4:DC:43:MET:HG3    | 1.91                     | 0.69              |
| 8:DH:13:ARG:HG2    | 8:DH:15:TRP:CZ3    | 2.27                     | 0.69              |
| 23:EB:62:ARG:HH11  | 23:EB:62:ARG:CG    | 2.06                     | 0.69              |
| 24:EC:195:ARG:HD3  | 24:EC:199:GLY:HA3  | 1.75                     | 0.69              |
| 24:EC:240:ARG:HG2  | 24:EC:240:ARG:O    | 1.92                     | 0.69              |
| 26:EE:38:PHE:CD2   | 26:EE:71:ILE:HG23  | 2.27                     | 0.69              |
| 26:EE:169:ASP:OD1  | 26:EE:171:ARG:HG3  | 1.93                     | 0.69              |
| 30:EI:37:THR:O     | 30:EI:40:ILE:HG13  | 1.92                     | 0.69              |
| 32:EK:148:THR:HG22 | 32:EK:149:ALA:N    | 2.07                     | 0.69              |
| 34:EM:179:ARG:HE   | 34:EM:185:ARG:NH2  | 1.88                     | 0.69              |
| 43:EV:211:PHE:HB3  | 43:EV:223:ASP:OD2  | 1.93                     | 0.69              |
| 1:F1:34:C:O2       | 50:F1:3653:HOH:O   | 2.08                     | 0.69              |
| 1:F1:186:U:N3      | 1:F1:230:G:O6      | 2.25                     | 0.69              |
| 1:F1:1173:A:H2'    | 1:F1:1174:G:H8     | 1.57                     | 0.69              |
| 1:F1:1361:U:H6     | 1:F1:1361:U:H5'    | 1.58                     | 0.69              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1373:G:H2'    | 1:F1:1374:C:H6     | 1.57                     | 0.69              |
| 1:F1:1563:A:O2'    | 1:F1:1564:C:H5'    | 1.93                     | 0.69              |
| 1:F1:1597:U:H2'    | 1:F1:1598:C:O4'    | 1.92                     | 0.69              |
| 1:F1:2720:G:H2'    | 1:F1:2721:G:H5'    | 1.74                     | 0.69              |
| 9:FJ:18:LYS:HE2    | 9:FJ:64:CYS:HA     | 1.74                     | 0.69              |
| 21:G3:81:A:H2'     | 21:G3:82:G:H5''    | 1.75                     | 0.69              |
| 21:G3:82:G:N7      | 50:G3:309:HOH:O    | 2.26                     | 0.69              |
| 23:GB:294:THR:HG22 | 23:GB:295:ALA:N    | 2.08                     | 0.69              |
| 23:GB:378:PHE:CG   | 1:H1:3325:G:N2     | 2.60                     | 0.69              |
| 24:GC:309:LYS:HG2  | 35:GN:40:ARG:O     | 1.92                     | 0.69              |
| 30:GI:37:THR:O     | 30:GI:40:ILE:HG13  | 1.93                     | 0.69              |
| 30:GI:109:THR:HG23 | 30:GI:110:PRO:HD3  | 1.73                     | 0.69              |
| 45:GX:36:ARG:NH2   | 1:H1:1395:U:OP1    | 2.26                     | 0.69              |
| 1:H1:615:G:N2      | 8:HH:79:LYS:CE     | 2.56                     | 0.69              |
| 1:H1:711:U:H3      | 1:H1:718:A:N6      | 1.91                     | 0.69              |
| 1:H1:1134:C:C2'    | 1:H1:1135:U:H5''   | 2.23                     | 0.69              |
| 12:HM:55:ASN:HD22  | 12:HM:71:ILE:HD11  | 1.58                     | 0.69              |
| 1:A1:146:U:O2      | 1:A1:148:G:C2      | 2.47                     | 0.68              |
| 1:A1:1517:G:OP2    | 50:A1:4402:HOH:O   | 2.11                     | 0.68              |
| 1:A1:2574:U:C4'    | 1:A1:2575:G:OP1    | 2.41                     | 0.68              |
| 1:A1:2994:G:O2'    | 1:A1:2995:A:O5'    | 2.12                     | 0.68              |
| 18:AU:164:LYS:CD   | 32:BK:100:PRO:HA   | 2.23                     | 0.68              |
| 24:BC:395:ASP:CG   | 37:BP:154:ARG:HH22 | 2.01                     | 0.68              |
| 26:BE:45:ILE:HA    | 26:BE:55:LEU:HD23  | 1.74                     | 0.68              |
| 26:BE:167:GLU:C    | 26:BE:168:LYS:HG2  | 2.17                     | 0.68              |
| 30:BI:10:ALA:HB1   | 30:BI:40:ILE:HG12  | 1.74                     | 0.68              |
| 31:BJ:90:ARG:HB2   | 31:BJ:96:PHE:CE2   | 2.28                     | 0.68              |
| 44:BW:54:LEU:HD22  | 44:BW:92:VAL:HG12  | 1.76                     | 0.68              |
| 29:CH:48:TYR:CE2   | 29:CH:142:GLU:HG3  | 2.28                     | 0.68              |
| 32:CK:19:HIS:CD2   | 32:CK:25:HIS:HB2   | 2.27                     | 0.68              |
| 33:CL:120:TRP:CH2  | 33:CL:122:GLY:HA2  | 2.28                     | 0.68              |
| 35:CN:82:VAL:CG2   | 35:CN:127:LEU:HD11 | 2.22                     | 0.68              |
| 39:CR:77:THR:HG21  | 1:D1:1546:G:O3'    | 1.93                     | 0.68              |
| 41:CT:5:THR:CG2    | 41:CT:14:ARG:HG3   | 2.23                     | 0.68              |
| 42:CU:120:PHE:HE2  | 18:DU:90:SER:O     | 1.76                     | 0.68              |
| 46:CY:61:LYS:NZ    | 11:DL:49:CYS:O     | 2.18                     | 0.68              |
| 1:D1:74:G:H4'      | 1:D1:75:A:OP1      | 1.93                     | 0.68              |
| 1:D1:243:G:H5'     | 1:D1:243:G:C8      | 2.28                     | 0.68              |
| 1:D1:639:U:O2'     | 1:D1:640:G:H5'     | 1.93                     | 0.68              |
| 1:D1:972:U:H2'     | 1:D1:973:C:H6      | 1.58                     | 0.68              |
| 1:D1:1090:A:O2'    | 1:D1:1091:G:OP2    | 2.08                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1130:A:H2     | 1:D1:1390:A:O2'    | 1.75                     | 0.68              |
| 1:D1:1173:A:H2'    | 1:D1:1174:G:H8     | 1.57                     | 0.68              |
| 6:DF:15:ILE:HD12   | 6:DF:43:ILE:HD13   | 1.73                     | 0.68              |
| 11:DL:98:GLU:OE1   | 11:DL:101:LYS:HD2  | 1.93                     | 0.68              |
| 14:DO:118:ASN:O    | 14:DO:122:GLN:HG2  | 1.93                     | 0.68              |
| 18:DU:100:LYS:CE   | 18:DU:102:ARG:HH21 | 2.06                     | 0.68              |
| 19:DX:83:LEU:HD22  | 19:DX:111:VAL:HG12 | 1.75                     | 0.68              |
| 24:EC:170:LYS:HE3  | 1:F1:209:A:OP2     | 1.93                     | 0.68              |
| 34:EM:283:THR:HB   | 34:EM:286:GLN:HG3  | 1.74                     | 0.68              |
| 35:EN:16:VAL:CG1   | 35:EN:17:VAL:N     | 2.54                     | 0.68              |
| 37:EP:152:VAL:HG22 | 19:FX:138:ILE:HD13 | 1.74                     | 0.68              |
| 1:F1:1091:G:H4'    | 1:F1:1092:C:OP2    | 1.91                     | 0.68              |
| 1:F1:1492:G:H2'    | 1:F1:1493:A:H5''   | 1.75                     | 0.68              |
| 1:F1:2369:C:O2     | 1:F1:2369:C:H2'    | 1.91                     | 0.68              |
| 6:FF:12:VAL:HB     | 6:FF:58:PHE:HB2    | 1.75                     | 0.68              |
| 13:FN:24:VAL:HG23  | 13:FN:138:PHE:HE1  | 1.56                     | 0.68              |
| 24:GC:311:ALA:N    | 35:GN:40:ARG:NH2   | 2.41                     | 0.68              |
| 35:GN:44:LYS:HD3   | 1:H1:754:A:OP1     | 1.93                     | 0.68              |
| 43:GV:41:TRP:CD1   | 43:GV:177:CYS:HG   | 2.10                     | 0.68              |
| 44:GW:14:ASN:OD1   | 44:GW:17:LYS:HG3   | 1.93                     | 0.68              |
| 1:H1:559:G:O2'     | 1:H1:560:A:H5'     | 1.92                     | 0.68              |
| 1:H1:861:A:N6      | 1:H1:882:G:H1'     | 2.08                     | 0.68              |
| 1:H1:1049:U:C4     | 1:H1:1050:C:C4     | 2.80                     | 0.68              |
| 1:H1:1149:U:C2'    | 1:H1:1150:U:H5'    | 2.22                     | 0.68              |
| 18:HU:56:VAL:CG1   | 18:HU:57:ARG:N     | 2.56                     | 0.68              |
| 1:A1:911:C:O2'     | 1:A1:912:G:H5'     | 1.93                     | 0.68              |
| 1:A1:1562:G:N7     | 50:A1:4044:HOH:O   | 2.25                     | 0.68              |
| 1:A1:2109:G:O6     | 50:A1:4541:HOH:O   | 2.09                     | 0.68              |
| 1:A1:2340:A:OP1    | 44:BW:23:SER:HB3   | 1.92                     | 0.68              |
| 1:A1:2369:C:O2     | 1:A1:2369:C:H2'    | 1.94                     | 0.68              |
| 1:A1:2600:U:H2'    | 1:A1:2601:U:C6     | 2.28                     | 0.68              |
| 1:A1:2692:A:OP2    | 34:BM:23:ARG:NH1   | 2.25                     | 0.68              |
| 1:A1:3081:C:C5     | 31:BJ:16:LYS:NZ    | 2.60                     | 0.68              |
| 9:AJ:145:ASN:HD22  | 9:AJ:146:VAL:N     | 1.90                     | 0.68              |
| 18:AU:100:LYS:CE   | 18:AU:102:ARG:HH21 | 2.06                     | 0.68              |
| 30:BI:127:ARG:NH2  | 50:BI:201:HOH:O    | 1.99                     | 0.68              |
| 32:BK:104:VAL:HG12 | 32:BK:109:PHE:HB2  | 1.73                     | 0.68              |
| 34:BM:122:GLN:NE2  | 34:BM:126:ASP:OD2  | 2.26                     | 0.68              |
| 35:BN:16:VAL:CG1   | 35:BN:17:VAL:N     | 2.57                     | 0.68              |
| 37:BP:41:ASP:OD1   | 37:BP:61:THR:OG1   | 2.08                     | 0.68              |
| 38:BQ:33:GLU:OE2   | 38:BQ:64:ARG:N     | 2.26                     | 0.68              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:CB:117:ARG:HA  | 23:CB:173:LYS:HE3  | 1.76                     | 0.68              |
| 24:CC:89:THR:HG22 | 24:CC:91:ARG:N     | 2.08                     | 0.68              |
| 31:CJ:83:ILE:HG23 | 31:CJ:122:VAL:HG13 | 1.75                     | 0.68              |
| 46:CY:10:ILE:CG2  | 1:D1:862:A:H4'     | 2.22                     | 0.68              |
| 1:D1:528:C:H5'    | 1:D1:528:C:H6      | 1.56                     | 0.68              |
| 1:D1:621:G:H21    | 1:D1:634:G:H5''    | 1.56                     | 0.68              |
| 1:D1:1049:U:C4    | 1:D1:1050:C:C4     | 2.81                     | 0.68              |
| 15:DP:60:ILE:O    | 15:DP:64:ILE:HG13  | 1.94                     | 0.68              |
| 19:DX:94:LYS:HG2  | 19:DX:136:GLN:HB3  | 1.74                     | 0.68              |
| 23:EB:375:ASP:HB3 | 23:EB:380:ARG:O    | 1.93                     | 0.68              |
| 29:EH:193:ASP:CB  | 1:F1:1036:G:H21    | 2.04                     | 0.68              |
| 40:ES:30:MET:HE3  | 40:ES:77:TRP:CE3   | 2.28                     | 0.68              |
| 1:F1:615:G:H21    | 8:FH:79:LYS:CE     | 2.06                     | 0.68              |
| 2:FA:17:THR:CG2   | 2:FA:18:LEU:H      | 2.07                     | 0.68              |
| 5:FE:173:TYR:CE2  | 6:FF:106:PHE:HA    | 2.28                     | 0.68              |
| 8:FH:59:ILE:HG13  | 8:FH:59:ILE:O      | 1.93                     | 0.68              |
| 20:G2:38:C:H4'    | 2:HA:71:ILE:CD1    | 2.22                     | 0.68              |
| 21:G3:13:A:OP1    | 21:G3:109:U:O2'    | 2.12                     | 0.68              |
| 23:GB:141:ALA:HA  | 23:GB:144:LEU:HD12 | 1.73                     | 0.68              |
| 24:GC:89:THR:HG22 | 24:GC:91:ARG:N     | 2.06                     | 0.68              |
| 1:H1:284:U:H5     | 1:H1:305:A:C5'     | 2.03                     | 0.68              |
| 1:H1:1869:G:O2'   | 2:HA:5:THR:HG22    | 1.93                     | 0.68              |
| 1:H1:2263:U:C3'   | 1:H1:2264:U:H5''   | 2.23                     | 0.68              |
| 1:H1:2500:C:H2'   | 1:H1:2501:A:H8     | 1.58                     | 0.68              |
| 1:H1:2961:G:H2'   | 1:H1:2962:U:H5''   | 1.73                     | 0.68              |
| 2:HA:67:TYR:CE2   | 2:HA:71:ILE:HD11   | 2.28                     | 0.68              |
| 1:A1:170:A:H61    | 1:A1:249:G:H1'     | 1.56                     | 0.68              |
| 1:A1:279:U:C2     | 1:A1:281:G:OP2     | 2.46                     | 0.68              |
| 1:A1:279:U:N3     | 1:A1:281:G:OP2     | 2.25                     | 0.68              |
| 1:A1:373:A:H4'    | 1:A1:374:A:OP1     | 1.92                     | 0.68              |
| 1:A1:524:G:O2'    | 1:A1:525:C:OP1     | 2.11                     | 0.68              |
| 1:A1:1446:C:H5'   | 1:A1:1446:C:H6     | 1.59                     | 0.68              |
| 1:A1:2307:A:H3'   | 50:A1:4536:HOH:O   | 1.94                     | 0.68              |
| 18:AU:128:GLN:OE1 | 18:AU:139:THR:OG1  | 2.10                     | 0.68              |
| 32:BK:119:PRO:HG3 | 35:BN:94:LEU:CD1   | 2.24                     | 0.68              |
| 39:BR:73:THR:HG23 | 42:BU:37:ILE:CD1   | 2.24                     | 0.68              |
| 41:BT:37:LYS:HE3  | 41:BT:53:TRP:CZ2   | 2.29                     | 0.68              |
| 45:BX:16:THR:O    | 50:BX:206:HOH:O    | 2.12                     | 0.68              |
| 22:CA:205:MET:HE3 | 1:D1:939:A:N1      | 2.08                     | 0.68              |
| 30:CI:69:VAL:HG23 | 1:D1:2377:G:O2'    | 1.93                     | 0.68              |
| 38:CQ:39:LYS:HE2  | 38:CQ:119:GLY:H    | 1.58                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:373:A:H4'     | 1:D1:374:A:OP1     | 1.91                     | 0.68              |
| 1:D1:462:G:H2'     | 1:D1:463:U:C6      | 2.27                     | 0.68              |
| 1:D1:752:C:H5'     | 1:D1:1002:A:C2     | 2.28                     | 0.68              |
| 1:D1:1239:G:N3     | 19:DX:128:HIS:HE1  | 1.90                     | 0.68              |
| 1:D1:1753:A:N6     | 7:DG:47:ASN:O      | 2.24                     | 0.68              |
| 9:DJ:18:LYS:HE2    | 9:DJ:64:CYS:HA     | 1.75                     | 0.68              |
| 11:DL:5:ILE:HD11   | 11:DL:22:LYS:HG2   | 1.76                     | 0.68              |
| 19:DX:7:GLN:NE2    | 19:DX:80:GLU:HB3   | 2.08                     | 0.68              |
| 22:EA:12:ARG:HH21  | 22:EA:14:ASN:HD22  | 1.41                     | 0.68              |
| 23:EB:113:ASN:CB   | 23:EB:174:ASN:HD21 | 2.06                     | 0.68              |
| 23:EB:192:PHE:O    | 23:EB:195:SER:OG   | 2.09                     | 0.68              |
| 23:EB:294:THR:HG22 | 23:EB:295:ALA:N    | 2.08                     | 0.68              |
| 30:EI:37:THR:OG1   | 30:EI:104:PHE:O    | 2.10                     | 0.68              |
| 30:EI:53:PHE:CD2   | 30:EI:144:VAL:HG21 | 2.28                     | 0.68              |
| 32:EK:78:ASP:N     | 32:EK:78:ASP:OD1   | 2.26                     | 0.68              |
| 32:EK:142:GLY:C    | 18:FU:173:ARG:HH21 | 2.01                     | 0.68              |
| 36:EO:56:VAL:HG23  | 1:F1:1897:U:OP1    | 1.93                     | 0.68              |
| 43:EV:206:THR:HG21 | 1:F1:1195:U:O4'    | 1.94                     | 0.68              |
| 1:F1:861:A:H1'     | 1:F1:883:A:C2      | 2.28                     | 0.68              |
| 1:F1:3275:A:O2'    | 1:F1:3276:C:OP2    | 2.11                     | 0.68              |
| 2:FA:17:THR:HA     | 3:FB:52:TYR:HB2    | 1.76                     | 0.68              |
| 9:FJ:39:GLU:HB3    | 9:FJ:43:VAL:HG23   | 1.76                     | 0.68              |
| 20:G2:27:G:H5'     | 20:G2:27:G:H8      | 1.58                     | 0.68              |
| 25:GD:9:MET:HA     | 25:GD:9:MET:HE2    | 1.74                     | 0.68              |
| 27:GF:171:ALA:HB2  | 27:GF:211:PHE:CE1  | 2.28                     | 0.68              |
| 43:GV:100:LEU:CD2  | 43:GV:127:VAL:HG11 | 2.21                     | 0.68              |
| 1:H1:284:U:C5      | 1:H1:305:A:C5'     | 2.77                     | 0.68              |
| 1:H1:514:U:H2'     | 1:H1:515:A:H8      | 1.58                     | 0.68              |
| 1:H1:3157:C:H4'    | 1:H1:3158:G:C5'    | 2.23                     | 0.68              |
| 5:HE:80:TYR:HD2    | 5:HE:86:PRO:HB3    | 1.58                     | 0.68              |
| 9:HJ:18:LYS:HE2    | 9:HJ:64:CYS:HA     | 1.73                     | 0.68              |
| 13:HN:10:VAL:HG12  | 13:HN:85:TYR:O     | 1.93                     | 0.68              |
| 15:HP:31:VAL:HG22  | 15:HP:44:LEU:CD2   | 2.23                     | 0.68              |
| 1:A1:462:G:H2'     | 1:A1:463:U:C6      | 2.28                     | 0.68              |
| 1:A1:1104:C:C2     | 17:AT:42:ASN:ND2   | 2.61                     | 0.68              |
| 1:A1:2330:G:P      | 50:A1:4464:HOH:O   | 2.51                     | 0.68              |
| 1:A1:2741:U:H4'    | 1:A1:2742:G:OP2    | 1.92                     | 0.68              |
| 5:AE:41:LEU:HA     | 5:AE:92:GLN:NE2    | 2.08                     | 0.68              |
| 9:AJ:35:TYR:O      | 9:AJ:39:GLU:HG3    | 1.92                     | 0.68              |
| 22:BA:102:VAL:C    | 22:BA:103:LEU:HD23 | 2.18                     | 0.68              |
| 24:BC:82:PRO:CB    | 24:BC:96:ALA:HB3   | 2.24                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:BF:20:PRO:HB2   | 27:BF:22:PHE:HD2   | 1.58                     | 0.68              |
| 43:BV:98:ARG:HH11  | 43:BV:98:ARG:HG3   | 1.58                     | 0.68              |
| 45:BX:69:LEU:HB3   | 45:BX:70:PRO:HD2   | 1.75                     | 0.68              |
| 20:C2:41:U:C2      | 42:CU:93:ARG:NH2   | 2.61                     | 0.68              |
| 35:CN:57:ARG:NH1   | 1:D1:697:A:OP2     | 2.24                     | 0.68              |
| 43:CV:96:VAL:HG22  | 43:CV:126:ARG:HG3  | 1.74                     | 0.68              |
| 1:D1:704:G:H2'     | 1:D1:705:A:O4'     | 1.93                     | 0.68              |
| 1:D1:895:A:OP1     | 50:D1:4197:HOH:O   | 2.10                     | 0.68              |
| 1:D1:1234:G:P      | 10:DK:119:ASN:HD21 | 2.16                     | 0.68              |
| 1:D1:1512:G:N7     | 50:D1:4495:HOH:O   | 2.26                     | 0.68              |
| 1:D1:2919:C:N3     | 1:D1:2923:U:C5     | 2.60                     | 0.68              |
| 13:DN:7:TYR:CE2    | 13:DN:94:LYS:HG3   | 2.29                     | 0.68              |
| 20:E2:86:G:N1      | 40:ES:111:ASP:OD2  | 2.26                     | 0.68              |
| 20:E2:114:G:H8     | 20:E2:114:G:H3'    | 1.59                     | 0.68              |
| 21:E3:27:A:H2'     | 21:E3:28:C:C6      | 2.29                     | 0.68              |
| 22:EA:208:VAL:HG22 | 1:F1:2410:C:H5'    | 1.74                     | 0.68              |
| 24:EC:65:MET:HE2   | 24:EC:97:PHE:HB2   | 1.74                     | 0.68              |
| 29:EH:15:LYS:NZ    | 1:F1:2624:A:OP2    | 2.26                     | 0.68              |
| 29:EH:193:ASP:HB2  | 1:F1:1036:G:N2     | 2.05                     | 0.68              |
| 30:EI:113:ARG:NH1  | 1:F1:3162:A:H61    | 1.90                     | 0.68              |
| 31:EJ:87:ARG:HD2   | 31:EJ:88:PRO:HD2   | 1.76                     | 0.68              |
| 32:EK:14:HIS:O     | 32:EK:15:VAL:HG22  | 1.94                     | 0.68              |
| 38:EQ:8:ARG:NH1    | 38:EQ:117:GLN:HG3  | 2.08                     | 0.68              |
| 1:F1:243:G:H8      | 1:F1:243:G:H5'     | 1.58                     | 0.68              |
| 1:F1:846:C:C2'     | 1:F1:847:G:H5''    | 2.23                     | 0.68              |
| 1:F1:1002:A:C2     | 1:F1:1004:U:H5''   | 2.28                     | 0.68              |
| 1:F1:1234:G:OP1    | 10:FK:119:ASN:ND2  | 2.20                     | 0.68              |
| 1:F1:2994:G:O2'    | 1:F1:2995:A:P      | 2.51                     | 0.68              |
| 1:F1:3237:C:H41    | 8:FH:10:ALA:CA     | 2.06                     | 0.68              |
| 6:FF:6:PHE:O       | 6:FF:11:ARG:HD3    | 1.92                     | 0.68              |
| 32:GK:91:LYS:HE2   | 32:GK:92:TYR:CZ    | 2.28                     | 0.68              |
| 35:GN:18:ARG:HD3   | 35:GN:54:SER:O     | 1.93                     | 0.68              |
| 38:GQ:141:TYR:CE1  | 1:H1:2350:G:H4'    | 2.28                     | 0.68              |
| 43:GV:117:ASN:O    | 43:GV:121:LEU:HB2  | 1.94                     | 0.68              |
| 1:H1:126:A:H2      | 1:H1:141:C:N4      | 1.91                     | 0.68              |
| 1:H1:238:G:H5'     | 2:HA:86:ALA:HB3    | 1.75                     | 0.68              |
| 1:H1:435:A:H2'     | 1:H1:435:A:N3      | 2.08                     | 0.68              |
| 1:H1:1215:U:H3     | 1:H1:1344:A:H62    | 1.40                     | 0.68              |
| 1:H1:2920:U:C2     | 1:H1:2923:U:C5     | 2.80                     | 0.68              |
| 1:H1:3234:U:O2'    | 8:HH:105:ARG:NH1   | 2.26                     | 0.68              |
| 1:H1:3307:A:H61    | 1:H1:3312:C:H42    | 1.40                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:HE:173:TYR:CG    | 6:HF:106:PHE:HD1   | 2.12                     | 0.68              |
| 14:HO:100:SER:OG   | 14:HO:103:LEU:HG   | 1.93                     | 0.68              |
| 18:HU:128:GLN:OE1  | 18:HU:139:THR:OG1  | 2.11                     | 0.68              |
| 1:A1:284:U:H1'     | 50:A1:3836:HOH:O   | 1.93                     | 0.68              |
| 1:A1:438:A:O3'     | 1:A1:439:A:H8      | 1.77                     | 0.68              |
| 1:A1:756:C:H2'     | 1:A1:757:C:H5''    | 1.75                     | 0.68              |
| 1:A1:1308:U:H5''   | 28:BG:58:UNK:CA    | 2.24                     | 0.68              |
| 1:A1:1442:G:OP1    | 50:A1:3866:HOH:O   | 2.11                     | 0.68              |
| 1:A1:1563:A:O2'    | 1:A1:1564:C:H5'    | 1.93                     | 0.68              |
| 1:A1:2500:C:H2'    | 1:A1:2501:A:H8     | 1.56                     | 0.68              |
| 1:A1:2920:U:C2     | 1:A1:2923:U:C5     | 2.82                     | 0.68              |
| 1:A1:3167:U:C4'    | 1:A1:3168:A:O5'    | 2.41                     | 0.68              |
| 1:A1:3185:G:C4     | 1:A1:3237:C:N3     | 2.62                     | 0.68              |
| 9:AJ:53:ILE:HA     | 9:AJ:80:GLU:OE1    | 1.92                     | 0.68              |
| 9:AJ:70:LEU:HB3    | 9:AJ:94:VAL:HG22   | 1.75                     | 0.68              |
| 13:AN:7:TYR:CE2    | 13:AN:94:LYS:HG3   | 2.28                     | 0.68              |
| 19:AX:180:VAL:HG13 | 19:AX:181:TYR:CD1  | 2.27                     | 0.68              |
| 26:BE:88:PHE:CD1   | 26:BE:182:LYS:HA   | 2.28                     | 0.68              |
| 27:BF:71:HIS:CE1   | 27:BF:226:GLY:HA3  | 2.28                     | 0.68              |
| 29:BH:48:TYR:CE1   | 29:BH:178:ARG:CZ   | 2.77                     | 0.68              |
| 30:BI:53:PHE:CD2   | 30:BI:144:VAL:HG21 | 2.28                     | 0.68              |
| 33:BL:120:TRP:CH2  | 33:BL:122:GLY:HA2  | 2.29                     | 0.68              |
| 34:BM:166:ALA:CB   | 34:BM:173:ILE:HD11 | 2.23                     | 0.68              |
| 41:BT:54:THR:HG22  | 41:BT:56:ALA:H     | 1.58                     | 0.68              |
| 20:C2:75:A:OP2     | 40:CS:51:LYS:HB3   | 1.93                     | 0.68              |
| 27:CF:43:ARG:NH1   | 1:D1:2521:A:C2     | 2.61                     | 0.68              |
| 32:CK:14:HIS:O     | 32:CK:15:VAL:HG22  | 1.93                     | 0.68              |
| 34:CM:213:MET:HB3  | 34:CM:224:PHE:HE1  | 1.58                     | 0.68              |
| 1:D1:1164:C:O2     | 50:D1:4337:HOH:O   | 2.10                     | 0.68              |
| 1:D1:1446:C:H6     | 1:D1:1446:C:C5'    | 2.06                     | 0.68              |
| 1:D1:1752:G:H5'    | 1:D1:1754:G:C5'    | 2.21                     | 0.68              |
| 22:EA:216:ASN:ND2  | 1:F1:2957:A:N7     | 2.41                     | 0.68              |
| 34:EM:243:VAL:HG12 | 34:EM:247:PHE:HD2  | 1.58                     | 0.68              |
| 35:EN:52:ARG:HB2   | 35:EN:84:THR:CG2   | 2.05                     | 0.68              |
| 45:EX:43:ARG:HH22  | 1:F1:660:C:H2'     | 1.57                     | 0.68              |
| 1:F1:524:G:O2'     | 1:F1:525:C:OP1     | 2.11                     | 0.68              |
| 1:F1:790:C:C4'     | 1:F1:791:C:OP1     | 2.41                     | 0.68              |
| 1:F1:1251:C:H1'    | 1:F1:1315:U:O2'    | 1.94                     | 0.68              |
| 1:F1:1460:G:OP2    | 50:F1:3830:HOH:O   | 2.09                     | 0.68              |
| 20:G2:26:A:H3'     | 20:G2:27:G:H5''    | 1.75                     | 0.68              |
| 23:GB:192:PHE:O    | 23:GB:195:SER:OG   | 2.09                     | 0.68              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 25:GD:29:LYS:HA   | 25:GD:32:LYS:HD2   | 1.75                     | 0.68              |
| 32:GK:104:VAL:CG1 | 32:GK:109:PHE:HB2  | 2.23                     | 0.68              |
| 34:GM:34:LYS:O    | 34:GM:38:ILE:HG23  | 1.93                     | 0.68              |
| 40:GS:55:VAL:HG11 | 40:GS:103:LEU:HD13 | 1.74                     | 0.68              |
| 1:H1:165:C:H5''   | 18:HU:132:LYS:NZ   | 2.07                     | 0.68              |
| 1:H1:795:G:O2'    | 1:H1:796:A:H8      | 1.72                     | 0.68              |
| 1:H1:897:A:O2'    | 1:H1:898:C:H5'     | 1.93                     | 0.68              |
| 1:H1:1249:G:O2'   | 1:H1:1250:A:O5'    | 2.11                     | 0.68              |
| 1:H1:1430:G:H5'   | 1:H1:1431:U:OP2    | 1.93                     | 0.68              |
| 1:H1:1434:G:H2'   | 1:H1:1435:C:H5'    | 1.74                     | 0.68              |
| 1:H1:1956:A:H2'   | 1:H1:1957:A:H5'    | 1.76                     | 0.68              |
| 3:HB:28:ARG:NE    | 3:HB:36:ARG:O      | 2.27                     | 0.68              |
| 8:HH:58:TYR:HA    | 8:HH:104:LEU:HD22  | 1.74                     | 0.68              |
| 1:A1:348:A:H4'    | 1:A1:349:C:OP2     | 1.94                     | 0.68              |
| 1:A1:2276:A:H1'   | 1:A1:2962:U:O2'    | 1.94                     | 0.68              |
| 1:A1:2500:C:H2'   | 1:A1:2501:A:C8     | 2.29                     | 0.68              |
| 5:AE:67:LYS:O     | 5:AE:75:LEU:HB2    | 1.93                     | 0.68              |
| 6:AF:15:ILE:HD12  | 6:AF:43:ILE:HD13   | 1.76                     | 0.68              |
| 8:AH:58:TYR:HA    | 8:AH:104:LEU:HD22  | 1.74                     | 0.68              |
| 20:B2:105:A:H5''  | 20:B2:106:A:H8     | 1.58                     | 0.68              |
| 23:BB:62:ARG:HH11 | 23:BB:62:ARG:CG    | 2.07                     | 0.68              |
| 34:BM:210:ASP:HA  | 34:BM:213:MET:HG3  | 1.74                     | 0.68              |
| 40:BS:30:MET:HE3  | 40:BS:77:TRP:CE3   | 2.29                     | 0.68              |
| 24:CC:115:ARG:NH2 | 1:D1:816:A:OP1     | 2.27                     | 0.68              |
| 24:CC:309:LYS:HG2 | 35:CN:40:ARG:O     | 1.93                     | 0.68              |
| 46:CY:28:LYS:CE   | 1:F1:2252:C:OP1    | 2.41                     | 0.68              |
| 1:D1:186:U:N3     | 1:D1:230:G:O6      | 2.27                     | 0.68              |
| 1:D1:637:U:H2'    | 1:D1:638:U:C6      | 2.27                     | 0.68              |
| 1:D1:1004:U:H5'   | 1:D1:1004:U:C6     | 2.16                     | 0.68              |
| 8:DH:15:TRP:NE1   | 8:DH:105:ARG:HG2   | 2.09                     | 0.68              |
| 11:DL:99:GLU:HA   | 11:DL:99:GLU:OE1   | 1.94                     | 0.68              |
| 22:EA:118:GLU:OE2 | 22:EA:164:ARG:HD2  | 1.92                     | 0.68              |
| 22:EA:180:ILE:O   | 1:F1:2145:A:H4'    | 1.94                     | 0.68              |
| 23:EB:325:CYS:HB2 | 1:F1:3036:U:O2'    | 1.94                     | 0.68              |
| 24:EC:298:ILE:CD1 | 35:EN:125:ASP:HB2  | 2.23                     | 0.68              |
| 24:EC:312:GLY:O   | 1:F1:1373:G:H4'    | 1.93                     | 0.68              |
| 25:ED:89:MET:HE1  | 25:ED:167:PHE:HB3  | 1.76                     | 0.68              |
| 32:EK:44:ARG:NH2  | 1:F1:2788:G:N7     | 2.42                     | 0.68              |
| 32:EK:91:LYS:HE2  | 32:EK:92:TYR:CZ    | 2.27                     | 0.68              |
| 44:EW:59:TRP:CZ3  | 44:EW:63:ILE:HG12  | 2.28                     | 0.68              |
| 45:EX:80:ASN:HD22 | 1:F1:1413:G:H4'    | 1.59                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 46:EY:12:ARG:NH1   | 1:F1:1951:G:O2'    | 2.25                     | 0.68              |
| 1:F1:718:A:H2'     | 1:F1:719:C:C6      | 2.28                     | 0.68              |
| 1:F1:810:G:H3'     | 1:F1:811:A:C8      | 2.29                     | 0.68              |
| 1:F1:1097:G:N2     | 1:F1:1117:U:H1'    | 2.09                     | 0.68              |
| 1:F1:2540:G:H5''   | 1:F1:2541:U:OP2    | 1.94                     | 0.68              |
| 1:F1:2574:U:C4'    | 1:F1:2575:G:OP1    | 2.41                     | 0.68              |
| 3:FB:9:MET:HB3     | 3:FB:13:PHE:HE2    | 1.59                     | 0.68              |
| 6:FF:15:ILE:HD12   | 6:FF:43:ILE:HD13   | 1.76                     | 0.68              |
| 23:GB:49:PHE:CE2   | 23:GB:333:VAL:HG12 | 2.29                     | 0.68              |
| 23:GB:377:PHE:HD2  | 23:GB:378:PHE:CE1  | 2.11                     | 0.68              |
| 24:GC:200:LYS:HZ3  | 1:H1:1445:G:H5''   | 1.59                     | 0.68              |
| 28:GG:8:UNK:CG     | 1:H1:1248:G:C2     | 2.74                     | 0.68              |
| 31:GJ:11:VAL:HG12  | 31:GJ:11:VAL:O     | 1.92                     | 0.68              |
| 33:GL:182:LYS:HG2  | 33:GL:183:SER:N    | 2.06                     | 0.68              |
| 1:H1:250:U:H5'     | 1:H1:251:A:OP2     | 1.94                     | 0.68              |
| 1:H1:619:G:C4'     | 1:H1:620:A:H2      | 2.07                     | 0.68              |
| 1:H1:752:C:H5'     | 1:H1:1002:A:C2     | 2.28                     | 0.68              |
| 1:H1:1162:A:OP2    | 17:HT:5:LYS:NZ     | 2.24                     | 0.68              |
| 1:H1:1175:G:N7     | 50:H1:3740:HOH:O   | 2.25                     | 0.68              |
| 1:H1:2324:A:H8     | 1:H1:2324:A:H5''   | 1.58                     | 0.68              |
| 1:H1:2678:A:H1'    | 1:H1:2691:A:H62    | 1.58                     | 0.68              |
| 1:H1:2961:G:C3'    | 1:H1:2962:U:H5''   | 2.22                     | 0.68              |
| 1:H1:3275:A:C2'    | 1:H1:3276:C:OP2    | 2.41                     | 0.68              |
| 5:HE:49:THR:HG22   | 5:HE:50:VAL:N      | 2.09                     | 0.68              |
| 6:HF:45:ARG:NH2    | 6:HF:67:GLN:O      | 2.27                     | 0.68              |
| 1:A1:54:G:OP2      | 50:A1:3720:HOH:O   | 2.10                     | 0.68              |
| 1:A1:1252:A:C2     | 1:A1:3105:G:N7     | 2.62                     | 0.68              |
| 1:A1:3206:A:H5'    | 23:BB:97:ARG:HH21  | 1.58                     | 0.68              |
| 1:A1:3268:C:O2     | 38:BQ:71:ARG:HD2   | 1.93                     | 0.68              |
| 4:AC:26:TYR:CB     | 4:AC:67:ALA:HB3    | 2.24                     | 0.68              |
| 19:AX:66:LYS:NZ    | 21:B3:98:G:OP2     | 2.21                     | 0.68              |
| 30:BI:109:THR:HG23 | 30:BI:110:PRO:CD   | 2.24                     | 0.68              |
| 31:BJ:46:ILE:HD11  | 31:BJ:54:PRO:HB3   | 1.74                     | 0.68              |
| 34:CM:163:LEU:HD12 | 34:CM:173:ILE:HG21 | 1.76                     | 0.68              |
| 43:CV:194:GLU:OE1  | 43:CV:194:GLU:N    | 2.22                     | 0.68              |
| 1:D1:363:G:H8      | 1:D1:363:G:C5'     | 2.06                     | 0.68              |
| 1:D1:3237:C:H41    | 8:DH:10:ALA:HA     | 1.59                     | 0.68              |
| 5:DE:179:THR:HG22  | 5:DE:180:LEU:O     | 1.93                     | 0.68              |
| 21:E3:11:A:O5'     | 34:EM:18:THR:HG21  | 1.94                     | 0.68              |
| 24:EC:82:PRO:CB    | 24:EC:96:ALA:HB3   | 2.23                     | 0.68              |
| 30:EI:69:VAL:HG23  | 1:F1:2377:G:O2'    | 1.93                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:672:C:O2'     | 50:F1:3821:HOH:O   | 2.11                     | 0.68              |
| 1:F1:2392:A:O2'    | 50:F1:4143:HOH:O   | 2.12                     | 0.68              |
| 1:F1:2433:A:H2'    | 1:F1:2434:A:C8     | 2.28                     | 0.68              |
| 22:GA:12:ARG:HH21  | 22:GA:14:ASN:HD22  | 1.39                     | 0.68              |
| 22:GA:38:ARG:O     | 22:GA:93:LEU:HG    | 1.93                     | 0.68              |
| 23:GB:58:ARG:NH1   | 23:GB:281:TYR:OH   | 2.27                     | 0.68              |
| 23:GB:119:TYR:CD2  | 23:GB:122:TRP:HZ3  | 2.12                     | 0.68              |
| 30:GI:109:THR:HG23 | 30:GI:110:PRO:CD   | 2.24                     | 0.68              |
| 32:GK:21:ARG:HG3   | 1:H1:1396:A:H4'    | 1.75                     | 0.68              |
| 34:GM:283:THR:HG22 | 34:GM:285:ALA:H    | 1.58                     | 0.68              |
| 6:HF:28:VAL:HG12   | 6:HF:66:ASN:H      | 1.58                     | 0.68              |
| 19:HX:16:MET:HE3   | 19:HX:18:VAL:CG2   | 2.18                     | 0.68              |
| 1:A1:864:C:N4      | 46:BY:4:ARG:NH2    | 2.41                     | 0.68              |
| 1:A1:1146:C:H42    | 17:AT:10:LYS:HZ1   | 1.41                     | 0.68              |
| 1:A1:1435:C:H5'    | 1:A1:1435:C:H6     | 1.58                     | 0.68              |
| 1:A1:1457:G:OP2    | 32:BK:9:ARG:NH2    | 2.21                     | 0.68              |
| 1:A1:2633:C:O2'    | 29:BH:116:ARG:O    | 2.10                     | 0.68              |
| 1:A1:2884:A:O3'    | 10:AK:122:ARG:NH2  | 2.27                     | 0.68              |
| 1:A1:2961:G:H2'    | 1:A1:2962:U:H5''   | 1.76                     | 0.68              |
| 1:A1:3232:A:C6     | 1:A1:3233:A:C2     | 2.81                     | 0.68              |
| 15:AP:12:MET:O     | 15:AP:16:GLN:HG2   | 1.93                     | 0.68              |
| 19:AX:7:GLN:HE22   | 19:AX:80:GLU:HB3   | 1.59                     | 0.68              |
| 19:AX:167:LYS:HG2  | 19:AX:188:THR:HG21 | 1.76                     | 0.68              |
| 23:BB:375:ASP:HB3  | 23:BB:380:ARG:O    | 1.93                     | 0.68              |
| 24:BC:223:LEU:O    | 24:BC:227:LEU:HG   | 1.93                     | 0.68              |
| 23:CB:114:THR:HB   | 23:CB:161:HIS:CD2  | 2.27                     | 0.68              |
| 24:CC:230:ILE:O    | 24:CC:233:VAL:HG22 | 1.94                     | 0.68              |
| 27:CF:121:LYS:HD3  | 1:D1:118:A:C5      | 2.29                     | 0.68              |
| 35:CN:92:ARG:HH21  | 1:D1:809:A:H4'     | 1.56                     | 0.68              |
| 35:CN:158:GLN:HA   | 50:D1:4779:HOH:O   | 1.93                     | 0.68              |
| 37:CP:68:ASN:HB3   | 37:CP:69:PRO:HD2   | 1.75                     | 0.68              |
| 43:CV:98:ARG:CD    | 1:D1:1010:G:H2'    | 2.24                     | 0.68              |
| 1:D1:1002:A:C2     | 1:D1:1004:U:H5''   | 2.27                     | 0.68              |
| 1:D1:1600:U:C4     | 1:D1:1601:U:C4     | 2.82                     | 0.68              |
| 1:D1:1711:U:H1'    | 12:DM:77:TYR:CE2   | 2.29                     | 0.68              |
| 1:D1:2352:A:H2'    | 1:D1:2353:C:H6     | 1.57                     | 0.68              |
| 1:D1:2385:A:H2'    | 1:D1:2386:G:O5'    | 1.94                     | 0.68              |
| 1:D1:2718:U:P      | 50:D1:4781:HOH:O   | 2.50                     | 0.68              |
| 1:D1:2732:G:H2'    | 1:D1:2733:C:C6     | 2.29                     | 0.68              |
| 1:D1:2906:G:C2'    | 1:D1:2907:A:H5''   | 2.22                     | 0.68              |
| 1:D1:3251:C:H4'    | 1:D1:3252:G:OP2    | 1.93                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:DG:13:LYS:O      | 7:DG:17:VAL:HG23   | 1.94                     | 0.68              |
| 8:DH:84:ASN:O      | 8:DH:86:VAL:HG23   | 1.94                     | 0.68              |
| 20:E2:27:G:H8      | 20:E2:27:G:H5'     | 1.58                     | 0.68              |
| 22:EA:2:GLY:HA2    | 1:F1:2597:G:OP1    | 1.94                     | 0.68              |
| 24:EC:287:ARG:HD2  | 35:EN:111:ARG:HH12 | 1.58                     | 0.68              |
| 26:EE:42:SER:O     | 1:F1:3168:A:C4     | 2.47                     | 0.68              |
| 40:ES:86:LYS:HG3   | 40:ES:96:ILE:HD11  | 1.76                     | 0.68              |
| 1:F1:113:A:C2'     | 1:F1:114:A:OP1     | 2.42                     | 0.68              |
| 1:F1:438:A:O3'     | 1:F1:439:A:C8      | 2.46                     | 0.68              |
| 1:F1:462:G:H2'     | 1:F1:463:U:C6      | 2.28                     | 0.68              |
| 1:F1:897:A:C2'     | 1:F1:898:C:H5'     | 2.23                     | 0.68              |
| 1:F1:941:G:H5'     | 1:F1:942:A:OP1     | 1.93                     | 0.68              |
| 1:F1:1210:C:O2'    | 19:FX:13:THR:HG21  | 1.92                     | 0.68              |
| 28:GG:81:UNK:CG    | 1:H1:1308:U:C2'    | 2.70                     | 0.68              |
| 45:GX:42:ASN:HD22  | 45:GX:45:ARG:N     | 1.86                     | 0.68              |
| 1:H1:25:C:H1'      | 1:H1:327:U:H1'     | 1.76                     | 0.68              |
| 1:H1:243:G:H8      | 1:H1:243:G:H5'     | 1.58                     | 0.68              |
| 1:H1:282:G:N2      | 1:H1:304:U:O4'     | 2.26                     | 0.68              |
| 1:H1:519:A:H5''    | 14:HO:89:ARG:HH11  | 1.59                     | 0.68              |
| 1:H1:605:C:H1'     | 19:HX:6:ALA:HB2    | 1.75                     | 0.68              |
| 1:H1:621:G:H21     | 1:H1:634:G:H5''    | 1.58                     | 0.68              |
| 1:H1:1051:C:H2'    | 1:H1:1052:A:C8     | 2.29                     | 0.68              |
| 1:H1:1334:G:C2     | 1:H1:1335:A:C2     | 2.82                     | 0.68              |
| 1:H1:2343:A:H3'    | 1:H1:2344:U:H5''   | 1.75                     | 0.68              |
| 1:H1:2344:U:H5'    | 1:H1:2344:U:C6     | 2.28                     | 0.68              |
| 1:H1:2890:A:OP2    | 50:H1:4280:HOH:O   | 2.10                     | 0.68              |
| 1:H1:3112:A:H2'    | 1:H1:3113:G:H5'    | 1.75                     | 0.68              |
| 8:HH:15:TRP:NE1    | 8:HH:105:ARG:HG2   | 2.08                     | 0.68              |
| 19:HX:176:LYS:HE2  | 19:HX:177:TYR:CZ   | 2.29                     | 0.68              |
| 1:A1:1234:G:OP1    | 10:AK:119:ASN:ND2  | 2.25                     | 0.68              |
| 1:A1:1446:C:H6     | 1:A1:1446:C:C5'    | 2.07                     | 0.68              |
| 1:A1:2149:U:H2'    | 1:A1:2150:U:C5'    | 2.24                     | 0.68              |
| 1:A1:2581:G:H4'    | 1:A1:2583:C:C2     | 2.29                     | 0.68              |
| 1:A1:3162:A:H61    | 30:BI:113:ARG:NH1  | 1.92                     | 0.68              |
| 6:AF:3:PHE:HD1     | 19:AX:164:PRO:HB3  | 1.56                     | 0.68              |
| 16:AQ:9:ILE:CD1    | 18:AU:187:ASN:HB3  | 2.19                     | 0.68              |
| 30:BI:109:THR:HG23 | 30:BI:110:PRO:HD3  | 1.75                     | 0.68              |
| 33:BL:26:ARG:HB3   | 33:BL:30:TYR:CE1   | 2.25                     | 0.68              |
| 24:CC:125:LYS:O    | 24:CC:129:VAL:HG23 | 1.94                     | 0.68              |
| 24:CC:163:VAL:CG2  | 24:CC:175:PHE:HE2  | 2.06                     | 0.68              |
| 31:CJ:90:ARG:HB2   | 31:CJ:96:PHE:CE2   | 2.29                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:CM:163:LEU:HD21 | 34:CM:175:HIS:CB   | 2.23                     | 0.68              |
| 1:D1:438:A:O3'     | 1:D1:439:A:H8      | 1.77                     | 0.68              |
| 1:D1:1566:U:H2'    | 1:D1:1567:A:C8     | 2.28                     | 0.68              |
| 1:D1:2180:G:O2'    | 50:D1:4289:HOH:O   | 2.12                     | 0.68              |
| 3:DB:3:ALA:O       | 3:DB:5:LYS:HE2     | 1.93                     | 0.68              |
| 19:DX:16:MET:HE1   | 19:DX:121:ILE:CD1  | 2.18                     | 0.68              |
| 22:EA:128:SER:O    | 22:EA:128:SER:OG   | 2.12                     | 0.68              |
| 23:EB:58:ARG:NH1   | 23:EB:281:TYR:OH   | 2.27                     | 0.68              |
| 29:EH:38:ARG:HD3   | 29:EH:41:ALA:HB2   | 1.75                     | 0.68              |
| 34:EM:181:PRO:HD2  | 34:EM:200:HIS:CE1  | 2.28                     | 0.68              |
| 43:EV:98:ARG:CD    | 1:F1:1010:G:H2'    | 2.24                     | 0.68              |
| 1:F1:257:G:C2'     | 1:F1:258:A:H5'     | 2.24                     | 0.68              |
| 1:F1:978:G:C8      | 1:F1:1144:G:C8     | 2.82                     | 0.68              |
| 1:F1:2275:A:OP1    | 50:F1:4341:HOH:O   | 2.11                     | 0.68              |
| 1:F1:2961:G:C3'    | 1:F1:2962:U:H5''   | 2.24                     | 0.68              |
| 9:FJ:63:THR:HG22   | 9:FJ:72:VAL:HA     | 1.75                     | 0.68              |
| 14:FO:69:LYS:HG2   | 14:FO:70:VAL:N     | 2.06                     | 0.68              |
| 15:FP:31:VAL:HG22  | 15:FP:44:LEU:CD2   | 2.24                     | 0.68              |
| 23:GB:119:TYR:CE2  | 23:GB:122:TRP:HZ3  | 2.11                     | 0.68              |
| 26:GE:45:ILE:HA    | 26:GE:55:LEU:HD23  | 1.75                     | 0.68              |
| 26:GE:88:PHE:CD1   | 26:GE:182:LYS:HA   | 2.28                     | 0.68              |
| 26:GE:171:ARG:NH2  | 1:H1:2886:G:OP2    | 2.27                     | 0.68              |
| 27:GF:75:LYS:O     | 27:GF:172:PHE:HB2  | 1.94                     | 0.68              |
| 27:GF:122:PRO:CG   | 1:H1:119:A:H2      | 2.06                     | 0.68              |
| 27:GF:132:ILE:O    | 27:GF:136:ILE:HG13 | 1.94                     | 0.68              |
| 30:GI:158:LYS:C    | 30:GI:158:LYS:HD3  | 2.19                     | 0.68              |
| 34:GM:210:ASP:HA   | 34:GM:213:MET:HG3  | 1.74                     | 0.68              |
| 1:H1:528:C:H5'     | 1:H1:528:C:H6      | 1.57                     | 0.68              |
| 1:H1:579:G:H1'     | 19:HX:158:ASN:CA   | 2.23                     | 0.68              |
| 1:H1:625:C:O2'     | 1:H1:626:C:H5'     | 1.94                     | 0.68              |
| 1:H1:810:G:H3'     | 1:H1:811:A:C8      | 2.29                     | 0.68              |
| 1:H1:1027:G:O2'    | 1:H1:1028:A:P      | 2.51                     | 0.68              |
| 10:HK:99:CYS:O     | 10:HK:100:TYR:HB2  | 1.93                     | 0.68              |
| 1:A1:111:C:OP1     | 33:BL:147:ARG:NH2  | 2.27                     | 0.68              |
| 1:A1:546:A:H2'     | 1:A1:547:U:C6      | 2.29                     | 0.68              |
| 1:A1:1185:A:H5''   | 43:BV:88:GLY:HA3   | 1.75                     | 0.68              |
| 1:A1:1600:U:C4     | 1:A1:1601:U:C4     | 2.81                     | 0.68              |
| 1:A1:2101:G:C5     | 50:A1:4513:HOH:O   | 2.42                     | 0.68              |
| 1:A1:2719:A:H2'    | 1:A1:2720:G:H8     | 1.58                     | 0.68              |
| 1:A1:2871:U:O2'    | 23:BB:259:ARG:NH1  | 2.27                     | 0.68              |
| 20:B2:88:G:O2'     | 20:B2:89:A:O5'     | 2.12                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:BA:253:GLU:OE2  | 22:GA:252:LYS:HG3  | 1.94                     | 0.68              |
| 45:BX:98:ILE:H     | 45:BX:123:ASN:HD21 | 1.42                     | 0.68              |
| 20:C2:137:G:OP2    | 50:C2:308:HOH:O    | 2.12                     | 0.68              |
| 23:CB:93:ILE:HD11  | 23:CB:102:LEU:HD22 | 1.76                     | 0.68              |
| 25:CD:89:MET:HE1   | 25:CD:167:PHE:HB3  | 1.75                     | 0.68              |
| 38:CQ:131:THR:HG23 | 1:D1:1533:G:N2     | 2.08                     | 0.68              |
| 1:D1:31:G:OP2      | 50:D1:3730:HOH:O   | 2.12                     | 0.68              |
| 1:D1:279:U:C2      | 1:D1:281:G:OP2     | 2.47                     | 0.68              |
| 1:D1:751:C:H6      | 1:D1:751:C:H5'     | 1.59                     | 0.68              |
| 1:D1:775:C:O2      | 1:D1:775:C:H2'     | 1.92                     | 0.68              |
| 1:D1:795:G:O2'     | 1:D1:796:A:H8      | 1.77                     | 0.68              |
| 1:D1:832:A:C2      | 1:D1:2406:U:O2'    | 2.47                     | 0.68              |
| 1:D1:1597:U:H2'    | 1:D1:1598:C:H6     | 1.56                     | 0.68              |
| 1:D1:1655:A:C2     | 1:D1:1669:G:C6     | 2.82                     | 0.68              |
| 1:D1:2251:A:C2'    | 1:D1:2252:C:OP1    | 2.42                     | 0.68              |
| 1:D1:2330:G:P      | 50:D1:4596:HOH:O   | 2.51                     | 0.68              |
| 1:D1:2718:U:O5'    | 50:D1:4779:HOH:O   | 2.10                     | 0.68              |
| 6:DF:2:VAL:HG12    | 6:DF:3:PHE:H       | 1.57                     | 0.68              |
| 9:DJ:140:THR:HG22  | 9:DJ:141:THR:N     | 2.08                     | 0.68              |
| 10:DK:99:CYS:O     | 10:DK:100:TYR:HB2  | 1.94                     | 0.68              |
| 12:DM:66:ASN:HD21  | 12:DM:68:GLN:HE21  | 1.42                     | 0.68              |
| 21:E3:81:A:H2'     | 21:E3:82:G:C5'     | 2.24                     | 0.68              |
| 22:EA:254:LYS:O    | 22:EA:258:LYS:HG3  | 1.93                     | 0.68              |
| 23:EB:162:THR:CG2  | 23:EB:175:HIS:HD2  | 2.06                     | 0.68              |
| 26:EE:167:GLU:C    | 26:EE:168:LYS:HG2  | 2.17                     | 0.68              |
| 34:EM:163:LEU:HD12 | 34:EM:173:ILE:HG21 | 1.76                     | 0.68              |
| 34:EM:166:ALA:CB   | 34:EM:173:ILE:HD11 | 2.24                     | 0.68              |
| 46:EY:26:VAL:HG12  | 46:EY:30:GLU:HG3   | 1.76                     | 0.68              |
| 1:F1:46:A:H4'      | 1:F1:47:G:O5'      | 1.94                     | 0.68              |
| 1:F1:74:G:H4'      | 1:F1:75:A:OP1      | 1.93                     | 0.68              |
| 1:F1:373:A:H4'     | 1:F1:374:A:OP1     | 1.93                     | 0.68              |
| 1:F1:633:C:H2'     | 1:F1:634:G:OP1     | 1.93                     | 0.68              |
| 1:F1:1090:A:H4'    | 1:F1:1091:G:O5'    | 1.94                     | 0.68              |
| 1:F1:1252:A:C2     | 1:F1:3105:G:N7     | 2.61                     | 0.68              |
| 1:F1:2177:A:H2'    | 1:F1:2178:A:H5''   | 1.75                     | 0.68              |
| 2:FA:14:LYS:HZ2    | 3:FB:52:TYR:HE1    | 1.40                     | 0.68              |
| 3:FB:3:ALA:O       | 3:FB:5:LYS:HE2     | 1.94                     | 0.68              |
| 11:FL:41:TYR:HA    | 11:FL:58:GLN:HG2   | 1.76                     | 0.68              |
| 11:FL:98:GLU:OE1   | 11:FL:101:LYS:HD2  | 1.94                     | 0.68              |
| 23:GB:2:SER:HB2    | 1:H1:2931:G:OP2    | 1.93                     | 0.68              |
| 24:GC:107:PHE:CE2  | 1:H1:686:U:H1'     | 2.29                     | 0.68              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:GF:71:HIS:CE1   | 27:GF:226:GLY:HA3  | 2.28                     | 0.68              |
| 27:GF:131:HIS:CE1  | 1:H1:117:G:C4      | 2.82                     | 0.68              |
| 34:GM:250:VAL:O    | 34:GM:254:ILE:HG13 | 1.94                     | 0.68              |
| 37:GP:116:LYS:NZ   | 1:H1:1124:G:C8     | 2.62                     | 0.68              |
| 37:GP:146:ASN:HB3  | 19:HX:39:LEU:HD23  | 1.76                     | 0.68              |
| 41:GT:35:THR:HG22  | 41:GT:37:LYS:N     | 2.08                     | 0.68              |
| 1:H1:1191:G:H2'    | 1:H1:1192:A:H8     | 1.59                     | 0.68              |
| 1:H1:1361:U:H6     | 1:H1:1361:U:C5'    | 2.07                     | 0.68              |
| 1:H1:2961:G:C2'    | 1:H1:2962:U:H5''   | 2.24                     | 0.68              |
| 4:HC:70:PHE:CE2    | 4:HC:81:ILE:HD12   | 2.29                     | 0.68              |
| 1:A1:11:A:H2'      | 1:A1:12:A:C8       | 2.29                     | 0.67              |
| 1:A1:1114:C:C2'    | 1:A1:1115:U:H5'    | 2.22                     | 0.67              |
| 1:A1:1235:U:H2'    | 10:AK:109:ASN:ND2  | 2.09                     | 0.67              |
| 1:A1:3011:G:N2     | 1:A1:3020:G:C4     | 2.62                     | 0.67              |
| 11:AL:41:TYR:HA    | 11:AL:58:GLN:HG2   | 1.76                     | 0.67              |
| 14:AO:75:THR:HG23  | 24:BC:150:SER:O    | 1.93                     | 0.67              |
| 21:B3:47:C:O2'     | 34:BM:227:GLN:NE2  | 2.26                     | 0.67              |
| 27:BF:171:ALA:HB2  | 27:BF:211:PHE:CE1  | 2.28                     | 0.67              |
| 40:BS:86:LYS:HG3   | 40:BS:96:ILE:HD11  | 1.76                     | 0.67              |
| 24:CC:107:PHE:HE1  | 1:D1:827:C:O2'     | 1.76                     | 0.67              |
| 34:CM:180:PHE:CD1  | 34:CM:200:HIS:CE1  | 2.82                     | 0.67              |
| 39:CR:79:LYS:NZ    | 1:D1:1548:U:OP1    | 2.26                     | 0.67              |
| 45:CX:77:LEU:H     | 14:DO:19:ASN:HD21  | 1.41                     | 0.67              |
| 1:D1:643:A:O2'     | 5:DE:131:LYS:HE2   | 1.93                     | 0.67              |
| 1:D1:3185:G:C4     | 1:D1:3237:C:N3     | 2.62                     | 0.67              |
| 1:D1:3275:A:C2'    | 1:D1:3276:C:OP2    | 2.42                     | 0.67              |
| 1:D1:3331:C:H4'    | 1:D1:3332:A:H5''   | 1.75                     | 0.67              |
| 5:DE:41:LEU:HD13   | 5:DE:45:ILE:HG21   | 1.76                     | 0.67              |
| 21:E3:93:G:H4'     | 19:FX:96:GLN:NE2   | 2.09                     | 0.67              |
| 23:EB:20:ARG:HB2   | 1:F1:2979:A:OP1    | 1.95                     | 0.67              |
| 26:EE:132:ILE:HG12 | 26:EE:144:LEU:HD22 | 1.76                     | 0.67              |
| 29:EH:48:TYR:CE1   | 29:EH:178:ARG:CZ   | 2.76                     | 0.67              |
| 32:EK:59:GLY:HA2   | 1:F1:2775:G:O3'    | 1.93                     | 0.67              |
| 46:EY:45:VAL:O     | 46:EY:45:VAL:CG2   | 2.42                     | 0.67              |
| 1:F1:1026:C:H4'    | 1:F1:1027:G:O5'    | 1.92                     | 0.67              |
| 1:F1:1926:G:OP1    | 50:F1:4330:HOH:O   | 2.12                     | 0.67              |
| 1:F1:2256:G:H3'    | 1:F1:2257:A:H5'    | 1.75                     | 0.67              |
| 1:F1:2703:G:H2'    | 1:F1:2740:G:H21    | 1.59                     | 0.67              |
| 1:F1:2932:U:OP2    | 50:F1:4030:HOH:O   | 2.12                     | 0.67              |
| 21:G3:53:U:H4'     | 21:G3:54:A:O5'     | 1.92                     | 0.67              |
| 22:GA:2:GLY:HA2    | 1:H1:2597:G:OP1    | 1.94                     | 0.67              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:GM:41:LYS:NZ   | 37:GP:30:TYR:O     | 2.24                     | 0.67              |
| 35:GN:92:ARG:CZ   | 1:H1:810:G:N7      | 2.57                     | 0.67              |
| 35:GN:141:ARG:HD3 | 1:H1:768:A:H1'     | 1.77                     | 0.67              |
| 1:H1:113:A:C2'    | 1:H1:114:A:OP1     | 2.41                     | 0.67              |
| 1:H1:1052:A:C2    | 1:H1:1053:A:C5     | 2.82                     | 0.67              |
| 1:H1:1758:U:C4'   | 1:H1:1759:C:OP2    | 2.42                     | 0.67              |
| 1:H1:2839:A:OP1   | 50:H1:3990:HOH:O   | 2.10                     | 0.67              |
| 11:HL:41:TYR:HA   | 11:HL:58:GLN:HG2   | 1.74                     | 0.67              |
| 13:HN:10:VAL:O    | 13:HN:83:THR:HB    | 1.94                     | 0.67              |
| 1:A1:1107:A:C8    | 34:BM:142:PHE:CD1  | 2.83                     | 0.67              |
| 1:A1:1478:A:H5'   | 1:A1:1479:A:OP2    | 1.94                     | 0.67              |
| 1:A1:2255:U:HO2'  | 1:A1:2256:G:H5'    | 1.56                     | 0.67              |
| 1:A1:2324:A:H5''  | 1:A1:2324:A:H8     | 1.58                     | 0.67              |
| 3:AB:32:ASP:OD1   | 3:AB:32:ASP:N      | 2.26                     | 0.67              |
| 22:BA:195:LYS:O   | 22:BA:195:LYS:HG3  | 1.93                     | 0.67              |
| 29:BH:41:ALA:HB3  | 29:BH:139:ARG:NH2  | 2.09                     | 0.67              |
| 32:BK:81:TRP:HZ2  | 32:BK:123:VAL:HG22 | 1.57                     | 0.67              |
| 34:BM:31:TYR:O    | 34:BM:35:ARG:HG2   | 1.94                     | 0.67              |
| 34:BM:179:ARG:HE  | 34:BM:185:ARG:NH2  | 1.91                     | 0.67              |
| 38:BQ:62:PHE:CE1  | 38:BQ:84:ARG:HB2   | 2.29                     | 0.67              |
| 43:BV:86:ILE:HG22 | 43:BV:214:LYS:HE3  | 1.74                     | 0.67              |
| 21:C3:8:G:P       | 34:CM:33:ARG:NH1   | 2.61                     | 0.67              |
| 23:CB:62:ARG:HH11 | 23:CB:62:ARG:CG    | 2.08                     | 0.67              |
| 25:CD:9:MET:HA    | 25:CD:9:MET:HE2    | 1.76                     | 0.67              |
| 31:CJ:87:ARG:HD2  | 31:CJ:88:PRO:HD2   | 1.76                     | 0.67              |
| 34:CM:181:PRO:HD2 | 34:CM:200:HIS:CE1  | 2.28                     | 0.67              |
| 1:D1:790:C:C4'    | 1:D1:791:C:OP1     | 2.41                     | 0.67              |
| 1:D1:1361:U:H6    | 1:D1:1361:U:H5'    | 1.59                     | 0.67              |
| 1:D1:2371:G:O2'   | 1:D1:2372:G:H8     | 1.77                     | 0.67              |
| 1:D1:2574:U:C4'   | 1:D1:2575:G:OP1    | 2.42                     | 0.67              |
| 1:D1:3227:A:C5'   | 5:DE:57:ARG:NH1    | 2.50                     | 0.67              |
| 5:DE:80:TYR:CD2   | 5:DE:86:PRO:HB3    | 2.29                     | 0.67              |
| 5:DE:88:LYS:HG2   | 5:DE:90:VAL:HG23   | 1.76                     | 0.67              |
| 9:DJ:35:TYR:O     | 9:DJ:39:GLU:HG3    | 1.94                     | 0.67              |
| 14:DO:62:LEU:HD11 | 14:DO:97:ARG:HG2   | 1.75                     | 0.67              |
| 19:DX:176:LYS:HE2 | 19:DX:177:TYR:CZ   | 2.28                     | 0.67              |
| 22:EA:115:CYS:HB2 | 22:EA:166:THR:HB   | 1.75                     | 0.67              |
| 23:EB:382:ARG:O   | 23:EB:386:VAL:HG23 | 1.94                     | 0.67              |
| 25:ED:19:ILE:CG2  | 25:ED:125:MET:HE2  | 2.23                     | 0.67              |
| 32:EK:104:VAL:CG1 | 32:EK:109:PHE:HB2  | 2.24                     | 0.67              |
| 34:EM:23:ARG:NH1  | 1:F1:2692:A:OP2    | 2.27                     | 0.67              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:282:G:H22    | 1:F1:304:U:H5'     | 1.58                     | 0.67              |
| 1:F1:362:G:C3'    | 1:F1:363:G:H5''    | 2.24                     | 0.67              |
| 1:F1:2347:A:N7    | 50:F1:4400:HOH:O   | 2.27                     | 0.67              |
| 5:FE:41:LEU:HD13  | 5:FE:45:ILE:HG21   | 1.76                     | 0.67              |
| 5:FE:80:TYR:CD2   | 5:FE:86:PRO:HB3    | 2.29                     | 0.67              |
| 8:FH:84:ASN:O     | 8:FH:86:VAL:HG23   | 1.94                     | 0.67              |
| 20:G2:114:G:H8    | 20:G2:114:G:H3'    | 1.59                     | 0.67              |
| 21:G3:4:G:H4'     | 21:G3:26:C:C4'     | 2.23                     | 0.67              |
| 23:GB:114:THR:HB  | 23:GB:161:HIS:CD2  | 2.29                     | 0.67              |
| 29:GH:92:HIS:HD2  | 1:H1:1070:U:H1'    | 1.59                     | 0.67              |
| 40:GS:46:SER:HB3  | 1:H1:225:C:H5''    | 1.76                     | 0.67              |
| 45:GX:78:ILE:HB   | 45:GX:98:ILE:HA    | 1.77                     | 0.67              |
| 1:H1:73:G:OP1     | 18:HU:56:VAL:HG11  | 1.94                     | 0.67              |
| 1:H1:861:A:H1'    | 1:H1:883:A:C2      | 2.29                     | 0.67              |
| 1:H1:1235:U:H2'   | 10:HK:109:ASN:ND2  | 2.10                     | 0.67              |
| 1:H1:1655:A:C2    | 1:H1:1669:G:C6     | 2.83                     | 0.67              |
| 19:HX:167:LYS:HG2 | 19:HX:188:THR:HG21 | 1.75                     | 0.67              |
| 1:A1:820:G:H2'    | 1:A1:821:U:H5'     | 1.76                     | 0.67              |
| 1:A1:1035:A:H8    | 1:A1:1035:A:H5'    | 1.59                     | 0.67              |
| 1:A1:1090:A:H4'   | 1:A1:1091:G:O5'    | 1.95                     | 0.67              |
| 1:A1:1373:G:H2'   | 1:A1:1374:C:H6     | 1.58                     | 0.67              |
| 1:A1:3109:C:H3'   | 10:AK:111:ARG:HH11 | 1.53                     | 0.67              |
| 5:AE:80:TYR:CD2   | 5:AE:86:PRO:HB3    | 2.29                     | 0.67              |
| 6:AF:45:ARG:NH1   | 19:AX:84:ASN:HB3   | 2.09                     | 0.67              |
| 9:AJ:63:THR:HG22  | 9:AJ:72:VAL:HA     | 1.76                     | 0.67              |
| 14:AO:49:ALA:HB3  | 14:AO:61:SER:HB2   | 1.76                     | 0.67              |
| 23:BB:377:PHE:HD2 | 23:BB:378:PHE:CE1  | 2.12                     | 0.67              |
| 22:CA:35:PHE:CD1  | 1:D1:2520:G:H2'    | 2.29                     | 0.67              |
| 22:CA:131:SER:OG  | 22:CA:175:ARG:NH1  | 2.26                     | 0.67              |
| 22:CA:180:ILE:O   | 1:D1:2145:A:H4'    | 1.95                     | 0.67              |
| 23:CB:20:ARG:HB2  | 1:D1:2979:A:OP1    | 1.93                     | 0.67              |
| 23:CB:120:LYS:HD2 | 1:D1:3257:U:OP1    | 1.94                     | 0.67              |
| 23:CB:238:LYS:HE3 | 1:D1:2332:C:OP2    | 1.95                     | 0.67              |
| 24:CC:157:TYR:HD1 | 24:CC:159:PHE:CE1  | 2.12                     | 0.67              |
| 27:CF:171:ALA:HB2 | 27:CF:211:PHE:CE1  | 2.29                     | 0.67              |
| 28:CG:109:UNK:HG3 | 28:CG:111:UNK:HG3  | 1.76                     | 0.67              |
| 29:CH:48:TYR:CE1  | 29:CH:178:ARG:CZ   | 2.77                     | 0.67              |
| 30:CI:57:LEU:HA   | 30:CI:71:HIS:ND1   | 2.10                     | 0.67              |
| 31:CJ:83:ILE:HD11 | 31:CJ:105:VAL:HG23 | 1.77                     | 0.67              |
| 33:CL:30:TYR:CD2  | 33:CL:63:ARG:HD3   | 2.29                     | 0.67              |
| 43:CV:91:GLN:HG2  | 1:D1:1167:G:H5'    | 1.76                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 44:CW:19:CYS:HA    | 44:CW:22:ILE:HD12  | 1.74                     | 0.67              |
| 1:D1:842:A:H8      | 2:DA:15:THR:HG23   | 1.59                     | 0.67              |
| 1:D1:1132:U:O5'    | 1:D1:1132:U:H6     | 1.77                     | 0.67              |
| 1:D1:1376:A:H5''   | 1:D1:1377:A:C4'    | 2.25                     | 0.67              |
| 1:D1:2380:U:H2'    | 1:D1:2380:U:O2     | 1.94                     | 0.67              |
| 1:D1:3307:A:H61    | 1:D1:3312:C:H42    | 1.41                     | 0.67              |
| 13:DN:11:VAL:HG12  | 13:DN:82:PRO:HA    | 1.75                     | 0.67              |
| 20:E2:107:C:H4'    | 20:E2:108:G:O5'    | 1.94                     | 0.67              |
| 34:EM:277:PHE:O    | 34:EM:279:PRO:HD3  | 1.94                     | 0.67              |
| 35:EN:92:ARG:CZ    | 1:F1:810:G:C8      | 2.77                     | 0.67              |
| 41:ET:14:ARG:NH1   | 9:HJ:44:PRO:HB3    | 2.10                     | 0.67              |
| 1:F1:852:A:H5''    | 11:FL:14:ASN:O     | 1.94                     | 0.67              |
| 1:F1:2416:U:H2'    | 1:F1:2417:C:O4'    | 1.93                     | 0.67              |
| 1:F1:2786:C:H5''   | 1:F1:2787:A:OP1    | 1.95                     | 0.67              |
| 1:F1:2952:G:N2     | 1:F1:2955:A:OP2    | 2.27                     | 0.67              |
| 1:F1:3151:G:OP1    | 8:FH:64:LYS:HG3    | 1.93                     | 0.67              |
| 4:FC:26:TYR:CB     | 4:FC:67:ALA:HB3    | 2.24                     | 0.67              |
| 23:GB:384:LYS:O    | 23:GB:387:GLU:HG2  | 1.95                     | 0.67              |
| 25:GD:78:ASP:O     | 25:GD:81:THR:HB    | 1.94                     | 0.67              |
| 1:H1:904:U:O2'     | 1:H1:905:G:OP2     | 2.12                     | 0.67              |
| 9:HJ:71:LEU:HD13   | 9:HJ:97:ILE:HD11   | 1.76                     | 0.67              |
| 9:HJ:99:GLU:HG3    | 9:HJ:101:LEU:H     | 1.60                     | 0.67              |
| 9:HJ:145:ASN:HD22  | 9:HJ:146:VAL:N     | 1.90                     | 0.67              |
| 1:A1:331:C:H2'     | 1:A1:332:G:H5''    | 1.74                     | 0.67              |
| 1:A1:709:G:OP1     | 18:AU:37:ARG:NH2   | 2.28                     | 0.67              |
| 1:A1:810:G:H3'     | 1:A1:811:A:C8      | 2.28                     | 0.67              |
| 1:A1:2356:A:H2'    | 1:A1:2357:C:O5'    | 1.93                     | 0.67              |
| 1:A1:2677:U:O2     | 34:BM:17:GLN:HB3   | 1.95                     | 0.67              |
| 19:AX:138:ILE:HD13 | 37:BP:152:VAL:HG22 | 1.76                     | 0.67              |
| 21:B3:83:G:OP1     | 50:B3:306:HOH:O    | 2.12                     | 0.67              |
| 23:BB:162:THR:HB   | 23:BB:175:HIS:HB2  | 1.76                     | 0.67              |
| 23:BB:292:ALA:HB3  | 23:BB:301:LYS:HB3  | 1.76                     | 0.67              |
| 24:BC:89:THR:CG2   | 24:BC:91:ARG:H     | 2.05                     | 0.67              |
| 24:BC:276:THR:CG2  | 24:BC:277:GLY:N    | 2.58                     | 0.67              |
| 34:BM:243:VAL:HG12 | 34:BM:247:PHE:HD2  | 1.59                     | 0.67              |
| 41:BT:35:THR:HG22  | 41:BT:37:LYS:N     | 2.04                     | 0.67              |
| 44:BW:72:VAL:CG1   | 44:BW:92:VAL:HG13  | 2.25                     | 0.67              |
| 21:C3:63:A:N7      | 29:CH:209:LEU:HD11 | 2.08                     | 0.67              |
| 22:CA:102:VAL:C    | 22:CA:103:LEU:HD23 | 2.18                     | 0.67              |
| 23:CB:113:ASN:CB   | 23:CB:174:ASN:HD21 | 2.06                     | 0.67              |
| 32:CK:51:HIS:HE1   | 18:DU:6:GLN:HA     | 1.60                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 33:CL:154:SER:O    | 33:CL:157:LYS:HG3  | 1.93                     | 0.67              |
| 43:CV:118:LYS:O    | 43:CV:122:ASN:HB2  | 1.93                     | 0.67              |
| 45:CX:9:LYS:HD2    | 1:D1:621:G:OP1     | 1.93                     | 0.67              |
| 1:D1:213:A:N6      | 1:D1:227:G:O2'     | 2.24                     | 0.67              |
| 1:D1:257:G:C2'     | 1:D1:258:A:H5'     | 2.24                     | 0.67              |
| 1:D1:514:U:H2'     | 1:D1:515:A:H8      | 1.59                     | 0.67              |
| 1:D1:1252:A:C2     | 1:D1:3105:G:N7     | 2.62                     | 0.67              |
| 1:D1:2884:A:N6     | 50:D1:4735:HOH:O   | 2.23                     | 0.67              |
| 8:DH:58:TYR:HA     | 8:DH:104:LEU:HD22  | 1.75                     | 0.67              |
| 9:DJ:70:LEU:HB3    | 9:DJ:94:VAL:HG22   | 1.77                     | 0.67              |
| 9:DJ:99:GLU:HG3    | 9:DJ:101:LEU:H     | 1.59                     | 0.67              |
| 20:E2:38:C:H4'     | 2:FA:71:ILE:HD13   | 1.75                     | 0.67              |
| 20:E2:74:A:H61     | 20:E2:88:G:H1'     | 1.59                     | 0.67              |
| 23:EB:22:THR:HG23  | 1:F1:3128:G:OP1    | 1.93                     | 0.67              |
| 25:ED:124:GLY:HA3  | 1:F1:2663:A:C4     | 2.29                     | 0.67              |
| 28:EG:109:UNK:HG3  | 28:EG:111:UNK:HG3  | 1.77                     | 0.67              |
| 31:EJ:85:GLN:HA    | 31:EJ:102:ASN:HD22 | 1.59                     | 0.67              |
| 38:EQ:131:THR:HG23 | 1:F1:1533:G:N2     | 2.10                     | 0.67              |
| 45:EX:69:LEU:HB3   | 45:EX:70:PRO:HD2   | 1.76                     | 0.67              |
| 1:F1:752:C:H5'     | 1:F1:1002:A:C2     | 2.29                     | 0.67              |
| 1:F1:2356:A:H2'    | 1:F1:2357:C:O5'    | 1.95                     | 0.67              |
| 19:FX:7:GLN:HE22   | 19:FX:80:GLU:HB3   | 1.60                     | 0.67              |
| 24:GC:32:PRO:CG    | 24:GC:286:GLN:HB3  | 2.24                     | 0.67              |
| 24:GC:89:THR:CG2   | 24:GC:91:ARG:H     | 2.06                     | 0.67              |
| 29:GH:140:VAL:CG1  | 29:GH:144:HIS:HB2  | 2.25                     | 0.67              |
| 33:GL:183:SER:HA   | 33:GL:191:ASN:HD22 | 1.57                     | 0.67              |
| 37:GP:68:ASN:HB3   | 37:GP:69:PRO:HD2   | 1.76                     | 0.67              |
| 1:H1:313:U:H2'     | 1:H1:314:C:C6      | 2.29                     | 0.67              |
| 1:H1:2101:G:H8     | 1:H1:2101:G:H5'    | 1.59                     | 0.67              |
| 1:H1:2149:U:H2'    | 1:H1:2150:U:C5'    | 2.23                     | 0.67              |
| 1:H1:2181:U:H2'    | 1:H1:2182:G:O4'    | 1.94                     | 0.67              |
| 9:HJ:192:VAL:O     | 9:HJ:192:VAL:HG12  | 1.94                     | 0.67              |
| 14:HO:24:PHE:HA    | 14:HO:34:ARG:HA    | 1.75                     | 0.67              |
| 14:HO:52:GLY:HA3   | 14:HO:118:ASN:HD21 | 1.59                     | 0.67              |
| 1:A1:65:A:OP2      | 50:A1:3737:HOH:O   | 2.12                     | 0.67              |
| 1:A1:438:A:C4      | 5:AE:130:PHE:CE1   | 2.83                     | 0.67              |
| 1:A1:660:C:H2'     | 45:BX:43:ARG:NH2   | 2.10                     | 0.67              |
| 1:A1:846:C:C2'     | 1:A1:847:G:H5''    | 2.23                     | 0.67              |
| 1:A1:1010:G:H2'    | 43:BV:98:ARG:CD    | 2.23                     | 0.67              |
| 1:A1:1861:C:OP1    | 50:A1:4366:HOH:O   | 2.12                     | 0.67              |
| 1:A1:2961:G:C3'    | 1:A1:2962:U:H5''   | 2.24                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:AH:84:ASN:O      | 8:AH:86:VAL:HG23   | 1.94                     | 0.67              |
| 14:AO:75:THR:HG21  | 14:AO:77:GLU:CD    | 2.19                     | 0.67              |
| 23:BB:162:THR:O    | 23:BB:174:ASN:CB   | 2.41                     | 0.67              |
| 23:BB:192:PHE:O    | 23:BB:195:SER:OG   | 2.10                     | 0.67              |
| 33:BL:183:SER:C    | 33:BL:191:ASN:HD22 | 2.02                     | 0.67              |
| 35:BN:31:ILE:HG22  | 35:BN:35:LYS:HE3   | 1.76                     | 0.67              |
| 43:BV:80:VAL:HG22  | 43:BV:188:VAL:HG23 | 1.76                     | 0.67              |
| 21:C3:13:A:OP1     | 21:C3:109:U:O2'    | 2.12                     | 0.67              |
| 22:CA:113:VAL:HG13 | 22:CA:134:TYR:HB2  | 1.76                     | 0.67              |
| 33:CL:88:GLY:C     | 33:CL:89:ILE:HG12  | 2.19                     | 0.67              |
| 1:D1:111:C:H2'     | 1:D1:111:C:O2      | 1.95                     | 0.67              |
| 1:D1:619:G:C4'     | 1:D1:620:A:C2      | 2.76                     | 0.67              |
| 1:D1:805:A:C4'     | 1:D1:806:G:OP2     | 2.43                     | 0.67              |
| 1:D1:897:A:O2'     | 1:D1:898:C:H5'     | 1.95                     | 0.67              |
| 1:D1:2719:A:H2'    | 1:D1:2720:G:H8     | 1.60                     | 0.67              |
| 1:D1:2741:U:H4'    | 1:D1:2742:G:OP2    | 1.95                     | 0.67              |
| 1:D1:3284:G:N7     | 50:D1:4569:HOH:O   | 2.26                     | 0.67              |
| 18:DU:56:VAL:CG1   | 18:DU:57:ARG:H     | 2.07                     | 0.67              |
| 20:E2:147:G:N2     | 27:EF:54:GLN:HE22  | 1.91                     | 0.67              |
| 23:EB:114:THR:HB   | 23:EB:161:HIS:CD2  | 2.27                     | 0.67              |
| 23:EB:267:GLN:NE2  | 1:F1:3266:G:OP1    | 2.27                     | 0.67              |
| 27:EF:122:PRO:HG2  | 1:F1:119:A:C2      | 2.29                     | 0.67              |
| 35:EN:34:TYR:O     | 35:EN:38:VAL:HG23  | 1.94                     | 0.67              |
| 36:EO:114:LYS:HB3  | 36:EO:146:LYS:NZ   | 2.10                     | 0.67              |
| 38:EQ:62:PHE:CE1   | 38:EQ:84:ARG:HB2   | 2.29                     | 0.67              |
| 1:F1:704:G:H2'     | 1:F1:705:A:O4'     | 1.95                     | 0.67              |
| 1:F1:821:U:H5'     | 1:F1:821:U:H6      | 1.59                     | 0.67              |
| 1:F1:1334:G:C2     | 1:F1:1335:A:C2     | 2.83                     | 0.67              |
| 1:F1:2264:U:H2'    | 1:F1:2264:U:O2     | 1.95                     | 0.67              |
| 1:F1:3227:A:C1'    | 5:FE:86:PRO:HG3    | 2.24                     | 0.67              |
| 2:FA:21:ARG:NH1    | 2:FA:44:MET:HE1    | 2.09                     | 0.67              |
| 13:FN:11:VAL:HB    | 13:FN:80:ILE:CG2   | 2.25                     | 0.67              |
| 14:FO:24:PHE:HA    | 14:FO:34:ARG:HA    | 1.77                     | 0.67              |
| 21:G3:36:C:O2      | 21:G3:45:U:H1'     | 1.94                     | 0.67              |
| 35:GN:31:ILE:HG22  | 35:GN:35:LYS:HE3   | 1.76                     | 0.67              |
| 1:H1:376:A:N6      | 1:H1:398:G:H2'     | 2.10                     | 0.67              |
| 1:H1:784:G:H1'     | 1:H1:796:A:N6      | 2.09                     | 0.67              |
| 1:H1:795:G:H8      | 1:H1:795:G:O5'     | 1.78                     | 0.67              |
| 1:H1:1090:A:H4'    | 1:H1:1091:G:O5'    | 1.94                     | 0.67              |
| 1:H1:2385:A:H2'    | 1:H1:2386:G:O5'    | 1.94                     | 0.67              |
| 1:H1:3263:G:O2'    | 1:H1:3265:A:N6     | 2.26                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:HN:11:VAL:HB    | 13:HN:80:ILE:CG2   | 2.25                     | 0.67              |
| 18:HU:124:PHE:HE2  | 18:HU:142:THR:HA   | 1.59                     | 0.67              |
| 1:A1:10:A:H2'      | 1:A1:11:A:C8       | 2.30                     | 0.67              |
| 1:A1:696:A:H5''    | 35:BN:21:LYS:O     | 1.95                     | 0.67              |
| 1:A1:697:A:OP1     | 35:BN:22:SER:HB3   | 1.94                     | 0.67              |
| 1:A1:1168:C:OP1    | 50:A1:3940:HOH:O   | 2.12                     | 0.67              |
| 1:A1:1227:A:H4'    | 1:A1:1228:C:O5'    | 1.95                     | 0.67              |
| 1:A1:1361:U:H5'    | 1:A1:1361:U:H6     | 1.59                     | 0.67              |
| 14:AO:62:LEU:HD11  | 14:AO:97:ARG:HG2   | 1.76                     | 0.67              |
| 21:B3:21:G:H4'     | 34:BM:277:PHE:HD2  | 1.58                     | 0.67              |
| 23:BB:54:THR:CG2   | 23:BB:55:HIS:N     | 2.57                     | 0.67              |
| 24:BC:164:GLU:OE2  | 24:BC:259:THR:HG21 | 1.93                     | 0.67              |
| 27:BF:176:LYS:HB2  | 27:BF:187:THR:CG2  | 2.18                     | 0.67              |
| 27:BF:196:VAL:CG1  | 27:BF:200:ASP:HB2  | 2.24                     | 0.67              |
| 30:BI:175:ASP:O    | 30:BI:178:LYS:HG2  | 1.94                     | 0.67              |
| 36:BO:174:ASN:O    | 36:BO:178:GLN:HG2  | 1.94                     | 0.67              |
| 20:C2:137:G:N2     | 33:CL:112:GLU:HG2  | 2.10                     | 0.67              |
| 22:CA:14:ASN:HB3   | 1:D1:930:U:H5'     | 1.75                     | 0.67              |
| 23:CB:26:ARG:HH12  | 23:CB:176:ILE:C    | 2.02                     | 0.67              |
| 28:CG:23:UNK:HB2   | 28:CG:92:UNK:HB2   | 1.77                     | 0.67              |
| 29:CH:38:ARG:HD3   | 29:CH:41:ALA:HB2   | 1.77                     | 0.67              |
| 32:CK:148:THR:HG22 | 32:CK:149:ALA:N    | 2.08                     | 0.67              |
| 33:CL:13:LYS:NZ    | 16:DQ:46:ARG:HA    | 2.10                     | 0.67              |
| 45:CX:121:LEU:HB2  | 45:CX:124:ALA:HB2  | 1.75                     | 0.67              |
| 1:D1:1047:G:H2'    | 1:D1:1048:U:C5'    | 2.23                     | 0.67              |
| 1:D1:1096:G:H2'    | 1:D1:1097:G:C5'    | 2.23                     | 0.67              |
| 1:D1:1434:G:H2'    | 1:D1:1435:C:H5'    | 1.74                     | 0.67              |
| 1:D1:2324:A:H5''   | 1:D1:2324:A:H8     | 1.58                     | 0.67              |
| 13:DN:13:LEU:HD22  | 13:DN:75:VAL:HG21  | 1.77                     | 0.67              |
| 18:DU:58:LYS:HB2   | 18:DU:63:TYR:HB3   | 1.77                     | 0.67              |
| 24:EC:373:SER:HA   | 1:F1:564:A:O2'     | 1.95                     | 0.67              |
| 27:EF:171:ALA:HB2  | 27:EF:211:PHE:CE1  | 2.30                     | 0.67              |
| 29:EH:158:LYS:O    | 1:F1:2841:G:O2'    | 2.13                     | 0.67              |
| 35:EN:21:LYS:O     | 1:F1:696:A:C5'     | 2.43                     | 0.67              |
| 1:F1:10:A:H2'      | 1:F1:11:A:C8       | 2.30                     | 0.67              |
| 1:F1:861:A:N6      | 1:F1:882:G:H1'     | 2.08                     | 0.67              |
| 1:F1:1130:A:C5'    | 1:F1:1131:G:OP2    | 2.43                     | 0.67              |
| 1:F1:1655:A:C2     | 1:F1:1669:G:C6     | 2.82                     | 0.67              |
| 1:F1:1845:U:H4'    | 1:F1:1846:C:OP2    | 1.92                     | 0.67              |
| 1:F1:2902:G:OP2    | 50:F1:4428:HOH:O   | 2.13                     | 0.67              |
| 13:FN:41:VAL:HG23  | 13:FN:77:LEU:HD23  | 1.75                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:G3:27:A:H2'     | 21:G3:28:C:C6      | 2.29                     | 0.67              |
| 21:G3:81:A:H2'     | 21:G3:82:G:C5'     | 2.25                     | 0.67              |
| 23:GB:54:THR:CG2   | 23:GB:55:HIS:N     | 2.56                     | 0.67              |
| 23:GB:162:THR:CG2  | 23:GB:175:HIS:HD2  | 2.05                     | 0.67              |
| 25:GD:109:HIS:HD1  | 25:GD:123:PHE:H    | 1.43                     | 0.67              |
| 27:GF:68:PRO:HD3   | 27:GF:225:TRP:HE1  | 1.59                     | 0.67              |
| 30:GI:37:THR:OG1   | 30:GI:104:PHE:O    | 2.12                     | 0.67              |
| 33:GL:88:GLY:C     | 33:GL:89:ILE:HG12  | 2.17                     | 0.67              |
| 34:GM:163:LEU:HD21 | 34:GM:175:HIS:CB   | 2.24                     | 0.67              |
| 35:GN:141:ARG:O    | 1:H1:768:A:H5'     | 1.95                     | 0.67              |
| 1:H1:363:G:H8      | 1:H1:363:G:H5'     | 1.58                     | 0.67              |
| 1:H1:579:G:O2'     | 19:HX:159:ALA:N    | 2.28                     | 0.67              |
| 1:H1:745:A:H4'     | 17:HT:58:ASN:ND2   | 2.09                     | 0.67              |
| 1:H1:3098:A:OP1    | 10:HK:93:LYS:NZ    | 2.28                     | 0.67              |
| 13:HN:24:VAL:O     | 13:HN:43:VAL:HG13  | 1.94                     | 0.67              |
| 1:A1:487:G:OP2     | 18:AU:161:LYS:NZ   | 2.27                     | 0.67              |
| 1:A1:726:G:H2'     | 1:A1:727:C:C6      | 2.29                     | 0.67              |
| 1:A1:1173:A:H2'    | 1:A1:1174:G:C8     | 2.30                     | 0.67              |
| 1:A1:1752:G:H5'    | 1:A1:1754:G:C5'    | 2.25                     | 0.67              |
| 1:A1:3177:G:C4'    | 1:A1:3178:U:OP2    | 2.39                     | 0.67              |
| 1:A1:3332:A:H3'    | 1:A1:3333:G:C5'    | 2.25                     | 0.67              |
| 2:AA:15:THR:OG1    | 2:AA:16:HIS:CD2    | 2.48                     | 0.67              |
| 6:AF:8:GLN:HE21    | 6:AF:11:ARG:NH1    | 1.91                     | 0.67              |
| 9:AJ:126:GLU:OE1   | 9:HJ:123:ARG:CZ    | 2.43                     | 0.67              |
| 23:BB:36:ASP:OD1   | 23:BB:38:SER:N     | 2.24                     | 0.67              |
| 23:BB:116:LYS:HD3  | 23:BB:173:LYS:HB2  | 1.77                     | 0.67              |
| 33:BL:30:TYR:CD2   | 33:BL:63:ARG:HD3   | 2.30                     | 0.67              |
| 34:BM:283:THR:HG22 | 34:BM:285:ALA:H    | 1.59                     | 0.67              |
| 37:BP:74:VAL:HG12  | 37:BP:75:ILE:N     | 2.08                     | 0.67              |
| 23:CB:157:ARG:HD2  | 23:CB:178:GLU:OE1  | 1.95                     | 0.67              |
| 24:CC:272:THR:HG22 | 24:CC:273:TYR:H    | 1.60                     | 0.67              |
| 24:CC:319:ARG:NE   | 1:D1:634:G:N7      | 2.43                     | 0.67              |
| 47:CO:154:UNK:O    | 47:CO:158:UNK:HG2  | 1.94                     | 0.67              |
| 1:D1:362:G:H3'     | 1:D1:363:G:H5''    | 1.74                     | 0.67              |
| 1:D1:2150:U:H5'    | 1:D1:2150:U:H6     | 1.60                     | 0.67              |
| 1:D1:3011:G:N2     | 1:D1:3020:G:C4     | 2.63                     | 0.67              |
| 11:DL:41:TYR:HA    | 11:DL:58:GLN:HG2   | 1.77                     | 0.67              |
| 19:DX:94:LYS:HA    | 19:DX:102:HIS:O    | 1.95                     | 0.67              |
| 24:EC:230:ILE:O    | 24:EC:233:VAL:HG22 | 1.94                     | 0.67              |
| 26:EE:7:GLU:CD     | 26:EE:54:LYS:HE2   | 2.20                     | 0.67              |
| 33:EL:183:SER:C    | 33:EL:191:ASN:HD22 | 2.03                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:EM:52:VAL:CG2   | 34:EM:63:GLN:HB2   | 2.25                     | 0.67              |
| 35:EN:16:VAL:HG12  | 35:EN:17:VAL:H     | 1.59                     | 0.67              |
| 40:ES:6:GLU:OE1    | 40:ES:6:GLU:N      | 2.27                     | 0.67              |
| 42:EU:32:LEU:O     | 42:EU:35:ALA:HB3   | 1.95                     | 0.67              |
| 1:F1:399:A:H4'     | 1:F1:400:C:OP1     | 1.95                     | 0.67              |
| 1:F1:1319:C:H2'    | 1:F1:1320:U:H6     | 1.60                     | 0.67              |
| 1:F1:1737:A:N6     | 7:FG:28:LYS:HD2    | 2.09                     | 0.67              |
| 1:F1:1895:U:C5'    | 50:F1:4010:HOH:O   | 2.43                     | 0.67              |
| 1:F1:2906:G:C2'    | 1:F1:2907:A:H5''   | 2.24                     | 0.67              |
| 1:F1:3114:U:H2'    | 1:F1:3115:C:H5''   | 1.77                     | 0.67              |
| 7:FG:57:GLU:HA     | 7:FG:67:ILE:CD1    | 2.25                     | 0.67              |
| 24:GC:213:LEU:O    | 24:GC:256:ILE:HA   | 1.95                     | 0.67              |
| 30:GI:101:LEU:HD12 | 30:GI:102:LYS:N    | 2.10                     | 0.67              |
| 44:GW:71:ARG:HD3   | 44:GW:103:LEU:HD13 | 1.75                     | 0.67              |
| 1:H1:71:U:H5       | 18:HU:64:ASN:HB3   | 1.60                     | 0.67              |
| 1:H1:210:A:O2'     | 1:H1:229:A:O2'     | 2.12                     | 0.67              |
| 1:H1:462:G:H2'     | 1:H1:463:U:C6      | 2.29                     | 0.67              |
| 1:H1:526:U:O2'     | 1:H1:527:A:H8      | 1.76                     | 0.67              |
| 1:H1:911:C:O2'     | 1:H1:912:G:H5'     | 1.94                     | 0.67              |
| 1:H1:1600:U:C4     | 1:H1:1601:U:C4     | 2.82                     | 0.67              |
| 1:H1:1926:G:OP1    | 50:H1:4197:HOH:O   | 2.12                     | 0.67              |
| 1:H1:2731:C:C4'    | 4:HC:18:HIS:HD2    | 2.08                     | 0.67              |
| 1:H1:2930:C:OP2    | 50:H1:3938:HOH:O   | 2.13                     | 0.67              |
| 13:HN:16:GLY:N     | 13:HN:19:ALA:HB2   | 2.09                     | 0.67              |
| 1:A1:454:A:H61     | 1:A1:524:G:H1'     | 1.60                     | 0.67              |
| 1:A1:563:G:H5'     | 1:A1:564:A:OP2     | 1.95                     | 0.67              |
| 1:A1:641:U:H2'     | 1:A1:642:C:H6      | 1.58                     | 0.67              |
| 1:A1:741:G:N3      | 32:BK:136:ARG:NH1  | 2.42                     | 0.67              |
| 1:A1:978:G:C8      | 1:A1:1144:G:C8     | 2.83                     | 0.67              |
| 1:A1:1130:A:C5'    | 1:A1:1131:G:OP2    | 2.43                     | 0.67              |
| 1:A1:2543:C:N4     | 7:AG:54:SER:HB3    | 2.09                     | 0.67              |
| 1:A1:2705:U:O2'    | 4:AC:79:ARG:NH2    | 2.27                     | 0.67              |
| 7:AG:57:GLU:HA     | 7:AG:67:ILE:CD1    | 2.24                     | 0.67              |
| 12:AM:77:TYR:HE1   | 12:AM:81:LEU:HD21  | 1.58                     | 0.67              |
| 16:AQ:77:ALA:HB1   | 16:AQ:87:ALA:HA    | 1.75                     | 0.67              |
| 23:BB:141:ALA:HA   | 23:BB:144:LEU:HD12 | 1.75                     | 0.67              |
| 26:BE:2:ARG:HH12   | 30:BI:129:ARG:NH2  | 1.92                     | 0.67              |
| 27:BF:20:PRO:HB2   | 27:BF:22:PHE:CD2   | 2.29                     | 0.67              |
| 36:BO:133:LYS:HG3  | 36:BO:134:ASN:H    | 1.58                     | 0.67              |
| 37:BP:14:LYS:O     | 50:BP:304:HOH:O    | 2.11                     | 0.67              |
| 20:C2:74:A:H61     | 20:C2:88:G:H1'     | 1.59                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:C3:49:A:O2'     | 34:CM:230:LYS:NZ   | 2.19                     | 0.67              |
| 23:CB:162:THR:CG2  | 23:CB:175:HIS:HD2  | 2.07                     | 0.67              |
| 24:CC:99:ASN:HD22  | 24:CC:100:GLN:HE21 | 1.40                     | 0.67              |
| 24:CC:240:ARG:HG2  | 24:CC:240:ARG:O    | 1.95                     | 0.67              |
| 27:CF:69:GLN:HE22  | 16:DQ:48:VAL:C     | 1.98                     | 0.67              |
| 29:CH:34:TYR:CZ    | 29:CH:92:HIS:ND1   | 2.62                     | 0.67              |
| 29:CH:140:VAL:CG1  | 29:CH:144:HIS:HB2  | 2.24                     | 0.67              |
| 30:CI:101:LEU:HD12 | 30:CI:102:LYS:N    | 2.09                     | 0.67              |
| 32:CK:99:VAL:O     | 18:DU:164:LYS:HB3  | 1.95                     | 0.67              |
| 35:CN:158:GLN:CA   | 50:D1:4779:HOH:O   | 2.43                     | 0.67              |
| 1:D1:358:C:H4'     | 1:D1:842:A:N6      | 2.10                     | 0.67              |
| 1:D1:1425:U:H4'    | 1:D1:1426:G:OP1    | 1.95                     | 0.67              |
| 1:D1:2961:G:C2'    | 1:D1:2962:U:H5''   | 2.25                     | 0.67              |
| 1:D1:3168:A:N7     | 19:DX:166:VAL:HG11 | 2.09                     | 0.67              |
| 7:DG:10:ILE:HA     | 7:DG:13:LYS:HD3    | 0.82                     | 0.67              |
| 24:EC:185:VAL:O    | 24:EC:188:VAL:HG22 | 1.95                     | 0.67              |
| 25:ED:133:ARG:CB   | 25:ED:134:PRO:HD2  | 2.18                     | 0.67              |
| 26:EE:1:MET:CG     | 26:EE:2:ARG:N      | 2.42                     | 0.67              |
| 31:EJ:83:ILE:HD11  | 31:EJ:105:VAL:HG23 | 1.76                     | 0.67              |
| 32:EK:100:PRO:HB3  | 18:FU:164:LYS:NZ   | 2.09                     | 0.67              |
| 35:EN:141:ARG:O    | 1:F1:768:A:H5'     | 1.95                     | 0.67              |
| 38:EQ:120:GLN:HB3  | 38:EQ:149:GLU:CG   | 2.24                     | 0.67              |
| 1:F1:513:G:O2'     | 1:F1:514:U:H5'     | 1.95                     | 0.67              |
| 1:F1:1096:G:H2'    | 1:F1:1097:G:C5'    | 2.24                     | 0.67              |
| 1:F1:1700:A:OP2    | 12:FM:74:SER:HB2   | 1.95                     | 0.67              |
| 1:F1:2411:U:H2'    | 1:F1:2412:U:C6     | 2.28                     | 0.67              |
| 1:F1:2678:A:H1'    | 1:F1:2691:A:H62    | 1.60                     | 0.67              |
| 1:F1:3291:G:HO2'   | 1:F1:3292:U:P      | 2.18                     | 0.67              |
| 9:FJ:142:ILE:HD13  | 9:FJ:152:CYS:HB3   | 1.75                     | 0.67              |
| 13:FN:10:VAL:HG12  | 13:FN:85:TYR:O     | 1.94                     | 0.67              |
| 19:FX:7:GLN:NE2    | 19:FX:80:GLU:HB3   | 2.09                     | 0.67              |
| 20:G2:107:C:H4'    | 20:G2:108:G:O5'    | 1.94                     | 0.67              |
| 20:G2:137:G:H21    | 33:GL:112:GLU:HG2  | 1.60                     | 0.67              |
| 22:GA:131:SER:OG   | 22:GA:175:ARG:NH1  | 2.28                     | 0.67              |
| 24:GC:95:ALA:HB1   | 24:GC:101:CYS:SG   | 2.35                     | 0.67              |
| 24:GC:230:ILE:O    | 24:GC:233:VAL:HG22 | 1.95                     | 0.67              |
| 1:H1:511:U:H2'     | 1:H1:512:G:H8      | 1.60                     | 0.67              |
| 1:H1:1227:A:H4'    | 1:H1:1228:C:O5'    | 1.94                     | 0.67              |
| 1:H1:1430:G:N7     | 50:H1:3731:HOH:O   | 2.27                     | 0.67              |
| 1:H1:1662:A:H4'    | 11:HL:76:ARG:HH22  | 1.58                     | 0.67              |
| 1:H1:2540:G:H5''   | 1:H1:2541:U:OP2    | 1.94                     | 0.67              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:2581:G:H4'   | 1:H1:2583:C:C2     | 2.29                     | 0.67              |
| 6:HF:49:PRO:HG2   | 6:HF:52:ARG:HG3    | 1.75                     | 0.67              |
| 1:A1:304:U:HO2'   | 1:A1:305:A:P       | 2.11                     | 0.67              |
| 1:A1:419:A:C2     | 1:A1:2358:A:H4'    | 2.30                     | 0.67              |
| 1:A1:718:A:O2'    | 24:BC:242:ASN:ND2  | 2.27                     | 0.67              |
| 1:A1:959:G:O3'    | 50:A1:3758:HOH:O   | 2.13                     | 0.67              |
| 1:A1:972:U:H2'    | 1:A1:973:C:C6      | 2.30                     | 0.67              |
| 1:A1:1141:U:O4    | 1:A1:1142:G:N2     | 2.28                     | 0.67              |
| 1:A1:1370:A:C2    | 1:A1:1389:G:C2     | 2.82                     | 0.67              |
| 1:A1:1490:G:N7    | 50:A1:4362:HOH:O   | 2.26                     | 0.67              |
| 1:A1:1667:A:O2'   | 1:A1:1668:A:P      | 2.52                     | 0.67              |
| 13:AN:22:LYS:NZ   | 13:AN:140:SER:HB3  | 2.10                     | 0.67              |
| 13:AN:100:ASP:OD1 | 1:H1:1053:A:H2     | 1.68                     | 0.67              |
| 19:AX:113:LEU:CD2 | 19:AX:140:THR:HG21 | 2.25                     | 0.67              |
| 20:B2:107:C:H4'   | 20:B2:108:G:O5'    | 1.95                     | 0.67              |
| 21:B3:36:C:O2     | 21:B3:45:U:H1'     | 1.94                     | 0.67              |
| 23:BB:384:LYS:O   | 23:BB:387:GLU:HG2  | 1.95                     | 0.67              |
| 27:CF:176:LYS:CB  | 27:CF:187:THR:HG23 | 2.14                     | 0.67              |
| 33:CL:16:SER:HB3  | 16:DQ:49:THR:HG23  | 1.77                     | 0.67              |
| 34:CM:52:VAL:CG2  | 34:CM:63:GLN:HB2   | 2.25                     | 0.67              |
| 35:CN:158:GLN:NE2 | 50:CN:306:HOH:O    | 2.28                     | 0.67              |
| 42:CU:51:VAL:O    | 42:CU:55:ILE:HG13  | 1.94                     | 0.67              |
| 1:D1:10:A:H2'     | 1:D1:11:A:C8       | 2.29                     | 0.67              |
| 1:D1:524:G:O2'    | 1:D1:525:C:OP1     | 2.12                     | 0.67              |
| 1:D1:1198:G:N7    | 50:D1:4426:HOH:O   | 2.27                     | 0.67              |
| 1:D1:1380:C:N3    | 14:DO:32:THR:HG21  | 2.09                     | 0.67              |
| 1:D1:1618:A:H2'   | 1:D1:1619:A:C8     | 2.29                     | 0.67              |
| 1:D1:2364:G:H2'   | 1:D1:2365:G:C8     | 2.29                     | 0.67              |
| 11:DL:73:THR:HG22 | 11:DL:74:VAL:H     | 1.59                     | 0.67              |
| 13:DN:11:VAL:HB   | 13:DN:80:ILE:CG2   | 2.25                     | 0.67              |
| 18:DU:52:LEU:HD23 | 18:DU:93:ILE:HG23  | 1.77                     | 0.67              |
| 18:DU:146:ALA:HB1 | 18:DU:148:ASN:ND2  | 2.10                     | 0.67              |
| 21:E3:30:G:O2'    | 21:E3:31:G:H5'     | 1.94                     | 0.67              |
| 28:EG:23:UNK:HB2  | 28:EG:92:UNK:HB2   | 1.77                     | 0.67              |
| 37:EP:57:TYR:HA   | 37:EP:60:ARG:HG3   | 1.77                     | 0.67              |
| 45:EX:34:TRP:CZ2  | 45:EX:54:MET:HB2   | 2.29                     | 0.67              |
| 1:F1:467:A:C6     | 1:F1:468:A:C5      | 2.83                     | 0.67              |
| 1:F1:1507:A:O4'   | 1:F1:1507:A:OP1    | 2.12                     | 0.67              |
| 1:F1:1753:A:OP2   | 7:FG:26:GLY:HA2    | 1.95                     | 0.67              |
| 1:F1:2364:G:H2'   | 1:F1:2365:G:C8     | 2.30                     | 0.67              |
| 19:FX:94:LYS:HA   | 19:FX:102:HIS:O    | 1.95                     | 0.67              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:GB:62:ARG:HH11 | 23:GB:62:ARG:CG    | 2.05                     | 0.67              |
| 23:GB:116:LYS:HD3 | 23:GB:173:LYS:HB2  | 1.75                     | 0.67              |
| 34:GM:32:ALA:HB2  | 50:GM:401:HOH:O    | 1.95                     | 0.67              |
| 37:GP:41:ASP:HB3  | 37:GP:97:ARG:NH1   | 2.10                     | 0.67              |
| 38:GQ:10:PRO:CB   | 38:GQ:153:GLN:HE22 | 2.07                     | 0.67              |
| 42:GU:82:LEU:HA   | 42:GU:85:ARG:HG3   | 1.76                     | 0.67              |
| 1:H1:102:G:N7     | 50:H1:3651:HOH:O   | 2.28                     | 0.67              |
| 1:H1:454:A:H61    | 1:H1:524:G:H1'     | 1.60                     | 0.67              |
| 1:H1:838:G:H1'    | 2:HA:50:TRP:CZ2    | 2.29                     | 0.67              |
| 1:H1:1004:U:H6    | 1:H1:1004:U:C5'    | 2.05                     | 0.67              |
| 1:H1:1127:U:H2'   | 1:H1:1128:G:C8     | 2.30                     | 0.67              |
| 1:H1:1919:A:H8    | 1:H1:1919:A:H5'    | 1.60                     | 0.67              |
| 1:H1:2253:U:H2'   | 1:H1:2254:A:C8     | 2.30                     | 0.67              |
| 1:H1:2500:C:H2'   | 1:H1:2501:A:C8     | 2.30                     | 0.67              |
| 2:HA:14:LYS:NZ    | 3:HB:52:TYR:HE1    | 1.93                     | 0.67              |
| 1:A1:514:U:H2'    | 1:A1:515:A:H8      | 1.58                     | 0.67              |
| 1:A1:1868:C:OP2   | 50:A1:4391:HOH:O   | 2.13                     | 0.67              |
| 1:A1:2562:U:OP2   | 13:AN:58:GLY:N     | 2.28                     | 0.67              |
| 1:A1:3114:U:H2'   | 1:A1:3115:C:H5''   | 1.77                     | 0.67              |
| 1:A1:3168:A:N7    | 19:AX:166:VAL:HG11 | 2.09                     | 0.67              |
| 1:A1:3168:A:C4    | 26:BE:42:SER:O     | 2.48                     | 0.67              |
| 1:A1:3230:G:H22   | 5:AE:142:GLU:CD    | 2.00                     | 0.67              |
| 7:AG:8:ASP:HA     | 7:AG:11:GLN:NE2    | 2.10                     | 0.67              |
| 13:AN:11:VAL:HB   | 13:AN:80:ILE:CG2   | 2.25                     | 0.67              |
| 13:AN:76:ASN:HB3  | 13:AN:79:HIS:CD2   | 2.30                     | 0.67              |
| 14:AO:24:PHE:HA   | 14:AO:34:ARG:HA    | 1.77                     | 0.67              |
| 19:AX:7:GLN:NE2   | 19:AX:80:GLU:HB3   | 2.09                     | 0.67              |
| 22:BA:49:ILE:HD12 | 46:BY:63:ILE:HG22  | 1.77                     | 0.67              |
| 22:BA:58:PRO:HD2  | 22:BA:171:ALA:HB3  | 1.75                     | 0.67              |
| 33:BL:120:TRP:CE2 | 33:BL:122:GLY:HA2  | 2.30                     | 0.67              |
| 23:CB:119:TYR:CE2 | 23:CB:122:TRP:HZ3  | 2.13                     | 0.67              |
| 23:CB:162:THR:HB  | 23:CB:175:HIS:HB2  | 1.76                     | 0.67              |
| 24:CC:369:HIS:CE1 | 43:CV:68:LYS:HZ1   | 2.12                     | 0.67              |
| 27:CF:183:VAL:CG1 | 27:CF:185:LYS:HE3  | 2.25                     | 0.67              |
| 30:CI:196:PHE:CZ  | 6:DF:110:ARG:HD2   | 2.29                     | 0.67              |
| 32:CK:84:VAL:HG21 | 32:CK:102:ILE:HG12 | 1.75                     | 0.67              |
| 34:CM:38:ILE:HD11 | 1:D1:2738:G:O3'    | 1.95                     | 0.67              |
| 1:D1:1235:U:H2'   | 10:DK:109:ASN:ND2  | 2.10                     | 0.67              |
| 1:D1:1776:G:OP2   | 50:D1:4875:HOH:O   | 2.12                     | 0.67              |
| 1:D1:2238:A:H4'   | 50:D1:4286:HOH:O   | 1.95                     | 0.67              |
| 1:D1:2267:G:H4'   | 1:D1:2268:G:OP1    | 1.94                     | 0.67              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:DA:17:THR:HA     | 3:DB:52:TYR:HB2    | 1.77                     | 0.67              |
| 3:DB:9:MET:HB3     | 3:DB:13:PHE:HE2    | 1.60                     | 0.67              |
| 5:DE:19:TYR:OH     | 14:DO:109:LYS:HG2  | 1.95                     | 0.67              |
| 10:DK:105:PRO:O    | 10:DK:106:LYS:HG2  | 1.94                     | 0.67              |
| 18:DU:54:PRO:HD3   | 18:DU:73:PHE:CE2   | 2.30                     | 0.67              |
| 21:E3:59:C:O2'     | 34:EM:279:PRO:HD2  | 1.95                     | 0.67              |
| 23:EB:117:ARG:HA   | 23:EB:173:LYS:HE3  | 1.76                     | 0.67              |
| 25:ED:78:ASP:O     | 25:ED:81:THR:HB    | 1.95                     | 0.67              |
| 42:EU:120:PHE:CE2  | 18:FU:90:SER:O     | 2.48                     | 0.67              |
| 1:F1:784:G:H1'     | 1:F1:796:A:N6      | 2.09                     | 0.67              |
| 1:F1:1540:U:H5     | 1:F1:1865:A:HO2'   | 1.42                     | 0.67              |
| 1:F1:2249:U:H2'    | 1:F1:2250:A:C8     | 2.29                     | 0.67              |
| 5:FE:49:THR:HG22   | 5:FE:50:VAL:N      | 2.09                     | 0.67              |
| 15:FP:4:GLU:OE1    | 15:FP:54:LYS:HE2   | 1.95                     | 0.67              |
| 15:FP:60:ILE:O     | 15:FP:64:ILE:HG13  | 1.95                     | 0.67              |
| 33:GL:183:SER:C    | 33:GL:191:ASN:HD22 | 2.03                     | 0.67              |
| 43:GV:164:THR:O    | 43:GV:168:LYS:HG3  | 1.95                     | 0.67              |
| 1:H1:114:A:C5      | 1:H1:264:A:C6      | 2.83                     | 0.67              |
| 1:H1:790:C:C4'     | 1:H1:791:C:OP1     | 2.42                     | 0.67              |
| 1:H1:2187:C:O2'    | 1:H1:2188:U:H5'    | 1.95                     | 0.67              |
| 1:H1:2962:U:H5'    | 1:H1:2962:U:H6     | 1.58                     | 0.67              |
| 1:H1:3214:A:H5''   | 1:H1:3215:C:C6     | 2.30                     | 0.67              |
| 1:H1:3263:G:H4'    | 1:H1:3264:U:O5'    | 1.94                     | 0.67              |
| 4:HC:26:TYR:CB     | 4:HC:67:ALA:HB3    | 2.24                     | 0.67              |
| 13:HN:13:LEU:HD22  | 13:HN:75:VAL:HG21  | 1.77                     | 0.67              |
| 1:A1:257:G:C2'     | 1:A1:258:A:H5'     | 2.25                     | 0.66              |
| 1:A1:284:U:H5      | 1:A1:305:A:C5'     | 2.03                     | 0.66              |
| 1:A1:605:C:H1'     | 19:AX:6:ALA:HB2    | 1.77                     | 0.66              |
| 1:A1:1107:A:N7     | 34:BM:142:PHE:CE1  | 2.63                     | 0.66              |
| 1:A1:2518:A:H3'    | 39:BR:35:VAL:CG1   | 2.24                     | 0.66              |
| 1:A1:3128:G:H8     | 1:A1:3128:G:C5'    | 2.07                     | 0.66              |
| 2:AA:20:ARG:NH1    | 20:B2:111:A:N1     | 2.43                     | 0.66              |
| 20:B2:27:G:H8      | 20:B2:27:G:H5'     | 1.60                     | 0.66              |
| 20:B2:137:G:H21    | 33:BL:112:GLU:CG   | 2.08                     | 0.66              |
| 22:BA:113:VAL:HG13 | 22:BA:134:TYR:HB2  | 1.77                     | 0.66              |
| 33:BL:88:GLY:C     | 33:BL:89:ILE:HG12  | 2.21                     | 0.66              |
| 35:BN:52:ARG:HB2   | 35:BN:84:THR:CG2   | 2.05                     | 0.66              |
| 22:CA:38:ARG:O     | 22:CA:93:LEU:HG    | 1.95                     | 0.66              |
| 23:CB:81:CYS:CB    | 23:CB:203:VAL:HG21 | 2.25                     | 0.66              |
| 23:CB:123:ALA:HB1  | 1:D1:3276:C:OP1    | 1.96                     | 0.66              |
| 24:CC:205:ARG:HH21 | 40:CS:11:ARG:NH1   | 1.92                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 31:CJ:124:LYS:HG3  | 31:CJ:141:VAL:C    | 2.20                     | 0.66              |
| 47:CO:97:ARG:HH21  | 1:D1:1805:C:H5'    | 1.60                     | 0.66              |
| 1:D1:1181:A:C4'    | 1:D1:1182:C:OP2    | 2.42                     | 0.66              |
| 1:D1:1191:G:H2'    | 1:D1:1192:A:H8     | 1.60                     | 0.66              |
| 1:D1:1227:A:H4'    | 1:D1:1228:C:O5'    | 1.95                     | 0.66              |
| 1:D1:1563:A:O2'    | 1:D1:1564:C:H5'    | 1.95                     | 0.66              |
| 1:D1:3165:A:H2'    | 1:D1:3166:A:C8     | 2.30                     | 0.66              |
| 8:DH:54:LYS:HD3    | 8:DH:110:PRO:HG2   | 1.76                     | 0.66              |
| 20:E2:27:G:OP2     | 40:ES:12:ARG:HD3   | 1.94                     | 0.66              |
| 20:E2:75:A:OP2     | 40:ES:51:LYS:HB3   | 1.96                     | 0.66              |
| 26:EE:144:LEU:HD13 | 26:EE:155:THR:HG22 | 1.77                     | 0.66              |
| 36:EO:120:TYR:HE2  | 1:F1:1744:A:OP2    | 1.78                     | 0.66              |
| 37:EP:40:VAL:CG1   | 37:EP:96:VAL:HG13  | 2.25                     | 0.66              |
| 1:F1:419:A:C2      | 1:F1:2358:A:H4'    | 2.30                     | 0.66              |
| 1:F1:1446:C:C6     | 1:F1:1446:C:H5'    | 2.29                     | 0.66              |
| 1:F1:2678:A:H1'    | 1:F1:2691:A:N6     | 2.10                     | 0.66              |
| 1:F1:2859:G:N7     | 50:F1:4201:HOH:O   | 2.29                     | 0.66              |
| 1:F1:2944:A:P      | 50:F1:4069:HOH:O   | 2.46                     | 0.66              |
| 1:F1:3128:G:H8     | 1:F1:3128:G:C5'    | 2.07                     | 0.66              |
| 1:F1:3168:A:C5     | 19:FX:166:VAL:HG11 | 2.30                     | 0.66              |
| 13:FN:22:LYS:NZ    | 13:FN:140:SER:HB3  | 2.10                     | 0.66              |
| 18:FU:58:LYS:HB2   | 18:FU:63:TYR:HB3   | 1.77                     | 0.66              |
| 20:G2:58:U:N3      | 20:G2:65:C:H5      | 1.91                     | 0.66              |
| 33:GL:14:LYS:HZ3   | 1:H1:268:G:H5''    | 1.59                     | 0.66              |
| 34:GM:66:TYR:OH    | 34:GM:73:ARG:HD2   | 1.94                     | 0.66              |
| 38:GQ:64:ARG:NH1   | 1:H1:409:G:OP1     | 2.28                     | 0.66              |
| 44:GW:59:TRP:CZ3   | 44:GW:63:ILE:HG12  | 2.30                     | 0.66              |
| 1:H1:1404:G:H5'    | 1:H1:1434:G:O2'    | 1.95                     | 0.66              |
| 1:H1:1446:C:C5'    | 1:H1:1446:C:H6     | 2.07                     | 0.66              |
| 1:H1:1845:U:H4'    | 1:H1:1846:C:OP2    | 1.93                     | 0.66              |
| 1:H1:2343:A:C3'    | 1:H1:2344:U:H5''   | 2.25                     | 0.66              |
| 1:H1:2703:G:H2'    | 1:H1:2740:G:H21    | 1.58                     | 0.66              |
| 5:HE:18:TRP:HB2    | 14:HO:95:ARG:HH21  | 1.58                     | 0.66              |
| 18:HU:22:THR:HG23  | 18:HU:24:PHE:CD1   | 2.29                     | 0.66              |
| 1:A1:73:G:OP1      | 18:AU:56:VAL:HG11  | 1.96                     | 0.66              |
| 1:A1:607:U:O2'     | 1:A1:608:C:H5'     | 1.95                     | 0.66              |
| 1:A1:754:A:OP1     | 35:BN:44:LYS:HD3   | 1.95                     | 0.66              |
| 1:A1:1395:U:OP1    | 45:BX:36:ARG:NH2   | 2.28                     | 0.66              |
| 1:A1:1410:G:O2'    | 24:BC:251:HIS:HD2  | 1.77                     | 0.66              |
| 1:A1:2158:C:C5'    | 22:BA:239:ARG:NH1  | 2.50                     | 0.66              |
| 1:A1:3332:A:O2'    | 1:A1:3333:G:OP1    | 2.09                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:AA:8:PHE:O       | 2:AA:11:ARG:HG3    | 1.95                     | 0.66              |
| 2:AA:68:MET:HG3    | 20:B2:44:A:H5'     | 1.76                     | 0.66              |
| 6:AF:45:ARG:NH2    | 6:AF:67:GLN:O      | 2.27                     | 0.66              |
| 14:AO:100:SER:OG   | 14:AO:103:LEU:HG   | 1.95                     | 0.66              |
| 21:B3:111:U:O4     | 34:BM:21:ARG:NH1   | 2.28                     | 0.66              |
| 22:BA:5:ILE:HG22   | 22:BA:6:ARG:H      | 1.60                     | 0.66              |
| 29:BH:77:ILE:HG13  | 29:BH:78:LYS:N     | 2.10                     | 0.66              |
| 21:C3:36:C:O2      | 21:C3:45:U:H1'     | 1.95                     | 0.66              |
| 1:D1:131:G:N1      | 1:D1:133:C:H1'     | 2.10                     | 0.66              |
| 1:D1:563:G:H5'     | 1:D1:564:A:OP2     | 1.95                     | 0.66              |
| 1:D1:1052:A:C2     | 1:D1:1053:A:C5     | 2.83                     | 0.66              |
| 1:D1:1567:A:H61    | 1:D1:1578:U:H3     | 1.43                     | 0.66              |
| 1:D1:2875:A:OP2    | 50:D1:4401:HOH:O   | 2.13                     | 0.66              |
| 4:DC:7:THR:HB      | 4:DC:94:ILE:HD11   | 1.77                     | 0.66              |
| 6:DF:12:VAL:HB     | 6:DF:58:PHE:HB2    | 1.76                     | 0.66              |
| 22:EA:58:PRO:HD2   | 22:EA:171:ALA:HB3  | 1.76                     | 0.66              |
| 22:EA:113:VAL:HG13 | 22:EA:134:TYR:HB2  | 1.77                     | 0.66              |
| 22:EA:192:ARG:NH1  | 1:F1:1821:U:OP1    | 2.28                     | 0.66              |
| 34:EM:163:LEU:HD21 | 34:EM:175:HIS:CB   | 2.25                     | 0.66              |
| 1:F1:338:C:H6      | 1:F1:338:C:H5''    | 1.58                     | 0.66              |
| 1:F1:548:G:H22     | 1:F1:619:G:H21     | 1.43                     | 0.66              |
| 1:F1:964:U:OP1     | 50:F1:3827:HOH:O   | 2.13                     | 0.66              |
| 1:F1:1027:G:O2'    | 1:F1:1028:A:OP1    | 2.12                     | 0.66              |
| 1:F1:1566:U:H2'    | 1:F1:1567:A:C8     | 2.28                     | 0.66              |
| 1:F1:1667:A:O2'    | 1:F1:1668:A:P      | 2.52                     | 0.66              |
| 1:F1:1864:U:H5'    | 50:F1:4043:HOH:O   | 1.93                     | 0.66              |
| 1:F1:2181:U:H2'    | 1:F1:2182:G:O4'    | 1.95                     | 0.66              |
| 1:F1:2994:G:O2'    | 1:F1:2995:A:H8     | 1.79                     | 0.66              |
| 18:FU:133:LYS:C    | 18:FU:135:LEU:N    | 2.52                     | 0.66              |
| 23:GB:162:THR:O    | 23:GB:174:ASN:CB   | 2.42                     | 0.66              |
| 24:GC:240:ARG:HG2  | 24:GC:240:ARG:O    | 1.93                     | 0.66              |
| 24:GC:295:ILE:HD11 | 35:GN:29:LEU:HB3   | 1.75                     | 0.66              |
| 29:GH:42:THR:HG23  | 29:GH:192:THR:HG21 | 1.76                     | 0.66              |
| 32:GK:111:LYS:HG3  | 32:GK:129:TYR:HB2  | 1.76                     | 0.66              |
| 35:GN:16:VAL:HG12  | 35:GN:17:VAL:H     | 1.58                     | 0.66              |
| 1:H1:1020:G:OP2    | 50:H1:4003:HOH:O   | 2.13                     | 0.66              |
| 1:H1:1132:U:O5'    | 1:H1:1132:U:H6     | 1.78                     | 0.66              |
| 1:H1:1179:G:O2'    | 1:H1:1180:A:OP1    | 2.12                     | 0.66              |
| 1:H1:1425:U:H4'    | 1:H1:1426:G:OP1    | 1.94                     | 0.66              |
| 1:H1:2906:G:C2'    | 1:H1:2907:A:H5''   | 2.22                     | 0.66              |
| 19:HX:7:GLN:HE22   | 19:HX:80:GLU:HB3   | 1.59                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:62:G:OP2      | 33:BL:169:ARG:NH2  | 2.28                     | 0.66              |
| 1:A1:511:U:H5''    | 14:AO:70:VAL:CG2   | 2.25                     | 0.66              |
| 1:A1:641:U:H2'     | 1:A1:642:C:C6      | 2.30                     | 0.66              |
| 1:A1:1640:C:H2'    | 1:A1:1641:U:H6     | 1.57                     | 0.66              |
| 1:A1:2348:G:N7     | 50:A1:4566:HOH:O   | 2.28                     | 0.66              |
| 20:B2:73:G:H5'     | 40:BS:117:LEU:HD11 | 1.77                     | 0.66              |
| 21:B3:11:A:O2'     | 21:B3:12:U:H3'     | 1.94                     | 0.66              |
| 23:BB:113:ASN:CB   | 23:BB:174:ASN:HD21 | 2.08                     | 0.66              |
| 24:BC:82:PRO:O     | 24:BC:96:ALA:N     | 2.25                     | 0.66              |
| 24:BC:287:ARG:HD2  | 35:BN:111:ARG:NH1  | 2.10                     | 0.66              |
| 28:BG:109:UNK:HG3  | 28:BG:111:UNK:HG3  | 1.76                     | 0.66              |
| 35:BN:34:TYR:O     | 35:BN:38:VAL:HG23  | 1.95                     | 0.66              |
| 23:CB:56:ILE:HG21  | 23:CB:354:LEU:HD22 | 1.76                     | 0.66              |
| 30:CI:69:VAL:CG2   | 1:D1:2377:G:O2'    | 2.44                     | 0.66              |
| 38:CQ:8:ARG:HH22   | 38:CQ:117:GLN:HE21 | 1.43                     | 0.66              |
| 43:CV:98:ARG:HH11  | 43:CV:98:ARG:HG3   | 1.59                     | 0.66              |
| 1:D1:625:C:O2'     | 1:D1:626:C:H5'     | 1.95                     | 0.66              |
| 1:D1:1334:G:C2     | 1:D1:1335:A:C2     | 2.84                     | 0.66              |
| 1:D1:2727:A:O2'    | 1:D1:2728:A:OP1    | 2.12                     | 0.66              |
| 6:DF:30:ILE:HG21   | 19:DX:163:PHE:HE2  | 1.59                     | 0.66              |
| 20:E2:26:A:H3'     | 20:E2:27:G:H5''    | 1.78                     | 0.66              |
| 32:EK:27:LYS:HB2   | 1:F1:961:A:H5''    | 1.76                     | 0.66              |
| 35:EN:82:VAL:CG2   | 35:EN:127:LEU:HD11 | 2.25                     | 0.66              |
| 41:ET:35:THR:HG22  | 41:ET:37:LYS:N     | 2.07                     | 0.66              |
| 46:EY:6:GLN:N      | 1:F1:1951:G:OP2    | 2.24                     | 0.66              |
| 1:F1:726:G:H2'     | 1:F1:727:C:C6      | 2.29                     | 0.66              |
| 1:F1:1618:A:H5''   | 11:FL:62:ALA:HB2   | 1.77                     | 0.66              |
| 1:F1:2920:U:C2     | 1:F1:2923:U:C5     | 2.84                     | 0.66              |
| 2:FA:8:PHE:O       | 2:FA:11:ARG:HG3    | 1.95                     | 0.66              |
| 7:FG:95:ALA:CB     | 7:FG:101:LEU:HD11  | 2.24                     | 0.66              |
| 9:FJ:43:VAL:HG12   | 9:FJ:44:PRO:CD     | 2.25                     | 0.66              |
| 14:FO:49:ALA:HB3   | 14:FO:61:SER:HB2   | 1.76                     | 0.66              |
| 22:GA:160:PRO:HG2  | 22:GA:163:CYS:SG   | 2.35                     | 0.66              |
| 27:GF:123:ILE:HD12 | 27:GF:197:ARG:HD3  | 1.76                     | 0.66              |
| 27:GF:131:HIS:O    | 27:GF:135:LEU:HG   | 1.95                     | 0.66              |
| 33:GL:15:GLN:NE2   | 1:H1:294:A:OP1     | 2.28                     | 0.66              |
| 40:GS:34:LEU:HD12  | 40:GS:44:VAL:O     | 1.95                     | 0.66              |
| 1:H1:384:A:H2'     | 1:H1:385:A:C8      | 2.31                     | 0.66              |
| 1:H1:805:A:C4'     | 1:H1:806:G:OP2     | 2.43                     | 0.66              |
| 1:H1:964:U:OP1     | 50:H1:3770:HOH:O   | 2.13                     | 0.66              |
| 1:H1:1506:G:O2'    | 1:H1:1895:U:O4     | 2.11                     | 0.66              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:2919:C:N3    | 1:H1:2923:U:C5     | 2.64                     | 0.66              |
| 1:A1:70:C:N4      | 1:A1:72:A:C5       | 2.63                     | 0.66              |
| 1:A1:376:A:N6     | 1:A1:398:G:H2'     | 2.10                     | 0.66              |
| 1:A1:795:G:H8     | 1:A1:795:G:O5'     | 1.78                     | 0.66              |
| 1:A1:1027:G:C8    | 1:A1:1068:U:OP2    | 2.49                     | 0.66              |
| 1:A1:1097:G:N2    | 1:A1:1117:U:H1'    | 2.10                     | 0.66              |
| 1:A1:1309:G:H5'   | 28:BG:59:UNK:HB2   | 1.77                     | 0.66              |
| 1:A1:1375:A:H4'   | 1:A1:1376:A:OP1    | 1.95                     | 0.66              |
| 1:A1:2180:G:O2'   | 50:A1:4200:HOH:O   | 2.13                     | 0.66              |
| 1:A1:2380:U:H2'   | 1:A1:2380:U:O2     | 1.95                     | 0.66              |
| 1:A1:2624:A:OP2   | 29:BH:15:LYS:NZ    | 2.26                     | 0.66              |
| 24:BC:382:LYS:HG3 | 24:BC:383:ALA:N    | 2.10                     | 0.66              |
| 26:BE:7:GLU:CD    | 26:BE:54:LYS:HE2   | 2.20                     | 0.66              |
| 34:BM:250:VAL:O   | 34:BM:254:ILE:HG13 | 1.96                     | 0.66              |
| 43:BV:117:ASN:O   | 43:BV:121:LEU:HB2  | 1.95                     | 0.66              |
| 23:CB:58:ARG:HH21 | 23:CB:60:VAL:CG1   | 2.08                     | 0.66              |
| 23:CB:281:TYR:HB2 | 23:CB:321:MET:HE3  | 1.78                     | 0.66              |
| 24:CC:89:THR:CG2  | 24:CC:91:ARG:H     | 2.08                     | 0.66              |
| 24:CC:275:THR:OG1 | 1:D1:498:A:H5''    | 1.94                     | 0.66              |
| 24:CC:276:THR:CG2 | 24:CC:277:GLY:N    | 2.58                     | 0.66              |
| 26:CE:88:PHE:CD1  | 26:CE:182:LYS:HA   | 2.31                     | 0.66              |
| 27:CF:176:LYS:HD2 | 27:CF:187:THR:HG21 | 1.76                     | 0.66              |
| 33:CL:38:LYS:HB2  | 33:CL:62:TRP:CE2   | 2.28                     | 0.66              |
| 34:CM:37:ILE:HD11 | 37:CP:31:LEU:HD21  | 1.78                     | 0.66              |
| 35:CN:146:ARG:HA  | 1:D1:812:G:OP1     | 1.94                     | 0.66              |
| 46:CY:45:VAL:O    | 46:CY:45:VAL:CG2   | 2.43                     | 0.66              |
| 46:CY:73:THR:C    | 46:CY:75:PRO:HD2   | 2.20                     | 0.66              |
| 1:D1:331:C:OP1    | 50:D1:3869:HOH:O   | 2.14                     | 0.66              |
| 1:D1:1580:G:H3'   | 50:D1:4138:HOH:O   | 1.95                     | 0.66              |
| 5:DE:42:ARG:NH2   | 5:DE:92:GLN:O      | 2.28                     | 0.66              |
| 20:E2:27:G:OP2    | 40:ES:12:ARG:NH1   | 2.28                     | 0.66              |
| 21:E3:116:A:H4'   | 34:EM:260:ARG:HH22 | 1.59                     | 0.66              |
| 29:EH:139:ARG:HD3 | 29:EH:173:PHE:CE1  | 2.30                     | 0.66              |
| 34:EM:250:VAL:O   | 34:EM:254:ILE:HG13 | 1.94                     | 0.66              |
| 39:ER:43:LEU:HD12 | 1:F1:1599:G:OP1    | 1.95                     | 0.66              |
| 46:EY:73:THR:C    | 46:EY:75:PRO:HD2   | 2.20                     | 0.66              |
| 1:F1:131:G:N1     | 1:F1:133:C:H1'     | 2.11                     | 0.66              |
| 1:F1:146:U:O2     | 1:F1:148:G:C2      | 2.48                     | 0.66              |
| 1:F1:514:U:H2'    | 1:F1:515:A:H8      | 1.60                     | 0.66              |
| 1:F1:1132:U:O5'   | 1:F1:1132:U:H6     | 1.77                     | 0.66              |
| 3:FB:28:ARG:NE    | 3:FB:36:ARG:O      | 2.29                     | 0.66              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:GC:159:PHE:HZ  | 24:GC:179:VAL:HG13 | 1.60                     | 0.66              |
| 29:GH:48:TYR:CE1  | 29:GH:178:ARG:CZ   | 2.78                     | 0.66              |
| 1:H1:467:A:C6     | 1:H1:468:A:C5      | 2.84                     | 0.66              |
| 1:H1:499:U:H3'    | 1:H1:500:G:C8      | 2.30                     | 0.66              |
| 1:H1:1215:U:H3    | 1:H1:1344:A:N6     | 1.93                     | 0.66              |
| 1:H1:1380:C:C2'   | 1:H1:1381:G:OP1    | 2.42                     | 0.66              |
| 1:H1:1597:U:H2'   | 1:H1:1598:C:H6     | 1.57                     | 0.66              |
| 15:HP:60:ILE:O    | 15:HP:64:ILE:HG13  | 1.95                     | 0.66              |
| 18:HU:72:GLY:HA3  | 18:HU:96:ASP:HB2   | 1.77                     | 0.66              |
| 1:A1:861:A:H2'    | 1:A1:861:A:N3      | 2.11                     | 0.66              |
| 1:A1:1376:A:O3'   | 43:BV:12:LYS:NZ    | 2.23                     | 0.66              |
| 1:A1:2239:A:C4'   | 22:BA:244:THR:HG21 | 2.25                     | 0.66              |
| 1:A1:2310:G:OP1   | 50:A1:4188:HOH:O   | 2.13                     | 0.66              |
| 1:A1:3269:G:H1'   | 38:BQ:71:ARG:HD3   | 1.76                     | 0.66              |
| 7:AG:13:LYS:HD2   | 7:AG:100:ILE:HD13  | 1.78                     | 0.66              |
| 11:AL:99:GLU:HA   | 11:AL:99:GLU:OE1   | 1.94                     | 0.66              |
| 18:AU:22:THR:HG23 | 18:AU:24:PHE:CD1   | 2.30                     | 0.66              |
| 24:BC:215:VAL:CG1 | 24:BC:238:VAL:HG22 | 2.20                     | 0.66              |
| 30:BI:37:THR:OG1  | 30:BI:104:PHE:O    | 2.13                     | 0.66              |
| 37:BP:8:ARG:O     | 37:BP:11:THR:OG1   | 2.13                     | 0.66              |
| 45:BX:34:TRP:CZ2  | 45:BX:54:MET:HB2   | 2.30                     | 0.66              |
| 20:C2:105:A:H5''  | 20:C2:106:A:H8     | 1.60                     | 0.66              |
| 23:CB:54:THR:CG2  | 23:CB:55:HIS:H     | 2.09                     | 0.66              |
| 24:CC:50:LYS:HD2  | 24:CC:116:VAL:HG11 | 1.77                     | 0.66              |
| 24:CC:65:MET:HE2  | 24:CC:97:PHE:HB2   | 1.78                     | 0.66              |
| 33:CL:15:GLN:OE1  | 16:DQ:52:ALA:CB    | 2.44                     | 0.66              |
| 34:CM:119:TYR:CD1 | 34:CM:132:VAL:CG1  | 2.77                     | 0.66              |
| 43:CV:211:PHE:HB3 | 43:CV:223:ASP:OD2  | 1.95                     | 0.66              |
| 1:D1:636:U:O2'    | 1:D1:637:U:H5'     | 1.96                     | 0.66              |
| 1:D1:1047:G:P     | 13:FN:3:LYS:HZ3    | 2.11                     | 0.66              |
| 1:D1:1956:A:H2'   | 1:D1:1957:A:H5'    | 1.77                     | 0.66              |
| 1:D1:2343:A:C3'   | 1:D1:2344:U:H5''   | 2.24                     | 0.66              |
| 1:D1:2414:A:H2'   | 1:D1:2415:C:C6     | 2.31                     | 0.66              |
| 1:D1:2920:U:C2    | 1:D1:2923:U:C5     | 2.83                     | 0.66              |
| 1:D1:3114:U:H2'   | 1:D1:3115:C:H5''   | 1.78                     | 0.66              |
| 2:DA:21:ARG:NH1   | 2:DA:44:MET:HE1    | 2.11                     | 0.66              |
| 2:DA:26:THR:HG22  | 2:DA:35:ALA:HB3    | 1.76                     | 0.66              |
| 7:DG:62:LEU:HB3   | 13:DN:4:PHE:CE2    | 2.30                     | 0.66              |
| 24:EC:298:ILE:O   | 24:EC:304:VAL:HG21 | 1.96                     | 0.66              |
| 29:EH:140:VAL:CG1 | 29:EH:144:HIS:HB2  | 2.25                     | 0.66              |
| 34:EM:122:GLN:NE2 | 34:EM:126:ASP:OD2  | 2.28                     | 0.66              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 44:EW:72:VAL:CG1  | 44:EW:92:VAL:HG13  | 2.26                     | 0.66              |
| 1:F1:331:C:H2'    | 1:F1:332:G:H5''    | 1.76                     | 0.66              |
| 1:F1:625:C:O2'    | 1:F1:626:C:H5'     | 1.96                     | 0.66              |
| 1:F1:1776:G:O2'   | 1:F1:1777:A:H5'    | 1.96                     | 0.66              |
| 1:F1:2975:A:H2'   | 1:F1:2976:C:C6     | 2.30                     | 0.66              |
| 14:FO:100:SER:OG  | 14:FO:103:LEU:HG   | 1.96                     | 0.66              |
| 20:G2:74:A:H5'    | 40:GS:50:ARG:HG3   | 1.78                     | 0.66              |
| 21:G3:116:A:H4'   | 34:GM:260:ARG:HH22 | 1.61                     | 0.66              |
| 24:GC:216:TYR:O   | 24:GC:238:VAL:HG23 | 1.96                     | 0.66              |
| 30:GI:86:MET:HE1  | 1:H1:1201:G:H21    | 1.61                     | 0.66              |
| 32:GK:78:ASP:N    | 32:GK:78:ASP:OD1   | 2.29                     | 0.66              |
| 1:H1:1185:A:HO2'  | 1:H1:1357:A:H2     | 1.42                     | 0.66              |
| 1:H1:1375:A:H4'   | 1:H1:1376:A:OP1    | 1.95                     | 0.66              |
| 1:H1:1446:C:H5'   | 1:H1:1446:C:H6     | 1.61                     | 0.66              |
| 1:H1:1481:U:H2'   | 1:H1:1481:U:O2     | 1.94                     | 0.66              |
| 1:H1:1618:A:H2'   | 1:H1:1619:A:C8     | 2.31                     | 0.66              |
| 1:H1:1720:A:H2'   | 1:H1:1721:A:C8     | 2.31                     | 0.66              |
| 1:H1:2931:G:OP1   | 50:H1:3940:HOH:O   | 2.14                     | 0.66              |
| 1:H1:3227:A:N3    | 5:HE:80:TYR:CE2    | 2.63                     | 0.66              |
| 1:A1:131:G:N1     | 1:A1:133:C:H1'     | 2.11                     | 0.66              |
| 1:A1:692:A:H4'    | 35:BN:166:TYR:CE1  | 2.31                     | 0.66              |
| 1:A1:1167:G:H4'   | 43:BV:91:GLN:HE21  | 1.60                     | 0.66              |
| 1:A1:1775:A:H4'   | 15:AP:34:LYS:HZ1   | 1.60                     | 0.66              |
| 1:A1:3036:U:O2'   | 23:BB:325:CYS:HB2  | 1.95                     | 0.66              |
| 9:AJ:39:GLU:HB3   | 9:AJ:43:VAL:HG23   | 1.78                     | 0.66              |
| 20:B2:114:G:H8    | 20:B2:114:G:H3'    | 1.61                     | 0.66              |
| 22:BA:128:SER:O   | 22:BA:128:SER:OG   | 2.09                     | 0.66              |
| 23:BB:382:ARG:O   | 23:BB:386:VAL:HG23 | 1.95                     | 0.66              |
| 36:BO:65:ALA:O    | 36:BO:68:GLU:HB3   | 1.96                     | 0.66              |
| 37:BP:57:TYR:HA   | 37:BP:60:ARG:HG3   | 1.77                     | 0.66              |
| 22:CA:160:PRO:HG2 | 22:CA:163:CYS:SG   | 2.35                     | 0.66              |
| 24:CC:49:ARG:NH2  | 1:D1:713:G:H21     | 1.94                     | 0.66              |
| 30:CI:175:ASP:O   | 30:CI:178:LYS:HG2  | 1.95                     | 0.66              |
| 34:CM:166:ALA:CB  | 34:CM:173:ILE:HD11 | 2.26                     | 0.66              |
| 35:CN:28:LYS:HE3  | 35:CN:32:LYS:HE2   | 1.75                     | 0.66              |
| 47:CO:172:UNK:HG2 | 47:CO:173:UNK:N    | 2.09                     | 0.66              |
| 43:CV:117:ASN:O   | 43:CV:121:LEU:HB2  | 1.95                     | 0.66              |
| 1:D1:625:C:H2'    | 1:D1:626:C:H5'     | 1.77                     | 0.66              |
| 1:D1:1114:C:C2'   | 1:D1:1115:U:H5'    | 2.25                     | 0.66              |
| 1:D1:1210:C:O2'   | 19:DX:13:THR:HG21  | 1.94                     | 0.66              |
| 1:D1:1927:U:OP2   | 50:D1:4618:HOH:O   | 2.12                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2540:G:H5''   | 1:D1:2541:U:OP2    | 1.95                     | 0.66              |
| 1:D1:3114:U:C2'    | 1:D1:3115:C:H5''   | 2.26                     | 0.66              |
| 1:D1:3170:A:N7     | 6:DF:2:VAL:N       | 2.44                     | 0.66              |
| 4:DC:26:TYR:CB     | 4:DC:67:ALA:HB3    | 2.26                     | 0.66              |
| 9:DJ:192:VAL:HG12  | 9:DJ:192:VAL:O     | 1.95                     | 0.66              |
| 14:DO:16:LEU:CD1   | 14:DO:35:ASN:HD22  | 2.09                     | 0.66              |
| 21:E3:43:A:OP1     | 25:ED:137:ARG:HD2  | 1.94                     | 0.66              |
| 23:EB:103:THR:HG22 | 23:EB:104:THR:N    | 2.10                     | 0.66              |
| 33:EL:88:GLY:C     | 33:EL:89:ILE:HG12  | 2.21                     | 0.66              |
| 1:F1:511:U:H2'     | 1:F1:512:G:H8      | 1.60                     | 0.66              |
| 1:F1:568:A:C2      | 1:F1:602:A:C2      | 2.84                     | 0.66              |
| 1:F1:619:G:C4'     | 1:F1:620:A:C2      | 2.79                     | 0.66              |
| 1:F1:795:G:H8      | 1:F1:795:G:O5'     | 1.79                     | 0.66              |
| 1:F1:1598:C:H2'    | 1:F1:1599:G:H5'    | 1.78                     | 0.66              |
| 1:F1:2930:C:OP2    | 50:F1:4027:HOH:O   | 2.14                     | 0.66              |
| 1:F1:3198:A:H2'    | 1:F1:3199:G:O4'    | 1.95                     | 0.66              |
| 2:FA:26:THR:HG22   | 2:FA:35:ALA:HB3    | 1.78                     | 0.66              |
| 9:FJ:162:HIS:HD2   | 9:FJ:164:LEU:H     | 1.41                     | 0.66              |
| 19:FX:55:PHE:CZ    | 19:FX:59:MET:HE3   | 2.30                     | 0.66              |
| 20:G2:41:U:C2      | 42:GU:93:ARG:NH2   | 2.63                     | 0.66              |
| 21:G3:21:G:H4'     | 34:GM:277:PHE:HD1  | 1.59                     | 0.66              |
| 27:GF:155:LEU:HD13 | 1:H1:147:U:H1'     | 1.77                     | 0.66              |
| 28:GG:109:UNK:HG3  | 28:GG:111:UNK:HG3  | 1.76                     | 0.66              |
| 30:GI:144:VAL:HG12 | 30:GI:144:VAL:O    | 1.96                     | 0.66              |
| 32:GK:145:CYS:HB2  | 18:HU:177:VAL:HG21 | 1.78                     | 0.66              |
| 1:H1:118:A:H4'     | 1:H1:119:A:C5'     | 2.24                     | 0.66              |
| 1:H1:639:U:O2'     | 1:H1:640:G:H5'     | 1.94                     | 0.66              |
| 1:A1:532:G:H2'     | 1:A1:533:G:H8      | 1.59                     | 0.66              |
| 1:A1:1481:U:O2     | 1:A1:1481:U:H2'    | 1.94                     | 0.66              |
| 5:AE:52:ILE:HB     | 5:AE:96:LEU:HB2    | 1.77                     | 0.66              |
| 5:AE:170:LEU:HA    | 6:AF:106:PHE:HE1   | 1.61                     | 0.66              |
| 14:AO:94:ILE:HD12  | 14:AO:111:LEU:HD12 | 1.77                     | 0.66              |
| 21:B3:83:G:N2      | 21:B3:93:G:N2      | 2.43                     | 0.66              |
| 35:BN:155:ALA:HB3  | 35:BN:158:GLN:CD   | 2.20                     | 0.66              |
| 20:C2:73:G:H5'     | 40:CS:117:LEU:HD11 | 1.77                     | 0.66              |
| 21:C3:33:U:C2      | 34:CM:212:TYR:CD1  | 2.83                     | 0.66              |
| 22:CA:157:LYS:NZ   | 1:D1:2154:A:OP2    | 2.26                     | 0.66              |
| 23:CB:116:LYS:HD3  | 23:CB:173:LYS:HB2  | 1.76                     | 0.66              |
| 23:CB:382:ARG:O    | 23:CB:386:VAL:HG23 | 1.96                     | 0.66              |
| 1:D1:88:U:C2'      | 1:D1:89:G:H5'      | 2.26                     | 0.66              |
| 1:D1:250:U:H5'     | 1:D1:251:A:OP2     | 1.95                     | 0.66              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:820:G:H2'    | 1:D1:821:U:H5'     | 1.76                     | 0.66              |
| 1:D1:2415:C:H2'   | 1:D1:2416:U:C5'    | 2.26                     | 0.66              |
| 2:DA:17:THR:CG2   | 2:DA:18:LEU:H      | 2.07                     | 0.66              |
| 13:DN:15:GLN:HE21 | 13:DN:79:HIS:CE1   | 2.14                     | 0.66              |
| 18:DU:72:GLY:HA3  | 18:DU:96:ASP:HB2   | 1.78                     | 0.66              |
| 21:E3:59:C:H2'    | 21:E3:60:C:C6      | 2.31                     | 0.66              |
| 22:EA:41:TYR:CE1  | 1:F1:2541:U:C4     | 2.84                     | 0.66              |
| 23:EB:141:ALA:HA  | 23:EB:144:LEU:HD12 | 1.76                     | 0.66              |
| 24:EC:77:ALA:HA   | 1:F1:2397:A:OP1    | 1.96                     | 0.66              |
| 24:EC:275:THR:OG1 | 1:F1:498:A:H5''    | 1.95                     | 0.66              |
| 1:F1:24:A:N3      | 1:F1:327:U:O2'     | 2.24                     | 0.66              |
| 1:F1:1376:A:H5''  | 1:F1:1377:A:C4'    | 2.25                     | 0.66              |
| 1:F1:2100:A:H2'   | 1:F1:2101:G:C5'    | 2.20                     | 0.66              |
| 1:F1:2187:C:O2'   | 1:F1:2188:U:H5'    | 1.95                     | 0.66              |
| 1:F1:3165:A:H2'   | 1:F1:3166:A:C8     | 2.30                     | 0.66              |
| 9:FJ:70:LEU:HB3   | 9:FJ:94:VAL:HG22   | 1.78                     | 0.66              |
| 13:FN:96:LEU:HD22 | 13:FN:113:THR:HG21 | 1.78                     | 0.66              |
| 23:GB:26:ARG:NH1  | 23:GB:176:ILE:O    | 2.22                     | 0.66              |
| 32:GK:21:ARG:HH12 | 45:GX:40:ILE:HG22  | 1.61                     | 0.66              |
| 34:GM:179:ARG:HE  | 34:GM:185:ARG:NH2  | 1.92                     | 0.66              |
| 43:GV:96:VAL:HG22 | 43:GV:126:ARG:HG3  | 1.76                     | 0.66              |
| 46:GY:26:VAL:HG12 | 46:GY:30:GLU:HG3   | 1.77                     | 0.66              |
| 1:H1:62:G:O6      | 50:H1:3627:HOH:O   | 2.12                     | 0.66              |
| 1:H1:2216:G:O6    | 16:HQ:75:LYS:NZ    | 2.28                     | 0.66              |
| 1:H1:3198:A:H2'   | 1:H1:3199:G:O4'    | 1.95                     | 0.66              |
| 1:H1:3232:A:H4'   | 5:HE:55:ALA:CB     | 2.26                     | 0.66              |
| 9:HJ:39:GLU:HB3   | 9:HJ:43:VAL:CG2    | 2.26                     | 0.66              |
| 9:HJ:70:LEU:HB3   | 9:HJ:94:VAL:HG22   | 1.77                     | 0.66              |
| 13:HN:41:VAL:HG12 | 13:HN:43:VAL:CG2   | 2.26                     | 0.66              |
| 14:HO:13:ASN:OD1  | 14:HO:15:PHE:N     | 2.27                     | 0.66              |
| 1:A1:363:G:H8     | 1:A1:363:G:H5'     | 1.58                     | 0.66              |
| 1:A1:388:A:OP2    | 50:A1:4772:HOH:O   | 2.13                     | 0.66              |
| 1:A1:682:G:C8     | 50:A1:3843:HOH:O   | 2.49                     | 0.66              |
| 1:A1:861:A:O2'    | 46:BY:12:ARG:HB3   | 1.96                     | 0.66              |
| 1:A1:1214:C:OP1   | 26:BE:1:MET:HE3    | 1.96                     | 0.66              |
| 1:A1:1389:G:H1'   | 43:BV:156:GLN:OE1  | 1.96                     | 0.66              |
| 1:A1:2966:U:O2'   | 1:A1:2967:U:H5'    | 1.96                     | 0.66              |
| 23:BB:58:ARG:HH21 | 23:BB:60:VAL:CG1   | 2.09                     | 0.66              |
| 35:BN:16:VAL:HG12 | 35:BN:17:VAL:H     | 1.61                     | 0.66              |
| 35:BN:16:VAL:CG1  | 35:BN:17:VAL:H     | 2.08                     | 0.66              |
| 35:BN:93:LEU:O    | 35:BN:113:ARG:NH2  | 2.16                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:C2:114:G:H8     | 20:C2:114:G:H3'    | 1.61                     | 0.66              |
| 23:CB:119:TYR:CD2  | 23:CB:122:TRP:HZ3  | 2.13                     | 0.66              |
| 24:CC:105:ARG:HG2  | 24:CC:105:ARG:NH1  | 2.03                     | 0.66              |
| 26:CE:34:ILE:HG22  | 26:CE:78:MET:HE3   | 1.77                     | 0.66              |
| 32:CK:21:ARG:HG3   | 1:D1:1396:A:H4'    | 1.78                     | 0.66              |
| 35:CN:16:VAL:CG1   | 35:CN:17:VAL:H     | 2.07                     | 0.66              |
| 35:CN:21:LYS:O     | 1:D1:696:A:H5''    | 1.96                     | 0.66              |
| 35:CN:89:ASN:OD1   | 35:CN:90:ASP:N     | 2.28                     | 0.66              |
| 1:D1:132:U:HO2'    | 1:D1:133:C:P       | 2.19                     | 0.66              |
| 1:D1:568:A:C2      | 1:D1:602:A:C2      | 2.84                     | 0.66              |
| 1:D1:842:A:N7      | 2:DA:15:THR:HG23   | 2.09                     | 0.66              |
| 1:D1:1146:C:H42    | 17:DT:10:LYS:NZ    | 1.93                     | 0.66              |
| 1:D1:2944:A:OP2    | 50:D1:4282:HOH:O   | 2.14                     | 0.66              |
| 11:DL:5:ILE:CG2    | 11:DL:6:THR:H      | 2.08                     | 0.66              |
| 11:DL:5:ILE:CG2    | 11:DL:6:THR:N      | 2.59                     | 0.66              |
| 18:DU:124:PHE:HE2  | 18:DU:142:THR:HA   | 1.59                     | 0.66              |
| 23:EB:120:LYS:HD2  | 1:F1:3257:U:OP1    | 1.96                     | 0.66              |
| 23:EB:330:LYS:O    | 23:EB:331:LYS:HB2  | 1.96                     | 0.66              |
| 24:EC:200:LYS:NZ   | 1:F1:1445:G:H5''   | 2.11                     | 0.66              |
| 29:EH:41:ALA:HB3   | 29:EH:139:ARG:NH2  | 2.11                     | 0.66              |
| 30:EI:79:PHE:HD2   | 30:EI:103:ILE:HD13 | 1.61                     | 0.66              |
| 33:EL:169:ARG:NH2  | 1:F1:62:G:OP2      | 2.28                     | 0.66              |
| 34:EM:250:VAL:HG12 | 34:EM:254:ILE:HD11 | 1.78                     | 0.66              |
| 43:EV:63:LYS:HG2   | 43:EV:64:ARG:N     | 2.10                     | 0.66              |
| 1:F1:563:G:H5'     | 1:F1:564:A:OP2     | 1.95                     | 0.66              |
| 1:F1:861:A:H62     | 1:F1:882:G:H1'     | 1.61                     | 0.66              |
| 1:F1:2394:A:N7     | 50:F1:4139:HOH:O   | 2.28                     | 0.66              |
| 5:FE:113:GLU:HG3   | 5:FE:114:ASP:H     | 1.60                     | 0.66              |
| 8:FH:15:TRP:CD1    | 8:FH:105:ARG:HG2   | 2.31                     | 0.66              |
| 18:FU:56:VAL:CG1   | 18:FU:57:ARG:H     | 2.09                     | 0.66              |
| 18:FU:59:GLN:O     | 18:FU:59:GLN:HG2   | 1.95                     | 0.66              |
| 22:GA:10:LYS:HD2   | 1:H1:2178:A:OP1    | 1.95                     | 0.66              |
| 23:GB:81:CYS:CB    | 23:GB:203:VAL:HG21 | 2.25                     | 0.66              |
| 23:GB:123:ALA:HB1  | 1:H1:3276:C:OP1    | 1.96                     | 0.66              |
| 38:GQ:71:ARG:HG2   | 38:GQ:81:THR:HG22  | 1.77                     | 0.66              |
| 42:GU:21:GLU:HG2   | 42:GU:58:TYR:CZ    | 2.31                     | 0.66              |
| 1:H1:532:G:OP1     | 5:HE:127:LYS:NZ    | 2.29                     | 0.66              |
| 1:H1:820:G:H2'     | 1:H1:821:U:H5'     | 1.76                     | 0.66              |
| 1:H1:1127:U:H2'    | 1:H1:1128:G:H8     | 1.60                     | 0.66              |
| 1:H1:2399:A:N3     | 1:H1:2399:A:H2'    | 2.11                     | 0.66              |
| 1:H1:2718:U:O5'    | 50:H1:4319:HOH:O   | 2.13                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:HE:179:THR:HG22  | 5:HE:180:LEU:O     | 1.96                     | 0.66              |
| 5:HE:190:LYS:HD2   | 6:HF:101:ALA:O     | 1.95                     | 0.66              |
| 1:A1:2264:U:H2'    | 1:A1:2264:U:O2     | 1.94                     | 0.66              |
| 1:A1:2416:U:H2'    | 1:A1:2417:C:O4'    | 1.96                     | 0.66              |
| 1:A1:2544:U:H4'    | 7:AG:50:THR:OG1    | 1.95                     | 0.66              |
| 1:A1:2552:A:H1'    | 27:BF:25:LYS:HB2   | 1.78                     | 0.66              |
| 2:AA:20:ARG:NH2    | 20:B2:111:A:C5     | 2.64                     | 0.66              |
| 2:AA:71:ILE:HD13   | 20:B2:38:C:H4'     | 1.77                     | 0.66              |
| 20:B2:27:G:OP2     | 40:BS:12:ARG:NH1   | 2.26                     | 0.66              |
| 21:B3:13:A:O2'     | 34:BM:24:ARG:NH2   | 2.29                     | 0.66              |
| 28:BG:23:UNK:HB2   | 28:BG:92:UNK:HB2   | 1.78                     | 0.66              |
| 33:BL:183:SER:HA   | 33:BL:191:ASN:HD22 | 1.59                     | 0.66              |
| 37:BP:68:ASN:HB3   | 37:BP:69:PRO:HD2   | 1.77                     | 0.66              |
| 46:BY:57:CYS:SG    | 46:BY:59:PRO:HD2   | 2.36                     | 0.66              |
| 20:C2:58:U:N3      | 20:C2:65:C:H5      | 1.92                     | 0.66              |
| 26:CE:7:GLU:CD     | 26:CE:54:LYS:HE2   | 2.21                     | 0.66              |
| 46:CY:26:VAL:HG12  | 46:CY:30:GLU:HG3   | 1.77                     | 0.66              |
| 1:D1:282:G:H22     | 1:D1:304:U:H5'     | 1.61                     | 0.66              |
| 1:D1:454:A:H61     | 1:D1:524:G:H1'     | 1.60                     | 0.66              |
| 1:D1:467:A:C6      | 1:D1:468:A:C5      | 2.84                     | 0.66              |
| 1:D1:548:G:H1      | 1:D1:619:G:H22     | 1.44                     | 0.66              |
| 1:D1:1051:C:H2'    | 1:D1:1052:A:C8     | 2.30                     | 0.66              |
| 2:DA:21:ARG:CD     | 2:DA:44:MET:HE1    | 2.26                     | 0.66              |
| 19:DX:113:LEU:HD11 | 19:DX:140:THR:HG21 | 1.76                     | 0.66              |
| 28:EG:14:UNK:O     | 28:EG:18:UNK:HG2   | 1.96                     | 0.66              |
| 31:EJ:86:ARG:H     | 31:EJ:102:ASN:HD21 | 1.43                     | 0.66              |
| 33:EL:120:TRP:CH2  | 33:EL:122:GLY:HA2  | 2.30                     | 0.66              |
| 33:EL:183:SER:HA   | 33:EL:191:ASN:HD21 | 1.54                     | 0.66              |
| 37:EP:40:VAL:HG11  | 37:EP:96:VAL:HG13  | 1.78                     | 0.66              |
| 37:EP:68:ASN:HB3   | 37:EP:69:PRO:HD2   | 1.78                     | 0.66              |
| 41:ET:57:ARG:NH1   | 1:F1:3321:U:OP1    | 2.29                     | 0.66              |
| 43:EV:8:ASN:HB3    | 1:F1:1376:A:H2'    | 1.77                     | 0.66              |
| 43:EV:178:VAL:O    | 43:EV:182:ILE:HG13 | 1.96                     | 0.66              |
| 1:F1:634:G:H5'     | 5:FE:30:ARG:HH22   | 1.61                     | 0.66              |
| 8:FH:15:TRP:NE1    | 8:FH:105:ARG:HG2   | 2.11                     | 0.66              |
| 9:FJ:145:ASN:HD22  | 9:FJ:146:VAL:N     | 1.94                     | 0.66              |
| 20:G2:74:A:H5''    | 40:GS:50:ARG:HE    | 1.60                     | 0.66              |
| 20:G2:114:G:H3'    | 20:G2:114:G:C8     | 2.31                     | 0.66              |
| 22:GA:244:THR:HG21 | 1:H1:2239:A:C4'    | 2.26                     | 0.66              |
| 34:GM:33:ARG:NH2   | 34:GM:72:ASP:OD2   | 2.29                     | 0.66              |
| 42:GU:76:GLY:HA2   | 1:H1:133:C:C2'     | 2.25                     | 0.66              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 45:GX:80:ASN:HB3   | 1:H1:1413:G:O2'   | 1.96                     | 0.66              |
| 1:H1:257:G:C2'     | 1:H1:258:A:H5'    | 2.25                     | 0.66              |
| 1:H1:548:G:H22     | 1:H1:619:G:H21    | 1.44                     | 0.66              |
| 1:H1:2975:A:H2'    | 1:H1:2976:C:C6    | 2.31                     | 0.66              |
| 1:H1:3332:A:O2'    | 1:H1:3333:G:OP1   | 2.11                     | 0.66              |
| 1:A1:1376:A:C5'    | 1:A1:1377:A:H5'   | 2.26                     | 0.66              |
| 1:A1:1425:U:H4'    | 1:A1:1426:G:OP1   | 1.94                     | 0.66              |
| 1:A1:1897:U:OP1    | 36:BO:56:VAL:HG23 | 1.96                     | 0.66              |
| 1:A1:2862:G:OP2    | 50:A1:4264:HOH:O  | 2.13                     | 0.66              |
| 1:A1:3044:A:H2'    | 1:A1:3074:G:N1    | 2.11                     | 0.66              |
| 14:AO:16:LEU:CD1   | 14:AO:35:ASN:HD22 | 2.09                     | 0.66              |
| 18:AU:54:PRO:HD3   | 18:AU:73:PHE:CE2  | 2.30                     | 0.66              |
| 21:B3:2:U:H4'      | 34:BM:278:TYR:CZ  | 2.31                     | 0.66              |
| 21:B3:105:C:H6     | 21:B3:105:C:C5'   | 2.09                     | 0.66              |
| 27:BF:75:LYS:O     | 27:BF:172:PHE:HB2 | 1.96                     | 0.66              |
| 34:BM:34:LYS:O     | 34:BM:38:ILE:HG23 | 1.96                     | 0.66              |
| 34:BM:66:TYR:OH    | 34:BM:73:ARG:HD2  | 1.96                     | 0.66              |
| 36:BO:115:ILE:HG22 | 36:BO:119:GLN:CB  | 2.26                     | 0.66              |
| 20:C2:105:A:C8     | 20:C2:106:A:C8    | 2.84                     | 0.66              |
| 32:CK:100:PRO:HA   | 18:DU:164:LYS:CD  | 2.26                     | 0.66              |
| 34:CM:122:GLN:NE2  | 34:CM:126:ASP:OD2 | 2.28                     | 0.66              |
| 35:CN:73:ASN:H     | 35:CN:76:ASN:CB   | 2.09                     | 0.66              |
| 42:CU:21:GLU:HG2   | 42:CU:58:TYR:CZ   | 2.31                     | 0.66              |
| 1:D1:169:A:OP2     | 1:D1:249:G:N2     | 2.29                     | 0.66              |
| 1:D1:453:A:H2'     | 1:D1:454:A:H8     | 1.61                     | 0.66              |
| 1:D1:1130:A:C5'    | 1:D1:1131:G:OP2   | 2.44                     | 0.66              |
| 1:D1:1598:C:H2'    | 1:D1:1599:G:H5'   | 1.78                     | 0.66              |
| 1:D1:2181:U:H2'    | 1:D1:2182:G:O4'   | 1.96                     | 0.66              |
| 1:D1:2356:A:C2'    | 1:D1:2357:C:O5'   | 2.44                     | 0.66              |
| 1:D1:2686:A:H2'    | 1:D1:2687:G:C8    | 2.31                     | 0.66              |
| 1:D1:3263:G:H4'    | 1:D1:3264:U:O5'   | 1.94                     | 0.66              |
| 5:DE:49:THR:HG22   | 5:DE:50:VAL:N     | 2.10                     | 0.66              |
| 11:DL:37:LYS:HB2   | 11:DL:60:ARG:NH2  | 2.11                     | 0.66              |
| 23:EB:238:LYS:HE3  | 1:F1:2332:C:OP2   | 1.95                     | 0.66              |
| 23:EB:371:VAL:HG13 | 23:EB:382:ARG:CZ  | 2.26                     | 0.66              |
| 35:EN:45:PHE:HE1   | 35:EN:139:LEU:HB2 | 1.59                     | 0.66              |
| 35:EN:92:ARG:CZ    | 1:F1:810:G:N7     | 2.59                     | 0.66              |
| 1:F1:713:G:O6      | 1:F1:716:A:OP2    | 2.13                     | 0.66              |
| 1:F1:1035:A:H2'    | 1:F1:1036:G:C8    | 2.30                     | 0.66              |
| 1:F1:1920:A:OP2    | 50:F1:4307:HOH:O  | 2.11                     | 0.66              |
| 1:F1:2256:G:H3'    | 1:F1:2257:A:C5'   | 2.25                     | 0.66              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2744:C:OP2    | 50:F1:4482:HOH:O   | 2.14                     | 0.66              |
| 1:F1:3157:C:H4'    | 1:F1:3158:G:C5'    | 2.25                     | 0.66              |
| 1:F1:3185:G:C4     | 1:F1:3237:C:N3     | 2.64                     | 0.66              |
| 8:FH:15:TRP:CH2    | 8:FH:105:ARG:CZ    | 2.79                     | 0.66              |
| 18:FU:177:VAL:O    | 18:FU:181:ILE:HG13 | 1.96                     | 0.66              |
| 22:GA:33:TYR:HA    | 22:GA:164:ARG:NH2  | 2.11                     | 0.66              |
| 23:GB:371:VAL:HG13 | 23:GB:382:ARG:CZ   | 2.26                     | 0.66              |
| 24:GC:115:ARG:HG2  | 24:GC:115:ARG:O    | 1.96                     | 0.66              |
| 24:GC:272:THR:HG22 | 24:GC:273:TYR:H    | 1.60                     | 0.66              |
| 36:GO:114:LYS:HB3  | 36:GO:146:LYS:NZ   | 2.10                     | 0.66              |
| 1:H1:592:A:H2'     | 1:H1:593:U:C6      | 2.32                     | 0.66              |
| 1:H1:607:U:O2'     | 1:H1:608:C:H5'     | 1.94                     | 0.66              |
| 1:H1:1051:C:C2     | 1:H1:1052:A:C8     | 2.84                     | 0.66              |
| 1:H1:1617:G:HO2'   | 1:H1:1618:A:P      | 2.19                     | 0.66              |
| 1:H1:2641:U:H5'    | 4:HC:63:THR:HG21   | 1.77                     | 0.66              |
| 1:H1:2875:A:H2'    | 1:H1:2875:A:N3     | 2.11                     | 0.66              |
| 1:H1:2930:C:H3'    | 50:H1:3940:HOH:O   | 1.95                     | 0.66              |
| 1:H1:3168:A:OP1    | 1:H1:3168:A:C8     | 2.46                     | 0.66              |
| 5:HE:42:ARG:NH2    | 5:HE:92:GLN:O      | 2.28                     | 0.66              |
| 12:HM:35:PHE:HE1   | 12:HM:39:LEU:HD11  | 1.61                     | 0.66              |
| 18:HU:146:ALA:HB1  | 18:HU:148:ASN:ND2  | 2.11                     | 0.66              |
| 1:A1:449:G:H2'     | 1:A1:450:C:H6      | 1.61                     | 0.65              |
| 1:A1:752:C:H5'     | 1:A1:1002:A:C2     | 2.31                     | 0.65              |
| 1:A1:2208:A:H3'    | 50:A1:4561:HOH:O   | 1.95                     | 0.65              |
| 1:A1:2761:U:O2     | 18:AU:190:TRP:HZ2  | 1.78                     | 0.65              |
| 1:A1:3198:A:H2'    | 1:A1:3199:G:O4'    | 1.96                     | 0.65              |
| 9:AJ:43:VAL:HG12   | 9:AJ:44:PRO:CD     | 2.25                     | 0.65              |
| 19:AX:94:LYS:HA    | 19:AX:102:HIS:O    | 1.95                     | 0.65              |
| 21:B3:1:G:H4'      | 34:BM:275:LYS:HZ3  | 1.61                     | 0.65              |
| 21:B3:81:A:H2'     | 21:B3:82:G:C5'     | 2.26                     | 0.65              |
| 34:BM:163:LEU:HD12 | 34:BM:173:ILE:HG21 | 1.76                     | 0.65              |
| 37:BP:91:VAL:HG12  | 37:BP:92:LYS:O     | 1.94                     | 0.65              |
| 22:CA:244:THR:HG21 | 1:D1:2239:A:C4'    | 2.26                     | 0.65              |
| 25:CD:124:GLY:HA3  | 1:D1:2663:A:C6     | 2.30                     | 0.65              |
| 30:CI:37:THR:O     | 30:CI:40:ILE:HG13  | 1.97                     | 0.65              |
| 32:CK:91:LYS:HE2   | 32:CK:92:TYR:CZ    | 2.31                     | 0.65              |
| 45:CX:79:ARG:NH1   | 1:D1:1448:G:C4'    | 2.59                     | 0.65              |
| 46:CY:71:LEU:O     | 46:CY:71:LEU:HD12  | 1.96                     | 0.65              |
| 1:D1:1926:G:OP1    | 50:D1:4615:HOH:O   | 2.13                     | 0.65              |
| 1:D1:2251:A:H2'    | 1:D1:2252:C:OP1    | 1.96                     | 0.65              |
| 21:E3:9:C:H5''     | 21:E3:10:C:OP2     | 1.96                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:EE:88:PHE:CD1   | 26:EE:182:LYS:HA   | 2.30                     | 0.65              |
| 30:EI:69:VAL:CG2   | 1:F1:2377:G:O2'    | 2.43                     | 0.65              |
| 35:EN:31:ILE:HG22  | 35:EN:35:LYS:HE3   | 1.78                     | 0.65              |
| 36:EO:96:MET:HG2   | 1:F1:1746:U:H1'    | 1.78                     | 0.65              |
| 1:F1:1047:G:O2'    | 1:F1:1048:U:H5'    | 1.97                     | 0.65              |
| 1:F1:1078:U:C5     | 1:F1:1079:A:C8     | 2.83                     | 0.65              |
| 1:F1:1921:G:C2'    | 1:F1:1922:G:H5'    | 2.27                     | 0.65              |
| 1:F1:2209:A:OP2    | 50:F1:4394:HOH:O   | 2.14                     | 0.65              |
| 20:G2:3:A:C2       | 1:H1:3243:A:O4'    | 2.49                     | 0.65              |
| 21:G3:83:G:H22     | 21:G3:93:G:H21     | 1.44                     | 0.65              |
| 29:GH:38:ARG:HD3   | 29:GH:41:ALA:HB2   | 1.77                     | 0.65              |
| 37:GP:5:TYR:O      | 1:H1:2619:C:OP1    | 2.13                     | 0.65              |
| 40:GS:121:LYS:HE2  | 1:H1:186:U:OP1     | 1.97                     | 0.65              |
| 42:GU:74:PHE:HB3   | 42:GU:80:LYS:HE3   | 1.77                     | 0.65              |
| 1:H1:485:A:C4'     | 1:H1:486:C:OP1     | 2.40                     | 0.65              |
| 1:H1:985:U:H5''    | 50:H1:4324:HOH:O   | 1.95                     | 0.65              |
| 1:H1:2309:U:H4'    | 50:H1:3960:HOH:O   | 1.95                     | 0.65              |
| 1:H1:2349:C:N4     | 50:H1:4257:HOH:O   | 2.03                     | 0.65              |
| 1:H1:2640:G:O2'    | 1:H1:2784:G:C6     | 2.46                     | 0.65              |
| 13:HN:22:LYS:NZ    | 13:HN:140:SER:HB3  | 2.11                     | 0.65              |
| 14:HO:75:THR:HG21  | 14:HO:77:GLU:CD    | 2.21                     | 0.65              |
| 18:HU:100:LYS:HE2  | 18:HU:102:ARG:HH21 | 1.60                     | 0.65              |
| 1:A1:71:U:C5       | 18:AU:64:ASN:HB3   | 2.30                     | 0.65              |
| 1:A1:838:G:H1'     | 2:AA:50:TRP:HZ2    | 1.62                     | 0.65              |
| 1:A1:1181:A:C4'    | 1:A1:1182:C:OP2    | 2.44                     | 0.65              |
| 5:AE:179:THR:HG22  | 5:AE:180:LEU:O     | 1.96                     | 0.65              |
| 27:BF:92:TYR:HE2   | 27:BF:123:ILE:HG21 | 1.61                     | 0.65              |
| 40:BS:34:LEU:HD12  | 40:BS:44:VAL:O     | 1.96                     | 0.65              |
| 41:BT:5:THR:CG2    | 41:BT:14:ARG:HG3   | 2.24                     | 0.65              |
| 21:C3:93:G:H8      | 21:C3:93:G:O5'     | 1.79                     | 0.65              |
| 26:CE:38:PHE:CD2   | 26:CE:71:ILE:HG23  | 2.31                     | 0.65              |
| 32:CK:75:VAL:CG2   | 32:CK:109:PHE:CG   | 2.79                     | 0.65              |
| 32:CK:119:PRO:HG3  | 35:CN:94:LEU:CD1   | 2.27                     | 0.65              |
| 1:D1:419:A:C2      | 1:D1:2358:A:H4'    | 2.31                     | 0.65              |
| 1:D1:732:C:O2      | 1:D1:778:G:O2'     | 2.13                     | 0.65              |
| 6:DF:112:MET:O     | 6:DF:116:LYS:HG3   | 1.95                     | 0.65              |
| 18:DU:22:THR:HG23  | 18:DU:24:PHE:HD1   | 1.60                     | 0.65              |
| 24:EC:215:VAL:CG1  | 24:EC:238:VAL:HG22 | 2.22                     | 0.65              |
| 32:EK:61:ARG:NH2   | 1:F1:88:U:OP1      | 2.27                     | 0.65              |
| 34:EM:184:VAL:HB   | 34:EM:194:LYS:HB2  | 1.77                     | 0.65              |
| 36:EO:115:ILE:HG22 | 36:EO:119:GLN:CB   | 2.26                     | 0.65              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 41:ET:41:LEU:HD13 | 41:ET:51:ILE:HD13  | 1.77                     | 0.65              |
| 42:EU:21:GLU:HG2  | 42:EU:58:TYR:CZ    | 2.31                     | 0.65              |
| 43:EV:88:GLY:HA3  | 1:F1:1185:A:H5''   | 1.78                     | 0.65              |
| 43:EV:96:VAL:HG22 | 43:EV:126:ARG:HG3  | 1.79                     | 0.65              |
| 43:EV:118:LYS:O   | 43:EV:122:ASN:HB2  | 1.97                     | 0.65              |
| 1:F1:25:C:H1'     | 1:F1:327:U:H1'     | 1.78                     | 0.65              |
| 1:F1:579:G:O2'    | 19:FX:159:ALA:N    | 2.29                     | 0.65              |
| 1:F1:756:C:H2'    | 1:F1:757:C:H5''    | 1.76                     | 0.65              |
| 1:F1:970:C:H2'    | 1:F1:971:C:H6      | 1.61                     | 0.65              |
| 1:F1:1215:U:H3    | 1:F1:1344:A:N6     | 1.94                     | 0.65              |
| 4:FC:26:TYR:HB3   | 4:FC:67:ALA:HB3    | 1.78                     | 0.65              |
| 16:FQ:58:ILE:O    | 16:FQ:62:ILE:HG13  | 1.96                     | 0.65              |
| 20:G2:37:A:C2     | 2:HA:72:ALA:HA     | 2.31                     | 0.65              |
| 24:GC:65:MET:HE3  | 24:GC:105:ARG:HH11 | 1.60                     | 0.65              |
| 24:GC:170:LYS:HE3 | 1:H1:209:A:OP2     | 1.96                     | 0.65              |
| 24:GC:175:PHE:CE1 | 24:GC:179:VAL:HG21 | 2.30                     | 0.65              |
| 24:GC:185:VAL:O   | 24:GC:188:VAL:HG22 | 1.96                     | 0.65              |
| 32:GK:119:PRO:HG3 | 35:GN:94:LEU:CD1   | 2.25                     | 0.65              |
| 33:GL:30:TYR:CD2  | 33:GL:63:ARG:HD3   | 2.30                     | 0.65              |
| 39:GR:120:THR:O   | 39:GR:121:LEU:HD23 | 1.96                     | 0.65              |
| 40:GS:30:MET:HE3  | 40:GS:77:TRP:CE3   | 2.31                     | 0.65              |
| 45:GX:87:LEU:O    | 45:GX:91:ASN:N     | 2.29                     | 0.65              |
| 46:GY:45:VAL:O    | 46:GY:45:VAL:CG2   | 2.43                     | 0.65              |
| 1:H1:357:G:OP2    | 50:H1:3691:HOH:O   | 2.15                     | 0.65              |
| 1:H1:1598:C:H2'   | 1:H1:1599:G:H5'    | 1.78                     | 0.65              |
| 1:H1:2253:U:O2'   | 1:H1:2254:A:H5'    | 1.95                     | 0.65              |
| 1:H1:2741:U:H4'   | 1:H1:2742:G:OP2    | 1.96                     | 0.65              |
| 5:HE:113:GLU:HG3  | 5:HE:114:ASP:H     | 1.59                     | 0.65              |
| 7:HG:102:LYS:O    | 7:HG:103:THR:OG1   | 2.12                     | 0.65              |
| 8:HH:23:PHE:CD2   | 8:HH:32:SER:HA     | 2.30                     | 0.65              |
| 14:HO:90:VAL:CG1  | 14:HO:111:LEU:HD11 | 2.26                     | 0.65              |
| 16:HQ:15:THR:CG2  | 18:HU:103:CYS:SG   | 2.84                     | 0.65              |
| 18:HU:54:PRO:HD3  | 18:HU:73:PHE:CD2   | 2.32                     | 0.65              |
| 1:A1:243:G:H5'    | 1:A1:243:G:C8      | 2.30                     | 0.65              |
| 1:A1:711:U:H3     | 1:A1:718:A:N6      | 1.92                     | 0.65              |
| 1:A1:784:G:H1'    | 1:A1:796:A:N6      | 2.11                     | 0.65              |
| 1:A1:1153:G:O2'   | 29:BH:118:ALA:HB3  | 1.95                     | 0.65              |
| 1:A1:1773:G:OP1   | 15:AP:43:LYS:NZ    | 2.22                     | 0.65              |
| 1:A1:2330:G:N7    | 50:A1:4466:HOH:O   | 2.28                     | 0.65              |
| 1:A1:2678:A:H1'   | 1:A1:2691:A:H62    | 1.61                     | 0.65              |
| 1:A1:2761:U:H4'   | 1:A1:2762:U:OP1    | 1.96                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2952:G:N2     | 1:A1:2955:A:OP2    | 2.28                     | 0.65              |
| 1:A1:3214:A:H5''   | 1:A1:3215:C:C6     | 2.30                     | 0.65              |
| 1:A1:3228:U:O2     | 5:AE:142:GLU:HG3   | 1.97                     | 0.65              |
| 11:AL:41:TYR:HB3   | 11:AL:58:GLN:HE21  | 1.58                     | 0.65              |
| 18:AU:52:LEU:HD23  | 18:AU:93:ILE:HG23  | 1.78                     | 0.65              |
| 20:B2:86:G:N1      | 40:BS:111:ASP:OD2  | 2.29                     | 0.65              |
| 22:BA:254:LYS:O    | 22:BA:258:LYS:HG3  | 1.97                     | 0.65              |
| 24:BC:81:ILE:HD13  | 24:BC:101:CYS:SG   | 2.36                     | 0.65              |
| 32:BK:14:HIS:O     | 32:BK:15:VAL:HG22  | 1.96                     | 0.65              |
| 43:BV:194:GLU:OE1  | 43:BV:194:GLU:N    | 2.28                     | 0.65              |
| 45:BX:87:LEU:O     | 45:BX:91:ASN:N     | 2.30                     | 0.65              |
| 21:C3:60:C:H5''    | 34:CM:281:LYS:HG2  | 1.76                     | 0.65              |
| 22:CA:20:HIS:HD2   | 22:CA:193:LYS:O    | 1.78                     | 0.65              |
| 24:CC:32:PRO:CG    | 24:CC:286:GLN:HB3  | 2.26                     | 0.65              |
| 24:CC:195:ARG:HD3  | 24:CC:199:GLY:HA3  | 1.78                     | 0.65              |
| 25:CD:101:ASN:HD21 | 25:CD:130:VAL:HG13 | 1.60                     | 0.65              |
| 27:CF:71:HIS:CE1   | 27:CF:226:GLY:HA3  | 2.30                     | 0.65              |
| 27:CF:130:ASN:HB2  | 1:D1:148:G:O6      | 1.95                     | 0.65              |
| 30:CI:16:GLY:O     | 30:CI:19:ALA:HB3   | 1.96                     | 0.65              |
| 30:CI:196:PHE:CD1  | 6:DF:111:VAL:HG22  | 2.31                     | 0.65              |
| 35:CN:173:LYS:NZ   | 1:D1:87:A:OP2      | 2.28                     | 0.65              |
| 47:CO:65:ALA:O     | 47:CO:68:GLU:HB3   | 1.96                     | 0.65              |
| 1:D1:1134:C:C2'    | 1:D1:1135:U:H5''   | 2.26                     | 0.65              |
| 1:D1:2574:U:H5'    | 1:D1:2575:G:OP1    | 1.96                     | 0.65              |
| 1:D1:2860:A:N3     | 1:D1:2860:A:H5'    | 2.11                     | 0.65              |
| 1:D1:2994:G:O2'    | 1:D1:2995:A:H8     | 1.80                     | 0.65              |
| 1:D1:3167:U:C4'    | 1:D1:3168:A:O5'    | 2.42                     | 0.65              |
| 1:D1:3168:A:C5     | 19:DX:166:VAL:HG11 | 2.31                     | 0.65              |
| 9:DJ:39:GLU:HB3    | 9:DJ:43:VAL:CG2    | 2.26                     | 0.65              |
| 14:DO:110:LYS:O    | 14:DO:114:PHE:HB2  | 1.96                     | 0.65              |
| 17:DT:55:LYS:HB3   | 17:DT:59:LEU:HD23  | 1.78                     | 0.65              |
| 22:EA:14:ASN:HB3   | 1:F1:930:U:H5'     | 1.79                     | 0.65              |
| 24:EC:42:PHE:CZ    | 24:EC:46:ASN:ND2   | 2.64                     | 0.65              |
| 24:EC:299:ILE:HD12 | 1:F1:1375:A:C2     | 2.31                     | 0.65              |
| 27:EF:127:TYR:CZ   | 1:F1:117:G:N2      | 2.65                     | 0.65              |
| 35:EN:2:ALA:HB2    | 1:F1:1186:A:H3'    | 1.79                     | 0.65              |
| 45:EX:87:LEU:O     | 45:EX:91:ASN:N     | 2.29                     | 0.65              |
| 1:F1:1181:A:C4'    | 1:F1:1182:C:OP2    | 2.45                     | 0.65              |
| 1:F1:1600:U:C4     | 1:F1:1601:U:C4     | 2.85                     | 0.65              |
| 1:F1:2640:G:O2'    | 1:F1:2784:G:C6     | 2.49                     | 0.65              |
| 1:F1:2997:A:O2'    | 1:F1:2998:G:H5'    | 1.97                     | 0.65              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 3:FB:33:THR:CG2    | 3:FB:35:ILE:H     | 2.03                     | 0.65              |
| 5:FE:19:TYR:OH     | 14:FO:109:LYS:HG2 | 1.96                     | 0.65              |
| 14:FO:62:LEU:HD11  | 14:FO:97:ARG:CD   | 2.27                     | 0.65              |
| 20:G2:33:C:H2'     | 20:G2:34:G:H5'    | 1.79                     | 0.65              |
| 23:GB:281:TYR:CE2  | 23:GB:323:LYS:HB2 | 2.31                     | 0.65              |
| 23:GB:375:ASP:HB3  | 23:GB:380:ARG:O   | 1.97                     | 0.65              |
| 32:GK:60:MET:C     | 35:GN:172:ARG:NH1 | 2.54                     | 0.65              |
| 37:GP:41:ASP:OD1   | 37:GP:61:THR:OG1  | 2.07                     | 0.65              |
| 38:GQ:34:VAL:HG22  | 38:GQ:60:ILE:CD1  | 2.27                     | 0.65              |
| 45:GX:60:ALA:HA    | 1:H1:1431:U:H5'   | 1.78                     | 0.65              |
| 1:H1:368:A:H5'     | 1:H1:369:U:OP2    | 1.97                     | 0.65              |
| 1:H1:792:G:H5'     | 18:HU:190:TRP:CE2 | 2.31                     | 0.65              |
| 1:H1:1252:A:C2     | 1:H1:3105:G:N7    | 2.64                     | 0.65              |
| 1:H1:2574:U:C4'    | 1:H1:2575:G:OP1   | 2.44                     | 0.65              |
| 5:HE:63:VAL:HG11   | 5:HE:76:VAL:HG13  | 1.79                     | 0.65              |
| 1:A1:633:C:H3'     | 5:AE:30:ARG:HH22  | 1.61                     | 0.65              |
| 1:A1:686:U:C1'     | 24:BC:107:PHE:HE2 | 2.07                     | 0.65              |
| 1:A1:1700:A:OP2    | 12:AM:74:SER:HB2  | 1.96                     | 0.65              |
| 1:A1:1758:U:C4'    | 1:A1:1759:C:OP2   | 2.42                     | 0.65              |
| 1:A1:2343:A:H3'    | 1:A1:2344:U:C5'   | 2.25                     | 0.65              |
| 1:A1:2387:C:HO2'   | 23:BB:264:ARG:NH2 | 1.89                     | 0.65              |
| 1:A1:2875:A:N3     | 1:A1:2875:A:H2'   | 2.10                     | 0.65              |
| 1:A1:2884:A:N6     | 50:A1:4593:HOH:O  | 2.16                     | 0.65              |
| 1:A1:3011:G:H4'    | 1:A1:3012:U:O5'   | 1.96                     | 0.65              |
| 21:B3:62:U:O2'     | 21:B3:63:A:OP1    | 2.13                     | 0.65              |
| 22:BA:12:ARG:HH21  | 22:BA:14:ASN:HD22 | 1.43                     | 0.65              |
| 23:BB:194:LYS:HA   | 23:BB:197:LEU:CD1 | 2.26                     | 0.65              |
| 24:BC:272:THR:HG22 | 24:BC:273:TYR:H   | 1.61                     | 0.65              |
| 31:BJ:124:LYS:HG3  | 31:BJ:141:VAL:C   | 2.22                     | 0.65              |
| 43:BV:212:ARG:O    | 50:BV:305:HOH:O   | 2.14                     | 0.65              |
| 46:BY:7:LYS:O      | 46:BY:27:LYS:NZ   | 2.26                     | 0.65              |
| 21:C3:116:A:O3'    | 34:CM:260:ARG:NH2 | 2.28                     | 0.65              |
| 24:CC:251:HIS:CD2  | 1:D1:1410:G:O2'   | 2.50                     | 0.65              |
| 32:CK:111:LYS:HG3  | 32:CK:129:TYR:HB2 | 1.78                     | 0.65              |
| 47:CO:170:UNK:HA   | 47:CO:174:UNK:CG  | 2.26                     | 0.65              |
| 38:CQ:62:PHE:CE1   | 38:CQ:84:ARG:HB2  | 2.31                     | 0.65              |
| 1:D1:121:A:N6      | 1:D1:150:A:N6     | 2.45                     | 0.65              |
| 1:D1:157:A:O5'     | 16:DQ:25:HIS:HE1  | 1.78                     | 0.65              |
| 1:D1:526:U:O2'     | 1:D1:527:A:H8     | 1.75                     | 0.65              |
| 1:D1:709:G:OP1     | 18:DU:37:ARG:NH2  | 2.28                     | 0.65              |
| 1:D1:842:A:OP2     | 50:D1:4088:HOH:O  | 2.13                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:978:G:C8      | 1:D1:1144:G:C8     | 2.84                     | 0.65              |
| 1:D1:2100:A:H2'    | 1:D1:2101:G:C5'    | 2.19                     | 0.65              |
| 1:D1:3011:G:H4'    | 1:D1:3012:U:O5'    | 1.96                     | 0.65              |
| 12:DM:55:ASN:HD22  | 12:DM:71:ILE:HD11  | 1.60                     | 0.65              |
| 21:E3:54:A:H5'     | 25:ED:7:ASN:ND2    | 2.11                     | 0.65              |
| 23:EB:54:THR:CG2   | 23:EB:55:HIS:H     | 2.09                     | 0.65              |
| 23:EB:162:THR:HB   | 23:EB:175:HIS:HB2  | 1.77                     | 0.65              |
| 33:EL:147:ARG:HE   | 42:EU:105:LEU:HD21 | 1.61                     | 0.65              |
| 35:EN:36:PHE:CE2   | 1:F1:1375:A:H2'    | 2.31                     | 0.65              |
| 43:EV:91:GLN:HE21  | 1:F1:1167:G:H4'    | 1.62                     | 0.65              |
| 43:EV:117:ASN:O    | 43:EV:121:LEU:HB2  | 1.97                     | 0.65              |
| 1:F1:526:U:O2'     | 1:F1:527:A:H8      | 1.77                     | 0.65              |
| 1:F1:548:G:H1      | 1:F1:619:G:H22     | 1.45                     | 0.65              |
| 1:F1:1004:U:H6     | 1:F1:1004:U:C5'    | 2.06                     | 0.65              |
| 1:F1:1361:U:H6     | 1:F1:1361:U:C5'    | 2.10                     | 0.65              |
| 1:F1:2276:A:H1'    | 1:F1:2962:U:O2'    | 1.95                     | 0.65              |
| 23:GB:238:LYS:HE3  | 1:H1:2332:C:OP2    | 1.97                     | 0.65              |
| 23:GB:382:ARG:O    | 23:GB:386:VAL:HG23 | 1.96                     | 0.65              |
| 24:GC:42:PHE:CZ    | 24:GC:46:ASN:ND2   | 2.65                     | 0.65              |
| 32:GK:106:LYS:HD3  | 18:HU:160:SER:CB   | 2.27                     | 0.65              |
| 34:GM:243:VAL:HG12 | 34:GM:247:PHE:HD2  | 1.59                     | 0.65              |
| 35:GN:45:PHE:CE1   | 35:GN:139:LEU:HD22 | 2.32                     | 0.65              |
| 36:GO:65:ALA:O     | 36:GO:68:GLU:HB3   | 1.96                     | 0.65              |
| 40:GS:59:ARG:NH1   | 1:H1:200:C:OP2     | 2.29                     | 0.65              |
| 1:H1:527:A:HO2'    | 14:HO:88:GLN:HE21  | 1.42                     | 0.65              |
| 1:H1:1563:A:OP2    | 50:H1:3846:HOH:O   | 2.14                     | 0.65              |
| 9:HJ:63:THR:HG22   | 9:HJ:72:VAL:HA     | 1.78                     | 0.65              |
| 11:HL:41:TYR:HB3   | 11:HL:58:GLN:HE21  | 1.61                     | 0.65              |
| 11:HL:73:THR:HG22  | 11:HL:74:VAL:H     | 1.60                     | 0.65              |
| 1:A1:816:A:OP1     | 24:BC:115:ARG:NH2  | 2.29                     | 0.65              |
| 1:A1:1027:G:H2'    | 1:A1:1027:G:N3     | 2.11                     | 0.65              |
| 1:A1:1187:C:C2     | 45:BX:47:ARG:NH1   | 2.64                     | 0.65              |
| 1:A1:1210:C:H5''   | 19:AX:171:ARG:HH21 | 1.60                     | 0.65              |
| 1:A1:1567:A:H61    | 1:A1:1578:U:H3     | 1.44                     | 0.65              |
| 1:A1:2931:G:C8     | 23:BB:2:SER:HB3    | 2.31                     | 0.65              |
| 1:A1:3115:C:H1'    | 26:BE:154:GLN:NE2  | 2.12                     | 0.65              |
| 5:AE:18:TRP:CB     | 14:AO:95:ARG:HH21  | 2.10                     | 0.65              |
| 9:AJ:5:CYS:SG      | 9:AJ:13:ILE:HD13   | 2.37                     | 0.65              |
| 17:AT:30:ILE:HG22  | 37:BP:88:ARG:HH22  | 1.61                     | 0.65              |
| 21:B3:9:C:H5''     | 21:B3:10:C:OP2     | 1.96                     | 0.65              |
| 23:BB:119:TYR:CD2  | 23:BB:122:TRP:CZ3  | 2.85                     | 0.65              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 43:BV:63:LYS:HG2  | 43:BV:64:ARG:N     | 2.10                     | 0.65              |
| 21:C3:110:G:O6    | 34:CM:21:ARG:HD2   | 1.97                     | 0.65              |
| 24:CC:99:ASN:ND2  | 1:D1:828:C:O2'     | 2.28                     | 0.65              |
| 27:CF:92:TYR:HE2  | 27:CF:123:ILE:HG21 | 1.62                     | 0.65              |
| 27:CF:159:LEU:HB2 | 27:CF:160:PRO:HD3  | 1.77                     | 0.65              |
| 29:CH:42:THR:HG23 | 29:CH:192:THR:HG21 | 1.77                     | 0.65              |
| 1:D1:511:U:H2'    | 1:D1:512:G:H8      | 1.61                     | 0.65              |
| 1:D1:548:G:H22    | 1:D1:619:G:H21     | 1.40                     | 0.65              |
| 1:D1:904:U:HO2'   | 1:D1:905:G:P       | 2.19                     | 0.65              |
| 1:D1:1193:G:H2'   | 1:D1:1194:A:C8     | 2.31                     | 0.65              |
| 1:D1:1700:A:OP2   | 12:DM:74:SER:HB2   | 1.97                     | 0.65              |
| 1:D1:2633:C:H5''  | 1:D1:2634:G:OP1    | 1.96                     | 0.65              |
| 1:D1:2659:G:H2'   | 1:D1:2660:A:C8     | 2.32                     | 0.65              |
| 18:DU:59:GLN:O    | 18:DU:59:GLN:HG2   | 1.97                     | 0.65              |
| 21:E3:93:G:H4'    | 19:FX:96:GLN:CD    | 2.22                     | 0.65              |
| 22:EA:239:ARG:NH1 | 1:F1:2158:C:C5'    | 2.50                     | 0.65              |
| 23:EB:119:TYR:CD2 | 23:EB:122:TRP:CZ3  | 2.84                     | 0.65              |
| 24:EC:55:VAL:HG13 | 1:F1:345:C:OP1     | 1.97                     | 0.65              |
| 34:EM:31:TYR:O    | 34:EM:35:ARG:HG2   | 1.96                     | 0.65              |
| 39:ER:43:LEU:HD11 | 1:F1:1599:G:H5''   | 1.79                     | 0.65              |
| 39:ER:96:ASN:HA   | 39:ER:128:LYS:HG3  | 1.78                     | 0.65              |
| 42:EU:74:PHE:HB3  | 42:EU:80:LYS:HE3   | 1.78                     | 0.65              |
| 1:F1:625:C:H2'    | 1:F1:626:C:H5'     | 1.76                     | 0.65              |
| 1:F1:897:A:O2'    | 1:F1:898:C:H5'     | 1.96                     | 0.65              |
| 1:F1:1090:A:O2'   | 1:F1:1091:G:OP2    | 2.13                     | 0.65              |
| 1:F1:1193:G:H2'   | 1:F1:1194:A:C8     | 2.31                     | 0.65              |
| 1:F1:1658:G:N7    | 13:FN:17:ARG:NH1   | 2.44                     | 0.65              |
| 1:F1:2961:G:H2'   | 1:F1:2962:U:H5''   | 1.77                     | 0.65              |
| 1:F1:3167:U:C4'   | 1:F1:3168:A:O5'    | 2.42                     | 0.65              |
| 19:FX:16:MET:HG2  | 19:FX:17:LYS:N     | 2.12                     | 0.65              |
| 19:FX:83:LEU:HD22 | 19:FX:111:VAL:HG12 | 1.78                     | 0.65              |
| 24:GC:69:ALA:HB3  | 24:GC:97:PHE:CZ    | 2.31                     | 0.65              |
| 24:GC:167:GLU:N   | 24:GC:171:GLN:NE2  | 2.42                     | 0.65              |
| 32:GK:145:CYS:CB  | 18:HU:177:VAL:HG21 | 2.26                     | 0.65              |
| 46:GY:19:GLY:HA2  | 1:H1:1949:U:O2     | 1.95                     | 0.65              |
| 1:H1:243:G:H5'    | 1:H1:243:G:C8      | 2.32                     | 0.65              |
| 1:H1:1141:U:O4    | 1:H1:1142:G:N2     | 2.30                     | 0.65              |
| 1:H1:1373:G:H2'   | 1:H1:1374:C:H6     | 1.61                     | 0.65              |
| 1:H1:1376:A:C5'   | 1:H1:1377:A:H5'    | 2.26                     | 0.65              |
| 1:H1:1770:A:H2'   | 1:H1:1771:U:C6     | 2.31                     | 0.65              |
| 1:H1:2133:U:H5    | 1:H1:2138:A:N7     | 1.94                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2794:U:O4     | 50:H1:3648:HOH:O   | 2.13                     | 0.65              |
| 1:H1:3189:G:H5''   | 50:H1:4361:HOH:O   | 1.97                     | 0.65              |
| 13:HN:41:VAL:HG23  | 13:HN:77:LEU:HD23  | 1.78                     | 0.65              |
| 1:A1:213:A:N6      | 1:A1:227:G:O2'     | 2.25                     | 0.65              |
| 1:A1:313:U:H2'     | 1:A1:314:C:C6      | 2.32                     | 0.65              |
| 1:A1:686:U:H1'     | 24:BC:107:PHE:CE2  | 2.28                     | 0.65              |
| 1:A1:1041:C:H3'    | 1:A1:1042:U:H5''   | 1.79                     | 0.65              |
| 1:A1:1191:G:H2'    | 1:A1:1192:A:H8     | 1.62                     | 0.65              |
| 1:A1:3044:A:H4'    | 1:A1:3045:A:OP1    | 1.97                     | 0.65              |
| 1:A1:3115:C:H1'    | 26:BE:154:GLN:HE22 | 1.62                     | 0.65              |
| 7:AG:95:ALA:CB     | 7:AG:101:LEU:HD11  | 2.22                     | 0.65              |
| 12:AM:35:PHE:HE1   | 12:AM:39:LEU:HD11  | 1.61                     | 0.65              |
| 20:B2:3:A:C4'      | 20:B2:4:A:OP2      | 2.45                     | 0.65              |
| 24:BC:238:VAL:HG21 | 24:BC:262:ALA:CA   | 2.26                     | 0.65              |
| 29:BH:140:VAL:CG1  | 29:BH:144:HIS:HB2  | 2.27                     | 0.65              |
| 30:BI:144:VAL:HG12 | 30:BI:144:VAL:O    | 1.96                     | 0.65              |
| 32:BK:75:VAL:CG2   | 32:BK:109:PHE:CG   | 2.80                     | 0.65              |
| 35:BN:24:ASN:CG    | 35:BN:27:HIS:HB2   | 2.22                     | 0.65              |
| 22:CA:2:GLY:HA2    | 1:D1:2597:G:OP1    | 1.97                     | 0.65              |
| 32:CK:143:GLY:N    | 18:DU:173:ARG:HH21 | 1.94                     | 0.65              |
| 34:CM:33:ARG:NH2   | 34:CM:72:ASP:OD2   | 2.29                     | 0.65              |
| 35:CN:56:SER:HB3   | 1:D1:695:U:OP1     | 1.97                     | 0.65              |
| 1:D1:71:U:C5       | 18:DU:64:ASN:HB3   | 2.32                     | 0.65              |
| 1:D1:362:G:C3'     | 1:D1:363:G:H5''    | 2.27                     | 0.65              |
| 3:DB:28:ARG:NE     | 3:DB:36:ARG:O      | 2.29                     | 0.65              |
| 6:DF:45:ARG:NH1    | 19:DX:84:ASN:HB3   | 2.12                     | 0.65              |
| 6:DF:49:PRO:HG2    | 6:DF:52:ARG:HG3    | 1.77                     | 0.65              |
| 13:DN:22:LYS:NZ    | 13:DN:140:SER:HB3  | 2.11                     | 0.65              |
| 18:DU:176:LYS:O    | 18:DU:180:ILE:HG13 | 1.96                     | 0.65              |
| 21:E3:111:U:O4     | 34:EM:21:ARG:NH1   | 2.30                     | 0.65              |
| 23:EB:26:ARG:HH12  | 23:EB:176:ILE:C    | 2.03                     | 0.65              |
| 23:EB:337:ARG:NH2  | 23:EB:340:ILE:HG23 | 2.12                     | 0.65              |
| 24:EC:87:SER:HB2   | 1:F1:356:U:O2'     | 1.97                     | 0.65              |
| 24:EC:238:VAL:HG21 | 24:EC:262:ALA:CA   | 2.25                     | 0.65              |
| 25:ED:101:ASN:HD21 | 25:ED:130:VAL:HG13 | 1.62                     | 0.65              |
| 27:EF:176:LYS:CB   | 27:EF:187:THR:HG23 | 2.17                     | 0.65              |
| 29:EH:77:ILE:HG13  | 29:EH:78:LYS:N     | 2.12                     | 0.65              |
| 32:EK:14:HIS:ND1   | 50:EK:205:HOH:O    | 2.28                     | 0.65              |
| 34:EM:34:LYS:O     | 34:EM:38:ILE:HG23  | 1.97                     | 0.65              |
| 35:EN:18:ARG:NH1   | 35:EN:56:SER:HA    | 2.12                     | 0.65              |
| 35:EN:110:ALA:O    | 35:EN:114:ILE:HG23 | 1.96                     | 0.65              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 38:EQ:71:ARG:HD2  | 1:F1:3268:C:O2     | 1.96                     | 0.65              |
| 39:ER:73:THR:HG23 | 42:EU:37:ILE:CD1   | 2.26                     | 0.65              |
| 39:ER:79:LYS:NZ   | 1:F1:1548:U:OP1    | 2.26                     | 0.65              |
| 1:F1:232:C:O2'    | 1:F1:233:G:OP1     | 2.15                     | 0.65              |
| 1:F1:563:G:H2'    | 1:F1:566:U:H1'     | 1.77                     | 0.65              |
| 1:F1:628:A:H4'    | 1:F1:629:A:OP2     | 1.95                     | 0.65              |
| 1:F1:1191:G:H2'   | 1:F1:1192:A:H8     | 1.61                     | 0.65              |
| 1:F1:2613:G:H21   | 1:F1:2615:A:H2     | 1.45                     | 0.65              |
| 1:F1:2633:C:H5''  | 1:F1:2634:G:OP1    | 1.96                     | 0.65              |
| 1:F1:2671:C:C2'   | 1:F1:2672:U:H5'    | 2.26                     | 0.65              |
| 1:F1:3291:G:O2'   | 1:F1:3292:U:C6     | 2.49                     | 0.65              |
| 8:FH:13:ARG:HG2   | 8:FH:15:TRP:CZ3    | 2.30                     | 0.65              |
| 16:FQ:77:ALA:HB1  | 16:FQ:87:ALA:HA    | 1.79                     | 0.65              |
| 18:FU:146:ALA:HB1 | 18:FU:148:ASN:ND2  | 2.10                     | 0.65              |
| 19:FX:167:LYS:HG2 | 19:FX:188:THR:HG21 | 1.79                     | 0.65              |
| 23:GB:281:TYR:HB2 | 23:GB:321:MET:HE3  | 1.78                     | 0.65              |
| 24:GC:77:ALA:HA   | 1:H1:2397:A:OP1    | 1.95                     | 0.65              |
| 24:GC:333:LEU:HA  | 43:GV:163:ASN:HD21 | 1.61                     | 0.65              |
| 27:GF:29:PHE:HD2  | 27:GF:37:PRO:HD3   | 1.62                     | 0.65              |
| 27:GF:159:LEU:HB2 | 27:GF:160:PRO:HD3  | 1.79                     | 0.65              |
| 29:GH:116:ARG:O   | 1:H1:2633:C:O2'    | 2.14                     | 0.65              |
| 32:GK:128:LYS:HB3 | 32:GK:129:TYR:CE1  | 2.31                     | 0.65              |
| 34:GM:83:LEU:HB3  | 34:GM:88:VAL:HG21  | 1.78                     | 0.65              |
| 34:GM:249:LYS:O   | 34:GM:253:GLU:HG2  | 1.97                     | 0.65              |
| 38:GQ:8:ARG:HH22  | 38:GQ:117:GLN:HE21 | 1.42                     | 0.65              |
| 38:GQ:33:GLU:OE2  | 38:GQ:64:ARG:N     | 2.29                     | 0.65              |
| 40:GS:51:LYS:O    | 40:GS:69:VAL:O     | 2.14                     | 0.65              |
| 1:H1:871:A:H2'    | 1:H1:872:A:C8      | 2.32                     | 0.65              |
| 1:H1:1097:G:N2    | 1:H1:1117:U:H1'    | 2.12                     | 0.65              |
| 1:H1:1667:A:HO2'  | 1:H1:1668:A:P      | 2.18                     | 0.65              |
| 1:H1:2344:U:H6    | 1:H1:2344:U:C5'    | 2.10                     | 0.65              |
| 14:HO:16:LEU:CD1  | 14:HO:35:ASN:HD22  | 2.08                     | 0.65              |
| 16:HQ:58:ILE:O    | 16:HQ:62:ILE:HG13  | 1.96                     | 0.65              |
| 1:A1:155:A:H4'    | 1:A1:156:A:OP2     | 1.96                     | 0.65              |
| 1:A1:625:C:H2'    | 1:A1:626:C:H5'     | 1.78                     | 0.65              |
| 1:A1:625:C:O2'    | 1:A1:626:C:H5'     | 1.96                     | 0.65              |
| 1:A1:930:U:H5'    | 22:BA:14:ASN:HB3   | 1.78                     | 0.65              |
| 1:A1:1050:C:H2'   | 1:A1:1051:C:C1'    | 2.27                     | 0.65              |
| 1:A1:1073:A:O2'   | 1:A1:1074:A:O5'    | 2.13                     | 0.65              |
| 1:A1:1171:U:OP2   | 45:BX:45:ARG:NH2   | 2.30                     | 0.65              |
| 1:A1:2540:G:H5''  | 1:A1:2541:U:OP2    | 1.96                     | 0.65              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A1:3081:C:H5    | 31:BJ:16:LYS:NZ   | 1.95                     | 0.65              |
| 13:AN:13:LEU:HD22 | 13:AN:75:VAL:HG21 | 1.77                     | 0.65              |
| 13:AN:15:GLN:HE21 | 13:AN:79:HIS:CE1  | 2.15                     | 0.65              |
| 18:AU:74:THR:HG23 | 18:AU:99:ARG:O    | 1.95                     | 0.65              |
| 18:AU:153:SER:OG  | 42:BU:124:ALA:HB2 | 1.96                     | 0.65              |
| 27:BF:29:PHE:HD2  | 27:BF:37:PRO:HD3  | 1.61                     | 0.65              |
| 37:BP:19:TYR:HE1  | 37:BP:20:LYS:HE3  | 1.60                     | 0.65              |
| 21:C3:33:U:C5     | 34:CM:212:TYR:CE1 | 2.83                     | 0.65              |
| 21:C3:33:U:C5     | 34:CM:212:TYR:HE1 | 2.14                     | 0.65              |
| 22:CA:128:SER:O   | 22:CA:128:SER:OG  | 2.14                     | 0.65              |
| 23:CB:332:ARG:HG3 | 23:CB:332:ARG:NH1 | 2.11                     | 0.65              |
| 26:CE:2:ARG:HH12  | 30:CI:129:ARG:NH2 | 1.95                     | 0.65              |
| 28:CG:14:UNK:O    | 28:CG:18:UNK:HG2  | 1.96                     | 0.65              |
| 34:CM:31:TYR:O    | 34:CM:35:ARG:HG2  | 1.97                     | 0.65              |
| 38:CQ:34:VAL:HG22 | 38:CQ:60:ILE:CD1  | 2.26                     | 0.65              |
| 1:D1:1448:G:OP1   | 50:D1:4447:HOH:O  | 2.14                     | 0.65              |
| 1:D1:1856:C:O2'   | 1:D1:1857:G:H5'   | 1.96                     | 0.65              |
| 1:D1:2178:A:H8    | 1:D1:2178:A:H5'   | 1.62                     | 0.65              |
| 1:D1:2187:C:O2'   | 1:D1:2188:U:H5'   | 1.97                     | 0.65              |
| 1:D1:2581:G:H4'   | 1:D1:2583:C:C2    | 2.31                     | 0.65              |
| 6:DF:84:LYS:O     | 6:DF:87:GLU:HG2   | 1.97                     | 0.65              |
| 7:DG:27:TYR:CD2   | 7:DG:52:ARG:HD3   | 2.31                     | 0.65              |
| 12:DM:21:CYS:SG   | 12:DM:30:ILE:HD13 | 2.36                     | 0.65              |
| 20:E2:147:G:H21   | 27:EF:54:GLN:NE2  | 1.93                     | 0.65              |
| 24:EC:115:ARG:NH2 | 1:F1:816:A:OP1    | 2.29                     | 0.65              |
| 24:EC:382:LYS:HG3 | 24:EC:383:ALA:N   | 2.12                     | 0.65              |
| 29:EH:33:ILE:HB   | 29:EH:69:ARG:HH22 | 1.61                     | 0.65              |
| 30:EI:113:ARG:NH1 | 1:F1:3162:A:N6    | 2.45                     | 0.65              |
| 32:EK:58:LEU:HD13 | 1:F1:734:A:H5'    | 1.78                     | 0.65              |
| 46:EY:10:ILE:HD11 | 46:EY:30:GLU:CB   | 2.27                     | 0.65              |
| 1:F1:11:A:H2'     | 1:F1:12:A:C8      | 2.31                     | 0.65              |
| 1:F1:111:C:H2'    | 1:F1:111:C:O2     | 1.97                     | 0.65              |
| 1:F1:592:A:H2'    | 1:F1:593:U:C6     | 2.32                     | 0.65              |
| 1:F1:972:U:H2'    | 1:F1:973:C:H6     | 1.60                     | 0.65              |
| 1:F1:1127:U:H2'   | 1:F1:1128:G:C8    | 2.31                     | 0.65              |
| 1:F1:1361:U:H5'   | 1:F1:1361:U:C6    | 2.31                     | 0.65              |
| 1:F1:1446:C:H5'   | 1:F1:1446:C:H6    | 1.62                     | 0.65              |
| 1:F1:1856:C:O2'   | 1:F1:1857:G:H5'   | 1.97                     | 0.65              |
| 1:F1:2416:U:OP1   | 4:FC:57:ARG:NH2   | 2.29                     | 0.65              |
| 1:F1:2439:C:H2'   | 1:F1:2440:A:H8    | 1.62                     | 0.65              |
| 1:F1:3263:G:H4'   | 1:F1:3264:U:O5'   | 1.95                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3331:C:H4'    | 1:F1:3332:A:H5''   | 1.77                     | 0.65              |
| 5:FE:170:LEU:HA    | 6:FF:106:PHE:HE1   | 1.61                     | 0.65              |
| 7:FG:17:VAL:HG13   | 7:FG:95:ALA:HB2    | 1.78                     | 0.65              |
| 13:FN:114:LEU:HD22 | 13:FN:118:PHE:HE1  | 1.62                     | 0.65              |
| 14:FO:16:LEU:CD1   | 14:FO:35:ASN:HD22  | 2.09                     | 0.65              |
| 18:FU:22:THR:HG23  | 18:FU:24:PHE:HD1   | 1.61                     | 0.65              |
| 21:G3:110:G:O6     | 34:GM:21:ARG:HD2   | 1.97                     | 0.65              |
| 22:GA:210:HIS:CD2  | 22:GA:211:PRO:HD2  | 2.32                     | 0.65              |
| 23:GB:292:ALA:HB3  | 23:GB:301:LYS:HB3  | 1.78                     | 0.65              |
| 30:GI:69:VAL:CG2   | 1:H1:2377:G:O2'    | 2.44                     | 0.65              |
| 32:GK:100:PRO:HA   | 18:HU:164:LYS:CD   | 2.27                     | 0.65              |
| 34:GM:181:PRO:HD2  | 34:GM:200:HIS:CE1  | 2.31                     | 0.65              |
| 35:GN:37:LEU:O     | 35:GN:41:THR:HB    | 1.96                     | 0.65              |
| 46:GY:12:ARG:NH1   | 1:H1:1951:G:O3'    | 2.30                     | 0.65              |
| 46:GY:25:VAL:O     | 46:GY:28:LYS:HB3   | 1.97                     | 0.65              |
| 1:H1:114:A:C4'     | 16:HQ:37:ARG:HH22  | 2.09                     | 0.65              |
| 1:H1:126:A:C2      | 1:H1:141:C:N4      | 2.65                     | 0.65              |
| 1:H1:1049:U:H2'    | 1:H1:1050:C:O4'    | 1.96                     | 0.65              |
| 1:H1:2574:U:H5'    | 1:H1:2575:G:OP1    | 1.97                     | 0.65              |
| 1:A1:111:C:O2      | 1:A1:111:C:H2'     | 1.95                     | 0.65              |
| 1:A1:118:A:H4'     | 1:A1:119:A:C5'     | 2.26                     | 0.65              |
| 1:A1:1051:C:O5'    | 1:A1:1051:C:H6     | 1.80                     | 0.65              |
| 1:A1:1062:A:C5     | 1:A1:1063:C:C5     | 2.84                     | 0.65              |
| 1:A1:1063:C:O2'    | 34:BM:5:LYS:CA     | 2.45                     | 0.65              |
| 1:A1:1096:G:H2'    | 1:A1:1097:G:C5'    | 2.25                     | 0.65              |
| 1:A1:1410:G:O2'    | 24:BC:251:HIS:CD2  | 2.49                     | 0.65              |
| 1:A1:2545:A:N7     | 46:BY:62:LYS:NZ    | 2.44                     | 0.65              |
| 1:A1:2717:G:H5'    | 37:BP:83:ARG:HH22  | 1.60                     | 0.65              |
| 1:A1:3096:U:C5'    | 10:AK:112:LYS:HZ3  | 2.09                     | 0.65              |
| 1:A1:3334:C:H4'    | 23:BB:311:HIS:CD2  | 2.31                     | 0.65              |
| 5:AE:41:LEU:HD13   | 5:AE:45:ILE:HG21   | 1.78                     | 0.65              |
| 14:AO:75:THR:HG21  | 14:AO:77:GLU:OE1   | 1.97                     | 0.65              |
| 14:AO:118:ASN:O    | 14:AO:122:GLN:HG2  | 1.97                     | 0.65              |
| 25:BD:82:ARG:O     | 25:BD:86:VAL:HG23  | 1.95                     | 0.65              |
| 34:BM:52:VAL:CG2   | 34:BM:63:GLN:HB2   | 2.26                     | 0.65              |
| 22:CA:208:VAL:HG22 | 1:D1:2410:C:H5'    | 1.77                     | 0.65              |
| 23:CB:25:HIS:HD2   | 23:CB:270:TYR:OH   | 1.79                     | 0.65              |
| 23:CB:47:THR:OG1   | 23:CB:177:LEU:HD11 | 1.97                     | 0.65              |
| 26:CE:23:ARG:HG3   | 1:D1:3169:A:OP1    | 1.96                     | 0.65              |
| 27:CF:25:LYS:HB2   | 1:D1:2552:A:H1'    | 1.78                     | 0.65              |
| 34:CM:243:VAL:HG12 | 34:CM:247:PHE:HD2  | 1.61                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:CN:44:LYS:HD3   | 1:D1:754:A:OP1     | 1.97                     | 0.65              |
| 35:CN:158:GLN:CB   | 50:CN:307:HOH:O    | 2.45                     | 0.65              |
| 38:CQ:32:TYR:CD2   | 38:CQ:33:GLU:HG2   | 2.32                     | 0.65              |
| 42:CU:123:LYS:HZ3  | 18:DU:144:SER:HB2  | 1.60                     | 0.65              |
| 44:CW:65:ASN:OD1   | 1:D1:3047:U:C5     | 2.43                     | 0.65              |
| 45:CX:57:ILE:CG1   | 1:D1:972:U:H5''    | 2.24                     | 0.65              |
| 1:D1:127:A:OP2     | 50:D1:3820:HOH:O   | 2.13                     | 0.65              |
| 1:D1:607:U:O2'     | 1:D1:608:C:H5'     | 1.97                     | 0.65              |
| 1:D1:1004:U:H6     | 1:D1:1004:U:C5'    | 2.06                     | 0.65              |
| 1:D1:1667:A:O2'    | 1:D1:1668:A:P      | 2.54                     | 0.65              |
| 2:DA:8:PHE:O       | 2:DA:11:ARG:HG3    | 1.96                     | 0.65              |
| 5:DE:52:ILE:HB     | 5:DE:96:LEU:HB2    | 1.78                     | 0.65              |
| 22:EA:30:TYR:HB3   | 22:EA:164:ARG:NH1  | 2.12                     | 0.65              |
| 24:EC:107:PHE:HE2  | 1:F1:686:U:C1'     | 2.09                     | 0.65              |
| 30:EI:107:ILE:HG13 | 30:EI:159:ARG:NH1  | 2.10                     | 0.65              |
| 35:EN:89:ASN:OD1   | 35:EN:90:ASP:N     | 2.30                     | 0.65              |
| 38:EQ:8:ARG:HH22   | 38:EQ:117:GLN:HE21 | 1.43                     | 0.65              |
| 1:F1:485:A:C4'     | 1:F1:486:C:OP1     | 2.39                     | 0.65              |
| 1:F1:1919:A:H8     | 1:F1:1919:A:H5'    | 1.60                     | 0.65              |
| 1:F1:2275:A:HO2'   | 1:F1:2276:A:P      | 2.20                     | 0.65              |
| 1:F1:2738:G:O2'    | 1:F1:2739:C:H5'    | 1.96                     | 0.65              |
| 1:F1:2761:U:H4'    | 1:F1:2762:U:OP1    | 1.97                     | 0.65              |
| 1:F1:3055:U:O4     | 50:F1:4015:HOH:O   | 2.14                     | 0.65              |
| 6:FF:112:MET:O     | 6:FF:116:LYS:HG3   | 1.97                     | 0.65              |
| 23:GB:54:THR:CG2   | 23:GB:55:HIS:H     | 2.09                     | 0.65              |
| 23:GB:113:ASN:CB   | 23:GB:174:ASN:HD21 | 2.08                     | 0.65              |
| 27:GF:100:LYS:NZ   | 1:H1:120:A:OP1     | 2.29                     | 0.65              |
| 32:GK:143:GLY:N    | 18:HU:173:ARG:HH21 | 1.93                     | 0.65              |
| 1:H1:373:A:H4'     | 1:H1:374:A:OP1     | 1.97                     | 0.65              |
| 1:H1:1538:U:OP2    | 50:H1:4443:HOH:O   | 2.13                     | 0.65              |
| 1:H1:1737:A:H62    | 7:HG:28:LYS:HD2    | 1.61                     | 0.65              |
| 1:H1:2703:G:H4'    | 1:H1:2704:A:H5'    | 1.79                     | 0.65              |
| 1:H1:3331:C:H4'    | 1:H1:3332:A:H5''   | 1.78                     | 0.65              |
| 19:HX:113:LEU:CD2  | 19:HX:140:THR:HG21 | 2.27                     | 0.65              |
| 1:A1:527:A:O2'     | 14:AO:88:GLN:NE2   | 2.25                     | 0.65              |
| 1:A1:846:C:P       | 50:A1:4023:HOH:O   | 2.50                     | 0.65              |
| 1:A1:1173:A:H2'    | 1:A1:1174:G:H8     | 1.59                     | 0.65              |
| 1:A1:1215:U:H3     | 1:A1:1344:A:N6     | 1.94                     | 0.65              |
| 1:A1:2182:G:O6     | 22:BA:201:ARG:HD2  | 1.97                     | 0.65              |
| 1:A1:2439:C:H2'    | 1:A1:2440:A:H8     | 1.61                     | 0.65              |
| 1:A1:3093:U:OP2    | 50:A1:4618:HOH:O   | 2.14                     | 0.65              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3114:U:C2'    | 1:A1:3115:C:H5''   | 2.27                     | 0.65              |
| 5:AE:57:ARG:O      | 5:AE:57:ARG:HG2    | 1.96                     | 0.65              |
| 8:AH:107:MET:SD    | 8:AH:109:TYR:HE2   | 2.20                     | 0.65              |
| 18:AU:90:SER:O     | 42:BU:120:PHE:CE2  | 2.49                     | 0.65              |
| 23:BB:376:LYS:HE2  | 9:DJ:45:HIS:NE2    | 2.11                     | 0.65              |
| 24:BC:69:ALA:HB3   | 24:BC:97:PHE:CZ    | 2.32                     | 0.65              |
| 24:BC:213:LEU:O    | 24:BC:256:ILE:HA   | 1.97                     | 0.65              |
| 34:BM:125:VAL:O    | 34:BM:201:LYS:HD2  | 1.97                     | 0.65              |
| 42:BU:21:GLU:HG2   | 42:BU:58:TYR:CZ    | 2.32                     | 0.65              |
| 43:BV:63:LYS:O     | 43:BV:67:ARG:HG3   | 1.96                     | 0.65              |
| 23:CB:22:THR:HG23  | 1:D1:3128:G:OP1    | 1.96                     | 0.65              |
| 23:CB:113:ASN:CB   | 23:CB:174:ASN:ND2  | 2.60                     | 0.65              |
| 25:CD:53:THR:HA    | 25:CD:59:ILE:O     | 1.97                     | 0.65              |
| 34:CM:277:PHE:O    | 34:CM:279:PRO:HD3  | 1.96                     | 0.65              |
| 35:CN:18:ARG:HD3   | 35:CN:54:SER:O     | 1.97                     | 0.65              |
| 35:CN:158:GLN:CB   | 50:D1:4779:HOH:O   | 2.36                     | 0.65              |
| 35:CN:168:ARG:HH11 | 18:DU:9:VAL:CG2    | 2.10                     | 0.65              |
| 40:CS:61:LYS:HE2   | 1:D1:218:G:H1      | 1.62                     | 0.65              |
| 42:CU:82:LEU:HA    | 42:CU:85:ARG:HG3   | 1.77                     | 0.65              |
| 1:D1:118:A:H4'     | 1:D1:119:A:C5'     | 2.26                     | 0.65              |
| 1:D1:449:G:H2'     | 1:D1:450:C:H6      | 1.61                     | 0.65              |
| 1:D1:1090:A:H4'    | 1:D1:1091:G:O5'    | 1.97                     | 0.65              |
| 1:D1:1921:G:H2'    | 1:D1:1922:G:H5'    | 1.78                     | 0.65              |
| 1:D1:2256:G:H1'    | 1:D1:2257:A:OP1    | 1.97                     | 0.65              |
| 1:D1:2411:U:H2'    | 1:D1:2412:U:C6     | 2.31                     | 0.65              |
| 1:D1:2720:G:H2'    | 1:D1:2721:G:H5'    | 1.78                     | 0.65              |
| 11:DL:88:ARG:HG3   | 13:DN:14:LEU:HD13  | 1.78                     | 0.65              |
| 1:F1:1580:G:H8     | 1:F1:1580:G:O5'    | 1.80                     | 0.65              |
| 1:F1:1599:G:C5     | 1:F1:1600:U:C5     | 2.85                     | 0.65              |
| 1:F1:2249:U:H2'    | 1:F1:2250:A:H8     | 1.62                     | 0.65              |
| 1:F1:2343:A:H3'    | 1:F1:2344:U:C5'    | 2.26                     | 0.65              |
| 8:FH:58:TYR:HA     | 8:FH:104:LEU:CD2   | 2.27                     | 0.65              |
| 10:FK:105:PRO:O    | 10:FK:106:LYS:HG2  | 1.97                     | 0.65              |
| 19:FX:42:ARG:HE    | 19:FX:44:PHE:HE1   | 1.45                     | 0.65              |
| 22:GA:113:VAL:HG13 | 22:GA:134:TYR:HB2  | 1.79                     | 0.65              |
| 24:GC:82:PRO:CB    | 24:GC:96:ALA:HB3   | 2.24                     | 0.65              |
| 30:GI:57:LEU:HA    | 30:GI:71:HIS:ND1   | 2.12                     | 0.65              |
| 43:GV:80:VAL:HG22  | 43:GV:188:VAL:HG23 | 1.78                     | 0.65              |
| 45:GX:99:ALA:HB1   | 45:GX:101:ASN:OD1  | 1.96                     | 0.65              |
| 1:H1:111:C:H2'     | 1:H1:111:C:O2      | 1.95                     | 0.65              |
| 1:H1:546:A:H2'     | 1:H1:547:U:H6      | 1.60                     | 0.65              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:H1:625:C:H2'    | 1:H1:626:C:H5'    | 1.78                     | 0.65              |
| 1:H1:1775:A:O5'   | 15:HP:34:LYS:NZ   | 2.29                     | 0.65              |
| 1:H1:1921:G:C2'   | 1:H1:1922:G:H5'   | 2.27                     | 0.65              |
| 1:H1:2632:A:H5'   | 17:HT:6:ASN:OD1   | 1.96                     | 0.65              |
| 1:H1:2952:G:N2    | 1:H1:2955:A:OP2   | 2.30                     | 0.65              |
| 1:H1:3114:U:C2'   | 1:H1:3115:C:H5''  | 2.27                     | 0.65              |
| 19:HX:94:LYS:HA   | 19:HX:102:HIS:O   | 1.96                     | 0.65              |
| 1:A1:117:G:H4'    | 1:A1:118:A:O5'    | 1.97                     | 0.65              |
| 1:A1:118:A:N7     | 27:BF:121:LYS:HD3 | 2.12                     | 0.65              |
| 1:A1:1054:G:C6    | 1:A1:1055:A:C6    | 2.85                     | 0.65              |
| 1:A1:1884:G:C2'   | 1:A1:1885:G:H5'   | 2.27                     | 0.65              |
| 1:A1:2126:G:C2    | 50:A1:4102:HOH:O  | 2.48                     | 0.65              |
| 1:A1:2353:C:N3    | 50:A1:4346:HOH:O  | 2.29                     | 0.65              |
| 1:A1:2365:G:N7    | 50:A1:3924:HOH:O  | 2.29                     | 0.65              |
| 1:A1:2412:U:H2'   | 1:A1:2413:G:H5''  | 1.78                     | 0.65              |
| 1:A1:2961:G:C2'   | 1:A1:2962:U:H5''  | 2.27                     | 0.65              |
| 1:A1:2994:G:O2'   | 1:A1:2995:A:P     | 2.54                     | 0.65              |
| 1:A1:3263:G:O2'   | 1:A1:3265:A:N6    | 2.28                     | 0.65              |
| 3:AB:3:ALA:O      | 3:AB:5:LYS:HE2    | 1.97                     | 0.65              |
| 6:AF:2:VAL:HG12   | 6:AF:3:PHE:H      | 1.62                     | 0.65              |
| 6:AF:106:PHE:CD2  | 6:AF:110:ARG:NE   | 2.63                     | 0.65              |
| 21:B3:47:C:H2'    | 21:B3:48:G:O4'    | 1.97                     | 0.65              |
| 22:BA:68:TYR:O    | 22:BA:69:ARG:HG2  | 1.97                     | 0.65              |
| 23:BB:85:THR:HB   | 23:BB:161:HIS:HB3 | 1.79                     | 0.65              |
| 29:BH:80:ILE:CD1  | 29:BH:144:HIS:HB3 | 2.26                     | 0.65              |
| 43:BV:48:TYR:CE1  | 43:BV:183:HIS:CG  | 2.84                     | 0.65              |
| 21:C3:27:A:H2'    | 21:C3:28:C:C6     | 2.32                     | 0.65              |
| 30:CI:113:ARG:NH1 | 1:D1:3162:A:H61   | 1.95                     | 0.65              |
| 31:CJ:74:ARG:O    | 31:CJ:75:LYS:HB2  | 1.97                     | 0.65              |
| 34:CM:34:LYS:O    | 34:CM:38:ILE:HG23 | 1.97                     | 0.65              |
| 47:CO:56:VAL:HG23 | 1:D1:1897:U:OP1   | 1.97                     | 0.65              |
| 45:CX:59:PHE:CE1  | 1:D1:1189:U:H4'   | 2.32                     | 0.65              |
| 1:D1:25:C:H1'     | 1:D1:327:U:H1'    | 1.79                     | 0.65              |
| 1:D1:184:C:H2'    | 1:D1:185:A:C8     | 2.32                     | 0.65              |
| 1:D1:1375:A:H4'   | 1:D1:1376:A:OP1   | 1.96                     | 0.65              |
| 1:D1:2251:A:C1'   | 46:EY:74:PRO:HG2  | 2.27                     | 0.65              |
| 1:D1:2678:A:H1'   | 1:D1:2691:A:H62   | 1.62                     | 0.65              |
| 1:D1:2743:G:H3'   | 1:D1:2744:C:H5'   | 1.77                     | 0.65              |
| 14:DO:75:THR:HG21 | 14:DO:77:GLU:CD   | 2.22                     | 0.65              |
| 18:DU:133:LYS:C   | 18:DU:135:LEU:N   | 2.52                     | 0.65              |
| 27:EF:103:ARG:NH2 | 1:F1:119:A:N7     | 2.45                     | 0.65              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 29:EH:80:ILE:CD1  | 29:EH:144:HIS:HB3  | 2.27                     | 0.65              |
| 34:EM:66:TYR:OH   | 34:EM:73:ARG:HD2   | 1.96                     | 0.65              |
| 1:F1:124:U:O2'    | 1:F1:125:G:H5'     | 1.97                     | 0.65              |
| 1:F1:488:U:H5     | 18:FU:161:LYS:HE2  | 1.60                     | 0.65              |
| 1:F1:1478:A:N7    | 50:F1:4031:HOH:O   | 2.29                     | 0.65              |
| 1:F1:1926:G:OP1   | 50:F1:4327:HOH:O   | 2.14                     | 0.65              |
| 1:F1:2245:G:H2'   | 1:F1:2246:G:C8     | 2.31                     | 0.65              |
| 1:F1:2932:U:P     | 50:F1:4026:HOH:O   | 2.42                     | 0.65              |
| 1:F1:3011:G:H4'   | 1:F1:3012:U:O5'    | 1.97                     | 0.65              |
| 5:FE:52:ILE:HB    | 5:FE:96:LEU:HB2    | 1.78                     | 0.65              |
| 6:FF:106:PHE:CD2  | 6:FF:110:ARG:NE    | 2.60                     | 0.65              |
| 24:GC:29:PHE:HD2  | 24:GC:137:ALA:HB2  | 1.62                     | 0.65              |
| 24:GC:107:PHE:CD1 | 1:H1:684:A:H4'     | 2.31                     | 0.65              |
| 24:GC:335:PRO:HB2 | 43:GV:42:ILE:HG12  | 1.79                     | 0.65              |
| 27:GF:176:LYS:HE3 | 1:H1:6:C:O2'       | 1.97                     | 0.65              |
| 34:GM:38:ILE:HD11 | 1:H1:2738:G:O3'    | 1.97                     | 0.65              |
| 35:GN:110:ALA:O   | 35:GN:114:ILE:HG23 | 1.97                     | 0.65              |
| 41:GT:41:LEU:HD13 | 41:GT:51:ILE:HD13  | 1.79                     | 0.65              |
| 1:H1:338:C:H6     | 1:H1:338:C:H5''    | 1.61                     | 0.65              |
| 1:H1:362:G:H2'    | 1:H1:363:G:H5''    | 1.79                     | 0.65              |
| 1:H1:1024:A:C2'   | 1:H1:1025:G:H5'    | 2.27                     | 0.65              |
| 1:H1:1537:U:H5'   | 1:H1:1538:U:H5     | 1.60                     | 0.65              |
| 1:H1:2717:G:P     | 50:H1:4321:HOH:O   | 2.39                     | 0.65              |
| 1:H1:2727:A:O2'   | 1:H1:2728:A:OP1    | 2.15                     | 0.65              |
| 1:H1:2994:G:O2'   | 1:H1:2995:A:P      | 2.54                     | 0.65              |
| 14:HO:110:LYS:O   | 14:HO:114:PHE:HB2  | 1.97                     | 0.65              |
| 1:A1:111:C:H2'    | 1:A1:112:A:H5'     | 1.79                     | 0.64              |
| 1:A1:250:U:H5'    | 1:A1:251:A:OP2     | 1.96                     | 0.64              |
| 1:A1:695:U:OP1    | 35:BN:56:SER:HB3   | 1.97                     | 0.64              |
| 1:A1:697:A:OP2    | 35:BN:57:ARG:NH1   | 2.30                     | 0.64              |
| 1:A1:810:G:C8     | 35:BN:92:ARG:CZ    | 2.80                     | 0.64              |
| 1:A1:1775:A:O5'   | 15:AP:34:LYS:NZ    | 2.30                     | 0.64              |
| 1:A1:2743:G:H3'   | 1:A1:2744:C:H5'    | 1.75                     | 0.64              |
| 1:A1:3165:A:H2'   | 1:A1:3166:A:C8     | 2.32                     | 0.64              |
| 5:AE:113:GLU:HG3  | 5:AE:114:ASP:H     | 1.61                     | 0.64              |
| 24:BC:125:LYS:O   | 24:BC:129:VAL:HG23 | 1.96                     | 0.64              |
| 24:BC:321:LYS:O   | 24:BC:323:PRO:HD3  | 1.96                     | 0.64              |
| 34:BM:76:CYS:C    | 34:BM:105:LEU:HD11 | 2.21                     | 0.64              |
| 46:BY:10:ILE:HD11 | 46:BY:30:GLU:CB    | 2.24                     | 0.64              |
| 21:C3:81:A:H2'    | 21:C3:82:G:H5''    | 1.78                     | 0.64              |
| 22:CA:30:TYR:HB3  | 22:CA:164:ARG:NH1  | 2.11                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:186:LEU:HD22 | 24:CC:190:GLU:OE2  | 1.97                     | 0.64              |
| 37:CP:41:ASP:OD1   | 37:CP:61:THR:OG1   | 2.09                     | 0.64              |
| 38:CQ:8:ARG:HH12   | 38:CQ:117:GLN:HG3  | 1.62                     | 0.64              |
| 1:D1:126:A:H2      | 1:D1:141:C:N4      | 1.95                     | 0.64              |
| 1:D1:146:U:O2      | 1:D1:148:G:C2      | 2.50                     | 0.64              |
| 1:D1:290:C:N4      | 50:D1:3858:HOH:O   | 2.29                     | 0.64              |
| 1:D1:358:C:O2'     | 2:DA:16:HIS:HD2    | 1.79                     | 0.64              |
| 1:D1:620:A:C8      | 1:D1:634:G:C6      | 2.85                     | 0.64              |
| 1:D1:684:A:C2      | 1:D1:1461:A:C2     | 2.84                     | 0.64              |
| 1:D1:871:A:H2'     | 1:D1:872:A:C8      | 2.32                     | 0.64              |
| 1:D1:1024:A:O2'    | 1:D1:1025:G:H5'    | 1.97                     | 0.64              |
| 1:D1:1319:C:H2'    | 1:D1:1320:U:H6     | 1.61                     | 0.64              |
| 1:D1:1361:U:H6     | 1:D1:1361:U:C5'    | 2.10                     | 0.64              |
| 1:D1:1578:U:H5''   | 1:D1:1579:U:OP2    | 1.97                     | 0.64              |
| 1:D1:1858:U:OP1    | 3:DB:5:LYS:HE3     | 1.97                     | 0.64              |
| 1:D1:2308:A:OP2    | 50:D1:4663:HOH:O   | 2.15                     | 0.64              |
| 13:DN:10:VAL:HG12  | 13:DN:85:TYR:O     | 1.97                     | 0.64              |
| 22:EA:218:GLN:C    | 50:EA:302:HOH:O    | 2.29                     | 0.64              |
| 24:EC:49:ARG:NH2   | 1:F1:713:G:H21     | 1.95                     | 0.64              |
| 27:EF:132:ILE:O    | 27:EF:136:ILE:HG13 | 1.97                     | 0.64              |
| 29:EH:204:GLY:HA3  | 29:EH:208:ARG:NH2  | 2.12                     | 0.64              |
| 30:EI:196:PHE:CZ   | 6:FF:110:ARG:HD2   | 2.32                     | 0.64              |
| 32:EK:21:ARG:HG3   | 1:F1:1396:A:H4'    | 1.79                     | 0.64              |
| 40:ES:59:ARG:NH1   | 1:F1:200:C:OP2     | 2.30                     | 0.64              |
| 43:EV:98:ARG:HH11  | 43:EV:98:ARG:HG3   | 1.61                     | 0.64              |
| 45:EX:25:GLU:OE2   | 45:EX:52:ARG:NH2   | 2.18                     | 0.64              |
| 1:F1:116:U:O2      | 1:F1:119:A:H5''    | 1.95                     | 0.64              |
| 1:F1:636:U:O2'     | 1:F1:637:U:H5'     | 1.97                     | 0.64              |
| 1:F1:1049:U:H2'    | 1:F1:1050:C:O4'    | 1.96                     | 0.64              |
| 1:F1:1095:C:H4'    | 1:F1:1096:G:OP2    | 1.97                     | 0.64              |
| 1:F1:1481:U:H2'    | 1:F1:1481:U:O2     | 1.96                     | 0.64              |
| 1:F1:2581:G:H4'    | 1:F1:2583:C:C2     | 2.32                     | 0.64              |
| 9:FJ:99:GLU:HG3    | 9:FJ:101:LEU:H     | 1.61                     | 0.64              |
| 9:FJ:192:VAL:HG12  | 9:FJ:192:VAL:O     | 1.96                     | 0.64              |
| 22:GA:66:ASP:OD1   | 22:GA:68:TYR:N     | 2.30                     | 0.64              |
| 22:GA:70:TYR:OH    | 1:H1:2548:G:OP1    | 2.15                     | 0.64              |
| 23:GB:22:THR:HG22  | 23:GB:24:HIS:N     | 2.12                     | 0.64              |
| 24:GC:115:ARG:NH2  | 1:H1:816:A:OP1     | 2.30                     | 0.64              |
| 24:GC:238:VAL:HG21 | 24:GC:262:ALA:CA   | 2.26                     | 0.64              |
| 26:GE:132:ILE:HG12 | 26:GE:144:LEU:HD22 | 1.79                     | 0.64              |
| 28:GG:23:UNK:HB2   | 28:GG:92:UNK:HB2   | 1.78                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:GI:48:ARG:NH2   | 1:H1:1220:A:OP2    | 2.30                     | 0.64              |
| 1:H1:2902:G:OP2    | 50:H1:4273:HOH:O   | 2.13                     | 0.64              |
| 1:H1:2994:G:O2'    | 1:H1:2995:A:O5'    | 2.14                     | 0.64              |
| 1:H1:3011:G:N2     | 1:H1:3020:G:C4     | 2.65                     | 0.64              |
| 1:H1:3114:U:H2'    | 1:H1:3115:C:H5''   | 1.78                     | 0.64              |
| 5:HE:42:ARG:HH12   | 8:HH:111:ASN:ND2   | 1.96                     | 0.64              |
| 1:A1:28:G:OP1      | 33:BL:172:ARG:HD3  | 1.98                     | 0.64              |
| 1:A1:155:A:C4      | 1:A1:265:A:C2      | 2.85                     | 0.64              |
| 1:A1:467:A:C6      | 1:A1:468:A:C5      | 2.85                     | 0.64              |
| 1:A1:499:U:H3'     | 1:A1:500:G:C8      | 2.32                     | 0.64              |
| 1:A1:967:U:O4      | 32:BK:24:LYS:HD3   | 1.97                     | 0.64              |
| 1:A1:1540:U:H5     | 1:A1:1865:A:HO2'   | 1.44                     | 0.64              |
| 1:A1:2627:C:O2     | 37:BP:60:ARG:NH2   | 2.29                     | 0.64              |
| 1:A1:2704:A:H4'    | 1:A1:2705:U:OP2    | 1.96                     | 0.64              |
| 4:AC:66:VAL:CG2    | 4:AC:83:ILE:HB     | 2.27                     | 0.64              |
| 4:AC:70:PHE:CE2    | 4:AC:81:ILE:HD12   | 2.31                     | 0.64              |
| 18:AU:6:GLN:HA     | 32:BK:51:HIS:HE1   | 1.62                     | 0.64              |
| 21:B3:27:A:H2'     | 21:B3:28:C:C6      | 2.31                     | 0.64              |
| 23:BB:54:THR:CG2   | 23:BB:55:HIS:H     | 2.10                     | 0.64              |
| 24:BC:65:MET:CE    | 24:BC:105:ARG:HH11 | 2.10                     | 0.64              |
| 25:BD:53:THR:HA    | 25:BD:59:ILE:O     | 1.96                     | 0.64              |
| 32:BK:111:LYS:HG3  | 32:BK:129:TYR:HB2  | 1.78                     | 0.64              |
| 36:BO:119:GLN:HE21 | 36:BO:150:ILE:CD1  | 2.07                     | 0.64              |
| 38:BQ:8:ARG:HH22   | 38:BQ:117:GLN:HE21 | 1.43                     | 0.64              |
| 42:BU:82:LEU:HA    | 42:BU:85:ARG:HG3   | 1.78                     | 0.64              |
| 20:C2:7:U:OP1      | 38:CQ:64:ARG:CG    | 2.45                     | 0.64              |
| 21:C3:42:A:C8      | 25:CD:72:ARG:NH1   | 2.65                     | 0.64              |
| 23:CB:272:HIS:HD2  | 1:D1:3127:U:OP1    | 1.79                     | 0.64              |
| 23:CB:371:VAL:HG13 | 23:CB:382:ARG:CZ   | 2.26                     | 0.64              |
| 27:CF:125:LEU:HD11 | 27:CF:191:VAL:CG1  | 2.28                     | 0.64              |
| 33:CL:9:GLU:HB2    | 16:DQ:45:ILE:HD13  | 1.79                     | 0.64              |
| 46:CY:12:ARG:NH1   | 1:D1:1951:G:O2'    | 2.29                     | 0.64              |
| 1:D1:155:A:C4      | 1:D1:265:A:C2      | 2.85                     | 0.64              |
| 1:D1:2105:U:O4     | 50:D1:4667:HOH:O   | 2.12                     | 0.64              |
| 1:D1:2678:A:H1'    | 1:D1:2691:A:N6     | 2.12                     | 0.64              |
| 1:D1:2704:A:H4'    | 1:D1:2705:U:OP2    | 1.97                     | 0.64              |
| 1:D1:3128:G:H8     | 1:D1:3128:G:C5'    | 2.11                     | 0.64              |
| 7:DG:17:VAL:HG13   | 7:DG:95:ALA:HB2    | 1.77                     | 0.64              |
| 9:DJ:145:ASN:HD22  | 9:DJ:146:VAL:N     | 1.94                     | 0.64              |
| 10:DK:103:LEU:HD13 | 10:DK:110:CYS:HA   | 1.79                     | 0.64              |
| 21:E3:48:G:OP2     | 34:EM:94:SER:HB3   | 1.97                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:EA:205:MET:HE2  | 22:EA:209:ASP:HB3  | 1.78                     | 0.64              |
| 22:EA:244:THR:HG21 | 1:F1:2239:A:C4'    | 2.26                     | 0.64              |
| 24:EC:167:GLU:N    | 24:EC:171:GLN:NE2  | 2.45                     | 0.64              |
| 35:EN:24:ASN:CG    | 35:EN:27:HIS:HB2   | 2.21                     | 0.64              |
| 38:EQ:133:ARG:NH2  | 1:F1:2351:A:N3     | 2.44                     | 0.64              |
| 1:F1:304:U:HO2'    | 1:F1:305:A:P       | 2.10                     | 0.64              |
| 1:F1:449:G:H2'     | 1:F1:450:C:H6      | 1.62                     | 0.64              |
| 1:F1:1036:G:C2'    | 1:F1:1037:A:H5'    | 2.27                     | 0.64              |
| 1:F1:1772:G:H2'    | 1:F1:1773:G:H5'    | 1.79                     | 0.64              |
| 1:F1:2719:A:H2'    | 1:F1:2720:G:H8     | 1.63                     | 0.64              |
| 1:F1:3011:G:N2     | 1:F1:3020:G:C4     | 2.64                     | 0.64              |
| 5:FE:41:LEU:HD13   | 5:FE:45:ILE:CD1    | 2.19                     | 0.64              |
| 5:FE:63:VAL:HG11   | 5:FE:76:VAL:HG13   | 1.79                     | 0.64              |
| 22:GA:180:ILE:O    | 1:H1:2145:A:H4'    | 1.96                     | 0.64              |
| 24:GC:251:HIS:ND1  | 14:HO:12:ASN:OD1   | 2.31                     | 0.64              |
| 33:GL:26:ARG:O     | 33:GL:30:TYR:HD1   | 1.80                     | 0.64              |
| 39:GR:96:ASN:HA    | 39:GR:128:LYS:HG3  | 1.80                     | 0.64              |
| 1:H1:111:C:H2'     | 1:H1:112:A:H5'     | 1.79                     | 0.64              |
| 1:H1:636:U:O2'     | 1:H1:637:U:H5'     | 1.97                     | 0.64              |
| 1:H1:970:C:H2'     | 1:H1:971:C:H6      | 1.60                     | 0.64              |
| 1:H1:2356:A:C2'    | 1:H1:2357:C:O5'    | 2.45                     | 0.64              |
| 1:H1:3237:C:N4     | 8:HH:9:VAL:O       | 2.30                     | 0.64              |
| 2:HA:15:THR:OG1    | 2:HA:16:HIS:CD2    | 2.50                     | 0.64              |
| 15:HP:8:ILE:O      | 15:HP:12:MET:HG3   | 1.97                     | 0.64              |
| 1:A1:324:A:H5''    | 1:A1:325:U:OP2     | 1.96                     | 0.64              |
| 1:A1:619:G:C4'     | 1:A1:620:A:C2      | 2.79                     | 0.64              |
| 1:A1:842:A:H8      | 2:AA:15:THR:HG23   | 1.61                     | 0.64              |
| 1:A1:1036:G:H21    | 29:BH:193:ASP:HB2  | 1.62                     | 0.64              |
| 1:A1:2388:G:O2'    | 1:A1:2389:G:OP2    | 2.15                     | 0.64              |
| 1:A1:2703:G:H4'    | 1:A1:2704:A:H5'    | 1.78                     | 0.64              |
| 5:AE:49:THR:HG22   | 5:AE:50:VAL:N      | 2.13                     | 0.64              |
| 21:B3:8:G:OP1      | 37:BP:27:ILE:HD12  | 1.97                     | 0.64              |
| 24:BC:216:TYR:O    | 24:BC:238:VAL:HG23 | 1.96                     | 0.64              |
| 25:BD:28:ASP:O     | 25:BD:32:LYS:HG3   | 1.98                     | 0.64              |
| 40:BS:56:LEU:HD12  | 40:BS:65:ASN:O     | 1.98                     | 0.64              |
| 41:BT:41:LEU:HD13  | 41:BT:51:ILE:HD13  | 1.79                     | 0.64              |
| 44:BW:22:ILE:CD1   | 44:BW:30:ARG:HG2   | 2.25                     | 0.64              |
| 20:C2:26:A:H3'     | 20:C2:27:G:H5''    | 1.78                     | 0.64              |
| 21:C3:9:C:H5''     | 21:C3:10:C:OP2     | 1.97                     | 0.64              |
| 21:C3:63:A:O5'     | 29:CH:206:LEU:HG   | 1.98                     | 0.64              |
| 23:CB:384:LYS:O    | 23:CB:387:GLU:HG2  | 1.97                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:216:TYR:O    | 24:CC:238:VAL:HG23 | 1.98                     | 0.64              |
| 33:CL:183:SER:HA   | 33:CL:191:ASN:HD21 | 1.58                     | 0.64              |
| 47:CO:123:PHE:HD2  | 47:CO:138:LEU:HD11 | 1.61                     | 0.64              |
| 40:CS:46:SER:HB3   | 1:D1:225:C:H5''    | 1.78                     | 0.64              |
| 1:D1:338:C:H6      | 1:D1:338:C:H5''    | 1.61                     | 0.64              |
| 1:D1:949:G:O2'     | 50:D1:4296:HOH:O   | 2.14                     | 0.64              |
| 1:D1:1038:G:H2'    | 1:D1:1039:G:O4'    | 1.96                     | 0.64              |
| 1:D1:1051:C:O5'    | 1:D1:1051:C:H6     | 1.80                     | 0.64              |
| 1:D1:1350:G:O3'    | 19:DX:16:MET:HG3   | 1.97                     | 0.64              |
| 1:D1:1517:G:P      | 50:D1:4529:HOH:O   | 2.55                     | 0.64              |
| 1:D1:1884:G:C2'    | 1:D1:1885:G:H5'    | 2.27                     | 0.64              |
| 5:DE:80:TYR:HD2    | 5:DE:86:PRO:HB3    | 1.63                     | 0.64              |
| 5:DE:86:PRO:O      | 5:DE:87:LEU:HD23   | 1.98                     | 0.64              |
| 18:DU:74:THR:HG23  | 18:DU:99:ARG:O     | 1.98                     | 0.64              |
| 20:E2:114:G:H3'    | 20:E2:114:G:C8     | 2.31                     | 0.64              |
| 21:E3:8:G:P        | 34:EM:33:ARG:NH1   | 2.64                     | 0.64              |
| 21:E3:76:U:OP1     | 19:FX:61:LYS:NZ    | 2.30                     | 0.64              |
| 21:E3:83:G:N2      | 21:E3:93:G:N2      | 2.44                     | 0.64              |
| 24:EC:311:ALA:H    | 35:EN:40:ARG:NH2   | 1.95                     | 0.64              |
| 27:EF:159:LEU:HB2  | 27:EF:160:PRO:HD3  | 1.78                     | 0.64              |
| 29:EH:140:VAL:HG12 | 29:EH:141:LYS:N    | 2.13                     | 0.64              |
| 30:EI:86:MET:HE1   | 1:F1:1201:G:H21    | 1.60                     | 0.64              |
| 43:EV:100:LEU:CD2  | 43:EV:127:VAL:HG11 | 2.25                     | 0.64              |
| 43:EV:194:GLU:OE1  | 43:EV:194:GLU:N    | 2.27                     | 0.64              |
| 1:F1:1016:U:C3'    | 1:F1:1017:U:H5''   | 2.28                     | 0.64              |
| 1:F1:2371:G:O2'    | 1:F1:2372:G:H8     | 1.77                     | 0.64              |
| 1:F1:3109:C:H3'    | 10:FK:111:ARG:HH11 | 1.57                     | 0.64              |
| 1:F1:3168:A:N7     | 19:FX:166:VAL:HG11 | 2.12                     | 0.64              |
| 11:FL:41:TYR:HB3   | 11:FL:58:GLN:HE21  | 1.61                     | 0.64              |
| 24:GC:227:LEU:O    | 24:GC:233:VAL:HG21 | 1.97                     | 0.64              |
| 27:GF:183:VAL:HG12 | 27:GF:183:VAL:O    | 1.97                     | 0.64              |
| 31:GJ:124:LYS:HG3  | 31:GJ:141:VAL:C    | 2.22                     | 0.64              |
| 34:GM:52:VAL:CG2   | 34:GM:63:GLN:HB2   | 2.27                     | 0.64              |
| 45:GX:6:VAL:CG1    | 45:GX:7:ALA:H      | 2.10                     | 0.64              |
| 46:GY:10:ILE:HG22  | 1:H1:862:A:C4'     | 2.28                     | 0.64              |
| 1:H1:314:C:H2'     | 1:H1:315:U:C6      | 2.33                     | 0.64              |
| 1:H1:1051:C:H2'    | 1:H1:1052:A:H8     | 1.60                     | 0.64              |
| 1:H1:1513:A:O2'    | 11:HL:6:THR:HG23   | 1.98                     | 0.64              |
| 1:H1:1618:A:H5''   | 11:HL:62:ALA:HB2   | 1.79                     | 0.64              |
| 1:H1:1932:A:OP2    | 50:H1:3907:HOH:O   | 2.14                     | 0.64              |
| 1:H1:2187:C:C2'    | 1:H1:2188:U:H5'    | 2.27                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:3332:A:H3'    | 1:H1:3333:G:C5'    | 2.27                     | 0.64              |
| 4:HC:36:GLN:HA     | 4:HC:36:GLN:OE1    | 1.97                     | 0.64              |
| 6:HF:84:LYS:O      | 6:HF:87:GLU:HG2    | 1.97                     | 0.64              |
| 7:HG:40:LYS:O      | 7:HG:65:ILE:HG23   | 1.97                     | 0.64              |
| 8:HH:36:LEU:HD22   | 8:HH:81:HIS:CD2    | 2.32                     | 0.64              |
| 13:HN:96:LEU:HD22  | 13:HN:113:THR:HG21 | 1.80                     | 0.64              |
| 15:HP:12:MET:HG2   | 15:HP:15:TRP:HE1   | 1.63                     | 0.64              |
| 1:A1:339:C:OP1     | 50:A1:3853:HOH:O   | 2.14                     | 0.64              |
| 1:A1:1101:U:H1'    | 17:AT:46:ALA:HB2   | 1.78                     | 0.64              |
| 1:A1:1370:A:H2'    | 1:A1:1371:G:C5'    | 2.21                     | 0.64              |
| 1:A1:1720:A:H2'    | 1:A1:1721:A:C8     | 2.32                     | 0.64              |
| 1:A1:2350:G:H4'    | 38:BQ:141:TYR:CE1  | 2.32                     | 0.64              |
| 1:A1:2732:G:H2'    | 1:A1:2733:C:C6     | 2.32                     | 0.64              |
| 1:A1:2738:G:O2'    | 1:A1:2739:C:H5'    | 1.97                     | 0.64              |
| 1:A1:3157:C:H1'    | 8:AH:9:VAL:HG13    | 1.78                     | 0.64              |
| 3:AB:28:ARG:NE     | 3:AB:36:ARG:O      | 2.30                     | 0.64              |
| 24:BC:186:LEU:HD22 | 24:BC:190:GLU:OE2  | 1.97                     | 0.64              |
| 27:BF:176:LYS:HD2  | 27:BF:187:THR:HG21 | 1.79                     | 0.64              |
| 31:BJ:46:ILE:CD1   | 31:BJ:54:PRO:HB3   | 2.27                     | 0.64              |
| 46:BY:56:LYS:HG2   | 46:BY:63:ILE:HG12  | 1.78                     | 0.64              |
| 22:CA:70:TYR:CE1   | 1:D1:2549:U:C6     | 2.85                     | 0.64              |
| 25:CD:9:MET:O      | 25:CD:134:PRO:HG3  | 1.97                     | 0.64              |
| 29:CH:77:ILE:HG13  | 29:CH:78:LYS:N     | 2.12                     | 0.64              |
| 29:CH:80:ILE:CD1   | 29:CH:144:HIS:HB3  | 2.26                     | 0.64              |
| 1:D1:111:C:H2'     | 1:D1:112:A:H5'     | 1.79                     | 0.64              |
| 1:D1:1434:G:C2'    | 1:D1:1435:C:C5'    | 2.72                     | 0.64              |
| 1:D1:2975:A:H2'    | 1:D1:2976:C:C6     | 2.32                     | 0.64              |
| 1:D1:3168:A:OP1    | 1:D1:3168:A:C8     | 2.48                     | 0.64              |
| 1:D1:3198:A:H2'    | 1:D1:3199:G:O4'    | 1.97                     | 0.64              |
| 16:DQ:58:ILE:O     | 16:DQ:62:ILE:HG13  | 1.97                     | 0.64              |
| 19:DX:11:ASP:OD1   | 19:DX:13:THR:HB    | 1.98                     | 0.64              |
| 23:EB:332:ARG:HG3  | 23:EB:332:ARG:NH1  | 2.11                     | 0.64              |
| 24:EC:186:LEU:HD22 | 24:EC:190:GLU:OE2  | 1.96                     | 0.64              |
| 24:EC:283:TYR:CE1  | 24:EC:285:LEU:HA   | 2.32                     | 0.64              |
| 33:EL:15:GLN:NE2   | 1:F1:294:A:OP1     | 2.31                     | 0.64              |
| 42:EU:74:PHE:HB3   | 42:EU:80:LYS:HG2   | 1.79                     | 0.64              |
| 45:EX:78:ILE:HB    | 45:EX:98:ILE:HA    | 1.79                     | 0.64              |
| 1:F1:269:U:H2'     | 1:F1:270:C:H6      | 1.62                     | 0.64              |
| 1:F1:1379:G:OP1    | 14:FO:102:GLY:N    | 2.28                     | 0.64              |
| 1:F1:1752:G:H5'    | 1:F1:1754:G:C5'    | 2.25                     | 0.64              |
| 1:F1:2178:A:H8     | 1:F1:2178:A:H5'    | 1.63                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3114:U:C2'    | 1:F1:3115:C:H5''   | 2.27                     | 0.64              |
| 5:FE:179:THR:HG22  | 5:FE:180:LEU:O     | 1.98                     | 0.64              |
| 22:GA:30:TYR:HB3   | 22:GA:164:ARG:NH1  | 2.13                     | 0.64              |
| 22:GA:208:VAL:HG22 | 1:H1:2410:C:H5'    | 1.79                     | 0.64              |
| 23:GB:119:TYR:CD2  | 23:GB:122:TRP:CZ3  | 2.86                     | 0.64              |
| 24:GC:77:ALA:CA    | 1:H1:2397:A:OP1    | 2.46                     | 0.64              |
| 29:GH:15:LYS:HE3   | 1:H1:1152:U:OP1    | 1.98                     | 0.64              |
| 33:GL:45:PRO:O     | 33:GL:49:ARG:HG3   | 1.98                     | 0.64              |
| 33:GL:93:LYS:HG3   | 1:H1:288:A:C2      | 2.33                     | 0.64              |
| 37:GP:40:VAL:CG1   | 37:GP:96:VAL:HG13  | 2.26                     | 0.64              |
| 43:GV:63:LYS:HG2   | 43:GV:64:ARG:N     | 2.12                     | 0.64              |
| 1:H1:64:A:N6       | 1:H1:66:C:O2       | 2.30                     | 0.64              |
| 1:H1:718:A:H2'     | 1:H1:719:C:C6      | 2.32                     | 0.64              |
| 1:H1:2243:C:O2'    | 1:H1:2268:G:C8     | 2.51                     | 0.64              |
| 1:H1:2255:U:H2'    | 1:H1:2256:G:O4'    | 1.97                     | 0.64              |
| 6:HF:13:VAL:HG11   | 6:HF:53:VAL:HG22   | 1.75                     | 0.64              |
| 19:HX:29:PRO:O     | 19:HX:30:ILE:HG22  | 1.98                     | 0.64              |
| 19:HX:94:LYS:HG2   | 19:HX:136:GLN:HB3  | 1.78                     | 0.64              |
| 1:A1:939:A:N3      | 22:BA:205:MET:HG2  | 2.13                     | 0.64              |
| 1:A1:1448:G:C4'    | 45:BX:79:ARG:NH1   | 2.61                     | 0.64              |
| 1:A1:1618:A:H2'    | 1:A1:1619:A:C8     | 2.32                     | 0.64              |
| 1:A1:2275:A:HO2'   | 1:A1:2276:A:P      | 2.20                     | 0.64              |
| 1:A1:2549:U:C6     | 22:BA:70:TYR:CE1   | 2.85                     | 0.64              |
| 1:A1:2678:A:H1'    | 1:A1:2691:A:N6     | 2.12                     | 0.64              |
| 1:A1:2975:A:H2'    | 1:A1:2976:C:C6     | 2.32                     | 0.64              |
| 10:AK:105:PRO:O    | 10:AK:106:LYS:HG2  | 1.97                     | 0.64              |
| 14:AO:110:LYS:O    | 14:AO:114:PHE:HB2  | 1.98                     | 0.64              |
| 19:AX:148:ILE:O    | 19:AX:154:LEU:HD21 | 1.97                     | 0.64              |
| 30:BI:107:ILE:HG13 | 30:BI:159:ARG:NH1  | 2.13                     | 0.64              |
| 32:BK:78:ASP:N     | 32:BK:78:ASP:OD1   | 2.25                     | 0.64              |
| 32:BK:117:ARG:HD3  | 32:BK:137:ARG:HH11 | 1.60                     | 0.64              |
| 34:BM:250:VAL:HG12 | 34:BM:254:ILE:HD11 | 1.77                     | 0.64              |
| 38:BQ:10:PRO:CB    | 38:BQ:153:GLN:HE22 | 2.10                     | 0.64              |
| 20:C2:147:G:H21    | 27:CF:54:GLN:NE2   | 1.95                     | 0.64              |
| 22:CA:20:HIS:HE1   | 1:D1:847:G:O2'     | 1.81                     | 0.64              |
| 23:CB:377:PHE:HD2  | 23:CB:378:PHE:CE1  | 2.15                     | 0.64              |
| 27:CF:155:LEU:CD1  | 1:D1:147:U:H1'     | 2.28                     | 0.64              |
| 32:CK:60:MET:C     | 35:CN:172:ARG:NH1  | 2.56                     | 0.64              |
| 34:CM:36:LEU:HD23  | 1:D1:2737:A:H1'    | 1.80                     | 0.64              |
| 35:CN:16:VAL:HG12  | 35:CN:17:VAL:H     | 1.60                     | 0.64              |
| 47:CO:114:LYS:O    | 47:CO:146:LYS:HE2  | 1.96                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1161:G:N7     | 50:D1:4305:HOH:O   | 2.29                     | 0.64              |
| 1:D1:1249:G:O2'    | 1:D1:1250:A:O5'    | 2.15                     | 0.64              |
| 1:D1:1395:U:O2'    | 1:D1:1396:A:H5'    | 1.98                     | 0.64              |
| 1:D1:1758:U:C4'    | 1:D1:1759:C:OP2    | 2.44                     | 0.64              |
| 1:D1:2275:A:HO2'   | 1:D1:2276:A:P      | 2.21                     | 0.64              |
| 1:D1:2308:A:P      | 50:D1:4663:HOH:O   | 2.55                     | 0.64              |
| 4:DC:36:GLN:HA     | 4:DC:36:GLN:OE1    | 1.97                     | 0.64              |
| 14:DO:75:THR:HG21  | 14:DO:77:GLU:OE1   | 1.97                     | 0.64              |
| 21:E3:36:C:O2      | 21:E3:45:U:H1'     | 1.98                     | 0.64              |
| 21:E3:105:C:H6     | 21:E3:105:C:C5'    | 2.11                     | 0.64              |
| 22:EA:70:TYR:CE1   | 1:F1:2549:U:C6     | 2.85                     | 0.64              |
| 23:EB:55:HIS:H     | 23:EB:55:HIS:CD2   | 2.15                     | 0.64              |
| 23:EB:303:ILE:HD11 | 23:EB:319:PHE:CE1  | 2.32                     | 0.64              |
| 27:EF:22:PHE:O     | 1:F1:2553:G:H5''   | 1.98                     | 0.64              |
| 34:EM:19:LYS:HE3   | 1:F1:2677:U:O4     | 1.98                     | 0.64              |
| 46:EY:12:ARG:HD2   | 46:EY:12:ARG:O     | 1.98                     | 0.64              |
| 1:F1:165:C:H5''    | 18:FU:132:LYS:NZ   | 2.13                     | 0.64              |
| 1:F1:629:A:H1'     | 1:F1:630:G:N7      | 2.13                     | 0.64              |
| 1:F1:1249:G:O2'    | 1:F1:1250:A:O5'    | 2.15                     | 0.64              |
| 1:F1:2875:A:N3     | 1:F1:2875:A:H2'    | 2.11                     | 0.64              |
| 1:F1:3179:U:H2'    | 1:F1:3180:C:C6     | 2.33                     | 0.64              |
| 18:FU:72:GLY:HA3   | 18:FU:96:ASP:HB2   | 1.79                     | 0.64              |
| 19:FX:18:VAL:HG11  | 19:FX:117:VAL:HG11 | 1.80                     | 0.64              |
| 22:GA:20:HIS:HD2   | 22:GA:193:LYS:O    | 1.79                     | 0.64              |
| 24:GC:308:VAL:HG12 | 35:GN:40:ARG:HH11  | 1.62                     | 0.64              |
| 29:GH:80:ILE:HD13  | 29:GH:144:HIS:HB3  | 1.80                     | 0.64              |
| 32:GK:14:HIS:O     | 32:GK:15:VAL:HG22  | 1.97                     | 0.64              |
| 33:GL:120:TRP:CH2  | 33:GL:122:GLY:HA2  | 2.32                     | 0.64              |
| 33:GL:172:ARG:HD3  | 1:H1:28:G:OP1      | 1.98                     | 0.64              |
| 35:GN:28:LYS:HE3   | 35:GN:32:LYS:HE2   | 1.80                     | 0.64              |
| 35:GN:82:VAL:HA    | 35:GN:102:CYS:O    | 1.97                     | 0.64              |
| 1:H1:124:U:O2'     | 1:H1:125:G:H5'     | 1.97                     | 0.64              |
| 1:H1:563:G:H2'     | 1:H1:566:U:H1'     | 1.80                     | 0.64              |
| 1:H1:827:C:OP2     | 50:H1:3786:HOH:O   | 2.15                     | 0.64              |
| 1:H1:1319:C:H2'    | 1:H1:1320:U:H6     | 1.62                     | 0.64              |
| 1:H1:1434:G:C2'    | 1:H1:1435:C:C5'    | 2.73                     | 0.64              |
| 1:H1:1471:U:H5''   | 1:H1:1472:A:OP2    | 1.97                     | 0.64              |
| 1:H1:1563:A:O2'    | 1:H1:1564:C:H5'    | 1.97                     | 0.64              |
| 1:H1:1566:U:H2'    | 1:H1:1567:A:C8     | 2.32                     | 0.64              |
| 1:H1:3237:C:N4     | 8:HH:10:ALA:HA     | 2.12                     | 0.64              |
| 5:HE:122:ALA:HB2   | 5:HE:134:LEU:HD23  | 1.79                     | 0.64              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 18:HU:56:VAL:CG1  | 18:HU:57:ARG:H     | 2.10                     | 0.64              |
| 1:A1:74:G:H4'     | 1:A1:75:A:OP1      | 1.95                     | 0.64              |
| 1:A1:169:A:OP2    | 1:A1:249:G:N2      | 2.31                     | 0.64              |
| 1:A1:548:G:N2     | 1:A1:619:G:N2      | 2.39                     | 0.64              |
| 1:A1:751:C:H6     | 1:A1:751:C:H5'     | 1.62                     | 0.64              |
| 1:A1:1127:U:H2'   | 1:A1:1128:G:C8     | 2.33                     | 0.64              |
| 1:A1:1249:G:O2'   | 1:A1:1250:A:O5'    | 2.16                     | 0.64              |
| 1:A1:1533:G:H4'   | 1:A1:1534:C:OP2    | 1.96                     | 0.64              |
| 1:A1:1869:G:O2'   | 2:AA:5:THR:HG22    | 1.98                     | 0.64              |
| 1:A1:1951:G:O2'   | 46:BY:12:ARG:NH1   | 2.29                     | 0.64              |
| 1:A1:1971:G:H5''  | 36:BO:134:ASN:ND2  | 2.13                     | 0.64              |
| 1:A1:2177:A:C2'   | 1:A1:2178:A:H5''   | 2.28                     | 0.64              |
| 1:A1:2377:G:O2'   | 30:BI:69:VAL:CG2   | 2.46                     | 0.64              |
| 1:A1:2508:U:H2'   | 1:A1:2581:G:H1     | 1.61                     | 0.64              |
| 1:A1:2989:G:N2    | 23:BB:118:PHE:HE2  | 1.96                     | 0.64              |
| 9:AJ:82:ARG:HG2   | 9:DJ:86:ASN:CG     | 2.23                     | 0.64              |
| 9:AJ:142:ILE:CD1  | 9:AJ:152:CYS:HB3   | 2.28                     | 0.64              |
| 15:AP:12:MET:HG2  | 15:AP:15:TRP:HE1   | 1.61                     | 0.64              |
| 19:AX:138:ILE:HA  | 37:BP:150:PRO:HG2  | 1.79                     | 0.64              |
| 21:B3:59:C:H2'    | 21:B3:60:C:C6      | 2.33                     | 0.64              |
| 22:BA:5:ILE:HG22  | 22:BA:6:ARG:N      | 2.13                     | 0.64              |
| 23:BB:211:GLU:O   | 23:BB:280:VAL:HG23 | 1.98                     | 0.64              |
| 24:BC:50:LYS:HD2  | 24:BC:116:VAL:HG11 | 1.80                     | 0.64              |
| 29:BH:139:ARG:HD3 | 29:BH:173:PHE:CE1  | 2.33                     | 0.64              |
| 32:BK:128:LYS:HB3 | 32:BK:129:TYR:CE1  | 2.32                     | 0.64              |
| 21:C3:59:C:H2'    | 21:C3:60:C:C6      | 2.33                     | 0.64              |
| 21:C3:81:A:H2'    | 21:C3:82:G:C5'     | 2.27                     | 0.64              |
| 24:CC:167:GLU:N   | 24:CC:171:GLN:NE2  | 2.43                     | 0.64              |
| 29:CH:33:ILE:HB   | 29:CH:69:ARG:HH22  | 1.62                     | 0.64              |
| 33:CL:18:LEU:O    | 33:CL:22:ILE:HG13  | 1.98                     | 0.64              |
| 35:CN:18:ARG:NH1  | 35:CN:56:SER:HA    | 2.12                     | 0.64              |
| 35:CN:52:ARG:HB2  | 35:CN:84:THR:CG2   | 2.06                     | 0.64              |
| 37:CP:40:VAL:CG1  | 37:CP:96:VAL:HG13  | 2.27                     | 0.64              |
| 42:CU:97:THR:HG22 | 42:CU:98:LYS:N     | 2.13                     | 0.64              |
| 46:CY:12:ARG:HD2  | 46:CY:12:ARG:O     | 1.98                     | 0.64              |
| 1:D1:358:C:O2'    | 2:DA:16:HIS:CD2    | 2.50                     | 0.64              |
| 1:D1:1599:G:C5    | 1:D1:1600:U:C5     | 2.86                     | 0.64              |
| 1:D1:2876:U:OP2   | 50:D1:4403:HOH:O   | 2.15                     | 0.64              |
| 1:D1:3071:C:O2'   | 1:D1:3072:G:H5'    | 1.98                     | 0.64              |
| 1:D1:3096:U:OP1   | 10:DK:112:LYS:HD3  | 1.96                     | 0.64              |
| 14:DO:100:SER:OG  | 14:DO:103:LEU:HG   | 1.97                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:E3:13:A:OP1     | 21:E3:109:U:O2'    | 2.14                     | 0.64              |
| 23:EB:32:PHE:CD2   | 23:EB:180:GLN:HB3  | 2.32                     | 0.64              |
| 24:EC:115:ARG:HG2  | 24:EC:115:ARG:O    | 1.98                     | 0.64              |
| 25:ED:17:LEU:HD13  | 25:ED:129:VAL:HG22 | 1.79                     | 0.64              |
| 27:EF:75:LYS:O     | 27:EF:172:PHE:HB2  | 1.97                     | 0.64              |
| 36:EO:98:ARG:NH1   | 36:EO:130:ASN:OD1  | 2.30                     | 0.64              |
| 36:EO:106:LEU:HB3  | 36:EO:120:TYR:CE1  | 2.33                     | 0.64              |
| 38:EQ:71:ARG:HG2   | 38:EQ:81:THR:HG22  | 1.80                     | 0.64              |
| 39:ER:56:ARG:HB3   | 39:ER:61:VAL:HG21  | 1.79                     | 0.64              |
| 39:ER:81:MET:O     | 39:ER:85:GLU:HG3   | 1.98                     | 0.64              |
| 1:F1:250:U:H5'     | 1:F1:251:A:OP2     | 1.98                     | 0.64              |
| 1:F1:269:U:O2'     | 1:F1:317:A:H1'     | 1.96                     | 0.64              |
| 1:F1:438:A:O3'     | 1:F1:439:A:H8      | 1.80                     | 0.64              |
| 1:F1:607:U:O2'     | 1:F1:608:C:H5'     | 1.97                     | 0.64              |
| 1:F1:1446:C:H6     | 1:F1:1446:C:C5'    | 2.10                     | 0.64              |
| 1:F1:2324:A:H8     | 1:F1:2324:A:H5''   | 1.63                     | 0.64              |
| 1:F1:2412:U:H2'    | 1:F1:2413:G:H5''   | 1.79                     | 0.64              |
| 1:F1:2508:U:H2'    | 1:F1:2581:G:H1     | 1.63                     | 0.64              |
| 24:GC:405:ILE:HD12 | 29:GH:183:ARG:CG   | 2.26                     | 0.64              |
| 25:GD:104:PHE:HE1  | 25:GD:106:ILE:HD11 | 1.62                     | 0.64              |
| 30:GI:10:ALA:HB1   | 30:GI:40:ILE:HG12  | 1.80                     | 0.64              |
| 30:GI:175:ASP:O    | 30:GI:178:LYS:HG2  | 1.98                     | 0.64              |
| 46:GY:57:CYS:SG    | 46:GY:59:PRO:HG2   | 2.37                     | 0.64              |
| 1:H1:123:C:H2'     | 1:H1:124:U:H6      | 1.62                     | 0.64              |
| 1:H1:146:U:O2      | 1:H1:148:G:C2      | 2.51                     | 0.64              |
| 1:H1:524:G:O2'     | 1:H1:525:C:OP1     | 2.14                     | 0.64              |
| 1:H1:1595:A:H1'    | 1:H1:1599:G:N1     | 2.13                     | 0.64              |
| 1:H1:2177:A:C2'    | 1:H1:2178:A:H5''   | 2.28                     | 0.64              |
| 1:H1:2251:A:C2'    | 1:H1:2253:U:OP2    | 2.45                     | 0.64              |
| 1:A1:384:A:H2'     | 1:A1:385:A:C8      | 2.33                     | 0.64              |
| 1:A1:516:C:H3'     | 1:A1:517:A:C8      | 2.33                     | 0.64              |
| 1:A1:1039:G:N2     | 1:A1:1064:C:C2     | 2.66                     | 0.64              |
| 1:A1:1308:U:H5''   | 28:BG:58:UNK:CG    | 2.25                     | 0.64              |
| 1:A1:1526:G:O2'    | 1:A1:1527:A:H5'    | 1.98                     | 0.64              |
| 1:A1:1711:U:H1'    | 12:AM:77:TYR:CD2   | 2.33                     | 0.64              |
| 1:A1:1949:U:O2     | 46:BY:19:GLY:HA2   | 1.97                     | 0.64              |
| 1:A1:2640:G:O2'    | 1:A1:2784:G:C6     | 2.50                     | 0.64              |
| 1:A1:3121:C:OP1    | 50:A1:4434:HOH:O   | 2.15                     | 0.64              |
| 7:AG:20:SER:HB2    | 29:GH:28:ASP:OD2   | 1.97                     | 0.64              |
| 25:BD:78:ASP:O     | 25:BD:81:THR:HB    | 1.97                     | 0.64              |
| 31:BJ:74:ARG:O     | 31:BJ:75:LYS:HB2   | 1.97                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:166:ALA:HB3  | 34:BM:173:ILE:HD11 | 1.80                     | 0.64              |
| 37:BP:63:LYS:HD2   | 37:BP:63:LYS:H     | 1.63                     | 0.64              |
| 22:CA:30:TYR:HB3   | 22:CA:164:ARG:HH11 | 1.63                     | 0.64              |
| 24:CC:159:PHE:HZ   | 24:CC:179:VAL:HG13 | 1.62                     | 0.64              |
| 25:CD:78:ASP:O     | 25:CD:81:THR:HB    | 1.97                     | 0.64              |
| 25:CD:109:HIS:HD1  | 25:CD:123:PHE:H    | 1.43                     | 0.64              |
| 27:CF:68:PRO:HD3   | 27:CF:225:TRP:NE1  | 2.13                     | 0.64              |
| 28:CG:85:UNK:O     | 28:CG:85:UNK:HG3   | 1.97                     | 0.64              |
| 47:CO:95:TRP:CZ3   | 1:D1:880:U:H4'     | 2.33                     | 0.64              |
| 37:CP:35:LYS:NZ    | 1:D1:1112:A:OP1    | 2.30                     | 0.64              |
| 1:D1:88:U:O4'      | 1:D1:280:G:O2'     | 2.16                     | 0.64              |
| 1:D1:745:A:H4'     | 17:DT:58:ASN:ND2   | 2.12                     | 0.64              |
| 1:D1:1051:C:H2'    | 1:D1:1052:A:H8     | 1.63                     | 0.64              |
| 1:D1:1095:C:H4'    | 1:D1:1096:G:OP2    | 1.98                     | 0.64              |
| 1:D1:1097:G:N2     | 1:D1:1117:U:H1'    | 2.13                     | 0.64              |
| 1:D1:1772:G:H2'    | 1:D1:1773:G:H5'    | 1.80                     | 0.64              |
| 22:EA:105:ILE:HG21 | 22:EA:147:THR:HG21 | 1.80                     | 0.64              |
| 23:EB:58:ARG:HH21  | 23:EB:60:VAL:CG1   | 2.11                     | 0.64              |
| 24:EC:125:LYS:O    | 24:EC:129:VAL:HG23 | 1.98                     | 0.64              |
| 25:ED:9:MET:HA     | 25:ED:9:MET:HE2    | 1.79                     | 0.64              |
| 27:EF:29:PHE:HD2   | 27:EF:37:PRO:HD3   | 1.62                     | 0.64              |
| 30:EI:10:ALA:C     | 30:EI:13:HIS:HD2   | 2.06                     | 0.64              |
| 30:EI:175:ASP:O    | 30:EI:178:LYS:HG2  | 1.97                     | 0.64              |
| 33:EL:30:TYR:CD2   | 33:EL:63:ARG:HD3   | 2.32                     | 0.64              |
| 34:EM:41:LYS:NZ    | 37:EP:30:TYR:O     | 2.27                     | 0.64              |
| 45:EX:98:ILE:CA    | 45:EX:123:ASN:HD21 | 2.10                     | 0.64              |
| 1:F1:111:C:H2'     | 1:F1:112:A:H5'     | 1.79                     | 0.64              |
| 1:F1:2380:U:H2'    | 1:F1:2380:U:O2     | 1.98                     | 0.64              |
| 1:F1:2399:A:H2'    | 1:F1:2399:A:N3     | 2.11                     | 0.64              |
| 1:F1:2961:G:C2'    | 1:F1:2962:U:H5''   | 2.28                     | 0.64              |
| 19:FX:148:ILE:O    | 19:FX:154:LEU:HD21 | 1.98                     | 0.64              |
| 20:G2:107:C:C4     | 20:G2:135:A:C6     | 2.86                     | 0.64              |
| 33:GL:196:GLN:HB3  | 18:HU:19:ARG:HH11  | 1.63                     | 0.64              |
| 35:GN:4:ASP:OD1    | 43:GV:106:ARG:HD3  | 1.97                     | 0.64              |
| 1:H1:1193:G:H2'    | 1:H1:1194:A:C8     | 2.31                     | 0.64              |
| 1:H1:1413:G:C2'    | 1:H1:1414:C:H5'    | 2.27                     | 0.64              |
| 1:H1:1652:U:H4'    | 1:H1:1655:A:C5'    | 2.28                     | 0.64              |
| 1:A1:732:C:O2      | 1:A1:778:G:O2'     | 2.15                     | 0.64              |
| 1:A1:1350:G:O3'    | 19:AX:16:MET:HG3   | 1.98                     | 0.64              |
| 1:A1:1923:G:OP1    | 31:BJ:25:ALA:HA    | 1.98                     | 0.64              |
| 8:AH:54:LYS:HD2    | 8:AH:108:LEU:HA    | 1.78                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:BA:29:GLN:OE1   | 22:BA:124:ARG:NH2  | 2.30                     | 0.64              |
| 23:BB:162:THR:CG2  | 23:BB:175:HIS:HD2  | 2.08                     | 0.64              |
| 25:BD:109:HIS:HD1  | 25:BD:123:PHE:H    | 1.46                     | 0.64              |
| 31:BJ:85:GLN:HA    | 31:BJ:102:ASN:HD22 | 1.62                     | 0.64              |
| 35:BN:52:ARG:NH1   | 35:BN:141:ARG:NE   | 2.42                     | 0.64              |
| 20:C2:27:G:H8      | 20:C2:27:G:H5'     | 1.62                     | 0.64              |
| 20:C2:107:C:H4'    | 20:C2:108:G:O5'    | 1.98                     | 0.64              |
| 24:CC:287:ARG:HD2  | 35:CN:111:ARG:HH12 | 1.63                     | 0.64              |
| 30:CI:48:ARG:NH2   | 1:D1:1220:A:OP2    | 2.31                     | 0.64              |
| 34:CM:210:ASP:HA   | 34:CM:213:MET:HG3  | 1.78                     | 0.64              |
| 34:CM:250:VAL:O    | 34:CM:254:ILE:HG13 | 1.97                     | 0.64              |
| 42:CU:118:ARG:HD2  | 18:DU:123:LEU:HD11 | 1.79                     | 0.64              |
| 1:D1:47:G:OP2      | 50:D1:3725:HOH:O   | 2.15                     | 0.64              |
| 1:D1:116:U:O2      | 1:D1:119:A:H5''    | 1.97                     | 0.64              |
| 1:D1:516:C:H3'     | 1:D1:517:A:C8      | 2.32                     | 0.64              |
| 1:D1:3096:U:C5'    | 10:DK:112:LYS:HZ3  | 2.11                     | 0.64              |
| 8:DH:59:ILE:O      | 8:DH:59:ILE:HG13   | 1.97                     | 0.64              |
| 19:DX:16:MET:HG2   | 19:DX:17:LYS:N     | 2.13                     | 0.64              |
| 19:DX:148:ILE:O    | 19:DX:154:LEU:HD21 | 1.96                     | 0.64              |
| 20:E2:137:G:H21    | 33:EL:112:GLU:HG2  | 1.63                     | 0.64              |
| 21:E3:90:A:H2      | 29:EH:162:ARG:NH2  | 1.95                     | 0.64              |
| 24:EC:32:PRO:CG    | 24:EC:286:GLN:HB3  | 2.28                     | 0.64              |
| 25:ED:82:ARG:HB3   | 25:ED:112:LEU:CD2  | 2.26                     | 0.64              |
| 32:EK:128:LYS:HB3  | 32:EK:129:TYR:CE1  | 2.33                     | 0.64              |
| 33:EL:183:SER:HA   | 33:EL:191:ASN:HD22 | 1.57                     | 0.64              |
| 35:EN:82:VAL:HA    | 35:EN:102:CYS:O    | 1.98                     | 0.64              |
| 43:EV:128:LEU:N    | 43:EV:129:PRO:HD2  | 2.12                     | 0.64              |
| 1:F1:41:A:O2'      | 1:F1:42:U:H5'      | 1.98                     | 0.64              |
| 1:F1:121:A:N6      | 1:F1:150:A:N6      | 2.46                     | 0.64              |
| 1:F1:132:U:HO2'    | 1:F1:133:C:P       | 2.20                     | 0.64              |
| 1:F1:155:A:C4      | 1:F1:265:A:C2      | 2.85                     | 0.64              |
| 1:F1:282:G:N2      | 1:F1:304:U:O4'     | 2.31                     | 0.64              |
| 1:F1:1210:C:O3'    | 19:FX:171:ARG:NH2  | 2.30                     | 0.64              |
| 1:F1:1662:A:OP2    | 13:FN:16:GLY:HA2   | 1.98                     | 0.64              |
| 1:F1:2405:U:O5'    | 50:F1:3672:HOH:O   | 2.14                     | 0.64              |
| 1:F1:2907:A:H8     | 1:F1:2907:A:C5'    | 2.11                     | 0.64              |
| 5:FE:80:TYR:HD2    | 5:FE:86:PRO:HB3    | 1.62                     | 0.64              |
| 14:FO:75:THR:CG2   | 14:FO:77:GLU:HG2   | 2.28                     | 0.64              |
| 21:G3:47:C:H2'     | 21:G3:48:G:O4'     | 1.97                     | 0.64              |
| 22:GA:70:TYR:HD2   | 1:H1:1674:C:H4'    | 1.61                     | 0.64              |
| 23:GB:250:ILE:HG12 | 1:H1:2388:G:H4'    | 1.80                     | 0.64              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:GC:200:LYS:NZ  | 1:H1:1445:G:H5''   | 2.12                     | 0.64              |
| 27:GF:155:LEU:CD1 | 1:H1:147:U:H1'     | 2.28                     | 0.64              |
| 32:GK:75:VAL:HG22 | 32:GK:109:PHE:CD2  | 2.33                     | 0.64              |
| 1:H1:77:A:C2      | 1:H1:324:A:C2      | 2.86                     | 0.64              |
| 1:H1:116:U:O2     | 1:H1:119:A:H5''    | 1.96                     | 0.64              |
| 1:H1:534:U:H2'    | 1:H1:535:C:C6      | 2.33                     | 0.64              |
| 1:H1:548:G:H1     | 1:H1:619:G:H22     | 1.44                     | 0.64              |
| 1:H1:568:A:C2     | 1:H1:602:A:C2      | 2.86                     | 0.64              |
| 1:H1:1101:U:H1'   | 17:HT:46:ALA:HB2   | 1.80                     | 0.64              |
| 1:H1:1376:A:H5''  | 1:H1:1377:A:C4'    | 2.27                     | 0.64              |
| 1:H1:1937:G:O2'   | 1:H1:2116:A:O2'    | 2.16                     | 0.64              |
| 1:H1:2946:A:N6    | 50:H1:3966:HOH:O   | 2.30                     | 0.64              |
| 6:HF:15:ILE:HD12  | 6:HF:43:ILE:HD13   | 1.79                     | 0.64              |
| 1:A1:211:A:C3'    | 24:BC:229:ASN:HD21 | 2.11                     | 0.64              |
| 1:A1:527:A:H5'    | 5:AE:13:SER:OG     | 1.97                     | 0.64              |
| 1:A1:832:A:H2     | 1:A1:2406:U:O2'    | 1.79                     | 0.64              |
| 1:A1:1376:A:H5''  | 1:A1:1377:A:C4'    | 2.28                     | 0.64              |
| 1:A1:1702:G:N7    | 12:AM:76:ARG:NH2   | 2.46                     | 0.64              |
| 1:A1:2663:A:C6    | 25:BD:124:GLY:HA3  | 2.33                     | 0.64              |
| 1:A1:2673:C:O2'   | 25:BD:99:THR:CG2   | 2.46                     | 0.64              |
| 1:A1:3079:U:O2'   | 1:A1:3080:A:O5'    | 2.15                     | 0.64              |
| 9:AJ:32:GLU:OE1   | 9:AJ:32:GLU:HA     | 1.98                     | 0.64              |
| 20:B2:26:A:H3'    | 20:B2:27:G:H5''    | 1.79                     | 0.64              |
| 23:BB:22:THR:HG22 | 23:BB:24:HIS:N     | 2.12                     | 0.64              |
| 23:BB:55:HIS:H    | 23:BB:55:HIS:CD2   | 2.16                     | 0.64              |
| 23:BB:281:TYR:CE2 | 23:BB:323:LYS:HB2  | 2.33                     | 0.64              |
| 25:BD:9:MET:HA    | 25:BD:9:MET:HE2    | 1.80                     | 0.64              |
| 28:BG:23:UNK:O    | 28:BG:86:UNK:HA    | 1.98                     | 0.64              |
| 34:BM:166:ALA:HB1 | 34:BM:171:ILE:HD12 | 1.79                     | 0.64              |
| 20:C2:137:G:H21   | 33:CL:112:GLU:CG   | 2.11                     | 0.64              |
| 23:CB:32:PHE:CD2  | 23:CB:180:GLN:HB3  | 2.32                     | 0.64              |
| 23:CB:118:PHE:HE2 | 1:D1:2989:G:N2     | 1.96                     | 0.64              |
| 24:CC:166:TYR:O   | 24:CC:222:THR:HB   | 1.98                     | 0.64              |
| 24:CC:259:THR:CG2 | 24:CC:260:GLU:N    | 2.61                     | 0.64              |
| 24:CC:321:LYS:O   | 24:CC:323:PRO:HD3  | 1.97                     | 0.64              |
| 27:CF:75:LYS:O    | 27:CF:172:PHE:HB2  | 1.97                     | 0.64              |
| 29:CH:80:ILE:HD13 | 29:CH:144:HIS:HB3  | 1.78                     | 0.64              |
| 32:CK:75:VAL:HG22 | 32:CK:109:PHE:CD2  | 2.32                     | 0.64              |
| 34:CM:66:TYR:OH   | 34:CM:73:ARG:HD2   | 1.97                     | 0.64              |
| 35:CN:24:ASN:CG   | 35:CN:27:HIS:HB2   | 2.22                     | 0.64              |
| 37:CP:142:GLN:OE1 | 43:CV:71:ALA:HB2   | 1.97                     | 0.64              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:210:A:HO2'   | 1:D1:229:A:HO2'    | 1.46                     | 0.64              |
| 1:D1:467:A:N6     | 1:D1:512:G:C6      | 2.66                     | 0.64              |
| 1:D1:1595:A:H1'   | 1:D1:1599:G:N1     | 2.13                     | 0.64              |
| 1:D1:1714:C:C2'   | 1:D1:1715:U:H5'    | 2.28                     | 0.64              |
| 1:D1:2366:G:H5''  | 1:D1:2367:A:OP2    | 1.98                     | 0.64              |
| 1:D1:3214:A:H5''  | 1:D1:3215:C:C6     | 2.33                     | 0.64              |
| 1:D1:3232:A:H4'   | 5:DE:55:ALA:HB1    | 1.80                     | 0.64              |
| 7:DG:47:ASN:HD21  | 7:DG:73:SER:HB3    | 1.58                     | 0.64              |
| 14:DO:32:THR:HG22 | 14:DO:34:ARG:H     | 1.62                     | 0.64              |
| 19:DX:13:THR:HG22 | 19:DX:14:LEU:HD23  | 1.79                     | 0.64              |
| 23:EB:264:ARG:NH2 | 1:F1:2387:C:HO2'   | 1.96                     | 0.64              |
| 32:EK:99:VAL:HB   | 18:FU:169:ILE:HD13 | 1.79                     | 0.64              |
| 38:EQ:73:ALA:O    | 38:EQ:76:HIS:CD2   | 2.51                     | 0.64              |
| 1:F1:499:U:H3'    | 1:F1:500:G:C8      | 2.31                     | 0.64              |
| 1:F1:1506:G:O2'   | 1:F1:1895:U:O4     | 2.15                     | 0.64              |
| 1:F1:1578:U:H5''  | 1:F1:1579:U:OP2    | 1.98                     | 0.64              |
| 1:F1:2542:U:H5''  | 1:F1:2542:U:C6     | 2.30                     | 0.64              |
| 1:F1:2659:G:H2'   | 1:F1:2660:A:C8     | 2.32                     | 0.64              |
| 1:F1:2876:U:C4    | 1:F1:2899:C:C5     | 2.86                     | 0.64              |
| 1:F1:3157:C:H1'   | 8:FH:9:VAL:HG13    | 1.79                     | 0.64              |
| 5:FE:124:LYS:HG2  | 5:FE:132:ALA:HB2   | 1.80                     | 0.64              |
| 6:FF:45:ARG:NH1   | 19:FX:84:ASN:HB3   | 2.13                     | 0.64              |
| 12:FM:66:ASN:HD21 | 12:FM:68:GLN:HE21  | 1.44                     | 0.64              |
| 14:FO:118:ASN:O   | 14:FO:122:GLN:HG2  | 1.97                     | 0.64              |
| 24:GC:321:LYS:O   | 24:GC:323:PRO:HD3  | 1.98                     | 0.64              |
| 28:GG:31:UNK:O    | 1:H1:1257:G:H4'    | 1.98                     | 0.64              |
| 34:GM:206:GLY:HA2 | 34:GM:208:HIS:CE1  | 2.33                     | 0.64              |
| 38:GQ:8:ARG:HH11  | 38:GQ:118:HIS:CB   | 2.07                     | 0.64              |
| 43:GV:63:LYS:NZ   | 1:H1:562:G:O3'     | 2.31                     | 0.64              |
| 46:GY:73:THR:C    | 46:GY:75:PRO:HD2   | 2.23                     | 0.64              |
| 1:H1:117:G:H4'    | 1:H1:118:A:O5'     | 1.97                     | 0.64              |
| 1:H1:836:U:H2'    | 1:H1:837:G:C8      | 2.33                     | 0.64              |
| 1:H1:897:A:C2'    | 1:H1:898:C:H5'     | 2.28                     | 0.64              |
| 1:H1:1660:U:H5''  | 13:HN:73:LYS:NZ    | 2.13                     | 0.64              |
| 1:H1:1884:G:C2'   | 1:H1:1885:G:H5'    | 2.27                     | 0.64              |
| 1:H1:2671:C:C2'   | 1:H1:2672:U:H5'    | 2.28                     | 0.64              |
| 1:H1:3165:A:H2'   | 1:H1:3166:A:C8     | 2.33                     | 0.64              |
| 1:H1:3179:U:H2'   | 1:H1:3180:C:C6     | 2.33                     | 0.64              |
| 3:HB:32:ASP:OD1   | 3:HB:32:ASP:N      | 2.31                     | 0.64              |
| 4:HC:26:TYR:HB3   | 4:HC:67:ALA:HB3    | 1.80                     | 0.64              |
| 6:HF:34:ASN:O     | 6:HF:49:PRO:HA     | 1.98                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:114:A:H2'     | 1:A1:115:G:C8      | 2.33                     | 0.64              |
| 1:A1:718:A:H2'     | 1:A1:719:C:C6      | 2.33                     | 0.64              |
| 1:A1:1361:U:H5'    | 1:A1:1361:U:C6     | 2.32                     | 0.64              |
| 1:A1:1520:U:C4     | 39:BR:124:ILE:HD13 | 2.33                     | 0.64              |
| 1:A1:2178:A:H8     | 1:A1:2178:A:H5'    | 1.62                     | 0.64              |
| 1:A1:2551:A:O3'    | 13:AN:52:LYS:NZ    | 2.23                     | 0.64              |
| 23:BB:113:ASN:CB   | 23:BB:174:ASN:ND2  | 2.61                     | 0.64              |
| 26:BE:132:ILE:HG12 | 26:BE:144:LEU:HD22 | 1.80                     | 0.64              |
| 34:BM:184:VAL:HB   | 34:BM:194:LYS:HB2  | 1.78                     | 0.64              |
| 34:BM:277:PHE:O    | 34:BM:279:PRO:HD3  | 1.98                     | 0.64              |
| 45:BX:6:VAL:CG1    | 45:BX:7:ALA:H      | 2.06                     | 0.64              |
| 24:CC:82:PRO:CB    | 24:CC:96:ALA:HB3   | 2.27                     | 0.64              |
| 30:CI:53:PHE:CD2   | 30:CI:144:VAL:HG21 | 2.33                     | 0.64              |
| 31:CJ:139:SER:HB3  | 9:DJ:102:SER:H     | 1.63                     | 0.64              |
| 33:CL:183:SER:C    | 33:CL:191:ASN:HD22 | 2.05                     | 0.64              |
| 47:CO:156:UNK:C    | 47:CO:159:UNK:HG3  | 2.26                     | 0.64              |
| 46:CY:4:ARG:HH12   | 1:D1:881:G:N2      | 1.96                     | 0.64              |
| 1:D1:399:A:H4'     | 1:D1:400:C:OP1     | 1.96                     | 0.64              |
| 1:D1:563:G:H2'     | 1:D1:566:U:H1'     | 1.78                     | 0.64              |
| 1:D1:846:C:OP1     | 50:D1:4108:HOH:O   | 2.15                     | 0.64              |
| 1:D1:1413:G:C2'    | 1:D1:1414:C:H5'    | 2.28                     | 0.64              |
| 1:D1:3123:A:OP2    | 50:D1:4814:HOH:O   | 2.15                     | 0.64              |
| 5:DE:57:ARG:HG2    | 5:DE:57:ARG:O      | 1.96                     | 0.64              |
| 19:DX:167:LYS:HG2  | 19:DX:188:THR:HG21 | 1.79                     | 0.64              |
| 23:EB:81:CYS:CB    | 23:EB:203:VAL:HG21 | 2.26                     | 0.64              |
| 24:EC:105:ARG:NH2  | 1:F1:829:C:OP1     | 2.31                     | 0.64              |
| 24:EC:227:LEU:O    | 24:EC:233:VAL:HG21 | 1.98                     | 0.64              |
| 26:EE:34:ILE:HG22  | 26:EE:78:MET:HE3   | 1.80                     | 0.64              |
| 27:EF:124:VAL:HG12 | 27:EF:125:LEU:O    | 1.98                     | 0.64              |
| 32:EK:117:ARG:HD3  | 32:EK:137:ARG:HH11 | 1.62                     | 0.64              |
| 33:EL:148:ILE:O    | 33:EL:151:ILE:HG22 | 1.98                     | 0.64              |
| 35:EN:5:LEU:HD23   | 43:EV:106:ARG:HD2  | 1.78                     | 0.64              |
| 37:EP:19:TYR:CE2   | 1:F1:1077:U:H4'    | 2.33                     | 0.64              |
| 1:F1:453:A:H2'     | 1:F1:454:A:H8      | 1.63                     | 0.64              |
| 1:F1:1056:A:H2'    | 1:F1:1057:U:H5'    | 1.80                     | 0.64              |
| 1:F1:2906:G:H5''   | 1:F1:2906:G:H8     | 1.63                     | 0.64              |
| 6:FF:34:ASN:O      | 6:FF:49:PRO:HA     | 1.98                     | 0.64              |
| 13:FN:13:LEU:HD22  | 13:FN:75:VAL:HG21  | 1.79                     | 0.64              |
| 14:FO:75:THR:HG21  | 14:FO:77:GLU:OE1   | 1.98                     | 0.64              |
| 15:FP:8:ILE:O      | 15:FP:12:MET:HG3   | 1.97                     | 0.64              |
| 23:GB:298:VAL:O    | 23:GB:298:VAL:HG12 | 1.98                     | 0.64              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:65:MET:CE    | 24:GC:105:ARG:HG2  | 2.28                     | 0.64              |
| 28:GG:81:UNK:HG2   | 1:H1:1309:G:C1'    | 2.27                     | 0.64              |
| 29:GH:33:ILE:HB    | 29:GH:69:ARG:HH22  | 1.61                     | 0.64              |
| 32:GK:75:VAL:CG2   | 32:GK:109:PHE:CG   | 2.81                     | 0.64              |
| 32:GK:137:ARG:HH21 | 1:H1:741:G:H4'     | 1.63                     | 0.64              |
| 40:GS:56:LEU:HD12  | 40:GS:65:ASN:O     | 1.97                     | 0.64              |
| 43:GV:82:PHE:CZ    | 43:GV:111:GLY:HA3  | 2.33                     | 0.64              |
| 1:H1:41:A:O2'      | 1:H1:42:U:H5'      | 1.98                     | 0.64              |
| 1:H1:927:G:H2'     | 1:H1:928:U:H6      | 1.63                     | 0.64              |
| 1:H1:1662:A:H5'    | 11:HL:76:ARG:HH21  | 1.55                     | 0.64              |
| 3:HB:9:MET:HB3     | 3:HB:13:PHE:HE2    | 1.62                     | 0.64              |
| 7:HG:95:ALA:CB     | 7:HG:101:LEU:HD11  | 2.28                     | 0.64              |
| 9:HJ:32:GLU:OE1    | 9:HJ:32:GLU:HA     | 1.98                     | 0.64              |
| 1:A1:418:G:C8      | 1:A1:418:G:C3'     | 2.80                     | 0.63              |
| 1:A1:513:G:O2'     | 1:A1:514:U:H5'     | 1.98                     | 0.63              |
| 1:A1:636:U:O2'     | 1:A1:637:U:H5'     | 1.97                     | 0.63              |
| 1:A1:2254:A:C5     | 1:A1:2255:U:C4     | 2.86                     | 0.63              |
| 1:A1:3073:U:OP2    | 50:A1:4469:HOH:O   | 2.15                     | 0.63              |
| 7:AG:17:VAL:HG13   | 7:AG:95:ALA:HB2    | 1.78                     | 0.63              |
| 18:AU:146:ALA:HB1  | 18:AU:148:ASN:ND2  | 2.13                     | 0.63              |
| 18:AU:177:VAL:O    | 18:AU:181:ILE:HG13 | 1.98                     | 0.63              |
| 20:B2:74:A:H61     | 20:B2:88:G:H1'     | 1.62                     | 0.63              |
| 23:BB:27:GLY:HA2   | 23:BB:272:HIS:HE1  | 1.64                     | 0.63              |
| 24:BC:283:TYR:CE1  | 24:BC:285:LEU:HA   | 2.33                     | 0.63              |
| 27:BF:65:LYS:HE2   | 27:BF:225:TRP:HE3  | 1.63                     | 0.63              |
| 29:BH:204:GLY:HA3  | 29:BH:208:ARG:NH2  | 2.13                     | 0.63              |
| 34:BM:250:VAL:HG12 | 34:BM:254:ILE:CD1  | 2.27                     | 0.63              |
| 35:BN:37:LEU:O     | 35:BN:41:THR:HB    | 1.98                     | 0.63              |
| 23:CB:192:PHE:O    | 23:CB:195:SER:OG   | 2.11                     | 0.63              |
| 27:CF:230:LEU:HD12 | 27:CF:235:GLN:OE1  | 1.98                     | 0.63              |
| 35:CN:37:LEU:O     | 35:CN:41:THR:HB    | 1.98                     | 0.63              |
| 1:D1:499:U:H3'     | 1:D1:500:G:C8      | 2.32                     | 0.63              |
| 1:D1:866:A:H5''    | 1:D1:866:A:H8      | 1.64                     | 0.63              |
| 1:D1:2369:C:H3'    | 50:D1:4019:HOH:O   | 1.98                     | 0.63              |
| 1:D1:2416:U:H2'    | 1:D1:2417:C:O4'    | 1.98                     | 0.63              |
| 1:D1:2856:U:O4     | 50:D1:4354:HOH:O   | 2.12                     | 0.63              |
| 1:D1:3291:G:HO2'   | 1:D1:3292:U:P      | 2.20                     | 0.63              |
| 9:DJ:119:PRO:HG2   | 9:DJ:146:VAL:HG12  | 1.80                     | 0.63              |
| 14:DO:94:ILE:HD12  | 14:DO:111:LEU:HD12 | 1.79                     | 0.63              |
| 21:E3:47:C:H2'     | 21:E3:48:G:O4'     | 1.97                     | 0.63              |
| 21:E3:120:U:H4'    | 34:EM:265:LYS:NZ   | 2.12                     | 0.63              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:EC:157:TYR:CD1  | 24:EC:159:PHE:HE1 | 2.15                     | 0.63              |
| 24:EC:272:THR:HG22 | 24:EC:273:TYR:H   | 1.63                     | 0.63              |
| 33:EL:26:ARG:O     | 33:EL:30:TYR:HD1  | 1.81                     | 0.63              |
| 38:EQ:64:ARG:NH1   | 1:F1:409:G:OP1    | 2.31                     | 0.63              |
| 41:ET:22:ARG:NE    | 41:ET:32:PHE:HD2  | 1.95                     | 0.63              |
| 1:F1:368:A:H5'     | 1:F1:369:U:OP2    | 1.96                     | 0.63              |
| 1:F1:454:A:H61     | 1:F1:524:G:H1'    | 1.61                     | 0.63              |
| 1:F1:2252:C:C4     | 1:F1:2253:U:C4    | 2.85                     | 0.63              |
| 1:F1:3168:A:OP1    | 1:F1:3168:A:C8    | 2.50                     | 0.63              |
| 1:F1:3263:G:O2'    | 1:F1:3265:A:N6    | 2.27                     | 0.63              |
| 5:FE:57:ARG:HG2    | 5:FE:57:ARG:O     | 1.98                     | 0.63              |
| 6:FF:49:PRO:HG2    | 6:FF:52:ARG:HG3   | 1.79                     | 0.63              |
| 9:FJ:129:ILE:HG23  | 9:FJ:133:LEU:HD12 | 1.80                     | 0.63              |
| 19:FX:16:MET:HG2   | 19:FX:17:LYS:H    | 1.61                     | 0.63              |
| 19:FX:175:LYS:HZ2  | 19:FX:178:ARG:NH1 | 1.90                     | 0.63              |
| 21:G3:93:G:O5'     | 21:G3:93:G:H8     | 1.80                     | 0.63              |
| 22:GA:195:LYS:O    | 22:GA:195:LYS:HG3 | 1.98                     | 0.63              |
| 23:GB:257:ARG:NH2  | 1:H1:2361:U:O3'   | 2.30                     | 0.63              |
| 24:GC:383:ALA:HB1  | 37:GP:147:PHE:CG  | 2.33                     | 0.63              |
| 27:GF:125:LEU:HD11 | 27:GF:191:VAL:CG1 | 2.29                     | 0.63              |
| 34:GM:119:TYR:CD1  | 34:GM:132:VAL:CG1 | 2.80                     | 0.63              |
| 35:GN:73:ASN:H     | 35:GN:76:ASN:CB   | 2.10                     | 0.63              |
| 36:GO:115:ILE:HG22 | 36:GO:119:GLN:CB  | 2.28                     | 0.63              |
| 43:GV:226:ASN:OD1  | 43:GV:226:ASN:O   | 2.16                     | 0.63              |
| 1:H1:433:C:C5'     | 1:H1:434:A:OP1    | 2.46                     | 0.63              |
| 1:H1:620:A:C8      | 1:H1:634:G:C6     | 2.85                     | 0.63              |
| 1:H1:1107:A:H5''   | 1:H1:1108:A:OP2   | 1.99                     | 0.63              |
| 1:H1:1361:U:H5'    | 1:H1:1361:U:C6    | 2.31                     | 0.63              |
| 1:H1:1906:G:O2'    | 1:H1:1907:A:H5'   | 1.99                     | 0.63              |
| 1:H1:2133:U:C5     | 1:H1:2138:A:N7    | 2.66                     | 0.63              |
| 1:H1:2178:A:H8     | 1:H1:2178:A:H5'   | 1.62                     | 0.63              |
| 1:H1:2613:G:H21    | 1:H1:2615:A:H2    | 1.45                     | 0.63              |
| 1:H1:3071:C:O2'    | 1:H1:3072:G:H5'   | 1.98                     | 0.63              |
| 6:HF:45:ARG:NH1    | 19:HX:84:ASN:HB3  | 2.13                     | 0.63              |
| 1:A1:511:U:H2'     | 1:A1:512:G:H8     | 1.61                     | 0.63              |
| 1:A1:534:U:H2'     | 1:A1:535:C:C6     | 2.34                     | 0.63              |
| 1:A1:1184:U:H6     | 1:A1:1184:U:C5'   | 2.11                     | 0.63              |
| 1:A1:1252:A:N3     | 1:A1:3105:G:N7    | 2.46                     | 0.63              |
| 1:A1:1366:C:H2'    | 1:A1:1367:A:H8    | 1.59                     | 0.63              |
| 1:A1:1381:G:H5'    | 14:AO:37:GLN:HG3  | 1.79                     | 0.63              |
| 1:A1:1598:C:H2'    | 1:A1:1599:G:H5'   | 1.78                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:B3:33:U:C4      | 34:BM:212:TYR:CE1  | 2.85                     | 0.63              |
| 23:BB:47:THR:OG1   | 23:BB:177:LEU:HD11 | 1.98                     | 0.63              |
| 23:BB:81:CYS:CB    | 23:BB:203:VAL:HG21 | 2.28                     | 0.63              |
| 23:CB:55:HIS:H     | 23:CB:55:HIS:CD2   | 2.14                     | 0.63              |
| 27:CF:29:PHE:HD2   | 27:CF:37:PRO:HD3   | 1.60                     | 0.63              |
| 28:CG:4:UNK:CG     | 28:CG:6:UNK:HG2    | 2.23                     | 0.63              |
| 29:CH:194:GLY:HA3  | 1:D1:1036:G:O2'    | 1.98                     | 0.63              |
| 35:CN:31:ILE:HG22  | 35:CN:35:LYS:HE3   | 1.80                     | 0.63              |
| 35:CN:92:ARG:CZ    | 1:D1:810:G:C8      | 2.80                     | 0.63              |
| 47:CO:15:LEU:HD21  | 47:CO:45:ILE:HD13  | 1.80                     | 0.63              |
| 45:CX:6:VAL:CG1    | 45:CX:7:ALA:H      | 2.06                     | 0.63              |
| 45:CX:42:ASN:HD22  | 45:CX:45:ARG:N     | 1.87                     | 0.63              |
| 1:D1:313:U:H2'     | 1:D1:314:C:C6      | 2.33                     | 0.63              |
| 1:D1:449:G:H2'     | 1:D1:450:C:C6      | 2.34                     | 0.63              |
| 1:D1:532:G:H2'     | 1:D1:533:G:H8      | 1.58                     | 0.63              |
| 1:D1:645:A:C1'     | 1:D1:646:A:OP2     | 2.46                     | 0.63              |
| 1:D1:1752:G:C5'    | 1:D1:1754:G:H5''   | 2.23                     | 0.63              |
| 1:D1:2576:C:C5'    | 1:D1:2576:C:C6     | 2.79                     | 0.63              |
| 1:D1:2671:C:C2'    | 1:D1:2672:U:H5'    | 2.27                     | 0.63              |
| 1:D1:2875:A:N3     | 1:D1:2875:A:H2'    | 2.11                     | 0.63              |
| 1:D1:3235:U:O4     | 8:DH:13:ARG:HA     | 1.99                     | 0.63              |
| 21:E3:16:A:H2'     | 21:E3:17:A:C8      | 2.33                     | 0.63              |
| 22:EA:38:ARG:O     | 22:EA:93:LEU:HG    | 1.98                     | 0.63              |
| 24:EC:157:TYR:HD1  | 24:EC:159:PHE:CE1  | 2.16                     | 0.63              |
| 24:EC:309:LYS:O    | 35:EN:40:ARG:NH1   | 2.30                     | 0.63              |
| 27:EF:131:HIS:O    | 27:EF:135:LEU:HG   | 1.98                     | 0.63              |
| 29:EH:80:ILE:HD13  | 29:EH:144:HIS:HB3  | 1.80                     | 0.63              |
| 33:EL:16:SER:HB3   | 16:FQ:49:THR:HG23  | 1.81                     | 0.63              |
| 33:EL:196:GLN:HB3  | 18:FU:19:ARG:HH11  | 1.62                     | 0.63              |
| 34:EM:250:VAL:HG12 | 34:EM:254:ILE:CD1  | 2.28                     | 0.63              |
| 35:EN:18:ARG:HD3   | 35:EN:54:SER:O     | 1.97                     | 0.63              |
| 35:EN:56:SER:HB3   | 1:F1:695:U:OP1     | 1.97                     | 0.63              |
| 35:EN:73:ASN:H     | 35:EN:76:ASN:CB    | 2.10                     | 0.63              |
| 43:EV:80:VAL:HG22  | 43:EV:188:VAL:HG23 | 1.79                     | 0.63              |
| 1:F1:123:C:H2'     | 1:F1:124:U:H6      | 1.63                     | 0.63              |
| 1:F1:126:A:H2      | 1:F1:141:C:N4      | 1.96                     | 0.63              |
| 1:F1:313:U:H2'     | 1:F1:314:C:C6      | 2.33                     | 0.63              |
| 1:F1:623:G:N2      | 1:F1:633:C:C2      | 2.67                     | 0.63              |
| 1:F1:1350:G:O3'    | 19:FX:16:MET:HG3   | 1.98                     | 0.63              |
| 1:F1:1435:C:H5'    | 1:F1:1435:C:H6     | 1.63                     | 0.63              |
| 1:F1:1752:G:C5'    | 1:F1:1754:G:H5''   | 2.25                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2275:A:P      | 50:F1:4339:HOH:O   | 2.52                     | 0.63              |
| 1:F1:2602:U:O4     | 50:F1:3667:HOH:O   | 2.11                     | 0.63              |
| 1:F1:3177:G:C4'    | 1:F1:3178:U:OP2    | 2.40                     | 0.63              |
| 1:F1:3235:U:O4     | 8:FH:13:ARG:HA     | 1.98                     | 0.63              |
| 1:F1:3237:C:C2     | 8:FH:7:SER:OG      | 2.51                     | 0.63              |
| 5:FE:15:ILE:HA     | 5:FE:18:TRP:NE1    | 2.13                     | 0.63              |
| 7:FG:8:ASP:OD1     | 7:FG:9:ASN:N       | 2.32                     | 0.63              |
| 12:FM:35:PHE:HE1   | 12:FM:39:LEU:HD11  | 1.63                     | 0.63              |
| 19:FX:113:LEU:CD2  | 19:FX:140:THR:HG21 | 2.28                     | 0.63              |
| 21:G3:59:C:H2'     | 21:G3:60:C:C6      | 2.33                     | 0.63              |
| 23:GB:56:ILE:HG21  | 23:GB:354:LEU:HD22 | 1.81                     | 0.63              |
| 24:GC:382:LYS:HG3  | 24:GC:383:ALA:N    | 2.12                     | 0.63              |
| 29:GH:80:ILE:CD1   | 29:GH:144:HIS:HB3  | 2.28                     | 0.63              |
| 33:GL:165:THR:O    | 33:GL:169:ARG:HG3  | 1.97                     | 0.63              |
| 34:GM:250:VAL:HG12 | 34:GM:254:ILE:HD11 | 1.80                     | 0.63              |
| 44:GW:33:ARG:NH2   | 1:H1:1906:G:H5''   | 2.11                     | 0.63              |
| 1:H1:396:A:C4'     | 1:H1:397:A:OP1     | 2.35                     | 0.63              |
| 1:H1:978:G:OP1     | 17:HT:15:LYS:NZ    | 2.26                     | 0.63              |
| 1:H1:1858:U:OP1    | 3:HB:5:LYS:HE3     | 1.98                     | 0.63              |
| 1:H1:2277:U:O2'    | 1:H1:2278:G:P      | 2.56                     | 0.63              |
| 1:H1:2508:U:H2'    | 1:H1:2581:G:H1     | 1.63                     | 0.63              |
| 1:H1:2720:G:H2'    | 1:H1:2721:G:H5'    | 1.79                     | 0.63              |
| 14:HO:16:LEU:HD13  | 14:HO:35:ASN:ND2   | 2.12                     | 0.63              |
| 1:A1:282:G:N2      | 1:A1:304:U:O4'     | 2.31                     | 0.63              |
| 1:A1:563:G:C5'     | 1:A1:564:A:OP2     | 2.46                     | 0.63              |
| 1:A1:707:A:OP2     | 50:A1:4634:HOH:O   | 2.15                     | 0.63              |
| 1:A1:742:U:O4      | 17:AT:61:LYS:CB    | 2.46                     | 0.63              |
| 1:A1:1037:A:H2'    | 1:A1:1038:G:H8     | 1.62                     | 0.63              |
| 1:A1:2671:C:C2'    | 1:A1:2672:U:H5'    | 2.27                     | 0.63              |
| 2:AA:21:ARG:CD     | 2:AA:44:MET:HE1    | 2.28                     | 0.63              |
| 20:B2:1:A:H4'      | 20:B2:2:G:OP2      | 1.98                     | 0.63              |
| 25:BD:106:ILE:HD12 | 25:BD:127:PHE:CE1  | 2.34                     | 0.63              |
| 27:BF:124:VAL:HG12 | 27:BF:125:LEU:O    | 1.99                     | 0.63              |
| 27:BF:230:LEU:HD12 | 27:BF:235:GLN:OE1  | 1.99                     | 0.63              |
| 29:BH:80:ILE:HD13  | 29:BH:144:HIS:HB3  | 1.79                     | 0.63              |
| 36:BO:114:LYS:HB3  | 36:BO:146:LYS:NZ   | 2.13                     | 0.63              |
| 20:C2:147:G:N2     | 27:CF:54:GLN:HE22  | 1.93                     | 0.63              |
| 23:CB:22:THR:HG22  | 23:CB:24:HIS:N     | 2.13                     | 0.63              |
| 25:CD:37:LEU:HD13  | 25:CD:69:VAL:HG23  | 1.80                     | 0.63              |
| 26:CE:132:ILE:HG23 | 26:CE:144:LEU:CD2  | 2.28                     | 0.63              |
| 27:CF:196:VAL:CG1  | 27:CF:200:ASP:HB2  | 2.26                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 29:CH:116:ARG:O   | 1:D1:2633:C:O2'    | 2.16                     | 0.63              |
| 31:CJ:25:ALA:HA   | 1:D1:1923:G:OP1    | 1.98                     | 0.63              |
| 32:CK:44:ARG:NH2  | 1:D1:2788:G:N7     | 2.46                     | 0.63              |
| 33:CL:183:SER:HA  | 33:CL:191:ASN:HD22 | 1.60                     | 0.63              |
| 34:CM:119:TYR:HD1 | 34:CM:132:VAL:HG11 | 1.57                     | 0.63              |
| 38:CQ:120:GLN:HB3 | 38:CQ:149:GLU:CG   | 2.28                     | 0.63              |
| 1:D1:155:A:H4'    | 1:D1:156:A:OP2     | 1.98                     | 0.63              |
| 1:D1:513:G:O2'    | 1:D1:514:U:H5'     | 1.98                     | 0.63              |
| 1:D1:592:A:H2'    | 1:D1:593:U:C6      | 2.33                     | 0.63              |
| 1:D1:1533:G:H4'   | 1:D1:1534:C:OP2    | 1.98                     | 0.63              |
| 1:D1:3100:U:C2'   | 1:D1:3101:G:H5'    | 2.28                     | 0.63              |
| 5:DE:15:ILE:HA    | 5:DE:18:TRP:NE1    | 2.14                     | 0.63              |
| 8:DH:54:LYS:HD2   | 8:DH:108:LEU:HA    | 1.80                     | 0.63              |
| 9:DJ:43:VAL:HG12  | 9:DJ:44:PRO:CD     | 2.28                     | 0.63              |
| 16:DQ:77:ALA:HB1  | 16:DQ:87:ALA:HA    | 1.80                     | 0.63              |
| 23:EB:27:GLY:HA2  | 23:EB:272:HIS:HE1  | 1.63                     | 0.63              |
| 23:EB:116:LYS:HD3 | 23:EB:173:LYS:HB2  | 1.79                     | 0.63              |
| 32:EK:119:PRO:HG3 | 35:EN:94:LEU:CD1   | 2.29                     | 0.63              |
| 43:EV:205:ASP:O   | 43:EV:238:MET:HE3  | 1.97                     | 0.63              |
| 1:F1:243:G:H5'    | 1:F1:243:G:C8      | 2.33                     | 0.63              |
| 1:F1:418:G:C8     | 1:F1:418:G:C3'     | 2.80                     | 0.63              |
| 1:F1:832:A:H2     | 1:F1:2406:U:O2'    | 1.77                     | 0.63              |
| 1:F1:1252:A:N3    | 1:F1:3105:G:N7     | 2.46                     | 0.63              |
| 1:F1:1652:U:H4'   | 1:F1:1655:A:C5'    | 2.28                     | 0.63              |
| 1:F1:1957:A:OP2   | 50:F1:4371:HOH:O   | 2.15                     | 0.63              |
| 1:F1:2256:G:C2'   | 1:F1:2257:A:H5''   | 2.28                     | 0.63              |
| 1:F1:2574:U:H5'   | 1:F1:2575:G:OP1    | 1.98                     | 0.63              |
| 9:FJ:32:GLU:OE1   | 9:FJ:32:GLU:HA     | 1.98                     | 0.63              |
| 9:FJ:39:GLU:HB3   | 9:FJ:43:VAL:CG2    | 2.28                     | 0.63              |
| 22:GA:205:MET:HE2 | 22:GA:209:ASP:HB3  | 1.79                     | 0.63              |
| 27:GF:20:PRO:HB2  | 27:GF:22:PHE:CD2   | 2.34                     | 0.63              |
| 28:GG:81:UNK:HG3  | 1:H1:1308:U:H2'    | 1.80                     | 0.63              |
| 29:GH:41:ALA:HB3  | 29:GH:139:ARG:NH2  | 2.14                     | 0.63              |
| 33:GL:120:TRP:CE2 | 33:GL:122:GLY:HA2  | 2.32                     | 0.63              |
| 46:GY:62:LYS:NZ   | 1:H1:2545:A:N7     | 2.46                     | 0.63              |
| 1:H1:169:A:OP2    | 1:H1:249:G:N2      | 2.31                     | 0.63              |
| 1:H1:296:G:H5''   | 1:H1:297:U:OP1     | 1.99                     | 0.63              |
| 1:H1:690:U:H2'    | 1:H1:691:C:C6      | 2.34                     | 0.63              |
| 1:H1:1578:U:H5''  | 1:H1:1579:U:OP2    | 1.98                     | 0.63              |
| 1:H1:1599:G:H2'   | 1:H1:1600:U:H5'    | 1.81                     | 0.63              |
| 2:HA:17:THR:CG2   | 2:HA:18:LEU:H      | 2.11                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:741:G:H4'    | 32:BK:137:ARG:HH21 | 1.64                     | 0.63              |
| 1:A1:1020:G:OP1   | 37:BP:14:LYS:HE3   | 1.98                     | 0.63              |
| 1:A1:2399:A:H2'   | 1:A1:2399:A:N3     | 2.12                     | 0.63              |
| 1:A1:2860:A:H5'   | 1:A1:2860:A:N3     | 2.13                     | 0.63              |
| 1:A1:3109:C:C3'   | 10:AK:111:ARG:NH1  | 2.46                     | 0.63              |
| 1:A1:3155:A:N6    | 8:AH:98:GLN:O      | 2.27                     | 0.63              |
| 5:AE:63:VAL:HG11  | 5:AE:76:VAL:HG13   | 1.80                     | 0.63              |
| 23:BB:49:PHE:CE2  | 23:BB:333:VAL:HG12 | 2.33                     | 0.63              |
| 23:BB:332:ARG:HG3 | 23:BB:332:ARG:NH1  | 2.08                     | 0.63              |
| 24:BC:115:ARG:O   | 24:BC:115:ARG:HG2  | 1.98                     | 0.63              |
| 26:BE:34:ILE:HG22 | 26:BE:78:MET:HE3   | 1.81                     | 0.63              |
| 27:BF:96:LYS:HB3  | 27:BF:97:PRO:HD2   | 1.79                     | 0.63              |
| 31:BJ:10:GLN:CG   | 31:BJ:129:ILE:HG23 | 2.24                     | 0.63              |
| 32:BK:75:VAL:HG22 | 32:BK:109:PHE:CD2  | 2.33                     | 0.63              |
| 35:BN:28:LYS:HE3  | 35:BN:32:LYS:HE2   | 1.79                     | 0.63              |
| 36:BO:15:LEU:HD13 | 36:BO:52:LYS:HB2   | 1.81                     | 0.63              |
| 20:C2:37:A:O3'    | 50:C2:312:HOH:O    | 2.16                     | 0.63              |
| 29:CH:204:GLY:HA3 | 29:CH:208:ARG:NH2  | 2.13                     | 0.63              |
| 30:CI:86:MET:HE1  | 1:D1:1201:G:H21    | 1.62                     | 0.63              |
| 34:CM:184:VAL:HB  | 34:CM:194:LYS:HB2  | 1.80                     | 0.63              |
| 38:CQ:3:LYS:NZ    | 1:D1:398:G:N7      | 2.46                     | 0.63              |
| 38:CQ:72:THR:HG21 | 38:CQ:74:GLN:HG3   | 1.80                     | 0.63              |
| 45:CX:78:ILE:HB   | 45:CX:98:ILE:HA    | 1.81                     | 0.63              |
| 1:D1:534:U:H2'    | 1:D1:535:C:C6      | 2.34                     | 0.63              |
| 1:D1:842:A:C8     | 2:DA:15:THR:CG2    | 2.78                     | 0.63              |
| 1:D1:1025:G:C6    | 1:D1:1026:C:N4     | 2.66                     | 0.63              |
| 1:D1:2508:U:H2'   | 1:D1:2581:G:H1     | 1.62                     | 0.63              |
| 1:D1:2651:A:H2'   | 1:D1:2652:G:C8     | 2.33                     | 0.63              |
| 1:D1:2913:C:H2'   | 1:D1:2914:A:H5'    | 1.81                     | 0.63              |
| 1:D1:2962:U:H6    | 1:D1:2962:U:H5'    | 1.63                     | 0.63              |
| 5:DE:113:GLU:HG3  | 5:DE:114:ASP:H     | 1.62                     | 0.63              |
| 7:DG:57:GLU:HA    | 7:DG:67:ILE:CD1    | 2.27                     | 0.63              |
| 8:DH:23:PHE:CD2   | 8:DH:32:SER:HA     | 2.34                     | 0.63              |
| 11:DL:9:ARG:HG3   | 11:DL:34:TYR:CE2   | 2.34                     | 0.63              |
| 12:DM:110:PHE:O   | 12:DM:111:ASN:HB2  | 1.99                     | 0.63              |
| 21:E3:54:A:C2'    | 25:ED:152:GLN:HE21 | 2.11                     | 0.63              |
| 23:EB:97:ARG:HH21 | 1:F1:3206:A:H5'    | 1.63                     | 0.63              |
| 23:EB:113:ASN:CB  | 23:EB:174:ASN:ND2  | 2.61                     | 0.63              |
| 23:EB:253:TRP:CD2 | 1:F1:2929:A:C8     | 2.86                     | 0.63              |
| 25:ED:37:LEU:HD13 | 25:ED:69:VAL:HG23  | 1.80                     | 0.63              |
| 26:EE:12:ILE:HD11 | 26:EE:53:VAL:HG23  | 1.81                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 31:EJ:32:ASN:HD21 | 31:EJ:116:SER:H    | 1.46                     | 0.63              |
| 33:EL:120:TRP:CE2 | 33:EL:122:GLY:HA2  | 2.33                     | 0.63              |
| 1:F1:184:C:H2'    | 1:F1:185:A:C8      | 2.33                     | 0.63              |
| 1:F1:842:A:N7     | 2:FA:15:THR:HG23   | 2.12                     | 0.63              |
| 1:F1:876:C:H2'    | 1:F1:877:U:H6      | 1.63                     | 0.63              |
| 1:F1:1375:A:H4'   | 1:F1:1376:A:OP1    | 1.98                     | 0.63              |
| 1:F1:1714:C:C2'   | 1:F1:1715:U:H5'    | 2.28                     | 0.63              |
| 11:FL:49:CYS:SG   | 11:FL:51:VAL:HG23  | 2.39                     | 0.63              |
| 16:FQ:49:THR:HG22 | 16:FQ:50:GLY:O     | 1.99                     | 0.63              |
| 21:G3:93:G:H4'    | 19:HX:96:GLN:NE2   | 2.14                     | 0.63              |
| 22:GA:209:ASP:O   | 22:GA:210:HIS:HB2  | 1.98                     | 0.63              |
| 23:GB:113:ASN:CB  | 23:GB:174:ASN:ND2  | 2.61                     | 0.63              |
| 40:GS:30:MET:HE1  | 40:GS:77:TRP:HA    | 1.80                     | 0.63              |
| 46:GY:8:VAL:HG13  | 46:GY:11:THR:HB    | 1.79                     | 0.63              |
| 1:H1:155:A:C4     | 1:H1:265:A:C2      | 2.86                     | 0.63              |
| 1:H1:564:A:H5'    | 1:H1:565:G:OP2     | 1.98                     | 0.63              |
| 1:H1:726:G:H2'    | 1:H1:727:C:C6      | 2.34                     | 0.63              |
| 1:H1:1096:G:H2'   | 1:H1:1097:G:C5'    | 2.26                     | 0.63              |
| 1:H1:2380:U:H2'   | 1:H1:2380:U:O2     | 1.98                     | 0.63              |
| 1:H1:2569:A:HO2'  | 1:H1:2570:U:P      | 2.20                     | 0.63              |
| 5:HE:86:PRO:HB2   | 5:HE:153:GLN:NE2   | 2.01                     | 0.63              |
| 18:HU:133:LYS:C   | 18:HU:135:LEU:N    | 2.53                     | 0.63              |
| 1:A1:118:A:N7     | 27:BF:122:PRO:HD3  | 2.14                     | 0.63              |
| 1:A1:568:A:C2     | 1:A1:602:A:C2      | 2.87                     | 0.63              |
| 1:A1:1068:U:H6    | 1:A1:1068:U:O5'    | 1.82                     | 0.63              |
| 1:A1:1195:U:OP1   | 43:BV:208:ARG:O    | 2.17                     | 0.63              |
| 1:A1:1319:C:H2'   | 1:A1:1320:U:H6     | 1.62                     | 0.63              |
| 1:A1:1660:U:H1'   | 13:AN:38:PHE:CZ    | 2.34                     | 0.63              |
| 1:A1:2507:C:O2'   | 1:A1:2508:U:H5'    | 1.99                     | 0.63              |
| 1:A1:2906:G:H5''  | 1:A1:2906:G:H8     | 1.62                     | 0.63              |
| 1:A1:3331:C:H4'   | 1:A1:3332:A:H5''   | 1.81                     | 0.63              |
| 6:AF:103:LEU:HD22 | 6:AF:107:ASP:HB3   | 1.80                     | 0.63              |
| 9:AJ:119:PRO:HG2  | 9:AJ:146:VAL:HG12  | 1.80                     | 0.63              |
| 12:AM:66:ASN:ND2  | 12:AM:68:GLN:HE21  | 1.96                     | 0.63              |
| 12:AM:110:PHE:O   | 12:AM:111:ASN:HB2  | 1.98                     | 0.63              |
| 13:AN:96:LEU:HD22 | 13:AN:113:THR:HG21 | 1.80                     | 0.63              |
| 24:BC:32:PRO:CG   | 24:BC:286:GLN:HB3  | 2.29                     | 0.63              |
| 27:BF:159:LEU:HB2 | 27:BF:160:PRO:HD3  | 1.81                     | 0.63              |
| 34:BM:206:GLY:HA2 | 34:BM:208:HIS:CE1  | 2.33                     | 0.63              |
| 36:BO:151:LYS:O   | 36:BO:153:ASP:N    | 2.31                     | 0.63              |
| 44:BW:20:HIS:CD2  | 44:BW:21:LYS:HB2   | 2.34                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 29:CH:139:ARG:HD3 | 29:CH:173:PHE:CE1  | 2.33                     | 0.63              |
| 32:CK:142:GLY:C   | 18:DU:173:ARG:HH21 | 2.06                     | 0.63              |
| 38:CQ:8:ARG:NH1   | 38:CQ:117:GLN:HG3  | 2.13                     | 0.63              |
| 1:D1:223:C:HO2'   | 1:D1:224:C:P       | 2.21                     | 0.63              |
| 1:D1:604:A:H8     | 1:D1:604:A:O5'     | 1.80                     | 0.63              |
| 1:D1:726:G:H2'    | 1:D1:727:C:C6      | 2.34                     | 0.63              |
| 1:D1:837:G:N7     | 50:D1:4094:HOH:O   | 2.31                     | 0.63              |
| 1:D1:846:C:C2'    | 1:D1:847:G:H5''    | 2.25                     | 0.63              |
| 1:D1:972:U:H2'    | 1:D1:973:C:C6      | 2.33                     | 0.63              |
| 1:D1:1343:G:O6    | 19:DX:167:LYS:HD2  | 1.97                     | 0.63              |
| 1:D1:2109:G:C2'   | 1:D1:2110:C:H5'    | 2.28                     | 0.63              |
| 1:D1:2177:A:C2'   | 1:D1:2178:A:H5''   | 2.28                     | 0.63              |
| 1:D1:2276:A:H1'   | 1:D1:2962:U:O2'    | 1.98                     | 0.63              |
| 20:E2:18:G:H1'    | 1:F1:406:A:H61     | 1.63                     | 0.63              |
| 20:E2:50:C:H1'    | 20:E2:64:A:H2'     | 1.81                     | 0.63              |
| 20:E2:88:G:O2'    | 20:E2:89:A:O5'     | 2.16                     | 0.63              |
| 24:EC:159:PHE:HZ  | 24:EC:179:VAL:HG13 | 1.62                     | 0.63              |
| 25:ED:53:THR:HA   | 25:ED:59:ILE:O     | 1.99                     | 0.63              |
| 28:EG:23:UNK:O    | 28:EG:86:UNK:HA    | 1.99                     | 0.63              |
| 34:EM:119:TYR:HD1 | 34:EM:132:VAL:HG11 | 1.58                     | 0.63              |
| 38:EQ:32:TYR:CD2  | 38:EQ:33:GLU:HG2   | 2.32                     | 0.63              |
| 1:F1:1127:U:H2'   | 1:F1:1128:G:H8     | 1.62                     | 0.63              |
| 1:F1:2732:G:H2'   | 1:F1:2733:C:C6     | 2.33                     | 0.63              |
| 22:GA:58:PRO:HD2  | 22:GA:171:ALA:HB3  | 1.79                     | 0.63              |
| 24:GC:229:ASN:ND2 | 1:H1:211:A:H3'     | 2.10                     | 0.63              |
| 30:GI:177:ARG:HD3 | 30:GI:180:GLU:OE2  | 1.99                     | 0.63              |
| 31:GJ:85:GLN:HA   | 31:GJ:102:ASN:HD22 | 1.63                     | 0.63              |
| 39:GR:56:ARG:HB3  | 39:GR:61:VAL:HG21  | 1.79                     | 0.63              |
| 40:GS:6:GLU:N     | 40:GS:6:GLU:OE1    | 2.31                     | 0.63              |
| 41:GT:5:THR:CG2   | 41:GT:14:ARG:HG3   | 2.24                     | 0.63              |
| 43:GV:98:ARG:CD   | 1:H1:1010:G:H2'    | 2.28                     | 0.63              |
| 43:GV:128:LEU:N   | 43:GV:129:PRO:HD2  | 2.13                     | 0.63              |
| 1:H1:438:A:O3'    | 1:H1:439:A:H8      | 1.81                     | 0.63              |
| 1:H1:787:U:C2'    | 18:HU:179:ARG:HH22 | 2.11                     | 0.63              |
| 1:H1:925:G:H1'    | 1:H1:1614:A:N6     | 2.12                     | 0.63              |
| 1:H1:979:U:C1'    | 17:HT:12:GLN:HE21  | 2.08                     | 0.63              |
| 1:H1:1210:C:H5''  | 19:HX:171:ARG:HH21 | 1.62                     | 0.63              |
| 1:H1:1700:A:OP2   | 12:HM:74:SER:HB2   | 1.98                     | 0.63              |
| 1:H1:2738:G:O2'   | 1:H1:2739:C:H5'    | 1.99                     | 0.63              |
| 1:A1:453:A:H2'    | 1:A1:454:A:H8      | 1.64                     | 0.63              |
| 1:A1:564:A:H5'    | 1:A1:565:G:OP2     | 1.98                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:972:U:H5''    | 45:BX:57:ILE:CG1   | 2.27                     | 0.63              |
| 1:A1:1168:C:OP1    | 50:A1:3935:HOH:O   | 2.16                     | 0.63              |
| 1:A1:1361:U:H6     | 1:A1:1361:U:C5'    | 2.11                     | 0.63              |
| 1:A1:1714:C:C2'    | 1:A1:1715:U:H5'    | 2.29                     | 0.63              |
| 1:A1:2574:U:H5'    | 1:A1:2575:G:OP1    | 1.99                     | 0.63              |
| 1:A1:3129:G:O6     | 23:BB:28:ARG:NH2   | 2.29                     | 0.63              |
| 6:AF:110:ARG:HD2   | 30:BI:196:PHE:CZ   | 2.33                     | 0.63              |
| 7:AG:40:LYS:O      | 7:AG:65:ILE:HG23   | 1.99                     | 0.63              |
| 9:AJ:39:GLU:HB3    | 9:AJ:43:VAL:CG2    | 2.29                     | 0.63              |
| 20:B2:58:U:N3      | 20:B2:65:C:H5      | 1.93                     | 0.63              |
| 23:BB:303:ILE:HD11 | 23:BB:319:PHE:CE1  | 2.34                     | 0.63              |
| 24:BC:33:ILE:O     | 24:BC:33:ILE:HG22  | 1.99                     | 0.63              |
| 24:BC:167:GLU:N    | 24:BC:171:GLN:NE2  | 2.46                     | 0.63              |
| 23:CB:183:GLY:O    | 23:CB:189:LYS:HE2  | 1.98                     | 0.63              |
| 24:CC:33:ILE:O     | 24:CC:33:ILE:HG22  | 1.98                     | 0.63              |
| 24:CC:287:ARG:HD2  | 35:CN:111:ARG:NH1  | 2.13                     | 0.63              |
| 1:D1:269:U:O2'     | 1:D1:317:A:H1'     | 1.97                     | 0.63              |
| 1:D1:718:A:O2'     | 1:D1:719:C:H5'     | 1.99                     | 0.63              |
| 1:D1:1361:U:H5'    | 1:D1:1361:U:C6     | 2.34                     | 0.63              |
| 1:D1:1595:A:O2'    | 1:D1:1598:C:N4     | 2.32                     | 0.63              |
| 1:D1:1662:A:OP2    | 13:DN:16:GLY:HA2   | 1.99                     | 0.63              |
| 1:D1:2703:G:N2     | 50:D1:4717:HOH:O   | 2.31                     | 0.63              |
| 1:D1:2761:U:H4'    | 1:D1:2762:U:OP1    | 1.97                     | 0.63              |
| 6:DF:103:LEU:HD22  | 6:DF:107:ASP:HB3   | 1.81                     | 0.63              |
| 11:DL:37:LYS:HB2   | 11:DL:60:ARG:HH21  | 1.62                     | 0.63              |
| 22:EA:180:ILE:O    | 1:F1:2145:A:O3'    | 2.17                     | 0.63              |
| 23:EB:384:LYS:O    | 23:EB:387:GLU:HG2  | 1.99                     | 0.63              |
| 26:EE:4:LEU:HD11   | 19:FX:163:PHE:CD1  | 2.32                     | 0.63              |
| 41:ET:5:THR:CG2    | 41:ET:14:ARG:HG3   | 2.27                     | 0.63              |
| 43:EV:144:LEU:HD23 | 43:EV:239:LEU:HD21 | 1.79                     | 0.63              |
| 1:F1:118:A:H4'     | 1:F1:119:A:C5'     | 2.27                     | 0.63              |
| 1:F1:579:G:H1      | 6:FF:29:ASN:HD21   | 1.47                     | 0.63              |
| 1:F1:792:G:H5'     | 18:FU:190:TRP:CD2  | 2.34                     | 0.63              |
| 1:F1:1061:G:H2'    | 1:F1:1062:A:H8     | 1.63                     | 0.63              |
| 1:F1:1107:A:H5''   | 1:F1:1108:A:OP2    | 1.99                     | 0.63              |
| 1:F1:1184:U:P      | 50:F1:3814:HOH:O   | 2.54                     | 0.63              |
| 1:F1:1758:U:C4'    | 1:F1:1759:C:OP2    | 2.44                     | 0.63              |
| 1:F1:2889:G:OP1    | 50:F1:4433:HOH:O   | 2.15                     | 0.63              |
| 7:FG:10:ILE:HA     | 7:FG:13:LYS:HD3    | 0.82                     | 0.63              |
| 8:FH:36:LEU:HD22   | 8:FH:81:HIS:CD2    | 2.33                     | 0.63              |
| 21:G3:11:A:C8      | 34:GM:18:THR:HB    | 2.34                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:GE:131:LYS:HE2  | 26:GE:145:GLN:HG2  | 1.80                     | 0.63              |
| 27:GF:149:ASP:OD1  | 27:GF:176:LYS:HD3  | 1.99                     | 0.63              |
| 29:GH:34:TYR:CZ    | 29:GH:92:HIS:ND1   | 2.67                     | 0.63              |
| 29:GH:204:GLY:HA3  | 29:GH:208:ARG:NH2  | 2.14                     | 0.63              |
| 30:GI:81:ARG:HH22  | 1:H1:2378:A:P      | 2.21                     | 0.63              |
| 35:GN:155:ALA:HB3  | 35:GN:158:GLN:CD   | 2.24                     | 0.63              |
| 36:GO:15:LEU:HD13  | 36:GO:52:LYS:HB2   | 1.79                     | 0.63              |
| 43:GV:144:LEU:HD23 | 43:GV:239:LEU:HD21 | 1.81                     | 0.63              |
| 43:GV:164:THR:HG22 | 43:GV:168:LYS:HE3  | 1.81                     | 0.63              |
| 43:GV:178:VAL:O    | 43:GV:182:ILE:HG13 | 1.98                     | 0.63              |
| 1:H1:281:G:C4'     | 1:H1:282:G:C8      | 2.81                     | 0.63              |
| 1:H1:2264:U:O2     | 1:H1:2264:U:H2'    | 1.98                     | 0.63              |
| 1:H1:2602:U:O4     | 50:H1:3646:HOH:O   | 2.11                     | 0.63              |
| 1:H1:3155:A:N6     | 8:HH:98:GLN:O      | 2.26                     | 0.63              |
| 1:H1:3177:G:C4'    | 1:H1:3178:U:OP2    | 2.45                     | 0.63              |
| 1:H1:3185:G:C4     | 1:H1:3237:C:N3     | 2.66                     | 0.63              |
| 5:HE:124:LYS:HG2   | 5:HE:132:ALA:HB2   | 1.80                     | 0.63              |
| 1:A1:132:U:O2'     | 1:A1:133:C:OP2     | 2.17                     | 0.63              |
| 1:A1:388:A:C2'     | 38:BQ:103:ASN:HD21 | 2.10                     | 0.63              |
| 1:A1:592:A:H2'     | 1:A1:593:U:C6      | 2.33                     | 0.63              |
| 1:A1:801:U:O2      | 1:A1:2708:U:O2     | 2.16                     | 0.63              |
| 1:A1:2344:U:H5'    | 1:A1:2344:U:C6     | 2.32                     | 0.63              |
| 1:A1:2414:A:H2'    | 1:A1:2415:C:H6     | 1.63                     | 0.63              |
| 1:A1:2899:C:C5'    | 1:A1:2900:G:OP1    | 2.46                     | 0.63              |
| 5:AE:42:ARG:NH2    | 5:AE:92:GLN:O      | 2.32                     | 0.63              |
| 5:AE:93:ALA:HA     | 8:AH:111:ASN:O     | 1.97                     | 0.63              |
| 5:AE:173:TYR:CG    | 6:AF:106:PHE:HD1   | 2.17                     | 0.63              |
| 6:AF:34:ASN:O      | 6:AF:49:PRO:HA     | 1.97                     | 0.63              |
| 9:AJ:23:TYR:HA     | 9:AJ:46:ILE:HG23   | 1.81                     | 0.63              |
| 13:AN:38:PHE:CE2   | 13:AN:76:ASN:HB2   | 2.33                     | 0.63              |
| 18:AU:133:LYS:C    | 18:AU:135:LEU:N    | 2.52                     | 0.63              |
| 23:BB:371:VAL:HG13 | 23:BB:382:ARG:CZ   | 2.28                     | 0.63              |
| 24:BC:309:LYS:O    | 35:BN:40:ARG:NH1   | 2.31                     | 0.63              |
| 34:BM:153:THR:HG22 | 34:BM:179:ARG:HH11 | 1.62                     | 0.63              |
| 21:C3:40:C:H2'     | 21:C3:40:C:O2      | 1.98                     | 0.63              |
| 21:C3:83:G:N2      | 21:C3:93:G:N2      | 2.46                     | 0.63              |
| 23:CB:364:GLY:HA3  | 1:D1:3288:A:H4'    | 1.81                     | 0.63              |
| 31:CJ:10:GLN:CG    | 31:CJ:129:ILE:HG23 | 2.24                     | 0.63              |
| 33:CL:165:THR:O    | 33:CL:169:ARG:HG3  | 1.99                     | 0.63              |
| 34:CM:153:THR:HG22 | 34:CM:179:ARG:HH11 | 1.64                     | 0.63              |
| 40:CS:86:LYS:HG3   | 40:CS:96:ILE:HD11  | 1.80                     | 0.63              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 45:CX:98:ILE:CA   | 45:CX:123:ASN:HD21 | 2.10                     | 0.63              |
| 1:D1:548:G:N2     | 1:D1:619:G:N2      | 2.44                     | 0.63              |
| 1:D1:2640:G:O2'   | 1:D1:2784:G:C6     | 2.49                     | 0.63              |
| 1:D1:2994:G:O2'   | 1:D1:2995:A:P      | 2.56                     | 0.63              |
| 9:DJ:22:ALA:HB2   | 9:DJ:67:LYS:HB2    | 1.81                     | 0.63              |
| 20:E2:13:A:H2'    | 20:E2:14:C:C6      | 2.34                     | 0.63              |
| 20:E2:25:U:OP2    | 24:EC:201:LEU:HD22 | 1.99                     | 0.63              |
| 22:EA:160:PRO:HG2 | 22:EA:163:CYS:SG   | 2.38                     | 0.63              |
| 33:EL:18:LEU:O    | 33:EL:22:ILE:HG13  | 1.99                     | 0.63              |
| 36:EO:123:PHE:HD2 | 36:EO:138:LEU:HD11 | 1.62                     | 0.63              |
| 43:EV:215:ARG:NH2 | 1:F1:1197:A:O3'    | 2.31                     | 0.63              |
| 45:EX:9:LYS:HD2   | 1:F1:621:G:OP1     | 1.98                     | 0.63              |
| 1:F1:516:C:H3'    | 1:F1:517:A:C8      | 2.34                     | 0.63              |
| 1:F1:1056:A:C2'   | 1:F1:1057:U:H5'    | 2.29                     | 0.63              |
| 1:F1:2962:U:H5'   | 1:F1:2962:U:H6     | 1.64                     | 0.63              |
| 1:F1:3227:A:H5'   | 5:FE:57:ARG:HH12   | 1.56                     | 0.63              |
| 13:FN:23:ALA:HB2  | 13:FN:45:GLY:HA3   | 1.81                     | 0.63              |
| 28:GG:14:UNK:O    | 28:GG:18:UNK:HG2   | 1.98                     | 0.63              |
| 44:GW:23:SER:HB3  | 1:H1:2340:A:OP1    | 1.98                     | 0.63              |
| 1:H1:558:U:H2'    | 1:H1:559:G:H8      | 1.62                     | 0.63              |
| 1:H1:619:G:C4'    | 1:H1:620:A:C2      | 2.82                     | 0.63              |
| 1:H1:751:C:H5'    | 1:H1:751:C:H6      | 1.63                     | 0.63              |
| 1:H1:1667:A:O2'   | 1:H1:1668:A:P      | 2.57                     | 0.63              |
| 1:H1:3011:G:H4'   | 1:H1:3012:U:O5'    | 1.98                     | 0.63              |
| 9:HJ:119:PRO:HG2  | 9:HJ:146:VAL:HG12  | 1.81                     | 0.63              |
| 13:HN:22:LYS:HZ2  | 13:HN:140:SER:HB3  | 1.64                     | 0.63              |
| 1:A1:563:G:H2'    | 1:A1:566:U:H1'     | 1.79                     | 0.63              |
| 1:A1:847:G:O2'    | 22:BA:20:HIS:HE1   | 1.81                     | 0.63              |
| 1:A1:1004:U:H6    | 1:A1:1004:U:C5'    | 2.06                     | 0.63              |
| 1:A1:1016:U:C3'   | 1:A1:1017:U:H5''   | 2.28                     | 0.63              |
| 1:A1:1127:U:H2'   | 1:A1:1128:G:H8     | 1.64                     | 0.63              |
| 1:A1:1134:C:C2'   | 1:A1:1135:U:H5''   | 2.28                     | 0.63              |
| 1:A1:1227:A:N3    | 1:A1:1227:A:H2'    | 2.12                     | 0.63              |
| 1:A1:1375:A:C4'   | 1:A1:1376:A:OP1    | 2.47                     | 0.63              |
| 1:A1:1434:G:H2'   | 1:A1:1435:C:H5'    | 1.78                     | 0.63              |
| 1:A1:2518:A:H2'   | 27:BF:46:ARG:HG3   | 1.80                     | 0.63              |
| 1:A1:3023:C:H2'   | 1:A1:3024:A:H8     | 1.64                     | 0.63              |
| 1:A1:3325:G:N2    | 23:BB:378:PHE:HA   | 2.14                     | 0.63              |
| 3:AB:10:LYS:NZ    | 39:BR:122:ASN:O    | 2.31                     | 0.63              |
| 4:AC:36:GLN:OE1   | 4:AC:36:GLN:HA     | 1.98                     | 0.63              |
| 5:AE:122:ALA:HB2  | 5:AE:134:LEU:HD23  | 1.80                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:AX:11:ASP:OD1   | 19:AX:13:THR:HB    | 1.98                     | 0.63              |
| 20:B2:7:U:OP1      | 38:BQ:64:ARG:CG    | 2.47                     | 0.63              |
| 23:BB:281:TYR:HB2  | 23:BB:321:MET:HE3  | 1.81                     | 0.63              |
| 27:BF:65:LYS:HE2   | 27:BF:225:TRP:CE3  | 2.34                     | 0.63              |
| 27:BF:125:LEU:HD11 | 27:BF:191:VAL:CG1  | 2.29                     | 0.63              |
| 30:BI:177:ARG:HD3  | 30:BI:180:GLU:OE2  | 1.99                     | 0.63              |
| 38:BQ:120:GLN:HB3  | 38:BQ:149:GLU:CG   | 2.27                     | 0.63              |
| 24:CC:227:LEU:O    | 24:CC:233:VAL:HG21 | 1.98                     | 0.63              |
| 24:CC:382:LYS:HG3  | 24:CC:383:ALA:N    | 2.12                     | 0.63              |
| 26:CE:132:ILE:HG12 | 26:CE:144:LEU:HD22 | 1.80                     | 0.63              |
| 27:CF:176:LYS:HE3  | 1:D1:6:C:O2'       | 1.98                     | 0.63              |
| 28:CG:23:UNK:O     | 28:CG:86:UNK:HA    | 1.99                     | 0.63              |
| 30:CI:80:TRP:CH2   | 30:CI:84:ARG:NH1   | 2.67                     | 0.63              |
| 35:CN:19:GLN:OE1   | 35:CN:19:GLN:HA    | 1.97                     | 0.63              |
| 35:CN:92:ARG:CZ    | 1:D1:810:G:N7      | 2.62                     | 0.63              |
| 45:CX:87:LEU:O     | 45:CX:91:ASN:N     | 2.31                     | 0.63              |
| 1:D1:558:U:H2'     | 1:D1:559:G:H8      | 1.63                     | 0.63              |
| 1:D1:615:G:H21     | 8:DH:79:LYS:HE2    | 1.64                     | 0.63              |
| 1:D1:842:A:H8      | 2:DA:15:THR:CG2    | 2.09                     | 0.63              |
| 1:D1:1047:G:P      | 13:FN:3:LYS:HZ1    | 2.13                     | 0.63              |
| 1:D1:1599:G:O2'    | 1:D1:1600:U:H5'    | 1.99                     | 0.63              |
| 1:D1:1776:G:O2'    | 1:D1:1777:A:H5'    | 1.98                     | 0.63              |
| 1:D1:2899:C:C5'    | 1:D1:2900:G:OP1    | 2.45                     | 0.63              |
| 1:D1:3044:A:H4'    | 1:D1:3045:A:OP1    | 1.98                     | 0.63              |
| 5:DE:18:TRP:HB2    | 14:DO:95:ARG:HH21  | 1.64                     | 0.63              |
| 9:DJ:143:ALA:C     | 9:DJ:144:ASN:ND2   | 2.57                     | 0.63              |
| 13:DN:24:VAL:HG23  | 13:DN:138:PHE:HE1  | 1.60                     | 0.63              |
| 14:DO:24:PHE:HA    | 14:DO:34:ARG:HA    | 1.81                     | 0.63              |
| 21:E3:26:C:P       | 34:EM:56:THR:HG21  | 2.39                     | 0.63              |
| 24:EC:107:PHE:CE2  | 1:F1:686:U:H1'     | 2.28                     | 0.63              |
| 24:EC:126:ARG:HH21 | 1:F1:720:C:H5''    | 1.63                     | 0.63              |
| 30:EI:57:LEU:HA    | 30:EI:71:HIS:ND1   | 2.14                     | 0.63              |
| 32:EK:9:ARG:NH2    | 1:F1:1457:G:OP2    | 2.27                     | 0.63              |
| 34:EM:5:LYS:CD     | 1:F1:1064:C:H5'    | 2.24                     | 0.63              |
| 34:EM:119:TYR:CD1  | 34:EM:132:VAL:CG1  | 2.79                     | 0.63              |
| 35:EN:63:LEU:HD21  | 35:EN:140:LEU:HD23 | 1.81                     | 0.63              |
| 36:EO:114:LYS:O    | 36:EO:146:LYS:HE2  | 1.99                     | 0.63              |
| 37:EP:8:ARG:O      | 37:EP:11:THR:OG1   | 2.16                     | 0.63              |
| 1:F1:213:A:N6      | 1:F1:227:G:O2'     | 2.26                     | 0.63              |
| 1:F1:563:G:C5'     | 1:F1:564:A:OP2     | 2.46                     | 0.63              |
| 1:F1:751:C:H5'     | 1:F1:751:C:H6      | 1.63                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3044:A:H4'    | 1:F1:3045:A:OP1    | 1.98                     | 0.63              |
| 11:FL:5:ILE:CG2    | 11:FL:6:THR:H      | 2.12                     | 0.63              |
| 21:G3:83:G:P       | 50:G3:303:HOH:O    | 2.56                     | 0.63              |
| 25:GD:89:MET:HE1   | 25:GD:167:PHE:HB3  | 1.80                     | 0.63              |
| 26:GE:144:LEU:HD13 | 26:GE:155:THR:HG22 | 1.81                     | 0.63              |
| 29:GH:140:VAL:HG12 | 29:GH:141:LYS:N    | 2.14                     | 0.63              |
| 33:GL:47:LYS:NZ    | 1:H1:267:A:H5''    | 2.14                     | 0.63              |
| 35:GN:92:ARG:CZ    | 1:H1:810:G:C8      | 2.82                     | 0.63              |
| 35:GN:173:LYS:NZ   | 1:H1:87:A:OP2      | 2.32                     | 0.63              |
| 39:GR:81:MET:O     | 39:GR:85:GLU:HG3   | 1.98                     | 0.63              |
| 43:GV:98:ARG:HD3   | 1:H1:1010:G:H2'    | 1.80                     | 0.63              |
| 45:GX:98:ILE:H     | 45:GX:123:ASN:ND2  | 1.96                     | 0.63              |
| 1:H1:513:G:O2'     | 1:H1:514:U:H5'     | 1.99                     | 0.63              |
| 1:H1:516:C:H3'     | 1:H1:517:A:C8      | 2.34                     | 0.63              |
| 1:H1:1016:U:C3'    | 1:H1:1017:U:H5''   | 2.29                     | 0.63              |
| 1:H1:2412:U:H2'    | 1:H1:2413:G:H5''   | 1.81                     | 0.63              |
| 1:H1:3226:A:C2     | 5:HE:83:ASN:O      | 2.52                     | 0.63              |
| 1:A1:124:U:O2'     | 1:A1:125:G:H5'     | 1.98                     | 0.63              |
| 1:A1:126:A:C2      | 1:A1:141:C:N4      | 2.66                     | 0.63              |
| 1:A1:1578:U:H5''   | 1:A1:1579:U:OP2    | 1.99                     | 0.63              |
| 1:A1:2651:A:C5     | 50:A1:4832:HOH:O   | 2.46                     | 0.63              |
| 1:A1:2865:G:H2'    | 1:A1:2866:G:C8     | 2.34                     | 0.63              |
| 1:A1:3162:A:N6     | 30:BI:113:ARG:NH1  | 2.47                     | 0.63              |
| 1:A1:3175:A:H62    | 6:AF:16:ASN:HD21   | 1.44                     | 0.63              |
| 7:AG:13:LYS:HG2    | 7:AG:14:LEU:N      | 2.14                     | 0.63              |
| 11:AL:5:ILE:CG2    | 11:AL:6:THR:H      | 2.10                     | 0.63              |
| 13:AN:11:VAL:HB    | 13:AN:80:ILE:HG23  | 1.81                     | 0.63              |
| 20:B2:114:G:H3'    | 20:B2:114:G:C8     | 2.34                     | 0.63              |
| 35:BN:73:ASN:H     | 35:BN:76:ASN:CB    | 2.10                     | 0.63              |
| 37:BP:25:VAL:O     | 37:BP:26:ARG:HB2   | 1.99                     | 0.63              |
| 20:C2:88:G:O2'     | 20:C2:89:A:O5'     | 2.17                     | 0.63              |
| 23:CB:55:HIS:H     | 23:CB:55:HIS:HD2   | 1.46                     | 0.63              |
| 23:CB:97:ARG:HH21  | 1:D1:3206:A:H5'    | 1.63                     | 0.63              |
| 32:CK:27:LYS:HB2   | 1:D1:961:A:H5''    | 1.80                     | 0.63              |
| 32:CK:75:VAL:HG23  | 32:CK:109:PHE:HB3  | 1.79                     | 0.63              |
| 33:CL:6:TYR:CD1    | 16:DQ:41:VAL:HG13  | 2.34                     | 0.63              |
| 35:CN:25:VAL:HG13  | 14:DO:7:GLU:HB3    | 1.81                     | 0.63              |
| 45:CX:99:ALA:HB1   | 45:CX:101:ASN:OD1  | 1.99                     | 0.63              |
| 1:D1:132:U:O2'     | 1:D1:133:C:P       | 2.57                     | 0.63              |
| 1:D1:198:A:N3      | 1:D1:218:G:O2'     | 2.31                     | 0.63              |
| 1:D1:567:C:N4      | 1:D1:603:A:N1      | 2.46                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:784:G:H1'     | 1:D1:796:A:N6      | 2.13                     | 0.63              |
| 1:D1:1050:C:C4     | 1:D1:1051:C:N3     | 2.66                     | 0.63              |
| 1:D1:1615:G:OP1    | 11:DL:15:THR:HG21  | 1.98                     | 0.63              |
| 1:D1:3179:U:H2'    | 1:D1:3180:C:C6     | 2.33                     | 0.63              |
| 6:DF:3:PHE:HD1     | 19:DX:164:PRO:HB3  | 1.61                     | 0.63              |
| 6:DF:34:ASN:O      | 6:DF:49:PRO:HA     | 1.99                     | 0.63              |
| 7:DG:8:ASP:OD1     | 7:DG:9:ASN:N       | 2.32                     | 0.63              |
| 20:E2:33:C:H2'     | 20:E2:34:G:H5'     | 1.79                     | 0.63              |
| 23:EB:123:ALA:HB1  | 1:F1:3276:C:OP1    | 1.99                     | 0.63              |
| 24:EC:213:LEU:O    | 24:EC:256:ILE:HA   | 1.98                     | 0.63              |
| 24:EC:287:ARG:HD2  | 35:EN:111:ARG:NH1  | 2.14                     | 0.63              |
| 24:EC:380:PHE:CE1  | 19:FX:78:ILE:HD11  | 2.33                     | 0.63              |
| 33:EL:38:LYS:HB2   | 33:EL:62:TRP:CE2   | 2.34                     | 0.63              |
| 35:EN:85:SER:OG    | 35:EN:86:THR:N     | 2.32                     | 0.63              |
| 1:F1:1179:G:O2'    | 1:F1:1180:A:OP1    | 2.13                     | 0.63              |
| 1:F1:1470:G:O6     | 50:F1:3838:HOH:O   | 2.14                     | 0.63              |
| 1:F1:2540:G:C4'    | 1:F1:2541:U:OP2    | 2.47                     | 0.63              |
| 3:FB:4:ASN:ND2     | 3:FB:4:ASN:H       | 1.97                     | 0.63              |
| 22:GA:105:ILE:HG21 | 22:GA:147:THR:HG21 | 1.80                     | 0.63              |
| 22:GA:254:LYS:O    | 22:GA:258:LYS:HG3  | 1.99                     | 0.63              |
| 24:GC:405:ILE:HD11 | 29:GH:183:ARG:HE   | 1.62                     | 0.63              |
| 27:GF:169:PRO:HB2  | 27:GF:211:PHE:HB2  | 1.81                     | 0.63              |
| 27:GF:176:LYS:HD2  | 27:GF:187:THR:HG21 | 1.81                     | 0.63              |
| 32:GK:46:LEU:HD12  | 18:HU:1:MET:HG2    | 1.81                     | 0.63              |
| 1:H1:1049:U:C5     | 1:H1:1050:C:C4     | 2.87                     | 0.63              |
| 1:H1:1856:C:O2'    | 1:H1:1857:G:H5'    | 1.99                     | 0.63              |
| 6:HF:2:VAL:HG12    | 6:HF:3:PHE:N       | 2.13                     | 0.63              |
| 8:HH:64:LYS:CG     | 8:HH:69:ASN:HD21   | 2.01                     | 0.63              |
| 16:HQ:77:ALA:HB1   | 16:HQ:87:ALA:HA    | 1.80                     | 0.63              |
| 19:HX:42:ARG:HE    | 19:HX:44:PHE:HE1   | 1.45                     | 0.63              |
| 1:A1:288:A:C2      | 33:BL:93:LYS:HG3   | 2.34                     | 0.62              |
| 1:A1:582:A:H2'     | 1:A1:583:G:H5'     | 1.81                     | 0.62              |
| 1:A1:1195:U:O4'    | 43:BV:206:THR:HG21 | 1.99                     | 0.62              |
| 1:A1:1409:C:P      | 24:BC:195:ARG:HH22 | 2.22                     | 0.62              |
| 1:A1:1599:G:H2'    | 1:A1:1600:U:H5'    | 1.81                     | 0.62              |
| 1:A1:3175:A:H2'    | 1:A1:3177:G:C8     | 2.34                     | 0.62              |
| 26:BE:12:ILE:HD11  | 26:BE:53:VAL:HG23  | 1.79                     | 0.62              |
| 26:BE:141:THR:HG22 | 26:BE:142:LEU:N    | 2.13                     | 0.62              |
| 30:BI:64:ASN:C     | 30:BI:64:ASN:HD22  | 2.05                     | 0.62              |
| 43:BV:178:VAL:O    | 43:BV:182:ILE:HG13 | 1.97                     | 0.62              |
| 23:CB:311:HIS:CD2  | 1:D1:3334:C:H4'    | 2.33                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:CB:330:LYS:O    | 23:CB:331:LYS:HB2  | 1.99                     | 0.62              |
| 23:CB:378:PHE:HA   | 1:D1:3325:G:N2     | 2.14                     | 0.62              |
| 24:CC:126:ARG:HH21 | 1:D1:720:C:H5''    | 1.64                     | 0.62              |
| 25:CD:19:ILE:HG21  | 25:CD:125:MET:HE2  | 1.81                     | 0.62              |
| 26:CE:131:LYS:HE2  | 26:CE:145:GLN:HG2  | 1.80                     | 0.62              |
| 33:CL:5:LYS:HB2    | 1:D1:114:A:OP2     | 1.99                     | 0.62              |
| 34:CM:250:VAL:HG12 | 34:CM:254:ILE:HD11 | 1.80                     | 0.62              |
| 35:CN:63:LEU:HD21  | 35:CN:140:LEU:HD23 | 1.80                     | 0.62              |
| 47:CO:114:LYS:HB3  | 47:CO:146:LYS:NZ   | 2.14                     | 0.62              |
| 1:D1:155:A:O2'     | 16:DQ:28:VAL:HG22  | 1.98                     | 0.62              |
| 1:D1:384:A:H2'     | 1:D1:385:A:C8      | 2.34                     | 0.62              |
| 1:D1:1435:C:H5'    | 1:D1:1435:C:H6     | 1.64                     | 0.62              |
| 1:D1:2997:A:O2'    | 1:D1:2998:G:H5'    | 1.99                     | 0.62              |
| 1:D1:3157:C:H1'    | 8:DH:9:VAL:HG13    | 1.81                     | 0.62              |
| 1:D1:3177:G:H5''   | 1:D1:3177:G:H8     | 1.65                     | 0.62              |
| 1:D1:3332:A:H3'    | 1:D1:3333:G:C5'    | 2.29                     | 0.62              |
| 5:DE:55:ALA:HB2    | 8:DH:109:TYR:CE1   | 2.26                     | 0.62              |
| 6:DF:2:VAL:HG12    | 6:DF:3:PHE:N       | 2.14                     | 0.62              |
| 16:DQ:29:GLN:C     | 16:DQ:31:LYS:HD3   | 2.24                     | 0.62              |
| 21:E3:33:U:C5      | 34:EM:212:TYR:HE1  | 2.17                     | 0.62              |
| 21:E3:39:U:C2      | 25:ED:46:VAL:HG21  | 2.34                     | 0.62              |
| 21:E3:81:A:H2'     | 21:E3:82:G:H5''    | 1.81                     | 0.62              |
| 23:EB:49:PHE:CE2   | 23:EB:333:VAL:HG12 | 2.34                     | 0.62              |
| 23:EB:377:PHE:HD2  | 23:EB:378:PHE:CE1  | 2.17                     | 0.62              |
| 27:EF:95:GLU:OE1   | 27:EF:100:LYS:HG2  | 1.99                     | 0.62              |
| 27:EF:96:LYS:HB3   | 27:EF:97:PRO:HD2   | 1.81                     | 0.62              |
| 29:EH:119:PHE:CE2  | 1:F1:2635:C:H4'    | 2.33                     | 0.62              |
| 33:EL:13:LYS:HD3   | 16:FQ:49:THR:HG21  | 1.80                     | 0.62              |
| 35:EN:28:LYS:HE3   | 35:EN:32:LYS:HE2   | 1.80                     | 0.62              |
| 38:EQ:10:PRO:CB    | 38:EQ:153:GLN:HE22 | 2.12                     | 0.62              |
| 39:ER:73:THR:HG23  | 42:EU:37:ILE:HD13  | 1.79                     | 0.62              |
| 40:ES:51:LYS:O     | 40:ES:69:VAL:O     | 2.16                     | 0.62              |
| 46:EY:57:CYS:SG    | 46:EY:59:PRO:HG2   | 2.39                     | 0.62              |
| 1:F1:528:C:O2'     | 14:FO:115:HIS:HE1  | 1.82                     | 0.62              |
| 1:F1:1104:C:C2     | 17:FT:42:ASN:ND2   | 2.67                     | 0.62              |
| 1:F1:1533:G:H4'    | 1:F1:1534:C:OP2    | 1.99                     | 0.62              |
| 1:F1:1567:A:H61    | 1:F1:1578:U:H3     | 1.45                     | 0.62              |
| 5:FE:173:TYR:CG    | 6:FF:106:PHE:CD1   | 2.87                     | 0.62              |
| 10:FK:103:LEU:HD13 | 10:FK:110:CYS:HA   | 1.81                     | 0.62              |
| 23:GB:55:HIS:H     | 23:GB:55:HIS:CD2   | 2.17                     | 0.62              |
| 23:GB:157:ARG:HD2  | 23:GB:178:GLU:OE1  | 1.98                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:276:THR:CG2  | 24:GC:277:GLY:N    | 2.62                     | 0.62              |
| 24:GC:283:TYR:CE1  | 24:GC:285:LEU:HA   | 2.33                     | 0.62              |
| 25:GD:133:ARG:CB   | 25:GD:134:PRO:HD2  | 2.21                     | 0.62              |
| 27:GF:131:HIS:CE1  | 1:H1:117:G:H2'     | 2.34                     | 0.62              |
| 28:GG:23:UNK:O     | 28:GG:86:UNK:HA    | 1.98                     | 0.62              |
| 30:GI:129:ARG:NH2  | 1:H1:1343:G:N2     | 2.47                     | 0.62              |
| 34:GM:3:PHE:CZ     | 1:H1:1041:C:N3     | 2.67                     | 0.62              |
| 34:GM:68:THR:HB    | 34:GM:71:CYS:O     | 1.98                     | 0.62              |
| 37:GP:61:THR:HB    | 1:H1:1086:U:O4'    | 1.99                     | 0.62              |
| 46:GY:8:VAL:HG23   | 1:H1:1951:G:OP1    | 1.99                     | 0.62              |
| 1:H1:1095:C:H4'    | 1:H1:1096:G:OP2    | 1.98                     | 0.62              |
| 1:H1:1663:C:N4     | 11:HL:75:SER:OG    | 2.30                     | 0.62              |
| 1:H1:1684:C:O2'    | 1:H1:1685:A:H5'    | 1.98                     | 0.62              |
| 1:H1:1701:A:H5''   | 12:HM:99:SER:CB    | 2.29                     | 0.62              |
| 1:H1:2540:G:C4'    | 1:H1:2541:U:OP2    | 2.47                     | 0.62              |
| 1:H1:2966:U:O2'    | 1:H1:2967:U:H5'    | 1.98                     | 0.62              |
| 1:H1:3096:U:C5'    | 10:HK:112:LYS:HZ3  | 2.11                     | 0.62              |
| 7:HG:57:GLU:HA     | 7:HG:67:ILE:HD11   | 1.80                     | 0.62              |
| 9:HJ:113:TYR:O     | 9:HJ:135:VAL:HG13  | 1.98                     | 0.62              |
| 12:HM:66:ASN:HD21  | 12:HM:68:GLN:HE21  | 1.46                     | 0.62              |
| 18:HU:52:LEU:O     | 18:HU:94:LYS:HB2   | 1.98                     | 0.62              |
| 18:HU:76:GLN:OE1   | 18:HU:101:ASN:HB2  | 1.99                     | 0.62              |
| 19:HX:148:ILE:O    | 19:HX:154:LEU:HD21 | 1.99                     | 0.62              |
| 1:A1:296:G:H5''    | 1:A1:297:U:OP1     | 1.99                     | 0.62              |
| 1:A1:1025:G:C6     | 1:A1:1026:C:N4     | 2.67                     | 0.62              |
| 1:A1:1112:A:H4'    | 34:BM:44:TYR:CE1   | 2.34                     | 0.62              |
| 1:A1:2181:U:H2'    | 1:A1:2182:G:O4'    | 1.99                     | 0.62              |
| 1:A1:2309:U:H4'    | 1:A1:2310:G:OP2    | 1.98                     | 0.62              |
| 1:A1:2593:G:N1     | 50:A1:3708:HOH:O   | 2.32                     | 0.62              |
| 10:AK:91:CYS:SG    | 26:BE:171:ARG:HB3  | 2.39                     | 0.62              |
| 13:AN:114:LEU:HD22 | 13:AN:118:PHE:HE1  | 1.62                     | 0.62              |
| 21:B3:2:U:H3       | 21:B3:117:G:H1     | 1.47                     | 0.62              |
| 23:BB:26:ARG:HH12  | 23:BB:176:ILE:C    | 2.06                     | 0.62              |
| 27:BF:154:GLU:OE2  | 33:BL:26:ARG:NH2   | 2.33                     | 0.62              |
| 33:BL:182:LYS:HG2  | 33:BL:183:SER:H    | 1.63                     | 0.62              |
| 24:CC:215:VAL:CG1  | 24:CC:238:VAL:HG22 | 2.21                     | 0.62              |
| 27:CF:124:VAL:HG12 | 27:CF:125:LEU:O    | 1.99                     | 0.62              |
| 38:CQ:10:PRO:CB    | 38:CQ:153:GLN:HE22 | 2.12                     | 0.62              |
| 41:CT:46:VAL:HG11  | 41:CT:51:ILE:HD11  | 1.81                     | 0.62              |
| 1:D1:169:A:N7      | 1:D1:250:U:O4      | 2.32                     | 0.62              |
| 1:D1:911:C:O2'     | 1:D1:912:G:H5'     | 1.98                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:970:C:H2'    | 1:D1:971:C:H6      | 1.63                     | 0.62              |
| 1:D1:1074:A:OP1   | 1:D1:1075:C:H5'    | 1.99                     | 0.62              |
| 1:D1:1652:U:H4'   | 1:D1:1655:A:C5'    | 2.29                     | 0.62              |
| 1:D1:2738:G:O2'   | 1:D1:2739:C:H5'    | 1.99                     | 0.62              |
| 1:D1:2855:C:O2'   | 1:D1:2856:U:H5'    | 1.99                     | 0.62              |
| 1:D1:3237:C:H41   | 8:DH:10:ALA:CA     | 2.12                     | 0.62              |
| 4:DC:26:TYR:HB3   | 4:DC:67:ALA:HB3    | 1.80                     | 0.62              |
| 12:DM:35:PHE:HE1  | 12:DM:39:LEU:HD11  | 1.64                     | 0.62              |
| 13:DN:96:LEU:HD22 | 13:DN:113:THR:HG21 | 1.79                     | 0.62              |
| 13:DN:114:LEU:O   | 13:DN:118:PHE:HD1  | 1.82                     | 0.62              |
| 19:DX:55:PHE:CZ   | 19:DX:59:MET:HE3   | 2.34                     | 0.62              |
| 19:DX:89:TYR:CD2  | 19:DX:113:LEU:HD13 | 2.34                     | 0.62              |
| 23:EB:211:GLU:O   | 23:EB:280:VAL:HG23 | 1.99                     | 0.62              |
| 27:EF:46:ARG:HG3  | 1:F1:2518:A:H2'    | 1.81                     | 0.62              |
| 45:EX:80:ASN:HB3  | 1:F1:1413:G:O2'    | 1.99                     | 0.62              |
| 1:F1:711:U:H3     | 1:F1:718:A:N6      | 1.95                     | 0.62              |
| 1:F1:1956:A:H2'   | 1:F1:1957:A:H5'    | 1.80                     | 0.62              |
| 1:F1:2252:C:C5    | 1:F1:2253:U:H5     | 2.05                     | 0.62              |
| 1:F1:3214:A:H5''  | 1:F1:3215:C:C6     | 2.33                     | 0.62              |
| 20:G2:26:A:H3'    | 20:G2:27:G:C5'     | 2.29                     | 0.62              |
| 26:GE:135:LYS:H   | 26:GE:138:GLU:CG   | 2.12                     | 0.62              |
| 32:GK:136:ARG:NH1 | 1:H1:741:G:N3      | 2.44                     | 0.62              |
| 37:GP:6:GLY:H     | 37:GP:9:ARG:HD2    | 1.64                     | 0.62              |
| 41:GT:11:CYS:HG   | 41:GT:13:TYR:HD2   | 1.47                     | 0.62              |
| 1:H1:25:C:O2'     | 1:H1:326:A:N3      | 2.30                     | 0.62              |
| 1:H1:312:U:H2'    | 1:H1:313:U:C6      | 2.34                     | 0.62              |
| 1:H1:1227:A:N3    | 1:H1:1227:A:H2'    | 2.12                     | 0.62              |
| 1:H1:1714:C:C2'   | 1:H1:1715:U:H5'    | 2.29                     | 0.62              |
| 1:H1:2659:G:H2'   | 1:H1:2660:A:C8     | 2.35                     | 0.62              |
| 2:HA:21:ARG:CZ    | 2:HA:44:MET:HE1    | 2.29                     | 0.62              |
| 7:HG:17:VAL:HG13  | 7:HG:95:ALA:HB2    | 1.81                     | 0.62              |
| 9:HJ:43:VAL:HG12  | 9:HJ:44:PRO:CD     | 2.28                     | 0.62              |
| 13:HN:114:LEU:O   | 13:HN:118:PHE:HD1  | 1.82                     | 0.62              |
| 1:A1:604:A:H8     | 1:A1:604:A:O5'     | 1.81                     | 0.62              |
| 1:A1:718:A:O2'    | 1:A1:719:C:H5'     | 1.99                     | 0.62              |
| 1:A1:1034:U:C3'   | 1:A1:1035:A:H5''   | 2.29                     | 0.62              |
| 1:A1:1059:U:C2'   | 1:A1:1060:C:H5''   | 2.29                     | 0.62              |
| 1:A1:1662:A:C5'   | 11:AL:76:ARG:NH2   | 2.53                     | 0.62              |
| 1:A1:1919:A:H8    | 1:A1:1919:A:H5'    | 1.64                     | 0.62              |
| 17:AT:35:VAL:HA   | 37:BP:66:ASN:ND2   | 2.14                     | 0.62              |
| 18:AU:54:PRO:HD3  | 18:AU:73:PHE:CD2   | 2.34                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 21:B3:26:C:P      | 34:BM:56:THR:HG21  | 2.39                     | 0.62              |
| 27:BF:95:GLU:OE1  | 27:BF:100:LYS:HG2  | 1.99                     | 0.62              |
| 46:BY:26:VAL:HG12 | 46:BY:30:GLU:HG3   | 1.81                     | 0.62              |
| 20:C2:27:G:OP2    | 40:CS:12:ARG:HD3   | 1.98                     | 0.62              |
| 21:C3:33:U:C6     | 34:CM:212:TYR:HE1  | 2.17                     | 0.62              |
| 32:CK:9:ARG:NH2   | 1:D1:1457:G:OP2    | 2.27                     | 0.62              |
| 33:CL:120:TRP:CE2 | 33:CL:122:GLY:HA2  | 2.34                     | 0.62              |
| 34:CM:39:GLN:HG2  | 34:CM:40:ASP:H     | 1.64                     | 0.62              |
| 35:CN:82:VAL:HG21 | 35:CN:127:LEU:HD11 | 1.82                     | 0.62              |
| 47:CO:106:LEU:CD2 | 47:CO:138:LEU:HD21 | 2.28                     | 0.62              |
| 37:CP:40:VAL:HG11 | 37:CP:96:VAL:HG13  | 1.80                     | 0.62              |
| 37:CP:63:LYS:HD2  | 37:CP:63:LYS:H     | 1.64                     | 0.62              |
| 39:CR:84:MET:HE3  | 39:CR:90:MET:CE    | 2.29                     | 0.62              |
| 45:CX:34:TRP:CZ2  | 45:CX:54:MET:HB2   | 2.33                     | 0.62              |
| 1:D1:563:G:C5'    | 1:D1:564:A:OP2     | 2.47                     | 0.62              |
| 1:D1:697:A:H8     | 1:D1:697:A:H5'     | 1.65                     | 0.62              |
| 1:D1:1049:U:H2'   | 1:D1:1050:C:O4'    | 1.99                     | 0.62              |
| 1:D1:2343:A:H3'   | 1:D1:2344:U:C5'    | 2.28                     | 0.62              |
| 4:DC:66:VAL:CG2   | 4:DC:83:ILE:HB     | 2.30                     | 0.62              |
| 12:DM:45:VAL:CB   | 12:DM:51:ASN:HD21  | 2.11                     | 0.62              |
| 21:E3:54:A:O2'    | 25:ED:152:GLN:NE2  | 2.32                     | 0.62              |
| 23:EB:2:SER:HB2   | 1:F1:2931:G:OP2    | 1.98                     | 0.62              |
| 23:EB:30:ARG:NH2  | 1:F1:3127:U:C5     | 2.66                     | 0.62              |
| 23:EB:281:TYR:CE2 | 23:EB:323:LYS:HB2  | 2.34                     | 0.62              |
| 29:EH:34:TYR:CZ   | 29:EH:92:HIS:ND1   | 2.66                     | 0.62              |
| 30:EI:177:ARG:HD3 | 30:EI:180:GLU:OE2  | 1.99                     | 0.62              |
| 34:EM:140:LYS:O   | 1:F1:1107:A:H4'    | 1.98                     | 0.62              |
| 35:EN:82:VAL:HG21 | 35:EN:127:LEU:HD11 | 1.81                     | 0.62              |
| 37:EP:116:LYS:NZ  | 1:F1:1124:G:C8     | 2.66                     | 0.62              |
| 42:EU:32:LEU:HD21 | 42:EU:47:ARG:HD3   | 1.81                     | 0.62              |
| 46:EY:12:ARG:HG2  | 1:F1:861:A:C4'     | 2.29                     | 0.62              |
| 1:F1:47:G:O6      | 50:F1:3630:HOH:O   | 2.13                     | 0.62              |
| 1:F1:70:C:O2      | 1:F1:70:C:C2'      | 2.46                     | 0.62              |
| 1:F1:114:A:H2'    | 1:F1:115:G:C8      | 2.35                     | 0.62              |
| 1:F1:534:U:H2'    | 1:F1:535:C:C6      | 2.34                     | 0.62              |
| 1:F1:766:G:O6     | 50:F1:3862:HOH:O   | 2.16                     | 0.62              |
| 1:F1:1599:G:H2'   | 1:F1:1600:U:H5'    | 1.81                     | 0.62              |
| 1:F1:1770:A:H2'   | 1:F1:1771:U:C6     | 2.34                     | 0.62              |
| 1:F1:2344:U:H6    | 1:F1:2344:U:C5'    | 2.12                     | 0.62              |
| 1:F1:3100:U:C2'   | 1:F1:3101:G:H5'    | 2.30                     | 0.62              |
| 1:F1:3108:U:H2'   | 1:F1:3109:C:H5'    | 1.82                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:FJ:22:ALA:HB2   | 9:FJ:67:LYS:HB2    | 1.79                     | 0.62              |
| 21:G3:2:U:H3      | 21:G3:117:G:H1     | 1.46                     | 0.62              |
| 22:GA:157:LYS:NZ  | 1:H1:2154:A:OP2    | 2.29                     | 0.62              |
| 22:GA:231:SER:OG  | 1:H1:2419:A:N1     | 2.31                     | 0.62              |
| 23:GB:117:ARG:NH1 | 23:GB:174:ASN:O    | 2.30                     | 0.62              |
| 24:GC:33:ILE:HG22 | 24:GC:33:ILE:O     | 1.98                     | 0.62              |
| 24:GC:105:ARG:HG2 | 24:GC:105:ARG:NH1  | 2.13                     | 0.62              |
| 27:GF:69:GLN:O    | 27:GF:72:GLN:HG2   | 1.99                     | 0.62              |
| 37:GP:40:VAL:HG11 | 37:GP:96:VAL:HG13  | 1.82                     | 0.62              |
| 38:GQ:131:THR:OG1 | 1:H1:1533:G:N2     | 2.32                     | 0.62              |
| 1:H1:133:C:H2'    | 1:H1:133:C:O2      | 1.99                     | 0.62              |
| 1:H1:718:A:O2'    | 1:H1:719:C:H5'     | 1.98                     | 0.62              |
| 1:H1:1184:U:H6    | 1:H1:1184:U:C5'    | 2.12                     | 0.62              |
| 1:H1:1205:A:H8    | 1:H1:1205:A:H5'    | 1.64                     | 0.62              |
| 1:H1:1328:A:H4'   | 1:H1:1329:A:O5'    | 1.99                     | 0.62              |
| 1:H1:1599:G:C5    | 1:H1:1600:U:C5     | 2.87                     | 0.62              |
| 1:H1:2414:A:H2'   | 1:H1:2415:C:C6     | 2.34                     | 0.62              |
| 5:HE:54:LEU:HB2   | 5:HE:94:TYR:O      | 1.98                     | 0.62              |
| 1:A1:88:U:C2'     | 1:A1:89:G:H5'      | 2.29                     | 0.62              |
| 1:A1:121:A:N6     | 1:A1:150:A:N6      | 2.47                     | 0.62              |
| 1:A1:362:G:H2'    | 1:A1:363:G:H5''    | 1.81                     | 0.62              |
| 1:A1:558:U:H2'    | 1:A1:559:G:H8      | 1.64                     | 0.62              |
| 1:A1:880:U:H4'    | 36:BO:95:TRP:CZ3   | 2.34                     | 0.62              |
| 1:A1:1112:A:OP1   | 37:BP:35:LYS:NZ    | 2.31                     | 0.62              |
| 1:A1:1395:U:O2'   | 1:A1:1396:A:H5'    | 1.99                     | 0.62              |
| 1:A1:1772:G:H2'   | 1:A1:1773:G:H5'    | 1.80                     | 0.62              |
| 1:A1:2109:G:C2'   | 1:A1:2110:C:H5'    | 2.30                     | 0.62              |
| 1:A1:2277:U:O2'   | 1:A1:2278:G:P      | 2.58                     | 0.62              |
| 1:A1:2411:U:H2'   | 1:A1:2412:U:C6     | 2.34                     | 0.62              |
| 1:A1:2550:U:H4'   | 1:A1:2551:A:OP2    | 1.99                     | 0.62              |
| 1:A1:2576:C:H2'   | 1:A1:2577:G:C5'    | 2.26                     | 0.62              |
| 1:A1:3106:C:C2'   | 1:A1:3107:C:H5'    | 2.28                     | 0.62              |
| 9:AJ:192:VAL:HG12 | 9:AJ:192:VAL:O     | 1.99                     | 0.62              |
| 18:AU:9:VAL:CG2   | 35:BN:168:ARG:HH11 | 2.12                     | 0.62              |
| 22:BA:33:TYR:HA   | 22:BA:164:ARG:NH2  | 2.14                     | 0.62              |
| 29:BH:33:ILE:HB   | 29:BH:69:ARG:HH22  | 1.64                     | 0.62              |
| 24:CC:369:HIS:ND1 | 43:CV:68:LYS:NZ    | 2.45                     | 0.62              |
| 32:CK:106:LYS:HD3 | 18:DU:160:SER:CB   | 2.28                     | 0.62              |
| 34:CM:142:PHE:HE1 | 1:D1:1107:A:N7     | 1.96                     | 0.62              |
| 47:CO:174:UNK:HG2 | 47:CO:174:UNK:O    | 1.97                     | 0.62              |
| 43:CV:63:LYS:HG2  | 43:CV:64:ARG:N     | 2.13                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:CV:80:VAL:HG22  | 43:CV:188:VAL:HG23 | 1.81                     | 0.62              |
| 43:CV:129:PRO:HG2  | 43:CV:130:PHE:CE2  | 2.33                     | 0.62              |
| 45:CX:112:LYS:NZ   | 14:DO:128:GLU:OE2  | 2.32                     | 0.62              |
| 46:CY:10:ILE:HD11  | 46:CY:30:GLU:CB    | 2.28                     | 0.62              |
| 1:D1:269:U:H2'     | 1:D1:270:C:H6      | 1.64                     | 0.62              |
| 1:D1:564:A:H5'     | 1:D1:565:G:OP2     | 1.99                     | 0.62              |
| 1:D1:810:G:H3'     | 1:D1:811:A:C8      | 2.33                     | 0.62              |
| 1:D1:1481:U:O2     | 1:D1:1481:U:H2'    | 1.99                     | 0.62              |
| 1:D1:1594:C:C4     | 1:D1:1595:A:C8     | 2.87                     | 0.62              |
| 1:D1:1594:C:C5     | 1:D1:1595:A:N7     | 2.67                     | 0.62              |
| 1:D1:1662:A:H4'    | 11:DL:76:ARG:HH22  | 1.63                     | 0.62              |
| 1:D1:2344:U:H5'    | 1:D1:2344:U:C6     | 2.32                     | 0.62              |
| 1:D1:2613:G:H21    | 1:D1:2615:A:H2     | 1.46                     | 0.62              |
| 1:D1:2859:G:O6     | 50:D1:4451:HOH:O   | 2.11                     | 0.62              |
| 7:DG:60:ALA:HB3    | 7:DG:67:ILE:HD11   | 1.80                     | 0.62              |
| 9:DJ:32:GLU:OE1    | 9:DJ:32:GLU:HA     | 1.99                     | 0.62              |
| 9:DJ:142:ILE:CD1   | 9:DJ:152:CYS:HB3   | 2.29                     | 0.62              |
| 15:DP:8:ILE:O      | 15:DP:12:MET:HG3   | 1.99                     | 0.62              |
| 18:DU:52:LEU:O     | 18:DU:94:LYS:HB2   | 1.98                     | 0.62              |
| 20:E2:1:A:H4'      | 20:E2:2:G:OP2      | 1.99                     | 0.62              |
| 21:E3:2:U:H3       | 21:E3:117:G:H1     | 1.47                     | 0.62              |
| 27:EF:176:LYS:HB2  | 27:EF:187:THR:CG2  | 2.17                     | 0.62              |
| 34:EM:68:THR:HB    | 34:EM:71:CYS:O     | 1.98                     | 0.62              |
| 34:EM:240:VAL:HG11 | 34:EM:245:LYS:HB2  | 1.81                     | 0.62              |
| 37:EP:25:VAL:O     | 37:EP:26:ARG:HB2   | 1.98                     | 0.62              |
| 46:EY:12:ARG:HG2   | 1:F1:861:A:H4'     | 1.81                     | 0.62              |
| 1:F1:284:U:C5      | 1:F1:305:A:C5'     | 2.79                     | 0.62              |
| 1:F1:622:G:C4'     | 1:F1:623:G:OP1     | 2.45                     | 0.62              |
| 1:F1:1606:U:O2'    | 1:F1:1607:U:H5'    | 1.99                     | 0.62              |
| 1:F1:1657:C:C5     | 13:FN:17:ARG:NH2   | 2.68                     | 0.62              |
| 1:F1:1839:A:H4'    | 1:F1:1840:U:O5'    | 2.00                     | 0.62              |
| 1:F1:2388:G:O2'    | 1:F1:2389:G:OP2    | 2.17                     | 0.62              |
| 1:F1:3117:G:O6     | 50:F1:4457:HOH:O   | 2.13                     | 0.62              |
| 1:F1:3230:G:C6     | 5:FE:119:ARG:HD2   | 2.34                     | 0.62              |
| 21:G3:62:U:O2'     | 21:G3:63:A:OP1     | 2.17                     | 0.62              |
| 23:GB:27:GLY:HA2   | 23:GB:272:HIS:HE1  | 1.63                     | 0.62              |
| 23:GB:183:GLY:O    | 23:GB:189:LYS:HE2  | 1.98                     | 0.62              |
| 24:GC:319:ARG:HH22 | 1:H1:620:A:H8      | 1.44                     | 0.62              |
| 27:GF:96:LYS:HB3   | 27:GF:97:PRO:HD2   | 1.81                     | 0.62              |
| 34:GM:17:GLN:OE1   | 37:GP:20:LYS:HA    | 2.00                     | 0.62              |
| 35:GN:92:ARG:HH21  | 1:H1:809:A:H4'     | 1.65                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:GQ:73:ALA:O     | 38:GQ:76:HIS:CD2   | 2.53                     | 0.62              |
| 41:GT:22:ARG:NE    | 41:GT:32:PHE:HD2   | 1.97                     | 0.62              |
| 45:GX:25:GLU:OE2   | 45:GX:52:ARG:NH2   | 2.21                     | 0.62              |
| 45:GX:79:ARG:NH1   | 1:H1:1448:G:O4'    | 2.32                     | 0.62              |
| 1:H1:376:A:H62     | 1:H1:398:G:H2'     | 1.64                     | 0.62              |
| 1:H1:1051:C:O5'    | 1:H1:1051:C:H6     | 1.81                     | 0.62              |
| 1:H1:1580:G:O5'    | 1:H1:1580:G:H8     | 1.81                     | 0.62              |
| 12:HM:45:VAL:CB    | 12:HM:51:ASN:HD21  | 2.09                     | 0.62              |
| 19:HX:18:VAL:HG11  | 19:HX:117:VAL:HG11 | 1.82                     | 0.62              |
| 1:A1:232:C:O2'     | 1:A1:233:G:OP1     | 2.17                     | 0.62              |
| 1:A1:795:G:O2'     | 1:A1:796:A:H8      | 1.75                     | 0.62              |
| 1:A1:2727:A:C4'    | 17:AT:37:PRO:HD2   | 2.29                     | 0.62              |
| 1:A1:3071:C:O2'    | 1:A1:3072:G:H5'    | 1.99                     | 0.62              |
| 6:AF:62:ASN:O      | 6:AF:75:LYS:NZ     | 2.27                     | 0.62              |
| 14:AO:50:LEU:HD13  | 14:AO:111:LEU:HD21 | 1.80                     | 0.62              |
| 18:AU:72:GLY:HA3   | 18:AU:96:ASP:HB2   | 1.81                     | 0.62              |
| 23:BB:183:GLY:O    | 23:BB:189:LYS:HE2  | 1.99                     | 0.62              |
| 24:BC:159:PHE:HZ   | 24:BC:179:VAL:HG13 | 1.65                     | 0.62              |
| 24:BC:335:PRO:HB2  | 43:BV:42:ILE:HG12  | 1.79                     | 0.62              |
| 25:BD:162:TRP:CZ3  | 25:BD:167:PHE:HE2  | 2.17                     | 0.62              |
| 29:BH:75:ASN:HD22  | 29:BH:151:ALA:HA   | 1.65                     | 0.62              |
| 34:BM:240:VAL:HG11 | 34:BM:245:LYS:HB2  | 1.81                     | 0.62              |
| 42:BU:74:PHE:HB3   | 42:BU:80:LYS:HE3   | 1.82                     | 0.62              |
| 32:CK:117:ARG:HD3  | 32:CK:137:ARG:HH11 | 1.63                     | 0.62              |
| 39:CR:43:LEU:CD1   | 1:D1:1599:G:H5''   | 2.29                     | 0.62              |
| 43:CV:137:THR:O    | 43:CV:141:ILE:HG13 | 2.00                     | 0.62              |
| 43:CV:144:LEU:HD23 | 43:CV:239:LEU:HD21 | 1.79                     | 0.62              |
| 1:D1:117:G:H4'     | 1:D1:118:A:O5'     | 1.98                     | 0.62              |
| 1:D1:282:G:H2'     | 1:D1:282:G:N3      | 2.13                     | 0.62              |
| 1:D1:348:A:H4'     | 1:D1:349:C:OP2     | 1.98                     | 0.62              |
| 1:D1:801:U:O2      | 1:D1:2708:U:O2     | 2.17                     | 0.62              |
| 1:D1:1248:G:H4'    | 1:D1:1249:G:OP2    | 2.00                     | 0.62              |
| 1:D1:1839:A:H4'    | 1:D1:1840:U:O5'    | 2.00                     | 0.62              |
| 1:D1:2132:U:H2'    | 1:D1:2138:A:H62    | 1.65                     | 0.62              |
| 1:D1:2425:A:H2'    | 1:D1:2426:C:C6     | 2.34                     | 0.62              |
| 1:D1:2952:G:N2     | 1:D1:2955:A:OP2    | 2.33                     | 0.62              |
| 1:D1:3023:C:H2'    | 1:D1:3024:A:H8     | 1.64                     | 0.62              |
| 5:DE:63:VAL:HG11   | 5:DE:76:VAL:HG13   | 1.75                     | 0.62              |
| 12:DM:71:ILE:HG23  | 12:DM:72:PRO:HD2   | 1.80                     | 0.62              |
| 13:DN:23:ALA:HB2   | 13:DN:45:GLY:HA3   | 1.81                     | 0.62              |
| 20:E2:12:A:H2'     | 20:E2:13:A:H8      | 1.63                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:E3:8:G:OP1      | 37:EP:27:ILE:HD12  | 2.00                     | 0.62              |
| 23:EB:103:THR:CG2  | 23:EB:104:THR:N    | 2.63                     | 0.62              |
| 30:EI:11:LYS:HD3   | 30:EI:36:ARG:HH12  | 1.64                     | 0.62              |
| 30:EI:16:GLY:O     | 30:EI:19:ALA:HB3   | 1.98                     | 0.62              |
| 30:EI:81:ARG:HH22  | 1:F1:2378:A:P      | 2.23                     | 0.62              |
| 34:EM:206:GLY:HA2  | 34:EM:208:HIS:CE1  | 2.34                     | 0.62              |
| 35:EN:37:LEU:O     | 35:EN:41:THR:HB    | 1.99                     | 0.62              |
| 35:EN:52:ARG:NH1   | 35:EN:141:ARG:NE   | 2.44                     | 0.62              |
| 36:EO:42:ARG:NH2   | 1:F1:1626:U:P      | 2.72                     | 0.62              |
| 46:EY:10:ILE:HG22  | 1:F1:862:A:C4'     | 2.29                     | 0.62              |
| 1:F1:376:A:H62     | 1:F1:398:G:H2'     | 1.63                     | 0.62              |
| 1:F1:564:A:H5'     | 1:F1:565:G:OP2     | 1.98                     | 0.62              |
| 1:F1:2127:A:N7     | 1:F1:2145:A:H2     | 1.98                     | 0.62              |
| 1:F1:2217:C:C4'    | 1:F1:2218:A:OP2    | 2.46                     | 0.62              |
| 5:FE:124:LYS:HE2   | 5:FE:132:ALA:HB3   | 1.81                     | 0.62              |
| 20:G2:98:A:OP1     | 42:GU:67:ARG:NH1   | 2.31                     | 0.62              |
| 21:G3:76:U:OP1     | 19:HX:61:LYS:NZ    | 2.32                     | 0.62              |
| 23:GB:303:ILE:HD11 | 23:GB:319:PHE:CE1  | 2.35                     | 0.62              |
| 24:GC:157:TYR:HD1  | 24:GC:159:PHE:CE1  | 2.17                     | 0.62              |
| 28:GG:85:UNK:O     | 28:GG:85:UNK:HG3   | 1.98                     | 0.62              |
| 31:GJ:27:MET:HB2   | 31:GJ:102:ASN:O    | 1.99                     | 0.62              |
| 31:GJ:86:ARG:H     | 31:GJ:102:ASN:HD21 | 1.47                     | 0.62              |
| 34:GM:125:VAL:O    | 34:GM:201:LYS:HD2  | 2.00                     | 0.62              |
| 1:H1:563:G:H5'     | 1:H1:564:A:OP2     | 1.98                     | 0.62              |
| 1:H1:604:A:O5'     | 1:H1:604:A:H8      | 1.81                     | 0.62              |
| 1:H1:925:G:H1'     | 1:H1:1614:A:H61    | 1.64                     | 0.62              |
| 1:H1:978:G:H1'     | 1:H1:1142:G:H5''   | 1.80                     | 0.62              |
| 1:H1:1656:G:C5     | 1:H1:1657:C:C5     | 2.88                     | 0.62              |
| 1:H1:3175:A:H2'    | 1:H1:3177:G:C8     | 2.34                     | 0.62              |
| 5:HE:57:ARG:HG2    | 5:HE:57:ARG:O      | 1.98                     | 0.62              |
| 1:A1:449:G:H2'     | 1:A1:450:C:C6      | 2.34                     | 0.62              |
| 1:A1:620:A:C8      | 1:A1:634:G:C6      | 2.88                     | 0.62              |
| 1:A1:968:U:O5'     | 32:BK:13:GLY:HA2   | 2.00                     | 0.62              |
| 1:A1:1159:C:O2'    | 1:A1:1160:A:H5'    | 1.98                     | 0.62              |
| 1:A1:1220:A:OP2    | 30:BI:48:ARG:NH2   | 2.33                     | 0.62              |
| 1:A1:1306:C:H2'    | 1:A1:1307:C:C6     | 2.35                     | 0.62              |
| 1:A1:1598:C:H3'    | 1:A1:1599:G:C8     | 2.31                     | 0.62              |
| 1:A1:2150:U:H5'    | 1:A1:2150:U:H6     | 1.65                     | 0.62              |
| 1:A1:2202:A:H2'    | 1:A1:2203:A:O4'    | 2.00                     | 0.62              |
| 1:A1:2727:A:O4'    | 17:AT:37:PRO:HD2   | 2.00                     | 0.62              |
| 1:A1:2882:U:OP1    | 26:BE:166:LYS:NZ   | 2.18                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:AB:9:MET:HB3     | 3:AB:13:PHE:HE2    | 1.63                     | 0.62              |
| 8:AH:48:VAL:CG2    | 8:AH:85:GLY:HA2    | 2.29                     | 0.62              |
| 9:AJ:162:HIS:HD2   | 9:AJ:164:LEU:H     | 1.47                     | 0.62              |
| 24:BC:259:THR:CG2  | 24:BC:260:GLU:N    | 2.62                     | 0.62              |
| 26:BE:38:PHE:CD2   | 26:BE:71:ILE:HG23  | 2.34                     | 0.62              |
| 33:BL:148:ILE:O    | 33:BL:151:ILE:HG22 | 1.99                     | 0.62              |
| 38:BQ:66:THR:CG2   | 38:BQ:82:GLN:HE22  | 2.11                     | 0.62              |
| 43:BV:137:THR:O    | 43:BV:141:ILE:HG13 | 1.99                     | 0.62              |
| 20:C2:110:A:H2'    | 20:C2:111:A:C8     | 2.34                     | 0.62              |
| 24:CC:283:TYR:CE1  | 24:CC:285:LEU:HA   | 2.35                     | 0.62              |
| 30:CI:11:LYS:HD3   | 30:CI:36:ARG:NH1   | 2.15                     | 0.62              |
| 31:CJ:85:GLN:HA    | 31:CJ:102:ASN:HD22 | 1.63                     | 0.62              |
| 32:CK:128:LYS:HB3  | 32:CK:129:TYR:CE1  | 2.34                     | 0.62              |
| 43:CV:48:TYR:CE1   | 43:CV:183:HIS:CG   | 2.87                     | 0.62              |
| 43:CV:100:LEU:CD2  | 43:CV:127:VAL:HG11 | 2.26                     | 0.62              |
| 43:CV:178:VAL:O    | 43:CV:182:ILE:HG13 | 1.99                     | 0.62              |
| 1:D1:467:A:N6      | 1:D1:512:G:N1      | 2.48                     | 0.62              |
| 1:D1:1714:C:H2'    | 1:D1:1715:U:H5'    | 1.82                     | 0.62              |
| 1:D1:3079:U:O2'    | 1:D1:3080:A:O5'    | 2.17                     | 0.62              |
| 1:D1:3109:C:H3'    | 10:DK:111:ARG:HH11 | 1.56                     | 0.62              |
| 1:D1:3175:A:H2'    | 1:D1:3177:G:C8     | 2.35                     | 0.62              |
| 7:DG:10:ILE:HG23   | 7:DG:13:LYS:CE     | 2.29                     | 0.62              |
| 21:E3:54:A:H5'     | 25:ED:7:ASN:HD21   | 1.65                     | 0.62              |
| 23:EB:250:ILE:HG12 | 1:F1:2388:G:H4'    | 1.81                     | 0.62              |
| 27:EF:20:PRO:HB2   | 27:EF:22:PHE:CD2   | 2.35                     | 0.62              |
| 32:EK:8:THR:HG21   | 1:F1:685:G:H5'     | 1.80                     | 0.62              |
| 32:EK:81:TRP:CZ2   | 32:EK:123:VAL:CG2  | 2.82                     | 0.62              |
| 41:ET:23:PHE:HE1   | 41:ET:25:ALA:HB2   | 1.64                     | 0.62              |
| 43:EV:15:ARG:HG2   | 43:EV:16:ASP:N     | 2.14                     | 0.62              |
| 1:F1:240:A:O2'     | 1:F1:243:G:H5''    | 2.00                     | 0.62              |
| 1:F1:446:G:H2'     | 1:F1:447:G:C8      | 2.34                     | 0.62              |
| 1:F1:1134:C:C2'    | 1:F1:1135:U:H5''   | 2.29                     | 0.62              |
| 1:F1:2859:G:C5     | 50:F1:4203:HOH:O   | 2.50                     | 0.62              |
| 1:F1:3232:A:H4'    | 5:FE:55:ALA:HB1    | 1.81                     | 0.62              |
| 18:FU:54:PRO:HD3   | 18:FU:73:PHE:CE2   | 2.33                     | 0.62              |
| 20:G2:35:U:O2      | 20:G2:37:A:N6      | 2.32                     | 0.62              |
| 20:G2:147:G:N2     | 27:GF:54:GLN:HE22  | 1.97                     | 0.62              |
| 22:GA:128:SER:O    | 22:GA:128:SER:OG   | 2.16                     | 0.62              |
| 23:GB:337:ARG:NH2  | 23:GB:340:ILE:HG23 | 2.15                     | 0.62              |
| 27:GF:133:THR:O    | 27:GF:137:GLU:HG3  | 1.99                     | 0.62              |
| 27:GF:230:LEU:HD12 | 27:GF:235:GLN:OE1  | 1.99                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 28:GG:33:UNK:HG3   | 28:GG:36:UNK:CG    | 2.28                     | 0.62              |
| 33:GL:188:ARG:HH21 | 1:H1:279:U:C4'     | 2.12                     | 0.62              |
| 34:GM:175:HIS:HD2  | 34:GM:180:PHE:HE2  | 1.47                     | 0.62              |
| 35:GN:24:ASN:CG    | 35:GN:27:HIS:HB2   | 2.24                     | 0.62              |
| 38:GQ:72:THR:HG21  | 38:GQ:74:GLN:HG3   | 1.80                     | 0.62              |
| 46:GY:60:CYS:SG    | 46:GY:62:LYS:HG2   | 2.39                     | 0.62              |
| 1:H1:88:U:C2'      | 1:H1:89:G:H5'      | 2.29                     | 0.62              |
| 1:H1:633:C:H3'     | 5:HE:30:ARG:HH22   | 1.65                     | 0.62              |
| 1:H1:842:A:H8      | 2:HA:15:THR:CG2    | 2.12                     | 0.62              |
| 1:H1:1767:U:H4'    | 1:H1:1768:G:OP2    | 1.99                     | 0.62              |
| 1:H1:2181:U:OP1    | 50:H1:3959:HOH:O   | 2.16                     | 0.62              |
| 1:H1:2255:U:H3'    | 1:H1:2256:G:C8     | 2.34                     | 0.62              |
| 1:H1:2884:A:OP1    | 10:HK:102:ARG:HD3  | 2.00                     | 0.62              |
| 5:HE:52:ILE:HB     | 5:HE:96:LEU:HB2    | 1.80                     | 0.62              |
| 6:HF:106:PHE:CD2   | 6:HF:110:ARG:NE    | 2.61                     | 0.62              |
| 19:HX:55:PHE:CZ    | 19:HX:59:MET:HE3   | 2.34                     | 0.62              |
| 1:A1:314:C:H2'     | 1:A1:315:U:C6      | 2.33                     | 0.62              |
| 1:A1:645:A:C1'     | 1:A1:646:A:OP2     | 2.47                     | 0.62              |
| 1:A1:1051:C:H2'    | 1:A1:1052:A:C1'    | 2.29                     | 0.62              |
| 1:A1:1052:A:H2     | 1:A1:1053:A:N7     | 1.98                     | 0.62              |
| 1:A1:1580:G:O6     | 1:A1:1608:G:N7     | 2.32                     | 0.62              |
| 1:A1:1594:C:C4     | 1:A1:1595:A:C8     | 2.88                     | 0.62              |
| 1:A1:1626:U:P      | 36:BO:42:ARG:NH2   | 2.73                     | 0.62              |
| 1:A1:2371:G:O2'    | 1:A1:2372:G:H8     | 1.78                     | 0.62              |
| 7:AG:13:LYS:CD     | 7:AG:100:ILE:CD1   | 2.77                     | 0.62              |
| 10:AK:120:SER:O    | 10:AK:121:LEU:HD23 | 1.99                     | 0.62              |
| 12:AM:71:ILE:HG23  | 12:AM:72:PRO:HD2   | 1.80                     | 0.62              |
| 21:B3:30:G:O2'     | 21:B3:31:G:H5'     | 2.00                     | 0.62              |
| 26:BE:135:LYS:H    | 26:BE:138:GLU:CG   | 2.12                     | 0.62              |
| 27:BF:169:PRO:HB2  | 27:BF:211:PHE:HB2  | 1.80                     | 0.62              |
| 32:BK:21:ARG:HH12  | 45:BX:40:ILE:HG22  | 1.65                     | 0.62              |
| 34:BM:166:ALA:HB3  | 34:BM:173:ILE:CD1  | 2.30                     | 0.62              |
| 43:BV:164:THR:O    | 43:BV:168:LYS:HG3  | 1.99                     | 0.62              |
| 46:BY:45:VAL:O     | 46:BY:45:VAL:CG2   | 2.46                     | 0.62              |
| 21:C3:11:A:O5'     | 34:CM:18:THR:HG21  | 2.00                     | 0.62              |
| 23:CB:119:TYR:CD2  | 23:CB:122:TRP:CZ3  | 2.87                     | 0.62              |
| 24:CC:42:PHE:CZ    | 24:CC:46:ASN:ND2   | 2.68                     | 0.62              |
| 25:CD:12:VAL:HG21  | 25:CD:162:TRP:HD1  | 1.65                     | 0.62              |
| 27:CF:69:GLN:O     | 27:CF:72:GLN:HG2   | 2.00                     | 0.62              |
| 33:CL:16:SER:CB    | 16:DQ:49:THR:HG23  | 2.29                     | 0.62              |
| 35:CN:45:PHE:CE2   | 35:CN:49:ILE:HD11  | 2.35                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:CQ:73:ALA:O     | 38:CQ:76:HIS:CD2   | 2.53                     | 0.62              |
| 44:CW:22:ILE:CD1   | 44:CW:30:ARG:HG2   | 2.27                     | 0.62              |
| 45:CX:45:ARG:NH2   | 1:D1:1171:U:OP2    | 2.33                     | 0.62              |
| 46:CY:8:VAL:HG23   | 1:D1:1951:G:OP1    | 1.98                     | 0.62              |
| 1:D1:433:C:C5'     | 1:D1:434:A:OP1     | 2.47                     | 0.62              |
| 1:D1:2187:C:C2'    | 1:D1:2188:U:H5'    | 2.30                     | 0.62              |
| 1:D1:3127:U:H2'    | 1:D1:3128:G:C5'    | 2.20                     | 0.62              |
| 5:DE:122:ALA:HB2   | 5:DE:134:LEU:HD23  | 1.80                     | 0.62              |
| 9:DJ:116:LEU:HD21  | 9:DJ:177:LEU:HD21  | 1.82                     | 0.62              |
| 19:DX:18:VAL:HG11  | 19:DX:117:VAL:HG11 | 1.80                     | 0.62              |
| 20:E2:3:A:N6       | 1:F1:3242:U:O2'    | 2.31                     | 0.62              |
| 20:E2:6:A:N6       | 50:E2:330:HOH:O    | 2.32                     | 0.62              |
| 24:EC:33:ILE:O     | 24:EC:33:ILE:HG22  | 2.00                     | 0.62              |
| 24:EC:251:HIS:ND1  | 14:FO:12:ASN:OD1   | 2.32                     | 0.62              |
| 28:EG:85:UNK:O     | 28:EG:85:UNK:HG3   | 1.98                     | 0.62              |
| 35:EN:141:ARG:HD3  | 1:F1:768:A:H1'     | 1.80                     | 0.62              |
| 35:EN:141:ARG:HD3  | 1:F1:768:A:C1'     | 2.29                     | 0.62              |
| 1:F1:117:G:H4'     | 1:F1:118:A:O5'     | 1.99                     | 0.62              |
| 1:F1:314:C:H2'     | 1:F1:315:U:C6      | 2.34                     | 0.62              |
| 1:F1:1130:A:H2     | 1:F1:1390:A:HO2'   | 1.47                     | 0.62              |
| 1:F1:1599:G:O2'    | 1:F1:1600:U:H5'    | 1.98                     | 0.62              |
| 1:F1:2400:C:H5'    | 1:F1:2400:C:H6     | 1.64                     | 0.62              |
| 1:F1:2865:G:H2'    | 1:F1:2866:G:C8     | 2.34                     | 0.62              |
| 1:F1:3175:A:H62    | 6:FF:16:ASN:HD21   | 1.48                     | 0.62              |
| 16:FQ:7:VAL:CG1    | 18:FU:185:LYS:HG3  | 2.29                     | 0.62              |
| 20:G2:74:A:H5'     | 40:GS:50:ARG:HG2   | 1.80                     | 0.62              |
| 22:GA:41:TYR:CE1   | 1:H1:2541:U:C4     | 2.88                     | 0.62              |
| 22:GA:180:ILE:O    | 1:H1:2145:A:O3'    | 2.16                     | 0.62              |
| 24:GC:186:LEU:HD22 | 24:GC:190:GLU:OE2  | 1.99                     | 0.62              |
| 26:GE:141:THR:HG22 | 26:GE:142:LEU:N    | 2.13                     | 0.62              |
| 35:GN:19:GLN:OE1   | 35:GN:19:GLN:HA    | 1.99                     | 0.62              |
| 44:GW:50:ILE:O     | 1:H1:1486:A:H5'    | 1.98                     | 0.62              |
| 1:H1:92:G:H2'      | 1:H1:93:A:C8       | 2.35                     | 0.62              |
| 1:H1:198:A:N3      | 1:H1:218:G:O2'     | 2.32                     | 0.62              |
| 1:H1:297:U:O4      | 16:HQ:30:ARG:HA    | 1.99                     | 0.62              |
| 1:H1:449:G:H2'     | 1:H1:450:C:H6      | 1.63                     | 0.62              |
| 1:H1:1168:C:OP1    | 50:H1:3750:HOH:O   | 2.16                     | 0.62              |
| 1:H1:1507:A:O2'    | 1:H1:1882:A:C2'    | 2.48                     | 0.62              |
| 1:H1:1775:A:H4'    | 15:HP:34:LYS:HZ1   | 1.65                     | 0.62              |
| 1:H1:2202:A:H2'    | 1:H1:2203:A:O4'    | 2.00                     | 0.62              |
| 1:H1:3106:C:C2'    | 1:H1:3107:C:H5'    | 2.30                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:HM:110:PHE:O    | 12:HM:111:ASN:HB2  | 1.99                     | 0.62              |
| 14:HO:50:LEU:HD13  | 14:HO:111:LEU:CD2  | 2.29                     | 0.62              |
| 18:HU:59:GLN:O     | 18:HU:59:GLN:HG2   | 1.99                     | 0.62              |
| 19:HX:11:ASP:OD1   | 19:HX:13:THR:HB    | 1.98                     | 0.62              |
| 1:A1:47:G:C1'      | 1:A1:48:U:OP2      | 2.47                     | 0.62              |
| 1:A1:132:U:HO2'    | 1:A1:133:C:P       | 2.22                     | 0.62              |
| 1:A1:1064:C:P      | 34:BM:5:LYS:NZ     | 2.73                     | 0.62              |
| 1:A1:1210:C:O3'    | 19:AX:171:ARG:NH2  | 2.31                     | 0.62              |
| 1:A1:1343:G:O6     | 19:AX:167:LYS:HD2  | 1.98                     | 0.62              |
| 1:A1:2385:A:C2'    | 1:A1:2386:G:O5'    | 2.48                     | 0.62              |
| 1:A1:2397:A:OP1    | 24:BC:77:ALA:HA    | 1.99                     | 0.62              |
| 1:A1:2548:G:H4'    | 1:A1:2549:U:OP2    | 1.99                     | 0.62              |
| 6:AF:51:ARG:HG2    | 19:AX:171:ARG:NH1  | 2.14                     | 0.62              |
| 8:AH:44:THR:HB     | 8:AH:46:GLU:OE1    | 2.00                     | 0.62              |
| 19:AX:5:ALA:O      | 19:AX:8:GLU:HG3    | 2.00                     | 0.62              |
| 23:BB:25:HIS:HD2   | 23:BB:270:TYR:OH   | 1.83                     | 0.62              |
| 23:BB:103:THR:HG22 | 23:BB:104:THR:N    | 2.14                     | 0.62              |
| 24:BC:185:VAL:O    | 24:BC:188:VAL:HG22 | 2.00                     | 0.62              |
| 32:BK:119:PRO:HG3  | 35:BN:94:LEU:HD13  | 1.81                     | 0.62              |
| 40:BS:84:ILE:O     | 40:BS:84:ILE:HG22  | 2.00                     | 0.62              |
| 20:C2:146:A:O2'    | 20:C2:147:G:H5'    | 1.99                     | 0.62              |
| 27:CF:20:PRO:HB2   | 27:CF:22:PHE:CD2   | 2.34                     | 0.62              |
| 35:CN:52:ARG:NH1   | 35:CN:141:ARG:NE   | 2.48                     | 0.62              |
| 1:D1:1146:C:H42    | 17:DT:10:LYS:HZ3   | 1.48                     | 0.62              |
| 1:D1:1190:U:H3     | 1:D1:1363:A:H61    | 1.47                     | 0.62              |
| 1:D1:2100:A:C2     | 1:D1:2101:G:C8     | 2.88                     | 0.62              |
| 1:D1:2804:G:N7     | 1:D1:2858:C:H5'    | 2.14                     | 0.62              |
| 1:D1:3106:C:C2'    | 1:D1:3107:C:H5'    | 2.29                     | 0.62              |
| 1:D1:3232:A:OP1    | 5:DE:88:LYS:NZ     | 2.26                     | 0.62              |
| 1:D1:3263:G:O2'    | 1:D1:3265:A:N6     | 2.30                     | 0.62              |
| 6:DF:6:PHE:HB3     | 19:DX:162:LYS:HB3  | 1.80                     | 0.62              |
| 21:E3:5:U:H2'      | 21:E3:6:C:C6       | 2.35                     | 0.62              |
| 21:E3:93:G:H8      | 21:E3:93:G:O5'     | 1.82                     | 0.62              |
| 22:EA:104:PRO:HG2  | 22:EA:107:ARG:HG3  | 1.82                     | 0.62              |
| 22:EA:231:SER:OG   | 1:F1:2419:A:N1     | 2.32                     | 0.62              |
| 24:EC:163:VAL:HA   | 24:EC:166:TYR:HE2  | 1.63                     | 0.62              |
| 24:EC:200:LYS:HZ3  | 1:F1:1445:G:H5''   | 1.64                     | 0.62              |
| 30:EI:144:VAL:HG12 | 30:EI:144:VAL:O    | 1.99                     | 0.62              |
| 34:EM:125:VAL:O    | 34:EM:201:LYS:HD2  | 2.00                     | 0.62              |
| 36:EO:65:ALA:O     | 36:EO:68:GLU:HB3   | 1.98                     | 0.62              |
| 46:EY:19:GLY:HA2   | 1:F1:1949:U:O2     | 1.98                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:132:U:O2'    | 1:F1:133:C:OP2     | 2.18                     | 0.62              |
| 1:F1:2133:U:C5    | 1:F1:2138:A:N7     | 2.68                     | 0.62              |
| 1:F1:2356:A:C2'   | 1:F1:2357:C:O5'    | 2.47                     | 0.62              |
| 4:FC:66:VAL:CG2   | 4:FC:83:ILE:HB     | 2.29                     | 0.62              |
| 14:FO:94:ILE:HD12 | 14:FO:111:LEU:HD12 | 1.82                     | 0.62              |
| 19:FX:29:PRO:O    | 19:FX:30:ILE:HG22  | 1.99                     | 0.62              |
| 20:G2:1:A:H4'     | 20:G2:2:G:OP2      | 1.99                     | 0.62              |
| 20:G2:124:U:O2'   | 20:G2:126:A:N7     | 2.28                     | 0.62              |
| 21:G3:33:U:C5     | 34:GM:212:TYR:CE1  | 2.87                     | 0.62              |
| 22:GA:20:HIS:HE1  | 1:H1:847:G:O2'     | 1.82                     | 0.62              |
| 22:GA:205:MET:HG2 | 1:H1:939:A:N3      | 2.14                     | 0.62              |
| 23:GB:32:PHE:CD2  | 23:GB:180:GLN:HB3  | 2.35                     | 0.62              |
| 23:GB:52:GLY:HA3  | 23:GB:309:PHE:CD1  | 2.34                     | 0.62              |
| 27:GF:46:ARG:CD   | 1:H1:2518:A:H5'    | 2.29                     | 0.62              |
| 28:GG:60:UNK:HG1  | 1:H1:1249:G:C8     | 2.33                     | 0.62              |
| 29:GH:139:ARG:HD3 | 29:GH:173:PHE:CE1  | 2.33                     | 0.62              |
| 34:GM:129:TYR:CE1 | 34:GM:175:HIS:O    | 2.48                     | 0.62              |
| 34:GM:176:SER:OG  | 1:H1:2735:A:H4'    | 1.99                     | 0.62              |
| 34:GM:184:VAL:HB  | 34:GM:194:LYS:HB2  | 1.80                     | 0.62              |
| 1:H1:75:A:C8      | 18:HU:71:ARG:NH1   | 2.65                     | 0.62              |
| 1:H1:497:G:O2'    | 1:H1:498:A:H5'     | 2.00                     | 0.62              |
| 1:H1:699:C:O2'    | 1:H1:703:U:OP1     | 2.18                     | 0.62              |
| 1:H1:1249:G:O2'   | 1:H1:1250:A:P      | 2.57                     | 0.62              |
| 1:H1:1662:A:H5'   | 11:HL:76:ARG:CZ    | 2.26                     | 0.62              |
| 1:H1:2702:U:H3'   | 4:HC:9:LYS:O       | 1.98                     | 0.62              |
| 1:H1:3127:U:H2'   | 1:H1:3128:G:C5'    | 2.21                     | 0.62              |
| 13:HN:38:PHE:CE2  | 13:HN:76:ASN:HB2   | 2.34                     | 0.62              |
| 1:A1:368:A:H5'    | 1:A1:369:U:OP2     | 2.00                     | 0.62              |
| 1:A1:467:A:N6     | 1:A1:512:G:C6      | 2.68                     | 0.62              |
| 1:A1:1413:G:C2'   | 1:A1:1414:C:H5'    | 2.29                     | 0.62              |
| 1:A1:1599:G:C5    | 1:A1:1600:U:C5     | 2.87                     | 0.62              |
| 1:A1:1744:A:OP2   | 36:BO:120:TYR:HE2  | 1.81                     | 0.62              |
| 1:A1:2133:U:H5    | 1:A1:2138:A:N7     | 1.98                     | 0.62              |
| 1:A1:2254:A:C5    | 1:A1:2255:U:C5     | 2.88                     | 0.62              |
| 1:A1:3325:G:N2    | 23:BB:378:PHE:CG   | 2.68                     | 0.62              |
| 7:AG:35:ARG:NH1   | 13:AN:77:LEU:C     | 2.55                     | 0.62              |
| 13:AN:27:LYS:NZ   | 1:H1:1046:G:P      | 2.73                     | 0.62              |
| 19:AX:83:LEU:HD22 | 19:AX:111:VAL:HG12 | 1.82                     | 0.62              |
| 22:BA:160:PRO:HG2 | 22:BA:163:CYS:SG   | 2.39                     | 0.62              |
| 24:BC:105:ARG:NH1 | 24:BC:105:ARG:CG   | 2.63                     | 0.62              |
| 31:BJ:83:ILE:HD11 | 31:BJ:105:VAL:HG23 | 1.80                     | 0.62              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 35:BN:5:LEU:CD2   | 43:BV:106:ARG:HD2  | 2.30                     | 0.62              |
| 42:BU:51:VAL:O    | 42:BU:55:ILE:HG13  | 1.99                     | 0.62              |
| 23:CB:28:ARG:NH2  | 1:D1:3129:G:O6     | 2.27                     | 0.62              |
| 23:CB:194:LYS:HA  | 23:CB:197:LEU:CD1  | 2.29                     | 0.62              |
| 32:CK:59:GLY:HA2  | 1:D1:2775:G:O3'    | 2.00                     | 0.62              |
| 34:CM:76:CYS:C    | 34:CM:105:LEU:HD11 | 2.25                     | 0.62              |
| 34:CM:129:TYR:CE1 | 34:CM:175:HIS:O    | 2.50                     | 0.62              |
| 35:CN:162:HIS:O   | 1:D1:805:A:H5'     | 2.00                     | 0.62              |
| 43:CV:64:ARG:HD3  | 1:D1:565:G:C5      | 2.35                     | 0.62              |
| 45:CX:28:ALA:HB3  | 1:D1:679:C:H5''    | 1.82                     | 0.62              |
| 45:CX:47:ARG:NH1  | 1:D1:1187:C:C2     | 2.68                     | 0.62              |
| 1:D1:452:U:C4'    | 14:DO:56:GLN:HE22  | 2.12                     | 0.62              |
| 1:D1:605:C:H1'    | 19:DX:6:ALA:HB2    | 1.81                     | 0.62              |
| 1:D1:713:G:O6     | 1:D1:716:A:OP2     | 2.17                     | 0.62              |
| 1:D1:851:G:O2'    | 1:D1:1614:A:H8     | 1.82                     | 0.62              |
| 1:D1:1127:U:H2'   | 1:D1:1128:G:C8     | 2.35                     | 0.62              |
| 1:D1:1754:G:O6    | 7:DG:29:SER:HB2    | 2.00                     | 0.62              |
| 1:D1:2309:U:C4'   | 1:D1:2310:G:OP2    | 2.47                     | 0.62              |
| 1:D1:2412:U:H2'   | 1:D1:2413:G:H5''   | 1.81                     | 0.62              |
| 1:D1:2536:A:H2'   | 1:D1:2537:C:C6     | 2.35                     | 0.62              |
| 1:D1:2540:G:C4'   | 1:D1:2541:U:OP2    | 2.47                     | 0.62              |
| 1:D1:2542:U:H5''  | 1:D1:2542:U:C6     | 2.32                     | 0.62              |
| 3:DB:32:ASP:OD1   | 3:DB:32:ASP:N      | 2.29                     | 0.62              |
| 14:DO:49:ALA:HB3  | 14:DO:61:SER:HB2   | 1.82                     | 0.62              |
| 21:E3:103:U:H4'   | 1:F1:1027:G:N1     | 2.15                     | 0.62              |
| 22:EA:20:HIS:CE1  | 1:F1:847:G:O2'     | 2.53                     | 0.62              |
| 27:EF:69:GLN:O    | 27:EF:72:GLN:HG2   | 2.00                     | 0.62              |
| 27:EF:69:GLN:OE1  | 33:EL:18:LEU:HD22  | 2.00                     | 0.62              |
| 32:EK:98:LYS:HA   | 18:FU:166:VAL:CG2  | 2.30                     | 0.62              |
| 46:EY:60:CYS:SG   | 46:EY:62:LYS:HG2   | 2.39                     | 0.62              |
| 1:F1:169:A:OP2    | 1:F1:249:G:N2      | 2.33                     | 0.62              |
| 1:F1:348:A:H4'    | 1:F1:349:C:OP2     | 1.98                     | 0.62              |
| 1:F1:2133:U:H5    | 1:F1:2138:A:N7     | 1.98                     | 0.62              |
| 1:F1:2187:C:C2'   | 1:F1:2188:U:H5'    | 2.30                     | 0.62              |
| 1:F1:2251:A:P     | 1:F1:2254:A:N1     | 2.73                     | 0.62              |
| 1:F1:2385:A:C2'   | 1:F1:2386:G:O5'    | 2.47                     | 0.62              |
| 1:F1:2717:G:P     | 50:F1:4475:HOH:O   | 2.51                     | 0.62              |
| 1:F1:2884:A:O3'   | 10:FK:122:ARG:NH2  | 2.32                     | 0.62              |
| 7:FG:10:ILE:HG23  | 7:FG:13:LYS:CE     | 2.29                     | 0.62              |
| 23:GB:26:ARG:HH12 | 23:GB:176:ILE:C    | 2.07                     | 0.62              |
| 23:GB:37:PRO:HA   | 23:GB:184:GLY:CA   | 2.27                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:GB:47:THR:OG1   | 23:GB:177:LEU:HD11 | 2.00                     | 0.62              |
| 24:GC:65:MET:HE3   | 24:GC:105:ARG:CG   | 2.28                     | 0.62              |
| 24:GC:65:MET:HE3   | 24:GC:105:ARG:HG2  | 1.82                     | 0.62              |
| 24:GC:311:ALA:HB2  | 35:GN:40:ARG:HH21  | 1.65                     | 0.62              |
| 27:GF:196:VAL:CG1  | 27:GF:200:ASP:HB2  | 2.28                     | 0.62              |
| 33:GL:179:HIS:O    | 33:GL:182:LYS:HD3  | 2.00                     | 0.62              |
| 34:GM:122:GLN:NE2  | 34:GM:126:ASP:OD2  | 2.32                     | 0.62              |
| 34:GM:240:VAL:HG11 | 34:GM:245:LYS:HB2  | 1.80                     | 0.62              |
| 35:GN:81:ILE:O     | 35:GN:102:CYS:N    | 2.26                     | 0.62              |
| 1:H1:71:U:HO2'     | 1:H1:72:A:P        | 2.16                     | 0.62              |
| 1:H1:645:A:C1'     | 1:H1:646:A:OP2     | 2.48                     | 0.62              |
| 1:H1:1252:A:N3     | 1:H1:3105:G:N7     | 2.48                     | 0.62              |
| 1:H1:1594:C:C4     | 1:H1:1595:A:C8     | 2.88                     | 0.62              |
| 1:H1:2425:A:H2'    | 1:H1:2426:C:C6     | 2.35                     | 0.62              |
| 1:H1:2720:G:O2'    | 1:H1:2721:G:H5'    | 2.00                     | 0.62              |
| 1:H1:3100:U:C2'    | 1:H1:3101:G:H5'    | 2.30                     | 0.62              |
| 1:H1:3109:C:C3'    | 10:HK:111:ARG:HH12 | 2.07                     | 0.62              |
| 7:HG:13:LYS:CD     | 7:HG:100:ILE:CD1   | 2.75                     | 0.62              |
| 12:HM:75:LYS:HE2   | 12:HM:105:TYR:CE2  | 2.34                     | 0.62              |
| 1:A1:39:G:H2'      | 1:A1:40:C:H5'      | 1.82                     | 0.62              |
| 1:A1:1090:A:O2'    | 1:A1:1091:G:OP2    | 2.15                     | 0.62              |
| 1:A1:1402:G:C2'    | 1:A1:1403:C:H5'    | 2.30                     | 0.62              |
| 1:A1:1856:C:O2'    | 1:A1:1857:G:H5'    | 2.00                     | 0.62              |
| 1:A1:2395:G:N7     | 50:A1:4263:HOH:O   | 2.31                     | 0.62              |
| 20:B2:26:A:H3'     | 20:B2:27:G:C5'     | 2.29                     | 0.62              |
| 24:BC:201:LEU:N    | 24:BC:201:LEU:HD23 | 2.15                     | 0.62              |
| 25:BD:15:ALA:O     | 25:BD:72:ARG:HG2   | 2.00                     | 0.62              |
| 27:BF:131:HIS:O    | 27:BF:135:LEU:HG   | 1.99                     | 0.62              |
| 20:C2:33:C:H2'     | 20:C2:34:G:H5'     | 1.81                     | 0.62              |
| 22:CA:105:ILE:HG21 | 22:CA:147:THR:HG21 | 1.82                     | 0.62              |
| 23:CB:216:LEU:CD2  | 23:CB:274:THR:HA   | 2.30                     | 0.62              |
| 24:CC:213:LEU:O    | 24:CC:256:ILE:HA   | 1.99                     | 0.62              |
| 27:CF:155:LEU:HD13 | 1:D1:147:U:H1'     | 1.80                     | 0.62              |
| 30:CI:144:VAL:HG12 | 30:CI:144:VAL:O    | 2.00                     | 0.62              |
| 47:CO:42:ARG:NH2   | 1:D1:1626:U:P      | 2.73                     | 0.62              |
| 47:CO:174:UNK:CG   | 29:EH:81:SER:HB2   | 2.29                     | 0.62              |
| 39:CR:56:ARG:HB3   | 39:CR:61:VAL:HG21  | 1.82                     | 0.62              |
| 39:CR:94:VAL:HG11  | 39:CR:103:ILE:HD11 | 1.81                     | 0.62              |
| 46:CY:7:LYS:CE     | 1:D1:1950:C:H2'    | 2.29                     | 0.62              |
| 1:D1:832:A:H2      | 1:D1:2406:U:O2'    | 1.82                     | 0.62              |
| 1:D1:1404:G:H5'    | 1:D1:1434:G:O2'    | 1.99                     | 0.62              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1742:G:C2     | 1:D1:1751:A:C2     | 2.88                     | 0.62              |
| 1:D1:2140:A:C5     | 1:D1:2276:A:C2     | 2.88                     | 0.62              |
| 1:D1:2270:A:H5''   | 1:D1:2271:G:OP2    | 1.99                     | 0.62              |
| 5:DE:42:ARG:H      | 5:DE:92:GLN:NE2    | 1.98                     | 0.62              |
| 5:DE:179:THR:OG1   | 8:DH:12:THR:HA     | 2.00                     | 0.62              |
| 7:DG:13:LYS:CD     | 7:DG:100:ILE:CD1   | 2.75                     | 0.62              |
| 8:DH:107:MET:SD    | 8:DH:109:TYR:HE2   | 2.23                     | 0.62              |
| 20:E2:19:G:N2      | 1:F1:403:G:H1'     | 2.14                     | 0.62              |
| 22:EA:35:PHE:CE1   | 1:F1:2520:G:C2'    | 2.81                     | 0.62              |
| 23:EB:216:LEU:CD2  | 23:EB:274:THR:HA   | 2.30                     | 0.62              |
| 34:EM:76:CYS:C     | 34:EM:105:LEU:HD11 | 2.24                     | 0.62              |
| 35:EN:168:ARG:HH11 | 18:FU:9:VAL:CG2    | 2.12                     | 0.62              |
| 43:EV:137:THR:O    | 43:EV:141:ILE:HG13 | 1.99                     | 0.62              |
| 1:F1:132:U:O2'     | 1:F1:133:C:P       | 2.57                     | 0.62              |
| 1:F1:532:G:H2'     | 1:F1:533:G:H8      | 1.59                     | 0.62              |
| 1:F1:701:A:H4'     | 1:F1:702:G:O5'     | 2.00                     | 0.62              |
| 1:F1:1594:C:C4     | 1:F1:1595:A:C8     | 2.88                     | 0.62              |
| 1:F1:1684:C:O2'    | 1:F1:1685:A:H5'    | 1.99                     | 0.62              |
| 1:F1:3106:C:C2'    | 1:F1:3107:C:H5'    | 2.30                     | 0.62              |
| 5:FE:55:ALA:HB2    | 8:FH:109:TYR:CE1   | 2.32                     | 0.62              |
| 8:FH:23:PHE:CD2    | 8:FH:32:SER:HA     | 2.35                     | 0.62              |
| 9:FJ:5:CYS:SG      | 9:FJ:13:ILE:HD13   | 2.40                     | 0.62              |
| 14:FO:90:VAL:CG1   | 14:FO:111:LEU:HD11 | 2.28                     | 0.62              |
| 20:G2:40:A:C8      | 20:G2:42:G:C2      | 2.88                     | 0.62              |
| 20:G2:146:A:O2'    | 20:G2:147:G:H5'    | 1.99                     | 0.62              |
| 23:GB:194:LYS:HA   | 23:GB:197:LEU:CD1  | 2.30                     | 0.62              |
| 28:GG:81:UNK:HG3   | 1:H1:1308:U:HO2'   | 1.62                     | 0.62              |
| 1:H1:1640:C:H2'    | 1:H1:1641:U:H6     | 1.64                     | 0.62              |
| 1:H1:1742:G:C2     | 1:H1:1751:A:C2     | 2.87                     | 0.62              |
| 1:H1:2638:G:H4'    | 1:H1:2685:A:O4'    | 2.00                     | 0.62              |
| 3:HB:3:ALA:O       | 3:HB:5:LYS:HE2     | 2.00                     | 0.62              |
| 7:HG:8:ASP:OD1     | 7:HG:9:ASN:N       | 2.32                     | 0.62              |
| 9:HJ:5:CYS:SG      | 9:HJ:13:ILE:HD13   | 2.40                     | 0.62              |
| 9:HJ:22:ALA:HB2    | 9:HJ:67:LYS:HB2    | 1.81                     | 0.62              |
| 11:HL:5:ILE:CG2    | 11:HL:6:THR:N      | 2.63                     | 0.62              |
| 16:HQ:49:THR:HG22  | 16:HQ:50:GLY:O     | 2.00                     | 0.62              |
| 1:A1:1595:A:O2'    | 1:A1:1598:C:N4     | 2.33                     | 0.61              |
| 1:A1:1972:G:C2     | 1:A1:1973:A:C8     | 2.88                     | 0.61              |
| 1:A1:2344:U:H6     | 1:A1:2344:U:C5'    | 2.13                     | 0.61              |
| 1:A1:2356:A:C2'    | 1:A1:2357:C:O5'    | 2.47                     | 0.61              |
| 1:A1:2727:A:O2'    | 1:A1:2728:A:OP1    | 2.17                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3179:U:H2'    | 1:A1:3180:C:C6     | 2.35                     | 0.61              |
| 7:AG:10:ILE:HG23   | 7:AG:13:LYS:CE     | 2.30                     | 0.61              |
| 13:AN:114:LEU:O    | 13:AN:118:PHE:HD1  | 1.83                     | 0.61              |
| 14:AO:16:LEU:HD13  | 14:AO:35:ASN:ND2   | 2.15                     | 0.61              |
| 16:AQ:49:THR:HG22  | 16:AQ:50:GLY:O     | 2.00                     | 0.61              |
| 18:AU:173:ARG:HH21 | 32:BK:143:GLY:N    | 1.97                     | 0.61              |
| 24:BC:311:ALA:N    | 35:BN:40:ARG:NH2   | 2.47                     | 0.61              |
| 28:BG:14:UNK:O     | 28:BG:18:UNK:HG2   | 1.99                     | 0.61              |
| 30:BI:57:LEU:HA    | 30:BI:71:HIS:ND1   | 2.14                     | 0.61              |
| 34:BM:83:LEU:HB3   | 34:BM:88:VAL:HG21  | 1.81                     | 0.61              |
| 40:BS:58:VAL:HG12  | 40:BS:59:ARG:HG2   | 1.82                     | 0.61              |
| 20:C2:22:A:H2'     | 20:C2:23:U:C6      | 2.34                     | 0.61              |
| 20:C2:105:A:C5'    | 20:C2:106:A:H5''   | 2.21                     | 0.61              |
| 20:C2:107:C:C4     | 20:C2:135:A:C6     | 2.88                     | 0.61              |
| 21:C3:10:C:C6      | 34:CM:20:TYR:HE1   | 2.18                     | 0.61              |
| 21:C3:47:C:H2'     | 21:C3:48:G:O4'     | 1.99                     | 0.61              |
| 22:CA:71:LYS:HE3   | 22:CA:73:ASN:CG    | 2.25                     | 0.61              |
| 24:CC:395:ASP:CG   | 37:CP:154:ARG:HH22 | 2.04                     | 0.61              |
| 25:CD:17:LEU:HD13  | 25:CD:129:VAL:HG22 | 1.82                     | 0.61              |
| 47:CO:168:UNK:C    | 47:CO:171:UNK:HG3  | 2.30                     | 0.61              |
| 38:CQ:8:ARG:HH11   | 38:CQ:118:HIS:CB   | 2.07                     | 0.61              |
| 41:CT:11:CYS:SG    | 41:CT:13:TYR:CD2   | 2.92                     | 0.61              |
| 42:CU:74:PHE:HB3   | 42:CU:80:LYS:HE3   | 1.82                     | 0.61              |
| 43:CV:115:ARG:HH21 | 43:CV:192:PHE:HB3  | 1.65                     | 0.61              |
| 1:D1:157:A:O5'     | 16:DQ:25:HIS:CE1   | 2.53                     | 0.61              |
| 1:D1:376:A:N6      | 1:D1:398:G:H2'     | 2.14                     | 0.61              |
| 1:D1:530:C:H2'     | 1:D1:531:C:H6      | 1.65                     | 0.61              |
| 1:D1:1123:A:H4'    | 1:D1:1124:G:O5'    | 1.99                     | 0.61              |
| 1:D1:1184:U:H6     | 1:D1:1184:U:C5'    | 2.13                     | 0.61              |
| 1:D1:2245:G:O6     | 50:D1:4582:HOH:O   | 2.11                     | 0.61              |
| 1:D1:2343:A:H3'    | 1:D1:2344:U:H5''   | 1.81                     | 0.61              |
| 1:D1:3241:U:C4     | 1:D1:3242:U:C4     | 2.87                     | 0.61              |
| 13:DN:11:VAL:HB    | 13:DN:80:ILE:HG23  | 1.82                     | 0.61              |
| 20:E2:74:A:H5'     | 40:ES:50:ARG:HG3   | 1.82                     | 0.61              |
| 22:EA:29:GLN:OE1   | 22:EA:124:ARG:NH2  | 2.32                     | 0.61              |
| 30:EI:11:LYS:HD3   | 30:EI:36:ARG:NH1   | 2.15                     | 0.61              |
| 30:EI:49:ASN:ND2   | 30:EI:135:CYS:SG   | 2.67                     | 0.61              |
| 36:EO:95:TRP:CZ3   | 1:F1:880:U:H4'     | 2.35                     | 0.61              |
| 37:EP:142:GLN:O    | 19:FX:36:PRO:HD2   | 2.00                     | 0.61              |
| 42:EU:98:LYS:HG2   | 1:F1:242:G:OP1     | 1.99                     | 0.61              |
| 43:EV:204:LEU:HB3  | 43:EV:238:MET:HE2  | 1.82                     | 0.61              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 43:EV:226:ASN:OD1 | 43:EV:226:ASN:O    | 2.17                     | 0.61              |
| 45:EX:56:LYS:O    | 1:F1:1431:U:H1'    | 1.99                     | 0.61              |
| 1:F1:296:G:H5''   | 1:F1:297:U:OP1     | 2.00                     | 0.61              |
| 1:F1:467:A:N6     | 1:F1:468:A:N1      | 2.48                     | 0.61              |
| 1:F1:1593:A:C5    | 1:F1:1594:C:C4     | 2.88                     | 0.61              |
| 1:F1:1902:C:H2'   | 1:F1:1903:A:O4'    | 2.00                     | 0.61              |
| 1:F1:2704:A:H4'   | 1:F1:2705:U:OP2    | 2.00                     | 0.61              |
| 1:F1:3079:U:O2'   | 1:F1:3080:A:O5'    | 2.17                     | 0.61              |
| 12:FM:45:VAL:CB   | 12:FM:51:ASN:HD21  | 2.10                     | 0.61              |
| 14:FO:110:LYS:O   | 14:FO:114:PHE:HB2  | 1.99                     | 0.61              |
| 21:G3:69:G:H2'    | 21:G3:70:G:H8      | 1.66                     | 0.61              |
| 23:GB:93:ILE:HD11 | 23:GB:102:LEU:HD22 | 1.82                     | 0.61              |
| 27:GF:176:LYS:CB  | 27:GF:187:THR:HG23 | 2.15                     | 0.61              |
| 32:GK:59:GLY:HA2  | 1:H1:2775:G:O3'    | 2.00                     | 0.61              |
| 33:GL:64:VAL:HG21 | 33:GL:106:VAL:CG2  | 2.30                     | 0.61              |
| 38:GQ:97:LEU:O    | 38:GQ:100:LEU:HB2  | 2.00                     | 0.61              |
| 1:H1:532:G:H2'    | 1:H1:533:G:H8      | 1.59                     | 0.61              |
| 1:H1:846:C:C2'    | 1:H1:847:G:H5''    | 2.27                     | 0.61              |
| 1:H1:1038:G:H2'   | 1:H1:1039:G:O4'    | 1.99                     | 0.61              |
| 1:H1:1662:A:H4'   | 11:HL:76:ARG:NH2   | 2.15                     | 0.61              |
| 1:H1:1752:G:H2'   | 7:HG:85:HIS:CD2    | 2.35                     | 0.61              |
| 1:H1:2309:U:H4'   | 1:H1:2310:G:OP2    | 2.00                     | 0.61              |
| 1:H1:2731:C:H4'   | 4:HC:18:HIS:CD2    | 2.34                     | 0.61              |
| 13:HN:11:VAL:HB   | 13:HN:80:ILE:HG23  | 1.82                     | 0.61              |
| 14:HO:87:VAL:CG2  | 14:HO:115:HIS:CD2  | 2.83                     | 0.61              |
| 18:HU:177:VAL:O   | 18:HU:181:ILE:HG13 | 2.00                     | 0.61              |
| 1:A1:398:G:N7     | 38:BQ:3:LYS:NZ     | 2.46                     | 0.61              |
| 1:A1:433:C:C5'    | 1:A1:434:A:OP1     | 2.48                     | 0.61              |
| 1:A1:1038:G:H1    | 1:A1:1064:C:H42    | 1.48                     | 0.61              |
| 1:A1:1549:U:H3    | 39:BR:83:LYS:NZ    | 1.98                     | 0.61              |
| 1:A1:1595:A:H1'   | 1:A1:1599:G:N1     | 2.15                     | 0.61              |
| 1:A1:3185:G:N7    | 8:AH:11:PRO:HD3    | 2.14                     | 0.61              |
| 9:AJ:22:ALA:HB2   | 9:AJ:67:LYS:HB2    | 1.81                     | 0.61              |
| 13:AN:10:VAL:HG12 | 13:AN:85:TYR:O     | 2.00                     | 0.61              |
| 16:AQ:29:GLN:C    | 16:AQ:31:LYS:HD3   | 2.25                     | 0.61              |
| 19:AX:110:ASP:OD1 | 19:AX:111:VAL:N    | 2.32                     | 0.61              |
| 21:B3:10:C:C5     | 34:BM:20:TYR:HE1   | 2.18                     | 0.61              |
| 22:BA:35:PHE:CZ   | 22:BA:39:GLN:OE1   | 2.53                     | 0.61              |
| 23:BB:55:HIS:H    | 23:BB:55:HIS:HD2   | 1.47                     | 0.61              |
| 23:BB:298:VAL:O   | 23:BB:298:VAL:HG12 | 1.99                     | 0.61              |
| 33:BL:26:ARG:O    | 33:BL:30:TYR:HD1   | 1.82                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 40:BS:51:LYS:O     | 40:BS:69:VAL:O     | 2.18                     | 0.61              |
| 20:C2:50:C:H1'     | 20:C2:64:A:H2'     | 1.81                     | 0.61              |
| 21:C3:105:C:H6     | 21:C3:105:C:C5'    | 2.13                     | 0.61              |
| 24:CC:115:ARG:O    | 24:CC:115:ARG:HG2  | 1.99                     | 0.61              |
| 27:CF:22:PHE:O     | 1:D1:2553:G:H5''   | 2.00                     | 0.61              |
| 30:CI:10:ALA:C     | 30:CI:13:HIS:HD2   | 2.08                     | 0.61              |
| 30:CI:26:LEU:HD22  | 30:CI:100:ARG:HB2  | 1.82                     | 0.61              |
| 32:CK:24:LYS:HD3   | 1:D1:967:U:O4      | 2.00                     | 0.61              |
| 32:CK:100:PRO:HA   | 18:DU:164:LYS:CE   | 2.30                     | 0.61              |
| 47:CO:115:ILE:HG22 | 47:CO:119:GLN:CB   | 2.30                     | 0.61              |
| 44:CW:20:HIS:CD2   | 44:CW:21:LYS:HB2   | 2.35                     | 0.61              |
| 1:D1:240:A:O2'     | 1:D1:243:G:H5''    | 2.00                     | 0.61              |
| 1:D1:1249:G:O2'    | 1:D1:1250:A:P      | 2.58                     | 0.61              |
| 1:D1:1737:A:H62    | 7:DG:28:LYS:HD2    | 1.65                     | 0.61              |
| 1:D1:2862:G:HO2'   | 1:D1:2863:U:H6     | 1.44                     | 0.61              |
| 2:DA:16:HIS:HA     | 2:DA:27:TYR:O      | 2.00                     | 0.61              |
| 7:DG:40:LYS:O      | 7:DG:65:ILE:HG23   | 2.00                     | 0.61              |
| 7:DG:102:LYS:O     | 7:DG:103:THR:OG1   | 2.11                     | 0.61              |
| 9:DJ:67:LYS:HD2    | 9:DJ:112:ASP:CG    | 2.25                     | 0.61              |
| 9:DJ:145:ASN:ND2   | 9:DJ:146:VAL:H     | 1.98                     | 0.61              |
| 24:EC:50:LYS:HD2   | 24:EC:116:VAL:HG11 | 1.81                     | 0.61              |
| 24:EC:99:ASN:ND2   | 24:EC:100:GLN:HE21 | 1.97                     | 0.61              |
| 30:EI:64:ASN:HD22  | 30:EI:64:ASN:C     | 2.05                     | 0.61              |
| 32:EK:136:ARG:NH1  | 1:F1:741:G:N3      | 2.46                     | 0.61              |
| 33:EL:201:ARG:HG2  | 18:FU:23:PHE:CD2   | 2.35                     | 0.61              |
| 34:EM:140:LYS:HD3  | 1:F1:1108:A:OP2    | 2.00                     | 0.61              |
| 37:EP:116:LYS:HE3  | 37:EP:128:THR:OG1  | 2.00                     | 0.61              |
| 42:EU:109:GLN:OE1  | 42:EU:109:GLN:HA   | 1.99                     | 0.61              |
| 1:F1:534:U:H2'     | 1:F1:535:C:H6      | 1.66                     | 0.61              |
| 1:F1:801:U:O2      | 1:F1:2708:U:O2     | 2.18                     | 0.61              |
| 1:F1:838:G:H1'     | 2:FA:50:TRP:HZ2    | 1.64                     | 0.61              |
| 1:F1:1884:G:C2'    | 1:F1:1885:G:H5'    | 2.30                     | 0.61              |
| 1:F1:1921:G:H2'    | 1:F1:1922:G:H5'    | 1.81                     | 0.61              |
| 1:F1:3091:G:O2'    | 1:F1:3092:A:H5'    | 2.00                     | 0.61              |
| 1:F1:3241:U:C4     | 1:F1:3242:U:C4     | 2.89                     | 0.61              |
| 2:FA:14:LYS:NZ     | 3:FB:52:TYR:HE1    | 1.97                     | 0.61              |
| 20:G2:44:A:OP1     | 2:HA:67:TYR:HB3    | 2.00                     | 0.61              |
| 20:G2:147:G:H21    | 27:GF:54:GLN:NE2   | 1.98                     | 0.61              |
| 21:G3:84:U:OP1     | 43:GV:215:ARG:HD3  | 2.00                     | 0.61              |
| 24:GC:152:VAL:HG12 | 14:HO:76:ILE:HD11  | 1.80                     | 0.61              |
| 27:GF:20:PRO:HB2   | 27:GF:22:PHE:HD2   | 1.65                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 36:GO:120:TYR:HE2  | 1:H1:1744:A:OP2    | 1.82                     | 0.61              |
| 41:GT:57:ARG:NH1   | 1:H1:3321:U:OP1    | 2.33                     | 0.61              |
| 45:GX:98:ILE:CA    | 45:GX:123:ASN:HD21 | 2.13                     | 0.61              |
| 1:H1:637:U:O2'     | 1:H1:638:U:H5'     | 2.00                     | 0.61              |
| 1:H1:2600:U:H2'    | 1:H1:2601:U:H6     | 1.65                     | 0.61              |
| 1:H1:2737:A:H2'    | 1:H1:2738:G:H5'    | 1.80                     | 0.61              |
| 6:HF:112:MET:O     | 6:HF:116:LYS:HG3   | 1.99                     | 0.61              |
| 9:HJ:12:ASP:O      | 9:HJ:14:GLY:N      | 2.34                     | 0.61              |
| 1:A1:132:U:O2'     | 1:A1:133:C:P       | 2.57                     | 0.61              |
| 1:A1:282:G:N3      | 1:A1:282:G:H2'     | 2.15                     | 0.61              |
| 1:A1:810:G:N7      | 35:BN:92:ARG:CZ    | 2.63                     | 0.61              |
| 1:A1:1035:A:H1'    | 29:BH:88:ARG:NH2   | 2.14                     | 0.61              |
| 1:A1:1234:G:P      | 10:AK:119:ASN:HD21 | 2.22                     | 0.61              |
| 1:A1:1549:U:N3     | 39:BR:83:LYS:NZ    | 2.49                     | 0.61              |
| 1:A1:1834:G:O6     | 50:A1:4421:HOH:O   | 2.16                     | 0.61              |
| 1:A1:1921:G:C2'    | 1:A1:1922:G:H5'    | 2.29                     | 0.61              |
| 1:A1:2677:U:C4     | 34:BM:16:PHE:CZ    | 2.89                     | 0.61              |
| 1:A1:3241:U:C4     | 1:A1:3242:U:C4     | 2.87                     | 0.61              |
| 2:AA:21:ARG:NH1    | 2:AA:39:TYR:HA     | 2.15                     | 0.61              |
| 13:AN:24:VAL:O     | 13:AN:43:VAL:HG13  | 1.99                     | 0.61              |
| 21:B3:16:A:H2'     | 21:B3:17:A:C8      | 2.35                     | 0.61              |
| 23:BB:52:GLY:HA3   | 23:BB:309:PHE:CD1  | 2.34                     | 0.61              |
| 25:BD:19:ILE:HG21  | 25:BD:125:MET:HE2  | 1.81                     | 0.61              |
| 25:BD:133:ARG:HB3  | 25:BD:134:PRO:CD   | 2.23                     | 0.61              |
| 43:BV:100:LEU:CD2  | 43:BV:127:VAL:HG11 | 2.30                     | 0.61              |
| 34:CM:23:ARG:NH1   | 1:D1:2692:A:OP2    | 2.33                     | 0.61              |
| 46:CY:57:CYS:SG    | 46:CY:59:PRO:HG2   | 2.41                     | 0.61              |
| 1:D1:232:C:O2'     | 1:D1:233:G:OP1     | 2.17                     | 0.61              |
| 1:D1:1537:U:H5'    | 1:D1:1538:U:H5     | 1.66                     | 0.61              |
| 1:D1:1752:G:H2'    | 7:DG:85:HIS:CD2    | 2.34                     | 0.61              |
| 1:D1:1767:U:H4'    | 1:D1:1768:G:OP2    | 2.01                     | 0.61              |
| 1:D1:2277:U:O2'    | 1:D1:2278:G:P      | 2.57                     | 0.61              |
| 1:D1:3059:A:H2'    | 1:D1:3060:A:C8     | 2.35                     | 0.61              |
| 1:D1:3291:G:O2'    | 1:D1:3292:U:C6     | 2.51                     | 0.61              |
| 7:DG:58:TYR:OH     | 13:DN:84:ARG:HB3   | 1.98                     | 0.61              |
| 18:DU:44:VAL:O     | 18:DU:47:ARG:HG3   | 2.01                     | 0.61              |
| 20:E2:146:A:O2'    | 20:E2:147:G:H5'    | 2.00                     | 0.61              |
| 23:EB:105:VAL:HG21 | 23:EB:146:LEU:HD23 | 1.82                     | 0.61              |
| 25:ED:19:ILE:HG21  | 25:ED:125:MET:HE2  | 1.82                     | 0.61              |
| 25:ED:124:GLY:HA3  | 1:F1:2663:A:C5     | 2.35                     | 0.61              |
| 27:EF:25:LYS:HB2   | 1:F1:2552:A:H1'    | 1.82                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:EF:68:PRO:HD3   | 27:EF:225:TRP:NE1  | 2.16                     | 0.61              |
| 27:EF:233:LYS:NZ   | 1:F1:2577:G:OP1    | 2.24                     | 0.61              |
| 32:EK:75:VAL:CG2   | 32:EK:109:PHE:CG   | 2.83                     | 0.61              |
| 32:EK:75:VAL:HG22  | 32:EK:109:PHE:CD2  | 2.36                     | 0.61              |
| 33:EL:47:LYS:NZ    | 1:F1:267:A:H5''    | 2.16                     | 0.61              |
| 35:EN:3:ILE:HD11   | 1:F1:1391:U:OP1    | 2.00                     | 0.61              |
| 36:EO:131:LEU:HD21 | 1:F1:866:A:O2'     | 2.00                     | 0.61              |
| 38:EQ:18:LYS:HE3   | 1:F1:389:G:OP1     | 1.99                     | 0.61              |
| 38:EQ:103:ASN:HD21 | 1:F1:388:A:C2'     | 2.14                     | 0.61              |
| 38:EQ:133:ARG:HA   | 50:EQ:301:HOH:O    | 1.99                     | 0.61              |
| 39:ER:84:MET:HE3   | 39:ER:90:MET:CE    | 2.31                     | 0.61              |
| 40:ES:56:LEU:HD12  | 40:ES:65:ASN:O     | 2.01                     | 0.61              |
| 1:F1:548:G:N2      | 1:F1:619:G:N2      | 2.46                     | 0.61              |
| 1:F1:673:A:OP2     | 1:F1:2856:U:O2'    | 2.16                     | 0.61              |
| 1:F1:1141:U:O4     | 1:F1:1142:G:N2     | 2.33                     | 0.61              |
| 1:F1:1321:A:HO2'   | 1:F1:1322:G:C5'    | 2.09                     | 0.61              |
| 1:F1:2425:A:H2'    | 1:F1:2426:C:C6     | 2.34                     | 0.61              |
| 6:FF:2:VAL:HG12    | 6:FF:3:PHE:N       | 2.15                     | 0.61              |
| 7:FG:71:VAL:O      | 7:FG:71:VAL:HG12   | 2.01                     | 0.61              |
| 9:FJ:43:VAL:HG12   | 9:FJ:44:PRO:N      | 2.14                     | 0.61              |
| 15:FP:12:MET:HG2   | 15:FP:15:TRP:HE1   | 1.64                     | 0.61              |
| 21:G3:33:U:C4      | 34:GM:212:TYR:CE1  | 2.87                     | 0.61              |
| 26:GE:12:ILE:HD11  | 26:GE:53:VAL:HG23  | 1.81                     | 0.61              |
| 31:GJ:32:ASN:HD21  | 31:GJ:116:SER:H    | 1.48                     | 0.61              |
| 31:GJ:74:ARG:O     | 31:GJ:75:LYS:HB2   | 2.00                     | 0.61              |
| 34:GM:56:THR:HG22  | 34:GM:58:THR:N     | 2.14                     | 0.61              |
| 34:GM:120:ALA:O    | 34:GM:255:ARG:NH1  | 2.27                     | 0.61              |
| 34:GM:277:PHE:O    | 34:GM:279:PRO:HD3  | 2.01                     | 0.61              |
| 35:GN:63:LEU:HD21  | 35:GN:140:LEU:HD23 | 1.82                     | 0.61              |
| 36:GO:134:ASN:ND2  | 1:H1:1971:G:H5''   | 2.15                     | 0.61              |
| 39:GR:79:LYS:NZ    | 1:H1:1548:U:OP1    | 2.27                     | 0.61              |
| 42:GU:32:LEU:HD21  | 42:GU:47:ARG:HD3   | 1.83                     | 0.61              |
| 43:GV:129:PRO:HG2  | 43:GV:130:PHE:CE2  | 2.35                     | 0.61              |
| 1:H1:882:G:O2'     | 1:H1:883:A:O5'     | 2.18                     | 0.61              |
| 1:H1:1367:A:H2'    | 1:H1:1368:U:C6     | 2.36                     | 0.61              |
| 1:H1:1380:C:N3     | 14:HO:32:THR:HG21  | 2.15                     | 0.61              |
| 1:H1:1737:A:H2'    | 1:H1:1754:G:N2     | 2.16                     | 0.61              |
| 1:H1:2109:G:C2'    | 1:H1:2110:C:H5'    | 2.31                     | 0.61              |
| 1:H1:2617:G:H5''   | 1:H1:2618:C:OP2    | 2.00                     | 0.61              |
| 1:H1:3044:A:H2'    | 1:H1:3074:G:N1     | 2.13                     | 0.61              |
| 9:HJ:23:TYR:HA     | 9:HJ:46:ILE:HG23   | 1.82                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 18:HU:74:THR:HG23  | 18:HU:99:ARG:O     | 2.00                     | 0.61              |
| 1:A1:409:G:OP1     | 38:BQ:64:ARG:NH1   | 2.32                     | 0.61              |
| 1:A1:2187:C:O2'    | 1:A1:2188:U:H5'    | 2.01                     | 0.61              |
| 1:A1:2239:A:O5'    | 50:A1:4199:HOH:O   | 2.16                     | 0.61              |
| 1:A1:3168:A:C5     | 19:AX:166:VAL:HG11 | 2.35                     | 0.61              |
| 1:A1:3227:A:C2'    | 1:A1:3228:U:OP1    | 2.48                     | 0.61              |
| 1:A1:3243:A:O4'    | 20:B2:3:A:C2       | 2.53                     | 0.61              |
| 1:A1:3330:U:OP1    | 44:BW:16:HIS:CD2   | 2.52                     | 0.61              |
| 5:AE:80:TYR:HD2    | 5:AE:86:PRO:HB3    | 1.64                     | 0.61              |
| 13:AN:27:LYS:NZ    | 1:H1:1046:G:OP2    | 2.33                     | 0.61              |
| 19:AX:55:PHE:CZ    | 19:AX:59:MET:HE3   | 2.35                     | 0.61              |
| 20:B2:111:A:C2'    | 20:B2:112:G:H5''   | 2.31                     | 0.61              |
| 21:B3:13:A:OP1     | 21:B3:109:U:O2'    | 2.18                     | 0.61              |
| 23:BB:56:ILE:HG21  | 23:BB:354:LEU:HD22 | 1.80                     | 0.61              |
| 24:BC:157:TYR:CD1  | 24:BC:159:PHE:HE1  | 2.16                     | 0.61              |
| 27:BF:36:GLN:NE2   | 27:BF:39:ARG:NH2   | 2.49                     | 0.61              |
| 27:BF:176:LYS:CB   | 27:BF:187:THR:HG23 | 2.17                     | 0.61              |
| 35:BN:89:ASN:OD1   | 35:BN:90:ASP:N     | 2.33                     | 0.61              |
| 21:C3:6:C:O2'      | 34:CM:50:ARG:NH2   | 2.32                     | 0.61              |
| 22:CA:5:ILE:HG22   | 22:CA:6:ARG:N      | 2.15                     | 0.61              |
| 22:CA:254:LYS:O    | 22:CA:258:LYS:HG3  | 2.00                     | 0.61              |
| 23:CB:27:GLY:HA2   | 23:CB:272:HIS:HE1  | 1.64                     | 0.61              |
| 27:CF:149:ASP:OD2  | 27:CF:176:LYS:HG2  | 2.01                     | 0.61              |
| 27:CF:233:LYS:HG2  | 1:D1:2522:A:H1'    | 1.82                     | 0.61              |
| 31:CJ:32:ASN:ND2   | 31:CJ:117:GLN:H    | 1.97                     | 0.61              |
| 34:CM:250:VAL:HG12 | 34:CM:254:ILE:CD1  | 2.31                     | 0.61              |
| 35:CN:110:ALA:O    | 35:CN:114:ILE:HG23 | 2.00                     | 0.61              |
| 44:CW:14:ASN:CG    | 44:CW:17:LYS:HG3   | 2.25                     | 0.61              |
| 45:CX:60:ALA:HA    | 1:D1:1431:U:H5'    | 1.82                     | 0.61              |
| 1:D1:282:G:N2      | 1:D1:304:U:O4'     | 2.34                     | 0.61              |
| 1:D1:1526:G:O2'    | 1:D1:1527:A:H5'    | 1.99                     | 0.61              |
| 1:D1:1906:G:O2'    | 1:D1:1907:A:H5'    | 2.00                     | 0.61              |
| 1:D1:2994:G:O2'    | 1:D1:2995:A:O5'    | 2.17                     | 0.61              |
| 1:D1:3044:A:C4'    | 1:D1:3045:A:OP1    | 2.49                     | 0.61              |
| 6:DF:30:ILE:CG2    | 19:DX:156:MET:HE1  | 2.31                     | 0.61              |
| 12:DM:75:LYS:HE2   | 12:DM:105:TYR:CE2  | 2.35                     | 0.61              |
| 14:DO:16:LEU:HD13  | 14:DO:35:ASN:ND2   | 2.15                     | 0.61              |
| 22:EA:20:HIS:HD2   | 22:EA:193:LYS:O    | 1.83                     | 0.61              |
| 31:EJ:83:ILE:HD11  | 31:EJ:105:VAL:CG2  | 2.30                     | 0.61              |
| 31:EJ:124:LYS:HG3  | 31:EJ:141:VAL:C    | 2.26                     | 0.61              |
| 33:EL:183:SER:CA   | 33:EL:191:ASN:ND2  | 2.59                     | 0.61              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 43:EV:63:LYS:O    | 43:EV:67:ARG:HG3   | 2.01                     | 0.61              |
| 44:EW:14:ASN:CG   | 44:EW:17:LYS:HG3   | 2.24                     | 0.61              |
| 1:F1:169:A:N7     | 1:F1:250:U:O4      | 2.33                     | 0.61              |
| 1:F1:316:A:C2     | 1:F1:317:A:C4      | 2.89                     | 0.61              |
| 1:F1:432:G:H4'    | 1:F1:433:C:OP1     | 2.01                     | 0.61              |
| 1:F1:605:C:H1'    | 19:FX:6:ALA:HB2    | 1.83                     | 0.61              |
| 1:F1:972:U:H2'    | 1:F1:973:C:C6      | 2.36                     | 0.61              |
| 1:F1:1537:U:H5'   | 1:F1:1538:U:H5     | 1.63                     | 0.61              |
| 1:F1:2641:U:H5'   | 4:FC:63:THR:HG21   | 1.82                     | 0.61              |
| 1:F1:3332:A:H3'   | 1:F1:3333:G:C5'    | 2.29                     | 0.61              |
| 7:FG:13:LYS:CD    | 7:FG:100:ILE:CD1   | 2.75                     | 0.61              |
| 10:FK:99:CYS:O    | 10:FK:100:TYR:HB2  | 1.99                     | 0.61              |
| 23:GB:220:LYS:NZ  | 1:H1:3037:A:OP2    | 2.24                     | 0.61              |
| 27:GF:121:LYS:HD3 | 1:H1:118:A:C5      | 2.35                     | 0.61              |
| 31:GJ:83:ILE:HD11 | 31:GJ:105:VAL:CG2  | 2.30                     | 0.61              |
| 34:GM:3:PHE:CZ    | 1:H1:1041:C:C2     | 2.84                     | 0.61              |
| 34:GM:166:ALA:CB  | 34:GM:173:ILE:HD11 | 2.29                     | 0.61              |
| 35:GN:25:VAL:CG1  | 14:HO:7:GLU:CB     | 2.78                     | 0.61              |
| 43:GV:15:ARG:HG2  | 43:GV:16:ASP:N     | 2.14                     | 0.61              |
| 1:H1:666:U:H5     | 50:H1:3747:HOH:O   | 1.83                     | 0.61              |
| 1:H1:1167:G:H2'   | 1:H1:1168:C:H6     | 1.65                     | 0.61              |
| 1:H1:1839:A:H4'   | 1:H1:1840:U:O5'    | 2.01                     | 0.61              |
| 6:HF:8:GLN:NE2    | 6:HF:11:ARG:HH11   | 1.97                     | 0.61              |
| 14:HO:94:ILE:HD12 | 14:HO:111:LEU:HD12 | 1.82                     | 0.61              |
| 15:HP:32:TYR:CE2  | 15:HP:75:ILE:HD12  | 2.36                     | 0.61              |
| 1:A1:278:U:O2'    | 33:BL:188:ARG:NH2  | 2.34                     | 0.61              |
| 1:A1:284:U:H2'    | 1:A1:284:U:O2      | 1.99                     | 0.61              |
| 1:A1:637:U:O2'    | 1:A1:638:U:H5'     | 2.00                     | 0.61              |
| 1:A1:705:A:O2'    | 1:A1:706:U:H5'     | 2.00                     | 0.61              |
| 1:A1:2244:G:H2'   | 1:A1:2245:G:H8     | 1.65                     | 0.61              |
| 1:A1:2597:G:O2'   | 33:BL:79:ILE:HD12  | 1.99                     | 0.61              |
| 1:A1:3110:U:OP2   | 10:AK:111:ARG:NH1  | 2.32                     | 0.61              |
| 1:A1:3190:A:N6    | 1:A1:3191:G:N2     | 2.48                     | 0.61              |
| 1:A1:3227:A:N1    | 5:AE:150:LYS:HD3   | 2.15                     | 0.61              |
| 6:AF:12:VAL:HG11  | 6:AF:81:LEU:HD11   | 1.82                     | 0.61              |
| 21:B3:10:C:C5     | 34:BM:20:TYR:CE1   | 2.89                     | 0.61              |
| 21:B3:81:A:H2'    | 21:B3:82:G:H5''    | 1.80                     | 0.61              |
| 22:BA:219:HIS:CA  | 50:BA:304:HOH:O    | 2.43                     | 0.61              |
| 23:BB:377:PHE:HD2 | 23:BB:378:PHE:CD1  | 2.19                     | 0.61              |
| 29:BH:139:ARG:CG  | 29:BH:173:PHE:HE1  | 2.14                     | 0.61              |
| 43:BV:15:ARG:HG2  | 43:BV:16:ASP:N     | 2.14                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 46:BY:8:VAL:HG13   | 46:BY:11:THR:HB    | 1.82                     | 0.61              |
| 20:C2:114:G:H3'    | 20:C2:114:G:C8     | 2.34                     | 0.61              |
| 21:C3:69:G:H2'     | 21:C3:70:G:H8      | 1.64                     | 0.61              |
| 23:CB:162:THR:O    | 23:CB:174:ASN:CB   | 2.46                     | 0.61              |
| 24:CC:163:VAL:HA   | 24:CC:166:TYR:HE2  | 1.62                     | 0.61              |
| 27:CF:170:PHE:O    | 27:CF:215:TYR:CD2  | 2.54                     | 0.61              |
| 32:CK:75:VAL:HG23  | 32:CK:109:PHE:CB   | 2.30                     | 0.61              |
| 1:D1:39:G:H2'      | 1:D1:40:C:H5'      | 1.81                     | 0.61              |
| 1:D1:164:A:H2'     | 1:D1:165:C:H5'     | 1.83                     | 0.61              |
| 1:D1:314:C:H2'     | 1:D1:315:U:C6      | 2.35                     | 0.61              |
| 1:D1:1159:C:O2'    | 1:D1:1160:A:H5'    | 2.01                     | 0.61              |
| 1:D1:1737:A:H2'    | 1:D1:1754:G:N2     | 2.16                     | 0.61              |
| 1:D1:1922:G:H2'    | 1:D1:1923:G:O5'    | 2.01                     | 0.61              |
| 1:D1:2106:G:O6     | 50:D1:4669:HOH:O   | 2.14                     | 0.61              |
| 1:D1:2202:A:H2'    | 1:D1:2203:A:O4'    | 2.01                     | 0.61              |
| 1:D1:2720:G:O2'    | 1:D1:2721:G:H5'    | 2.00                     | 0.61              |
| 21:E3:69:G:H2'     | 21:E3:70:G:H8      | 1.66                     | 0.61              |
| 22:EA:30:TYR:HB3   | 22:EA:164:ARG:HH11 | 1.66                     | 0.61              |
| 23:EB:81:CYS:HB3   | 23:EB:203:VAL:CG2  | 2.29                     | 0.61              |
| 28:EG:4:UNK:CG     | 28:EG:6:UNK:HG2    | 2.26                     | 0.61              |
| 32:EK:75:VAL:HG23  | 32:EK:109:PHE:HB3  | 1.81                     | 0.61              |
| 35:EN:45:PHE:CE2   | 35:EN:49:ILE:HD11  | 2.35                     | 0.61              |
| 45:EX:99:ALA:HB1   | 45:EX:101:ASN:OD1  | 2.01                     | 0.61              |
| 1:F1:155:A:H4'     | 1:F1:156:A:OP2     | 1.99                     | 0.61              |
| 1:F1:1207:A:O2'    | 1:F1:1208:U:P      | 2.58                     | 0.61              |
| 1:F1:1413:G:C2'    | 1:F1:1414:C:H5'    | 2.30                     | 0.61              |
| 1:F1:1595:A:H1'    | 1:F1:1599:G:N1     | 2.15                     | 0.61              |
| 1:F1:2245:G:N7     | 50:F1:4294:HOH:O   | 2.31                     | 0.61              |
| 1:F1:2246:G:H2'    | 1:F1:2247:A:C8     | 2.34                     | 0.61              |
| 1:F1:2344:U:H5'    | 1:F1:2344:U:C6     | 2.32                     | 0.61              |
| 1:F1:3177:G:H5''   | 1:F1:3177:G:H8     | 1.65                     | 0.61              |
| 7:FG:40:LYS:O      | 7:FG:65:ILE:HG23   | 2.00                     | 0.61              |
| 19:FX:94:LYS:HG2   | 19:FX:136:GLN:HB3  | 1.82                     | 0.61              |
| 20:G2:96:A:N1      | 2:HA:85:ALA:HA     | 2.15                     | 0.61              |
| 22:GA:104:PRO:HG2  | 22:GA:107:ARG:HG3  | 1.81                     | 0.61              |
| 23:GB:19:ARG:O     | 23:GB:271:HIS:CE1  | 2.52                     | 0.61              |
| 24:GC:50:LYS:HD2   | 24:GC:116:VAL:HG11 | 1.83                     | 0.61              |
| 24:GC:55:VAL:HG13  | 1:H1:345:C:OP1     | 2.00                     | 0.61              |
| 24:GC:289:LEU:HD12 | 35:GN:24:ASN:HD22  | 1.65                     | 0.61              |
| 25:GD:120:THR:HG22 | 25:GD:120:THR:O    | 2.00                     | 0.61              |
| 36:GO:144:VAL:O    | 36:GO:147:ALA:HB3  | 2.00                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:GQ:36:ARG:NH1   | 38:GQ:64:ARG:HG3   | 2.15                     | 0.61              |
| 38:GQ:72:THR:CG2   | 38:GQ:74:GLN:HG3   | 2.30                     | 0.61              |
| 43:GV:211:PHE:HB3  | 43:GV:223:ASP:OD2  | 1.99                     | 0.61              |
| 45:GX:77:LEU:H     | 14:HO:19:ASN:HD21  | 1.49                     | 0.61              |
| 46:GY:10:ILE:HD11  | 46:GY:30:GLU:CB    | 2.29                     | 0.61              |
| 1:H1:1397:G:OP2    | 50:H1:3996:HOH:O   | 2.16                     | 0.61              |
| 1:H1:1587:A:H4'    | 1:H1:1588:A:OP2    | 1.99                     | 0.61              |
| 1:H1:1599:G:O2'    | 1:H1:1600:U:H5'    | 2.00                     | 0.61              |
| 1:H1:2100:A:C2     | 1:H1:2101:G:C8     | 2.89                     | 0.61              |
| 1:H1:2343:A:H3'    | 1:H1:2344:U:C5'    | 2.31                     | 0.61              |
| 1:H1:2412:U:C2'    | 1:H1:2413:G:H5''   | 2.30                     | 0.61              |
| 1:H1:2550:U:H4'    | 1:H1:2551:A:OP2    | 2.01                     | 0.61              |
| 1:H1:3128:G:H8     | 1:H1:3128:G:C5'    | 2.11                     | 0.61              |
| 1:H1:3228:U:C4'    | 1:H1:3229:C:C5'    | 2.76                     | 0.61              |
| 6:HF:43:ILE:HG22   | 6:HF:44:VAL:O      | 2.01                     | 0.61              |
| 1:A1:114:A:OP2     | 33:BL:5:LYS:HB2    | 2.01                     | 0.61              |
| 1:A1:184:C:H2'     | 1:A1:185:A:C8      | 2.35                     | 0.61              |
| 1:A1:312:U:H2'     | 1:A1:313:U:C6      | 2.36                     | 0.61              |
| 1:A1:970:C:O4'     | 1:A1:1433:A:H1'    | 2.01                     | 0.61              |
| 1:A1:1376:A:C3'    | 43:BV:12:LYS:CE    | 2.77                     | 0.61              |
| 1:A1:1431:U:H5'    | 45:BX:60:ALA:HA    | 1.83                     | 0.61              |
| 1:A1:1776:G:O2'    | 1:A1:1777:A:H5'    | 2.01                     | 0.61              |
| 1:A1:1839:A:H4'    | 1:A1:1840:U:O5'    | 2.00                     | 0.61              |
| 1:A1:2540:G:C4'    | 1:A1:2541:U:OP2    | 2.47                     | 0.61              |
| 1:A1:3227:A:C5'    | 5:AE:57:ARG:NH1    | 2.59                     | 0.61              |
| 4:AC:26:TYR:HB3    | 4:AC:67:ALA:HB3    | 1.81                     | 0.61              |
| 5:AE:161:LEU:O     | 5:AE:165:LYS:HB2   | 2.00                     | 0.61              |
| 7:AG:71:VAL:O      | 7:AG:71:VAL:HG12   | 2.00                     | 0.61              |
| 8:AH:23:PHE:CD2    | 8:AH:32:SER:HA     | 2.35                     | 0.61              |
| 9:AJ:43:VAL:HG12   | 9:AJ:44:PRO:N      | 2.15                     | 0.61              |
| 18:AU:59:GLN:HG2   | 18:AU:59:GLN:O     | 1.98                     | 0.61              |
| 18:AU:74:THR:HB    | 18:AU:101:ASN:HD21 | 1.66                     | 0.61              |
| 19:AX:96:GLN:NE2   | 21:B3:93:G:H4'     | 2.16                     | 0.61              |
| 20:B2:13:A:H2'     | 20:B2:14:C:C6      | 2.36                     | 0.61              |
| 28:BG:4:UNK:CG     | 28:BG:6:UNK:HG2    | 2.22                     | 0.61              |
| 32:BK:118:LEU:HB3  | 32:BK:141:VAL:HG21 | 1.83                     | 0.61              |
| 35:BN:18:ARG:NH1   | 35:BN:56:SER:HA    | 2.15                     | 0.61              |
| 39:BR:94:VAL:HG11  | 39:BR:103:ILE:HD11 | 1.83                     | 0.61              |
| 43:BV:115:ARG:HH21 | 43:BV:192:PHE:HB3  | 1.65                     | 0.61              |
| 20:C2:26:A:H3'     | 20:C2:27:G:C5'     | 2.31                     | 0.61              |
| 22:CA:70:TYR:HD2   | 1:D1:1674:C:C4'    | 2.12                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:CB:117:ARG:NH1  | 23:CB:174:ASN:O    | 2.33                     | 0.61              |
| 27:CF:95:GLU:OE1   | 27:CF:100:LYS:HG2  | 2.01                     | 0.61              |
| 33:CL:26:ARG:O     | 33:CL:30:TYR:CD1   | 2.53                     | 0.61              |
| 47:CO:166:UNK:O    | 47:CO:169:UNK:HG3  | 2.00                     | 0.61              |
| 45:CX:36:ARG:NH2   | 1:D1:1395:U:OP1    | 2.33                     | 0.61              |
| 46:CY:8:VAL:HG13   | 46:CY:11:THR:HB    | 1.81                     | 0.61              |
| 1:D1:296:G:H5'     | 1:D1:297:U:OP1     | 2.01                     | 0.61              |
| 1:D1:633:C:H3'     | 5:DE:30:ARG:HH22   | 1.64                     | 0.61              |
| 1:D1:926:A:H2'     | 1:D1:927:G:H8      | 1.64                     | 0.61              |
| 1:D1:1132:U:H2'    | 1:D1:1133:G:H8     | 1.65                     | 0.61              |
| 1:D1:1656:G:C5     | 1:D1:1657:C:C5     | 2.89                     | 0.61              |
| 1:D1:2244:G:H2'    | 1:D1:2245:G:H8     | 1.64                     | 0.61              |
| 1:D1:2294:A:OP2    | 50:D1:4622:HOH:O   | 2.16                     | 0.61              |
| 1:D1:3143:A:C2     | 1:D1:3250:A:C2     | 2.89                     | 0.61              |
| 7:DG:8:ASP:HA      | 7:DG:11:GLN:NE2    | 2.16                     | 0.61              |
| 7:DG:95:ALA:CB     | 7:DG:101:LEU:HD11  | 2.28                     | 0.61              |
| 21:E3:33:U:C2      | 34:EM:212:TYR:CD1  | 2.88                     | 0.61              |
| 23:EB:55:HIS:H     | 23:EB:55:HIS:HD2   | 1.46                     | 0.61              |
| 26:EE:2:ARG:HH12   | 30:EI:129:ARG:NH2  | 1.98                     | 0.61              |
| 27:EF:92:TYR:HE2   | 27:EF:123:ILE:HG21 | 1.65                     | 0.61              |
| 27:EF:149:ASP:OD1  | 27:EF:176:LYS:HD3  | 2.01                     | 0.61              |
| 31:EJ:108:ASN:HD21 | 31:EJ:110:LYS:HB2  | 1.66                     | 0.61              |
| 33:EL:45:PRO:O     | 33:EL:49:ARG:HG3   | 2.01                     | 0.61              |
| 34:EM:35:ARG:HB2   | 1:F1:2737:A:C2     | 2.36                     | 0.61              |
| 36:EO:128:LYS:NZ   | 1:F1:1745:U:O4     | 2.30                     | 0.61              |
| 46:EY:71:LEU:HD12  | 46:EY:71:LEU:O     | 2.01                     | 0.61              |
| 1:F1:446:G:H2'     | 1:F1:447:G:H8      | 1.66                     | 0.61              |
| 1:F1:449:G:H2'     | 1:F1:450:C:C6      | 2.35                     | 0.61              |
| 1:F1:709:G:OP1     | 18:FU:37:ARG:NH2   | 2.33                     | 0.61              |
| 1:F1:1358:U:H4'    | 1:F1:1359:A:OP2    | 2.00                     | 0.61              |
| 1:F1:1366:C:H2'    | 1:F1:1367:A:H8     | 1.63                     | 0.61              |
| 1:F1:1595:A:O2'    | 1:F1:1598:C:N4     | 2.33                     | 0.61              |
| 1:F1:2150:U:H5'    | 1:F1:2150:U:H6     | 1.65                     | 0.61              |
| 1:F1:3044:A:H2'    | 1:F1:3074:G:N1     | 2.15                     | 0.61              |
| 2:FA:15:THR:OG1    | 2:FA:16:HIS:CD2    | 2.54                     | 0.61              |
| 5:FE:122:ALA:HB2   | 5:FE:134:LEU:HD23  | 1.82                     | 0.61              |
| 16:FQ:15:THR:CG2   | 18:FU:103:CYS:SG   | 2.88                     | 0.61              |
| 20:G2:77:U:C4      | 40:GS:73:TYR:CE2   | 2.87                     | 0.61              |
| 22:GA:105:ILE:CG2  | 22:GA:147:THR:HG21 | 2.30                     | 0.61              |
| 24:GC:166:TYR:O    | 24:GC:222:THR:HB   | 2.00                     | 0.61              |
| 27:GF:124:VAL:HG12 | 27:GF:125:LEU:O    | 1.99                     | 0.61              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 37:GP:13:LYS:CD   | 1:H1:1020:G:H3'    | 2.28                     | 0.61              |
| 37:GP:116:LYS:HE3 | 37:GP:128:THR:OG1  | 2.01                     | 0.61              |
| 41:GT:23:PHE:HE1  | 41:GT:25:ALA:HB2   | 1.66                     | 0.61              |
| 42:GU:123:LYS:HZ1 | 18:HU:144:SER:HB2  | 1.66                     | 0.61              |
| 46:GY:12:ARG:HD2  | 46:GY:12:ARG:O     | 2.01                     | 0.61              |
| 1:H1:622:G:C4'    | 1:H1:623:G:OP1     | 2.47                     | 0.61              |
| 1:H1:1507:A:O4'   | 1:H1:1507:A:OP1    | 2.19                     | 0.61              |
| 1:H1:1902:C:H2'   | 1:H1:1903:A:O4'    | 2.00                     | 0.61              |
| 1:H1:1921:G:H2'   | 1:H1:1922:G:H5'    | 1.83                     | 0.61              |
| 1:H1:1937:G:N3    | 1:H1:2116:A:H2'    | 2.16                     | 0.61              |
| 6:HF:56:THR:O     | 6:HF:56:THR:HG22   | 2.00                     | 0.61              |
| 9:HJ:145:ASN:ND2  | 9:HJ:146:VAL:H     | 1.97                     | 0.61              |
| 14:HO:40:LEU:O    | 14:HO:44:HIS:CE1   | 2.53                     | 0.61              |
| 16:HQ:44:VAL:O    | 16:HQ:48:VAL:HG23  | 2.01                     | 0.61              |
| 19:HX:5:ALA:O     | 19:HX:8:GLU:HG3    | 2.01                     | 0.61              |
| 1:A1:25:C:H1'     | 1:A1:327:U:H1'     | 1.83                     | 0.61              |
| 1:A1:273:G:P      | 50:A1:3834:HOH:O   | 2.44                     | 0.61              |
| 1:A1:376:A:H62    | 1:A1:398:G:H2'     | 1.66                     | 0.61              |
| 1:A1:513:G:H2'    | 1:A1:514:U:H6      | 1.65                     | 0.61              |
| 1:A1:869:G:H2'    | 1:A1:870:G:O4'     | 2.00                     | 0.61              |
| 1:A1:1132:U:H2'   | 1:A1:1133:G:H8     | 1.66                     | 0.61              |
| 1:A1:2145:A:H4'   | 22:BA:180:ILE:O    | 2.00                     | 0.61              |
| 1:A1:2425:A:H2'   | 1:A1:2426:C:C6     | 2.34                     | 0.61              |
| 12:AM:45:VAL:CB   | 12:AM:51:ASN:HD21  | 2.10                     | 0.61              |
| 18:AU:164:LYS:CE  | 32:BK:100:PRO:HA   | 2.31                     | 0.61              |
| 20:B2:22:A:H2'    | 20:B2:23:U:C6      | 2.35                     | 0.61              |
| 22:BA:71:LYS:HE3  | 22:BA:73:ASN:CG    | 2.26                     | 0.61              |
| 25:BD:50:ALA:HB1  | 25:BD:59:ILE:HG23  | 1.83                     | 0.61              |
| 27:BF:36:GLN:HG3  | 27:BF:37:PRO:CD    | 2.29                     | 0.61              |
| 32:BK:75:VAL:HG23 | 32:BK:109:PHE:CB   | 2.30                     | 0.61              |
| 34:BM:129:TYR:CE1 | 34:BM:175:HIS:O    | 2.49                     | 0.61              |
| 35:BN:19:GLN:HA   | 35:BN:19:GLN:OE1   | 2.00                     | 0.61              |
| 35:BN:110:ALA:O   | 35:BN:114:ILE:HG23 | 2.00                     | 0.61              |
| 39:BR:81:MET:O    | 39:BR:85:GLU:HG3   | 2.00                     | 0.61              |
| 20:C2:74:A:H5'    | 40:CS:50:ARG:CG    | 2.31                     | 0.61              |
| 22:CA:253:GLU:OE1 | 22:CA:253:GLU:HA   | 2.00                     | 0.61              |
| 27:CF:20:PRO:HB2  | 27:CF:22:PHE:HD2   | 1.66                     | 0.61              |
| 27:CF:96:LYS:HB3  | 27:CF:97:PRO:HD2   | 1.81                     | 0.61              |
| 30:CI:81:ARG:HH22 | 1:D1:2378:A:P      | 2.23                     | 0.61              |
| 31:CJ:32:ASN:HD21 | 31:CJ:116:SER:H    | 1.49                     | 0.61              |
| 41:CT:41:LEU:HD13 | 41:CT:51:ILE:HD13  | 1.81                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:132:U:O2'     | 1:D1:133:C:OP2     | 2.17                     | 0.61              |
| 1:D1:453:A:H2'     | 1:D1:454:A:C8      | 2.35                     | 0.61              |
| 1:D1:644:A:H2'     | 1:D1:645:A:H4'     | 1.83                     | 0.61              |
| 1:D1:1049:U:C5     | 1:D1:1050:C:C4     | 2.89                     | 0.61              |
| 1:D1:1227:A:N3     | 1:D1:1227:A:H2'    | 2.15                     | 0.61              |
| 1:D1:1593:A:C5     | 1:D1:1594:C:C4     | 2.88                     | 0.61              |
| 1:D1:2188:U:HO2'   | 1:D1:2189:G:P      | 2.23                     | 0.61              |
| 1:D1:2558:U:H2'    | 1:D1:2559:U:O4'    | 2.01                     | 0.61              |
| 1:D1:2865:G:H2'    | 1:D1:2866:G:C8     | 2.35                     | 0.61              |
| 5:DE:41:LEU:HD13   | 5:DE:45:ILE:CD1    | 2.20                     | 0.61              |
| 6:DF:8:GLN:NE2     | 6:DF:11:ARG:NH1    | 2.49                     | 0.61              |
| 8:DH:15:TRP:CH2    | 8:DH:105:ARG:CZ    | 2.83                     | 0.61              |
| 15:DP:12:MET:HG2   | 15:DP:15:TRP:HE1   | 1.63                     | 0.61              |
| 19:DX:16:MET:HG2   | 19:DX:17:LYS:H     | 1.65                     | 0.61              |
| 24:EC:49:ARG:NH2   | 1:F1:713:G:N2      | 2.47                     | 0.61              |
| 24:EC:69:ALA:HB3   | 24:EC:97:PHE:CZ    | 2.35                     | 0.61              |
| 25:ED:9:MET:O      | 25:ED:134:PRO:HG3  | 2.01                     | 0.61              |
| 27:EF:230:LEU:HD12 | 27:EF:235:GLN:OE1  | 1.99                     | 0.61              |
| 1:F1:133:C:H2'     | 1:F1:133:C:O2      | 2.00                     | 0.61              |
| 1:F1:405:A:OP2     | 50:F1:3750:HOH:O   | 2.16                     | 0.61              |
| 1:F1:960:U:O2'     | 50:F1:3660:HOH:O   | 2.16                     | 0.61              |
| 1:F1:1061:G:N3     | 1:F1:1062:A:C8     | 2.69                     | 0.61              |
| 1:F1:1184:U:H6     | 1:F1:1184:U:C5'    | 2.13                     | 0.61              |
| 1:F1:2177:A:C2'    | 1:F1:2178:A:H5''   | 2.31                     | 0.61              |
| 1:F1:2330:G:P      | 50:F1:4308:HOH:O   | 2.59                     | 0.61              |
| 1:F1:3106:C:C3'    | 1:F1:3107:C:H5'    | 2.31                     | 0.61              |
| 12:FM:110:PHE:O    | 12:FM:111:ASN:HB2  | 2.00                     | 0.61              |
| 20:G2:144:U:H2'    | 20:G2:145:C:H5''   | 1.83                     | 0.61              |
| 21:G3:5:U:H2'      | 21:G3:6:C:C6       | 2.36                     | 0.61              |
| 22:GA:29:GLN:OE1   | 22:GA:124:ARG:NH2  | 2.34                     | 0.61              |
| 22:GA:33:TYR:HA    | 22:GA:164:ARG:HH21 | 1.65                     | 0.61              |
| 23:GB:24:HIS:CE1   | 23:GB:28:ARG:NH1   | 2.66                     | 0.61              |
| 28:GG:81:UNK:N     | 1:H1:1309:G:H4'    | 2.16                     | 0.61              |
| 34:GM:76:CYS:C     | 34:GM:105:LEU:HD11 | 2.25                     | 0.61              |
| 42:GU:120:PHE:HE2  | 18:HU:90:SER:O     | 1.82                     | 0.61              |
| 1:H1:467:A:N6      | 1:H1:468:A:N1      | 2.49                     | 0.61              |
| 1:H1:1548:U:H4'    | 1:H1:1549:U:OP2    | 2.00                     | 0.61              |
| 1:H1:2860:A:N3     | 1:H1:2860:A:H5'    | 2.16                     | 0.61              |
| 9:HJ:77:ASN:HB3    | 9:HJ:80:GLU:CG     | 2.30                     | 0.61              |
| 1:A1:497:G:O2'     | 1:A1:498:A:H5'     | 2.01                     | 0.61              |
| 1:A1:712:G:H4'     | 24:BC:240:ARG:NH2  | 2.16                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:713:G:H21     | 24:BC:49:ARG:NH2   | 1.98                     | 0.61              |
| 1:A1:1146:C:H42    | 17:AT:10:LYS:HZ3   | 1.48                     | 0.61              |
| 1:A1:1404:G:H5'    | 1:A1:1434:G:O2'    | 1.98                     | 0.61              |
| 1:A1:1599:G:O2'    | 1:A1:1600:U:H5'    | 1.99                     | 0.61              |
| 1:A1:1956:A:H2'    | 1:A1:1957:A:H5'    | 1.82                     | 0.61              |
| 1:A1:2649:G:OP1    | 1:A1:2739:C:O2'    | 2.18                     | 0.61              |
| 1:A1:3108:U:H2'    | 1:A1:3109:C:H5'    | 1.83                     | 0.61              |
| 1:A1:3168:A:OP1    | 1:A1:3168:A:C8     | 2.52                     | 0.61              |
| 1:A1:3227:A:O2'    | 5:AE:86:PRO:HG3    | 2.01                     | 0.61              |
| 4:AC:44:LYS:CD     | 4:AC:52:THR:HG21   | 2.17                     | 0.61              |
| 5:AE:69:LEU:HD11   | 5:AE:114:ASP:H     | 1.65                     | 0.61              |
| 5:AE:86:PRO:O      | 5:AE:87:LEU:HD23   | 2.00                     | 0.61              |
| 14:AO:75:THR:CG2   | 14:AO:77:GLU:HG2   | 2.31                     | 0.61              |
| 20:B2:74:A:H5'     | 40:BS:50:ARG:HG3   | 1.83                     | 0.61              |
| 22:BA:30:TYR:HB3   | 22:BA:164:ARG:NH1  | 2.16                     | 0.61              |
| 22:BA:105:ILE:HG21 | 22:BA:147:THR:HG21 | 1.82                     | 0.61              |
| 24:BC:405:ILE:HD11 | 29:BH:183:ARG:HE   | 1.64                     | 0.61              |
| 25:BD:38:LYS:HG2   | 25:BD:45:PRO:HD3   | 1.80                     | 0.61              |
| 33:BL:184:LEU:HD23 | 33:BL:188:ARG:HD2  | 1.82                     | 0.61              |
| 36:BO:98:ARG:NH1   | 36:BO:130:ASN:OD1  | 2.34                     | 0.61              |
| 45:BX:98:ILE:H     | 45:BX:123:ASN:ND2  | 1.98                     | 0.61              |
| 20:C2:1:A:H4'      | 20:C2:2:G:OP2      | 2.00                     | 0.61              |
| 23:CB:216:LEU:HD21 | 23:CB:274:THR:HG23 | 1.82                     | 0.61              |
| 27:CF:132:ILE:O    | 27:CF:136:ILE:HG13 | 2.01                     | 0.61              |
| 27:CF:149:ASP:OD1  | 27:CF:176:LYS:HD3  | 2.00                     | 0.61              |
| 35:CN:166:TYR:CE1  | 1:D1:692:A:H4'     | 2.36                     | 0.61              |
| 42:CU:74:PHE:HB3   | 42:CU:80:LYS:HG2   | 1.83                     | 0.61              |
| 45:CX:11:ILE:HG13  | 45:CX:11:ILE:O     | 2.01                     | 0.61              |
| 1:D1:114:A:O4'     | 16:DQ:37:ARG:NH1   | 2.34                     | 0.61              |
| 1:D1:405:A:O2'     | 1:D1:406:A:H5'     | 2.01                     | 0.61              |
| 1:D1:467:A:N6      | 1:D1:468:A:N1      | 2.48                     | 0.61              |
| 1:D1:718:A:H2'     | 1:D1:719:C:C6      | 2.35                     | 0.61              |
| 1:D1:1370:A:H2'    | 1:D1:1371:G:C5'    | 2.23                     | 0.61              |
| 1:D1:1599:G:H2'    | 1:D1:1600:U:H5'    | 1.81                     | 0.61              |
| 1:D1:1660:U:O2'    | 13:DN:79:HIS:CD2   | 2.52                     | 0.61              |
| 1:D1:3106:C:C3'    | 1:D1:3107:C:H5'    | 2.30                     | 0.61              |
| 5:DE:124:LYS:HG2   | 5:DE:132:ALA:HB2   | 1.82                     | 0.61              |
| 12:DM:66:ASN:ND2   | 12:DM:68:GLN:HE21  | 1.98                     | 0.61              |
| 18:DU:54:PRO:HD3   | 18:DU:73:PHE:CD2   | 2.35                     | 0.61              |
| 22:EA:33:TYR:HA    | 22:EA:164:ARG:NH2  | 2.16                     | 0.61              |
| 23:EB:25:HIS:HD2   | 23:EB:270:TYR:OH   | 1.84                     | 0.61              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 26:EE:145:GLN:NE2 | 26:EE:186:MET:O    | 2.34                     | 0.61              |
| 27:EF:176:LYS:HD2 | 27:EF:187:THR:HG21 | 1.81                     | 0.61              |
| 37:EP:11:THR:HG22 | 37:EP:11:THR:O     | 1.99                     | 0.61              |
| 43:EV:51:GLU:O    | 43:EV:54:ALA:HB3   | 2.00                     | 0.61              |
| 1:F1:396:A:C2     | 1:F1:397:A:C4      | 2.89                     | 0.61              |
| 1:F1:1937:G:O2'   | 1:F1:2116:A:O2'    | 2.18                     | 0.61              |
| 1:F1:1942:C:C5'   | 1:F1:1942:C:H6     | 2.14                     | 0.61              |
| 1:F1:2414:A:H2'   | 1:F1:2415:C:C6     | 2.36                     | 0.61              |
| 1:F1:2743:G:H3'   | 1:F1:2744:C:H5'    | 1.80                     | 0.61              |
| 1:F1:3190:A:N6    | 1:F1:3191:G:N2     | 2.49                     | 0.61              |
| 5:FE:42:ARG:NH2   | 5:FE:92:GLN:O      | 2.33                     | 0.61              |
| 9:FJ:117:ILE:HB   | 9:FJ:121:LEU:HD22  | 1.81                     | 0.61              |
| 11:FL:5:ILE:CG2   | 11:FL:6:THR:N      | 2.61                     | 0.61              |
| 12:FM:52:LEU:O    | 12:FM:56:ILE:HG22  | 2.00                     | 0.61              |
| 22:GA:30:TYR:HB3  | 22:GA:164:ARG:HH11 | 1.65                     | 0.61              |
| 25:GD:19:ILE:HG21 | 25:GD:125:MET:HE2  | 1.81                     | 0.61              |
| 25:GD:32:LYS:HD3  | 25:GD:119:SER:O    | 2.01                     | 0.61              |
| 28:GG:4:UNK:CG    | 28:GG:6:UNK:HG2    | 2.25                     | 0.61              |
| 29:GH:168:SER:OG  | 37:GP:157:PHE:O    | 2.18                     | 0.61              |
| 32:GK:109:PHE:C   | 32:GK:110:PHE:HD1  | 2.08                     | 0.61              |
| 35:GN:18:ARG:NH1  | 35:GN:56:SER:HA    | 2.15                     | 0.61              |
| 35:GN:29:LEU:HD21 | 14:HO:7:GLU:HG3    | 1.83                     | 0.61              |
| 36:GO:123:PHE:HD2 | 36:GO:138:LEU:HD11 | 1.64                     | 0.61              |
| 43:GV:48:TYR:CE1  | 43:GV:183:HIS:CG   | 2.89                     | 0.61              |
| 1:H1:232:C:O2'    | 1:H1:233:G:OP1     | 2.17                     | 0.61              |
| 1:H1:399:A:H4'    | 1:H1:400:C:OP1     | 1.98                     | 0.61              |
| 1:H1:534:U:H2'    | 1:H1:535:C:H6      | 1.65                     | 0.61              |
| 1:H1:1123:A:H4'   | 1:H1:1124:G:O5'    | 2.00                     | 0.61              |
| 1:H1:1595:A:O2'   | 1:H1:1598:C:N4     | 2.32                     | 0.61              |
| 1:H1:2804:G:N7    | 1:H1:2858:C:H5'    | 2.16                     | 0.61              |
| 1:H1:3106:C:C3'   | 1:H1:3107:C:H5'    | 2.31                     | 0.61              |
| 14:HO:75:THR:CG2  | 14:HO:77:GLU:HG2   | 2.30                     | 0.61              |
| 1:A1:70:C:O2      | 1:A1:70:C:C2'      | 2.45                     | 0.61              |
| 1:A1:281:G:O6     | 33:BL:182:LYS:HE2  | 2.01                     | 0.61              |
| 1:A1:933:G:OP1    | 50:A1:4010:HOH:O   | 2.16                     | 0.61              |
| 1:A1:1149:U:H2'   | 1:A1:1150:U:H5'    | 1.82                     | 0.61              |
| 1:A1:1432:G:OP1   | 50:A1:3920:HOH:O   | 2.16                     | 0.61              |
| 1:A1:1684:C:O2'   | 1:A1:1685:A:H5'    | 2.01                     | 0.61              |
| 1:A1:1770:A:H2'   | 1:A1:1771:U:C6     | 2.35                     | 0.61              |
| 1:A1:2597:G:OP1   | 22:BA:2:GLY:HA2    | 1.99                     | 0.61              |
| 1:A1:2876:U:C4    | 1:A1:2899:C:C5     | 2.89                     | 0.61              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A1:2979:A:OP1    | 23:BB:20:ARG:HB2  | 2.00                     | 0.61              |
| 1:A1:3106:C:C3'    | 1:A1:3107:C:H5'   | 2.31                     | 0.61              |
| 8:AH:36:LEU:HD22   | 8:AH:81:HIS:CD2   | 2.34                     | 0.61              |
| 19:AX:16:MET:HG2   | 19:AX:17:LYS:N    | 2.16                     | 0.61              |
| 21:B3:10:C:N3      | 34:BM:20:TYR:HD1  | 1.98                     | 0.61              |
| 35:BN:82:VAL:HA    | 35:BN:102:CYS:O   | 2.00                     | 0.61              |
| 36:BO:106:LEU:HB3  | 36:BO:120:TYR:CE1 | 2.35                     | 0.61              |
| 46:BY:57:CYS:SG    | 46:BY:59:PRO:HG2  | 2.40                     | 0.61              |
| 20:C2:145:C:H2'    | 20:C2:146:A:H8    | 1.66                     | 0.61              |
| 22:CA:5:ILE:HG22   | 22:CA:6:ARG:H     | 1.65                     | 0.61              |
| 22:CA:104:PRO:HG2  | 22:CA:107:ARG:HG3 | 1.83                     | 0.61              |
| 23:CB:270:TYR:HD2  | 1:D1:3265:A:H5'   | 1.65                     | 0.61              |
| 23:CB:375:ASP:HB3  | 23:CB:380:ARG:O   | 2.01                     | 0.61              |
| 29:CH:43:VAL:HG11  | 29:CH:197:VAL:CG2 | 2.31                     | 0.61              |
| 39:CR:77:THR:HG22  | 1:D1:1546:G:H5''  | 1.82                     | 0.61              |
| 42:CU:109:GLN:OE1  | 42:CU:109:GLN:HA  | 2.01                     | 0.61              |
| 44:CW:72:VAL:CG1   | 44:CW:92:VAL:HG13 | 2.31                     | 0.61              |
| 46:CY:56:LYS:HG2   | 46:CY:63:ILE:HG12 | 1.83                     | 0.61              |
| 1:D1:114:A:H2'     | 1:D1:115:G:C8     | 2.35                     | 0.61              |
| 1:D1:801:U:H5'     | 17:DT:37:PRO:CB   | 2.30                     | 0.61              |
| 1:D1:976:A:OP2     | 1:D1:1394:G:N2    | 2.33                     | 0.61              |
| 1:D1:1919:A:H8     | 1:D1:1919:A:H5'   | 1.66                     | 0.61              |
| 1:D1:2600:U:H2'    | 1:D1:2601:U:H6    | 1.63                     | 0.61              |
| 11:DL:41:TYR:HB3   | 11:DL:58:GLN:HE21 | 1.60                     | 0.61              |
| 23:EB:37:PRO:HA    | 23:EB:184:GLY:CA  | 2.26                     | 0.61              |
| 24:EC:295:ILE:HG23 | 35:EN:33:LEU:HD13 | 1.83                     | 0.61              |
| 24:EC:405:ILE:HD11 | 29:EH:183:ARG:HE  | 1.65                     | 0.61              |
| 33:EL:182:LYS:HG2  | 33:EL:183:SER:H   | 1.66                     | 0.61              |
| 33:EL:187:SER:O    | 33:EL:190:GLY:N   | 2.34                     | 0.61              |
| 37:EP:142:GLN:OE1  | 43:EV:71:ALA:HB2  | 2.01                     | 0.61              |
| 44:EW:50:ILE:HG23  | 44:EW:54:LEU:HD23 | 1.83                     | 0.61              |
| 1:F1:645:A:H2'     | 1:F1:645:A:N3     | 2.16                     | 0.61              |
| 1:F1:1737:A:H2'    | 1:F1:1754:G:N2    | 2.16                     | 0.61              |
| 1:F1:3175:A:H2'    | 1:F1:3177:G:C8    | 2.35                     | 0.61              |
| 9:FJ:71:LEU:HD13   | 9:FJ:97:ILE:HD11  | 1.83                     | 0.61              |
| 9:FJ:119:PRO:HG2   | 9:FJ:146:VAL:HG12 | 1.83                     | 0.61              |
| 14:FO:16:LEU:HD13  | 14:FO:35:ASN:ND2  | 2.14                     | 0.61              |
| 20:G2:22:A:H2'     | 20:G2:23:U:C6     | 2.36                     | 0.61              |
| 20:G2:50:C:H1'     | 20:G2:64:A:H2'    | 1.82                     | 0.61              |
| 21:G3:105:C:H6     | 21:G3:105:C:C5'   | 2.14                     | 0.61              |
| 22:GA:70:TYR:CE1   | 1:H1:2549:U:C6    | 2.87                     | 0.61              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:GB:81:CYS:HB3  | 23:GB:203:VAL:CG2  | 2.30                     | 0.61              |
| 27:GF:189:THR:OG1 | 1:H1:147:U:OP1     | 2.15                     | 0.61              |
| 29:GH:77:ILE:HG13 | 29:GH:78:LYS:N     | 2.13                     | 0.61              |
| 30:GI:79:PHE:HD2  | 30:GI:103:ILE:HD13 | 1.65                     | 0.61              |
| 33:GL:38:LYS:HB2  | 33:GL:62:TRP:CE2   | 2.36                     | 0.61              |
| 36:GO:106:LEU:CD2 | 36:GO:138:LEU:HD21 | 2.29                     | 0.61              |
| 1:H1:152:U:H5'    | 1:H1:153:C:OP2     | 2.01                     | 0.61              |
| 1:H1:282:G:N2     | 1:H1:304:U:H5'     | 2.15                     | 0.61              |
| 1:H1:582:A:H2'    | 1:H1:583:G:H5'     | 1.82                     | 0.61              |
| 1:H1:1248:G:H4'   | 1:H1:1249:G:OP2    | 2.00                     | 0.61              |
| 8:HH:15:TRP:CH2   | 8:HH:105:ARG:CZ    | 2.83                     | 0.61              |
| 8:HH:59:ILE:HG13  | 8:HH:59:ILE:O      | 1.99                     | 0.61              |
| 1:A1:69:A:C6      | 1:A1:2766:A:O4'    | 2.54                     | 0.61              |
| 1:A1:467:A:N6     | 1:A1:468:A:N1      | 2.48                     | 0.61              |
| 1:A1:1434:G:C2'   | 1:A1:1435:C:C5'    | 2.73                     | 0.61              |
| 1:A1:2265:A:H5''  | 1:A1:2265:A:C8     | 2.35                     | 0.61              |
| 1:A1:2419:A:N1    | 22:BA:231:SER:OG   | 2.34                     | 0.61              |
| 1:A1:2546:A:O2'   | 11:AL:90:ARG:HD3   | 2.00                     | 0.61              |
| 1:A1:2737:A:H2'   | 1:A1:2738:G:H5'    | 1.83                     | 0.61              |
| 1:A1:3257:U:OP1   | 23:BB:120:LYS:HD2  | 2.01                     | 0.61              |
| 6:AF:43:ILE:HG22  | 6:AF:44:VAL:O      | 2.01                     | 0.61              |
| 9:AJ:117:ILE:HB   | 9:AJ:121:LEU:HD22  | 1.82                     | 0.61              |
| 12:AM:52:LEU:O    | 12:AM:56:ILE:HG22  | 2.01                     | 0.61              |
| 15:AP:8:ILE:O     | 15:AP:12:MET:HG3   | 2.01                     | 0.61              |
| 24:BC:42:PHE:CZ   | 24:BC:46:ASN:ND2   | 2.69                     | 0.61              |
| 24:BC:298:ILE:O   | 24:BC:304:VAL:HG21 | 2.01                     | 0.61              |
| 20:C2:124:U:O2'   | 20:C2:126:A:N7     | 2.27                     | 0.61              |
| 28:CG:33:UNK:HG3  | 28:CG:36:UNK:CG    | 2.31                     | 0.61              |
| 31:CJ:86:ARG:H    | 31:CJ:102:ASN:HD21 | 1.48                     | 0.61              |
| 35:CN:34:TYR:O    | 35:CN:38:VAL:HG23  | 2.00                     | 0.61              |
| 37:CP:110:GLN:HG2 | 1:D1:1093:C:O2'    | 2.01                     | 0.61              |
| 45:CX:36:ARG:O    | 45:CX:36:ARG:HG3   | 2.00                     | 0.61              |
| 1:D1:210:A:O2'    | 1:D1:229:A:O2'     | 2.18                     | 0.61              |
| 1:D1:1321:A:OP1   | 19:DX:99:THR:HG21  | 2.00                     | 0.61              |
| 1:D1:1507:A:O2'   | 1:D1:1882:A:C2'    | 2.45                     | 0.61              |
| 1:D1:1902:C:H2'   | 1:D1:1903:A:O4'    | 2.01                     | 0.61              |
| 1:D1:2353:C:O2    | 1:D1:2353:C:H2'    | 2.00                     | 0.61              |
| 6:DF:8:GLN:NE2    | 6:DF:11:ARG:HH11   | 1.96                     | 0.61              |
| 7:DG:13:LYS:HG2   | 7:DG:14:LEU:N      | 2.16                     | 0.61              |
| 15:DP:74:LYS:O    | 15:DP:74:LYS:HG3   | 2.00                     | 0.61              |
| 19:DX:45:ALA:HB1  | 19:DX:50:HIS:CD2   | 2.36                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:EA:20:HIS:ND1   | 1:F1:848:C:H5'     | 2.16                     | 0.61              |
| 23:EB:85:THR:HB    | 23:EB:161:HIS:HB3  | 1.83                     | 0.61              |
| 26:EE:141:THR:HG22 | 26:EE:142:LEU:N    | 2.16                     | 0.61              |
| 29:EH:139:ARG:CG   | 29:EH:173:PHE:HE1  | 2.14                     | 0.61              |
| 39:ER:147:ILE:CG2  | 42:EU:34:ILE:HD13  | 2.31                     | 0.61              |
| 41:ET:22:ARG:NE    | 41:ET:32:PHE:CD2   | 2.69                     | 0.61              |
| 45:EX:42:ASN:HD22  | 45:EX:45:ARG:N     | 1.91                     | 0.61              |
| 1:F1:582:A:H2'     | 1:F1:583:G:H5'     | 1.82                     | 0.61              |
| 1:F1:620:A:C8      | 1:F1:634:G:C6      | 2.89                     | 0.61              |
| 1:F1:690:U:H2'     | 1:F1:691:C:C6      | 2.36                     | 0.61              |
| 1:F1:842:A:H8      | 2:FA:15:THR:CG2    | 2.14                     | 0.61              |
| 1:F1:1598:C:H3'    | 1:F1:1599:G:C8     | 2.33                     | 0.61              |
| 1:F1:2545:A:O2'    | 1:F1:2546:A:OP1    | 2.19                     | 0.61              |
| 1:F1:3127:U:H2'    | 1:F1:3128:G:C5'    | 2.21                     | 0.61              |
| 20:G2:110:A:C2     | 20:G2:115:G:C6     | 2.88                     | 0.61              |
| 30:GI:16:GLY:O     | 30:GI:19:ALA:HB3   | 2.00                     | 0.61              |
| 34:GM:81:TYR:O     | 34:GM:84:LYS:HB2   | 2.01                     | 0.61              |
| 34:GM:109:LEU:HD21 | 34:GM:142:PHE:CE2  | 2.36                     | 0.61              |
| 35:GN:82:VAL:O     | 35:GN:139:LEU:HD12 | 2.01                     | 0.61              |
| 35:GN:151:HIS:ND1  | 35:GN:164:ALA:O    | 2.29                     | 0.61              |
| 42:GU:81:PRO:HD2   | 42:GU:84:ILE:HD12  | 1.83                     | 0.61              |
| 1:H1:629:A:H1'     | 1:H1:630:G:N7      | 2.15                     | 0.61              |
| 1:H1:1047:G:C2'    | 1:H1:1048:U:H5''   | 2.30                     | 0.61              |
| 1:H1:1594:C:C5     | 1:H1:1595:A:N7     | 2.69                     | 0.61              |
| 1:H1:2255:U:H2'    | 1:H1:2256:G:H8     | 1.66                     | 0.61              |
| 1:H1:2276:A:H1'    | 1:H1:2962:U:O2'    | 2.00                     | 0.61              |
| 1:H1:3135:A:H2'    | 1:H1:3136:A:H8     | 1.66                     | 0.61              |
| 6:HF:32:ASN:OD1    | 6:HF:33:GLN:N      | 2.33                     | 0.61              |
| 6:HF:103:LEU:HD22  | 6:HF:107:ASP:HB3   | 1.83                     | 0.61              |
| 19:HX:175:LYS:HZ2  | 19:HX:178:ARG:HH11 | 1.49                     | 0.61              |
| 1:A1:634:G:N7      | 24:BC:319:ARG:NE   | 2.48                     | 0.60              |
| 1:A1:1104:C:N1     | 17:AT:42:ASN:ND2   | 2.49                     | 0.60              |
| 1:A1:2133:U:C5     | 1:A1:2138:A:N7     | 2.69                     | 0.60              |
| 1:A1:2804:G:N7     | 1:A1:2858:C:H5'    | 2.16                     | 0.60              |
| 1:A1:3112:A:C2'    | 1:A1:3113:G:H5'    | 2.31                     | 0.60              |
| 1:A1:3177:G:H5''   | 1:A1:3177:G:H8     | 1.66                     | 0.60              |
| 5:AE:15:ILE:HA     | 5:AE:18:TRP:NE1    | 2.16                     | 0.60              |
| 7:AG:8:ASP:OD1     | 7:AG:9:ASN:N       | 2.33                     | 0.60              |
| 18:AU:87:PHE:CE2   | 18:AU:91:ILE:HD11  | 2.35                     | 0.60              |
| 19:AX:16:MET:CE    | 19:AX:121:ILE:HD12 | 2.16                     | 0.60              |
| 20:B2:33:C:H2'     | 20:B2:34:G:H5'     | 1.81                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:B2:50:C:H1'     | 20:B2:64:A:H2'     | 1.82                     | 0.60              |
| 33:BL:165:THR:O    | 33:BL:169:ARG:HG3  | 2.01                     | 0.60              |
| 34:BM:249:LYS:O    | 34:BM:253:GLU:HG2  | 2.01                     | 0.60              |
| 36:BO:24:LEU:CD2   | 36:BO:50:VAL:HG22  | 2.31                     | 0.60              |
| 36:BO:165:LYS:HZ3  | 1:H1:2893:U:H1'    | 1.65                     | 0.60              |
| 42:BU:109:GLN:OE1  | 42:BU:109:GLN:HA   | 2.00                     | 0.60              |
| 23:CB:211:GLU:O    | 23:CB:280:VAL:HG23 | 2.01                     | 0.60              |
| 25:CD:65:MET:HE1   | 1:D1:2670:U:C4'    | 2.30                     | 0.60              |
| 25:CD:120:THR:O    | 25:CD:120:THR:HG22 | 2.01                     | 0.60              |
| 26:CE:29:GLY:N     | 26:CE:82:VAL:HG11  | 2.16                     | 0.60              |
| 30:CI:64:ASN:HD22  | 30:CI:64:ASN:C     | 2.06                     | 0.60              |
| 33:CL:58:GLY:O     | 33:CL:142:ILE:HD11 | 2.01                     | 0.60              |
| 45:CX:98:ILE:N     | 45:CX:123:ASN:ND2  | 2.46                     | 0.60              |
| 1:D1:126:A:C2      | 1:D1:141:C:N4      | 2.68                     | 0.60              |
| 1:D1:1562:G:C8     | 50:D1:4137:HOH:O   | 2.49                     | 0.60              |
| 1:D1:1684:C:O2'    | 1:D1:1685:A:H5'    | 2.01                     | 0.60              |
| 1:D1:1918:U:C2'    | 1:D1:1919:A:C5'    | 2.66                     | 0.60              |
| 1:D1:2550:U:H4'    | 1:D1:2551:A:OP2    | 1.98                     | 0.60              |
| 1:D1:3227:A:C2'    | 1:D1:3228:U:OP1    | 2.48                     | 0.60              |
| 5:DE:42:ARG:NH1    | 8:DH:111:ASN:ND2   | 2.49                     | 0.60              |
| 17:DT:20:GLY:O     | 50:DT:103:HOH:O    | 2.16                     | 0.60              |
| 23:EB:55:HIS:CE1   | 41:ET:18:GLY:HA3   | 2.36                     | 0.60              |
| 23:EB:162:THR:O    | 23:EB:174:ASN:CB   | 2.45                     | 0.60              |
| 24:EC:74:THR:CG2   | 1:F1:2397:A:H2'    | 2.22                     | 0.60              |
| 24:EC:308:VAL:HG12 | 35:EN:40:ARG:HH11  | 1.62                     | 0.60              |
| 27:EF:169:PRO:HB2  | 27:EF:211:PHE:HB2  | 1.83                     | 0.60              |
| 32:EK:143:GLY:N    | 18:FU:173:ARG:HH21 | 1.99                     | 0.60              |
| 42:EU:98:LYS:NZ    | 1:F1:242:G:H5'     | 2.15                     | 0.60              |
| 45:EX:44:VAL:HG12  | 45:EX:54:MET:CE    | 2.31                     | 0.60              |
| 1:F1:604:A:H8      | 1:F1:604:A:O5'     | 1.83                     | 0.60              |
| 50:F1:4255:HOH:O   | 3:FB:48:LYS:HE3    | 1.99                     | 0.60              |
| 6:FF:8:GLN:NE2     | 6:FF:11:ARG:HH11   | 1.98                     | 0.60              |
| 6:FF:32:ASN:OD1    | 6:FF:33:GLN:N      | 2.34                     | 0.60              |
| 16:FQ:29:GLN:C     | 16:FQ:31:LYS:HD3   | 2.25                     | 0.60              |
| 24:GC:157:TYR:CD1  | 24:GC:159:PHE:HE1  | 2.16                     | 0.60              |
| 24:GC:333:LEU:HD21 | 43:GV:161:THR:O    | 2.01                     | 0.60              |
| 27:GF:127:TYR:CD1  | 27:GF:185:LYS:NZ   | 2.68                     | 0.60              |
| 32:GK:14:HIS:CG    | 50:GK:202:HOH:O    | 2.52                     | 0.60              |
| 32:GK:24:LYS:HD3   | 1:H1:967:U:O4      | 2.01                     | 0.60              |
| 34:GM:163:LEU:HD23 | 34:GM:180:PHE:CE2  | 2.36                     | 0.60              |
| 36:GO:98:ARG:NH1   | 36:GO:130:ASN:OD1  | 2.34                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:GV:72:PHE:CD1   | 43:GV:73:TYR:N     | 2.69                     | 0.60              |
| 1:H1:114:A:H2'     | 1:H1:115:G:C8      | 2.36                     | 0.60              |
| 1:H1:269:U:O2'     | 1:H1:317:A:H1'     | 2.01                     | 0.60              |
| 1:H1:548:G:N2      | 1:H1:619:G:N2      | 2.47                     | 0.60              |
| 1:H1:672:C:N3      | 1:H1:2369:C:O2'    | 2.33                     | 0.60              |
| 1:H1:2120:U:O2'    | 1:H1:2121:A:H5'    | 2.01                     | 0.60              |
| 1:H1:2275:A:HO2'   | 1:H1:2276:A:P      | 2.23                     | 0.60              |
| 1:H1:2327:A:OP2    | 50:H1:4163:HOH:O   | 2.16                     | 0.60              |
| 1:H1:2704:A:H4'    | 1:H1:2705:U:OP2    | 2.01                     | 0.60              |
| 1:H1:2964:A:N6     | 50:H1:3969:HOH:O   | 2.33                     | 0.60              |
| 7:HG:8:ASP:HA      | 7:HG:11:GLN:NE2    | 2.15                     | 0.60              |
| 8:HH:34:GLN:HB3    | 8:HH:88:VAL:HG13   | 1.83                     | 0.60              |
| 12:HM:52:LEU:O     | 12:HM:56:ILE:HG22  | 2.01                     | 0.60              |
| 1:A1:133:C:H2'     | 1:A1:133:C:O2      | 2.00                     | 0.60              |
| 1:A1:169:A:N7      | 1:A1:251:A:N6      | 2.49                     | 0.60              |
| 1:A1:1580:G:H8     | 1:A1:1580:G:O5'    | 1.84                     | 0.60              |
| 1:A1:3096:U:OP1    | 10:AK:112:LYS:HD3  | 2.01                     | 0.60              |
| 1:A1:3332:A:H3'    | 1:A1:3333:G:H5''   | 1.82                     | 0.60              |
| 13:AN:23:ALA:HB2   | 13:AN:45:GLY:HA3   | 1.83                     | 0.60              |
| 15:AP:32:TYR:CE2   | 15:AP:75:ILE:HD12  | 2.36                     | 0.60              |
| 16:AQ:15:THR:CG2   | 18:AU:103:CYS:SG   | 2.88                     | 0.60              |
| 24:BC:163:VAL:CG2  | 24:BC:175:PHE:HE2  | 2.13                     | 0.60              |
| 25:BD:9:MET:O      | 25:BD:134:PRO:HG3  | 2.00                     | 0.60              |
| 27:BF:68:PRO:HD3   | 27:BF:225:TRP:NE1  | 2.15                     | 0.60              |
| 28:BG:33:UNK:HG3   | 28:BG:36:UNK:CG    | 2.31                     | 0.60              |
| 33:BL:115:VAL:HG22 | 33:BL:134:LEU:CD2  | 2.31                     | 0.60              |
| 41:BT:22:ARG:NE    | 41:BT:32:PHE:HD2   | 1.97                     | 0.60              |
| 42:BU:74:PHE:HB3   | 42:BU:80:LYS:HG2   | 1.83                     | 0.60              |
| 20:C2:111:A:C2'    | 20:C2:112:G:H5''   | 2.30                     | 0.60              |
| 24:CC:152:VAL:HG12 | 14:DO:76:ILE:HD11  | 1.82                     | 0.60              |
| 24:CC:163:VAL:HG22 | 24:CC:175:PHE:HE2  | 1.65                     | 0.60              |
| 27:CF:183:VAL:O    | 27:CF:183:VAL:HG12 | 2.01                     | 0.60              |
| 34:CM:83:LEU:HB3   | 34:CM:88:VAL:HG21  | 1.82                     | 0.60              |
| 43:CV:15:ARG:HG2   | 43:CV:16:ASP:N     | 2.15                     | 0.60              |
| 43:CV:63:LYS:O     | 43:CV:67:ARG:HG3   | 2.02                     | 0.60              |
| 1:D1:488:U:H5      | 18:DU:161:LYS:HE2  | 1.66                     | 0.60              |
| 1:D1:1179:G:O2'    | 1:D1:1180:A:OP1    | 2.15                     | 0.60              |
| 1:D1:2120:U:O2'    | 1:D1:2121:A:H5'    | 2.01                     | 0.60              |
| 1:D1:3044:A:H2'    | 1:D1:3074:G:N1     | 2.16                     | 0.60              |
| 1:D1:3175:A:H62    | 6:DF:16:ASN:HD21   | 1.46                     | 0.60              |
| 13:DN:114:LEU:HD22 | 13:DN:118:PHE:HE1  | 1.66                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:DX:16:MET:CE    | 19:DX:121:ILE:HD12 | 2.21                     | 0.60              |
| 20:E2:3:A:C4'      | 20:E2:4:A:OP2      | 2.50                     | 0.60              |
| 20:E2:26:A:H3'     | 20:E2:27:G:C5'     | 2.31                     | 0.60              |
| 23:EB:281:TYR:CB   | 23:EB:321:MET:HE3  | 2.31                     | 0.60              |
| 29:EH:12:PRO:HA    | 29:EH:59:GLN:NE2   | 2.16                     | 0.60              |
| 32:EK:98:LYS:HA    | 18:FU:166:VAL:HG23 | 1.84                     | 0.60              |
| 33:EL:6:TYR:HA     | 16:FQ:45:ILE:CD1   | 2.30                     | 0.60              |
| 33:EL:9:GLU:OE1    | 16:FQ:42:ARG:HA    | 2.00                     | 0.60              |
| 33:EL:183:SER:CA   | 33:EL:191:ASN:HD22 | 2.14                     | 0.60              |
| 34:EM:129:TYR:CE1  | 34:EM:175:HIS:O    | 2.51                     | 0.60              |
| 44:EW:65:ASN:OD1   | 1:F1:3047:U:C5     | 2.48                     | 0.60              |
| 1:F1:637:U:O2'     | 1:F1:638:U:H5'     | 2.00                     | 0.60              |
| 1:F1:1941:C:H2'    | 1:F1:1942:C:H5''   | 1.83                     | 0.60              |
| 1:F1:2899:C:C5'    | 1:F1:2900:G:OP1    | 2.49                     | 0.60              |
| 1:F1:2966:U:O2'    | 1:F1:2967:U:H5'    | 1.99                     | 0.60              |
| 19:FX:11:ASP:OD1   | 19:FX:13:THR:HB    | 2.00                     | 0.60              |
| 21:G3:34:C:O2      | 34:GM:203:ARG:NH1  | 2.34                     | 0.60              |
| 23:GB:216:LEU:HD21 | 23:GB:274:THR:HG23 | 1.82                     | 0.60              |
| 23:GB:253:TRP:CD1  | 1:H1:2390:G:H5''   | 2.36                     | 0.60              |
| 29:GH:194:GLY:HA3  | 1:H1:1036:G:O2'    | 2.01                     | 0.60              |
| 33:GL:18:LEU:O     | 33:GL:22:ILE:HG13  | 2.01                     | 0.60              |
| 34:GM:153:THR:HG22 | 34:GM:153:THR:O    | 2.01                     | 0.60              |
| 34:GM:166:ALA:HB1  | 34:GM:171:ILE:HD12 | 1.81                     | 0.60              |
| 44:GW:16:HIS:HE1   | 1:H1:3048:A:OP2    | 1.84                     | 0.60              |
| 44:GW:50:ILE:HG23  | 44:GW:54:LEU:HD23  | 1.83                     | 0.60              |
| 1:H1:90:G:O3'      | 4:HC:53:LYS:NZ     | 2.34                     | 0.60              |
| 1:H1:132:U:O2'     | 1:H1:133:C:OP2     | 2.19                     | 0.60              |
| 1:H1:439:A:C2'     | 1:H1:440:C:O5'     | 2.49                     | 0.60              |
| 1:H1:530:C:H2'     | 1:H1:531:C:H6      | 1.66                     | 0.60              |
| 1:H1:697:A:H8      | 1:H1:697:A:H5'     | 1.66                     | 0.60              |
| 1:H1:701:A:H4'     | 1:H1:702:G:O5'     | 2.01                     | 0.60              |
| 1:H1:2189:G:N7     | 50:H1:4241:HOH:O   | 2.31                     | 0.60              |
| 1:H1:2576:C:C5'    | 1:H1:2576:C:C6     | 2.78                     | 0.60              |
| 1:H1:2732:G:H2'    | 1:H1:2733:C:H6     | 1.66                     | 0.60              |
| 1:H1:3043:U:O4     | 50:H1:4158:HOH:O   | 2.12                     | 0.60              |
| 1:H1:3182:A:C4'    | 1:H1:3183:A:OP1    | 2.43                     | 0.60              |
| 8:HH:48:VAL:CG2    | 8:HH:85:GLY:HA2    | 2.31                     | 0.60              |
| 11:HL:5:ILE:CG2    | 11:HL:6:THR:H      | 2.14                     | 0.60              |
| 12:HM:35:PHE:CE1   | 12:HM:39:LEU:HD11  | 2.36                     | 0.60              |
| 12:HM:66:ASN:ND2   | 12:HM:68:GLN:HE21  | 2.00                     | 0.60              |
| 14:HO:58:ILE:HG21  | 14:HO:90:VAL:HG21  | 1.82                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:240:A:O2'     | 1:A1:243:G:H5''    | 2.01                     | 0.60              |
| 1:A1:399:A:H4'     | 1:A1:400:C:OP1     | 2.00                     | 0.60              |
| 1:A1:467:A:N6      | 1:A1:512:G:N1      | 2.49                     | 0.60              |
| 1:A1:904:U:HO2'    | 1:A1:905:G:P       | 2.24                     | 0.60              |
| 1:A1:963:C:OP1     | 1:A1:987:A:O2'     | 2.19                     | 0.60              |
| 1:A1:1593:A:C5     | 1:A1:1594:C:C4     | 2.89                     | 0.60              |
| 1:A1:1652:U:H4'    | 1:A1:1655:A:C5'    | 2.31                     | 0.60              |
| 1:A1:2348:G:C5     | 50:A1:4566:HOH:O   | 2.54                     | 0.60              |
| 1:A1:3227:A:O2'    | 1:A1:3228:U:OP1    | 2.17                     | 0.60              |
| 6:AF:49:PRO:HG2    | 6:AF:52:ARG:HG3    | 1.84                     | 0.60              |
| 18:AU:160:SER:CB   | 32:BK:106:LYS:HD3  | 2.32                     | 0.60              |
| 23:BB:376:LYS:HZ3  | 9:DJ:44:PRO:CG     | 2.15                     | 0.60              |
| 25:BD:12:VAL:HG21  | 25:BD:162:TRP:HD1  | 1.66                     | 0.60              |
| 27:BF:196:VAL:HG21 | 27:BF:204:LEU:HD21 | 1.83                     | 0.60              |
| 29:BH:12:PRO:HA    | 29:BH:59:GLN:NE2   | 2.16                     | 0.60              |
| 30:BI:13:HIS:CE1   | 30:BI:118:VAL:HG13 | 2.37                     | 0.60              |
| 35:BN:45:PHE:CE2   | 35:BN:49:ILE:HD11  | 2.37                     | 0.60              |
| 39:BR:120:THR:O    | 39:BR:121:LEU:HD23 | 2.00                     | 0.60              |
| 44:BW:71:ARG:HD3   | 44:BW:103:LEU:HD13 | 1.81                     | 0.60              |
| 22:CA:205:MET:HG2  | 1:D1:939:A:N3      | 2.15                     | 0.60              |
| 24:CC:55:VAL:HG13  | 1:D1:345:C:OP1     | 2.01                     | 0.60              |
| 26:CE:145:GLN:NE2  | 26:CE:186:MET:O    | 2.34                     | 0.60              |
| 33:CL:182:LYS:HG2  | 33:CL:183:SER:H    | 1.66                     | 0.60              |
| 35:CN:22:SER:HB3   | 1:D1:697:A:OP1     | 2.01                     | 0.60              |
| 38:CQ:9:GLU:OE1    | 38:CQ:10:PRO:HD2   | 2.00                     | 0.60              |
| 40:CS:51:LYS:O     | 40:CS:69:VAL:O     | 2.19                     | 0.60              |
| 42:CU:25:LEU:O     | 42:CU:28:GLU:HB3   | 2.01                     | 0.60              |
| 42:CU:120:PHE:CE2  | 18:DU:90:SER:O     | 2.54                     | 0.60              |
| 45:CX:43:ARG:NH2   | 1:D1:660:C:H2'     | 2.17                     | 0.60              |
| 1:D1:1051:C:C2'    | 1:D1:1052:A:O4'    | 2.45                     | 0.60              |
| 1:D1:1598:C:H3'    | 1:D1:1599:G:C8     | 2.32                     | 0.60              |
| 1:D1:2260:C:O2'    | 1:D1:2261:U:H5'    | 2.00                     | 0.60              |
| 1:D1:2786:C:H5''   | 1:D1:2787:A:OP1    | 2.00                     | 0.60              |
| 1:D1:3011:G:H1'    | 1:D1:3012:U:OP2    | 2.00                     | 0.60              |
| 1:D1:3200:A:H2'    | 1:D1:3201:G:H5''   | 1.83                     | 0.60              |
| 6:DF:32:ASN:OD1    | 6:DF:33:GLN:N      | 2.35                     | 0.60              |
| 19:DX:29:PRO:O     | 19:DX:30:ILE:HG22  | 2.01                     | 0.60              |
| 23:EB:203:VAL:CG1  | 23:EB:320:ILE:HD11 | 2.30                     | 0.60              |
| 26:EE:73:SER:HA    | 26:EE:76:LYS:CE    | 2.32                     | 0.60              |
| 27:EF:20:PRO:HB2   | 27:EF:22:PHE:HD2   | 1.66                     | 0.60              |
| 27:EF:183:VAL:HG12 | 27:EF:183:VAL:O    | 2.01                     | 0.60              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 33:EL:115:VAL:HG22 | 33:EL:134:LEU:CD2 | 2.31                     | 0.60              |
| 35:EN:19:GLN:OE1   | 35:EN:19:GLN:HA   | 2.00                     | 0.60              |
| 1:F1:164:A:H2'     | 1:F1:165:C:H5'    | 1.83                     | 0.60              |
| 1:F1:697:A:H5'     | 1:F1:697:A:H8     | 1.64                     | 0.60              |
| 1:F1:1227:A:N3     | 1:F1:1227:A:H2'   | 2.14                     | 0.60              |
| 1:F1:2202:A:H2'    | 1:F1:2203:A:O4'   | 2.01                     | 0.60              |
| 1:F1:2412:U:C2'    | 1:F1:2413:G:H5''  | 2.31                     | 0.60              |
| 22:GA:50:VAL:HG12  | 22:GA:51:HIS:H    | 1.65                     | 0.60              |
| 23:GB:332:ARG:HH11 | 23:GB:332:ARG:CB  | 2.14                     | 0.60              |
| 24:GC:319:ARG:CZ   | 1:H1:634:G:N7     | 2.64                     | 0.60              |
| 26:GE:29:GLY:N     | 26:GE:82:VAL:HG11 | 2.16                     | 0.60              |
| 32:GK:75:VAL:HG23  | 32:GK:109:PHE:HB3 | 1.82                     | 0.60              |
| 34:GM:250:VAL:HG12 | 34:GM:254:ILE:CD1 | 2.31                     | 0.60              |
| 37:GP:19:TYR:HE1   | 37:GP:20:LYS:HE3  | 1.65                     | 0.60              |
| 39:GR:36:ARG:HG3   | 1:H1:2518:A:OP1   | 2.01                     | 0.60              |
| 46:GY:6:GLN:N      | 1:H1:1951:G:OP2   | 2.29                     | 0.60              |
| 1:H1:3232:A:OP1    | 5:HE:88:LYS:NZ    | 2.29                     | 0.60              |
| 5:HE:42:ARG:H      | 5:HE:92:GLN:NE2   | 1.99                     | 0.60              |
| 1:A1:117:G:H2'     | 27:BF:131:HIS:CE1 | 2.36                     | 0.60              |
| 1:A1:739:G:OP1     | 32:BK:132:LYS:HG3 | 2.02                     | 0.60              |
| 1:A1:880:U:H4'     | 36:BO:95:TRP:CH2  | 2.36                     | 0.60              |
| 1:A1:1066:A:H1'    | 29:BH:198:LYS:NZ  | 2.16                     | 0.60              |
| 1:A1:1107:A:H5''   | 1:A1:1108:A:OP2   | 2.02                     | 0.60              |
| 1:A1:1752:G:C5'    | 1:A1:1754:G:H5''  | 2.28                     | 0.60              |
| 1:A1:2593:G:C6     | 50:A1:3708:HOH:O  | 2.50                     | 0.60              |
| 1:A1:3325:G:N2     | 23:BB:377:PHE:CD2 | 2.70                     | 0.60              |
| 18:AU:173:ARG:HH21 | 32:BK:142:GLY:C   | 2.09                     | 0.60              |
| 24:BC:295:ILE:HG23 | 35:BN:33:LEU:HD13 | 1.82                     | 0.60              |
| 31:BJ:108:ASN:HD21 | 31:BJ:110:LYS:HB2 | 1.66                     | 0.60              |
| 36:BO:147:ALA:O    | 36:BO:170:ARG:NH2 | 2.34                     | 0.60              |
| 20:C2:7:U:OP1      | 38:CQ:64:ARG:HG2  | 2.01                     | 0.60              |
| 21:C3:111:U:O4     | 34:CM:21:ARG:NH1  | 2.35                     | 0.60              |
| 24:CC:238:VAL:HG21 | 24:CC:262:ALA:CA  | 2.29                     | 0.60              |
| 32:CK:58:LEU:HD13  | 1:D1:734:A:H5'    | 1.83                     | 0.60              |
| 34:CM:140:LYS:O    | 1:D1:1107:A:H4'   | 2.02                     | 0.60              |
| 47:CO:176:UNK:O    | 29:EH:83:ASP:HB2  | 2.02                     | 0.60              |
| 44:CW:23:SER:HB3   | 1:D1:2340:A:OP1   | 2.01                     | 0.60              |
| 1:D1:133:C:H2'     | 1:D1:133:C:O2     | 2.02                     | 0.60              |
| 1:D1:359:G:OP1     | 3:DB:50:LYS:NZ    | 2.34                     | 0.60              |
| 1:D1:637:U:O2'     | 1:D1:638:U:H5'    | 2.01                     | 0.60              |
| 1:D1:1016:U:C3'    | 1:D1:1017:U:H5''  | 2.30                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1046:G:C5'    | 13:FN:3:LYS:HE2    | 2.29                     | 0.60              |
| 1:D1:2251:A:O4'    | 46:EY:74:PRO:CG    | 2.50                     | 0.60              |
| 1:D1:2569:A:HO2'   | 1:D1:2570:U:P      | 2.23                     | 0.60              |
| 1:D1:3228:U:C4'    | 1:D1:3229:C:C5'    | 2.77                     | 0.60              |
| 12:DM:52:LEU:O     | 12:DM:56:ILE:HG22  | 2.01                     | 0.60              |
| 13:DN:87:VAL:HG11  | 13:DN:90:LEU:HB2   | 1.82                     | 0.60              |
| 16:DQ:68:LYS:HE3   | 16:DQ:69:ASP:OD1   | 2.00                     | 0.60              |
| 20:E2:60:C:N4      | 2:FA:64:ARG:NH1    | 2.49                     | 0.60              |
| 20:E2:111:A:C2'    | 20:E2:112:G:H5''   | 2.31                     | 0.60              |
| 22:EA:5:ILE:HG22   | 22:EA:6:ARG:H      | 1.66                     | 0.60              |
| 23:EB:47:THR:OG1   | 23:EB:177:LEU:HD11 | 2.02                     | 0.60              |
| 23:EB:356:PHE:HE2  | 23:EB:358:ASP:HB2  | 1.66                     | 0.60              |
| 24:EC:29:PHE:HD2   | 24:EC:137:ALA:HB2  | 1.66                     | 0.60              |
| 24:EC:105:ARG:HG2  | 24:EC:105:ARG:NH1  | 2.09                     | 0.60              |
| 25:ED:109:HIS:HD1  | 25:ED:123:PHE:H    | 1.47                     | 0.60              |
| 36:EO:96:MET:HG2   | 1:F1:1746:U:C1'    | 2.32                     | 0.60              |
| 42:EU:97:THR:HG22  | 42:EU:98:LYS:N     | 2.16                     | 0.60              |
| 44:EW:22:ILE:CD1   | 44:EW:30:ARG:HG2   | 2.26                     | 0.60              |
| 1:F1:971:C:O2'     | 1:F1:972:U:H5'     | 2.01                     | 0.60              |
| 1:F1:1370:A:H2'    | 1:F1:1371:G:C5'    | 2.22                     | 0.60              |
| 1:F1:1798:U:H5'    | 1:F1:1799:C:O4'    | 2.01                     | 0.60              |
| 1:F1:2601:U:O4     | 50:F1:3667:HOH:O   | 2.16                     | 0.60              |
| 6:FF:103:LEU:HD22  | 6:FF:107:ASP:HB3   | 1.81                     | 0.60              |
| 20:G2:20:A:H1'     | 1:H1:404:A:C2      | 2.36                     | 0.60              |
| 22:GA:243:ARG:HG3  | 22:GA:244:THR:N    | 2.15                     | 0.60              |
| 23:GB:56:ILE:HD11  | 23:GB:321:MET:SD   | 2.41                     | 0.60              |
| 24:GC:49:ARG:NH2   | 1:H1:713:G:H21     | 1.99                     | 0.60              |
| 24:GC:259:THR:CG2  | 24:GC:260:GLU:N    | 2.64                     | 0.60              |
| 27:GF:95:GLU:OE1   | 27:GF:100:LYS:HG2  | 2.00                     | 0.60              |
| 34:GM:163:LEU:HD12 | 34:GM:173:ILE:HG21 | 1.83                     | 0.60              |
| 35:GN:168:ARG:HH11 | 18:HU:9:VAL:CG2    | 2.13                     | 0.60              |
| 37:GP:142:GLN:O    | 19:HX:36:PRO:HD2   | 2.02                     | 0.60              |
| 39:GR:84:MET:HE2   | 39:GR:144:ALA:HB2  | 1.82                     | 0.60              |
| 1:H1:20:G:H5''     | 2:HA:43:LYS:HB2    | 1.82                     | 0.60              |
| 1:H1:240:A:O2'     | 1:H1:243:G:H5''    | 2.01                     | 0.60              |
| 1:H1:1695:A:H2'    | 1:H1:1696:C:H6     | 1.67                     | 0.60              |
| 1:H1:2716:A:OP2    | 1:H1:2717:G:N2     | 2.33                     | 0.60              |
| 1:H1:2945:G:H2'    | 1:H1:2946:A:H5'    | 1.82                     | 0.60              |
| 1:A1:219:A:N1      | 1:A1:1416:U:O2'    | 2.34                     | 0.60              |
| 1:A1:499:U:H5''    | 1:A1:500:G:OP2     | 2.01                     | 0.60              |
| 1:A1:534:U:H2'     | 1:A1:535:C:H6      | 1.66                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:980:U:H2'     | 1:A1:981:U:C6      | 2.35                     | 0.60              |
| 1:A1:994:C:OP1     | 50:A1:4233:HOH:O   | 2.16                     | 0.60              |
| 1:A1:1471:U:H5''   | 1:A1:1472:A:OP2    | 2.01                     | 0.60              |
| 1:A1:1695:A:H2'    | 1:A1:1696:C:H6     | 1.66                     | 0.60              |
| 1:A1:2255:U:H1'    | 1:A1:2301:C:O4'    | 2.01                     | 0.60              |
| 1:A1:2412:U:C2'    | 1:A1:2413:G:H5''   | 2.30                     | 0.60              |
| 1:A1:2541:U:C4     | 22:BA:41:TYR:CE1   | 2.90                     | 0.60              |
| 1:A1:2558:U:H2'    | 1:A1:2559:U:O4'    | 2.01                     | 0.60              |
| 1:A1:2720:G:H2'    | 1:A1:2721:G:H5'    | 1.81                     | 0.60              |
| 1:A1:2790:A:C4     | 4:AC:54:PRO:HA     | 2.37                     | 0.60              |
| 1:A1:3235:U:O4     | 8:AH:13:ARG:HA     | 2.01                     | 0.60              |
| 8:AH:59:ILE:O      | 8:AH:59:ILE:HG13   | 2.00                     | 0.60              |
| 9:AJ:145:ASN:ND2   | 9:AJ:146:VAL:H     | 1.97                     | 0.60              |
| 10:AK:103:LEU:HD13 | 10:AK:110:CYS:HA   | 1.84                     | 0.60              |
| 23:BB:19:ARG:O     | 23:BB:271:HIS:CE1  | 2.54                     | 0.60              |
| 29:BH:189:LYS:HE2  | 29:BH:199:VAL:CG1  | 2.31                     | 0.60              |
| 41:BT:23:PHE:HE1   | 41:BT:25:ALA:HB2   | 1.66                     | 0.60              |
| 43:BV:82:PHE:CZ    | 43:BV:111:GLY:HA3  | 2.36                     | 0.60              |
| 21:C3:2:U:H3       | 21:C3:117:G:H1     | 1.49                     | 0.60              |
| 21:C3:10:C:C2      | 34:CM:20:TYR:CD1   | 2.85                     | 0.60              |
| 23:CB:203:VAL:CG1  | 23:CB:320:ILE:HD11 | 2.31                     | 0.60              |
| 24:CC:49:ARG:NH2   | 1:D1:713:G:N2      | 2.50                     | 0.60              |
| 46:CY:10:ILE:HG22  | 1:D1:862:A:C4'     | 2.32                     | 0.60              |
| 1:D1:1027:G:HO2'   | 1:D1:1028:A:P      | 2.17                     | 0.60              |
| 1:D1:1252:A:N3     | 1:D1:3105:G:N7     | 2.48                     | 0.60              |
| 1:D1:1711:U:C1'    | 12:DM:77:TYR:CE2   | 2.84                     | 0.60              |
| 1:D1:1972:G:C2     | 1:D1:1973:A:C8     | 2.90                     | 0.60              |
| 1:D1:2106:G:C2'    | 1:D1:2107:A:OP1    | 2.50                     | 0.60              |
| 1:D1:2978:G:O6     | 50:D1:3842:HOH:O   | 2.14                     | 0.60              |
| 1:D1:3103:A:H3'    | 1:D1:3104:G:C8     | 2.35                     | 0.60              |
| 8:DH:44:THR:HB     | 8:DH:46:GLU:OE1    | 2.02                     | 0.60              |
| 22:EA:105:ILE:CG2  | 22:EA:147:THR:HG21 | 2.30                     | 0.60              |
| 23:EB:239:LYS:HG3  | 1:F1:899:U:OP2     | 2.02                     | 0.60              |
| 23:EB:257:ARG:NH2  | 1:F1:2361:U:O3'    | 2.33                     | 0.60              |
| 24:EC:216:TYR:O    | 24:EC:238:VAL:HG23 | 2.01                     | 0.60              |
| 25:ED:38:LYS:HG2   | 25:ED:45:PRO:HD3   | 1.83                     | 0.60              |
| 26:EE:29:GLY:N     | 26:EE:82:VAL:HG11  | 2.17                     | 0.60              |
| 27:EF:123:ILE:HD12 | 27:EF:197:ARG:HD3  | 1.83                     | 0.60              |
| 30:EI:127:ARG:O    | 1:F1:1343:G:H5''   | 2.02                     | 0.60              |
| 33:EL:37:HIS:CE1   | 33:EL:63:ARG:HB2   | 2.36                     | 0.60              |
| 33:EL:177:LYS:HG2  | 33:EL:185:ARG:NH2  | 2.16                     | 0.60              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 38:EQ:61:PRO:HG3   | 38:EQ:78:PHE:CD2  | 2.36                     | 0.60              |
| 38:EQ:72:THR:HG21  | 38:EQ:74:GLN:HG3  | 1.83                     | 0.60              |
| 40:ES:3:THR:HG21   | 1:F1:230:G:OP1    | 2.01                     | 0.60              |
| 43:EV:12:LYS:CE    | 1:F1:1376:A:C3'   | 2.79                     | 0.60              |
| 45:EX:36:ARG:NH2   | 1:F1:1395:U:OP1   | 2.34                     | 0.60              |
| 1:F1:72:A:C2       | 1:F1:73:G:C4      | 2.89                     | 0.60              |
| 1:F1:312:U:H2'     | 1:F1:313:U:C6     | 2.37                     | 0.60              |
| 1:F1:635:A:C2'     | 1:F1:636:U:O5'    | 2.50                     | 0.60              |
| 1:F1:705:A:O2'     | 1:F1:706:U:H5'    | 2.00                     | 0.60              |
| 1:F1:1235:U:H2'    | 10:FK:109:ASN:ND2 | 2.16                     | 0.60              |
| 1:F1:1249:G:HO2'   | 1:F1:1250:A:P     | 2.25                     | 0.60              |
| 1:F1:1594:C:C5     | 1:F1:1595:A:N7    | 2.68                     | 0.60              |
| 1:F1:2109:G:C2'    | 1:F1:2110:C:H5'   | 2.31                     | 0.60              |
| 1:F1:2293:U:OP2    | 50:F1:4335:HOH:O  | 2.16                     | 0.60              |
| 1:F1:2558:U:H2'    | 1:F1:2559:U:O4'   | 2.01                     | 0.60              |
| 5:FE:4:GLY:N       | 5:FE:5:PRO:CD     | 2.65                     | 0.60              |
| 5:FE:53:LEU:HD11   | 5:FE:90:VAL:HG21  | 1.83                     | 0.60              |
| 6:FF:84:LYS:O      | 6:FF:87:GLU:HG2   | 2.01                     | 0.60              |
| 9:FJ:23:TYR:HA     | 9:FJ:46:ILE:HG23  | 1.83                     | 0.60              |
| 12:FM:66:ASN:ND2   | 12:FM:68:GLN:HE21 | 2.00                     | 0.60              |
| 13:FN:11:VAL:HB    | 13:FN:80:ILE:HG23 | 1.82                     | 0.60              |
| 24:GC:401:GLN:O    | 29:GH:179:ALA:CB  | 2.49                     | 0.60              |
| 26:GE:154:GLN:HE22 | 1:H1:3115:C:H1'   | 1.66                     | 0.60              |
| 35:GN:91:GLU:OE2   | 1:H1:701:A:H2'    | 2.00                     | 0.60              |
| 36:GO:131:LEU:HD11 | 1:H1:867:G:H5'    | 1.83                     | 0.60              |
| 37:GP:91:VAL:CG1   | 37:GP:96:VAL:HG23 | 2.31                     | 0.60              |
| 39:GR:35:VAL:HG12  | 1:H1:2518:A:H3'   | 1.81                     | 0.60              |
| 40:GS:55:VAL:HG13  | 40:GS:104:VAL:O   | 2.01                     | 0.60              |
| 43:GV:185:ILE:HA   | 43:GV:192:PHE:HE1 | 1.65                     | 0.60              |
| 1:H1:169:A:N6      | 1:H1:251:A:C5     | 2.70                     | 0.60              |
| 1:H1:449:G:H2'     | 1:H1:450:C:C6     | 2.36                     | 0.60              |
| 1:H1:980:U:H2'     | 1:H1:981:U:C6     | 2.37                     | 0.60              |
| 1:H1:1074:A:OP1    | 1:H1:1075:C:H5'   | 2.01                     | 0.60              |
| 1:H1:1662:A:OP2    | 13:HN:16:GLY:HA2  | 2.02                     | 0.60              |
| 1:H1:1729:U:C5     | 1:H1:1812:G:H1'   | 2.36                     | 0.60              |
| 1:H1:3044:A:H4'    | 1:H1:3045:A:OP1   | 2.01                     | 0.60              |
| 1:H1:3126:C:H2'    | 1:H1:3127:U:H6    | 1.67                     | 0.60              |
| 1:H1:3237:C:H41    | 8:HH:10:ALA:HA    | 1.67                     | 0.60              |
| 1:H1:3344:U:H1'    | 1:H1:3345:A:OP1   | 2.02                     | 0.60              |
| 8:HH:23:PHE:HB3    | 8:HH:31:ASN:O     | 2.00                     | 0.60              |
| 16:HQ:29:GLN:C     | 16:HQ:31:LYS:HD3  | 2.26                     | 0.60              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:71:U:H5      | 18:AU:64:ASN:HB3   | 1.66                     | 0.60              |
| 1:A1:155:A:C4'    | 1:A1:156:A:OP2     | 2.49                     | 0.60              |
| 1:A1:164:A:H2'    | 1:A1:165:C:H5'     | 1.83                     | 0.60              |
| 1:A1:512:G:C2     | 1:A1:513:G:C4      | 2.89                     | 0.60              |
| 1:A1:1062:A:C6    | 1:A1:1063:C:C5     | 2.89                     | 0.60              |
| 1:A1:1308:U:C4'   | 28:BG:58:UNK:HA    | 2.27                     | 0.60              |
| 1:A1:2787:A:H5''  | 1:A1:2788:G:O5'    | 2.02                     | 0.60              |
| 1:A1:3097:G:P     | 10:AK:112:LYS:HZ1  | 2.23                     | 0.60              |
| 8:AH:23:PHE:HB3   | 8:AH:31:ASN:O      | 2.02                     | 0.60              |
| 11:AL:49:CYS:SG   | 11:AL:51:VAL:HG23  | 2.42                     | 0.60              |
| 20:B2:1:A:C4'     | 20:B2:2:G:OP2      | 2.50                     | 0.60              |
| 28:BG:85:UNK:O    | 28:BG:85:UNK:HG3   | 2.00                     | 0.60              |
| 34:BM:39:GLN:HG2  | 34:BM:40:ASP:H     | 1.66                     | 0.60              |
| 38:BQ:133:ARG:CG  | 38:BQ:139:ASN:ND2  | 2.52                     | 0.60              |
| 20:C2:3:A:C4'     | 20:C2:4:A:OP2      | 2.50                     | 0.60              |
| 22:CA:29:GLN:OE1  | 22:CA:124:ARG:NH2  | 2.34                     | 0.60              |
| 23:CB:298:VAL:O   | 23:CB:298:VAL:HG12 | 2.02                     | 0.60              |
| 24:CC:123:ASN:ND2 | 1:D1:698:G:O2'     | 2.30                     | 0.60              |
| 27:CF:100:LYS:NZ  | 1:D1:119:A:H2'     | 2.17                     | 0.60              |
| 27:CF:131:HIS:O   | 27:CF:135:LEU:HG   | 2.01                     | 0.60              |
| 34:CM:166:ALA:HB3 | 34:CM:173:ILE:HD11 | 1.83                     | 0.60              |
| 1:D1:100:A:O2'    | 18:DU:60:THR:OG1   | 2.01                     | 0.60              |
| 1:D1:169:A:N6     | 1:D1:251:A:C5      | 2.70                     | 0.60              |
| 1:D1:312:U:H2'    | 1:D1:313:U:C6      | 2.36                     | 0.60              |
| 1:D1:701:A:H4'    | 1:D1:702:G:O5'     | 2.00                     | 0.60              |
| 1:D1:705:A:O2'    | 1:D1:706:U:H5'     | 2.01                     | 0.60              |
| 1:D1:1122:A:H4'   | 1:D1:1123:A:O5'    | 2.02                     | 0.60              |
| 1:D1:1239:G:O3'   | 19:DX:106:LYS:NZ   | 2.31                     | 0.60              |
| 1:D1:1580:G:O6    | 1:D1:1608:G:N7     | 2.34                     | 0.60              |
| 1:D1:1864:U:C5'   | 50:D1:4254:HOH:O   | 2.41                     | 0.60              |
| 1:D1:2385:A:C2'   | 1:D1:2386:G:O5'    | 2.50                     | 0.60              |
| 1:D1:3298:U:C4'   | 1:D1:3299:G:OP2    | 2.50                     | 0.60              |
| 24:EC:33:ILE:HD13 | 24:EC:135:ALA:HA   | 1.84                     | 0.60              |
| 30:EI:10:ALA:HB1  | 30:EI:40:ILE:HG12  | 1.82                     | 0.60              |
| 40:ES:55:VAL:HG13 | 40:ES:104:VAL:O    | 2.02                     | 0.60              |
| 45:EX:28:ALA:HB3  | 1:F1:679:C:H5''    | 1.83                     | 0.60              |
| 1:F1:77:A:C2      | 1:F1:324:A:C2      | 2.88                     | 0.60              |
| 1:F1:497:G:O2'    | 1:F1:498:A:H5'     | 2.00                     | 0.60              |
| 1:F1:979:U:C1'    | 17:FT:12:GLN:NE2   | 2.59                     | 0.60              |
| 1:F1:1040:A:H2'   | 1:F1:1041:C:H6     | 1.67                     | 0.60              |
| 1:F1:1184:U:H2'   | 1:F1:1185:A:O4'    | 2.01                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1367:A:H2'    | 1:F1:1368:U:C6     | 2.37                     | 0.60              |
| 1:F1:1526:G:O2'    | 1:F1:1527:A:H5'    | 2.01                     | 0.60              |
| 1:F1:1580:G:O6     | 1:F1:1608:G:N7     | 2.34                     | 0.60              |
| 1:F1:1695:A:H2'    | 1:F1:1696:C:H6     | 1.67                     | 0.60              |
| 1:F1:2126:G:N2     | 50:F1:3987:HOH:O   | 2.16                     | 0.60              |
| 1:F1:2600:U:H2'    | 1:F1:2601:U:H6     | 1.66                     | 0.60              |
| 6:FF:43:ILE:HG22   | 6:FF:44:VAL:O      | 2.02                     | 0.60              |
| 8:FH:23:PHE:HB3    | 8:FH:31:ASN:O      | 2.01                     | 0.60              |
| 9:FJ:12:ASP:O      | 9:FJ:14:GLY:N      | 2.35                     | 0.60              |
| 9:FJ:145:ASN:ND2   | 9:FJ:146:VAL:H     | 1.97                     | 0.60              |
| 21:G3:33:U:C5      | 34:GM:212:TYR:HE1  | 2.20                     | 0.60              |
| 30:GI:26:LEU:HD22  | 30:GI:100:ARG:HB2  | 1.84                     | 0.60              |
| 33:GL:8:GLU:CD     | 33:GL:50:LYS:HZ3   | 2.09                     | 0.60              |
| 34:GM:22:ARG:HB3   | 34:GM:30:TYR:OH    | 2.00                     | 0.60              |
| 37:GP:74:VAL:CG1   | 37:GP:75:ILE:N     | 2.65                     | 0.60              |
| 43:GV:208:ARG:O    | 1:H1:1195:U:OP1    | 2.20                     | 0.60              |
| 1:H1:453:A:H2'     | 1:H1:454:A:H8      | 1.65                     | 0.60              |
| 1:H1:467:A:N6      | 1:H1:512:G:N1      | 2.49                     | 0.60              |
| 1:H1:848:C:H2'     | 1:H1:849:U:C6      | 2.37                     | 0.60              |
| 1:H1:1050:C:C4     | 1:H1:1051:C:N3     | 2.70                     | 0.60              |
| 1:H1:1375:A:C4'    | 1:H1:1376:A:OP1    | 2.50                     | 0.60              |
| 1:H1:1464:U:H2'    | 1:H1:1465:U:C6     | 2.36                     | 0.60              |
| 1:H1:2558:U:H2'    | 1:H1:2559:U:O4'    | 2.01                     | 0.60              |
| 1:H1:2727:A:C4'    | 17:HT:37:PRO:HD2   | 2.32                     | 0.60              |
| 1:H1:3298:U:C4'    | 1:H1:3299:G:OP2    | 2.48                     | 0.60              |
| 6:HF:3:PHE:HD1     | 19:HX:164:PRO:HB3  | 1.64                     | 0.60              |
| 19:HX:83:LEU:HD22  | 19:HX:111:VAL:HG12 | 1.83                     | 0.60              |
| 1:A1:147:U:H1'     | 27:BF:155:LEU:CD1  | 2.32                     | 0.60              |
| 1:A1:169:A:N6      | 1:A1:251:A:C5      | 2.69                     | 0.60              |
| 1:A1:446:G:H2'     | 1:A1:447:G:C8      | 2.36                     | 0.60              |
| 1:A1:623:G:N2      | 1:A1:633:C:C2      | 2.70                     | 0.60              |
| 1:A1:1123:A:H4'    | 1:A1:1124:G:O5'    | 2.01                     | 0.60              |
| 1:A1:1397:G:N7     | 50:A1:4228:HOH:O   | 2.32                     | 0.60              |
| 1:A1:2369:C:H3'    | 50:A1:3947:HOH:O   | 2.00                     | 0.60              |
| 1:A1:3044:A:C4'    | 1:A1:3045:A:OP1    | 2.50                     | 0.60              |
| 1:A1:3127:U:C5     | 23:BB:30:ARG:NH2   | 2.70                     | 0.60              |
| 2:AA:25:ALA:HB1    | 3:AB:52:TYR:HD2    | 1.66                     | 0.60              |
| 23:BB:330:LYS:O    | 23:BB:331:LYS:HB2  | 2.02                     | 0.60              |
| 24:BC:29:PHE:HD2   | 24:BC:137:ALA:HB2  | 1.67                     | 0.60              |
| 43:BV:144:LEU:HD23 | 43:BV:239:LEU:HD21 | 1.82                     | 0.60              |
| 45:BX:78:ILE:HB    | 45:BX:98:ILE:HA    | 1.84                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:C2:74:A:H5'     | 40:CS:50:ARG:HG3   | 1.82                     | 0.60              |
| 21:C3:26:C:P       | 34:CM:56:THR:HG21  | 2.42                     | 0.60              |
| 22:CA:231:SER:OG   | 1:D1:2419:A:N1     | 2.34                     | 0.60              |
| 23:CB:24:HIS:CE1   | 23:CB:28:ARG:NH1   | 2.66                     | 0.60              |
| 23:CB:303:ILE:HD11 | 23:CB:319:PHE:CE1  | 2.35                     | 0.60              |
| 23:CB:337:ARG:NH2  | 23:CB:340:ILE:HG23 | 2.17                     | 0.60              |
| 24:CC:185:VAL:O    | 24:CC:188:VAL:HG22 | 2.00                     | 0.60              |
| 32:CK:84:VAL:CG1   | 1:D1:485:A:H2'     | 2.32                     | 0.60              |
| 33:CL:201:ARG:HH21 | 1:D1:80:C:P        | 2.24                     | 0.60              |
| 37:CP:11:THR:HG22  | 37:CP:11:THR:O     | 2.02                     | 0.60              |
| 39:CR:73:THR:HG23  | 42:CU:37:ILE:HD11  | 1.83                     | 0.60              |
| 43:CV:67:ARG:NH1   | 1:D1:564:A:O5'     | 2.34                     | 0.60              |
| 1:D1:302:G:C2      | 1:D1:2766:A:C8     | 2.90                     | 0.60              |
| 1:D1:631:G:O2'     | 1:D1:632:G:H5'     | 2.02                     | 0.60              |
| 1:D1:1402:G:C2'    | 1:D1:1403:C:H5'    | 2.32                     | 0.60              |
| 1:D1:2127:A:N7     | 1:D1:2145:A:H2     | 2.00                     | 0.60              |
| 1:D1:3185:G:N3     | 1:D1:3237:C:C2     | 2.69                     | 0.60              |
| 3:DB:4:ASN:ND2     | 3:DB:4:ASN:H       | 2.00                     | 0.60              |
| 9:DJ:77:ASN:HB3    | 9:DJ:80:GLU:CG     | 2.31                     | 0.60              |
| 14:DO:58:ILE:HG21  | 14:DO:90:VAL:HG21  | 1.83                     | 0.60              |
| 23:EB:194:LYS:HA   | 23:EB:197:LEU:CD1  | 2.31                     | 0.60              |
| 24:EC:242:ASN:ND2  | 1:F1:718:A:O2'     | 2.35                     | 0.60              |
| 34:EM:166:ALA:HB3  | 34:EM:173:ILE:HD11 | 1.83                     | 0.60              |
| 38:EQ:3:LYS:NZ     | 1:F1:398:G:N7      | 2.48                     | 0.60              |
| 40:ES:46:SER:HB3   | 1:F1:225:C:H5''    | 1.84                     | 0.60              |
| 41:ET:58:ARG:CZ    | 1:F1:3325:G:C4     | 2.84                     | 0.60              |
| 45:EX:11:ILE:HG13  | 45:EX:11:ILE:O     | 2.01                     | 0.60              |
| 46:EY:4:ARG:HD2    | 1:F1:862:A:OP2     | 2.02                     | 0.60              |
| 1:F1:384:A:H2'     | 1:F1:385:A:C8      | 2.36                     | 0.60              |
| 1:F1:433:C:C5'     | 1:F1:434:A:OP1     | 2.47                     | 0.60              |
| 1:F1:685:G:O2'     | 1:F1:686:U:C6      | 2.55                     | 0.60              |
| 1:F1:963:C:OP1     | 1:F1:987:A:O2'     | 2.20                     | 0.60              |
| 1:F1:1103:A:H2'    | 1:F1:1103:A:N3     | 2.17                     | 0.60              |
| 1:F1:1167:G:H2'    | 1:F1:1168:C:H6     | 1.67                     | 0.60              |
| 1:F1:1906:G:O2'    | 1:F1:1907:A:H5'    | 2.01                     | 0.60              |
| 1:F1:2552:A:N6     | 1:F1:2568:G:O2'    | 2.35                     | 0.60              |
| 1:F1:3185:G:N3     | 1:F1:3237:C:C2     | 2.70                     | 0.60              |
| 1:F1:3200:A:H2'    | 1:F1:3201:G:H5''   | 1.82                     | 0.60              |
| 13:FN:41:VAL:HG12  | 13:FN:43:VAL:CG2   | 2.32                     | 0.60              |
| 21:G3:9:C:H5''     | 21:G3:10:C:OP2     | 2.02                     | 0.60              |
| 23:GB:330:LYS:O    | 23:GB:331:LYS:HB2  | 2.02                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:GB:377:PHE:HD2  | 23:GB:378:PHE:CD1  | 2.20                     | 0.60              |
| 24:GC:95:ALA:CB    | 1:H1:1464:U:H4'    | 2.32                     | 0.60              |
| 24:GC:203:ASN:HD21 | 40:GS:10:ALA:HA    | 1.65                     | 0.60              |
| 24:GC:242:ASN:ND2  | 1:H1:718:A:O2'     | 2.34                     | 0.60              |
| 25:GD:17:LEU:HD13  | 25:GD:129:VAL:HG22 | 1.82                     | 0.60              |
| 25:GD:53:THR:HA    | 25:GD:59:ILE:O     | 2.00                     | 0.60              |
| 1:H1:155:A:H4'     | 1:H1:156:A:OP2     | 2.01                     | 0.60              |
| 1:H1:362:G:C2'     | 1:H1:363:G:H5''    | 2.32                     | 0.60              |
| 1:H1:527:A:HO2'    | 14:HO:88:GLN:NE2   | 1.98                     | 0.60              |
| 1:H1:1379:G:C2     | 5:HE:22:ASP:OD2    | 2.55                     | 0.60              |
| 1:H1:1381:G:OP1    | 14:HO:36:THR:HB    | 2.02                     | 0.60              |
| 1:H1:1775:A:C8     | 1:H1:1776:G:H2'    | 2.34                     | 0.60              |
| 1:H1:1972:G:C2     | 1:H1:1973:A:C8     | 2.90                     | 0.60              |
| 1:H1:2127:A:N7     | 1:H1:2145:A:H2     | 1.99                     | 0.60              |
| 1:H1:3073:U:OP2    | 50:H1:4180:HOH:O   | 2.16                     | 0.60              |
| 1:H1:3228:U:N3     | 5:HE:146:LYS:HG3   | 2.16                     | 0.60              |
| 4:HC:66:VAL:CG2    | 4:HC:83:ILE:HB     | 2.29                     | 0.60              |
| 5:HE:124:LYS:HE2   | 5:HE:132:ALA:HB3   | 1.83                     | 0.60              |
| 9:HJ:39:GLU:CA     | 9:HJ:43:VAL:HG23   | 2.32                     | 0.60              |
| 9:HJ:129:ILE:HG23  | 9:HJ:133:LEU:HD12  | 1.83                     | 0.60              |
| 1:A1:122:U:O2      | 1:A1:149:U:H1'     | 2.02                     | 0.60              |
| 1:A1:567:C:N4      | 1:A1:603:A:N1      | 2.49                     | 0.60              |
| 1:A1:941:G:O6      | 22:BA:208:VAL:HG21 | 2.02                     | 0.60              |
| 1:A1:1122:A:H4'    | 1:A1:1123:A:O5'    | 1.99                     | 0.60              |
| 1:A1:1248:G:H4'    | 1:A1:1249:G:OP2    | 2.01                     | 0.60              |
| 1:A1:1379:G:C2     | 5:AE:22:ASP:OD2    | 2.55                     | 0.60              |
| 1:A1:1396:A:H4'    | 32:BK:21:ARG:HG3   | 1.84                     | 0.60              |
| 1:A1:1537:U:H5'    | 1:A1:1538:U:H5     | 1.67                     | 0.60              |
| 1:A1:2907:A:H8     | 1:A1:2907:A:C5'    | 2.15                     | 0.60              |
| 16:AQ:52:ALA:HB1   | 33:BL:15:GLN:OE1   | 2.01                     | 0.60              |
| 18:AU:91:ILE:HG22  | 18:AU:117:TYR:HE2  | 1.67                     | 0.60              |
| 19:AX:45:ALA:HB1   | 19:AX:50:HIS:CD2   | 2.37                     | 0.60              |
| 21:B3:92:C:H2'     | 21:B3:93:G:C8      | 2.37                     | 0.60              |
| 33:BL:18:LEU:O     | 33:BL:22:ILE:HG13  | 2.01                     | 0.60              |
| 38:BQ:71:ARG:HG2   | 38:BQ:81:THR:HG22  | 1.84                     | 0.60              |
| 45:BX:98:ILE:CA    | 45:BX:123:ASN:HD21 | 2.14                     | 0.60              |
| 24:CC:65:MET:HE1   | 24:CC:97:PHE:HB2   | 1.82                     | 0.60              |
| 31:CJ:108:ASN:HD21 | 31:CJ:110:LYS:HB2  | 1.67                     | 0.60              |
| 34:CM:153:THR:HG22 | 34:CM:153:THR:O    | 2.02                     | 0.60              |
| 43:CV:204:LEU:HB3  | 43:CV:238:MET:HE2  | 1.84                     | 0.60              |
| 1:D1:121:A:N6      | 1:D1:150:A:C6      | 2.70                     | 0.60              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:1507:A:O4'    | 1:D1:1507:A:OP1   | 2.19                     | 0.60              |
| 1:D1:1770:A:H2'    | 1:D1:1771:U:C6    | 2.36                     | 0.60              |
| 1:D1:2400:C:H5'    | 1:D1:2400:C:H6    | 1.66                     | 0.60              |
| 1:D1:3228:U:O2     | 5:DE:142:GLU:HG3  | 2.01                     | 0.60              |
| 9:DJ:39:GLU:CA     | 9:DJ:43:VAL:HG23  | 2.32                     | 0.60              |
| 13:DN:41:VAL:HG23  | 13:DN:77:LEU:CD2  | 2.32                     | 0.60              |
| 15:DP:32:TYR:CE2   | 15:DP:75:ILE:HD12 | 2.37                     | 0.60              |
| 18:DU:22:THR:HG23  | 18:DU:24:PHE:CD1  | 2.36                     | 0.60              |
| 22:EA:71:LYS:HE3   | 22:EA:73:ASN:CG   | 2.27                     | 0.60              |
| 24:EC:150:SER:O    | 14:FO:75:THR:HG23 | 2.01                     | 0.60              |
| 24:EC:398:PHE:CE2  | 37:EP:154:ARG:HD2 | 2.36                     | 0.60              |
| 26:EE:131:LYS:HE2  | 26:EE:145:GLN:HG2 | 1.84                     | 0.60              |
| 26:EE:154:GLN:NE2  | 1:F1:3115:C:H1'   | 2.17                     | 0.60              |
| 26:EE:171:ARG:NH2  | 1:F1:2886:G:OP2   | 2.34                     | 0.60              |
| 28:EG:81:UNK:HG3   | 1:F1:1308:U:O2'   | 2.01                     | 0.60              |
| 29:EH:189:LYS:HE2  | 29:EH:199:VAL:CG1 | 2.32                     | 0.60              |
| 32:EK:42:HIS:CE1   | 1:F1:38:A:C2      | 2.90                     | 0.60              |
| 32:EK:45:ILE:HG12  | 1:F1:2716:A:C2    | 2.37                     | 0.60              |
| 45:EX:45:ARG:NH2   | 1:F1:1171:U:OP2   | 2.34                     | 0.60              |
| 1:F1:198:A:N3      | 1:F1:218:G:O2'    | 2.35                     | 0.60              |
| 1:F1:362:G:H2'     | 1:F1:363:G:H5''   | 1.83                     | 0.60              |
| 1:F1:467:A:N6      | 1:F1:512:G:C6     | 2.70                     | 0.60              |
| 1:F1:925:G:H1'     | 1:F1:1614:A:N6    | 2.17                     | 0.60              |
| 1:F1:1767:U:H4'    | 1:F1:1768:G:OP2   | 2.00                     | 0.60              |
| 1:F1:1919:A:H3'    | 50:F1:4312:HOH:O  | 2.02                     | 0.60              |
| 1:F1:2120:U:O2'    | 1:F1:2121:A:H5'   | 2.01                     | 0.60              |
| 1:F1:2550:U:H4'    | 1:F1:2551:A:OP2   | 2.02                     | 0.60              |
| 1:F1:2860:A:N3     | 1:F1:2860:A:H5'   | 2.17                     | 0.60              |
| 1:F1:3059:A:H2'    | 1:F1:3060:A:C8    | 2.37                     | 0.60              |
| 13:FN:15:GLN:HE21  | 13:FN:79:HIS:CE1  | 2.19                     | 0.60              |
| 24:GC:195:ARG:HH22 | 1:H1:1409:C:P     | 2.25                     | 0.60              |
| 25:GD:28:ASP:O     | 25:GD:32:LYS:HG3  | 2.02                     | 0.60              |
| 29:GH:20:SER:H     | 29:GH:23:ASN:HB2  | 1.67                     | 0.60              |
| 33:GL:165:THR:HG23 | 33:GL:168:GLY:H   | 1.66                     | 0.60              |
| 40:GS:15:ARG:O     | 40:GS:19:PHE:HD1  | 1.84                     | 0.60              |
| 43:GV:63:LYS:O     | 43:GV:67:ARG:HG3  | 2.00                     | 0.60              |
| 1:H1:527:A:H5'     | 5:HE:13:SER:OG    | 2.00                     | 0.60              |
| 1:H1:563:G:C5'     | 1:H1:564:A:OP2    | 2.49                     | 0.60              |
| 1:H1:591:G:H4'     | 6:HF:64:GLU:OE1   | 2.02                     | 0.60              |
| 1:H1:634:G:H5'     | 5:HE:30:ARG:HH22  | 1.67                     | 0.60              |
| 1:H1:1593:A:C5     | 1:H1:1594:C:C4    | 2.89                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2186:U:H2'    | 1:H1:2187:C:H6     | 1.67                     | 0.60              |
| 1:H1:2865:G:H2'    | 1:H1:2866:G:C8     | 2.36                     | 0.60              |
| 1:H1:3023:C:H2'    | 1:H1:3024:A:H8     | 1.66                     | 0.60              |
| 1:H1:3200:A:H2'    | 1:H1:3201:G:H5''   | 1.83                     | 0.60              |
| 2:HA:16:HIS:HA     | 2:HA:27:TYR:O      | 2.02                     | 0.60              |
| 1:A1:72:A:C2       | 1:A1:73:G:C4       | 2.90                     | 0.60              |
| 1:A1:186:U:O3'     | 40:BS:125:LEU:HD21 | 2.02                     | 0.60              |
| 1:A1:282:G:N2      | 1:A1:304:U:H5'     | 2.16                     | 0.60              |
| 1:A1:1064:C:O2'    | 1:A1:1065:U:H5'    | 2.02                     | 0.60              |
| 3:AB:33:THR:CG2    | 3:AB:35:ILE:H      | 2.05                     | 0.60              |
| 5:AE:124:LYS:HG2   | 5:AE:132:ALA:HB2   | 1.82                     | 0.60              |
| 18:AU:164:LYS:O    | 32:BK:98:LYS:HD2   | 2.01                     | 0.60              |
| 19:AX:18:VAL:HG11  | 19:AX:117:VAL:HG11 | 1.82                     | 0.60              |
| 19:AX:30:ILE:CD1   | 37:BP:139:VAL:HG21 | 2.26                     | 0.60              |
| 24:BC:316:THR:O    | 24:BC:317:HIS:HD2  | 1.85                     | 0.60              |
| 27:BF:72:GLN:NE2   | 27:BF:160:PRO:HG2  | 2.15                     | 0.60              |
| 22:CA:210:HIS:HD2  | 22:CA:212:HIS:N    | 1.85                     | 0.60              |
| 31:CJ:83:ILE:HD11  | 31:CJ:105:VAL:CG2  | 2.31                     | 0.60              |
| 37:CP:74:VAL:CG1   | 37:CP:75:ILE:N     | 2.65                     | 0.60              |
| 39:CR:96:ASN:HA    | 39:CR:128:LYS:HG3  | 1.84                     | 0.60              |
| 39:CR:120:THR:O    | 39:CR:121:LEU:HD23 | 2.01                     | 0.60              |
| 41:CT:11:CYS:SG    | 41:CT:13:TYR:HD2   | 2.25                     | 0.60              |
| 42:CU:113:ASN:HB3  | 1:D1:167:U:O2'     | 2.02                     | 0.60              |
| 1:D1:512:G:C2      | 1:D1:513:G:C4      | 2.90                     | 0.60              |
| 1:D1:563:G:N7      | 50:D1:4341:HOH:O   | 2.31                     | 0.60              |
| 1:D1:1047:G:P      | 13:FN:3:LYS:CE     | 2.90                     | 0.60              |
| 1:D1:3185:G:H4'    | 1:D1:3186:G:OP2    | 2.02                     | 0.60              |
| 6:DF:106:PHE:CD2   | 6:DF:110:ARG:NE    | 2.62                     | 0.60              |
| 19:DX:45:ALA:CB    | 19:DX:50:HIS:HD2   | 2.15                     | 0.60              |
| 22:EA:31:ARG:HD3   | 22:EA:34:ASP:OD2   | 2.02                     | 0.60              |
| 25:ED:120:THR:HG22 | 25:ED:120:THR:O    | 2.01                     | 0.60              |
| 27:EF:153:ILE:HG22 | 27:EF:157:ILE:HG13 | 1.83                     | 0.60              |
| 29:EH:118:ALA:HB3  | 1:F1:1153:G:O2'    | 2.01                     | 0.60              |
| 30:EI:26:LEU:HD22  | 30:EI:100:ARG:HB2  | 1.82                     | 0.60              |
| 37:EP:63:LYS:HD2   | 37:EP:63:LYS:N     | 2.17                     | 0.60              |
| 41:ET:35:THR:HB    | 41:ET:38:ALA:H     | 1.66                     | 0.60              |
| 42:EU:98:LYS:HE3   | 42:EU:101:ARG:NH1  | 2.17                     | 0.60              |
| 43:EV:115:ARG:HH21 | 43:EV:192:PHE:HB3  | 1.66                     | 0.60              |
| 1:F1:363:G:C5'     | 1:F1:363:G:C8      | 2.84                     | 0.60              |
| 1:F1:1020:G:N2     | 1:F1:1021:U:O4     | 2.34                     | 0.60              |
| 1:F1:1123:A:H4'    | 1:F1:1124:G:O5'    | 2.00                     | 0.60              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:1213:G:N3    | 19:FX:126:GLY:HA3  | 2.17                     | 0.60              |
| 1:F1:1702:G:H2'   | 1:F1:1703:A:H8     | 1.66                     | 0.60              |
| 1:F1:2256:G:H8    | 1:F1:2256:G:O5'    | 1.85                     | 0.60              |
| 1:F1:2536:A:H2'   | 1:F1:2537:C:C6     | 2.36                     | 0.60              |
| 1:F1:3045:A:H4'   | 1:F1:3046:A:OP1    | 2.02                     | 0.60              |
| 5:FE:135:THR:HG22 | 5:FE:136:GLU:N     | 2.17                     | 0.60              |
| 19:FX:96:GLN:N    | 19:FX:134:THR:HG21 | 2.17                     | 0.60              |
| 20:G2:86:G:C6     | 40:GS:111:ASP:OD2  | 2.54                     | 0.60              |
| 20:G2:111:A:N1    | 2:HA:20:ARG:NH1    | 2.50                     | 0.60              |
| 21:G3:28:C:C2'    | 21:G3:29:C:H5'     | 2.32                     | 0.60              |
| 22:GA:68:TYR:O    | 22:GA:69:ARG:HG2   | 2.02                     | 0.60              |
| 38:GQ:27:HIS:HE1  | 1:H1:2350:G:OP2    | 1.84                     | 0.60              |
| 38:GQ:120:GLN:HB3 | 38:GQ:149:GLU:CG   | 2.29                     | 0.60              |
| 45:GX:80:ASN:HD22 | 1:H1:1413:G:H4'    | 1.67                     | 0.60              |
| 1:H1:169:A:N7     | 1:H1:251:A:N6      | 2.50                     | 0.60              |
| 1:H1:1380:C:O2'   | 1:H1:1381:G:P      | 2.58                     | 0.60              |
| 1:H1:1395:U:O2'   | 1:H1:1396:A:H5'    | 2.01                     | 0.60              |
| 1:H1:1533:G:H4'   | 1:H1:1534:C:OP2    | 2.01                     | 0.60              |
| 1:H1:1593:A:C2    | 1:H1:1601:U:O2     | 2.55                     | 0.60              |
| 1:H1:2380:U:H4'   | 1:H1:2381:A:OP1    | 2.00                     | 0.60              |
| 1:H1:2536:A:H2'   | 1:H1:2537:C:C6     | 2.37                     | 0.60              |
| 1:H1:2743:G:H3'   | 1:H1:2744:C:H5'    | 1.80                     | 0.60              |
| 1:H1:3011:G:H1'   | 1:H1:3012:U:OP2    | 2.02                     | 0.60              |
| 1:H1:3079:U:O2'   | 1:H1:3080:A:O5'    | 2.20                     | 0.60              |
| 1:H1:3110:U:OP2   | 10:HK:111:ARG:NH1  | 2.34                     | 0.60              |
| 1:H1:3241:U:C4    | 1:H1:3242:U:C4     | 2.90                     | 0.60              |
| 50:H1:3636:HOH:O  | 18:HU:15:HIS:HE1   | 1.85                     | 0.60              |
| 5:HE:15:ILE:HA    | 5:HE:18:TRP:NE1    | 2.15                     | 0.60              |
| 11:HL:9:ARG:HG3   | 11:HL:34:TYR:CE2   | 2.37                     | 0.60              |
| 14:HO:62:LEU:HD11 | 14:HO:97:ARG:CD    | 2.31                     | 0.60              |
| 16:HQ:68:LYS:HZ2  | 16:HQ:72:LYS:HG3   | 1.66                     | 0.60              |
| 18:HU:44:VAL:O    | 18:HU:47:ARG:HG3   | 2.01                     | 0.60              |
| 1:A1:38:A:C2      | 32:BK:42:HIS:CE1   | 2.90                     | 0.60              |
| 1:A1:95:U:O2'     | 50:A1:3726:HOH:O   | 2.12                     | 0.60              |
| 1:A1:898:C:H3'    | 1:A1:899:U:H4'     | 1.84                     | 0.60              |
| 1:A1:1380:C:O2'   | 14:AO:38:VAL:HB    | 2.02                     | 0.60              |
| 1:A1:1594:C:C5    | 1:A1:1595:A:N7     | 2.70                     | 0.60              |
| 1:A1:2913:C:H2'   | 1:A1:2914:A:H5'    | 1.83                     | 0.60              |
| 1:A1:2997:A:O2'   | 1:A1:2998:G:H5'    | 2.02                     | 0.60              |
| 1:A1:3126:C:H2'   | 1:A1:3127:U:H6     | 1.67                     | 0.60              |
| 5:AE:4:GLY:N      | 5:AE:5:PRO:CD      | 2.65                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:AE:124:LYS:HE2   | 5:AE:132:ALA:HB3   | 1.84                     | 0.60              |
| 12:AM:95:LEU:HA    | 12:AM:108:ARG:O    | 2.01                     | 0.60              |
| 14:AO:62:LEU:HD11  | 14:AO:97:ARG:CD    | 2.32                     | 0.60              |
| 24:BC:172:ALA:O    | 24:BC:176:LEU:HG   | 2.01                     | 0.60              |
| 30:BI:80:TRP:CH2   | 30:BI:84:ARG:NH1   | 2.70                     | 0.60              |
| 35:BN:53:LEU:HD23  | 35:BN:84:THR:HG22  | 1.84                     | 0.60              |
| 38:BQ:32:TYR:CD2   | 38:BQ:33:GLU:HG2   | 2.34                     | 0.60              |
| 40:BS:6:GLU:OE1    | 40:BS:6:GLU:N      | 2.34                     | 0.60              |
| 42:BU:32:LEU:HD21  | 42:BU:47:ARG:HD3   | 1.84                     | 0.60              |
| 44:BW:50:ILE:HG23  | 44:BW:54:LEU:HD23  | 1.83                     | 0.60              |
| 46:BY:25:VAL:O     | 46:BY:28:LYS:HB3   | 2.01                     | 0.60              |
| 22:CA:99:VAL:HA    | 22:CA:167:VAL:HG12 | 1.84                     | 0.60              |
| 24:CC:333:LEU:HD21 | 43:CV:161:THR:O    | 2.02                     | 0.60              |
| 25:CD:124:GLY:HA3  | 1:D1:2663:A:C5     | 2.37                     | 0.60              |
| 27:CF:154:GLU:OE2  | 33:CL:26:ARG:NH2   | 2.34                     | 0.60              |
| 27:CF:169:PRO:HB2  | 27:CF:211:PHE:HB2  | 1.83                     | 0.60              |
| 34:CM:228:PHE:HD2  | 34:CM:231:TRP:CD1  | 2.20                     | 0.60              |
| 34:CM:240:VAL:HG11 | 34:CM:245:LYS:HB2  | 1.82                     | 0.60              |
| 37:CP:34:TYR:CD1   | 37:CP:72:ILE:HD11  | 2.37                     | 0.60              |
| 38:CQ:53:VAL:HG21  | 38:CQ:60:ILE:HG13  | 1.84                     | 0.60              |
| 39:CR:84:MET:CE    | 39:CR:144:ALA:HB2  | 2.32                     | 0.60              |
| 44:CW:72:VAL:HG11  | 44:CW:92:VAL:HG13  | 1.82                     | 0.60              |
| 1:D1:898:C:H3'     | 1:D1:899:U:H4'     | 1.82                     | 0.60              |
| 1:D1:1053:A:C4     | 13:FN:94:LYS:NZ    | 2.70                     | 0.60              |
| 1:D1:1218:U:H3'    | 10:DK:113:ARG:NH1  | 2.17                     | 0.60              |
| 1:D1:1821:U:O2'    | 1:D1:1822:G:C5     | 2.54                     | 0.60              |
| 1:D1:2861:U:H5''   | 50:D1:4361:HOH:O   | 2.01                     | 0.60              |
| 6:DF:26:VAL:HG12   | 6:DF:27:ILE:N      | 2.17                     | 0.60              |
| 13:DN:13:LEU:CD2   | 13:DN:75:VAL:HG21  | 2.32                     | 0.60              |
| 16:DQ:7:VAL:O      | 16:DQ:7:VAL:HG12   | 2.01                     | 0.60              |
| 20:E2:22:A:H2'     | 20:E2:23:U:C6      | 2.36                     | 0.60              |
| 21:E3:40:C:H2'     | 21:E3:40:C:O2      | 2.02                     | 0.60              |
| 25:ED:28:ASP:O     | 25:ED:32:LYS:HG3   | 2.02                     | 0.60              |
| 28:EG:28:UNK:HB1   | 28:EG:112:UNK:HG3  | 1.84                     | 0.60              |
| 34:EM:249:LYS:O    | 34:EM:253:GLU:HG2  | 2.01                     | 0.60              |
| 43:EV:12:LYS:NZ    | 1:F1:1376:A:O3'    | 2.33                     | 0.60              |
| 1:F1:333:G:H8      | 1:F1:333:G:H5'     | 1.67                     | 0.60              |
| 1:F1:397:A:HO2'    | 1:F1:400:C:HO2'    | 1.50                     | 0.60              |
| 1:F1:453:A:H2'     | 1:F1:454:A:C8      | 2.36                     | 0.60              |
| 1:F1:467:A:N6      | 1:F1:512:G:N1      | 2.49                     | 0.60              |
| 1:F1:644:A:H2'     | 1:F1:645:A:H4'     | 1.83                     | 0.60              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1587:A:H4'    | 1:F1:1588:A:OP2    | 2.02                     | 0.60              |
| 1:F1:2140:A:C5     | 1:F1:2276:A:C2     | 2.89                     | 0.60              |
| 8:FH:54:LYS:HD2    | 8:FH:108:LEU:HA    | 1.82                     | 0.60              |
| 18:FU:44:VAL:O     | 18:FU:47:ARG:HG3   | 2.02                     | 0.60              |
| 20:G2:3:A:C4'      | 20:G2:4:A:OP2      | 2.49                     | 0.60              |
| 20:G2:137:G:N2     | 33:GL:112:GLU:HG2  | 2.16                     | 0.60              |
| 21:G3:116:A:H4'    | 34:GM:260:ARG:NH2  | 2.17                     | 0.60              |
| 22:GA:70:TYR:HD2   | 1:H1:1674:C:C4'    | 2.15                     | 0.60              |
| 23:GB:54:THR:HG23  | 23:GB:358:ASP:HB3  | 1.84                     | 0.60              |
| 23:GB:220:LYS:HG2  | 23:GB:329:PRO:HD3  | 1.83                     | 0.60              |
| 24:GC:311:ALA:HB1  | 1:H1:1374:C:H5'    | 1.84                     | 0.60              |
| 32:GK:81:TRP:CZ2   | 32:GK:123:VAL:CG2  | 2.84                     | 0.60              |
| 33:GL:6:TYR:CD1    | 16:HQ:41:VAL:HG13  | 2.37                     | 0.60              |
| 33:GL:54:LYS:HD3   | 1:H1:149:U:OP1     | 2.01                     | 0.60              |
| 33:GL:183:SER:CA   | 33:GL:191:ASN:HD22 | 2.15                     | 0.60              |
| 43:GV:127:VAL:C    | 43:GV:129:PRO:HD2  | 2.26                     | 0.60              |
| 46:GY:56:LYS:HG2   | 46:GY:63:ILE:HG12  | 1.83                     | 0.60              |
| 1:H1:122:U:O2      | 1:H1:149:U:H1'     | 2.01                     | 0.60              |
| 1:H1:169:A:N7      | 1:H1:250:U:O4      | 2.35                     | 0.60              |
| 1:H1:218:G:OP1     | 1:H1:218:G:H8      | 1.84                     | 0.60              |
| 1:H1:1598:C:C6     | 1:H1:1599:G:C8     | 2.90                     | 0.60              |
| 5:HE:4:GLY:N       | 5:HE:5:PRO:CD      | 2.65                     | 0.60              |
| 5:HE:69:LEU:HD11   | 5:HE:114:ASP:H     | 1.65                     | 0.60              |
| 13:HN:23:ALA:HB2   | 13:HN:45:GLY:HA3   | 1.82                     | 0.60              |
| 1:A1:24:A:N3       | 1:A1:327:U:O2'     | 2.28                     | 0.59              |
| 1:A1:279:U:C4'     | 33:BL:188:ARG:HH21 | 2.14                     | 0.59              |
| 1:A1:452:U:C4'     | 14:AO:56:GLN:HE22  | 2.16                     | 0.59              |
| 1:A1:634:G:H5'     | 5:AE:30:ARG:HH22   | 1.67                     | 0.59              |
| 1:A1:696:A:C5'     | 35:BN:21:LYS:O     | 2.49                     | 0.59              |
| 1:A1:1190:U:H3     | 1:A1:1363:A:H61    | 1.50                     | 0.59              |
| 1:A1:1226:C:H4'    | 1:A1:1227:A:OP1    | 2.02                     | 0.59              |
| 1:A1:2520:G:O6     | 22:BA:68:TYR:HE1   | 1.85                     | 0.59              |
| 1:A1:2613:G:H21    | 1:A1:2615:A:H2     | 1.49                     | 0.59              |
| 1:A1:2639:C:C5'    | 1:A1:2640:G:OP2    | 2.48                     | 0.59              |
| 1:A1:3191:G:C2'    | 1:A1:3192:C:OP2    | 2.50                     | 0.59              |
| 1:A1:3298:U:C4'    | 1:A1:3299:G:OP2    | 2.49                     | 0.59              |
| 6:AF:32:ASN:OD1    | 6:AF:33:GLN:N      | 2.35                     | 0.59              |
| 13:AN:41:VAL:HG23  | 13:AN:77:LEU:CD2   | 2.31                     | 0.59              |
| 18:AU:161:LYS:O    | 18:AU:161:LYS:HG3  | 2.01                     | 0.59              |
| 21:B3:69:G:H2'     | 21:B3:70:G:H8      | 1.67                     | 0.59              |
| 23:BB:105:VAL:HG21 | 23:BB:146:LEU:HD23 | 1.83                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:157:TYR:HD1  | 24:BC:159:PHE:CE1  | 2.19                     | 0.59              |
| 24:BC:303:GLU:O    | 24:BC:307:VAL:HG23 | 2.02                     | 0.59              |
| 25:BD:17:LEU:HD13  | 25:BD:129:VAL:HG22 | 1.83                     | 0.59              |
| 26:BE:131:LYS:HE2  | 26:BE:145:GLN:HG2  | 1.84                     | 0.59              |
| 27:BF:149:ASP:OD1  | 27:BF:176:LYS:HD3  | 2.02                     | 0.59              |
| 33:BL:38:LYS:HB2   | 33:BL:62:TRP:CE2   | 2.36                     | 0.59              |
| 46:BY:73:THR:C     | 46:BY:75:PRO:HD2   | 2.26                     | 0.59              |
| 23:CB:37:PRO:HA    | 23:CB:184:GLY:CA   | 2.28                     | 0.59              |
| 26:CE:1:MET:CG     | 26:CE:2:ARG:N      | 2.42                     | 0.59              |
| 26:CE:141:THR:HG22 | 26:CE:142:LEU:N    | 2.17                     | 0.59              |
| 29:CH:139:ARG:CG   | 29:CH:173:PHE:HE1  | 2.15                     | 0.59              |
| 30:CI:11:LYS:HD3   | 30:CI:36:ARG:HH12  | 1.67                     | 0.59              |
| 38:CQ:71:ARG:HG2   | 38:CQ:81:THR:HG22  | 1.83                     | 0.59              |
| 41:CT:35:THR:HB    | 41:CT:38:ALA:H     | 1.67                     | 0.59              |
| 42:CU:123:LYS:HE2  | 18:DU:146:ALA:HB2  | 1.83                     | 0.59              |
| 44:CW:16:HIS:HE1   | 1:D1:3048:A:OP2    | 1.85                     | 0.59              |
| 1:D1:69:A:C6       | 1:D1:2766:A:O4'    | 2.55                     | 0.59              |
| 1:D1:582:A:H2'     | 1:D1:583:G:H5'     | 1.83                     | 0.59              |
| 1:D1:634:G:H5'     | 5:DE:30:ARG:HH22   | 1.67                     | 0.59              |
| 1:D1:1149:U:H2'    | 1:D1:1150:U:H5'    | 1.83                     | 0.59              |
| 1:D1:3227:A:O2'    | 1:D1:3228:U:OP1    | 2.19                     | 0.59              |
| 5:DE:125:ASN:OD1   | 5:DE:128:ASN:N     | 2.27                     | 0.59              |
| 18:DU:177:VAL:O    | 18:DU:181:ILE:HG13 | 2.02                     | 0.59              |
| 21:E3:64:A:H5'     | 50:E3:328:HOH:O    | 2.01                     | 0.59              |
| 22:EA:243:ARG:HG3  | 22:EA:244:THR:N    | 2.17                     | 0.59              |
| 24:EC:65:MET:CE    | 24:EC:105:ARG:HG2  | 2.32                     | 0.59              |
| 24:EC:259:THR:CG2  | 24:EC:260:GLU:N    | 2.64                     | 0.59              |
| 38:EQ:8:ARG:HH11   | 38:EQ:118:HIS:CB   | 2.03                     | 0.59              |
| 1:F1:282:G:H2'     | 1:F1:282:G:N3      | 2.16                     | 0.59              |
| 1:F1:302:G:C2      | 1:F1:2766:A:C8     | 2.90                     | 0.59              |
| 1:F1:1027:G:H2'    | 1:F1:1027:G:N3     | 2.17                     | 0.59              |
| 1:F1:1040:A:C8     | 1:F1:1041:C:C5     | 2.90                     | 0.59              |
| 1:F1:1433:A:H5'    | 1:F1:1434:G:OP2    | 2.01                     | 0.59              |
| 1:F1:2135:A:N7     | 2:FA:2:THR:HG23    | 2.17                     | 0.59              |
| 1:F1:2720:G:O2'    | 1:F1:2721:G:H5'    | 2.02                     | 0.59              |
| 1:F1:2861:U:H5''   | 50:F1:4138:HOH:O   | 2.02                     | 0.59              |
| 1:F1:3185:G:H4'    | 1:F1:3186:G:OP2    | 2.02                     | 0.59              |
| 7:FG:62:LEU:HB3    | 13:FN:4:PHE:CE2    | 2.36                     | 0.59              |
| 9:FJ:39:GLU:CA     | 9:FJ:43:VAL:HG23   | 2.32                     | 0.59              |
| 11:FL:9:ARG:HG3    | 11:FL:34:TYR:CE2   | 2.37                     | 0.59              |
| 22:GA:253:GLU:OE1  | 22:GA:253:GLU:HA   | 2.00                     | 0.59              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:GC:33:ILE:HD13 | 24:GC:135:ALA:HA   | 1.84                     | 0.59              |
| 24:GC:238:VAL:HA  | 24:GC:241:LEU:HD21 | 1.84                     | 0.59              |
| 25:GD:15:ALA:O    | 25:GD:72:ARG:HG2   | 2.02                     | 0.59              |
| 26:GE:4:LEU:HD11  | 19:HX:163:PHE:CD1  | 2.37                     | 0.59              |
| 28:GG:31:UNK:CA   | 1:H1:1257:G:H5'    | 2.32                     | 0.59              |
| 30:GI:129:ARG:NH2 | 1:H1:1343:G:C2     | 2.70                     | 0.59              |
| 31:GJ:10:GLN:CG   | 31:GJ:129:ILE:HG23 | 2.24                     | 0.59              |
| 32:GK:58:LEU:HD13 | 1:H1:734:A:H5'     | 1.84                     | 0.59              |
| 32:GK:117:ARG:HD3 | 32:GK:137:ARG:HH11 | 1.65                     | 0.59              |
| 34:GM:35:ARG:CB   | 1:H1:2737:A:C2     | 2.85                     | 0.59              |
| 37:GP:63:LYS:HD2  | 37:GP:63:LYS:H     | 1.67                     | 0.59              |
| 40:GS:50:ARG:HB2  | 40:GS:114:ARG:NH2  | 2.17                     | 0.59              |
| 1:H1:69:A:C6      | 1:H1:2766:A:O4'    | 2.55                     | 0.59              |
| 1:H1:219:A:N1     | 1:H1:1416:U:O2'    | 2.34                     | 0.59              |
| 1:H1:623:G:N2     | 1:H1:633:C:C2      | 2.70                     | 0.59              |
| 1:H1:801:U:H5'    | 17:HT:37:PRO:CB    | 2.31                     | 0.59              |
| 1:H1:1714:C:H2'   | 1:H1:1715:U:H5'    | 1.84                     | 0.59              |
| 1:H1:2150:U:H5'   | 1:H1:2150:U:H6     | 1.67                     | 0.59              |
| 1:H1:2542:U:H5''  | 1:H1:2542:U:C6     | 2.34                     | 0.59              |
| 1:H1:2550:U:H5'   | 1:H1:2551:A:O5'    | 2.02                     | 0.59              |
| 1:H1:2907:A:H8    | 1:H1:2907:A:C5'    | 2.15                     | 0.59              |
| 2:HA:21:ARG:NH1   | 2:HA:44:MET:CE     | 2.64                     | 0.59              |
| 13:HN:87:VAL:HG11 | 13:HN:90:LEU:HB2   | 1.83                     | 0.59              |
| 1:A1:133:C:C2'    | 42:BU:76:GLY:HA2   | 2.31                     | 0.59              |
| 1:A1:269:U:H2'    | 1:A1:270:C:H6      | 1.68                     | 0.59              |
| 1:A1:389:G:OP1    | 38:BQ:18:LYS:HE3   | 2.02                     | 0.59              |
| 1:A1:622:G:C4'    | 1:A1:623:G:OP1     | 2.49                     | 0.59              |
| 1:A1:741:G:C2     | 32:BK:136:ARG:NH2  | 2.62                     | 0.59              |
| 1:A1:1093:C:O2'   | 37:BP:110:GLN:HG2  | 2.03                     | 0.59              |
| 1:A1:1309:G:C5'   | 28:BG:59:UNK:HB2   | 2.32                     | 0.59              |
| 1:A1:1598:C:C6    | 1:A1:1599:G:C8     | 2.90                     | 0.59              |
| 1:A1:2529:G:OP1   | 25:GD:29:LYS:HE3   | 2.02                     | 0.59              |
| 1:A1:2557:A:C2    | 1:A1:2558:U:C2     | 2.89                     | 0.59              |
| 1:A1:2862:G:OP1   | 50:A1:4271:HOH:O   | 2.17                     | 0.59              |
| 9:AJ:39:GLU:CA    | 9:AJ:43:VAL:HG23   | 2.31                     | 0.59              |
| 13:AN:13:LEU:CD2  | 13:AN:75:VAL:HG21  | 2.32                     | 0.59              |
| 16:AQ:68:LYS:HE3  | 16:AQ:69:ASP:OD1   | 2.02                     | 0.59              |
| 19:AX:96:GLN:N    | 19:AX:134:THR:HG21 | 2.16                     | 0.59              |
| 35:BN:63:LEU:HD21 | 35:BN:140:LEU:HD23 | 1.84                     | 0.59              |
| 38:BQ:73:ALA:O    | 38:BQ:76:HIS:CD2   | 2.55                     | 0.59              |
| 43:BV:205:ASP:O   | 43:BV:238:MET:HE3  | 2.02                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:C3:120:U:OP1    | 34:CM:270:PRO:CB   | 2.50                     | 0.59              |
| 26:CE:70:SER:HB3   | 1:D1:3101:G:O2'    | 2.01                     | 0.59              |
| 27:CF:65:LYS:HE2   | 27:CF:225:TRP:HE3  | 1.67                     | 0.59              |
| 32:CK:68:ASN:HB3   | 18:DU:60:THR:HG21  | 1.82                     | 0.59              |
| 34:CM:166:ALA:HB3  | 34:CM:173:ILE:CD1  | 2.32                     | 0.59              |
| 38:CQ:72:THR:CG2   | 38:CQ:74:GLN:HG3   | 2.32                     | 0.59              |
| 39:CR:122:ASN:O    | 3:DB:10:LYS:NZ     | 2.35                     | 0.59              |
| 42:CU:122:LEU:HD13 | 18:DU:150:LEU:CD2  | 2.33                     | 0.59              |
| 1:D1:141:C:O2'     | 1:D1:142:A:H5'     | 2.02                     | 0.59              |
| 1:D1:376:A:H62     | 1:D1:398:G:H2'     | 1.67                     | 0.59              |
| 1:D1:424:G:H2'     | 1:D1:425:U:H5'     | 1.84                     | 0.59              |
| 1:D1:579:G:H1      | 6:DF:29:ASN:HD21   | 1.48                     | 0.59              |
| 1:D1:1328:A:H4'    | 1:D1:1329:A:O5'    | 2.02                     | 0.59              |
| 1:D1:1418:G:O6     | 50:D1:4990:HOH:O   | 2.14                     | 0.59              |
| 1:D1:1840:U:OP2    | 1:D1:1840:U:H6     | 1.85                     | 0.59              |
| 1:D1:3182:A:C4'    | 1:D1:3183:A:OP1    | 2.45                     | 0.59              |
| 1:D1:3266:G:C2'    | 1:D1:3267:A:H5''   | 2.32                     | 0.59              |
| 8:DH:54:LYS:HA     | 8:DH:110:PRO:HG2   | 1.84                     | 0.59              |
| 9:DJ:12:ASP:O      | 9:DJ:14:GLY:N      | 2.35                     | 0.59              |
| 22:EA:253:GLU:OE1  | 22:EA:253:GLU:HA   | 2.02                     | 0.59              |
| 29:EH:205:PRO:O    | 29:EH:208:ARG:HG2  | 2.03                     | 0.59              |
| 33:EL:160:GLU:HG2  | 33:EL:161:LEU:N    | 2.16                     | 0.59              |
| 36:EO:62:ARG:HH22  | 1:F1:3056:C:H3'    | 1.66                     | 0.59              |
| 1:F1:1249:G:O2'    | 1:F1:1250:A:P      | 2.60                     | 0.59              |
| 1:F1:1548:U:H4'    | 1:F1:1549:U:OP2    | 2.02                     | 0.59              |
| 1:F1:1660:U:O2'    | 13:FN:79:HIS:CD2   | 2.50                     | 0.59              |
| 1:F1:1821:U:O2'    | 1:F1:1822:G:C5     | 2.54                     | 0.59              |
| 1:F1:2246:G:H2'    | 1:F1:2247:A:H8     | 1.67                     | 0.59              |
| 1:F1:2366:G:H5''   | 1:F1:2367:A:OP2    | 2.02                     | 0.59              |
| 9:FJ:93:ARG:NH2    | 9:HJ:93:ARG:CG     | 2.63                     | 0.59              |
| 18:FU:74:THR:HG23  | 18:FU:99:ARG:O     | 2.02                     | 0.59              |
| 20:G2:13:A:H2'     | 20:G2:14:C:C6      | 2.37                     | 0.59              |
| 20:G2:14:C:O2'     | 38:GQ:7:SER:HA     | 2.03                     | 0.59              |
| 22:GA:216:ASN:ND2  | 1:H1:2957:A:N7     | 2.50                     | 0.59              |
| 23:GB:25:HIS:HD2   | 23:GB:270:TYR:OH   | 1.85                     | 0.59              |
| 23:GB:55:HIS:H     | 23:GB:55:HIS:HD2   | 1.48                     | 0.59              |
| 34:GM:3:PHE:HZ     | 1:H1:1041:C:N3     | 2.00                     | 0.59              |
| 37:GP:39:TYR:CE1   | 37:GP:63:LYS:HG3   | 2.37                     | 0.59              |
| 38:GQ:32:TYR:CD1   | 38:GQ:33:GLU:HG2   | 2.34                     | 0.59              |
| 43:GV:114:PHE:CE2  | 43:GV:124:ILE:HD11 | 2.38                     | 0.59              |
| 43:GV:194:GLU:OE1  | 43:GV:194:GLU:N    | 2.30                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:296:G:O2'     | 16:HQ:32:GLY:HA2   | 2.01                     | 0.59              |
| 1:H1:549:G:C6      | 1:H1:619:G:N2      | 2.70                     | 0.59              |
| 1:H1:673:A:OP2     | 1:H1:2856:U:O2'    | 2.20                     | 0.59              |
| 1:H1:1049:U:H2'    | 1:H1:1050:C:C6     | 2.37                     | 0.59              |
| 1:H1:1776:G:O2'    | 1:H1:1777:A:H5'    | 2.02                     | 0.59              |
| 1:H1:2397:A:H1'    | 1:H1:2859:G:O4'    | 2.01                     | 0.59              |
| 1:H1:2408:A:N6     | 50:H1:3648:HOH:O   | 2.36                     | 0.59              |
| 1:H1:2964:A:C6     | 50:H1:3969:HOH:O   | 2.38                     | 0.59              |
| 1:H1:3177:G:H8     | 1:H1:3177:G:H5''   | 1.67                     | 0.59              |
| 5:HE:135:THR:HG22  | 5:HE:136:GLU:N     | 2.16                     | 0.59              |
| 5:HE:145:ARG:O     | 5:HE:149:ARG:HG3   | 2.03                     | 0.59              |
| 14:HO:32:THR:HG22  | 14:HO:34:ARG:H     | 1.67                     | 0.59              |
| 18:HU:87:PHE:CE2   | 18:HU:91:ILE:HD11  | 2.37                     | 0.59              |
| 1:A1:114:A:O4'     | 16:AQ:37:ARG:NH1   | 2.35                     | 0.59              |
| 1:A1:133:C:H2'     | 42:BU:76:GLY:HA2   | 1.84                     | 0.59              |
| 1:A1:292:C:C5'     | 1:A1:292:C:H6      | 2.15                     | 0.59              |
| 1:A1:302:G:C2      | 1:A1:2766:A:C8     | 2.90                     | 0.59              |
| 1:A1:1064:C:H5'    | 34:BM:5:LYS:HZ2    | 1.65                     | 0.59              |
| 1:A1:1095:C:H4'    | 1:A1:1096:G:OP2    | 2.01                     | 0.59              |
| 1:A1:1328:A:H4'    | 1:A1:1329:A:O5'    | 2.02                     | 0.59              |
| 1:A1:1507:A:C4'    | 1:A1:1507:A:OP1    | 2.50                     | 0.59              |
| 1:A1:3185:G:N3     | 1:A1:3237:C:C2     | 2.70                     | 0.59              |
| 1:A1:3230:G:HO2'   | 1:A1:3231:U:P      | 2.25                     | 0.59              |
| 5:AE:69:LEU:HD21   | 5:AE:114:ASP:CG    | 2.27                     | 0.59              |
| 22:BA:31:ARG:HD3   | 22:BA:34:ASP:OD2   | 2.02                     | 0.59              |
| 42:BU:97:THR:HG22  | 42:BU:98:LYS:N     | 2.16                     | 0.59              |
| 43:BV:72:PHE:CD1   | 43:BV:73:TYR:N     | 2.71                     | 0.59              |
| 43:BV:226:ASN:OD1  | 43:BV:226:ASN:O    | 2.20                     | 0.59              |
| 22:CA:35:PHE:CZ    | 22:CA:39:GLN:OE1   | 2.55                     | 0.59              |
| 24:CC:201:LEU:N    | 24:CC:201:LEU:HD23 | 2.17                     | 0.59              |
| 24:CC:295:ILE:HG23 | 35:CN:33:LEU:HD13  | 1.84                     | 0.59              |
| 25:CD:15:ALA:O     | 25:CD:72:ARG:HG2   | 2.02                     | 0.59              |
| 27:CF:36:GLN:NE2   | 27:CF:39:ARG:NH2   | 2.51                     | 0.59              |
| 33:CL:187:SER:O    | 33:CL:190:GLY:N    | 2.36                     | 0.59              |
| 34:CM:3:PHE:CZ     | 1:D1:1041:C:C2     | 2.90                     | 0.59              |
| 37:CP:116:LYS:HE3  | 37:CP:128:THR:OG1  | 2.02                     | 0.59              |
| 40:CS:43:ASN:O     | 40:CS:125:LEU:CD1  | 2.50                     | 0.59              |
| 1:D1:124:U:O2'     | 1:D1:125:G:H5'     | 2.01                     | 0.59              |
| 1:D1:446:G:H2'     | 1:D1:447:G:C8      | 2.36                     | 0.59              |
| 1:D1:619:G:H4'     | 1:D1:620:A:N3      | 2.16                     | 0.59              |
| 1:D1:1642:G:H2'    | 1:D1:1643:G:C5'    | 2.17                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3190:A:N6     | 1:D1:3191:G:N2     | 2.50                     | 0.59              |
| 5:DE:137:GLU:HG3   | 5:DE:138:GLN:HG2   | 1.83                     | 0.59              |
| 6:DF:30:ILE:HG22   | 19:DX:156:MET:HE1  | 1.84                     | 0.59              |
| 7:DG:13:LYS:HG2    | 7:DG:14:LEU:H      | 1.67                     | 0.59              |
| 8:DH:36:LEU:HD22   | 8:DH:81:HIS:CD2    | 2.37                     | 0.59              |
| 11:DL:5:ILE:CD1    | 11:DL:22:LYS:HG2   | 2.32                     | 0.59              |
| 20:E2:73:G:H5'     | 40:ES:117:LEU:HD11 | 1.83                     | 0.59              |
| 20:E2:107:C:C4     | 20:E2:135:A:C6     | 2.90                     | 0.59              |
| 22:EA:12:ARG:HH11  | 1:F1:935:G:H5'     | 1.66                     | 0.59              |
| 23:EB:377:PHE:CD2  | 1:F1:3325:G:N2     | 2.71                     | 0.59              |
| 24:EC:240:ARG:NH2  | 1:F1:712:G:H4'     | 2.17                     | 0.59              |
| 27:EF:183:VAL:HG12 | 27:EF:185:LYS:HE3  | 1.84                     | 0.59              |
| 33:EL:93:LYS:HG3   | 1:F1:288:A:C2      | 2.37                     | 0.59              |
| 34:EM:228:PHE:HD2  | 34:EM:231:TRP:CD1  | 2.20                     | 0.59              |
| 36:EO:24:LEU:CD2   | 36:EO:50:VAL:HG22  | 2.32                     | 0.59              |
| 43:EV:83:ALA:O     | 43:EV:111:GLY:HA2  | 2.02                     | 0.59              |
| 1:F1:577:C:O2'     | 1:F1:578:G:H5'     | 2.03                     | 0.59              |
| 1:F1:645:A:C1'     | 1:F1:646:A:OP2     | 2.49                     | 0.59              |
| 1:F1:977:A:H2'     | 1:F1:978:G:H5''    | 1.83                     | 0.59              |
| 1:F1:1402:G:C2'    | 1:F1:1403:C:H5'    | 2.32                     | 0.59              |
| 1:F1:1700:A:P      | 12:FM:74:SER:HB2   | 2.43                     | 0.59              |
| 1:F1:3344:U:H1'    | 1:F1:3345:A:OP1    | 2.02                     | 0.59              |
| 5:FE:145:ARG:O     | 5:FE:149:ARG:HG3   | 2.02                     | 0.59              |
| 16:FQ:2:ALA:HB2    | 18:FU:184:GLU:OE2  | 2.02                     | 0.59              |
| 20:G2:73:G:H5'     | 40:GS:117:LEU:HD11 | 1.82                     | 0.59              |
| 23:GB:356:PHE:HE2  | 23:GB:358:ASP:HB2  | 1.66                     | 0.59              |
| 36:GO:15:LEU:HD21  | 36:GO:45:ILE:HD13  | 1.83                     | 0.59              |
| 42:GU:109:GLN:OE1  | 42:GU:109:GLN:HA   | 2.01                     | 0.59              |
| 42:GU:118:ARG:HD2  | 18:HU:123:LEU:HD11 | 1.85                     | 0.59              |
| 43:GV:137:THR:O    | 43:GV:141:ILE:HG13 | 2.01                     | 0.59              |
| 1:H1:439:A:H2'     | 1:H1:440:C:O5'     | 2.02                     | 0.59              |
| 1:H1:467:A:N6      | 1:H1:512:G:C6      | 2.70                     | 0.59              |
| 1:H1:512:G:C2      | 1:H1:513:G:C4      | 2.91                     | 0.59              |
| 1:H1:1026:C:H5'    | 1:H1:1027:G:C5'    | 2.33                     | 0.59              |
| 1:H1:1074:A:H5''   | 1:H1:1075:C:C5'    | 2.32                     | 0.59              |
| 1:H1:2409:G:O6     | 50:H1:3643:HOH:O   | 2.16                     | 0.59              |
| 1:H1:2719:A:H2'    | 1:H1:2720:G:H8     | 1.67                     | 0.59              |
| 1:H1:2913:C:H2'    | 1:H1:2914:A:H5'    | 1.84                     | 0.59              |
| 1:H1:3227:A:C2'    | 1:H1:3228:U:OP1    | 2.51                     | 0.59              |
| 5:HE:71:SER:HB3    | 5:HE:114:ASP:OD2   | 2.02                     | 0.59              |
| 5:HE:86:PRO:O      | 5:HE:87:LEU:HD23   | 2.03                     | 0.59              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:HJ:142:ILE:CD1  | 9:HJ:152:CYS:HB3   | 2.31                     | 0.59              |
| 11:HL:5:ILE:HG21  | 11:HL:32:ALA:HB2   | 1.84                     | 0.59              |
| 1:A1:169:A:N6     | 1:A1:251:A:C4      | 2.70                     | 0.59              |
| 1:A1:631:G:O2'    | 1:A1:632:G:H5'     | 2.02                     | 0.59              |
| 1:A1:882:G:O2'    | 1:A1:883:A:O5'     | 2.20                     | 0.59              |
| 1:A1:1403:C:HO2'  | 1:A1:1434:G:HO2'   | 1.50                     | 0.59              |
| 1:A1:1507:A:OP1   | 1:A1:1507:A:O4'    | 2.19                     | 0.59              |
| 1:A1:1615:G:OP1   | 11:AL:15:THR:HG21  | 2.02                     | 0.59              |
| 1:A1:1821:U:OP1   | 22:BA:192:ARG:NH1  | 2.35                     | 0.59              |
| 1:A1:2634:G:C2'   | 1:A1:2635:C:H5''   | 2.32                     | 0.59              |
| 1:A1:3288:A:H4'   | 23:BB:364:GLY:HA3  | 1.84                     | 0.59              |
| 5:AE:142:GLU:HA   | 5:AE:142:GLU:OE1   | 2.02                     | 0.59              |
| 7:AG:10:ILE:HA    | 7:AG:13:LYS:HD3    | 0.81                     | 0.59              |
| 9:AJ:201:ASP:O    | 9:AJ:224:LEU:HD21  | 2.03                     | 0.59              |
| 11:AL:5:ILE:HG21  | 11:AL:32:ALA:HB2   | 1.84                     | 0.59              |
| 20:B2:110:A:C2    | 20:B2:115:G:C6     | 2.90                     | 0.59              |
| 21:B3:43:A:P      | 25:BD:137:ARG:HH11 | 2.26                     | 0.59              |
| 24:BC:240:ARG:HG2 | 24:BC:240:ARG:O    | 2.01                     | 0.59              |
| 39:BR:56:ARG:HB3  | 39:BR:61:VAL:HG21  | 1.83                     | 0.59              |
| 20:C2:144:U:H2'   | 20:C2:145:C:H5''   | 1.83                     | 0.59              |
| 21:C3:8:G:OP1     | 37:CP:27:ILE:HD12  | 2.02                     | 0.59              |
| 22:CA:192:ARG:NH1 | 1:D1:1821:U:OP1    | 2.35                     | 0.59              |
| 23:CB:85:THR:HB   | 23:CB:161:HIS:HB3  | 1.84                     | 0.59              |
| 30:CI:113:ARG:NH1 | 1:D1:3162:A:N6     | 2.51                     | 0.59              |
| 33:CL:6:TYR:CE1   | 16:DQ:41:VAL:HG13  | 2.38                     | 0.59              |
| 34:CM:249:LYS:O   | 34:CM:253:GLU:HG2  | 2.01                     | 0.59              |
| 47:CO:92:LYS:NZ   | 1:D1:882:G:OP2     | 2.34                     | 0.59              |
| 47:CO:169:UNK:O   | 47:CO:172:UNK:HG3  | 2.02                     | 0.59              |
| 37:CP:25:VAL:O    | 37:CP:26:ARG:HB2   | 2.02                     | 0.59              |
| 43:CV:128:LEU:N   | 43:CV:129:PRO:HD2  | 2.17                     | 0.59              |
| 43:CV:200:TRP:CG  | 43:CV:201:PRO:HD2  | 2.37                     | 0.59              |
| 1:D1:711:U:H3     | 1:D1:718:A:N6      | 1.98                     | 0.59              |
| 1:D1:1127:U:H2'   | 1:D1:1128:G:H8     | 1.67                     | 0.59              |
| 1:D1:1148:U:O2    | 50:D1:4335:HOH:O   | 2.16                     | 0.59              |
| 1:D1:1471:U:H5''  | 1:D1:1472:A:OP2    | 2.02                     | 0.59              |
| 1:D1:2703:G:H2'   | 1:D1:2740:G:H21    | 1.66                     | 0.59              |
| 9:DJ:113:TYR:O    | 9:DJ:135:VAL:HG13  | 2.02                     | 0.59              |
| 18:DU:91:ILE:HG22 | 18:DU:117:TYR:HE2  | 1.67                     | 0.59              |
| 19:DX:82:SER:O    | 19:DX:87:LYS:NZ    | 2.34                     | 0.59              |
| 19:DX:96:GLN:N    | 19:DX:134:THR:HG21 | 2.16                     | 0.59              |
| 28:EG:33:UNK:HG3  | 28:EG:36:UNK:CG    | 2.29                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:EN:89:ASN:HD22  | 35:EN:109:THR:HG21 | 1.67                     | 0.59              |
| 36:EO:106:LEU:CD2  | 36:EO:138:LEU:HD21 | 2.31                     | 0.59              |
| 1:F1:1122:A:H4'    | 1:F1:1123:A:O5'    | 2.01                     | 0.59              |
| 1:F1:1404:G:H5'    | 1:F1:1434:G:O2'    | 2.02                     | 0.59              |
| 1:F1:1775:A:O5'    | 15:FP:34:LYS:NZ    | 2.35                     | 0.59              |
| 1:F1:1845:U:O2     | 1:F1:1845:U:H2'    | 2.02                     | 0.59              |
| 1:F1:2353:C:O2     | 1:F1:2353:C:H2'    | 2.01                     | 0.59              |
| 1:F1:2557:A:C2     | 1:F1:2558:U:C2     | 2.90                     | 0.59              |
| 1:F1:2638:G:H4'    | 1:F1:2685:A:O4'    | 2.03                     | 0.59              |
| 1:F1:3023:C:H2'    | 1:F1:3024:A:H8     | 1.67                     | 0.59              |
| 1:F1:3228:U:C4'    | 1:F1:3229:C:C5'    | 2.75                     | 0.59              |
| 25:GD:50:ALA:HB1   | 25:GD:59:ILE:HG23  | 1.84                     | 0.59              |
| 27:GF:146:ILE:HG23 | 27:GF:156:VAL:HG11 | 1.84                     | 0.59              |
| 35:GN:52:ARG:NH1   | 35:GN:141:ARG:NE   | 2.43                     | 0.59              |
| 41:GT:46:VAL:HG11  | 41:GT:51:ILE:HD11  | 1.84                     | 0.59              |
| 43:GV:122:ASN:HD22 | 1:H1:1013:U:P      | 2.26                     | 0.59              |
| 44:GW:20:HIS:CD2   | 44:GW:21:LYS:HB2   | 2.37                     | 0.59              |
| 45:GX:42:ASN:HD21  | 45:GX:44:VAL:HB    | 1.65                     | 0.59              |
| 1:H1:1090:A:OP1    | 1:H1:1091:G:H3'    | 2.02                     | 0.59              |
| 1:H1:1343:G:C4'    | 1:H1:1344:A:OP2    | 2.51                     | 0.59              |
| 1:H1:1526:G:O2'    | 1:H1:1527:A:H5'    | 2.02                     | 0.59              |
| 1:H1:1580:G:O6     | 1:H1:1608:G:N7     | 2.35                     | 0.59              |
| 1:H1:1598:C:H3'    | 1:H1:1599:G:C8     | 2.32                     | 0.59              |
| 1:H1:2149:U:C2'    | 1:H1:2150:U:H5'    | 2.32                     | 0.59              |
| 5:HE:161:LEU:O     | 5:HE:165:LYS:HB2   | 2.01                     | 0.59              |
| 7:HG:71:VAL:O      | 7:HG:71:VAL:HG12   | 2.02                     | 0.59              |
| 11:HL:5:ILE:HD11   | 11:HL:22:LYS:HG2   | 1.84                     | 0.59              |
| 17:HT:32:THR:CG2   | 17:HT:40:LEU:HD21  | 2.33                     | 0.59              |
| 19:HX:16:MET:HE2   | 19:HX:118:SER:HA   | 1.84                     | 0.59              |
| 1:A1:165:C:H5''    | 18:AU:132:LYS:NZ   | 2.17                     | 0.59              |
| 1:A1:198:A:N3      | 1:A1:218:G:O2'     | 2.35                     | 0.59              |
| 1:A1:1130:A:H2     | 1:A1:1390:A:HO2'   | 1.51                     | 0.59              |
| 1:A1:3191:G:H1'    | 1:A1:3219:A:H62    | 1.68                     | 0.59              |
| 1:A1:3344:U:H1'    | 1:A1:3345:A:OP1    | 2.03                     | 0.59              |
| 9:AJ:145:ASN:ND2   | 9:AJ:146:VAL:N     | 2.50                     | 0.59              |
| 11:AL:5:ILE:CG2    | 11:AL:6:THR:N      | 2.59                     | 0.59              |
| 12:AM:35:PHE:CD1   | 12:AM:65:ILE:HD12  | 2.38                     | 0.59              |
| 18:AU:52:LEU:O     | 18:AU:94:LYS:HB2   | 2.02                     | 0.59              |
| 18:AU:124:PHE:HB2  | 42:BU:119:LYS:HB2  | 1.85                     | 0.59              |
| 18:AU:176:LYS:O    | 18:AU:180:ILE:HG13 | 2.02                     | 0.59              |
| 21:B3:119:C:H2'    | 34:BM:270:PRO:HG2  | 1.84                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:BA:66:ASP:OD1   | 22:BA:68:TYR:N     | 2.32                     | 0.59              |
| 22:BA:209:ASP:O    | 22:BA:210:HIS:HB2  | 2.01                     | 0.59              |
| 28:BG:13:UNK:O     | 28:BG:17:UNK:HG2   | 2.03                     | 0.59              |
| 33:BL:187:SER:O    | 33:BL:190:GLY:N    | 2.36                     | 0.59              |
| 45:BX:11:ILE:O     | 45:BX:11:ILE:HG13  | 2.02                     | 0.59              |
| 21:C3:10:C:C5      | 34:CM:20:TYR:HE1   | 2.20                     | 0.59              |
| 24:CC:303:GLU:O    | 24:CC:307:VAL:HG23 | 2.03                     | 0.59              |
| 25:CD:82:ARG:HB3   | 25:CD:112:LEU:CD2  | 2.31                     | 0.59              |
| 26:CE:73:SER:HA    | 26:CE:76:LYS:CE    | 2.33                     | 0.59              |
| 32:CK:45:ILE:HG12  | 1:D1:2716:A:C2     | 2.37                     | 0.59              |
| 35:CN:25:VAL:HG13  | 14:DO:7:GLU:CB     | 2.33                     | 0.59              |
| 47:CO:170:UNK:HA   | 47:CO:174:UNK:HG3  | 1.84                     | 0.59              |
| 37:CP:6:GLY:H      | 37:CP:9:ARG:HD2    | 1.68                     | 0.59              |
| 1:D1:47:G:C1'      | 1:D1:48:U:OP2      | 2.48                     | 0.59              |
| 1:D1:70:C:O2       | 1:D1:70:C:C2'      | 2.47                     | 0.59              |
| 1:D1:2552:A:N6     | 1:D1:2568:G:O2'    | 2.36                     | 0.59              |
| 9:DJ:23:TYR:HA     | 9:DJ:46:ILE:HG23   | 1.81                     | 0.59              |
| 24:EC:137:ALA:C    | 24:EC:138:LEU:HD23 | 2.27                     | 0.59              |
| 24:EC:163:VAL:O    | 24:EC:166:TYR:CD2  | 2.53                     | 0.59              |
| 31:EJ:74:ARG:O     | 31:EJ:75:LYS:HB2   | 2.02                     | 0.59              |
| 40:ES:30:MET:HE1   | 40:ES:77:TRP:HA    | 1.84                     | 0.59              |
| 46:EY:42:CYS:SG    | 46:EY:60:CYS:HB3   | 2.43                     | 0.59              |
| 1:F1:615:G:H21     | 8:FH:79:LYS:HE2    | 1.67                     | 0.59              |
| 1:F1:1595:A:C2     | 1:F1:1598:C:OP2    | 2.55                     | 0.59              |
| 1:F1:1656:G:C5     | 1:F1:1657:C:C5     | 2.90                     | 0.59              |
| 1:F1:1660:U:H1'    | 13:FN:38:PHE:CE2   | 2.37                     | 0.59              |
| 1:F1:1858:U:OP1    | 3:FB:5:LYS:HE3     | 2.01                     | 0.59              |
| 1:F1:2429:U:H4'    | 1:F1:2430:G:O5'    | 2.03                     | 0.59              |
| 1:F1:2507:C:O2'    | 1:F1:2508:U:H5'    | 2.02                     | 0.59              |
| 1:F1:2727:A:O2'    | 1:F1:2728:A:OP1    | 2.19                     | 0.59              |
| 1:F1:3228:U:O2     | 5:FE:142:GLU:HG3   | 2.01                     | 0.59              |
| 5:FE:42:ARG:H      | 5:FE:92:GLN:NE2    | 2.00                     | 0.59              |
| 24:GC:198:GLN:HB3  | 1:H1:1407:A:H5''   | 1.85                     | 0.59              |
| 24:GC:275:THR:HG22 | 24:GC:276:THR:N    | 2.17                     | 0.59              |
| 25:GD:38:LYS:HG2   | 25:GD:45:PRO:HD3   | 1.85                     | 0.59              |
| 25:GD:65:MET:HE1   | 1:H1:2670:U:O4'    | 2.01                     | 0.59              |
| 29:GH:189:LYS:HE2  | 29:GH:199:VAL:CG1  | 2.32                     | 0.59              |
| 35:GN:64:SER:HA    | 35:GN:88:THR:O     | 2.02                     | 0.59              |
| 38:GQ:18:LYS:HE3   | 1:H1:389:G:OP1     | 2.03                     | 0.59              |
| 38:GQ:25:ARG:HG3   | 38:GQ:143:ASN:ND2  | 2.18                     | 0.59              |
| 38:GQ:59:CYS:HB3   | 38:GQ:74:GLN:HB2   | 1.84                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 38:GQ:66:THR:CG2  | 38:GQ:82:GLN:HE22 | 2.14                     | 0.59              |
| 1:H1:11:A:H2'     | 1:H1:12:A:C8      | 2.36                     | 0.59              |
| 1:H1:72:A:C2      | 1:H1:73:G:C4      | 2.90                     | 0.59              |
| 1:H1:122:U:H2'    | 1:H1:123:C:H6     | 1.68                     | 0.59              |
| 1:H1:169:A:N6     | 1:H1:251:A:C4     | 2.71                     | 0.59              |
| 1:H1:745:A:H4'    | 17:HT:58:ASN:HD21 | 1.67                     | 0.59              |
| 1:H1:761:A:H2'    | 1:H1:762:G:O4'    | 2.03                     | 0.59              |
| 1:H1:1132:U:H2'   | 1:H1:1133:G:H8    | 1.67                     | 0.59              |
| 1:H1:2186:U:H2'   | 1:H1:2187:C:C6    | 2.38                     | 0.59              |
| 1:H1:2277:U:C2'   | 1:H1:2278:G:OP1   | 2.50                     | 0.59              |
| 1:H1:3054:G:N7    | 50:H1:3918:HOH:O  | 2.31                     | 0.59              |
| 1:H1:3135:A:H2'   | 1:H1:3136:A:C8    | 2.37                     | 0.59              |
| 1:H1:3227:A:C2    | 5:HE:80:TYR:CZ    | 2.91                     | 0.59              |
| 1:H1:3332:A:H3'   | 1:H1:3333:G:H5''  | 1.84                     | 0.59              |
| 14:HO:49:ALA:HB3  | 14:HO:61:SER:HB2  | 1.83                     | 0.59              |
| 1:A1:513:G:H2'    | 1:A1:514:U:C6     | 2.38                     | 0.59              |
| 1:A1:524:G:H4'    | 1:A1:525:C:OP2    | 2.02                     | 0.59              |
| 1:A1:697:A:H8     | 1:A1:697:A:H5'    | 1.66                     | 0.59              |
| 1:A1:1002:A:OP1   | 35:BN:141:ARG:NH2 | 2.36                     | 0.59              |
| 1:A1:1391:U:OP1   | 35:BN:3:ILE:HD11  | 2.03                     | 0.59              |
| 1:A1:1736:G:C2    | 1:A1:1737:A:C2    | 2.91                     | 0.59              |
| 1:A1:1752:G:H8    | 1:A1:1752:G:O5'   | 1.86                     | 0.59              |
| 1:A1:1922:G:H2'   | 1:A1:1923:G:O5'   | 2.02                     | 0.59              |
| 1:A1:2324:A:P     | 50:A1:4499:HOH:O  | 2.59                     | 0.59              |
| 1:A1:3256:A:C2    | 1:A1:3349:U:C2    | 2.91                     | 0.59              |
| 1:A1:3266:G:C2'   | 1:A1:3267:A:H5''  | 2.32                     | 0.59              |
| 1:A1:3325:G:C4    | 41:BT:58:ARG:CZ   | 2.84                     | 0.59              |
| 2:AA:14:LYS:HD3   | 3:AB:52:TYR:HD1   | 1.66                     | 0.59              |
| 2:AA:26:THR:HG22  | 2:AA:35:ALA:HB3   | 1.82                     | 0.59              |
| 7:AG:57:GLU:HA    | 7:AG:67:ILE:HD11  | 1.84                     | 0.59              |
| 7:AG:62:LEU:HB3   | 13:AN:4:PHE:HE2   | 1.65                     | 0.59              |
| 13:AN:83:THR:HG22 | 13:AN:85:TYR:N    | 2.16                     | 0.59              |
| 18:AU:23:PHE:CD2  | 33:BL:201:ARG:HG2 | 2.37                     | 0.59              |
| 23:BB:54:THR:HG23 | 23:BB:358:ASP:HB3 | 1.85                     | 0.59              |
| 23:BB:157:ARG:HD2 | 23:BB:178:GLU:OE1 | 2.03                     | 0.59              |
| 27:BF:69:GLN:O    | 27:BF:72:GLN:HG2  | 2.02                     | 0.59              |
| 34:BM:121:GLY:HA2 | 34:BM:130:PHE:CZ  | 2.37                     | 0.59              |
| 36:BO:86:ASN:OD1  | 36:BO:90:PRO:HA   | 2.02                     | 0.59              |
| 22:CA:203:VAL:CG1 | 22:CA:218:GLN:HG2 | 2.32                     | 0.59              |
| 29:CH:171:TRP:CE2 | 29:CH:181:TYR:CE2 | 2.90                     | 0.59              |
| 34:CM:81:TYR:O    | 34:CM:84:LYS:HB2  | 2.02                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:438:A:C4      | 5:DE:130:PHE:CE1   | 2.91                     | 0.59              |
| 1:D1:1210:C:O3'    | 19:DX:171:ARG:NH2  | 2.35                     | 0.59              |
| 1:D1:1598:C:C6     | 1:D1:1599:G:C8     | 2.91                     | 0.59              |
| 1:D1:1640:C:H2'    | 1:D1:1641:U:H6     | 1.65                     | 0.59              |
| 1:D1:2256:G:C1'    | 1:D1:2257:A:OP1    | 2.51                     | 0.59              |
| 1:D1:2429:U:H4'    | 1:D1:2430:G:O5'    | 2.02                     | 0.59              |
| 1:D1:3181:G:H2'    | 1:D1:3182:A:C8     | 2.37                     | 0.59              |
| 6:DF:67:GLN:NE2    | 6:DF:75:LYS:HE3    | 2.18                     | 0.59              |
| 13:DN:15:GLN:NE2   | 13:DN:79:HIS:CE1   | 2.71                     | 0.59              |
| 13:DN:22:LYS:HZ2   | 13:DN:140:SER:HB3  | 1.67                     | 0.59              |
| 16:DQ:49:THR:HG22  | 16:DQ:50:GLY:O     | 2.01                     | 0.59              |
| 24:EC:240:ARG:CZ   | 1:F1:712:G:H4'     | 2.33                     | 0.59              |
| 25:ED:124:GLY:HA3  | 1:F1:2663:A:C6     | 2.37                     | 0.59              |
| 27:EF:36:GLN:HG3   | 27:EF:37:PRO:CD    | 2.29                     | 0.59              |
| 27:EF:171:ALA:HA   | 27:EF:215:TYR:CD2  | 2.37                     | 0.59              |
| 34:EM:166:ALA:HB3  | 34:EM:173:ILE:CD1  | 2.32                     | 0.59              |
| 36:EO:95:TRP:CH2   | 1:F1:880:U:H4'     | 2.36                     | 0.59              |
| 39:ER:84:MET:HE2   | 39:ER:144:ALA:HB2  | 1.84                     | 0.59              |
| 39:ER:120:THR:O    | 39:ER:121:LEU:HD23 | 2.02                     | 0.59              |
| 39:ER:147:ILE:HG23 | 42:EU:34:ILE:HD13  | 1.83                     | 0.59              |
| 41:ET:14:ARG:CZ    | 9:HJ:44:PRO:HB3    | 2.32                     | 0.59              |
| 42:EU:99:LYS:O     | 42:EU:103:ALA:HB2  | 2.03                     | 0.59              |
| 1:F1:64:A:N6       | 1:F1:66:C:O2       | 2.35                     | 0.59              |
| 1:F1:72:A:C2       | 1:F1:73:G:C5       | 2.91                     | 0.59              |
| 1:F1:165:C:H5''    | 18:FU:132:LYS:HD2  | 1.85                     | 0.59              |
| 1:F1:169:A:N6      | 1:F1:251:A:C4      | 2.71                     | 0.59              |
| 1:F1:567:C:N4      | 1:F1:603:A:N1      | 2.50                     | 0.59              |
| 1:F1:1047:G:N2     | 1:F1:1058:C:C2     | 2.71                     | 0.59              |
| 1:F1:1149:U:H2'    | 1:F1:1150:U:H5'    | 1.83                     | 0.59              |
| 1:F1:1343:G:C4'    | 1:F1:1344:A:OP2    | 2.51                     | 0.59              |
| 1:F1:2186:U:H2'    | 1:F1:2187:C:H6     | 1.67                     | 0.59              |
| 1:F1:2569:A:HO2'   | 1:F1:2570:U:P      | 2.24                     | 0.59              |
| 1:F1:2716:A:OP2    | 1:F1:2717:G:N2     | 2.34                     | 0.59              |
| 1:F1:3044:A:C4'    | 1:F1:3045:A:OP1    | 2.51                     | 0.59              |
| 21:G3:16:A:H2'     | 21:G3:17:A:C8      | 2.36                     | 0.59              |
| 23:GB:270:TYR:HD2  | 1:H1:3265:A:H5'    | 1.67                     | 0.59              |
| 24:GC:191:THR:HG21 | 24:GC:209:ARG:NH1  | 2.18                     | 0.59              |
| 26:GE:2:ARG:HH12   | 30:GI:129:ARG:NH2  | 2.00                     | 0.59              |
| 29:GH:139:ARG:CG   | 29:GH:173:PHE:HE1  | 2.15                     | 0.59              |
| 36:GO:42:ARG:NH2   | 1:H1:1626:U:OP2    | 2.35                     | 0.59              |
| 45:GX:79:ARG:NH1   | 1:H1:1448:G:C1'    | 2.65                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:813:C:H2'     | 1:H1:814:U:C6      | 2.37                     | 0.59              |
| 1:H1:919:A:H1'     | 1:H1:920:A:C2      | 2.38                     | 0.59              |
| 1:H1:926:A:H2'     | 1:H1:927:G:H8      | 1.68                     | 0.59              |
| 1:H1:1122:A:H4'    | 1:H1:1123:A:O5'    | 2.01                     | 0.59              |
| 1:H1:1660:U:O2'    | 13:HN:79:HIS:CD2   | 2.54                     | 0.59              |
| 1:H1:1901:C:C5'    | 1:H1:1902:C:H5'    | 2.31                     | 0.59              |
| 1:H1:2217:C:C4'    | 1:H1:2218:A:OP2    | 2.49                     | 0.59              |
| 1:H1:2385:A:C2'    | 1:H1:2386:G:O5'    | 2.51                     | 0.59              |
| 1:H1:3059:A:H2'    | 1:H1:3060:A:C8     | 2.38                     | 0.59              |
| 6:HF:12:VAL:HG11   | 6:HF:81:LEU:HD11   | 1.85                     | 0.59              |
| 7:HG:13:LYS:CB     | 7:HG:100:ILE:HD12  | 2.33                     | 0.59              |
| 1:A1:141:C:O2'     | 1:A1:142:A:H5'     | 2.02                     | 0.59              |
| 1:A1:356:U:O2'     | 24:BC:87:SER:HB2   | 2.03                     | 0.59              |
| 1:A1:713:G:N2      | 24:BC:49:ARG:NH2   | 2.51                     | 0.59              |
| 1:A1:1184:U:H2'    | 1:A1:1185:A:O4'    | 2.02                     | 0.59              |
| 1:A1:1409:C:P      | 24:BC:195:ARG:NH2  | 2.75                     | 0.59              |
| 1:A1:1504:C:OP2    | 50:A1:4122:HOH:O   | 2.15                     | 0.59              |
| 1:A1:1507:A:O2'    | 1:A1:1882:A:C2'    | 2.50                     | 0.59              |
| 1:A1:1595:A:C2     | 1:A1:1598:C:OP2    | 2.56                     | 0.59              |
| 1:A1:1803:U:H2'    | 1:A1:1804:G:C8     | 2.37                     | 0.59              |
| 1:A1:1821:U:O2'    | 1:A1:1822:G:C5     | 2.55                     | 0.59              |
| 1:A1:1902:C:H2'    | 1:A1:1903:A:O4'    | 2.02                     | 0.59              |
| 1:A1:2255:U:C1'    | 1:A1:2301:C:O4'    | 2.51                     | 0.59              |
| 1:A1:3100:U:C2'    | 1:A1:3101:G:H5'    | 2.32                     | 0.59              |
| 12:AM:75:LYS:HE2   | 12:AM:105:TYR:CE2  | 2.38                     | 0.59              |
| 14:AO:6:TRP:CZ3    | 14:AO:40:LEU:HD12  | 2.37                     | 0.59              |
| 18:AU:54:PRO:HG3   | 18:AU:72:GLY:C     | 2.28                     | 0.59              |
| 22:BA:205:MET:HE2  | 22:BA:209:ASP:HB3  | 1.85                     | 0.59              |
| 24:BC:289:LEU:HD12 | 35:BN:24:ASN:HD22  | 1.68                     | 0.59              |
| 25:BD:104:PHE:HE1  | 25:BD:106:ILE:CD1  | 2.16                     | 0.59              |
| 25:BD:120:THR:O    | 25:BD:120:THR:HG22 | 2.01                     | 0.59              |
| 27:BF:211:PHE:O    | 27:BF:215:TYR:HB2  | 2.03                     | 0.59              |
| 29:BH:130:ASP:OD1  | 29:BH:131:ILE:N    | 2.35                     | 0.59              |
| 30:BI:26:LEU:HD22  | 30:BI:100:ARG:HB2  | 1.85                     | 0.59              |
| 30:BI:79:PHE:HD2   | 30:BI:103:ILE:HD13 | 1.68                     | 0.59              |
| 35:BN:82:VAL:O     | 35:BN:139:LEU:HD12 | 2.02                     | 0.59              |
| 42:BU:97:THR:O     | 42:BU:101:ARG:HG3  | 2.02                     | 0.59              |
| 22:CA:49:ILE:HD12  | 46:CY:63:ILE:HG22  | 1.84                     | 0.59              |
| 23:CB:281:TYR:CB   | 23:CB:321:MET:HE3  | 2.33                     | 0.59              |
| 24:CC:77:ALA:HA    | 1:D1:2397:A:OP1    | 2.03                     | 0.59              |
| 26:CE:135:LYS:H    | 26:CE:138:GLU:CG   | 2.16                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:CQ:25:ARG:HG3   | 38:CQ:143:ASN:ND2  | 2.18                     | 0.59              |
| 40:CS:58:VAL:HG12  | 40:CS:59:ARG:HG2   | 1.84                     | 0.59              |
| 1:D1:133:C:H4'     | 1:D1:134:A:O5'     | 2.03                     | 0.59              |
| 1:D1:795:G:H8      | 1:D1:795:G:O5'     | 1.84                     | 0.59              |
| 1:D1:1047:G:C2'    | 1:D1:1048:U:H5'    | 2.33                     | 0.59              |
| 1:D1:1091:G:O2'    | 1:D1:1092:C:OP1    | 2.21                     | 0.59              |
| 1:D1:2412:U:C2'    | 1:D1:2413:G:H5''   | 2.32                     | 0.59              |
| 5:DE:145:ARG:O     | 5:DE:149:ARG:HG3   | 2.03                     | 0.59              |
| 8:DH:23:PHE:HB3    | 8:DH:31:ASN:O      | 2.03                     | 0.59              |
| 8:DH:64:LYS:CG     | 8:DH:69:ASN:HD21   | 2.03                     | 0.59              |
| 21:E3:39:U:C2      | 25:ED:46:VAL:CG2   | 2.86                     | 0.59              |
| 24:EC:163:VAL:CG2  | 24:EC:175:PHE:HE2  | 2.15                     | 0.59              |
| 24:EC:175:PHE:CE1  | 24:EC:179:VAL:HG21 | 2.38                     | 0.59              |
| 25:ED:115:LYS:HG2  | 25:ED:116:TYR:N    | 2.17                     | 0.59              |
| 26:EE:135:LYS:H    | 26:EE:138:GLU:CG   | 2.16                     | 0.59              |
| 31:EJ:90:ARG:HB2   | 31:EJ:96:PHE:CD2   | 2.38                     | 0.59              |
| 43:EV:60:VAL:HG13  | 43:EV:63:LYS:NZ    | 2.18                     | 0.59              |
| 44:EW:71:ARG:HD3   | 44:EW:103:LEU:HD13 | 1.85                     | 0.59              |
| 1:F1:141:C:O2'     | 1:F1:142:A:H5'     | 2.03                     | 0.59              |
| 1:F1:836:U:H2'     | 1:F1:837:G:C8      | 2.38                     | 0.59              |
| 1:F1:1321:A:HO2'   | 1:F1:1322:G:P      | 2.22                     | 0.59              |
| 1:F1:2913:C:H2'    | 1:F1:2914:A:H5'    | 1.83                     | 0.59              |
| 4:FC:36:GLN:HA     | 4:FC:36:GLN:OE1    | 2.03                     | 0.59              |
| 7:FG:13:LYS:HG2    | 7:FG:14:LEU:N      | 2.17                     | 0.59              |
| 12:FM:59:SER:OG    | 12:FM:66:ASN:HB3   | 2.02                     | 0.59              |
| 18:FU:22:THR:HG23  | 18:FU:24:PHE:CD1   | 2.37                     | 0.59              |
| 18:FU:87:PHE:CE2   | 18:FU:91:ILE:HD11  | 2.38                     | 0.59              |
| 21:G3:10:C:C2      | 34:GM:20:TYR:HD1   | 2.20                     | 0.59              |
| 21:G3:83:G:N2      | 21:G3:93:G:N2      | 2.51                     | 0.59              |
| 24:GC:32:PRO:HG2   | 24:GC:286:GLN:HB3  | 1.85                     | 0.59              |
| 24:GC:163:VAL:HA   | 24:GC:166:TYR:HE2  | 1.68                     | 0.59              |
| 24:GC:269:ILE:HG12 | 24:GC:279:GLN:OE1  | 2.02                     | 0.59              |
| 27:GF:72:GLN:NE2   | 27:GF:160:PRO:HG2  | 2.18                     | 0.59              |
| 32:GK:129:TYR:CE2  | 16:HQ:7:VAL:HG21   | 2.38                     | 0.59              |
| 33:GL:196:GLN:HB3  | 18:HU:19:ARG:HD2   | 1.83                     | 0.59              |
| 36:GO:96:MET:HG2   | 1:H1:1746:U:H1'    | 1.84                     | 0.59              |
| 37:GP:141:VAL:O    | 43:GV:71:ALA:HB1   | 2.02                     | 0.59              |
| 38:GQ:9:GLU:OE1    | 38:GQ:10:PRO:HD2   | 2.01                     | 0.59              |
| 45:GX:56:LYS:O     | 1:H1:1431:U:H1'    | 2.03                     | 0.59              |
| 1:H1:121:A:N6      | 1:H1:150:A:N6      | 2.51                     | 0.59              |
| 1:H1:851:G:O2'     | 1:H1:1614:A:H8     | 1.84                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1840:U:OP2    | 1:H1:1840:U:H6     | 1.86                     | 0.59              |
| 1:H1:2187:C:H2'    | 1:H1:2188:U:H5'    | 1.85                     | 0.59              |
| 7:HG:27:TYR:CE2    | 7:HG:52:ARG:HG2    | 2.37                     | 0.59              |
| 9:HJ:145:ASN:ND2   | 9:HJ:146:VAL:N     | 2.50                     | 0.59              |
| 12:HM:15:LEU:HD23  | 12:HM:73:PHE:HB3   | 1.85                     | 0.59              |
| 13:HN:41:VAL:HG12  | 13:HN:43:VAL:HG22  | 1.85                     | 0.59              |
| 19:HX:187:THR:HG22 | 19:HX:188:THR:N    | 2.18                     | 0.59              |
| 1:A1:37:A:H5'      | 1:A1:38:A:OP2      | 2.03                     | 0.59              |
| 1:A1:268:G:H5''    | 33:BL:14:LYS:HZ3   | 1.67                     | 0.59              |
| 1:A1:645:A:H2'     | 1:A1:645:A:N3      | 2.17                     | 0.59              |
| 1:A1:1124:G:H8     | 37:BP:116:LYS:NZ   | 2.01                     | 0.59              |
| 1:A1:1201:G:H21    | 30:BI:86:MET:HE1   | 1.65                     | 0.59              |
| 1:A1:1343:G:C4'    | 1:A1:1344:A:OP2    | 2.50                     | 0.59              |
| 1:A1:1923:G:OP1    | 31:BJ:26:VAL:N     | 2.32                     | 0.59              |
| 1:A1:2128:C:P      | 50:A1:4098:HOH:O   | 2.53                     | 0.59              |
| 1:A1:2703:G:H2'    | 1:A1:2740:G:H21    | 1.67                     | 0.59              |
| 1:A1:2962:U:H6     | 1:A1:2962:U:H5'    | 1.66                     | 0.59              |
| 5:AE:42:ARG:H      | 5:AE:92:GLN:NE2    | 2.01                     | 0.59              |
| 5:AE:126:HIS:CD2   | 5:AE:127:LYS:HG2   | 2.38                     | 0.59              |
| 7:AG:13:LYS:HB2    | 7:AG:100:ILE:CD1   | 2.32                     | 0.59              |
| 12:AM:98:THR:HG22  | 12:AM:99:SER:N     | 2.17                     | 0.59              |
| 13:AN:72:ILE:O     | 13:AN:72:ILE:HG13  | 2.02                     | 0.59              |
| 18:AU:177:VAL:HG21 | 32:BK:145:CYS:CB   | 2.32                     | 0.59              |
| 20:B2:25:U:C4'     | 20:B2:26:A:OP1     | 2.51                     | 0.59              |
| 24:BC:227:LEU:O    | 24:BC:233:VAL:HG21 | 2.03                     | 0.59              |
| 32:BK:75:VAL:HG23  | 32:BK:109:PHE:HB3  | 1.84                     | 0.59              |
| 33:BL:64:VAL:HG21  | 33:BL:106:VAL:CG2  | 2.33                     | 0.59              |
| 43:BV:157:ARG:HG3  | 43:BV:200:TRP:CE2  | 2.37                     | 0.59              |
| 21:C3:59:C:O2'     | 34:CM:279:PRO:HD2  | 2.03                     | 0.59              |
| 22:CA:20:HIS:CD2   | 22:CA:193:LYS:O    | 2.55                     | 0.59              |
| 23:CB:253:TRP:CE3  | 1:D1:2929:A:C8     | 2.90                     | 0.59              |
| 24:CC:105:ARG:NH1  | 24:CC:105:ARG:CG   | 2.63                     | 0.59              |
| 27:CF:171:ALA:HA   | 27:CF:215:TYR:CD2  | 2.38                     | 0.59              |
| 27:CF:196:VAL:CG2  | 27:CF:204:LEU:HD11 | 2.33                     | 0.59              |
| 32:CK:88:THR:HG23  | 18:DU:164:LYS:HZ2  | 1.66                     | 0.59              |
| 35:CN:53:LEU:HD23  | 35:CN:84:THR:HG22  | 1.84                     | 0.59              |
| 47:CO:106:LEU:HB3  | 47:CO:120:TYR:CE1  | 2.38                     | 0.59              |
| 37:CP:91:VAL:HG12  | 37:CP:92:LYS:O     | 2.01                     | 0.59              |
| 1:D1:1130:A:H2     | 1:D1:1390:A:HO2'   | 1.49                     | 0.59              |
| 1:D1:1696:C:O2'    | 1:D1:1697:U:H5'    | 2.03                     | 0.59              |
| 1:D1:2135:A:N7     | 2:DA:2:THR:HG23    | 2.18                     | 0.59              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:2253:U:O2'   | 1:D1:2254:A:P      | 2.61                     | 0.59              |
| 1:D1:2557:A:C2    | 1:D1:2564:G:C4     | 2.91                     | 0.59              |
| 1:D1:3112:A:C2'   | 1:D1:3113:G:H5'    | 2.31                     | 0.59              |
| 6:DF:125:SER:O    | 6:DF:126:LYS:HB2   | 2.03                     | 0.59              |
| 18:DU:161:LYS:O   | 18:DU:161:LYS:HG3  | 2.00                     | 0.59              |
| 19:DX:113:LEU:CD2 | 19:DX:140:THR:HG21 | 2.32                     | 0.59              |
| 21:E3:33:U:C5     | 34:EM:212:TYR:CE1  | 2.90                     | 0.59              |
| 23:EB:121:ASN:HB3 | 1:F1:3275:A:H62    | 1.66                     | 0.59              |
| 23:EB:220:LYS:NZ  | 1:F1:3037:A:OP2    | 2.28                     | 0.59              |
| 24:EC:308:VAL:CG1 | 35:EN:40:ARG:NH1   | 2.61                     | 0.59              |
| 32:EK:75:VAL:HG23 | 32:EK:109:PHE:CB   | 2.33                     | 0.59              |
| 38:EQ:33:GLU:OE1  | 38:EQ:62:PHE:CA    | 2.47                     | 0.59              |
| 39:ER:73:THR:HG22 | 39:ER:74:PRO:O     | 2.03                     | 0.59              |
| 43:EV:48:TYR:CE1  | 43:EV:183:HIS:CG   | 2.90                     | 0.59              |
| 1:F1:114:A:C5'    | 16:FQ:37:ARG:HH22  | 2.15                     | 0.59              |
| 1:F1:499:U:H5''   | 1:F1:500:G:OP2     | 2.02                     | 0.59              |
| 1:F1:546:A:H2'    | 1:F1:547:U:H6      | 1.67                     | 0.59              |
| 1:F1:1239:G:N3    | 19:FX:128:HIS:HE1  | 2.01                     | 0.59              |
| 1:F1:1869:G:N1    | 50:F1:4042:HOH:O   | 2.31                     | 0.59              |
| 5:FE:173:TYR:CD2  | 6:FF:106:PHE:HA    | 2.38                     | 0.59              |
| 12:FM:75:LYS:HE2  | 12:FM:105:TYR:CE2  | 2.37                     | 0.59              |
| 14:FO:58:ILE:HG21 | 14:FO:90:VAL:HG21  | 1.85                     | 0.59              |
| 20:G2:1:A:C4'     | 20:G2:2:G:OP2      | 2.50                     | 0.59              |
| 20:G2:12:A:H2'    | 20:G2:13:A:H8      | 1.67                     | 0.59              |
| 22:GA:98:ALA:HB3  | 22:GA:101:ASN:ND2  | 2.18                     | 0.59              |
| 23:GB:171:GLN:NE2 | 1:H1:3273:U:H5''   | 2.18                     | 0.59              |
| 25:GD:82:ARG:O    | 25:GD:86:VAL:HG23  | 2.01                     | 0.59              |
| 27:GF:149:ASP:OD1 | 27:GF:149:ASP:C    | 2.46                     | 0.59              |
| 32:GK:110:PHE:CD2 | 32:GK:128:LYS:HD2  | 2.38                     | 0.59              |
| 39:GR:84:MET:CE   | 39:GR:144:ALA:HB2  | 2.33                     | 0.59              |
| 45:GX:11:ILE:HG13 | 45:GX:11:ILE:O     | 2.02                     | 0.59              |
| 1:H1:70:C:O2      | 1:H1:70:C:C2'      | 2.45                     | 0.59              |
| 1:H1:316:A:C2     | 1:H1:317:A:C4      | 2.91                     | 0.59              |
| 1:H1:635:A:C2'    | 1:H1:636:U:O5'     | 2.50                     | 0.59              |
| 1:H1:1435:C:H5'   | 1:H1:1435:C:H6     | 1.66                     | 0.59              |
| 1:H1:1752:G:H8    | 1:H1:1752:G:O5'    | 1.85                     | 0.59              |
| 1:H1:1923:G:O6    | 50:H1:4169:HOH:O   | 2.14                     | 0.59              |
| 1:H1:2353:C:O2    | 1:H1:2353:C:H2'    | 2.02                     | 0.59              |
| 1:H1:2388:G:O2'   | 1:H1:2389:G:OP2    | 2.19                     | 0.59              |
| 1:H1:2876:U:C4    | 1:H1:2899:C:C5     | 2.90                     | 0.59              |
| 8:HH:54:LYS:HD2   | 8:HH:108:LEU:HA    | 1.85                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:HL:49:CYS:SG    | 11:HL:51:VAL:HG23  | 2.43                     | 0.59              |
| 1:A1:92:G:H2'      | 1:A1:93:A:C8       | 2.37                     | 0.59              |
| 1:A1:93:A:H5''     | 32:BK:36:LYS:HB2   | 1.85                     | 0.59              |
| 1:A1:219:A:C2      | 1:A1:1416:U:C2'    | 2.84                     | 0.59              |
| 1:A1:629:A:H1'     | 1:A1:630:G:N7      | 2.17                     | 0.59              |
| 1:A1:2600:U:H2'    | 1:A1:2601:U:H6     | 1.66                     | 0.59              |
| 6:AF:112:MET:O     | 6:AF:116:LYS:HG3   | 2.03                     | 0.59              |
| 15:AP:58:PRO:O     | 15:AP:61:ALA:HB3   | 2.03                     | 0.59              |
| 23:BB:26:ARG:NH1   | 23:BB:176:ILE:O    | 2.26                     | 0.59              |
| 23:BB:117:ARG:NH1  | 23:BB:174:ASN:O    | 2.35                     | 0.59              |
| 25:BD:89:MET:HE1   | 25:BD:167:PHE:HB3  | 1.83                     | 0.59              |
| 30:BI:20:SER:HB3   | 30:BI:86:MET:HE1   | 1.84                     | 0.59              |
| 34:BM:228:PHE:HD2  | 34:BM:231:TRP:CD1  | 2.20                     | 0.59              |
| 41:BT:11:CYS:HG    | 41:BT:13:TYR:HD2   | 1.50                     | 0.59              |
| 45:BX:25:GLU:OE2   | 45:BX:52:ARG:NH2   | 2.18                     | 0.59              |
| 20:C2:13:A:H2'     | 20:C2:14:C:C6      | 2.37                     | 0.59              |
| 23:CB:103:THR:HG22 | 23:CB:104:THR:N    | 2.17                     | 0.59              |
| 27:CF:46:ARG:NE    | 1:D1:2518:A:H5'    | 2.18                     | 0.59              |
| 30:CI:10:ALA:HB1   | 30:CI:40:ILE:HG12  | 1.83                     | 0.59              |
| 30:CI:107:ILE:HG13 | 30:CI:159:ARG:NH1  | 2.17                     | 0.59              |
| 30:CI:127:ARG:O    | 1:D1:1343:G:H5''   | 2.03                     | 0.59              |
| 32:CK:145:CYS:CB   | 18:DU:177:VAL:HG21 | 2.33                     | 0.59              |
| 34:CM:166:ALA:HB1  | 34:CM:171:ILE:HD12 | 1.85                     | 0.59              |
| 35:CN:82:VAL:HA    | 35:CN:102:CYS:O    | 2.02                     | 0.59              |
| 39:CR:76:THR:O     | 39:CR:76:THR:HG22  | 2.02                     | 0.59              |
| 41:CT:22:ARG:NE    | 41:CT:32:PHE:CD2   | 2.71                     | 0.59              |
| 1:D1:155:A:C4'     | 1:D1:156:A:OP2     | 2.51                     | 0.59              |
| 1:D1:513:G:H2'     | 1:D1:514:U:H6      | 1.68                     | 0.59              |
| 1:D1:546:A:H2'     | 1:D1:547:U:H6      | 1.67                     | 0.59              |
| 1:D1:1048:U:C2'    | 1:D1:1049:U:H5''   | 2.25                     | 0.59              |
| 1:D1:1053:A:H1'    | 1:D1:1054:G:P      | 2.43                     | 0.59              |
| 1:D1:2101:G:H5'    | 1:D1:2101:G:C8     | 2.37                     | 0.59              |
| 1:D1:2277:U:C2'    | 1:D1:2278:G:OP1    | 2.51                     | 0.59              |
| 1:D1:2380:U:H4'    | 1:D1:2381:A:OP1    | 2.03                     | 0.59              |
| 5:DE:69:LEU:HD11   | 5:DE:114:ASP:H     | 1.67                     | 0.59              |
| 20:E2:44:A:OP1     | 2:FA:67:TYR:HB3    | 2.03                     | 0.59              |
| 20:E2:137:G:N2     | 33:EL:112:GLU:HG2  | 2.18                     | 0.59              |
| 23:EB:19:ARG:O     | 23:EB:271:HIS:CE1  | 2.55                     | 0.59              |
| 23:EB:56:ILE:HG21  | 23:EB:354:LEU:HD22 | 1.83                     | 0.59              |
| 24:EC:166:TYR:O    | 24:EC:222:THR:HB   | 2.03                     | 0.59              |
| 38:EQ:9:GLU:OE1    | 38:EQ:10:PRO:HD2   | 2.03                     | 0.59              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 38:EQ:97:LEU:O    | 38:EQ:100:LEU:HB2  | 2.03                     | 0.59              |
| 40:ES:15:ARG:O    | 40:ES:19:PHE:HD1   | 1.86                     | 0.59              |
| 40:ES:84:ILE:O    | 40:ES:84:ILE:HG22  | 2.02                     | 0.59              |
| 43:EV:164:THR:O   | 43:EV:168:LYS:HG3  | 2.02                     | 0.59              |
| 1:F1:169:A:N6     | 1:F1:251:A:C5      | 2.71                     | 0.59              |
| 1:F1:512:G:C2     | 1:F1:513:G:C4      | 2.91                     | 0.59              |
| 1:F1:979:U:C1'    | 17:FT:12:GLN:HE21  | 2.11                     | 0.59              |
| 1:F1:2380:U:H4'   | 1:F1:2381:A:OP1    | 2.02                     | 0.59              |
| 1:F1:2865:G:H2'   | 1:F1:2866:G:H8     | 1.67                     | 0.59              |
| 7:FG:8:ASP:HA     | 7:FG:11:GLN:NE2    | 2.17                     | 0.59              |
| 7:FG:60:ALA:HB3   | 7:FG:67:ILE:HD11   | 1.84                     | 0.59              |
| 14:FO:87:VAL:CG2  | 14:FO:115:HIS:CD2  | 2.86                     | 0.59              |
| 18:FU:100:LYS:CE  | 18:FU:102:ARG:HH21 | 2.16                     | 0.59              |
| 33:GL:16:SER:HB3  | 16:HQ:49:THR:HG23  | 1.85                     | 0.59              |
| 33:GL:55:ASN:HD22 | 1:H1:148:G:H5''    | 1.68                     | 0.59              |
| 33:GL:93:LYS:HE3  | 1:H1:275:U:O2      | 2.01                     | 0.59              |
| 38:GQ:133:ARG:NH2 | 1:H1:2351:A:N3     | 2.50                     | 0.59              |
| 1:H1:282:G:H2'    | 1:H1:282:G:N3      | 2.18                     | 0.59              |
| 1:H1:292:C:C5'    | 1:H1:292:C:H6      | 2.15                     | 0.59              |
| 1:H1:302:G:C2     | 1:H1:2766:A:C8     | 2.90                     | 0.59              |
| 1:H1:446:G:H2'    | 1:H1:447:G:C8      | 2.38                     | 0.59              |
| 1:H1:633:C:C2'    | 1:H1:634:G:OP1     | 2.51                     | 0.59              |
| 1:H1:1595:A:OP2   | 1:H1:1596:U:H5     | 1.86                     | 0.59              |
| 1:H1:2557:A:C2    | 1:H1:2558:U:C2     | 2.91                     | 0.59              |
| 1:H1:2906:G:H5''  | 1:H1:2906:G:H8     | 1.68                     | 0.59              |
| 1:H1:3185:G:H4'   | 1:H1:3186:G:OP2    | 2.02                     | 0.59              |
| 2:HA:14:LYS:HZ2   | 3:HB:52:TYR:HE1    | 1.50                     | 0.59              |
| 4:HC:14:LYS:HG3   | 4:HC:77:THR:OG1    | 2.02                     | 0.59              |
| 1:A1:453:A:H2'    | 1:A1:454:A:C8      | 2.38                     | 0.59              |
| 1:A1:596:A:H2'    | 1:A1:597:A:C8      | 2.38                     | 0.59              |
| 1:A1:919:A:H1'    | 1:A1:920:A:C2      | 2.38                     | 0.59              |
| 1:A1:1714:C:H2'   | 1:A1:1715:U:H5'    | 1.84                     | 0.59              |
| 1:A1:1742:G:C2    | 1:A1:1751:A:C2     | 2.91                     | 0.59              |
| 1:A1:1832:G:OP2   | 50:A1:4416:HOH:O   | 2.17                     | 0.59              |
| 1:A1:2244:G:H2'   | 1:A1:2245:G:C8     | 2.38                     | 0.59              |
| 1:A1:2744:C:O2'   | 37:BP:49:HIS:HD2   | 1.85                     | 0.59              |
| 1:A1:2761:U:O2    | 18:AU:190:TRP:CZ2  | 2.55                     | 0.59              |
| 1:A1:3045:A:H4'   | 1:A1:3046:A:OP1    | 2.03                     | 0.59              |
| 1:A1:3228:U:N3    | 5:AE:146:LYS:HG3   | 2.16                     | 0.59              |
| 8:AH:64:LYS:CG    | 8:AH:69:ASN:HD21   | 2.03                     | 0.59              |
| 13:AN:41:VAL:HG12 | 13:AN:43:VAL:CG2   | 2.33                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:AX:29:PRO:O     | 19:AX:30:ILE:HG22  | 2.03                     | 0.59              |
| 20:B2:145:C:H2'    | 20:B2:146:A:H8     | 1.68                     | 0.59              |
| 22:BA:105:ILE:CG2  | 22:BA:147:THR:HG21 | 2.33                     | 0.59              |
| 25:BD:115:LYS:HG2  | 25:BD:116:TYR:N    | 2.18                     | 0.59              |
| 32:BK:128:LYS:HB3  | 32:BK:129:TYR:CD1  | 2.37                     | 0.59              |
| 34:BM:18:THR:HG23  | 34:BM:18:THR:O     | 2.01                     | 0.59              |
| 34:BM:68:THR:HB    | 34:BM:71:CYS:O     | 2.03                     | 0.59              |
| 37:BP:6:GLY:H      | 37:BP:9:ARG:HD2    | 1.68                     | 0.59              |
| 22:CA:68:TYR:HE1   | 1:D1:2520:G:O6     | 1.85                     | 0.59              |
| 24:CC:69:ALA:HB3   | 24:CC:97:PHE:CZ    | 2.38                     | 0.59              |
| 24:CC:308:VAL:HG12 | 35:CN:40:ARG:HH11  | 1.68                     | 0.59              |
| 26:CE:171:ARG:NH2  | 1:D1:2886:G:OP2    | 2.35                     | 0.59              |
| 32:CK:81:TRP:CZ2   | 32:CK:123:VAL:CG2  | 2.85                     | 0.59              |
| 33:CL:15:GLN:NE2   | 1:D1:294:A:OP1     | 2.36                     | 0.59              |
| 33:CL:93:LYS:HG3   | 1:D1:288:A:C2      | 2.38                     | 0.59              |
| 33:CL:148:ILE:O    | 33:CL:151:ILE:HG22 | 2.02                     | 0.59              |
| 34:CM:38:ILE:HD12  | 37:CP:70:ARG:CZ    | 2.33                     | 0.59              |
| 47:CO:154:UNK:O    | 47:CO:157:UNK:HG3  | 2.03                     | 0.59              |
| 40:CS:34:LEU:HD23  | 40:CS:105:LEU:HB2  | 1.85                     | 0.59              |
| 1:D1:122:U:H2'     | 1:D1:123:C:H6      | 1.68                     | 0.59              |
| 1:D1:446:G:H2'     | 1:D1:447:G:H8      | 1.68                     | 0.59              |
| 1:D1:467:A:C6      | 1:D1:468:A:C6      | 2.91                     | 0.59              |
| 1:D1:499:U:H5''    | 1:D1:500:G:OP2     | 2.02                     | 0.59              |
| 1:D1:623:G:N2      | 1:D1:633:C:C2      | 2.71                     | 0.59              |
| 1:D1:1606:U:O2'    | 1:D1:1607:U:H5'    | 2.02                     | 0.59              |
| 1:D1:1937:G:N3     | 1:D1:2116:A:H2'    | 2.17                     | 0.59              |
| 1:D1:2244:G:H2'    | 1:D1:2245:G:C8     | 2.37                     | 0.59              |
| 1:D1:3344:U:H1'    | 1:D1:3345:A:OP1    | 2.03                     | 0.59              |
| 5:DE:4:GLY:N       | 5:DE:5:PRO:CD      | 2.66                     | 0.59              |
| 5:DE:124:LYS:HE2   | 5:DE:132:ALA:HB3   | 1.84                     | 0.59              |
| 9:DJ:5:CYS:SG      | 9:DJ:13:ILE:HD13   | 2.43                     | 0.59              |
| 9:DJ:117:ILE:HB    | 9:DJ:121:LEU:HD22  | 1.84                     | 0.59              |
| 12:DM:98:THR:HG22  | 12:DM:99:SER:N     | 2.18                     | 0.59              |
| 27:EF:196:VAL:CG1  | 27:EF:200:ASP:HB2  | 2.30                     | 0.59              |
| 39:ER:38:PHE:CD1   | 1:F1:1605:G:C2     | 2.90                     | 0.59              |
| 40:ES:34:LEU:HD23  | 40:ES:105:LEU:HB2  | 1.83                     | 0.59              |
| 42:EU:25:LEU:O     | 42:EU:28:GLU:HB3   | 2.02                     | 0.59              |
| 1:F1:218:G:H8      | 1:F1:218:G:OP1     | 1.86                     | 0.59              |
| 1:F1:898:C:H3'     | 1:F1:899:U:H4'     | 1.83                     | 0.59              |
| 1:F1:926:A:H2'     | 1:F1:927:G:H8      | 1.65                     | 0.59              |
| 1:F1:1464:U:H2'    | 1:F1:1465:U:C6     | 2.38                     | 0.59              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1702:G:N7     | 12:FM:76:ARG:NH2   | 2.48                     | 0.59              |
| 1:F1:3146:G:O6     | 1:F1:3248:C:N4     | 2.36                     | 0.59              |
| 6:FF:12:VAL:HG11   | 6:FF:81:LEU:HD11   | 1.85                     | 0.59              |
| 6:FF:111:VAL:O     | 6:FF:115:LYS:HG3   | 2.03                     | 0.59              |
| 11:FL:5:ILE:HD11   | 11:FL:22:LYS:HG2   | 1.83                     | 0.59              |
| 19:FX:5:ALA:O      | 19:FX:8:GLU:HG3    | 2.02                     | 0.59              |
| 21:G3:40:C:H2'     | 21:G3:40:C:O2      | 2.02                     | 0.59              |
| 23:GB:253:TRP:CE3  | 1:H1:2929:A:C8     | 2.91                     | 0.59              |
| 26:GE:73:SER:HA    | 26:GE:76:LYS:CE    | 2.33                     | 0.59              |
| 27:GF:65:LYS:HE2   | 27:GF:225:TRP:HE3  | 1.68                     | 0.59              |
| 30:GI:64:ASN:C     | 30:GI:64:ASN:HD22  | 2.10                     | 0.59              |
| 37:GP:25:VAL:O     | 37:GP:26:ARG:HB2   | 2.01                     | 0.59              |
| 44:GW:11:THR:HG1   | 44:GW:105:THR:HG23 | 1.66                     | 0.59              |
| 1:H1:141:C:O2'     | 1:H1:142:A:H5'     | 2.03                     | 0.59              |
| 1:H1:487:G:OP2     | 18:HU:161:LYS:NZ   | 2.32                     | 0.59              |
| 1:H1:827:C:H2'     | 1:H1:828:C:C6      | 2.38                     | 0.59              |
| 1:H1:1772:G:H2'    | 1:H1:1773:G:H5'    | 1.83                     | 0.59              |
| 1:H1:1942:C:C5'    | 1:H1:1942:C:H6     | 2.16                     | 0.59              |
| 1:H1:2149:U:C2'    | 1:H1:2150:U:C5'    | 2.81                     | 0.59              |
| 1:H1:2552:A:N6     | 1:H1:2568:G:O2'    | 2.36                     | 0.59              |
| 1:H1:2718:U:P      | 50:H1:4319:HOH:O   | 2.61                     | 0.59              |
| 1:H1:2859:G:N7     | 50:H1:4079:HOH:O   | 2.31                     | 0.59              |
| 1:H1:3064:A:N6     | 50:H1:3920:HOH:O   | 2.35                     | 0.59              |
| 1:H1:3227:A:O2'    | 1:H1:3228:U:OP1    | 2.18                     | 0.59              |
| 3:HB:2:GLY:N       | 50:HB:103:HOH:O    | 2.35                     | 0.59              |
| 9:HJ:200:ASN:OD1   | 9:HJ:200:ASN:C     | 2.45                     | 0.59              |
| 13:HN:114:LEU:HD22 | 13:HN:118:PHE:HE1  | 1.67                     | 0.59              |
| 18:HU:176:LYS:O    | 18:HU:180:ILE:HG13 | 2.02                     | 0.59              |
| 1:A1:566:U:H2'     | 1:A1:567:C:H5'     | 1.85                     | 0.58              |
| 1:A1:761:A:H2'     | 1:A1:762:G:O4'     | 2.03                     | 0.58              |
| 1:A1:909:A:OP1     | 2:AA:5:THR:OG1     | 2.21                     | 0.58              |
| 1:A1:2997:A:C2'    | 1:A1:2998:G:H5'    | 2.33                     | 0.58              |
| 1:A1:3178:U:H5''   | 6:AF:97:LYS:NZ     | 2.18                     | 0.58              |
| 5:AE:173:TYR:CD2   | 6:AF:106:PHE:HA    | 2.38                     | 0.58              |
| 13:AN:33:THR:HB    | 13:AN:35:ASP:H     | 1.68                     | 0.58              |
| 15:AP:74:LYS:O     | 15:AP:74:LYS:HG3   | 2.03                     | 0.58              |
| 18:AU:60:THR:HG21  | 32:BK:68:ASN:HB3   | 1.80                     | 0.58              |
| 18:AU:168:ASN:O    | 18:AU:172:LEU:HG   | 2.02                     | 0.58              |
| 20:B2:12:A:H2'     | 20:B2:13:A:H8      | 1.67                     | 0.58              |
| 22:BA:20:HIS:HD2   | 22:BA:193:LYS:O    | 1.85                     | 0.58              |
| 24:BC:137:ALA:C    | 24:BC:138:LEU:HD23 | 2.28                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:302:ASN:OD1  | 43:BV:11:LYS:NZ    | 2.36                     | 0.58              |
| 39:BR:84:MET:CE    | 39:BR:144:ALA:HB2  | 2.33                     | 0.58              |
| 22:CA:66:ASP:OD1   | 22:CA:68:TYR:N     | 2.32                     | 0.58              |
| 27:CF:131:HIS:CE1  | 1:D1:117:G:C4      | 2.91                     | 0.58              |
| 28:CG:13:UNK:O     | 28:CG:17:UNK:HG2   | 2.02                     | 0.58              |
| 29:CH:140:VAL:HG12 | 29:CH:141:LYS:N    | 2.18                     | 0.58              |
| 37:CP:146:ASN:HB3  | 19:DX:39:LEU:HD23  | 1.85                     | 0.58              |
| 38:CQ:36:ARG:NH1   | 38:CQ:64:ARG:HG3   | 2.18                     | 0.58              |
| 43:CV:88:GLY:HA3   | 1:D1:1185:A:H5''   | 1.84                     | 0.58              |
| 1:D1:24:A:N3       | 1:D1:327:U:O2'     | 2.27                     | 0.58              |
| 1:D1:432:G:H4'     | 1:D1:433:C:OP1     | 2.03                     | 0.58              |
| 1:D1:530:C:H2'     | 1:D1:531:C:C6      | 2.38                     | 0.58              |
| 1:D1:1107:A:H5''   | 1:D1:1108:A:OP2    | 2.02                     | 0.58              |
| 1:D1:1415:C:O2     | 1:D1:1415:C:H2'    | 2.03                     | 0.58              |
| 1:D1:1580:G:H8     | 1:D1:1580:G:O5'    | 1.84                     | 0.58              |
| 1:D1:1662:A:H5'    | 11:DL:76:ARG:CZ    | 2.31                     | 0.58              |
| 1:D1:2550:U:H5'    | 1:D1:2551:A:O5'    | 2.01                     | 0.58              |
| 1:D1:3057:U:H2'    | 50:D1:4511:HOH:O   | 2.01                     | 0.58              |
| 1:D1:3091:G:O2'    | 1:D1:3092:A:H5'    | 2.02                     | 0.58              |
| 1:D1:3167:U:O2'    | 19:DX:188:THR:HB   | 2.03                     | 0.58              |
| 1:D1:3332:A:H3'    | 1:D1:3333:G:H5''   | 1.84                     | 0.58              |
| 9:DJ:71:LEU:HD13   | 9:DJ:97:ILE:HD11   | 1.83                     | 0.58              |
| 23:EB:216:LEU:HD21 | 23:EB:274:THR:HG23 | 1.84                     | 0.58              |
| 23:EB:378:PHE:CG   | 1:F1:3325:G:N2     | 2.71                     | 0.58              |
| 25:ED:50:ALA:HB1   | 25:ED:59:ILE:HG23  | 1.83                     | 0.58              |
| 34:EM:39:GLN:HG2   | 34:EM:40:ASP:H     | 1.67                     | 0.58              |
| 34:EM:83:LEU:HB3   | 34:EM:88:VAL:HG21  | 1.84                     | 0.58              |
| 34:EM:153:THR:O    | 34:EM:153:THR:HG22 | 2.02                     | 0.58              |
| 36:EO:15:LEU:HD21  | 36:EO:45:ILE:HD13  | 1.85                     | 0.58              |
| 37:EP:41:ASP:HB3   | 37:EP:97:ARG:NH1   | 2.18                     | 0.58              |
| 1:F1:236:G:H2'     | 1:F1:237:A:H8      | 1.68                     | 0.58              |
| 1:F1:439:A:C2'     | 1:F1:440:C:O5'     | 2.51                     | 0.58              |
| 1:F1:549:G:C6      | 1:F1:619:G:N2      | 2.71                     | 0.58              |
| 1:F1:558:U:H2'     | 1:F1:559:G:H8      | 1.65                     | 0.58              |
| 1:F1:631:G:O2'     | 1:F1:632:G:H5'     | 2.02                     | 0.58              |
| 1:F1:801:U:H5'     | 17:FT:37:PRO:HB3   | 1.84                     | 0.58              |
| 1:F1:1870:C:H2'    | 1:F1:1870:C:O2     | 2.03                     | 0.58              |
| 1:F1:2308:A:P      | 50:F1:4380:HOH:O   | 2.60                     | 0.58              |
| 1:F1:2390:G:C8     | 50:F1:3945:HOH:O   | 2.52                     | 0.58              |
| 1:F1:3071:C:O2'    | 1:F1:3072:G:H5'    | 2.02                     | 0.58              |
| 1:F1:3298:U:C4'    | 1:F1:3299:G:OP2    | 2.51                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:FE:69:LEU:HD11   | 5:FE:114:ASP:H     | 1.67                     | 0.58              |
| 9:FJ:17:CYS:HB2    | 9:FJ:25:LEU:O      | 2.03                     | 0.58              |
| 18:FU:52:LEU:O     | 18:FU:94:LYS:HB2   | 2.03                     | 0.58              |
| 24:GC:148:ARG:HE   | 24:GC:187:ARG:HD2  | 1.68                     | 0.58              |
| 24:GC:316:THR:O    | 24:GC:317:HIS:HD2  | 1.86                     | 0.58              |
| 32:GK:75:VAL:HG23  | 32:GK:109:PHE:CB   | 2.32                     | 0.58              |
| 34:GM:90:THR:O     | 34:GM:231:TRP:HZ3  | 1.86                     | 0.58              |
| 36:GO:84:THR:O     | 36:GO:88:ARG:HG3   | 2.03                     | 0.58              |
| 1:H1:577:C:O2'     | 1:H1:578:G:H5'     | 2.02                     | 0.58              |
| 1:H1:1185:A:O2'    | 1:H1:1357:A:H2     | 1.85                     | 0.58              |
| 1:H1:1190:U:H2'    | 1:H1:1191:G:C8     | 2.37                     | 0.58              |
| 1:H1:1798:U:H5'    | 1:H1:1799:C:O4'    | 2.03                     | 0.58              |
| 1:H1:2606:U:H4'    | 1:H1:2633:C:C5     | 2.38                     | 0.58              |
| 1:H1:3227:A:O2'    | 5:HE:86:PRO:HG3    | 2.01                     | 0.58              |
| 14:HO:118:ASN:O    | 14:HO:122:GLN:HG2  | 2.03                     | 0.58              |
| 1:A1:169:A:N7      | 1:A1:250:U:O4      | 2.36                     | 0.58              |
| 1:A1:562:G:O3'     | 43:BV:63:LYS:NZ    | 2.37                     | 0.58              |
| 1:A1:926:A:H2'     | 1:A1:927:G:H8      | 1.66                     | 0.58              |
| 1:A1:1737:A:O2'    | 1:A1:1738:A:H8     | 1.83                     | 0.58              |
| 1:A1:2100:A:C2     | 1:A1:2101:G:C8     | 2.91                     | 0.58              |
| 1:A1:2277:U:C2'    | 1:A1:2278:G:OP1    | 2.51                     | 0.58              |
| 1:A1:2536:A:H2'    | 1:A1:2537:C:C6     | 2.38                     | 0.58              |
| 7:AG:27:TYR:CE2    | 7:AG:52:ARG:HG2    | 2.38                     | 0.58              |
| 19:AX:16:MET:HG2   | 19:AX:17:LYS:H     | 1.68                     | 0.58              |
| 28:BG:28:UNK:HB1   | 28:BG:112:UNK:HG3  | 1.84                     | 0.58              |
| 29:BH:153:THR:O    | 29:BH:156:LYS:HB3  | 2.04                     | 0.58              |
| 34:BM:153:THR:HG22 | 34:BM:153:THR:O    | 2.04                     | 0.58              |
| 40:BS:30:MET:HE1   | 40:BS:77:TRP:HA    | 1.85                     | 0.58              |
| 20:C2:1:A:C4'      | 20:C2:2:G:OP2      | 2.51                     | 0.58              |
| 21:C3:59:C:H2'     | 21:C3:60:C:H6      | 1.68                     | 0.58              |
| 21:C3:74:A:O2'     | 19:DX:64:LYS:NZ    | 2.23                     | 0.58              |
| 22:CA:201:ARG:HD2  | 1:D1:2182:G:O6     | 2.03                     | 0.58              |
| 22:CA:211:PRO:HA   | 50:CA:301:HOH:O    | 2.02                     | 0.58              |
| 24:CC:81:ILE:HD13  | 24:CC:101:CYS:SG   | 2.44                     | 0.58              |
| 24:CC:119:ARG:HH21 | 1:D1:705:A:H4'     | 1.68                     | 0.58              |
| 25:CD:51:ARG:NH2   | 1:D1:2656:A:OP1    | 2.28                     | 0.58              |
| 28:CG:28:UNK:HB1   | 28:CG:112:UNK:HG3  | 1.83                     | 0.58              |
| 32:CK:60:MET:C     | 35:CN:172:ARG:HH12 | 2.10                     | 0.58              |
| 32:CK:132:LYS:HG3  | 1:D1:739:G:OP1     | 2.03                     | 0.58              |
| 38:CQ:71:ARG:HD3   | 1:D1:3269:G:H1'    | 1.85                     | 0.58              |
| 40:CS:6:GLU:OE1    | 40:CS:6:GLU:N      | 2.33                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:CV:82:PHE:CZ    | 43:CV:111:GLY:HA3  | 2.37                     | 0.58              |
| 1:D1:292:C:C5'     | 1:D1:292:C:H6      | 2.15                     | 0.58              |
| 1:D1:645:A:H2'     | 1:D1:645:A:N3      | 2.18                     | 0.58              |
| 1:D1:1207:A:O2'    | 1:D1:1208:U:P      | 2.59                     | 0.58              |
| 1:D1:1306:C:H2'    | 1:D1:1307:C:C6     | 2.38                     | 0.58              |
| 1:D1:1595:A:OP2    | 1:D1:1596:U:H5     | 1.86                     | 0.58              |
| 1:D1:2239:A:C2'    | 1:D1:2240:C:H5'    | 2.34                     | 0.58              |
| 1:D1:2906:G:H8     | 1:D1:2906:G:H5''   | 1.67                     | 0.58              |
| 11:DL:49:CYS:SG    | 11:DL:51:VAL:HG23  | 2.43                     | 0.58              |
| 12:DM:35:PHE:CD1   | 12:DM:65:ILE:HD12  | 2.37                     | 0.58              |
| 13:DN:113:THR:O    | 13:DN:117:VAL:HG23 | 2.03                     | 0.58              |
| 20:E2:145:C:H2'    | 20:E2:146:A:H8     | 1.66                     | 0.58              |
| 21:E3:20:U:C2'     | 21:E3:21:G:H5'     | 2.34                     | 0.58              |
| 21:E3:28:C:H5''    | 25:ED:137:ARG:HG2  | 1.85                     | 0.58              |
| 21:E3:116:A:O3'    | 34:EM:260:ARG:NH2  | 2.36                     | 0.58              |
| 32:EK:8:THR:CG2    | 1:F1:685:G:H5'     | 2.32                     | 0.58              |
| 32:EK:73:PRO:HB2   | 32:EK:109:PHE:HA   | 1.85                     | 0.58              |
| 33:EL:6:TYR:CD1    | 16:FQ:41:VAL:HG13  | 2.38                     | 0.58              |
| 34:EM:6:VAL:O      | 34:EM:6:VAL:HG13   | 2.03                     | 0.58              |
| 40:ES:34:LEU:HD12  | 40:ES:44:VAL:O     | 2.03                     | 0.58              |
| 43:EV:200:TRP:CG   | 43:EV:201:PRO:HD2  | 2.38                     | 0.58              |
| 1:F1:114:A:H4'     | 16:FQ:37:ARG:NH2   | 2.16                     | 0.58              |
| 1:F1:223:C:HO2'    | 1:F1:224:C:P       | 2.26                     | 0.58              |
| 1:F1:672:C:N3      | 1:F1:2369:C:O2'    | 2.35                     | 0.58              |
| 1:F1:1742:G:C2     | 1:F1:1751:A:C2     | 2.90                     | 0.58              |
| 1:F1:2149:U:C2'    | 1:F1:2150:U:C5'    | 2.81                     | 0.58              |
| 1:F1:2557:A:C2     | 1:F1:2564:G:C4     | 2.91                     | 0.58              |
| 1:F1:3228:U:H5''   | 1:F1:3229:C:H5''   | 1.84                     | 0.58              |
| 5:FE:54:LEU:HB2    | 5:FE:94:TYR:O      | 2.03                     | 0.58              |
| 8:FH:33:ASN:HA     | 8:FH:94:ASN:ND2    | 2.18                     | 0.58              |
| 13:FN:114:LEU:O    | 13:FN:118:PHE:HD1  | 1.85                     | 0.58              |
| 14:FO:32:THR:HG22  | 14:FO:34:ARG:H     | 1.67                     | 0.58              |
| 18:FU:91:ILE:HG22  | 18:FU:117:TYR:HE2  | 1.67                     | 0.58              |
| 18:FU:161:LYS:O    | 18:FU:161:LYS:HG3  | 2.02                     | 0.58              |
| 21:G3:93:G:H4'     | 19:HX:96:GLN:CD    | 2.28                     | 0.58              |
| 23:GB:105:VAL:HG21 | 23:GB:146:LEU:HD23 | 1.85                     | 0.58              |
| 25:GD:115:LYS:HG2  | 25:GD:116:TYR:N    | 2.17                     | 0.58              |
| 27:GF:68:PRO:HD3   | 27:GF:225:TRP:NE1  | 2.16                     | 0.58              |
| 27:GF:153:ILE:HG22 | 27:GF:157:ILE:HG13 | 1.85                     | 0.58              |
| 29:GH:43:VAL:HG11  | 29:GH:197:VAL:CG2  | 2.33                     | 0.58              |
| 35:GN:91:GLU:CG    | 1:H1:701:A:H3'     | 2.30                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:GN:173:LYS:CE   | 1:H1:87:A:OP2      | 2.51                     | 0.58              |
| 38:GQ:71:ARG:HD3   | 1:H1:3269:G:H1'    | 1.85                     | 0.58              |
| 39:GR:76:THR:HG22  | 39:GR:76:THR:O     | 2.02                     | 0.58              |
| 43:GV:83:ALA:O     | 43:GV:111:GLY:HA2  | 2.03                     | 0.58              |
| 1:H1:46:A:C4'      | 1:H1:47:G:O5'      | 2.51                     | 0.58              |
| 1:H1:123:C:H2'     | 1:H1:124:U:C6      | 2.39                     | 0.58              |
| 1:H1:268:G:N2      | 1:H1:294:A:OP2     | 2.32                     | 0.58              |
| 1:H1:1184:U:H2'    | 1:H1:1185:A:O4'    | 2.03                     | 0.58              |
| 1:H1:1196:A:N6     | 1:H1:1357:A:C8     | 2.71                     | 0.58              |
| 1:H1:1606:U:O2'    | 1:H1:1607:U:H5'    | 2.02                     | 0.58              |
| 1:H1:2265:A:H8     | 1:H1:2265:A:H5''   | 1.68                     | 0.58              |
| 1:H1:2882:U:H2'    | 1:H1:2883:G:H8     | 1.68                     | 0.58              |
| 1:H1:3190:A:N6     | 1:H1:3191:G:N2     | 2.51                     | 0.58              |
| 5:HE:173:TYR:CG    | 6:HF:106:PHE:CD1   | 2.92                     | 0.58              |
| 17:HT:50:ASP:OD1   | 17:HT:51:PRO:HD2   | 2.03                     | 0.58              |
| 1:A1:71:U:HO2'     | 1:A1:72:A:P        | 2.18                     | 0.58              |
| 1:A1:147:U:H1'     | 27:BF:155:LEU:HD13 | 1.85                     | 0.58              |
| 1:A1:294:A:OP1     | 33:BL:15:GLN:NE2   | 2.36                     | 0.58              |
| 1:A1:424:G:H2'     | 1:A1:425:U:H5'     | 1.85                     | 0.58              |
| 1:A1:546:A:H2'     | 1:A1:547:U:H6      | 1.68                     | 0.58              |
| 1:A1:619:G:H4'     | 1:A1:620:A:N3      | 2.17                     | 0.58              |
| 1:A1:644:A:H2'     | 1:A1:645:A:H4'     | 1.84                     | 0.58              |
| 1:A1:805:A:H5'     | 35:BN:162:HIS:O    | 2.04                     | 0.58              |
| 1:A1:1189:U:H4'    | 45:BX:59:PHE:CE1   | 2.38                     | 0.58              |
| 1:A1:1973:A:H2'    | 1:A1:1974:U:C6     | 2.39                     | 0.58              |
| 1:A1:2397:A:H1'    | 1:A1:2859:G:O4'    | 2.02                     | 0.58              |
| 7:AG:13:LYS:HG2    | 7:AG:14:LEU:H      | 1.67                     | 0.58              |
| 12:AM:35:PHE:CE1   | 12:AM:39:LEU:HD11  | 2.38                     | 0.58              |
| 14:AO:25:THR:O     | 45:BX:86:ILE:HD13  | 2.03                     | 0.58              |
| 14:AO:87:VAL:CG2   | 14:AO:115:HIS:CD2  | 2.87                     | 0.58              |
| 23:BB:24:HIS:CE1   | 23:BB:28:ARG:NH1   | 2.64                     | 0.58              |
| 24:BC:166:TYR:O    | 24:BC:222:THR:HB   | 2.02                     | 0.58              |
| 24:BC:295:ILE:HG22 | 24:BC:299:ILE:HG13 | 1.86                     | 0.58              |
| 27:BF:149:ASP:OD2  | 27:BF:176:LYS:HG2  | 2.03                     | 0.58              |
| 27:BF:183:VAL:O    | 27:BF:183:VAL:HG12 | 2.02                     | 0.58              |
| 29:BH:140:VAL:HG12 | 29:BH:141:LYS:N    | 2.19                     | 0.58              |
| 34:BM:122:GLN:HG2  | 34:BM:124:LYS:O    | 2.04                     | 0.58              |
| 21:C3:20:U:C2'     | 21:C3:21:G:H5'     | 2.33                     | 0.58              |
| 24:CC:295:ILE:HG22 | 24:CC:299:ILE:HG13 | 1.86                     | 0.58              |
| 29:CH:169:GLN:O    | 29:CH:178:ARG:HG3  | 2.03                     | 0.58              |
| 42:CU:22:LEU:HD21  | 42:CU:59:LEU:HD21  | 1.86                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:169:A:N6      | 1:D1:251:A:C4      | 2.70                     | 0.58              |
| 1:D1:361:A:H2'     | 1:D1:362:G:C5'     | 2.22                     | 0.58              |
| 1:D1:1358:U:H4'    | 1:D1:1359:A:OP2    | 2.04                     | 0.58              |
| 1:D1:1394:G:H8     | 1:D1:1394:G:O5'    | 1.87                     | 0.58              |
| 1:D1:1869:G:O2'    | 2:DA:5:THR:HG22    | 2.02                     | 0.58              |
| 5:DE:63:VAL:HG12   | 5:DE:76:VAL:HG13   | 1.83                     | 0.58              |
| 14:DO:87:VAL:CG2   | 14:DO:115:HIS:CD2  | 2.86                     | 0.58              |
| 19:DX:5:ALA:O      | 19:DX:8:GLU:HG3    | 2.02                     | 0.58              |
| 22:EA:98:ALA:HB3   | 22:EA:101:ASN:ND2  | 2.17                     | 0.58              |
| 23:EB:117:ARG:NH1  | 23:EB:174:ASN:O    | 2.34                     | 0.58              |
| 24:EC:275:THR:HG22 | 24:EC:276:THR:N    | 2.18                     | 0.58              |
| 27:EF:125:LEU:HD11 | 27:EF:191:VAL:CG1  | 2.32                     | 0.58              |
| 27:EF:133:THR:O    | 27:EF:137:GLU:HG3  | 2.03                     | 0.58              |
| 32:EK:50:TRP:HD1   | 35:EN:156:PRO:HD2  | 1.67                     | 0.58              |
| 35:EN:166:TYR:CE1  | 1:F1:692:A:H4'     | 2.37                     | 0.58              |
| 46:EY:8:VAL:HG13   | 46:EY:11:THR:HB    | 1.85                     | 0.58              |
| 1:F1:281:G:H2'     | 1:F1:285:U:C6      | 2.39                     | 0.58              |
| 1:F1:292:C:C5'     | 1:F1:292:C:H6      | 2.16                     | 0.58              |
| 1:F1:467:A:C6      | 1:F1:468:A:C6      | 2.91                     | 0.58              |
| 1:F1:566:U:H2'     | 1:F1:567:C:H5'     | 1.85                     | 0.58              |
| 1:F1:842:A:C8      | 2:FA:15:THR:CG2    | 2.82                     | 0.58              |
| 1:F1:1050:C:H2'    | 1:F1:1051:C:H1'    | 1.84                     | 0.58              |
| 1:F1:1598:C:C6     | 1:F1:1599:G:C8     | 2.91                     | 0.58              |
| 1:F1:1937:G:N3     | 1:F1:2116:A:H2'    | 2.18                     | 0.58              |
| 1:F1:2132:U:H5''   | 50:F1:3909:HOH:O   | 2.03                     | 0.58              |
| 1:F1:3167:U:O2'    | 19:FX:188:THR:HB   | 2.03                     | 0.58              |
| 3:FB:32:ASP:OD1    | 3:FB:32:ASP:N      | 2.31                     | 0.58              |
| 11:FL:73:THR:HG22  | 11:FL:74:VAL:H     | 1.67                     | 0.58              |
| 22:GA:32:VAL:HA    | 22:GA:124:ARG:HH11 | 1.67                     | 0.58              |
| 23:GB:30:ARG:NH2   | 1:H1:3127:U:C6     | 2.72                     | 0.58              |
| 26:GE:178:TYR:HB3  | 10:HK:89:TYR:CE2   | 2.38                     | 0.58              |
| 30:GI:80:TRP:CH2   | 30:GI:84:ARG:NH1   | 2.72                     | 0.58              |
| 32:GK:88:THR:CG2   | 18:HU:164:LYS:NZ   | 2.65                     | 0.58              |
| 35:GN:89:ASN:HD22  | 35:GN:109:THR:HG21 | 1.66                     | 0.58              |
| 35:GN:158:GLN:CB   | 50:H1:4322:HOH:O   | 2.31                     | 0.58              |
| 37:GP:34:TYR:CD1   | 37:GP:72:ILE:HD11  | 2.38                     | 0.58              |
| 38:GQ:131:THR:HG23 | 1:H1:1533:G:N2     | 2.15                     | 0.58              |
| 42:GU:97:THR:HG22  | 42:GU:98:LYS:N     | 2.17                     | 0.58              |
| 42:GU:118:ARG:HH11 | 18:HU:123:LEU:HD21 | 1.67                     | 0.58              |
| 43:GV:51:GLU:O     | 43:GV:54:ALA:HB3   | 2.03                     | 0.58              |
| 1:H1:146:U:H6      | 1:H1:146:U:H5''    | 1.68                     | 0.58              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:H1:164:A:H2'     | 1:H1:165:C:H5'    | 1.83                     | 0.58              |
| 1:H1:281:G:H2'     | 1:H1:285:U:C6     | 2.38                     | 0.58              |
| 1:H1:304:U:C2'     | 1:H1:305:A:OP2    | 2.50                     | 0.58              |
| 1:H1:644:A:H2'     | 1:H1:645:A:H4'    | 1.83                     | 0.58              |
| 1:H1:645:A:H2'     | 1:H1:645:A:N3     | 2.17                     | 0.58              |
| 1:H1:801:U:O2      | 1:H1:2708:U:O2    | 2.21                     | 0.58              |
| 1:H1:861:A:H62     | 1:H1:882:G:H1'    | 1.68                     | 0.58              |
| 1:H1:1047:G:C2'    | 1:H1:1048:U:C5'   | 2.80                     | 0.58              |
| 1:H1:1724:U:O2'    | 1:H1:1725:A:H5'   | 2.04                     | 0.58              |
| 1:H1:1933:A:N7     | 50:H1:3910:HOH:O  | 2.32                     | 0.58              |
| 1:H1:2263:U:H3'    | 1:H1:2264:U:H5''  | 1.84                     | 0.58              |
| 1:H1:2292:U:H2'    | 1:H1:2294:A:N7    | 2.17                     | 0.58              |
| 7:HG:55:GLU:HG3    | 13:HN:81:MET:HE1  | 1.84                     | 0.58              |
| 1:A1:41:A:O2'      | 1:A1:42:U:H5'     | 2.01                     | 0.58              |
| 1:A1:439:A:C2'     | 1:A1:440:C:O5'    | 2.52                     | 0.58              |
| 1:A1:530:C:H2'     | 1:A1:531:C:H6     | 1.68                     | 0.58              |
| 1:A1:842:A:N7      | 2:AA:15:THR:HG23  | 2.18                     | 0.58              |
| 1:A1:1101:U:C5'    | 17:AT:49:ASN:HD22 | 2.10                     | 0.58              |
| 1:A1:1152:U:OP1    | 29:BH:15:LYS:HE3  | 2.03                     | 0.58              |
| 1:A1:1343:G:H5''   | 30:BI:127:ARG:O   | 2.03                     | 0.58              |
| 1:A1:1593:A:C2     | 1:A1:1601:U:O2    | 2.56                     | 0.58              |
| 1:A1:1606:U:O2'    | 1:A1:1607:U:H5'   | 2.03                     | 0.58              |
| 1:A1:1798:U:H5'    | 1:A1:1799:C:O4'   | 2.03                     | 0.58              |
| 1:A1:1845:U:H2'    | 1:A1:1845:U:O2    | 2.03                     | 0.58              |
| 1:A1:2268:G:O2'    | 1:A1:2269:U:OP2   | 2.21                     | 0.58              |
| 1:A1:2569:A:O2'    | 1:A1:2570:U:OP1   | 2.19                     | 0.58              |
| 1:A1:2886:G:H4'    | 1:A1:2887:C:OP2   | 2.04                     | 0.58              |
| 5:AE:19:TYR:HD2    | 14:AO:108:LEU:HB3 | 1.69                     | 0.58              |
| 12:AM:15:LEU:HD23  | 12:AM:73:PHE:HB3  | 1.86                     | 0.58              |
| 22:BA:210:HIS:CD2  | 22:BA:212:HIS:HB2 | 2.38                     | 0.58              |
| 23:BB:57:LEU:HD11  | 23:BB:71:GLU:HB3  | 1.86                     | 0.58              |
| 26:BE:73:SER:HA    | 26:BE:76:LYS:CE   | 2.32                     | 0.58              |
| 27:BF:69:GLN:OE1   | 33:BL:18:LEU:HD22 | 2.03                     | 0.58              |
| 37:BP:21:THR:HA    | 37:BP:24:HIS:HD2  | 1.67                     | 0.58              |
| 38:BQ:25:ARG:HG3   | 38:BQ:143:ASN:ND2 | 2.18                     | 0.58              |
| 38:BQ:134:ALA:O    | 38:BQ:135:HIS:HB2 | 2.02                     | 0.58              |
| 45:BX:42:ASN:HD22  | 45:BX:45:ARG:N    | 1.91                     | 0.58              |
| 45:BX:98:ILE:N     | 45:BX:123:ASN:ND2 | 2.52                     | 0.58              |
| 24:CC:328:ASN:OD1  | 24:CC:329:ALA:N   | 2.36                     | 0.58              |
| 32:CK:75:VAL:HG12  | 32:CK:76:ASN:N    | 2.18                     | 0.58              |
| 33:CL:121:VAL:HG11 | 33:CL:131:GLU:CD  | 2.28                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:CN:21:LYS:O     | 1:D1:696:A:C5'     | 2.51                     | 0.58              |
| 47:CO:24:LEU:CD2   | 47:CO:50:VAL:HG22  | 2.33                     | 0.58              |
| 45:CX:47:ARG:NH2   | 1:D1:1393:A:O3'    | 2.34                     | 0.58              |
| 1:D1:114:A:H4'     | 16:DQ:37:ARG:NH2   | 2.12                     | 0.58              |
| 1:D1:169:A:N7      | 1:D1:251:A:N6      | 2.50                     | 0.58              |
| 1:D1:280:G:C2'     | 1:D1:281:G:O5'     | 2.51                     | 0.58              |
| 1:D1:418:G:C8      | 1:D1:418:G:C3'     | 2.83                     | 0.58              |
| 1:D1:633:C:C2'     | 1:D1:634:G:OP1     | 2.50                     | 0.58              |
| 1:D1:1918:U:H2'    | 1:D1:1919:A:H5'    | 1.86                     | 0.58              |
| 1:D1:1941:C:H2'    | 1:D1:1942:C:H5''   | 1.84                     | 0.58              |
| 1:D1:2132:U:H2'    | 1:D1:2138:A:N6     | 2.18                     | 0.58              |
| 1:D1:3146:G:O6     | 1:D1:3248:C:N4     | 2.37                     | 0.58              |
| 6:DF:111:VAL:O     | 6:DF:115:LYS:HG3   | 2.03                     | 0.58              |
| 7:DG:71:VAL:O      | 7:DG:71:VAL:HG12   | 2.01                     | 0.58              |
| 16:DQ:44:VAL:O     | 16:DQ:48:VAL:HG23  | 2.02                     | 0.58              |
| 22:EA:5:ILE:HG22   | 22:EA:6:ARG:N      | 2.19                     | 0.58              |
| 24:EC:65:MET:HE3   | 24:EC:105:ARG:HH11 | 1.69                     | 0.58              |
| 25:ED:12:VAL:HG21  | 25:ED:162:TRP:HD1  | 1.67                     | 0.58              |
| 29:EH:153:THR:O    | 29:EH:156:LYS:HB3  | 2.04                     | 0.58              |
| 38:EQ:72:THR:CG2   | 38:EQ:74:GLN:HG3   | 2.34                     | 0.58              |
| 39:ER:51:TYR:CZ    | 42:EU:85:ARG:NH2   | 2.72                     | 0.58              |
| 44:EW:72:VAL:HG11  | 44:EW:92:VAL:HG13  | 1.83                     | 0.58              |
| 46:EY:2:ALA:N      | 1:F1:877:U:O4      | 2.37                     | 0.58              |
| 1:F1:1306:C:H2'    | 1:F1:1307:C:C6     | 2.37                     | 0.58              |
| 1:F1:2100:A:C2     | 1:F1:2101:G:C8     | 2.91                     | 0.58              |
| 1:F1:2257:A:H2'    | 1:F1:2258:C:H6     | 1.68                     | 0.58              |
| 1:F1:2576:C:C5'    | 1:F1:2576:C:C6     | 2.79                     | 0.58              |
| 1:F1:2737:A:H2'    | 1:F1:2738:G:H5'    | 1.85                     | 0.58              |
| 1:F1:2804:G:N7     | 1:F1:2858:C:H5'    | 2.18                     | 0.58              |
| 1:F1:2819:G:N7     | 50:F1:4174:HOH:O   | 2.31                     | 0.58              |
| 1:F1:3185:G:N7     | 8:FH:11:PRO:HD3    | 2.17                     | 0.58              |
| 1:F1:3227:A:C2'    | 1:F1:3228:U:OP1    | 2.51                     | 0.58              |
| 5:FE:137:GLU:HG3   | 5:FE:138:GLN:HG2   | 1.85                     | 0.58              |
| 9:FJ:200:ASN:C     | 9:FJ:200:ASN:OD1   | 2.46                     | 0.58              |
| 14:FO:6:TRP:CZ3    | 14:FO:40:LEU:HD12  | 2.36                     | 0.58              |
| 14:FO:50:LEU:HD13  | 14:FO:111:LEU:CD2  | 2.33                     | 0.58              |
| 20:G2:103:U:H2'    | 20:G2:104:G:C8     | 2.39                     | 0.58              |
| 21:G3:109:U:H5''   | 34:GM:281:LYS:NZ   | 2.18                     | 0.58              |
| 22:GA:236:VAL:O    | 1:H1:2178:A:O2'    | 2.20                     | 0.58              |
| 23:GB:5:LYS:NZ     | 1:H1:2866:G:H5''   | 2.18                     | 0.58              |
| 23:GB:103:THR:HG22 | 23:GB:104:THR:N    | 2.18                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:49:ARG:NH2   | 1:H1:713:G:N2      | 2.51                     | 0.58              |
| 24:GC:99:ASN:ND2   | 24:GC:100:GLN:HE21 | 2.00                     | 0.58              |
| 25:GD:82:ARG:HB3   | 25:GD:112:LEU:CD2  | 2.28                     | 0.58              |
| 27:GF:183:VAL:HG11 | 27:GF:185:LYS:HE3  | 1.84                     | 0.58              |
| 30:GI:109:THR:HG22 | 30:GI:110:PRO:HD3  | 1.85                     | 0.58              |
| 33:GL:183:SER:CA   | 33:GL:191:ASN:ND2  | 2.60                     | 0.58              |
| 35:GN:6:HIS:CD2    | 1:H1:1131:G:H1'    | 2.39                     | 0.58              |
| 35:GN:146:ARG:HB2  | 35:GN:149:TYR:HE2  | 1.69                     | 0.58              |
| 36:GO:42:ARG:NH2   | 1:H1:1626:U:OP1    | 2.36                     | 0.58              |
| 37:GP:74:VAL:CG1   | 37:GP:75:ILE:H     | 2.17                     | 0.58              |
| 1:H1:155:A:C4'     | 1:H1:156:A:OP2     | 2.52                     | 0.58              |
| 1:H1:184:C:H2'     | 1:H1:185:A:C8      | 2.38                     | 0.58              |
| 1:H1:185:A:H2      | 1:H1:233:G:H22     | 1.52                     | 0.58              |
| 1:H1:439:A:C5'     | 5:HE:126:HIS:HD1   | 2.16                     | 0.58              |
| 1:H1:884:A:O2'     | 1:H1:885:G:H5'     | 2.04                     | 0.58              |
| 1:H1:970:C:C2      | 1:H1:971:C:C5      | 2.91                     | 0.58              |
| 1:H1:1047:G:H2'    | 1:H1:1048:U:H5''   | 1.84                     | 0.58              |
| 1:H1:1358:U:H4'    | 1:H1:1359:A:OP2    | 2.04                     | 0.58              |
| 1:H1:2507:C:O2'    | 1:H1:2508:U:H5'    | 2.02                     | 0.58              |
| 6:HF:8:GLN:NE2     | 6:HF:11:ARG:NH1    | 2.49                     | 0.58              |
| 14:HO:4:LEU:O      | 14:HO:8:ILE:HG13   | 2.03                     | 0.58              |
| 15:HP:74:LYS:HG3   | 15:HP:74:LYS:O     | 2.03                     | 0.58              |
| 1:A1:76:U:C2'      | 1:A1:77:A:H5'      | 2.33                     | 0.58              |
| 1:A1:519:A:H5''    | 14:AO:89:ARG:HH11  | 1.68                     | 0.58              |
| 1:A1:577:C:O2'     | 1:A1:578:G:H5'     | 2.03                     | 0.58              |
| 1:A1:962:G:C1'     | 50:A1:3775:HOH:O   | 2.48                     | 0.58              |
| 1:A1:1061:G:C2     | 1:A1:1062:A:C8     | 2.91                     | 0.58              |
| 1:A1:1775:A:H4'    | 15:AP:34:LYS:NZ    | 2.18                     | 0.58              |
| 1:A1:2255:U:O2'    | 1:A1:2301:C:C5'    | 2.50                     | 0.58              |
| 1:A1:2679:G:H5'    | 1:A1:2680:A:OP2    | 2.03                     | 0.58              |
| 1:A1:3087:G:H5''   | 1:A1:3088:U:OP1    | 2.03                     | 0.58              |
| 8:AH:58:TYR:HA     | 8:AH:104:LEU:CD2   | 2.33                     | 0.58              |
| 23:BB:103:THR:CG2  | 23:BB:104:THR:N    | 2.66                     | 0.58              |
| 27:BF:67:PRO:HB2   | 27:BF:68:PRO:CD    | 2.32                     | 0.58              |
| 27:BF:146:ILE:HG23 | 27:BF:156:VAL:HG11 | 1.85                     | 0.58              |
| 28:BG:58:UNK:HB1   | 28:BG:61:UNK:HG2   | 1.85                     | 0.58              |
| 28:BG:63:UNK:O     | 28:BG:67:UNK:HB2   | 2.03                     | 0.58              |
| 33:BL:183:SER:CA   | 33:BL:191:ASN:ND2  | 2.62                     | 0.58              |
| 35:BN:88:THR:HA    | 35:BN:107:THR:OG1  | 2.03                     | 0.58              |
| 44:BW:14:ASN:CG    | 44:BW:17:LYS:HG3   | 2.28                     | 0.58              |
| 45:BX:36:ARG:O     | 45:BX:36:ARG:HG3   | 2.04                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:C2:44:A:OP1     | 2:DA:67:TYR:HB3    | 2.03                     | 0.58              |
| 21:C3:16:A:H2'     | 21:C3:17:A:C8      | 2.38                     | 0.58              |
| 23:CB:19:ARG:O     | 23:CB:271:HIS:CE1  | 2.54                     | 0.58              |
| 24:CC:251:HIS:ND1  | 14:DO:12:ASN:OD1   | 2.36                     | 0.58              |
| 24:CC:275:THR:HG22 | 24:CC:276:THR:N    | 2.17                     | 0.58              |
| 25:CD:38:LYS:HG2   | 25:CD:45:PRO:HD3   | 1.85                     | 0.58              |
| 25:CD:115:LYS:HG2  | 25:CD:116:TYR:N    | 2.19                     | 0.58              |
| 29:CH:205:PRO:O    | 29:CH:208:ARG:HG2  | 2.04                     | 0.58              |
| 40:CS:34:LEU:HD12  | 40:CS:44:VAL:O     | 2.03                     | 0.58              |
| 42:CU:97:THR:HG22  | 42:CU:98:LYS:H     | 1.69                     | 0.58              |
| 1:D1:566:U:H2'     | 1:D1:567:C:H5'     | 1.85                     | 0.58              |
| 1:D1:1595:A:C2     | 1:D1:1598:C:OP2    | 2.56                     | 0.58              |
| 1:D1:1682:G:N7     | 50:D1:4119:HOH:O   | 2.32                     | 0.58              |
| 1:D1:1901:C:C5'    | 1:D1:1902:C:H5'    | 2.31                     | 0.58              |
| 1:D1:2252:C:H5'    | 22:EA:177:ASP:OD2  | 2.02                     | 0.58              |
| 1:D1:2952:G:C5     | 50:D1:4271:HOH:O   | 2.55                     | 0.58              |
| 1:D1:3183:A:HO2'   | 1:D1:3184:A:P      | 2.26                     | 0.58              |
| 5:DE:135:THR:HB    | 5:DE:137:GLU:HG2   | 1.86                     | 0.58              |
| 12:DM:75:LYS:HE2   | 12:DM:105:TYR:CZ   | 2.38                     | 0.58              |
| 18:DU:100:LYS:HE2  | 18:DU:102:ARG:HH21 | 1.67                     | 0.58              |
| 21:E3:1:G:H4'      | 34:EM:275:LYS:NZ   | 2.18                     | 0.58              |
| 22:EA:205:MET:HG2  | 1:F1:939:A:N3      | 2.18                     | 0.58              |
| 27:EF:65:LYS:HE2   | 27:EF:225:TRP:HE3  | 1.67                     | 0.58              |
| 27:EF:149:ASP:OD1  | 27:EF:149:ASP:C    | 2.45                     | 0.58              |
| 29:EH:208:ARG:HG3  | 29:EH:209:LEU:H    | 1.69                     | 0.58              |
| 33:EL:188:ARG:HH21 | 1:F1:279:U:C4'     | 2.17                     | 0.58              |
| 37:EP:145:VAL:HG21 | 19:FX:40:GLN:OE1   | 2.03                     | 0.58              |
| 38:EQ:53:VAL:HG21  | 38:EQ:60:ILE:HG13  | 1.85                     | 0.58              |
| 39:ER:76:THR:HG22  | 39:ER:76:THR:O     | 2.02                     | 0.58              |
| 1:F1:23:U:O2'      | 1:F1:24:A:H5''     | 2.04                     | 0.58              |
| 1:F1:39:G:H2'      | 1:F1:40:C:H5'      | 1.85                     | 0.58              |
| 1:F1:69:A:C6       | 1:F1:2766:A:O4'    | 2.57                     | 0.58              |
| 1:F1:452:U:C4'     | 14:FO:56:GLN:HE22  | 2.17                     | 0.58              |
| 1:F1:1205:A:H5'    | 1:F1:1205:A:H8     | 1.67                     | 0.58              |
| 1:F1:1328:A:H4'    | 1:F1:1329:A:O5'    | 2.03                     | 0.58              |
| 1:F1:1404:G:H5'    | 1:F1:1434:G:HO2'   | 1.67                     | 0.58              |
| 1:F1:1415:C:O2     | 1:F1:1415:C:H2'    | 2.04                     | 0.58              |
| 1:F1:2997:A:C2'    | 1:F1:2998:G:H5'    | 2.34                     | 0.58              |
| 1:F1:3072:G:H2'    | 1:F1:3073:U:C6     | 2.39                     | 0.58              |
| 6:FF:8:GLN:NE2     | 6:FF:11:ARG:NH1    | 2.52                     | 0.58              |
| 7:FG:13:LYS:HB2    | 7:FG:100:ILE:CD1   | 2.33                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:FJ:142:ILE:CD1   | 9:FJ:152:CYS:HB3   | 2.34                     | 0.58              |
| 16:FQ:44:VAL:O     | 16:FQ:48:VAL:HG23  | 2.02                     | 0.58              |
| 20:G2:107:C:C5     | 20:G2:135:A:C5     | 2.92                     | 0.58              |
| 23:GB:110:ILE:O    | 23:GB:115:LYS:HE3  | 2.03                     | 0.58              |
| 23:GB:281:TYR:CB   | 23:GB:321:MET:HE3  | 2.33                     | 0.58              |
| 29:GH:75:ASN:O     | 29:GH:79:PHE:CD1   | 2.53                     | 0.58              |
| 31:GJ:16:LYS:HZ2   | 1:H1:3081:C:H5     | 1.50                     | 0.58              |
| 33:GL:64:VAL:CG2   | 33:GL:106:VAL:HG22 | 2.33                     | 0.58              |
| 34:GM:121:GLY:HA2  | 34:GM:130:PHE:CZ   | 2.38                     | 0.58              |
| 1:H1:155:A:H5''    | 1:H1:156:A:C8      | 2.38                     | 0.58              |
| 1:H1:287:C:O2'     | 1:H1:288:A:H5'     | 2.04                     | 0.58              |
| 1:H1:444:A:H2      | 1:H1:533:G:N2      | 1.99                     | 0.58              |
| 1:H1:519:A:N3      | 1:H1:519:A:H2'     | 2.19                     | 0.58              |
| 1:H1:528:C:O2'     | 14:HO:115:HIS:HE1  | 1.86                     | 0.58              |
| 1:H1:1379:G:OP1    | 14:HO:102:GLY:N    | 2.33                     | 0.58              |
| 1:H1:2731:C:C4'    | 4:HC:18:HIS:CD2    | 2.86                     | 0.58              |
| 1:H1:2862:G:OP1    | 50:H1:4024:HOH:O   | 2.16                     | 0.58              |
| 1:H1:3091:G:O2'    | 1:H1:3092:A:H5'    | 2.03                     | 0.58              |
| 1:H1:3181:G:H2'    | 1:H1:3182:A:C8     | 2.38                     | 0.58              |
| 1:H1:3191:G:C2'    | 1:H1:3192:C:OP2    | 2.51                     | 0.58              |
| 5:HE:164:VAL:HG13  | 5:HE:170:LEU:HG    | 1.83                     | 0.58              |
| 18:HU:54:PRO:HG3   | 18:HU:72:GLY:C     | 2.29                     | 0.58              |
| 1:A1:218:G:H8      | 1:A1:218:G:OP1     | 1.87                     | 0.58              |
| 1:A1:439:A:H2'     | 1:A1:440:C:O5'     | 2.04                     | 0.58              |
| 1:A1:685:G:O2'     | 1:A1:686:U:C6      | 2.56                     | 0.58              |
| 1:A1:815:U:H1'     | 24:BC:40:LYS:NZ    | 2.19                     | 0.58              |
| 1:A1:1027:G:O2'    | 1:A1:1028:A:OP1    | 2.16                     | 0.58              |
| 1:A1:2518:A:H3'    | 39:BR:35:VAL:HG11  | 1.85                     | 0.58              |
| 7:AG:13:LYS:CB     | 7:AG:100:ILE:HD12  | 2.32                     | 0.58              |
| 19:AX:39:LEU:HD23  | 37:BP:146:ASN:HB3  | 1.84                     | 0.58              |
| 19:AX:89:TYR:CD2   | 19:AX:113:LEU:HD13 | 2.39                     | 0.58              |
| 21:B3:40:C:H2'     | 21:B3:40:C:O2      | 2.02                     | 0.58              |
| 30:BI:37:THR:O     | 30:BI:40:ILE:HG13  | 2.03                     | 0.58              |
| 31:BJ:83:ILE:HD11  | 31:BJ:105:VAL:CG2  | 2.33                     | 0.58              |
| 31:BJ:86:ARG:H     | 31:BJ:102:ASN:HD21 | 1.49                     | 0.58              |
| 34:BM:6:VAL:O      | 34:BM:6:VAL:HG13   | 2.03                     | 0.58              |
| 37:BP:142:GLN:OE1  | 43:BV:71:ALA:HB2   | 2.03                     | 0.58              |
| 42:BU:22:LEU:HD21  | 42:BU:59:LEU:HD21  | 1.85                     | 0.58              |
| 46:BY:32:THR:CG2   | 46:BY:69:TRP:O     | 2.48                     | 0.58              |
| 22:CA:105:ILE:CG2  | 22:CA:147:THR:HG21 | 2.34                     | 0.58              |
| 23:CB:105:VAL:HG21 | 23:CB:146:LEU:HD23 | 1.85                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:CB:170:ARG:NH2  | 1:D1:3261:U:O2'    | 2.36                     | 0.58              |
| 38:CQ:58:ARG:HE    | 38:CQ:77:GLU:CD    | 2.11                     | 0.58              |
| 43:CV:51:GLU:O     | 43:CV:54:ALA:HB3   | 2.03                     | 0.58              |
| 43:CV:226:ASN:OD1  | 43:CV:226:ASN:O    | 2.20                     | 0.58              |
| 46:CY:6:GLN:N      | 1:D1:1951:G:OP2    | 2.29                     | 0.58              |
| 1:D1:123:C:H2'     | 1:D1:124:U:H6      | 1.67                     | 0.58              |
| 1:D1:909:A:OP1     | 2:DA:5:THR:OG1     | 2.22                     | 0.58              |
| 1:D1:980:U:H2'     | 1:D1:981:U:C6      | 2.38                     | 0.58              |
| 1:D1:1192:A:OP1    | 8:DH:90:ARG:NH2    | 2.36                     | 0.58              |
| 1:D1:1375:A:C4'    | 1:D1:1376:A:OP1    | 2.51                     | 0.58              |
| 1:D1:1548:U:H4'    | 1:D1:1549:U:OP2    | 2.03                     | 0.58              |
| 1:D1:1775:A:C8     | 1:D1:1776:G:H2'    | 2.35                     | 0.58              |
| 1:D1:1845:U:H2'    | 1:D1:1845:U:O2     | 2.03                     | 0.58              |
| 1:D1:1853:G:H5''   | 1:D1:1854:U:H5'    | 1.86                     | 0.58              |
| 1:D1:2548:G:H4'    | 1:D1:2549:U:OP2    | 2.02                     | 0.58              |
| 1:D1:2805:A:N7     | 50:D1:4021:HOH:O   | 2.32                     | 0.58              |
| 1:D1:2876:U:C4     | 1:D1:2899:C:C5     | 2.92                     | 0.58              |
| 1:D1:3126:C:H2'    | 1:D1:3127:U:H6     | 1.68                     | 0.58              |
| 6:DF:56:THR:O      | 6:DF:56:THR:HG22   | 2.04                     | 0.58              |
| 20:E2:1:A:C4'      | 20:E2:2:G:OP2      | 2.51                     | 0.58              |
| 22:EA:203:VAL:CG1  | 22:EA:218:GLN:HG2  | 2.33                     | 0.58              |
| 24:EC:398:PHE:CD2  | 37:EP:154:ARG:HD2  | 2.39                     | 0.58              |
| 32:EK:137:ARG:HH21 | 1:F1:741:G:H4'     | 1.68                     | 0.58              |
| 33:EL:58:GLY:O     | 33:EL:142:ILE:HD11 | 2.03                     | 0.58              |
| 45:EX:27:PHE:HE1   | 50:EX:202:HOH:O    | 1.85                     | 0.58              |
| 1:F1:121:A:N6      | 1:F1:150:A:C6      | 2.71                     | 0.58              |
| 1:F1:152:U:H5'     | 1:F1:153:C:OP2     | 2.03                     | 0.58              |
| 1:F1:619:G:H4'     | 1:F1:620:A:N3      | 2.18                     | 0.58              |
| 1:F1:1166:G:O6     | 17:FT:10:LYS:NZ    | 2.28                     | 0.58              |
| 1:F1:1694:C:O2     | 1:F1:1804:G:N2     | 2.26                     | 0.58              |
| 1:F1:2277:U:O2'    | 1:F1:2278:G:P      | 2.61                     | 0.58              |
| 1:F1:2649:G:H2'    | 1:F1:2650:U:C6     | 2.39                     | 0.58              |
| 7:FG:27:TYR:CE2    | 7:FG:52:ARG:HG2    | 2.39                     | 0.58              |
| 8:FH:31:ASN:OD1    | 8:FH:33:ASN:HB2    | 2.03                     | 0.58              |
| 12:FM:15:LEU:HD23  | 12:FM:73:PHE:HB3   | 1.85                     | 0.58              |
| 12:FM:35:PHE:CD1   | 12:FM:65:ILE:HD12  | 2.39                     | 0.58              |
| 22:GA:33:TYR:CA    | 22:GA:164:ARG:NH2  | 2.66                     | 0.58              |
| 22:GA:203:VAL:HG23 | 1:H1:2180:G:OP1    | 2.04                     | 0.58              |
| 23:GB:58:ARG:HH21  | 23:GB:60:VAL:CG1   | 2.16                     | 0.58              |
| 23:GB:216:LEU:CD2  | 23:GB:274:THR:HA   | 2.33                     | 0.58              |
| 24:GC:65:MET:HE1   | 24:GC:97:PHE:HB2   | 1.83                     | 0.58              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:GC:287:ARG:HD2 | 35:GN:111:ARG:HH12 | 1.69                     | 0.58              |
| 24:GC:303:GLU:O   | 24:GC:307:VAL:HG23 | 2.02                     | 0.58              |
| 29:GH:169:GLN:O   | 29:GH:178:ARG:HG3  | 2.04                     | 0.58              |
| 36:GO:106:LEU:HB3 | 36:GO:120:TYR:CE1  | 2.38                     | 0.58              |
| 36:GO:150:ILE:HA  | 36:GO:153:ASP:CG   | 2.28                     | 0.58              |
| 38:GQ:61:PRO:HG3  | 38:GQ:78:PHE:CD2   | 2.38                     | 0.58              |
| 42:GU:120:PHE:HA  | 18:HU:122:VAL:O    | 2.03                     | 0.58              |
| 1:H1:118:A:C4'    | 1:H1:119:A:O5'     | 2.45                     | 0.58              |
| 1:H1:256:A:H4'    | 18:HU:84:SER:HB3   | 1.84                     | 0.58              |
| 1:H1:418:G:C8     | 1:H1:418:G:C3'     | 2.84                     | 0.58              |
| 1:H1:828:C:HO2'   | 1:H1:829:C:H5'     | 1.68                     | 0.58              |
| 1:H1:1040:A:H2'   | 1:H1:1041:C:H5'    | 1.85                     | 0.58              |
| 1:H1:1710:U:OP2   | 12:HM:42:LYS:NZ    | 2.35                     | 0.58              |
| 1:H1:2127:A:H2'   | 1:H1:2128:C:H5'    | 1.85                     | 0.58              |
| 5:HE:42:ARG:NH1   | 8:HH:111:ASN:ND2   | 2.51                     | 0.58              |
| 5:HE:53:LEU:HD11  | 5:HE:90:VAL:HG21   | 1.85                     | 0.58              |
| 1:A1:1205:A:H8    | 1:A1:1205:A:H5'    | 1.69                     | 0.58              |
| 1:A1:1249:G:HO2'  | 1:A1:1250:A:P      | 2.27                     | 0.58              |
| 1:A1:2720:G:O2'   | 1:A1:2721:G:H5'    | 2.03                     | 0.58              |
| 1:A1:3123:A:OP1   | 30:BI:73:ARG:NH1   | 2.37                     | 0.58              |
| 13:AN:87:VAL:HG11 | 13:AN:90:LEU:HB2   | 1.86                     | 0.58              |
| 14:AO:32:THR:HG22 | 14:AO:34:ARG:H     | 1.68                     | 0.58              |
| 29:BH:75:ASN:HD21 | 29:BH:154:ARG:HD2  | 1.69                     | 0.58              |
| 32:BK:89:ARG:O    | 32:BK:121:GLN:NE2  | 2.35                     | 0.58              |
| 21:C3:10:C:C5     | 34:CM:20:TYR:CE1   | 2.92                     | 0.58              |
| 22:CA:68:TYR:O    | 22:CA:69:ARG:HG2   | 2.04                     | 0.58              |
| 23:CB:356:PHE:HE2 | 23:CB:358:ASP:HB2  | 1.69                     | 0.58              |
| 24:CC:65:MET:HE3  | 24:CC:105:ARG:CG   | 2.34                     | 0.58              |
| 32:CK:119:PRO:HG3 | 35:CN:94:LEU:HD13  | 1.85                     | 0.58              |
| 38:CQ:18:LYS:HE3  | 1:D1:389:G:OP1     | 2.02                     | 0.58              |
| 39:CR:84:MET:HE2  | 39:CR:144:ALA:HB2  | 1.85                     | 0.58              |
| 1:D1:41:A:O2'     | 1:D1:42:U:H5'      | 2.04                     | 0.58              |
| 1:D1:165:C:H5''   | 18:DU:132:LYS:NZ   | 2.18                     | 0.58              |
| 1:D1:541:A:H2'    | 1:D1:542:C:C6      | 2.39                     | 0.58              |
| 1:D1:1540:U:H5    | 1:D1:1865:A:O2'    | 1.86                     | 0.58              |
| 1:D1:1902:C:HO2'  | 1:D1:1903:A:P      | 2.24                     | 0.58              |
| 1:D1:2264:U:O2    | 1:D1:2264:U:C2'    | 2.52                     | 0.58              |
| 1:D1:2265:A:H5''  | 1:D1:2265:A:C8     | 2.38                     | 0.58              |
| 1:D1:3118:A:H5''  | 1:D1:3119:A:OP2    | 2.04                     | 0.58              |
| 2:DA:67:TYR:CE2   | 2:DA:71:ILE:HD11   | 2.39                     | 0.58              |
| 6:DF:7:VAL:O      | 19:DX:162:LYS:HA   | 2.03                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:DF:43:ILE:HG22   | 6:DF:44:VAL:O      | 2.03                     | 0.58              |
| 9:DJ:129:ILE:HG23  | 9:DJ:133:LEU:HD12  | 1.86                     | 0.58              |
| 19:DX:110:ASP:OD1  | 19:DX:111:VAL:N    | 2.34                     | 0.58              |
| 20:E2:124:U:O2'    | 20:E2:126:A:N7     | 2.25                     | 0.58              |
| 20:E2:145:C:H2'    | 20:E2:146:A:C8     | 2.39                     | 0.58              |
| 24:EC:283:TYR:HE1  | 24:EC:285:LEU:HA   | 1.68                     | 0.58              |
| 24:EC:321:LYS:O    | 24:EC:323:PRO:HD3  | 2.03                     | 0.58              |
| 28:EG:13:UNK:O     | 28:EG:17:UNK:HG2   | 2.04                     | 0.58              |
| 29:EH:174:THR:HG22 | 29:EH:176:LEU:H    | 1.69                     | 0.58              |
| 33:EL:182:LYS:HE2  | 1:F1:281:G:O6      | 2.04                     | 0.58              |
| 34:EM:22:ARG:HB3   | 34:EM:30:TYR:OH    | 2.04                     | 0.58              |
| 39:ER:108:GLU:HG2  | 39:ER:113:VAL:O    | 2.04                     | 0.58              |
| 40:ES:58:VAL:HG12  | 40:ES:59:ARG:HG2   | 1.85                     | 0.58              |
| 43:EV:122:ASN:HD22 | 1:F1:1013:U:P      | 2.27                     | 0.58              |
| 1:F1:325:U:OP2     | 50:F1:4621:HOH:O   | 2.17                     | 0.58              |
| 1:F1:424:G:H2'     | 1:F1:425:U:H5'     | 1.86                     | 0.58              |
| 1:F1:1109:A:C1'    | 1:F1:1110:U:OP2    | 2.50                     | 0.58              |
| 1:F1:1159:C:O2'    | 1:F1:1160:A:H5'    | 2.04                     | 0.58              |
| 1:F1:1375:A:C4'    | 1:F1:1376:A:OP1    | 2.51                     | 0.58              |
| 1:F1:1507:A:O2'    | 1:F1:1882:A:C2'    | 2.49                     | 0.58              |
| 1:F1:1507:A:N1     | 11:FL:2:ALA:HB3    | 2.18                     | 0.58              |
| 1:F1:1714:C:H2'    | 1:F1:1715:U:H5'    | 1.83                     | 0.58              |
| 5:FE:71:SER:HB3    | 5:FE:114:ASP:OD2   | 2.02                     | 0.58              |
| 14:FO:62:LEU:HD11  | 14:FO:97:ARG:CG    | 2.33                     | 0.58              |
| 19:FX:89:TYR:CD2   | 19:FX:113:LEU:HD13 | 2.39                     | 0.58              |
| 25:GD:9:MET:O      | 25:GD:134:PRO:HG3  | 2.03                     | 0.58              |
| 26:GE:132:ILE:HG23 | 26:GE:144:LEU:CD2  | 2.33                     | 0.58              |
| 27:GF:183:VAL:HG12 | 27:GF:185:LYS:HE3  | 1.85                     | 0.58              |
| 27:GF:211:PHE:O    | 27:GF:215:TYR:HB2  | 2.04                     | 0.58              |
| 29:GH:130:ASP:OD1  | 29:GH:131:ILE:N    | 2.36                     | 0.58              |
| 32:GK:74:VAL:CG1   | 32:GK:113:LEU:HG   | 2.32                     | 0.58              |
| 35:GN:25:VAL:HG13  | 14:HO:7:GLU:CB     | 2.33                     | 0.58              |
| 35:GN:69:VAL:HG21  | 35:GN:93:LEU:HD11  | 1.85                     | 0.58              |
| 42:GU:99:LYS:O     | 42:GU:103:ALA:HB2  | 2.03                     | 0.58              |
| 43:GV:60:VAL:HG13  | 43:GV:63:LYS:NZ    | 2.18                     | 0.58              |
| 43:GV:64:ARG:HD3   | 1:H1:565:G:C5      | 2.38                     | 0.58              |
| 1:H1:114:A:H4'     | 16:HQ:37:ARG:HH22  | 1.67                     | 0.58              |
| 1:H1:453:A:H2'     | 1:H1:454:A:C8      | 2.39                     | 0.58              |
| 1:H1:566:U:H2'     | 1:H1:567:C:H5'     | 1.83                     | 0.58              |
| 1:H1:709:G:OP1     | 18:HU:37:ARG:NH2   | 2.36                     | 0.58              |
| 1:H1:842:A:N7      | 2:HA:15:THR:HG23   | 2.18                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:904:U:HO2'    | 1:H1:905:G:P       | 2.27                     | 0.58              |
| 1:H1:1130:A:H2     | 1:H1:1390:A:HO2'   | 1.50                     | 0.58              |
| 1:H1:1941:C:H2'    | 1:H1:1942:C:H5''   | 1.84                     | 0.58              |
| 5:HE:18:TRP:CB     | 14:HO:95:ARG:HH21  | 2.15                     | 0.58              |
| 5:HE:137:GLU:HG3   | 5:HE:138:GLN:HG2   | 1.86                     | 0.58              |
| 8:HH:44:THR:HB     | 8:HH:46:GLU:OE1    | 2.04                     | 0.58              |
| 12:HM:71:ILE:HG23  | 12:HM:72:PRO:HD2   | 1.86                     | 0.58              |
| 19:HX:167:LYS:CG   | 19:HX:188:THR:HG21 | 2.34                     | 0.58              |
| 1:A1:121:A:N6      | 1:A1:150:A:C6      | 2.72                     | 0.58              |
| 1:A1:122:U:H2'     | 1:A1:123:C:H6      | 1.69                     | 0.58              |
| 1:A1:699:C:O2'     | 1:A1:703:U:OP1     | 2.21                     | 0.58              |
| 1:A1:842:A:H8      | 2:AA:15:THR:CG2    | 2.16                     | 0.58              |
| 1:A1:1396:A:OP2    | 50:A1:4229:HOH:O   | 2.17                     | 0.58              |
| 1:A1:1752:G:C5'    | 1:A1:1753:A:H3'    | 2.34                     | 0.58              |
| 1:A1:2433:A:H2'    | 1:A1:2434:A:H8     | 1.65                     | 0.58              |
| 1:A1:2522:A:H1'    | 27:BF:233:LYS:HG2  | 1.86                     | 0.58              |
| 1:A1:2641:U:H5'    | 4:AC:63:THR:HG21   | 1.85                     | 0.58              |
| 1:A1:3185:G:H4'    | 1:A1:3186:G:OP2    | 2.04                     | 0.58              |
| 1:A1:3200:A:H2'    | 1:A1:3201:G:H5''   | 1.84                     | 0.58              |
| 6:AF:26:VAL:HG12   | 6:AF:27:ILE:N      | 2.18                     | 0.58              |
| 8:AH:33:ASN:HA     | 8:AH:94:ASN:ND2    | 2.18                     | 0.58              |
| 9:AJ:77:ASN:HB3    | 9:AJ:80:GLU:CG     | 2.34                     | 0.58              |
| 9:AJ:186:ILE:CD1   | 9:AJ:197:LEU:HB2   | 2.34                     | 0.58              |
| 21:B3:33:U:C2      | 34:BM:212:TYR:CD1  | 2.92                     | 0.58              |
| 21:B3:116:A:H4'    | 34:BM:260:ARG:HH22 | 1.68                     | 0.58              |
| 22:BA:131:SER:OG   | 22:BA:175:ARG:NH1  | 2.37                     | 0.58              |
| 22:BA:243:ARG:HG3  | 22:BA:244:THR:N    | 2.18                     | 0.58              |
| 24:BC:33:ILE:HD13  | 24:BC:135:ALA:HA   | 1.85                     | 0.58              |
| 24:BC:308:VAL:HG12 | 35:BN:40:ARG:HH11  | 1.65                     | 0.58              |
| 41:BT:5:THR:HG21   | 41:BT:14:ARG:HE    | 1.69                     | 0.58              |
| 20:C2:145:C:H2'    | 20:C2:146:A:C8     | 2.39                     | 0.58              |
| 23:CB:26:ARG:HD2   | 23:CB:177:LEU:HD21 | 1.85                     | 0.58              |
| 24:CC:159:PHE:HZ   | 24:CC:179:VAL:CG1  | 2.16                     | 0.58              |
| 24:CC:198:GLN:HB3  | 1:D1:1407:A:H5''   | 1.84                     | 0.58              |
| 25:CD:106:ILE:HD12 | 25:CD:127:PHE:CE1  | 2.39                     | 0.58              |
| 32:CK:50:TRP:HD1   | 35:CN:156:PRO:HD2  | 1.67                     | 0.58              |
| 33:CL:188:ARG:HH21 | 1:D1:279:U:C4'     | 2.16                     | 0.58              |
| 42:CU:13:GLN:HB3   | 42:CU:17:GLN:OE1   | 2.04                     | 0.58              |
| 45:CX:43:ARG:HH22  | 1:D1:660:C:H2'     | 1.68                     | 0.58              |
| 1:D1:2149:U:C2'    | 1:D1:2150:U:C5'    | 2.81                     | 0.58              |
| 1:D1:2574:U:C5'    | 1:D1:2575:G:OP1    | 2.52                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:DL:5:ILE:HG21   | 11:DL:32:ALA:HB2   | 1.85                     | 0.58              |
| 13:DN:118:PHE:HE2  | 13:DN:138:PHE:CE2  | 2.22                     | 0.58              |
| 14:DO:50:LEU:HD13  | 14:DO:111:LEU:CD2  | 2.34                     | 0.58              |
| 20:E2:61:G:H2'     | 20:E2:100:C:O2'    | 2.03                     | 0.58              |
| 22:EA:181:LEU:HB3  | 46:EY:18:TYR:CD1   | 2.38                     | 0.58              |
| 22:EA:212:HIS:O    | 22:EA:213:GLY:C    | 2.45                     | 0.58              |
| 24:EC:34:ARG:CZ    | 35:EN:24:ASN:HB3   | 2.34                     | 0.58              |
| 30:EI:18:LEU:O     | 30:EI:22:VAL:HG23  | 2.04                     | 0.58              |
| 31:EJ:32:ASN:ND2   | 31:EJ:117:GLN:H    | 2.02                     | 0.58              |
| 34:EM:44:TYR:CE1   | 1:F1:1112:A:H4'    | 2.38                     | 0.58              |
| 45:EX:98:ILE:N     | 45:EX:123:ASN:ND2  | 2.46                     | 0.58              |
| 46:EY:13:LYS:HE3   | 46:EY:14:TYR:CE2   | 2.39                     | 0.58              |
| 1:F1:76:U:C2'      | 1:F1:77:A:H5'      | 2.34                     | 0.58              |
| 1:F1:519:A:H5''    | 14:FO:89:ARG:NH1   | 2.18                     | 0.58              |
| 1:F1:706:U:P       | 50:F1:4492:HOH:O   | 2.61                     | 0.58              |
| 1:F1:909:A:OP1     | 2:FA:5:THR:OG1     | 2.20                     | 0.58              |
| 1:F1:1132:U:H2'    | 1:F1:1133:G:H8     | 1.68                     | 0.58              |
| 1:F1:1248:G:H4'    | 1:F1:1249:G:OP2    | 2.02                     | 0.58              |
| 1:F1:1972:G:C2     | 1:F1:1973:A:C8     | 2.92                     | 0.58              |
| 1:F1:2186:U:H2'    | 1:F1:2187:C:C6     | 2.39                     | 0.58              |
| 1:F1:2359:G:H22    | 1:F1:2391:G:H1'    | 1.69                     | 0.58              |
| 2:FA:67:TYR:CE2    | 2:FA:71:ILE:HD11   | 2.38                     | 0.58              |
| 5:FE:86:PRO:O      | 5:FE:87:LEU:HD23   | 2.02                     | 0.58              |
| 8:FH:9:VAL:HG12    | 8:FH:10:ALA:O      | 2.04                     | 0.58              |
| 22:GA:20:HIS:ND1   | 1:H1:848:C:H5'     | 2.19                     | 0.58              |
| 22:GA:206:ASN:HB3  | 22:GA:207:PRO:HD2  | 1.86                     | 0.58              |
| 24:GC:295:ILE:HG23 | 35:GN:33:LEU:HD13  | 1.86                     | 0.58              |
| 25:GD:20:ASN:ND2   | 1:H1:2671:C:O4'    | 2.36                     | 0.58              |
| 32:GK:142:GLY:C    | 18:HU:173:ARG:NH2  | 2.54                     | 0.58              |
| 34:GM:166:ALA:HB3  | 34:GM:173:ILE:HD11 | 1.85                     | 0.58              |
| 35:GN:53:LEU:HD23  | 35:GN:84:THR:HG22  | 1.85                     | 0.58              |
| 36:GO:114:LYS:HB3  | 36:GO:146:LYS:HZ3  | 1.67                     | 0.58              |
| 37:GP:11:THR:HG22  | 37:GP:11:THR:O     | 2.02                     | 0.58              |
| 1:H1:72:A:O3'      | 18:HU:56:VAL:HG11  | 2.03                     | 0.58              |
| 1:H1:813:C:H2'     | 1:H1:814:U:H6      | 1.69                     | 0.58              |
| 1:H1:1511:G:N3     | 11:HL:4:ARG:NH1    | 2.52                     | 0.58              |
| 1:H1:1543:A:H2'    | 1:H1:1544:U:H6     | 1.69                     | 0.58              |
| 1:H1:2277:U:HO2'   | 1:H1:2278:G:P      | 2.26                     | 0.58              |
| 1:H1:3118:A:H5''   | 1:H1:3119:A:OP2    | 2.03                     | 0.58              |
| 1:H1:3192:C:O2     | 6:HF:120:ARG:HD3   | 2.04                     | 0.58              |
| 6:HF:67:GLN:NE2    | 6:HF:75:LYS:HE3    | 2.18                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:HH:33:ASN:HA     | 8:HH:94:ASN:ND2    | 2.19                     | 0.58              |
| 12:HM:75:LYS:HE2   | 12:HM:105:TYR:CZ   | 2.38                     | 0.58              |
| 1:A1:345:C:OP1     | 24:BC:55:VAL:HG13  | 2.04                     | 0.58              |
| 1:A1:446:G:H2'     | 1:A1:447:G:H8      | 1.67                     | 0.58              |
| 1:A1:467:A:C6      | 1:A1:468:A:C6      | 2.92                     | 0.58              |
| 1:A1:644:A:H2'     | 1:A1:645:A:C5'     | 2.34                     | 0.58              |
| 1:A1:685:G:H5'     | 32:BK:8:THR:CG2    | 2.33                     | 0.58              |
| 1:A1:1676:G:O2'    | 11:AL:81:GLU:OE2   | 2.15                     | 0.58              |
| 1:A1:1767:U:H4'    | 1:A1:1768:G:OP2    | 2.02                     | 0.58              |
| 1:A1:2264:U:O2     | 1:A1:2264:U:C2'    | 2.52                     | 0.58              |
| 1:A1:2557:A:C2     | 1:A1:2564:G:C4     | 2.92                     | 0.58              |
| 1:A1:2718:U:C2     | 1:A1:2719:A:C8     | 2.91                     | 0.58              |
| 1:A1:2929:A:C8     | 23:BB:253:TRP:CE3  | 2.92                     | 0.58              |
| 1:A1:3048:A:OP2    | 44:BW:16:HIS:HE1   | 1.87                     | 0.58              |
| 9:AJ:58:ILE:HG13   | 9:AJ:62:VAL:CG2    | 2.34                     | 0.58              |
| 13:AN:27:LYS:NZ    | 1:H1:1045:G:O3'    | 2.37                     | 0.58              |
| 16:AQ:41:VAL:HG13  | 33:BL:6:TYR:CD1    | 2.38                     | 0.58              |
| 21:B3:6:C:O2'      | 34:BM:50:ARG:NH2   | 2.37                     | 0.58              |
| 23:BB:381:ASP:HB3  | 23:BB:384:LYS:HB3  | 1.86                     | 0.58              |
| 29:BH:205:PRO:O    | 29:BH:208:ARG:HG2  | 2.04                     | 0.58              |
| 31:BJ:32:ASN:ND2   | 31:BJ:117:GLN:H    | 2.02                     | 0.58              |
| 22:CA:50:VAL:HG12  | 22:CA:51:HIS:H     | 1.69                     | 0.58              |
| 23:CB:30:ARG:NH2   | 1:D1:3127:U:C5     | 2.72                     | 0.58              |
| 23:CB:170:ARG:NH1  | 1:D1:3273:U:O2     | 2.37                     | 0.58              |
| 24:CC:65:MET:HE3   | 24:CC:105:ARG:HH11 | 1.69                     | 0.58              |
| 24:CC:195:ARG:O    | 24:CC:200:LYS:HE2  | 2.04                     | 0.58              |
| 24:CC:195:ARG:NH1  | 24:CC:204:ARG:CB   | 2.67                     | 0.58              |
| 24:CC:289:LEU:HD12 | 35:CN:24:ASN:HD22  | 1.68                     | 0.58              |
| 27:CF:143:LEU:HD22 | 27:CF:211:PHE:CD2  | 2.39                     | 0.58              |
| 29:CH:92:HIS:HD2   | 1:D1:1070:U:H1'    | 1.69                     | 0.58              |
| 30:CI:177:ARG:HD3  | 30:CI:180:GLU:OE2  | 2.03                     | 0.58              |
| 33:CL:80:VAL:HG11  | 33:CL:87:VAL:HA    | 1.85                     | 0.58              |
| 33:CL:115:VAL:HG22 | 33:CL:134:LEU:CD2  | 2.34                     | 0.58              |
| 37:CP:76:VAL:HG12  | 37:CP:77:HIS:N     | 2.19                     | 0.58              |
| 38:CQ:61:PRO:HG3   | 38:CQ:78:PHE:CD2   | 2.38                     | 0.58              |
| 39:CR:108:GLU:HG2  | 39:CR:113:VAL:O    | 2.04                     | 0.58              |
| 1:D1:122:U:O2      | 1:D1:149:U:H1'     | 2.04                     | 0.58              |
| 1:D1:368:A:H5'     | 1:D1:369:U:OP2     | 2.03                     | 0.58              |
| 1:D1:497:G:O2'     | 1:D1:498:A:H5'     | 2.02                     | 0.58              |
| 1:D1:761:A:H2'     | 1:D1:762:G:O4'     | 2.02                     | 0.58              |
| 1:D1:1024:A:C2'    | 1:D1:1025:G:H5'    | 2.34                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1048:U:C4     | 1:D1:1049:U:C5     | 2.92                     | 0.58              |
| 1:D1:1613:A:C6     | 3:DB:4:ASN:HB3     | 2.39                     | 0.58              |
| 1:D1:2507:C:O2'    | 1:D1:2508:U:H5'    | 2.03                     | 0.58              |
| 1:D1:3005:A:O2'    | 1:D1:3006:A:H5'    | 2.02                     | 0.58              |
| 1:D1:3257:U:H2'    | 1:D1:3258:C:H6     | 1.68                     | 0.58              |
| 8:DH:48:VAL:CG2    | 8:DH:85:GLY:HA2    | 2.34                     | 0.58              |
| 18:DU:123:LEU:HD23 | 18:DU:136:VAL:CG2  | 2.34                     | 0.58              |
| 18:DU:168:ASN:O    | 18:DU:172:LEU:HG   | 2.03                     | 0.58              |
| 20:E2:110:A:H4'    | 1:F1:1610:C:H5'    | 1.86                     | 0.58              |
| 22:EA:68:TYR:O     | 22:EA:69:ARG:HG2   | 2.04                     | 0.58              |
| 23:EB:157:ARG:HD2  | 23:EB:178:GLU:OE1  | 2.04                     | 0.58              |
| 24:EC:65:MET:HE3   | 24:EC:105:ARG:CG   | 2.33                     | 0.58              |
| 25:ED:104:PHE:HE1  | 25:ED:106:ILE:CD1  | 2.17                     | 0.58              |
| 30:EI:35:VAL:HG12  | 30:EI:36:ARG:N     | 2.19                     | 0.58              |
| 32:EK:68:ASN:HB3   | 18:FU:60:THR:HG21  | 1.85                     | 0.58              |
| 33:EL:79:ILE:HD12  | 1:F1:2597:G:O2'    | 2.04                     | 0.58              |
| 46:EY:4:ARG:HH21   | 1:F1:864:C:N4      | 2.01                     | 0.58              |
| 46:EY:56:LYS:HG2   | 46:EY:63:ILE:HG12  | 1.84                     | 0.58              |
| 1:F1:126:A:C2      | 1:F1:141:C:N4      | 2.71                     | 0.58              |
| 1:F1:513:G:H2'     | 1:F1:514:U:H6      | 1.68                     | 0.58              |
| 1:F1:524:G:H4'     | 1:F1:525:C:OP2     | 2.03                     | 0.58              |
| 1:F1:530:C:H2'     | 1:F1:531:C:H6      | 1.69                     | 0.58              |
| 1:F1:925:G:H1'     | 1:F1:1614:A:H61    | 1.69                     | 0.58              |
| 1:F1:2180:G:H1'    | 50:F1:4076:HOH:O   | 2.04                     | 0.58              |
| 1:F1:2889:G:P      | 50:F1:4433:HOH:O   | 2.62                     | 0.58              |
| 1:F1:3177:G:N2     | 19:FX:177:TYR:CE2  | 2.71                     | 0.58              |
| 7:FG:43:PHE:HE1    | 7:FG:68:HIS:CD2    | 2.22                     | 0.58              |
| 8:FH:48:VAL:CG2    | 8:FH:85:GLY:HA2    | 2.34                     | 0.58              |
| 16:FQ:7:VAL:HG11   | 18:FU:185:LYS:HG3  | 1.86                     | 0.58              |
| 21:G3:90:A:H2      | 29:GH:162:ARG:NH2  | 2.02                     | 0.58              |
| 23:GB:26:ARG:HD2   | 23:GB:177:LEU:HD21 | 1.86                     | 0.58              |
| 23:GB:30:ARG:NH2   | 1:H1:3127:U:C5     | 2.72                     | 0.58              |
| 24:GC:320:LYS:HB2  | 43:GV:159:PRO:HB3  | 1.86                     | 0.58              |
| 27:GF:126:LYS:NZ   | 27:GF:194:THR:HG1  | 1.98                     | 0.58              |
| 27:GF:143:LEU:HD22 | 27:GF:211:PHE:CD2  | 2.39                     | 0.58              |
| 33:GL:189:LYS:O    | 33:GL:193:ARG:HG3  | 2.04                     | 0.58              |
| 42:GU:87:LYS:HA    | 42:GU:93:ARG:HH21  | 1.69                     | 0.58              |
| 1:H1:979:U:C1'     | 17:HT:12:GLN:NE2   | 2.55                     | 0.58              |
| 1:H1:1190:U:H2'    | 1:H1:1191:G:H8     | 1.69                     | 0.58              |
| 1:H1:1394:G:H8     | 1:H1:1394:G:O5'    | 1.86                     | 0.58              |
| 1:H1:1822:G:OP2    | 50:H1:3832:HOH:O   | 2.17                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2761:U:H4'    | 1:H1:2762:U:OP1    | 2.02                     | 0.58              |
| 1:H1:3229:C:N3     | 5:HE:57:ARG:HG3    | 2.19                     | 0.58              |
| 5:HE:170:LEU:HA    | 6:HF:106:PHE:HE1   | 1.69                     | 0.58              |
| 6:HF:11:ARG:HD2    | 6:HF:59:GLN:OE1    | 2.04                     | 0.58              |
| 7:HG:13:LYS:HG2    | 7:HG:14:LEU:N      | 2.18                     | 0.58              |
| 7:HG:35:ARG:HH12   | 13:HN:77:LEU:C     | 2.12                     | 0.58              |
| 8:HH:54:LYS:HD3    | 8:HH:110:PRO:HG2   | 1.86                     | 0.58              |
| 9:HJ:43:VAL:HG12   | 9:HJ:44:PRO:N      | 2.18                     | 0.58              |
| 11:HL:5:ILE:CG2    | 11:HL:32:ALA:HB2   | 2.34                     | 0.58              |
| 16:HQ:7:VAL:O      | 16:HQ:7:VAL:HG12   | 2.04                     | 0.58              |
| 1:A1:528:C:O2'     | 14:AO:115:HIS:HE1  | 1.87                     | 0.58              |
| 1:A1:881:G:OP1     | 1:A1:1746:U:O2'    | 2.17                     | 0.58              |
| 1:A1:1023:A:H2'    | 1:A1:1024:A:O4'    | 2.04                     | 0.58              |
| 1:A1:1475:A:C2     | 1:A1:2351:A:C4     | 2.92                     | 0.58              |
| 1:A1:1492:G:OP1    | 50:A1:4734:HOH:O   | 2.17                     | 0.58              |
| 1:A1:2186:U:H2'    | 1:A1:2187:C:C6     | 2.39                     | 0.58              |
| 1:A1:2361:U:O3'    | 23:BB:257:ARG:NH2  | 2.36                     | 0.58              |
| 1:A1:2552:A:N6     | 1:A1:2568:G:O2'    | 2.37                     | 0.58              |
| 1:A1:2659:G:H2'    | 1:A1:2660:A:C8     | 2.38                     | 0.58              |
| 1:A1:3146:G:O6     | 1:A1:3248:C:N4     | 2.37                     | 0.58              |
| 3:AB:7:LEU:O       | 3:AB:8:ASN:C       | 2.47                     | 0.58              |
| 5:AE:88:LYS:HG3    | 5:AE:89:ARG:O      | 2.04                     | 0.58              |
| 15:AP:39:ILE:HG22  | 15:AP:40:THR:N     | 2.17                     | 0.58              |
| 18:AU:177:VAL:HG13 | 32:BK:147:LEU:HD21 | 1.86                     | 0.58              |
| 20:B2:75:A:OP2     | 40:BS:51:LYS:HB3   | 2.03                     | 0.58              |
| 27:BF:171:ALA:HA   | 27:BF:215:TYR:CD2  | 2.38                     | 0.58              |
| 29:BH:48:TYR:HE2   | 29:BH:142:GLU:HG3  | 1.67                     | 0.58              |
| 33:BL:37:HIS:CE1   | 33:BL:63:ARG:HB2   | 2.37                     | 0.58              |
| 33:BL:160:GLU:HG2  | 33:BL:161:LEU:N    | 2.18                     | 0.58              |
| 35:BN:18:ARG:HD3   | 35:BN:54:SER:O     | 2.02                     | 0.58              |
| 37:BP:39:TYR:CE1   | 37:BP:63:LYS:HG3   | 2.39                     | 0.58              |
| 38:BQ:9:GLU:OE1    | 38:BQ:10:PRO:HD2   | 2.04                     | 0.58              |
| 39:BR:84:MET:HE2   | 39:BR:144:ALA:HB2  | 1.86                     | 0.58              |
| 20:C2:69:A:H5'     | 42:CU:11:ARG:HH22  | 1.67                     | 0.58              |
| 24:CC:40:LYS:NZ    | 1:D1:815:U:H1'     | 2.19                     | 0.58              |
| 30:CI:79:PHE:HD2   | 30:CI:103:ILE:HD13 | 1.68                     | 0.58              |
| 33:CL:64:VAL:HG21  | 33:CL:106:VAL:CG2  | 2.34                     | 0.58              |
| 33:CL:79:ILE:HD12  | 1:D1:2597:G:O2'    | 2.04                     | 0.58              |
| 40:CS:114:ARG:O    | 40:CS:118:LEU:HG   | 2.03                     | 0.58              |
| 1:D1:236:G:H2'     | 1:D1:237:A:H8      | 1.68                     | 0.58              |
| 1:D1:622:G:C4'     | 1:D1:623:G:OP1     | 2.49                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:629:A:H1'     | 1:D1:630:G:N7      | 2.18                     | 0.58              |
| 1:D1:672:C:N3      | 1:D1:2369:C:O2'    | 2.36                     | 0.58              |
| 1:D1:1240:G:O4'    | 19:DX:104:MET:HE3  | 2.04                     | 0.58              |
| 1:D1:1593:A:C2     | 1:D1:1601:U:O2     | 2.57                     | 0.58              |
| 17:DT:17:HIS:CE1   | 17:DT:21:ILE:HD11  | 2.39                     | 0.58              |
| 20:E2:31:C:H2'     | 20:E2:32:C:C6      | 2.39                     | 0.58              |
| 23:EB:129:ALA:O    | 23:EB:130:PHE:HB2  | 2.04                     | 0.58              |
| 24:EC:303:GLU:O    | 24:EC:307:VAL:HG23 | 2.04                     | 0.58              |
| 27:EF:131:HIS:CE1  | 1:F1:117:G:H2'     | 2.38                     | 0.58              |
| 28:EG:60:UNK:CG    | 1:F1:1249:G:H5''   | 2.22                     | 0.58              |
| 29:EH:139:ARG:HD3  | 29:EH:173:PHE:CD1  | 2.39                     | 0.58              |
| 32:EK:60:MET:C     | 35:EN:172:ARG:NH1  | 2.61                     | 0.58              |
| 33:EL:121:VAL:HG11 | 33:EL:131:GLU:CD   | 2.29                     | 0.58              |
| 35:EN:53:LEU:O     | 35:EN:60:LYS:NZ    | 2.37                     | 0.58              |
| 35:EN:98:LYS:HG3   | 35:EN:98:LYS:O     | 2.03                     | 0.58              |
| 38:EQ:24:LEU:HD13  | 38:EQ:92:VAL:HG11  | 1.85                     | 0.58              |
| 41:ET:14:ARG:NH1   | 9:HJ:44:PRO:HG3    | 2.19                     | 0.58              |
| 44:EW:16:HIS:HE1   | 1:F1:3048:A:OP2    | 1.86                     | 0.58              |
| 44:EW:43:MET:HG3   | 44:EW:90:THR:HG21  | 1.85                     | 0.58              |
| 1:F1:70:C:C6       | 1:F1:72:A:H1'      | 2.38                     | 0.58              |
| 1:F1:155:A:C4'     | 1:F1:156:A:OP2     | 2.51                     | 0.58              |
| 1:F1:257:G:H2'     | 1:F1:258:A:H5'     | 1.86                     | 0.58              |
| 1:F1:282:G:N2      | 1:F1:304:U:C4'     | 2.61                     | 0.58              |
| 1:F1:1068:U:O2'    | 1:F1:1069:C:H5'    | 2.03                     | 0.58              |
| 1:F1:1540:U:H5     | 1:F1:1865:A:O2'    | 1.87                     | 0.58              |
| 5:FE:42:ARG:HH12   | 8:FH:111:ASN:ND2   | 2.01                     | 0.58              |
| 12:FM:75:LYS:HE2   | 12:FM:105:TYR:CZ   | 2.38                     | 0.58              |
| 12:FM:95:LEU:HA    | 12:FM:108:ARG:O    | 2.04                     | 0.58              |
| 15:FP:74:LYS:O     | 15:FP:74:LYS:HG3   | 2.04                     | 0.58              |
| 22:GA:9:ARG:HD3    | 1:H1:936:C:OP2     | 2.04                     | 0.58              |
| 23:GB:204:ASP:N    | 23:GB:204:ASP:OD1  | 2.33                     | 0.58              |
| 24:GC:287:ARG:HD2  | 35:GN:111:ARG:NH1  | 2.19                     | 0.58              |
| 27:GF:69:GLN:HE22  | 16:HQ:48:VAL:HG12  | 1.69                     | 0.58              |
| 31:GJ:90:ARG:HB2   | 31:GJ:96:PHE:CE2   | 2.39                     | 0.58              |
| 41:GT:35:THR:HB    | 41:GT:38:ALA:H     | 1.68                     | 0.58              |
| 43:GV:100:LEU:HD21 | 43:GV:127:VAL:CG1  | 2.28                     | 0.58              |
| 1:H1:418:G:C6      | 1:H1:2378:A:O2'    | 2.53                     | 0.58              |
| 1:H1:685:G:O2'     | 1:H1:686:U:C6      | 2.56                     | 0.58              |
| 1:H1:898:C:H3'     | 1:H1:899:U:H4'     | 1.85                     | 0.58              |
| 1:H1:970:C:H2'     | 1:H1:971:C:C6      | 2.38                     | 0.58              |
| 1:H1:977:A:H2'     | 1:H1:978:G:H5''    | 1.84                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1053:A:C8     | 1:H1:1054:G:C5     | 2.92                     | 0.58              |
| 1:H1:1095:C:H2'    | 1:H1:1095:C:O2     | 2.04                     | 0.58              |
| 1:H1:1540:U:H5     | 1:H1:1865:A:HO2'   | 1.51                     | 0.58              |
| 1:H1:1595:A:C2     | 1:H1:1598:C:OP2    | 2.57                     | 0.58              |
| 1:H1:2101:G:N7     | 50:H1:4225:HOH:O   | 2.32                     | 0.58              |
| 1:H1:2666:G:N3     | 1:H1:2666:G:H5''   | 2.19                     | 0.58              |
| 1:H1:3143:A:H8     | 1:H1:3143:A:OP2    | 1.87                     | 0.58              |
| 11:HL:74:VAL:HG12  | 11:HL:75:SER:H     | 1.69                     | 0.58              |
| 18:HU:52:LEU:HB3   | 18:HU:93:ILE:HA    | 1.86                     | 0.58              |
| 18:HU:74:THR:HB    | 18:HU:101:ASN:HD21 | 1.68                     | 0.58              |
| 1:A1:476:A:C2      | 1:A1:500:G:N2      | 2.72                     | 0.57              |
| 1:A1:519:A:H2'     | 1:A1:519:A:N3      | 2.19                     | 0.57              |
| 1:A1:720:C:H5''    | 24:BC:126:ARG:HH21 | 1.68                     | 0.57              |
| 1:A1:957:U:H4'     | 1:A1:958:A:O5'     | 2.04                     | 0.57              |
| 1:A1:970:C:H2'     | 1:A1:971:C:H6      | 1.69                     | 0.57              |
| 1:A1:1091:G:O2'    | 1:A1:1092:C:OP1    | 2.22                     | 0.57              |
| 1:A1:1187:C:N3     | 45:BX:47:ARG:NH1   | 2.51                     | 0.57              |
| 1:A1:1599:G:H5''   | 39:BR:43:LEU:CD1   | 2.34                     | 0.57              |
| 1:A1:1702:G:H2'    | 1:A1:1703:A:H8     | 1.69                     | 0.57              |
| 1:A1:1845:U:C4'    | 1:A1:1846:C:OP2    | 2.52                     | 0.57              |
| 1:A1:1880:C:H1'    | 11:AL:7:TYR:CE1    | 2.38                     | 0.57              |
| 1:A1:1884:G:H2'    | 1:A1:1885:G:H5'    | 1.86                     | 0.57              |
| 1:A1:2520:G:C2'    | 22:BA:35:PHE:CE1   | 2.87                     | 0.57              |
| 1:A1:2576:C:C2'    | 1:A1:2577:G:C5'    | 2.81                     | 0.57              |
| 9:AJ:71:LEU:HB3    | 9:AJ:97:ILE:HD11   | 1.86                     | 0.57              |
| 14:AO:106:PHE:O    | 14:AO:109:LYS:HB2  | 2.03                     | 0.57              |
| 16:AQ:44:VAL:O     | 16:AQ:48:VAL:HG23  | 2.04                     | 0.57              |
| 17:AT:17:HIS:CE1   | 17:AT:21:ILE:HD11  | 2.39                     | 0.57              |
| 19:AX:45:ALA:CB    | 19:AX:50:HIS:HD2   | 2.17                     | 0.57              |
| 19:AX:96:GLN:H     | 19:AX:134:THR:CG2  | 2.17                     | 0.57              |
| 21:B3:28:C:C2'     | 21:B3:29:C:H5'     | 2.32                     | 0.57              |
| 22:BA:98:ALA:HB3   | 22:BA:101:ASN:ND2  | 2.18                     | 0.57              |
| 23:BB:204:ASP:N    | 23:BB:204:ASP:OD1  | 2.37                     | 0.57              |
| 23:BB:216:LEU:HD21 | 23:BB:274:THR:HG23 | 1.85                     | 0.57              |
| 24:BC:328:ASN:OD1  | 24:BC:329:ALA:N    | 2.37                     | 0.57              |
| 27:BF:149:ASP:OD1  | 27:BF:149:ASP:C    | 2.48                     | 0.57              |
| 29:BH:208:ARG:HG3  | 29:BH:209:LEU:H    | 1.69                     | 0.57              |
| 30:BI:11:LYS:HD3   | 30:BI:36:ARG:HH12  | 1.69                     | 0.57              |
| 42:BU:98:LYS:HE3   | 42:BU:101:ARG:NH1  | 2.19                     | 0.57              |
| 43:BV:82:PHE:O     | 43:BV:133:PHE:HA   | 2.04                     | 0.57              |
| 43:BV:103:PHE:C    | 43:BV:104:ARG:HG2  | 2.29                     | 0.57              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 20:C2:18:G:H1'     | 1:D1:406:A:N6     | 2.19                     | 0.57              |
| 30:CI:109:THR:HG22 | 30:CI:110:PRO:HD3 | 1.83                     | 0.57              |
| 34:CM:56:THR:HB    | 34:CM:59:ARG:O    | 2.04                     | 0.57              |
| 34:CM:163:LEU:HD23 | 34:CM:180:PHE:CE2 | 2.39                     | 0.57              |
| 47:CO:172:UNK:HG2  | 47:CO:173:UNK:HG3 | 1.85                     | 0.57              |
| 37:CP:8:ARG:HD2    | 37:CP:11:THR:HG21 | 1.86                     | 0.57              |
| 40:CS:30:MET:HE1   | 40:CS:77:TRP:HA   | 1.86                     | 0.57              |
| 40:CS:84:ILE:O     | 40:CS:84:ILE:HG22 | 2.03                     | 0.57              |
| 43:CV:104:ARG:HD2  | 1:D1:1128:G:C5'   | 2.34                     | 0.57              |
| 43:CV:185:ILE:HA   | 43:CV:192:PHE:HE1 | 1.69                     | 0.57              |
| 1:D1:77:A:C2       | 1:D1:324:A:C2     | 2.91                     | 0.57              |
| 1:D1:304:U:C2'     | 1:D1:305:A:OP2    | 2.52                     | 0.57              |
| 1:D1:579:G:O2'     | 19:DX:159:ALA:N   | 2.37                     | 0.57              |
| 1:D1:1381:G:OP1    | 14:DO:36:THR:HB   | 2.03                     | 0.57              |
| 1:D1:1922:G:C2'    | 1:D1:1923:G:O5'   | 2.52                     | 0.57              |
| 1:D1:2163:A:C6     | 1:D1:2164:C:N4    | 2.72                     | 0.57              |
| 1:D1:3108:U:H2'    | 1:D1:3109:C:H5'   | 1.85                     | 0.57              |
| 8:DH:33:ASN:HA     | 8:DH:94:ASN:ND2   | 2.19                     | 0.57              |
| 12:DM:95:LEU:HA    | 12:DM:108:ARG:O   | 2.03                     | 0.57              |
| 16:DQ:13:PHE:CD1   | 16:DQ:14:ILE:N    | 2.72                     | 0.57              |
| 18:DU:44:VAL:O     | 18:DU:44:VAL:HG12 | 2.04                     | 0.57              |
| 19:DX:45:ALA:HB1   | 19:DX:50:HIS:HD2  | 1.69                     | 0.57              |
| 29:EH:171:TRP:CE2  | 29:EH:181:TYR:CE2 | 2.92                     | 0.57              |
| 41:ET:5:THR:HG21   | 41:ET:14:ARG:HE   | 1.69                     | 0.57              |
| 1:F1:88:U:C2'      | 1:F1:89:G:H5'     | 2.33                     | 0.57              |
| 1:F1:541:A:H2'     | 1:F1:542:C:C6     | 2.39                     | 0.57              |
| 1:F1:579:G:H1'     | 19:FX:158:ASN:CA  | 2.33                     | 0.57              |
| 1:F1:643:A:O2'     | 5:FE:131:LYS:HE2  | 2.04                     | 0.57              |
| 1:F1:1047:G:H2'    | 1:F1:1048:U:H5'   | 1.85                     | 0.57              |
| 1:F1:1901:C:C5'    | 1:F1:1902:C:H5'   | 2.32                     | 0.57              |
| 1:F1:3310:U:H4'    | 1:F1:3311:U:OP2   | 2.01                     | 0.57              |
| 5:FE:78:GLY:H      | 5:FE:85:VAL:HG12  | 1.68                     | 0.57              |
| 9:FJ:77:ASN:HB3    | 9:FJ:80:GLU:CG    | 2.33                     | 0.57              |
| 11:FL:5:ILE:HG21   | 11:FL:32:ALA:HB2  | 1.85                     | 0.57              |
| 12:FM:98:THR:HG22  | 12:FM:99:SER:N    | 2.17                     | 0.57              |
| 17:FT:32:THR:CG2   | 17:FT:40:LEU:HD21 | 2.35                     | 0.57              |
| 20:G2:111:A:C2'    | 20:G2:112:G:H5''  | 2.33                     | 0.57              |
| 22:GA:212:HIS:O    | 22:GA:213:GLY:C   | 2.45                     | 0.57              |
| 25:GD:59:ILE:HD11  | 1:H1:2669:A:N3    | 2.18                     | 0.57              |
| 37:GP:91:VAL:HG11  | 37:GP:96:VAL:HG23 | 1.86                     | 0.57              |
| 44:GW:14:ASN:CG    | 44:GW:17:LYS:HG3  | 2.28                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 45:GX:9:LYS:HD2   | 1:H1:621:G:OP1    | 2.04                     | 0.57              |
| 1:H1:209:A:H4'    | 1:H1:211:A:N7     | 2.18                     | 0.57              |
| 1:H1:801:U:H5'    | 17:HT:37:PRO:CG   | 2.34                     | 0.57              |
| 1:H1:3146:G:O6    | 1:H1:3248:C:N4    | 2.37                     | 0.57              |
| 2:HA:21:ARG:CZ    | 2:HA:44:MET:CE    | 2.82                     | 0.57              |
| 2:HA:21:ARG:HB2   | 2:HA:39:TYR:CD1   | 2.39                     | 0.57              |
| 7:HG:43:PHE:HE1   | 7:HG:68:HIS:CD2   | 2.21                     | 0.57              |
| 8:HH:26:SER:OG    | 8:HH:29:THR:HB    | 2.04                     | 0.57              |
| 9:HJ:135:VAL:CG1  | 9:HJ:136:GLU:N    | 2.67                     | 0.57              |
| 13:HN:70:PRO:CD   | 13:HN:115:LYS:HG2 | 2.34                     | 0.57              |
| 14:HO:15:PHE:O    | 14:HO:26:THR:N    | 2.36                     | 0.57              |
| 14:HO:75:THR:HG21 | 14:HO:77:GLU:OE1  | 2.04                     | 0.57              |
| 15:HP:39:ILE:HG22 | 15:HP:40:THR:N    | 2.19                     | 0.57              |
| 1:A1:64:A:N6      | 1:A1:66:C:O2      | 2.37                     | 0.57              |
| 1:A1:123:C:H2'    | 1:A1:124:U:H6     | 1.69                     | 0.57              |
| 1:A1:511:U:OP1    | 14:AO:70:VAL:HB   | 2.04                     | 0.57              |
| 1:A1:836:U:H2'    | 1:A1:837:G:C8     | 2.39                     | 0.57              |
| 1:A1:1062:A:C6    | 1:A1:1063:C:C4    | 2.92                     | 0.57              |
| 1:A1:1095:C:H2'   | 1:A1:1095:C:O2    | 2.03                     | 0.57              |
| 1:A1:1587:A:H4'   | 1:A1:1588:A:OP2   | 2.04                     | 0.57              |
| 1:A1:2277:U:O2'   | 1:A1:2278:G:OP1   | 2.21                     | 0.57              |
| 12:AM:35:PHE:CD1  | 12:AM:65:ILE:CD1  | 2.87                     | 0.57              |
| 12:AM:66:ASN:HD21 | 12:AM:68:GLN:NE2  | 2.02                     | 0.57              |
| 14:AO:108:LEU:O   | 14:AO:111:LEU:HB2 | 2.03                     | 0.57              |
| 17:AT:50:ASP:OD1  | 17:AT:51:PRO:HD2  | 2.04                     | 0.57              |
| 23:BB:81:CYS:HB3  | 23:BB:203:VAL:CG2 | 2.32                     | 0.57              |
| 23:BB:129:ALA:O   | 23:BB:130:PHE:HB2 | 2.04                     | 0.57              |
| 35:BN:53:LEU:O    | 35:BN:60:LYS:NZ   | 2.36                     | 0.57              |
| 40:BS:55:VAL:HG12 | 40:BS:56:LEU:N    | 2.18                     | 0.57              |
| 21:C3:10:C:N3     | 34:CM:20:TYR:HD1  | 2.00                     | 0.57              |
| 22:CA:113:VAL:CG1 | 22:CA:134:TYR:HB2 | 2.34                     | 0.57              |
| 24:CC:311:ALA:HB2 | 35:CN:40:ARG:HH21 | 1.69                     | 0.57              |
| 30:CI:49:ASN:ND2  | 30:CI:135:CYS:SG  | 2.67                     | 0.57              |
| 33:CL:45:PRO:O    | 33:CL:49:ARG:HG3  | 2.04                     | 0.57              |
| 34:CM:90:THR:O    | 34:CM:231:TRP:HZ3 | 1.86                     | 0.57              |
| 43:CV:83:ALA:O    | 43:CV:111:GLY:HA2 | 2.05                     | 0.57              |
| 1:D1:218:G:H8     | 1:D1:218:G:OP1    | 1.86                     | 0.57              |
| 1:D1:226:C:OP2    | 50:D1:3829:HOH:O  | 2.17                     | 0.57              |
| 1:D1:534:U:H2'    | 1:D1:535:C:H6     | 1.66                     | 0.57              |
| 1:D1:635:A:C2'    | 1:D1:636:U:O5'    | 2.51                     | 0.57              |
| 1:D1:884:A:O2'    | 1:D1:885:G:H5'    | 2.04                     | 0.57              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:1752:G:C5'    | 1:D1:1753:A:H3'   | 2.31                     | 0.57              |
| 1:D1:1870:C:H2'    | 1:D1:1870:C:O2    | 2.02                     | 0.57              |
| 1:D1:1942:C:C5'    | 1:D1:1942:C:H6    | 2.17                     | 0.57              |
| 1:D1:2362:A:C8     | 50:D1:3935:HOH:O  | 2.55                     | 0.57              |
| 1:D1:2557:A:C2     | 1:D1:2558:U:C2    | 2.92                     | 0.57              |
| 1:D1:2718:U:C2     | 1:D1:2719:A:C8    | 2.92                     | 0.57              |
| 2:DA:17:THR:HG23   | 3:DB:52:TYR:O     | 2.04                     | 0.57              |
| 20:E2:74:A:H5'     | 40:ES:50:ARG:CG   | 2.34                     | 0.57              |
| 21:E3:59:C:H2'     | 21:E3:60:C:H6     | 1.67                     | 0.57              |
| 23:EB:183:GLY:O    | 23:EB:189:LYS:HE2 | 2.03                     | 0.57              |
| 25:ED:106:ILE:HD12 | 25:ED:127:PHE:CE1 | 2.39                     | 0.57              |
| 29:EH:43:VAL:HG11  | 29:EH:197:VAL:CG2 | 2.32                     | 0.57              |
| 32:EK:142:GLY:C    | 18:FU:173:ARG:NH2 | 2.61                     | 0.57              |
| 33:EL:15:GLN:OE1   | 16:FQ:52:ALA:CB   | 2.50                     | 0.57              |
| 37:EP:17:LYS:CE    | 37:EP:47:SER:HB3  | 2.34                     | 0.57              |
| 39:ER:84:MET:CE    | 39:ER:144:ALA:HB2 | 2.34                     | 0.57              |
| 44:EW:14:ASN:HD21  | 44:EW:69:ARG:CZ   | 2.17                     | 0.57              |
| 1:F1:927:G:H2'     | 1:F1:928:U:H6     | 1.68                     | 0.57              |
| 1:F1:1511:G:N3     | 11:FL:4:ARG:NH1   | 2.52                     | 0.57              |
| 1:F1:2855:C:O2'    | 1:F1:2856:U:H5'   | 2.04                     | 0.57              |
| 1:F1:2958:C:C4'    | 1:F1:2959:A:N7    | 2.65                     | 0.57              |
| 1:F1:3070:C:H2'    | 1:F1:3071:C:H6    | 1.69                     | 0.57              |
| 1:F1:3118:A:H5''   | 1:F1:3119:A:OP2   | 2.04                     | 0.57              |
| 1:F1:3126:C:H2'    | 1:F1:3127:U:H6    | 1.69                     | 0.57              |
| 2:FA:16:HIS:HA     | 2:FA:27:TYR:O     | 2.04                     | 0.57              |
| 2:FA:18:LEU:HA     | 2:FA:24:LYS:O     | 2.04                     | 0.57              |
| 9:FJ:145:ASN:ND2   | 9:FJ:146:VAL:N    | 2.52                     | 0.57              |
| 12:FM:71:ILE:HG23  | 12:FM:72:PRO:HD2  | 1.85                     | 0.57              |
| 14:FO:44:HIS:HD2   | 14:FO:46:HIS:CD2  | 2.22                     | 0.57              |
| 20:G2:31:C:H2'     | 20:G2:32:C:C6     | 2.38                     | 0.57              |
| 20:G2:88:G:O2'     | 20:G2:89:A:O5'    | 2.16                     | 0.57              |
| 26:GE:172:GLN:OE1  | 1:H1:2888:A:H4'   | 2.04                     | 0.57              |
| 27:GF:58:ARG:HG2   | 1:H1:2574:U:O2    | 2.05                     | 0.57              |
| 32:GK:89:ARG:O     | 32:GK:121:GLN:NE2 | 2.36                     | 0.57              |
| 32:GK:132:LYS:HE2  | 18:HU:178:TYR:OH  | 2.04                     | 0.57              |
| 35:GN:102:CYS:SG   | 35:GN:127:LEU:HG  | 2.44                     | 0.57              |
| 39:GR:52:SER:O     | 42:GU:81:PRO:HB3  | 2.04                     | 0.57              |
| 39:GR:84:MET:HE3   | 39:GR:90:MET:CE   | 2.33                     | 0.57              |
| 39:GR:94:VAL:HG11  | 39:GR:103:ILE:CD1 | 2.33                     | 0.57              |
| 43:GV:170:LEU:HD11 | 43:GV:198:PHE:HB2 | 1.85                     | 0.57              |
| 43:GV:200:TRP:CG   | 43:GV:201:PRO:HD2 | 2.38                     | 0.57              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:39:G:H2'     | 1:H1:40:C:H5'      | 1.84                     | 0.57              |
| 1:H1:105:A:O2'    | 1:H1:323:A:N3      | 2.37                     | 0.57              |
| 1:H1:396:A:C2     | 1:H1:397:A:C4      | 2.92                     | 0.57              |
| 1:H1:524:G:H4'    | 1:H1:525:C:OP2     | 2.04                     | 0.57              |
| 1:H1:1337:G:OP1   | 50:H1:4041:HOH:O   | 2.17                     | 0.57              |
| 1:H1:1518:G:O6    | 3:HB:2:GLY:N       | 2.37                     | 0.57              |
| 1:H1:1701:A:H5''  | 12:HM:99:SER:HB2   | 1.86                     | 0.57              |
| 1:H1:1719:U:H4'   | 11:HL:24:LYS:O     | 2.04                     | 0.57              |
| 1:H1:1752:G:C5'   | 1:H1:1753:A:H3'    | 2.34                     | 0.57              |
| 1:H1:1775:A:H1'   | 1:H1:1776:G:H3'    | 1.86                     | 0.57              |
| 1:H1:2651:A:H2'   | 1:H1:2652:G:H8     | 1.68                     | 0.57              |
| 1:H1:2672:U:H2'   | 1:H1:2673:C:C6     | 2.39                     | 0.57              |
| 2:HA:2:THR:O      | 2:HA:7:ALA:HB2     | 2.03                     | 0.57              |
| 7:HG:10:ILE:HG23  | 7:HG:13:LYS:CE     | 2.34                     | 0.57              |
| 7:HG:13:LYS:HG2   | 7:HG:14:LEU:H      | 1.69                     | 0.57              |
| 7:HG:27:TYR:HD2   | 7:HG:52:ARG:HD3    | 1.68                     | 0.57              |
| 13:HN:15:GLN:NE2  | 13:HN:79:HIS:CE1   | 2.71                     | 0.57              |
| 13:HN:83:THR:HG22 | 13:HN:85:TYR:N     | 2.17                     | 0.57              |
| 15:HP:53:PHE:CE1  | 15:HP:55:THR:HG22  | 2.38                     | 0.57              |
| 19:HX:15:GLN:HE21 | 19:HX:115:GLY:HA2  | 1.69                     | 0.57              |
| 19:HX:96:GLN:N    | 19:HX:134:THR:HG21 | 2.16                     | 0.57              |
| 1:A1:281:G:H2'    | 1:A1:285:U:C6      | 2.39                     | 0.57              |
| 1:A1:512:G:N2     | 1:A1:513:G:C4      | 2.73                     | 0.57              |
| 1:A1:541:A:H2'    | 1:A1:542:C:C6      | 2.39                     | 0.57              |
| 1:A1:848:C:H2'    | 1:A1:849:U:C6      | 2.39                     | 0.57              |
| 1:A1:874:C:H4'    | 1:H1:2301:C:N4     | 2.18                     | 0.57              |
| 1:A1:1068:U:O2'   | 1:A1:1069:C:H5'    | 2.04                     | 0.57              |
| 1:A1:1348:G:H2'   | 1:A1:1349:U:O5'    | 2.03                     | 0.57              |
| 1:A1:1506:G:O2'   | 1:A1:1895:U:O4     | 2.21                     | 0.57              |
| 1:A1:1928:C:N4    | 1:A1:1929:G:C6     | 2.72                     | 0.57              |
| 1:A1:2128:C:OP1   | 50:A1:4102:HOH:O   | 2.17                     | 0.57              |
| 1:A1:2186:U:H2'   | 1:A1:2187:C:H6     | 1.69                     | 0.57              |
| 1:A1:2254:A:H2'   | 1:A1:2255:U:C6     | 2.39                     | 0.57              |
| 1:A1:2429:U:H1'   | 1:A1:2430:G:OP2    | 2.04                     | 0.57              |
| 1:A1:2666:G:N3    | 1:A1:2666:G:H5''   | 2.19                     | 0.57              |
| 5:AE:42:ARG:NH1   | 8:AH:111:ASN:ND2   | 2.51                     | 0.57              |
| 5:AE:71:SER:HB3   | 5:AE:114:ASP:OD2   | 2.03                     | 0.57              |
| 6:AF:84:LYS:O     | 6:AF:87:GLU:HG2    | 2.03                     | 0.57              |
| 7:AG:27:TYR:HD2   | 7:AG:52:ARG:HD3    | 1.66                     | 0.57              |
| 9:AJ:71:LEU:HD13  | 9:AJ:97:ILE:HD11   | 1.85                     | 0.57              |
| 9:AJ:116:LEU:HD21 | 9:AJ:177:LEU:HD21  | 1.86                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:AL:5:ILE:CG2    | 11:AL:32:ALA:HB2   | 2.34                     | 0.57              |
| 12:AM:59:SER:OG    | 12:AM:66:ASN:HB3   | 2.04                     | 0.57              |
| 21:B3:93:G:H8      | 21:B3:93:G:O5'     | 1.86                     | 0.57              |
| 22:BA:32:VAL:HA    | 22:BA:124:ARG:HH11 | 1.68                     | 0.57              |
| 24:BC:65:MET:CE    | 24:BC:105:ARG:HG2  | 2.34                     | 0.57              |
| 30:BI:11:LYS:HD3   | 30:BI:36:ARG:NH1   | 2.19                     | 0.57              |
| 34:BM:163:LEU:HD23 | 34:BM:180:PHE:CE2  | 2.40                     | 0.57              |
| 36:BO:15:LEU:HD21  | 36:BO:45:ILE:HD13  | 1.87                     | 0.57              |
| 39:BR:72:LYS:HE3   | 39:BR:95:HIS:HA    | 1.86                     | 0.57              |
| 45:BX:99:ALA:HB1   | 45:BX:101:ASN:OD1  | 2.05                     | 0.57              |
| 20:C2:111:A:C5     | 2:DA:20:ARG:NH2    | 2.72                     | 0.57              |
| 23:CB:49:PHE:CE2   | 23:CB:333:VAL:HG12 | 2.39                     | 0.57              |
| 23:CB:381:ASP:HB3  | 23:CB:384:LYS:HB3  | 1.86                     | 0.57              |
| 29:CH:193:ASP:HB2  | 1:D1:1037:A:H1'    | 1.85                     | 0.57              |
| 33:CL:184:LEU:HD23 | 33:CL:188:ARG:HD2  | 1.86                     | 0.57              |
| 35:CN:168:ARG:HH11 | 18:DU:9:VAL:HG21   | 1.67                     | 0.57              |
| 37:CP:13:LYS:O     | 50:CP:203:HOH:O    | 2.17                     | 0.57              |
| 37:CP:145:VAL:HG21 | 19:DX:40:GLN:OE1   | 2.03                     | 0.57              |
| 40:CS:56:LEU:HD12  | 40:CS:65:ASN:O     | 2.04                     | 0.57              |
| 43:CV:164:THR:O    | 43:CV:168:LYS:HG3  | 2.03                     | 0.57              |
| 44:CW:50:ILE:HG23  | 44:CW:54:LEU:HD23  | 1.85                     | 0.57              |
| 46:CY:64:ILE:HD11  | 46:CY:71:LEU:CD1   | 2.27                     | 0.57              |
| 1:D1:257:G:H2'     | 1:D1:258:A:H5'     | 1.86                     | 0.57              |
| 1:D1:675:G:C6      | 1:D1:676:G:C6      | 2.91                     | 0.57              |
| 1:D1:685:G:O2'     | 1:D1:686:U:C6      | 2.57                     | 0.57              |
| 1:D1:919:A:H1'     | 1:D1:920:A:C2      | 2.39                     | 0.57              |
| 1:D1:1103:A:N3     | 1:D1:1103:A:H2'    | 2.17                     | 0.57              |
| 1:D1:1192:A:O2'    | 1:D1:1193:G:H5'    | 2.04                     | 0.57              |
| 1:D1:1205:A:H5'    | 1:D1:1205:A:H8     | 1.69                     | 0.57              |
| 1:D1:1695:A:H2'    | 1:D1:1696:C:H6     | 1.69                     | 0.57              |
| 1:D1:2545:A:HO2'   | 1:D1:2546:A:P      | 2.27                     | 0.57              |
| 1:D1:3044:A:C5'    | 1:D1:3045:A:OP1    | 2.51                     | 0.57              |
| 1:D1:3191:G:H1'    | 1:D1:3219:A:H62    | 1.69                     | 0.57              |
| 5:DE:71:SER:HB3    | 5:DE:114:ASP:OD2   | 2.04                     | 0.57              |
| 5:DE:135:THR:HG22  | 5:DE:136:GLU:N     | 2.19                     | 0.57              |
| 7:DG:13:LYS:CB     | 7:DG:100:ILE:HD12  | 2.32                     | 0.57              |
| 9:DJ:123:ARG:NH1   | 9:FJ:123:ARG:NE    | 2.52                     | 0.57              |
| 14:DO:40:LEU:O     | 14:DO:44:HIS:CE1   | 2.56                     | 0.57              |
| 20:E2:144:U:H2'    | 20:E2:145:C:H5''   | 1.86                     | 0.57              |
| 21:E3:20:U:O2'     | 21:E3:21:G:H5'     | 2.05                     | 0.57              |
| 21:E3:30:G:C2'     | 21:E3:31:G:H5'     | 2.34                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:EA:50:VAL:HG12  | 22:EA:51:HIS:H     | 1.68                     | 0.57              |
| 24:EC:308:VAL:HG12 | 35:EN:40:ARG:NH1   | 2.18                     | 0.57              |
| 25:ED:32:LYS:HD3   | 25:ED:119:SER:O    | 2.04                     | 0.57              |
| 26:EE:46:GLN:NE2   | 26:EE:56:GLN:NE2   | 2.52                     | 0.57              |
| 26:EE:132:ILE:HG23 | 26:EE:144:LEU:CD2  | 2.34                     | 0.57              |
| 33:EL:165:THR:HG23 | 33:EL:168:GLY:H    | 1.70                     | 0.57              |
| 33:EL:184:LEU:HD23 | 33:EL:188:ARG:HD2  | 1.86                     | 0.57              |
| 36:EO:15:LEU:HD13  | 36:EO:52:LYS:HB2   | 1.85                     | 0.57              |
| 39:ER:72:LYS:HE3   | 39:ER:95:HIS:HA    | 1.86                     | 0.57              |
| 39:ER:74:PRO:CB    | 39:ER:149:LEU:HD11 | 2.35                     | 0.57              |
| 1:F1:184:C:H2'     | 1:F1:185:A:H8      | 1.70                     | 0.57              |
| 1:F1:842:A:H8      | 2:FA:15:THR:HG23   | 1.62                     | 0.57              |
| 1:F1:884:A:O2'     | 1:F1:885:G:H5'     | 2.05                     | 0.57              |
| 4:FC:94:ILE:HA     | 4:FC:97:ILE:HD12   | 1.87                     | 0.57              |
| 5:FE:142:GLU:HA    | 5:FE:142:GLU:OE1   | 2.03                     | 0.57              |
| 7:FG:57:GLU:HA     | 7:FG:67:ILE:HD11   | 1.85                     | 0.57              |
| 9:FJ:198:VAL:HG23  | 9:FJ:205:PHE:HB2   | 1.86                     | 0.57              |
| 13:FN:83:THR:HG22  | 13:FN:85:TYR:N     | 2.14                     | 0.57              |
| 16:FQ:15:THR:HG21  | 18:FU:103:CYS:SG   | 2.44                     | 0.57              |
| 18:FU:168:ASN:O    | 18:FU:172:LEU:HG   | 2.03                     | 0.57              |
| 22:GA:71:LYS:HE3   | 22:GA:73:ASN:CG    | 2.29                     | 0.57              |
| 23:GB:121:ASN:HB3  | 1:H1:3275:A:H62    | 1.63                     | 0.57              |
| 27:GF:152:PRO:HB2  | 27:GF:154:GLU:OE1  | 2.04                     | 0.57              |
| 27:GF:171:ALA:HA   | 27:GF:215:TYR:CD2  | 2.39                     | 0.57              |
| 33:GL:177:LYS:HG2  | 33:GL:185:ARG:NH2  | 2.19                     | 0.57              |
| 37:GP:8:ARG:C      | 37:GP:11:THR:HG1   | 2.09                     | 0.57              |
| 37:GP:83:ARG:HH22  | 1:H1:2717:G:H5'    | 1.64                     | 0.57              |
| 39:GR:36:ARG:NH1   | 1:H1:1586:C:O2     | 2.37                     | 0.57              |
| 40:GS:84:ILE:O     | 40:GS:84:ILE:HG22  | 2.03                     | 0.57              |
| 42:GU:22:LEU:HD21  | 42:GU:59:LEU:HD21  | 1.86                     | 0.57              |
| 44:GW:16:HIS:CD2   | 1:H1:3330:U:OP1    | 2.55                     | 0.57              |
| 1:H1:126:A:C5'     | 1:H1:127:A:OP1     | 2.52                     | 0.57              |
| 1:H1:488:U:H2'     | 1:H1:490:A:OP2     | 2.04                     | 0.57              |
| 1:H1:566:U:C3'     | 1:H1:567:C:H5'     | 2.34                     | 0.57              |
| 1:H1:784:G:H1'     | 1:H1:796:A:H61     | 1.69                     | 0.57              |
| 1:H1:1210:C:C5'    | 19:HX:171:ARG:HH21 | 2.16                     | 0.57              |
| 1:H1:1350:G:O3'    | 19:HX:16:MET:HG3   | 2.05                     | 0.57              |
| 1:H1:1383:G:HO2'   | 1:H1:1384:G:P      | 2.27                     | 0.57              |
| 1:H1:2557:A:C2     | 1:H1:2564:G:C4     | 2.92                     | 0.57              |
| 1:H1:3143:A:C2     | 1:H1:3250:A:C2     | 2.92                     | 0.57              |
| 5:HE:51:LEU:HB3    | 5:HE:95:THR:HG21   | 1.87                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:HH:58:TYR:HA     | 8:HH:104:LEU:CD2   | 2.34                     | 0.57              |
| 9:HJ:199:VAL:HG11  | 9:HJ:222:PHE:CE2   | 2.39                     | 0.57              |
| 13:HN:33:THR:HB    | 13:HN:35:ASP:H     | 1.69                     | 0.57              |
| 19:HX:45:ALA:HB1   | 19:HX:50:HIS:CD2   | 2.40                     | 0.57              |
| 19:HX:82:SER:O     | 19:HX:87:LYS:NZ    | 2.34                     | 0.57              |
| 1:A1:1:C:O2'       | 1:A1:2:U:H5'       | 2.03                     | 0.57              |
| 1:A1:133:C:O2'     | 42:BU:76:GLY:HA2   | 2.04                     | 0.57              |
| 1:A1:927:G:H2'     | 1:A1:928:U:H6      | 1.69                     | 0.57              |
| 1:A1:1307:C:O2'    | 1:A1:1308:U:H5'    | 2.04                     | 0.57              |
| 1:A1:2275:A:H2'    | 1:A1:2277:U:C5'    | 2.35                     | 0.57              |
| 1:A1:2324:A:H5''   | 1:A1:2324:A:C8     | 2.39                     | 0.57              |
| 1:A1:2353:C:H2'    | 1:A1:2353:C:O2     | 2.04                     | 0.57              |
| 1:A1:3144:G:N2     | 1:A1:3249:U:H1'    | 2.19                     | 0.57              |
| 1:A1:3291:G:O2'    | 1:A1:3292:U:C6     | 2.53                     | 0.57              |
| 5:AE:78:GLY:H      | 5:AE:85:VAL:HG12   | 1.69                     | 0.57              |
| 6:AF:2:VAL:HG12    | 6:AF:3:PHE:N       | 2.18                     | 0.57              |
| 8:AH:11:PRO:HG2    | 8:AH:12:THR:N      | 2.17                     | 0.57              |
| 9:AJ:129:ILE:HG23  | 9:AJ:133:LEU:HD12  | 1.85                     | 0.57              |
| 13:AN:113:THR:O    | 13:AN:117:VAL:HG23 | 2.04                     | 0.57              |
| 18:AU:164:LYS:HZ1  | 32:BK:88:THR:HG23  | 1.69                     | 0.57              |
| 20:B2:107:C:C4     | 20:B2:135:A:C6     | 2.92                     | 0.57              |
| 20:B2:146:A:O2'    | 20:B2:147:G:H5'    | 2.03                     | 0.57              |
| 21:B3:59:C:H2'     | 21:B3:60:C:H6      | 1.68                     | 0.57              |
| 23:BB:114:THR:HG23 | 23:BB:115:LYS:N    | 2.18                     | 0.57              |
| 32:BK:109:PHE:C    | 32:BK:110:PHE:HD1  | 2.12                     | 0.57              |
| 35:BN:146:ARG:HB2  | 35:BN:149:TYR:HE2  | 1.68                     | 0.57              |
| 41:BT:16:TYR:HB3   | 41:BT:17:PRO:CD    | 2.35                     | 0.57              |
| 22:CA:33:TYR:HA    | 22:CA:164:ARG:NH2  | 2.18                     | 0.57              |
| 29:CH:193:ASP:HB3  | 1:D1:1037:A:H1'    | 1.86                     | 0.57              |
| 32:CK:145:CYS:HB2  | 18:DU:177:VAL:HG21 | 1.85                     | 0.57              |
| 35:CN:180:LEU:O    | 35:CN:181:LYS:C    | 2.46                     | 0.57              |
| 1:D1:631:G:C5      | 5:DE:31:ARG:NH2    | 2.72                     | 0.57              |
| 1:D1:1506:G:O2'    | 1:D1:1895:U:O4     | 2.21                     | 0.57              |
| 1:D1:1518:G:P      | 2:DA:14:LYS:HZ1    | 2.27                     | 0.57              |
| 1:D1:2250:A:H4'    | 1:D1:2251:A:H8     | 1.68                     | 0.57              |
| 1:D1:2277:U:O2'    | 1:D1:2278:G:OP1    | 2.20                     | 0.57              |
| 1:D1:2414:A:H2'    | 1:D1:2415:C:H6     | 1.70                     | 0.57              |
| 1:D1:3191:G:C2'    | 1:D1:3192:C:OP2    | 2.52                     | 0.57              |
| 1:D1:3228:U:H5''   | 1:D1:3229:C:H5''   | 1.86                     | 0.57              |
| 2:DA:15:THR:OG1    | 2:DA:16:HIS:CD2    | 2.58                     | 0.57              |
| 12:DM:35:PHE:CE1   | 12:DM:39:LEU:HD11  | 2.38                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:DN:41:VAL:HG12  | 13:DN:43:VAL:CG2   | 2.35                     | 0.57              |
| 15:DP:31:VAL:HG22  | 15:DP:44:LEU:HD23  | 1.85                     | 0.57              |
| 18:DU:87:PHE:CE2   | 18:DU:91:ILE:HD11  | 2.39                     | 0.57              |
| 23:EB:298:VAL:O    | 23:EB:298:VAL:HG12 | 2.03                     | 0.57              |
| 24:EC:159:PHE:HZ   | 24:EC:179:VAL:CG1  | 2.16                     | 0.57              |
| 27:EF:46:ARG:NE    | 1:F1:2518:A:H5'    | 2.20                     | 0.57              |
| 31:EJ:27:MET:HB2   | 31:EJ:102:ASN:O    | 2.04                     | 0.57              |
| 34:EM:18:THR:HG23  | 34:EM:18:THR:O     | 2.04                     | 0.57              |
| 35:EN:146:ARG:HB2  | 35:EN:149:TYR:HE2  | 1.68                     | 0.57              |
| 43:EV:206:THR:HG21 | 1:F1:1195:U:C1'    | 2.35                     | 0.57              |
| 1:F1:46:A:C4'      | 1:F1:47:G:O5'      | 2.53                     | 0.57              |
| 1:F1:970:C:O4'     | 1:F1:1433:A:H1'    | 2.04                     | 0.57              |
| 1:F1:1471:U:H5''   | 1:F1:1472:A:OP2    | 2.04                     | 0.57              |
| 1:F1:2574:U:C5'    | 1:F1:2575:G:OP1    | 2.52                     | 0.57              |
| 12:FM:19:ILE:HD13  | 12:FM:105:TYR:HB2  | 1.87                     | 0.57              |
| 13:FN:72:ILE:O     | 13:FN:72:ILE:HG13  | 2.05                     | 0.57              |
| 16:FQ:9:ILE:HD11   | 18:FU:187:ASN:CB   | 2.20                     | 0.57              |
| 18:FU:123:LEU:HD23 | 18:FU:136:VAL:CG2  | 2.34                     | 0.57              |
| 18:FU:176:LYS:O    | 18:FU:180:ILE:HG13 | 2.03                     | 0.57              |
| 20:G2:1:A:C5'      | 20:G2:2:G:OP2      | 2.52                     | 0.57              |
| 24:GC:201:LEU:N    | 24:GC:201:LEU:HD23 | 2.20                     | 0.57              |
| 24:GC:214:VAL:HG12 | 24:GC:257:ILE:HB   | 1.86                     | 0.57              |
| 24:GC:338:LYS:O    | 24:GC:341:LYS:HB2  | 2.04                     | 0.57              |
| 24:GC:369:HIS:CE1  | 43:GV:68:LYS:NZ    | 2.72                     | 0.57              |
| 32:GK:128:LYS:HB3  | 32:GK:129:TYR:CD1  | 2.39                     | 0.57              |
| 33:GL:55:ASN:HB2   | 1:H1:148:G:H4'     | 1.86                     | 0.57              |
| 34:GM:163:LEU:HD23 | 34:GM:180:PHE:CZ   | 2.39                     | 0.57              |
| 35:GN:25:VAL:HG11  | 14:HO:7:GLU:HB2    | 1.86                     | 0.57              |
| 39:GR:39:ARG:N     | 1:H1:1588:A:OP1    | 2.36                     | 0.57              |
| 1:H1:49:A:H2'      | 1:H1:50:A:H8       | 1.70                     | 0.57              |
| 1:H1:467:A:C6      | 1:H1:468:A:C6      | 2.92                     | 0.57              |
| 1:H1:2359:G:H22    | 1:H1:2391:G:H1'    | 1.69                     | 0.57              |
| 1:H1:3044:A:C4'    | 1:H1:3045:A:OP1    | 2.52                     | 0.57              |
| 1:H1:3167:U:C4'    | 1:H1:3168:A:O5'    | 2.44                     | 0.57              |
| 1:H1:3229:C:C2     | 5:HE:57:ARG:HG3    | 2.40                     | 0.57              |
| 5:HE:56:GLY:C      | 5:HE:58:PHE:N      | 2.59                     | 0.57              |
| 9:HJ:80:GLU:O      | 9:HJ:84:ILE:HG13   | 2.05                     | 0.57              |
| 18:HU:91:ILE:HG22  | 18:HU:117:TYR:HE2  | 1.68                     | 0.57              |
| 1:A1:362:G:C2'     | 1:A1:363:G:H5''    | 2.33                     | 0.57              |
| 1:A1:838:G:H4'     | 2:AA:47:TYR:CE2    | 2.39                     | 0.57              |
| 1:A1:1064:C:H2'    | 1:A1:1065:U:C5'    | 2.34                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1207:A:O2'    | 1:A1:1208:U:P      | 2.62                     | 0.57              |
| 1:A1:1249:G:O2'    | 1:A1:1250:A:P      | 2.61                     | 0.57              |
| 1:A1:1367:A:H2'    | 1:A1:1368:U:C6     | 2.39                     | 0.57              |
| 1:A1:1445:G:H5''   | 24:BC:200:LYS:NZ   | 2.19                     | 0.57              |
| 1:A1:1711:U:H1'    | 12:AM:77:TYR:CE2   | 2.39                     | 0.57              |
| 1:A1:1937:G:N3     | 1:A1:2116:A:H2'    | 2.20                     | 0.57              |
| 1:A1:2158:C:C5'    | 22:BA:239:ARG:HH11 | 2.00                     | 0.57              |
| 1:A1:2187:C:C2'    | 1:A1:2188:U:H5'    | 2.33                     | 0.57              |
| 1:A1:2217:C:C4'    | 1:A1:2218:A:OP2    | 2.49                     | 0.57              |
| 1:A1:2257:A:H2'    | 1:A1:2258:C:H6     | 1.69                     | 0.57              |
| 1:A1:2574:U:C5'    | 1:A1:2575:G:OP1    | 2.53                     | 0.57              |
| 5:AE:115:ASP:OD1   | 5:AE:115:ASP:N     | 2.38                     | 0.57              |
| 6:AF:11:ARG:HD2    | 6:AF:59:GLN:OE1    | 2.05                     | 0.57              |
| 24:BC:65:MET:HE1   | 24:BC:97:PHE:HB2   | 1.84                     | 0.57              |
| 26:BE:113:LYS:HE3  | 26:BE:114:HIS:HB2  | 1.87                     | 0.57              |
| 27:BF:197:ARG:O    | 27:BF:198:ASN:C    | 2.47                     | 0.57              |
| 29:BH:20:SER:H     | 29:BH:23:ASN:HB2   | 1.69                     | 0.57              |
| 31:BJ:86:ARG:HG3   | 31:BJ:99:PHE:O     | 2.05                     | 0.57              |
| 43:BV:48:TYR:CE1   | 43:BV:183:HIS:CD2  | 2.93                     | 0.57              |
| 21:C3:27:A:H5''    | 34:CM:57:ASN:ND2   | 2.19                     | 0.57              |
| 22:CA:98:ALA:HB3   | 22:CA:101:ASN:ND2  | 2.19                     | 0.57              |
| 27:CF:123:ILE:HD12 | 27:CF:197:ARG:HD3  | 1.85                     | 0.57              |
| 29:CH:189:LYS:O    | 29:CH:200:ILE:HG13 | 2.05                     | 0.57              |
| 30:CI:132:ARG:NH1  | 1:D1:1216:C:C2'    | 2.66                     | 0.57              |
| 33:CL:19:MET:HE1   | 33:CL:22:ILE:HD12  | 1.86                     | 0.57              |
| 33:CL:28:TRP:HA    | 33:CL:31:ARG:NH1   | 2.20                     | 0.57              |
| 42:CU:98:LYS:HG2   | 1:D1:242:G:OP1     | 2.04                     | 0.57              |
| 1:D1:152:U:H5'     | 1:D1:153:C:OP2     | 2.04                     | 0.57              |
| 1:D1:970:C:O4'     | 1:D1:1433:A:H1'    | 2.04                     | 0.57              |
| 1:D1:1367:A:H2'    | 1:D1:1368:U:C6     | 2.40                     | 0.57              |
| 1:D1:1798:U:H5'    | 1:D1:1799:C:O4'    | 2.04                     | 0.57              |
| 1:D1:2544:U:H4'    | 7:DG:50:THR:OG1    | 2.03                     | 0.57              |
| 1:D1:2679:G:H5'    | 1:D1:2680:A:OP2    | 2.04                     | 0.57              |
| 1:D1:2737:A:H2'    | 1:D1:2738:G:H5'    | 1.87                     | 0.57              |
| 1:D1:3096:U:H5''   | 10:DK:112:LYS:HZ3  | 1.68                     | 0.57              |
| 1:D1:3135:A:H2'    | 1:D1:3136:A:H8     | 1.70                     | 0.57              |
| 5:DE:161:LEU:O     | 5:DE:165:LYS:HB2   | 2.05                     | 0.57              |
| 8:DH:26:SER:OG     | 8:DH:29:THR:HB     | 2.04                     | 0.57              |
| 9:DJ:17:CYS:HB2    | 9:DJ:25:LEU:O      | 2.03                     | 0.57              |
| 15:DP:39:ILE:HG22  | 15:DP:40:THR:N     | 2.20                     | 0.57              |
| 20:E2:1:A:C5'      | 20:E2:2:G:OP2      | 2.52                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:E2:7:U:OP1      | 38:EQ:64:ARG:CG    | 2.52                     | 0.57              |
| 20:E2:39:G:N3      | 42:EU:90:ARG:NH1   | 2.52                     | 0.57              |
| 23:EB:303:ILE:CD1  | 23:EB:319:PHE:CE1  | 2.87                     | 0.57              |
| 23:EB:373:GLU:OE2  | 41:ET:16:TYR:OH    | 2.23                     | 0.57              |
| 24:EC:191:THR:HG21 | 24:EC:209:ARG:NH1  | 2.18                     | 0.57              |
| 31:EJ:86:ARG:H     | 31:EJ:102:ASN:ND2  | 2.00                     | 0.57              |
| 33:EL:16:SER:CB    | 16:FQ:49:THR:HG23  | 2.33                     | 0.57              |
| 34:EM:109:LEU:HD21 | 34:EM:142:PHE:CE2  | 2.39                     | 0.57              |
| 35:EN:146:ARG:HB3  | 35:EN:149:TYR:CD2  | 2.39                     | 0.57              |
| 37:EP:17:LYS:NZ    | 37:EP:47:SER:HB3   | 2.19                     | 0.57              |
| 38:EQ:71:ARG:HD3   | 1:F1:3269:G:H1'    | 1.85                     | 0.57              |
| 38:EQ:117:GLN:HA   | 38:EQ:117:GLN:OE1  | 2.02                     | 0.57              |
| 1:F1:581:C:H2'     | 1:F1:582:A:H5''    | 1.85                     | 0.57              |
| 1:F1:915:C:O2'     | 1:F1:2319:A:N3     | 2.35                     | 0.57              |
| 1:F1:1379:G:N1     | 5:FE:22:ASP:OD2    | 2.37                     | 0.57              |
| 1:F1:1593:A:C2     | 1:F1:1601:U:O2     | 2.57                     | 0.57              |
| 1:F1:3007:G:H5''   | 9:FJ:8:GLU:OE1     | 2.04                     | 0.57              |
| 1:F1:3191:G:H1'    | 1:F1:3219:A:H62    | 1.67                     | 0.57              |
| 2:FA:2:THR:O       | 2:FA:7:ALA:HB2     | 2.04                     | 0.57              |
| 6:FF:56:THR:O      | 6:FF:56:THR:HG22   | 2.05                     | 0.57              |
| 20:G2:7:U:OP1      | 38:GQ:64:ARG:CG    | 2.52                     | 0.57              |
| 21:G3:20:U:C2'     | 21:G3:21:G:H5'     | 2.34                     | 0.57              |
| 23:GB:332:ARG:HG3  | 23:GB:332:ARG:NH1  | 2.15                     | 0.57              |
| 24:GC:155:LEU:HA   | 24:GC:156:PRO:C    | 2.30                     | 0.57              |
| 24:GC:298:ILE:O    | 24:GC:304:VAL:HG21 | 2.03                     | 0.57              |
| 29:GH:92:HIS:HD2   | 1:H1:1070:U:C1'    | 2.16                     | 0.57              |
| 29:GH:99:ILE:HG22  | 29:GH:123:LEU:HB2  | 1.87                     | 0.57              |
| 29:GH:174:THR:HG22 | 29:GH:176:LEU:H    | 1.68                     | 0.57              |
| 39:GR:72:LYS:HE3   | 39:GR:95:HIS:HA    | 1.85                     | 0.57              |
| 41:GT:22:ARG:NE    | 41:GT:32:PHE:CD2   | 2.72                     | 0.57              |
| 43:GV:109:HIS:HD2  | 1:H1:1360:C:O2'    | 1.87                     | 0.57              |
| 1:H1:257:G:H2'     | 1:H1:258:A:H5'     | 1.86                     | 0.57              |
| 1:H1:579:G:O2'     | 19:HX:158:ASN:HA   | 2.04                     | 0.57              |
| 1:H1:971:C:O2'     | 1:H1:972:U:H5'     | 2.03                     | 0.57              |
| 1:H1:986:C:H4'     | 1:H1:987:A:OP2     | 2.04                     | 0.57              |
| 1:H1:1091:G:O2'    | 1:H1:1092:C:OP1    | 2.23                     | 0.57              |
| 1:H1:1159:C:O2'    | 1:H1:1160:A:H5'    | 2.04                     | 0.57              |
| 1:H1:1228:C:H2'    | 1:H1:1228:C:O2     | 2.03                     | 0.57              |
| 1:H1:1256:G:H2'    | 1:H1:1257:G:H8     | 1.69                     | 0.57              |
| 1:H1:1306:C:H2'    | 1:H1:1307:C:C6     | 2.40                     | 0.57              |
| 1:H1:1686:G:H22    | 1:H1:1813:A:H2     | 1.53                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1821:U:O2'    | 1:H1:1822:G:C5     | 2.57                     | 0.57              |
| 1:H1:2408:A:O2'    | 1:H1:2409:G:H5'    | 2.04                     | 0.57              |
| 1:H1:2574:U:C5'    | 1:H1:2575:G:OP1    | 2.53                     | 0.57              |
| 1:H1:2640:G:O2'    | 1:H1:2784:G:N1     | 2.37                     | 0.57              |
| 1:H1:2899:C:C5'    | 1:H1:2900:G:OP1    | 2.48                     | 0.57              |
| 1:H1:3109:C:H3'    | 10:HK:111:ARG:HH11 | 1.64                     | 0.57              |
| 5:HE:63:VAL:HG12   | 5:HE:64:VAL:N      | 2.19                     | 0.57              |
| 18:HU:123:LEU:HD23 | 18:HU:136:VAL:CG2  | 2.35                     | 0.57              |
| 1:A1:406:A:N6      | 20:B2:18:G:H1'     | 2.20                     | 0.57              |
| 1:A1:1392:G:OP2    | 50:A1:3917:HOH:O   | 2.17                     | 0.57              |
| 1:A1:1497:U:H2'    | 1:A1:1498:U:H6     | 1.70                     | 0.57              |
| 1:A1:1595:A:OP2    | 1:A1:1596:U:H5     | 1.87                     | 0.57              |
| 1:A1:2120:U:O2'    | 1:A1:2121:A:H5'    | 2.04                     | 0.57              |
| 1:A1:2576:C:C5'    | 1:A1:2576:C:C6     | 2.82                     | 0.57              |
| 1:A1:2865:G:H2'    | 1:A1:2866:G:H8     | 1.69                     | 0.57              |
| 5:AE:41:LEU:HD13   | 5:AE:45:ILE:CD1    | 2.21                     | 0.57              |
| 5:AE:145:ARG:O     | 5:AE:149:ARG:HG3   | 2.04                     | 0.57              |
| 5:AE:173:TYR:OH    | 6:AF:105:ASP:HB3   | 2.05                     | 0.57              |
| 7:AG:60:ALA:HB3    | 7:AG:67:ILE:HD11   | 1.87                     | 0.57              |
| 13:AN:54:THR:CB    | 13:AN:57:MET:HG3   | 2.32                     | 0.57              |
| 16:AQ:7:VAL:O      | 16:AQ:7:VAL:HG12   | 2.05                     | 0.57              |
| 21:B3:1:G:H4'      | 34:BM:275:LYS:NZ   | 2.18                     | 0.57              |
| 21:B3:30:G:C2'     | 21:B3:31:G:H5'     | 2.34                     | 0.57              |
| 22:BA:248:ARG:HA   | 22:BA:251:GLN:HE21 | 1.70                     | 0.57              |
| 23:BB:37:PRO:HA    | 23:BB:184:GLY:CA   | 2.27                     | 0.57              |
| 24:BC:191:THR:HG21 | 24:BC:209:ARG:NH1  | 2.19                     | 0.57              |
| 28:BG:97:UNK:O     | 28:BG:101:UNK:HG3  | 2.04                     | 0.57              |
| 34:BM:56:THR:HG22  | 34:BM:57:ASN:N     | 2.20                     | 0.57              |
| 34:BM:109:LEU:HD21 | 34:BM:142:PHE:CE2  | 2.40                     | 0.57              |
| 37:BP:11:THR:HG22  | 37:BP:11:THR:O     | 2.04                     | 0.57              |
| 37:BP:74:VAL:CG1   | 37:BP:75:ILE:N     | 2.68                     | 0.57              |
| 38:BQ:72:THR:CG2   | 38:BQ:74:GLN:HG3   | 2.33                     | 0.57              |
| 38:BQ:97:LEU:O     | 38:BQ:100:LEU:HB2  | 2.05                     | 0.57              |
| 22:CA:48:ASP:OD1   | 22:CA:49:ILE:N     | 2.36                     | 0.57              |
| 22:CA:118:GLU:HG2  | 22:CA:123:ASP:HB2  | 1.87                     | 0.57              |
| 22:CA:181:LEU:HD12 | 46:CY:14:TYR:CE1   | 2.40                     | 0.57              |
| 24:CC:155:LEU:HA   | 24:CC:156:PRO:C    | 2.29                     | 0.57              |
| 25:CD:104:PHE:HE1  | 25:CD:106:ILE:CD1  | 2.16                     | 0.57              |
| 27:CF:196:VAL:HG21 | 27:CF:204:LEU:HD21 | 1.85                     | 0.57              |
| 29:CH:153:THR:O    | 29:CH:156:LYS:HB3  | 2.05                     | 0.57              |
| 34:CM:163:LEU:CD1  | 34:CM:173:ILE:HG21 | 2.33                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:CN:4:ASP:OD1    | 43:CV:106:ARG:HD3  | 2.04                     | 0.57              |
| 35:CN:30:LEU:HD11  | 35:CN:124:PHE:HB2  | 1.86                     | 0.57              |
| 46:CY:16:THR:HG21  | 1:D1:2316:A:O2'    | 2.05                     | 0.57              |
| 1:D1:40:C:H3'      | 1:D1:40:C:C6       | 2.40                     | 0.57              |
| 1:D1:113:A:O2'     | 1:D1:114:A:OP1     | 2.22                     | 0.57              |
| 1:D1:146:U:H5''    | 1:D1:146:U:H6      | 1.69                     | 0.57              |
| 1:D1:519:A:H2'     | 1:D1:519:A:N3      | 2.19                     | 0.57              |
| 1:D1:766:G:HO2'    | 1:D1:767:C:P       | 2.28                     | 0.57              |
| 1:D1:836:U:H2'     | 1:D1:837:G:C8      | 2.40                     | 0.57              |
| 1:D1:1343:G:C4'    | 1:D1:1344:A:OP2    | 2.52                     | 0.57              |
| 1:D1:1753:A:OP2    | 7:DG:26:GLY:HA2    | 2.05                     | 0.57              |
| 1:D1:2278:G:O2'    | 1:D1:2279:C:P      | 2.62                     | 0.57              |
| 1:D1:2410:C:N4     | 50:D1:3765:HOH:O   | 2.33                     | 0.57              |
| 1:D1:2649:G:N7     | 50:D1:4792:HOH:O   | 2.32                     | 0.57              |
| 1:D1:3080:A:N3     | 1:D1:3082:C:O2'    | 2.36                     | 0.57              |
| 1:D1:3109:C:C3'    | 10:DK:111:ARG:NH1  | 2.49                     | 0.57              |
| 8:DH:58:TYR:HA     | 8:DH:104:LEU:CD2   | 2.34                     | 0.57              |
| 9:DJ:186:ILE:CD1   | 9:DJ:197:LEU:HB2   | 2.34                     | 0.57              |
| 20:E2:103:U:H2'    | 20:E2:104:G:C8     | 2.39                     | 0.57              |
| 23:EB:377:PHE:HD2  | 23:EB:378:PHE:CD1  | 2.22                     | 0.57              |
| 24:EC:328:ASN:OD1  | 24:EC:329:ALA:N    | 2.38                     | 0.57              |
| 27:EF:72:GLN:NE2   | 27:EF:160:PRO:HG2  | 2.19                     | 0.57              |
| 27:EF:233:LYS:HG2  | 1:F1:2522:A:H1'    | 1.86                     | 0.57              |
| 29:EH:174:THR:HG22 | 29:EH:175:LYS:N    | 2.19                     | 0.57              |
| 32:EK:12:ARG:NH2   | 1:F1:685:G:OP2     | 2.31                     | 0.57              |
| 32:EK:89:ARG:O     | 32:EK:121:GLN:NE2  | 2.37                     | 0.57              |
| 32:EK:128:LYS:HB3  | 32:EK:129:TYR:CD1  | 2.39                     | 0.57              |
| 46:EY:88:LYS:HG3   | 46:EY:92:GLU:OE2   | 2.04                     | 0.57              |
| 1:F1:358:C:C4'     | 1:F1:842:A:N6      | 2.67                     | 0.57              |
| 1:F1:699:C:O2'     | 1:F1:703:U:OP1     | 2.21                     | 0.57              |
| 1:F1:1165:U:H2'    | 1:F1:1166:G:H5''   | 1.86                     | 0.57              |
| 1:F1:1348:G:H2'    | 1:F1:1349:U:O5'    | 2.04                     | 0.57              |
| 1:F1:1595:A:OP2    | 1:F1:1596:U:H5     | 1.87                     | 0.57              |
| 1:F1:2101:G:H5'    | 1:F1:2101:G:C8     | 2.37                     | 0.57              |
| 1:F1:3112:A:C2'    | 1:F1:3113:G:H5'    | 2.33                     | 0.57              |
| 1:F1:3251:C:C4'    | 1:F1:3252:G:OP2    | 2.52                     | 0.57              |
| 9:FJ:116:LEU:HD21  | 9:FJ:177:LEU:HD21  | 1.86                     | 0.57              |
| 21:G3:92:C:H2'     | 21:G3:93:G:C8      | 2.40                     | 0.57              |
| 22:GA:181:LEU:HB3  | 46:GY:18:TYR:CD1   | 2.40                     | 0.57              |
| 23:GB:203:VAL:CG1  | 23:GB:320:ILE:HD11 | 2.33                     | 0.57              |
| 26:GE:183:ARG:HH22 | 1:H1:3101:G:P      | 2.27                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 31:GJ:97:ILE:HG22  | 31:GJ:98:TYR:N     | 2.19                     | 0.57              |
| 35:GN:85:SER:OG    | 35:GN:86:THR:N     | 2.36                     | 0.57              |
| 40:GS:26:ARG:NH1   | 40:GS:74:ARG:O     | 2.38                     | 0.57              |
| 45:GX:46:ARG:HD2   | 45:GX:48:PHE:HE2   | 1.69                     | 0.57              |
| 1:H1:1049:U:C5     | 1:H1:1050:C:N4     | 2.73                     | 0.57              |
| 1:H1:1567:A:H61    | 1:H1:1578:U:H3     | 1.51                     | 0.57              |
| 1:H1:2247:A:O2'    | 1:H1:2248:G:H5'    | 2.05                     | 0.57              |
| 1:H1:2277:U:O2'    | 1:H1:2278:G:OP1    | 2.21                     | 0.57              |
| 1:H1:3126:C:H2'    | 1:H1:3127:U:C6     | 2.39                     | 0.57              |
| 9:HJ:161:VAL:CG1   | 9:HJ:162:HIS:N     | 2.68                     | 0.57              |
| 10:HK:120:SER:O    | 10:HK:121:LEU:HD23 | 2.05                     | 0.57              |
| 1:A1:72:A:C2       | 1:A1:73:G:C5       | 2.93                     | 0.57              |
| 1:A1:133:C:H4'     | 1:A1:134:A:O5'     | 2.03                     | 0.57              |
| 1:A1:396:A:C2      | 1:A1:397:A:C4      | 2.92                     | 0.57              |
| 1:A1:432:G:H4'     | 1:A1:433:C:OP1     | 2.03                     | 0.57              |
| 1:A1:3091:G:O2'    | 1:A1:3092:A:H5'    | 2.04                     | 0.57              |
| 2:AA:17:THR:HA     | 3:AB:52:TYR:HB2    | 1.86                     | 0.57              |
| 5:AE:51:LEU:HB3    | 5:AE:95:THR:HG21   | 1.86                     | 0.57              |
| 12:AM:101:ASP:HB2  | 12:AM:104:SER:OG   | 2.03                     | 0.57              |
| 23:BB:216:LEU:CD2  | 23:BB:274:THR:HA   | 2.34                     | 0.57              |
| 23:BB:303:ILE:CD1  | 23:BB:319:PHE:CE1  | 2.88                     | 0.57              |
| 24:BC:163:VAL:HG22 | 24:BC:175:PHE:HE2  | 1.69                     | 0.57              |
| 26:BE:45:ILE:HG12  | 26:BE:55:LEU:HD22  | 1.87                     | 0.57              |
| 29:BH:43:VAL:HG11  | 29:BH:197:VAL:CG2  | 2.33                     | 0.57              |
| 33:BL:183:SER:CA   | 33:BL:191:ASN:HD22 | 2.17                     | 0.57              |
| 39:BR:73:THR:HG22  | 39:BR:74:PRO:O     | 2.04                     | 0.57              |
| 39:BR:84:MET:HE3   | 39:BR:90:MET:CE    | 2.33                     | 0.57              |
| 43:BV:51:GLU:O     | 43:BV:54:ALA:HB3   | 2.04                     | 0.57              |
| 22:CA:41:TYR:CE1   | 1:D1:2541:U:C4     | 2.93                     | 0.57              |
| 24:CC:99:ASN:ND2   | 24:CC:100:GLN:HE21 | 2.02                     | 0.57              |
| 24:CC:316:THR:O    | 24:CC:317:HIS:HD2  | 1.86                     | 0.57              |
| 26:CE:1:MET:HE3    | 1:D1:1214:C:OP1    | 2.05                     | 0.57              |
| 27:CF:211:PHE:O    | 27:CF:215:TYR:HB2  | 2.03                     | 0.57              |
| 29:CH:7:ARG:NH2    | 1:D1:2816:G:OP1    | 2.28                     | 0.57              |
| 31:CJ:90:ARG:HB2   | 31:CJ:96:PHE:CD2   | 2.40                     | 0.57              |
| 32:CK:42:HIS:CE1   | 1:D1:38:A:C2       | 2.92                     | 0.57              |
| 32:CK:76:ASN:H     | 32:CK:79:LYS:HE2   | 1.69                     | 0.57              |
| 34:CM:212:TYR:CD2  | 34:CM:228:PHE:CZ   | 2.91                     | 0.57              |
| 35:CN:49:ILE:O     | 35:CN:53:LEU:HG    | 2.03                     | 0.57              |
| 35:CN:151:HIS:ND1  | 35:CN:164:ALA:O    | 2.33                     | 0.57              |
| 45:CX:57:ILE:HG13  | 1:D1:972:U:C5'     | 2.27                     | 0.57              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:72:A:C2      | 1:D1:73:G:C4       | 2.93                     | 0.57              |
| 1:D1:476:A:C2     | 1:D1:500:G:N2      | 2.73                     | 0.57              |
| 1:D1:596:A:H2'    | 1:D1:597:A:C8      | 2.40                     | 0.57              |
| 1:D1:644:A:H2'    | 1:D1:645:A:C5'     | 2.35                     | 0.57              |
| 1:D1:820:G:O6     | 50:D1:4041:HOH:O   | 2.14                     | 0.57              |
| 1:D1:986:C:H4'    | 1:D1:987:A:OP2     | 2.04                     | 0.57              |
| 1:D1:1165:U:H2'   | 1:D1:1166:G:H5''   | 1.87                     | 0.57              |
| 1:D1:1973:A:H2'   | 1:D1:1974:U:C6     | 2.39                     | 0.57              |
| 1:D1:2391:G:H4'   | 1:D1:2392:A:OP2    | 2.04                     | 0.57              |
| 1:D1:2416:U:OP1   | 4:DC:57:ARG:NH2    | 2.36                     | 0.57              |
| 1:D1:2545:A:O2'   | 1:D1:2546:A:OP1    | 2.20                     | 0.57              |
| 1:D1:2639:C:C5'   | 1:D1:2640:G:OP2    | 2.48                     | 0.57              |
| 1:D1:3227:A:O2'   | 5:DE:86:PRO:HG3    | 2.03                     | 0.57              |
| 1:D1:3232:A:H4'   | 5:DE:55:ALA:CB     | 2.34                     | 0.57              |
| 9:DJ:61:ARG:HD3   | 9:DJ:106:ASN:OD1   | 2.05                     | 0.57              |
| 13:DN:38:PHE:CE2  | 13:DN:76:ASN:HB2   | 2.40                     | 0.57              |
| 14:DO:106:PHE:O   | 14:DO:109:LYS:HB2  | 2.05                     | 0.57              |
| 17:DT:50:ASP:OD1  | 17:DT:51:PRO:HD2   | 2.05                     | 0.57              |
| 22:EA:99:VAL:HA   | 22:EA:167:VAL:HG12 | 1.86                     | 0.57              |
| 23:EB:24:HIS:CE1  | 23:EB:28:ARG:NH1   | 2.64                     | 0.57              |
| 29:EH:47:PRO:HD2  | 29:EH:141:LYS:HD3  | 1.87                     | 0.57              |
| 33:EL:6:TYR:CA    | 16:FQ:45:ILE:HD11  | 2.31                     | 0.57              |
| 38:EQ:107:LYS:HB3 | 38:EQ:109:LEU:HG   | 1.85                     | 0.57              |
| 43:EV:114:PHE:CE2 | 43:EV:124:ILE:HD11 | 2.40                     | 0.57              |
| 1:F1:133:C:H4'    | 1:F1:134:A:O5'     | 2.03                     | 0.57              |
| 1:F1:685:G:O2'    | 1:F1:686:U:H6      | 1.86                     | 0.57              |
| 1:F1:1803:U:H2'   | 1:F1:1804:G:C8     | 2.39                     | 0.57              |
| 1:F1:2294:A:OP2   | 50:F1:4332:HOH:O   | 2.17                     | 0.57              |
| 1:F1:2548:G:H4'   | 1:F1:2549:U:OP2    | 2.03                     | 0.57              |
| 1:F1:3155:A:N7    | 8:FH:101:GLY:C     | 2.63                     | 0.57              |
| 1:F1:3181:G:H2'   | 1:F1:3182:A:C8     | 2.40                     | 0.57              |
| 2:FA:21:ARG:NH1   | 2:FA:44:MET:CE     | 2.67                     | 0.57              |
| 5:FE:56:GLY:C     | 5:FE:58:PHE:N      | 2.60                     | 0.57              |
| 5:FE:115:ASP:N    | 5:FE:115:ASP:OD1   | 2.35                     | 0.57              |
| 6:FF:26:VAL:HG12  | 6:FF:27:ILE:N      | 2.19                     | 0.57              |
| 6:FF:111:VAL:HG12 | 6:FF:115:LYS:HE3   | 1.85                     | 0.57              |
| 9:FJ:67:LYS:HD2   | 9:FJ:112:ASP:CG    | 2.30                     | 0.57              |
| 16:FQ:7:VAL:O     | 16:FQ:7:VAL:HG12   | 2.04                     | 0.57              |
| 24:GC:163:VAL:CG2 | 24:GC:175:PHE:HE2  | 2.17                     | 0.57              |
| 24:GC:195:ARG:NH1 | 24:GC:204:ARG:CB   | 2.68                     | 0.57              |
| 24:GC:258:TRP:CZ3 | 24:GC:266:LEU:HD11 | 2.39                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:GI:20:SER:HB3   | 30:GI:86:MET:HE1   | 1.87                     | 0.57              |
| 33:GL:164:LEU:HD23 | 33:GL:172:ARG:HH22 | 1.70                     | 0.57              |
| 34:GM:164:LYS:O    | 34:GM:168:ASP:HB2  | 2.05                     | 0.57              |
| 38:GQ:129:ARG:NH2  | 1:H1:1534:C:OP1    | 2.23                     | 0.57              |
| 42:GU:97:THR:O     | 42:GU:101:ARG:HG3  | 2.05                     | 0.57              |
| 44:GW:22:ILE:CD1   | 44:GW:30:ARG:HG2   | 2.30                     | 0.57              |
| 1:H1:476:A:C2      | 1:H1:500:G:N2      | 2.72                     | 0.57              |
| 1:H1:624:G:O2'     | 1:H1:625:C:O4'     | 2.23                     | 0.57              |
| 1:H1:3298:U:OP2    | 1:H1:3298:U:H6     | 1.87                     | 0.57              |
| 5:HE:63:VAL:HG12   | 5:HE:76:VAL:HG13   | 1.86                     | 0.57              |
| 5:HE:173:TYR:CD2   | 6:HF:106:PHE:HD1   | 2.22                     | 0.57              |
| 5:HE:179:THR:OG1   | 8:HH:12:THR:HA     | 2.04                     | 0.57              |
| 6:HF:24:LEU:HD11   | 6:HF:85:TYR:CG     | 2.39                     | 0.57              |
| 19:HX:110:ASP:OD1  | 19:HX:111:VAL:N    | 2.36                     | 0.57              |
| 1:A1:514:U:H2'     | 1:A1:515:A:C8      | 2.40                     | 0.57              |
| 1:A1:684:A:H4'     | 24:BC:107:PHE:CD1  | 2.40                     | 0.57              |
| 1:A1:884:A:O2'     | 1:A1:885:G:H5'     | 2.05                     | 0.57              |
| 1:A1:2101:G:H5'    | 1:A1:2101:G:C8     | 2.39                     | 0.57              |
| 1:A1:3237:C:C2     | 8:AH:7:SER:OG      | 2.57                     | 0.57              |
| 7:AG:102:LYS:O     | 7:AG:103:THR:OG1   | 2.12                     | 0.57              |
| 18:AU:123:LEU:HD23 | 18:AU:136:VAL:CG2  | 2.34                     | 0.57              |
| 18:AU:177:VAL:HG21 | 32:BK:145:CYS:HB2  | 1.85                     | 0.57              |
| 20:B2:111:A:O2'    | 20:B2:112:G:OP1    | 2.22                     | 0.57              |
| 20:B2:144:U:H2'    | 20:B2:145:C:H5''   | 1.86                     | 0.57              |
| 23:BB:56:ILE:CD1   | 23:BB:76:VAL:HG21  | 2.35                     | 0.57              |
| 23:BB:163:ASN:HA   | 23:BB:174:ASN:OD1  | 2.04                     | 0.57              |
| 24:BC:14:GLU:CB    | 24:BC:17:LYS:HG3   | 2.34                     | 0.57              |
| 29:BH:171:TRP:CE2  | 29:BH:181:TYR:CE2  | 2.93                     | 0.57              |
| 33:BL:165:THR:HG23 | 33:BL:168:GLY:H    | 1.69                     | 0.57              |
| 34:BM:212:TYR:CD2  | 34:BM:228:PHE:CZ   | 2.90                     | 0.57              |
| 38:BQ:36:ARG:NH1   | 38:BQ:64:ARG:HG3   | 2.19                     | 0.57              |
| 20:C2:25:U:C4'     | 20:C2:26:A:OP1     | 2.52                     | 0.57              |
| 25:CD:108:GLU:HA   | 25:CD:122:ILE:CG2  | 2.35                     | 0.57              |
| 26:CE:144:LEU:HD13 | 26:CE:155:THR:HG22 | 1.85                     | 0.57              |
| 27:CF:146:ILE:HG23 | 27:CF:156:VAL:HG11 | 1.86                     | 0.57              |
| 29:CH:184:LEU:CD2  | 29:CH:189:LYS:HD3  | 2.30                     | 0.57              |
| 33:CL:38:LYS:HB2   | 33:CL:62:TRP:CZ2   | 2.40                     | 0.57              |
| 34:CM:6:VAL:O      | 34:CM:6:VAL:HG13   | 2.05                     | 0.57              |
| 35:CN:146:ARG:HB3  | 35:CN:149:TYR:CD2  | 2.40                     | 0.57              |
| 43:CV:72:PHE:CD1   | 43:CV:73:TYR:N     | 2.73                     | 0.57              |
| 43:CV:114:PHE:CE2  | 43:CV:124:ILE:HD11 | 2.40                     | 0.57              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:44:U:OP1      | 50:D1:3728:HOH:O  | 2.17                     | 0.57              |
| 1:D1:362:G:H2'     | 1:D1:363:G:H5''   | 1.85                     | 0.57              |
| 1:D1:467:A:N6      | 1:D1:512:G:C4     | 2.73                     | 0.57              |
| 1:D1:577:C:O2'     | 1:D1:578:G:H5'    | 2.04                     | 0.57              |
| 1:D1:728:G:OP2     | 50:D1:3779:HOH:O  | 2.17                     | 0.57              |
| 1:D1:925:G:H1'     | 1:D1:1614:A:N6    | 2.20                     | 0.57              |
| 1:D1:1046:G:O3'    | 13:FN:3:LYS:HE2   | 2.05                     | 0.57              |
| 1:D1:1101:U:H1'    | 17:DT:46:ALA:HB2  | 1.87                     | 0.57              |
| 1:D1:2997:A:C2'    | 1:D1:2998:G:H5'   | 2.34                     | 0.57              |
| 1:D1:3237:C:C2     | 8:DH:7:SER:OG     | 2.58                     | 0.57              |
| 5:DE:63:VAL:HG12   | 5:DE:64:VAL:N     | 2.20                     | 0.57              |
| 20:E2:40:A:C8      | 20:E2:42:G:C2     | 2.92                     | 0.57              |
| 20:E2:110:A:H2'    | 20:E2:111:A:C8    | 2.40                     | 0.57              |
| 22:EA:209:ASP:O    | 22:EA:210:HIS:HB2 | 2.04                     | 0.57              |
| 24:EC:309:LYS:HG2  | 35:EN:40:ARG:O    | 2.05                     | 0.57              |
| 27:EF:126:LYS:NZ   | 27:EF:194:THR:HG1 | 2.03                     | 0.57              |
| 27:EF:127:TYR:CD1  | 27:EF:185:LYS:NZ  | 2.69                     | 0.57              |
| 29:EH:75:ASN:HD22  | 29:EH:151:ALA:HA  | 1.70                     | 0.57              |
| 30:EI:109:THR:HG22 | 30:EI:110:PRO:HD3 | 1.85                     | 0.57              |
| 33:EL:28:TRP:HA    | 33:EL:31:ARG:NH1  | 2.20                     | 0.57              |
| 33:EL:53:TYR:O     | 33:EL:54:LYS:HG2  | 2.05                     | 0.57              |
| 35:EN:88:THR:HA    | 35:EN:107:THR:OG1 | 2.05                     | 0.57              |
| 39:ER:94:VAL:HG21  | 39:ER:130:ALA:HB2 | 1.87                     | 0.57              |
| 40:ES:26:ARG:NH1   | 40:ES:74:ARG:O    | 2.38                     | 0.57              |
| 43:EV:82:PHE:CZ    | 43:EV:111:GLY:HA3 | 2.40                     | 0.57              |
| 45:EX:36:ARG:O     | 45:EX:36:ARG:HG3  | 2.05                     | 0.57              |
| 1:F1:92:G:H2'      | 1:F1:93:A:C8      | 2.39                     | 0.57              |
| 1:F1:122:U:H2'     | 1:F1:123:C:H6     | 1.69                     | 0.57              |
| 1:F1:1055:A:C4     | 1:F1:1056:A:C8    | 2.93                     | 0.57              |
| 1:F1:1702:G:H2'    | 1:F1:1703:A:C8    | 2.39                     | 0.57              |
| 1:F1:1857:G:OP1    | 3:FB:10:LYS:HD2   | 2.04                     | 0.57              |
| 6:FF:3:PHE:HD1     | 19:FX:164:PRO:HB3 | 1.66                     | 0.57              |
| 6:FF:67:GLN:HE21   | 6:FF:71:LEU:HB3   | 1.69                     | 0.57              |
| 8:FH:34:GLN:HB3    | 8:FH:88:VAL:HG13  | 1.87                     | 0.57              |
| 8:FH:73:ILE:HG22   | 8:FH:91:PHE:HD2   | 1.70                     | 0.57              |
| 20:G2:137:G:H21    | 33:GL:112:GLU:CG  | 2.18                     | 0.57              |
| 21:G3:33:U:C2      | 34:GM:212:TYR:CD1 | 2.93                     | 0.57              |
| 22:GA:20:HIS:CD2   | 22:GA:193:LYS:O   | 2.56                     | 0.57              |
| 23:GB:381:ASP:HB3  | 23:GB:384:LYS:HB3 | 1.85                     | 0.57              |
| 27:GF:92:TYR:HE2   | 27:GF:123:ILE:CG2 | 2.16                     | 0.57              |
| 27:GF:170:PHE:O    | 27:GF:215:TYR:CD2 | 2.58                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:GI:127:ARG:O    | 1:H1:1343:G:H5''   | 2.04                     | 0.57              |
| 34:GM:153:THR:HG22 | 34:GM:179:ARG:NH1  | 2.20                     | 0.57              |
| 39:GR:114:LYS:HD2  | 39:GR:137:ASP:OD2  | 2.04                     | 0.57              |
| 40:GS:58:VAL:HG12  | 40:GS:59:ARG:HG2   | 1.85                     | 0.57              |
| 40:GS:116:SER:O    | 40:GS:120:ARG:HG3  | 2.04                     | 0.57              |
| 43:GV:98:ARG:HG3   | 43:GV:98:ARG:NH1   | 2.20                     | 0.57              |
| 1:H1:619:G:H8      | 1:H1:619:G:O5'     | 1.87                     | 0.57              |
| 1:H1:836:U:H2'     | 1:H1:837:G:H8      | 1.67                     | 0.57              |
| 1:H1:1149:U:H2'    | 1:H1:1150:U:H5'    | 1.86                     | 0.57              |
| 1:H1:1922:G:H2'    | 1:H1:1923:G:O5'    | 2.03                     | 0.57              |
| 1:H1:3185:G:N3     | 1:H1:3237:C:C2     | 2.73                     | 0.57              |
| 13:HN:13:LEU:CD2   | 13:HN:75:VAL:HG21  | 2.34                     | 0.57              |
| 1:A1:118:A:C4'     | 1:A1:119:A:O5'     | 2.48                     | 0.57              |
| 1:A1:620:A:C8      | 24:BC:319:ARG:NH2  | 2.72                     | 0.57              |
| 1:A1:1013:U:P      | 43:BV:122:ASN:HD22 | 2.28                     | 0.57              |
| 1:A1:3251:C:C4'    | 1:A1:3252:G:OP2    | 2.53                     | 0.57              |
| 5:AE:53:LEU:HD11   | 5:AE:90:VAL:HG21   | 1.87                     | 0.57              |
| 6:AF:13:VAL:HG22   | 6:AF:55:LEU:HD23   | 1.87                     | 0.57              |
| 16:AQ:13:PHE:CD1   | 16:AQ:14:ILE:N     | 2.73                     | 0.57              |
| 20:B2:129:A:C5     | 20:B2:130:C:C5     | 2.93                     | 0.57              |
| 24:BC:99:ASN:ND2   | 24:BC:100:GLN:HE21 | 2.01                     | 0.57              |
| 29:BH:147:TYR:HD1  | 29:BH:147:TYR:H    | 1.53                     | 0.57              |
| 29:BH:169:GLN:O    | 29:BH:178:ARG:HG3  | 2.04                     | 0.57              |
| 31:BJ:32:ASN:HD21  | 31:BJ:116:SER:H    | 1.52                     | 0.57              |
| 31:BJ:90:ARG:HB2   | 31:BJ:96:PHE:CD2   | 2.39                     | 0.57              |
| 34:BM:17:GLN:OE1   | 37:BP:20:LYS:CA    | 2.50                     | 0.57              |
| 39:BR:96:ASN:HA    | 39:BR:128:LYS:HG3  | 1.87                     | 0.57              |
| 43:BV:114:PHE:CE2  | 43:BV:124:ILE:HD11 | 2.39                     | 0.57              |
| 21:C3:116:A:H4'    | 34:CM:260:ARG:HH22 | 1.69                     | 0.57              |
| 22:CA:104:PRO:HA   | 22:CA:163:CYS:O    | 2.04                     | 0.57              |
| 22:CA:205:MET:HE2  | 22:CA:209:ASP:HB3  | 1.86                     | 0.57              |
| 24:CC:195:ARG:HH22 | 1:D1:1409:C:P      | 2.27                     | 0.57              |
| 29:CH:189:LYS:HE2  | 29:CH:199:VAL:CG1  | 2.34                     | 0.57              |
| 30:CI:129:ARG:NH2  | 1:D1:1343:G:C2     | 2.73                     | 0.57              |
| 34:CM:17:GLN:HB3   | 1:D1:2677:U:O2     | 2.04                     | 0.57              |
| 35:CN:66:SER:HB3   | 35:CN:93:LEU:HG    | 1.87                     | 0.57              |
| 47:CO:174:UNK:CB   | 29:EH:81:SER:HB2   | 2.35                     | 0.57              |
| 39:CR:43:LEU:HD11  | 1:D1:1599:G:H5''   | 1.87                     | 0.57              |
| 39:CR:114:LYS:HD2  | 39:CR:137:ASP:OD2  | 2.05                     | 0.57              |
| 42:CU:81:PRO:HD2   | 42:CU:84:ILE:HD12  | 1.87                     | 0.57              |
| 42:CU:122:LEU:O    | 18:DU:148:ASN:ND2  | 2.38                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 45:CX:3:ILE:O      | 45:CX:5:PRO:HD2    | 2.05                     | 0.57              |
| 46:CY:60:CYS:SG    | 46:CY:62:LYS:HG2   | 2.44                     | 0.57              |
| 1:D1:519:A:H5''    | 14:DO:89:ARG:NH1   | 2.20                     | 0.57              |
| 1:D1:858:G:H2'     | 1:D1:859:U:O4'     | 2.05                     | 0.57              |
| 1:D1:894:G:N7      | 50:D1:4201:HOH:O   | 2.33                     | 0.57              |
| 1:D1:1049:U:H2'    | 1:D1:1050:C:C6     | 2.39                     | 0.57              |
| 1:D1:1095:C:H2'    | 1:D1:1095:C:O2     | 2.05                     | 0.57              |
| 1:D1:1348:G:H2'    | 1:D1:1349:U:O5'    | 2.04                     | 0.57              |
| 1:D1:1637:A:H2'    | 1:D1:1638:A:H5''   | 1.87                     | 0.57              |
| 1:D1:2433:A:H2'    | 1:D1:2434:A:H8     | 1.67                     | 0.57              |
| 1:D1:3310:U:H4'    | 1:D1:3311:U:OP2    | 2.02                     | 0.57              |
| 3:DB:7:LEU:O       | 3:DB:8:ASN:C       | 2.48                     | 0.57              |
| 6:DF:13:VAL:HG13   | 6:DF:53:VAL:HG13   | 1.87                     | 0.57              |
| 6:DF:24:LEU:HD11   | 6:DF:85:TYR:CG     | 2.40                     | 0.57              |
| 21:E3:116:A:H4'    | 34:EM:260:ARG:NH2  | 2.19                     | 0.57              |
| 22:EA:35:PHE:CZ    | 22:EA:39:GLN:OE1   | 2.58                     | 0.57              |
| 34:EM:163:LEU:HD23 | 34:EM:180:PHE:CE2  | 2.39                     | 0.57              |
| 35:EN:57:ARG:NH1   | 1:F1:697:A:OP2     | 2.35                     | 0.57              |
| 42:EU:97:THR:O     | 42:EU:101:ARG:HG3  | 2.05                     | 0.57              |
| 43:EV:72:PHE:CD1   | 43:EV:73:TYR:N     | 2.71                     | 0.57              |
| 43:EV:129:PRO:HG2  | 43:EV:130:PHE:CE2  | 2.39                     | 0.57              |
| 1:F1:439:A:H2'     | 1:F1:440:C:O5'     | 2.04                     | 0.57              |
| 1:F1:790:C:HO2'    | 1:F1:791:C:H6      | 1.52                     | 0.57              |
| 1:F1:1051:C:C2'    | 1:F1:1052:A:H8     | 2.18                     | 0.57              |
| 1:F1:1172:G:O6     | 1:F1:1185:A:H2     | 1.87                     | 0.57              |
| 1:F1:1518:G:O6     | 3:FB:2:GLY:N       | 2.38                     | 0.57              |
| 1:F1:2295:G:P      | 50:F1:4342:HOH:O   | 2.63                     | 0.57              |
| 1:F1:2309:U:C4'    | 1:F1:2310:G:OP2    | 2.51                     | 0.57              |
| 1:F1:3143:A:C2     | 1:F1:3250:A:C2     | 2.93                     | 0.57              |
| 1:F1:3150:U:H2'    | 1:F1:3151:G:H5''   | 1.86                     | 0.57              |
| 1:F1:3191:G:C2'    | 1:F1:3192:C:OP2    | 2.53                     | 0.57              |
| 6:FF:125:SER:O     | 6:FF:126:LYS:HB2   | 2.05                     | 0.57              |
| 8:FH:11:PRO:HG2    | 8:FH:12:THR:N      | 2.20                     | 0.57              |
| 12:FM:35:PHE:CE1   | 12:FM:39:LEU:HD11  | 2.39                     | 0.57              |
| 14:FO:4:LEU:O      | 14:FO:8:ILE:HG13   | 2.04                     | 0.57              |
| 18:FU:54:PRO:HD3   | 18:FU:73:PHE:CD2   | 2.39                     | 0.57              |
| 18:FU:74:THR:HB    | 18:FU:101:ASN:HD21 | 1.68                     | 0.57              |
| 20:G2:145:C:H2'    | 20:G2:146:A:C8     | 2.40                     | 0.57              |
| 23:GB:85:THR:HB    | 23:GB:161:HIS:HB3  | 1.86                     | 0.57              |
| 27:GF:46:ARG:O     | 39:GR:37:PHE:HB2   | 2.05                     | 0.57              |
| 29:GH:47:PRO:HD2   | 29:GH:141:LYS:HD3  | 1.87                     | 0.57              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 30:GI:35:VAL:HG13  | 30:GI:106:GLY:O   | 2.05                     | 0.57              |
| 37:GP:17:LYS:NZ    | 37:GP:47:SER:HB3  | 2.19                     | 0.57              |
| 37:GP:62:GLY:HA3   | 37:GP:74:VAL:CG1  | 2.35                     | 0.57              |
| 38:GQ:107:LYS:HB3  | 38:GQ:109:LEU:HG  | 1.86                     | 0.57              |
| 40:GS:43:ASN:O     | 40:GS:125:LEU:CD1 | 2.53                     | 0.57              |
| 43:GV:157:ARG:HG3  | 43:GV:200:TRP:CE2 | 2.39                     | 0.57              |
| 46:GY:61:LYS:HD3   | 11:HL:48:GLY:O    | 2.04                     | 0.57              |
| 1:H1:152:U:C5'     | 1:H1:153:C:OP2    | 2.52                     | 0.57              |
| 1:H1:631:G:O2'     | 1:H1:632:G:H5'    | 2.04                     | 0.57              |
| 1:H1:1055:A:H2'    | 1:H1:1056:A:H8    | 1.70                     | 0.57              |
| 1:H1:1402:G:C2'    | 1:H1:1403:C:H5'   | 2.35                     | 0.57              |
| 1:H1:2400:C:O2     | 1:H1:2807:A:N1    | 2.37                     | 0.57              |
| 1:H1:2873:C:O2'    | 1:H1:2874:U:H5'   | 2.04                     | 0.57              |
| 1:H1:2958:C:C4'    | 1:H1:2959:A:N7    | 2.64                     | 0.57              |
| 1:H1:2997:A:C2'    | 1:H1:2998:G:H5'   | 2.35                     | 0.57              |
| 8:HH:107:MET:SD    | 8:HH:109:TYR:HE2  | 2.27                     | 0.57              |
| 9:HJ:117:ILE:HB    | 9:HJ:121:LEU:HD22 | 1.86                     | 0.57              |
| 12:HM:95:LEU:HA    | 12:HM:108:ARG:O   | 2.05                     | 0.57              |
| 15:HP:15:TRP:O     | 15:HP:72:TYR:CZ   | 2.58                     | 0.57              |
| 17:HT:19:ASN:N     | 50:HT:202:HOH:O   | 2.27                     | 0.57              |
| 1:A1:304:U:C2'     | 1:A1:305:A:OP2    | 2.52                     | 0.57              |
| 1:A1:792:G:H5'     | 18:AU:190:TRP:CD2 | 2.40                     | 0.57              |
| 1:A1:868:G:H1      | 1:A1:875:U:H3     | 1.52                     | 0.57              |
| 1:A1:880:U:C4      | 1:A1:881:G:C5     | 2.92                     | 0.57              |
| 1:A1:1027:G:O2'    | 1:A1:1028:A:P     | 2.62                     | 0.57              |
| 1:A1:1308:U:C3'    | 28:BG:58:UNK:HG2  | 2.35                     | 0.57              |
| 1:A1:1358:U:H4'    | 1:A1:1359:A:OP2   | 2.03                     | 0.57              |
| 1:A1:1840:U:H6     | 1:A1:1840:U:OP2   | 1.87                     | 0.57              |
| 1:A1:2101:G:H5'    | 50:A1:4516:HOH:O  | 2.05                     | 0.57              |
| 1:A1:2930:C:H3'    | 50:A1:4150:HOH:O  | 2.04                     | 0.57              |
| 5:AE:135:THR:HG22  | 5:AE:136:GLU:N    | 2.19                     | 0.57              |
| 5:AE:173:TYR:CE2   | 6:AF:106:PHE:HA   | 2.40                     | 0.57              |
| 18:AU:169:ILE:HD13 | 32:BK:99:VAL:HB   | 1.85                     | 0.57              |
| 20:B2:103:U:H2'    | 20:B2:104:G:C8    | 2.40                     | 0.57              |
| 26:BE:18:ILE:HG12  | 26:BE:27:VAL:HG22 | 1.87                     | 0.57              |
| 31:BJ:19:LEU:HB3   | 31:BJ:55:SER:HB3  | 1.87                     | 0.57              |
| 32:BK:73:PRO:HB2   | 32:BK:109:PHE:HA  | 1.86                     | 0.57              |
| 34:BM:210:ASP:HA   | 34:BM:213:MET:CG  | 2.35                     | 0.57              |
| 38:BQ:61:PRO:HG3   | 38:BQ:78:PHE:CD2  | 2.40                     | 0.57              |
| 38:BQ:76:HIS:C     | 38:BQ:78:PHE:H    | 2.12                     | 0.57              |
| 43:BV:83:ALA:O     | 43:BV:111:GLY:HA2 | 2.04                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:BV:129:PRO:HG2  | 43:BV:130:PHE:CE2  | 2.40                     | 0.57              |
| 44:BW:49:ARG:HB2   | 44:BW:91:LEU:HD23  | 1.87                     | 0.57              |
| 44:BW:66:ILE:HG22  | 44:BW:67:PRO:O     | 2.05                     | 0.57              |
| 20:C2:111:A:H4'    | 20:C2:112:G:OP1    | 2.04                     | 0.57              |
| 20:C2:143:U:H2'    | 20:C2:144:U:H6     | 1.70                     | 0.57              |
| 22:CA:66:ASP:OD2   | 22:CA:71:LYS:HE2   | 2.04                     | 0.57              |
| 27:CF:149:ASP:OD1  | 27:CF:149:ASP:C    | 2.47                     | 0.57              |
| 28:CG:97:UNK:O     | 28:CG:101:UNK:HG3  | 2.05                     | 0.57              |
| 34:CM:56:THR:HG22  | 34:CM:58:THR:N     | 2.15                     | 0.57              |
| 34:CM:56:THR:HG22  | 34:CM:57:ASN:N     | 2.18                     | 0.57              |
| 34:CM:109:LEU:HD21 | 34:CM:142:PHE:CE2  | 2.39                     | 0.57              |
| 39:CR:121:LEU:HD11 | 1:D1:1548:U:H3'    | 1.87                     | 0.57              |
| 1:D1:72:A:C2       | 1:D1:73:G:C5       | 2.93                     | 0.57              |
| 1:D1:581:C:H2'     | 1:D1:582:A:H5''    | 1.87                     | 0.57              |
| 1:D1:957:U:H4'     | 1:D1:958:A:O5'     | 2.05                     | 0.57              |
| 1:D1:1627:A:C6     | 1:D1:1628:A:C6     | 2.93                     | 0.57              |
| 1:D1:1702:G:H2'    | 1:D1:1703:A:H8     | 1.68                     | 0.57              |
| 1:D1:2640:G:O2'    | 1:D1:2784:G:N1     | 2.37                     | 0.57              |
| 1:D1:2958:C:C4'    | 1:D1:2959:A:N7     | 2.65                     | 0.57              |
| 9:DJ:145:ASN:ND2   | 9:DJ:146:VAL:N     | 2.52                     | 0.57              |
| 12:DM:15:LEU:HD23  | 12:DM:73:PHE:HB3   | 1.86                     | 0.57              |
| 18:DU:76:GLN:OE1   | 18:DU:101:ASN:HB2  | 2.04                     | 0.57              |
| 19:DX:93:LEU:CD1   | 19:DX:120:LEU:HD11 | 2.27                     | 0.57              |
| 24:EC:335:PRO:HB2  | 43:EV:42:ILE:HG12  | 1.86                     | 0.57              |
| 27:EF:149:ASP:OD2  | 27:EF:176:LYS:HG2  | 2.05                     | 0.57              |
| 39:ER:94:VAL:HG11  | 39:ER:103:ILE:CD1  | 2.35                     | 0.57              |
| 40:ES:55:VAL:HG12  | 40:ES:56:LEU:N     | 2.19                     | 0.57              |
| 41:ET:11:CYS:HG    | 41:ET:13:TYR:HD2   | 1.53                     | 0.57              |
| 1:F1:513:G:H2'     | 1:F1:514:U:C6      | 2.40                     | 0.57              |
| 1:F1:519:A:N3      | 1:F1:519:A:H2'     | 2.20                     | 0.57              |
| 1:F1:566:U:C3'     | 1:F1:567:C:H5'     | 2.35                     | 0.57              |
| 1:F1:1190:U:H2'    | 1:F1:1191:G:C8     | 2.40                     | 0.57              |
| 1:F1:1736:G:C2     | 1:F1:1737:A:C2     | 2.93                     | 0.57              |
| 1:F1:1775:A:C8     | 1:F1:1776:G:H2'    | 2.34                     | 0.57              |
| 1:F1:3298:U:OP2    | 1:F1:3298:U:H6     | 1.88                     | 0.57              |
| 5:FE:173:TYR:CD2   | 6:FF:106:PHE:CD1   | 2.93                     | 0.57              |
| 6:FF:106:PHE:HD2   | 6:FF:110:ARG:NE    | 2.00                     | 0.57              |
| 11:FL:74:VAL:HG12  | 11:FL:75:SER:H     | 1.70                     | 0.57              |
| 15:FP:58:PRO:O     | 15:FP:61:ALA:HB3   | 2.05                     | 0.57              |
| 20:G2:134:C:H3'    | 20:G2:134:C:C6     | 2.40                     | 0.57              |
| 23:GB:55:HIS:CE1   | 41:GT:18:GLY:HA3   | 2.39                     | 0.57              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:GB:97:ARG:HH21  | 1:H1:3206:A:H5'    | 1.70                     | 0.57              |
| 23:GB:245:ARG:HG3  | 1:H1:1913:G:OP2    | 2.04                     | 0.57              |
| 24:GC:9:VAL:HG11   | 24:GC:260:GLU:OE2  | 2.05                     | 0.57              |
| 24:GC:195:ARG:NH1  | 24:GC:204:ARG:HB3  | 2.20                     | 0.57              |
| 30:GI:196:PHE:HZ   | 6:HF:107:ASP:HA    | 1.70                     | 0.57              |
| 34:GM:212:TYR:CD2  | 34:GM:228:PHE:CZ   | 2.90                     | 0.57              |
| 35:GN:2:ALA:HB2    | 1:H1:1186:A:H3'    | 1.87                     | 0.57              |
| 37:GP:66:ASN:ND2   | 17:HT:35:VAL:HA    | 2.20                     | 0.57              |
| 1:H1:132:U:O2'     | 1:H1:133:C:P       | 2.60                     | 0.57              |
| 1:H1:433:C:H2'     | 1:H1:433:C:O2      | 2.04                     | 0.57              |
| 1:H1:619:G:H4'     | 1:H1:620:A:N3      | 2.20                     | 0.57              |
| 1:H1:1767:U:C4'    | 1:H1:1768:G:OP2    | 2.53                     | 0.57              |
| 1:H1:2219:A:OP1    | 16:HQ:78:ARG:CZ    | 2.53                     | 0.57              |
| 1:H1:2343:A:H8     | 1:H1:2343:A:O5'    | 1.88                     | 0.57              |
| 1:H1:2715:C:H3'    | 1:H1:2717:G:H21    | 1.70                     | 0.57              |
| 1:H1:2850:U:O2     | 1:H1:2850:U:H2'    | 2.04                     | 0.57              |
| 17:HT:16:SER:HA    | 50:HT:204:HOH:O    | 2.05                     | 0.57              |
| 1:A1:46:A:C4'      | 1:A1:47:G:O5'      | 2.52                     | 0.56              |
| 1:A1:90:G:H4'      | 4:AC:53:LYS:NZ     | 2.20                     | 0.56              |
| 1:A1:152:U:H5'     | 1:A1:153:C:OP2     | 2.04                     | 0.56              |
| 1:A1:838:G:H1'     | 2:AA:50:TRP:CZ2    | 2.40                     | 0.56              |
| 1:A1:1942:C:C5'    | 1:A1:1942:C:H6     | 2.18                     | 0.56              |
| 1:A1:2149:U:C2'    | 1:A1:2150:U:C5'    | 2.83                     | 0.56              |
| 1:A1:2380:U:H4'    | 1:A1:2381:A:OP1    | 2.05                     | 0.56              |
| 1:A1:3181:G:H2'    | 1:A1:3182:A:C8     | 2.40                     | 0.56              |
| 1:A1:3185:G:N3     | 1:A1:3237:C:N3     | 2.54                     | 0.56              |
| 1:A1:3228:U:C4'    | 1:A1:3229:C:C5'    | 2.77                     | 0.56              |
| 50:A1:4393:HOH:O   | 3:AB:48:LYS:HE3    | 2.05                     | 0.56              |
| 5:AE:4:GLY:N       | 5:AE:5:PRO:HD2     | 2.19                     | 0.56              |
| 8:AH:84:ASN:O      | 8:AH:86:VAL:N      | 2.38                     | 0.56              |
| 13:AN:28:SER:O     | 1:H1:1045:G:H4'    | 2.05                     | 0.56              |
| 13:AN:122:TYR:CD2  | 27:BF:21:LEU:HD21  | 2.40                     | 0.56              |
| 14:AO:40:LEU:O     | 14:AO:44:HIS:CE1   | 2.58                     | 0.56              |
| 20:B2:40:A:C8      | 20:B2:42:G:C2      | 2.93                     | 0.56              |
| 21:B3:48:G:OP2     | 34:BM:94:SER:HB3   | 2.04                     | 0.56              |
| 23:BB:32:PHE:CD2   | 23:BB:180:GLN:HB3  | 2.39                     | 0.56              |
| 24:BC:155:LEU:HA   | 24:BC:156:PRO:C    | 2.30                     | 0.56              |
| 26:BE:144:LEU:HD13 | 26:BE:155:THR:HG22 | 1.85                     | 0.56              |
| 27:BF:123:ILE:HD12 | 27:BF:197:ARG:HD3  | 1.87                     | 0.56              |
| 27:BF:133:THR:O    | 27:BF:137:GLU:HG3  | 2.05                     | 0.56              |
| 27:BF:183:VAL:HG11 | 27:BF:185:LYS:HE3  | 1.85                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 37:BP:34:TYR:CD1   | 37:BP:72:ILE:HD11  | 2.39                     | 0.56              |
| 43:BV:41:TRP:CD1   | 43:BV:177:CYS:SG   | 2.98                     | 0.56              |
| 24:CC:163:VAL:HG22 | 24:CC:175:PHE:CE2  | 2.40                     | 0.56              |
| 29:CH:75:ASN:HD21  | 29:CH:154:ARG:HD2  | 1.69                     | 0.56              |
| 29:CH:208:ARG:HG3  | 29:CH:209:LEU:H    | 1.70                     | 0.56              |
| 30:CI:13:HIS:CE1   | 30:CI:118:VAL:HG13 | 2.40                     | 0.56              |
| 32:CK:117:ARG:NH1  | 32:CK:137:ARG:CZ   | 2.67                     | 0.56              |
| 34:CM:125:VAL:O    | 34:CM:201:LYS:HD2  | 2.03                     | 0.56              |
| 37:CP:142:GLN:O    | 19:DX:36:PRO:HD2   | 2.05                     | 0.56              |
| 1:D1:76:U:C2'      | 1:D1:77:A:H5'      | 2.34                     | 0.56              |
| 1:D1:316:A:C2      | 1:D1:317:A:C4      | 2.93                     | 0.56              |
| 1:D1:524:G:H4'     | 1:D1:525:C:OP2     | 2.04                     | 0.56              |
| 1:D1:552:U:HO2'    | 1:D1:553:C:H5'     | 1.69                     | 0.56              |
| 1:D1:1167:G:H2'    | 1:D1:1168:C:H6     | 1.70                     | 0.56              |
| 1:D1:1190:U:H2'    | 1:D1:1191:G:C8     | 2.40                     | 0.56              |
| 1:D1:1662:A:H4'    | 11:DL:76:ARG:NH2   | 2.20                     | 0.56              |
| 1:D1:1884:G:H2'    | 1:D1:1885:G:H5'    | 1.85                     | 0.56              |
| 1:D1:2148:A:HO2'   | 1:D1:2238:A:HO2'   | 1.49                     | 0.56              |
| 1:D1:3135:A:H2'    | 1:D1:3136:A:C8     | 2.40                     | 0.56              |
| 1:D1:3144:G:N2     | 1:D1:3249:U:H1'    | 2.20                     | 0.56              |
| 1:D1:3193:G:N2     | 1:D1:3218:U:H1'    | 2.20                     | 0.56              |
| 9:DJ:201:ASP:O     | 9:DJ:224:LEU:HD21  | 2.04                     | 0.56              |
| 14:DO:94:ILE:HD13  | 14:DO:107:ALA:HB1  | 1.87                     | 0.56              |
| 15:DP:45:ARG:HD2   | 15:DP:46:GLY:H     | 1.69                     | 0.56              |
| 20:E2:95:C:HO2'    | 20:E2:96:A:H8      | 1.53                     | 0.56              |
| 21:E3:60:C:H5''    | 34:EM:281:LYS:HG2  | 1.87                     | 0.56              |
| 23:EB:381:ASP:HB3  | 23:EB:384:LYS:HB3  | 1.87                     | 0.56              |
| 25:ED:15:ALA:O     | 25:ED:72:ARG:HG2   | 2.05                     | 0.56              |
| 25:ED:82:ARG:O     | 25:ED:86:VAL:HG23  | 2.05                     | 0.56              |
| 26:EE:154:GLN:HE22 | 1:F1:3115:C:H1'    | 1.70                     | 0.56              |
| 34:EM:81:TYR:O     | 34:EM:84:LYS:HB2   | 2.05                     | 0.56              |
| 36:EO:133:LYS:HG3  | 36:EO:134:ASN:N    | 2.17                     | 0.56              |
| 1:F1:95:U:O2'      | 50:F1:3625:HOH:O   | 2.18                     | 0.56              |
| 1:F1:152:U:C5'     | 1:F1:153:C:OP2     | 2.53                     | 0.56              |
| 1:F1:1464:U:H2'    | 1:F1:1465:U:H6     | 1.70                     | 0.56              |
| 1:F1:2550:U:H5'    | 1:F1:2551:A:O5'    | 2.05                     | 0.56              |
| 1:F1:3168:A:N7     | 19:FX:166:VAL:CG1  | 2.67                     | 0.56              |
| 3:FB:28:ARG:CZ     | 3:FB:36:ARG:O      | 2.53                     | 0.56              |
| 5:FE:173:TYR:CD2   | 6:FF:106:PHE:HD1   | 2.22                     | 0.56              |
| 7:FG:13:LYS:CB     | 7:FG:100:ILE:HD12  | 2.31                     | 0.56              |
| 15:FP:53:PHE:CE1   | 15:FP:55:THR:HG22  | 2.40                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:G2:28:G:N7      | 40:GS:12:ARG:NH2   | 2.53                     | 0.56              |
| 21:G3:30:G:C2'     | 21:G3:31:G:H5'     | 2.35                     | 0.56              |
| 22:GA:31:ARG:HH12  | 22:GA:42:ILE:HG12  | 1.69                     | 0.56              |
| 23:GB:264:ARG:CZ   | 1:H1:2387:C:O2'    | 2.52                     | 0.56              |
| 28:GG:13:UNK:O     | 28:GG:17:UNK:HG2   | 2.04                     | 0.56              |
| 30:GI:92:PRO:HG2   | 1:H1:656:C:P       | 2.44                     | 0.56              |
| 33:GL:6:TYR:HA     | 16:HQ:45:ILE:HD11  | 1.87                     | 0.56              |
| 43:GV:115:ARG:HH21 | 43:GV:192:PHE:HB3  | 1.70                     | 0.56              |
| 1:H1:284:U:H1'     | 50:H1:3677:HOH:O   | 2.04                     | 0.56              |
| 1:H1:432:G:H4'     | 1:H1:433:C:OP1     | 2.04                     | 0.56              |
| 1:H1:541:A:H2'     | 1:H1:542:C:C6      | 2.39                     | 0.56              |
| 1:H1:661:C:C2      | 1:H1:662:C:C5      | 2.93                     | 0.56              |
| 1:H1:1048:U:C4     | 1:H1:1049:U:C5     | 2.93                     | 0.56              |
| 1:H1:1196:A:C6     | 1:H1:1357:A:C8     | 2.92                     | 0.56              |
| 1:H1:2717:G:C5'    | 50:H1:4320:HOH:O   | 2.52                     | 0.56              |
| 1:H1:3005:A:O2'    | 1:H1:3006:A:H5'    | 2.05                     | 0.56              |
| 1:H1:3096:U:H5''   | 10:HK:112:LYS:NZ   | 2.20                     | 0.56              |
| 1:H1:3112:A:C2'    | 1:H1:3113:G:H5'    | 2.34                     | 0.56              |
| 2:HA:21:ARG:HB2    | 2:HA:39:TYR:HD1    | 1.68                     | 0.56              |
| 4:HC:94:ILE:HA     | 4:HC:97:ILE:HD12   | 1.87                     | 0.56              |
| 9:HJ:116:LEU:HD21  | 9:HJ:177:LEU:HD21  | 1.87                     | 0.56              |
| 12:HM:19:ILE:HD13  | 12:HM:105:TYR:HB2  | 1.86                     | 0.56              |
| 14:HO:6:TRP:CZ3    | 14:HO:40:LEU:HD12  | 2.36                     | 0.56              |
| 14:HO:62:LEU:HD11  | 14:HO:97:ARG:CG    | 2.34                     | 0.56              |
| 18:HU:50:GLU:O     | 18:HU:150:LEU:HD12 | 2.04                     | 0.56              |
| 19:HX:15:GLN:NE2   | 19:HX:115:GLY:HA2  | 2.19                     | 0.56              |
| 1:A1:119:A:N7      | 27:BF:103:ARG:NH2  | 2.52                     | 0.56              |
| 1:A1:257:G:H2'     | 1:A1:258:A:H5'     | 1.86                     | 0.56              |
| 1:A1:511:U:O2'     | 1:A1:512:G:H5'     | 2.05                     | 0.56              |
| 1:A1:790:C:O2'     | 1:A1:791:C:C6      | 2.58                     | 0.56              |
| 1:A1:978:G:H1'     | 1:A1:1142:G:H5''   | 1.87                     | 0.56              |
| 1:A1:1210:C:C5'    | 19:AX:171:ARG:HH21 | 2.17                     | 0.56              |
| 1:A1:1753:A:OP2    | 7:AG:26:GLY:HA2    | 2.05                     | 0.56              |
| 1:A1:1941:C:H2'    | 1:A1:1942:C:H5''   | 1.86                     | 0.56              |
| 1:A1:2429:U:H4'    | 1:A1:2430:G:O5'    | 2.04                     | 0.56              |
| 1:A1:3126:C:H2'    | 1:A1:3127:U:C6     | 2.40                     | 0.56              |
| 5:AE:20:LYS:O      | 14:AO:105:GLN:NE2  | 2.37                     | 0.56              |
| 6:AF:56:THR:O      | 6:AF:56:THR:HG22   | 2.03                     | 0.56              |
| 8:AH:26:SER:OG     | 8:AH:29:THR:HB     | 2.05                     | 0.56              |
| 10:AK:92:GLU:O     | 10:AK:105:PRO:HB3  | 2.05                     | 0.56              |
| 15:AP:31:VAL:HG22  | 15:AP:44:LEU:HD23  | 1.87                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 18:AU:100:LYS:HE2  | 18:AU:102:ARG:HH21 | 1.69                     | 0.56              |
| 19:AX:167:LYS:CG   | 19:AX:188:THR:HG21 | 2.34                     | 0.56              |
| 23:BB:337:ARG:NH2  | 23:BB:340:ILE:HG23 | 2.21                     | 0.56              |
| 27:BF:152:PRO:HB2  | 27:BF:154:GLU:OE1  | 2.04                     | 0.56              |
| 29:BH:139:ARG:HD3  | 29:BH:173:PHE:CD1  | 2.40                     | 0.56              |
| 35:BN:73:ASN:N     | 35:BN:76:ASN:HB2   | 2.18                     | 0.56              |
| 42:BU:25:LEU:O     | 42:BU:28:GLU:HB3   | 2.04                     | 0.56              |
| 22:CA:32:VAL:HA    | 22:CA:124:ARG:HH11 | 1.68                     | 0.56              |
| 23:CB:54:THR:HG23  | 23:CB:358:ASP:HB3  | 1.86                     | 0.56              |
| 23:CB:103:THR:CG2  | 23:CB:104:THR:N    | 2.68                     | 0.56              |
| 24:CC:148:ARG:HE   | 24:CC:187:ARG:HD2  | 1.70                     | 0.56              |
| 27:CF:186:LYS:NZ   | 1:D1:144:A:OP1     | 2.30                     | 0.56              |
| 30:CI:92:PRO:HG2   | 1:D1:656:C:OP1     | 2.05                     | 0.56              |
| 33:CL:147:ARG:NH2  | 1:D1:111:C:OP1     | 2.38                     | 0.56              |
| 34:CM:68:THR:HB    | 34:CM:71:CYS:O     | 2.03                     | 0.56              |
| 35:CN:85:SER:OG    | 35:CN:86:THR:N     | 2.36                     | 0.56              |
| 35:CN:173:LYS:HE3  | 1:D1:86:A:OP1      | 2.04                     | 0.56              |
| 37:CP:66:ASN:ND2   | 17:DT:35:VAL:HA    | 2.20                     | 0.56              |
| 45:CX:56:LYS:O     | 1:D1:1431:U:H1'    | 2.04                     | 0.56              |
| 1:D1:62:G:O6       | 50:D1:3748:HOH:O   | 2.17                     | 0.56              |
| 1:D1:927:G:H2'     | 1:D1:928:U:H6      | 1.69                     | 0.56              |
| 1:D1:971:C:O2'     | 1:D1:972:U:H5'     | 2.04                     | 0.56              |
| 1:D1:1168:C:OP1    | 50:D1:4006:HOH:O   | 2.18                     | 0.56              |
| 1:D1:2127:A:H2'    | 1:D1:2128:C:H5'    | 1.86                     | 0.56              |
| 1:D1:2217:C:C4'    | 1:D1:2218:A:OP2    | 2.50                     | 0.56              |
| 1:D1:2558:U:C4     | 1:D1:2559:U:C4     | 2.94                     | 0.56              |
| 1:D1:2649:G:OP1    | 1:D1:2739:C:O2'    | 2.22                     | 0.56              |
| 1:D1:3177:G:H5''   | 1:D1:3177:G:C8     | 2.40                     | 0.56              |
| 1:D1:3191:G:C5     | 1:D1:3218:U:O4     | 2.58                     | 0.56              |
| 7:DG:43:PHE:HE1    | 7:DG:68:HIS:CD2    | 2.22                     | 0.56              |
| 19:DX:7:GLN:HE22   | 19:DX:80:GLU:H     | 1.51                     | 0.56              |
| 22:EA:31:ARG:NH1   | 22:EA:42:ILE:HG13  | 2.20                     | 0.56              |
| 22:EA:117:VAL:HG12 | 22:EA:118:GLU:N    | 2.20                     | 0.56              |
| 27:EF:197:ARG:O    | 27:EF:198:ASN:C    | 2.47                     | 0.56              |
| 29:EH:92:HIS:HD2   | 1:F1:1070:U:H1'    | 1.70                     | 0.56              |
| 34:EM:210:ASP:HA   | 34:EM:213:MET:CG   | 2.35                     | 0.56              |
| 35:EN:5:LEU:CD2    | 43:EV:106:ARG:HD2  | 2.35                     | 0.56              |
| 37:EP:74:VAL:CG1   | 37:EP:75:ILE:N     | 2.67                     | 0.56              |
| 38:EQ:27:HIS:HE1   | 1:F1:2350:G:OP2    | 1.88                     | 0.56              |
| 41:ET:48:ALA:HB1   | 41:ET:54:THR:HG21  | 1.87                     | 0.56              |
| 42:EU:14:THR:HG22  | 42:EU:15:GLU:H     | 1.70                     | 0.56              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:304:U:C2'    | 1:F1:305:A:OP2     | 2.53                     | 0.56              |
| 1:F1:358:C:O2'    | 2:FA:16:HIS:CD2    | 2.58                     | 0.56              |
| 1:F1:358:C:O2'    | 2:FA:16:HIS:HD2    | 1.88                     | 0.56              |
| 1:F1:675:G:C6     | 1:F1:676:G:C6      | 2.93                     | 0.56              |
| 1:F1:1190:U:H3    | 1:F1:1363:A:H61    | 1.52                     | 0.56              |
| 1:F1:1367:A:H2'   | 1:F1:1368:U:H6     | 1.68                     | 0.56              |
| 1:F1:2639:C:C5'   | 1:F1:2640:G:OP2    | 2.50                     | 0.56              |
| 1:F1:3257:U:H2'   | 1:F1:3258:C:H6     | 1.71                     | 0.56              |
| 5:FE:51:LEU:HB3   | 5:FE:95:THR:HG21   | 1.87                     | 0.56              |
| 7:FG:13:LYS:HG2   | 7:FG:14:LEU:H      | 1.70                     | 0.56              |
| 14:FO:40:LEU:O    | 14:FO:44:HIS:CE1   | 2.57                     | 0.56              |
| 21:G3:33:U:C6     | 34:GM:212:TYR:HE1  | 2.23                     | 0.56              |
| 21:G3:48:G:H2'    | 21:G3:49:A:C8      | 2.40                     | 0.56              |
| 29:GH:139:ARG:HG2 | 29:GH:173:PHE:HE1  | 1.71                     | 0.56              |
| 29:GH:139:ARG:HD3 | 29:GH:173:PHE:CD1  | 2.40                     | 0.56              |
| 33:GL:19:MET:HE1  | 33:GL:22:ILE:HD12  | 1.88                     | 0.56              |
| 34:GM:231:TRP:HZ2 | 34:GM:243:VAL:CG2  | 2.19                     | 0.56              |
| 37:GP:82:GLY:HA3  | 50:HT:205:HOH:O    | 2.06                     | 0.56              |
| 38:GQ:58:ARG:HE   | 38:GQ:77:GLU:CD    | 2.12                     | 0.56              |
| 42:GU:98:LYS:HE3  | 42:GU:101:ARG:NH1  | 2.19                     | 0.56              |
| 46:GY:22:LEU:O    | 46:GY:26:VAL:HG23  | 2.05                     | 0.56              |
| 1:H1:424:G:H2'    | 1:H1:425:U:H5'     | 1.87                     | 0.56              |
| 1:H1:644:A:H2'    | 1:H1:645:A:C5'     | 2.35                     | 0.56              |
| 1:H1:970:C:O4'    | 1:H1:1433:A:H1'    | 2.04                     | 0.56              |
| 1:H1:1367:A:H2'   | 1:H1:1368:U:H6     | 1.69                     | 0.56              |
| 1:H1:2191:C:O2    | 1:H1:2265:A:H2     | 1.88                     | 0.56              |
| 1:H1:3096:U:H5''  | 10:HK:112:LYS:HZ3  | 1.69                     | 0.56              |
| 1:H1:3108:U:H2'   | 1:H1:3109:C:H5'    | 1.86                     | 0.56              |
| 15:HP:31:VAL:HG22 | 15:HP:44:LEU:HD23  | 1.86                     | 0.56              |
| 1:A1:40:C:H3'     | 1:A1:40:C:C6       | 2.39                     | 0.56              |
| 1:A1:80:C:P       | 33:BL:201:ARG:HH21 | 2.27                     | 0.56              |
| 1:A1:119:A:C2     | 27:BF:122:PRO:CG   | 2.87                     | 0.56              |
| 1:A1:405:A:O2'    | 1:A1:406:A:H5'     | 2.05                     | 0.56              |
| 1:A1:566:U:C3'    | 1:A1:567:C:H5'     | 2.35                     | 0.56              |
| 1:A1:633:C:C2'    | 1:A1:634:G:OP1     | 2.52                     | 0.56              |
| 1:A1:829:C:OP1    | 24:BC:105:ARG:NH2  | 2.37                     | 0.56              |
| 1:A1:1027:G:H8    | 1:A1:1068:U:OP2    | 1.87                     | 0.56              |
| 1:A1:1407:A:H5''  | 24:BC:198:GLN:HB3  | 1.87                     | 0.56              |
| 1:A1:1592:G:C6    | 1:A1:1593:A:C6     | 2.93                     | 0.56              |
| 1:A1:1610:C:H5'   | 20:B2:110:A:H4'    | 1.87                     | 0.56              |
| 1:A1:1839:A:O2'   | 1:A1:1840:U:C5     | 2.58                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1922:G:O2'    | 1:A1:1923:G:H5'    | 2.05                     | 0.56              |
| 1:A1:2391:G:H4'    | 1:A1:2392:A:OP2    | 2.05                     | 0.56              |
| 1:A1:2703:G:HO2'   | 1:A1:2740:G:H2'    | 1.67                     | 0.56              |
| 1:A1:3118:A:H5''   | 1:A1:3119:A:OP2    | 2.06                     | 0.56              |
| 4:AC:14:LYS:HG3    | 4:AC:77:THR:OG1    | 2.05                     | 0.56              |
| 5:AE:18:TRP:HB3    | 14:AO:95:ARG:NH2   | 2.21                     | 0.56              |
| 5:AE:135:THR:HB    | 5:AE:137:GLU:HG2   | 1.86                     | 0.56              |
| 6:AF:111:VAL:O     | 6:AF:115:LYS:HG3   | 2.05                     | 0.56              |
| 7:AG:62:LEU:HD11   | 13:AN:84:ARG:CB    | 2.35                     | 0.56              |
| 11:AL:59:VAL:HG11  | 11:AL:63:GLU:HB3   | 1.87                     | 0.56              |
| 15:AP:15:TRP:O     | 15:AP:72:TYR:CZ    | 2.58                     | 0.56              |
| 16:AQ:29:GLN:O     | 16:AQ:31:LYS:HD3   | 2.05                     | 0.56              |
| 19:AX:16:MET:HE2   | 19:AX:118:SER:HA   | 1.87                     | 0.56              |
| 19:AX:82:SER:O     | 19:AX:87:LYS:NZ    | 2.35                     | 0.56              |
| 20:B2:145:C:H2'    | 20:B2:146:A:C8     | 2.40                     | 0.56              |
| 21:B3:5:U:H2'      | 21:B3:6:C:C6       | 2.40                     | 0.56              |
| 21:B3:20:U:O2'     | 21:B3:21:G:H5'     | 2.06                     | 0.56              |
| 22:BA:203:VAL:CG1  | 22:BA:218:GLN:HG2  | 2.34                     | 0.56              |
| 23:BB:54:THR:HG21  | 23:BB:358:ASP:O    | 2.05                     | 0.56              |
| 23:BB:110:ILE:O    | 23:BB:115:LYS:HE3  | 2.05                     | 0.56              |
| 25:BD:77:ARG:HH22  | 25:BD:166:GLU:CG   | 2.19                     | 0.56              |
| 27:BF:127:TYR:CD1  | 27:BF:185:LYS:NZ   | 2.72                     | 0.56              |
| 32:BK:23:GLY:O     | 32:BK:24:LYS:O     | 2.23                     | 0.56              |
| 32:BK:50:TRP:HD1   | 35:BN:156:PRO:HD2  | 1.69                     | 0.56              |
| 32:BK:81:TRP:CZ2   | 32:BK:123:VAL:CG2  | 2.87                     | 0.56              |
| 34:BM:22:ARG:HB3   | 34:BM:30:TYR:OH    | 2.05                     | 0.56              |
| 34:BM:37:ILE:HD11  | 37:BP:31:LEU:HD21  | 1.86                     | 0.56              |
| 36:BO:106:LEU:CD2  | 36:BO:138:LEU:HD21 | 2.32                     | 0.56              |
| 38:BQ:58:ARG:HE    | 38:BQ:77:GLU:CD    | 2.13                     | 0.56              |
| 43:BV:207:PRO:HG3  | 43:BV:211:PHE:CE2  | 2.40                     | 0.56              |
| 46:BY:10:ILE:CD1   | 46:BY:30:GLU:CB    | 2.84                     | 0.56              |
| 20:C2:31:C:H2'     | 20:C2:32:C:C6      | 2.40                     | 0.56              |
| 22:CA:248:ARG:HA   | 22:CA:251:GLN:HE21 | 1.70                     | 0.56              |
| 23:CB:57:LEU:HD11  | 23:CB:71:GLU:HB3   | 1.87                     | 0.56              |
| 23:CB:239:LYS:HG3  | 1:D1:899:U:OP2     | 2.04                     | 0.56              |
| 24:CC:338:LYS:O    | 24:CC:341:LYS:HB2  | 2.05                     | 0.56              |
| 25:CD:32:LYS:HD3   | 25:CD:119:SER:O    | 2.05                     | 0.56              |
| 29:CH:174:THR:HG22 | 29:CH:175:LYS:N    | 2.20                     | 0.56              |
| 30:CI:132:ARG:NH1  | 1:D1:1216:C:O2'    | 2.38                     | 0.56              |
| 31:CJ:61:MET:HE3   | 31:CJ:79:GLN:OE1   | 2.06                     | 0.56              |
| 32:CK:128:LYS:HB3  | 32:CK:129:TYR:CD1  | 2.39                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:CM:121:GLY:HA2  | 34:CM:130:PHE:CZ   | 2.40                     | 0.56              |
| 35:CN:82:VAL:O     | 35:CN:139:LEU:HD12 | 2.05                     | 0.56              |
| 38:CQ:33:GLU:OE1   | 38:CQ:62:PHE:CA    | 2.50                     | 0.56              |
| 38:CQ:97:LEU:O     | 38:CQ:100:LEU:HB2  | 2.04                     | 0.56              |
| 40:CS:61:LYS:HE2   | 1:D1:218:G:N1      | 2.20                     | 0.56              |
| 44:CW:14:ASN:HD21  | 44:CW:17:LYS:HE3   | 1.70                     | 0.56              |
| 1:D1:46:A:C4'      | 1:D1:47:G:O5'      | 2.52                     | 0.56              |
| 1:D1:363:G:H8      | 1:D1:363:G:H5'     | 1.70                     | 0.56              |
| 1:D1:418:G:C6      | 1:D1:2378:A:O2'    | 2.55                     | 0.56              |
| 1:D1:439:A:C2'     | 1:D1:440:C:O5'     | 2.53                     | 0.56              |
| 1:D1:512:G:N2      | 1:D1:513:G:C4      | 2.74                     | 0.56              |
| 1:D1:1045:G:H2'    | 1:D1:1046:G:H8     | 1.68                     | 0.56              |
| 1:D1:1184:U:H2'    | 1:D1:1185:A:O4'    | 2.04                     | 0.56              |
| 1:D1:1228:C:O2     | 1:D1:1228:C:H2'    | 2.05                     | 0.56              |
| 1:D1:1598:C:C4     | 1:D1:1599:G:C4     | 2.94                     | 0.56              |
| 1:D1:1702:G:H2'    | 1:D1:1703:A:C8     | 2.40                     | 0.56              |
| 1:D1:2238:A:O3'    | 50:D1:4291:HOH:O   | 2.17                     | 0.56              |
| 1:D1:2239:A:P      | 50:D1:4291:HOH:O   | 2.63                     | 0.56              |
| 1:D1:2256:G:O2'    | 1:D1:2257:A:C4'    | 2.54                     | 0.56              |
| 1:D1:2275:A:P      | 50:D1:4627:HOH:O   | 2.55                     | 0.56              |
| 1:D1:2907:A:H8     | 1:D1:2907:A:C5'    | 2.18                     | 0.56              |
| 1:D1:3161:A:C6     | 1:D1:3176:A:C2     | 2.93                     | 0.56              |
| 3:DB:28:ARG:CZ     | 3:DB:36:ARG:O      | 2.53                     | 0.56              |
| 9:DJ:43:VAL:HG12   | 9:DJ:44:PRO:N      | 2.20                     | 0.56              |
| 13:DN:54:THR:CB    | 13:DN:57:MET:HG3   | 2.32                     | 0.56              |
| 18:DU:74:THR:HB    | 18:DU:101:ASN:HD21 | 1.69                     | 0.56              |
| 20:E2:1:A:H5''     | 20:E2:2:G:OP2      | 2.05                     | 0.56              |
| 23:EB:259:ARG:HA   | 30:EI:63:HIS:HB2   | 1.87                     | 0.56              |
| 24:EC:201:LEU:N    | 24:EC:201:LEU:HD23 | 2.19                     | 0.56              |
| 24:EC:205:ARG:HH21 | 40:ES:11:ARG:NH1   | 2.02                     | 0.56              |
| 24:EC:338:LYS:O    | 24:EC:341:LYS:HB2  | 2.06                     | 0.56              |
| 24:EC:380:PHE:CE1  | 19:FX:78:ILE:CD1   | 2.89                     | 0.56              |
| 26:EE:130:VAL:HG22 | 26:EE:152:VAL:HG22 | 1.86                     | 0.56              |
| 27:EF:67:PRO:HB2   | 27:EF:68:PRO:CD    | 2.34                     | 0.56              |
| 27:EF:69:GLN:HG2   | 27:EF:222:ARG:NH1  | 2.20                     | 0.56              |
| 27:EF:152:PRO:HB2  | 27:EF:154:GLU:OE1  | 2.05                     | 0.56              |
| 27:EF:183:VAL:HG11 | 27:EF:185:LYS:HE3  | 1.86                     | 0.56              |
| 29:EH:75:ASN:HD21  | 29:EH:154:ARG:HD2  | 1.69                     | 0.56              |
| 33:EL:80:VAL:CG1   | 33:EL:87:VAL:HG13  | 2.35                     | 0.56              |
| 34:EM:212:TYR:CD2  | 34:EM:228:PHE:CZ   | 2.90                     | 0.56              |
| 35:EN:155:ALA:O    | 35:EN:158:GLN:HG3  | 2.05                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:EQ:66:THR:CG2   | 38:EQ:82:GLN:HE22  | 2.17                     | 0.56              |
| 44:EW:4:GLN:HE21   | 44:EW:76:LYS:NZ    | 2.02                     | 0.56              |
| 1:F1:20:G:H5''     | 2:FA:43:LYS:HB2    | 1.87                     | 0.56              |
| 1:F1:123:C:H2'     | 1:F1:124:U:C6      | 2.40                     | 0.56              |
| 1:F1:157:A:O5'     | 16:FQ:25:HIS:HE1   | 1.87                     | 0.56              |
| 1:F1:169:A:N7      | 1:F1:251:A:N6      | 2.53                     | 0.56              |
| 1:F1:170:A:C4      | 1:F1:250:U:N3      | 2.73                     | 0.56              |
| 1:F1:471:A:H2'     | 1:F1:472:C:O5'     | 2.05                     | 0.56              |
| 1:F1:488:U:H2'     | 1:F1:490:A:OP2     | 2.06                     | 0.56              |
| 1:F1:489:A:H2'     | 1:F1:490:A:C8      | 2.41                     | 0.56              |
| 1:F1:644:A:H2'     | 1:F1:645:A:C5'     | 2.35                     | 0.56              |
| 1:F1:685:G:C4      | 1:F1:827:C:O4'     | 2.59                     | 0.56              |
| 1:F1:813:C:H2'     | 1:F1:814:U:C6      | 2.41                     | 0.56              |
| 1:F1:813:C:H2'     | 1:F1:814:U:H6      | 1.70                     | 0.56              |
| 1:F1:851:G:O2'     | 1:F1:1614:A:H8     | 1.86                     | 0.56              |
| 1:F1:1543:A:H2'    | 1:F1:1544:U:H6     | 1.70                     | 0.56              |
| 1:F1:1729:U:C5     | 1:F1:1812:G:H1'    | 2.40                     | 0.56              |
| 1:F1:1840:U:OP2    | 1:F1:1840:U:H6     | 1.87                     | 0.56              |
| 1:F1:2537:C:H2'    | 1:F1:2538:C:C6     | 2.40                     | 0.56              |
| 1:F1:3161:A:C6     | 1:F1:3176:A:C2     | 2.93                     | 0.56              |
| 2:FA:21:ARG:NH1    | 2:FA:39:TYR:HA     | 2.21                     | 0.56              |
| 2:FA:28:HIS:O      | 2:FA:32:LEU:N      | 2.39                     | 0.56              |
| 3:FB:33:THR:HG22   | 3:FB:35:ILE:N      | 2.04                     | 0.56              |
| 5:FE:4:GLY:N       | 5:FE:5:PRO:HD2     | 2.20                     | 0.56              |
| 5:FE:85:VAL:HG12   | 5:FE:85:VAL:O      | 2.06                     | 0.56              |
| 9:FJ:113:TYR:O     | 9:FJ:135:VAL:HG13  | 2.04                     | 0.56              |
| 9:FJ:199:VAL:HG11  | 9:FJ:222:PHE:CE1   | 2.39                     | 0.56              |
| 13:FN:113:THR:O    | 13:FN:117:VAL:HG23 | 2.05                     | 0.56              |
| 14:FO:75:THR:HG21  | 14:FO:77:GLU:CG    | 2.35                     | 0.56              |
| 15:FP:15:TRP:O     | 15:FP:72:TYR:CZ    | 2.58                     | 0.56              |
| 15:FP:39:ILE:HG22  | 15:FP:40:THR:N     | 2.21                     | 0.56              |
| 16:FQ:13:PHE:CD1   | 16:FQ:14:ILE:N     | 2.73                     | 0.56              |
| 22:GA:31:ARG:HD3   | 22:GA:34:ASP:OD2   | 2.04                     | 0.56              |
| 24:GC:152:VAL:HG11 | 24:GC:155:LEU:HD21 | 1.88                     | 0.56              |
| 25:GD:124:GLY:HA3  | 1:H1:2663:A:C4     | 2.40                     | 0.56              |
| 28:GG:32:UNK:O     | 1:H1:1257:G:O3'    | 2.24                     | 0.56              |
| 28:GG:48:UNK:HG1   | 28:GG:52:UNK:CB    | 2.35                     | 0.56              |
| 29:GH:7:ARG:NH2    | 1:H1:2816:G:OP1    | 2.23                     | 0.56              |
| 29:GH:75:ASN:HD22  | 29:GH:151:ALA:HA   | 1.70                     | 0.56              |
| 29:GH:119:PHE:CE2  | 1:H1:2635:C:H4'    | 2.40                     | 0.56              |
| 32:GK:88:THR:CG2   | 18:HU:164:LYS:HZ1  | 2.19                     | 0.56              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 36:GO:24:LEU:CD2   | 36:GO:50:VAL:HG22 | 2.35                     | 0.56              |
| 36:GO:62:ARG:NH2   | 1:H1:3057:U:OP2   | 2.38                     | 0.56              |
| 36:GO:86:ASN:OD1   | 36:GO:90:PRO:HA   | 2.05                     | 0.56              |
| 39:GR:94:VAL:HG21  | 39:GR:130:ALA:HB2 | 1.87                     | 0.56              |
| 40:GS:125:LEU:HD21 | 1:H1:186:U:O3'    | 2.05                     | 0.56              |
| 44:GW:75:CYS:O     | 44:GW:90:THR:HA   | 2.04                     | 0.56              |
| 46:GY:71:LEU:HD12  | 46:GY:71:LEU:O    | 2.06                     | 0.56              |
| 46:GY:88:LYS:HG3   | 46:GY:92:GLU:OE2  | 2.05                     | 0.56              |
| 1:H1:165:C:H5''    | 18:HU:132:LYS:HD2 | 1.87                     | 0.56              |
| 1:H1:213:A:N6      | 1:H1:227:G:O2'    | 2.27                     | 0.56              |
| 1:H1:219:A:C2      | 1:H1:1416:U:C2'   | 2.84                     | 0.56              |
| 1:H1:685:G:C4      | 1:H1:827:C:O4'    | 2.59                     | 0.56              |
| 1:H1:790:C:HO2'    | 1:H1:791:C:H6     | 1.48                     | 0.56              |
| 1:H1:919:A:C1'     | 1:H1:920:A:C2     | 2.88                     | 0.56              |
| 1:H1:1147:A:H2'    | 1:H1:1148:U:H6    | 1.70                     | 0.56              |
| 1:H1:1393:A:C2     | 1:H1:1394:G:C4    | 2.93                     | 0.56              |
| 1:H1:1415:C:O2     | 1:H1:1415:C:H2'   | 2.03                     | 0.56              |
| 1:H1:1598:C:C4     | 1:H1:1599:G:C4    | 2.93                     | 0.56              |
| 1:H1:2177:A:H2'    | 1:H1:2178:A:C5'   | 2.35                     | 0.56              |
| 1:H1:2429:U:H4'    | 1:H1:2430:G:O5'   | 2.06                     | 0.56              |
| 1:H1:2997:A:O2'    | 1:H1:2998:G:H5'   | 2.05                     | 0.56              |
| 1:H1:3103:A:H3'    | 1:H1:3104:G:C8    | 2.41                     | 0.56              |
| 1:H1:3191:G:H1'    | 1:H1:3219:A:H62   | 1.67                     | 0.56              |
| 6:HF:106:PHE:HD2   | 6:HF:110:ARG:NE   | 2.01                     | 0.56              |
| 9:HJ:224:LEU:O     | 9:HJ:225:ASN:HB3  | 2.06                     | 0.56              |
| 12:HM:35:PHE:CD1   | 12:HM:65:ILE:HD12 | 2.40                     | 0.56              |
| 17:HT:41:ARG:O     | 17:HT:45:ARG:HG3  | 2.06                     | 0.56              |
| 18:HU:23:PHE:O     | 18:HU:26:GLN:HB3  | 2.05                     | 0.56              |
| 18:HU:44:VAL:O     | 18:HU:44:VAL:HG12 | 2.05                     | 0.56              |
| 18:HU:77:GLU:OE2   | 18:HU:110:ASN:ND2 | 2.38                     | 0.56              |
| 1:A1:685:G:H5'     | 32:BK:8:THR:HG21  | 1.86                     | 0.56              |
| 1:A1:734:A:H5'     | 32:BK:58:LEU:HD13 | 1.86                     | 0.56              |
| 1:A1:861:A:H62     | 1:A1:882:G:H1'    | 1.69                     | 0.56              |
| 1:A1:925:G:H1'     | 1:A1:1614:A:H61   | 1.69                     | 0.56              |
| 1:A1:925:G:H1'     | 1:A1:1614:A:N6    | 2.20                     | 0.56              |
| 1:A1:1519:G:N3     | 3:AB:13:PHE:CE1   | 2.73                     | 0.56              |
| 1:A1:1656:G:C5     | 1:A1:1657:C:C5    | 2.94                     | 0.56              |
| 1:A1:1696:C:O2'    | 1:A1:1697:U:H5'   | 2.04                     | 0.56              |
| 1:A1:2289:U:OP2    | 31:BJ:75:LYS:HE2  | 2.05                     | 0.56              |
| 1:A1:2542:U:H5''   | 1:A1:2542:U:C6    | 2.34                     | 0.56              |
| 1:A1:2550:U:H5'    | 1:A1:2551:A:O5'   | 2.04                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2850:U:H2'    | 1:A1:2850:U:O2     | 2.03                     | 0.56              |
| 22:BA:30:TYR:HB3   | 22:BA:164:ARG:HH11 | 1.70                     | 0.56              |
| 24:BC:152:VAL:HG11 | 24:BC:155:LEU:HD21 | 1.87                     | 0.56              |
| 25:BD:82:ARG:HB3   | 25:BD:112:LEU:CD2  | 2.33                     | 0.56              |
| 27:BF:143:LEU:HD22 | 27:BF:211:PHE:CD2  | 2.41                     | 0.56              |
| 27:BF:169:PRO:HA   | 27:BF:216:ASN:HD21 | 1.70                     | 0.56              |
| 29:BH:47:PRO:HD2   | 29:BH:141:LYS:HD3  | 1.87                     | 0.56              |
| 29:BH:130:ASP:O    | 29:BH:133:SER:OG   | 2.23                     | 0.56              |
| 32:BK:75:VAL:HG12  | 32:BK:76:ASN:N     | 2.20                     | 0.56              |
| 35:BN:45:PHE:CE1   | 35:BN:139:LEU:HD22 | 2.39                     | 0.56              |
| 37:BP:8:ARG:HD2    | 37:BP:11:THR:HG21  | 1.87                     | 0.56              |
| 43:BV:128:LEU:N    | 43:BV:129:PRO:HD2  | 2.19                     | 0.56              |
| 20:C2:2:G:O6       | 1:D1:3132:A:C2'    | 2.52                     | 0.56              |
| 20:C2:103:U:H2'    | 20:C2:104:G:C8     | 2.41                     | 0.56              |
| 21:C3:30:G:C2'     | 21:C3:31:G:H5'     | 2.35                     | 0.56              |
| 21:C3:92:C:H2'     | 21:C3:93:G:C8      | 2.40                     | 0.56              |
| 21:C3:102:G:H8     | 21:C3:102:G:O5'    | 1.88                     | 0.56              |
| 22:CA:203:VAL:HG12 | 22:CA:218:GLN:HG2  | 1.88                     | 0.56              |
| 23:CB:301:LYS:HD3  | 23:CB:359:THR:HG23 | 1.86                     | 0.56              |
| 33:CL:64:VAL:HG21  | 33:CL:106:VAL:HG23 | 1.88                     | 0.56              |
| 35:CN:88:THR:HA    | 35:CN:107:THR:OG1  | 2.04                     | 0.56              |
| 38:CQ:107:LYS:HB3  | 38:CQ:109:LEU:HG   | 1.86                     | 0.56              |
| 39:CR:81:MET:O     | 39:CR:85:GLU:HG3   | 2.05                     | 0.56              |
| 41:CT:57:ARG:NH1   | 1:D1:3321:U:OP1    | 2.38                     | 0.56              |
| 43:CV:196:ASN:O    | 43:CV:199:LEU:N    | 2.35                     | 0.56              |
| 45:CX:42:ASN:HD21  | 45:CX:44:VAL:HB    | 1.70                     | 0.56              |
| 1:D1:280:G:H2'     | 1:D1:281:G:O5'     | 2.05                     | 0.56              |
| 1:D1:895:A:O2'     | 1:D1:896:U:OP2     | 2.20                     | 0.56              |
| 1:D1:1050:C:C5     | 1:D1:1051:C:C4     | 2.94                     | 0.56              |
| 1:D1:1587:A:H4'    | 1:D1:1588:A:OP2    | 2.03                     | 0.56              |
| 1:D1:1736:G:C2     | 1:D1:1737:A:C2     | 2.92                     | 0.56              |
| 1:D1:2216:G:O6     | 16:DQ:75:LYS:NZ    | 2.37                     | 0.56              |
| 1:D1:2344:U:H6     | 1:D1:2344:U:C5'    | 2.17                     | 0.56              |
| 1:D1:2638:G:H4'    | 1:D1:2685:A:O4'    | 2.05                     | 0.56              |
| 1:D1:3072:G:H2'    | 1:D1:3073:U:C6     | 2.39                     | 0.56              |
| 1:D1:3097:G:P      | 10:DK:112:LYS:HZ1  | 2.28                     | 0.56              |
| 1:D1:3158:G:H5'    | 1:D1:3159:A:OP2    | 2.06                     | 0.56              |
| 1:D1:3185:G:N3     | 1:D1:3237:C:N3     | 2.52                     | 0.56              |
| 1:D1:3298:U:OP2    | 1:D1:3298:U:H6     | 1.89                     | 0.56              |
| 5:DE:51:LEU:HB3    | 5:DE:95:THR:HG21   | 1.88                     | 0.56              |
| 14:DO:75:THR:CG2   | 14:DO:77:GLU:HG2   | 2.35                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:EA:20:HIS:CD2   | 22:EA:193:LYS:O    | 2.58                     | 0.56              |
| 22:EA:239:ARG:HH11 | 1:F1:2158:C:C5'    | 2.01                     | 0.56              |
| 23:EB:30:ARG:NH2   | 1:F1:3127:U:C6     | 2.73                     | 0.56              |
| 24:EC:98:GLY:HA2   | 24:EC:105:ARG:HH12 | 1.69                     | 0.56              |
| 25:ED:37:LEU:HD13  | 25:ED:69:VAL:CG2   | 2.35                     | 0.56              |
| 29:EH:208:ARG:HG3  | 29:EH:209:LEU:N    | 2.21                     | 0.56              |
| 30:EI:48:ARG:NH2   | 1:F1:1220:A:OP2    | 2.38                     | 0.56              |
| 35:EN:82:VAL:O     | 35:EN:139:LEU:HD12 | 2.05                     | 0.56              |
| 36:EO:86:ASN:OD1   | 36:EO:90:PRO:HA    | 2.05                     | 0.56              |
| 42:EU:60:THR:O     | 42:EU:64:GLU:HG3   | 2.06                     | 0.56              |
| 46:EY:25:VAL:O     | 46:EY:28:LYS:HB3   | 2.06                     | 0.56              |
| 1:F1:75:A:C8       | 18:FU:71:ARG:NH1   | 2.68                     | 0.56              |
| 1:F1:297:U:O4      | 16:FQ:33:LYS:HE2   | 2.05                     | 0.56              |
| 1:F1:970:C:H2'     | 1:F1:971:C:C6      | 2.38                     | 0.56              |
| 1:F1:1507:A:OP1    | 1:F1:1507:A:C4'    | 2.53                     | 0.56              |
| 1:F1:1519:G:N3     | 3:FB:13:PHE:CE1    | 2.74                     | 0.56              |
| 1:F1:1696:C:O2'    | 1:F1:1697:U:H5'    | 2.05                     | 0.56              |
| 1:F1:1752:G:O5'    | 1:F1:1752:G:H8     | 1.88                     | 0.56              |
| 1:F1:2127:A:H2'    | 1:F1:2128:C:H5'    | 1.88                     | 0.56              |
| 1:F1:2384:C:O2'    | 1:F1:2385:A:H5'    | 2.04                     | 0.56              |
| 1:F1:3140:C:H4'    | 1:F1:3254:A:O4'    | 2.05                     | 0.56              |
| 1:F1:3143:A:H8     | 1:F1:3143:A:OP2    | 1.89                     | 0.56              |
| 5:FE:15:ILE:HA     | 5:FE:18:TRP:CE2    | 2.41                     | 0.56              |
| 9:FJ:201:ASP:O     | 9:FJ:224:LEU:HD21  | 2.05                     | 0.56              |
| 13:FN:38:PHE:CE2   | 13:FN:76:ASN:HB2   | 2.41                     | 0.56              |
| 19:FX:45:ALA:HB1   | 19:FX:50:HIS:CD2   | 2.41                     | 0.56              |
| 19:FX:82:SER:O     | 19:FX:87:LYS:NZ    | 2.32                     | 0.56              |
| 20:G2:81:G:H4'     | 42:GU:42:ALA:CB    | 2.35                     | 0.56              |
| 22:GA:33:TYR:N     | 22:GA:164:ARG:NH2  | 2.50                     | 0.56              |
| 23:GB:86:ILE:HG12  | 23:GB:158:VAL:HG11 | 1.87                     | 0.56              |
| 23:GB:360:SER:O    | 23:GB:362:LYS:HE2  | 2.05                     | 0.56              |
| 24:GC:311:ALA:H    | 35:GN:40:ARG:HH22  | 1.53                     | 0.56              |
| 27:GF:65:LYS:HE2   | 27:GF:225:TRP:CE3  | 2.41                     | 0.56              |
| 33:GL:201:ARG:HH21 | 1:H1:80:C:P        | 2.28                     | 0.56              |
| 34:GM:122:GLN:HB2  | 34:GM:130:PHE:CE2  | 2.40                     | 0.56              |
| 34:GM:210:ASP:HA   | 34:GM:213:MET:CG   | 2.35                     | 0.56              |
| 35:GN:56:SER:HB3   | 1:H1:695:U:OP1     | 2.05                     | 0.56              |
| 39:GR:43:LEU:CD1   | 1:H1:1599:G:H5''   | 2.35                     | 0.56              |
| 42:GU:76:GLY:HA2   | 1:H1:133:C:O2'     | 2.06                     | 0.56              |
| 1:H1:95:U:O2'      | 50:H1:3610:HOH:O   | 2.17                     | 0.56              |
| 1:H1:373:A:N3      | 1:H1:375:G:H5''    | 2.20                     | 0.56              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1190:U:H3    | 1:H1:1363:A:H61    | 1.54                     | 0.56              |
| 1:H1:1207:A:O2'   | 1:H1:1208:U:P      | 2.62                     | 0.56              |
| 1:H1:1653:A:C5    | 1:H1:1839:A:N1     | 2.73                     | 0.56              |
| 1:H1:2558:U:C4    | 1:H1:2559:U:C4     | 2.94                     | 0.56              |
| 1:H1:3226:A:N1    | 5:HE:83:ASN:O      | 2.39                     | 0.56              |
| 1:H1:3228:U:H5''  | 1:H1:3229:C:H5''   | 1.88                     | 0.56              |
| 9:HJ:17:CYS:HB2   | 9:HJ:25:LEU:O      | 2.05                     | 0.56              |
| 12:HM:59:SER:OG   | 12:HM:66:ASN:HB3   | 2.05                     | 0.56              |
| 1:A1:20:G:H5''    | 2:AA:43:LYS:HB2    | 1.87                     | 0.56              |
| 1:A1:70:C:C6      | 1:A1:72:A:H1'      | 2.41                     | 0.56              |
| 1:A1:72:A:O3'     | 18:AU:56:VAL:HG11  | 2.06                     | 0.56              |
| 1:A1:75:A:C8      | 18:AU:71:ARG:NH1   | 2.65                     | 0.56              |
| 1:A1:363:G:C5'    | 1:A1:363:G:C8      | 2.86                     | 0.56              |
| 1:A1:682:G:N7     | 50:A1:3843:HOH:O   | 2.37                     | 0.56              |
| 1:A1:940:A:N3     | 1:A1:940:A:H2'     | 2.20                     | 0.56              |
| 1:A1:967:U:O4     | 32:BK:24:LYS:CE    | 2.53                     | 0.56              |
| 1:A1:1066:A:O2'   | 29:BH:198:LYS:HD3  | 2.04                     | 0.56              |
| 1:A1:1394:G:H8    | 1:A1:1394:G:O5'    | 1.88                     | 0.56              |
| 1:A1:2300:G:H8    | 1:A1:2300:G:O5'    | 1.89                     | 0.56              |
| 1:A1:2993:C:O2'   | 1:A1:2994:G:H5'    | 2.05                     | 0.56              |
| 6:AF:125:SER:O    | 6:AF:126:LYS:HB2   | 2.05                     | 0.56              |
| 8:AH:34:GLN:HB3   | 8:AH:88:VAL:HG13   | 1.88                     | 0.56              |
| 9:AJ:12:ASP:O     | 9:AJ:14:GLY:N      | 2.38                     | 0.56              |
| 9:AJ:17:CYS:HB2   | 9:AJ:25:LEU:O      | 2.05                     | 0.56              |
| 9:AJ:67:LYS:HD2   | 9:AJ:112:ASP:CG    | 2.30                     | 0.56              |
| 9:AJ:113:TYR:O    | 9:AJ:135:VAL:HG13  | 2.06                     | 0.56              |
| 16:AQ:84:HIS:O    | 16:AQ:87:ALA:HB3   | 2.05                     | 0.56              |
| 18:AU:15:HIS:CE1  | 50:AU:301:HOH:O    | 2.58                     | 0.56              |
| 23:BB:56:ILE:HD12 | 23:BB:76:VAL:HG21  | 1.88                     | 0.56              |
| 24:BC:98:GLY:HA2  | 24:BC:105:ARG:HH12 | 1.70                     | 0.56              |
| 24:BC:139:VAL:N   | 24:BC:140:PRO:HD2  | 2.20                     | 0.56              |
| 29:BH:36:SER:OG   | 29:BH:87:LEU:HB3   | 2.05                     | 0.56              |
| 33:BL:28:TRP:HA   | 33:BL:31:ARG:NH1   | 2.20                     | 0.56              |
| 34:BM:175:HIS:HD2 | 34:BM:180:PHE:HE2  | 1.51                     | 0.56              |
| 37:BP:17:LYS:HE3  | 37:BP:47:SER:HB3   | 1.88                     | 0.56              |
| 38:BQ:66:THR:O    | 38:BQ:66:THR:HG22  | 2.04                     | 0.56              |
| 45:BX:3:ILE:O     | 45:BX:5:PRO:HD2    | 2.05                     | 0.56              |
| 25:CD:162:TRP:CZ3 | 25:CD:167:PHE:HE2  | 2.23                     | 0.56              |
| 29:CH:20:SER:H    | 29:CH:23:ASN:HB2   | 1.71                     | 0.56              |
| 33:CL:37:HIS:CE1  | 33:CL:63:ARG:HB2   | 2.40                     | 0.56              |
| 44:CW:45:THR:HG21 | 44:CW:89:TYR:HA    | 1.88                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:511:U:O2'     | 1:D1:512:G:H5'     | 2.05                     | 0.56              |
| 1:D1:549:G:C6      | 1:D1:619:G:N2      | 2.73                     | 0.56              |
| 1:D1:1020:G:N2     | 1:D1:1021:U:O4     | 2.34                     | 0.56              |
| 1:D1:1411:U:C2     | 1:D1:1412:U:C5     | 2.93                     | 0.56              |
| 1:D1:1653:A:C5     | 1:D1:1839:A:N1     | 2.74                     | 0.56              |
| 1:D1:2239:A:O2'    | 1:D1:2240:C:H5'    | 2.06                     | 0.56              |
| 1:D1:3185:G:N7     | 8:DH:11:PRO:HD3    | 2.21                     | 0.56              |
| 2:DA:21:ARG:NH1    | 2:DA:44:MET:CE     | 2.69                     | 0.56              |
| 6:DF:12:VAL:HG11   | 6:DF:81:LEU:HD11   | 1.85                     | 0.56              |
| 9:DJ:43:VAL:HG12   | 9:DJ:44:PRO:HD3    | 1.88                     | 0.56              |
| 12:DM:59:SER:OG    | 12:DM:66:ASN:HB3   | 2.04                     | 0.56              |
| 20:E2:35:U:O2      | 20:E2:37:A:N6      | 2.39                     | 0.56              |
| 20:E2:60:C:C4      | 2:FA:64:ARG:NH1    | 2.74                     | 0.56              |
| 22:EA:33:TYR:HA    | 22:EA:164:ARG:HH21 | 1.70                     | 0.56              |
| 27:EF:170:PHE:O    | 27:EF:215:TYR:CD2  | 2.58                     | 0.56              |
| 32:EK:23:GLY:O     | 32:EK:24:LYS:O     | 2.23                     | 0.56              |
| 33:EL:10:LEU:HD23  | 16:FQ:45:ILE:HG23  | 1.87                     | 0.56              |
| 34:EM:155:THR:OG1  | 34:EM:179:ARG:HD3  | 2.05                     | 0.56              |
| 37:EP:13:LYS:NZ    | 1:F1:1021:U:OP2    | 2.21                     | 0.56              |
| 1:F1:47:G:C1'      | 1:F1:48:U:OP2      | 2.49                     | 0.56              |
| 1:F1:444:A:H2      | 1:F1:533:G:N2      | 2.01                     | 0.56              |
| 1:F1:1053:A:C8     | 1:F1:1054:G:C5     | 2.93                     | 0.56              |
| 1:F1:1180:A:H5'    | 1:F1:1181:A:OP2    | 2.05                     | 0.56              |
| 1:F1:1828:C:H1'    | 11:FL:61:PRO:O     | 2.06                     | 0.56              |
| 1:F1:2429:U:H1'    | 1:F1:2430:G:OP2    | 2.05                     | 0.56              |
| 1:F1:2876:U:O4     | 1:F1:2898:A:H2'    | 2.05                     | 0.56              |
| 1:F1:3155:A:C5     | 8:FH:102:SER:HB3   | 2.40                     | 0.56              |
| 9:FJ:43:VAL:HG12   | 9:FJ:44:PRO:HD3    | 1.88                     | 0.56              |
| 20:G2:61:G:H2'     | 20:G2:100:C:O2'    | 2.05                     | 0.56              |
| 21:G3:45:U:H4'     | 34:GM:154:THR:OG1  | 2.05                     | 0.56              |
| 24:GC:159:PHE:HZ   | 24:GC:179:VAL:CG1  | 2.19                     | 0.56              |
| 24:GC:283:TYR:HE1  | 24:GC:285:LEU:HA   | 1.70                     | 0.56              |
| 27:GF:36:GLN:NE2   | 27:GF:39:ARG:NH2   | 2.54                     | 0.56              |
| 27:GF:197:ARG:O    | 27:GF:198:ASN:C    | 2.47                     | 0.56              |
| 29:GH:166:VAL:HG12 | 29:GH:167:THR:N    | 2.21                     | 0.56              |
| 31:GJ:19:LEU:HB3   | 31:GJ:55:SER:HB3   | 1.87                     | 0.56              |
| 32:GK:142:GLY:CA   | 18:HU:173:ARG:HH21 | 2.11                     | 0.56              |
| 35:GN:88:THR:HB    | 1:H1:701:A:OP2     | 2.05                     | 0.56              |
| 37:GP:19:TYR:CD2   | 1:H1:1077:U:H4'    | 2.40                     | 0.56              |
| 37:GP:63:LYS:HD2   | 37:GP:63:LYS:N     | 2.21                     | 0.56              |
| 43:GV:82:PHE:O     | 43:GV:133:PHE:HA   | 2.06                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 44:GW:14:ASN:HD21  | 44:GW:69:ARG:CZ    | 2.18                     | 0.56              |
| 46:GY:4:ARG:HD2    | 1:H1:862:A:OP2     | 2.06                     | 0.56              |
| 46:GY:12:ARG:HG2   | 1:H1:861:A:C4'     | 2.36                     | 0.56              |
| 1:H1:23:U:O2'      | 1:H1:24:A:H5''     | 2.05                     | 0.56              |
| 1:H1:47:G:C1'      | 1:H1:48:U:OP2      | 2.54                     | 0.56              |
| 1:H1:96:G:OP1      | 18:HU:14:LYS:NZ    | 2.38                     | 0.56              |
| 1:H1:567:C:N4      | 1:H1:603:A:N1      | 2.53                     | 0.56              |
| 1:H1:685:G:O2'     | 1:H1:686:U:H6      | 1.89                     | 0.56              |
| 1:H1:1870:C:H2'    | 1:H1:1870:C:O2     | 2.04                     | 0.56              |
| 1:H1:2390:G:N7     | 50:H1:3859:HOH:O   | 2.33                     | 0.56              |
| 1:H1:2548:G:H4'    | 1:H1:2549:U:OP2    | 2.06                     | 0.56              |
| 1:H1:3044:A:C5'    | 1:H1:3045:A:OP1    | 2.53                     | 0.56              |
| 1:H1:3228:U:O2     | 5:HE:142:GLU:HG3   | 2.05                     | 0.56              |
| 6:HF:13:VAL:HG22   | 6:HF:55:LEU:HD23   | 1.87                     | 0.56              |
| 8:HH:73:ILE:HG22   | 8:HH:91:PHE:HD2    | 1.71                     | 0.56              |
| 1:A1:148:G:O6      | 27:BF:130:ASN:HB2  | 2.06                     | 0.56              |
| 1:A1:685:G:OP2     | 32:BK:12:ARG:NH2   | 2.29                     | 0.56              |
| 1:A1:1972:G:C2     | 1:A1:1973:A:N7     | 2.73                     | 0.56              |
| 1:A1:2347:A:N6     | 1:A1:2348:G:C6     | 2.73                     | 0.56              |
| 1:A1:3005:A:O2'    | 1:A1:3006:A:H5'    | 2.06                     | 0.56              |
| 1:A1:3135:A:H2'    | 1:A1:3136:A:H8     | 1.70                     | 0.56              |
| 1:A1:3228:U:H5''   | 1:A1:3229:C:H5''   | 1.87                     | 0.56              |
| 5:AE:63:VAL:HG12   | 5:AE:64:VAL:N      | 2.19                     | 0.56              |
| 9:AJ:186:ILE:HD11  | 9:AJ:206:CYS:HB2   | 1.87                     | 0.56              |
| 25:BD:37:LEU:CD1   | 25:BD:67:VAL:HG12  | 2.34                     | 0.56              |
| 26:BE:130:VAL:HG22 | 26:BE:152:VAL:HG22 | 1.87                     | 0.56              |
| 29:BH:182:SER:O    | 29:BH:185:ARG:HB2  | 2.05                     | 0.56              |
| 31:BJ:27:MET:HB2   | 31:BJ:102:ASN:O    | 2.05                     | 0.56              |
| 31:BJ:86:ARG:NH2   | 50:BJ:301:HOH:O    | 2.38                     | 0.56              |
| 33:BL:164:LEU:HD23 | 33:BL:172:ARG:HH22 | 1.70                     | 0.56              |
| 34:BM:90:THR:O     | 34:BM:231:TRP:HZ3  | 1.88                     | 0.56              |
| 35:BN:49:ILE:O     | 35:BN:53:LEU:HG    | 2.05                     | 0.56              |
| 38:BQ:72:THR:HG21  | 38:BQ:74:GLN:HG3   | 1.86                     | 0.56              |
| 21:C3:13:A:O2'     | 34:CM:24:ARG:CZ    | 2.54                     | 0.56              |
| 21:C3:64:A:O2'     | 29:CH:205:PRO:CG   | 2.53                     | 0.56              |
| 24:CC:99:ASN:HD21  | 1:D1:828:C:H4'     | 1.70                     | 0.56              |
| 24:CC:369:HIS:CE1  | 43:CV:68:LYS:NZ    | 2.74                     | 0.56              |
| 27:CF:72:GLN:NE2   | 27:CF:160:PRO:HG2  | 2.20                     | 0.56              |
| 27:CF:153:ILE:HG22 | 27:CF:157:ILE:HG13 | 1.87                     | 0.56              |
| 27:CF:189:THR:OG1  | 1:D1:147:U:OP1     | 2.18                     | 0.56              |
| 29:CH:130:ASP:O    | 29:CH:133:SER:OG   | 2.24                     | 0.56              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 30:CI:67:ARG:NH2  | 1:D1:418:G:H21     | 2.01                     | 0.56              |
| 32:CK:24:LYS:CE   | 1:D1:967:U:O4      | 2.54                     | 0.56              |
| 47:CO:98:ARG:NH1  | 47:CO:130:ASN:OD1  | 2.38                     | 0.56              |
| 47:CO:161:UNK:C   | 47:CO:164:UNK:HG3  | 2.34                     | 0.56              |
| 38:CQ:59:CYS:HB3  | 38:CQ:74:GLN:HB2   | 1.88                     | 0.56              |
| 39:CR:72:LYS:HE3  | 39:CR:95:HIS:HA    | 1.87                     | 0.56              |
| 40:CS:55:VAL:HG12 | 40:CS:56:LEU:N     | 2.21                     | 0.56              |
| 1:D1:64:A:N6      | 1:D1:66:C:O2       | 2.39                     | 0.56              |
| 1:D1:444:A:H2     | 1:D1:533:G:N2      | 1.99                     | 0.56              |
| 1:D1:513:G:H2'    | 1:D1:514:U:C6      | 2.41                     | 0.56              |
| 1:D1:566:U:C3'    | 1:D1:567:C:H5'     | 2.36                     | 0.56              |
| 1:D1:631:G:N7     | 5:DE:31:ARG:NH2    | 2.53                     | 0.56              |
| 1:D1:861:A:H1'    | 1:D1:883:A:C2      | 2.41                     | 0.56              |
| 1:D1:1148:U:H2'   | 1:D1:1149:U:H6     | 1.71                     | 0.56              |
| 1:D1:1802:U:H2'   | 1:D1:1803:U:C6     | 2.41                     | 0.56              |
| 1:D1:1921:G:O2'   | 1:D1:1922:G:H5'    | 2.05                     | 0.56              |
| 1:D1:2305:U:O2'   | 1:D1:2306:G:H5'    | 2.06                     | 0.56              |
| 1:D1:2324:A:H5''  | 1:D1:2324:A:C8     | 2.40                     | 0.56              |
| 9:DJ:66:ASN:H     | 9:DJ:133:LEU:HD22  | 1.70                     | 0.56              |
| 20:E2:62:A:OP1    | 20:E2:99:U:O2'     | 2.18                     | 0.56              |
| 21:E3:81:A:H2'    | 21:E3:82:G:H5'     | 1.87                     | 0.56              |
| 23:EB:54:THR:HA   | 23:EB:362:LYS:HZ2  | 1.71                     | 0.56              |
| 24:EC:81:ILE:HD13 | 24:EC:101:CYS:SG   | 2.45                     | 0.56              |
| 25:ED:65:MET:HE1  | 1:F1:2670:U:C4'    | 2.36                     | 0.56              |
| 32:EK:24:LYS:HD3  | 1:F1:967:U:O4      | 2.05                     | 0.56              |
| 33:EL:38:LYS:HB2  | 33:EL:62:TRP:CZ2   | 2.41                     | 0.56              |
| 34:EM:56:THR:HG22 | 34:EM:58:THR:N     | 2.18                     | 0.56              |
| 43:EV:67:ARG:NH1  | 1:F1:564:A:O5'     | 2.38                     | 0.56              |
| 43:EV:207:PRO:HB2 | 43:EV:209:GLY:O    | 2.06                     | 0.56              |
| 44:EW:11:THR:OG1  | 44:EW:105:THR:HG23 | 2.06                     | 0.56              |
| 46:EY:26:VAL:O    | 46:EY:27:LYS:C     | 2.49                     | 0.56              |
| 1:F1:292:C:H6     | 1:F1:292:C:H5'     | 1.70                     | 0.56              |
| 1:F1:784:G:H1'    | 1:F1:796:A:H61     | 1.69                     | 0.56              |
| 1:F1:2292:U:H2'   | 1:F1:2294:A:N7     | 2.21                     | 0.56              |
| 1:F1:2850:U:O2    | 1:F1:2850:U:H2'    | 2.06                     | 0.56              |
| 1:F1:3080:A:N3    | 1:F1:3082:C:O2'    | 2.38                     | 0.56              |
| 6:FF:67:GLN:HE21  | 6:FF:71:LEU:CB     | 2.19                     | 0.56              |
| 13:FN:13:LEU:CD2  | 13:FN:75:VAL:HG21  | 2.35                     | 0.56              |
| 15:FP:53:PHE:HE1  | 15:FP:55:THR:CG2   | 2.19                     | 0.56              |
| 17:FT:17:HIS:CE1  | 17:FT:21:ILE:HD11  | 2.41                     | 0.56              |
| 17:FT:50:ASP:OD1  | 17:FT:51:PRO:HD2   | 2.06                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:GE:45:ILE:HG12  | 26:GE:55:LEU:HD22  | 1.87                     | 0.56              |
| 29:GH:66:GLU:HA    | 29:GH:66:GLU:OE1   | 2.06                     | 0.56              |
| 32:GK:98:LYS:HA    | 18:HU:166:VAL:HB   | 1.86                     | 0.56              |
| 36:GO:42:ARG:HH22  | 1:H1:1626:U:P      | 2.28                     | 0.56              |
| 37:GP:110:GLN:HG2  | 1:H1:1093:C:O2'    | 2.06                     | 0.56              |
| 1:H1:296:G:H3'     | 16:HQ:34:LEU:HD21  | 1.86                     | 0.56              |
| 1:H1:358:C:C4'     | 1:H1:842:A:N6      | 2.67                     | 0.56              |
| 1:H1:978:G:N7      | 1:H1:1144:G:C8     | 2.74                     | 0.56              |
| 1:H1:1524:A:H2'    | 1:H1:1525:U:C6     | 2.41                     | 0.56              |
| 1:H1:3256:A:C2     | 1:H1:3349:U:C2     | 2.93                     | 0.56              |
| 1:A1:114:A:C6      | 1:A1:264:A:C6      | 2.94                     | 0.56              |
| 1:A1:153:C:O2'     | 1:A1:154:U:H5'     | 2.05                     | 0.56              |
| 1:A1:564:A:HO2'    | 24:BC:376:TRP:HB3  | 1.69                     | 0.56              |
| 1:A1:635:A:C2'     | 1:A1:636:U:O5'     | 2.54                     | 0.56              |
| 1:A1:1598:C:C4     | 1:A1:1599:G:C4     | 2.94                     | 0.56              |
| 1:A1:1906:G:H5''   | 44:BW:33:ARG:HH22  | 1.70                     | 0.56              |
| 1:A1:1922:G:C2'    | 1:A1:1923:G:O5'    | 2.53                     | 0.56              |
| 1:A1:2305:U:O2'    | 1:A1:2306:G:H5'    | 2.06                     | 0.56              |
| 1:A1:2353:C:C4     | 50:A1:4346:HOH:O   | 2.58                     | 0.56              |
| 1:A1:2672:U:H2'    | 1:A1:2673:C:C6     | 2.40                     | 0.56              |
| 8:AH:15:TRP:CH2    | 8:AH:105:ARG:CZ    | 2.88                     | 0.56              |
| 9:AJ:39:GLU:HA     | 9:AJ:43:VAL:HG23   | 1.87                     | 0.56              |
| 20:B2:98:A:OP1     | 42:BU:67:ARG:NH1   | 2.38                     | 0.56              |
| 21:B3:105:C:H5'    | 21:B3:105:C:C6     | 2.36                     | 0.56              |
| 22:BA:99:VAL:HA    | 22:BA:167:VAL:HG12 | 1.86                     | 0.56              |
| 27:BF:153:ILE:HG22 | 27:BF:157:ILE:HG13 | 1.88                     | 0.56              |
| 27:BF:170:PHE:O    | 27:BF:215:TYR:CD2  | 2.58                     | 0.56              |
| 33:BL:53:TYR:O     | 33:BL:54:LYS:HG2   | 2.06                     | 0.56              |
| 35:BN:89:ASN:HD22  | 35:BN:109:THR:HG21 | 1.71                     | 0.56              |
| 39:BR:74:PRO:CB    | 39:BR:149:LEU:HD11 | 2.36                     | 0.56              |
| 40:BS:107:LYS:O    | 40:BS:107:LYS:HG3  | 2.05                     | 0.56              |
| 22:CA:31:ARG:NH1   | 22:CA:42:ILE:HG13  | 2.21                     | 0.56              |
| 22:CA:243:ARG:HG3  | 22:CA:244:THR:N    | 2.21                     | 0.56              |
| 23:CB:30:ARG:NH2   | 1:D1:3127:U:C6     | 2.74                     | 0.56              |
| 24:CC:137:ALA:C    | 24:CC:138:LEU:HD23 | 2.30                     | 0.56              |
| 28:CG:80:UNK:CA    | 1:D1:1309:G:O2'    | 2.53                     | 0.56              |
| 29:CH:130:ASP:OD1  | 29:CH:131:ILE:N    | 2.39                     | 0.56              |
| 29:CH:212:PHE:CE1  | 34:CM:298:ALA:HB2  | 2.41                     | 0.56              |
| 30:CI:184:PRO:HA   | 30:CI:187:LYS:CD   | 2.36                     | 0.56              |
| 37:CP:60:ARG:NH2   | 1:D1:2627:C:O2     | 2.38                     | 0.56              |
| 41:CT:5:THR:HG21   | 41:CT:14:ARG:HE    | 1.69                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:685:G:O2'     | 1:D1:686:U:H6      | 1.87                     | 0.56              |
| 1:D1:964:U:P       | 50:D1:4026:HOH:O   | 2.62                     | 0.56              |
| 1:D1:1053:A:C8     | 1:D1:1054:G:C5     | 2.94                     | 0.56              |
| 1:D1:1397:G:C8     | 50:D1:4323:HOH:O   | 2.58                     | 0.56              |
| 1:D1:2876:U:O4     | 1:D1:2898:A:H2'    | 2.06                     | 0.56              |
| 1:D1:2966:U:O2'    | 1:D1:2967:U:H5'    | 2.05                     | 0.56              |
| 1:D1:3087:G:H5''   | 1:D1:3088:U:OP1    | 2.05                     | 0.56              |
| 1:D1:3126:C:H2'    | 1:D1:3127:U:C6     | 2.41                     | 0.56              |
| 1:D1:3181:G:H2'    | 1:D1:3182:A:H8     | 1.70                     | 0.56              |
| 1:D1:3228:U:N3     | 5:DE:146:LYS:HG3   | 2.20                     | 0.56              |
| 2:DA:2:THR:O       | 2:DA:7:ALA:HB2     | 2.05                     | 0.56              |
| 7:DG:9:ASN:O       | 7:DG:13:LYS:HB3    | 2.06                     | 0.56              |
| 13:DN:70:PRO:CD    | 13:DN:115:LYS:HG2  | 2.35                     | 0.56              |
| 20:E2:110:A:C2     | 20:E2:115:G:C6     | 2.93                     | 0.56              |
| 22:EA:203:VAL:HG12 | 22:EA:218:GLN:HG2  | 1.87                     | 0.56              |
| 23:EB:56:ILE:HD12  | 23:EB:76:VAL:HG21  | 1.87                     | 0.56              |
| 23:EB:56:ILE:HD11  | 23:EB:321:MET:SD   | 2.46                     | 0.56              |
| 23:EB:86:ILE:HD13  | 23:EB:158:VAL:HG11 | 1.86                     | 0.56              |
| 31:EJ:19:LEU:HB3   | 31:EJ:55:SER:HB3   | 1.86                     | 0.56              |
| 32:EK:21:ARG:HH12  | 45:EX:40:ILE:HG22  | 1.70                     | 0.56              |
| 33:EL:19:MET:HE1   | 33:EL:22:ILE:HD12  | 1.87                     | 0.56              |
| 37:EP:146:ASN:HB3  | 19:FX:39:LEU:HD23  | 1.88                     | 0.56              |
| 1:F1:1049:U:C4     | 1:F1:1050:C:C4     | 2.93                     | 0.56              |
| 1:F1:1057:U:C2     | 1:F1:1058:C:C5     | 2.94                     | 0.56              |
| 1:F1:2343:A:H8     | 1:F1:2343:A:O5'    | 1.88                     | 0.56              |
| 1:F1:2679:G:H5'    | 1:F1:2680:A:OP2    | 2.05                     | 0.56              |
| 1:F1:3005:A:O2'    | 1:F1:3006:A:H5'    | 2.06                     | 0.56              |
| 1:F1:3044:A:C5'    | 1:F1:3045:A:OP1    | 2.54                     | 0.56              |
| 1:F1:3103:A:H3'    | 1:F1:3104:G:C8     | 2.40                     | 0.56              |
| 1:F1:3332:A:H3'    | 1:F1:3333:G:H5''   | 1.87                     | 0.56              |
| 9:FJ:109:VAL:HG23  | 9:FJ:148:VAL:HG23  | 1.87                     | 0.56              |
| 13:FN:87:VAL:HG11  | 13:FN:90:LEU:HB2   | 1.87                     | 0.56              |
| 21:G3:54:A:C2'     | 25:GD:152:GLN:HE21 | 2.18                     | 0.56              |
| 23:GB:20:ARG:HB2   | 1:H1:2979:A:P      | 2.46                     | 0.56              |
| 23:GB:337:ARG:HG2  | 23:GB:338:LYS:O    | 2.06                     | 0.56              |
| 24:GC:294:ASP:OD1  | 14:HO:1:MET:N      | 2.39                     | 0.56              |
| 32:GK:73:PRO:HB2   | 32:GK:109:PHE:HA   | 1.87                     | 0.56              |
| 33:GL:110:VAL:CG1  | 33:GL:113:LEU:HG   | 2.36                     | 0.56              |
| 33:GL:182:LYS:HE2  | 1:H1:281:G:O6      | 2.04                     | 0.56              |
| 34:GM:56:THR:HG22  | 34:GM:57:ASN:N     | 2.20                     | 0.56              |
| 35:GN:6:HIS:ND1    | 1:H1:1131:G:N3     | 2.54                     | 0.56              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 44:GW:54:LEU:HD22 | 44:GW:92:VAL:CG1   | 2.36                     | 0.56              |
| 1:H1:49:A:H2'     | 1:H1:50:A:C8       | 2.41                     | 0.56              |
| 1:H1:333:G:H8     | 1:H1:333:G:H5'     | 1.71                     | 0.56              |
| 1:H1:363:G:C5'    | 1:H1:363:G:C8      | 2.84                     | 0.56              |
| 1:H1:475:C:H2'    | 1:H1:476:A:O4'     | 2.05                     | 0.56              |
| 1:H1:820:G:O2'    | 1:H1:821:U:H5''    | 2.06                     | 0.56              |
| 1:H1:1180:A:H5'   | 1:H1:1181:A:OP2    | 2.06                     | 0.56              |
| 1:H1:1370:A:H2'   | 1:H1:1371:G:C5'    | 2.25                     | 0.56              |
| 1:H1:1919:A:O2'   | 1:H1:1920:A:C8     | 2.58                     | 0.56              |
| 1:H1:2268:G:O2'   | 1:H1:2269:U:OP2    | 2.23                     | 0.56              |
| 1:H1:2679:G:H5'   | 1:H1:2680:A:OP2    | 2.06                     | 0.56              |
| 1:H1:3266:G:C2'   | 1:H1:3267:A:H5''   | 2.35                     | 0.56              |
| 5:HE:115:ASP:N    | 5:HE:115:ASP:OD1   | 2.39                     | 0.56              |
| 1:A1:47:G:O6      | 50:A1:3732:HOH:O   | 2.15                     | 0.56              |
| 1:A1:48:U:H2'     | 1:A1:48:U:O2       | 2.05                     | 0.56              |
| 1:A1:282:G:N2     | 1:A1:304:U:C4'     | 2.62                     | 0.56              |
| 1:A1:298:G:C2'    | 1:A1:299:G:H5'     | 2.36                     | 0.56              |
| 1:A1:433:C:H2'    | 1:A1:433:C:O2      | 2.05                     | 0.56              |
| 1:A1:712:G:H4'    | 24:BC:240:ARG:CZ   | 2.36                     | 0.56              |
| 1:A1:1061:G:N3    | 1:A1:1062:A:C8     | 2.74                     | 0.56              |
| 1:A1:1548:U:H4'   | 1:A1:1549:U:OP2    | 2.05                     | 0.56              |
| 1:A1:1747:A:N1    | 1:A1:1814:U:O2'    | 2.36                     | 0.56              |
| 1:A1:2393:A:OP2   | 50:A1:4267:HOH:O   | 2.17                     | 0.56              |
| 1:A1:2558:U:C4    | 1:A1:2559:U:C4     | 2.94                     | 0.56              |
| 1:A1:3265:A:H5'   | 23:BB:270:TYR:HD2  | 1.70                     | 0.56              |
| 2:AA:67:TYR:CE2   | 2:AA:71:ILE:HD11   | 2.41                     | 0.56              |
| 5:AE:86:PRO:HB2   | 5:AE:153:GLN:NE2   | 2.03                     | 0.56              |
| 6:AF:67:GLN:NE2   | 6:AF:75:LYS:HE3    | 2.21                     | 0.56              |
| 8:AH:11:PRO:CG    | 8:AH:12:THR:H      | 2.18                     | 0.56              |
| 22:BA:252:LYS:HG3 | 22:GA:253:GLU:OE2  | 2.06                     | 0.56              |
| 24:BC:159:PHE:HZ  | 24:BC:179:VAL:CG1  | 2.19                     | 0.56              |
| 24:BC:163:VAL:O   | 24:BC:166:TYR:CD2  | 2.56                     | 0.56              |
| 27:BF:132:ILE:O   | 27:BF:136:ILE:HG13 | 2.06                     | 0.56              |
| 36:BO:177:ALA:HA  | 36:BO:180:VAL:HG22 | 1.86                     | 0.56              |
| 38:BQ:53:VAL:HG21 | 38:BQ:60:ILE:HG13  | 1.87                     | 0.56              |
| 41:BT:22:ARG:NE   | 41:BT:32:PHE:CD2   | 2.72                     | 0.56              |
| 41:BT:46:VAL:HG11 | 41:BT:51:ILE:HD11  | 1.88                     | 0.56              |
| 20:C2:2:G:H4'     | 20:C2:3:A:OP2      | 2.05                     | 0.56              |
| 22:CA:33:TYR:HA   | 22:CA:164:ARG:HH21 | 1.71                     | 0.56              |
| 23:CB:2:SER:HB2   | 1:D1:2931:G:OP2    | 2.06                     | 0.56              |
| 23:CB:377:PHE:HD2 | 23:CB:378:PHE:CD1  | 2.23                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:65:MET:CE    | 24:CC:105:ARG:HG2  | 2.35                     | 0.56              |
| 27:CF:65:LYS:HE2   | 27:CF:225:TRP:CE3  | 2.39                     | 0.56              |
| 29:CH:66:GLU:OE1   | 29:CH:66:GLU:HA    | 2.05                     | 0.56              |
| 47:CO:176:UNK:C    | 29:EH:83:ASP:HB2   | 2.36                     | 0.56              |
| 39:CR:84:MET:HE3   | 39:CR:90:MET:HE1   | 1.88                     | 0.56              |
| 40:CS:45:ARG:NH2   | 1:D1:189:G:OP2     | 2.38                     | 0.56              |
| 41:CT:16:TYR:HB3   | 41:CT:17:PRO:CD    | 2.36                     | 0.56              |
| 41:CT:23:PHE:HE1   | 41:CT:25:ALA:HB2   | 1.69                     | 0.56              |
| 42:CU:98:LYS:HE3   | 42:CU:101:ARG:NH1  | 2.21                     | 0.56              |
| 44:CW:75:CYS:O     | 44:CW:90:THR:HA    | 2.06                     | 0.56              |
| 1:D1:185:A:H2      | 1:D1:233:G:H22     | 1.52                     | 0.56              |
| 1:D1:475:C:H2'     | 1:D1:476:A:O4'     | 2.05                     | 0.56              |
| 1:D1:963:C:OP1     | 1:D1:987:A:O2'     | 2.24                     | 0.56              |
| 1:D1:1112:A:H2'    | 1:D1:1113:A:C8     | 2.41                     | 0.56              |
| 1:D1:2251:A:C1'    | 46:EY:74:PRO:CG    | 2.84                     | 0.56              |
| 1:D1:2993:C:O2'    | 1:D1:2994:G:H5'    | 2.05                     | 0.56              |
| 1:D1:3150:U:H2'    | 1:D1:3151:G:H5''   | 1.86                     | 0.56              |
| 9:DJ:198:VAL:HG23  | 9:DJ:205:PHE:HB2   | 1.87                     | 0.56              |
| 20:E2:7:U:OP1      | 38:EQ:36:ARG:NH1   | 2.37                     | 0.56              |
| 23:EB:52:GLY:HA3   | 23:EB:309:PHE:CD1  | 2.41                     | 0.56              |
| 23:EB:66:ARG:CZ    | 31:EJ:15:ALA:HB2   | 2.35                     | 0.56              |
| 23:EB:280:VAL:HG13 | 23:EB:320:ILE:HG23 | 1.88                     | 0.56              |
| 23:EB:303:ILE:HG12 | 23:EB:319:PHE:CZ   | 2.40                     | 0.56              |
| 27:EF:65:LYS:HE2   | 27:EF:225:TRP:CE3  | 2.40                     | 0.56              |
| 35:EN:57:ARG:NH1   | 1:F1:697:A:H5'     | 2.21                     | 0.56              |
| 36:EO:38:ARG:O     | 36:EO:41:ILE:HB    | 2.06                     | 0.56              |
| 44:EW:45:THR:HG21  | 44:EW:89:TYR:HA    | 1.88                     | 0.56              |
| 1:F1:114:A:C4'     | 16:FQ:37:ARG:NH2   | 2.65                     | 0.56              |
| 1:F1:282:G:N2      | 1:F1:304:U:H5'     | 2.19                     | 0.56              |
| 1:F1:633:C:C2'     | 1:F1:634:G:OP1     | 2.53                     | 0.56              |
| 1:F1:787:U:C2'     | 18:FU:179:ARG:HH22 | 2.18                     | 0.56              |
| 1:F1:792:G:H5'     | 18:FU:190:TRP:CE2  | 2.40                     | 0.56              |
| 1:F1:986:C:H4'     | 1:F1:987:A:OP2     | 2.05                     | 0.56              |
| 1:F1:1090:A:OP1    | 1:F1:1091:G:H3'    | 2.06                     | 0.56              |
| 1:F1:1192:A:O2'    | 1:F1:1193:G:H5'    | 2.06                     | 0.56              |
| 1:F1:1234:G:P      | 10:FK:119:ASN:HD21 | 2.28                     | 0.56              |
| 1:F1:1381:G:H5'    | 14:FO:37:GLN:HG3   | 1.87                     | 0.56              |
| 1:F1:1395:U:O2'    | 1:F1:1396:A:H5'    | 2.06                     | 0.56              |
| 1:F1:1724:U:O2'    | 1:F1:1725:A:H5'    | 2.05                     | 0.56              |
| 1:F1:1845:U:C4'    | 1:F1:1846:C:OP2    | 2.54                     | 0.56              |
| 1:F1:1869:G:O2'    | 2:FA:5:THR:HG22    | 2.05                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2277:U:C2'    | 1:F1:2278:G:OP1    | 2.53                     | 0.56              |
| 1:F1:2397:A:H1'    | 1:F1:2859:G:O4'    | 2.06                     | 0.56              |
| 1:F1:2632:A:H5'    | 17:FT:6:ASN:OD1    | 2.05                     | 0.56              |
| 1:F1:2649:G:OP1    | 1:F1:2739:C:O2'    | 2.23                     | 0.56              |
| 1:F1:3226:A:H5''   | 5:FE:80:TYR:OH     | 2.05                     | 0.56              |
| 5:FE:135:THR:HB    | 5:FE:137:GLU:HG2   | 1.87                     | 0.56              |
| 8:FH:44:THR:HB     | 8:FH:46:GLU:OE1    | 2.06                     | 0.56              |
| 9:FJ:186:ILE:CD1   | 9:FJ:197:LEU:HB2   | 2.36                     | 0.56              |
| 18:FU:23:PHE:O     | 18:FU:26:GLN:HB3   | 2.06                     | 0.56              |
| 19:FX:187:THR:HG22 | 19:FX:188:THR:N    | 2.19                     | 0.56              |
| 22:GA:5:ILE:HG22   | 22:GA:6:ARG:N      | 2.20                     | 0.56              |
| 22:GA:35:PHE:CE1   | 1:H1:2520:G:C2'    | 2.89                     | 0.56              |
| 22:GA:35:PHE:CZ    | 22:GA:39:GLN:OE1   | 2.59                     | 0.56              |
| 22:GA:104:PRO:HB2  | 22:GA:106:ASN:OD1  | 2.06                     | 0.56              |
| 23:GB:86:ILE:CD1   | 23:GB:158:VAL:HG11 | 2.36                     | 0.56              |
| 23:GB:114:THR:HG23 | 23:GB:115:LYS:N    | 2.20                     | 0.56              |
| 26:GE:135:LYS:H    | 26:GE:138:GLU:HG3  | 1.71                     | 0.56              |
| 27:GF:146:ILE:CG2  | 27:GF:156:VAL:HG11 | 2.36                     | 0.56              |
| 35:GN:92:ARG:NH2   | 1:H1:810:G:C8      | 2.74                     | 0.56              |
| 35:GN:168:ARG:HH11 | 18:HU:9:VAL:HG21   | 1.70                     | 0.56              |
| 39:GR:43:LEU:HD11  | 1:H1:1599:G:H5''   | 1.88                     | 0.56              |
| 40:GS:34:LEU:HD23  | 40:GS:105:LEU:HB2  | 1.86                     | 0.56              |
| 44:GW:65:ASN:OD1   | 1:H1:3047:U:C5     | 2.47                     | 0.56              |
| 45:GX:36:ARG:O     | 45:GX:36:ARG:HG3   | 2.06                     | 0.56              |
| 1:H1:1126:A:C5     | 1:H1:1127:U:C5     | 2.94                     | 0.56              |
| 1:H1:1464:U:H2'    | 1:H1:1465:U:H6     | 1.69                     | 0.56              |
| 1:H1:1543:A:H2'    | 1:H1:1544:U:C6     | 2.41                     | 0.56              |
| 1:H1:1720:A:H4'    | 11:HL:23:VAL:HG11  | 1.88                     | 0.56              |
| 1:H1:2271:G:C5     | 1:H1:2272:C:C5     | 2.93                     | 0.56              |
| 1:H1:3161:A:C6     | 1:H1:3176:A:C2     | 2.93                     | 0.56              |
| 13:HN:72:ILE:HG13  | 13:HN:72:ILE:O     | 2.06                     | 0.56              |
| 1:A1:25:C:O2'      | 1:A1:326:A:N3      | 2.35                     | 0.56              |
| 1:A1:673:A:OP2     | 1:A1:2856:U:O2'    | 2.23                     | 0.56              |
| 1:A1:685:G:O2'     | 1:A1:686:U:H6      | 1.87                     | 0.56              |
| 1:A1:1066:A:C8     | 1:A1:1066:A:OP2    | 2.59                     | 0.56              |
| 1:A1:1737:A:H2'    | 1:A1:1754:G:N2     | 2.20                     | 0.56              |
| 1:A1:1921:G:H2'    | 1:A1:1922:G:H5'    | 1.86                     | 0.56              |
| 1:A1:2140:A:C5     | 1:A1:2276:A:C2     | 2.94                     | 0.56              |
| 1:A1:2518:A:H5'    | 27:BF:46:ARG:NE    | 2.21                     | 0.56              |
| 1:A1:2638:G:H4'    | 1:A1:2685:A:O4'    | 2.06                     | 0.56              |
| 1:A1:3011:G:H1'    | 1:A1:3012:U:OP2    | 2.05                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3150:U:H2'    | 1:A1:3151:G:H5''   | 1.88                     | 0.56              |
| 5:AE:63:VAL:HG12   | 5:AE:76:VAL:HG13   | 1.86                     | 0.56              |
| 8:AH:9:VAL:CG1     | 8:AH:10:ALA:N      | 2.69                     | 0.56              |
| 22:BA:50:VAL:HG12  | 22:BA:51:HIS:H     | 1.70                     | 0.56              |
| 22:BA:104:PRO:HG2  | 22:BA:107:ARG:HG3  | 1.87                     | 0.56              |
| 27:BF:183:VAL:HG12 | 27:BF:185:LYS:HE3  | 1.88                     | 0.56              |
| 30:BI:26:LEU:HD11  | 30:BI:101:LEU:HB2  | 1.87                     | 0.56              |
| 30:BI:109:THR:HG22 | 30:BI:110:PRO:HD3  | 1.87                     | 0.56              |
| 32:BK:76:ASN:H     | 32:BK:79:LYS:HE2   | 1.71                     | 0.56              |
| 36:BO:149:LYS:HD3  | 36:BO:151:LYS:HE2  | 1.88                     | 0.56              |
| 39:BR:108:GLU:HG2  | 39:BR:113:VAL:O    | 2.05                     | 0.56              |
| 44:BW:11:THR:OG1   | 44:BW:105:THR:HG23 | 2.06                     | 0.56              |
| 20:C2:1:A:C5'      | 20:C2:2:G:OP2      | 2.53                     | 0.56              |
| 20:C2:61:G:H2'     | 20:C2:100:C:O2'    | 2.06                     | 0.56              |
| 21:C3:20:U:O2'     | 21:C3:21:G:H5'     | 2.05                     | 0.56              |
| 23:CB:220:LYS:NZ   | 1:D1:3037:A:OP2    | 2.22                     | 0.56              |
| 24:CC:319:ARG:CZ   | 1:D1:634:G:N7      | 2.68                     | 0.56              |
| 26:CE:18:ILE:HG12  | 26:CE:27:VAL:HG22  | 1.88                     | 0.56              |
| 27:CF:68:PRO:CD    | 27:CF:225:TRP:HE1  | 2.17                     | 0.56              |
| 29:CH:75:ASN:HD22  | 29:CH:151:ALA:HA   | 1.69                     | 0.56              |
| 30:CI:62:ASN:ND2   | 1:D1:1332:U:H1'    | 2.21                     | 0.56              |
| 32:CK:46:LEU:HD12  | 18:DU:1:MET:HG2    | 1.88                     | 0.56              |
| 33:CL:160:GLU:HG2  | 33:CL:161:LEU:N    | 2.20                     | 0.56              |
| 34:CM:206:GLY:HA2  | 34:CM:208:HIS:CE1  | 2.41                     | 0.56              |
| 37:CP:66:ASN:OD1   | 37:CP:67:VAL:N     | 2.38                     | 0.56              |
| 38:CQ:117:GLN:HA   | 38:CQ:117:GLN:OE1  | 2.04                     | 0.56              |
| 39:CR:89:THR:HG23  | 39:CR:132:ILE:O    | 2.06                     | 0.56              |
| 42:CU:32:LEU:HD21  | 42:CU:47:ARG:HD3   | 1.88                     | 0.56              |
| 43:CV:205:ASP:O    | 43:CV:238:MET:HE3  | 2.05                     | 0.56              |
| 1:D1:2149:U:C2'    | 1:D1:2150:U:H5''   | 2.35                     | 0.56              |
| 1:D1:2266:A:N7     | 1:D1:2267:G:C6     | 2.74                     | 0.56              |
| 1:D1:2634:G:C2'    | 1:D1:2635:C:H5''   | 2.36                     | 0.56              |
| 1:D1:3192:C:O2     | 6:DF:120:ARG:HD3   | 2.06                     | 0.56              |
| 8:DH:34:GLN:HB3    | 8:DH:88:VAL:HG13   | 1.87                     | 0.56              |
| 8:DH:58:TYR:CE2    | 8:DH:60:TYR:HD2    | 2.24                     | 0.56              |
| 9:DJ:106:ASN:HB3   | 9:DJ:147:LEU:HD22  | 1.88                     | 0.56              |
| 9:DJ:109:VAL:HG23  | 9:DJ:148:VAL:HG23  | 1.87                     | 0.56              |
| 12:DM:35:PHE:CD1   | 12:DM:65:ILE:CD1   | 2.88                     | 0.56              |
| 13:DN:72:ILE:O     | 13:DN:72:ILE:HG13  | 2.05                     | 0.56              |
| 24:EC:80:ARG:NH2   | 1:F1:2802:G:OP1    | 2.32                     | 0.56              |
| 24:EC:229:ASN:ND2  | 1:F1:211:A:H3'     | 2.12                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:EH:48:TYR:HE2   | 29:EH:142:GLU:HG3  | 1.69                     | 0.56              |
| 37:EP:6:GLY:H      | 37:EP:9:ARG:HD2    | 1.71                     | 0.56              |
| 37:EP:39:TYR:CE1   | 37:EP:63:LYS:HG3   | 2.40                     | 0.56              |
| 42:EU:81:PRO:HD2   | 42:EU:84:ILE:HD12  | 1.86                     | 0.56              |
| 42:EU:118:ARG:HH11 | 18:FU:123:LEU:HD21 | 1.71                     | 0.56              |
| 44:EW:75:CYS:O     | 44:EW:90:THR:HA    | 2.05                     | 0.56              |
| 1:F1:511:U:O2'     | 1:F1:512:G:H5'     | 2.05                     | 0.56              |
| 1:F1:1023:A:H2'    | 1:F1:1024:A:O4'    | 2.06                     | 0.56              |
| 1:F1:1027:G:C8     | 1:F1:1068:U:OP2    | 2.58                     | 0.56              |
| 1:F1:1595:A:H2     | 1:F1:1598:C:OP2    | 1.88                     | 0.56              |
| 1:F1:1637:A:H2'    | 1:F1:1638:A:H5''   | 1.88                     | 0.56              |
| 1:F1:2624:A:H4'    | 1:F1:2625:A:O5'    | 2.06                     | 0.56              |
| 1:F1:3185:G:N3     | 1:F1:3237:C:N3     | 2.54                     | 0.56              |
| 5:FE:69:LEU:HD21   | 5:FE:114:ASP:CG    | 2.30                     | 0.56              |
| 5:FE:153:GLN:O     | 5:FE:156:VAL:N     | 2.39                     | 0.56              |
| 18:FU:76:GLN:OE1   | 18:FU:101:ASN:HB2  | 2.06                     | 0.56              |
| 20:G2:1:A:H5''     | 20:G2:2:G:OP2      | 2.05                     | 0.56              |
| 21:G3:22:A:C5      | 34:GM:274:HIS:HB3  | 2.41                     | 0.56              |
| 22:GA:104:PRO:HA   | 22:GA:163:CYS:O    | 2.06                     | 0.56              |
| 23:GB:19:ARG:N     | 1:H1:2978:G:OP1    | 2.34                     | 0.56              |
| 24:GC:41:VAL:O     | 24:GC:45:LEU:HG    | 2.06                     | 0.56              |
| 26:GE:145:GLN:NE2  | 26:GE:186:MET:O    | 2.39                     | 0.56              |
| 27:GF:67:PRO:HB2   | 27:GF:68:PRO:CD    | 2.35                     | 0.56              |
| 29:GH:138:VAL:HG23 | 29:GH:152:LEU:HD11 | 1.87                     | 0.56              |
| 33:GL:202:ARG:NH1  | 18:HU:27:ALA:HB2   | 2.17                     | 0.56              |
| 43:GV:219:HIS:HD2  | 19:HX:53:THR:OG1   | 1.89                     | 0.56              |
| 44:GW:28:ALA:CA    | 44:GW:66:ILE:HD11  | 2.34                     | 0.56              |
| 46:GY:4:ARG:HH21   | 1:H1:864:C:N4      | 2.04                     | 0.56              |
| 1:H1:135:A:H2'     | 1:H1:242:G:N7      | 2.21                     | 0.56              |
| 1:H1:499:U:H5''    | 1:H1:500:G:OP2     | 2.05                     | 0.56              |
| 1:H1:530:C:H2'     | 1:H1:531:C:C6      | 2.40                     | 0.56              |
| 1:H1:915:C:O2'     | 1:H1:2319:A:N3     | 2.35                     | 0.56              |
| 1:H1:1103:A:H2'    | 1:H1:1103:A:N3     | 2.20                     | 0.56              |
| 1:H1:1518:G:O2'    | 3:HB:48:LYS:NZ     | 2.39                     | 0.56              |
| 1:H1:1922:G:C2'    | 1:H1:1923:G:O5'    | 2.53                     | 0.56              |
| 1:H1:2140:A:C5     | 1:H1:2276:A:C2     | 2.94                     | 0.56              |
| 1:H1:3144:G:N2     | 1:H1:3249:U:H1'    | 2.21                     | 0.56              |
| 1:H1:3237:C:C2     | 8:HH:7:SER:OG      | 2.58                     | 0.56              |
| 5:HE:173:TYR:CD2   | 6:HF:106:PHE:CD1   | 2.94                     | 0.56              |
| 1:A1:149:U:OP1     | 33:BL:54:LYS:HD3   | 2.06                     | 0.56              |
| 1:A1:280:G:C2'     | 1:A1:281:G:O5'     | 2.53                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:388:A:C1'     | 38:BQ:103:ASN:ND2  | 2.64                     | 0.56              |
| 1:A1:475:C:H2'     | 1:A1:476:A:O4'     | 2.06                     | 0.56              |
| 1:A1:579:G:O2'     | 19:AX:159:ALA:N    | 2.39                     | 0.56              |
| 1:A1:621:G:C6      | 1:A1:622:G:N1      | 2.74                     | 0.56              |
| 1:A1:1103:A:N3     | 1:A1:1103:A:H2'    | 2.19                     | 0.56              |
| 1:A1:1365:C:O3'    | 45:BX:62:ASP:CB    | 2.52                     | 0.56              |
| 1:A1:1376:A:H2'    | 43:BV:8:ASN:HB3    | 1.88                     | 0.56              |
| 1:A1:2343:A:O5'    | 1:A1:2343:A:H8     | 1.89                     | 0.56              |
| 1:A1:2378:A:P      | 30:BI:81:ARG:HH22  | 2.28                     | 0.56              |
| 1:A1:2634:G:H2'    | 1:A1:2635:C:C5'    | 2.36                     | 0.56              |
| 4:AC:63:THR:HG22   | 4:AC:87:LYS:HG2    | 1.87                     | 0.56              |
| 33:BL:19:MET:HE2   | 33:BL:19:MET:CA    | 2.34                     | 0.56              |
| 41:BT:35:THR:HB    | 41:BT:38:ALA:H     | 1.71                     | 0.56              |
| 42:BU:99:LYS:O     | 42:BU:103:ALA:HB2  | 2.05                     | 0.56              |
| 20:C2:60:C:N4      | 2:DA:64:ARG:NH1    | 2.54                     | 0.56              |
| 22:CA:216:ASN:ND2  | 1:D1:2957:A:N7     | 2.54                     | 0.56              |
| 23:CB:81:CYS:HB3   | 23:CB:203:VAL:CG2  | 2.30                     | 0.56              |
| 23:CB:281:TYR:CE2  | 23:CB:323:LYS:HB2  | 2.40                     | 0.56              |
| 31:CJ:86:ARG:H     | 31:CJ:102:ASN:ND2  | 2.04                     | 0.56              |
| 33:CL:10:LEU:HD23  | 16:DQ:45:ILE:HG23  | 1.88                     | 0.56              |
| 33:CL:139:HIS:CD2  | 33:CL:141:ALA:HB3  | 2.41                     | 0.56              |
| 33:CL:179:HIS:O    | 33:CL:182:LYS:HD3  | 2.05                     | 0.56              |
| 35:CN:146:ARG:HB2  | 35:CN:149:TYR:HE2  | 1.70                     | 0.56              |
| 1:D1:155:A:O3'     | 16:DQ:28:VAL:HG23  | 2.05                     | 0.56              |
| 1:D1:184:C:H2'     | 1:D1:185:A:H8      | 1.71                     | 0.56              |
| 1:D1:302:G:N2      | 1:D1:2766:A:C8     | 2.74                     | 0.56              |
| 1:D1:970:C:H2'     | 1:D1:971:C:C6      | 2.41                     | 0.56              |
| 1:D1:1902:C:H5     | 50:D1:4477:HOH:O   | 1.89                     | 0.56              |
| 1:D1:3109:C:O3'    | 1:D1:3110:U:H6     | 1.88                     | 0.56              |
| 5:DE:53:LEU:HD11   | 5:DE:90:VAL:HG21   | 1.87                     | 0.56              |
| 6:DF:111:VAL:HG12  | 6:DF:115:LYS:HE3   | 1.88                     | 0.56              |
| 9:DJ:88:LEU:HG     | 9:DJ:92:VAL:HG11   | 1.88                     | 0.56              |
| 9:DJ:199:VAL:HG11  | 9:DJ:222:PHE:CE2   | 2.40                     | 0.56              |
| 9:DJ:200:ASN:OD1   | 9:DJ:200:ASN:C     | 2.48                     | 0.56              |
| 11:DL:9:ARG:O      | 11:DL:10:ARG:HB2   | 2.06                     | 0.56              |
| 18:DU:54:PRO:HG3   | 18:DU:72:GLY:O     | 2.06                     | 0.56              |
| 20:E2:134:C:HO2'   | 20:E2:135:A:P      | 2.25                     | 0.56              |
| 22:EA:248:ARG:HA   | 22:EA:251:GLN:HE21 | 1.71                     | 0.56              |
| 24:EC:276:THR:HG22 | 24:EC:277:GLY:O    | 2.06                     | 0.56              |
| 24:EC:303:GLU:H    | 24:EC:303:GLU:CD   | 2.13                     | 0.56              |
| 27:EF:211:PHE:O    | 27:EF:215:TYR:HB2  | 2.06                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:EK:118:LEU:HB3  | 32:EK:141:VAL:HG21 | 1.88                     | 0.56              |
| 34:EM:56:THR:HB    | 34:EM:59:ARG:O     | 2.07                     | 0.56              |
| 38:EQ:134:ALA:O    | 38:EQ:135:HIS:HB2  | 2.06                     | 0.56              |
| 40:ES:107:LYS:O    | 40:ES:107:LYS:HG3  | 2.05                     | 0.56              |
| 41:ET:16:TYR:HB3   | 41:ET:17:PRO:CD    | 2.36                     | 0.56              |
| 1:F1:209:A:H4'     | 1:F1:211:A:N7      | 2.20                     | 0.56              |
| 1:F1:475:C:H2'     | 1:F1:476:A:O4'     | 2.06                     | 0.56              |
| 1:F1:1095:C:H2'    | 1:F1:1095:C:O2     | 2.05                     | 0.56              |
| 1:F1:1210:C:H5''   | 19:FX:171:ARG:HH21 | 1.71                     | 0.56              |
| 1:F1:1775:A:H1'    | 1:F1:1776:G:H3'    | 1.88                     | 0.56              |
| 1:F1:3144:G:N2     | 1:F1:3249:U:H1'    | 2.19                     | 0.56              |
| 1:F1:3183:A:O2'    | 1:F1:3184:A:P      | 2.64                     | 0.56              |
| 7:FG:9:ASN:O       | 7:FG:13:LYS:HB3    | 2.07                     | 0.56              |
| 18:FU:54:PRO:HG3   | 18:FU:72:GLY:C     | 2.30                     | 0.56              |
| 21:G3:8:G:OP1      | 37:GP:27:ILE:HD12  | 2.05                     | 0.56              |
| 23:GB:103:THR:CG2  | 23:GB:104:THR:N    | 2.68                     | 0.56              |
| 24:GC:308:VAL:HG12 | 35:GN:40:ARG:NH1   | 2.20                     | 0.56              |
| 26:GE:45:ILE:HG12  | 26:GE:55:LEU:CD2   | 2.36                     | 0.56              |
| 27:GF:233:LYS:HE2  | 1:H1:2521:A:N3     | 2.21                     | 0.56              |
| 30:GI:10:ALA:C     | 30:GI:13:HIS:HD2   | 2.13                     | 0.56              |
| 30:GI:27:LEU:HD11  | 1:H1:1203:C:H5'    | 1.88                     | 0.56              |
| 31:GJ:86:ARG:H     | 31:GJ:102:ASN:ND2  | 2.03                     | 0.56              |
| 33:GL:37:HIS:CE1   | 33:GL:63:ARG:HB2   | 2.41                     | 0.56              |
| 34:GM:59:ARG:CD    | 34:GM:61:ILE:HG12  | 2.36                     | 0.56              |
| 34:GM:160:PHE:O    | 34:GM:163:LEU:HB3  | 2.06                     | 0.56              |
| 36:GO:133:LYS:HG3  | 36:GO:134:ASN:N    | 2.19                     | 0.56              |
| 37:GP:17:LYS:CE    | 37:GP:47:SER:HB3   | 2.36                     | 0.56              |
| 39:GR:73:THR:HG22  | 39:GR:74:PRO:O     | 2.05                     | 0.56              |
| 41:GT:52:THR:HA    | 41:GT:57:ARG:HG2   | 1.88                     | 0.56              |
| 43:GV:91:GLN:HG2   | 1:H1:1167:G:H5'    | 1.86                     | 0.56              |
| 1:H1:209:A:H4'     | 1:H1:211:A:C8      | 2.41                     | 0.56              |
| 1:H1:927:G:C5      | 1:H1:928:U:C5      | 2.93                     | 0.56              |
| 1:H1:1004:U:H4'    | 1:H1:1005:A:OP1    | 2.02                     | 0.56              |
| 1:H1:1037:A:C2     | 1:H1:1066:A:C2     | 2.93                     | 0.56              |
| 1:H1:1050:C:C5     | 1:H1:1051:C:C4     | 2.94                     | 0.56              |
| 1:H1:1876:G:N3     | 2:HA:9:GLY:HA3     | 2.21                     | 0.56              |
| 1:H1:1919:A:H3'    | 50:H1:4179:HOH:O   | 2.04                     | 0.56              |
| 1:H1:2384:C:O2'    | 1:H1:2385:A:H5'    | 2.06                     | 0.56              |
| 1:H1:3096:U:OP1    | 10:HK:112:LYS:HD3  | 2.06                     | 0.56              |
| 1:H1:3310:U:H4'    | 1:H1:3311:U:OP2    | 2.01                     | 0.56              |
| 2:HA:17:THR:HA     | 3:HB:52:TYR:HB2    | 1.88                     | 0.56              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:HA:28:HIS:O      | 2:HA:32:LEU:N      | 2.37                     | 0.56              |
| 5:HE:142:GLU:HA    | 5:HE:142:GLU:OE1   | 2.06                     | 0.56              |
| 16:HQ:2:ALA:HB2    | 18:HU:184:GLU:OE2  | 2.05                     | 0.56              |
| 16:HQ:68:LYS:HE3   | 16:HQ:69:ASP:OD1   | 2.06                     | 0.56              |
| 1:A1:430:G:H2'     | 1:A1:431:A:C8      | 2.41                     | 0.55              |
| 1:A1:488:U:H2'     | 1:A1:490:A:OP2     | 2.06                     | 0.55              |
| 1:A1:530:C:H2'     | 1:A1:531:C:C6      | 2.40                     | 0.55              |
| 1:A1:817:A:H2'     | 1:A1:818:U:C6      | 2.41                     | 0.55              |
| 1:A1:1063:C:H2'    | 1:A1:1064:C:C6     | 2.41                     | 0.55              |
| 1:A1:1906:G:O2'    | 1:A1:1907:A:H5'    | 2.05                     | 0.55              |
| 1:A1:2106:G:C2'    | 1:A1:2107:A:OP1    | 2.54                     | 0.55              |
| 1:A1:3146:G:C6     | 1:A1:3248:C:C4     | 2.95                     | 0.55              |
| 1:A1:3193:G:N2     | 1:A1:3218:U:H1'    | 2.21                     | 0.55              |
| 5:AE:137:GLU:HG3   | 5:AE:138:GLN:HG2   | 1.87                     | 0.55              |
| 9:AJ:198:VAL:HG23  | 9:AJ:205:PHE:HB2   | 1.86                     | 0.55              |
| 13:AN:15:GLN:NE2   | 13:AN:79:HIS:CE1   | 2.74                     | 0.55              |
| 13:AN:118:PHE:HE2  | 13:AN:138:PHE:CE2  | 2.24                     | 0.55              |
| 14:AO:7:GLU:CB     | 35:BN:25:VAL:HG13  | 2.36                     | 0.55              |
| 20:B2:31:C:H2'     | 20:B2:32:C:C6      | 2.41                     | 0.55              |
| 23:BB:28:ARG:H     | 23:BB:272:HIS:CE1  | 2.24                     | 0.55              |
| 23:BB:110:ILE:HG23 | 23:BB:114:THR:HG21 | 1.89                     | 0.55              |
| 25:BD:37:LEU:HD13  | 25:BD:69:VAL:CG2   | 2.35                     | 0.55              |
| 29:BH:75:ASN:O     | 29:BH:79:PHE:CD1   | 2.52                     | 0.55              |
| 44:BW:4:GLN:HE21   | 44:BW:76:LYS:NZ    | 2.03                     | 0.55              |
| 24:CC:298:ILE:O    | 24:CC:304:VAL:HG21 | 2.06                     | 0.55              |
| 25:CD:37:LEU:HD13  | 25:CD:69:VAL:CG2   | 2.36                     | 0.55              |
| 26:CE:154:GLN:NE2  | 1:D1:3115:C:H1'    | 2.21                     | 0.55              |
| 32:CK:84:VAL:HG13  | 1:D1:485:A:H2'     | 1.87                     | 0.55              |
| 33:CL:13:LYS:HD3   | 16:DQ:49:THR:HG21  | 1.87                     | 0.55              |
| 34:CM:16:PHE:CZ    | 1:D1:2677:U:C4     | 2.93                     | 0.55              |
| 38:CQ:26:VAL:HG21  | 38:CQ:92:VAL:HG21  | 1.89                     | 0.55              |
| 43:CV:98:ARG:HH11  | 43:CV:98:ARG:HG2   | 1.68                     | 0.55              |
| 43:CV:129:PRO:HG2  | 43:CV:130:PHE:CD2  | 2.41                     | 0.55              |
| 1:D1:489:A:H2'     | 1:D1:490:A:C8      | 2.41                     | 0.55              |
| 1:D1:977:A:H2'     | 1:D1:978:G:H5''    | 1.87                     | 0.55              |
| 1:D1:2271:G:C5     | 1:D1:2272:C:C5     | 2.94                     | 0.55              |
| 1:D1:2716:A:OP2    | 1:D1:2717:G:N2     | 2.34                     | 0.55              |
| 5:DE:15:ILE:HA     | 5:DE:18:TRP:CE2    | 2.41                     | 0.55              |
| 5:DE:170:LEU:HA    | 6:DF:106:PHE:HE1   | 1.71                     | 0.55              |
| 20:E2:10:U:H2'     | 20:E2:11:C:C6      | 2.41                     | 0.55              |
| 21:E3:81:A:C2'     | 21:E3:82:G:C5'     | 2.83                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:66:ARG:NH1   | 31:EJ:13:THR:O     | 2.38                     | 0.55              |
| 27:EF:36:GLN:NE2   | 27:EF:39:ARG:NH2   | 2.54                     | 0.55              |
| 30:EI:35:VAL:HG13  | 30:EI:106:GLY:O    | 2.05                     | 0.55              |
| 34:EM:56:THR:HG22  | 34:EM:57:ASN:N     | 2.21                     | 0.55              |
| 34:EM:90:THR:O     | 34:EM:231:TRP:HZ3  | 1.89                     | 0.55              |
| 40:ES:116:SER:O    | 40:ES:120:ARG:HG3  | 2.05                     | 0.55              |
| 45:EX:3:ILE:O      | 45:EX:5:PRO:HD2    | 2.06                     | 0.55              |
| 45:EX:57:ILE:HG13  | 1:F1:972:U:C5'     | 2.22                     | 0.55              |
| 1:F1:430:G:H2'     | 1:F1:431:A:C8      | 2.40                     | 0.55              |
| 1:F1:745:A:H4'     | 17:FT:58:ASN:ND2   | 2.21                     | 0.55              |
| 1:F1:978:G:H1'     | 1:F1:1142:G:H5''   | 1.88                     | 0.55              |
| 1:F1:1026:C:N3     | 1:F1:1071:C:N4     | 2.54                     | 0.55              |
| 1:F1:1074:A:H5''   | 1:F1:1075:C:C5'    | 2.36                     | 0.55              |
| 1:F1:2126:G:O2'    | 50:F1:3983:HOH:O   | 1.98                     | 0.55              |
| 1:F1:2266:A:N7     | 1:F1:2267:G:C6     | 2.74                     | 0.55              |
| 1:F1:2558:U:C4     | 1:F1:2559:U:C4     | 2.94                     | 0.55              |
| 1:F1:2669:A:H4'    | 1:F1:2670:U:OP1    | 2.06                     | 0.55              |
| 20:G2:145:C:H2'    | 20:G2:146:A:H8     | 1.69                     | 0.55              |
| 22:GA:99:VAL:HA    | 22:GA:167:VAL:HG12 | 1.88                     | 0.55              |
| 22:GA:210:HIS:CD2  | 22:GA:212:HIS:HB2  | 2.41                     | 0.55              |
| 22:GA:239:ARG:NH1  | 1:H1:2158:C:C5'    | 2.62                     | 0.55              |
| 25:GD:99:THR:CG2   | 1:H1:2673:C:O2'    | 2.53                     | 0.55              |
| 29:GH:147:TYR:HD1  | 29:GH:147:TYR:H    | 1.54                     | 0.55              |
| 32:GK:76:ASN:H     | 32:GK:79:LYS:HE2   | 1.71                     | 0.55              |
| 33:GL:121:VAL:HG11 | 33:GL:131:GLU:CD   | 2.30                     | 0.55              |
| 33:GL:135:ALA:O    | 33:GL:137:PRO:HD3  | 2.06                     | 0.55              |
| 33:GL:147:ARG:HE   | 42:GU:105:LEU:HD21 | 1.70                     | 0.55              |
| 35:GN:146:ARG:HB3  | 35:GN:149:TYR:CD2  | 2.41                     | 0.55              |
| 35:GN:166:TYR:CE1  | 1:H1:692:A:H4'     | 2.40                     | 0.55              |
| 43:GV:85:ARG:CZ    | 43:GV:100:LEU:HD13 | 2.36                     | 0.55              |
| 46:GY:10:ILE:CD1   | 46:GY:30:GLU:CB    | 2.84                     | 0.55              |
| 1:H1:269:U:H2'     | 1:H1:270:C:C6      | 2.40                     | 0.55              |
| 1:H1:513:G:H2'     | 1:H1:514:U:H6      | 1.70                     | 0.55              |
| 1:H1:596:A:H2'     | 1:H1:597:A:C8      | 2.40                     | 0.55              |
| 1:H1:1021:U:O2     | 1:H1:1021:U:H2'    | 2.05                     | 0.55              |
| 1:H1:1104:C:C2     | 17:HT:42:ASN:ND2   | 2.73                     | 0.55              |
| 1:H1:1393:A:H2'    | 1:H1:1394:G:C8     | 2.40                     | 0.55              |
| 1:H1:1845:U:O2     | 1:H1:1845:U:H2'    | 2.05                     | 0.55              |
| 1:H1:2639:C:C5'    | 1:H1:2640:G:OP2    | 2.47                     | 0.55              |
| 1:H1:2876:U:O4     | 1:H1:2898:A:H2'    | 2.07                     | 0.55              |
| 3:HB:28:ARG:CZ     | 3:HB:36:ARG:O      | 2.54                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:HE:4:GLY:N       | 5:HE:5:PRO:HD2     | 2.21                     | 0.55              |
| 5:HE:15:ILE:HA     | 5:HE:18:TRP:CE2    | 2.41                     | 0.55              |
| 14:HO:106:PHE:O    | 14:HO:109:LYS:HB2  | 2.06                     | 0.55              |
| 1:A1:280:G:H2'     | 1:A1:281:G:O5'     | 2.06                     | 0.55              |
| 1:A1:672:C:N3      | 1:A1:2369:C:O2'    | 2.38                     | 0.55              |
| 1:A1:979:U:C1'     | 17:AT:12:GLN:NE2   | 2.64                     | 0.55              |
| 1:A1:1064:C:H5'    | 34:BM:5:LYS:HD3    | 1.81                     | 0.55              |
| 1:A1:1107:A:C8     | 34:BM:142:PHE:CE1  | 2.94                     | 0.55              |
| 1:A1:1113:A:H2'    | 1:A1:1114:C:C6     | 2.41                     | 0.55              |
| 1:A1:1190:U:H2'    | 1:A1:1191:G:C8     | 2.41                     | 0.55              |
| 1:A1:1218:U:H3'    | 10:AK:113:ARG:NH1  | 2.21                     | 0.55              |
| 1:A1:1694:C:O2     | 1:A1:1804:G:N2     | 2.25                     | 0.55              |
| 1:A1:1724:U:O2'    | 1:A1:1725:A:H5'    | 2.06                     | 0.55              |
| 1:A1:2127:A:N7     | 1:A1:2145:A:H2     | 2.03                     | 0.55              |
| 1:A1:2278:G:O2'    | 1:A1:2279:C:P      | 2.64                     | 0.55              |
| 1:A1:3044:A:C5'    | 1:A1:3045:A:OP1    | 2.54                     | 0.55              |
| 1:A1:3276:C:OP1    | 23:BB:123:ALA:HB1  | 2.07                     | 0.55              |
| 5:AE:153:GLN:O     | 5:AE:156:VAL:N     | 2.38                     | 0.55              |
| 9:AJ:199:VAL:HG11  | 9:AJ:222:PHE:CE2   | 2.41                     | 0.55              |
| 12:AM:19:ILE:HD13  | 12:AM:105:TYR:HB2  | 1.88                     | 0.55              |
| 14:AO:44:HIS:HD2   | 14:AO:46:HIS:CD2   | 2.24                     | 0.55              |
| 18:AU:76:GLN:OE1   | 18:AU:101:ASN:HB2  | 2.05                     | 0.55              |
| 19:AX:92:VAL:HG12  | 19:AX:138:ILE:HD12 | 1.88                     | 0.55              |
| 20:B2:74:A:H5'     | 40:BS:50:ARG:CG    | 2.36                     | 0.55              |
| 23:BB:157:ARG:HG2  | 23:BB:180:GLN:CA   | 2.36                     | 0.55              |
| 25:BD:155:SER:HB3  | 25:BD:158:GLU:HG3  | 1.88                     | 0.55              |
| 35:BN:85:SER:OG    | 35:BN:86:THR:N     | 2.38                     | 0.55              |
| 37:BP:63:LYS:HD2   | 37:BP:63:LYS:N     | 2.20                     | 0.55              |
| 40:BS:55:VAL:HG13  | 40:BS:104:VAL:O    | 2.07                     | 0.55              |
| 43:BV:31:SER:O     | 43:BV:35:LYS:HG2   | 2.07                     | 0.55              |
| 22:CA:31:ARG:HD3   | 22:CA:34:ASP:OD2   | 2.05                     | 0.55              |
| 23:CB:46:PHE:CD1   | 23:CB:206:ILE:HD12 | 2.42                     | 0.55              |
| 26:CE:131:LYS:HE2  | 26:CE:145:GLN:CG   | 2.35                     | 0.55              |
| 27:CF:183:VAL:HG11 | 27:CF:185:LYS:HE3  | 1.88                     | 0.55              |
| 30:CI:18:LEU:O     | 30:CI:22:VAL:HG23  | 2.07                     | 0.55              |
| 47:CO:15:LEU:HD13  | 47:CO:52:LYS:HB2   | 1.86                     | 0.55              |
| 38:CQ:76:HIS:C     | 38:CQ:78:PHE:H     | 2.13                     | 0.55              |
| 39:CR:73:THR:HG22  | 39:CR:74:PRO:O     | 2.07                     | 0.55              |
| 43:CV:82:PHE:O     | 43:CV:133:PHE:HA   | 2.05                     | 0.55              |
| 43:CV:105:LEU:HD22 | 43:CV:110:ASN:O    | 2.06                     | 0.55              |
| 44:CW:33:ARG:HH22  | 1:D1:1906:G:H5''   | 1.70                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1:C:O2'       | 1:D1:2:U:H5'       | 2.05                     | 0.55              |
| 1:D1:23:U:O2'      | 1:D1:24:A:H5''     | 2.06                     | 0.55              |
| 1:D1:146:U:C4'     | 1:D1:147:U:H5'     | 2.30                     | 0.55              |
| 1:D1:439:A:H2'     | 1:D1:440:C:O5'     | 2.06                     | 0.55              |
| 1:D1:611:A:O2'     | 1:D1:612:C:H5'     | 2.06                     | 0.55              |
| 1:D1:1240:G:O2'    | 19:DX:104:MET:HG2  | 2.05                     | 0.55              |
| 1:D1:2521:A:C2     | 1:D1:2522:A:C4     | 2.95                     | 0.55              |
| 5:DE:56:GLY:C      | 5:DE:58:PHE:N      | 2.60                     | 0.55              |
| 5:DE:78:GLY:H      | 5:DE:85:VAL:HG12   | 1.69                     | 0.55              |
| 9:DJ:39:GLU:CB     | 9:DJ:43:VAL:HG23   | 2.35                     | 0.55              |
| 9:DJ:135:VAL:CG1   | 9:DJ:136:GLU:N     | 2.69                     | 0.55              |
| 13:DN:83:THR:HG22  | 13:DN:85:TYR:N     | 2.14                     | 0.55              |
| 14:DO:44:HIS:HD2   | 14:DO:46:HIS:CD2   | 2.24                     | 0.55              |
| 20:E2:141:G:N7     | 50:E2:333:HOH:O    | 2.33                     | 0.55              |
| 23:EB:54:THR:HG23  | 23:EB:358:ASP:HB3  | 1.87                     | 0.55              |
| 24:EC:119:ARG:HH21 | 1:F1:705:A:H4'     | 1.71                     | 0.55              |
| 24:EC:139:VAL:N    | 24:EC:140:PRO:HD2  | 2.22                     | 0.55              |
| 27:EF:146:ILE:HG23 | 27:EF:156:VAL:HG11 | 1.87                     | 0.55              |
| 30:EI:62:ASN:ND2   | 1:F1:1332:U:H1'    | 2.21                     | 0.55              |
| 32:EK:13:GLY:HA2   | 1:F1:968:U:O5'     | 2.06                     | 0.55              |
| 35:EN:64:SER:HA    | 35:EN:88:THR:O     | 2.06                     | 0.55              |
| 35:EN:93:LEU:O     | 35:EN:113:ARG:NH2  | 2.23                     | 0.55              |
| 36:EO:84:THR:O     | 36:EO:88:ARG:HG3   | 2.06                     | 0.55              |
| 41:ET:14:ARG:NH1   | 9:HJ:44:PRO:CB     | 2.69                     | 0.55              |
| 44:EW:54:LEU:HD22  | 44:EW:92:VAL:CG1   | 2.37                     | 0.55              |
| 1:F1:71:U:H5       | 18:FU:64:ASN:HB3   | 1.68                     | 0.55              |
| 1:F1:467:A:N6      | 1:F1:512:G:C4      | 2.74                     | 0.55              |
| 1:F1:634:G:H5'     | 5:FE:30:ARG:NH2    | 2.21                     | 0.55              |
| 1:F1:761:A:H2'     | 1:F1:762:G:O4'     | 2.05                     | 0.55              |
| 1:F1:1101:U:C5'    | 17:FT:49:ASN:HD22  | 2.13                     | 0.55              |
| 1:F1:1149:U:O2'    | 1:F1:1150:U:H5'    | 2.06                     | 0.55              |
| 1:F1:1513:A:O2'    | 11:FL:6:THR:HG23   | 2.06                     | 0.55              |
| 1:F1:1901:C:H5'    | 1:F1:1902:C:C5     | 2.41                     | 0.55              |
| 1:F1:1922:G:H2'    | 1:F1:1923:G:O5'    | 2.06                     | 0.55              |
| 1:F1:2521:A:C6     | 1:F1:2522:A:C6     | 2.95                     | 0.55              |
| 1:F1:2651:A:H2'    | 1:F1:2652:G:H8     | 1.70                     | 0.55              |
| 1:F1:2731:C:H4'    | 4:FC:18:HIS:HD2    | 1.72                     | 0.55              |
| 1:F1:2956:G:O2'    | 1:F1:2957:A:H5'    | 2.06                     | 0.55              |
| 6:FF:24:LEU:HD11   | 6:FF:85:TYR:CG     | 2.41                     | 0.55              |
| 16:FQ:9:ILE:CD1    | 18:FU:187:ASN:HB3  | 2.19                     | 0.55              |
| 21:G3:96:U:H2'     | 21:G3:97:G:H5''    | 1.88                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:GA:12:ARG:HH11  | 1:H1:935:G:H5'     | 1.72                     | 0.55              |
| 22:GA:218:GLN:HB3  | 50:GA:404:HOH:O    | 2.05                     | 0.55              |
| 27:GF:212:LYS:HG2  | 27:GF:216:ASN:HD22 | 1.71                     | 0.55              |
| 29:GH:12:PRO:HA    | 29:GH:59:GLN:NE2   | 2.21                     | 0.55              |
| 29:GH:153:THR:O    | 29:GH:156:LYS:HB3  | 2.05                     | 0.55              |
| 32:GK:118:LEU:HB3  | 32:GK:141:VAL:HG21 | 1.88                     | 0.55              |
| 32:GK:132:LYS:HG3  | 1:H1:739:G:OP1     | 2.06                     | 0.55              |
| 33:GL:79:ILE:HD12  | 1:H1:2597:G:O2'    | 2.06                     | 0.55              |
| 35:GN:49:ILE:O     | 35:GN:53:LEU:HG    | 2.06                     | 0.55              |
| 35:GN:53:LEU:O     | 35:GN:60:LYS:NZ    | 2.39                     | 0.55              |
| 45:GX:80:ASN:CB    | 1:H1:1413:G:H4'    | 2.36                     | 0.55              |
| 45:GX:103:SER:HB3  | 1:H1:1415:C:H5'    | 1.88                     | 0.55              |
| 1:H1:548:G:C2      | 1:H1:635:A:C2      | 2.94                     | 0.55              |
| 1:H1:611:A:O2'     | 1:H1:612:C:H5'     | 2.06                     | 0.55              |
| 9:HJ:186:ILE:HD11  | 9:HJ:206:CYS:HB2   | 1.87                     | 0.55              |
| 19:HX:92:VAL:HG12  | 19:HX:138:ILE:HD12 | 1.89                     | 0.55              |
| 1:A1:939:A:C2      | 22:BA:205:MET:HE3  | 2.41                     | 0.55              |
| 1:A1:1090:A:OP1    | 1:A1:1091:G:H3'    | 2.06                     | 0.55              |
| 1:A1:1149:U:O2'    | 1:A1:1150:U:H5'    | 2.06                     | 0.55              |
| 1:A1:1372:A:C2     | 24:BC:314:THR:HG21 | 2.41                     | 0.55              |
| 1:A1:1492:G:C2'    | 1:A1:1493:A:H5''   | 2.37                     | 0.55              |
| 1:A1:1702:G:H2'    | 1:A1:1703:A:C8     | 2.41                     | 0.55              |
| 1:A1:1901:C:H5'    | 1:A1:1902:C:C5     | 2.41                     | 0.55              |
| 1:A1:2227:A:H1'    | 1:A1:2423:U:O2'    | 2.07                     | 0.55              |
| 1:A1:2397:A:OP1    | 24:BC:77:ALA:N     | 2.39                     | 0.55              |
| 1:A1:2539:A:C2     | 1:A1:2540:G:C5     | 2.94                     | 0.55              |
| 1:A1:3135:A:H2'    | 1:A1:3136:A:C8     | 2.41                     | 0.55              |
| 1:A1:3232:A:H4'    | 5:AE:55:ALA:HB1    | 1.87                     | 0.55              |
| 11:AL:98:GLU:OE1   | 11:AL:98:GLU:HA    | 2.07                     | 0.55              |
| 20:B2:25:U:OP2     | 24:BC:201:LEU:HD22 | 2.07                     | 0.55              |
| 23:BB:54:THR:HG22  | 23:BB:55:HIS:H     | 1.71                     | 0.55              |
| 27:BF:68:PRO:CD    | 27:BF:225:TRP:HE1  | 2.19                     | 0.55              |
| 28:BG:48:UNK:HG1   | 28:BG:52:UNK:CB    | 2.36                     | 0.55              |
| 32:BK:117:ARG:NH1  | 32:BK:137:ARG:CZ   | 2.70                     | 0.55              |
| 34:BM:231:TRP:HZ2  | 34:BM:243:VAL:CG2  | 2.19                     | 0.55              |
| 39:BR:52:SER:O     | 42:BU:81:PRO:HB3   | 2.07                     | 0.55              |
| 39:BR:76:THR:O     | 39:BR:76:THR:HG22  | 2.06                     | 0.55              |
| 44:BW:28:ALA:HB3   | 44:BW:29:PRO:HD3   | 1.88                     | 0.55              |
| 44:BW:61:ASN:HB3   | 44:BW:65:ASN:O     | 2.06                     | 0.55              |
| 20:C2:30:U:OP1     | 24:CC:56:LYS:HA    | 2.07                     | 0.55              |
| 22:CA:117:VAL:HG12 | 22:CA:118:GLU:N    | 2.22                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:CA:209:ASP:O    | 22:CA:210:HIS:HB2  | 2.06                     | 0.55              |
| 23:CB:253:TRP:CD1  | 1:D1:2390:G:H5''   | 2.41                     | 0.55              |
| 23:CB:303:ILE:HG12 | 23:CB:319:PHE:CZ   | 2.42                     | 0.55              |
| 24:CC:191:THR:OG1  | 24:CC:209:ARG:HD2  | 2.06                     | 0.55              |
| 27:CF:122:PRO:HD3  | 1:D1:118:A:N7      | 2.21                     | 0.55              |
| 27:CF:212:LYS:HG2  | 27:CF:216:ASN:HD22 | 1.72                     | 0.55              |
| 29:CH:12:PRO:HA    | 29:CH:59:GLN:NE2   | 2.21                     | 0.55              |
| 33:CL:9:GLU:OE1    | 16:DQ:42:ARG:HA    | 2.06                     | 0.55              |
| 34:CM:79:ASP:N     | 34:CM:79:ASP:OD1   | 2.39                     | 0.55              |
| 34:CM:122:GLN:HG2  | 34:CM:124:LYS:O    | 2.07                     | 0.55              |
| 34:CM:155:THR:OG1  | 34:CM:179:ARG:HD3  | 2.07                     | 0.55              |
| 35:CN:114:ILE:CD1  | 35:CN:121:CYS:SG   | 2.93                     | 0.55              |
| 37:CP:116:LYS:NZ   | 1:D1:1124:G:H8     | 2.04                     | 0.55              |
| 42:CU:122:LEU:HD13 | 18:DU:150:LEU:HD23 | 1.88                     | 0.55              |
| 43:CV:60:VAL:HG13  | 43:CV:63:LYS:NZ    | 2.21                     | 0.55              |
| 43:CV:122:ASN:HD22 | 1:D1:1013:U:P      | 2.29                     | 0.55              |
| 1:D1:219:A:C2      | 1:D1:1416:U:C2'    | 2.85                     | 0.55              |
| 1:D1:439:A:P       | 1:D1:439:A:C8      | 2.96                     | 0.55              |
| 1:D1:1701:A:H5''   | 12:DM:99:SER:CB    | 2.36                     | 0.55              |
| 1:D1:1767:U:C4'    | 1:D1:1768:G:OP2    | 2.55                     | 0.55              |
| 1:D1:1805:C:C2'    | 1:D1:1806:G:OP1    | 2.54                     | 0.55              |
| 1:D1:1845:U:C4'    | 1:D1:1846:C:OP2    | 2.54                     | 0.55              |
| 1:D1:2245:G:O2'    | 1:D1:2246:G:H5'    | 2.06                     | 0.55              |
| 1:D1:2624:A:H4'    | 1:D1:2625:A:O5'    | 2.06                     | 0.55              |
| 5:DE:4:GLY:N       | 5:DE:5:PRO:HD2     | 2.21                     | 0.55              |
| 5:DE:88:LYS:HG3    | 5:DE:89:ARG:N      | 2.20                     | 0.55              |
| 6:DF:13:VAL:HG22   | 6:DF:55:LEU:HD23   | 1.88                     | 0.55              |
| 12:DM:66:ASN:HD21  | 12:DM:68:GLN:NE2   | 2.04                     | 0.55              |
| 18:DU:54:PRO:HG3   | 18:DU:72:GLY:C     | 2.31                     | 0.55              |
| 19:DX:92:VAL:HG12  | 19:DX:138:ILE:HD12 | 1.88                     | 0.55              |
| 22:EA:205:MET:HE3  | 1:F1:939:A:C2      | 2.41                     | 0.55              |
| 29:EH:130:ASP:OD1  | 29:EH:131:ILE:N    | 2.39                     | 0.55              |
| 33:EL:55:ASN:HB2   | 1:F1:148:G:H4'     | 1.88                     | 0.55              |
| 34:EM:122:GLN:HG2  | 34:EM:124:LYS:O    | 2.06                     | 0.55              |
| 34:EM:166:ALA:HB1  | 34:EM:171:ILE:HD12 | 1.87                     | 0.55              |
| 37:EP:17:LYS:HE3   | 37:EP:47:SER:HB3   | 1.88                     | 0.55              |
| 43:EV:185:ILE:HA   | 43:EV:192:PHE:HE1  | 1.71                     | 0.55              |
| 1:F1:40:C:H3'      | 1:F1:40:C:C6       | 2.41                     | 0.55              |
| 1:F1:165:C:O3'     | 18:FU:132:LYS:HG3  | 2.06                     | 0.55              |
| 1:F1:268:G:N2      | 1:F1:294:A:OP2     | 2.32                     | 0.55              |
| 1:F1:362:G:C2'     | 1:F1:363:G:H5''    | 2.36                     | 0.55              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:624:G:O2'    | 1:F1:625:C:O4'     | 2.24                     | 0.55              |
| 1:F1:1025:G:C6    | 1:F1:1026:C:N4     | 2.74                     | 0.55              |
| 1:F1:2256:G:C3'   | 1:F1:2257:A:C5'    | 2.84                     | 0.55              |
| 1:F1:2873:C:O2'   | 1:F1:2874:U:H5'    | 2.06                     | 0.55              |
| 1:F1:3046:A:C6    | 1:F1:3048:A:H1'    | 2.41                     | 0.55              |
| 1:F1:3177:G:H5''  | 1:F1:3177:G:C8     | 2.40                     | 0.55              |
| 1:F1:3227:A:N3    | 5:FE:80:TYR:CE2    | 2.74                     | 0.55              |
| 5:FE:63:VAL:HG12  | 5:FE:76:VAL:HG13   | 1.88                     | 0.55              |
| 5:FE:161:LEU:O    | 5:FE:165:LYS:HB2   | 2.06                     | 0.55              |
| 6:FF:67:GLN:NE2   | 6:FF:75:LYS:HE3    | 2.21                     | 0.55              |
| 11:FL:5:ILE:CG2   | 11:FL:32:ALA:HB2   | 2.35                     | 0.55              |
| 11:FL:20:VAL:HG12 | 11:FL:21:ARG:N     | 2.21                     | 0.55              |
| 12:FM:35:PHE:CD1  | 12:FM:65:ILE:CD1   | 2.89                     | 0.55              |
| 16:FQ:84:HIS:O    | 16:FQ:87:ALA:HB3   | 2.06                     | 0.55              |
| 20:G2:112:G:N2    | 3:HB:52:TYR:C      | 2.64                     | 0.55              |
| 21:G3:80:A:H4'    | 1:H1:1082:U:H4'    | 1.88                     | 0.55              |
| 21:G3:105:C:H5'   | 21:G3:105:C:C6     | 2.39                     | 0.55              |
| 22:GA:66:ASP:OD2  | 22:GA:71:LYS:HE2   | 2.05                     | 0.55              |
| 23:GB:303:ILE:CD1 | 23:GB:319:PHE:CE1  | 2.90                     | 0.55              |
| 24:GC:205:ARG:HB3 | 24:GC:206:TYR:CE2  | 2.41                     | 0.55              |
| 25:GD:37:LEU:HD13 | 25:GD:69:VAL:HG23  | 1.88                     | 0.55              |
| 27:GF:149:ASP:OD2 | 27:GF:176:LYS:HG2  | 2.06                     | 0.55              |
| 33:GL:187:SER:O   | 33:GL:190:GLY:N    | 2.39                     | 0.55              |
| 35:GN:66:SER:HB3  | 35:GN:93:LEU:HG    | 1.87                     | 0.55              |
| 37:GP:74:VAL:HG12 | 37:GP:75:ILE:H     | 1.70                     | 0.55              |
| 44:GW:43:MET:HG3  | 44:GW:90:THR:HG21  | 1.88                     | 0.55              |
| 1:H1:581:C:H2'    | 1:H1:582:A:H5''    | 1.86                     | 0.55              |
| 1:H1:1050:C:H3'   | 1:H1:1051:C:C6     | 2.41                     | 0.55              |
| 1:H1:1497:U:H2'   | 1:H1:1498:U:H6     | 1.71                     | 0.55              |
| 1:H1:1627:A:C6    | 1:H1:1628:A:C6     | 2.95                     | 0.55              |
| 1:H1:1650:U:O2    | 1:H1:1668:A:H5'    | 2.06                     | 0.55              |
| 1:H1:1919:A:HO2'  | 1:H1:1920:A:H8     | 1.47                     | 0.55              |
| 6:HF:51:ARG:HG2   | 19:HX:171:ARG:NH1  | 2.21                     | 0.55              |
| 7:HG:13:LYS:HB2   | 7:HG:100:ILE:CD1   | 2.36                     | 0.55              |
| 13:HN:113:THR:O   | 13:HN:117:VAL:HG23 | 2.05                     | 0.55              |
| 14:HO:94:ILE:HD13 | 14:HO:107:ALA:HB1  | 1.88                     | 0.55              |
| 15:HP:53:PHE:HE1  | 15:HP:55:THR:CG2   | 2.19                     | 0.55              |
| 16:HQ:61:LEU:O    | 16:HQ:69:ASP:HB3   | 2.06                     | 0.55              |
| 19:HX:89:TYR:CD2  | 19:HX:113:LEU:HD13 | 2.42                     | 0.55              |
| 19:HX:168:THR:N   | 19:HX:188:THR:HG23 | 2.18                     | 0.55              |
| 1:A1:88:U:OP1     | 32:BK:61:ARG:NH2   | 2.35                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:139:A:HO2'    | 1:A1:140:A:H8      | 1.54                     | 0.55              |
| 1:A1:397:A:HO2'    | 1:A1:400:C:HO2'    | 1.49                     | 0.55              |
| 1:A1:467:A:N6      | 1:A1:512:G:C4      | 2.74                     | 0.55              |
| 1:A1:511:U:C5'     | 14:AO:70:VAL:HG21  | 2.34                     | 0.55              |
| 1:A1:772:U:C2'     | 1:A1:773:C:H5'     | 2.37                     | 0.55              |
| 1:A1:2100:A:C3'    | 1:A1:2101:G:H5''   | 2.37                     | 0.55              |
| 1:A1:2882:U:H2'    | 1:A1:2883:G:H8     | 1.72                     | 0.55              |
| 1:A1:3046:A:H5''   | 1:A1:3047:U:OP2    | 2.07                     | 0.55              |
| 1:A1:3127:U:C6     | 23:BB:30:ARG:NH2   | 2.75                     | 0.55              |
| 1:A1:3143:A:OP2    | 1:A1:3143:A:H8     | 1.88                     | 0.55              |
| 6:AF:24:LEU:HD11   | 6:AF:85:TYR:CG     | 2.41                     | 0.55              |
| 14:AO:114:PHE:O    | 14:AO:117:ALA:HB3  | 2.06                     | 0.55              |
| 20:B2:1:A:C5'      | 20:B2:2:G:OP2      | 2.54                     | 0.55              |
| 23:BB:281:TYR:CB   | 23:BB:321:MET:HE3  | 2.37                     | 0.55              |
| 23:BB:356:PHE:HE2  | 23:BB:358:ASP:HB2  | 1.72                     | 0.55              |
| 29:BH:208:ARG:HG3  | 29:BH:209:LEU:N    | 2.21                     | 0.55              |
| 33:BL:121:VAL:HG11 | 33:BL:131:GLU:CD   | 2.31                     | 0.55              |
| 34:BM:177:GLU:HA   | 34:BM:180:PHE:CD2  | 2.35                     | 0.55              |
| 37:BP:116:LYS:HE3  | 37:BP:128:THR:OG1  | 2.05                     | 0.55              |
| 43:BV:60:VAL:HG13  | 43:BV:63:LYS:NZ    | 2.21                     | 0.55              |
| 43:BV:124:ILE:O    | 43:BV:124:ILE:HG22 | 2.06                     | 0.55              |
| 43:BV:204:LEU:HB3  | 43:BV:238:MET:HE2  | 1.87                     | 0.55              |
| 22:CA:31:ARG:O     | 22:CA:164:ARG:NH1  | 2.32                     | 0.55              |
| 30:CI:74:ALA:O     | 30:CI:78:ILE:HG12  | 2.06                     | 0.55              |
| 33:CL:165:THR:HG23 | 33:CL:168:GLY:H    | 1.70                     | 0.55              |
| 34:CM:48:LYS:HE2   | 34:CM:145:ILE:CD1  | 2.37                     | 0.55              |
| 35:CN:98:LYS:HG3   | 35:CN:98:LYS:O     | 2.05                     | 0.55              |
| 38:CQ:64:ARG:NH1   | 1:D1:409:G:OP1     | 2.38                     | 0.55              |
| 43:CV:157:ARG:HG3  | 43:CV:200:TRP:CE2  | 2.41                     | 0.55              |
| 46:CY:10:ILE:CD1   | 46:CY:30:GLU:CB    | 2.84                     | 0.55              |
| 1:D1:118:A:C4'     | 1:D1:119:A:O5'     | 2.47                     | 0.55              |
| 1:D1:396:A:C2      | 1:D1:397:A:C4      | 2.94                     | 0.55              |
| 1:D1:488:U:H2'     | 1:D1:490:A:OP2     | 2.07                     | 0.55              |
| 1:D1:2641:U:H5'    | 4:DC:63:THR:HG21   | 1.88                     | 0.55              |
| 1:D1:2666:G:H5''   | 1:D1:2666:G:N3     | 2.21                     | 0.55              |
| 1:D1:2865:G:H2'    | 1:D1:2866:G:H8     | 1.70                     | 0.55              |
| 1:D1:3100:U:H2'    | 1:D1:3101:G:H5'    | 1.87                     | 0.55              |
| 1:D1:3143:A:OP2    | 1:D1:3143:A:H8     | 1.88                     | 0.55              |
| 1:D1:3251:C:C4'    | 1:D1:3252:G:OP2    | 2.54                     | 0.55              |
| 11:DL:98:GLU:OE1   | 11:DL:98:GLU:HA    | 2.07                     | 0.55              |
| 22:EA:206:ASN:HB3  | 22:EA:207:PRO:HD2  | 1.88                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:EA:210:HIS:CD2  | 22:EA:211:PRO:HD2  | 2.42                     | 0.55              |
| 24:EC:89:THR:CG2   | 24:EC:91:ARG:HB3   | 2.35                     | 0.55              |
| 24:EC:195:ARG:O    | 24:EC:200:LYS:HE2  | 2.06                     | 0.55              |
| 24:EC:238:VAL:HG21 | 24:EC:262:ALA:CB   | 2.37                     | 0.55              |
| 24:EC:319:ARG:NH2  | 1:F1:634:G:O6      | 2.39                     | 0.55              |
| 25:ED:37:LEU:CD1   | 25:ED:69:VAL:HG23  | 2.36                     | 0.55              |
| 28:EG:48:UNK:HG1   | 28:EG:52:UNK:CB    | 2.36                     | 0.55              |
| 28:EG:80:UNK:C     | 1:F1:1309:G:H4'    | 2.36                     | 0.55              |
| 29:EH:138:VAL:HG23 | 29:EH:152:LEU:HD11 | 1.88                     | 0.55              |
| 32:EK:75:VAL:HG12  | 32:EK:76:ASN:N     | 2.21                     | 0.55              |
| 34:EM:122:GLN:HB2  | 34:EM:130:PHE:CE2  | 2.42                     | 0.55              |
| 34:EM:175:HIS:HD2  | 34:EM:180:PHE:HE2  | 1.52                     | 0.55              |
| 36:EO:106:LEU:HB3  | 36:EO:120:TYR:HE1  | 1.71                     | 0.55              |
| 37:EP:62:GLY:HA3   | 37:EP:74:VAL:CG1   | 2.36                     | 0.55              |
| 38:EQ:58:ARG:HE    | 38:EQ:77:GLU:CD    | 2.13                     | 0.55              |
| 41:ET:46:VAL:HG11  | 41:ET:51:ILE:HD11  | 1.89                     | 0.55              |
| 43:EV:82:PHE:O     | 43:EV:133:PHE:HA   | 2.07                     | 0.55              |
| 1:F1:581:C:H2'     | 1:F1:582:A:C5'     | 2.36                     | 0.55              |
| 1:F1:1055:A:C5     | 1:F1:1056:A:N7     | 2.75                     | 0.55              |
| 1:F1:2305:U:O2'    | 1:F1:2306:G:H5'    | 2.06                     | 0.55              |
| 1:F1:2569:A:O2'    | 1:F1:2570:U:OP1    | 2.20                     | 0.55              |
| 1:F1:2666:G:H5''   | 1:F1:2666:G:N3     | 2.22                     | 0.55              |
| 1:F1:3011:G:H1'    | 1:F1:3012:U:OP2    | 2.06                     | 0.55              |
| 1:F1:3126:C:H2'    | 1:F1:3127:U:C6     | 2.41                     | 0.55              |
| 9:FJ:186:ILE:HD11  | 9:FJ:206:CYS:HB2   | 1.88                     | 0.55              |
| 12:FM:89:GLN:HB2   | 12:FM:91:LEU:HG    | 1.88                     | 0.55              |
| 18:FU:44:VAL:O     | 18:FU:44:VAL:HG12  | 2.07                     | 0.55              |
| 20:G2:19:G:N2      | 1:H1:403:G:H1'     | 2.21                     | 0.55              |
| 20:G2:110:A:H2'    | 20:G2:111:A:C8     | 2.41                     | 0.55              |
| 22:GA:85:SER:HB3   | 46:GY:63:ILE:HB    | 1.88                     | 0.55              |
| 23:GB:54:THR:HG21  | 23:GB:358:ASP:O    | 2.06                     | 0.55              |
| 24:GC:40:LYS:NZ    | 1:H1:815:U:H1'     | 2.21                     | 0.55              |
| 27:GF:43:ARG:NH1   | 1:H1:2521:A:C6     | 2.74                     | 0.55              |
| 30:GI:30:GLN:HG3   | 30:GI:32:ILE:HD13  | 1.89                     | 0.55              |
| 30:GI:163:ALA:HB1  | 1:H1:3163:A:O2'    | 2.06                     | 0.55              |
| 31:GJ:139:SER:CB   | 9:HJ:102:SER:H     | 2.19                     | 0.55              |
| 41:GT:5:THR:HG21   | 41:GT:14:ARG:HE    | 1.70                     | 0.55              |
| 42:GU:98:LYS:HG2   | 1:H1:242:G:OP1     | 2.06                     | 0.55              |
| 43:GV:84:ILE:HD12  | 43:GV:234:LEU:CD2  | 2.37                     | 0.55              |
| 1:H1:113:A:O2'     | 1:H1:114:A:OP1     | 2.24                     | 0.55              |
| 1:H1:133:C:H4'     | 1:H1:134:A:O5'     | 2.06                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:446:G:H2'     | 1:H1:447:G:H8      | 1.69                     | 0.55              |
| 1:H1:1035:A:C2     | 1:H1:1036:G:C6     | 2.93                     | 0.55              |
| 1:H1:1091:G:HO2'   | 1:H1:1092:C:P      | 2.29                     | 0.55              |
| 1:H1:2132:U:H2'    | 1:H1:2138:A:N6     | 2.22                     | 0.55              |
| 1:H1:2787:A:H5''   | 1:H1:2788:G:O5'    | 2.06                     | 0.55              |
| 1:H1:2886:G:H3'    | 1:H1:2886:G:H8     | 1.70                     | 0.55              |
| 1:H1:3045:A:H4'    | 1:H1:3046:A:OP1    | 2.05                     | 0.55              |
| 1:H1:3100:U:H2'    | 1:H1:3101:G:H5'    | 1.89                     | 0.55              |
| 1:H1:3193:G:N2     | 1:H1:3218:U:H1'    | 2.21                     | 0.55              |
| 8:HH:9:VAL:CG1     | 8:HH:10:ALA:N      | 2.69                     | 0.55              |
| 12:HM:98:THR:HG22  | 12:HM:99:SER:N     | 2.21                     | 0.55              |
| 1:A1:152:U:C5'     | 1:A1:153:C:OP2     | 2.55                     | 0.55              |
| 1:A1:292:C:H6      | 1:A1:292:C:H5'     | 1.71                     | 0.55              |
| 1:A1:882:G:OP2     | 36:BO:92:LYS:NZ    | 2.40                     | 0.55              |
| 1:A1:971:C:O2'     | 1:A1:972:U:H5'     | 2.05                     | 0.55              |
| 1:A1:1034:U:H3'    | 1:A1:1035:A:H5''   | 1.88                     | 0.55              |
| 1:A1:1101:U:H5''   | 1:A1:1102:U:OP1    | 2.05                     | 0.55              |
| 1:A1:1167:G:H5'    | 43:BV:91:GLN:HG2   | 1.87                     | 0.55              |
| 1:A1:1456:U:C4     | 32:BK:9:ARG:HD2    | 2.41                     | 0.55              |
| 1:A1:1546:G:H5''   | 39:BR:77:THR:HG22  | 1.88                     | 0.55              |
| 1:A1:2127:A:H2'    | 1:A1:2128:C:H5'    | 1.88                     | 0.55              |
| 1:A1:2545:A:O2'    | 1:A1:2546:A:OP1    | 2.24                     | 0.55              |
| 1:A1:2789:A:C3'    | 1:A1:2790:A:H5''   | 2.36                     | 0.55              |
| 1:A1:3273:U:O2     | 23:BB:170:ARG:NH1  | 2.39                     | 0.55              |
| 9:AJ:224:LEU:O     | 9:AJ:225:ASN:HB3   | 2.07                     | 0.55              |
| 12:AM:75:LYS:HE2   | 12:AM:105:TYR:CZ   | 2.41                     | 0.55              |
| 13:AN:70:PRO:CD    | 13:AN:115:LYS:HG2  | 2.37                     | 0.55              |
| 20:B2:7:U:OP1      | 38:BQ:64:ARG:HG2   | 2.06                     | 0.55              |
| 20:B2:134:C:HO2'   | 20:B2:135:A:P      | 2.26                     | 0.55              |
| 21:B3:20:U:C2'     | 21:B3:21:G:H5'     | 2.36                     | 0.55              |
| 23:BB:332:ARG:HH11 | 23:BB:332:ARG:CB   | 2.18                     | 0.55              |
| 27:BF:212:LYS:HG2  | 27:BF:216:ASN:HD22 | 1.71                     | 0.55              |
| 43:BV:105:LEU:HD12 | 43:BV:131:ILE:HD13 | 1.88                     | 0.55              |
| 20:C2:60:C:C4      | 2:DA:64:ARG:NH1    | 2.75                     | 0.55              |
| 23:CB:54:THR:HG21  | 23:CB:358:ASP:O    | 2.06                     | 0.55              |
| 24:CC:272:THR:CG2  | 24:CC:273:TYR:N    | 2.69                     | 0.55              |
| 25:CD:50:ALA:HB1   | 25:CD:59:ILE:HG23  | 1.86                     | 0.55              |
| 27:CF:67:PRO:HB2   | 27:CF:68:PRO:CD    | 2.35                     | 0.55              |
| 27:CF:121:LYS:HA   | 1:D1:118:A:N7      | 2.22                     | 0.55              |
| 28:CG:63:UNK:O     | 28:CG:67:UNK:HB2   | 2.05                     | 0.55              |
| 29:CH:142:GLU:N    | 29:CH:143:PRO:HD2  | 2.22                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 33:CL:110:VAL:CG1  | 33:CL:113:LEU:HG   | 2.34                     | 0.55              |
| 47:CO:174:UNK:HG1  | 29:EH:80:ILE:O     | 2.07                     | 0.55              |
| 38:CQ:33:GLU:OE1   | 38:CQ:63:THR:N     | 2.37                     | 0.55              |
| 1:D1:699:C:O2'     | 1:D1:703:U:OP1     | 2.23                     | 0.55              |
| 1:D1:1054:G:C2     | 1:D1:1055:A:C6     | 2.95                     | 0.55              |
| 1:D1:2264:U:H2'    | 1:D1:2265:A:O5'    | 2.06                     | 0.55              |
| 1:D1:2397:A:H1'    | 1:D1:2859:G:O4'    | 2.05                     | 0.55              |
| 1:D1:2884:A:OP1    | 10:DK:102:ARG:HD3  | 2.06                     | 0.55              |
| 4:DC:14:LYS:HG3    | 4:DC:77:THR:OG1    | 2.06                     | 0.55              |
| 8:DH:73:ILE:HG22   | 8:DH:91:PHE:HD2    | 1.72                     | 0.55              |
| 8:DH:97:PRO:O      | 8:DH:100:ILE:HG13  | 2.07                     | 0.55              |
| 9:DJ:224:LEU:O     | 9:DJ:225:ASN:HB3   | 2.07                     | 0.55              |
| 10:DK:120:SER:O    | 10:DK:121:LEU:HD23 | 2.07                     | 0.55              |
| 20:E2:58:U:N3      | 20:E2:65:C:C5      | 2.67                     | 0.55              |
| 22:EA:221:GLY:HA2  | 1:F1:2241:G:OP1    | 2.07                     | 0.55              |
| 24:EC:65:MET:HE3   | 24:EC:105:ARG:HG2  | 1.88                     | 0.55              |
| 32:EK:145:CYS:CB   | 18:FU:177:VAL:HG21 | 2.35                     | 0.55              |
| 33:EL:189:LYS:O    | 33:EL:193:ARG:HG3  | 2.06                     | 0.55              |
| 34:EM:153:THR:HG22 | 34:EM:179:ARG:HH11 | 1.71                     | 0.55              |
| 36:EO:4:LEU:CD2    | 36:EO:7:GLN:HG3    | 2.34                     | 0.55              |
| 45:EX:59:PHE:CE1   | 1:F1:1189:U:H4'    | 2.42                     | 0.55              |
| 46:EY:10:ILE:CD1   | 46:EY:30:GLU:CB    | 2.85                     | 0.55              |
| 1:F1:476:A:C2      | 1:F1:500:G:N2      | 2.74                     | 0.55              |
| 1:F1:514:U:H2'     | 1:F1:515:A:C8      | 2.41                     | 0.55              |
| 1:F1:1061:G:C2     | 1:F1:1062:A:C8     | 2.95                     | 0.55              |
| 1:F1:3094:U:H2'    | 1:F1:3095:A:C8     | 2.42                     | 0.55              |
| 1:F1:3135:A:H2'    | 1:F1:3136:A:C8     | 2.42                     | 0.55              |
| 13:FN:33:THR:HB    | 13:FN:35:ASP:H     | 1.72                     | 0.55              |
| 20:G2:99:U:H5''    | 20:G2:100:C:OP2    | 2.06                     | 0.55              |
| 23:GB:211:GLU:O    | 23:GB:280:VAL:HG23 | 2.07                     | 0.55              |
| 24:GC:195:ARG:O    | 24:GC:200:LYS:HE2  | 2.07                     | 0.55              |
| 27:GF:69:GLN:HG2   | 27:GF:222:ARG:NH1  | 2.22                     | 0.55              |
| 29:GH:92:HIS:CD2   | 1:H1:1070:U:H1'    | 2.40                     | 0.55              |
| 30:GI:107:ILE:HG13 | 30:GI:159:ARG:HH12 | 1.71                     | 0.55              |
| 32:GK:60:MET:C     | 35:GN:172:ARG:HH12 | 2.13                     | 0.55              |
| 34:GM:228:PHE:HD1  | 34:GM:231:TRP:CD1  | 2.23                     | 0.55              |
| 35:GN:88:THR:HA    | 35:GN:107:THR:OG1  | 2.07                     | 0.55              |
| 41:GT:11:CYS:SG    | 41:GT:13:TYR:CD2   | 3.00                     | 0.55              |
| 42:GU:25:LEU:O     | 42:GU:28:GLU:HB3   | 2.06                     | 0.55              |
| 44:GW:19:CYS:CA    | 44:GW:22:ILE:HD12  | 2.37                     | 0.55              |
| 45:GX:11:ILE:HB    | 45:GX:65:THR:HG21  | 1.88                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:292:C:H6      | 1:H1:292:C:H5'     | 1.72                     | 0.55              |
| 1:H1:471:A:H2'     | 1:H1:472:C:O5'     | 2.06                     | 0.55              |
| 1:H1:752:C:H4'     | 1:H1:1002:A:C4     | 2.41                     | 0.55              |
| 1:H1:1475:A:C2     | 1:H1:2351:A:C4     | 2.94                     | 0.55              |
| 1:H1:1853:G:H5''   | 1:H1:1854:U:H5'    | 1.88                     | 0.55              |
| 1:H1:1895:U:H5'    | 50:H1:3915:HOH:O   | 2.06                     | 0.55              |
| 1:H1:2213:G:OP1    | 16:HQ:72:LYS:NZ    | 2.40                     | 0.55              |
| 1:H1:2294:A:P      | 50:H1:4201:HOH:O   | 2.56                     | 0.55              |
| 1:H1:2395:G:N7     | 1:H1:2396:A:N6     | 2.54                     | 0.55              |
| 1:H1:3087:G:H5''   | 1:H1:3088:U:OP1    | 2.06                     | 0.55              |
| 1:H1:3150:U:H2'    | 1:H1:3151:G:H5''   | 1.87                     | 0.55              |
| 1:H1:3158:G:H5'    | 1:H1:3159:A:OP2    | 2.06                     | 0.55              |
| 1:H1:3230:G:C6     | 5:HE:119:ARG:HD2   | 2.41                     | 0.55              |
| 6:HF:125:SER:O     | 6:HF:126:LYS:HB2   | 2.04                     | 0.55              |
| 16:HQ:84:HIS:O     | 16:HQ:87:ALA:HB3   | 2.06                     | 0.55              |
| 1:A1:820:G:O2'     | 1:A1:821:U:H5''    | 2.07                     | 0.55              |
| 1:A1:828:C:HO2'    | 1:A1:829:C:H5'     | 1.72                     | 0.55              |
| 1:A1:919:A:C1'     | 1:A1:920:A:C2      | 2.90                     | 0.55              |
| 1:A1:1180:A:H5'    | 1:A1:1181:A:OP2    | 2.07                     | 0.55              |
| 1:A1:1918:U:C2'    | 1:A1:1919:A:C5'    | 2.67                     | 0.55              |
| 1:A1:1958:G:O6     | 50:A1:4525:HOH:O   | 2.16                     | 0.55              |
| 1:A1:2255:U:C5     | 1:A1:2256:G:N7     | 2.75                     | 0.55              |
| 1:A1:2309:U:O2'    | 50:A1:4184:HOH:O   | 1.66                     | 0.55              |
| 1:A1:3059:A:H2'    | 1:A1:3060:A:C8     | 2.42                     | 0.55              |
| 1:A1:3103:A:H3'    | 1:A1:3104:G:C8     | 2.41                     | 0.55              |
| 1:A1:3161:A:C6     | 1:A1:3176:A:C2     | 2.95                     | 0.55              |
| 5:AE:62:ARG:CZ     | 6:AF:105:ASP:OD1   | 2.55                     | 0.55              |
| 18:AU:19:ARG:HH11  | 33:BL:196:GLN:HB3  | 1.72                     | 0.55              |
| 18:AU:50:GLU:O     | 18:AU:150:LEU:HD12 | 2.06                     | 0.55              |
| 20:B2:76:U:O4'     | 20:B2:76:U:O2      | 2.22                     | 0.55              |
| 22:BA:42:ILE:CD1   | 22:BA:43:ARG:H     | 2.17                     | 0.55              |
| 22:BA:45:CYS:O     | 22:BA:62:VAL:HA    | 2.07                     | 0.55              |
| 22:BA:253:GLU:OE1  | 22:BA:253:GLU:HA   | 2.06                     | 0.55              |
| 23:BB:162:THR:O    | 23:BB:162:THR:HG22 | 2.07                     | 0.55              |
| 26:BE:145:GLN:NE2  | 26:BE:186:MET:O    | 2.40                     | 0.55              |
| 35:BN:167:VAL:HG13 | 35:BN:169:SER:H    | 1.72                     | 0.55              |
| 37:BP:17:LYS:CE    | 37:BP:47:SER:HB3   | 2.37                     | 0.55              |
| 43:BV:185:ILE:HA   | 43:BV:192:PHE:HE1  | 1.72                     | 0.55              |
| 22:CA:181:LEU:HB3  | 46:CY:18:TYR:CD1   | 2.42                     | 0.55              |
| 23:CB:52:GLY:HA3   | 23:CB:309:PHE:CD1  | 2.41                     | 0.55              |
| 23:CB:110:ILE:O    | 23:CB:115:LYS:HE3  | 2.05                     | 0.55              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:CB:129:ALA:O   | 23:CB:130:PHE:HB2  | 2.05                     | 0.55              |
| 24:CC:205:ARG:NH2 | 40:CS:11:ARG:NH1   | 2.54                     | 0.55              |
| 24:CC:380:PHE:HE1 | 19:DX:22:VAL:HG22  | 1.71                     | 0.55              |
| 28:CG:48:UNK:HG1  | 28:CG:52:UNK:CB    | 2.37                     | 0.55              |
| 29:CH:139:ARG:HD3 | 29:CH:173:PHE:CD1  | 2.41                     | 0.55              |
| 47:CO:134:ASN:ND2 | 1:D1:1971:G:H5''   | 2.22                     | 0.55              |
| 37:CP:41:ASP:HB3  | 37:CP:97:ARG:NH1   | 2.20                     | 0.55              |
| 38:CQ:66:THR:CG2  | 38:CQ:82:GLN:HE22  | 2.20                     | 0.55              |
| 43:CV:31:SER:O    | 43:CV:35:LYS:HG2   | 2.07                     | 0.55              |
| 44:CW:4:GLN:HE21  | 44:CW:76:LYS:NZ    | 2.05                     | 0.55              |
| 44:CW:43:MET:HG3  | 44:CW:90:THR:HG21  | 1.88                     | 0.55              |
| 1:D1:92:G:H2'     | 1:D1:93:A:C8       | 2.42                     | 0.55              |
| 1:D1:126:A:C5'    | 1:D1:127:A:OP1     | 2.55                     | 0.55              |
| 1:D1:433:C:H2'    | 1:D1:433:C:O2      | 2.05                     | 0.55              |
| 1:D1:467:A:N6     | 1:D1:512:G:C5      | 2.75                     | 0.55              |
| 1:D1:792:G:H5'    | 18:DU:190:TRP:CD2  | 2.41                     | 0.55              |
| 1:D1:925:G:H1'    | 1:D1:1614:A:H61    | 1.71                     | 0.55              |
| 1:D1:1034:U:C2    | 1:D1:1069:C:C2     | 2.95                     | 0.55              |
| 1:D1:1433:A:H5'   | 1:D1:1434:G:OP2    | 2.06                     | 0.55              |
| 1:D1:1507:A:OP1   | 1:D1:1507:A:C4'    | 2.55                     | 0.55              |
| 1:D1:1595:A:H1'   | 1:D1:1599:G:C2     | 2.42                     | 0.55              |
| 1:D1:1595:A:H2    | 1:D1:1598:C:OP2    | 1.90                     | 0.55              |
| 1:D1:1701:A:H5''  | 12:DM:99:SER:HB2   | 1.88                     | 0.55              |
| 1:D1:1901:C:H5'   | 1:D1:1902:C:C5     | 2.42                     | 0.55              |
| 1:D1:1920:A:P     | 50:D1:4600:HOH:O   | 2.50                     | 0.55              |
| 1:D1:2369:C:H5'   | 50:D1:4019:HOH:O   | 2.07                     | 0.55              |
| 2:DA:26:THR:HB    | 2:DA:34:CYS:SG     | 2.47                     | 0.55              |
| 8:DH:9:VAL:HG12   | 8:DH:10:ALA:O      | 2.07                     | 0.55              |
| 16:DQ:29:GLN:O    | 16:DQ:31:LYS:HD3   | 2.07                     | 0.55              |
| 18:DU:44:VAL:HG12 | 18:DU:47:ARG:HG3   | 1.88                     | 0.55              |
| 20:E2:137:G:H21   | 33:EL:112:GLU:CG   | 2.19                     | 0.55              |
| 21:E3:33:U:C6     | 34:EM:212:TYR:HE1  | 2.24                     | 0.55              |
| 22:EA:33:TYR:N    | 22:EA:164:ARG:NH2  | 2.52                     | 0.55              |
| 23:EB:86:ILE:CD1  | 23:EB:158:VAL:HG11 | 2.36                     | 0.55              |
| 24:EC:65:MET:HE1  | 24:EC:97:PHE:HB2   | 1.85                     | 0.55              |
| 24:EC:148:ARG:HE  | 24:EC:187:ARG:HD2  | 1.71                     | 0.55              |
| 24:EC:302:ASN:OD1 | 43:EV:11:LYS:NZ    | 2.37                     | 0.55              |
| 29:EH:20:SER:H    | 29:EH:23:ASN:HB2   | 1.71                     | 0.55              |
| 30:EI:184:PRO:HA  | 30:EI:187:LYS:CD   | 2.36                     | 0.55              |
| 38:EQ:25:ARG:HG3  | 38:EQ:143:ASN:ND2  | 2.22                     | 0.55              |
| 1:F1:118:A:C4'    | 1:F1:119:A:O5'     | 2.46                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:122:U:O2      | 1:F1:149:U:H1'     | 2.05                     | 0.55              |
| 1:F1:596:A:H2'     | 1:F1:597:A:C8      | 2.41                     | 0.55              |
| 1:F1:611:A:O2'     | 1:F1:612:C:H5'     | 2.06                     | 0.55              |
| 1:F1:795:G:O2'     | 1:F1:796:A:H8      | 1.75                     | 0.55              |
| 1:F1:1004:U:H4'    | 1:F1:1005:A:OP1    | 2.06                     | 0.55              |
| 1:F1:1010:G:H4'    | 1:F1:1011:U:OP2    | 2.06                     | 0.55              |
| 1:F1:1752:G:H2'    | 7:FG:85:HIS:NE2    | 2.20                     | 0.55              |
| 1:F1:1853:G:H5''   | 1:F1:1854:U:H5'    | 1.87                     | 0.55              |
| 1:F1:2106:G:C2'    | 1:F1:2107:A:OP1    | 2.54                     | 0.55              |
| 1:F1:2132:U:H2'    | 1:F1:2138:A:H62    | 1.71                     | 0.55              |
| 1:F1:3182:A:C4'    | 1:F1:3183:A:OP1    | 2.46                     | 0.55              |
| 1:F1:3183:A:HO2'   | 1:F1:3184:A:P      | 2.29                     | 0.55              |
| 8:FH:9:VAL:CG1     | 8:FH:10:ALA:N      | 2.70                     | 0.55              |
| 9:FJ:161:VAL:CG1   | 9:FJ:162:HIS:N     | 2.69                     | 0.55              |
| 14:FO:15:PHE:O     | 14:FO:26:THR:N     | 2.39                     | 0.55              |
| 15:FP:32:TYR:CE2   | 15:FP:75:ILE:HD12  | 2.42                     | 0.55              |
| 21:G3:59:C:H2'     | 21:G3:60:C:H6      | 1.70                     | 0.55              |
| 22:GA:203:VAL:CG1  | 22:GA:218:GLN:HG2  | 2.37                     | 0.55              |
| 24:GC:169:THR:OG1  | 1:H1:209:A:H2'     | 2.06                     | 0.55              |
| 24:GC:289:LEU:HD12 | 35:GN:24:ASN:ND2   | 2.22                     | 0.55              |
| 24:GC:295:ILE:HG22 | 24:GC:299:ILE:HG13 | 1.88                     | 0.55              |
| 24:GC:328:ASN:OD1  | 24:GC:329:ALA:N    | 2.40                     | 0.55              |
| 25:GD:133:ARG:HB3  | 25:GD:134:PRO:CD   | 2.24                     | 0.55              |
| 29:GH:208:ARG:HG3  | 29:GH:209:LEU:H    | 1.71                     | 0.55              |
| 30:GI:35:VAL:HG12  | 30:GI:36:ARG:N     | 2.20                     | 0.55              |
| 43:GV:88:GLY:HA3   | 1:H1:1185:A:H5''   | 1.89                     | 0.55              |
| 1:H1:439:A:H5''    | 5:HE:126:HIS:HD1   | 1.67                     | 0.55              |
| 1:H1:582:A:C2'     | 1:H1:583:G:H5'     | 2.37                     | 0.55              |
| 1:H1:1595:A:H1'    | 1:H1:1599:G:C2     | 2.42                     | 0.55              |
| 1:H1:1637:A:O3'    | 15:HP:2:PRO:HG3    | 2.07                     | 0.55              |
| 1:H1:1737:A:O2'    | 1:H1:1738:A:H8     | 1.86                     | 0.55              |
| 1:H1:2193:A:O2'    | 1:H1:2264:U:N3     | 2.39                     | 0.55              |
| 1:H1:2348:G:C5     | 1:H1:2349:C:C5     | 2.95                     | 0.55              |
| 1:H1:2727:A:O4'    | 17:HT:37:PRO:HD2   | 2.06                     | 0.55              |
| 1:H1:3176:A:C4'    | 1:H1:3177:G:O5'    | 2.55                     | 0.55              |
| 1:H1:3177:G:C8     | 1:H1:3177:G:H5''   | 2.42                     | 0.55              |
| 2:HA:26:THR:HB     | 2:HA:34:CYS:SG     | 2.45                     | 0.55              |
| 19:HX:16:MET:HG2   | 19:HX:17:LYS:N     | 2.21                     | 0.55              |
| 1:A1:77:A:C2       | 1:A1:324:A:C2      | 2.94                     | 0.55              |
| 1:A1:113:A:H2'     | 1:A1:114:A:OP1     | 2.07                     | 0.55              |
| 1:A1:185:A:H2      | 1:A1:233:G:H22     | 1.53                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:430:G:H2'     | 1:A1:431:A:H8      | 1.72                     | 0.55              |
| 1:A1:444:A:H2      | 1:A1:533:G:N2      | 2.00                     | 0.55              |
| 1:A1:624:G:O2'     | 1:A1:625:C:O4'     | 2.24                     | 0.55              |
| 1:A1:768:A:H4'     | 35:BN:142:ALA:O    | 2.07                     | 0.55              |
| 1:A1:1024:A:O2'    | 1:A1:1025:G:H5'    | 2.07                     | 0.55              |
| 1:A1:1162:A:O5'    | 1:A1:2631:A:H1'    | 2.07                     | 0.55              |
| 1:A1:1228:C:O2     | 1:A1:1228:C:H2'    | 2.06                     | 0.55              |
| 1:A1:1548:U:O4     | 39:BR:124:ILE:HD11 | 2.07                     | 0.55              |
| 1:A1:1549:U:C4     | 39:BR:83:LYS:NZ    | 2.73                     | 0.55              |
| 1:A1:2416:U:OP1    | 4:AC:57:ARG:NH2    | 2.36                     | 0.55              |
| 1:A1:3080:A:N3     | 1:A1:3082:C:O2'    | 2.38                     | 0.55              |
| 1:A1:3155:A:C5     | 8:AH:102:SER:HB3   | 2.42                     | 0.55              |
| 2:AA:64:ARG:NH1    | 20:B2:60:C:C4      | 2.75                     | 0.55              |
| 3:AB:4:ASN:ND2     | 3:AB:4:ASN:H       | 2.03                     | 0.55              |
| 4:AC:21:HIS:HA     | 4:AC:71:ASP:O      | 2.07                     | 0.55              |
| 6:AF:8:GLN:NE2     | 6:AF:11:ARG:HH11   | 2.03                     | 0.55              |
| 11:AL:9:ARG:HG3    | 11:AL:34:TYR:CE2   | 2.42                     | 0.55              |
| 16:AQ:46:ARG:HA    | 33:BL:13:LYS:NZ    | 2.20                     | 0.55              |
| 20:B2:10:U:H2'     | 20:B2:11:C:C6      | 2.42                     | 0.55              |
| 22:BA:31:ARG:NH1   | 22:BA:42:ILE:HG13  | 2.21                     | 0.55              |
| 22:BA:33:TYR:HA    | 22:BA:164:ARG:HH21 | 1.70                     | 0.55              |
| 22:BA:113:VAL:CG1  | 22:BA:134:TYR:HB2  | 2.36                     | 0.55              |
| 23:BB:280:VAL:HG13 | 23:BB:320:ILE:HG23 | 1.88                     | 0.55              |
| 30:BI:81:ARG:HG3   | 30:BI:81:ARG:HH11  | 1.72                     | 0.55              |
| 34:BM:81:TYR:O     | 34:BM:84:LYS:HB2   | 2.06                     | 0.55              |
| 38:BQ:117:GLN:HA   | 38:BQ:117:GLN:OE1  | 2.05                     | 0.55              |
| 40:BS:34:LEU:HD23  | 40:BS:105:LEU:HB2  | 1.88                     | 0.55              |
| 20:C2:38:C:H4'     | 2:DA:71:ILE:CD1    | 2.37                     | 0.55              |
| 24:CC:105:ARG:NE   | 1:D1:958:A:C6      | 2.75                     | 0.55              |
| 24:CC:139:VAL:N    | 24:CC:140:PRO:HD2  | 2.22                     | 0.55              |
| 24:CC:195:ARG:NH2  | 1:D1:1409:C:P      | 2.79                     | 0.55              |
| 27:CF:197:ARG:O    | 27:CF:198:ASN:C    | 2.50                     | 0.55              |
| 29:CH:48:TYR:HE2   | 29:CH:142:GLU:HG3  | 1.70                     | 0.55              |
| 31:CJ:32:ASN:HD21  | 31:CJ:117:GLN:H    | 1.53                     | 0.55              |
| 34:CM:177:GLU:HA   | 34:CM:180:PHE:CD2  | 2.35                     | 0.55              |
| 35:CN:64:SER:HA    | 35:CN:88:THR:O     | 2.06                     | 0.55              |
| 38:CQ:25:ARG:HG3   | 38:CQ:143:ASN:HD21 | 1.72                     | 0.55              |
| 38:CQ:27:HIS:HE1   | 1:D1:2350:G:OP2    | 1.90                     | 0.55              |
| 41:CT:48:ALA:HB1   | 41:CT:54:THR:HG21  | 1.88                     | 0.55              |
| 43:CV:41:TRP:CD1   | 43:CV:177:CYS:SG   | 3.00                     | 0.55              |
| 43:CV:60:VAL:HG13  | 43:CV:63:LYS:HZ1   | 1.72                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:CV:103:PHE:C    | 43:CV:104:ARG:HG2  | 2.31                     | 0.55              |
| 46:CY:88:LYS:HG3   | 46:CY:92:GLU:OE2   | 2.06                     | 0.55              |
| 1:D1:292:C:H6      | 1:D1:292:C:H5'     | 1.71                     | 0.55              |
| 1:D1:581:C:H2'     | 1:D1:582:A:C5'     | 2.37                     | 0.55              |
| 1:D1:772:U:C2'     | 1:D1:773:C:H5'     | 2.36                     | 0.55              |
| 1:D1:1803:U:H2'    | 1:D1:1804:G:C8     | 2.41                     | 0.55              |
| 1:D1:2252:C:H6     | 1:D1:2252:C:H3'    | 1.71                     | 0.55              |
| 2:DA:25:ALA:HB1    | 3:DB:52:TYR:HD2    | 1.71                     | 0.55              |
| 5:DE:153:GLN:O     | 5:DE:156:VAL:N     | 2.39                     | 0.55              |
| 20:E2:39:G:N2      | 42:EU:90:ARG:HH12  | 2.04                     | 0.55              |
| 20:E2:99:U:H5''    | 20:E2:100:C:OP2    | 2.07                     | 0.55              |
| 24:EC:295:ILE:HG22 | 24:EC:299:ILE:HG13 | 1.88                     | 0.55              |
| 27:EF:196:VAL:HG21 | 27:EF:204:LEU:HD21 | 1.89                     | 0.55              |
| 27:EF:212:LYS:HG2  | 27:EF:216:ASN:HD22 | 1.70                     | 0.55              |
| 29:EH:130:ASP:O    | 29:EH:133:SER:OG   | 2.24                     | 0.55              |
| 30:EI:26:LEU:HD11  | 30:EI:101:LEU:HB2  | 1.89                     | 0.55              |
| 35:EN:81:ILE:O     | 35:EN:102:CYS:N    | 2.30                     | 0.55              |
| 38:EQ:59:CYS:HB3   | 38:EQ:74:GLN:HB2   | 1.87                     | 0.55              |
| 46:EY:22:LEU:O     | 46:EY:26:VAL:HG23  | 2.07                     | 0.55              |
| 1:F1:1034:U:C2     | 1:F1:1069:C:C2     | 2.95                     | 0.55              |
| 1:F1:1598:C:C4     | 1:F1:1599:G:C4     | 2.94                     | 0.55              |
| 1:F1:2640:G:O2'    | 1:F1:2784:G:N1     | 2.39                     | 0.55              |
| 1:F1:2669:A:H3'    | 1:F1:2670:U:C6     | 2.42                     | 0.55              |
| 1:F1:2814:U:H2'    | 1:F1:2815:U:H5'    | 1.88                     | 0.55              |
| 1:F1:3055:U:H2'    | 1:F1:3056:C:H6     | 1.72                     | 0.55              |
| 1:F1:3109:C:C3'    | 10:FK:111:ARG:HH12 | 2.14                     | 0.55              |
| 2:FA:21:ARG:HB2    | 2:FA:39:TYR:CD1    | 2.42                     | 0.55              |
| 3:FB:7:LEU:O       | 3:FB:8:ASN:C       | 2.48                     | 0.55              |
| 7:FG:27:TYR:HD2    | 7:FG:52:ARG:HD3    | 1.70                     | 0.55              |
| 12:FM:32:ILE:CG2   | 12:FM:60:ASN:HB2   | 2.37                     | 0.55              |
| 20:G2:140:U:H5''   | 20:G2:140:U:H6     | 1.72                     | 0.55              |
| 21:G3:81:A:C2'     | 21:G3:82:G:C5'     | 2.84                     | 0.55              |
| 22:GA:205:MET:HE3  | 1:H1:939:A:C2      | 2.42                     | 0.55              |
| 23:GB:56:ILE:CD1   | 23:GB:76:VAL:HG21  | 2.36                     | 0.55              |
| 24:GC:272:THR:CG2  | 24:GC:273:TYR:H    | 2.20                     | 0.55              |
| 29:GH:190:LEU:HD22 | 29:GH:197:VAL:HG11 | 1.89                     | 0.55              |
| 33:GL:14:LYS:HZ1   | 1:H1:268:G:C5'     | 2.20                     | 0.55              |
| 35:GN:89:ASN:OD1   | 35:GN:90:ASP:N     | 2.39                     | 0.55              |
| 40:GS:79:ILE:HD11  | 40:GS:100:ALA:HB2  | 1.89                     | 0.55              |
| 42:GU:74:PHE:CB    | 42:GU:80:LYS:HE3   | 2.36                     | 0.55              |
| 46:GY:74:PRO:N     | 46:GY:75:PRO:HD2   | 2.22                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:37:A:H5'      | 1:H1:38:A:OP2      | 2.07                     | 0.55              |
| 1:H1:70:C:C6       | 1:H1:72:A:H1'      | 2.42                     | 0.55              |
| 1:H1:513:G:H2'     | 1:H1:514:U:C6      | 2.42                     | 0.55              |
| 1:H1:579:G:H1      | 19:HX:109:ARG:HH22 | 1.55                     | 0.55              |
| 1:H1:1576:C:O2'    | 1:H1:1577:C:H5'    | 2.07                     | 0.55              |
| 1:H1:3237:C:N3     | 8:HH:7:SER:OG      | 2.39                     | 0.55              |
| 5:HE:135:THR:HB    | 5:HE:137:GLU:HG2   | 1.89                     | 0.55              |
| 5:HE:153:GLN:O     | 5:HE:156:VAL:N     | 2.40                     | 0.55              |
| 6:HF:111:VAL:O     | 6:HF:115:LYS:HG3   | 2.07                     | 0.55              |
| 9:HJ:39:GLU:CB     | 9:HJ:43:VAL:HG23   | 2.36                     | 0.55              |
| 1:A1:119:A:H2'     | 27:BF:100:LYS:HZ1  | 1.72                     | 0.55              |
| 1:A1:532:G:OP1     | 5:AE:127:LYS:NZ    | 2.40                     | 0.55              |
| 1:A1:784:G:H1'     | 1:A1:796:A:H61     | 1.72                     | 0.55              |
| 1:A1:986:C:H4'     | 1:A1:987:A:OP2     | 2.06                     | 0.55              |
| 1:A1:2177:A:H2'    | 1:A1:2178:A:C5'    | 2.37                     | 0.55              |
| 1:A1:2876:U:O4     | 1:A1:2898:A:H2'    | 2.07                     | 0.55              |
| 1:A1:2954:G:OP1    | 50:A1:4182:HOH:O   | 2.18                     | 0.55              |
| 1:A1:3143:A:C2     | 1:A1:3250:A:C2     | 2.94                     | 0.55              |
| 1:A1:3226:A:C2     | 5:AE:83:ASN:O      | 2.60                     | 0.55              |
| 2:AA:16:HIS:HA     | 2:AA:27:TYR:O      | 2.05                     | 0.55              |
| 4:AC:77:THR:HG22   | 4:AC:78:LYS:N      | 2.22                     | 0.55              |
| 9:AJ:43:VAL:HG12   | 9:AJ:44:PRO:HD3    | 1.88                     | 0.55              |
| 9:AJ:201:ASP:O     | 9:AJ:224:LEU:CD2   | 2.55                     | 0.55              |
| 11:AL:5:ILE:CD1    | 11:AL:22:LYS:HG2   | 2.35                     | 0.55              |
| 14:AO:62:LEU:HD11  | 14:AO:97:ARG:CG    | 2.36                     | 0.55              |
| 17:AT:32:THR:CG2   | 17:AT:40:LEU:HD21  | 2.35                     | 0.55              |
| 19:AX:88:THR:HG22  | 19:AX:143:LEU:HD12 | 1.88                     | 0.55              |
| 19:AX:167:LYS:HA   | 19:AX:188:THR:HG22 | 1.89                     | 0.55              |
| 21:B3:10:C:C6      | 34:BM:20:TYR:HE1   | 2.24                     | 0.55              |
| 24:BC:203:ASN:HD21 | 40:BS:10:ALA:HA    | 1.72                     | 0.55              |
| 26:BE:45:ILE:HG23  | 26:BE:55:LEU:HD21  | 1.89                     | 0.55              |
| 27:BF:62:GLN:NE2   | 27:BF:229:ILE:HG21 | 2.22                     | 0.55              |
| 29:BH:48:TYR:CE2   | 29:BH:142:GLU:CG   | 2.90                     | 0.55              |
| 30:BI:184:PRO:HA   | 30:BI:187:LYS:CD   | 2.37                     | 0.55              |
| 35:BN:114:ILE:CD1  | 35:BN:121:CYS:SG   | 2.92                     | 0.55              |
| 35:BN:167:VAL:CG1  | 35:BN:169:SER:O    | 2.55                     | 0.55              |
| 38:BQ:15:LYS:HB3   | 38:BQ:154:GLU:HG2  | 1.88                     | 0.55              |
| 21:C3:5:U:H2'      | 21:C3:6:C:C6       | 2.41                     | 0.55              |
| 21:C3:83:G:C5'     | 50:C3:304:HOH:O    | 2.55                     | 0.55              |
| 24:CC:191:THR:HG21 | 24:CC:209:ARG:NH1  | 2.21                     | 0.55              |
| 24:CC:251:HIS:CE1  | 14:DO:12:ASN:OD1   | 2.60                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:CE:42:SER:O     | 1:D1:3168:A:C4     | 2.60                     | 0.55              |
| 30:CI:92:PRO:HG2   | 1:D1:656:C:P       | 2.47                     | 0.55              |
| 34:CM:64:ILE:CD1   | 34:CM:109:LEU:HD22 | 2.35                     | 0.55              |
| 37:CP:150:PRO:HG2  | 19:DX:138:ILE:HA   | 1.89                     | 0.55              |
| 39:CR:147:ILE:HG23 | 42:CU:34:ILE:HD13  | 1.88                     | 0.55              |
| 40:CS:30:MET:HE3   | 40:CS:77:TRP:HE3   | 1.71                     | 0.55              |
| 44:CW:64:ARG:NH1   | 1:D1:3069:G:OP2    | 2.39                     | 0.55              |
| 1:D1:114:A:C6      | 1:D1:264:A:C6      | 2.95                     | 0.55              |
| 1:D1:790:C:HO2'    | 1:D1:791:C:H6      | 1.52                     | 0.55              |
| 1:D1:1190:U:H2'    | 1:D1:1191:G:H8     | 1.71                     | 0.55              |
| 1:D1:1446:C:C6     | 1:D1:1446:C:C5'    | 2.88                     | 0.55              |
| 1:D1:1724:U:O2'    | 1:D1:1725:A:H5'    | 2.07                     | 0.55              |
| 1:D1:2292:U:H2'    | 1:D1:2294:A:N7     | 2.21                     | 0.55              |
| 11:DL:5:ILE:CG2    | 11:DL:32:ALA:HB2   | 2.36                     | 0.55              |
| 11:DL:74:VAL:HG12  | 11:DL:75:SER:H     | 1.71                     | 0.55              |
| 13:DN:96:LEU:HD13  | 13:DN:113:THR:HG22 | 1.89                     | 0.55              |
| 20:E2:134:C:H3'    | 20:E2:134:C:C6     | 2.42                     | 0.55              |
| 22:EA:32:VAL:HA    | 22:EA:124:ARG:HH11 | 1.72                     | 0.55              |
| 33:EL:13:LYS:HZ3   | 16:FQ:46:ARG:HA    | 1.71                     | 0.55              |
| 34:EM:121:GLY:HA2  | 34:EM:130:PHE:CZ   | 2.42                     | 0.55              |
| 35:EN:45:PHE:CE1   | 35:EN:139:LEU:HD22 | 2.42                     | 0.55              |
| 35:EN:49:ILE:O     | 35:EN:53:LEU:HG    | 2.07                     | 0.55              |
| 38:EQ:8:ARG:NH1    | 38:EQ:118:HIS:HB2  | 2.03                     | 0.55              |
| 43:EV:103:PHE:C    | 43:EV:104:ARG:HG2  | 2.32                     | 0.55              |
| 43:EV:127:VAL:C    | 43:EV:129:PRO:HD2  | 2.31                     | 0.55              |
| 44:EW:33:ARG:HH22  | 1:F1:1906:G:H5''   | 1.72                     | 0.55              |
| 1:F1:37:A:H5'      | 1:F1:38:A:OP2      | 2.07                     | 0.55              |
| 1:F1:153:C:O2'     | 1:F1:154:U:H5'     | 2.07                     | 0.55              |
| 1:F1:249:G:O6      | 18:FU:126:ARG:NH1  | 2.40                     | 0.55              |
| 1:F1:488:U:C2      | 1:F1:490:A:OP2     | 2.60                     | 0.55              |
| 1:F1:527:A:HO2'    | 14:FO:88:GLN:HE21  | 1.53                     | 0.55              |
| 1:F1:619:G:HO2'    | 1:F1:620:A:H2      | 1.49                     | 0.55              |
| 1:F1:848:C:H2'     | 1:F1:849:U:C6      | 2.42                     | 0.55              |
| 1:F1:1228:C:O2     | 1:F1:1228:C:H2'    | 2.05                     | 0.55              |
| 1:F1:1490:G:N2     | 1:F1:1493:A:OP2    | 2.38                     | 0.55              |
| 13:FN:70:PRO:CD    | 13:FN:115:LYS:HG2  | 2.37                     | 0.55              |
| 19:FX:88:THR:HG22  | 19:FX:143:LEU:HD12 | 1.88                     | 0.55              |
| 22:GA:248:ARG:HA   | 22:GA:251:GLN:HE21 | 1.70                     | 0.55              |
| 28:GG:7:UNK:HB1    | 1:H1:1248:G:H1'    | 1.89                     | 0.55              |
| 30:GI:184:PRO:HA   | 30:GI:187:LYS:CD   | 2.36                     | 0.55              |
| 33:GL:80:VAL:HG11  | 33:GL:87:VAL:HA    | 1.87                     | 0.55              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:GM:122:GLN:HB2 | 34:GM:130:PHE:CD2  | 2.40                     | 0.55              |
| 38:GQ:24:LEU:HD13 | 38:GQ:92:VAL:HG11  | 1.89                     | 0.55              |
| 38:GQ:117:GLN:HA  | 38:GQ:117:GLN:OE1  | 2.06                     | 0.55              |
| 40:GS:82:GLU:HG2  | 40:GS:83:LYS:HG3   | 1.89                     | 0.55              |
| 1:H1:146:U:C4'    | 1:H1:147:U:H5'     | 2.31                     | 0.55              |
| 1:H1:167:U:H2'    | 1:H1:168:G:C8      | 2.42                     | 0.55              |
| 1:H1:1051:C:C2'   | 1:H1:1052:A:O4'    | 2.47                     | 0.55              |
| 1:H1:1411:U:C2    | 1:H1:1412:U:C5     | 2.95                     | 0.55              |
| 1:H1:1732:C:H1'   | 11:HL:54:ASN:HD21  | 1.72                     | 0.55              |
| 1:H1:2134:A:H3'   | 1:H1:2135:A:H2'    | 1.88                     | 0.55              |
| 1:H1:2416:U:OP1   | 4:HC:57:ARG:NH2    | 2.39                     | 0.55              |
| 1:H1:2882:U:H2'   | 1:H1:2883:G:C8     | 2.42                     | 0.55              |
| 3:HB:3:ALA:HB2    | 11:HL:10:ARG:NH1   | 2.21                     | 0.55              |
| 5:HE:78:GLY:H     | 5:HE:85:VAL:HG12   | 1.71                     | 0.55              |
| 8:HH:11:PRO:HG2   | 8:HH:12:THR:N      | 2.21                     | 0.55              |
| 8:HH:15:TRP:CE2   | 8:HH:105:ARG:HG2   | 2.42                     | 0.55              |
| 9:HJ:39:GLU:HA    | 9:HJ:43:VAL:HG23   | 1.89                     | 0.55              |
| 19:HX:45:ALA:CB   | 19:HX:50:HIS:HD2   | 2.20                     | 0.55              |
| 19:HX:58:ASN:HD21 | 19:HX:136:GLN:NE2  | 2.05                     | 0.55              |
| 1:A1:105:A:O2'    | 1:A1:323:A:N3      | 2.39                     | 0.55              |
| 1:A1:359:G:OP1    | 3:AB:50:LYS:NZ     | 2.38                     | 0.55              |
| 1:A1:581:C:H2'    | 1:A1:582:A:H5''    | 1.87                     | 0.55              |
| 1:A1:619:G:H8     | 1:A1:619:G:O5'     | 1.90                     | 0.55              |
| 1:A1:679:C:H5''   | 45:BX:28:ALA:HB3   | 1.89                     | 0.55              |
| 1:A1:1106:U:O2    | 1:A1:1110:U:C2     | 2.60                     | 0.55              |
| 1:A1:1375:A:O2'   | 24:BC:300:ASN:OD1  | 2.24                     | 0.55              |
| 1:A1:1752:G:H2'   | 7:AG:85:HIS:NE2    | 2.22                     | 0.55              |
| 1:A1:1853:G:H5''  | 1:A1:1854:U:H5'    | 1.89                     | 0.55              |
| 1:A1:2841:G:O2'   | 29:BH:158:LYS:O    | 2.19                     | 0.55              |
| 1:A1:2958:C:C4'   | 1:A1:2959:A:N7     | 2.66                     | 0.55              |
| 3:AB:28:ARG:CZ    | 3:AB:36:ARG:O      | 2.55                     | 0.55              |
| 9:AJ:143:ALA:C    | 9:AJ:144:ASN:ND2   | 2.55                     | 0.55              |
| 9:AJ:200:ASN:OD1  | 9:AJ:200:ASN:C     | 2.50                     | 0.55              |
| 18:AU:54:PRO:HG3  | 18:AU:72:GLY:O     | 2.07                     | 0.55              |
| 22:BA:243:ARG:CZ  | 22:BA:247:VAL:HG12 | 2.36                     | 0.55              |
| 23:BB:220:LYS:HG2 | 23:BB:329:PRO:HD3  | 1.87                     | 0.55              |
| 24:BC:14:GLU:HB3  | 24:BC:17:LYS:HG3   | 1.88                     | 0.55              |
| 25:BD:8:LYS:O     | 25:BD:11:GLU:HG3   | 2.06                     | 0.55              |
| 25:BD:12:VAL:CG2  | 25:BD:162:TRP:HD1  | 2.20                     | 0.55              |
| 25:BD:16:LYS:HB3  | 25:BD:72:ARG:HE    | 1.72                     | 0.55              |
| 25:BD:37:LEU:CD1  | 25:BD:69:VAL:HG23  | 2.37                     | 0.55              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 26:BE:1:MET:CG     | 26:BE:2:ARG:N     | 2.42                     | 0.55              |
| 26:BE:132:ILE:HG23 | 26:BE:144:LEU:CD2 | 2.37                     | 0.55              |
| 28:BG:22:UNK:O     | 28:BG:119:UNK:N   | 2.40                     | 0.55              |
| 30:BI:81:ARG:HG3   | 30:BI:81:ARG:NH1  | 2.21                     | 0.55              |
| 33:BL:179:HIS:O    | 33:BL:182:LYS:HD3 | 2.07                     | 0.55              |
| 23:CB:66:ARG:NH1   | 31:CJ:13:THR:O    | 2.39                     | 0.55              |
| 23:CB:106:TRP:HB2  | 23:CB:133:HIS:CE1 | 2.42                     | 0.55              |
| 24:CC:18:GLN:NE2   | 14:DO:70:VAL:O    | 2.32                     | 0.55              |
| 24:CC:32:PRO:HG2   | 24:CC:286:GLN:HB3 | 1.88                     | 0.55              |
| 24:CC:300:ASN:OD1  | 1:D1:1375:A:O2'   | 2.24                     | 0.55              |
| 24:CC:303:GLU:H    | 24:CC:303:GLU:CD  | 2.14                     | 0.55              |
| 25:CD:57:PHE:CD1   | 1:D1:2669:A:C6    | 2.95                     | 0.55              |
| 29:CH:15:LYS:HE3   | 1:D1:1152:U:OP1   | 2.06                     | 0.55              |
| 29:CH:208:ARG:HG3  | 29:CH:209:LEU:N   | 2.22                     | 0.55              |
| 30:CI:35:VAL:HG12  | 30:CI:36:ARG:N    | 2.21                     | 0.55              |
| 32:CK:3:SER:OG     | 1:D1:1454:A:C8    | 2.58                     | 0.55              |
| 32:CK:73:PRO:HB2   | 32:CK:109:PHE:HA  | 1.89                     | 0.55              |
| 35:CN:38:VAL:HG22  | 35:CN:47:GLN:HA   | 1.89                     | 0.55              |
| 35:CN:53:LEU:O     | 35:CN:60:LYS:NZ   | 2.40                     | 0.55              |
| 47:CO:120:TYR:HE2  | 1:D1:1744:A:OP2   | 1.90                     | 0.55              |
| 38:CQ:29:LYS:O     | 38:CQ:32:TYR:HB3  | 2.07                     | 0.55              |
| 39:CR:51:TYR:CE1   | 1:D1:16:G:OP2     | 2.60                     | 0.55              |
| 40:CS:107:LYS:O    | 40:CS:107:LYS:HG3 | 2.06                     | 0.55              |
| 1:D1:298:G:C2'     | 1:D1:299:G:H5'    | 2.36                     | 0.55              |
| 1:D1:302:G:C2      | 1:D1:2766:A:N7    | 2.75                     | 0.55              |
| 1:D1:439:A:C5'     | 5:DE:126:HIS:HB3  | 2.37                     | 0.55              |
| 1:D1:514:U:H2'     | 1:D1:515:A:C8     | 2.41                     | 0.55              |
| 1:D1:777:C:H2'     | 1:D1:778:G:C8     | 2.42                     | 0.55              |
| 1:D1:1060:C:H2'    | 1:D1:1061:G:O4'   | 2.07                     | 0.55              |
| 1:D1:1880:C:H1'    | 11:DL:7:TYR:CE1   | 2.42                     | 0.55              |
| 1:D1:1972:G:C2     | 1:D1:1973:A:N7    | 2.75                     | 0.55              |
| 3:DB:2:GLY:N       | 50:DB:103:HOH:O   | 2.39                     | 0.55              |
| 5:DE:69:LEU:HD21   | 5:DE:114:ASP:CA   | 2.37                     | 0.55              |
| 5:DE:69:LEU:HD21   | 5:DE:114:ASP:CG   | 2.31                     | 0.55              |
| 5:DE:142:GLU:HA    | 5:DE:142:GLU:OE1  | 2.05                     | 0.55              |
| 7:DG:38:THR:O      | 7:DG:40:LYS:HE2   | 2.07                     | 0.55              |
| 9:DJ:126:GLU:HG3   | 9:DJ:137:VAL:HG11 | 1.87                     | 0.55              |
| 13:DN:104:ASN:O    | 13:DN:105:ASN:HB3 | 2.06                     | 0.55              |
| 18:DU:52:LEU:HB3   | 18:DU:93:ILE:HA   | 1.87                     | 0.55              |
| 19:DX:187:THR:HG22 | 19:DX:188:THR:N   | 2.21                     | 0.55              |
| 22:EA:169:ILE:HG22 | 22:EA:170:VAL:O   | 2.07                     | 0.55              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 23:EB:170:ARG:NH2  | 1:F1:3261:U:O2'   | 2.40                     | 0.55              |
| 24:EC:32:PRO:HG2   | 24:EC:286:GLN:HB3 | 1.89                     | 0.55              |
| 26:EE:45:ILE:HG12  | 26:EE:55:LEU:HD22 | 1.89                     | 0.55              |
| 27:EF:130:ASN:HB2  | 1:F1:148:G:O6     | 2.07                     | 0.55              |
| 28:EG:97:UNK:O     | 28:EG:101:UNK:HG3 | 2.07                     | 0.55              |
| 30:EI:81:ARG:HG3   | 30:EI:81:ARG:NH1  | 2.22                     | 0.55              |
| 36:EO:114:LYS:HB3  | 36:EO:146:LYS:HZ3 | 1.71                     | 0.55              |
| 36:EO:134:ASN:ND2  | 1:F1:1971:G:H5''  | 2.22                     | 0.55              |
| 37:EP:91:VAL:CG1   | 37:EP:96:VAL:HG23 | 2.36                     | 0.55              |
| 38:EQ:57:LYS:HE2   | 1:F1:3259:U:O2'   | 2.06                     | 0.55              |
| 42:EU:98:LYS:CG    | 1:F1:242:G:OP1    | 2.54                     | 0.55              |
| 46:EY:74:PRO:N     | 46:EY:75:PRO:HD2  | 2.21                     | 0.55              |
| 1:F1:114:A:C6      | 1:F1:264:A:C6     | 2.94                     | 0.55              |
| 1:F1:433:C:H2'     | 1:F1:433:C:O2     | 2.05                     | 0.55              |
| 1:F1:582:A:C2'     | 1:F1:583:G:H5'    | 2.37                     | 0.55              |
| 1:F1:1148:U:H2'    | 1:F1:1149:U:C6    | 2.42                     | 0.55              |
| 1:F1:2100:A:C3'    | 1:F1:2101:G:H5''  | 2.36                     | 0.55              |
| 1:F1:2271:G:C5     | 1:F1:2272:C:C5    | 2.95                     | 0.55              |
| 1:F1:3055:U:H2'    | 1:F1:3056:C:C6    | 2.42                     | 0.55              |
| 1:F1:3189:G:H5''   | 50:F1:4533:HOH:O  | 2.06                     | 0.55              |
| 5:FE:173:TYR:CE2   | 6:FF:106:PHE:CA   | 2.90                     | 0.55              |
| 6:FF:30:ILE:CG2    | 19:FX:163:PHE:HE2 | 2.20                     | 0.55              |
| 21:G3:90:A:C2      | 29:GH:162:ARG:NH2 | 2.74                     | 0.55              |
| 22:GA:205:MET:HB3  | 22:GA:209:ASP:HB2 | 1.88                     | 0.55              |
| 23:GB:56:ILE:HD12  | 23:GB:76:VAL:HG21 | 1.87                     | 0.55              |
| 26:GE:171:ARG:HH22 | 1:H1:2886:G:P     | 2.30                     | 0.55              |
| 35:GN:29:LEU:HA    | 35:GN:32:LYS:HG3  | 1.89                     | 0.55              |
| 35:GN:30:LEU:HD11  | 35:GN:124:PHE:HB2 | 1.89                     | 0.55              |
| 35:GN:114:ILE:CD1  | 35:GN:121:CYS:SG  | 2.94                     | 0.55              |
| 43:GV:150:PHE:CD1  | 43:GV:159:PRO:HA  | 2.42                     | 0.55              |
| 1:H1:53:G:H5'      | 1:H1:1573:A:O2'   | 2.07                     | 0.55              |
| 1:H1:153:C:O2'     | 1:H1:154:U:H5'    | 2.07                     | 0.55              |
| 1:H1:858:G:H2'     | 1:H1:859:U:O4'    | 2.06                     | 0.55              |
| 1:H1:1106:U:O2     | 1:H1:1110:U:C2    | 2.59                     | 0.55              |
| 1:H1:1348:G:H2'    | 1:H1:1349:U:O5'   | 2.05                     | 0.55              |
| 1:H1:1519:G:N3     | 3:HB:13:PHE:CE1   | 2.74                     | 0.55              |
| 1:H1:1745:U:C2     | 1:H1:1748:U:C5    | 2.95                     | 0.55              |
| 1:H1:1828:C:H1'    | 11:HL:61:PRO:O    | 2.07                     | 0.55              |
| 1:H1:1901:C:H5'    | 1:H1:1902:C:C5    | 2.42                     | 0.55              |
| 1:H1:2324:A:H5''   | 1:H1:2324:A:C8    | 2.41                     | 0.55              |
| 1:H1:2664:C:H6     | 1:H1:2664:C:O5'   | 1.90                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2665:G:C5     | 1:H1:2669:A:N6     | 2.74                     | 0.55              |
| 2:HA:21:ARG:NH1    | 2:HA:39:TYR:HA     | 2.22                     | 0.55              |
| 9:HJ:58:ILE:HG13   | 9:HJ:62:VAL:CG2    | 2.37                     | 0.55              |
| 17:HT:12:GLN:OE1   | 17:HT:15:LYS:HD2   | 2.07                     | 0.55              |
| 1:A1:418:G:C6      | 1:A1:2378:A:O2'    | 2.59                     | 0.55              |
| 1:A1:690:U:H2'     | 1:A1:691:C:C6      | 2.42                     | 0.55              |
| 1:A1:822:U:H1'     | 18:AU:8:PRO:HB3    | 1.88                     | 0.55              |
| 1:A1:1190:U:H2'    | 1:A1:1191:G:H8     | 1.72                     | 0.55              |
| 1:A1:1375:A:H2'    | 35:BN:36:PHE:CE2   | 2.42                     | 0.55              |
| 1:A1:1431:U:H1'    | 45:BX:56:LYS:O     | 2.07                     | 0.55              |
| 1:A1:1464:U:H2'    | 1:A1:1465:U:C6     | 2.42                     | 0.55              |
| 1:A1:1576:C:O2'    | 1:A1:1577:C:H5'    | 2.07                     | 0.55              |
| 1:A1:1599:G:H2'    | 1:A1:1600:U:O4'    | 2.07                     | 0.55              |
| 1:A1:1729:U:C5     | 1:A1:1812:G:H1'    | 2.42                     | 0.55              |
| 1:A1:3259:U:HO2'   | 38:BQ:57:LYS:HE2   | 1.72                     | 0.55              |
| 5:AE:67:LYS:HB2    | 5:AE:109:THR:HG21  | 1.88                     | 0.55              |
| 11:AL:9:ARG:O      | 11:AL:10:ARG:HB2   | 2.07                     | 0.55              |
| 18:AU:164:LYS:HZ1  | 32:BK:88:THR:CG2   | 2.20                     | 0.55              |
| 24:BC:26:PRO:HG2   | 24:BC:29:PHE:CD1   | 2.42                     | 0.55              |
| 24:BC:205:ARG:HB3  | 24:BC:206:TYR:CE2  | 2.42                     | 0.55              |
| 26:BE:12:ILE:HD11  | 26:BE:53:VAL:CG2   | 2.37                     | 0.55              |
| 30:BI:10:ALA:C     | 30:BI:13:HIS:HD2   | 2.15                     | 0.55              |
| 34:BM:122:GLN:HB2  | 34:BM:130:PHE:CE2  | 2.42                     | 0.55              |
| 35:BN:98:LYS:HG3   | 35:BN:98:LYS:O     | 2.07                     | 0.55              |
| 36:BO:123:PHE:HD2  | 36:BO:138:LEU:HD11 | 1.71                     | 0.55              |
| 44:BW:4:GLN:HE21   | 44:BW:76:LYS:HZ1   | 1.54                     | 0.55              |
| 20:C2:1:A:H5''     | 20:C2:2:G:OP2      | 2.07                     | 0.55              |
| 22:CA:104:PRO:HB2  | 22:CA:106:ASN:OD1  | 2.07                     | 0.55              |
| 23:CB:245:ARG:HG3  | 1:D1:1913:G:OP2    | 2.07                     | 0.55              |
| 23:CB:253:TRP:CD2  | 1:D1:2929:A:C8     | 2.95                     | 0.55              |
| 23:CB:294:THR:HG22 | 23:CB:296:GLY:H    | 1.72                     | 0.55              |
| 25:CD:133:ARG:HB3  | 25:CD:134:PRO:CD   | 2.21                     | 0.55              |
| 32:CK:99:VAL:HB    | 18:DU:169:ILE:HD13 | 1.89                     | 0.55              |
| 37:CP:63:LYS:HD2   | 37:CP:63:LYS:N     | 2.22                     | 0.55              |
| 42:CU:14:THR:HG22  | 42:CU:15:GLU:H     | 1.72                     | 0.55              |
| 1:D1:153:C:O2'     | 1:D1:154:U:H5'     | 2.07                     | 0.55              |
| 1:D1:706:U:P       | 50:D1:4798:HOH:O   | 2.54                     | 0.55              |
| 1:D1:751:C:H6      | 1:D1:751:C:C5'     | 2.20                     | 0.55              |
| 1:D1:790:C:O2'     | 1:D1:791:C:C6      | 2.60                     | 0.55              |
| 1:D1:1249:G:HO2'   | 1:D1:1250:A:P      | 2.30                     | 0.55              |
| 1:D1:1379:G:C2     | 5:DE:22:ASP:OD2    | 2.60                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2278:G:HO2'   | 1:D1:2279:C:P      | 2.29                     | 0.55              |
| 1:D1:2634:G:H2'    | 1:D1:2635:C:C5'    | 2.37                     | 0.55              |
| 4:DC:94:ILE:HA     | 4:DC:97:ILE:HD12   | 1.88                     | 0.55              |
| 14:DO:6:TRP:CZ3    | 14:DO:40:LEU:HD12  | 2.36                     | 0.55              |
| 19:DX:42:ARG:HE    | 19:DX:44:PHE:HE1   | 1.53                     | 0.55              |
| 20:E2:107:C:C5     | 20:E2:135:A:C5     | 2.95                     | 0.55              |
| 24:EC:95:ALA:HB1   | 24:EC:101:CYS:SG   | 2.47                     | 0.55              |
| 24:EC:172:ALA:O    | 24:EC:176:LEU:HG   | 2.06                     | 0.55              |
| 25:ED:77:ARG:HH22  | 25:ED:166:GLU:CG   | 2.20                     | 0.55              |
| 42:EU:35:ALA:O     | 42:EU:36:LYS:C     | 2.50                     | 0.55              |
| 1:F1:373:A:N3      | 1:F1:375:G:H5''    | 2.22                     | 0.55              |
| 1:F1:589:C:H2'     | 1:F1:590:A:H8      | 1.72                     | 0.55              |
| 1:F1:1078:U:C6     | 1:F1:1079:A:C8     | 2.94                     | 0.55              |
| 1:F1:1497:U:H2'    | 1:F1:1498:U:H6     | 1.72                     | 0.55              |
| 1:F1:2188:U:O2'    | 1:F1:2189:G:OP2    | 2.23                     | 0.55              |
| 1:F1:2400:C:O2     | 1:F1:2807:A:N1     | 2.39                     | 0.55              |
| 1:F1:3109:C:H5''   | 10:FK:111:ARG:HH12 | 1.72                     | 0.55              |
| 1:F1:3146:G:C6     | 1:F1:3248:C:C4     | 2.95                     | 0.55              |
| 1:F1:3256:A:C2     | 1:F1:3349:U:C2     | 2.95                     | 0.55              |
| 8:FH:33:ASN:HA     | 8:FH:94:ASN:HD21   | 1.72                     | 0.55              |
| 13:FN:47:GLU:HB3   | 13:FN:69:LYS:O     | 2.07                     | 0.55              |
| 22:GA:113:VAL:CG1  | 22:GA:134:TYR:HB2  | 2.37                     | 0.55              |
| 23:GB:163:ASN:HA   | 23:GB:174:ASN:OD1  | 2.07                     | 0.55              |
| 23:GB:373:GLU:OE2  | 41:GT:16:TYR:OH    | 2.24                     | 0.55              |
| 24:GC:64:GLY:O     | 24:GC:97:PHE:HB3   | 2.06                     | 0.55              |
| 25:GD:12:VAL:HG21  | 25:GD:162:TRP:HD1  | 1.72                     | 0.55              |
| 29:GH:174:THR:HG22 | 29:GH:175:LYS:N    | 2.22                     | 0.55              |
| 31:GJ:32:ASN:ND2   | 31:GJ:117:GLN:H    | 2.04                     | 0.55              |
| 31:GJ:41:ILE:HD13  | 1:H1:2290:A:C4     | 2.42                     | 0.55              |
| 31:GJ:108:ASN:HD21 | 31:GJ:110:LYS:HB2  | 1.72                     | 0.55              |
| 32:GK:21:ARG:HD2   | 1:H1:1396:A:H5''   | 1.89                     | 0.55              |
| 33:GL:15:GLN:OE1   | 16:HQ:52:ALA:CB    | 2.55                     | 0.55              |
| 34:GM:56:THR:HB    | 34:GM:59:ARG:O     | 2.07                     | 0.55              |
| 37:GP:112:ASN:HB3  | 37:GP:128:THR:OG1  | 2.07                     | 0.55              |
| 45:GX:6:VAL:HG23   | 45:GX:92:ARG:O     | 2.06                     | 0.55              |
| 1:H1:72:A:C2       | 1:H1:73:G:C5       | 2.95                     | 0.55              |
| 1:H1:489:A:H2'     | 1:H1:490:A:C8      | 2.42                     | 0.55              |
| 1:H1:511:U:O2'     | 1:H1:512:G:H5'     | 2.07                     | 0.55              |
| 1:H1:566:U:C2'     | 1:H1:567:C:H5'     | 2.37                     | 0.55              |
| 1:H1:635:A:HO2'    | 1:H1:636:U:P       | 2.26                     | 0.55              |
| 1:H1:826:A:O3'     | 50:H1:3784:HOH:O   | 2.18                     | 0.55              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:H1:1211:A:H1'    | 1:H1:1350:G:N2    | 2.22                     | 0.55              |
| 1:H1:1226:C:H4'    | 1:H1:1227:A:OP1   | 2.04                     | 0.55              |
| 1:H1:1884:G:H2'    | 1:H1:1885:G:H5'   | 1.88                     | 0.55              |
| 1:H1:2429:U:H1'    | 1:H1:2430:G:OP2   | 2.07                     | 0.55              |
| 1:H1:2568:G:C6     | 1:H1:2569:A:N6    | 2.75                     | 0.55              |
| 1:H1:3344:U:C4'    | 1:H1:3345:A:OP2   | 2.54                     | 0.55              |
| 3:HB:7:LEU:O       | 3:HB:8:ASN:C      | 2.50                     | 0.55              |
| 6:HF:13:VAL:HG13   | 6:HF:53:VAL:HG13  | 1.89                     | 0.55              |
| 8:HH:18:ALA:HB2    | 8:HH:39:LEU:CD2   | 2.37                     | 0.55              |
| 13:HN:70:PRO:HD2   | 13:HN:115:LYS:HG2 | 1.89                     | 0.55              |
| 16:HQ:6:ALA:O      | 16:HQ:7:VAL:CB    | 2.55                     | 0.55              |
| 1:A1:358:C:C4'     | 1:A1:842:A:N6     | 2.69                     | 0.54              |
| 1:A1:373:A:N3      | 1:A1:375:G:H5''   | 2.23                     | 0.54              |
| 1:A1:752:C:H4'     | 1:A1:1002:A:C4    | 2.41                     | 0.54              |
| 1:A1:1044:G:C2'    | 1:A1:1045:G:H5'   | 2.37                     | 0.54              |
| 1:A1:1596:U:H4'    | 1:A1:1597:U:OP1   | 2.05                     | 0.54              |
| 1:A1:2359:G:H22    | 1:A1:2391:G:H1'   | 1.71                     | 0.54              |
| 1:A1:3081:C:O2'    | 1:A1:3083:A:OP2   | 2.10                     | 0.54              |
| 1:A1:3310:U:H4'    | 1:A1:3311:U:OP2   | 2.01                     | 0.54              |
| 5:AE:15:ILE:HA     | 5:AE:18:TRP:CE2   | 2.42                     | 0.54              |
| 5:AE:54:LEU:HB2    | 5:AE:94:TYR:O     | 2.06                     | 0.54              |
| 5:AE:85:VAL:HG12   | 5:AE:85:VAL:O     | 2.06                     | 0.54              |
| 6:AF:106:PHE:HD2   | 6:AF:110:ARG:NE   | 2.01                     | 0.54              |
| 12:AM:38:PHE:CG    | 12:AM:85:TYR:HD1  | 2.25                     | 0.54              |
| 21:B3:10:C:C4      | 34:BM:20:TYR:CD1  | 2.94                     | 0.54              |
| 21:B3:64:A:HO2'    | 29:BH:205:PRO:HG3 | 1.69                     | 0.54              |
| 24:BC:32:PRO:HG2   | 24:BC:286:GLN:HB3 | 1.89                     | 0.54              |
| 24:BC:338:LYS:O    | 24:BC:341:LYS:HB2 | 2.07                     | 0.54              |
| 33:BL:26:ARG:CZ    | 33:BL:43:SER:OG   | 2.55                     | 0.54              |
| 34:BM:155:THR:OG1  | 34:BM:179:ARG:HD3 | 2.07                     | 0.54              |
| 35:BN:13:LYS:HE2   | 35:BN:15:SER:HB3  | 1.89                     | 0.54              |
| 20:C2:45:G:C2'     | 20:C2:46:A:H5'    | 2.37                     | 0.54              |
| 22:CA:30:TYR:OH    | 22:CA:166:THR:OG1 | 2.25                     | 0.54              |
| 23:CB:303:ILE:CD1  | 23:CB:319:PHE:CE1 | 2.90                     | 0.54              |
| 24:CC:195:ARG:NH1  | 24:CC:204:ARG:HB3 | 2.21                     | 0.54              |
| 24:CC:229:ASN:HD21 | 1:D1:211:A:C3'    | 2.20                     | 0.54              |
| 29:CH:47:PRO:HD2   | 29:CH:141:LYS:HD3 | 1.89                     | 0.54              |
| 47:CO:86:ASN:OD1   | 47:CO:90:PRO:HA   | 2.07                     | 0.54              |
| 43:CV:41:TRP:CG    | 43:CV:177:CYS:HG  | 2.25                     | 0.54              |
| 1:D1:70:C:C6       | 1:D1:72:A:H1'     | 2.42                     | 0.54              |
| 1:D1:978:G:H1'     | 1:D1:1142:G:H5''  | 1.89                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:1148:U:H2'   | 1:D1:1149:U:C6     | 2.42                     | 0.54              |
| 1:D1:1600:U:C2'   | 1:D1:1601:U:H5'    | 2.37                     | 0.54              |
| 1:D1:1932:A:OP2   | 50:D1:4206:HOH:O   | 2.17                     | 0.54              |
| 1:D1:2388:G:O2'   | 1:D1:2389:G:OP2    | 2.22                     | 0.54              |
| 5:DE:164:VAL:HG13 | 5:DE:170:LEU:HG    | 1.89                     | 0.54              |
| 22:EA:16:VAL:HG21 | 1:F1:936:C:H5''    | 1.87                     | 0.54              |
| 23:EB:26:ARG:HD2  | 23:EB:177:LEU:HD21 | 1.89                     | 0.54              |
| 23:EB:220:LYS:HG2 | 23:EB:329:PRO:HD3  | 1.88                     | 0.54              |
| 24:EC:161:ASP:OD1 | 24:EC:260:GLU:HB2  | 2.07                     | 0.54              |
| 30:EI:20:SER:HB3  | 30:EI:86:MET:HE1   | 1.89                     | 0.54              |
| 32:EK:100:PRO:HA  | 18:FU:164:LYS:CD   | 2.37                     | 0.54              |
| 32:EK:117:ARG:NH1 | 32:EK:137:ARG:CZ   | 2.69                     | 0.54              |
| 34:EM:163:LEU:CD1 | 34:EM:173:ILE:HG21 | 2.37                     | 0.54              |
| 38:EQ:29:LYS:O    | 38:EQ:32:TYR:HB3   | 2.07                     | 0.54              |
| 46:EY:33:GLN:HG3  | 46:EY:34:HIS:CD2   | 2.43                     | 0.54              |
| 1:F1:155:A:H5''   | 1:F1:156:A:C8      | 2.43                     | 0.54              |
| 1:F1:281:G:C4'    | 1:F1:282:G:C8      | 2.89                     | 0.54              |
| 1:F1:430:G:H2'    | 1:F1:431:A:H8      | 1.72                     | 0.54              |
| 1:F1:528:C:OP1    | 5:FE:15:ILE:HG12   | 2.08                     | 0.54              |
| 1:F1:790:C:O2'    | 1:F1:791:C:C6      | 2.60                     | 0.54              |
| 1:F1:926:A:H2'    | 1:F1:927:G:C8      | 2.42                     | 0.54              |
| 1:F1:1005:A:O2'   | 1:F1:1006:C:H5'    | 2.06                     | 0.54              |
| 1:F1:1062:A:C5    | 1:F1:1063:C:C5     | 2.95                     | 0.54              |
| 1:F1:1187:C:OP1   | 1:F1:1359:A:H5''   | 2.06                     | 0.54              |
| 1:F1:1592:G:C6    | 1:F1:1593:A:C6     | 2.95                     | 0.54              |
| 1:F1:1715:U:H2'   | 1:F1:1716:U:H6     | 1.72                     | 0.54              |
| 1:F1:1819:C:H4'   | 1:F1:1820:U:OP2    | 2.07                     | 0.54              |
| 1:F1:2264:U:H2'   | 1:F1:2265:A:O5'    | 2.07                     | 0.54              |
| 1:F1:2862:G:HO2'  | 1:F1:2863:U:H6     | 1.51                     | 0.54              |
| 1:F1:3110:U:C4    | 1:F1:3113:G:O6     | 2.61                     | 0.54              |
| 1:F1:3232:A:H4'   | 5:FE:55:ALA:CB     | 2.37                     | 0.54              |
| 1:F1:3266:G:C2'   | 1:F1:3267:A:H5''   | 2.37                     | 0.54              |
| 9:FJ:224:LEU:O    | 9:FJ:225:ASN:HB3   | 2.07                     | 0.54              |
| 10:FK:120:SER:O   | 10:FK:121:LEU:HD23 | 2.07                     | 0.54              |
| 14:FO:114:PHE:O   | 14:FO:117:ALA:HB3  | 2.08                     | 0.54              |
| 19:FX:110:ASP:OD1 | 19:FX:111:VAL:N    | 2.35                     | 0.54              |
| 20:G2:111:A:H4'   | 20:G2:112:G:OP1    | 2.07                     | 0.54              |
| 21:G3:1:G:H4'     | 34:GM:275:LYS:CE   | 2.36                     | 0.54              |
| 23:GB:28:ARG:H    | 23:GB:272:HIS:CE1  | 2.24                     | 0.54              |
| 23:GB:170:ARG:NH1 | 1:H1:3273:U:O2     | 2.40                     | 0.54              |
| 25:GD:162:TRP:CZ3 | 25:GD:167:PHE:HE2  | 2.25                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 32:GK:98:LYS:HD2  | 18:HU:164:LYS:O   | 2.05                     | 0.54              |
| 32:GK:117:ARG:NH1 | 32:GK:137:ARG:CZ  | 2.70                     | 0.54              |
| 33:GL:80:VAL:CG1  | 33:GL:87:VAL:HG13 | 2.34                     | 0.54              |
| 33:GL:139:HIS:CD2 | 33:GL:141:ALA:HB3 | 2.43                     | 0.54              |
| 35:GN:98:LYS:HG3  | 35:GN:98:LYS:O    | 2.07                     | 0.54              |
| 45:GX:57:ILE:CG1  | 1:H1:972:U:H5''   | 2.29                     | 0.54              |
| 1:H1:101:G:C8     | 50:H1:3650:HOH:O  | 2.53                     | 0.54              |
| 1:H1:426:A:H4'    | 8:HH:94:ASN:O     | 2.06                     | 0.54              |
| 1:H1:837:G:N3     | 2:HA:50:TRP:NE1   | 2.52                     | 0.54              |
| 1:H1:1005:A:O2'   | 1:H1:1006:C:H5'   | 2.06                     | 0.54              |
| 1:H1:1191:G:H5''  | 8:HH:33:ASN:ND2   | 2.21                     | 0.54              |
| 1:H1:1321:A:OP1   | 19:HX:99:THR:HG21 | 2.07                     | 0.54              |
| 1:H1:1517:G:OP2   | 50:H1:4125:HOH:O  | 2.18                     | 0.54              |
| 1:H1:1740:U:O3'   | 1:H1:1741:U:H4'   | 2.07                     | 0.54              |
| 1:H1:1807:C:H2'   | 1:H1:1808:A:C8    | 2.43                     | 0.54              |
| 1:H1:1845:U:C4'   | 1:H1:1846:C:OP2   | 2.55                     | 0.54              |
| 1:H1:1973:A:H2'   | 1:H1:1974:U:C6    | 2.42                     | 0.54              |
| 1:H1:2227:A:H1'   | 1:H1:2423:U:O2'   | 2.07                     | 0.54              |
| 1:H1:2400:C:H5'   | 1:H1:2400:C:H6    | 1.71                     | 0.54              |
| 1:H1:2539:A:C2    | 1:H1:2540:G:C5    | 2.96                     | 0.54              |
| 1:H1:2632:A:H2'   | 1:H1:2634:G:OP1   | 2.06                     | 0.54              |
| 1:H1:3240:A:H2'   | 1:H1:3241:U:O4'   | 2.07                     | 0.54              |
| 1:H1:3266:G:O2'   | 1:H1:3268:C:OP2   | 2.21                     | 0.54              |
| 5:HE:173:TYR:CD2  | 6:HF:106:PHE:HA   | 2.42                     | 0.54              |
| 8:HH:9:VAL:HG12   | 8:HH:10:ALA:O     | 2.07                     | 0.54              |
| 8:HH:84:ASN:O     | 8:HH:86:VAL:N     | 2.39                     | 0.54              |
| 17:HT:17:HIS:CE1  | 17:HT:21:ILE:HD11 | 2.42                     | 0.54              |
| 1:A1:114:A:H4'    | 16:AQ:37:ARG:NH2  | 2.14                     | 0.54              |
| 1:A1:370:G:N2     | 1:A1:373:A:C8     | 2.75                     | 0.54              |
| 1:A1:701:A:H4'    | 1:A1:702:G:O5'    | 2.06                     | 0.54              |
| 1:A1:832:A:H61    | 1:A1:959:G:H22    | 1.56                     | 0.54              |
| 1:A1:899:U:OP2    | 23:BB:239:LYS:HG3 | 2.07                     | 0.54              |
| 1:A1:927:G:C5     | 1:A1:928:U:C5     | 2.95                     | 0.54              |
| 1:A1:1055:A:H2'   | 1:A1:1056:A:H8    | 1.72                     | 0.54              |
| 1:A1:1454:A:C8    | 32:BK:3:SER:OG    | 2.59                     | 0.54              |
| 1:A1:2107:A:O2'   | 41:BT:44:ARG:NH2  | 2.40                     | 0.54              |
| 1:A1:2384:C:O2'   | 1:A1:2385:A:H5'   | 2.06                     | 0.54              |
| 1:A1:2517:G:O6    | 22:BA:71:LYS:CE   | 2.54                     | 0.54              |
| 1:A1:2537:C:H2'   | 1:A1:2538:C:C6    | 2.42                     | 0.54              |
| 1:A1:3158:G:H5'   | 1:A1:3159:A:OP2   | 2.07                     | 0.54              |
| 1:A1:3177:G:C8    | 1:A1:3177:G:H5''  | 2.41                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3178:U:H5''   | 6:AF:97:LYS:HZ1    | 1.72                     | 0.54              |
| 7:AG:55:GLU:HG3    | 13:AN:81:MET:HE1   | 1.88                     | 0.54              |
| 14:AO:31:VAL:O     | 45:BX:89:MET:CE    | 2.55                     | 0.54              |
| 20:B2:111:A:H4'    | 20:B2:112:G:OP1    | 2.05                     | 0.54              |
| 24:BC:276:THR:HG21 | 24:BC:282:GLY:HA2  | 1.88                     | 0.54              |
| 25:BD:32:LYS:HD3   | 25:BD:119:SER:O    | 2.07                     | 0.54              |
| 27:BF:46:ARG:O     | 39:BR:37:PHE:HB2   | 2.07                     | 0.54              |
| 29:BH:138:VAL:HG23 | 29:BH:152:LEU:HD11 | 1.88                     | 0.54              |
| 30:BI:35:VAL:HG13  | 30:BI:106:GLY:O    | 2.08                     | 0.54              |
| 33:BL:58:GLY:O     | 33:BL:142:ILE:HD11 | 2.06                     | 0.54              |
| 38:BQ:8:ARG:HH11   | 38:BQ:118:HIS:CB   | 2.10                     | 0.54              |
| 39:BR:84:MET:HE3   | 39:BR:90:MET:HE1   | 1.89                     | 0.54              |
| 21:C3:1:G:H4'      | 34:CM:275:LYS:NZ   | 2.21                     | 0.54              |
| 22:CA:30:TYR:CB    | 22:CA:164:ARG:HH11 | 2.19                     | 0.54              |
| 22:CA:33:TYR:N     | 22:CA:164:ARG:NH2  | 2.53                     | 0.54              |
| 23:CB:259:ARG:NH1  | 1:D1:2871:U:O2'    | 2.41                     | 0.54              |
| 23:CB:280:VAL:HG13 | 23:CB:320:ILE:HG23 | 1.89                     | 0.54              |
| 24:CC:259:THR:HG22 | 24:CC:260:GLU:H    | 1.70                     | 0.54              |
| 25:CD:8:LYS:O      | 25:CD:11:GLU:HG3   | 2.07                     | 0.54              |
| 27:CF:62:GLN:NE2   | 27:CF:229:ILE:HG21 | 2.23                     | 0.54              |
| 29:CH:190:LEU:HD22 | 29:CH:197:VAL:HG11 | 1.89                     | 0.54              |
| 31:CJ:97:ILE:HG22  | 31:CJ:98:TYR:N     | 2.21                     | 0.54              |
| 32:CK:23:GLY:O     | 32:CK:24:LYS:O     | 2.25                     | 0.54              |
| 33:CL:182:LYS:HE2  | 1:D1:281:G:O6      | 2.07                     | 0.54              |
| 35:CN:173:LYS:CE   | 1:D1:87:A:OP2      | 2.56                     | 0.54              |
| 38:CQ:107:LYS:CB   | 38:CQ:109:LEU:HG   | 2.38                     | 0.54              |
| 39:CR:38:PHE:CD2   | 1:D1:1605:G:C2     | 2.95                     | 0.54              |
| 39:CR:147:ILE:CG2  | 42:CU:34:ILE:HD13  | 2.37                     | 0.54              |
| 42:CU:120:PHE:HA   | 18:DU:122:VAL:O    | 2.07                     | 0.54              |
| 43:CV:42:ILE:HG22  | 43:CV:46:GLN:NE2   | 2.22                     | 0.54              |
| 44:CW:11:THR:OG1   | 44:CW:105:THR:HG23 | 2.07                     | 0.54              |
| 1:D1:139:A:HO2'    | 1:D1:140:A:H8      | 1.54                     | 0.54              |
| 1:D1:282:G:N2      | 1:D1:304:U:H5'     | 2.21                     | 0.54              |
| 1:D1:282:G:N2      | 1:D1:304:U:C4'     | 2.62                     | 0.54              |
| 1:D1:430:G:H2'     | 1:D1:431:A:C8      | 2.42                     | 0.54              |
| 1:D1:619:G:H8      | 1:D1:619:G:O5'     | 1.90                     | 0.54              |
| 1:D1:1088:A:H5''   | 1:D1:1089:G:H5'    | 1.90                     | 0.54              |
| 1:D1:1693:U:H2'    | 1:D1:1694:C:C6     | 2.42                     | 0.54              |
| 1:D1:1919:A:O2'    | 1:D1:1920:A:C8     | 2.58                     | 0.54              |
| 1:D1:2244:G:O2'    | 1:D1:2245:G:H5'    | 2.07                     | 0.54              |
| 1:D1:2743:G:C3'    | 1:D1:2744:C:H5'    | 2.36                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:2884:A:O3'   | 10:DK:122:ARG:NH2  | 2.40                     | 0.54              |
| 1:D1:2886:G:H3'   | 1:D1:2886:G:H8     | 1.71                     | 0.54              |
| 1:D1:3104:G:H5''  | 50:D1:4400:HOH:O   | 2.07                     | 0.54              |
| 5:DE:58:PHE:CD2   | 5:DE:85:VAL:HG22   | 2.42                     | 0.54              |
| 9:DJ:186:ILE:HD11 | 9:DJ:206:CYS:HB2   | 1.89                     | 0.54              |
| 15:DP:29:LYS:HB3  | 15:DP:72:TYR:CE2   | 2.43                     | 0.54              |
| 19:DX:88:THR:O    | 19:DX:143:LEU:HB2  | 2.08                     | 0.54              |
| 20:E2:10:U:H2'    | 20:E2:11:C:H6      | 1.72                     | 0.54              |
| 20:E2:25:U:C4'    | 20:E2:26:A:OP1     | 2.54                     | 0.54              |
| 38:EQ:36:ARG:NH1  | 38:EQ:64:ARG:HG3   | 2.21                     | 0.54              |
| 43:EV:31:SER:O    | 43:EV:35:LYS:HG2   | 2.07                     | 0.54              |
| 46:EY:57:CYS:SG   | 46:EY:59:PRO:HD2   | 2.48                     | 0.54              |
| 1:F1:105:A:O2'    | 1:F1:323:A:N3      | 2.40                     | 0.54              |
| 1:F1:146:U:H5''   | 1:F1:146:U:H6      | 1.71                     | 0.54              |
| 1:F1:256:A:H4'    | 18:FU:84:SER:HB3   | 1.88                     | 0.54              |
| 1:F1:418:G:C6     | 1:F1:2378:A:O2'    | 2.58                     | 0.54              |
| 1:F1:530:C:H2'    | 1:F1:531:C:C6      | 2.41                     | 0.54              |
| 1:F1:1600:U:C2'   | 1:F1:1601:U:H5'    | 2.37                     | 0.54              |
| 1:F1:1627:A:C6    | 1:F1:1628:A:C6     | 2.96                     | 0.54              |
| 1:F1:2394:A:C8    | 50:F1:4139:HOH:O   | 2.60                     | 0.54              |
| 1:F1:2539:A:C2    | 1:F1:2540:G:C5     | 2.96                     | 0.54              |
| 1:F1:3237:C:N3    | 8:FH:7:SER:OG      | 2.40                     | 0.54              |
| 18:FU:50:GLU:O    | 18:FU:150:LEU:HD12 | 2.08                     | 0.54              |
| 19:FX:45:ALA:CB   | 19:FX:50:HIS:HD2   | 2.20                     | 0.54              |
| 20:G2:25:U:C4'    | 20:G2:26:A:OP1     | 2.53                     | 0.54              |
| 23:GB:57:LEU:HB3  | 23:GB:356:PHE:HB3  | 1.90                     | 0.54              |
| 24:GC:117:HIS:HB2 | 33:GL:202:ARG:O    | 2.06                     | 0.54              |
| 25:GD:134:PRO:HG2 | 25:GD:135:GLY:H    | 1.72                     | 0.54              |
| 28:GG:97:UNK:O    | 28:GG:101:UNK:HG3  | 2.07                     | 0.54              |
| 33:GL:102:ALA:O   | 33:GL:106:VAL:HG23 | 2.06                     | 0.54              |
| 36:GO:146:LYS:HA  | 36:GO:149:LYS:CB   | 2.37                     | 0.54              |
| 1:H1:581:C:H2'    | 1:H1:582:A:C5'     | 2.37                     | 0.54              |
| 1:H1:1035:A:H2'   | 1:H1:1036:G:C8     | 2.42                     | 0.54              |
| 1:H1:1039:G:O2'   | 1:H1:1041:C:N4     | 2.29                     | 0.54              |
| 1:H1:3071:C:C2'   | 1:H1:3072:G:H5'    | 2.37                     | 0.54              |
| 1:H1:3257:U:H2'   | 1:H1:3258:C:H6     | 1.72                     | 0.54              |
| 3:HB:33:THR:CG2   | 3:HB:35:ILE:H      | 2.06                     | 0.54              |
| 7:HG:35:ARG:HH11  | 13:HN:77:LEU:HB2   | 1.69                     | 0.54              |
| 7:HG:60:ALA:HB3   | 7:HG:67:ILE:HD11   | 1.89                     | 0.54              |
| 8:HH:70:TYR:O     | 8:HH:71:ARG:HG3    | 2.07                     | 0.54              |
| 9:HJ:140:THR:CG2  | 9:HJ:141:THR:H     | 2.15                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:HL:98:GLU:OE1   | 11:HL:98:GLU:HA    | 2.07                     | 0.54              |
| 19:HX:16:MET:HG2   | 19:HX:17:LYS:H     | 1.72                     | 0.54              |
| 1:A1:268:G:N2      | 1:A1:294:A:OP2     | 2.36                     | 0.54              |
| 1:A1:977:A:H2'     | 1:A1:978:G:H5''    | 1.89                     | 0.54              |
| 1:A1:1070:U:C2'    | 1:A1:1071:C:O5'    | 2.55                     | 0.54              |
| 1:A1:1146:C:N4     | 17:AT:10:LYS:HZ3   | 2.05                     | 0.54              |
| 1:A1:1674:C:C4'    | 22:BA:70:TYR:HD2   | 2.20                     | 0.54              |
| 1:A1:1866:A:H4'    | 1:A1:1867:C:OP2    | 2.07                     | 0.54              |
| 1:A1:2208:A:H2'    | 1:A1:2209:A:C8     | 2.42                     | 0.54              |
| 1:A1:2633:C:C2'    | 29:BH:116:ARG:O    | 2.55                     | 0.54              |
| 11:AL:74:VAL:HG12  | 11:AL:75:SER:H     | 1.71                     | 0.54              |
| 14:AO:50:LEU:HD13  | 14:AO:111:LEU:CD2  | 2.37                     | 0.54              |
| 19:AX:164:PRO:HG2  | 26:BE:58:TRP:CE2   | 2.42                     | 0.54              |
| 23:BB:46:PHE:CD1   | 23:BB:206:ILE:HD12 | 2.42                     | 0.54              |
| 24:BC:89:THR:CG2   | 24:BC:91:ARG:HB3   | 2.37                     | 0.54              |
| 24:BC:308:VAL:CG1  | 35:BN:40:ARG:NH1   | 2.66                     | 0.54              |
| 24:BC:308:VAL:HG12 | 35:BN:40:ARG:NH1   | 2.22                     | 0.54              |
| 28:BG:4:UNK:HG3    | 28:BG:6:UNK:CG     | 2.25                     | 0.54              |
| 29:BH:189:LYS:O    | 29:BH:200:ILE:HG13 | 2.07                     | 0.54              |
| 34:BM:138:GLU:OE1  | 34:BM:138:GLU:HA   | 2.06                     | 0.54              |
| 34:BM:175:HIS:CD2  | 34:BM:180:PHE:CE2  | 2.93                     | 0.54              |
| 36:BO:145:SER:OG   | 36:BO:150:ILE:HD11 | 2.05                     | 0.54              |
| 38:BQ:33:GLU:OE1   | 38:BQ:62:PHE:CA    | 2.51                     | 0.54              |
| 40:BS:15:ARG:O     | 40:BS:19:PHE:HD1   | 1.91                     | 0.54              |
| 46:BY:13:LYS:HE3   | 46:BY:14:TYR:CE2   | 2.43                     | 0.54              |
| 20:C2:114:G:C8     | 20:C2:114:G:C3'    | 2.91                     | 0.54              |
| 25:CD:157:GLU:HA   | 25:CD:160:ILE:HD12 | 1.89                     | 0.54              |
| 27:CF:152:PRO:HB2  | 27:CF:154:GLU:OE1  | 2.07                     | 0.54              |
| 29:CH:166:VAL:HG12 | 29:CH:167:THR:N    | 2.22                     | 0.54              |
| 30:CI:26:LEU:HD11  | 30:CI:101:LEU:HB2  | 1.88                     | 0.54              |
| 32:CK:21:ARG:HH12  | 45:CX:40:ILE:HG22  | 1.72                     | 0.54              |
| 33:CL:183:SER:CA   | 33:CL:191:ASN:ND2  | 2.65                     | 0.54              |
| 35:CN:36:PHE:CE2   | 1:D1:1375:A:H2'    | 2.41                     | 0.54              |
| 35:CN:73:ASN:N     | 35:CN:76:ASN:HB2   | 2.18                     | 0.54              |
| 35:CN:81:ILE:O     | 35:CN:102:CYS:N    | 2.30                     | 0.54              |
| 37:CP:17:LYS:HE3   | 37:CP:47:SER:HB3   | 1.88                     | 0.54              |
| 43:CV:173:PHE:HD1  | 43:CV:191:HIS:CE1  | 2.25                     | 0.54              |
| 44:CW:71:ARG:HD3   | 44:CW:103:LEU:HD13 | 1.89                     | 0.54              |
| 46:CY:74:PRO:N     | 46:CY:75:PRO:HD2   | 2.22                     | 0.54              |
| 1:D1:752:C:H4'     | 1:D1:1002:A:C4     | 2.43                     | 0.54              |
| 1:D1:1595:A:OP2    | 1:D1:1596:U:C5     | 2.60                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1819:C:H4'    | 1:D1:1820:U:OP2    | 2.06                     | 0.54              |
| 1:D1:2521:A:C6     | 1:D1:2522:A:C6     | 2.94                     | 0.54              |
| 1:D1:2873:C:O2'    | 1:D1:2874:U:H5'    | 2.06                     | 0.54              |
| 7:DG:57:GLU:HA     | 7:DG:67:ILE:HD11   | 1.89                     | 0.54              |
| 21:E3:63:A:H2'     | 29:EH:202:GLU:O    | 2.07                     | 0.54              |
| 22:EA:68:TYR:CD1   | 1:F1:2519:A:N6     | 2.75                     | 0.54              |
| 23:EB:162:THR:O    | 23:EB:162:THR:HG22 | 2.07                     | 0.54              |
| 25:ED:8:LYS:O      | 25:ED:11:GLU:HG3   | 2.07                     | 0.54              |
| 25:ED:162:TRP:CZ3  | 25:ED:167:PHE:HE2  | 2.25                     | 0.54              |
| 26:EE:70:SER:HB3   | 1:F1:3101:G:O2'    | 2.06                     | 0.54              |
| 27:EF:143:LEU:HD22 | 27:EF:211:PHE:CD2  | 2.42                     | 0.54              |
| 32:EK:74:VAL:CG1   | 32:EK:113:LEU:HG   | 2.37                     | 0.54              |
| 32:EK:99:VAL:O     | 18:FU:164:LYS:HB3  | 2.08                     | 0.54              |
| 33:EL:164:LEU:HD23 | 33:EL:172:ARG:HH22 | 1.72                     | 0.54              |
| 38:EQ:76:HIS:C     | 38:EQ:78:PHE:H     | 2.16                     | 0.54              |
| 45:EX:79:ARG:NH1   | 1:F1:1448:G:O4'    | 2.41                     | 0.54              |
| 1:F1:232:C:HO2'    | 1:F1:233:G:P       | 2.29                     | 0.54              |
| 1:F1:302:G:N2      | 1:F1:2766:A:C8     | 2.76                     | 0.54              |
| 1:F1:919:A:H1'     | 1:F1:920:A:C2      | 2.42                     | 0.54              |
| 1:F1:1599:G:H2'    | 1:F1:1600:U:O4'    | 2.07                     | 0.54              |
| 1:F1:1653:A:C5     | 1:F1:1839:A:N1     | 2.75                     | 0.54              |
| 1:F1:1654:G:H5'    | 13:FN:67:SER:OG    | 2.06                     | 0.54              |
| 1:F1:1752:G:C5'    | 1:F1:1753:A:H3'    | 2.34                     | 0.54              |
| 1:F1:1802:U:H2'    | 1:F1:1803:U:C6     | 2.43                     | 0.54              |
| 1:F1:1922:G:C2'    | 1:F1:1923:G:O5'    | 2.56                     | 0.54              |
| 1:F1:2277:U:O2'    | 1:F1:2278:G:OP1    | 2.23                     | 0.54              |
| 1:F1:3229:C:H2'    | 1:F1:3229:C:O2     | 2.08                     | 0.54              |
| 5:FE:126:HIS:CD2   | 5:FE:127:LYS:HG2   | 2.41                     | 0.54              |
| 9:FJ:63:THR:HA     | 9:FJ:104:LEU:HB2   | 1.89                     | 0.54              |
| 9:FJ:135:VAL:CG1   | 9:FJ:136:GLU:N     | 2.70                     | 0.54              |
| 16:FQ:61:LEU:O     | 16:FQ:69:ASP:HB3   | 2.08                     | 0.54              |
| 16:FQ:68:LYS:HE3   | 16:FQ:69:ASP:OD1   | 2.06                     | 0.54              |
| 22:GA:169:ILE:HG22 | 22:GA:170:VAL:O    | 2.08                     | 0.54              |
| 24:GC:163:VAL:HG22 | 24:GC:175:PHE:HE2  | 1.72                     | 0.54              |
| 24:GC:376:TRP:HB3  | 1:H1:564:A:HO2'    | 1.72                     | 0.54              |
| 31:GJ:75:LYS:HE2   | 1:H1:2289:U:OP2    | 2.08                     | 0.54              |
| 32:GK:42:HIS:CE1   | 1:H1:38:A:C2       | 2.96                     | 0.54              |
| 46:GY:33:GLN:HG3   | 46:GY:34:HIS:CD2   | 2.42                     | 0.54              |
| 1:H1:1803:U:H2'    | 1:H1:1804:G:C8     | 2.41                     | 0.54              |
| 1:H1:2597:G:O2'    | 1:H1:2598:A:H5'    | 2.06                     | 0.54              |
| 1:H1:2634:G:H2'    | 1:H1:2635:C:C5'    | 2.36                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2658:U:H2'    | 1:H1:2659:G:C8     | 2.43                     | 0.54              |
| 1:H1:3044:A:H5''   | 1:H1:3045:A:OP1    | 2.07                     | 0.54              |
| 6:HF:56:THR:O      | 6:HF:57:LYS:CG     | 2.44                     | 0.54              |
| 9:HJ:43:VAL:HG12   | 9:HJ:44:PRO:HD3    | 1.90                     | 0.54              |
| 15:HP:15:TRP:CZ3   | 15:HP:69:PRO:HD3   | 2.41                     | 0.54              |
| 1:A1:117:G:N2      | 27:BF:127:TYR:CZ   | 2.75                     | 0.54              |
| 1:A1:223:C:HO2'    | 1:A1:224:C:P       | 2.29                     | 0.54              |
| 1:A1:242:G:OP1     | 42:BU:98:LYS:HG2   | 2.08                     | 0.54              |
| 1:A1:564:A:O2'     | 24:BC:376:TRP:CB   | 2.54                     | 0.54              |
| 1:A1:582:A:C2'     | 1:A1:583:G:H5'     | 2.37                     | 0.54              |
| 1:A1:967:U:O4      | 32:BK:24:LYS:CD    | 2.56                     | 0.54              |
| 1:A1:1027:G:HO2'   | 1:A1:1028:A:P      | 2.31                     | 0.54              |
| 1:A1:1102:U:H2'    | 17:AT:45:ARG:HH12  | 1.72                     | 0.54              |
| 1:A1:1372:A:N3     | 24:BC:314:THR:HG21 | 2.23                     | 0.54              |
| 1:A1:1519:G:C2     | 3:AB:13:PHE:CZ     | 2.94                     | 0.54              |
| 1:A1:1595:A:H2     | 1:A1:1598:C:OP2    | 1.89                     | 0.54              |
| 1:A1:1937:G:O2'    | 1:A1:2116:A:O2'    | 2.21                     | 0.54              |
| 1:A1:2274:A:H5'    | 1:A1:2300:G:H22    | 1.73                     | 0.54              |
| 1:A1:2544:U:O4'    | 7:AG:50:THR:HG21   | 2.06                     | 0.54              |
| 1:A1:3228:U:C4     | 5:AE:146:LYS:HG3   | 2.42                     | 0.54              |
| 1:A1:3298:U:OP2    | 1:A1:3298:U:H6     | 1.89                     | 0.54              |
| 4:AC:19:THR:HG22   | 4:AC:20:ASN:O      | 2.08                     | 0.54              |
| 8:AH:9:VAL:HG12    | 8:AH:10:ALA:O      | 2.06                     | 0.54              |
| 8:AH:15:TRP:CE2    | 8:AH:105:ARG:HG2   | 2.41                     | 0.54              |
| 14:AO:7:GLU:HB3    | 35:BN:25:VAL:HG13  | 1.89                     | 0.54              |
| 18:AU:44:VAL:HG12  | 18:AU:47:ARG:HG3   | 1.89                     | 0.54              |
| 20:B2:114:G:C8     | 20:B2:114:G:C3'    | 2.91                     | 0.54              |
| 25:BD:162:TRP:CH2  | 25:BD:167:PHE:HE2  | 2.26                     | 0.54              |
| 34:BM:56:THR:HB    | 34:BM:59:ARG:O     | 2.06                     | 0.54              |
| 34:BM:122:GLN:HB2  | 34:BM:130:PHE:CD2  | 2.43                     | 0.54              |
| 36:BO:106:LEU:HB3  | 36:BO:120:TYR:HE1  | 1.73                     | 0.54              |
| 44:BW:75:CYS:O     | 44:BW:90:THR:HA    | 2.08                     | 0.54              |
| 20:C2:6:A:N1       | 1:D1:2381:A:O2'    | 2.34                     | 0.54              |
| 22:CA:20:HIS:ND1   | 1:D1:848:C:H5'     | 2.22                     | 0.54              |
| 22:CA:117:VAL:HG11 | 22:CA:149:ILE:CD1  | 2.38                     | 0.54              |
| 23:CB:381:ASP:HB3  | 23:CB:384:LYS:CB   | 2.37                     | 0.54              |
| 25:CD:28:ASP:O     | 25:CD:32:LYS:HG3   | 2.07                     | 0.54              |
| 26:CE:130:VAL:HG22 | 26:CE:152:VAL:HG22 | 1.89                     | 0.54              |
| 28:CG:22:UNK:O     | 28:CG:119:UNK:N    | 2.41                     | 0.54              |
| 29:CH:17:TYR:O     | 29:CH:96:VAL:HG23  | 2.06                     | 0.54              |
| 30:CI:109:THR:O    | 30:CI:110:PRO:C    | 2.50                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:CI:186:LEU:HD11 | 6:DF:122:SER:CB    | 2.26                     | 0.54              |
| 32:CK:49:LYS:O     | 35:CN:156:PRO:O    | 2.26                     | 0.54              |
| 32:CK:89:ARG:O     | 32:CK:121:GLN:NE2  | 2.40                     | 0.54              |
| 33:CL:177:LYS:HG2  | 33:CL:185:ARG:NH2  | 2.21                     | 0.54              |
| 35:CN:13:LYS:HE2   | 35:CN:15:SER:HB3   | 1.88                     | 0.54              |
| 47:CO:95:TRP:CH2   | 1:D1:880:U:H4'     | 2.43                     | 0.54              |
| 40:CS:57:ILE:HG22  | 40:CS:63:LYS:HA    | 1.89                     | 0.54              |
| 41:CT:27:ASP:HB2   | 41:CT:29:ARG:HG3   | 1.88                     | 0.54              |
| 1:D1:141:C:C2'     | 1:D1:142:A:H5'     | 2.37                     | 0.54              |
| 1:D1:589:C:H2'     | 1:D1:590:A:H8      | 1.73                     | 0.54              |
| 1:D1:1402:G:O2'    | 1:D1:1403:C:H5'    | 2.08                     | 0.54              |
| 1:D1:1599:G:C4     | 1:D1:1600:U:C6     | 2.96                     | 0.54              |
| 1:D1:2177:A:H2'    | 1:D1:2178:A:C5'    | 2.37                     | 0.54              |
| 1:D1:2225:C:N4     | 50:D1:4685:HOH:O   | 1.97                     | 0.54              |
| 1:D1:2384:C:O2'    | 1:D1:2385:A:H5'    | 2.08                     | 0.54              |
| 1:D1:2669:A:H4'    | 1:D1:2670:U:OP1    | 2.06                     | 0.54              |
| 1:D1:2814:U:H2'    | 1:D1:2815:U:H5'    | 1.90                     | 0.54              |
| 1:D1:3123:A:P      | 50:D1:4814:HOH:O   | 2.66                     | 0.54              |
| 1:D1:3146:G:C6     | 1:D1:3248:C:C4     | 2.96                     | 0.54              |
| 4:DC:65:LYS:HG3    | 4:DC:85:ARG:HE     | 1.73                     | 0.54              |
| 5:DE:126:HIS:CD2   | 5:DE:127:LYS:HG2   | 2.43                     | 0.54              |
| 11:DL:59:VAL:HG11  | 11:DL:63:GLU:HB3   | 1.88                     | 0.54              |
| 14:DO:62:LEU:HD11  | 14:DO:97:ARG:CD    | 2.37                     | 0.54              |
| 15:DP:53:PHE:HE1   | 15:DP:55:THR:CG2   | 2.20                     | 0.54              |
| 20:E2:111:A:H4'    | 20:E2:112:G:OP1    | 2.08                     | 0.54              |
| 22:EA:113:VAL:CG1  | 22:EA:134:TYR:HB2  | 2.37                     | 0.54              |
| 23:EB:46:PHE:CD1   | 23:EB:206:ILE:HD12 | 2.41                     | 0.54              |
| 23:EB:381:ASP:HB3  | 23:EB:384:LYS:CB   | 2.38                     | 0.54              |
| 27:EF:68:PRO:CD    | 27:EF:225:TRP:HE1  | 2.20                     | 0.54              |
| 29:EH:142:GLU:N    | 29:EH:143:PRO:HD2  | 2.22                     | 0.54              |
| 33:EL:14:LYS:HZ1   | 1:F1:268:G:C5'     | 2.17                     | 0.54              |
| 33:EL:196:GLN:HB3  | 18:FU:19:ARG:HD2   | 1.90                     | 0.54              |
| 35:EN:114:ILE:CD1  | 35:EN:121:CYS:SG   | 2.95                     | 0.54              |
| 39:ER:84:MET:HE3   | 39:ER:90:MET:HE1   | 1.90                     | 0.54              |
| 40:ES:43:ASN:O     | 40:ES:125:LEU:CD1  | 2.54                     | 0.54              |
| 43:EV:41:TRP:HZ3   | 1:F1:628:A:C2      | 2.25                     | 0.54              |
| 1:F1:63:A:C4       | 1:F1:108:G:N7      | 2.75                     | 0.54              |
| 1:F1:77:A:H2'      | 1:F1:78:G:H8       | 1.73                     | 0.54              |
| 1:F1:302:G:C2      | 1:F1:2766:A:N7     | 2.76                     | 0.54              |
| 1:F1:790:C:H5''    | 1:F1:791:C:OP1     | 2.08                     | 0.54              |
| 1:F1:1185:A:O2'    | 1:F1:1357:A:H2     | 1.90                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:1866:A:H4'   | 1:F1:1867:C:OP2    | 2.08                     | 0.54              |
| 1:F1:3190:A:C6    | 1:F1:3191:G:N2     | 2.76                     | 0.54              |
| 1:F1:3227:A:O2'   | 5:FE:86:PRO:HG3    | 2.08                     | 0.54              |
| 2:FA:21:ARG:HB2   | 2:FA:39:TYR:HD1    | 1.73                     | 0.54              |
| 21:G3:20:U:O2'    | 21:G3:21:G:H5'     | 2.07                     | 0.54              |
| 23:GB:46:PHE:CD1  | 23:GB:206:ILE:HD12 | 2.43                     | 0.54              |
| 23:GB:377:PHE:CD2 | 1:H1:3325:G:N2     | 2.75                     | 0.54              |
| 32:GK:13:GLY:HA2  | 1:H1:968:U:O5'     | 2.07                     | 0.54              |
| 33:GL:28:TRP:HA   | 33:GL:31:ARG:NH1   | 2.23                     | 0.54              |
| 34:GM:177:GLU:HA  | 34:GM:180:PHE:CD2  | 2.32                     | 0.54              |
| 37:GP:52:MET:HG2  | 37:GP:95:HIS:CE1   | 2.43                     | 0.54              |
| 39:GR:74:PRO:CB   | 39:GR:149:LEU:HD11 | 2.38                     | 0.54              |
| 39:GR:108:GLU:HG2 | 39:GR:113:VAL:O    | 2.06                     | 0.54              |
| 44:GW:45:THR:HG21 | 44:GW:89:TYR:HA    | 1.88                     | 0.54              |
| 46:GY:73:THR:HG22 | 46:GY:75:PRO:CD    | 2.37                     | 0.54              |
| 1:H1:113:A:H2'    | 1:H1:114:A:OP1     | 2.07                     | 0.54              |
| 1:H1:302:G:N2     | 1:H1:2766:A:C8     | 2.76                     | 0.54              |
| 1:H1:438:A:C4     | 5:HE:130:PHE:CE1   | 2.95                     | 0.54              |
| 1:H1:512:G:N2     | 1:H1:513:G:C4      | 2.75                     | 0.54              |
| 1:H1:644:A:H2'    | 1:H1:645:A:H5''    | 1.90                     | 0.54              |
| 1:H1:832:A:H3'    | 1:H1:833:A:H5''    | 1.89                     | 0.54              |
| 1:H1:882:G:H2'    | 1:H1:883:A:OP2     | 2.07                     | 0.54              |
| 1:H1:926:A:H2'    | 1:H1:927:G:C8      | 2.42                     | 0.54              |
| 1:H1:1172:G:O6    | 1:H1:1185:A:H2     | 1.90                     | 0.54              |
| 1:H1:1404:G:H5'   | 1:H1:1434:G:HO2'   | 1.71                     | 0.54              |
| 1:H1:1660:U:H5''  | 13:HN:73:LYS:HZ1   | 1.72                     | 0.54              |
| 1:H1:1839:A:O2'   | 1:H1:1840:U:C5     | 2.60                     | 0.54              |
| 1:H1:2537:C:H2'   | 1:H1:2538:C:C6     | 2.42                     | 0.54              |
| 1:H1:2703:G:HO2'  | 1:H1:2740:G:H2'    | 1.70                     | 0.54              |
| 1:H1:2855:C:O2'   | 1:H1:2856:U:H5'    | 2.07                     | 0.54              |
| 1:H1:2886:G:H3'   | 1:H1:2886:G:C8     | 2.42                     | 0.54              |
| 1:H1:3005:A:H2'   | 1:H1:3006:A:H8     | 1.72                     | 0.54              |
| 1:H1:3183:A:O2'   | 1:H1:3184:A:P      | 2.66                     | 0.54              |
| 1:H1:3184:A:H5''  | 5:HE:177:LYS:HG3   | 1.90                     | 0.54              |
| 5:HE:98:THR:HG22  | 5:HE:100:THR:H     | 1.73                     | 0.54              |
| 5:HE:179:THR:HA   | 8:HH:12:THR:HG23   | 1.90                     | 0.54              |
| 7:HG:48:CYS:SG    | 7:HG:49:PRO:HD2    | 2.47                     | 0.54              |
| 18:HU:161:LYS:O   | 18:HU:161:LYS:HG3  | 2.07                     | 0.54              |
| 1:A1:1039:G:C2    | 1:A1:1064:C:N3     | 2.76                     | 0.54              |
| 1:A1:1192:A:O2'   | 1:A1:1193:G:H5'    | 2.07                     | 0.54              |
| 1:A1:1321:A:OP1   | 19:AX:99:THR:HG21  | 2.07                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1415:C:H2'    | 1:A1:1415:C:O2     | 2.06                     | 0.54              |
| 1:A1:1949:U:H4'    | 1:A1:1950:C:OP2    | 2.07                     | 0.54              |
| 1:A1:2366:G:H5''   | 1:A1:2367:A:OP2    | 2.08                     | 0.54              |
| 1:A1:3094:U:H2'    | 1:A1:3095:A:C8     | 2.42                     | 0.54              |
| 1:A1:3190:A:C6     | 1:A1:3191:G:N2     | 2.75                     | 0.54              |
| 5:AE:69:LEU:HD21   | 5:AE:114:ASP:CA    | 2.38                     | 0.54              |
| 16:AQ:58:ILE:O     | 16:AQ:62:ILE:HG13  | 2.07                     | 0.54              |
| 18:AU:44:VAL:O     | 18:AU:47:ARG:HG3   | 2.07                     | 0.54              |
| 19:AX:113:LEU:CD1  | 19:AX:140:THR:HG21 | 2.37                     | 0.54              |
| 20:B2:110:A:H2'    | 20:B2:111:A:C8     | 2.42                     | 0.54              |
| 22:BA:117:VAL:HG11 | 22:BA:149:ILE:CD1  | 2.38                     | 0.54              |
| 23:BB:376:LYS:NZ   | 9:DJ:44:PRO:HD3    | 2.17                     | 0.54              |
| 25:BD:69:VAL:HG12  | 25:BD:71:ILE:HG13  | 1.90                     | 0.54              |
| 34:BM:79:ASP:N     | 34:BM:79:ASP:OD1   | 2.39                     | 0.54              |
| 36:BO:173:ARG:NH2  | 1:H1:2831:U:O4     | 2.39                     | 0.54              |
| 41:BT:52:THR:HA    | 41:BT:57:ARG:HG2   | 1.88                     | 0.54              |
| 43:BV:105:LEU:CD1  | 43:BV:131:ILE:HD13 | 2.38                     | 0.54              |
| 22:CA:68:TYR:CD1   | 1:D1:2519:A:N6     | 2.73                     | 0.54              |
| 22:CA:214:GLY:CA   | 1:D1:2955:A:OP1    | 2.56                     | 0.54              |
| 23:CB:264:ARG:CZ   | 1:D1:2387:C:O2'    | 2.54                     | 0.54              |
| 24:CC:29:PHE:HD2   | 24:CC:137:ALA:HB2  | 1.71                     | 0.54              |
| 24:CC:91:ARG:O     | 24:CC:94:GLN:HB2   | 2.06                     | 0.54              |
| 26:CE:12:ILE:HD11  | 26:CE:53:VAL:HG23  | 1.90                     | 0.54              |
| 29:CH:174:THR:HG22 | 29:CH:176:LEU:H    | 1.72                     | 0.54              |
| 30:CI:46:LEU:HA    | 30:CI:135:CYS:SG   | 2.47                     | 0.54              |
| 30:CI:96:ALA:HB1   | 1:D1:3154:A:O2'    | 2.08                     | 0.54              |
| 32:CK:49:LYS:HD2   | 35:CN:158:GLN:HE21 | 1.73                     | 0.54              |
| 33:CL:18:LEU:HD23  | 33:CL:19:MET:HE3   | 1.89                     | 0.54              |
| 34:CM:163:LEU:CD1  | 34:CM:173:ILE:CG2  | 2.85                     | 0.54              |
| 37:CP:45:ASP:C     | 37:CP:45:ASP:OD1   | 2.50                     | 0.54              |
| 1:D1:90:G:O3'      | 4:DC:53:LYS:NZ     | 2.40                     | 0.54              |
| 1:D1:126:A:H5''    | 50:D1:3823:HOH:O   | 2.08                     | 0.54              |
| 1:D1:333:G:H8      | 1:D1:333:G:H5'     | 1.72                     | 0.54              |
| 1:D1:962:G:O2'     | 50:D1:4786:HOH:O   | 1.85                     | 0.54              |
| 1:D1:1104:C:C2     | 17:DT:42:ASN:ND2   | 2.76                     | 0.54              |
| 1:D1:1115:U:H5'    | 1:D1:1115:U:H6     | 1.72                     | 0.54              |
| 1:D1:1752:G:O5'    | 1:D1:1752:G:H8     | 1.90                     | 0.54              |
| 1:D1:2100:A:C3'    | 1:D1:2101:G:H5''   | 2.37                     | 0.54              |
| 1:D1:2245:G:H2'    | 1:D1:2246:G:H8     | 1.70                     | 0.54              |
| 1:D1:2645:A:C8     | 1:D1:2647:G:C8     | 2.96                     | 0.54              |
| 1:D1:2672:U:H2'    | 1:D1:2673:C:C6     | 2.42                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3178:U:H5''   | 6:DF:97:LYS:NZ     | 2.23                     | 0.54              |
| 5:DE:28:PHE:CD1    | 5:DE:28:PHE:C      | 2.86                     | 0.54              |
| 14:DO:62:LEU:HD11  | 14:DO:97:ARG:CG    | 2.37                     | 0.54              |
| 23:EB:105:VAL:HG21 | 23:EB:146:LEU:CD2  | 2.37                     | 0.54              |
| 24:EC:105:ARG:NH1  | 24:EC:105:ARG:CG   | 2.68                     | 0.54              |
| 26:EE:135:LYS:HB2  | 26:EE:138:GLU:HG2  | 1.89                     | 0.54              |
| 30:EI:81:ARG:HG3   | 30:EI:81:ARG:HH11  | 1.72                     | 0.54              |
| 31:EJ:16:LYS:HZ2   | 1:F1:3081:C:H5     | 1.54                     | 0.54              |
| 32:EK:110:PHE:HE2  | 32:EK:128:LYS:HZ2  | 1.55                     | 0.54              |
| 32:EK:147:LEU:HD21 | 18:FU:177:VAL:HG13 | 1.89                     | 0.54              |
| 33:EL:179:HIS:O    | 33:EL:182:LYS:HD3  | 2.08                     | 0.54              |
| 1:F1:219:A:N1      | 1:F1:1416:U:O2'    | 2.40                     | 0.54              |
| 1:F1:627:U:C2      | 1:F1:630:G:O6      | 2.61                     | 0.54              |
| 1:F1:777:C:H2'     | 1:F1:778:G:C8      | 2.43                     | 0.54              |
| 1:F1:1190:U:H2'    | 1:F1:1191:G:H8     | 1.72                     | 0.54              |
| 1:F1:1519:G:N3     | 3:FB:13:PHE:HE1    | 2.06                     | 0.54              |
| 1:F1:1599:G:C4     | 1:F1:1600:U:C6     | 2.95                     | 0.54              |
| 1:F1:2540:G:C5'    | 1:F1:2541:U:OP2    | 2.55                     | 0.54              |
| 1:F1:2634:G:H2'    | 1:F1:2635:C:C5'    | 2.37                     | 0.54              |
| 5:FE:88:LYS:HG3    | 5:FE:89:ARG:N      | 2.23                     | 0.54              |
| 9:FJ:39:GLU:CB     | 9:FJ:43:VAL:HG23   | 2.37                     | 0.54              |
| 9:FJ:61:ARG:HD3    | 9:FJ:106:ASN:OD1   | 2.08                     | 0.54              |
| 13:FN:96:LEU:HD13  | 13:FN:113:THR:HG22 | 1.89                     | 0.54              |
| 15:FP:15:TRP:CZ3   | 15:FP:69:PRO:HD3   | 2.42                     | 0.54              |
| 23:GB:46:PHE:HB2   | 23:GB:206:ILE:HD12 | 1.89                     | 0.54              |
| 23:GB:280:VAL:HG13 | 23:GB:320:ILE:HG23 | 1.90                     | 0.54              |
| 23:GB:378:PHE:HA   | 1:H1:3325:G:H22    | 1.70                     | 0.54              |
| 27:GF:62:GLN:NE2   | 27:GF:229:ILE:HG21 | 2.23                     | 0.54              |
| 27:GF:128:GLY:CA   | 1:H1:146:U:O2'     | 2.46                     | 0.54              |
| 27:GF:196:VAL:HG21 | 27:GF:204:LEU:HD21 | 1.90                     | 0.54              |
| 37:GP:17:LYS:HE3   | 37:GP:47:SER:HB3   | 1.89                     | 0.54              |
| 43:GV:84:ILE:O     | 43:GV:131:ILE:HG23 | 2.08                     | 0.54              |
| 1:H1:236:G:H2'     | 1:H1:237:A:H8      | 1.72                     | 0.54              |
| 1:H1:606:U:H2'     | 1:H1:607:U:C6      | 2.42                     | 0.54              |
| 1:H1:619:G:H5''    | 1:H1:620:A:OP1     | 2.07                     | 0.54              |
| 1:H1:866:A:H8      | 1:H1:866:A:C5'     | 2.20                     | 0.54              |
| 1:H1:1596:U:H4'    | 1:H1:1597:U:OP1    | 2.06                     | 0.54              |
| 1:H1:1600:U:C2'    | 1:H1:1601:U:H5'    | 2.38                     | 0.54              |
| 1:H1:1734:A:OP1    | 13:HN:79:HIS:HE1   | 1.89                     | 0.54              |
| 1:H1:1775:A:C5'    | 15:HP:34:LYS:NZ    | 2.71                     | 0.54              |
| 1:H1:2255:U:C2'    | 1:H1:2256:G:H8     | 2.21                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2261:U:O2'    | 1:H1:2262:C:H5'    | 2.08                     | 0.54              |
| 1:H1:2278:G:O2'    | 1:H1:2279:C:P      | 2.66                     | 0.54              |
| 6:HF:18:GLY:O      | 6:HF:21:LYS:HG2    | 2.08                     | 0.54              |
| 12:HM:24:PRO:HA    | 12:HM:109:TYR:OH   | 2.08                     | 0.54              |
| 13:HN:47:GLU:HB3   | 13:HN:69:LYS:O     | 2.07                     | 0.54              |
| 13:HN:104:ASN:O    | 13:HN:105:ASN:HB3  | 2.07                     | 0.54              |
| 18:HU:25:ASN:OD1   | 18:HU:26:GLN:N     | 2.41                     | 0.54              |
| 18:HU:100:LYS:HE3  | 18:HU:102:ARG:HH21 | 1.73                     | 0.54              |
| 19:HX:96:GLN:H     | 19:HX:134:THR:CG2  | 2.19                     | 0.54              |
| 1:A1:2:U:H3        | 20:B2:153:A:H62    | 1.53                     | 0.54              |
| 1:A1:86:A:OP1      | 35:BN:173:LYS:HE3  | 2.06                     | 0.54              |
| 1:A1:135:A:H2'     | 1:A1:242:G:N7      | 2.22                     | 0.54              |
| 1:A1:333:G:H8      | 1:A1:333:G:H5'     | 1.72                     | 0.54              |
| 1:A1:489:A:H2'     | 1:A1:490:A:C8      | 2.43                     | 0.54              |
| 1:A1:1070:U:H2'    | 1:A1:1071:C:O5'    | 2.06                     | 0.54              |
| 1:A1:1128:G:C5'    | 43:BV:104:ARG:HD2  | 2.34                     | 0.54              |
| 1:A1:1166:G:N2     | 1:A1:1167:G:H1'    | 2.23                     | 0.54              |
| 1:A1:1681:C:OP1    | 11:AL:40:ASN:ND2   | 2.40                     | 0.54              |
| 1:A1:2617:G:H5''   | 1:A1:2618:C:OP2    | 2.07                     | 0.54              |
| 1:A1:2624:A:H4'    | 1:A1:2625:A:O5'    | 2.07                     | 0.54              |
| 1:A1:3096:U:P      | 10:AK:112:LYS:HD3  | 2.48                     | 0.54              |
| 2:AA:68:MET:HG2    | 20:B2:44:A:OP1     | 2.08                     | 0.54              |
| 6:AF:111:VAL:HG22  | 30:BI:196:PHE:CD1  | 2.43                     | 0.54              |
| 9:AJ:58:ILE:HG13   | 9:AJ:62:VAL:HG21   | 1.89                     | 0.54              |
| 9:AJ:135:VAL:CG1   | 9:AJ:136:GLU:N     | 2.71                     | 0.54              |
| 16:AQ:16:THR:OG1   | 18:AU:105:GLU:OE2  | 2.26                     | 0.54              |
| 20:B2:134:C:H3'    | 20:B2:134:C:C6     | 2.43                     | 0.54              |
| 22:BA:20:HIS:CD2   | 22:BA:193:LYS:O    | 2.61                     | 0.54              |
| 24:BC:163:VAL:HA   | 24:BC:166:TYR:HE2  | 1.67                     | 0.54              |
| 27:BF:196:VAL:CG2  | 27:BF:204:LEU:HD11 | 2.37                     | 0.54              |
| 33:BL:64:VAL:CG2   | 33:BL:106:VAL:HG22 | 2.37                     | 0.54              |
| 33:BL:177:LYS:HG2  | 33:BL:185:ARG:NH2  | 2.23                     | 0.54              |
| 43:BV:200:TRP:CG   | 43:BV:201:PRO:HD2  | 2.42                     | 0.54              |
| 24:CC:89:THR:OG1   | 1:D1:354:A:N1      | 2.38                     | 0.54              |
| 24:CC:269:ILE:HG22 | 24:CC:270:PHE:CD1  | 2.42                     | 0.54              |
| 24:CC:276:THR:HG22 | 24:CC:277:GLY:O    | 2.08                     | 0.54              |
| 30:CI:35:VAL:HG13  | 30:CI:106:GLY:O    | 2.07                     | 0.54              |
| 32:CK:75:VAL:CG2   | 32:CK:109:PHE:CD2  | 2.91                     | 0.54              |
| 47:CO:133:LYS:HG3  | 47:CO:134:ASN:N    | 2.22                     | 0.54              |
| 43:CV:206:THR:HG21 | 1:D1:1195:U:O4'    | 2.08                     | 0.54              |
| 43:CV:207:PRO:HG3  | 43:CV:211:PHE:CE1  | 2.42                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 46:CY:4:ARG:NH1    | 1:D1:881:G:H22     | 2.05                     | 0.54              |
| 46:CY:44:LYS:NZ    | 1:D1:1751:A:OP1    | 2.40                     | 0.54              |
| 1:D1:123:C:H2'     | 1:D1:124:U:C6      | 2.42                     | 0.54              |
| 1:D1:467:A:N1      | 1:D1:512:G:N3      | 2.56                     | 0.54              |
| 1:D1:1047:G:C2'    | 1:D1:1048:U:C5'    | 2.85                     | 0.54              |
| 1:D1:1380:C:H2'    | 14:DO:36:THR:HG21  | 1.90                     | 0.54              |
| 1:D1:1507:A:N1     | 11:DL:2:ALA:HB3    | 2.22                     | 0.54              |
| 1:D1:1543:A:H2'    | 1:D1:1544:U:H6     | 1.71                     | 0.54              |
| 1:D1:2140:A:P      | 50:D1:4189:HOH:O   | 2.65                     | 0.54              |
| 1:D1:2537:C:H2'    | 1:D1:2538:C:C6     | 2.43                     | 0.54              |
| 1:D1:3100:U:O2'    | 1:D1:3101:G:H5'    | 2.08                     | 0.54              |
| 1:D1:3256:A:C2     | 1:D1:3349:U:C2     | 2.95                     | 0.54              |
| 4:DC:19:THR:HG22   | 4:DC:20:ASN:O      | 2.07                     | 0.54              |
| 6:DF:4:ASN:OD1     | 6:DF:5:LYS:N       | 2.40                     | 0.54              |
| 9:DJ:161:VAL:CG1   | 9:DJ:162:HIS:N     | 2.70                     | 0.54              |
| 15:DP:15:TRP:CZ3   | 15:DP:69:PRO:HD3   | 2.42                     | 0.54              |
| 15:DP:53:PHE:CE1   | 15:DP:55:THR:HG22  | 2.42                     | 0.54              |
| 18:DU:23:PHE:O     | 18:DU:26:GLN:HB3   | 2.08                     | 0.54              |
| 22:EA:33:TYR:CA    | 22:EA:164:ARG:NH2  | 2.69                     | 0.54              |
| 22:EA:86:GLY:CA    | 1:F1:2545:A:N3     | 2.71                     | 0.54              |
| 22:EA:210:HIS:CD2  | 22:EA:212:HIS:HB2  | 2.42                     | 0.54              |
| 22:EA:243:ARG:CZ   | 22:EA:247:VAL:HG12 | 2.38                     | 0.54              |
| 23:EB:110:ILE:O    | 23:EB:115:LYS:HE3  | 2.07                     | 0.54              |
| 23:EB:337:ARG:HH21 | 23:EB:340:ILE:HG23 | 1.71                     | 0.54              |
| 29:EH:139:ARG:HG2  | 29:EH:173:PHE:HE1  | 1.72                     | 0.54              |
| 30:EI:152:ILE:CG2  | 30:EI:153:GLU:N    | 2.70                     | 0.54              |
| 34:EM:125:VAL:HG21 | 34:EM:205:PHE:CZ   | 2.42                     | 0.54              |
| 35:EN:91:GLU:OE2   | 1:F1:701:A:H2'     | 2.08                     | 0.54              |
| 37:EP:66:ASN:ND2   | 17:FT:34:GLY:O     | 2.37                     | 0.54              |
| 39:ER:43:LEU:CD1   | 1:F1:1599:G:C5'    | 2.85                     | 0.54              |
| 43:EV:15:ARG:NH2   | 1:F1:1376:A:OP2    | 2.39                     | 0.54              |
| 1:F1:298:G:C2'     | 1:F1:299:G:H5'     | 2.36                     | 0.54              |
| 1:F1:1091:G:H1'    | 17:FT:28:ARG:NH1   | 2.22                     | 0.54              |
| 1:F1:1186:A:HO2'   | 1:F1:1187:C:P      | 2.27                     | 0.54              |
| 1:F1:1244:A:H2'    | 1:F1:1245:U:H5''   | 1.89                     | 0.54              |
| 1:F1:1662:A:H4'    | 11:FL:76:ARG:HH22  | 1.72                     | 0.54              |
| 1:F1:1884:G:H2'    | 1:F1:1885:G:H5'    | 1.90                     | 0.54              |
| 1:F1:2148:A:H2'    | 1:F1:2149:U:H6     | 1.73                     | 0.54              |
| 1:F1:2984:A:C4     | 1:F1:2985:C:H5     | 2.26                     | 0.54              |
| 2:FA:25:ALA:HB1    | 3:FB:52:TYR:HD2    | 1.73                     | 0.54              |
| 5:FE:91:ASN:OD1    | 5:FE:92:GLN:N      | 2.40                     | 0.54              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 12:FM:66:ASN:HD21  | 12:FM:68:GLN:NE2  | 2.06                     | 0.54              |
| 20:G2:111:A:C5     | 2:HA:20:ARG:NH2   | 2.75                     | 0.54              |
| 22:GA:45:CYS:O     | 22:GA:62:VAL:HA   | 2.07                     | 0.54              |
| 23:GB:17:ARG:HB3   | 23:GB:18:PRO:HA   | 1.88                     | 0.54              |
| 24:GC:105:ARG:NH1  | 24:GC:105:ARG:CG  | 2.71                     | 0.54              |
| 24:GC:163:VAL:O    | 24:GC:166:TYR:CD2 | 2.57                     | 0.54              |
| 24:GC:175:PHE:CD1  | 24:GC:175:PHE:C   | 2.86                     | 0.54              |
| 31:GJ:41:ILE:HG13  | 31:GJ:64:CYS:HA   | 1.90                     | 0.54              |
| 32:GK:81:TRP:CD1   | 32:GK:119:PRO:HG2 | 2.42                     | 0.54              |
| 33:GL:19:MET:CE    | 33:GL:22:ILE:HD12 | 2.37                     | 0.54              |
| 33:GL:175:ARG:CZ   | 1:H1:317:A:H4'    | 2.38                     | 0.54              |
| 35:GN:167:VAL:CG1  | 35:GN:169:SER:O   | 2.55                     | 0.54              |
| 38:GQ:61:PRO:HG3   | 38:GQ:78:PHE:CG   | 2.43                     | 0.54              |
| 38:GQ:93:ILE:O     | 38:GQ:96:LEU:HB2  | 2.08                     | 0.54              |
| 44:GW:4:GLN:HE21   | 44:GW:76:LYS:HZ1  | 1.56                     | 0.54              |
| 44:GW:49:ARG:HB2   | 44:GW:91:LEU:HD23 | 1.88                     | 0.54              |
| 45:GX:44:VAL:HG12  | 45:GX:54:MET:CE   | 2.33                     | 0.54              |
| 1:H1:2101:G:H5'    | 1:H1:2101:G:C8    | 2.41                     | 0.54              |
| 1:H1:2634:G:H2'    | 1:H1:2635:C:H5'   | 1.90                     | 0.54              |
| 1:H1:2727:A:H5''   | 17:HT:36:ASN:HB2  | 1.90                     | 0.54              |
| 1:H1:2830:U:O2     | 1:H1:2830:U:C2'   | 2.55                     | 0.54              |
| 1:H1:2886:G:H4'    | 1:H1:2887:C:OP2   | 2.08                     | 0.54              |
| 1:H1:2922:A:H5''   | 1:H1:2923:U:OP2   | 2.08                     | 0.54              |
| 12:HM:66:ASN:HD21  | 12:HM:68:GLN:NE2  | 2.05                     | 0.54              |
| 1:A1:213:A:H61     | 1:A1:227:G:C2'    | 2.21                     | 0.54              |
| 1:A1:1446:C:C6     | 1:A1:1446:C:C5'   | 2.88                     | 0.54              |
| 1:A1:1767:U:C4'    | 1:A1:1768:G:OP2   | 2.56                     | 0.54              |
| 1:A1:2304:A:N3     | 1:A1:2949:G:O2'   | 2.41                     | 0.54              |
| 1:A1:2390:G:H5''   | 23:BB:253:TRP:CD1 | 2.43                     | 0.54              |
| 2:AA:21:ARG:NH1    | 2:AA:44:MET:HE1   | 2.21                     | 0.54              |
| 7:AG:43:PHE:HE1    | 7:AG:68:HIS:CD2   | 2.25                     | 0.54              |
| 9:AJ:58:ILE:O      | 9:AJ:60:GLY:N     | 2.40                     | 0.54              |
| 9:AJ:93:ARG:NH2    | 9:DJ:93:ARG:HG3   | 2.23                     | 0.54              |
| 14:AO:12:ASN:OD1   | 24:BC:251:HIS:ND1 | 2.40                     | 0.54              |
| 19:AX:3:ARG:O      | 19:AX:19:ARG:NH2  | 2.41                     | 0.54              |
| 19:AX:45:ALA:HB1   | 19:AX:50:HIS:HD2  | 1.71                     | 0.54              |
| 20:B2:100:C:H5''   | 20:B2:101:U:OP1   | 2.08                     | 0.54              |
| 21:B3:27:A:OP2     | 34:BM:56:THR:HG23 | 2.06                     | 0.54              |
| 24:BC:149:ILE:HG23 | 24:BC:152:VAL:HB  | 1.89                     | 0.54              |
| 24:BC:275:THR:HG22 | 24:BC:276:THR:N   | 2.20                     | 0.54              |
| 26:BE:34:ILE:HD11  | 26:BE:147:ILE:CG2 | 2.36                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:BE:135:LYS:H    | 26:BE:138:GLU:HG2  | 1.73                     | 0.54              |
| 27:BF:69:GLN:HG2   | 27:BF:222:ARG:NH1  | 2.23                     | 0.54              |
| 29:BH:66:GLU:OE1   | 29:BH:66:GLU:HA    | 2.07                     | 0.54              |
| 29:BH:68:ALA:HA    | 29:BH:158:LYS:HG3  | 1.89                     | 0.54              |
| 29:BH:139:ARG:HG2  | 29:BH:173:PHE:HE1  | 1.71                     | 0.54              |
| 33:BL:64:VAL:HG21  | 33:BL:106:VAL:HG23 | 1.89                     | 0.54              |
| 34:BM:216:LEU:HD12 | 34:BM:228:PHE:CE1  | 2.42                     | 0.54              |
| 38:BQ:25:ARG:HG3   | 38:BQ:143:ASN:HD21 | 1.73                     | 0.54              |
| 21:C3:1:G:N3       | 34:CM:274:HIS:NE2  | 2.45                     | 0.54              |
| 23:CB:40:LYS:HB3   | 23:CB:41:PRO:HD2   | 1.89                     | 0.54              |
| 25:CD:12:VAL:CG2   | 25:CD:162:TRP:HD1  | 2.20                     | 0.54              |
| 26:CE:2:ARG:HH12   | 30:CI:129:ARG:CZ   | 2.20                     | 0.54              |
| 26:CE:154:GLN:HE22 | 1:D1:3115:C:H1'    | 1.71                     | 0.54              |
| 27:CF:146:ILE:CG2  | 27:CF:156:VAL:HG11 | 2.38                     | 0.54              |
| 47:CO:42:ARG:NH2   | 1:D1:1626:U:OP2    | 2.40                     | 0.54              |
| 37:CP:130:ARG:NH2  | 1:D1:1088:A:N3     | 2.56                     | 0.54              |
| 43:CV:215:ARG:NH1  | 1:D1:1183:C:O3'    | 2.40                     | 0.54              |
| 1:D1:304:U:O2'     | 1:D1:305:A:H8      | 1.91                     | 0.54              |
| 1:D1:811:A:H4'     | 1:D1:812:G:O5'     | 2.07                     | 0.54              |
| 1:D1:926:A:H2'     | 1:D1:927:G:C8      | 2.42                     | 0.54              |
| 1:D1:1090:A:OP1    | 1:D1:1091:G:H3'    | 2.08                     | 0.54              |
| 1:D1:1196:A:C6     | 1:D1:1357:A:C8     | 2.95                     | 0.54              |
| 1:D1:2540:G:C5'    | 1:D1:2541:U:OP2    | 2.56                     | 0.54              |
| 15:DP:15:TRP:O     | 15:DP:72:TYR:CZ    | 2.61                     | 0.54              |
| 18:DU:146:ALA:HB1  | 18:DU:148:ASN:HD22 | 1.71                     | 0.54              |
| 21:E3:10:C:C2      | 34:EM:20:TYR:CD1   | 2.93                     | 0.54              |
| 21:E3:102:G:O5'    | 21:E3:102:G:H8     | 1.90                     | 0.54              |
| 21:E3:105:C:H5'    | 21:E3:105:C:C6     | 2.37                     | 0.54              |
| 22:EA:30:TYR:CB    | 22:EA:164:ARG:HH11 | 2.21                     | 0.54              |
| 22:EA:205:MET:HB3  | 22:EA:209:ASP:HB2  | 1.89                     | 0.54              |
| 23:EB:106:TRP:HB2  | 23:EB:133:HIS:CE1  | 2.43                     | 0.54              |
| 24:EC:311:ALA:HB1  | 1:F1:1374:C:H5'    | 1.90                     | 0.54              |
| 26:EE:58:TRP:NE1   | 19:FX:164:PRO:HG2  | 2.23                     | 0.54              |
| 26:EE:179:VAL:HB   | 10:FK:89:TYR:OH    | 2.07                     | 0.54              |
| 30:EI:132:ARG:NH1  | 1:F1:1216:C:C2'    | 2.70                     | 0.54              |
| 33:EL:59:TYR:OH    | 33:EL:148:ILE:HD13 | 2.07                     | 0.54              |
| 33:EL:80:VAL:HG11  | 33:EL:87:VAL:HA    | 1.89                     | 0.54              |
| 35:EN:91:GLU:CG    | 1:F1:701:A:H3'     | 2.34                     | 0.54              |
| 39:ER:121:LEU:HD21 | 1:F1:1549:U:C4'    | 2.37                     | 0.54              |
| 43:EV:64:ARG:HD3   | 1:F1:565:G:C5      | 2.43                     | 0.54              |
| 46:EY:4:ARG:HH12   | 1:F1:881:G:N2      | 2.05                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:467:A:N1     | 1:F1:512:G:N3      | 2.56                     | 0.54              |
| 1:F1:2348:G:C5    | 1:F1:2349:C:C5     | 2.95                     | 0.54              |
| 1:F1:2521:A:C2    | 1:F1:2522:A:C4     | 2.95                     | 0.54              |
| 1:F1:2703:G:HO2'  | 1:F1:2740:G:H2'    | 1.70                     | 0.54              |
| 9:FJ:106:ASN:HB3  | 9:FJ:147:LEU:HD22  | 1.90                     | 0.54              |
| 16:FQ:29:GLN:O    | 16:FQ:31:LYS:HD3   | 2.08                     | 0.54              |
| 22:GA:30:TYR:OH   | 22:GA:166:THR:OG1  | 2.24                     | 0.54              |
| 23:GB:253:TRP:CD2 | 1:H1:2929:A:C8     | 2.95                     | 0.54              |
| 23:GB:311:HIS:CD2 | 1:H1:3334:C:H4'    | 2.43                     | 0.54              |
| 24:GC:137:ALA:C   | 24:GC:138:LEU:HD23 | 2.33                     | 0.54              |
| 24:GC:195:ARG:NH2 | 1:H1:1409:C:P      | 2.81                     | 0.54              |
| 26:GE:171:ARG:HB3 | 10:HK:91:CYS:SG    | 2.48                     | 0.54              |
| 30:GI:11:LYS:HD3  | 30:GI:36:ARG:NH1   | 2.22                     | 0.54              |
| 32:GK:27:LYS:HB2  | 1:H1:961:A:H5''    | 1.89                     | 0.54              |
| 34:GM:138:GLU:OE1 | 34:GM:138:GLU:HA   | 2.08                     | 0.54              |
| 36:GO:4:LEU:CD2   | 36:GO:7:GLN:HG3    | 2.35                     | 0.54              |
| 38:GQ:25:ARG:HG3  | 38:GQ:143:ASN:HD21 | 1.73                     | 0.54              |
| 38:GQ:134:ALA:O   | 38:GQ:135:HIS:HB2  | 2.08                     | 0.54              |
| 40:GS:55:VAL:HG11 | 40:GS:103:LEU:HB3  | 1.90                     | 0.54              |
| 41:GT:27:ASP:HB2  | 41:GT:29:ARG:HG3   | 1.90                     | 0.54              |
| 46:GY:57:CYS:SG   | 46:GY:59:PRO:HD2   | 2.48                     | 0.54              |
| 1:H1:296:G:C3'    | 16:HQ:34:LEU:HD21  | 2.37                     | 0.54              |
| 1:H1:442:G:N2     | 1:H1:536:A:N3      | 2.56                     | 0.54              |
| 1:H1:940:A:H2'    | 1:H1:940:A:N3      | 2.23                     | 0.54              |
| 1:H1:1074:A:H2    | 1:H1:2635:C:O2     | 1.91                     | 0.54              |
| 1:H1:1446:C:C6    | 1:H1:1446:C:C5'    | 2.88                     | 0.54              |
| 1:H1:1754:G:O6    | 7:HG:29:SER:HB2    | 2.07                     | 0.54              |
| 1:H1:2715:C:H3'   | 1:H1:2717:G:N2     | 2.22                     | 0.54              |
| 1:H1:2761:U:O2    | 18:HU:190:TRP:HZ2  | 1.91                     | 0.54              |
| 1:H1:2817:U:C2'   | 1:H1:2818:G:H5'    | 2.37                     | 0.54              |
| 1:H1:3080:A:N3    | 1:H1:3082:C:O2'    | 2.40                     | 0.54              |
| 2:HA:62:THR:CG2   | 2:HA:63:GLY:N      | 2.70                     | 0.54              |
| 6:HF:26:VAL:HG12  | 6:HF:27:ILE:N      | 2.23                     | 0.54              |
| 13:HN:98:LYS:HB2  | 13:HN:101:LYS:HB2  | 1.90                     | 0.54              |
| 14:HO:122:GLN:HA  | 14:HO:122:GLN:OE1  | 2.08                     | 0.54              |
| 1:A1:170:A:C4     | 1:A1:250:U:N3      | 2.76                     | 0.54              |
| 1:A1:287:C:O2'    | 1:A1:288:A:H5'     | 2.07                     | 0.54              |
| 1:A1:660:C:H3'    | 45:BX:43:ARG:NH1   | 2.23                     | 0.54              |
| 1:A1:936:C:OP2    | 22:BA:9:ARG:HD3    | 2.08                     | 0.54              |
| 1:A1:1038:G:C2'   | 1:A1:1039:G:H5'    | 2.38                     | 0.54              |
| 1:A1:1179:G:H1'   | 1:A1:2365:G:O2'    | 2.07                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1380:C:N3     | 14:AO:32:THR:HG21  | 2.22                     | 0.54              |
| 1:A1:1510:U:N1     | 50:A1:4354:HOH:O   | 2.41                     | 0.54              |
| 1:A1:1595:A:OP2    | 1:A1:1596:U:C5     | 2.61                     | 0.54              |
| 1:A1:2309:U:C4'    | 1:A1:2310:G:OP2    | 2.56                     | 0.54              |
| 1:A1:2563:U:OP2    | 13:AN:56:ARG:HD3   | 2.08                     | 0.54              |
| 1:A1:2737:A:C2     | 34:BM:35:ARG:CB    | 2.89                     | 0.54              |
| 1:A1:3168:A:N7     | 19:AX:166:VAL:CG1  | 2.71                     | 0.54              |
| 1:A1:3183:A:O2'    | 1:A1:3184:A:P      | 2.65                     | 0.54              |
| 2:AA:14:LYS:NZ     | 3:AB:52:TYR:HE1    | 2.06                     | 0.54              |
| 7:AG:49:PRO:HG2    | 7:AG:52:ARG:HB2    | 1.90                     | 0.54              |
| 12:AM:35:PHE:HD1   | 12:AM:65:ILE:CD1   | 2.21                     | 0.54              |
| 20:B2:2:G:H4'      | 20:B2:3:A:OP2      | 2.08                     | 0.54              |
| 21:B3:81:A:C2'     | 21:B3:82:G:C5'     | 2.85                     | 0.54              |
| 23:BB:26:ARG:HD2   | 23:BB:177:LEU:HD21 | 1.89                     | 0.54              |
| 23:BB:294:THR:HG22 | 23:BB:296:GLY:H    | 1.72                     | 0.54              |
| 24:BC:29:PHE:CE2   | 24:BC:156:PRO:HG3  | 2.43                     | 0.54              |
| 29:BH:142:GLU:N    | 29:BH:143:PRO:HD2  | 2.22                     | 0.54              |
| 35:BN:146:ARG:HB3  | 35:BN:149:TYR:CD2  | 2.43                     | 0.54              |
| 23:CB:17:ARG:HB3   | 23:CB:18:PRO:HA    | 1.89                     | 0.54              |
| 24:CC:41:VAL:O     | 24:CC:45:LEU:HG    | 2.08                     | 0.54              |
| 24:CC:272:THR:CG2  | 24:CC:273:TYR:H    | 2.19                     | 0.54              |
| 26:CE:45:ILE:HG12  | 26:CE:55:LEU:CD2   | 2.37                     | 0.54              |
| 29:CH:138:VAL:HG23 | 29:CH:152:LEU:HD11 | 1.90                     | 0.54              |
| 37:CP:118:GLU:O    | 37:CP:121:LYS:HB2  | 2.08                     | 0.54              |
| 43:CV:207:PRO:HB2  | 43:CV:209:GLY:O    | 2.08                     | 0.54              |
| 1:D1:40:C:C6       | 1:D1:40:C:C3'      | 2.91                     | 0.54              |
| 1:D1:126:A:C6      | 1:D1:139:A:C6      | 2.96                     | 0.54              |
| 1:D1:803:C:O2'     | 1:D1:804:G:H5'     | 2.08                     | 0.54              |
| 1:D1:1047:G:OP1    | 13:FN:3:LYS:HE3    | 2.07                     | 0.54              |
| 1:D1:1196:A:N6     | 1:D1:1357:A:C8     | 2.75                     | 0.54              |
| 1:D1:1239:G:N3     | 19:DX:128:HIS:CE1  | 2.74                     | 0.54              |
| 1:D1:1567:A:N6     | 1:D1:1578:U:H3     | 2.06                     | 0.54              |
| 1:D1:1922:G:O2'    | 1:D1:1923:G:H5'    | 2.08                     | 0.54              |
| 1:D1:2161:C:OP1    | 50:D1:4258:HOH:O   | 2.17                     | 0.54              |
| 1:D1:2239:A:OP2    | 50:D1:4291:HOH:O   | 2.18                     | 0.54              |
| 1:D1:2354:C:O2'    | 1:D1:2355:C:H5'    | 2.07                     | 0.54              |
| 1:D1:2814:U:C2'    | 1:D1:2815:U:H5'    | 2.37                     | 0.54              |
| 1:D1:2913:C:C2'    | 1:D1:2914:A:H5'    | 2.37                     | 0.54              |
| 1:D1:3055:U:H2'    | 1:D1:3056:C:C6     | 2.43                     | 0.54              |
| 21:E3:1:G:H4'      | 34:EM:275:LYS:HZ3  | 1.73                     | 0.54              |
| 21:E3:6:C:O2'      | 34:EM:50:ARG:NH2   | 2.41                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 23:EB:114:THR:N   | 23:EB:174:ASN:HD22 | 2.06                     | 0.54              |
| 24:EC:66:GLY:O    | 2:FA:53:LYS:NZ     | 2.30                     | 0.54              |
| 29:EH:36:SER:OG   | 29:EH:87:LEU:HB3   | 2.08                     | 0.54              |
| 30:EI:9:ASP:O     | 30:EI:13:HIS:CD2   | 2.60                     | 0.54              |
| 32:EK:109:PHE:C   | 32:EK:110:PHE:HD1  | 2.15                     | 0.54              |
| 43:EV:235:VAL:O   | 43:EV:239:LEU:HG   | 2.08                     | 0.54              |
| 45:EX:71:ASN:OD1  | 45:EX:71:ASN:C     | 2.49                     | 0.54              |
| 1:F1:282:G:H22    | 1:F1:304:U:H4'     | 1.70                     | 0.54              |
| 1:F1:548:G:C2     | 1:F1:635:A:C2      | 2.95                     | 0.54              |
| 1:F1:859:U:C4     | 1:F1:860:G:C6      | 2.96                     | 0.54              |
| 1:F1:1576:C:O2'   | 1:F1:1577:C:H5'    | 2.07                     | 0.54              |
| 1:F1:1595:A:H1'   | 1:F1:1599:G:C2     | 2.43                     | 0.54              |
| 1:F1:2508:U:C4'   | 1:F1:2509:U:OP1    | 2.53                     | 0.54              |
| 1:F1:2577:G:H2'   | 1:F1:2578:A:O5'    | 2.07                     | 0.54              |
| 1:F1:2817:U:C2'   | 1:F1:2818:G:H5'    | 2.38                     | 0.54              |
| 9:FJ:80:GLU:O     | 9:FJ:84:ILE:HG13   | 2.07                     | 0.54              |
| 13:FN:104:ASN:O   | 13:FN:105:ASN:HB3  | 2.07                     | 0.54              |
| 20:G2:110:A:H4'   | 1:H1:1610:C:H5'    | 1.89                     | 0.54              |
| 22:GA:31:ARG:NH1  | 22:GA:42:ILE:CG1   | 2.70                     | 0.54              |
| 23:GB:183:GLY:O   | 23:GB:189:LYS:CE   | 2.55                     | 0.54              |
| 25:GD:57:PHE:CD1  | 1:H1:2669:A:C6     | 2.96                     | 0.54              |
| 26:GE:131:LYS:HE2 | 26:GE:145:GLN:CG   | 2.37                     | 0.54              |
| 27:GF:131:HIS:CD2 | 1:H1:117:G:C2      | 2.95                     | 0.54              |
| 29:GH:16:PRO:HG3  | 29:GH:128:ARG:HH11 | 1.73                     | 0.54              |
| 29:GH:208:ARG:HG3 | 29:GH:209:LEU:N    | 2.23                     | 0.54              |
| 36:GO:96:MET:HG2  | 1:H1:1746:U:C1'    | 2.38                     | 0.54              |
| 38:GQ:76:HIS:C    | 38:GQ:78:PHE:H     | 2.13                     | 0.54              |
| 38:GQ:107:LYS:CB  | 38:GQ:109:LEU:HG   | 2.37                     | 0.54              |
| 42:GU:60:THR:O    | 42:GU:64:GLU:HG3   | 2.08                     | 0.54              |
| 43:GV:129:PRO:HG2 | 43:GV:130:PHE:CD2  | 2.42                     | 0.54              |
| 1:H1:870:G:N2     | 1:H1:874:C:C4      | 2.76                     | 0.54              |
| 1:H1:1078:U:C5    | 1:H1:1079:A:N7     | 2.76                     | 0.54              |
| 1:H1:1112:A:H2'   | 1:H1:1113:A:C8     | 2.43                     | 0.54              |
| 1:H1:2254:A:H2'   | 1:H1:2255:U:C6     | 2.42                     | 0.54              |
| 1:H1:2756:U:H5''  | 4:HC:30:LYS:O      | 2.07                     | 0.54              |
| 1:H1:3229:C:H4'   | 1:H1:3230:G:OP2    | 2.08                     | 0.54              |
| 9:HJ:119:PRO:HD3  | 9:HJ:140:THR:O     | 2.08                     | 0.54              |
| 10:HK:92:GLU:O    | 10:HK:105:PRO:HB3  | 2.07                     | 0.54              |
| 18:HU:168:ASN:O   | 18:HU:172:LEU:HG   | 2.07                     | 0.54              |
| 19:HX:175:LYS:HZ2 | 19:HX:178:ARG:HD3  | 1.73                     | 0.54              |
| 1:A1:297:U:O4     | 16:AQ:33:LYS:HE2   | 2.08                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:304:U:O2'     | 1:A1:305:A:H8      | 1.89                     | 0.54              |
| 1:A1:701:A:H2'     | 35:BN:91:GLU:OE2   | 2.07                     | 0.54              |
| 1:A1:1037:A:H2'    | 1:A1:1038:G:C8     | 2.42                     | 0.54              |
| 1:A1:1088:A:H5''   | 1:A1:1089:G:H5'    | 1.90                     | 0.54              |
| 1:A1:1393:A:O3'    | 45:BX:47:ARG:NH2   | 2.38                     | 0.54              |
| 1:A1:2257:A:H2'    | 1:A1:2258:C:C6     | 2.43                     | 0.54              |
| 1:A1:2634:G:H2'    | 1:A1:2635:C:H5''   | 1.90                     | 0.54              |
| 1:A1:3128:G:C8     | 1:A1:3128:G:C5'    | 2.88                     | 0.54              |
| 6:AF:5:LYS:HD3     | 6:AF:55:LEU:HB2    | 1.89                     | 0.54              |
| 14:AO:3:GLN:HA     | 14:AO:3:GLN:OE1    | 2.08                     | 0.54              |
| 21:B3:63:A:C2      | 29:BH:202:GLU:CG   | 2.91                     | 0.54              |
| 22:BA:181:LEU:HD12 | 46:BY:14:TYR:CE1   | 2.42                     | 0.54              |
| 23:BB:46:PHE:HB2   | 23:BB:206:ILE:HD12 | 1.90                     | 0.54              |
| 24:BC:272:THR:CG2  | 24:BC:273:TYR:N    | 2.71                     | 0.54              |
| 24:BC:283:TYR:HE1  | 24:BC:285:LEU:HA   | 1.73                     | 0.54              |
| 24:BC:295:ILE:O    | 24:BC:299:ILE:HG13 | 2.08                     | 0.54              |
| 29:BH:58:GLU:OE2   | 29:BH:160:PRO:HB2  | 2.08                     | 0.54              |
| 29:BH:174:THR:HG22 | 29:BH:175:LYS:N    | 2.22                     | 0.54              |
| 32:BK:75:VAL:CG2   | 32:BK:109:PHE:CD2  | 2.91                     | 0.54              |
| 38:BQ:107:LYS:HB3  | 38:BQ:109:LEU:HG   | 1.89                     | 0.54              |
| 39:BR:114:LYS:HD2  | 39:BR:137:ASP:OD2  | 2.07                     | 0.54              |
| 42:BU:14:THR:HG22  | 42:BU:15:GLU:H     | 1.73                     | 0.54              |
| 44:BW:45:THR:HG21  | 44:BW:89:TYR:HA    | 1.90                     | 0.54              |
| 24:CC:14:GLU:CB    | 24:CC:17:LYS:HG3   | 2.37                     | 0.54              |
| 33:CL:6:TYR:HA     | 16:DQ:45:ILE:CD1   | 2.37                     | 0.54              |
| 34:CM:160:PHE:O    | 34:CM:163:LEU:HB3  | 2.08                     | 0.54              |
| 35:CN:102:CYS:SG   | 35:CN:127:LEU:HG   | 2.48                     | 0.54              |
| 43:CV:37:ARG:O     | 43:CV:40:GLU:N     | 2.41                     | 0.54              |
| 1:D1:113:A:H2'     | 1:D1:114:A:OP1     | 2.07                     | 0.54              |
| 1:D1:582:A:C2'     | 1:D1:583:G:H5'     | 2.37                     | 0.54              |
| 1:D1:820:G:O2'     | 1:D1:821:U:H5''    | 2.07                     | 0.54              |
| 1:D1:919:A:C1'     | 1:D1:920:A:C2      | 2.91                     | 0.54              |
| 1:D1:1397:G:O2'    | 1:D1:1398:G:H5'    | 2.08                     | 0.54              |
| 1:D1:1715:U:H2'    | 1:D1:1716:U:H6     | 1.72                     | 0.54              |
| 1:D1:2187:C:H2'    | 1:D1:2188:U:H5'    | 1.88                     | 0.54              |
| 1:D1:2359:G:H22    | 1:D1:2391:G:H1'    | 1.72                     | 0.54              |
| 5:DE:86:PRO:HB2    | 5:DE:153:GLN:NE2   | 2.04                     | 0.54              |
| 6:DF:41:GLU:OE1    | 6:DF:73:LYS:HD3    | 2.08                     | 0.54              |
| 9:DJ:39:GLU:HA     | 9:DJ:43:VAL:HG23   | 1.89                     | 0.54              |
| 12:DM:35:PHE:HD1   | 12:DM:65:ILE:CD1   | 2.21                     | 0.54              |
| 12:DM:101:ASP:HB2  | 12:DM:104:SER:OG   | 2.08                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:DX:88:THR:HG22  | 19:DX:143:LEU:HD12 | 1.90                     | 0.54              |
| 20:E2:111:A:N1     | 2:FA:20:ARG:NH1    | 2.56                     | 0.54              |
| 21:E3:93:G:H4'     | 19:FX:96:GLN:OE1   | 2.07                     | 0.54              |
| 22:EA:31:ARG:NH1   | 22:EA:42:ILE:CG1   | 2.71                     | 0.54              |
| 22:EA:201:ARG:HD2  | 1:F1:2182:G:O6     | 2.08                     | 0.54              |
| 23:EB:332:ARG:HH11 | 23:EB:332:ARG:CB   | 2.20                     | 0.54              |
| 24:EC:14:GLU:HB3   | 24:EC:17:LYS:HG3   | 1.89                     | 0.54              |
| 24:EC:163:VAL:HG22 | 24:EC:175:PHE:HE2  | 1.72                     | 0.54              |
| 24:EC:195:ARG:HH22 | 1:F1:1409:C:P      | 2.31                     | 0.54              |
| 24:EC:314:THR:HG21 | 1:F1:1372:A:C2     | 2.43                     | 0.54              |
| 24:EC:316:THR:O    | 24:EC:317:HIS:HD2  | 1.90                     | 0.54              |
| 26:EE:4:LEU:HD11   | 19:FX:163:PHE:HD1  | 1.70                     | 0.54              |
| 34:EM:164:LYS:O    | 34:EM:168:ASP:HB2  | 2.08                     | 0.54              |
| 36:EO:118:HIS:CD2  | 1:F1:1742:G:OP1    | 2.61                     | 0.54              |
| 37:EP:61:THR:HB    | 1:F1:1086:U:O4'    | 2.08                     | 0.54              |
| 44:EW:14:ASN:O     | 44:EW:18:GLN:HG2   | 2.08                     | 0.54              |
| 1:F1:126:A:C6      | 1:F1:139:A:C6      | 2.95                     | 0.54              |
| 1:F1:3135:A:H2'    | 1:F1:3136:A:H8     | 1.72                     | 0.54              |
| 1:F1:3158:G:H3'    | 1:F1:3159:A:C5'    | 2.38                     | 0.54              |
| 5:FE:62:ARG:CZ     | 6:FF:105:ASP:OD1   | 2.55                     | 0.54              |
| 5:FE:63:VAL:HG12   | 5:FE:64:VAL:N      | 2.21                     | 0.54              |
| 6:FF:51:ARG:HG2    | 19:FX:171:ARG:NH1  | 2.23                     | 0.54              |
| 9:FJ:39:GLU:HA     | 9:FJ:43:VAL:HG23   | 1.88                     | 0.54              |
| 14:FO:106:PHE:O    | 14:FO:109:LYS:HB2  | 2.07                     | 0.54              |
| 15:FP:45:ARG:HD2   | 15:FP:46:GLY:H     | 1.71                     | 0.54              |
| 20:G2:134:C:HO2'   | 20:G2:135:A:P      | 2.26                     | 0.54              |
| 21:G3:11:A:O5'     | 34:GM:18:THR:HG21  | 2.08                     | 0.54              |
| 22:GA:5:ILE:HG22   | 22:GA:6:ARG:H      | 1.72                     | 0.54              |
| 24:GC:238:VAL:HG21 | 24:GC:262:ALA:CB   | 2.37                     | 0.54              |
| 24:GC:373:SER:HA   | 1:H1:564:A:O2'     | 2.07                     | 0.54              |
| 24:GC:401:GLN:O    | 29:GH:179:ALA:HB2  | 2.08                     | 0.54              |
| 27:GF:68:PRO:CD    | 27:GF:225:TRP:HE1  | 2.20                     | 0.54              |
| 29:GH:205:PRO:O    | 29:GH:208:ARG:HG2  | 2.08                     | 0.54              |
| 33:GL:16:SER:CB    | 16:HQ:49:THR:HG23  | 2.38                     | 0.54              |
| 33:GL:184:LEU:HD23 | 33:GL:188:ARG:HD2  | 1.89                     | 0.54              |
| 34:GM:6:VAL:O      | 34:GM:6:VAL:HG13   | 2.08                     | 0.54              |
| 34:GM:175:HIS:CD2  | 34:GM:180:PHE:CE2  | 2.90                     | 0.54              |
| 38:GQ:77:GLU:HB2   | 38:GQ:78:PHE:CE2   | 2.43                     | 0.54              |
| 40:GS:38:LEU:HD11  | 40:GS:106:THR:O    | 2.08                     | 0.54              |
| 42:GU:123:LYS:HE2  | 18:HU:146:ALA:HB2  | 1.89                     | 0.54              |
| 43:GV:156:GLN:OE1  | 1:H1:1389:G:H1'    | 2.08                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:121:A:N6      | 1:H1:150:A:C6      | 2.76                     | 0.54              |
| 1:H1:705:A:O2'     | 1:H1:706:U:H5'     | 2.06                     | 0.54              |
| 1:H1:751:C:H6      | 1:H1:751:C:C5'     | 2.21                     | 0.54              |
| 1:H1:838:G:H4'     | 2:HA:47:TYR:CE2    | 2.43                     | 0.54              |
| 1:H1:1192:A:O2'    | 1:H1:1193:G:H5'    | 2.08                     | 0.54              |
| 1:H1:1802:U:H2'    | 1:H1:1803:U:C6     | 2.43                     | 0.54              |
| 1:H1:2624:A:H4'    | 1:H1:2625:A:O5'    | 2.06                     | 0.54              |
| 1:H1:2786:C:H5''   | 1:H1:2787:A:OP1    | 2.08                     | 0.54              |
| 1:H1:3055:U:H2'    | 1:H1:3056:C:H6     | 1.73                     | 0.54              |
| 14:HO:98:PHE:HD2   | 14:HO:103:LEU:HB3  | 1.73                     | 0.54              |
| 1:A1:62:G:OP1      | 33:BL:185:ARG:NH1  | 2.41                     | 0.54              |
| 1:A1:655:A:H2'     | 1:A1:656:C:H6      | 1.73                     | 0.54              |
| 1:A1:1802:U:H2'    | 1:A1:1803:U:C6     | 2.43                     | 0.54              |
| 1:A1:1951:G:OP1    | 46:BY:8:VAL:HG23   | 2.08                     | 0.54              |
| 1:A1:2239:A:O2'    | 1:A1:2240:C:H5'    | 2.08                     | 0.54              |
| 1:A1:2254:A:C4     | 1:A1:2255:U:C5     | 2.96                     | 0.54              |
| 1:A1:2255:U:C2'    | 1:A1:2256:G:H5'    | 2.38                     | 0.54              |
| 1:A1:2663:A:N1     | 25:BD:124:GLY:HA3  | 2.22                     | 0.54              |
| 1:A1:2883:G:O2'    | 10:AK:100:TYR:O    | 2.20                     | 0.54              |
| 1:A1:2929:A:C8     | 23:BB:253:TRP:CD2  | 2.96                     | 0.54              |
| 4:AC:94:ILE:HA     | 4:AC:97:ILE:HD12   | 1.89                     | 0.54              |
| 6:AF:4:ASN:OD1     | 6:AF:5:LYS:N       | 2.41                     | 0.54              |
| 20:B2:61:G:H2'     | 20:B2:100:C:O2'    | 2.08                     | 0.54              |
| 23:BB:95:THR:OG1   | 23:BB:96:PRO:HD2   | 2.08                     | 0.54              |
| 24:BC:195:ARG:O    | 24:BC:200:LYS:HE2  | 2.08                     | 0.54              |
| 30:BI:114:VAL:O    | 30:BI:116:LYS:HE3  | 2.08                     | 0.54              |
| 38:BQ:33:GLU:OE1   | 38:BQ:63:THR:N     | 2.40                     | 0.54              |
| 43:BV:141:ILE:HG21 | 43:BV:185:ILE:HG21 | 1.90                     | 0.54              |
| 20:C2:40:A:C8      | 20:C2:42:G:C2      | 2.96                     | 0.54              |
| 21:C3:48:G:H2'     | 21:C3:49:A:C8      | 2.42                     | 0.54              |
| 24:CC:89:THR:HG23  | 1:D1:364:A:H1'     | 1.89                     | 0.54              |
| 24:CC:163:VAL:CG2  | 24:CC:175:PHE:CE2  | 2.90                     | 0.54              |
| 26:CE:23:ARG:HH11  | 26:CE:39:ARG:HA    | 1.73                     | 0.54              |
| 34:CM:142:PHE:HE1  | 1:D1:1107:A:C5     | 2.26                     | 0.54              |
| 35:CN:29:LEU:HA    | 35:CN:32:LYS:HG3   | 1.90                     | 0.54              |
| 35:CN:91:GLU:OE2   | 1:D1:701:A:H2'     | 2.08                     | 0.54              |
| 47:CO:4:LEU:CD2    | 47:CO:7:GLN:HG3    | 2.36                     | 0.54              |
| 37:CP:74:VAL:CG1   | 37:CP:75:ILE:H     | 2.21                     | 0.54              |
| 42:CU:76:GLY:HA2   | 1:D1:133:C:O2'     | 2.07                     | 0.54              |
| 42:CU:99:LYS:O     | 42:CU:103:ALA:HB2  | 2.08                     | 0.54              |
| 44:CW:85:GLN:OE1   | 44:CW:85:GLN:HA    | 2.08                     | 0.54              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:122:U:H2'     | 1:D1:123:C:C6      | 2.43                     | 0.54              |
| 1:D1:219:A:N1      | 1:D1:1416:U:O2'    | 2.36                     | 0.54              |
| 1:D1:624:G:O2'     | 1:D1:625:C:P       | 2.66                     | 0.54              |
| 1:D1:632:G:C5      | 1:D1:633:C:C5      | 2.96                     | 0.54              |
| 1:D1:882:G:O2'     | 1:D1:883:A:O5'     | 2.25                     | 0.54              |
| 1:D1:1040:A:H2'    | 1:D1:1041:C:H5'    | 1.90                     | 0.54              |
| 1:D1:1599:G:H2'    | 1:D1:1600:U:O4'    | 2.08                     | 0.54              |
| 1:D1:1775:A:H1'    | 1:D1:1776:G:H3'    | 1.89                     | 0.54              |
| 1:D1:1811:U:O2'    | 1:D1:1812:G:H5'    | 2.08                     | 0.54              |
| 1:D1:2606:U:H4'    | 1:D1:2633:C:C5     | 2.43                     | 0.54              |
| 1:D1:2956:G:O2'    | 1:D1:2957:A:H5'    | 2.07                     | 0.54              |
| 1:D1:3177:G:N2     | 19:DX:177:TYR:CE2  | 2.76                     | 0.54              |
| 1:D1:3230:G:H22    | 5:DE:142:GLU:CD    | 2.05                     | 0.54              |
| 9:DJ:123:ARG:CZ    | 9:FJ:123:ARG:NE    | 2.71                     | 0.54              |
| 16:DQ:2:ALA:HB2    | 18:DU:184:GLU:OE2  | 2.08                     | 0.54              |
| 20:E2:2:G:O2'      | 1:F1:2983:A:H1'    | 2.08                     | 0.54              |
| 24:EC:50:LYS:HB2   | 24:EC:116:VAL:HG11 | 1.88                     | 0.54              |
| 26:EE:7:GLU:HA     | 26:EE:55:LEU:O     | 2.07                     | 0.54              |
| 26:EE:103:VAL:HG23 | 26:EE:110:ILE:HG23 | 1.89                     | 0.54              |
| 27:EF:150:VAL:HG21 | 27:EF:156:VAL:HG21 | 1.89                     | 0.54              |
| 27:EF:169:PRO:HA   | 27:EF:216:ASN:HD21 | 1.72                     | 0.54              |
| 28:EG:63:UNK:O     | 28:EG:67:UNK:HB2   | 2.08                     | 0.54              |
| 29:EH:98:ARG:NH2   | 29:EH:119:PHE:CZ   | 2.76                     | 0.54              |
| 30:EI:129:ARG:NH2  | 1:F1:1343:G:C2     | 2.75                     | 0.54              |
| 32:EK:110:PHE:CD2  | 32:EK:128:LYS:HD2  | 2.43                     | 0.54              |
| 35:EN:30:LEU:HD11  | 35:EN:124:PHE:HB2  | 1.90                     | 0.54              |
| 43:EV:37:ARG:O     | 43:EV:40:GLU:N     | 2.41                     | 0.54              |
| 43:EV:164:THR:HG22 | 43:EV:168:LYS:HE3  | 1.88                     | 0.54              |
| 43:EV:196:ASN:O    | 43:EV:199:LEU:N    | 2.38                     | 0.54              |
| 1:F1:209:A:H4'     | 1:F1:211:A:C8      | 2.42                     | 0.54              |
| 1:F1:296:G:H4'     | 1:F1:297:U:O5'     | 2.08                     | 0.54              |
| 1:F1:624:G:O2'     | 1:F1:625:C:P       | 2.66                     | 0.54              |
| 1:F1:751:C:H6      | 1:F1:751:C:C5'     | 2.21                     | 0.54              |
| 1:F1:752:C:H4'     | 1:F1:1002:A:C4     | 2.43                     | 0.54              |
| 1:F1:940:A:N3      | 1:F1:940:A:H2'     | 2.21                     | 0.54              |
| 1:F1:1005:A:C2'    | 1:F1:1006:C:OP2    | 2.56                     | 0.54              |
| 1:F1:1255:A:C2     | 1:F1:1309:G:C6     | 2.96                     | 0.54              |
| 1:F1:1256:G:H2'    | 1:F1:1257:G:H8     | 1.72                     | 0.54              |
| 1:F1:1807:C:H2'    | 1:F1:1808:A:C8     | 2.43                     | 0.54              |
| 1:F1:2149:U:C2'    | 1:F1:2150:U:H5'    | 2.36                     | 0.54              |
| 1:F1:2259:U:H2'    | 1:F1:2260:C:C6     | 2.43                     | 0.54              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:F1:2634:G:H2'    | 1:F1:2635:C:H5'   | 1.90                     | 0.54              |
| 1:F1:3096:U:C5'    | 10:FK:112:LYS:HZ3 | 2.21                     | 0.54              |
| 1:F1:3097:G:P      | 10:FK:112:LYS:HZ1 | 2.30                     | 0.54              |
| 1:F1:3193:G:N2     | 1:F1:3218:U:H1'   | 2.23                     | 0.54              |
| 50:F1:3657:HOH:O   | 18:FU:15:HIS:HE1  | 1.89                     | 0.54              |
| 13:FN:91:CYS:SG    | 13:FN:96:LEU:HD12 | 2.48                     | 0.54              |
| 13:FN:118:PHE:HE2  | 13:FN:138:PHE:CE2 | 2.26                     | 0.54              |
| 19:FX:96:GLN:H     | 19:FX:134:THR:CG2 | 2.18                     | 0.54              |
| 19:FX:113:LEU:HD11 | 19:FX:140:THR:CG2 | 2.38                     | 0.54              |
| 21:G3:35:C:N4      | 21:G3:46:C:H1'    | 2.23                     | 0.54              |
| 23:GB:363:ILE:O    | 1:H1:3075:A:O3'   | 2.26                     | 0.54              |
| 24:GC:152:VAL:CG1  | 24:GC:157:TYR:HE2 | 2.05                     | 0.54              |
| 26:GE:46:GLN:NE2   | 26:GE:56:GLN:NE2  | 2.56                     | 0.54              |
| 26:GE:113:LYS:HE3  | 26:GE:114:HIS:HB2 | 1.90                     | 0.54              |
| 28:GG:28:UNK:HB1   | 28:GG:112:UNK:HG3 | 1.88                     | 0.54              |
| 29:GH:171:TRP:CE2  | 29:GH:181:TYR:CE2 | 2.95                     | 0.54              |
| 30:GI:17:ARG:HH22  | 1:H1:1344:A:H4'   | 1.73                     | 0.54              |
| 30:GI:26:LEU:HD11  | 30:GI:101:LEU:HB2 | 1.89                     | 0.54              |
| 30:GI:109:THR:HG22 | 1:H1:3206:A:H2'   | 1.90                     | 0.54              |
| 30:GI:196:PHE:CZ   | 6:HF:110:ARG:HB2  | 2.43                     | 0.54              |
| 43:GV:185:ILE:HA   | 43:GV:192:PHE:CE1 | 2.42                     | 0.54              |
| 1:H1:149:U:H2'     | 1:H1:150:A:H8     | 1.73                     | 0.54              |
| 1:H1:297:U:O4'     | 16:HQ:32:GLY:HA3  | 2.07                     | 0.54              |
| 1:H1:302:G:C2      | 1:H1:2766:A:N7    | 2.76                     | 0.54              |
| 1:H1:578:G:C2'     | 1:H1:579:G:H5''   | 2.37                     | 0.54              |
| 1:H1:1026:C:H5'    | 1:H1:1027:G:H5''  | 1.89                     | 0.54              |
| 1:H1:1041:C:O2     | 1:H1:1041:C:H2'   | 2.07                     | 0.54              |
| 1:H1:1380:C:H2'    | 14:HO:36:THR:HG21 | 1.90                     | 0.54              |
| 1:H1:1492:G:C2'    | 1:H1:1493:A:H5''  | 2.38                     | 0.54              |
| 1:H1:1595:A:OP2    | 1:H1:1596:U:C5    | 2.61                     | 0.54              |
| 1:H1:1696:C:O2'    | 1:H1:1697:U:H5'   | 2.08                     | 0.54              |
| 1:H1:2106:G:C2'    | 1:H1:2107:A:OP1   | 2.56                     | 0.54              |
| 1:H1:2239:A:O2'    | 1:H1:2240:C:H5'   | 2.07                     | 0.54              |
| 1:H1:2263:U:H3'    | 1:H1:2264:U:C5'   | 2.38                     | 0.54              |
| 1:H1:2993:C:O2'    | 1:H1:2994:G:H5'   | 2.08                     | 0.54              |
| 1:H1:3228:U:C4     | 5:HE:146:LYS:HG3  | 2.43                     | 0.54              |
| 1:H1:3251:C:C4'    | 1:H1:3252:G:OP2   | 2.54                     | 0.54              |
| 2:HA:18:LEU:HA     | 2:HA:24:LYS:O     | 2.06                     | 0.54              |
| 12:HM:35:PHE:CD1   | 12:HM:65:ILE:CD1  | 2.91                     | 0.54              |
| 14:HO:44:HIS:HD2   | 14:HO:46:HIS:CD2  | 2.25                     | 0.54              |
| 1:A1:126:A:C6      | 1:A1:139:A:C6     | 2.96                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:209:A:OP2    | 24:BC:170:LYS:HE3  | 2.07                     | 0.53              |
| 1:A1:302:G:C2     | 1:A1:2766:A:N7     | 2.76                     | 0.53              |
| 1:A1:485:A:C4'    | 1:A1:486:C:OP1     | 2.40                     | 0.53              |
| 1:A1:508:A:O2'    | 1:A1:509:A:H8      | 1.91                     | 0.53              |
| 1:A1:565:G:C5     | 43:BV:64:ARG:HD3   | 2.43                     | 0.53              |
| 1:A1:627:U:C2     | 1:A1:630:G:O6      | 2.60                     | 0.53              |
| 1:A1:675:G:C6     | 1:A1:676:G:C6      | 2.96                     | 0.53              |
| 1:A1:979:U:C1'    | 17:AT:12:GLN:HE21  | 2.16                     | 0.53              |
| 1:A1:1775:A:C8    | 1:A1:1776:G:H2'    | 2.35                     | 0.53              |
| 1:A1:1901:C:C5'   | 1:A1:1902:C:H5'    | 2.32                     | 0.53              |
| 1:A1:1907:A:C2'   | 1:A1:1908:A:O5'    | 2.56                     | 0.53              |
| 1:A1:2163:A:C6    | 1:A1:2164:C:N4     | 2.77                     | 0.53              |
| 1:A1:2517:G:O6    | 22:BA:71:LYS:NZ    | 2.40                     | 0.53              |
| 1:A1:2737:A:H1'   | 34:BM:36:LEU:HD23  | 1.90                     | 0.53              |
| 1:A1:2922:A:H5''  | 1:A1:2923:U:OP2    | 2.08                     | 0.53              |
| 1:A1:3109:C:O3'   | 1:A1:3110:U:H6     | 1.91                     | 0.53              |
| 5:AE:28:PHE:CD1   | 5:AE:28:PHE:C      | 2.86                     | 0.53              |
| 11:AL:88:ARG:HG3  | 13:AN:14:LEU:HD13  | 1.89                     | 0.53              |
| 15:AP:53:PHE:CE1  | 15:AP:55:THR:HG22  | 2.43                     | 0.53              |
| 20:B2:30:U:OP1    | 24:BC:56:LYS:HA    | 2.08                     | 0.53              |
| 21:B3:102:G:H8    | 21:B3:102:G:O5'    | 1.91                     | 0.53              |
| 22:BA:68:TYR:C    | 22:BA:69:ARG:CG    | 2.81                     | 0.53              |
| 24:BC:191:THR:OG1 | 24:BC:209:ARG:HD2  | 2.08                     | 0.53              |
| 26:BE:23:ARG:HH11 | 26:BE:39:ARG:HA    | 1.73                     | 0.53              |
| 26:BE:113:LYS:HD2 | 26:BE:114:HIS:N    | 2.23                     | 0.53              |
| 27:BF:146:ILE:CG2 | 27:BF:156:VAL:HG11 | 2.38                     | 0.53              |
| 34:BM:156:GLY:CA  | 34:BM:181:PRO:HG3  | 2.36                     | 0.53              |
| 35:BN:41:THR:HG22 | 35:BN:43:SER:H     | 1.73                     | 0.53              |
| 38:BQ:59:CYS:HB3  | 38:BQ:74:GLN:HB2   | 1.91                     | 0.53              |
| 42:BU:87:LYS:HA   | 42:BU:93:ARG:HH21  | 1.73                     | 0.53              |
| 21:C3:81:A:C2'    | 21:C3:82:G:C5'     | 2.86                     | 0.53              |
| 23:CB:56:ILE:CD1  | 23:CB:76:VAL:HG21  | 2.38                     | 0.53              |
| 23:CB:378:PHE:CG  | 1:D1:3325:G:N2     | 2.76                     | 0.53              |
| 24:CC:227:LEU:O   | 24:CC:228:ARG:C    | 2.50                     | 0.53              |
| 26:CE:113:LYS:HE3 | 26:CE:114:HIS:HB2  | 1.90                     | 0.53              |
| 29:CH:147:TYR:HD1 | 29:CH:147:TYR:H    | 1.54                     | 0.53              |
| 35:CN:141:ARG:NH2 | 1:D1:1002:A:OP1    | 2.39                     | 0.53              |
| 38:CQ:133:ARG:HG3 | 38:CQ:139:ASN:HD21 | 1.68                     | 0.53              |
| 45:CX:71:ASN:OD1  | 45:CX:71:ASN:C     | 2.51                     | 0.53              |
| 46:CY:26:VAL:O    | 46:CY:27:LYS:C     | 2.49                     | 0.53              |
| 1:D1:606:U:H2'    | 1:D1:607:U:C6      | 2.44                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:624:G:O2'     | 1:D1:625:C:O4'     | 2.26                     | 0.53              |
| 1:D1:644:A:H2'     | 1:D1:645:A:H5''    | 1.90                     | 0.53              |
| 1:D1:1113:A:H2'    | 1:D1:1114:C:C6     | 2.43                     | 0.53              |
| 1:D1:1244:A:H2'    | 1:D1:1245:U:H5''   | 1.90                     | 0.53              |
| 1:D1:1513:A:O2'    | 11:DL:6:THR:HG23   | 2.07                     | 0.53              |
| 1:D1:1592:G:C2     | 1:D1:1602:U:C2     | 2.97                     | 0.53              |
| 1:D1:1596:U:H4'    | 1:D1:1597:U:O5'    | 2.08                     | 0.53              |
| 1:D1:1596:U:H4'    | 1:D1:1597:U:OP1    | 2.05                     | 0.53              |
| 1:D1:1737:A:O2'    | 1:D1:1738:A:H8     | 1.83                     | 0.53              |
| 1:D1:2133:U:H5     | 1:D1:2138:A:N7     | 2.06                     | 0.53              |
| 1:D1:3227:A:N3     | 5:DE:80:TYR:CE2    | 2.75                     | 0.53              |
| 4:DC:44:LYS:CD     | 4:DC:52:THR:HG21   | 2.19                     | 0.53              |
| 15:DP:45:ARG:HD2   | 15:DP:46:GLY:N     | 2.23                     | 0.53              |
| 17:DT:12:GLN:OE1   | 17:DT:15:LYS:HD2   | 2.07                     | 0.53              |
| 21:E3:98:G:OP2     | 19:FX:66:LYS:CE    | 2.55                     | 0.53              |
| 23:EB:56:ILE:CD1   | 23:EB:76:VAL:HG21  | 2.38                     | 0.53              |
| 24:EC:14:GLU:CB    | 24:EC:17:LYS:HG3   | 2.38                     | 0.53              |
| 24:EC:77:ALA:CA    | 1:F1:2397:A:OP1    | 2.56                     | 0.53              |
| 24:EC:138:LEU:HD23 | 24:EC:138:LEU:N    | 2.22                     | 0.53              |
| 24:EC:152:VAL:HG11 | 24:EC:155:LEU:HD21 | 1.90                     | 0.53              |
| 24:EC:276:THR:HG23 | 24:EC:277:GLY:H    | 1.72                     | 0.53              |
| 24:EC:295:ILE:O    | 24:EC:299:ILE:HG13 | 2.08                     | 0.53              |
| 24:EC:376:TRP:HZ2  | 19:FX:76:ASN:HD22  | 1.56                     | 0.53              |
| 25:ED:108:GLU:HA   | 25:ED:122:ILE:CG2  | 2.38                     | 0.53              |
| 28:EG:4:UNK:HG3    | 28:EG:6:UNK:CG     | 2.29                     | 0.53              |
| 29:EH:75:ASN:O     | 29:EH:79:PHE:CD1   | 2.56                     | 0.53              |
| 34:EM:38:ILE:O     | 34:EM:38:ILE:HG13  | 2.08                     | 0.53              |
| 35:EN:53:LEU:HD23  | 35:EN:84:THR:HG22  | 1.89                     | 0.53              |
| 36:EO:135:LYS:HB3  | 1:F1:1972:G:OP1    | 2.09                     | 0.53              |
| 37:EP:74:VAL:HG12  | 37:EP:75:ILE:H     | 1.73                     | 0.53              |
| 42:EU:22:LEU:HD21  | 42:EU:59:LEU:HD21  | 1.90                     | 0.53              |
| 43:EV:150:PHE:CD1  | 43:EV:159:PRO:HA   | 2.43                     | 0.53              |
| 1:F1:1041:C:H3'    | 1:F1:1042:U:H5''   | 1.91                     | 0.53              |
| 1:F1:1606:U:C2'    | 1:F1:1607:U:H5'    | 2.38                     | 0.53              |
| 1:F1:1944:U:N3     | 1:F1:1954:A:C2     | 2.76                     | 0.53              |
| 1:F1:2645:A:H2'    | 1:F1:2645:A:N3     | 2.24                     | 0.53              |
| 1:F1:2907:A:H5''   | 1:F1:2907:A:H8     | 1.73                     | 0.53              |
| 1:F1:3293:A:C2     | 1:F1:3294:A:C4     | 2.96                     | 0.53              |
| 15:FP:45:ARG:HD2   | 15:FP:46:GLY:N     | 2.24                     | 0.53              |
| 23:GB:378:PHE:CA   | 1:H1:3325:G:N2     | 2.70                     | 0.53              |
| 26:GE:130:VAL:HG22 | 26:GE:152:VAL:HG22 | 1.89                     | 0.53              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 29:GH:142:GLU:N    | 29:GH:143:PRO:HD2 | 2.23                     | 0.53              |
| 37:GP:65:PHE:HB3   | 37:GP:75:ILE:HG13 | 1.89                     | 0.53              |
| 42:GU:13:GLN:HB3   | 42:GU:17:GLN:OE1  | 2.08                     | 0.53              |
| 42:GU:119:LYS:HB2  | 18:HU:124:PHE:HB2 | 1.89                     | 0.53              |
| 43:GV:105:LEU:HD22 | 43:GV:110:ASN:O   | 2.08                     | 0.53              |
| 45:GX:43:ARG:HH22  | 1:H1:660:C:C2'    | 2.21                     | 0.53              |
| 45:GX:121:LEU:CB   | 45:GX:124:ALA:HB2 | 2.38                     | 0.53              |
| 1:H1:45:C:H5''     | 18:HU:14:LYS:HG2  | 1.88                     | 0.53              |
| 1:H1:370:G:N2      | 1:H1:373:A:C8     | 2.76                     | 0.53              |
| 1:H1:625:C:C4      | 1:H1:626:C:C5     | 2.97                     | 0.53              |
| 1:H1:675:G:C6      | 1:H1:676:G:C6     | 2.96                     | 0.53              |
| 1:H1:790:C:H5''    | 1:H1:791:C:OP1    | 2.08                     | 0.53              |
| 1:H1:837:G:N7      | 50:H1:3810:HOH:O  | 2.34                     | 0.53              |
| 1:H1:943:C:C2'     | 1:H1:944:U:H5'    | 2.38                     | 0.53              |
| 1:H1:1175:G:OP2    | 8:HH:28:HIS:HD2   | 1.90                     | 0.53              |
| 1:H1:1187:C:OP1    | 1:H1:1359:A:H5''  | 2.07                     | 0.53              |
| 1:H1:1595:A:H2     | 1:H1:1598:C:OP2   | 1.90                     | 0.53              |
| 1:H1:1606:U:C2'    | 1:H1:1607:U:H5'   | 2.38                     | 0.53              |
| 1:H1:2163:A:C6     | 1:H1:2164:C:N4    | 2.75                     | 0.53              |
| 1:H1:3191:G:C5     | 1:H1:3218:U:O4    | 2.61                     | 0.53              |
| 5:HE:69:LEU:HD21   | 5:HE:114:ASP:CG   | 2.32                     | 0.53              |
| 6:HF:4:ASN:OD1     | 6:HF:5:LYS:N      | 2.41                     | 0.53              |
| 9:HJ:126:GLU:HG3   | 9:HJ:137:VAL:HG11 | 1.90                     | 0.53              |
| 12:HM:38:PHE:CG    | 12:HM:85:TYR:HD1  | 2.26                     | 0.53              |
| 12:HM:89:GLN:HB2   | 12:HM:91:LEU:HG   | 1.90                     | 0.53              |
| 16:HQ:13:PHE:CD1   | 16:HQ:14:ILE:N    | 2.76                     | 0.53              |
| 1:A1:23:U:O2'      | 1:A1:24:A:H5''    | 2.08                     | 0.53              |
| 1:A1:155:A:O2'     | 16:AQ:28:VAL:HG22 | 2.08                     | 0.53              |
| 1:A1:155:A:H5''    | 1:A1:156:A:C8     | 2.43                     | 0.53              |
| 1:A1:471:A:H2'     | 1:A1:472:C:O5'    | 2.08                     | 0.53              |
| 1:A1:564:A:C1'     | 24:BC:376:TRP:CD1 | 2.76                     | 0.53              |
| 1:A1:644:A:H2'     | 1:A1:645:A:H5''   | 1.89                     | 0.53              |
| 1:A1:685:G:C4      | 1:A1:827:C:O4'    | 2.61                     | 0.53              |
| 1:A1:1073:A:C2'    | 1:A1:1074:A:O5'   | 2.56                     | 0.53              |
| 1:A1:1077:U:H4'    | 37:BP:19:TYR:CE2  | 2.43                     | 0.53              |
| 1:A1:1185:A:O2'    | 1:A1:1357:A:H2    | 1.91                     | 0.53              |
| 1:A1:1308:U:C5'    | 28:BG:58:UNK:CG   | 2.85                     | 0.53              |
| 1:A1:1507:A:H1'    | 11:AL:4:ARG:NH2   | 2.23                     | 0.53              |
| 1:A1:1533:G:N2     | 38:BQ:131:THR:OG1 | 2.41                     | 0.53              |
| 1:A1:1601:U:H2'    | 1:A1:1602:U:H6    | 1.74                     | 0.53              |
| 1:A1:1660:U:O2'    | 13:AN:79:HIS:HD2  | 1.90                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1870:C:H2'    | 1:A1:1870:C:O2     | 2.07                     | 0.53              |
| 1:A1:1913:G:OP2    | 23:BB:245:ARG:HG3  | 2.09                     | 0.53              |
| 1:A1:2241:G:OP1    | 22:BA:221:GLY:HA2  | 2.07                     | 0.53              |
| 1:A1:2255:U:C6     | 1:A1:2256:G:C8     | 2.96                     | 0.53              |
| 1:A1:2572:U:O2'    | 1:A1:2573:U:H5'    | 2.08                     | 0.53              |
| 1:A1:2669:A:H4'    | 1:A1:2670:U:OP1    | 2.09                     | 0.53              |
| 1:A1:2984:A:C4     | 1:A1:2985:C:H5     | 2.26                     | 0.53              |
| 1:A1:3096:U:O2'    | 1:A1:3097:G:H5'    | 2.08                     | 0.53              |
| 2:AA:68:MET:CG     | 20:B2:44:A:OP1     | 2.56                     | 0.53              |
| 7:AG:9:ASN:O       | 7:AG:13:LYS:HB3    | 2.08                     | 0.53              |
| 9:AJ:117:ILE:HD11  | 9:AJ:139:ARG:HE    | 1.73                     | 0.53              |
| 9:AJ:161:VAL:CG1   | 9:AJ:162:HIS:N     | 2.71                     | 0.53              |
| 12:AM:24:PRO:HA    | 12:AM:109:TYR:OH   | 2.09                     | 0.53              |
| 15:AP:53:PHE:HE1   | 15:AP:55:THR:CG2   | 2.21                     | 0.53              |
| 19:AX:58:ASN:HD21  | 19:AX:136:GLN:NE2  | 2.05                     | 0.53              |
| 19:AX:175:LYS:HZ2  | 19:AX:178:ARG:NH1  | 1.94                     | 0.53              |
| 19:AX:185:ARG:HG2  | 30:BI:118:VAL:HG21 | 1.90                     | 0.53              |
| 21:B3:63:A:C2      | 29:BH:202:GLU:HB3  | 2.43                     | 0.53              |
| 21:B3:63:A:C6      | 29:BH:202:GLU:HA   | 2.43                     | 0.53              |
| 24:BC:152:VAL:CG1  | 24:BC:157:TYR:HE2  | 2.06                     | 0.53              |
| 24:BC:163:VAL:HG22 | 24:BC:175:PHE:CE2  | 2.43                     | 0.53              |
| 30:BI:152:ILE:CG2  | 30:BI:153:GLU:N    | 2.71                     | 0.53              |
| 32:BK:81:TRP:CD1   | 32:BK:119:PRO:HG2  | 2.43                     | 0.53              |
| 43:BV:207:PRO:HB2  | 43:BV:209:GLY:O    | 2.08                     | 0.53              |
| 20:C2:22:A:H2'     | 20:C2:23:U:H6      | 1.73                     | 0.53              |
| 20:C2:99:U:H5''    | 20:C2:100:C:OP2    | 2.08                     | 0.53              |
| 23:CB:28:ARG:H     | 23:CB:272:HIS:CE1  | 2.27                     | 0.53              |
| 23:CB:95:THR:OG1   | 23:CB:96:PRO:HD2   | 2.09                     | 0.53              |
| 23:CB:220:LYS:HG2  | 23:CB:329:PRO:HD3  | 1.90                     | 0.53              |
| 24:CC:107:PHE:CD1  | 1:D1:684:A:H4'     | 2.43                     | 0.53              |
| 25:CD:59:ILE:HD11  | 1:D1:2669:A:N3     | 2.23                     | 0.53              |
| 33:CL:13:LYS:HZ2   | 16:DQ:46:ARG:HA    | 1.73                     | 0.53              |
| 33:CL:196:GLN:HB3  | 18:DU:19:ARG:HH11  | 1.73                     | 0.53              |
| 39:CR:145:ASN:HA   | 39:CR:150:ILE:CG1  | 2.38                     | 0.53              |
| 40:CS:3:THR:HG21   | 1:D1:230:G:OP1     | 2.08                     | 0.53              |
| 41:CT:58:ARG:CZ    | 1:D1:3325:G:C4     | 2.91                     | 0.53              |
| 1:D1:38:A:H1'      | 50:D1:3762:HOH:O   | 2.07                     | 0.53              |
| 1:D1:49:A:H2'      | 1:D1:50:A:H8       | 1.73                     | 0.53              |
| 1:D1:90:G:H4'      | 4:DC:53:LYS:NZ     | 2.23                     | 0.53              |
| 1:D1:152:U:C5'     | 1:D1:153:C:OP2     | 2.56                     | 0.53              |
| 1:D1:485:A:C4'     | 1:D1:486:C:OP1     | 2.43                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1038:G:H2'    | 1:D1:1039:G:C8     | 2.43                     | 0.53              |
| 1:D1:1109:A:C1'    | 1:D1:1110:U:OP2    | 2.52                     | 0.53              |
| 1:D1:2203:A:H2'    | 1:D1:2204:U:C6     | 2.43                     | 0.53              |
| 1:D1:2539:A:C2     | 1:D1:2540:G:C5     | 2.95                     | 0.53              |
| 1:D1:3044:A:H5''   | 1:D1:3045:A:OP1    | 2.08                     | 0.53              |
| 1:D1:3096:U:H5''   | 10:DK:112:LYS:NZ   | 2.23                     | 0.53              |
| 1:D1:3183:A:O2'    | 1:D1:3184:A:P      | 2.65                     | 0.53              |
| 4:DC:98:LYS:O      | 4:DC:102:VAL:HG23  | 2.09                     | 0.53              |
| 17:DT:41:ARG:O     | 17:DT:45:ARG:HG3   | 2.08                     | 0.53              |
| 20:E2:2:G:H4'      | 20:E2:3:A:OP2      | 2.07                     | 0.53              |
| 21:E3:28:C:C2'     | 21:E3:29:C:H5'     | 2.34                     | 0.53              |
| 23:EB:114:THR:HG23 | 23:EB:115:LYS:N    | 2.22                     | 0.53              |
| 23:EB:337:ARG:HG2  | 23:EB:338:LYS:O    | 2.08                     | 0.53              |
| 24:EC:155:LEU:HA   | 24:EC:156:PRO:C    | 2.33                     | 0.53              |
| 29:EH:66:GLU:HA    | 29:EH:66:GLU:OE1   | 2.09                     | 0.53              |
| 33:EL:64:VAL:HG21  | 33:EL:106:VAL:CG2  | 2.39                     | 0.53              |
| 35:EN:162:HIS:O    | 1:F1:805:A:H5'     | 2.07                     | 0.53              |
| 43:EV:170:LEU:HD11 | 43:EV:198:PHE:HB2  | 1.89                     | 0.53              |
| 1:F1:35:U:H1'      | 50:F1:3656:HOH:O   | 2.08                     | 0.53              |
| 1:F1:157:A:O5'     | 16:FQ:25:HIS:CE1   | 2.61                     | 0.53              |
| 1:F1:167:U:H2'     | 1:F1:168:G:C8      | 2.43                     | 0.53              |
| 1:F1:436:U:O5'     | 1:F1:436:U:H6      | 1.91                     | 0.53              |
| 1:F1:606:U:H2'     | 1:F1:607:U:C6      | 2.43                     | 0.53              |
| 1:F1:1567:A:N6     | 1:F1:1578:U:H3     | 2.06                     | 0.53              |
| 1:F1:1601:U:H2'    | 1:F1:1602:U:H6     | 1.73                     | 0.53              |
| 1:F1:1919:A:O2'    | 1:F1:1920:A:C8     | 2.59                     | 0.53              |
| 1:F1:2672:U:H2'    | 1:F1:2673:C:C6     | 2.43                     | 0.53              |
| 1:F1:2789:A:C3'    | 1:F1:2790:A:H5''   | 2.37                     | 0.53              |
| 1:F1:3100:U:O2'    | 1:F1:3101:G:H5'    | 2.07                     | 0.53              |
| 8:FH:107:MET:SD    | 8:FH:109:TYR:HE2   | 2.31                     | 0.53              |
| 9:FJ:126:GLU:HG3   | 9:FJ:137:VAL:HG11  | 1.89                     | 0.53              |
| 15:FP:31:VAL:HG22  | 15:FP:44:LEU:HD23  | 1.90                     | 0.53              |
| 18:FU:91:ILE:CG2   | 18:FU:117:TYR:HE2  | 2.21                     | 0.53              |
| 18:FU:132:LYS:HA   | 18:FU:135:LEU:CD1  | 2.34                     | 0.53              |
| 20:G2:88:G:HO2'    | 20:G2:89:A:P       | 2.31                     | 0.53              |
| 23:GB:294:THR:HG22 | 23:GB:296:GLY:H    | 1.74                     | 0.53              |
| 30:GI:13:HIS:CE1   | 30:GI:118:VAL:HG13 | 2.42                     | 0.53              |
| 30:GI:18:LEU:O     | 30:GI:22:VAL:HG23  | 2.07                     | 0.53              |
| 30:GI:132:ARG:NH1  | 1:H1:1216:C:C2'    | 2.71                     | 0.53              |
| 32:GK:18:GLY:HA2   | 1:H1:1397:G:H5''   | 1.91                     | 0.53              |
| 32:GK:63:PHE:CE1   | 1:H1:282:G:C4      | 2.96                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 32:GK:126:LYS:HZ3 | 18:HU:162:ARG:HH21 | 1.54                     | 0.53              |
| 34:GM:18:THR:HG23 | 34:GM:18:THR:O     | 2.08                     | 0.53              |
| 34:GM:136:GLN:HB3 | 34:GM:141:PRO:HD3  | 1.90                     | 0.53              |
| 34:GM:156:GLY:CA  | 34:GM:181:PRO:HG3  | 2.38                     | 0.53              |
| 1:H1:1049:U:C4    | 1:H1:1050:C:N4     | 2.76                     | 0.53              |
| 1:H1:1599:G:H2'   | 1:H1:1600:U:O4'    | 2.08                     | 0.53              |
| 1:H1:1683:U:H2'   | 1:H1:1684:C:C6     | 2.44                     | 0.53              |
| 1:H1:1907:A:C2'   | 1:H1:1908:A:O5'    | 2.56                     | 0.53              |
| 1:H1:2258:C:O2'   | 1:H1:2259:U:H5'    | 2.08                     | 0.53              |
| 1:H1:2354:C:O2'   | 1:H1:2355:C:H5'    | 2.08                     | 0.53              |
| 1:H1:2649:G:H2'   | 1:H1:2650:U:C6     | 2.43                     | 0.53              |
| 1:H1:2718:U:C2    | 1:H1:2719:A:C8     | 2.96                     | 0.53              |
| 14:HO:75:THR:HG21 | 14:HO:77:GLU:CG    | 2.37                     | 0.53              |
| 18:HU:146:ALA:HB1 | 18:HU:148:ASN:HD22 | 1.72                     | 0.53              |
| 1:A1:74:G:H2'     | 18:AU:98:ARG:CD    | 2.38                     | 0.53              |
| 1:A1:169:A:C5     | 1:A1:251:A:C6      | 2.96                     | 0.53              |
| 1:A1:291:C:OP2    | 33:BL:68:ARG:NH1   | 2.36                     | 0.53              |
| 1:A1:403:G:H1'    | 20:B2:19:G:N2      | 2.22                     | 0.53              |
| 1:A1:467:A:N6     | 1:A1:512:G:C5      | 2.76                     | 0.53              |
| 1:A1:880:U:C4     | 1:A1:881:G:C6      | 2.96                     | 0.53              |
| 1:A1:880:U:O4     | 1:A1:881:G:C6      | 2.61                     | 0.53              |
| 1:A1:882:G:H2'    | 1:A1:883:A:OP2     | 2.08                     | 0.53              |
| 1:A1:1148:U:H2'   | 1:A1:1149:U:C6     | 2.43                     | 0.53              |
| 1:A1:1239:G:N3    | 19:AX:128:HIS:HE1  | 2.06                     | 0.53              |
| 1:A1:1782:C:H2'   | 1:A1:1783:U:H5''   | 1.90                     | 0.53              |
| 1:A1:2148:A:HO2'  | 1:A1:2238:A:HO2'   | 1.51                     | 0.53              |
| 1:A1:2886:G:H3'   | 1:A1:2886:G:H8     | 1.73                     | 0.53              |
| 1:A1:3071:C:C2'   | 1:A1:3072:G:H5'    | 2.39                     | 0.53              |
| 6:AF:11:ARG:HG2   | 6:AF:55:LEU:HD22   | 1.90                     | 0.53              |
| 7:AG:13:LYS:CB    | 7:AG:100:ILE:CD1   | 2.86                     | 0.53              |
| 13:AN:104:ASN:O   | 13:AN:105:ASN:HB3  | 2.07                     | 0.53              |
| 14:AO:58:ILE:HG21 | 14:AO:90:VAL:HG21  | 1.89                     | 0.53              |
| 19:AX:42:ARG:HE   | 19:AX:44:PHE:HE1   | 1.55                     | 0.53              |
| 19:AX:45:ALA:HA   | 19:AX:50:HIS:HD2   | 1.73                     | 0.53              |
| 24:BC:34:ARG:CZ   | 35:BN:24:ASN:HB3   | 2.38                     | 0.53              |
| 27:BF:92:TYR:HE2  | 27:BF:123:ILE:CG2  | 2.21                     | 0.53              |
| 37:BP:41:ASP:HB3  | 37:BP:97:ARG:NH1   | 2.23                     | 0.53              |
| 40:BS:82:GLU:HG2  | 40:BS:83:LYS:HG3   | 1.90                     | 0.53              |
| 23:CB:33:PRO:HA   | 23:CB:340:ILE:HA   | 1.90                     | 0.53              |
| 24:CC:65:MET:HE3  | 24:CC:105:ARG:HG2  | 1.90                     | 0.53              |
| 27:CF:169:PRO:HA  | 27:CF:216:ASN:HD21 | 1.73                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 31:CJ:11:VAL:O     | 31:CJ:11:VAL:CG1   | 2.55                     | 0.53              |
| 32:CK:24:LYS:CD    | 1:D1:967:U:O4      | 2.57                     | 0.53              |
| 35:CN:68:ILE:CG2   | 35:CN:81:ILE:HD13  | 2.39                     | 0.53              |
| 47:CO:84:THR:O     | 47:CO:88:ARG:HG3   | 2.07                     | 0.53              |
| 1:D1:1226:C:H4'    | 1:D1:1227:A:OP1    | 2.05                     | 0.53              |
| 1:D1:1403:C:HO2'   | 1:D1:1434:G:HO2'   | 1.56                     | 0.53              |
| 1:D1:2189:G:N7     | 50:D1:4666:HOH:O   | 2.33                     | 0.53              |
| 1:D1:2508:U:C4'    | 1:D1:2509:U:OP1    | 2.53                     | 0.53              |
| 1:D1:2817:U:C2'    | 1:D1:2818:G:H5'    | 2.39                     | 0.53              |
| 1:D1:3100:U:H2'    | 1:D1:3101:G:C5'    | 2.37                     | 0.53              |
| 1:D1:3110:U:OP2    | 10:DK:111:ARG:NH1  | 2.42                     | 0.53              |
| 3:DB:44:TRP:CZ3    | 3:DB:45:ARG:HD2    | 2.43                     | 0.53              |
| 13:DN:98:LYS:HB2   | 13:DN:101:LYS:HB2  | 1.90                     | 0.53              |
| 20:E2:114:G:C8     | 20:E2:114:G:C3'    | 2.90                     | 0.53              |
| 20:E2:140:U:H2'    | 20:E2:141:G:O4'    | 2.08                     | 0.53              |
| 23:EB:28:ARG:H     | 23:EB:272:HIS:CE1  | 2.27                     | 0.53              |
| 24:EC:152:VAL:HG12 | 14:FO:76:ILE:HD11  | 1.91                     | 0.53              |
| 24:EC:202:ARG:O    | 24:EC:203:ASN:HB2  | 2.08                     | 0.53              |
| 24:EC:319:ARG:HD2  | 1:F1:634:G:C8      | 2.44                     | 0.53              |
| 34:EM:38:ILE:HD11  | 1:F1:2738:G:O3'    | 2.08                     | 0.53              |
| 1:F1:511:U:H5''    | 14:FO:70:VAL:CG2   | 2.38                     | 0.53              |
| 1:F1:766:G:O2'     | 1:F1:767:C:P       | 2.66                     | 0.53              |
| 1:F1:838:G:H1'     | 2:FA:50:TRP:CZ2    | 2.43                     | 0.53              |
| 1:F1:1062:A:C6     | 1:F1:1063:C:C4     | 2.97                     | 0.53              |
| 1:F1:1113:A:H2'    | 1:F1:1114:C:C6     | 2.42                     | 0.53              |
| 1:F1:1475:A:C2     | 1:F1:2351:A:C4     | 2.96                     | 0.53              |
| 1:F1:1922:G:O2'    | 1:F1:1923:G:H5'    | 2.08                     | 0.53              |
| 1:F1:2132:U:H2'    | 1:F1:2138:A:N6     | 2.23                     | 0.53              |
| 1:F1:2632:A:H2'    | 1:F1:2634:G:OP1    | 2.08                     | 0.53              |
| 1:F1:2665:G:C5     | 1:F1:2669:A:N6     | 2.76                     | 0.53              |
| 1:F1:3100:U:H2'    | 1:F1:3101:G:H5'    | 1.89                     | 0.53              |
| 1:F1:3191:G:C5     | 1:F1:3218:U:O4     | 2.61                     | 0.53              |
| 2:FA:21:ARG:CZ     | 2:FA:44:MET:CE     | 2.87                     | 0.53              |
| 9:FJ:201:ASP:O     | 9:FJ:224:LEU:CD2   | 2.56                     | 0.53              |
| 13:FN:41:VAL:HG23  | 13:FN:77:LEU:CD2   | 2.37                     | 0.53              |
| 19:FX:167:LYS:CG   | 19:FX:188:THR:HG21 | 2.37                     | 0.53              |
| 21:G3:83:G:C5'     | 50:G3:303:HOH:O    | 2.56                     | 0.53              |
| 24:GC:27:ALA:HB2   | 24:GC:272:THR:HG23 | 1.90                     | 0.53              |
| 24:GC:60:ARG:NH1   | 1:H1:352:G:O6      | 2.37                     | 0.53              |
| 25:GD:7:ASN:C      | 25:GD:9:MET:N      | 2.65                     | 0.53              |
| 26:GE:67:VAL:O     | 26:GE:71:ILE:HG13  | 2.08                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:GE:103:VAL:HG23 | 26:GE:110:ILE:HG23 | 1.91                     | 0.53              |
| 27:GF:22:PHE:O     | 1:H1:2553:G:H5''   | 2.08                     | 0.53              |
| 27:GF:36:GLN:HG3   | 27:GF:37:PRO:CD    | 2.32                     | 0.53              |
| 28:GG:22:UNK:O     | 28:GG:119:UNK:N    | 2.40                     | 0.53              |
| 32:GK:100:PRO:HA   | 18:HU:164:LYS:CE   | 2.39                     | 0.53              |
| 33:GL:53:TYR:O     | 33:GL:54:LYS:HG2   | 2.08                     | 0.53              |
| 33:GL:201:ARG:HG2  | 18:HU:23:PHE:CD2   | 2.44                     | 0.53              |
| 34:GM:79:ASP:N     | 34:GM:79:ASP:OD1   | 2.41                     | 0.53              |
| 35:GN:173:LYS:HE2  | 1:H1:87:A:OP2      | 2.09                     | 0.53              |
| 1:H1:139:A:HO2'    | 1:H1:140:A:H8      | 1.55                     | 0.53              |
| 1:H1:158:G:H2'     | 1:H1:159:G:H8      | 1.73                     | 0.53              |
| 1:H1:436:U:O5'     | 1:H1:436:U:H6      | 1.92                     | 0.53              |
| 1:H1:1048:U:C2'    | 1:H1:1049:U:H5''   | 2.29                     | 0.53              |
| 1:H1:1433:A:H5'    | 1:H1:1434:G:OP2    | 2.08                     | 0.53              |
| 1:H1:1592:G:C6     | 1:H1:1593:A:C6     | 2.96                     | 0.53              |
| 1:H1:1922:G:O2'    | 1:H1:1923:G:H5'    | 2.08                     | 0.53              |
| 1:H1:2309:U:C4'    | 1:H1:2310:G:OP2    | 2.56                     | 0.53              |
| 1:H1:2391:G:H5'    | 1:H1:2392:A:C5'    | 2.38                     | 0.53              |
| 1:H1:2545:A:O2'    | 1:H1:2546:A:OP1    | 2.23                     | 0.53              |
| 1:H1:2731:C:O4'    | 4:HC:18:HIS:CD2    | 2.62                     | 0.53              |
| 1:H1:3022:A:H2'    | 1:H1:3023:C:C6     | 2.44                     | 0.53              |
| 1:H1:3235:U:N3     | 8:HH:12:THR:O      | 2.42                     | 0.53              |
| 6:HF:121:THR:HG22  | 6:HF:121:THR:O     | 2.09                     | 0.53              |
| 7:HG:9:ASN:O       | 7:HG:13:LYS:HB3    | 2.08                     | 0.53              |
| 9:HJ:118:HIS:HE1   | 9:HJ:146:VAL:HB    | 1.69                     | 0.53              |
| 15:HP:32:TYR:N     | 15:HP:32:TYR:CD1   | 2.75                     | 0.53              |
| 19:HX:58:ASN:O     | 19:HX:62:LEU:HG    | 2.08                     | 0.53              |
| 1:A1:90:G:O3'      | 4:AC:53:LYS:NZ     | 2.41                     | 0.53              |
| 1:A1:167:U:O2'     | 42:BU:113:ASN:HB3  | 2.09                     | 0.53              |
| 1:A1:302:G:N2      | 1:A1:2766:A:C8     | 2.75                     | 0.53              |
| 1:A1:578:G:C2'     | 1:A1:579:G:H5''    | 2.39                     | 0.53              |
| 1:A1:1223:U:O2     | 1:A1:1223:U:C2'    | 2.54                     | 0.53              |
| 1:A1:1367:A:H2'    | 1:A1:1368:U:H6     | 1.72                     | 0.53              |
| 1:A1:1411:U:C2     | 1:A1:1412:U:C5     | 2.96                     | 0.53              |
| 1:A1:1600:U:C4     | 1:A1:1601:U:C5     | 2.96                     | 0.53              |
| 1:A1:2278:G:O2'    | 1:A1:2279:C:O5'    | 2.27                     | 0.53              |
| 1:A1:2308:A:OP2    | 50:A1:4538:HOH:O   | 2.18                     | 0.53              |
| 1:A1:2508:U:C4'    | 1:A1:2509:U:OP1    | 2.55                     | 0.53              |
| 1:A1:3096:U:H5''   | 10:AK:112:LYS:HZ3  | 1.73                     | 0.53              |
| 1:A1:3161:A:C2     | 1:A1:3176:A:C6     | 2.96                     | 0.53              |
| 6:AF:8:GLN:NE2     | 6:AF:11:ARG:NH1    | 2.56                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 7:AG:13:LYS:CG     | 7:AG:14:LEU:N      | 2.71                     | 0.53              |
| 21:B3:48:G:O2'     | 34:BM:227:GLN:HG3  | 2.08                     | 0.53              |
| 25:BD:20:ASN:HB2   | 25:BD:68:HIS:HB3   | 1.91                     | 0.53              |
| 26:BE:135:LYS:H    | 26:BE:138:GLU:HG3  | 1.73                     | 0.53              |
| 29:BH:16:PRO:HG3   | 29:BH:128:ARG:HH11 | 1.73                     | 0.53              |
| 32:BK:74:VAL:CG1   | 32:BK:113:LEU:HG   | 2.39                     | 0.53              |
| 32:BK:91:LYS:HG2   | 32:BK:92:TYR:CD1   | 2.44                     | 0.53              |
| 44:BW:14:ASN:HD21  | 44:BW:17:LYS:HE3   | 1.73                     | 0.53              |
| 21:C3:83:G:H5''    | 50:C3:304:HOH:O    | 2.08                     | 0.53              |
| 22:CA:180:ILE:O    | 1:D1:2145:A:O3'    | 2.27                     | 0.53              |
| 24:CC:14:GLU:HB3   | 24:CC:17:LYS:HG3   | 1.90                     | 0.53              |
| 24:CC:33:ILE:HD13  | 24:CC:135:ALA:HA   | 1.90                     | 0.53              |
| 29:CH:213:ARG:HH12 | 1:D1:1040:A:H1'    | 1.74                     | 0.53              |
| 30:CI:55:GLU:O     | 30:CI:59:LYS:HE2   | 2.07                     | 0.53              |
| 33:CL:185:ARG:NH1  | 1:D1:62:G:OP1      | 2.40                     | 0.53              |
| 37:CP:112:ASN:HB3  | 37:CP:128:THR:OG1  | 2.08                     | 0.53              |
| 38:CQ:38:ILE:CD1   | 38:CQ:93:ILE:HG21  | 2.37                     | 0.53              |
| 40:CS:24:HIS:CD2   | 40:CS:25:LEU:N     | 2.77                     | 0.53              |
| 43:CV:127:VAL:C    | 43:CV:129:PRO:HD2  | 2.34                     | 0.53              |
| 45:CX:22:PHE:O     | 45:CX:23:GLU:HB2   | 2.08                     | 0.53              |
| 45:CX:43:ARG:HA    | 45:CX:48:PHE:CD2   | 2.44                     | 0.53              |
| 1:D1:568:A:N1      | 1:D1:602:A:C2      | 2.77                     | 0.53              |
| 1:D1:1185:A:O2'    | 1:D1:1357:A:H2     | 1.92                     | 0.53              |
| 1:D1:2886:G:H3'    | 1:D1:2886:G:C8     | 2.43                     | 0.53              |
| 1:D1:3045:A:H4'    | 1:D1:3046:A:OP1    | 2.07                     | 0.53              |
| 1:D1:3120:U:H2'    | 1:D1:3120:U:O2     | 2.06                     | 0.53              |
| 1:D1:3228:U:C4     | 5:DE:146:LYS:HG3   | 2.43                     | 0.53              |
| 1:D1:3230:G:C6     | 5:DE:119:ARG:HD2   | 2.42                     | 0.53              |
| 2:DA:14:LYS:NZ     | 3:DB:52:TYR:HE1    | 2.06                     | 0.53              |
| 18:DU:132:LYS:HA   | 18:DU:135:LEU:CD1  | 2.34                     | 0.53              |
| 22:EA:104:PRO:HB2  | 22:EA:106:ASN:OD1  | 2.08                     | 0.53              |
| 23:EB:364:GLY:HA3  | 1:F1:3288:A:H4'    | 1.90                     | 0.53              |
| 24:EC:289:LEU:HD12 | 35:EN:24:ASN:HD22  | 1.74                     | 0.53              |
| 26:EE:45:ILE:HG12  | 26:EE:55:LEU:CD2   | 2.38                     | 0.53              |
| 30:EI:80:TRP:CH2   | 30:EI:84:ARG:NH1   | 2.77                     | 0.53              |
| 33:EL:54:LYS:HD3   | 1:F1:149:U:OP1     | 2.08                     | 0.53              |
| 33:EL:177:LYS:HG2  | 33:EL:185:ARG:HH21 | 1.72                     | 0.53              |
| 1:F1:70:C:N4       | 1:F1:72:A:C6       | 2.76                     | 0.53              |
| 1:F1:296:G:C3'     | 16:FQ:34:LEU:HD21  | 2.39                     | 0.53              |
| 1:F1:1376:A:H5''   | 1:F1:1377:A:O5'    | 2.07                     | 0.53              |
| 1:F1:1767:U:C4'    | 1:F1:1768:G:OP2    | 2.56                     | 0.53              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:F1:2247:A:C2     | 1:F1:2260:C:O2    | 2.60                     | 0.53              |
| 1:F1:2617:G:H5''   | 1:F1:2618:C:OP2   | 2.07                     | 0.53              |
| 1:F1:2907:A:P      | 50:F1:4327:HOH:O  | 2.66                     | 0.53              |
| 4:FC:10:THR:O      | 4:FC:18:HIS:HA    | 2.09                     | 0.53              |
| 7:FG:13:LYS:CB     | 7:FG:100:ILE:CD1  | 2.86                     | 0.53              |
| 19:FX:16:MET:HE1   | 19:FX:121:ILE:CD1 | 2.22                     | 0.53              |
| 22:GA:49:ILE:HA    | 22:GA:59:LEU:O    | 2.09                     | 0.53              |
| 23:GB:250:ILE:CG1  | 1:H1:2388:G:H4'   | 2.39                     | 0.53              |
| 24:GC:133:LEU:O    | 24:GC:136:SER:OG  | 2.25                     | 0.53              |
| 24:GC:205:ARG:HH21 | 40:GS:11:ARG:NH1  | 2.07                     | 0.53              |
| 26:GE:42:SER:O     | 1:H1:3168:A:N3    | 2.40                     | 0.53              |
| 29:GH:182:SER:O    | 29:GH:185:ARG:HB2 | 2.08                     | 0.53              |
| 33:GL:115:VAL:HG22 | 33:GL:134:LEU:CD2 | 2.38                     | 0.53              |
| 33:GL:192:TRP:CZ2  | 33:GL:196:GLN:HG3 | 2.44                     | 0.53              |
| 34:GM:166:ALA:HB3  | 34:GM:173:ILE:CD1 | 2.39                     | 0.53              |
| 34:GM:240:VAL:HG12 | 34:GM:242:SER:H   | 1.73                     | 0.53              |
| 35:GN:107:THR:HG21 | 1:H1:700:G:H3'    | 1.91                     | 0.53              |
| 42:GU:97:THR:HG22  | 42:GU:98:LYS:H    | 1.73                     | 0.53              |
| 44:GW:54:LEU:HA    | 44:GW:94:HIS:HB2  | 1.89                     | 0.53              |
| 45:GX:75:LYS:NZ    | 45:GX:97:GLU:OE1  | 2.41                     | 0.53              |
| 1:H1:430:G:H2'     | 1:H1:431:A:C8     | 2.44                     | 0.53              |
| 1:H1:1736:G:C2     | 1:H1:1737:A:C2    | 2.96                     | 0.53              |
| 1:H1:2737:A:C2'    | 1:H1:2738:G:H5'   | 2.38                     | 0.53              |
| 1:H1:2865:G:H2'    | 1:H1:2866:G:H8    | 1.72                     | 0.53              |
| 1:H1:2962:U:H2'    | 1:H1:2963:U:C6    | 2.43                     | 0.53              |
| 5:HE:28:PHE:CD1    | 5:HE:28:PHE:C     | 2.86                     | 0.53              |
| 6:HF:38:ILE:HD12   | 6:HF:48:ILE:HB    | 1.90                     | 0.53              |
| 9:HJ:61:ARG:HD3    | 9:HJ:106:ASN:OD1  | 2.08                     | 0.53              |
| 9:HJ:186:ILE:CD1   | 9:HJ:197:LEU:HB2  | 2.38                     | 0.53              |
| 16:HQ:15:THR:HG21  | 18:HU:103:CYS:SG  | 2.48                     | 0.53              |
| 1:A1:253:G:C2'     | 1:A1:254:G:H5''   | 2.33                     | 0.53              |
| 1:A1:267:A:H5''    | 33:BL:47:LYS:NZ   | 2.22                     | 0.53              |
| 1:A1:512:G:C2      | 1:A1:513:G:C5     | 2.96                     | 0.53              |
| 1:A1:556:A:N1      | 1:A1:611:A:H2     | 2.07                     | 0.53              |
| 1:A1:581:C:H2'     | 1:A1:582:A:C5'    | 2.37                     | 0.53              |
| 1:A1:1627:A:C6     | 1:A1:1628:A:C6    | 2.97                     | 0.53              |
| 1:A1:2571:U:H2'    | 1:A1:2572:U:C6    | 2.44                     | 0.53              |
| 1:A1:2719:A:C4     | 1:A1:2720:G:C8    | 2.97                     | 0.53              |
| 1:A1:2819:G:N7     | 50:A1:4303:HOH:O  | 2.33                     | 0.53              |
| 1:A1:2863:U:H2'    | 1:A1:2863:U:O2    | 2.07                     | 0.53              |
| 1:A1:2931:G:OP2    | 23:BB:2:SER:HB2   | 2.09                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3005:A:H2'    | 1:A1:3006:A:H8     | 1.73                     | 0.53              |
| 1:A1:3120:U:O2     | 1:A1:3120:U:H2'    | 2.07                     | 0.53              |
| 1:A1:3157:C:OP1    | 1:A1:3159:A:H1'    | 2.09                     | 0.53              |
| 1:A1:3240:A:H2'    | 1:A1:3241:U:O4'    | 2.09                     | 0.53              |
| 2:AA:67:TYR:HB3    | 20:B2:44:A:OP1     | 2.09                     | 0.53              |
| 6:AF:121:THR:HG22  | 6:AF:121:THR:O     | 2.08                     | 0.53              |
| 8:AH:19:ALA:O      | 8:AH:37:LEU:HA     | 2.09                     | 0.53              |
| 18:AU:122:VAL:O    | 42:BU:120:PHE:HA   | 2.08                     | 0.53              |
| 24:BC:149:ILE:HG22 | 24:BC:149:ILE:O    | 2.09                     | 0.53              |
| 34:BM:48:LYS:HE2   | 34:BM:145:ILE:CD1  | 2.38                     | 0.53              |
| 34:BM:54:ARG:NH1   | 34:BM:149:GLY:HA3  | 2.24                     | 0.53              |
| 36:BO:84:THR:O     | 36:BO:88:ARG:HG3   | 2.07                     | 0.53              |
| 36:BO:149:LYS:CD   | 36:BO:151:LYS:HE2  | 2.38                     | 0.53              |
| 46:BY:60:CYS:SG    | 46:BY:62:LYS:HG2   | 2.48                     | 0.53              |
| 20:C2:3:A:C2       | 1:D1:3243:A:O4'    | 2.61                     | 0.53              |
| 20:C2:7:U:OP1      | 38:CQ:64:ARG:HG3   | 2.08                     | 0.53              |
| 20:C2:107:C:C5     | 20:C2:135:A:C5     | 2.96                     | 0.53              |
| 22:CA:212:HIS:O    | 22:CA:213:GLY:C    | 2.48                     | 0.53              |
| 27:CF:22:PHE:CE1   | 13:DN:54:THR:O     | 2.62                     | 0.53              |
| 27:CF:183:VAL:HG12 | 27:CF:185:LYS:HE3  | 1.89                     | 0.53              |
| 29:CH:80:ILE:HG22  | 29:CH:81:SER:N     | 2.23                     | 0.53              |
| 29:CH:182:SER:O    | 29:CH:185:ARG:HB2  | 2.08                     | 0.53              |
| 34:CM:125:VAL:HG21 | 34:CM:205:PHE:CZ   | 2.43                     | 0.53              |
| 35:CN:167:VAL:HG13 | 35:CN:169:SER:H    | 1.74                     | 0.53              |
| 1:D1:282:G:H22     | 1:D1:304:U:H4'     | 1.68                     | 0.53              |
| 1:D1:527:A:H5'     | 5:DE:13:SER:OG     | 2.09                     | 0.53              |
| 1:D1:1054:G:C6     | 1:D1:1055:A:N6     | 2.76                     | 0.53              |
| 1:D1:1172:G:O6     | 1:D1:1185:A:H2     | 1.92                     | 0.53              |
| 1:D1:1593:A:C5     | 1:D1:1594:C:N4     | 2.77                     | 0.53              |
| 1:D1:2703:G:HO2'   | 1:D1:2740:G:H2'    | 1.67                     | 0.53              |
| 1:D1:2841:G:O6     | 50:D1:4316:HOH:O   | 2.17                     | 0.53              |
| 1:D1:2889:G:P      | 50:D1:4732:HOH:O   | 2.67                     | 0.53              |
| 1:D1:2934:A:H1'    | 1:D1:2969:U:C4     | 2.43                     | 0.53              |
| 3:DB:33:THR:CG2    | 3:DB:35:ILE:H      | 2.06                     | 0.53              |
| 5:DE:115:ASP:N     | 5:DE:115:ASP:OD1   | 2.41                     | 0.53              |
| 14:DO:114:PHE:O    | 14:DO:117:ALA:HB3  | 2.08                     | 0.53              |
| 22:EA:214:GLY:CA   | 1:F1:2955:A:OP1    | 2.57                     | 0.53              |
| 22:EA:239:ARG:HH12 | 1:F1:2158:C:H5'    | 1.67                     | 0.53              |
| 24:EC:99:ASN:HD22  | 24:EC:100:GLN:NE2  | 2.06                     | 0.53              |
| 24:EC:251:HIS:CE1  | 14:FO:12:ASN:OD1   | 2.62                     | 0.53              |
| 24:EC:395:ASP:CG   | 37:EP:154:ARG:HH22 | 2.14                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 25:ED:20:ASN:HB2   | 25:ED:68:HIS:HB3   | 1.90                     | 0.53              |
| 42:EU:123:LYS:HZ1  | 18:FU:144:SER:HB2  | 1.69                     | 0.53              |
| 44:EW:28:ALA:CA    | 44:EW:66:ILE:HD11  | 2.34                     | 0.53              |
| 45:EX:3:ILE:O      | 45:EX:3:ILE:HG22   | 2.09                     | 0.53              |
| 1:F1:512:G:N2      | 1:F1:513:G:C4      | 2.76                     | 0.53              |
| 1:F1:629:A:H4'     | 1:F1:629:A:OP1     | 2.08                     | 0.53              |
| 1:F1:838:G:H4'     | 2:FA:47:TYR:CE2    | 2.44                     | 0.53              |
| 1:F1:871:A:H2'     | 1:F1:872:A:H8      | 1.72                     | 0.53              |
| 1:F1:1078:U:C5     | 1:F1:1079:A:C5     | 2.97                     | 0.53              |
| 1:F1:1091:G:O2'    | 1:F1:1092:C:OP1    | 2.23                     | 0.53              |
| 1:F1:1435:C:O3'    | 50:F1:4190:HOH:O   | 2.19                     | 0.53              |
| 1:F1:1621:G:H2'    | 1:F1:1622:A:C8     | 2.44                     | 0.53              |
| 1:F1:2300:G:C4'    | 1:F1:2301:C:OP1    | 2.46                     | 0.53              |
| 1:F1:2651:A:C5     | 50:F1:4674:HOH:O   | 2.55                     | 0.53              |
| 1:F1:2886:G:H4'    | 1:F1:2887:C:OP2    | 2.09                     | 0.53              |
| 1:F1:2934:A:H1'    | 1:F1:2969:U:C4     | 2.43                     | 0.53              |
| 1:F1:3030:A:H2'    | 1:F1:3031:U:C6     | 2.44                     | 0.53              |
| 1:F1:3161:A:C2     | 1:F1:3176:A:C6     | 2.96                     | 0.53              |
| 2:FA:21:ARG:CZ     | 2:FA:44:MET:HE1    | 2.37                     | 0.53              |
| 6:FF:13:VAL:HG22   | 6:FF:55:LEU:HD23   | 1.91                     | 0.53              |
| 6:FF:41:GLU:OE1    | 6:FF:73:LYS:HD3    | 2.08                     | 0.53              |
| 11:FL:98:GLU:OE1   | 11:FL:98:GLU:HA    | 2.07                     | 0.53              |
| 22:GA:117:VAL:HG11 | 22:GA:149:ILE:CD1  | 2.38                     | 0.53              |
| 26:GE:5:LEU:HB2    | 26:GE:58:TRP:CZ3   | 2.44                     | 0.53              |
| 30:GI:61:MET:HE1   | 30:GI:68:GLY:CA    | 2.34                     | 0.53              |
| 33:GL:38:LYS:HB2   | 33:GL:62:TRP:CZ2   | 2.43                     | 0.53              |
| 35:GN:3:ILE:HG23   | 43:GV:106:ARG:O    | 2.09                     | 0.53              |
| 35:GN:37:LEU:O     | 35:GN:41:THR:CB    | 2.57                     | 0.53              |
| 35:GN:57:ARG:NH1   | 1:H1:697:A:H5'     | 2.24                     | 0.53              |
| 39:GR:75:LEU:HD21  | 39:GR:93:TYR:CE2   | 2.43                     | 0.53              |
| 39:GR:75:LEU:HB2   | 39:GR:91:VAL:HB    | 1.90                     | 0.53              |
| 40:GS:55:VAL:HG12  | 40:GS:56:LEU:N     | 2.22                     | 0.53              |
| 42:GU:33:ARG:O     | 42:GU:37:ILE:HG13  | 2.08                     | 0.53              |
| 44:GW:11:THR:OG1   | 44:GW:105:THR:HG23 | 2.07                     | 0.53              |
| 1:H1:70:C:N4       | 1:H1:72:A:C6       | 2.76                     | 0.53              |
| 1:H1:223:C:HO2'    | 1:H1:224:C:P       | 2.31                     | 0.53              |
| 1:H1:2123:U:C2'    | 1:H1:2124:C:H5'    | 2.38                     | 0.53              |
| 1:H1:2521:A:C6     | 1:H1:2522:A:C6     | 2.97                     | 0.53              |
| 1:H1:2577:G:H2'    | 1:H1:2578:A:O5'    | 2.08                     | 0.53              |
| 50:H1:4001:HOH:O   | 17:HT:19:ASN:HB2   | 2.09                     | 0.53              |
| 1:A1:100:A:O2'     | 18:AU:60:THR:OG1   | 2.04                     | 0.53              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A1:656:C:OP1    | 30:BI:92:PRO:HG2  | 2.09                     | 0.53              |
| 1:A1:800:G:O2'    | 1:A1:801:U:C5     | 2.62                     | 0.53              |
| 1:A1:986:C:H4'    | 1:A1:987:A:C5'    | 2.38                     | 0.53              |
| 1:A1:1187:C:OP1   | 1:A1:1359:A:H5''  | 2.09                     | 0.53              |
| 1:A1:1196:A:N6    | 1:A1:1357:A:C8    | 2.76                     | 0.53              |
| 1:A1:1599:G:C4    | 1:A1:1600:U:C6    | 2.96                     | 0.53              |
| 1:A1:1919:A:O2'   | 1:A1:1920:A:C8    | 2.59                     | 0.53              |
| 1:A1:2521:A:C6    | 27:BF:43:ARG:NH1  | 2.77                     | 0.53              |
| 1:A1:2726:C:C2'   | 1:A1:2727:A:H5'   | 2.38                     | 0.53              |
| 1:A1:2919:C:N3    | 1:A1:2923:U:H5    | 2.04                     | 0.53              |
| 1:A1:3259:U:O2'   | 38:BQ:57:LYS:HE2  | 2.08                     | 0.53              |
| 2:AA:77:ASN:ND2   | 20:B2:95:C:H5''   | 2.23                     | 0.53              |
| 11:AL:23:VAL:HG21 | 11:AL:33:GLN:CD   | 2.33                     | 0.53              |
| 18:AU:44:VAL:HG12 | 18:AU:44:VAL:O    | 2.08                     | 0.53              |
| 20:B2:130:C:O2'   | 39:BR:64:HIS:HD2  | 1.92                     | 0.53              |
| 22:BA:48:ASP:OD1  | 22:BA:49:ILE:N    | 2.42                     | 0.53              |
| 23:BB:337:ARG:HG2 | 23:BB:338:LYS:O   | 2.08                     | 0.53              |
| 23:BB:381:ASP:HB3 | 23:BB:384:LYS:CB  | 2.39                     | 0.53              |
| 27:BF:92:TYR:CE1  | 27:BF:200:ASP:OD2 | 2.62                     | 0.53              |
| 27:BF:92:TYR:OH   | 27:BF:200:ASP:OD2 | 2.22                     | 0.53              |
| 31:BJ:32:ASN:HD21 | 31:BJ:117:GLN:H   | 1.56                     | 0.53              |
| 33:BL:38:LYS:HB2  | 33:BL:62:TRP:CZ2  | 2.43                     | 0.53              |
| 37:BP:17:LYS:NZ   | 37:BP:47:SER:HB3  | 2.24                     | 0.53              |
| 37:BP:57:TYR:OH   | 37:BP:87:LYS:HD2  | 2.08                     | 0.53              |
| 20:C2:134:C:H3'   | 20:C2:134:C:C6    | 2.43                     | 0.53              |
| 22:CA:70:TYR:OH   | 1:D1:2548:G:OP1   | 2.27                     | 0.53              |
| 23:CB:360:SER:O   | 23:CB:362:LYS:HE2 | 2.08                     | 0.53              |
| 25:CD:93:LYS:HE2  | 25:CD:156:LYS:NZ  | 2.23                     | 0.53              |
| 29:CH:48:TYR:CE2  | 29:CH:142:GLU:CG  | 2.92                     | 0.53              |
| 29:CH:139:ARG:HG2 | 29:CH:173:PHE:HE1 | 1.74                     | 0.53              |
| 30:CI:20:SER:HB3  | 30:CI:86:MET:HE1  | 1.91                     | 0.53              |
| 32:CK:98:LYS:HD2  | 18:DU:164:LYS:O   | 2.08                     | 0.53              |
| 33:CL:47:LYS:NZ   | 1:D1:267:A:H5''   | 2.23                     | 0.53              |
| 35:CN:128:ALA:O   | 35:CN:132:PRO:HD3 | 2.09                     | 0.53              |
| 38:CQ:134:ALA:O   | 38:CQ:135:HIS:HB2 | 2.08                     | 0.53              |
| 40:CS:82:GLU:HG2  | 40:CS:83:LYS:HG3  | 1.90                     | 0.53              |
| 42:CU:21:GLU:HG2  | 42:CU:58:TYR:OH   | 2.08                     | 0.53              |
| 46:CY:33:GLN:HG3  | 46:CY:34:HIS:CD2  | 2.44                     | 0.53              |
| 1:D1:135:A:H2'    | 1:D1:242:G:N7     | 2.24                     | 0.53              |
| 1:D1:155:A:H1'    | 16:DQ:27:ALA:CB   | 2.39                     | 0.53              |
| 1:D1:673:A:OP2    | 1:D1:2856:U:O2'   | 2.27                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:766:G:O2'     | 1:D1:767:C:P       | 2.66                     | 0.53              |
| 1:D1:848:C:H2'     | 1:D1:849:U:C6      | 2.44                     | 0.53              |
| 1:D1:1106:U:O2     | 1:D1:1110:U:C2     | 2.62                     | 0.53              |
| 1:D1:1839:A:O2'    | 1:D1:1840:U:C5     | 2.62                     | 0.53              |
| 1:D1:3109:C:H5''   | 10:DK:111:ARG:HH12 | 1.74                     | 0.53              |
| 1:D1:3226:A:C2     | 5:DE:83:ASN:O      | 2.61                     | 0.53              |
| 2:DA:21:ARG:NH1    | 2:DA:39:TYR:HA     | 2.23                     | 0.53              |
| 9:DJ:99:GLU:HG3    | 9:DJ:101:LEU:N     | 2.23                     | 0.53              |
| 12:DM:77:TYR:O     | 12:DM:77:TYR:HD1   | 1.92                     | 0.53              |
| 18:DU:123:LEU:HD23 | 18:DU:136:VAL:HG22 | 1.89                     | 0.53              |
| 21:E3:10:C:N3      | 34:EM:20:TYR:HD1   | 2.05                     | 0.53              |
| 21:E3:27:A:H5''    | 34:EM:57:ASN:ND2   | 2.20                     | 0.53              |
| 21:E3:48:G:H2'     | 21:E3:49:A:C8      | 2.44                     | 0.53              |
| 21:E3:92:C:H2'     | 21:E3:93:G:C8      | 2.44                     | 0.53              |
| 22:EA:133:CYS:SG   | 1:F1:2173:A:H5''   | 2.48                     | 0.53              |
| 24:EC:175:PHE:CD1  | 24:EC:175:PHE:C    | 2.87                     | 0.53              |
| 24:EC:272:THR:CG2  | 24:EC:273:TYR:H    | 2.22                     | 0.53              |
| 26:EE:23:ARG:HH11  | 26:EE:39:ARG:HA    | 1.74                     | 0.53              |
| 27:EF:69:GLN:HG2   | 27:EF:222:ARG:HH12 | 1.74                     | 0.53              |
| 33:EL:110:VAL:CG1  | 33:EL:113:LEU:HG   | 2.36                     | 0.53              |
| 33:EL:149:ASN:O    | 33:EL:152:CYS:HB2  | 2.08                     | 0.53              |
| 34:EM:240:VAL:HG12 | 34:EM:242:SER:H    | 1.72                     | 0.53              |
| 35:EN:10:ARG:O     | 1:F1:1369:C:H4'    | 2.09                     | 0.53              |
| 38:EQ:66:THR:HG22  | 38:EQ:66:THR:O     | 2.07                     | 0.53              |
| 38:EQ:107:LYS:CB   | 38:EQ:109:LEU:HG   | 2.38                     | 0.53              |
| 38:EQ:131:THR:OG1  | 1:F1:1533:G:N2     | 2.42                     | 0.53              |
| 39:ER:145:ASN:HA   | 39:ER:150:ILE:CG1  | 2.39                     | 0.53              |
| 40:ES:50:ARG:HB2   | 40:ES:114:ARG:NH2  | 2.24                     | 0.53              |
| 42:EU:122:LEU:O    | 18:FU:148:ASN:ND2  | 2.41                     | 0.53              |
| 1:F1:644:A:H2'     | 1:F1:645:A:H5''    | 1.90                     | 0.53              |
| 1:F1:1394:G:H8     | 1:F1:1394:G:O5'    | 1.92                     | 0.53              |
| 1:F1:1492:G:C2'    | 1:F1:1493:A:H5''   | 2.38                     | 0.53              |
| 1:F1:1595:A:OP2    | 1:F1:1596:U:C5     | 2.61                     | 0.53              |
| 1:F1:1650:U:O2     | 1:F1:1668:A:H5'    | 2.08                     | 0.53              |
| 1:F1:1745:U:C2     | 1:F1:1748:U:C5     | 2.96                     | 0.53              |
| 1:F1:1821:U:H1'    | 1:F1:1822:G:C2     | 2.43                     | 0.53              |
| 1:F1:2187:C:H2'    | 1:F1:2188:U:H5'    | 1.90                     | 0.53              |
| 1:F1:2203:A:H2'    | 1:F1:2204:U:C6     | 2.43                     | 0.53              |
| 1:F1:2750:G:H4'    | 1:F1:2751:A:OP1    | 2.09                     | 0.53              |
| 1:F1:2814:U:C2'    | 1:F1:2815:U:H5'    | 2.38                     | 0.53              |
| 1:F1:3008:U:OP1    | 9:FJ:31:SER:HB3    | 2.09                     | 0.53              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 4:FC:63:THR:HG22   | 4:FC:87:LYS:HG2   | 1.90                     | 0.53              |
| 5:FE:86:PRO:HB2    | 5:FE:153:GLN:NE2  | 2.02                     | 0.53              |
| 6:FF:121:THR:HG22  | 6:FF:121:THR:O    | 2.09                     | 0.53              |
| 12:FM:24:PRO:HA    | 12:FM:109:TYR:OH  | 2.07                     | 0.53              |
| 18:FU:54:PRO:HG3   | 18:FU:72:GLY:O    | 2.08                     | 0.53              |
| 22:GA:181:LEU:HD12 | 46:GY:14:TYR:CE1  | 2.44                     | 0.53              |
| 22:GA:188:HIS:O    | 22:GA:191:ALA:HB3 | 2.09                     | 0.53              |
| 22:GA:219:HIS:HA   | 50:GA:403:HOH:O   | 2.08                     | 0.53              |
| 23:GB:106:TRP:HB2  | 23:GB:133:HIS:CE1 | 2.44                     | 0.53              |
| 25:GD:106:ILE:HD12 | 25:GD:127:PHE:CE1 | 2.43                     | 0.53              |
| 29:GH:48:TYR:CE2   | 29:GH:142:GLU:CG  | 2.92                     | 0.53              |
| 33:GL:18:LEU:HD23  | 33:GL:19:MET:HE3  | 1.91                     | 0.53              |
| 40:GS:107:LYS:O    | 40:GS:107:LYS:HG3 | 2.07                     | 0.53              |
| 42:GU:44:LYS:HA    | 42:GU:47:ARG:HD2  | 1.91                     | 0.53              |
| 43:GV:129:PRO:HA   | 43:GV:224:TRP:CG  | 2.43                     | 0.53              |
| 43:GV:132:THR:CG2  | 43:GV:227:ARG:HG3 | 2.39                     | 0.53              |
| 1:H1:76:U:C2'      | 1:H1:77:A:H5'     | 2.39                     | 0.53              |
| 1:H1:1051:C:C2'    | 1:H1:1052:A:H8    | 2.21                     | 0.53              |
| 1:H1:1102:U:H2'    | 17:HT:45:ARG:HH12 | 1.73                     | 0.53              |
| 1:H1:1693:U:H2'    | 1:H1:1694:C:C6    | 2.43                     | 0.53              |
| 1:H1:1702:G:H2'    | 1:H1:1703:A:H8    | 1.73                     | 0.53              |
| 1:H1:1775:A:H4'    | 15:HP:34:LYS:NZ   | 2.22                     | 0.53              |
| 1:H1:2264:U:O2     | 1:H1:2264:U:C2'   | 2.56                     | 0.53              |
| 1:H1:2669:A:H3'    | 1:H1:2670:U:C6    | 2.44                     | 0.53              |
| 1:H1:3109:C:O3'    | 1:H1:3110:U:H6    | 1.92                     | 0.53              |
| 1:H1:3140:C:H4'    | 1:H1:3254:A:O4'   | 2.09                     | 0.53              |
| 5:HE:55:ALA:HB2    | 8:HH:109:TYR:CE1  | 2.32                     | 0.53              |
| 15:HP:58:PRO:O     | 15:HP:61:ALA:HB3  | 2.08                     | 0.53              |
| 1:A1:141:C:C2'     | 1:A1:142:A:H5'    | 2.38                     | 0.53              |
| 1:A1:316:A:C2      | 1:A1:317:A:C4     | 2.97                     | 0.53              |
| 1:A1:368:A:C4'     | 1:A1:369:U:OP2    | 2.57                     | 0.53              |
| 1:A1:559:G:H2'     | 1:A1:560:A:H8     | 1.74                     | 0.53              |
| 1:A1:606:U:H2'     | 1:A1:607:U:C6     | 2.42                     | 0.53              |
| 1:A1:624:G:O2'     | 1:A1:625:C:P      | 2.67                     | 0.53              |
| 1:A1:685:G:O6      | 32:BK:19:HIS:HD2  | 1.92                     | 0.53              |
| 1:A1:978:G:OP1     | 17:AT:15:LYS:NZ   | 2.30                     | 0.53              |
| 1:A1:1104:C:C6     | 17:AT:42:ASN:OD1  | 2.62                     | 0.53              |
| 1:A1:1380:C:H42    | 14:AO:32:THR:HG21 | 1.73                     | 0.53              |
| 1:A1:1543:A:H2'    | 1:A1:1544:U:H6    | 1.73                     | 0.53              |
| 1:A1:1601:U:H2'    | 1:A1:1602:U:C6    | 2.44                     | 0.53              |
| 1:A1:1708:U:OP1    | 12:AM:88:LYS:HE2  | 2.09                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1819:C:H4'    | 1:A1:1820:U:OP2    | 2.09                     | 0.53              |
| 1:A1:1857:G:OP1    | 3:AB:10:LYS:HD2    | 2.09                     | 0.53              |
| 1:A1:2170:A:H4'    | 1:A1:2171:U:OP2    | 2.09                     | 0.53              |
| 1:A1:2400:C:O2     | 1:A1:2807:A:N1     | 2.42                     | 0.53              |
| 1:A1:2577:G:H2'    | 1:A1:2578:A:O5'    | 2.08                     | 0.53              |
| 1:A1:2669:A:H3'    | 1:A1:2670:U:C6     | 2.44                     | 0.53              |
| 1:A1:2944:A:P      | 50:A1:4193:HOH:O   | 2.60                     | 0.53              |
| 2:AA:36:ALA:O      | 2:AA:45:ARG:HD3    | 2.09                     | 0.53              |
| 6:AF:7:VAL:O       | 19:AX:162:LYS:HA   | 2.09                     | 0.53              |
| 10:AK:89:TYR:CE2   | 26:BE:178:TYR:HB3  | 2.44                     | 0.53              |
| 18:AU:9:VAL:HG21   | 35:BN:168:ARG:HH11 | 1.72                     | 0.53              |
| 18:AU:146:ALA:HB1  | 18:AU:148:ASN:HD22 | 1.73                     | 0.53              |
| 22:BA:212:HIS:O    | 22:BA:213:GLY:C    | 2.48                     | 0.53              |
| 23:BB:55:HIS:N     | 23:BB:55:HIS:CD2   | 2.76                     | 0.53              |
| 24:BC:65:MET:HE3   | 24:BC:105:ARG:CG   | 2.38                     | 0.53              |
| 24:BC:195:ARG:NH1  | 24:BC:204:ARG:HB3  | 2.24                     | 0.53              |
| 26:BE:48:PRO:HB3   | 26:BE:53:VAL:HG22  | 1.91                     | 0.53              |
| 33:BL:189:LYS:O    | 33:BL:193:ARG:HG3  | 2.09                     | 0.53              |
| 34:BM:38:ILE:HD12  | 37:BP:70:ARG:CZ    | 2.38                     | 0.53              |
| 34:BM:56:THR:HG22  | 34:BM:58:THR:N     | 2.14                     | 0.53              |
| 34:BM:163:LEU:CD1  | 34:BM:173:ILE:HG21 | 2.38                     | 0.53              |
| 35:BN:30:LEU:HD11  | 35:BN:124:PHE:HB2  | 1.91                     | 0.53              |
| 40:BS:118:LEU:N    | 40:BS:118:LEU:HD23 | 2.24                     | 0.53              |
| 41:BT:10:PHE:HZ    | 41:BT:51:ILE:HD12  | 1.74                     | 0.53              |
| 42:BU:33:ARG:O     | 42:BU:37:ILE:HG13  | 2.09                     | 0.53              |
| 42:BU:44:LYS:HA    | 42:BU:47:ARG:HD2   | 1.91                     | 0.53              |
| 42:BU:81:PRO:HD2   | 42:BU:84:ILE:HD12  | 1.89                     | 0.53              |
| 20:C2:100:C:H5''   | 20:C2:101:U:OP1    | 2.09                     | 0.53              |
| 21:C3:10:C:N3      | 34:CM:20:TYR:CD1   | 2.76                     | 0.53              |
| 21:C3:54:A:C2'     | 25:CD:152:GLN:HE21 | 2.22                     | 0.53              |
| 21:C3:105:C:H5'    | 21:C3:105:C:C6     | 2.39                     | 0.53              |
| 23:CB:55:HIS:N     | 23:CB:55:HIS:CD2   | 2.74                     | 0.53              |
| 23:CB:332:ARG:HH11 | 23:CB:332:ARG:CB   | 2.22                     | 0.53              |
| 24:CC:163:VAL:O    | 24:CC:166:TYR:CD2  | 2.54                     | 0.53              |
| 24:CC:203:ASN:HD21 | 40:CS:10:ALA:HA    | 1.74                     | 0.53              |
| 28:CG:4:UNK:HG3    | 28:CG:6:UNK:CG     | 2.27                     | 0.53              |
| 29:CH:75:ASN:O     | 29:CH:79:PHE:CD1   | 2.53                     | 0.53              |
| 45:CX:11:ILE:HB    | 45:CX:65:THR:HG21  | 1.90                     | 0.53              |
| 45:CX:84:LEU:HD23  | 45:CX:87:LEU:HD12  | 1.91                     | 0.53              |
| 1:D1:169:A:C5      | 1:D1:251:A:C6      | 2.96                     | 0.53              |
| 1:D1:1592:G:C6     | 1:D1:1593:A:C6     | 2.97                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1805:C:H2'    | 1:D1:1806:G:OP1    | 2.09                     | 0.53              |
| 1:D1:2732:G:H2'    | 1:D1:2733:C:H6     | 1.69                     | 0.53              |
| 1:D1:3158:G:H3'    | 1:D1:3159:A:C5'    | 2.39                     | 0.53              |
| 1:D1:3168:A:N7     | 19:DX:166:VAL:CG1  | 2.72                     | 0.53              |
| 6:DF:121:THR:HG22  | 6:DF:121:THR:O     | 2.09                     | 0.53              |
| 8:DH:11:PRO:HG2    | 8:DH:12:THR:N      | 2.21                     | 0.53              |
| 12:DM:89:GLN:HB2   | 12:DM:91:LEU:HG    | 1.91                     | 0.53              |
| 19:DX:15:GLN:NE2   | 19:DX:115:GLY:HA2  | 2.23                     | 0.53              |
| 21:E3:13:A:O2'     | 34:EM:24:ARG:CZ    | 2.56                     | 0.53              |
| 24:EC:191:THR:OG1  | 24:EC:209:ARG:HD2  | 2.08                     | 0.53              |
| 24:EC:276:THR:HG22 | 24:EC:277:GLY:N    | 2.23                     | 0.53              |
| 24:EC:276:THR:HG21 | 24:EC:282:GLY:HA2  | 1.90                     | 0.53              |
| 28:EG:22:UNK:O     | 28:EG:119:UNK:N    | 2.42                     | 0.53              |
| 29:EH:139:ARG:CD   | 29:EH:173:PHE:HE1  | 2.22                     | 0.53              |
| 35:EN:25:VAL:HG13  | 14:FO:7:GLU:CB     | 2.39                     | 0.53              |
| 35:EN:38:VAL:HG22  | 35:EN:47:GLN:HA    | 1.90                     | 0.53              |
| 35:EN:53:LEU:C     | 35:EN:60:LYS:NZ    | 2.67                     | 0.53              |
| 42:EU:21:GLU:HG2   | 42:EU:58:TYR:OH    | 2.09                     | 0.53              |
| 43:EV:157:ARG:HG3  | 43:EV:200:TRP:CE2  | 2.44                     | 0.53              |
| 44:EW:43:MET:HA    | 44:EW:43:MET:CE    | 2.35                     | 0.53              |
| 45:EX:39:GLY:HA3   | 1:F1:663:G:OP1     | 2.09                     | 0.53              |
| 1:F1:519:A:OP2     | 14:FO:89:ARG:NH1   | 2.41                     | 0.53              |
| 1:F1:858:G:H2'     | 1:F1:859:U:O4'     | 2.09                     | 0.53              |
| 1:F1:976:A:OP2     | 1:F1:1394:G:N2     | 2.42                     | 0.53              |
| 1:F1:1039:G:C2'    | 1:F1:1041:C:H41    | 2.21                     | 0.53              |
| 1:F1:1593:A:C6     | 1:F1:1594:C:C4     | 2.97                     | 0.53              |
| 1:F1:1601:U:H2'    | 1:F1:1602:U:C6     | 2.43                     | 0.53              |
| 1:F1:2882:U:H2'    | 1:F1:2883:G:H8     | 1.73                     | 0.53              |
| 1:F1:2991:U:O4     | 50:F1:4515:HOH:O   | 2.16                     | 0.53              |
| 7:FG:14:LEU:HD22   | 7:FG:90:MET:HE1    | 1.91                     | 0.53              |
| 9:FJ:122:ASP:OD1   | 9:FJ:123:ARG:N     | 2.41                     | 0.53              |
| 12:FM:35:PHE:HD1   | 12:FM:65:ILE:CD1   | 2.22                     | 0.53              |
| 13:FN:41:VAL:HG12  | 13:FN:43:VAL:HG22  | 1.90                     | 0.53              |
| 13:FN:54:THR:CB    | 13:FN:57:MET:HG3   | 2.33                     | 0.53              |
| 13:FN:98:LYS:HB2   | 13:FN:101:LYS:HB2  | 1.89                     | 0.53              |
| 14:FO:6:TRP:HZ3    | 14:FO:40:LEU:CD1   | 2.21                     | 0.53              |
| 19:FX:113:LEU:CD1  | 19:FX:140:THR:HG21 | 2.38                     | 0.53              |
| 20:G2:100:C:H5''   | 20:G2:101:U:OP1    | 2.09                     | 0.53              |
| 20:G2:129:A:C5     | 20:G2:130:C:C5     | 2.96                     | 0.53              |
| 22:GA:248:ARG:NH2  | 50:GA:406:HOH:O    | 2.30                     | 0.53              |
| 23:GB:57:LEU:HD11  | 23:GB:71:GLU:HB3   | 1.90                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:GB:129:ALA:O    | 23:GB:130:PHE:HB2  | 2.07                     | 0.53              |
| 23:GB:170:ARG:NH2  | 1:H1:3261:U:O2'    | 2.40                     | 0.53              |
| 23:GB:378:PHE:CD1  | 1:H1:3325:G:N2     | 2.76                     | 0.53              |
| 26:GE:12:ILE:HD11  | 26:GE:53:VAL:CG2   | 2.38                     | 0.53              |
| 29:GH:151:ALA:HA   | 29:GH:154:ARG:HG3  | 1.91                     | 0.53              |
| 34:GM:231:TRP:HZ2  | 34:GM:243:VAL:HG21 | 1.73                     | 0.53              |
| 38:GQ:33:GLU:OE1   | 38:GQ:62:PHE:CA    | 2.50                     | 0.53              |
| 41:GT:41:LEU:HD13  | 41:GT:51:ILE:CD1   | 2.38                     | 0.53              |
| 41:GT:58:ARG:CZ    | 1:H1:3325:G:C4     | 2.91                     | 0.53              |
| 1:H1:170:A:C4      | 1:H1:250:U:N3      | 2.77                     | 0.53              |
| 1:H1:1808:A:H2'    | 1:H1:1809:C:C6     | 2.44                     | 0.53              |
| 1:H1:2178:A:H2'    | 1:H1:2179:U:O5'    | 2.09                     | 0.53              |
| 1:H1:3037:A:C2     | 1:H1:3079:U:C4     | 2.96                     | 0.53              |
| 1:H1:3116:A:N6     | 1:H1:3117:G:C2     | 2.77                     | 0.53              |
| 2:HA:44:MET:CE     | 2:HA:44:MET:CA     | 2.84                     | 0.53              |
| 7:HG:14:LEU:HD22   | 7:HG:90:MET:HE1    | 1.91                     | 0.53              |
| 9:HJ:106:ASN:HB3   | 9:HJ:147:LEU:HD22  | 1.91                     | 0.53              |
| 9:HJ:201:ASP:O     | 9:HJ:224:LEU:HD21  | 2.08                     | 0.53              |
| 13:HN:91:CYS:SG    | 13:HN:96:LEU:HD12  | 2.48                     | 0.53              |
| 19:HX:93:LEU:CD1   | 19:HX:120:LEU:HD11 | 2.29                     | 0.53              |
| 1:A1:236:G:H2'     | 1:A1:237:A:H8      | 1.74                     | 0.53              |
| 1:A1:296:G:O2'     | 16:AQ:32:GLY:HA2   | 2.09                     | 0.53              |
| 1:A1:611:A:O2'     | 1:A1:612:C:H5'     | 2.09                     | 0.53              |
| 1:A1:784:G:C2      | 1:A1:797:A:N6      | 2.77                     | 0.53              |
| 1:A1:790:C:H5''    | 1:A1:791:C:OP1     | 2.08                     | 0.53              |
| 1:A1:858:G:H2'     | 1:A1:859:U:O4'     | 2.09                     | 0.53              |
| 1:A1:1186:A:HO2'   | 1:A1:1187:C:P      | 2.26                     | 0.53              |
| 1:A1:2873:C:O2'    | 1:A1:2874:U:H5'    | 2.09                     | 0.53              |
| 1:A1:3229:C:HO2'   | 1:A1:3230:G:P      | 2.31                     | 0.53              |
| 6:AF:34:ASN:C      | 6:AF:50:ILE:HG13   | 2.34                     | 0.53              |
| 9:AJ:99:GLU:HG3    | 9:AJ:101:LEU:N     | 2.23                     | 0.53              |
| 13:AN:27:LYS:HZ2   | 1:H1:1045:G:H3'    | 1.73                     | 0.53              |
| 14:AO:94:ILE:HD13  | 14:AO:107:ALA:HB1  | 1.90                     | 0.53              |
| 16:AQ:45:ILE:CD1   | 33:BL:6:TYR:HA     | 2.39                     | 0.53              |
| 18:AU:123:LEU:HD23 | 18:AU:136:VAL:HG22 | 1.91                     | 0.53              |
| 20:B2:10:U:H2'     | 20:B2:11:C:H6      | 1.74                     | 0.53              |
| 21:B3:8:G:P        | 34:BM:33:ARG:NH1   | 2.76                     | 0.53              |
| 24:BC:303:GLU:H    | 24:BC:303:GLU:CD   | 2.15                     | 0.53              |
| 23:CB:332:ARG:NH1  | 1:D1:3264:U:O2     | 2.41                     | 0.53              |
| 29:CH:68:ALA:HA    | 29:CH:158:LYS:HG3  | 1.91                     | 0.53              |
| 29:CH:119:PHE:CE2  | 1:D1:2635:C:H4'    | 2.44                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:CK:8:THR:HG21   | 1:D1:685:G:H5'     | 1.91                     | 0.53              |
| 32:CK:61:ARG:CA    | 35:CN:172:ARG:HH12 | 2.21                     | 0.53              |
| 33:CL:28:TRP:O     | 33:CL:32:GLN:HG2   | 2.09                     | 0.53              |
| 33:CL:135:ALA:O    | 33:CL:137:PRO:HD3  | 2.09                     | 0.53              |
| 47:CO:96:MET:HG2   | 1:D1:1746:U:H1'    | 1.91                     | 0.53              |
| 40:CS:15:ARG:O     | 40:CS:19:PHE:HD1   | 1.91                     | 0.53              |
| 44:CW:4:GLN:HE21   | 44:CW:76:LYS:HZ1   | 1.56                     | 0.53              |
| 1:D1:37:A:H5'      | 1:D1:38:A:OP2      | 2.07                     | 0.53              |
| 1:D1:137:A:H2'     | 1:D1:138:C:H6      | 1.74                     | 0.53              |
| 1:D1:253:G:C2'     | 1:D1:254:G:H5''    | 2.33                     | 0.53              |
| 1:D1:439:A:C5'     | 5:DE:126:HIS:HD1   | 2.22                     | 0.53              |
| 1:D1:927:G:C5      | 1:D1:928:U:C5      | 2.96                     | 0.53              |
| 1:D1:1210:C:H5''   | 19:DX:171:ARG:HH21 | 1.73                     | 0.53              |
| 1:D1:1492:G:C2'    | 1:D1:1493:A:H5''   | 2.38                     | 0.53              |
| 1:D1:2249:U:H3     | 1:D1:2257:A:N6     | 2.07                     | 0.53              |
| 1:D1:2278:G:O2'    | 1:D1:2279:C:O5'    | 2.27                     | 0.53              |
| 1:D1:2658:U:H2'    | 1:D1:2659:G:C8     | 2.44                     | 0.53              |
| 1:D1:3046:A:C6     | 1:D1:3048:A:H1'    | 2.44                     | 0.53              |
| 1:D1:3071:C:C2'    | 1:D1:3072:G:H5'    | 2.39                     | 0.53              |
| 2:DA:28:HIS:O      | 2:DA:32:LEU:N      | 2.41                     | 0.53              |
| 6:DF:38:ILE:HD12   | 6:DF:48:ILE:HB     | 1.91                     | 0.53              |
| 6:DF:56:THR:O      | 6:DF:57:LYS:CG     | 2.45                     | 0.53              |
| 7:DG:13:LYS:HB2    | 7:DG:100:ILE:CD1   | 2.34                     | 0.53              |
| 15:DP:58:PRO:O     | 15:DP:61:ALA:HB3   | 2.09                     | 0.53              |
| 16:DQ:84:HIS:O     | 16:DQ:87:ALA:HB3   | 2.09                     | 0.53              |
| 20:E2:111:A:O2'    | 20:E2:112:G:OP1    | 2.21                     | 0.53              |
| 22:EA:30:TYR:OH    | 22:EA:166:THR:OG1  | 2.24                     | 0.53              |
| 23:EB:292:ALA:HB3  | 23:EB:301:LYS:C    | 2.34                     | 0.53              |
| 24:EC:195:ARG:NH1  | 24:EC:204:ARG:CB   | 2.71                     | 0.53              |
| 29:EH:184:LEU:CD2  | 29:EH:189:LYS:HD3  | 2.29                     | 0.53              |
| 32:EK:148:THR:CG2  | 32:EK:149:ALA:N    | 2.72                     | 0.53              |
| 34:EM:163:LEU:HD23 | 34:EM:180:PHE:CZ   | 2.43                     | 0.53              |
| 34:EM:243:VAL:CG1  | 34:EM:247:PHE:HD2  | 2.21                     | 0.53              |
| 35:EN:146:ARG:HB2  | 35:EN:149:TYR:CE2  | 2.43                     | 0.53              |
| 37:EP:139:VAL:HG21 | 19:FX:30:ILE:CD1   | 2.28                     | 0.53              |
| 39:ER:67:ASN:HD21  | 39:ER:109:LYS:HD2  | 1.74                     | 0.53              |
| 43:EV:129:PRO:HA   | 43:EV:224:TRP:CG   | 2.43                     | 0.53              |
| 44:EW:85:GLN:OE1   | 44:EW:85:GLN:HA    | 2.09                     | 0.53              |
| 1:F1:832:A:H61     | 1:F1:959:G:H22     | 1.57                     | 0.53              |
| 1:F1:1050:C:C4     | 1:F1:1051:C:N3     | 2.76                     | 0.53              |
| 1:F1:1073:A:HO2'   | 1:F1:1074:A:C5'    | 2.22                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1728:A:H2'    | 1:F1:1729:U:OP2    | 2.08                     | 0.53              |
| 1:F1:1811:U:O2'    | 1:F1:1812:G:H5'    | 2.09                     | 0.53              |
| 1:F1:2787:A:H5''   | 1:F1:2788:G:O5'    | 2.08                     | 0.53              |
| 1:F1:2863:U:H2'    | 1:F1:2863:U:O2     | 2.08                     | 0.53              |
| 2:FA:21:ARG:HD3    | 2:FA:44:MET:HE1    | 1.90                     | 0.53              |
| 9:FJ:58:ILE:HG13   | 9:FJ:62:VAL:CG2    | 2.39                     | 0.53              |
| 12:FM:38:PHE:CG    | 12:FM:85:TYR:HD1   | 2.26                     | 0.53              |
| 15:FP:57:ASP:OD1   | 15:FP:60:ILE:HG13  | 2.09                     | 0.53              |
| 19:FX:92:VAL:HG12  | 19:FX:138:ILE:HD12 | 1.89                     | 0.53              |
| 22:GA:68:TYR:CD1   | 1:H1:2519:A:N6     | 2.75                     | 0.53              |
| 22:GA:175:ARG:HA   | 46:GY:69:TRP:CZ2   | 2.44                     | 0.53              |
| 24:GC:28:VAL:HG11  | 24:GC:133:LEU:CD1  | 2.38                     | 0.53              |
| 24:GC:50:LYS:HB2   | 24:GC:116:VAL:HG11 | 1.91                     | 0.53              |
| 24:GC:119:ARG:HH21 | 1:H1:705:A:H4'     | 1.74                     | 0.53              |
| 24:GC:174:ALA:O    | 24:GC:178:ARG:HG3  | 2.08                     | 0.53              |
| 25:GD:104:PHE:HE1  | 25:GD:106:ILE:CD1  | 2.21                     | 0.53              |
| 35:GN:36:PHE:CE2   | 1:H1:1375:A:H2'    | 2.43                     | 0.53              |
| 38:GQ:26:VAL:HG21  | 38:GQ:92:VAL:HG21  | 1.90                     | 0.53              |
| 45:GX:35:ARG:NH1   | 1:H1:969:C:O5'     | 2.42                     | 0.53              |
| 1:H1:169:A:C5      | 1:H1:251:A:C6      | 2.97                     | 0.53              |
| 1:H1:405:A:O2'     | 1:H1:406:A:H5'     | 2.07                     | 0.53              |
| 1:H1:556:A:N1      | 1:H1:611:A:H2      | 2.07                     | 0.53              |
| 1:H1:777:C:H2'     | 1:H1:778:G:C8      | 2.44                     | 0.53              |
| 1:H1:876:C:H2'     | 1:H1:877:U:H6      | 1.74                     | 0.53              |
| 1:H1:1642:G:H2'    | 1:H1:1643:G:C5'    | 2.19                     | 0.53              |
| 1:H1:1821:U:H1'    | 1:H1:1822:G:C2     | 2.44                     | 0.53              |
| 1:H1:1972:G:C2     | 1:H1:1973:A:N7     | 2.76                     | 0.53              |
| 1:H1:2188:U:O2'    | 1:H1:2189:G:OP2    | 2.22                     | 0.53              |
| 1:H1:2540:G:C5'    | 1:H1:2541:U:OP2    | 2.56                     | 0.53              |
| 1:H1:2751:A:H2'    | 1:H1:2752:U:C6     | 2.44                     | 0.53              |
| 1:H1:2934:A:H1'    | 1:H1:2969:U:C4     | 2.44                     | 0.53              |
| 1:H1:3035:A:H4'    | 1:H1:3036:U:OP1    | 2.09                     | 0.53              |
| 2:HA:36:ALA:O      | 2:HA:45:ARG:HD3    | 2.09                     | 0.53              |
| 9:HJ:49:ILE:CD1    | 9:HJ:88:LEU:HD13   | 2.38                     | 0.53              |
| 13:HN:54:THR:CB    | 13:HN:57:MET:HG3   | 2.35                     | 0.53              |
| 13:HN:118:PHE:HE2  | 13:HN:138:PHE:CE2  | 2.26                     | 0.53              |
| 15:HP:45:ARG:HD2   | 15:HP:46:GLY:H     | 1.74                     | 0.53              |
| 1:A1:635:A:HO2'    | 1:A1:636:U:P       | 2.27                     | 0.53              |
| 1:A1:1012:U:H1'    | 43:BV:123:MET:HG3  | 1.91                     | 0.53              |
| 1:A1:1369:C:H4'    | 35:BN:10:ARG:O     | 2.09                     | 0.53              |
| 1:A1:3046:A:C6     | 1:A1:3048:A:H1'    | 2.43                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3167:U:O2'    | 19:AX:188:THR:HB   | 2.08                     | 0.53              |
| 1:A1:3233:A:HO2'   | 1:A1:3234:U:P      | 2.27                     | 0.53              |
| 5:AE:69:LEU:HD21   | 5:AE:114:ASP:HB2   | 1.90                     | 0.53              |
| 5:AE:91:ASN:OD1    | 5:AE:92:GLN:N      | 2.42                     | 0.53              |
| 6:AF:111:VAL:HG12  | 6:AF:115:LYS:HE3   | 1.91                     | 0.53              |
| 7:AG:48:CYS:SG     | 7:AG:49:PRO:HD2    | 2.49                     | 0.53              |
| 19:AX:163:PHE:CD1  | 26:BE:4:LEU:HD11   | 2.43                     | 0.53              |
| 22:BA:33:TYR:CA    | 22:BA:164:ARG:NH2  | 2.71                     | 0.53              |
| 25:BD:134:PRO:HG2  | 25:BD:135:GLY:H    | 1.74                     | 0.53              |
| 30:BI:9:ASP:O      | 30:BI:13:HIS:CD2   | 2.62                     | 0.53              |
| 32:BK:110:PHE:CD2  | 32:BK:128:LYS:HD2  | 2.44                     | 0.53              |
| 42:BU:60:THR:O     | 42:BU:64:GLU:HG3   | 2.09                     | 0.53              |
| 43:BV:150:PHE:CD1  | 43:BV:159:PRO:HA   | 2.44                     | 0.53              |
| 43:BV:164:THR:HG22 | 43:BV:168:LYS:HE3  | 1.90                     | 0.53              |
| 44:BW:85:GLN:OE1   | 44:BW:85:GLN:HA    | 2.09                     | 0.53              |
| 20:C2:12:A:H2'     | 20:C2:13:A:H8      | 1.72                     | 0.53              |
| 23:CB:162:THR:O    | 23:CB:162:THR:HG22 | 2.07                     | 0.53              |
| 28:CG:58:UNK:HB1   | 28:CG:61:UNK:HG2   | 1.91                     | 0.53              |
| 30:CI:132:ARG:HH12 | 1:D1:1216:C:C2'    | 2.20                     | 0.53              |
| 30:CI:152:ILE:CG2  | 30:CI:153:GLU:N    | 2.71                     | 0.53              |
| 34:CM:138:GLU:OE1  | 34:CM:138:GLU:HA   | 2.08                     | 0.53              |
| 43:CV:164:THR:HG22 | 43:CV:168:LYS:HE3  | 1.91                     | 0.53              |
| 46:CY:25:VAL:O     | 46:CY:28:LYS:HB3   | 2.08                     | 0.53              |
| 1:D1:71:U:H5       | 18:DU:64:ASN:HB3   | 1.73                     | 0.53              |
| 1:D1:512:G:C2      | 1:D1:513:G:C5      | 2.97                     | 0.53              |
| 1:D1:566:U:C2'     | 1:D1:567:C:H5'     | 2.39                     | 0.53              |
| 1:D1:579:G:H1'     | 19:DX:158:ASN:CA   | 2.39                     | 0.53              |
| 1:D1:1101:U:H5''   | 1:D1:1102:U:OP1    | 2.09                     | 0.53              |
| 1:D1:1123:A:H1'    | 1:D1:1124:G:OP2    | 2.09                     | 0.53              |
| 1:D1:1256:G:H2'    | 1:D1:1257:G:H8     | 1.72                     | 0.53              |
| 1:D1:1580:G:H5''   | 1:D1:1581:C:OP1    | 2.09                     | 0.53              |
| 1:D1:1593:A:C6     | 1:D1:1594:C:C4     | 2.97                     | 0.53              |
| 1:D1:1600:U:C4     | 1:D1:1601:U:C5     | 2.97                     | 0.53              |
| 1:D1:2714:U:C2'    | 1:D1:2715:C:H5'    | 2.38                     | 0.53              |
| 1:D1:2719:A:C4     | 1:D1:2720:G:C8     | 2.96                     | 0.53              |
| 1:D1:2882:U:H2'    | 1:D1:2883:G:H8     | 1.73                     | 0.53              |
| 1:D1:3110:U:C4     | 1:D1:3113:G:O6     | 2.61                     | 0.53              |
| 18:DU:45:PHE:O     | 18:DU:147:GLN:OE1  | 2.26                     | 0.53              |
| 21:E3:2:U:H4'      | 34:EM:278:TYR:CZ   | 2.44                     | 0.53              |
| 23:EB:363:ILE:O    | 1:F1:3075:A:O3'    | 2.27                     | 0.53              |
| 24:EC:195:ARG:NH1  | 24:EC:204:ARG:HB3  | 2.23                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:EE:58:TRP:CE2   | 19:FX:164:PRO:HG2  | 2.44                     | 0.53              |
| 27:EF:43:ARG:NH1   | 1:F1:2521:A:C6     | 2.77                     | 0.53              |
| 29:EH:169:GLN:O    | 29:EH:178:ARG:HG3  | 2.08                     | 0.53              |
| 30:EI:152:ILE:HG22 | 30:EI:153:GLU:N    | 2.24                     | 0.53              |
| 30:EI:196:PHE:CE1  | 6:FF:111:VAL:CG2   | 2.87                     | 0.53              |
| 33:EL:19:MET:CE    | 33:EL:22:ILE:HD12  | 2.38                     | 0.53              |
| 37:EP:82:GLY:HA3   | 50:FT:204:HOH:O    | 2.09                     | 0.53              |
| 41:ET:27:ASP:HB2   | 41:ET:29:ARG:HG3   | 1.91                     | 0.53              |
| 42:EU:98:LYS:NZ    | 1:F1:242:G:OP1     | 2.39                     | 0.53              |
| 43:EV:38:LYS:O     | 43:EV:42:ILE:HG13  | 2.08                     | 0.53              |
| 43:EV:227:ARG:HH12 | 43:EV:234:LEU:HD13 | 1.74                     | 0.53              |
| 1:F1:284:U:H5      | 1:F1:305:A:C5'     | 2.04                     | 0.53              |
| 1:F1:1051:C:C2'    | 1:F1:1052:A:O4'    | 2.52                     | 0.53              |
| 1:F1:1196:A:N6     | 1:F1:1357:A:C8     | 2.77                     | 0.53              |
| 1:F1:2278:G:O2'    | 1:F1:2279:C:P      | 2.67                     | 0.53              |
| 5:FE:67:LYS:HB2    | 5:FE:109:THR:HG21  | 1.91                     | 0.53              |
| 18:FU:52:LEU:HB3   | 18:FU:93:ILE:HA    | 1.89                     | 0.53              |
| 20:G2:114:G:C8     | 20:G2:114:G:C3'    | 2.90                     | 0.53              |
| 21:G3:63:A:C8      | 29:GH:206:LEU:CD2  | 2.92                     | 0.53              |
| 22:GA:86:GLY:CA    | 1:H1:2545:A:N3     | 2.71                     | 0.53              |
| 23:GB:292:ALA:HB3  | 23:GB:301:LYS:C    | 2.33                     | 0.53              |
| 23:GB:332:ARG:HH11 | 23:GB:332:ARG:HB2  | 1.72                     | 0.53              |
| 24:GC:89:THR:CG2   | 24:GC:91:ARG:HB3   | 2.39                     | 0.53              |
| 24:GC:126:ARG:NH2  | 1:H1:720:C:H5''    | 2.24                     | 0.53              |
| 25:GD:108:GLU:HA   | 25:GD:122:ILE:CG2  | 2.38                     | 0.53              |
| 27:GF:127:TYR:HE1  | 1:H1:146:U:O2      | 1.91                     | 0.53              |
| 28:GG:63:UNK:O     | 28:GG:67:UNK:HB2   | 2.09                     | 0.53              |
| 29:GH:48:TYR:HE2   | 29:GH:142:GLU:HG3  | 1.70                     | 0.53              |
| 30:GI:114:VAL:O    | 30:GI:116:LYS:HE3  | 2.09                     | 0.53              |
| 33:GL:58:GLY:O     | 33:GL:142:ILE:HD11 | 2.09                     | 0.53              |
| 34:GM:155:THR:OG1  | 34:GM:179:ARG:HD3  | 2.08                     | 0.53              |
| 36:GO:21:ARG:O     | 36:GO:53:ARG:HG3   | 2.09                     | 0.53              |
| 39:GR:38:PHE:CD2   | 1:H1:1605:G:C2     | 2.97                     | 0.53              |
| 42:GU:120:PHE:CE2  | 18:HU:90:SER:O     | 2.61                     | 0.53              |
| 42:GU:124:ALA:HB2  | 18:HU:153:SER:OG   | 2.09                     | 0.53              |
| 43:GV:37:ARG:O     | 43:GV:40:GLU:N     | 2.41                     | 0.53              |
| 43:GV:166:VAL:HG12 | 43:GV:175:ILE:HG22 | 1.90                     | 0.53              |
| 46:GY:64:ILE:HD11  | 46:GY:71:LEU:CD1   | 2.23                     | 0.53              |
| 1:H1:63:A:C4       | 1:H1:108:G:N7      | 2.76                     | 0.53              |
| 1:H1:89:G:H1'      | 1:H1:93:A:N6       | 2.24                     | 0.53              |
| 1:H1:197:G:N2      | 1:H1:371:A:C8      | 2.76                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:368:A:C4'     | 1:H1:369:U:OP2     | 2.57                     | 0.53              |
| 1:H1:687:C:H2'     | 1:H1:688:U:H6      | 1.74                     | 0.53              |
| 1:H1:2263:U:H5''   | 1:H1:2264:U:OP2    | 2.09                     | 0.53              |
| 1:H1:2634:G:C2'    | 1:H1:2635:C:H5''   | 2.39                     | 0.53              |
| 1:H1:3000:A:N1     | 1:H1:3032:C:O2'    | 2.39                     | 0.53              |
| 2:HA:4:GLY:C       | 2:HA:6:PRO:HD2     | 2.33                     | 0.53              |
| 3:HB:44:TRP:CZ3    | 3:HB:45:ARG:HD2    | 2.44                     | 0.53              |
| 8:HH:19:ALA:O      | 8:HH:37:LEU:HA     | 2.08                     | 0.53              |
| 9:HJ:198:VAL:HG23  | 9:HJ:205:PHE:HB2   | 1.90                     | 0.53              |
| 1:A1:49:A:H2'      | 1:A1:50:A:C8       | 2.44                     | 0.53              |
| 1:A1:122:U:H2'     | 1:A1:123:C:C6      | 2.44                     | 0.53              |
| 1:A1:281:G:C4'     | 1:A1:282:G:C8      | 2.91                     | 0.53              |
| 1:A1:743:A:C2      | 32:BK:120:ASN:ND2  | 2.77                     | 0.53              |
| 1:A1:1244:A:H2'    | 1:A1:1245:U:H5''   | 1.91                     | 0.53              |
| 1:A1:1433:A:H5'    | 1:A1:1434:G:OP2    | 2.09                     | 0.53              |
| 1:A1:2414:A:N6     | 50:A1:4020:HOH:O   | 2.42                     | 0.53              |
| 1:A1:2540:G:C5'    | 1:A1:2541:U:OP2    | 2.57                     | 0.53              |
| 1:A1:2886:G:H3'    | 1:A1:2886:G:C8     | 2.44                     | 0.53              |
| 1:A1:2899:C:H4'    | 1:A1:2900:G:O5'    | 2.09                     | 0.53              |
| 1:A1:3070:C:H2'    | 1:A1:3071:C:H6     | 1.73                     | 0.53              |
| 1:A1:3198:A:N6     | 1:A1:3199:G:C6     | 2.76                     | 0.53              |
| 2:AA:28:HIS:CD2    | 2:AA:31:LYS:HG3    | 2.44                     | 0.53              |
| 8:AH:73:ILE:HG22   | 8:AH:91:PHE:HD2    | 1.73                     | 0.53              |
| 9:AJ:126:GLU:CD    | 9:HJ:123:ARG:NH1   | 2.66                     | 0.53              |
| 13:AN:22:LYS:HZ2   | 13:AN:140:SER:HB3  | 1.71                     | 0.53              |
| 13:AN:76:ASN:OD1   | 13:AN:76:ASN:C     | 2.52                     | 0.53              |
| 18:AU:25:ASN:OD1   | 18:AU:26:GLN:N     | 2.42                     | 0.53              |
| 21:B3:84:U:OP1     | 43:BV:215:ARG:HD3  | 2.08                     | 0.53              |
| 22:BA:3:ARG:HG2    | 22:BA:4:VAL:H      | 1.73                     | 0.53              |
| 23:BB:62:ARG:HG3   | 23:BB:62:ARG:NH1   | 2.13                     | 0.53              |
| 23:BB:203:VAL:CG1  | 23:BB:320:ILE:HD11 | 2.37                     | 0.53              |
| 23:BB:292:ALA:HB2  | 23:BB:303:ILE:N    | 2.24                     | 0.53              |
| 24:BC:259:THR:HG22 | 24:BC:260:GLU:H    | 1.73                     | 0.53              |
| 24:BC:289:LEU:HD12 | 35:BN:24:ASN:ND2   | 2.24                     | 0.53              |
| 25:BD:93:LYS:HE2   | 25:BD:156:LYS:NZ   | 2.24                     | 0.53              |
| 26:BE:131:LYS:HE2  | 26:BE:145:GLN:CG   | 2.39                     | 0.53              |
| 33:BL:110:VAL:CG1  | 33:BL:113:LEU:HG   | 2.38                     | 0.53              |
| 33:BL:112:GLU:CD   | 33:BL:112:GLU:H    | 2.17                     | 0.53              |
| 34:BM:156:GLY:HA2  | 34:BM:181:PRO:CG   | 2.37                     | 0.53              |
| 34:BM:163:LEU:HD23 | 34:BM:180:PHE:CZ   | 2.44                     | 0.53              |
| 35:BN:180:LEU:O    | 35:BN:181:LYS:C    | 2.51                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 37:BP:5:TYR:CD1   | 37:BP:5:TYR:N      | 2.77                     | 0.53              |
| 37:BP:62:GLY:HA3  | 37:BP:74:VAL:CG1   | 2.39                     | 0.53              |
| 46:BY:17:ARG:C    | 46:BY:18:TYR:CD2   | 2.87                     | 0.53              |
| 20:C2:19:G:N2     | 1:D1:403:G:H1'     | 2.24                     | 0.53              |
| 21:C3:52:U:H2'    | 21:C3:53:U:C6      | 2.44                     | 0.53              |
| 22:CA:210:HIS:CD2 | 22:CA:211:PRO:HD2  | 2.44                     | 0.53              |
| 29:CH:90:ARG:O    | 1:D1:1070:U:H5'    | 2.08                     | 0.53              |
| 32:CK:142:GLY:C   | 18:DU:173:ARG:NH2  | 2.66                     | 0.53              |
| 33:CL:80:VAL:CG1  | 33:CL:87:VAL:HG13  | 2.36                     | 0.53              |
| 33:CL:183:SER:CA  | 33:CL:191:ASN:HD22 | 2.20                     | 0.53              |
| 47:CO:92:LYS:HE3  | 1:D1:881:G:OP1     | 2.09                     | 0.53              |
| 38:CQ:27:HIS:ND1  | 1:D1:1473:G:O6     | 2.41                     | 0.53              |
| 42:CU:87:LYS:HA   | 42:CU:93:ARG:HH21  | 1.74                     | 0.53              |
| 1:D1:49:A:O2'     | 1:D1:50:A:H5'      | 2.09                     | 0.53              |
| 1:D1:70:C:N4      | 1:D1:72:A:C6       | 2.76                     | 0.53              |
| 1:D1:287:C:O2'    | 1:D1:288:A:H5'     | 2.08                     | 0.53              |
| 1:D1:548:G:C2     | 1:D1:635:A:C2      | 2.97                     | 0.53              |
| 1:D1:784:G:H1'    | 1:D1:796:A:H61     | 1.72                     | 0.53              |
| 1:D1:1005:A:O2'   | 1:D1:1006:C:H5'    | 2.08                     | 0.53              |
| 1:D1:1110:U:H5'   | 1:D1:1111:G:OP2    | 2.09                     | 0.53              |
| 1:D1:1594:C:N4    | 1:D1:1595:A:C5     | 2.77                     | 0.53              |
| 1:D1:1729:U:C5    | 1:D1:1812:G:H1'    | 2.43                     | 0.53              |
| 1:D1:1740:U:O3'   | 1:D1:1741:U:H4'    | 2.09                     | 0.53              |
| 1:D1:1828:C:H1'   | 11:DL:61:PRO:O     | 2.08                     | 0.53              |
| 1:D1:2274:A:C5'   | 1:D1:2300:G:H22    | 2.22                     | 0.53              |
| 7:DG:11:GLN:HG3   | 7:DG:12:SER:N      | 2.25                     | 0.53              |
| 12:DM:19:ILE:HD13 | 12:DM:105:TYR:HB2  | 1.91                     | 0.53              |
| 20:E2:129:A:C5    | 20:E2:130:C:C5     | 2.97                     | 0.53              |
| 22:EA:175:ARG:HA  | 46:EY:69:TRP:CZ2   | 2.44                     | 0.53              |
| 23:EB:118:PHE:CE2 | 1:F1:2989:G:N2     | 2.57                     | 0.53              |
| 25:ED:133:ARG:HB3 | 25:ED:134:PRO:CD   | 2.23                     | 0.53              |
| 29:EH:48:TYR:CE2  | 29:EH:142:GLU:CG   | 2.92                     | 0.53              |
| 32:EK:15:VAL:HG21 | 32:EK:21:ARG:HH21  | 1.74                     | 0.53              |
| 34:EM:122:GLN:HB2 | 34:EM:130:PHE:CD2  | 2.43                     | 0.53              |
| 35:EN:25:VAL:HG13 | 14:FO:7:GLU:HB3    | 1.89                     | 0.53              |
| 38:EQ:61:PRO:HG3  | 38:EQ:78:PHE:CG    | 2.44                     | 0.53              |
| 39:ER:35:VAL:CG1  | 1:F1:2518:A:H3'    | 2.38                     | 0.53              |
| 39:ER:43:LEU:HD11 | 1:F1:1599:G:C5'    | 2.39                     | 0.53              |
| 42:EU:98:LYS:HZ2  | 1:F1:242:G:H5'     | 1.74                     | 0.53              |
| 43:EV:41:TRP:CD1  | 43:EV:177:CYS:SG   | 3.02                     | 0.53              |
| 44:EW:49:ARG:HB2  | 44:EW:91:LEU:HD23  | 1.91                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 45:EX:42:ASN:HD21  | 45:EX:44:VAL:HB    | 1.73                     | 0.53              |
| 1:F1:219:A:C2      | 1:F1:1416:U:C2'    | 2.88                     | 0.53              |
| 1:F1:866:A:H5''    | 1:F1:866:A:H8      | 1.74                     | 0.53              |
| 1:F1:1226:C:H4'    | 1:F1:1227:A:OP1    | 2.02                     | 0.53              |
| 1:F1:1397:G:O2'    | 1:F1:1398:G:H5'    | 2.09                     | 0.53              |
| 1:F1:1686:G:H22    | 1:F1:1813:A:H2     | 1.57                     | 0.53              |
| 1:F1:1740:U:O3'    | 1:F1:1741:U:H4'    | 2.09                     | 0.53              |
| 1:F1:1973:A:H2'    | 1:F1:1974:U:C6     | 2.44                     | 0.53              |
| 1:F1:2551:A:H3'    | 1:F1:2552:A:H5''   | 1.90                     | 0.53              |
| 1:F1:2993:C:O2'    | 1:F1:2994:G:H5'    | 2.08                     | 0.53              |
| 1:F1:3100:U:H2'    | 1:F1:3101:G:C5'    | 2.39                     | 0.53              |
| 4:FC:98:LYS:O      | 4:FC:102:VAL:HG23  | 2.08                     | 0.53              |
| 5:FE:69:LEU:HD21   | 5:FE:114:ASP:HB2   | 1.91                     | 0.53              |
| 8:FH:26:SER:OG     | 8:FH:29:THR:HB     | 2.09                     | 0.53              |
| 9:FJ:66:ASN:H      | 9:FJ:133:LEU:HD22  | 1.72                     | 0.53              |
| 9:FJ:93:ARG:NH1    | 9:HJ:93:ARG:NE     | 2.57                     | 0.53              |
| 11:FL:59:VAL:HG11  | 11:FL:63:GLU:HB3   | 1.90                     | 0.53              |
| 13:FN:25:ILE:HG23  | 13:FN:41:VAL:CG1   | 2.36                     | 0.53              |
| 19:FX:3:ARG:O      | 19:FX:19:ARG:NH2   | 2.41                     | 0.53              |
| 23:GB:162:THR:O    | 23:GB:162:THR:HG22 | 2.05                     | 0.53              |
| 23:GB:218:VAL:HB   | 23:GB:332:ARG:HE   | 1.73                     | 0.53              |
| 24:GC:272:THR:CG2  | 24:GC:273:TYR:N    | 2.71                     | 0.53              |
| 29:GH:189:LYS:O    | 29:GH:200:ILE:HG13 | 2.09                     | 0.53              |
| 32:GK:91:LYS:HG2   | 32:GK:92:TYR:CD1   | 2.44                     | 0.53              |
| 34:GM:125:VAL:HG21 | 34:GM:205:PHE:CZ   | 2.42                     | 0.53              |
| 35:GN:63:LEU:CD2   | 35:GN:140:LEU:HB3  | 2.38                     | 0.53              |
| 39:GR:145:ASN:HA   | 39:GR:150:ILE:CG1  | 2.39                     | 0.53              |
| 43:GV:173:PHE:HD1  | 43:GV:191:HIS:CE1  | 2.27                     | 0.53              |
| 1:H1:40:C:O2'      | 1:H1:41:A:OP1      | 2.27                     | 0.53              |
| 1:H1:281:G:H2'     | 1:H1:285:U:H6      | 1.73                     | 0.53              |
| 1:H1:296:G:H4'     | 1:H1:297:U:O5'     | 2.09                     | 0.53              |
| 1:H1:514:U:H2'     | 1:H1:515:A:C8      | 2.40                     | 0.53              |
| 1:H1:607:U:C2'     | 1:H1:608:C:H5'     | 2.39                     | 0.53              |
| 1:H1:1397:G:C8     | 50:H1:3998:HOH:O   | 2.54                     | 0.53              |
| 1:H1:1402:G:O2'    | 1:H1:1403:C:H5'    | 2.08                     | 0.53              |
| 1:H1:1490:G:N2     | 1:H1:1493:A:H5'    | 2.24                     | 0.53              |
| 1:H1:2188:U:HO2'   | 1:H1:2189:G:P      | 2.25                     | 0.53              |
| 1:H1:2391:G:H4'    | 1:H1:2392:A:OP2    | 2.08                     | 0.53              |
| 1:H1:2945:G:C2'    | 1:H1:2946:A:H5'    | 2.39                     | 0.53              |
| 1:H1:3227:A:H5'    | 5:HE:58:PHE:HZ     | 1.73                     | 0.53              |
| 3:HB:4:ASN:ND2     | 3:HB:4:ASN:H       | 2.05                     | 0.53              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 5:HE:126:HIS:CD2  | 5:HE:127:LYS:HG2   | 2.44                     | 0.53              |
| 6:HF:5:LYS:HD3    | 6:HF:55:LEU:HB2    | 1.91                     | 0.53              |
| 13:HN:41:VAL:HG23 | 13:HN:77:LEU:CD2   | 2.39                     | 0.53              |
| 13:HN:118:PHE:HD2 | 13:HN:139:PHE:CE1  | 2.27                     | 0.53              |
| 16:HQ:83:THR:HG22 | 16:HQ:86:ARG:H     | 1.74                     | 0.53              |
| 1:A1:146:U:H2'    | 27:BF:185:LYS:NZ   | 2.23                     | 0.52              |
| 1:A1:317:A:H4'    | 33:BL:175:ARG:CZ   | 2.39                     | 0.52              |
| 1:A1:467:A:N1     | 1:A1:512:G:N3      | 2.57                     | 0.52              |
| 1:A1:862:A:O2'    | 46:BY:10:ILE:CG2   | 2.53                     | 0.52              |
| 1:A1:867:G:H5'    | 36:BO:131:LEU:HD11 | 1.90                     | 0.52              |
| 1:A1:958:A:C6     | 24:BC:105:ARG:NE   | 2.77                     | 0.52              |
| 1:A1:1167:G:H2'   | 1:A1:1168:C:H6     | 1.73                     | 0.52              |
| 1:A1:1506:G:N2    | 1:A1:1896:C:C5     | 2.78                     | 0.52              |
| 1:A1:1805:C:C2'   | 1:A1:1806:G:OP1    | 2.57                     | 0.52              |
| 1:A1:1923:G:H2'   | 50:A1:4453:HOH:O   | 2.10                     | 0.52              |
| 1:A1:2173:A:H5''  | 22:BA:133:CYS:SG   | 2.49                     | 0.52              |
| 1:A1:2408:A:N6    | 50:A1:3770:HOH:O   | 2.35                     | 0.52              |
| 1:A1:2714:U:H2'   | 1:A1:2715:C:H5'    | 1.90                     | 0.52              |
| 1:A1:2802:G:OP1   | 24:BC:80:ARG:NH2   | 2.32                     | 0.52              |
| 1:A1:3283:C:H4'   | 44:BW:103:LEU:O    | 2.09                     | 0.52              |
| 5:AE:62:ARG:NH1   | 6:AF:105:ASP:OD1   | 2.42                     | 0.52              |
| 8:AH:13:ARG:CG    | 8:AH:15:TRP:CZ3    | 2.92                     | 0.52              |
| 9:AJ:39:GLU:CB    | 9:AJ:43:VAL:HG23   | 2.39                     | 0.52              |
| 19:AX:164:PRO:HG2 | 26:BE:58:TRP:NE1   | 2.25                     | 0.52              |
| 20:B2:140:U:H6    | 20:B2:140:U:H5''   | 1.74                     | 0.52              |
| 24:BC:161:ASP:OD1 | 24:BC:260:GLU:HB2  | 2.09                     | 0.52              |
| 24:BC:272:THR:CG2 | 24:BC:273:TYR:H    | 2.21                     | 0.52              |
| 30:BI:35:VAL:HG12 | 30:BI:36:ARG:N     | 2.23                     | 0.52              |
| 32:BK:141:VAL:CG1 | 32:BK:141:VAL:O    | 2.54                     | 0.52              |
| 38:BQ:85:TRP:O    | 38:BQ:87:VAL:N     | 2.42                     | 0.52              |
| 42:BU:89:THR:O    | 42:BU:93:ARG:HD2   | 2.09                     | 0.52              |
| 45:BX:6:VAL:HG23  | 45:BX:92:ARG:O     | 2.08                     | 0.52              |
| 23:CB:183:GLY:O   | 23:CB:189:LYS:CE   | 2.57                     | 0.52              |
| 24:CC:259:THR:CG2 | 24:CC:260:GLU:H    | 2.21                     | 0.52              |
| 25:CD:20:ASN:HB2  | 25:CD:68:HIS:HB3   | 1.91                     | 0.52              |
| 31:CJ:19:LEU:HB3  | 31:CJ:55:SER:HB3   | 1.91                     | 0.52              |
| 47:CO:161:UNK:O   | 47:CO:164:UNK:CG   | 2.52                     | 0.52              |
| 37:CP:61:THR:HB   | 1:D1:1086:U:O4'    | 2.08                     | 0.52              |
| 1:D1:90:G:H4'     | 4:DC:53:LYS:HZ3    | 1.74                     | 0.52              |
| 1:D1:165:C:H5''   | 18:DU:132:LYS:HD2  | 1.90                     | 0.52              |
| 1:D1:1367:A:H2'   | 1:D1:1368:U:H6     | 1.73                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1919:A:O2'    | 1:D1:1920:A:H8     | 1.93                     | 0.52              |
| 1:D1:2133:U:C5     | 1:D1:2138:A:N7     | 2.76                     | 0.52              |
| 1:D1:2134:A:H3'    | 1:D1:2135:A:H2'    | 1.92                     | 0.52              |
| 1:D1:2251:A:O4'    | 46:EY:74:PRO:HG2   | 2.09                     | 0.52              |
| 1:D1:2550:U:C5'    | 1:D1:2551:A:O5'    | 2.57                     | 0.52              |
| 1:D1:2576:C:C2'    | 1:D1:2577:G:C5'    | 2.86                     | 0.52              |
| 1:D1:3205:A:O2'    | 1:D1:3206:A:OP1    | 2.27                     | 0.52              |
| 4:DC:77:THR:HG22   | 4:DC:78:LYS:N      | 2.24                     | 0.52              |
| 5:DE:54:LEU:HB2    | 5:DE:94:TYR:O      | 2.08                     | 0.52              |
| 7:DG:83:LYS:HD2    | 7:DG:85:HIS:CE1    | 2.44                     | 0.52              |
| 8:DH:11:PRO:CG     | 8:DH:12:THR:H      | 2.20                     | 0.52              |
| 9:DJ:25:LEU:HD23   | 9:DJ:49:ILE:HB     | 1.90                     | 0.52              |
| 13:DN:33:THR:HB    | 13:DN:35:ASP:H     | 1.73                     | 0.52              |
| 19:DX:3:ARG:O      | 19:DX:19:ARG:NH2   | 2.42                     | 0.52              |
| 19:DX:16:MET:HE2   | 19:DX:118:SER:HA   | 1.90                     | 0.52              |
| 22:EA:71:LYS:CE    | 1:F1:2517:G:O6     | 2.57                     | 0.52              |
| 23:EB:5:LYS:NZ     | 1:F1:2866:G:H5''   | 2.24                     | 0.52              |
| 23:EB:110:ILE:HG23 | 23:EB:114:THR:HG21 | 1.90                     | 0.52              |
| 24:EC:272:THR:CG2  | 24:EC:273:TYR:N    | 2.72                     | 0.52              |
| 27:EF:155:LEU:CD1  | 1:F1:147:U:H1'     | 2.39                     | 0.52              |
| 32:EK:51:HIS:HE1   | 18:FU:6:GLN:HA     | 1.74                     | 0.52              |
| 33:EL:26:ARG:O     | 33:EL:30:TYR:CD1   | 2.62                     | 0.52              |
| 37:EP:8:ARG:HD2    | 37:EP:11:THR:HG21  | 1.91                     | 0.52              |
| 38:EQ:8:ARG:HD3    | 38:EQ:118:HIS:HB2  | 1.91                     | 0.52              |
| 39:ER:61:VAL:HG23  | 39:ER:61:VAL:O     | 2.09                     | 0.52              |
| 40:ES:21:SER:HB2   | 40:ES:26:ARG:HG2   | 1.91                     | 0.52              |
| 40:ES:82:GLU:HG2   | 40:ES:83:LYS:HG3   | 1.91                     | 0.52              |
| 41:ET:11:CYS:SG    | 41:ET:13:TYR:CD2   | 3.02                     | 0.52              |
| 41:ET:58:ARG:NH2   | 1:F1:3325:G:N9     | 2.57                     | 0.52              |
| 44:EW:20:HIS:CD2   | 44:EW:21:LYS:HB2   | 2.44                     | 0.52              |
| 44:EW:54:LEU:HA    | 44:EW:94:HIS:HB2   | 1.91                     | 0.52              |
| 1:F1:90:G:O3'      | 4:FC:53:LYS:NZ     | 2.42                     | 0.52              |
| 1:F1:185:A:H2      | 1:F1:233:G:H22     | 1.55                     | 0.52              |
| 1:F1:652:U:C2      | 1:F1:653:C:C6      | 2.97                     | 0.52              |
| 1:F1:1179:G:H1'    | 1:F1:2365:G:O2'    | 2.09                     | 0.52              |
| 1:F1:1478:A:N7     | 50:F1:4034:HOH:O   | 2.33                     | 0.52              |
| 1:F1:1543:A:H2'    | 1:F1:1544:U:C6     | 2.45                     | 0.52              |
| 1:F1:1642:G:C3'    | 1:F1:1643:G:H5''   | 2.39                     | 0.52              |
| 1:F1:1918:U:C2'    | 1:F1:1919:A:C5'    | 2.70                     | 0.52              |
| 1:F1:3158:G:H5'    | 1:F1:3159:A:OP2    | 2.09                     | 0.52              |
| 1:F1:3228:U:C2     | 5:FE:142:GLU:HG3   | 2.43                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:FH:70:TYR:O      | 8:FH:71:ARG:HG3    | 2.09                     | 0.52              |
| 14:FO:122:GLN:OE1  | 14:FO:122:GLN:HA   | 2.09                     | 0.52              |
| 16:FQ:68:LYS:HZ2   | 16:FQ:72:LYS:HG3   | 1.74                     | 0.52              |
| 18:FU:146:ALA:HB1  | 18:FU:148:ASN:HD22 | 1.73                     | 0.52              |
| 20:G2:3:A:N3       | 20:G2:3:A:H2'      | 2.25                     | 0.52              |
| 22:GA:31:ARG:NH1   | 22:GA:42:ILE:HG13  | 2.24                     | 0.52              |
| 23:GB:381:ASP:HB3  | 23:GB:384:LYS:CB   | 2.38                     | 0.52              |
| 24:GC:14:GLU:HB3   | 24:GC:17:LYS:HG3   | 1.91                     | 0.52              |
| 24:GC:276:THR:HG21 | 24:GC:282:GLY:HA2  | 1.92                     | 0.52              |
| 28:GG:81:UNK:N     | 1:H1:1309:G:C4'    | 2.72                     | 0.52              |
| 34:GM:109:LEU:HD21 | 34:GM:142:PHE:CD2  | 2.44                     | 0.52              |
| 35:GN:141:ARG:HD3  | 1:H1:768:A:O4'     | 2.08                     | 0.52              |
| 35:GN:180:LEU:O    | 35:GN:181:LYS:C    | 2.52                     | 0.52              |
| 1:H1:219:A:N1      | 1:H1:1416:U:H2'    | 2.24                     | 0.52              |
| 1:H1:1057:U:H2'    | 1:H1:1058:C:H6     | 1.74                     | 0.52              |
| 1:H1:1105:U:H6     | 1:H1:1105:U:O5'    | 1.92                     | 0.52              |
| 1:H1:1715:U:H2'    | 1:H1:1716:U:H6     | 1.73                     | 0.52              |
| 1:H1:1753:A:OP2    | 7:HG:26:GLY:HA2    | 2.09                     | 0.52              |
| 1:H1:1966:U:O2'    | 1:H1:3303:G:H1'    | 2.09                     | 0.52              |
| 1:H1:2274:A:C5'    | 1:H1:2300:G:H22    | 2.22                     | 0.52              |
| 1:H1:2508:U:O2'    | 1:H1:2509:U:H2'    | 2.09                     | 0.52              |
| 1:H1:2521:A:C2     | 1:H1:2522:A:C4     | 2.97                     | 0.52              |
| 1:H1:2617:G:H1'    | 1:H1:2786:C:C2     | 2.43                     | 0.52              |
| 1:H1:2870:U:H2'    | 1:H1:2871:U:C6     | 2.44                     | 0.52              |
| 1:H1:3232:A:H1'    | 5:HE:94:TYR:CE2    | 2.44                     | 0.52              |
| 1:H1:3237:C:H41    | 8:HH:10:ALA:CA     | 2.22                     | 0.52              |
| 5:HE:173:TYR:CE2   | 6:HF:106:PHE:CA    | 2.92                     | 0.52              |
| 6:HF:111:VAL:HG12  | 6:HF:115:LYS:HE3   | 1.91                     | 0.52              |
| 8:HH:44:THR:O      | 8:HH:48:VAL:HG23   | 2.10                     | 0.52              |
| 8:HH:54:LYS:HA     | 8:HH:110:PRO:HG2   | 1.86                     | 0.52              |
| 18:HU:54:PRO:HG3   | 18:HU:72:GLY:O     | 2.09                     | 0.52              |
| 1:A1:114:A:C4'     | 16:AQ:37:ARG:NH2   | 2.63                     | 0.52              |
| 1:A1:549:G:C6      | 1:A1:619:G:N2      | 2.77                     | 0.52              |
| 1:A1:976:A:OP2     | 1:A1:1394:G:N2     | 2.41                     | 0.52              |
| 1:A1:1540:U:H5     | 1:A1:1865:A:O2'    | 1.91                     | 0.52              |
| 1:A1:1567:A:N6     | 1:A1:1578:U:H3     | 2.05                     | 0.52              |
| 1:A1:1599:G:C2     | 1:A1:1600:U:C2     | 2.97                     | 0.52              |
| 1:A1:1600:U:C2'    | 1:A1:1601:U:H5'    | 2.38                     | 0.52              |
| 1:A1:2149:U:C2'    | 1:A1:2150:U:H5''   | 2.39                     | 0.52              |
| 1:A1:2242:G:N3     | 1:A1:2266:A:H2     | 2.07                     | 0.52              |
| 1:A1:2255:U:H2'    | 1:A1:2256:G:O4'    | 2.08                     | 0.52              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A1:2397:A:OP1    | 24:BC:77:ALA:CA   | 2.56                     | 0.52              |
| 1:A1:3055:U:H2'    | 1:A1:3056:C:H6    | 1.73                     | 0.52              |
| 1:A1:3227:A:N3     | 5:AE:80:TYR:CE2   | 2.77                     | 0.52              |
| 50:A1:4233:HOH:O   | 17:AT:19:ASN:HB2  | 2.09                     | 0.52              |
| 2:AA:64:ARG:NH1    | 20:B2:60:C:N4     | 2.58                     | 0.52              |
| 4:AC:19:THR:HB     | 4:AC:21:HIS:NE2   | 2.24                     | 0.52              |
| 5:AE:56:GLY:C      | 5:AE:58:PHE:N     | 2.61                     | 0.52              |
| 5:AE:180:LEU:HD21  | 5:AE:186:PRO:HG3  | 1.91                     | 0.52              |
| 7:AG:97:ASP:OD2    | 29:GH:28:ASP:OD1  | 2.26                     | 0.52              |
| 9:AJ:119:PRO:HD3   | 9:AJ:140:THR:O    | 2.09                     | 0.52              |
| 13:AN:130:LYS:NZ   | 1:H1:2663:A:P     | 2.82                     | 0.52              |
| 16:AQ:61:LEU:O     | 16:AQ:69:ASP:HB3  | 2.09                     | 0.52              |
| 18:AU:23:PHE:O     | 18:AU:26:GLN:HB3  | 2.09                     | 0.52              |
| 20:B2:99:U:H5''    | 20:B2:100:C:OP2   | 2.08                     | 0.52              |
| 22:BA:186:GLN:NE2  | 22:BA:190:TYR:HE2 | 2.07                     | 0.52              |
| 23:BB:105:VAL:HG21 | 23:BB:146:LEU:CD2 | 2.38                     | 0.52              |
| 24:BC:138:LEU:HD23 | 24:BC:138:LEU:N   | 2.24                     | 0.52              |
| 24:BC:238:VAL:HG21 | 24:BC:262:ALA:CB  | 2.39                     | 0.52              |
| 26:BE:46:GLN:NE2   | 26:BE:56:GLN:NE2  | 2.56                     | 0.52              |
| 30:BI:74:ALA:O     | 30:BI:78:ILE:HG12 | 2.09                     | 0.52              |
| 32:BK:122:PRO:CB   | 32:BK:142:GLY:O   | 2.57                     | 0.52              |
| 34:BM:38:ILE:O     | 34:BM:38:ILE:HG13 | 2.09                     | 0.52              |
| 36:BO:114:LYS:HB3  | 36:BO:146:LYS:HZ3 | 1.72                     | 0.52              |
| 43:BV:98:ARG:HG3   | 43:BV:98:ARG:NH1  | 2.22                     | 0.52              |
| 43:BV:216:HIS:C    | 43:BV:222:GLY:HA3 | 2.35                     | 0.52              |
| 44:BW:43:MET:HG3   | 44:BW:90:THR:HG21 | 1.90                     | 0.52              |
| 21:C3:116:A:H4'    | 34:CM:260:ARG:NH2 | 2.24                     | 0.52              |
| 22:CA:35:PHE:CE1   | 1:D1:2520:G:C2'   | 2.91                     | 0.52              |
| 23:CB:114:THR:HG23 | 23:CB:115:LYS:N   | 2.24                     | 0.52              |
| 24:CC:44:ASP:N     | 24:CC:44:ASP:OD1  | 2.40                     | 0.52              |
| 27:CF:69:GLN:HG2   | 27:CF:222:ARG:NH1 | 2.24                     | 0.52              |
| 32:CK:81:TRP:CE3   | 32:CK:89:ARG:HB3  | 2.44                     | 0.52              |
| 34:CM:18:THR:HG23  | 34:CM:18:THR:O    | 2.08                     | 0.52              |
| 47:CO:172:UNK:CG   | 47:CO:173:UNK:N   | 2.73                     | 0.52              |
| 37:CP:17:LYS:CE    | 37:CP:47:SER:HB3  | 2.38                     | 0.52              |
| 37:CP:17:LYS:NZ    | 37:CP:47:SER:HB3  | 2.23                     | 0.52              |
| 45:CX:47:ARG:NH1   | 1:D1:1187:C:N3    | 2.57                     | 0.52              |
| 1:D1:155:A:H5''    | 1:D1:156:A:C8     | 2.43                     | 0.52              |
| 1:D1:777:C:H2'     | 1:D1:778:G:H8     | 1.74                     | 0.52              |
| 1:D1:1102:U:H2'    | 17:DT:45:ARG:HH12 | 1.73                     | 0.52              |
| 1:D1:1344:A:P      | 50:D1:4386:HOH:O  | 2.67                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D1:1642:G:C3'   | 1:D1:1643:G:H5''  | 2.38                     | 0.52              |
| 1:D1:2348:G:C5    | 1:D1:2349:C:C5    | 2.98                     | 0.52              |
| 1:D1:2645:A:H2'   | 1:D1:2645:A:N3    | 2.25                     | 0.52              |
| 1:D1:2750:G:H4'   | 1:D1:2751:A:OP1   | 2.09                     | 0.52              |
| 1:D1:2859:G:C8    | 50:D1:4455:HOH:O  | 2.26                     | 0.52              |
| 4:DC:19:THR:HG22  | 4:DC:20:ASN:N     | 2.25                     | 0.52              |
| 7:DG:13:LYS:CB    | 7:DG:100:ILE:CD1  | 2.87                     | 0.52              |
| 8:DH:70:TYR:O     | 8:DH:71:ARG:HG3   | 2.08                     | 0.52              |
| 13:DN:57:MET:HE1  | 13:DN:65:ARG:HD3  | 1.91                     | 0.52              |
| 22:EA:85:SER:HB3  | 46:EY:63:ILE:HB   | 1.91                     | 0.52              |
| 23:EB:57:LEU:HD11 | 23:EB:71:GLU:HB3  | 1.89                     | 0.52              |
| 24:EC:311:ALA:N   | 35:EN:40:ARG:NH2  | 2.57                     | 0.52              |
| 25:ED:12:VAL:CG2  | 25:ED:162:TRP:HD1 | 2.22                     | 0.52              |
| 32:EK:98:LYS:HD2  | 18:FU:164:LYS:O   | 2.09                     | 0.52              |
| 33:EL:28:TRP:O    | 33:EL:32:GLN:HG2  | 2.08                     | 0.52              |
| 37:EP:34:TYR:CD1  | 37:EP:72:ILE:HD11 | 2.43                     | 0.52              |
| 37:EP:45:ASP:OD1  | 37:EP:45:ASP:C    | 2.52                     | 0.52              |
| 37:EP:116:LYS:HZ1 | 37:EP:128:THR:CB  | 2.07                     | 0.52              |
| 38:EQ:8:ARG:HH22  | 38:EQ:117:GLN:NE2 | 2.07                     | 0.52              |
| 43:EV:156:GLN:OE1 | 1:F1:1389:G:C1'   | 2.56                     | 0.52              |
| 46:EY:16:THR:HG21 | 1:F1:2316:A:O2'   | 2.09                     | 0.52              |
| 1:F1:113:A:O2'    | 1:F1:114:A:OP1    | 2.26                     | 0.52              |
| 1:F1:169:A:H2'    | 1:F1:170:A:H5'    | 1.91                     | 0.52              |
| 1:F1:556:A:N1     | 1:F1:611:A:H2     | 2.07                     | 0.52              |
| 1:F1:742:U:H4'    | 1:F1:743:A:OP1    | 2.10                     | 0.52              |
| 1:F1:827:C:H2'    | 1:F1:828:C:C6     | 2.44                     | 0.52              |
| 1:F1:1106:U:O2    | 1:F1:1110:U:C2    | 2.62                     | 0.52              |
| 1:F1:1868:C:O2    | 2:FA:9:GLY:HA2    | 2.09                     | 0.52              |
| 1:F1:2251:A:H2'   | 1:F1:2251:A:N3    | 2.24                     | 0.52              |
| 1:F1:2265:A:H8    | 1:F1:2265:A:C5'   | 2.19                     | 0.52              |
| 1:F1:2265:A:H5''  | 1:F1:2265:A:C8    | 2.34                     | 0.52              |
| 1:F1:2702:U:H3'   | 4:FC:9:LYS:O      | 2.10                     | 0.52              |
| 1:F1:2870:U:H2'   | 1:F1:2871:U:C6    | 2.44                     | 0.52              |
| 1:F1:2922:A:H5''  | 1:F1:2923:U:OP2   | 2.08                     | 0.52              |
| 4:FC:14:LYS:HG3   | 4:FC:77:THR:OG1   | 2.08                     | 0.52              |
| 5:FE:49:THR:CG2   | 5:FE:50:VAL:N     | 2.72                     | 0.52              |
| 6:FF:17:TYR:CD1   | 6:FF:17:TYR:O     | 2.63                     | 0.52              |
| 6:FF:62:ASN:O     | 6:FF:75:LYS:NZ    | 2.31                     | 0.52              |
| 8:FH:84:ASN:O     | 8:FH:86:VAL:N     | 2.42                     | 0.52              |
| 23:GB:33:PRO:HA   | 23:GB:340:ILE:HA  | 1.92                     | 0.52              |
| 23:GB:119:TYR:CE1 | 1:H1:3255:A:H5''  | 2.44                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:191:THR:OG1  | 24:GC:209:ARG:HD2  | 2.09                     | 0.52              |
| 25:GD:77:ARG:HH22  | 25:GD:166:GLU:CG   | 2.21                     | 0.52              |
| 26:GE:22:GLN:HB3   | 26:GE:39:ARG:NH2   | 2.24                     | 0.52              |
| 31:GJ:25:ALA:HA    | 1:H1:1923:G:OP1    | 2.08                     | 0.52              |
| 31:GJ:86:ARG:HG3   | 31:GJ:99:PHE:O     | 2.10                     | 0.52              |
| 33:GL:63:ARG:HG2   | 33:GL:131:GLU:HG3  | 1.91                     | 0.52              |
| 33:GL:160:GLU:HG2  | 33:GL:161:LEU:N    | 2.23                     | 0.52              |
| 37:GP:152:VAL:HA   | 19:HX:138:ILE:HD11 | 1.91                     | 0.52              |
| 39:GR:147:ILE:HG23 | 42:GU:34:ILE:HD13  | 1.91                     | 0.52              |
| 41:GT:10:PHE:HZ    | 41:GT:51:ILE:HD12  | 1.75                     | 0.52              |
| 1:H1:811:A:H4'     | 1:H1:812:G:O5'     | 2.09                     | 0.52              |
| 1:H1:2278:G:O2'    | 1:H1:2279:C:O5'    | 2.28                     | 0.52              |
| 1:H1:3110:U:C4     | 1:H1:3113:G:O6     | 2.61                     | 0.52              |
| 1:H1:3146:G:C6     | 1:H1:3248:C:C4     | 2.96                     | 0.52              |
| 1:H1:3175:A:H2'    | 1:H1:3177:G:N7     | 2.25                     | 0.52              |
| 8:HH:11:PRO:CG     | 8:HH:12:THR:H      | 2.20                     | 0.52              |
| 13:HN:10:VAL:HG13  | 13:HN:83:THR:HB    | 1.91                     | 0.52              |
| 14:HO:3:GLN:OE1    | 14:HO:3:GLN:HA     | 2.08                     | 0.52              |
| 18:HU:91:ILE:CG2   | 18:HU:117:TYR:HE2  | 2.23                     | 0.52              |
| 1:A1:70:C:N4       | 1:A1:72:A:C6       | 2.78                     | 0.52              |
| 1:A1:146:U:C4'     | 1:A1:147:U:H5'     | 2.31                     | 0.52              |
| 1:A1:149:U:H2'     | 1:A1:150:A:H8      | 1.74                     | 0.52              |
| 1:A1:184:C:H2'     | 1:A1:185:A:H8      | 1.73                     | 0.52              |
| 1:A1:628:A:OP1     | 43:BV:31:SER:HA    | 2.09                     | 0.52              |
| 1:A1:730:A:H4'     | 1:A1:731:A:OP1     | 2.10                     | 0.52              |
| 1:A1:970:C:H2'     | 1:A1:971:C:C6      | 2.45                     | 0.52              |
| 1:A1:1112:A:C6     | 1:A1:1113:A:C6     | 2.97                     | 0.52              |
| 1:A1:1216:C:C2'    | 30:BI:132:ARG:NH1  | 2.71                     | 0.52              |
| 1:A1:1653:A:C5     | 1:A1:1839:A:N1     | 2.78                     | 0.52              |
| 1:A1:1858:U:OP1    | 3:AB:5:LYS:HE3     | 2.09                     | 0.52              |
| 1:A1:2292:U:H2'    | 1:A1:2294:A:N7     | 2.23                     | 0.52              |
| 1:A1:3257:U:H2'    | 1:A1:3258:C:H6     | 1.73                     | 0.52              |
| 6:AF:3:PHE:CD1     | 19:AX:164:PRO:CB   | 2.91                     | 0.52              |
| 9:AJ:109:VAL:HG23  | 9:AJ:148:VAL:HG23  | 1.90                     | 0.52              |
| 15:AP:32:TYR:N     | 15:AP:32:TYR:CD1   | 2.77                     | 0.52              |
| 21:B3:44:C:HO2'    | 34:BM:152:ARG:HD3  | 1.74                     | 0.52              |
| 22:BA:33:TYR:N     | 22:BA:164:ARG:NH2  | 2.56                     | 0.52              |
| 22:BA:116:ASN:OD1  | 22:BA:125:GLY:HA3  | 2.10                     | 0.52              |
| 22:BA:205:MET:HB3  | 22:BA:209:ASP:HB2  | 1.90                     | 0.52              |
| 30:BI:91:THR:HG22  | 30:BI:93:LYS:N     | 2.24                     | 0.52              |
| 31:BJ:97:ILE:HG22  | 31:BJ:98:TYR:N     | 2.23                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:136:GLN:HB3  | 34:BM:141:PRO:HD3  | 1.91                     | 0.52              |
| 38:BQ:24:LEU:HD13  | 38:BQ:92:VAL:HG11  | 1.91                     | 0.52              |
| 43:BV:37:ARG:O     | 43:BV:40:GLU:N     | 2.42                     | 0.52              |
| 44:BW:43:MET:HE2   | 44:BW:43:MET:CA    | 2.34                     | 0.52              |
| 20:C2:17:U:H5''    | 20:C2:18:G:OP2     | 2.10                     | 0.52              |
| 22:CA:33:TYR:CA    | 22:CA:164:ARG:NH2  | 2.72                     | 0.52              |
| 22:CA:186:GLN:NE2  | 22:CA:190:TYR:HE2  | 2.08                     | 0.52              |
| 23:CB:121:ASN:HB3  | 1:D1:3275:A:H62    | 1.71                     | 0.52              |
| 23:CB:163:ASN:HA   | 23:CB:174:ASN:OD1  | 2.10                     | 0.52              |
| 25:CD:6:GLU:HA     | 25:CD:6:GLU:OE1    | 2.07                     | 0.52              |
| 25:CD:32:LYS:HE2   | 25:CD:119:SER:HA   | 1.91                     | 0.52              |
| 27:CF:36:GLN:HG3   | 27:CF:37:PRO:CD    | 2.34                     | 0.52              |
| 27:CF:136:ILE:HD13 | 27:CF:163:CYS:SG   | 2.48                     | 0.52              |
| 32:CK:91:LYS:HG2   | 32:CK:92:TYR:CD1   | 2.44                     | 0.52              |
| 32:CK:118:LEU:HB3  | 32:CK:141:VAL:HG21 | 1.91                     | 0.52              |
| 32:CK:141:VAL:O    | 32:CK:141:VAL:CG1  | 2.57                     | 0.52              |
| 33:CL:55:ASN:HD22  | 1:D1:148:G:H5''    | 1.75                     | 0.52              |
| 35:CN:57:ARG:NH1   | 1:D1:697:A:H5'     | 2.25                     | 0.52              |
| 47:CO:153:UNK:HG2  | 47:CO:154:UNK:N    | 2.24                     | 0.52              |
| 40:CS:36:LYS:NZ    | 1:D1:190:U:OP1     | 2.42                     | 0.52              |
| 40:CS:111:ASP:OD1  | 40:CS:111:ASP:C    | 2.53                     | 0.52              |
| 1:D1:281:G:C4'     | 1:D1:282:G:C8      | 2.91                     | 0.52              |
| 1:D1:362:G:C2'     | 1:D1:363:G:H5''    | 2.39                     | 0.52              |
| 1:D1:1049:U:C5     | 1:D1:1050:C:N4     | 2.77                     | 0.52              |
| 1:D1:1050:C:H3'    | 1:D1:1051:C:C6     | 2.44                     | 0.52              |
| 1:D1:1920:A:OP2    | 50:D1:4595:HOH:O   | 2.19                     | 0.52              |
| 1:D1:2138:A:H4'    | 1:D1:2139:A:O5'    | 2.09                     | 0.52              |
| 1:D1:2562:U:O2'    | 1:D1:2563:U:P      | 2.68                     | 0.52              |
| 1:D1:2789:A:C3'    | 1:D1:2790:A:H5''   | 2.39                     | 0.52              |
| 1:D1:2973:C:H2'    | 1:D1:2974:U:O4'    | 2.10                     | 0.52              |
| 5:DE:85:VAL:HG12   | 5:DE:85:VAL:O      | 2.07                     | 0.52              |
| 6:DF:125:SER:O     | 6:DF:126:LYS:CB    | 2.57                     | 0.52              |
| 7:DG:43:PHE:CE1    | 7:DG:68:HIS:HD2    | 2.27                     | 0.52              |
| 9:DJ:122:ASP:OD1   | 9:DJ:123:ARG:N     | 2.42                     | 0.52              |
| 17:DT:48:LYS:C     | 17:DT:55:LYS:HZ2   | 2.17                     | 0.52              |
| 19:DX:58:ASN:O     | 19:DX:62:LEU:HG    | 2.09                     | 0.52              |
| 19:DX:167:LYS:HA   | 19:DX:188:THR:HG21 | 1.89                     | 0.52              |
| 22:EA:68:TYR:HE1   | 1:F1:2520:G:O6     | 1.91                     | 0.52              |
| 22:EA:104:PRO:HA   | 22:EA:163:CYS:O    | 2.10                     | 0.52              |
| 24:EC:311:ALA:HB2  | 35:EN:40:ARG:HH21  | 1.75                     | 0.52              |
| 34:EM:142:PHE:CD1  | 1:F1:1107:A:C8     | 2.97                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:EN:168:ARG:HH11 | 18:FU:9:VAL:HG22   | 1.74                     | 0.52              |
| 42:EU:74:PHE:CB    | 42:EU:80:LYS:HE3   | 2.39                     | 0.52              |
| 43:EV:98:ARG:HH11  | 43:EV:98:ARG:HG2   | 1.74                     | 0.52              |
| 43:EV:132:THR:HG21 | 43:EV:227:ARG:CD   | 2.39                     | 0.52              |
| 1:F1:1049:U:C4     | 1:F1:1050:C:N4     | 2.78                     | 0.52              |
| 1:F1:1595:A:N3     | 1:F1:1599:G:C6     | 2.77                     | 0.52              |
| 1:F1:1874:A:H5''   | 50:F1:4044:HOH:O   | 2.09                     | 0.52              |
| 1:F1:2163:A:C6     | 1:F1:2164:C:N4     | 2.77                     | 0.52              |
| 1:F1:2227:A:H1'    | 1:F1:2423:U:O2'    | 2.09                     | 0.52              |
| 1:F1:3120:U:H2'    | 1:F1:3120:U:O2     | 2.09                     | 0.52              |
| 15:FP:29:LYS:HB3   | 15:FP:72:TYR:CE2   | 2.44                     | 0.52              |
| 22:GA:30:TYR:HD2   | 22:GA:124:ARG:C    | 2.17                     | 0.52              |
| 23:GB:56:ILE:HD11  | 23:GB:321:MET:CE   | 2.39                     | 0.52              |
| 24:GC:34:ARG:CZ    | 35:GN:24:ASN:HB3   | 2.39                     | 0.52              |
| 24:GC:380:PHE:HE1  | 19:HX:22:VAL:HG22  | 1.74                     | 0.52              |
| 26:GE:29:GLY:H     | 26:GE:82:VAL:HG11  | 1.73                     | 0.52              |
| 27:GF:131:HIS:CG   | 1:H1:117:G:C2      | 2.97                     | 0.52              |
| 28:GG:8:UNK:HG2    | 1:H1:1248:G:C2     | 2.42                     | 0.52              |
| 30:GI:30:GLN:HG3   | 30:GI:32:ILE:CD1   | 2.39                     | 0.52              |
| 32:GK:100:PRO:HA   | 18:HU:164:LYS:HD3  | 1.91                     | 0.52              |
| 33:GL:182:LYS:HG2  | 33:GL:183:SER:H    | 1.71                     | 0.52              |
| 34:GM:107:ARG:CZ   | 34:GM:255:ARG:HH11 | 2.22                     | 0.52              |
| 35:GN:146:ARG:HB2  | 35:GN:149:TYR:CE2  | 2.44                     | 0.52              |
| 39:GR:94:VAL:HG12  | 39:GR:98:SER:OG    | 2.09                     | 0.52              |
| 46:GY:4:ARG:HH12   | 1:H1:881:G:N2      | 2.06                     | 0.52              |
| 1:H1:120:A:C4'     | 1:H1:121:A:O5'     | 2.56                     | 0.52              |
| 1:H1:165:C:O3'     | 18:HU:132:LYS:HG3  | 2.09                     | 0.52              |
| 1:H1:552:U:C2'     | 1:H1:553:C:H5'     | 2.38                     | 0.52              |
| 1:H1:1702:G:H2'    | 1:H1:1703:A:C8     | 2.44                     | 0.52              |
| 1:H1:2255:U:H2'    | 1:H1:2256:G:C8     | 2.44                     | 0.52              |
| 1:H1:2266:A:N7     | 1:H1:2267:G:C6     | 2.78                     | 0.52              |
| 1:H1:2274:A:H5'    | 1:H1:2300:G:H22    | 1.74                     | 0.52              |
| 1:H1:2789:A:C3'    | 1:H1:2790:A:H5''   | 2.38                     | 0.52              |
| 1:H1:3096:U:O2'    | 1:H1:3097:G:H5'    | 2.08                     | 0.52              |
| 1:H1:3175:A:H61    | 6:HF:16:ASN:HD21   | 1.55                     | 0.52              |
| 6:HF:2:VAL:CG1     | 6:HF:3:PHE:H       | 2.17                     | 0.52              |
| 7:HG:38:THR:O      | 7:HG:40:LYS:HE2    | 2.08                     | 0.52              |
| 12:HM:75:LYS:O     | 12:HM:105:TYR:HE2  | 1.93                     | 0.52              |
| 13:HN:7:TYR:OH     | 13:HN:93:PHE:N     | 2.41                     | 0.52              |
| 1:A1:69:A:N6       | 1:A1:302:G:O2'     | 2.43                     | 0.52              |
| 1:A1:196:G:H5''    | 50:A1:4746:HOH:O   | 2.09                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:197:G:N2     | 1:A1:371:A:C8      | 2.78                     | 0.52              |
| 1:A1:298:G:C5     | 16:AQ:31:LYS:HG3   | 2.44                     | 0.52              |
| 1:A1:566:U:C2'    | 1:A1:567:C:H5'     | 2.39                     | 0.52              |
| 1:A1:632:G:N7     | 5:AE:32:GLN:NE2    | 2.58                     | 0.52              |
| 1:A1:666:U:OP1    | 32:BK:22:VAL:HG22  | 2.09                     | 0.52              |
| 1:A1:1599:G:H5''  | 39:BR:43:LEU:HD11  | 1.92                     | 0.52              |
| 1:A1:1606:U:C2'   | 1:A1:1607:U:H5'    | 2.40                     | 0.52              |
| 1:A1:1662:A:H4'   | 11:AL:76:ARG:HH22  | 1.74                     | 0.52              |
| 1:A1:1728:A:H2'   | 1:A1:1729:U:OP2    | 2.09                     | 0.52              |
| 1:A1:2171:U:OP1   | 22:BA:55:ARG:NH2   | 2.42                     | 0.52              |
| 1:A1:2274:A:C5'   | 1:A1:2300:G:H22    | 2.22                     | 0.52              |
| 1:A1:2539:A:C2    | 1:A1:2540:G:N7     | 2.78                     | 0.52              |
| 1:A1:2714:U:C2'   | 1:A1:2715:C:H5'    | 2.38                     | 0.52              |
| 1:A1:3035:A:H4'   | 1:A1:3036:U:OP1    | 2.10                     | 0.52              |
| 1:A1:3275:A:H62   | 23:BB:121:ASN:HB3  | 1.73                     | 0.52              |
| 2:AA:18:LEU:HA    | 2:AA:24:LYS:O      | 2.09                     | 0.52              |
| 5:AE:88:LYS:HG3   | 5:AE:89:ARG:N      | 2.24                     | 0.52              |
| 7:AG:8:ASP:HA     | 7:AG:11:GLN:HE21   | 1.75                     | 0.52              |
| 8:AH:97:PRO:O     | 8:AH:100:ILE:HG13  | 2.08                     | 0.52              |
| 9:AJ:119:PRO:CG   | 9:AJ:146:VAL:HG12  | 2.39                     | 0.52              |
| 20:B2:7:U:OP1     | 38:BQ:64:ARG:HG3   | 2.09                     | 0.52              |
| 20:B2:95:C:HO2'   | 20:B2:96:A:H8      | 1.57                     | 0.52              |
| 21:B3:83:G:H5''   | 50:B3:306:HOH:O    | 2.08                     | 0.52              |
| 22:BA:206:ASN:HB3 | 22:BA:207:PRO:HD2  | 1.89                     | 0.52              |
| 23:BB:114:THR:N   | 23:BB:174:ASN:HD22 | 2.08                     | 0.52              |
| 23:BB:292:ALA:HB3 | 23:BB:301:LYS:C    | 2.35                     | 0.52              |
| 24:BC:64:GLY:O    | 24:BC:97:PHE:HB3   | 2.09                     | 0.52              |
| 25:BD:157:GLU:HA  | 25:BD:160:ILE:HD12 | 1.90                     | 0.52              |
| 30:BI:165:THR:O   | 30:BI:166:TYR:C    | 2.53                     | 0.52              |
| 33:BL:26:ARG:O    | 33:BL:30:TYR:CD1   | 2.62                     | 0.52              |
| 35:BN:64:SER:HA   | 35:BN:88:THR:O     | 2.10                     | 0.52              |
| 35:BN:81:ILE:O    | 35:BN:102:CYS:N    | 2.30                     | 0.52              |
| 43:BV:223:ASP:N   | 43:BV:223:ASP:OD1  | 2.41                     | 0.52              |
| 23:CB:113:ASN:HB3 | 23:CB:174:ASN:ND2  | 2.24                     | 0.52              |
| 25:CD:37:LEU:CD1  | 25:CD:69:VAL:HG23  | 2.39                     | 0.52              |
| 25:CD:59:ILE:CD1  | 1:D1:2669:A:N3     | 2.73                     | 0.52              |
| 25:CD:94:LYS:O    | 1:D1:2661:G:O3'    | 2.27                     | 0.52              |
| 30:CI:6:VAL:HG23  | 30:CI:30:GLN:HE21  | 1.75                     | 0.52              |
| 32:CK:110:PHE:HE2 | 32:CK:128:LYS:HZ2  | 1.58                     | 0.52              |
| 32:CK:116:GLY:O   | 32:CK:137:ARG:NH1  | 2.43                     | 0.52              |
| 47:CO:138:LEU:O   | 47:CO:142:ILE:HG13 | 2.10                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:CQ:141:TYR:CD1  | 1:D1:2350:G:H4'    | 2.43                     | 0.52              |
| 39:CR:99:THR:O     | 39:CR:103:ILE:HG13 | 2.10                     | 0.52              |
| 43:CV:98:ARG:HH12  | 43:CV:101:ARG:NH1  | 2.08                     | 0.52              |
| 43:CV:129:PRO:HA   | 43:CV:224:TRP:CG   | 2.45                     | 0.52              |
| 46:CY:8:VAL:CG2    | 1:D1:1951:G:OP1    | 2.56                     | 0.52              |
| 1:D1:22:U:H2'      | 1:D1:23:U:C6       | 2.44                     | 0.52              |
| 1:D1:1231:A:H2'    | 1:D1:1232:A:H5'    | 1.91                     | 0.52              |
| 1:D1:1464:U:H2'    | 1:D1:1465:U:C6     | 2.44                     | 0.52              |
| 1:D1:1606:U:C2'    | 1:D1:1607:U:H5'    | 2.39                     | 0.52              |
| 1:D1:1734:A:OP1    | 13:DN:79:HIS:HE1   | 1.91                     | 0.52              |
| 1:D1:1874:A:H5''   | 50:D1:4255:HOH:O   | 2.10                     | 0.52              |
| 1:D1:2551:A:C3'    | 1:D1:2552:A:H5''   | 2.39                     | 0.52              |
| 1:D1:2551:A:H3'    | 1:D1:2552:A:H5''   | 1.92                     | 0.52              |
| 1:D1:2787:A:H5''   | 1:D1:2788:G:O5'    | 2.10                     | 0.52              |
| 1:D1:3047:U:H3'    | 1:D1:3047:U:H6     | 1.74                     | 0.52              |
| 6:DF:15:ILE:HG21   | 6:DF:20:ASP:HB2    | 1.91                     | 0.52              |
| 7:DG:48:CYS:SG     | 7:DG:49:PRO:HD2    | 2.49                     | 0.52              |
| 9:DJ:201:ASP:O     | 9:DJ:224:LEU:CD2   | 2.57                     | 0.52              |
| 13:DN:36:ARG:NH1   | 13:DN:74:TYR:CD1   | 2.74                     | 0.52              |
| 16:DQ:15:THR:CG2   | 18:DU:103:CYS:SG   | 2.98                     | 0.52              |
| 18:DU:131:ALA:O    | 18:DU:135:LEU:HD12 | 2.09                     | 0.52              |
| 19:DX:20:GLN:HE21  | 19:DX:42:ARG:HG3   | 1.74                     | 0.52              |
| 21:E3:64:A:O2'     | 29:EH:205:PRO:CG   | 2.54                     | 0.52              |
| 22:EA:66:ASP:OD2   | 22:EA:71:LYS:HE2   | 2.09                     | 0.52              |
| 24:EC:7:ILE:CD1    | 24:EC:25:LEU:HD13  | 2.40                     | 0.52              |
| 24:EC:107:PHE:CD1  | 1:F1:684:A:H4'     | 2.44                     | 0.52              |
| 24:EC:149:ILE:HG23 | 24:EC:152:VAL:HB   | 1.91                     | 0.52              |
| 29:EH:182:SER:O    | 29:EH:185:ARG:HB2  | 2.09                     | 0.52              |
| 29:EH:190:LEU:HD22 | 29:EH:197:VAL:HG11 | 1.90                     | 0.52              |
| 32:EK:136:ARG:NH2  | 1:F1:741:G:C2      | 2.65                     | 0.52              |
| 33:EL:55:ASN:HD22  | 1:F1:148:G:H5''    | 1.70                     | 0.52              |
| 34:EM:21:ARG:HA    | 34:EM:24:ARG:CZ    | 2.40                     | 0.52              |
| 34:EM:107:ARG:CZ   | 34:EM:255:ARG:HH11 | 2.22                     | 0.52              |
| 35:EN:36:PHE:CZ    | 35:EN:40:ARG:HD2   | 2.44                     | 0.52              |
| 37:EP:5:TYR:N      | 37:EP:5:TYR:CD1    | 2.78                     | 0.52              |
| 43:EV:91:GLN:HG2   | 1:F1:1167:G:H5'    | 1.90                     | 0.52              |
| 43:EV:144:LEU:CD2  | 43:EV:239:LEU:HD21 | 2.40                     | 0.52              |
| 1:F1:370:G:N2      | 1:F1:373:A:C8      | 2.78                     | 0.52              |
| 1:F1:439:A:H5''    | 5:FE:126:HIS:CG    | 2.45                     | 0.52              |
| 1:F1:621:G:N2      | 1:F1:634:G:H5''    | 2.22                     | 0.52              |
| 1:F1:713:G:H2'     | 1:F1:715:A:N7      | 2.25                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:F1:738:U:HO2'   | 1:F1:739:G:H5'    | 1.73                     | 0.52              |
| 1:F1:1073:A:C2'   | 1:F1:1074:A:O5'   | 2.58                     | 0.52              |
| 1:F1:1539:G:H2'   | 1:F1:1541:U:C5    | 2.44                     | 0.52              |
| 1:F1:2177:A:H2'   | 1:F1:2178:A:C5'   | 2.39                     | 0.52              |
| 1:F1:3132:A:H2'   | 1:F1:3133:G:OP1   | 2.10                     | 0.52              |
| 1:F1:3187:U:C2'   | 1:F1:3188:A:H5'   | 2.39                     | 0.52              |
| 6:FF:15:ILE:HG21  | 6:FF:20:ASP:HB2   | 1.91                     | 0.52              |
| 9:FJ:71:LEU:HB3   | 9:FJ:97:ILE:HD11  | 1.91                     | 0.52              |
| 19:FX:15:GLN:NE2  | 19:FX:115:GLY:HA2 | 2.24                     | 0.52              |
| 21:G3:26:C:P      | 34:GM:56:THR:HG21 | 2.49                     | 0.52              |
| 21:G3:52:U:H2'    | 21:G3:53:U:C6     | 2.43                     | 0.52              |
| 30:GI:86:MET:CE   | 1:H1:1202:C:H1'   | 2.27                     | 0.52              |
| 30:GI:196:PHE:CE1 | 6:HF:111:VAL:CG2  | 2.88                     | 0.52              |
| 32:GK:9:ARG:NH2   | 1:H1:1457:G:OP2   | 2.35                     | 0.52              |
| 32:GK:36:LYS:HB2  | 1:H1:93:A:H5''    | 1.92                     | 0.52              |
| 33:GL:172:ARG:HD3 | 1:H1:28:G:H5''    | 1.90                     | 0.52              |
| 36:GO:84:THR:HB   | 36:GO:87:ALA:H    | 1.74                     | 0.52              |
| 36:GO:118:HIS:CD2 | 1:H1:1742:G:OP1   | 2.63                     | 0.52              |
| 37:GP:3:HIS:CE1   | 1:H1:2621:G:O6    | 2.62                     | 0.52              |
| 38:GQ:15:LYS:HB3  | 38:GQ:154:GLU:HG2 | 1.91                     | 0.52              |
| 43:GV:205:ASP:O   | 43:GV:238:MET:HE3 | 2.10                     | 0.52              |
| 1:H1:22:U:H2'     | 1:H1:23:U:C6      | 2.45                     | 0.52              |
| 1:H1:40:C:H3'     | 1:H1:40:C:C6      | 2.45                     | 0.52              |
| 1:H1:1255:A:C2    | 1:H1:1309:G:C6    | 2.98                     | 0.52              |
| 1:H1:1681:C:C4    | 1:H1:1823:A:H5''  | 2.44                     | 0.52              |
| 1:H1:2376:A:C2    | 1:H1:2377:G:C8    | 2.98                     | 0.52              |
| 1:H1:2509:U:P     | 1:H1:2575:G:N2    | 2.82                     | 0.52              |
| 1:H1:2956:G:O2'   | 1:H1:2957:A:H5'   | 2.08                     | 0.52              |
| 1:H1:3100:U:H2'   | 1:H1:3101:G:C5'   | 2.38                     | 0.52              |
| 2:HA:21:ARG:HD3   | 2:HA:44:MET:HE1   | 1.91                     | 0.52              |
| 5:HE:77:THR:HG21  | 5:HE:157:ASP:OD1  | 2.09                     | 0.52              |
| 19:HX:92:VAL:HG12 | 19:HX:138:ILE:HB  | 1.92                     | 0.52              |
| 1:A1:40:C:C6      | 1:A1:40:C:C3'     | 2.93                     | 0.52              |
| 1:A1:77:A:H2'     | 1:A1:78:G:H8      | 1.75                     | 0.52              |
| 1:A1:615:G:N2     | 8:AH:79:LYS:HE2   | 2.24                     | 0.52              |
| 1:A1:742:U:H4'    | 1:A1:743:A:OP1    | 2.09                     | 0.52              |
| 1:A1:751:C:H6     | 1:A1:751:C:C5'    | 2.22                     | 0.52              |
| 1:A1:810:G:OP1    | 35:BN:67:ARG:HG2  | 2.10                     | 0.52              |
| 1:A1:926:A:H2'    | 1:A1:927:G:C8     | 2.44                     | 0.52              |
| 1:A1:1107:A:N7    | 34:BM:142:PHE:HE1 | 2.08                     | 0.52              |
| 1:A1:1402:G:O2'   | 1:A1:1403:C:H5'   | 2.09                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1513:A:O2'    | 11:AL:6:THR:HG23   | 2.10                     | 0.52              |
| 1:A1:1626:U:OP1    | 36:BO:42:ARG:NH2   | 2.41                     | 0.52              |
| 1:A1:1775:A:H1'    | 1:A1:1776:G:H3'    | 1.90                     | 0.52              |
| 1:A1:2743:G:C3'    | 1:A1:2744:C:H5'    | 2.34                     | 0.52              |
| 1:A1:3055:U:H2'    | 1:A1:3056:C:C6     | 2.45                     | 0.52              |
| 2:AA:21:ARG:HB2    | 2:AA:39:TYR:CD1    | 2.45                     | 0.52              |
| 9:AJ:15:VAL:HG21   | 31:BJ:131:PRO:HB2  | 1.90                     | 0.52              |
| 9:AJ:61:ARG:HD3    | 9:AJ:106:ASN:OD1   | 2.10                     | 0.52              |
| 9:AJ:122:ASP:OD1   | 9:AJ:123:ARG:N     | 2.42                     | 0.52              |
| 14:AO:75:THR:HG21  | 14:AO:77:GLU:CG    | 2.40                     | 0.52              |
| 18:AU:91:ILE:CG2   | 18:AU:117:TYR:HE2  | 2.23                     | 0.52              |
| 19:AX:53:THR:OG1   | 43:BV:219:HIS:HD2  | 1.92                     | 0.52              |
| 19:AX:187:THR:HG22 | 19:AX:188:THR:N    | 2.24                     | 0.52              |
| 22:BA:66:ASP:OD2   | 22:BA:71:LYS:HE2   | 2.09                     | 0.52              |
| 24:BC:195:ARG:NH1  | 24:BC:204:ARG:CB   | 2.72                     | 0.52              |
| 24:BC:242:ASN:C    | 24:BC:244:LEU:N    | 2.65                     | 0.52              |
| 25:BD:6:GLU:HA     | 25:BD:6:GLU:OE1    | 2.10                     | 0.52              |
| 25:BD:104:PHE:CE1  | 25:BD:106:ILE:HD11 | 2.42                     | 0.52              |
| 33:BL:27:THR:CG2   | 33:BL:124:ASP:HB3  | 2.40                     | 0.52              |
| 35:BN:146:ARG:HB2  | 35:BN:149:TYR:CE2  | 2.44                     | 0.52              |
| 20:C2:143:U:H2'    | 20:C2:144:U:C6     | 2.44                     | 0.52              |
| 21:C3:43:A:P       | 25:CD:137:ARG:HH11 | 2.33                     | 0.52              |
| 24:CC:157:TYR:CE1  | 24:CC:159:PHE:CZ   | 2.98                     | 0.52              |
| 24:CC:175:PHE:CD1  | 24:CC:175:PHE:C    | 2.87                     | 0.52              |
| 24:CC:205:ARG:HB3  | 24:CC:206:TYR:CE2  | 2.45                     | 0.52              |
| 24:CC:276:THR:HG21 | 24:CC:282:GLY:HA2  | 1.90                     | 0.52              |
| 27:CF:92:TYR:HE2   | 27:CF:123:ILE:CG2  | 2.21                     | 0.52              |
| 27:CF:101:LYS:O    | 27:CF:105:VAL:HG23 | 2.09                     | 0.52              |
| 33:CL:55:ASN:HB3   | 1:D1:145:A:H4'     | 1.90                     | 0.52              |
| 34:CM:122:GLN:HB2  | 34:CM:130:PHE:CE2  | 2.44                     | 0.52              |
| 35:CN:93:LEU:O     | 35:CN:113:ARG:NH2  | 2.23                     | 0.52              |
| 47:CO:166:UNK:HG2  | 47:CO:167:UNK:N    | 2.25                     | 0.52              |
| 42:CU:44:LYS:HA    | 42:CU:47:ARG:HD2   | 1.91                     | 0.52              |
| 1:D1:63:A:C4       | 1:D1:108:G:N7      | 2.78                     | 0.52              |
| 1:D1:77:A:H2'      | 1:D1:78:G:H8       | 1.75                     | 0.52              |
| 1:D1:430:G:H2'     | 1:D1:431:A:H8      | 1.74                     | 0.52              |
| 1:D1:472:C:O5'     | 1:D1:472:C:H6      | 1.93                     | 0.52              |
| 1:D1:528:C:O2'     | 14:DO:115:HIS:HE1  | 1.92                     | 0.52              |
| 1:D1:552:U:C2'     | 1:D1:553:C:H5'     | 2.39                     | 0.52              |
| 1:D1:1376:A:H5''   | 1:D1:1377:A:O5'    | 2.10                     | 0.52              |
| 1:D1:1507:A:H1'    | 11:DL:4:ARG:NH2    | 2.24                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:2429:U:H1'   | 1:D1:2430:G:OP2    | 2.08                     | 0.52              |
| 1:D1:2800:C:O2'   | 1:D1:2801:A:H5'    | 2.09                     | 0.52              |
| 1:D1:2850:U:O2    | 1:D1:2850:U:H2'    | 2.08                     | 0.52              |
| 1:D1:2922:A:H5''  | 1:D1:2923:U:OP2    | 2.10                     | 0.52              |
| 1:D1:3070:C:H2'   | 1:D1:3071:C:H6     | 1.74                     | 0.52              |
| 1:D1:3228:U:C2    | 5:DE:142:GLU:HG3   | 2.45                     | 0.52              |
| 13:DN:70:PRO:HD2  | 13:DN:115:LYS:HG2  | 1.90                     | 0.52              |
| 18:DU:166:VAL:CA  | 18:DU:169:ILE:HD12 | 2.22                     | 0.52              |
| 20:E2:7:U:OP1     | 38:EQ:64:ARG:HG3   | 2.10                     | 0.52              |
| 21:E3:84:U:OP1    | 43:EV:215:ARG:HD3  | 2.10                     | 0.52              |
| 22:EA:19:SER:OG   | 1:F1:2168:U:H5''   | 2.10                     | 0.52              |
| 22:EA:31:ARG:HH12 | 22:EA:42:ILE:HG12  | 1.74                     | 0.52              |
| 23:EB:62:ARG:NH1  | 1:F1:3027:U:OP1    | 2.43                     | 0.52              |
| 25:ED:157:GLU:HA  | 25:ED:160:ILE:HD12 | 1.92                     | 0.52              |
| 26:EE:29:GLY:H    | 26:EE:82:VAL:HG11  | 1.75                     | 0.52              |
| 34:EM:163:LEU:CD1 | 34:EM:173:ILE:CG2  | 2.87                     | 0.52              |
| 35:EN:13:LYS:HE2  | 35:EN:15:SER:HB3   | 1.90                     | 0.52              |
| 39:ER:52:SER:O    | 42:EU:81:PRO:HB3   | 2.09                     | 0.52              |
| 45:EX:11:ILE:HB   | 45:EX:65:THR:HG21  | 1.92                     | 0.52              |
| 1:F1:519:A:C5'    | 14:FO:89:ARG:HH11  | 2.23                     | 0.52              |
| 1:F1:566:U:C2'    | 1:F1:567:C:H5'     | 2.38                     | 0.52              |
| 1:F1:803:C:O2'    | 1:F1:804:G:H5'     | 2.09                     | 0.52              |
| 1:F1:1115:U:H2'   | 1:F1:1116:C:C6     | 2.44                     | 0.52              |
| 1:F1:1192:A:OP1   | 8:FH:90:ARG:NH2    | 2.41                     | 0.52              |
| 1:F1:2714:U:H2'   | 1:F1:2715:C:H5'    | 1.91                     | 0.52              |
| 1:F1:2973:C:H2'   | 1:F1:2974:U:O4'    | 2.09                     | 0.52              |
| 1:F1:2990:U:O2'   | 1:F1:2991:U:H5'    | 2.10                     | 0.52              |
| 1:F1:3087:G:H5''  | 1:F1:3088:U:OP1    | 2.08                     | 0.52              |
| 1:F1:3230:G:H22   | 5:FE:142:GLU:CD    | 2.07                     | 0.52              |
| 21:G3:83:G:H5''   | 50:G3:303:HOH:O    | 2.08                     | 0.52              |
| 22:GA:192:ARG:CZ  | 1:H1:1821:U:OP1    | 2.57                     | 0.52              |
| 23:GB:377:PHE:CZ  | 41:GT:13:TYR:HE1   | 2.28                     | 0.52              |
| 24:GC:14:GLU:CB   | 24:GC:17:LYS:HG3   | 2.39                     | 0.52              |
| 24:GC:319:ARG:HD2 | 1:H1:634:G:C8      | 2.44                     | 0.52              |
| 29:GH:184:LEU:CD2 | 29:GH:189:LYS:HD3  | 2.28                     | 0.52              |
| 33:GL:26:ARG:O    | 33:GL:30:TYR:CD1   | 2.61                     | 0.52              |
| 34:GM:48:LYS:HE2  | 34:GM:145:ILE:CD1  | 2.39                     | 0.52              |
| 34:GM:98:ALA:HB1  | 34:GM:162:VAL:HG23 | 1.92                     | 0.52              |
| 34:GM:122:GLN:HG2 | 34:GM:124:LYS:O    | 2.09                     | 0.52              |
| 37:GP:66:ASN:OD1  | 37:GP:67:VAL:N     | 2.42                     | 0.52              |
| 37:GP:88:ARG:HH22 | 17:HT:30:ILE:HG22  | 1.74                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:GQ:53:VAL:HG21  | 38:GQ:60:ILE:HG13  | 1.91                     | 0.52              |
| 43:GV:72:PHE:HD1   | 43:GV:73:TYR:N     | 2.08                     | 0.52              |
| 45:GX:80:ASN:HB2   | 45:GX:81:PRO:CD    | 2.35                     | 0.52              |
| 46:GY:26:VAL:O     | 46:GY:27:LYS:C     | 2.53                     | 0.52              |
| 1:H1:467:A:N1      | 1:H1:512:G:N3      | 2.58                     | 0.52              |
| 1:H1:713:G:H2'     | 1:H1:715:A:N7      | 2.24                     | 0.52              |
| 1:H1:986:C:H4'     | 1:H1:987:A:C5'     | 2.39                     | 0.52              |
| 1:H1:1162:A:O5'    | 1:H1:2631:A:H1'    | 2.09                     | 0.52              |
| 1:H1:1595:A:N3     | 1:H1:1599:G:C6     | 2.78                     | 0.52              |
| 1:H1:2411:U:H2'    | 1:H1:2412:U:H6     | 1.73                     | 0.52              |
| 1:H1:2784:G:H4'    | 1:H1:2786:C:C6     | 2.45                     | 0.52              |
| 1:H1:3298:U:H4'    | 1:H1:3299:G:OP2    | 2.08                     | 0.52              |
| 5:HE:49:THR:CG2    | 5:HE:50:VAL:N      | 2.71                     | 0.52              |
| 5:HE:134:LEU:HD22  | 5:HE:138:GLN:OE1   | 2.10                     | 0.52              |
| 9:HJ:99:GLU:HG3    | 9:HJ:101:LEU:N     | 2.24                     | 0.52              |
| 9:HJ:224:LEU:O     | 9:HJ:225:ASN:CB    | 2.57                     | 0.52              |
| 13:HN:96:LEU:HD13  | 13:HN:113:THR:HG22 | 1.92                     | 0.52              |
| 16:HQ:60:GLU:CG    | 16:HQ:61:LEU:N     | 2.73                     | 0.52              |
| 19:HX:22:VAL:HG11  | 19:HX:40:GLN:NE2   | 2.21                     | 0.52              |
| 1:A1:275:U:O2      | 33:BL:93:LYS:HE3   | 2.10                     | 0.52              |
| 1:A1:315:U:C6      | 16:AQ:28:VAL:HG11  | 2.44                     | 0.52              |
| 1:A1:803:C:O2'     | 1:A1:804:G:H5'     | 2.08                     | 0.52              |
| 1:A1:815:U:H1'     | 24:BC:40:LYS:HZ3   | 1.75                     | 0.52              |
| 1:A1:1042:U:O2'    | 1:A1:1043:C:H5'    | 2.09                     | 0.52              |
| 1:A1:1165:U:H2'    | 1:A1:1166:G:H5''   | 1.91                     | 0.52              |
| 1:A1:1715:U:H2'    | 1:A1:1716:U:H6     | 1.75                     | 0.52              |
| 1:A1:1740:U:O3'    | 1:A1:1741:U:H4'    | 2.08                     | 0.52              |
| 1:A1:2255:U:C5     | 1:A1:2256:G:C8     | 2.98                     | 0.52              |
| 1:A1:2336:A:OP2    | 23:BB:245:ARG:NH2  | 2.43                     | 0.52              |
| 1:A1:2562:U:O2'    | 1:A1:2563:U:P      | 2.66                     | 0.52              |
| 1:A1:2597:G:O2'    | 1:A1:2598:A:H5'    | 2.10                     | 0.52              |
| 1:A1:3037:A:C2     | 1:A1:3079:U:C4     | 2.97                     | 0.52              |
| 13:AN:130:LYS:HZ3  | 1:H1:2663:A:P      | 2.30                     | 0.52              |
| 18:AU:29:GLN:O     | 18:AU:30:LYS:C     | 2.53                     | 0.52              |
| 19:AX:58:ASN:O     | 19:AX:62:LEU:HG    | 2.08                     | 0.52              |
| 21:B3:120:U:H4'    | 34:BM:265:LYS:NZ   | 2.24                     | 0.52              |
| 24:BC:91:ARG:O     | 24:BC:94:GLN:HB2   | 2.10                     | 0.52              |
| 24:BC:233:VAL:O    | 24:BC:234:ASP:OD1  | 2.27                     | 0.52              |
| 26:BE:103:VAL:HG22 | 26:BE:110:ILE:HG12 | 1.92                     | 0.52              |
| 29:BH:151:ALA:HA   | 29:BH:154:ARG:HG3  | 1.91                     | 0.52              |
| 33:BL:135:ALA:O    | 33:BL:137:PRO:HD3  | 2.09                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:163:LEU:CD1  | 34:BM:173:ILE:CG2  | 2.87                     | 0.52              |
| 38:BQ:61:PRO:HG3   | 38:BQ:78:PHE:CG    | 2.44                     | 0.52              |
| 43:BV:103:PHE:CZ   | 43:BV:124:ILE:HG12 | 2.45                     | 0.52              |
| 45:BX:121:LEU:CB   | 45:BX:124:ALA:HB2  | 2.39                     | 0.52              |
| 46:BY:22:LEU:O     | 46:BY:26:VAL:HG23  | 2.10                     | 0.52              |
| 20:C2:27:G:OP2     | 40:CS:12:ARG:NH1   | 2.42                     | 0.52              |
| 24:CC:152:VAL:HG11 | 24:CC:155:LEU:HD21 | 1.91                     | 0.52              |
| 24:CC:233:VAL:O    | 24:CC:234:ASP:OD1  | 2.28                     | 0.52              |
| 32:CK:88:THR:HG23  | 18:DU:164:LYS:HZ1  | 1.75                     | 0.52              |
| 33:CL:22:ILE:O     | 33:CL:26:ARG:HG3   | 2.10                     | 0.52              |
| 33:CL:54:LYS:HD3   | 1:D1:149:U:OP1     | 2.10                     | 0.52              |
| 37:CP:5:TYR:N      | 37:CP:5:TYR:CD1    | 2.77                     | 0.52              |
| 39:CR:52:SER:O     | 42:CU:81:PRO:HB3   | 2.10                     | 0.52              |
| 46:CY:22:LEU:O     | 46:CY:26:VAL:HG23  | 2.09                     | 0.52              |
| 1:D1:181:U:C2'     | 1:D1:182:C:H5'     | 2.39                     | 0.52              |
| 1:D1:296:G:H4'     | 1:D1:297:U:O5'     | 2.08                     | 0.52              |
| 1:D1:363:G:C5'     | 1:D1:363:G:C8      | 2.91                     | 0.52              |
| 1:D1:459:G:H5''    | 1:D1:460:A:OP1     | 2.10                     | 0.52              |
| 1:D1:471:A:H2'     | 1:D1:472:C:O5'     | 2.10                     | 0.52              |
| 1:D1:607:U:C2'     | 1:D1:608:C:H5'     | 2.40                     | 0.52              |
| 1:D1:838:G:H4'     | 2:DA:47:TYR:CE2    | 2.44                     | 0.52              |
| 1:D1:970:C:C2      | 1:D1:971:C:C5      | 2.97                     | 0.52              |
| 1:D1:1050:C:H2'    | 1:D1:1051:C:H1'    | 1.90                     | 0.52              |
| 1:D1:1866:A:H4'    | 1:D1:1867:C:OP2    | 2.09                     | 0.52              |
| 1:D1:1918:U:HO2'   | 1:D1:1919:A:H5''   | 1.74                     | 0.52              |
| 1:D1:2790:A:C4     | 4:DC:54:PRO:HA     | 2.45                     | 0.52              |
| 1:D1:2854:C:N3     | 50:D1:4355:HOH:O   | 2.43                     | 0.52              |
| 1:D1:3140:C:H4'    | 1:D1:3254:A:O4'    | 2.09                     | 0.52              |
| 1:D1:3240:A:H2'    | 1:D1:3241:U:O4'    | 2.08                     | 0.52              |
| 7:DG:13:LYS:CG     | 7:DG:14:LEU:N      | 2.72                     | 0.52              |
| 9:DJ:215:ILE:O     | 9:DJ:219:GLU:HG3   | 2.10                     | 0.52              |
| 13:DN:10:VAL:HG13  | 13:DN:83:THR:HB    | 1.92                     | 0.52              |
| 13:DN:41:VAL:HG12  | 13:DN:43:VAL:HG22  | 1.92                     | 0.52              |
| 21:E3:103:U:H5''   | 1:F1:1027:G:N2     | 2.24                     | 0.52              |
| 23:EB:46:PHE:HB2   | 23:EB:206:ILE:HD12 | 1.92                     | 0.52              |
| 23:EB:240:THR:HA   | 1:F1:2936:C:O2'    | 2.08                     | 0.52              |
| 31:EJ:97:ILE:HG22  | 31:EJ:98:TYR:N     | 2.25                     | 0.52              |
| 33:EL:6:TYR:CE1    | 16:FQ:41:VAL:HG13  | 2.45                     | 0.52              |
| 34:EM:79:ASP:N     | 34:EM:79:ASP:OD1   | 2.39                     | 0.52              |
| 35:EN:92:ARG:NH2   | 1:F1:810:G:C8      | 2.78                     | 0.52              |
| 37:EP:65:PHE:HB3   | 37:EP:75:ILE:HG13  | 1.91                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:EQ:25:ARG:HG3   | 38:EQ:143:ASN:HD21 | 1.73                     | 0.52              |
| 40:ES:3:THR:H      | 1:F1:229:A:H5''    | 1.73                     | 0.52              |
| 42:EU:97:THR:HG22  | 42:EU:98:LYS:H     | 1.73                     | 0.52              |
| 42:EU:123:LYS:HE2  | 18:FU:146:ALA:HB2  | 1.91                     | 0.52              |
| 45:EX:47:ARG:NH1   | 1:F1:1187:C:C2     | 2.77                     | 0.52              |
| 1:F1:146:U:C4'     | 1:F1:147:U:H5'     | 2.30                     | 0.52              |
| 1:F1:281:G:H2'     | 1:F1:285:U:H6      | 1.75                     | 0.52              |
| 1:F1:559:G:H2'     | 1:F1:560:A:H8      | 1.75                     | 0.52              |
| 1:F1:766:G:HO2'    | 1:F1:767:C:P       | 2.33                     | 0.52              |
| 1:F1:1041:C:C3'    | 1:F1:1042:U:H5''   | 2.39                     | 0.52              |
| 1:F1:1088:A:H5''   | 1:F1:1089:G:H5'    | 1.91                     | 0.52              |
| 1:F1:1162:A:O5'    | 1:F1:2631:A:H1'    | 2.09                     | 0.52              |
| 1:F1:1736:G:C6     | 1:F1:1737:A:C6     | 2.98                     | 0.52              |
| 1:F1:2149:U:C2'    | 1:F1:2150:U:H5''   | 2.39                     | 0.52              |
| 1:F1:2305:U:H6     | 1:F1:2305:U:O5'    | 1.92                     | 0.52              |
| 1:F1:2551:A:C3'    | 1:F1:2552:A:H5''   | 2.40                     | 0.52              |
| 1:F1:2562:U:O2'    | 1:F1:2563:U:P      | 2.68                     | 0.52              |
| 1:F1:2563:U:OP2    | 13:FN:56:ARG:HD3   | 2.09                     | 0.52              |
| 1:F1:2830:U:O2     | 1:F1:2830:U:C2'    | 2.55                     | 0.52              |
| 1:F1:3240:A:H2'    | 1:F1:3241:U:O4'    | 2.08                     | 0.52              |
| 5:FE:179:THR:CG2   | 5:FE:180:LEU:N     | 2.73                     | 0.52              |
| 6:FF:28:VAL:HG12   | 6:FF:66:ASN:N      | 2.25                     | 0.52              |
| 7:FG:49:PRO:HG2    | 7:FG:52:ARG:HB2    | 1.91                     | 0.52              |
| 14:FO:94:ILE:HD13  | 14:FO:107:ALA:HB1  | 1.91                     | 0.52              |
| 19:FX:22:VAL:HG11  | 19:FX:40:GLN:NE2   | 2.21                     | 0.52              |
| 19:FX:45:ALA:HB1   | 19:FX:50:HIS:HD2   | 1.75                     | 0.52              |
| 22:GA:205:MET:O    | 22:GA:213:GLY:HA3  | 2.09                     | 0.52              |
| 23:GB:105:VAL:HG21 | 23:GB:146:LEU:CD2  | 2.40                     | 0.52              |
| 24:GC:105:ARG:NH2  | 1:H1:829:C:OP1     | 2.42                     | 0.52              |
| 24:GC:314:THR:HG21 | 1:H1:1372:A:C2     | 2.44                     | 0.52              |
| 32:GK:75:VAL:HG22  | 32:GK:109:PHE:CG   | 2.43                     | 0.52              |
| 32:GK:122:PRO:CB   | 32:GK:142:GLY:O    | 2.58                     | 0.52              |
| 1:H1:519:A:H5''    | 14:HO:89:ARG:NH1   | 2.23                     | 0.52              |
| 1:H1:772:U:C2'     | 1:H1:773:C:H5'     | 2.40                     | 0.52              |
| 1:H1:859:U:C4      | 1:H1:860:G:C6      | 2.97                     | 0.52              |
| 1:H1:1213:G:N3     | 19:HX:126:GLY:HA3  | 2.24                     | 0.52              |
| 1:H1:1353:G:O2'    | 8:HH:83:ASN:ND2    | 2.42                     | 0.52              |
| 1:H1:1507:A:OP1    | 1:H1:1507:A:C4'    | 2.57                     | 0.52              |
| 1:H1:2132:U:H2'    | 1:H1:2138:A:H62    | 1.74                     | 0.52              |
| 1:H1:2409:G:H2'    | 1:H1:2410:C:O5'    | 2.10                     | 0.52              |
| 1:H1:2726:C:C2'    | 1:H1:2727:A:H5'    | 2.40                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2814:U:H2'    | 1:H1:2815:U:H5'    | 1.90                     | 0.52              |
| 1:H1:2973:C:H2'    | 1:H1:2974:U:O4'    | 2.10                     | 0.52              |
| 5:HE:91:ASN:OD1    | 5:HE:92:GLN:N      | 2.43                     | 0.52              |
| 18:HU:108:GLU:OE1  | 18:HU:108:GLU:HA   | 2.10                     | 0.52              |
| 1:A1:74:G:H2'      | 18:AU:98:ARG:HD2   | 1.91                     | 0.52              |
| 1:A1:120:A:C4'     | 1:A1:121:A:O5'     | 2.56                     | 0.52              |
| 1:A1:218:G:H1      | 40:BS:61:LYS:HE2   | 1.74                     | 0.52              |
| 1:A1:296:G:H4'     | 1:A1:297:U:O5'     | 2.09                     | 0.52              |
| 1:A1:589:C:H2'     | 1:A1:590:A:H8      | 1.73                     | 0.52              |
| 1:A1:634:G:H5'     | 5:AE:30:ARG:NH2    | 2.24                     | 0.52              |
| 1:A1:1595:A:H1'    | 1:A1:1599:G:C2     | 2.44                     | 0.52              |
| 1:A1:2168:U:H5''   | 22:BA:19:SER:OG    | 2.09                     | 0.52              |
| 1:A1:3165:A:O2'    | 1:A1:3166:A:H5'    | 2.10                     | 0.52              |
| 1:A1:3191:G:C5     | 1:A1:3218:U:O4     | 2.63                     | 0.52              |
| 8:AH:31:ASN:OD1    | 8:AH:33:ASN:HB2    | 2.10                     | 0.52              |
| 11:AL:49:CYS:O     | 46:BY:61:LYS:NZ    | 2.38                     | 0.52              |
| 12:AM:32:ILE:CG2   | 12:AM:60:ASN:HB2   | 2.39                     | 0.52              |
| 20:B2:124:U:O2'    | 20:B2:126:A:N7     | 2.28                     | 0.52              |
| 22:BA:30:TYR:OH    | 22:BA:166:THR:OG1  | 2.26                     | 0.52              |
| 24:BC:259:THR:CG2  | 24:BC:260:GLU:H    | 2.22                     | 0.52              |
| 34:BM:179:ARG:NE   | 34:BM:185:ARG:HH22 | 2.02                     | 0.52              |
| 37:BP:91:VAL:CG1   | 37:BP:96:VAL:HG23  | 2.39                     | 0.52              |
| 39:BR:145:ASN:HA   | 39:BR:150:ILE:CG1  | 2.40                     | 0.52              |
| 41:BT:48:ALA:HB1   | 41:BT:54:THR:HG21  | 1.90                     | 0.52              |
| 42:BU:21:GLU:HG2   | 42:BU:58:TYR:OH    | 2.08                     | 0.52              |
| 42:BU:97:THR:HG22  | 42:BU:98:LYS:H     | 1.72                     | 0.52              |
| 46:BY:26:VAL:O     | 46:BY:27:LYS:C     | 2.51                     | 0.52              |
| 22:CA:105:ILE:HD11 | 22:CA:117:VAL:HG13 | 1.92                     | 0.52              |
| 23:CB:46:PHE:HB2   | 23:CB:206:ILE:HD12 | 1.92                     | 0.52              |
| 23:CB:171:GLN:NE2  | 1:D1:3273:U:H5''   | 2.24                     | 0.52              |
| 24:CC:147:HIS:NE2  | 24:CC:254:ARG:HG3  | 2.24                     | 0.52              |
| 24:CC:157:TYR:CE1  | 24:CC:179:VAL:HG13 | 2.44                     | 0.52              |
| 24:CC:200:LYS:HZ3  | 1:D1:1445:G:H5''   | 1.73                     | 0.52              |
| 24:CC:200:LYS:NZ   | 1:D1:1445:G:H5''   | 2.24                     | 0.52              |
| 24:CC:333:LEU:HA   | 43:CV:163:ASN:HD21 | 1.74                     | 0.52              |
| 26:CE:166:LYS:NZ   | 1:D1:2882:U:OP1    | 2.25                     | 0.52              |
| 27:CF:232:GLN:O    | 27:CF:233:LYS:C    | 2.51                     | 0.52              |
| 29:CH:16:PRO:HG3   | 29:CH:128:ARG:HH11 | 1.75                     | 0.52              |
| 38:CQ:8:ARG:HH22   | 38:CQ:117:GLN:NE2  | 2.08                     | 0.52              |
| 38:CQ:22:SER:HB3   | 50:CQ:304:HOH:O    | 2.10                     | 0.52              |
| 38:CQ:134:ALA:HB2  | 1:D1:905:G:H5''    | 1.90                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 39:CR:74:PRO:CB    | 39:CR:149:LEU:HD11 | 2.39                     | 0.52              |
| 40:CS:116:SER:O    | 40:CS:120:ARG:HG3  | 2.10                     | 0.52              |
| 40:CS:118:LEU:N    | 40:CS:118:LEU:HD23 | 2.23                     | 0.52              |
| 44:CW:19:CYS:CA    | 44:CW:22:ILE:HD12  | 2.39                     | 0.52              |
| 1:D1:700:G:H8      | 1:D1:700:G:O5'     | 1.92                     | 0.52              |
| 1:D1:1850:C:OP2    | 15:DP:47:LYS:HG3   | 2.10                     | 0.52              |
| 1:D1:2343:A:H8     | 1:D1:2343:A:O5'    | 1.93                     | 0.52              |
| 1:D1:2572:U:O2'    | 1:D1:2573:U:H5'    | 2.09                     | 0.52              |
| 1:D1:2727:A:C4'    | 17:DT:37:PRO:HD2   | 2.40                     | 0.52              |
| 5:DE:19:TYR:HH     | 14:DO:109:LYS:HG2  | 1.73                     | 0.52              |
| 8:DH:15:TRP:CE2    | 8:DH:105:ARG:HG2   | 2.45                     | 0.52              |
| 9:DJ:63:THR:HA     | 9:DJ:104:LEU:HB2   | 1.91                     | 0.52              |
| 16:DQ:7:VAL:O      | 16:DQ:7:VAL:CG1    | 2.58                     | 0.52              |
| 19:DX:7:GLN:HE22   | 19:DX:80:GLU:N     | 2.07                     | 0.52              |
| 19:DX:15:GLN:HE21  | 19:DX:115:GLY:HA2  | 1.75                     | 0.52              |
| 19:DX:94:LYS:HE2   | 19:DX:136:GLN:HG2  | 1.92                     | 0.52              |
| 21:E3:10:C:C6      | 34:EM:20:TYR:HE1   | 2.27                     | 0.52              |
| 22:EA:55:ARG:NH2   | 1:F1:2171:U:OP1    | 2.42                     | 0.52              |
| 23:EB:17:ARG:HB3   | 23:EB:18:PRO:HA    | 1.92                     | 0.52              |
| 24:EC:233:VAL:O    | 24:EC:234:ASP:OD1  | 2.28                     | 0.52              |
| 31:EJ:41:ILE:HG13  | 31:EJ:64:CYS:HA    | 1.92                     | 0.52              |
| 33:EL:64:VAL:CG2   | 33:EL:106:VAL:HG22 | 2.39                     | 0.52              |
| 34:EM:54:ARG:NH1   | 34:EM:149:GLY:HA3  | 2.24                     | 0.52              |
| 36:EO:97:ARG:HH21  | 1:F1:1805:C:C5'    | 2.21                     | 0.52              |
| 37:EP:116:LYS:NZ   | 1:F1:1124:G:H8     | 2.07                     | 0.52              |
| 37:EP:136:LEU:HD11 | 19:FX:28:LEU:HD11  | 1.91                     | 0.52              |
| 46:EY:7:LYS:CE     | 1:F1:1950:C:H2'    | 2.32                     | 0.52              |
| 46:EY:17:ARG:C     | 46:EY:18:TYR:CD2   | 2.87                     | 0.52              |
| 1:F1:32:A:H2'      | 1:F1:33:A:C8       | 2.44                     | 0.52              |
| 1:F1:213:A:H61     | 1:F1:227:G:C2'     | 2.23                     | 0.52              |
| 1:F1:492:A:C2      | 1:F1:493:G:H1'     | 2.45                     | 0.52              |
| 1:F1:1110:U:H5'    | 1:F1:1111:G:OP2    | 2.10                     | 0.52              |
| 1:F1:1241:U:H2'    | 1:F1:1242:U:C6     | 2.44                     | 0.52              |
| 1:F1:1499:G:O2'    | 1:F1:1500:A:H5'    | 2.10                     | 0.52              |
| 5:FE:18:TRP:HB2    | 14:FO:95:ARG:HH21  | 1.73                     | 0.52              |
| 6:FF:125:SER:O     | 6:FF:126:LYS:CB    | 2.57                     | 0.52              |
| 8:FH:15:TRP:CE2    | 8:FH:105:ARG:HG2   | 2.45                     | 0.52              |
| 12:FM:55:ASN:O     | 12:FM:69:SER:HA    | 2.10                     | 0.52              |
| 20:G2:2:G:H4'      | 20:G2:3:A:OP2      | 2.09                     | 0.52              |
| 21:G3:7:G:O3'      | 34:GM:33:ARG:NH1   | 2.43                     | 0.52              |
| 22:GA:184:GLY:O    | 22:GA:187:PHE:HB3  | 2.09                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 24:GC:139:VAL:N   | 24:GC:140:PRO:HD2 | 2.25                     | 0.52              |
| 24:GC:308:VAL:CG1 | 35:GN:40:ARG:NH1  | 2.68                     | 0.52              |
| 32:GK:98:LYS:HA   | 18:HU:166:VAL:CG2 | 2.39                     | 0.52              |
| 33:GL:149:ASN:O   | 33:GL:152:CYS:HB2 | 2.09                     | 0.52              |
| 34:GM:243:VAL:CG1 | 34:GM:247:PHE:HD2 | 2.22                     | 0.52              |
| 42:GU:119:LYS:O   | 18:HU:124:PHE:HD1 | 1.93                     | 0.52              |
| 43:GV:48:TYR:CE1  | 43:GV:183:HIS:CD2 | 2.97                     | 0.52              |
| 43:GV:67:ARG:NH1  | 1:H1:564:A:O5'    | 2.42                     | 0.52              |
| 1:H1:632:G:H2'    | 1:H1:633:C:C6     | 2.45                     | 0.52              |
| 1:H1:1599:G:C4    | 1:H1:1600:U:C6    | 2.98                     | 0.52              |
| 1:H1:2151:G:N7    | 50:H1:4316:HOH:O  | 2.34                     | 0.52              |
| 1:H1:2203:A:H2'   | 1:H1:2204:U:C6    | 2.44                     | 0.52              |
| 1:H1:2219:A:N1    | 1:H1:2771:U:O2'   | 2.34                     | 0.52              |
| 1:H1:2339:U:H5'   | 1:H1:3045:A:O2'   | 2.10                     | 0.52              |
| 1:H1:2814:U:C2'   | 1:H1:2815:U:H5'   | 2.39                     | 0.52              |
| 1:H1:3185:G:N3    | 1:H1:3237:C:N3    | 2.57                     | 0.52              |
| 1:H1:3340:U:H2'   | 1:H1:3341:C:C6    | 2.45                     | 0.52              |
| 6:HF:11:ARG:HG2   | 6:HF:55:LEU:HD22  | 1.91                     | 0.52              |
| 7:HG:13:LYS:CG    | 7:HG:14:LEU:N     | 2.72                     | 0.52              |
| 1:A1:706:U:P      | 50:A1:4634:HOH:O  | 2.68                     | 0.52              |
| 1:A1:811:A:H4'    | 1:A1:812:G:O5'    | 2.09                     | 0.52              |
| 1:A1:813:C:H2'    | 1:A1:814:U:C6     | 2.44                     | 0.52              |
| 1:A1:864:C:H1'    | 1:A1:1748:U:OP1   | 2.10                     | 0.52              |
| 1:A1:1053:A:H1'   | 1:A1:1054:G:P     | 2.49                     | 0.52              |
| 1:A1:1107:A:H4'   | 34:BM:140:LYS:O   | 2.10                     | 0.52              |
| 1:A1:1179:G:O2'   | 1:A1:1180:A:OP1   | 2.16                     | 0.52              |
| 1:A1:1217:A:H8    | 30:BI:48:ARG:HH12 | 1.57                     | 0.52              |
| 1:A1:1376:A:C3'   | 43:BV:12:LYS:HZ1  | 2.23                     | 0.52              |
| 1:A1:1580:G:H5''  | 1:A1:1581:C:OP1   | 2.09                     | 0.52              |
| 1:A1:1646:G:C2'   | 1:A1:1647:U:H5'   | 2.40                     | 0.52              |
| 1:A1:2145:A:O3'   | 22:BA:180:ILE:O   | 2.28                     | 0.52              |
| 1:A1:2146:G:H2'   | 1:A1:2147:C:H5'   | 1.92                     | 0.52              |
| 1:A1:2551:A:H3'   | 1:A1:2552:A:H5''  | 1.92                     | 0.52              |
| 1:A1:2700:A:H2'   | 1:A1:2701:U:O4'   | 2.10                     | 0.52              |
| 1:A1:2870:U:H2'   | 1:A1:2871:U:C6    | 2.45                     | 0.52              |
| 1:A1:2882:U:H2'   | 1:A1:2883:G:C8    | 2.45                     | 0.52              |
| 1:A1:3100:U:H2'   | 1:A1:3101:G:H5'   | 1.91                     | 0.52              |
| 1:A1:3175:A:H2'   | 1:A1:3177:G:N7    | 2.25                     | 0.52              |
| 6:AF:13:VAL:HG13  | 6:AF:53:VAL:HG13  | 1.91                     | 0.52              |
| 6:AF:41:GLU:OE1   | 6:AF:73:LYS:HD3   | 2.10                     | 0.52              |
| 14:AO:48:VAL:HA   | 14:AO:61:SER:O    | 2.09                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:BB:86:ILE:CD1   | 23:BB:158:VAL:HG11 | 2.40                     | 0.52              |
| 23:BB:106:TRP:HB2  | 23:BB:133:HIS:CE1  | 2.44                     | 0.52              |
| 23:BB:303:ILE:HG12 | 23:BB:319:PHE:CZ   | 2.45                     | 0.52              |
| 32:BK:122:PRO:HB3  | 32:BK:142:GLY:O    | 2.09                     | 0.52              |
| 20:C2:110:A:C2     | 20:C2:115:G:C6     | 2.98                     | 0.52              |
| 22:CA:31:ARG:NH1   | 22:CA:42:ILE:CG1   | 2.73                     | 0.52              |
| 24:CC:78:VAL:CG1   | 24:CC:83:ARG:NH2   | 2.73                     | 0.52              |
| 24:CC:150:SER:HA   | 14:DO:75:THR:HG23  | 1.92                     | 0.52              |
| 24:CC:238:VAL:HG21 | 24:CC:262:ALA:CB   | 2.40                     | 0.52              |
| 30:CI:109:THR:HG23 | 30:CI:110:PRO:N    | 2.25                     | 0.52              |
| 32:CK:148:THR:CG2  | 32:CK:149:ALA:N    | 2.73                     | 0.52              |
| 47:CO:12:ALA:N     | 47:CO:22:LEU:HD11  | 2.25                     | 0.52              |
| 47:CO:131:LEU:HD21 | 1:D1:866:A:O2'     | 2.10                     | 0.52              |
| 37:CP:19:TYR:CD2   | 1:D1:1077:U:H4'    | 2.43                     | 0.52              |
| 37:CP:19:TYR:HD2   | 1:D1:1077:U:H5''   | 1.74                     | 0.52              |
| 37:CP:52:MET:HG2   | 37:CP:95:HIS:CE1   | 2.45                     | 0.52              |
| 38:CQ:60:ILE:HD11  | 38:CQ:90:VAL:HG22  | 1.92                     | 0.52              |
| 39:CR:77:THR:O     | 39:CR:78:GLU:C     | 2.53                     | 0.52              |
| 42:CU:35:ALA:O     | 42:CU:36:LYS:C     | 2.53                     | 0.52              |
| 43:CV:98:ARG:HG3   | 43:CV:98:ARG:NH1   | 2.22                     | 0.52              |
| 44:CW:61:ASN:HB3   | 44:CW:65:ASN:O     | 2.10                     | 0.52              |
| 1:D1:170:A:C4      | 1:D1:250:U:N3      | 2.77                     | 0.52              |
| 1:D1:295:A:OP1     | 16:DQ:90:LYS:NZ    | 2.40                     | 0.52              |
| 1:D1:652:U:C2      | 1:D1:653:C:C6      | 2.98                     | 0.52              |
| 1:D1:685:G:C4      | 1:D1:827:C:O4'     | 2.63                     | 0.52              |
| 1:D1:2669:A:H3'    | 1:D1:2670:U:C6     | 2.45                     | 0.52              |
| 1:D1:2952:G:N7     | 50:D1:4271:HOH:O   | 2.34                     | 0.52              |
| 1:D1:3037:A:C2     | 1:D1:3079:U:C4     | 2.97                     | 0.52              |
| 1:D1:3055:U:O4     | 50:D1:4222:HOH:O   | 2.16                     | 0.52              |
| 1:D1:3068:U:O2'    | 1:D1:3070:C:OP2    | 2.28                     | 0.52              |
| 1:D1:3227:A:N1     | 5:DE:150:LYS:HD3   | 2.24                     | 0.52              |
| 1:D1:3229:C:N3     | 5:DE:57:ARG:HG3    | 2.24                     | 0.52              |
| 5:DE:49:THR:CG2    | 5:DE:50:VAL:N      | 2.72                     | 0.52              |
| 6:DF:87:GLU:O      | 6:DF:92:LYS:HE3    | 2.10                     | 0.52              |
| 19:DX:58:ASN:HD21  | 19:DX:136:GLN:NE2  | 2.06                     | 0.52              |
| 23:EB:270:TYR:HD2  | 1:F1:3265:A:H5'    | 1.74                     | 0.52              |
| 24:EC:214:VAL:HG12 | 24:EC:257:ILE:HB   | 1.92                     | 0.52              |
| 25:ED:104:PHE:CE1  | 25:ED:106:ILE:HD11 | 2.42                     | 0.52              |
| 26:EE:171:ARG:NH2  | 1:F1:2887:C:C5     | 2.76                     | 0.52              |
| 29:EH:147:TYR:HD1  | 29:EH:147:TYR:H    | 1.57                     | 0.52              |
| 30:EI:27:LEU:HD11  | 1:F1:1203:C:H5'    | 1.91                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 31:EJ:11:VAL:O     | 31:EJ:11:VAL:CG1   | 2.58                     | 0.52              |
| 33:EL:78:GLY:HA2   | 33:EL:89:ILE:CD1   | 2.40                     | 0.52              |
| 33:EL:139:HIS:CD2  | 33:EL:141:ALA:HB3  | 2.45                     | 0.52              |
| 34:EM:254:ILE:O    | 34:EM:258:PRO:CD   | 2.57                     | 0.52              |
| 38:EQ:8:ARG:NH1    | 38:EQ:118:HIS:N    | 2.58                     | 0.52              |
| 40:ES:55:VAL:HG11  | 40:ES:103:LEU:HB3  | 1.92                     | 0.52              |
| 44:EW:16:HIS:CD2   | 1:F1:3330:U:OP1    | 2.61                     | 0.52              |
| 44:EW:61:ASN:HB3   | 44:EW:65:ASN:O     | 2.10                     | 0.52              |
| 1:F1:113:A:H2'     | 1:F1:114:A:OP1     | 2.08                     | 0.52              |
| 1:F1:122:U:H2'     | 1:F1:123:C:C6      | 2.45                     | 0.52              |
| 1:F1:396:A:C2      | 1:F1:397:A:C5      | 2.98                     | 0.52              |
| 1:F1:865:C:H2'     | 1:F1:866:A:H5''    | 1.92                     | 0.52              |
| 1:F1:964:U:P       | 50:F1:3827:HOH:O   | 2.68                     | 0.52              |
| 1:F1:1593:A:C5     | 1:F1:1594:C:N4     | 2.77                     | 0.52              |
| 1:F1:2103:A:C2     | 1:F1:2104:C:C2     | 2.98                     | 0.52              |
| 1:F1:2703:G:H2'    | 1:F1:2740:G:N2     | 2.25                     | 0.52              |
| 1:F1:2945:G:H2'    | 1:F1:2946:A:H5'    | 1.91                     | 0.52              |
| 1:F1:3227:A:H5'    | 5:FE:57:ARG:NH1    | 2.19                     | 0.52              |
| 5:FE:164:VAL:HG13  | 5:FE:170:LEU:HG    | 1.91                     | 0.52              |
| 6:FF:13:VAL:HG13   | 6:FF:53:VAL:HG13   | 1.90                     | 0.52              |
| 13:FN:118:PHE:HD2  | 13:FN:139:PHE:CE1  | 2.28                     | 0.52              |
| 20:G2:25:U:OP2     | 24:GC:201:LEU:HD22 | 2.10                     | 0.52              |
| 20:G2:45:G:C2'     | 20:G2:46:A:H5'     | 2.40                     | 0.52              |
| 21:G3:63:A:C5'     | 29:GH:206:LEU:HG   | 2.39                     | 0.52              |
| 21:G3:102:G:O5'    | 21:G3:102:G:H8     | 1.92                     | 0.52              |
| 22:GA:30:TYR:CB    | 22:GA:164:ARG:HH11 | 2.22                     | 0.52              |
| 22:GA:243:ARG:CZ   | 22:GA:247:VAL:HG12 | 2.40                     | 0.52              |
| 24:GC:117:HIS:CD2  | 33:GL:202:ARG:HB2  | 2.45                     | 0.52              |
| 24:GC:276:THR:HG22 | 24:GC:277:GLY:O    | 2.09                     | 0.52              |
| 30:GI:11:LYS:HD3   | 30:GI:36:ARG:HH12  | 1.74                     | 0.52              |
| 30:GI:92:PRO:HG2   | 1:H1:656:C:OP1     | 2.10                     | 0.52              |
| 33:GL:78:GLY:HA2   | 33:GL:89:ILE:CD1   | 2.39                     | 0.52              |
| 33:GL:180:ARG:HH22 | 1:H1:301:A:C5'     | 2.22                     | 0.52              |
| 34:GM:176:SER:O    | 34:GM:177:GLU:CG   | 2.54                     | 0.52              |
| 35:GN:27:HIS:CD2   | 35:GN:31:ILE:HD11  | 2.45                     | 0.52              |
| 35:GN:38:VAL:HG22  | 35:GN:47:GLN:HA    | 1.91                     | 0.52              |
| 39:GR:73:THR:HG23  | 42:GU:37:ILE:HD11  | 1.92                     | 0.52              |
| 42:GU:14:THR:HG22  | 42:GU:15:GLU:H     | 1.75                     | 0.52              |
| 43:GV:98:ARG:HH11  | 43:GV:98:ARG:HG2   | 1.74                     | 0.52              |
| 43:GV:207:PRO:HB2  | 43:GV:209:GLY:O    | 2.10                     | 0.52              |
| 43:GV:219:HIS:O    | 19:HX:46:ARG:NH2   | 2.42                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 46:GY:13:LYS:HE3  | 46:GY:14:TYR:CE2   | 2.44                     | 0.52              |
| 1:H1:120:A:H61    | 1:H1:148:G:H1'     | 1.75                     | 0.52              |
| 1:H1:213:A:H61    | 1:H1:227:G:C2'     | 2.21                     | 0.52              |
| 1:H1:476:A:C2     | 1:H1:500:G:C2      | 2.98                     | 0.52              |
| 1:H1:508:A:O2'    | 1:H1:509:A:H8      | 1.90                     | 0.52              |
| 1:H1:790:C:O2'    | 1:H1:791:C:C6      | 2.60                     | 0.52              |
| 1:H1:957:U:H4'    | 1:H1:958:A:O5'     | 2.08                     | 0.52              |
| 1:H1:1540:U:H5    | 1:H1:1865:A:O2'    | 1.92                     | 0.52              |
| 1:H1:1928:C:N4    | 1:H1:1929:G:C6     | 2.78                     | 0.52              |
| 1:H1:2100:A:C3'   | 1:H1:2101:G:H5''   | 2.38                     | 0.52              |
| 1:H1:2192:C:H4'   | 1:H1:2193:A:C8     | 2.45                     | 0.52              |
| 1:H1:2847:U:H4'   | 1:H1:2848:U:OP1    | 2.08                     | 0.52              |
| 1:H1:2984:A:C4    | 1:H1:2985:C:H5     | 2.28                     | 0.52              |
| 1:H1:3229:C:O2    | 1:H1:3229:C:H2'    | 2.09                     | 0.52              |
| 5:HE:85:VAL:HG12  | 5:HE:85:VAL:O      | 2.08                     | 0.52              |
| 9:HJ:67:LYS:HD2   | 9:HJ:112:ASP:CG    | 2.35                     | 0.52              |
| 1:A1:6:C:O2'      | 27:BF:176:LYS:HE3  | 2.10                     | 0.52              |
| 1:A1:161:U:C2'    | 1:A1:162:C:H5''    | 2.39                     | 0.52              |
| 1:A1:579:G:H1'    | 19:AX:158:ASN:CA   | 2.39                     | 0.52              |
| 1:A1:619:G:HO2'   | 1:A1:620:A:H2      | 1.55                     | 0.52              |
| 1:A1:701:A:H3'    | 35:BN:91:GLU:CG    | 2.37                     | 0.52              |
| 1:A1:1035:A:N1    | 1:A1:1068:U:C2     | 2.78                     | 0.52              |
| 1:A1:1115:U:H5'   | 1:A1:1115:U:H6     | 1.73                     | 0.52              |
| 1:A1:1507:A:H5''  | 1:A1:1883:A:H62    | 1.73                     | 0.52              |
| 1:A1:2203:A:H2'   | 1:A1:2204:U:C6     | 2.44                     | 0.52              |
| 1:A1:2271:G:C5    | 1:A1:2272:C:C5     | 2.98                     | 0.52              |
| 1:A1:2410:C:N4    | 50:A1:3765:HOH:O   | 2.43                     | 0.52              |
| 1:A1:2508:U:O2'   | 1:A1:2509:U:H2'    | 2.09                     | 0.52              |
| 1:A1:3036:U:H5'   | 23:BB:220:LYS:HD2  | 1.92                     | 0.52              |
| 1:A1:3096:U:H5''  | 10:AK:112:LYS:NZ   | 2.24                     | 0.52              |
| 2:AA:26:THR:HB    | 2:AA:34:CYS:SG     | 2.50                     | 0.52              |
| 12:AM:55:ASN:O    | 12:AM:69:SER:HA    | 2.09                     | 0.52              |
| 13:AN:96:LEU:HD13 | 13:AN:113:THR:HG22 | 1.92                     | 0.52              |
| 16:AQ:45:ILE:HD11 | 33:BL:6:TYR:CD1    | 2.45                     | 0.52              |
| 19:AX:168:THR:N   | 19:AX:188:THR:HG23 | 2.21                     | 0.52              |
| 20:B2:22:A:H2'    | 20:B2:23:U:H6      | 1.75                     | 0.52              |
| 21:B3:52:U:H2'    | 21:B3:53:U:C6      | 2.44                     | 0.52              |
| 22:BA:118:GLU:HB2 | 22:BA:163:CYS:HB3  | 1.92                     | 0.52              |
| 22:BA:181:LEU:HB3 | 46:BY:18:TYR:CD1   | 2.45                     | 0.52              |
| 24:BC:65:MET:HE3  | 24:BC:105:ARG:HG2  | 1.91                     | 0.52              |
| 24:BC:119:ARG:NH1 | 33:BL:204:ARG:HE   | 2.07                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:148:ARG:HE   | 24:BC:187:ARG:HD2  | 1.73                     | 0.52              |
| 24:BC:311:ALA:HB2  | 35:BN:40:ARG:HH21  | 1.74                     | 0.52              |
| 30:BI:91:THR:HG22  | 30:BI:93:LYS:H     | 1.75                     | 0.52              |
| 32:BK:81:TRP:CE3   | 32:BK:89:ARG:HB3   | 2.45                     | 0.52              |
| 36:BO:152:SER:CA   | 36:BO:163:ARG:HH12 | 2.22                     | 0.52              |
| 37:BP:76:VAL:HG12  | 37:BP:77:HIS:N     | 2.24                     | 0.52              |
| 39:BR:75:LEU:HD21  | 39:BR:93:TYR:CE2   | 2.45                     | 0.52              |
| 40:BS:43:ASN:O     | 40:BS:125:LEU:CD1  | 2.55                     | 0.52              |
| 42:BU:13:GLN:HB3   | 42:BU:17:GLN:OE1   | 2.10                     | 0.52              |
| 46:BY:58:LYS:N     | 46:BY:59:PRO:HD2   | 2.25                     | 0.52              |
| 20:C2:74:A:H5''    | 40:CS:50:ARG:HE    | 1.74                     | 0.52              |
| 24:CC:152:VAL:O    | 14:DO:76:ILE:CG1   | 2.57                     | 0.52              |
| 24:CC:172:ALA:O    | 24:CC:176:LEU:HG   | 2.10                     | 0.52              |
| 24:CC:314:THR:HG21 | 1:D1:1372:A:N3     | 2.25                     | 0.52              |
| 33:CL:189:LYS:O    | 33:CL:193:ARG:HG3  | 2.10                     | 0.52              |
| 34:CM:56:THR:CG2   | 34:CM:57:ASN:N     | 2.73                     | 0.52              |
| 38:CQ:15:LYS:HB3   | 38:CQ:154:GLU:HG2  | 1.90                     | 0.52              |
| 46:CY:17:ARG:C     | 46:CY:18:TYR:CD2   | 2.88                     | 0.52              |
| 1:D1:549:G:H2'     | 1:D1:550:G:C8      | 2.45                     | 0.52              |
| 1:D1:790:C:H5''    | 1:D1:791:C:OP1     | 2.10                     | 0.52              |
| 1:D1:1186:A:HO2'   | 1:D1:1187:C:P      | 2.25                     | 0.52              |
| 1:D1:1949:U:H4'    | 1:D1:1950:C:OP2    | 2.10                     | 0.52              |
| 1:D1:2106:G:O2'    | 1:D1:2107:A:P      | 2.68                     | 0.52              |
| 1:D1:2170:A:H4'    | 1:D1:2171:U:OP2    | 2.10                     | 0.52              |
| 1:D1:2186:U:H2'    | 1:D1:2187:C:H6     | 1.75                     | 0.52              |
| 1:D1:2274:A:H5'    | 1:D1:2300:G:H22    | 1.75                     | 0.52              |
| 1:D1:2577:G:H2'    | 1:D1:2578:A:O5'    | 2.09                     | 0.52              |
| 1:D1:2945:G:H2'    | 1:D1:2946:A:H5'    | 1.91                     | 0.52              |
| 1:D1:3055:U:H2'    | 1:D1:3056:C:H6     | 1.74                     | 0.52              |
| 1:D1:3229:C:O2'    | 1:D1:3230:G:P      | 2.68                     | 0.52              |
| 4:DC:10:THR:O      | 4:DC:18:HIS:HA     | 2.10                     | 0.52              |
| 6:DF:51:ARG:HG2    | 19:DX:171:ARG:NH1  | 2.25                     | 0.52              |
| 8:DH:84:ASN:O      | 8:DH:86:VAL:N      | 2.42                     | 0.52              |
| 13:DN:25:ILE:HG23  | 13:DN:41:VAL:CG1   | 2.40                     | 0.52              |
| 19:DX:7:GLN:HE22   | 19:DX:80:GLU:CB    | 2.22                     | 0.52              |
| 19:DX:167:LYS:CG   | 19:DX:188:THR:HG21 | 2.39                     | 0.52              |
| 22:EA:58:PRO:HG3   | 46:EY:53:GLY:HA3   | 1.92                     | 0.52              |
| 22:EA:105:ILE:HD11 | 22:EA:117:VAL:HG13 | 1.91                     | 0.52              |
| 22:EA:175:ARG:HA   | 46:EY:69:TRP:NE1   | 2.25                     | 0.52              |
| 22:EA:187:PHE:HB2  | 22:EA:197:TRP:CZ3  | 2.44                     | 0.52              |
| 23:EB:40:LYS:HB3   | 23:EB:41:PRO:HD2   | 1.91                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:EF:153:ILE:HG22 | 27:EF:157:ILE:CG1  | 2.40                     | 0.52              |
| 30:EI:11:LYS:CD    | 30:EI:36:ARG:NH1   | 2.73                     | 0.52              |
| 30:EI:92:PRO:HG2   | 1:F1:656:C:P       | 2.50                     | 0.52              |
| 30:EI:109:THR:HG23 | 30:EI:110:PRO:N    | 2.25                     | 0.52              |
| 33:EL:102:ALA:O    | 33:EL:106:VAL:HG23 | 2.10                     | 0.52              |
| 35:EN:180:LEU:O    | 35:EN:181:LYS:C    | 2.51                     | 0.52              |
| 37:EP:112:ASN:HB3  | 37:EP:128:THR:OG1  | 2.10                     | 0.52              |
| 41:ET:41:LEU:HD13  | 41:ET:51:ILE:CD1   | 2.40                     | 0.52              |
| 42:EU:87:LYS:HA    | 42:EU:93:ARG:HH21  | 1.75                     | 0.52              |
| 43:EV:98:ARG:HG3   | 43:EV:98:ARG:NH1   | 2.25                     | 0.52              |
| 1:F1:141:C:C2'     | 1:F1:142:A:H5'     | 2.40                     | 0.52              |
| 1:F1:295:A:OP1     | 16:FQ:90:LYS:NZ    | 2.43                     | 0.52              |
| 1:F1:1038:G:C2'    | 1:F1:1039:G:H5'    | 2.39                     | 0.52              |
| 1:F1:1179:G:H1     | 1:F1:1226:C:H42    | 1.58                     | 0.52              |
| 1:F1:1393:A:C2     | 1:F1:1394:G:C4     | 2.98                     | 0.52              |
| 1:F1:1839:A:O2'    | 1:F1:1840:U:C5     | 2.63                     | 0.52              |
| 1:F1:2178:A:H2'    | 1:F1:2179:U:O5'    | 2.10                     | 0.52              |
| 1:F1:2188:U:HO2'   | 1:F1:2189:G:P      | 2.27                     | 0.52              |
| 1:F1:2250:A:C1'    | 1:F1:2251:A:OP2    | 2.53                     | 0.52              |
| 1:F1:2726:C:C2'    | 1:F1:2727:A:H5'    | 2.40                     | 0.52              |
| 1:F1:2847:U:H4'    | 1:F1:2848:U:OP1    | 2.09                     | 0.52              |
| 1:F1:2886:G:H3'    | 1:F1:2886:G:C8     | 2.45                     | 0.52              |
| 1:F1:2886:G:H3'    | 1:F1:2886:G:H8     | 1.74                     | 0.52              |
| 1:F1:3097:G:OP2    | 10:FK:112:LYS:NZ   | 2.43                     | 0.52              |
| 1:F1:3344:U:C4'    | 1:F1:3345:A:OP2    | 2.55                     | 0.52              |
| 12:FM:101:ASP:HB2  | 12:FM:104:SER:OG   | 2.10                     | 0.52              |
| 21:G3:93:G:O5'     | 21:G3:93:G:C8      | 2.63                     | 0.52              |
| 22:GA:32:VAL:HA    | 22:GA:124:ARG:NH1  | 2.25                     | 0.52              |
| 23:GB:62:ARG:NH1   | 1:H1:3027:U:OP1    | 2.43                     | 0.52              |
| 25:GD:32:LYS:HE2   | 25:GD:119:SER:HA   | 1.91                     | 0.52              |
| 27:GF:169:PRO:HA   | 27:GF:216:ASN:HD21 | 1.74                     | 0.52              |
| 30:GI:79:PHE:O     | 30:GI:82:ALA:HB3   | 2.10                     | 0.52              |
| 33:GL:188:ARG:NH2  | 1:H1:278:U:O2'     | 2.42                     | 0.52              |
| 43:GV:42:ILE:HG22  | 43:GV:46:GLN:NE2   | 2.25                     | 0.52              |
| 44:GW:4:GLN:HE21   | 44:GW:76:LYS:NZ    | 2.08                     | 0.52              |
| 1:H1:1148:U:H2'    | 1:H1:1149:U:C6     | 2.45                     | 0.52              |
| 1:H1:1191:G:H5''   | 8:HH:33:ASN:HD21   | 1.74                     | 0.52              |
| 1:H1:1413:G:C2     | 1:H1:1414:C:C6     | 2.98                     | 0.52              |
| 1:H1:1637:A:H2'    | 1:H1:1638:A:H5''   | 1.92                     | 0.52              |
| 1:H1:1909:C:H5''   | 1:H1:3266:G:N1     | 2.25                     | 0.52              |
| 1:H1:2310:G:P      | 50:H1:3958:HOH:O   | 2.61                     | 0.52              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:H1:2545:A:HO2'   | 1:H1:2546:A:P     | 2.33                     | 0.52              |
| 1:H1:2645:A:H2'    | 1:H1:2645:A:N3    | 2.25                     | 0.52              |
| 1:H1:2730:C:H4'    | 4:HC:16:ASN:O     | 2.10                     | 0.52              |
| 1:H1:2958:C:O3'    | 1:H1:2959:A:C8    | 2.63                     | 0.52              |
| 1:H1:3046:A:H5''   | 1:H1:3047:U:OP2   | 2.10                     | 0.52              |
| 4:HC:65:LYS:HG3    | 4:HC:85:ARG:HE    | 1.74                     | 0.52              |
| 9:HJ:122:ASP:OD1   | 9:HJ:123:ARG:N    | 2.43                     | 0.52              |
| 11:HL:23:VAL:HG21  | 11:HL:33:GLN:CD   | 2.34                     | 0.52              |
| 15:HP:45:ARG:HD2   | 15:HP:46:GLY:N    | 2.25                     | 0.52              |
| 1:A1:73:G:H5'      | 18:AU:56:VAL:HG11 | 1.91                     | 0.52              |
| 1:A1:113:A:O2'     | 1:A1:114:A:OP1    | 2.26                     | 0.52              |
| 1:A1:740:A:H5'     | 32:BK:114:GLY:O   | 2.10                     | 0.52              |
| 1:A1:1112:A:H2'    | 1:A1:1113:A:C8    | 2.45                     | 0.52              |
| 1:A1:1196:A:C6     | 1:A1:1357:A:C8    | 2.97                     | 0.52              |
| 1:A1:1365:C:H4'    | 45:BX:62:ASP:CB   | 2.40                     | 0.52              |
| 1:A1:2192:C:H4'    | 1:A1:2193:A:C8    | 2.45                     | 0.52              |
| 1:A1:2239:A:C2'    | 1:A1:2240:C:H5'   | 2.40                     | 0.52              |
| 1:A1:2305:U:O5'    | 1:A1:2305:U:H6    | 1.93                     | 0.52              |
| 1:A1:2397:A:H2'    | 24:BC:74:THR:CG2  | 2.23                     | 0.52              |
| 1:A1:2737:A:C2'    | 1:A1:2738:G:H5'   | 2.40                     | 0.52              |
| 1:A1:2931:G:O2'    | 23:BB:252:ALA:HB1 | 2.10                     | 0.52              |
| 1:A1:2973:C:H2'    | 1:A1:2974:U:O4'   | 2.10                     | 0.52              |
| 1:A1:3344:U:C4'    | 1:A1:3345:A:OP2   | 2.56                     | 0.52              |
| 2:AA:21:ARG:HD3    | 2:AA:44:MET:HE1   | 1.92                     | 0.52              |
| 6:AF:21:LYS:NZ     | 19:AX:174:GLU:HG2 | 2.25                     | 0.52              |
| 6:AF:107:ASP:HA    | 30:BI:196:PHE:HZ  | 1.75                     | 0.52              |
| 15:AP:15:TRP:CZ3   | 15:AP:69:PRO:HD3  | 2.44                     | 0.52              |
| 18:AU:52:LEU:HB3   | 18:AU:93:ILE:HA   | 1.91                     | 0.52              |
| 19:AX:106:LYS:HE2  | 19:AX:123:ASP:OD2 | 2.10                     | 0.52              |
| 35:BN:151:HIS:ND1  | 35:BN:164:ALA:O   | 2.33                     | 0.52              |
| 43:BV:34:MET:HA    | 43:BV:37:ARG:HD2  | 1.92                     | 0.52              |
| 43:BV:129:PRO:HA   | 43:BV:224:TRP:CG  | 2.45                     | 0.52              |
| 21:C3:28:C:C2'     | 21:C3:29:C:H5'    | 2.34                     | 0.52              |
| 21:C3:93:G:O5'     | 21:C3:93:G:C8     | 2.62                     | 0.52              |
| 22:CA:30:TYR:HD2   | 22:CA:124:ARG:C   | 2.17                     | 0.52              |
| 23:CB:257:ARG:NH2  | 1:D1:2361:U:O3'   | 2.43                     | 0.52              |
| 24:CC:269:ILE:HG12 | 24:CC:279:GLN:OE1 | 2.09                     | 0.52              |
| 25:CD:77:ARG:HH22  | 25:CD:166:GLU:CG  | 2.23                     | 0.52              |
| 26:CE:45:ILE:HG12  | 26:CE:55:LEU:HD22 | 1.90                     | 0.52              |
| 27:CF:233:LYS:NZ   | 1:D1:2577:G:OP1   | 2.27                     | 0.52              |
| 31:CJ:127:ALA:CB   | 9:DJ:58:ILE:HD13  | 2.40                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:CM:23:ARG:CZ   | 1:D1:2692:A:C5     | 2.93                     | 0.52              |
| 34:CM:44:TYR:CE1  | 1:D1:1112:A:H4'    | 2.45                     | 0.52              |
| 35:CN:24:ASN:ND2  | 35:CN:27:HIS:HB2   | 2.25                     | 0.52              |
| 35:CN:158:GLN:CD  | 50:CN:306:HOH:O    | 2.53                     | 0.52              |
| 37:CP:49:HIS:HD2  | 1:D1:2744:C:O2'    | 1.92                     | 0.52              |
| 39:CR:75:LEU:HB2  | 39:CR:91:VAL:HB    | 1.92                     | 0.52              |
| 44:CW:54:LEU:HD22 | 44:CW:92:VAL:CG1   | 2.39                     | 0.52              |
| 46:CY:13:LYS:HE3  | 46:CY:14:TYR:CE2   | 2.45                     | 0.52              |
| 1:D1:167:U:H2'    | 1:D1:168:G:C8      | 2.45                     | 0.52              |
| 1:D1:373:A:N3     | 1:D1:375:G:H5''    | 2.25                     | 0.52              |
| 1:D1:838:G:H1'    | 2:DA:50:TRP:HZ2    | 1.73                     | 0.52              |
| 1:D1:1046:G:H5''  | 13:FN:3:LYS:CE     | 2.32                     | 0.52              |
| 1:D1:1255:A:C2    | 1:D1:1309:G:C6     | 2.97                     | 0.52              |
| 1:D1:1506:G:N2    | 1:D1:1896:C:C5     | 2.78                     | 0.52              |
| 1:D1:1512:G:H3'   | 50:D1:4485:HOH:O   | 2.08                     | 0.52              |
| 1:D1:1599:G:C2    | 1:D1:1600:U:C2     | 2.98                     | 0.52              |
| 1:D1:1663:C:O2'   | 1:D1:1664:G:H5'    | 2.09                     | 0.52              |
| 1:D1:2343:A:H2'   | 1:D1:2344:U:H5''   | 1.92                     | 0.52              |
| 1:D1:2839:A:P     | 50:D1:4318:HOH:O   | 2.68                     | 0.52              |
| 1:D1:2859:G:C5    | 50:D1:4455:HOH:O   | 2.36                     | 0.52              |
| 1:D1:3067:A:HO2'  | 1:D1:3068:U:P      | 2.24                     | 0.52              |
| 1:D1:3345:A:OP2   | 1:D1:3345:A:H8     | 1.93                     | 0.52              |
| 8:DH:58:TYR:HD2   | 8:DH:73:ILE:HD12   | 1.74                     | 0.52              |
| 9:DJ:71:LEU:HB3   | 9:DJ:97:ILE:HD11   | 1.91                     | 0.52              |
| 10:DK:92:GLU:O    | 10:DK:105:PRO:HB3  | 2.10                     | 0.52              |
| 11:DL:23:VAL:O    | 11:DL:30:LEU:HD12  | 2.10                     | 0.52              |
| 13:DN:118:PHE:HD2 | 13:DN:139:PHE:CE1  | 2.27                     | 0.52              |
| 18:DU:25:ASN:OD1  | 18:DU:26:GLN:N     | 2.42                     | 0.52              |
| 18:DU:50:GLU:O    | 18:DU:150:LEU:HD12 | 2.10                     | 0.52              |
| 19:DX:106:LYS:HE2 | 19:DX:123:ASP:OD2  | 2.09                     | 0.52              |
| 19:DX:175:LYS:HZ2 | 19:DX:178:ARG:NH1  | 1.95                     | 0.52              |
| 24:EC:27:ALA:HB2  | 24:EC:272:THR:HG23 | 1.92                     | 0.52              |
| 26:EE:88:PHE:CD2  | 26:EE:152:VAL:HG12 | 2.46                     | 0.52              |
| 32:EK:140:ALA:HB1 | 1:F1:743:A:C8      | 2.45                     | 0.52              |
| 34:EM:41:LYS:HZ1  | 37:EP:30:TYR:C     | 2.14                     | 0.52              |
| 34:EM:138:GLU:OE1 | 34:EM:138:GLU:HA   | 2.08                     | 0.52              |
| 34:EM:142:PHE:CE1 | 1:F1:1107:A:N7     | 2.78                     | 0.52              |
| 34:EM:156:GLY:CA  | 34:EM:181:PRO:HG3  | 2.39                     | 0.52              |
| 36:EO:24:LEU:HD22 | 36:EO:50:VAL:HG22  | 1.92                     | 0.52              |
| 37:EP:14:LYS:NZ   | 1:F1:2628:C:OP1    | 2.43                     | 0.52              |
| 37:EP:19:TYR:CD2  | 1:F1:1077:U:H4'    | 2.44                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:EV:105:LEU:HD12 | 43:EV:131:ILE:HD13 | 1.92                     | 0.52              |
| 44:EW:14:ASN:HD21  | 44:EW:17:LYS:HE3   | 1.74                     | 0.52              |
| 1:F1:137:A:H2'     | 1:F1:138:C:C6      | 2.45                     | 0.52              |
| 1:F1:198:A:C6      | 1:F1:219:A:C6      | 2.98                     | 0.52              |
| 1:F1:725:C:O2'     | 1:F1:726:G:H5'     | 2.10                     | 0.52              |
| 1:F1:727:C:H2'     | 1:F1:728:G:H8      | 1.74                     | 0.52              |
| 1:F1:927:G:C5      | 1:F1:928:U:C5      | 2.98                     | 0.52              |
| 1:F1:1052:A:C2     | 1:F1:1053:A:N7     | 2.78                     | 0.52              |
| 1:F1:1402:G:O2'    | 1:F1:1403:C:H5'    | 2.10                     | 0.52              |
| 1:F1:1693:U:H2'    | 1:F1:1694:C:C6     | 2.45                     | 0.52              |
| 1:F1:1752:G:H5''   | 1:F1:1753:A:C3'    | 2.39                     | 0.52              |
| 1:F1:2362:A:H2'    | 1:F1:2363:A:C8     | 2.45                     | 0.52              |
| 1:F1:2568:G:C6     | 1:F1:2569:A:N6     | 2.77                     | 0.52              |
| 1:F1:2727:A:C4'    | 17:FT:37:PRO:HD2   | 2.40                     | 0.52              |
| 1:F1:2800:C:O2'    | 1:F1:2801:A:H5'    | 2.10                     | 0.52              |
| 1:F1:2921:A:C6     | 1:F1:2922:A:N1     | 2.78                     | 0.52              |
| 1:F1:3142:A:O5'    | 1:F1:3142:A:H8     | 1.93                     | 0.52              |
| 1:F1:3175:A:H2'    | 1:F1:3177:G:N7     | 2.25                     | 0.52              |
| 5:FE:28:PHE:C      | 5:FE:28:PHE:CD1    | 2.87                     | 0.52              |
| 5:FE:77:THR:HG21   | 5:FE:157:ASP:OD1   | 2.10                     | 0.52              |
| 6:FF:11:ARG:HD2    | 6:FF:59:GLN:OE1    | 2.10                     | 0.52              |
| 9:FJ:143:ALA:C     | 9:FJ:144:ASN:ND2   | 2.56                     | 0.52              |
| 13:FN:16:GLY:H     | 13:FN:19:ALA:HB2   | 1.73                     | 0.52              |
| 13:FN:75:VAL:HG12  | 13:FN:76:ASN:O     | 2.10                     | 0.52              |
| 14:FO:48:VAL:HA    | 14:FO:61:SER:O     | 2.10                     | 0.52              |
| 14:FO:48:VAL:HG23  | 14:FO:98:PHE:HZ    | 1.75                     | 0.52              |
| 18:FU:123:LEU:HD23 | 18:FU:136:VAL:HG22 | 1.91                     | 0.52              |
| 20:G2:75:A:OP2     | 40:GS:51:LYS:CB    | 2.56                     | 0.52              |
| 21:G3:98:G:OP2     | 19:HX:66:LYS:CE    | 2.58                     | 0.52              |
| 24:GC:157:TYR:CE1  | 24:GC:159:PHE:CZ   | 2.98                     | 0.52              |
| 26:GE:183:ARG:NH2  | 1:H1:3101:G:OP2    | 2.43                     | 0.52              |
| 29:GH:80:ILE:HG22  | 29:GH:81:SER:N     | 2.25                     | 0.52              |
| 32:GK:110:PHE:HD2  | 32:GK:128:LYS:HD2  | 1.74                     | 0.52              |
| 34:GM:83:LEU:CB    | 34:GM:88:VAL:CG2   | 2.87                     | 0.52              |
| 35:GN:128:ALA:O    | 35:GN:132:PRO:HG3  | 2.10                     | 0.52              |
| 36:GO:95:TRP:CD2   | 1:H1:880:U:H5''    | 2.45                     | 0.52              |
| 38:GQ:33:GLU:OE1   | 38:GQ:63:THR:N     | 2.39                     | 0.52              |
| 39:GR:39:ARG:CZ    | 1:H1:11:A:H4'      | 2.40                     | 0.52              |
| 43:GV:104:ARG:HD2  | 1:H1:1128:G:C5'    | 2.36                     | 0.52              |
| 1:H1:10:A:H2'      | 1:H1:11:A:H8       | 1.74                     | 0.52              |
| 1:H1:48:U:O2       | 1:H1:48:U:H2'      | 2.10                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:467:A:N6      | 1:H1:512:G:C4      | 2.76                     | 0.52              |
| 1:H1:472:C:O5'     | 1:H1:472:C:H6      | 1.93                     | 0.52              |
| 1:H1:1239:G:N3     | 19:HX:128:HIS:HE1  | 2.08                     | 0.52              |
| 1:H1:1613:A:C6     | 3:HB:4:ASN:HB3     | 2.45                     | 0.52              |
| 1:H1:1683:U:H2'    | 1:H1:1684:C:H6     | 1.75                     | 0.52              |
| 1:H1:2138:A:H4'    | 1:H1:2139:A:O5'    | 2.10                     | 0.52              |
| 1:H1:2583:C:H2'    | 1:H1:2584:A:O4'    | 2.10                     | 0.52              |
| 1:H1:2669:A:H4'    | 1:H1:2670:U:OP1    | 2.09                     | 0.52              |
| 1:H1:3046:A:C6     | 1:H1:3048:A:H1'    | 2.45                     | 0.52              |
| 6:HF:6:PHE:HB3     | 19:HX:162:LYS:HB3  | 1.92                     | 0.52              |
| 13:HN:101:LYS:HA   | 13:HN:106:ALA:HB3  | 1.92                     | 0.52              |
| 1:A1:146:U:H2'     | 27:BF:185:LYS:HZ2  | 1.75                     | 0.51              |
| 1:A1:641:U:O4'     | 1:A1:3233:A:N6     | 2.43                     | 0.51              |
| 1:A1:1066:A:H1'    | 29:BH:198:LYS:HZ3  | 1.73                     | 0.51              |
| 1:A1:1172:G:O6     | 1:A1:1185:A:H2     | 1.93                     | 0.51              |
| 1:A1:1191:G:O2'    | 1:A1:1192:A:H5'    | 2.10                     | 0.51              |
| 1:A1:2661:G:O4'    | 25:BD:97:SER:HB3   | 2.10                     | 0.51              |
| 1:A1:2669:A:N3     | 25:BD:59:ILE:CD1   | 2.73                     | 0.51              |
| 1:A1:2716:A:OP2    | 1:A1:2717:G:N2     | 2.39                     | 0.51              |
| 1:A1:3030:A:H2'    | 1:A1:3031:U:C6     | 2.44                     | 0.51              |
| 5:AE:58:PHE:CD2    | 5:AE:85:VAL:HG22   | 2.45                     | 0.51              |
| 6:AF:11:ARG:HG3    | 6:AF:12:VAL:N      | 2.23                     | 0.51              |
| 6:AF:30:ILE:CG2    | 19:AX:156:MET:HE1  | 2.40                     | 0.51              |
| 9:AJ:88:LEU:HG     | 9:AJ:92:VAL:HG11   | 1.91                     | 0.51              |
| 18:AU:132:LYS:HA   | 18:AU:135:LEU:CD1  | 2.34                     | 0.51              |
| 19:AX:45:ALA:CA    | 19:AX:50:HIS:HD2   | 2.23                     | 0.51              |
| 20:B2:1:A:H5''     | 20:B2:2:G:OP2      | 2.09                     | 0.51              |
| 20:B2:9:U:H1'      | 50:B2:341:HOH:O    | 2.10                     | 0.51              |
| 21:B3:90:A:H2      | 29:BH:162:ARG:NH2  | 2.08                     | 0.51              |
| 23:BB:113:ASN:HB3  | 23:BB:174:ASN:ND2  | 2.24                     | 0.51              |
| 26:BE:22:GLN:O     | 26:BE:23:ARG:HB2   | 2.11                     | 0.51              |
| 26:BE:49:THR:O     | 26:BE:51:ASP:N     | 2.43                     | 0.51              |
| 26:BE:78:MET:O     | 26:BE:82:VAL:HG23  | 2.10                     | 0.51              |
| 26:BE:124:ILE:HD11 | 26:BE:162:SER:OG   | 2.09                     | 0.51              |
| 30:BI:101:LEU:HD11 | 30:BI:103:ILE:HG12 | 1.93                     | 0.51              |
| 34:BM:21:ARG:HA    | 34:BM:24:ARG:CZ    | 2.40                     | 0.51              |
| 35:BN:29:LEU:HA    | 35:BN:32:LYS:HG3   | 1.91                     | 0.51              |
| 35:BN:69:VAL:HG21  | 35:BN:93:LEU:HD11  | 1.92                     | 0.51              |
| 36:BO:60:ARG:O     | 36:BO:61:SER:C     | 2.53                     | 0.51              |
| 46:BY:33:GLN:HG3   | 46:BY:34:HIS:CD2   | 2.44                     | 0.51              |
| 20:C2:28:G:C5      | 20:C2:29:U:C5      | 2.98                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:C2:140:U:H6     | 20:C2:140:U:H5''   | 1.74                     | 0.51              |
| 22:CA:68:TYR:CE1   | 1:D1:2520:G:O6     | 2.63                     | 0.51              |
| 22:CA:169:ILE:HG22 | 22:CA:170:VAL:O    | 2.10                     | 0.51              |
| 24:CC:98:GLY:HA2   | 24:CC:105:ARG:HH12 | 1.75                     | 0.51              |
| 24:CC:319:ARG:NH2  | 1:D1:620:A:C8      | 2.74                     | 0.51              |
| 25:CD:19:ILE:HG21  | 25:CD:125:MET:CE   | 2.39                     | 0.51              |
| 26:CE:87:LYS:O     | 26:CE:184:LEU:HB2  | 2.10                     | 0.51              |
| 29:CH:151:ALA:HA   | 29:CH:154:ARG:HG3  | 1.92                     | 0.51              |
| 31:CJ:41:ILE:HG13  | 31:CJ:64:CYS:HA    | 1.91                     | 0.51              |
| 34:CM:243:VAL:CG1  | 34:CM:247:PHE:HD2  | 2.23                     | 0.51              |
| 35:CN:45:PHE:CE1   | 35:CN:139:LEU:HD22 | 2.46                     | 0.51              |
| 35:CN:89:ASN:HD22  | 35:CN:109:THR:HG21 | 1.73                     | 0.51              |
| 37:CP:42:ILE:HG22  | 37:CP:60:ARG:O     | 2.11                     | 0.51              |
| 37:CP:62:GLY:HA3   | 37:CP:74:VAL:CG1   | 2.40                     | 0.51              |
| 1:D1:525:C:O2'     | 5:DE:3:ARG:HD3     | 2.09                     | 0.51              |
| 1:D1:1036:G:H22    | 1:D1:1066:A:H2     | 1.58                     | 0.51              |
| 1:D1:1041:C:O2     | 1:D1:1041:C:H2'    | 2.10                     | 0.51              |
| 1:D1:1072:A:H5''   | 1:D1:1073:A:OP1    | 2.09                     | 0.51              |
| 1:D1:1074:A:C2     | 1:D1:2635:C:O2     | 2.63                     | 0.51              |
| 1:D1:1518:G:O6     | 3:DB:2:GLY:N       | 2.43                     | 0.51              |
| 1:D1:1576:C:O2'    | 1:D1:1577:C:H5'    | 2.09                     | 0.51              |
| 1:D1:2178:A:H2'    | 1:D1:2179:U:O5'    | 2.09                     | 0.51              |
| 1:D1:2400:C:O2     | 1:D1:2807:A:N1     | 2.43                     | 0.51              |
| 1:D1:2568:G:C6     | 1:D1:2569:A:N6     | 2.78                     | 0.51              |
| 5:DE:157:ASP:O     | 5:DE:160:LEU:HB2   | 2.10                     | 0.51              |
| 5:DE:173:TYR:CG    | 6:DF:106:PHE:HD1   | 2.28                     | 0.51              |
| 12:DM:38:PHE:CG    | 12:DM:85:TYR:HD1   | 2.28                     | 0.51              |
| 17:DT:32:THR:O     | 17:DT:32:THR:HG22  | 2.10                     | 0.51              |
| 19:DX:96:GLN:H     | 19:DX:134:THR:CG2  | 2.20                     | 0.51              |
| 24:EC:157:TYR:CE1  | 24:EC:179:VAL:HG13 | 2.45                     | 0.51              |
| 24:EC:269:ILE:HG22 | 24:EC:270:PHE:CD1  | 2.45                     | 0.51              |
| 25:ED:50:ALA:HB2   | 25:ED:65:MET:HB2   | 1.92                     | 0.51              |
| 29:EH:47:PRO:HB3   | 29:EH:171:TRP:CZ2  | 2.45                     | 0.51              |
| 30:EI:74:ALA:O     | 30:EI:78:ILE:HG12  | 2.10                     | 0.51              |
| 35:EN:167:VAL:CG1  | 35:EN:169:SER:O    | 2.59                     | 0.51              |
| 41:ET:22:ARG:NH2   | 41:ET:32:PHE:HE2   | 2.07                     | 0.51              |
| 44:EW:28:ALA:HB3   | 44:EW:29:PRO:HD3   | 1.91                     | 0.51              |
| 1:F1:73:G:OP1      | 18:FU:56:VAL:CG1   | 2.56                     | 0.51              |
| 1:F1:161:U:C2'     | 1:F1:162:C:H5''    | 2.40                     | 0.51              |
| 1:F1:405:A:O2'     | 1:F1:406:A:H5'     | 2.10                     | 0.51              |
| 1:F1:589:C:H6      | 1:F1:589:C:O5'     | 1.91                     | 0.51              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:682:G:OP2    | 50:F1:3741:HOH:O   | 2.18                     | 0.51              |
| 1:F1:1247:C:C5'   | 1:F1:1248:G:H5''   | 2.34                     | 0.51              |
| 1:F1:1594:C:N4    | 1:F1:1595:A:C5     | 2.77                     | 0.51              |
| 1:F1:1695:A:H2'   | 1:F1:1696:C:C6     | 2.44                     | 0.51              |
| 1:F1:1711:U:H1'   | 12:FM:77:TYR:CE2   | 2.44                     | 0.51              |
| 1:F1:1928:C:N4    | 1:F1:1929:G:C6     | 2.78                     | 0.51              |
| 1:F1:2356:A:H5'   | 1:F1:2356:A:C8     | 2.41                     | 0.51              |
| 1:F1:2958:C:O3'   | 1:F1:2959:A:C8     | 2.63                     | 0.51              |
| 1:F1:3022:A:H2'   | 1:F1:3023:C:C6     | 2.44                     | 0.51              |
| 1:F1:3029:A:H2'   | 1:F1:3030:A:C8     | 2.45                     | 0.51              |
| 5:FE:88:LYS:HG3   | 5:FE:89:ARG:O      | 2.10                     | 0.51              |
| 6:FF:11:ARG:HG2   | 6:FF:55:LEU:HD22   | 1.91                     | 0.51              |
| 19:FX:58:ASN:O    | 19:FX:62:LEU:HG    | 2.10                     | 0.51              |
| 21:G3:63:A:O5'    | 29:GH:206:LEU:CG   | 2.57                     | 0.51              |
| 24:GC:91:ARG:O    | 24:GC:94:GLN:HB2   | 2.10                     | 0.51              |
| 30:GI:74:ALA:O    | 30:GI:78:ILE:HG12  | 2.10                     | 0.51              |
| 32:GK:110:PHE:HE2 | 32:GK:128:LYS:HZ2  | 1.56                     | 0.51              |
| 33:GL:119:TYR:CE1 | 33:GL:131:GLU:HB2  | 2.45                     | 0.51              |
| 35:GN:26:TYR:CE1  | 14:HO:4:LEU:HD11   | 2.46                     | 0.51              |
| 35:GN:88:THR:HG22 | 35:GN:107:THR:HG23 | 1.92                     | 0.51              |
| 37:GP:8:ARG:HD2   | 37:GP:11:THR:HG21  | 1.93                     | 0.51              |
| 43:GV:31:SER:HA   | 1:H1:628:A:OP1     | 2.10                     | 0.51              |
| 44:GW:66:ILE:HG23 | 44:GW:67:PRO:HD2   | 1.92                     | 0.51              |
| 45:GX:3:ILE:O     | 45:GX:5:PRO:HD2    | 2.09                     | 0.51              |
| 1:H1:434:A:C4'    | 1:H1:435:A:C8      | 2.93                     | 0.51              |
| 1:H1:512:G:C2     | 1:H1:513:G:C5      | 2.98                     | 0.51              |
| 1:H1:1005:A:C2'   | 1:H1:1006:C:OP2    | 2.57                     | 0.51              |
| 1:H1:1127:U:C2    | 1:H1:1128:G:C8     | 2.98                     | 0.51              |
| 1:H1:2148:A:HO2'  | 1:H1:2238:A:HO2'   | 1.56                     | 0.51              |
| 1:H1:2598:A:O2'   | 1:H1:2599:G:H5'    | 2.10                     | 0.51              |
| 1:H1:3158:G:H3'   | 1:H1:3159:A:C5'    | 2.39                     | 0.51              |
| 13:HN:76:ASN:OD1  | 13:HN:76:ASN:C     | 2.54                     | 0.51              |
| 15:HP:45:ARG:NH1  | 15:HP:50:LEU:HB2   | 2.25                     | 0.51              |
| 19:HX:113:LEU:CD1 | 19:HX:140:THR:HG21 | 2.38                     | 0.51              |
| 1:A1:49:A:H2'     | 1:A1:50:A:H8       | 1.74                     | 0.51              |
| 1:A1:146:U:H6     | 1:A1:146:U:H5''    | 1.72                     | 0.51              |
| 1:A1:738:U:HO2'   | 1:A1:739:G:H5'     | 1.75                     | 0.51              |
| 1:A1:1147:A:H2'   | 1:A1:1148:U:H6     | 1.75                     | 0.51              |
| 1:A1:1613:A:C6    | 3:AB:4:ASN:HB3     | 2.46                     | 0.51              |
| 1:A1:2370:G:O2'   | 1:A1:2372:G:OP2    | 2.23                     | 0.51              |
| 1:A1:2649:G:H2'   | 1:A1:2650:U:C6     | 2.45                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2651:A:H2'    | 1:A1:2652:G:H8     | 1.71                     | 0.51              |
| 1:A1:3022:A:H2'    | 1:A1:3023:C:C6     | 2.46                     | 0.51              |
| 2:AA:17:THR:HG23   | 3:AB:52:TYR:O      | 2.10                     | 0.51              |
| 2:AA:25:ALA:HB1    | 3:AB:52:TYR:CD2    | 2.46                     | 0.51              |
| 5:AE:77:THR:HG21   | 5:AE:157:ASP:OD1   | 2.10                     | 0.51              |
| 8:AH:44:THR:O      | 8:AH:48:VAL:HG23   | 2.10                     | 0.51              |
| 9:AJ:75:THR:HG23   | 31:BJ:124:LYS:HE2  | 1.91                     | 0.51              |
| 9:AJ:102:SER:H     | 31:BJ:139:SER:HB3  | 1.74                     | 0.51              |
| 13:AN:38:PHE:HE2   | 13:AN:76:ASN:HB2   | 1.75                     | 0.51              |
| 13:AN:57:MET:HE1   | 13:AN:65:ARG:HD3   | 1.91                     | 0.51              |
| 16:AQ:60:GLU:CG    | 16:AQ:61:LEU:N     | 2.73                     | 0.51              |
| 20:B2:28:G:C5      | 20:B2:29:U:C5      | 2.98                     | 0.51              |
| 21:B3:43:A:OP1     | 25:BD:137:ARG:CD   | 2.56                     | 0.51              |
| 22:BA:253:GLU:OE2  | 22:GA:252:LYS:HG2  | 2.09                     | 0.51              |
| 24:BC:163:VAL:CG2  | 24:BC:175:PHE:CE2  | 2.93                     | 0.51              |
| 29:BH:166:VAL:HG12 | 29:BH:167:THR:N    | 2.25                     | 0.51              |
| 33:BL:22:ILE:O     | 33:BL:26:ARG:HG3   | 2.10                     | 0.51              |
| 34:BM:56:THR:CG2   | 34:BM:57:ASN:N     | 2.74                     | 0.51              |
| 34:BM:66:TYR:HH    | 34:BM:73:ARG:HD2   | 1.75                     | 0.51              |
| 39:BR:61:VAL:HG23  | 39:BR:61:VAL:O     | 2.10                     | 0.51              |
| 42:BU:35:ALA:O     | 42:BU:36:LYS:C     | 2.53                     | 0.51              |
| 45:BX:44:VAL:HG12  | 45:BX:54:MET:CE    | 2.36                     | 0.51              |
| 20:C2:60:C:O2'     | 20:C2:61:G:H5'     | 2.11                     | 0.51              |
| 20:C2:61:G:C2'     | 20:C2:100:C:O2'    | 2.59                     | 0.51              |
| 21:C3:84:U:OP1     | 43:CV:215:ARG:HD3  | 2.10                     | 0.51              |
| 22:CA:203:VAL:HG23 | 1:D1:2180:G:OP1    | 2.10                     | 0.51              |
| 23:CB:110:ILE:HG23 | 23:CB:114:THR:HG21 | 1.92                     | 0.51              |
| 24:CC:207:LYS:NZ   | 1:D1:1412:U:O4     | 2.43                     | 0.51              |
| 24:CC:283:TYR:HE1  | 24:CC:285:LEU:HA   | 1.72                     | 0.51              |
| 25:CD:104:PHE:CE1  | 25:CD:106:ILE:HD11 | 2.42                     | 0.51              |
| 25:CD:162:TRP:CH2  | 25:CD:167:PHE:HE2  | 2.28                     | 0.51              |
| 26:CE:103:VAL:HG22 | 26:CE:110:ILE:HG12 | 1.92                     | 0.51              |
| 30:CI:79:PHE:O     | 30:CI:82:ALA:HB3   | 2.09                     | 0.51              |
| 32:CK:126:LYS:HZ3  | 18:DU:162:ARG:HH21 | 1.59                     | 0.51              |
| 34:CM:22:ARG:HB3   | 34:CM:30:TYR:OH    | 2.09                     | 0.51              |
| 34:CM:66:TYR:CE1   | 34:CM:73:ARG:HB2   | 2.46                     | 0.51              |
| 34:CM:210:ASP:HA   | 34:CM:213:MET:CG   | 2.41                     | 0.51              |
| 35:CN:25:VAL:CG1   | 14:DO:7:GLU:CB     | 2.88                     | 0.51              |
| 42:CU:124:ALA:HB1  | 18:DU:152:THR:HG22 | 1.92                     | 0.51              |
| 43:CV:48:TYR:CE1   | 43:CV:183:HIS:CD2  | 2.98                     | 0.51              |
| 1:D1:49:A:H2'      | 1:D1:50:A:C8       | 2.44                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:298:G:H2'     | 1:D1:299:G:H5'     | 1.92                     | 0.51              |
| 1:D1:687:C:C2      | 1:D1:688:U:C5      | 2.98                     | 0.51              |
| 1:D1:1126:A:C5     | 1:D1:1127:U:C5     | 2.98                     | 0.51              |
| 1:D1:1141:U:C4     | 1:D1:1142:G:C2     | 2.98                     | 0.51              |
| 1:D1:2509:U:P      | 1:D1:2575:G:N2     | 2.83                     | 0.51              |
| 4:DC:21:HIS:HA     | 4:DC:71:ASP:O      | 2.10                     | 0.51              |
| 5:DE:69:LEU:HD21   | 5:DE:114:ASP:HB2   | 1.88                     | 0.51              |
| 7:DG:27:TYR:CE2    | 7:DG:52:ARG:HG2    | 2.45                     | 0.51              |
| 8:DH:58:TYR:CE2    | 8:DH:60:TYR:CD2    | 2.98                     | 0.51              |
| 19:DX:168:THR:N    | 19:DX:188:THR:HG23 | 2.20                     | 0.51              |
| 20:E2:72:C:OP1     | 2:FA:88:LYS:NZ     | 2.35                     | 0.51              |
| 20:E2:111:A:H8     | 20:E2:111:A:O5'    | 1.93                     | 0.51              |
| 22:EA:118:GLU:HG2  | 22:EA:123:ASP:HB2  | 1.92                     | 0.51              |
| 23:EB:294:THR:HG22 | 23:EB:296:GLY:H    | 1.75                     | 0.51              |
| 24:EC:91:ARG:O     | 24:EC:94:GLN:HB2   | 2.10                     | 0.51              |
| 31:EJ:25:ALA:HA    | 1:F1:1923:G:OP1    | 2.09                     | 0.51              |
| 32:EK:98:LYS:HA    | 18:FU:166:VAL:HB   | 1.91                     | 0.51              |
| 32:EK:122:PRO:HB3  | 32:EK:142:GLY:O    | 2.10                     | 0.51              |
| 33:EL:37:HIS:NE2   | 33:EL:63:ARG:HD2   | 2.26                     | 0.51              |
| 34:EM:156:GLY:HA2  | 34:EM:181:PRO:CG   | 2.39                     | 0.51              |
| 35:EN:158:GLN:CD   | 50:EN:306:HOH:O    | 2.23                     | 0.51              |
| 37:EP:74:VAL:CG1   | 37:EP:75:ILE:H     | 2.22                     | 0.51              |
| 40:ES:114:ARG:O    | 40:ES:118:LEU:HG   | 2.10                     | 0.51              |
| 43:EV:103:PHE:CZ   | 43:EV:124:ILE:HG12 | 2.45                     | 0.51              |
| 44:EW:19:CYS:CA    | 44:EW:22:ILE:HD12  | 2.39                     | 0.51              |
| 1:F1:126:A:C5'     | 1:F1:127:A:OP1     | 2.56                     | 0.51              |
| 1:F1:603:A:H2'     | 1:F1:604:A:C8      | 2.45                     | 0.51              |
| 1:F1:817:A:H2'     | 1:F1:818:U:C6      | 2.46                     | 0.51              |
| 1:F1:919:A:C1'     | 1:F1:920:A:C2      | 2.93                     | 0.51              |
| 1:F1:978:G:N7      | 1:F1:1144:G:C8     | 2.78                     | 0.51              |
| 1:F1:1210:C:C5'    | 19:FX:171:ARG:HH21 | 2.22                     | 0.51              |
| 1:F1:1397:G:C2'    | 1:F1:1398:G:H5'    | 2.40                     | 0.51              |
| 1:F1:1620:U:O2'    | 1:F1:1631:U:O2     | 2.28                     | 0.51              |
| 1:F1:1880:C:H1'    | 11:FL:7:TYR:CE1    | 2.46                     | 0.51              |
| 1:F1:1909:C:H5''   | 1:F1:3266:G:N1     | 2.25                     | 0.51              |
| 1:F1:2274:A:H5'    | 1:F1:2300:G:H22    | 1.76                     | 0.51              |
| 1:F1:2275:A:H2'    | 1:F1:2277:U:C5'    | 2.39                     | 0.51              |
| 1:F1:2354:C:O2'    | 1:F1:2355:C:H5'    | 2.10                     | 0.51              |
| 1:F1:3005:A:H2'    | 1:F1:3006:A:H8     | 1.75                     | 0.51              |
| 9:FJ:224:LEU:O     | 9:FJ:225:ASN:CB    | 2.58                     | 0.51              |
| 13:FN:15:GLN:NE2   | 13:FN:79:HIS:CE1   | 2.78                     | 0.51              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 20:G2:110:A:C2     | 20:G2:115:G:O6    | 2.64                     | 0.51              |
| 22:GA:31:ARG:O     | 22:GA:164:ARG:NH1 | 2.31                     | 0.51              |
| 22:GA:236:VAL:HG12 | 1:H1:2179:U:OP1   | 2.10                     | 0.51              |
| 23:GB:118:PHE:CE2  | 1:H1:2989:G:N2    | 2.63                     | 0.51              |
| 23:GB:377:PHE:HZ   | 41:GT:13:TYR:HE1  | 1.58                     | 0.51              |
| 24:GC:233:VAL:O    | 24:GC:234:ASP:OD1 | 2.28                     | 0.51              |
| 24:GC:319:ARG:NH2  | 1:H1:634:G:O6     | 2.42                     | 0.51              |
| 27:GF:25:LYS:N     | 1:H1:2552:A:N3    | 2.51                     | 0.51              |
| 30:GI:9:ASP:O      | 30:GI:13:HIS:CD2  | 2.63                     | 0.51              |
| 35:GN:63:LEU:HD21  | 35:GN:140:LEU:HB3 | 1.91                     | 0.51              |
| 35:GN:67:ARG:HG2   | 1:H1:810:G:OP1    | 2.10                     | 0.51              |
| 44:GW:68:ARG:C     | 44:GW:69:ARG:HG2  | 2.35                     | 0.51              |
| 45:GX:47:ARG:NH1   | 1:H1:1187:C:N3    | 2.58                     | 0.51              |
| 1:H1:69:A:N6       | 1:H1:302:G:O2'    | 2.43                     | 0.51              |
| 1:H1:340:G:H5''    | 1:H1:343:A:H1'    | 1.92                     | 0.51              |
| 1:H1:828:C:O2'     | 1:H1:829:C:H5'    | 2.10                     | 0.51              |
| 1:H1:1115:U:H5'    | 1:H1:1115:U:H6    | 1.74                     | 0.51              |
| 1:H1:1205:A:H5'    | 1:H1:1205:A:C8    | 2.45                     | 0.51              |
| 1:H1:1593:A:C6     | 1:H1:1594:C:C4    | 2.98                     | 0.51              |
| 1:H1:1740:U:C5'    | 1:H1:1741:U:OP2   | 2.57                     | 0.51              |
| 1:H1:2250:A:H2     | 1:H1:2256:G:O6    | 1.93                     | 0.51              |
| 1:H1:2391:G:H5'    | 1:H1:2392:A:C4'   | 2.37                     | 0.51              |
| 1:H1:3166:A:H2'    | 1:H1:3167:U:C6    | 2.45                     | 0.51              |
| 5:HE:69:LEU:HD21   | 5:HE:114:ASP:CA   | 2.40                     | 0.51              |
| 8:HH:47:ASP:N      | 8:HH:47:ASP:OD1   | 2.43                     | 0.51              |
| 11:HL:74:VAL:HG12  | 11:HL:75:SER:N    | 2.26                     | 0.51              |
| 15:HP:29:LYS:HB3   | 15:HP:72:TYR:CE2  | 2.46                     | 0.51              |
| 1:A1:1308:U:C5'    | 28:BG:58:UNK:HG2  | 2.40                     | 0.51              |
| 1:A1:1308:U:H4'    | 28:BG:58:UNK:CA   | 2.34                     | 0.51              |
| 1:A1:1593:A:C5     | 1:A1:1594:C:N4    | 2.78                     | 0.51              |
| 1:A1:1870:C:H5'    | 1:A1:1873:C:N4    | 2.26                     | 0.51              |
| 1:A1:1958:G:C5     | 50:A1:4528:HOH:O  | 2.63                     | 0.51              |
| 1:A1:2245:G:H2'    | 1:A1:2246:G:H8    | 1.75                     | 0.51              |
| 1:A1:2830:U:O2     | 1:A1:2830:U:C2'   | 2.58                     | 0.51              |
| 1:A1:2866:G:H5''   | 23:BB:5:LYS:NZ    | 2.25                     | 0.51              |
| 1:A1:3127:U:H2'    | 1:A1:3128:G:C5'   | 2.21                     | 0.51              |
| 4:AC:14:LYS:HB2    | 4:AC:75:CYS:SG    | 2.51                     | 0.51              |
| 4:AC:72:CYS:SG     | 4:AC:75:CYS:N     | 2.75                     | 0.51              |
| 5:AE:164:VAL:HG13  | 5:AE:170:LEU:HG   | 1.90                     | 0.51              |
| 7:AG:11:GLN:HG3    | 7:AG:12:SER:N     | 2.25                     | 0.51              |
| 9:AJ:66:ASN:H      | 9:AJ:133:LEU:HD22 | 1.74                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 14:AO:40:LEU:HD22  | 14:AO:42:PHE:HE1   | 1.75                     | 0.51              |
| 18:AU:131:ALA:O    | 18:AU:135:LEU:HD12 | 2.10                     | 0.51              |
| 21:B3:48:G:H2'     | 21:B3:49:A:C8      | 2.45                     | 0.51              |
| 21:B3:81:A:H2'     | 21:B3:82:G:H5'     | 1.93                     | 0.51              |
| 22:BA:105:ILE:HD11 | 22:BA:117:VAL:HG13 | 1.91                     | 0.51              |
| 22:BA:203:VAL:HG12 | 22:BA:218:GLN:HG2  | 1.93                     | 0.51              |
| 25:BD:162:TRP:CH2  | 25:BD:167:PHE:CE2  | 2.98                     | 0.51              |
| 34:BM:216:LEU:HD12 | 34:BM:228:PHE:CD1  | 2.46                     | 0.51              |
| 35:BN:38:VAL:HG22  | 35:BN:47:GLN:HA    | 1.91                     | 0.51              |
| 39:BR:75:LEU:HB2   | 39:BR:91:VAL:HB    | 1.92                     | 0.51              |
| 44:BW:54:LEU:HA    | 44:BW:94:HIS:HB2   | 1.93                     | 0.51              |
| 45:BX:80:ASN:HB2   | 45:BX:81:PRO:CD    | 2.34                     | 0.51              |
| 22:CA:206:ASN:HB3  | 22:CA:207:PRO:HD2  | 1.92                     | 0.51              |
| 23:CB:86:ILE:CD1   | 23:CB:158:VAL:HG11 | 2.41                     | 0.51              |
| 23:CB:105:VAL:HG21 | 23:CB:146:LEU:CD2  | 2.39                     | 0.51              |
| 24:CC:50:LYS:HB2   | 24:CC:116:VAL:HG11 | 1.92                     | 0.51              |
| 24:CC:161:ASP:OD1  | 24:CC:260:GLU:HB2  | 2.11                     | 0.51              |
| 24:CC:323:PRO:HG2  | 43:CV:146:TYR:HB3  | 1.92                     | 0.51              |
| 29:CH:14:GLY:O     | 29:CH:128:ARG:NH2  | 2.34                     | 0.51              |
| 33:CL:175:ARG:CZ   | 1:D1:317:A:H4'     | 2.41                     | 0.51              |
| 33:CL:201:ARG:HG2  | 18:DU:23:PHE:CD2   | 2.45                     | 0.51              |
| 35:CN:92:ARG:NH2   | 1:D1:810:G:C8      | 2.78                     | 0.51              |
| 41:CT:35:THR:HG21  | 41:CT:37:LYS:HG2   | 1.92                     | 0.51              |
| 44:CW:16:HIS:CD2   | 1:D1:3330:U:OP1    | 2.60                     | 0.51              |
| 45:CX:86:ILE:HD13  | 14:DO:25:THR:O     | 2.10                     | 0.51              |
| 1:D1:10:A:H2'      | 1:D1:11:A:H8       | 1.76                     | 0.51              |
| 1:D1:975:G:C2      | 1:D1:1397:G:O6     | 2.64                     | 0.51              |
| 1:D1:1052:A:N3     | 1:D1:1053:A:N7     | 2.57                     | 0.51              |
| 1:D1:1074:A:H2     | 1:D1:2635:C:O2     | 1.92                     | 0.51              |
| 1:D1:1162:A:O5'    | 1:D1:2631:A:H1'    | 2.10                     | 0.51              |
| 1:D1:1180:A:H5'    | 1:D1:1181:A:OP2    | 2.10                     | 0.51              |
| 1:D1:1207:A:C4     | 1:D1:1209:G:C8     | 2.98                     | 0.51              |
| 1:D1:2597:G:O2'    | 1:D1:2598:A:H5'    | 2.10                     | 0.51              |
| 1:D1:2920:U:O2     | 1:D1:2922:A:H8     | 1.93                     | 0.51              |
| 1:D1:3190:A:C6     | 1:D1:3191:G:N2     | 2.78                     | 0.51              |
| 1:D1:3293:A:C2     | 1:D1:3294:A:C4     | 2.99                     | 0.51              |
| 6:DF:28:VAL:CG1    | 6:DF:66:ASN:H      | 2.24                     | 0.51              |
| 16:DQ:6:ALA:O      | 16:DQ:7:VAL:CB     | 2.58                     | 0.51              |
| 18:DU:108:GLU:OE1  | 18:DU:108:GLU:HA   | 2.09                     | 0.51              |
| 21:E3:90:A:C2      | 29:EH:162:ARG:NH2  | 2.76                     | 0.51              |
| 22:EA:175:ARG:HA   | 46:EY:69:TRP:CE2   | 2.45                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:EC:259:THR:HG22 | 24:EC:260:GLU:H    | 1.76                     | 0.51              |
| 24:EC:283:TYR:CD1  | 24:EC:283:TYR:C    | 2.87                     | 0.51              |
| 25:ED:69:VAL:HG12  | 25:ED:71:ILE:HG13  | 1.92                     | 0.51              |
| 27:EF:146:ILE:CG2  | 27:EF:156:VAL:HG11 | 2.40                     | 0.51              |
| 29:EH:17:TYR:O     | 29:EH:96:VAL:HG23  | 2.10                     | 0.51              |
| 32:EK:24:LYS:CE    | 1:F1:967:U:O4      | 2.59                     | 0.51              |
| 32:EK:36:LYS:HB2   | 1:F1:93:A:H5''     | 1.92                     | 0.51              |
| 36:EO:42:ARG:NH2   | 1:F1:1626:U:OP1    | 2.44                     | 0.51              |
| 42:EU:122:LEU:HD13 | 18:FU:150:LEU:CD2  | 2.40                     | 0.51              |
| 43:EV:100:LEU:HD21 | 43:EV:127:VAL:CG1  | 2.31                     | 0.51              |
| 43:EV:105:LEU:CD1  | 43:EV:131:ILE:HD13 | 2.40                     | 0.51              |
| 43:EV:134:GLY:HA3  | 43:EV:231:ILE:HB   | 1.91                     | 0.51              |
| 45:EX:43:ARG:NH1   | 1:F1:660:C:H3'     | 2.24                     | 0.51              |
| 1:F1:298:G:H2'     | 1:F1:299:G:H5'     | 1.92                     | 0.51              |
| 1:F1:1048:U:H3     | 1:F1:1056:A:H61    | 1.59                     | 0.51              |
| 1:F1:1147:A:H2'    | 1:F1:1148:U:H6     | 1.74                     | 0.51              |
| 1:F1:1148:U:H2'    | 1:F1:1149:U:H6     | 1.73                     | 0.51              |
| 1:F1:1737:A:O2'    | 1:F1:1738:A:H8     | 1.86                     | 0.51              |
| 1:F1:1921:G:O2'    | 1:F1:1922:G:H5'    | 2.11                     | 0.51              |
| 1:F1:2543:C:N4     | 7:FG:54:SER:HB3    | 2.25                     | 0.51              |
| 1:F1:3064:A:N6     | 50:F1:4015:HOH:O   | 2.43                     | 0.51              |
| 1:F1:3116:A:N6     | 1:F1:3117:G:C2     | 2.78                     | 0.51              |
| 1:F1:3306:G:N2     | 1:F1:3314:U:C2     | 2.79                     | 0.51              |
| 18:FU:31:LYS:O     | 18:FU:34:LEU:HB2   | 2.10                     | 0.51              |
| 24:GC:87:SER:HB2   | 1:H1:356:U:O2'     | 2.09                     | 0.51              |
| 26:GE:22:GLN:O     | 26:GE:23:ARG:HB2   | 2.11                     | 0.51              |
| 27:GF:196:VAL:CG2  | 27:GF:204:LEU:HD11 | 2.40                     | 0.51              |
| 30:GI:46:LEU:HA    | 30:GI:135:CYS:SG   | 2.51                     | 0.51              |
| 37:GP:35:LYS:NZ    | 1:H1:1112:A:OP1    | 2.40                     | 0.51              |
| 43:GV:60:VAL:HG13  | 43:GV:63:LYS:HZ1   | 1.75                     | 0.51              |
| 43:GV:132:THR:HG21 | 43:GV:227:ARG:CD   | 2.39                     | 0.51              |
| 45:GX:39:GLY:HA3   | 1:H1:663:G:OP1     | 2.10                     | 0.51              |
| 45:GX:86:ILE:HD13  | 14:HO:25:THR:O     | 2.09                     | 0.51              |
| 1:H1:169:A:H2'     | 1:H1:170:A:H5'     | 1.92                     | 0.51              |
| 1:H1:439:A:P       | 1:H1:439:A:C8      | 2.98                     | 0.51              |
| 1:H1:701:A:N6      | 1:H1:811:A:O4'     | 2.44                     | 0.51              |
| 1:H1:937:G:H2'     | 1:H1:939:A:N7      | 2.25                     | 0.51              |
| 1:H1:1186:A:N3     | 1:H1:1186:A:C2'    | 2.72                     | 0.51              |
| 1:H1:1376:A:H5''   | 1:H1:1377:A:O5'    | 2.09                     | 0.51              |
| 1:H1:1519:G:N3     | 3:HB:13:PHE:HE1    | 2.09                     | 0.51              |
| 1:H1:1594:C:N4     | 1:H1:1595:A:C5     | 2.78                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1601:U:H2'    | 1:H1:1602:U:H6     | 1.75                     | 0.51              |
| 1:H1:2569:A:O2'    | 1:H1:2570:U:OP1    | 2.23                     | 0.51              |
| 1:H1:2849:U:C2     | 1:H1:2850:U:C6     | 2.98                     | 0.51              |
| 1:H1:2899:C:H4'    | 1:H1:2900:G:O5'    | 2.09                     | 0.51              |
| 1:H1:3055:U:H2'    | 1:H1:3056:C:C6     | 2.46                     | 0.51              |
| 1:H1:3070:C:H2'    | 1:H1:3071:C:H6     | 1.75                     | 0.51              |
| 1:H1:3120:U:H2'    | 1:H1:3120:U:O2     | 2.08                     | 0.51              |
| 4:HC:98:LYS:O      | 4:HC:102:VAL:HG23  | 2.09                     | 0.51              |
| 9:HJ:66:ASN:H      | 9:HJ:133:LEU:HD22  | 1.75                     | 0.51              |
| 11:HL:20:VAL:HG12  | 11:HL:21:ARG:N     | 2.25                     | 0.51              |
| 12:HM:51:ASN:ND2   | 12:HM:51:ASN:C     | 2.69                     | 0.51              |
| 19:HX:96:GLN:HB3   | 19:HX:134:THR:HG21 | 1.92                     | 0.51              |
| 1:A1:209:A:H4'     | 1:A1:211:A:N7      | 2.25                     | 0.51              |
| 1:A1:298:G:H2'     | 1:A1:299:G:H5'     | 1.92                     | 0.51              |
| 1:A1:434:A:C4'     | 1:A1:435:A:C8      | 2.92                     | 0.51              |
| 1:A1:1516:A:P      | 50:A1:4402:HOH:O   | 2.68                     | 0.51              |
| 1:A1:1596:U:H4'    | 1:A1:1597:U:O5'    | 2.09                     | 0.51              |
| 1:A1:2274:A:H5'    | 1:A1:2300:G:N2     | 2.25                     | 0.51              |
| 1:A1:2381:A:O2'    | 20:B2:6:A:N1       | 2.38                     | 0.51              |
| 1:A1:2400:C:H6     | 1:A1:2400:C:H5'    | 1.75                     | 0.51              |
| 1:A1:3232:A:H4'    | 5:AE:55:ALA:CB     | 2.40                     | 0.51              |
| 2:AA:2:THR:O       | 2:AA:7:ALA:HB2     | 2.09                     | 0.51              |
| 5:AE:46:ALA:HB3    | 5:AE:49:THR:OG1    | 2.10                     | 0.51              |
| 9:AJ:224:LEU:O     | 9:AJ:225:ASN:CB    | 2.59                     | 0.51              |
| 12:AM:89:GLN:HB2   | 12:AM:91:LEU:HG    | 1.91                     | 0.51              |
| 19:AX:87:LYS:HG3   | 19:AX:89:TYR:CZ    | 2.46                     | 0.51              |
| 19:AX:96:GLN:N     | 19:AX:134:THR:CG2  | 2.73                     | 0.51              |
| 26:BE:7:GLU:HA     | 26:BE:55:LEU:O     | 2.11                     | 0.51              |
| 27:BF:114:GLY:O    | 27:BF:115:LYS:HB2  | 2.10                     | 0.51              |
| 31:BJ:86:ARG:H     | 31:BJ:102:ASN:ND2  | 2.08                     | 0.51              |
| 34:BM:82:GLU:OE1   | 34:BM:104:LEU:CD2  | 2.59                     | 0.51              |
| 34:BM:109:LEU:HD21 | 34:BM:142:PHE:CD2  | 2.45                     | 0.51              |
| 35:BN:24:ASN:ND2   | 35:BN:27:HIS:HB2   | 2.25                     | 0.51              |
| 41:BT:11:CYS:SG    | 41:BT:13:TYR:CD2   | 3.03                     | 0.51              |
| 43:BV:139:ASN:O    | 43:BV:143:LYS:HG3  | 2.09                     | 0.51              |
| 44:BW:19:CYS:CA    | 44:BW:22:ILE:HD12  | 2.40                     | 0.51              |
| 20:C2:25:U:OP2     | 24:CC:201:LEU:HD22 | 2.11                     | 0.51              |
| 24:CC:28:VAL:HG11  | 24:CC:133:LEU:CD1  | 2.40                     | 0.51              |
| 24:CC:314:THR:HG21 | 1:D1:1372:A:C2     | 2.45                     | 0.51              |
| 24:CC:373:SER:HB2  | 1:D1:564:A:H2'     | 1.92                     | 0.51              |
| 25:CD:82:ARG:O     | 25:CD:86:VAL:HG23  | 2.10                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 30:CI:81:ARG:HG3  | 30:CI:81:ARG:NH1  | 2.24                     | 0.51              |
| 35:CN:146:ARG:HB2 | 35:CN:149:TYR:CE2 | 2.45                     | 0.51              |
| 47:CO:157:UNK:HG2 | 47:CO:158:UNK:N   | 2.24                     | 0.51              |
| 44:CW:81:GLU:HA   | 44:CW:81:GLU:OE1  | 2.10                     | 0.51              |
| 1:D1:396:A:C2     | 1:D1:397:A:C5     | 2.98                     | 0.51              |
| 1:D1:627:U:C2     | 1:D1:630:G:O6     | 2.63                     | 0.51              |
| 1:D1:1217:A:H62   | 1:D1:1342:U:H3    | 1.59                     | 0.51              |
| 1:D1:1909:C:H5''  | 1:D1:3266:G:N1    | 2.26                     | 0.51              |
| 1:D1:2305:U:H6    | 1:D1:2305:U:O5'   | 1.94                     | 0.51              |
| 1:D1:2571:U:H2'   | 1:D1:2572:U:C6    | 2.45                     | 0.51              |
| 1:D1:3035:A:H4'   | 1:D1:3036:U:OP1   | 2.10                     | 0.51              |
| 1:D1:3165:A:O2'   | 1:D1:3166:A:H5'   | 2.10                     | 0.51              |
| 1:D1:3257:U:H2'   | 1:D1:3258:C:C6    | 2.45                     | 0.51              |
| 5:DE:102:VAL:HG22 | 5:DE:170:LEU:CD2  | 2.37                     | 0.51              |
| 8:DH:13:ARG:CG    | 8:DH:15:TRP:CZ3   | 2.92                     | 0.51              |
| 8:DH:33:ASN:HA    | 8:DH:94:ASN:HD21  | 1.76                     | 0.51              |
| 9:DJ:12:ASP:O     | 9:DJ:13:ILE:C     | 2.53                     | 0.51              |
| 9:DJ:224:LEU:O    | 9:DJ:225:ASN:CB   | 2.58                     | 0.51              |
| 20:E2:74:A:H5''   | 40:ES:50:ARG:HE   | 1.75                     | 0.51              |
| 23:EB:264:ARG:CZ  | 1:F1:2387:C:O2'   | 2.55                     | 0.51              |
| 26:EE:18:ILE:HG12 | 26:EE:27:VAL:HG22 | 1.92                     | 0.51              |
| 28:EG:58:UNK:HB2  | 1:F1:1308:U:OP1   | 2.11                     | 0.51              |
| 34:EM:48:LYS:HE2  | 34:EM:145:ILE:CD1 | 2.41                     | 0.51              |
| 34:EM:119:TYR:OH  | 34:EM:139:LYS:O   | 2.28                     | 0.51              |
| 40:ES:38:LEU:HD11 | 40:ES:106:THR:O   | 2.10                     | 0.51              |
| 42:EU:13:GLN:HB3  | 42:EU:17:GLN:OE1  | 2.09                     | 0.51              |
| 44:EW:23:SER:HB3  | 1:F1:2340:A:OP1   | 2.11                     | 0.51              |
| 45:EX:62:ASP:HA   | 1:F1:1366:C:H5''  | 1.92                     | 0.51              |
| 1:F1:120:A:C4'    | 1:F1:121:A:O5'    | 2.56                     | 0.51              |
| 1:F1:127:A:C5     | 1:F1:128:G:H1'    | 2.46                     | 0.51              |
| 1:F1:137:A:H2'    | 1:F1:138:C:H6     | 1.74                     | 0.51              |
| 1:F1:438:A:C4     | 5:FE:130:PHE:CE1  | 2.98                     | 0.51              |
| 1:F1:679:C:H2'    | 1:F1:680:A:C8     | 2.45                     | 0.51              |
| 1:F1:772:U:C2'    | 1:F1:773:C:H5'    | 2.40                     | 0.51              |
| 1:F1:792:G:HO2'   | 1:F1:793:A:C5'    | 2.21                     | 0.51              |
| 1:F1:811:A:H4'    | 1:F1:812:G:O5'    | 2.09                     | 0.51              |
| 1:F1:1196:A:C6    | 1:F1:1357:A:C8    | 2.98                     | 0.51              |
| 1:F1:1949:U:H4'   | 1:F1:1950:C:OP2   | 2.10                     | 0.51              |
| 1:F1:2101:G:C8    | 50:F1:4358:HOH:O  | 2.59                     | 0.51              |
| 1:F1:2170:A:H4'   | 1:F1:2171:U:OP2   | 2.11                     | 0.51              |
| 1:F1:2300:G:H8    | 1:F1:2300:G:O5'   | 1.93                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2358:A:O2'    | 1:F1:2359:G:H5'    | 2.10                     | 0.51              |
| 1:F1:3177:G:C2     | 19:FX:177:TYR:CE2  | 2.98                     | 0.51              |
| 2:FA:44:MET:CE     | 2:FA:44:MET:CA     | 2.85                     | 0.51              |
| 4:FC:95:THR:O      | 4:FC:99:LYS:HG3    | 2.10                     | 0.51              |
| 5:FE:62:ARG:NH1    | 6:FF:105:ASP:OD1   | 2.44                     | 0.51              |
| 6:FF:21:LYS:NZ     | 19:FX:174:GLU:HG2  | 2.25                     | 0.51              |
| 6:FF:92:LYS:O      | 6:FF:96:ILE:HG13   | 2.10                     | 0.51              |
| 7:FG:13:LYS:CG     | 7:FG:14:LEU:N      | 2.73                     | 0.51              |
| 11:FL:59:VAL:HG13  | 11:FL:63:GLU:OE1   | 2.10                     | 0.51              |
| 13:FN:57:MET:HE1   | 13:FN:65:ARG:HD3   | 1.92                     | 0.51              |
| 19:FX:167:LYS:HA   | 19:FX:188:THR:HG21 | 1.89                     | 0.51              |
| 25:GD:20:ASN:HB2   | 25:GD:68:HIS:HB3   | 1.92                     | 0.51              |
| 27:GF:76:THR:HG21  | 27:GF:174:LYS:HE3  | 1.93                     | 0.51              |
| 30:GI:152:ILE:HG22 | 30:GI:153:GLU:N    | 2.26                     | 0.51              |
| 30:GI:165:THR:O    | 30:GI:166:TYR:C    | 2.53                     | 0.51              |
| 32:GK:24:LYS:CE    | 1:H1:967:U:O4      | 2.59                     | 0.51              |
| 33:GL:64:VAL:HG21  | 33:GL:106:VAL:HG23 | 1.92                     | 0.51              |
| 36:GO:60:ARG:O     | 36:GO:61:SER:C     | 2.53                     | 0.51              |
| 42:GU:89:THR:O     | 42:GU:93:ARG:HD2   | 2.11                     | 0.51              |
| 43:GV:105:LEU:HD12 | 43:GV:131:ILE:HD13 | 1.92                     | 0.51              |
| 1:H1:77:A:H2'      | 1:H1:78:G:H8       | 1.76                     | 0.51              |
| 1:H1:488:U:C2      | 1:H1:490:A:OP2     | 2.63                     | 0.51              |
| 1:H1:1073:A:HO2'   | 1:H1:1074:A:C5'    | 2.24                     | 0.51              |
| 1:H1:1179:G:H1     | 1:H1:1226:C:H42    | 1.57                     | 0.51              |
| 1:H1:1460:G:OP1    | 50:H1:3771:HOH:O   | 2.19                     | 0.51              |
| 1:H1:1620:U:O2'    | 1:H1:1631:U:O2     | 2.26                     | 0.51              |
| 1:H1:1642:G:C3'    | 1:H1:1643:G:H5''   | 2.40                     | 0.51              |
| 1:H1:3165:A:O2'    | 1:H1:3166:A:H5'    | 2.11                     | 0.51              |
| 1:H1:3187:U:C2'    | 1:H1:3188:A:H5'    | 2.41                     | 0.51              |
| 1:H1:3214:A:H5''   | 1:H1:3215:C:H6     | 1.73                     | 0.51              |
| 1:H1:3229:C:O2'    | 1:H1:3230:G:P      | 2.69                     | 0.51              |
| 2:HA:19:CYS:O      | 2:HA:23:GLY:N      | 2.38                     | 0.51              |
| 1:A1:123:C:H2'     | 1:A1:124:U:C6      | 2.46                     | 0.51              |
| 1:A1:219:A:N1      | 1:A1:1416:U:H2'    | 2.26                     | 0.51              |
| 1:A1:436:U:O5'     | 1:A1:436:U:H6      | 1.94                     | 0.51              |
| 1:A1:492:A:C2      | 1:A1:493:G:H1'     | 2.46                     | 0.51              |
| 1:A1:777:C:H2'     | 1:A1:778:G:C8      | 2.44                     | 0.51              |
| 1:A1:848:C:H5'     | 22:BA:20:HIS:ND1   | 2.25                     | 0.51              |
| 1:A1:857:G:OP1     | 50:A1:4072:HOH:O   | 2.19                     | 0.51              |
| 1:A1:882:G:C2'     | 1:A1:883:A:OP2     | 2.56                     | 0.51              |
| 1:A1:1543:A:H2'    | 1:A1:1544:U:C6     | 2.46                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1594:C:N4     | 1:A1:1595:A:C5     | 2.79                     | 0.51              |
| 1:A1:1655:A:N3     | 1:A1:1655:A:C2'    | 2.71                     | 0.51              |
| 1:A1:1869:G:OP1    | 50:A1:3859:HOH:O   | 2.19                     | 0.51              |
| 1:A1:2101:G:C8     | 50:A1:4513:HOH:O   | 2.51                     | 0.51              |
| 1:A1:2354:C:O2'    | 1:A1:2355:C:H5'    | 2.11                     | 0.51              |
| 1:A1:3177:G:N2     | 19:AX:177:TYR:CE2  | 2.78                     | 0.51              |
| 1:A1:3230:G:C6     | 5:AE:119:ARG:HD2   | 2.45                     | 0.51              |
| 5:AE:18:TRP:CB     | 14:AO:95:ARG:NH2   | 2.73                     | 0.51              |
| 9:AJ:106:ASN:HB3   | 9:AJ:147:LEU:HD22  | 1.92                     | 0.51              |
| 17:AT:12:GLN:OE1   | 17:AT:15:LYS:HD2   | 2.11                     | 0.51              |
| 19:AX:96:GLN:HB3   | 19:AX:134:THR:HG21 | 1.93                     | 0.51              |
| 20:B2:39:G:N2      | 42:BU:90:ARG:HH12  | 2.08                     | 0.51              |
| 22:BA:117:VAL:HG12 | 22:BA:118:GLU:N    | 2.26                     | 0.51              |
| 23:BB:32:PHE:HD2   | 23:BB:44:THR:HG21  | 1.75                     | 0.51              |
| 23:BB:360:SER:O    | 23:BB:362:LYS:HE2  | 2.10                     | 0.51              |
| 27:BF:101:LYS:O    | 27:BF:105:VAL:HG23 | 2.10                     | 0.51              |
| 29:BH:17:TYR:O     | 29:BH:96:VAL:HG23  | 2.11                     | 0.51              |
| 29:BH:174:THR:HG22 | 29:BH:176:LEU:H    | 1.75                     | 0.51              |
| 34:BM:243:VAL:CG1  | 34:BM:247:PHE:HD2  | 2.22                     | 0.51              |
| 43:BV:80:VAL:CG2   | 43:BV:188:VAL:HG23 | 2.40                     | 0.51              |
| 46:BY:74:PRO:N     | 46:BY:75:PRO:HD2   | 2.26                     | 0.51              |
| 24:CC:335:PRO:HB2  | 43:CV:42:ILE:HG12  | 1.90                     | 0.51              |
| 25:CD:50:ALA:HB2   | 25:CD:65:MET:HB2   | 1.91                     | 0.51              |
| 25:CD:134:PRO:HG2  | 25:CD:135:GLY:H    | 1.75                     | 0.51              |
| 26:CE:29:GLY:H     | 26:CE:82:VAL:HG11  | 1.75                     | 0.51              |
| 26:CE:69:GLN:HB3   | 1:D1:3102:A:H4'    | 1.91                     | 0.51              |
| 32:CK:100:PRO:HA   | 18:DU:164:LYS:HD3  | 1.92                     | 0.51              |
| 34:CM:38:ILE:HD12  | 37:CP:70:ARG:NH2   | 2.26                     | 0.51              |
| 35:CN:128:ALA:O    | 35:CN:132:PRO:HG3  | 2.10                     | 0.51              |
| 47:CO:150:UNK:HA   | 47:CO:153:UNK:HG3  | 1.91                     | 0.51              |
| 38:CQ:61:PRO:HG3   | 38:CQ:78:PHE:CG    | 2.46                     | 0.51              |
| 45:CX:44:VAL:HG12  | 45:CX:54:MET:CE    | 2.37                     | 0.51              |
| 1:D1:120:A:H61     | 1:D1:148:G:H1'     | 1.75                     | 0.51              |
| 1:D1:157:A:OP2     | 16:DQ:25:HIS:ND1   | 2.44                     | 0.51              |
| 1:D1:500:G:O2'     | 1:D1:501:A:O5'     | 2.27                     | 0.51              |
| 1:D1:589:C:H6      | 1:D1:589:C:O5'     | 1.93                     | 0.51              |
| 1:D1:629:A:H4'     | 1:D1:629:A:OP1     | 2.11                     | 0.51              |
| 1:D1:712:G:N2      | 1:D1:713:G:O6      | 2.44                     | 0.51              |
| 1:D1:1595:A:N3     | 1:D1:1599:G:C6     | 2.78                     | 0.51              |
| 1:D1:2714:U:H2'    | 1:D1:2715:C:H5'    | 1.91                     | 0.51              |
| 1:D1:2962:U:H2'    | 1:D1:2963:U:C6     | 2.45                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3022:A:H2'    | 1:D1:3023:C:C6     | 2.45                     | 0.51              |
| 1:D1:3298:U:H4'    | 1:D1:3299:G:OP2    | 2.11                     | 0.51              |
| 20:E2:76:U:O4'     | 20:E2:76:U:O2      | 2.27                     | 0.51              |
| 24:EC:258:TRP:CZ3  | 24:EC:266:LEU:HD11 | 2.45                     | 0.51              |
| 26:EE:168:LYS:HB2  | 26:EE:173:PHE:CE2  | 2.46                     | 0.51              |
| 27:EF:155:LEU:HD13 | 1:F1:147:U:H1'     | 1.92                     | 0.51              |
| 34:EM:109:LEU:HD21 | 34:EM:142:PHE:CD2  | 2.45                     | 0.51              |
| 34:EM:160:PHE:O    | 34:EM:163:LEU:HB3  | 2.10                     | 0.51              |
| 35:EN:44:LYS:HD3   | 1:F1:754:A:OP1     | 2.11                     | 0.51              |
| 35:EN:128:ALA:O    | 35:EN:132:PRO:HG3  | 2.11                     | 0.51              |
| 39:ER:55:VAL:HG23  | 42:EU:83:ASP:CB    | 2.40                     | 0.51              |
| 1:F1:280:G:C2'     | 1:F1:281:G:O5'     | 2.57                     | 0.51              |
| 1:F1:347:A:H4'     | 1:F1:366:A:N6      | 2.26                     | 0.51              |
| 1:F1:426:A:H4'     | 8:FH:94:ASN:O      | 2.10                     | 0.51              |
| 1:F1:467:A:N6      | 1:F1:512:G:C5      | 2.78                     | 0.51              |
| 1:F1:568:A:N1      | 1:F1:602:A:C2      | 2.78                     | 0.51              |
| 1:F1:1112:A:H2'    | 1:F1:1113:A:C8     | 2.45                     | 0.51              |
| 1:F1:1438:A:H2'    | 1:F1:1439:U:C6     | 2.45                     | 0.51              |
| 1:F1:1599:G:C2     | 1:F1:1600:U:C2     | 2.98                     | 0.51              |
| 1:F1:1662:A:H5'    | 11:FL:76:ARG:CZ    | 2.38                     | 0.51              |
| 1:F1:1752:G:H4'    | 1:F1:1753:A:OP2    | 2.09                     | 0.51              |
| 1:F1:1782:C:H2'    | 1:F1:1783:U:H5''   | 1.93                     | 0.51              |
| 1:F1:1832:G:OP1    | 11:FL:77:VAL:O     | 2.28                     | 0.51              |
| 1:F1:2539:A:C2     | 1:F1:2540:G:N7     | 2.79                     | 0.51              |
| 1:F1:2634:G:C2'    | 1:F1:2635:C:H5''   | 2.40                     | 0.51              |
| 1:F1:2658:U:H2'    | 1:F1:2659:G:C8     | 2.46                     | 0.51              |
| 1:F1:2919:C:N3     | 1:F1:2923:U:H5     | 2.08                     | 0.51              |
| 1:F1:3037:A:C2     | 1:F1:3079:U:C4     | 2.98                     | 0.51              |
| 1:F1:3128:G:C8     | 1:F1:3128:G:C5'    | 2.89                     | 0.51              |
| 1:F1:3165:A:O2'    | 1:F1:3166:A:H5'    | 2.11                     | 0.51              |
| 2:FA:17:THR:HG23   | 2:FA:18:LEU:H      | 1.75                     | 0.51              |
| 6:FF:38:ILE:HD12   | 6:FF:48:ILE:HB     | 1.93                     | 0.51              |
| 8:FH:19:ALA:O      | 8:FH:37:LEU:HA     | 2.11                     | 0.51              |
| 9:FJ:119:PRO:CG    | 9:FJ:146:VAL:HG12  | 2.40                     | 0.51              |
| 15:FP:32:TYR:N     | 15:FP:32:TYR:CD1   | 2.78                     | 0.51              |
| 19:FX:92:VAL:HG12  | 19:FX:138:ILE:HB   | 1.92                     | 0.51              |
| 22:GA:48:ASP:OD1   | 22:GA:49:ILE:N     | 2.43                     | 0.51              |
| 25:GD:82:ARG:CB    | 25:GD:112:LEU:HD22 | 2.35                     | 0.51              |
| 26:GE:23:ARG:HH11  | 26:GE:39:ARG:HA    | 1.74                     | 0.51              |
| 30:GI:152:ILE:CG2  | 30:GI:153:GLU:N    | 2.72                     | 0.51              |
| 31:GJ:23:VAL:CG2   | 31:GJ:41:ILE:O     | 2.59                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 31:GJ:61:MET:HE3  | 31:GJ:79:GLN:OE1  | 2.10                     | 0.51              |
| 31:GJ:98:TYR:N    | 31:GJ:98:TYR:CD1  | 2.78                     | 0.51              |
| 32:GK:148:THR:CG2 | 32:GK:149:ALA:N   | 2.73                     | 0.51              |
| 35:GN:73:ASN:N    | 35:GN:76:ASN:HB2  | 2.18                     | 0.51              |
| 36:GO:24:LEU:HD22 | 36:GO:50:VAL:HG22 | 1.93                     | 0.51              |
| 42:GU:21:GLU:HG2  | 42:GU:58:TYR:OH   | 2.10                     | 0.51              |
| 43:GV:200:TRP:CD2 | 43:GV:201:PRO:HD2 | 2.45                     | 0.51              |
| 43:GV:235:VAL:O   | 43:GV:239:LEU:HG  | 2.11                     | 0.51              |
| 45:GX:22:PHE:O    | 45:GX:23:GLU:HB2  | 2.10                     | 0.51              |
| 46:GY:8:VAL:HG13  | 46:GY:11:THR:CB   | 2.41                     | 0.51              |
| 1:H1:64:A:H5'     | 1:H1:315:U:OP1    | 2.11                     | 0.51              |
| 1:H1:114:A:C6     | 1:H1:264:A:C6     | 2.98                     | 0.51              |
| 1:H1:126:A:C6     | 1:H1:139:A:C6     | 2.98                     | 0.51              |
| 1:H1:280:G:C2'    | 1:H1:281:G:O5'    | 2.59                     | 0.51              |
| 1:H1:298:G:C2'    | 1:H1:299:G:H5'    | 2.39                     | 0.51              |
| 1:H1:665:C:H42    | 1:H1:669:A:H8     | 1.59                     | 0.51              |
| 1:H1:969:C:OP1    | 1:H1:1458:C:H4'   | 2.11                     | 0.51              |
| 1:H1:1010:G:H4'   | 1:H1:1011:U:OP2   | 2.11                     | 0.51              |
| 1:H1:1112:A:C6    | 1:H1:1113:A:C6    | 2.98                     | 0.51              |
| 1:H1:1166:G:N2    | 1:H1:1167:G:H1'   | 2.25                     | 0.51              |
| 1:H1:1185:A:H3'   | 1:H1:1186:A:H5''  | 1.89                     | 0.51              |
| 1:H1:2187:C:O2    | 1:H1:2310:G:N2    | 2.42                     | 0.51              |
| 1:H1:2208:A:H2'   | 1:H1:2209:A:C8    | 2.46                     | 0.51              |
| 1:H1:2761:U:O2    | 18:HU:190:TRP:CZ2 | 2.64                     | 0.51              |
| 1:H1:2800:C:O2'   | 1:H1:2801:A:H5'   | 2.10                     | 0.51              |
| 1:H1:3100:U:O2'   | 1:H1:3101:G:H5'   | 2.11                     | 0.51              |
| 1:H1:3175:A:N6    | 6:HF:16:ASN:ND2   | 2.55                     | 0.51              |
| 4:HC:63:THR:HG22  | 4:HC:87:LYS:HG2   | 1.93                     | 0.51              |
| 5:HE:88:LYS:HG3   | 5:HE:89:ARG:O     | 2.09                     | 0.51              |
| 7:HG:43:PHE:CE1   | 7:HG:68:HIS:HD2   | 2.27                     | 0.51              |
| 8:HH:58:TYR:HD2   | 8:HH:73:ILE:HD12  | 1.75                     | 0.51              |
| 1:A1:347:A:H1'    | 1:A1:351:A:N3     | 2.25                     | 0.51              |
| 1:A1:439:A:P      | 1:A1:439:A:C8     | 2.97                     | 0.51              |
| 1:A1:451:A:OP1    | 14:AO:55:LYS:HD3  | 2.10                     | 0.51              |
| 1:A1:510:A:C5'    | 14:AO:68:HIS:O    | 2.58                     | 0.51              |
| 1:A1:685:G:C2'    | 1:A1:686:U:OP2    | 2.58                     | 0.51              |
| 1:A1:713:G:H2'    | 1:A1:715:A:N7     | 2.26                     | 0.51              |
| 1:A1:1148:U:H2'   | 1:A1:1149:U:H6    | 1.75                     | 0.51              |
| 1:A1:1166:G:H2'   | 1:A1:1167:G:O4'   | 2.11                     | 0.51              |
| 1:A1:1626:U:P     | 36:BO:42:ARG:HH22 | 2.33                     | 0.51              |
| 1:A1:1658:G:N7    | 13:AN:17:ARG:NH1  | 2.59                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1820:U:H4'    | 1:A1:1821:U:OP1    | 2.09                     | 0.51              |
| 1:A1:2155:C:H3'    | 1:A1:2156:G:H5'    | 1.92                     | 0.51              |
| 1:A1:2219:A:N1     | 1:A1:2771:U:O2'    | 2.34                     | 0.51              |
| 1:A1:2239:A:P      | 50:A1:4202:HOH:O   | 2.68                     | 0.51              |
| 1:A1:2545:A:HO2'   | 1:A1:2546:A:P      | 2.33                     | 0.51              |
| 1:A1:2814:U:H2'    | 1:A1:2815:U:H5'    | 1.93                     | 0.51              |
| 1:A1:2913:C:C2'    | 1:A1:2914:A:H5'    | 2.41                     | 0.51              |
| 1:A1:2956:G:O2'    | 1:A1:2957:A:H5'    | 2.10                     | 0.51              |
| 1:A1:3229:C:O2'    | 1:A1:3230:G:P      | 2.68                     | 0.51              |
| 5:AE:104:LEU:O     | 5:AE:107:VAL:HG22  | 2.10                     | 0.51              |
| 6:AF:44:VAL:HG12   | 6:AF:45:ARG:H      | 1.76                     | 0.51              |
| 7:AG:41:LEU:HD12   | 7:AG:66:SER:O      | 2.10                     | 0.51              |
| 9:AJ:63:THR:HA     | 9:AJ:104:LEU:HB2   | 1.93                     | 0.51              |
| 13:AN:70:PRO:HD2   | 13:AN:115:LYS:HG2  | 1.93                     | 0.51              |
| 14:AO:98:PHE:HD2   | 14:AO:103:LEU:HB3  | 1.75                     | 0.51              |
| 16:AQ:49:THR:HG21  | 33:BL:13:LYS:HD3   | 1.92                     | 0.51              |
| 17:AT:32:THR:HG22  | 17:AT:32:THR:O     | 2.10                     | 0.51              |
| 23:BB:33:PRO:HA    | 23:BB:340:ILE:HA   | 1.91                     | 0.51              |
| 23:BB:376:LYS:HZ2  | 9:DJ:44:PRO:HD3    | 1.75                     | 0.51              |
| 26:BE:91:LYS:HG2   | 26:BE:180:SER:CB   | 2.37                     | 0.51              |
| 29:BH:84:ALA:O     | 29:BH:140:VAL:HG13 | 2.11                     | 0.51              |
| 34:BM:66:TYR:CE1   | 34:BM:73:ARG:HB2   | 2.46                     | 0.51              |
| 34:BM:254:ILE:O    | 34:BM:258:PRO:CD   | 2.58                     | 0.51              |
| 36:BO:38:ARG:O     | 36:BO:41:ILE:HB    | 2.11                     | 0.51              |
| 36:BO:158:GLN:O    | 36:BO:162:ARG:HG3  | 2.11                     | 0.51              |
| 39:BR:77:THR:O     | 39:BR:78:GLU:C     | 2.53                     | 0.51              |
| 40:BS:114:ARG:O    | 40:BS:118:LEU:HG   | 2.09                     | 0.51              |
| 44:BW:68:ARG:C     | 44:BW:69:ARG:HG2   | 2.34                     | 0.51              |
| 20:C2:76:U:O4'     | 20:C2:76:U:O2      | 2.28                     | 0.51              |
| 20:C2:110:A:H4'    | 1:D1:1610:C:H5'    | 1.93                     | 0.51              |
| 24:CC:242:ASN:C    | 24:CC:244:LEU:N    | 2.65                     | 0.51              |
| 24:CC:276:THR:HG23 | 24:CC:277:GLY:H    | 1.76                     | 0.51              |
| 24:CC:319:ARG:NH2  | 1:D1:634:G:O6      | 2.43                     | 0.51              |
| 25:CD:65:MET:HE1   | 1:D1:2670:U:H4'    | 1.91                     | 0.51              |
| 26:CE:4:LEU:HD11   | 19:DX:163:PHE:CD1  | 2.46                     | 0.51              |
| 26:CE:88:PHE:CD2   | 26:CE:152:VAL:HG12 | 2.44                     | 0.51              |
| 29:CH:98:ARG:NH2   | 29:CH:119:PHE:CZ   | 2.78                     | 0.51              |
| 32:CK:78:ASP:OD2   | 32:CK:115:LYS:HD3  | 2.10                     | 0.51              |
| 33:CL:19:MET:CE    | 33:CL:22:ILE:HD12  | 2.40                     | 0.51              |
| 34:CM:107:ARG:CZ   | 34:CM:255:ARG:HH11 | 2.24                     | 0.51              |
| 34:CM:153:THR:HG21 | 1:D1:2735:A:C8     | 2.46                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:CM:179:ARG:NE   | 34:CM:185:ARG:HH22 | 2.02                     | 0.51              |
| 47:CO:170:UNK:HA   | 47:CO:174:UNK:HG1  | 1.93                     | 0.51              |
| 38:CQ:141:TYR:CE2  | 1:D1:2350:G:H5'    | 2.46                     | 0.51              |
| 42:CU:97:THR:O     | 42:CU:101:ARG:HG3  | 2.11                     | 0.51              |
| 43:CV:57:LYS:HE3   | 43:CV:61:ASP:OD2   | 2.11                     | 0.51              |
| 43:CV:132:THR:HG21 | 43:CV:227:ARG:CD   | 2.41                     | 0.51              |
| 46:CY:32:THR:CG2   | 46:CY:69:TRP:O     | 2.50                     | 0.51              |
| 1:D1:105:A:O2'     | 1:D1:323:A:N3      | 2.43                     | 0.51              |
| 1:D1:488:U:C2      | 1:D1:490:A:OP2     | 2.64                     | 0.51              |
| 1:D1:792:G:H5'     | 18:DU:190:TRP:CE2  | 2.46                     | 0.51              |
| 1:D1:1540:U:C5     | 1:D1:1865:A:N3     | 2.79                     | 0.51              |
| 1:D1:1753:A:H3'    | 1:D1:1754:G:C5'    | 2.37                     | 0.51              |
| 1:D1:2358:A:O2'    | 1:D1:2359:G:H5'    | 2.11                     | 0.51              |
| 1:D1:2409:G:H2'    | 1:D1:2410:C:O5'    | 2.11                     | 0.51              |
| 1:D1:2508:U:O2'    | 1:D1:2509:U:H2'    | 2.11                     | 0.51              |
| 1:D1:2632:A:H2'    | 1:D1:2634:G:OP1    | 2.11                     | 0.51              |
| 1:D1:2872:C:O2'    | 1:D1:2873:C:H5'    | 2.11                     | 0.51              |
| 1:D1:2879:U:O2'    | 1:D1:3003:U:H5'    | 2.11                     | 0.51              |
| 1:D1:2886:G:H4'    | 1:D1:2887:C:OP2    | 2.10                     | 0.51              |
| 1:D1:2944:A:P      | 50:D1:4282:HOH:O   | 2.69                     | 0.51              |
| 1:D1:3094:U:H2'    | 1:D1:3095:A:C8     | 2.45                     | 0.51              |
| 1:D1:3127:U:C3'    | 1:D1:3128:G:H5''   | 2.40                     | 0.51              |
| 1:D1:3155:A:N7     | 8:DH:101:GLY:C     | 2.68                     | 0.51              |
| 1:D1:3161:A:C2     | 1:D1:3176:A:C6     | 2.98                     | 0.51              |
| 1:D1:3308:A:H2'    | 1:D1:3309:U:C1'    | 2.41                     | 0.51              |
| 5:DE:77:THR:HG21   | 5:DE:157:ASP:OD1   | 2.10                     | 0.51              |
| 6:DF:17:TYR:CD1    | 6:DF:17:TYR:O      | 2.64                     | 0.51              |
| 6:DF:92:LYS:O      | 6:DF:96:ILE:HG13   | 2.10                     | 0.51              |
| 18:DU:44:VAL:CG1   | 18:DU:47:ARG:HG3   | 2.40                     | 0.51              |
| 20:E2:30:U:OP1     | 24:EC:56:LYS:HA    | 2.11                     | 0.51              |
| 22:EA:16:VAL:HG23  | 1:F1:936:C:P       | 2.50                     | 0.51              |
| 23:EB:57:LEU:HB3   | 23:EB:356:PHE:HB3  | 1.93                     | 0.51              |
| 24:EC:222:THR:HG23 | 24:EC:225:ARG:HD2  | 1.92                     | 0.51              |
| 24:EC:375:ALA:O    | 24:EC:378:ALA:HB3  | 2.10                     | 0.51              |
| 27:EF:76:THR:HG21  | 27:EF:174:LYS:HE3  | 1.91                     | 0.51              |
| 31:EJ:131:PRO:HB2  | 9:FJ:15:VAL:HG21   | 1.92                     | 0.51              |
| 33:EL:135:ALA:O    | 33:EL:137:PRO:HD3  | 2.10                     | 0.51              |
| 35:EN:66:SER:HB3   | 35:EN:93:LEU:HG    | 1.93                     | 0.51              |
| 35:EN:75:THR:O     | 35:EN:79:GLN:HG3   | 2.11                     | 0.51              |
| 36:EO:84:THR:OG1   | 36:EO:87:ALA:HB2   | 2.11                     | 0.51              |
| 43:EV:206:THR:CG2  | 1:F1:1195:U:H1'    | 2.40                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:20:G:C6       | 1:F1:21:A:N7       | 2.78                     | 0.51              |
| 1:F1:508:A:O2'     | 1:F1:509:A:H8      | 1.91                     | 0.51              |
| 1:F1:578:G:C2'     | 1:F1:579:G:H5''    | 2.41                     | 0.51              |
| 1:F1:730:A:H4'     | 1:F1:731:A:OP1     | 2.11                     | 0.51              |
| 1:F1:1050:C:C5     | 1:F1:1051:C:N3     | 2.78                     | 0.51              |
| 1:F1:1592:G:C2     | 1:F1:1602:U:C2     | 2.98                     | 0.51              |
| 1:F1:1972:G:C2     | 1:F1:1973:A:N7     | 2.79                     | 0.51              |
| 1:F1:3035:A:H4'    | 1:F1:3036:U:OP1    | 2.10                     | 0.51              |
| 1:F1:3176:A:C4'    | 1:F1:3177:G:O5'    | 2.57                     | 0.51              |
| 1:F1:3229:C:O2'    | 1:F1:3230:G:P      | 2.69                     | 0.51              |
| 11:FL:31:VAL:HG12  | 11:FL:32:ALA:O     | 2.11                     | 0.51              |
| 13:FN:10:VAL:HG13  | 13:FN:83:THR:HB    | 1.92                     | 0.51              |
| 18:FU:100:LYS:HE2  | 18:FU:102:ARG:HH21 | 1.75                     | 0.51              |
| 20:G2:37:A:H2      | 2:HA:72:ALA:HA     | 1.75                     | 0.51              |
| 23:GB:95:THR:OG1   | 23:GB:96:PRO:HD2   | 2.10                     | 0.51              |
| 24:GC:29:PHE:CE2   | 24:GC:156:PRO:HG3  | 2.46                     | 0.51              |
| 24:GC:152:VAL:O    | 14:HO:76:ILE:CG1   | 2.58                     | 0.51              |
| 24:GC:222:THR:HG23 | 24:GC:225:ARG:HD2  | 1.93                     | 0.51              |
| 24:GC:295:ILE:O    | 24:GC:299:ILE:HG13 | 2.09                     | 0.51              |
| 25:GD:25:GLU:O     | 25:GD:30:LEU:HD11  | 2.11                     | 0.51              |
| 27:GF:69:GLN:HG2   | 27:GF:222:ARG:HH12 | 1.75                     | 0.51              |
| 32:GK:3:SER:OG     | 1:H1:1454:A:C8     | 2.62                     | 0.51              |
| 34:GM:86:PHE:CE1   | 34:GM:253:GLU:HB3  | 2.46                     | 0.51              |
| 37:GP:19:TYR:HD2   | 1:H1:1077:U:H5''   | 1.76                     | 0.51              |
| 38:GQ:71:ARG:HG2   | 38:GQ:81:THR:CG2   | 2.41                     | 0.51              |
| 39:GR:74:PRO:HD2   | 42:GU:37:ILE:HD13  | 1.91                     | 0.51              |
| 43:GV:38:LYS:O     | 43:GV:42:ILE:HG13  | 2.10                     | 0.51              |
| 45:GX:57:ILE:HG13  | 1:H1:972:U:C5'     | 2.31                     | 0.51              |
| 1:H1:376:A:C5'     | 1:H1:377:A:OP1     | 2.59                     | 0.51              |
| 1:H1:559:G:H2'     | 1:H1:560:A:H8      | 1.76                     | 0.51              |
| 1:H1:725:C:O2'     | 1:H1:726:G:H5'     | 2.11                     | 0.51              |
| 1:H1:742:U:H4'     | 1:H1:743:A:OP1     | 2.09                     | 0.51              |
| 1:H1:986:C:P       | 50:H1:4328:HOH:O   | 2.68                     | 0.51              |
| 1:H1:1149:U:O2'    | 1:H1:1150:U:H5'    | 2.10                     | 0.51              |
| 1:H1:1495:C:C4'    | 1:H1:1496:U:OP2    | 2.59                     | 0.51              |
| 1:H1:1921:G:O2'    | 1:H1:1922:G:H5'    | 2.11                     | 0.51              |
| 1:H1:1946:A:H2'    | 1:H1:1947:C:O4'    | 2.11                     | 0.51              |
| 1:H1:2155:C:H3'    | 1:H1:2156:G:H5'    | 1.92                     | 0.51              |
| 1:H1:2719:A:C4     | 1:H1:2720:G:C8     | 2.98                     | 0.51              |
| 1:H1:2913:C:C2'    | 1:H1:2914:A:H5'    | 2.41                     | 0.51              |
| 1:H1:3185:G:O6     | 1:H1:3235:U:O2'    | 2.27                     | 0.51              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:HF:125:SER:O    | 6:HF:126:LYS:CB    | 2.59                     | 0.51              |
| 9:HJ:63:THR:HA    | 9:HJ:104:LEU:HB2   | 1.92                     | 0.51              |
| 16:HQ:9:ILE:CD1   | 18:HU:187:ASN:HB3  | 2.22                     | 0.51              |
| 1:A1:200:C:P      | 40:BS:59:ARG:NH1   | 2.84                     | 0.51              |
| 1:A1:512:G:N1     | 1:A1:513:G:C5      | 2.79                     | 0.51              |
| 1:A1:568:A:N1     | 1:A1:602:A:C2      | 2.79                     | 0.51              |
| 1:A1:643:A:H4'    | 1:A1:644:A:O5'     | 2.11                     | 0.51              |
| 1:A1:972:U:C5'    | 45:BX:57:ILE:HG13  | 2.30                     | 0.51              |
| 1:A1:1110:U:H5'   | 1:A1:1111:G:OP2    | 2.11                     | 0.51              |
| 1:A1:1413:G:C2    | 1:A1:1414:C:C6     | 2.99                     | 0.51              |
| 1:A1:1637:A:H2'   | 1:A1:1638:A:H5''   | 1.93                     | 0.51              |
| 1:A1:1711:U:C1'   | 12:AM:77:TYR:CE2   | 2.94                     | 0.51              |
| 1:A1:1946:A:H2'   | 1:A1:1947:C:O4'    | 2.11                     | 0.51              |
| 1:A1:2135:A:N7    | 2:AA:2:THR:HG23    | 2.26                     | 0.51              |
| 1:A1:2388:G:H4'   | 23:BB:250:ILE:HG12 | 1.92                     | 0.51              |
| 1:A1:2550:U:C5'   | 1:A1:2551:A:O5'    | 2.58                     | 0.51              |
| 1:A1:2645:A:H2'   | 1:A1:2645:A:N3     | 2.25                     | 0.51              |
| 1:A1:2726:C:O2'   | 17:AT:36:ASN:CB    | 2.59                     | 0.51              |
| 1:A1:3100:U:O2'   | 1:A1:3101:G:H5'    | 2.11                     | 0.51              |
| 1:A1:3110:U:C4    | 1:A1:3113:G:O6     | 2.64                     | 0.51              |
| 1:A1:3182:A:C4'   | 1:A1:3183:A:OP1    | 2.45                     | 0.51              |
| 3:AB:44:TRP:CZ3   | 3:AB:45:ARG:HD2    | 2.45                     | 0.51              |
| 6:AF:67:GLN:HE21  | 6:AF:71:LEU:HB3    | 1.75                     | 0.51              |
| 9:AJ:102:SER:HB3  | 31:BJ:140:VAL:H    | 1.75                     | 0.51              |
| 12:AM:55:ASN:ND2  | 12:AM:71:ILE:HD11  | 2.24                     | 0.51              |
| 19:AX:7:GLN:HE22  | 19:AX:80:GLU:H     | 1.58                     | 0.51              |
| 19:AX:92:VAL:HG12 | 19:AX:138:ILE:HB   | 1.93                     | 0.51              |
| 20:B2:112:G:C4'   | 20:B2:113:U:OP1    | 2.47                     | 0.51              |
| 23:BB:17:ARG:HB3  | 23:BB:18:PRO:HA    | 1.92                     | 0.51              |
| 24:BC:133:LEU:O   | 24:BC:136:SER:OG   | 2.27                     | 0.51              |
| 26:BE:87:LYS:O    | 26:BE:184:LEU:HB2  | 2.11                     | 0.51              |
| 38:BQ:107:LYS:CB  | 38:BQ:109:LEU:HG   | 2.41                     | 0.51              |
| 43:BV:216:HIS:O   | 43:BV:222:GLY:HA3  | 2.11                     | 0.51              |
| 46:BY:71:LEU:HD12 | 46:BY:71:LEU:C     | 2.36                     | 0.51              |
| 46:BY:88:LYS:HG3  | 46:BY:92:GLU:OE2   | 2.10                     | 0.51              |
| 20:C2:129:A:C5    | 20:C2:130:C:C5     | 2.99                     | 0.51              |
| 22:CA:20:HIS:CE1  | 1:D1:847:G:O2'     | 2.61                     | 0.51              |
| 22:CA:205:MET:HB3 | 22:CA:209:ASP:HB2  | 1.92                     | 0.51              |
| 23:CB:114:THR:N   | 23:CB:174:ASN:HD22 | 2.08                     | 0.51              |
| 24:CC:87:SER:HB2  | 1:D1:356:U:O2'     | 2.11                     | 0.51              |
| 24:CC:152:VAL:CG1 | 24:CC:157:TYR:HE2  | 2.04                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:295:ILE:O    | 24:CC:299:ILE:HG13 | 2.09                     | 0.51              |
| 26:CE:91:LYS:HG2   | 26:CE:180:SER:CB   | 2.38                     | 0.51              |
| 26:CE:167:GLU:O    | 50:CE:201:HOH:O    | 2.19                     | 0.51              |
| 30:CI:118:VAL:HG21 | 19:DX:185:ARG:HG2  | 1.93                     | 0.51              |
| 31:CJ:32:ASN:HD21  | 31:CJ:117:GLN:N    | 2.08                     | 0.51              |
| 34:CM:122:GLN:HB2  | 34:CM:130:PHE:CD2  | 2.45                     | 0.51              |
| 38:CQ:118:HIS:O    | 38:CQ:150:ILE:HA   | 2.10                     | 0.51              |
| 43:CV:219:HIS:O    | 19:DX:46:ARG:NH2   | 2.43                     | 0.51              |
| 45:CX:121:LEU:CB   | 45:CX:124:ALA:HB2  | 2.40                     | 0.51              |
| 46:CY:10:ILE:CD1   | 46:CY:30:GLU:HB2   | 2.35                     | 0.51              |
| 1:D1:39:G:C4       | 1:D1:2789:A:C2     | 2.99                     | 0.51              |
| 1:D1:209:A:H4'     | 1:D1:211:A:N7      | 2.26                     | 0.51              |
| 1:D1:439:A:H5''    | 5:DE:126:HIS:CB    | 2.40                     | 0.51              |
| 1:D1:442:G:N2      | 1:D1:536:A:N3      | 2.58                     | 0.51              |
| 1:D1:476:A:C2      | 1:D1:500:G:C2      | 2.99                     | 0.51              |
| 1:D1:578:G:C2'     | 1:D1:579:G:H5''    | 2.41                     | 0.51              |
| 1:D1:785:A:H61     | 1:D1:795:G:H1'     | 1.76                     | 0.51              |
| 1:D1:1660:U:H5''   | 13:DN:73:LYS:NZ    | 2.25                     | 0.51              |
| 1:D1:1738:A:N7     | 1:D1:1752:G:C2     | 2.79                     | 0.51              |
| 1:D1:1821:U:H1'    | 1:D1:1822:G:C2     | 2.46                     | 0.51              |
| 1:D1:1907:A:C2'    | 1:D1:1908:A:O5'    | 2.59                     | 0.51              |
| 1:D1:2275:A:H2'    | 1:D1:2277:U:C5'    | 2.41                     | 0.51              |
| 1:D1:2598:A:O2'    | 1:D1:2599:G:H5'    | 2.10                     | 0.51              |
| 2:DA:36:ALA:O      | 2:DA:45:ARG:HD3    | 2.11                     | 0.51              |
| 5:DE:173:TYR:CE2   | 6:DF:106:PHE:HA    | 2.46                     | 0.51              |
| 8:DH:31:ASN:OD1    | 8:DH:33:ASN:HB2    | 2.10                     | 0.51              |
| 13:DN:16:GLY:H     | 13:DN:19:ALA:HB2   | 1.76                     | 0.51              |
| 13:DN:105:ASN:O    | 13:DN:105:ASN:CG   | 2.54                     | 0.51              |
| 20:E2:105:A:C5'    | 20:E2:106:A:H5''   | 2.27                     | 0.51              |
| 23:EB:163:ASN:HA   | 23:EB:174:ASN:OD1  | 2.10                     | 0.51              |
| 24:EC:317:HIS:HE1  | 1:F1:1388:U:O2'    | 1.94                     | 0.51              |
| 24:EC:380:PHE:HE1  | 19:FX:22:VAL:HG22  | 1.75                     | 0.51              |
| 26:EE:12:ILE:HD11  | 26:EE:53:VAL:CG2   | 2.40                     | 0.51              |
| 29:EH:140:VAL:HG11 | 29:EH:144:HIS:CB   | 2.39                     | 0.51              |
| 30:EI:107:ILE:HG13 | 30:EI:159:ARG:HH12 | 1.74                     | 0.51              |
| 32:EK:76:ASN:H     | 32:EK:79:LYS:HE2   | 1.75                     | 0.51              |
| 33:EL:19:MET:HE2   | 33:EL:19:MET:CA    | 2.36                     | 0.51              |
| 38:EQ:26:VAL:HG21  | 38:EQ:92:VAL:HG21  | 1.92                     | 0.51              |
| 38:EQ:33:GLU:OE1   | 38:EQ:63:THR:N     | 2.40                     | 0.51              |
| 43:EV:132:THR:CG2  | 43:EV:227:ARG:HG3  | 2.40                     | 0.51              |
| 1:F1:48:U:O2       | 1:F1:48:U:H2'      | 2.09                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:368:A:C4'     | 1:F1:369:U:OP2     | 2.58                     | 0.51              |
| 1:F1:442:G:N2      | 1:F1:536:A:N3      | 2.58                     | 0.51              |
| 1:F1:512:G:C2      | 1:F1:513:G:C5      | 2.98                     | 0.51              |
| 1:F1:619:G:H8      | 1:F1:619:G:O5'     | 1.93                     | 0.51              |
| 1:F1:1123:A:H1'    | 1:F1:1124:G:OP2    | 2.11                     | 0.51              |
| 1:F1:1738:A:N7     | 1:F1:1752:G:C2     | 2.78                     | 0.51              |
| 1:F1:1902:C:H2'    | 1:F1:1902:C:O2     | 2.11                     | 0.51              |
| 1:F1:1919:A:O2'    | 1:F1:1920:A:H8     | 1.93                     | 0.51              |
| 1:F1:2395:G:N7     | 1:F1:2396:A:N6     | 2.58                     | 0.51              |
| 1:F1:2931:G:OP1    | 50:F1:4029:HOH:O   | 2.19                     | 0.51              |
| 1:F1:2992:G:C2     | 1:F1:2993:C:C6     | 2.99                     | 0.51              |
| 1:F1:3181:G:H2'    | 1:F1:3182:A:H8     | 1.74                     | 0.51              |
| 1:F1:3192:C:O2     | 6:FF:120:ARG:HD3   | 2.10                     | 0.51              |
| 1:F1:3308:A:H2'    | 1:F1:3309:U:C1'    | 2.41                     | 0.51              |
| 5:FE:69:LEU:HD21   | 5:FE:114:ASP:CA    | 2.40                     | 0.51              |
| 7:FG:14:LEU:O      | 7:FG:18:MET:HG2    | 2.11                     | 0.51              |
| 8:FH:15:TRP:CH2    | 8:FH:105:ARG:NH2   | 2.79                     | 0.51              |
| 8:FH:58:TYR:HD2    | 8:FH:73:ILE:HD12   | 1.76                     | 0.51              |
| 9:FJ:117:ILE:HD11  | 9:FJ:139:ARG:HE    | 1.75                     | 0.51              |
| 13:FN:70:PRO:HD2   | 13:FN:115:LYS:HG2  | 1.92                     | 0.51              |
| 19:FX:88:THR:O     | 19:FX:143:LEU:HB2  | 2.10                     | 0.51              |
| 20:G2:27:G:H1'     | 1:H1:348:A:C4      | 2.46                     | 0.51              |
| 23:GB:121:ASN:HB3  | 1:H1:3275:A:C6     | 2.46                     | 0.51              |
| 26:GE:103:VAL:HG22 | 26:GE:110:ILE:HG12 | 1.92                     | 0.51              |
| 30:GI:21:TYR:HE2   | 30:GI:121:ASP:HB3  | 1.75                     | 0.51              |
| 32:GK:24:LYS:CD    | 1:H1:967:U:O4      | 2.59                     | 0.51              |
| 35:GN:13:LYS:HE2   | 35:GN:15:SER:HB3   | 1.93                     | 0.51              |
| 43:GV:64:ARG:HD3   | 1:H1:565:G:C6      | 2.46                     | 0.51              |
| 1:H1:141:C:C2'     | 1:H1:142:A:H5'     | 2.41                     | 0.51              |
| 1:H1:927:G:C4      | 1:H1:928:U:C6      | 2.99                     | 0.51              |
| 1:H1:963:C:OP1     | 1:H1:987:A:O2'     | 2.27                     | 0.51              |
| 1:H1:1050:C:H2'    | 1:H1:1051:C:N1     | 2.26                     | 0.51              |
| 1:H1:2863:U:H2'    | 1:H1:2863:U:O2     | 2.09                     | 0.51              |
| 1:H1:2962:U:H5'    | 1:H1:2962:U:C6     | 2.41                     | 0.51              |
| 1:H1:3056:C:C2     | 1:H1:3057:U:C5     | 2.99                     | 0.51              |
| 1:H1:3183:A:HO2'   | 1:H1:3184:A:P      | 2.33                     | 0.51              |
| 4:HC:19:THR:HG22   | 4:HC:20:ASN:O      | 2.11                     | 0.51              |
| 9:HJ:25:LEU:HD23   | 9:HJ:49:ILE:HB     | 1.91                     | 0.51              |
| 19:HX:8:GLU:OE2    | 19:HX:19:ARG:NH1   | 2.41                     | 0.51              |
| 19:HX:88:THR:HG22  | 19:HX:143:LEU:HD12 | 1.93                     | 0.51              |
| 1:A1:76:U:H2'      | 1:A1:77:A:H5'      | 1.92                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:476:A:C2      | 1:A1:500:G:C2      | 2.98                     | 0.51              |
| 1:A1:606:U:H2'     | 1:A1:607:U:H6      | 1.76                     | 0.51              |
| 1:A1:721:C:OP1     | 24:BC:281:SER:OG   | 2.19                     | 0.51              |
| 1:A1:859:U:C4      | 1:A1:860:G:C6      | 2.98                     | 0.51              |
| 1:A1:936:C:P       | 22:BA:16:VAL:HG23  | 2.51                     | 0.51              |
| 1:A1:1005:A:O2'    | 1:A1:1006:C:H5'    | 2.11                     | 0.51              |
| 1:A1:1027:G:H4'    | 1:A1:1028:A:OP2    | 2.10                     | 0.51              |
| 1:A1:1064:C:C2     | 1:A1:1065:U:C6     | 2.99                     | 0.51              |
| 1:A1:1192:A:OP1    | 8:AH:90:ARG:NH2    | 2.43                     | 0.51              |
| 1:A1:1226:C:H4'    | 1:A1:1227:A:O5'    | 2.08                     | 0.51              |
| 1:A1:1381:G:H5'    | 14:AO:37:GLN:CG    | 2.40                     | 0.51              |
| 1:A1:1942:C:H6     | 1:A1:1942:C:H5''   | 1.76                     | 0.51              |
| 1:A1:2147:C:O2'    | 1:A1:2238:A:N1     | 2.38                     | 0.51              |
| 1:A1:2187:C:H2'    | 1:A1:2188:U:H5'    | 1.91                     | 0.51              |
| 1:A1:2521:A:C6     | 1:A1:2522:A:C6     | 2.99                     | 0.51              |
| 1:A1:2543:C:H42    | 7:AG:54:SER:HB3    | 1.75                     | 0.51              |
| 1:A1:2751:A:O2'    | 35:BN:180:LEU:O    | 2.27                     | 0.51              |
| 1:A1:3057:U:OP2    | 36:BO:62:ARG:NH2   | 2.43                     | 0.51              |
| 1:A1:3158:G:H3'    | 1:A1:3159:A:C5'    | 2.38                     | 0.51              |
| 1:A1:3175:A:N6     | 6:AF:16:ASN:ND2    | 2.53                     | 0.51              |
| 1:A1:3293:A:C2     | 1:A1:3294:A:C4     | 2.98                     | 0.51              |
| 11:AL:73:THR:HG22  | 11:AL:74:VAL:N     | 2.24                     | 0.51              |
| 22:BA:31:ARG:NH1   | 22:BA:42:ILE:CG1   | 2.73                     | 0.51              |
| 23:BB:183:GLY:O    | 23:BB:189:LYS:CE   | 2.58                     | 0.51              |
| 24:BC:50:LYS:HB2   | 24:BC:116:VAL:HG11 | 1.93                     | 0.51              |
| 24:BC:175:PHE:CE1  | 24:BC:179:VAL:HG21 | 2.46                     | 0.51              |
| 24:BC:276:THR:HG22 | 24:BC:277:GLY:O    | 2.10                     | 0.51              |
| 29:BH:184:LEU:CD2  | 29:BH:189:LYS:HD3  | 2.30                     | 0.51              |
| 31:BJ:61:MET:HE3   | 31:BJ:79:GLN:OE1   | 2.10                     | 0.51              |
| 33:BL:8:GLU:CD     | 33:BL:50:LYS:HZ3   | 2.19                     | 0.51              |
| 34:BM:107:ARG:CZ   | 34:BM:255:ARG:HH11 | 2.23                     | 0.51              |
| 35:BN:82:VAL:HG22  | 35:BN:127:LEU:HD11 | 1.91                     | 0.51              |
| 38:BQ:133:ARG:HD3  | 50:BQ:307:HOH:O    | 2.10                     | 0.51              |
| 43:BV:173:PHE:HD1  | 43:BV:191:HIS:CE1  | 2.29                     | 0.51              |
| 45:BX:42:ASN:HD21  | 45:BX:44:VAL:HB    | 1.76                     | 0.51              |
| 45:BX:71:ASN:OD1   | 45:BX:71:ASN:C     | 2.54                     | 0.51              |
| 23:CB:5:LYS:NZ     | 1:D1:2866:G:H5''   | 2.25                     | 0.51              |
| 23:CB:57:LEU:HB3   | 23:CB:356:PHE:HB3  | 1.93                     | 0.51              |
| 25:CD:9:MET:O      | 25:CD:134:PRO:CG   | 2.59                     | 0.51              |
| 27:CF:133:THR:O    | 27:CF:137:GLU:HG3  | 2.10                     | 0.51              |
| 30:CI:35:VAL:CG1   | 30:CI:107:ILE:HG12 | 2.41                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:CI:92:PRO:O     | 30:CI:95:ALA:HB3   | 2.11                     | 0.51              |
| 30:CI:129:ARG:NH2  | 1:D1:1343:G:N2     | 2.59                     | 0.51              |
| 33:CL:26:ARG:C     | 33:CL:30:TYR:HD1   | 2.19                     | 0.51              |
| 46:CY:58:LYS:N     | 46:CY:59:PRO:HD2   | 2.26                     | 0.51              |
| 1:D1:615:G:N2      | 8:DH:79:LYS:CE     | 2.72                     | 0.51              |
| 1:D1:690:U:H2'     | 1:D1:691:C:C6      | 2.46                     | 0.51              |
| 1:D1:742:U:O4      | 17:DT:61:LYS:HB3   | 2.11                     | 0.51              |
| 1:D1:813:C:H2'     | 1:D1:814:U:C6      | 2.46                     | 0.51              |
| 1:D1:984:C:N4      | 1:D1:2789:A:C8     | 2.79                     | 0.51              |
| 1:D1:1051:C:C2'    | 1:D1:1052:A:H8     | 2.23                     | 0.51              |
| 1:D1:1149:U:O2'    | 1:D1:1150:U:H5'    | 2.10                     | 0.51              |
| 1:D1:1475:A:C2     | 1:D1:2351:A:C4     | 2.99                     | 0.51              |
| 1:D1:1621:G:H2'    | 1:D1:1622:A:C8     | 2.45                     | 0.51              |
| 1:D1:2155:C:H3'    | 1:D1:2156:G:H5'    | 1.92                     | 0.51              |
| 1:D1:2186:U:H2'    | 1:D1:2187:C:C6     | 2.45                     | 0.51              |
| 1:D1:2539:A:C2     | 1:D1:2540:G:N7     | 2.79                     | 0.51              |
| 1:D1:2847:U:H4'    | 1:D1:2848:U:OP1    | 2.08                     | 0.51              |
| 1:D1:3248:C:H2'    | 1:D1:3249:U:C6     | 2.46                     | 0.51              |
| 14:DO:115:HIS:O    | 14:DO:118:ASN:N    | 2.43                     | 0.51              |
| 22:EA:16:VAL:CG2   | 1:F1:936:C:C5'     | 2.86                     | 0.51              |
| 23:EB:17:ARG:HA    | 23:EB:18:PRO:C     | 2.36                     | 0.51              |
| 23:EB:54:THR:HG21  | 23:EB:358:ASP:O    | 2.11                     | 0.51              |
| 24:EC:377:ILE:HD11 | 1:F1:564:A:C2      | 2.46                     | 0.51              |
| 24:EC:377:ILE:HG12 | 1:F1:564:A:C2      | 2.46                     | 0.51              |
| 30:EI:79:PHE:O     | 30:EI:82:ALA:HB3   | 2.11                     | 0.51              |
| 31:EJ:140:VAL:H    | 9:FJ:102:SER:HB3   | 1.75                     | 0.51              |
| 35:EN:69:VAL:HG21  | 35:EN:93:LEU:HD11  | 1.93                     | 0.51              |
| 35:EN:88:THR:HB    | 1:F1:701:A:OP2     | 2.11                     | 0.51              |
| 37:EP:118:GLU:O    | 37:EP:121:LYS:HB2  | 2.10                     | 0.51              |
| 39:ER:114:LYS:HD2  | 39:ER:137:ASP:OD2  | 2.11                     | 0.51              |
| 41:ET:52:THR:HA    | 41:ET:57:ARG:HG2   | 1.92                     | 0.51              |
| 43:EV:219:HIS:HD2  | 19:FX:53:THR:OG1   | 1.94                     | 0.51              |
| 45:EX:98:ILE:C     | 45:EX:123:ASN:HD21 | 2.19                     | 0.51              |
| 1:F1:49:A:H2'      | 1:F1:50:A:H8       | 1.74                     | 0.51              |
| 1:F1:197:G:N2      | 1:F1:371:A:C8      | 2.78                     | 0.51              |
| 1:F1:871:A:C6      | 1:F1:872:A:C6      | 2.98                     | 0.51              |
| 1:F1:980:U:H2'     | 1:F1:981:U:C6      | 2.45                     | 0.51              |
| 1:F1:1039:G:H2'    | 1:F1:1041:C:H41    | 1.74                     | 0.51              |
| 1:F1:1902:C:HO2'   | 1:F1:1903:A:P      | 2.29                     | 0.51              |
| 1:F1:1946:A:H2'    | 1:F1:1947:C:O4'    | 2.10                     | 0.51              |
| 1:F1:2606:U:H4'    | 1:F1:2633:C:C5     | 2.44                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2732:G:H2'    | 1:F1:2733:C:H6     | 1.73                     | 0.51              |
| 1:F1:3127:U:C3'    | 1:F1:3128:G:H5''   | 2.41                     | 0.51              |
| 1:F1:3175:A:H4'    | 1:F1:3176:A:OP1    | 2.11                     | 0.51              |
| 8:FH:97:PRO:O      | 8:FH:100:ILE:HG13  | 2.11                     | 0.51              |
| 9:FJ:49:ILE:HD13   | 9:FJ:87:SER:HB2    | 1.93                     | 0.51              |
| 9:FJ:99:GLU:HG3    | 9:FJ:101:LEU:N     | 2.26                     | 0.51              |
| 18:FU:44:VAL:HG12  | 18:FU:47:ARG:HG3   | 1.93                     | 0.51              |
| 19:FX:151:PRO:O    | 19:FX:155:ALA:HB2  | 2.11                     | 0.51              |
| 20:G2:3:A:N6       | 1:H1:3242:U:O2'    | 2.43                     | 0.51              |
| 20:G2:61:G:C2'     | 20:G2:100:C:O2'    | 2.59                     | 0.51              |
| 22:GA:186:GLN:NE2  | 22:GA:190:TYR:HE2  | 2.09                     | 0.51              |
| 22:GA:210:HIS:HD2  | 22:GA:212:HIS:N    | 1.82                     | 0.51              |
| 23:GB:92:TYR:HH    | 1:H1:2992:G:HO2'   | 1.59                     | 0.51              |
| 24:GC:281:SER:OG   | 1:H1:721:C:OP1     | 2.07                     | 0.51              |
| 26:GE:75:ILE:O     | 26:GE:76:LYS:C     | 2.54                     | 0.51              |
| 27:GF:143:LEU:HD23 | 27:GF:169:PRO:HG2  | 1.93                     | 0.51              |
| 32:GK:122:PRO:HB3  | 32:GK:142:GLY:O    | 2.10                     | 0.51              |
| 40:GS:111:ASP:OD1  | 40:GS:111:ASP:C    | 2.53                     | 0.51              |
| 42:GU:98:LYS:NZ    | 1:H1:242:G:H5'     | 2.25                     | 0.51              |
| 43:GV:141:ILE:HG21 | 43:GV:185:ILE:HG21 | 1.93                     | 0.51              |
| 44:GW:8:SER:HA     | 44:GW:74:LEU:O     | 2.11                     | 0.51              |
| 44:GW:85:GLN:HA    | 44:GW:85:GLN:OE1   | 2.09                     | 0.51              |
| 45:GX:43:ARG:NH1   | 1:H1:660:C:H3'     | 2.26                     | 0.51              |
| 1:H1:137:A:H2'     | 1:H1:138:C:C6      | 2.46                     | 0.51              |
| 1:H1:439:A:C5'     | 5:HE:126:HIS:HB3   | 2.41                     | 0.51              |
| 1:H1:589:C:H2'     | 1:H1:590:A:H8      | 1.75                     | 0.51              |
| 1:H1:619:G:HO2'    | 1:H1:620:A:H2      | 1.51                     | 0.51              |
| 1:H1:655:A:H2'     | 1:H1:656:C:H6      | 1.71                     | 0.51              |
| 1:H1:679:C:H2'     | 1:H1:680:A:C8      | 2.45                     | 0.51              |
| 1:H1:803:C:O2'     | 1:H1:804:G:H5'     | 2.10                     | 0.51              |
| 1:H1:1053:A:H1'    | 1:H1:1054:G:OP2    | 2.11                     | 0.51              |
| 1:H1:1600:U:C4     | 1:H1:1601:U:C5     | 2.98                     | 0.51              |
| 1:H1:1663:C:O2'    | 1:H1:1664:G:H5'    | 2.11                     | 0.51              |
| 1:H1:1685:A:H2'    | 1:H1:1686:G:C8     | 2.45                     | 0.51              |
| 1:H1:1693:U:H2'    | 1:H1:1694:C:H6     | 1.75                     | 0.51              |
| 1:H1:1728:A:H2'    | 1:H1:1729:U:OP2    | 2.11                     | 0.51              |
| 1:H1:2551:A:C3'    | 1:H1:2552:A:H5''   | 2.41                     | 0.51              |
| 1:H1:3030:A:H2'    | 1:H1:3031:U:C6     | 2.45                     | 0.51              |
| 1:H1:3070:C:OP1    | 50:H1:3934:HOH:O   | 2.18                     | 0.51              |
| 12:HM:55:ASN:O     | 12:HM:69:SER:HA    | 2.11                     | 0.51              |
| 13:HN:57:MET:HE1   | 13:HN:65:ARG:HD3   | 1.92                     | 0.51              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 19:HX:43:VAL:HG11  | 19:HX:54:LYS:HB2  | 1.91                     | 0.51              |
| 1:A1:167:U:H2'     | 1:A1:168:G:C8     | 2.46                     | 0.51              |
| 1:A1:295:A:OP1     | 16:AQ:90:LYS:NZ   | 2.43                     | 0.51              |
| 1:A1:396:A:C2      | 1:A1:397:A:C5     | 2.98                     | 0.51              |
| 1:A1:442:G:N2      | 1:A1:536:A:N3     | 2.59                     | 0.51              |
| 1:A1:1074:A:OP1    | 1:A1:1075:C:H5'   | 2.11                     | 0.51              |
| 1:A1:1185:A:H3'    | 1:A1:1186:A:H5''  | 1.90                     | 0.51              |
| 1:A1:1376:A:C5'    | 1:A1:1377:A:O4'   | 2.58                     | 0.51              |
| 1:A1:1737:A:C4'    | 1:A1:1738:A:OP1   | 2.56                     | 0.51              |
| 1:A1:1745:U:C2     | 1:A1:1748:U:C5    | 2.99                     | 0.51              |
| 1:A1:2134:A:H3'    | 1:A1:2135:A:H2'   | 1.92                     | 0.51              |
| 1:A1:2178:A:H2'    | 1:A1:2179:U:O5'   | 2.10                     | 0.51              |
| 1:A1:2645:A:C8     | 1:A1:2647:G:C8    | 2.99                     | 0.51              |
| 1:A1:2906:G:H5''   | 1:A1:2906:G:C8    | 2.45                     | 0.51              |
| 1:A1:3036:U:C5'    | 23:BB:220:LYS:HD2 | 2.41                     | 0.51              |
| 1:A1:3187:U:C2'    | 1:A1:3188:A:H5'   | 2.40                     | 0.51              |
| 2:AA:4:GLY:C       | 2:AA:6:PRO:CD     | 2.84                     | 0.51              |
| 6:AF:6:PHE:HB3     | 19:AX:162:LYS:HB3 | 1.91                     | 0.51              |
| 8:AH:70:TYR:O      | 8:AH:71:ARG:HG3   | 2.11                     | 0.51              |
| 8:AH:91:PHE:N      | 8:AH:91:PHE:CD1   | 2.78                     | 0.51              |
| 21:B3:120:U:H4'    | 34:BM:265:LYS:HZ1 | 1.76                     | 0.51              |
| 23:BB:66:ARG:CZ    | 31:BJ:15:ALA:HB2  | 2.41                     | 0.51              |
| 26:BE:45:ILE:HG12  | 26:BE:55:LEU:CD2  | 2.40                     | 0.51              |
| 29:BH:46:PHE:HZ    | 29:BH:83:ASP:O    | 1.92                     | 0.51              |
| 34:BM:125:VAL:HG21 | 34:BM:205:PHE:CZ  | 2.44                     | 0.51              |
| 40:BS:24:HIS:CD2   | 40:BS:25:LEU:N    | 2.79                     | 0.51              |
| 40:BS:38:LEU:HD11  | 40:BS:106:THR:O   | 2.11                     | 0.51              |
| 23:CB:223:GLY:HA2  | 1:D1:3266:G:OP1   | 2.10                     | 0.51              |
| 26:CE:101:GLU:OE1  | 26:CE:134:ARG:HD2 | 2.10                     | 0.51              |
| 27:CF:127:TYR:HE1  | 1:D1:146:U:O2     | 1.94                     | 0.51              |
| 33:CL:26:ARG:CB    | 33:CL:30:TYR:HE1  | 2.19                     | 0.51              |
| 35:CN:25:VAL:CG1   | 14:DO:7:GLU:HB2   | 2.41                     | 0.51              |
| 37:CP:13:LYS:CD    | 1:D1:1020:G:H3'   | 2.41                     | 0.51              |
| 44:CW:8:SER:HA     | 44:CW:74:LEU:O    | 2.10                     | 0.51              |
| 1:D1:137:A:H2'     | 1:D1:138:C:C6     | 2.46                     | 0.51              |
| 1:D1:161:U:C2'     | 1:D1:162:C:H5''   | 2.41                     | 0.51              |
| 1:D1:424:G:C2'     | 1:D1:425:U:H5'    | 2.40                     | 0.51              |
| 1:D1:451:A:OP1     | 14:DO:55:LYS:HD3  | 2.10                     | 0.51              |
| 1:D1:508:A:O2'     | 1:D1:509:A:H8     | 1.91                     | 0.51              |
| 1:D1:1048:U:C2'    | 1:D1:1049:U:C5'   | 2.87                     | 0.51              |
| 1:D1:1054:G:C2'    | 1:D1:1055:A:H8    | 2.12                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1115:U:H2'    | 1:D1:1116:C:C6     | 2.46                     | 0.51              |
| 1:D1:1646:G:C2'    | 1:D1:1647:U:H5'    | 2.41                     | 0.51              |
| 1:D1:1867:C:H3'    | 50:D1:4515:HOH:O   | 2.10                     | 0.51              |
| 1:D1:3116:A:N6     | 1:D1:3117:G:C2     | 2.79                     | 0.51              |
| 2:DA:21:ARG:HD3    | 2:DA:44:MET:HE1    | 1.91                     | 0.51              |
| 5:DE:91:ASN:OD1    | 5:DE:92:GLN:N      | 2.44                     | 0.51              |
| 6:DF:7:VAL:CG2     | 6:DF:55:LEU:HD11   | 2.41                     | 0.51              |
| 6:DF:11:ARG:HD2    | 6:DF:59:GLN:OE1    | 2.10                     | 0.51              |
| 9:DJ:4:ARG:HH21    | 9:DJ:215:ILE:HD12  | 1.76                     | 0.51              |
| 11:DL:23:VAL:HG21  | 11:DL:33:GLN:CD    | 2.35                     | 0.51              |
| 20:E2:140:U:H6     | 20:E2:140:U:H5''   | 1.75                     | 0.51              |
| 24:EC:91:ARG:O     | 24:EC:91:ARG:HG3   | 2.10                     | 0.51              |
| 25:ED:134:PRO:HG2  | 25:ED:135:GLY:H    | 1.75                     | 0.51              |
| 26:EE:113:LYS:HE3  | 26:EE:114:HIS:HB2  | 1.92                     | 0.51              |
| 27:EF:62:GLN:NE2   | 27:EF:229:ILE:HG21 | 2.26                     | 0.51              |
| 27:EF:134:THR:HG22 | 27:EF:138:ASN:ND2  | 2.25                     | 0.51              |
| 32:EK:36:LYS:CA    | 18:FU:1:MET:HE1    | 2.35                     | 0.51              |
| 32:EK:122:PRO:CB   | 32:EK:142:GLY:O    | 2.58                     | 0.51              |
| 33:EL:112:GLU:CD   | 33:EL:112:GLU:H    | 2.19                     | 0.51              |
| 44:EW:81:GLU:HA    | 44:EW:81:GLU:OE1   | 2.11                     | 0.51              |
| 45:EX:4:LYS:HD2    | 45:EX:92:ARG:HE    | 1.75                     | 0.51              |
| 46:EY:55:TRP:CZ2   | 46:EY:70:GLU:C     | 2.89                     | 0.51              |
| 1:F1:40:C:C6       | 1:F1:40:C:C3'      | 2.93                     | 0.51              |
| 1:F1:114:A:O4'     | 16:FQ:37:ARG:NH1   | 2.44                     | 0.51              |
| 1:F1:280:G:H2'     | 1:F1:281:G:O5'     | 2.10                     | 0.51              |
| 1:F1:555:G:H2'     | 1:F1:556:A:C5'     | 2.28                     | 0.51              |
| 1:F1:633:C:H3'     | 5:FE:30:ARG:HH22   | 1.75                     | 0.51              |
| 1:F1:712:G:N2      | 1:F1:713:G:O6      | 2.43                     | 0.51              |
| 1:F1:828:C:O2'     | 1:F1:829:C:H5'     | 2.11                     | 0.51              |
| 1:F1:1655:A:N3     | 1:F1:1655:A:C2'    | 2.72                     | 0.51              |
| 1:F1:2130:G:N2     | 1:F1:2143:A:H1'    | 2.26                     | 0.51              |
| 1:F1:2571:U:H2'    | 1:F1:2572:U:C6     | 2.45                     | 0.51              |
| 1:F1:2583:C:H2'    | 1:F1:2584:A:O4'    | 2.10                     | 0.51              |
| 1:F1:2731:C:H4'    | 4:FC:18:HIS:CD2    | 2.46                     | 0.51              |
| 1:F1:2962:U:H5'    | 1:F1:2962:U:C6     | 2.45                     | 0.51              |
| 1:F1:3227:A:C2     | 5:FE:80:TYR:CZ     | 2.99                     | 0.51              |
| 1:F1:3235:U:N3     | 8:FH:12:THR:O      | 2.42                     | 0.51              |
| 5:FE:93:ALA:HA     | 8:FH:111:ASN:O     | 2.11                     | 0.51              |
| 9:FJ:49:ILE:CD1    | 9:FJ:88:LEU:HD13   | 2.40                     | 0.51              |
| 14:FO:98:PHE:HD2   | 14:FO:103:LEU:HB3  | 1.76                     | 0.51              |
| 16:FQ:83:THR:HG22  | 16:FQ:86:ARG:H     | 1.76                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:G2:10:U:H2'     | 20:G2:11:C:C6      | 2.45                     | 0.51              |
| 20:G2:111:A:O2'    | 20:G2:112:G:OP1    | 2.21                     | 0.51              |
| 22:GA:8:GLN:HA     | 1:H1:2159:C:H4'    | 1.93                     | 0.51              |
| 23:GB:301:LYS:HD3  | 23:GB:359:THR:HG23 | 1.92                     | 0.51              |
| 24:GC:28:VAL:HG11  | 24:GC:133:LEU:HD12 | 1.92                     | 0.51              |
| 24:GC:107:PHE:HB2  | 1:H1:684:A:H5'     | 1.92                     | 0.51              |
| 26:GE:7:GLU:HA     | 26:GE:55:LEU:O     | 2.10                     | 0.51              |
| 26:GE:88:PHE:CD2   | 26:GE:152:VAL:HG12 | 2.45                     | 0.51              |
| 28:GG:80:UNK:C     | 1:H1:1309:G:C4'    | 2.77                     | 0.51              |
| 32:GK:45:ILE:HG12  | 1:H1:2716:A:C2     | 2.45                     | 0.51              |
| 32:GK:47:MET:HE1   | 18:HU:7:LEU:HD13   | 1.93                     | 0.51              |
| 33:GL:142:ILE:HG23 | 33:GL:148:ILE:HG22 | 1.93                     | 0.51              |
| 34:GM:23:ARG:NH1   | 1:H1:2692:A:OP2    | 2.43                     | 0.51              |
| 35:GN:64:SER:O     | 35:GN:68:ILE:HG13  | 2.11                     | 0.51              |
| 35:GN:68:ILE:CG2   | 35:GN:81:ILE:HD13  | 2.41                     | 0.51              |
| 35:GN:138:PHE:CE2  | 35:GN:140:LEU:HD13 | 2.45                     | 0.51              |
| 39:GR:74:PRO:HD2   | 42:GU:37:ILE:CD1   | 2.40                     | 0.51              |
| 43:GV:98:ARG:HH12  | 43:GV:101:ARG:NH1  | 2.09                     | 0.51              |
| 43:GV:166:VAL:CG1  | 43:GV:175:ILE:HG22 | 2.40                     | 0.51              |
| 44:GW:66:ILE:HG22  | 44:GW:67:PRO:O     | 2.11                     | 0.51              |
| 1:H1:359:G:H2'     | 1:H1:360:A:C8      | 2.46                     | 0.51              |
| 1:H1:442:G:N2      | 1:H1:536:A:C4      | 2.79                     | 0.51              |
| 1:H1:467:A:N6      | 1:H1:512:G:C5      | 2.79                     | 0.51              |
| 1:H1:1506:G:N2     | 1:H1:1896:C:C5     | 2.78                     | 0.51              |
| 1:H1:1737:A:C4'    | 1:H1:1738:A:OP1    | 2.57                     | 0.51              |
| 7:HG:13:LYS:CB     | 7:HG:100:ILE:CD1   | 2.89                     | 0.51              |
| 9:HJ:213:THR:O     | 9:HJ:216:SER:HB2   | 2.11                     | 0.51              |
| 11:HL:59:VAL:HG13  | 11:HL:63:GLU:OE1   | 2.11                     | 0.51              |
| 12:HM:32:ILE:CG2   | 12:HM:60:ASN:HB2   | 2.41                     | 0.51              |
| 12:HM:77:TYR:HD1   | 12:HM:77:TYR:O     | 1.94                     | 0.51              |
| 12:HM:101:ASP:HB2  | 12:HM:104:SER:OG   | 2.11                     | 0.51              |
| 18:HU:44:VAL:HG12  | 18:HU:47:ARG:HG3   | 1.92                     | 0.51              |
| 19:HX:34:THR:HG22  | 19:HX:35:LYS:N     | 2.26                     | 0.51              |
| 19:HX:88:THR:O     | 19:HX:143:LEU:HB2  | 2.11                     | 0.51              |
| 1:A1:418:G:H21     | 30:BI:67:ARG:NH2   | 2.04                     | 0.51              |
| 1:A1:631:G:C5      | 5:AE:31:ARG:NH2    | 2.78                     | 0.51              |
| 1:A1:705:A:H4'     | 24:BC:119:ARG:HH21 | 1.76                     | 0.51              |
| 1:A1:897:A:H2'     | 1:A1:898:C:H5'     | 1.92                     | 0.51              |
| 1:A1:1660:U:C1'    | 13:AN:38:PHE:CZ    | 2.94                     | 0.51              |
| 1:A1:1738:A:N7     | 1:A1:1752:G:C2     | 2.79                     | 0.51              |
| 1:A1:2640:G:O2'    | 1:A1:2784:G:N1     | 2.44                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2651:A:P      | 50:A1:4620:HOH:O   | 2.68                     | 0.51              |
| 1:A1:3097:G:H2'    | 1:A1:3098:A:O5'    | 2.11                     | 0.51              |
| 1:A1:3228:U:C2     | 5:AE:142:GLU:HG3   | 2.46                     | 0.51              |
| 16:AQ:5:GLN:O      | 16:AQ:12:GLY:HA3   | 2.11                     | 0.51              |
| 18:AU:44:VAL:CG1   | 18:AU:47:ARG:HG3   | 2.41                     | 0.51              |
| 24:BC:145:ARG:HD2  | 24:BC:253:GLY:O    | 2.11                     | 0.51              |
| 32:BK:61:ARG:CA    | 35:BN:172:ARG:HH12 | 2.19                     | 0.51              |
| 34:BM:39:GLN:HG2   | 34:BM:40:ASP:N     | 2.26                     | 0.51              |
| 34:BM:157:ASN:ND2  | 34:BM:159:VAL:HG22 | 2.26                     | 0.51              |
| 39:BR:147:ILE:HG23 | 42:BU:34:ILE:HD13  | 1.92                     | 0.51              |
| 43:BV:72:PHE:HD1   | 43:BV:73:TYR:N     | 2.09                     | 0.51              |
| 44:BW:54:LEU:HD22  | 44:BW:92:VAL:CG1   | 2.40                     | 0.51              |
| 20:C2:10:U:H2'     | 20:C2:11:C:C6      | 2.46                     | 0.51              |
| 20:C2:13:A:H2'     | 20:C2:14:C:H6      | 1.76                     | 0.51              |
| 20:C2:140:U:H2'    | 20:C2:141:G:O4'    | 2.11                     | 0.51              |
| 23:CB:102:LEU:O    | 23:CB:103:THR:OG1  | 2.25                     | 0.51              |
| 23:CB:204:ASP:N    | 23:CB:204:ASP:OD1  | 2.41                     | 0.51              |
| 23:CB:250:ILE:HG12 | 1:D1:2388:G:H4'    | 1.94                     | 0.51              |
| 24:CC:95:ALA:CB    | 1:D1:1464:U:H4'    | 2.40                     | 0.51              |
| 24:CC:240:ARG:NH2  | 1:D1:712:G:H4'     | 2.26                     | 0.51              |
| 25:CD:54:ILE:HG21  | 25:CD:57:PHE:CD2   | 2.46                     | 0.51              |
| 27:CF:76:THR:HG21  | 27:CF:174:LYS:HE3  | 1.93                     | 0.51              |
| 27:CF:134:THR:HG22 | 27:CF:138:ASN:ND2  | 2.26                     | 0.51              |
| 27:CF:150:VAL:HG21 | 27:CF:156:VAL:HG21 | 1.93                     | 0.51              |
| 31:CJ:139:SER:CB   | 9:DJ:102:SER:H     | 2.22                     | 0.51              |
| 32:CK:122:PRO:HB3  | 32:CK:142:GLY:O    | 2.11                     | 0.51              |
| 34:CM:21:ARG:HA    | 34:CM:24:ARG:CZ    | 2.41                     | 0.51              |
| 34:CM:35:ARG:CB    | 1:D1:2737:A:C2     | 2.90                     | 0.51              |
| 34:CM:176:SER:O    | 34:CM:177:GLU:CG   | 2.52                     | 0.51              |
| 39:CR:131:TYR:CD2  | 1:D1:1549:U:C2     | 2.98                     | 0.51              |
| 1:D1:603:A:H2'     | 1:D1:604:A:C8      | 2.46                     | 0.51              |
| 1:D1:832:A:H3'     | 1:D1:833:A:H5''    | 1.93                     | 0.51              |
| 1:D1:987:A:O2'     | 1:D1:988:G:H5'     | 2.11                     | 0.51              |
| 1:D1:1601:U:H2'    | 1:D1:1602:U:H6     | 1.75                     | 0.51              |
| 1:D1:1691:U:H2'    | 1:D1:1692:G:C8     | 2.46                     | 0.51              |
| 1:D1:1870:C:H5'    | 1:D1:1873:C:N4     | 2.26                     | 0.51              |
| 1:D1:2133:U:P      | 50:D1:4198:HOH:O   | 2.69                     | 0.51              |
| 1:D1:2208:A:H2'    | 1:D1:2209:A:C8     | 2.46                     | 0.51              |
| 1:D1:2649:G:H2'    | 1:D1:2650:U:C6     | 2.45                     | 0.51              |
| 1:D1:3096:U:O2'    | 1:D1:3097:G:H5'    | 2.11                     | 0.51              |
| 9:DJ:117:ILE:HD11  | 9:DJ:139:ARG:HE    | 1.76                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:EC:26:PRO:HG2   | 24:EC:29:PHE:CD1   | 2.46                     | 0.51              |
| 24:EC:319:ARG:NH2  | 1:F1:620:A:N7      | 2.59                     | 0.51              |
| 25:ED:54:ILE:HG21  | 25:ED:57:PHE:CD2   | 2.46                     | 0.51              |
| 26:EE:113:LYS:HD2  | 26:EE:114:HIS:N    | 2.25                     | 0.51              |
| 27:EF:92:TYR:HE2   | 27:EF:123:ILE:CG2  | 2.22                     | 0.51              |
| 27:EF:136:ILE:HD13 | 27:EF:163:CYS:SG   | 2.51                     | 0.51              |
| 30:EI:92:PRO:HG2   | 1:F1:656:C:OP1     | 2.10                     | 0.51              |
| 30:EI:165:THR:O    | 30:EI:166:TYR:C    | 2.53                     | 0.51              |
| 33:EL:78:GLY:HA2   | 33:EL:89:ILE:HD12  | 1.93                     | 0.51              |
| 37:EP:91:VAL:HG11  | 37:EP:96:VAL:HG23  | 1.93                     | 0.51              |
| 37:EP:130:ARG:NH2  | 1:F1:1088:A:N3     | 2.59                     | 0.51              |
| 38:EQ:141:TYR:CD1  | 1:F1:2350:G:H4'    | 2.46                     | 0.51              |
| 40:ES:24:HIS:CD2   | 40:ES:25:LEU:N     | 2.79                     | 0.51              |
| 43:EV:80:VAL:CG2   | 43:EV:188:VAL:HG23 | 2.41                     | 0.51              |
| 43:EV:128:LEU:O    | 43:EV:224:TRP:HB2  | 2.11                     | 0.51              |
| 44:EW:8:SER:HA     | 44:EW:74:LEU:O     | 2.11                     | 0.51              |
| 1:F1:37:A:H5''     | 1:F1:38:A:H4'      | 1.93                     | 0.51              |
| 1:F1:1518:G:O2'    | 3:FB:48:LYS:NZ     | 2.43                     | 0.51              |
| 1:F1:1524:A:H2'    | 1:F1:1525:U:C6     | 2.46                     | 0.51              |
| 1:F1:2546:A:O2'    | 11:FL:90:ARG:HD3   | 2.11                     | 0.51              |
| 1:F1:2843:U:O5'    | 1:F1:2843:U:H6     | 1.93                     | 0.51              |
| 1:F1:2899:C:H4'    | 1:F1:2900:G:O5'    | 2.10                     | 0.51              |
| 1:F1:2907:A:C5'    | 1:F1:2907:A:C8     | 2.93                     | 0.51              |
| 1:F1:3047:U:H6     | 1:F1:3047:U:H3'    | 1.75                     | 0.51              |
| 1:F1:3227:A:O2'    | 1:F1:3228:U:OP1    | 2.23                     | 0.51              |
| 12:FM:75:LYS:O     | 12:FM:105:TYR:HE2  | 1.94                     | 0.51              |
| 18:FU:131:ALA:O    | 18:FU:135:LEU:HD12 | 2.09                     | 0.51              |
| 22:GA:8:GLN:O      | 1:H1:2159:C:O2'    | 2.27                     | 0.51              |
| 22:GA:117:VAL:HG12 | 22:GA:118:GLU:N    | 2.26                     | 0.51              |
| 22:GA:211:PRO:HG2  | 22:GA:236:VAL:HG21 | 1.93                     | 0.51              |
| 25:GD:157:GLU:HA   | 25:GD:160:ILE:HD12 | 1.93                     | 0.51              |
| 32:GK:127:ALA:HB3  | 32:GK:130:PHE:CZ   | 2.46                     | 0.51              |
| 33:GL:185:ARG:NH1  | 1:H1:62:G:OP1      | 2.44                     | 0.51              |
| 34:GM:28:THR:O     | 1:H1:2692:A:N6     | 2.40                     | 0.51              |
| 35:GN:174:PHE:C    | 35:GN:176:ARG:H    | 2.19                     | 0.51              |
| 42:GU:92:ILE:HA    | 42:GU:95:LYS:HE2   | 1.92                     | 0.51              |
| 1:H1:307:A:C2      | 1:H1:2770:U:O2     | 2.64                     | 0.51              |
| 1:H1:492:A:C2      | 1:H1:493:G:H1'     | 2.46                     | 0.51              |
| 1:H1:627:U:C2      | 1:H1:630:G:O6      | 2.64                     | 0.51              |
| 1:H1:1046:G:H2'    | 1:H1:1047:G:O4'    | 2.10                     | 0.51              |
| 1:H1:1249:G:C2'    | 1:H1:1250:A:OP2    | 2.59                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1464:U:C2     | 1:H1:1465:U:C5     | 2.98                     | 0.51              |
| 1:H1:1593:A:C5     | 1:H1:1594:C:N4     | 2.78                     | 0.51              |
| 1:H1:1601:U:H2'    | 1:H1:1602:U:C6     | 2.45                     | 0.51              |
| 1:H1:1695:A:H2'    | 1:H1:1696:C:C6     | 2.45                     | 0.51              |
| 1:H1:1811:U:O2'    | 1:H1:1812:G:H5'    | 2.11                     | 0.51              |
| 1:H1:2281:U:H4'    | 1:H1:2282:C:OP1    | 2.10                     | 0.51              |
| 12:HM:43:ILE:HG21  | 12:HM:56:ILE:HD13  | 1.93                     | 0.51              |
| 1:A1:68:A:H1'      | 1:A1:70:C:H41      | 1.76                     | 0.50              |
| 1:A1:73:G:C5'      | 18:AU:56:VAL:HG11  | 2.41                     | 0.50              |
| 1:A1:118:A:C8      | 27:BF:122:PRO:HD3  | 2.46                     | 0.50              |
| 1:A1:629:A:OP1     | 1:A1:629:A:H4'     | 2.10                     | 0.50              |
| 1:A1:861:A:H5'     | 46:BY:4:ARG:HB2    | 1.92                     | 0.50              |
| 1:A1:870:G:H5''    | 1:A1:871:A:OP2     | 2.11                     | 0.50              |
| 1:A1:943:C:C2'     | 1:A1:944:U:H5'     | 2.41                     | 0.50              |
| 1:A1:1086:U:O4'    | 37:BP:61:THR:HB    | 2.12                     | 0.50              |
| 1:A1:1683:U:H2'    | 1:A1:1684:C:C6     | 2.46                     | 0.50              |
| 1:A1:1683:U:H2'    | 1:A1:1684:C:H6     | 1.76                     | 0.50              |
| 1:A1:1863:A:P      | 50:A1:4376:HOH:O   | 2.68                     | 0.50              |
| 1:A1:2577:G:C2'    | 1:A1:2578:A:O5'    | 2.60                     | 0.50              |
| 1:A1:3229:C:H2'    | 1:A1:3229:C:O2     | 2.11                     | 0.50              |
| 1:A1:3229:C:H4'    | 1:A1:3230:G:OP2    | 2.12                     | 0.50              |
| 4:AC:65:LYS:HG3    | 4:AC:85:ARG:HE     | 1.75                     | 0.50              |
| 9:AJ:197:LEU:HD12  | 9:AJ:205:PHE:O     | 2.12                     | 0.50              |
| 22:BA:104:PRO:HB2  | 22:BA:106:ASN:OD1  | 2.11                     | 0.50              |
| 22:BA:203:VAL:HG12 | 22:BA:218:GLN:CG   | 2.41                     | 0.50              |
| 24:BC:7:ILE:CD1    | 24:BC:25:LEU:HD13  | 2.40                     | 0.50              |
| 25:BD:17:LEU:HB3   | 25:BD:76:ALA:HB1   | 1.93                     | 0.50              |
| 26:BE:23:ARG:NH1   | 26:BE:39:ARG:O     | 2.44                     | 0.50              |
| 29:BH:47:PRO:HB3   | 29:BH:171:TRP:CZ2  | 2.46                     | 0.50              |
| 29:BH:73:ASN:O     | 29:BH:77:ILE:HG23  | 2.11                     | 0.50              |
| 31:BJ:11:VAL:CG2   | 31:BJ:131:PRO:HD3  | 2.41                     | 0.50              |
| 36:BO:133:LYS:HG3  | 36:BO:134:ASN:N    | 2.23                     | 0.50              |
| 39:BR:89:THR:HG23  | 39:BR:132:ILE:O    | 2.12                     | 0.50              |
| 43:BV:37:ARG:O     | 43:BV:38:LYS:C     | 2.54                     | 0.50              |
| 43:BV:120:SER:O    | 43:BV:124:ILE:HG13 | 2.10                     | 0.50              |
| 20:C2:39:G:N2      | 42:CU:90:ARG:HH12  | 2.09                     | 0.50              |
| 22:CA:31:ARG:HB3   | 22:CA:37:GLU:OE2   | 2.11                     | 0.50              |
| 26:CE:135:LYS:H    | 26:CE:138:GLU:HG3  | 1.75                     | 0.50              |
| 27:CF:127:TYR:CD1  | 27:CF:185:LYS:NZ   | 2.72                     | 0.50              |
| 47:CO:114:LYS:HB3  | 47:CO:146:LYS:HZ1  | 1.75                     | 0.50              |
| 41:CT:4:ARG:CZ     | 9:DJ:78:ASP:OD1    | 2.59                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 42:CU:123:LYS:HZ1 | 18:DU:144:SER:HB2  | 1.76                     | 0.50              |
| 45:CX:98:ILE:C    | 45:CX:123:ASN:HD21 | 2.18                     | 0.50              |
| 46:CY:73:THR:HG22 | 46:CY:75:PRO:CD    | 2.40                     | 0.50              |
| 1:D1:556:A:N1     | 1:D1:611:A:H2      | 2.09                     | 0.50              |
| 1:D1:606:U:H2'    | 1:D1:607:U:H6      | 1.76                     | 0.50              |
| 1:D1:687:C:H2'    | 1:D1:688:U:H6      | 1.77                     | 0.50              |
| 1:D1:1601:U:H2'   | 1:D1:1602:U:C6     | 2.45                     | 0.50              |
| 1:D1:1663:C:N4    | 11:DL:75:SER:OG    | 2.44                     | 0.50              |
| 1:D1:1946:A:H2'   | 1:D1:1947:C:O4'    | 2.10                     | 0.50              |
| 1:D1:2227:A:H1'   | 1:D1:2423:U:O2'    | 2.11                     | 0.50              |
| 1:D1:2347:A:N6    | 1:D1:2348:G:C6     | 2.79                     | 0.50              |
| 1:D1:3197:A:OP2   | 1:D1:3213:G:N2     | 2.43                     | 0.50              |
| 2:DA:21:ARG:CZ    | 2:DA:44:MET:HE1    | 2.41                     | 0.50              |
| 9:DJ:119:PRO:HD3  | 9:DJ:140:THR:O     | 2.10                     | 0.50              |
| 11:DL:74:VAL:HG12 | 11:DL:75:SER:N     | 2.26                     | 0.50              |
| 21:E3:52:U:H2'    | 21:E3:53:U:C6      | 2.46                     | 0.50              |
| 22:EA:70:TYR:HE1  | 1:F1:2549:U:C6     | 2.29                     | 0.50              |
| 23:EB:183:GLY:O   | 23:EB:189:LYS:CE   | 2.58                     | 0.50              |
| 23:EB:245:ARG:HG3 | 1:F1:1913:G:OP2    | 2.10                     | 0.50              |
| 24:EC:242:ASN:C   | 24:EC:244:LEU:N    | 2.65                     | 0.50              |
| 25:ED:36:VAL:HG21 | 25:ED:123:PHE:CE2  | 2.46                     | 0.50              |
| 30:EI:67:ARG:NH2  | 1:F1:418:G:H21     | 2.02                     | 0.50              |
| 30:EI:109:THR:O   | 30:EI:110:PRO:C    | 2.53                     | 0.50              |
| 31:EJ:61:MET:HE3  | 31:EJ:79:GLN:OE1   | 2.11                     | 0.50              |
| 33:EL:175:ARG:CZ  | 1:F1:317:A:H4'     | 2.41                     | 0.50              |
| 34:EM:49:TYR:O    | 34:EM:144:ALA:HA   | 2.10                     | 0.50              |
| 37:EP:66:ASN:ND2  | 17:FT:35:VAL:HA    | 2.26                     | 0.50              |
| 39:ER:89:THR:HG23 | 39:ER:132:ILE:O    | 2.10                     | 0.50              |
| 42:EU:33:ARG:O    | 42:EU:37:ILE:HG13  | 2.11                     | 0.50              |
| 1:F1:62:G:N7      | 50:F1:3648:HOH:O   | 2.34                     | 0.50              |
| 1:F1:70:C:C4      | 1:F1:72:A:C4       | 3.00                     | 0.50              |
| 1:F1:72:A:C2      | 1:F1:73:G:C8       | 3.00                     | 0.50              |
| 1:F1:453:A:H61    | 1:F1:524:G:H2'     | 1.73                     | 0.50              |
| 1:F1:700:G:H8     | 1:F1:700:G:O5'     | 1.94                     | 0.50              |
| 1:F1:745:A:H2'    | 1:F1:746:A:O4'     | 2.11                     | 0.50              |
| 1:F1:855:A:O2'    | 1:F1:1890:C:H2'    | 2.11                     | 0.50              |
| 1:F1:986:C:H4'    | 1:F1:987:A:C5'     | 2.41                     | 0.50              |
| 1:F1:1126:A:C5    | 1:F1:1127:U:C5     | 2.99                     | 0.50              |
| 1:F1:2304:A:N3    | 1:F1:2949:G:O2'    | 2.44                     | 0.50              |
| 1:F1:2499:U:H2'   | 1:F1:2500:C:C6     | 2.45                     | 0.50              |
| 1:F1:2509:U:P     | 1:F1:2575:G:N2     | 2.84                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2718:U:C2     | 1:F1:2719:A:C8     | 2.98                     | 0.50              |
| 1:F1:2751:A:H2'    | 1:F1:2752:U:C6     | 2.46                     | 0.50              |
| 1:F1:3125:G:C6     | 1:F1:3126:C:C4     | 2.99                     | 0.50              |
| 1:F1:3298:U:H4'    | 1:F1:3299:G:OP2    | 2.11                     | 0.50              |
| 2:FA:26:THR:HG21   | 2:FA:36:ALA:HB2    | 1.93                     | 0.50              |
| 9:FJ:115:ALA:HB2   | 9:FJ:135:VAL:HG11  | 1.93                     | 0.50              |
| 9:FJ:118:HIS:HD2   | 9:FJ:120:ASP:O     | 1.94                     | 0.50              |
| 11:FL:9:ARG:O      | 11:FL:10:ARG:HB2   | 2.11                     | 0.50              |
| 20:G2:39:G:N2      | 42:GU:90:ARG:HH12  | 2.08                     | 0.50              |
| 20:G2:134:C:C6     | 20:G2:134:C:C3'    | 2.94                     | 0.50              |
| 21:G3:28:C:H1'     | 21:G3:54:A:H61     | 1.76                     | 0.50              |
| 22:GA:20:HIS:CE1   | 1:H1:847:G:O2'     | 2.63                     | 0.50              |
| 23:GB:110:ILE:HG23 | 23:GB:114:THR:HG21 | 1.92                     | 0.50              |
| 23:GB:332:ARG:CG   | 23:GB:332:ARG:NH1  | 2.67                     | 0.50              |
| 23:GB:337:ARG:HH21 | 23:GB:340:ILE:HG23 | 1.76                     | 0.50              |
| 24:GC:7:ILE:CD1    | 24:GC:25:LEU:HD13  | 2.41                     | 0.50              |
| 24:GC:147:HIS:NE2  | 24:GC:254:ARG:HG3  | 2.26                     | 0.50              |
| 24:GC:272:THR:O    | 24:GC:275:THR:O    | 2.29                     | 0.50              |
| 33:GL:112:GLU:CD   | 33:GL:112:GLU:H    | 2.19                     | 0.50              |
| 37:GP:116:LYS:HZ1  | 37:GP:128:THR:CB   | 2.13                     | 0.50              |
| 39:GR:67:ASN:HD21  | 39:GR:109:LYS:HD2  | 1.75                     | 0.50              |
| 43:GV:84:ILE:HD12  | 43:GV:234:LEU:HD23 | 1.93                     | 0.50              |
| 43:GV:134:GLY:HA3  | 43:GV:231:ILE:HB   | 1.93                     | 0.50              |
| 1:H1:116:U:H3'     | 1:H1:117:G:H8      | 1.76                     | 0.50              |
| 1:H1:198:A:C6      | 1:H1:219:A:C6      | 2.99                     | 0.50              |
| 1:H1:278:U:H2'     | 1:H1:279:U:C6      | 2.46                     | 0.50              |
| 1:H1:703:U:H2'     | 1:H1:704:G:C8      | 2.46                     | 0.50              |
| 1:H1:873:A:H2'     | 1:H1:874:C:C4'     | 2.41                     | 0.50              |
| 1:H1:933:G:C4'     | 1:H1:934:G:H5''    | 2.40                     | 0.50              |
| 1:H1:1017:U:H3'    | 1:H1:1017:U:C6     | 2.46                     | 0.50              |
| 1:H1:1592:G:C2     | 1:H1:1602:U:C2     | 2.99                     | 0.50              |
| 1:H1:1779:C:O2'    | 1:H1:1780:A:H5'    | 2.12                     | 0.50              |
| 1:H1:2300:G:H8     | 1:H1:2300:G:O5'    | 1.93                     | 0.50              |
| 1:H1:2347:A:N6     | 1:H1:2348:G:C6     | 2.79                     | 0.50              |
| 1:H1:2362:A:H2'    | 1:H1:2363:A:C8     | 2.46                     | 0.50              |
| 1:H1:2433:A:H2'    | 1:H1:2434:A:H8     | 1.71                     | 0.50              |
| 1:H1:2499:U:H2'    | 1:H1:2500:C:C6     | 2.45                     | 0.50              |
| 1:H1:2539:A:C2     | 1:H1:2540:G:N7     | 2.79                     | 0.50              |
| 1:H1:3190:A:C6     | 1:H1:3191:G:N2     | 2.79                     | 0.50              |
| 6:HF:28:VAL:HG12   | 6:HF:66:ASN:N      | 2.26                     | 0.50              |
| 8:HH:13:ARG:CG     | 8:HH:15:TRP:CZ3    | 2.93                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:HH:91:PHE:N      | 8:HH:91:PHE:CD1    | 2.78                     | 0.50              |
| 11:HL:9:ARG:O      | 11:HL:10:ARG:HB2   | 2.11                     | 0.50              |
| 14:HO:6:TRP:HZ3    | 14:HO:40:LEU:CD1   | 2.21                     | 0.50              |
| 1:A1:187:A:O2'     | 1:A1:188:A:H5'     | 2.11                     | 0.50              |
| 1:A1:315:U:C6      | 16:AQ:28:VAL:CG1   | 2.95                     | 0.50              |
| 1:A1:792:G:HO2'    | 1:A1:793:A:C5'     | 2.23                     | 0.50              |
| 1:A1:957:U:O4'     | 1:A1:958:A:H5'     | 2.12                     | 0.50              |
| 1:A1:1072:A:H5''   | 1:A1:1073:A:OP1    | 2.11                     | 0.50              |
| 1:A1:1593:A:C6     | 1:A1:1594:C:C4     | 2.99                     | 0.50              |
| 1:A1:1650:U:O2     | 1:A1:1668:A:H5'    | 2.11                     | 0.50              |
| 1:A1:1909:C:H5''   | 1:A1:3266:G:N1     | 2.26                     | 0.50              |
| 1:A1:2149:U:C2'    | 1:A1:2150:U:H5'    | 2.39                     | 0.50              |
| 1:A1:2519:A:N6     | 22:BA:68:TYR:CD1   | 2.75                     | 0.50              |
| 1:A1:2551:A:C3'    | 1:A1:2552:A:H5''   | 2.41                     | 0.50              |
| 1:A1:2568:G:C6     | 1:A1:2569:A:N6     | 2.79                     | 0.50              |
| 1:A1:2843:U:O5'    | 1:A1:2843:U:H6     | 1.93                     | 0.50              |
| 1:A1:3298:U:H4'    | 1:A1:3299:G:OP2    | 2.09                     | 0.50              |
| 2:AA:77:ASN:HD21   | 20:B2:95:C:H5''    | 1.77                     | 0.50              |
| 15:AP:29:LYS:HB3   | 15:AP:72:TYR:CE2   | 2.46                     | 0.50              |
| 15:AP:57:ASP:OD1   | 15:AP:60:ILE:HG13  | 2.12                     | 0.50              |
| 18:AU:166:VAL:CA   | 18:AU:169:ILE:HD12 | 2.21                     | 0.50              |
| 21:B3:10:C:N3      | 34:BM:20:TYR:CD1   | 2.79                     | 0.50              |
| 21:B3:33:U:C5      | 34:BM:212:TYR:HE1  | 2.29                     | 0.50              |
| 23:BB:377:PHE:CD2  | 23:BB:378:PHE:CE1  | 2.96                     | 0.50              |
| 24:BC:27:ALA:O     | 24:BC:30:THR:HB    | 2.10                     | 0.50              |
| 24:BC:238:VAL:HA   | 24:BC:241:LEU:HD21 | 1.94                     | 0.50              |
| 25:BD:19:ILE:HG21  | 25:BD:125:MET:CE   | 2.40                     | 0.50              |
| 26:BE:88:PHE:HD1   | 26:BE:182:LYS:HA   | 1.76                     | 0.50              |
| 35:BN:64:SER:O     | 35:BN:68:ILE:HG13  | 2.11                     | 0.50              |
| 35:BN:75:THR:O     | 35:BN:79:GLN:HG3   | 2.12                     | 0.50              |
| 37:BP:112:ASN:HB3  | 37:BP:128:THR:OG1  | 2.10                     | 0.50              |
| 21:C3:22:A:C6      | 21:C3:23:A:C6      | 2.99                     | 0.50              |
| 21:C3:119:C:O2'    | 34:CM:270:PRO:O    | 2.28                     | 0.50              |
| 23:CB:56:ILE:HD12  | 23:CB:76:VAL:HG21  | 1.93                     | 0.50              |
| 26:CE:58:TRP:CE2   | 19:DX:164:PRO:HG2  | 2.46                     | 0.50              |
| 30:CI:165:THR:O    | 30:CI:166:TYR:C    | 2.53                     | 0.50              |
| 32:CK:147:LEU:HD21 | 18:DU:177:VAL:HG13 | 1.93                     | 0.50              |
| 33:CL:68:ARG:HH21  | 33:CL:123:GLN:HG3  | 1.77                     | 0.50              |
| 33:CL:80:VAL:CG1   | 33:CL:87:VAL:HA    | 2.42                     | 0.50              |
| 34:CM:49:TYR:O     | 34:CM:144:ALA:HA   | 2.11                     | 0.50              |
| 34:CM:156:GLY:HA2  | 34:CM:181:PRO:CG   | 2.41                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:CN:142:ALA:O    | 1:D1:768:A:H4'     | 2.11                     | 0.50              |
| 40:CS:59:ARG:NH1   | 1:D1:200:C:P       | 2.83                     | 0.50              |
| 43:CV:38:LYS:O     | 43:CV:42:ILE:HG13  | 2.10                     | 0.50              |
| 43:CV:103:PHE:CZ   | 43:CV:124:ILE:HG12 | 2.47                     | 0.50              |
| 43:CV:124:ILE:O    | 43:CV:124:ILE:HG22 | 2.12                     | 0.50              |
| 44:CW:14:ASN:ND2   | 44:CW:17:LYS:CE    | 2.73                     | 0.50              |
| 45:CX:46:ARG:HD2   | 45:CX:48:PHE:HE2   | 1.76                     | 0.50              |
| 1:D1:276:G:H5'     | 4:DC:47:GLY:CA     | 2.29                     | 0.50              |
| 1:D1:632:G:H2'     | 1:D1:633:C:C6      | 2.46                     | 0.50              |
| 1:D1:745:A:H4'     | 17:DT:58:ASN:HD21  | 1.74                     | 0.50              |
| 1:D1:943:C:C2'     | 1:D1:944:U:H5'     | 2.41                     | 0.50              |
| 1:D1:2119:G:H8     | 1:D1:2119:G:H5''   | 1.76                     | 0.50              |
| 1:D1:2665:G:C5     | 1:D1:2669:A:N6     | 2.79                     | 0.50              |
| 1:D1:2726:C:C2'    | 1:D1:2727:A:H5'    | 2.41                     | 0.50              |
| 6:DF:18:GLY:O      | 6:DF:21:LYS:HG2    | 2.11                     | 0.50              |
| 6:DF:34:ASN:C      | 6:DF:50:ILE:HG13   | 2.36                     | 0.50              |
| 13:DN:47:GLU:HB3   | 13:DN:69:LYS:O     | 2.11                     | 0.50              |
| 14:DO:108:LEU:O    | 14:DO:111:LEU:HB2  | 2.11                     | 0.50              |
| 23:EB:119:TYR:CE1  | 1:F1:3255:A:H5''   | 2.46                     | 0.50              |
| 23:EB:332:ARG:CG   | 23:EB:332:ARG:NH1  | 2.66                     | 0.50              |
| 24:EC:9:VAL:HG11   | 24:EC:260:GLU:OE2  | 2.11                     | 0.50              |
| 24:EC:269:ILE:HG12 | 24:EC:279:GLN:OE1  | 2.10                     | 0.50              |
| 24:EC:295:ILE:HD11 | 35:EN:29:LEU:HB3   | 1.92                     | 0.50              |
| 25:ED:155:SER:HB3  | 25:ED:158:GLU:HG3  | 1.93                     | 0.50              |
| 27:EF:233:LYS:HE2  | 1:F1:2521:A:N3     | 2.26                     | 0.50              |
| 29:EH:189:LYS:O    | 29:EH:200:ILE:HG13 | 2.10                     | 0.50              |
| 30:EI:114:VAL:O    | 30:EI:116:LYS:HE3  | 2.12                     | 0.50              |
| 32:EK:81:TRP:CD1   | 32:EK:119:PRO:HG2  | 2.46                     | 0.50              |
| 32:EK:132:LYS:HG3  | 1:F1:739:G:OP1     | 2.10                     | 0.50              |
| 35:EN:24:ASN:ND2   | 35:EN:27:HIS:HB2   | 2.25                     | 0.50              |
| 39:ER:39:ARG:CZ    | 1:F1:11:A:H4'      | 2.40                     | 0.50              |
| 43:EV:48:TYR:CE1   | 43:EV:183:HIS:CD2  | 2.98                     | 0.50              |
| 43:EV:105:LEU:HD22 | 43:EV:110:ASN:O    | 2.11                     | 0.50              |
| 43:EV:129:PRO:HG2  | 43:EV:130:PHE:CD2  | 2.46                     | 0.50              |
| 45:EX:121:LEU:CB   | 45:EX:124:ALA:HB2  | 2.38                     | 0.50              |
| 1:F1:59:A:H2'      | 1:F1:60:A:O4'      | 2.11                     | 0.50              |
| 1:F1:72:A:O3'      | 18:FU:56:VAL:HG11  | 2.12                     | 0.50              |
| 1:F1:347:A:H1'     | 1:F1:351:A:N3      | 2.27                     | 0.50              |
| 1:F1:424:G:C2'     | 1:F1:425:U:H5'     | 2.41                     | 0.50              |
| 1:F1:607:U:C2'     | 1:F1:608:C:H5'     | 2.40                     | 0.50              |
| 1:F1:970:C:C2      | 1:F1:971:C:C5      | 3.00                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:1020:G:H8    | 50:F1:4114:HOH:O   | 1.95                     | 0.50              |
| 1:F1:1166:G:H2'   | 1:F1:1167:G:O4'    | 2.11                     | 0.50              |
| 1:F1:1660:U:C1'   | 13:FN:38:PHE:CZ    | 2.94                     | 0.50              |
| 1:F1:1677:G:O2'   | 11:FL:42:THR:HG23  | 2.11                     | 0.50              |
| 1:F1:2411:U:H2'   | 1:F1:2412:U:H6     | 1.74                     | 0.50              |
| 1:F1:2859:G:C8    | 50:F1:4201:HOH:O   | 2.65                     | 0.50              |
| 1:F1:2913:C:C2'   | 1:F1:2914:A:H5'    | 2.41                     | 0.50              |
| 1:F1:3096:U:OP1   | 10:FK:112:LYS:HD3  | 2.10                     | 0.50              |
| 8:FH:26:SER:O     | 8:FH:27:LYS:C      | 2.53                     | 0.50              |
| 9:FJ:25:LEU:HD23  | 9:FJ:49:ILE:HB     | 1.92                     | 0.50              |
| 11:FL:5:ILE:CD1   | 11:FL:22:LYS:HG2   | 2.41                     | 0.50              |
| 11:FL:74:VAL:HG12 | 11:FL:75:SER:N     | 2.26                     | 0.50              |
| 21:G3:48:G:O2'    | 34:GM:227:GLN:O    | 2.22                     | 0.50              |
| 23:GB:114:THR:N   | 23:GB:174:ASN:HD22 | 2.08                     | 0.50              |
| 24:GC:14:GLU:HG3  | 24:GC:17:LYS:HD2   | 1.94                     | 0.50              |
| 24:GC:172:ALA:O   | 24:GC:176:LEU:HG   | 2.10                     | 0.50              |
| 29:GH:10:ARG:NH2  | 29:GH:161:GLY:HA3  | 2.26                     | 0.50              |
| 33:GL:13:LYS:HD3  | 16:HQ:49:THR:HG21  | 1.92                     | 0.50              |
| 35:GN:53:LEU:C    | 35:GN:60:LYS:NZ    | 2.69                     | 0.50              |
| 1:H1:253:G:C2'    | 1:H1:254:G:H5''    | 2.33                     | 0.50              |
| 1:H1:284:U:H1'    | 50:H1:3673:HOH:O   | 2.09                     | 0.50              |
| 1:H1:589:C:H6     | 1:H1:589:C:O5'     | 1.94                     | 0.50              |
| 1:H1:730:A:H4'    | 1:H1:731:A:OP1     | 2.11                     | 0.50              |
| 1:H1:1046:G:N3    | 1:H1:1047:G:C8     | 2.79                     | 0.50              |
| 1:H1:1711:U:H1'   | 12:HM:77:TYR:CD2   | 2.46                     | 0.50              |
| 1:H1:1782:C:H2'   | 1:H1:1783:U:H5''   | 1.94                     | 0.50              |
| 1:H1:1817:C:H2'   | 1:H1:1818:C:C6     | 2.46                     | 0.50              |
| 1:H1:2551:A:H3'   | 1:H1:2552:A:H5''   | 1.92                     | 0.50              |
| 1:H1:2645:A:C8    | 1:H1:2647:G:C8     | 2.99                     | 0.50              |
| 1:H1:3013:A:C8    | 1:H1:3014:C:C5     | 2.99                     | 0.50              |
| 1:H1:3168:A:C5    | 19:HX:166:VAL:HG11 | 2.46                     | 0.50              |
| 4:HC:75:CYS:O     | 4:HC:76:LYS:HB2    | 2.12                     | 0.50              |
| 5:HE:54:LEU:CD2   | 8:HH:14:LEU:HD13   | 2.41                     | 0.50              |
| 6:HF:92:LYS:O     | 6:HF:96:ILE:HG13   | 2.11                     | 0.50              |
| 7:HG:83:LYS:HD2   | 7:HG:85:HIS:CE1    | 2.45                     | 0.50              |
| 9:HJ:109:VAL:HG23 | 9:HJ:148:VAL:HG23  | 1.92                     | 0.50              |
| 18:HU:45:PHE:O    | 18:HU:147:GLN:OE1  | 2.29                     | 0.50              |
| 19:HX:7:GLN:HE22  | 19:HX:80:GLU:H     | 1.58                     | 0.50              |
| 1:A1:79:C:C2'     | 1:A1:80:C:H5'      | 2.41                     | 0.50              |
| 1:A1:472:C:O5'    | 1:A1:472:C:H6      | 1.93                     | 0.50              |
| 1:A1:564:A:H2'    | 24:BC:373:SER:HB2  | 1.94                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:589:C:O5'     | 1:A1:589:C:H6      | 1.94                     | 0.50              |
| 1:A1:632:G:H2'     | 1:A1:633:C:C6      | 2.46                     | 0.50              |
| 1:A1:743:A:C8      | 32:BK:140:ALA:HB1  | 2.46                     | 0.50              |
| 1:A1:847:G:O2'     | 22:BA:20:HIS:CE1   | 2.63                     | 0.50              |
| 1:A1:1004:U:H4'    | 1:A1:1005:A:OP1    | 2.08                     | 0.50              |
| 1:A1:1006:C:H2'    | 1:A1:1007:G:OP1    | 2.11                     | 0.50              |
| 1:A1:1053:A:C1'    | 1:A1:1054:G:OP2    | 2.55                     | 0.50              |
| 1:A1:1112:A:C6     | 1:A1:1113:A:N6     | 2.79                     | 0.50              |
| 1:A1:1475:A:C2     | 1:A1:2351:A:C5     | 3.00                     | 0.50              |
| 1:A1:1642:G:C3'    | 1:A1:1643:G:H5''   | 2.41                     | 0.50              |
| 1:A1:1660:U:H1'    | 13:AN:38:PHE:CE2   | 2.46                     | 0.50              |
| 1:A1:2277:U:H1'    | 1:A1:2948:C:O2'    | 2.10                     | 0.50              |
| 1:A1:2715:C:H3'    | 1:A1:2717:G:H21    | 1.76                     | 0.50              |
| 1:A1:3044:A:H5''   | 1:A1:3045:A:OP1    | 2.11                     | 0.50              |
| 1:A1:3345:A:OP2    | 1:A1:3345:A:H8     | 1.94                     | 0.50              |
| 11:AL:74:VAL:HG12  | 11:AL:75:SER:N     | 2.27                     | 0.50              |
| 13:AN:89:GLU:N     | 13:AN:89:GLU:OE1   | 2.43                     | 0.50              |
| 14:AO:122:GLN:OE1  | 14:AO:122:GLN:HA   | 2.10                     | 0.50              |
| 18:AU:164:LYS:HD3  | 32:BK:100:PRO:HA   | 1.91                     | 0.50              |
| 19:AX:34:THR:HG22  | 19:AX:35:LYS:N     | 2.27                     | 0.50              |
| 21:B3:69:G:H2'     | 21:B3:70:G:C8      | 2.47                     | 0.50              |
| 22:BA:68:TYR:C     | 22:BA:69:ARG:HG2   | 2.36                     | 0.50              |
| 22:BA:253:GLU:OE2  | 22:GA:252:LYS:CB   | 2.59                     | 0.50              |
| 24:BC:28:VAL:HG11  | 24:BC:133:LEU:CD1  | 2.42                     | 0.50              |
| 24:BC:41:VAL:O     | 24:BC:45:LEU:HG    | 2.11                     | 0.50              |
| 24:BC:269:ILE:HG12 | 24:BC:279:GLN:OE1  | 2.12                     | 0.50              |
| 25:BD:108:GLU:HA   | 25:BD:122:ILE:CG2  | 2.39                     | 0.50              |
| 27:BF:150:VAL:HG21 | 27:BF:156:VAL:HG21 | 1.94                     | 0.50              |
| 29:BH:58:GLU:CD    | 29:BH:160:PRO:HB2  | 2.36                     | 0.50              |
| 34:BM:144:ALA:O    | 34:BM:174:PRO:HD3  | 2.11                     | 0.50              |
| 38:BQ:8:ARG:HH22   | 38:BQ:117:GLN:NE2  | 2.09                     | 0.50              |
| 38:BQ:134:ALA:O    | 38:BQ:135:HIS:CB   | 2.59                     | 0.50              |
| 39:BR:67:ASN:HD21  | 39:BR:109:LYS:HD2  | 1.74                     | 0.50              |
| 43:BV:105:LEU:HD22 | 43:BV:110:ASN:O    | 2.11                     | 0.50              |
| 45:BX:46:ARG:HD2   | 45:BX:48:PHE:HE2   | 1.75                     | 0.50              |
| 45:BX:84:LEU:HD23  | 45:BX:87:LEU:HD12  | 1.93                     | 0.50              |
| 21:C3:22:A:C5      | 34:CM:274:HIS:HB3  | 2.47                     | 0.50              |
| 30:CI:81:ARG:HG3   | 30:CI:81:ARG:HH11  | 1.75                     | 0.50              |
| 32:CK:81:TRP:CD1   | 32:CK:119:PRO:HG2  | 2.46                     | 0.50              |
| 33:CL:16:SER:HB3   | 16:DQ:49:THR:CG2   | 2.41                     | 0.50              |
| 34:CM:38:ILE:O     | 34:CM:38:ILE:HG13  | 2.12                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 35:CN:82:VAL:HG22 | 35:CN:127:LEU:HD11 | 1.91                     | 0.50              |
| 35:CN:89:ASN:OD1  | 35:CN:89:ASN:C     | 2.54                     | 0.50              |
| 37:CP:14:LYS:HE3  | 1:D1:1020:G:OP1    | 2.10                     | 0.50              |
| 37:CP:76:VAL:HG12 | 37:CP:77:HIS:H     | 1.76                     | 0.50              |
| 44:CW:49:ARG:HB2  | 44:CW:91:LEU:HD23  | 1.92                     | 0.50              |
| 1:D1:73:G:OP1     | 18:DU:56:VAL:CG1   | 2.60                     | 0.50              |
| 1:D1:146:U:OP1    | 1:D1:147:U:H3'     | 2.12                     | 0.50              |
| 1:D1:169:A:P      | 1:D1:249:G:H22     | 2.34                     | 0.50              |
| 1:D1:940:A:N3     | 1:D1:940:A:H2'     | 2.26                     | 0.50              |
| 1:D1:957:U:O4'    | 1:D1:958:A:H5'     | 2.11                     | 0.50              |
| 1:D1:1025:G:N3    | 1:D1:1028:A:N6     | 2.60                     | 0.50              |
| 1:D1:1096:G:C2'   | 1:D1:1097:G:H5''   | 2.35                     | 0.50              |
| 1:D1:1394:G:HO2'  | 1:D1:1395:U:H6     | 1.60                     | 0.50              |
| 1:D1:1543:A:H2'   | 1:D1:1544:U:C6     | 2.45                     | 0.50              |
| 1:D1:1694:C:O2    | 1:D1:1804:G:N2     | 2.29                     | 0.50              |
| 1:D1:2294:A:OP1   | 50:D1:4626:HOH:O   | 2.19                     | 0.50              |
| 1:D1:2370:G:O2'   | 1:D1:2372:G:OP2    | 2.28                     | 0.50              |
| 1:D1:2576:C:H2'   | 1:D1:2577:G:C5'    | 2.30                     | 0.50              |
| 1:D1:2882:U:H2'   | 1:D1:2883:G:C8     | 2.47                     | 0.50              |
| 1:D1:3013:A:C8    | 1:D1:3014:C:C5     | 2.99                     | 0.50              |
| 1:D1:3097:G:H2'   | 1:D1:3098:A:O5'    | 2.12                     | 0.50              |
| 5:DE:179:THR:CG2  | 5:DE:180:LEU:N     | 2.74                     | 0.50              |
| 16:DQ:61:LEU:O    | 16:DQ:69:ASP:HB3   | 2.10                     | 0.50              |
| 20:E2:61:G:C2'    | 20:E2:100:C:O2'    | 2.59                     | 0.50              |
| 22:EA:49:ILE:HA   | 22:EA:59:LEU:O     | 2.12                     | 0.50              |
| 24:EC:14:GLU:HG3  | 24:EC:17:LYS:HD2   | 1.94                     | 0.50              |
| 24:EC:145:ARG:NH2 | 1:F1:1410:G:O3'    | 2.43                     | 0.50              |
| 24:EC:198:GLN:HB3 | 1:F1:1407:A:H5''   | 1.93                     | 0.50              |
| 24:EC:205:ARG:NH2 | 40:ES:11:ARG:NH1   | 2.58                     | 0.50              |
| 24:EC:311:ALA:CB  | 1:F1:1374:C:H5'    | 2.41                     | 0.50              |
| 25:ED:6:GLU:HA    | 25:ED:6:GLU:OE1    | 2.12                     | 0.50              |
| 26:EE:101:GLU:OE1 | 26:EE:134:ARG:HD2  | 2.11                     | 0.50              |
| 27:EF:196:VAL:CG2 | 27:EF:204:LEU:HD11 | 2.41                     | 0.50              |
| 31:EJ:23:VAL:CG2  | 31:EJ:41:ILE:O     | 2.59                     | 0.50              |
| 34:EM:179:ARG:NE  | 34:EM:185:ARG:HH22 | 1.98                     | 0.50              |
| 38:EQ:15:LYS:HB3  | 38:EQ:154:GLU:HG2  | 1.92                     | 0.50              |
| 40:ES:81:VAL:HB   | 40:ES:84:ILE:CG1   | 2.36                     | 0.50              |
| 42:EU:76:GLY:HA2  | 1:F1:133:C:H2'     | 1.92                     | 0.50              |
| 42:EU:102:GLU:O   | 42:EU:104:VAL:HG23 | 2.12                     | 0.50              |
| 45:EX:46:ARG:HD2  | 45:EX:48:PHE:HE2   | 1.75                     | 0.50              |
| 45:EX:84:LEU:HD23 | 45:EX:87:LEU:HD12  | 1.92                     | 0.50              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:F1:1037:A:C2     | 1:F1:1066:A:C2    | 2.99                     | 0.50              |
| 1:F1:1240:G:O2'    | 19:FX:104:MET:HG2 | 2.12                     | 0.50              |
| 1:F1:1642:G:H2'    | 1:F1:1643:G:C5'   | 2.18                     | 0.50              |
| 1:F1:1779:C:O2'    | 1:F1:1780:A:H5'   | 2.11                     | 0.50              |
| 1:F1:2264:U:O2     | 1:F1:2264:U:C2'   | 2.58                     | 0.50              |
| 1:F1:2278:G:O2'    | 1:F1:2279:C:O5'   | 2.27                     | 0.50              |
| 1:F1:2795:U:O3'    | 1:F1:2796:A:H3'   | 2.12                     | 0.50              |
| 1:F1:2882:U:H2'    | 1:F1:2883:G:C8    | 2.47                     | 0.50              |
| 1:F1:3071:C:C2'    | 1:F1:3072:G:H5'   | 2.41                     | 0.50              |
| 1:F1:3345:A:OP2    | 1:F1:3345:A:H8    | 1.94                     | 0.50              |
| 4:FC:19:THR:HB     | 4:FC:21:HIS:NE2   | 2.27                     | 0.50              |
| 4:FC:21:HIS:HA     | 4:FC:71:ASP:O     | 2.12                     | 0.50              |
| 7:FG:38:THR:O      | 7:FG:40:LYS:HE2   | 2.12                     | 0.50              |
| 9:FJ:88:LEU:HG     | 9:FJ:92:VAL:HG11  | 1.93                     | 0.50              |
| 14:FO:3:GLN:OE1    | 14:FO:3:GLN:HA    | 2.11                     | 0.50              |
| 16:FQ:83:THR:O     | 16:FQ:84:HIS:C    | 2.54                     | 0.50              |
| 24:GC:97:PHE:HD1   | 24:GC:97:PHE:O    | 1.94                     | 0.50              |
| 24:GC:163:VAL:HG22 | 24:GC:175:PHE:CE2 | 2.46                     | 0.50              |
| 24:GC:259:THR:CG2  | 24:GC:260:GLU:H   | 2.24                     | 0.50              |
| 27:GF:69:GLN:OE1   | 33:GL:18:LEU:HD22 | 2.11                     | 0.50              |
| 27:GF:138:ASN:O    | 27:GF:139:LYS:HB2 | 2.12                     | 0.50              |
| 29:GH:17:TYR:O     | 29:GH:96:VAL:HG23 | 2.11                     | 0.50              |
| 30:GI:81:ARG:NH1   | 30:GI:81:ARG:HG3  | 2.26                     | 0.50              |
| 32:GK:76:ASN:HA    | 32:GK:113:LEU:O   | 2.11                     | 0.50              |
| 34:GM:160:PHE:HA   | 34:GM:163:LEU:HB2 | 1.92                     | 0.50              |
| 38:GQ:32:TYR:CE1   | 38:GQ:36:ARG:HD2  | 2.46                     | 0.50              |
| 39:GR:90:MET:HE2   | 39:GR:92:PHE:HE1  | 1.76                     | 0.50              |
| 40:GS:21:SER:HB2   | 40:GS:26:ARG:HG2  | 1.93                     | 0.50              |
| 43:GV:207:PRO:HG3  | 43:GV:211:PHE:CE2 | 2.46                     | 0.50              |
| 45:GX:84:LEU:HD23  | 45:GX:87:LEU:HD12 | 1.93                     | 0.50              |
| 1:H1:70:C:C4       | 1:H1:72:A:C4      | 2.99                     | 0.50              |
| 1:H1:1244:A:H2'    | 1:H1:1245:U:H5''  | 1.92                     | 0.50              |
| 1:H1:1805:C:C2'    | 1:H1:1806:G:OP1   | 2.59                     | 0.50              |
| 1:H1:2170:A:H4'    | 1:H1:2171:U:OP2   | 2.11                     | 0.50              |
| 1:H1:2353:C:H3'    | 1:H1:2354:C:H6    | 1.75                     | 0.50              |
| 1:H1:2649:G:OP1    | 1:H1:2739:C:O2'   | 2.29                     | 0.50              |
| 1:H1:2862:G:HO2'   | 1:H1:2863:U:H6    | 1.52                     | 0.50              |
| 1:H1:3300:A:N6     | 50:H1:4371:HOH:O  | 2.44                     | 0.50              |
| 8:HH:52:GLN:O      | 8:HH:77:ILE:O     | 2.28                     | 0.50              |
| 9:HJ:71:LEU:HB3    | 9:HJ:97:ILE:HD11  | 1.93                     | 0.50              |
| 9:HJ:159:GLY:O     | 9:HJ:221:ILE:HD13 | 2.11                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:63:A:C4       | 1:A1:108:G:N7      | 2.79                     | 0.50              |
| 1:A1:120:A:H61     | 1:A1:148:G:H1'     | 1.76                     | 0.50              |
| 1:A1:738:U:O2'     | 1:A1:778:G:OP1     | 2.28                     | 0.50              |
| 1:A1:787:U:C2'     | 18:AU:179:ARG:HH22 | 2.24                     | 0.50              |
| 1:A1:810:G:C8      | 35:BN:92:ARG:NH2   | 2.80                     | 0.50              |
| 1:A1:828:C:O2'     | 1:A1:829:C:H5'     | 2.11                     | 0.50              |
| 1:A1:842:A:C8      | 2:AA:15:THR:CG2    | 2.86                     | 0.50              |
| 1:A1:978:G:N7      | 1:A1:1144:G:C8     | 2.79                     | 0.50              |
| 1:A1:1108:A:P      | 34:BM:140:LYS:HD3  | 2.52                     | 0.50              |
| 1:A1:1109:A:C1'    | 1:A1:1110:U:OP2    | 2.55                     | 0.50              |
| 1:A1:1184:U:H5'    | 1:A1:1184:U:C6     | 2.35                     | 0.50              |
| 1:A1:1227:A:N3     | 1:A1:1227:A:C2'    | 2.75                     | 0.50              |
| 1:A1:1374:C:H5'    | 24:BC:311:ALA:HB1  | 1.94                     | 0.50              |
| 1:A1:1580:G:C5'    | 1:A1:1581:C:OP1    | 2.60                     | 0.50              |
| 1:A1:2521:A:N3     | 27:BF:233:LYS:HE2  | 2.26                     | 0.50              |
| 1:A1:2673:C:H2'    | 1:A1:2674:A:C8     | 2.46                     | 0.50              |
| 1:A1:3116:A:N6     | 1:A1:3117:G:C2     | 2.80                     | 0.50              |
| 1:A1:3198:A:C5     | 1:A1:3199:G:C5     | 3.00                     | 0.50              |
| 2:AA:33:ARG:NE     | 2:AA:41:ASP:OD2    | 2.44                     | 0.50              |
| 8:AH:33:ASN:HA     | 8:AH:94:ASN:HD21   | 1.76                     | 0.50              |
| 8:AH:39:LEU:CD2    | 8:AH:106:VAL:HG21  | 2.41                     | 0.50              |
| 8:AH:57:VAL:HG22   | 8:AH:74:TRP:CE3    | 2.46                     | 0.50              |
| 9:AJ:58:ILE:O      | 9:AJ:59:VAL:C      | 2.53                     | 0.50              |
| 17:AT:36:ASN:O     | 17:AT:40:LEU:HG    | 2.12                     | 0.50              |
| 22:BA:104:PRO:HA   | 22:BA:163:CYS:O    | 2.10                     | 0.50              |
| 23:BB:301:LYS:HD3  | 23:BB:359:THR:HG23 | 1.92                     | 0.50              |
| 27:BF:143:LEU:HD23 | 27:BF:169:PRO:HG2  | 1.93                     | 0.50              |
| 30:BI:18:LEU:O     | 30:BI:22:VAL:HG23  | 2.10                     | 0.50              |
| 34:BM:30:TYR:HD1   | 37:BP:27:ILE:HD11  | 1.76                     | 0.50              |
| 34:BM:231:TRP:HZ2  | 34:BM:243:VAL:HG21 | 1.76                     | 0.50              |
| 36:BO:152:SER:HA   | 36:BO:163:ARG:HH12 | 1.77                     | 0.50              |
| 37:BP:118:GLU:O    | 37:BP:121:LYS:HB2  | 2.11                     | 0.50              |
| 43:BV:48:TYR:HE1   | 43:BV:183:HIS:CD2  | 2.28                     | 0.50              |
| 43:BV:107:GLN:HG2  | 43:BV:110:ASN:ND2  | 2.26                     | 0.50              |
| 43:BV:235:VAL:O    | 43:BV:239:LEU:HG   | 2.12                     | 0.50              |
| 45:BX:20:VAL:HG12  | 45:BX:52:ARG:HH12  | 1.76                     | 0.50              |
| 21:C3:10:C:C6      | 34:CM:20:TYR:CE1   | 3.00                     | 0.50              |
| 23:CB:121:ASN:HD21 | 23:CB:124:ASN:HD22 | 1.60                     | 0.50              |
| 24:CC:7:ILE:CD1    | 24:CC:25:LEU:HD13  | 2.41                     | 0.50              |
| 24:CC:97:PHE:HD1   | 24:CC:97:PHE:O     | 1.95                     | 0.50              |
| 24:CC:129:VAL:O    | 24:CC:132:ALA:HB3  | 2.11                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:CE:46:GLN:NE2   | 26:CE:56:GLN:NE2   | 2.59                     | 0.50              |
| 30:CI:196:PHE:CZ   | 6:DF:110:ARG:HB2   | 2.47                     | 0.50              |
| 31:CJ:32:ASN:ND2   | 31:CJ:117:GLN:N    | 2.59                     | 0.50              |
| 38:CQ:77:GLU:HB2   | 38:CQ:78:PHE:CE2   | 2.47                     | 0.50              |
| 39:CR:67:ASN:HD21  | 39:CR:109:LYS:HD2  | 1.77                     | 0.50              |
| 43:CV:213:ASN:HD22 | 43:CV:216:HIS:CD2  | 2.30                     | 0.50              |
| 1:D1:78:G:C2       | 1:D1:79:C:C6       | 2.99                     | 0.50              |
| 1:D1:158:G:H2'     | 1:D1:159:G:H8      | 1.77                     | 0.50              |
| 1:D1:232:C:HO2'    | 1:D1:233:G:P       | 2.34                     | 0.50              |
| 1:D1:368:A:C4'     | 1:D1:369:U:OP2     | 2.60                     | 0.50              |
| 1:D1:492:A:C2      | 1:D1:493:G:H1'     | 2.46                     | 0.50              |
| 1:D1:559:G:H2'     | 1:D1:560:A:H8      | 1.75                     | 0.50              |
| 1:D1:801:U:H5'     | 17:DT:37:PRO:CG    | 2.42                     | 0.50              |
| 1:D1:1147:A:H2'    | 1:D1:1148:U:H6     | 1.76                     | 0.50              |
| 1:D1:1857:G:OP1    | 3:DB:10:LYS:HD2    | 2.11                     | 0.50              |
| 1:D1:2268:G:O2'    | 1:D1:2269:U:OP2    | 2.28                     | 0.50              |
| 1:D1:2343:A:C2'    | 1:D1:2344:U:H5''   | 2.42                     | 0.50              |
| 1:D1:2862:G:OP2    | 50:D1:4359:HOH:O   | 2.19                     | 0.50              |
| 1:D1:3097:G:C2'    | 1:D1:3098:A:O5'    | 2.60                     | 0.50              |
| 2:DA:25:ALA:HB1    | 3:DB:52:TYR:CD2    | 2.47                     | 0.50              |
| 6:DF:62:ASN:O      | 6:DF:75:LYS:NZ     | 2.34                     | 0.50              |
| 8:DH:19:ALA:O      | 8:DH:37:LEU:HA     | 2.12                     | 0.50              |
| 22:EA:117:VAL:HG11 | 22:EA:149:ILE:CD1  | 2.41                     | 0.50              |
| 23:EB:360:SER:O    | 23:EB:362:LYS:HE2  | 2.11                     | 0.50              |
| 24:EC:174:ALA:O    | 24:EC:178:ARG:HG3  | 2.11                     | 0.50              |
| 24:EC:195:ARG:NH2  | 1:F1:1409:C:P      | 2.85                     | 0.50              |
| 24:EC:259:THR:CG2  | 24:EC:260:GLU:H    | 2.24                     | 0.50              |
| 24:EC:290:LEU:HD22 | 35:EN:125:ASP:HB3  | 1.92                     | 0.50              |
| 27:EF:232:GLN:O    | 27:EF:233:LYS:C    | 2.53                     | 0.50              |
| 29:EH:80:ILE:HG22  | 29:EH:81:SER:N     | 2.26                     | 0.50              |
| 29:EH:212:PHE:CE1  | 34:EM:298:ALA:HB2  | 2.46                     | 0.50              |
| 30:EI:46:LEU:HA    | 30:EI:135:CYS:SG   | 2.52                     | 0.50              |
| 32:EK:45:ILE:HG23  | 1:F1:2716:A:C2     | 2.47                     | 0.50              |
| 32:EK:91:LYS:HG2   | 32:EK:92:TYR:CD1   | 2.47                     | 0.50              |
| 36:EO:42:ARG:NH2   | 1:F1:1626:U:OP2    | 2.45                     | 0.50              |
| 37:EP:52:MET:HG2   | 37:EP:95:HIS:CE1   | 2.46                     | 0.50              |
| 42:EU:119:LYS:HB2  | 18:FU:124:PHE:HB2  | 1.91                     | 0.50              |
| 43:EV:166:VAL:HG12 | 43:EV:175:ILE:HG22 | 1.93                     | 0.50              |
| 43:EV:213:ASN:HD22 | 43:EV:216:HIS:HD2  | 1.60                     | 0.50              |
| 45:EX:43:ARG:HH22  | 1:F1:660:C:C2'     | 2.22                     | 0.50              |
| 45:EX:86:ILE:HD13  | 14:FO:25:THR:O     | 2.11                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:139:A:HO2'    | 1:F1:140:A:H8      | 1.58                     | 0.50              |
| 1:F1:361:A:H2'     | 1:F1:362:G:C5'     | 2.20                     | 0.50              |
| 1:F1:512:G:N1      | 1:F1:513:G:C5      | 2.80                     | 0.50              |
| 1:F1:606:U:H2'     | 1:F1:607:U:H6      | 1.76                     | 0.50              |
| 1:F1:632:G:H2'     | 1:F1:633:C:C6      | 2.46                     | 0.50              |
| 1:F1:777:C:H2'     | 1:F1:778:G:H8      | 1.76                     | 0.50              |
| 1:F1:791:C:H4'     | 1:F1:792:G:O5'     | 2.10                     | 0.50              |
| 1:F1:957:U:H4'     | 1:F1:958:A:O5'     | 2.11                     | 0.50              |
| 1:F1:969:C:OP1     | 1:F1:1458:C:H4'    | 2.11                     | 0.50              |
| 1:F1:1361:U:C5'    | 1:F1:1361:U:C6     | 2.93                     | 0.50              |
| 1:F1:1907:A:C2'    | 1:F1:1908:A:O5'    | 2.60                     | 0.50              |
| 1:F1:2180:G:H4'    | 50:F1:4077:HOH:O   | 2.11                     | 0.50              |
| 1:F1:2391:G:H5'    | 1:F1:2392:A:C4'    | 2.39                     | 0.50              |
| 1:F1:2414:A:H2'    | 1:F1:2415:C:H6     | 1.75                     | 0.50              |
| 1:F1:2548:G:HO2'   | 1:F1:2549:U:P      | 2.33                     | 0.50              |
| 1:F1:2577:G:C2'    | 1:F1:2578:A:O5'    | 2.58                     | 0.50              |
| 1:F1:3000:A:N1     | 1:F1:3032:C:O2'    | 2.38                     | 0.50              |
| 1:F1:3035:A:C2     | 1:F1:3036:U:C2     | 2.99                     | 0.50              |
| 6:FF:28:VAL:CG1    | 6:FF:66:ASN:H      | 2.23                     | 0.50              |
| 15:FP:48:LYS:HE3   | 15:FP:49:TYR:HE2   | 1.76                     | 0.50              |
| 20:G2:27:G:OP2     | 40:GS:12:ARG:NH1   | 2.40                     | 0.50              |
| 21:G3:63:A:C8      | 29:GH:206:LEU:HD23 | 2.47                     | 0.50              |
| 21:G3:75:G:HO2'    | 21:G3:76:U:P       | 2.34                     | 0.50              |
| 22:GA:42:ILE:CD1   | 22:GA:43:ARG:N     | 2.68                     | 0.50              |
| 23:GB:66:ARG:CZ    | 31:GJ:15:ALA:HB2   | 2.41                     | 0.50              |
| 23:GB:292:ALA:HB2  | 23:GB:303:ILE:N    | 2.27                     | 0.50              |
| 23:GB:303:ILE:HG12 | 23:GB:319:PHE:CZ   | 2.46                     | 0.50              |
| 24:GC:157:TYR:CE1  | 24:GC:179:VAL:HG13 | 2.47                     | 0.50              |
| 24:GC:303:GLU:CD   | 24:GC:303:GLU:H    | 2.17                     | 0.50              |
| 25:GD:54:ILE:HG21  | 25:GD:57:PHE:CD2   | 2.46                     | 0.50              |
| 26:GE:4:LEU:HD11   | 19:HX:163:PHE:HD1  | 1.75                     | 0.50              |
| 27:GF:153:ILE:HG22 | 27:GF:157:ILE:CG1  | 2.41                     | 0.50              |
| 28:GG:80:UNK:CA    | 1:H1:1309:G:H4'    | 2.40                     | 0.50              |
| 29:GH:140:VAL:HG12 | 29:GH:141:LYS:H    | 1.76                     | 0.50              |
| 30:GI:62:ASN:ND2   | 1:H1:1332:U:C1'    | 2.73                     | 0.50              |
| 32:GK:19:HIS:HD2   | 1:H1:685:G:O6      | 1.94                     | 0.50              |
| 32:GK:74:VAL:HG13  | 32:GK:113:LEU:HG   | 1.94                     | 0.50              |
| 33:GL:64:VAL:HG21  | 33:GL:106:VAL:HG22 | 1.93                     | 0.50              |
| 33:GL:69:GLY:O     | 1:H1:289:G:H4'     | 2.10                     | 0.50              |
| 33:GL:145:ASP:O    | 33:GL:149:ASN:HB3  | 2.11                     | 0.50              |
| 34:GM:56:THR:CG2   | 34:GM:57:ASN:N     | 2.74                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:GN:30:LEU:O     | 35:GN:33:LEU:HB3   | 2.11                     | 0.50              |
| 35:GN:82:VAL:HG22  | 35:GN:127:LEU:HD11 | 1.90                     | 0.50              |
| 37:GP:15:PHE:N     | 37:GP:15:PHE:CD1   | 2.80                     | 0.50              |
| 42:GU:98:LYS:HZ2   | 1:H1:242:G:H5'     | 1.76                     | 0.50              |
| 45:GX:4:LYS:HD2    | 45:GX:92:ARG:HE    | 1.77                     | 0.50              |
| 1:H1:127:A:C5      | 1:H1:128:G:H1'     | 2.46                     | 0.50              |
| 1:H1:137:A:H2'     | 1:H1:138:C:H6      | 1.76                     | 0.50              |
| 1:H1:459:G:H1'     | 1:H1:519:A:H62     | 1.76                     | 0.50              |
| 1:H1:578:G:H2'     | 1:H1:579:G:H5''    | 1.94                     | 0.50              |
| 1:H1:745:A:C4'     | 17:HT:58:ASN:HD21  | 2.25                     | 0.50              |
| 1:H1:1539:G:H2'    | 1:H1:1541:U:C5     | 2.46                     | 0.50              |
| 1:H1:1868:C:O2     | 2:HA:9:GLY:HA2     | 2.12                     | 0.50              |
| 1:H1:2277:U:H1'    | 1:H1:2948:C:O2'    | 2.11                     | 0.50              |
| 1:H1:2577:G:C2'    | 1:H1:2578:A:O5'    | 2.59                     | 0.50              |
| 1:H1:3185:G:N7     | 8:HH:11:PRO:HD3    | 2.27                     | 0.50              |
| 1:H1:3344:U:O2     | 1:H1:3344:U:C2'    | 2.59                     | 0.50              |
| 11:HL:31:VAL:HG12  | 11:HL:32:ALA:O     | 2.10                     | 0.50              |
| 18:HU:123:LEU:CD2  | 18:HU:135:LEU:O    | 2.59                     | 0.50              |
| 1:A1:137:A:H2'     | 1:A1:138:C:H6      | 1.76                     | 0.50              |
| 1:A1:624:G:HO2'    | 1:A1:625:C:H6      | 1.58                     | 0.50              |
| 1:A1:701:A:N6      | 1:A1:811:A:O4'     | 2.44                     | 0.50              |
| 1:A1:1907:A:H2'    | 1:A1:1908:A:H8     | 1.77                     | 0.50              |
| 1:A1:2732:G:H2'    | 1:A1:2733:C:H6     | 1.75                     | 0.50              |
| 1:A1:2983:A:H1'    | 20:B2:2:G:O2'      | 2.10                     | 0.50              |
| 1:A1:2990:U:H2'    | 1:A1:2991:U:H6     | 1.77                     | 0.50              |
| 1:A1:3100:U:H2'    | 1:A1:3101:G:C5'    | 2.41                     | 0.50              |
| 1:A1:3308:A:H2'    | 1:A1:3309:U:C1'    | 2.42                     | 0.50              |
| 2:AA:59:GLY:O      | 2:AA:62:THR:HB     | 2.11                     | 0.50              |
| 19:AX:7:GLN:HE22   | 19:AX:80:GLU:CB    | 2.24                     | 0.50              |
| 20:B2:28:G:N7      | 40:BS:12:ARG:NH2   | 2.59                     | 0.50              |
| 20:B2:110:A:C2     | 20:B2:115:G:O6     | 2.65                     | 0.50              |
| 22:BA:256:ALA:CB   | 22:GA:253:GLU:CD   | 2.85                     | 0.50              |
| 24:BC:108:ALA:O    | 24:BC:109:PRO:C    | 2.54                     | 0.50              |
| 33:BL:37:HIS:NE2   | 33:BL:63:ARG:HD2   | 2.26                     | 0.50              |
| 35:BN:53:LEU:C     | 35:BN:60:LYS:NZ    | 2.69                     | 0.50              |
| 38:BQ:26:VAL:HG21  | 38:BQ:92:VAL:HG21  | 1.94                     | 0.50              |
| 44:BW:10:ASP:OD1   | 44:BW:73:ARG:CG    | 2.57                     | 0.50              |
| 22:CA:203:VAL:HG12 | 22:CA:218:GLN:CG   | 2.41                     | 0.50              |
| 24:CC:149:ILE:HG23 | 24:CC:152:VAL:HB   | 1.94                     | 0.50              |
| 25:CD:7:ASN:C      | 25:CD:9:MET:N      | 2.70                     | 0.50              |
| 26:CE:23:ARG:NH1   | 26:CE:39:ARG:O     | 2.45                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:CE:34:ILE:HD11  | 26:CE:147:ILE:CG2  | 2.38                     | 0.50              |
| 30:CI:152:ILE:HG22 | 30:CI:153:GLU:N    | 2.26                     | 0.50              |
| 33:CL:202:ARG:NH2  | 18:DU:26:GLN:HG2   | 2.26                     | 0.50              |
| 34:CM:83:LEU:CB    | 34:CM:88:VAL:CG2   | 2.89                     | 0.50              |
| 34:CM:163:LEU:HD23 | 34:CM:180:PHE:CZ   | 2.46                     | 0.50              |
| 34:CM:231:TRP:HZ2  | 34:CM:243:VAL:CG2  | 2.24                     | 0.50              |
| 40:CS:21:SER:HB2   | 40:CS:26:ARG:HG2   | 1.92                     | 0.50              |
| 40:CS:55:VAL:HG13  | 40:CS:104:VAL:O    | 2.11                     | 0.50              |
| 44:CW:28:ALA:HB3   | 44:CW:29:PRO:HD3   | 1.93                     | 0.50              |
| 1:D1:32:A:H2'      | 1:D1:33:A:C8       | 2.46                     | 0.50              |
| 1:D1:402:U:H2'     | 1:D1:403:G:H5'     | 1.92                     | 0.50              |
| 1:D1:497:G:H2'     | 1:D1:498:A:H5'     | 1.91                     | 0.50              |
| 1:D1:585:A:C6      | 1:D1:586:A:C6      | 2.99                     | 0.50              |
| 1:D1:822:U:H1'     | 18:DU:8:PRO:HB3    | 1.91                     | 0.50              |
| 1:D1:827:C:H2'     | 1:D1:828:C:C6      | 2.46                     | 0.50              |
| 1:D1:1023:A:H2'    | 1:D1:1024:A:O4'    | 2.12                     | 0.50              |
| 1:D1:1049:U:C4     | 1:D1:1050:C:N4     | 2.80                     | 0.50              |
| 1:D1:1728:A:H2'    | 1:D1:1729:U:OP2    | 2.12                     | 0.50              |
| 1:D1:1944:U:N3     | 1:D1:1954:A:C2     | 2.79                     | 0.50              |
| 1:D1:2577:G:C2'    | 1:D1:2578:A:O5'    | 2.59                     | 0.50              |
| 1:D1:2958:C:O3'    | 1:D1:2959:A:C8     | 2.65                     | 0.50              |
| 1:D1:2962:U:H5'    | 1:D1:2962:U:C6     | 2.44                     | 0.50              |
| 1:D1:3128:G:C8     | 1:D1:3128:G:C5'    | 2.92                     | 0.50              |
| 1:D1:3229:C:C2     | 5:DE:57:ARG:HG3    | 2.46                     | 0.50              |
| 1:D1:3229:C:H4'    | 1:D1:3230:G:OP2    | 2.12                     | 0.50              |
| 1:D1:3237:C:N3     | 8:DH:7:SER:OG      | 2.44                     | 0.50              |
| 6:DF:5:LYS:HD3     | 6:DF:55:LEU:HB2    | 1.94                     | 0.50              |
| 6:DF:28:VAL:HG12   | 6:DF:66:ASN:N      | 2.24                     | 0.50              |
| 8:DH:17:LYS:HG3    | 8:DH:40:GLN:OE1    | 2.11                     | 0.50              |
| 11:DL:39:VAL:HG11  | 11:DL:60:ARG:HA    | 1.93                     | 0.50              |
| 14:DO:48:VAL:HA    | 14:DO:61:SER:O     | 2.12                     | 0.50              |
| 14:DO:75:THR:HG21  | 14:DO:77:GLU:CG    | 2.42                     | 0.50              |
| 17:DT:32:THR:CG2   | 17:DT:40:LEU:HD21  | 2.42                     | 0.50              |
| 22:EA:30:TYR:HD2   | 22:EA:124:ARG:C    | 2.19                     | 0.50              |
| 23:EB:20:ARG:HB2   | 1:F1:2979:A:P      | 2.51                     | 0.50              |
| 24:EC:319:ARG:NH2  | 1:F1:634:G:C6      | 2.79                     | 0.50              |
| 25:ED:19:ILE:HG21  | 25:ED:125:MET:CE   | 2.41                     | 0.50              |
| 26:EE:103:VAL:HG22 | 26:EE:110:ILE:HG12 | 1.92                     | 0.50              |
| 28:EG:15:UNK:CG    | 28:EG:65:UNK:CA    | 2.75                     | 0.50              |
| 39:ER:94:VAL:HG21  | 39:ER:103:ILE:HD13 | 1.93                     | 0.50              |
| 45:EX:37:PRO:O     | 45:EX:45:ARG:HG3   | 2.11                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:49:A:H2'      | 1:F1:50:A:C8       | 2.46                     | 0.50              |
| 1:F1:632:G:C5      | 1:F1:633:C:C5      | 2.99                     | 0.50              |
| 1:F1:943:C:C2'     | 1:F1:944:U:H5'     | 2.41                     | 0.50              |
| 1:F1:1042:U:C2     | 1:F1:1043:C:C5     | 2.99                     | 0.50              |
| 1:F1:1066:A:H2'    | 1:F1:1067:U:H5''   | 1.92                     | 0.50              |
| 1:F1:2597:G:O2'    | 1:F1:2598:A:H5'    | 2.12                     | 0.50              |
| 1:F1:2714:U:C2'    | 1:F1:2715:C:H5'    | 2.41                     | 0.50              |
| 1:F1:2719:A:C4     | 1:F1:2720:G:C8     | 2.99                     | 0.50              |
| 1:F1:3229:C:H4'    | 1:F1:3230:G:OP2    | 2.11                     | 0.50              |
| 1:F1:3230:G:HO2'   | 1:F1:3231:U:P      | 2.35                     | 0.50              |
| 6:FF:18:GLY:O      | 6:FF:21:LYS:HG2    | 2.11                     | 0.50              |
| 7:FG:83:LYS:HD2    | 7:FG:85:HIS:CE1    | 2.47                     | 0.50              |
| 8:FH:64:LYS:CG     | 8:FH:69:ASN:HD21   | 2.02                     | 0.50              |
| 11:FL:23:VAL:O     | 11:FL:30:LEU:HD12  | 2.10                     | 0.50              |
| 13:FN:76:ASN:OD1   | 13:FN:76:ASN:C     | 2.53                     | 0.50              |
| 20:G2:7:U:OP1      | 38:GQ:64:ARG:HG2   | 2.10                     | 0.50              |
| 21:G3:13:A:O2'     | 34:GM:24:ARG:CZ    | 2.60                     | 0.50              |
| 21:G3:69:G:H2'     | 21:G3:70:G:C8      | 2.45                     | 0.50              |
| 22:GA:46:ILE:HD12  | 22:GA:87:GLN:HB3   | 1.94                     | 0.50              |
| 22:GA:105:ILE:HD11 | 22:GA:117:VAL:HG13 | 1.94                     | 0.50              |
| 24:GC:26:PRO:HG2   | 24:GC:29:PHE:CD1   | 2.47                     | 0.50              |
| 24:GC:348:ALA:C    | 24:GC:350:ALA:H    | 2.19                     | 0.50              |
| 33:GL:5:LYS:HB2    | 1:H1:114:A:OP2     | 2.10                     | 0.50              |
| 35:GN:6:HIS:CG     | 1:H1:1131:G:C4     | 2.99                     | 0.50              |
| 37:GP:42:ILE:HG23  | 37:GP:57:TYR:O     | 2.12                     | 0.50              |
| 37:GP:45:ASP:OD1   | 37:GP:45:ASP:C     | 2.55                     | 0.50              |
| 37:GP:118:GLU:O    | 37:GP:121:LYS:HB2  | 2.11                     | 0.50              |
| 40:GS:66:LYS:HE3   | 40:GS:106:THR:HG21 | 1.93                     | 0.50              |
| 41:GT:48:ALA:HB1   | 41:GT:54:THR:HG21  | 1.92                     | 0.50              |
| 1:H1:1009:A:OP1    | 17:HT:23:LYS:NZ    | 2.41                     | 0.50              |
| 1:H1:1770:A:H2'    | 1:H1:1771:U:H6     | 1.77                     | 0.50              |
| 1:H1:1942:C:H6     | 1:H1:1942:C:H5''   | 1.76                     | 0.50              |
| 1:H1:1949:U:H4'    | 1:H1:1950:C:OP2    | 2.12                     | 0.50              |
| 1:H1:2112:G:N3     | 1:H1:2112:G:H5'    | 2.27                     | 0.50              |
| 1:H1:3094:U:H2'    | 1:H1:3095:A:C8     | 2.45                     | 0.50              |
| 1:H1:3097:G:H2'    | 1:H1:3098:A:O5'    | 2.12                     | 0.50              |
| 1:H1:3114:U:C3'    | 1:H1:3115:C:H5''   | 2.42                     | 0.50              |
| 1:H1:3177:G:H8     | 1:H1:3177:G:OP1    | 1.95                     | 0.50              |
| 1:H1:3227:A:N1     | 5:HE:150:LYS:HD3   | 2.26                     | 0.50              |
| 5:HE:67:LYS:HD2    | 5:HE:109:THR:HB    | 1.93                     | 0.50              |
| 8:HH:39:LEU:CD2    | 8:HH:106:VAL:HG21  | 2.42                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:HN:75:VAL:HG12  | 13:HN:76:ASN:O     | 2.11                     | 0.50              |
| 19:HX:45:ALA:HB1   | 19:HX:50:HIS:HD2   | 1.75                     | 0.50              |
| 1:A1:28:G:H5''     | 33:BL:172:ARG:HD3  | 1.94                     | 0.50              |
| 1:A1:209:A:H4'     | 1:A1:211:A:C8      | 2.47                     | 0.50              |
| 1:A1:442:G:N2      | 1:A1:536:A:C4      | 2.80                     | 0.50              |
| 1:A1:459:G:H5''    | 1:A1:460:A:OP1     | 2.12                     | 0.50              |
| 1:A1:488:U:C2      | 1:A1:490:A:OP2     | 2.64                     | 0.50              |
| 1:A1:679:C:H2'     | 1:A1:680:A:C8      | 2.46                     | 0.50              |
| 1:A1:1332:U:H1'    | 30:BI:62:ASN:ND2   | 2.26                     | 0.50              |
| 1:A1:1376:A:H5''   | 1:A1:1377:A:O5'    | 2.10                     | 0.50              |
| 1:A1:1922:G:O2'    | 31:BJ:25:ALA:HA    | 2.11                     | 0.50              |
| 1:A1:2855:C:O2'    | 1:A1:2856:U:H5'    | 2.12                     | 0.50              |
| 1:A1:2962:U:H5'    | 1:A1:2962:U:C6     | 2.46                     | 0.50              |
| 1:A1:3085:C:H2'    | 1:A1:3086:U:C6     | 2.46                     | 0.50              |
| 1:A1:3154:A:O2'    | 30:BI:96:ALA:HB1   | 2.11                     | 0.50              |
| 4:AC:10:THR:O      | 4:AC:18:HIS:HA     | 2.12                     | 0.50              |
| 6:AF:17:TYR:CD1    | 6:AF:17:TYR:O      | 2.65                     | 0.50              |
| 6:AF:92:LYS:O      | 6:AF:96:ILE:HG13   | 2.12                     | 0.50              |
| 13:AN:36:ARG:NH1   | 13:AN:74:TYR:CD1   | 2.78                     | 0.50              |
| 16:AQ:6:ALA:O      | 16:AQ:7:VAL:CB     | 2.60                     | 0.50              |
| 23:BB:86:ILE:HD13  | 23:BB:158:VAL:HG11 | 1.94                     | 0.50              |
| 30:BI:64:ASN:ND2   | 30:BI:64:ASN:C     | 2.69                     | 0.50              |
| 31:BJ:32:ASN:HD21  | 31:BJ:117:GLN:N    | 2.10                     | 0.50              |
| 33:BL:80:VAL:HG11  | 33:BL:87:VAL:HA    | 1.94                     | 0.50              |
| 34:BM:60:ILE:H     | 34:BM:80:SER:HB2   | 1.77                     | 0.50              |
| 34:BM:240:VAL:HG12 | 34:BM:242:SER:H    | 1.77                     | 0.50              |
| 36:BO:21:ARG:O     | 36:BO:53:ARG:HG3   | 2.12                     | 0.50              |
| 20:C2:153:A:H62    | 1:D1:2:U:H3        | 1.59                     | 0.50              |
| 23:CB:304:THR:HG21 | 23:CB:314:VAL:HA   | 1.92                     | 0.50              |
| 24:CC:9:VAL:HG11   | 24:CC:260:GLU:OE2  | 2.11                     | 0.50              |
| 24:CC:173:VAL:HG12 | 24:CC:177:LYS:HE3  | 1.94                     | 0.50              |
| 33:CL:149:ASN:O    | 33:CL:152:CYS:HB2  | 2.12                     | 0.50              |
| 33:CL:203:TYR:O    | 33:CL:204:ARG:HB2  | 2.12                     | 0.50              |
| 34:CM:119:TYR:OH   | 34:CM:139:LYS:O    | 2.26                     | 0.50              |
| 35:CN:167:VAL:CG1  | 35:CN:169:SER:O    | 2.59                     | 0.50              |
| 37:CP:91:VAL:CG1   | 37:CP:96:VAL:HG23  | 2.42                     | 0.50              |
| 39:CR:121:LEU:HD21 | 1:D1:1549:U:C4'    | 2.41                     | 0.50              |
| 43:CV:200:TRP:CD2  | 43:CV:201:PRO:HD2  | 2.47                     | 0.50              |
| 45:CX:3:ILE:O      | 45:CX:3:ILE:HG22   | 2.11                     | 0.50              |
| 45:CX:6:VAL:HG23   | 45:CX:92:ARG:O     | 2.12                     | 0.50              |
| 1:D1:149:U:H2'     | 1:D1:150:A:H8      | 1.76                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:169:A:H2'     | 1:D1:170:A:H5'     | 1.92                     | 0.50              |
| 1:D1:236:G:H2'     | 1:D1:237:A:C8      | 2.47                     | 0.50              |
| 1:D1:978:G:N7      | 1:D1:1144:G:C8     | 2.79                     | 0.50              |
| 1:D1:1185:A:H3'    | 1:D1:1186:A:H5''   | 1.93                     | 0.50              |
| 1:D1:1226:C:H4'    | 1:D1:1227:A:O5'    | 2.10                     | 0.50              |
| 1:D1:1249:G:H2'    | 1:D1:1312:G:H22    | 1.77                     | 0.50              |
| 1:D1:1650:U:O2     | 1:D1:1668:A:H5'    | 2.11                     | 0.50              |
| 1:D1:2106:G:O2'    | 1:D1:2107:A:OP1    | 2.30                     | 0.50              |
| 1:D1:2362:A:H2'    | 1:D1:2363:A:C8     | 2.46                     | 0.50              |
| 3:DB:9:MET:O       | 3:DB:10:LYS:C      | 2.53                     | 0.50              |
| 5:DE:62:ARG:NH1    | 6:DF:105:ASP:OD1   | 2.45                     | 0.50              |
| 6:DF:3:PHE:CD1     | 19:DX:164:PRO:CB   | 2.94                     | 0.50              |
| 6:DF:11:ARG:HG2    | 6:DF:55:LEU:HD22   | 1.94                     | 0.50              |
| 7:DG:14:LEU:HD22   | 7:DG:90:MET:HE1    | 1.94                     | 0.50              |
| 9:DJ:213:THR:O     | 9:DJ:216:SER:HB2   | 2.11                     | 0.50              |
| 13:DN:75:VAL:HG12  | 13:DN:76:ASN:O     | 2.12                     | 0.50              |
| 16:DQ:60:GLU:CG    | 16:DQ:61:LEU:N     | 2.74                     | 0.50              |
| 19:DX:113:LEU:CD1  | 19:DX:140:THR:HG21 | 2.42                     | 0.50              |
| 20:E2:38:C:H4'     | 2:FA:71:ILE:CD1    | 2.39                     | 0.50              |
| 23:EB:113:ASN:C    | 23:EB:174:ASN:HD22 | 2.18                     | 0.50              |
| 23:EB:311:HIS:CD2  | 1:F1:3334:C:H4'    | 2.47                     | 0.50              |
| 23:EB:330:LYS:O    | 23:EB:331:LYS:CB   | 2.60                     | 0.50              |
| 24:EC:28:VAL:HG11  | 24:EC:133:LEU:CD1  | 2.42                     | 0.50              |
| 26:EE:23:ARG:NH1   | 26:EE:39:ARG:O     | 2.45                     | 0.50              |
| 26:EE:92:LEU:HD12  | 26:EE:177:ILE:HG12 | 1.94                     | 0.50              |
| 33:EL:201:ARG:HH21 | 1:F1:80:C:P        | 2.35                     | 0.50              |
| 35:EN:167:VAL:HG13 | 35:EN:169:SER:H    | 1.76                     | 0.50              |
| 39:ER:123:THR:HG22 | 39:ER:125:THR:H    | 1.76                     | 0.50              |
| 39:ER:124:ILE:O    | 3:FB:14:GLY:HA3    | 2.11                     | 0.50              |
| 43:EV:173:PHE:HD1  | 43:EV:191:HIS:CE1  | 2.30                     | 0.50              |
| 1:F1:181:U:C2'     | 1:F1:182:C:H5'     | 2.42                     | 0.50              |
| 1:F1:278:U:H2'     | 1:F1:279:U:C6      | 2.46                     | 0.50              |
| 1:F1:434:A:C4'     | 1:F1:435:A:C8      | 2.93                     | 0.50              |
| 1:F1:1017:U:C6     | 1:F1:1017:U:H3'    | 2.46                     | 0.50              |
| 1:F1:1101:U:H5''   | 1:F1:1102:U:OP1    | 2.12                     | 0.50              |
| 1:F1:1660:U:H1'    | 13:FN:38:PHE:CZ    | 2.47                     | 0.50              |
| 1:F1:1683:U:H2'    | 1:F1:1684:C:C6     | 2.47                     | 0.50              |
| 1:F1:2576:C:C2'    | 1:F1:2577:G:C5'    | 2.86                     | 0.50              |
| 1:F1:2743:G:C3'    | 1:F1:2744:C:H5'    | 2.39                     | 0.50              |
| 1:F1:3157:C:OP1    | 1:F1:3159:A:H1'    | 2.12                     | 0.50              |
| 1:F1:3230:G:C5     | 5:FE:119:ARG:HD2   | 2.47                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:FA:26:THR:O      | 2:FA:34:CYS:HA     | 2.12                     | 0.50              |
| 8:FH:39:LEU:CD2    | 8:FH:106:VAL:HG21  | 2.42                     | 0.50              |
| 9:FJ:58:ILE:O      | 9:FJ:60:GLY:N      | 2.43                     | 0.50              |
| 13:FN:101:LYS:HA   | 13:FN:106:ALA:HB3  | 1.94                     | 0.50              |
| 19:FX:7:GLN:HE22   | 19:FX:80:GLU:H     | 1.58                     | 0.50              |
| 19:FX:34:THR:HG22  | 19:FX:35:LYS:N     | 2.26                     | 0.50              |
| 19:FX:45:ALA:HA    | 19:FX:50:HIS:HD2   | 1.77                     | 0.50              |
| 24:GC:283:TYR:CD1  | 24:GC:283:TYR:C    | 2.90                     | 0.50              |
| 25:GD:69:VAL:HG12  | 25:GD:71:ILE:HG13  | 1.93                     | 0.50              |
| 32:GK:75:VAL:HG12  | 32:GK:76:ASN:N     | 2.26                     | 0.50              |
| 33:GL:150:TRP:CE3  | 1:H1:320:C:H5''    | 2.47                     | 0.50              |
| 34:GM:144:ALA:O    | 34:GM:174:PRO:HD3  | 2.11                     | 0.50              |
| 34:GM:163:LEU:CD1  | 34:GM:173:ILE:HG21 | 2.41                     | 0.50              |
| 35:GN:167:VAL:HG13 | 35:GN:169:SER:H    | 1.76                     | 0.50              |
| 38:GQ:10:PRO:HB3   | 38:GQ:153:GLN:NE2  | 2.26                     | 0.50              |
| 38:GQ:38:ILE:CD1   | 38:GQ:93:ILE:HG21  | 2.40                     | 0.50              |
| 43:GV:7:GLU:O      | 43:GV:11:LYS:HG3   | 2.11                     | 0.50              |
| 43:GV:107:GLN:HG2  | 43:GV:110:ASN:ND2  | 2.27                     | 0.50              |
| 1:H1:40:C:C6       | 1:H1:40:C:C3'      | 2.95                     | 0.50              |
| 1:H1:122:U:H4'     | 1:H1:150:A:H1'     | 1.92                     | 0.50              |
| 1:H1:304:U:O2'     | 1:H1:305:A:H8      | 1.91                     | 0.50              |
| 1:H1:566:U:C5      | 1:H1:567:C:C5      | 3.00                     | 0.50              |
| 1:H1:882:G:C2'     | 1:H1:883:A:OP2     | 2.58                     | 0.50              |
| 1:H1:1035:A:C2     | 1:H1:1036:G:C5     | 3.00                     | 0.50              |
| 1:H1:1376:A:C5'    | 1:H1:1377:A:O4'    | 2.57                     | 0.50              |
| 1:H1:1379:G:N2     | 5:HE:22:ASP:OD2    | 2.44                     | 0.50              |
| 1:H1:2123:U:O2'    | 1:H1:2124:C:H5'    | 2.12                     | 0.50              |
| 1:H1:2324:A:C5     | 1:H1:2325:C:C5     | 3.00                     | 0.50              |
| 1:H1:2834:U:N3     | 10:HK:97:ARG:NH1   | 2.59                     | 0.50              |
| 1:H1:2872:C:O2'    | 1:H1:2873:C:H5'    | 2.12                     | 0.50              |
| 1:H1:3072:G:H2'    | 1:H1:3073:U:C6     | 2.47                     | 0.50              |
| 1:H1:3180:C:H2'    | 1:H1:3181:G:H8     | 1.77                     | 0.50              |
| 1:H1:3181:G:H2'    | 1:H1:3182:A:H8     | 1.75                     | 0.50              |
| 2:HA:14:LYS:NZ     | 3:HB:52:TYR:CE1    | 2.77                     | 0.50              |
| 2:HA:21:ARG:HH11   | 2:HA:44:MET:HE1    | 1.76                     | 0.50              |
| 4:HC:10:THR:O      | 4:HC:18:HIS:HA     | 2.11                     | 0.50              |
| 4:HC:72:CYS:SG     | 4:HC:75:CYS:N      | 2.73                     | 0.50              |
| 5:HE:18:TRP:HB3    | 14:HO:95:ARG:NH2   | 2.27                     | 0.50              |
| 6:HF:87:GLU:O      | 6:HF:92:LYS:HE3    | 2.11                     | 0.50              |
| 8:HH:17:LYS:HG3    | 8:HH:40:GLN:OE1    | 2.12                     | 0.50              |
| 8:HH:33:ASN:HA     | 8:HH:94:ASN:HD21   | 1.76                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:HJ:12:ASP:O      | 9:HJ:13:ILE:C      | 2.53                     | 0.50              |
| 9:HJ:58:ILE:O      | 9:HJ:60:GLY:N      | 2.44                     | 0.50              |
| 13:HN:53:VAL:HG11  | 13:HN:62:ILE:HG23  | 1.94                     | 0.50              |
| 15:HP:57:ASP:OD1   | 15:HP:60:ILE:HG13  | 2.11                     | 0.50              |
| 16:HQ:29:GLN:O     | 16:HQ:31:LYS:HD3   | 2.12                     | 0.50              |
| 19:HX:87:LYS:HG3   | 19:HX:89:TYR:CZ    | 2.47                     | 0.50              |
| 1:A1:585:A:C6      | 1:A1:586:A:C6      | 3.00                     | 0.50              |
| 1:A1:791:C:H4'     | 1:A1:792:G:O5'     | 2.10                     | 0.50              |
| 1:A1:1005:A:C2'    | 1:A1:1006:C:OP2    | 2.59                     | 0.50              |
| 1:A1:1017:U:H3'    | 1:A1:1017:U:C6     | 2.47                     | 0.50              |
| 1:A1:1096:G:C2'    | 1:A1:1097:G:H5''   | 2.37                     | 0.50              |
| 1:A1:1344:A:H4'    | 30:BI:17:ARG:HH22  | 1.76                     | 0.50              |
| 1:A1:1351:U:H2'    | 1:A1:1352:U:C6     | 2.46                     | 0.50              |
| 1:A1:1595:A:N3     | 1:A1:1599:G:C6     | 2.79                     | 0.50              |
| 1:A1:1919:A:O2'    | 1:A1:1920:A:H8     | 1.93                     | 0.50              |
| 1:A1:2155:C:C3'    | 1:A1:2156:G:H5'    | 2.42                     | 0.50              |
| 1:A1:2395:G:OP1    | 50:A1:4708:HOH:O   | 2.20                     | 0.50              |
| 1:A1:3096:U:OP1    | 10:AK:114:LYS:NZ   | 2.32                     | 0.50              |
| 4:AC:7:THR:HB      | 4:AC:94:ILE:CD1    | 2.42                     | 0.50              |
| 4:AC:98:LYS:O      | 4:AC:102:VAL:HG23  | 2.12                     | 0.50              |
| 5:AE:102:VAL:HG22  | 5:AE:170:LEU:CD2   | 2.35                     | 0.50              |
| 6:AF:38:ILE:HD12   | 6:AF:48:ILE:HB     | 1.92                     | 0.50              |
| 6:AF:44:VAL:HG12   | 6:AF:45:ARG:N      | 2.26                     | 0.50              |
| 7:AG:11:GLN:HE22   | 1:H1:2249:U:C4'    | 2.24                     | 0.50              |
| 13:AN:16:GLY:H     | 13:AN:19:ALA:HB2   | 1.73                     | 0.50              |
| 13:AN:118:PHE:HE2  | 13:AN:138:PHE:HE2  | 1.60                     | 0.50              |
| 14:AO:6:TRP:HZ3    | 14:AO:40:LEU:CD1   | 2.23                     | 0.50              |
| 18:AU:123:LEU:HD21 | 42:BU:118:ARG:HH11 | 1.77                     | 0.50              |
| 19:AX:22:VAL:HG11  | 19:AX:40:GLN:NE2   | 2.23                     | 0.50              |
| 19:AX:96:GLN:HE22  | 21:B3:93:G:H4'     | 1.75                     | 0.50              |
| 19:AX:188:THR:C    | 19:AX:189:PHE:CG   | 2.90                     | 0.50              |
| 21:B3:10:C:C2      | 34:BM:20:TYR:CD1   | 2.94                     | 0.50              |
| 21:B3:22:A:C5      | 34:BM:274:HIS:HB3  | 2.47                     | 0.50              |
| 24:BC:147:HIS:NE2  | 24:BC:254:ARG:HG3  | 2.27                     | 0.50              |
| 24:BC:375:ALA:O    | 24:BC:378:ALA:HB3  | 2.11                     | 0.50              |
| 26:BE:88:PHE:CD2   | 26:BE:152:VAL:HG12 | 2.47                     | 0.50              |
| 32:BK:60:MET:C     | 35:BN:172:ARG:NH1  | 2.70                     | 0.50              |
| 39:BR:75:LEU:HD21  | 39:BR:93:TYR:HE2   | 1.76                     | 0.50              |
| 46:BY:10:ILE:CD1   | 46:BY:30:GLU:HB3   | 2.42                     | 0.50              |
| 21:C3:7:G:H4'      | 34:CM:33:ARG:NH2   | 2.26                     | 0.50              |
| 21:C3:8:G:OP1      | 37:CP:27:ILE:CD1   | 2.60                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:CA:86:GLY:CA    | 1:D1:2545:A:N3     | 2.75                     | 0.50              |
| 22:CA:210:HIS:CD2  | 22:CA:212:HIS:HB2  | 2.46                     | 0.50              |
| 23:CB:17:ARG:HA    | 23:CB:18:PRO:C     | 2.36                     | 0.50              |
| 23:CB:86:ILE:HD13  | 23:CB:158:VAL:HG11 | 1.94                     | 0.50              |
| 23:CB:210:ASN:ND2  | 23:CB:352:ILE:N    | 2.56                     | 0.50              |
| 23:CB:292:ALA:HB3  | 23:CB:301:LYS:C    | 2.37                     | 0.50              |
| 23:CB:337:ARG:HG2  | 23:CB:338:LYS:O    | 2.11                     | 0.50              |
| 24:CC:258:TRP:CZ3  | 24:CC:266:LEU:HD11 | 2.47                     | 0.50              |
| 25:CD:160:ILE:HG22 | 25:CD:164:LYS:HE3  | 1.94                     | 0.50              |
| 32:CK:109:PHE:C    | 32:CK:110:PHE:HD1  | 2.19                     | 0.50              |
| 34:CM:175:HIS:HD2  | 34:CM:180:PHE:HE2  | 1.55                     | 0.50              |
| 40:CS:38:LEU:HD11  | 40:CS:106:THR:O    | 2.12                     | 0.50              |
| 46:CY:4:ARG:HD2    | 1:D1:862:A:OP2     | 2.11                     | 0.50              |
| 1:D1:738:U:HO2'    | 1:D1:739:G:H5'     | 1.77                     | 0.50              |
| 1:D1:787:U:C2'     | 18:DU:179:ARG:HH22 | 2.25                     | 0.50              |
| 1:D1:1179:G:H1'    | 1:D1:2365:G:O2'    | 2.12                     | 0.50              |
| 1:D1:1413:G:C2     | 1:D1:1414:C:C6     | 3.00                     | 0.50              |
| 1:D1:1490:G:N2     | 1:D1:1493:A:H5'    | 2.27                     | 0.50              |
| 1:D1:1736:G:C6     | 1:D1:1737:A:C6     | 2.99                     | 0.50              |
| 1:D1:2863:U:H2'    | 1:D1:2863:U:O2     | 2.11                     | 0.50              |
| 1:D1:3175:A:H2'    | 1:D1:3177:G:N7     | 2.27                     | 0.50              |
| 1:D1:3180:C:H2'    | 1:D1:3181:G:H8     | 1.77                     | 0.50              |
| 5:DE:58:PHE:CG     | 5:DE:85:VAL:HG22   | 2.47                     | 0.50              |
| 5:DE:88:LYS:HG3    | 5:DE:89:ARG:O      | 2.12                     | 0.50              |
| 6:DF:21:LYS:NZ     | 19:DX:174:GLU:HG2  | 2.27                     | 0.50              |
| 6:DF:45:ARG:NH1    | 19:DX:84:ASN:O     | 2.45                     | 0.50              |
| 7:DG:41:LEU:HD12   | 7:DG:66:SER:O      | 2.12                     | 0.50              |
| 9:DJ:4:ARG:NE      | 9:DJ:215:ILE:HD11  | 2.26                     | 0.50              |
| 16:DQ:83:THR:HG22  | 16:DQ:85:ARG:HB3   | 1.94                     | 0.50              |
| 21:E3:10:C:C5      | 34:EM:20:TYR:CE1   | 3.00                     | 0.50              |
| 21:E3:35:C:N4      | 21:E3:46:C:H1'     | 2.26                     | 0.50              |
| 23:EB:365:HIS:HA   | 41:ET:19:ARG:NH2   | 2.26                     | 0.50              |
| 24:EC:40:LYS:NZ    | 1:F1:815:U:H1'     | 2.27                     | 0.50              |
| 24:EC:205:ARG:HB3  | 24:EC:206:TYR:CE2  | 2.46                     | 0.50              |
| 24:EC:230:ILE:HG22 | 24:EC:233:VAL:HG13 | 1.92                     | 0.50              |
| 24:EC:321:LYS:NZ   | 1:F1:633:C:OP1     | 2.27                     | 0.50              |
| 26:EE:78:MET:O     | 26:EE:82:VAL:HG23  | 2.11                     | 0.50              |
| 27:EF:46:ARG:O     | 39:ER:37:PHE:HB2   | 2.11                     | 0.50              |
| 33:EL:145:ASP:O    | 33:EL:149:ASN:HB3  | 2.12                     | 0.50              |
| 34:EM:230:LYS:O    | 34:EM:234:THR:HB   | 2.12                     | 0.50              |
| 39:ER:141:LEU:O    | 39:ER:144:ALA:HB3  | 2.11                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 42:EU:44:LYS:HA    | 42:EU:47:ARG:HD2   | 1.94                     | 0.50              |
| 43:EV:139:ASN:O    | 43:EV:143:LYS:HG3  | 2.11                     | 0.50              |
| 45:EX:43:ARG:HA    | 45:EX:48:PHE:CD2   | 2.47                     | 0.50              |
| 1:F1:39:G:C4       | 1:F1:2789:A:C2     | 2.99                     | 0.50              |
| 1:F1:96:G:OP1      | 18:FU:14:LYS:NZ    | 2.41                     | 0.50              |
| 1:F1:120:A:H61     | 1:F1:148:G:H1'     | 1.77                     | 0.50              |
| 1:F1:169:A:C5      | 1:F1:251:A:C6      | 2.99                     | 0.50              |
| 1:F1:685:G:H4'     | 1:F1:685:G:OP1     | 2.11                     | 0.50              |
| 1:F1:836:U:H2'     | 1:F1:837:G:H8      | 1.76                     | 0.50              |
| 1:F1:1411:U:C2     | 1:F1:1412:U:C5     | 2.99                     | 0.50              |
| 1:F1:2155:C:H3'    | 1:F1:2156:G:H5'    | 1.94                     | 0.50              |
| 1:F1:2163:A:C5'    | 50:F1:3622:HOH:O   | 2.57                     | 0.50              |
| 1:F1:2211:G:H8     | 1:F1:2211:G:O5'    | 1.95                     | 0.50              |
| 1:F1:2433:A:H2'    | 1:F1:2434:A:H8     | 1.71                     | 0.50              |
| 1:F1:2744:C:P      | 50:F1:4482:HOH:O   | 2.70                     | 0.50              |
| 6:FF:4:ASN:OD1     | 6:FF:5:LYS:N       | 2.45                     | 0.50              |
| 9:FJ:58:ILE:O      | 9:FJ:59:VAL:C      | 2.53                     | 0.50              |
| 13:FN:105:ASN:O    | 13:FN:105:ASN:CG   | 2.55                     | 0.50              |
| 18:FU:108:GLU:OE1  | 18:FU:108:GLU:HA   | 2.10                     | 0.50              |
| 20:G2:60:C:O2'     | 20:G2:61:G:H5'     | 2.11                     | 0.50              |
| 20:G2:77:U:N3      | 40:GS:73:TYR:CE2   | 2.79                     | 0.50              |
| 21:G3:43:A:P       | 25:GD:137:ARG:HH11 | 2.35                     | 0.50              |
| 22:GA:118:GLU:HG2  | 22:GA:123:ASP:HB2  | 1.93                     | 0.50              |
| 22:GA:203:VAL:HG12 | 22:GA:218:GLN:CG   | 2.42                     | 0.50              |
| 23:GB:270:TYR:CD2  | 1:H1:3265:A:H5'    | 2.46                     | 0.50              |
| 27:GF:143:LEU:HD22 | 27:GF:211:PHE:HD2  | 1.77                     | 0.50              |
| 29:GH:139:ARG:CD   | 29:GH:173:PHE:HE1  | 2.24                     | 0.50              |
| 30:GI:81:ARG:HG3   | 30:GI:81:ARG:HH11  | 1.77                     | 0.50              |
| 34:GM:90:THR:O     | 34:GM:231:TRP:CZ3  | 2.65                     | 0.50              |
| 34:GM:156:GLY:HA2  | 34:GM:181:PRO:CG   | 2.37                     | 0.50              |
| 34:GM:179:ARG:NE   | 34:GM:185:ARG:HH22 | 2.04                     | 0.50              |
| 36:GO:84:THR:OG1   | 36:GO:87:ALA:HB2   | 2.12                     | 0.50              |
| 38:GQ:29:LYS:O     | 38:GQ:32:TYR:HB3   | 2.12                     | 0.50              |
| 39:GR:75:LEU:HD21  | 39:GR:93:TYR:HE2   | 1.75                     | 0.50              |
| 40:GS:114:ARG:O    | 40:GS:118:LEU:HG   | 2.11                     | 0.50              |
| 1:H1:31:G:H1'      | 1:H1:49:A:N6       | 2.27                     | 0.50              |
| 1:H1:488:U:H5      | 18:HU:161:LYS:HE2  | 1.75                     | 0.50              |
| 1:H1:603:A:H2'     | 1:H1:604:A:C8      | 2.46                     | 0.50              |
| 1:H1:606:U:H2'     | 1:H1:607:U:H6      | 1.77                     | 0.50              |
| 1:H1:613:U:H2'     | 1:H1:614:G:H8      | 1.76                     | 0.50              |
| 1:H1:631:G:C5      | 5:HE:31:ARG:NH2    | 2.80                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:688:U:C2     | 1:H1:689:A:C8      | 3.00                     | 0.50              |
| 1:H1:1053:A:C4'   | 1:H1:1054:G:O4'    | 2.60                     | 0.50              |
| 1:H1:1114:C:C2'   | 1:H1:1115:U:C5'    | 2.90                     | 0.50              |
| 1:H1:1137:U:H2'   | 1:H1:1138:U:O4'    | 2.12                     | 0.50              |
| 1:H1:1572:A:H2'   | 1:H1:1573:A:O4'    | 2.11                     | 0.50              |
| 1:H1:2155:C:C3'   | 1:H1:2156:G:H5'    | 2.42                     | 0.50              |
| 1:H1:2243:C:O2'   | 1:H1:2268:G:C5     | 2.56                     | 0.50              |
| 1:H1:2640:G:OP1   | 1:H1:2641:U:H1'    | 2.11                     | 0.50              |
| 1:H1:3308:A:H2'   | 1:H1:3309:U:C1'    | 2.42                     | 0.50              |
| 5:HE:113:GLU:OE1  | 5:HE:113:GLU:HA    | 2.12                     | 0.50              |
| 6:HF:14:TYR:OH    | 6:HF:22:GLY:HA2    | 2.12                     | 0.50              |
| 13:HN:31:ASP:OD1  | 13:HN:31:ASP:N     | 2.44                     | 0.50              |
| 1:A1:79:C:O2'     | 33:BL:201:ARG:NH2  | 2.45                     | 0.50              |
| 1:A1:169:A:H2'    | 1:A1:170:A:H5'     | 1.93                     | 0.50              |
| 1:A1:424:G:C2'    | 1:A1:425:U:H5'     | 2.41                     | 0.50              |
| 1:A1:619:G:H5''   | 1:A1:620:A:OP1     | 2.11                     | 0.50              |
| 1:A1:785:A:N6     | 1:A1:795:G:H1'     | 2.27                     | 0.50              |
| 1:A1:790:C:C5'    | 1:A1:791:C:OP1     | 2.60                     | 0.50              |
| 1:A1:841:A:OP2    | 2:AA:28:HIS:HE1    | 1.95                     | 0.50              |
| 1:A1:1195:U:C1'   | 43:BV:206:THR:HG21 | 2.42                     | 0.50              |
| 1:A1:1754:G:O6    | 7:AG:29:SER:HB2    | 2.11                     | 0.50              |
| 1:A1:1807:C:H2'   | 1:A1:1808:A:C8     | 2.46                     | 0.50              |
| 1:A1:2138:A:H4'   | 1:A1:2139:A:O5'    | 2.11                     | 0.50              |
| 1:A1:2362:A:H2'   | 1:A1:2363:A:C8     | 2.47                     | 0.50              |
| 1:A1:2521:A:C2    | 1:A1:2522:A:C4     | 3.00                     | 0.50              |
| 1:A1:2572:U:C2'   | 1:A1:2573:U:H5'    | 2.42                     | 0.50              |
| 1:A1:2814:U:C2'   | 1:A1:2815:U:H5'    | 2.41                     | 0.50              |
| 1:A1:3185:G:O6    | 1:A1:3235:U:O2'    | 2.29                     | 0.50              |
| 1:A1:3235:U:N3    | 8:AH:12:THR:O      | 2.44                     | 0.50              |
| 4:AC:75:CYS:O     | 4:AC:76:LYS:HB2    | 2.12                     | 0.50              |
| 12:AM:41:SER:O    | 12:AM:49:LEU:HG    | 2.12                     | 0.50              |
| 14:AO:15:PHE:O    | 14:AO:26:THR:N     | 2.39                     | 0.50              |
| 15:AP:61:ALA:O    | 15:AP:65:LYS:HG3   | 2.12                     | 0.50              |
| 18:AU:100:LYS:HE3 | 18:AU:102:ARG:HH21 | 1.77                     | 0.50              |
| 19:AX:40:GLN:OE1  | 37:BP:145:VAL:HG21 | 2.11                     | 0.50              |
| 20:B2:35:U:O2     | 20:B2:37:A:N6      | 2.44                     | 0.50              |
| 20:B2:134:C:C6    | 20:B2:134:C:C3'    | 2.95                     | 0.50              |
| 22:BA:32:VAL:HA   | 22:BA:124:ARG:NH1  | 2.27                     | 0.50              |
| 22:BA:210:HIS:HD2 | 22:BA:212:HIS:N    | 1.84                     | 0.50              |
| 23:BB:218:VAL:HA  | 23:BB:271:HIS:O    | 2.12                     | 0.50              |
| 24:BC:65:MET:HE3  | 24:BC:105:ARG:HH11 | 1.76                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:175:PHE:CD1  | 24:BC:175:PHE:C    | 2.89                     | 0.50              |
| 30:BI:109:THR:HG23 | 30:BI:110:PRO:N    | 2.27                     | 0.50              |
| 33:BL:19:MET:HE1   | 33:BL:22:ILE:HD12  | 1.93                     | 0.50              |
| 33:BL:28:TRP:O     | 33:BL:32:GLN:HG2   | 2.11                     | 0.50              |
| 34:BM:88:VAL:HG12  | 34:BM:246:LEU:HD21 | 1.92                     | 0.50              |
| 34:BM:98:ALA:HB1   | 34:BM:162:VAL:HG23 | 1.94                     | 0.50              |
| 38:BQ:66:THR:CG2   | 38:BQ:82:GLN:NE2   | 2.75                     | 0.50              |
| 40:BS:30:MET:HE3   | 40:BS:77:TRP:HE3   | 1.76                     | 0.50              |
| 45:BX:65:THR:O     | 45:BX:65:THR:HG22  | 2.12                     | 0.50              |
| 20:C2:44:A:OP1     | 2:DA:68:MET:HG2    | 2.12                     | 0.50              |
| 22:CA:3:ARG:HG2    | 22:CA:4:VAL:H      | 1.77                     | 0.50              |
| 22:CA:45:CYS:O     | 22:CA:62:VAL:HA    | 2.11                     | 0.50              |
| 22:CA:223:PRO:HA   | 1:D1:2240:C:O4'    | 2.12                     | 0.50              |
| 22:CA:243:ARG:CZ   | 22:CA:247:VAL:HG12 | 2.41                     | 0.50              |
| 23:CB:46:PHE:CZ    | 23:CB:84:MET:HG3   | 2.46                     | 0.50              |
| 24:CC:283:TYR:CD1  | 24:CC:283:TYR:C    | 2.89                     | 0.50              |
| 25:CD:107:GLN:HG2  | 25:CD:108:GLU:H    | 1.77                     | 0.50              |
| 29:CH:73:ASN:O     | 29:CH:77:ILE:HG23  | 2.12                     | 0.50              |
| 30:CI:114:VAL:O    | 30:CI:116:LYS:HE3  | 2.11                     | 0.50              |
| 34:CM:17:GLN:OE1   | 37:CP:20:LYS:CA    | 2.58                     | 0.50              |
| 34:CM:109:LEU:HD21 | 34:CM:142:PHE:CD2  | 2.47                     | 0.50              |
| 35:CN:91:GLU:CG    | 1:D1:701:A:H3'     | 2.39                     | 0.50              |
| 38:CQ:32:TYR:CE2   | 38:CQ:36:ARG:HD2   | 2.47                     | 0.50              |
| 40:CS:24:HIS:NE2   | 40:CS:25:LEU:HG    | 2.26                     | 0.50              |
| 41:CT:10:PHE:HZ    | 41:CT:51:ILE:HD12  | 1.77                     | 0.50              |
| 42:CU:122:LEU:CD1  | 18:DU:150:LEU:HD21 | 2.41                     | 0.50              |
| 1:D1:470:C:H1'     | 1:D1:510:A:C2      | 2.46                     | 0.50              |
| 1:D1:634:G:H5'     | 5:DE:30:ARG:NH2    | 2.26                     | 0.50              |
| 1:D1:859:U:C4      | 1:D1:860:G:C6      | 3.00                     | 0.50              |
| 1:D1:986:C:H4'     | 1:D1:987:A:C5'     | 2.42                     | 0.50              |
| 1:D1:1166:G:H2'    | 1:D1:1167:G:O4'    | 2.12                     | 0.50              |
| 1:D1:1178:U:H3'    | 1:D1:1179:G:C8     | 2.47                     | 0.50              |
| 1:D1:1210:C:C5'    | 19:DX:171:ARG:HH21 | 2.25                     | 0.50              |
| 1:D1:1438:A:H2'    | 1:D1:1439:U:C6     | 2.47                     | 0.50              |
| 1:D1:1497:U:H2'    | 1:D1:1498:U:H6     | 1.77                     | 0.50              |
| 1:D1:1580:G:C5'    | 1:D1:1581:C:OP1    | 2.60                     | 0.50              |
| 1:D1:1752:G:H5''   | 1:D1:1753:A:C3'    | 2.37                     | 0.50              |
| 1:D1:2499:U:H2'    | 1:D1:2500:C:C6     | 2.47                     | 0.50              |
| 1:D1:2700:A:H2'    | 1:D1:2701:U:O4'    | 2.12                     | 0.50              |
| 1:D1:2703:G:O6     | 1:D1:2730:C:N3     | 2.44                     | 0.50              |
| 1:D1:3080:A:O2'    | 1:D1:3081:C:P      | 2.70                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3096:U:P      | 10:DK:112:LYS:HD3  | 2.52                     | 0.50              |
| 1:D1:3187:U:C2'    | 1:D1:3188:A:H5'    | 2.42                     | 0.50              |
| 2:DA:44:MET:HA     | 2:DA:44:MET:HE3    | 1.92                     | 0.50              |
| 2:DA:62:THR:CG2    | 2:DA:63:GLY:N      | 2.75                     | 0.50              |
| 9:DJ:58:ILE:O      | 9:DJ:60:GLY:N      | 2.44                     | 0.50              |
| 18:DU:58:LYS:HB2   | 18:DU:63:TYR:CB    | 2.42                     | 0.50              |
| 19:DX:151:PRO:O    | 19:DX:155:ALA:HB2  | 2.11                     | 0.50              |
| 22:EA:34:ASP:O     | 22:EA:38:ARG:HG2   | 2.12                     | 0.50              |
| 22:EA:203:VAL:HG12 | 22:EA:218:GLN:CG   | 2.42                     | 0.50              |
| 24:EC:163:VAL:HG22 | 24:EC:175:PHE:CE2  | 2.46                     | 0.50              |
| 26:EE:49:THR:O     | 26:EE:51:ASP:N     | 2.45                     | 0.50              |
| 26:EE:112:ILE:HD13 | 26:EE:177:ILE:CD1  | 2.41                     | 0.50              |
| 29:EH:140:VAL:HG12 | 29:EH:141:LYS:H    | 1.76                     | 0.50              |
| 30:EI:73:ARG:NH1   | 1:F1:3123:A:OP1    | 2.44                     | 0.50              |
| 31:EJ:98:TYR:N     | 31:EJ:98:TYR:CD1   | 2.78                     | 0.50              |
| 34:EM:176:SER:O    | 34:EM:177:GLU:CG   | 2.52                     | 0.50              |
| 38:EQ:71:ARG:HG2   | 38:EQ:81:THR:CG2   | 2.42                     | 0.50              |
| 40:ES:79:ILE:HD11  | 40:ES:100:ALA:HB2  | 1.94                     | 0.50              |
| 1:F1:20:G:C5       | 1:F1:21:A:N7       | 2.80                     | 0.50              |
| 1:F1:149:U:H2'     | 1:F1:150:A:H8      | 1.77                     | 0.50              |
| 1:F1:158:G:H2'     | 1:F1:159:G:H8      | 1.76                     | 0.50              |
| 1:F1:219:A:N1      | 1:F1:1416:U:H2'    | 2.27                     | 0.50              |
| 1:F1:583:G:C2      | 1:F1:585:A:OP2     | 2.65                     | 0.50              |
| 1:F1:621:G:C6      | 1:F1:622:G:N1      | 2.79                     | 0.50              |
| 1:F1:822:U:OP1     | 18:FU:1:MET:N      | 2.41                     | 0.50              |
| 1:F1:1112:A:C6     | 1:F1:1113:A:C6     | 2.99                     | 0.50              |
| 1:F1:1191:G:O2'    | 1:F1:1192:A:H5'    | 2.12                     | 0.50              |
| 1:F1:1226:C:H4'    | 1:F1:1227:A:O5'    | 2.06                     | 0.50              |
| 1:F1:1403:C:HO2'   | 1:F1:1434:G:HO2'   | 1.56                     | 0.50              |
| 1:F1:1488:A:O2'    | 1:F1:1489:U:H5'    | 2.11                     | 0.50              |
| 1:F1:1805:C:C2'    | 1:F1:1806:G:OP1    | 2.59                     | 0.50              |
| 1:F1:2240:C:H2'    | 1:F1:2241:G:O5'    | 2.12                     | 0.50              |
| 1:F1:2254:A:C4'    | 1:F1:2255:U:OP2    | 2.59                     | 0.50              |
| 1:F1:2411:U:H4'    | 1:F1:2955:A:O4'    | 2.12                     | 0.50              |
| 1:F1:2715:C:H3'    | 1:F1:2717:G:N2     | 2.27                     | 0.50              |
| 1:F1:3179:U:H2'    | 1:F1:3180:C:H6     | 1.75                     | 0.50              |
| 4:FC:83:ILE:CG2    | 4:FC:84:LYS:N      | 2.74                     | 0.50              |
| 5:FE:67:LYS:HD2    | 5:FE:109:THR:HB    | 1.94                     | 0.50              |
| 19:FX:16:MET:HE2   | 19:FX:118:SER:HA   | 1.93                     | 0.50              |
| 20:G2:73:G:O2'     | 20:G2:88:G:N2      | 2.45                     | 0.50              |
| 23:GB:78:VAL:HG21  | 23:GB:303:ILE:HG21 | 1.94                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:GB:377:PHE:CD2  | 23:GB:378:PHE:CE1  | 2.96                     | 0.50              |
| 24:GC:299:ILE:HD12 | 1:H1:1375:A:C2     | 2.46                     | 0.50              |
| 24:GC:380:PHE:HD2  | 24:GC:381:ASN:OD1  | 1.95                     | 0.50              |
| 25:GD:19:ILE:HG21  | 25:GD:125:MET:CE   | 2.41                     | 0.50              |
| 25:GD:162:TRP:CH2  | 25:GD:167:PHE:HE2  | 2.30                     | 0.50              |
| 26:GE:49:THR:O     | 26:GE:51:ASP:N     | 2.45                     | 0.50              |
| 26:GE:135:LYS:H    | 26:GE:138:GLU:HG2  | 1.76                     | 0.50              |
| 27:GF:114:GLY:O    | 27:GF:115:LYS:HB2  | 2.10                     | 0.50              |
| 31:GJ:140:VAL:H    | 9:HJ:102:SER:HB3   | 1.77                     | 0.50              |
| 33:GL:14:LYS:NZ    | 33:GL:120:TRP:CZ3  | 2.80                     | 0.50              |
| 36:GO:41:ILE:O     | 36:GO:44:LEU:HB2   | 2.12                     | 0.50              |
| 40:GS:24:HIS:CD2   | 40:GS:25:LEU:N     | 2.80                     | 0.50              |
| 43:GV:120:SER:O    | 43:GV:124:ILE:HG13 | 2.12                     | 0.50              |
| 44:GW:61:ASN:HB3   | 44:GW:65:ASN:O     | 2.11                     | 0.50              |
| 1:H1:37:A:H5''     | 1:H1:38:A:H4'      | 1.93                     | 0.50              |
| 1:H1:358:C:O2'     | 2:HA:16:HIS:CD2    | 2.64                     | 0.50              |
| 1:H1:459:G:H5''    | 1:H1:460:A:OP1     | 2.12                     | 0.50              |
| 1:H1:583:G:C2      | 1:H1:585:A:OP2     | 2.65                     | 0.50              |
| 1:H1:1141:U:C4     | 1:H1:1142:G:C2     | 3.00                     | 0.50              |
| 1:H1:1227:A:N3     | 1:H1:1227:A:C2'    | 2.74                     | 0.50              |
| 1:H1:1438:A:H2'    | 1:H1:1439:U:C6     | 2.46                     | 0.50              |
| 1:H1:1599:G:C2     | 1:H1:1600:U:C2     | 2.99                     | 0.50              |
| 1:H1:1646:G:C2'    | 1:H1:1647:U:H5'    | 2.42                     | 0.50              |
| 1:H1:1772:G:O2'    | 15:HP:4:GLU:HB3    | 2.11                     | 0.50              |
| 1:H1:1919:A:O2'    | 1:H1:1920:A:H8     | 1.93                     | 0.50              |
| 1:H1:2274:A:H5'    | 1:H1:2300:G:N2     | 2.27                     | 0.50              |
| 1:H1:2275:A:H2'    | 1:H1:2277:U:C5'    | 2.42                     | 0.50              |
| 1:H1:2902:G:O2'    | 1:H1:2922:A:N1     | 2.39                     | 0.50              |
| 5:HE:88:LYS:HG3    | 5:HE:89:ARG:N      | 2.27                     | 0.50              |
| 7:HG:41:LEU:HD12   | 7:HG:66:SER:O      | 2.11                     | 0.50              |
| 16:HQ:5:GLN:O      | 16:HQ:12:GLY:HA3   | 2.12                     | 0.50              |
| 19:HX:93:LEU:CD2   | 19:HX:120:LEU:HD21 | 2.40                     | 0.50              |
| 1:A1:119:A:H2'     | 27:BF:100:LYS:HZ3  | 1.75                     | 0.50              |
| 1:A1:137:A:H2'     | 1:A1:138:C:C6      | 2.47                     | 0.50              |
| 1:A1:145:A:H4'     | 33:BL:55:ASN:HB3   | 1.92                     | 0.50              |
| 1:A1:354:A:N1      | 24:BC:89:THR:OG1   | 2.42                     | 0.50              |
| 1:A1:620:A:N7      | 24:BC:319:ARG:CZ   | 2.74                     | 0.50              |
| 1:A1:651:U:C4      | 1:A1:652:U:C4      | 2.99                     | 0.50              |
| 1:A1:882:G:O2'     | 1:A1:883:A:P       | 2.69                     | 0.50              |
| 1:A1:1183:C:H5''   | 50:A1:3941:HOH:O   | 2.10                     | 0.50              |
| 1:A1:1393:A:H2'    | 1:A1:1394:G:C8     | 2.47                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1445:G:H5''   | 24:BC:200:LYS:HZ3  | 1.76                     | 0.50              |
| 1:A1:1533:G:N2     | 38:BQ:131:THR:CG2  | 2.75                     | 0.50              |
| 1:A1:1592:G:C2     | 1:A1:1602:U:C2     | 2.99                     | 0.50              |
| 1:A1:1600:U:C5     | 1:A1:1601:U:C5     | 3.00                     | 0.50              |
| 1:A1:1805:C:H2'    | 1:A1:1806:G:OP1    | 2.11                     | 0.50              |
| 1:A1:1921:G:O2'    | 1:A1:1922:G:H5'    | 2.12                     | 0.50              |
| 1:A1:2278:G:HO2'   | 1:A1:2279:C:P      | 2.34                     | 0.50              |
| 1:A1:2499:U:H2'    | 1:A1:2500:C:C6     | 2.46                     | 0.50              |
| 1:A1:2520:G:O6     | 22:BA:68:TYR:CE1   | 2.64                     | 0.50              |
| 1:A1:2701:U:H4'    | 1:A1:2732:G:O3'    | 2.12                     | 0.50              |
| 1:A1:2703:G:O6     | 1:A1:2730:C:N3     | 2.45                     | 0.50              |
| 1:A1:2719:A:H2'    | 1:A1:2720:G:C8     | 2.43                     | 0.50              |
| 1:A1:3125:G:C6     | 1:A1:3126:C:C4     | 3.00                     | 0.50              |
| 13:AN:10:VAL:HG13  | 13:AN:83:THR:HB    | 1.92                     | 0.50              |
| 19:AX:113:LEU:HD11 | 19:AX:140:THR:CG2  | 2.40                     | 0.50              |
| 19:AX:185:ARG:HE   | 30:BI:118:VAL:HG21 | 1.76                     | 0.50              |
| 20:B2:67:C:H5'     | 20:B2:68:A:OP2     | 2.12                     | 0.50              |
| 22:BA:30:TYR:HD2   | 22:BA:124:ARG:C    | 2.19                     | 0.50              |
| 23:BB:56:ILE:HG22  | 23:BB:57:LEU:N     | 2.26                     | 0.50              |
| 24:BC:276:THR:HG23 | 24:BC:277:GLY:H    | 1.75                     | 0.50              |
| 25:BD:54:ILE:HG21  | 25:BD:57:PHE:CD2   | 2.47                     | 0.50              |
| 26:BE:112:ILE:HD13 | 26:BE:177:ILE:CD1  | 2.42                     | 0.50              |
| 29:BH:44:GLU:CD    | 29:BH:181:TYR:OH   | 2.54                     | 0.50              |
| 30:BI:30:GLN:HG3   | 30:BI:32:ILE:HD13  | 1.94                     | 0.50              |
| 30:BI:60:TRP:CD1   | 30:BI:60:TRP:C     | 2.89                     | 0.50              |
| 34:BM:59:ARG:CD    | 34:BM:61:ILE:HG12  | 2.40                     | 0.50              |
| 36:BO:24:LEU:HD22  | 36:BO:50:VAL:HG22  | 1.94                     | 0.50              |
| 40:BS:111:ASP:OD1  | 40:BS:111:ASP:C    | 2.55                     | 0.50              |
| 41:BT:22:ARG:NH2   | 41:BT:32:PHE:HE2   | 2.10                     | 0.50              |
| 43:BV:227:ARG:HH12 | 43:BV:234:LEU:HD13 | 1.77                     | 0.50              |
| 45:BX:11:ILE:HB    | 45:BX:65:THR:HG21  | 1.93                     | 0.50              |
| 20:C2:112:G:C4'    | 20:C2:113:U:OP1    | 2.50                     | 0.50              |
| 24:CC:214:VAL:HG12 | 24:CC:257:ILE:HB   | 1.93                     | 0.50              |
| 24:CC:311:ALA:CB   | 35:CN:40:ARG:HH21  | 2.25                     | 0.50              |
| 25:CD:155:SER:HB3  | 25:CD:158:GLU:HG3  | 1.94                     | 0.50              |
| 26:CE:4:LEU:HD11   | 19:DX:163:PHE:HD1  | 1.77                     | 0.50              |
| 27:CF:128:GLY:CA   | 1:D1:146:U:O2'     | 2.53                     | 0.50              |
| 29:CH:140:VAL:HG11 | 29:CH:144:HIS:CB   | 2.40                     | 0.50              |
| 31:CJ:98:TYR:N     | 31:CJ:98:TYR:CD1   | 2.78                     | 0.50              |
| 33:CL:19:MET:HE2   | 33:CL:19:MET:CA    | 2.37                     | 0.50              |
| 33:CL:118:SER:HB3  | 33:CL:132:VAL:HG22 | 1.93                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:CN:41:THR:HG22  | 35:CN:43:SER:H     | 1.76                     | 0.50              |
| 37:CP:8:ARG:C      | 37:CP:11:THR:HG1   | 2.17                     | 0.50              |
| 43:CV:114:PHE:CD2  | 43:CV:115:ARG:O    | 2.65                     | 0.50              |
| 43:CV:132:THR:CG2  | 43:CV:227:ARG:HG3  | 2.42                     | 0.50              |
| 44:CW:14:ASN:HD21  | 44:CW:69:ARG:CZ    | 2.25                     | 0.50              |
| 44:CW:54:LEU:HA    | 44:CW:94:HIS:HB2   | 1.92                     | 0.50              |
| 1:D1:25:C:O2'      | 1:D1:326:A:N3      | 2.39                     | 0.50              |
| 1:D1:76:U:H2'      | 1:D1:77:A:H5'      | 1.93                     | 0.50              |
| 1:D1:436:U:O5'     | 1:D1:436:U:H6      | 1.95                     | 0.50              |
| 1:D1:512:G:N1      | 1:D1:513:G:C5      | 2.80                     | 0.50              |
| 1:D1:713:G:H2'     | 1:D1:715:A:N7      | 2.27                     | 0.50              |
| 1:D1:1397:G:C2'    | 1:D1:1398:G:H5'    | 2.42                     | 0.50              |
| 1:D1:1693:U:H2'    | 1:D1:1694:C:H6     | 1.75                     | 0.50              |
| 1:D1:1868:C:O2     | 2:DA:9:GLY:HA2     | 2.12                     | 0.50              |
| 1:D1:1869:G:H4'    | 2:DA:8:PHE:HD2     | 1.77                     | 0.50              |
| 1:D1:2251:A:H1'    | 46:EY:74:PRO:CG    | 2.41                     | 0.50              |
| 2:DA:14:LYS:HZ3    | 3:DB:52:TYR:HE1    | 1.58                     | 0.50              |
| 8:DH:9:VAL:CG1     | 8:DH:10:ALA:N      | 2.71                     | 0.50              |
| 9:DJ:119:PRO:CG    | 9:DJ:146:VAL:HG12  | 2.42                     | 0.50              |
| 18:DU:31:LYS:O     | 18:DU:34:LEU:HB2   | 2.11                     | 0.50              |
| 20:E2:45:G:C2'     | 20:E2:46:A:H5'     | 2.42                     | 0.50              |
| 20:E2:82:A:O2'     | 42:EU:50:ILE:HD11  | 2.11                     | 0.50              |
| 21:E3:43:A:P       | 25:ED:137:ARG:HH11 | 2.35                     | 0.50              |
| 21:E3:47:C:O2'     | 34:EM:227:GLN:NE2  | 2.44                     | 0.50              |
| 22:EA:45:CYS:O     | 22:EA:62:VAL:HA    | 2.11                     | 0.50              |
| 22:EA:203:VAL:HA   | 22:EA:213:GLY:HA2  | 1.93                     | 0.50              |
| 24:EC:81:ILE:HG12  | 24:EC:82:PRO:HD2   | 1.93                     | 0.50              |
| 24:EC:105:ARG:NE   | 1:F1:958:A:C6      | 2.80                     | 0.50              |
| 28:EG:58:UNK:HB1   | 28:EG:61:UNK:HG2   | 1.93                     | 0.50              |
| 30:EI:6:VAL:HG23   | 30:EI:30:GLN:HE21  | 1.75                     | 0.50              |
| 30:EI:132:ARG:HH12 | 1:F1:1216:C:C2'    | 2.23                     | 0.50              |
| 32:EK:145:CYS:HB2  | 18:FU:177:VAL:HG21 | 1.92                     | 0.50              |
| 33:EL:118:SER:HB3  | 33:EL:132:VAL:HG22 | 1.92                     | 0.50              |
| 40:ES:118:LEU:N    | 40:ES:118:LEU:HD23 | 2.26                     | 0.50              |
| 43:EV:200:TRP:CD2  | 43:EV:201:PRO:HD2  | 2.46                     | 0.50              |
| 43:EV:223:ASP:N    | 43:EV:223:ASP:OD1  | 2.44                     | 0.50              |
| 45:EX:29:LYS:HD3   | 1:F1:679:C:OP2     | 2.12                     | 0.50              |
| 1:F1:585:A:C6      | 1:F1:586:A:C6      | 3.00                     | 0.50              |
| 1:F1:1096:G:C2'    | 1:F1:1097:G:H5''   | 2.35                     | 0.50              |
| 1:F1:1185:A:H3'    | 1:F1:1186:A:H5''   | 1.89                     | 0.50              |
| 1:F1:1737:A:H62    | 7:FG:28:LYS:HD2    | 1.77                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:1740:U:C5'   | 1:F1:1741:U:OP2    | 2.60                     | 0.50              |
| 1:F1:2277:U:HO2'  | 1:F1:2278:G:P      | 2.34                     | 0.50              |
| 1:F1:2715:C:H3'   | 1:F1:2717:G:H21    | 1.77                     | 0.50              |
| 2:FA:26:THR:HB    | 2:FA:34:CYS:SG     | 2.51                     | 0.50              |
| 6:FF:17:TYR:O     | 6:FF:17:TYR:HD1    | 1.95                     | 0.50              |
| 20:G2:76:U:O4'    | 20:G2:76:U:O2      | 2.29                     | 0.50              |
| 20:G2:86:G:O6     | 40:GS:113:SER:OG   | 2.27                     | 0.50              |
| 21:G3:93:G:H4'    | 19:HX:96:GLN:OE1   | 2.12                     | 0.50              |
| 23:GB:40:LYS:HB3  | 23:GB:41:PRO:HD2   | 1.92                     | 0.50              |
| 23:GB:62:ARG:HG3  | 23:GB:62:ARG:NH1   | 2.12                     | 0.50              |
| 23:GB:220:LYS:HG2 | 23:GB:329:PRO:CD   | 2.41                     | 0.50              |
| 23:GB:252:ALA:HB1 | 1:H1:2931:G:O2'    | 2.11                     | 0.50              |
| 23:GB:267:GLN:HG3 | 23:GB:268:LEU:N    | 2.25                     | 0.50              |
| 24:GC:126:ARG:CB  | 24:GC:283:TYR:CE2  | 2.94                     | 0.50              |
| 27:GF:101:LYS:O   | 27:GF:105:VAL:HG23 | 2.11                     | 0.50              |
| 31:GJ:32:ASN:HD21 | 31:GJ:117:GLN:H    | 1.60                     | 0.50              |
| 32:GK:46:LEU:HD21 | 18:HU:2:LYS:O      | 2.12                     | 0.50              |
| 32:GK:50:TRP:HD1  | 35:GN:156:PRO:HD2  | 1.77                     | 0.50              |
| 32:GK:116:GLY:O   | 32:GK:137:ARG:NH1  | 2.45                     | 0.50              |
| 33:GL:13:LYS:NZ   | 16:HQ:46:ARG:HA    | 2.26                     | 0.50              |
| 33:GL:180:ARG:NH2 | 1:H1:301:A:H4'     | 2.26                     | 0.50              |
| 36:GO:132:TYR:CD2 | 36:GO:138:LEU:HA   | 2.47                     | 0.50              |
| 37:GP:53:PRO:HD3  | 37:GP:95:HIS:ND1   | 2.27                     | 0.50              |
| 42:GU:90:ARG:HG2  | 42:GU:94:ARG:HE    | 1.76                     | 0.50              |
| 46:GY:72:THR:HG22 | 46:GY:77:VAL:CG2   | 2.42                     | 0.50              |
| 1:H1:161:U:C2'    | 1:H1:162:C:H5''    | 2.40                     | 0.50              |
| 1:H1:184:C:H2'    | 1:H1:185:A:H8      | 1.76                     | 0.50              |
| 1:H1:280:G:H2'    | 1:H1:281:G:O5'     | 2.11                     | 0.50              |
| 1:H1:334:G:H2'    | 1:H1:335:A:O4'     | 2.12                     | 0.50              |
| 1:H1:347:A:H1'    | 1:H1:351:A:N3      | 2.27                     | 0.50              |
| 1:H1:434:A:C5'    | 1:H1:435:A:OP1     | 2.58                     | 0.50              |
| 1:H1:1005:A:O2'   | 1:H1:1006:C:C5'    | 2.60                     | 0.50              |
| 1:H1:1088:A:H5''  | 1:H1:1089:G:H5'    | 1.93                     | 0.50              |
| 1:H1:1115:U:H2'   | 1:H1:1116:C:C6     | 2.47                     | 0.50              |
| 1:H1:1123:A:H1'   | 1:H1:1124:G:OP2    | 2.11                     | 0.50              |
| 1:H1:1165:U:H2'   | 1:H1:1166:G:H5''   | 1.94                     | 0.50              |
| 1:H1:1254:C:H3'   | 1:H1:1255:A:H5''   | 1.93                     | 0.50              |
| 1:H1:1740:U:H5''  | 1:H1:1741:U:OP2    | 2.12                     | 0.50              |
| 1:H1:2305:U:H6    | 1:H1:2305:U:O5'    | 1.94                     | 0.50              |
| 1:H1:2550:U:C5'   | 1:H1:2551:A:O5'    | 2.58                     | 0.50              |
| 1:H1:3029:A:H2'   | 1:H1:3030:A:C8     | 2.47                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:3177:G:N2     | 19:HX:177:TYR:CE2  | 2.80                     | 0.50              |
| 2:HA:4:GLY:C       | 2:HA:6:PRO:CD      | 2.85                     | 0.50              |
| 19:HX:16:MET:HE1   | 19:HX:121:ILE:CD1  | 2.27                     | 0.50              |
| 1:A1:146:U:C4'     | 1:A1:147:U:O5'     | 2.54                     | 0.49              |
| 1:A1:512:G:O2'     | 1:A1:513:G:H5'     | 2.11                     | 0.49              |
| 1:A1:566:U:C5      | 1:A1:567:C:C5      | 3.00                     | 0.49              |
| 1:A1:613:U:H2'     | 1:A1:614:G:H8      | 1.77                     | 0.49              |
| 1:A1:1379:G:N2     | 5:AE:22:ASP:OD2    | 2.45                     | 0.49              |
| 1:A1:1549:U:H5''   | 1:A1:1632:U:O2     | 2.12                     | 0.49              |
| 1:A1:1626:U:OP2    | 36:BO:42:ARG:NH2   | 2.45                     | 0.49              |
| 1:A1:2132:U:H2'    | 1:A1:2138:A:N6     | 2.27                     | 0.49              |
| 1:A1:2640:G:OP1    | 1:A1:2641:U:H1'    | 2.12                     | 0.49              |
| 1:A1:2873:C:N4     | 1:A1:2874:U:O4     | 2.45                     | 0.49              |
| 1:A1:2879:U:O2'    | 1:A1:3003:U:H5'    | 2.12                     | 0.49              |
| 11:AL:20:VAL:HG12  | 11:AL:21:ARG:N     | 2.26                     | 0.49              |
| 12:AM:17:PHE:CD1   | 12:AM:75:LYS:HB3   | 2.47                     | 0.49              |
| 12:AM:75:LYS:O     | 12:AM:105:TYR:HE2  | 1.96                     | 0.49              |
| 16:AQ:83:THR:HG22  | 16:AQ:85:ARG:HB3   | 1.93                     | 0.49              |
| 18:AU:148:ASN:ND2  | 42:BU:122:LEU:O    | 2.45                     | 0.49              |
| 22:BA:31:ARG:HH12  | 22:BA:42:ILE:HG12  | 1.77                     | 0.49              |
| 22:BA:210:HIS:CD2  | 22:BA:211:PRO:HD2  | 2.47                     | 0.49              |
| 22:BA:253:GLU:OE2  | 22:GA:252:LYS:HB3  | 2.11                     | 0.49              |
| 23:BB:46:PHE:CZ    | 23:BB:84:MET:HG3   | 2.47                     | 0.49              |
| 24:BC:202:ARG:O    | 24:BC:203:ASN:HB2  | 2.11                     | 0.49              |
| 24:BC:214:VAL:HG12 | 24:BC:257:ILE:HB   | 1.94                     | 0.49              |
| 24:BC:227:LEU:O    | 24:BC:228:ARG:C    | 2.55                     | 0.49              |
| 38:BQ:77:GLU:HB2   | 38:BQ:78:PHE:CE2   | 2.47                     | 0.49              |
| 22:CA:84:TYR:CE2   | 22:CA:87:GLN:HA    | 2.47                     | 0.49              |
| 22:CA:205:MET:HE3  | 1:D1:939:A:C2      | 2.47                     | 0.49              |
| 24:CC:19:THR:CG2   | 24:CC:20:ALA:N     | 2.75                     | 0.49              |
| 25:CD:16:LYS:HB3   | 25:CD:72:ARG:HE    | 1.76                     | 0.49              |
| 27:CF:71:HIS:O     | 27:CF:74:THR:OG1   | 2.30                     | 0.49              |
| 33:CL:53:TYR:O     | 33:CL:54:LYS:HG2   | 2.12                     | 0.49              |
| 34:CM:39:GLN:HG2   | 34:CM:40:ASP:N     | 2.25                     | 0.49              |
| 34:CM:88:VAL:HG12  | 34:CM:246:LEU:HD21 | 1.94                     | 0.49              |
| 35:CN:53:LEU:C     | 35:CN:60:LYS:NZ    | 2.70                     | 0.49              |
| 39:CR:35:VAL:CG1   | 1:D1:2518:A:H3'    | 2.41                     | 0.49              |
| 43:CV:105:LEU:CD1  | 43:CV:131:ILE:HD13 | 2.42                     | 0.49              |
| 1:D1:213:A:H61     | 1:D1:227:G:C2'     | 2.22                     | 0.49              |
| 1:D1:467:A:C6      | 1:D1:512:G:N3      | 2.79                     | 0.49              |
| 1:D1:541:A:O2'     | 1:D1:542:C:H5'     | 2.12                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D1:613:U:H2'    | 1:D1:614:G:H8     | 1.77                     | 0.49              |
| 1:D1:855:A:O2'    | 1:D1:1890:C:H2'   | 2.12                     | 0.49              |
| 1:D1:1008:C:O3'   | 17:DT:23:LYS:NZ   | 2.42                     | 0.49              |
| 1:D1:1524:A:H2'   | 1:D1:1525:U:C6    | 2.46                     | 0.49              |
| 1:D1:2254:A:O2'   | 1:D1:2255:U:C5'   | 2.61                     | 0.49              |
| 1:D1:2274:A:H5'   | 1:D1:2300:G:N2    | 2.27                     | 0.49              |
| 1:D1:2536:A:H2'   | 1:D1:2537:C:H6    | 1.75                     | 0.49              |
| 1:D1:2736:A:H2'   | 1:D1:2737:A:C8    | 2.47                     | 0.49              |
| 5:DE:179:THR:HA   | 8:DH:12:THR:HG23  | 1.92                     | 0.49              |
| 15:DP:61:ALA:O    | 15:DP:65:LYS:HG3  | 2.12                     | 0.49              |
| 16:DQ:5:GLN:O     | 16:DQ:12:GLY:HA3  | 2.12                     | 0.49              |
| 19:DX:28:LEU:O    | 19:DX:29:PRO:C    | 2.52                     | 0.49              |
| 20:E2:20:A:H1'    | 1:F1:404:A:C2     | 2.47                     | 0.49              |
| 20:E2:73:G:O2'    | 20:E2:88:G:N2     | 2.45                     | 0.49              |
| 20:E2:114:G:N2    | 3:FB:11:LYS:NZ    | 2.60                     | 0.49              |
| 23:EB:210:ASN:ND2 | 23:EB:352:ILE:N   | 2.54                     | 0.49              |
| 24:EC:27:ALA:O    | 24:EC:30:THR:HB   | 2.11                     | 0.49              |
| 26:EE:91:LYS:HG2  | 26:EE:180:SER:CB  | 2.40                     | 0.49              |
| 29:EH:151:ALA:HA  | 29:EH:154:ARG:HG3 | 1.93                     | 0.49              |
| 30:EI:141:SER:HB3 | 30:EI:146:TRP:HB3 | 1.93                     | 0.49              |
| 30:EI:184:PRO:HA  | 30:EI:187:LYS:HD3 | 1.93                     | 0.49              |
| 32:EK:119:PRO:HG3 | 35:EN:94:LEU:HD13 | 1.93                     | 0.49              |
| 33:EL:93:LYS:HE3  | 1:F1:275:U:O2     | 2.12                     | 0.49              |
| 34:EM:56:THR:CG2  | 34:EM:57:ASN:N    | 2.75                     | 0.49              |
| 35:EN:2:ALA:HB3   | 1:F1:1186:A:OP1   | 2.12                     | 0.49              |
| 35:EN:155:ALA:CB  | 35:EN:158:GLN:NE2 | 2.65                     | 0.49              |
| 36:EO:6:LEU:HD11  | 36:EO:10:LEU:HD11 | 1.93                     | 0.49              |
| 43:EV:7:GLU:O     | 43:EV:11:LYS:HG3  | 2.12                     | 0.49              |
| 43:EV:207:PRO:HG3 | 43:EV:211:PHE:CE1 | 2.46                     | 0.49              |
| 1:F1:10:A:H2'     | 1:F1:11:A:H8      | 1.77                     | 0.49              |
| 1:F1:114:A:O5'    | 16:FQ:37:ARG:NH2  | 2.45                     | 0.49              |
| 1:F1:135:A:H2'    | 1:F1:242:G:N7     | 2.27                     | 0.49              |
| 1:F1:236:G:H2'    | 1:F1:237:A:C8     | 2.48                     | 0.49              |
| 1:F1:269:U:H2'    | 1:F1:270:C:C6     | 2.45                     | 0.49              |
| 1:F1:415:A:H4'    | 1:F1:653:C:O3'    | 2.11                     | 0.49              |
| 1:F1:442:G:N2     | 1:F1:536:A:C4     | 2.80                     | 0.49              |
| 1:F1:459:G:H5''   | 1:F1:460:A:OP1    | 2.12                     | 0.49              |
| 1:F1:512:G:O2'    | 1:F1:513:G:H5'    | 2.12                     | 0.49              |
| 1:F1:613:U:H2'    | 1:F1:614:G:H8     | 1.77                     | 0.49              |
| 1:F1:1061:G:C4    | 1:F1:1062:A:C8    | 3.00                     | 0.49              |
| 1:F1:1104:C:C6    | 17:FT:42:ASN:OD1  | 2.65                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1376:A:C5'    | 1:F1:1377:A:O4'    | 2.57                     | 0.49              |
| 1:F1:1446:C:C6     | 1:F1:1446:C:C5'    | 2.90                     | 0.49              |
| 1:F1:1646:G:C2'    | 1:F1:1647:U:H5'    | 2.42                     | 0.49              |
| 1:F1:1870:C:H5'    | 1:F1:1873:C:N4     | 2.27                     | 0.49              |
| 1:F1:2146:G:H2'    | 1:F1:2147:C:H5'    | 1.94                     | 0.49              |
| 1:F1:2301:C:O2     | 1:F1:2301:C:C2'    | 2.59                     | 0.49              |
| 1:F1:3101:G:C2     | 1:F1:3110:U:C5     | 2.99                     | 0.49              |
| 6:FF:56:THR:O      | 6:FF:57:LYS:CG     | 2.44                     | 0.49              |
| 17:FT:36:ASN:O     | 17:FT:40:LEU:HG    | 2.12                     | 0.49              |
| 21:G3:27:A:H5''    | 34:GM:57:ASN:ND2   | 2.23                     | 0.49              |
| 22:GA:68:TYR:C     | 22:GA:69:ARG:CG    | 2.84                     | 0.49              |
| 23:GB:140:LYS:O    | 23:GB:144:LEU:HG   | 2.10                     | 0.49              |
| 23:GB:171:GLN:CD   | 1:H1:3273:U:H5''   | 2.37                     | 0.49              |
| 23:GB:363:ILE:O    | 23:GB:363:ILE:HG22 | 2.12                     | 0.49              |
| 24:GC:195:ARG:HH11 | 24:GC:204:ARG:CB   | 2.25                     | 0.49              |
| 24:GC:311:ALA:CB   | 35:GN:40:ARG:HH21  | 2.25                     | 0.49              |
| 26:GE:124:ILE:HD11 | 26:GE:162:SER:OG   | 2.12                     | 0.49              |
| 28:GG:60:UNK:CG    | 1:H1:1249:G:C8     | 2.95                     | 0.49              |
| 29:GH:48:TYR:O     | 29:GH:139:ARG:HA   | 2.12                     | 0.49              |
| 31:GJ:131:PRO:HB2  | 9:HJ:15:VAL:HG21   | 1.94                     | 0.49              |
| 32:GK:51:HIS:CE1   | 18:HU:6:GLN:HA     | 2.39                     | 0.49              |
| 33:GL:22:ILE:O     | 33:GL:26:ARG:HG3   | 2.12                     | 0.49              |
| 34:GM:106:ALA:CA   | 34:GM:171:ILE:HD11 | 2.35                     | 0.49              |
| 38:GQ:60:ILE:HD11  | 38:GQ:90:VAL:HG22  | 1.94                     | 0.49              |
| 38:GQ:66:THR:HG22  | 38:GQ:66:THR:O     | 2.11                     | 0.49              |
| 40:GS:57:ILE:HG22  | 40:GS:63:LYS:HA    | 1.94                     | 0.49              |
| 41:GT:11:CYS:SG    | 41:GT:13:TYR:HD2   | 2.34                     | 0.49              |
| 1:H1:283:A:H4'     | 1:H1:283:A:OP2     | 2.12                     | 0.49              |
| 1:H1:443:G:H2'     | 1:H1:444:A:C8      | 2.47                     | 0.49              |
| 1:H1:512:G:O2'     | 1:H1:513:G:H5'     | 2.12                     | 0.49              |
| 1:H1:592:A:H2'     | 1:H1:593:U:H6      | 1.77                     | 0.49              |
| 1:H1:1017:U:C6     | 1:H1:1017:U:C3'    | 2.95                     | 0.49              |
| 1:H1:1128:G:H2'    | 1:H1:1129:C:C6     | 2.47                     | 0.49              |
| 1:H1:1240:G:C4'    | 19:HX:104:MET:HE3  | 2.42                     | 0.49              |
| 1:H1:2703:G:H2'    | 1:H1:2740:G:N2     | 2.24                     | 0.49              |
| 1:H1:3204:A:H1'    | 1:H1:3207:A:H5''   | 1.93                     | 0.49              |
| 1:H1:3268:C:C4     | 1:H1:3269:G:C5     | 3.00                     | 0.49              |
| 7:HG:49:PRO:HG2    | 7:HG:52:ARG:HB2    | 1.93                     | 0.49              |
| 8:HH:58:TYR:CE2    | 8:HH:60:TYR:HD2    | 2.30                     | 0.49              |
| 11:HL:39:VAL:HG11  | 11:HL:60:ARG:HA    | 1.93                     | 0.49              |
| 18:HU:132:LYS:HA   | 18:HU:135:LEU:CD1  | 2.37                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:HX:96:GLN:N     | 19:HX:134:THR:CG2  | 2.75                     | 0.49              |
| 1:A1:310:U:H3      | 1:A1:2766:A:H61    | 1.59                     | 0.49              |
| 1:A1:358:C:H4'     | 1:A1:842:A:H61     | 1.77                     | 0.49              |
| 1:A1:519:A:H5''    | 14:AO:89:ARG:NH1   | 2.28                     | 0.49              |
| 1:A1:607:U:C2'     | 1:A1:608:C:H5'     | 2.42                     | 0.49              |
| 1:A1:777:C:H2'     | 1:A1:778:G:H8      | 1.77                     | 0.49              |
| 1:A1:1044:G:H2'    | 1:A1:1045:G:H8     | 1.77                     | 0.49              |
| 1:A1:1115:U:H2'    | 1:A1:1116:C:C6     | 2.47                     | 0.49              |
| 1:A1:1185:A:H5'    | 43:BV:108:LEU:HD11 | 1.94                     | 0.49              |
| 1:A1:1488:A:O2'    | 1:A1:1489:U:H5'    | 2.12                     | 0.49              |
| 1:A1:1592:G:H2'    | 1:A1:1593:A:H8     | 1.75                     | 0.49              |
| 1:A1:1952:G:P      | 46:BY:12:ARG:HH12  | 2.35                     | 0.49              |
| 1:A1:2661:G:O3'    | 25:BD:94:LYS:O     | 2.29                     | 0.49              |
| 1:A1:2898:A:N7     | 50:A1:4292:HOH:O   | 2.35                     | 0.49              |
| 1:A1:2899:C:H5''   | 50:A1:4436:HOH:O   | 2.11                     | 0.49              |
| 1:A1:2958:C:O3'    | 1:A1:2959:A:C8     | 2.64                     | 0.49              |
| 1:A1:3325:G:N2     | 23:BB:378:PHE:CD1  | 2.79                     | 0.49              |
| 2:AA:28:HIS:O      | 2:AA:32:LEU:N      | 2.45                     | 0.49              |
| 2:AA:80:ARG:NH1    | 20:B2:96:A:C6      | 2.80                     | 0.49              |
| 5:AE:67:LYS:HD2    | 5:AE:109:THR:HB    | 1.93                     | 0.49              |
| 6:AF:28:VAL:HG12   | 6:AF:66:ASN:N      | 2.25                     | 0.49              |
| 7:AG:83:LYS:HD2    | 7:AG:85:HIS:CE1    | 2.47                     | 0.49              |
| 13:AN:53:VAL:HG11  | 13:AN:62:ILE:HG23  | 1.94                     | 0.49              |
| 16:AQ:7:VAL:CG1    | 16:AQ:7:VAL:O      | 2.60                     | 0.49              |
| 22:BA:103:LEU:HB2  | 22:BA:108:ILE:HD11 | 1.94                     | 0.49              |
| 23:BB:40:LYS:HB3   | 23:BB:41:PRO:HD2   | 1.93                     | 0.49              |
| 24:BC:19:THR:CG2   | 24:BC:20:ALA:N     | 2.75                     | 0.49              |
| 24:BC:258:TRP:CZ3  | 24:BC:266:LEU:HD11 | 2.47                     | 0.49              |
| 27:BF:50:TYR:CD1   | 27:BF:51:ILE:HG23  | 2.46                     | 0.49              |
| 27:BF:134:THR:HG22 | 27:BF:138:ASN:ND2  | 2.27                     | 0.49              |
| 29:BH:190:LEU:HD22 | 29:BH:197:VAL:HG11 | 1.92                     | 0.49              |
| 35:BN:87:VAL:HG23  | 35:BN:103:ALA:CB   | 2.42                     | 0.49              |
| 43:BV:84:ILE:O     | 43:BV:131:ILE:HG23 | 2.12                     | 0.49              |
| 45:BX:3:ILE:O      | 45:BX:3:ILE:HG22   | 2.12                     | 0.49              |
| 22:CA:9:ARG:HD3    | 1:D1:936:C:OP2     | 2.11                     | 0.49              |
| 23:CB:66:ARG:CZ    | 31:CJ:15:ALA:HB2   | 2.41                     | 0.49              |
| 24:CC:166:TYR:HD1  | 24:CC:171:GLN:CG   | 2.26                     | 0.49              |
| 24:CC:276:THR:HG22 | 24:CC:277:GLY:N    | 2.26                     | 0.49              |
| 24:CC:289:LEU:HD12 | 35:CN:24:ASN:ND2   | 2.26                     | 0.49              |
| 26:CE:124:ILE:HD11 | 26:CE:162:SER:OG   | 2.11                     | 0.49              |
| 29:CH:183:ARG:O    | 29:CH:187:GLN:HG3  | 2.12                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:CI:9:ASP:O      | 30:CI:13:HIS:CD2   | 2.64                     | 0.49              |
| 32:CK:122:PRO:CB   | 32:CK:142:GLY:O    | 2.60                     | 0.49              |
| 33:CL:188:ARG:NH2  | 1:D1:278:U:O2'     | 2.43                     | 0.49              |
| 34:CM:160:PHE:HA   | 34:CM:163:LEU:HB2  | 1.93                     | 0.49              |
| 34:CM:175:HIS:CD2  | 34:CM:180:PHE:CE2  | 2.96                     | 0.49              |
| 40:CS:50:ARG:HB2   | 40:CS:114:ARG:NH2  | 2.28                     | 0.49              |
| 42:CU:92:ILE:HA    | 42:CU:95:LYS:HE2   | 1.93                     | 0.49              |
| 44:CW:43:MET:HA    | 44:CW:43:MET:CE    | 2.38                     | 0.49              |
| 1:D1:209:A:H4'     | 1:D1:211:A:C8      | 2.48                     | 0.49              |
| 1:D1:339:C:P       | 50:D1:3881:HOH:O   | 2.58                     | 0.49              |
| 1:D1:621:G:C6      | 1:D1:622:G:N1      | 2.80                     | 0.49              |
| 1:D1:1376:A:C5'    | 1:D1:1377:A:O4'    | 2.57                     | 0.49              |
| 1:D1:1393:A:C2     | 1:D1:1394:G:C4     | 3.00                     | 0.49              |
| 1:D1:1658:G:P      | 13:DN:107:LYS:NZ   | 2.84                     | 0.49              |
| 1:D1:1731:G:H21    | 11:DL:54:ASN:HD21  | 1.58                     | 0.49              |
| 1:D1:1745:U:C2     | 1:D1:1748:U:C5     | 2.99                     | 0.49              |
| 1:D1:2155:C:C3'    | 1:D1:2156:G:H5'    | 2.42                     | 0.49              |
| 1:D1:2203:A:O2'    | 1:D1:2204:U:O4'    | 2.30                     | 0.49              |
| 1:D1:2395:G:N7     | 1:D1:2396:A:N6     | 2.60                     | 0.49              |
| 1:D1:2906:G:H5''   | 1:D1:2906:G:C8     | 2.47                     | 0.49              |
| 1:D1:2990:U:O2'    | 1:D1:2991:U:H5'    | 2.13                     | 0.49              |
| 1:D1:3305:A:C2     | 1:D1:3315:A:C2     | 3.01                     | 0.49              |
| 8:DH:20:PHE:CD1    | 8:DH:20:PHE:C      | 2.91                     | 0.49              |
| 9:DJ:197:LEU:HD12  | 9:DJ:205:PHE:O     | 2.11                     | 0.49              |
| 13:DN:76:ASN:OD1   | 13:DN:76:ASN:C     | 2.54                     | 0.49              |
| 13:DN:91:CYS:SG    | 13:DN:96:LEU:HD12  | 2.51                     | 0.49              |
| 14:DO:40:LEU:HD22  | 14:DO:42:PHE:HE1   | 1.76                     | 0.49              |
| 20:E2:100:C:H5''   | 20:E2:101:U:OP1    | 2.11                     | 0.49              |
| 23:EB:267:GLN:HG3  | 23:EB:268:LEU:N    | 2.27                     | 0.49              |
| 27:EF:121:LYS:HD3  | 1:F1:118:A:N7      | 2.26                     | 0.49              |
| 27:EF:232:GLN:OE1  | 1:F1:2573:U:H1'    | 2.12                     | 0.49              |
| 29:EH:166:VAL:HG12 | 29:EH:167:THR:N    | 2.27                     | 0.49              |
| 30:EI:61:MET:HE1   | 30:EI:68:GLY:CA    | 2.34                     | 0.49              |
| 30:EI:129:ARG:NH2  | 1:F1:1343:G:N2     | 2.60                     | 0.49              |
| 30:EI:196:PHE:CZ   | 6:FF:110:ARG:HB2   | 2.47                     | 0.49              |
| 32:EK:127:ALA:HB3  | 32:EK:130:PHE:CZ   | 2.47                     | 0.49              |
| 33:EL:5:LYS:HB2    | 1:F1:114:A:OP2     | 2.13                     | 0.49              |
| 33:EL:142:ILE:HG23 | 33:EL:148:ILE:HG22 | 1.93                     | 0.49              |
| 34:EM:166:ALA:HB1  | 34:EM:173:ILE:HD11 | 1.94                     | 0.49              |
| 35:EN:73:ASN:N     | 35:EN:76:ASN:HB2   | 2.18                     | 0.49              |
| 36:EO:28:GLU:HB3   | 36:EO:49:LEU:HD13  | 1.93                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 37:EP:76:VAL:HG12  | 37:EP:77:HIS:N     | 2.27                     | 0.49              |
| 40:ES:57:ILE:HG22  | 40:ES:63:LYS:HA    | 1.95                     | 0.49              |
| 43:EV:213:ASN:HD22 | 43:EV:216:HIS:CD2  | 2.30                     | 0.49              |
| 44:EW:50:ILE:O     | 1:F1:1486:A:H5'    | 2.12                     | 0.49              |
| 45:EX:62:ASP:CB    | 1:F1:1365:C:O3'    | 2.57                     | 0.49              |
| 1:F1:170:A:C5      | 1:F1:250:U:C4      | 3.01                     | 0.49              |
| 1:F1:510:A:C5'     | 14:FO:68:HIS:O     | 2.60                     | 0.49              |
| 1:F1:1166:G:N2     | 1:F1:1167:G:H1'    | 2.27                     | 0.49              |
| 1:F1:1249:G:H2'    | 1:F1:1312:G:H22    | 1.78                     | 0.49              |
| 1:F1:2276:A:C6     | 1:F1:2947:C:H1'    | 2.47                     | 0.49              |
| 1:F1:2391:G:H5'    | 1:F1:2392:A:C5'    | 2.42                     | 0.49              |
| 1:F1:2533:C:H2'    | 1:F1:2533:C:O2     | 2.11                     | 0.49              |
| 1:F1:2550:U:C5'    | 1:F1:2551:A:O5'    | 2.60                     | 0.49              |
| 1:F1:3044:A:H5''   | 1:F1:3045:A:OP1    | 2.11                     | 0.49              |
| 1:F1:3070:C:H2'    | 1:F1:3071:C:C6     | 2.47                     | 0.49              |
| 1:F1:3083:A:H2'    | 1:F1:3084:U:H6     | 1.76                     | 0.49              |
| 1:F1:3228:U:C4     | 5:FE:146:LYS:HG3   | 2.47                     | 0.49              |
| 9:FJ:59:VAL:HG23   | 9:FJ:60:GLY:N      | 2.27                     | 0.49              |
| 9:FJ:211:THR:OG1   | 9:FJ:214:GLU:HG3   | 2.13                     | 0.49              |
| 15:FP:53:PHE:HE1   | 15:FP:55:THR:HG22  | 1.77                     | 0.49              |
| 22:GA:41:TYR:OH    | 1:H1:2541:U:H2'    | 2.11                     | 0.49              |
| 24:GC:269:ILE:HG22 | 24:GC:270:PHE:CD1  | 2.46                     | 0.49              |
| 25:GD:37:LEU:HD13  | 25:GD:69:VAL:CG2   | 2.42                     | 0.49              |
| 25:GD:93:LYS:HE2   | 25:GD:156:LYS:NZ   | 2.27                     | 0.49              |
| 27:GF:153:ILE:O    | 27:GF:157:ILE:HG13 | 2.13                     | 0.49              |
| 29:GH:68:ALA:HA    | 29:GH:158:LYS:HG3  | 1.93                     | 0.49              |
| 30:GI:141:SER:HB3  | 30:GI:146:TRP:HB3  | 1.93                     | 0.49              |
| 35:GN:77:LYS:HE2   | 35:GN:98:LYS:HE2   | 1.94                     | 0.49              |
| 36:GO:106:LEU:HB3  | 36:GO:120:TYR:HE1  | 1.76                     | 0.49              |
| 37:GP:57:TYR:OH    | 37:GP:87:LYS:HD2   | 2.12                     | 0.49              |
| 39:GR:56:ARG:HB3   | 39:GR:61:VAL:CG2   | 2.42                     | 0.49              |
| 42:GU:122:LEU:HD13 | 18:HU:150:LEU:CD2  | 2.42                     | 0.49              |
| 43:GV:138:ARG:HB3  | 43:GV:186:THR:HG21 | 1.93                     | 0.49              |
| 44:GW:10:ASP:OD1   | 44:GW:73:ARG:CG    | 2.58                     | 0.49              |
| 45:GX:59:PHE:CE1   | 1:H1:1189:U:H4'    | 2.47                     | 0.49              |
| 46:GY:12:ARG:HG2   | 1:H1:861:A:O4'     | 2.12                     | 0.49              |
| 1:H1:424:G:C2'     | 1:H1:425:U:H5'     | 2.42                     | 0.49              |
| 1:H1:612:C:HO2'    | 1:H1:613:U:H5'     | 1.76                     | 0.49              |
| 1:H1:621:G:N2      | 1:H1:634:G:H5''    | 2.27                     | 0.49              |
| 1:H1:1207:A:C4     | 1:H1:1209:G:C8     | 2.99                     | 0.49              |
| 1:H1:1600:U:H2'    | 1:H1:1601:U:O4'    | 2.12                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1621:G:H2'   | 1:H1:1622:A:C8     | 2.48                     | 0.49              |
| 1:H1:1656:G:C6    | 1:H1:1657:C:C4     | 3.00                     | 0.49              |
| 1:H1:2276:A:N6    | 1:H1:2947:C:O2'    | 2.45                     | 0.49              |
| 1:H1:2368:A:H4'   | 50:H1:3737:HOH:O   | 2.11                     | 0.49              |
| 9:HJ:58:ILE:HG13  | 9:HJ:62:VAL:HG21   | 1.93                     | 0.49              |
| 13:HN:36:ARG:NH1  | 13:HN:74:TYR:CD1   | 2.76                     | 0.49              |
| 14:HO:40:LEU:HD22 | 14:HO:42:PHE:HE1   | 1.77                     | 0.49              |
| 15:HP:53:PHE:HE1  | 15:HP:55:THR:HG22  | 1.77                     | 0.49              |
| 16:HQ:15:THR:OG1  | 18:HU:103:CYS:SG   | 2.44                     | 0.49              |
| 19:HX:25:ALA:CB   | 19:HX:71:ARG:O     | 2.58                     | 0.49              |
| 19:HX:42:ARG:NE   | 19:HX:44:PHE:HE1   | 2.09                     | 0.49              |
| 1:A1:68:A:H1'     | 1:A1:70:C:N4       | 2.27                     | 0.49              |
| 1:A1:541:A:O2'    | 1:A1:542:C:H5'     | 2.12                     | 0.49              |
| 1:A1:548:G:C2     | 1:A1:635:A:C2      | 2.99                     | 0.49              |
| 1:A1:615:G:N2     | 8:AH:79:LYS:CE     | 2.69                     | 0.49              |
| 1:A1:660:C:C2'    | 45:BX:43:ARG:HH22  | 2.25                     | 0.49              |
| 1:A1:661:C:C2     | 1:A1:662:C:C5      | 3.00                     | 0.49              |
| 1:A1:687:C:H2'    | 1:A1:688:U:H6      | 1.76                     | 0.49              |
| 1:A1:738:U:O2'    | 1:A1:739:G:H5'     | 2.12                     | 0.49              |
| 1:A1:1060:C:C4    | 1:A1:1061:G:N7     | 2.81                     | 0.49              |
| 1:A1:1255:A:C2    | 1:A1:1309:G:C6     | 3.00                     | 0.49              |
| 1:A1:1412:U:O4    | 24:BC:207:LYS:NZ   | 2.46                     | 0.49              |
| 1:A1:1519:G:C2    | 3:AB:13:PHE:CE1    | 3.00                     | 0.49              |
| 1:A1:1740:U:C5'   | 1:A1:1741:U:OP2    | 2.60                     | 0.49              |
| 1:A1:1951:G:OP1   | 46:BY:8:VAL:CG2    | 2.59                     | 0.49              |
| 1:A1:2300:G:O5'   | 1:A1:2300:G:C8     | 2.65                     | 0.49              |
| 1:A1:2536:A:H2'   | 1:A1:2537:C:H6     | 1.77                     | 0.49              |
| 1:A1:2658:U:H2'   | 1:A1:2659:G:C8     | 2.47                     | 0.49              |
| 1:A1:2665:G:C5    | 1:A1:2669:A:N6     | 2.81                     | 0.49              |
| 1:A1:2669:A:N3    | 25:BD:59:ILE:HD11  | 2.27                     | 0.49              |
| 1:A1:3155:A:N7    | 8:AH:101:GLY:C     | 2.70                     | 0.49              |
| 1:A1:3176:A:C4'   | 1:A1:3177:G:O5'    | 2.59                     | 0.49              |
| 1:A1:3179:U:H2'   | 1:A1:3180:C:H6     | 1.78                     | 0.49              |
| 4:AC:95:THR:O     | 4:AC:99:LYS:HG3    | 2.12                     | 0.49              |
| 5:AE:49:THR:CG2   | 5:AE:50:VAL:N      | 2.75                     | 0.49              |
| 8:AH:11:PRO:CG    | 8:AH:12:THR:N      | 2.75                     | 0.49              |
| 8:AH:52:GLN:O     | 8:AH:77:ILE:O      | 2.30                     | 0.49              |
| 9:AJ:43:VAL:CG1   | 9:AJ:44:PRO:N      | 2.75                     | 0.49              |
| 13:AN:98:LYS:HB2  | 13:AN:101:LYS:HB2  | 1.94                     | 0.49              |
| 14:AO:94:ILE:CD1  | 14:AO:111:LEU:HD12 | 2.42                     | 0.49              |
| 17:AT:41:ARG:O    | 17:AT:45:ARG:HG3   | 2.12                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:BA:42:ILE:CD1   | 22:BA:43:ARG:N     | 2.68                     | 0.49              |
| 22:BA:118:GLU:HG2  | 22:BA:123:ASP:HB2  | 1.94                     | 0.49              |
| 23:BB:17:ARG:HA    | 23:BB:18:PRO:C     | 2.37                     | 0.49              |
| 24:BC:272:THR:O    | 24:BC:275:THR:O    | 2.30                     | 0.49              |
| 25:BD:25:GLU:O     | 25:BD:30:LEU:HD11  | 2.12                     | 0.49              |
| 26:BE:84:GLU:HB3   | 26:BE:185:ALA:O    | 2.12                     | 0.49              |
| 27:BF:69:GLN:HG2   | 27:BF:222:ARG:HH12 | 1.77                     | 0.49              |
| 29:BH:183:ARG:O    | 29:BH:187:GLN:HG3  | 2.11                     | 0.49              |
| 30:BI:6:VAL:HG23   | 30:BI:30:GLN:HE21  | 1.76                     | 0.49              |
| 32:BK:76:ASN:HB3   | 32:BK:78:ASP:OD1   | 2.12                     | 0.49              |
| 34:BM:230:LYS:O    | 34:BM:234:THR:HB   | 2.13                     | 0.49              |
| 43:BV:42:ILE:HG22  | 43:BV:46:GLN:NE2   | 2.28                     | 0.49              |
| 43:BV:98:ARG:HH12  | 43:BV:101:ARG:NH1  | 2.10                     | 0.49              |
| 43:BV:105:LEU:HD12 | 43:BV:131:ILE:CD1  | 2.43                     | 0.49              |
| 43:BV:138:ARG:HB3  | 43:BV:186:THR:HG21 | 1.94                     | 0.49              |
| 45:BX:43:ARG:HA    | 45:BX:48:PHE:CD2   | 2.48                     | 0.49              |
| 21:C3:93:G:H4'     | 19:DX:96:GLN:NE2   | 2.28                     | 0.49              |
| 22:CA:175:ARG:HA   | 46:CY:69:TRP:CZ2   | 2.47                     | 0.49              |
| 23:CB:26:ARG:HD2   | 23:CB:177:LEU:CD2  | 2.42                     | 0.49              |
| 23:CB:119:TYR:CE1  | 1:D1:3255:A:H5''   | 2.47                     | 0.49              |
| 24:CC:80:ARG:NH2   | 1:D1:2802:G:OP1    | 2.33                     | 0.49              |
| 24:CC:159:PHE:CZ   | 24:CC:179:VAL:CG1  | 2.95                     | 0.49              |
| 24:CC:195:ARG:NH1  | 24:CC:204:ARG:HB2  | 2.26                     | 0.49              |
| 30:CI:11:LYS:CD    | 30:CI:36:ARG:NH1   | 2.75                     | 0.49              |
| 33:CL:59:TYR:OH    | 33:CL:148:ILE:HD13 | 2.12                     | 0.49              |
| 34:CM:240:VAL:HG12 | 34:CM:242:SER:H    | 1.77                     | 0.49              |
| 47:CO:87:ALA:O     | 50:CO:202:HOH:O    | 2.18                     | 0.49              |
| 47:CO:96:MET:HG2   | 1:D1:1746:U:C1'    | 2.42                     | 0.49              |
| 39:CR:61:VAL:HG23  | 39:CR:61:VAL:O     | 2.11                     | 0.49              |
| 42:CU:80:LYS:HB3   | 42:CU:81:PRO:HD2   | 1.95                     | 0.49              |
| 43:CV:185:ILE:HA   | 43:CV:192:PHE:CE1  | 2.47                     | 0.49              |
| 44:CW:43:MET:HE2   | 44:CW:43:MET:CA    | 2.37                     | 0.49              |
| 44:CW:68:ARG:C     | 44:CW:69:ARG:HG2   | 2.37                     | 0.49              |
| 45:CX:75:LYS:NZ    | 45:CX:97:GLU:OE1   | 2.45                     | 0.49              |
| 1:D1:614:G:OP1     | 8:DH:113:ALA:C     | 2.55                     | 0.49              |
| 1:D1:742:U:H4'     | 1:D1:743:A:OP1     | 2.10                     | 0.49              |
| 1:D1:974:C:H2'     | 1:D1:975:G:O4'     | 2.12                     | 0.49              |
| 1:D1:1055:A:C4     | 1:D1:1056:A:C8     | 3.01                     | 0.49              |
| 1:D1:1166:G:N2     | 1:D1:1167:G:H1'    | 2.27                     | 0.49              |
| 1:D1:1752:G:H4'    | 1:D1:1753:A:OP2    | 2.11                     | 0.49              |
| 1:D1:1782:C:H2'    | 1:D1:1783:U:H5''   | 1.93                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:2256:G:H2'   | 1:D1:2256:G:P      | 2.52                     | 0.49              |
| 1:D1:3177:G:C2    | 19:DX:177:TYR:CE2  | 3.00                     | 0.49              |
| 5:DE:67:LYS:HB2   | 5:DE:109:THR:HG21  | 1.94                     | 0.49              |
| 5:DE:134:LEU:HD22 | 5:DE:138:GLN:OE1   | 2.11                     | 0.49              |
| 19:DX:23:VAL:HG22 | 19:DX:75:VAL:HG22  | 1.95                     | 0.49              |
| 21:E3:10:C:C5     | 34:EM:20:TYR:HE1   | 2.29                     | 0.49              |
| 21:E3:93:G:H4'    | 19:FX:96:GLN:HE22  | 1.77                     | 0.49              |
| 21:E3:120:U:OP1   | 34:EM:270:PRO:CB   | 2.60                     | 0.49              |
| 23:EB:33:PRO:HA   | 23:EB:340:ILE:HA   | 1.93                     | 0.49              |
| 23:EB:301:LYS:HD3 | 23:EB:359:THR:HG23 | 1.92                     | 0.49              |
| 24:EC:77:ALA:N    | 1:F1:2397:A:OP1    | 2.45                     | 0.49              |
| 25:ED:7:ASN:C     | 25:ED:9:MET:N      | 2.69                     | 0.49              |
| 27:EF:153:ILE:O   | 27:EF:157:ILE:HG13 | 2.11                     | 0.49              |
| 29:EH:22:TYR:CZ   | 1:F1:1074:A:H2'    | 2.48                     | 0.49              |
| 29:EH:99:ILE:HG22 | 29:EH:123:LEU:HB2  | 1.94                     | 0.49              |
| 32:EK:74:VAL:HG11 | 32:EK:113:LEU:CD1  | 2.42                     | 0.49              |
| 33:EL:18:LEU:HD23 | 33:EL:19:MET:HE3   | 1.95                     | 0.49              |
| 33:EL:55:ASN:HB3  | 1:F1:145:A:H4'     | 1.93                     | 0.49              |
| 33:EL:185:ARG:NH1 | 1:F1:62:G:OP1      | 2.45                     | 0.49              |
| 33:EL:203:TYR:O   | 33:EL:204:ARG:HB2  | 2.12                     | 0.49              |
| 34:EM:254:ILE:O   | 34:EM:258:PRO:HB3  | 2.12                     | 0.49              |
| 46:EY:58:LYS:N    | 46:EY:59:PRO:HD2   | 2.27                     | 0.49              |
| 1:F1:116:U:H3'    | 1:F1:117:G:H8      | 1.78                     | 0.49              |
| 1:F1:467:A:C6     | 1:F1:468:A:C4      | 3.00                     | 0.49              |
| 1:F1:476:A:C2     | 1:F1:500:G:C2      | 3.00                     | 0.49              |
| 1:F1:566:U:C5     | 1:F1:567:C:C5      | 3.00                     | 0.49              |
| 1:F1:1005:A:O2'   | 1:F1:1006:C:C5'    | 2.61                     | 0.49              |
| 1:F1:1570:U:H4'   | 1:F1:2164:C:O4'    | 2.11                     | 0.49              |
| 1:F1:1600:U:C4    | 1:F1:1601:U:C5     | 3.00                     | 0.49              |
| 1:F1:1662:A:H4'   | 11:FL:76:ARG:NH2   | 2.28                     | 0.49              |
| 1:F1:1682:G:H2'   | 1:F1:1683:U:C6     | 2.48                     | 0.49              |
| 1:F1:1711:U:H1'   | 12:FM:77:TYR:CD2   | 2.47                     | 0.49              |
| 1:F1:1942:C:H6    | 1:F1:1942:C:H5''   | 1.77                     | 0.49              |
| 1:F1:2275:A:O2'   | 1:F1:2276:A:P      | 2.70                     | 0.49              |
| 1:F1:2736:A:H2'   | 1:F1:2737:A:C8     | 2.47                     | 0.49              |
| 1:F1:3166:A:H2'   | 1:F1:3167:U:C6     | 2.48                     | 0.49              |
| 1:F1:3178:U:H5''  | 6:FF:97:LYS:NZ     | 2.26                     | 0.49              |
| 1:F1:3237:C:N4    | 8:FH:9:VAL:C       | 2.70                     | 0.49              |
| 4:FC:75:CYS:O     | 4:FC:76:LYS:HB2    | 2.12                     | 0.49              |
| 6:FF:2:VAL:CG1    | 6:FF:3:PHE:H       | 2.18                     | 0.49              |
| 13:FN:4:PHE:HB3   | 13:FN:9:ARG:HH21   | 1.76                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 14:FO:9:VAL:HG12   | 14:FO:13:ASN:CB    | 2.42                     | 0.49              |
| 19:FX:18:VAL:HG21  | 19:FX:117:VAL:HG12 | 1.95                     | 0.49              |
| 20:G2:140:U:H2'    | 20:G2:141:G:O4'    | 2.12                     | 0.49              |
| 23:GB:20:ARG:CB    | 1:H1:2979:A:P      | 2.99                     | 0.49              |
| 23:GB:56:ILE:HG22  | 23:GB:57:LEU:N     | 2.28                     | 0.49              |
| 23:GB:238:LYS:HE3  | 1:H1:2332:C:P      | 2.52                     | 0.49              |
| 24:GC:166:TYR:HD1  | 24:GC:171:GLN:CG   | 2.25                     | 0.49              |
| 25:GD:8:LYS:O      | 25:GD:11:GLU:HG3   | 2.12                     | 0.49              |
| 26:GE:18:ILE:HG12  | 26:GE:27:VAL:HG22  | 1.93                     | 0.49              |
| 26:GE:48:PRO:HB3   | 26:GE:53:VAL:HG22  | 1.94                     | 0.49              |
| 27:GF:136:ILE:HD13 | 27:GF:163:CYS:SG   | 2.52                     | 0.49              |
| 29:GH:3:ARG:HH12   | 29:GH:63:GLU:CB    | 2.24                     | 0.49              |
| 32:GK:23:GLY:O     | 32:GK:24:LYS:O     | 2.30                     | 0.49              |
| 32:GK:62:THR:N     | 1:H1:87:A:OP1      | 2.38                     | 0.49              |
| 32:GK:109:PHE:C    | 32:GK:110:PHE:CD1  | 2.90                     | 0.49              |
| 33:GL:115:VAL:HA   | 33:GL:134:LEU:HD23 | 1.93                     | 0.49              |
| 34:GM:54:ARG:NH1   | 34:GM:149:GLY:HA3  | 2.27                     | 0.49              |
| 35:GN:4:ASP:O      | 43:GV:101:ARG:NH2  | 2.45                     | 0.49              |
| 35:GN:87:VAL:HG23  | 35:GN:103:ALA:CB   | 2.42                     | 0.49              |
| 37:GP:76:VAL:HG12  | 37:GP:77:HIS:N     | 2.27                     | 0.49              |
| 1:H1:541:A:O2'     | 1:H1:542:C:H5'     | 2.12                     | 0.49              |
| 1:H1:634:G:H5'     | 5:HE:30:ARG:NH2    | 2.27                     | 0.49              |
| 1:H1:784:G:C2      | 1:H1:797:A:N6      | 2.80                     | 0.49              |
| 1:H1:785:A:H61     | 1:H1:795:G:H1'     | 1.76                     | 0.49              |
| 1:H1:791:C:H4'     | 1:H1:792:G:O5'     | 2.10                     | 0.49              |
| 1:H1:1226:C:H4'    | 1:H1:1227:A:O5'    | 2.08                     | 0.49              |
| 1:H1:1519:G:C2     | 3:HB:13:PHE:CZ     | 3.00                     | 0.49              |
| 1:H1:1773:G:OP1    | 15:HP:52:THR:HG21  | 2.12                     | 0.49              |
| 1:H1:2559:U:N3     | 1:H1:2560:U:C5     | 2.80                     | 0.49              |
| 1:H1:2873:C:N4     | 1:H1:2874:U:O4     | 2.46                     | 0.49              |
| 1:H1:3085:C:H2'    | 1:H1:3086:U:C6     | 2.46                     | 0.49              |
| 1:H1:3142:A:O5'    | 1:H1:3142:A:H8     | 1.95                     | 0.49              |
| 5:HE:67:LYS:HB2    | 5:HE:109:THR:HG21  | 1.94                     | 0.49              |
| 6:HF:11:ARG:HG3    | 6:HF:12:VAL:N      | 2.27                     | 0.49              |
| 14:HO:108:LEU:O    | 14:HO:111:LEU:HB2  | 2.11                     | 0.49              |
| 1:A1:22:U:H2'      | 1:A1:23:U:C6       | 2.47                     | 0.49              |
| 1:A1:785:A:H61     | 1:A1:795:G:H1'     | 1.78                     | 0.49              |
| 1:A1:822:U:OP1     | 18:AU:1:MET:N      | 2.38                     | 0.49              |
| 1:A1:827:C:H2'     | 1:A1:828:C:C6      | 2.47                     | 0.49              |
| 1:A1:1203:C:H5'    | 30:BI:27:LEU:HD11  | 1.94                     | 0.49              |
| 1:A1:1540:U:C5     | 1:A1:1865:A:N3     | 2.81                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2348:G:C5     | 1:A1:2349:C:C5     | 3.01                     | 0.49              |
| 1:A1:2716:A:C2     | 32:BK:45:ILE:HG12  | 2.48                     | 0.49              |
| 1:A1:2805:A:N6     | 50:A1:3951:HOH:O   | 1.84                     | 0.49              |
| 1:A1:2934:A:H1'    | 1:A1:2969:U:C4     | 2.48                     | 0.49              |
| 1:A1:3098:A:C2     | 1:A1:3115:C:C2     | 3.00                     | 0.49              |
| 1:A1:3214:A:H5''   | 1:A1:3215:C:H6     | 1.73                     | 0.49              |
| 1:A1:3283:C:H2'    | 1:A1:3284:G:H8     | 1.77                     | 0.49              |
| 1:A1:3344:U:C2'    | 1:A1:3344:U:O2     | 2.59                     | 0.49              |
| 8:AH:20:PHE:CD1    | 8:AH:20:PHE:C      | 2.90                     | 0.49              |
| 9:AJ:12:ASP:O      | 9:AJ:13:ILE:C      | 2.55                     | 0.49              |
| 11:AL:31:VAL:HG12  | 11:AL:32:ALA:O     | 2.12                     | 0.49              |
| 13:AN:87:VAL:HG12  | 13:AN:90:LEU:HB2   | 1.94                     | 0.49              |
| 13:AN:114:LEU:HD22 | 13:AN:118:PHE:CE1  | 2.46                     | 0.49              |
| 18:AU:173:ARG:NH2  | 32:BK:142:GLY:C    | 2.69                     | 0.49              |
| 19:AX:20:GLN:HE21  | 19:AX:42:ARG:HG3   | 1.77                     | 0.49              |
| 23:BB:121:ASN:HD21 | 23:BB:124:ASN:HB2  | 1.78                     | 0.49              |
| 25:BD:9:MET:O      | 25:BD:134:PRO:CG   | 2.60                     | 0.49              |
| 26:BE:167:GLU:O    | 26:BE:168:LYS:HG2  | 2.13                     | 0.49              |
| 30:BI:184:PRO:HA   | 30:BI:187:LYS:HD3  | 1.95                     | 0.49              |
| 31:BJ:41:ILE:HG13  | 31:BJ:64:CYS:HA    | 1.93                     | 0.49              |
| 33:BL:139:HIS:CD2  | 33:BL:141:ALA:HB3  | 2.48                     | 0.49              |
| 35:BN:68:ILE:CG2   | 35:BN:81:ILE:HD13  | 2.41                     | 0.49              |
| 37:BP:21:THR:HG22  | 37:BP:21:THR:O     | 2.12                     | 0.49              |
| 41:BT:27:ASP:HB2   | 41:BT:29:ARG:HG3   | 1.93                     | 0.49              |
| 43:BV:98:ARG:HH11  | 43:BV:98:ARG:HG2   | 1.77                     | 0.49              |
| 20:C2:52:G:H4'     | 42:CU:36:LYS:NZ    | 2.27                     | 0.49              |
| 22:CA:71:LYS:NZ    | 1:D1:2517:G:O6     | 2.45                     | 0.49              |
| 22:CA:236:VAL:O    | 1:D1:2178:A:O2'    | 2.30                     | 0.49              |
| 23:CB:25:HIS:CD2   | 23:CB:270:TYR:OH   | 2.65                     | 0.49              |
| 27:CF:138:ASN:O    | 27:CF:139:LYS:HB2  | 2.12                     | 0.49              |
| 31:CJ:23:VAL:CG2   | 31:CJ:41:ILE:O     | 2.60                     | 0.49              |
| 33:CL:112:GLU:CD   | 33:CL:112:GLU:H    | 2.21                     | 0.49              |
| 35:CN:69:VAL:HG21  | 35:CN:93:LEU:HD11  | 1.95                     | 0.49              |
| 35:CN:73:ASN:N     | 35:CN:76:ASN:OD1   | 2.45                     | 0.49              |
| 47:CO:146:LYS:HA   | 47:CO:149:UNK:HB1  | 1.94                     | 0.49              |
| 47:CO:175:UNK:C    | 29:EH:83:ASP:HB3   | 2.42                     | 0.49              |
| 37:CP:65:PHE:HB3   | 37:CP:75:ILE:HG13  | 1.95                     | 0.49              |
| 39:CR:94:VAL:HG21  | 39:CR:130:ALA:HB2  | 1.94                     | 0.49              |
| 42:CU:60:THR:O     | 42:CU:64:GLU:HG3   | 2.11                     | 0.49              |
| 42:CU:90:ARG:HG2   | 42:CU:94:ARG:HE    | 1.78                     | 0.49              |
| 43:CV:120:SER:O    | 43:CV:124:ILE:HG13 | 2.13                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 46:CY:4:ARG:NH2    | 1:D1:863:G:O6      | 2.43                     | 0.49              |
| 1:D1:198:A:C6      | 1:D1:219:A:C6      | 3.00                     | 0.49              |
| 1:D1:679:C:O2'     | 1:D1:680:A:H5'     | 2.12                     | 0.49              |
| 1:D1:679:C:H2'     | 1:D1:680:A:C8      | 2.47                     | 0.49              |
| 1:D1:685:G:H4'     | 1:D1:685:G:OP1     | 2.13                     | 0.49              |
| 1:D1:791:C:H4'     | 1:D1:792:G:O5'     | 2.12                     | 0.49              |
| 1:D1:836:U:H2'     | 1:D1:837:G:H8      | 1.77                     | 0.49              |
| 1:D1:866:A:H8      | 1:D1:866:A:C5'     | 2.25                     | 0.49              |
| 1:D1:1191:G:O2'    | 1:D1:1192:A:H5'    | 2.12                     | 0.49              |
| 1:D1:1449:C:OP1    | 50:D1:4443:HOH:O   | 2.19                     | 0.49              |
| 1:D1:2242:G:C2'    | 1:D1:2243:C:H5'    | 2.42                     | 0.49              |
| 1:D1:2602:U:O2     | 1:D1:2792:A:C8     | 2.66                     | 0.49              |
| 1:D1:2727:A:O4'    | 17:DT:37:PRO:HD2   | 2.12                     | 0.49              |
| 1:D1:3005:A:H2'    | 1:D1:3006:A:H8     | 1.76                     | 0.49              |
| 5:DE:190:LYS:HD2   | 6:DF:101:ALA:O     | 2.13                     | 0.49              |
| 6:DF:11:ARG:HG3    | 6:DF:12:VAL:N      | 2.26                     | 0.49              |
| 9:DJ:187:ASN:HD21  | 9:DJ:207:GLY:CA    | 2.16                     | 0.49              |
| 13:DN:23:ALA:CB    | 13:DN:45:GLY:HA3   | 2.42                     | 0.49              |
| 14:DO:15:PHE:O     | 14:DO:26:THR:N     | 2.40                     | 0.49              |
| 19:DX:34:THR:HG22  | 19:DX:35:LYS:N     | 2.26                     | 0.49              |
| 22:EA:41:TYR:CZ    | 1:F1:2541:U:C2     | 3.00                     | 0.49              |
| 22:EA:70:TYR:CD2   | 1:F1:1674:C:C4'    | 2.92                     | 0.49              |
| 22:EA:118:GLU:HB2  | 22:EA:163:CYS:HB3  | 1.94                     | 0.49              |
| 24:EC:157:TYR:CE1  | 24:EC:159:PHE:CZ   | 3.00                     | 0.49              |
| 24:EC:289:LEU:HD12 | 35:EN:24:ASN:ND2   | 2.28                     | 0.49              |
| 25:ED:59:ILE:CD1   | 1:F1:2669:A:N3     | 2.75                     | 0.49              |
| 26:EE:42:SER:O     | 1:F1:3168:A:N3     | 2.46                     | 0.49              |
| 29:EH:44:GLU:CD    | 29:EH:181:TYR:OH   | 2.54                     | 0.49              |
| 29:EH:46:PHE:HZ    | 29:EH:83:ASP:O     | 1.94                     | 0.49              |
| 29:EH:183:ARG:O    | 29:EH:187:GLN:HG3  | 2.12                     | 0.49              |
| 30:EI:21:TYR:HE2   | 30:EI:121:ASP:HB3  | 1.77                     | 0.49              |
| 32:EK:142:GLY:CA   | 18:FU:173:ARG:HH22 | 1.97                     | 0.49              |
| 34:EM:40:ASP:C     | 34:EM:42:ASP:N     | 2.71                     | 0.49              |
| 34:EM:98:ALA:HB1   | 34:EM:162:VAL:HG23 | 1.94                     | 0.49              |
| 35:EN:63:LEU:O     | 35:EN:87:VAL:HA    | 2.12                     | 0.49              |
| 36:EO:132:TYR:CD2  | 36:EO:138:LEU:HA   | 2.47                     | 0.49              |
| 39:ER:56:ARG:HB3   | 39:ER:61:VAL:CG2   | 2.43                     | 0.49              |
| 40:ES:120:ARG:O    | 40:ES:123:ALA:HB3  | 2.13                     | 0.49              |
| 43:EV:84:ILE:HD12  | 43:EV:234:LEU:CD2  | 2.41                     | 0.49              |
| 43:EV:93:HIS:CG    | 43:EV:94:PRO:HD2   | 2.47                     | 0.49              |
| 1:F1:94:A:C2       | 1:F1:95:U:C6       | 3.00                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:474:G:H2'     | 1:F1:475:C:H6      | 1.77                     | 0.49              |
| 1:F1:591:G:C2'     | 1:F1:592:A:O5'     | 2.61                     | 0.49              |
| 1:F1:707:A:P       | 50:F1:4488:HOH:O   | 2.66                     | 0.49              |
| 1:F1:785:A:N6      | 1:F1:795:G:H1'     | 2.27                     | 0.49              |
| 1:F1:820:G:O2'     | 1:F1:821:U:H5''    | 2.11                     | 0.49              |
| 1:F1:1017:U:C6     | 1:F1:1017:U:C3'    | 2.96                     | 0.49              |
| 1:F1:1352:U:H2'    | 1:F1:1353:G:C8     | 2.47                     | 0.49              |
| 1:F1:1519:G:C2     | 3:FB:13:PHE:CZ     | 3.00                     | 0.49              |
| 1:F1:2208:A:H2'    | 1:F1:2209:A:C8     | 2.47                     | 0.49              |
| 1:F1:2434:A:C2     | 1:F1:2504:U:C2     | 3.01                     | 0.49              |
| 2:FA:4:GLY:C       | 2:FA:6:PRO:CD      | 2.85                     | 0.49              |
| 8:FH:13:ARG:CG     | 8:FH:15:TRP:CZ3    | 2.95                     | 0.49              |
| 8:FH:58:TYR:CE2    | 8:FH:60:TYR:HD2    | 2.30                     | 0.49              |
| 8:FH:91:PHE:N      | 8:FH:91:PHE:CD1    | 2.80                     | 0.49              |
| 20:G2:153:A:H62    | 1:H1:2:U:H3        | 1.60                     | 0.49              |
| 22:GA:34:ASP:O     | 22:GA:38:ARG:HG2   | 2.12                     | 0.49              |
| 22:GA:86:GLY:HA3   | 1:H1:2545:A:C4     | 2.48                     | 0.49              |
| 23:GB:55:HIS:N     | 23:GB:55:HIS:CD2   | 2.76                     | 0.49              |
| 24:GC:173:VAL:O    | 24:GC:177:LYS:HG3  | 2.12                     | 0.49              |
| 24:GC:290:LEU:HD22 | 35:GN:125:ASP:HB3  | 1.94                     | 0.49              |
| 24:GC:333:LEU:HD13 | 43:GV:178:VAL:HG21 | 1.94                     | 0.49              |
| 27:GF:89:LEU:HD23  | 27:GF:193:LEU:HD21 | 1.93                     | 0.49              |
| 30:GI:184:PRO:HA   | 30:GI:187:LYS:HD3  | 1.94                     | 0.49              |
| 32:GK:74:VAL:HG11  | 32:GK:113:LEU:CD1  | 2.42                     | 0.49              |
| 32:GK:76:ASN:HB3   | 32:GK:78:ASP:OD1   | 2.12                     | 0.49              |
| 34:GM:35:ARG:HB2   | 1:H1:2737:A:H2     | 1.73                     | 0.49              |
| 35:GN:5:LEU:HD21   | 43:GV:106:ARG:HD2  | 1.93                     | 0.49              |
| 37:GP:59:GLY:HA3   | 1:H1:1018:A:O2'    | 2.12                     | 0.49              |
| 41:GT:16:TYR:HB3   | 41:GT:17:PRO:CD    | 2.42                     | 0.49              |
| 46:GY:42:CYS:SG    | 46:GY:60:CYS:HB3   | 2.53                     | 0.49              |
| 1:H1:169:A:P       | 1:H1:249:G:H22     | 2.35                     | 0.49              |
| 1:H1:191:U:C2'     | 1:H1:192:C:H5'     | 2.42                     | 0.49              |
| 1:H1:232:C:HO2'    | 1:H1:233:G:P       | 2.36                     | 0.49              |
| 1:H1:310:U:H3      | 1:H1:2766:A:H61    | 1.59                     | 0.49              |
| 1:H1:549:G:N1      | 1:H1:619:G:N2      | 2.60                     | 0.49              |
| 1:H1:685:G:C2'     | 1:H1:686:U:OP2     | 2.60                     | 0.49              |
| 1:H1:881:G:N1      | 1:H1:882:G:N2      | 2.60                     | 0.49              |
| 1:H1:1034:U:H2'    | 1:H1:1034:U:O2     | 2.13                     | 0.49              |
| 1:H1:1035:A:N1     | 1:H1:1036:G:C6     | 2.80                     | 0.49              |
| 1:H1:1652:U:H5''   | 1:H1:1655:A:H4'    | 1.94                     | 0.49              |
| 1:H1:1944:U:N3     | 1:H1:1954:A:C2     | 2.80                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:2391:G:N7    | 50:H1:3857:HOH:O   | 2.35                     | 0.49              |
| 1:H1:3035:A:C2    | 1:H1:3036:U:C2     | 3.00                     | 0.49              |
| 1:H1:3098:A:C2    | 1:H1:3115:C:C2     | 3.01                     | 0.49              |
| 1:H1:3161:A:C2    | 1:H1:3176:A:C6     | 3.01                     | 0.49              |
| 2:HA:65:MET:HE2   | 2:HA:68:MET:HG3    | 1.92                     | 0.49              |
| 3:HB:12:ARG:O     | 3:HB:15:ARG:HB3    | 2.13                     | 0.49              |
| 5:HE:135:THR:HB   | 5:HE:138:GLN:HG3   | 1.95                     | 0.49              |
| 6:HF:15:ILE:HG21  | 6:HF:20:ASP:HB2    | 1.95                     | 0.49              |
| 7:HG:11:GLN:HG3   | 7:HG:12:SER:N      | 2.27                     | 0.49              |
| 12:HM:16:GLY:HA2  | 12:HM:67:VAL:O     | 2.12                     | 0.49              |
| 12:HM:41:SER:O    | 12:HM:49:LEU:HG    | 2.13                     | 0.49              |
| 15:HP:48:LYS:HE3  | 15:HP:49:TYR:HE2   | 1.77                     | 0.49              |
| 18:HU:131:ALA:O   | 18:HU:135:LEU:HD12 | 2.11                     | 0.49              |
| 1:A1:358:C:O2'    | 2:AA:16:HIS:CD2    | 2.65                     | 0.49              |
| 1:A1:467:A:C6     | 1:A1:512:G:N3      | 2.81                     | 0.49              |
| 1:A1:1048:U:H2'   | 1:A1:1049:U:O4'    | 2.13                     | 0.49              |
| 1:A1:1137:U:H2'   | 1:A1:1138:U:O4'    | 2.13                     | 0.49              |
| 1:A1:1382:A:P     | 14:AO:6:TRP:HE1    | 2.36                     | 0.49              |
| 1:A1:1570:U:H4'   | 1:A1:2164:C:O4'    | 2.13                     | 0.49              |
| 1:A1:1621:G:H2'   | 1:A1:1622:A:C8     | 2.47                     | 0.49              |
| 1:A1:1746:U:H1'   | 36:BO:96:MET:HG2   | 1.94                     | 0.49              |
| 1:A1:1832:G:P     | 50:A1:4419:HOH:O   | 2.65                     | 0.49              |
| 1:A1:1902:C:H2'   | 1:A1:1903:A:H5''   | 1.94                     | 0.49              |
| 1:A1:2240:C:O4'   | 22:BA:223:PRO:HA   | 2.11                     | 0.49              |
| 1:A1:2301:C:O2    | 1:A1:2301:C:C2'    | 2.60                     | 0.49              |
| 1:A1:2663:A:C5    | 25:BD:124:GLY:HA3  | 2.47                     | 0.49              |
| 1:A1:3180:C:H2'   | 1:A1:3181:G:H8     | 1.78                     | 0.49              |
| 1:A1:3181:G:H2'   | 1:A1:3182:A:H8     | 1.76                     | 0.49              |
| 6:AF:26:VAL:CG1   | 6:AF:27:ILE:N      | 2.76                     | 0.49              |
| 7:AG:14:LEU:HD22  | 7:AG:90:MET:HE1    | 1.95                     | 0.49              |
| 9:AJ:66:ASN:OD1   | 9:AJ:66:ASN:C      | 2.56                     | 0.49              |
| 9:AJ:182:CYS:CB   | 9:AJ:221:ILE:HD12  | 2.42                     | 0.49              |
| 11:AL:59:VAL:HG13 | 11:AL:63:GLU:OE1   | 2.12                     | 0.49              |
| 13:AN:105:ASN:O   | 13:AN:105:ASN:CG   | 2.55                     | 0.49              |
| 20:B2:3:A:C5'     | 20:B2:4:A:OP2      | 2.61                     | 0.49              |
| 20:B2:140:U:H2'   | 20:B2:141:G:O4'    | 2.12                     | 0.49              |
| 21:B3:109:U:H5''  | 34:BM:281:LYS:NZ   | 2.26                     | 0.49              |
| 24:BC:27:ALA:HB2  | 24:BC:272:THR:HG23 | 1.94                     | 0.49              |
| 24:BC:369:HIS:CE1 | 43:BV:68:LYS:HZ1   | 2.30                     | 0.49              |
| 26:BE:2:ARG:HH12  | 30:BI:129:ARG:CZ   | 2.25                     | 0.49              |
| 29:BH:159:PHE:HB3 | 29:BH:163:GLN:CD   | 2.37                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:BI:141:SER:HB3  | 30:BI:146:TRP:HB3  | 1.93                     | 0.49              |
| 30:BI:152:ILE:HG22 | 30:BI:153:GLU:N    | 2.26                     | 0.49              |
| 30:BI:183:ALA:HB1  | 30:BI:184:PRO:CD   | 2.41                     | 0.49              |
| 33:BL:115:VAL:HA   | 33:BL:134:LEU:HD23 | 1.93                     | 0.49              |
| 34:BM:120:ALA:O    | 34:BM:255:ARG:NH1  | 2.29                     | 0.49              |
| 34:BM:166:ALA:HB1  | 34:BM:173:ILE:HD11 | 1.95                     | 0.49              |
| 41:BT:41:LEU:HD13  | 41:BT:51:ILE:CD1   | 2.43                     | 0.49              |
| 42:BU:36:LYS:HE3   | 42:BU:48:ILE:HD12  | 1.94                     | 0.49              |
| 43:BV:196:ASN:O    | 43:BV:199:LEU:N    | 2.40                     | 0.49              |
| 20:C2:27:G:H1'     | 1:D1:348:A:C4      | 2.48                     | 0.49              |
| 20:C2:45:G:O6      | 20:C2:104:G:C2     | 2.65                     | 0.49              |
| 20:C2:134:C:C6     | 20:C2:134:C:C3'    | 2.96                     | 0.49              |
| 21:C3:33:U:C2      | 34:CM:212:TYR:HD1  | 2.28                     | 0.49              |
| 21:C3:48:G:O2'     | 34:CM:227:GLN:O    | 2.22                     | 0.49              |
| 22:CA:3:ARG:HB2    | 22:CA:208:VAL:HG12 | 1.94                     | 0.49              |
| 22:CA:32:VAL:HA    | 22:CA:124:ARG:NH1  | 2.27                     | 0.49              |
| 23:CB:56:ILE:CG2   | 23:CB:354:LEU:HD22 | 2.42                     | 0.49              |
| 24:CC:34:ARG:CZ    | 35:CN:24:ASN:HB3   | 2.43                     | 0.49              |
| 24:CC:89:THR:CG2   | 24:CC:91:ARG:HB3   | 2.41                     | 0.49              |
| 24:CC:276:THR:CG2  | 24:CC:282:GLY:HA2  | 2.43                     | 0.49              |
| 25:CD:69:VAL:HG12  | 25:CD:71:ILE:HG13  | 1.94                     | 0.49              |
| 25:CD:128:TYR:CE2  | 1:D1:2672:U:H1'    | 2.48                     | 0.49              |
| 27:CF:43:ARG:NH1   | 1:D1:2521:A:C6     | 2.80                     | 0.49              |
| 27:CF:56:GLN:OE1   | 27:CF:56:GLN:HA    | 2.13                     | 0.49              |
| 31:CJ:83:ILE:CD1   | 31:CJ:105:VAL:HG23 | 2.43                     | 0.49              |
| 47:CO:174:UNK:HB2  | 29:EH:81:SER:HB3   | 1.95                     | 0.49              |
| 37:CP:57:TYR:OH    | 37:CP:87:LYS:HD2   | 2.12                     | 0.49              |
| 38:CQ:133:ARG:CG   | 38:CQ:139:ASN:ND2  | 2.54                     | 0.49              |
| 40:CS:66:LYS:HE3   | 40:CS:106:THR:HG21 | 1.94                     | 0.49              |
| 43:CV:31:SER:HA    | 1:D1:628:A:OP1     | 2.13                     | 0.49              |
| 1:D1:111:C:C2'     | 1:D1:112:A:H5'     | 2.43                     | 0.49              |
| 1:D1:339:C:OP1     | 50:D1:3879:HOH:O   | 2.19                     | 0.49              |
| 1:D1:651:U:C4      | 1:D1:652:U:C4      | 3.01                     | 0.49              |
| 1:D1:807:G:O2'     | 1:D1:808:A:H5'     | 2.12                     | 0.49              |
| 1:D1:813:C:H2'     | 1:D1:814:U:H6      | 1.77                     | 0.49              |
| 1:D1:875:U:H2'     | 1:D1:876:C:C6      | 2.47                     | 0.49              |
| 1:D1:876:C:H2'     | 1:D1:877:U:H6      | 1.78                     | 0.49              |
| 1:D1:882:G:H2'     | 1:D1:883:A:OP2     | 2.12                     | 0.49              |
| 1:D1:1137:U:H2'    | 1:D1:1138:U:O4'    | 2.13                     | 0.49              |
| 1:D1:1247:C:C5'    | 1:D1:1248:G:H5''   | 2.35                     | 0.49              |
| 1:D1:1695:A:H2'    | 1:D1:1696:C:C6     | 2.48                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:1708:U:OP1   | 12:DM:88:LYS:HE2   | 2.13                     | 0.49              |
| 1:D1:1715:U:H2'   | 1:D1:1716:U:C6     | 2.47                     | 0.49              |
| 1:D1:2529:G:H2'   | 1:D1:2530:G:C8     | 2.47                     | 0.49              |
| 1:D1:2849:U:C2    | 1:D1:2850:U:C6     | 2.99                     | 0.49              |
| 1:D1:2870:U:H2'   | 1:D1:2871:U:C6     | 2.47                     | 0.49              |
| 1:D1:3000:A:H4'   | 1:D1:3001:A:H4'    | 1.95                     | 0.49              |
| 1:D1:3035:A:C2    | 1:D1:3036:U:C2     | 3.01                     | 0.49              |
| 6:DF:28:VAL:CG1   | 6:DF:66:ASN:HA     | 2.43                     | 0.49              |
| 6:DF:67:GLN:HE21  | 6:DF:71:LEU:HB3    | 1.78                     | 0.49              |
| 11:DL:20:VAL:HG12 | 11:DL:21:ARG:N     | 2.26                     | 0.49              |
| 12:DM:24:PRO:HA   | 12:DM:109:TYR:OH   | 2.11                     | 0.49              |
| 18:DU:91:ILE:CG2  | 18:DU:117:TYR:HE2  | 2.25                     | 0.49              |
| 20:E2:58:U:C2     | 20:E2:65:C:H5      | 2.30                     | 0.49              |
| 23:EB:10:ARG:NH1  | 1:F1:2871:U:OP1    | 2.46                     | 0.49              |
| 23:EB:259:ARG:NH1 | 1:F1:2871:U:O2'    | 2.46                     | 0.49              |
| 24:EC:227:LEU:O   | 24:EC:228:ARG:C    | 2.53                     | 0.49              |
| 24:EC:287:ARG:CD  | 35:EN:111:ARG:NH1  | 2.76                     | 0.49              |
| 30:EI:64:ASN:ND2  | 30:EI:64:ASN:C     | 2.70                     | 0.49              |
| 36:EO:138:LEU:O   | 36:EO:142:ILE:HG13 | 2.12                     | 0.49              |
| 39:ER:116:ARG:N   | 39:ER:133:ARG:O    | 2.45                     | 0.49              |
| 45:EX:84:LEU:HD13 | 45:EX:113:ARG:HB3  | 1.94                     | 0.49              |
| 46:EY:7:LYS:O     | 46:EY:27:LYS:NZ    | 2.36                     | 0.49              |
| 1:F1:684:A:N1     | 1:F1:966:G:O2'     | 2.43                     | 0.49              |
| 1:F1:718:A:C2'    | 1:F1:719:C:H5'     | 2.42                     | 0.49              |
| 1:F1:790:C:C5'    | 1:F1:791:C:OP1     | 2.60                     | 0.49              |
| 1:F1:941:G:O6     | 1:F1:2409:G:O2'    | 2.27                     | 0.49              |
| 1:F1:1059:U:C2'   | 1:F1:1060:C:H5''   | 2.36                     | 0.49              |
| 1:F1:1240:G:O4'   | 19:FX:104:MET:HE3  | 2.12                     | 0.49              |
| 1:F1:1533:G:H5''  | 1:F1:1533:G:H8     | 1.78                     | 0.49              |
| 1:F1:1693:U:H2'   | 1:F1:1694:C:H6     | 1.78                     | 0.49              |
| 1:F1:1815:G:H2'   | 1:F1:1816:A:C8     | 2.47                     | 0.49              |
| 1:F1:1902:C:H2'   | 1:F1:1903:A:H5''   | 1.95                     | 0.49              |
| 1:F1:2408:A:O2'   | 1:F1:2409:G:H5'    | 2.12                     | 0.49              |
| 1:F1:3248:C:H2'   | 1:F1:3249:U:C6     | 2.48                     | 0.49              |
| 3:FB:9:MET:HB3    | 3:FB:13:PHE:CE2    | 2.45                     | 0.49              |
| 6:FF:15:ILE:O     | 6:FF:21:LYS:HA     | 2.12                     | 0.49              |
| 6:FF:30:ILE:HG22  | 19:FX:156:MET:HE1  | 1.95                     | 0.49              |
| 7:FG:11:GLN:HG3   | 7:FG:12:SER:N      | 2.27                     | 0.49              |
| 12:FM:97:VAL:HG22 | 12:FM:107:LEU:CD2  | 2.42                     | 0.49              |
| 18:FU:121:LEU:HG  | 18:FU:122:VAL:N    | 2.28                     | 0.49              |
| 19:FX:96:GLN:HB3  | 19:FX:134:THR:HG21 | 1.95                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:GA:31:ARG:HH12  | 22:GA:42:ILE:CG1   | 2.25                     | 0.49              |
| 22:GA:31:ARG:CB    | 22:GA:37:GLU:OE2   | 2.61                     | 0.49              |
| 24:GC:319:ARG:NH2  | 1:H1:620:A:C8      | 2.79                     | 0.49              |
| 24:GC:401:GLN:O    | 29:GH:179:ALA:HB3  | 2.12                     | 0.49              |
| 25:GD:155:SER:HB3  | 25:GD:158:GLU:HG3  | 1.94                     | 0.49              |
| 29:GH:75:ASN:HD21  | 29:GH:154:ARG:HD2  | 1.75                     | 0.49              |
| 30:GI:109:THR:HG23 | 30:GI:110:PRO:N    | 2.28                     | 0.49              |
| 31:GJ:58:ILE:HG13  | 31:GJ:85:GLN:OE1   | 2.13                     | 0.49              |
| 32:GK:22:VAL:HG22  | 1:H1:666:U:OP1     | 2.12                     | 0.49              |
| 35:GN:31:ILE:CG2   | 35:GN:35:LYS:HE3   | 2.41                     | 0.49              |
| 36:GO:38:ARG:O     | 36:GO:41:ILE:HB    | 2.12                     | 0.49              |
| 36:GO:42:ARG:HH21  | 1:H1:1626:U:P      | 2.35                     | 0.49              |
| 40:GS:118:LEU:N    | 40:GS:118:LEU:HD23 | 2.27                     | 0.49              |
| 41:GT:54:THR:HG22  | 41:GT:55:ILE:N     | 2.27                     | 0.49              |
| 42:GU:35:ALA:O     | 42:GU:36:LYS:C     | 2.54                     | 0.49              |
| 45:GX:113:ARG:O    | 45:GX:117:LEU:HG   | 2.12                     | 0.49              |
| 1:H1:37:A:C5'      | 1:H1:38:A:H4'      | 2.42                     | 0.49              |
| 1:H1:165:C:H4'     | 18:HU:132:LYS:HD2  | 1.93                     | 0.49              |
| 1:H1:399:A:N3      | 1:H1:400:C:N3      | 2.60                     | 0.49              |
| 1:H1:467:A:C6      | 1:H1:512:G:N3      | 2.81                     | 0.49              |
| 1:H1:1113:A:H2'    | 1:H1:1114:C:C6     | 2.47                     | 0.49              |
| 1:H1:1417:A:H5''   | 50:H1:4499:HOH:O   | 2.13                     | 0.49              |
| 1:H1:1506:G:N1     | 1:H1:1896:C:OP2    | 2.45                     | 0.49              |
| 1:H1:1808:A:H2'    | 1:H1:1809:C:H6     | 1.77                     | 0.49              |
| 1:H1:2533:C:H2'    | 1:H1:2533:C:O2     | 2.11                     | 0.49              |
| 1:H1:2571:U:H2'    | 1:H1:2572:U:C6     | 2.47                     | 0.49              |
| 1:H1:2584:A:H8     | 1:H1:2584:A:O5'    | 1.96                     | 0.49              |
| 1:H1:2717:G:C3'    | 50:H1:4320:HOH:O   | 2.47                     | 0.49              |
| 1:H1:3021:A:C2     | 1:H1:3022:A:C4     | 3.00                     | 0.49              |
| 7:HG:13:LYS:CD     | 7:HG:100:ILE:HD13  | 2.42                     | 0.49              |
| 8:HH:13:ARG:NE     | 8:HH:15:TRP:CE2    | 2.80                     | 0.49              |
| 19:HX:151:PRO:O    | 19:HX:155:ALA:HB2  | 2.12                     | 0.49              |
| 1:A1:87:A:OP1      | 32:BK:62:THR:N     | 2.43                     | 0.49              |
| 1:A1:157:A:O5'     | 16:AQ:25:HIS:HE1   | 1.95                     | 0.49              |
| 1:A1:232:C:HO2'    | 1:A1:233:G:P       | 2.36                     | 0.49              |
| 1:A1:404:A:C2      | 20:B2:20:A:H1'     | 2.47                     | 0.49              |
| 1:A1:620:A:H4'     | 45:BX:9:LYS:HZ2    | 1.77                     | 0.49              |
| 1:A1:1095:C:O2     | 1:A1:1095:C:C2'    | 2.60                     | 0.49              |
| 1:A1:1153:G:H2'    | 1:A1:1154:G:O4'    | 2.13                     | 0.49              |
| 1:A1:1381:G:C5'    | 14:AO:37:GLN:HG3   | 2.41                     | 0.49              |
| 1:A1:1595:A:C6     | 1:A1:1596:U:H1'    | 2.48                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1845:U:H5'    | 1:A1:1846:C:OP2    | 2.12                     | 0.49              |
| 1:A1:2132:U:H2'    | 1:A1:2138:A:H62    | 1.77                     | 0.49              |
| 1:A1:2284:U:O2'    | 1:A1:2285:C:H5'    | 2.12                     | 0.49              |
| 1:A1:2553:G:C5'    | 27:BF:22:PHE:O     | 2.59                     | 0.49              |
| 1:A1:2731:C:H4'    | 4:AC:18:HIS:HD2    | 1.78                     | 0.49              |
| 1:A1:2849:U:C2     | 1:A1:2850:U:C6     | 3.01                     | 0.49              |
| 1:A1:2902:G:O2'    | 1:A1:2922:A:N1     | 2.40                     | 0.49              |
| 1:A1:2957:A:N7     | 22:BA:216:ASN:ND2  | 2.61                     | 0.49              |
| 1:A1:3101:G:C2     | 1:A1:3110:U:C5     | 3.01                     | 0.49              |
| 1:A1:3191:G:H2'    | 1:A1:3192:C:OP2    | 2.12                     | 0.49              |
| 1:A1:3232:A:H1'    | 5:AE:94:TYR:CE2    | 2.47                     | 0.49              |
| 1:A1:3268:C:C4     | 1:A1:3269:G:C5     | 3.01                     | 0.49              |
| 3:AB:9:MET:O       | 3:AB:10:LYS:C      | 2.54                     | 0.49              |
| 6:AF:125:SER:O     | 6:AF:126:LYS:CB    | 2.59                     | 0.49              |
| 8:AH:13:ARG:CG     | 8:AH:15:TRP:CE3    | 2.93                     | 0.49              |
| 8:AH:26:SER:O      | 8:AH:27:LYS:C      | 2.55                     | 0.49              |
| 13:AN:100:ASP:OD2  | 1:H1:1053:A:O2'    | 2.26                     | 0.49              |
| 14:AO:36:THR:O     | 14:AO:37:GLN:C     | 2.53                     | 0.49              |
| 14:AO:110:LYS:HB2  | 45:BX:89:MET:HE3   | 1.95                     | 0.49              |
| 18:AU:146:ALA:HB2  | 42:BU:123:LYS:HE2  | 1.94                     | 0.49              |
| 20:B2:95:C:O2'     | 20:B2:96:A:H8      | 1.95                     | 0.49              |
| 21:B3:54:A:C2'     | 25:BD:152:GLN:HE21 | 2.26                     | 0.49              |
| 22:BA:30:TYR:OH    | 22:BA:116:ASN:HB3  | 2.13                     | 0.49              |
| 24:BC:174:ALA:O    | 24:BC:178:ARG:HG3  | 2.12                     | 0.49              |
| 29:BH:139:ARG:CD   | 29:BH:173:PHE:HE1  | 2.24                     | 0.49              |
| 34:BM:17:GLN:HE22  | 37:BP:22:LYS:N     | 2.09                     | 0.49              |
| 34:BM:40:ASP:C     | 34:BM:42:ASP:N     | 2.69                     | 0.49              |
| 34:BM:83:LEU:CB    | 34:BM:88:VAL:CG2   | 2.89                     | 0.49              |
| 37:BP:42:ILE:HG22  | 37:BP:60:ARG:O     | 2.12                     | 0.49              |
| 42:BU:90:ARG:HG2   | 42:BU:94:ARG:HE    | 1.77                     | 0.49              |
| 42:BU:102:GLU:O    | 42:BU:104:VAL:HG23 | 2.11                     | 0.49              |
| 43:BV:170:LEU:HD11 | 43:BV:198:PHE:HB2  | 1.93                     | 0.49              |
| 44:BW:14:ASN:HD21  | 44:BW:69:ARG:CZ    | 2.26                     | 0.49              |
| 21:C3:10:C:C4      | 34:CM:20:TYR:CD1   | 3.01                     | 0.49              |
| 22:CA:31:ARG:HH12  | 22:CA:42:ILE:HG12  | 1.77                     | 0.49              |
| 23:CB:84:MET:CE    | 23:CB:179:ILE:HD11 | 2.41                     | 0.49              |
| 26:CE:75:ILE:O     | 26:CE:76:LYS:C     | 2.56                     | 0.49              |
| 29:CH:36:SER:OG    | 29:CH:87:LEU:HB3   | 2.13                     | 0.49              |
| 29:CH:41:ALA:HB3   | 29:CH:139:ARG:HH21 | 1.75                     | 0.49              |
| 34:CM:43:LYS:HG2   | 1:D1:1105:U:H4'    | 1.95                     | 0.49              |
| 35:CN:155:ALA:C    | 35:CN:158:GLN:HG3  | 2.38                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 37:CP:42:ILE:HG23 | 37:CP:57:TYR:O     | 2.13                     | 0.49              |
| 38:CQ:66:THR:O    | 38:CQ:66:THR:HG22  | 2.12                     | 0.49              |
| 42:CU:89:THR:O    | 42:CU:93:ARG:HD2   | 2.12                     | 0.49              |
| 42:CU:102:GLU:O   | 42:CU:104:VAL:HG23 | 2.12                     | 0.49              |
| 1:D1:20:G:H5''    | 2:DA:43:LYS:HB2    | 1.94                     | 0.49              |
| 1:D1:1004:U:H4'   | 1:D1:1005:A:OP1    | 2.09                     | 0.49              |
| 1:D1:1249:G:C2'   | 1:D1:1250:A:OP2    | 2.60                     | 0.49              |
| 1:D1:1254:C:H3'   | 1:D1:1255:A:H5''   | 1.95                     | 0.49              |
| 1:D1:1807:C:H2'   | 1:D1:1808:A:C8     | 2.47                     | 0.49              |
| 1:D1:1942:C:H5''  | 1:D1:1942:C:H6     | 1.77                     | 0.49              |
| 1:D1:2101:G:N7    | 50:D1:4646:HOH:O   | 2.34                     | 0.49              |
| 1:D1:2634:G:H2'   | 1:D1:2635:C:H5''   | 1.94                     | 0.49              |
| 1:D1:2927:G:O2'   | 1:D1:2928:A:H5'    | 2.13                     | 0.49              |
| 1:D1:3098:A:C2    | 1:D1:3115:C:C2     | 3.01                     | 0.49              |
| 1:D1:3185:G:O6    | 1:D1:3235:U:O2'    | 2.29                     | 0.49              |
| 1:D1:3214:A:H5''  | 1:D1:3215:C:H6     | 1.75                     | 0.49              |
| 9:DJ:58:ILE:O     | 9:DJ:59:VAL:C      | 2.56                     | 0.49              |
| 9:DJ:88:LEU:HG    | 9:DJ:92:VAL:CG1    | 2.42                     | 0.49              |
| 12:DM:41:SER:O    | 12:DM:49:LEU:HG    | 2.13                     | 0.49              |
| 13:DN:101:LYS:HA  | 13:DN:106:ALA:HB3  | 1.95                     | 0.49              |
| 14:DO:4:LEU:O     | 14:DO:8:ILE:HG13   | 2.13                     | 0.49              |
| 19:DX:93:LEU:CD2  | 19:DX:120:LEU:HD21 | 2.40                     | 0.49              |
| 20:E2:5:A:N6      | 50:E2:329:HOH:O    | 2.38                     | 0.49              |
| 20:E2:111:A:C5    | 2:FA:20:ARG:NH2    | 2.81                     | 0.49              |
| 20:E2:134:C:C6    | 20:E2:134:C:C3'    | 2.95                     | 0.49              |
| 21:E3:64:A:H2'    | 21:E3:64:A:N3      | 2.28                     | 0.49              |
| 22:EA:3:ARG:HB2   | 22:EA:208:VAL:HG12 | 1.94                     | 0.49              |
| 23:EB:95:THR:OG1  | 23:EB:96:PRO:HD2   | 2.13                     | 0.49              |
| 23:EB:113:ASN:HB3 | 23:EB:174:ASN:ND2  | 2.27                     | 0.49              |
| 23:EB:253:TRP:CD1 | 1:F1:2390:G:H5''   | 2.46                     | 0.49              |
| 23:EB:365:HIS:HA  | 41:ET:19:ARG:HH22  | 1.76                     | 0.49              |
| 24:EC:145:ARG:HD2 | 24:EC:253:GLY:O    | 2.12                     | 0.49              |
| 24:EC:238:VAL:HA  | 24:EC:241:LEU:HD21 | 1.94                     | 0.49              |
| 24:EC:289:LEU:O   | 35:EN:123:THR:OG1  | 2.30                     | 0.49              |
| 25:ED:9:MET:O     | 25:ED:134:PRO:CG   | 2.61                     | 0.49              |
| 27:EF:185:LYS:NZ  | 1:F1:146:U:H2'     | 2.27                     | 0.49              |
| 32:EK:60:MET:C    | 35:EN:172:ARG:HH12 | 2.18                     | 0.49              |
| 33:EL:37:HIS:NE2  | 33:EL:63:ARG:HB2   | 2.28                     | 0.49              |
| 33:EL:115:VAL:HA  | 33:EL:134:LEU:HD23 | 1.94                     | 0.49              |
| 34:EM:178:SER:OG  | 1:F1:2735:A:H5'    | 2.12                     | 0.49              |
| 35:EN:73:ASN:HB2  | 35:EN:76:ASN:OD1   | 2.12                     | 0.49              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 43:EV:219:HIS:O    | 19:FX:46:ARG:NH2  | 2.45                     | 0.49              |
| 45:EX:22:PHE:O     | 45:EX:23:GLU:HB2  | 2.13                     | 0.49              |
| 1:F1:47:G:P        | 50:F1:3624:HOH:O  | 2.70                     | 0.49              |
| 1:F1:70:C:C4       | 1:F1:72:A:C5      | 3.00                     | 0.49              |
| 1:F1:75:A:H8       | 18:FU:71:ARG:NH1  | 2.03                     | 0.49              |
| 1:F1:89:G:H1'      | 1:F1:93:A:N6      | 2.27                     | 0.49              |
| 1:F1:443:G:P       | 5:FE:16:SER:HG    | 2.26                     | 0.49              |
| 1:F1:549:G:H2'     | 1:F1:550:G:C8     | 2.48                     | 0.49              |
| 1:F1:738:U:O2'     | 1:F1:739:G:H5'    | 2.13                     | 0.49              |
| 1:F1:1091:G:HO2'   | 1:F1:1092:C:P     | 2.35                     | 0.49              |
| 1:F1:1351:U:H2'    | 1:F1:1352:U:C6    | 2.48                     | 0.49              |
| 1:F1:1753:A:H3'    | 1:F1:1754:G:C5'   | 2.39                     | 0.49              |
| 1:F1:2391:G:H4'    | 1:F1:2392:A:OP2   | 2.11                     | 0.49              |
| 1:F1:2584:A:H8     | 1:F1:2584:A:O5'   | 1.96                     | 0.49              |
| 1:F1:2683:A:C5'    | 1:F1:2684:A:OP2   | 2.61                     | 0.49              |
| 1:F1:2990:U:H2'    | 1:F1:2991:U:H6    | 1.78                     | 0.49              |
| 1:F1:3268:C:C4     | 1:F1:3269:G:C5    | 3.01                     | 0.49              |
| 6:FF:11:ARG:HG3    | 6:FF:12:VAL:N     | 2.26                     | 0.49              |
| 8:FH:11:PRO:CG     | 8:FH:12:THR:H     | 2.19                     | 0.49              |
| 12:FM:17:PHE:CD1   | 12:FM:75:LYS:HB3  | 2.48                     | 0.49              |
| 13:FN:7:TYR:OH     | 13:FN:93:PHE:N    | 2.42                     | 0.49              |
| 16:FQ:83:THR:HG22  | 16:FQ:85:ARG:HB3  | 1.94                     | 0.49              |
| 19:FX:106:LYS:HE2  | 19:FX:123:ASP:OD2 | 2.12                     | 0.49              |
| 20:G2:22:A:H2'     | 20:G2:23:U:H6     | 1.76                     | 0.49              |
| 20:G2:108:G:H4'    | 20:G2:135:A:H5'   | 1.94                     | 0.49              |
| 20:G2:119:A:C2     | 20:G2:133:U:O2    | 2.66                     | 0.49              |
| 22:GA:203:VAL:HA   | 22:GA:213:GLY:HA2 | 1.95                     | 0.49              |
| 23:GB:17:ARG:HA    | 23:GB:18:PRO:C    | 2.38                     | 0.49              |
| 23:GB:66:ARG:NH1   | 31:GJ:13:THR:O    | 2.44                     | 0.49              |
| 23:GB:113:ASN:HB3  | 23:GB:174:ASN:ND2 | 2.27                     | 0.49              |
| 23:GB:220:LYS:HD2  | 1:H1:3036:U:H5'   | 1.95                     | 0.49              |
| 23:GB:304:THR:HG21 | 23:GB:314:VAL:HA  | 1.95                     | 0.49              |
| 24:GC:173:VAL:HG12 | 24:GC:177:LYS:HE3 | 1.93                     | 0.49              |
| 24:GC:275:THR:CG2  | 24:GC:276:THR:N   | 2.76                     | 0.49              |
| 25:GD:6:GLU:OE1    | 25:GD:6:GLU:HA    | 2.13                     | 0.49              |
| 25:GD:50:ALA:HB2   | 25:GD:65:MET:HB2  | 1.94                     | 0.49              |
| 27:GF:134:THR:HG22 | 27:GF:138:ASN:ND2 | 2.27                     | 0.49              |
| 29:GH:47:PRO:HB3   | 29:GH:171:TRP:CZ2 | 2.48                     | 0.49              |
| 30:GI:48:ARG:HH22  | 1:H1:1217:A:H2'   | 1.78                     | 0.49              |
| 30:GI:55:GLU:O     | 30:GI:59:LYS:HE2  | 2.13                     | 0.49              |
| 32:GK:81:TRP:CE3   | 32:GK:89:ARG:HB3  | 2.47                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:GK:89:ARG:NH1   | 35:GN:94:LEU:HD22  | 2.28                     | 0.49              |
| 32:GK:148:THR:HG22 | 32:GK:149:ALA:H    | 1.78                     | 0.49              |
| 33:GL:9:GLU:HB2    | 16:HQ:45:ILE:HD13  | 1.94                     | 0.49              |
| 34:GM:110:LEU:CD1  | 34:GM:169:GLY:O    | 2.61                     | 0.49              |
| 34:GM:163:LEU:CD1  | 34:GM:173:ILE:CG2  | 2.91                     | 0.49              |
| 34:GM:254:ILE:O    | 34:GM:258:PRO:CD   | 2.58                     | 0.49              |
| 37:GP:110:GLN:NE2  | 1:H1:1094:G:H5'    | 2.27                     | 0.49              |
| 39:GR:61:VAL:O     | 39:GR:61:VAL:HG23  | 2.11                     | 0.49              |
| 40:GS:10:ALA:HB3   | 40:GS:13:LYS:HG3   | 1.95                     | 0.49              |
| 42:GU:119:LYS:HB3  | 18:HU:124:PHE:CD1  | 2.47                     | 0.49              |
| 45:GX:8:HIS:NE2    | 45:GX:72:GLY:HA2   | 2.28                     | 0.49              |
| 1:H1:64:A:N6       | 1:H1:66:C:C2       | 2.80                     | 0.49              |
| 1:H1:78:G:C2       | 1:H1:79:C:C6       | 3.00                     | 0.49              |
| 1:H1:122:U:H2'     | 1:H1:123:C:C6      | 2.46                     | 0.49              |
| 1:H1:312:U:H2'     | 1:H1:313:U:H6      | 1.76                     | 0.49              |
| 1:H1:368:A:C5'     | 1:H1:369:U:OP2     | 2.61                     | 0.49              |
| 1:H1:745:A:C6      | 1:H1:746:A:C2      | 3.01                     | 0.49              |
| 1:H1:933:G:OP1     | 50:H1:3809:HOH:O   | 2.19                     | 0.49              |
| 1:H1:987:A:O2'     | 1:H1:988:G:H5'     | 2.12                     | 0.49              |
| 1:H1:1351:U:H2'    | 1:H1:1352:U:C6     | 2.48                     | 0.49              |
| 1:H1:2113:A:C8     | 1:H1:3053:U:H1'    | 2.47                     | 0.49              |
| 1:H1:2414:A:H2'    | 1:H1:2415:C:H6     | 1.74                     | 0.49              |
| 1:H1:3144:G:C6     | 1:H1:3146:G:C8     | 3.00                     | 0.49              |
| 4:HC:93:ASP:O      | 4:HC:97:ILE:HG13   | 2.12                     | 0.49              |
| 5:HE:58:PHE:CD2    | 5:HE:85:VAL:HG22   | 2.47                     | 0.49              |
| 6:HF:7:VAL:CG2     | 6:HF:55:LEU:HD11   | 2.43                     | 0.49              |
| 6:HF:41:GLU:OE1    | 6:HF:73:LYS:HD3    | 2.11                     | 0.49              |
| 13:HN:89:GLU:OE1   | 13:HN:89:GLU:N     | 2.45                     | 0.49              |
| 15:HP:42:PHE:C     | 15:HP:43:LYS:HG2   | 2.37                     | 0.49              |
| 16:HQ:7:VAL:CG1    | 18:HU:185:LYS:HG3  | 2.42                     | 0.49              |
| 1:A1:158:G:H2'     | 1:A1:159:G:H8      | 1.77                     | 0.49              |
| 1:A1:1066:A:C2     | 1:A1:1067:U:C2     | 3.01                     | 0.49              |
| 1:A1:1517:G:P      | 50:A1:4403:HOH:O   | 2.55                     | 0.49              |
| 1:A1:1600:U:H2'    | 1:A1:1601:U:O4'    | 2.13                     | 0.49              |
| 1:A1:1693:U:H2'    | 1:A1:1694:C:C6     | 2.47                     | 0.49              |
| 1:A1:1775:A:C5'    | 15:AP:34:LYS:NZ    | 2.76                     | 0.49              |
| 1:A1:2356:A:H5'    | 1:A1:2356:A:C8     | 2.40                     | 0.49              |
| 1:A1:2988:U:O4     | 50:A1:4799:HOH:O   | 2.19                     | 0.49              |
| 1:A1:3109:C:H5''   | 10:AK:111:ARG:HH12 | 1.77                     | 0.49              |
| 1:A1:3140:C:H4'    | 1:A1:3254:A:O4'    | 2.13                     | 0.49              |
| 1:A1:3248:C:H2'    | 1:A1:3249:U:C6     | 2.48                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 5:AE:134:LEU:HD22 | 5:AE:138:GLN:OE1   | 2.13                     | 0.49              |
| 9:AJ:80:GLU:O     | 9:AJ:84:ILE:HG13   | 2.13                     | 0.49              |
| 12:AM:21:CYS:O    | 12:AM:24:PRO:HD2   | 2.12                     | 0.49              |
| 13:AN:22:LYS:HZ1  | 13:AN:140:SER:HB3  | 1.77                     | 0.49              |
| 18:AU:77:GLU:OE2  | 18:AU:110:ASN:ND2  | 2.46                     | 0.49              |
| 18:AU:166:VAL:O   | 18:AU:169:ILE:N    | 2.46                     | 0.49              |
| 19:AX:15:GLN:NE2  | 19:AX:115:GLY:HA2  | 2.28                     | 0.49              |
| 21:B3:116:A:O3'   | 34:BM:260:ARG:NH2  | 2.46                     | 0.49              |
| 24:BC:9:VAL:HG11  | 24:BC:260:GLU:OE2  | 2.12                     | 0.49              |
| 32:BK:118:LEU:HB2 | 32:BK:141:VAL:CG2  | 2.40                     | 0.49              |
| 43:BV:38:LYS:O    | 43:BV:42:ILE:HG13  | 2.13                     | 0.49              |
| 43:BV:142:SER:HG  | 43:BV:146:TYR:HE2  | 1.61                     | 0.49              |
| 44:BW:28:ALA:CA   | 44:BW:66:ILE:HD11  | 2.41                     | 0.49              |
| 20:C2:95:C:O2'    | 20:C2:96:A:H8      | 1.95                     | 0.49              |
| 20:C2:129:A:O3'   | 39:CR:99:THR:HG21  | 2.13                     | 0.49              |
| 22:CA:31:ARG:CB   | 22:CA:37:GLU:OE2   | 2.61                     | 0.49              |
| 24:CC:66:GLY:O    | 2:DA:53:LYS:NZ     | 2.29                     | 0.49              |
| 24:CC:95:ALA:HB1  | 24:CC:101:CYS:SG   | 2.53                     | 0.49              |
| 24:CC:376:TRP:CB  | 1:D1:564:A:O2'     | 2.58                     | 0.49              |
| 25:CD:124:GLY:HA3 | 1:D1:2663:A:C2     | 2.47                     | 0.49              |
| 27:CF:22:PHE:CD1  | 13:DN:55:LYS:HA    | 2.47                     | 0.49              |
| 27:CF:131:HIS:NE2 | 27:CF:135:LEU:HD11 | 2.25                     | 0.49              |
| 27:CF:153:ILE:O   | 27:CF:157:ILE:HG13 | 2.13                     | 0.49              |
| 29:CH:44:GLU:CD   | 29:CH:181:TYR:OH   | 2.56                     | 0.49              |
| 30:CI:91:THR:HG22 | 30:CI:93:LYS:N     | 2.28                     | 0.49              |
| 31:CJ:124:LYS:HE2 | 9:DJ:75:THR:HG23   | 1.95                     | 0.49              |
| 33:CL:115:VAL:HA  | 33:CL:134:LEU:HD23 | 1.94                     | 0.49              |
| 34:CM:40:ASP:C    | 34:CM:42:ASP:N     | 2.69                     | 0.49              |
| 47:CO:38:ARG:O    | 47:CO:41:ILE:HB    | 2.11                     | 0.49              |
| 39:CR:43:LEU:CD1  | 1:D1:1599:G:C5'    | 2.90                     | 0.49              |
| 39:CR:116:ARG:N   | 39:CR:133:ARG:O    | 2.46                     | 0.49              |
| 43:CV:128:LEU:O   | 43:CV:224:TRP:HB2  | 2.13                     | 0.49              |
| 46:CY:55:TRP:CZ2  | 46:CY:70:GLU:C     | 2.90                     | 0.49              |
| 1:D1:296:G:H8     | 1:D1:296:G:O5'     | 1.96                     | 0.49              |
| 1:D1:558:U:O2'    | 1:D1:559:G:H5'     | 2.12                     | 0.49              |
| 1:D1:604:A:O5'    | 1:D1:604:A:C8      | 2.63                     | 0.49              |
| 1:D1:718:A:C2'    | 1:D1:719:C:H5'     | 2.43                     | 0.49              |
| 1:D1:828:C:O2'    | 1:D1:829:C:H5'     | 2.13                     | 0.49              |
| 1:D1:881:G:C6     | 1:D1:882:G:N2      | 2.81                     | 0.49              |
| 1:D1:1052:A:O2'   | 1:D1:1053:A:O5'    | 2.31                     | 0.49              |
| 1:D1:1540:U:H5    | 1:D1:1865:A:HO2'   | 1.56                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1740:U:C5'    | 1:D1:1741:U:OP2    | 2.59                     | 0.49              |
| 1:D1:1746:U:C4     | 1:D1:1747:A:N7     | 2.81                     | 0.49              |
| 1:D1:1919:A:H5'    | 1:D1:1919:A:C8     | 2.47                     | 0.49              |
| 1:D1:3268:C:C4     | 1:D1:3269:G:C5     | 3.01                     | 0.49              |
| 9:DJ:123:ARG:NH1   | 9:FJ:123:ARG:CZ    | 2.76                     | 0.49              |
| 17:DT:36:ASN:O     | 17:DT:40:LEU:HG    | 2.12                     | 0.49              |
| 18:DU:77:GLU:OE2   | 18:DU:110:ASN:ND2  | 2.45                     | 0.49              |
| 20:E2:22:A:H2'     | 20:E2:23:U:H6      | 1.77                     | 0.49              |
| 21:E3:56:G:H4'     | 25:ED:146:SER:OG   | 2.13                     | 0.49              |
| 24:EC:299:ILE:HD12 | 1:F1:1375:A:N1     | 2.28                     | 0.49              |
| 26:EE:135:LYS:H    | 26:EE:138:GLU:HG3  | 1.75                     | 0.49              |
| 30:EI:30:GLN:HG3   | 30:EI:32:ILE:HD13  | 1.95                     | 0.49              |
| 34:EM:231:TRP:HZ2  | 34:EM:243:VAL:CG2  | 2.26                     | 0.49              |
| 34:EM:243:VAL:CG1  | 34:EM:247:PHE:CD2  | 2.96                     | 0.49              |
| 38:EQ:122:ASN:HB2  | 38:EQ:147:HIS:HB2  | 1.93                     | 0.49              |
| 42:EU:35:ALA:HB1   | 42:EU:44:LYS:HD3   | 1.94                     | 0.49              |
| 43:EV:231:ILE:O    | 43:EV:235:VAL:HG23 | 2.13                     | 0.49              |
| 45:EX:4:LYS:HD2    | 45:EX:92:ARG:NE    | 2.27                     | 0.49              |
| 46:EY:8:VAL:HG23   | 1:F1:1951:G:OP1    | 2.13                     | 0.49              |
| 46:EY:10:ILE:O     | 46:EY:13:LYS:HG2   | 2.12                     | 0.49              |
| 1:F1:69:A:N6       | 1:F1:302:G:O2'     | 2.46                     | 0.49              |
| 1:F1:76:U:H2'      | 1:F1:77:A:H5'      | 1.93                     | 0.49              |
| 1:F1:281:G:H5''    | 1:F1:282:G:P       | 2.53                     | 0.49              |
| 1:F1:632:G:N7      | 5:FE:32:GLN:NE2    | 2.59                     | 0.49              |
| 1:F1:785:A:H61     | 1:F1:795:G:H1'     | 1.77                     | 0.49              |
| 1:F1:1026:C:C2     | 1:F1:1071:C:N4     | 2.81                     | 0.49              |
| 1:F1:1211:A:H1'    | 1:F1:1350:G:N2     | 2.28                     | 0.49              |
| 1:F1:1490:G:N2     | 1:F1:1493:A:H5'    | 2.27                     | 0.49              |
| 1:F1:1613:A:C6     | 3:FB:4:ASN:HB3     | 2.48                     | 0.49              |
| 1:F1:1681:C:OP1    | 11:FL:40:ASN:ND2   | 2.45                     | 0.49              |
| 1:F1:2398:G:C5'    | 1:F1:2859:G:H5''   | 2.43                     | 0.49              |
| 1:F1:2731:C:C4'    | 4:FC:18:HIS:HD2    | 2.24                     | 0.49              |
| 1:F1:2737:A:C2'    | 1:F1:2738:G:H5'    | 2.43                     | 0.49              |
| 8:FH:17:LYS:HG3    | 8:FH:40:GLN:OE1    | 2.13                     | 0.49              |
| 8:FH:54:LYS:HA     | 8:FH:110:PRO:HG2   | 1.90                     | 0.49              |
| 9:FJ:117:ILE:HD13  | 9:FJ:137:VAL:HG11  | 1.94                     | 0.49              |
| 14:FO:108:LEU:O    | 14:FO:111:LEU:HB2  | 2.13                     | 0.49              |
| 23:GB:26:ARG:HD2   | 23:GB:177:LEU:CD2  | 2.43                     | 0.49              |
| 23:GB:108:LYS:HE2  | 23:GB:137:PHE:CD1  | 2.47                     | 0.49              |
| 23:GB:306:LEU:HD11 | 23:GB:371:VAL:HG23 | 1.94                     | 0.49              |
| 24:GC:159:PHE:CZ   | 24:GC:179:VAL:CG1  | 2.96                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:311:ALA:CB   | 1:H1:1374:C:H5'    | 2.42                     | 0.49              |
| 27:GF:92:TYR:CE1   | 27:GF:200:ASP:OD2  | 2.66                     | 0.49              |
| 27:GF:145:VAL:HG13 | 27:GF:173:VAL:CG2  | 2.43                     | 0.49              |
| 28:GG:4:UNK:HG3    | 28:GG:6:UNK:CG     | 2.28                     | 0.49              |
| 29:GH:130:ASP:O    | 29:GH:133:SER:OG   | 2.28                     | 0.49              |
| 35:GN:52:ARG:NH1   | 35:GN:141:ARG:HG3  | 2.28                     | 0.49              |
| 36:GO:42:ARG:HA    | 36:GO:45:ILE:HD12  | 1.94                     | 0.49              |
| 37:GP:17:LYS:HB3   | 37:GP:21:THR:HB    | 1.95                     | 0.49              |
| 38:GQ:8:ARG:NH1    | 38:GQ:118:HIS:N    | 2.60                     | 0.49              |
| 40:GS:44:VAL:HG11  | 40:GS:47:MET:CE    | 2.43                     | 0.49              |
| 42:GU:102:GLU:O    | 42:GU:104:VAL:HG23 | 2.13                     | 0.49              |
| 43:GV:31:SER:O     | 43:GV:35:LYS:HG2   | 2.12                     | 0.49              |
| 43:GV:206:THR:HG21 | 1:H1:1195:U:O4'    | 2.12                     | 0.49              |
| 46:GY:58:LYS:N     | 46:GY:59:PRO:HD2   | 2.27                     | 0.49              |
| 1:H1:655:A:H2'     | 1:H1:656:C:C5      | 2.48                     | 0.49              |
| 1:H1:745:A:H2'     | 1:H1:746:A:O4'     | 2.12                     | 0.49              |
| 1:H1:766:G:O2'     | 1:H1:767:C:P       | 2.71                     | 0.49              |
| 1:H1:792:G:H5'     | 18:HU:190:TRP:CE3  | 2.47                     | 0.49              |
| 1:H1:832:A:H61     | 1:H1:959:G:H22     | 1.60                     | 0.49              |
| 1:H1:868:G:C6      | 1:H1:869:G:N7      | 2.81                     | 0.49              |
| 1:H1:974:C:C2'     | 1:H1:975:G:H5'     | 2.43                     | 0.49              |
| 1:H1:1507:A:O2'    | 1:H1:1882:A:N3     | 2.40                     | 0.49              |
| 1:H1:1715:U:H2'    | 1:H1:1716:U:C6     | 2.48                     | 0.49              |
| 1:H1:1918:U:HO2'   | 1:H1:1919:A:H5''   | 1.76                     | 0.49              |
| 1:H1:2323:U:H2'    | 1:H1:2324:A:H5''   | 1.95                     | 0.49              |
| 1:H1:2356:A:H5'    | 1:H1:2356:A:C8     | 2.44                     | 0.49              |
| 1:H1:2710:A:C2     | 1:H1:2725:A:C2     | 3.00                     | 0.49              |
| 1:H1:2839:A:P      | 50:H1:3993:HOH:O   | 2.69                     | 0.49              |
| 1:H1:3097:G:C2     | 1:H1:3116:A:C2     | 3.01                     | 0.49              |
| 1:H1:3175:A:H62    | 6:HF:16:ASN:HD21   | 1.56                     | 0.49              |
| 1:H1:3257:U:H2'    | 1:H1:3258:C:C6     | 2.48                     | 0.49              |
| 5:HE:41:LEU:CD1    | 5:HE:45:ILE:HG21   | 2.39                     | 0.49              |
| 7:HG:64:GLN:O      | 7:HG:64:GLN:CG     | 2.60                     | 0.49              |
| 8:HH:9:VAL:HG12    | 8:HH:10:ALA:H      | 1.76                     | 0.49              |
| 9:HJ:115:ALA:HB2   | 9:HJ:135:VAL:HG11  | 1.94                     | 0.49              |
| 13:HN:4:PHE:HD1    | 13:HN:4:PHE:H      | 0.76                     | 0.49              |
| 14:HO:87:VAL:HG22  | 14:HO:115:HIS:CD2  | 2.47                     | 0.49              |
| 1:A1:89:G:H1'      | 1:A1:93:A:N6       | 2.27                     | 0.49              |
| 1:A1:181:U:C2'     | 1:A1:182:C:H5'     | 2.43                     | 0.49              |
| 1:A1:281:G:H2'     | 1:A1:285:U:H6      | 1.76                     | 0.49              |
| 1:A1:443:G:H2'     | 1:A1:444:A:C8      | 2.48                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:813:C:H2'     | 1:A1:814:U:H6      | 1.78                     | 0.49              |
| 1:A1:940:A:N3      | 1:A1:940:A:C2'     | 2.75                     | 0.49              |
| 1:A1:970:C:H1'     | 1:A1:1433:A:N3     | 2.28                     | 0.49              |
| 1:A1:1006:C:C2'    | 1:A1:1007:G:OP1    | 2.61                     | 0.49              |
| 1:A1:1041:C:C3'    | 1:A1:1042:U:H5''   | 2.42                     | 0.49              |
| 1:A1:1256:G:H2'    | 1:A1:1257:G:H8     | 1.73                     | 0.49              |
| 1:A1:2268:G:HO2'   | 1:A1:2306:G:H1     | 1.59                     | 0.49              |
| 1:A1:2391:G:H5'    | 1:A1:2392:A:C5'    | 2.43                     | 0.49              |
| 1:A1:2393:A:C2     | 1:A1:2394:A:C4     | 3.01                     | 0.49              |
| 1:A1:2606:U:H4'    | 1:A1:2633:C:C5     | 2.48                     | 0.49              |
| 1:A1:2691:A:OP1    | 37:BP:23:GLY:HA3   | 2.13                     | 0.49              |
| 1:A1:2736:A:H2'    | 1:A1:2737:A:C8     | 2.48                     | 0.49              |
| 1:A1:2890:A:H2'    | 1:A1:2891:A:O4'    | 2.13                     | 0.49              |
| 1:A1:2971:C:O2'    | 50:A1:4347:HOH:O   | 2.20                     | 0.49              |
| 1:A1:3000:A:H4'    | 1:A1:3001:A:H4'    | 1.95                     | 0.49              |
| 3:AB:11:LYS:NZ     | 20:B2:114:G:N2     | 2.60                     | 0.49              |
| 9:AJ:88:LEU:HG     | 9:AJ:92:VAL:CG1    | 2.43                     | 0.49              |
| 19:AX:124:MET:HE3  | 19:AX:128:HIS:CD2  | 2.48                     | 0.49              |
| 20:B2:3:A:H2'      | 20:B2:3:A:N3       | 2.27                     | 0.49              |
| 20:B2:71:G:C5      | 20:B2:72:C:C5      | 3.01                     | 0.49              |
| 21:B3:36:C:O2'     | 21:B3:37:A:H5'     | 2.12                     | 0.49              |
| 23:BB:33:PRO:CD    | 23:BB:44:THR:HG23  | 2.43                     | 0.49              |
| 27:BF:45:VAL:HB    | 27:BF:47:TRP:CE2   | 2.47                     | 0.49              |
| 27:BF:56:GLN:OE1   | 27:BF:56:GLN:HA    | 2.12                     | 0.49              |
| 27:BF:136:ILE:HG22 | 27:BF:166:ASN:HD22 | 1.78                     | 0.49              |
| 29:BH:80:ILE:HG22  | 29:BH:81:SER:N     | 2.28                     | 0.49              |
| 32:BK:148:THR:HG22 | 32:BK:149:ALA:H    | 1.74                     | 0.49              |
| 33:BL:149:ASN:O    | 33:BL:152:CYS:HB2  | 2.13                     | 0.49              |
| 34:BM:62:ALA:O     | 34:BM:105:LEU:HD22 | 2.13                     | 0.49              |
| 38:BQ:133:ARG:HG3  | 38:BQ:139:ASN:HD21 | 1.66                     | 0.49              |
| 20:C2:20:A:H1'     | 1:D1:404:A:C2      | 2.47                     | 0.49              |
| 24:CC:303:GLU:OE1  | 24:CC:303:GLU:N    | 2.42                     | 0.49              |
| 24:CC:308:VAL:HG12 | 35:CN:40:ARG:NH1   | 2.27                     | 0.49              |
| 26:CE:5:LEU:HB2    | 26:CE:58:TRP:CZ3   | 2.48                     | 0.49              |
| 26:CE:49:THR:O     | 26:CE:51:ASP:N     | 2.45                     | 0.49              |
| 29:CH:139:ARG:CD   | 29:CH:173:PHE:HE1  | 2.25                     | 0.49              |
| 31:CJ:86:ARG:NH2   | 50:CJ:301:HOH:O    | 2.46                     | 0.49              |
| 32:CK:75:VAL:HG22  | 32:CK:109:PHE:CG   | 2.47                     | 0.49              |
| 34:CM:144:ALA:O    | 34:CM:174:PRO:HD3  | 2.13                     | 0.49              |
| 35:CN:147:GLU:O    | 35:CN:148:ALA:C    | 2.56                     | 0.49              |
| 47:CO:132:TYR:CD2  | 47:CO:138:LEU:HA   | 2.48                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 47:CO:163:UNK:C   | 47:CO:166:UNK:HG3 | 2.42                     | 0.49              |
| 44:CW:28:ALA:CA   | 44:CW:66:ILE:HD11 | 2.38                     | 0.49              |
| 45:CX:80:ASN:HB3  | 1:D1:1413:G:O2'   | 2.12                     | 0.49              |
| 1:D1:40:C:O2'     | 1:D1:41:A:OP1     | 2.27                     | 0.49              |
| 1:D1:70:C:O2'     | 1:D1:71:U:H5''    | 2.13                     | 0.49              |
| 1:D1:269:U:H2'    | 1:D1:270:C:C6     | 2.47                     | 0.49              |
| 1:D1:443:G:H2'    | 1:D1:444:A:C8     | 2.47                     | 0.49              |
| 1:D1:512:G:O2'    | 1:D1:513:G:H5'    | 2.12                     | 0.49              |
| 1:D1:583:G:C2     | 1:D1:585:A:OP2    | 2.66                     | 0.49              |
| 1:D1:625:C:C4     | 1:D1:626:C:C5     | 3.01                     | 0.49              |
| 1:D1:632:G:H2'    | 1:D1:633:C:H6     | 1.77                     | 0.49              |
| 1:D1:790:C:O2     | 1:D1:790:C:H2'    | 2.13                     | 0.49              |
| 1:D1:800:G:O2'    | 1:D1:801:U:C5     | 2.66                     | 0.49              |
| 1:D1:1074:A:H5''  | 1:D1:1075:C:O5'   | 2.11                     | 0.49              |
| 1:D1:1112:A:C6    | 1:D1:1113:A:C6    | 3.01                     | 0.49              |
| 1:D1:1166:G:O6    | 17:DT:10:LYS:NZ   | 2.22                     | 0.49              |
| 1:D1:1495:C:C4'   | 1:D1:1496:U:OP2   | 2.58                     | 0.49              |
| 1:D1:1507:A:H5''  | 1:D1:1883:A:H62   | 1.78                     | 0.49              |
| 1:D1:1842:A:H2'   | 1:D1:1843:U:C6    | 2.47                     | 0.49              |
| 1:D1:2533:C:O2    | 1:D1:2533:C:H2'   | 2.10                     | 0.49              |
| 1:D1:2669:A:O3'   | 1:D1:2670:U:C6    | 2.61                     | 0.49              |
| 1:D1:3157:C:OP1   | 1:D1:3159:A:H1'   | 2.13                     | 0.49              |
| 13:DN:31:ASP:OD1  | 13:DN:31:ASP:N    | 2.43                     | 0.49              |
| 15:DP:57:ASP:OD1  | 15:DP:60:ILE:HG13 | 2.13                     | 0.49              |
| 20:E2:111:A:H2'   | 20:E2:112:G:H5''  | 1.95                     | 0.49              |
| 21:E3:28:C:H1'    | 21:E3:54:A:H61    | 1.78                     | 0.49              |
| 22:EA:31:ARG:O    | 22:EA:164:ARG:NH1 | 2.35                     | 0.49              |
| 22:EA:68:TYR:C    | 22:EA:69:ARG:CG   | 2.85                     | 0.49              |
| 23:EB:204:ASP:N   | 23:EB:204:ASP:OD1 | 2.41                     | 0.49              |
| 23:EB:218:VAL:HB  | 23:EB:332:ARG:HE  | 1.78                     | 0.49              |
| 26:EE:135:LYS:H   | 26:EE:138:GLU:HG2 | 1.78                     | 0.49              |
| 29:EH:58:GLU:CD   | 29:EH:160:PRO:HB2 | 2.38                     | 0.49              |
| 32:EK:36:LYS:HA   | 18:FU:1:MET:CE    | 2.34                     | 0.49              |
| 34:EM:177:GLU:HA  | 34:EM:180:PHE:CD2 | 2.34                     | 0.49              |
| 35:EN:57:ARG:HH12 | 1:F1:697:A:H3'    | 1.78                     | 0.49              |
| 1:F1:359:G:OP1    | 3:FB:50:LYS:NZ    | 2.44                     | 0.49              |
| 1:F1:443:G:H2'    | 1:F1:444:A:C8     | 2.48                     | 0.49              |
| 1:F1:619:G:H5''   | 1:F1:620:A:OP1    | 2.12                     | 0.49              |
| 1:F1:1593:A:C2    | 1:F1:1594:C:N3    | 2.81                     | 0.49              |
| 1:F1:2240:C:C2'   | 1:F1:2241:G:O5'   | 2.61                     | 0.49              |
| 1:F1:2551:A:O3'   | 13:FN:52:LYS:NZ   | 2.42                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 2:FA:62:THR:CG2    | 2:FA:63:GLY:N      | 2.76                     | 0.49              |
| 5:FE:58:PHE:CD2    | 5:FE:85:VAL:HG22   | 2.47                     | 0.49              |
| 6:FF:5:LYS:HD3     | 6:FF:55:LEU:HB2    | 1.94                     | 0.49              |
| 7:FG:43:PHE:CE1    | 7:FG:68:HIS:HD2    | 2.27                     | 0.49              |
| 10:FK:92:GLU:O     | 10:FK:105:PRO:HB3  | 2.12                     | 0.49              |
| 13:FN:36:ARG:NH1   | 13:FN:74:TYR:CB    | 2.76                     | 0.49              |
| 14:FO:40:LEU:HD22  | 14:FO:42:PHE:HE1   | 1.78                     | 0.49              |
| 18:FU:25:ASN:OD1   | 18:FU:26:GLN:N     | 2.44                     | 0.49              |
| 22:GA:20:HIS:ND1   | 1:H1:848:C:C5'     | 2.76                     | 0.49              |
| 22:GA:103:LEU:HB2  | 22:GA:108:ILE:HD11 | 1.94                     | 0.49              |
| 25:GD:9:MET:O      | 25:GD:134:PRO:CG   | 2.61                     | 0.49              |
| 26:GE:70:SER:O     | 26:GE:74:GLN:HG3   | 2.13                     | 0.49              |
| 26:GE:86:TYR:CE2   | 26:GE:149:LEU:HB2  | 2.48                     | 0.49              |
| 42:GU:80:LYS:HB3   | 42:GU:81:PRO:HD2   | 1.95                     | 0.49              |
| 43:GV:227:ARG:HH12 | 43:GV:234:LEU:HD13 | 1.78                     | 0.49              |
| 45:GX:3:ILE:O      | 45:GX:3:ILE:HG22   | 2.12                     | 0.49              |
| 46:GY:55:TRP:CZ2   | 46:GY:70:GLU:C     | 2.91                     | 0.49              |
| 1:H1:199:A:N3      | 1:H1:201:A:C8      | 2.81                     | 0.49              |
| 1:H1:624:G:O2'     | 1:H1:625:C:P       | 2.70                     | 0.49              |
| 1:H1:1101:U:H5''   | 1:H1:1102:U:OP1    | 2.12                     | 0.49              |
| 1:H1:1623:G:OP1    | 11:HL:27:GLY:HA3   | 2.12                     | 0.49              |
| 1:H1:2149:U:C2'    | 1:H1:2150:U:H5''   | 2.43                     | 0.49              |
| 1:H1:2804:G:H8     | 1:H1:2858:C:OP2    | 1.96                     | 0.49              |
| 4:HC:21:HIS:HA     | 4:HC:71:ASP:O      | 2.12                     | 0.49              |
| 5:HE:69:LEU:HD21   | 5:HE:114:ASP:HB2   | 1.93                     | 0.49              |
| 9:HJ:162:HIS:CG    | 9:HJ:163:PRO:HD2   | 2.48                     | 0.49              |
| 1:A1:47:G:HO2'     | 1:A1:48:U:P        | 2.36                     | 0.49              |
| 1:A1:126:A:C5'     | 1:A1:127:A:OP1     | 2.56                     | 0.49              |
| 1:A1:278:U:H2'     | 1:A1:279:U:C6      | 2.48                     | 0.49              |
| 1:A1:340:G:H5''    | 1:A1:343:A:H1'     | 1.94                     | 0.49              |
| 1:A1:439:A:C5'     | 5:AE:126:HIS:HB3   | 2.42                     | 0.49              |
| 1:A1:583:G:C2      | 1:A1:585:A:OP2     | 2.65                     | 0.49              |
| 1:A1:801:U:H5'     | 17:AT:37:PRO:CB    | 2.40                     | 0.49              |
| 1:A1:807:G:O2'     | 1:A1:808:A:H5'     | 2.12                     | 0.49              |
| 1:A1:871:A:H8      | 1:A1:871:A:OP1     | 1.96                     | 0.49              |
| 1:A1:1548:U:H3'    | 39:BR:121:LEU:CD1  | 2.42                     | 0.49              |
| 1:A1:1642:G:H2'    | 1:A1:1643:G:C5'    | 2.19                     | 0.49              |
| 1:A1:2847:U:H4'    | 1:A1:2848:U:OP1    | 2.10                     | 0.49              |
| 1:A1:2862:G:HO2'   | 1:A1:2863:U:H5     | 1.52                     | 0.49              |
| 1:A1:2992:G:C2     | 1:A1:2993:C:C6     | 3.01                     | 0.49              |
| 1:A1:3132:A:H2'    | 1:A1:3133:G:OP1    | 2.12                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:AH:54:LYS:CD    | 8:AH:110:PRO:HG2   | 2.42                     | 0.49              |
| 20:B2:33:C:O2'    | 20:B2:34:G:H5'     | 2.13                     | 0.49              |
| 20:B2:143:U:H2'   | 20:B2:144:U:H6     | 1.76                     | 0.49              |
| 24:BC:260:GLU:OE1 | 24:BC:264:LYS:HE3  | 2.13                     | 0.49              |
| 26:BE:101:GLU:OE1 | 26:BE:134:ARG:HD2  | 2.13                     | 0.49              |
| 27:BF:19:ASN:CB   | 27:BF:20:PRO:HD3   | 2.36                     | 0.49              |
| 33:BL:18:LEU:HD23 | 33:BL:19:MET:HE3   | 1.95                     | 0.49              |
| 34:BM:132:VAL:O   | 34:BM:132:VAL:HG12 | 2.13                     | 0.49              |
| 35:BN:52:ARG:NH1  | 35:BN:141:ARG:HG3  | 2.28                     | 0.49              |
| 35:BN:128:ALA:O   | 35:BN:132:PRO:HD3  | 2.13                     | 0.49              |
| 36:BO:173:ARG:CZ  | 1:H1:2831:U:O4     | 2.61                     | 0.49              |
| 40:BS:116:SER:O   | 40:BS:120:ARG:HG3  | 2.12                     | 0.49              |
| 43:BV:66:ALA:HB1  | 43:BV:72:PHE:HA    | 1.94                     | 0.49              |
| 21:C3:36:C:O2'    | 21:C3:37:A:H5'     | 2.12                     | 0.49              |
| 22:CA:42:ILE:CD1  | 22:CA:43:ARG:H     | 2.18                     | 0.49              |
| 26:CE:7:GLU:HA    | 26:CE:55:LEU:O     | 2.12                     | 0.49              |
| 30:CI:30:GLN:HG3  | 30:CI:32:ILE:HD13  | 1.94                     | 0.49              |
| 32:CK:36:LYS:HB2  | 1:D1:93:A:H5''     | 1.94                     | 0.49              |
| 32:CK:110:PHE:CD2 | 32:CK:128:LYS:HD2  | 2.47                     | 0.49              |
| 47:CO:161:UNK:HA  | 47:CO:164:UNK:HG3  | 1.94                     | 0.49              |
| 38:CQ:134:ALA:O   | 38:CQ:135:HIS:CB   | 2.61                     | 0.49              |
| 39:CR:94:VAL:HG11 | 39:CR:103:ILE:CD1  | 2.42                     | 0.49              |
| 43:CV:114:PHE:CZ  | 43:CV:124:ILE:HD11 | 2.48                     | 0.49              |
| 44:CW:10:ASP:OD1  | 44:CW:73:ARG:CG    | 2.59                     | 0.49              |
| 45:CX:62:ASP:HA   | 1:D1:1366:C:H5''   | 1.93                     | 0.49              |
| 1:D1:48:U:O2      | 1:D1:48:U:H2'      | 2.13                     | 0.49              |
| 1:D1:53:G:H5'     | 1:D1:1573:A:O2'    | 2.13                     | 0.49              |
| 1:D1:75:A:C8      | 18:DU:71:ARG:NH1   | 2.69                     | 0.49              |
| 1:D1:339:C:HO2'   | 1:D1:340:G:H5'     | 1.76                     | 0.49              |
| 1:D1:519:A:OP2    | 14:DO:89:ARG:NH1   | 2.46                     | 0.49              |
| 1:D1:661:C:C2     | 1:D1:662:C:C5      | 3.00                     | 0.49              |
| 1:D1:1005:A:C2'   | 1:D1:1006:C:OP2    | 2.61                     | 0.49              |
| 1:D1:1053:A:C5    | 13:FN:94:LYS:NZ    | 2.81                     | 0.49              |
| 1:D1:1070:U:C2'   | 1:D1:1071:C:O5'    | 2.61                     | 0.49              |
| 1:D1:1526:G:N7    | 50:D1:4933:HOH:O   | 2.34                     | 0.49              |
| 1:D1:2192:C:H4'   | 1:D1:2193:A:C8     | 2.48                     | 0.49              |
| 1:D1:2253:U:O3'   | 46:EY:28:LYS:NZ    | 2.45                     | 0.49              |
| 1:D1:2584:A:H8    | 1:D1:2584:A:O5'    | 1.95                     | 0.49              |
| 1:D1:2605:C:C2'   | 1:D1:2606:U:H5'    | 2.43                     | 0.49              |
| 1:D1:2651:A:H2'   | 1:D1:2652:G:H8     | 1.75                     | 0.49              |
| 1:D1:2737:A:C2'   | 1:D1:2738:G:H5'    | 2.43                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2899:C:H4'    | 1:D1:2900:G:O5'    | 2.11                     | 0.49              |
| 1:D1:2984:A:C4     | 1:D1:2985:C:H5     | 2.30                     | 0.49              |
| 1:D1:3042:G:C6     | 1:D1:3043:U:C4     | 3.01                     | 0.49              |
| 2:DA:4:GLY:C       | 2:DA:6:PRO:CD      | 2.86                     | 0.49              |
| 5:DE:160:LEU:HA    | 5:DE:160:LEU:HD23  | 1.65                     | 0.49              |
| 5:DE:179:THR:HG22  | 5:DE:180:LEU:N     | 2.28                     | 0.49              |
| 6:DF:106:PHE:HD2   | 6:DF:110:ARG:NE    | 2.01                     | 0.49              |
| 8:DH:26:SER:O      | 8:DH:27:LYS:C      | 2.56                     | 0.49              |
| 9:DJ:49:ILE:HD13   | 9:DJ:87:SER:HB2    | 1.95                     | 0.49              |
| 9:DJ:59:VAL:HG23   | 9:DJ:60:GLY:N      | 2.28                     | 0.49              |
| 13:DN:118:PHE:HE2  | 13:DN:138:PHE:HE2  | 1.59                     | 0.49              |
| 18:DU:60:THR:HG22  | 18:DU:62:ARG:H     | 1.77                     | 0.49              |
| 22:EA:109:PRO:HG2  | 22:EA:112:THR:OG1  | 2.13                     | 0.49              |
| 23:EB:78:VAL:HG21  | 23:EB:303:ILE:HG21 | 1.93                     | 0.49              |
| 23:EB:171:GLN:NE2  | 1:F1:3273:U:H5''   | 2.28                     | 0.49              |
| 27:EF:176:LYS:HE3  | 1:F1:6:C:O2'       | 2.13                     | 0.49              |
| 29:EH:48:TYR:O     | 29:EH:139:ARG:HA   | 2.12                     | 0.49              |
| 30:EI:48:ARG:HH12  | 1:F1:1217:A:H8     | 1.61                     | 0.49              |
| 32:EK:75:VAL:CG2   | 32:EK:109:PHE:CD2  | 2.96                     | 0.49              |
| 34:EM:39:GLN:HG2   | 34:EM:40:ASP:N     | 2.27                     | 0.49              |
| 34:EM:66:TYR:CE1   | 34:EM:73:ARG:HB2   | 2.48                     | 0.49              |
| 34:EM:216:LEU:HD12 | 34:EM:228:PHE:CE1  | 2.48                     | 0.49              |
| 35:EN:102:CYS:SG   | 35:EN:127:LEU:HG   | 2.52                     | 0.49              |
| 37:EP:66:ASN:OD1   | 37:EP:67:VAL:N     | 2.46                     | 0.49              |
| 1:F1:253:G:C2'     | 1:F1:254:G:H5''    | 2.34                     | 0.49              |
| 1:F1:287:C:O2'     | 1:F1:288:A:H5'     | 2.13                     | 0.49              |
| 1:F1:467:A:C6      | 1:F1:512:G:N3      | 2.80                     | 0.49              |
| 1:F1:943:C:O2'     | 1:F1:944:U:H5'     | 2.13                     | 0.49              |
| 1:F1:1008:C:O3'    | 17:FT:23:LYS:NZ    | 2.46                     | 0.49              |
| 1:F1:1035:A:C6     | 1:F1:1068:U:C2     | 3.01                     | 0.49              |
| 1:F1:1035:A:N1     | 1:F1:1068:U:C2     | 2.81                     | 0.49              |
| 1:F1:1053:A:C1'    | 1:F1:1054:G:OP2    | 2.58                     | 0.49              |
| 1:F1:1074:A:H5''   | 1:F1:1075:C:H5'    | 1.94                     | 0.49              |
| 1:F1:1254:C:H3'    | 1:F1:1255:A:H5''   | 1.94                     | 0.49              |
| 1:F1:1600:U:H2'    | 1:F1:1601:U:O4'    | 2.13                     | 0.49              |
| 1:F1:2203:A:O2'    | 1:F1:2204:U:O4'    | 2.29                     | 0.49              |
| 1:F1:2248:G:N2     | 1:F1:2259:U:C2     | 2.80                     | 0.49              |
| 1:F1:2277:U:H1'    | 1:F1:2948:C:O2'    | 2.13                     | 0.49              |
| 1:F1:2376:A:C2     | 1:F1:2377:G:C8     | 3.01                     | 0.49              |
| 1:F1:2537:C:H2'    | 1:F1:2538:C:H6     | 1.76                     | 0.49              |
| 1:F1:3021:A:C2     | 1:F1:3022:A:C4     | 3.01                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 12:FM:41:SER:O    | 12:FM:49:LEU:HG    | 2.12                     | 0.49              |
| 17:FT:12:GLN:OE1  | 17:FT:15:LYS:HD2   | 2.13                     | 0.49              |
| 17:FT:32:THR:O    | 17:FT:32:THR:HG22  | 2.13                     | 0.49              |
| 19:FX:41:MET:CE   | 19:FX:59:MET:HE2   | 2.42                     | 0.49              |
| 20:G2:143:U:H2'   | 20:G2:144:U:H6     | 1.77                     | 0.49              |
| 22:GA:175:ARG:HA  | 46:GY:69:TRP:CE2   | 2.48                     | 0.49              |
| 22:GA:218:GLN:CD  | 50:GA:405:HOH:O    | 2.54                     | 0.49              |
| 23:GB:101:ALA:O   | 1:H1:3135:A:O2'    | 2.30                     | 0.49              |
| 23:GB:257:ARG:HD3 | 30:GI:63:HIS:CE1   | 2.48                     | 0.49              |
| 23:GB:260:PHE:HD1 | 30:GI:63:HIS:O     | 1.96                     | 0.49              |
| 27:GF:19:ASN:CB   | 27:GF:20:PRO:HD3   | 2.36                     | 0.49              |
| 32:GK:20:GLY:O    | 32:GK:24:LYS:HG2   | 2.12                     | 0.49              |
| 34:GM:66:TYR:CE1  | 34:GM:73:ARG:HB2   | 2.48                     | 0.49              |
| 34:GM:141:PRO:HB2 | 34:GM:172:ASN:HB2  | 1.93                     | 0.49              |
| 39:GR:84:MET:HE3  | 39:GR:90:MET:HE1   | 1.94                     | 0.49              |
| 39:GR:94:VAL:HG21 | 39:GR:103:ILE:HD13 | 1.94                     | 0.49              |
| 39:GR:122:ASN:O   | 3:HB:10:LYS:NZ     | 2.46                     | 0.49              |
| 39:GR:124:ILE:O   | 3:HB:14:GLY:HA3    | 2.12                     | 0.49              |
| 43:GV:80:VAL:CG2  | 43:GV:188:VAL:HG23 | 2.43                     | 0.49              |
| 1:H1:70:C:C4      | 1:H1:72:A:C5       | 3.00                     | 0.49              |
| 1:H1:75:A:H8      | 18:HU:71:ARG:NH1   | 2.00                     | 0.49              |
| 1:H1:278:U:H2'    | 1:H1:279:U:H6      | 1.78                     | 0.49              |
| 1:H1:284:U:P      | 50:H1:3675:HOH:O   | 2.70                     | 0.49              |
| 1:H1:358:C:O2'    | 2:HA:16:HIS:HD2    | 1.95                     | 0.49              |
| 1:H1:568:A:N1     | 1:H1:602:A:C2      | 2.81                     | 0.49              |
| 1:H1:592:A:OP1    | 6:HF:67:GLN:HA     | 2.13                     | 0.49              |
| 1:H1:631:G:N7     | 5:HE:31:ARG:NH2    | 2.60                     | 0.49              |
| 1:H1:687:C:C2     | 1:H1:688:U:C5      | 3.00                     | 0.49              |
| 1:H1:738:U:HO2'   | 1:H1:739:G:H5'     | 1.78                     | 0.49              |
| 1:H1:766:G:C2'    | 1:H1:767:C:OP2     | 2.61                     | 0.49              |
| 1:H1:827:C:H2'    | 1:H1:828:C:H6      | 1.76                     | 0.49              |
| 1:H1:1112:A:C6    | 1:H1:1113:A:N6     | 2.81                     | 0.49              |
| 1:H1:1191:G:O2'   | 1:H1:1192:A:H5'    | 2.12                     | 0.49              |
| 1:H1:1448:G:C4    | 1:H1:1449:C:C5     | 3.00                     | 0.49              |
| 1:H1:1918:U:C2'   | 1:H1:1919:A:C5'    | 2.68                     | 0.49              |
| 1:H1:2358:A:O2'   | 1:H1:2359:G:H5'    | 2.13                     | 0.49              |
| 1:H1:2499:U:H2'   | 1:H1:2500:C:H6     | 1.78                     | 0.49              |
| 11:HL:23:VAL:O    | 11:HL:30:LEU:HD12  | 2.12                     | 0.49              |
| 12:HM:60:ASN:OD1  | 12:HM:60:ASN:O     | 2.30                     | 0.49              |
| 1:A1:558:U:O2'    | 1:A1:559:G:H5'     | 2.13                     | 0.49              |
| 1:A1:632:G:H2'    | 1:A1:633:C:H6      | 1.78                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:723:U:O3'     | 1:A1:724:C:H6      | 1.96                     | 0.49              |
| 1:A1:790:C:O2      | 1:A1:790:C:C2'     | 2.61                     | 0.49              |
| 1:A1:1062:A:C4     | 1:A1:1063:C:C5     | 3.01                     | 0.49              |
| 1:A1:1235:U:H4'    | 1:A1:1235:U:OP2    | 2.13                     | 0.49              |
| 1:A1:1753:A:H3'    | 1:A1:1754:G:C5'    | 2.37                     | 0.49              |
| 1:A1:2106:G:O2'    | 1:A1:2107:A:P      | 2.71                     | 0.49              |
| 1:A1:3005:A:H2'    | 1:A1:3006:A:C8     | 2.47                     | 0.49              |
| 1:A1:3042:G:C6     | 1:A1:3043:U:C4     | 3.01                     | 0.49              |
| 1:A1:3069:G:H4'    | 50:A1:4143:HOH:O   | 2.12                     | 0.49              |
| 1:A1:3298:U:H1'    | 1:A1:3299:G:P      | 2.53                     | 0.49              |
| 1:A1:3343:U:H5''   | 1:A1:3344:U:OP2    | 2.12                     | 0.49              |
| 5:AE:46:ALA:HB3    | 5:AE:49:THR:HG1    | 1.78                     | 0.49              |
| 6:AF:27:ILE:CD1    | 6:AF:36:ILE:HD12   | 2.43                     | 0.49              |
| 9:AJ:117:ILE:HD13  | 9:AJ:137:VAL:HG11  | 1.95                     | 0.49              |
| 13:AN:41:VAL:HG12  | 13:AN:43:VAL:HG22  | 1.94                     | 0.49              |
| 15:AP:45:ARG:HD2   | 15:AP:46:GLY:H     | 1.77                     | 0.49              |
| 18:AU:45:PHE:O     | 18:AU:147:GLN:OE1  | 2.30                     | 0.49              |
| 21:B3:56:G:H4'     | 25:BD:146:SER:OG   | 2.13                     | 0.49              |
| 22:BA:31:ARG:HB3   | 22:BA:37:GLU:OE2   | 2.13                     | 0.49              |
| 24:BC:14:GLU:HG3   | 24:BC:17:LYS:HD2   | 1.94                     | 0.49              |
| 24:BC:230:ILE:HG22 | 24:BC:233:VAL:HG13 | 1.95                     | 0.49              |
| 24:BC:283:TYR:CD1  | 24:BC:283:TYR:C    | 2.90                     | 0.49              |
| 24:BC:351:SER:O    | 24:BC:355:ARG:HG3  | 2.13                     | 0.49              |
| 24:BC:359:LEU:CD2  | 24:BC:363:ARG:HH21 | 2.26                     | 0.49              |
| 24:BC:383:ALA:HB1  | 37:BP:147:PHE:CG   | 2.47                     | 0.49              |
| 25:BD:50:ALA:HB2   | 25:BD:65:MET:HB2   | 1.93                     | 0.49              |
| 26:BE:135:LYS:HB2  | 26:BE:138:GLU:HG2  | 1.95                     | 0.49              |
| 27:BF:232:GLN:O    | 27:BF:233:LYS:C    | 2.55                     | 0.49              |
| 32:BK:75:VAL:HG22  | 32:BK:109:PHE:CG   | 2.48                     | 0.49              |
| 34:BM:160:PHE:O    | 34:BM:163:LEU:HB3  | 2.12                     | 0.49              |
| 35:BN:66:SER:HB3   | 35:BN:93:LEU:HG    | 1.95                     | 0.49              |
| 35:BN:89:ASN:OD1   | 35:BN:90:ASP:C     | 2.56                     | 0.49              |
| 39:BR:94:VAL:HG11  | 39:BR:103:ILE:CD1  | 2.42                     | 0.49              |
| 40:BS:50:ARG:HB2   | 40:BS:114:ARG:NH2  | 2.27                     | 0.49              |
| 43:BV:7:GLU:O      | 43:BV:11:LYS:HG3   | 2.12                     | 0.49              |
| 43:BV:157:ARG:HG3  | 43:BV:200:TRP:CD2  | 2.48                     | 0.49              |
| 44:BW:8:SER:HA     | 44:BW:74:LEU:O     | 2.12                     | 0.49              |
| 20:C2:67:C:H5'     | 20:C2:68:A:OP2     | 2.12                     | 0.49              |
| 24:CC:100:GLN:NE2  | 1:D1:828:C:O2'     | 2.46                     | 0.49              |
| 24:CC:152:VAL:O    | 14:DO:76:ILE:HG12  | 2.12                     | 0.49              |
| 24:CC:275:THR:CG2  | 24:CC:276:THR:N    | 2.76                     | 0.49              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 27:CF:233:LYS:HE2  | 1:D1:2521:A:N3    | 2.26                     | 0.49              |
| 30:CI:21:TYR:HE2   | 30:CI:121:ASP:HB3 | 1.77                     | 0.49              |
| 35:CN:27:HIS:CD2   | 35:CN:31:ILE:HD11 | 2.48                     | 0.49              |
| 37:CP:39:TYR:CE2   | 37:CP:63:LYS:HG3  | 2.47                     | 0.49              |
| 37:CP:74:VAL:HG12  | 37:CP:75:ILE:H    | 1.75                     | 0.49              |
| 42:CU:74:PHE:CB    | 42:CU:80:LYS:HE3  | 2.43                     | 0.49              |
| 43:CV:37:ARG:O     | 43:CV:38:LYS:C    | 2.54                     | 0.49              |
| 43:CV:213:ASN:HD22 | 43:CV:216:HIS:HD2 | 1.61                     | 0.49              |
| 45:CX:25:GLU:OE2   | 45:CX:52:ARG:NH2  | 2.22                     | 0.49              |
| 45:CX:39:GLY:HA3   | 1:D1:663:G:OP1    | 2.13                     | 0.49              |
| 46:CY:10:ILE:HD12  | 46:CY:30:GLU:HB3  | 1.95                     | 0.49              |
| 1:D1:47:G:P        | 50:D1:3725:HOH:O  | 2.71                     | 0.49              |
| 1:D1:156:A:OP2     | 16:DQ:27:ALA:HB3  | 2.13                     | 0.49              |
| 1:D1:310:U:H3      | 1:D1:2766:A:H61   | 1.61                     | 0.49              |
| 1:D1:461:A:O2'     | 1:D1:462:G:H5'    | 2.13                     | 0.49              |
| 1:D1:487:G:OP2     | 18:DU:161:LYS:NZ  | 2.40                     | 0.49              |
| 1:D1:566:U:C5      | 1:D1:567:C:C5     | 3.01                     | 0.49              |
| 1:D1:785:A:N6      | 1:D1:795:G:H1'    | 2.27                     | 0.49              |
| 1:D1:790:C:C5'     | 1:D1:791:C:OP1    | 2.61                     | 0.49              |
| 1:D1:832:A:H61     | 1:D1:959:G:H22    | 1.60                     | 0.49              |
| 1:D1:2624:A:O4'    | 1:D1:2625:A:C2    | 2.66                     | 0.49              |
| 1:D1:2717:G:O3'    | 50:D1:4781:HOH:O  | 2.20                     | 0.49              |
| 2:DA:17:THR:HG23   | 2:DA:18:LEU:H     | 1.77                     | 0.49              |
| 9:DJ:66:ASN:OD1    | 9:DJ:66:ASN:C     | 2.55                     | 0.49              |
| 13:DN:7:TYR:OH     | 13:DN:93:PHE:N    | 2.43                     | 0.49              |
| 15:DP:42:PHE:C     | 15:DP:43:LYS:HG2  | 2.38                     | 0.49              |
| 15:DP:43:LYS:CD    | 15:DP:52:THR:HG23 | 2.33                     | 0.49              |
| 20:E2:13:A:H2'     | 20:E2:14:C:H6     | 1.75                     | 0.49              |
| 20:E2:67:C:H5'     | 20:E2:68:A:OP2    | 2.13                     | 0.49              |
| 20:E2:87:C:O2      | 20:E2:87:C:O4'    | 2.31                     | 0.49              |
| 20:E2:143:U:H2'    | 20:E2:144:U:H6    | 1.77                     | 0.49              |
| 21:E3:22:A:C5      | 34:EM:274:HIS:HB3 | 2.47                     | 0.49              |
| 21:E3:93:G:O5'     | 21:E3:93:G:C8     | 2.65                     | 0.49              |
| 22:EA:117:VAL:CG1  | 22:EA:118:GLU:N   | 2.75                     | 0.49              |
| 23:EB:171:GLN:HG3  | 1:F1:3273:U:H5''  | 1.95                     | 0.49              |
| 24:EC:33:ILE:CD1   | 24:EC:135:ALA:HA  | 2.42                     | 0.49              |
| 24:EC:126:ARG:CB   | 24:EC:283:TYR:CE2 | 2.95                     | 0.49              |
| 24:EC:356:GLN:O    | 24:EC:360:LYS:HG2 | 2.13                     | 0.49              |
| 26:EE:45:ILE:HG23  | 26:EE:55:LEU:HD21 | 1.94                     | 0.49              |
| 27:EF:219:ASP:HB3  | 27:EF:223:LYS:HE3 | 1.95                     | 0.49              |
| 34:EM:131:ASN:HB3  | 34:EM:133:ASP:OD1 | 2.13                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:EN:142:ALA:O    | 1:F1:768:A:H4'     | 2.13                     | 0.49              |
| 37:EP:40:VAL:HG13  | 37:EP:96:VAL:HG13  | 1.95                     | 0.49              |
| 40:ES:30:MET:HE3   | 40:ES:77:TRP:HE3   | 1.74                     | 0.49              |
| 43:EV:66:ALA:HB1   | 43:EV:72:PHE:HA    | 1.94                     | 0.49              |
| 45:EX:20:VAL:HG12  | 45:EX:52:ARG:HH12  | 1.78                     | 0.49              |
| 1:F1:78:G:C2       | 1:F1:79:C:C6       | 3.01                     | 0.49              |
| 1:F1:472:C:O5'     | 1:F1:472:C:H6      | 1.95                     | 0.49              |
| 1:F1:632:G:H2'     | 1:F1:633:C:H6      | 1.77                     | 0.49              |
| 1:F1:641:U:O4'     | 1:F1:3233:A:N6     | 2.45                     | 0.49              |
| 1:F1:663:G:H4'     | 1:F1:1460:G:C6     | 2.48                     | 0.49              |
| 1:F1:1185:A:C3'    | 1:F1:1186:A:C5'    | 2.85                     | 0.49              |
| 1:F1:1215:U:N3     | 1:F1:1344:A:N6     | 2.61                     | 0.49              |
| 1:F1:1227:A:N3     | 1:F1:1227:A:C2'    | 2.76                     | 0.49              |
| 1:F1:1573:A:O2'    | 1:F1:1574:C:H5'    | 2.13                     | 0.49              |
| 1:F1:1864:U:C5'    | 50:F1:4043:HOH:O   | 2.56                     | 0.49              |
| 1:F1:1895:U:H5'    | 50:F1:4010:HOH:O   | 2.10                     | 0.49              |
| 1:F1:2106:G:O2'    | 1:F1:2107:A:P      | 2.70                     | 0.49              |
| 1:F1:2247:A:H2'    | 1:F1:2248:G:C8     | 2.47                     | 0.49              |
| 1:F1:2274:A:H5'    | 1:F1:2300:G:N2     | 2.27                     | 0.49              |
| 1:F1:2545:A:HO2'   | 1:F1:2546:A:P      | 2.36                     | 0.49              |
| 1:F1:2572:U:C2'    | 1:F1:2573:U:H5'    | 2.43                     | 0.49              |
| 1:F1:2934:A:H2'    | 1:F1:2970:A:N7     | 2.28                     | 0.49              |
| 1:F1:3098:A:C2     | 1:F1:3115:C:C2     | 3.00                     | 0.49              |
| 3:FB:7:LEU:HD23    | 3:FB:7:LEU:HA      | 1.68                     | 0.49              |
| 4:FC:77:THR:HG22   | 4:FC:78:LYS:N      | 2.26                     | 0.49              |
| 13:FN:89:GLU:OE1   | 13:FN:89:GLU:N     | 2.44                     | 0.49              |
| 13:FN:124:THR:HG22 | 13:FN:124:THR:O    | 2.13                     | 0.49              |
| 19:FX:96:GLN:N     | 19:FX:134:THR:CG2  | 2.76                     | 0.49              |
| 19:FX:167:LYS:HA   | 19:FX:188:THR:HG22 | 1.91                     | 0.49              |
| 20:G2:7:U:OP1      | 38:GQ:64:ARG:HG3   | 2.12                     | 0.49              |
| 20:G2:45:G:O6      | 20:G2:104:G:C2     | 2.66                     | 0.49              |
| 22:GA:46:ILE:O     | 22:GA:86:GLY:N     | 2.41                     | 0.49              |
| 22:GA:114:VAL:HG12 | 22:GA:115:CYS:N    | 2.28                     | 0.49              |
| 23:GB:10:ARG:NH1   | 1:H1:2871:U:OP1    | 2.45                     | 0.49              |
| 23:GB:117:ARG:HA   | 23:GB:117:ARG:HD2  | 1.59                     | 0.49              |
| 25:GD:12:VAL:CG2   | 25:GD:162:TRP:HD1  | 2.26                     | 0.49              |
| 25:GD:115:LYS:CG   | 25:GD:116:TYR:N    | 2.75                     | 0.49              |
| 27:GF:232:GLN:O    | 27:GF:233:LYS:C    | 2.52                     | 0.49              |
| 30:GI:109:THR:O    | 30:GI:110:PRO:C    | 2.54                     | 0.49              |
| 33:GL:19:MET:HE2   | 33:GL:19:MET:CA    | 2.37                     | 0.49              |
| 34:GM:243:VAL:CG1  | 34:GM:247:PHE:CD2  | 2.96                     | 0.49              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 35:GN:174:PHE:O   | 35:GN:176:ARG:N    | 2.46                     | 0.49              |
| 35:GN:178:HIS:ND1 | 35:GN:179:GLY:O    | 2.46                     | 0.49              |
| 38:GQ:62:PHE:HE1  | 38:GQ:84:ARG:HB2   | 1.75                     | 0.49              |
| 39:GR:89:THR:HG23 | 39:GR:132:ILE:O    | 2.12                     | 0.49              |
| 39:GR:141:LEU:O   | 39:GR:144:ALA:HB3  | 2.13                     | 0.49              |
| 43:GV:103:PHE:CZ  | 43:GV:124:ILE:HG12 | 2.47                     | 0.49              |
| 44:GW:28:ALA:HB3  | 44:GW:29:PRO:HD3   | 1.94                     | 0.49              |
| 45:GX:43:ARG:HA   | 45:GX:48:PHE:CD2   | 2.47                     | 0.49              |
| 1:H1:137:A:C6     | 1:H1:138:C:C4      | 3.01                     | 0.49              |
| 1:H1:269:U:C2     | 1:H1:270:C:C5      | 3.01                     | 0.49              |
| 1:H1:632:G:H2'    | 1:H1:633:C:H6      | 1.76                     | 0.49              |
| 1:H1:785:A:N6     | 1:H1:795:G:H1'     | 2.27                     | 0.49              |
| 1:H1:790:C:C5'    | 1:H1:791:C:OP1     | 2.61                     | 0.49              |
| 1:H1:842:A:C8     | 2:HA:15:THR:CG2    | 2.83                     | 0.49              |
| 1:H1:992:A:N6     | 1:H1:993:G:C6      | 2.81                     | 0.49              |
| 1:H1:1109:A:C1'   | 1:H1:1110:U:OP2    | 2.54                     | 0.49              |
| 1:H1:1178:U:H3'   | 1:H1:1179:G:C8     | 2.48                     | 0.49              |
| 1:H1:1196:A:C6    | 1:H1:1357:A:N7     | 2.81                     | 0.49              |
| 1:H1:1385:C:O2'   | 1:H1:1386:U:H5'    | 2.13                     | 0.49              |
| 1:H1:1403:C:HO2'  | 1:H1:1434:G:HO2'   | 1.54                     | 0.49              |
| 1:H1:1549:U:H5''  | 1:H1:1632:U:O2     | 2.13                     | 0.49              |
| 1:H1:1552:U:O2    | 1:H1:1620:U:H5'    | 2.13                     | 0.49              |
| 1:H1:1580:G:H5''  | 1:H1:1581:C:OP1    | 2.13                     | 0.49              |
| 1:H1:1615:G:H5''  | 11:HL:15:THR:HG21  | 1.95                     | 0.49              |
| 1:H1:1738:A:N7    | 1:H1:1752:G:C2     | 2.81                     | 0.49              |
| 1:H1:2544:U:H4'   | 7:HG:50:THR:OG1    | 2.13                     | 0.49              |
| 1:H1:2562:U:O2'   | 1:H1:2563:U:P      | 2.71                     | 0.49              |
| 1:H1:3127:U:C3'   | 1:H1:3128:G:H5''   | 2.40                     | 0.49              |
| 1:H1:3179:U:H2'   | 1:H1:3180:C:H6     | 1.75                     | 0.49              |
| 1:H1:3197:A:OP2   | 1:H1:3213:G:N2     | 2.44                     | 0.49              |
| 1:H1:3229:C:HO2'  | 1:H1:3230:G:P      | 2.36                     | 0.49              |
| 1:H1:3283:C:H2'   | 1:H1:3284:G:H8     | 1.78                     | 0.49              |
| 6:HF:67:GLN:HE21  | 6:HF:71:LEU:HB3    | 1.77                     | 0.49              |
| 9:HJ:58:ILE:O     | 9:HJ:59:VAL:C      | 2.55                     | 0.49              |
| 9:HJ:111:ASN:ND2  | 9:HJ:156:ASN:HD22  | 2.10                     | 0.49              |
| 12:HM:23:GLN:HB3  | 12:HM:109:TYR:HE1  | 1.78                     | 0.49              |
| 14:HO:36:THR:O    | 14:HO:37:GLN:C     | 2.56                     | 0.49              |
| 19:HX:167:LYS:HA  | 19:HX:188:THR:HG22 | 1.92                     | 0.49              |
| 1:A1:170:A:C5     | 1:A1:250:U:C4      | 3.01                     | 0.48              |
| 1:A1:663:G:H4'    | 1:A1:1460:G:C6     | 2.47                     | 0.48              |
| 1:A1:745:A:H2'    | 1:A1:746:A:O4'     | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1105:U:O5'    | 1:A1:1105:U:H6     | 1.96                     | 0.48              |
| 1:A1:1141:U:C4     | 1:A1:1142:G:C2     | 3.01                     | 0.48              |
| 1:A1:1186:A:N3     | 1:A1:1186:A:C2'    | 2.74                     | 0.48              |
| 1:A1:1198:G:P      | 43:BV:215:ARG:HH21 | 2.35                     | 0.48              |
| 1:A1:1464:U:H4'    | 24:BC:95:ALA:CB    | 2.43                     | 0.48              |
| 1:A1:1752:G:H4'    | 1:A1:1753:A:OP2    | 2.12                     | 0.48              |
| 1:A1:2520:G:H4'    | 1:A1:2521:A:OP2    | 2.12                     | 0.48              |
| 1:A1:2559:U:N3     | 1:A1:2560:U:C5     | 2.82                     | 0.48              |
| 1:A1:2635:C:H5'    | 1:A1:2635:C:C6     | 2.37                     | 0.48              |
| 1:A1:2902:G:N3     | 1:A1:2922:A:H2     | 2.11                     | 0.48              |
| 1:A1:3056:C:C2     | 1:A1:3057:U:C5     | 3.00                     | 0.48              |
| 6:AF:15:ILE:HG21   | 6:AF:20:ASP:HB2    | 1.95                     | 0.48              |
| 8:AH:13:ARG:NE     | 8:AH:15:TRP:CE2    | 2.81                     | 0.48              |
| 12:AM:77:TYR:HD1   | 12:AM:77:TYR:O     | 1.95                     | 0.48              |
| 13:AN:47:GLU:HB3   | 13:AN:69:LYS:O     | 2.12                     | 0.48              |
| 14:AO:111:LEU:O    | 14:AO:112:VAL:C    | 2.57                     | 0.48              |
| 18:AU:1:MET:HG2    | 32:BK:46:LEU:HD12  | 1.93                     | 0.48              |
| 19:AX:94:LYS:HE2   | 19:AX:136:GLN:HG2  | 1.95                     | 0.48              |
| 20:B2:13:A:H2'     | 20:B2:14:C:H6      | 1.77                     | 0.48              |
| 20:B2:73:G:O2'     | 20:B2:88:G:N2      | 2.45                     | 0.48              |
| 22:BA:175:ARG:HA   | 46:BY:69:TRP:CZ2   | 2.48                     | 0.48              |
| 24:BC:369:HIS:CE1  | 43:BV:68:LYS:NZ    | 2.81                     | 0.48              |
| 24:BC:369:HIS:ND1  | 43:BV:68:LYS:NZ    | 2.61                     | 0.48              |
| 30:BI:109:THR:O    | 30:BI:110:PRO:C    | 2.53                     | 0.48              |
| 32:BK:53:GLY:HA2   | 35:BN:177:ALA:O    | 2.13                     | 0.48              |
| 33:BL:145:ASP:O    | 33:BL:149:ASN:HB3  | 2.12                     | 0.48              |
| 37:BP:74:VAL:CG1   | 37:BP:75:ILE:H     | 2.24                     | 0.48              |
| 21:C3:56:G:H4'     | 25:CD:146:SER:OG   | 2.12                     | 0.48              |
| 23:CB:264:ARG:NH1  | 1:D1:2976:C:O2     | 2.46                     | 0.48              |
| 24:CC:174:ALA:O    | 24:CC:178:ARG:HG3  | 2.13                     | 0.48              |
| 24:CC:311:ALA:HB1  | 1:D1:1374:C:H5'    | 1.95                     | 0.48              |
| 26:CE:112:ILE:HD13 | 26:CE:177:ILE:CD1  | 2.43                     | 0.48              |
| 26:CE:132:ILE:HG23 | 26:CE:144:LEU:HD21 | 1.95                     | 0.48              |
| 29:CH:46:PHE:HZ    | 29:CH:83:ASP:O     | 1.96                     | 0.48              |
| 34:CM:34:LYS:HE3   | 37:CP:30:TYR:CE1   | 2.48                     | 0.48              |
| 34:CM:177:GLU:O    | 34:CM:177:GLU:HG3  | 2.10                     | 0.48              |
| 35:CN:174:PHE:C    | 35:CN:176:ARG:N    | 2.68                     | 0.48              |
| 47:CO:173:UNK:CG   | 47:CO:174:UNK:N    | 2.76                     | 0.48              |
| 37:CP:88:ARG:HH22  | 17:DT:30:ILE:HG22  | 1.76                     | 0.48              |
| 40:CS:120:ARG:O    | 40:CS:123:ALA:HB3  | 2.13                     | 0.48              |
| 43:CV:84:ILE:O     | 43:CV:131:ILE:HG23 | 2.13                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 43:CV:138:ARG:HB3 | 43:CV:186:THR:HG21 | 1.95                     | 0.48              |
| 46:CY:57:CYS:SG   | 46:CY:59:PRO:HD2   | 2.53                     | 0.48              |
| 1:D1:37:A:C5'     | 1:D1:38:A:H4'      | 2.42                     | 0.48              |
| 1:D1:70:C:C4      | 1:D1:72:A:C5       | 3.01                     | 0.48              |
| 1:D1:127:A:C5     | 1:D1:128:G:H1'     | 2.48                     | 0.48              |
| 1:D1:281:G:H5''   | 1:D1:282:G:P       | 2.51                     | 0.48              |
| 1:D1:370:G:N2     | 1:D1:373:A:C8      | 2.81                     | 0.48              |
| 1:D1:619:G:H5''   | 1:D1:620:A:OP1     | 2.13                     | 0.48              |
| 1:D1:1600:U:C5    | 1:D1:1601:U:C5     | 3.01                     | 0.48              |
| 1:D1:2219:A:OP1   | 16:DQ:78:ARG:CZ    | 2.61                     | 0.48              |
| 1:D1:2954:G:O2'   | 1:D1:2955:A:H5'    | 2.13                     | 0.48              |
| 1:D1:3125:G:C6    | 1:D1:3126:C:C4     | 3.01                     | 0.48              |
| 1:D1:3132:A:H2'   | 1:D1:3133:G:OP1    | 2.12                     | 0.48              |
| 1:D1:3343:U:H5''  | 1:D1:3344:U:OP2    | 2.13                     | 0.48              |
| 6:DF:2:VAL:CG1    | 6:DF:3:PHE:H       | 2.19                     | 0.48              |
| 6:DF:15:ILE:O     | 6:DF:21:LYS:HA     | 2.12                     | 0.48              |
| 7:DG:49:PRO:HG2   | 7:DG:52:ARG:HB2    | 1.95                     | 0.48              |
| 12:DM:32:ILE:CG2  | 12:DM:60:ASN:HB2   | 2.43                     | 0.48              |
| 12:DM:55:ASN:O    | 12:DM:69:SER:HA    | 2.12                     | 0.48              |
| 12:DM:74:SER:OG   | 12:DM:76:ARG:HB2   | 2.13                     | 0.48              |
| 20:E2:3:A:H2'     | 20:E2:3:A:N3       | 2.27                     | 0.48              |
| 20:E2:45:G:O6     | 20:E2:104:G:C2     | 2.66                     | 0.48              |
| 21:E3:63:A:O5'    | 29:EH:206:LEU:HG   | 2.13                     | 0.48              |
| 22:EA:84:TYR:CE2  | 22:EA:87:GLN:HA    | 2.48                     | 0.48              |
| 22:EA:116:ASN:OD1 | 22:EA:125:GLY:HA3  | 2.13                     | 0.48              |
| 23:EB:55:HIS:N    | 23:EB:55:HIS:CD2   | 2.75                     | 0.48              |
| 23:EB:108:LYS:HE2 | 23:EB:137:PHE:CD1  | 2.48                     | 0.48              |
| 23:EB:238:LYS:HE3 | 1:F1:2332:C:P      | 2.53                     | 0.48              |
| 24:EC:119:ARG:NH1 | 33:EL:204:ARG:HE   | 2.11                     | 0.48              |
| 24:EC:202:ARG:NH2 | 1:F1:340:G:N7      | 2.50                     | 0.48              |
| 24:EC:351:SER:O   | 24:EC:355:ARG:HG3  | 2.13                     | 0.48              |
| 26:EE:131:LYS:HE2 | 26:EE:145:GLN:CG   | 2.42                     | 0.48              |
| 34:EM:120:ALA:O   | 34:EM:255:ARG:NH1  | 2.30                     | 0.48              |
| 35:EN:29:LEU:HA   | 35:EN:32:LYS:HG3   | 1.93                     | 0.48              |
| 35:EN:92:ARG:HH22 | 1:F1:809:A:H4'     | 1.68                     | 0.48              |
| 36:EO:41:ILE:O    | 36:EO:44:LEU:HB2   | 2.13                     | 0.48              |
| 37:EP:15:PHE:N    | 37:EP:15:PHE:CD1   | 2.80                     | 0.48              |
| 42:EU:76:GLY:HA2  | 1:F1:133:C:C2'     | 2.43                     | 0.48              |
| 43:EV:41:TRP:CG   | 43:EV:177:CYS:HG   | 2.29                     | 0.48              |
| 45:EX:69:LEU:HG   | 45:EX:73:PHE:O     | 2.13                     | 0.48              |
| 1:F1:25:C:O2'     | 1:F1:326:A:N3      | 2.37                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:635:A:HO2'   | 1:F1:636:U:P       | 2.29                     | 0.48              |
| 1:F1:2324:A:H5''  | 1:F1:2324:A:C8     | 2.45                     | 0.48              |
| 1:F1:2595:G:H4'   | 1:F1:2596:G:OP1    | 2.13                     | 0.48              |
| 1:F1:3344:U:O2    | 1:F1:3344:U:C2'    | 2.60                     | 0.48              |
| 5:FE:41:LEU:CD1   | 5:FE:45:ILE:HG21   | 2.42                     | 0.48              |
| 7:FG:35:ARG:HH12  | 13:FN:77:LEU:HB2   | 1.73                     | 0.48              |
| 13:FN:24:VAL:C    | 13:FN:43:VAL:HG13  | 2.38                     | 0.48              |
| 22:GA:68:TYR:HE1  | 1:H1:2520:G:O6     | 1.95                     | 0.48              |
| 22:GA:84:TYR:CE2  | 22:GA:87:GLN:HA    | 2.47                     | 0.48              |
| 23:GB:121:ASN:HB2 | 1:H1:3275:A:C5     | 2.49                     | 0.48              |
| 23:GB:377:PHE:C   | 1:H1:3325:G:H22    | 2.21                     | 0.48              |
| 24:GC:145:ARG:HD2 | 24:GC:253:GLY:O    | 2.13                     | 0.48              |
| 24:GC:205:ARG:HB3 | 24:GC:206:TYR:CD2  | 2.47                     | 0.48              |
| 25:GD:59:ILE:CD1  | 1:H1:2669:A:N3     | 2.75                     | 0.48              |
| 26:GE:5:LEU:HD13  | 26:GE:58:TRP:CH2   | 2.48                     | 0.48              |
| 26:GE:78:MET:O    | 26:GE:82:VAL:HG23  | 2.13                     | 0.48              |
| 30:GI:7:VAL:HG22  | 30:GI:33:VAL:HB    | 1.95                     | 0.48              |
| 37:GP:21:THR:HG22 | 37:GP:21:THR:O     | 2.12                     | 0.48              |
| 43:GV:105:LEU:CD1 | 43:GV:131:ILE:HD13 | 2.43                     | 0.48              |
| 45:GX:80:ASN:HB3  | 1:H1:1413:G:H4'    | 1.94                     | 0.48              |
| 45:GX:98:ILE:N    | 45:GX:123:ASN:ND2  | 2.52                     | 0.48              |
| 1:H1:105:A:H1'    | 1:H1:324:A:N3      | 2.28                     | 0.48              |
| 1:H1:111:C:C2'    | 1:H1:112:A:H5'     | 2.42                     | 0.48              |
| 1:H1:170:A:C5     | 1:H1:250:U:C4      | 3.01                     | 0.48              |
| 1:H1:300:G:H8     | 1:H1:300:G:H5'     | 1.78                     | 0.48              |
| 1:H1:363:G:H5'    | 1:H1:363:G:C8      | 2.44                     | 0.48              |
| 1:H1:368:A:H4'    | 1:H1:369:U:OP2     | 2.13                     | 0.48              |
| 1:H1:566:U:C5     | 1:H1:567:C:C6      | 3.01                     | 0.48              |
| 1:H1:643:A:H4'    | 1:H1:644:A:O5'     | 2.13                     | 0.48              |
| 1:H1:734:A:N3     | 1:H1:2775:G:O2'    | 2.42                     | 0.48              |
| 1:H1:817:A:H2'    | 1:H1:818:U:C6      | 2.48                     | 0.48              |
| 1:H1:1062:A:H2'   | 1:H1:1063:C:C5'    | 2.41                     | 0.48              |
| 1:H1:1231:A:H2'   | 1:H1:1232:A:H5'    | 1.94                     | 0.48              |
| 1:H1:1370:A:N1    | 1:H1:1389:G:C6     | 2.81                     | 0.48              |
| 1:H1:1488:A:O2'   | 1:H1:1489:U:H5'    | 2.13                     | 0.48              |
| 1:H1:1698:G:C6    | 1:H1:1800:A:N1     | 2.81                     | 0.48              |
| 1:H1:1735:U:OP1   | 13:HN:76:ASN:ND2   | 2.45                     | 0.48              |
| 1:H1:1866:A:H4'   | 1:H1:1867:C:OP2    | 2.12                     | 0.48              |
| 1:H1:2143:A:H2'   | 1:H1:2144:A:O4'    | 2.12                     | 0.48              |
| 1:H1:2146:G:H2'   | 1:H1:2147:C:H5'    | 1.95                     | 0.48              |
| 1:H1:2884:A:O3'   | 10:HK:122:ARG:NH2  | 2.45                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:3248:C:H2'    | 1:H1:3249:U:C6     | 2.47                     | 0.48              |
| 1:H1:3340:U:H2'    | 1:H1:3341:C:H6     | 1.78                     | 0.48              |
| 4:HC:83:ILE:CG2    | 4:HC:84:LYS:N      | 2.76                     | 0.48              |
| 8:HH:31:ASN:OD1    | 8:HH:33:ASN:HB2    | 2.13                     | 0.48              |
| 9:HJ:201:ASP:O     | 9:HJ:224:LEU:CD2   | 2.61                     | 0.48              |
| 14:HO:115:HIS:O    | 14:HO:118:ASN:N    | 2.46                     | 0.48              |
| 1:A1:37:A:C5'      | 1:A1:38:A:H4'      | 2.43                     | 0.48              |
| 1:A1:116:U:H3'     | 1:A1:117:G:H8      | 1.78                     | 0.48              |
| 1:A1:549:G:H2'     | 1:A1:550:G:C8      | 2.48                     | 0.48              |
| 1:A1:564:A:N3      | 1:A1:564:A:C2'     | 2.74                     | 0.48              |
| 1:A1:790:C:O2      | 1:A1:790:C:H2'     | 2.13                     | 0.48              |
| 1:A1:915:C:O2'     | 1:A1:2319:A:N3     | 2.39                     | 0.48              |
| 1:A1:936:C:C5'     | 22:BA:16:VAL:CG2   | 2.90                     | 0.48              |
| 1:A1:1123:A:H1'    | 1:A1:1124:G:OP2    | 2.13                     | 0.48              |
| 1:A1:1524:A:H2'    | 1:A1:1525:U:C6     | 2.48                     | 0.48              |
| 1:A1:1736:G:C6     | 1:A1:1737:A:C6     | 3.00                     | 0.48              |
| 1:A1:2123:U:C2'    | 1:A1:2124:C:H5'    | 2.43                     | 0.48              |
| 1:A1:2343:A:C2'    | 1:A1:2344:U:H5''   | 2.43                     | 0.48              |
| 1:A1:2509:U:P      | 1:A1:2575:G:N2     | 2.86                     | 0.48              |
| 1:A1:2632:A:H2'    | 1:A1:2634:G:OP1    | 2.12                     | 0.48              |
| 1:A1:2817:U:C2'    | 1:A1:2818:G:H5'    | 2.42                     | 0.48              |
| 1:A1:3097:G:C2'    | 1:A1:3098:A:O5'    | 2.61                     | 0.48              |
| 6:AF:2:VAL:CG1     | 6:AF:3:PHE:H       | 2.23                     | 0.48              |
| 6:AF:14:TYR:CZ     | 6:AF:22:GLY:HA2    | 2.48                     | 0.48              |
| 13:AN:118:PHE:HD2  | 13:AN:139:PHE:CE1  | 2.30                     | 0.48              |
| 16:AQ:19:GLU:O     | 16:AQ:23:GLN:HG3   | 2.13                     | 0.48              |
| 18:AU:108:GLU:OE1  | 18:AU:108:GLU:HA   | 2.13                     | 0.48              |
| 22:BA:30:TYR:CB    | 22:BA:164:ARG:HH11 | 2.25                     | 0.48              |
| 22:BA:46:ILE:O     | 22:BA:86:GLY:N     | 2.42                     | 0.48              |
| 22:BA:49:ILE:HA    | 22:BA:59:LEU:O     | 2.13                     | 0.48              |
| 24:BC:276:THR:HG22 | 24:BC:277:GLY:N    | 2.26                     | 0.48              |
| 29:BH:50:VAL:HG12  | 29:BH:152:LEU:HD12 | 1.94                     | 0.48              |
| 29:BH:193:ASP:OD1  | 29:BH:198:LYS:HE3  | 2.14                     | 0.48              |
| 30:BI:7:VAL:HG22   | 30:BI:33:VAL:HB    | 1.94                     | 0.48              |
| 36:BO:132:TYR:CD2  | 36:BO:138:LEU:HA   | 2.48                     | 0.48              |
| 38:BQ:24:LEU:HB2   | 38:BQ:146:CYS:HB2  | 1.95                     | 0.48              |
| 43:BV:213:ASN:HD22 | 43:BV:216:HIS:CD2  | 2.32                     | 0.48              |
| 45:BX:98:ILE:C     | 45:BX:123:ASN:HD21 | 2.20                     | 0.48              |
| 20:C2:114:G:N2     | 3:DB:11:LYS:NZ     | 2.61                     | 0.48              |
| 22:CA:46:ILE:HD12  | 22:CA:87:GLN:HB3   | 1.94                     | 0.48              |
| 23:CB:267:GLN:HG3  | 23:CB:268:LEU:N    | 2.28                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:105:ARG:NH2  | 1:D1:958:A:C2      | 2.82                     | 0.48              |
| 24:CC:238:VAL:HA   | 24:CC:241:LEU:HD21 | 1.94                     | 0.48              |
| 27:CF:196:VAL:HG21 | 27:CF:204:LEU:HD11 | 1.93                     | 0.48              |
| 29:CH:139:ARG:HD3  | 29:CH:173:PHE:HE1  | 1.78                     | 0.48              |
| 31:CJ:91:ARG:HD2   | 31:CJ:97:ILE:CD1   | 2.43                     | 0.48              |
| 33:CL:8:GLU:CD     | 33:CL:50:LYS:HZ3   | 2.21                     | 0.48              |
| 34:CM:90:THR:O     | 34:CM:231:TRP:CZ3  | 2.66                     | 0.48              |
| 34:CM:254:ILE:O    | 34:CM:258:PRO:CD   | 2.60                     | 0.48              |
| 35:CN:63:LEU:O     | 35:CN:87:VAL:HA    | 2.14                     | 0.48              |
| 47:CO:96:MET:HE3   | 47:CO:100:ARG:NH2  | 2.29                     | 0.48              |
| 43:CV:105:LEU:HD12 | 43:CV:131:ILE:HD13 | 1.95                     | 0.48              |
| 1:D1:187:A:O2'     | 1:D1:188:A:H5'     | 2.12                     | 0.48              |
| 1:D1:263:A:C4      | 16:DQ:30:ARG:NH1   | 2.78                     | 0.48              |
| 1:D1:442:G:N2      | 1:D1:536:A:C4      | 2.81                     | 0.48              |
| 1:D1:725:C:O2'     | 1:D1:726:G:H5'     | 2.12                     | 0.48              |
| 1:D1:1017:U:C3'    | 1:D1:1017:U:C6     | 2.97                     | 0.48              |
| 1:D1:1060:C:C5'    | 1:D1:1060:C:H6     | 2.26                     | 0.48              |
| 1:D1:1254:C:C3'    | 1:D1:1255:A:H5''   | 2.43                     | 0.48              |
| 1:D1:1533:G:H5''   | 1:D1:1533:G:H8     | 1.78                     | 0.48              |
| 1:D1:1691:U:H2'    | 1:D1:1692:G:H8     | 1.78                     | 0.48              |
| 1:D1:2281:U:H4'    | 1:D1:2282:C:OP1    | 2.14                     | 0.48              |
| 1:D1:2572:U:C2'    | 1:D1:2573:U:H5'    | 2.42                     | 0.48              |
| 1:D1:3227:A:C2     | 5:DE:80:TYR:CZ     | 3.00                     | 0.48              |
| 1:D1:3331:C:C4'    | 1:D1:3332:A:H5''   | 2.43                     | 0.48              |
| 5:DE:42:ARG:H      | 5:DE:92:GLN:HE21   | 1.60                     | 0.48              |
| 7:DG:14:LEU:HD21   | 7:DG:43:PHE:CZ     | 2.47                     | 0.48              |
| 20:E2:119:A:C2     | 20:E2:133:U:O2     | 2.66                     | 0.48              |
| 23:EB:363:ILE:O    | 23:EB:363:ILE:HG22 | 2.12                     | 0.48              |
| 24:EC:272:THR:O    | 24:EC:275:THR:O    | 2.31                     | 0.48              |
| 24:EC:300:ASN:O    | 1:F1:1376:A:H1'    | 2.13                     | 0.48              |
| 26:EE:22:GLN:HB3   | 26:EE:39:ARG:NH2   | 2.28                     | 0.48              |
| 26:EE:124:ILE:HD11 | 26:EE:162:SER:OG   | 2.13                     | 0.48              |
| 27:EF:114:GLY:O    | 27:EF:115:LYS:HB2  | 2.12                     | 0.48              |
| 30:EI:13:HIS:CE1   | 30:EI:118:VAL:HG13 | 2.48                     | 0.48              |
| 33:EL:172:ARG:HD3  | 1:F1:28:G:H5''     | 1.94                     | 0.48              |
| 35:EN:158:GLN:OE1  | 50:EN:307:HOH:O    | 2.20                     | 0.48              |
| 37:EP:42:ILE:HG22  | 37:EP:60:ARG:O     | 2.14                     | 0.48              |
| 42:EU:118:ARG:HD2  | 18:FU:123:LEU:HD11 | 1.94                     | 0.48              |
| 43:EV:170:LEU:O    | 43:EV:171:GLY:C    | 2.56                     | 0.48              |
| 1:F1:115:G:C4'     | 1:F1:116:U:OP1     | 2.52                     | 0.48              |
| 1:F1:297:U:O4'     | 16:FQ:32:GLY:HA3   | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:345:C:C4      | 1:F1:347:A:C8      | 3.01                     | 0.48              |
| 1:F1:624:G:HO2'    | 1:F1:625:C:H6      | 1.58                     | 0.48              |
| 1:F1:940:A:N3      | 1:F1:940:A:C2'     | 2.76                     | 0.48              |
| 1:F1:1024:A:C2'    | 1:F1:1025:G:H5'    | 2.43                     | 0.48              |
| 1:F1:1205:A:H5'    | 1:F1:1205:A:C8     | 2.48                     | 0.48              |
| 1:F1:1239:G:O3'    | 19:FX:106:LYS:NZ   | 2.41                     | 0.48              |
| 1:F1:1373:G:H2'    | 1:F1:1374:C:C6     | 2.43                     | 0.48              |
| 1:F1:1540:U:C5     | 1:F1:1865:A:N3     | 2.81                     | 0.48              |
| 1:F1:1652:U:H5''   | 1:F1:1655:A:H4'    | 1.95                     | 0.48              |
| 1:F1:1966:U:O2'    | 1:F1:3303:G:H1'    | 2.14                     | 0.48              |
| 1:F1:2135:A:C8     | 2:FA:2:THR:HG23    | 2.47                     | 0.48              |
| 1:F1:2189:G:H1'    | 1:F1:2269:U:O2     | 2.13                     | 0.48              |
| 1:F1:2255:U:O5'    | 1:F1:2255:U:C6     | 2.66                     | 0.48              |
| 1:F1:2347:A:N6     | 1:F1:2348:G:C6     | 2.82                     | 0.48              |
| 1:F1:2508:U:O2'    | 1:F1:2509:U:H2'    | 2.13                     | 0.48              |
| 1:F1:2962:U:H2'    | 1:F1:2963:U:C6     | 2.48                     | 0.48              |
| 1:F1:3008:U:O2'    | 1:F1:3009:U:H5'    | 2.13                     | 0.48              |
| 1:F1:3042:G:C6     | 1:F1:3043:U:C4     | 3.01                     | 0.48              |
| 2:FA:14:LYS:HD3    | 3:FB:52:TYR:HD1    | 1.76                     | 0.48              |
| 13:FN:23:ALA:CB    | 13:FN:45:GLY:HA3   | 2.44                     | 0.48              |
| 19:FX:93:LEU:HD21  | 19:FX:120:LEU:CD2  | 2.42                     | 0.48              |
| 20:G2:71:G:C5      | 20:G2:72:C:C5      | 3.01                     | 0.48              |
| 21:G3:81:A:H2'     | 21:G3:82:G:H5'     | 1.95                     | 0.48              |
| 22:GA:16:VAL:HG23  | 1:H1:936:C:P       | 2.53                     | 0.48              |
| 22:GA:203:VAL:HG12 | 22:GA:218:GLN:HG2  | 1.95                     | 0.48              |
| 23:GB:86:ILE:CG1   | 23:GB:158:VAL:HG11 | 2.43                     | 0.48              |
| 24:GC:119:ARG:NH1  | 33:GL:204:ARG:HE   | 2.11                     | 0.48              |
| 24:GC:200:LYS:HZ1  | 1:H1:1446:C:P      | 2.35                     | 0.48              |
| 24:GC:380:PHE:CE1  | 19:HX:22:VAL:HG22  | 2.48                     | 0.48              |
| 25:GD:65:MET:CE    | 1:H1:2670:U:C4'    | 2.81                     | 0.48              |
| 26:GE:92:LEU:HD12  | 26:GE:177:ILE:HG12 | 1.95                     | 0.48              |
| 28:GG:8:UNK:CB     | 1:H1:1248:G:H22    | 2.12                     | 0.48              |
| 33:GL:106:VAL:HG21 | 33:GL:132:VAL:HG21 | 1.94                     | 0.48              |
| 35:GN:75:THR:O     | 35:GN:79:GLN:HG3   | 2.13                     | 0.48              |
| 39:GR:99:THR:O     | 39:GR:103:ILE:HG13 | 2.13                     | 0.48              |
| 43:GV:41:TRP:CD1   | 43:GV:177:CYS:SG   | 3.06                     | 0.48              |
| 43:GV:103:PHE:C    | 43:GV:104:ARG:HG2  | 2.39                     | 0.48              |
| 43:GV:223:ASP:N    | 43:GV:223:ASP:OD1  | 2.45                     | 0.48              |
| 45:GX:65:THR:O     | 45:GX:68:LEU:HB2   | 2.13                     | 0.48              |
| 1:H1:187:A:O2'     | 1:H1:188:A:H5'     | 2.12                     | 0.48              |
| 1:H1:207:U:O2      | 1:H1:207:U:H2'     | 2.13                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:640:G:H2'    | 1:H1:641:U:H6      | 1.78                     | 0.48              |
| 1:H1:683:G:H2'    | 1:H1:684:A:N7      | 2.28                     | 0.48              |
| 1:H1:827:C:O2'    | 1:H1:828:C:H5'     | 2.12                     | 0.48              |
| 1:H1:966:G:O4'    | 1:H1:1461:A:H1'    | 2.14                     | 0.48              |
| 1:H1:1373:G:H2'   | 1:H1:1374:C:C6     | 2.46                     | 0.48              |
| 3:HB:15:ARG:NH2   | 50:HB:101:HOH:O    | 2.45                     | 0.48              |
| 6:HF:14:TYR:CZ    | 6:HF:22:GLY:HA2    | 2.48                     | 0.48              |
| 6:HF:67:GLN:HE22  | 6:HF:75:LYS:HE3    | 1.77                     | 0.48              |
| 15:HP:53:PHE:CE1  | 15:HP:55:THR:CG2   | 2.96                     | 0.48              |
| 16:HQ:83:THR:O    | 16:HQ:84:HIS:C     | 2.56                     | 0.48              |
| 19:HX:167:LYS:HA  | 19:HX:188:THR:HG21 | 1.88                     | 0.48              |
| 1:A1:402:U:H2'    | 1:A1:403:G:H5'     | 1.94                     | 0.48              |
| 1:A1:471:A:H4'    | 24:BC:6:GLN:NE2    | 2.21                     | 0.48              |
| 1:A1:700:G:H8     | 1:A1:700:G:O5'     | 1.95                     | 0.48              |
| 1:A1:775:C:O2     | 1:A1:775:C:C2'     | 2.60                     | 0.48              |
| 1:A1:851:G:O2'    | 1:A1:1614:A:H8     | 1.95                     | 0.48              |
| 1:A1:947:U:OP1    | 2:AA:3:ARG:NH1     | 2.46                     | 0.48              |
| 1:A1:1005:A:O2'   | 1:A1:1006:C:C5'    | 2.61                     | 0.48              |
| 1:A1:1053:A:O2'   | 1:A1:1054:G:OP2    | 2.25                     | 0.48              |
| 1:A1:1061:G:C4    | 1:A1:1062:A:C8     | 3.02                     | 0.48              |
| 1:A1:1088:A:N3    | 37:BP:130:ARG:NH2  | 2.61                     | 0.48              |
| 1:A1:1217:A:H62   | 1:A1:1342:U:H3     | 1.61                     | 0.48              |
| 1:A1:1499:G:O2'   | 1:A1:1500:A:H5'    | 2.14                     | 0.48              |
| 1:A1:1554:G:N2    | 1:A1:1857:G:C4     | 2.81                     | 0.48              |
| 1:A1:1695:A:H2'   | 1:A1:1696:C:C6     | 2.47                     | 0.48              |
| 1:A1:2537:C:H2'   | 1:A1:2538:C:H6     | 1.79                     | 0.48              |
| 1:A1:3008:U:O2'   | 1:A1:3009:U:H5'    | 2.13                     | 0.48              |
| 1:A1:3141:U:OP1   | 1:A1:3253:U:H1'    | 2.12                     | 0.48              |
| 1:A1:3144:G:C6    | 1:A1:3146:G:C8     | 3.02                     | 0.48              |
| 1:A1:3332:A:C2    | 44:BW:20:HIS:CE1   | 3.01                     | 0.48              |
| 7:AG:60:ALA:O     | 7:AG:64:GLN:N      | 2.47                     | 0.48              |
| 13:AN:9:ARG:HD2   | 13:AN:83:THR:O     | 2.13                     | 0.48              |
| 13:AN:31:ASP:OD1  | 13:AN:31:ASP:N     | 2.46                     | 0.48              |
| 13:AN:101:LYS:HA  | 13:AN:106:ALA:HB3  | 1.94                     | 0.48              |
| 18:AU:15:HIS:HE1  | 50:AU:301:HOH:O    | 1.93                     | 0.48              |
| 19:AX:163:PHE:HD1 | 26:BE:4:LEU:HD11   | 1.78                     | 0.48              |
| 19:AX:170:HIS:ND1 | 19:AX:170:HIS:C    | 2.71                     | 0.48              |
| 20:B2:11:C:H2'    | 20:B2:12:A:C8      | 2.47                     | 0.48              |
| 20:B2:69:A:H5'    | 42:BU:11:ARG:HH22  | 1.78                     | 0.48              |
| 23:BB:267:GLN:HG3 | 23:BB:268:LEU:N    | 2.28                     | 0.48              |
| 24:BC:28:VAL:HG11 | 24:BC:133:LEU:HD12 | 1.96                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:99:ASN:HD22  | 24:BC:100:GLN:NE2  | 2.10                     | 0.48              |
| 25:BD:115:LYS:CG   | 25:BD:116:TYR:N    | 2.77                     | 0.48              |
| 33:BL:78:GLY:HA2   | 33:BL:89:ILE:CD1   | 2.43                     | 0.48              |
| 35:BN:138:PHE:CE2  | 35:BN:140:LEU:HD13 | 2.48                     | 0.48              |
| 40:BS:79:ILE:HD11  | 40:BS:100:ALA:HB2  | 1.95                     | 0.48              |
| 43:BV:132:THR:HG21 | 43:BV:227:ARG:CD   | 2.43                     | 0.48              |
| 43:BV:213:ASN:HD22 | 43:BV:216:HIS:HD2  | 1.61                     | 0.48              |
| 21:C3:54:A:H5'     | 25:CD:7:ASN:ND2    | 2.28                     | 0.48              |
| 22:CA:205:MET:O    | 22:CA:213:GLY:HA3  | 2.12                     | 0.48              |
| 23:CB:377:PHE:CD2  | 23:CB:378:PHE:CE1  | 2.99                     | 0.48              |
| 24:CC:64:GLY:O     | 24:CC:97:PHE:HB3   | 2.13                     | 0.48              |
| 24:CC:202:ARG:O    | 24:CC:203:ASN:HB2  | 2.12                     | 0.48              |
| 32:CK:8:THR:CG2    | 1:D1:685:G:H5'     | 2.43                     | 0.48              |
| 37:CP:110:GLN:NE2  | 1:D1:1094:G:H5'    | 2.28                     | 0.48              |
| 39:CR:55:VAL:HG23  | 42:CU:83:ASP:CB    | 2.42                     | 0.48              |
| 40:CS:8:SER:OG     | 1:D1:334:G:OP1     | 2.30                     | 0.48              |
| 1:D1:69:A:N6       | 1:D1:302:G:O2'     | 2.46                     | 0.48              |
| 1:D1:434:A:C4'     | 1:D1:435:A:C8      | 2.95                     | 0.48              |
| 1:D1:557:U:O2'     | 1:D1:558:U:H5'     | 2.13                     | 0.48              |
| 1:D1:643:A:O2'     | 1:D1:644:A:P       | 2.70                     | 0.48              |
| 1:D1:685:G:C2'     | 1:D1:686:U:OP2     | 2.62                     | 0.48              |
| 1:D1:1211:A:H1'    | 1:D1:1350:G:N2     | 2.28                     | 0.48              |
| 1:D1:1318:A:H2'    | 1:D1:1319:C:H5''   | 1.94                     | 0.48              |
| 1:D1:1440:A:C5     | 1:D1:1441:U:C5     | 3.01                     | 0.48              |
| 1:D1:1652:U:H5''   | 1:D1:1655:A:H4'    | 1.95                     | 0.48              |
| 1:D1:2919:C:N3     | 1:D1:2923:U:H5     | 2.08                     | 0.48              |
| 1:D1:2990:U:H2'    | 1:D1:2991:U:H6     | 1.78                     | 0.48              |
| 1:D1:3097:G:C2     | 1:D1:3116:A:C2     | 3.01                     | 0.48              |
| 2:DA:4:GLY:C       | 2:DA:6:PRO:HD2     | 2.39                     | 0.48              |
| 5:DE:63:VAL:CG1    | 5:DE:64:VAL:N      | 2.76                     | 0.48              |
| 5:DE:93:ALA:HA     | 8:DH:111:ASN:O     | 2.13                     | 0.48              |
| 7:DG:35:ARG:HH12   | 13:DN:77:LEU:C     | 2.21                     | 0.48              |
| 9:DJ:58:ILE:HG13   | 9:DJ:62:VAL:CG2    | 2.44                     | 0.48              |
| 9:DJ:111:ASN:ND2   | 9:DJ:156:ASN:HD22  | 2.11                     | 0.48              |
| 20:E2:3:A:N1       | 1:F1:3243:A:O4'    | 2.46                     | 0.48              |
| 22:EA:31:ARG:HH12  | 22:EA:42:ILE:CG1   | 2.26                     | 0.48              |
| 22:EA:46:ILE:O     | 22:EA:86:GLY:N     | 2.44                     | 0.48              |
| 24:EC:7:ILE:HD11   | 24:EC:25:LEU:HD13  | 1.96                     | 0.48              |
| 24:EC:169:THR:OG1  | 1:F1:209:A:H2'     | 2.13                     | 0.48              |
| 26:EE:5:LEU:HB2    | 26:EE:58:TRP:CZ3   | 2.49                     | 0.48              |
| 26:EE:22:GLN:O     | 26:EE:23:ARG:HB2   | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:EH:58:GLU:OE2   | 29:EH:160:PRO:HB2  | 2.12                     | 0.48              |
| 31:EJ:10:GLN:HG3   | 31:EJ:129:ILE:HG22 | 1.91                     | 0.48              |
| 32:EK:59:GLY:HA3   | 1:F1:734:A:H1'     | 1.96                     | 0.48              |
| 32:EK:118:LEU:HB2  | 32:EK:141:VAL:CG2  | 2.41                     | 0.48              |
| 37:EP:17:LYS:HB3   | 37:EP:21:THR:HB    | 1.96                     | 0.48              |
| 39:ER:94:VAL:HG12  | 39:ER:98:SER:OG    | 2.14                     | 0.48              |
| 43:EV:57:LYS:HE3   | 43:EV:61:ASP:OD2   | 2.14                     | 0.48              |
| 43:EV:84:ILE:HD12  | 43:EV:234:LEU:HD23 | 1.95                     | 0.48              |
| 43:EV:138:ARG:HB3  | 43:EV:186:THR:HG21 | 1.94                     | 0.48              |
| 43:EV:145:ILE:HD12 | 43:EV:182:ILE:HG12 | 1.94                     | 0.48              |
| 43:EV:166:VAL:CG1  | 43:EV:175:ILE:HG22 | 2.44                     | 0.48              |
| 44:EW:66:ILE:HG22  | 44:EW:67:PRO:O     | 2.13                     | 0.48              |
| 44:EW:91:LEU:HD23  | 44:EW:91:LEU:HA    | 1.62                     | 0.48              |
| 45:EX:73:PHE:HE1   | 45:EX:120:ARG:HH11 | 1.60                     | 0.48              |
| 1:F1:199:A:N3      | 1:F1:201:A:C8      | 2.80                     | 0.48              |
| 1:F1:310:U:H3      | 1:F1:2766:A:H61    | 1.62                     | 0.48              |
| 1:F1:550:G:C6      | 1:F1:551:U:C4      | 3.01                     | 0.48              |
| 1:F1:1027:G:O2'    | 1:F1:1028:A:P      | 2.70                     | 0.48              |
| 1:F1:1051:C:O5'    | 1:F1:1051:C:H6     | 1.95                     | 0.48              |
| 1:F1:1101:U:H1'    | 17:FT:46:ALA:HB2   | 1.95                     | 0.48              |
| 1:F1:1698:G:C6     | 1:F1:1800:A:N1     | 2.82                     | 0.48              |
| 1:F1:2669:A:C3'    | 1:F1:2670:U:C6     | 2.96                     | 0.48              |
| 1:F1:3047:U:H3'    | 1:F1:3047:U:C6     | 2.48                     | 0.48              |
| 1:F1:3109:C:O3'    | 1:F1:3110:U:H6     | 1.96                     | 0.48              |
| 2:FA:25:ALA:HB1    | 3:FB:52:TYR:CD2    | 2.48                     | 0.48              |
| 4:FC:65:LYS:HG3    | 4:FC:85:ARG:HE     | 1.77                     | 0.48              |
| 6:FF:14:TYR:CE1    | 6:FF:90:PHE:HE2    | 2.31                     | 0.48              |
| 6:FF:30:ILE:CG2    | 19:FX:156:MET:HE1  | 2.43                     | 0.48              |
| 8:FH:18:ALA:HB2    | 8:FH:39:LEU:CD2    | 2.44                     | 0.48              |
| 18:FU:106:SER:O    | 18:FU:110:ASN:ND2  | 2.45                     | 0.48              |
| 19:FX:42:ARG:NE    | 19:FX:44:PHE:HE1   | 2.09                     | 0.48              |
| 21:G3:19:G:H2'     | 21:G3:20:U:O4'     | 2.13                     | 0.48              |
| 23:GB:218:VAL:HB   | 23:GB:332:ARG:NE   | 2.29                     | 0.48              |
| 24:GC:227:LEU:O    | 24:GC:228:ARG:C    | 2.55                     | 0.48              |
| 29:GH:44:GLU:CD    | 29:GH:181:TYR:OH   | 2.56                     | 0.48              |
| 31:GJ:11:VAL:O     | 31:GJ:11:VAL:CG1   | 2.61                     | 0.48              |
| 31:GJ:90:ARG:HB2   | 31:GJ:96:PHE:CD2   | 2.48                     | 0.48              |
| 33:GL:78:GLY:HA2   | 33:GL:89:ILE:HD12  | 1.94                     | 0.48              |
| 38:GQ:118:HIS:O    | 38:GQ:150:ILE:HA   | 2.13                     | 0.48              |
| 39:GR:43:LEU:HD11  | 1:H1:1599:G:C5'    | 2.43                     | 0.48              |
| 43:GV:66:ALA:HB1   | 43:GV:72:PHE:HA    | 1.95                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:68:A:C2      | 1:H1:69:A:N3       | 2.82                     | 0.48              |
| 1:H1:146:U:OP1    | 1:H1:147:U:H3'     | 2.14                     | 0.48              |
| 1:H1:585:A:C6     | 1:H1:586:A:C6      | 3.00                     | 0.48              |
| 1:H1:629:A:H4'    | 1:H1:629:A:OP1     | 2.13                     | 0.48              |
| 1:H1:684:A:N1     | 1:H1:966:G:O2'     | 2.42                     | 0.48              |
| 1:H1:768:A:O2'    | 1:H1:769:G:H5'     | 2.13                     | 0.48              |
| 1:H1:1254:C:C3'   | 1:H1:1255:A:H5''   | 2.43                     | 0.48              |
| 1:H1:2701:U:H2'   | 1:H1:2702:U:C6     | 2.48                     | 0.48              |
| 1:H1:3006:A:O2'   | 1:H1:3007:G:H5'    | 2.13                     | 0.48              |
| 1:H1:3008:U:H6    | 1:H1:3008:U:O5'    | 1.96                     | 0.48              |
| 1:H1:3047:U:H6    | 1:H1:3047:U:H3'    | 1.78                     | 0.48              |
| 1:H1:3293:A:C2    | 1:H1:3294:A:C4     | 3.02                     | 0.48              |
| 9:HJ:118:HIS:HD2  | 9:HJ:120:ASP:O     | 1.96                     | 0.48              |
| 18:HU:58:LYS:CB   | 18:HU:63:TYR:HB3   | 2.41                     | 0.48              |
| 1:A1:118:A:C5     | 27:BF:121:LYS:HD3  | 2.48                     | 0.48              |
| 1:A1:122:U:H4'    | 1:A1:150:A:H1'     | 1.95                     | 0.48              |
| 1:A1:361:A:H2'    | 1:A1:362:G:C5'     | 2.25                     | 0.48              |
| 1:A1:368:A:H4'    | 1:A1:369:U:OP2     | 2.12                     | 0.48              |
| 1:A1:1063:C:H2'   | 1:A1:1064:C:H6     | 1.78                     | 0.48              |
| 1:A1:1249:G:H2'   | 1:A1:1312:G:H22    | 1.78                     | 0.48              |
| 1:A1:1691:U:H2'   | 1:A1:1692:G:C8     | 2.49                     | 0.48              |
| 1:A1:2148:A:H2'   | 1:A1:2149:U:H6     | 1.77                     | 0.48              |
| 1:A1:2350:G:H4'   | 38:BQ:141:TYR:CD1  | 2.48                     | 0.48              |
| 1:A1:2598:A:O2'   | 1:A1:2599:G:H5'    | 2.13                     | 0.48              |
| 1:A1:3127:U:C3'   | 1:A1:3128:G:H5''   | 2.43                     | 0.48              |
| 1:A1:3204:A:H1'   | 1:A1:3207:A:H5''   | 1.96                     | 0.48              |
| 5:AE:173:TYR:CG   | 6:AF:106:PHE:CD1   | 3.01                     | 0.48              |
| 6:AF:67:GLN:HE21  | 6:AF:71:LEU:CB     | 2.26                     | 0.48              |
| 8:AH:9:VAL:HG12   | 8:AH:10:ALA:H      | 1.78                     | 0.48              |
| 10:AK:93:LYS:HA   | 10:AK:105:PRO:HD3  | 1.96                     | 0.48              |
| 16:AQ:83:THR:O    | 16:AQ:84:HIS:C     | 2.55                     | 0.48              |
| 20:B2:37:A:O3'    | 50:B2:314:HOH:O    | 2.19                     | 0.48              |
| 20:B2:74:A:H5''   | 40:BS:50:ARG:HE    | 1.77                     | 0.48              |
| 23:BB:294:THR:CG2 | 23:BB:295:ALA:N    | 2.76                     | 0.48              |
| 23:BB:363:ILE:O   | 23:BB:363:ILE:HG22 | 2.12                     | 0.48              |
| 24:BC:317:HIS:CE1 | 43:BV:158:ILE:HD12 | 2.48                     | 0.48              |
| 27:BF:76:THR:HG21 | 27:BF:174:LYS:HE3  | 1.96                     | 0.48              |
| 32:BK:110:PHE:HE2 | 32:BK:128:LYS:HZ2  | 1.61                     | 0.48              |
| 32:BK:148:THR:CG2 | 32:BK:149:ALA:N    | 2.73                     | 0.48              |
| 33:BL:73:ARG:HA   | 33:BL:74:PRO:HD2   | 1.60                     | 0.48              |
| 34:BM:176:SER:O   | 34:BM:177:GLU:CG   | 2.54                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:243:VAL:CG1  | 34:BM:247:PHE:CD2  | 2.97                     | 0.48              |
| 38:BQ:60:ILE:HD11  | 38:BQ:90:VAL:HG22  | 1.96                     | 0.48              |
| 38:BQ:118:HIS:O    | 38:BQ:150:ILE:HA   | 2.13                     | 0.48              |
| 39:BR:100:LYS:N    | 39:BR:101:PRO:HD2  | 2.28                     | 0.48              |
| 42:BU:92:ILE:HA    | 42:BU:95:LYS:HE2   | 1.94                     | 0.48              |
| 43:BV:144:LEU:CD2  | 43:BV:239:LEU:HD21 | 2.44                     | 0.48              |
| 20:C2:52:G:H4'     | 42:CU:36:LYS:HZ2   | 1.77                     | 0.48              |
| 20:C2:111:A:O2'    | 20:C2:112:G:H5''   | 2.13                     | 0.48              |
| 21:C3:21:G:C4'     | 34:CM:277:PHE:HD2  | 2.23                     | 0.48              |
| 21:C3:66:G:N7      | 50:C3:332:HOH:O    | 2.34                     | 0.48              |
| 21:C3:96:U:H2'     | 21:C3:97:G:H5''    | 1.96                     | 0.48              |
| 24:CC:348:ALA:C    | 24:CC:350:ALA:H    | 2.21                     | 0.48              |
| 26:CE:135:LYS:H    | 26:CE:138:GLU:HG2  | 1.78                     | 0.48              |
| 27:CF:45:VAL:HB    | 27:CF:47:TRP:CE2   | 2.49                     | 0.48              |
| 32:CK:117:ARG:HH11 | 32:CK:137:ARG:CZ   | 2.26                     | 0.48              |
| 35:CN:172:ARG:HG2  | 35:CN:173:LYS:HG2  | 1.94                     | 0.48              |
| 47:CO:60:ARG:O     | 47:CO:61:SER:C     | 2.55                     | 0.48              |
| 39:CR:145:ASN:HD22 | 39:CR:150:ILE:CD1  | 2.27                     | 0.48              |
| 43:CV:63:LYS:NZ    | 1:D1:563:G:P       | 2.86                     | 0.48              |
| 44:CW:66:ILE:HG22  | 44:CW:67:PRO:O     | 2.13                     | 0.48              |
| 45:CX:4:LYS:HD2    | 45:CX:92:ARG:HE    | 1.77                     | 0.48              |
| 45:CX:20:VAL:HG12  | 45:CX:52:ARG:HH12  | 1.78                     | 0.48              |
| 46:CY:12:ARG:HH12  | 1:D1:1952:G:P      | 2.36                     | 0.48              |
| 1:D1:20:G:C6       | 1:D1:21:A:N7       | 2.81                     | 0.48              |
| 1:D1:67:U:O2       | 18:DU:59:GLN:NE2   | 2.46                     | 0.48              |
| 1:D1:116:U:H3'     | 1:D1:117:G:H8      | 1.78                     | 0.48              |
| 1:D1:155:A:O3'     | 16:DQ:28:VAL:CG2   | 2.61                     | 0.48              |
| 1:D1:340:G:H5''    | 1:D1:343:A:H1'     | 1.95                     | 0.48              |
| 1:D1:978:G:OP1     | 17:DT:15:LYS:NZ    | 2.36                     | 0.48              |
| 1:D1:1159:C:C2'    | 1:D1:1160:A:H5'    | 2.43                     | 0.48              |
| 1:D1:1237:U:O2'    | 1:D1:1238:U:H5'    | 2.13                     | 0.48              |
| 1:D1:1383:G:HO2'   | 1:D1:1384:G:P      | 2.37                     | 0.48              |
| 1:D1:1600:U:H2'    | 1:D1:1601:U:O4'    | 2.12                     | 0.48              |
| 1:D1:1686:G:H22    | 1:D1:1813:A:H2     | 1.61                     | 0.48              |
| 1:D1:2408:A:O2'    | 1:D1:2409:G:H5'    | 2.13                     | 0.48              |
| 1:D1:2557:A:H2'    | 1:D1:2558:U:C6     | 2.48                     | 0.48              |
| 1:D1:2765:C:O2     | 1:D1:2765:C:C2'    | 2.61                     | 0.48              |
| 1:D1:3142:A:H8     | 1:D1:3142:A:O5'    | 1.96                     | 0.48              |
| 4:DC:75:CYS:O      | 4:DC:76:LYS:HB2    | 2.11                     | 0.48              |
| 7:DG:27:TYR:HD2    | 7:DG:52:ARG:HD3    | 1.76                     | 0.48              |
| 9:DJ:159:GLY:O     | 9:DJ:221:ILE:HD13  | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:DJ:161:VAL:C     | 9:DJ:193:ILE:HD12  | 2.38                     | 0.48              |
| 15:DP:32:TYR:N     | 15:DP:32:TYR:CD1   | 2.81                     | 0.48              |
| 16:DQ:52:ALA:O     | 16:DQ:55:GLU:HB2   | 2.14                     | 0.48              |
| 20:E2:3:A:H2       | 1:F1:3243:A:O4'    | 1.94                     | 0.48              |
| 20:E2:60:C:O2'     | 20:E2:61:G:H5'     | 2.14                     | 0.48              |
| 22:EA:9:ARG:HD3    | 1:F1:936:C:OP2     | 2.13                     | 0.48              |
| 30:EI:17:ARG:HH22  | 1:F1:1344:A:H4'    | 1.78                     | 0.48              |
| 32:EK:128:LYS:C    | 32:EK:129:TYR:CD1  | 2.92                     | 0.48              |
| 35:EN:122:LEU:HA   | 35:EN:126:GLN:OE1  | 2.12                     | 0.48              |
| 36:EO:62:ARG:NH2   | 1:F1:3057:U:OP2    | 2.46                     | 0.48              |
| 42:EU:90:ARG:HG2   | 42:EU:94:ARG:HE    | 1.78                     | 0.48              |
| 1:F1:169:A:P       | 1:F1:249:G:H22     | 2.37                     | 0.48              |
| 1:F1:592:A:H2'     | 1:F1:593:U:H6      | 1.76                     | 0.48              |
| 1:F1:861:A:C1'     | 1:F1:883:A:C2      | 2.96                     | 0.48              |
| 1:F1:1249:G:C2'    | 1:F1:1250:A:OP2    | 2.61                     | 0.48              |
| 1:F1:2143:A:H2'    | 1:F1:2144:A:O4'    | 2.12                     | 0.48              |
| 1:F1:2700:A:H2'    | 1:F1:2701:U:O4'    | 2.14                     | 0.48              |
| 1:F1:2872:C:O2'    | 1:F1:2873:C:H5'    | 2.14                     | 0.48              |
| 1:F1:3198:A:N6     | 1:F1:3199:G:C6     | 2.80                     | 0.48              |
| 4:FC:44:LYS:CD     | 4:FC:52:THR:HG21   | 2.17                     | 0.48              |
| 4:FC:93:ASP:O      | 4:FC:97:ILE:HG13   | 2.13                     | 0.48              |
| 6:FF:7:VAL:O       | 19:FX:162:LYS:HA   | 2.13                     | 0.48              |
| 11:FL:59:VAL:HG12  | 11:FL:63:GLU:HB3   | 1.95                     | 0.48              |
| 21:G3:111:U:O4     | 34:GM:21:ARG:NH1   | 2.47                     | 0.48              |
| 24:GC:78:VAL:O     | 1:H1:1462:U:C4     | 2.66                     | 0.48              |
| 24:GC:91:ARG:O     | 24:GC:91:ARG:HG3   | 2.12                     | 0.48              |
| 24:GC:314:THR:HG21 | 1:H1:1372:A:N3     | 2.28                     | 0.48              |
| 27:GF:144:VAL:HG23 | 27:GF:168:VAL:CG1  | 2.44                     | 0.48              |
| 27:GF:150:VAL:HG21 | 27:GF:156:VAL:HG21 | 1.94                     | 0.48              |
| 28:GG:31:UNK:CA    | 1:H1:1257:G:C5'    | 2.91                     | 0.48              |
| 28:GG:58:UNK:HB1   | 28:GG:61:UNK:HG2   | 1.95                     | 0.48              |
| 29:GH:98:ARG:NH2   | 29:GH:119:PHE:CZ   | 2.81                     | 0.48              |
| 32:GK:61:ARG:HA    | 35:GN:172:ARG:NH1  | 2.23                     | 0.48              |
| 33:GL:37:HIS:NE2   | 33:GL:63:ARG:HD2   | 2.28                     | 0.48              |
| 33:GL:55:ASN:HB3   | 1:H1:145:A:H4'     | 1.93                     | 0.48              |
| 38:GQ:8:ARG:HH22   | 38:GQ:117:GLN:NE2  | 2.09                     | 0.48              |
| 42:GU:36:LYS:HZ3   | 42:GU:45:LEU:CD2   | 2.22                     | 0.48              |
| 43:GV:123:MET:HG3  | 1:H1:1012:U:H1'    | 1.96                     | 0.48              |
| 43:GV:124:ILE:O    | 43:GV:124:ILE:HG22 | 2.13                     | 0.48              |
| 45:GX:79:ARG:CZ    | 1:H1:1448:G:H4'    | 2.42                     | 0.48              |
| 1:H1:347:A:H4'     | 1:H1:366:A:N6      | 2.29                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:361:A:H2'     | 1:H1:362:G:C5'     | 2.21                     | 0.48              |
| 1:H1:467:A:C6      | 1:H1:468:A:C4      | 3.01                     | 0.48              |
| 1:H1:512:G:N1      | 1:H1:513:G:C5      | 2.81                     | 0.48              |
| 1:H1:549:G:H2'     | 1:H1:550:G:C8      | 2.48                     | 0.48              |
| 1:H1:621:G:C6      | 1:H1:622:G:N1      | 2.82                     | 0.48              |
| 1:H1:689:A:H2'     | 1:H1:690:U:H6      | 1.78                     | 0.48              |
| 1:H1:1022:A:H2'    | 1:H1:1023:A:O4'    | 2.13                     | 0.48              |
| 1:H1:1307:C:O2'    | 1:H1:1308:U:H5'    | 2.14                     | 0.48              |
| 1:H1:1596:U:H4'    | 1:H1:1597:U:O5'    | 2.10                     | 0.48              |
| 1:H1:1682:G:H2'    | 1:H1:1683:U:C6     | 2.48                     | 0.48              |
| 1:H1:2211:G:H8     | 1:H1:2211:G:O5'    | 1.96                     | 0.48              |
| 1:H1:2278:G:HO2'   | 1:H1:2279:C:P      | 2.35                     | 0.48              |
| 1:H1:2347:A:OP2    | 50:H1:4255:HOH:O   | 2.19                     | 0.48              |
| 1:H1:2669:A:O3'    | 1:H1:2670:U:C6     | 2.60                     | 0.48              |
| 4:HC:95:THR:O      | 4:HC:99:LYS:HG3    | 2.13                     | 0.48              |
| 6:HF:30:ILE:CG2    | 19:HX:163:PHE:HE2  | 2.25                     | 0.48              |
| 12:HM:44:LYS:HA    | 12:HM:48:LYS:O     | 2.13                     | 0.48              |
| 13:HN:105:ASN:O    | 13:HN:105:ASN:CG   | 2.56                     | 0.48              |
| 13:HN:124:THR:HG22 | 13:HN:124:THR:O    | 2.13                     | 0.48              |
| 14:HO:87:VAL:HG21  | 14:HO:115:HIS:CD2  | 2.48                     | 0.48              |
| 15:HP:61:ALA:O     | 15:HP:65:LYS:HG3   | 2.13                     | 0.48              |
| 18:HU:30:LYS:N     | 18:HU:33:ARG:HH21  | 2.11                     | 0.48              |
| 1:A1:1128:G:H2'    | 1:A1:1129:C:C6     | 2.49                     | 0.48              |
| 1:A1:1205:A:H5'    | 1:A1:1205:A:C8     | 2.48                     | 0.48              |
| 1:A1:1519:G:N3     | 3:AB:13:PHE:HE1    | 2.12                     | 0.48              |
| 1:A1:1595:A:N7     | 1:A1:1596:U:C2     | 2.81                     | 0.48              |
| 1:A1:1663:C:O2'    | 1:A1:1664:G:H5'    | 2.13                     | 0.48              |
| 1:A1:1753:A:N6     | 7:AG:47:ASN:O      | 2.41                     | 0.48              |
| 1:A1:1944:U:N3     | 1:A1:1954:A:C2     | 2.81                     | 0.48              |
| 1:A1:2310:G:P      | 50:A1:4184:HOH:O   | 2.69                     | 0.48              |
| 1:A1:2533:C:O2     | 1:A1:2533:C:H2'    | 2.12                     | 0.48              |
| 1:A1:2750:G:H4'    | 1:A1:2751:A:OP1    | 2.12                     | 0.48              |
| 1:A1:3257:U:H2'    | 1:A1:3258:C:C6     | 2.49                     | 0.48              |
| 1:A1:3294:A:H8     | 1:A1:3294:A:O5'    | 1.95                     | 0.48              |
| 2:AA:4:GLY:C       | 2:AA:6:PRO:HD2     | 2.39                     | 0.48              |
| 7:AG:64:GLN:O      | 7:AG:64:GLN:CG     | 2.61                     | 0.48              |
| 8:AH:43:ASN:O      | 8:AH:84:ASN:HA     | 2.14                     | 0.48              |
| 18:AU:9:VAL:HG22   | 35:BN:168:ARG:HH11 | 1.79                     | 0.48              |
| 19:AX:96:GLN:CD    | 21:B3:93:G:H4'     | 2.38                     | 0.48              |
| 21:B3:19:G:H2'     | 21:B3:20:U:O4'     | 2.12                     | 0.48              |
| 21:B3:28:C:H1'     | 21:B3:54:A:H61     | 1.79                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:157:TYR:CE1  | 24:BC:179:VAL:HG13 | 2.48                     | 0.48              |
| 29:BH:19:LYS:HG3   | 29:BH:26:VAL:CG1   | 2.44                     | 0.48              |
| 32:BK:49:LYS:O     | 35:BN:156:PRO:O    | 2.32                     | 0.48              |
| 33:BL:174:LEU:HD22 | 33:BL:185:ARG:NH1  | 2.29                     | 0.48              |
| 35:BN:73:ASN:HB2   | 35:BN:76:ASN:OD1   | 2.14                     | 0.48              |
| 42:BU:80:LYS:HB3   | 42:BU:81:PRO:HD2   | 1.94                     | 0.48              |
| 20:C2:93:A:H2'     | 20:C2:94:U:H6      | 1.78                     | 0.48              |
| 23:CB:363:ILE:O    | 23:CB:363:ILE:HG22 | 2.12                     | 0.48              |
| 24:CC:319:ARG:CZ   | 1:D1:620:A:N7      | 2.75                     | 0.48              |
| 26:CE:135:LYS:HB2  | 26:CE:138:GLU:HG2  | 1.95                     | 0.48              |
| 27:CF:46:ARG:O     | 39:CR:37:PHE:HB2   | 2.13                     | 0.48              |
| 34:CM:38:ILE:HD12  | 37:CP:70:ARG:NH1   | 2.29                     | 0.48              |
| 34:CM:164:LYS:O    | 34:CM:168:ASP:HB2  | 2.14                     | 0.48              |
| 35:CN:3:ILE:HG23   | 43:CV:107:GLN:HB3  | 1.96                     | 0.48              |
| 35:CN:73:ASN:HB2   | 35:CN:76:ASN:OD1   | 2.13                     | 0.48              |
| 45:CX:49:ARG:HB3   | 1:D1:1173:A:OP1    | 2.14                     | 0.48              |
| 1:D1:207:U:O2      | 1:D1:207:U:H2'     | 2.11                     | 0.48              |
| 1:D1:268:G:N2      | 1:D1:294:A:OP2     | 2.38                     | 0.48              |
| 1:D1:401:U:O2      | 1:D1:401:U:H2'     | 2.12                     | 0.48              |
| 1:D1:467:A:C6      | 1:D1:468:A:C4      | 3.02                     | 0.48              |
| 1:D1:820:G:H2'     | 1:D1:821:U:C5'     | 2.44                     | 0.48              |
| 1:D1:997:G:C8      | 50:D1:4082:HOH:O   | 2.56                     | 0.48              |
| 1:D1:1055:A:H2'    | 1:D1:1056:A:C8     | 2.42                     | 0.48              |
| 1:D1:1062:A:H2'    | 1:D1:1063:C:C5'    | 2.38                     | 0.48              |
| 1:D1:1394:G:O2'    | 1:D1:1395:U:O5'    | 2.31                     | 0.48              |
| 1:D1:2517:G:C4'    | 1:D1:2518:A:OP2    | 2.57                     | 0.48              |
| 1:D1:3030:A:H2'    | 1:D1:3031:U:C6     | 2.48                     | 0.48              |
| 1:D1:3226:A:N1     | 5:DE:83:ASN:O      | 2.46                     | 0.48              |
| 1:D1:3232:A:H1'    | 5:DE:94:TYR:CE2    | 2.48                     | 0.48              |
| 1:D1:3344:U:C4'    | 1:D1:3345:A:OP2    | 2.54                     | 0.48              |
| 5:DE:67:LYS:HD2    | 5:DE:109:THR:HB    | 1.96                     | 0.48              |
| 5:DE:135:THR:HB    | 5:DE:138:GLN:HG3   | 1.96                     | 0.48              |
| 7:DG:64:GLN:O      | 7:DG:64:GLN:CG     | 2.62                     | 0.48              |
| 8:DH:13:ARG:NE     | 8:DH:15:TRP:CE2    | 2.82                     | 0.48              |
| 9:DJ:118:HIS:HE1   | 9:DJ:146:VAL:HB    | 1.72                     | 0.48              |
| 10:DK:84:ALA:O     | 10:DK:88:LYS:HG3   | 2.14                     | 0.48              |
| 11:DL:83:CYS:O     | 11:DL:87:VAL:HG23  | 2.13                     | 0.48              |
| 12:DM:21:CYS:O     | 12:DM:24:PRO:HD2   | 2.13                     | 0.48              |
| 13:DN:124:THR:HG22 | 13:DN:124:THR:O    | 2.14                     | 0.48              |
| 18:DU:58:LYS:CB    | 18:DU:63:TYR:HB3   | 2.43                     | 0.48              |
| 19:DX:96:GLN:N     | 19:DX:134:THR:CG2  | 2.76                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:26:ARG:NH2   | 1:F1:2992:G:OP2    | 2.46                     | 0.48              |
| 23:EB:111:ASP:N    | 23:EB:111:ASP:OD1  | 2.44                     | 0.48              |
| 23:EB:220:LYS:CD   | 1:F1:3036:U:OP2    | 2.62                     | 0.48              |
| 25:ED:97:SER:HB3   | 1:F1:2661:G:O4'    | 2.12                     | 0.48              |
| 30:EI:101:LEU:HD11 | 30:EI:103:ILE:HG12 | 1.94                     | 0.48              |
| 31:EJ:32:ASN:HD21  | 31:EJ:117:GLN:H    | 1.59                     | 0.48              |
| 32:EK:74:VAL:HG13  | 32:EK:113:LEU:HG   | 1.94                     | 0.48              |
| 33:EL:188:ARG:NH2  | 1:F1:278:U:O2'     | 2.44                     | 0.48              |
| 36:EO:84:THR:HB    | 36:EO:87:ALA:H     | 1.78                     | 0.48              |
| 37:EP:57:TYR:OH    | 37:EP:87:LYS:HD2   | 2.13                     | 0.48              |
| 39:ER:75:LEU:HD23  | 39:ER:75:LEU:HA    | 1.57                     | 0.48              |
| 41:ET:10:PHE:HZ    | 41:ET:51:ILE:HD12  | 1.77                     | 0.48              |
| 1:F1:344:G:O6      | 1:F1:347:A:OP1     | 2.32                     | 0.48              |
| 1:F1:679:C:O2'     | 1:F1:680:A:H5'     | 2.14                     | 0.48              |
| 1:F1:683:G:H2'     | 1:F1:684:A:N7      | 2.29                     | 0.48              |
| 1:F1:1105:U:H6     | 1:F1:1105:U:O5'    | 1.96                     | 0.48              |
| 1:F1:1506:G:N2     | 1:F1:1896:C:C5     | 2.80                     | 0.48              |
| 1:F1:2274:A:C5'    | 1:F1:2300:G:H22    | 2.26                     | 0.48              |
| 1:F1:2278:G:HO2'   | 1:F1:2279:C:P      | 2.35                     | 0.48              |
| 1:F1:2572:U:O2'    | 1:F1:2573:U:H5'    | 2.13                     | 0.48              |
| 1:F1:2703:G:OP2    | 1:F1:2705:U:C1'    | 2.58                     | 0.48              |
| 1:F1:3185:G:O6     | 1:F1:3235:U:O2'    | 2.30                     | 0.48              |
| 1:F1:3283:C:H2'    | 1:F1:3284:G:H8     | 1.78                     | 0.48              |
| 6:FF:28:VAL:CG1    | 6:FF:66:ASN:HA     | 2.43                     | 0.48              |
| 6:FF:45:ARG:NH1    | 19:FX:84:ASN:O     | 2.47                     | 0.48              |
| 8:FH:57:VAL:O      | 8:FH:104:LEU:HD22  | 2.13                     | 0.48              |
| 11:FL:73:THR:HG22  | 11:FL:74:VAL:N     | 2.28                     | 0.48              |
| 13:FN:52:LYS:O     | 13:FN:65:ARG:NE    | 2.47                     | 0.48              |
| 16:FQ:7:VAL:CG1    | 16:FQ:7:VAL:O      | 2.61                     | 0.48              |
| 18:FU:45:PHE:O     | 18:FU:147:GLN:OE1  | 2.32                     | 0.48              |
| 19:FX:117:VAL:O    | 19:FX:120:LEU:HB3  | 2.14                     | 0.48              |
| 20:G2:38:C:O4'     | 2:HA:68:MET:HE1    | 2.14                     | 0.48              |
| 20:G2:44:A:OP1     | 2:HA:68:MET:HG2    | 2.13                     | 0.48              |
| 23:GB:86:ILE:HD13  | 23:GB:158:VAL:HG11 | 1.94                     | 0.48              |
| 24:GC:149:ILE:HG23 | 24:GC:152:VAL:HB   | 1.96                     | 0.48              |
| 24:GC:299:ILE:HA   | 24:GC:304:VAL:HG11 | 1.95                     | 0.48              |
| 26:GE:87:LYS:O     | 26:GE:184:LEU:HB2  | 2.14                     | 0.48              |
| 27:GF:66:VAL:HB    | 27:GF:226:GLY:O    | 2.13                     | 0.48              |
| 30:GI:73:ARG:CD    | 30:GI:144:VAL:HG12 | 2.28                     | 0.48              |
| 32:GK:61:ARG:CA    | 35:GN:172:ARG:HH12 | 2.19                     | 0.48              |
| 33:GL:59:TYR:OH    | 33:GL:148:ILE:HD13 | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 40:GS:24:HIS:NE2   | 40:GS:25:LEU:HG    | 2.28                     | 0.48              |
| 40:GS:86:LYS:HE3   | 40:GS:96:ILE:CD1   | 2.43                     | 0.48              |
| 42:GU:20:GLY:O     | 42:GU:24:LYS:HG3   | 2.13                     | 0.48              |
| 1:H1:104:U:H5''    | 18:HU:37:ARG:HH22  | 1.77                     | 0.48              |
| 1:H1:298:G:H2'     | 1:H1:299:G:H5'     | 1.95                     | 0.48              |
| 1:H1:500:G:O2'     | 1:H1:501:A:O5'     | 2.27                     | 0.48              |
| 1:H1:700:G:H8      | 1:H1:700:G:O5'     | 1.96                     | 0.48              |
| 1:H1:962:G:N2      | 50:H1:4324:HOH:O   | 2.46                     | 0.48              |
| 1:H1:1110:U:H5'    | 1:H1:1111:G:OP2    | 2.13                     | 0.48              |
| 1:H1:1166:G:H2'    | 1:H1:1167:G:O4'    | 2.12                     | 0.48              |
| 1:H1:1179:G:H1'    | 1:H1:2365:G:O2'    | 2.13                     | 0.48              |
| 1:H1:1466:G:O2'    | 1:H1:1467:G:H5'    | 2.13                     | 0.48              |
| 1:H1:1793:A:C2'    | 1:H1:1794:G:H5'    | 2.44                     | 0.48              |
| 1:H1:1815:G:H2'    | 1:H1:1816:A:C8     | 2.49                     | 0.48              |
| 1:H1:2890:A:H2'    | 1:H1:2891:A:O4'    | 2.13                     | 0.48              |
| 5:HE:190:LYS:O     | 6:HF:103:LEU:O     | 2.31                     | 0.48              |
| 6:HF:7:VAL:HG22    | 6:HF:55:LEU:HD21   | 1.95                     | 0.48              |
| 6:HF:34:ASN:C      | 6:HF:50:ILE:HG13   | 2.38                     | 0.48              |
| 16:HQ:19:GLU:O     | 16:HQ:23:GLN:HG3   | 2.14                     | 0.48              |
| 19:HX:7:GLN:HE22   | 19:HX:80:GLU:N     | 2.12                     | 0.48              |
| 19:HX:113:LEU:HD11 | 19:HX:140:THR:CG2  | 2.40                     | 0.48              |
| 1:A1:11:A:H4'      | 39:BR:39:ARG:CZ    | 2.44                     | 0.48              |
| 1:A1:79:C:H2'      | 1:A1:80:C:H5'      | 1.95                     | 0.48              |
| 1:A1:114:A:C5'     | 16:AQ:37:ARG:HH22  | 2.27                     | 0.48              |
| 1:A1:169:A:P       | 1:A1:249:G:H22     | 2.35                     | 0.48              |
| 1:A1:462:G:H5''    | 14:AO:64:LYS:NZ    | 2.29                     | 0.48              |
| 1:A1:591:G:O2'     | 1:A1:592:A:O5'     | 2.31                     | 0.48              |
| 1:A1:652:U:C2      | 1:A1:653:C:C6      | 3.02                     | 0.48              |
| 1:A1:1050:C:H2'    | 1:A1:1051:C:N1     | 2.28                     | 0.48              |
| 1:A1:1211:A:H1'    | 1:A1:1350:G:N2     | 2.27                     | 0.48              |
| 1:A1:1231:A:H2'    | 1:A1:1232:A:H5'    | 1.96                     | 0.48              |
| 1:A1:1366:C:H5''   | 45:BX:62:ASP:HA    | 1.95                     | 0.48              |
| 1:A1:1828:C:H1'    | 11:AL:61:PRO:O     | 2.14                     | 0.48              |
| 1:A1:1918:U:HO2'   | 1:A1:1919:A:H5''   | 1.78                     | 0.48              |
| 1:A1:2179:U:OP1    | 22:BA:236:VAL:HG12 | 2.14                     | 0.48              |
| 1:A1:3011:G:N2     | 1:A1:3020:G:C5     | 2.81                     | 0.48              |
| 2:AA:44:MET:CE     | 2:AA:44:MET:CA     | 2.83                     | 0.48              |
| 6:AF:15:ILE:O      | 6:AF:21:LYS:HA     | 2.13                     | 0.48              |
| 9:AJ:49:ILE:CD1    | 9:AJ:88:LEU:HD13   | 2.44                     | 0.48              |
| 11:AL:59:VAL:HG12  | 11:AL:63:GLU:HB3   | 1.95                     | 0.48              |
| 13:AN:75:VAL:HG12  | 13:AN:76:ASN:O     | 2.14                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:AP:45:ARG:HD2   | 15:AP:46:GLY:N     | 2.28                     | 0.48              |
| 19:AX:18:VAL:HG21  | 19:AX:117:VAL:HG12 | 1.94                     | 0.48              |
| 19:AX:148:ILE:HG13 | 19:AX:154:LEU:CD2  | 2.43                     | 0.48              |
| 21:B3:120:U:OP1    | 34:BM:270:PRO:CB   | 2.62                     | 0.48              |
| 24:BC:126:ARG:HB3  | 24:BC:283:TYR:HE2  | 1.77                     | 0.48              |
| 24:BC:333:LEU:HA   | 43:BV:163:ASN:HD21 | 1.78                     | 0.48              |
| 25:BD:7:ASN:C      | 25:BD:9:MET:N      | 2.70                     | 0.48              |
| 30:BI:11:LYS:CD    | 30:BI:36:ARG:NH1   | 2.76                     | 0.48              |
| 31:BJ:23:VAL:CG2   | 31:BJ:41:ILE:O     | 2.61                     | 0.48              |
| 32:BK:116:GLY:O    | 32:BK:137:ARG:NH1  | 2.47                     | 0.48              |
| 33:BL:119:TYR:CE1  | 33:BL:131:GLU:HB2  | 2.48                     | 0.48              |
| 34:BM:49:TYR:O     | 34:BM:144:ALA:HA   | 2.13                     | 0.48              |
| 35:BN:73:ASN:N     | 35:BN:76:ASN:OD1   | 2.47                     | 0.48              |
| 38:BQ:45:ASN:O     | 38:BQ:46:ALA:C     | 2.57                     | 0.48              |
| 39:BR:99:THR:O     | 39:BR:103:ILE:HG13 | 2.14                     | 0.48              |
| 20:C2:15:G:N2      | 1:D1:409:G:C4      | 2.82                     | 0.48              |
| 21:C3:70:G:C2      | 21:C3:71:G:C8      | 3.01                     | 0.48              |
| 21:C3:83:G:N1      | 21:C3:93:G:N2      | 2.51                     | 0.48              |
| 21:C3:101:A:H4'    | 1:D1:1078:U:O2'    | 2.14                     | 0.48              |
| 23:CB:22:THR:HG22  | 23:CB:23:ARG:N     | 2.29                     | 0.48              |
| 23:CB:56:ILE:HG22  | 23:CB:57:LEU:N     | 2.29                     | 0.48              |
| 23:CB:294:THR:CG2  | 23:CB:295:ALA:N    | 2.76                     | 0.48              |
| 24:CC:28:VAL:HG11  | 24:CC:133:LEU:HD12 | 1.95                     | 0.48              |
| 24:CC:308:VAL:CG1  | 35:CN:40:ARG:NH1   | 2.73                     | 0.48              |
| 29:CH:17:TYR:HD2   | 29:CH:96:VAL:HB    | 1.78                     | 0.48              |
| 30:CI:60:TRP:CD1   | 30:CI:60:TRP:C     | 2.91                     | 0.48              |
| 30:CI:184:PRO:HA   | 30:CI:187:LYS:HD3  | 1.94                     | 0.48              |
| 33:CL:14:LYS:HZ2   | 1:D1:268:G:C4'     | 2.24                     | 0.48              |
| 33:CL:164:LEU:HD23 | 33:CL:172:ARG:HH22 | 1.79                     | 0.48              |
| 35:CN:25:VAL:HG11  | 14:DO:7:GLU:HB2    | 1.95                     | 0.48              |
| 35:CN:89:ASN:OD1   | 35:CN:90:ASP:C     | 2.57                     | 0.48              |
| 38:CQ:8:ARG:NH1    | 38:CQ:118:HIS:N    | 2.62                     | 0.48              |
| 43:CV:123:MET:HG3  | 1:D1:1012:U:H1'    | 1.95                     | 0.48              |
| 43:CV:170:LEU:HD11 | 43:CV:198:PHE:HB2  | 1.96                     | 0.48              |
| 1:D1:37:A:H5''     | 1:D1:38:A:H4'      | 1.94                     | 0.48              |
| 1:D1:283:A:H4'     | 1:D1:283:A:OP2     | 2.12                     | 0.48              |
| 1:D1:527:A:HO2'    | 14:DO:88:GLN:HE21  | 1.55                     | 0.48              |
| 1:D1:1453:U:O2'    | 1:D1:1454:A:H5'    | 2.13                     | 0.48              |
| 1:D1:1490:G:N2     | 1:D1:1493:A:OP2    | 2.44                     | 0.48              |
| 1:D1:1593:A:C2     | 1:D1:1594:C:N3     | 2.81                     | 0.48              |
| 1:D1:1779:C:O2'    | 1:D1:1780:A:H5'    | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2103:A:C2     | 1:D1:2104:C:C2     | 3.01                     | 0.48              |
| 1:D1:2109:G:H2'    | 1:D1:2110:C:H5'    | 1.96                     | 0.48              |
| 1:D1:2324:A:C5     | 1:D1:2325:C:C5     | 3.00                     | 0.48              |
| 1:D1:3046:A:H5''   | 1:D1:3047:U:OP2    | 2.14                     | 0.48              |
| 1:D1:3175:A:H4'    | 1:D1:3176:A:OP1    | 2.13                     | 0.48              |
| 2:DA:44:MET:CE     | 2:DA:44:MET:CA     | 2.81                     | 0.48              |
| 6:DF:17:TYR:O      | 6:DF:17:TYR:HD1    | 1.96                     | 0.48              |
| 6:DF:30:ILE:CG2    | 19:DX:163:PHE:HE2  | 2.27                     | 0.48              |
| 9:DJ:49:ILE:CD1    | 9:DJ:88:LEU:HD13   | 2.44                     | 0.48              |
| 9:DJ:80:GLU:O      | 9:DJ:84:ILE:HG13   | 2.12                     | 0.48              |
| 12:DM:75:LYS:O     | 12:DM:105:TYR:HE2  | 1.96                     | 0.48              |
| 13:DN:89:GLU:N     | 13:DN:89:GLU:OE1   | 2.44                     | 0.48              |
| 14:DO:98:PHE:HD2   | 14:DO:103:LEU:HB3  | 1.78                     | 0.48              |
| 16:DQ:7:VAL:CG1    | 18:DU:185:LYS:HG3  | 2.43                     | 0.48              |
| 19:DX:7:GLN:NE2    | 19:DX:80:GLU:H     | 2.10                     | 0.48              |
| 21:E3:54:A:O4'     | 25:ED:7:ASN:ND2    | 2.38                     | 0.48              |
| 22:EA:3:ARG:HG2    | 22:EA:4:VAL:H      | 1.78                     | 0.48              |
| 22:EA:114:VAL:HG12 | 22:EA:115:CYS:N    | 2.28                     | 0.48              |
| 23:EB:113:ASN:C    | 23:EB:174:ASN:ND2  | 2.71                     | 0.48              |
| 24:EC:276:THR:CG2  | 24:EC:282:GLY:HA2  | 2.44                     | 0.48              |
| 29:EH:136:PHE:HE1  | 29:EH:159:PHE:HZ   | 1.62                     | 0.48              |
| 33:EL:22:ILE:O     | 33:EL:26:ARG:HG3   | 2.14                     | 0.48              |
| 34:EM:64:ILE:CD1   | 34:EM:109:LEU:HD22 | 2.37                     | 0.48              |
| 34:EM:228:PHE:CD2  | 34:EM:231:TRP:CD1  | 3.02                     | 0.48              |
| 40:ES:117:LEU:HD23 | 40:ES:120:ARG:CZ   | 2.44                     | 0.48              |
| 46:EY:10:ILE:CD1   | 46:EY:30:GLU:HB3   | 2.44                     | 0.48              |
| 1:F1:2:U:O5'       | 1:F1:2:U:H6        | 1.97                     | 0.48              |
| 1:F1:146:U:C4'     | 1:F1:147:U:O5'     | 2.56                     | 0.48              |
| 1:F1:625:C:C4      | 1:F1:626:C:C5      | 3.01                     | 0.48              |
| 1:F1:651:U:C4      | 1:F1:652:U:C4      | 3.02                     | 0.48              |
| 1:F1:784:G:C2      | 1:F1:797:A:N6      | 2.81                     | 0.48              |
| 1:F1:1041:C:O2     | 1:F1:1041:C:H2'    | 2.12                     | 0.48              |
| 1:F1:1191:G:H5''   | 8:FH:33:ASN:HD21   | 1.79                     | 0.48              |
| 1:F1:1241:U:H2'    | 1:F1:1242:U:H6     | 1.77                     | 0.48              |
| 1:F1:1343:G:O6     | 19:FX:167:LYS:CD   | 2.60                     | 0.48              |
| 1:F1:1740:U:H5''   | 1:F1:1741:U:OP2    | 2.14                     | 0.48              |
| 1:F1:2281:U:H4'    | 1:F1:2282:C:OP1    | 2.12                     | 0.48              |
| 1:F1:2871:U:H2'    | 1:F1:2872:C:C6     | 2.49                     | 0.48              |
| 1:F1:3097:G:H2'    | 1:F1:3098:A:O5'    | 2.14                     | 0.48              |
| 1:F1:3257:U:H2'    | 1:F1:3258:C:C6     | 2.49                     | 0.48              |
| 5:FE:46:ALA:HB3    | 5:FE:49:THR:OG1    | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:FH:52:GLN:O      | 8:FH:77:ILE:O      | 2.32                     | 0.48              |
| 9:FJ:162:HIS:CG    | 9:FJ:163:PRO:HD2   | 2.49                     | 0.48              |
| 16:FQ:52:ALA:O     | 16:FQ:55:GLU:HB2   | 2.14                     | 0.48              |
| 21:G3:36:C:O2'     | 21:G3:37:A:H5'     | 2.13                     | 0.48              |
| 22:GA:41:TYR:CZ    | 1:H1:2541:U:C2     | 3.02                     | 0.48              |
| 22:GA:84:TYR:CE1   | 22:GA:87:GLN:HB2   | 2.49                     | 0.48              |
| 23:GB:119:TYR:HE1  | 1:H1:3255:A:C5'    | 2.27                     | 0.48              |
| 23:GB:294:THR:CG2  | 23:GB:295:ALA:N    | 2.77                     | 0.48              |
| 24:GC:27:ALA:O     | 24:GC:30:THR:HB    | 2.13                     | 0.48              |
| 25:GD:17:LEU:HB3   | 25:GD:76:ALA:HB1   | 1.96                     | 0.48              |
| 32:GK:98:LYS:HA    | 18:HU:166:VAL:HG23 | 1.94                     | 0.48              |
| 33:GL:26:ARG:CZ    | 33:GL:43:SER:OG    | 2.62                     | 0.48              |
| 35:GN:174:PHE:C    | 35:GN:176:ARG:N    | 2.68                     | 0.48              |
| 43:GV:57:LYS:HE3   | 43:GV:61:ASP:OD2   | 2.14                     | 0.48              |
| 43:GV:109:HIS:CD2  | 1:H1:1360:C:O2'    | 2.67                     | 0.48              |
| 46:GY:10:ILE:HD12  | 46:GY:30:GLU:HB3   | 1.95                     | 0.48              |
| 1:H1:9:G:O2'       | 1:H1:1587:A:N6     | 2.47                     | 0.48              |
| 1:H1:640:G:H2'     | 1:H1:641:U:C6      | 2.49                     | 0.48              |
| 1:H1:1095:C:O2     | 1:H1:1095:C:C2'    | 2.62                     | 0.48              |
| 1:H1:1223:U:O2'    | 1:H1:1224:A:H5'    | 2.13                     | 0.48              |
| 1:H1:1595:A:C6     | 1:H1:1596:U:H1'    | 2.48                     | 0.48              |
| 1:H1:1702:G:N7     | 12:HM:76:ARG:NH2   | 2.59                     | 0.48              |
| 1:H1:2270:A:H2'    | 1:H1:2270:A:N3     | 2.28                     | 0.48              |
| 1:H1:2907:A:H5''   | 1:H1:2907:A:H8     | 1.77                     | 0.48              |
| 1:H1:3005:A:H2'    | 1:H1:3006:A:C8     | 2.48                     | 0.48              |
| 1:H1:3081:C:O3'    | 1:H1:3082:C:H3'    | 2.13                     | 0.48              |
| 1:H1:3345:A:OP2    | 1:H1:3345:A:H8     | 1.95                     | 0.48              |
| 4:HC:14:LYS:HB2    | 4:HC:75:CYS:SG     | 2.53                     | 0.48              |
| 11:HL:5:ILE:CD1    | 11:HL:22:LYS:HG2   | 2.44                     | 0.48              |
| 16:HQ:83:THR:HG22  | 16:HQ:85:ARG:HB3   | 1.95                     | 0.48              |
| 18:HU:123:LEU:HD23 | 18:HU:136:VAL:HG22 | 1.94                     | 0.48              |
| 1:A1:127:A:C5      | 1:A1:128:G:H1'     | 2.48                     | 0.48              |
| 1:A1:555:G:C3'     | 1:A1:556:A:H5''    | 2.44                     | 0.48              |
| 1:A1:591:G:C2'     | 1:A1:592:A:O5'     | 2.62                     | 0.48              |
| 1:A1:632:G:C5      | 1:A1:633:C:C5      | 3.02                     | 0.48              |
| 1:A1:726:G:H2'     | 1:A1:727:C:H6      | 1.77                     | 0.48              |
| 1:A1:963:C:H5'     | 50:A1:3773:HOH:O   | 2.12                     | 0.48              |
| 1:A1:1186:A:OP1    | 35:BN:2:ALA:HB3    | 2.13                     | 0.48              |
| 1:A1:1254:C:H3'    | 1:A1:1255:A:H5''   | 1.96                     | 0.48              |
| 1:A1:1902:C:H2'    | 1:A1:1902:C:O2     | 2.12                     | 0.48              |
| 1:A1:2125:C:O2'    | 1:A1:2140:A:N3     | 2.46                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2324:A:C5     | 1:A1:2325:C:C5     | 3.01                     | 0.48              |
| 1:A1:2990:U:O2'    | 1:A1:2991:U:H5'    | 2.13                     | 0.48              |
| 1:A1:3070:C:H2'    | 1:A1:3071:C:C6     | 2.49                     | 0.48              |
| 1:A1:3114:U:C3'    | 1:A1:3115:C:H5''   | 2.43                     | 0.48              |
| 1:A1:3198:A:C6     | 1:A1:3199:G:C6     | 3.02                     | 0.48              |
| 5:AE:179:THR:OG1   | 8:AH:12:THR:HA     | 2.12                     | 0.48              |
| 6:AF:14:TYR:OH     | 6:AF:22:GLY:HA2    | 2.14                     | 0.48              |
| 7:AG:38:THR:O      | 7:AG:40:LYS:HE2    | 2.14                     | 0.48              |
| 7:AG:63:ALA:HB1    | 13:AN:2:ALA:HB1    | 1.94                     | 0.48              |
| 8:AH:18:ALA:HB2    | 8:AH:39:LEU:CD2    | 2.44                     | 0.48              |
| 8:AH:107:MET:HB3   | 8:AH:109:TYR:CE2   | 2.49                     | 0.48              |
| 9:AJ:215:ILE:O     | 9:AJ:219:GLU:HG3   | 2.13                     | 0.48              |
| 13:AN:91:CYS:SG    | 13:AN:96:LEU:HD12  | 2.53                     | 0.48              |
| 14:AO:31:VAL:O     | 45:BX:89:MET:HE2   | 2.13                     | 0.48              |
| 18:AU:123:LEU:CD2  | 18:AU:135:LEU:O    | 2.62                     | 0.48              |
| 21:B3:39:U:C2      | 25:BD:46:VAL:HG21  | 2.49                     | 0.48              |
| 21:B3:83:G:N1      | 21:B3:93:G:N2      | 2.48                     | 0.48              |
| 24:BC:377:ILE:H    | 24:BC:377:ILE:HG13 | 1.48                     | 0.48              |
| 26:BE:92:LEU:HD12  | 26:BE:177:ILE:HG12 | 1.95                     | 0.48              |
| 29:BH:34:TYR:CE1   | 29:BH:92:HIS:CE1   | 3.01                     | 0.48              |
| 29:BH:140:VAL:HG11 | 29:BH:144:HIS:CB   | 2.42                     | 0.48              |
| 29:BH:191:VAL:HB   | 29:BH:198:LYS:HB2  | 1.96                     | 0.48              |
| 30:BI:35:VAL:CG1   | 30:BI:107:ILE:HG12 | 2.44                     | 0.48              |
| 32:BK:76:ASN:HA    | 32:BK:113:LEU:O    | 2.13                     | 0.48              |
| 32:BK:78:ASP:OD2   | 32:BK:115:LYS:HD3  | 2.12                     | 0.48              |
| 33:BL:78:GLY:HA2   | 33:BL:89:ILE:HD12  | 1.95                     | 0.48              |
| 37:BP:48:GLN:HG3   | 37:BP:94:GLU:HG3   | 1.94                     | 0.48              |
| 38:BQ:66:THR:HG23  | 38:BQ:82:GLN:NE2   | 2.29                     | 0.48              |
| 43:BV:98:ARG:CG    | 43:BV:98:ARG:NH1   | 2.66                     | 0.48              |
| 20:C2:10:U:C4      | 20:C2:11:C:N4      | 2.82                     | 0.48              |
| 20:C2:72:C:H5'     | 20:C2:73:G:OP2     | 2.14                     | 0.48              |
| 23:CB:55:HIS:CE1   | 41:CT:18:GLY:HA3   | 2.49                     | 0.48              |
| 24:CC:195:ARG:HH11 | 24:CC:204:ARG:HB2  | 1.79                     | 0.48              |
| 30:CI:193:LEU:HD21 | 6:DF:114:LEU:CB    | 2.44                     | 0.48              |
| 47:CO:168:UNK:HA   | 47:CO:171:UNK:HG3  | 1.96                     | 0.48              |
| 43:CV:100:LEU:HD21 | 43:CV:127:VAL:CG1  | 2.33                     | 0.48              |
| 44:CW:103:LEU:O    | 1:D1:3283:C:H4'    | 2.14                     | 0.48              |
| 45:CX:65:THR:O     | 45:CX:65:THR:HG22  | 2.14                     | 0.48              |
| 46:CY:72:THR:HG22  | 46:CY:77:VAL:CG2   | 2.44                     | 0.48              |
| 1:D1:31:G:H1'      | 1:D1:49:A:N6       | 2.29                     | 0.48              |
| 1:D1:70:C:C4       | 1:D1:72:A:C4       | 3.02                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:121:A:H61     | 1:D1:150:A:N6      | 2.11                     | 0.48              |
| 1:D1:249:G:O6      | 18:DU:126:ARG:NH1  | 2.47                     | 0.48              |
| 1:D1:263:A:C5      | 16:DQ:30:ARG:NH2   | 2.82                     | 0.48              |
| 1:D1:486:C:C2'     | 1:D1:487:G:H5'     | 2.44                     | 0.48              |
| 1:D1:1005:A:O2'    | 1:D1:1006:C:C5'    | 2.61                     | 0.48              |
| 1:D1:1050:C:C2     | 1:D1:1051:C:C2     | 3.01                     | 0.48              |
| 1:D1:1070:U:H2'    | 1:D1:1071:C:O5'    | 2.13                     | 0.48              |
| 1:D1:1105:U:H6     | 1:D1:1105:U:O5'    | 1.96                     | 0.48              |
| 1:D1:1187:C:OP1    | 1:D1:1359:A:H5''   | 2.13                     | 0.48              |
| 1:D1:1307:C:O2'    | 1:D1:1308:U:H5'    | 2.13                     | 0.48              |
| 1:D1:1352:U:H2'    | 1:D1:1353:G:C8     | 2.49                     | 0.48              |
| 1:D1:1519:G:N3     | 3:DB:13:PHE:CE1    | 2.82                     | 0.48              |
| 1:D1:2731:C:H4'    | 4:DC:18:HIS:HD2    | 1.78                     | 0.48              |
| 1:D1:3008:U:H6     | 1:D1:3008:U:O5'    | 1.97                     | 0.48              |
| 6:DF:67:GLN:HE22   | 6:DF:75:LYS:HE3    | 1.77                     | 0.48              |
| 11:DL:59:VAL:HG12  | 11:DL:63:GLU:HB3   | 1.94                     | 0.48              |
| 13:DN:53:VAL:HG11  | 13:DN:62:ILE:HG23  | 1.95                     | 0.48              |
| 13:DN:87:VAL:HG12  | 13:DN:90:LEU:HB2   | 1.94                     | 0.48              |
| 19:DX:188:THR:C    | 19:DX:189:PHE:CG   | 2.90                     | 0.48              |
| 22:EA:31:ARG:HB3   | 22:EA:37:GLU:OE2   | 2.14                     | 0.48              |
| 24:EC:203:ASN:HD21 | 40:ES:10:ALA:HA    | 1.79                     | 0.48              |
| 26:EE:67:VAL:O     | 26:EE:71:ILE:HG13  | 2.13                     | 0.48              |
| 27:EF:101:LYS:O    | 27:EF:105:VAL:HG23 | 2.14                     | 0.48              |
| 27:EF:136:ILE:HG22 | 27:EF:166:ASN:HD22 | 1.79                     | 0.48              |
| 32:EK:20:GLY:O     | 32:EK:24:LYS:HG2   | 2.13                     | 0.48              |
| 32:EK:76:ASN:HA    | 32:EK:113:LEU:O    | 2.14                     | 0.48              |
| 34:EM:2:GLY:N      | 1:F1:1042:U:H2'    | 2.28                     | 0.48              |
| 34:EM:144:ALA:O    | 34:EM:174:PRO:HD3  | 2.13                     | 0.48              |
| 43:EV:105:LEU:HD12 | 43:EV:131:ILE:CD1  | 2.44                     | 0.48              |
| 44:EW:14:ASN:ND2   | 44:EW:69:ARG:CZ    | 2.77                     | 0.48              |
| 1:F1:67:U:O2       | 18:FU:59:GLN:NE2   | 2.44                     | 0.48              |
| 1:F1:90:G:OP2      | 1:F1:91:C:H5''     | 2.14                     | 0.48              |
| 1:F1:155:A:O2'     | 16:FQ:28:VAL:HG22  | 2.13                     | 0.48              |
| 1:F1:552:U:C2'     | 1:F1:553:C:H5'     | 2.43                     | 0.48              |
| 1:F1:557:U:O2'     | 1:F1:558:U:H5'     | 2.13                     | 0.48              |
| 1:F1:966:G:O4'     | 1:F1:1461:A:H1'    | 2.13                     | 0.48              |
| 1:F1:1919:A:H5'    | 1:F1:1919:A:C8     | 2.45                     | 0.48              |
| 1:F1:2134:A:H3'    | 1:F1:2135:A:H2'    | 1.95                     | 0.48              |
| 1:F1:2155:C:C3'    | 1:F1:2156:G:H5'    | 2.43                     | 0.48              |
| 1:F1:2557:A:H2'    | 1:F1:2558:U:C6     | 2.48                     | 0.48              |
| 1:F1:2884:A:OP1    | 10:FK:102:ARG:HD3  | 2.14                     | 0.48              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:F1:3077:G:H2'    | 1:F1:3078:C:C6    | 2.49                     | 0.48              |
| 1:F1:3083:A:H2'    | 1:F1:3084:U:C6    | 2.48                     | 0.48              |
| 1:F1:3175:A:N6     | 6:FF:16:ASN:ND2   | 2.58                     | 0.48              |
| 2:FA:4:GLY:C       | 2:FA:6:PRO:HD2    | 2.39                     | 0.48              |
| 5:FE:170:LEU:HA    | 6:FF:106:PHE:CE1  | 2.46                     | 0.48              |
| 5:FE:179:THR:HG22  | 5:FE:180:LEU:N    | 2.27                     | 0.48              |
| 6:FF:26:VAL:CG1    | 6:FF:27:ILE:N     | 2.77                     | 0.48              |
| 9:FJ:118:HIS:HE1   | 9:FJ:146:VAL:HB   | 1.73                     | 0.48              |
| 14:FO:36:THR:O     | 14:FO:37:GLN:C    | 2.56                     | 0.48              |
| 15:FP:39:ILE:HG23  | 15:FP:55:THR:O    | 2.14                     | 0.48              |
| 18:FU:58:LYS:HB2   | 18:FU:63:TYR:CB   | 2.44                     | 0.48              |
| 19:FX:8:GLU:OE2    | 19:FX:19:ARG:NH1  | 2.45                     | 0.48              |
| 19:FX:148:ILE:HG13 | 19:FX:154:LEU:CD2 | 2.44                     | 0.48              |
| 21:G3:95:U:H2'     | 21:G3:96:U:C6     | 2.49                     | 0.48              |
| 22:GA:68:TYR:C     | 22:GA:69:ARG:HG2  | 2.38                     | 0.48              |
| 22:GA:182:LYS:HD3  | 1:H1:885:G:P      | 2.53                     | 0.48              |
| 22:GA:208:VAL:HG21 | 1:H1:941:G:C5     | 2.49                     | 0.48              |
| 26:GE:58:TRP:O     | 26:GE:59:GLN:C    | 2.57                     | 0.48              |
| 32:GK:64:HIS:HB2   | 1:H1:303:A:C4     | 2.49                     | 0.48              |
| 32:GK:75:VAL:CG2   | 32:GK:109:PHE:CD2 | 2.97                     | 0.48              |
| 33:GL:67:ARG:O     | 50:GL:405:HOH:O   | 2.20                     | 0.48              |
| 35:GN:57:ARG:HH12  | 1:H1:697:A:H3'    | 1.78                     | 0.48              |
| 39:GR:90:MET:HE2   | 39:GR:92:PHE:CE1  | 2.48                     | 0.48              |
| 46:GY:32:THR:CG2   | 46:GY:69:TRP:O    | 2.53                     | 0.48              |
| 1:H1:2:U:O5'       | 1:H1:2:U:H6       | 1.96                     | 0.48              |
| 1:H1:557:U:O2'     | 1:H1:558:U:H5'    | 2.14                     | 0.48              |
| 1:H1:726:G:C5      | 1:H1:727:C:C4     | 3.01                     | 0.48              |
| 1:H1:790:C:O2      | 1:H1:790:C:H2'    | 2.13                     | 0.48              |
| 1:H1:800:G:O2'     | 1:H1:801:U:C5     | 2.66                     | 0.48              |
| 1:H1:807:G:O2'     | 1:H1:808:A:H5'    | 2.14                     | 0.48              |
| 1:H1:1507:A:H5''   | 1:H1:1883:A:H62   | 1.78                     | 0.48              |
| 1:H1:1567:A:N6     | 1:H1:1578:U:H3    | 2.12                     | 0.48              |
| 1:H1:1805:C:H2'    | 1:H1:1806:G:OP1   | 2.13                     | 0.48              |
| 1:H1:1857:G:OP1    | 3:HB:10:LYS:HD2   | 2.14                     | 0.48              |
| 1:H1:2698:A:H2'    | 1:H1:2699:C:C6    | 2.49                     | 0.48              |
| 1:H1:2738:G:C2'    | 1:H1:2739:C:H5'   | 2.44                     | 0.48              |
| 1:H1:3097:G:C2'    | 1:H1:3098:A:O5'   | 2.61                     | 0.48              |
| 1:H1:3125:G:C6     | 1:H1:3126:C:C4    | 3.02                     | 0.48              |
| 1:H1:3157:C:OP1    | 1:H1:3159:A:H1'   | 2.14                     | 0.48              |
| 1:H1:3298:U:H1'    | 1:H1:3299:G:P     | 2.54                     | 0.48              |
| 5:HE:63:VAL:CG1    | 5:HE:64:VAL:N     | 2.76                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:HE:93:ALA:HA     | 8:HH:111:ASN:O     | 2.14                     | 0.48              |
| 6:HF:7:VAL:O       | 19:HX:162:LYS:HA   | 2.14                     | 0.48              |
| 7:HG:27:TYR:HE2    | 7:HG:52:ARG:HG2    | 1.77                     | 0.48              |
| 1:A1:90:G:H4'      | 4:AC:53:LYS:HZ2    | 1.78                     | 0.48              |
| 1:A1:146:U:OP1     | 1:A1:147:U:H3'     | 2.13                     | 0.48              |
| 1:A1:334:G:H2'     | 1:A1:335:A:O4'     | 2.14                     | 0.48              |
| 1:A1:943:C:O2'     | 1:A1:944:U:H5'     | 2.14                     | 0.48              |
| 1:A1:2983:A:C2     | 20:B2:2:G:C5       | 3.02                     | 0.48              |
| 12:AM:60:ASN:OD1   | 12:AM:60:ASN:O     | 2.31                     | 0.48              |
| 16:AQ:45:ILE:HD13  | 33:BL:9:GLU:HB2    | 1.94                     | 0.48              |
| 20:B2:107:C:C5     | 20:B2:135:A:C5     | 3.02                     | 0.48              |
| 24:BC:276:THR:HG23 | 24:BC:277:GLY:N    | 2.28                     | 0.48              |
| 24:BC:287:ARG:CD   | 35:BN:111:ARG:NH1  | 2.74                     | 0.48              |
| 26:BE:103:VAL:HG23 | 26:BE:110:ILE:HG23 | 1.94                     | 0.48              |
| 32:BK:128:LYS:C    | 32:BK:129:TYR:CD1  | 2.92                     | 0.48              |
| 34:BM:141:PRO:HB2  | 34:BM:172:ASN:HB2  | 1.96                     | 0.48              |
| 34:BM:254:ILE:O    | 34:BM:258:PRO:HB3  | 2.14                     | 0.48              |
| 21:C3:28:C:H1'     | 21:C3:54:A:H61     | 1.79                     | 0.48              |
| 21:C3:69:G:H2'     | 21:C3:70:G:C8      | 2.46                     | 0.48              |
| 23:CB:330:LYS:O    | 23:CB:331:LYS:CB   | 2.62                     | 0.48              |
| 24:CC:14:GLU:HG3   | 24:CC:17:LYS:HD2   | 1.94                     | 0.48              |
| 24:CC:40:LYS:HZ3   | 1:D1:815:U:H1'     | 1.77                     | 0.48              |
| 24:CC:138:LEU:HD23 | 24:CC:138:LEU:N    | 2.29                     | 0.48              |
| 24:CC:375:ALA:O    | 24:CC:378:ALA:HB3  | 2.14                     | 0.48              |
| 26:CE:22:GLN:HB3   | 26:CE:39:ARG:NH2   | 2.29                     | 0.48              |
| 27:CF:143:LEU:HD22 | 27:CF:211:PHE:HD2  | 1.78                     | 0.48              |
| 29:CH:10:ARG:NH2   | 29:CH:161:GLY:HA3  | 2.28                     | 0.48              |
| 31:CJ:86:ARG:HG3   | 31:CJ:99:PHE:O     | 2.14                     | 0.48              |
| 32:CK:100:PRO:HB3  | 18:DU:164:LYS:HZ3  | 1.77                     | 0.48              |
| 35:CN:88:THR:HG22  | 35:CN:107:THR:HG23 | 1.96                     | 0.48              |
| 47:CO:62:ARG:HH22  | 1:D1:3056:C:H3'    | 1.78                     | 0.48              |
| 42:CU:118:ARG:NH1  | 18:DU:123:LEU:HD21 | 2.27                     | 0.48              |
| 43:CV:150:PHE:CD1  | 43:CV:159:PRO:HA   | 2.48                     | 0.48              |
| 43:CV:227:ARG:HH12 | 43:CV:234:LEU:HD13 | 1.77                     | 0.48              |
| 1:D1:35:U:H1'      | 50:D1:3756:HOH:O   | 2.13                     | 0.48              |
| 1:D1:90:G:OP1      | 4:DC:53:LYS:NZ     | 2.43                     | 0.48              |
| 1:D1:281:G:H2'     | 1:D1:285:U:C6      | 2.49                     | 0.48              |
| 1:D1:561:A:O2'     | 1:D1:562:G:H5'     | 2.14                     | 0.48              |
| 1:D1:937:G:H2'     | 1:D1:939:A:N7      | 2.28                     | 0.48              |
| 1:D1:1053:A:C1'    | 1:D1:1054:G:P      | 3.02                     | 0.48              |
| 1:D1:1682:G:H2'    | 1:D1:1683:U:C6     | 2.49                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2907:A:H5''   | 1:D1:2907:A:H8     | 1.78                     | 0.48              |
| 1:D1:3011:G:C1'    | 1:D1:3012:U:OP2    | 2.62                     | 0.48              |
| 1:D1:3083:A:H2'    | 1:D1:3084:U:H6     | 1.79                     | 0.48              |
| 1:D1:3096:U:OP1    | 10:DK:114:LYS:NZ   | 2.28                     | 0.48              |
| 1:D1:3316:C:N4     | 1:D1:3317:G:C6     | 2.82                     | 0.48              |
| 5:DE:18:TRP:CB     | 14:DO:95:ARG:HH21  | 2.26                     | 0.48              |
| 12:DM:16:GLY:HA2   | 12:DM:67:VAL:O     | 2.14                     | 0.48              |
| 14:DO:122:GLN:OE1  | 14:DO:122:GLN:HA   | 2.14                     | 0.48              |
| 15:DP:33:VAL:HG22  | 15:DP:42:PHE:CD2   | 2.49                     | 0.48              |
| 17:DT:12:GLN:OE1   | 17:DT:12:GLN:HA    | 2.12                     | 0.48              |
| 19:DX:89:TYR:O     | 19:DX:107:GLU:HA   | 2.14                     | 0.48              |
| 20:E2:81:G:H4'     | 42:EU:42:ALA:CB    | 2.43                     | 0.48              |
| 21:E3:103:U:H5''   | 1:F1:1027:G:H22    | 1.79                     | 0.48              |
| 21:E3:109:U:H5''   | 34:EM:281:LYS:NZ   | 2.29                     | 0.48              |
| 22:EA:11:GLY:HA3   | 1:F1:2159:C:O2     | 2.14                     | 0.48              |
| 23:EB:33:PRO:CD    | 23:EB:44:THR:HG23  | 2.43                     | 0.48              |
| 23:EB:56:ILE:HG22  | 23:EB:57:LEU:N     | 2.29                     | 0.48              |
| 24:EC:348:ALA:C    | 24:EC:350:ALA:H    | 2.21                     | 0.48              |
| 25:ED:94:LYS:HG3   | 25:ED:94:LYS:O     | 2.14                     | 0.48              |
| 25:ED:115:LYS:CG   | 25:ED:116:TYR:N    | 2.76                     | 0.48              |
| 26:EE:86:TYR:CE2   | 26:EE:149:LEU:HB2  | 2.49                     | 0.48              |
| 30:EI:159:ARG:HB2  | 30:EI:162:ARG:CZ   | 2.43                     | 0.48              |
| 32:EK:88:THR:HG23  | 18:FU:164:LYS:HZ1  | 1.78                     | 0.48              |
| 35:EN:68:ILE:CG2   | 35:EN:81:ILE:HD13  | 2.43                     | 0.48              |
| 35:EN:146:ARG:CB   | 35:EN:149:TYR:CE2  | 2.97                     | 0.48              |
| 35:EN:147:GLU:O    | 35:EN:148:ALA:C    | 2.56                     | 0.48              |
| 38:EQ:141:TYR:CE2  | 1:F1:2350:G:H5'    | 2.49                     | 0.48              |
| 43:EV:41:TRP:CZ3   | 1:F1:628:A:C2      | 3.02                     | 0.48              |
| 43:EV:84:ILE:O     | 43:EV:131:ILE:HG23 | 2.14                     | 0.48              |
| 43:EV:132:THR:HG21 | 43:EV:227:ARG:HD2  | 1.95                     | 0.48              |
| 44:EW:68:ARG:C     | 44:EW:69:ARG:HG2   | 2.38                     | 0.48              |
| 1:F1:90:G:OP1      | 4:FC:53:LYS:NZ     | 2.36                     | 0.48              |
| 1:F1:278:U:H2'     | 1:F1:279:U:H6      | 1.78                     | 0.48              |
| 1:F1:376:A:C5'     | 1:F1:377:A:OP1     | 2.61                     | 0.48              |
| 1:F1:606:U:O2'     | 1:F1:607:U:H5'     | 2.14                     | 0.48              |
| 1:F1:643:A:H4'     | 1:F1:644:A:O5'     | 2.13                     | 0.48              |
| 1:F1:828:C:HO2'    | 1:F1:829:C:H5'     | 1.79                     | 0.48              |
| 1:F1:974:C:C2'     | 1:F1:975:G:H5'     | 2.43                     | 0.48              |
| 1:F1:984:C:N4      | 1:F1:2789:A:C8     | 2.82                     | 0.48              |
| 1:F1:1656:G:C6     | 1:F1:1657:C:C4     | 3.01                     | 0.48              |
| 1:F1:1683:U:H2'    | 1:F1:1684:C:H6     | 1.78                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:2252:C:C6    | 1:F1:2253:U:C6     | 3.01                     | 0.48              |
| 1:F1:2416:U:H6    | 1:F1:2416:U:C5'    | 2.19                     | 0.48              |
| 1:F1:2569:A:C2'   | 1:F1:2570:U:OP1    | 2.61                     | 0.48              |
| 1:F1:2703:G:O6    | 1:F1:2730:C:N3     | 2.47                     | 0.48              |
| 1:F1:3019:G:C5    | 1:F1:3020:G:C5     | 3.02                     | 0.48              |
| 1:F1:3115:C:H2'   | 1:F1:3116:A:O5'    | 2.14                     | 0.48              |
| 5:FE:135:THR:HB   | 5:FE:138:GLN:HG3   | 1.95                     | 0.48              |
| 6:FF:21:LYS:HZ2   | 19:FX:174:GLU:HG2  | 1.77                     | 0.48              |
| 6:FF:44:VAL:HG12  | 6:FF:45:ARG:N      | 2.29                     | 0.48              |
| 9:FJ:117:ILE:HD13 | 9:FJ:137:VAL:CG1   | 2.44                     | 0.48              |
| 12:FM:77:TYR:HD1  | 12:FM:77:TYR:O     | 1.97                     | 0.48              |
| 20:G2:60:C:C4     | 2:HA:64:ARG:NH1    | 2.82                     | 0.48              |
| 21:G3:39:U:C2     | 25:GD:46:VAL:CG2   | 2.96                     | 0.48              |
| 21:G3:60:C:H5''   | 34:GM:281:LYS:HG2  | 1.95                     | 0.48              |
| 23:GB:171:GLN:CG  | 1:H1:3273:U:H5''   | 2.44                     | 0.48              |
| 23:GB:210:ASN:ND2 | 23:GB:352:ILE:N    | 2.60                     | 0.48              |
| 23:GB:240:THR:HA  | 1:H1:2936:C:O2'    | 2.13                     | 0.48              |
| 24:GC:107:PHE:CE1 | 1:H1:828:C:H5'     | 2.49                     | 0.48              |
| 24:GC:359:LEU:CD2 | 24:GC:363:ARG:HH21 | 2.26                     | 0.48              |
| 26:GE:168:LYS:HB2 | 26:GE:173:PHE:CE2  | 2.49                     | 0.48              |
| 30:GI:183:ALA:HB1 | 30:GI:184:PRO:CD   | 2.44                     | 0.48              |
| 33:GL:33:LEU:O    | 33:GL:65:ARG:NH1   | 2.47                     | 0.48              |
| 33:GL:68:ARG:NH1  | 1:H1:291:C:OP2     | 2.33                     | 0.48              |
| 33:GL:80:VAL:CG1  | 33:GL:87:VAL:HA    | 2.43                     | 0.48              |
| 33:GL:196:GLN:CB  | 18:HU:19:ARG:HD2   | 2.44                     | 0.48              |
| 34:GM:39:GLN:HG2  | 34:GM:40:ASP:N     | 2.29                     | 0.48              |
| 34:GM:125:VAL:O   | 34:GM:201:LYS:NZ   | 2.38                     | 0.48              |
| 34:GM:136:GLN:CB  | 34:GM:141:PRO:HD3  | 2.44                     | 0.48              |
| 39:GR:77:THR:O    | 39:GR:78:GLU:C     | 2.57                     | 0.48              |
| 43:GV:144:LEU:CD2 | 43:GV:239:LEU:HD21 | 2.43                     | 0.48              |
| 43:GV:196:ASN:O   | 43:GV:199:LEU:N    | 2.39                     | 0.48              |
| 43:GV:216:HIS:O   | 43:GV:222:GLY:HA3  | 2.14                     | 0.48              |
| 1:H1:79:C:C2'     | 1:H1:80:C:H5'      | 2.43                     | 0.48              |
| 1:H1:379:U:C2     | 1:H1:389:G:N2      | 2.82                     | 0.48              |
| 1:H1:439:A:H5''   | 5:HE:126:HIS:CB    | 2.44                     | 0.48              |
| 1:H1:831:A:H2'    | 1:H1:832:A:C8      | 2.49                     | 0.48              |
| 1:H1:1054:G:C6    | 1:H1:1055:A:N6     | 2.82                     | 0.48              |
| 1:H1:1595:A:N7    | 1:H1:1596:U:C2     | 2.81                     | 0.48              |
| 1:H1:1653:A:C6    | 1:H1:1839:A:C2     | 3.02                     | 0.48              |
| 1:H1:1662:A:C4'   | 11:HL:76:ARG:NH2   | 2.76                     | 0.48              |
| 1:H1:1700:A:P     | 12:HM:74:SER:HB2   | 2.53                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1820:U:O2'    | 1:H1:1822:G:N2     | 2.46                     | 0.48              |
| 1:H1:1866:A:O4'    | 3:HB:45:ARG:NH1    | 2.47                     | 0.48              |
| 1:H1:3198:A:N6     | 1:H1:3199:G:C6     | 2.82                     | 0.48              |
| 9:HJ:187:ASN:HD21  | 9:HJ:207:GLY:CA    | 2.18                     | 0.48              |
| 16:HQ:7:VAL:O      | 16:HQ:7:VAL:CG1    | 2.62                     | 0.48              |
| 17:HT:36:ASN:O     | 17:HT:40:LEU:HG    | 2.14                     | 0.48              |
| 18:HU:81:ALA:HB2   | 18:HU:114:LEU:HD13 | 1.94                     | 0.48              |
| 1:A1:144:A:C2'     | 1:A1:145:A:H5'     | 2.44                     | 0.48              |
| 1:A1:242:G:OP1     | 42:BU:98:LYS:CG    | 2.62                     | 0.48              |
| 1:A1:379:U:C2      | 1:A1:389:G:N2      | 2.82                     | 0.48              |
| 1:A1:443:G:C6      | 1:A1:444:A:C6      | 3.01                     | 0.48              |
| 1:A1:552:U:C2'     | 1:A1:553:C:H5'     | 2.44                     | 0.48              |
| 1:A1:578:G:H2'     | 1:A1:579:G:H5''    | 1.96                     | 0.48              |
| 1:A1:634:G:N7      | 24:BC:319:ARG:CZ   | 2.77                     | 0.48              |
| 1:A1:1010:G:H4'    | 1:A1:1011:U:OP2    | 2.14                     | 0.48              |
| 1:A1:1319:C:H2'    | 1:A1:1320:U:C6     | 2.46                     | 0.48              |
| 1:A1:1752:G:H5''   | 1:A1:1753:A:C3'    | 2.38                     | 0.48              |
| 1:A1:2125:C:O2'    | 1:A1:2140:A:O4'    | 2.31                     | 0.48              |
| 1:A1:2211:G:O5'    | 1:A1:2211:G:H8     | 1.97                     | 0.48              |
| 1:A1:2397:A:H5''   | 24:BC:74:THR:HG22  | 1.96                     | 0.48              |
| 1:A1:2889:G:N2     | 1:A1:3019:G:O2'    | 2.47                     | 0.48              |
| 1:A1:3047:U:H6     | 1:A1:3047:U:H3'    | 1.79                     | 0.48              |
| 1:A1:3072:G:H2'    | 1:A1:3073:U:C6     | 2.49                     | 0.48              |
| 1:A1:3190:A:N6     | 1:A1:3191:G:H22    | 2.12                     | 0.48              |
| 2:AA:2:THR:HG22    | 2:AA:4:GLY:H       | 1.79                     | 0.48              |
| 4:AC:19:THR:HG22   | 4:AC:20:ASN:N      | 2.29                     | 0.48              |
| 5:AE:157:ASP:O     | 5:AE:160:LEU:HB2   | 2.13                     | 0.48              |
| 6:AF:28:VAL:CG1    | 6:AF:66:ASN:HA     | 2.43                     | 0.48              |
| 6:AF:87:GLU:O      | 6:AF:92:LYS:HE3    | 2.13                     | 0.48              |
| 9:AJ:25:LEU:HD23   | 9:AJ:49:ILE:HB     | 1.95                     | 0.48              |
| 16:AQ:9:ILE:HD11   | 18:AU:187:ASN:CB   | 2.25                     | 0.48              |
| 22:BA:114:VAL:HG12 | 22:BA:115:CYS:N    | 2.28                     | 0.48              |
| 24:BC:333:LEU:HD21 | 43:BV:161:THR:O    | 2.13                     | 0.48              |
| 33:BL:203:TYR:O    | 33:BL:204:ARG:HB2  | 2.14                     | 0.48              |
| 34:BM:76:CYS:O     | 34:BM:105:LEU:HD11 | 2.12                     | 0.48              |
| 34:BM:163:LEU:HD21 | 34:BM:175:HIS:HB3  | 1.95                     | 0.48              |
| 40:BS:66:LYS:HE3   | 40:BS:106:THR:HG21 | 1.94                     | 0.48              |
| 43:BV:41:TRP:CG    | 43:BV:177:CYS:HG   | 2.32                     | 0.48              |
| 43:BV:84:ILE:HA    | 43:BV:110:ASN:O    | 2.13                     | 0.48              |
| 43:BV:85:ARG:CZ    | 43:BV:100:LEU:HD13 | 2.43                     | 0.48              |
| 20:C2:20:A:O2'     | 1:D1:681:A:H5'     | 2.14                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:C3:28:C:H5''    | 25:CD:137:ARG:HG2  | 1.96                     | 0.48              |
| 24:CC:145:ARG:HD2  | 24:CC:253:GLY:O    | 2.14                     | 0.48              |
| 25:CD:12:VAL:CG2   | 25:CD:162:TRP:CD1  | 2.97                     | 0.48              |
| 27:CF:153:ILE:HG22 | 27:CF:157:ILE:CG1  | 2.44                     | 0.48              |
| 29:CH:34:TYR:CE1   | 29:CH:92:HIS:CE1   | 3.02                     | 0.48              |
| 29:CH:84:ALA:O     | 29:CH:140:VAL:HG13 | 2.14                     | 0.48              |
| 34:CM:156:GLY:CA   | 34:CM:181:PRO:HG3  | 2.41                     | 0.48              |
| 34:CM:230:LYS:O    | 34:CM:234:THR:HB   | 2.14                     | 0.48              |
| 37:CP:54:TYR:CD1   | 1:D1:2713:U:H4'    | 2.48                     | 0.48              |
| 43:CV:34:MET:HA    | 43:CV:37:ARG:HD2   | 1.96                     | 0.48              |
| 43:CV:80:VAL:CG2   | 43:CV:188:VAL:HG23 | 2.43                     | 0.48              |
| 43:CV:170:LEU:O    | 43:CV:171:GLY:C    | 2.56                     | 0.48              |
| 43:CV:215:ARG:HH21 | 1:D1:1198:G:P      | 2.36                     | 0.48              |
| 46:CY:8:VAL:HG13   | 46:CY:11:THR:CB    | 2.43                     | 0.48              |
| 1:D1:144:A:C2'     | 1:D1:145:A:H5'     | 2.44                     | 0.48              |
| 1:D1:745:A:H2'     | 1:D1:746:A:O4'     | 2.14                     | 0.48              |
| 1:D1:1017:U:C6     | 1:D1:1017:U:H3'    | 2.48                     | 0.48              |
| 1:D1:1186:A:O2'    | 1:D1:1187:C:P      | 2.72                     | 0.48              |
| 1:D1:1248:G:O2'    | 1:D1:1249:G:OP2    | 2.31                     | 0.48              |
| 1:D1:1507:A:H1'    | 11:DL:4:ARG:HH21   | 1.78                     | 0.48              |
| 1:D1:1595:A:N7     | 1:D1:1596:U:C2     | 2.82                     | 0.48              |
| 1:D1:2187:C:O2     | 1:D1:2310:G:N2     | 2.42                     | 0.48              |
| 1:D1:2411:U:H4'    | 1:D1:2955:A:O4'    | 2.14                     | 0.48              |
| 1:D1:2738:G:C2'    | 1:D1:2739:C:H5'    | 2.44                     | 0.48              |
| 1:D1:3109:C:C6     | 10:DK:111:ARG:CZ   | 2.96                     | 0.48              |
| 1:D1:3191:G:O2'    | 1:D1:3192:C:P      | 2.71                     | 0.48              |
| 5:DE:41:LEU:CG     | 5:DE:68:GLN:OE1    | 2.53                     | 0.48              |
| 6:DF:26:VAL:CG1    | 6:DF:27:ILE:N      | 2.77                     | 0.48              |
| 6:DF:29:ASN:OD1    | 19:DX:109:ARG:NH2  | 2.47                     | 0.48              |
| 15:DP:53:PHE:HE1   | 15:DP:55:THR:HG22  | 1.79                     | 0.48              |
| 24:EC:41:VAL:O     | 24:EC:45:LEU:HG    | 2.14                     | 0.48              |
| 24:EC:95:ALA:CB    | 1:F1:1464:U:H4'    | 2.43                     | 0.48              |
| 24:EC:149:ILE:HG22 | 24:EC:149:ILE:O    | 2.12                     | 0.48              |
| 24:EC:258:TRP:CZ3  | 24:EC:266:LEU:HD21 | 2.49                     | 0.48              |
| 26:EE:87:LYS:O     | 26:EE:184:LEU:HB2  | 2.13                     | 0.48              |
| 26:EE:178:TYR:HB3  | 10:FK:89:TYR:CE2   | 2.49                     | 0.48              |
| 28:EG:9:UNK:O      | 28:EG:13:UNK:HB2   | 2.13                     | 0.48              |
| 29:EH:68:ALA:HA    | 29:EH:158:LYS:HG3  | 1.96                     | 0.48              |
| 30:EI:61:MET:HE3   | 30:EI:67:ARG:O     | 2.13                     | 0.48              |
| 30:EI:127:ARG:NH1  | 1:F1:1344:A:H5''   | 2.29                     | 0.48              |
| 31:EJ:86:ARG:HG3   | 31:EJ:99:PHE:O     | 2.13                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:EK:116:GLY:O    | 32:EK:137:ARG:NH1  | 2.47                     | 0.48              |
| 36:EO:133:LYS:CG   | 36:EO:134:ASN:H    | 2.24                     | 0.48              |
| 37:EP:82:GLY:CA    | 17:FT:16:SER:HB2   | 2.44                     | 0.48              |
| 41:ET:11:CYS:SG    | 41:ET:13:TYR:HD2   | 2.36                     | 0.48              |
| 43:EV:216:HIS:C    | 43:EV:222:GLY:HA3  | 2.39                     | 0.48              |
| 45:EX:41:ASP:OD2   | 1:F1:664:U:O4      | 2.32                     | 0.48              |
| 46:EY:44:LYS:NZ    | 1:F1:1751:A:OP1    | 2.44                     | 0.48              |
| 1:F1:315:U:C6      | 16:FQ:28:VAL:CG1   | 2.97                     | 0.48              |
| 1:F1:443:G:C6      | 1:F1:444:A:C6      | 3.02                     | 0.48              |
| 1:F1:470:C:H1'     | 1:F1:510:A:C2      | 2.49                     | 0.48              |
| 1:F1:541:A:O2'     | 1:F1:542:C:H5'     | 2.14                     | 0.48              |
| 1:F1:685:G:C2'     | 1:F1:686:U:OP2     | 2.62                     | 0.48              |
| 1:F1:718:A:H2'     | 1:F1:719:C:H6      | 1.76                     | 0.48              |
| 1:F1:987:A:O2'     | 1:F1:988:G:H5'     | 2.14                     | 0.48              |
| 1:F1:1063:C:H2'    | 1:F1:1064:C:O4'    | 2.14                     | 0.48              |
| 1:F1:1070:U:C2'    | 1:F1:1071:C:O5'    | 2.62                     | 0.48              |
| 1:F1:1319:C:H2'    | 1:F1:1320:U:C6     | 2.46                     | 0.48              |
| 1:F1:1595:A:N7     | 1:F1:1596:U:C2     | 2.82                     | 0.48              |
| 1:F1:1715:U:H2'    | 1:F1:1716:U:C6     | 2.48                     | 0.48              |
| 1:F1:1719:U:H4'    | 11:FL:24:LYS:O     | 2.14                     | 0.48              |
| 1:F1:1805:C:H2'    | 1:F1:1806:G:OP1    | 2.14                     | 0.48              |
| 1:F1:2133:U:OP2    | 50:F1:3989:HOH:O   | 2.19                     | 0.48              |
| 1:F1:2353:C:O2     | 1:F1:2353:C:C2'    | 2.61                     | 0.48              |
| 1:F1:2409:G:H2'    | 1:F1:2410:C:O5'    | 2.13                     | 0.48              |
| 1:F1:2673:C:H2'    | 1:F1:2674:A:C8     | 2.49                     | 0.48              |
| 1:F1:2939:G:H21    | 1:F1:2940:G:H1'    | 1.79                     | 0.48              |
| 1:F1:3056:C:C2     | 1:F1:3057:U:C5     | 3.02                     | 0.48              |
| 1:F1:3098:A:C2     | 1:F1:3115:C:N3     | 2.81                     | 0.48              |
| 1:F1:3204:A:H1'    | 1:F1:3207:A:H5''   | 1.96                     | 0.48              |
| 5:FE:157:ASP:O     | 5:FE:160:LEU:HB2   | 2.14                     | 0.48              |
| 15:FP:53:PHE:CE1   | 15:FP:55:THR:CG2   | 2.97                     | 0.48              |
| 16:FQ:60:GLU:CG    | 16:FQ:61:LEU:N     | 2.77                     | 0.48              |
| 20:G2:38:C:C4'     | 2:HA:71:ILE:HD13   | 2.38                     | 0.48              |
| 21:G3:45:U:OP1     | 34:GM:151:VAL:CG1  | 2.62                     | 0.48              |
| 22:GA:118:GLU:HB2  | 22:GA:163:CYS:HB3  | 1.96                     | 0.48              |
| 22:GA:187:PHE:HB2  | 22:GA:197:TRP:CZ3  | 2.49                     | 0.48              |
| 23:GB:220:LYS:HD2  | 1:H1:3036:U:C5'    | 2.44                     | 0.48              |
| 23:GB:250:ILE:HD13 | 23:GB:250:ILE:HA   | 1.69                     | 0.48              |
| 24:GC:149:ILE:HG22 | 24:GC:149:ILE:O    | 2.14                     | 0.48              |
| 24:GC:300:ASN:HA   | 24:GC:305:GLN:HE21 | 1.79                     | 0.48              |
| 26:GE:23:ARG:HE    | 1:H1:3168:A:H3'    | 1.79                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 26:GE:135:LYS:HB2 | 26:GE:138:GLU:HG2  | 1.95                     | 0.48              |
| 29:GH:36:SER:OG   | 29:GH:87:LEU:HB3   | 2.13                     | 0.48              |
| 32:GK:77:ILE:HG23 | 32:GK:118:LEU:HG   | 1.96                     | 0.48              |
| 34:GM:131:ASN:OD1 | 34:GM:172:ASN:HA   | 2.13                     | 0.48              |
| 34:GM:176:SER:OG  | 1:H1:2735:A:O3'    | 2.24                     | 0.48              |
| 45:GX:44:VAL:CG1  | 45:GX:54:MET:HE2   | 2.37                     | 0.48              |
| 45:GX:84:LEU:HD13 | 45:GX:113:ARG:HB3  | 1.95                     | 0.48              |
| 1:H1:181:U:C2'    | 1:H1:182:C:H5'     | 2.44                     | 0.48              |
| 1:H1:282:G:N2     | 1:H1:304:U:C4'     | 2.60                     | 0.48              |
| 1:H1:591:G:C2'    | 1:H1:592:A:O5'     | 2.62                     | 0.48              |
| 1:H1:605:C:O4'    | 19:HX:6:ALA:HA     | 2.14                     | 0.48              |
| 1:H1:651:U:C4     | 1:H1:652:U:C4      | 3.01                     | 0.48              |
| 1:H1:712:G:N2     | 1:H1:713:G:O6      | 2.47                     | 0.48              |
| 1:H1:777:C:H2'    | 1:H1:778:G:H8      | 1.78                     | 0.48              |
| 1:H1:970:C:C2     | 1:H1:971:C:C6      | 3.02                     | 0.48              |
| 1:H1:1050:C:C2    | 1:H1:1051:C:C2     | 3.02                     | 0.48              |
| 1:H1:1397:G:O2'   | 1:H1:1398:G:H5'    | 2.14                     | 0.48              |
| 1:H1:1521:U:H1'   | 3:HB:44:TRP:CZ2    | 2.48                     | 0.48              |
| 1:H1:1752:G:H4'   | 1:H1:1753:A:OP2    | 2.11                     | 0.48              |
| 1:H1:1815:G:H2'   | 1:H1:1816:A:H8     | 1.79                     | 0.48              |
| 1:H1:1902:C:H2'   | 1:H1:1903:A:H5''   | 1.95                     | 0.48              |
| 1:H1:2305:U:O2'   | 1:H1:2306:G:H5'    | 2.14                     | 0.48              |
| 1:H1:2377:G:H2'   | 1:H1:2378:A:H5'    | 1.96                     | 0.48              |
| 1:H1:2801:A:N6    | 1:H1:2802:G:C6     | 2.82                     | 0.48              |
| 1:H1:2906:G:H5''  | 1:H1:2906:G:C8     | 2.47                     | 0.48              |
| 1:H1:3175:A:H4'   | 1:H1:3176:A:OP1    | 2.14                     | 0.48              |
| 9:HJ:143:ALA:C    | 9:HJ:144:ASN:ND2   | 2.56                     | 0.48              |
| 11:HL:59:VAL:HG11 | 11:HL:63:GLU:HB3   | 1.95                     | 0.48              |
| 13:HN:24:VAL:C    | 13:HN:43:VAL:HG13  | 2.38                     | 0.48              |
| 13:HN:90:LEU:O    | 13:HN:121:LYS:HE3  | 2.14                     | 0.48              |
| 13:HN:101:LYS:CA  | 13:HN:106:ALA:HB3  | 2.43                     | 0.48              |
| 19:HX:7:GLN:HE22  | 19:HX:80:GLU:CB    | 2.24                     | 0.48              |
| 19:HX:57:TYR:O    | 19:HX:60:ARG:HG2   | 2.13                     | 0.48              |
| 1:A1:94:A:C2      | 1:A1:95:U:C6       | 3.02                     | 0.48              |
| 1:A1:157:A:O5'    | 16:AQ:25:HIS:CE1   | 2.67                     | 0.48              |
| 1:A1:566:U:C5     | 1:A1:567:C:C6      | 3.02                     | 0.48              |
| 1:A1:719:C:OP1    | 24:BC:125:LYS:HD3  | 2.14                     | 0.48              |
| 1:A1:877:U:C4     | 46:BY:2:ALA:N      | 2.81                     | 0.48              |
| 1:A1:941:G:C5     | 22:BA:208:VAL:HG21 | 2.48                     | 0.48              |
| 1:A1:1159:C:C2'   | 1:A1:1160:A:H5'    | 2.44                     | 0.48              |
| 1:A1:1370:A:N1    | 1:A1:1389:G:C6     | 2.82                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1832:G:OP1    | 11:AL:77:VAL:O     | 2.32                     | 0.48              |
| 1:A1:2242:G:C2'    | 1:A1:2243:C:H5'    | 2.44                     | 0.48              |
| 1:A1:2259:U:H2'    | 1:A1:2260:C:C6     | 2.49                     | 0.48              |
| 1:A1:2727:A:H5''   | 17:AT:36:ASN:HB2   | 1.95                     | 0.48              |
| 1:A1:3191:G:O2'    | 1:A1:3192:C:P      | 2.71                     | 0.48              |
| 1:A1:3229:C:C2     | 5:AE:57:ARG:HG3    | 2.49                     | 0.48              |
| 2:AA:14:LYS:HZ3    | 3:AB:52:TYR:HE1    | 1.60                     | 0.48              |
| 5:AE:63:VAL:CG1    | 5:AE:64:VAL:N      | 2.76                     | 0.48              |
| 7:AG:27:TYR:HE2    | 7:AG:52:ARG:HG2    | 1.78                     | 0.48              |
| 7:AG:43:PHE:CE1    | 7:AG:68:HIS:HD2    | 2.29                     | 0.48              |
| 9:AJ:62:VAL:O      | 9:AJ:73:PRO:HD3    | 2.13                     | 0.48              |
| 14:AO:7:GLU:HB2    | 35:BN:25:VAL:CG1   | 2.44                     | 0.48              |
| 20:B2:60:C:O2'     | 20:B2:61:G:H5'     | 2.14                     | 0.48              |
| 20:B2:111:A:H2'    | 20:B2:112:G:H5''   | 1.95                     | 0.48              |
| 20:B2:111:A:H8     | 20:B2:111:A:O5'    | 1.97                     | 0.48              |
| 21:B3:96:U:H2'     | 21:B3:97:G:H5''    | 1.94                     | 0.48              |
| 22:BA:187:PHE:HB2  | 22:BA:197:TRP:CZ3  | 2.49                     | 0.48              |
| 23:BB:210:ASN:ND2  | 23:BB:352:ILE:N    | 2.57                     | 0.48              |
| 24:BC:91:ARG:O     | 24:BC:91:ARG:HG3   | 2.13                     | 0.48              |
| 24:BC:348:ALA:C    | 24:BC:350:ALA:H    | 2.21                     | 0.48              |
| 29:BH:50:VAL:CG1   | 29:BH:152:LEU:HD12 | 2.44                     | 0.48              |
| 33:BL:80:VAL:CG1   | 33:BL:87:VAL:HG13  | 2.43                     | 0.48              |
| 34:BM:90:THR:O     | 34:BM:231:TRP:CZ3  | 2.67                     | 0.48              |
| 35:BN:31:ILE:CG2   | 35:BN:35:LYS:HE3   | 2.44                     | 0.48              |
| 46:BY:55:TRP:CZ2   | 46:BY:70:GLU:C     | 2.91                     | 0.48              |
| 20:C2:58:U:C2      | 20:C2:65:C:H5      | 2.32                     | 0.48              |
| 23:CB:230:ARG:NH2  | 23:CB:267:GLN:O    | 2.39                     | 0.48              |
| 24:CC:26:PRO:HG2   | 24:CC:29:PHE:CD1   | 2.49                     | 0.48              |
| 24:CC:80:ARG:HH11  | 1:D1:830:G:H1'     | 1.78                     | 0.48              |
| 24:CC:359:LEU:CD2  | 24:CC:363:ARG:HH21 | 2.26                     | 0.48              |
| 26:CE:113:LYS:HD2  | 26:CE:114:HIS:N    | 2.29                     | 0.48              |
| 27:CF:66:VAL:HB    | 27:CF:226:GLY:O    | 2.13                     | 0.48              |
| 27:CF:69:GLN:HG2   | 27:CF:222:ARG:HH12 | 1.78                     | 0.48              |
| 29:CH:139:ARG:HB3  | 29:CH:173:PHE:CE1  | 2.49                     | 0.48              |
| 33:CL:64:VAL:CG2   | 33:CL:106:VAL:HG22 | 2.43                     | 0.48              |
| 33:CL:67:ARG:O     | 50:CL:412:HOH:O    | 2.19                     | 0.48              |
| 33:CL:142:ILE:HG23 | 33:CL:148:ILE:HG22 | 1.96                     | 0.48              |
| 43:CV:72:PHE:HD1   | 43:CV:73:TYR:N     | 2.11                     | 0.48              |
| 1:D1:68:A:H1'      | 1:D1:70:C:H41      | 1.79                     | 0.48              |
| 1:D1:120:A:C4'     | 1:D1:121:A:O5'     | 2.56                     | 0.48              |
| 1:D1:170:A:C5      | 1:D1:250:U:C4      | 3.01                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1048:U:N3     | 1:D1:1049:U:C5     | 2.82                     | 0.48              |
| 1:D1:1112:A:C6     | 1:D1:1113:A:N6     | 2.82                     | 0.48              |
| 1:D1:1572:A:H2'    | 1:D1:1573:A:O4'    | 2.14                     | 0.48              |
| 1:D1:1642:G:C2     | 1:D1:1852:A:C2     | 3.02                     | 0.48              |
| 1:D1:1740:U:H5''   | 1:D1:1741:U:OP2    | 2.14                     | 0.48              |
| 1:D1:2251:A:H2'    | 1:D1:2251:A:N3     | 2.29                     | 0.48              |
| 1:D1:2521:A:N1     | 1:D1:2522:A:C6     | 2.81                     | 0.48              |
| 1:D1:2667:A:C6     | 1:D1:2668:A:C6     | 3.02                     | 0.48              |
| 1:D1:2730:C:H2'    | 1:D1:2731:C:O5'    | 2.14                     | 0.48              |
| 1:D1:3235:U:N3     | 8:DH:12:THR:O      | 2.46                     | 0.48              |
| 1:D1:3298:U:H1'    | 1:D1:3299:G:P      | 2.53                     | 0.48              |
| 2:DA:28:HIS:HD2    | 2:DA:31:LYS:N      | 1.99                     | 0.48              |
| 5:DE:69:LEU:HD21   | 5:DE:114:ASP:HA    | 1.96                     | 0.48              |
| 8:DH:43:ASN:O      | 8:DH:84:ASN:HA     | 2.13                     | 0.48              |
| 12:DM:13:VAL:HG12  | 12:DM:14:ASN:N     | 2.28                     | 0.48              |
| 13:DN:36:ARG:NH1   | 13:DN:74:TYR:CB    | 2.77                     | 0.48              |
| 13:DN:115:LYS:O    | 13:DN:119:VAL:HG23 | 2.14                     | 0.48              |
| 19:DX:87:LYS:HG3   | 19:DX:89:TYR:CZ    | 2.49                     | 0.48              |
| 20:E2:28:G:N7      | 40:ES:12:ARG:NH2   | 2.62                     | 0.48              |
| 20:E2:108:G:H4'    | 20:E2:135:A:H5'    | 1.96                     | 0.48              |
| 22:EA:175:ARG:NH2  | 1:F1:2175:A:OP1    | 2.46                     | 0.48              |
| 22:EA:181:LEU:HD12 | 46:EY:14:TYR:CE1   | 2.49                     | 0.48              |
| 23:EB:250:ILE:CG1  | 1:F1:2388:G:H4'    | 2.42                     | 0.48              |
| 23:EB:252:ALA:HB1  | 1:F1:2931:G:O2'    | 2.13                     | 0.48              |
| 23:EB:376:LYS:HZ1  | 9:HJ:41:GLU:C      | 2.22                     | 0.48              |
| 24:EC:55:VAL:CG1   | 1:F1:345:C:OP1     | 2.62                     | 0.48              |
| 24:EC:159:PHE:CZ   | 24:EC:179:VAL:CG1  | 2.96                     | 0.48              |
| 27:EF:56:GLN:OE1   | 27:EF:56:GLN:HA    | 2.13                     | 0.48              |
| 29:EH:40:LYS:HD2   | 1:F1:1037:A:OP1    | 2.13                     | 0.48              |
| 32:EK:106:LYS:HD3  | 18:FU:160:SER:CB   | 2.40                     | 0.48              |
| 33:EL:26:ARG:C     | 33:EL:30:TYR:HD1   | 2.22                     | 0.48              |
| 34:EM:65:VAL:HA    | 34:EM:73:ARG:O     | 2.13                     | 0.48              |
| 35:EN:89:ASN:OD1   | 35:EN:89:ASN:C     | 2.56                     | 0.48              |
| 36:EO:60:ARG:O     | 36:EO:61:SER:C     | 2.55                     | 0.48              |
| 36:EO:96:MET:O     | 36:EO:100:ARG:HG3  | 2.13                     | 0.48              |
| 39:ER:76:THR:O     | 39:ER:76:THR:CG2   | 2.62                     | 0.48              |
| 39:ER:145:ASN:HA   | 39:ER:150:ILE:HD11 | 1.96                     | 0.48              |
| 42:EU:97:THR:HG22  | 42:EU:99:LYS:H     | 1.78                     | 0.48              |
| 43:EV:42:ILE:HG22  | 43:EV:46:GLN:NE2   | 2.28                     | 0.48              |
| 43:EV:98:ARG:HH12  | 43:EV:101:ARG:NH1  | 2.11                     | 0.48              |
| 1:F1:296:G:H3'     | 16:FQ:34:LEU:HD21  | 1.96                     | 0.48              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:969:C:H1'     | 1:F1:1457:G:N2     | 2.29                     | 0.48              |
| 1:F1:1254:C:C3'    | 1:F1:1255:A:H5''   | 2.43                     | 0.48              |
| 1:F1:1406:G:N2     | 50:F1:3744:HOH:O   | 2.47                     | 0.48              |
| 1:F1:1682:G:C5     | 1:F1:1822:G:C6     | 3.02                     | 0.48              |
| 1:F1:1691:U:H2'    | 1:F1:1692:G:C8     | 2.49                     | 0.48              |
| 1:F1:2119:G:H8     | 1:F1:2119:G:H5''   | 1.78                     | 0.48              |
| 1:F1:2219:A:OP1    | 16:FQ:78:ARG:CZ    | 2.62                     | 0.48              |
| 1:F1:2849:U:C2     | 1:F1:2850:U:C6     | 3.01                     | 0.48              |
| 1:F1:3046:A:H5''   | 1:F1:3047:U:OP2    | 2.13                     | 0.48              |
| 1:F1:3085:C:H2'    | 1:F1:3086:U:C6     | 2.49                     | 0.48              |
| 5:FE:78:GLY:O      | 5:FE:79:PRO:C      | 2.55                     | 0.48              |
| 5:FE:113:GLU:OE1   | 5:FE:113:GLU:HA    | 2.14                     | 0.48              |
| 8:FH:9:VAL:HG12    | 8:FH:10:ALA:H      | 1.79                     | 0.48              |
| 13:FN:114:LEU:HD22 | 13:FN:118:PHE:CE1  | 2.46                     | 0.48              |
| 19:FX:7:GLN:HE22   | 19:FX:80:GLU:N     | 2.12                     | 0.48              |
| 19:FX:188:THR:C    | 19:FX:189:PHE:CG   | 2.90                     | 0.48              |
| 20:G2:17:U:H5''    | 20:G2:18:G:OP2     | 2.14                     | 0.48              |
| 20:G2:22:A:O2'     | 20:G2:23:U:H5'     | 2.14                     | 0.48              |
| 20:G2:60:C:N4      | 2:HA:64:ARG:NH1    | 2.62                     | 0.48              |
| 20:G2:93:A:H2'     | 20:G2:94:U:H6      | 1.79                     | 0.48              |
| 22:GA:3:ARG:HB2    | 22:GA:208:VAL:HG12 | 1.95                     | 0.48              |
| 23:GB:172:LYS:HA   | 23:GB:172:LYS:HD2  | 1.44                     | 0.48              |
| 25:GD:124:GLY:HA3  | 1:H1:2663:A:C2     | 2.49                     | 0.48              |
| 29:GH:46:PHE:HZ    | 29:GH:83:ASP:O     | 1.96                     | 0.48              |
| 34:GM:49:TYR:O     | 34:GM:144:ALA:HA   | 2.14                     | 0.48              |
| 35:GN:89:ASN:ND2   | 35:GN:109:THR:HG22 | 2.22                     | 0.48              |
| 40:GS:18:HIS:CE1   | 40:GS:77:TRP:CH2   | 3.02                     | 0.48              |
| 41:GT:35:THR:HG21  | 41:GT:37:LYS:HG2   | 1.94                     | 0.48              |
| 43:GV:34:MET:HA    | 43:GV:37:ARG:HD2   | 1.95                     | 0.48              |
| 45:GX:79:ARG:HH12  | 1:H1:1448:G:C2'    | 2.26                     | 0.48              |
| 1:H1:497:G:H2'     | 1:H1:498:A:H5'     | 1.94                     | 0.48              |
| 1:H1:666:U:H5'     | 1:H1:1143:G:O6     | 2.14                     | 0.48              |
| 1:H1:974:C:H2'     | 1:H1:975:G:O4'     | 2.13                     | 0.48              |
| 1:H1:1235:U:C6     | 10:HK:109:ASN:ND2  | 2.77                     | 0.48              |
| 1:H1:2509:U:OP1    | 1:H1:2509:U:H6     | 1.96                     | 0.48              |
| 1:H1:2557:A:H2'    | 1:H1:2558:U:C6     | 2.49                     | 0.48              |
| 1:H1:2667:A:C6     | 1:H1:2668:A:C6     | 3.02                     | 0.48              |
| 1:H1:2703:G:O6     | 1:H1:2730:C:N3     | 2.47                     | 0.48              |
| 1:H1:2732:G:C6     | 1:H1:2733:C:N4     | 2.82                     | 0.48              |
| 1:H1:2886:G:H5''   | 1:H1:2887:C:H5'    | 1.96                     | 0.48              |
| 1:H1:3305:A:C2     | 1:H1:3315:A:C2     | 3.02                     | 0.48              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 2:HA:26:THR:O      | 2:HA:34:CYS:HA    | 2.14                     | 0.48              |
| 5:HE:62:ARG:CZ     | 6:HF:105:ASP:OD1  | 2.62                     | 0.48              |
| 8:HH:58:TYR:CE2    | 8:HH:60:TYR:CD2   | 3.02                     | 0.48              |
| 9:HJ:215:ILE:O     | 9:HJ:219:GLU:HG3  | 2.14                     | 0.48              |
| 1:A1:8:U:H2'       | 1:A1:9:G:O4'      | 2.14                     | 0.47              |
| 1:A1:49:A:O2'      | 1:A1:50:A:H5'     | 2.13                     | 0.47              |
| 1:A1:213:A:N6      | 1:A1:227:G:C2'    | 2.77                     | 0.47              |
| 1:A1:281:G:H5''    | 1:A1:282:G:P      | 2.52                     | 0.47              |
| 1:A1:300:G:H8      | 1:A1:300:G:H5'    | 1.78                     | 0.47              |
| 1:A1:557:U:O2'     | 1:A1:558:U:H5'    | 2.14                     | 0.47              |
| 1:A1:579:G:H1      | 6:AF:29:ASN:HD21  | 1.61                     | 0.47              |
| 1:A1:656:C:P       | 30:BI:92:PRO:HG2  | 2.54                     | 0.47              |
| 1:A1:703:U:O2'     | 1:A1:704:G:H5'    | 2.13                     | 0.47              |
| 1:A1:974:C:H2'     | 1:A1:975:G:O4'    | 2.14                     | 0.47              |
| 1:A1:1035:A:C2     | 1:A1:1068:U:C1'   | 2.95                     | 0.47              |
| 1:A1:1490:G:N2     | 1:A1:1493:A:OP2   | 2.46                     | 0.47              |
| 1:A1:1507:A:N1     | 11:AL:2:ALA:HB3   | 2.28                     | 0.47              |
| 1:A1:1655:A:C4     | 1:A1:1669:G:C5    | 3.02                     | 0.47              |
| 1:A1:1666:A:H5'    | 1:A1:1667:A:OP2   | 2.14                     | 0.47              |
| 1:A1:1703:A:H2'    | 1:A1:1704:G:H8    | 1.79                     | 0.47              |
| 1:A1:1715:U:H2'    | 1:A1:1716:U:C6    | 2.49                     | 0.47              |
| 1:A1:2395:G:N7     | 1:A1:2396:A:N6    | 2.61                     | 0.47              |
| 1:A1:2409:G:H2'    | 1:A1:2410:C:O5'   | 2.14                     | 0.47              |
| 1:A1:2914:A:H2'    | 1:A1:2915:C:C6    | 2.49                     | 0.47              |
| 1:A1:2962:U:H2'    | 1:A1:2963:U:C6    | 2.49                     | 0.47              |
| 1:A1:3077:G:H2'    | 1:A1:3078:C:C6    | 2.49                     | 0.47              |
| 8:AH:58:TYR:HD2    | 8:AH:73:ILE:HD12  | 1.79                     | 0.47              |
| 9:AJ:46:ILE:HD11   | 9:AJ:202:TRP:CZ2  | 2.49                     | 0.47              |
| 9:AJ:115:ALA:HB2   | 9:AJ:135:VAL:HG11 | 1.95                     | 0.47              |
| 13:AN:36:ARG:NH1   | 13:AN:74:TYR:CB   | 2.77                     | 0.47              |
| 20:B2:61:G:C2'     | 20:B2:100:C:O2'   | 2.62                     | 0.47              |
| 21:B3:83:G:C2      | 21:B3:93:G:N2     | 2.82                     | 0.47              |
| 22:BA:169:ILE:HG22 | 22:BA:170:VAL:O   | 2.14                     | 0.47              |
| 23:BB:111:ASP:OD1  | 23:BB:111:ASP:N   | 2.47                     | 0.47              |
| 24:BC:159:PHE:CZ   | 24:BC:179:VAL:CG1 | 2.97                     | 0.47              |
| 29:BH:19:LYS:HG3   | 29:BH:26:VAL:HG11 | 1.96                     | 0.47              |
| 30:BI:79:PHE:O     | 30:BI:82:ALA:HB3  | 2.14                     | 0.47              |
| 32:BK:46:LEU:HD23  | 32:BK:46:LEU:HA   | 1.70                     | 0.47              |
| 34:BM:34:LYS:HA    | 34:BM:37:ILE:HG22 | 1.96                     | 0.47              |
| 34:BM:181:PRO:HD2  | 34:BM:200:HIS:ND1 | 2.29                     | 0.47              |
| 43:BV:128:LEU:O    | 43:BV:224:TRP:HB2 | 2.14                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:CB:56:ILE:HG21  | 23:CB:354:LEU:CD2  | 2.41                     | 0.47              |
| 23:CB:56:ILE:HD11  | 23:CB:321:MET:CE   | 2.43                     | 0.47              |
| 23:CB:282:ARG:NH2  | 23:CB:293:SER:O    | 2.27                     | 0.47              |
| 24:CC:276:THR:HG23 | 24:CC:277:GLY:N    | 2.29                     | 0.47              |
| 26:CE:167:GLU:O    | 26:CE:168:LYS:HG2  | 2.14                     | 0.47              |
| 26:CE:168:LYS:HB2  | 26:CE:173:PHE:CE2  | 2.49                     | 0.47              |
| 27:CF:19:ASN:CB    | 27:CF:20:PRO:HD3   | 2.35                     | 0.47              |
| 27:CF:122:PRO:CG   | 1:D1:119:A:H2      | 2.23                     | 0.47              |
| 32:CK:88:THR:CG2   | 18:DU:164:LYS:HZ1  | 2.27                     | 0.47              |
| 33:CL:119:TYR:CE1  | 33:CL:131:GLU:HB2  | 2.49                     | 0.47              |
| 34:CM:231:TRP:HZ2  | 34:CM:243:VAL:HG21 | 1.79                     | 0.47              |
| 35:CN:75:THR:O     | 35:CN:79:GLN:HG3   | 2.14                     | 0.47              |
| 35:CN:173:LYS:HE2  | 1:D1:87:A:OP2      | 2.13                     | 0.47              |
| 1:D1:566:U:C5      | 1:D1:567:C:C6      | 3.02                     | 0.47              |
| 1:D1:871:A:C6      | 1:D1:872:A:C6      | 3.02                     | 0.47              |
| 1:D1:1235:U:H4'    | 1:D1:1235:U:OP2    | 2.13                     | 0.47              |
| 1:D1:1779:C:N4     | 50:D1:4876:HOH:O   | 2.47                     | 0.47              |
| 1:D1:1845:U:H5'    | 1:D1:1846:C:OP2    | 2.14                     | 0.47              |
| 1:D1:1902:C:H2'    | 1:D1:1903:A:H5''   | 1.96                     | 0.47              |
| 1:D1:2245:G:C5     | 1:D1:2246:G:N7     | 2.82                     | 0.47              |
| 1:D1:2731:C:H4'    | 4:DC:18:HIS:CD2    | 2.49                     | 0.47              |
| 1:D1:3047:U:H3'    | 1:D1:3047:U:C6     | 2.48                     | 0.47              |
| 11:DL:56:ILE:HG23  | 11:DL:71:ALA:O     | 2.14                     | 0.47              |
| 21:E3:5:U:H2'      | 21:E3:6:C:H6       | 1.79                     | 0.47              |
| 23:EB:46:PHE:CZ    | 23:EB:84:MET:HG3   | 2.49                     | 0.47              |
| 24:EC:147:HIS:NE2  | 24:EC:254:ARG:HG3  | 2.28                     | 0.47              |
| 24:EC:275:THR:CG2  | 24:EC:276:THR:N    | 2.77                     | 0.47              |
| 24:EC:333:LEU:CD2  | 43:EV:161:THR:O    | 2.62                     | 0.47              |
| 25:ED:32:LYS:HE2   | 25:ED:119:SER:HA   | 1.95                     | 0.47              |
| 26:EE:34:ILE:HD11  | 26:EE:147:ILE:CG2  | 2.40                     | 0.47              |
| 27:EF:58:ARG:HG2   | 1:F1:2574:U:O2     | 2.14                     | 0.47              |
| 27:EF:127:TYR:C    | 27:EF:127:TYR:HD1  | 2.19                     | 0.47              |
| 34:EM:136:GLN:HB3  | 34:EM:141:PRO:HD3  | 1.94                     | 0.47              |
| 38:EQ:85:TRP:O     | 38:EQ:87:VAL:N     | 2.46                     | 0.47              |
| 43:EV:185:ILE:HA   | 43:EV:192:PHE:CE1  | 2.49                     | 0.47              |
| 44:EW:43:MET:HG3   | 44:EW:90:THR:CG2   | 2.43                     | 0.47              |
| 1:F1:22:U:H2'      | 1:F1:23:U:C6       | 2.49                     | 0.47              |
| 1:F1:42:U:H1'      | 4:FC:52:THR:HG23   | 1.96                     | 0.47              |
| 1:F1:111:C:C2'     | 1:F1:112:A:H5'     | 2.42                     | 0.47              |
| 1:F1:440:C:N4      | 1:F1:538:A:C2      | 2.82                     | 0.47              |
| 1:F1:558:U:O2'     | 1:F1:559:G:H5'     | 2.14                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:882:G:H2'     | 1:F1:883:A:OP2     | 2.13                     | 0.47              |
| 1:F1:1027:G:N7     | 1:F1:1068:U:OP2    | 2.47                     | 0.47              |
| 1:F1:1095:C:C4'    | 1:F1:1096:G:OP2    | 2.62                     | 0.47              |
| 1:F1:1217:A:H62    | 1:F1:1342:U:H3     | 1.60                     | 0.47              |
| 1:F1:1231:A:H2'    | 1:F1:1232:A:H5'    | 1.96                     | 0.47              |
| 1:F1:1370:A:N1     | 1:F1:1389:G:C6     | 2.82                     | 0.47              |
| 1:F1:2517:G:C4'    | 1:F1:2518:A:OP2    | 2.58                     | 0.47              |
| 1:F1:2521:A:N1     | 1:F1:2522:A:C6     | 2.81                     | 0.47              |
| 1:F1:3141:U:OP1    | 1:F1:3253:U:H1'    | 2.14                     | 0.47              |
| 1:F1:3190:A:N6     | 1:F1:3191:G:H22    | 2.12                     | 0.47              |
| 5:FE:173:TYR:OH    | 6:FF:105:ASP:HB3   | 2.13                     | 0.47              |
| 8:FH:44:THR:O      | 8:FH:48:VAL:HG23   | 2.14                     | 0.47              |
| 9:FJ:213:THR:O     | 9:FJ:216:SER:HB2   | 2.14                     | 0.47              |
| 12:FM:98:THR:CG2   | 12:FM:99:SER:N     | 2.77                     | 0.47              |
| 13:FN:23:ALA:CB    | 13:FN:43:VAL:HG12  | 2.42                     | 0.47              |
| 13:FN:53:VAL:HG11  | 13:FN:62:ILE:HG23  | 1.95                     | 0.47              |
| 15:FP:42:PHE:C     | 15:FP:43:LYS:HG2   | 2.39                     | 0.47              |
| 17:FT:41:ARG:O     | 17:FT:45:ARG:HG3   | 2.13                     | 0.47              |
| 20:G2:81:G:H4'     | 42:GU:42:ALA:HB1   | 1.96                     | 0.47              |
| 22:GA:16:VAL:CG2   | 1:H1:936:C:C5'     | 2.92                     | 0.47              |
| 23:GB:58:ARG:HH21  | 23:GB:60:VAL:HG12  | 1.78                     | 0.47              |
| 24:GC:145:ARG:HH22 | 24:GC:248:PRO:HB2  | 1.79                     | 0.47              |
| 24:GC:195:ARG:HH11 | 24:GC:204:ARG:HB2  | 1.78                     | 0.47              |
| 29:GH:138:VAL:CG2  | 29:GH:152:LEU:HD11 | 2.44                     | 0.47              |
| 30:GI:196:PHE:HE2  | 6:HF:110:ARG:CD    | 2.22                     | 0.47              |
| 31:GJ:11:VAL:CG2   | 31:GJ:131:PRO:HD3  | 2.44                     | 0.47              |
| 33:GL:203:TYR:O    | 33:GL:204:ARG:HB2  | 2.14                     | 0.47              |
| 35:GN:155:ALA:CB   | 35:GN:158:GLN:NE2  | 2.69                     | 0.47              |
| 38:GQ:34:VAL:O     | 38:GQ:38:ILE:HG13  | 2.14                     | 0.47              |
| 38:GQ:61:PRO:HG2   | 38:GQ:78:PHE:CD1   | 2.49                     | 0.47              |
| 38:GQ:126:LYS:HE2  | 38:GQ:144:SER:HB3  | 1.96                     | 0.47              |
| 39:GR:121:LEU:HD21 | 1:H1:1549:U:C4'    | 2.42                     | 0.47              |
| 45:GX:98:ILE:C     | 45:GX:123:ASN:HD21 | 2.22                     | 0.47              |
| 1:H1:33:A:O2'      | 1:H1:34:C:H5'      | 2.13                     | 0.47              |
| 1:H1:632:G:C5      | 1:H1:633:C:C5      | 3.01                     | 0.47              |
| 1:H1:727:C:H2'     | 1:H1:728:G:H8      | 1.79                     | 0.47              |
| 1:H1:983:U:OP1     | 1:H1:2787:A:H3'    | 2.14                     | 0.47              |
| 1:H1:1050:C:H2'    | 1:H1:1051:C:H1'    | 1.92                     | 0.47              |
| 1:H1:1191:G:H2'    | 1:H1:1192:A:C8     | 2.45                     | 0.47              |
| 1:H1:1215:U:N3     | 1:H1:1344:A:N6     | 2.60                     | 0.47              |
| 1:H1:2703:G:OP2    | 1:H1:2705:U:C1'    | 2.58                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:3019:G:C5    | 1:H1:3020:G:C5     | 3.02                     | 0.47              |
| 1:H1:3077:G:H2'   | 1:H1:3078:C:C6     | 2.49                     | 0.47              |
| 2:HA:28:HIS:HD2   | 2:HA:31:LYS:N      | 1.97                     | 0.47              |
| 5:HE:42:ARG:H     | 5:HE:92:GLN:HE21   | 1.61                     | 0.47              |
| 9:HJ:49:ILE:HD11  | 9:HJ:88:LEU:HD13   | 1.96                     | 0.47              |
| 11:HL:73:THR:HG22 | 11:HL:74:VAL:N     | 2.27                     | 0.47              |
| 13:HN:38:PHE:HE2  | 13:HN:76:ASN:HB2   | 1.78                     | 0.47              |
| 15:HP:11:PHE:O    | 15:HP:15:TRP:CD1   | 2.67                     | 0.47              |
| 1:A1:53:G:H5'     | 1:A1:1573:A:O2'    | 2.13                     | 0.47              |
| 1:A1:118:A:C8     | 27:BF:122:PRO:CD   | 2.97                     | 0.47              |
| 1:A1:451:A:H2'    | 1:A1:452:U:O4'     | 2.14                     | 0.47              |
| 1:A1:453:A:H61    | 1:A1:524:G:H2'     | 1.72                     | 0.47              |
| 1:A1:636:U:H4'    | 5:AE:34:LYS:HE2    | 1.96                     | 0.47              |
| 1:A1:970:C:C2     | 1:A1:971:C:C5      | 3.02                     | 0.47              |
| 1:A1:1185:A:C3'   | 1:A1:1186:A:C5'    | 2.87                     | 0.47              |
| 1:A1:1539:G:H2'   | 1:A1:1541:U:C5     | 2.49                     | 0.47              |
| 1:A1:1549:U:C4'   | 39:BR:121:LEU:HD21 | 2.44                     | 0.47              |
| 1:A1:1698:G:C6    | 1:A1:1800:A:N1     | 2.81                     | 0.47              |
| 1:A1:1808:A:H2'   | 1:A1:1809:C:C6     | 2.49                     | 0.47              |
| 1:A1:2715:C:H3'   | 1:A1:2717:G:N2     | 2.29                     | 0.47              |
| 1:A1:2727:A:HO2'  | 1:A1:2728:A:P      | 2.37                     | 0.47              |
| 1:A1:3035:A:C2    | 1:A1:3036:U:C2     | 3.02                     | 0.47              |
| 1:A1:3079:U:O2'   | 1:A1:3080:A:C5'    | 2.62                     | 0.47              |
| 1:A1:3174:U:OP1   | 1:A1:3174:U:C6     | 2.67                     | 0.47              |
| 2:AA:62:THR:CG2   | 2:AA:63:GLY:N      | 2.77                     | 0.47              |
| 3:AB:2:GLY:CA     | 50:AB:105:HOH:O    | 2.62                     | 0.47              |
| 5:AE:179:THR:CG2  | 5:AE:180:LEU:N     | 2.76                     | 0.47              |
| 13:AN:26:VAL:HG22 | 13:AN:93:PHE:HB3   | 1.96                     | 0.47              |
| 13:AN:111:ARG:O   | 13:AN:115:LYS:HG3  | 2.13                     | 0.47              |
| 14:AO:62:LEU:O    | 14:AO:63:ARG:C     | 2.56                     | 0.47              |
| 18:AU:58:LYS:HB2  | 18:AU:63:TYR:CB    | 2.42                     | 0.47              |
| 21:B3:11:A:P      | 34:BM:18:THR:HG21  | 2.54                     | 0.47              |
| 21:B3:64:A:OP2    | 29:BH:203:ARG:HD2  | 2.14                     | 0.47              |
| 22:BA:3:ARG:HB3   | 22:BA:208:VAL:O    | 2.14                     | 0.47              |
| 23:BB:78:VAL:HG21 | 23:BB:303:ILE:HG21 | 1.96                     | 0.47              |
| 23:BB:110:ILE:CG2 | 23:BB:114:THR:HG21 | 2.43                     | 0.47              |
| 24:BC:95:ALA:HB1  | 24:BC:101:CYS:SG   | 2.54                     | 0.47              |
| 24:BC:205:ARG:HB3 | 24:BC:206:TYR:CD2  | 2.49                     | 0.47              |
| 27:BF:50:TYR:CZ   | 27:BF:51:ILE:HG23  | 2.49                     | 0.47              |
| 29:BH:48:TYR:O    | 29:BH:139:ARG:HA   | 2.13                     | 0.47              |
| 34:BM:99:TYR:CG   | 34:BM:204:ILE:CG2  | 2.97                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:BN:128:ALA:O    | 35:BN:132:PRO:HG3  | 2.14                     | 0.47              |
| 36:BO:152:SER:HA   | 36:BO:163:ARG:NH1  | 2.29                     | 0.47              |
| 37:BP:76:VAL:HG12  | 37:BP:77:HIS:H     | 1.79                     | 0.47              |
| 20:C2:73:G:O2'     | 20:C2:88:G:N2      | 2.47                     | 0.47              |
| 21:C3:34:C:O2      | 34:CM:203:ARG:NH1  | 2.42                     | 0.47              |
| 22:CA:34:ASP:O     | 22:CA:38:ARG:HG2   | 2.14                     | 0.47              |
| 23:CB:20:ARG:HB2   | 1:D1:2979:A:P      | 2.54                     | 0.47              |
| 24:CC:311:ALA:H    | 35:CN:40:ARG:HH22  | 1.54                     | 0.47              |
| 25:CD:36:VAL:HG21  | 25:CD:123:PHE:CE2  | 2.49                     | 0.47              |
| 27:CF:136:ILE:HG22 | 27:CF:166:ASN:HD22 | 1.78                     | 0.47              |
| 29:CH:48:TYR:O     | 29:CH:139:ARG:HA   | 2.13                     | 0.47              |
| 30:CI:109:THR:HG22 | 1:D1:3206:A:H2'    | 1.96                     | 0.47              |
| 32:CK:21:ARG:HD2   | 1:D1:1396:A:H5''   | 1.96                     | 0.47              |
| 33:CL:73:ARG:HA    | 33:CL:74:PRO:HD2   | 1.59                     | 0.47              |
| 35:CN:30:LEU:O     | 35:CN:33:LEU:HB3   | 2.14                     | 0.47              |
| 47:CO:163:UNK:O    | 47:CO:166:UNK:CG   | 2.59                     | 0.47              |
| 47:CO:173:UNK:CG   | 29:EH:144:HIS:HE1  | 2.27                     | 0.47              |
| 41:CT:22:ARG:NH2   | 41:CT:32:PHE:HE2   | 2.12                     | 0.47              |
| 45:CX:65:THR:HA    | 45:CX:68:LEU:HD12  | 1.96                     | 0.47              |
| 1:D1:8:U:H2'       | 1:D1:9:G:O4'       | 2.15                     | 0.47              |
| 1:D1:20:G:C5       | 1:D1:21:A:N7       | 2.82                     | 0.47              |
| 1:D1:71:U:C2'      | 1:D1:72:A:OP1      | 2.62                     | 0.47              |
| 1:D1:147:U:O2      | 1:D1:147:U:H2'     | 2.13                     | 0.47              |
| 1:D1:278:U:H2'     | 1:D1:279:U:C6      | 2.49                     | 0.47              |
| 1:D1:440:C:N4      | 1:D1:538:A:C2      | 2.82                     | 0.47              |
| 1:D1:871:A:H2'     | 1:D1:872:A:H8      | 1.77                     | 0.47              |
| 1:D1:897:A:H2'     | 1:D1:898:C:H5'     | 1.93                     | 0.47              |
| 1:D1:1052:A:H2     | 1:D1:1053:A:C6     | 2.32                     | 0.47              |
| 1:D1:1655:A:N3     | 1:D1:1655:A:C2'    | 2.73                     | 0.47              |
| 1:D1:1661:A:H4'    | 13:DN:15:GLN:HG3   | 1.96                     | 0.47              |
| 1:D1:2279:C:H2'    | 1:D1:2279:C:O2     | 2.15                     | 0.47              |
| 1:D1:3144:G:C6     | 1:D1:3146:G:C8     | 3.01                     | 0.47              |
| 1:D1:3229:C:O2     | 1:D1:3229:C:H2'    | 2.12                     | 0.47              |
| 1:D1:3306:G:N2     | 1:D1:3314:U:C2     | 2.81                     | 0.47              |
| 14:DO:6:TRP:HZ3    | 14:DO:40:LEU:CD1   | 2.22                     | 0.47              |
| 19:DX:44:PHE:CE2   | 19:DX:117:VAL:HG21 | 2.50                     | 0.47              |
| 19:DX:137:ILE:O    | 19:DX:137:ILE:HG13 | 2.13                     | 0.47              |
| 23:EB:32:PHE:HD2   | 23:EB:44:THR:HG21  | 1.79                     | 0.47              |
| 23:EB:58:ARG:HH21  | 23:EB:60:VAL:HG12  | 1.78                     | 0.47              |
| 24:EC:29:PHE:CE2   | 24:EC:156:PRO:HG3  | 2.49                     | 0.47              |
| 24:EC:117:HIS:HB2  | 33:EL:202:ARG:O    | 2.14                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 26:EE:88:PHE:HD1  | 26:EE:182:LYS:HA   | 1.78                     | 0.47              |
| 27:EF:53:LEU:HD23 | 27:EF:53:LEU:HA    | 1.68                     | 0.47              |
| 27:EF:127:TYR:CE2 | 1:F1:117:G:N2      | 2.81                     | 0.47              |
| 29:EH:50:VAL:CG1  | 29:EH:152:LEU:HD12 | 2.44                     | 0.47              |
| 29:EH:139:ARG:HD3 | 29:EH:173:PHE:HE1  | 1.75                     | 0.47              |
| 30:EI:10:ALA:O    | 30:EI:13:HIS:HB2   | 2.14                     | 0.47              |
| 31:EJ:11:VAL:CG2  | 31:EJ:131:PRO:HD3  | 2.43                     | 0.47              |
| 31:EJ:32:ASN:HD21 | 31:EJ:117:GLN:N    | 2.12                     | 0.47              |
| 37:EP:35:LYS:NZ   | 1:F1:1112:A:OP1    | 2.46                     | 0.47              |
| 38:EQ:93:ILE:O    | 38:EQ:96:LEU:HB2   | 2.14                     | 0.47              |
| 39:ER:51:TYR:CE1  | 1:F1:16:G:OP2      | 2.66                     | 0.47              |
| 40:ES:66:LYS:HE3  | 40:ES:106:THR:HG21 | 1.95                     | 0.47              |
| 42:EU:89:THR:O    | 42:EU:93:ARG:HD2   | 2.13                     | 0.47              |
| 43:EV:206:THR:CG2 | 1:F1:1195:U:C1'    | 2.92                     | 0.47              |
| 1:F1:298:G:C6     | 16:FQ:31:LYS:HB2   | 2.49                     | 0.47              |
| 1:F1:315:U:C6     | 16:FQ:28:VAL:HG11  | 2.49                     | 0.47              |
| 1:F1:566:U:C5     | 1:F1:567:C:C6      | 3.02                     | 0.47              |
| 1:F1:665:C:H42    | 1:F1:669:A:H8      | 1.61                     | 0.47              |
| 1:F1:790:C:O2     | 1:F1:790:C:H2'     | 2.13                     | 0.47              |
| 1:F1:1128:G:H2'   | 1:F1:1129:C:C6     | 2.49                     | 0.47              |
| 1:F1:1413:G:C2    | 1:F1:1414:C:C6     | 3.01                     | 0.47              |
| 1:F1:1580:G:C5'   | 1:F1:1581:C:OP1    | 2.62                     | 0.47              |
| 1:F1:2377:G:H2'   | 1:F1:2378:A:H5'    | 1.96                     | 0.47              |
| 1:F1:2531:U:C2    | 1:F1:2532:G:H1'    | 2.49                     | 0.47              |
| 1:F1:3029:A:H2'   | 1:F1:3030:A:H8     | 1.78                     | 0.47              |
| 1:F1:3144:G:C6    | 1:F1:3146:G:C8     | 3.02                     | 0.47              |
| 1:F1:3232:A:H1'   | 5:FE:94:TYR:CE2    | 2.49                     | 0.47              |
| 4:FC:19:THR:HG22  | 4:FC:20:ASN:N      | 2.28                     | 0.47              |
| 5:FE:42:ARG:NH2   | 5:FE:95:THR:O      | 2.39                     | 0.47              |
| 7:FG:57:GLU:HA    | 7:FG:67:ILE:HD13   | 1.96                     | 0.47              |
| 9:FJ:187:ASN:ND2  | 9:FJ:207:GLY:HA3   | 2.17                     | 0.47              |
| 11:FL:39:VAL:HG11 | 11:FL:60:ARG:HA    | 1.96                     | 0.47              |
| 15:FP:15:TRP:CH2  | 15:FP:67:ALA:O     | 2.68                     | 0.47              |
| 20:G2:77:U:C4     | 40:GS:73:TYR:CD2   | 3.02                     | 0.47              |
| 21:G3:109:U:H5''  | 34:GM:281:LYS:HZ2  | 1.79                     | 0.47              |
| 24:GC:69:ALA:HB1  | 24:GC:96:ALA:CB    | 2.44                     | 0.47              |
| 24:GC:103:LYS:NZ  | 1:H1:365:A:OP1     | 2.47                     | 0.47              |
| 26:GE:101:GLU:OE1 | 26:GE:134:ARG:HD2  | 2.14                     | 0.47              |
| 27:GF:92:TYR:CE2  | 27:GF:123:ILE:CG2  | 2.96                     | 0.47              |
| 29:GH:136:PHE:HE1 | 29:GH:159:PHE:HZ   | 1.62                     | 0.47              |
| 33:GL:15:GLN:CD   | 1:H1:294:A:OP1     | 2.58                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 33:GL:28:TRP:O    | 33:GL:32:GLN:HG2   | 2.13                     | 0.47              |
| 35:GN:65:LEU:O    | 35:GN:69:VAL:HG23  | 2.15                     | 0.47              |
| 37:GP:5:TYR:N     | 37:GP:5:TYR:CD1    | 2.81                     | 0.47              |
| 42:GU:121:ALA:HB1 | 18:HU:146:ALA:HB3  | 1.96                     | 0.47              |
| 43:GV:82:PHE:HB3  | 43:GV:231:ILE:CD1  | 2.45                     | 0.47              |
| 43:GV:205:ASP:HB3 | 43:GV:238:MET:O    | 2.14                     | 0.47              |
| 45:GX:73:PHE:HE1  | 45:GX:120:ARG:HH11 | 1.61                     | 0.47              |
| 46:GY:42:CYS:SG   | 46:GY:44:LYS:HG3   | 2.54                     | 0.47              |
| 1:H1:68:A:H1'     | 1:H1:70:C:H41      | 1.79                     | 0.47              |
| 1:H1:74:G:H2'     | 18:HU:98:ARG:CD    | 2.44                     | 0.47              |
| 1:H1:358:C:H4'    | 1:H1:842:A:H61     | 1.78                     | 0.47              |
| 1:H1:360:A:H1'    | 1:H1:839:U:O4'     | 2.14                     | 0.47              |
| 1:H1:511:U:H5''   | 14:HO:70:VAL:HG21  | 1.96                     | 0.47              |
| 1:H1:940:A:N3     | 1:H1:940:A:C2'     | 2.76                     | 0.47              |
| 1:H1:1095:C:C4'   | 1:H1:1096:G:OP2    | 2.62                     | 0.47              |
| 1:H1:1237:U:O2'   | 1:H1:1238:U:H5'    | 2.14                     | 0.47              |
| 1:H1:1512:G:H3'   | 50:H1:4094:HOH:O   | 2.13                     | 0.47              |
| 1:H1:1694:C:O2    | 1:H1:1804:G:N2     | 2.28                     | 0.47              |
| 1:H1:1845:U:H3    | 11:HL:69:ARG:HG3   | 1.80                     | 0.47              |
| 1:H1:2101:G:C8    | 50:H1:4225:HOH:O   | 2.67                     | 0.47              |
| 1:H1:2125:C:O2'   | 1:H1:2140:A:N3     | 2.47                     | 0.47              |
| 1:H1:2148:A:H2'   | 1:H1:2149:U:H6     | 1.78                     | 0.47              |
| 1:H1:2187:C:H2'   | 1:H1:2188:U:C5'    | 2.44                     | 0.47              |
| 1:H1:2212:U:H2'   | 1:H1:2213:G:H8     | 1.80                     | 0.47              |
| 1:H1:2586:G:O2'   | 1:H1:2587:G:H5'    | 2.14                     | 0.47              |
| 5:HE:54:LEU:C     | 5:HE:59:ARG:HB2    | 2.38                     | 0.47              |
| 5:HE:69:LEU:HD21  | 5:HE:114:ASP:HA    | 1.96                     | 0.47              |
| 9:HJ:111:ASN:OD1  | 9:HJ:111:ASN:C     | 2.58                     | 0.47              |
| 13:HN:23:ALA:CB   | 13:HN:45:GLY:HA3   | 2.43                     | 0.47              |
| 17:HT:12:GLN:OE1  | 17:HT:12:GLN:HA    | 2.13                     | 0.47              |
| 19:HX:15:GLN:NE2  | 19:HX:115:GLY:CA   | 2.77                     | 0.47              |
| 19:HX:45:ALA:HA   | 19:HX:50:HIS:HD2   | 1.78                     | 0.47              |
| 1:A1:70:C:O2'     | 1:A1:71:U:H5''     | 2.13                     | 0.47              |
| 1:A1:73:G:OP1     | 18:AU:56:VAL:CG1   | 2.63                     | 0.47              |
| 1:A1:147:U:O2     | 1:A1:147:U:H2'     | 2.14                     | 0.47              |
| 1:A1:242:G:H5'    | 42:BU:98:LYS:NZ    | 2.29                     | 0.47              |
| 1:A1:474:G:H2'    | 1:A1:475:C:H6      | 1.79                     | 0.47              |
| 1:A1:718:A:C2'    | 1:A1:719:C:H5'     | 2.44                     | 0.47              |
| 1:A1:747:G:C2'    | 1:A1:748:G:H5'     | 2.43                     | 0.47              |
| 1:A1:1249:G:C2'   | 1:A1:1250:A:OP2    | 2.62                     | 0.47              |
| 1:A1:1343:G:C2    | 30:BI:129:ARG:NH2  | 2.83                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1453:U:O2'    | 1:A1:1454:A:H5'    | 2.14                     | 0.47              |
| 1:A1:1495:C:C4'    | 1:A1:1496:U:OP2    | 2.59                     | 0.47              |
| 1:A1:1772:G:C2'    | 1:A1:1773:G:H5'    | 2.44                     | 0.47              |
| 1:A1:1880:C:C1'    | 11:AL:7:TYR:HE1    | 2.28                     | 0.47              |
| 1:A1:2180:G:OP1    | 22:BA:203:VAL:HG23 | 2.14                     | 0.47              |
| 1:A1:2219:A:OP1    | 16:AQ:78:ARG:NH2   | 2.47                     | 0.47              |
| 1:A1:2602:U:O2     | 1:A1:2792:A:C8     | 2.67                     | 0.47              |
| 2:AA:21:ARG:HB2    | 2:AA:39:TYR:HD1    | 1.80                     | 0.47              |
| 5:AE:125:ASN:OD1   | 5:AE:125:ASN:C     | 2.57                     | 0.47              |
| 8:AH:54:LYS:HA     | 8:AH:110:PRO:HG2   | 1.94                     | 0.47              |
| 13:AN:124:THR:HG22 | 13:AN:124:THR:O    | 2.13                     | 0.47              |
| 14:AO:52:GLY:HA3   | 14:AO:118:ASN:ND2  | 2.27                     | 0.47              |
| 16:AQ:15:THR:HG21  | 18:AU:103:CYS:SG   | 2.53                     | 0.47              |
| 18:AU:164:LYS:HZ3  | 32:BK:100:PRO:HB3  | 1.77                     | 0.47              |
| 20:B2:108:G:H4'    | 20:B2:135:A:H5'    | 1.96                     | 0.47              |
| 23:BB:58:ARG:HH21  | 23:BB:60:VAL:HG12  | 1.79                     | 0.47              |
| 23:BB:121:ASN:HD21 | 23:BB:124:ASN:HD22 | 1.61                     | 0.47              |
| 24:BC:222:THR:HG23 | 24:BC:225:ARG:HD2  | 1.96                     | 0.47              |
| 34:BM:119:TYR:CE1  | 34:BM:132:VAL:HG11 | 2.46                     | 0.47              |
| 35:BN:36:PHE:CZ    | 35:BN:40:ARG:HD2   | 2.50                     | 0.47              |
| 35:BN:102:CYS:SG   | 35:BN:127:LEU:HG   | 2.55                     | 0.47              |
| 36:BO:18:GLY:O     | 36:BO:19:GLN:C     | 2.58                     | 0.47              |
| 20:C2:3:A:H2'      | 20:C2:3:A:N3       | 2.28                     | 0.47              |
| 22:CA:68:TYR:C     | 22:CA:69:ARG:CG    | 2.87                     | 0.47              |
| 22:CA:71:LYS:CE    | 1:D1:2517:G:O6     | 2.62                     | 0.47              |
| 22:CA:117:VAL:CG1  | 22:CA:118:GLU:N    | 2.77                     | 0.47              |
| 24:CC:163:VAL:HG21 | 24:CC:175:PHE:HE2  | 1.78                     | 0.47              |
| 27:CF:92:TYR:CE1   | 27:CF:200:ASP:OD2  | 2.67                     | 0.47              |
| 29:CH:201:GLY:O    | 29:CH:208:ARG:NH2  | 2.46                     | 0.47              |
| 31:CJ:16:LYS:HZ2   | 1:D1:3081:C:H5     | 1.60                     | 0.47              |
| 32:CK:76:ASN:HA    | 32:CK:113:LEU:O    | 2.14                     | 0.47              |
| 33:CL:6:TYR:CA     | 16:DQ:45:ILE:HD11  | 2.39                     | 0.47              |
| 33:CL:69:GLY:O     | 1:D1:289:G:H4'     | 2.14                     | 0.47              |
| 33:CL:78:GLY:HA2   | 33:CL:89:ILE:CD1   | 2.45                     | 0.47              |
| 34:CM:34:LYS:HE3   | 37:CP:30:TYR:HE1   | 1.80                     | 0.47              |
| 35:CN:114:ILE:O    | 35:CN:119:GLY:HA3  | 2.14                     | 0.47              |
| 35:CN:122:LEU:HA   | 35:CN:126:GLN:OE1  | 2.15                     | 0.47              |
| 47:CO:106:LEU:HB3  | 47:CO:120:TYR:HE1  | 1.78                     | 0.47              |
| 42:CU:33:ARG:O     | 42:CU:37:ILE:HG13  | 2.13                     | 0.47              |
| 43:CV:66:ALA:HB1   | 43:CV:72:PHE:HA    | 1.97                     | 0.47              |
| 43:CV:100:LEU:HD23 | 43:CV:100:LEU:HA   | 1.61                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:CV:141:ILE:HG21 | 43:CV:185:ILE:HG21 | 1.95                     | 0.47              |
| 45:CX:80:ASN:HD22  | 1:D1:1413:G:H4'    | 1.79                     | 0.47              |
| 1:D1:94:A:C2       | 1:D1:95:U:C6       | 3.02                     | 0.47              |
| 1:D1:125:G:H2'     | 1:D1:126:A:O4'     | 2.14                     | 0.47              |
| 1:D1:434:A:C5'     | 1:D1:435:A:OP1     | 2.61                     | 0.47              |
| 1:D1:519:A:C5'     | 14:DO:89:ARG:HH11  | 2.25                     | 0.47              |
| 1:D1:772:U:O2'     | 1:D1:773:C:H5'     | 2.14                     | 0.47              |
| 1:D1:1051:C:H2'    | 1:D1:1052:A:C1'    | 2.43                     | 0.47              |
| 1:D1:1114:C:C2'    | 1:D1:1115:U:C5'    | 2.92                     | 0.47              |
| 1:D1:1227:A:N3     | 1:D1:1227:A:C2'    | 2.76                     | 0.47              |
| 1:D1:2245:G:C6     | 1:D1:2246:G:C6     | 3.02                     | 0.47              |
| 1:D1:2247:A:C2'    | 1:D1:2248:G:H8     | 2.22                     | 0.47              |
| 1:D1:2583:C:H2'    | 1:D1:2584:A:O4'    | 2.13                     | 0.47              |
| 1:D1:2899:C:H5''   | 50:D1:4562:HOH:O   | 2.15                     | 0.47              |
| 1:D1:3114:U:C3'    | 1:D1:3115:C:H5''   | 2.44                     | 0.47              |
| 1:D1:3174:U:OP1    | 1:D1:3174:U:C6     | 2.67                     | 0.47              |
| 6:DF:23:LYS:CB     | 6:DF:43:ILE:HD11   | 2.44                     | 0.47              |
| 6:DF:67:GLN:HE21   | 6:DF:71:LEU:CB     | 2.28                     | 0.47              |
| 7:DG:14:LEU:O      | 7:DG:18:MET:HG2    | 2.13                     | 0.47              |
| 8:DH:9:VAL:HG12    | 8:DH:10:ALA:H      | 1.78                     | 0.47              |
| 10:DK:93:LYS:HA    | 10:DK:105:PRO:HD3  | 1.97                     | 0.47              |
| 21:E3:48:G:O2'     | 34:EM:227:GLN:O    | 2.20                     | 0.47              |
| 23:EB:22:THR:HG22  | 23:EB:23:ARG:N     | 2.29                     | 0.47              |
| 23:EB:228:ILE:O    | 23:EB:232:GLY:HA2  | 2.14                     | 0.47              |
| 23:EB:253:TRP:CE2  | 1:F1:2929:A:N7     | 2.82                     | 0.47              |
| 23:EB:260:PHE:HD1  | 30:EI:63:HIS:O     | 1.97                     | 0.47              |
| 24:EC:299:ILE:HG22 | 1:F1:1375:A:O2'    | 2.14                     | 0.47              |
| 25:ED:57:PHE:CD1   | 1:F1:2669:A:C6     | 3.02                     | 0.47              |
| 26:EE:48:PRO:HB3   | 26:EE:53:VAL:HG22  | 1.95                     | 0.47              |
| 27:EF:122:PRO:HD3  | 1:F1:118:A:N7      | 2.29                     | 0.47              |
| 31:EJ:57:SER:O     | 31:EJ:58:ILE:C     | 2.57                     | 0.47              |
| 34:EM:59:ARG:CD    | 34:EM:61:ILE:HG12  | 2.40                     | 0.47              |
| 34:EM:141:PRO:HB2  | 34:EM:172:ASN:HB2  | 1.97                     | 0.47              |
| 34:EM:283:THR:HG22 | 34:EM:285:ALA:N    | 2.26                     | 0.47              |
| 35:EN:63:LEU:CD2   | 35:EN:140:LEU:HB3  | 2.44                     | 0.47              |
| 35:EN:174:PHE:C    | 35:EN:176:ARG:N    | 2.71                     | 0.47              |
| 38:EQ:21:ALA:HB2   | 38:EQ:96:LEU:HD21  | 1.96                     | 0.47              |
| 44:EW:10:ASP:OD1   | 44:EW:73:ARG:CG    | 2.57                     | 0.47              |
| 45:EX:89:MET:CE    | 14:FO:31:VAL:O     | 2.61                     | 0.47              |
| 1:F1:33:A:O2'      | 1:F1:34:C:H5'      | 2.14                     | 0.47              |
| 1:F1:47:G:HO2'     | 1:F1:48:U:P        | 2.36                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:F1:591:G:O2'     | 1:F1:592:A:O5'    | 2.32                     | 0.47              |
| 1:F1:927:G:C4      | 1:F1:928:U:C6     | 3.03                     | 0.47              |
| 1:F1:1112:A:C6     | 1:F1:1113:A:N6    | 2.82                     | 0.47              |
| 1:F1:1137:U:H2'    | 1:F1:1138:U:O4'   | 2.14                     | 0.47              |
| 1:F1:1237:U:O2'    | 1:F1:1238:U:H5'   | 2.14                     | 0.47              |
| 1:F1:2559:U:N3     | 1:F1:2560:U:C5    | 2.82                     | 0.47              |
| 1:F1:2562:U:OP2    | 13:FN:58:GLY:N    | 2.47                     | 0.47              |
| 1:F1:2738:G:C2'    | 1:F1:2739:C:H5'   | 2.43                     | 0.47              |
| 1:F1:3006:A:O2'    | 1:F1:3007:G:H5'   | 2.14                     | 0.47              |
| 1:F1:3294:A:O5'    | 1:F1:3294:A:H8    | 1.97                     | 0.47              |
| 1:F1:3298:U:H1'    | 1:F1:3299:G:P     | 2.54                     | 0.47              |
| 5:FE:160:LEU:HA    | 5:FE:160:LEU:HD23 | 1.66                     | 0.47              |
| 19:FX:7:GLN:HE22   | 19:FX:80:GLU:CB   | 2.25                     | 0.47              |
| 22:GA:33:TYR:CD1   | 22:GA:164:ARG:NH2 | 2.82                     | 0.47              |
| 22:GA:238:LEU:H    | 22:GA:238:LEU:HG  | 1.40                     | 0.47              |
| 24:GC:242:ASN:C    | 24:GC:244:LEU:N   | 2.69                     | 0.47              |
| 24:GC:351:SER:O    | 24:GC:355:ARG:HG3 | 2.14                     | 0.47              |
| 25:GD:16:LYS:HB3   | 25:GD:72:ARG:HE   | 1.78                     | 0.47              |
| 25:GD:160:ILE:HG22 | 25:GD:164:LYS:HE3 | 1.96                     | 0.47              |
| 26:GE:45:ILE:HG23  | 26:GE:55:LEU:HD21 | 1.96                     | 0.47              |
| 30:GI:159:ARG:HB2  | 30:GI:162:ARG:CZ  | 2.45                     | 0.47              |
| 34:GM:21:ARG:HA    | 34:GM:24:ARG:CZ   | 2.44                     | 0.47              |
| 35:GN:6:HIS:CE1    | 1:H1:1131:G:N3    | 2.81                     | 0.47              |
| 35:GN:36:PHE:CZ    | 35:GN:40:ARG:HD2  | 2.49                     | 0.47              |
| 37:GP:42:ILE:HG22  | 37:GP:60:ARG:O    | 2.14                     | 0.47              |
| 37:GP:130:ARG:NH2  | 1:H1:1088:A:N3    | 2.62                     | 0.47              |
| 40:GS:61:LYS:HG2   | 1:H1:218:G:O6     | 2.13                     | 0.47              |
| 40:GS:80:HIS:ND1   | 40:GS:95:GLN:CB   | 2.76                     | 0.47              |
| 41:GT:52:THR:HB    | 1:H1:3292:U:C5    | 2.49                     | 0.47              |
| 43:GV:128:LEU:O    | 43:GV:224:TRP:HB2 | 2.14                     | 0.47              |
| 45:GX:62:ASP:HA    | 1:H1:1366:C:H5''  | 1.97                     | 0.47              |
| 1:H1:39:G:C4       | 1:H1:2789:A:C2    | 3.02                     | 0.47              |
| 1:H1:125:G:H2'     | 1:H1:126:A:O4'    | 2.14                     | 0.47              |
| 1:H1:443:G:C6      | 1:H1:444:A:C6     | 3.03                     | 0.47              |
| 1:H1:558:U:O2'     | 1:H1:559:G:H5'    | 2.14                     | 0.47              |
| 1:H1:619:G:O2'     | 1:H1:620:A:C2     | 2.64                     | 0.47              |
| 1:H1:943:C:O2'     | 1:H1:944:U:H5'    | 2.14                     | 0.47              |
| 1:H1:1507:A:N1     | 11:HL:2:ALA:HB3   | 2.28                     | 0.47              |
| 1:H1:1592:G:H2'    | 1:H1:1593:A:H8    | 1.74                     | 0.47              |
| 1:H1:1600:U:C5     | 1:H1:1601:U:C5    | 3.01                     | 0.47              |
| 1:H1:1655:A:N3     | 1:H1:1655:A:C2'   | 2.72                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1907:A:H2'   | 1:H1:1908:A:H8     | 1.79                     | 0.47              |
| 1:H1:2249:U:C2    | 1:H1:2250:A:C8     | 3.03                     | 0.47              |
| 1:H1:2520:G:H4'   | 1:H1:2521:A:OP2    | 2.13                     | 0.47              |
| 1:H1:2572:U:O2'   | 1:H1:2573:U:H5'    | 2.14                     | 0.47              |
| 1:H1:2669:A:C3'   | 1:H1:2670:U:C6     | 2.97                     | 0.47              |
| 1:H1:2700:A:H2'   | 1:H1:2701:U:O4'    | 2.14                     | 0.47              |
| 1:H1:3178:U:H5''  | 6:HF:97:LYS:NZ     | 2.29                     | 0.47              |
| 1:H1:3191:G:H2'   | 1:H1:3192:C:OP2    | 2.13                     | 0.47              |
| 1:H1:3234:U:O5'   | 1:H1:3234:U:H6     | 1.97                     | 0.47              |
| 2:HA:26:THR:HG21  | 2:HA:36:ALA:HB2    | 1.95                     | 0.47              |
| 5:HE:18:TRP:CB    | 14:HO:95:ARG:NH2   | 2.77                     | 0.47              |
| 5:HE:179:THR:HG22 | 5:HE:180:LEU:N     | 2.30                     | 0.47              |
| 5:HE:180:LEU:HD21 | 5:HE:186:PRO:HG3   | 1.96                     | 0.47              |
| 19:HX:18:VAL:HG21 | 19:HX:117:VAL:HG12 | 1.95                     | 0.47              |
| 1:A1:32:A:H2'     | 1:A1:33:A:C8       | 2.50                     | 0.47              |
| 1:A1:105:A:H1'    | 1:A1:324:A:N3      | 2.29                     | 0.47              |
| 1:A1:198:A:C6     | 1:A1:219:A:C6      | 3.02                     | 0.47              |
| 1:A1:207:U:O2     | 1:A1:207:U:H2'     | 2.13                     | 0.47              |
| 1:A1:467:A:C6     | 1:A1:468:A:C4      | 3.02                     | 0.47              |
| 1:A1:742:U:C5     | 17:AT:61:LYS:HD2   | 2.44                     | 0.47              |
| 1:A1:927:G:C4     | 1:A1:928:U:C6      | 3.02                     | 0.47              |
| 1:A1:2266:A:N7    | 1:A1:2267:G:C6     | 2.82                     | 0.47              |
| 1:A1:2332:C:P     | 23:BB:238:LYS:HE3  | 2.54                     | 0.47              |
| 1:A1:2583:C:H2'   | 1:A1:2584:A:O4'    | 2.14                     | 0.47              |
| 1:A1:2662:A:H4'   | 25:BD:103:GLY:C    | 2.39                     | 0.47              |
| 1:A1:2703:G:H2'   | 1:A1:2740:G:N2     | 2.30                     | 0.47              |
| 1:A1:2751:A:H2'   | 1:A1:2752:U:C6     | 2.49                     | 0.47              |
| 1:A1:3304:U:H2'   | 1:A1:3305:A:C8     | 2.49                     | 0.47              |
| 5:AE:128:ASN:OD1  | 5:AE:130:PHE:N     | 2.47                     | 0.47              |
| 6:AF:28:VAL:CG1   | 6:AF:66:ASN:H      | 2.24                     | 0.47              |
| 7:AG:13:LYS:CD    | 7:AG:100:ILE:HD13  | 2.43                     | 0.47              |
| 13:AN:101:LYS:CA  | 13:AN:106:ALA:HB3  | 2.45                     | 0.47              |
| 15:AP:42:PHE:C    | 15:AP:43:LYS:HG2   | 2.40                     | 0.47              |
| 16:AQ:18:LEU:HD23 | 16:AQ:18:LEU:HA    | 1.65                     | 0.47              |
| 18:AU:166:VAL:HB  | 32:BK:98:LYS:HA    | 1.96                     | 0.47              |
| 19:AX:41:MET:CE   | 19:AX:59:MET:HE2   | 2.43                     | 0.47              |
| 20:B2:16:G:H5''   | 50:B2:329:HOH:O    | 2.14                     | 0.47              |
| 20:B2:143:U:H2'   | 20:B2:144:U:C6     | 2.50                     | 0.47              |
| 22:BA:31:ARG:CB   | 22:BA:37:GLU:OE2   | 2.63                     | 0.47              |
| 22:BA:43:ARG:HD2  | 22:BA:88:TYR:CD1   | 2.50                     | 0.47              |
| 23:BB:54:THR:CG2  | 23:BB:358:ASP:HB3  | 2.43                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:BB:57:LEU:HB3   | 23:BB:356:PHE:HB3  | 1.96                     | 0.47              |
| 24:BC:7:ILE:HD11   | 24:BC:25:LEU:HD13  | 1.97                     | 0.47              |
| 26:BE:5:LEU:HB2    | 26:BE:58:TRP:CZ3   | 2.50                     | 0.47              |
| 27:BF:153:ILE:O    | 27:BF:157:ILE:HG13 | 2.14                     | 0.47              |
| 27:BF:196:VAL:HG21 | 27:BF:204:LEU:HD11 | 1.97                     | 0.47              |
| 31:BJ:83:ILE:CD1   | 31:BJ:105:VAL:HG23 | 2.45                     | 0.47              |
| 32:BK:127:ALA:HB3  | 32:BK:130:PHE:CZ   | 2.50                     | 0.47              |
| 33:BL:102:ALA:O    | 33:BL:106:VAL:HG23 | 2.14                     | 0.47              |
| 33:BL:182:LYS:CG   | 33:BL:183:SER:N    | 2.75                     | 0.47              |
| 34:BM:49:TYR:HB2   | 34:BM:143:LYS:O    | 2.14                     | 0.47              |
| 35:BN:30:LEU:O     | 35:BN:33:LEU:HB3   | 2.15                     | 0.47              |
| 35:BN:174:PHE:C    | 35:BN:176:ARG:H    | 2.22                     | 0.47              |
| 35:BN:174:PHE:C    | 35:BN:176:ARG:N    | 2.69                     | 0.47              |
| 40:BS:51:LYS:O     | 40:BS:51:LYS:HG3   | 2.14                     | 0.47              |
| 43:BV:114:PHE:CD2  | 43:BV:115:ARG:O    | 2.67                     | 0.47              |
| 45:BX:8:HIS:NE2    | 45:BX:72:GLY:HA2   | 2.29                     | 0.47              |
| 21:C3:8:G:C5       | 21:C3:9:C:C5       | 3.02                     | 0.47              |
| 22:CA:31:ARG:HH12  | 22:CA:42:ILE:CG1   | 2.27                     | 0.47              |
| 23:CB:178:GLU:HB2  | 1:D1:2992:G:OP1    | 2.14                     | 0.47              |
| 23:CB:303:ILE:O    | 23:CB:305:PRO:HD3  | 2.13                     | 0.47              |
| 24:CC:356:GLN:O    | 24:CC:360:LYS:HG2  | 2.14                     | 0.47              |
| 25:CD:162:TRP:CH2  | 25:CD:167:PHE:CE2  | 3.02                     | 0.47              |
| 29:CH:92:HIS:HD2   | 1:D1:1070:U:C1'    | 2.27                     | 0.47              |
| 29:CH:159:PHE:HB3  | 29:CH:163:GLN:CD   | 2.38                     | 0.47              |
| 30:CI:183:ALA:HB1  | 30:CI:184:PRO:CD   | 2.45                     | 0.47              |
| 32:CK:15:VAL:HG21  | 32:CK:21:ARG:HH21  | 1.80                     | 0.47              |
| 32:CK:98:LYS:HA    | 18:DU:166:VAL:HG23 | 1.96                     | 0.47              |
| 33:CL:26:ARG:CZ    | 33:CL:43:SER:OG    | 2.62                     | 0.47              |
| 47:CO:163:UNK:HA   | 47:CO:166:UNK:HG3  | 1.96                     | 0.47              |
| 40:CS:3:THR:O      | 40:CS:3:THR:CG2    | 2.63                     | 0.47              |
| 42:CU:118:ARG:CD   | 18:DU:123:LEU:HD11 | 2.42                     | 0.47              |
| 42:CU:119:LYS:HB2  | 18:DU:124:PHE:HB2  | 1.97                     | 0.47              |
| 44:CW:32:ILE:HD12  | 1:D1:1484:U:O2'    | 2.13                     | 0.47              |
| 46:CY:10:ILE:CD1   | 46:CY:30:GLU:HB3   | 2.44                     | 0.47              |
| 1:D1:68:A:C2       | 1:D1:69:A:N3       | 2.83                     | 0.47              |
| 1:D1:347:A:H1'     | 1:D1:351:A:N3      | 2.29                     | 0.47              |
| 1:D1:451:A:H2'     | 1:D1:452:U:O4'     | 2.14                     | 0.47              |
| 1:D1:591:G:C2'     | 1:D1:592:A:O5'     | 2.62                     | 0.47              |
| 1:D1:643:A:H4'     | 1:D1:644:A:O5'     | 2.15                     | 0.47              |
| 1:D1:680:A:C6      | 1:D1:681:A:C6      | 3.03                     | 0.47              |
| 1:D1:941:G:O6      | 1:D1:2409:G:O2'    | 2.30                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:1589:G:C8     | 1:D1:1605:G:N2    | 2.82                     | 0.47              |
| 1:D1:1598:C:C3'    | 1:D1:1599:G:H5'   | 2.44                     | 0.47              |
| 1:D1:1775:A:C5'    | 15:DP:34:LYS:NZ   | 2.77                     | 0.47              |
| 1:D1:2123:U:C2'    | 1:D1:2124:C:H5'   | 2.45                     | 0.47              |
| 1:D1:2300:G:H8     | 1:D1:2300:G:O5'   | 1.97                     | 0.47              |
| 1:D1:2962:U:H6     | 1:D1:2962:U:C5'   | 2.28                     | 0.47              |
| 1:D1:3085:C:H2'    | 1:D1:3086:U:C6    | 2.48                     | 0.47              |
| 8:DH:44:THR:O      | 8:DH:48:VAL:HG23  | 2.14                     | 0.47              |
| 13:DN:90:LEU:O     | 13:DN:121:LYS:HE3 | 2.13                     | 0.47              |
| 19:DX:45:ALA:HA    | 19:DX:50:HIS:HD2  | 1.79                     | 0.47              |
| 20:E2:95:C:O2'     | 20:E2:96:A:H8     | 1.97                     | 0.47              |
| 22:EA:208:VAL:HG21 | 1:F1:941:G:O6     | 2.11                     | 0.47              |
| 23:EB:56:ILE:O     | 23:EB:73:VAL:HA   | 2.15                     | 0.47              |
| 23:EB:137:PHE:CD1  | 23:EB:137:PHE:C   | 2.92                     | 0.47              |
| 23:EB:171:GLN:CG   | 1:F1:3273:U:H5''  | 2.43                     | 0.47              |
| 24:EC:44:ASP:OD1   | 24:EC:44:ASP:N    | 2.45                     | 0.47              |
| 25:ED:140:ARG:HH22 | 1:F1:2674:A:P     | 2.36                     | 0.47              |
| 27:EF:22:PHE:O     | 1:F1:2553:G:C5'   | 2.63                     | 0.47              |
| 29:EH:61:THR:OG1   | 1:F1:2842:U:OP1   | 2.32                     | 0.47              |
| 32:EK:76:ASN:HB3   | 32:EK:78:ASP:OD1  | 2.15                     | 0.47              |
| 39:ER:75:LEU:HD21  | 39:ER:93:TYR:CE2  | 2.49                     | 0.47              |
| 39:ER:75:LEU:HD21  | 39:ER:93:TYR:HE2  | 1.80                     | 0.47              |
| 43:EV:37:ARG:O     | 43:EV:38:LYS:C    | 2.56                     | 0.47              |
| 43:EV:72:PHE:HD1   | 43:EV:73:TYR:N    | 2.09                     | 0.47              |
| 44:EW:4:GLN:CG     | 44:EW:76:LYS:HZ3  | 2.26                     | 0.47              |
| 1:F1:170:A:N6      | 1:F1:249:G:H1'    | 2.27                     | 0.47              |
| 1:F1:358:C:H4'     | 1:F1:842:A:H61    | 1.73                     | 0.47              |
| 1:F1:614:G:OP1     | 8:FH:113:ALA:C    | 2.58                     | 0.47              |
| 1:F1:655:A:H2'     | 1:F1:656:C:H6     | 1.76                     | 0.47              |
| 1:F1:687:C:H2'     | 1:F1:688:U:H6     | 1.79                     | 0.47              |
| 1:F1:1817:C:H2'    | 1:F1:1818:C:C6    | 2.49                     | 0.47              |
| 1:F1:2189:G:H1'    | 1:F1:2269:U:C2    | 2.50                     | 0.47              |
| 1:F1:2324:A:C5     | 1:F1:2325:C:C5    | 3.03                     | 0.47              |
| 1:F1:2934:A:N6     | 50:F1:3948:HOH:O  | 2.46                     | 0.47              |
| 1:F1:3174:U:C6     | 1:F1:3174:U:OP1   | 2.67                     | 0.47              |
| 1:F1:3343:U:H5''   | 1:F1:3344:U:OP2   | 2.15                     | 0.47              |
| 2:FA:65:MET:HE2    | 2:FA:68:MET:HG3   | 1.96                     | 0.47              |
| 3:FB:44:TRP:CZ3    | 3:FB:45:ARG:HD2   | 2.49                     | 0.47              |
| 5:FE:104:LEU:O     | 5:FE:107:VAL:HG22 | 2.14                     | 0.47              |
| 7:FG:64:GLN:O      | 7:FG:64:GLN:CG    | 2.62                     | 0.47              |
| 8:FH:20:PHE:CD1    | 8:FH:20:PHE:C     | 2.91                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:FM:13:VAL:HG12  | 12:FM:14:ASN:N     | 2.28                     | 0.47              |
| 13:FN:118:PHE:HE2  | 13:FN:138:PHE:HE2  | 1.62                     | 0.47              |
| 18:FU:44:VAL:CG1   | 18:FU:47:ARG:HG3   | 2.44                     | 0.47              |
| 19:FX:57:TYR:O     | 19:FX:60:ARG:HG2   | 2.14                     | 0.47              |
| 20:G2:2:G:C5       | 1:H1:2983:A:C2     | 3.02                     | 0.47              |
| 23:GB:152:TYR:CE2  | 1:H1:3204:A:C8     | 3.02                     | 0.47              |
| 23:GB:382:ARG:HH22 | 1:H1:3287:U:P      | 2.37                     | 0.47              |
| 24:GC:98:GLY:HA2   | 24:GC:105:ARG:HH12 | 1.79                     | 0.47              |
| 26:GE:58:TRP:NE1   | 19:HX:164:PRO:HG2  | 2.29                     | 0.47              |
| 27:GF:169:PRO:CB   | 27:GF:211:PHE:HB2  | 2.43                     | 0.47              |
| 32:GK:63:PHE:CE1   | 1:H1:282:G:N3      | 2.82                     | 0.47              |
| 35:GN:24:ASN:ND2   | 35:GN:27:HIS:HB2   | 2.30                     | 0.47              |
| 35:GN:67:ARG:HD3   | 35:GN:67:ARG:HA    | 1.72                     | 0.47              |
| 35:GN:73:ASN:HB2   | 35:GN:76:ASN:OD1   | 2.14                     | 0.47              |
| 36:GO:6:LEU:HD11   | 36:GO:10:LEU:HD11  | 1.95                     | 0.47              |
| 37:GP:27:ILE:O     | 37:GP:30:TYR:HB2   | 2.15                     | 0.47              |
| 38:GQ:8:ARG:HD3    | 38:GQ:118:HIS:HB2  | 1.94                     | 0.47              |
| 42:GU:35:ALA:HB1   | 42:GU:44:LYS:HD3   | 1.97                     | 0.47              |
| 42:GU:36:LYS:HE3   | 42:GU:48:ILE:HD12  | 1.96                     | 0.47              |
| 43:GV:184:GLU:O    | 43:GV:188:VAL:N    | 2.47                     | 0.47              |
| 46:GY:8:VAL:CG1    | 46:GY:12:ARG:N     | 2.78                     | 0.47              |
| 1:H1:261:U:H2'     | 1:H1:262:C:H5'     | 1.96                     | 0.47              |
| 1:H1:661:C:H1'     | 1:H1:662:C:C6      | 2.49                     | 0.47              |
| 1:H1:976:A:OP2     | 1:H1:1394:G:N2     | 2.44                     | 0.47              |
| 1:H1:1403:C:O2'    | 1:H1:1434:G:O2'    | 2.26                     | 0.47              |
| 1:H1:1871:A:OP1    | 50:H1:4113:HOH:O   | 2.20                     | 0.47              |
| 1:H1:2103:A:C2     | 1:H1:2104:C:C2     | 3.03                     | 0.47              |
| 1:H1:2147:C:O2'    | 1:H1:2238:A:N1     | 2.40                     | 0.47              |
| 1:H1:2631:A:H5'    | 17:HT:7:SER:HB3    | 1.95                     | 0.47              |
| 1:H1:2705:U:HO2'   | 4:HC:79:ARG:HH22   | 1.53                     | 0.47              |
| 1:H1:2885:A:O2'    | 1:H1:2886:G:H3'    | 2.14                     | 0.47              |
| 6:HF:28:VAL:CG1    | 6:HF:66:ASN:HA     | 2.44                     | 0.47              |
| 9:HJ:4:ARG:HA      | 9:HJ:206:CYS:O     | 2.14                     | 0.47              |
| 9:HJ:117:ILE:HD13  | 9:HJ:137:VAL:CG1   | 2.45                     | 0.47              |
| 13:HN:111:ARG:O    | 13:HN:115:LYS:HG3  | 2.14                     | 0.47              |
| 14:HO:9:VAL:HG12   | 14:HO:13:ASN:CB    | 2.44                     | 0.47              |
| 17:HT:32:THR:HG23  | 17:HT:40:LEU:HD21  | 1.96                     | 0.47              |
| 19:HX:16:MET:CE    | 19:HX:121:ILE:HD12 | 2.29                     | 0.47              |
| 1:A1:117:G:C4      | 27:BF:131:HIS:CE1  | 3.03                     | 0.47              |
| 1:A1:170:A:C5      | 1:A1:250:U:N3      | 2.83                     | 0.47              |
| 1:A1:344:G:O6      | 1:A1:347:A:OP1     | 2.31                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:415:A:H4'     | 1:A1:653:C:O3'     | 2.15                     | 0.47              |
| 1:A1:709:G:H5''    | 18:AU:37:ARG:CZ    | 2.45                     | 0.47              |
| 1:A1:766:G:O2'     | 1:A1:767:C:P       | 2.72                     | 0.47              |
| 1:A1:1077:U:H4'    | 37:BP:19:TYR:CD2   | 2.49                     | 0.47              |
| 1:A1:1136:C:H4'    | 35:BN:152:TRP:CE2  | 2.49                     | 0.47              |
| 1:A1:1593:A:C2     | 1:A1:1594:C:N3     | 2.83                     | 0.47              |
| 1:A1:1746:U:C1'    | 36:BO:96:MET:HG2   | 2.45                     | 0.47              |
| 1:A1:1937:G:O2'    | 1:A1:2116:A:H1'    | 2.14                     | 0.47              |
| 1:A1:2103:A:C2     | 1:A1:2104:C:C2     | 3.02                     | 0.47              |
| 1:A1:2343:A:H2'    | 1:A1:2344:U:H5''   | 1.96                     | 0.47              |
| 1:A1:2350:G:H5'    | 38:BQ:141:TYR:CE2  | 2.49                     | 0.47              |
| 1:A1:2713:U:H4'    | 37:BP:54:TYR:CD1   | 2.50                     | 0.47              |
| 1:A1:3341:C:H1'    | 44:BW:105:THR:HG21 | 1.95                     | 0.47              |
| 6:AF:30:ILE:HG22   | 19:AX:156:MET:HE1  | 1.95                     | 0.47              |
| 13:AN:23:ALA:CB    | 13:AN:45:GLY:HA3   | 2.43                     | 0.47              |
| 17:AT:12:GLN:OE1   | 17:AT:12:GLN:HA    | 2.14                     | 0.47              |
| 18:AU:29:GLN:NE2   | 50:AU:304:HOH:O    | 2.46                     | 0.47              |
| 20:B2:2:G:O2'      | 20:B2:3:A:P        | 2.72                     | 0.47              |
| 22:BA:179:PRO:HG2  | 46:BY:26:VAL:CG2   | 2.44                     | 0.47              |
| 27:BF:143:LEU:HD22 | 27:BF:211:PHE:HD2  | 1.79                     | 0.47              |
| 27:BF:153:ILE:HG22 | 27:BF:157:ILE:CG1  | 2.44                     | 0.47              |
| 27:BF:183:VAL:O    | 27:BF:184:ASN:HB2  | 2.15                     | 0.47              |
| 35:BN:122:LEU:HA   | 35:BN:126:GLN:OE1  | 2.14                     | 0.47              |
| 36:BO:150:ILE:HG22 | 36:BO:150:ILE:O    | 2.15                     | 0.47              |
| 37:BP:45:ASP:OD1   | 37:BP:45:ASP:C     | 2.56                     | 0.47              |
| 44:BW:81:GLU:HA    | 44:BW:81:GLU:OE1   | 2.15                     | 0.47              |
| 20:C2:71:G:H2'     | 20:C2:72:C:H6      | 1.79                     | 0.47              |
| 20:C2:114:G:N2     | 3:DB:11:LYS:HZ1    | 2.13                     | 0.47              |
| 20:C2:148:U:O2'    | 27:CF:58:ARG:NH1   | 2.37                     | 0.47              |
| 21:C3:54:A:O2'     | 25:CD:152:GLN:NE2  | 2.47                     | 0.47              |
| 23:CB:46:PHE:CE1   | 23:CB:84:MET:HG3   | 2.49                     | 0.47              |
| 23:CB:301:LYS:HD3  | 23:CB:359:THR:CG2  | 2.43                     | 0.47              |
| 24:CC:175:PHE:CE1  | 24:CC:179:VAL:HG21 | 2.50                     | 0.47              |
| 24:CC:230:ILE:HG22 | 24:CC:233:VAL:HG13 | 1.96                     | 0.47              |
| 24:CC:351:SER:O    | 24:CC:355:ARG:HG3  | 2.15                     | 0.47              |
| 25:CD:115:LYS:CG   | 25:CD:116:TYR:N    | 2.77                     | 0.47              |
| 27:CF:114:GLY:O    | 27:CF:115:LYS:HB2  | 2.15                     | 0.47              |
| 28:CG:9:UNK:O      | 28:CG:13:UNK:HB2   | 2.15                     | 0.47              |
| 30:CI:61:MET:HE3   | 30:CI:67:ARG:O     | 2.15                     | 0.47              |
| 30:CI:98:LEU:HD23  | 30:CI:98:LEU:HA    | 1.74                     | 0.47              |
| 30:CI:141:SER:HB3  | 30:CI:146:TRP:HB3  | 1.97                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 31:CJ:83:ILE:CG2   | 31:CJ:122:VAL:HA   | 2.44                     | 0.47              |
| 47:CO:42:ARG:HH22  | 1:D1:1626:U:P      | 2.38                     | 0.47              |
| 47:CO:128:LYS:NZ   | 1:D1:1745:U:O4     | 2.45                     | 0.47              |
| 39:CR:43:LEU:HD11  | 1:D1:1599:G:C5'    | 2.44                     | 0.47              |
| 42:CU:98:LYS:CG    | 1:D1:242:G:OP1     | 2.62                     | 0.47              |
| 1:D1:219:A:N1      | 1:D1:1416:U:H2'    | 2.27                     | 0.47              |
| 1:D1:561:A:C2'     | 1:D1:562:G:H5'     | 2.44                     | 0.47              |
| 1:D1:1039:G:C2'    | 1:D1:1041:C:H41    | 2.26                     | 0.47              |
| 1:D1:1104:C:N1     | 17:DT:42:ASN:ND2   | 2.61                     | 0.47              |
| 1:D1:1351:U:H2'    | 1:D1:1352:U:C6     | 2.49                     | 0.47              |
| 1:D1:1370:A:N1     | 1:D1:1389:G:C6     | 2.83                     | 0.47              |
| 1:D1:1554:G:N2     | 1:D1:1857:G:C4     | 2.83                     | 0.47              |
| 1:D1:1698:G:C6     | 1:D1:1800:A:N1     | 2.82                     | 0.47              |
| 1:D1:2259:U:H2'    | 1:D1:2260:C:C6     | 2.49                     | 0.47              |
| 1:D1:2275:A:O2'    | 1:D1:2276:A:P      | 2.70                     | 0.47              |
| 1:D1:2719:A:H2'    | 1:D1:2720:G:C8     | 2.46                     | 0.47              |
| 1:D1:2751:A:H2'    | 1:D1:2752:U:C6     | 2.49                     | 0.47              |
| 1:D1:3008:U:O2'    | 1:D1:3009:U:H5'    | 2.14                     | 0.47              |
| 1:D1:3098:A:C2     | 1:D1:3115:C:N3     | 2.82                     | 0.47              |
| 1:D1:3176:A:C4'    | 1:D1:3177:G:O5'    | 2.58                     | 0.47              |
| 1:D1:3230:G:HO2'   | 1:D1:3231:U:P      | 2.35                     | 0.47              |
| 1:D1:3344:U:O2     | 1:D1:3344:U:C2'    | 2.61                     | 0.47              |
| 8:DH:91:PHE:N      | 8:DH:91:PHE:CD1    | 2.83                     | 0.47              |
| 19:DX:4:LYS:HE2    | 19:DX:12:ASP:OD1   | 2.15                     | 0.47              |
| 23:EB:110:ILE:CG2  | 23:EB:114:THR:HG21 | 2.45                     | 0.47              |
| 24:EC:77:ALA:HA    | 50:F1:4562:HOH:O   | 2.14                     | 0.47              |
| 26:EE:2:ARG:HH12   | 30:EI:129:ARG:CZ   | 2.26                     | 0.47              |
| 29:EH:101:LYS:HB3  | 29:EH:121:LYS:HZ3  | 1.75                     | 0.47              |
| 30:EI:163:ALA:HB1  | 1:F1:3163:A:O2'    | 2.14                     | 0.47              |
| 30:EI:186:LEU:HD11 | 6:FF:122:SER:CB    | 2.28                     | 0.47              |
| 31:EJ:41:ILE:HD13  | 1:F1:2290:A:C4     | 2.50                     | 0.47              |
| 32:EK:18:GLY:HA2   | 1:F1:1397:G:H5''   | 1.97                     | 0.47              |
| 32:EK:141:VAL:O    | 32:EK:141:VAL:CG1  | 2.61                     | 0.47              |
| 33:EL:27:THR:CG2   | 33:EL:124:ASP:HB3  | 2.43                     | 0.47              |
| 37:EP:8:ARG:C      | 37:EP:11:THR:HG1   | 2.21                     | 0.47              |
| 43:EV:142:SER:HG   | 43:EV:146:TYR:HE2  | 1.63                     | 0.47              |
| 45:EX:25:GLU:H     | 45:EX:25:GLU:CD    | 2.22                     | 0.47              |
| 45:EX:29:LYS:HG2   | 1:F1:679:C:OP1     | 2.15                     | 0.47              |
| 1:F1:207:U:O2      | 1:F1:207:U:H2'     | 2.13                     | 0.47              |
| 1:F1:486:C:C2'     | 1:F1:487:G:H5'     | 2.44                     | 0.47              |
| 1:F1:578:G:H2'     | 1:F1:579:G:H5''    | 1.97                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:F1:661:C:C2     | 1:F1:662:C:C5     | 3.02                     | 0.47              |
| 1:F1:897:A:H2'    | 1:F1:898:C:H5'    | 1.97                     | 0.47              |
| 1:F1:1223:U:O2'   | 1:F1:1224:A:H5'   | 2.15                     | 0.47              |
| 1:F1:1252:A:N3    | 1:F1:3105:G:C8    | 2.82                     | 0.47              |
| 1:F1:2138:A:H4'   | 1:F1:2139:A:O5'   | 2.14                     | 0.47              |
| 1:F1:2753:C:C5    | 1:F1:2754:C:C5    | 3.03                     | 0.47              |
| 1:F1:3000:A:H4'   | 1:F1:3001:A:H4'   | 1.96                     | 0.47              |
| 2:FA:36:ALA:O     | 2:FA:45:ARG:HD3   | 2.14                     | 0.47              |
| 12:FM:60:ASN:O    | 12:FM:60:ASN:OD1  | 2.33                     | 0.47              |
| 13:FN:33:THR:HG22 | 13:FN:34:LYS:H    | 1.80                     | 0.47              |
| 17:FT:56:SER:OG   | 17:FT:57:LYS:N    | 2.47                     | 0.47              |
| 18:FU:34:LEU:HA   | 18:FU:37:ARG:HD2  | 1.97                     | 0.47              |
| 21:G3:29:C:OP1    | 25:GD:134:PRO:O   | 2.32                     | 0.47              |
| 24:GC:44:ASP:N    | 24:GC:44:ASP:OD1  | 2.47                     | 0.47              |
| 24:GC:182:TYR:CE2 | 24:GC:186:LEU:HG  | 2.50                     | 0.47              |
| 30:GI:48:ARG:HH12 | 1:H1:1217:A:H8    | 1.61                     | 0.47              |
| 30:GI:61:MET:HE3  | 30:GI:67:ARG:O    | 2.13                     | 0.47              |
| 34:GM:34:LYS:HA   | 34:GM:37:ILE:HG22 | 1.96                     | 0.47              |
| 34:GM:140:LYS:O   | 1:H1:1107:A:H4'   | 2.14                     | 0.47              |
| 34:GM:175:HIS:HD2 | 34:GM:180:PHE:CE2 | 2.29                     | 0.47              |
| 35:GN:25:VAL:CG1  | 14:HO:7:GLU:HB2   | 2.42                     | 0.47              |
| 37:GP:3:HIS:NE2   | 1:H1:2620:U:O4    | 2.43                     | 0.47              |
| 38:GQ:66:THR:CG2  | 38:GQ:82:GLN:NE2  | 2.77                     | 0.47              |
| 41:GT:57:ARG:HD2  | 41:GT:61:TRP:CD1  | 2.49                     | 0.47              |
| 43:GV:41:TRP:CG   | 43:GV:177:CYS:HG  | 2.32                     | 0.47              |
| 1:H1:94:A:C2      | 1:H1:95:U:C6      | 3.03                     | 0.47              |
| 1:H1:550:G:C6     | 1:H1:551:U:C4     | 3.03                     | 0.47              |
| 1:H1:1104:C:N1    | 17:HT:42:ASN:ND2  | 2.61                     | 0.47              |
| 1:H1:1247:C:C5'   | 1:H1:1248:G:H5''  | 2.35                     | 0.47              |
| 1:H1:1593:A:C2    | 1:H1:1594:C:N3    | 2.82                     | 0.47              |
| 1:H1:1907:A:H2'   | 1:H1:1908:A:C8    | 2.49                     | 0.47              |
| 1:H1:2276:A:C6    | 1:H1:2947:C:H1'   | 2.49                     | 0.47              |
| 1:H1:2304:A:N3    | 1:H1:2949:G:O2'   | 2.44                     | 0.47              |
| 1:H1:2730:C:H2'   | 1:H1:2731:C:O5'   | 2.13                     | 0.47              |
| 1:H1:2945:G:N7    | 50:H1:3971:HOH:O  | 2.35                     | 0.47              |
| 4:HC:7:THR:HB     | 4:HC:94:ILE:CD1   | 2.41                     | 0.47              |
| 5:HE:160:LEU:HD23 | 5:HE:160:LEU:HA   | 1.66                     | 0.47              |
| 6:HF:44:VAL:HG12  | 6:HF:45:ARG:N     | 2.30                     | 0.47              |
| 7:HG:43:PHE:CD1   | 7:HG:68:HIS:HD2   | 2.33                     | 0.47              |
| 9:HJ:161:VAL:C    | 9:HJ:193:ILE:HD12 | 2.39                     | 0.47              |
| 12:HM:35:PHE:HD1  | 12:HM:65:ILE:CD1  | 2.25                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:HP:15:TRP:CH2   | 15:HP:67:ALA:O     | 2.68                     | 0.47              |
| 15:HP:33:VAL:HG22  | 15:HP:42:PHE:CD2   | 2.49                     | 0.47              |
| 1:A1:70:C:C4       | 1:A1:72:A:C5       | 3.03                     | 0.47              |
| 1:A1:368:A:C5'     | 1:A1:369:U:OP2     | 2.62                     | 0.47              |
| 1:A1:663:G:H4'     | 1:A1:1460:G:O6     | 2.14                     | 0.47              |
| 1:A1:1017:U:C6     | 1:A1:1017:U:C3'    | 2.97                     | 0.47              |
| 1:A1:1682:G:N7     | 50:A1:4036:HOH:O   | 2.35                     | 0.47              |
| 1:A1:1842:A:H2'    | 1:A1:1843:U:C6     | 2.49                     | 0.47              |
| 1:A1:2187:C:O2     | 1:A1:2310:G:N2     | 2.42                     | 0.47              |
| 1:A1:2529:G:H2'    | 1:A1:2530:G:C8     | 2.49                     | 0.47              |
| 1:A1:2573:U:H1'    | 27:BF:232:GLN:OE1  | 2.14                     | 0.47              |
| 1:A1:2584:A:H8     | 1:A1:2584:A:O5'    | 1.96                     | 0.47              |
| 1:A1:2625:A:H5'    | 1:A1:2626:A:H5''   | 1.94                     | 0.47              |
| 1:A1:3006:A:O2'    | 1:A1:3007:G:H5'    | 2.14                     | 0.47              |
| 1:A1:3035:A:H2'    | 1:A1:3036:U:O4'    | 2.14                     | 0.47              |
| 1:A1:3136:A:C5     | 1:A1:3137:U:C5     | 3.03                     | 0.47              |
| 5:AE:135:THR:O     | 5:AE:139:LYS:HG3   | 2.14                     | 0.47              |
| 9:AJ:126:GLU:HG3   | 9:AJ:137:VAL:HG11  | 1.96                     | 0.47              |
| 16:AQ:83:THR:HG22  | 16:AQ:86:ARG:H     | 1.80                     | 0.47              |
| 19:AX:88:THR:O     | 19:AX:143:LEU:HB2  | 2.14                     | 0.47              |
| 24:BC:258:TRP:CZ3  | 24:BC:266:LEU:HD21 | 2.50                     | 0.47              |
| 26:BE:7:GLU:OE1    | 26:BE:54:LYS:HE2   | 2.14                     | 0.47              |
| 37:BP:66:ASN:OD1   | 37:BP:67:VAL:N     | 2.47                     | 0.47              |
| 45:BX:84:LEU:HD13  | 45:BX:113:ARG:HB3  | 1.96                     | 0.47              |
| 20:C2:11:C:H2'     | 20:C2:12:A:C8      | 2.50                     | 0.47              |
| 22:CA:84:TYR:CE1   | 22:CA:87:GLN:HB2   | 2.49                     | 0.47              |
| 23:CB:368:PHE:CE1  | 23:CB:374:LYS:HA   | 2.50                     | 0.47              |
| 24:CC:376:TRP:CD1  | 1:D1:564:A:C1'     | 2.81                     | 0.47              |
| 34:CM:54:ARG:NH1   | 34:CM:149:GLY:HA3  | 2.30                     | 0.47              |
| 34:CM:166:ALA:HB1  | 34:CM:173:ILE:HD11 | 1.96                     | 0.47              |
| 34:CM:201:LYS:HA   | 34:CM:204:ILE:HG13 | 1.97                     | 0.47              |
| 34:CM:283:THR:HG22 | 34:CM:285:ALA:N    | 2.26                     | 0.47              |
| 35:CN:174:PHE:C    | 35:CN:176:ARG:H    | 2.21                     | 0.47              |
| 43:CV:81:ALA:HB3   | 43:CV:114:PHE:CZ   | 2.50                     | 0.47              |
| 43:CV:156:GLN:OE1  | 1:D1:1389:G:H1'    | 2.14                     | 0.47              |
| 45:CX:65:THR:O     | 45:CX:68:LEU:HB2   | 2.14                     | 0.47              |
| 45:CX:84:LEU:HD13  | 45:CX:113:ARG:HB3  | 1.96                     | 0.47              |
| 1:D1:74:G:H2'      | 18:DU:98:ARG:CD    | 2.44                     | 0.47              |
| 1:D1:300:G:H8      | 1:D1:300:G:H5'     | 1.79                     | 0.47              |
| 1:D1:738:U:O2'     | 1:D1:778:G:OP1     | 2.32                     | 0.47              |
| 1:D1:1066:A:C6     | 1:D1:1067:U:C5     | 3.02                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1448:G:C4     | 1:D1:1449:C:C5     | 3.03                     | 0.47              |
| 1:D1:1518:G:O2'    | 3:DB:48:LYS:NZ     | 2.47                     | 0.47              |
| 1:D1:1620:U:O2'    | 1:D1:1631:U:O2     | 2.30                     | 0.47              |
| 1:D1:1656:G:C6     | 1:D1:1657:C:C4     | 3.03                     | 0.47              |
| 1:D1:1658:G:P      | 13:DN:107:LYS:HZ2  | 2.38                     | 0.47              |
| 1:D1:1808:A:H2'    | 1:D1:1809:C:C6     | 2.49                     | 0.47              |
| 1:D1:1820:U:H4'    | 1:D1:1821:U:OP1    | 2.12                     | 0.47              |
| 1:D1:1923:G:H2'    | 50:D1:4586:HOH:O   | 2.14                     | 0.47              |
| 1:D1:1937:G:O2'    | 1:D1:2116:A:O2'    | 2.27                     | 0.47              |
| 1:D1:2252:C:H3'    | 1:D1:2252:C:C6     | 2.50                     | 0.47              |
| 1:D1:3077:G:H2'    | 1:D1:3078:C:C6     | 2.49                     | 0.47              |
| 1:D1:3229:C:O2'    | 1:D1:3230:G:OP1    | 2.31                     | 0.47              |
| 2:DA:18:LEU:HA     | 2:DA:24:LYS:O      | 2.15                     | 0.47              |
| 5:DE:41:LEU:CD1    | 5:DE:45:ILE:HG21   | 2.42                     | 0.47              |
| 5:DE:104:LEU:O     | 5:DE:107:VAL:HG22  | 2.14                     | 0.47              |
| 5:DE:113:GLU:OE1   | 5:DE:113:GLU:HA    | 2.15                     | 0.47              |
| 14:DO:87:VAL:HG22  | 14:DO:115:HIS:CD2  | 2.49                     | 0.47              |
| 19:DX:41:MET:CE    | 19:DX:59:MET:HE2   | 2.43                     | 0.47              |
| 19:DX:44:PHE:CD2   | 19:DX:117:VAL:HG21 | 2.48                     | 0.47              |
| 20:E2:3:A:C5'      | 20:E2:4:A:OP2      | 2.63                     | 0.47              |
| 21:E3:22:A:C6      | 21:E3:23:A:C6      | 3.03                     | 0.47              |
| 24:EC:173:VAL:HG12 | 24:EC:177:LYS:HE3  | 1.97                     | 0.47              |
| 24:EC:319:ARG:CZ   | 1:F1:634:G:N7      | 2.77                     | 0.47              |
| 25:ED:16:LYS:HB3   | 25:ED:72:ARG:HE    | 1.79                     | 0.47              |
| 25:ED:59:ILE:HD11  | 1:F1:2669:A:N3     | 2.30                     | 0.47              |
| 27:EF:196:VAL:CG1  | 27:EF:197:ARG:N    | 2.78                     | 0.47              |
| 32:EK:42:HIS:O     | 1:F1:989:G:N2      | 2.41                     | 0.47              |
| 35:EN:31:ILE:CG2   | 35:EN:35:LYS:HE3   | 2.44                     | 0.47              |
| 35:EN:172:ARG:HG2  | 35:EN:173:LYS:HG2  | 1.97                     | 0.47              |
| 38:EQ:118:HIS:O    | 38:EQ:150:ILE:HA   | 2.14                     | 0.47              |
| 39:ER:73:THR:HG23  | 42:EU:37:ILE:HD11  | 1.97                     | 0.47              |
| 41:ET:49:GLN:O     | 41:ET:57:ARG:HB2   | 2.15                     | 0.47              |
| 1:F1:53:G:H5'      | 1:F1:1573:A:O2'    | 2.14                     | 0.47              |
| 1:F1:122:U:H4'     | 1:F1:150:A:H1'     | 1.96                     | 0.47              |
| 1:F1:145:A:N6      | 50:F1:3708:HOH:O   | 2.47                     | 0.47              |
| 1:F1:615:G:N2      | 8:FH:79:LYS:CE     | 2.77                     | 0.47              |
| 1:F1:701:A:N6      | 1:F1:811:A:O4'     | 2.47                     | 0.47              |
| 1:F1:1307:C:O2'    | 1:F1:1308:U:H5'    | 2.14                     | 0.47              |
| 1:F1:1334:G:N3     | 1:F1:1335:A:C2     | 2.83                     | 0.47              |
| 1:F1:1380:C:N3     | 14:FO:32:THR:HG21  | 2.30                     | 0.47              |
| 1:F1:1663:C:N4     | 11:FL:75:SER:OG    | 2.47                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:F1:1772:G:C2'    | 1:F1:1773:G:H5'   | 2.44                     | 0.47              |
| 1:F1:1842:A:H2'    | 1:F1:1843:U:C6    | 2.50                     | 0.47              |
| 1:F1:2112:G:H5'    | 1:F1:2112:G:N3    | 2.28                     | 0.47              |
| 1:F1:2187:C:O2     | 1:F1:2310:G:N2    | 2.46                     | 0.47              |
| 1:F1:2260:C:O2'    | 1:F1:2261:U:H5'   | 2.14                     | 0.47              |
| 1:F1:2499:U:H2'    | 1:F1:2500:C:H6    | 1.77                     | 0.47              |
| 1:F1:3229:C:HO2'   | 1:F1:3230:G:P     | 2.37                     | 0.47              |
| 1:F1:3237:C:N4     | 8:FH:10:ALA:CA    | 2.70                     | 0.47              |
| 2:FA:28:HIS:HD2    | 2:FA:31:LYS:N     | 1.95                     | 0.47              |
| 7:FG:48:CYS:SG     | 7:FG:49:PRO:HD2   | 2.55                     | 0.47              |
| 8:FH:13:ARG:NE     | 8:FH:15:TRP:CE2   | 2.82                     | 0.47              |
| 11:FL:83:CYS:O     | 11:FL:87:VAL:HG23 | 2.14                     | 0.47              |
| 12:FM:32:ILE:HG21  | 12:FM:61:ASP:O    | 2.15                     | 0.47              |
| 16:FQ:19:GLU:O     | 16:FQ:23:GLN:HG3  | 2.14                     | 0.47              |
| 20:G2:18:G:OP1     | 38:GQ:125:GLN:HG3 | 2.15                     | 0.47              |
| 21:G3:22:A:C6      | 34:GM:274:HIS:CG  | 3.03                     | 0.47              |
| 23:GB:218:VAL:HA   | 23:GB:271:HIS:O   | 2.15                     | 0.47              |
| 24:GC:81:ILE:HG13  | 1:H1:829:C:O2'    | 2.15                     | 0.47              |
| 29:GH:193:ASP:CB   | 1:H1:1037:A:H1'   | 2.45                     | 0.47              |
| 31:GJ:26:VAL:N     | 1:H1:1923:G:OP1   | 2.35                     | 0.47              |
| 32:GK:114:GLY:O    | 1:H1:740:A:H5'    | 2.15                     | 0.47              |
| 32:GK:128:LYS:C    | 32:GK:129:TYR:CD1 | 2.93                     | 0.47              |
| 33:GL:6:TYR:CD1    | 16:HQ:45:ILE:HD11 | 2.49                     | 0.47              |
| 34:GM:216:LEU:HD12 | 34:GM:228:PHE:CE2 | 2.50                     | 0.47              |
| 35:GN:41:THR:HG22  | 35:GN:43:SER:H    | 1.79                     | 0.47              |
| 35:GN:63:LEU:O     | 35:GN:87:VAL:HA   | 2.13                     | 0.47              |
| 36:GO:28:GLU:HB3   | 36:GO:49:LEU:HD13 | 1.96                     | 0.47              |
| 43:GV:188:VAL:HG12 | 43:GV:188:VAL:O   | 2.13                     | 0.47              |
| 43:GV:216:HIS:C    | 43:GV:222:GLY:HA3 | 2.38                     | 0.47              |
| 44:GW:26:LYS:C     | 44:GW:29:PRO:HD2  | 2.40                     | 0.47              |
| 45:GX:29:LYS:HE3   | 1:H1:1459:A:O4'   | 2.14                     | 0.47              |
| 1:H1:32:A:H2'      | 1:H1:33:A:C8      | 2.49                     | 0.47              |
| 1:H1:219:A:H2      | 1:H1:1416:U:C2'   | 2.22                     | 0.47              |
| 1:H1:470:C:H1'     | 1:H1:510:A:C2     | 2.49                     | 0.47              |
| 1:H1:734:A:H2'     | 1:H1:735:A:O4'    | 2.15                     | 0.47              |
| 1:H1:848:C:H2'     | 1:H1:849:U:H6     | 1.79                     | 0.47              |
| 1:H1:1053:A:H4'    | 1:H1:1054:G:O4'   | 2.14                     | 0.47              |
| 1:H1:1902:C:H2'    | 1:H1:1902:C:O2    | 2.14                     | 0.47              |
| 1:H1:2537:C:H2'    | 1:H1:2538:C:H6    | 1.79                     | 0.47              |
| 1:H1:2673:C:H2'    | 1:H1:2674:A:C8    | 2.50                     | 0.47              |
| 1:H1:2871:U:H2'    | 1:H1:2872:C:C6    | 2.49                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:H1:2919:C:N3    | 1:H1:2923:U:H5    | 2.13                     | 0.47              |
| 1:H1:3098:A:C2    | 1:H1:3115:C:N3    | 2.82                     | 0.47              |
| 5:HE:102:VAL:HG22 | 5:HE:170:LEU:CD2  | 2.38                     | 0.47              |
| 5:HE:179:THR:CG2  | 5:HE:180:LEU:N    | 2.78                     | 0.47              |
| 16:HQ:52:ALA:O    | 16:HQ:55:GLU:HB2  | 2.15                     | 0.47              |
| 17:HT:32:THR:O    | 17:HT:32:THR:HG22 | 2.15                     | 0.47              |
| 1:A1:42:U:H1'     | 4:AC:52:THR:HG23  | 1.96                     | 0.47              |
| 1:A1:186:U:OP1    | 40:BS:121:LYS:HE2 | 2.14                     | 0.47              |
| 1:A1:314:C:H2'    | 1:A1:315:U:H6     | 1.79                     | 0.47              |
| 1:A1:434:A:C5'    | 1:A1:435:A:OP1    | 2.62                     | 0.47              |
| 1:A1:564:A:O5'    | 43:BV:67:ARG:NH1  | 2.48                     | 0.47              |
| 1:A1:643:A:O2'    | 1:A1:644:A:P      | 2.72                     | 0.47              |
| 1:A1:826:A:P      | 32:BK:27:LYS:NZ   | 2.86                     | 0.47              |
| 1:A1:970:C:O2'    | 1:A1:1432:G:H1'   | 2.14                     | 0.47              |
| 1:A1:974:C:C2'    | 1:A1:975:G:H5'    | 2.44                     | 0.47              |
| 1:A1:1062:A:C2    | 1:A1:1063:C:C6    | 3.02                     | 0.47              |
| 1:A1:1173:A:OP1   | 45:BX:49:ARG:HB3  | 2.15                     | 0.47              |
| 1:A1:1252:A:N3    | 1:A1:3105:G:C8    | 2.83                     | 0.47              |
| 1:A1:1254:C:C3'   | 1:A1:1255:A:H5''  | 2.45                     | 0.47              |
| 1:A1:1438:A:H2'   | 1:A1:1439:U:C6    | 2.49                     | 0.47              |
| 1:A1:1598:C:C5    | 1:A1:1599:G:C5    | 3.03                     | 0.47              |
| 1:A1:1740:U:H5''  | 1:A1:1741:U:OP2   | 2.15                     | 0.47              |
| 1:A1:1821:U:OP1   | 22:BA:192:ARG:CZ  | 2.63                     | 0.47              |
| 1:A1:1845:U:O2    | 11:AL:69:ARG:HB2  | 2.15                     | 0.47              |
| 1:A1:1958:G:N7    | 50:A1:4530:HOH:O  | 2.36                     | 0.47              |
| 1:A1:1966:U:O2'   | 1:A1:3303:G:H1'   | 2.15                     | 0.47              |
| 1:A1:2398:G:C5'   | 1:A1:2859:G:H5''  | 2.45                     | 0.47              |
| 1:A1:2557:A:H2'   | 1:A1:2558:U:C6    | 2.50                     | 0.47              |
| 1:A1:2738:G:C2'   | 1:A1:2739:C:H5'   | 2.45                     | 0.47              |
| 1:A1:2741:U:C4'   | 1:A1:2742:G:OP2   | 2.62                     | 0.47              |
| 1:A1:2861:U:H5''  | 50:A1:4262:HOH:O  | 2.13                     | 0.47              |
| 1:A1:2869:C:O2'   | 1:A1:2870:U:H5'   | 2.15                     | 0.47              |
| 1:A1:3081:C:O3'   | 1:A1:3082:C:H3'   | 2.14                     | 0.47              |
| 1:A1:3109:C:C6    | 10:AK:111:ARG:CZ  | 2.98                     | 0.47              |
| 1:A1:3205:A:O2'   | 1:A1:3206:A:OP1   | 2.31                     | 0.47              |
| 1:A1:3325:G:N7    | 41:BT:58:ARG:NE   | 2.62                     | 0.47              |
| 4:AC:26:TYR:HB2   | 4:AC:67:ALA:HB3   | 1.96                     | 0.47              |
| 5:AE:42:ARG:H     | 5:AE:92:GLN:HE21  | 1.62                     | 0.47              |
| 5:AE:58:PHE:CG    | 5:AE:85:VAL:HG22  | 2.49                     | 0.47              |
| 6:AF:18:GLY:O     | 6:AF:21:LYS:HG2   | 2.15                     | 0.47              |
| 9:AJ:4:ARG:HA     | 9:AJ:206:CYS:O    | 2.15                     | 0.47              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 9:AJ:59:VAL:HG23   | 9:AJ:60:GLY:N     | 2.29                     | 0.47              |
| 9:AJ:161:VAL:C     | 9:AJ:193:ILE:HD12 | 2.40                     | 0.47              |
| 11:AL:39:VAL:HG11  | 11:AL:60:ARG:HA   | 1.95                     | 0.47              |
| 12:AM:98:THR:CG2   | 12:AM:99:SER:N    | 2.77                     | 0.47              |
| 14:AO:26:THR:O     | 14:AO:26:THR:HG22 | 2.14                     | 0.47              |
| 18:AU:26:GLN:HG2   | 33:BL:202:ARG:NH2 | 2.30                     | 0.47              |
| 19:AX:28:LEU:O     | 19:AX:29:PRO:C    | 2.56                     | 0.47              |
| 19:AX:96:GLN:HB3   | 19:AX:134:THR:CG2 | 2.45                     | 0.47              |
| 20:B2:43:A:H3'     | 20:B2:43:A:C8     | 2.50                     | 0.47              |
| 20:B2:45:G:C2'     | 20:B2:46:A:H5'    | 2.45                     | 0.47              |
| 21:B3:27:A:H5''    | 34:BM:57:ASN:ND2  | 2.26                     | 0.47              |
| 22:BA:31:ARG:HH12  | 22:BA:42:ILE:CG1  | 2.27                     | 0.47              |
| 22:BA:33:TYR:CD1   | 22:BA:164:ARG:NH2 | 2.82                     | 0.47              |
| 22:BA:84:TYR:CE2   | 22:BA:87:GLN:HA   | 2.50                     | 0.47              |
| 22:BA:184:GLY:O    | 22:BA:187:PHE:HB3 | 2.14                     | 0.47              |
| 24:BC:164:GLU:OE1  | 24:BC:218:ASN:HB2 | 2.14                     | 0.47              |
| 24:BC:276:THR:CG2  | 24:BC:282:GLY:HA2 | 2.45                     | 0.47              |
| 24:BC:337:ALA:O    | 24:BC:341:LYS:HG2 | 2.14                     | 0.47              |
| 25:BD:36:VAL:HG21  | 25:BD:123:PHE:CE2 | 2.49                     | 0.47              |
| 26:BE:75:ILE:O     | 26:BE:76:LYS:C    | 2.55                     | 0.47              |
| 29:BH:98:ARG:NH2   | 29:BH:119:PHE:CZ  | 2.83                     | 0.47              |
| 29:BH:139:ARG:HB3  | 29:BH:173:PHE:CE1 | 2.50                     | 0.47              |
| 30:BI:35:VAL:O     | 30:BI:36:ARG:HB2  | 2.15                     | 0.47              |
| 30:BI:45:SER:HB2   | 30:BI:48:ARG:H    | 1.80                     | 0.47              |
| 30:BI:92:PRO:O     | 30:BI:95:ALA:HB3  | 2.14                     | 0.47              |
| 30:BI:107:ILE:HD12 | 30:BI:159:ARG:NH2 | 2.29                     | 0.47              |
| 33:BL:33:LEU:O     | 33:BL:65:ARG:NH1  | 2.47                     | 0.47              |
| 34:BM:16:PHE:O     | 37:BP:20:LYS:HE2  | 2.14                     | 0.47              |
| 35:BN:172:ARG:HG2  | 35:BN:173:LYS:HG2 | 1.96                     | 0.47              |
| 36:BO:6:LEU:HD11   | 36:BO:10:LEU:HD11 | 1.96                     | 0.47              |
| 36:BO:165:LYS:HZ2  | 1:H1:2893:U:H1'   | 1.80                     | 0.47              |
| 37:BP:15:PHE:N     | 37:BP:15:PHE:CD1  | 2.82                     | 0.47              |
| 37:BP:40:VAL:HG13  | 37:BP:96:VAL:HG13 | 1.95                     | 0.47              |
| 39:BR:75:LEU:HD12  | 39:BR:91:VAL:CG1  | 2.44                     | 0.47              |
| 40:BS:57:ILE:HG22  | 40:BS:63:LYS:HA   | 1.97                     | 0.47              |
| 41:BT:27:ASP:N     | 41:BT:27:ASP:OD1  | 2.48                     | 0.47              |
| 43:BV:185:ILE:HA   | 43:BV:192:PHE:CE1 | 2.49                     | 0.47              |
| 20:C2:58:U:N3      | 20:C2:65:C:C5     | 2.71                     | 0.47              |
| 21:C3:5:U:H1'      | 34:CM:63:GLN:HE22 | 1.79                     | 0.47              |
| 21:C3:19:G:H2'     | 21:C3:20:U:O4'    | 2.15                     | 0.47              |
| 22:CA:12:ARG:HD2   | 50:CA:302:HOH:O   | 2.15                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:CB:54:THR:CG2   | 23:CB:358:ASP:HB3  | 2.45                     | 0.47              |
| 23:CB:56:ILE:HD11  | 23:CB:321:MET:SD   | 2.54                     | 0.47              |
| 23:CB:113:ASN:C    | 23:CB:174:ASN:HD22 | 2.23                     | 0.47              |
| 23:CB:171:GLN:CD   | 1:D1:3273:U:H5''   | 2.40                     | 0.47              |
| 23:CB:233:VAL:HG12 | 23:CB:234:LYS:O    | 2.15                     | 0.47              |
| 23:CB:270:TYR:CD2  | 1:D1:3265:A:H5'    | 2.47                     | 0.47              |
| 23:CB:292:ALA:HB2  | 23:CB:303:ILE:N    | 2.30                     | 0.47              |
| 23:CB:306:LEU:HD11 | 23:CB:371:VAL:HG23 | 1.95                     | 0.47              |
| 23:CB:377:PHE:C    | 1:D1:3325:G:H22    | 2.23                     | 0.47              |
| 24:CC:126:ARG:NE   | 24:CC:280:LYS:HD2  | 2.30                     | 0.47              |
| 24:CC:157:TYR:CE1  | 24:CC:179:VAL:CG1  | 2.97                     | 0.47              |
| 24:CC:222:THR:HG23 | 24:CC:225:ARG:HD2  | 1.96                     | 0.47              |
| 24:CC:272:THR:O    | 24:CC:275:THR:O    | 2.31                     | 0.47              |
| 26:CE:58:TRP:O     | 26:CE:59:GLN:C     | 2.57                     | 0.47              |
| 26:CE:67:VAL:O     | 26:CE:71:ILE:HG13  | 2.15                     | 0.47              |
| 26:CE:84:GLU:HB3   | 26:CE:185:ALA:O    | 2.15                     | 0.47              |
| 27:CF:45:VAL:HG12  | 27:CF:46:ARG:N     | 2.29                     | 0.47              |
| 27:CF:69:GLN:OE1   | 33:CL:18:LEU:HD22  | 2.14                     | 0.47              |
| 27:CF:143:LEU:HD23 | 27:CF:169:PRO:HG2  | 1.97                     | 0.47              |
| 30:CI:30:GLN:HG3   | 30:CI:32:ILE:CD1   | 2.45                     | 0.47              |
| 30:CI:159:ARG:HB2  | 30:CI:162:ARG:CZ   | 2.44                     | 0.47              |
| 30:CI:160:ARG:O    | 30:CI:163:ALA:HB3  | 2.15                     | 0.47              |
| 33:CL:26:ARG:C     | 33:CL:30:TYR:CD1   | 2.92                     | 0.47              |
| 34:CM:54:ARG:NH2   | 34:CM:149:GLY:HA3  | 2.30                     | 0.47              |
| 34:CM:66:TYR:CZ    | 34:CM:73:ARG:HB2   | 2.50                     | 0.47              |
| 34:CM:136:GLN:HB3  | 34:CM:141:PRO:HD3  | 1.96                     | 0.47              |
| 34:CM:160:PHE:HE1  | 1:D1:2735:A:H1'    | 1.79                     | 0.47              |
| 35:CN:37:LEU:O     | 35:CN:41:THR:CB    | 2.63                     | 0.47              |
| 35:CN:73:ASN:H     | 35:CN:76:ASN:CG    | 2.23                     | 0.47              |
| 47:CO:24:LEU:HD22  | 47:CO:50:VAL:HG22  | 1.96                     | 0.47              |
| 47:CO:42:ARG:NH2   | 1:D1:1626:U:OP1    | 2.48                     | 0.47              |
| 37:CP:70:ARG:O     | 37:CP:93:ILE:HG13  | 2.14                     | 0.47              |
| 40:CS:121:LYS:HE2  | 1:D1:186:U:OP1     | 2.14                     | 0.47              |
| 43:CV:7:GLU:O      | 43:CV:11:LYS:HG3   | 2.14                     | 0.47              |
| 45:CX:8:HIS:NE2    | 45:CX:72:GLY:HA2   | 2.30                     | 0.47              |
| 45:CX:25:GLU:H     | 45:CX:25:GLU:CD    | 2.23                     | 0.47              |
| 46:CY:62:LYS:NZ    | 1:D1:2545:A:N7     | 2.61                     | 0.47              |
| 1:D1:12:A:H2'      | 1:D1:13:C:C6       | 2.50                     | 0.47              |
| 1:D1:59:A:H2'      | 1:D1:60:A:O4'      | 2.14                     | 0.47              |
| 1:D1:105:A:H2'     | 1:D1:106:A:O4'     | 2.15                     | 0.47              |
| 1:D1:122:U:O2'     | 1:D1:123:C:H5'     | 2.15                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:165:C:O3'     | 18:DU:132:LYS:HG3  | 2.14                     | 0.47              |
| 1:D1:197:G:N2      | 1:D1:371:A:C8      | 2.83                     | 0.47              |
| 1:D1:296:G:O2'     | 16:DQ:32:GLY:HA2   | 2.15                     | 0.47              |
| 1:D1:368:A:H4'     | 1:D1:369:U:OP2     | 2.15                     | 0.47              |
| 1:D1:632:G:C5      | 1:D1:633:C:C4      | 3.03                     | 0.47              |
| 1:D1:817:A:H2'     | 1:D1:818:U:C6      | 2.50                     | 0.47              |
| 1:D1:820:G:C2'     | 1:D1:821:U:C5'     | 2.93                     | 0.47              |
| 1:D1:827:C:O2'     | 1:D1:828:C:H5'     | 2.15                     | 0.47              |
| 1:D1:915:C:O2'     | 1:D1:2319:A:N3     | 2.39                     | 0.47              |
| 1:D1:927:G:C4      | 1:D1:928:U:C6      | 3.02                     | 0.47              |
| 1:D1:1185:A:C3'    | 1:D1:1186:A:C5'    | 2.88                     | 0.47              |
| 1:D1:1488:A:O2'    | 1:D1:1489:U:H5'    | 2.15                     | 0.47              |
| 1:D1:1598:C:C5     | 1:D1:1599:G:C5     | 3.03                     | 0.47              |
| 1:D1:1771:U:H4'    | 15:DP:54:LYS:NZ    | 2.30                     | 0.47              |
| 1:D1:1793:A:C2'    | 1:D1:1794:G:H5'    | 2.45                     | 0.47              |
| 1:D1:1936:U:O2     | 1:D1:2117:A:H3'    | 2.14                     | 0.47              |
| 1:D1:2143:A:H2'    | 1:D1:2144:A:O4'    | 2.14                     | 0.47              |
| 1:D1:2277:U:H1'    | 1:D1:2948:C:O2'    | 2.14                     | 0.47              |
| 1:D1:2309:U:C5'    | 1:D1:2310:G:OP2    | 2.62                     | 0.47              |
| 1:D1:2356:A:H5'    | 1:D1:2356:A:C8     | 2.43                     | 0.47              |
| 1:D1:2393:A:C2     | 1:D1:2394:A:C4     | 3.03                     | 0.47              |
| 1:D1:2557:A:C2     | 1:D1:2564:G:C5     | 3.03                     | 0.47              |
| 1:D1:2559:U:N3     | 1:D1:2560:U:C5     | 2.83                     | 0.47              |
| 1:D1:2650:U:H2'    | 1:D1:2651:A:C8     | 2.49                     | 0.47              |
| 1:D1:3035:A:H2'    | 1:D1:3036:U:O4'    | 2.15                     | 0.47              |
| 1:D1:3068:U:H3'    | 1:D1:3069:G:H5''   | 1.96                     | 0.47              |
| 1:D1:3155:A:C5     | 8:DH:102:SER:HB3   | 2.49                     | 0.47              |
| 1:D1:3229:C:HO2'   | 1:D1:3230:G:P      | 2.37                     | 0.47              |
| 2:DA:14:LYS:HD3    | 3:DB:52:TYR:HD1    | 1.76                     | 0.47              |
| 4:DC:95:THR:O      | 4:DC:99:LYS:HG3    | 2.15                     | 0.47              |
| 6:DF:28:VAL:CG1    | 6:DF:66:ASN:N      | 2.78                     | 0.47              |
| 9:DJ:160:LEU:HD12  | 9:DJ:182:CYS:O     | 2.14                     | 0.47              |
| 12:DM:52:LEU:O     | 12:DM:53:GLY:O     | 2.33                     | 0.47              |
| 18:DU:45:PHE:CD1   | 18:DU:45:PHE:C     | 2.92                     | 0.47              |
| 19:DX:18:VAL:HG21  | 19:DX:117:VAL:HG12 | 1.97                     | 0.47              |
| 19:DX:96:GLN:HB3   | 19:DX:134:THR:HG21 | 1.95                     | 0.47              |
| 20:E2:105:A:OP2    | 20:E2:106:A:H2'    | 2.15                     | 0.47              |
| 22:EA:43:ARG:O     | 22:EA:43:ARG:HG3   | 2.15                     | 0.47              |
| 23:EB:304:THR:HG21 | 23:EB:314:VAL:HA   | 1.96                     | 0.47              |
| 23:EB:376:LYS:HZ2  | 9:HJ:40:SER:C      | 2.12                     | 0.47              |
| 24:EC:34:ARG:NE    | 35:EN:24:ASN:HB2   | 2.29                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:EC:64:GLY:O     | 24:EC:97:PHE:HB3   | 2.14                     | 0.47              |
| 24:EC:299:ILE:HA   | 24:EC:304:VAL:HG11 | 1.97                     | 0.47              |
| 27:EF:69:GLN:HE22  | 16:FQ:48:VAL:C     | 2.05                     | 0.47              |
| 27:EF:92:TYR:CE1   | 27:EF:200:ASP:OD2  | 2.68                     | 0.47              |
| 31:EJ:83:ILE:CD1   | 31:EJ:105:VAL:HG23 | 2.43                     | 0.47              |
| 33:EL:81:TYR:OH    | 1:F1:933:G:H5'     | 2.15                     | 0.47              |
| 33:EL:119:TYR:CE1  | 33:EL:131:GLU:HB2  | 2.49                     | 0.47              |
| 34:EM:6:VAL:CG1    | 1:F1:1065:U:OP1    | 2.56                     | 0.47              |
| 34:EM:132:VAL:O    | 34:EM:132:VAL:HG12 | 2.14                     | 0.47              |
| 34:EM:175:HIS:CD2  | 34:EM:180:PHE:CE2  | 2.94                     | 0.47              |
| 34:EM:177:GLU:O    | 34:EM:177:GLU:HG3  | 2.13                     | 0.47              |
| 35:EN:73:ASN:N     | 35:EN:76:ASN:OD1   | 2.47                     | 0.47              |
| 35:EN:92:ARG:NE    | 1:F1:810:G:N7      | 2.63                     | 0.47              |
| 35:EN:94:LEU:HD23  | 35:EN:94:LEU:HA    | 1.66                     | 0.47              |
| 35:EN:168:ARG:HH11 | 18:FU:9:VAL:HG21   | 1.76                     | 0.47              |
| 37:EP:48:GLN:HG3   | 37:EP:94:GLU:HG3   | 1.96                     | 0.47              |
| 38:EQ:60:ILE:HD11  | 38:EQ:90:VAL:HG22  | 1.96                     | 0.47              |
| 38:EQ:131:THR:CG2  | 1:F1:1533:G:N2     | 2.78                     | 0.47              |
| 43:EV:41:TRP:HE1   | 43:EV:176:THR:CG2  | 2.27                     | 0.47              |
| 43:EV:108:LEU:O    | 43:EV:109:HIS:HB2  | 2.15                     | 0.47              |
| 43:EV:124:ILE:O    | 43:EV:124:ILE:HG22 | 2.14                     | 0.47              |
| 43:EV:141:ILE:HG21 | 43:EV:185:ILE:HG21 | 1.95                     | 0.47              |
| 45:EX:65:THR:O     | 45:EX:65:THR:HG22  | 2.14                     | 0.47              |
| 46:EY:21:SER:O     | 46:EY:25:VAL:HG23  | 2.15                     | 0.47              |
| 1:F1:64:A:H5'      | 1:F1:315:U:OP1     | 2.14                     | 0.47              |
| 1:F1:141:C:H3'     | 50:F1:3713:HOH:O   | 2.14                     | 0.47              |
| 1:F1:146:U:OP1     | 1:F1:147:U:H3'     | 2.15                     | 0.47              |
| 1:F1:156:A:P       | 16:FQ:27:ALA:HB3   | 2.54                     | 0.47              |
| 1:F1:304:U:O2'     | 1:F1:305:A:H8      | 1.97                     | 0.47              |
| 1:F1:331:C:H2'     | 1:F1:332:G:C5'     | 2.45                     | 0.47              |
| 1:F1:439:A:P       | 1:F1:439:A:C8      | 2.99                     | 0.47              |
| 1:F1:790:C:O2      | 1:F1:790:C:C2'     | 2.61                     | 0.47              |
| 1:F1:1061:G:H2'    | 1:F1:1062:A:C8     | 2.48                     | 0.47              |
| 1:F1:1380:C:O2'    | 14:FO:38:VAL:HB    | 2.15                     | 0.47              |
| 1:F1:1383:G:HO2'   | 1:F1:1384:G:P      | 2.37                     | 0.47              |
| 1:F1:1440:A:C5     | 1:F1:1441:U:C5     | 3.03                     | 0.47              |
| 1:F1:1504:C:P      | 50:F1:4007:HOH:O   | 2.57                     | 0.47              |
| 1:F1:1507:A:H5''   | 1:F1:1883:A:H62    | 1.80                     | 0.47              |
| 1:F1:1580:G:H5''   | 1:F1:1581:C:OP1    | 2.14                     | 0.47              |
| 1:F1:1589:G:C8     | 1:F1:1605:G:N2     | 2.83                     | 0.47              |
| 1:F1:1592:G:H2'    | 1:F1:1593:A:H8     | 1.75                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1880:C:H1'    | 11:FL:7:TYR:HE1    | 1.79                     | 0.47              |
| 1:F1:2192:C:H4'    | 1:F1:2193:A:C8     | 2.49                     | 0.47              |
| 1:F1:2520:G:H4'    | 1:F1:2521:A:OP2    | 2.12                     | 0.47              |
| 1:F1:2617:G:H1'    | 1:F1:2786:C:C2     | 2.50                     | 0.47              |
| 1:F1:2649:G:H2'    | 1:F1:2650:U:H6     | 1.77                     | 0.47              |
| 1:F1:2801:A:N6     | 1:F1:2802:G:C6     | 2.82                     | 0.47              |
| 1:F1:2879:U:O2'    | 1:F1:3003:U:H5'    | 2.15                     | 0.47              |
| 1:F1:2906:G:H5''   | 1:F1:2906:G:C8     | 2.46                     | 0.47              |
| 1:F1:3035:A:H2'    | 1:F1:3036:U:O4'    | 2.14                     | 0.47              |
| 1:F1:3096:U:O2'    | 1:F1:3097:G:H5'    | 2.14                     | 0.47              |
| 1:F1:3175:A:C2     | 1:F1:3177:G:C6     | 3.02                     | 0.47              |
| 1:F1:3305:A:C2     | 1:F1:3315:A:C2     | 3.03                     | 0.47              |
| 1:F1:3312:C:H2'    | 1:F1:3313:C:C6     | 2.50                     | 0.47              |
| 5:FE:56:GLY:O      | 5:FE:59:ARG:HB3    | 2.14                     | 0.47              |
| 8:FH:48:VAL:HG11   | 8:FH:87:ALA:HB2    | 1.95                     | 0.47              |
| 9:FJ:12:ASP:O      | 9:FJ:13:ILE:C      | 2.56                     | 0.47              |
| 9:FJ:157:ARG:O     | 9:FJ:180:PRO:HD2   | 2.15                     | 0.47              |
| 14:FO:75:THR:HG21  | 14:FO:77:GLU:HG2   | 1.97                     | 0.47              |
| 15:FP:47:LYS:HA    | 15:FP:47:LYS:HD3   | 1.64                     | 0.47              |
| 20:G2:3:A:C5'      | 20:G2:4:A:OP2      | 2.63                     | 0.47              |
| 20:G2:67:C:H5'     | 20:G2:68:A:OP2     | 2.14                     | 0.47              |
| 22:GA:11:GLY:HA3   | 1:H1:2159:C:O2     | 2.13                     | 0.47              |
| 22:GA:243:ARG:HG3  | 22:GA:244:THR:H    | 1.78                     | 0.47              |
| 23:GB:32:PHE:HD2   | 23:GB:44:THR:HG21  | 1.79                     | 0.47              |
| 24:GC:7:ILE:HD11   | 24:GC:25:LEU:HD13  | 1.97                     | 0.47              |
| 24:GC:129:VAL:O    | 24:GC:132:ALA:HB3  | 2.15                     | 0.47              |
| 24:GC:138:LEU:HD23 | 24:GC:138:LEU:N    | 2.30                     | 0.47              |
| 24:GC:163:VAL:CG2  | 24:GC:175:PHE:CE2  | 2.97                     | 0.47              |
| 25:GD:36:VAL:HG21  | 25:GD:123:PHE:CE2  | 2.49                     | 0.47              |
| 26:GE:179:VAL:HB   | 10:HK:89:TYR:OH    | 2.15                     | 0.47              |
| 27:GF:95:GLU:OE1   | 27:GF:100:LYS:CG   | 2.63                     | 0.47              |
| 27:GF:136:ILE:HG22 | 27:GF:166:ASN:HD22 | 1.79                     | 0.47              |
| 28:GG:32:UNK:C     | 1:H1:1257:G:HO3'   | 2.25                     | 0.47              |
| 29:GH:73:ASN:O     | 29:GH:77:ILE:HG23  | 2.14                     | 0.47              |
| 30:GI:61:MET:HA    | 1:H1:1333:G:C6     | 2.50                     | 0.47              |
| 31:GJ:28:ASN:N     | 31:GJ:102:ASN:O    | 2.46                     | 0.47              |
| 32:GK:52:PRO:HG3   | 35:GN:156:PRO:O    | 2.15                     | 0.47              |
| 32:GK:75:VAL:CG2   | 32:GK:109:PHE:CB   | 2.92                     | 0.47              |
| 33:GL:118:SER:HB3  | 33:GL:132:VAL:HG22 | 1.97                     | 0.47              |
| 34:GM:82:GLU:OE1   | 34:GM:104:LEU:CD2  | 2.63                     | 0.47              |
| 35:GN:147:GLU:O    | 35:GN:148:ALA:C    | 2.58                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 36:GO:14:VAL:HG11  | 36:GO:45:ILE:CD1   | 2.44                     | 0.47              |
| 38:GQ:114:LEU:HA   | 38:GQ:114:LEU:HD23 | 1.58                     | 0.47              |
| 38:GQ:117:GLN:O    | 38:GQ:151:PHE:O    | 2.32                     | 0.47              |
| 42:GU:122:LEU:HD13 | 18:HU:150:LEU:HD23 | 1.95                     | 0.47              |
| 43:GV:123:MET:CG   | 1:H1:1012:U:H1'    | 2.45                     | 0.47              |
| 43:GV:170:LEU:HA   | 43:GV:170:LEU:HD23 | 1.59                     | 0.47              |
| 43:GV:204:LEU:HB3  | 43:GV:238:MET:HE2  | 1.96                     | 0.47              |
| 44:GW:63:ILE:HG13  | 1:H1:1482:A:C6     | 2.50                     | 0.47              |
| 46:GY:17:ARG:C     | 46:GY:18:TYR:CD2   | 2.92                     | 0.47              |
| 1:H1:68:A:H1'      | 1:H1:70:C:N4       | 2.30                     | 0.47              |
| 1:H1:236:G:H2'     | 1:H1:237:A:C8      | 2.49                     | 0.47              |
| 1:H1:344:G:O6      | 1:H1:347:A:OP1     | 2.33                     | 0.47              |
| 1:H1:430:G:H2'     | 1:H1:431:A:H8      | 1.77                     | 0.47              |
| 1:H1:911:C:C2'     | 1:H1:912:G:H5'     | 2.45                     | 0.47              |
| 1:H1:1040:A:C8     | 1:H1:1041:C:C5     | 3.02                     | 0.47              |
| 1:H1:1058:C:O2     | 1:H1:1058:C:H2'    | 2.15                     | 0.47              |
| 1:H1:1121:G:H8     | 1:H1:1121:G:O5'    | 1.98                     | 0.47              |
| 1:H1:1222:A:H2'    | 1:H1:1336:U:O2     | 2.14                     | 0.47              |
| 1:H1:1475:A:C2     | 1:H1:2351:A:C5     | 3.02                     | 0.47              |
| 1:H1:1547:G:C2     | 1:H1:1548:U:H5     | 2.33                     | 0.47              |
| 1:H1:1570:U:H4'    | 1:H1:2164:C:O4'    | 2.14                     | 0.47              |
| 1:H1:1598:C:C5     | 1:H1:1599:G:C5     | 3.02                     | 0.47              |
| 1:H1:1654:G:N3     | 1:H1:1654:G:C2'    | 2.75                     | 0.47              |
| 1:H1:1743:G:H4'    | 1:H1:1756:U:H4'    | 1.97                     | 0.47              |
| 1:H1:1919:A:H5'    | 1:H1:1919:A:C8     | 2.44                     | 0.47              |
| 1:H1:2194:G:O2'    | 1:H1:2195:U:H5'    | 2.14                     | 0.47              |
| 1:H1:2309:U:C5'    | 1:H1:2310:G:OP2    | 2.63                     | 0.47              |
| 1:H1:2545:A:N6     | 11:HL:48:GLY:HA3   | 2.30                     | 0.47              |
| 1:H1:2886:G:C8     | 1:H1:2886:G:C3'    | 2.98                     | 0.47              |
| 1:H1:3035:A:H2'    | 1:H1:3036:U:O4'    | 2.13                     | 0.47              |
| 1:H1:3132:A:H2'    | 1:H1:3133:G:OP1    | 2.14                     | 0.47              |
| 1:H1:3174:U:C6     | 1:H1:3174:U:OP1    | 2.68                     | 0.47              |
| 1:H1:3198:A:C5     | 1:H1:3199:G:C5     | 3.02                     | 0.47              |
| 1:H1:3343:U:H5''   | 1:H1:3344:U:OP2    | 2.14                     | 0.47              |
| 5:HE:46:ALA:HB3    | 5:HE:49:THR:OG1    | 2.13                     | 0.47              |
| 5:HE:135:THR:O     | 5:HE:139:LYS:HG3   | 2.15                     | 0.47              |
| 6:HF:17:TYR:CD1    | 6:HF:17:TYR:O      | 2.67                     | 0.47              |
| 8:HH:48:VAL:HG22   | 8:HH:85:GLY:HA2    | 1.97                     | 0.47              |
| 9:HJ:59:VAL:HG23   | 9:HJ:60:GLY:N      | 2.29                     | 0.47              |
| 11:HL:7:TYR:HE2    | 11:HL:18:ASN:OD1   | 1.98                     | 0.47              |
| 12:HM:13:VAL:HG12  | 12:HM:14:ASN:N     | 2.30                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 13:HN:16:GLY:H     | 13:HN:19:ALA:HB2   | 1.79                     | 0.47              |
| 14:HO:48:VAL:HG23  | 14:HO:98:PHE:HZ    | 1.78                     | 0.47              |
| 15:HP:47:LYS:HA    | 15:HP:47:LYS:HD3   | 1.62                     | 0.47              |
| 19:HX:20:GLN:HE21  | 19:HX:42:ARG:HG3   | 1.80                     | 0.47              |
| 19:HX:44:PHE:CD2   | 19:HX:117:VAL:HG21 | 2.50                     | 0.47              |
| 19:HX:188:THR:C    | 19:HX:189:PHE:CG   | 2.92                     | 0.47              |
| 1:A1:68:A:C2       | 1:A1:69:A:N3       | 2.83                     | 0.47              |
| 1:A1:144:A:O3'     | 50:A1:3710:HOH:O   | 2.20                     | 0.47              |
| 1:A1:148:G:H4'     | 33:BL:55:ASN:HB2   | 1.96                     | 0.47              |
| 1:A1:461:A:O2'     | 1:A1:462:G:H5'     | 2.14                     | 0.47              |
| 1:A1:500:G:O2'     | 1:A1:501:A:O5'     | 2.27                     | 0.47              |
| 1:A1:623:G:N2      | 5:AE:30:ARG:NH1    | 2.63                     | 0.47              |
| 1:A1:687:C:H2'     | 1:A1:688:U:C6      | 2.49                     | 0.47              |
| 1:A1:828:C:H4'     | 24:BC:99:ASN:HD21  | 1.79                     | 0.47              |
| 1:A1:837:G:N3      | 2:AA:50:TRP:NE1    | 2.54                     | 0.47              |
| 1:A1:1112:A:H4'    | 34:BM:44:TYR:CD1   | 2.50                     | 0.47              |
| 1:A1:1344:A:H5''   | 30:BI:127:ARG:NH1  | 2.30                     | 0.47              |
| 1:A1:1533:G:H8     | 1:A1:1533:G:H5''   | 1.79                     | 0.47              |
| 1:A1:1572:A:H2'    | 1:A1:1573:A:O4'    | 2.15                     | 0.47              |
| 1:A1:2111:G:OP1    | 50:A1:4570:HOH:O   | 2.21                     | 0.47              |
| 1:A1:2391:G:H5'    | 1:A1:2392:A:C4'    | 2.40                     | 0.47              |
| 1:A1:2575:G:C6     | 27:BF:233:LYS:HB2  | 2.49                     | 0.47              |
| 1:A1:2650:U:H2'    | 1:A1:2651:A:C8     | 2.50                     | 0.47              |
| 1:A1:2945:G:H2'    | 1:A1:2946:A:H5'    | 1.96                     | 0.47              |
| 1:A1:2954:G:O2'    | 1:A1:2955:A:H5'    | 2.15                     | 0.47              |
| 1:A1:3198:A:C6     | 1:A1:3199:G:C5     | 3.03                     | 0.47              |
| 6:AF:67:GLN:HE22   | 6:AF:75:LYS:HE3    | 1.80                     | 0.47              |
| 19:AX:22:VAL:HG22  | 24:BC:380:PHE:HE1  | 1.80                     | 0.47              |
| 19:AX:61:LYS:NZ    | 21:B3:76:U:OP1     | 2.45                     | 0.47              |
| 21:B3:10:C:C6      | 34:BM:20:TYR:CE1   | 3.03                     | 0.47              |
| 25:BD:107:GLN:HG2  | 25:BD:108:GLU:H    | 1.80                     | 0.47              |
| 27:BF:45:VAL:HG12  | 27:BF:46:ARG:N     | 2.30                     | 0.47              |
| 27:BF:169:PRO:CB   | 27:BF:211:PHE:HB2  | 2.45                     | 0.47              |
| 30:BI:13:HIS:HE1   | 30:BI:119:VAL:H    | 1.63                     | 0.47              |
| 34:BM:11:ALA:O     | 34:BM:12:TYR:C     | 2.58                     | 0.47              |
| 34:BM:119:TYR:CE1  | 34:BM:132:VAL:CG1  | 2.98                     | 0.47              |
| 35:BN:63:LEU:O     | 35:BN:87:VAL:HA    | 2.14                     | 0.47              |
| 41:BT:11:CYS:SG    | 41:BT:13:TYR:HD2   | 2.36                     | 0.47              |
| 21:C3:93:G:H4'     | 19:DX:96:GLN:HE22  | 1.80                     | 0.47              |
| 23:CB:56:ILE:O     | 23:CB:73:VAL:HA    | 2.15                     | 0.47              |
| 23:CB:121:ASN:HD21 | 23:CB:124:ASN:HB2  | 1.79                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 26:CE:12:ILE:HD11 | 26:CE:53:VAL:CG2   | 2.45                     | 0.47              |
| 27:CF:46:ARG:CD   | 1:D1:2518:A:H5'    | 2.45                     | 0.47              |
| 27:CF:171:ALA:HB2 | 27:CF:211:PHE:CD1  | 2.50                     | 0.47              |
| 29:CH:136:PHE:HE1 | 29:CH:159:PHE:HZ   | 1.62                     | 0.47              |
| 30:CI:61:MET:HE3  | 30:CI:61:MET:HB2   | 1.76                     | 0.47              |
| 30:CI:139:ASP:O   | 30:CI:142:ALA:HB3  | 2.15                     | 0.47              |
| 30:CI:196:PHE:CE1 | 6:DF:111:VAL:CG2   | 2.93                     | 0.47              |
| 32:CK:13:GLY:HA2  | 1:D1:968:U:O5'     | 2.15                     | 0.47              |
| 33:CL:177:LYS:HG2 | 33:CL:185:ARG:HH21 | 1.79                     | 0.47              |
| 34:CM:30:TYR:HD1  | 37:CP:27:ILE:HD11  | 1.80                     | 0.47              |
| 47:CO:170:UNK:CA  | 47:CO:174:UNK:CG   | 2.92                     | 0.47              |
| 39:CR:100:LYS:N   | 39:CR:101:PRO:HD2  | 2.30                     | 0.47              |
| 40:CS:21:SER:CB   | 40:CS:26:ARG:HG2   | 2.45                     | 0.47              |
| 42:CU:98:LYS:NZ   | 1:D1:242:G:H5'     | 2.29                     | 0.47              |
| 43:CV:216:HIS:C   | 43:CV:222:GLY:HA3  | 2.40                     | 0.47              |
| 46:CY:21:SER:O    | 46:CY:25:VAL:HG23  | 2.14                     | 0.47              |
| 1:D1:39:G:C5      | 1:D1:2789:A:C2     | 3.02                     | 0.47              |
| 1:D1:143:G:C2'    | 1:D1:144:A:H5'     | 2.45                     | 0.47              |
| 1:D1:402:U:C2'    | 1:D1:403:G:H5'     | 2.45                     | 0.47              |
| 1:D1:608:C:C2'    | 1:D1:609:A:O5'     | 2.63                     | 0.47              |
| 1:D1:655:A:H2'    | 1:D1:656:C:H6      | 1.75                     | 0.47              |
| 1:D1:745:A:C6     | 1:D1:746:A:C2      | 3.03                     | 0.47              |
| 1:D1:909:A:OP2    | 2:DA:4:GLY:HA3     | 2.15                     | 0.47              |
| 1:D1:1361:U:C5'   | 1:D1:1361:U:C6     | 2.95                     | 0.47              |
| 1:D1:2353:C:H3'   | 1:D1:2354:C:H6     | 1.79                     | 0.47              |
| 1:D1:2673:C:H2'   | 1:D1:2674:A:C8     | 2.50                     | 0.47              |
| 1:D1:3191:G:H2'   | 1:D1:3192:C:OP2    | 2.14                     | 0.47              |
| 5:DE:63:VAL:HG13  | 5:DE:78:GLY:N      | 2.29                     | 0.47              |
| 5:DE:98:THR:HG22  | 5:DE:100:THR:H     | 1.79                     | 0.47              |
| 6:DF:11:ARG:O     | 6:DF:26:VAL:HA     | 2.15                     | 0.47              |
| 6:DF:13:VAL:CG1   | 6:DF:53:VAL:HG13   | 2.45                     | 0.47              |
| 9:DJ:112:ASP:H    | 9:DJ:156:ASN:ND2   | 2.09                     | 0.47              |
| 16:DQ:7:VAL:HG11  | 18:DU:185:LYS:HG3  | 1.97                     | 0.47              |
| 16:DQ:83:THR:O    | 16:DQ:84:HIS:C     | 2.56                     | 0.47              |
| 19:DX:92:VAL:HG12 | 19:DX:138:ILE:HB   | 1.96                     | 0.47              |
| 19:DX:108:TYR:CZ  | 19:DX:120:LEU:HA   | 2.50                     | 0.47              |
| 20:E2:69:A:H5'    | 42:EU:11:ARG:HH22  | 1.78                     | 0.47              |
| 21:E3:8:G:C5      | 21:E3:9:C:C5       | 3.03                     | 0.47              |
| 21:E3:33:U:C2     | 34:EM:212:TYR:HD1  | 2.31                     | 0.47              |
| 23:EB:119:TYR:CE2 | 23:EB:122:TRP:CZ3  | 2.97                     | 0.47              |
| 23:EB:230:ARG:HG2 | 23:EB:231:PHE:CZ   | 2.50                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:235:HIS:HD2  | 23:EB:236:LEU:O    | 1.98                     | 0.47              |
| 23:EB:306:LEU:HD11 | 23:EB:371:VAL:HG23 | 1.96                     | 0.47              |
| 24:EC:117:HIS:CD2  | 33:EL:202:ARG:HB2  | 2.49                     | 0.47              |
| 29:EH:10:ARG:NH2   | 29:EH:161:GLY:HA3  | 2.30                     | 0.47              |
| 29:EH:44:GLU:OE1   | 29:EH:44:GLU:HA    | 2.15                     | 0.47              |
| 29:EH:80:ILE:HD11  | 29:EH:144:HIS:HB3  | 1.97                     | 0.47              |
| 34:EM:60:ILE:H     | 34:EM:80:SER:HB2   | 1.80                     | 0.47              |
| 34:EM:195:TYR:HD1  | 34:EM:197:PRO:HD3  | 1.80                     | 0.47              |
| 37:EP:27:ILE:O     | 37:EP:30:TYR:HB2   | 2.15                     | 0.47              |
| 42:EU:120:PHE:HA   | 18:FU:122:VAL:O    | 2.14                     | 0.47              |
| 43:EV:34:MET:HA    | 43:EV:37:ARG:HD2   | 1.97                     | 0.47              |
| 43:EV:205:ASP:HB3  | 43:EV:238:MET:O    | 2.15                     | 0.47              |
| 1:F1:945:A:H61     | 2:FA:15:THR:HG21   | 1.80                     | 0.47              |
| 1:F1:1036:G:H2'    | 1:F1:1037:A:H5'    | 1.96                     | 0.47              |
| 1:F1:1222:A:H2'    | 1:F1:1336:U:O2     | 2.14                     | 0.47              |
| 1:F1:1554:G:H2'    | 1:F1:1555:A:H8     | 1.80                     | 0.47              |
| 1:F1:1572:A:H2'    | 1:F1:1573:A:O4'    | 2.14                     | 0.47              |
| 1:F1:1598:C:C3'    | 1:F1:1599:G:H5'    | 2.44                     | 0.47              |
| 1:F1:1720:A:H4'    | 11:FL:23:VAL:HG11  | 1.96                     | 0.47              |
| 1:F1:2113:A:C8     | 1:F1:3053:U:H1'    | 2.50                     | 0.47              |
| 1:F1:2598:A:O2'    | 1:F1:2599:G:H5'    | 2.15                     | 0.47              |
| 1:F1:2640:G:OP1    | 1:F1:2641:U:H1'    | 2.14                     | 0.47              |
| 1:F1:2920:U:O2     | 1:F1:2922:A:H8     | 1.98                     | 0.47              |
| 1:F1:3308:A:H2'    | 1:F1:3309:U:N1     | 2.29                     | 0.47              |
| 14:FO:75:THR:CG2   | 14:FO:77:GLU:CG    | 2.92                     | 0.47              |
| 14:FO:111:LEU:O    | 14:FO:112:VAL:C    | 2.58                     | 0.47              |
| 19:FX:20:GLN:HE21  | 19:FX:42:ARG:HG3   | 1.79                     | 0.47              |
| 20:G2:3:A:H2       | 1:H1:3243:A:O4'    | 1.96                     | 0.47              |
| 20:G2:18:G:H1'     | 1:H1:406:A:N6      | 2.25                     | 0.47              |
| 22:GA:58:PRO:HG3   | 46:GY:53:GLY:HA3   | 1.96                     | 0.47              |
| 22:GA:108:ILE:HB   | 22:GA:137:ILE:CD1  | 2.45                     | 0.47              |
| 23:GB:178:GLU:HB2  | 1:H1:2992:G:OP1    | 2.15                     | 0.47              |
| 24:GC:105:ARG:NE   | 1:H1:958:A:C6      | 2.83                     | 0.47              |
| 24:GC:258:TRP:CZ3  | 24:GC:266:LEU:HD21 | 2.50                     | 0.47              |
| 24:GC:276:THR:HG22 | 24:GC:277:GLY:N    | 2.30                     | 0.47              |
| 24:GC:289:LEU:O    | 35:GN:123:THR:OG1  | 2.32                     | 0.47              |
| 26:GE:112:ILE:HD13 | 26:GE:177:ILE:CD1  | 2.45                     | 0.47              |
| 27:GF:100:LYS:NZ   | 1:H1:119:A:H2'     | 2.29                     | 0.47              |
| 28:GG:9:UNK:O      | 28:GG:13:UNK:HB2   | 2.14                     | 0.47              |
| 32:GK:46:LEU:HD23  | 32:GK:46:LEU:HA    | 1.73                     | 0.47              |
| 32:GK:119:PRO:HG3  | 35:GN:94:LEU:HD13  | 1.95                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 37:GP:40:VAL:HG13 | 37:GP:96:VAL:HG13 | 1.95                     | 0.47              |
| 38:GQ:131:THR:CG2 | 1:H1:1533:G:N2    | 2.78                     | 0.47              |
| 43:GV:84:ILE:HA   | 43:GV:110:ASN:O   | 2.15                     | 0.47              |
| 43:GV:139:ASN:O   | 43:GV:143:LYS:HG3 | 2.13                     | 0.47              |
| 1:H1:8:U:H2'      | 1:H1:9:G:O4'      | 2.15                     | 0.47              |
| 1:H1:558:U:H2'    | 1:H1:559:G:C8     | 2.46                     | 0.47              |
| 1:H1:579:G:H1'    | 19:HX:157:ARG:C   | 2.40                     | 0.47              |
| 1:H1:591:G:O2'    | 1:H1:592:A:O5'    | 2.32                     | 0.47              |
| 1:H1:874:C:C4     | 1:H1:875:U:C5     | 3.03                     | 0.47              |
| 1:H1:882:G:O2'    | 1:H1:883:A:P      | 2.72                     | 0.47              |
| 1:H1:1334:G:N3    | 1:H1:1335:A:C2    | 2.83                     | 0.47              |
| 1:H1:1505:C:C3'   | 1:H1:1506:G:H5'   | 2.45                     | 0.47              |
| 1:H1:1736:G:C6    | 1:H1:1737:A:C6    | 3.02                     | 0.47              |
| 1:H1:1845:U:H5'   | 1:H1:1846:C:OP2   | 2.14                     | 0.47              |
| 1:H1:2124:C:H2'   | 1:H1:2125:C:H6    | 1.80                     | 0.47              |
| 1:H1:2241:G:H2'   | 1:H1:2242:G:H8    | 1.80                     | 0.47              |
| 1:H1:2284:U:O2'   | 1:H1:2285:C:H5'   | 2.15                     | 0.47              |
| 1:H1:2353:C:H3'   | 1:H1:2354:C:C6    | 2.50                     | 0.47              |
| 1:H1:2572:U:C2'   | 1:H1:2573:U:H5'   | 2.45                     | 0.47              |
| 1:H1:3029:A:H2'   | 1:H1:3030:A:H8    | 1.80                     | 0.47              |
| 1:H1:3331:C:C4'   | 1:H1:3332:A:H5''  | 2.44                     | 0.47              |
| 4:HC:19:THR:HB    | 4:HC:21:HIS:NE2   | 2.30                     | 0.47              |
| 7:HG:77:LEU:HD23  | 7:HG:77:LEU:HA    | 1.71                     | 0.47              |
| 8:HH:48:VAL:CG1   | 8:HH:87:ALA:HB2   | 2.45                     | 0.47              |
| 19:HX:106:LYS:HE2 | 19:HX:123:ASP:OD2 | 2.15                     | 0.47              |
| 1:A1:59:A:H2'     | 1:A1:60:A:O4'     | 2.14                     | 0.47              |
| 1:A1:125:G:H2'    | 1:A1:126:A:O4'    | 2.14                     | 0.47              |
| 1:A1:190:U:OP1    | 40:BS:36:LYS:NZ   | 2.48                     | 0.47              |
| 1:A1:440:C:N4     | 1:A1:538:A:C2     | 2.83                     | 0.47              |
| 1:A1:461:A:H4'    | 14:AO:73:THR:CG2  | 2.44                     | 0.47              |
| 1:A1:1179:G:H1    | 1:A1:1226:C:H42   | 1.63                     | 0.47              |
| 1:A1:1196:A:P     | 50:A1:4312:HOH:O  | 2.73                     | 0.47              |
| 1:A1:1381:G:H4'   | 1:A1:1382:A:OP2   | 2.15                     | 0.47              |
| 1:A1:1396:A:H5''  | 32:BK:21:ARG:HD2  | 1.96                     | 0.47              |
| 1:A1:1397:G:O2'   | 1:A1:1398:G:H5'   | 2.14                     | 0.47              |
| 1:A1:1573:A:O2'   | 1:A1:1574:C:H5'   | 2.15                     | 0.47              |
| 1:A1:1736:G:N1    | 1:A1:1737:A:C2    | 2.83                     | 0.47              |
| 1:A1:1811:U:O2'   | 1:A1:1812:G:H5'   | 2.14                     | 0.47              |
| 1:A1:1845:U:H3    | 11:AL:69:ARG:HG3  | 1.80                     | 0.47              |
| 1:A1:1880:C:H1'   | 11:AL:7:TYR:HE1   | 1.78                     | 0.47              |
| 1:A1:2408:A:O2'   | 1:A1:2409:G:H5'   | 2.15                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2411:U:H4'    | 1:A1:2955:A:O4'    | 2.14                     | 0.47              |
| 1:A1:2735:A:C8     | 34:BM:153:THR:HG21 | 2.49                     | 0.47              |
| 1:A1:2886:G:OP2    | 26:BE:171:ARG:NH2  | 2.48                     | 0.47              |
| 1:A1:3013:A:C8     | 1:A1:3014:C:C5     | 3.03                     | 0.47              |
| 1:A1:3305:A:C2     | 1:A1:3315:A:C2     | 3.03                     | 0.47              |
| 50:A1:4449:HOH:O   | 23:BB:365:HIS:CE1  | 2.67                     | 0.47              |
| 4:AC:83:ILE:CG2    | 4:AC:84:LYS:N      | 2.78                     | 0.47              |
| 12:AM:23:GLN:HB3   | 12:AM:109:TYR:HE1  | 1.80                     | 0.47              |
| 13:AN:7:TYR:OH     | 13:AN:93:PHE:N     | 2.38                     | 0.47              |
| 14:AO:87:VAL:HG22  | 14:AO:115:HIS:CD2  | 2.49                     | 0.47              |
| 16:AQ:45:ILE:HD11  | 33:BL:6:TYR:CA     | 2.44                     | 0.47              |
| 19:AX:8:GLU:CD     | 19:AX:19:ARG:HH11  | 2.22                     | 0.47              |
| 19:AX:44:PHE:HD1   | 19:AX:137:ILE:HD11 | 1.80                     | 0.47              |
| 23:BB:113:ASN:C    | 23:BB:174:ASN:HD22 | 2.22                     | 0.47              |
| 23:BB:172:LYS:HA   | 23:BB:172:LYS:HD2  | 1.47                     | 0.47              |
| 23:BB:306:LEU:HD11 | 23:BB:371:VAL:HG23 | 1.97                     | 0.47              |
| 25:BD:32:LYS:HE2   | 25:BD:119:SER:HA   | 1.97                     | 0.47              |
| 29:BH:3:ARG:HH12   | 29:BH:63:GLU:CB    | 2.27                     | 0.47              |
| 30:BI:61:MET:HB2   | 30:BI:61:MET:HE3   | 1.72                     | 0.47              |
| 30:BI:63:HIS:CD2   | 30:BI:64:ASN:HB2   | 2.50                     | 0.47              |
| 30:BI:171:VAL:O    | 30:BI:172:LYS:C    | 2.56                     | 0.47              |
| 31:BJ:11:VAL:O     | 31:BJ:11:VAL:CG1   | 2.57                     | 0.47              |
| 33:BL:19:MET:CE    | 33:BL:22:ILE:HD12  | 2.45                     | 0.47              |
| 33:BL:33:LEU:HB3   | 33:BL:34:PRO:HD2   | 1.96                     | 0.47              |
| 33:BL:120:TRP:CE2  | 33:BL:122:GLY:CA   | 2.98                     | 0.47              |
| 34:BM:201:LYS:HA   | 34:BM:204:ILE:HG13 | 1.97                     | 0.47              |
| 37:BP:91:VAL:HG11  | 37:BP:96:VAL:HG23  | 1.97                     | 0.47              |
| 38:BQ:8:ARG:NH1    | 38:BQ:118:HIS:N    | 2.63                     | 0.47              |
| 38:BQ:12:ASN:HB3   | 38:BQ:15:LYS:HB2   | 1.97                     | 0.47              |
| 39:BR:145:ASN:HD22 | 39:BR:150:ILE:CD1  | 2.27                     | 0.47              |
| 40:BS:105:LEU:HD23 | 40:BS:105:LEU:HA   | 1.79                     | 0.47              |
| 42:BU:74:PHE:CB    | 42:BU:80:LYS:HE3   | 2.45                     | 0.47              |
| 43:BV:132:THR:HG21 | 43:BV:227:ARG:HD2  | 1.96                     | 0.47              |
| 44:BW:66:ILE:HG23  | 44:BW:67:PRO:HD2   | 1.97                     | 0.47              |
| 21:C3:22:A:C6      | 34:CM:274:HIS:CG   | 3.03                     | 0.47              |
| 21:C3:54:A:H5'     | 25:CD:7:ASN:HD21   | 1.80                     | 0.47              |
| 22:CA:218:GLN:HB3  | 50:CA:306:HOH:O    | 2.15                     | 0.47              |
| 23:CB:60:VAL:CG2   | 23:CB:67:HIS:O     | 2.63                     | 0.47              |
| 24:CC:337:ALA:O    | 24:CC:341:LYS:HG2  | 2.15                     | 0.47              |
| 25:CD:124:GLY:HA3  | 1:D1:2663:A:C4     | 2.49                     | 0.47              |
| 26:CE:22:GLN:O     | 26:CE:23:ARG:HB2   | 2.15                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:CH:47:PRO:HB3   | 29:CH:171:TRP:CZ2  | 2.46                     | 0.47              |
| 30:CI:64:ASN:ND2   | 30:CI:64:ASN:C     | 2.71                     | 0.47              |
| 31:CJ:26:VAL:N     | 1:D1:1923:G:OP1    | 2.39                     | 0.47              |
| 31:CJ:75:LYS:HE2   | 1:D1:2289:U:OP2    | 2.14                     | 0.47              |
| 34:CM:3:PHE:CZ     | 1:D1:1041:C:N3     | 2.82                     | 0.47              |
| 34:CM:107:ARG:HA   | 34:CM:107:ARG:HD2  | 1.74                     | 0.47              |
| 34:CM:243:VAL:CG1  | 34:CM:247:PHE:CD2  | 2.98                     | 0.47              |
| 37:CP:15:PHE:HE2   | 37:CP:52:MET:CE    | 2.28                     | 0.47              |
| 40:CS:58:VAL:HG11  | 1:D1:190:U:H2'     | 1.97                     | 0.47              |
| 41:CT:49:GLN:O     | 41:CT:57:ARG:HB2   | 2.15                     | 0.47              |
| 42:CU:97:THR:HG22  | 42:CU:99:LYS:H     | 1.80                     | 0.47              |
| 43:CV:41:TRP:HE1   | 43:CV:176:THR:CG2  | 2.28                     | 0.47              |
| 43:CV:107:GLN:HE22 | 43:CV:203:LYS:HE2  | 1.79                     | 0.47              |
| 43:CV:235:VAL:O    | 43:CV:239:LEU:HG   | 2.14                     | 0.47              |
| 46:CY:32:THR:CG2   | 46:CY:70:GLU:HG2   | 2.44                     | 0.47              |
| 1:D1:114:A:C4'     | 16:DQ:37:ARG:NH2   | 2.67                     | 0.47              |
| 1:D1:115:G:C4'     | 1:D1:116:U:OP1     | 2.52                     | 0.47              |
| 1:D1:164:A:C6      | 1:D1:256:A:C5      | 3.03                     | 0.47              |
| 1:D1:443:G:C6      | 1:D1:444:A:C6      | 3.02                     | 0.47              |
| 1:D1:663:G:H4'     | 1:D1:1460:G:C6     | 2.50                     | 0.47              |
| 1:D1:768:A:O2'     | 1:D1:769:G:H5'     | 2.14                     | 0.47              |
| 1:D1:784:G:C2      | 1:D1:797:A:N6      | 2.83                     | 0.47              |
| 1:D1:882:G:C2'     | 1:D1:883:A:OP2     | 2.63                     | 0.47              |
| 1:D1:1006:C:H2'    | 1:D1:1007:G:OP1    | 2.15                     | 0.47              |
| 1:D1:1095:C:O2     | 1:D1:1095:C:C2'    | 2.62                     | 0.47              |
| 1:D1:1318:A:N6     | 1:D1:1319:C:C4     | 2.83                     | 0.47              |
| 1:D1:1677:G:O2'    | 11:DL:42:THR:HG23  | 2.14                     | 0.47              |
| 1:D1:2219:A:N1     | 1:D1:2771:U:O2'    | 2.38                     | 0.47              |
| 1:D1:2586:G:O2'    | 1:D1:2587:G:H5'    | 2.15                     | 0.47              |
| 1:D1:2958:C:O2'    | 1:D1:2959:A:N7     | 2.43                     | 0.47              |
| 1:D1:3011:G:N2     | 1:D1:3020:G:C5     | 2.82                     | 0.47              |
| 13:DN:33:THR:HG22  | 13:DN:34:LYS:H     | 1.80                     | 0.47              |
| 16:DQ:68:LYS:HG3   | 16:DQ:69:ASP:N     | 2.29                     | 0.47              |
| 22:EA:42:ILE:HD12  | 22:EA:42:ILE:C     | 2.40                     | 0.47              |
| 22:EA:48:ASP:OD1   | 22:EA:49:ILE:N     | 2.48                     | 0.47              |
| 23:EB:121:ASN:HB3  | 1:F1:3275:A:C6     | 2.50                     | 0.47              |
| 23:EB:130:PHE:O    | 23:EB:134:GLU:HG3  | 2.15                     | 0.47              |
| 24:EC:7:ILE:CD1    | 24:EC:156:PRO:HD2  | 2.45                     | 0.47              |
| 24:EC:333:LEU:HA   | 43:EV:163:ASN:HD21 | 1.80                     | 0.47              |
| 25:ED:48:SER:HB3   | 1:F1:2671:C:OP1    | 2.15                     | 0.47              |
| 25:ED:162:TRP:CH2  | 25:ED:167:PHE:HE2  | 2.33                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:EF:237:LYS:O    | 27:EF:241:LEU:HG   | 2.15                     | 0.47              |
| 30:EI:55:GLU:O     | 30:EI:59:LYS:HE2   | 2.13                     | 0.47              |
| 32:EK:89:ARG:HG3   | 32:EK:90:GLN:N     | 2.29                     | 0.47              |
| 33:EL:13:LYS:NZ    | 16:FQ:46:ARG:CA    | 2.77                     | 0.47              |
| 33:EL:80:VAL:CG1   | 33:EL:87:VAL:HA    | 2.45                     | 0.47              |
| 34:EM:181:PRO:HD2  | 34:EM:200:HIS:ND1  | 2.30                     | 0.47              |
| 34:EM:228:PHE:O    | 34:EM:229:SER:C    | 2.57                     | 0.47              |
| 39:ER:145:ASN:HD22 | 39:ER:150:ILE:CD1  | 2.27                     | 0.47              |
| 42:EU:42:ALA:HA    | 42:EU:45:LEU:HG    | 1.97                     | 0.47              |
| 1:F1:734:A:H2'     | 1:F1:735:A:O4'     | 2.15                     | 0.47              |
| 1:F1:1036:G:O2'    | 1:F1:1037:A:H5'    | 2.15                     | 0.47              |
| 1:F1:1223:U:O2     | 1:F1:1223:U:C2'    | 2.57                     | 0.47              |
| 1:F1:1681:C:C4     | 1:F1:1823:A:H5''   | 2.49                     | 0.47              |
| 1:F1:2546:A:C8     | 11:FL:93:ARG:NH1   | 2.83                     | 0.47              |
| 1:F1:2650:U:H2'    | 1:F1:2651:A:C8     | 2.49                     | 0.47              |
| 1:F1:2703:G:H4'    | 1:F1:2704:A:C5'    | 2.45                     | 0.47              |
| 1:F1:2907:A:OP2    | 50:F1:4327:HOH:O   | 2.20                     | 0.47              |
| 1:F1:3094:U:H2'    | 1:F1:3095:A:H8     | 1.78                     | 0.47              |
| 1:F1:3096:U:OP1    | 10:FK:114:LYS:NZ   | 2.29                     | 0.47              |
| 1:F1:3098:A:N1     | 1:F1:3115:C:C4     | 2.82                     | 0.47              |
| 1:F1:3191:G:H2'    | 1:F1:3192:C:OP2    | 2.14                     | 0.47              |
| 1:F1:3198:A:C5     | 1:F1:3199:G:C5     | 3.03                     | 0.47              |
| 1:F1:3229:C:N3     | 5:FE:57:ARG:HG3    | 2.29                     | 0.47              |
| 4:FC:7:THR:HB      | 4:FC:94:ILE:CD1    | 2.43                     | 0.47              |
| 7:FG:43:PHE:CD1    | 7:FG:68:HIS:HD2    | 2.33                     | 0.47              |
| 9:FJ:159:GLY:O     | 9:FJ:221:ILE:HD13  | 2.15                     | 0.47              |
| 12:FM:52:LEU:O     | 12:FM:53:GLY:O     | 2.33                     | 0.47              |
| 14:FO:87:VAL:HG21  | 14:FO:115:HIS:CD2  | 2.50                     | 0.47              |
| 18:FU:76:GLN:HB2   | 18:FU:101:ASN:HD22 | 1.80                     | 0.47              |
| 19:FX:28:LEU:O     | 19:FX:29:PRO:C     | 2.57                     | 0.47              |
| 20:G2:27:G:H5'     | 20:G2:27:G:C8      | 2.45                     | 0.47              |
| 21:G3:95:U:H2'     | 21:G3:96:U:H6      | 1.79                     | 0.47              |
| 22:GA:30:TYR:OH    | 22:GA:116:ASN:HB3  | 2.15                     | 0.47              |
| 23:GB:56:ILE:O     | 23:GB:73:VAL:HA    | 2.13                     | 0.47              |
| 23:GB:82:PRO:HG3   | 23:GB:167:LEU:HD21 | 1.96                     | 0.47              |
| 23:GB:86:ILE:HG12  | 23:GB:158:VAL:CG1  | 2.45                     | 0.47              |
| 24:GC:203:ASN:ND2  | 40:GS:10:ALA:HA    | 2.30                     | 0.47              |
| 26:GE:7:GLU:OE1    | 26:GE:54:LYS:HE2   | 2.14                     | 0.47              |
| 28:GG:60:UNK:HB1   | 1:H1:1248:G:H5'    | 1.97                     | 0.47              |
| 29:GH:139:ARG:HD3  | 29:GH:173:PHE:HE1  | 1.79                     | 0.47              |
| 29:GH:212:PHE:CE1  | 34:GM:298:ALA:HB2  | 2.50                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 30:GI:17:ARG:NH2  | 30:GI:127:ARG:HD2 | 2.29                     | 0.47              |
| 31:GJ:7:ARG:HA    | 31:GJ:61:MET:HE2  | 1.96                     | 0.47              |
| 31:GJ:122:VAL:O   | 31:GJ:140:VAL:HA  | 2.15                     | 0.47              |
| 34:GM:60:ILE:H    | 34:GM:80:SER:HB2  | 1.80                     | 0.47              |
| 42:GU:113:ASN:HB3 | 1:H1:167:U:O2'    | 2.15                     | 0.47              |
| 46:GY:12:ARG:HB3  | 1:H1:861:A:O2'    | 2.14                     | 0.47              |
| 1:H1:20:G:C6      | 1:H1:21:A:N7      | 2.83                     | 0.47              |
| 1:H1:63:A:H5''    | 1:H1:64:A:H4'     | 1.95                     | 0.47              |
| 1:H1:71:U:C2'     | 1:H1:72:A:OP1     | 2.63                     | 0.47              |
| 1:H1:77:A:C2      | 1:H1:324:A:N3     | 2.83                     | 0.47              |
| 1:H1:144:A:C2'    | 1:H1:145:A:H5'    | 2.45                     | 0.47              |
| 1:H1:164:A:C6     | 1:H1:256:A:C5     | 3.03                     | 0.47              |
| 1:H1:458:G:H2'    | 1:H1:459:G:O4'    | 2.15                     | 0.47              |
| 1:H1:718:A:C2'    | 1:H1:719:C:H5'    | 2.44                     | 0.47              |
| 1:H1:761:A:H8     | 1:H1:761:A:O5'    | 1.97                     | 0.47              |
| 1:H1:855:A:O2'    | 1:H1:1890:C:H2'   | 2.15                     | 0.47              |
| 1:H1:991:U:OP1    | 18:HU:2:LYS:O     | 2.33                     | 0.47              |
| 1:H1:1221:G:O5'   | 1:H1:1221:G:H8    | 1.98                     | 0.47              |
| 1:H1:1249:G:HO2'  | 1:H1:1250:A:P     | 2.35                     | 0.47              |
| 1:H1:1580:G:C5'   | 1:H1:1581:C:OP1   | 2.63                     | 0.47              |
| 1:H1:2410:C:N4    | 50:H1:3643:HOH:O  | 2.47                     | 0.47              |
| 1:H1:2536:A:H2'   | 1:H1:2537:C:H6    | 1.78                     | 0.47              |
| 1:H1:2714:U:C2'   | 1:H1:2715:C:H5'   | 2.45                     | 0.47              |
| 1:H1:2741:U:C4'   | 1:H1:2742:G:OP2   | 2.63                     | 0.47              |
| 2:HA:59:GLY:O     | 2:HA:62:THR:HB    | 2.15                     | 0.47              |
| 5:HE:56:GLY:N     | 5:HE:59:ARG:HB3   | 2.30                     | 0.47              |
| 6:HF:34:ASN:O     | 6:HF:50:ILE:N     | 2.46                     | 0.47              |
| 18:HU:106:SER:O   | 18:HU:110:ASN:ND2 | 2.46                     | 0.47              |
| 1:A1:67:U:O2      | 18:AU:59:GLN:NE2  | 2.47                     | 0.47              |
| 1:A1:470:C:O2'    | 1:A1:471:A:H5'    | 2.15                     | 0.47              |
| 1:A1:683:G:H2'    | 1:A1:684:A:N7     | 2.30                     | 0.47              |
| 1:A1:712:G:N2     | 1:A1:713:G:O6     | 2.48                     | 0.47              |
| 1:A1:1352:U:H2'   | 1:A1:1353:G:C8    | 2.49                     | 0.47              |
| 1:A1:1512:G:H3'   | 50:A1:4365:HOH:O  | 2.15                     | 0.47              |
| 1:A1:1743:G:H4'   | 1:A1:1756:U:H4'   | 1.96                     | 0.47              |
| 1:A1:1936:U:O2    | 1:A1:2117:A:H3'   | 2.14                     | 0.47              |
| 1:A1:1973:A:H2'   | 1:A1:1974:U:H6    | 1.80                     | 0.47              |
| 1:A1:2119:G:H5''  | 1:A1:2119:G:H8    | 1.78                     | 0.47              |
| 1:A1:2178:A:O2'   | 22:BA:236:VAL:O   | 2.30                     | 0.47              |
| 1:A1:2663:A:C4    | 25:BD:124:GLY:HA3 | 2.49                     | 0.47              |
| 1:A1:3142:A:H8    | 1:A1:3142:A:O5'   | 1.98                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3166:A:H2'    | 1:A1:3167:U:C6     | 2.50                     | 0.47              |
| 1:A1:3273:U:H5''   | 23:BB:171:GLN:NE2  | 2.29                     | 0.47              |
| 6:AF:17:TYR:O      | 6:AF:17:TYR:HD1    | 1.98                     | 0.47              |
| 6:AF:106:PHE:HD2   | 6:AF:110:ARG:HH21  | 1.62                     | 0.47              |
| 8:AH:48:VAL:HG22   | 8:AH:85:GLY:HA2    | 1.96                     | 0.47              |
| 18:AU:166:VAL:HG12 | 18:AU:167:SER:N    | 2.29                     | 0.47              |
| 21:B3:8:G:C5       | 21:B3:9:C:C5       | 3.03                     | 0.47              |
| 21:B3:11:A:C8      | 34:BM:18:THR:CB    | 2.97                     | 0.47              |
| 24:BC:126:ARG:HD3  | 24:BC:283:TYR:HD2  | 1.81                     | 0.47              |
| 24:BC:166:TYR:HD1  | 24:BC:171:GLN:CG   | 2.28                     | 0.47              |
| 26:BE:110:ILE:CG1  | 26:BE:132:ILE:HD13 | 2.45                     | 0.47              |
| 30:BI:98:LEU:HD23  | 30:BI:98:LEU:HA    | 1.68                     | 0.47              |
| 32:BK:74:VAL:HG11  | 32:BK:113:LEU:CD1  | 2.45                     | 0.47              |
| 34:BM:65:VAL:HA    | 34:BM:73:ARG:O     | 2.15                     | 0.47              |
| 35:BN:73:ASN:H     | 35:BN:76:ASN:CG    | 2.23                     | 0.47              |
| 37:BP:27:ILE:O     | 37:BP:30:TYR:HB2   | 2.15                     | 0.47              |
| 38:BQ:39:LYS:HE2   | 38:BQ:119:GLY:N    | 2.27                     | 0.47              |
| 45:BX:105:GLN:HG3  | 45:BX:106:VAL:N    | 2.30                     | 0.47              |
| 21:C3:64:A:H2'     | 21:C3:64:A:N3      | 2.29                     | 0.47              |
| 24:CC:149:ILE:HG22 | 24:CC:149:ILE:O    | 2.14                     | 0.47              |
| 26:CE:78:MET:O     | 26:CE:82:VAL:HG23  | 2.15                     | 0.47              |
| 26:CE:137:GLU:O    | 26:CE:139:LYS:HG3  | 2.15                     | 0.47              |
| 27:CF:50:TYR:CZ    | 27:CF:51:ILE:HG23  | 2.50                     | 0.47              |
| 27:CF:89:LEU:HD23  | 27:CF:193:LEU:HD21 | 1.97                     | 0.47              |
| 27:CF:196:VAL:CG1  | 27:CF:197:ARG:N    | 2.78                     | 0.47              |
| 32:CK:137:ARG:HH21 | 1:D1:741:G:H4'     | 1.79                     | 0.47              |
| 32:CK:140:ALA:HB1  | 1:D1:743:A:C8      | 2.49                     | 0.47              |
| 35:CN:2:ALA:HB3    | 1:D1:1186:A:OP1    | 2.14                     | 0.47              |
| 35:CN:36:PHE:CZ    | 35:CN:40:ARG:HD2   | 2.50                     | 0.47              |
| 35:CN:87:VAL:HG23  | 35:CN:103:ALA:CB   | 2.45                     | 0.47              |
| 47:CO:123:PHE:CE2  | 47:CO:142:ILE:HG12 | 2.50                     | 0.47              |
| 38:CQ:24:LEU:HD13  | 38:CQ:92:VAL:HG11  | 1.96                     | 0.47              |
| 41:CT:52:THR:HA    | 41:CT:57:ARG:HG2   | 1.97                     | 0.47              |
| 43:CV:139:ASN:O    | 43:CV:143:LYS:HG3  | 2.15                     | 0.47              |
| 43:CV:144:LEU:CD2  | 43:CV:239:LEU:HD21 | 2.45                     | 0.47              |
| 1:D1:144:A:H2'     | 1:D1:145:A:H5'     | 1.97                     | 0.47              |
| 1:D1:331:C:H2'     | 1:D1:332:G:C5'     | 2.44                     | 0.47              |
| 1:D1:481:C:O2'     | 1:D1:482:G:H5'     | 2.14                     | 0.47              |
| 1:D1:684:A:N1      | 1:D1:966:G:O2'     | 2.46                     | 0.47              |
| 1:D1:734:A:H2'     | 1:D1:735:A:O4'     | 2.15                     | 0.47              |
| 1:D1:1056:A:H2'    | 1:D1:1057:U:O4'    | 2.15                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1432:G:N2     | 1:D1:1433:A:C2     | 2.83                     | 0.47              |
| 1:D1:1505:C:C3'    | 1:D1:1506:G:H5'    | 2.45                     | 0.47              |
| 1:D1:1580:G:O2'    | 1:D1:1581:C:H5''   | 2.15                     | 0.47              |
| 1:D1:1589:G:C5     | 1:D1:1605:G:C2     | 3.02                     | 0.47              |
| 1:D1:1653:A:C6     | 1:D1:1839:A:C2     | 3.03                     | 0.47              |
| 1:D1:1654:G:N3     | 1:D1:1654:G:C2'    | 2.75                     | 0.47              |
| 1:D1:2211:G:H8     | 1:D1:2211:G:O5'    | 1.97                     | 0.47              |
| 1:D1:2240:C:H2'    | 1:D1:2241:G:O5'    | 2.14                     | 0.47              |
| 1:D1:2654:U:H4'    | 1:D1:2655:C:OP1    | 2.13                     | 0.47              |
| 1:D1:2669:A:C3'    | 1:D1:2670:U:C6     | 2.98                     | 0.47              |
| 1:D1:2703:G:OP2    | 1:D1:2705:U:C1'    | 2.59                     | 0.47              |
| 1:D1:3061:A:H2'    | 1:D1:3062:A:H5'    | 1.97                     | 0.47              |
| 4:DC:63:THR:HG22   | 4:DC:87:LYS:HG2    | 1.96                     | 0.47              |
| 8:DH:18:ALA:HB2    | 8:DH:39:LEU:CD2    | 2.45                     | 0.47              |
| 9:DJ:157:ARG:O     | 9:DJ:180:PRO:HD2   | 2.15                     | 0.47              |
| 9:DJ:162:HIS:CG    | 9:DJ:163:PRO:HD2   | 2.50                     | 0.47              |
| 12:DM:43:ILE:HG21  | 12:DM:56:ILE:HD13  | 1.96                     | 0.47              |
| 12:DM:98:THR:CG2   | 12:DM:99:SER:N     | 2.78                     | 0.47              |
| 13:DN:4:PHE:HD1    | 13:DN:4:PHE:H      | 0.76                     | 0.47              |
| 14:DO:105:GLN:HA   | 14:DO:105:GLN:OE1  | 2.15                     | 0.47              |
| 16:DQ:9:ILE:HD11   | 18:DU:187:ASN:CB   | 2.28                     | 0.47              |
| 20:E2:2:G:C5       | 1:F1:2983:A:C2     | 3.02                     | 0.47              |
| 20:E2:96:A:N3      | 2:FA:83:THR:CG2    | 2.77                     | 0.47              |
| 21:E3:5:U:O3'      | 34:EM:54:ARG:HG3   | 2.14                     | 0.47              |
| 21:E3:19:G:H2'     | 21:E3:20:U:O4'     | 2.15                     | 0.47              |
| 22:EA:71:LYS:NZ    | 1:F1:2517:G:O6     | 2.47                     | 0.47              |
| 23:EB:140:LYS:O    | 23:EB:144:LEU:HG   | 2.15                     | 0.47              |
| 27:EF:69:GLN:HE21  | 27:EF:222:ARG:HH12 | 1.63                     | 0.47              |
| 27:EF:169:PRO:CB   | 27:EF:211:PHE:HB2  | 2.45                     | 0.47              |
| 29:EH:3:ARG:HH12   | 29:EH:63:GLU:CB    | 2.28                     | 0.47              |
| 30:EI:60:TRP:CD1   | 30:EI:60:TRP:C     | 2.92                     | 0.47              |
| 31:EJ:127:ALA:CB   | 9:FJ:58:ILE:HD13   | 2.41                     | 0.47              |
| 32:EK:39:GLY:HA3   | 32:EK:55:TYR:OH    | 2.15                     | 0.47              |
| 32:EK:77:ILE:HG23  | 32:EK:118:LEU:HG   | 1.97                     | 0.47              |
| 34:EM:19:LYS:O     | 34:EM:24:ARG:NH1   | 2.48                     | 0.47              |
| 34:EM:54:ARG:CZ    | 34:EM:149:GLY:HA3  | 2.45                     | 0.47              |
| 34:EM:88:VAL:HG12  | 34:EM:246:LEU:HD21 | 1.96                     | 0.47              |
| 34:EM:131:ASN:OD1  | 34:EM:172:ASN:HA   | 2.15                     | 0.47              |
| 34:EM:140:LYS:NZ   | 1:F1:1108:A:P      | 2.88                     | 0.47              |
| 34:EM:264:THR:HG22 | 34:EM:264:THR:O    | 2.14                     | 0.47              |
| 35:EN:30:LEU:O     | 35:EN:33:LEU:HB3   | 2.15                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:EN:57:ARG:HH12  | 1:F1:697:A:H5'     | 1.80                     | 0.47              |
| 35:EN:88:THR:HG22  | 35:EN:107:THR:HG23 | 1.96                     | 0.47              |
| 40:ES:59:ARG:NH1   | 1:F1:200:C:P       | 2.88                     | 0.47              |
| 42:EU:92:ILE:HA    | 42:EU:95:LYS:HE2   | 1.96                     | 0.47              |
| 42:EU:122:LEU:HD13 | 18:FU:150:LEU:HD23 | 1.97                     | 0.47              |
| 43:EV:114:PHE:CD2  | 43:EV:115:ARG:O    | 2.68                     | 0.47              |
| 1:F1:105:A:H1'     | 1:F1:324:A:N3      | 2.30                     | 0.47              |
| 1:F1:368:A:C5'     | 1:F1:369:U:OP2     | 2.61                     | 0.47              |
| 1:F1:800:G:O2'     | 1:F1:801:U:C5      | 2.68                     | 0.47              |
| 1:F1:1430:G:C6     | 1:F1:1434:G:C6     | 3.03                     | 0.47              |
| 1:F1:1703:A:H2'    | 1:F1:1704:G:H8     | 1.79                     | 0.47              |
| 1:F1:1823:A:H2'    | 1:F1:1824:A:O4'    | 2.14                     | 0.47              |
| 1:F1:2365:G:N7     | 50:F1:3791:HOH:O   | 2.46                     | 0.47              |
| 1:F1:2529:G:H2'    | 1:F1:2530:G:C8     | 2.50                     | 0.47              |
| 1:F1:2645:A:C8     | 1:F1:2647:G:C8     | 3.03                     | 0.47              |
| 1:F1:2890:A:H2'    | 1:F1:2891:A:O4'    | 2.14                     | 0.47              |
| 1:F1:3096:U:H5''   | 10:FK:112:LYS:HZ3  | 1.80                     | 0.47              |
| 1:F1:3144:G:C2     | 1:F1:3249:U:C2     | 3.03                     | 0.47              |
| 1:F1:3177:G:H8     | 1:F1:3177:G:OP1    | 1.98                     | 0.47              |
| 13:FN:76:ASN:OD1   | 13:FN:77:LEU:N     | 2.48                     | 0.47              |
| 19:FX:87:LYS:HG3   | 19:FX:89:TYR:CZ    | 2.50                     | 0.47              |
| 20:G2:58:U:C2      | 20:G2:65:C:H5      | 2.33                     | 0.47              |
| 20:G2:143:U:H2'    | 20:G2:144:U:C6     | 2.50                     | 0.47              |
| 21:G3:5:U:H2'      | 21:G3:6:C:H6       | 1.77                     | 0.47              |
| 22:GA:102:VAL:O    | 22:GA:103:LEU:HD23 | 2.15                     | 0.47              |
| 23:GB:52:GLY:HA3   | 23:GB:309:PHE:HD1  | 1.80                     | 0.47              |
| 23:GB:111:ASP:OD1  | 23:GB:111:ASP:N    | 2.48                     | 0.47              |
| 24:GC:7:ILE:CD1    | 24:GC:156:PRO:HD2  | 2.45                     | 0.47              |
| 26:GE:23:ARG:NH1   | 26:GE:39:ARG:O     | 2.48                     | 0.47              |
| 26:GE:110:ILE:CG1  | 26:GE:132:ILE:HD13 | 2.44                     | 0.47              |
| 35:GN:18:ARG:NH1   | 1:H1:696:A:OP1     | 2.45                     | 0.47              |
| 38:GQ:85:TRP:O     | 38:GQ:87:VAL:N     | 2.48                     | 0.47              |
| 38:GQ:122:ASN:HB2  | 38:GQ:147:HIS:HB2  | 1.96                     | 0.47              |
| 42:GU:122:LEU:HD12 | 18:HU:48:PRO:HB3   | 1.97                     | 0.47              |
| 43:GV:170:LEU:O    | 43:GV:171:GLY:C    | 2.57                     | 0.47              |
| 44:GW:64:ARG:NH1   | 1:H1:3069:G:OP2    | 2.44                     | 0.47              |
| 1:H1:191:U:H2'     | 1:H1:192:C:H5'     | 1.97                     | 0.47              |
| 1:H1:237:A:O4'     | 2:HA:88:LYS:HA     | 2.15                     | 0.47              |
| 1:H1:296:G:O2'     | 16:HQ:32:GLY:CA    | 2.62                     | 0.47              |
| 1:H1:555:G:C3'     | 1:H1:556:A:H5''    | 2.45                     | 0.47              |
| 1:H1:604:A:O5'     | 1:H1:604:A:C8      | 2.65                     | 0.47              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:H1:766:G:HO2'  | 1:H1:767:C:P      | 2.37                     | 0.47              |
| 1:H1:833:A:O2'   | 1:H1:2408:A:H5'   | 2.15                     | 0.47              |
| 1:H1:1004:U:C4'  | 1:H1:1005:A:OP1   | 2.63                     | 0.47              |
| 1:H1:1017:U:H3'  | 1:H1:1017:U:H6    | 1.80                     | 0.47              |
| 1:H1:1316:G:H5'' | 1:H1:1316:G:H8    | 1.80                     | 0.47              |
| 1:H1:1398:G:C2'  | 1:H1:1399:A:O5'   | 2.63                     | 0.47              |
| 1:H1:1594:C:H2'  | 1:H1:1595:A:C5'   | 2.44                     | 0.47              |
| 1:H1:1682:G:C5   | 1:H1:1822:G:C6    | 3.03                     | 0.47              |
| 1:H1:2106:G:O2'  | 1:H1:2107:A:P     | 2.73                     | 0.47              |
| 1:H1:2255:U:C3'  | 1:H1:2256:G:H8    | 2.28                     | 0.47              |
| 1:H1:2756:U:H2'  | 1:H1:2757:U:C6    | 2.49                     | 0.47              |
| 1:H1:3191:G:O2'  | 1:H1:3192:C:P     | 2.73                     | 0.47              |
| 1:H1:3294:A:O5'  | 1:H1:3294:A:H8    | 1.98                     | 0.47              |
| 1:H1:3306:G:N2   | 1:H1:3314:U:C2    | 2.83                     | 0.47              |
| 3:HB:6:THR:HB    | 3:HB:9:MET:HG3    | 1.96                     | 0.47              |
| 3:HB:23:LEU:HD22 | 3:HB:35:ILE:HG22  | 1.97                     | 0.47              |
| 6:HF:30:ILE:CG2  | 19:HX:156:MET:HE1 | 2.45                     | 0.47              |
| 6:HF:67:GLN:HE21 | 6:HF:71:LEU:CB    | 2.28                     | 0.47              |
| 8:HH:20:PHE:CD1  | 8:HH:20:PHE:C     | 2.93                     | 0.47              |
| 9:HJ:88:LEU:HG   | 9:HJ:92:VAL:HG11  | 1.97                     | 0.47              |
| 18:HU:54:PRO:HB3 | 18:HU:73:PHE:CE1  | 2.50                     | 0.47              |
| 19:HX:188:THR:O  | 19:HX:189:PHE:CB  | 2.62                     | 0.47              |
| 1:A1:10:A:H2'    | 1:A1:11:A:H8      | 1.78                     | 0.46              |
| 1:A1:19:A:C4'    | 1:A1:20:G:OP2     | 2.60                     | 0.46              |
| 1:A1:33:A:O2'    | 1:A1:34:C:H5'     | 2.14                     | 0.46              |
| 1:A1:37:A:H5''   | 1:A1:38:A:H4'     | 1.96                     | 0.46              |
| 1:A1:72:A:C2     | 1:A1:73:G:C8      | 3.04                     | 0.46              |
| 1:A1:199:A:N3    | 1:A1:201:A:C8     | 2.83                     | 0.46              |
| 1:A1:409:G:C4    | 20:B2:15:G:N2     | 2.83                     | 0.46              |
| 1:A1:703:U:H2'   | 1:A1:704:G:C8     | 2.50                     | 0.46              |
| 1:A1:738:U:C2'   | 1:A1:739:G:H5'    | 2.45                     | 0.46              |
| 1:A1:784:G:O2'   | 1:A1:796:A:N6     | 2.48                     | 0.46              |
| 1:A1:832:A:H3'   | 1:A1:833:A:H5''   | 1.98                     | 0.46              |
| 1:A1:1173:A:H4'  | 1:A1:1358:U:C5    | 2.50                     | 0.46              |
| 1:A1:1663:C:OP1  | 11:AL:54:ASN:HB2  | 2.16                     | 0.46              |
| 1:A1:1686:G:H22  | 1:A1:1813:A:H2    | 1.63                     | 0.46              |
| 1:A1:2181:U:H5'' | 50:A1:4185:HOH:O  | 2.15                     | 0.46              |
| 1:A1:2347:A:C6   | 1:A1:2348:G:C5    | 3.03                     | 0.46              |
| 1:A1:2499:U:H2'  | 1:A1:2500:C:H6    | 1.79                     | 0.46              |
| 1:A1:2577:G:OP1  | 27:BF:233:LYS:NZ  | 2.33                     | 0.46              |
| 1:A1:3112:A:C3'  | 1:A1:3113:G:H5'   | 2.45                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3234:U:O4     | 1:A1:3236:C:C6     | 2.68                     | 0.46              |
| 9:AJ:118:HIS:HD2   | 9:AJ:120:ASP:O     | 1.97                     | 0.46              |
| 13:AN:4:PHE:HB3    | 13:AN:9:ARG:HH21   | 1.79                     | 0.46              |
| 13:AN:29:SER:O     | 13:AN:30:GLU:C     | 2.58                     | 0.46              |
| 19:AX:15:GLN:HE21  | 19:AX:115:GLY:HA2  | 1.79                     | 0.46              |
| 22:BA:46:ILE:HD12  | 22:BA:87:GLN:HB3   | 1.97                     | 0.46              |
| 23:BB:26:ARG:HD2   | 23:BB:177:LEU:CD2  | 2.45                     | 0.46              |
| 23:BB:86:ILE:HG12  | 23:BB:158:VAL:HG11 | 1.97                     | 0.46              |
| 27:BF:21:LEU:HD12  | 27:BF:21:LEU:HA    | 1.71                     | 0.46              |
| 30:BI:21:TYR:HE2   | 30:BI:121:ASP:HB3  | 1.79                     | 0.46              |
| 34:BM:195:TYR:HD1  | 34:BM:197:PRO:HD3  | 1.81                     | 0.46              |
| 36:BO:4:LEU:CD2    | 36:BO:7:GLN:HG3    | 2.41                     | 0.46              |
| 37:BP:65:PHE:HB3   | 37:BP:75:ILE:HG13  | 1.97                     | 0.46              |
| 40:BS:44:VAL:HG11  | 40:BS:47:MET:CE    | 2.45                     | 0.46              |
| 40:BS:55:VAL:HG11  | 40:BS:103:LEU:HB3  | 1.96                     | 0.46              |
| 42:BU:36:LYS:HZ3   | 42:BU:45:LEU:CD2   | 2.22                     | 0.46              |
| 43:BV:166:VAL:HG12 | 43:BV:175:ILE:HG22 | 1.97                     | 0.46              |
| 44:BW:14:ASN:O     | 44:BW:18:GLN:HG2   | 2.15                     | 0.46              |
| 20:C2:88:G:HO2'    | 20:C2:89:A:P       | 2.36                     | 0.46              |
| 20:C2:95:C:H5''    | 2:DA:77:ASN:ND2    | 2.30                     | 0.46              |
| 22:CA:116:ASN:OD1  | 22:CA:125:GLY:HA3  | 2.15                     | 0.46              |
| 23:CB:68:ASN:O     | 23:CB:70:LYS:HG3   | 2.15                     | 0.46              |
| 24:CC:29:PHE:CE2   | 24:CC:156:PRO:HG3  | 2.49                     | 0.46              |
| 24:CC:319:ARG:HD2  | 1:D1:634:G:C8      | 2.50                     | 0.46              |
| 25:CD:99:THR:CG2   | 1:D1:2673:C:HO2'   | 2.28                     | 0.46              |
| 27:CF:232:GLN:NE2  | 1:D1:2573:U:C4'    | 2.59                     | 0.46              |
| 30:CI:45:SER:HB2   | 30:CI:48:ARG:H     | 1.80                     | 0.46              |
| 32:CK:127:ALA:HB3  | 32:CK:130:PHE:CZ   | 2.50                     | 0.46              |
| 34:CM:141:PRO:HB2  | 34:CM:172:ASN:HB2  | 1.97                     | 0.46              |
| 39:CR:76:THR:O     | 39:CR:76:THR:CG2   | 2.63                     | 0.46              |
| 39:CR:94:VAL:HG12  | 39:CR:98:SER:OG    | 2.15                     | 0.46              |
| 43:CV:216:HIS:O    | 43:CV:222:GLY:HA3  | 2.15                     | 0.46              |
| 1:D1:213:A:N6      | 1:D1:227:G:C2'     | 2.78                     | 0.46              |
| 1:D1:334:G:H2'     | 1:D1:335:A:O4'     | 2.15                     | 0.46              |
| 1:D1:415:A:H4'     | 1:D1:653:C:O3'     | 2.15                     | 0.46              |
| 1:D1:439:A:C5'     | 5:DE:126:HIS:ND1   | 2.71                     | 0.46              |
| 1:D1:585:A:C6      | 1:D1:586:A:C5      | 3.03                     | 0.46              |
| 1:D1:974:C:C2'     | 1:D1:975:G:H5'     | 2.45                     | 0.46              |
| 1:D1:1179:G:H1     | 1:D1:1226:C:H42    | 1.61                     | 0.46              |
| 1:D1:1211:A:OP2    | 19:DX:171:ARG:NH2  | 2.48                     | 0.46              |
| 1:D1:1703:A:H2'    | 1:D1:1704:G:H8     | 1.79                     | 0.46              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:1907:A:H2'    | 1:D1:1908:A:H8    | 1.80                     | 0.46              |
| 1:D1:1928:C:N4     | 1:D1:1929:G:C6    | 2.83                     | 0.46              |
| 1:D1:2256:G:O2'    | 1:D1:2257:A:C5'   | 2.64                     | 0.46              |
| 1:D1:2732:G:C6     | 1:D1:2733:C:N4    | 2.84                     | 0.46              |
| 1:D1:3101:G:O6     | 1:D1:3109:C:H5'   | 2.15                     | 0.46              |
| 2:DA:21:ARG:CZ     | 2:DA:44:MET:CE    | 2.93                     | 0.46              |
| 4:DC:83:ILE:CG2    | 4:DC:84:LYS:N     | 2.78                     | 0.46              |
| 9:DJ:115:ALA:HB2   | 9:DJ:135:VAL:HG11 | 1.98                     | 0.46              |
| 11:DL:59:VAL:HG13  | 11:DL:63:GLU:OE1  | 2.15                     | 0.46              |
| 12:DM:23:GLN:N     | 12:DM:24:PRO:HD2  | 2.30                     | 0.46              |
| 13:DN:126:ASN:HA   | 13:DN:127:PRO:HD3 | 1.74                     | 0.46              |
| 15:DP:11:PHE:O     | 15:DP:15:TRP:CD1  | 2.69                     | 0.46              |
| 18:DU:29:GLN:O     | 18:DU:30:LYS:C    | 2.57                     | 0.46              |
| 20:E2:11:C:H2'     | 20:E2:12:A:C8     | 2.50                     | 0.46              |
| 21:E3:95:U:H2'     | 21:E3:96:U:H6     | 1.80                     | 0.46              |
| 23:EB:157:ARG:HG2  | 23:EB:180:GLN:CA  | 2.44                     | 0.46              |
| 23:EB:281:TYR:OH   | 23:EB:323:LYS:HD2 | 2.15                     | 0.46              |
| 24:EC:89:THR:OG1   | 1:F1:354:A:N1     | 2.45                     | 0.46              |
| 24:EC:337:ALA:O    | 24:EC:341:LYS:HG2 | 2.15                     | 0.46              |
| 24:EC:388:ILE:HD11 | 19:FX:139:ARG:HB2 | 1.97                     | 0.46              |
| 25:ED:25:GLU:O     | 25:ED:30:LEU:HD11 | 2.15                     | 0.46              |
| 29:EH:91:VAL:CG1   | 29:EH:127:ALA:HB1 | 2.45                     | 0.46              |
| 31:EJ:139:SER:HB3  | 9:FJ:102:SER:H    | 1.80                     | 0.46              |
| 32:EK:100:PRO:HA   | 18:FU:164:LYS:HD3 | 1.97                     | 0.46              |
| 32:EK:117:ARG:HH11 | 32:EK:137:ARG:CZ  | 2.28                     | 0.46              |
| 36:EO:20:LYS:HG2   | 1:F1:1899:G:OP2   | 2.16                     | 0.46              |
| 37:EP:83:ARG:HH22  | 1:F1:2717:G:H5'   | 1.73                     | 0.46              |
| 38:EQ:32:TYR:CE2   | 38:EQ:36:ARG:HD2  | 2.50                     | 0.46              |
| 1:F1:31:G:H1'      | 1:F1:49:A:N6      | 2.30                     | 0.46              |
| 1:F1:332:G:C3'     | 1:F1:333:G:H5''   | 2.45                     | 0.46              |
| 1:F1:379:U:C2      | 1:F1:389:G:N2     | 2.84                     | 0.46              |
| 1:F1:461:A:O2'     | 1:F1:462:G:H5'    | 2.15                     | 0.46              |
| 1:F1:511:U:C5'     | 14:FO:70:VAL:HG21 | 2.41                     | 0.46              |
| 1:F1:807:G:O2'     | 1:F1:808:A:H5'    | 2.15                     | 0.46              |
| 1:F1:1052:A:H2     | 1:F1:1053:A:C5    | 2.33                     | 0.46              |
| 1:F1:1060:C:H2'    | 1:F1:1061:G:O4'   | 2.14                     | 0.46              |
| 1:F1:1211:A:OP2    | 19:FX:171:ARG:NH2 | 2.48                     | 0.46              |
| 1:F1:1738:A:C8     | 1:F1:1752:G:C2    | 3.04                     | 0.46              |
| 1:F1:2741:U:C4'    | 1:F1:2742:G:OP2   | 2.60                     | 0.46              |
| 1:F1:3096:U:H5''   | 10:FK:112:LYS:NZ  | 2.29                     | 0.46              |
| 1:F1:3114:U:C3'    | 1:F1:3115:C:H5''  | 2.44                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:3141:U:H5''  | 1:F1:3252:G:N2     | 2.30                     | 0.46              |
| 1:F1:3272:U:C4    | 1:F1:3273:U:C5     | 3.02                     | 0.46              |
| 3:FB:6:THR:HB     | 3:FB:9:MET:HG3     | 1.97                     | 0.46              |
| 6:FF:13:VAL:HG21  | 6:FF:27:ILE:CD1    | 2.41                     | 0.46              |
| 8:FH:58:TYR:CE2   | 8:FH:60:TYR:CD2    | 3.03                     | 0.46              |
| 9:FJ:119:PRO:HD3  | 9:FJ:140:THR:O     | 2.14                     | 0.46              |
| 12:FM:43:ILE:HG21 | 12:FM:56:ILE:HD13  | 1.95                     | 0.46              |
| 15:FP:11:PHE:O    | 15:FP:15:TRP:CD1   | 2.68                     | 0.46              |
| 18:FU:77:GLU:OE2  | 18:FU:110:ASN:ND2  | 2.49                     | 0.46              |
| 19:FX:45:ALA:CA   | 19:FX:50:HIS:HD2   | 2.28                     | 0.46              |
| 21:G3:93:G:H4'    | 19:HX:96:GLN:HE22  | 1.80                     | 0.46              |
| 23:GB:259:ARG:HA  | 30:GI:63:HIS:HB2   | 1.97                     | 0.46              |
| 24:GC:289:LEU:HA  | 24:GC:289:LEU:HD23 | 1.62                     | 0.46              |
| 24:GC:337:ALA:O   | 24:GC:341:LYS:HG2  | 2.15                     | 0.46              |
| 27:GF:53:LEU:HD23 | 27:GF:53:LEU:HA    | 1.65                     | 0.46              |
| 27:GF:127:TYR:CE1 | 1:H1:146:U:C2      | 3.03                     | 0.46              |
| 29:GH:101:LYS:HB3 | 29:GH:121:LYS:HZ2  | 1.71                     | 0.46              |
| 32:GK:38:GLY:HA3  | 32:GK:42:HIS:CE1   | 2.51                     | 0.46              |
| 32:GK:78:ASP:OD2  | 32:GK:115:LYS:HD3  | 2.15                     | 0.46              |
| 33:GL:26:ARG:C    | 33:GL:30:TYR:HD1   | 2.23                     | 0.46              |
| 34:GM:83:LEU:O    | 34:GM:88:VAL:HG22  | 2.15                     | 0.46              |
| 41:GT:49:GLN:O    | 41:GT:57:ARG:HB2   | 2.15                     | 0.46              |
| 45:GX:22:PHE:CD2  | 45:GX:23:GLU:HG3   | 2.51                     | 0.46              |
| 46:GY:7:LYS:NZ    | 1:H1:1950:C:C6     | 2.81                     | 0.46              |
| 1:H1:561:A:C2'    | 1:H1:562:G:H5'     | 2.45                     | 0.46              |
| 1:H1:790:C:O2     | 1:H1:790:C:C2'     | 2.62                     | 0.46              |
| 1:H1:861:A:C1'    | 1:H1:883:A:C2      | 2.98                     | 0.46              |
| 1:H1:1052:A:O2'   | 1:H1:1053:A:O5'    | 2.30                     | 0.46              |
| 1:H1:1111:G:H3'   | 1:H1:1112:A:H8     | 1.79                     | 0.46              |
| 1:H1:1631:U:C5    | 11:HL:8:ARG:HD3    | 2.50                     | 0.46              |
| 1:H1:1719:U:N3    | 1:H1:1775:A:H2     | 2.07                     | 0.46              |
| 1:H1:1753:A:H3'   | 1:H1:1754:G:C5'    | 2.40                     | 0.46              |
| 1:H1:1842:A:H2'   | 1:H1:1843:U:C6     | 2.50                     | 0.46              |
| 1:H1:2130:G:N2    | 1:H1:2143:A:H1'    | 2.29                     | 0.46              |
| 1:H1:2208:A:H1'   | 1:H1:2590:A:O2'    | 2.15                     | 0.46              |
| 1:H1:2275:A:O2'   | 1:H1:2276:A:P      | 2.71                     | 0.46              |
| 1:H1:2398:G:C5'   | 1:H1:2859:G:H5''   | 2.45                     | 0.46              |
| 1:H1:2625:A:H5'   | 1:H1:2626:A:H5''   | 1.97                     | 0.46              |
| 1:H1:3011:G:N2    | 1:H1:3020:G:C5     | 2.82                     | 0.46              |
| 5:HE:58:PHE:CG    | 5:HE:85:VAL:HG22   | 2.51                     | 0.46              |
| 5:HE:104:LEU:O    | 5:HE:107:VAL:HG22  | 2.15                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:HF:21:LYS:NZ     | 19:HX:174:GLU:HG2  | 2.30                     | 0.46              |
| 6:HF:44:VAL:HG12   | 6:HF:45:ARG:H      | 1.81                     | 0.46              |
| 6:HF:62:ASN:O      | 6:HF:75:LYS:NZ     | 2.37                     | 0.46              |
| 9:HJ:66:ASN:OD1    | 9:HJ:66:ASN:C      | 2.57                     | 0.46              |
| 9:HJ:182:CYS:CB    | 9:HJ:221:ILE:HD12  | 2.46                     | 0.46              |
| 15:HP:16:GLN:O     | 15:HP:17:ASN:C     | 2.58                     | 0.46              |
| 19:HX:28:LEU:O     | 19:HX:29:PRO:C     | 2.56                     | 0.46              |
| 19:HX:93:LEU:HD21  | 19:HX:120:LEU:CD2  | 2.43                     | 0.46              |
| 1:A1:19:A:H8       | 1:A1:19:A:O5'      | 1.98                     | 0.46              |
| 1:A1:119:A:O2'     | 1:A1:120:A:P       | 2.73                     | 0.46              |
| 1:A1:726:G:C5      | 1:A1:727:C:C4      | 3.03                     | 0.46              |
| 1:A1:741:G:C4      | 32:BK:136:ARG:NH2  | 2.83                     | 0.46              |
| 1:A1:1047:G:C2'    | 1:A1:1048:U:C5'    | 2.86                     | 0.46              |
| 1:A1:1388:U:H2'    | 1:A1:1389:G:C8     | 2.51                     | 0.46              |
| 1:A1:1464:U:H2'    | 1:A1:1465:U:H6     | 1.79                     | 0.46              |
| 1:A1:1864:U:C5'    | 50:A1:4164:HOH:O   | 2.52                     | 0.46              |
| 1:A1:2109:G:H2'    | 1:A1:2110:C:H5'    | 1.98                     | 0.46              |
| 1:A1:2254:A:C6     | 1:H1:873:A:H4'     | 2.49                     | 0.46              |
| 1:A1:2539:A:N3     | 1:A1:2540:G:C8     | 2.84                     | 0.46              |
| 1:A1:2569:A:C2'    | 1:A1:2570:U:OP1    | 2.62                     | 0.46              |
| 1:A1:3029:A:H2'    | 1:A1:3030:A:C8     | 2.50                     | 0.46              |
| 1:A1:3225:U:C4     | 1:A1:3226:A:N7     | 2.84                     | 0.46              |
| 1:A1:3227:A:C2     | 5:AE:80:TYR:CZ     | 3.03                     | 0.46              |
| 1:A1:3308:A:H2'    | 1:A1:3309:U:N1     | 2.30                     | 0.46              |
| 7:AG:14:LEU:HD21   | 7:AG:43:PHE:CZ     | 2.51                     | 0.46              |
| 9:AJ:49:ILE:HD13   | 9:AJ:87:SER:HB2    | 1.97                     | 0.46              |
| 9:AJ:140:THR:CG2   | 9:AJ:141:THR:H     | 2.12                     | 0.46              |
| 9:AJ:187:ASN:HD21  | 9:AJ:207:GLY:CA    | 2.18                     | 0.46              |
| 9:AJ:213:THR:O     | 9:AJ:216:SER:HB2   | 2.14                     | 0.46              |
| 12:AM:13:VAL:HG12  | 12:AM:14:ASN:N     | 2.30                     | 0.46              |
| 13:AN:25:ILE:HG23  | 13:AN:41:VAL:CG1   | 2.41                     | 0.46              |
| 14:AO:4:LEU:O      | 14:AO:8:ILE:HG13   | 2.16                     | 0.46              |
| 15:AP:48:LYS:HE3   | 15:AP:49:TYR:HE1   | 1.79                     | 0.46              |
| 19:AX:134:THR:O    | 19:AX:134:THR:HG22 | 2.12                     | 0.46              |
| 19:AX:137:ILE:HG13 | 19:AX:137:ILE:O    | 2.15                     | 0.46              |
| 20:B2:87:C:O2      | 20:B2:87:C:O4'     | 2.31                     | 0.46              |
| 22:BA:109:PRO:HG2  | 22:BA:112:THR:OG1  | 2.15                     | 0.46              |
| 23:BB:46:PHE:CE1   | 23:BB:84:MET:HG3   | 2.51                     | 0.46              |
| 24:BC:34:ARG:NE    | 35:BN:24:ASN:CB    | 2.79                     | 0.46              |
| 29:BH:138:VAL:CG2  | 29:BH:152:LEU:HD11 | 2.45                     | 0.46              |
| 30:BI:107:ILE:HG13 | 30:BI:159:ARG:HH12 | 1.79                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:228:PHE:CD2  | 34:BM:231:TRP:CD1  | 3.01                     | 0.46              |
| 35:BN:88:THR:HG22  | 35:BN:107:THR:HG23 | 1.97                     | 0.46              |
| 43:BV:166:VAL:CG1  | 43:BV:175:ILE:HG22 | 2.45                     | 0.46              |
| 43:BV:205:ASP:HB3  | 43:BV:238:MET:O    | 2.15                     | 0.46              |
| 44:BW:43:MET:HA    | 44:BW:43:MET:CE    | 2.35                     | 0.46              |
| 20:C2:111:A:H8     | 20:C2:111:A:O5'    | 1.98                     | 0.46              |
| 22:CA:208:VAL:HG21 | 1:D1:941:G:O6      | 2.13                     | 0.46              |
| 23:CB:301:LYS:HG2  | 23:CB:359:THR:HG21 | 1.96                     | 0.46              |
| 24:CC:6:GLN:NE2    | 1:D1:471:A:H4'     | 2.17                     | 0.46              |
| 24:CC:230:ILE:CG2  | 24:CC:233:VAL:HG13 | 2.46                     | 0.46              |
| 25:CD:65:MET:HE2   | 25:CD:65:MET:HB3   | 1.65                     | 0.46              |
| 30:CI:7:VAL:HG22   | 30:CI:33:VAL:HB    | 1.96                     | 0.46              |
| 30:CI:156:GLU:OE1  | 30:CI:156:GLU:HA   | 2.15                     | 0.46              |
| 32:CK:121:GLN:HA   | 32:CK:122:PRO:HD3  | 1.60                     | 0.46              |
| 33:CL:27:THR:CG2   | 33:CL:124:ASP:HB3  | 2.40                     | 0.46              |
| 34:CM:65:VAL:HA    | 34:CM:73:ARG:O     | 2.15                     | 0.46              |
| 34:CM:86:PHE:CE1   | 34:CM:253:GLU:HB3  | 2.51                     | 0.46              |
| 34:CM:163:LEU:HD21 | 34:CM:175:HIS:HB3  | 1.96                     | 0.46              |
| 35:CN:168:ARG:HH11 | 18:DU:9:VAL:HG22   | 1.80                     | 0.46              |
| 39:CR:81:MET:HE2   | 39:CR:81:MET:HB3   | 1.84                     | 0.46              |
| 43:CV:18:LYS:O     | 43:CV:21:LYS:HB2   | 2.15                     | 0.46              |
| 45:CX:69:LEU:HG    | 45:CX:73:PHE:O     | 2.16                     | 0.46              |
| 1:D1:74:G:H2'      | 18:DU:98:ARG:HD2   | 1.96                     | 0.46              |
| 1:D1:190:U:C4      | 1:D1:224:C:O4'     | 2.68                     | 0.46              |
| 1:D1:511:U:H5''    | 14:DO:70:VAL:HG21  | 1.97                     | 0.46              |
| 1:D1:585:A:C5      | 1:D1:586:A:C5      | 3.03                     | 0.46              |
| 1:D1:641:U:O4'     | 1:D1:3233:A:N6     | 2.48                     | 0.46              |
| 1:D1:1020:G:N3     | 1:D1:1021:U:H5     | 2.14                     | 0.46              |
| 1:D1:1215:U:N3     | 1:D1:1344:A:N6     | 2.59                     | 0.46              |
| 1:D1:1902:C:H2'    | 1:D1:1902:C:O2     | 2.15                     | 0.46              |
| 1:D1:2148:A:H2'    | 1:D1:2149:U:H6     | 1.80                     | 0.46              |
| 1:D1:2276:A:N6     | 1:D1:2947:C:O2'    | 2.48                     | 0.46              |
| 1:D1:2392:A:O2'    | 50:D1:4367:HOH:O   | 2.21                     | 0.46              |
| 1:D1:2727:A:HO2'   | 1:D1:2728:A:P      | 2.37                     | 0.46              |
| 1:D1:2784:G:H4'    | 1:D1:2786:C:C6     | 2.50                     | 0.46              |
| 1:D1:2921:A:C6     | 1:D1:2922:A:N1     | 2.83                     | 0.46              |
| 1:D1:2930:C:P      | 50:D1:4237:HOH:O   | 2.63                     | 0.46              |
| 1:D1:3029:A:H2'    | 1:D1:3030:A:C8     | 2.50                     | 0.46              |
| 1:D1:3308:A:H2'    | 1:D1:3309:U:N1     | 2.29                     | 0.46              |
| 3:DB:9:MET:HB3     | 3:DB:13:PHE:CE2    | 2.47                     | 0.46              |
| 5:DE:11:GLY:HA2    | 5:DE:14:LYS:HE3    | 1.97                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:DE:46:ALA:HB3    | 5:DE:49:THR:OG1    | 2.15                     | 0.46              |
| 7:DG:10:ILE:HG12   | 7:DG:13:LYS:HZ2    | 1.81                     | 0.46              |
| 9:DJ:211:THR:O     | 9:DJ:215:ILE:HG13  | 2.15                     | 0.46              |
| 12:DM:17:PHE:CD1   | 12:DM:75:LYS:HB3   | 2.50                     | 0.46              |
| 15:DP:48:LYS:HE3   | 15:DP:49:TYR:HE2   | 1.81                     | 0.46              |
| 20:E2:43:A:C8      | 20:E2:43:A:H3'     | 2.51                     | 0.46              |
| 25:ED:103:GLY:C    | 1:F1:2662:A:H4'    | 2.39                     | 0.46              |
| 25:ED:107:GLN:HG2  | 25:ED:108:GLU:H    | 1.80                     | 0.46              |
| 26:EE:88:PHE:HD2   | 26:EE:152:VAL:CG1  | 2.29                     | 0.46              |
| 26:EE:167:GLU:O    | 26:EE:168:LYS:HG2  | 2.14                     | 0.46              |
| 27:EF:19:ASN:CB    | 27:EF:20:PRO:HD3   | 2.34                     | 0.46              |
| 27:EF:122:PRO:CG   | 1:F1:119:A:C2      | 2.98                     | 0.46              |
| 30:EI:183:ALA:HB1  | 30:EI:184:PRO:CD   | 2.45                     | 0.46              |
| 31:EJ:32:ASN:ND2   | 31:EJ:117:GLN:N    | 2.63                     | 0.46              |
| 32:EK:49:LYS:O     | 35:EN:156:PRO:O    | 2.33                     | 0.46              |
| 32:EK:81:TRP:CE3   | 32:EK:89:ARG:HB3   | 2.50                     | 0.46              |
| 32:EK:100:PRO:HA   | 18:FU:164:LYS:CE   | 2.45                     | 0.46              |
| 34:EM:216:LEU:HD12 | 34:EM:228:PHE:CD1  | 2.50                     | 0.46              |
| 35:EN:89:ASN:OD1   | 35:EN:90:ASP:C     | 2.57                     | 0.46              |
| 37:EP:100:ASN:ND2  | 1:F1:1017:U:OP1    | 2.48                     | 0.46              |
| 39:ER:74:PRO:HB2   | 39:ER:149:LEU:HD11 | 1.97                     | 0.46              |
| 40:ES:3:THR:N      | 1:F1:229:A:H5''    | 2.30                     | 0.46              |
| 42:EU:78:SER:O     | 42:EU:79:LEU:HB2   | 2.15                     | 0.46              |
| 42:EU:80:LYS:HB3   | 42:EU:81:PRO:HD2   | 1.97                     | 0.46              |
| 43:EV:84:ILE:HA    | 43:EV:110:ASN:O    | 2.15                     | 0.46              |
| 43:EV:108:LEU:HD11 | 1:F1:1185:A:H5'    | 1.98                     | 0.46              |
| 45:EX:27:PHE:CD2   | 45:EX:29:LYS:HE2   | 2.50                     | 0.46              |
| 1:F1:359:G:H2'     | 1:F1:360:A:C8      | 2.50                     | 0.46              |
| 1:F1:402:U:H2'     | 1:F1:403:G:H5'     | 1.97                     | 0.46              |
| 1:F1:608:C:H2'     | 1:F1:609:A:O5'     | 2.15                     | 0.46              |
| 1:F1:1095:C:O2     | 1:F1:1095:C:C2'    | 2.62                     | 0.46              |
| 1:F1:1114:C:C2'    | 1:F1:1115:U:C5'    | 2.93                     | 0.46              |
| 1:F1:1191:G:H2'    | 1:F1:1192:A:C8     | 2.47                     | 0.46              |
| 4:FC:83:ILE:HG22   | 4:FC:84:LYS:N      | 2.28                     | 0.46              |
| 6:FF:7:VAL:HG22    | 6:FF:55:LEU:HD21   | 1.96                     | 0.46              |
| 9:FJ:215:ILE:O     | 9:FJ:219:GLU:HG3   | 2.15                     | 0.46              |
| 11:FL:77:VAL:HG11  | 13:FN:144:PHE:CE1  | 2.51                     | 0.46              |
| 19:FX:15:GLN:HE21  | 19:FX:115:GLY:HA2  | 1.79                     | 0.46              |
| 23:GB:216:LEU:HD23 | 23:GB:274:THR:HA   | 1.97                     | 0.46              |
| 24:GC:348:ALA:C    | 24:GC:350:ALA:N    | 2.72                     | 0.46              |
| 24:GC:375:ALA:O    | 24:GC:378:ALA:HB3  | 2.14                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 25:GD:37:LEU:CD1  | 25:GD:69:VAL:HG23  | 2.45                     | 0.46              |
| 26:GE:88:PHE:HD1  | 26:GE:182:LYS:HA   | 1.76                     | 0.46              |
| 26:GE:90:MET:O    | 26:GE:141:THR:HG23 | 2.15                     | 0.46              |
| 26:GE:113:LYS:HD2 | 26:GE:114:HIS:N    | 2.30                     | 0.46              |
| 27:GF:41:LEU:HD22 | 1:H1:2519:A:H1'    | 1.97                     | 0.46              |
| 33:GL:27:THR:CG2  | 33:GL:124:ASP:HB3  | 2.40                     | 0.46              |
| 34:GM:76:CYS:HB3  | 34:GM:105:LEU:CD1  | 2.46                     | 0.46              |
| 35:GN:34:TYR:CD2  | 35:GN:37:LEU:HD12  | 2.50                     | 0.46              |
| 35:GN:172:ARG:HG2 | 35:GN:173:LYS:HG2  | 1.97                     | 0.46              |
| 36:GO:114:LYS:O   | 36:GO:146:LYS:HE2  | 2.14                     | 0.46              |
| 38:GQ:12:ASN:HB3  | 38:GQ:15:LYS:HB2   | 1.97                     | 0.46              |
| 42:GU:41:THR:H    | 42:GU:44:LYS:HD2   | 1.80                     | 0.46              |
| 44:GW:43:MET:HG3  | 44:GW:90:THR:CG2   | 2.45                     | 0.46              |
| 46:GY:10:ILE:HG23 | 1:H1:862:A:H4'     | 1.96                     | 0.46              |
| 1:H1:46:A:P       | 18:HU:15:HIS:HD2   | 2.37                     | 0.46              |
| 1:H1:59:A:H2'     | 1:H1:60:A:O4'      | 2.15                     | 0.46              |
| 1:H1:166:C:H2'    | 1:H1:166:C:O2      | 2.15                     | 0.46              |
| 1:H1:314:C:H2'    | 1:H1:315:U:H6      | 1.78                     | 0.46              |
| 1:H1:415:A:H4'    | 1:H1:653:C:O3'     | 2.14                     | 0.46              |
| 1:H1:579:G:H1'    | 19:HX:158:ASN:HA   | 1.96                     | 0.46              |
| 1:H1:679:C:O2'    | 1:H1:680:A:H5'     | 2.14                     | 0.46              |
| 1:H1:703:U:O2'    | 1:H1:704:G:H5'     | 2.16                     | 0.46              |
| 1:H1:1116:C:O5'   | 1:H1:1116:C:H6     | 1.98                     | 0.46              |
| 1:H1:1680:A:H4'   | 1:H1:1681:C:O5'    | 2.15                     | 0.46              |
| 1:H1:1926:G:C2    | 1:H1:1927:U:H1'    | 2.50                     | 0.46              |
| 1:H1:2300:G:O5'   | 1:H1:2300:G:C8     | 2.69                     | 0.46              |
| 1:H1:2529:G:H2'   | 1:H1:2530:G:C8     | 2.50                     | 0.46              |
| 1:H1:2958:C:O2'   | 1:H1:2959:A:N7     | 2.44                     | 0.46              |
| 1:H1:2999:U:C4    | 50:H1:4347:HOH:O   | 2.55                     | 0.46              |
| 1:H1:3047:U:H3'   | 1:H1:3047:U:C6     | 2.50                     | 0.46              |
| 1:H1:3168:A:N7    | 19:HX:166:VAL:HG11 | 2.29                     | 0.46              |
| 1:H1:3308:A:H2'   | 1:H1:3309:U:N1     | 2.30                     | 0.46              |
| 6:HF:23:LYS:CB    | 6:HF:43:ILE:HD11   | 2.45                     | 0.46              |
| 6:HF:45:ARG:NH1   | 19:HX:84:ASN:O     | 2.47                     | 0.46              |
| 9:HJ:46:ILE:HG22  | 9:HJ:47:PRO:O      | 2.15                     | 0.46              |
| 18:HU:31:LYS:O    | 18:HU:34:LEU:HB2   | 2.15                     | 0.46              |
| 18:HU:44:VAL:CG1  | 18:HU:47:ARG:HG3   | 2.45                     | 0.46              |
| 1:A1:118:A:N7     | 27:BF:121:LYS:HA   | 2.30                     | 0.46              |
| 1:A1:155:A:H1'    | 16:AQ:27:ALA:CB    | 2.44                     | 0.46              |
| 1:A1:332:G:C3'    | 1:A1:333:G:H5''    | 2.46                     | 0.46              |
| 1:A1:358:C:O2'    | 2:AA:16:HIS:HD2    | 1.98                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:435:A:N3      | 1:A1:435:A:C2'     | 2.78                     | 0.46              |
| 1:A1:485:A:H2'     | 32:BK:84:VAL:CG1   | 2.45                     | 0.46              |
| 1:A1:486:C:C2'     | 1:A1:487:G:H5'     | 2.45                     | 0.46              |
| 1:A1:603:A:H2'     | 1:A1:604:A:C8      | 2.50                     | 0.46              |
| 1:A1:663:G:OP1     | 45:BX:39:GLY:HA3   | 2.15                     | 0.46              |
| 1:A1:792:G:H5'     | 18:AU:190:TRP:CE2  | 2.50                     | 0.46              |
| 1:A1:1046:G:H2'    | 1:A1:1047:G:O4'    | 2.14                     | 0.46              |
| 1:A1:1247:C:C5'    | 1:A1:1248:G:H5''   | 2.35                     | 0.46              |
| 1:A1:1397:G:C2'    | 1:A1:1398:G:H5'    | 2.45                     | 0.46              |
| 1:A1:1455:G:N3     | 24:BC:106:MET:HE3  | 2.30                     | 0.46              |
| 1:A1:1646:G:O2'    | 1:A1:1647:U:H5'    | 2.16                     | 0.46              |
| 1:A1:2133:U:P      | 50:A1:4109:HOH:O   | 2.73                     | 0.46              |
| 1:A1:2227:A:H2'    | 1:A1:2228:A:O4'    | 2.15                     | 0.46              |
| 1:A1:2436:U:H2'    | 1:A1:2437:G:C8     | 2.51                     | 0.46              |
| 1:A1:2586:G:O2'    | 1:A1:2587:G:H5'    | 2.14                     | 0.46              |
| 1:A1:2672:U:H1'    | 25:BD:128:TYR:CE2  | 2.50                     | 0.46              |
| 1:A1:2698:A:H2'    | 1:A1:2699:C:C6     | 2.51                     | 0.46              |
| 1:A1:2929:A:OP2    | 23:BB:254:HIS:CD2  | 2.68                     | 0.46              |
| 5:AE:173:TYR:CE2   | 6:AF:106:PHE:CA    | 2.99                     | 0.46              |
| 6:AF:13:VAL:HG21   | 6:AF:27:ILE:CD1    | 2.44                     | 0.46              |
| 6:AF:45:ARG:NH1    | 19:AX:84:ASN:O     | 2.48                     | 0.46              |
| 13:AN:33:THR:HG22  | 13:AN:34:LYS:H     | 1.80                     | 0.46              |
| 18:AU:58:LYS:CB    | 18:AU:63:TYR:HB3   | 2.44                     | 0.46              |
| 19:AX:108:TYR:CZ   | 19:AX:120:LEU:HA   | 2.50                     | 0.46              |
| 19:AX:151:PRO:O    | 19:AX:155:ALA:HB2  | 2.14                     | 0.46              |
| 25:BD:9:MET:O      | 25:BD:134:PRO:HD3  | 2.15                     | 0.46              |
| 27:BF:155:LEU:HD23 | 33:BL:7:LEU:HD11   | 1.97                     | 0.46              |
| 33:BL:147:ARG:HE   | 42:BU:105:LEU:HD21 | 1.80                     | 0.46              |
| 34:BM:54:ARG:CZ    | 34:BM:149:GLY:HA3  | 2.45                     | 0.46              |
| 34:BM:177:GLU:O    | 34:BM:177:GLU:HG3  | 2.10                     | 0.46              |
| 37:BP:42:ILE:HG23  | 37:BP:57:TYR:O     | 2.16                     | 0.46              |
| 39:BR:141:LEU:O    | 39:BR:144:ALA:HB3  | 2.15                     | 0.46              |
| 40:BS:55:VAL:CG1   | 40:BS:56:LEU:N     | 2.79                     | 0.46              |
| 43:BV:127:VAL:C    | 43:BV:129:PRO:HD2  | 2.39                     | 0.46              |
| 20:C2:22:A:O2'     | 20:C2:23:U:H5'     | 2.16                     | 0.46              |
| 20:C2:71:G:C5      | 20:C2:72:C:C5      | 3.03                     | 0.46              |
| 22:CA:42:ILE:CD1   | 22:CA:43:ARG:N     | 2.71                     | 0.46              |
| 22:CA:114:VAL:HG12 | 22:CA:115:CYS:N    | 2.30                     | 0.46              |
| 22:CA:133:CYS:O    | 22:CA:170:VAL:HG23 | 2.14                     | 0.46              |
| 28:CG:60:UNK:CG    | 1:D1:1249:G:H5''   | 2.30                     | 0.46              |
| 32:CK:77:ILE:HG23  | 32:CK:118:LEU:HG   | 1.97                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:CM:60:ILE:H     | 34:CM:80:SER:HB2   | 1.80                     | 0.46              |
| 35:CN:3:ILE:HD11   | 1:D1:1391:U:OP1    | 2.16                     | 0.46              |
| 37:CP:23:GLY:HA3   | 1:D1:2691:A:OP1    | 2.15                     | 0.46              |
| 1:D1:116:U:C4      | 1:D1:117:G:C5      | 3.03                     | 0.46              |
| 1:D1:255:G:HO2'    | 1:D1:256:A:H8      | 1.62                     | 0.46              |
| 1:D1:474:G:H2'     | 1:D1:475:C:H6      | 1.79                     | 0.46              |
| 1:D1:1006:C:C2'    | 1:D1:1007:G:OP1    | 2.64                     | 0.46              |
| 1:D1:1662:A:C4'    | 11:DL:76:ARG:NH2   | 2.78                     | 0.46              |
| 1:D1:1823:A:H2'    | 1:D1:1824:A:O4'    | 2.15                     | 0.46              |
| 1:D1:2124:C:H2'    | 1:D1:2125:C:H6     | 1.81                     | 0.46              |
| 1:D1:2146:G:H2'    | 1:D1:2147:C:H5'    | 1.97                     | 0.46              |
| 1:D1:2208:A:H1'    | 1:D1:2590:A:O2'    | 2.16                     | 0.46              |
| 1:D1:2569:A:C2'    | 1:D1:2570:U:OP1    | 2.63                     | 0.46              |
| 1:D1:2703:G:H2'    | 1:D1:2740:G:N2     | 2.30                     | 0.46              |
| 1:D1:3144:G:C2     | 1:D1:3249:U:C2     | 3.03                     | 0.46              |
| 1:D1:3283:C:H2'    | 1:D1:3284:G:H8     | 1.81                     | 0.46              |
| 2:DA:21:ARG:HB2    | 2:DA:39:TYR:CD1    | 2.50                     | 0.46              |
| 3:DB:50:LYS:O      | 3:DB:51:ILE:HG13   | 2.14                     | 0.46              |
| 4:DC:100:ALA:O     | 4:DC:104:LYS:HG3   | 2.16                     | 0.46              |
| 22:EA:103:LEU:HB2  | 22:EA:108:ILE:HD11 | 1.98                     | 0.46              |
| 23:EB:292:ALA:HB2  | 23:EB:303:ILE:N    | 2.30                     | 0.46              |
| 24:EC:19:THR:CG2   | 24:EC:20:ALA:N     | 2.78                     | 0.46              |
| 24:EC:97:PHE:HD1   | 24:EC:97:PHE:O     | 1.99                     | 0.46              |
| 24:EC:163:VAL:CG2  | 24:EC:175:PHE:CE2  | 2.96                     | 0.46              |
| 25:ED:12:VAL:HG23  | 25:ED:12:VAL:O     | 2.15                     | 0.46              |
| 29:EH:50:VAL:HG12  | 29:EH:152:LEU:HD12 | 1.98                     | 0.46              |
| 34:EM:90:THR:O     | 34:EM:231:TRP:CZ3  | 2.67                     | 0.46              |
| 35:EN:151:HIS:ND1  | 35:EN:164:ALA:O    | 2.39                     | 0.46              |
| 36:EO:102:LEU:HD13 | 36:EO:127:SER:HB3  | 1.98                     | 0.46              |
| 38:EQ:12:ASN:HB3   | 38:EQ:15:LYS:HB2   | 1.98                     | 0.46              |
| 40:ES:10:ALA:HB3   | 40:ES:13:LYS:HG3   | 1.97                     | 0.46              |
| 43:EV:120:SER:O    | 43:EV:124:ILE:HG13 | 2.14                     | 0.46              |
| 43:EV:128:LEU:N    | 43:EV:129:PRO:CD   | 2.78                     | 0.46              |
| 44:EW:75:CYS:O     | 44:EW:90:THR:HG23  | 2.15                     | 0.46              |
| 46:EY:73:THR:HG22  | 46:EY:75:PRO:CD    | 2.39                     | 0.46              |
| 1:F1:46:A:P        | 18:FU:15:HIS:HD2   | 2.39                     | 0.46              |
| 1:F1:300:G:H8      | 1:F1:300:G:H5'     | 1.80                     | 0.46              |
| 1:F1:334:G:H2'     | 1:F1:335:A:O4'     | 2.15                     | 0.46              |
| 1:F1:445:C:N4      | 50:F1:4607:HOH:O   | 2.47                     | 0.46              |
| 1:F1:470:C:O2'     | 1:F1:471:A:H5'     | 2.15                     | 0.46              |
| 1:F1:600:G:H5''    | 1:F1:601:A:OP2     | 2.16                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:861:A:C2     | 1:F1:883:A:H1'     | 2.50                     | 0.46              |
| 1:F1:1808:A:H2'   | 1:F1:1809:C:C6     | 2.50                     | 0.46              |
| 1:F1:1843:U:C2    | 1:F1:1844:U:C5     | 3.03                     | 0.46              |
| 1:F1:2276:A:N6    | 1:F1:2947:C:O2'    | 2.47                     | 0.46              |
| 1:F1:2536:A:H2'   | 1:F1:2537:C:H6     | 1.76                     | 0.46              |
| 1:F1:2557:A:C2    | 1:F1:2564:G:C5     | 3.03                     | 0.46              |
| 1:F1:2767:A:H2'   | 1:F1:2768:G:O5'    | 2.15                     | 0.46              |
| 1:F1:3068:U:H3'   | 1:F1:3069:G:H5''   | 1.98                     | 0.46              |
| 1:F1:3132:A:C2'   | 1:F1:3133:G:OP1    | 2.63                     | 0.46              |
| 1:F1:3180:C:H2'   | 1:F1:3181:G:H8     | 1.80                     | 0.46              |
| 1:F1:3214:A:H5''  | 1:F1:3215:C:H6     | 1.76                     | 0.46              |
| 1:F1:3229:C:O2'   | 1:F1:3230:G:OP1    | 2.33                     | 0.46              |
| 1:F1:3340:U:H2'   | 1:F1:3341:C:C6     | 2.49                     | 0.46              |
| 2:FA:84:GLN:OE1   | 2:FA:84:GLN:HA     | 2.16                     | 0.46              |
| 5:FE:98:THR:HG22  | 5:FE:100:THR:H     | 1.79                     | 0.46              |
| 6:FF:87:GLU:O     | 6:FF:92:LYS:HE3    | 2.15                     | 0.46              |
| 8:FH:43:ASN:O     | 8:FH:84:ASN:HA     | 2.14                     | 0.46              |
| 8:FH:47:ASP:N     | 8:FH:47:ASP:OD1    | 2.48                     | 0.46              |
| 9:FJ:43:VAL:CG1   | 9:FJ:44:PRO:N      | 2.75                     | 0.46              |
| 14:FO:115:HIS:O   | 14:FO:118:ASN:N    | 2.49                     | 0.46              |
| 20:G2:6:A:N1      | 1:H1:2381:A:O2'    | 2.45                     | 0.46              |
| 20:G2:11:C:H2'    | 20:G2:12:A:C8      | 2.50                     | 0.46              |
| 20:G2:73:G:OP2    | 40:GS:117:LEU:HD21 | 2.16                     | 0.46              |
| 20:G2:81:G:H4'    | 42:GU:42:ALA:HB3   | 1.97                     | 0.46              |
| 21:G3:39:U:C2     | 25:GD:46:VAL:HG21  | 2.50                     | 0.46              |
| 22:GA:116:ASN:OD1 | 22:GA:125:GLY:HA3  | 2.15                     | 0.46              |
| 23:GB:33:PRO:CD   | 23:GB:44:THR:HG23  | 2.44                     | 0.46              |
| 23:GB:46:PHE:CZ   | 23:GB:84:MET:HG3   | 2.50                     | 0.46              |
| 23:GB:86:ILE:CD1  | 23:GB:196:LEU:HD13 | 2.45                     | 0.46              |
| 24:GC:207:LYS:NZ  | 1:H1:1412:U:O4     | 2.48                     | 0.46              |
| 25:GD:134:PRO:HG2 | 25:GD:135:GLY:N    | 2.31                     | 0.46              |
| 29:GH:50:VAL:CG1  | 29:GH:152:LEU:HD12 | 2.45                     | 0.46              |
| 32:GK:98:LYS:HA   | 18:HU:166:VAL:CB   | 2.45                     | 0.46              |
| 34:GM:157:ASN:ND2 | 34:GM:159:VAL:HG22 | 2.30                     | 0.46              |
| 35:GN:57:ARG:NH1  | 1:H1:697:A:OP2     | 2.41                     | 0.46              |
| 37:GP:70:ARG:O    | 37:GP:93:ILE:HG13  | 2.15                     | 0.46              |
| 38:GQ:113:ASN:O   | 38:GQ:154:GLU:HA   | 2.14                     | 0.46              |
| 45:GX:57:ILE:HG23 | 1:H1:1366:C:O2'    | 2.15                     | 0.46              |
| 1:H1:146:U:C4'    | 1:H1:147:U:O5'     | 2.56                     | 0.46              |
| 1:H1:439:A:N6     | 1:H1:539:A:H1'     | 2.30                     | 0.46              |
| 1:H1:461:A:O2'    | 1:H1:462:G:H5'     | 2.16                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:775:C:O2      | 1:H1:775:C:C2'     | 2.62                     | 0.46              |
| 1:H1:1066:A:H2'    | 1:H1:1067:U:O4'    | 2.15                     | 0.46              |
| 1:H1:1753:A:OP1    | 7:HG:88:SER:OG     | 2.32                     | 0.46              |
| 1:H1:3228:U:C3'    | 1:H1:3229:C:C5'    | 2.94                     | 0.46              |
| 4:HC:83:ILE:HG22   | 4:HC:84:LYS:N      | 2.30                     | 0.46              |
| 8:HH:43:ASN:O      | 8:HH:84:ASN:HA     | 2.15                     | 0.46              |
| 9:HJ:117:ILE:HD13  | 9:HJ:137:VAL:HG11  | 1.97                     | 0.46              |
| 9:HJ:119:PRO:CG    | 9:HJ:146:VAL:HG12  | 2.45                     | 0.46              |
| 9:HJ:157:ARG:O     | 9:HJ:180:PRO:HD2   | 2.15                     | 0.46              |
| 19:HX:45:ALA:HB1   | 19:HX:50:HIS:HB3   | 1.97                     | 0.46              |
| 1:A1:71:U:C2'      | 1:A1:72:A:OP1      | 2.64                     | 0.46              |
| 1:A1:426:A:H4'     | 8:AH:94:ASN:O      | 2.14                     | 0.46              |
| 1:A1:621:G:O6      | 1:A1:622:G:N1      | 2.48                     | 0.46              |
| 1:A1:640:G:H2'     | 1:A1:641:U:H6      | 1.81                     | 0.46              |
| 1:A1:685:G:H4'     | 1:A1:685:G:OP1     | 2.15                     | 0.46              |
| 1:A1:820:G:C2'     | 1:A1:821:U:C5'     | 2.94                     | 0.46              |
| 1:A1:1195:U:H1'    | 43:BV:206:THR:CG2  | 2.45                     | 0.46              |
| 1:A1:1215:U:N3     | 1:A1:1344:A:N6     | 2.62                     | 0.46              |
| 1:A1:1348:G:C2'    | 1:A1:1349:U:O5'    | 2.63                     | 0.46              |
| 1:A1:1376:A:OP2    | 43:BV:15:ARG:NH2   | 2.46                     | 0.46              |
| 1:A1:1547:G:P      | 39:BR:77:THR:HG21  | 2.55                     | 0.46              |
| 1:A1:1620:U:O2'    | 1:A1:1631:U:O2     | 2.31                     | 0.46              |
| 1:A1:1667:A:C2'    | 1:A1:1668:A:O5'    | 2.64                     | 0.46              |
| 1:A1:1906:G:H5''   | 44:BW:33:ARG:NH2   | 2.30                     | 0.46              |
| 1:A1:2143:A:H2'    | 1:A1:2144:A:O4'    | 2.16                     | 0.46              |
| 1:A1:2358:A:O2'    | 1:A1:2359:G:H5'    | 2.15                     | 0.46              |
| 1:A1:2515:G:C6     | 1:A1:2516:U:C4     | 3.03                     | 0.46              |
| 1:A1:2667:A:C6     | 1:A1:2668:A:C6     | 3.03                     | 0.46              |
| 1:A1:3027:U:OP1    | 23:BB:62:ARG:NH2   | 2.48                     | 0.46              |
| 1:A1:3298:U:C1'    | 1:A1:3299:G:P      | 3.03                     | 0.46              |
| 4:AC:100:ALA:O     | 4:AC:104:LYS:HG3   | 2.16                     | 0.46              |
| 5:AE:113:GLU:OE1   | 5:AE:113:GLU:HA    | 2.15                     | 0.46              |
| 5:AE:135:THR:HB    | 5:AE:138:GLN:HG3   | 1.95                     | 0.46              |
| 5:AE:170:LEU:HA    | 6:AF:106:PHE:CE1   | 2.46                     | 0.46              |
| 9:AJ:111:ASN:ND2   | 9:AJ:156:ASN:HD22  | 2.12                     | 0.46              |
| 12:AM:13:VAL:O     | 12:AM:70:THR:HA    | 2.15                     | 0.46              |
| 19:AX:7:GLN:HE22   | 19:AX:80:GLU:N     | 2.13                     | 0.46              |
| 24:BC:89:THR:HG22  | 24:BC:91:ARG:HB3   | 1.97                     | 0.46              |
| 24:BC:290:LEU:HD22 | 35:BN:125:ASP:HB3  | 1.97                     | 0.46              |
| 31:BJ:10:GLN:HG3   | 31:BJ:129:ILE:HG22 | 1.94                     | 0.46              |
| 33:BL:26:ARG:NH1   | 33:BL:43:SER:OG    | 2.48                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:9:THR:O      | 34:BM:13:PHE:HD1   | 1.98                     | 0.46              |
| 38:BQ:93:ILE:O     | 38:BQ:96:LEU:HB2   | 2.15                     | 0.46              |
| 43:BV:132:THR:CG2  | 43:BV:227:ARG:HG3  | 2.45                     | 0.46              |
| 46:BY:55:TRP:N     | 46:BY:55:TRP:CD1   | 2.82                     | 0.46              |
| 20:C2:35:U:O2      | 20:C2:37:A:N6      | 2.48                     | 0.46              |
| 22:CA:16:VAL:HG23  | 1:D1:936:C:P       | 2.55                     | 0.46              |
| 23:CB:33:PRO:CD    | 23:CB:44:THR:CG2   | 2.94                     | 0.46              |
| 23:CB:140:LYS:O    | 23:CB:144:LEU:HG   | 2.15                     | 0.46              |
| 23:CB:294:THR:HG21 | 23:CB:354:LEU:O    | 2.15                     | 0.46              |
| 23:CB:337:ARG:HH21 | 23:CB:340:ILE:HG23 | 1.79                     | 0.46              |
| 24:CC:27:ALA:HB2   | 24:CC:272:THR:HG23 | 1.97                     | 0.46              |
| 24:CC:77:ALA:CA    | 1:D1:2397:A:OP1    | 2.63                     | 0.46              |
| 24:CC:82:PRO:O     | 24:CC:96:ALA:N     | 2.36                     | 0.46              |
| 27:CF:62:GLN:OE1   | 1:D1:2574:U:C4     | 2.68                     | 0.46              |
| 30:CI:101:LEU:HD11 | 30:CI:103:ILE:HG12 | 1.97                     | 0.46              |
| 30:CI:186:LEU:CD1  | 6:DF:122:SER:HB3   | 2.28                     | 0.46              |
| 32:CK:51:HIS:CE1   | 18:DU:6:GLN:HA     | 2.47                     | 0.46              |
| 32:CK:148:THR:HG22 | 32:CK:149:ALA:H    | 1.77                     | 0.46              |
| 37:CP:40:VAL:HG13  | 37:CP:96:VAL:HG13  | 1.97                     | 0.46              |
| 38:CQ:103:ASN:ND2  | 1:D1:388:A:C1'     | 2.61                     | 0.46              |
| 40:CS:125:LEU:HD21 | 1:D1:186:U:O3'     | 2.15                     | 0.46              |
| 44:CW:59:TRP:HZ3   | 44:CW:63:ILE:HG12  | 1.77                     | 0.46              |
| 1:D1:119:A:O2'     | 1:D1:120:A:P       | 2.74                     | 0.46              |
| 1:D1:592:A:OP1     | 6:DF:68:ARG:HG3    | 2.16                     | 0.46              |
| 1:D1:632:G:N7      | 5:DE:32:GLN:NE2    | 2.63                     | 0.46              |
| 1:D1:723:U:O3'     | 1:D1:724:C:H6      | 1.98                     | 0.46              |
| 1:D1:766:G:C2'     | 1:D1:767:C:OP2     | 2.63                     | 0.46              |
| 1:D1:943:C:O2'     | 1:D1:944:U:H5'     | 2.16                     | 0.46              |
| 1:D1:1046:G:H5''   | 13:FN:3:LYS:CG     | 2.46                     | 0.46              |
| 1:D1:1647:U:H2'    | 1:D1:1648:G:O4'    | 2.15                     | 0.46              |
| 1:D1:1712:U:C4     | 12:DM:80:TYR:HD1   | 2.33                     | 0.46              |
| 1:D1:1966:U:O2'    | 1:D1:3303:G:H1'    | 2.14                     | 0.46              |
| 1:D1:2537:C:H2'    | 1:D1:2538:C:H6     | 1.79                     | 0.46              |
| 1:D1:3005:A:H2'    | 1:D1:3006:A:C8     | 2.50                     | 0.46              |
| 1:D1:3083:A:H2'    | 1:D1:3084:U:C6     | 2.50                     | 0.46              |
| 1:D1:3101:G:C2     | 1:D1:3110:U:C5     | 3.03                     | 0.46              |
| 1:D1:3115:C:H2'    | 1:D1:3116:A:O5'    | 2.14                     | 0.46              |
| 5:DE:7:GLY:C       | 5:DE:9:ASN:N       | 2.74                     | 0.46              |
| 19:DX:8:GLU:OE2    | 19:DX:19:ARG:NH1   | 2.46                     | 0.46              |
| 20:E2:33:C:O2'     | 20:E2:34:G:H5'     | 2.14                     | 0.46              |
| 21:E3:69:G:H2'     | 21:E3:70:G:C8      | 2.47                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:92:TYR:HH    | 1:F1:2992:G:HO2'   | 1.61                     | 0.46              |
| 24:EC:230:ILE:CG2  | 24:EC:233:VAL:HG13 | 2.46                     | 0.46              |
| 25:ED:17:LEU:CB    | 25:ED:76:ALA:HB1   | 2.45                     | 0.46              |
| 25:ED:128:TYR:CE2  | 1:F1:2672:U:H1'    | 2.50                     | 0.46              |
| 25:ED:160:ILE:HG22 | 25:ED:164:LYS:HE3  | 1.98                     | 0.46              |
| 27:EF:89:LEU:HD23  | 27:EF:193:LEU:HD21 | 1.98                     | 0.46              |
| 27:EF:161:GLN:OE1  | 27:EF:164:ARG:NH1  | 2.48                     | 0.46              |
| 30:EI:30:GLN:HG3   | 30:EI:32:ILE:CD1   | 2.46                     | 0.46              |
| 30:EI:132:ARG:NH1  | 1:F1:1216:C:O2'    | 2.49                     | 0.46              |
| 32:EK:48:GLU:OE1   | 32:EK:48:GLU:CA    | 2.57                     | 0.46              |
| 34:EM:157:ASN:ND2  | 34:EM:159:VAL:HG22 | 2.29                     | 0.46              |
| 35:EN:128:ALA:O    | 35:EN:132:PRO:HD3  | 2.14                     | 0.46              |
| 35:EN:174:PHE:C    | 35:EN:176:ARG:H    | 2.24                     | 0.46              |
| 37:EP:15:PHE:N     | 37:EP:15:PHE:HD1   | 2.13                     | 0.46              |
| 38:EQ:77:GLU:HB2   | 38:EQ:78:PHE:CE2   | 2.50                     | 0.46              |
| 39:ER:113:VAL:HG12 | 39:ER:114:LYS:N    | 2.29                     | 0.46              |
| 40:ES:44:VAL:HG11  | 40:ES:47:MET:CE    | 2.45                     | 0.46              |
| 41:ET:27:ASP:N     | 41:ET:27:ASP:OD1   | 2.47                     | 0.46              |
| 43:EV:85:ARG:CZ    | 43:EV:100:LEU:HD13 | 2.46                     | 0.46              |
| 45:EX:57:ILE:C     | 45:EX:59:PHE:N     | 2.71                     | 0.46              |
| 45:EX:89:MET:HE2   | 45:EX:89:MET:HB3   | 1.90                     | 0.46              |
| 1:F1:882:G:O2'     | 1:F1:883:A:O5'     | 2.33                     | 0.46              |
| 1:F1:1049:U:C2'    | 1:F1:1050:C:O4'    | 2.63                     | 0.46              |
| 1:F1:1127:U:C2     | 1:F1:1128:G:C8     | 3.04                     | 0.46              |
| 1:F1:1207:A:C4     | 1:F1:1209:G:C8     | 3.04                     | 0.46              |
| 1:F1:1321:A:OP1    | 19:FX:99:THR:HG21  | 2.16                     | 0.46              |
| 1:F1:1596:U:H4'    | 1:F1:1597:U:OP1    | 2.06                     | 0.46              |
| 1:F1:1617:G:HO2'   | 1:F1:1618:A:P      | 2.31                     | 0.46              |
| 1:F1:1964:G:H2'    | 1:F1:1965:C:O4'    | 2.16                     | 0.46              |
| 1:F1:2125:C:O2'    | 1:F1:2140:A:N3     | 2.49                     | 0.46              |
| 1:F1:2245:G:C5     | 50:F1:4294:HOH:O   | 2.68                     | 0.46              |
| 1:F1:2408:A:H8     | 1:F1:2408:A:O5'    | 1.98                     | 0.46              |
| 1:F1:2432:G:N2     | 1:F1:2506:G:H1'    | 2.31                     | 0.46              |
| 1:F1:2535:A:H2'    | 1:F1:2536:A:O4'    | 2.15                     | 0.46              |
| 19:FX:93:LEU:CD2   | 19:FX:120:LEU:HD21 | 2.40                     | 0.46              |
| 20:G2:10:U:H2'     | 20:G2:11:C:H6      | 1.80                     | 0.46              |
| 21:G3:63:A:C8      | 29:GH:206:LEU:HD21 | 2.51                     | 0.46              |
| 23:GB:364:GLY:HA3  | 1:H1:3288:A:H4'    | 1.97                     | 0.46              |
| 24:GC:258:TRP:HZ3  | 24:GC:266:LEU:HD21 | 1.79                     | 0.46              |
| 24:GC:273:TYR:HB3  | 24:GC:287:ARG:HH12 | 1.81                     | 0.46              |
| 26:GE:58:TRP:CE2   | 19:HX:164:PRO:HG2  | 2.50                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:GE:167:GLU:O    | 26:GE:168:LYS:HG2  | 2.15                     | 0.46              |
| 30:GI:132:ARG:HH12 | 1:H1:1216:C:C2'    | 2.22                     | 0.46              |
| 31:GJ:83:ILE:CG2   | 31:GJ:122:VAL:HA   | 2.45                     | 0.46              |
| 34:GM:38:ILE:O     | 34:GM:38:ILE:HG13  | 2.15                     | 0.46              |
| 34:GM:65:VAL:HA    | 34:GM:73:ARG:O     | 2.15                     | 0.46              |
| 34:GM:254:ILE:O    | 34:GM:258:PRO:HB3  | 2.16                     | 0.46              |
| 35:GN:57:ARG:HH12  | 1:H1:697:A:H5'     | 1.80                     | 0.46              |
| 36:GO:96:MET:O     | 36:GO:100:ARG:HG3  | 2.15                     | 0.46              |
| 36:GO:123:PHE:CE2  | 36:GO:142:ILE:HG12 | 2.50                     | 0.46              |
| 37:GP:15:PHE:N     | 37:GP:15:PHE:HD1   | 2.12                     | 0.46              |
| 38:GQ:3:LYS:CE     | 1:H1:398:G:N7      | 2.79                     | 0.46              |
| 39:GR:76:THR:O     | 39:GR:76:THR:CG2   | 2.63                     | 0.46              |
| 42:GU:66:ARG:O     | 42:GU:69:ALA:HB3   | 2.15                     | 0.46              |
| 1:H1:396:A:C2      | 1:H1:397:A:C5      | 3.04                     | 0.46              |
| 1:H1:969:C:H1'     | 1:H1:1457:G:N2     | 2.30                     | 0.46              |
| 1:H1:1073:A:C2'    | 1:H1:1074:A:O5'    | 2.63                     | 0.46              |
| 1:H1:1130:A:C2     | 1:H1:1390:A:O2'    | 2.61                     | 0.46              |
| 1:H1:1691:U:H2'    | 1:H1:1692:G:C8     | 2.50                     | 0.46              |
| 1:H1:1703:A:H2'    | 1:H1:1704:G:H8     | 1.81                     | 0.46              |
| 1:H1:1880:C:H1'    | 11:HL:7:TYR:CE1    | 2.51                     | 0.46              |
| 1:H1:2535:A:H2'    | 1:H1:2536:A:O4'    | 2.16                     | 0.46              |
| 1:H1:2557:A:C2     | 1:H1:2564:G:C5     | 3.04                     | 0.46              |
| 1:H1:2690:U:O4'    | 1:H1:2694:A:C6     | 2.68                     | 0.46              |
| 1:H1:2999:U:P      | 50:H1:4338:HOH:O   | 2.74                     | 0.46              |
| 1:H1:3008:U:O2'    | 1:H1:3009:U:H5'    | 2.15                     | 0.46              |
| 1:H1:3128:G:C8     | 1:H1:3128:G:C5'    | 2.92                     | 0.46              |
| 1:H1:3226:A:N3     | 5:HE:84:GLY:HA3    | 2.30                     | 0.46              |
| 4:HC:26:TYR:HB2    | 4:HC:67:ALA:HB3    | 1.97                     | 0.46              |
| 6:HF:80:ASP:O      | 6:HF:81:LEU:C      | 2.59                     | 0.46              |
| 12:HM:17:PHE:CD1   | 12:HM:75:LYS:HB3   | 2.50                     | 0.46              |
| 13:HN:4:PHE:HB3    | 13:HN:9:ARG:HH21   | 1.78                     | 0.46              |
| 13:HN:33:THR:HG22  | 13:HN:34:LYS:H     | 1.80                     | 0.46              |
| 13:HN:36:ARG:NH1   | 13:HN:74:TYR:CB    | 2.78                     | 0.46              |
| 13:HN:95:GLU:HA    | 13:HN:95:GLU:OE1   | 2.14                     | 0.46              |
| 1:A1:186:U:C2      | 1:A1:230:G:O6      | 2.69                     | 0.46              |
| 1:A1:449:G:C4      | 1:A1:450:C:C5      | 3.03                     | 0.46              |
| 1:A1:526:U:H4'     | 5:AE:10:ARG:HG3    | 1.98                     | 0.46              |
| 1:A1:621:G:N7      | 1:A1:622:G:C6      | 2.84                     | 0.46              |
| 1:A1:745:A:C6      | 1:A1:746:A:C2      | 3.04                     | 0.46              |
| 1:A1:937:G:H2'     | 1:A1:939:A:N7      | 2.30                     | 0.46              |
| 1:A1:991:U:OP1     | 18:AU:2:LYS:O      | 2.33                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1318:A:H2'    | 1:A1:1319:C:H5''   | 1.97                     | 0.46              |
| 1:A1:1373:G:H2'    | 1:A1:1374:C:C6     | 2.44                     | 0.46              |
| 1:A1:1654:G:N3     | 1:A1:1654:G:C2'    | 2.76                     | 0.46              |
| 1:A1:1907:A:H2'    | 1:A1:1908:A:C8     | 2.50                     | 0.46              |
| 1:A1:1909:C:H5''   | 1:A1:3266:G:C2     | 2.51                     | 0.46              |
| 1:A1:2112:G:H5'    | 1:A1:2112:G:N3     | 2.30                     | 0.46              |
| 1:A1:2253:U:H3     | 1:H1:873:A:H5''    | 1.80                     | 0.46              |
| 1:A1:2264:U:H2'    | 1:A1:2265:A:O5'    | 2.16                     | 0.46              |
| 1:A1:2434:A:C2     | 1:A1:2504:U:C2     | 3.03                     | 0.46              |
| 1:A1:2751:A:OP2    | 50:A1:3799:HOH:O   | 2.21                     | 0.46              |
| 1:A1:3267:A:OP1    | 23:BB:224:PHE:HB2  | 2.15                     | 0.46              |
| 1:A1:3306:G:N2     | 1:A1:3314:U:C2     | 2.84                     | 0.46              |
| 8:AH:20:PHE:C      | 8:AH:20:PHE:HD1    | 2.24                     | 0.46              |
| 8:AH:58:TYR:CE2    | 8:AH:60:TYR:HD2    | 2.33                     | 0.46              |
| 9:AJ:30:ALA:HB3    | 9:AJ:35:TYR:CE1    | 2.51                     | 0.46              |
| 9:AJ:42:LEU:HD21   | 9:AJ:205:PHE:CE1   | 2.50                     | 0.46              |
| 13:AN:30:GLU:HA    | 13:AN:30:GLU:OE1   | 2.15                     | 0.46              |
| 15:AP:11:PHE:O     | 15:AP:15:TRP:CD1   | 2.69                     | 0.46              |
| 18:AU:34:LEU:HA    | 18:AU:37:ARG:HD2   | 1.96                     | 0.46              |
| 18:AU:106:SER:O    | 18:AU:110:ASN:ND2  | 2.45                     | 0.46              |
| 22:BA:33:TYR:HD1   | 22:BA:164:ARG:NH2  | 2.14                     | 0.46              |
| 23:BB:55:HIS:CE1   | 41:BT:18:GLY:HA3   | 2.51                     | 0.46              |
| 23:BB:56:ILE:HD11  | 23:BB:321:MET:CE   | 2.45                     | 0.46              |
| 23:BB:60:VAL:CG2   | 23:BB:67:HIS:O     | 2.64                     | 0.46              |
| 23:BB:199:LYS:HG2  | 26:CE:106:ASP:OD1  | 2.15                     | 0.46              |
| 25:BD:160:ILE:HG22 | 25:BD:164:LYS:HE3  | 1.98                     | 0.46              |
| 26:BE:58:TRP:O     | 26:BE:59:GLN:C     | 2.58                     | 0.46              |
| 29:BH:41:ALA:HB3   | 29:BH:139:ARG:HH21 | 1.77                     | 0.46              |
| 31:BJ:11:VAL:HG21  | 31:BJ:131:PRO:HD3  | 1.97                     | 0.46              |
| 34:BM:200:HIS:O    | 34:BM:204:ILE:HG13 | 2.16                     | 0.46              |
| 35:BN:31:ILE:O     | 35:BN:35:LYS:HG3   | 2.15                     | 0.46              |
| 35:BN:155:ALA:HA   | 35:BN:156:PRO:HD3  | 1.48                     | 0.46              |
| 42:BU:44:LYS:O     | 42:BU:47:ARG:HB2   | 2.15                     | 0.46              |
| 21:C3:89:G:C6      | 21:C3:90:A:C6      | 3.04                     | 0.46              |
| 22:CA:12:ARG:HH11  | 1:D1:935:G:H5'     | 1.79                     | 0.46              |
| 22:CA:108:ILE:HB   | 22:CA:137:ILE:CD1  | 2.45                     | 0.46              |
| 22:CA:118:GLU:HB2  | 22:CA:163:CYS:HB3  | 1.97                     | 0.46              |
| 22:CA:236:VAL:HG12 | 1:D1:2179:U:OP1    | 2.15                     | 0.46              |
| 22:CA:243:ARG:NH2  | 1:D1:2237:A:OP1    | 2.48                     | 0.46              |
| 24:CC:23:LEU:HD11  | 24:CC:264:LYS:HE2  | 1.98                     | 0.46              |
| 24:CC:260:GLU:OE1  | 24:CC:264:LYS:HE3  | 2.15                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:373:SER:HA   | 1:D1:564:A:HO2'    | 1.80                     | 0.46              |
| 25:CD:82:ARG:CB    | 25:CD:112:LEU:HD22 | 2.38                     | 0.46              |
| 27:CF:63:ARG:CZ    | 27:CF:231:GLY:HA3  | 2.45                     | 0.46              |
| 27:CF:95:GLU:OE1   | 27:CF:100:LYS:CG   | 2.63                     | 0.46              |
| 27:CF:126:LYS:NZ   | 27:CF:194:THR:HG1  | 2.06                     | 0.46              |
| 47:CO:96:MET:CE    | 47:CO:100:ARG:NH2  | 2.79                     | 0.46              |
| 40:CS:117:LEU:HD23 | 40:CS:120:ARG:CZ   | 2.46                     | 0.46              |
| 45:CX:57:ILE:C     | 45:CX:59:PHE:N     | 2.72                     | 0.46              |
| 1:D1:344:G:O6      | 1:D1:347:A:OP1     | 2.33                     | 0.46              |
| 1:D1:453:A:H61     | 1:D1:524:G:H2'     | 1.77                     | 0.46              |
| 1:D1:738:U:O2'     | 1:D1:739:G:H5'     | 2.13                     | 0.46              |
| 1:D1:745:A:C4'     | 17:DT:58:ASN:HD21  | 2.29                     | 0.46              |
| 1:D1:825:G:N2      | 1:D1:826:A:C2      | 2.84                     | 0.46              |
| 1:D1:828:C:HO2'    | 1:D1:829:C:H5'     | 1.80                     | 0.46              |
| 1:D1:1150:U:H2'    | 1:D1:1151:U:O4'    | 2.16                     | 0.46              |
| 1:D1:1205:A:H5'    | 1:D1:1205:A:C8     | 2.50                     | 0.46              |
| 1:D1:2103:A:H2'    | 1:D1:2104:C:C6     | 2.50                     | 0.46              |
| 1:D1:2531:U:C2     | 1:D1:2532:G:H1'    | 2.51                     | 0.46              |
| 1:D1:2539:A:N3     | 1:D1:2540:G:C8     | 2.84                     | 0.46              |
| 1:D1:2617:G:H5''   | 1:D1:2618:C:OP2    | 2.16                     | 0.46              |
| 1:D1:2801:A:N6     | 1:D1:2802:G:C6     | 2.83                     | 0.46              |
| 7:DG:13:LYS:CD     | 7:DG:100:ILE:HD13  | 2.42                     | 0.46              |
| 8:DH:13:ARG:CG     | 8:DH:15:TRP:CE3    | 2.92                     | 0.46              |
| 11:DL:68:ALA:O     | 11:DL:69:ARG:C     | 2.58                     | 0.46              |
| 13:DN:4:PHE:HB3    | 13:DN:9:ARG:HH21   | 1.77                     | 0.46              |
| 15:DP:15:TRP:CH2   | 15:DP:67:ALA:O     | 2.69                     | 0.46              |
| 16:DQ:83:THR:HG22  | 16:DQ:86:ARG:H     | 1.80                     | 0.46              |
| 19:DX:134:THR:O    | 19:DX:134:THR:HG22 | 2.16                     | 0.46              |
| 21:E3:11:A:C8      | 34:EM:18:THR:CB    | 2.96                     | 0.46              |
| 21:E3:116:A:C4'    | 34:EM:260:ARG:NH2  | 2.78                     | 0.46              |
| 22:EA:25:ILE:HG13  | 22:EA:52:GLU:HG3   | 1.97                     | 0.46              |
| 22:EA:46:ILE:HD12  | 22:EA:87:GLN:HB3   | 1.96                     | 0.46              |
| 22:EA:243:ARG:HG3  | 22:EA:244:THR:H    | 1.81                     | 0.46              |
| 23:EB:121:ASN:HD21 | 23:EB:124:ASN:HD22 | 1.63                     | 0.46              |
| 23:EB:172:LYS:HA   | 23:EB:172:LYS:HD2  | 1.46                     | 0.46              |
| 23:EB:220:LYS:HD2  | 1:F1:3036:U:C5'    | 2.45                     | 0.46              |
| 23:EB:303:ILE:O    | 23:EB:305:PRO:HD3  | 2.16                     | 0.46              |
| 23:EB:377:PHE:C    | 1:F1:3325:G:H22    | 2.22                     | 0.46              |
| 24:EC:34:ARG:CZ    | 35:EN:24:ASN:CB    | 2.94                     | 0.46              |
| 24:EC:173:VAL:O    | 24:EC:177:LYS:HG3  | 2.16                     | 0.46              |
| 24:EC:300:ASN:OD1  | 1:F1:1375:A:O2'    | 2.34                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 27:EF:36:GLN:HB3  | 1:F1:2519:A:H61    | 1.81                     | 0.46              |
| 33:EL:26:ARG:CZ   | 33:EL:43:SER:OG    | 2.63                     | 0.46              |
| 34:EM:34:LYS:HE3  | 37:EP:30:TYR:CE1   | 2.50                     | 0.46              |
| 39:ER:74:PRO:HB3  | 39:ER:149:LEU:HD11 | 1.97                     | 0.46              |
| 39:ER:77:THR:O    | 39:ER:78:GLU:C     | 2.56                     | 0.46              |
| 39:ER:100:LYS:N   | 39:ER:101:PRO:HD2  | 2.30                     | 0.46              |
| 39:ER:111:TYR:HD2 | 39:ER:143:LEU:HD11 | 1.80                     | 0.46              |
| 44:EW:32:ILE:CD1  | 1:F1:1485:C:H5'    | 2.45                     | 0.46              |
| 1:F1:8:U:H2'      | 1:F1:9:G:O4'       | 2.15                     | 0.46              |
| 1:F1:368:A:H4'    | 1:F1:369:U:OP2     | 2.15                     | 0.46              |
| 1:F1:452:U:HO2'   | 1:F1:453:A:H8      | 1.62                     | 0.46              |
| 1:F1:497:G:H2'    | 1:F1:498:A:H5'     | 1.96                     | 0.46              |
| 1:F1:555:G:C3'    | 1:F1:556:A:H5''    | 2.45                     | 0.46              |
| 1:F1:655:A:H2'    | 1:F1:656:C:C5      | 2.50                     | 0.46              |
| 1:F1:689:A:H2'    | 1:F1:690:U:H6      | 1.81                     | 0.46              |
| 1:F1:1037:A:H2'   | 1:F1:1038:G:H8     | 1.80                     | 0.46              |
| 1:F1:1040:A:C2'   | 1:F1:1041:C:H6     | 2.29                     | 0.46              |
| 1:F1:1107:A:C4    | 1:F1:1108:A:C8     | 3.03                     | 0.46              |
| 1:F1:1318:A:N6    | 1:F1:1319:C:C4     | 2.84                     | 0.46              |
| 1:F1:1371:G:H5'   | 1:F1:1371:G:H8     | 1.80                     | 0.46              |
| 1:F1:1647:U:H2'   | 1:F1:1648:G:O4'    | 2.16                     | 0.46              |
| 1:F1:1845:U:H3    | 11:FL:69:ARG:HG3   | 1.80                     | 0.46              |
| 1:F1:2599:G:H2'   | 1:F1:2600:U:O4'    | 2.16                     | 0.46              |
| 1:F1:3008:U:H6    | 1:F1:3008:U:O5'    | 1.98                     | 0.46              |
| 1:F1:3205:A:O2'   | 1:F1:3206:A:OP1    | 2.31                     | 0.46              |
| 6:FF:81:LEU:HD12  | 6:FF:81:LEU:HA     | 1.80                     | 0.46              |
| 12:FM:16:GLY:HA2  | 12:FM:67:VAL:O     | 2.16                     | 0.46              |
| 13:FN:87:VAL:HG12 | 13:FN:90:LEU:HB2   | 1.95                     | 0.46              |
| 18:FU:123:LEU:CD2 | 18:FU:135:LEU:O    | 2.64                     | 0.46              |
| 19:FX:170:HIS:ND1 | 19:FX:170:HIS:C    | 2.73                     | 0.46              |
| 20:G2:71:G:H2'    | 20:G2:72:C:H6      | 1.80                     | 0.46              |
| 22:GA:3:ARG:HB3   | 22:GA:208:VAL:O    | 2.15                     | 0.46              |
| 22:GA:236:VAL:C   | 1:H1:2178:A:HO2'   | 2.20                     | 0.46              |
| 24:GC:147:HIS:CD2 | 24:GC:254:ARG:HA   | 2.51                     | 0.46              |
| 26:GE:43:VAL:O    | 1:H1:3168:A:O2'    | 2.33                     | 0.46              |
| 27:GF:233:LYS:NZ  | 1:H1:2577:G:OP1    | 2.36                     | 0.46              |
| 29:GH:159:PHE:HB3 | 29:GH:163:GLN:CD   | 2.40                     | 0.46              |
| 31:GJ:32:ASN:HD21 | 31:GJ:117:GLN:N    | 2.14                     | 0.46              |
| 34:GM:39:GLN:HG2  | 34:GM:40:ASP:H     | 1.79                     | 0.46              |
| 34:GM:131:ASN:HB3 | 34:GM:133:ASP:OD1  | 2.15                     | 0.46              |
| 34:GM:201:LYS:HA  | 34:GM:204:ILE:HG13 | 1.98                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 35:GN:62:PRO:O    | 35:GN:142:ALA:HB1 | 2.16                     | 0.46              |
| 35:GN:114:ILE:O   | 35:GN:119:GLY:HA3 | 2.16                     | 0.46              |
| 38:GQ:21:ALA:HB2  | 38:GQ:96:LEU:HD21 | 1.98                     | 0.46              |
| 40:GS:120:ARG:O   | 40:GS:123:ALA:HB3 | 2.15                     | 0.46              |
| 44:GW:43:MET:HA   | 44:GW:43:MET:CE   | 2.38                     | 0.46              |
| 45:GX:4:LYS:HD2   | 45:GX:92:ARG:NE   | 2.29                     | 0.46              |
| 45:GX:44:VAL:O    | 45:GX:45:ARG:C    | 2.59                     | 0.46              |
| 46:GY:12:ARG:HG3  | 1:H1:883:A:H2     | 1.79                     | 0.46              |
| 1:H1:105:A:H2'    | 1:H1:106:A:O4'    | 2.15                     | 0.46              |
| 1:H1:213:A:N6     | 1:H1:227:G:C2'    | 2.78                     | 0.46              |
| 1:H1:1054:G:C2    | 1:H1:1055:A:C6    | 3.03                     | 0.46              |
| 1:H1:1158:G:C4    | 1:H1:2368:A:C2    | 3.03                     | 0.46              |
| 1:H1:1461:A:H5''  | 1:H1:1462:U:C5'   | 2.42                     | 0.46              |
| 1:H1:1481:U:O2'   | 1:H1:1482:A:P     | 2.74                     | 0.46              |
| 1:H1:1661:A:H4'   | 13:HN:15:GLN:HG3  | 1.96                     | 0.46              |
| 1:H1:1681:C:OP1   | 11:HL:40:ASN:ND2  | 2.48                     | 0.46              |
| 1:H1:1819:C:H4'   | 1:H1:1820:U:OP2   | 2.12                     | 0.46              |
| 1:H1:1843:U:C2    | 1:H1:1844:U:C5    | 3.04                     | 0.46              |
| 1:H1:2249:U:C4    | 1:H1:2250:A:C5    | 3.04                     | 0.46              |
| 1:H1:2432:G:C6    | 1:H1:2506:G:C5    | 3.04                     | 0.46              |
| 1:H1:2521:A:N1    | 1:H1:2522:A:C6    | 2.84                     | 0.46              |
| 1:H1:2927:G:O2'   | 1:H1:2928:A:H5'   | 2.16                     | 0.46              |
| 1:H1:3064:A:H2'   | 1:H1:3065:C:C6    | 2.50                     | 0.46              |
| 1:H1:3081:C:O2'   | 1:H1:3083:A:OP2   | 2.20                     | 0.46              |
| 1:H1:3182:A:N6    | 6:HF:115:LYS:HD2  | 2.30                     | 0.46              |
| 4:HC:100:ALA:O    | 4:HC:104:LYS:HG3  | 2.16                     | 0.46              |
| 5:HE:114:ASP:C    | 5:HE:116:TYR:N    | 2.73                     | 0.46              |
| 8:HH:48:VAL:HG11  | 8:HH:87:ALA:HB2   | 1.97                     | 0.46              |
| 9:HJ:35:TYR:CZ    | 9:HJ:50:HIS:CE1   | 3.04                     | 0.46              |
| 9:HJ:128:ILE:O    | 9:HJ:132:THR:HB   | 2.15                     | 0.46              |
| 13:HN:87:VAL:HG12 | 13:HN:90:LEU:HB2  | 1.95                     | 0.46              |
| 14:HO:5:VAL:CG1   | 14:HO:43:THR:HG23 | 2.45                     | 0.46              |
| 19:HX:93:LEU:HD11 | 19:HX:120:LEU:CD1 | 2.30                     | 0.46              |
| 1:A1:2:U:H6       | 1:A1:2:U:O5'      | 1.98                     | 0.46              |
| 1:A1:111:C:O2     | 1:A1:111:C:C2'    | 2.64                     | 0.46              |
| 1:A1:111:C:C2'    | 1:A1:112:A:H5'    | 2.43                     | 0.46              |
| 1:A1:683:G:O6     | 1:A1:1458:C:O2'   | 2.29                     | 0.46              |
| 1:A1:820:G:H2'    | 1:A1:821:U:C5'    | 2.45                     | 0.46              |
| 1:A1:827:C:O2'    | 1:A1:828:C:H5'    | 2.16                     | 0.46              |
| 1:A1:828:C:H5'    | 24:BC:107:PHE:CE1 | 2.50                     | 0.46              |
| 1:A1:987:A:H2     | 50:A1:3949:HOH:O  | 1.99                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:1114:C:C2'   | 1:A1:1115:U:C5'    | 2.92                     | 0.46              |
| 1:A1:1211:A:C2    | 1:A1:1350:G:C4     | 3.04                     | 0.46              |
| 1:A1:1598:C:C3'   | 1:A1:1599:G:H5'    | 2.45                     | 0.46              |
| 1:A1:1599:G:C5'   | 39:BR:43:LEU:CD1   | 2.94                     | 0.46              |
| 1:A1:1693:U:H2'   | 1:A1:1694:C:H6     | 1.81                     | 0.46              |
| 1:A1:1793:A:C2'   | 1:A1:1794:G:H5'    | 2.45                     | 0.46              |
| 1:A1:2270:A:N3    | 1:A1:2270:A:H2'    | 2.28                     | 0.46              |
| 1:A1:2517:G:C4'   | 1:A1:2518:A:OP2    | 2.58                     | 0.46              |
| 1:A1:2669:A:C3'   | 1:A1:2670:U:C6     | 2.99                     | 0.46              |
| 1:A1:3068:U:H3'   | 1:A1:3069:G:H5''   | 1.98                     | 0.46              |
| 1:A1:3101:G:O2'   | 26:BE:70:SER:HB3   | 2.14                     | 0.46              |
| 1:A1:3101:G:O6    | 1:A1:3109:C:H5'    | 2.16                     | 0.46              |
| 1:A1:3229:C:N3    | 5:AE:57:ARG:HG3    | 2.30                     | 0.46              |
| 1:A1:3331:C:C4'   | 1:A1:3332:A:H5''   | 2.46                     | 0.46              |
| 2:AA:21:ARG:NH1   | 2:AA:44:MET:CE     | 2.79                     | 0.46              |
| 9:AJ:71:LEU:HB3   | 9:AJ:97:ILE:CD1    | 2.44                     | 0.46              |
| 15:AP:15:TRP:CH2  | 15:AP:67:ALA:O     | 2.68                     | 0.46              |
| 23:BB:49:PHE:CD2  | 23:BB:333:VAL:HG12 | 2.50                     | 0.46              |
| 26:BE:67:VAL:O    | 26:BE:71:ILE:HG13  | 2.15                     | 0.46              |
| 30:BI:55:GLU:O    | 30:BI:59:LYS:HE2   | 2.16                     | 0.46              |
| 30:BI:159:ARG:HB2 | 30:BI:162:ARG:CZ   | 2.45                     | 0.46              |
| 33:BL:160:GLU:HG2 | 33:BL:161:LEU:HG   | 1.96                     | 0.46              |
| 34:BM:136:GLN:CB  | 34:BM:141:PRO:HD3  | 2.45                     | 0.46              |
| 40:BS:14:GLN:O    | 40:BS:15:ARG:C     | 2.58                     | 0.46              |
| 46:BY:8:VAL:O     | 46:BY:11:THR:HB    | 2.16                     | 0.46              |
| 46:BY:57:CYS:SG   | 46:BY:59:PRO:CD    | 3.04                     | 0.46              |
| 20:C2:33:C:O2'    | 20:C2:34:G:H5'     | 2.15                     | 0.46              |
| 21:C3:95:U:H2'    | 21:C3:96:U:H6      | 1.79                     | 0.46              |
| 23:CB:117:ARG:NH1 | 23:CB:173:LYS:HG2  | 2.30                     | 0.46              |
| 30:CI:61:MET:HE1  | 30:CI:68:GLY:CA    | 2.35                     | 0.46              |
| 31:CJ:27:MET:HB2  | 31:CJ:102:ASN:O    | 2.16                     | 0.46              |
| 33:CL:172:ARG:HD3 | 1:D1:28:G:H5''     | 1.97                     | 0.46              |
| 34:CM:17:GLN:HE22 | 37:CP:22:LYS:N     | 2.14                     | 0.46              |
| 34:CM:82:GLU:OE1  | 34:CM:104:LEU:CD2  | 2.64                     | 0.46              |
| 34:CM:99:TYR:CG   | 34:CM:204:ILE:HG23 | 2.51                     | 0.46              |
| 43:CV:166:VAL:CG1 | 43:CV:175:ILE:HG22 | 2.46                     | 0.46              |
| 44:CW:75:CYS:O    | 44:CW:90:THR:HG23  | 2.15                     | 0.46              |
| 45:CX:73:PHE:HE1  | 45:CX:120:ARG:HH11 | 1.63                     | 0.46              |
| 1:D1:169:A:P      | 1:D1:249:G:N2      | 2.89                     | 0.46              |
| 1:D1:470:C:O2'    | 1:D1:471:A:H5'     | 2.16                     | 0.46              |
| 1:D1:567:C:N4     | 1:D1:603:A:C2      | 2.84                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:619:G:HO2'    | 1:D1:620:A:H2      | 1.61                     | 0.46              |
| 1:D1:730:A:H4'     | 1:D1:731:A:OP1     | 2.15                     | 0.46              |
| 1:D1:1570:U:H4'    | 1:D1:2164:C:O4'    | 2.14                     | 0.46              |
| 1:D1:1685:A:H2'    | 1:D1:1686:G:C8     | 2.51                     | 0.46              |
| 1:D1:2504:U:H2'    | 1:D1:2505:U:C6     | 2.51                     | 0.46              |
| 1:D1:2727:A:H5''   | 17:DT:36:ASN:HB2   | 1.98                     | 0.46              |
| 1:D1:3059:A:N7     | 50:D1:4509:HOH:O   | 2.36                     | 0.46              |
| 1:D1:3061:A:C2'    | 1:D1:3062:A:H5'    | 2.46                     | 0.46              |
| 1:D1:3166:A:H2'    | 1:D1:3167:U:C6     | 2.51                     | 0.46              |
| 5:DE:180:LEU:HD21  | 5:DE:186:PRO:HG3   | 1.97                     | 0.46              |
| 8:DH:50:PHE:CD1    | 8:DH:50:PHE:C      | 2.94                     | 0.46              |
| 8:DH:57:VAL:HG12   | 8:DH:58:TYR:N      | 2.31                     | 0.46              |
| 14:DO:9:VAL:HG12   | 14:DO:13:ASN:CB    | 2.46                     | 0.46              |
| 19:DX:57:TYR:O     | 19:DX:60:ARG:HG2   | 2.15                     | 0.46              |
| 19:DX:113:LEU:HD11 | 19:DX:140:THR:CG2  | 2.42                     | 0.46              |
| 19:DX:167:LYS:HA   | 19:DX:188:THR:HG22 | 1.93                     | 0.46              |
| 21:E3:43:A:C5      | 21:E3:44:C:C4      | 3.03                     | 0.46              |
| 21:E3:103:U:H4'    | 1:F1:1027:G:H1     | 1.79                     | 0.46              |
| 22:EA:42:ILE:CD1   | 22:EA:43:ARG:H     | 2.18                     | 0.46              |
| 22:EA:136:THR:HB   | 22:EA:150:ARG:HB3  | 1.97                     | 0.46              |
| 22:EA:205:MET:HE2  | 22:EA:209:ASP:CB   | 2.45                     | 0.46              |
| 23:EB:62:ARG:CZ    | 1:F1:3027:U:OP1    | 2.64                     | 0.46              |
| 24:EC:129:VAL:O    | 24:EC:132:ALA:HB3  | 2.15                     | 0.46              |
| 24:EC:166:TYR:HD1  | 24:EC:171:GLN:CG   | 2.28                     | 0.46              |
| 27:EF:45:VAL:HB    | 27:EF:47:TRP:CE2   | 2.50                     | 0.46              |
| 27:EF:66:VAL:HB    | 27:EF:226:GLY:O    | 2.15                     | 0.46              |
| 30:EI:91:THR:HG22  | 30:EI:93:LYS:N     | 2.31                     | 0.46              |
| 30:EI:109:THR:HG22 | 1:F1:3206:A:H2'    | 1.96                     | 0.46              |
| 30:EI:177:ARG:HA   | 30:EI:180:GLU:HG2  | 1.98                     | 0.46              |
| 32:EK:24:LYS:CD    | 1:F1:967:U:O4      | 2.63                     | 0.46              |
| 32:EK:114:GLY:O    | 1:F1:740:A:H5'     | 2.15                     | 0.46              |
| 32:EK:148:THR:HG22 | 32:EK:149:ALA:H    | 1.76                     | 0.46              |
| 34:EM:83:LEU:CB    | 34:EM:88:VAL:CG2   | 2.91                     | 0.46              |
| 34:EM:242:SER:OG   | 34:EM:245:LYS:HG2  | 2.16                     | 0.46              |
| 35:EN:36:PHE:CZ    | 1:F1:1375:A:H2'    | 2.50                     | 0.46              |
| 37:EP:21:THR:HG22  | 37:EP:21:THR:O     | 2.15                     | 0.46              |
| 38:EQ:49:TYR:HD1   | 38:EQ:58:ARG:NH1   | 2.14                     | 0.46              |
| 39:ER:75:LEU:HB2   | 39:ER:91:VAL:HB    | 1.98                     | 0.46              |
| 40:ES:111:ASP:OD1  | 40:ES:111:ASP:C    | 2.59                     | 0.46              |
| 42:EU:41:THR:H     | 42:EU:44:LYS:HD2   | 1.81                     | 0.46              |
| 45:EX:6:VAL:HG23   | 45:EX:92:ARG:O     | 2.15                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:64:A:N6       | 1:F1:66:C:C2       | 2.83                     | 0.46              |
| 1:F1:68:A:C2       | 1:F1:69:A:N3       | 2.84                     | 0.46              |
| 1:F1:187:A:O2'     | 1:F1:188:A:H5'     | 2.14                     | 0.46              |
| 1:F1:766:G:C2'     | 1:F1:767:C:OP2     | 2.62                     | 0.46              |
| 1:F1:1026:C:O2'    | 1:F1:1027:G:P      | 2.74                     | 0.46              |
| 1:F1:1252:A:O2'    | 1:F1:1253:G:H5'    | 2.15                     | 0.46              |
| 1:F1:1663:C:O2'    | 1:F1:1664:G:H5'    | 2.14                     | 0.46              |
| 1:F1:1667:A:C2'    | 1:F1:1668:A:O5'    | 2.63                     | 0.46              |
| 1:F1:1734:A:OP1    | 13:FN:79:HIS:HE1   | 1.98                     | 0.46              |
| 1:F1:3011:G:N2     | 1:F1:3020:G:C5     | 2.83                     | 0.46              |
| 1:F1:3081:C:O2'    | 1:F1:3083:A:OP2    | 2.15                     | 0.46              |
| 1:F1:3175:A:H3'    | 1:F1:3175:A:N3     | 2.31                     | 0.46              |
| 5:FE:51:LEU:HB3    | 5:FE:95:THR:CG2    | 2.45                     | 0.46              |
| 9:FJ:46:ILE:HG22   | 9:FJ:47:PRO:O      | 2.16                     | 0.46              |
| 13:FN:101:LYS:CA   | 13:FN:106:ALA:HB3  | 2.46                     | 0.46              |
| 15:FP:33:VAL:HG22  | 15:FP:42:PHE:CD2   | 2.50                     | 0.46              |
| 19:FX:131:GLN:O    | 19:FX:134:THR:HB   | 2.16                     | 0.46              |
| 23:GB:250:ILE:HG13 | 23:GB:264:ARG:NH2  | 2.22                     | 0.46              |
| 24:GC:55:VAL:CG1   | 1:H1:345:C:OP1     | 2.63                     | 0.46              |
| 24:GC:161:ASP:OD1  | 24:GC:260:GLU:HB2  | 2.16                     | 0.46              |
| 24:GC:319:ARG:NH2  | 1:H1:634:G:C6      | 2.84                     | 0.46              |
| 27:GF:45:VAL:HG12  | 27:GF:46:ARG:N     | 2.30                     | 0.46              |
| 27:GF:196:VAL:CG1  | 27:GF:197:ARG:N    | 2.78                     | 0.46              |
| 29:GH:50:VAL:HG12  | 29:GH:152:LEU:HD12 | 1.97                     | 0.46              |
| 29:GH:75:ASN:HB3   | 29:GH:151:ALA:HB2  | 1.97                     | 0.46              |
| 30:GI:181:LEU:HG   | 30:GI:190:LYS:HE3  | 1.97                     | 0.46              |
| 32:GK:8:THR:CG2    | 1:H1:685:G:H5'     | 2.46                     | 0.46              |
| 32:GK:47:MET:HE1   | 18:HU:7:LEU:CD1    | 2.45                     | 0.46              |
| 33:GL:68:ARG:HH21  | 33:GL:123:GLN:HG3  | 1.81                     | 0.46              |
| 1:H1:528:C:H2'     | 1:H1:529:G:C8      | 2.51                     | 0.46              |
| 1:H1:1647:U:H2'    | 1:H1:1648:G:O4'    | 2.15                     | 0.46              |
| 1:H1:2378:A:C2'    | 1:H1:2379:A:O5'    | 2.63                     | 0.46              |
| 1:H1:2796:A:C8     | 1:H1:2943:U:H4'    | 2.51                     | 0.46              |
| 2:HA:71:ILE:O      | 2:HA:75:ALA:HB2    | 2.14                     | 0.46              |
| 3:HB:33:THR:HG22   | 3:HB:35:ILE:N      | 2.05                     | 0.46              |
| 7:HG:35:ARG:HH12   | 13:HN:78:ASN:N     | 2.14                     | 0.46              |
| 8:HH:15:TRP:CH2    | 8:HH:105:ARG:NH2   | 2.84                     | 0.46              |
| 1:A1:2:U:N3        | 20:B2:153:A:N6     | 2.63                     | 0.46              |
| 1:A1:164:A:C6      | 1:A1:256:A:C5      | 3.03                     | 0.46              |
| 1:A1:398:G:O2'     | 1:A1:399:A:C8      | 2.68                     | 0.46              |
| 1:A1:765:A:C6      | 1:A1:766:G:C2      | 3.04                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1002:A:OP1    | 35:BN:141:ARG:NH1  | 2.49                     | 0.46              |
| 1:A1:1178:U:H3'    | 1:A1:1179:G:C8     | 2.51                     | 0.46              |
| 1:A1:1394:G:O2'    | 1:A1:1395:U:O5'    | 2.33                     | 0.46              |
| 1:A1:1404:G:H5'    | 1:A1:1434:G:HO2'   | 1.80                     | 0.46              |
| 1:A1:2378:A:C2'    | 1:A1:2379:A:O5'    | 2.63                     | 0.46              |
| 1:A1:2666:G:O6     | 25:BD:57:PHE:HE1   | 1.99                     | 0.46              |
| 1:A1:2795:U:O3'    | 1:A1:2796:A:H3'    | 2.16                     | 0.46              |
| 1:A1:2800:C:O2'    | 1:A1:2801:A:H5'    | 2.16                     | 0.46              |
| 5:AE:41:LEU:CD1    | 5:AE:45:ILE:HG21   | 2.44                     | 0.46              |
| 5:AE:187:HIS:CD2   | 8:AH:47:ASP:HB3    | 2.51                     | 0.46              |
| 9:AJ:58:ILE:HD13   | 31:BJ:127:ALA:CB   | 2.39                     | 0.46              |
| 9:AJ:157:ARG:O     | 9:AJ:180:PRO:HD2   | 2.16                     | 0.46              |
| 13:AN:115:LYS:O    | 13:AN:119:VAL:HG23 | 2.15                     | 0.46              |
| 18:AU:154:VAL:N    | 18:AU:155:PRO:HD3  | 2.31                     | 0.46              |
| 21:B3:33:U:C5      | 34:BM:212:TYR:CE1  | 3.03                     | 0.46              |
| 23:BB:24:HIS:CE1   | 23:BB:28:ARG:CD    | 2.96                     | 0.46              |
| 23:BB:140:LYS:O    | 23:BB:144:LEU:HG   | 2.16                     | 0.46              |
| 23:BB:220:LYS:HG2  | 23:BB:329:PRO:CD   | 2.45                     | 0.46              |
| 23:BB:281:TYR:OH   | 23:BB:323:LYS:HD2  | 2.16                     | 0.46              |
| 24:BC:7:ILE:CD1    | 24:BC:156:PRO:HD2  | 2.46                     | 0.46              |
| 24:BC:44:ASP:N     | 24:BC:44:ASP:OD1   | 2.49                     | 0.46              |
| 24:BC:157:TYR:CE1  | 24:BC:159:PHE:CZ   | 3.04                     | 0.46              |
| 24:BC:269:ILE:HG22 | 24:BC:270:PHE:CD1  | 2.51                     | 0.46              |
| 27:BF:171:ALA:HB2  | 27:BF:211:PHE:CD1  | 2.50                     | 0.46              |
| 30:BI:181:LEU:HG   | 30:BI:190:LYS:HE3  | 1.97                     | 0.46              |
| 31:BJ:87:ARG:HD2   | 31:BJ:88:PRO:CD    | 2.44                     | 0.46              |
| 32:BK:131:SER:O    | 32:BK:132:LYS:C    | 2.58                     | 0.46              |
| 34:BM:160:PHE:HA   | 34:BM:163:LEU:HB2  | 1.98                     | 0.46              |
| 36:BO:145:SER:OG   | 36:BO:150:ILE:CD1  | 2.63                     | 0.46              |
| 37:BP:11:THR:HG23  | 37:BP:15:PHE:CG    | 2.51                     | 0.46              |
| 20:C2:2:G:O2'      | 20:C2:3:A:P        | 2.74                     | 0.46              |
| 20:C2:63:U:O4      | 42:CU:63:ASN:ND2   | 2.48                     | 0.46              |
| 23:CB:26:ARG:NH1   | 23:CB:176:ILE:C    | 2.71                     | 0.46              |
| 23:CB:86:ILE:HG12  | 23:CB:158:VAL:HG11 | 1.97                     | 0.46              |
| 24:CC:7:ILE:CD1    | 24:CC:156:PRO:HD2  | 2.46                     | 0.46              |
| 24:CC:380:PHE:CE1  | 19:DX:78:ILE:HD11  | 2.51                     | 0.46              |
| 28:CG:15:UNK:CG    | 28:CG:65:UNK:CA    | 2.75                     | 0.46              |
| 30:CI:99:GLU:HG2   | 30:CI:99:GLU:O     | 2.16                     | 0.46              |
| 30:CI:184:PRO:HA   | 30:CI:187:LYS:HE2  | 1.98                     | 0.46              |
| 32:CK:79:LYS:H     | 32:CK:79:LYS:HG2   | 1.59                     | 0.46              |
| 32:CK:136:ARG:NH1  | 1:D1:741:G:N3      | 2.58                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 33:CL:37:HIS:NE2   | 33:CL:63:ARG:HD2   | 2.30                     | 0.46              |
| 33:CL:98:LEU:O     | 33:CL:101:CYS:HB2  | 2.15                     | 0.46              |
| 47:CO:173:UNK:HG2  | 29:EH:144:HIS:HE1  | 1.81                     | 0.46              |
| 37:CP:116:LYS:HZ1  | 37:CP:128:THR:CB   | 2.16                     | 0.46              |
| 38:CQ:141:TYR:CZ   | 1:D1:2350:G:H4'    | 2.50                     | 0.46              |
| 39:CR:141:LEU:O    | 39:CR:144:ALA:HB3  | 2.16                     | 0.46              |
| 1:D1:146:U:C4'     | 1:D1:147:U:O5'     | 2.54                     | 0.46              |
| 1:D1:555:G:H2'     | 1:D1:556:A:C5'     | 2.29                     | 0.46              |
| 1:D1:555:G:C3'     | 1:D1:556:A:H5''    | 2.45                     | 0.46              |
| 1:D1:632:G:C6      | 1:D1:633:C:C4      | 3.03                     | 0.46              |
| 1:D1:870:G:N2      | 1:D1:874:C:C4      | 2.84                     | 0.46              |
| 1:D1:907:A:P       | 50:D1:4249:HOH:O   | 2.74                     | 0.46              |
| 1:D1:1964:G:H2'    | 1:D1:1965:C:O4'    | 2.15                     | 0.46              |
| 1:D1:2499:U:H2'    | 1:D1:2500:C:H6     | 1.80                     | 0.46              |
| 1:D1:2946:A:N6     | 50:D1:4280:HOH:O   | 2.44                     | 0.46              |
| 1:D1:2960:G:N7     | 50:D1:3746:HOH:O   | 2.49                     | 0.46              |
| 1:D1:3204:A:H1'    | 1:D1:3207:A:H5''   | 1.98                     | 0.46              |
| 1:D1:3232:A:N6     | 1:D1:3233:A:C2     | 2.84                     | 0.46              |
| 5:DE:54:LEU:CD2    | 8:DH:14:LEU:HD13   | 2.45                     | 0.46              |
| 5:DE:114:ASP:C     | 5:DE:116:TYR:N     | 2.72                     | 0.46              |
| 5:DE:128:ASN:OD1   | 5:DE:130:PHE:N     | 2.49                     | 0.46              |
| 12:DM:13:VAL:O     | 12:DM:70:THR:HA    | 2.15                     | 0.46              |
| 13:DN:24:VAL:C     | 13:DN:43:VAL:HG13  | 2.39                     | 0.46              |
| 13:DN:54:THR:CG2   | 13:DN:56:ARG:H     | 2.26                     | 0.46              |
| 20:E2:3:A:C2       | 1:F1:3243:A:C4'    | 2.98                     | 0.46              |
| 21:E3:11:A:C2'     | 21:E3:12:U:H5''    | 2.45                     | 0.46              |
| 22:EA:12:ARG:NH1   | 1:F1:935:G:H5'     | 2.31                     | 0.46              |
| 22:EA:20:HIS:ND1   | 1:F1:848:C:C5'     | 2.79                     | 0.46              |
| 24:EC:7:ILE:HD13   | 24:EC:156:PRO:HD2  | 1.96                     | 0.46              |
| 24:EC:28:VAL:HG11  | 24:EC:133:LEU:HD12 | 1.96                     | 0.46              |
| 24:EC:157:TYR:CE1  | 24:EC:179:VAL:CG1  | 2.98                     | 0.46              |
| 27:EF:171:ALA:HB2  | 27:EF:211:PHE:CD1  | 2.50                     | 0.46              |
| 28:EG:23:UNK:HB1   | 28:EG:87:UNK:HB2   | 1.97                     | 0.46              |
| 30:EI:7:VAL:HG22   | 30:EI:33:VAL:HB    | 1.98                     | 0.46              |
| 31:EJ:100:GLU:OE2  | 41:ET:26:LYS:HG3   | 2.15                     | 0.46              |
| 32:EK:46:LEU:HD12  | 18:FU:1:MET:HG2    | 1.97                     | 0.46              |
| 35:EN:89:ASN:ND2   | 35:EN:109:THR:HG22 | 2.25                     | 0.46              |
| 35:EN:107:THR:HG21 | 1:F1:700:G:H3'     | 1.98                     | 0.46              |
| 36:EO:114:LYS:HB3  | 36:EO:146:LYS:HZ1  | 1.80                     | 0.46              |
| 43:EV:204:LEU:CB   | 43:EV:238:MET:HE2  | 2.45                     | 0.46              |
| 43:EV:216:HIS:O    | 43:EV:222:GLY:HA3  | 2.16                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:511:U:OP1     | 14:FO:70:VAL:HB    | 2.16                     | 0.46              |
| 1:F1:549:G:N1      | 1:F1:619:G:N2      | 2.63                     | 0.46              |
| 1:F1:615:G:H2'     | 1:F1:616:A:H8      | 1.80                     | 0.46              |
| 1:F1:703:U:H2'     | 1:F1:704:G:C8      | 2.51                     | 0.46              |
| 1:F1:1040:A:C8     | 1:F1:1041:C:C6     | 3.04                     | 0.46              |
| 1:F1:1146:C:H42    | 17:FT:10:LYS:HZ2   | 1.62                     | 0.46              |
| 1:F1:1322:G:H2'    | 1:F1:1323:C:C6     | 2.51                     | 0.46              |
| 1:F1:1815:G:H2'    | 1:F1:1816:A:H8     | 1.80                     | 0.46              |
| 1:F1:1845:U:H5'    | 1:F1:1846:C:OP2    | 2.16                     | 0.46              |
| 1:F1:1966:U:C2'    | 1:F1:1967:C:O5'    | 2.64                     | 0.46              |
| 1:F1:2148:A:H2'    | 1:F1:2149:U:C6     | 2.51                     | 0.46              |
| 1:F1:2715:C:H6     | 1:F1:2715:C:O5'    | 1.99                     | 0.46              |
| 1:F1:2862:G:HO2'   | 1:F1:2863:U:H5     | 1.57                     | 0.46              |
| 1:F1:2873:C:N4     | 1:F1:2874:U:O4     | 2.49                     | 0.46              |
| 1:F1:3005:A:H2'    | 1:F1:3006:A:C8     | 2.51                     | 0.46              |
| 1:F1:3068:U:O2'    | 1:F1:3070:C:OP2    | 2.32                     | 0.46              |
| 1:F1:3228:U:C3'    | 1:F1:3229:C:C5'    | 2.93                     | 0.46              |
| 5:FE:122:ALA:CB    | 5:FE:132:ALA:HB1   | 2.46                     | 0.46              |
| 9:FJ:12:ASP:C      | 9:FJ:14:GLY:N      | 2.73                     | 0.46              |
| 9:FJ:197:LEU:HD12  | 9:FJ:205:PHE:O     | 2.15                     | 0.46              |
| 12:FM:23:GLN:HB3   | 12:FM:109:TYR:HE1  | 1.81                     | 0.46              |
| 15:FP:16:GLN:O     | 15:FP:17:ASN:C     | 2.59                     | 0.46              |
| 18:FU:77:GLU:HG3   | 18:FU:101:ASN:HD21 | 1.81                     | 0.46              |
| 19:FX:25:ALA:CB    | 19:FX:71:ARG:O     | 2.57                     | 0.46              |
| 19:FX:92:VAL:O     | 19:FX:138:ILE:N    | 2.43                     | 0.46              |
| 19:FX:96:GLN:HB3   | 19:FX:134:THR:CG2  | 2.46                     | 0.46              |
| 20:G2:112:G:C4'    | 20:G2:113:U:OP1    | 2.50                     | 0.46              |
| 21:G3:64:A:H2'     | 21:G3:64:A:N3      | 2.31                     | 0.46              |
| 22:GA:42:ILE:CD1   | 22:GA:43:ARG:H     | 2.17                     | 0.46              |
| 23:GB:100:ARG:NE   | 1:H1:3135:A:H4'    | 2.30                     | 0.46              |
| 24:GC:41:VAL:HG12  | 24:GC:45:LEU:CD1   | 2.45                     | 0.46              |
| 24:GC:298:ILE:HD12 | 35:GN:125:ASP:HB2  | 1.97                     | 0.46              |
| 24:GC:356:GLN:O    | 24:GC:360:LYS:HG2  | 2.16                     | 0.46              |
| 27:GF:219:ASP:HB3  | 27:GF:223:LYS:HE3  | 1.97                     | 0.46              |
| 31:GJ:91:ARG:HD2   | 31:GJ:97:ILE:CD1   | 2.45                     | 0.46              |
| 33:GL:33:LEU:HB3   | 33:GL:34:PRO:HD2   | 1.98                     | 0.46              |
| 33:GL:36:ILE:HD11  | 33:GL:105:ARG:HB3  | 1.96                     | 0.46              |
| 34:GM:66:TYR:CZ    | 34:GM:73:ARG:HB2   | 2.51                     | 0.46              |
| 37:GP:42:ILE:CD1   | 37:GP:91:VAL:HG21  | 2.45                     | 0.46              |
| 39:GR:147:ILE:CG2  | 42:GU:34:ILE:HD13  | 2.46                     | 0.46              |
| 40:GS:51:LYS:O     | 40:GS:51:LYS:HG3   | 2.15                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 46:GY:8:VAL:CG2   | 1:H1:1951:G:OP1   | 2.64                     | 0.46              |
| 1:H1:165:C:H5''   | 18:HU:132:LYS:HZ1 | 1.78                     | 0.46              |
| 1:H1:445:C:N4     | 50:H1:4466:HOH:O  | 2.47                     | 0.46              |
| 1:H1:591:G:H8     | 1:H1:591:G:H5'    | 1.81                     | 0.46              |
| 1:H1:703:U:H2'    | 1:H1:704:G:H8     | 1.81                     | 0.46              |
| 1:H1:1041:C:O2    | 1:H1:1041:C:C2'   | 2.63                     | 0.46              |
| 1:H1:1211:A:C2    | 1:H1:1350:G:C4    | 3.03                     | 0.46              |
| 1:H1:1397:G:C2'   | 1:H1:1398:G:H5'   | 2.45                     | 0.46              |
| 1:H1:1462:U:O5'   | 1:H1:1463:C:H5''  | 2.15                     | 0.46              |
| 1:H1:1466:G:H2'   | 1:H1:1467:G:H8    | 1.81                     | 0.46              |
| 1:H1:2113:A:H2'   | 1:H1:2114:C:O4'   | 2.16                     | 0.46              |
| 1:H1:2256:G:C2    | 1:H1:2257:A:C8    | 3.04                     | 0.46              |
| 1:H1:2411:U:H4'   | 1:H1:2955:A:O4'   | 2.15                     | 0.46              |
| 1:H1:2561:A:N3    | 1:H1:2563:U:C6    | 2.84                     | 0.46              |
| 1:H1:3061:A:C2'   | 1:H1:3062:A:H5'   | 2.46                     | 0.46              |
| 1:H1:3298:U:C1'   | 1:H1:3299:G:P     | 3.04                     | 0.46              |
| 5:HE:63:VAL:HG13  | 5:HE:78:GLY:N     | 2.31                     | 0.46              |
| 11:HL:56:ILE:HG23 | 11:HL:71:ALA:O    | 2.16                     | 0.46              |
| 12:HM:97:VAL:HG22 | 12:HM:107:LEU:CD2 | 2.46                     | 0.46              |
| 15:HP:43:LYS:CD   | 15:HP:52:THR:HG23 | 2.34                     | 0.46              |
| 19:HX:19:ARG:HG3  | 19:HX:21:TYR:OH   | 2.15                     | 0.46              |
| 1:A1:122:U:O2'    | 1:A1:123:C:H5'    | 2.16                     | 0.46              |
| 1:A1:125:G:C6     | 1:A1:142:A:C6     | 3.03                     | 0.46              |
| 1:A1:148:G:H5''   | 33:BL:55:ASN:HD22 | 1.77                     | 0.46              |
| 1:A1:268:G:C4'    | 33:BL:14:LYS:HZ1  | 2.29                     | 0.46              |
| 1:A1:278:U:H2'    | 1:A1:279:U:H6     | 1.80                     | 0.46              |
| 1:A1:312:U:H2'    | 1:A1:313:U:H6     | 1.80                     | 0.46              |
| 1:A1:365:A:OP1    | 24:BC:103:LYS:NZ  | 2.48                     | 0.46              |
| 1:A1:470:C:H1'    | 1:A1:510:A:C2     | 2.51                     | 0.46              |
| 1:A1:511:U:C5'    | 14:AO:70:VAL:CG2  | 2.92                     | 0.46              |
| 1:A1:665:C:H42    | 1:A1:669:A:H8     | 1.62                     | 0.46              |
| 1:A1:761:A:O5'    | 1:A1:761:A:H8     | 1.99                     | 0.46              |
| 1:A1:1035:A:H8    | 1:A1:1035:A:C5'   | 2.25                     | 0.46              |
| 1:A1:1136:C:H5''  | 35:BN:152:TRP:CG  | 2.51                     | 0.46              |
| 1:A1:1221:G:C6    | 1:A1:1222:A:N6    | 2.84                     | 0.46              |
| 1:A1:1490:G:N2    | 1:A1:1493:A:H5'   | 2.29                     | 0.46              |
| 1:A1:1654:G:H5'   | 13:AN:67:SER:OG   | 2.16                     | 0.46              |
| 1:A1:1742:G:OP1   | 36:BO:118:HIS:CD2 | 2.68                     | 0.46              |
| 1:A1:1964:G:H2'   | 1:A1:1965:C:O4'   | 2.16                     | 0.46              |
| 1:A1:2255:U:C2'   | 1:A1:2256:G:C5'   | 2.94                     | 0.46              |
| 1:A1:2509:U:OP1   | 1:A1:2509:U:H6    | 1.99                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2535:A:H2'    | 1:A1:2536:A:O4'    | 2.16                     | 0.46              |
| 1:A1:3085:C:H2'    | 1:A1:3086:U:H6     | 1.81                     | 0.46              |
| 1:A1:3168:A:O2'    | 26:BE:43:VAL:O     | 2.33                     | 0.46              |
| 5:AE:63:VAL:HG13   | 5:AE:78:GLY:N      | 2.31                     | 0.46              |
| 11:AL:23:VAL:O     | 11:AL:30:LEU:HD12  | 2.15                     | 0.46              |
| 12:AM:51:ASN:C     | 12:AM:53:GLY:H     | 2.23                     | 0.46              |
| 12:AM:110:PHE:O    | 12:AM:111:ASN:CB   | 2.63                     | 0.46              |
| 14:AO:76:ILE:HD11  | 24:BC:152:VAL:HG12 | 1.98                     | 0.46              |
| 16:AQ:52:ALA:O     | 16:AQ:55:GLU:HB2   | 2.15                     | 0.46              |
| 19:AX:36:PRO:HG2   | 37:BP:141:VAL:HG13 | 1.98                     | 0.46              |
| 21:B3:33:U:C6      | 34:BM:212:TYR:HE1  | 2.34                     | 0.46              |
| 24:BC:129:VAL:HG13 | 24:BC:246:LEU:HD12 | 1.96                     | 0.46              |
| 25:BD:17:LEU:CB    | 25:BD:76:ALA:HB1   | 2.45                     | 0.46              |
| 26:BE:1:MET:HE2    | 26:BE:1:MET:HA     | 1.98                     | 0.46              |
| 27:BF:53:LEU:O     | 27:BF:54:GLN:C     | 2.58                     | 0.46              |
| 27:BF:196:VAL:CG1  | 27:BF:197:ARG:N    | 2.78                     | 0.46              |
| 30:BI:160:ARG:O    | 30:BI:163:ALA:HB3  | 2.15                     | 0.46              |
| 33:BL:37:HIS:NE2   | 33:BL:63:ARG:HB2   | 2.31                     | 0.46              |
| 34:BM:175:HIS:HD2  | 34:BM:180:PHE:CE2  | 2.33                     | 0.46              |
| 37:BP:8:ARG:C      | 37:BP:11:THR:HG1   | 2.22                     | 0.46              |
| 37:BP:11:THR:CG2   | 37:BP:15:PHE:CG    | 2.99                     | 0.46              |
| 43:BV:129:PRO:HG2  | 43:BV:130:PHE:CD2  | 2.50                     | 0.46              |
| 46:BY:10:ILE:HD12  | 46:BY:30:GLU:HB3   | 1.97                     | 0.46              |
| 20:C2:29:U:H5''    | 24:CC:56:LYS:HD2   | 1.98                     | 0.46              |
| 21:C3:5:U:O3'      | 34:CM:54:ARG:HG3   | 2.16                     | 0.46              |
| 21:C3:11:A:H8      | 34:CM:18:THR:HG21  | 1.80                     | 0.46              |
| 21:C3:40:C:O2      | 21:C3:40:C:C2'     | 2.64                     | 0.46              |
| 21:C3:90:A:C2      | 29:CH:162:ARG:NH2  | 2.84                     | 0.46              |
| 21:C3:95:U:H2'     | 21:C3:96:U:C6      | 2.51                     | 0.46              |
| 23:CB:33:PRO:CD    | 23:CB:44:THR:HG23  | 2.46                     | 0.46              |
| 23:CB:36:ASP:HA    | 23:CB:37:PRO:HD2   | 1.74                     | 0.46              |
| 23:CB:172:LYS:HA   | 23:CB:172:LYS:HD2  | 1.46                     | 0.46              |
| 24:CC:300:ASN:HB3  | 1:D1:1376:A:H1'    | 1.98                     | 0.46              |
| 25:CD:132:GLU:C    | 25:CD:154:ILE:HD11 | 2.41                     | 0.46              |
| 32:CK:75:VAL:CG2   | 32:CK:109:PHE:CB   | 2.93                     | 0.46              |
| 34:CM:76:CYS:HB3   | 34:CM:105:LEU:CD1  | 2.46                     | 0.46              |
| 34:CM:131:ASN:OD1  | 34:CM:172:ASN:HA   | 2.15                     | 0.46              |
| 34:CM:254:ILE:O    | 34:CM:258:PRO:HB3  | 2.15                     | 0.46              |
| 38:CQ:128:ARG:HG2  | 38:CQ:142:LEU:CD2  | 2.46                     | 0.46              |
| 39:CR:145:ASN:HA   | 39:CR:150:ILE:HD11 | 1.97                     | 0.46              |
| 42:CU:7:VAL:HG13   | 42:CU:61:ILE:HD11  | 1.98                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 44:CW:33:ARG:NH2  | 1:D1:1906:G:H5''   | 2.30                     | 0.46              |
| 1:D1:49:A:C2'     | 1:D1:50:A:H5'      | 2.46                     | 0.46              |
| 1:D1:72:A:O3'     | 18:DU:56:VAL:HG11  | 2.16                     | 0.46              |
| 1:D1:121:A:C6     | 1:D1:150:A:C6      | 3.03                     | 0.46              |
| 1:D1:164:A:C2'    | 1:D1:165:C:H5'     | 2.46                     | 0.46              |
| 1:D1:632:G:H2'    | 1:D1:633:C:O4'     | 2.16                     | 0.46              |
| 1:D1:738:U:C2'    | 1:D1:739:G:H5'     | 2.46                     | 0.46              |
| 1:D1:761:A:O5'    | 1:D1:761:A:H8      | 1.99                     | 0.46              |
| 1:D1:933:G:C4'    | 1:D1:934:G:H5''    | 2.43                     | 0.46              |
| 1:D1:1373:G:H2'   | 1:D1:1374:C:C6     | 2.43                     | 0.46              |
| 1:D1:1595:A:C6    | 1:D1:1596:U:H1'    | 2.49                     | 0.46              |
| 1:D1:1681:C:C4    | 1:D1:1823:A:H5''   | 2.51                     | 0.46              |
| 1:D1:2376:A:C2    | 1:D1:2377:G:C8     | 3.04                     | 0.46              |
| 1:D1:2378:A:C2'   | 1:D1:2379:A:O5'    | 2.64                     | 0.46              |
| 1:D1:2617:G:H1'   | 1:D1:2786:C:C2     | 2.50                     | 0.46              |
| 1:D1:2886:G:C8    | 1:D1:2886:G:C3'    | 2.99                     | 0.46              |
| 1:D1:3006:A:O2'   | 1:D1:3007:G:H5'    | 2.15                     | 0.46              |
| 1:D1:3020:G:HO2'  | 1:D1:3021:A:H5''   | 1.79                     | 0.46              |
| 1:D1:3021:A:C2    | 1:D1:3022:A:C4     | 3.03                     | 0.46              |
| 1:D1:3141:U:H5''  | 1:D1:3252:G:N2     | 2.31                     | 0.46              |
| 9:DJ:63:THR:HG22  | 9:DJ:73:PRO:HD3    | 1.97                     | 0.46              |
| 13:DN:101:LYS:CA  | 13:DN:106:ALA:HB3  | 2.46                     | 0.46              |
| 15:DP:16:GLN:O    | 15:DP:17:ASN:C     | 2.58                     | 0.46              |
| 16:DQ:19:GLU:O    | 16:DQ:23:GLN:HG3   | 2.15                     | 0.46              |
| 18:DU:76:GLN:HB2  | 18:DU:101:ASN:HD22 | 1.81                     | 0.46              |
| 19:DX:45:ALA:CA   | 19:DX:50:HIS:HD2   | 2.28                     | 0.46              |
| 20:E2:7:U:OP1     | 38:EQ:64:ARG:HG2   | 2.14                     | 0.46              |
| 21:E3:54:A:C2'    | 25:ED:152:GLN:NE2  | 2.78                     | 0.46              |
| 23:EB:56:ILE:HD11 | 23:EB:321:MET:CE   | 2.46                     | 0.46              |
| 23:EB:220:LYS:HG2 | 23:EB:329:PRO:CD   | 2.46                     | 0.46              |
| 23:EB:377:PHE:CD2 | 23:EB:378:PHE:CE1  | 3.01                     | 0.46              |
| 29:EH:138:VAL:CG2 | 29:EH:152:LEU:HD11 | 2.46                     | 0.46              |
| 30:EI:99:GLU:O    | 30:EI:99:GLU:HG2   | 2.15                     | 0.46              |
| 34:EM:44:TYR:CD2  | 37:EP:34:TYR:O     | 2.69                     | 0.46              |
| 39:ER:99:THR:O    | 39:ER:103:ILE:HG13 | 2.16                     | 0.46              |
| 45:EX:113:ARG:O   | 45:EX:117:LEU:HG   | 2.16                     | 0.46              |
| 1:F1:112:A:H2'    | 1:F1:113:A:O4'     | 2.15                     | 0.46              |
| 1:F1:121:A:H61    | 1:F1:150:A:N6      | 2.12                     | 0.46              |
| 1:F1:125:G:H2'    | 1:F1:126:A:O4'     | 2.15                     | 0.46              |
| 1:F1:164:A:C6     | 1:F1:256:A:C5      | 3.04                     | 0.46              |
| 1:F1:361:A:C3'    | 1:F1:362:G:H5''    | 2.46                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:619:G:O2'     | 1:F1:620:A:C2      | 2.67                     | 0.46              |
| 1:F1:632:G:H2'     | 1:F1:633:C:O4'     | 2.16                     | 0.46              |
| 1:F1:933:G:C4'     | 1:F1:934:G:H5''    | 2.41                     | 0.46              |
| 1:F1:974:C:H2'     | 1:F1:975:G:O4'     | 2.14                     | 0.46              |
| 1:F1:1562:G:C6     | 50:F1:3928:HOH:O   | 2.67                     | 0.46              |
| 1:F1:1598:C:C5     | 1:F1:1599:G:C5     | 3.03                     | 0.46              |
| 1:F1:1654:G:N3     | 1:F1:1654:G:C2'    | 2.75                     | 0.46              |
| 1:F1:1666:A:H5'    | 1:F1:1667:A:OP2    | 2.16                     | 0.46              |
| 1:F1:2701:U:H2'    | 1:F1:2702:U:C6     | 2.51                     | 0.46              |
| 1:F1:2790:A:C4     | 4:FC:54:PRO:HA     | 2.50                     | 0.46              |
| 1:F1:3197:A:OP2    | 1:F1:3213:G:N2     | 2.44                     | 0.46              |
| 5:FE:42:ARG:NH1    | 8:FH:111:ASN:ND2   | 2.62                     | 0.46              |
| 5:FE:134:LEU:HD22  | 5:FE:138:GLN:OE1   | 2.16                     | 0.46              |
| 6:FF:96:ILE:O      | 6:FF:99:LYS:HB2    | 2.16                     | 0.46              |
| 7:FG:14:LEU:HD21   | 7:FG:43:PHE:CZ     | 2.51                     | 0.46              |
| 7:FG:60:ALA:O      | 7:FG:64:GLN:N      | 2.49                     | 0.46              |
| 9:FJ:128:ILE:O     | 9:FJ:132:THR:HB    | 2.16                     | 0.46              |
| 12:FM:51:ASN:C     | 12:FM:53:GLY:H     | 2.24                     | 0.46              |
| 13:FN:95:GLU:O     | 13:FN:98:LYS:HE2   | 2.15                     | 0.46              |
| 16:FQ:6:ALA:O      | 16:FQ:7:VAL:CB     | 2.58                     | 0.46              |
| 20:G2:39:G:N3      | 42:GU:90:ARG:NH1   | 2.63                     | 0.46              |
| 21:G3:22:A:C6      | 21:G3:23:A:C6      | 3.04                     | 0.46              |
| 22:GA:31:ARG:HB3   | 22:GA:37:GLU:OE2   | 2.15                     | 0.46              |
| 23:GB:186:VAL:O    | 23:GB:190:VAL:HG23 | 2.16                     | 0.46              |
| 24:GC:89:THR:HG22  | 24:GC:91:ARG:HB3   | 1.98                     | 0.46              |
| 25:GD:117:ASP:H    | 25:GD:120:THR:HB   | 1.81                     | 0.46              |
| 30:GI:193:LEU:HD21 | 6:HF:114:LEU:CB    | 2.46                     | 0.46              |
| 35:GN:122:LEU:HA   | 35:GN:126:GLN:OE1  | 2.15                     | 0.46              |
| 40:GS:36:LYS:NZ    | 1:H1:190:U:OP1     | 2.48                     | 0.46              |
| 43:GV:81:ALA:HB3   | 43:GV:114:PHE:CZ   | 2.50                     | 0.46              |
| 44:GW:14:ASN:O     | 44:GW:18:GLN:HG2   | 2.15                     | 0.46              |
| 46:GY:12:ARG:HG2   | 1:H1:861:A:H4'     | 1.96                     | 0.46              |
| 46:GY:55:TRP:CD1   | 46:GY:66:GLY:HA3   | 2.51                     | 0.46              |
| 1:H1:401:U:H2'     | 1:H1:401:U:O2      | 2.16                     | 0.46              |
| 1:H1:1019:G:N3     | 1:H1:2626:A:H2'    | 2.31                     | 0.46              |
| 1:H1:1048:U:C2'    | 1:H1:1049:U:C5'    | 2.92                     | 0.46              |
| 1:H1:1148:U:H2'    | 1:H1:1149:U:H6     | 1.79                     | 0.46              |
| 1:H1:1252:A:O2'    | 1:H1:1253:G:H5'    | 2.15                     | 0.46              |
| 1:H1:2103:A:O2'    | 1:H1:3302:A:O2'    | 2.29                     | 0.46              |
| 1:H1:2879:U:O2'    | 1:H1:3003:U:H5'    | 2.15                     | 0.46              |
| 1:H1:2939:G:H21    | 1:H1:2940:G:H1'    | 1.80                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2954:G:O2'    | 1:H1:2955:A:H5'    | 2.15                     | 0.46              |
| 8:HH:91:PHE:N      | 8:HH:91:PHE:HD1    | 2.14                     | 0.46              |
| 18:HU:17:GLN:H     | 18:HU:17:GLN:HG3   | 1.25                     | 0.46              |
| 1:A1:64:A:N6       | 1:A1:66:C:C2       | 2.84                     | 0.46              |
| 1:A1:70:C:C4       | 1:A1:72:A:C4       | 3.04                     | 0.46              |
| 1:A1:146:U:O2      | 27:BF:127:TYR:HE1  | 1.99                     | 0.46              |
| 1:A1:189:G:OP2     | 40:BS:45:ARG:NH2   | 2.48                     | 0.46              |
| 1:A1:585:A:C5      | 1:A1:586:A:C5      | 3.03                     | 0.46              |
| 1:A1:619:G:O2'     | 1:A1:620:A:C2      | 2.67                     | 0.46              |
| 1:A1:655:A:H2'     | 1:A1:656:C:C5      | 2.49                     | 0.46              |
| 1:A1:1012:U:H1'    | 43:BV:123:MET:CG   | 2.46                     | 0.46              |
| 1:A1:1252:A:O2'    | 1:A1:1253:G:H5'    | 2.15                     | 0.46              |
| 1:A1:1411:U:O4     | 24:BC:207:LYS:NZ   | 2.37                     | 0.46              |
| 1:A1:1647:U:H2'    | 1:A1:1648:G:O4'    | 2.16                     | 0.46              |
| 1:A1:1732:C:H1'    | 11:AL:54:ASN:HD21  | 1.81                     | 0.46              |
| 1:A1:2237:A:OP1    | 22:BA:243:ARG:NH2  | 2.47                     | 0.46              |
| 1:A1:2292:U:O2'    | 1:A1:2908:U:H4'    | 2.16                     | 0.46              |
| 1:A1:2343:A:C3'    | 1:A1:2344:U:C5'    | 2.90                     | 0.46              |
| 1:A1:2595:G:H4'    | 1:A1:2596:G:OP1    | 2.16                     | 0.46              |
| 1:A1:2933:G:C4'    | 1:A1:2934:A:OP1    | 2.57                     | 0.46              |
| 1:A1:3122:C:H2'    | 1:A1:3123:A:O4'    | 2.16                     | 0.46              |
| 5:AE:69:LEU:HD21   | 5:AE:114:ASP:HA    | 1.96                     | 0.46              |
| 5:AE:98:THR:HG21   | 5:AE:173:TYR:OH    | 2.16                     | 0.46              |
| 6:AF:45:ARG:HH11   | 19:AX:84:ASN:HB3   | 1.81                     | 0.46              |
| 9:AJ:112:ASP:H     | 9:AJ:156:ASN:ND2   | 2.10                     | 0.46              |
| 9:AJ:211:THR:O     | 9:AJ:215:ILE:HG13  | 2.16                     | 0.46              |
| 14:AO:19:ASN:ND2   | 45:BX:77:LEU:H     | 2.00                     | 0.46              |
| 16:AQ:5:GLN:O      | 16:AQ:12:GLY:CA    | 2.64                     | 0.46              |
| 18:AU:123:LEU:HD11 | 42:BU:118:ARG:HD2  | 1.98                     | 0.46              |
| 20:B2:17:U:H5''    | 20:B2:18:G:OP2     | 2.16                     | 0.46              |
| 23:BB:84:MET:CE    | 23:BB:179:ILE:HD11 | 2.40                     | 0.46              |
| 23:BB:114:THR:CG2  | 23:BB:115:LYS:N    | 2.78                     | 0.46              |
| 23:BB:235:HIS:O    | 23:BB:235:HIS:CD2  | 2.69                     | 0.46              |
| 24:BC:41:VAL:HG12  | 24:BC:45:LEU:HD12  | 1.98                     | 0.46              |
| 24:BC:320:LYS:HB2  | 43:BV:159:PRO:HB3  | 1.98                     | 0.46              |
| 24:BC:348:ALA:C    | 24:BC:350:ALA:N    | 2.74                     | 0.46              |
| 27:BF:66:VAL:HB    | 27:BF:226:GLY:O    | 2.15                     | 0.46              |
| 30:BI:177:ARG:HA   | 30:BI:180:GLU:HG2  | 1.97                     | 0.46              |
| 34:BM:131:ASN:OD1  | 34:BM:172:ASN:HA   | 2.16                     | 0.46              |
| 38:BQ:122:ASN:HB2  | 38:BQ:147:HIS:HB2  | 1.98                     | 0.46              |
| 39:BR:94:VAL:HG21  | 39:BR:130:ALA:HB2  | 1.98                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 39:BR:145:ASN:HD22 | 39:BR:150:ILE:HD11 | 1.81                     | 0.46              |
| 40:BS:24:HIS:NE2   | 40:BS:25:LEU:HG    | 2.30                     | 0.46              |
| 43:BV:134:GLY:HA3  | 43:BV:231:ILE:HB   | 1.97                     | 0.46              |
| 45:BX:65:THR:HA    | 45:BX:68:LEU:HD12  | 1.98                     | 0.46              |
| 46:BY:72:THR:HG22  | 46:BY:77:VAL:CG2   | 2.46                     | 0.46              |
| 20:C2:130:C:H4'    | 39:CR:102:GLN:NE2  | 2.30                     | 0.46              |
| 23:CB:110:ILE:CG2  | 23:CB:114:THR:HG21 | 2.46                     | 0.46              |
| 25:CD:25:GLU:O     | 25:CD:30:LEU:HD11  | 2.15                     | 0.46              |
| 33:CL:192:TRP:CZ2  | 33:CL:196:GLN:HG3  | 2.51                     | 0.46              |
| 38:CQ:24:LEU:HB2   | 38:CQ:146:CYS:HB2  | 1.98                     | 0.46              |
| 38:CQ:126:LYS:HE2  | 38:CQ:144:SER:HB3  | 1.97                     | 0.46              |
| 40:CS:105:LEU:HD23 | 40:CS:105:LEU:HA   | 1.75                     | 0.46              |
| 43:CV:204:LEU:CB   | 43:CV:238:MET:HE2  | 2.45                     | 0.46              |
| 45:CX:4:LYS:HD2    | 45:CX:92:ARG:NE    | 2.31                     | 0.46              |
| 45:CX:62:ASP:CB    | 1:D1:1365:C:O3'    | 2.57                     | 0.46              |
| 1:D1:940:A:N3      | 1:D1:940:A:C2'     | 2.79                     | 0.46              |
| 1:D1:1591:A:O2'    | 1:D1:1592:G:H5'    | 2.15                     | 0.46              |
| 1:D1:1683:U:H2'    | 1:D1:1684:C:C6     | 2.51                     | 0.46              |
| 1:D1:2250:A:H4'    | 1:D1:2251:A:C8     | 2.50                     | 0.46              |
| 1:D1:2284:U:O2'    | 1:D1:2285:C:H5'    | 2.15                     | 0.46              |
| 1:D1:2535:A:H2'    | 1:D1:2536:A:O4'    | 2.15                     | 0.46              |
| 1:D1:2569:A:O2'    | 1:D1:2570:U:OP1    | 2.23                     | 0.46              |
| 1:D1:2640:G:OP1    | 1:D1:2641:U:H1'    | 2.16                     | 0.46              |
| 1:D1:2715:C:H3'    | 1:D1:2717:G:N2     | 2.31                     | 0.46              |
| 1:D1:2890:A:H2'    | 1:D1:2891:A:O4'    | 2.16                     | 0.46              |
| 1:D1:3141:U:OP1    | 1:D1:3253:U:H1'    | 2.16                     | 0.46              |
| 1:D1:3303:G:H2'    | 1:D1:3304:U:C6     | 2.50                     | 0.46              |
| 5:DE:56:GLY:O      | 5:DE:59:ARG:N      | 2.32                     | 0.46              |
| 5:DE:98:THR:HG21   | 5:DE:173:TYR:OH    | 2.16                     | 0.46              |
| 9:DJ:118:HIS:HD2   | 9:DJ:120:ASP:O     | 1.98                     | 0.46              |
| 19:DX:93:LEU:HD11  | 19:DX:120:LEU:CD1  | 2.28                     | 0.46              |
| 20:E2:88:G:HO2'    | 20:E2:89:A:P       | 2.38                     | 0.46              |
| 22:EA:31:ARG:CB    | 22:EA:37:GLU:OE2   | 2.64                     | 0.46              |
| 22:EA:43:ARG:HD2   | 22:EA:88:TYR:CD1   | 2.51                     | 0.46              |
| 22:EA:188:HIS:O    | 22:EA:191:ALA:HB3  | 2.16                     | 0.46              |
| 22:EA:203:VAL:HG23 | 1:F1:2180:G:OP1    | 2.15                     | 0.46              |
| 23:EB:46:PHE:HD1   | 23:EB:206:ILE:HD12 | 1.81                     | 0.46              |
| 23:EB:93:ILE:CD1   | 23:EB:102:LEU:HD22 | 2.43                     | 0.46              |
| 24:EC:89:THR:HG22  | 24:EC:91:ARG:HB3   | 1.97                     | 0.46              |
| 24:EC:310:VAL:HG12 | 24:EC:311:ALA:N    | 2.31                     | 0.46              |
| 27:EF:95:GLU:OE1   | 27:EF:100:LYS:CG   | 2.63                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 31:EJ:85:GLN:HA    | 31:EJ:102:ASN:ND2  | 2.29                     | 0.46              |
| 34:EM:99:TYR:CG    | 34:EM:204:ILE:HG23 | 2.51                     | 0.46              |
| 36:EO:76:THR:HG22  | 36:EO:81:ARG:HH21  | 1.81                     | 0.46              |
| 37:EP:88:ARG:HH22  | 17:FT:30:ILE:HG22  | 1.80                     | 0.46              |
| 39:ER:77:THR:HG21  | 1:F1:1546:G:O3'    | 2.16                     | 0.46              |
| 40:ES:21:SER:CB    | 40:ES:26:ARG:HG2   | 2.45                     | 0.46              |
| 1:F1:49:A:O2'      | 1:F1:50:A:H5'      | 2.15                     | 0.46              |
| 1:F1:155:A:H1'     | 16:FQ:27:ALA:CB    | 2.46                     | 0.46              |
| 1:F1:469:U:O2      | 1:F1:469:U:H2'     | 2.16                     | 0.46              |
| 1:F1:481:C:O2'     | 1:F1:482:G:H5'     | 2.16                     | 0.46              |
| 1:F1:564:A:N3      | 1:F1:564:A:C2'     | 2.74                     | 0.46              |
| 1:F1:624:G:O2'     | 1:F1:625:C:C6      | 2.69                     | 0.46              |
| 1:F1:738:U:C2'     | 1:F1:739:G:H5'     | 2.46                     | 0.46              |
| 1:F1:1019:G:N3     | 1:F1:2626:A:H2'    | 2.31                     | 0.46              |
| 1:F1:1045:G:C6     | 1:F1:1060:C:N3     | 2.84                     | 0.46              |
| 1:F1:1051:C:H2'    | 1:F1:1052:A:C1'    | 2.45                     | 0.46              |
| 1:F1:1072:A:H5''   | 1:F1:1073:A:OP1    | 2.16                     | 0.46              |
| 1:F1:1348:G:C2'    | 1:F1:1349:U:O5'    | 2.64                     | 0.46              |
| 1:F1:1385:C:O2'    | 1:F1:1386:U:H5'    | 2.16                     | 0.46              |
| 1:F1:1462:U:O5'    | 1:F1:1463:C:H5''   | 2.15                     | 0.46              |
| 1:F1:1475:A:C2     | 1:F1:2351:A:C5     | 3.04                     | 0.46              |
| 1:F1:2539:A:N3     | 1:F1:2540:G:C8     | 2.83                     | 0.46              |
| 1:F1:2784:G:H4'    | 1:F1:2786:C:C6     | 2.51                     | 0.46              |
| 1:F1:3097:G:C2'    | 1:F1:3098:A:O5'    | 2.63                     | 0.46              |
| 1:F1:3122:C:H2'    | 1:F1:3123:A:O4'    | 2.16                     | 0.46              |
| 1:F1:3191:G:O2'    | 1:F1:3192:C:P      | 2.74                     | 0.46              |
| 5:FE:58:PHE:CG     | 5:FE:85:VAL:HG22   | 2.50                     | 0.46              |
| 5:FE:125:ASN:OD1   | 5:FE:125:ASN:C     | 2.59                     | 0.46              |
| 9:FJ:63:THR:HG22   | 9:FJ:73:PRO:HD3    | 1.98                     | 0.46              |
| 9:FJ:161:VAL:C     | 9:FJ:193:ILE:HD12  | 2.41                     | 0.46              |
| 12:FM:55:ASN:ND2   | 12:FM:71:ILE:HD11  | 2.28                     | 0.46              |
| 14:FO:52:GLY:HA3   | 14:FO:118:ASN:ND2  | 2.27                     | 0.46              |
| 18:FU:166:VAL:HG12 | 18:FU:167:SER:N    | 2.30                     | 0.46              |
| 20:G2:114:G:N2     | 3:HB:11:LYS:NZ     | 2.64                     | 0.46              |
| 22:GA:3:ARG:HG2    | 22:GA:4:VAL:H      | 1.80                     | 0.46              |
| 25:GD:107:GLN:HG2  | 25:GD:108:GLU:H    | 1.79                     | 0.46              |
| 30:GI:166:TYR:CD2  | 1:H1:3162:A:C6     | 3.04                     | 0.46              |
| 32:GK:36:LYS:CB    | 1:H1:94:A:OP2      | 2.59                     | 0.46              |
| 33:GL:188:ARG:HH21 | 1:H1:279:U:H4'     | 1.81                     | 0.46              |
| 37:GP:76:VAL:HG12  | 37:GP:77:HIS:H     | 1.81                     | 0.46              |
| 38:GQ:77:GLU:HB2   | 38:GQ:78:PHE:CD2   | 2.51                     | 0.46              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 39:GR:43:LEU:CD1   | 1:H1:1599:G:C5'   | 2.94                     | 0.46              |
| 43:GV:132:THR:HG21 | 43:GV:227:ARG:HD2 | 1.97                     | 0.46              |
| 45:GX:71:ASN:OD1   | 45:GX:71:ASN:C    | 2.58                     | 0.46              |
| 46:GY:10:ILE:CD1   | 46:GY:30:GLU:HB3  | 2.45                     | 0.46              |
| 1:H1:19:A:O5'      | 1:H1:19:A:H8      | 1.99                     | 0.46              |
| 1:H1:79:C:H2'      | 1:H1:80:C:H5'     | 1.98                     | 0.46              |
| 1:H1:112:A:H2'     | 1:H1:113:A:O4'    | 2.16                     | 0.46              |
| 1:H1:579:G:HO2'    | 19:HX:158:ASN:HA  | 1.81                     | 0.46              |
| 1:H1:846:C:O2'     | 1:H1:937:G:OP1    | 2.31                     | 0.46              |
| 1:H1:866:A:C5'     | 1:H1:866:A:C8     | 2.98                     | 0.46              |
| 1:H1:1036:G:H22    | 1:H1:1066:A:H2    | 1.64                     | 0.46              |
| 1:H1:1518:G:O3'    | 3:HB:48:LYS:HD2   | 2.15                     | 0.46              |
| 1:H1:2795:U:O3'    | 1:H1:2796:A:H3'   | 2.16                     | 0.46              |
| 1:H1:2844:G:H2'    | 1:H1:2845:C:H6    | 1.81                     | 0.46              |
| 1:H1:2889:G:N2     | 1:H1:3019:G:O2'   | 2.49                     | 0.46              |
| 1:H1:3061:A:H2'    | 1:H1:3062:A:H5'   | 1.98                     | 0.46              |
| 1:H1:3068:U:H3'    | 1:H1:3069:G:H5''  | 1.98                     | 0.46              |
| 1:H1:3085:C:H2'    | 1:H1:3086:U:H6    | 1.81                     | 0.46              |
| 1:H1:3234:U:O4     | 1:H1:3236:C:C6    | 2.68                     | 0.46              |
| 2:HA:62:THR:HG22   | 2:HA:63:GLY:H     | 1.80                     | 0.46              |
| 7:HG:52:ARG:O      | 7:HG:56:ILE:HG13  | 2.16                     | 0.46              |
| 8:HH:18:ALA:HB2    | 8:HH:39:LEU:HD22  | 1.98                     | 0.46              |
| 8:HH:97:PRO:O      | 8:HH:100:ILE:HG13 | 2.16                     | 0.46              |
| 14:HO:114:PHE:O    | 14:HO:117:ALA:HB3 | 2.15                     | 0.46              |
| 1:A1:105:A:H2'     | 1:A1:106:A:O4'    | 2.16                     | 0.46              |
| 1:A1:401:U:O2      | 1:A1:401:U:H2'    | 2.16                     | 0.46              |
| 1:A1:585:A:C6      | 1:A1:586:A:C5     | 3.04                     | 0.46              |
| 1:A1:640:G:H2'     | 1:A1:641:U:C6     | 2.51                     | 0.46              |
| 1:A1:997:G:H4'     | 1:A1:1399:A:O2'   | 2.16                     | 0.46              |
| 1:A1:1372:A:N3     | 24:BC:314:THR:CG2 | 2.79                     | 0.46              |
| 1:A1:1591:A:O2'    | 1:A1:1592:G:H5'   | 2.16                     | 0.46              |
| 1:A1:1880:C:O2'    | 11:AL:7:TYR:HE1   | 1.99                     | 0.46              |
| 1:A1:2353:C:H5''   | 1:A1:2354:C:OP2   | 2.16                     | 0.46              |
| 1:A1:2383:U:H6     | 1:A1:2383:U:H5''  | 1.80                     | 0.46              |
| 1:A1:2557:A:C2     | 1:A1:2564:G:C5    | 3.04                     | 0.46              |
| 1:A1:2617:G:H1'    | 1:A1:2786:C:C2    | 2.51                     | 0.46              |
| 1:A1:2700:A:O2'    | 1:A1:2733:C:H5''  | 2.16                     | 0.46              |
| 1:A1:2888:A:O2'    | 1:A1:2889:G:H5'   | 2.16                     | 0.46              |
| 1:A1:3144:G:C2     | 1:A1:3249:U:C2    | 3.03                     | 0.46              |
| 1:A1:3256:A:H2     | 1:A1:3349:U:C2    | 2.34                     | 0.46              |
| 1:A1:3261:U:O2'    | 23:BB:170:ARG:NH2 | 2.48                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3312:C:H2'    | 1:A1:3313:C:C6     | 2.51                     | 0.46              |
| 5:AE:11:GLY:HA2    | 5:AE:14:LYS:HE3    | 1.98                     | 0.46              |
| 5:AE:179:THR:HG22  | 5:AE:180:LEU:N     | 2.30                     | 0.46              |
| 5:AE:185:ARG:HB3   | 5:AE:187:HIS:CE1   | 2.51                     | 0.46              |
| 7:AG:102:LYS:C     | 7:AG:103:THR:HG1   | 2.17                     | 0.46              |
| 18:AU:76:GLN:HB2   | 18:AU:101:ASN:HD22 | 1.81                     | 0.46              |
| 22:BA:3:ARG:HB2    | 22:BA:208:VAL:HG12 | 1.97                     | 0.46              |
| 24:BC:42:PHE:CD1   | 24:BC:244:LEU:HD23 | 2.51                     | 0.46              |
| 24:BC:153:GLN:OE1  | 24:BC:153:GLN:HA   | 2.16                     | 0.46              |
| 26:BE:19:THR:HB    | 26:BE:26:GLU:HB2   | 1.97                     | 0.46              |
| 27:BF:127:TYR:CD1  | 27:BF:127:TYR:O    | 2.69                     | 0.46              |
| 27:BF:136:ILE:HD13 | 27:BF:163:CYS:SG   | 2.56                     | 0.46              |
| 30:BI:30:GLN:HG3   | 30:BI:32:ILE:CD1   | 2.46                     | 0.46              |
| 30:BI:136:LYS:HG3  | 30:BI:139:ASP:OD2  | 2.16                     | 0.46              |
| 32:BK:117:ARG:HH11 | 32:BK:137:ARG:CZ   | 2.28                     | 0.46              |
| 35:BN:3:ILE:HG23   | 43:BV:107:GLN:HB3  | 1.98                     | 0.46              |
| 38:BQ:62:PHE:HE1   | 38:BQ:84:ARG:HB2   | 1.81                     | 0.46              |
| 39:BR:124:ILE:H    | 39:BR:124:ILE:HG13 | 1.45                     | 0.46              |
| 45:BX:57:ILE:C     | 45:BX:59:PHE:N     | 2.72                     | 0.46              |
| 20:C2:3:A:C5'      | 20:C2:4:A:OP2      | 2.64                     | 0.46              |
| 20:C2:28:G:N7      | 40:CS:12:ARG:NH2   | 2.64                     | 0.46              |
| 21:C3:43:A:C5      | 21:C3:44:C:C4      | 3.03                     | 0.46              |
| 21:C3:63:A:C8      | 29:CH:206:LEU:CD2  | 2.99                     | 0.46              |
| 22:CA:85:SER:HB3   | 46:CY:63:ILE:HB    | 1.98                     | 0.46              |
| 23:CB:245:ARG:NH2  | 1:D1:2336:A:OP2    | 2.49                     | 0.46              |
| 24:CC:143:PHE:CE1  | 24:CC:149:ILE:HB   | 2.51                     | 0.46              |
| 24:CC:240:ARG:CZ   | 1:D1:712:G:H4'     | 2.47                     | 0.46              |
| 24:CC:299:ILE:HD12 | 1:D1:1375:A:C2     | 2.51                     | 0.46              |
| 24:CC:316:THR:O    | 24:CC:317:HIS:CD2  | 2.68                     | 0.46              |
| 26:CE:45:ILE:HG23  | 26:CE:55:LEU:HD21  | 1.98                     | 0.46              |
| 27:CF:50:TYR:CD1   | 27:CF:51:ILE:HG23  | 2.51                     | 0.46              |
| 29:CH:15:LYS:NZ    | 1:D1:2624:A:P      | 2.89                     | 0.46              |
| 32:CK:59:GLY:HA3   | 1:D1:734:A:H1'     | 1.98                     | 0.46              |
| 34:CM:99:TYR:CG    | 34:CM:204:ILE:CG2  | 2.99                     | 0.46              |
| 34:CM:119:TYR:CE1  | 34:CM:132:VAL:HG11 | 2.48                     | 0.46              |
| 35:CN:31:ILE:CG2   | 35:CN:35:LYS:HE3   | 2.46                     | 0.46              |
| 39:CR:94:VAL:HG21  | 39:CR:103:ILE:HD13 | 1.98                     | 0.46              |
| 43:CV:109:HIS:HD2  | 1:D1:1360:C:O2'    | 1.99                     | 0.46              |
| 43:CV:160:LEU:HD23 | 43:CV:160:LEU:HA   | 1.76                     | 0.46              |
| 46:CY:8:VAL:O      | 46:CY:11:THR:HB    | 2.15                     | 0.46              |
| 1:D1:73:G:C5'      | 18:DU:56:VAL:HG11  | 2.46                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:292:C:O2'     | 16:DQ:80:ARG:HA    | 2.15                     | 0.46              |
| 1:D1:637:U:C2      | 1:D1:638:U:C5      | 3.04                     | 0.46              |
| 1:D1:701:A:N6      | 1:D1:811:A:O4'     | 2.48                     | 0.46              |
| 1:D1:1337:G:H8     | 50:D1:4382:HOH:O   | 1.99                     | 0.46              |
| 1:D1:1638:A:OP1    | 15:DP:50:LEU:N     | 2.49                     | 0.46              |
| 1:D1:1666:A:H5'    | 1:D1:1667:A:OP2    | 2.16                     | 0.46              |
| 1:D1:2130:G:N2     | 1:D1:2143:A:H1'    | 2.31                     | 0.46              |
| 1:D1:2683:A:C5'    | 1:D1:2684:A:OP2    | 2.64                     | 0.46              |
| 1:D1:2844:G:H2'    | 1:D1:2845:C:H6     | 1.81                     | 0.46              |
| 1:D1:2902:G:O2'    | 1:D1:2922:A:N1     | 2.39                     | 0.46              |
| 1:D1:2992:G:C2     | 1:D1:2993:C:C6     | 3.04                     | 0.46              |
| 6:DF:80:ASP:O      | 6:DF:81:LEU:C      | 2.56                     | 0.46              |
| 8:DH:39:LEU:CD2    | 8:DH:106:VAL:HG21  | 2.46                     | 0.46              |
| 13:DN:26:VAL:HG22  | 13:DN:93:PHE:HB3   | 1.98                     | 0.46              |
| 13:DN:83:THR:CG2   | 13:DN:85:TYR:HD2   | 2.29                     | 0.46              |
| 20:E2:134:C:H3'    | 20:E2:134:C:H6     | 1.81                     | 0.46              |
| 22:EA:32:VAL:HA    | 22:EA:124:ARG:NH1  | 2.31                     | 0.46              |
| 23:EB:86:ILE:CD1   | 23:EB:196:LEU:HD13 | 2.46                     | 0.46              |
| 23:EB:218:VAL:HB   | 23:EB:332:ARG:NE   | 2.30                     | 0.46              |
| 23:EB:272:HIS:CD2  | 1:F1:3127:U:OP1    | 2.58                     | 0.46              |
| 23:EB:277:ASN:HD21 | 23:EB:343:GLN:NE2  | 2.08                     | 0.46              |
| 24:EC:74:THR:HG22  | 1:F1:2397:A:H5''   | 1.98                     | 0.46              |
| 24:EC:242:ASN:C    | 24:EC:244:LEU:H    | 2.24                     | 0.46              |
| 30:EI:10:ALA:C     | 30:EI:13:HIS:CD2   | 2.89                     | 0.46              |
| 30:EI:184:PRO:HA   | 30:EI:187:LYS:HE2  | 1.98                     | 0.46              |
| 32:EK:131:SER:O    | 32:EK:132:LYS:C    | 2.58                     | 0.46              |
| 33:EL:14:LYS:NZ    | 33:EL:120:TRP:CZ3  | 2.84                     | 0.46              |
| 34:EM:213:MET:HG2  | 34:EM:213:MET:H    | 1.48                     | 0.46              |
| 36:EO:18:GLY:O     | 36:EO:19:GLN:C     | 2.57                     | 0.46              |
| 37:EP:27:ILE:CA    | 37:EP:30:TYR:HD2   | 2.22                     | 0.46              |
| 39:ER:147:ILE:HG22 | 42:EU:34:ILE:HG21  | 1.98                     | 0.46              |
| 43:EV:107:GLN:HG2  | 43:EV:110:ASN:ND2  | 2.30                     | 0.46              |
| 46:EY:74:PRO:N     | 46:EY:75:PRO:CD    | 2.79                     | 0.46              |
| 1:F1:126:A:C5      | 1:F1:139:A:C6      | 3.04                     | 0.46              |
| 1:F1:137:A:C6      | 1:F1:138:C:C4      | 3.04                     | 0.46              |
| 1:F1:144:A:C2'     | 1:F1:145:A:H5'     | 2.46                     | 0.46              |
| 1:F1:222:A:C6      | 1:F1:223:C:C4      | 3.04                     | 0.46              |
| 1:F1:550:G:C5      | 1:F1:551:U:C5      | 3.04                     | 0.46              |
| 1:F1:591:G:H8      | 1:F1:591:G:H5'     | 1.81                     | 0.46              |
| 1:F1:832:A:H3'     | 1:F1:833:A:H5''    | 1.97                     | 0.46              |
| 1:F1:1063:C:C4     | 1:F1:1064:C:C5     | 3.03                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1414:C:N3     | 1:F1:1415:C:C5     | 2.84                     | 0.46              |
| 1:F1:1428:G:H2'    | 1:F1:1429:C:H6     | 1.81                     | 0.46              |
| 1:F1:1505:C:C3'    | 1:F1:1506:G:H5'    | 2.46                     | 0.46              |
| 1:F1:1521:U:H1'    | 3:FB:44:TRP:CZ2    | 2.51                     | 0.46              |
| 1:F1:1589:G:C5     | 1:F1:1605:G:C2     | 3.04                     | 0.46              |
| 1:F1:2194:G:O2'    | 1:F1:2195:U:H5'    | 2.15                     | 0.46              |
| 1:F1:2300:G:O5'    | 1:F1:2300:G:C8     | 2.68                     | 0.46              |
| 1:F1:2719:A:H2'    | 1:F1:2720:G:C8     | 2.48                     | 0.46              |
| 1:F1:3331:C:C4'    | 1:F1:3332:A:H5''   | 2.46                     | 0.46              |
| 3:FB:12:ARG:O      | 3:FB:15:ARG:HB3    | 2.15                     | 0.46              |
| 5:FE:7:GLY:C       | 5:FE:9:ASN:N       | 2.74                     | 0.46              |
| 5:FE:180:LEU:HD21  | 5:FE:186:PRO:HG3   | 1.98                     | 0.46              |
| 7:FG:15:ALA:O      | 7:FG:19:ARG:HG3    | 2.16                     | 0.46              |
| 8:FH:11:PRO:CG     | 8:FH:12:THR:N      | 2.78                     | 0.46              |
| 13:FN:111:ARG:O    | 13:FN:115:LYS:HG3  | 2.16                     | 0.46              |
| 14:FO:106:PHE:O    | 14:FO:107:ALA:C    | 2.59                     | 0.46              |
| 18:FU:166:VAL:O    | 18:FU:169:ILE:N    | 2.49                     | 0.46              |
| 19:FX:34:THR:CG2   | 19:FX:35:LYS:N     | 2.79                     | 0.46              |
| 19:FX:58:ASN:HD21  | 19:FX:136:GLN:NE2  | 2.14                     | 0.46              |
| 20:G2:153:A:OP1    | 27:GF:79:LYS:HE3   | 2.16                     | 0.46              |
| 21:G3:39:U:H4'     | 25:GD:44:GLU:HB3   | 1.98                     | 0.46              |
| 22:GA:71:LYS:NZ    | 1:H1:2517:G:O6     | 2.47                     | 0.46              |
| 23:GB:54:THR:CG2   | 23:GB:358:ASP:HB3  | 2.46                     | 0.46              |
| 23:GB:119:TYR:HE1  | 1:H1:3255:A:H5'    | 1.80                     | 0.46              |
| 24:GC:34:ARG:NE    | 35:GN:24:ASN:HB2   | 2.31                     | 0.46              |
| 24:GC:195:ARG:NH1  | 24:GC:204:ARG:HB2  | 2.30                     | 0.46              |
| 25:GD:9:MET:O      | 25:GD:134:PRO:HD3  | 2.15                     | 0.46              |
| 29:GH:34:TYR:HB2   | 1:H1:1034:U:O2'    | 2.16                     | 0.46              |
| 30:GI:11:LYS:O     | 30:GI:13:HIS:CD2   | 2.68                     | 0.46              |
| 30:GI:35:VAL:CG1   | 30:GI:107:ILE:HG12 | 2.45                     | 0.46              |
| 39:GR:84:MET:HG2   | 39:GR:89:THR:O     | 2.15                     | 0.46              |
| 39:GR:113:VAL:HG13 | 39:GR:138:SER:CB   | 2.46                     | 0.46              |
| 39:GR:150:ILE:H    | 39:GR:150:ILE:CD1  | 2.19                     | 0.46              |
| 42:GU:44:LYS:O     | 42:GU:47:ARG:HB2   | 2.16                     | 0.46              |
| 43:GV:114:PHE:CZ   | 43:GV:124:ILE:HD11 | 2.50                     | 0.46              |
| 44:GW:81:GLU:HA    | 44:GW:81:GLU:OE1   | 2.16                     | 0.46              |
| 1:H1:186:U:C2      | 1:H1:230:G:O6      | 2.69                     | 0.46              |
| 1:H1:641:U:O4'     | 1:H1:3233:A:N6     | 2.48                     | 0.46              |
| 1:H1:1028:A:H2     | 1:H1:1076:U:O2'    | 1.98                     | 0.46              |
| 1:H1:1249:G:H2'    | 1:H1:1312:G:H22    | 1.80                     | 0.46              |
| 1:H1:1318:A:H2'    | 1:H1:1319:C:H5''   | 1.97                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1322:G:H2'   | 1:H1:1323:C:C6     | 2.51                     | 0.46              |
| 1:H1:1352:U:H2'   | 1:H1:1353:G:C8     | 2.51                     | 0.46              |
| 1:H1:1540:U:C5    | 1:H1:1865:A:N3     | 2.84                     | 0.46              |
| 1:H1:2240:C:H2'   | 1:H1:2241:G:O5'    | 2.16                     | 0.46              |
| 1:H1:2517:G:C4'   | 1:H1:2518:A:OP2    | 2.58                     | 0.46              |
| 1:H1:2650:U:H2'   | 1:H1:2651:A:C8     | 2.51                     | 0.46              |
| 1:H1:2690:U:H5'   | 1:H1:2694:A:N6     | 2.30                     | 0.46              |
| 1:H1:3097:G:P     | 10:HK:112:LYS:HZ1  | 2.39                     | 0.46              |
| 1:H1:3183:A:H4'   | 1:H1:3184:A:OP1    | 2.16                     | 0.46              |
| 4:HC:10:THR:C     | 4:HC:18:HIS:ND1    | 2.75                     | 0.46              |
| 4:HC:19:THR:HG22  | 4:HC:20:ASN:N      | 2.30                     | 0.46              |
| 5:HE:136:GLU:OE1  | 5:HE:139:LYS:HD2   | 2.16                     | 0.46              |
| 6:HF:28:VAL:CG1   | 6:HF:66:ASN:H      | 2.26                     | 0.46              |
| 14:HO:27:ASP:OD2  | 14:HO:42:PHE:HD1   | 1.98                     | 0.46              |
| 18:HU:58:LYS:HB2  | 18:HU:63:TYR:CB    | 2.43                     | 0.46              |
| 18:HU:154:VAL:N   | 18:HU:155:PRO:HD3  | 2.31                     | 0.46              |
| 1:A1:199:A:C4     | 1:A1:201:A:C8      | 3.05                     | 0.45              |
| 1:A1:481:C:O2'    | 1:A1:482:G:H5'     | 2.16                     | 0.45              |
| 1:A1:727:C:H2'    | 1:A1:728:G:H8      | 1.82                     | 0.45              |
| 1:A1:831:A:H2'    | 1:A1:832:A:C8      | 2.51                     | 0.45              |
| 1:A1:1039:G:N2    | 1:A1:1064:C:N3     | 2.64                     | 0.45              |
| 1:A1:1334:G:N3    | 1:A1:1335:A:C2     | 2.83                     | 0.45              |
| 1:A1:1385:C:O2'   | 1:A1:1386:U:H5'    | 2.16                     | 0.45              |
| 1:A1:1413:G:O2'   | 45:BX:80:ASN:HB3   | 2.15                     | 0.45              |
| 1:A1:1685:A:H2'   | 1:A1:1686:G:C8     | 2.51                     | 0.45              |
| 1:A1:1919:A:H5'   | 1:A1:1919:A:C8     | 2.49                     | 0.45              |
| 1:A1:2369:C:O2    | 1:A1:2369:C:C2'    | 2.63                     | 0.45              |
| 1:A1:2377:G:H2'   | 1:A1:2378:A:H5'    | 1.97                     | 0.45              |
| 1:A1:2432:G:H2'   | 1:A1:2433:A:O4'    | 2.16                     | 0.45              |
| 1:A1:2769:U:H2'   | 1:A1:2770:U:O4'    | 2.16                     | 0.45              |
| 1:A1:2815:U:O2'   | 1:A1:2817:U:O4     | 2.33                     | 0.45              |
| 1:A1:3036:U:C4    | 1:A1:3037:A:N6     | 2.84                     | 0.45              |
| 9:AJ:97:ILE:HD12  | 9:AJ:104:LEU:CD1   | 2.45                     | 0.45              |
| 9:AJ:111:ASN:OD1  | 9:AJ:111:ASN:C     | 2.59                     | 0.45              |
| 9:AJ:159:GLY:O    | 9:AJ:221:ILE:HD13  | 2.15                     | 0.45              |
| 12:AM:43:ILE:HG21 | 12:AM:56:ILE:HD13  | 1.97                     | 0.45              |
| 13:AN:54:THR:HG22 | 13:AN:55:LYS:N     | 2.32                     | 0.45              |
| 13:AN:122:TYR:O   | 13:AN:125:ILE:HG13 | 2.16                     | 0.45              |
| 15:AP:39:ILE:HG23 | 15:AP:55:THR:O     | 2.16                     | 0.45              |
| 19:AX:44:PHE:CD1  | 19:AX:137:ILE:HD11 | 2.50                     | 0.45              |
| 19:AX:167:LYS:HE2 | 30:BI:125:VAL:HG12 | 1.97                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:AX:188:THR:O    | 19:AX:189:PHE:CB   | 2.64                     | 0.45              |
| 22:BA:203:VAL:HA   | 22:BA:213:GLY:HA2  | 1.98                     | 0.45              |
| 23:BB:68:ASN:O     | 23:BB:70:LYS:HG3   | 2.16                     | 0.45              |
| 29:BH:42:THR:HG23  | 29:BH:192:THR:CG2  | 2.44                     | 0.45              |
| 29:BH:201:GLY:O    | 29:BH:208:ARG:NH2  | 2.49                     | 0.45              |
| 30:BI:156:GLU:OE1  | 30:BI:156:GLU:HA   | 2.15                     | 0.45              |
| 31:BJ:57:SER:O     | 31:BJ:58:ILE:C     | 2.58                     | 0.45              |
| 33:BL:64:VAL:CG2   | 33:BL:106:VAL:CG2  | 2.94                     | 0.45              |
| 33:BL:136:ASP:HA   | 33:BL:137:PRO:HD2  | 1.78                     | 0.45              |
| 34:BM:283:THR:HG22 | 34:BM:285:ALA:N    | 2.29                     | 0.45              |
| 35:BN:38:VAL:HG13  | 35:BN:47:GLN:HG2   | 1.98                     | 0.45              |
| 36:BO:41:ILE:O     | 36:BO:44:LEU:HB2   | 2.16                     | 0.45              |
| 36:BO:96:MET:CE    | 36:BO:100:ARG:NH2  | 2.79                     | 0.45              |
| 39:BR:69:SER:O     | 39:BR:95:HIS:HB2   | 2.17                     | 0.45              |
| 42:BU:78:SER:O     | 42:BU:79:LEU:HB2   | 2.16                     | 0.45              |
| 45:BX:22:PHE:CD2   | 45:BX:23:GLU:HG3   | 2.52                     | 0.45              |
| 46:BY:21:SER:O     | 46:BY:25:VAL:HG23  | 2.16                     | 0.45              |
| 23:CB:257:ARG:HD3  | 30:CI:63:HIS:CE1   | 2.51                     | 0.45              |
| 24:CC:77:ALA:N     | 1:D1:2397:A:OP1    | 2.49                     | 0.45              |
| 25:CD:12:VAL:O     | 25:CD:12:VAL:HG23  | 2.15                     | 0.45              |
| 27:CF:48:PRO:O     | 27:CF:49:ARG:C     | 2.59                     | 0.45              |
| 27:CF:237:LYS:O    | 27:CF:241:LEU:HG   | 2.15                     | 0.45              |
| 29:CH:58:GLU:OE2   | 29:CH:160:PRO:HB2  | 2.17                     | 0.45              |
| 30:CI:91:THR:HG22  | 30:CI:93:LYS:H     | 1.81                     | 0.45              |
| 30:CI:155:LEU:HD13 | 1:D1:3205:A:C8     | 2.51                     | 0.45              |
| 33:CL:147:ARG:HE   | 42:CU:105:LEU:HD21 | 1.81                     | 0.45              |
| 38:CQ:39:LYS:HE2   | 38:CQ:119:GLY:N    | 2.30                     | 0.45              |
| 39:CR:124:ILE:HD13 | 1:D1:1520:U:C4     | 2.52                     | 0.45              |
| 43:CV:12:LYS:NZ    | 1:D1:1376:A:H3'    | 2.31                     | 0.45              |
| 46:CY:10:ILE:O     | 46:CY:13:LYS:HG2   | 2.17                     | 0.45              |
| 1:D1:89:G:H1'      | 1:D1:93:A:N6       | 2.31                     | 0.45              |
| 1:D1:312:U:H2'     | 1:D1:313:U:H6      | 1.81                     | 0.45              |
| 1:D1:608:C:H2'     | 1:D1:609:A:O5'     | 2.15                     | 0.45              |
| 1:D1:683:G:H2'     | 1:D1:684:A:N7      | 2.31                     | 0.45              |
| 1:D1:1046:G:H2'    | 1:D1:1047:G:O4'    | 2.16                     | 0.45              |
| 1:D1:1065:U:H2'    | 1:D1:1066:A:H8     | 1.80                     | 0.45              |
| 1:D1:1222:A:C2     | 1:D1:1336:U:C2     | 3.04                     | 0.45              |
| 1:D1:1667:A:C2'    | 1:D1:1668:A:O5'    | 2.64                     | 0.45              |
| 1:D1:2123:U:O2'    | 1:D1:2124:C:H5'    | 2.16                     | 0.45              |
| 1:D1:2187:C:H2'    | 1:D1:2188:U:C5'    | 2.46                     | 0.45              |
| 1:D1:2434:A:C2     | 1:D1:2504:U:C2     | 3.04                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2715:C:H3'    | 1:D1:2717:G:H21    | 1.81                     | 0.45              |
| 1:D1:3019:G:C5     | 1:D1:3020:G:C5     | 3.04                     | 0.45              |
| 1:D1:3175:A:C2     | 1:D1:3177:G:C6     | 3.04                     | 0.45              |
| 1:D1:3183:A:H4'    | 1:D1:3184:A:OP1    | 2.16                     | 0.45              |
| 1:D1:3298:U:C1'    | 1:D1:3299:G:P      | 3.04                     | 0.45              |
| 2:DA:59:GLY:O      | 2:DA:62:THR:HB     | 2.16                     | 0.45              |
| 4:DC:93:ASP:O      | 4:DC:97:ILE:HG13   | 2.15                     | 0.45              |
| 7:DG:43:PHE:CD1    | 7:DG:68:HIS:HD2    | 2.33                     | 0.45              |
| 8:DH:57:VAL:HG22   | 8:DH:74:TRP:CE3    | 2.51                     | 0.45              |
| 9:DJ:4:ARG:HA      | 9:DJ:206:CYS:O     | 2.16                     | 0.45              |
| 12:DM:23:GLN:HB3   | 12:DM:109:TYR:HE1  | 1.80                     | 0.45              |
| 13:DN:111:ARG:O    | 13:DN:115:LYS:HG3  | 2.16                     | 0.45              |
| 14:DO:27:ASP:OD2   | 14:DO:42:PHE:HD1   | 1.98                     | 0.45              |
| 18:DU:177:VAL:O    | 18:DU:180:ILE:HB   | 2.16                     | 0.45              |
| 21:E3:10:C:N3      | 34:EM:20:TYR:CD1   | 2.83                     | 0.45              |
| 22:EA:33:TYR:CD1   | 22:EA:164:ARG:NH2  | 2.83                     | 0.45              |
| 22:EA:208:VAL:HG21 | 1:F1:941:G:C5      | 2.50                     | 0.45              |
| 24:EC:125:LYS:HD3  | 1:F1:719:C:OP1     | 2.15                     | 0.45              |
| 24:EC:164:GLU:OE1  | 24:EC:218:ASN:HB2  | 2.17                     | 0.45              |
| 24:EC:258:TRP:HZ3  | 24:EC:266:LEU:HD21 | 1.79                     | 0.45              |
| 24:EC:303:GLU:OE1  | 24:EC:303:GLU:N    | 2.41                     | 0.45              |
| 25:ED:65:MET:HE1   | 1:F1:2670:U:O4'    | 2.16                     | 0.45              |
| 25:ED:94:LYS:O     | 1:F1:2661:G:H5''   | 2.16                     | 0.45              |
| 31:EJ:91:ARG:HD2   | 31:EJ:97:ILE:CD1   | 2.45                     | 0.45              |
| 32:EK:121:GLN:HA   | 32:EK:122:PRO:HD3  | 1.61                     | 0.45              |
| 33:EL:120:TRP:CE2  | 33:EL:122:GLY:CA   | 2.99                     | 0.45              |
| 33:EL:160:GLU:HG2  | 33:EL:161:LEU:HG   | 1.97                     | 0.45              |
| 35:EN:25:VAL:CG1   | 14:FO:7:GLU:HB2    | 2.46                     | 0.45              |
| 37:EP:42:ILE:HG23  | 37:EP:57:TYR:O     | 2.16                     | 0.45              |
| 40:ES:55:VAL:CG1   | 40:ES:56:LEU:N     | 2.79                     | 0.45              |
| 40:ES:125:LEU:HD21 | 1:F1:186:U:O3'     | 2.16                     | 0.45              |
| 45:EX:80:ASN:HB2   | 45:EX:81:PRO:CD    | 2.35                     | 0.45              |
| 45:EX:105:GLN:HG3  | 45:EX:106:VAL:N    | 2.31                     | 0.45              |
| 1:F1:77:A:C2       | 1:F1:324:A:N3      | 2.84                     | 0.45              |
| 1:F1:186:U:C2      | 1:F1:230:G:O6      | 2.69                     | 0.45              |
| 1:F1:449:G:C4      | 1:F1:450:C:C5      | 3.04                     | 0.45              |
| 1:F1:467:A:C5      | 1:F1:468:A:C5      | 3.04                     | 0.45              |
| 1:F1:528:C:H6      | 1:F1:528:C:C5'     | 2.27                     | 0.45              |
| 1:F1:726:G:C5      | 1:F1:727:C:C4      | 3.04                     | 0.45              |
| 1:F1:761:A:H8      | 1:F1:761:A:O5'     | 1.99                     | 0.45              |
| 1:F1:1053:A:H1'    | 1:F1:1054:G:P      | 2.57                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1178:U:H3'    | 1:F1:1179:G:C8     | 2.51                     | 0.45              |
| 1:F1:1186:A:O2'    | 1:F1:1187:C:P      | 2.72                     | 0.45              |
| 1:F1:1233:G:C2'    | 1:F1:1234:G:H5'    | 2.46                     | 0.45              |
| 1:F1:1474:U:C5     | 1:F1:2350:G:N2     | 2.84                     | 0.45              |
| 1:F1:1907:A:H2'    | 1:F1:1908:A:H8     | 1.80                     | 0.45              |
| 1:F1:2261:U:H2'    | 1:F1:2262:C:C6     | 2.50                     | 0.45              |
| 1:F1:2393:A:C2     | 1:F1:2394:A:C4     | 3.04                     | 0.45              |
| 1:F1:2902:G:O2'    | 1:F1:2922:A:N1     | 2.37                     | 0.45              |
| 2:FA:21:ARG:HH11   | 2:FA:44:MET:HE1    | 1.78                     | 0.45              |
| 3:FB:9:MET:O       | 3:FB:10:LYS:C      | 2.58                     | 0.45              |
| 12:FM:21:CYS:O     | 12:FM:24:PRO:HD2   | 2.15                     | 0.45              |
| 18:FU:58:LYS:CB    | 18:FU:63:TYR:HB3   | 2.46                     | 0.45              |
| 22:GA:33:TYR:HD1   | 22:GA:164:ARG:NH2  | 2.14                     | 0.45              |
| 22:GA:136:THR:HB   | 22:GA:150:ARG:HB3  | 1.98                     | 0.45              |
| 22:GA:153:SER:OG   | 1:H1:2153:G:N7     | 2.45                     | 0.45              |
| 23:GB:49:PHE:CD2   | 23:GB:333:VAL:HG12 | 2.50                     | 0.45              |
| 23:GB:54:THR:HG22  | 23:GB:55:HIS:H     | 1.72                     | 0.45              |
| 24:GC:33:ILE:CD1   | 24:GC:135:ALA:HA   | 2.46                     | 0.45              |
| 24:GC:164:GLU:HB3  | 24:GC:221:SER:HB3  | 1.98                     | 0.45              |
| 24:GC:359:LEU:HD21 | 24:GC:363:ARG:HH21 | 1.81                     | 0.45              |
| 26:GE:88:PHE:HD2   | 26:GE:152:VAL:CG1  | 2.30                     | 0.45              |
| 26:GE:88:PHE:HD2   | 26:GE:152:VAL:HG12 | 1.81                     | 0.45              |
| 27:GF:36:GLN:NE2   | 1:H1:2520:G:N1     | 2.64                     | 0.45              |
| 33:GL:191:ASN:O    | 33:GL:194:ALA:HB3  | 2.15                     | 0.45              |
| 35:GN:4:ASP:CG     | 43:GV:101:ARG:HH21 | 2.25                     | 0.45              |
| 36:GO:138:LEU:O    | 36:GO:142:ILE:HG13 | 2.15                     | 0.45              |
| 42:GU:7:VAL:HG13   | 42:GU:61:ILE:HD11  | 1.97                     | 0.45              |
| 42:GU:78:SER:O     | 42:GU:79:LEU:HB2   | 2.16                     | 0.45              |
| 43:GV:125:LYS:O    | 43:GV:128:LEU:HG   | 2.17                     | 0.45              |
| 46:GY:16:THR:HG21  | 1:H1:2316:A:O2'    | 2.16                     | 0.45              |
| 1:H1:112:A:N1      | 1:H1:265:A:O2'     | 2.47                     | 0.45              |
| 1:H1:170:A:C5      | 1:H1:250:U:N3      | 2.84                     | 0.45              |
| 1:H1:237:A:H4'     | 2:HA:87:PRO:O      | 2.16                     | 0.45              |
| 1:H1:402:U:H2'     | 1:H1:403:G:H5'     | 1.98                     | 0.45              |
| 1:H1:451:A:H2'     | 1:H1:452:U:O4'     | 2.16                     | 0.45              |
| 1:H1:608:C:H2'     | 1:H1:609:A:O5'     | 2.16                     | 0.45              |
| 1:H1:1147:A:H2'    | 1:H1:1148:U:C6     | 2.51                     | 0.45              |
| 1:H1:1181:A:C5'    | 1:H1:1182:C:OP2    | 2.64                     | 0.45              |
| 1:H1:1207:A:HO2'   | 1:H1:1208:U:P      | 2.31                     | 0.45              |
| 1:H1:1505:C:H2'    | 1:H1:1506:G:H5'    | 1.98                     | 0.45              |
| 1:H1:1573:A:O2'    | 1:H1:1574:C:H5'    | 2.15                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1598:C:C3'    | 1:H1:1599:G:H5'    | 2.45                     | 0.45              |
| 1:H1:2227:A:H2'    | 1:H1:2228:A:O4'    | 2.16                     | 0.45              |
| 1:H1:2308:A:OP1    | 50:H1:4239:HOH:O   | 2.20                     | 0.45              |
| 1:H1:2391:G:H5'    | 1:H1:2392:A:O5'    | 2.16                     | 0.45              |
| 1:H1:2605:C:C2'    | 1:H1:2606:U:H5'    | 2.47                     | 0.45              |
| 1:H1:2902:G:C6     | 1:H1:2903:U:N3     | 2.84                     | 0.45              |
| 1:H1:3028:A:H2'    | 1:H1:3029:A:C8     | 2.51                     | 0.45              |
| 2:HA:21:ARG:NE     | 2:HA:44:MET:HE1    | 2.30                     | 0.45              |
| 9:HJ:88:LEU:HD12   | 9:HJ:88:LEU:HA     | 1.63                     | 0.45              |
| 13:HN:9:ARG:HD2    | 13:HN:83:THR:O     | 2.14                     | 0.45              |
| 18:HU:72:GLY:HA3   | 18:HU:96:ASP:CB    | 2.44                     | 0.45              |
| 18:HU:74:THR:HB    | 18:HU:101:ASN:ND2  | 2.32                     | 0.45              |
| 1:A1:78:G:C2       | 1:A1:79:C:C6       | 3.04                     | 0.45              |
| 1:A1:439:A:H5''    | 5:AE:126:HIS:CB    | 2.46                     | 0.45              |
| 1:A1:458:G:H2'     | 1:A1:459:G:O4'     | 2.15                     | 0.45              |
| 1:A1:623:G:H22     | 5:AE:30:ARG:NH1    | 2.13                     | 0.45              |
| 1:A1:684:A:N1      | 1:A1:966:G:O2'     | 2.45                     | 0.45              |
| 1:A1:1094:G:H5'    | 37:BP:110:GLN:NE2  | 2.30                     | 0.45              |
| 1:A1:1121:G:O5'    | 1:A1:1121:G:H8     | 1.98                     | 0.45              |
| 1:A1:1394:G:O2'    | 1:A1:1395:U:H6     | 1.98                     | 0.45              |
| 1:A1:2221:U:H2'    | 1:A1:2222:C:C6     | 2.51                     | 0.45              |
| 1:A1:2569:A:HO2'   | 1:A1:2570:U:P      | 2.33                     | 0.45              |
| 1:A1:2914:A:H2'    | 1:A1:2915:C:H6     | 1.81                     | 0.45              |
| 1:A1:2921:A:C6     | 1:A1:2922:A:N1     | 2.84                     | 0.45              |
| 1:A1:3292:U:C5     | 41:BT:52:THR:HB    | 2.51                     | 0.45              |
| 18:AU:177:VAL:O    | 18:AU:180:ILE:HB   | 2.16                     | 0.45              |
| 18:AU:177:VAL:HG12 | 18:AU:181:ILE:HD11 | 1.98                     | 0.45              |
| 20:B2:29:U:O2'     | 24:BC:54:GLY:O     | 2.34                     | 0.45              |
| 21:B3:70:G:C2      | 21:B3:71:G:C8      | 3.04                     | 0.45              |
| 23:BB:304:THR:HG21 | 23:BB:314:VAL:HA   | 1.97                     | 0.45              |
| 27:BF:95:GLU:OE1   | 27:BF:100:LYS:CG   | 2.64                     | 0.45              |
| 27:BF:127:TYR:C    | 27:BF:127:TYR:HD1  | 2.21                     | 0.45              |
| 28:BG:23:UNK:HB1   | 28:BG:87:UNK:HB2   | 1.98                     | 0.45              |
| 31:BJ:7:ARG:HA     | 31:BJ:61:MET:HE2   | 1.97                     | 0.45              |
| 31:BJ:88:PRO:HA    | 31:BJ:97:ILE:O     | 2.17                     | 0.45              |
| 31:BJ:91:ARG:HD2   | 31:BJ:97:ILE:CD1   | 2.45                     | 0.45              |
| 32:BK:15:VAL:HG21  | 32:BK:21:ARG:HH21  | 1.81                     | 0.45              |
| 32:BK:129:TYR:CD1  | 32:BK:129:TYR:N    | 2.85                     | 0.45              |
| 33:BL:26:ARG:C     | 33:BL:30:TYR:HD1   | 2.24                     | 0.45              |
| 34:BM:264:THR:HG22 | 34:BM:264:THR:O    | 2.16                     | 0.45              |
| 35:BN:27:HIS:CD2   | 35:BN:31:ILE:HD11  | 2.50                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 20:C2:29:U:O2'     | 24:CC:54:GLY:O     | 2.32                     | 0.45              |
| 23:CB:54:THR:HG22  | 23:CB:55:HIS:H     | 1.71                     | 0.45              |
| 23:CB:121:ASN:HB2  | 1:D1:3275:A:C5     | 2.51                     | 0.45              |
| 23:CB:252:ALA:HB1  | 1:D1:2931:G:O2'    | 2.15                     | 0.45              |
| 23:CB:365:HIS:HA   | 41:CT:19:ARG:NH2   | 2.31                     | 0.45              |
| 24:CC:78:VAL:HG12  | 24:CC:83:ARG:NH2   | 2.30                     | 0.45              |
| 24:CC:205:ARG:HB3  | 24:CC:206:TYR:CD2  | 2.50                     | 0.45              |
| 26:CE:110:ILE:HD12 | 26:CE:159:ILE:HD11 | 1.98                     | 0.45              |
| 35:CN:174:PHE:O    | 35:CN:176:ARG:N    | 2.49                     | 0.45              |
| 47:CO:28:GLU:HB3   | 47:CO:49:LEU:HD13  | 1.96                     | 0.45              |
| 47:CO:118:HIS:CD2  | 1:D1:1742:G:OP1    | 2.69                     | 0.45              |
| 37:CP:27:ILE:O     | 37:CP:30:TYR:HB2   | 2.16                     | 0.45              |
| 40:CS:31:SER:HA    | 40:CS:49:VAL:HG23  | 1.98                     | 0.45              |
| 43:CV:74:VAL:HA    | 43:CV:75:PRO:HD2   | 1.83                     | 0.45              |
| 43:CV:166:VAL:HG12 | 43:CV:175:ILE:HG22 | 1.97                     | 0.45              |
| 1:D1:33:A:O2'      | 1:D1:34:C:H5'      | 2.16                     | 0.45              |
| 1:D1:199:A:N3      | 1:D1:201:A:C8      | 2.85                     | 0.45              |
| 1:D1:261:U:H2'     | 1:D1:262:C:H5'     | 1.98                     | 0.45              |
| 1:D1:357:G:N2      | 1:D1:360:A:OP2     | 2.47                     | 0.45              |
| 1:D1:398:G:O2'     | 1:D1:399:A:C8      | 2.61                     | 0.45              |
| 1:D1:486:C:H2'     | 1:D1:487:G:H5'     | 1.98                     | 0.45              |
| 1:D1:517:A:C4'     | 1:D1:518:G:OP1     | 2.61                     | 0.45              |
| 1:D1:636:U:H4'     | 5:DE:34:LYS:HE2    | 1.98                     | 0.45              |
| 1:D1:838:G:H1'     | 2:DA:50:TRP:CZ2    | 2.51                     | 0.45              |
| 1:D1:1065:U:H2'    | 1:D1:1066:A:C8     | 2.52                     | 0.45              |
| 1:D1:1095:C:C4'    | 1:D1:1096:G:OP2    | 2.63                     | 0.45              |
| 1:D1:1128:G:H2'    | 1:D1:1129:C:C6     | 2.51                     | 0.45              |
| 1:D1:1186:A:N3     | 1:D1:1186:A:C2'    | 2.75                     | 0.45              |
| 1:D1:1221:G:C6     | 1:D1:1222:A:N6     | 2.84                     | 0.45              |
| 1:D1:1223:U:O2'    | 1:D1:1224:A:H5'    | 2.15                     | 0.45              |
| 1:D1:1233:G:C2'    | 1:D1:1234:G:H5'    | 2.46                     | 0.45              |
| 1:D1:1464:U:H2'    | 1:D1:1465:U:H6     | 1.81                     | 0.45              |
| 1:D1:1533:G:H5''   | 1:D1:1533:G:C8     | 2.51                     | 0.45              |
| 1:D1:1700:A:P      | 12:DM:74:SER:HB2   | 2.56                     | 0.45              |
| 1:D1:1845:U:O2     | 11:DL:69:ARG:HB2   | 2.15                     | 0.45              |
| 1:D1:1907:A:H2'    | 1:D1:1908:A:C8     | 2.51                     | 0.45              |
| 1:D1:2251:A:O4'    | 46:EY:74:PRO:HG3   | 2.15                     | 0.45              |
| 1:D1:2303:C:C2'    | 1:D1:2304:A:OP1    | 2.64                     | 0.45              |
| 1:D1:2398:G:C5'    | 1:D1:2859:G:H5''   | 2.47                     | 0.45              |
| 1:D1:2664:C:H6     | 1:D1:2664:C:O5'    | 1.99                     | 0.45              |
| 1:D1:3092:A:H2'    | 1:D1:3093:U:O5'    | 2.16                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 8:DH:107:MET:HB3  | 8:DH:109:TYR:CE2   | 2.51                     | 0.45              |
| 12:DM:60:ASN:OD1  | 12:DM:60:ASN:O     | 2.33                     | 0.45              |
| 13:DN:9:ARG:HD2   | 13:DN:83:THR:O     | 2.16                     | 0.45              |
| 14:DO:13:ASN:OD1  | 14:DO:13:ASN:C     | 2.59                     | 0.45              |
| 14:DO:43:THR:HB   | 14:DO:44:HIS:H     | 1.62                     | 0.45              |
| 18:DU:100:LYS:HE3 | 18:DU:102:ARG:HH21 | 1.78                     | 0.45              |
| 18:DU:166:VAL:O   | 18:DU:169:ILE:N    | 2.49                     | 0.45              |
| 19:DX:56:TRP:O    | 19:DX:57:TYR:C     | 2.59                     | 0.45              |
| 22:EA:97:ILE:HD11 | 22:EA:109:PRO:HD3  | 1.98                     | 0.45              |
| 23:EB:121:ASN:HB2 | 1:F1:3275:A:C5     | 2.51                     | 0.45              |
| 30:EI:181:LEU:HG  | 30:EI:190:LYS:HE3  | 1.98                     | 0.45              |
| 32:EK:129:TYR:CD1 | 32:EK:129:TYR:N    | 2.83                     | 0.45              |
| 34:EM:15:ARG:HA   | 34:EM:15:ARG:HD3   | 1.83                     | 0.45              |
| 40:ES:3:THR:HB    | 1:F1:229:A:H5''    | 1.99                     | 0.45              |
| 44:EW:103:LEU:O   | 1:F1:3283:C:H4'    | 2.16                     | 0.45              |
| 46:EY:71:LEU:HD12 | 46:EY:71:LEU:C     | 2.41                     | 0.45              |
| 1:F1:70:C:C5      | 1:F1:72:A:C4       | 3.03                     | 0.45              |
| 1:F1:459:G:C5     | 1:F1:517:A:C6      | 3.04                     | 0.45              |
| 1:F1:500:G:O2'    | 1:F1:501:A:O5'     | 2.29                     | 0.45              |
| 1:F1:561:A:C2'    | 1:F1:562:G:H5'     | 2.46                     | 0.45              |
| 1:F1:768:A:O2'    | 1:F1:769:G:H5'     | 2.17                     | 0.45              |
| 1:F1:1051:C:N1    | 1:F1:1052:A:C8     | 2.84                     | 0.45              |
| 1:F1:1439:U:H2'   | 1:F1:1440:A:H8     | 1.81                     | 0.45              |
| 1:F1:1516:A:H3'   | 50:F1:4258:HOH:O   | 2.15                     | 0.45              |
| 1:F1:1808:A:H2'   | 1:F1:1809:C:H6     | 1.81                     | 0.45              |
| 1:F1:1963:G:C5    | 50:F1:4366:HOH:O   | 2.67                     | 0.45              |
| 1:F1:2113:A:H2'   | 1:F1:2114:C:O4'    | 2.16                     | 0.45              |
| 1:F1:2260:C:H2'   | 1:F1:2261:U:C6     | 2.51                     | 0.45              |
| 1:F1:2552:A:H2'   | 1:F1:2553:G:H5'    | 1.98                     | 0.45              |
| 1:F1:2815:U:O2'   | 1:F1:2817:U:O4     | 2.34                     | 0.45              |
| 1:F1:2844:G:H2'   | 1:F1:2845:C:H6     | 1.81                     | 0.45              |
| 1:F1:2954:G:O2'   | 1:F1:2955:A:H5'    | 2.17                     | 0.45              |
| 1:F1:2958:C:O2'   | 1:F1:2959:A:N7     | 2.43                     | 0.45              |
| 1:F1:3198:A:C6    | 1:F1:3199:G:C6     | 3.04                     | 0.45              |
| 1:F1:3251:C:H5'   | 1:F1:3251:C:H6     | 1.81                     | 0.45              |
| 4:FC:19:THR:HG22  | 4:FC:20:ASN:O      | 2.15                     | 0.45              |
| 6:FF:28:VAL:CG1   | 6:FF:66:ASN:N      | 2.79                     | 0.45              |
| 8:FH:54:LYS:CD    | 8:FH:110:PRO:HG2   | 2.42                     | 0.45              |
| 9:FJ:4:ARG:NE     | 9:FJ:215:ILE:HD11  | 2.31                     | 0.45              |
| 13:FN:54:THR:CG2  | 13:FN:56:ARG:H     | 2.26                     | 0.45              |
| 20:G2:107:C:C5    | 20:G2:135:A:C4     | 3.05                     | 0.45              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 20:G2:111:A:H2'    | 20:G2:112:G:H5''  | 1.96                     | 0.45              |
| 24:GC:260:GLU:OE1  | 24:GC:264:LYS:HE3 | 2.16                     | 0.45              |
| 24:GC:276:THR:HG23 | 24:GC:277:GLY:H   | 1.80                     | 0.45              |
| 24:GC:376:TRP:CB   | 1:H1:564:A:O2'    | 2.56                     | 0.45              |
| 27:GF:71:HIS:O     | 27:GF:74:THR:OG1  | 2.33                     | 0.45              |
| 30:GI:63:HIS:CD2   | 30:GI:64:ASN:HB2  | 2.52                     | 0.45              |
| 32:GK:84:VAL:CG1   | 1:H1:485:A:H2'    | 2.46                     | 0.45              |
| 33:GL:19:MET:HA    | 33:GL:19:MET:CE   | 2.41                     | 0.45              |
| 34:GM:230:LYS:O    | 34:GM:234:THR:HB  | 2.16                     | 0.45              |
| 35:GN:92:ARG:NE    | 1:H1:810:G:N7     | 2.64                     | 0.45              |
| 37:GP:139:VAL:HG21 | 19:HX:30:ILE:CD1  | 2.38                     | 0.45              |
| 1:H1:116:U:H3'     | 1:H1:117:G:C8     | 2.51                     | 0.45              |
| 1:H1:131:G:C6      | 1:H1:133:C:H1'    | 2.51                     | 0.45              |
| 1:H1:237:A:C4'     | 2:HA:88:LYS:HA    | 2.47                     | 0.45              |
| 1:H1:481:C:O2'     | 1:H1:482:G:H5'    | 2.17                     | 0.45              |
| 1:H1:608:C:C2'     | 1:H1:609:A:O5'    | 2.64                     | 0.45              |
| 1:H1:723:U:O3'     | 1:H1:724:C:H6     | 1.99                     | 0.45              |
| 1:H1:1361:U:C5'    | 1:H1:1361:U:C6    | 2.92                     | 0.45              |
| 1:H1:2146:G:O2'    | 1:H1:2184:U:OP1   | 2.33                     | 0.45              |
| 1:H1:2385:A:O4'    | 1:H1:3267:A:C6    | 2.69                     | 0.45              |
| 1:H1:2990:U:O2'    | 1:H1:2991:U:H5'   | 2.16                     | 0.45              |
| 1:H1:3000:A:H4'    | 1:H1:3001:A:H4'   | 1.96                     | 0.45              |
| 1:H1:3205:A:O2'    | 1:H1:3206:A:OP1   | 2.33                     | 0.45              |
| 6:HF:29:ASN:OD1    | 19:HX:109:ARG:NH2 | 2.50                     | 0.45              |
| 8:HH:57:VAL:HG22   | 8:HH:74:TRP:CE3   | 2.51                     | 0.45              |
| 9:HJ:117:ILE:HD11  | 9:HJ:139:ARG:HE   | 1.81                     | 0.45              |
| 9:HJ:197:LEU:HD12  | 9:HJ:205:PHE:O    | 2.16                     | 0.45              |
| 12:HM:110:PHE:O    | 12:HM:111:ASN:CB  | 2.65                     | 0.45              |
| 19:HX:92:VAL:O     | 19:HX:138:ILE:N   | 2.43                     | 0.45              |
| 1:A1:16:G:OP2      | 39:BR:51:TYR:CE1  | 2.69                     | 0.45              |
| 1:A1:439:A:N6      | 1:A1:539:A:H1'    | 2.32                     | 0.45              |
| 1:A1:810:G:H3'     | 1:A1:811:A:H8     | 1.79                     | 0.45              |
| 1:A1:1049:U:C2     | 1:A1:1056:A:C2    | 3.04                     | 0.45              |
| 1:A1:1107:A:C4     | 1:A1:1108:A:C8    | 3.04                     | 0.45              |
| 1:A1:1146:C:N4     | 17:AT:10:LYS:NZ   | 2.54                     | 0.45              |
| 1:A1:1150:U:H2'    | 1:A1:1151:U:O4'   | 2.16                     | 0.45              |
| 1:A1:1221:G:H8     | 1:A1:1221:G:O5'   | 1.99                     | 0.45              |
| 1:A1:1652:U:H5''   | 1:A1:1655:A:H4'   | 1.98                     | 0.45              |
| 1:A1:1680:A:H4'    | 1:A1:1681:C:O5'   | 2.16                     | 0.45              |
| 1:A1:1817:C:H2'    | 1:A1:1818:C:C6    | 2.52                     | 0.45              |
| 1:A1:2265:A:N1     | 1:A1:2266:A:C2    | 2.84                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2599:G:H2'    | 1:A1:2600:U:O4'    | 2.15                     | 0.45              |
| 1:A1:2624:A:O4'    | 1:A1:2625:A:C2     | 2.70                     | 0.45              |
| 1:A1:2939:G:H21    | 1:A1:2940:G:H1'    | 1.81                     | 0.45              |
| 1:A1:3021:A:C2     | 1:A1:3022:A:C4     | 3.04                     | 0.45              |
| 1:A1:3115:C:H2'    | 1:A1:3116:A:O5'    | 2.17                     | 0.45              |
| 1:A1:3175:A:C2     | 1:A1:3177:G:C6     | 3.05                     | 0.45              |
| 6:AF:14:TYR:CE1    | 6:AF:90:PHE:HE2    | 2.34                     | 0.45              |
| 6:AF:28:VAL:CG1    | 6:AF:66:ASN:N      | 2.80                     | 0.45              |
| 9:AJ:102:SER:H     | 31:BJ:139:SER:CB   | 2.28                     | 0.45              |
| 10:AK:86:ALA:HB1   | 26:BE:174:LEU:HB3  | 1.98                     | 0.45              |
| 12:AM:16:GLY:HA2   | 12:AM:67:VAL:O     | 2.16                     | 0.45              |
| 19:AX:93:LEU:CD2   | 19:AX:120:LEU:HD21 | 2.44                     | 0.45              |
| 20:B2:148:U:O2'    | 27:BF:58:ARG:NH1   | 2.38                     | 0.45              |
| 22:BA:43:ARG:O     | 22:BA:43:ARG:HG3   | 2.16                     | 0.45              |
| 23:BB:119:TYR:CE2  | 23:BB:122:TRP:CZ3  | 2.98                     | 0.45              |
| 24:BC:182:TYR:CE2  | 24:BC:186:LEU:HG   | 2.50                     | 0.45              |
| 24:BC:213:LEU:HD12 | 24:BC:234:ASP:C    | 2.40                     | 0.45              |
| 25:BD:30:LEU:HD23  | 25:BD:30:LEU:HA    | 1.73                     | 0.45              |
| 28:BG:9:UNK:O      | 28:BG:13:UNK:HB2   | 2.15                     | 0.45              |
| 32:BK:77:ILE:HG23  | 32:BK:118:LEU:HG   | 1.97                     | 0.45              |
| 34:BM:66:TYR:CZ    | 34:BM:73:ARG:HB2   | 2.50                     | 0.45              |
| 36:BO:84:THR:HB    | 36:BO:87:ALA:H     | 1.81                     | 0.45              |
| 42:BU:81:PRO:HG2   | 42:BU:84:ILE:HD12  | 1.98                     | 0.45              |
| 43:BV:114:PHE:CZ   | 43:BV:124:ILE:HD11 | 2.50                     | 0.45              |
| 43:BV:145:ILE:HD12 | 43:BV:182:ILE:HG12 | 1.97                     | 0.45              |
| 46:BY:64:ILE:HD11  | 46:BY:71:LEU:CD1   | 2.33                     | 0.45              |
| 21:C3:64:A:OP1     | 29:CH:203:ARG:O    | 2.34                     | 0.45              |
| 23:CB:78:VAL:HG21  | 23:CB:303:ILE:HG21 | 1.97                     | 0.45              |
| 23:CB:281:TYR:OH   | 23:CB:323:LYS:HD2  | 2.17                     | 0.45              |
| 23:CB:365:HIS:HA   | 41:CT:19:ARG:HH22  | 1.81                     | 0.45              |
| 24:CC:153:GLN:OE1  | 24:CC:153:GLN:HA   | 2.16                     | 0.45              |
| 26:CE:171:ARG:HB3  | 10:DK:91:CYS:SG    | 2.55                     | 0.45              |
| 32:CK:98:LYS:HA    | 18:DU:166:VAL:CG2  | 2.46                     | 0.45              |
| 33:CL:55:ASN:HB2   | 1:D1:148:G:H4'     | 1.97                     | 0.45              |
| 33:CL:78:GLY:HA2   | 33:CL:89:ILE:HD12  | 1.98                     | 0.45              |
| 34:CM:19:LYS:O     | 34:CM:24:ARG:NH1   | 2.49                     | 0.45              |
| 34:CM:163:LEU:HD11 | 34:CM:173:ILE:CG2  | 2.47                     | 0.45              |
| 35:CN:146:ARG:CB   | 35:CN:149:TYR:CE2  | 2.99                     | 0.45              |
| 47:CO:11:ALA:HB3   | 47:CO:22:LEU:HD13  | 1.98                     | 0.45              |
| 38:CQ:8:ARG:HD3    | 38:CQ:118:HIS:HB2  | 1.99                     | 0.45              |
| 42:CU:119:LYS:HB3  | 18:DU:124:PHE:CD1  | 2.52                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:CV:12:LYS:HZ1   | 1:D1:1376:A:C3'    | 2.28                     | 0.45              |
| 43:CV:157:ARG:HG3  | 43:CV:200:TRP:CD2  | 2.51                     | 0.45              |
| 45:CX:113:ARG:O    | 45:CX:117:LEU:HG   | 2.17                     | 0.45              |
| 1:D1:47:G:HO2'     | 1:D1:48:U:P        | 2.38                     | 0.45              |
| 1:D1:186:U:C2      | 1:D1:230:G:O6      | 2.70                     | 0.45              |
| 1:D1:331:C:C2'     | 1:D1:332:G:H5''    | 2.44                     | 0.45              |
| 1:D1:439:A:N6      | 1:D1:539:A:H1'     | 2.31                     | 0.45              |
| 1:D1:640:G:H2'     | 1:D1:641:U:C6      | 2.52                     | 0.45              |
| 1:D1:979:U:C1'     | 17:DT:12:GLN:HE21  | 2.21                     | 0.45              |
| 1:D1:1056:A:C5     | 1:D1:1057:U:C5     | 3.05                     | 0.45              |
| 1:D1:1146:C:N4     | 17:DT:10:LYS:HZ3   | 2.12                     | 0.45              |
| 1:D1:1371:G:H8     | 1:D1:1371:G:H5'    | 1.80                     | 0.45              |
| 1:D1:1531:C:C4     | 1:D1:1532:A:N7     | 2.85                     | 0.45              |
| 1:D1:1592:G:N2     | 1:D1:1602:U:H1'    | 2.31                     | 0.45              |
| 1:D1:1658:G:O6     | 13:DN:17:ARG:HD2   | 2.17                     | 0.45              |
| 1:D1:1743:G:H4'    | 1:D1:1756:U:H4'    | 1.98                     | 0.45              |
| 1:D1:1869:G:O2'    | 2:DA:5:THR:HA      | 2.15                     | 0.45              |
| 1:D1:1880:C:H1'    | 11:DL:7:TYR:HE1    | 1.81                     | 0.45              |
| 1:D1:2291:A:O2'    | 1:D1:2916:C:O2'    | 2.34                     | 0.45              |
| 1:D1:3179:U:H2'    | 1:D1:3180:C:H6     | 1.77                     | 0.45              |
| 3:DB:15:ARG:NH2    | 50:DB:101:HOH:O    | 2.49                     | 0.45              |
| 4:DC:19:THR:HB     | 4:DC:21:HIS:NE2    | 2.32                     | 0.45              |
| 4:DC:83:ILE:HG22   | 4:DC:84:LYS:N      | 2.31                     | 0.45              |
| 6:DF:7:VAL:HG23    | 6:DF:55:LEU:HD11   | 1.98                     | 0.45              |
| 6:DF:30:ILE:HD12   | 19:DX:161:LEU:HD23 | 1.98                     | 0.45              |
| 6:DF:32:ASN:OD1    | 6:DF:32:ASN:C      | 2.60                     | 0.45              |
| 7:DG:43:PHE:CD2    | 7:DG:90:MET:HE2    | 2.52                     | 0.45              |
| 8:DH:20:PHE:C      | 8:DH:20:PHE:HD1    | 2.25                     | 0.45              |
| 8:DH:47:ASP:N      | 8:DH:47:ASP:OD1    | 2.49                     | 0.45              |
| 11:DL:73:THR:HG22  | 11:DL:74:VAL:N     | 2.27                     | 0.45              |
| 12:DM:51:ASN:C     | 12:DM:53:GLY:H     | 2.23                     | 0.45              |
| 17:DT:30:ILE:HG22  | 17:DT:31:SER:N     | 2.31                     | 0.45              |
| 19:DX:170:HIS:ND1  | 19:DX:170:HIS:C    | 2.74                     | 0.45              |
| 20:E2:28:G:C5      | 20:E2:29:U:C5      | 3.05                     | 0.45              |
| 22:EA:33:TYR:HD1   | 22:EA:164:ARG:NH2  | 2.14                     | 0.45              |
| 22:EA:133:CYS:O    | 22:EA:170:VAL:HG23 | 2.16                     | 0.45              |
| 23:EB:62:ARG:CG    | 23:EB:62:ARG:NH1   | 2.72                     | 0.45              |
| 23:EB:119:TYR:HE1  | 1:F1:3255:A:H5'    | 1.81                     | 0.45              |
| 24:EC:308:VAL:HG11 | 35:EN:40:ARG:HH11  | 1.76                     | 0.45              |
| 24:EC:405:ILE:HD12 | 29:EH:183:ARG:HE   | 1.79                     | 0.45              |
| 26:EE:88:PHE:HD2   | 26:EE:152:VAL:HG12 | 1.82                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:EF:50:TYR:CZ    | 27:EF:51:ILE:HG23  | 2.51                     | 0.45              |
| 30:EI:11:LYS:O     | 30:EI:13:HIS:CD2   | 2.69                     | 0.45              |
| 32:EK:3:SER:OG     | 1:F1:1454:A:C8     | 2.69                     | 0.45              |
| 35:EN:3:ILE:CD1    | 1:F1:1391:U:OP1    | 2.62                     | 0.45              |
| 43:EV:107:GLN:HE22 | 43:EV:203:LYS:HE2  | 1.81                     | 0.45              |
| 43:EV:114:PHE:CZ   | 43:EV:124:ILE:HD11 | 2.51                     | 0.45              |
| 45:EX:44:VAL:CG1   | 45:EX:54:MET:HE2   | 2.39                     | 0.45              |
| 46:EY:10:ILE:HD12  | 46:EY:30:GLU:HB3   | 1.98                     | 0.45              |
| 1:F1:170:A:C5      | 1:F1:250:U:N3      | 2.84                     | 0.45              |
| 1:F1:451:A:H2'     | 1:F1:452:U:O4'     | 2.15                     | 0.45              |
| 1:F1:784:G:O2'     | 1:F1:796:A:N6      | 2.50                     | 0.45              |
| 1:F1:822:U:H1'     | 18:FU:8:PRO:HB3    | 1.98                     | 0.45              |
| 1:F1:947:U:OP1     | 2:FA:3:ARG:NH1     | 2.48                     | 0.45              |
| 1:F1:1186:A:N3     | 1:F1:1186:A:C2'    | 2.79                     | 0.45              |
| 1:F1:1245:U:H6     | 1:F1:1245:U:C5'    | 2.28                     | 0.45              |
| 1:F1:1596:U:H4'    | 1:F1:1597:U:O5'    | 2.10                     | 0.45              |
| 1:F1:1736:G:N1     | 1:F1:1737:A:C2     | 2.84                     | 0.45              |
| 1:F1:1736:G:N1     | 1:F1:1737:A:N1     | 2.65                     | 0.45              |
| 1:F1:2257:A:H2'    | 1:F1:2258:C:C6     | 2.49                     | 0.45              |
| 1:F1:2383:U:H5''   | 1:F1:2383:U:H6     | 1.81                     | 0.45              |
| 1:F1:2416:U:H5'    | 1:F1:2416:U:C6     | 2.34                     | 0.45              |
| 1:F1:2432:G:C6     | 1:F1:2506:G:C5     | 3.05                     | 0.45              |
| 1:F1:2732:G:C6     | 1:F1:2733:C:N4     | 2.85                     | 0.45              |
| 2:FA:17:THR:HG23   | 3:FB:52:TYR:O      | 2.15                     | 0.45              |
| 2:FA:65:MET:O      | 2:FA:69:LYS:HG2    | 2.17                     | 0.45              |
| 3:FB:3:ALA:HB2     | 11:FL:10:ARG:NH1   | 2.31                     | 0.45              |
| 3:FB:50:LYS:O      | 3:FB:51:ILE:HG13   | 2.17                     | 0.45              |
| 4:FC:26:TYR:HB2    | 4:FC:67:ALA:HB3    | 1.98                     | 0.45              |
| 9:FJ:58:ILE:HG13   | 9:FJ:62:VAL:HG21   | 1.97                     | 0.45              |
| 9:FJ:160:LEU:HD12  | 9:FJ:182:CYS:O     | 2.17                     | 0.45              |
| 9:FJ:182:CYS:CB    | 9:FJ:221:ILE:HD12  | 2.46                     | 0.45              |
| 18:FU:4:ASN:OD1    | 18:FU:4:ASN:O      | 2.35                     | 0.45              |
| 19:FX:93:LEU:O     | 19:FX:103:ASN:HA   | 2.16                     | 0.45              |
| 22:GA:16:VAL:HG21  | 1:H1:936:C:H5''    | 1.97                     | 0.45              |
| 23:GB:226:GLY:HA2  | 1:H1:1911:A:O2'    | 2.17                     | 0.45              |
| 23:GB:264:ARG:NH1  | 1:H1:2976:C:O2     | 2.49                     | 0.45              |
| 23:GB:367:ARG:NH1  | 41:GT:13:TYR:CD1   | 2.85                     | 0.45              |
| 25:GD:94:LYS:HG3   | 25:GD:94:LYS:O     | 2.16                     | 0.45              |
| 26:GE:174:LEU:HD23 | 10:HK:90:ASN:HD22  | 1.81                     | 0.45              |
| 27:GF:171:ALA:HB2  | 27:GF:211:PHE:CD1  | 2.51                     | 0.45              |
| 28:GG:11:UNK:O     | 28:GG:15:UNK:CG    | 2.62                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:GK:89:ARG:HG3   | 32:GK:90:GLN:N     | 2.31                     | 0.45              |
| 34:GM:17:GLN:HE22  | 37:GP:22:LYS:N     | 2.15                     | 0.45              |
| 35:GN:88:THR:HG22  | 35:GN:107:THR:CG2  | 2.46                     | 0.45              |
| 40:GS:105:LEU:HD13 | 40:GS:108:LEU:CD2  | 2.47                     | 0.45              |
| 44:GW:14:ASN:ND2   | 44:GW:17:LYS:CE    | 2.78                     | 0.45              |
| 1:H1:67:U:O2       | 18:HU:59:GLN:NE2   | 2.49                     | 0.45              |
| 1:H1:70:C:C5       | 1:H1:72:A:C4       | 3.05                     | 0.45              |
| 1:H1:90:G:OP1      | 4:HC:53:LYS:NZ     | 2.45                     | 0.45              |
| 1:H1:144:A:H2'     | 1:H1:145:A:H5'     | 1.99                     | 0.45              |
| 1:H1:147:U:O2      | 1:H1:147:U:H2'     | 2.16                     | 0.45              |
| 1:H1:452:U:HO2'    | 1:H1:453:A:P       | 2.39                     | 0.45              |
| 1:H1:567:C:H2'     | 1:H1:568:A:O4'     | 2.16                     | 0.45              |
| 1:H1:632:G:H2'     | 1:H1:633:C:O4'     | 2.16                     | 0.45              |
| 1:H1:665:C:H2'     | 1:H1:666:U:O4'     | 2.17                     | 0.45              |
| 1:H1:1136:C:H2'    | 1:H1:1137:U:C6     | 2.52                     | 0.45              |
| 1:H1:1217:A:H62    | 1:H1:1342:U:H3     | 1.64                     | 0.45              |
| 1:H1:1394:G:O2'    | 1:H1:1395:U:H6     | 1.98                     | 0.45              |
| 1:H1:1440:A:C5     | 1:H1:1441:U:C5     | 3.04                     | 0.45              |
| 1:H1:1589:G:C8     | 1:H1:1605:G:N2     | 2.84                     | 0.45              |
| 1:H1:1666:A:H5'    | 1:H1:1667:A:OP2    | 2.16                     | 0.45              |
| 1:H1:1840:U:OP2    | 1:H1:1840:U:C6     | 2.67                     | 0.45              |
| 1:H1:2515:G:C6     | 1:H1:2516:U:C4     | 3.04                     | 0.45              |
| 1:H1:2769:U:H2'    | 1:H1:2770:U:O4'    | 2.16                     | 0.45              |
| 1:H1:2843:U:O5'    | 1:H1:2843:U:H6     | 1.99                     | 0.45              |
| 1:H1:2992:G:C2     | 1:H1:2993:C:C6     | 3.05                     | 0.45              |
| 1:H1:3175:A:H3'    | 1:H1:3175:A:N3     | 2.32                     | 0.45              |
| 1:H1:3251:C:H5'    | 1:H1:3251:C:H6     | 1.82                     | 0.45              |
| 3:HB:15:ARG:O      | 3:HB:19:GLN:HG3    | 2.16                     | 0.45              |
| 4:HC:16:ASN:O      | 4:HC:16:ASN:CG     | 2.60                     | 0.45              |
| 5:HE:57:ARG:CZ     | 5:HE:58:PHE:CE1    | 3.00                     | 0.45              |
| 5:HE:77:THR:CG2    | 5:HE:157:ASP:OD1   | 2.64                     | 0.45              |
| 5:HE:98:THR:HG21   | 5:HE:173:TYR:OH    | 2.16                     | 0.45              |
| 5:HE:128:ASN:OD1   | 5:HE:130:PHE:N     | 2.49                     | 0.45              |
| 13:HN:115:LYS:O    | 13:HN:119:VAL:HG23 | 2.15                     | 0.45              |
| 1:A1:114:A:H2'     | 1:A1:115:G:H8      | 1.81                     | 0.45              |
| 1:A1:298:G:C6      | 16:AQ:31:LYS:HG3   | 2.52                     | 0.45              |
| 1:A1:452:U:O5'     | 1:A1:452:U:H6      | 1.99                     | 0.45              |
| 1:A1:608:C:H2'     | 1:A1:609:A:O5'     | 2.16                     | 0.45              |
| 1:A1:632:G:H2'     | 1:A1:633:C:O4'     | 2.15                     | 0.45              |
| 1:A1:911:C:C2'     | 1:A1:912:G:H5'     | 2.46                     | 0.45              |
| 1:A1:1240:G:O4'    | 19:AX:104:MET:HE3  | 2.16                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1241:U:H2'    | 1:A1:1242:U:C6     | 2.51                     | 0.45              |
| 1:A1:1374:C:H5'    | 24:BC:311:ALA:CB   | 2.46                     | 0.45              |
| 1:A1:1383:G:HO2'   | 1:A1:1384:G:P      | 2.39                     | 0.45              |
| 1:A1:1505:C:C3'    | 1:A1:1506:G:H5'    | 2.47                     | 0.45              |
| 1:A1:1779:C:O2'    | 1:A1:1780:A:H5'    | 2.15                     | 0.45              |
| 1:A1:2113:A:C8     | 1:A1:3053:U:H1'    | 2.52                     | 0.45              |
| 1:A1:2519:A:H61    | 27:BF:36:GLN:HB3   | 1.80                     | 0.45              |
| 1:A1:2633:C:HO2'   | 29:BH:116:ARG:C    | 2.24                     | 0.45              |
| 1:A1:2689:G:O2'    | 37:BP:47:SER:HA    | 2.16                     | 0.45              |
| 1:A1:2871:U:OP1    | 23:BB:10:ARG:NH1   | 2.50                     | 0.45              |
| 1:A1:3205:A:C8     | 30:BI:155:LEU:HD13 | 2.51                     | 0.45              |
| 5:AE:56:GLY:O      | 5:AE:59:ARG:HB3    | 2.16                     | 0.45              |
| 5:AE:78:GLY:O      | 5:AE:79:PRO:C      | 2.56                     | 0.45              |
| 6:AF:29:ASN:OD1    | 19:AX:109:ARG:NH2  | 2.50                     | 0.45              |
| 13:AN:100:ASP:OD1  | 1:H1:1053:A:N3     | 2.45                     | 0.45              |
| 14:AO:9:VAL:HG12   | 14:AO:13:ASN:CB    | 2.46                     | 0.45              |
| 21:B3:43:A:C5      | 21:B3:44:C:C4      | 3.04                     | 0.45              |
| 21:B3:64:A:H5'     | 21:B3:65:G:OP2     | 2.16                     | 0.45              |
| 24:BC:275:THR:CG2  | 24:BC:276:THR:N    | 2.79                     | 0.45              |
| 26:BE:22:GLN:HB3   | 26:BE:39:ARG:NH2   | 2.31                     | 0.45              |
| 26:BE:49:THR:C     | 26:BE:51:ASP:N     | 2.73                     | 0.45              |
| 26:BE:168:LYS:HB2  | 26:BE:173:PHE:CE2  | 2.51                     | 0.45              |
| 30:BI:109:THR:CG2  | 30:BI:110:PRO:CD   | 2.87                     | 0.45              |
| 33:BL:36:ILE:HD11  | 33:BL:105:ARG:HB3  | 1.98                     | 0.45              |
| 33:BL:177:LYS:HG2  | 33:BL:185:ARG:HH21 | 1.81                     | 0.45              |
| 34:BM:86:PHE:CE1   | 34:BM:253:GLU:HB3  | 2.51                     | 0.45              |
| 35:BN:63:LEU:CD2   | 35:BN:140:LEU:HB3  | 2.46                     | 0.45              |
| 36:BO:123:PHE:CE2  | 36:BO:142:ILE:HG12 | 2.51                     | 0.45              |
| 38:BQ:8:ARG:HD3    | 38:BQ:118:HIS:HB2  | 1.97                     | 0.45              |
| 39:BR:90:MET:HA    | 39:BR:90:MET:HE3   | 1.97                     | 0.45              |
| 46:BY:38:GLY:HA2   | 46:BY:45:VAL:HA    | 1.98                     | 0.45              |
| 21:C3:76:U:OP1     | 19:DX:61:LYS:NZ    | 2.49                     | 0.45              |
| 26:CE:86:TYR:CE2   | 26:CE:149:LEU:HB2  | 2.51                     | 0.45              |
| 26:CE:103:VAL:HG23 | 26:CE:110:ILE:HG23 | 1.97                     | 0.45              |
| 29:CH:19:LYS:HG3   | 29:CH:26:VAL:HG11  | 1.98                     | 0.45              |
| 32:CK:89:ARG:HG3   | 32:CK:90:GLN:N     | 2.31                     | 0.45              |
| 35:CN:63:LEU:CD2   | 35:CN:140:LEU:HB3  | 2.46                     | 0.45              |
| 38:CQ:114:LEU:HA   | 38:CQ:114:LEU:HD23 | 1.59                     | 0.45              |
| 41:CT:41:LEU:HD13  | 41:CT:51:ILE:CD1   | 2.47                     | 0.45              |
| 42:CU:44:LYS:O     | 42:CU:47:ARG:HB2   | 2.17                     | 0.45              |
| 43:CV:223:ASP:N    | 43:CV:223:ASP:OD1  | 2.45                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:284:U:O4'     | 1:D1:284:U:P       | 2.75                     | 0.45              |
| 1:D1:406:A:C8      | 1:D1:407:C:C5      | 3.04                     | 0.45              |
| 1:D1:549:G:N1      | 1:D1:619:G:N2      | 2.65                     | 0.45              |
| 1:D1:615:G:N2      | 8:DH:79:LYS:HE2    | 2.27                     | 0.45              |
| 1:D1:621:G:N2      | 1:D1:634:G:H5''    | 2.27                     | 0.45              |
| 1:D1:966:G:C2'     | 1:D1:967:U:H5'     | 2.46                     | 0.45              |
| 1:D1:969:C:H1'     | 1:D1:1457:G:N2     | 2.31                     | 0.45              |
| 1:D1:1046:G:H2'    | 1:D1:1047:G:H8     | 1.82                     | 0.45              |
| 1:D1:1073:A:HO2'   | 1:D1:1074:A:C5'    | 2.30                     | 0.45              |
| 1:D1:1252:A:N3     | 1:D1:3105:G:C8     | 2.84                     | 0.45              |
| 1:D1:1732:C:H1'    | 11:DL:54:ASN:HD21  | 1.81                     | 0.45              |
| 1:D1:1880:C:C1'    | 11:DL:7:TYR:HE1    | 2.29                     | 0.45              |
| 1:D1:2246:G:N2     | 1:D1:2261:U:H1'    | 2.32                     | 0.45              |
| 1:D1:2613:G:N2     | 1:D1:2615:A:H2     | 2.13                     | 0.45              |
| 1:D1:2761:U:O2     | 18:DU:190:TRP:HZ2  | 2.00                     | 0.45              |
| 1:D1:3098:A:N1     | 1:D1:3115:C:C4     | 2.84                     | 0.45              |
| 1:D1:3105:G:N2     | 50:D1:4399:HOH:O   | 2.50                     | 0.45              |
| 1:D1:3190:A:N6     | 1:D1:3191:G:H22    | 2.14                     | 0.45              |
| 1:D1:3304:U:H2'    | 1:D1:3305:A:C8     | 2.51                     | 0.45              |
| 5:DE:41:LEU:HA     | 5:DE:92:GLN:HE22   | 1.79                     | 0.45              |
| 7:DG:35:ARG:HH12   | 13:DN:77:LEU:HB2   | 1.74                     | 0.45              |
| 9:DJ:128:ILE:O     | 9:DJ:132:THR:HB    | 2.16                     | 0.45              |
| 13:DN:118:PHE:CE2  | 13:DN:138:PHE:HE2  | 2.34                     | 0.45              |
| 14:DO:36:THR:O     | 14:DO:37:GLN:C     | 2.59                     | 0.45              |
| 14:DO:111:LEU:O    | 14:DO:112:VAL:C    | 2.59                     | 0.45              |
| 18:DU:72:GLY:HA3   | 18:DU:96:ASP:CB    | 2.43                     | 0.45              |
| 18:DU:74:THR:O     | 18:DU:77:GLU:N     | 2.50                     | 0.45              |
| 18:DU:166:VAL:HG12 | 18:DU:167:SER:N    | 2.31                     | 0.45              |
| 19:DX:16:MET:CG    | 19:DX:17:LYS:H     | 2.29                     | 0.45              |
| 22:EA:212:HIS:O    | 22:EA:214:GLY:N    | 2.50                     | 0.45              |
| 23:EB:20:ARG:CB    | 1:F1:2979:A:P      | 3.05                     | 0.45              |
| 24:EC:33:ILE:HD13  | 24:EC:135:ALA:CA   | 2.45                     | 0.45              |
| 24:EC:87:SER:CB    | 1:F1:356:U:O2'     | 2.65                     | 0.45              |
| 24:EC:245:GLN:O    | 24:EC:254:ARG:NH1  | 2.40                     | 0.45              |
| 24:EC:377:ILE:H    | 24:EC:377:ILE:HG13 | 1.47                     | 0.45              |
| 30:EI:17:ARG:O     | 30:EI:18:LEU:C     | 2.59                     | 0.45              |
| 32:EK:98:LYS:HA    | 18:FU:166:VAL:CB   | 2.46                     | 0.45              |
| 34:EM:82:GLU:OE1   | 34:EM:104:LEU:CD2  | 2.64                     | 0.45              |
| 34:EM:160:PHE:HA   | 34:EM:163:LEU:HB2  | 1.98                     | 0.45              |
| 38:EQ:32:TYR:HD2   | 38:EQ:33:GLU:CG    | 2.25                     | 0.45              |
| 40:ES:121:LYS:HE2  | 1:F1:186:U:OP1     | 2.17                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:EV:160:LEU:HD23 | 43:EV:160:LEU:HA   | 1.76                     | 0.45              |
| 1:F1:105:A:H2'     | 1:F1:106:A:O4'     | 2.16                     | 0.45              |
| 1:F1:156:A:OP2     | 16:FQ:27:ALA:HB3   | 2.16                     | 0.45              |
| 1:F1:474:G:H2'     | 1:F1:475:C:C6      | 2.52                     | 0.45              |
| 1:F1:604:A:O5'     | 1:F1:604:A:C8      | 2.66                     | 0.45              |
| 1:F1:895:A:O2'     | 1:F1:896:U:OP2     | 2.27                     | 0.45              |
| 1:F1:1035:A:C2     | 1:F1:1068:U:H1'    | 2.52                     | 0.45              |
| 1:F1:1052:A:H2'    | 1:F1:1052:A:N3     | 2.32                     | 0.45              |
| 1:F1:1141:U:C4     | 1:F1:1142:G:C2     | 3.04                     | 0.45              |
| 1:F1:1153:G:H2'    | 1:F1:1154:G:O4'    | 2.16                     | 0.45              |
| 1:F1:1326:U:O2'    | 10:FK:114:LYS:O    | 2.29                     | 0.45              |
| 1:F1:1533:G:H5''   | 1:F1:1533:G:C8     | 2.52                     | 0.45              |
| 1:F1:1552:U:O2     | 1:F1:1620:U:H5'    | 2.17                     | 0.45              |
| 1:F1:1595:A:C6     | 1:F1:1596:U:H1'    | 2.50                     | 0.45              |
| 1:F1:1653:A:C6     | 1:F1:1839:A:C2     | 3.04                     | 0.45              |
| 1:F1:1793:A:C2'    | 1:F1:1794:G:H5'    | 2.47                     | 0.45              |
| 1:F1:1966:U:H2'    | 1:F1:1967:C:O5'    | 2.16                     | 0.45              |
| 1:F1:2123:U:C2'    | 1:F1:2124:C:H5'    | 2.46                     | 0.45              |
| 1:F1:2370:G:O2'    | 1:F1:2372:G:OP2    | 2.30                     | 0.45              |
| 1:F1:2509:U:OP1    | 1:F1:2509:U:H6     | 1.99                     | 0.45              |
| 1:F1:3129:G:H8     | 1:F1:3129:G:O5'    | 1.99                     | 0.45              |
| 1:F1:3171:A:N6     | 1:F1:3172:A:N6     | 2.65                     | 0.45              |
| 5:FE:135:THR:O     | 5:FE:139:LYS:HG3   | 2.16                     | 0.45              |
| 6:FF:67:GLN:HE22   | 6:FF:75:LYS:HE3    | 1.81                     | 0.45              |
| 6:FF:121:THR:O     | 6:FF:121:THR:CG2   | 2.64                     | 0.45              |
| 7:FG:41:LEU:HD12   | 7:FG:66:SER:O      | 2.16                     | 0.45              |
| 13:FN:23:ALA:HB1   | 13:FN:43:VAL:CG1   | 2.40                     | 0.45              |
| 13:FN:122:TYR:O    | 13:FN:125:ILE:HG13 | 2.16                     | 0.45              |
| 20:G2:43:A:C8      | 20:G2:43:A:H3'     | 2.51                     | 0.45              |
| 22:GA:42:ILE:HD12  | 22:GA:42:ILE:C     | 2.40                     | 0.45              |
| 23:GB:22:THR:OG1   | 23:GB:271:HIS:HA   | 2.16                     | 0.45              |
| 23:GB:84:MET:CE    | 23:GB:179:ILE:HD11 | 2.42                     | 0.45              |
| 23:GB:130:PHE:O    | 23:GB:134:GLU:HG3  | 2.16                     | 0.45              |
| 30:GI:6:VAL:HG23   | 30:GI:30:GLN:HE21  | 1.75                     | 0.45              |
| 30:GI:64:ASN:HD21  | 30:GI:66:ARG:CG    | 2.23                     | 0.45              |
| 32:GK:100:PRO:HB3  | 18:HU:164:LYS:HZ3  | 1.80                     | 0.45              |
| 34:GM:284:ALA:O    | 34:GM:288:LYS:HG2  | 2.17                     | 0.45              |
| 38:GQ:24:LEU:CD1   | 38:GQ:92:VAL:HG11  | 2.47                     | 0.45              |
| 39:GR:123:THR:HG22 | 39:GR:125:THR:H    | 1.81                     | 0.45              |
| 43:GV:82:PHE:HB3   | 43:GV:231:ILE:HD13 | 1.98                     | 0.45              |
| 45:GX:113:ARG:HE   | 45:GX:117:LEU:HD11 | 1.81                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 46:GY:47:VAL:HG11 | 46:GY:71:LEU:HD22  | 1.96                     | 0.45              |
| 1:H1:997:G:H4'    | 1:H1:1399:A:H4'    | 1.98                     | 0.45              |
| 1:H1:1055:A:C4    | 1:H1:1056:A:C8     | 3.04                     | 0.45              |
| 1:H1:1252:A:N3    | 1:H1:3105:G:C8     | 2.84                     | 0.45              |
| 1:H1:1433:A:H3'   | 1:H1:1434:G:O4'    | 2.17                     | 0.45              |
| 1:H1:1470:G:H2'   | 1:H1:1471:U:O4'    | 2.17                     | 0.45              |
| 1:H1:1524:A:H2'   | 1:H1:1525:U:H6     | 1.81                     | 0.45              |
| 1:H1:2369:C:N4    | 1:H1:2929:A:C4     | 2.85                     | 0.45              |
| 1:H1:2416:U:H6    | 1:H1:2416:U:C5'    | 2.19                     | 0.45              |
| 1:H1:2508:U:C4'   | 1:H1:2509:U:OP1    | 2.59                     | 0.45              |
| 1:H1:2701:U:H4'   | 1:H1:2732:G:O3'    | 2.16                     | 0.45              |
| 1:H1:2817:U:H2'   | 1:H1:2818:G:H5'    | 1.99                     | 0.45              |
| 1:H1:3062:A:H2'   | 1:H1:3063:G:O4'    | 2.17                     | 0.45              |
| 1:H1:3101:G:C2    | 1:H1:3110:U:C5     | 3.04                     | 0.45              |
| 1:H1:3233:A:HO2'  | 1:H1:3234:U:P      | 2.29                     | 0.45              |
| 5:HE:51:LEU:HB3   | 5:HE:95:THR:CG2    | 2.46                     | 0.45              |
| 6:HF:30:ILE:HG22  | 19:HX:156:MET:HE1  | 1.98                     | 0.45              |
| 7:HG:8:ASP:HA     | 7:HG:11:GLN:HE21   | 1.80                     | 0.45              |
| 9:HJ:4:ARG:NE     | 9:HJ:215:ILE:HD11  | 2.31                     | 0.45              |
| 12:HM:21:CYS:O    | 12:HM:24:PRO:HD2   | 2.16                     | 0.45              |
| 12:HM:51:ASN:C    | 12:HM:53:GLY:H     | 2.24                     | 0.45              |
| 16:HQ:5:GLN:O     | 16:HQ:12:GLY:CA    | 2.64                     | 0.45              |
| 18:HU:57:ARG:HD2  | 18:HU:64:ASN:O     | 2.16                     | 0.45              |
| 18:HU:81:ALA:CB   | 18:HU:114:LEU:HD13 | 2.47                     | 0.45              |
| 19:HX:34:THR:CG2  | 19:HX:35:LYS:N     | 2.80                     | 0.45              |
| 19:HX:45:ALA:CA   | 19:HX:50:HIS:HD2   | 2.29                     | 0.45              |
| 1:A1:625:C:C4     | 1:A1:626:C:C5      | 3.05                     | 0.45              |
| 1:A1:773:C:C2     | 1:A1:774:A:C8      | 3.05                     | 0.45              |
| 1:A1:941:G:O6     | 1:A1:2409:G:O2'    | 2.35                     | 0.45              |
| 1:A1:1089:G:N7    | 1:A1:1124:G:H2'    | 2.31                     | 0.45              |
| 1:A1:1173:A:H4'   | 1:A1:1358:U:C4     | 2.52                     | 0.45              |
| 1:A1:1393:A:C2    | 1:A1:1394:G:C4     | 3.04                     | 0.45              |
| 1:A1:1682:G:C5    | 1:A1:1822:G:C6     | 3.04                     | 0.45              |
| 1:A1:1744:A:H61   | 36:BO:125:LEU:HD21 | 1.82                     | 0.45              |
| 1:A1:2253:U:O2'   | 1:A1:2254:A:H5'    | 2.16                     | 0.45              |
| 1:A1:2508:U:H2'   | 1:A1:2581:G:N1     | 2.31                     | 0.45              |
| 1:A1:2552:A:H2'   | 1:A1:2553:G:H5'    | 1.98                     | 0.45              |
| 1:A1:2872:C:O2'   | 1:A1:2873:C:H5'    | 2.16                     | 0.45              |
| 1:A1:2885:A:O2'   | 1:A1:2886:G:H3'    | 2.17                     | 0.45              |
| 1:A1:2902:G:C6    | 1:A1:2903:U:N3     | 2.85                     | 0.45              |
| 1:A1:2976:C:O2    | 23:BB:264:ARG:NH1  | 2.49                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:3027:U:OP1   | 23:BB:62:ARG:CZ    | 2.65                     | 0.45              |
| 1:A1:3027:U:OP1   | 23:BB:62:ARG:NH1   | 2.50                     | 0.45              |
| 1:A1:3094:U:H2'   | 1:A1:3095:A:H8     | 1.80                     | 0.45              |
| 1:A1:3098:A:C2    | 1:A1:3115:C:N3     | 2.84                     | 0.45              |
| 1:A1:3190:A:C6    | 1:A1:3191:G:C2     | 3.04                     | 0.45              |
| 1:A1:3237:C:N4    | 8:AH:10:ALA:CA     | 2.68                     | 0.45              |
| 1:A1:3340:U:H2'   | 1:A1:3341:C:C6     | 2.52                     | 0.45              |
| 5:AE:42:ARG:HG2   | 5:AE:92:GLN:NE2    | 2.32                     | 0.45              |
| 5:AE:67:LYS:HD2   | 5:AE:109:THR:CB    | 2.46                     | 0.45              |
| 13:AN:4:PHE:HD1   | 13:AN:4:PHE:H      | 0.74                     | 0.45              |
| 14:AO:50:LEU:HA   | 14:AO:59:ALA:O     | 2.16                     | 0.45              |
| 14:AO:75:THR:CG2  | 14:AO:77:GLU:CG    | 2.95                     | 0.45              |
| 19:AX:93:LEU:O    | 19:AX:103:ASN:HA   | 2.16                     | 0.45              |
| 20:B2:5:A:C2'     | 20:B2:6:A:H5'      | 2.46                     | 0.45              |
| 22:BA:34:ASP:O    | 22:BA:38:ARG:HG2   | 2.16                     | 0.45              |
| 24:BC:380:PHE:HD2 | 24:BC:381:ASN:OD1  | 2.00                     | 0.45              |
| 29:BH:17:TYR:HD2  | 29:BH:96:VAL:HB    | 1.82                     | 0.45              |
| 37:BP:17:LYS:HB3  | 37:BP:21:THR:HB    | 1.97                     | 0.45              |
| 37:BP:42:ILE:CD1  | 37:BP:91:VAL:HG21  | 2.47                     | 0.45              |
| 38:BQ:29:LYS:O    | 38:BQ:32:TYR:HB3   | 2.16                     | 0.45              |
| 38:BQ:44:GLU:OE1  | 38:BQ:44:GLU:HA    | 2.17                     | 0.45              |
| 39:BR:56:ARG:HB3  | 39:BR:61:VAL:CG2   | 2.46                     | 0.45              |
| 40:BS:120:ARG:O   | 40:BS:123:ALA:HB3  | 2.16                     | 0.45              |
| 42:BU:69:ALA:O    | 42:BU:72:ASP:HB2   | 2.17                     | 0.45              |
| 45:BX:22:PHE:CE2  | 45:BX:23:GLU:HG3   | 2.52                     | 0.45              |
| 45:BX:44:VAL:CG1  | 45:BX:54:MET:HE2   | 2.39                     | 0.45              |
| 20:C2:74:A:H62    | 20:C2:88:G:H1'     | 1.76                     | 0.45              |
| 21:C3:63:A:C8     | 29:CH:206:LEU:HD21 | 2.52                     | 0.45              |
| 24:CC:81:ILE:HG12 | 24:CC:82:PRO:HD2   | 1.99                     | 0.45              |
| 24:CC:164:GLU:OE1 | 24:CC:218:ASN:HB2  | 2.17                     | 0.45              |
| 25:CD:17:LEU:CB   | 25:CD:76:ALA:HB1   | 2.47                     | 0.45              |
| 26:CE:1:MET:HE2   | 26:CE:1:MET:HA     | 1.99                     | 0.45              |
| 27:CF:58:ARG:HG2  | 1:D1:2574:U:O2     | 2.16                     | 0.45              |
| 29:CH:15:LYS:HA   | 29:CH:16:PRO:HD3   | 1.76                     | 0.45              |
| 32:CK:46:LEU:HD21 | 18:DU:2:LYS:O      | 2.17                     | 0.45              |
| 32:CK:91:LYS:HG2  | 32:CK:92:TYR:CE1   | 2.52                     | 0.45              |
| 32:CK:131:SER:O   | 32:CK:132:LYS:C    | 2.58                     | 0.45              |
| 34:CM:34:LYS:HA   | 34:CM:37:ILE:HG22  | 1.99                     | 0.45              |
| 35:CN:3:ILE:HG23  | 43:CV:106:ARG:O    | 2.17                     | 0.45              |
| 37:CP:15:PHE:N    | 37:CP:15:PHE:CD1   | 2.84                     | 0.45              |
| 38:CQ:85:TRP:O    | 38:CQ:87:VAL:N     | 2.49                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:CV:123:MET:CG   | 1:D1:1012:U:H1'    | 2.47                     | 0.45              |
| 45:CX:80:ASN:HB2   | 45:CX:81:PRO:CD    | 2.35                     | 0.45              |
| 46:CY:17:ARG:HB2   | 46:CY:18:TYR:CE2   | 2.52                     | 0.45              |
| 46:CY:55:TRP:N     | 46:CY:55:TRP:CD1   | 2.83                     | 0.45              |
| 1:D1:19:A:H8       | 1:D1:19:A:O5'      | 2.00                     | 0.45              |
| 1:D1:165:C:H4'     | 18:DU:132:LYS:HD2  | 1.98                     | 0.45              |
| 1:D1:449:G:C4      | 1:D1:450:C:C5      | 3.03                     | 0.45              |
| 1:D1:513:G:C4      | 1:D1:514:U:C5      | 3.05                     | 0.45              |
| 1:D1:591:G:O2'     | 1:D1:592:A:O5'     | 2.33                     | 0.45              |
| 1:D1:640:G:H2'     | 1:D1:641:U:H6      | 1.80                     | 0.45              |
| 1:D1:703:U:O2'     | 1:D1:704:G:H5'     | 2.17                     | 0.45              |
| 1:D1:727:C:H2'     | 1:D1:728:G:H8      | 1.81                     | 0.45              |
| 1:D1:1058:C:O2     | 1:D1:1058:C:H2'    | 2.15                     | 0.45              |
| 1:D1:1173:A:H4'    | 1:D1:1358:U:C5     | 2.50                     | 0.45              |
| 1:D1:1668:A:C8     | 11:DL:69:ARG:NH1   | 2.85                     | 0.45              |
| 1:D1:1736:G:N1     | 1:D1:1737:A:C2     | 2.85                     | 0.45              |
| 1:D1:2112:G:H5'    | 1:D1:2112:G:N3     | 2.32                     | 0.45              |
| 1:D1:2132:U:H5''   | 50:D1:4109:HOH:O   | 2.16                     | 0.45              |
| 1:D1:2248:G:H1     | 1:D1:2258:C:H42    | 1.64                     | 0.45              |
| 1:D1:3171:A:N6     | 1:D1:3172:A:N6     | 2.64                     | 0.45              |
| 1:D1:3198:A:N6     | 1:D1:3199:G:C6     | 2.84                     | 0.45              |
| 1:D1:3227:A:H5'    | 5:DE:57:ARG:HH12   | 1.76                     | 0.45              |
| 5:DE:42:ARG:HH12   | 8:DH:111:ASN:HD22  | 1.61                     | 0.45              |
| 5:DE:57:ARG:CZ     | 5:DE:58:PHE:CE1    | 3.00                     | 0.45              |
| 6:DF:25:ALA:HB1    | 6:DF:38:ILE:HG23   | 1.99                     | 0.45              |
| 8:DH:48:VAL:HG11   | 8:DH:87:ALA:HB2    | 1.98                     | 0.45              |
| 18:DU:59:GLN:O     | 18:DU:59:GLN:CG    | 2.65                     | 0.45              |
| 20:E2:143:U:H2'    | 20:E2:144:U:C6     | 2.51                     | 0.45              |
| 21:E3:39:U:N1      | 25:ED:46:VAL:CG2   | 2.79                     | 0.45              |
| 23:EB:378:PHE:HA   | 1:F1:3325:G:H22    | 1.79                     | 0.45              |
| 24:EC:182:TYR:CE2  | 24:EC:186:LEU:HG   | 2.52                     | 0.45              |
| 26:EE:127:LEU:HD23 | 26:EE:127:LEU:HA   | 1.81                     | 0.45              |
| 29:EH:14:GLY:O     | 29:EH:128:ARG:NH2  | 2.37                     | 0.45              |
| 33:EL:183:SER:HB3  | 33:EL:195:ARG:HH22 | 1.82                     | 0.45              |
| 34:EM:54:ARG:NH2   | 34:EM:149:GLY:HA3  | 2.31                     | 0.45              |
| 35:EN:152:TRP:CE2  | 1:F1:1136:C:H4'    | 2.52                     | 0.45              |
| 38:EQ:114:LEU:HA   | 38:EQ:114:LEU:HD23 | 1.59                     | 0.45              |
| 43:EV:63:LYS:NZ    | 1:F1:563:G:P       | 2.89                     | 0.45              |
| 43:EV:215:ARG:HH21 | 1:F1:1198:G:P      | 2.39                     | 0.45              |
| 45:EX:33:SER:OG    | 1:F1:1434:G:OP2    | 2.23                     | 0.45              |
| 1:F1:63:A:H5''     | 1:F1:64:A:H4'      | 1.98                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:213:A:N6      | 1:F1:227:G:C2'     | 2.79                     | 0.45              |
| 1:F1:640:G:H2'     | 1:F1:641:U:H6      | 1.81                     | 0.45              |
| 1:F1:745:A:C6      | 1:F1:746:A:C2      | 3.04                     | 0.45              |
| 1:F1:820:G:C2'     | 1:F1:821:U:C5'     | 2.94                     | 0.45              |
| 1:F1:1116:C:O5'    | 1:F1:1116:C:H6     | 1.99                     | 0.45              |
| 1:F1:1465:U:C2     | 1:F1:1466:G:C8     | 3.05                     | 0.45              |
| 1:F1:1691:U:H2'    | 1:F1:1692:G:H8     | 1.81                     | 0.45              |
| 1:F1:2352:A:H2'    | 1:F1:2353:C:C6     | 2.41                     | 0.45              |
| 1:F1:2664:C:H6     | 1:F1:2664:C:O5'    | 2.00                     | 0.45              |
| 1:F1:2762:U:O2     | 1:F1:2763:U:C6     | 2.70                     | 0.45              |
| 1:F1:2849:U:H3'    | 1:F1:2850:U:H6     | 1.81                     | 0.45              |
| 1:F1:3079:U:O2'    | 1:F1:3080:A:C5'    | 2.64                     | 0.45              |
| 1:F1:3112:A:C3'    | 1:F1:3113:G:H5'    | 2.46                     | 0.45              |
| 5:FE:63:VAL:CG1    | 5:FE:64:VAL:N      | 2.79                     | 0.45              |
| 5:FE:102:VAL:HG22  | 5:FE:170:LEU:CD2   | 2.34                     | 0.45              |
| 5:FE:114:ASP:C     | 5:FE:116:TYR:N     | 2.73                     | 0.45              |
| 9:FJ:88:LEU:HG     | 9:FJ:92:VAL:CG1    | 2.46                     | 0.45              |
| 12:FM:101:ASP:HB2  | 12:FM:104:SER:HG   | 1.79                     | 0.45              |
| 13:FN:4:PHE:HD1    | 13:FN:4:PHE:H      | 0.75                     | 0.45              |
| 14:FO:52:GLY:CA    | 14:FO:118:ASN:HD21 | 2.24                     | 0.45              |
| 18:FU:74:THR:O     | 18:FU:77:GLU:N     | 2.50                     | 0.45              |
| 19:FX:45:ALA:HB1   | 19:FX:50:HIS:HB3   | 1.98                     | 0.45              |
| 20:G2:3:A:C2       | 1:H1:3243:A:C4'    | 3.00                     | 0.45              |
| 21:G3:56:G:H4'     | 25:GD:146:SER:HG   | 1.78                     | 0.45              |
| 23:GB:281:TYR:OH   | 23:GB:323:LYS:HD2  | 2.16                     | 0.45              |
| 24:GC:25:LEU:HA    | 24:GC:26:PRO:HD2   | 1.85                     | 0.45              |
| 24:GC:66:GLY:O     | 2:HA:53:LYS:NZ     | 2.33                     | 0.45              |
| 24:GC:145:ARG:NH1  | 24:GC:248:PRO:HD2  | 2.31                     | 0.45              |
| 25:GD:17:LEU:CB    | 25:GD:76:ALA:HB1   | 2.46                     | 0.45              |
| 25:GD:162:TRP:CH2  | 25:GD:167:PHE:CE2  | 3.04                     | 0.45              |
| 27:GF:155:LEU:HD13 | 1:H1:147:U:C1'     | 2.44                     | 0.45              |
| 27:GF:233:LYS:HA   | 27:GF:236:HIS:HD2  | 1.81                     | 0.45              |
| 27:GF:237:LYS:O    | 27:GF:241:LEU:HG   | 2.16                     | 0.45              |
| 29:GH:19:LYS:HG3   | 29:GH:26:VAL:CG1   | 2.46                     | 0.45              |
| 30:GI:73:ARG:NH1   | 1:H1:3123:A:OP1    | 2.49                     | 0.45              |
| 30:GI:155:LEU:HD13 | 1:H1:3205:A:C4     | 2.52                     | 0.45              |
| 32:GK:14:HIS:HB3   | 50:GK:202:HOH:O    | 2.17                     | 0.45              |
| 33:GL:180:ARG:HH22 | 1:H1:301:A:H5'     | 1.81                     | 0.45              |
| 34:GM:228:PHE:CD1  | 34:GM:231:TRP:CD1  | 3.03                     | 0.45              |
| 35:GN:73:ASN:N     | 35:GN:76:ASN:OD1   | 2.49                     | 0.45              |
| 35:GN:82:VAL:HG21  | 35:GN:127:LEU:CD1  | 2.44                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 35:GN:146:ARG:CB  | 35:GN:149:TYR:CE2  | 2.99                     | 0.45              |
| 38:GQ:59:CYS:HB3  | 38:GQ:74:GLN:CB    | 2.45                     | 0.45              |
| 43:GV:91:GLN:HG2  | 1:H1:1166:G:O2'    | 2.16                     | 0.45              |
| 44:GW:14:ASN:HD21 | 44:GW:17:LYS:HE3   | 1.79                     | 0.45              |
| 44:GW:32:ILE:HD12 | 1:H1:1484:U:O2'    | 2.17                     | 0.45              |
| 1:H1:190:U:C4     | 1:H1:224:C:O4'     | 2.69                     | 0.45              |
| 1:H1:284:U:O2     | 1:H1:284:U:H2'     | 2.14                     | 0.45              |
| 1:H1:467:A:C5     | 1:H1:468:A:C5      | 3.05                     | 0.45              |
| 1:H1:585:A:C6     | 1:H1:586:A:C5      | 3.05                     | 0.45              |
| 1:H1:600:G:H5''   | 1:H1:601:A:OP2     | 2.17                     | 0.45              |
| 1:H1:663:G:H4'    | 1:H1:1460:G:C6     | 2.52                     | 0.45              |
| 1:H1:1315:U:H2'   | 1:H1:1316:G:H5''   | 1.97                     | 0.45              |
| 1:H1:1531:C:C4    | 1:H1:1532:A:N7     | 2.85                     | 0.45              |
| 1:H1:2119:G:H5''  | 1:H1:2119:G:H8     | 1.81                     | 0.45              |
| 1:H1:2135:A:N7    | 2:HA:2:THR:HG23    | 2.32                     | 0.45              |
| 1:H1:2209:A:OP2   | 50:H1:4250:HOH:O   | 2.20                     | 0.45              |
| 1:H1:2606:U:H4'   | 1:H1:2633:C:H5     | 1.81                     | 0.45              |
| 1:H1:2767:A:H2'   | 1:H1:2768:G:O5'    | 2.17                     | 0.45              |
| 1:H1:2862:G:HO2'  | 1:H1:2863:U:H5     | 1.54                     | 0.45              |
| 1:H1:2869:C:O2'   | 1:H1:2870:U:H5'    | 2.17                     | 0.45              |
| 1:H1:3304:U:H2'   | 1:H1:3305:A:C8     | 2.52                     | 0.45              |
| 5:HE:125:ASN:OD1  | 5:HE:125:ASN:C     | 2.59                     | 0.45              |
| 8:HH:56:VAL:CG2   | 8:HH:106:VAL:HG22  | 2.46                     | 0.45              |
| 9:HJ:63:THR:HG22  | 9:HJ:73:PRO:HD3    | 1.97                     | 0.45              |
| 13:HN:30:GLU:OE1  | 13:HN:30:GLU:HA    | 2.16                     | 0.45              |
| 18:HU:183:GLN:O   | 18:HU:187:ASN:ND2  | 2.50                     | 0.45              |
| 19:HX:8:GLU:CD    | 19:HX:19:ARG:HH11  | 2.23                     | 0.45              |
| 19:HX:187:THR:CG2 | 19:HX:188:THR:N    | 2.80                     | 0.45              |
| 1:A1:45:C:H5''    | 18:AU:14:LYS:HG2   | 1.99                     | 0.45              |
| 1:A1:75:A:H8      | 18:AU:71:ARG:NH1   | 2.02                     | 0.45              |
| 1:A1:121:A:H61    | 1:A1:150:A:N6      | 2.15                     | 0.45              |
| 1:A1:124:U:C2'    | 1:A1:125:G:H5'     | 2.46                     | 0.45              |
| 1:A1:550:G:C6     | 1:A1:551:U:C4      | 3.04                     | 0.45              |
| 1:A1:558:U:H2'    | 1:A1:559:G:C8      | 2.49                     | 0.45              |
| 1:A1:634:G:O6     | 24:BC:319:ARG:NH2  | 2.49                     | 0.45              |
| 1:A1:646:A:H2'    | 1:A1:647:U:H6      | 1.82                     | 0.45              |
| 1:A1:725:C:O2'    | 1:A1:726:G:H5'     | 2.16                     | 0.45              |
| 1:A1:753:A:H5'    | 1:A1:1002:A:O4'    | 2.17                     | 0.45              |
| 1:A1:809:A:H4'    | 35:BN:92:ARG:HH22  | 1.75                     | 0.45              |
| 1:A1:1002:A:P     | 35:BN:141:ARG:HH22 | 2.39                     | 0.45              |
| 1:A1:1095:C:C4'   | 1:A1:1096:G:OP2    | 2.65                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:1355:C:H2'   | 1:A1:1356:G:O5'    | 2.17                     | 0.45              |
| 1:A1:1366:C:C5'   | 45:BX:62:ASP:HA    | 2.46                     | 0.45              |
| 1:A1:1517:G:C8    | 50:A1:4400:HOH:O   | 2.68                     | 0.45              |
| 1:A1:1589:G:C5    | 1:A1:1605:G:C2     | 3.05                     | 0.45              |
| 1:A1:1815:G:H2'   | 1:A1:1816:A:C8     | 2.51                     | 0.45              |
| 1:A1:1843:U:C2    | 1:A1:1844:U:C5     | 3.05                     | 0.45              |
| 1:A1:1967:C:H5    | 36:BO:74:ARG:HH12  | 1.64                     | 0.45              |
| 1:A1:2303:C:C2'   | 1:A1:2304:A:OP1    | 2.65                     | 0.45              |
| 1:A1:2339:U:H5'   | 1:A1:3045:A:O2'    | 2.17                     | 0.45              |
| 1:A1:2727:A:C5'   | 17:AT:37:PRO:HD2   | 2.46                     | 0.45              |
| 1:A1:2927:G:O2'   | 1:A1:2928:A:H5'    | 2.17                     | 0.45              |
| 12:AM:51:ASN:ND2  | 12:AM:51:ASN:C     | 2.72                     | 0.45              |
| 14:AO:12:ASN:OD1  | 24:BC:251:HIS:CE1  | 2.69                     | 0.45              |
| 21:B3:22:A:C6     | 21:B3:23:A:C6      | 3.05                     | 0.45              |
| 21:B3:116:A:H4'   | 34:BM:260:ARG:NH2  | 2.31                     | 0.45              |
| 22:BA:136:THR:HB  | 22:BA:150:ARG:HB3  | 1.97                     | 0.45              |
| 23:BB:292:ALA:HB2 | 23:BB:302:ALA:C    | 2.42                     | 0.45              |
| 24:BC:81:ILE:HG12 | 24:BC:82:PRO:HD2   | 1.99                     | 0.45              |
| 24:BC:126:ARG:NE  | 24:BC:280:LYS:HD2  | 2.32                     | 0.45              |
| 27:BF:92:TYR:HE1  | 27:BF:200:ASP:OD2  | 2.00                     | 0.45              |
| 29:BH:75:ASN:HB3  | 29:BH:151:ALA:HB2  | 1.98                     | 0.45              |
| 29:BH:203:ARG:HD3 | 29:BH:203:ARG:HA   | 1.78                     | 0.45              |
| 33:BL:63:ARG:HG2  | 33:BL:131:GLU:HG3  | 1.99                     | 0.45              |
| 34:BM:62:ALA:C    | 34:BM:105:LEU:HD22 | 2.42                     | 0.45              |
| 34:BM:88:VAL:CG1  | 34:BM:246:LEU:HD21 | 2.47                     | 0.45              |
| 34:BM:228:PHE:O   | 34:BM:229:SER:C    | 2.59                     | 0.45              |
| 36:BO:42:ARG:HA   | 36:BO:45:ILE:HD12  | 1.99                     | 0.45              |
| 37:BP:15:PHE:N    | 37:BP:15:PHE:HD1   | 2.14                     | 0.45              |
| 38:BQ:32:TYR:CE2  | 38:BQ:36:ARG:HD2   | 2.52                     | 0.45              |
| 38:BQ:94:LEU:HD12 | 38:BQ:94:LEU:HA    | 1.68                     | 0.45              |
| 38:BQ:128:ARG:HG2 | 38:BQ:142:LEU:CD2  | 2.46                     | 0.45              |
| 21:C3:81:A:H2'    | 21:C3:82:G:H5'     | 1.97                     | 0.45              |
| 24:CC:39:HIS:O    | 24:CC:40:LYS:C     | 2.59                     | 0.45              |
| 27:CF:183:VAL:O   | 27:CF:184:ASN:HB2  | 2.16                     | 0.45              |
| 29:CH:3:ARG:HH12  | 29:CH:63:GLU:CB    | 2.29                     | 0.45              |
| 31:CJ:28:ASN:N    | 31:CJ:102:ASN:O    | 2.49                     | 0.45              |
| 32:CK:50:TRP:CD1  | 35:CN:156:PRO:HD2  | 2.50                     | 0.45              |
| 32:CK:129:TYR:CD1 | 32:CK:129:TYR:N    | 2.84                     | 0.45              |
| 34:CM:38:ILE:HD11 | 1:D1:2738:G:H5''   | 1.99                     | 0.45              |
| 34:CM:49:TYR:HB2  | 34:CM:143:LYS:O    | 2.16                     | 0.45              |
| 35:CN:77:LYS:HE2  | 35:CN:98:LYS:HE2   | 1.99                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:CN:92:ARG:HH22  | 1:D1:809:A:H4'     | 1.70                     | 0.45              |
| 35:CN:141:ARG:NH1  | 1:D1:1002:A:OP1    | 2.49                     | 0.45              |
| 47:CO:41:ILE:O     | 47:CO:44:LEU:HB2   | 2.16                     | 0.45              |
| 40:CS:8:SER:OG     | 1:D1:334:G:H5''    | 2.17                     | 0.45              |
| 41:CT:58:ARG:NE    | 1:D1:3325:G:N7     | 2.65                     | 0.45              |
| 42:CU:69:ALA:O     | 42:CU:72:ASP:HB2   | 2.16                     | 0.45              |
| 43:CV:85:ARG:CZ    | 43:CV:100:LEU:HD13 | 2.45                     | 0.45              |
| 1:D1:112:A:H2'     | 1:D1:113:A:O4'     | 2.17                     | 0.45              |
| 1:D1:418:G:N2      | 1:D1:2360:C:H1'    | 2.31                     | 0.45              |
| 1:D1:644:A:H2'     | 1:D1:645:A:C4'     | 2.47                     | 0.45              |
| 1:D1:765:A:C6      | 1:D1:766:G:C2      | 3.04                     | 0.45              |
| 1:D1:1009:A:OP1    | 17:DT:23:LYS:NZ    | 2.48                     | 0.45              |
| 1:D1:1010:G:H4'    | 1:D1:1011:U:OP2    | 2.15                     | 0.45              |
| 1:D1:1074:A:H5''   | 1:D1:1075:C:H5'    | 1.98                     | 0.45              |
| 1:D1:1153:G:H2'    | 1:D1:1154:G:O4'    | 2.17                     | 0.45              |
| 1:D1:1252:A:O2'    | 1:D1:1253:G:H5'    | 2.16                     | 0.45              |
| 1:D1:1384:G:C2     | 1:D1:1385:C:C6     | 3.04                     | 0.45              |
| 1:D1:1427:G:C2     | 1:D1:1437:U:O2     | 2.69                     | 0.45              |
| 1:D1:1518:G:P      | 2:DA:14:LYS:NZ     | 2.88                     | 0.45              |
| 1:D1:2278:G:C2'    | 1:D1:2279:C:OP2    | 2.65                     | 0.45              |
| 1:D1:2293:U:O2'    | 1:D1:2294:A:H5'    | 2.17                     | 0.45              |
| 1:D1:2391:G:H5'    | 1:D1:2392:A:C5'    | 2.46                     | 0.45              |
| 1:D1:2634:G:H2'    | 1:D1:2635:C:H5'    | 1.97                     | 0.45              |
| 1:D1:2703:G:H4'    | 1:D1:2704:A:C5'    | 2.44                     | 0.45              |
| 1:D1:3234:U:O4     | 1:D1:3236:C:C6     | 2.70                     | 0.45              |
| 5:DE:128:ASN:OD1   | 5:DE:128:ASN:C     | 2.59                     | 0.45              |
| 7:DG:15:ALA:O      | 7:DG:19:ARG:HG3    | 2.17                     | 0.45              |
| 7:DG:60:ALA:O      | 7:DG:64:GLN:N      | 2.49                     | 0.45              |
| 9:DJ:88:LEU:HD12   | 9:DJ:88:LEU:HA     | 1.69                     | 0.45              |
| 11:DL:30:LEU:HD12  | 11:DL:30:LEU:HA    | 1.81                     | 0.45              |
| 12:DM:44:LYS:HA    | 12:DM:48:LYS:O     | 2.16                     | 0.45              |
| 18:DU:34:LEU:HA    | 18:DU:37:ARG:HD2   | 1.99                     | 0.45              |
| 19:DX:8:GLU:CD     | 19:DX:19:ARG:HH11  | 2.24                     | 0.45              |
| 20:E2:95:C:H5''    | 2:FA:77:ASN:ND2    | 2.31                     | 0.45              |
| 22:EA:214:GLY:HA3  | 1:F1:2955:A:OP1    | 2.17                     | 0.45              |
| 23:EB:233:VAL:HG12 | 23:EB:234:LYS:O    | 2.17                     | 0.45              |
| 23:EB:294:THR:HG21 | 23:EB:354:LEU:O    | 2.16                     | 0.45              |
| 24:EC:126:ARG:HD3  | 24:EC:283:TYR:HD2  | 1.81                     | 0.45              |
| 24:EC:195:ARG:NH1  | 24:EC:204:ARG:HB2  | 2.32                     | 0.45              |
| 27:EF:92:TYR:OH    | 27:EF:200:ASP:OD2  | 2.33                     | 0.45              |
| 27:EF:144:VAL:HG23 | 27:EF:168:VAL:CG1  | 2.46                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:EI:113:ARG:HH11 | 1:F1:3162:A:H61    | 1.50                     | 0.45              |
| 31:EJ:11:VAL:HG21  | 31:EJ:131:PRO:HD3  | 1.97                     | 0.45              |
| 33:EL:126:THR:C    | 33:EL:127:TYR:HD1  | 2.25                     | 0.45              |
| 37:EP:49:HIS:HD2   | 1:F1:2744:C:O2'    | 2.00                     | 0.45              |
| 37:EP:59:GLY:HA3   | 1:F1:1018:A:O2'    | 2.16                     | 0.45              |
| 38:EQ:8:ARG:HH12   | 38:EQ:118:HIS:N    | 2.14                     | 0.45              |
| 38:EQ:134:ALA:O    | 38:EQ:135:HIS:CB   | 2.62                     | 0.45              |
| 41:ET:58:ARG:NE    | 1:F1:3325:G:N7     | 2.65                     | 0.45              |
| 44:EW:32:ILE:HD12  | 1:F1:1484:U:O2'    | 2.16                     | 0.45              |
| 1:F1:37:A:C5'      | 1:F1:38:A:H4'      | 2.45                     | 0.45              |
| 1:F1:199:A:C4      | 1:F1:201:A:C8      | 3.04                     | 0.45              |
| 1:F1:239:G:C6      | 1:F1:240:A:N6      | 2.85                     | 0.45              |
| 1:F1:452:U:O5'     | 1:F1:452:U:H6      | 2.00                     | 0.45              |
| 1:F1:452:U:O2'     | 1:F1:453:A:C5'     | 2.65                     | 0.45              |
| 1:F1:585:A:C5      | 1:F1:586:A:C5      | 3.05                     | 0.45              |
| 1:F1:643:A:O2'     | 1:F1:644:A:P       | 2.73                     | 0.45              |
| 1:F1:729:A:C1'     | 1:F1:810:G:N2      | 2.80                     | 0.45              |
| 1:F1:975:G:C2      | 1:F1:1397:G:O6     | 2.70                     | 0.45              |
| 1:F1:1121:G:H8     | 1:F1:1121:G:O5'    | 1.99                     | 0.45              |
| 1:F1:1423:A:H2'    | 1:F1:1424:U:O5'    | 2.17                     | 0.45              |
| 1:F1:1495:C:C4'    | 1:F1:1496:U:OP2    | 2.62                     | 0.45              |
| 1:F1:1600:U:C5     | 1:F1:1601:U:C5     | 3.04                     | 0.45              |
| 1:F1:1743:G:H4'    | 1:F1:1756:U:H4'    | 1.97                     | 0.45              |
| 1:F1:2586:G:O2'    | 1:F1:2587:G:H5'    | 2.16                     | 0.45              |
| 1:F1:2875:A:P      | 50:F1:4164:HOH:O   | 2.74                     | 0.45              |
| 1:F1:3234:U:O4     | 1:F1:3236:C:C6     | 2.69                     | 0.45              |
| 4:FC:40:ARG:O      | 4:FC:41:TYR:C      | 2.60                     | 0.45              |
| 6:FF:79:PHE:O      | 6:FF:80:ASP:HB2    | 2.17                     | 0.45              |
| 9:FJ:111:ASN:ND2   | 9:FJ:156:ASN:HD22  | 2.15                     | 0.45              |
| 11:FL:20:VAL:CG1   | 11:FL:21:ARG:N     | 2.79                     | 0.45              |
| 15:FP:13:LYS:HE2   | 15:FP:13:LYS:HB3   | 1.80                     | 0.45              |
| 16:FQ:5:GLN:O      | 16:FQ:12:GLY:HA3   | 2.16                     | 0.45              |
| 18:FU:72:GLY:HA3   | 18:FU:96:ASP:CB    | 2.46                     | 0.45              |
| 19:FX:108:TYR:CZ   | 19:FX:120:LEU:HA   | 2.51                     | 0.45              |
| 19:FX:188:THR:O    | 19:FX:189:PHE:CB   | 2.64                     | 0.45              |
| 20:G2:148:U:O2'    | 27:GF:58:ARG:NH1   | 2.33                     | 0.45              |
| 23:GB:56:ILE:CG2   | 23:GB:354:LEU:HD22 | 2.46                     | 0.45              |
| 23:GB:113:ASN:C    | 23:GB:174:ASN:HD22 | 2.24                     | 0.45              |
| 23:GB:259:ARG:NH1  | 1:H1:2871:U:O2'    | 2.50                     | 0.45              |
| 26:GE:22:GLN:OE1   | 26:GE:39:ARG:NH2   | 2.50                     | 0.45              |
| 34:GM:88:VAL:HG12  | 34:GM:246:LEU:HD21 | 1.98                     | 0.45              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 34:GM:216:LEU:HD12 | 34:GM:228:PHE:CD2 | 2.51                     | 0.45              |
| 35:GN:25:VAL:CG1   | 14:HO:7:GLU:HB3   | 2.37                     | 0.45              |
| 36:GO:62:ARG:HH22  | 1:H1:3056:C:H3'   | 1.82                     | 0.45              |
| 1:H1:164:A:C2'     | 1:H1:165:C:H5'    | 2.47                     | 0.45              |
| 1:H1:169:A:P       | 1:H1:249:G:N2     | 2.90                     | 0.45              |
| 1:H1:332:G:C3'     | 1:H1:333:G:H5''   | 2.47                     | 0.45              |
| 1:H1:853:A:H2'     | 1:H1:854:U:C6     | 2.52                     | 0.45              |
| 1:H1:1110:U:H2'    | 1:H1:1110:U:O2    | 2.16                     | 0.45              |
| 1:H1:1167:G:H2'    | 1:H1:1168:C:C6    | 2.48                     | 0.45              |
| 1:H1:1428:G:H2'    | 1:H1:1429:C:H6    | 1.82                     | 0.45              |
| 1:H1:2539:A:N3     | 1:H1:2540:G:C8    | 2.84                     | 0.45              |
| 1:H1:2595:G:H4'    | 1:H1:2596:G:OP1   | 2.16                     | 0.45              |
| 1:H1:2607:G:OP1    | 1:H1:2633:C:H2'   | 2.17                     | 0.45              |
| 1:H1:3136:A:C5     | 1:H1:3137:U:C5    | 3.04                     | 0.45              |
| 1:H1:3144:G:OP1    | 1:H1:3144:G:H4'   | 2.17                     | 0.45              |
| 1:H1:3268:C:N4     | 1:H1:3269:G:C5    | 2.84                     | 0.45              |
| 9:HJ:118:HIS:HA    | 9:HJ:119:PRO:HD2  | 1.82                     | 0.45              |
| 9:HJ:161:VAL:HG12  | 9:HJ:162:HIS:N    | 2.31                     | 0.45              |
| 1:A1:169:A:P       | 1:A1:249:G:N2     | 2.90                     | 0.45              |
| 1:A1:347:A:H4'     | 1:A1:366:A:N6     | 2.32                     | 0.45              |
| 1:A1:519:A:OP2     | 14:AO:89:ARG:NH1  | 2.49                     | 0.45              |
| 1:A1:680:A:C6      | 1:A1:681:A:C6     | 3.04                     | 0.45              |
| 1:A1:685:G:H5''    | 32:BK:17:HIS:CE1  | 2.52                     | 0.45              |
| 1:A1:788:C:C5      | 1:A1:790:C:C5     | 3.05                     | 0.45              |
| 1:A1:836:U:H2'     | 1:A1:837:G:H8     | 1.79                     | 0.45              |
| 1:A1:1223:U:O2'    | 1:A1:1224:A:H5'   | 2.16                     | 0.45              |
| 1:A1:2208:A:C5     | 1:A1:2227:A:C6    | 3.05                     | 0.45              |
| 1:A1:2291:A:H2     | 1:A1:2906:G:N3    | 2.15                     | 0.45              |
| 1:A1:2732:G:C6     | 1:A1:2733:C:N4    | 2.85                     | 0.45              |
| 1:A1:3155:A:C6     | 8:AH:102:SER:HB3  | 2.52                     | 0.45              |
| 1:A1:3272:U:C4     | 1:A1:3273:U:C5    | 3.05                     | 0.45              |
| 2:AA:17:THR:HG23   | 2:AA:18:LEU:H     | 1.77                     | 0.45              |
| 5:AE:67:LYS:NZ     | 5:AE:109:THR:HB   | 2.32                     | 0.45              |
| 8:AH:58:TYR:CE2    | 8:AH:60:TYR:CD2   | 3.05                     | 0.45              |
| 13:AN:90:LEU:O     | 13:AN:121:LYS:HE3 | 2.17                     | 0.45              |
| 15:AP:46:GLY:O     | 15:AP:47:LYS:C    | 2.58                     | 0.45              |
| 20:B2:10:U:C4      | 20:B2:11:C:N4     | 2.85                     | 0.45              |
| 22:BA:108:ILE:HB   | 22:BA:137:ILE:CD1 | 2.46                     | 0.45              |
| 23:BB:130:PHE:O    | 23:BB:134:GLU:HG3 | 2.17                     | 0.45              |
| 24:BC:302:ASN:O    | 24:BC:306:SER:OG  | 2.35                     | 0.45              |
| 31:BJ:32:ASN:ND2   | 31:BJ:117:GLN:N   | 2.63                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:54:ARG:NH2   | 34:BM:149:GLY:HA3  | 2.32                     | 0.45              |
| 34:BM:164:LYS:O    | 34:BM:168:ASP:HB2  | 2.17                     | 0.45              |
| 35:BN:146:ARG:CB   | 35:BN:149:TYR:CE2  | 2.99                     | 0.45              |
| 35:BN:147:GLU:O    | 35:BN:148:ALA:C    | 2.57                     | 0.45              |
| 35:BN:178:HIS:ND1  | 35:BN:179:GLY:O    | 2.49                     | 0.45              |
| 37:BP:80:VAL:O     | 37:BP:83:ARG:HG2   | 2.16                     | 0.45              |
| 21:C3:33:U:C6      | 34:CM:212:TYR:CE1  | 3.01                     | 0.45              |
| 22:CA:11:GLY:HA3   | 1:D1:2159:C:O2     | 2.16                     | 0.45              |
| 22:CA:12:ARG:NH2   | 22:CA:14:ASN:HD22  | 2.10                     | 0.45              |
| 22:CA:46:ILE:O     | 22:CA:86:GLY:N     | 2.48                     | 0.45              |
| 22:CA:55:ARG:NH2   | 1:D1:2171:U:OP1    | 2.50                     | 0.45              |
| 22:CA:208:VAL:HG21 | 1:D1:941:G:C5      | 2.50                     | 0.45              |
| 23:CB:138:ASP:OD1  | 23:CB:140:LYS:HG2  | 2.17                     | 0.45              |
| 23:CB:216:LEU:HD23 | 23:CB:274:THR:HA   | 1.98                     | 0.45              |
| 24:CC:7:ILE:HD11   | 24:CC:25:LEU:HD13  | 1.98                     | 0.45              |
| 24:CC:7:ILE:HD13   | 24:CC:156:PRO:HD2  | 1.99                     | 0.45              |
| 24:CC:150:SER:HA   | 14:DO:75:THR:CG2   | 2.46                     | 0.45              |
| 24:CC:164:GLU:HB3  | 24:CC:221:SER:HB3  | 1.99                     | 0.45              |
| 24:CC:319:ARG:NH2  | 1:D1:634:G:C6      | 2.85                     | 0.45              |
| 25:CD:143:ARG:HG3  | 34:CM:150:LEU:HD12 | 1.98                     | 0.45              |
| 27:CF:22:PHE:O     | 1:D1:2553:G:C5'    | 2.65                     | 0.45              |
| 31:CJ:44:PHE:CZ    | 31:CJ:63:LEU:HD13  | 2.52                     | 0.45              |
| 32:CK:7:LYS:O      | 32:CK:8:THR:C      | 2.60                     | 0.45              |
| 32:CK:18:GLY:HA2   | 1:D1:1397:G:H5''   | 1.97                     | 0.45              |
| 32:CK:63:PHE:CE1   | 1:D1:282:G:C4      | 3.05                     | 0.45              |
| 34:CM:283:THR:HG22 | 34:CM:284:ALA:N    | 2.31                     | 0.45              |
| 39:CR:124:ILE:H    | 39:CR:124:ILE:HG13 | 1.49                     | 0.45              |
| 41:CT:44:ARG:NH2   | 1:D1:2107:A:O2'    | 2.50                     | 0.45              |
| 45:CX:36:ARG:HA    | 45:CX:37:PRO:HD2   | 1.83                     | 0.45              |
| 1:D1:73:G:H5'      | 18:DU:56:VAL:HG11  | 1.99                     | 0.45              |
| 1:D1:1017:U:H3'    | 1:D1:1017:U:H6     | 1.81                     | 0.45              |
| 1:D1:1051:C:N1     | 1:D1:1052:A:C8     | 2.84                     | 0.45              |
| 1:D1:1107:A:C4     | 1:D1:1108:A:C8     | 3.05                     | 0.45              |
| 1:D1:1167:G:H2'    | 1:D1:1168:C:C6     | 2.52                     | 0.45              |
| 1:D1:1385:C:O2'    | 1:D1:1386:U:H5'    | 2.16                     | 0.45              |
| 1:D1:1866:A:O4'    | 3:DB:45:ARG:NH1    | 2.50                     | 0.45              |
| 1:D1:2594:G:H2'    | 1:D1:2596:G:O6     | 2.17                     | 0.45              |
| 1:D1:2698:A:H2'    | 1:D1:2699:C:C6     | 2.51                     | 0.45              |
| 1:D1:3079:U:O2'    | 1:D1:3080:A:C5'    | 2.65                     | 0.45              |
| 1:D1:3103:A:H2'    | 1:D1:3104:G:N7     | 2.32                     | 0.45              |
| 1:D1:3228:U:C3'    | 1:D1:3229:C:H5'    | 2.47                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:DI:3237:C:N4     | 8:DH:9:VAL:C       | 2.74                     | 0.45              |
| 6:DF:80:ASP:C      | 6:DF:82:THR:N      | 2.71                     | 0.45              |
| 7:DG:10:ILE:HG12   | 7:DG:13:LYS:NZ     | 2.32                     | 0.45              |
| 14:DO:62:LEU:O     | 14:DO:63:ARG:C     | 2.59                     | 0.45              |
| 15:DP:53:PHE:CE1   | 15:DP:55:THR:CG2   | 2.98                     | 0.45              |
| 18:DU:177:VAL:HA   | 18:DU:180:ILE:HD12 | 1.99                     | 0.45              |
| 19:DX:15:GLN:NE2   | 19:DX:115:GLY:CA   | 2.80                     | 0.45              |
| 19:DX:25:ALA:CB    | 19:DX:71:ARG:O     | 2.57                     | 0.45              |
| 19:DX:131:GLN:O    | 19:DX:134:THR:HB   | 2.17                     | 0.45              |
| 22:EA:8:GLN:HA     | 1:F1:2159:C:H4'    | 1.98                     | 0.45              |
| 22:EA:41:TYR:CE1   | 1:F1:2541:U:N3     | 2.85                     | 0.45              |
| 22:EA:52:GLU:HA    | 22:EA:53:PRO:HD3   | 1.82                     | 0.45              |
| 22:EA:182:LYS:HD3  | 1:F1:885:G:P       | 2.56                     | 0.45              |
| 24:EC:313:THR:HG22 | 24:EC:314:THR:H    | 1.81                     | 0.45              |
| 25:ED:65:MET:HE1   | 1:F1:2670:U:H4'    | 1.98                     | 0.45              |
| 27:EF:145:VAL:HG13 | 27:EF:173:VAL:CG2  | 2.47                     | 0.45              |
| 29:EH:139:ARG:HB3  | 29:EH:173:PHE:CE1  | 2.51                     | 0.45              |
| 30:EI:96:ALA:HB1   | 1:F1:3154:A:O2'    | 2.17                     | 0.45              |
| 32:EK:17:HIS:CE1   | 1:F1:685:G:H5''    | 2.52                     | 0.45              |
| 32:EK:19:HIS:HD2   | 1:F1:685:G:O6      | 1.99                     | 0.45              |
| 32:EK:43:HIS:O     | 32:EK:44:ARG:C     | 2.60                     | 0.45              |
| 32:EK:50:TRP:CD1   | 35:EN:156:PRO:HD2  | 2.50                     | 0.45              |
| 33:EL:174:LEU:HD22 | 33:EL:185:ARG:NH1  | 2.32                     | 0.45              |
| 34:EM:5:LYS:HD3    | 1:F1:1064:C:H5''   | 1.97                     | 0.45              |
| 37:EP:82:GLY:HA3   | 17:FT:16:SER:HB2   | 1.98                     | 0.45              |
| 45:EX:6:VAL:CG1    | 45:EX:7:ALA:N      | 2.65                     | 0.45              |
| 45:EX:47:ARG:NH2   | 1:F1:1393:A:O3'    | 2.38                     | 0.45              |
| 1:F1:39:G:C5       | 1:F1:2789:A:C2     | 3.04                     | 0.45              |
| 1:F1:77:A:H2'      | 1:F1:78:G:C8       | 2.51                     | 0.45              |
| 1:F1:111:C:H3'     | 1:F1:154:U:O4      | 2.16                     | 0.45              |
| 1:F1:435:A:N3      | 1:F1:435:A:C2'     | 2.78                     | 0.45              |
| 1:F1:558:U:H2'     | 1:F1:559:G:C8      | 2.50                     | 0.45              |
| 1:F1:585:A:C6      | 1:F1:586:A:C5      | 3.05                     | 0.45              |
| 1:F1:906:C:H1'     | 1:F1:1874:A:C8     | 2.51                     | 0.45              |
| 1:F1:1017:U:H3'    | 1:F1:1017:U:H6     | 1.81                     | 0.45              |
| 1:F1:1338:G:O2'    | 1:F1:2376:A:H4'    | 2.17                     | 0.45              |
| 1:F1:2391:G:H3'    | 1:F1:2393:A:H5''   | 1.99                     | 0.45              |
| 1:F1:2504:U:H2'    | 1:F1:2505:U:C6     | 2.52                     | 0.45              |
| 1:F1:2761:U:O2     | 18:FU:190:TRP:HZ2  | 2.00                     | 0.45              |
| 1:F1:3234:U:O5'    | 1:F1:3234:U:H6     | 2.00                     | 0.45              |
| 1:F1:3268:C:N4     | 1:F1:3269:G:C5     | 2.85                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3304:U:H2'    | 1:F1:3305:A:C8     | 2.52                     | 0.45              |
| 6:FF:6:PHE:HB3     | 19:FX:162:LYS:HB3  | 1.98                     | 0.45              |
| 6:FF:14:TYR:CZ     | 6:FF:22:GLY:HA2    | 2.51                     | 0.45              |
| 12:FM:79:LYS:HB2   | 12:FM:105:TYR:CE2  | 2.52                     | 0.45              |
| 19:FX:94:LYS:HE2   | 19:FX:136:GLN:HG2  | 1.99                     | 0.45              |
| 19:FX:168:THR:N    | 19:FX:188:THR:HG23 | 2.20                     | 0.45              |
| 20:G2:105:A:OP2    | 20:G2:106:A:H2'    | 2.17                     | 0.45              |
| 23:GB:138:ASP:OD1  | 23:GB:140:LYS:HG2  | 2.17                     | 0.45              |
| 24:GC:100:GLN:NE2  | 1:H1:828:C:O2'     | 2.50                     | 0.45              |
| 24:GC:213:LEU:HD12 | 24:GC:234:ASP:C    | 2.42                     | 0.45              |
| 25:GD:20:ASN:OD1   | 25:GD:126:ASP:HB2  | 2.16                     | 0.45              |
| 26:GE:34:ILE:HD11  | 26:GE:147:ILE:CG2  | 2.43                     | 0.45              |
| 28:GG:23:UNK:HB1   | 28:GG:87:UNK:HB2   | 1.97                     | 0.45              |
| 29:GH:191:VAL:HB   | 29:GH:198:LYS:HB2  | 1.97                     | 0.45              |
| 30:GI:171:VAL:O    | 30:GI:172:LYS:C    | 2.58                     | 0.45              |
| 32:GK:21:ARG:HD2   | 1:H1:1396:A:C5'    | 2.47                     | 0.45              |
| 34:GM:247:PHE:O    | 34:GM:251:HIS:CD2  | 2.69                     | 0.45              |
| 37:GP:82:GLY:CA    | 50:HT:205:HOH:O    | 2.64                     | 0.45              |
| 39:GR:116:ARG:N    | 39:GR:133:ARG:O    | 2.45                     | 0.45              |
| 40:GS:59:ARG:NH1   | 1:H1:200:C:P       | 2.89                     | 0.45              |
| 42:GU:97:THR:HG22  | 42:GU:99:LYS:H     | 1.82                     | 0.45              |
| 43:GV:114:PHE:CD2  | 43:GV:115:ARG:O    | 2.69                     | 0.45              |
| 1:H1:47:G:HO2'     | 1:H1:48:U:P        | 2.40                     | 0.45              |
| 1:H1:136:C:O2'     | 1:H1:137:A:H5'     | 2.16                     | 0.45              |
| 1:H1:738:U:O2'     | 1:H1:778:G:OP1     | 2.33                     | 0.45              |
| 1:H1:964:U:P       | 50:H1:3770:HOH:O   | 2.74                     | 0.45              |
| 1:H1:1046:G:H2'    | 1:H1:1047:G:H8     | 1.81                     | 0.45              |
| 1:H1:1233:G:C2'    | 1:H1:1234:G:H5'    | 2.47                     | 0.45              |
| 1:H1:1711:U:H1'    | 12:HM:77:TYR:CE2   | 2.52                     | 0.45              |
| 1:H1:1937:G:O2'    | 1:H1:2116:A:H1'    | 2.16                     | 0.45              |
| 1:H1:1966:U:H2'    | 1:H1:1967:C:O5'    | 2.16                     | 0.45              |
| 1:H1:2743:G:C3'    | 1:H1:2744:C:H5'    | 2.40                     | 0.45              |
| 1:H1:2750:G:H4'    | 1:H1:2751:A:OP1    | 2.17                     | 0.45              |
| 1:H1:2921:A:C6     | 1:H1:2922:A:N1     | 2.85                     | 0.45              |
| 1:H1:3070:C:H2'    | 1:H1:3071:C:C6     | 2.52                     | 0.45              |
| 1:H1:3227:A:O2'    | 5:HE:86:PRO:CG     | 2.64                     | 0.45              |
| 2:HA:25:ALA:HB1    | 3:HB:52:TYR:HD2    | 1.80                     | 0.45              |
| 3:HB:38:ASN:ND2    | 3:HB:41:ARG:HG3    | 2.32                     | 0.45              |
| 6:HF:7:VAL:HG23    | 6:HF:55:LEU:HD11   | 1.99                     | 0.45              |
| 6:HF:79:PHE:O      | 6:HF:80:ASP:HB2    | 2.17                     | 0.45              |
| 8:HH:57:VAL:O      | 8:HH:104:LEU:HD22  | 2.17                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:HM:55:ASN:ND2   | 12:HM:71:ILE:HD11  | 2.29                     | 0.45              |
| 19:HX:96:GLN:HB3   | 19:HX:134:THR:CG2  | 2.47                     | 0.45              |
| 1:A1:256:A:H4'     | 18:AU:84:SER:HB3   | 1.98                     | 0.45              |
| 1:A1:345:C:C4      | 1:A1:347:A:C8      | 3.05                     | 0.45              |
| 1:A1:364:A:H1'     | 24:BC:89:THR:HG23  | 1.98                     | 0.45              |
| 1:A1:561:A:C2'     | 1:A1:562:G:H5'     | 2.47                     | 0.45              |
| 1:A1:665:C:H2'     | 1:A1:666:U:O4'     | 2.17                     | 0.45              |
| 1:A1:681:A:H5'     | 20:B2:20:A:O2'     | 2.17                     | 0.45              |
| 1:A1:689:A:H2'     | 1:A1:690:U:H6      | 1.82                     | 0.45              |
| 1:A1:766:G:HO2'    | 1:A1:767:C:P       | 2.40                     | 0.45              |
| 1:A1:882:G:HO2'    | 1:A1:883:A:P       | 2.39                     | 0.45              |
| 1:A1:1042:U:H2'    | 1:A1:1043:C:C6     | 2.51                     | 0.45              |
| 1:A1:1597:U:C2'    | 1:A1:1598:C:C6     | 2.95                     | 0.45              |
| 1:A1:1691:U:H2'    | 1:A1:1692:G:H8     | 1.82                     | 0.45              |
| 1:A1:2245:G:O2'    | 1:A1:2246:G:H5'    | 2.17                     | 0.45              |
| 1:A1:2353:C:H3'    | 1:A1:2354:C:H6     | 1.82                     | 0.45              |
| 1:A1:2561:A:N3     | 1:A1:2563:U:C6     | 2.84                     | 0.45              |
| 1:A1:2934:A:H2'    | 1:A1:2970:A:N7     | 2.31                     | 0.45              |
| 1:A1:2962:U:H6     | 1:A1:2962:U:C5'    | 2.30                     | 0.45              |
| 1:A1:3228:U:C3'    | 1:A1:3229:C:C5'    | 2.94                     | 0.45              |
| 1:A1:3325:G:N9     | 41:BT:58:ARG:NH2   | 2.64                     | 0.45              |
| 1:A1:3346:G:H2'    | 1:A1:3347:A:H8     | 1.82                     | 0.45              |
| 5:AE:7:GLY:C       | 5:AE:9:ASN:N       | 2.74                     | 0.45              |
| 6:AF:30:ILE:CG2    | 19:AX:163:PHE:HE2  | 2.25                     | 0.45              |
| 6:AF:96:ILE:O      | 6:AF:99:LYS:HB2    | 2.16                     | 0.45              |
| 18:AU:72:GLY:HA3   | 18:AU:96:ASP:CB    | 2.46                     | 0.45              |
| 20:B2:105:A:C5'    | 20:B2:106:A:H5''   | 2.27                     | 0.45              |
| 20:B2:119:A:C2     | 20:B2:133:U:O2     | 2.70                     | 0.45              |
| 21:B3:48:G:O2'     | 34:BM:227:GLN:CG   | 2.65                     | 0.45              |
| 23:BB:56:ILE:HG21  | 23:BB:354:LEU:CD2  | 2.47                     | 0.45              |
| 23:BB:117:ARG:NH1  | 23:BB:173:LYS:HG2  | 2.31                     | 0.45              |
| 24:BC:143:PHE:CE1  | 24:BC:149:ILE:HB   | 2.52                     | 0.45              |
| 24:BC:173:VAL:HG12 | 24:BC:177:LYS:HE3  | 1.98                     | 0.45              |
| 24:BC:273:TYR:HB3  | 24:BC:287:ARG:HH12 | 1.81                     | 0.45              |
| 24:BC:311:ALA:H    | 35:BN:40:ARG:HH22  | 1.62                     | 0.45              |
| 30:BI:99:GLU:O     | 30:BI:99:GLU:HG2   | 2.15                     | 0.45              |
| 31:BJ:83:ILE:CG2   | 31:BJ:122:VAL:HA   | 2.47                     | 0.45              |
| 32:BK:75:VAL:CG2   | 32:BK:109:PHE:CB   | 2.95                     | 0.45              |
| 34:BM:131:ASN:HB3  | 34:BM:133:ASP:OD1  | 2.17                     | 0.45              |
| 37:BP:11:THR:CG2   | 37:BP:15:PHE:CD2   | 2.99                     | 0.45              |
| 38:BQ:76:HIS:C     | 38:BQ:78:PHE:N     | 2.75                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:BQ:117:GLN:O    | 38:BQ:151:PHE:O    | 2.34                     | 0.45              |
| 40:BS:21:SER:HB2   | 40:BS:26:ARG:HG2   | 1.97                     | 0.45              |
| 43:BV:188:VAL:HG12 | 43:BV:188:VAL:O    | 2.17                     | 0.45              |
| 45:BX:22:PHE:O     | 45:BX:23:GLU:HB2   | 2.15                     | 0.45              |
| 45:BX:69:LEU:HG    | 45:BX:73:PHE:O     | 2.17                     | 0.45              |
| 45:BX:113:ARG:O    | 45:BX:117:LEU:HG   | 2.16                     | 0.45              |
| 20:C2:108:G:H4'    | 20:C2:135:A:H5'    | 1.98                     | 0.45              |
| 20:C2:130:C:C2'    | 20:C2:131:C:H5'    | 2.47                     | 0.45              |
| 21:C3:64:A:H5'     | 21:C3:65:G:OP2     | 2.16                     | 0.45              |
| 22:CA:33:TYR:HD1   | 22:CA:164:ARG:NH2  | 2.15                     | 0.45              |
| 22:CA:239:ARG:NH1  | 1:D1:2158:C:C5'    | 2.62                     | 0.45              |
| 23:CB:121:ASN:HB3  | 1:D1:3275:A:C6     | 2.51                     | 0.45              |
| 23:CB:128:LYS:HD3  | 23:CB:128:LYS:HA   | 1.83                     | 0.45              |
| 23:CB:220:LYS:HG2  | 23:CB:329:PRO:CD   | 2.47                     | 0.45              |
| 24:CC:81:ILE:HG23  | 24:CC:82:PRO:N     | 2.32                     | 0.45              |
| 24:CC:299:ILE:HA   | 24:CC:304:VAL:HG11 | 1.99                     | 0.45              |
| 26:CE:88:PHE:HD2   | 26:CE:152:VAL:HG12 | 1.82                     | 0.45              |
| 26:CE:179:VAL:HB   | 10:DK:89:TYR:OH    | 2.16                     | 0.45              |
| 27:CF:22:PHE:CD1   | 13:DN:54:THR:O     | 2.69                     | 0.45              |
| 27:CF:232:GLN:OE1  | 1:D1:2573:U:H1'    | 2.17                     | 0.45              |
| 28:CG:23:UNK:HB1   | 28:CG:87:UNK:HB2   | 1.97                     | 0.45              |
| 30:CI:73:ARG:NH1   | 1:D1:3123:A:OP1    | 2.50                     | 0.45              |
| 30:CI:171:VAL:O    | 30:CI:172:LYS:C    | 2.58                     | 0.45              |
| 34:CM:75:LEU:HD23  | 34:CM:75:LEU:HA    | 1.61                     | 0.45              |
| 34:CM:216:LEU:HD12 | 34:CM:228:PHE:CE1  | 2.52                     | 0.45              |
| 35:CN:178:HIS:ND1  | 35:CN:179:GLY:O    | 2.50                     | 0.45              |
| 47:CO:21:ARG:NH1   | 47:CO:52:LYS:HE3   | 2.32                     | 0.45              |
| 37:CP:27:ILE:CA    | 37:CP:30:TYR:HD2   | 2.21                     | 0.45              |
| 38:CQ:66:THR:CG2   | 38:CQ:82:GLN:NE2   | 2.80                     | 0.45              |
| 39:CR:69:SER:O     | 39:CR:95:HIS:HB2   | 2.17                     | 0.45              |
| 39:CR:145:ASN:HD22 | 39:CR:150:ILE:HD11 | 1.82                     | 0.45              |
| 42:CU:66:ARG:O     | 42:CU:69:ALA:HB3   | 2.17                     | 0.45              |
| 44:CW:79:ASN:OD1   | 44:CW:81:GLU:HG2   | 2.17                     | 0.45              |
| 46:CY:74:PRO:N     | 46:CY:75:PRO:CD    | 2.79                     | 0.45              |
| 1:D1:20:G:C4       | 1:D1:21:A:C8       | 3.05                     | 0.45              |
| 1:D1:116:U:C6      | 1:D1:117:G:N7      | 2.85                     | 0.45              |
| 1:D1:314:C:H2'     | 1:D1:315:U:H6      | 1.81                     | 0.45              |
| 1:D1:376:A:C5'     | 1:D1:377:A:OP1     | 2.64                     | 0.45              |
| 1:D1:992:A:N6      | 1:D1:993:G:C6      | 2.84                     | 0.45              |
| 1:D1:1105:U:C2     | 1:D1:1111:G:C2     | 3.05                     | 0.45              |
| 1:D1:1334:G:N3     | 1:D1:1335:A:C2     | 2.85                     | 0.45              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:1348:G:C2'    | 1:D1:1349:U:O5'   | 2.65                     | 0.45              |
| 1:D1:1398:G:C2'    | 1:D1:1399:A:O5'   | 2.64                     | 0.45              |
| 1:D1:1404:G:H5'    | 1:D1:1434:G:HO2'  | 1.80                     | 0.45              |
| 1:D1:1552:U:O2     | 1:D1:1620:U:H5'   | 2.17                     | 0.45              |
| 1:D1:1592:G:H2'    | 1:D1:1593:A:H8    | 1.78                     | 0.45              |
| 1:D1:2343:A:C3'    | 1:D1:2344:U:C5'   | 2.90                     | 0.45              |
| 1:D1:2595:G:H8     | 50:D1:4099:HOH:O  | 1.87                     | 0.45              |
| 1:D1:3000:A:N1     | 1:D1:3032:C:O2'   | 2.37                     | 0.45              |
| 1:D1:3085:C:H2'    | 1:D1:3086:U:H6    | 1.82                     | 0.45              |
| 5:DE:124:LYS:HG2   | 5:DE:132:ALA:CB   | 2.46                     | 0.45              |
| 6:DF:13:VAL:HG21   | 6:DF:27:ILE:CD1   | 2.42                     | 0.45              |
| 6:DF:14:TYR:OH     | 6:DF:22:GLY:HA2   | 2.16                     | 0.45              |
| 6:DF:121:THR:O     | 6:DF:121:THR:CG2  | 2.65                     | 0.45              |
| 9:DJ:36:SER:O      | 9:DJ:37:VAL:C     | 2.58                     | 0.45              |
| 19:DX:7:GLN:HE22   | 19:DX:80:GLU:CA   | 2.29                     | 0.45              |
| 20:E2:110:A:C2     | 20:E2:115:G:O6    | 2.69                     | 0.45              |
| 21:E3:83:G:C2      | 21:E3:93:G:N2     | 2.84                     | 0.45              |
| 23:EB:117:ARG:HA   | 23:EB:117:ARG:HD2 | 1.60                     | 0.45              |
| 23:EB:218:VAL:HA   | 23:EB:271:HIS:O   | 2.17                     | 0.45              |
| 23:EB:218:VAL:O    | 23:EB:332:ARG:NE  | 2.49                     | 0.45              |
| 24:EC:34:ARG:O     | 24:EC:38:VAL:HG23 | 2.17                     | 0.45              |
| 24:EC:126:ARG:NH2  | 1:F1:720:C:H5''   | 2.30                     | 0.45              |
| 24:EC:240:ARG:HB2  | 1:F1:719:C:H1'    | 1.98                     | 0.45              |
| 27:EF:83:SER:O     | 27:EF:87:LYS:HG3  | 2.17                     | 0.45              |
| 27:EF:143:LEU:HD23 | 27:EF:169:PRO:HG2 | 1.98                     | 0.45              |
| 29:EH:74:LYS:O     | 29:EH:75:ASN:C    | 2.59                     | 0.45              |
| 29:EH:201:GLY:O    | 29:EH:208:ARG:NH2 | 2.50                     | 0.45              |
| 30:EI:91:THR:HG22  | 30:EI:93:LYS:H    | 1.81                     | 0.45              |
| 34:EM:99:TYR:CG    | 34:EM:204:ILE:CG2 | 2.99                     | 0.45              |
| 35:EN:88:THR:HG22  | 35:EN:107:THR:CG2 | 2.46                     | 0.45              |
| 38:EQ:61:PRO:HG2   | 38:EQ:78:PHE:CD1  | 2.52                     | 0.45              |
| 45:EX:98:ILE:H     | 45:EX:123:ASN:CG  | 2.24                     | 0.45              |
| 46:EY:72:THR:HG22  | 46:EY:77:VAL:CG2  | 2.47                     | 0.45              |
| 1:F1:20:G:C5       | 1:F1:21:A:C8      | 3.05                     | 0.45              |
| 1:F1:312:U:H2'     | 1:F1:313:U:H6     | 1.79                     | 0.45              |
| 1:F1:1040:A:H3'    | 1:F1:1041:C:C6    | 2.52                     | 0.45              |
| 1:F1:1048:U:H2'    | 1:F1:1049:U:O4'   | 2.17                     | 0.45              |
| 1:F1:1109:A:C4'    | 1:F1:1110:U:O5'   | 2.62                     | 0.45              |
| 1:F1:1248:G:C8     | 1:F1:1248:G:O5'   | 2.70                     | 0.45              |
| 1:F1:1497:U:H2'    | 1:F1:1498:U:C6    | 2.52                     | 0.45              |
| 1:F1:1554:G:N2     | 1:F1:1857:G:C4    | 2.85                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1680:A:H4'    | 1:F1:1681:C:O5'    | 2.17                     | 0.45              |
| 1:F1:1685:A:H2'    | 1:F1:1686:G:C8     | 2.52                     | 0.45              |
| 1:F1:1719:U:N3     | 1:F1:1775:A:H2     | 2.07                     | 0.45              |
| 1:F1:3275:A:H2'    | 1:F1:3276:C:OP2    | 2.15                     | 0.45              |
| 5:FE:41:LEU:HA     | 5:FE:92:GLN:HE22   | 1.78                     | 0.45              |
| 5:FE:67:LYS:HD2    | 5:FE:109:THR:CB    | 2.47                     | 0.45              |
| 5:FE:69:LEU:HD21   | 5:FE:114:ASP:HA    | 1.99                     | 0.45              |
| 6:FF:80:ASP:O      | 6:FF:81:LEU:C      | 2.58                     | 0.45              |
| 8:FH:48:VAL:HG22   | 8:FH:85:GLY:HA2    | 1.99                     | 0.45              |
| 8:FH:107:MET:HB3   | 8:FH:109:TYR:CE2   | 2.52                     | 0.45              |
| 9:FJ:89:PRO:O      | 9:FJ:92:VAL:HG12   | 2.15                     | 0.45              |
| 9:FJ:111:ASN:OD1   | 9:FJ:111:ASN:C     | 2.60                     | 0.45              |
| 9:FJ:171:ASP:O     | 9:FJ:172:GLU:C     | 2.59                     | 0.45              |
| 16:FQ:68:LYS:HG3   | 16:FQ:69:ASP:N     | 2.32                     | 0.45              |
| 19:FX:89:TYR:O     | 19:FX:107:GLU:HA   | 2.16                     | 0.45              |
| 20:G2:50:C:N4      | 50:G2:315:HOH:O    | 2.50                     | 0.45              |
| 22:GA:212:HIS:O    | 22:GA:214:GLY:N    | 2.50                     | 0.45              |
| 23:GB:23:ARG:HE    | 23:GB:24:HIS:CE1   | 2.34                     | 0.45              |
| 23:GB:114:THR:CG2  | 23:GB:115:LYS:N    | 2.79                     | 0.45              |
| 23:GB:340:ILE:HG13 | 23:GB:341:ILE:H    | 1.81                     | 0.45              |
| 27:GF:69:GLN:HE21  | 27:GF:222:ARG:HH12 | 1.65                     | 0.45              |
| 31:GJ:46:ILE:CD1   | 31:GJ:54:PRO:CB    | 2.92                     | 0.45              |
| 31:GJ:83:ILE:CD1   | 31:GJ:105:VAL:HG23 | 2.44                     | 0.45              |
| 32:GK:8:THR:HG21   | 1:H1:685:G:H5'     | 1.98                     | 0.45              |
| 33:GL:74:PRO:HA    | 1:H1:2162:A:H1'    | 1.99                     | 0.45              |
| 33:GL:177:LYS:HG2  | 33:GL:185:ARG:HH21 | 1.80                     | 0.45              |
| 33:GL:183:SER:HB3  | 33:GL:195:ARG:HH22 | 1.81                     | 0.45              |
| 34:GM:40:ASP:C     | 34:GM:42:ASP:N     | 2.74                     | 0.45              |
| 34:GM:200:HIS:O    | 34:GM:204:ILE:HG13 | 2.16                     | 0.45              |
| 37:GP:52:MET:HA    | 37:GP:95:HIS:CE1   | 2.52                     | 0.45              |
| 38:GQ:66:THR:HG23  | 38:GQ:82:GLN:NE2   | 2.32                     | 0.45              |
| 43:GV:18:LYS:O     | 43:GV:21:LYS:HB2   | 2.17                     | 0.45              |
| 44:GW:91:LEU:HD23  | 44:GW:91:LEU:HA    | 1.65                     | 0.45              |
| 1:H1:199:A:C4      | 1:H1:201:A:C8      | 3.05                     | 0.45              |
| 1:H1:220:C:C4'     | 1:H1:221:A:OP2     | 2.58                     | 0.45              |
| 1:H1:282:G:H22     | 1:H1:304:U:H4'     | 1.76                     | 0.45              |
| 1:H1:439:A:C5'     | 5:HE:126:HIS:ND1   | 2.67                     | 0.45              |
| 1:H1:486:C:C2'     | 1:H1:487:G:H5'     | 2.46                     | 0.45              |
| 1:H1:585:A:C5      | 1:H1:586:A:C5      | 3.04                     | 0.45              |
| 1:H1:636:U:H4'     | 5:HE:34:LYS:HE2    | 1.98                     | 0.45              |
| 1:H1:653:C:C2      | 1:H1:654:U:C5      | 3.05                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:H1:687:C:H2'    | 1:H1:688:U:C6     | 2.51                     | 0.45              |
| 1:H1:692:A:H2'    | 1:H1:693:A:C8     | 2.52                     | 0.45              |
| 1:H1:820:G:C2'    | 1:H1:821:U:C5'    | 2.94                     | 0.45              |
| 1:H1:941:G:O6     | 1:H1:2409:G:O2'   | 2.27                     | 0.45              |
| 1:H1:1028:A:C2    | 1:H1:1076:U:O2'   | 2.68                     | 0.45              |
| 1:H1:1040:A:C2'   | 1:H1:1041:C:H5'   | 2.47                     | 0.45              |
| 1:H1:1235:U:H4'   | 1:H1:1235:U:OP2   | 2.15                     | 0.45              |
| 1:H1:1319:C:H2'   | 1:H1:1320:U:C6    | 2.48                     | 0.45              |
| 1:H1:1499:G:O2'   | 1:H1:1500:A:H5'   | 2.17                     | 0.45              |
| 1:H1:1772:G:C2'   | 1:H1:1773:G:H5'   | 2.47                     | 0.45              |
| 1:H1:1909:C:HO2'  | 1:H1:1910:A:P     | 2.24                     | 0.45              |
| 1:H1:1964:G:H2'   | 1:H1:1965:C:O4'   | 2.16                     | 0.45              |
| 1:H1:3011:G:C1'   | 1:H1:3012:U:OP2   | 2.64                     | 0.45              |
| 1:H1:3332:A:C3'   | 1:H1:3333:G:C5'   | 2.95                     | 0.45              |
| 9:HJ:160:LEU:HD12 | 9:HJ:182:CYS:O    | 2.17                     | 0.45              |
| 17:HT:48:LYS:C    | 17:HT:55:LYS:HZ2  | 2.25                     | 0.45              |
| 1:A1:90:G:OP1     | 4:AC:53:LYS:NZ    | 2.41                     | 0.45              |
| 1:A1:288:A:H2     | 33:BL:93:LYS:HG3  | 1.81                     | 0.45              |
| 1:A1:296:G:C3'    | 16:AQ:34:LEU:HD21 | 2.47                     | 0.45              |
| 1:A1:510:A:H5'    | 14:AO:68:HIS:O    | 2.17                     | 0.45              |
| 1:A1:633:C:H3'    | 5:AE:30:ARG:NH2   | 2.29                     | 0.45              |
| 1:A1:1017:U:H3'   | 1:A1:1017:U:H6    | 1.82                     | 0.45              |
| 1:A1:1188:G:H2'   | 45:BX:58:GLY:HA3  | 1.99                     | 0.45              |
| 1:A1:1440:A:C5    | 1:A1:1441:U:C5    | 3.04                     | 0.45              |
| 1:A1:1839:A:O2'   | 1:A1:1840:U:C6    | 2.70                     | 0.45              |
| 1:A1:1909:C:HO2'  | 1:A1:1910:A:P     | 2.20                     | 0.45              |
| 1:A1:2140:A:P     | 50:A1:4100:HOH:O  | 2.75                     | 0.45              |
| 1:A1:2188:U:O2'   | 1:A1:2189:G:OP2   | 2.21                     | 0.45              |
| 1:A1:2531:U:C2    | 1:A1:2532:G:H1'   | 2.52                     | 0.45              |
| 1:A1:2683:A:C5'   | 1:A1:2684:A:OP2   | 2.65                     | 0.45              |
| 1:A1:3183:A:H4'   | 1:A1:3184:A:OP1   | 2.17                     | 0.45              |
| 1:A1:3303:G:H2'   | 1:A1:3304:U:C6    | 2.51                     | 0.45              |
| 1:A1:3325:G:C5    | 41:BT:58:ARG:NE   | 2.84                     | 0.45              |
| 2:AA:11:ARG:HG3   | 2:AA:11:ARG:H     | 1.66                     | 0.45              |
| 5:AE:57:ARG:CZ    | 5:AE:58:PHE:CE1   | 3.00                     | 0.45              |
| 5:AE:66:LEU:HD11  | 5:AE:77:THR:OG1   | 2.17                     | 0.45              |
| 6:AF:80:ASP:O     | 6:AF:81:LEU:C     | 2.59                     | 0.45              |
| 9:AJ:182:CYS:HB2  | 9:AJ:221:ILE:HD12 | 1.99                     | 0.45              |
| 11:AL:62:ALA:C    | 11:AL:64:TYR:N    | 2.75                     | 0.45              |
| 11:AL:96:LEU:HD23 | 11:AL:96:LEU:HA   | 1.71                     | 0.45              |
| 14:AO:109:LYS:O   | 14:AO:113:ASN:ND2 | 2.50                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 19:AX:42:ARG:NE   | 19:AX:44:PHE:HE1   | 2.15                     | 0.45              |
| 19:AX:167:LYS:HG2 | 19:AX:188:THR:CG2  | 2.45                     | 0.45              |
| 20:B2:130:C:C2'   | 20:B2:131:C:H5'    | 2.47                     | 0.45              |
| 23:BB:301:LYS:HG2 | 23:BB:359:THR:HG21 | 1.99                     | 0.45              |
| 24:BC:34:ARG:NE   | 35:BN:24:ASN:HB2   | 2.32                     | 0.45              |
| 25:BD:132:GLU:C   | 25:BD:154:ILE:HD11 | 2.41                     | 0.45              |
| 27:BF:20:PRO:C    | 27:BF:22:PHE:H     | 2.25                     | 0.45              |
| 29:BH:136:PHE:HE1 | 29:BH:159:PHE:HZ   | 1.65                     | 0.45              |
| 30:BI:46:LEU:HA   | 30:BI:135:CYS:SG   | 2.57                     | 0.45              |
| 34:BM:34:LYS:HE3  | 37:BP:30:TYR:HE1   | 1.82                     | 0.45              |
| 34:BM:75:LEU:HA   | 34:BM:75:LEU:HD23  | 1.64                     | 0.45              |
| 35:BN:6:HIS:C     | 35:BN:8:GLN:N      | 2.75                     | 0.45              |
| 42:BU:41:THR:H    | 42:BU:44:LYS:HD2   | 1.82                     | 0.45              |
| 24:CC:40:LYS:O    | 24:CC:43:THR:HB    | 2.17                     | 0.45              |
| 24:CC:117:HIS:HB2 | 33:CL:202:ARG:O    | 2.17                     | 0.45              |
| 27:CF:122:PRO:CD  | 1:D1:118:A:C8      | 3.00                     | 0.45              |
| 27:CF:127:TYR:CD1 | 27:CF:127:TYR:O    | 2.68                     | 0.45              |
| 27:CF:136:ILE:O   | 27:CF:166:ASN:ND2  | 2.50                     | 0.45              |
| 30:CI:27:LEU:HD11 | 1:D1:1203:C:H5'    | 1.98                     | 0.45              |
| 30:CI:196:PHE:HZ  | 6:DF:107:ASP:HA    | 1.81                     | 0.45              |
| 34:CM:228:PHE:O   | 34:CM:229:SER:C    | 2.59                     | 0.45              |
| 34:CM:242:SER:OG  | 34:CM:245:LYS:HG2  | 2.17                     | 0.45              |
| 35:CN:31:ILE:O    | 35:CN:35:LYS:HG3   | 2.16                     | 0.45              |
| 47:CO:5:ARG:HA    | 47:CO:5:ARG:HD2    | 1.76                     | 0.45              |
| 47:CO:18:GLY:O    | 47:CO:19:GLN:C     | 2.57                     | 0.45              |
| 38:CQ:57:LYS:HE2  | 1:D1:3259:U:O2'    | 2.16                     | 0.45              |
| 38:CQ:71:ARG:HG2  | 38:CQ:81:THR:CG2   | 2.45                     | 0.45              |
| 38:CQ:122:ASN:HB2 | 38:CQ:147:HIS:HB2  | 1.98                     | 0.45              |
| 39:CR:39:ARG:CZ   | 1:D1:11:A:H4'      | 2.46                     | 0.45              |
| 39:CR:56:ARG:HB3  | 39:CR:61:VAL:CG2   | 2.44                     | 0.45              |
| 40:CS:86:LYS:HE3  | 40:CS:96:ILE:CD1   | 2.47                     | 0.45              |
| 1:D1:64:A:H5'     | 1:D1:315:U:OP1     | 2.16                     | 0.45              |
| 1:D1:170:A:C5     | 1:D1:250:U:N3      | 2.85                     | 0.45              |
| 1:D1:1222:A:H2'   | 1:D1:1336:U:O2     | 2.16                     | 0.45              |
| 1:D1:1550:A:C5    | 1:D1:1632:U:C6     | 3.05                     | 0.45              |
| 1:D1:1595:A:C5    | 1:D1:1596:U:C1'    | 2.96                     | 0.45              |
| 1:D1:1845:U:H3    | 11:DL:69:ARG:HG3   | 1.82                     | 0.45              |
| 1:D1:2245:G:C6    | 1:D1:2246:G:C5     | 3.04                     | 0.45              |
| 1:D1:2515:G:C6    | 1:D1:2516:U:C4     | 3.04                     | 0.45              |
| 1:D1:2888:A:O2'   | 1:D1:2889:G:H5'    | 2.16                     | 0.45              |
| 1:D1:3111:A:H2'   | 1:D1:3112:A:H5''   | 1.98                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3132:A:C2'    | 1:D1:3133:G:OP1    | 2.65                     | 0.45              |
| 1:D1:3198:A:C5     | 1:D1:3199:G:C5     | 3.05                     | 0.45              |
| 1:D1:3225:U:C4     | 1:D1:3226:A:N7     | 2.85                     | 0.45              |
| 5:DE:54:LEU:C      | 5:DE:59:ARG:HB2    | 2.38                     | 0.45              |
| 5:DE:114:ASP:C     | 5:DE:116:TYR:H     | 2.25                     | 0.45              |
| 5:DE:187:HIS:HB3   | 8:DH:51:TYR:CE1    | 2.52                     | 0.45              |
| 12:DM:96:TYR:HD1   | 12:DM:110:PHE:HD1  | 1.65                     | 0.45              |
| 14:DO:3:GLN:HA     | 14:DO:3:GLN:OE1    | 2.15                     | 0.45              |
| 18:DU:123:LEU:CD2  | 18:DU:135:LEU:O    | 2.64                     | 0.45              |
| 19:DX:34:THR:CG2   | 19:DX:35:LYS:N     | 2.79                     | 0.45              |
| 19:DX:188:THR:O    | 19:DX:189:PHE:CB   | 2.65                     | 0.45              |
| 20:E2:27:G:H5'     | 20:E2:27:G:C8      | 2.46                     | 0.45              |
| 20:E2:27:G:H1'     | 1:F1:348:A:C4      | 2.52                     | 0.45              |
| 20:E2:77:U:C4      | 40:ES:73:TYR:CE2   | 3.04                     | 0.45              |
| 22:EA:3:ARG:HB3    | 22:EA:208:VAL:O    | 2.17                     | 0.45              |
| 22:EA:236:VAL:O    | 1:F1:2178:A:O2'    | 2.35                     | 0.45              |
| 23:EB:22:THR:OG1   | 23:EB:271:HIS:HA   | 2.17                     | 0.45              |
| 23:EB:33:PRO:CD    | 23:EB:44:THR:CG2   | 2.95                     | 0.45              |
| 23:EB:263:PRO:O    | 23:EB:264:ARG:HG2  | 2.17                     | 0.45              |
| 25:ED:131:LEU:HD11 | 25:ED:162:TRP:CE3  | 2.52                     | 0.45              |
| 26:EE:5:LEU:HD13   | 26:EE:58:TRP:CH2   | 2.52                     | 0.45              |
| 29:EH:17:TYR:HD2   | 29:EH:96:VAL:HB    | 1.81                     | 0.45              |
| 30:EI:69:VAL:HG22  | 1:F1:2377:G:O2'    | 2.15                     | 0.45              |
| 31:EJ:139:SER:HA   | 9:FJ:102:SER:H     | 1.82                     | 0.45              |
| 32:EK:75:VAL:HG22  | 32:EK:109:PHE:CG   | 2.50                     | 0.45              |
| 33:EL:59:TYR:OH    | 33:EL:148:ILE:CD1  | 2.64                     | 0.45              |
| 33:EL:69:GLY:O     | 1:F1:289:G:H4'     | 2.17                     | 0.45              |
| 34:EM:66:TYR:CZ    | 34:EM:73:ARG:HB2   | 2.52                     | 0.45              |
| 34:EM:76:CYS:O     | 34:EM:105:LEU:HD11 | 2.17                     | 0.45              |
| 35:EN:63:LEU:HD21  | 35:EN:140:LEU:HB3  | 1.98                     | 0.45              |
| 43:EV:82:PHE:HB3   | 43:EV:231:ILE:CD1  | 2.46                     | 0.45              |
| 45:EX:8:HIS:NE2    | 45:EX:72:GLY:HA2   | 2.31                     | 0.45              |
| 1:F1:70:C:O2'      | 1:F1:71:U:H5''     | 2.17                     | 0.45              |
| 1:F1:526:U:O2'     | 1:F1:527:A:O5'     | 2.35                     | 0.45              |
| 1:F1:561:A:O2'     | 1:F1:562:G:H5'     | 2.16                     | 0.45              |
| 1:F1:703:U:O2'     | 1:F1:704:G:H5'     | 2.17                     | 0.45              |
| 1:F1:827:C:O2'     | 1:F1:828:C:H5'     | 2.16                     | 0.45              |
| 1:F1:979:U:H4'     | 17:FT:8:THR:O      | 2.17                     | 0.45              |
| 1:F1:1221:G:C6     | 1:F1:1222:A:N6     | 2.85                     | 0.45              |
| 1:F1:1240:G:HO2'   | 19:FX:104:MET:HG2  | 1.82                     | 0.45              |
| 1:F1:1549:U:H5''   | 1:F1:1632:U:O2     | 2.17                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1655:A:C4     | 1:F1:1669:G:C5     | 3.05                     | 0.45              |
| 1:F1:1728:A:C2'    | 1:F1:1729:U:OP2    | 2.65                     | 0.45              |
| 1:F1:1907:A:H2'    | 1:F1:1908:A:C8     | 2.52                     | 0.45              |
| 1:F1:2133:U:OP1    | 50:F1:3994:HOH:O   | 2.21                     | 0.45              |
| 1:F1:2248:G:N2     | 1:F1:2259:U:O2     | 2.50                     | 0.45              |
| 1:F1:2515:G:C6     | 1:F1:2516:U:C4     | 3.05                     | 0.45              |
| 1:F1:2630:U:H5''   | 1:F1:2631:A:OP1    | 2.17                     | 0.45              |
| 1:F1:3155:A:H62    | 8:FH:101:GLY:N     | 2.14                     | 0.45              |
| 1:F1:3228:U:C3'    | 1:F1:3229:C:H5'    | 2.47                     | 0.45              |
| 1:F1:3232:A:OP1    | 5:FE:88:LYS:NZ     | 2.34                     | 0.45              |
| 1:F1:3298:U:C1'    | 1:F1:3299:G:P      | 3.05                     | 0.45              |
| 5:FE:77:THR:CG2    | 5:FE:157:ASP:OD1   | 2.65                     | 0.45              |
| 7:FG:13:LYS:CD     | 7:FG:100:ILE:HD13  | 2.42                     | 0.45              |
| 7:FG:27:TYR:HE2    | 7:FG:52:ARG:HG2    | 1.80                     | 0.45              |
| 9:FJ:4:ARG:HA      | 9:FJ:206:CYS:O     | 2.17                     | 0.45              |
| 9:FJ:186:ILE:HG12  | 9:FJ:187:ASN:H     | 1.81                     | 0.45              |
| 12:FM:110:PHE:O    | 12:FM:111:ASN:CB   | 2.65                     | 0.45              |
| 13:FN:95:GLU:HA    | 13:FN:95:GLU:OE1   | 2.17                     | 0.45              |
| 20:G2:81:G:C4'     | 42:GU:42:ALA:HB1   | 2.47                     | 0.45              |
| 23:GB:56:ILE:HG21  | 23:GB:354:LEU:CD2  | 2.45                     | 0.45              |
| 23:GB:119:TYR:CE2  | 23:GB:122:TRP:CZ3  | 3.00                     | 0.45              |
| 24:GC:214:VAL:HG21 | 24:GC:227:LEU:HD11 | 1.98                     | 0.45              |
| 26:GE:19:THR:HB    | 26:GE:26:GLU:HB2   | 1.99                     | 0.45              |
| 29:GH:140:VAL:HG11 | 29:GH:144:HIS:CB   | 2.40                     | 0.45              |
| 30:GI:101:LEU:HD11 | 30:GI:103:ILE:HG12 | 1.99                     | 0.45              |
| 30:GI:184:PRO:HA   | 30:GI:187:LYS:HE2  | 1.99                     | 0.45              |
| 31:GJ:11:VAL:HG21  | 31:GJ:131:PRO:HD3  | 1.99                     | 0.45              |
| 32:GK:15:VAL:HA    | 1:H1:968:U:OP1     | 2.17                     | 0.45              |
| 35:GN:67:ARG:HH21  | 1:H1:809:A:H3'     | 1.82                     | 0.45              |
| 36:GO:96:MET:CE    | 36:GO:100:ARG:NH2  | 2.80                     | 0.45              |
| 39:GR:145:ASN:HD22 | 39:GR:150:ILE:CD1  | 2.30                     | 0.45              |
| 42:GU:69:ALA:O     | 42:GU:72:ASP:HB2   | 2.17                     | 0.45              |
| 1:H1:292:C:OP1     | 1:H1:2427:U:C5'    | 2.65                     | 0.45              |
| 1:H1:331:C:H2'     | 1:H1:332:G:C5'     | 2.44                     | 0.45              |
| 1:H1:652:U:C2      | 1:H1:653:C:C6      | 3.04                     | 0.45              |
| 1:H1:738:U:O2'     | 1:H1:739:G:H5'     | 2.17                     | 0.45              |
| 1:H1:1037:A:O2'    | 1:H1:1038:G:H5'    | 2.17                     | 0.45              |
| 1:H1:1172:G:H1'    | 1:H1:1187:C:N3     | 2.32                     | 0.45              |
| 1:H1:1533:G:H5''   | 1:H1:1533:G:H8     | 1.82                     | 0.45              |
| 1:H1:1747:A:N1     | 1:H1:1814:U:O2'    | 2.38                     | 0.45              |
| 1:H1:2103:A:H2'    | 1:H1:2104:C:C6     | 2.52                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:2189:G:H1'   | 1:H1:2269:U:O2     | 2.17                     | 0.45              |
| 1:H1:3115:C:H2'   | 1:H1:3116:A:O5'    | 2.16                     | 0.45              |
| 4:HC:11:TYR:CE1   | 4:HC:13:LYS:HA     | 2.52                     | 0.45              |
| 5:HE:117:PHE:HA   | 5:HE:149:ARG:NH2   | 2.32                     | 0.45              |
| 9:HJ:46:ILE:HD11  | 9:HJ:202:TRP:CZ2   | 2.52                     | 0.45              |
| 9:HJ:211:THR:O    | 9:HJ:215:ILE:HG13  | 2.17                     | 0.45              |
| 13:HN:25:ILE:HG23 | 13:HN:41:VAL:CG1   | 2.44                     | 0.45              |
| 19:HX:55:PHE:CZ   | 19:HX:59:MET:CE    | 2.98                     | 0.45              |
| 1:A1:126:A:C5     | 1:A1:139:A:C6      | 3.05                     | 0.45              |
| 1:A1:269:U:H2'    | 1:A1:270:C:C6      | 2.51                     | 0.45              |
| 1:A1:467:A:C5     | 1:A1:468:A:C5      | 3.05                     | 0.45              |
| 1:A1:510:A:H5''   | 14:AO:68:HIS:O     | 2.17                     | 0.45              |
| 1:A1:687:C:C2     | 1:A1:688:U:C5      | 3.04                     | 0.45              |
| 1:A1:729:A:C1'    | 1:A1:810:G:N2      | 2.80                     | 0.45              |
| 1:A1:766:G:C2'    | 1:A1:767:C:OP2     | 2.65                     | 0.45              |
| 1:A1:933:G:C4'    | 1:A1:934:G:H5''    | 2.46                     | 0.45              |
| 1:A1:969:C:O5'    | 45:BX:35:ARG:NH1   | 2.50                     | 0.45              |
| 1:A1:1126:A:C5    | 1:A1:1127:U:C5     | 3.04                     | 0.45              |
| 1:A1:1191:G:H5''  | 8:AH:33:ASN:HD21   | 1.82                     | 0.45              |
| 1:A1:1360:C:O2'   | 43:BV:109:HIS:HD2  | 2.00                     | 0.45              |
| 1:A1:1752:G:OP1   | 1:A1:1753:A:O2'    | 2.27                     | 0.45              |
| 1:A1:2153:G:N7    | 22:BA:153:SER:OG   | 2.45                     | 0.45              |
| 1:A1:2159:C:O2    | 22:BA:11:GLY:HA3   | 2.16                     | 0.45              |
| 1:A1:2283:G:C6    | 1:A1:2284:U:C4     | 3.05                     | 0.45              |
| 1:A1:2539:A:C2    | 1:A1:2540:G:C8     | 3.05                     | 0.45              |
| 1:A1:3048:A:H5''  | 44:BW:68:ARG:NH2   | 2.32                     | 0.45              |
| 1:A1:3079:U:C2'   | 1:A1:3080:A:O5'    | 2.65                     | 0.45              |
| 1:A1:3177:G:C2    | 19:AX:177:TYR:CE2  | 3.05                     | 0.45              |
| 5:AE:122:ALA:CB   | 5:AE:132:ALA:HB1   | 2.47                     | 0.45              |
| 13:AN:46:VAL:O    | 13:AN:46:VAL:HG13  | 2.17                     | 0.45              |
| 19:AX:8:GLU:OE2   | 19:AX:19:ARG:NH1   | 2.44                     | 0.45              |
| 19:AX:46:ARG:NH2  | 43:BV:219:HIS:O    | 2.49                     | 0.45              |
| 19:AX:117:VAL:O   | 19:AX:120:LEU:HB3  | 2.17                     | 0.45              |
| 21:B3:35:C:N4     | 21:B3:46:C:H1'     | 2.31                     | 0.45              |
| 21:B3:60:C:H5''   | 34:BM:281:LYS:HG2  | 1.97                     | 0.45              |
| 24:BC:33:ILE:CD1  | 24:BC:135:ALA:HA   | 2.45                     | 0.45              |
| 26:BE:141:THR:CG2 | 26:BE:142:LEU:N    | 2.80                     | 0.45              |
| 29:BH:44:GLU:OE1  | 29:BH:44:GLU:HA    | 2.17                     | 0.45              |
| 33:BL:118:SER:HB3 | 33:BL:132:VAL:HG22 | 1.99                     | 0.45              |
| 33:BL:124:ASP:OD1 | 33:BL:124:ASP:C    | 2.59                     | 0.45              |
| 34:BM:133:ASP:HB3 | 34:BM:172:ASN:ND2  | 2.32                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:BN:67:ARG:HA    | 35:BN:67:ARG:HD3   | 1.65                     | 0.45              |
| 35:BN:73:ASN:OD1   | 35:BN:74:GLU:OE1   | 2.35                     | 0.45              |
| 36:BO:96:MET:HE3   | 36:BO:100:ARG:NH2  | 2.32                     | 0.45              |
| 40:BS:21:SER:OG    | 40:BS:26:ARG:HG2   | 2.17                     | 0.45              |
| 43:BV:200:TRP:CD2  | 43:BV:201:PRO:HD2  | 2.52                     | 0.45              |
| 21:C3:62:U:HO2'    | 21:C3:63:A:P       | 2.38                     | 0.45              |
| 22:CA:43:ARG:HD2   | 22:CA:88:TYR:CD1   | 2.52                     | 0.45              |
| 22:CA:43:ARG:O     | 22:CA:43:ARG:HG3   | 2.16                     | 0.45              |
| 22:CA:136:THR:HB   | 22:CA:150:ARG:HB3  | 1.99                     | 0.45              |
| 22:CA:203:VAL:HA   | 22:CA:213:GLY:HA2  | 1.97                     | 0.45              |
| 23:CB:113:ASN:C    | 23:CB:174:ASN:ND2  | 2.75                     | 0.45              |
| 23:CB:137:PHE:CD1  | 23:CB:137:PHE:C    | 2.93                     | 0.45              |
| 24:CC:33:ILE:O     | 24:CC:33:ILE:CG2   | 2.65                     | 0.45              |
| 24:CC:49:ARG:CZ    | 1:D1:713:G:N2      | 2.80                     | 0.45              |
| 24:CC:145:ARG:NH1  | 24:CC:248:PRO:HD2  | 2.32                     | 0.45              |
| 24:CC:359:LEU:HD21 | 24:CC:363:ARG:HH21 | 1.82                     | 0.45              |
| 26:CE:88:PHE:HD2   | 26:CE:152:VAL:CG1  | 2.29                     | 0.45              |
| 27:CF:126:LYS:CE   | 27:CF:194:THR:OG1  | 2.65                     | 0.45              |
| 33:CL:63:ARG:HG2   | 33:CL:131:GLU:HG3  | 1.98                     | 0.45              |
| 33:CL:81:TYR:OH    | 1:D1:933:G:H5'     | 2.17                     | 0.45              |
| 33:CL:145:ASP:O    | 33:CL:149:ASN:HB3  | 2.16                     | 0.45              |
| 34:CM:54:ARG:HA    | 34:CM:54:ARG:HD3   | 1.60                     | 0.45              |
| 34:CM:181:PRO:HD2  | 34:CM:200:HIS:ND1  | 2.31                     | 0.45              |
| 47:CO:144:VAL:O    | 47:CO:147:ALA:HB3  | 2.16                     | 0.45              |
| 37:CP:48:GLN:HG3   | 37:CP:94:GLU:HG3   | 1.98                     | 0.45              |
| 37:CP:125:ARG:HG2  | 1:D1:1122:A:N7     | 2.32                     | 0.45              |
| 40:CS:55:VAL:CG1   | 40:CS:56:LEU:N     | 2.80                     | 0.45              |
| 42:CU:122:LEU:HD13 | 18:DU:150:LEU:HD21 | 1.99                     | 0.45              |
| 43:CV:134:GLY:HA3  | 43:CV:231:ILE:HB   | 1.98                     | 0.45              |
| 43:CV:170:LEU:HA   | 43:CV:170:LEU:HD23 | 1.58                     | 0.45              |
| 45:CX:53:ARG:HD3   | 45:CX:53:ARG:HA    | 1.40                     | 0.45              |
| 1:D1:68:A:O2'      | 1:D1:69:A:O5'      | 2.35                     | 0.45              |
| 1:D1:72:A:C2       | 1:D1:73:G:C8       | 3.05                     | 0.45              |
| 1:D1:191:U:O2      | 1:D1:191:U:H2'     | 2.17                     | 0.45              |
| 1:D1:291:C:C3'     | 1:D1:292:C:H5''    | 2.47                     | 0.45              |
| 1:D1:296:G:H8      | 1:D1:296:G:P       | 2.39                     | 0.45              |
| 1:D1:347:A:H4'     | 1:D1:366:A:N6      | 2.32                     | 0.45              |
| 1:D1:526:U:O2'     | 1:D1:527:A:O5'     | 2.35                     | 0.45              |
| 1:D1:970:C:H1'     | 1:D1:1433:A:N3     | 2.32                     | 0.45              |
| 1:D1:1168:C:N4     | 1:D1:1169:G:C6     | 2.85                     | 0.45              |
| 1:D1:1843:U:C2     | 1:D1:1844:U:C5     | 3.05                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:2104:C:O2'   | 1:D1:2105:U:H5'    | 2.17                     | 0.45              |
| 1:D1:2135:A:C8    | 2:DA:2:THR:HG23    | 2.52                     | 0.45              |
| 1:D1:2543:C:N4    | 7:DG:54:SER:HB3    | 2.31                     | 0.45              |
| 1:D1:2635:C:H5'   | 1:D1:2635:C:C6     | 2.39                     | 0.45              |
| 1:D1:2767:A:H2'   | 1:D1:2768:G:O5'    | 2.17                     | 0.45              |
| 1:D1:3177:G:H8    | 1:D1:3177:G:OP1    | 1.99                     | 0.45              |
| 1:D1:3228:U:C3'   | 1:D1:3229:C:C5'    | 2.94                     | 0.45              |
| 5:DE:125:ASN:OD1  | 5:DE:125:ASN:C     | 2.60                     | 0.45              |
| 8:DH:52:GLN:O     | 8:DH:77:ILE:O      | 2.35                     | 0.45              |
| 9:DJ:123:ARG:CZ   | 9:FJ:123:ARG:HE    | 2.30                     | 0.45              |
| 9:DJ:171:ASP:O    | 9:DJ:172:GLU:C     | 2.58                     | 0.45              |
| 13:DN:76:ASN:OD1  | 13:DN:77:LEU:N     | 2.50                     | 0.45              |
| 14:DO:58:ILE:O    | 14:DO:83:VAL:HG22  | 2.16                     | 0.45              |
| 20:E2:60:C:C5     | 2:FA:64:ARG:NH1    | 2.85                     | 0.45              |
| 21:E3:95:U:H2'    | 21:E3:96:U:C6      | 2.52                     | 0.45              |
| 22:EA:68:TYR:C    | 22:EA:69:ARG:HG2   | 2.42                     | 0.45              |
| 22:EA:192:ARG:CZ  | 1:F1:1821:U:OP1    | 2.65                     | 0.45              |
| 24:EC:106:MET:HE3 | 1:F1:1455:G:N3     | 2.32                     | 0.45              |
| 24:EC:143:PHE:CE1 | 24:EC:149:ILE:HB   | 2.52                     | 0.45              |
| 24:EC:187:ARG:O   | 24:EC:188:VAL:C    | 2.60                     | 0.45              |
| 25:ED:84:LEU:HB3  | 25:ED:89:MET:HE3   | 1.99                     | 0.45              |
| 29:EH:73:ASN:O    | 29:EH:77:ILE:HG23  | 2.17                     | 0.45              |
| 29:EH:84:ALA:O    | 29:EH:140:VAL:HG13 | 2.17                     | 0.45              |
| 30:EI:96:ALA:O    | 30:EI:97:ALA:C     | 2.59                     | 0.45              |
| 31:EJ:28:ASN:N    | 31:EJ:102:ASN:O    | 2.47                     | 0.45              |
| 33:EL:68:ARG:NH1  | 1:F1:291:C:OP2     | 2.36                     | 0.45              |
| 33:EL:192:TRP:CZ2 | 33:EL:196:GLN:HG3  | 2.52                     | 0.45              |
| 34:EM:28:THR:O    | 1:F1:2692:A:N6     | 2.40                     | 0.45              |
| 35:EN:27:HIS:CD2  | 35:EN:31:ILE:HD11  | 2.51                     | 0.45              |
| 35:EN:114:ILE:O   | 35:EN:119:GLY:HA3  | 2.17                     | 0.45              |
| 36:EO:97:ARG:O    | 36:EO:101:VAL:HG23 | 2.17                     | 0.45              |
| 37:EP:21:THR:HA   | 37:EP:24:HIS:HD2   | 1.75                     | 0.45              |
| 45:EX:62:ASP:HA   | 1:F1:1366:C:C5'    | 2.47                     | 0.45              |
| 1:F1:261:U:H2'    | 1:F1:262:C:H5'     | 1.99                     | 0.45              |
| 1:F1:298:G:C5     | 16:FQ:31:LYS:HG3   | 2.52                     | 0.45              |
| 1:F1:401:U:H2'    | 1:F1:401:U:O2      | 2.17                     | 0.45              |
| 1:F1:434:A:C5'    | 1:F1:435:A:OP1     | 2.62                     | 0.45              |
| 1:F1:510:A:H5'    | 14:FO:68:HIS:O     | 2.17                     | 0.45              |
| 1:F1:882:G:C2'    | 1:F1:883:A:OP2     | 2.64                     | 0.45              |
| 1:F1:1100:U:O2    | 17:FT:46:ALA:HB1   | 2.17                     | 0.45              |
| 1:F1:1235:U:H4'   | 1:F1:1235:U:OP2    | 2.15                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1394:G:O2'    | 1:F1:1395:U:O5'    | 2.33                     | 0.45              |
| 1:F1:1682:G:H2'    | 1:F1:1683:U:H6     | 1.82                     | 0.45              |
| 1:F1:1769:U:H2'    | 1:F1:1770:A:H8     | 1.82                     | 0.45              |
| 1:F1:1812:G:O2'    | 1:F1:1813:A:H5'    | 2.17                     | 0.45              |
| 1:F1:2187:C:H2'    | 1:F1:2188:U:C5'    | 2.47                     | 0.45              |
| 1:F1:2194:G:C2'    | 1:F1:2195:U:H5'    | 2.47                     | 0.45              |
| 1:F1:2353:C:H3'    | 1:F1:2354:C:H6     | 1.81                     | 0.45              |
| 1:F1:2576:C:C6     | 1:F1:2576:C:C4'    | 3.00                     | 0.45              |
| 1:F1:2669:A:O3'    | 1:F1:2670:U:C6     | 2.60                     | 0.45              |
| 1:F1:2949:G:H2'    | 1:F1:2950:U:C6     | 2.52                     | 0.45              |
| 1:F1:3175:A:N1     | 1:F1:3177:G:N1     | 2.65                     | 0.45              |
| 1:F1:3316:C:N4     | 1:F1:3317:G:C6     | 2.85                     | 0.45              |
| 5:FE:11:GLY:HA2    | 5:FE:14:LYS:HE3    | 1.99                     | 0.45              |
| 5:FE:57:ARG:CZ     | 5:FE:58:PHE:CE1    | 2.99                     | 0.45              |
| 6:FF:28:VAL:HG11   | 6:FF:66:ASN:HA     | 1.99                     | 0.45              |
| 9:FJ:140:THR:CG2   | 9:FJ:141:THR:H     | 2.15                     | 0.45              |
| 11:FL:7:TYR:HE2    | 11:FL:18:ASN:OD1   | 2.00                     | 0.45              |
| 12:FM:13:VAL:O     | 12:FM:70:THR:HA    | 2.16                     | 0.45              |
| 14:FO:50:LEU:HA    | 14:FO:59:ALA:O     | 2.17                     | 0.45              |
| 14:FO:83:VAL:HG21  | 14:FO:90:VAL:CG2   | 2.47                     | 0.45              |
| 19:FX:176:LYS:HE2  | 19:FX:177:TYR:OH   | 2.16                     | 0.45              |
| 21:G3:28:C:H5''    | 25:GD:137:ARG:HG2  | 1.97                     | 0.45              |
| 22:GA:175:ARG:HA   | 46:GY:69:TRP:NE1   | 2.32                     | 0.45              |
| 23:GB:113:ASN:O    | 23:GB:116:LYS:HB2  | 2.16                     | 0.45              |
| 23:GB:121:ASN:HD21 | 23:GB:124:ASN:HD22 | 1.66                     | 0.45              |
| 23:GB:137:PHE:CD1  | 23:GB:137:PHE:C    | 2.95                     | 0.45              |
| 24:GC:143:PHE:CE2  | 24:GC:149:ILE:HB   | 2.51                     | 0.45              |
| 32:GK:136:ARG:NH1  | 1:H1:741:G:C4      | 2.85                     | 0.45              |
| 33:GL:6:TYR:HD1    | 16:HQ:45:ILE:HD11  | 1.82                     | 0.45              |
| 33:GL:159:ARG:HB2  | 33:GL:164:LEU:HB2  | 2.00                     | 0.45              |
| 34:GM:9:THR:O      | 34:GM:13:PHE:HD2   | 2.00                     | 0.45              |
| 34:GM:140:LYS:HD3  | 1:H1:1108:A:P      | 2.57                     | 0.45              |
| 39:GR:100:LYS:N    | 39:GR:101:PRO:HD2  | 2.31                     | 0.45              |
| 1:H1:134:A:C6      | 1:H1:135:A:C6      | 3.05                     | 0.45              |
| 1:H1:449:G:C4      | 1:H1:450:C:C5      | 3.05                     | 0.45              |
| 1:H1:534:U:C2      | 1:H1:535:C:C5      | 3.04                     | 0.45              |
| 1:H1:822:U:H1'     | 18:HU:8:PRO:HB3    | 1.99                     | 0.45              |
| 1:H1:837:G:H1'     | 2:HA:50:TRP:CD1    | 2.51                     | 0.45              |
| 1:H1:1109:A:C4'    | 1:H1:1110:U:O5'    | 2.63                     | 0.45              |
| 1:H1:1394:G:O5'    | 1:H1:1394:G:C8     | 2.70                     | 0.45              |
| 1:H1:1580:G:O2'    | 1:H1:1581:C:H5''   | 2.17                     | 0.45              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1662:A:N1    | 1:H1:1761:G:O2'    | 2.37                     | 0.45              |
| 1:H1:1668:A:C8    | 11:HL:69:ARG:NH1   | 2.85                     | 0.45              |
| 1:H1:2309:U:O2'   | 50:H1:3958:HOH:O   | 1.93                     | 0.45              |
| 1:H1:2624:A:O4'   | 1:H1:2625:A:C2     | 2.70                     | 0.45              |
| 1:H1:3312:C:H2'   | 1:H1:3313:C:C6     | 2.52                     | 0.45              |
| 6:HF:3:PHE:CD1    | 19:HX:164:PRO:CB   | 2.97                     | 0.45              |
| 7:HG:60:ALA:O     | 7:HG:64:GLN:N      | 2.50                     | 0.45              |
| 8:HH:13:ARG:CG    | 8:HH:15:TRP:CE3    | 2.95                     | 0.45              |
| 8:HH:107:MET:HB3  | 8:HH:109:TYR:CE2   | 2.52                     | 0.45              |
| 11:HL:64:TYR:O    | 11:HL:72:LYS:HE2   | 2.17                     | 0.45              |
| 12:HM:13:VAL:O    | 12:HM:70:THR:HA    | 2.17                     | 0.45              |
| 14:HO:94:ILE:CD1  | 14:HO:111:LEU:HD12 | 2.47                     | 0.45              |
| 14:HO:111:LEU:O   | 14:HO:112:VAL:C    | 2.60                     | 0.45              |
| 16:HQ:36:LYS:O    | 16:HQ:40:LEU:HG    | 2.17                     | 0.45              |
| 19:HX:44:PHE:CD1  | 19:HX:137:ILE:HD11 | 2.52                     | 0.45              |
| 1:A1:604:A:O5'    | 1:A1:604:A:C8      | 2.65                     | 0.44              |
| 1:A1:684:A:H5'    | 24:BC:107:PHE:HB2  | 1.99                     | 0.44              |
| 1:A1:827:C:C6     | 32:BK:25:HIS:HD2   | 2.35                     | 0.44              |
| 1:A1:966:G:O4'    | 1:A1:1461:A:H1'    | 2.17                     | 0.44              |
| 1:A1:983:U:OP1    | 1:A1:2787:A:H3'    | 2.17                     | 0.44              |
| 1:A1:1222:A:C2    | 1:A1:1336:U:C4     | 3.05                     | 0.44              |
| 1:A1:1462:U:O5'   | 1:A1:1463:C:H5''   | 2.17                     | 0.44              |
| 1:A1:1497:U:H2'   | 1:A1:1498:U:C6     | 2.51                     | 0.44              |
| 1:A1:1863:A:N6    | 1:A1:1867:C:C2     | 2.85                     | 0.44              |
| 1:A1:1926:G:OP2   | 1:A1:2907:A:OP1    | 2.34                     | 0.44              |
| 1:A1:2248:G:H1    | 1:A1:2258:C:H42    | 1.64                     | 0.44              |
| 1:A1:2762:U:O2    | 1:A1:2763:U:C6     | 2.70                     | 0.44              |
| 1:A1:2920:U:O2    | 1:A1:2922:A:H8     | 2.00                     | 0.44              |
| 1:A1:3266:G:OP1   | 23:BB:223:GLY:HA2  | 2.17                     | 0.44              |
| 5:AE:51:LEU:HB3   | 5:AE:95:THR:CG2    | 2.46                     | 0.44              |
| 5:AE:128:ASN:OD1  | 5:AE:128:ASN:C     | 2.60                     | 0.44              |
| 8:AH:57:VAL:O     | 8:AH:104:LEU:HD22  | 2.16                     | 0.44              |
| 9:AJ:4:ARG:NE     | 9:AJ:215:ILE:HD11  | 2.32                     | 0.44              |
| 10:AK:85:LEU:HD23 | 10:AK:85:LEU:HA    | 1.79                     | 0.44              |
| 11:AL:41:TYR:CB   | 11:AL:58:GLN:HE21  | 2.28                     | 0.44              |
| 15:AP:16:GLN:O    | 15:AP:17:ASN:C     | 2.59                     | 0.44              |
| 16:AQ:68:LYS:HG3  | 16:AQ:69:ASP:N     | 2.32                     | 0.44              |
| 18:AU:60:THR:HG22 | 18:AU:62:ARG:H     | 1.82                     | 0.44              |
| 19:AX:25:ALA:CB   | 19:AX:71:ARG:O     | 2.57                     | 0.44              |
| 21:B3:39:U:C2     | 25:BD:46:VAL:CG2   | 3.00                     | 0.44              |
| 21:B3:64:A:O2'    | 29:BH:205:PRO:CG   | 2.61                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:BA:206:ASN:O    | 22:BA:208:VAL:N    | 2.50                     | 0.44              |
| 23:BB:330:LYS:O    | 23:BB:331:LYS:CB   | 2.65                     | 0.44              |
| 23:BB:376:LYS:CE   | 9:DJ:45:HIS:NE2    | 2.78                     | 0.44              |
| 26:BE:45:ILE:HA    | 26:BE:55:LEU:CD2   | 2.46                     | 0.44              |
| 27:BF:138:ASN:O    | 27:BF:139:LYS:HB2  | 2.17                     | 0.44              |
| 33:BL:59:TYR:OH    | 33:BL:148:ILE:HD13 | 2.17                     | 0.44              |
| 33:BL:68:ARG:HH21  | 33:BL:123:GLN:HG3  | 1.81                     | 0.44              |
| 35:BN:63:LEU:HD21  | 35:BN:140:LEU:HB3  | 1.98                     | 0.44              |
| 38:BQ:10:PRO:HB3   | 38:BQ:153:GLN:NE2  | 2.32                     | 0.44              |
| 42:BU:20:GLY:O     | 42:BU:24:LYS:HG3   | 2.17                     | 0.44              |
| 45:BX:4:LYS:HD2    | 45:BX:92:ARG:HE    | 1.82                     | 0.44              |
| 20:C2:111:A:H2'    | 20:C2:112:G:H5''   | 1.97                     | 0.44              |
| 21:C3:11:A:C8      | 34:CM:18:THR:CB    | 2.98                     | 0.44              |
| 22:CA:19:SER:OG    | 1:D1:2168:U:H5''   | 2.16                     | 0.44              |
| 22:CA:103:LEU:HB2  | 22:CA:108:ILE:HD11 | 1.98                     | 0.44              |
| 23:CB:62:ARG:HH22  | 23:CB:346:GLY:HA3  | 1.82                     | 0.44              |
| 24:CC:74:THR:CG2   | 1:D1:2397:A:H2'    | 2.26                     | 0.44              |
| 24:CC:108:ALA:O    | 24:CC:109:PRO:C    | 2.59                     | 0.44              |
| 24:CC:170:LYS:HE3  | 1:D1:209:A:OP2     | 2.16                     | 0.44              |
| 24:CC:380:PHE:O    | 24:CC:383:ALA:HB3  | 2.16                     | 0.44              |
| 26:CE:48:PRO:HB3   | 26:CE:53:VAL:HG22  | 1.98                     | 0.44              |
| 32:CK:75:VAL:HG23  | 32:CK:109:PHE:CG   | 2.52                     | 0.44              |
| 33:CL:201:ARG:NH2  | 1:D1:79:C:O2'      | 2.51                     | 0.44              |
| 34:CM:157:ASN:ND2  | 34:CM:159:VAL:HG22 | 2.31                     | 0.44              |
| 39:CR:113:VAL:HG12 | 39:CR:114:LYS:N    | 2.31                     | 0.44              |
| 40:CS:3:THR:H      | 1:D1:229:A:H5''    | 1.82                     | 0.44              |
| 43:CV:132:THR:HG21 | 43:CV:227:ARG:HD2  | 1.99                     | 0.44              |
| 45:CX:79:ARG:NH1   | 1:D1:1448:G:O4'    | 2.50                     | 0.44              |
| 1:D1:19:A:C4'      | 1:D1:20:G:OP2      | 2.62                     | 0.44              |
| 1:D1:45:C:H5''     | 18:DU:14:LYS:HG2   | 1.99                     | 0.44              |
| 1:D1:79:C:C2'      | 1:D1:80:C:H5'      | 2.48                     | 0.44              |
| 1:D1:145:A:C5'     | 50:D1:3710:HOH:O   | 2.64                     | 0.44              |
| 1:D1:177:C:O2'     | 1:D1:178:U:H5'     | 2.17                     | 0.44              |
| 1:D1:876:C:N3      | 1:D1:877:U:C5      | 2.85                     | 0.44              |
| 1:D1:1847:A:C4     | 1:D1:1848:C:C5     | 3.06                     | 0.44              |
| 1:D1:2245:G:H2'    | 1:D1:2246:G:C8     | 2.49                     | 0.44              |
| 1:D1:2432:G:H2'    | 1:D1:2433:A:O4'    | 2.17                     | 0.44              |
| 1:D1:3081:C:O3'    | 1:D1:3082:C:H3'    | 2.17                     | 0.44              |
| 1:D1:3097:G:OP2    | 10:DK:112:LYS:NZ   | 2.48                     | 0.44              |
| 1:D1:3228:U:H5''   | 1:D1:3229:C:C5'    | 2.47                     | 0.44              |
| 5:DE:51:LEU:HB3    | 5:DE:95:THR:CG2    | 2.47                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:DF:7:VAL:HG22    | 6:DF:55:LEU:HD21   | 1.98                     | 0.44              |
| 7:DG:21:GLY:CA     | 7:DG:94:ASP:O      | 2.65                     | 0.44              |
| 13:DN:30:GLU:HA    | 13:DN:30:GLU:OE1   | 2.16                     | 0.44              |
| 14:DO:52:GLY:HA3   | 14:DO:118:ASN:ND2  | 2.27                     | 0.44              |
| 19:DX:96:GLN:HB3   | 19:DX:134:THR:CG2  | 2.46                     | 0.44              |
| 21:E3:74:A:H4'     | 21:E3:75:G:OP1     | 2.18                     | 0.44              |
| 22:EA:220:ILE:C    | 22:EA:222:HIS:H    | 2.24                     | 0.44              |
| 23:EB:216:LEU:HD23 | 23:EB:274:THR:HA   | 1.99                     | 0.44              |
| 23:EB:340:ILE:HG13 | 23:EB:341:ILE:H    | 1.82                     | 0.44              |
| 25:ED:12:VAL:CG2   | 25:ED:162:TRP:CD1  | 3.00                     | 0.44              |
| 26:EE:7:GLU:OE1    | 26:EE:54:LYS:HE2   | 2.16                     | 0.44              |
| 26:EE:49:THR:C     | 26:EE:51:ASP:N     | 2.74                     | 0.44              |
| 28:EG:22:UNK:HG1   | 28:EG:92:UNK:HB1   | 1.97                     | 0.44              |
| 29:EH:116:ARG:O    | 1:F1:2633:C:C2'    | 2.65                     | 0.44              |
| 30:EI:9:ASP:O      | 30:EI:13:HIS:NE2   | 2.50                     | 0.44              |
| 31:EJ:58:ILE:HG13  | 31:EJ:85:GLN:OE1   | 2.16                     | 0.44              |
| 32:EK:53:GLY:HA2   | 35:EN:177:ALA:O    | 2.16                     | 0.44              |
| 34:EM:231:TRP:HZ2  | 34:EM:243:VAL:HG21 | 1.82                     | 0.44              |
| 35:EN:82:VAL:HG22  | 35:EN:127:LEU:HD11 | 1.99                     | 0.44              |
| 35:EN:173:LYS:NZ   | 1:F1:87:A:OP2      | 2.44                     | 0.44              |
| 42:EU:44:LYS:O     | 42:EU:47:ARG:HB2   | 2.17                     | 0.44              |
| 43:EV:91:GLN:HG2   | 1:F1:1166:G:O2'    | 2.17                     | 0.44              |
| 46:EY:32:THR:CG2   | 46:EY:69:TRP:O     | 2.54                     | 0.44              |
| 1:F1:112:A:N1      | 1:F1:265:A:O2'     | 2.49                     | 0.44              |
| 1:F1:157:A:OP2     | 16:FQ:25:HIS:ND1   | 2.50                     | 0.44              |
| 1:F1:195:U:O2'     | 1:F1:1417:A:OP2    | 2.29                     | 0.44              |
| 1:F1:458:G:H2'     | 1:F1:459:G:O4'     | 2.17                     | 0.44              |
| 1:F1:519:A:H5'     | 14:FO:89:ARG:HD2   | 1.99                     | 0.44              |
| 1:F1:581:C:H2'     | 1:F1:582:A:O4'     | 2.17                     | 0.44              |
| 1:F1:665:C:H2'     | 1:F1:666:U:O4'     | 2.17                     | 0.44              |
| 1:F1:668:G:H2'     | 1:F1:2367:A:C5     | 2.51                     | 0.44              |
| 1:F1:687:C:C2      | 1:F1:688:U:C5      | 3.05                     | 0.44              |
| 1:F1:820:G:H21     | 18:FU:5:ASN:ND2    | 2.15                     | 0.44              |
| 1:F1:1006:C:H2'    | 1:F1:1007:G:OP1    | 2.17                     | 0.44              |
| 1:F1:1316:G:H5''   | 1:F1:1316:G:H8     | 1.82                     | 0.44              |
| 1:F1:1384:G:C2     | 1:F1:1385:C:C6     | 3.05                     | 0.44              |
| 1:F1:1461:A:H5''   | 1:F1:1462:U:C5'    | 2.43                     | 0.44              |
| 1:F1:1466:G:O2'    | 1:F1:1467:G:H5'    | 2.17                     | 0.44              |
| 1:F1:2103:A:H2'    | 1:F1:2104:C:C6     | 2.52                     | 0.44              |
| 1:F1:2284:U:O2'    | 1:F1:2285:C:H5'    | 2.17                     | 0.44              |
| 1:F1:2292:U:O2'    | 1:F1:2908:U:H4'    | 2.17                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2539:A:C2     | 1:F1:2540:G:C8     | 3.05                     | 0.44              |
| 1:F1:2601:U:H1'    | 1:F1:2791:A:N3     | 2.32                     | 0.44              |
| 1:F1:3228:U:H5''   | 1:F1:3229:C:C5'    | 2.46                     | 0.44              |
| 4:FC:16:ASN:O      | 4:FC:16:ASN:CG     | 2.59                     | 0.44              |
| 9:FJ:97:ILE:HD12   | 9:FJ:104:LEU:HD13  | 1.99                     | 0.44              |
| 11:FL:23:VAL:HG21  | 11:FL:33:GLN:CD    | 2.42                     | 0.44              |
| 13:FN:36:ARG:NH1   | 13:FN:74:TYR:CD1   | 2.76                     | 0.44              |
| 14:FO:62:LEU:HD11  | 14:FO:97:ARG:NE    | 2.31                     | 0.44              |
| 14:FO:124:ASN:O    | 14:FO:128:GLU:HG3  | 2.18                     | 0.44              |
| 15:FP:32:TYR:HB2   | 15:FP:43:LYS:HB2   | 1.99                     | 0.44              |
| 19:FX:124:MET:HE3  | 19:FX:124:MET:HA   | 1.99                     | 0.44              |
| 21:G3:11:A:H4'     | 21:G3:13:A:C8      | 2.52                     | 0.44              |
| 22:GA:97:ILE:HD11  | 22:GA:109:PRO:HD3  | 1.99                     | 0.44              |
| 23:GB:56:ILE:CG2   | 23:GB:57:LEU:N     | 2.80                     | 0.44              |
| 23:GB:62:ARG:CG    | 23:GB:62:ARG:NH1   | 2.71                     | 0.44              |
| 23:GB:220:LYS:CD   | 1:H1:3036:U:OP2    | 2.66                     | 0.44              |
| 24:GC:41:VAL:HG12  | 24:GC:45:LEU:HD12  | 1.98                     | 0.44              |
| 24:GC:152:VAL:O    | 14:HO:76:ILE:HG12  | 2.17                     | 0.44              |
| 24:GC:230:ILE:HG22 | 24:GC:233:VAL:HG13 | 1.98                     | 0.44              |
| 26:GE:137:GLU:O    | 26:GE:139:LYS:HG3  | 2.16                     | 0.44              |
| 27:GF:136:ILE:O    | 27:GF:166:ASN:ND2  | 2.50                     | 0.44              |
| 29:GH:180:GLN:O    | 29:GH:184:LEU:HG   | 2.18                     | 0.44              |
| 32:GK:117:ARG:HH11 | 32:GK:137:ARG:CZ   | 2.30                     | 0.44              |
| 32:GK:145:CYS:HB3  | 18:HU:177:VAL:HG21 | 1.96                     | 0.44              |
| 33:GL:13:LYS:NZ    | 16:HQ:45:ILE:HG22  | 2.32                     | 0.44              |
| 33:GL:73:ARG:HA    | 33:GL:74:PRO:HD2   | 1.58                     | 0.44              |
| 33:GL:182:LYS:CG   | 33:GL:183:SER:N    | 2.80                     | 0.44              |
| 36:GO:76:THR:HG22  | 36:GO:81:ARG:HH21  | 1.81                     | 0.44              |
| 36:GO:94:LEU:HD23  | 36:GO:94:LEU:HA    | 1.73                     | 0.44              |
| 37:GP:14:LYS:NZ    | 1:H1:2627:C:O3'    | 2.47                     | 0.44              |
| 38:GQ:39:LYS:HE2   | 38:GQ:119:GLY:N    | 2.27                     | 0.44              |
| 38:GQ:134:ALA:O    | 38:GQ:135:HIS:CB   | 2.65                     | 0.44              |
| 39:GR:111:TYR:HD2  | 39:GR:143:LEU:HD11 | 1.82                     | 0.44              |
| 45:GX:22:PHE:CE2   | 45:GX:23:GLU:HG3   | 2.51                     | 0.44              |
| 45:GX:31:ASP:CG    | 45:GX:32:SER:N     | 2.75                     | 0.44              |
| 46:GY:74:PRO:N     | 46:GY:75:PRO:CD    | 2.80                     | 0.44              |
| 1:H1:61:A:C6       | 1:H1:62:G:C6       | 3.05                     | 0.44              |
| 1:H1:72:A:C2       | 1:H1:73:G:C8       | 3.06                     | 0.44              |
| 1:H1:440:C:N4      | 1:H1:538:A:C2      | 2.85                     | 0.44              |
| 1:H1:624:G:HO2'    | 1:H1:625:C:H6      | 1.63                     | 0.44              |
| 1:H1:861:A:C2      | 1:H1:883:A:H1'     | 2.52                     | 0.44              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:H1:1039:G:C2'  | 1:H1:1041:C:H41   | 2.27                     | 0.44              |
| 1:H1:1172:G:C5   | 1:H1:1173:A:N7    | 2.85                     | 0.44              |
| 1:H1:1589:G:C5   | 1:H1:1605:G:C2    | 3.05                     | 0.44              |
| 1:H1:2292:U:C2   | 1:H1:2294:A:C6    | 3.06                     | 0.44              |
| 1:H1:2408:A:H8   | 1:H1:2408:A:O5'   | 2.00                     | 0.44              |
| 1:H1:2683:A:H5'' | 1:H1:2684:A:OP2   | 2.18                     | 0.44              |
| 1:H1:2790:A:C4   | 4:HC:54:PRO:HA    | 2.52                     | 0.44              |
| 4:HC:4:VAL:HA    | 4:HC:5:PRO:HD3    | 1.84                     | 0.44              |
| 4:HC:77:THR:HG22 | 4:HC:78:LYS:N     | 2.32                     | 0.44              |
| 5:HE:56:GLY:O    | 5:HE:59:ARG:HB3   | 2.18                     | 0.44              |
| 6:HF:96:ILE:O    | 6:HF:99:LYS:HB2   | 2.16                     | 0.44              |
| 9:HJ:4:ARG:HH21  | 9:HJ:215:ILE:HD12 | 1.82                     | 0.44              |
| 9:HJ:171:ASP:O   | 9:HJ:172:GLU:C    | 2.59                     | 0.44              |
| 9:HJ:211:THR:OG1 | 9:HJ:214:GLU:HG3  | 2.17                     | 0.44              |
| 10:HK:84:ALA:O   | 10:HK:88:LYS:HG3  | 2.17                     | 0.44              |
| 11:HL:99:GLU:OE2 | 13:HN:85:TYR:CE2  | 2.71                     | 0.44              |
| 12:HM:98:THR:CG2 | 12:HM:99:SER:N    | 2.80                     | 0.44              |
| 18:HU:73:PHE:HD2 | 18:HU:94:LYS:O    | 2.01                     | 0.44              |
| 19:HX:7:GLN:HE22 | 19:HX:80:GLU:CA   | 2.31                     | 0.44              |
| 19:HX:89:TYR:O   | 19:HX:107:GLU:HA  | 2.16                     | 0.44              |
| 1:A1:169:A:C6    | 1:A1:251:A:C6     | 3.06                     | 0.44              |
| 1:A1:303:A:N3    | 1:A1:303:A:H2'    | 2.33                     | 0.44              |
| 1:A1:545:A:H4'   | 5:AE:91:ASN:ND2   | 2.33                     | 0.44              |
| 1:A1:719:C:H1'   | 24:BC:240:ARG:HB2 | 1.98                     | 0.44              |
| 1:A1:969:C:OP1   | 1:A1:1458:C:H4'   | 2.16                     | 0.44              |
| 1:A1:1195:U:H5'' | 1:A1:1356:G:O6    | 2.16                     | 0.44              |
| 1:A1:2194:G:O2'  | 1:A1:2195:U:H5'   | 2.17                     | 0.44              |
| 1:A1:2221:U:H2'  | 1:A1:2222:C:H6    | 1.81                     | 0.44              |
| 1:A1:2283:G:C4   | 1:A1:2284:U:C5    | 3.05                     | 0.44              |
| 1:A1:2323:U:H2'  | 1:A1:2324:A:H5''  | 2.00                     | 0.44              |
| 1:A1:2368:A:N3   | 1:A1:2812:G:O2'   | 2.42                     | 0.44              |
| 1:A1:2392:A:H8   | 1:A1:2929:A:N1    | 2.15                     | 0.44              |
| 1:A1:2664:C:O5'  | 1:A1:2664:C:H6    | 1.99                     | 0.44              |
| 1:A1:2673:C:H2'  | 1:A1:2674:A:H8    | 1.83                     | 0.44              |
| 1:A1:2730:C:H2'  | 1:A1:2731:C:O5'   | 2.17                     | 0.44              |
| 1:A1:3047:U:H3'  | 1:A1:3047:U:C6    | 2.52                     | 0.44              |
| 1:A1:3132:A:C2'  | 1:A1:3133:G:OP1   | 2.65                     | 0.44              |
| 2:AA:8:PHE:N     | 2:AA:8:PHE:CD1    | 2.81                     | 0.44              |
| 2:AA:26:THR:HG21 | 2:AA:36:ALA:HB2   | 2.00                     | 0.44              |
| 6:AF:121:THR:O   | 6:AF:121:THR:CG2  | 2.65                     | 0.44              |
| 8:AH:48:VAL:HG11 | 8:AH:87:ALA:HB2   | 1.98                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 17:AT:48:LYS:C    | 17:AT:55:LYS:HZ1   | 2.26                     | 0.44              |
| 18:AU:45:PHE:CD1  | 18:AU:45:PHE:C     | 2.95                     | 0.44              |
| 18:AU:124:PHE:HD1 | 42:BU:119:LYS:O    | 2.00                     | 0.44              |
| 21:B3:13:A:O2'    | 34:BM:24:ARG:CZ    | 2.64                     | 0.44              |
| 21:B3:71:G:H2'    | 21:B3:72:U:H6      | 1.82                     | 0.44              |
| 24:BC:78:VAL:CG1  | 24:BC:83:ARG:NH2   | 2.80                     | 0.44              |
| 27:BF:92:TYR:CE2  | 27:BF:123:ILE:CG2  | 3.00                     | 0.44              |
| 27:BF:170:PHE:CD1 | 27:BF:216:ASN:OD1  | 2.70                     | 0.44              |
| 34:BM:157:ASN:OD1 | 34:BM:158:ARG:N    | 2.50                     | 0.44              |
| 35:BN:89:ASN:OD1  | 35:BN:89:ASN:C     | 2.59                     | 0.44              |
| 39:BR:74:PRO:HB3  | 39:BR:149:LEU:HD11 | 1.98                     | 0.44              |
| 43:BV:41:TRP:HE1  | 43:BV:176:THR:CG2  | 2.30                     | 0.44              |
| 43:BV:84:ILE:HD12 | 43:BV:234:LEU:HD23 | 1.98                     | 0.44              |
| 44:BW:14:ASN:ND2  | 44:BW:17:LYS:CE    | 2.77                     | 0.44              |
| 21:C3:15:U:H1'    | 34:CM:13:PHE:HE1   | 1.82                     | 0.44              |
| 21:C3:21:G:C4'    | 34:CM:277:PHE:CD2  | 2.84                     | 0.44              |
| 23:CB:4:ARG:O     | 23:CB:4:ARG:HG2    | 2.11                     | 0.44              |
| 23:CB:118:PHE:CE2 | 1:D1:2989:G:N2     | 2.69                     | 0.44              |
| 25:CD:30:LEU:HA   | 25:CD:30:LEU:HD23  | 1.66                     | 0.44              |
| 26:CE:22:GLN:OE1  | 26:CE:39:ARG:NH2   | 2.50                     | 0.44              |
| 26:CE:110:ILE:CG1 | 26:CE:132:ILE:HD13 | 2.47                     | 0.44              |
| 28:CG:11:UNK:O    | 28:CG:15:UNK:CG    | 2.63                     | 0.44              |
| 29:CH:42:THR:HG23 | 29:CH:192:THR:CG2  | 2.47                     | 0.44              |
| 30:CI:10:ALA:C    | 30:CI:13:HIS:CD2   | 2.92                     | 0.44              |
| 33:CL:79:ILE:CD1  | 1:D1:2597:G:O2'    | 2.64                     | 0.44              |
| 34:CM:36:LEU:HD23 | 1:D1:2737:A:N3     | 2.32                     | 0.44              |
| 34:CM:164:LYS:HA  | 34:CM:167:CYS:SG   | 2.57                     | 0.44              |
| 34:CM:176:SER:OG  | 1:D1:2735:A:O3'    | 2.33                     | 0.44              |
| 34:CM:200:HIS:O   | 34:CM:204:ILE:HG13 | 2.17                     | 0.44              |
| 37:CP:8:ARG:CD    | 37:CP:11:THR:HG21  | 2.48                     | 0.44              |
| 43:CV:84:ILE:HD12 | 43:CV:234:LEU:CD2  | 2.47                     | 0.44              |
| 44:CW:14:ASN:O    | 44:CW:18:GLN:HG2   | 2.17                     | 0.44              |
| 45:CX:98:ILE:H    | 45:CX:123:ASN:CG   | 2.25                     | 0.44              |
| 1:D1:345:C:C4     | 1:D1:347:A:C8      | 3.06                     | 0.44              |
| 1:D1:375:G:H21    | 1:D1:398:G:H1'     | 1.81                     | 0.44              |
| 1:D1:549:G:H2'    | 1:D1:550:G:H8      | 1.81                     | 0.44              |
| 1:D1:558:U:H2'    | 1:D1:559:G:C8      | 2.47                     | 0.44              |
| 1:D1:578:G:H2'    | 1:D1:579:G:H5''    | 1.98                     | 0.44              |
| 1:D1:726:G:C5     | 1:D1:727:C:C4      | 3.05                     | 0.44              |
| 1:D1:1035:A:H2'   | 1:D1:1036:G:C8     | 2.52                     | 0.44              |
| 1:D1:1594:C:H2'   | 1:D1:1595:A:C5'    | 2.44                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1758:U:H5'    | 1:D1:1759:C:OP2    | 2.17                     | 0.44              |
| 1:D1:2113:A:H2'    | 1:D1:2114:C:O4'    | 2.16                     | 0.44              |
| 1:D1:2411:U:H2'    | 1:D1:2412:U:H6     | 1.77                     | 0.44              |
| 1:D1:2438:G:C6     | 1:D1:2439:C:C4     | 3.05                     | 0.44              |
| 1:D1:2795:U:O3'    | 1:D1:2796:A:H3'    | 2.17                     | 0.44              |
| 1:D1:3028:A:H2'    | 1:D1:3029:A:C8     | 2.52                     | 0.44              |
| 1:D1:3031:U:C2'    | 1:D1:3032:C:H5'    | 2.46                     | 0.44              |
| 1:D1:3079:U:C2'    | 1:D1:3080:A:O5'    | 2.66                     | 0.44              |
| 1:D1:3227:A:H5'    | 5:DE:58:PHE:HZ     | 1.82                     | 0.44              |
| 1:D1:3251:C:H6     | 1:D1:3251:C:H5'    | 1.81                     | 0.44              |
| 1:D1:3312:C:H2'    | 1:D1:3313:C:C6     | 2.51                     | 0.44              |
| 5:DE:56:GLY:O      | 5:DE:59:ARG:HB3    | 2.17                     | 0.44              |
| 5:DE:77:THR:CG2    | 5:DE:157:ASP:OD1   | 2.65                     | 0.44              |
| 14:DO:69:LYS:HD3   | 14:DO:71:LYS:O     | 2.17                     | 0.44              |
| 20:E2:71:G:C5      | 20:E2:72:C:C5      | 3.05                     | 0.44              |
| 22:EA:216:ASN:HB3  | 1:F1:2956:G:N7     | 2.32                     | 0.44              |
| 24:EC:27:ALA:HA    | 24:EC:30:THR:OG1   | 2.16                     | 0.44              |
| 25:ED:17:LEU:HB3   | 25:ED:76:ALA:HB1   | 1.98                     | 0.44              |
| 26:EE:137:GLU:O    | 26:EE:139:LYS:HG3  | 2.16                     | 0.44              |
| 27:EF:143:LEU:HD22 | 27:EF:211:PHE:HD2  | 1.79                     | 0.44              |
| 28:EG:58:UNK:CA    | 1:F1:1308:U:H5''   | 2.48                     | 0.44              |
| 30:EI:35:VAL:CG1   | 30:EI:36:ARG:N     | 2.80                     | 0.44              |
| 31:EJ:83:ILE:CG2   | 31:EJ:122:VAL:HA   | 2.47                     | 0.44              |
| 33:EL:72:LYS:O     | 33:EL:74:PRO:HD3   | 2.18                     | 0.44              |
| 33:EL:201:ARG:NH2  | 1:F1:79:C:O2'      | 2.50                     | 0.44              |
| 34:EM:49:TYR:HB2   | 34:EM:143:LYS:O    | 2.17                     | 0.44              |
| 38:EQ:103:ASN:ND2  | 1:F1:388:A:C1'     | 2.66                     | 0.44              |
| 40:ES:8:SER:OG     | 1:F1:334:G:OP1     | 2.36                     | 0.44              |
| 42:EU:76:GLY:HA2   | 1:F1:133:C:O2'     | 2.17                     | 0.44              |
| 43:EV:60:VAL:HG13  | 43:EV:63:LYS:HZ1   | 1.82                     | 0.44              |
| 43:EV:100:LEU:HA   | 43:EV:100:LEU:HD23 | 1.62                     | 0.44              |
| 1:F1:283:A:H4'     | 1:F1:283:A:OP2     | 2.18                     | 0.44              |
| 1:F1:439:A:H5''    | 5:FE:126:HIS:HD1   | 1.79                     | 0.44              |
| 1:F1:459:G:H1'     | 1:F1:519:A:H62     | 1.81                     | 0.44              |
| 1:F1:504:A:O2'     | 1:F1:505:A:C8      | 2.59                     | 0.44              |
| 1:F1:637:U:C2      | 1:F1:638:U:C5      | 3.06                     | 0.44              |
| 1:F1:792:G:C2      | 1:F1:793:A:C4      | 3.05                     | 0.44              |
| 1:F1:1026:C:HO2'   | 1:F1:1027:G:P      | 2.34                     | 0.44              |
| 1:F1:1448:G:C4     | 1:F1:1449:C:C5     | 3.05                     | 0.44              |
| 1:F1:1507:A:C2     | 11:FL:2:ALA:HB3    | 2.52                     | 0.44              |
| 1:F1:2435:A:C2     | 1:F1:2503:U:C2     | 3.05                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2730:C:H2'    | 1:F1:2731:C:O5'    | 2.16                     | 0.44              |
| 1:F1:2731:C:C4'    | 4:FC:18:HIS:CD2    | 2.99                     | 0.44              |
| 1:F1:3086:U:H2'    | 1:F1:3087:G:H8     | 1.82                     | 0.44              |
| 1:F1:3175:A:C4'    | 1:F1:3176:A:OP1    | 2.65                     | 0.44              |
| 1:F1:3190:A:C6     | 1:F1:3191:G:C2     | 3.06                     | 0.44              |
| 7:FG:10:ILE:HG12   | 7:FG:13:LYS:NZ     | 2.31                     | 0.44              |
| 9:FJ:4:ARG:HB3     | 9:FJ:208:LEU:HA    | 1.99                     | 0.44              |
| 9:FJ:97:ILE:HD12   | 9:FJ:104:LEU:CD1   | 2.47                     | 0.44              |
| 9:FJ:187:ASN:O     | 9:FJ:188:ARG:HB3   | 2.17                     | 0.44              |
| 13:FN:90:LEU:O     | 13:FN:121:LYS:HE3  | 2.17                     | 0.44              |
| 14:FO:87:VAL:HG22  | 14:FO:115:HIS:CD2  | 2.51                     | 0.44              |
| 15:FP:8:ILE:HG12   | 15:FP:53:PHE:CZ    | 2.52                     | 0.44              |
| 18:FU:30:LYS:N     | 18:FU:33:ARG:HH21  | 2.15                     | 0.44              |
| 20:G2:28:G:C5      | 20:G2:29:U:C5      | 3.05                     | 0.44              |
| 22:GA:43:ARG:HD2   | 22:GA:88:TYR:CD1   | 2.52                     | 0.44              |
| 24:GC:148:ARG:NE   | 24:GC:187:ARG:HD2  | 2.31                     | 0.44              |
| 24:GC:330:LEU:HD23 | 24:GC:330:LEU:HA   | 1.82                     | 0.44              |
| 27:GF:53:LEU:O     | 27:GF:54:GLN:C     | 2.60                     | 0.44              |
| 27:GF:144:VAL:HG23 | 27:GF:168:VAL:HG11 | 1.99                     | 0.44              |
| 29:GH:58:GLU:CD    | 29:GH:160:PRO:HB2  | 2.42                     | 0.44              |
| 30:GI:45:SER:HB2   | 30:GI:48:ARG:H     | 1.82                     | 0.44              |
| 32:GK:2:VAL:HG13   | 1:H1:818:U:OP1     | 2.18                     | 0.44              |
| 34:GM:195:TYR:HD1  | 34:GM:197:PRO:HD3  | 1.82                     | 0.44              |
| 35:GN:87:VAL:HG23  | 35:GN:103:ALA:HB2  | 1.99                     | 0.44              |
| 37:GP:60:ARG:HH11  | 1:H1:1085:G:H4'    | 1.81                     | 0.44              |
| 38:GQ:24:LEU:HB2   | 38:GQ:146:CYS:HB2  | 1.98                     | 0.44              |
| 40:GS:30:MET:HE3   | 40:GS:77:TRP:HE3   | 1.80                     | 0.44              |
| 41:GT:58:ARG:NH2   | 1:H1:3325:G:N9     | 2.65                     | 0.44              |
| 42:GU:104:VAL:HG13 | 42:GU:108:THR:CB   | 2.43                     | 0.44              |
| 44:GW:14:ASN:ND2   | 44:GW:69:ARG:CZ    | 2.80                     | 0.44              |
| 45:GX:69:LEU:HB3   | 45:GX:70:PRO:CD    | 2.45                     | 0.44              |
| 45:GX:88:LEU:HD12  | 45:GX:88:LEU:HA    | 1.73                     | 0.44              |
| 1:H1:357:G:N2      | 1:H1:360:A:OP2     | 2.49                     | 0.44              |
| 1:H1:683:G:H22     | 1:H1:1460:G:C5'    | 2.30                     | 0.44              |
| 1:H1:820:G:H2'     | 1:H1:821:U:C5'     | 2.46                     | 0.44              |
| 1:H1:906:C:H1'     | 1:H1:1874:A:C8     | 2.52                     | 0.44              |
| 1:H1:957:U:O4'     | 1:H1:958:A:H5'     | 2.15                     | 0.44              |
| 1:H1:977:A:C2'     | 1:H1:978:G:H5''    | 2.48                     | 0.44              |
| 1:H1:1055:A:C5     | 1:H1:1056:A:N7     | 2.85                     | 0.44              |
| 1:H1:1159:C:C2'    | 1:H1:1160:A:H5'    | 2.47                     | 0.44              |
| 1:H1:1179:G:H1     | 1:H1:1226:C:N4     | 2.15                     | 0.44              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:H1:1439:U:H2'  | 1:H1:1440:A:H8    | 1.82                     | 0.44              |
| 1:H1:1655:A:C4   | 1:H1:1669:G:C5    | 3.06                     | 0.44              |
| 1:H1:2187:C:C2'  | 1:H1:2188:U:C5'   | 2.95                     | 0.44              |
| 1:H1:2434:A:C2   | 1:H1:2504:U:C2    | 3.05                     | 0.44              |
| 1:H1:2531:U:C2   | 1:H1:2532:G:H1'   | 2.52                     | 0.44              |
| 1:H1:3086:U:H2'  | 1:H1:3087:G:C8    | 2.53                     | 0.44              |
| 1:H1:3122:C:H2'  | 1:H1:3123:A:O4'   | 2.17                     | 0.44              |
| 1:H1:3144:G:C2   | 1:H1:3249:U:C2    | 3.06                     | 0.44              |
| 7:HG:35:ARG:HH12 | 13:HN:77:LEU:HB2  | 1.71                     | 0.44              |
| 9:HJ:49:ILE:HD13 | 9:HJ:87:SER:HB2   | 1.99                     | 0.44              |
| 13:HN:76:ASN:OD1 | 13:HN:77:LEU:N    | 2.50                     | 0.44              |
| 14:HO:40:LEU:O   | 14:HO:44:HIS:ND1  | 2.49                     | 0.44              |
| 18:HU:45:PHE:CD1 | 18:HU:45:PHE:C    | 2.94                     | 0.44              |
| 19:HX:150:ARG:O  | 19:HX:154:LEU:HG  | 2.17                     | 0.44              |
| 1:A1:40:C:O2'    | 1:A1:41:A:OP1     | 2.33                     | 0.44              |
| 1:A1:513:G:C4    | 1:A1:514:U:C5     | 3.05                     | 0.44              |
| 1:A1:591:G:H8    | 1:A1:591:G:H5'    | 1.83                     | 0.44              |
| 1:A1:685:G:O2'   | 1:A1:686:U:P      | 2.75                     | 0.44              |
| 1:A1:822:U:H1'   | 18:AU:8:PRO:CB    | 2.48                     | 0.44              |
| 1:A1:1020:G:N2   | 1:A1:1021:U:O4    | 2.45                     | 0.44              |
| 1:A1:1122:A:N7   | 37:BP:125:ARG:HG2 | 2.32                     | 0.44              |
| 1:A1:1127:U:C2   | 1:A1:1128:G:C8    | 3.06                     | 0.44              |
| 1:A1:1481:U:O2'  | 1:A1:1482:A:P     | 2.74                     | 0.44              |
| 1:A1:1652:U:H6   | 1:A1:1652:U:H3'   | 1.83                     | 0.44              |
| 1:A1:2188:U:HO2' | 1:A1:2189:G:P     | 2.25                     | 0.44              |
| 1:A1:2549:U:C6   | 22:BA:70:TYR:HE1  | 2.32                     | 0.44              |
| 1:A1:2669:A:C2   | 25:BD:59:ILE:HD11 | 2.53                     | 0.44              |
| 1:A1:2790:A:H1'  | 4:AC:55:ILE:H     | 1.83                     | 0.44              |
| 1:A1:2884:A:OP1  | 10:AK:102:ARG:HD3 | 2.16                     | 0.44              |
| 1:A1:2886:G:H5'' | 1:A1:2887:C:H5'   | 1.98                     | 0.44              |
| 1:A1:3097:G:C2   | 1:A1:3116:A:C2    | 3.04                     | 0.44              |
| 1:A1:3197:A:OP2  | 1:A1:3213:G:N2    | 2.46                     | 0.44              |
| 1:A1:3230:G:C5   | 5:AE:119:ARG:HD2  | 2.53                     | 0.44              |
| 1:A1:3275:A:H2'  | 1:A1:3276:C:OP2   | 2.17                     | 0.44              |
| 2:AA:65:MET:HG2  | 20:B2:45:G:OP2    | 2.18                     | 0.44              |
| 5:AE:18:TRP:CD1  | 5:AE:18:TRP:H     | 2.36                     | 0.44              |
| 5:AE:42:ARG:HH12 | 8:AH:111:ASN:HD22 | 1.63                     | 0.44              |
| 5:AE:60:GLY:O    | 5:AE:177:LYS:HA   | 2.16                     | 0.44              |
| 5:AE:103:ASP:OD1 | 5:AE:104:LEU:N    | 2.51                     | 0.44              |
| 8:AH:29:THR:HG22 | 8:AH:30:GLN:N     | 2.33                     | 0.44              |
| 9:AJ:158:GLY:HA2 | 9:AJ:179:ILE:HD12 | 1.99                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:AJ:162:HIS:CG    | 9:AJ:163:PRO:HD2   | 2.52                     | 0.44              |
| 13:AN:54:THR:CG2   | 13:AN:56:ARG:H     | 2.25                     | 0.44              |
| 13:AN:76:ASN:OD1   | 13:AN:77:LEU:N     | 2.50                     | 0.44              |
| 14:AO:69:LYS:HD3   | 14:AO:71:LYS:O     | 2.17                     | 0.44              |
| 17:AT:19:ASN:N     | 50:AT:101:HOH:O    | 2.32                     | 0.44              |
| 18:AU:6:GLN:HA     | 32:BK:51:HIS:CE1   | 2.48                     | 0.44              |
| 18:AU:40:GLN:HA    | 18:AU:40:GLN:OE1   | 2.17                     | 0.44              |
| 18:AU:121:LEU:HG   | 18:AU:122:VAL:N    | 2.32                     | 0.44              |
| 18:AU:124:PHE:CD1  | 42:BU:119:LYS:HB3  | 2.52                     | 0.44              |
| 19:AX:161:LEU:HA   | 19:AX:161:LEU:HD12 | 1.42                     | 0.44              |
| 19:AX:167:LYS:HA   | 19:AX:188:THR:HG21 | 1.90                     | 0.44              |
| 21:B3:11:A:H4'     | 21:B3:13:A:C8      | 2.53                     | 0.44              |
| 23:BB:332:ARG:HH11 | 23:BB:332:ARG:HB2  | 1.81                     | 0.44              |
| 24:BC:39:HIS:O     | 24:BC:40:LYS:C     | 2.59                     | 0.44              |
| 24:BC:84:VAL:HG21  | 24:BC:91:ARG:HE    | 1.83                     | 0.44              |
| 24:BC:97:PHE:HD1   | 24:BC:97:PHE:O     | 2.01                     | 0.44              |
| 24:BC:299:ILE:HA   | 24:BC:304:VAL:HG11 | 1.99                     | 0.44              |
| 25:BD:65:MET:HE2   | 25:BD:65:MET:HB3   | 1.63                     | 0.44              |
| 25:BD:104:PHE:HE1  | 25:BD:106:ILE:CG1  | 2.31                     | 0.44              |
| 28:BG:11:UNK:O     | 28:BG:15:UNK:CG    | 2.60                     | 0.44              |
| 33:BL:80:VAL:CG1   | 33:BL:87:VAL:HA    | 2.47                     | 0.44              |
| 40:BS:117:LEU:HD23 | 40:BS:120:ARG:CZ   | 2.48                     | 0.44              |
| 41:BT:49:GLN:O     | 41:BT:57:ARG:HB2   | 2.17                     | 0.44              |
| 43:BV:160:LEU:HD23 | 43:BV:160:LEU:HA   | 1.78                     | 0.44              |
| 45:BX:76:PHE:HE1   | 45:BX:83:ASP:HB3   | 1.82                     | 0.44              |
| 20:C2:89:A:H2'     | 20:C2:90:G:O4'     | 2.18                     | 0.44              |
| 24:CC:223:LEU:HD23 | 24:CC:223:LEU:HA   | 1.76                     | 0.44              |
| 27:CF:126:LYS:O    | 27:CF:191:VAL:HA   | 2.18                     | 0.44              |
| 27:CF:127:TYR:C    | 27:CF:127:TYR:HD1  | 2.21                     | 0.44              |
| 32:CK:74:VAL:CG1   | 32:CK:113:LEU:HG   | 2.47                     | 0.44              |
| 33:CL:33:LEU:HB3   | 33:CL:34:PRO:HD2   | 1.98                     | 0.44              |
| 34:CM:212:TYR:CD2  | 34:CM:228:PHE:CE1  | 3.06                     | 0.44              |
| 34:CM:264:THR:HG22 | 34:CM:264:THR:O    | 2.16                     | 0.44              |
| 35:CN:67:ARG:HA    | 35:CN:67:ARG:HD3   | 1.69                     | 0.44              |
| 40:CS:3:THR:O      | 40:CS:3:THR:HG22   | 2.16                     | 0.44              |
| 40:CS:55:VAL:HG11  | 40:CS:103:LEU:HB3  | 1.98                     | 0.44              |
| 41:CT:8:CYS:O      | 41:CT:12:GLU:HA    | 2.18                     | 0.44              |
| 1:D1:68:A:H1'      | 1:D1:70:C:N4       | 2.32                     | 0.44              |
| 1:D1:343:A:C4      | 1:D1:344:G:C8      | 3.05                     | 0.44              |
| 1:D1:359:G:H2'     | 1:D1:360:A:C8      | 2.53                     | 0.44              |
| 1:D1:533:G:H2'     | 1:D1:534:U:C6      | 2.52                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:600:G:H5''    | 1:D1:601:A:OP2     | 2.17                     | 0.44              |
| 1:D1:624:G:O2'     | 1:D1:625:C:C6      | 2.69                     | 0.44              |
| 1:D1:653:C:C2      | 1:D1:654:U:C5      | 3.05                     | 0.44              |
| 1:D1:687:C:H2'     | 1:D1:688:U:C6      | 2.52                     | 0.44              |
| 1:D1:970:C:C2      | 1:D1:971:C:C6      | 3.05                     | 0.44              |
| 1:D1:1057:U:H2'    | 1:D1:1058:C:H6     | 1.81                     | 0.44              |
| 1:D1:1227:A:HO2'   | 1:D1:1228:C:P      | 2.40                     | 0.44              |
| 1:D1:1474:U:C5     | 1:D1:2350:G:N2     | 2.85                     | 0.44              |
| 1:D1:1682:G:C5     | 1:D1:1822:G:C6     | 3.05                     | 0.44              |
| 1:D1:2933:G:C4'    | 1:D1:2934:A:OP1    | 2.62                     | 0.44              |
| 1:D1:3184:A:H5''   | 5:DE:177:LYS:HG3   | 1.98                     | 0.44              |
| 1:D1:3234:U:O5'    | 1:D1:3234:U:H6     | 2.00                     | 0.44              |
| 3:DB:6:THR:HG22    | 3:DB:7:LEU:N       | 2.33                     | 0.44              |
| 4:DC:40:ARG:O      | 4:DC:41:TYR:C      | 2.60                     | 0.44              |
| 6:DF:28:VAL:HG11   | 6:DF:66:ASN:HA     | 1.98                     | 0.44              |
| 9:DJ:89:PRO:O      | 9:DJ:92:VAL:HG12   | 2.18                     | 0.44              |
| 9:DJ:182:CYS:CB    | 9:DJ:221:ILE:HD12  | 2.46                     | 0.44              |
| 12:DM:45:VAL:O     | 12:DM:46:GLY:C     | 2.60                     | 0.44              |
| 12:DM:110:PHE:O    | 12:DM:111:ASN:CB   | 2.64                     | 0.44              |
| 13:DN:69:LYS:HA    | 13:DN:70:PRO:HD2   | 1.88                     | 0.44              |
| 19:DX:19:ARG:HG3   | 19:DX:21:TYR:OH    | 2.18                     | 0.44              |
| 22:EA:42:ILE:CD1   | 22:EA:43:ARG:N     | 2.68                     | 0.44              |
| 23:EB:119:TYR:HE1  | 1:F1:3255:A:C5'    | 2.30                     | 0.44              |
| 24:EC:34:ARG:NE    | 35:EN:24:ASN:CB    | 2.80                     | 0.44              |
| 27:EF:50:TYR:O     | 27:EF:54:GLN:HG3   | 2.18                     | 0.44              |
| 27:EF:127:TYR:CD1  | 27:EF:127:TYR:O    | 2.69                     | 0.44              |
| 27:EF:170:PHE:CD1  | 27:EF:216:ASN:OD1  | 2.70                     | 0.44              |
| 27:EF:185:LYS:HZ2  | 1:F1:146:U:H2'     | 1.82                     | 0.44              |
| 29:EH:116:ARG:C    | 1:F1:2633:C:HO2'   | 2.22                     | 0.44              |
| 30:EI:13:HIS:HE1   | 30:EI:119:VAL:H    | 1.66                     | 0.44              |
| 30:EI:35:VAL:O     | 30:EI:36:ARG:HB2   | 2.16                     | 0.44              |
| 30:EI:155:LEU:HD13 | 1:F1:3205:A:C8     | 2.52                     | 0.44              |
| 31:EJ:88:PRO:HA    | 31:EJ:97:ILE:O     | 2.18                     | 0.44              |
| 33:EL:147:ARG:NE   | 42:EU:105:LEU:HD21 | 2.29                     | 0.44              |
| 34:EM:107:ARG:HA   | 34:EM:107:ARG:HD2  | 1.76                     | 0.44              |
| 34:EM:267:ASN:HD21 | 34:EM:270:PRO:CG   | 2.30                     | 0.44              |
| 36:EO:42:ARG:HH22  | 1:F1:1626:U:P      | 2.39                     | 0.44              |
| 1:F1:296:G:H8      | 1:F1:296:G:O5'     | 2.00                     | 0.44              |
| 1:F1:314:C:H2'     | 1:F1:315:U:H6      | 1.78                     | 0.44              |
| 1:F1:608:C:C2'     | 1:F1:609:A:O5'     | 2.65                     | 0.44              |
| 1:F1:640:G:H2'     | 1:F1:641:U:C6      | 2.53                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:663:G:H4'     | 1:F1:1460:G:O6     | 2.17                     | 0.44              |
| 1:F1:1173:A:H4'    | 1:F1:1358:U:C5     | 2.52                     | 0.44              |
| 1:F1:1201:G:H2'    | 1:F1:1202:C:C6     | 2.53                     | 0.44              |
| 1:F1:1555:A:OP2    | 1:F1:1617:G:N2     | 2.48                     | 0.44              |
| 1:F1:1753:A:N6     | 7:FG:47:ASN:O      | 2.40                     | 0.44              |
| 1:F1:2962:U:H6     | 1:F1:2962:U:C5'    | 2.31                     | 0.44              |
| 1:F1:3303:G:H2'    | 1:F1:3304:U:C6     | 2.53                     | 0.44              |
| 8:FH:15:TRP:CZ3    | 8:FH:105:ARG:CZ    | 3.00                     | 0.44              |
| 13:FN:115:LYS:O    | 13:FN:119:VAL:HG23 | 2.17                     | 0.44              |
| 20:G2:10:U:C4      | 20:G2:11:C:N4      | 2.85                     | 0.44              |
| 20:G2:15:G:O4'     | 38:GQ:7:SER:HB3    | 2.18                     | 0.44              |
| 27:GF:19:ASN:CB    | 27:GF:20:PRO:CD    | 2.94                     | 0.44              |
| 27:GF:83:SER:O     | 27:GF:87:LYS:HG3   | 2.17                     | 0.44              |
| 30:GI:160:ARG:O    | 30:GI:163:ALA:HB3  | 2.17                     | 0.44              |
| 32:GK:99:VAL:CG2   | 32:GK:122:PRO:HB2  | 2.48                     | 0.44              |
| 33:GL:74:PRO:HA    | 1:H1:2162:A:C1'    | 2.47                     | 0.44              |
| 34:GM:128:ALA:O    | 34:GM:129:TYR:C    | 2.59                     | 0.44              |
| 35:GN:168:ARG:HH11 | 18:HU:9:VAL:HG22   | 1.82                     | 0.44              |
| 45:GX:46:ARG:HD2   | 45:GX:48:PHE:CE2   | 2.51                     | 0.44              |
| 45:GX:65:THR:O     | 45:GX:65:THR:HG22  | 2.16                     | 0.44              |
| 45:GX:89:MET:HE2   | 45:GX:89:MET:HB3   | 1.91                     | 0.44              |
| 46:GY:51:ALA:HB3   | 46:GY:54:ILE:HB    | 1.99                     | 0.44              |
| 1:H1:102:G:OP2     | 50:H1:3653:HOH:O   | 2.21                     | 0.44              |
| 1:H1:238:G:H5'     | 2:HA:86:ALA:CB     | 2.45                     | 0.44              |
| 1:H1:296:G:H8      | 1:H1:296:G:O5'     | 2.01                     | 0.44              |
| 1:H1:474:G:H2'     | 1:H1:475:C:H6      | 1.83                     | 0.44              |
| 1:H1:590:A:O2'     | 6:HF:64:GLU:OE2    | 2.31                     | 0.44              |
| 1:H1:615:G:H2'     | 1:H1:616:A:H8      | 1.81                     | 0.44              |
| 1:H1:961:A:H5''    | 1:H1:962:G:OP1     | 2.18                     | 0.44              |
| 1:H1:1154:G:N2     | 1:H1:1157:A:OP2    | 2.48                     | 0.44              |
| 1:H1:1221:G:C6     | 1:H1:1222:A:N6     | 2.85                     | 0.44              |
| 1:H1:1241:U:H2'    | 1:H1:1242:U:C6     | 2.51                     | 0.44              |
| 1:H1:1414:C:N3     | 1:H1:1415:C:C5     | 2.86                     | 0.44              |
| 1:H1:1537:U:C5'    | 1:H1:1538:U:C5     | 2.97                     | 0.44              |
| 1:H1:1592:G:H2'    | 1:H1:1593:A:O4'    | 2.18                     | 0.44              |
| 1:H1:2352:A:H2'    | 1:H1:2353:C:C6     | 2.43                     | 0.44              |
| 1:H1:2569:A:C2'    | 1:H1:2570:U:OP1    | 2.64                     | 0.44              |
| 1:H1:2649:G:H2'    | 1:H1:2650:U:H6     | 1.81                     | 0.44              |
| 1:H1:3101:G:O6     | 1:H1:3109:C:H5'    | 2.17                     | 0.44              |
| 1:H1:3226:A:H5''   | 5:HE:80:TYR:HH     | 1.80                     | 0.44              |
| 5:HE:68:GLN:O      | 5:HE:68:GLN:HG3    | 2.16                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 9:HJ:39:GLU:O     | 9:HJ:43:VAL:HB     | 2.17                     | 0.44              |
| 18:HU:29:GLN:O    | 18:HU:30:LYS:C     | 2.58                     | 0.44              |
| 18:HU:34:LEU:HA   | 18:HU:37:ARG:HD2   | 1.99                     | 0.44              |
| 19:HX:170:HIS:ND1 | 19:HX:170:HIS:C    | 2.75                     | 0.44              |
| 1:A1:111:C:H3'    | 1:A1:154:U:O4      | 2.17                     | 0.44              |
| 1:A1:236:G:H2'    | 1:A1:237:A:C8      | 2.52                     | 0.44              |
| 1:A1:279:U:O2     | 1:A1:281:G:C8      | 2.71                     | 0.44              |
| 1:A1:434:A:H4'    | 1:A1:435:A:H8      | 1.81                     | 0.44              |
| 1:A1:454:A:N6     | 1:A1:524:G:H1'     | 2.30                     | 0.44              |
| 1:A1:534:U:C2     | 1:A1:535:C:C5      | 3.06                     | 0.44              |
| 1:A1:556:A:C6     | 1:A1:557:U:C5      | 3.06                     | 0.44              |
| 1:A1:627:U:O2     | 1:A1:630:G:C6      | 2.71                     | 0.44              |
| 1:A1:734:A:H2'    | 1:A1:735:A:O4'     | 2.17                     | 0.44              |
| 1:A1:1371:G:H8    | 1:A1:1371:G:H5'    | 1.82                     | 0.44              |
| 1:A1:1595:A:C5    | 1:A1:1596:U:C1'    | 2.94                     | 0.44              |
| 1:A1:1783:U:C2    | 1:A1:1794:G:C2     | 3.05                     | 0.44              |
| 1:A1:1821:U:H1'   | 1:A1:1822:G:C2     | 2.52                     | 0.44              |
| 1:A1:3228:U:C3'   | 1:A1:3229:C:H5'    | 2.47                     | 0.44              |
| 6:AF:23:LYS:CB    | 6:AF:43:ILE:HD11   | 2.48                     | 0.44              |
| 6:AF:99:LYS:HD3   | 30:BI:197:GLY:CA   | 2.32                     | 0.44              |
| 7:AG:43:PHE:CD1   | 7:AG:68:HIS:HD2    | 2.35                     | 0.44              |
| 9:AJ:213:THR:O    | 9:AJ:217:VAL:HG23  | 2.17                     | 0.44              |
| 10:AK:118:SER:HB3 | 50:AK:303:HOH:O    | 2.17                     | 0.44              |
| 13:AN:14:LEU:HD23 | 13:AN:14:LEU:HA    | 1.76                     | 0.44              |
| 15:AP:33:VAL:HG22 | 15:AP:42:PHE:CD2   | 2.53                     | 0.44              |
| 18:AU:19:ARG:HD2  | 33:BL:196:GLN:HB3  | 2.00                     | 0.44              |
| 18:AU:30:LYS:N    | 18:AU:33:ARG:HH21  | 2.15                     | 0.44              |
| 18:AU:150:LEU:CD2 | 42:BU:122:LEU:HD13 | 2.48                     | 0.44              |
| 19:AX:71:ARG:NE   | 43:BV:74:VAL:HG11  | 2.33                     | 0.44              |
| 19:AX:89:TYR:O    | 19:AX:107:GLU:HA   | 2.17                     | 0.44              |
| 19:AX:96:GLN:CB   | 19:AX:134:THR:CG2  | 2.95                     | 0.44              |
| 23:BB:56:ILE:CG2  | 23:BB:57:LEU:N     | 2.81                     | 0.44              |
| 23:BB:60:VAL:HG23 | 23:BB:67:HIS:O     | 2.18                     | 0.44              |
| 23:BB:108:LYS:HE2 | 23:BB:137:PHE:CD1  | 2.53                     | 0.44              |
| 23:BB:309:PHE:HA  | 23:BB:310:PRO:HD3  | 1.79                     | 0.44              |
| 24:BC:7:ILE:HD13  | 24:BC:156:PRO:HD2  | 1.99                     | 0.44              |
| 24:BC:328:ASN:OD1 | 24:BC:328:ASN:C    | 2.60                     | 0.44              |
| 24:BC:356:GLN:O   | 24:BC:360:LYS:HG2  | 2.17                     | 0.44              |
| 24:BC:388:ILE:O   | 24:BC:391:ALA:HB3  | 2.18                     | 0.44              |
| 25:BD:12:VAL:CG2  | 25:BD:162:TRP:CD1  | 2.99                     | 0.44              |
| 27:BF:219:ASP:HB3 | 27:BF:223:LYS:HE3  | 1.98                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:BM:284:ALA:O    | 34:BM:288:LYS:HG2  | 2.18                     | 0.44              |
| 35:BN:10:ARG:O     | 35:BN:11:VAL:C     | 2.60                     | 0.44              |
| 43:BV:170:LEU:HA   | 43:BV:170:LEU:HD23 | 1.62                     | 0.44              |
| 44:BW:91:LEU:HD23  | 44:BW:91:LEU:HA    | 1.65                     | 0.44              |
| 22:CA:68:TYR:C     | 22:CA:69:ARG:HG2   | 2.43                     | 0.44              |
| 22:CA:184:GLY:O    | 22:CA:187:PHE:HB3  | 2.18                     | 0.44              |
| 24:CC:44:ASP:HB3   | 24:CC:118:ARG:HB2  | 2.00                     | 0.44              |
| 24:CC:91:ARG:O     | 24:CC:91:ARG:HG3   | 2.16                     | 0.44              |
| 24:CC:242:ASN:C    | 24:CC:244:LEU:H    | 2.25                     | 0.44              |
| 24:CC:348:ALA:C    | 24:CC:350:ALA:N    | 2.74                     | 0.44              |
| 24:CC:349:GLU:O    | 24:CC:350:ALA:C    | 2.60                     | 0.44              |
| 27:CF:169:PRO:CB   | 27:CF:211:PHE:HB2  | 2.45                     | 0.44              |
| 27:CF:219:ASP:HB3  | 27:CF:223:LYS:HE3  | 2.00                     | 0.44              |
| 29:CH:80:ILE:HD11  | 29:CH:144:HIS:HB3  | 1.98                     | 0.44              |
| 30:CI:17:ARG:HH22  | 1:D1:1344:A:H4'    | 1.81                     | 0.44              |
| 30:CI:27:LEU:HA    | 30:CI:27:LEU:HD23  | 1.75                     | 0.44              |
| 30:CI:35:VAL:O     | 30:CI:36:ARG:HB2   | 2.16                     | 0.44              |
| 30:CI:86:MET:CE    | 1:D1:1202:C:H1'    | 2.39                     | 0.44              |
| 30:CI:113:ARG:O    | 1:D1:3162:A:C8     | 2.70                     | 0.44              |
| 31:CJ:11:VAL:CG2   | 31:CJ:131:PRO:HD3  | 2.48                     | 0.44              |
| 34:CM:145:ILE:HD13 | 1:D1:2737:A:H4'    | 1.99                     | 0.44              |
| 34:CM:267:ASN:HD21 | 34:CM:270:PRO:CG   | 2.30                     | 0.44              |
| 35:CN:18:ARG:HH12  | 35:CN:56:SER:HA    | 1.80                     | 0.44              |
| 47:CO:84:THR:OG1   | 47:CO:87:ALA:HB2   | 2.16                     | 0.44              |
| 47:CO:162:UNK:O    | 47:CO:165:UNK:CG   | 2.59                     | 0.44              |
| 40:CS:35:SER:O     | 40:CS:36:LYS:C     | 2.61                     | 0.44              |
| 41:CT:2:VAL:HG22   | 41:CT:3:VAL:N      | 2.32                     | 0.44              |
| 42:CU:122:LEU:HD21 | 18:DU:117:TYR:CE1  | 2.53                     | 0.44              |
| 1:D1:137:A:C6      | 1:D1:138:C:C4      | 3.06                     | 0.44              |
| 1:D1:467:A:C5      | 1:D1:468:A:C5      | 3.05                     | 0.44              |
| 1:D1:528:C:H2'     | 1:D1:529:G:C8      | 2.53                     | 0.44              |
| 1:D1:581:C:H2'     | 1:D1:582:A:O4'     | 2.18                     | 0.44              |
| 1:D1:646:A:H2'     | 1:D1:647:U:H6      | 1.82                     | 0.44              |
| 1:D1:655:A:H2'     | 1:D1:656:C:C5      | 2.51                     | 0.44              |
| 1:D1:911:C:C2'     | 1:D1:912:G:H5'     | 2.48                     | 0.44              |
| 1:D1:1176:G:H8     | 1:D1:1176:G:H5'    | 1.82                     | 0.44              |
| 1:D1:1430:G:C6     | 1:D1:1434:G:C6     | 3.05                     | 0.44              |
| 1:D1:1736:G:N1     | 1:D1:1737:A:N1     | 2.65                     | 0.44              |
| 1:D1:2113:A:C8     | 1:D1:3053:U:H1'    | 2.53                     | 0.44              |
| 1:D1:2889:G:N2     | 1:D1:3019:G:O2'    | 2.50                     | 0.44              |
| 1:D1:3136:A:C5     | 1:D1:3137:U:C5     | 3.06                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:3175:A:N6    | 6:DF:16:ASN:ND2    | 2.57                     | 0.44              |
| 4:DC:19:THR:CG2   | 4:DC:20:ASN:N      | 2.80                     | 0.44              |
| 5:DE:58:PHE:HB3   | 5:DE:85:VAL:CG2    | 2.48                     | 0.44              |
| 5:DE:60:GLY:O     | 5:DE:177:LYS:HA    | 2.17                     | 0.44              |
| 6:DF:79:PHE:O     | 6:DF:80:ASP:HB2    | 2.18                     | 0.44              |
| 8:DH:46:GLU:H     | 8:DH:46:GLU:CD     | 2.25                     | 0.44              |
| 9:DJ:12:ASP:C     | 9:DJ:14:GLY:N      | 2.74                     | 0.44              |
| 14:DO:87:VAL:HG21 | 14:DO:115:HIS:CD2  | 2.52                     | 0.44              |
| 18:DU:106:SER:O   | 18:DU:110:ASN:ND2  | 2.49                     | 0.44              |
| 18:DU:154:VAL:N   | 18:DU:155:PRO:HD3  | 2.32                     | 0.44              |
| 19:DX:55:PHE:CZ   | 19:DX:59:MET:CE    | 3.00                     | 0.44              |
| 23:EB:26:ARG:HD2  | 23:EB:177:LEU:CD2  | 2.46                     | 0.44              |
| 23:EB:377:PHE:HZ  | 41:ET:13:TYR:HE1   | 1.66                     | 0.44              |
| 24:EC:359:LEU:CD2 | 24:EC:363:ARG:HH21 | 2.30                     | 0.44              |
| 24:EC:380:PHE:O   | 24:EC:383:ALA:HB3  | 2.16                     | 0.44              |
| 30:EI:61:MET:HE3  | 30:EI:61:MET:HB2   | 1.73                     | 0.44              |
| 33:EL:19:MET:HA   | 33:EL:19:MET:CE    | 2.40                     | 0.44              |
| 34:EM:18:THR:O    | 34:EM:18:THR:CG2   | 2.65                     | 0.44              |
| 35:EN:77:LYS:HE2  | 35:EN:98:LYS:HE2   | 2.00                     | 0.44              |
| 37:EP:54:TYR:CD1  | 1:F1:2713:U:H4'    | 2.53                     | 0.44              |
| 38:EQ:24:LEU:CD1  | 38:EQ:92:VAL:HG11  | 2.47                     | 0.44              |
| 40:ES:14:GLN:O    | 40:ES:15:ARG:C     | 2.60                     | 0.44              |
| 40:ES:24:HIS:NE2  | 40:ES:25:LEU:HG    | 2.32                     | 0.44              |
| 42:EU:98:LYS:HG2  | 1:F1:242:G:P       | 2.57                     | 0.44              |
| 45:EX:31:ASP:CG   | 45:EX:32:SER:N     | 2.75                     | 0.44              |
| 45:EX:113:ARG:HE  | 45:EX:117:LEU:HD11 | 1.83                     | 0.44              |
| 1:F1:40:C:HO2'    | 1:F1:41:A:P        | 2.35                     | 0.44              |
| 1:F1:436:U:C2'    | 1:F1:437:A:H5'     | 2.48                     | 0.44              |
| 1:F1:658:G:H5'    | 8:FH:28:HIS:O      | 2.17                     | 0.44              |
| 1:F1:666:U:H5'    | 1:F1:1143:G:O6     | 2.17                     | 0.44              |
| 1:F1:937:G:H2'    | 1:F1:939:A:N7      | 2.33                     | 0.44              |
| 1:F1:978:G:OP1    | 17:FT:15:LYS:NZ    | 2.43                     | 0.44              |
| 1:F1:992:A:N6     | 1:F1:993:G:C6      | 2.85                     | 0.44              |
| 1:F1:1064:C:O2    | 1:F1:1064:C:H2'    | 2.18                     | 0.44              |
| 1:F1:1381:G:H5'   | 14:FO:37:GLN:CG    | 2.48                     | 0.44              |
| 1:F1:1393:A:H2'   | 1:F1:1394:G:C8     | 2.53                     | 0.44              |
| 1:F1:1414:C:C4    | 1:F1:1415:C:C5     | 3.06                     | 0.44              |
| 1:F1:1820:U:H4'   | 1:F1:1821:U:OP1    | 2.13                     | 0.44              |
| 1:F1:1936:U:O2    | 1:F1:2117:A:H3'    | 2.17                     | 0.44              |
| 1:F1:1936:U:O2'   | 1:F1:2117:A:N7     | 2.46                     | 0.44              |
| 1:F1:3097:G:C2    | 1:F1:3116:A:C2     | 3.05                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3155:A:C6     | 8:FH:102:SER:HB3   | 2.53                     | 0.44              |
| 1:F1:3175:A:C5'    | 1:F1:3176:A:OP1    | 2.65                     | 0.44              |
| 1:F1:3232:A:N6     | 1:F1:3233:A:C2     | 2.85                     | 0.44              |
| 5:FE:42:ARG:H      | 5:FE:92:GLN:HE21   | 1.63                     | 0.44              |
| 5:FE:46:ALA:HB3    | 5:FE:49:THR:HG1    | 1.83                     | 0.44              |
| 6:FF:44:VAL:HG12   | 6:FF:45:ARG:H      | 1.82                     | 0.44              |
| 9:FJ:4:ARG:HH21    | 9:FJ:215:ILE:HD12  | 1.82                     | 0.44              |
| 9:FJ:46:ILE:HD11   | 9:FJ:202:TRP:CZ2   | 2.53                     | 0.44              |
| 19:FX:7:GLN:NE2    | 19:FX:80:GLU:H     | 2.16                     | 0.44              |
| 19:FX:187:THR:CG2  | 19:FX:188:THR:N    | 2.80                     | 0.44              |
| 20:G2:58:U:H2'     | 20:G2:59:G:H8      | 1.83                     | 0.44              |
| 20:G2:68:A:OP1     | 42:GU:57:LYS:HE2   | 2.17                     | 0.44              |
| 21:G3:70:G:C2      | 21:G3:71:G:C8      | 3.06                     | 0.44              |
| 22:GA:117:VAL:CG1  | 22:GA:118:GLU:N    | 2.80                     | 0.44              |
| 22:GA:210:HIS:CE1  | 22:GA:236:VAL:HG12 | 2.53                     | 0.44              |
| 23:GB:46:PHE:HD1   | 23:GB:206:ILE:HD12 | 1.81                     | 0.44              |
| 23:GB:110:ILE:CG2  | 23:GB:114:THR:HG21 | 2.47                     | 0.44              |
| 23:GB:171:GLN:HG3  | 1:H1:3273:U:H5''   | 1.99                     | 0.44              |
| 24:GC:287:ARG:CD   | 35:GN:111:ARG:NH1  | 2.80                     | 0.44              |
| 24:GC:313:THR:HG22 | 24:GC:314:THR:H    | 1.82                     | 0.44              |
| 25:GD:7:ASN:C      | 25:GD:9:MET:H      | 2.25                     | 0.44              |
| 27:GF:36:GLN:NE2   | 1:H1:2520:G:H1     | 2.16                     | 0.44              |
| 27:GF:142:LYS:HE3  | 27:GF:194:THR:O    | 2.17                     | 0.44              |
| 29:GH:7:ARG:NH1    | 1:H1:2844:G:N7     | 2.64                     | 0.44              |
| 29:GH:9:TYR:CG     | 29:GH:97:LEU:HD13  | 2.51                     | 0.44              |
| 31:GJ:57:SER:O     | 31:GJ:58:ILE:C     | 2.60                     | 0.44              |
| 33:GL:192:TRP:CE2  | 33:GL:196:GLN:HG3  | 2.53                     | 0.44              |
| 34:GM:99:TYR:CG    | 34:GM:204:ILE:CG2  | 3.00                     | 0.44              |
| 34:GM:132:VAL:O    | 34:GM:132:VAL:HG12 | 2.16                     | 0.44              |
| 35:GN:89:ASN:OD1   | 35:GN:90:ASP:C     | 2.61                     | 0.44              |
| 36:GO:102:LEU:HD13 | 36:GO:127:SER:HB3  | 1.99                     | 0.44              |
| 38:GQ:44:GLU:HA    | 38:GQ:44:GLU:OE1   | 2.16                     | 0.44              |
| 38:GQ:128:ARG:HG2  | 38:GQ:142:LEU:CD2  | 2.47                     | 0.44              |
| 1:H1:29:C:C2'      | 1:H1:30:U:H5'      | 2.47                     | 0.44              |
| 1:H1:45:C:OP1      | 18:HU:14:LYS:HE2   | 2.17                     | 0.44              |
| 1:H1:619:G:O2'     | 1:H1:620:A:H2      | 2.00                     | 0.44              |
| 1:H1:742:U:O4      | 17:HT:61:LYS:HB3   | 2.17                     | 0.44              |
| 1:H1:1173:A:H4'    | 1:H1:1358:U:C5     | 2.53                     | 0.44              |
| 1:H1:1546:G:O2'    | 1:H1:1628:A:N1     | 2.48                     | 0.44              |
| 1:H1:2391:G:C5'    | 1:H1:2392:A:H4'    | 2.41                     | 0.44              |
| 1:H1:2436:U:H2'    | 1:H1:2437:G:C8     | 2.53                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2594:G:H2'    | 1:H1:2596:G:O6     | 2.18                     | 0.44              |
| 1:H1:2651:A:H5''   | 50:H1:4310:HOH:O   | 2.18                     | 0.44              |
| 1:H1:2715:C:H6     | 1:H1:2715:C:O5'    | 2.01                     | 0.44              |
| 1:H1:2914:A:H2'    | 1:H1:2915:C:C6     | 2.52                     | 0.44              |
| 8:HH:12:THR:HG22   | 8:HH:14:LEU:HG     | 2.00                     | 0.44              |
| 9:HJ:12:ASP:C      | 9:HJ:14:GLY:N      | 2.73                     | 0.44              |
| 9:HJ:36:SER:O      | 9:HJ:37:VAL:C      | 2.59                     | 0.44              |
| 9:HJ:74:ASN:OD1    | 9:HJ:74:ASN:C      | 2.59                     | 0.44              |
| 9:HJ:129:ILE:O     | 9:HJ:133:LEU:HB2   | 2.18                     | 0.44              |
| 18:HU:76:GLN:HB2   | 18:HU:101:ASN:HD22 | 1.81                     | 0.44              |
| 18:HU:123:LEU:HD22 | 18:HU:135:LEU:O    | 2.17                     | 0.44              |
| 1:A1:20:G:C5       | 1:A1:21:A:N7       | 2.86                     | 0.44              |
| 1:A1:29:C:C2'      | 1:A1:30:U:H5'      | 2.48                     | 0.44              |
| 1:A1:363:G:H5'     | 1:A1:363:G:C8      | 2.45                     | 0.44              |
| 1:A1:606:U:O2'     | 1:A1:607:U:H5'     | 2.17                     | 0.44              |
| 1:A1:621:G:N2      | 1:A1:634:G:H5''    | 2.27                     | 0.44              |
| 1:A1:631:G:C6      | 5:AE:31:ARG:NH2    | 2.86                     | 0.44              |
| 1:A1:705:A:C5      | 1:A1:706:U:C5      | 3.06                     | 0.44              |
| 1:A1:936:C:H5''    | 22:BA:16:VAL:HG21  | 1.96                     | 0.44              |
| 1:A1:1050:C:O2     | 1:A1:1055:A:C2     | 2.71                     | 0.44              |
| 1:A1:1055:A:H8     | 1:A1:1055:A:O5'    | 2.00                     | 0.44              |
| 1:A1:1191:G:H2'    | 1:A1:1192:A:C8     | 2.49                     | 0.44              |
| 1:A1:1248:G:C8     | 1:A1:1248:G:O5'    | 2.70                     | 0.44              |
| 1:A1:1474:U:C5     | 1:A1:2350:G:N2     | 2.86                     | 0.44              |
| 1:A1:1593:A:C4     | 1:A1:1594:C:C4     | 3.06                     | 0.44              |
| 1:A1:1595:A:H3'    | 1:A1:1596:U:C6     | 2.52                     | 0.44              |
| 1:A1:1599:G:N1     | 1:A1:1600:U:C2     | 2.86                     | 0.44              |
| 1:A1:1677:G:O2'    | 11:AL:42:THR:HG23  | 2.17                     | 0.44              |
| 1:A1:2148:A:H2'    | 1:A1:2149:U:C6     | 2.52                     | 0.44              |
| 1:A1:2149:U:H4'    | 22:BA:244:THR:O    | 2.18                     | 0.44              |
| 1:A1:2281:U:H4'    | 1:A1:2282:C:OP1    | 2.16                     | 0.44              |
| 1:A1:2294:A:OP1    | 50:A1:4494:HOH:O   | 2.20                     | 0.44              |
| 1:A1:2408:A:H8     | 1:A1:2408:A:O5'    | 1.99                     | 0.44              |
| 1:A1:2784:G:H4'    | 1:A1:2786:C:C6     | 2.52                     | 0.44              |
| 1:A1:2790:A:N3     | 4:AC:54:PRO:HA     | 2.33                     | 0.44              |
| 1:A1:2907:A:C5'    | 1:A1:2907:A:C8     | 2.98                     | 0.44              |
| 1:A1:3080:A:O2'    | 1:A1:3081:C:P      | 2.76                     | 0.44              |
| 1:A1:3103:A:H2'    | 1:A1:3104:G:N7     | 2.32                     | 0.44              |
| 1:A1:3141:U:H5''   | 1:A1:3252:G:N2     | 2.32                     | 0.44              |
| 1:A1:3229:C:O2'    | 1:A1:3230:G:OP1    | 2.33                     | 0.44              |
| 1:A1:3242:U:O2'    | 20:B2:3:A:N6       | 2.45                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3264:U:O2     | 23:BB:332:ARG:NH1  | 2.51                     | 0.44              |
| 5:AE:28:PHE:C      | 5:AE:28:PHE:HD1    | 2.25                     | 0.44              |
| 5:AE:41:LEU:CG     | 5:AE:68:GLN:OE1    | 2.52                     | 0.44              |
| 6:AF:21:LYS:HZ2    | 19:AX:174:GLU:HG2  | 1.81                     | 0.44              |
| 7:AG:57:GLU:HA     | 7:AG:67:ILE:HD13   | 1.97                     | 0.44              |
| 8:AH:107:MET:SD    | 8:AH:109:TYR:CE2   | 3.08                     | 0.44              |
| 9:AJ:39:GLU:O      | 9:AJ:43:VAL:HB     | 2.17                     | 0.44              |
| 9:AJ:160:LEU:HD12  | 9:AJ:182:CYS:O     | 2.18                     | 0.44              |
| 12:AM:52:LEU:O     | 12:AM:53:GLY:O     | 2.36                     | 0.44              |
| 13:AN:95:GLU:O     | 13:AN:98:LYS:HE2   | 2.18                     | 0.44              |
| 19:AX:44:PHE:CD1   | 19:AX:137:ILE:CD1  | 3.01                     | 0.44              |
| 22:BA:175:ARG:HA   | 46:BY:69:TRP:CE2   | 2.53                     | 0.44              |
| 22:BA:212:HIS:CE1  | 22:BA:220:ILE:HD13 | 2.53                     | 0.44              |
| 23:BB:259:ARG:HA   | 30:BI:63:HIS:HB2   | 1.99                     | 0.44              |
| 24:BC:349:GLU:O    | 24:BC:350:ALA:C    | 2.61                     | 0.44              |
| 25:BD:143:ARG:HH21 | 34:BM:27:LEU:HD22  | 1.83                     | 0.44              |
| 26:BE:46:GLN:CD    | 26:BE:54:LYS:HB3   | 2.43                     | 0.44              |
| 26:BE:86:TYR:CE2   | 26:BE:149:LEU:HB2  | 2.53                     | 0.44              |
| 28:BG:28:UNK:N     | 28:BG:112:UNK:O    | 2.51                     | 0.44              |
| 29:BH:147:TYR:CD1  | 29:BH:147:TYR:N    | 2.86                     | 0.44              |
| 31:BJ:35:ALA:HB1   | 31:BJ:66:VAL:CG1   | 2.48                     | 0.44              |
| 32:BK:89:ARG:HG3   | 32:BK:90:GLN:N     | 2.33                     | 0.44              |
| 32:BK:91:LYS:HG2   | 32:BK:92:TYR:CE1   | 2.53                     | 0.44              |
| 33:BL:106:VAL:HG21 | 33:BL:132:VAL:HG21 | 2.00                     | 0.44              |
| 34:BM:119:TYR:OH   | 34:BM:139:LYS:O    | 2.30                     | 0.44              |
| 37:BP:52:MET:HG2   | 37:BP:95:HIS:CE1   | 2.52                     | 0.44              |
| 39:BR:116:ARG:N    | 39:BR:133:ARG:O    | 2.49                     | 0.44              |
| 39:BR:150:ILE:H    | 39:BR:150:ILE:CD1  | 2.20                     | 0.44              |
| 42:BU:35:ALA:HB1   | 42:BU:44:LYS:HD3   | 2.00                     | 0.44              |
| 43:BV:81:ALA:HB3   | 43:BV:114:PHE:CZ   | 2.52                     | 0.44              |
| 23:CB:254:HIS:HA   | 23:CB:255:PRO:C    | 2.42                     | 0.44              |
| 24:CC:117:HIS:CD2  | 33:CL:202:ARG:HB2  | 2.52                     | 0.44              |
| 24:CC:383:ALA:HB1  | 37:CP:147:PHE:CG   | 2.53                     | 0.44              |
| 27:CF:145:VAL:HG13 | 27:CF:173:VAL:CG2  | 2.47                     | 0.44              |
| 29:CH:58:GLU:CD    | 29:CH:160:PRO:HB2  | 2.42                     | 0.44              |
| 32:CK:36:LYS:CA    | 18:DU:1:MET:HE1    | 2.40                     | 0.44              |
| 33:CL:33:LEU:O     | 33:CL:65:ARG:NH1   | 2.51                     | 0.44              |
| 34:CM:98:ALA:HB1   | 34:CM:162:VAL:HG23 | 1.99                     | 0.44              |
| 34:CM:125:VAL:O    | 34:CM:201:LYS:NZ   | 2.40                     | 0.44              |
| 37:CP:91:VAL:HG11  | 37:CP:96:VAL:HG23  | 1.99                     | 0.44              |
| 39:CR:75:LEU:HD21  | 39:CR:93:TYR:CE2   | 2.52                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:CV:48:TYR:HE1   | 43:CV:183:HIS:CD2  | 2.35                     | 0.44              |
| 43:CV:231:ILE:O    | 43:CV:235:VAL:HG23 | 2.17                     | 0.44              |
| 44:CW:66:ILE:HG23  | 44:CW:67:PRO:HD2   | 2.00                     | 0.44              |
| 1:D1:126:A:C5      | 1:D1:139:A:C6      | 3.05                     | 0.44              |
| 1:D1:436:U:C2'     | 1:D1:437:A:H5'     | 2.47                     | 0.44              |
| 1:D1:1121:G:O5'    | 1:D1:1121:G:H8     | 2.00                     | 0.44              |
| 1:D1:1315:U:H2'    | 1:D1:1316:G:H5''   | 2.00                     | 0.44              |
| 1:D1:1839:A:H4'    | 1:D1:1840:U:C5'    | 2.48                     | 0.44              |
| 1:D1:2149:U:O2'    | 1:D1:2150:U:H5''   | 2.17                     | 0.44              |
| 1:D1:2245:G:C4     | 1:D1:2246:G:C8     | 3.06                     | 0.44              |
| 1:D1:2520:G:H4'    | 1:D1:2521:A:OP2    | 2.15                     | 0.44              |
| 1:D1:2539:A:C2     | 1:D1:2540:G:C8     | 3.06                     | 0.44              |
| 1:D1:2843:U:O5'    | 1:D1:2843:U:H6     | 2.00                     | 0.44              |
| 1:D1:2885:A:O2'    | 1:D1:2886:G:H3'    | 2.17                     | 0.44              |
| 1:D1:3112:A:C3'    | 1:D1:3113:G:H5'    | 2.46                     | 0.44              |
| 1:D1:3175:A:H3'    | 1:D1:3175:A:N3     | 2.33                     | 0.44              |
| 2:DA:84:GLN:OE1    | 2:DA:84:GLN:HA     | 2.16                     | 0.44              |
| 3:DB:23:LEU:HD22   | 3:DB:35:ILE:HG22   | 2.00                     | 0.44              |
| 7:DG:55:GLU:HG3    | 13:DN:81:MET:HE1   | 1.99                     | 0.44              |
| 10:DK:105:PRO:C    | 10:DK:106:LYS:HG2  | 2.43                     | 0.44              |
| 13:DN:95:GLU:HA    | 13:DN:95:GLU:OE1   | 2.18                     | 0.44              |
| 13:DN:122:TYR:O    | 13:DN:125:ILE:HG13 | 2.17                     | 0.44              |
| 19:DX:28:LEU:HD13  | 19:DX:70:GLY:O     | 2.17                     | 0.44              |
| 19:DX:34:THR:O     | 19:DX:36:PRO:HD3   | 2.18                     | 0.44              |
| 20:E2:112:G:N2     | 3:FB:52:TYR:C      | 2.76                     | 0.44              |
| 21:E3:11:A:H2'     | 21:E3:12:U:H5''    | 2.00                     | 0.44              |
| 21:E3:64:A:H5'     | 21:E3:65:G:OP2     | 2.18                     | 0.44              |
| 23:EB:216:LEU:HD22 | 23:EB:274:THR:HA   | 1.99                     | 0.44              |
| 23:EB:230:ARG:HG2  | 23:EB:231:PHE:CE1  | 2.52                     | 0.44              |
| 24:EC:179:VAL:O    | 24:EC:179:VAL:HG12 | 2.16                     | 0.44              |
| 25:ED:17:LEU:CD1   | 25:ED:129:VAL:HG22 | 2.46                     | 0.44              |
| 25:ED:99:THR:HG21  | 1:F1:2673:C:O2'    | 2.16                     | 0.44              |
| 25:ED:134:PRO:HG2  | 25:ED:135:GLY:N    | 2.32                     | 0.44              |
| 25:ED:142:ARG:O    | 25:ED:145:THR:OG1  | 2.35                     | 0.44              |
| 27:EF:126:LYS:CE   | 27:EF:194:THR:OG1  | 2.65                     | 0.44              |
| 29:EH:42:THR:HG23  | 29:EH:192:THR:CG2  | 2.44                     | 0.44              |
| 33:EL:8:GLU:CD     | 33:EL:50:LYS:HZ3   | 2.25                     | 0.44              |
| 33:EL:13:LYS:CD    | 16:FQ:49:THR:HG21  | 2.46                     | 0.44              |
| 33:EL:26:ARG:C     | 33:EL:30:TYR:CD1   | 2.96                     | 0.44              |
| 33:EL:124:ASP:OD1  | 33:EL:124:ASP:C    | 2.59                     | 0.44              |
| 33:EL:180:ARG:HH22 | 1:F1:301:A:C5'     | 2.29                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:EM:9:THR:O     | 34:EM:13:PHE:HD2   | 1.99                     | 0.44              |
| 35:EN:146:ARG:CB  | 35:EN:149:TYR:CD2  | 3.01                     | 0.44              |
| 36:EO:5:ARG:HA    | 36:EO:5:ARG:HD2    | 1.76                     | 0.44              |
| 36:EO:21:ARG:NH1  | 36:EO:52:LYS:HE3   | 2.33                     | 0.44              |
| 39:ER:43:LEU:HD13 | 1:F1:1599:G:H5'    | 1.96                     | 0.44              |
| 40:ES:21:SER:HA   | 40:ES:22:PRO:HD3   | 1.86                     | 0.44              |
| 40:ES:86:LYS:HE3  | 40:ES:96:ILE:CD1   | 2.47                     | 0.44              |
| 40:ES:117:LEU:O   | 40:ES:118:LEU:C    | 2.60                     | 0.44              |
| 42:EU:69:ALA:O    | 42:EU:72:ASP:HB2   | 2.17                     | 0.44              |
| 43:EV:184:GLU:O   | 43:EV:188:VAL:N    | 2.50                     | 0.44              |
| 1:F1:19:A:H8      | 1:F1:19:A:O5'      | 2.00                     | 0.44              |
| 1:F1:79:C:C2'     | 1:F1:80:C:H5'      | 2.48                     | 0.44              |
| 1:F1:116:U:H3'    | 1:F1:117:G:C8      | 2.53                     | 0.44              |
| 1:F1:122:U:O2'    | 1:F1:123:C:H5'     | 2.18                     | 0.44              |
| 1:F1:269:U:C2     | 1:F1:270:C:C5      | 3.06                     | 0.44              |
| 1:F1:452:U:O2'    | 1:F1:453:A:O5'     | 2.35                     | 0.44              |
| 1:F1:533:G:N2     | 1:F1:534:U:C2      | 2.86                     | 0.44              |
| 1:F1:727:C:H2'    | 1:F1:728:G:C8      | 2.52                     | 0.44              |
| 1:F1:820:G:C2'    | 1:F1:821:U:H5'     | 2.42                     | 0.44              |
| 1:F1:1820:U:O2'   | 1:F1:1822:G:N2     | 2.51                     | 0.44              |
| 1:F1:1828:C:H2'   | 1:F1:1829:U:O4'    | 2.18                     | 0.44              |
| 1:F1:2101:G:H8    | 1:F1:2101:G:C5'    | 2.29                     | 0.44              |
| 1:F1:2292:U:C2    | 1:F1:2294:A:C6     | 3.05                     | 0.44              |
| 1:F1:3183:A:H4'   | 1:F1:3184:A:OP1    | 2.17                     | 0.44              |
| 2:FA:6:PRO:HD2    | 2:FA:7:ALA:H       | 1.82                     | 0.44              |
| 3:FB:23:LEU:HD22  | 3:FB:35:ILE:HG22   | 1.99                     | 0.44              |
| 6:FF:13:VAL:CG1   | 6:FF:53:VAL:HG13   | 2.47                     | 0.44              |
| 6:FF:26:VAL:HB    | 6:FF:72:LEU:HD21   | 2.00                     | 0.44              |
| 6:FF:34:ASN:C     | 6:FF:50:ILE:HG13   | 2.42                     | 0.44              |
| 13:FN:126:ASN:HA  | 13:FN:127:PRO:HD3  | 1.73                     | 0.44              |
| 20:G2:58:U:N3     | 20:G2:65:C:C5      | 2.71                     | 0.44              |
| 20:G2:84:C:O2'    | 20:G2:89:A:H5'     | 2.17                     | 0.44              |
| 20:G2:89:A:H2'    | 20:G2:90:G:O4'     | 2.17                     | 0.44              |
| 20:G2:130:C:O2'   | 39:GR:64:HIS:HD2   | 2.01                     | 0.44              |
| 22:GA:68:TYR:CE1  | 1:H1:2520:G:O6     | 2.70                     | 0.44              |
| 23:GB:22:THR:HG22 | 23:GB:23:ARG:N     | 2.33                     | 0.44              |
| 24:GC:35:THR:O    | 24:GC:36:ASP:C     | 2.61                     | 0.44              |
| 24:GC:270:PHE:HB3 | 24:GC:285:LEU:HD21 | 2.00                     | 0.44              |
| 24:GC:349:GLU:O   | 24:GC:350:ALA:C    | 2.60                     | 0.44              |
| 24:GC:405:ILE:CD1 | 29:GH:183:ARG:HG2  | 2.42                     | 0.44              |
| 26:GE:174:LEU:HB3 | 10:HK:86:ALA:HB1   | 1.99                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:GH:183:ARG:O    | 29:GH:187:GLN:HG3  | 2.16                     | 0.44              |
| 31:GJ:41:ILE:HD13  | 1:H1:2290:A:N9     | 2.33                     | 0.44              |
| 32:GK:89:ARG:HA    | 32:GK:121:GLN:HE22 | 1.83                     | 0.44              |
| 33:GL:160:GLU:HG2  | 33:GL:161:LEU:HG   | 1.99                     | 0.44              |
| 34:GM:110:LEU:HD11 | 34:GM:169:GLY:O    | 2.17                     | 0.44              |
| 34:GM:267:ASN:HD21 | 34:GM:270:PRO:CG   | 2.30                     | 0.44              |
| 36:GO:4:LEU:HA     | 36:GO:7:GLN:HG2    | 1.99                     | 0.44              |
| 40:GS:33:HIS:O     | 40:GS:104:VAL:HA   | 2.17                     | 0.44              |
| 43:GV:48:TYR:HE1   | 43:GV:183:HIS:CD2  | 2.36                     | 0.44              |
| 45:GX:45:ARG:HA    | 45:GX:54:MET:CE    | 2.40                     | 0.44              |
| 45:GX:84:LEU:HD12  | 45:GX:110:LEU:CD2  | 2.45                     | 0.44              |
| 1:H1:20:G:C5       | 1:H1:21:A:N7       | 2.85                     | 0.44              |
| 1:H1:111:C:O2      | 1:H1:111:C:C2'     | 2.65                     | 0.44              |
| 1:H1:606:U:O2'     | 1:H1:607:U:H5'     | 2.18                     | 0.44              |
| 1:H1:685:G:H4'     | 1:H1:685:G:OP1     | 2.17                     | 0.44              |
| 1:H1:784:G:O2'     | 1:H1:796:A:N6      | 2.51                     | 0.44              |
| 1:H1:1021:U:N3     | 1:H1:1022:A:N7     | 2.65                     | 0.44              |
| 1:H1:1049:U:C2     | 1:H1:1056:A:C2     | 3.06                     | 0.44              |
| 1:H1:1050:C:H2'    | 1:H1:1051:C:O4'    | 2.17                     | 0.44              |
| 1:H1:1218:U:H3'    | 10:HK:113:ARG:NH1  | 2.32                     | 0.44              |
| 1:H1:1658:G:O6     | 13:HN:17:ARG:HD2   | 2.17                     | 0.44              |
| 1:H1:1966:U:C2'    | 1:H1:1967:C:O5'    | 2.65                     | 0.44              |
| 1:H1:3112:A:C3'    | 1:H1:3113:G:H5'    | 2.48                     | 0.44              |
| 4:HC:4:VAL:O       | 4:HC:91:PHE:HA     | 2.16                     | 0.44              |
| 5:HE:42:ARG:HG2    | 5:HE:92:GLN:NE2    | 2.32                     | 0.44              |
| 5:HE:56:GLY:O      | 5:HE:57:ARG:C      | 2.60                     | 0.44              |
| 6:HF:13:VAL:CG1    | 6:HF:53:VAL:HG13   | 2.47                     | 0.44              |
| 9:HJ:62:VAL:O      | 9:HJ:73:PRO:HD3    | 2.16                     | 0.44              |
| 14:HO:83:VAL:HG21  | 14:HO:90:VAL:CG2   | 2.48                     | 0.44              |
| 15:HP:11:PHE:O     | 15:HP:15:TRP:HD1   | 2.00                     | 0.44              |
| 16:HQ:40:LEU:O     | 16:HQ:44:VAL:HG23  | 2.17                     | 0.44              |
| 17:HT:56:SER:OG    | 17:HT:57:LYS:N     | 2.51                     | 0.44              |
| 19:HX:148:ILE:HG13 | 19:HX:154:LEU:CD2  | 2.48                     | 0.44              |
| 1:A1:77:A:H2'      | 1:A1:78:G:C8       | 2.52                     | 0.44              |
| 1:A1:137:A:C6      | 1:A1:138:C:C4      | 3.05                     | 0.44              |
| 1:A1:338:C:H6      | 1:A1:338:C:C5'     | 2.28                     | 0.44              |
| 1:A1:376:A:C5'     | 1:A1:377:A:OP1     | 2.65                     | 0.44              |
| 1:A1:488:U:H5      | 18:AU:161:LYS:HE2  | 1.81                     | 0.44              |
| 1:A1:608:C:C2'     | 1:A1:609:A:O5'     | 2.65                     | 0.44              |
| 1:A1:1410:G:O3'    | 24:BC:145:ARG:NH2  | 2.50                     | 0.44              |
| 1:A1:1430:G:C6     | 1:A1:1434:G:C6     | 3.06                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1546:G:O3'    | 39:BR:77:THR:CG2   | 2.61                     | 0.44              |
| 1:A1:1594:C:H2'    | 1:A1:1595:A:C5'    | 2.44                     | 0.44              |
| 1:A1:1751:A:OP1    | 46:BY:44:LYS:NZ    | 2.49                     | 0.44              |
| 1:A1:1758:U:H5'    | 1:A1:1759:C:OP2    | 2.17                     | 0.44              |
| 1:A1:1775:A:C8     | 1:A1:1777:A:C8     | 3.06                     | 0.44              |
| 1:A1:1823:A:H2'    | 1:A1:1824:A:O4'    | 2.17                     | 0.44              |
| 1:A1:2159:C:H4'    | 22:BA:8:GLN:HA     | 1.98                     | 0.44              |
| 1:A1:2683:A:H5''   | 1:A1:2684:A:OP2    | 2.18                     | 0.44              |
| 1:A1:2690:U:H5'    | 1:A1:2694:A:N6     | 2.32                     | 0.44              |
| 1:A1:2690:U:OP1    | 37:BP:17:LYS:HD2   | 2.18                     | 0.44              |
| 1:A1:2765:C:H4'    | 1:A1:2766:A:O5'    | 2.17                     | 0.44              |
| 1:A1:3061:A:C2'    | 1:A1:3062:A:H5'    | 2.48                     | 0.44              |
| 1:A1:3102:A:H4'    | 26:BE:69:GLN:HB3   | 1.99                     | 0.44              |
| 2:AA:6:PRO:HD2     | 2:AA:7:ALA:H       | 1.82                     | 0.44              |
| 5:AE:45:ILE:O      | 5:AE:45:ILE:HG23   | 2.17                     | 0.44              |
| 5:AE:53:LEU:HD12   | 5:AE:53:LEU:HA     | 1.86                     | 0.44              |
| 5:AE:54:LEU:C      | 5:AE:59:ARG:HB2    | 2.40                     | 0.44              |
| 5:AE:179:THR:HA    | 8:AH:12:THR:HG23   | 1.99                     | 0.44              |
| 8:AH:91:PHE:N      | 8:AH:91:PHE:HD1    | 2.16                     | 0.44              |
| 9:AJ:5:CYS:SG      | 9:AJ:13:ILE:CD1    | 3.06                     | 0.44              |
| 14:AO:115:HIS:O    | 14:AO:118:ASN:N    | 2.51                     | 0.44              |
| 19:AX:57:TYR:O     | 19:AX:60:ARG:HG2   | 2.18                     | 0.44              |
| 19:AX:113:LEU:HD12 | 19:AX:116:ALA:HB3  | 2.00                     | 0.44              |
| 23:BB:137:PHE:CD1  | 23:BB:137:PHE:C    | 2.95                     | 0.44              |
| 27:BF:121:LYS:HA   | 27:BF:122:PRO:HD3  | 1.81                     | 0.44              |
| 29:BH:10:ARG:NH2   | 29:BH:161:GLY:HA3  | 2.33                     | 0.44              |
| 32:BK:141:VAL:O    | 32:BK:141:VAL:HG12 | 2.18                     | 0.44              |
| 33:BL:98:LEU:O     | 33:BL:101:CYS:HB2  | 2.18                     | 0.44              |
| 36:BO:12:ALA:N     | 36:BO:22:LEU:HD11  | 2.33                     | 0.44              |
| 36:BO:115:ILE:CG2  | 36:BO:119:GLN:HB3  | 2.48                     | 0.44              |
| 38:BQ:71:ARG:HG2   | 38:BQ:81:THR:CG2   | 2.46                     | 0.44              |
| 39:BR:75:LEU:HD23  | 39:BR:75:LEU:HA    | 1.61                     | 0.44              |
| 41:BT:54:THR:HG22  | 41:BT:55:ILE:N     | 2.33                     | 0.44              |
| 21:C3:35:C:N4      | 21:C3:46:C:H1'     | 2.33                     | 0.44              |
| 22:CA:8:GLN:HA     | 1:D1:2159:C:H4'    | 1.99                     | 0.44              |
| 23:CB:49:PHE:N     | 23:CB:49:PHE:CD1   | 2.85                     | 0.44              |
| 24:CC:33:ILE:CD1   | 24:CC:135:ALA:HA   | 2.47                     | 0.44              |
| 24:CC:147:HIS:CD2  | 24:CC:254:ARG:HA   | 2.53                     | 0.44              |
| 24:CC:166:TYR:HD1  | 24:CC:171:GLN:HG3  | 1.83                     | 0.44              |
| 24:CC:200:LYS:HB2  | 24:CC:201:LEU:HD23 | 1.98                     | 0.44              |
| 24:CC:310:VAL:HG12 | 24:CC:311:ALA:N    | 2.31                     | 0.44              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 24:CC:355:ARG:NH1  | 1:D1:559:G:H5''   | 2.32                     | 0.44              |
| 25:CD:48:SER:HB3   | 1:D1:2671:C:OP1   | 2.17                     | 0.44              |
| 26:CE:66:ALA:HA    | 1:D1:3102:A:O2'   | 2.17                     | 0.44              |
| 29:CH:140:VAL:HG12 | 29:CH:141:LYS:H   | 1.81                     | 0.44              |
| 30:CI:109:THR:CG2  | 30:CI:110:PRO:CD  | 2.84                     | 0.44              |
| 31:CJ:25:ALA:HA    | 1:D1:1922:G:O2'   | 2.18                     | 0.44              |
| 32:CK:128:LYS:C    | 32:CK:129:TYR:CD1 | 2.95                     | 0.44              |
| 35:CN:68:ILE:H     | 35:CN:68:ILE:HG13 | 1.54                     | 0.44              |
| 38:CQ:99:ASN:O     | 38:CQ:99:ASN:ND2  | 2.51                     | 0.44              |
| 40:CS:31:SER:HB2   | 40:CS:47:MET:O    | 2.18                     | 0.44              |
| 42:CU:41:THR:H     | 42:CU:44:LYS:HD2  | 1.81                     | 0.44              |
| 45:CX:59:PHE:CZ    | 1:D1:1189:U:H4'   | 2.53                     | 0.44              |
| 1:D1:122:U:H4'     | 1:D1:150:A:H1'    | 2.00                     | 0.44              |
| 1:D1:165:C:H5''    | 18:DU:132:LYS:HZ2 | 1.80                     | 0.44              |
| 1:D1:332:G:C3'     | 1:D1:333:G:H5''   | 2.46                     | 0.44              |
| 1:D1:339:C:C2'     | 1:D1:340:G:H5'    | 2.48                     | 0.44              |
| 1:D1:452:U:O2'     | 1:D1:453:A:C5'    | 2.65                     | 0.44              |
| 1:D1:534:U:C2      | 1:D1:535:C:C5     | 3.05                     | 0.44              |
| 1:D1:591:G:H5'     | 1:D1:591:G:H8     | 1.82                     | 0.44              |
| 1:D1:779:A:C2      | 1:D1:780:C:C2     | 3.05                     | 0.44              |
| 1:D1:906:C:H1'     | 1:D1:1874:A:C8    | 2.53                     | 0.44              |
| 1:D1:983:U:OP1     | 1:D1:2787:A:H3'   | 2.18                     | 0.44              |
| 1:D1:1154:G:N2     | 1:D1:1157:A:OP2   | 2.49                     | 0.44              |
| 1:D1:1158:G:C4     | 1:D1:2368:A:C2    | 3.06                     | 0.44              |
| 1:D1:1162:A:OP2    | 17:DT:5:LYS:HD2   | 2.18                     | 0.44              |
| 1:D1:1188:G:C2     | 1:D1:1189:U:C5    | 3.05                     | 0.44              |
| 1:D1:1499:G:O2'    | 1:D1:1500:A:H5'   | 2.17                     | 0.44              |
| 1:D1:1693:U:O4     | 50:D1:4864:HOH:O  | 2.21                     | 0.44              |
| 1:D1:1769:U:H2'    | 1:D1:1770:A:H8    | 1.82                     | 0.44              |
| 1:D1:1840:U:OP2    | 1:D1:1840:U:C6    | 2.68                     | 0.44              |
| 1:D1:2886:G:H5''   | 1:D1:2887:C:H5'   | 2.00                     | 0.44              |
| 1:D1:3094:U:H2'    | 1:D1:3095:A:H8    | 1.81                     | 0.44              |
| 1:D1:3155:A:H62    | 8:DH:101:GLY:N    | 2.14                     | 0.44              |
| 2:DA:71:ILE:O      | 2:DA:75:ALA:HB2   | 2.17                     | 0.44              |
| 3:DB:6:THR:HB      | 3:DB:9:MET:HG3    | 2.00                     | 0.44              |
| 7:DG:77:LEU:HD23   | 7:DG:77:LEU:HA    | 1.64                     | 0.44              |
| 9:DJ:6:GLN:NE2     | 50:DJ:401:HOH:O   | 2.51                     | 0.44              |
| 9:DJ:35:TYR:CZ     | 9:DJ:50:HIS:CE1   | 3.06                     | 0.44              |
| 19:DX:124:MET:HE3  | 19:DX:124:MET:HA  | 1.99                     | 0.44              |
| 20:E2:2:G:O2'      | 20:E2:3:A:P       | 2.76                     | 0.44              |
| 20:E2:96:A:C6      | 2:FA:80:ARG:NH1   | 2.86                     | 0.44              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 20:E2:129:A:O3'    | 39:ER:99:THR:HG21 | 2.17                     | 0.44              |
| 21:E3:15:U:H1'     | 34:EM:13:PHE:HE1  | 1.83                     | 0.44              |
| 23:EB:371:VAL:CG1  | 23:EB:382:ARG:CZ  | 2.96                     | 0.44              |
| 24:EC:82:PRO:O     | 24:EC:96:ALA:N    | 2.39                     | 0.44              |
| 24:EC:319:ARG:CD   | 1:F1:634:G:C8     | 3.01                     | 0.44              |
| 28:EG:58:UNK:HA    | 1:F1:1308:U:H5''  | 1.99                     | 0.44              |
| 34:EM:110:LEU:CD1  | 34:EM:169:GLY:O   | 2.66                     | 0.44              |
| 35:EN:64:SER:O     | 35:EN:68:ILE:HG13 | 2.18                     | 0.44              |
| 35:EN:178:HIS:ND1  | 35:EN:179:GLY:O   | 2.50                     | 0.44              |
| 36:EO:76:THR:CG2   | 36:EO:81:ARG:HH21 | 2.30                     | 0.44              |
| 36:EO:125:LEU:HD21 | 1:F1:1744:A:H61   | 1.82                     | 0.44              |
| 43:EV:188:VAL:HG12 | 43:EV:188:VAL:O   | 2.17                     | 0.44              |
| 46:EY:32:THR:CG2   | 46:EY:70:GLU:HG2  | 2.48                     | 0.44              |
| 1:F1:19:A:C4'      | 1:F1:20:G:OP2     | 2.62                     | 0.44              |
| 1:F1:130:G:C6      | 1:F1:137:A:C6     | 3.06                     | 0.44              |
| 1:F1:144:A:H2'     | 1:F1:145:A:H5'    | 2.00                     | 0.44              |
| 1:F1:488:U:C5      | 18:FU:161:LYS:HE2 | 2.47                     | 0.44              |
| 1:F1:534:U:C2      | 1:F1:535:C:C5     | 3.05                     | 0.44              |
| 1:F1:567:C:H2'     | 1:F1:568:A:O4'    | 2.18                     | 0.44              |
| 1:F1:745:A:H4'     | 17:FT:58:ASN:HD21 | 1.80                     | 0.44              |
| 1:F1:997:G:H4'     | 1:F1:1399:A:O2'   | 2.17                     | 0.44              |
| 1:F1:1111:G:H3'    | 1:F1:1112:A:H8    | 1.83                     | 0.44              |
| 1:F1:1146:C:N4     | 17:FT:10:LYS:NZ   | 2.59                     | 0.44              |
| 1:F1:1592:G:N2     | 1:F1:1602:U:H1'   | 2.33                     | 0.44              |
| 1:F1:1732:C:H1'    | 11:FL:54:ASN:HD21 | 1.83                     | 0.44              |
| 1:F1:2208:A:H1'    | 1:F1:2590:A:O2'   | 2.18                     | 0.44              |
| 1:F1:2343:A:C2'    | 1:F1:2344:U:H5''  | 2.47                     | 0.44              |
| 1:F1:2698:A:H2'    | 1:F1:2699:C:C6    | 2.53                     | 0.44              |
| 1:F1:2977:U:H2'    | 1:F1:2978:G:O4'   | 2.17                     | 0.44              |
| 4:FC:4:VAL:HA      | 4:FC:5:PRO:HD3    | 1.81                     | 0.44              |
| 8:FH:91:PHE:CZ     | 8:FH:95:LEU:HD11  | 2.52                     | 0.44              |
| 9:FJ:39:GLU:O      | 9:FJ:43:VAL:HB    | 2.17                     | 0.44              |
| 9:FJ:71:LEU:HB3    | 9:FJ:97:ILE:CD1   | 2.47                     | 0.44              |
| 11:FL:96:LEU:HA    | 11:FL:96:LEU:HD23 | 1.68                     | 0.44              |
| 14:FO:26:THR:HG22  | 14:FO:26:THR:O    | 2.18                     | 0.44              |
| 17:FT:12:GLN:OE1   | 17:FT:12:GLN:HA   | 2.16                     | 0.44              |
| 18:FU:54:PRO:HB3   | 18:FU:73:PHE:CE1  | 2.53                     | 0.44              |
| 20:G2:7:U:OP1      | 38:GQ:36:ARG:NH1  | 2.40                     | 0.44              |
| 20:G2:134:C:H3'    | 20:G2:134:C:H6    | 1.80                     | 0.44              |
| 21:G3:33:U:C6      | 34:GM:212:TYR:CE1 | 3.05                     | 0.44              |
| 21:G3:89:G:C6      | 21:G3:90:A:C6     | 3.05                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:G3:115:U:H2'    | 21:G3:116:A:C8     | 2.53                     | 0.44              |
| 24:GC:333:LEU:CD2  | 43:GV:161:THR:O    | 2.65                     | 0.44              |
| 27:GF:92:TYR:CE2   | 27:GF:123:ILE:HG21 | 2.46                     | 0.44              |
| 27:GF:121:LYS:HA   | 1:H1:118:A:N7      | 2.33                     | 0.44              |
| 29:GH:51:HIS:HB3   | 29:GH:134:ILE:HG23 | 1.98                     | 0.44              |
| 29:GH:80:ILE:HD11  | 29:GH:144:HIS:HB3  | 2.00                     | 0.44              |
| 29:GH:91:VAL:CG1   | 29:GH:127:ALA:HB1  | 2.48                     | 0.44              |
| 30:GI:186:LEU:O    | 30:GI:187:LYS:C    | 2.61                     | 0.44              |
| 34:GM:113:ILE:HG21 | 34:GM:115:LEU:HD11 | 1.99                     | 0.44              |
| 34:GM:135:ASP:OD1  | 34:GM:135:ASP:O    | 2.35                     | 0.44              |
| 35:GN:167:VAL:HG13 | 35:GN:169:SER:O    | 2.16                     | 0.44              |
| 36:GO:96:MET:HE3   | 36:GO:100:ARG:NH2  | 2.33                     | 0.44              |
| 39:GR:71:VAL:HG21  | 39:GR:107:PHE:HD1  | 1.81                     | 0.44              |
| 40:GS:55:VAL:CG1   | 40:GS:56:LEU:N     | 2.81                     | 0.44              |
| 43:GV:128:LEU:N    | 43:GV:129:PRO:CD   | 2.79                     | 0.44              |
| 1:H1:1:C:O2'       | 1:H1:2:U:H5'       | 2.18                     | 0.44              |
| 1:H1:12:A:H2'      | 1:H1:13:C:C6       | 2.52                     | 0.44              |
| 1:H1:451:A:OP1     | 14:HO:55:LYS:HD3   | 2.17                     | 0.44              |
| 1:H1:561:A:O2'     | 1:H1:562:G:H5'     | 2.18                     | 0.44              |
| 1:H1:614:G:N2      | 8:HH:52:GLN:OE1    | 2.51                     | 0.44              |
| 1:H1:927:G:C4      | 1:H1:928:U:C5      | 3.05                     | 0.44              |
| 1:H1:1051:C:H2'    | 1:H1:1052:A:C1'    | 2.45                     | 0.44              |
| 1:H1:1057:U:H2'    | 1:H1:1058:C:C6     | 2.53                     | 0.44              |
| 1:H1:1153:G:H2'    | 1:H1:1154:G:O4'    | 2.17                     | 0.44              |
| 1:H1:1497:U:H2'    | 1:H1:1498:U:C6     | 2.51                     | 0.44              |
| 1:H1:1676:G:O2'    | 11:HL:81:GLU:OE2   | 2.27                     | 0.44              |
| 1:H1:1783:U:C2     | 1:H1:1794:G:C2     | 3.05                     | 0.44              |
| 1:H1:2154:A:C8     | 1:H1:2172:G:N2     | 2.86                     | 0.44              |
| 1:H1:2194:G:C2'    | 1:H1:2195:U:H5'    | 2.47                     | 0.44              |
| 1:H1:2438:G:C6     | 1:H1:2439:C:C4     | 3.06                     | 0.44              |
| 1:H1:2601:U:H1'    | 1:H1:2791:A:N3     | 2.33                     | 0.44              |
| 1:H1:2667:A:N6     | 1:H1:2668:A:C6     | 2.85                     | 0.44              |
| 1:H1:3098:A:N1     | 1:H1:3115:C:C4     | 2.86                     | 0.44              |
| 1:H1:3198:A:C6     | 1:H1:3199:G:C6     | 3.06                     | 0.44              |
| 5:HE:75:LEU:HA     | 5:HE:75:LEU:HD23   | 1.50                     | 0.44              |
| 9:HJ:186:ILE:HG12  | 9:HJ:187:ASN:H     | 1.83                     | 0.44              |
| 16:HQ:60:GLU:HG3   | 16:HQ:61:LEU:N     | 2.33                     | 0.44              |
| 19:HX:134:THR:O    | 19:HX:134:THR:HG22 | 2.15                     | 0.44              |
| 1:A1:130:G:C6      | 1:A1:137:A:C6      | 3.05                     | 0.44              |
| 1:A1:170:A:N6      | 1:A1:249:G:H1'     | 2.28                     | 0.44              |
| 1:A1:452:U:O2'     | 1:A1:453:A:C5'     | 2.66                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:474:G:H2'     | 1:A1:475:C:C6      | 2.53                     | 0.44              |
| 1:A1:486:C:H2'     | 1:A1:487:G:H5'     | 2.00                     | 0.44              |
| 1:A1:549:G:H2'     | 1:A1:550:G:H8      | 1.82                     | 0.44              |
| 1:A1:848:C:H2'     | 1:A1:849:U:H6      | 1.82                     | 0.44              |
| 1:A1:864:C:H41     | 46:BY:4:ARG:NH2    | 2.14                     | 0.44              |
| 1:A1:935:G:H5'     | 22:BA:12:ARG:HH11  | 1.82                     | 0.44              |
| 1:A1:1064:C:C2'    | 1:A1:1065:U:C5'    | 2.91                     | 0.44              |
| 1:A1:1216:C:O2'    | 30:BI:132:ARG:NH1  | 2.50                     | 0.44              |
| 1:A1:1222:A:H2'    | 1:A1:1336:U:O2     | 2.16                     | 0.44              |
| 1:A1:1548:U:OP1    | 39:BR:131:TYR:OH   | 2.31                     | 0.44              |
| 1:A1:1552:U:O2     | 1:A1:1620:U:H5'    | 2.18                     | 0.44              |
| 1:A1:1736:G:N1     | 1:A1:1737:A:N1     | 2.64                     | 0.44              |
| 1:A1:1769:U:H2'    | 1:A1:1770:A:H8     | 1.82                     | 0.44              |
| 1:A1:2123:U:O2'    | 1:A1:2124:C:H5'    | 2.17                     | 0.44              |
| 1:A1:2130:G:N2     | 1:A1:2143:A:H1'    | 2.32                     | 0.44              |
| 1:A1:2597:G:O2'    | 33:BL:79:ILE:CD1   | 2.64                     | 0.44              |
| 1:A1:2631:A:H5'    | 17:AT:7:SER:HB3    | 1.99                     | 0.44              |
| 1:A1:2632:A:C2'    | 1:A1:2634:G:OP1    | 2.66                     | 0.44              |
| 1:A1:2767:A:H2'    | 1:A1:2768:G:O5'    | 2.17                     | 0.44              |
| 1:A1:3056:C:H3'    | 36:BO:62:ARG:HH22  | 1.83                     | 0.44              |
| 1:A1:3177:G:H8     | 1:A1:3177:G:OP1    | 2.00                     | 0.44              |
| 1:A1:3185:G:C5     | 1:A1:3237:C:C4     | 3.05                     | 0.44              |
| 4:AC:10:THR:C      | 4:AC:18:HIS:ND1    | 2.76                     | 0.44              |
| 5:AE:77:THR:CG2    | 5:AE:157:ASP:OD1   | 2.66                     | 0.44              |
| 5:AE:117:PHE:HA    | 5:AE:149:ARG:NH2   | 2.33                     | 0.44              |
| 8:AH:50:PHE:CD1    | 8:AH:50:PHE:C      | 2.96                     | 0.44              |
| 13:AN:52:LYS:O     | 13:AN:65:ARG:NE    | 2.50                     | 0.44              |
| 14:AO:48:VAL:HG23  | 14:AO:98:PHE:HZ    | 1.81                     | 0.44              |
| 18:AU:54:PRO:HB3   | 18:AU:73:PHE:CE1   | 2.53                     | 0.44              |
| 18:AU:57:ARG:HD2   | 18:AU:64:ASN:O     | 2.17                     | 0.44              |
| 18:AU:81:ALA:HB2   | 18:AU:114:LEU:HD13 | 1.99                     | 0.44              |
| 19:AX:23:VAL:HG22  | 19:AX:75:VAL:HG22  | 1.99                     | 0.44              |
| 19:AX:34:THR:CG2   | 19:AX:35:LYS:N     | 2.80                     | 0.44              |
| 19:AX:176:LYS:HE2  | 19:AX:177:TYR:OH   | 2.18                     | 0.44              |
| 21:B3:93:G:C8      | 21:B3:93:G:O5'     | 2.67                     | 0.44              |
| 22:BA:97:ILE:HD11  | 22:BA:109:PRO:HD3  | 2.00                     | 0.44              |
| 23:BB:105:VAL:HG11 | 23:BB:146:LEU:HD21 | 1.99                     | 0.44              |
| 23:BB:340:ILE:HG13 | 23:BB:341:ILE:H    | 1.82                     | 0.44              |
| 23:BB:365:HIS:HA   | 41:BT:19:ARG:NH2   | 2.32                     | 0.44              |
| 26:BE:139:LYS:O    | 26:BE:140:ASN:HB2  | 2.17                     | 0.44              |
| 29:BH:3:ARG:HH12   | 29:BH:63:GLU:HB2   | 1.82                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:BI:64:ASN:HD21  | 30:BI:66:ARG:CG    | 2.25                     | 0.44              |
| 34:BM:41:LYS:NZ    | 37:BP:32:THR:O     | 2.49                     | 0.44              |
| 36:BO:4:LEU:HA     | 36:BO:7:GLN:HG2    | 1.98                     | 0.44              |
| 36:BO:102:LEU:HD13 | 36:BO:127:SER:HB3  | 1.99                     | 0.44              |
| 39:BR:94:VAL:HG21  | 39:BR:103:ILE:HD13 | 1.99                     | 0.44              |
| 45:BX:45:ARG:HA    | 45:BX:54:MET:CE    | 2.39                     | 0.44              |
| 46:BY:24:LYS:O     | 46:BY:25:VAL:C     | 2.59                     | 0.44              |
| 23:CB:46:PHE:HD1   | 23:CB:206:ILE:HD12 | 1.81                     | 0.44              |
| 23:CB:60:VAL:HG23  | 23:CB:67:HIS:O     | 2.17                     | 0.44              |
| 24:CC:67:HIS:CD2   | 24:CC:91:ARG:HH21  | 2.35                     | 0.44              |
| 24:CC:369:HIS:O    | 24:CC:372:GLY:N    | 2.51                     | 0.44              |
| 24:CC:402:GLY:O    | 29:CH:178:ARG:NH1  | 2.51                     | 0.44              |
| 25:CD:117:ASP:H    | 25:CD:120:THR:HB   | 1.82                     | 0.44              |
| 29:CH:19:LYS:HG3   | 29:CH:26:VAL:CG1   | 2.47                     | 0.44              |
| 30:CI:10:ALA:O     | 30:CI:13:HIS:HB2   | 2.18                     | 0.44              |
| 30:CI:186:LEU:O    | 30:CI:187:LYS:C    | 2.61                     | 0.44              |
| 31:CJ:88:PRO:HA    | 31:CJ:97:ILE:O     | 2.18                     | 0.44              |
| 33:CL:174:LEU:HD22 | 33:CL:185:ARG:NH1  | 2.33                     | 0.44              |
| 34:CM:119:TYR:CE1  | 34:CM:132:VAL:CG1  | 3.01                     | 0.44              |
| 35:CN:152:TRP:CG   | 1:D1:1136:C:H5''   | 2.53                     | 0.44              |
| 47:CO:76:THR:CG2   | 47:CO:81:ARG:HH21  | 2.31                     | 0.44              |
| 40:CS:117:LEU:O    | 40:CS:118:LEU:C    | 2.61                     | 0.44              |
| 45:CX:89:MET:CE    | 14:DO:31:VAL:O     | 2.65                     | 0.44              |
| 46:CY:51:ALA:HB3   | 46:CY:54:ILE:HB    | 2.00                     | 0.44              |
| 1:D1:278:U:H2'     | 1:D1:279:U:H6      | 1.82                     | 0.44              |
| 1:D1:358:C:C4'     | 1:D1:842:A:N6      | 2.78                     | 0.44              |
| 1:D1:371:A:C6      | 1:D1:372:A:C6      | 3.06                     | 0.44              |
| 1:D1:806:G:H2'     | 1:D1:807:G:H5'     | 1.99                     | 0.44              |
| 1:D1:882:G:HO2'    | 1:D1:883:A:P       | 2.40                     | 0.44              |
| 1:D1:894:G:C6      | 1:D1:895:A:C6      | 3.06                     | 0.44              |
| 1:D1:1110:U:O2     | 1:D1:1110:U:H2'    | 2.18                     | 0.44              |
| 1:D1:1241:U:H2'    | 1:D1:1242:U:C6     | 2.52                     | 0.44              |
| 1:D1:1394:G:O2'    | 1:D1:1395:U:H6     | 2.00                     | 0.44              |
| 1:D1:1772:G:C2'    | 1:D1:1773:G:H5'    | 2.46                     | 0.44              |
| 1:D1:1973:A:H2'    | 1:D1:1974:U:H6     | 1.81                     | 0.44              |
| 1:D1:2227:A:H2'    | 1:D1:2228:A:O4'    | 2.17                     | 0.44              |
| 1:D1:2564:G:O6     | 1:D1:2565:A:N6     | 2.50                     | 0.44              |
| 1:D1:2683:A:H5''   | 1:D1:2684:A:OP2    | 2.18                     | 0.44              |
| 1:D1:2701:U:H2'    | 1:D1:2702:U:C6     | 2.53                     | 0.44              |
| 1:D1:2849:U:H3'    | 1:D1:2850:U:H6     | 1.83                     | 0.44              |
| 1:D1:2900:G:P      | 50:D1:4562:HOH:O   | 2.58                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3067:A:O2'    | 1:D1:3068:U:P      | 2.76                     | 0.44              |
| 1:D1:3174:U:C4     | 6:DF:90:PHE:CE1    | 3.06                     | 0.44              |
| 1:D1:3272:U:C4     | 1:D1:3273:U:C5     | 3.06                     | 0.44              |
| 5:DE:28:PHE:C      | 5:DE:28:PHE:HD1    | 2.25                     | 0.44              |
| 8:DH:15:TRP:CH2    | 8:DH:105:ARG:NH2   | 2.86                     | 0.44              |
| 13:DN:95:GLU:O     | 13:DN:98:LYS:HE2   | 2.18                     | 0.44              |
| 20:E2:72:C:H5'     | 20:E2:73:G:OP2     | 2.18                     | 0.44              |
| 20:E2:130:C:C2'    | 20:E2:131:C:H5'    | 2.48                     | 0.44              |
| 21:E3:27:A:H2'     | 21:E3:28:C:H6      | 1.81                     | 0.44              |
| 21:E3:70:G:C2      | 21:E3:71:G:C8      | 3.05                     | 0.44              |
| 21:E3:83:G:N1      | 21:E3:93:G:N2      | 2.50                     | 0.44              |
| 22:EA:55:ARG:NH2   | 1:F1:2171:U:H5''   | 2.33                     | 0.44              |
| 22:EA:68:TYR:CE1   | 1:F1:2520:G:O6     | 2.71                     | 0.44              |
| 23:EB:101:ALA:O    | 1:F1:3135:A:O2'    | 2.36                     | 0.44              |
| 24:EC:100:GLN:NE2  | 1:F1:828:C:O2'     | 2.50                     | 0.44              |
| 26:EE:1:MET:HE3    | 1:F1:1214:C:P      | 2.57                     | 0.44              |
| 26:EE:58:TRP:O     | 26:EE:59:GLN:C     | 2.59                     | 0.44              |
| 26:EE:75:ILE:O     | 26:EE:76:LYS:C     | 2.59                     | 0.44              |
| 26:EE:84:GLU:HB3   | 26:EE:185:ALA:O    | 2.18                     | 0.44              |
| 26:EE:110:ILE:CG1  | 26:EE:132:ILE:HD13 | 2.47                     | 0.44              |
| 27:EF:45:VAL:HG12  | 27:EF:46:ARG:N     | 2.31                     | 0.44              |
| 27:EF:138:ASN:O    | 27:EF:139:LYS:HB2  | 2.17                     | 0.44              |
| 30:EI:193:LEU:HD21 | 6:FF:114:LEU:CB    | 2.47                     | 0.44              |
| 31:EJ:75:LYS:HE2   | 1:F1:2289:U:OP2    | 2.18                     | 0.44              |
| 33:EL:64:VAL:HG21  | 33:EL:106:VAL:HG23 | 1.99                     | 0.44              |
| 33:EL:180:ARG:NH2  | 1:F1:301:A:H4'     | 2.33                     | 0.44              |
| 34:EM:37:ILE:HD11  | 37:EP:31:LEU:HD11  | 2.00                     | 0.44              |
| 35:EN:10:ARG:HA    | 1:F1:1369:C:H1'    | 2.00                     | 0.44              |
| 35:EN:18:ARG:HH12  | 35:EN:56:SER:HA    | 1.82                     | 0.44              |
| 35:EN:67:ARG:HA    | 35:EN:67:ARG:HD3   | 1.69                     | 0.44              |
| 35:EN:138:PHE:CE2  | 35:EN:140:LEU:HD13 | 2.52                     | 0.44              |
| 40:ES:35:SER:O     | 40:ES:36:LYS:C     | 2.60                     | 0.44              |
| 43:EV:103:PHE:CZ   | 43:EV:124:ILE:CG1  | 3.00                     | 0.44              |
| 1:F1:418:G:N2      | 1:F1:2360:C:H1'    | 2.32                     | 0.44              |
| 1:F1:592:A:OP1     | 6:FF:68:ARG:HG3    | 2.18                     | 0.44              |
| 1:F1:632:G:C5      | 1:F1:633:C:C4      | 3.06                     | 0.44              |
| 1:F1:688:U:C2      | 1:F1:689:A:C8      | 3.06                     | 0.44              |
| 1:F1:957:U:O4'     | 1:F1:958:A:H5'     | 2.18                     | 0.44              |
| 1:F1:1005:A:C2     | 1:F1:1007:G:C6     | 3.06                     | 0.44              |
| 1:F1:1135:U:C5'    | 1:F1:1135:U:C6     | 3.01                     | 0.44              |
| 1:F1:1521:U:H5'    | 1:F1:1522:C:C5     | 2.53                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1593:A:C4     | 1:F1:1594:C:C4     | 3.06                     | 0.44              |
| 1:F1:1661:A:H5''   | 13:FN:15:GLN:O     | 2.18                     | 0.44              |
| 1:F1:1775:A:C5'    | 15:FP:34:LYS:NZ    | 2.81                     | 0.44              |
| 1:F1:2123:U:O2'    | 1:F1:2124:C:H5'    | 2.18                     | 0.44              |
| 1:F1:2436:U:H2'    | 1:F1:2437:G:C8     | 2.53                     | 0.44              |
| 1:F1:2559:U:O2     | 1:F1:2561:A:N1     | 2.51                     | 0.44              |
| 1:F1:2561:A:N3     | 1:F1:2563:U:C6     | 2.86                     | 0.44              |
| 1:F1:2907:A:N1     | 1:F1:2915:C:O2     | 2.51                     | 0.44              |
| 1:F1:3115:C:C2'    | 1:F1:3116:A:O5'    | 2.66                     | 0.44              |
| 5:FE:56:GLY:O      | 5:FE:59:ARG:N      | 2.31                     | 0.44              |
| 5:FE:60:GLY:O      | 5:FE:177:LYS:HA    | 2.18                     | 0.44              |
| 5:FE:63:VAL:HG13   | 5:FE:78:GLY:N      | 2.31                     | 0.44              |
| 6:FF:32:ASN:OD1    | 6:FF:32:ASN:C      | 2.60                     | 0.44              |
| 8:FH:20:PHE:C      | 8:FH:20:PHE:HD1    | 2.25                     | 0.44              |
| 8:FH:98:GLN:C      | 8:FH:100:ILE:N     | 2.75                     | 0.44              |
| 9:FJ:66:ASN:OD1    | 9:FJ:66:ASN:C      | 2.58                     | 0.44              |
| 9:FJ:161:VAL:HG12  | 9:FJ:162:HIS:N     | 2.31                     | 0.44              |
| 11:FL:78:TYR:HE1   | 13:FN:144:PHE:HB2  | 1.83                     | 0.44              |
| 12:FM:82:THR:HG21  | 12:FM:97:VAL:HG21  | 1.99                     | 0.44              |
| 13:FN:30:GLU:HA    | 13:FN:30:GLU:OE1   | 2.17                     | 0.44              |
| 18:FU:59:GLN:O     | 18:FU:59:GLN:CG    | 2.64                     | 0.44              |
| 19:FX:44:PHE:CD2   | 19:FX:117:VAL:HG21 | 2.52                     | 0.44              |
| 20:G2:3:A:N1       | 1:H1:3242:U:O2'    | 2.50                     | 0.44              |
| 22:GA:36:ALA:O     | 22:GA:40:GLY:C     | 2.61                     | 0.44              |
| 22:GA:208:VAL:HG21 | 1:H1:941:G:O6      | 2.18                     | 0.44              |
| 23:GB:301:LYS:HD3  | 23:GB:359:THR:CG2  | 2.48                     | 0.44              |
| 24:GC:111:LYS:HB3  | 24:GC:113:TYR:CE1  | 2.52                     | 0.44              |
| 24:GC:200:LYS:NZ   | 1:H1:1446:C:OP2    | 2.37                     | 0.44              |
| 24:GC:205:ARG:NH2  | 40:GS:11:ARG:NH1   | 2.65                     | 0.44              |
| 24:GC:376:TRP:CD1  | 1:H1:564:A:C1'     | 2.84                     | 0.44              |
| 25:GD:12:VAL:HG23  | 25:GD:12:VAL:O     | 2.18                     | 0.44              |
| 27:GF:161:GLN:OE1  | 27:GF:164:ARG:NH1  | 2.51                     | 0.44              |
| 29:GH:201:GLY:O    | 29:GH:208:ARG:NH2  | 2.51                     | 0.44              |
| 30:GI:11:LYS:CD    | 30:GI:36:ARG:NH1   | 2.80                     | 0.44              |
| 30:GI:35:VAL:O     | 30:GI:36:ARG:HB2   | 2.18                     | 0.44              |
| 30:GI:99:GLU:O     | 30:GI:99:GLU:HG2   | 2.18                     | 0.44              |
| 30:GI:177:ARG:HA   | 30:GI:180:GLU:HG2  | 1.99                     | 0.44              |
| 31:GJ:32:ASN:ND2   | 31:GJ:117:GLN:N    | 2.65                     | 0.44              |
| 34:GM:19:LYS:O     | 34:GM:24:ARG:NH1   | 2.51                     | 0.44              |
| 36:GO:76:THR:CG2   | 36:GO:81:ARG:HH21  | 2.31                     | 0.44              |
| 43:GV:80:VAL:HG22  | 43:GV:188:VAL:HG21 | 1.99                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 45:GX:14:LYS:HD2  | 45:GX:59:PHE:C    | 2.43                     | 0.44              |
| 45:GX:25:GLU:H    | 45:GX:25:GLU:CD   | 2.23                     | 0.44              |
| 46:GY:10:ILE:O    | 46:GY:13:LYS:HG2  | 2.17                     | 0.44              |
| 1:H1:126:A:C5     | 1:H1:139:A:C6     | 3.06                     | 0.44              |
| 1:H1:533:G:H2'    | 1:H1:534:U:C6     | 2.52                     | 0.44              |
| 1:H1:772:U:O2'    | 1:H1:773:C:H5'    | 2.17                     | 0.44              |
| 1:H1:1143:G:N2    | 1:H1:2805:A:O4'   | 2.50                     | 0.44              |
| 1:H1:1248:G:C8    | 1:H1:1248:G:O5'   | 2.71                     | 0.44              |
| 1:H1:1248:G:O2'   | 1:H1:1249:G:OP2   | 2.29                     | 0.44              |
| 1:H1:1314:A:H2'   | 1:H1:1315:U:H6    | 1.83                     | 0.44              |
| 1:H1:1388:U:H2'   | 1:H1:1389:G:C8    | 2.52                     | 0.44              |
| 1:H1:1677:G:O2'   | 11:HL:42:THR:HG23 | 2.17                     | 0.44              |
| 1:H1:2599:G:H2'   | 1:H1:2600:U:O4'   | 2.17                     | 0.44              |
| 1:H1:3083:A:H2'   | 1:H1:3084:U:C6    | 2.53                     | 0.44              |
| 1:H1:3141:U:H5''  | 1:H1:3252:G:N2    | 2.32                     | 0.44              |
| 1:H1:3177:G:C8    | 1:H1:3177:G:OP1   | 2.71                     | 0.44              |
| 1:H1:3197:A:OP2   | 1:H1:3213:G:N1    | 2.48                     | 0.44              |
| 2:HA:17:THR:HG23  | 2:HA:18:LEU:H     | 1.82                     | 0.44              |
| 5:HE:54:LEU:HD22  | 8:HH:14:LEU:HD13  | 2.00                     | 0.44              |
| 6:HF:28:VAL:CG1   | 6:HF:66:ASN:N     | 2.81                     | 0.44              |
| 8:HH:9:VAL:CG1    | 8:HH:10:ALA:H     | 2.30                     | 0.44              |
| 13:HN:83:THR:CG2  | 13:HN:85:TYR:HD2  | 2.30                     | 0.44              |
| 14:HO:94:ILE:HD13 | 14:HO:107:ALA:CB  | 2.48                     | 0.44              |
| 1:A1:20:G:C6      | 1:A1:21:A:N7      | 2.85                     | 0.44              |
| 1:A1:418:G:N2     | 1:A1:2360:C:H1'   | 2.32                     | 0.44              |
| 1:A1:862:A:OP1    | 46:BY:9:GLY:HA2   | 2.17                     | 0.44              |
| 1:A1:984:C:N4     | 1:A1:2789:A:C8    | 2.86                     | 0.44              |
| 1:A1:987:A:O2'    | 1:A1:988:G:H5'    | 2.18                     | 0.44              |
| 1:A1:1028:A:HO2'  | 1:A1:1029:A:C5'   | 2.30                     | 0.44              |
| 1:A1:1053:A:N1    | 13:HN:3:LYS:HE3   | 2.33                     | 0.44              |
| 1:A1:1108:A:H2'   | 1:A1:1108:A:N3    | 2.32                     | 0.44              |
| 1:A1:1176:G:H8    | 1:A1:1176:G:H5'   | 1.82                     | 0.44              |
| 1:A1:1207:A:C4    | 1:A1:1209:G:C8    | 3.05                     | 0.44              |
| 1:A1:1365:C:H4'   | 45:BX:62:ASP:HB2  | 1.99                     | 0.44              |
| 1:A1:1381:G:OP1   | 14:AO:36:THR:HB   | 2.18                     | 0.44              |
| 1:A1:1497:U:C2    | 1:A1:1498:U:C5    | 3.06                     | 0.44              |
| 1:A1:1533:G:H5''  | 1:A1:1533:G:C8    | 2.53                     | 0.44              |
| 1:A1:1692:G:C6    | 1:A1:1693:U:C4    | 3.05                     | 0.44              |
| 1:A1:1767:U:C5    | 11:AL:35:VAL:HG21 | 2.52                     | 0.44              |
| 1:A1:2113:A:H2'   | 1:A1:2114:C:O4'   | 2.18                     | 0.44              |
| 1:A1:2261:U:H2'   | 1:A1:2262:C:C6    | 2.53                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2302:G:O2'    | 1:A1:2305:U:OP2    | 2.32                     | 0.44              |
| 1:A1:2349:C:N4     | 50:A1:4566:HOH:O   | 2.50                     | 0.44              |
| 1:A1:2380:U:O2     | 1:A1:2380:U:C2'    | 2.65                     | 0.44              |
| 1:A1:2735:A:H2'    | 1:A1:2736:A:O4'    | 2.18                     | 0.44              |
| 1:A1:2744:C:O2'    | 37:BP:49:HIS:CD2   | 2.69                     | 0.44              |
| 1:A1:3092:A:H2'    | 1:A1:3093:U:O5'    | 2.18                     | 0.44              |
| 2:AA:20:ARG:CZ     | 20:B2:111:A:C6     | 3.00                     | 0.44              |
| 7:AG:35:ARG:HH22   | 13:AN:78:ASN:HA    | 1.83                     | 0.44              |
| 9:AJ:4:ARG:HB3     | 9:AJ:208:LEU:HA    | 1.99                     | 0.44              |
| 9:AJ:117:ILE:HD13  | 9:AJ:137:VAL:CG1   | 2.47                     | 0.44              |
| 11:AL:109:SER:O    | 25:GD:25:GLU:OE2   | 2.36                     | 0.44              |
| 14:AO:9:VAL:O      | 14:AO:10:LYS:C     | 2.60                     | 0.44              |
| 19:AX:92:VAL:O     | 19:AX:138:ILE:N    | 2.45                     | 0.44              |
| 21:B3:63:A:N1      | 29:BH:202:GLU:HG3  | 2.32                     | 0.44              |
| 23:BB:33:PRO:CD    | 23:BB:44:THR:CG2   | 2.96                     | 0.44              |
| 23:BB:56:ILE:CG2   | 23:BB:354:LEU:HD22 | 2.46                     | 0.44              |
| 24:BC:117:HIS:CD2  | 33:BL:202:ARG:HB2  | 2.52                     | 0.44              |
| 24:BC:147:HIS:CD2  | 24:BC:254:ARG:HA   | 2.53                     | 0.44              |
| 24:BC:194:LEU:HD23 | 24:BC:194:LEU:HA   | 1.61                     | 0.44              |
| 26:BE:115:PHE:CZ   | 26:BE:163:CYS:O    | 2.71                     | 0.44              |
| 27:BF:45:VAL:HA    | 39:BR:35:VAL:O     | 2.18                     | 0.44              |
| 27:BF:83:SER:O     | 27:BF:87:LYS:HG3   | 2.18                     | 0.44              |
| 29:BH:34:TYR:CZ    | 29:BH:92:HIS:CE1   | 3.06                     | 0.44              |
| 30:BI:22:VAL:O     | 30:BI:26:LEU:HG    | 2.18                     | 0.44              |
| 31:BJ:28:ASN:N     | 31:BJ:102:ASN:O    | 2.47                     | 0.44              |
| 32:BK:21:ARG:NH1   | 45:BX:40:ILE:HG22  | 2.31                     | 0.44              |
| 33:BL:142:ILE:HG23 | 33:BL:148:ILE:HG22 | 1.99                     | 0.44              |
| 34:BM:38:ILE:HD12  | 37:BP:70:ARG:NH2   | 2.33                     | 0.44              |
| 42:BU:98:LYS:O     | 42:BU:99:LYS:C     | 2.59                     | 0.44              |
| 45:BX:4:LYS:HD2    | 45:BX:92:ARG:NE    | 2.33                     | 0.44              |
| 45:BX:25:GLU:H     | 45:BX:25:GLU:CD    | 2.26                     | 0.44              |
| 45:BX:73:PHE:HE1   | 45:BX:120:ARG:HH11 | 1.65                     | 0.44              |
| 21:C3:120:U:OP1    | 34:CM:270:PRO:HB3  | 2.17                     | 0.44              |
| 22:CA:71:LYS:HE3   | 22:CA:73:ASN:ND2   | 2.33                     | 0.44              |
| 22:CA:86:GLY:HA3   | 1:D1:2545:A:C4     | 2.53                     | 0.44              |
| 23:CB:371:VAL:CG1  | 23:CB:382:ARG:CZ   | 2.96                     | 0.44              |
| 24:CC:28:VAL:HG13  | 24:CC:270:PHE:CD2  | 2.53                     | 0.44              |
| 27:CF:53:LEU:HD23  | 27:CF:53:LEU:HA    | 1.64                     | 0.44              |
| 27:CF:170:PHE:CD1  | 27:CF:216:ASN:OD1  | 2.70                     | 0.44              |
| 29:CH:44:GLU:OE1   | 29:CH:44:GLU:HA    | 2.18                     | 0.44              |
| 30:CI:181:LEU:HG   | 30:CI:190:LYS:HE3  | 1.99                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:CK:9:ARG:HD2    | 1:D1:1456:U:C4     | 2.53                     | 0.44              |
| 34:CM:44:TYR:CD1   | 1:D1:1112:A:H4'    | 2.53                     | 0.44              |
| 34:CM:173:ILE:HA   | 34:CM:174:PRO:HD3  | 1.80                     | 0.44              |
| 34:CM:179:ARG:CZ   | 1:D1:2735:A:OP1    | 2.66                     | 0.44              |
| 34:CM:284:ALA:O    | 34:CM:288:LYS:HG2  | 2.18                     | 0.44              |
| 35:CN:57:ARG:CB    | 1:D1:696:A:OP2     | 2.66                     | 0.44              |
| 37:CP:17:LYS:HB3   | 37:CP:21:THR:HB    | 1.99                     | 0.44              |
| 1:D1:45:C:OP2      | 1:D1:46:A:O2'      | 2.29                     | 0.44              |
| 1:D1:105:A:H1'     | 1:D1:324:A:N3      | 2.33                     | 0.44              |
| 1:D1:116:U:H3'     | 1:D1:117:G:C8      | 2.53                     | 0.44              |
| 1:D1:454:A:N6      | 1:D1:524:G:H1'     | 2.30                     | 0.44              |
| 1:D1:528:C:OP1     | 5:DE:15:ILE:HG12   | 2.18                     | 0.44              |
| 1:D1:550:G:C6      | 1:D1:551:U:C4      | 3.05                     | 0.44              |
| 1:D1:633:C:H3'     | 5:DE:30:ARG:NH2    | 2.32                     | 0.44              |
| 1:D1:635:A:HO2'    | 1:D1:636:U:C5'     | 2.16                     | 0.44              |
| 1:D1:792:G:HO2'    | 1:D1:793:A:C5'     | 2.20                     | 0.44              |
| 1:D1:1056:A:C4     | 1:D1:1057:U:C6     | 3.06                     | 0.44              |
| 1:D1:1111:G:H3'    | 1:D1:1112:A:H8     | 1.83                     | 0.44              |
| 1:D1:1178:U:H5''   | 1:D1:1179:G:OP2    | 2.18                     | 0.44              |
| 1:D1:1213:G:N3     | 19:DX:126:GLY:CA   | 2.80                     | 0.44              |
| 1:D1:1229:A:O2'    | 1:D1:1230:A:H5'    | 2.18                     | 0.44              |
| 1:D1:1435:C:O2'    | 1:D1:1436:C:H5'    | 2.18                     | 0.44              |
| 1:D1:1593:A:C4     | 1:D1:1594:C:C4     | 3.05                     | 0.44              |
| 1:D1:2252:C:H2'    | 1:D1:2253:U:OP2    | 2.18                     | 0.44              |
| 1:D1:2377:G:H2'    | 1:D1:2378:A:H5'    | 1.98                     | 0.44              |
| 1:D1:2403:U:C2     | 1:D1:2802:G:N2     | 2.86                     | 0.44              |
| 1:D1:2529:G:H2'    | 1:D1:2530:G:H8     | 1.83                     | 0.44              |
| 1:D1:3294:A:H8     | 1:D1:3294:A:O5'    | 2.00                     | 0.44              |
| 2:DA:69:LYS:H      | 2:DA:69:LYS:HG2    | 1.63                     | 0.44              |
| 3:DB:50:LYS:C      | 3:DB:51:ILE:HG13   | 2.43                     | 0.44              |
| 5:DE:40:LYS:O      | 5:DE:41:LEU:HD23   | 2.18                     | 0.44              |
| 5:DE:153:GLN:O     | 5:DE:154:GLN:C     | 2.61                     | 0.44              |
| 9:DJ:158:GLY:CA    | 9:DJ:179:ILE:HD12  | 2.48                     | 0.44              |
| 18:DU:30:LYS:N     | 18:DU:33:ARG:HH21  | 2.15                     | 0.44              |
| 18:DU:54:PRO:HB3   | 18:DU:73:PHE:CE1   | 2.52                     | 0.44              |
| 18:DU:132:LYS:O    | 18:DU:135:LEU:HD13 | 2.18                     | 0.44              |
| 18:DU:177:VAL:HG12 | 18:DU:181:ILE:HD11 | 1.99                     | 0.44              |
| 19:DX:117:VAL:O    | 19:DX:120:LEU:HB3  | 2.17                     | 0.44              |
| 19:DX:176:LYS:HE2  | 19:DX:177:TYR:OH   | 2.17                     | 0.44              |
| 21:E3:36:C:O2'     | 21:E3:37:A:H5'     | 2.17                     | 0.44              |
| 22:EA:103:LEU:HD12 | 22:EA:108:ILE:HD13 | 2.00                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:EA:108:ILE:HB   | 22:EA:137:ILE:CD1  | 2.48                     | 0.44              |
| 22:EA:179:PRO:HG2  | 46:EY:26:VAL:HG22  | 2.00                     | 0.44              |
| 23:EB:89:VAL:O     | 23:EB:104:THR:HA   | 2.18                     | 0.44              |
| 23:EB:114:THR:CG2  | 23:EB:115:LYS:N    | 2.81                     | 0.44              |
| 23:EB:171:GLN:CD   | 1:F1:3273:U:H5''   | 2.42                     | 0.44              |
| 24:EC:51:GLN:NE2   | 1:F1:335:A:O2'     | 2.47                     | 0.44              |
| 24:EC:195:ARG:HH11 | 24:EC:204:ARG:CB   | 2.31                     | 0.44              |
| 28:EG:58:UNK:CB    | 1:F1:1308:U:H5''   | 2.48                     | 0.44              |
| 32:EK:75:VAL:CG2   | 32:EK:109:PHE:CB   | 2.96                     | 0.44              |
| 33:EL:36:ILE:HD11  | 33:EL:105:ARG:HB3  | 2.00                     | 0.44              |
| 33:EL:182:LYS:CG   | 33:EL:183:SER:N    | 2.77                     | 0.44              |
| 35:EN:37:LEU:O     | 35:EN:41:THR:CB    | 2.65                     | 0.44              |
| 35:EN:52:ARG:NH1   | 35:EN:141:ARG:HG3  | 2.33                     | 0.44              |
| 36:EO:4:LEU:HA     | 36:EO:7:GLN:HG2    | 1.99                     | 0.44              |
| 38:EQ:34:VAL:O     | 38:EQ:38:ILE:HG13  | 2.18                     | 0.44              |
| 43:EV:227:ARG:O    | 43:EV:228:GLU:C    | 2.60                     | 0.44              |
| 44:EW:14:ASN:ND2   | 44:EW:17:LYS:CE    | 2.75                     | 0.44              |
| 1:F1:125:G:C6      | 1:F1:142:A:C6      | 3.06                     | 0.44              |
| 1:F1:363:G:H5'     | 1:F1:363:G:C8      | 2.44                     | 0.44              |
| 1:F1:588:G:H2'     | 1:F1:589:C:C6      | 2.53                     | 0.44              |
| 1:F1:611:A:H8      | 1:F1:611:A:O5'     | 2.01                     | 0.44              |
| 1:F1:646:A:H2'     | 1:F1:647:U:H6      | 1.83                     | 0.44              |
| 1:F1:1159:C:C2'    | 1:F1:1160:A:H5'    | 2.47                     | 0.44              |
| 1:F1:1184:U:H5'    | 1:F1:1184:U:C6     | 2.38                     | 0.44              |
| 1:F1:1211:A:C2     | 1:F1:1350:G:C4     | 3.05                     | 0.44              |
| 1:F1:1398:G:C2'    | 1:F1:1399:A:O5'    | 2.65                     | 0.44              |
| 1:F1:1918:U:H2'    | 1:F1:1919:A:H5'    | 1.96                     | 0.44              |
| 1:F1:2309:U:C5'    | 1:F1:2310:G:OP2    | 2.66                     | 0.44              |
| 1:F1:2378:A:C2'    | 1:F1:2379:A:O5'    | 2.65                     | 0.44              |
| 1:F1:2432:G:H2'    | 1:F1:2433:A:O4'    | 2.18                     | 0.44              |
| 1:F1:2563:U:C2     | 1:F1:2564:G:C8     | 3.06                     | 0.44              |
| 1:F1:2886:G:H5''   | 1:F1:2887:C:H5'    | 1.99                     | 0.44              |
| 1:F1:3185:G:O6     | 1:F1:3235:U:O3'    | 2.36                     | 0.44              |
| 7:FG:55:GLU:HG3    | 13:FN:81:MET:HE1   | 1.99                     | 0.44              |
| 7:FG:77:LEU:HA     | 7:FG:77:LEU:HD23   | 1.71                     | 0.44              |
| 8:FH:56:VAL:CG2    | 8:FH:106:VAL:HG22  | 2.47                     | 0.44              |
| 9:FJ:82:ARG:HG2    | 9:HJ:86:ASN:CG     | 2.42                     | 0.44              |
| 9:FJ:187:ASN:HD21  | 9:FJ:207:GLY:CA    | 2.16                     | 0.44              |
| 12:FM:23:GLN:N     | 12:FM:24:PRO:HD2   | 2.32                     | 0.44              |
| 12:FM:52:LEU:HD23  | 12:FM:52:LEU:HA    | 1.85                     | 0.44              |
| 19:FX:16:MET:CE    | 19:FX:121:ILE:HD12 | 2.24                     | 0.44              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 20:G2:2:G:O2'      | 20:G2:3:A:P       | 2.76                     | 0.44              |
| 21:G3:120:U:OP1    | 34:GM:270:PRO:CB  | 2.66                     | 0.44              |
| 24:GC:166:TYR:HD1  | 24:GC:171:GLN:HG3 | 1.82                     | 0.44              |
| 25:GD:131:LEU:HD11 | 25:GD:162:TRP:CE3 | 2.52                     | 0.44              |
| 27:GF:21:LEU:HA    | 27:GF:21:LEU:HD12 | 1.73                     | 0.44              |
| 27:GF:50:TYR:CD1   | 27:GF:51:ILE:HG23 | 2.51                     | 0.44              |
| 29:GH:19:LYS:HG3   | 29:GH:26:VAL:HG11 | 1.99                     | 0.44              |
| 30:GI:166:TYR:CE2  | 1:H1:3162:A:C5    | 3.06                     | 0.44              |
| 33:GL:37:HIS:NE2   | 33:GL:63:ARG:HB2  | 2.33                     | 0.44              |
| 34:GM:212:TYR:CD2  | 34:GM:228:PHE:CE2 | 3.06                     | 0.44              |
| 35:GN:85:SER:O     | 35:GN:103:ALA:HB1 | 2.17                     | 0.44              |
| 39:GR:97:ARG:HA    | 39:GR:97:ARG:HD2  | 1.90                     | 0.44              |
| 40:GS:3:THR:O      | 40:GS:3:THR:HG22  | 2.17                     | 0.44              |
| 40:GS:113:SER:O    | 40:GS:117:LEU:HG  | 2.18                     | 0.44              |
| 41:GT:27:ASP:OD1   | 41:GT:27:ASP:N    | 2.47                     | 0.44              |
| 43:GV:215:ARG:HH21 | 1:H1:1198:G:P     | 2.41                     | 0.44              |
| 1:H1:136:C:C2'     | 1:H1:137:A:H5'    | 2.48                     | 0.44              |
| 1:H1:406:A:C8      | 1:H1:407:C:C5     | 3.06                     | 0.44              |
| 1:H1:611:A:H8      | 1:H1:611:A:O5'    | 2.01                     | 0.44              |
| 1:H1:1348:G:C2'    | 1:H1:1349:U:O5'   | 2.65                     | 0.44              |
| 1:H1:1423:A:H2'    | 1:H1:1424:U:O5'   | 2.18                     | 0.44              |
| 1:H1:1638:A:O5'    | 15:HP:2:PRO:HD3   | 2.18                     | 0.44              |
| 1:H1:1661:A:N3     | 1:H1:1733:C:O2'   | 2.48                     | 0.44              |
| 1:H1:1667:A:C2'    | 1:H1:1668:A:O5'   | 2.65                     | 0.44              |
| 1:H1:1820:U:H4'    | 1:H1:1821:U:OP1   | 2.17                     | 0.44              |
| 1:H1:2191:C:O2'    | 1:H1:2265:A:N3    | 2.38                     | 0.44              |
| 1:H1:2290:A:C6     | 1:H1:2291:A:C6    | 3.06                     | 0.44              |
| 1:H1:2312:A:H2'    | 1:H1:2313:U:O5'   | 2.18                     | 0.44              |
| 1:H1:2377:G:C2'    | 1:H1:2378:A:H5'   | 2.48                     | 0.44              |
| 1:H1:2714:U:H2'    | 1:H1:2715:C:H5'   | 1.99                     | 0.44              |
| 1:H1:3234:U:O4     | 1:H1:3236:C:C5    | 2.70                     | 0.44              |
| 5:HE:67:LYS:HD2    | 5:HE:109:THR:CB   | 2.47                     | 0.44              |
| 6:HF:121:THR:O     | 6:HF:121:THR:CG2  | 2.65                     | 0.44              |
| 12:HM:42:LYS:HD3   | 12:HM:42:LYS:HA   | 1.82                     | 0.44              |
| 12:HM:52:LEU:O     | 12:HM:53:GLY:O    | 2.35                     | 0.44              |
| 13:HN:132:ALA:O    | 13:HN:133:SER:C   | 2.60                     | 0.44              |
| 14:HO:69:LYS:HD3   | 14:HO:71:LYS:O    | 2.17                     | 0.44              |
| 18:HU:166:VAL:HG12 | 18:HU:167:SER:N   | 2.32                     | 0.44              |
| 1:A1:165:C:H5''    | 18:AU:132:LYS:HD2 | 2.00                     | 0.44              |
| 1:A1:219:A:N1      | 1:A1:1416:U:C2'   | 2.81                     | 0.44              |
| 1:A1:222:A:C6      | 1:A1:223:C:C4     | 3.06                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:661:C:H1'     | 1:A1:662:C:C6      | 2.52                     | 0.44              |
| 1:A1:700:G:H3'     | 35:BN:107:THR:HG21 | 2.00                     | 0.44              |
| 1:A1:772:U:O2'     | 1:A1:773:C:H5'     | 2.18                     | 0.44              |
| 1:A1:861:A:C2      | 1:A1:883:A:H1'     | 2.53                     | 0.44              |
| 1:A1:1045:G:H1     | 1:A1:1059:U:H3     | 1.66                     | 0.44              |
| 1:A1:1064:C:H5'    | 34:BM:5:LYS:CE     | 2.46                     | 0.44              |
| 1:A1:1064:C:H5'    | 34:BM:5:LYS:NZ     | 2.27                     | 0.44              |
| 1:A1:1077:U:H5''   | 37:BP:19:TYR:HD2   | 1.83                     | 0.44              |
| 1:A1:1135:U:C5'    | 1:A1:1135:U:H6     | 2.31                     | 0.44              |
| 1:A1:1312:G:H2'    | 1:A1:1313:A:C8     | 2.53                     | 0.44              |
| 1:A1:1507:A:C4     | 11:AL:4:ARG:NH2    | 2.82                     | 0.44              |
| 1:A1:1663:C:N4     | 11:AL:75:SER:OG    | 2.50                     | 0.44              |
| 1:A1:2347:A:C6     | 1:A1:2348:G:C6     | 3.06                     | 0.44              |
| 1:A1:2649:G:H2'    | 1:A1:2650:U:H6     | 1.83                     | 0.44              |
| 1:A1:2702:U:H3'    | 4:AC:9:LYS:O       | 2.18                     | 0.44              |
| 1:A1:2703:G:H4'    | 1:A1:2704:A:C5'    | 2.47                     | 0.44              |
| 1:A1:3061:A:H2'    | 1:A1:3062:A:H5'    | 1.99                     | 0.44              |
| 1:A1:3083:A:H2'    | 1:A1:3084:U:H6     | 1.83                     | 0.44              |
| 1:A1:3097:G:OP2    | 10:AK:112:LYS:NZ   | 2.44                     | 0.44              |
| 2:AA:88:LYS:NZ     | 20:B2:72:C:OP1     | 2.36                     | 0.44              |
| 9:AJ:186:ILE:HG12  | 9:AJ:187:ASN:H     | 1.82                     | 0.44              |
| 13:AN:39:GLY:O     | 13:AN:77:LEU:HG    | 2.17                     | 0.44              |
| 16:AQ:40:LEU:O     | 16:AQ:44:VAL:HG23  | 2.18                     | 0.44              |
| 18:AU:74:THR:HB    | 18:AU:101:ASN:ND2  | 2.32                     | 0.44              |
| 18:AU:177:VAL:HG21 | 32:BK:145:CYS:HB3  | 1.97                     | 0.44              |
| 20:B2:29:U:H2'     | 20:B2:30:U:C6      | 2.53                     | 0.44              |
| 20:B2:72:C:H5'     | 20:B2:73:G:OP2     | 2.17                     | 0.44              |
| 23:BB:62:ARG:CG    | 23:BB:62:ARG:NH1   | 2.72                     | 0.44              |
| 24:BC:33:ILE:HD13  | 24:BC:135:ALA:CA   | 2.48                     | 0.44              |
| 24:BC:316:THR:O    | 24:BC:317:HIS:CD2  | 2.67                     | 0.44              |
| 29:BH:91:VAL:CG1   | 29:BH:127:ALA:HB1  | 2.48                     | 0.44              |
| 29:BH:139:ARG:HD3  | 29:BH:173:PHE:HE1  | 1.78                     | 0.44              |
| 30:BI:10:ALA:O     | 30:BI:13:HIS:HB2   | 2.17                     | 0.44              |
| 30:BI:13:HIS:HA    | 30:BI:122:ALA:O    | 2.18                     | 0.44              |
| 33:BL:65:ARG:HB2   | 33:BL:127:TYR:CD2  | 2.42                     | 0.44              |
| 34:BM:243:VAL:HG12 | 34:BM:247:PHE:CD2  | 2.47                     | 0.44              |
| 39:BR:147:ILE:CG2  | 42:BU:34:ILE:HD13  | 2.48                     | 0.44              |
| 44:BW:75:CYS:O     | 44:BW:90:THR:HG23  | 2.18                     | 0.44              |
| 45:BX:53:ARG:HD3   | 45:BX:53:ARG:HA    | 1.42                     | 0.44              |
| 21:C3:83:G:C2      | 21:C3:93:G:N2      | 2.84                     | 0.44              |
| 23:CB:10:ARG:NH1   | 1:D1:2871:U:OP1    | 2.51                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:27:ALA:O     | 24:CC:30:THR:HB    | 2.17                     | 0.44              |
| 24:CC:74:THR:HG22  | 1:D1:2397:A:H5''   | 2.00                     | 0.44              |
| 24:CC:230:ILE:HB   | 24:CC:233:VAL:HG11 | 2.00                     | 0.44              |
| 26:CE:178:TYR:HB3  | 10:DK:89:TYR:CE2   | 2.53                     | 0.44              |
| 27:CF:69:GLN:HE21  | 27:CF:222:ARG:HH12 | 1.66                     | 0.44              |
| 27:CF:83:SER:O     | 27:CF:87:LYS:HG3   | 2.18                     | 0.44              |
| 32:CK:53:GLY:HA2   | 35:CN:177:ALA:O    | 2.18                     | 0.44              |
| 32:CK:86:ASP:O     | 32:CK:87:ALA:C     | 2.60                     | 0.44              |
| 33:CL:139:HIS:HD2  | 33:CL:141:ALA:HB3  | 1.83                     | 0.44              |
| 34:CM:153:THR:HG22 | 34:CM:179:ARG:NH1  | 2.32                     | 0.44              |
| 47:CO:44:LEU:HD23  | 47:CO:44:LEU:HA    | 1.85                     | 0.44              |
| 37:CP:17:LYS:HD2   | 1:D1:2690:U:OP1    | 2.17                     | 0.44              |
| 38:CQ:44:GLU:OE1   | 38:CQ:44:GLU:HA    | 2.18                     | 0.44              |
| 38:CQ:59:CYS:HB3   | 38:CQ:74:GLN:CB    | 2.48                     | 0.44              |
| 40:CS:44:VAL:HG11  | 40:CS:47:MET:CE    | 2.47                     | 0.44              |
| 46:CY:8:VAL:CG1    | 46:CY:12:ARG:N     | 2.81                     | 0.44              |
| 1:D1:239:G:C6      | 1:D1:240:A:N6      | 2.86                     | 0.44              |
| 1:D1:458:G:H2'     | 1:D1:459:G:O4'     | 2.17                     | 0.44              |
| 1:D1:588:G:H2'     | 1:D1:589:C:C6      | 2.53                     | 0.44              |
| 1:D1:630:G:H2'     | 1:D1:631:G:C4'     | 2.48                     | 0.44              |
| 1:D1:666:U:H5'     | 1:D1:1143:G:O6     | 2.18                     | 0.44              |
| 1:D1:970:C:O2'     | 1:D1:1432:G:H1'    | 2.17                     | 0.44              |
| 1:D1:1050:C:H2'    | 1:D1:1051:C:N1     | 2.33                     | 0.44              |
| 1:D1:1091:G:H1'    | 17:DT:28:ARG:NH1   | 2.33                     | 0.44              |
| 1:D1:1240:G:HO2'   | 19:DX:104:MET:HG2  | 1.80                     | 0.44              |
| 1:D1:1655:A:C4     | 1:D1:1669:G:C5     | 3.06                     | 0.44              |
| 1:D1:1808:A:H2'    | 1:D1:1809:C:H6     | 1.82                     | 0.44              |
| 1:D1:2260:C:C2'    | 1:D1:2261:U:H5'    | 2.48                     | 0.44              |
| 1:D1:2300:G:O5'    | 1:D1:2300:G:C8     | 2.71                     | 0.44              |
| 1:D1:2436:U:H2'    | 1:D1:2437:G:C8     | 2.53                     | 0.44              |
| 1:D1:3070:C:H2'    | 1:D1:3071:C:C6     | 2.52                     | 0.44              |
| 3:DB:7:LEU:HD23    | 3:DB:7:LEU:HA      | 1.61                     | 0.44              |
| 7:DG:57:GLU:HA     | 7:DG:67:ILE:HD13   | 1.97                     | 0.44              |
| 8:DH:56:VAL:CG2    | 8:DH:106:VAL:HG22  | 2.48                     | 0.44              |
| 19:DX:179:THR:HG22 | 19:DX:181:TYR:N    | 2.33                     | 0.44              |
| 20:E2:74:A:H62     | 20:E2:88:G:H1'     | 1.75                     | 0.44              |
| 21:E3:63:A:N7      | 29:EH:209:LEU:HD11 | 2.33                     | 0.44              |
| 22:EA:115:CYS:O    | 22:EA:116:ASN:C    | 2.60                     | 0.44              |
| 22:EA:211:PRO:HG2  | 22:EA:236:VAL:HG21 | 2.00                     | 0.44              |
| 23:EB:102:LEU:O    | 23:EB:103:THR:OG1  | 2.28                     | 0.44              |
| 23:EB:102:LEU:HD12 | 23:EB:102:LEU:HA   | 1.67                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:292:ALA:HB2  | 23:EB:302:ALA:C    | 2.43                     | 0.44              |
| 24:EC:107:PHE:CE1  | 1:F1:828:C:H5'     | 2.53                     | 0.44              |
| 24:EC:164:GLU:HB3  | 24:EC:221:SER:HB3  | 2.00                     | 0.44              |
| 32:EK:49:LYS:HD2   | 35:EN:158:GLN:HE21 | 1.83                     | 0.44              |
| 32:EK:110:PHE:HD2  | 32:EK:128:LYS:HD2  | 1.82                     | 0.44              |
| 32:EK:147:LEU:HD21 | 18:FU:177:VAL:CG1  | 2.48                     | 0.44              |
| 33:EL:7:LEU:O      | 33:EL:8:GLU:C      | 2.60                     | 0.44              |
| 35:EN:38:VAL:HG13  | 35:EN:47:GLN:HG2   | 1.99                     | 0.44              |
| 35:EN:87:VAL:HG23  | 35:EN:103:ALA:CB   | 2.48                     | 0.44              |
| 36:EO:42:ARG:HA    | 36:EO:45:ILE:HD12  | 2.00                     | 0.44              |
| 38:EQ:117:GLN:O    | 38:EQ:151:PHE:O    | 2.35                     | 0.44              |
| 44:EW:32:ILE:HD13  | 1:F1:1485:C:H5'    | 1.99                     | 0.44              |
| 1:F1:45:C:H5''     | 18:FU:14:LYS:HG2   | 2.00                     | 0.44              |
| 1:F1:169:A:P       | 1:F1:249:G:N2      | 2.91                     | 0.44              |
| 1:F1:255:G:HO2'    | 1:F1:256:A:H8      | 1.63                     | 0.44              |
| 1:F1:753:A:H5'     | 1:F1:1002:A:O4'    | 2.18                     | 0.44              |
| 1:F1:853:A:H2'     | 1:F1:854:U:C6      | 2.53                     | 0.44              |
| 1:F1:1027:G:N3     | 1:F1:1027:G:C2'    | 2.80                     | 0.44              |
| 1:F1:1058:C:N3     | 1:F1:1059:U:C5     | 2.86                     | 0.44              |
| 1:F1:1150:U:H2'    | 1:F1:1151:U:O4'    | 2.17                     | 0.44              |
| 1:F1:1167:G:C4     | 1:F1:1168:C:C5     | 3.05                     | 0.44              |
| 1:F1:1519:G:C2     | 3:FB:13:PHE:CE1    | 3.06                     | 0.44              |
| 1:F1:2106:G:O2'    | 1:F1:2107:A:OP1    | 2.35                     | 0.44              |
| 1:F1:2219:A:N1     | 1:F1:2771:U:O2'    | 2.38                     | 0.44              |
| 1:F1:3073:U:C2'    | 1:F1:3074:G:H5'    | 2.48                     | 0.44              |
| 1:F1:3175:A:H5'    | 1:F1:3176:A:OP1    | 2.18                     | 0.44              |
| 1:F1:3184:A:H5''   | 5:FE:177:LYS:HG3   | 2.00                     | 0.44              |
| 4:FC:100:ALA:O     | 4:FC:104:LYS:HG3   | 2.17                     | 0.44              |
| 5:FE:124:LYS:HG2   | 5:FE:132:ALA:CB    | 2.46                     | 0.44              |
| 6:FF:14:TYR:OH     | 6:FF:22:GLY:HA2    | 2.17                     | 0.44              |
| 9:FJ:142:ILE:HD12  | 9:FJ:148:VAL:HG12  | 2.00                     | 0.44              |
| 12:FM:44:LYS:HA    | 12:FM:48:LYS:O     | 2.17                     | 0.44              |
| 13:FN:30:GLU:CD    | 13:FN:30:GLU:C     | 2.85                     | 0.44              |
| 17:FT:22:LYS:HG2   | 50:FT:203:HOH:O    | 2.17                     | 0.44              |
| 20:G2:72:C:H5'     | 20:G2:73:G:OP2     | 2.18                     | 0.44              |
| 22:GA:84:TYR:CD1   | 22:GA:87:GLN:HB2   | 2.53                     | 0.44              |
| 23:GB:100:ARG:CD   | 1:H1:3135:A:H4'    | 2.48                     | 0.44              |
| 23:GB:235:HIS:HD2  | 23:GB:236:LEU:O    | 2.00                     | 0.44              |
| 24:GC:99:ASN:HD22  | 24:GC:100:GLN:NE2  | 2.10                     | 0.44              |
| 24:GC:276:THR:CG2  | 24:GC:282:GLY:HA2  | 2.47                     | 0.44              |
| 24:GC:300:ASN:OD1  | 1:H1:1375:A:O2'    | 2.36                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:GF:183:VAL:CG1  | 27:GF:183:VAL:O    | 2.66                     | 0.44              |
| 28:GG:15:UNK:CG    | 28:GG:65:UNK:CA    | 2.77                     | 0.44              |
| 28:GG:32:UNK:C     | 1:H1:1257:G:O3'    | 2.66                     | 0.44              |
| 30:GI:35:VAL:CG1   | 30:GI:36:ARG:N     | 2.81                     | 0.44              |
| 30:GI:96:ALA:O     | 30:GI:97:ALA:C     | 2.60                     | 0.44              |
| 33:GL:195:ARG:HD3  | 1:H1:97:A:OP1      | 2.18                     | 0.44              |
| 34:GM:54:ARG:HA    | 34:GM:54:ARG:HD3   | 1.63                     | 0.44              |
| 34:GM:163:LEU:HD21 | 34:GM:175:HIS:HB3  | 1.98                     | 0.44              |
| 43:GV:145:ILE:HD12 | 43:GV:182:ILE:HG12 | 2.00                     | 0.44              |
| 1:H1:125:G:C6      | 1:H1:142:A:C6      | 3.06                     | 0.44              |
| 1:H1:135:A:C5'     | 1:H1:136:C:OP2     | 2.66                     | 0.44              |
| 1:H1:165:C:C5'     | 18:HU:132:LYS:HD2  | 2.47                     | 0.44              |
| 1:H1:375:G:H21     | 1:H1:398:G:H1'     | 1.82                     | 0.44              |
| 1:H1:630:G:H2'     | 1:H1:631:G:C4'     | 2.48                     | 0.44              |
| 1:H1:917:U:H2'     | 1:H1:918:C:O4'     | 2.18                     | 0.44              |
| 1:H1:1054:G:C2'    | 1:H1:1055:A:H8     | 2.17                     | 0.44              |
| 1:H1:1167:G:C4     | 1:H1:1168:C:C5     | 3.06                     | 0.44              |
| 1:H1:1368:U:H2'    | 1:H1:1369:C:C6     | 2.53                     | 0.44              |
| 1:H1:1371:G:H8     | 1:H1:1371:G:H5'    | 1.82                     | 0.44              |
| 1:H1:1839:A:H4'    | 1:H1:1840:U:C5'    | 2.48                     | 0.44              |
| 1:H1:2240:C:C2'    | 1:H1:2241:G:O5'    | 2.65                     | 0.44              |
| 1:H1:2255:U:H2'    | 1:H1:2256:G:O5'    | 2.17                     | 0.44              |
| 1:H1:2310:G:P      | 50:H1:3959:HOH:O   | 2.74                     | 0.44              |
| 1:H1:2370:G:H3'    | 50:H1:3714:HOH:O   | 2.17                     | 0.44              |
| 1:H1:2576:C:H6     | 1:H1:2576:C:H5'    | 1.77                     | 0.44              |
| 1:H1:2597:G:H2'    | 1:H1:2598:A:H8     | 1.82                     | 0.44              |
| 1:H1:2706:U:H5'    | 1:H1:2706:U:H6     | 1.83                     | 0.44              |
| 1:H1:3064:A:H2'    | 1:H1:3065:C:H6     | 1.83                     | 0.44              |
| 1:H1:3141:U:OP1    | 1:H1:3253:U:H1'    | 2.17                     | 0.44              |
| 5:HE:56:GLY:C      | 5:HE:58:PHE:H      | 2.24                     | 0.44              |
| 5:HE:124:LYS:HG2   | 5:HE:132:ALA:CB    | 2.44                     | 0.44              |
| 7:HG:14:LEU:HD21   | 7:HG:43:PHE:CZ     | 2.53                     | 0.44              |
| 9:HJ:46:ILE:HG23   | 9:HJ:47:PRO:HD2    | 2.00                     | 0.44              |
| 13:HN:52:LYS:O     | 13:HN:65:ARG:NE    | 2.51                     | 0.44              |
| 19:HX:28:LEU:HD13  | 19:HX:70:GLY:O     | 2.18                     | 0.44              |
| 19:HX:96:GLN:CB    | 19:HX:134:THR:CG2  | 2.96                     | 0.44              |
| 19:HX:131:GLN:O    | 19:HX:134:THR:HB   | 2.18                     | 0.44              |
| 1:A1:80:C:H2'      | 1:A1:81:C:O5'      | 2.18                     | 0.43              |
| 1:A1:81:C:H2'      | 1:A1:82:C:O4'      | 2.18                     | 0.43              |
| 1:A1:144:A:H2'     | 1:A1:145:A:H5'     | 1.99                     | 0.43              |
| 1:A1:190:U:C4      | 1:A1:224:C:O4'     | 2.71                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A1:261:U:H2'    | 1:A1:262:C:H5'    | 2.00                     | 0.43              |
| 1:A1:415:A:C4'    | 1:A1:653:C:H4'    | 2.48                     | 0.43              |
| 1:A1:468:A:N6     | 1:A1:469:U:C4     | 2.86                     | 0.43              |
| 1:A1:533:G:N2     | 1:A1:534:U:C2     | 2.86                     | 0.43              |
| 1:A1:685:G:H2'    | 1:A1:686:U:OP2    | 2.18                     | 0.43              |
| 1:A1:696:A:OP2    | 35:BN:57:ARG:CB   | 2.66                     | 0.43              |
| 1:A1:820:G:H21    | 18:AU:5:ASN:ND2   | 2.16                     | 0.43              |
| 1:A1:979:U:O2'    | 1:A1:980:U:H5'    | 2.18                     | 0.43              |
| 1:A1:1064:C:H6    | 1:A1:1064:C:O5'   | 2.01                     | 0.43              |
| 1:A1:1078:U:C5    | 1:A1:1079:A:N7    | 2.86                     | 0.43              |
| 1:A1:1107:A:C3'   | 1:A1:1108:A:H8    | 2.29                     | 0.43              |
| 1:A1:1116:C:O5'   | 1:A1:1116:C:H6    | 2.00                     | 0.43              |
| 1:A1:1427:G:C2    | 1:A1:1437:U:O2    | 2.71                     | 0.43              |
| 1:A1:1434:G:OP2   | 45:BX:33:SER:OG   | 2.32                     | 0.43              |
| 1:A1:1592:G:H2'   | 1:A1:1593:A:O4'   | 2.18                     | 0.43              |
| 1:A1:1719:U:H4'   | 11:AL:24:LYS:O    | 2.18                     | 0.43              |
| 1:A1:1845:U:C5'   | 1:A1:1846:C:OP2   | 2.66                     | 0.43              |
| 1:A1:2165:A:C2    | 1:A1:2166:G:C8    | 3.06                     | 0.43              |
| 1:A1:2253:U:C2'   | 1:A1:2254:A:H8    | 2.19                     | 0.43              |
| 1:A1:2387:C:O2'   | 23:BB:264:ARG:CZ  | 2.61                     | 0.43              |
| 1:A1:2432:G:C6    | 1:A1:2433:A:C5    | 3.06                     | 0.43              |
| 1:A1:2561:A:C2    | 1:A1:2563:U:C2    | 3.06                     | 0.43              |
| 1:A1:2669:A:O3'   | 1:A1:2670:U:C6    | 2.62                     | 0.43              |
| 1:A1:2929:A:OP2   | 23:BB:254:HIS:HD2 | 2.00                     | 0.43              |
| 1:A1:2949:G:H2'   | 1:A1:2950:U:C6    | 2.53                     | 0.43              |
| 1:A1:3151:G:H2'   | 1:A1:3152:A:C8    | 2.53                     | 0.43              |
| 1:A1:3251:C:H6    | 1:A1:3251:C:H5'   | 1.83                     | 0.43              |
| 1:A1:3265:A:H5'   | 23:BB:270:TYR:CD2 | 2.52                     | 0.43              |
| 2:AA:80:ARG:NH1   | 20:B2:96:A:C5     | 2.86                     | 0.43              |
| 5:AE:160:LEU:HD23 | 5:AE:160:LEU:HA   | 1.63                     | 0.43              |
| 6:AF:28:VAL:HG11  | 6:AF:66:ASN:HA    | 2.00                     | 0.43              |
| 11:AL:20:VAL:HG11 | 11:AL:32:ALA:HB1  | 2.00                     | 0.43              |
| 15:AP:39:ILE:CG2  | 15:AP:40:THR:N    | 2.81                     | 0.43              |
| 15:AP:53:PHE:CE1  | 15:AP:55:THR:CG2  | 2.99                     | 0.43              |
| 19:AX:7:GLN:NE2   | 19:AX:80:GLU:H    | 2.16                     | 0.43              |
| 19:AX:43:VAL:HG11 | 19:AX:54:LYS:HB2  | 1.99                     | 0.43              |
| 19:AX:71:ARG:HE   | 43:BV:74:VAL:HG11 | 1.83                     | 0.43              |
| 22:BA:3:ARG:CG    | 22:BA:4:VAL:H     | 2.31                     | 0.43              |
| 22:BA:238:LEU:H   | 22:BA:238:LEU:HG  | 1.39                     | 0.43              |
| 23:BB:41:PRO:HA   | 23:BB:183:GLY:HA3 | 2.00                     | 0.43              |
| 23:BB:117:ARG:CZ  | 23:BB:173:LYS:HE2 | 2.48                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:BB:294:THR:HG21 | 23:BB:354:LEU:O    | 2.18                     | 0.43              |
| 24:BC:311:ALA:CB   | 35:BN:40:ARG:HH21  | 2.31                     | 0.43              |
| 26:BE:94:PHE:CE1   | 26:BE:98:PRO:HA    | 2.52                     | 0.43              |
| 26:BE:137:GLU:O    | 26:BE:139:LYS:HG3  | 2.17                     | 0.43              |
| 27:BF:150:VAL:HG21 | 27:BF:189:THR:HG23 | 2.00                     | 0.43              |
| 27:BF:237:LYS:O    | 27:BF:241:LEU:HG   | 2.18                     | 0.43              |
| 30:BI:81:ARG:HH11  | 30:BI:81:ARG:CG    | 2.31                     | 0.43              |
| 31:BJ:98:TYR:N     | 31:BJ:98:TYR:CD1   | 2.85                     | 0.43              |
| 37:BP:105:LEU:HD22 | 37:BP:109:TYR:CE1  | 2.53                     | 0.43              |
| 38:BQ:21:ALA:HB2   | 38:BQ:96:LEU:HD21  | 1.99                     | 0.43              |
| 39:BR:76:THR:O     | 39:BR:76:THR:CG2   | 2.65                     | 0.43              |
| 40:BS:21:SER:CB    | 40:BS:26:ARG:HG2   | 2.47                     | 0.43              |
| 44:BW:79:ASN:OD1   | 44:BW:81:GLU:HG2   | 2.18                     | 0.43              |
| 20:C2:118:G:H2'    | 20:C2:119:A:H8     | 1.83                     | 0.43              |
| 23:CB:45:ALA:H     | 23:CB:179:ILE:HG23 | 1.82                     | 0.43              |
| 23:CB:299:THR:HG22 | 23:CB:300:ASP:N    | 2.33                     | 0.43              |
| 24:CC:242:ASN:HD21 | 1:D1:718:A:C2'     | 2.31                     | 0.43              |
| 24:CC:287:ARG:CD   | 35:CN:111:ARG:NH1  | 2.80                     | 0.43              |
| 25:CD:17:LEU:HB3   | 25:CD:76:ALA:HB1   | 1.98                     | 0.43              |
| 25:CD:134:PRO:HG2  | 25:CD:135:GLY:N    | 2.33                     | 0.43              |
| 27:CF:92:TYR:CE2   | 27:CF:123:ILE:CG2  | 3.00                     | 0.43              |
| 27:CF:122:PRO:HD3  | 1:D1:118:A:C8      | 2.53                     | 0.43              |
| 29:CH:50:VAL:HG12  | 29:CH:152:LEU:HD12 | 2.00                     | 0.43              |
| 29:CH:116:ARG:C    | 1:D1:2633:C:HO2'   | 2.19                     | 0.43              |
| 29:CH:147:TYR:CD1  | 29:CH:147:TYR:N    | 2.86                     | 0.43              |
| 31:CJ:35:ALA:HB1   | 31:CJ:66:VAL:CG1   | 2.49                     | 0.43              |
| 32:CK:99:VAL:CG2   | 32:CK:122:PRO:HB2  | 2.48                     | 0.43              |
| 33:CL:74:PRO:HA    | 1:D1:2162:A:H1'    | 1.99                     | 0.43              |
| 35:CN:10:ARG:O     | 35:CN:11:VAL:C     | 2.60                     | 0.43              |
| 35:CN:29:LEU:HD21  | 14:DO:7:GLU:HG3    | 2.00                     | 0.43              |
| 37:CP:29:ARG:HG3   | 37:CP:29:ARG:H     | 1.56                     | 0.43              |
| 38:CQ:12:ASN:HB3   | 38:CQ:15:LYS:HB2   | 1.99                     | 0.43              |
| 41:CT:15:ILE:HG21  | 41:CT:32:PHE:HE1   | 1.83                     | 0.43              |
| 43:CV:227:ARG:O    | 43:CV:228:GLU:C    | 2.59                     | 0.43              |
| 1:D1:115:G:H1      | 1:D1:159:G:H4'     | 1.83                     | 0.43              |
| 1:D1:166:C:O2      | 1:D1:166:C:H2'     | 2.17                     | 0.43              |
| 1:D1:729:A:C1'     | 1:D1:810:G:N2      | 2.81                     | 0.43              |
| 1:D1:1116:C:O5'    | 1:D1:1116:C:H6     | 2.01                     | 0.43              |
| 1:D1:1222:A:C2     | 1:D1:1336:U:C4     | 3.06                     | 0.43              |
| 1:D1:1322:G:H2'    | 1:D1:1323:C:C6     | 2.53                     | 0.43              |
| 1:D1:1338:G:O2'    | 1:D1:2376:A:H4'    | 2.18                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:1428:G:H2'   | 1:D1:1429:C:H6     | 1.83                     | 0.43              |
| 1:D1:1461:A:H5''  | 1:D1:1462:U:C5'    | 2.44                     | 0.43              |
| 1:D1:1507:A:C1'   | 11:DL:4:ARG:HH21   | 2.31                     | 0.43              |
| 1:D1:1602:U:O2'   | 1:D1:1603:U:H5'    | 2.18                     | 0.43              |
| 1:D1:1604:C:H2'   | 1:D1:1605:G:O5'    | 2.18                     | 0.43              |
| 1:D1:1966:U:H2'   | 1:D1:1967:C:O5'    | 2.18                     | 0.43              |
| 1:D1:2240:C:C2'   | 1:D1:2241:G:O5'    | 2.66                     | 0.43              |
| 1:D1:2266:A:H2'   | 1:D1:2267:G:H5'    | 2.00                     | 0.43              |
| 1:D1:2718:U:P     | 50:D1:4779:HOH:O   | 2.76                     | 0.43              |
| 1:D1:3102:A:H2'   | 1:D1:3103:A:C8     | 2.53                     | 0.43              |
| 1:D1:3233:A:HO2'  | 1:D1:3234:U:P      | 2.30                     | 0.43              |
| 1:D1:3300:A:N6    | 50:D1:4841:HOH:O   | 2.44                     | 0.43              |
| 2:DA:44:MET:HE2   | 2:DA:44:MET:CA     | 2.34                     | 0.43              |
| 5:DE:46:ALA:HB3   | 5:DE:49:THR:HG1    | 1.83                     | 0.43              |
| 8:DH:40:GLN:HG2   | 8:DH:41:ASN:ND2    | 2.32                     | 0.43              |
| 11:DL:59:VAL:HG12 | 11:DL:60:ARG:O     | 2.18                     | 0.43              |
| 12:DM:98:THR:O    | 12:DM:105:TYR:HD1  | 2.00                     | 0.43              |
| 14:DO:94:ILE:CD1  | 14:DO:111:LEU:HD12 | 2.46                     | 0.43              |
| 15:DP:46:GLY:O    | 15:DP:47:LYS:C     | 2.61                     | 0.43              |
| 19:DX:28:LEU:HD13 | 19:DX:70:GLY:C     | 2.42                     | 0.43              |
| 19:DX:124:MET:CE  | 19:DX:128:HIS:HB2  | 2.48                     | 0.43              |
| 20:E2:5:A:C2'     | 20:E2:6:A:H5'      | 2.47                     | 0.43              |
| 20:E2:19:G:H22    | 1:F1:403:G:H1'     | 1.83                     | 0.43              |
| 23:EB:19:ARG:N    | 1:F1:2978:G:OP1    | 2.42                     | 0.43              |
| 23:EB:25:HIS:CD2  | 23:EB:270:TYR:OH   | 2.68                     | 0.43              |
| 23:EB:68:ASN:O    | 23:EB:70:LYS:HG3   | 2.17                     | 0.43              |
| 24:EC:380:PHE:HD2 | 24:EC:381:ASN:OD1  | 2.00                     | 0.43              |
| 29:EH:80:ILE:HG23 | 29:EH:144:HIS:CE1  | 2.53                     | 0.43              |
| 30:EI:59:LYS:O    | 30:EI:71:HIS:CE1   | 2.71                     | 0.43              |
| 30:EI:79:PHE:CD2  | 30:EI:103:ILE:HD13 | 2.47                     | 0.43              |
| 32:EK:86:ASP:O    | 32:EK:87:ALA:C     | 2.61                     | 0.43              |
| 33:EL:26:ARG:O    | 33:EL:27:THR:C     | 2.61                     | 0.43              |
| 33:EL:98:LEU:O    | 33:EL:101:CYS:HB2  | 2.18                     | 0.43              |
| 34:EM:54:ARG:HA   | 34:EM:54:ARG:HD3   | 1.62                     | 0.43              |
| 34:EM:76:CYS:HB3  | 34:EM:105:LEU:CD1  | 2.48                     | 0.43              |
| 34:EM:212:TYR:CD2 | 34:EM:228:PHE:CE1  | 3.06                     | 0.43              |
| 37:EP:11:THR:O    | 37:EP:11:THR:CG2   | 2.65                     | 0.43              |
| 39:ER:69:SER:O    | 39:ER:95:HIS:HB2   | 2.18                     | 0.43              |
| 44:EW:22:ILE:HD13 | 44:EW:30:ARG:CG    | 2.31                     | 0.43              |
| 1:F1:20:G:C4      | 1:F1:21:A:C8       | 3.06                     | 0.43              |
| 1:F1:40:C:O2'     | 1:F1:41:A:OP1      | 2.22                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:121:A:C6      | 1:F1:150:A:C6      | 3.06                     | 0.43              |
| 1:F1:147:U:O2      | 1:F1:147:U:H2'     | 2.17                     | 0.43              |
| 1:F1:644:A:H2'     | 1:F1:645:A:C4'     | 2.47                     | 0.43              |
| 1:F1:705:A:C5      | 1:F1:706:U:C5      | 3.06                     | 0.43              |
| 1:F1:726:G:H2'     | 1:F1:727:C:H6      | 1.77                     | 0.43              |
| 1:F1:1006:C:C2'    | 1:F1:1007:G:OP1    | 2.65                     | 0.43              |
| 1:F1:1240:G:C4'    | 19:FX:104:MET:HE3  | 2.48                     | 0.43              |
| 1:F1:1464:U:C2     | 1:F1:1465:U:C5     | 3.06                     | 0.43              |
| 1:F1:1783:U:C2     | 1:F1:1794:G:C2     | 3.05                     | 0.43              |
| 1:F1:1866:A:O4'    | 3:FB:45:ARG:NH1    | 2.51                     | 0.43              |
| 1:F1:2651:A:P      | 50:F1:4463:HOH:O   | 2.76                     | 0.43              |
| 1:F1:3081:C:O3'    | 1:F1:3082:C:H3'    | 2.18                     | 0.43              |
| 1:F1:3102:A:H2'    | 1:F1:3103:A:C8     | 2.53                     | 0.43              |
| 2:FA:33:ARG:NE     | 2:FA:41:ASP:OD2    | 2.51                     | 0.43              |
| 2:FA:59:GLY:O      | 2:FA:62:THR:HB     | 2.18                     | 0.43              |
| 8:FH:8:PRO:C       | 8:FH:9:VAL:HG23    | 2.43                     | 0.43              |
| 8:FH:48:VAL:CG1    | 8:FH:87:ALA:HB2    | 2.48                     | 0.43              |
| 11:FL:14:ASN:OD1   | 11:FL:14:ASN:C     | 2.61                     | 0.43              |
| 14:FO:94:ILE:CD1   | 14:FO:111:LEU:HD12 | 2.48                     | 0.43              |
| 18:FU:154:VAL:N    | 18:FU:155:PRO:HD3  | 2.33                     | 0.43              |
| 19:FX:34:THR:O     | 19:FX:36:PRO:HD3   | 2.18                     | 0.43              |
| 19:FX:143:LEU:HD13 | 19:FX:148:ILE:HG22 | 2.00                     | 0.43              |
| 20:G2:67:C:C6      | 20:G2:67:C:H5''    | 2.53                     | 0.43              |
| 20:G2:130:C:C2'    | 20:G2:131:C:H5'    | 2.48                     | 0.43              |
| 22:GA:18:LYS:NZ    | 1:H1:1562:G:OP1    | 2.46                     | 0.43              |
| 23:GB:62:ARG:CZ    | 1:H1:3027:U:OP1    | 2.66                     | 0.43              |
| 24:GC:7:ILE:HD13   | 24:GC:156:PRO:HD2  | 1.98                     | 0.43              |
| 24:GC:197:GLY:HA2  | 1:H1:1446:C:OP1    | 2.18                     | 0.43              |
| 24:GC:212:PRO:HB3  | 24:GC:255:PHE:CD2  | 2.53                     | 0.43              |
| 24:GC:369:HIS:O    | 24:GC:372:GLY:N    | 2.51                     | 0.43              |
| 26:GE:84:GLU:HB3   | 26:GE:185:ALA:O    | 2.18                     | 0.43              |
| 29:GH:3:ARG:HH12   | 29:GH:63:GLU:HB2   | 1.83                     | 0.43              |
| 29:GH:17:TYR:HD2   | 29:GH:96:VAL:HB    | 1.83                     | 0.43              |
| 29:GH:148:ALA:O    | 29:GH:149:ILE:C    | 2.61                     | 0.43              |
| 30:GI:67:ARG:NH2   | 1:H1:418:G:H21     | 2.06                     | 0.43              |
| 30:GI:73:ARG:HD3   | 30:GI:144:VAL:O    | 2.18                     | 0.43              |
| 30:GI:156:GLU:HA   | 30:GI:156:GLU:OE1  | 2.17                     | 0.43              |
| 33:GL:93:LYS:HG3   | 1:H1:288:A:H2      | 1.79                     | 0.43              |
| 36:GO:6:LEU:HD12   | 36:GO:9:ARG:NH2    | 2.33                     | 0.43              |
| 37:GP:29:ARG:HG3   | 37:GP:29:ARG:H     | 1.57                     | 0.43              |
| 40:GS:3:THR:O      | 40:GS:3:THR:CG2    | 2.64                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:GV:41:TRP:HE1   | 43:GV:176:THR:CG2  | 2.31                     | 0.43              |
| 45:GX:30:LEU:HD11  | 1:H1:1459:A:C5     | 2.52                     | 0.43              |
| 45:GX:47:ARG:NH2   | 1:H1:1393:A:O3'    | 2.42                     | 0.43              |
| 45:GX:105:GLN:HG3  | 45:GX:106:VAL:N    | 2.33                     | 0.43              |
| 1:H1:76:U:H2'      | 1:H1:77:A:H5'      | 1.99                     | 0.43              |
| 1:H1:77:A:H2'      | 1:H1:78:G:C8       | 2.53                     | 0.43              |
| 1:H1:111:C:H3'     | 1:H1:154:U:O4      | 2.18                     | 0.43              |
| 1:H1:315:U:H4'     | 1:H1:316:A:H5'     | 2.00                     | 0.43              |
| 1:H1:453:A:H61     | 1:H1:524:G:H2'     | 1.77                     | 0.43              |
| 1:H1:462:G:H8      | 1:H1:462:G:O5'     | 2.01                     | 0.43              |
| 1:H1:615:G:N2      | 8:HH:79:LYS:NZ     | 2.65                     | 0.43              |
| 1:H1:632:G:N7      | 5:HE:32:GLN:NE2    | 2.65                     | 0.43              |
| 1:H1:718:A:H2'     | 1:H1:719:C:H6      | 1.82                     | 0.43              |
| 1:H1:1055:A:H8     | 1:H1:1055:A:O5'    | 2.01                     | 0.43              |
| 1:H1:1150:U:H2'    | 1:H1:1151:U:O5'    | 2.18                     | 0.43              |
| 1:H1:1382:A:C4'    | 1:H1:1383:G:O5'    | 2.64                     | 0.43              |
| 1:H1:1518:G:O6     | 3:HB:2:GLY:CA      | 2.66                     | 0.43              |
| 1:H1:1738:A:C8     | 1:H1:1752:G:C2     | 3.06                     | 0.43              |
| 1:H1:1870:C:H5'    | 1:H1:1873:C:N4     | 2.33                     | 0.43              |
| 1:H1:2303:C:C2'    | 1:H1:2304:A:OP1    | 2.66                     | 0.43              |
| 1:H1:2641:U:C4     | 1:H1:2748:U:O2     | 2.71                     | 0.43              |
| 1:H1:3086:U:H2'    | 1:H1:3087:G:H8     | 1.82                     | 0.43              |
| 5:HE:18:TRP:H      | 5:HE:18:TRP:CD1    | 2.35                     | 0.43              |
| 6:HF:26:VAL:HB     | 6:HF:72:LEU:HD21   | 2.00                     | 0.43              |
| 6:HF:45:ARG:HH11   | 19:HX:84:ASN:HB3   | 1.81                     | 0.43              |
| 10:HK:93:LYS:HA    | 10:HK:105:PRO:HD3  | 1.99                     | 0.43              |
| 13:HN:118:PHE:HE2  | 13:HN:138:PHE:HE2  | 1.66                     | 0.43              |
| 18:HU:177:VAL:O    | 18:HU:180:ILE:HB   | 2.17                     | 0.43              |
| 19:HX:179:THR:HG22 | 19:HX:181:TYR:N    | 2.33                     | 0.43              |
| 1:A1:239:G:C6      | 1:A1:240:A:N6      | 2.86                     | 0.43              |
| 1:A1:462:G:H2'     | 1:A1:463:U:H6      | 1.81                     | 0.43              |
| 1:A1:497:G:H2'     | 1:A1:498:A:H5'     | 1.96                     | 0.43              |
| 1:A1:962:G:H5'     | 32:BK:29:GLY:CA    | 2.41                     | 0.43              |
| 1:A1:977:A:H4'     | 1:A1:993:G:N2      | 2.32                     | 0.43              |
| 1:A1:1035:A:H2     | 29:BH:196:ASN:HD21 | 1.65                     | 0.43              |
| 1:A1:1507:A:C1'    | 11:AL:4:ARG:HH21   | 2.31                     | 0.43              |
| 1:A1:1599:G:C5'    | 39:BR:43:LEU:HD11  | 2.48                     | 0.43              |
| 1:A1:1869:G:H4'    | 2:AA:8:PHE:HD2     | 1.82                     | 0.43              |
| 1:A1:2255:U:H2'    | 1:A1:2256:G:C5'    | 2.49                     | 0.43              |
| 1:A1:2613:G:N2     | 1:A1:2615:A:H2     | 2.15                     | 0.43              |
| 1:A1:2859:G:C8     | 50:A1:4336:HOH:O   | 2.52                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3144:G:H4'    | 1:A1:3144:G:OP1    | 2.18                     | 0.43              |
| 2:AA:44:MET:HA     | 2:AA:44:MET:HE3    | 1.94                     | 0.43              |
| 4:AC:4:VAL:O       | 4:AC:91:PHE:HA     | 2.18                     | 0.43              |
| 5:AE:90:VAL:HG13   | 5:AE:91:ASN:N      | 2.33                     | 0.43              |
| 6:AF:7:VAL:CG2     | 6:AF:55:LEU:HD11   | 2.48                     | 0.43              |
| 7:AG:15:ALA:O      | 7:AG:19:ARG:HG3    | 2.19                     | 0.43              |
| 16:AQ:15:THR:HG23  | 18:AU:103:CYS:SG   | 2.58                     | 0.43              |
| 18:AU:73:PHE:HD2   | 18:AU:94:LYS:O     | 2.01                     | 0.43              |
| 19:AX:4:LYS:HE2    | 19:AX:12:ASP:OD1   | 2.18                     | 0.43              |
| 21:B3:95:U:H2'     | 21:B3:96:U:H6      | 1.81                     | 0.43              |
| 22:BA:84:TYR:CE1   | 22:BA:87:GLN:HB2   | 2.52                     | 0.43              |
| 23:BB:113:ASN:C    | 23:BB:174:ASN:ND2  | 2.76                     | 0.43              |
| 23:BB:141:ALA:O    | 23:BB:144:LEU:HB2  | 2.18                     | 0.43              |
| 23:BB:216:LEU:HD22 | 23:BB:274:THR:HA   | 2.00                     | 0.43              |
| 24:BC:333:LEU:HD22 | 43:BV:178:VAL:HG21 | 2.00                     | 0.43              |
| 25:BD:134:PRO:HG2  | 25:BD:135:GLY:N    | 2.32                     | 0.43              |
| 31:BJ:7:ARG:HB2    | 31:BJ:130:TRP:HH2  | 1.83                     | 0.43              |
| 32:BK:74:VAL:HG13  | 32:BK:113:LEU:HG   | 1.99                     | 0.43              |
| 34:BM:283:THR:HG22 | 34:BM:284:ALA:N    | 2.33                     | 0.43              |
| 36:BO:89:MET:HG3   | 36:BO:90:PRO:HD2   | 1.99                     | 0.43              |
| 36:BO:114:LYS:HB3  | 36:BO:146:LYS:HZ1  | 1.82                     | 0.43              |
| 38:BQ:77:GLU:HB2   | 38:BQ:78:PHE:CD2   | 2.54                     | 0.43              |
| 39:BR:74:PRO:HB2   | 39:BR:149:LEU:HD11 | 1.99                     | 0.43              |
| 40:BS:84:ILE:O     | 40:BS:84:ILE:CG2   | 2.65                     | 0.43              |
| 46:BY:8:VAL:HG13   | 46:BY:11:THR:CB    | 2.47                     | 0.43              |
| 46:BY:88:LYS:HG2   | 46:BY:89:LEU:N     | 2.33                     | 0.43              |
| 20:C2:87:C:O2      | 20:C2:87:C:O4'     | 2.32                     | 0.43              |
| 20:C2:111:A:O2'    | 20:C2:112:G:OP1    | 2.23                     | 0.43              |
| 21:C3:11:A:H4'     | 21:C3:13:A:C8      | 2.53                     | 0.43              |
| 22:CA:30:TYR:OH    | 22:CA:116:ASN:HB3  | 2.18                     | 0.43              |
| 23:CB:117:ARG:HA   | 23:CB:117:ARG:HD2  | 1.58                     | 0.43              |
| 23:CB:216:LEU:HD22 | 23:CB:274:THR:HA   | 2.00                     | 0.43              |
| 23:CB:218:VAL:HA   | 23:CB:271:HIS:O    | 2.18                     | 0.43              |
| 23:CB:226:GLY:N    | 1:D1:1911:A:H4'    | 2.32                     | 0.43              |
| 23:CB:228:ILE:O    | 23:CB:232:GLY:HA2  | 2.18                     | 0.43              |
| 24:CC:245:GLN:O    | 24:CC:254:ARG:NH1  | 2.37                     | 0.43              |
| 24:CC:287:ARG:HA   | 24:CC:288:PRO:HD2  | 1.88                     | 0.43              |
| 24:CC:388:ILE:HD13 | 24:CC:388:ILE:N    | 2.33                     | 0.43              |
| 24:CC:391:ALA:O    | 24:CC:392:ARG:C    | 2.59                     | 0.43              |
| 26:CE:94:PHE:CE1   | 26:CE:98:PRO:HA    | 2.53                     | 0.43              |
| 27:CF:151:ASP:O    | 1:D1:147:U:N3      | 2.52                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:CH:50:VAL:CG1   | 29:CH:152:LEU:HD12 | 2.48                     | 0.43              |
| 34:CM:195:TYR:HD1  | 34:CM:197:PRO:HD3  | 1.82                     | 0.43              |
| 38:CQ:10:PRO:HB3   | 38:CQ:153:GLN:NE2  | 2.34                     | 0.43              |
| 40:CS:79:ILE:HD11  | 40:CS:100:ALA:HB2  | 1.99                     | 0.43              |
| 41:CT:22:ARG:NE    | 41:CT:32:PHE:HD2   | 1.97                     | 0.43              |
| 44:CW:91:LEU:HD23  | 44:CW:91:LEU:HA    | 1.62                     | 0.43              |
| 45:CX:62:ASP:HA    | 1:D1:1366:C:C5'    | 2.48                     | 0.43              |
| 1:D1:112:A:N1      | 1:D1:265:A:O2'     | 2.50                     | 0.43              |
| 1:D1:199:A:C4      | 1:D1:201:A:C8      | 3.06                     | 0.43              |
| 1:D1:283:A:OP2     | 1:D1:283:A:C4'     | 2.66                     | 0.43              |
| 1:D1:556:A:C6      | 1:D1:557:U:C5      | 3.06                     | 0.43              |
| 1:D1:615:G:H2'     | 1:D1:616:A:H8      | 1.84                     | 0.43              |
| 1:D1:1074:A:OP1    | 1:D1:1075:C:C5'    | 2.65                     | 0.43              |
| 1:D1:1518:G:N7     | 3:DB:2:GLY:N       | 2.66                     | 0.43              |
| 1:D1:1636:C:C2     | 1:D1:1637:A:C8     | 3.06                     | 0.43              |
| 1:D1:2292:U:O2'    | 1:D1:2908:U:H4'    | 2.18                     | 0.43              |
| 1:D1:2561:A:N3     | 1:D1:2563:U:C6     | 2.86                     | 0.43              |
| 1:D1:2564:G:C6     | 1:D1:2565:A:C5     | 3.07                     | 0.43              |
| 1:D1:3178:U:H5''   | 6:DF:97:LYS:HZ1    | 1.81                     | 0.43              |
| 5:DE:68:GLN:O      | 5:DE:68:GLN:HG3    | 2.16                     | 0.43              |
| 12:DM:32:ILE:HG21  | 12:DM:61:ASP:O     | 2.17                     | 0.43              |
| 14:DO:104:LYS:O    | 14:DO:105:GLN:C    | 2.61                     | 0.43              |
| 15:DP:41:LYS:HD3   | 15:DP:52:THR:HG21  | 2.00                     | 0.43              |
| 19:DX:44:PHE:CD1   | 19:DX:137:ILE:HD11 | 2.52                     | 0.43              |
| 19:DX:124:MET:HA   | 19:DX:124:MET:CE   | 2.49                     | 0.43              |
| 22:EA:184:GLY:O    | 22:EA:187:PHE:HB3  | 2.18                     | 0.43              |
| 23:EB:378:PHE:CA   | 1:F1:3325:G:N2     | 2.79                     | 0.43              |
| 24:EC:33:ILE:O     | 24:EC:33:ILE:CG2   | 2.66                     | 0.43              |
| 24:EC:89:THR:HG21  | 24:EC:91:ARG:HB3   | 1.98                     | 0.43              |
| 24:EC:195:ARG:HH11 | 24:EC:204:ARG:HB2  | 1.83                     | 0.43              |
| 24:EC:348:ALA:C    | 24:EC:350:ALA:N    | 2.74                     | 0.43              |
| 25:ED:162:TRP:CH2  | 25:ED:167:PHE:CE2  | 3.06                     | 0.43              |
| 29:EH:16:PRO:HG3   | 29:EH:128:ARG:HH11 | 1.79                     | 0.43              |
| 30:EI:160:ARG:O    | 30:EI:163:ALA:HB3  | 2.18                     | 0.43              |
| 31:EJ:35:ALA:HB1   | 31:EJ:66:VAL:CG1   | 2.48                     | 0.43              |
| 32:EK:120:ASN:ND2  | 1:F1:743:A:C2      | 2.86                     | 0.43              |
| 34:EM:17:GLN:HE22  | 37:EP:22:LYS:N     | 2.15                     | 0.43              |
| 34:EM:200:HIS:O    | 34:EM:204:ILE:HG13 | 2.17                     | 0.43              |
| 38:EQ:10:PRO:HB3   | 38:EQ:153:GLN:NE2  | 2.33                     | 0.43              |
| 38:EQ:44:GLU:HA    | 38:EQ:44:GLU:OE1   | 2.17                     | 0.43              |
| 40:ES:84:ILE:O     | 40:ES:84:ILE:CG2   | 2.66                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 42:EU:81:PRO:HG2   | 42:EU:84:ILE:HD12  | 2.00                     | 0.43              |
| 43:EV:217:ALA:C    | 43:EV:219:HIS:N    | 2.74                     | 0.43              |
| 44:EW:63:ILE:HG13  | 1:F1:1482:A:C6     | 2.53                     | 0.43              |
| 44:EW:66:ILE:HG23  | 44:EW:67:PRO:HD2   | 2.00                     | 0.43              |
| 46:EY:4:ARG:NH2    | 1:F1:864:C:N4      | 2.64                     | 0.43              |
| 1:F1:68:A:H1'      | 1:F1:70:C:N4       | 2.33                     | 0.43              |
| 1:F1:101:G:C8      | 50:F1:3683:HOH:O   | 2.67                     | 0.43              |
| 1:F1:135:A:C5'     | 1:F1:136:C:OP2     | 2.66                     | 0.43              |
| 1:F1:549:G:H2'     | 1:F1:550:G:H8      | 1.83                     | 0.43              |
| 1:F1:1840:U:OP2    | 1:F1:1840:U:C6     | 2.69                     | 0.43              |
| 1:F1:2125:C:O2'    | 1:F1:2140:A:O4'    | 2.35                     | 0.43              |
| 1:F1:2287:U:C4     | 1:F1:2288:C:N4     | 2.86                     | 0.43              |
| 1:F1:2322:U:O2'    | 1:F1:2323:U:H5'    | 2.18                     | 0.43              |
| 1:F1:2339:U:H5'    | 1:F1:3045:A:O2'    | 2.18                     | 0.43              |
| 1:F1:2558:U:H2'    | 1:F1:2559:U:C6     | 2.53                     | 0.43              |
| 1:F1:2624:A:O4'    | 1:F1:2625:A:C2     | 2.71                     | 0.43              |
| 1:F1:2883:G:O2'    | 10:FK:100:TYR:O    | 2.30                     | 0.43              |
| 1:F1:2888:A:O2'    | 1:F1:2889:G:H5'    | 2.18                     | 0.43              |
| 1:F1:2914:A:H2'    | 1:F1:2915:C:C6     | 2.53                     | 0.43              |
| 1:F1:3234:U:O4     | 1:F1:3236:C:C5     | 2.71                     | 0.43              |
| 1:F1:3283:C:H2'    | 1:F1:3284:G:C8     | 2.53                     | 0.43              |
| 2:FA:69:LYS:HG2    | 2:FA:69:LYS:H      | 1.67                     | 0.43              |
| 5:FE:68:GLN:O      | 5:FE:68:GLN:HG3    | 2.17                     | 0.43              |
| 5:FE:114:ASP:C     | 5:FE:116:TYR:H     | 2.26                     | 0.43              |
| 9:FJ:46:ILE:HG23   | 9:FJ:47:PRO:HD2    | 1.99                     | 0.43              |
| 9:FJ:211:THR:O     | 9:FJ:215:ILE:HG13  | 2.18                     | 0.43              |
| 13:FN:23:ALA:CB    | 13:FN:43:VAL:CG1   | 2.95                     | 0.43              |
| 13:FN:29:SER:O     | 13:FN:30:GLU:C     | 2.62                     | 0.43              |
| 18:FU:29:GLN:O     | 18:FU:30:LYS:C     | 2.60                     | 0.43              |
| 18:FU:166:VAL:CA   | 18:FU:169:ILE:HD12 | 2.19                     | 0.43              |
| 19:FX:137:ILE:O    | 19:FX:137:ILE:HG13 | 2.18                     | 0.43              |
| 22:GA:151:LEU:O    | 22:GA:154:GLY:N    | 2.50                     | 0.43              |
| 23:GB:141:ALA:O    | 23:GB:144:LEU:HB2  | 2.17                     | 0.43              |
| 24:GC:376:TRP:HZ2  | 19:HX:76:ASN:HD22  | 1.66                     | 0.43              |
| 30:GI:24:LYS:O     | 30:GI:28:SER:OG    | 2.36                     | 0.43              |
| 31:GJ:44:PHE:CZ    | 31:GJ:63:LEU:HD13  | 2.53                     | 0.43              |
| 32:GK:43:HIS:CE1   | 18:HU:1:MET:HB3    | 2.53                     | 0.43              |
| 33:GL:106:VAL:HG21 | 33:GL:132:VAL:CG2  | 2.48                     | 0.43              |
| 39:GR:147:ILE:HG22 | 42:GU:34:ILE:HG21  | 2.00                     | 0.43              |
| 40:GS:55:VAL:CG1   | 40:GS:103:LEU:HB3  | 2.48                     | 0.43              |
| 40:GS:84:ILE:O     | 40:GS:84:ILE:CG2   | 2.66                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 41:GT:44:ARG:HB3  | 41:GT:46:VAL:HG23 | 2.00                     | 0.43              |
| 45:GX:27:PHE:CD2  | 45:GX:29:LYS:HE2  | 2.53                     | 0.43              |
| 45:GX:69:LEU:HG   | 45:GX:73:PHE:O    | 2.18                     | 0.43              |
| 46:GY:51:ALA:O    | 46:GY:52:VAL:C    | 2.61                     | 0.43              |
| 1:H1:43:A:C5      | 1:H1:44:U:C5      | 3.06                     | 0.43              |
| 1:H1:115:G:H1     | 1:H1:159:G:H4'    | 1.82                     | 0.43              |
| 1:H1:298:G:C5     | 16:HQ:31:LYS:HG3  | 2.53                     | 0.43              |
| 1:H1:577:C:C2'    | 1:H1:578:G:H5'    | 2.48                     | 0.43              |
| 1:H1:644:A:H2'    | 1:H1:645:A:C4'    | 2.47                     | 0.43              |
| 1:H1:707:A:H2'    | 1:H1:708:G:O4'    | 2.18                     | 0.43              |
| 1:H1:806:G:H2'    | 1:H1:807:G:H5'    | 2.00                     | 0.43              |
| 1:H1:983:U:H5''   | 1:H1:984:C:OP2    | 2.18                     | 0.43              |
| 1:H1:1108:A:N3    | 1:H1:1108:A:H2'   | 2.33                     | 0.43              |
| 1:H1:1513:A:O2'   | 11:HL:6:THR:CG2   | 2.65                     | 0.43              |
| 1:H1:1616:G:H4'   | 1:H1:1680:A:OP1   | 2.18                     | 0.43              |
| 1:H1:1758:U:H5'   | 1:H1:1759:C:OP2   | 2.18                     | 0.43              |
| 1:H1:2393:A:C2    | 1:H1:2394:A:C4    | 3.06                     | 0.43              |
| 1:H1:2432:G:H2'   | 1:H1:2433:A:O4'   | 2.18                     | 0.43              |
| 1:H1:2539:A:C2    | 1:H1:2540:G:C8    | 3.05                     | 0.43              |
| 1:H1:2659:G:H2'   | 1:H1:2660:A:H8    | 1.81                     | 0.43              |
| 1:H1:2766:A:C2    | 1:H1:2767:A:C8    | 3.06                     | 0.43              |
| 1:H1:2949:G:H2'   | 1:H1:2950:U:C6    | 2.52                     | 0.43              |
| 1:H1:3190:A:N6    | 1:H1:3191:G:H22   | 2.16                     | 0.43              |
| 5:HE:54:LEU:O     | 5:HE:59:ARG:CB    | 2.55                     | 0.43              |
| 5:HE:122:ALA:CB   | 5:HE:132:ALA:HB1  | 2.48                     | 0.43              |
| 6:HF:13:VAL:HG21  | 6:HF:27:ILE:CD1   | 2.44                     | 0.43              |
| 6:HF:17:TYR:O     | 6:HF:17:TYR:HD1   | 1.99                     | 0.43              |
| 8:HH:39:LEU:HD22  | 8:HH:106:VAL:HG21 | 2.00                     | 0.43              |
| 8:HH:57:VAL:HG12  | 8:HH:58:TYR:N     | 2.33                     | 0.43              |
| 13:HN:84:ARG:HD3  | 13:HN:85:TYR:N    | 2.33                     | 0.43              |
| 15:HP:39:ILE:HG23 | 15:HP:55:THR:O    | 2.18                     | 0.43              |
| 15:HP:46:GLY:O    | 15:HP:47:LYS:C    | 2.61                     | 0.43              |
| 19:HX:7:GLN:NE2   | 19:HX:80:GLU:H    | 2.16                     | 0.43              |
| 19:HX:167:LYS:HG2 | 19:HX:188:THR:CG2 | 2.46                     | 0.43              |
| 1:A1:12:A:H2'     | 1:A1:13:C:C6      | 2.53                     | 0.43              |
| 1:A1:48:U:O2      | 1:A1:48:U:C2'     | 2.64                     | 0.43              |
| 1:A1:95:U:O2      | 1:A1:95:U:H2'     | 2.16                     | 0.43              |
| 1:A1:166:C:O2     | 1:A1:166:C:H2'    | 2.19                     | 0.43              |
| 1:A1:209:A:H2'    | 24:BC:169:THR:OG1 | 2.18                     | 0.43              |
| 1:A1:218:G:N1     | 40:BS:61:LYS:HE2  | 2.33                     | 0.43              |
| 1:A1:296:G:O2'    | 16:AQ:32:GLY:CA   | 2.67                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:526:U:O2'     | 1:A1:527:A:O5'     | 2.35                     | 0.43              |
| 1:A1:533:G:H2'     | 1:A1:534:U:C6      | 2.53                     | 0.43              |
| 1:A1:682:G:OP2     | 50:A1:3847:HOH:O   | 2.21                     | 0.43              |
| 1:A1:701:A:OP2     | 35:BN:88:THR:HB    | 2.19                     | 0.43              |
| 1:A1:726:G:O2'     | 1:A1:727:C:H5'     | 2.18                     | 0.43              |
| 1:A1:1085:G:H8     | 1:A1:1085:G:H5'    | 1.84                     | 0.43              |
| 1:A1:1143:G:N2     | 1:A1:2805:A:O4'    | 2.50                     | 0.43              |
| 1:A1:1165:U:H2'    | 1:A1:1166:G:O4'    | 2.18                     | 0.43              |
| 1:A1:1380:C:N4     | 14:AO:32:THR:HG21  | 2.33                     | 0.43              |
| 1:A1:1504:C:P      | 50:A1:4122:HOH:O   | 2.76                     | 0.43              |
| 1:A1:1589:G:C8     | 1:A1:1605:G:N2     | 2.86                     | 0.43              |
| 1:A1:2316:A:O2'    | 46:BY:16:THR:HG21  | 2.18                     | 0.43              |
| 1:A1:2423:U:H2'    | 1:A1:2424:A:C8     | 2.53                     | 0.43              |
| 1:A1:2552:A:P      | 13:AN:52:LYS:HZ2   | 2.39                     | 0.43              |
| 1:A1:2567:U:H2'    | 1:A1:2568:G:C8     | 2.53                     | 0.43              |
| 1:A1:2634:G:H2'    | 1:A1:2635:C:H5'    | 2.00                     | 0.43              |
| 1:A1:3128:G:H2'    | 1:A1:3129:G:O4'    | 2.18                     | 0.43              |
| 1:A1:3226:A:N1     | 5:AE:83:ASN:O      | 2.51                     | 0.43              |
| 3:AB:12:ARG:O      | 3:AB:15:ARG:HB3    | 2.17                     | 0.43              |
| 8:AH:98:GLN:C      | 8:AH:100:ILE:H     | 2.26                     | 0.43              |
| 12:AM:97:VAL:HG22  | 12:AM:107:LEU:CD2  | 2.48                     | 0.43              |
| 13:AN:5:LEU:HD23   | 13:AN:5:LEU:HA     | 1.80                     | 0.43              |
| 14:AO:56:GLN:HE21  | 14:AO:56:GLN:HB2   | 1.49                     | 0.43              |
| 18:AU:77:GLU:HG3   | 18:AU:101:ASN:HD21 | 1.83                     | 0.43              |
| 21:B3:90:A:C5      | 21:B3:91:C:H1'     | 2.53                     | 0.43              |
| 24:BC:69:ALA:HB1   | 24:BC:96:ALA:CB    | 2.47                     | 0.43              |
| 24:BC:126:ARG:CB   | 24:BC:283:TYR:CE2  | 2.98                     | 0.43              |
| 24:BC:166:TYR:OH   | 24:BC:175:PHE:HD2  | 2.00                     | 0.43              |
| 24:BC:230:ILE:CG2  | 24:BC:233:VAL:HG13 | 2.47                     | 0.43              |
| 24:BC:258:TRP:HZ3  | 24:BC:266:LEU:HD21 | 1.82                     | 0.43              |
| 29:BH:140:VAL:HG12 | 29:BH:141:LYS:H    | 1.81                     | 0.43              |
| 32:BK:39:GLY:HA3   | 32:BK:55:TYR:OH    | 2.17                     | 0.43              |
| 32:BK:48:GLU:OE1   | 32:BK:48:GLU:CA    | 2.52                     | 0.43              |
| 34:BM:9:THR:OG1    | 34:BM:11:ALA:HB3   | 2.18                     | 0.43              |
| 34:BM:18:THR:O     | 34:BM:18:THR:CG2   | 2.65                     | 0.43              |
| 34:BM:46:THR:HA    | 34:BM:47:PRO:HD3   | 1.79                     | 0.43              |
| 34:BM:121:GLY:HA2  | 34:BM:130:PHE:CE1  | 2.54                     | 0.43              |
| 34:BM:166:ALA:HB1  | 34:BM:171:ILE:CD1  | 2.48                     | 0.43              |
| 36:BO:96:MET:O     | 36:BO:100:ARG:HG3  | 2.18                     | 0.43              |
| 36:BO:112:ALA:O    | 36:BO:113:LYS:HB2  | 2.19                     | 0.43              |
| 43:BV:86:ILE:HG12  | 43:BV:131:ILE:CA   | 2.42                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:BV:204:LEU:CB   | 43:BV:238:MET:HE2  | 2.48                     | 0.43              |
| 46:BY:73:THR:HG22  | 46:BY:75:PRO:CD    | 2.42                     | 0.43              |
| 20:C2:77:U:C4      | 40:CS:73:TYR:CE2   | 3.06                     | 0.43              |
| 21:C3:21:G:H4'     | 34:CM:277:PHE:CE2  | 2.51                     | 0.43              |
| 22:CA:212:HIS:O    | 22:CA:214:GLY:N    | 2.52                     | 0.43              |
| 23:CB:39:LYS:C     | 23:CB:40:LYS:O     | 2.60                     | 0.43              |
| 23:CB:309:PHE:HA   | 23:CB:310:PRO:HD3  | 1.80                     | 0.43              |
| 24:CC:182:TYR:CE2  | 24:CC:186:LEU:HG   | 2.53                     | 0.43              |
| 24:CC:298:ILE:HD12 | 35:CN:125:ASP:HB2  | 1.95                     | 0.43              |
| 26:CE:110:ILE:HD12 | 26:CE:159:ILE:CD1  | 2.48                     | 0.43              |
| 30:CI:107:ILE:HD12 | 30:CI:159:ARG:NH2  | 2.32                     | 0.43              |
| 32:CK:27:LYS:NZ    | 1:D1:826:A:P       | 2.92                     | 0.43              |
| 34:CM:88:VAL:CG1   | 34:CM:246:LEU:HD21 | 2.48                     | 0.43              |
| 34:CM:135:ASP:O    | 34:CM:135:ASP:OD1  | 2.35                     | 0.43              |
| 35:CN:45:PHE:CE1   | 35:CN:139:LEU:HB2  | 2.46                     | 0.43              |
| 35:CN:63:LEU:HD21  | 35:CN:140:LEU:HB3  | 2.00                     | 0.43              |
| 35:CN:64:SER:O     | 35:CN:68:ILE:HG13  | 2.18                     | 0.43              |
| 35:CN:155:ALA:HA   | 35:CN:156:PRO:HD3  | 1.51                     | 0.43              |
| 47:CO:96:MET:O     | 47:CO:100:ARG:HG3  | 2.17                     | 0.43              |
| 47:CO:114:LYS:HB3  | 47:CO:146:LYS:HZ3  | 1.81                     | 0.43              |
| 37:CP:21:THR:HG22  | 37:CP:21:THR:O     | 2.17                     | 0.43              |
| 38:CQ:61:PRO:HG2   | 38:CQ:78:PHE:CD1   | 2.53                     | 0.43              |
| 39:CR:75:LEU:HD23  | 39:CR:75:LEU:HA    | 1.60                     | 0.43              |
| 43:CV:80:VAL:HG22  | 43:CV:188:VAL:HG21 | 1.99                     | 0.43              |
| 43:CV:184:GLU:O    | 43:CV:188:VAL:N    | 2.49                     | 0.43              |
| 43:CV:205:ASP:HB3  | 43:CV:238:MET:O    | 2.18                     | 0.43              |
| 44:CW:26:LYS:C     | 44:CW:29:PRO:HD2   | 2.43                     | 0.43              |
| 45:CX:22:PHE:CD2   | 45:CX:23:GLU:HG3   | 2.53                     | 0.43              |
| 1:D1:20:G:C5       | 1:D1:21:A:C8       | 3.06                     | 0.43              |
| 1:D1:170:A:N6      | 1:D1:249:G:H1'     | 2.28                     | 0.43              |
| 1:D1:379:U:C2      | 1:D1:389:G:N2      | 2.86                     | 0.43              |
| 1:D1:665:C:H2'     | 1:D1:666:U:O4'     | 2.19                     | 0.43              |
| 1:D1:1381:G:H4'    | 1:D1:1382:A:OP2    | 2.15                     | 0.43              |
| 1:D1:1423:A:H2'    | 1:D1:1424:U:O5'    | 2.18                     | 0.43              |
| 1:D1:3086:U:H2'    | 1:D1:3087:G:H8     | 1.82                     | 0.43              |
| 2:DA:21:ARG:HB2    | 2:DA:39:TYR:HD1    | 1.82                     | 0.43              |
| 5:DE:68:GLN:O      | 5:DE:68:GLN:CG     | 2.66                     | 0.43              |
| 5:DE:103:ASP:OD1   | 5:DE:104:LEU:N     | 2.51                     | 0.43              |
| 5:DE:173:TYR:OH    | 6:DF:105:ASP:HB3   | 2.17                     | 0.43              |
| 5:DE:178:PHE:O     | 8:DH:12:THR:HG21   | 2.18                     | 0.43              |
| 8:DH:8:PRO:C       | 8:DH:9:VAL:HG23    | 2.43                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:DM:42:LYS:HA    | 12:DM:42:LYS:HD3   | 1.82                     | 0.43              |
| 14:DO:40:LEU:O     | 14:DO:44:HIS:ND1   | 2.52                     | 0.43              |
| 15:DP:39:ILE:HG23  | 15:DP:55:THR:O     | 2.18                     | 0.43              |
| 17:DT:56:SER:OG    | 17:DT:57:LYS:N     | 2.50                     | 0.43              |
| 20:E2:44:A:OP1     | 2:FA:68:MET:HG2    | 2.18                     | 0.43              |
| 21:E3:22:A:C6      | 34:EM:274:HIS:CG   | 3.07                     | 0.43              |
| 21:E3:55:A:H4'     | 25:ED:152:GLN:HG2  | 1.99                     | 0.43              |
| 22:EA:69:ARG:NH1   | 1:F1:2517:G:N2     | 2.66                     | 0.43              |
| 23:EB:56:ILE:CG2   | 23:EB:57:LEU:N     | 2.82                     | 0.43              |
| 24:EC:302:ASN:O    | 24:EC:306:SER:OG   | 2.37                     | 0.43              |
| 24:EC:391:ALA:O    | 24:EC:392:ARG:C    | 2.61                     | 0.43              |
| 25:ED:124:GLY:HA3  | 1:F1:2663:A:N1     | 2.32                     | 0.43              |
| 26:EE:94:PHE:CE1   | 26:EE:98:PRO:HA    | 2.53                     | 0.43              |
| 30:EI:92:PRO:O     | 30:EI:95:ALA:HB3   | 2.19                     | 0.43              |
| 30:EI:98:LEU:O     | 30:EI:99:GLU:C     | 2.61                     | 0.43              |
| 30:EI:184:PRO:HA   | 30:EI:187:LYS:CE   | 2.49                     | 0.43              |
| 32:EK:61:ARG:CA    | 35:EN:172:ARG:HH12 | 2.22                     | 0.43              |
| 32:EK:145:CYS:HB3  | 18:FU:177:VAL:HG21 | 1.99                     | 0.43              |
| 35:EN:41:THR:HG22  | 35:EN:43:SER:H     | 1.82                     | 0.43              |
| 35:EN:181:LYS:C    | 1:F1:2719:A:O2'    | 2.61                     | 0.43              |
| 39:ER:90:MET:HE2   | 39:ER:92:PHE:HE1   | 1.83                     | 0.43              |
| 40:ES:80:HIS:ND1   | 40:ES:95:GLN:CB    | 2.79                     | 0.43              |
| 40:ES:105:LEU:HD13 | 40:ES:108:LEU:CD2  | 2.49                     | 0.43              |
| 43:EV:104:ARG:HD2  | 1:F1:1128:G:C5'    | 2.44                     | 0.43              |
| 46:EY:17:ARG:HB2   | 46:EY:18:TYR:CE2   | 2.53                     | 0.43              |
| 1:F1:81:C:H2'      | 1:F1:82:C:O4'      | 2.18                     | 0.43              |
| 1:F1:340:G:H5''    | 1:F1:343:A:H1'     | 1.99                     | 0.43              |
| 1:F1:389:G:C6      | 1:F1:390:G:C4      | 3.06                     | 0.43              |
| 1:F1:471:A:C2'     | 1:F1:472:C:O5'     | 2.65                     | 0.43              |
| 1:F1:486:C:H2'     | 1:F1:487:G:H5'     | 2.00                     | 0.43              |
| 1:F1:577:C:C2'     | 1:F1:578:G:H5'     | 2.49                     | 0.43              |
| 1:F1:591:G:H4'     | 6:FF:64:GLU:OE1    | 2.19                     | 0.43              |
| 1:F1:632:G:C6      | 1:F1:633:C:C4      | 3.07                     | 0.43              |
| 1:F1:827:C:H2'     | 1:F1:828:C:H6      | 1.82                     | 0.43              |
| 1:F1:1104:C:N1     | 17:FT:42:ASN:ND2   | 2.65                     | 0.43              |
| 1:F1:1601:U:O2'    | 1:F1:1602:U:H5'    | 2.18                     | 0.43              |
| 1:F1:1932:A:H2'    | 1:F1:1933:A:O4'    | 2.18                     | 0.43              |
| 1:F1:2368:A:N3     | 1:F1:2812:G:O2'    | 2.47                     | 0.43              |
| 1:F1:2378:A:H2'    | 1:F1:2379:A:C8     | 2.53                     | 0.43              |
| 1:F1:3013:A:C8     | 1:F1:3014:C:C5     | 3.06                     | 0.43              |
| 1:F1:3061:A:C2'    | 1:F1:3062:A:H5'    | 2.49                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3079:U:C2'    | 1:F1:3080:A:O5'    | 2.66                     | 0.43              |
| 1:F1:3102:A:C2     | 1:F1:3111:A:C8     | 3.07                     | 0.43              |
| 1:F1:3229:C:O2     | 1:F1:3229:C:C2'    | 2.66                     | 0.43              |
| 5:FE:56:GLY:C      | 5:FE:58:PHE:H      | 2.25                     | 0.43              |
| 6:FF:7:VAL:CG2     | 6:FF:55:LEU:HD11   | 2.48                     | 0.43              |
| 8:FH:15:TRP:CZ2    | 8:FH:105:ARG:NE    | 2.87                     | 0.43              |
| 8:FH:57:VAL:HG22   | 8:FH:74:TRP:CE3    | 2.51                     | 0.43              |
| 11:FL:29:ARG:NH1   | 50:FL:303:HOH:O    | 2.51                     | 0.43              |
| 21:G3:11:A:C2'     | 21:G3:12:U:H5''    | 2.48                     | 0.43              |
| 21:G3:11:A:H2'     | 21:G3:12:U:H5''    | 2.00                     | 0.43              |
| 21:G3:49:A:O2'     | 34:GM:230:LYS:NZ   | 2.31                     | 0.43              |
| 22:GA:214:GLY:CA   | 1:H1:2955:A:OP1    | 2.66                     | 0.43              |
| 22:GA:220:ILE:C    | 22:GA:222:HIS:H    | 2.25                     | 0.43              |
| 22:GA:239:ARG:NH2  | 1:H1:2151:G:N3     | 2.67                     | 0.43              |
| 23:GB:43:LEU:HD23  | 23:GB:43:LEU:HA    | 1.82                     | 0.43              |
| 23:GB:294:THR:HG22 | 23:GB:295:ALA:H    | 1.83                     | 0.43              |
| 24:GC:95:ALA:HB3   | 1:H1:1464:U:H4'    | 2.00                     | 0.43              |
| 24:GC:202:ARG:O    | 24:GC:203:ASN:HB2  | 2.17                     | 0.43              |
| 24:GC:388:ILE:HD13 | 24:GC:388:ILE:N    | 2.33                     | 0.43              |
| 27:GF:19:ASN:C     | 27:GF:20:PRO:O     | 2.61                     | 0.43              |
| 29:GH:46:PHE:HA    | 29:GH:47:PRO:HD2   | 1.82                     | 0.43              |
| 30:GI:127:ARG:HA   | 30:GI:127:ARG:HD3  | 1.79                     | 0.43              |
| 32:GK:147:LEU:HD21 | 18:HU:177:VAL:HG13 | 1.99                     | 0.43              |
| 33:GL:188:ARG:NH2  | 1:H1:279:U:C4'     | 2.81                     | 0.43              |
| 34:GM:283:THR:HG22 | 34:GM:285:ALA:N    | 2.27                     | 0.43              |
| 34:GM:283:THR:HG22 | 34:GM:284:ALA:N    | 2.32                     | 0.43              |
| 45:GX:27:PHE:HB2   | 45:GX:30:LEU:HB2   | 1.99                     | 0.43              |
| 1:H1:61:A:OP2      | 50:H1:3631:HOH:O   | 2.21                     | 0.43              |
| 1:H1:122:U:O2'     | 1:H1:123:C:H5'     | 2.18                     | 0.43              |
| 1:H1:363:G:OP2     | 2:HA:53:LYS:HE3    | 2.18                     | 0.43              |
| 1:H1:415:A:C4'     | 1:H1:653:C:H4'     | 2.48                     | 0.43              |
| 1:H1:469:U:O2      | 1:H1:469:U:H2'     | 2.18                     | 0.43              |
| 1:H1:471:A:C2'     | 1:H1:472:C:O5'     | 2.66                     | 0.43              |
| 1:H1:556:A:C6      | 1:H1:557:U:C5      | 3.05                     | 0.43              |
| 1:H1:709:G:H5''    | 18:HU:37:ARG:CZ    | 2.48                     | 0.43              |
| 1:H1:822:U:OP1     | 18:HU:1:MET:N      | 2.50                     | 0.43              |
| 1:H1:825:G:N2      | 1:H1:826:A:C2      | 2.87                     | 0.43              |
| 1:H1:845:A:H2'     | 1:H1:846:C:C6      | 2.53                     | 0.43              |
| 1:H1:872:A:H8      | 1:H1:872:A:O5'     | 2.00                     | 0.43              |
| 1:H1:1025:G:N2     | 1:H1:1076:U:O2     | 2.51                     | 0.43              |
| 1:H1:1123:A:OP1    | 1:H1:1124:G:C8     | 2.72                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:1652:U:H6     | 1:H1:1652:U:H3'    | 1.83                     | 0.43              |
| 1:H1:1701:A:OP1    | 12:HM:75:LYS:HD3   | 2.18                     | 0.43              |
| 1:H1:1923:G:O2'    | 1:H1:2329:U:O4     | 2.31                     | 0.43              |
| 1:H1:2353:C:O2     | 1:H1:2353:C:C2'    | 2.61                     | 0.43              |
| 1:H1:2576:C:C6     | 1:H1:2576:C:C4'    | 3.01                     | 0.43              |
| 1:H1:2613:G:N2     | 1:H1:2615:A:H2     | 2.12                     | 0.43              |
| 1:H1:2735:A:H2'    | 1:H1:2736:A:O4'    | 2.18                     | 0.43              |
| 1:H1:3094:U:H2'    | 1:H1:3095:A:H8     | 1.82                     | 0.43              |
| 1:H1:3155:A:C5     | 8:HH:102:SER:HB3   | 2.54                     | 0.43              |
| 1:H1:3227:A:C2     | 5:HE:80:TYR:CE2    | 3.06                     | 0.43              |
| 1:H1:3232:A:N6     | 1:H1:3233:A:C2     | 2.86                     | 0.43              |
| 1:H1:3303:G:H2'    | 1:H1:3304:U:C6     | 2.54                     | 0.43              |
| 5:HE:52:ILE:O      | 5:HE:95:THR:HG22   | 2.18                     | 0.43              |
| 5:HE:60:GLY:O      | 5:HE:177:LYS:HA    | 2.18                     | 0.43              |
| 6:HF:26:VAL:CG1    | 6:HF:27:ILE:N      | 2.80                     | 0.43              |
| 8:HH:8:PRO:C       | 8:HH:9:VAL:HG23    | 2.44                     | 0.43              |
| 18:HU:77:GLU:HG3   | 18:HU:101:ASN:HD21 | 1.83                     | 0.43              |
| 18:HU:177:VAL:HG12 | 18:HU:181:ILE:HD11 | 1.99                     | 0.43              |
| 1:A1:121:A:C6      | 1:A1:150:A:C6      | 3.06                     | 0.43              |
| 1:A1:646:A:H2'     | 1:A1:647:U:C6      | 2.54                     | 0.43              |
| 1:A1:779:A:O2'     | 1:A1:780:C:H5'     | 2.19                     | 0.43              |
| 1:A1:935:G:H3'     | 1:A1:936:C:H6      | 1.83                     | 0.43              |
| 1:A1:1213:G:N3     | 19:AX:126:GLY:CA   | 2.77                     | 0.43              |
| 1:A1:1309:G:H5'    | 28:BG:59:UNK:CG    | 2.48                     | 0.43              |
| 1:A1:1815:G:H2'    | 1:A1:1816:A:H8     | 1.84                     | 0.43              |
| 1:A1:2279:C:H2'    | 1:A1:2279:C:O2     | 2.16                     | 0.43              |
| 1:A1:2837:C:P      | 50:A1:4298:HOH:O   | 2.76                     | 0.43              |
| 1:A1:3073:U:C2'    | 1:A1:3074:G:H5'    | 2.49                     | 0.43              |
| 8:AH:54:LYS:HD3    | 8:AH:110:PRO:CG    | 2.46                     | 0.43              |
| 9:AJ:171:ASP:O     | 9:AJ:172:GLU:C     | 2.58                     | 0.43              |
| 10:AK:84:ALA:O     | 10:AK:88:LYS:HG3   | 2.17                     | 0.43              |
| 12:AM:23:GLN:N     | 12:AM:24:PRO:HD2   | 2.34                     | 0.43              |
| 13:AN:69:LYS:HA    | 13:AN:70:PRO:HD2   | 1.88                     | 0.43              |
| 13:AN:118:PHE:CE2  | 13:AN:138:PHE:HE2  | 2.36                     | 0.43              |
| 18:AU:7:LEU:CD1    | 32:BK:47:MET:HE1   | 2.47                     | 0.43              |
| 18:AU:123:LEU:HD22 | 18:AU:135:LEU:O    | 2.17                     | 0.43              |
| 20:B2:139:U:H1'    | 33:BL:136:ASP:OD2  | 2.18                     | 0.43              |
| 21:B3:33:U:N3      | 34:BM:212:TYR:CE1  | 2.86                     | 0.43              |
| 22:BA:220:ILE:C    | 22:BA:222:HIS:H    | 2.26                     | 0.43              |
| 24:BC:298:ILE:HD12 | 35:BN:125:ASP:HB2  | 1.98                     | 0.43              |
| 24:BC:380:PHE:O    | 24:BC:383:ALA:HB3  | 2.18                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:BH:68:ALA:HB1   | 29:BH:155:ALA:HB1  | 1.99                     | 0.43              |
| 29:BH:189:LYS:HE2  | 29:BH:199:VAL:HG12 | 2.00                     | 0.43              |
| 31:BJ:44:PHE:CZ    | 31:BJ:63:LEU:HD13  | 2.53                     | 0.43              |
| 34:BM:19:LYS:O     | 34:BM:24:ARG:NH1   | 2.52                     | 0.43              |
| 34:BM:54:ARG:HA    | 34:BM:54:ARG:HD3   | 1.65                     | 0.43              |
| 34:BM:111:LYS:HA   | 34:BM:116:ASP:OD2  | 2.18                     | 0.43              |
| 37:BP:105:LEU:HD23 | 37:BP:105:LEU:HA   | 1.83                     | 0.43              |
| 38:BQ:10:PRO:CB    | 38:BQ:153:GLN:NE2  | 2.81                     | 0.43              |
| 43:BV:184:GLU:O    | 43:BV:188:VAL:N    | 2.52                     | 0.43              |
| 20:C2:112:G:N2     | 3:DB:52:TYR:C      | 2.76                     | 0.43              |
| 21:C3:108:G:H2'    | 21:C3:109:U:O4'    | 2.18                     | 0.43              |
| 22:CA:175:ARG:HA   | 46:CY:69:TRP:CE2   | 2.54                     | 0.43              |
| 22:CA:206:ASN:O    | 22:CA:208:VAL:N    | 2.51                     | 0.43              |
| 24:CC:179:VAL:HG12 | 24:CC:179:VAL:O    | 2.19                     | 0.43              |
| 24:CC:311:ALA:CB   | 1:D1:1374:C:H5'    | 2.48                     | 0.43              |
| 26:CE:179:VAL:HB   | 10:DK:89:TYR:HH    | 1.83                     | 0.43              |
| 30:CI:75:PRO:CB    | 30:CI:137:LEU:HD23 | 2.49                     | 0.43              |
| 32:CK:118:LEU:HB2  | 32:CK:141:VAL:CG2  | 2.47                     | 0.43              |
| 33:CL:13:LYS:NZ    | 16:DQ:46:ARG:CA    | 2.81                     | 0.43              |
| 47:CO:57:ILE:HD12  | 47:CO:57:ILE:H     | 1.84                     | 0.43              |
| 47:CO:174:UNK:CG   | 47:CO:174:UNK:O    | 2.62                     | 0.43              |
| 37:CP:19:TYR:CD2   | 1:D1:1077:U:H5''   | 2.52                     | 0.43              |
| 44:CW:95:LEU:HA    | 44:CW:95:LEU:HD23  | 1.72                     | 0.43              |
| 45:CX:35:ARG:NH1   | 1:D1:969:C:O5'     | 2.50                     | 0.43              |
| 1:D1:70:C:C5       | 1:D1:72:A:C4       | 3.07                     | 0.43              |
| 1:D1:131:G:C6      | 1:D1:133:C:H1'     | 2.52                     | 0.43              |
| 1:D1:219:A:H2      | 1:D1:1416:U:C2'    | 2.22                     | 0.43              |
| 1:D1:439:A:H5''    | 5:DE:126:HIS:HB3   | 2.00                     | 0.43              |
| 1:D1:474:G:H2'     | 1:D1:475:C:C6      | 2.53                     | 0.43              |
| 1:D1:564:A:N3      | 1:D1:564:A:C2'     | 2.75                     | 0.43              |
| 1:D1:581:C:H2'     | 1:D1:582:A:C4'     | 2.48                     | 0.43              |
| 1:D1:606:U:O2'     | 1:D1:607:U:H5'     | 2.17                     | 0.43              |
| 1:D1:665:C:H42     | 1:D1:669:A:H8      | 1.65                     | 0.43              |
| 1:D1:680:A:N6      | 1:D1:681:A:N6      | 2.66                     | 0.43              |
| 1:D1:874:C:C4      | 1:D1:875:U:C5      | 3.05                     | 0.43              |
| 1:D1:1355:C:N4     | 1:D1:1356:G:C6     | 2.86                     | 0.43              |
| 1:D1:1464:U:C2     | 1:D1:1465:U:C5     | 3.07                     | 0.43              |
| 1:D1:1511:G:N3     | 11:DL:4:ARG:NH1    | 2.66                     | 0.43              |
| 1:D1:2432:G:C6     | 1:D1:2506:G:C5     | 3.05                     | 0.43              |
| 1:D1:2945:G:C2'    | 1:D1:2946:A:H5'    | 2.48                     | 0.43              |
| 1:D1:3151:G:H2'    | 1:D1:3152:A:C8     | 2.54                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3309:U:C2'    | 1:D1:3310:U:O5'    | 2.67                     | 0.43              |
| 1:D1:3345:A:OP2    | 1:D1:3345:A:C8     | 2.71                     | 0.43              |
| 5:DE:78:GLY:O      | 5:DE:79:PRO:C      | 2.56                     | 0.43              |
| 6:DF:14:TYR:CZ     | 6:DF:22:GLY:HA2    | 2.53                     | 0.43              |
| 6:DF:23:LYS:HB2    | 6:DF:43:ILE:HD11   | 2.00                     | 0.43              |
| 8:DH:38:LYS:HE2    | 8:DH:42:VAL:O      | 2.18                     | 0.43              |
| 8:DH:48:VAL:HG22   | 8:DH:85:GLY:HA2    | 1.99                     | 0.43              |
| 9:DJ:46:ILE:HG23   | 9:DJ:47:PRO:HD2    | 1.99                     | 0.43              |
| 13:DN:98:LYS:O     | 13:DN:99:GLU:C     | 2.58                     | 0.43              |
| 18:DU:124:PHE:HA   | 18:DU:125:PRO:HD2  | 1.76                     | 0.43              |
| 19:DX:61:LYS:HA    | 19:DX:61:LYS:HD3   | 1.76                     | 0.43              |
| 22:EA:24:ARG:HD2   | 1:F1:2170:A:O2'    | 2.19                     | 0.43              |
| 22:EA:210:HIS:HD2  | 22:EA:212:HIS:N    | 1.83                     | 0.43              |
| 23:EB:54:THR:CG2   | 23:EB:358:ASP:HB3  | 2.48                     | 0.43              |
| 23:EB:56:ILE:CG2   | 23:EB:354:LEU:HD22 | 2.48                     | 0.43              |
| 23:EB:220:LYS:HD2  | 1:F1:3036:U:H5'    | 1.99                     | 0.43              |
| 24:EC:198:GLN:NE2  | 1:F1:340:G:C8      | 2.86                     | 0.43              |
| 27:EF:50:TYR:CD1   | 27:EF:51:ILE:HG23  | 2.53                     | 0.43              |
| 27:EF:233:LYS:HB2  | 1:F1:2575:G:C6     | 2.50                     | 0.43              |
| 29:EH:77:ILE:CG1   | 29:EH:78:LYS:N     | 2.81                     | 0.43              |
| 29:EH:140:VAL:CG1  | 29:EH:141:LYS:N    | 2.81                     | 0.43              |
| 30:EI:63:HIS:CD2   | 30:EI:64:ASN:HB2   | 2.54                     | 0.43              |
| 31:EJ:46:ILE:CD1   | 31:EJ:54:PRO:CB    | 2.93                     | 0.43              |
| 32:EK:123:VAL:HG12 | 32:EK:124:VAL:N    | 2.34                     | 0.43              |
| 33:EL:15:GLN:CD    | 1:F1:294:A:OP1     | 2.62                     | 0.43              |
| 33:EL:145:ASP:HA   | 33:EL:146:PRO:HD3  | 1.84                     | 0.43              |
| 36:EO:105:LEU:HD13 | 36:EO:135:LYS:HE3  | 2.01                     | 0.43              |
| 37:EP:3:HIS:CE1    | 1:F1:2621:G:O6     | 2.72                     | 0.43              |
| 38:EQ:59:CYS:HB3   | 38:EQ:74:GLN:CB    | 2.47                     | 0.43              |
| 41:ET:8:CYS:O      | 41:ET:12:GLU:HA    | 2.17                     | 0.43              |
| 41:ET:15:ILE:HD11  | 41:ET:34:LEU:HB2   | 2.00                     | 0.43              |
| 44:EW:105:THR:HG21 | 1:F1:3341:C:H1'    | 1.99                     | 0.43              |
| 45:EX:34:TRP:HZ2   | 45:EX:54:MET:HB2   | 1.82                     | 0.43              |
| 1:F1:95:U:O2       | 1:F1:95:U:H2'      | 2.17                     | 0.43              |
| 1:F1:115:G:H1      | 1:F1:159:G:H4'     | 1.83                     | 0.43              |
| 1:F1:213:A:H2'     | 1:F1:214:G:O4'     | 2.18                     | 0.43              |
| 1:F1:357:G:N2      | 1:F1:360:A:OP2     | 2.50                     | 0.43              |
| 1:F1:440:C:C4      | 1:F1:538:A:H2      | 2.37                     | 0.43              |
| 1:F1:461:A:H4'     | 14:FO:73:THR:CG2   | 2.48                     | 0.43              |
| 1:F1:653:C:C2      | 1:F1:654:U:C5      | 3.06                     | 0.43              |
| 1:F1:738:U:O2'     | 1:F1:778:G:OP1     | 2.33                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:911:C:C2'    | 1:F1:912:G:H5'     | 2.48                     | 0.43              |
| 1:F1:1004:U:C4'   | 1:F1:1005:A:OP1    | 2.66                     | 0.43              |
| 1:F1:1115:U:H5'   | 1:F1:1115:U:H6     | 1.82                     | 0.43              |
| 1:F1:1435:C:O2'   | 1:F1:1436:C:H5'    | 2.18                     | 0.43              |
| 1:F1:1592:G:H2'   | 1:F1:1593:A:O4'    | 2.18                     | 0.43              |
| 1:F1:1598:C:H2'   | 1:F1:1599:G:C5'    | 2.48                     | 0.43              |
| 1:F1:1658:G:P     | 13:FN:107:LYS:NZ   | 2.91                     | 0.43              |
| 1:F1:2263:U:H5''  | 1:F1:2264:U:OP2    | 2.18                     | 0.43              |
| 1:F1:2391:G:H5'   | 1:F1:2392:A:O5'    | 2.18                     | 0.43              |
| 1:F1:2543:C:H5''  | 1:F1:2544:U:C5     | 2.54                     | 0.43              |
| 1:F1:2744:C:H2'   | 1:F1:2744:C:O2     | 2.17                     | 0.43              |
| 1:F1:2769:U:H2'   | 1:F1:2770:U:O4'    | 2.18                     | 0.43              |
| 1:F1:2847:U:H4'   | 1:F1:2848:U:O5'    | 2.18                     | 0.43              |
| 1:F1:2886:G:C8    | 1:F1:2886:G:C3'    | 3.02                     | 0.43              |
| 1:F1:3092:A:H2'   | 1:F1:3093:U:O5'    | 2.17                     | 0.43              |
| 1:F1:3101:G:O6    | 1:F1:3109:C:H5'    | 2.18                     | 0.43              |
| 9:FJ:35:TYR:CZ    | 9:FJ:50:HIS:CE1    | 3.07                     | 0.43              |
| 9:FJ:42:LEU:HD21  | 9:FJ:205:PHE:CE1   | 2.53                     | 0.43              |
| 13:FN:83:THR:CG2  | 13:FN:85:TYR:HD2   | 2.31                     | 0.43              |
| 14:FO:27:ASP:OD2  | 14:FO:42:PHE:HD1   | 2.01                     | 0.43              |
| 19:FX:44:PHE:CD1  | 19:FX:137:ILE:HD11 | 2.53                     | 0.43              |
| 23:GB:5:LYS:HZ3   | 1:H1:2866:G:H5''   | 1.84                     | 0.43              |
| 23:GB:228:ILE:O   | 23:GB:232:GLY:HA2  | 2.18                     | 0.43              |
| 23:GB:375:ASP:OD2 | 23:GB:382:ARG:HG3  | 2.18                     | 0.43              |
| 24:GC:127:HIS:CE1 | 24:GC:286:GLN:OE1  | 2.72                     | 0.43              |
| 24:GC:200:LYS:HB2 | 24:GC:201:LEU:HD23 | 2.00                     | 0.43              |
| 24:GC:212:PRO:HB3 | 24:GC:255:PHE:HD2  | 1.83                     | 0.43              |
| 25:GD:30:LEU:HD23 | 25:GD:30:LEU:HA    | 1.71                     | 0.43              |
| 25:GD:132:GLU:C   | 25:GD:154:ILE:HD11 | 2.43                     | 0.43              |
| 28:GG:81:UNK:CG   | 1:H1:1308:U:H2'    | 2.42                     | 0.43              |
| 29:GH:158:LYS:NZ  | 1:H1:2840:C:N3     | 2.66                     | 0.43              |
| 30:GI:107:ILE:CG1 | 30:GI:159:ARG:NH1  | 2.80                     | 0.43              |
| 31:GJ:63:LEU:HA   | 31:GJ:63:LEU:HD12  | 1.79                     | 0.43              |
| 32:GK:48:GLU:OE1  | 32:GK:48:GLU:CA    | 2.53                     | 0.43              |
| 33:GL:150:TRP:CD2 | 1:H1:320:C:H5''    | 2.52                     | 0.43              |
| 34:GM:173:ILE:HA  | 34:GM:174:PRO:HD3  | 1.79                     | 0.43              |
| 34:GM:228:PHE:O   | 34:GM:229:SER:C    | 2.61                     | 0.43              |
| 36:GO:135:LYS:HB3 | 1:H1:1972:G:OP1    | 2.18                     | 0.43              |
| 37:GP:116:LYS:NZ  | 1:H1:1124:G:H8     | 2.11                     | 0.43              |
| 39:GR:113:VAL:CG1 | 39:GR:138:SER:OG   | 2.66                     | 0.43              |
| 39:GR:145:ASN:HA  | 39:GR:150:ILE:HD11 | 2.00                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 41:GT:22:ARG:NH2   | 41:GT:32:PHE:HE2   | 2.15                     | 0.43              |
| 42:GU:25:LEU:HB3   | 42:GU:55:ILE:HG12  | 1.99                     | 0.43              |
| 43:GV:74:VAL:CG2   | 19:HX:73:LEU:HA    | 2.48                     | 0.43              |
| 43:GV:105:LEU:HD12 | 43:GV:131:ILE:CD1  | 2.47                     | 0.43              |
| 45:GX:57:ILE:C     | 45:GX:59:PHE:N     | 2.72                     | 0.43              |
| 1:H1:92:G:H2'      | 1:H1:93:A:H8       | 1.82                     | 0.43              |
| 1:H1:581:C:H2'     | 1:H1:582:A:O4'     | 2.18                     | 0.43              |
| 1:H1:591:G:C4'     | 6:HF:64:GLU:OE1    | 2.65                     | 0.43              |
| 1:H1:879:G:C5      | 1:H1:880:U:C5      | 3.07                     | 0.43              |
| 1:H1:927:G:H2'     | 1:H1:928:U:C6      | 2.49                     | 0.43              |
| 1:H1:970:C:H1'     | 1:H1:1433:A:N3     | 2.33                     | 0.43              |
| 1:H1:970:C:N3      | 1:H1:971:C:C5      | 2.86                     | 0.43              |
| 1:H1:1038:G:N2     | 1:H1:1065:U:C2     | 2.87                     | 0.43              |
| 1:H1:1168:C:N4     | 1:H1:1169:G:C6     | 2.86                     | 0.43              |
| 1:H1:1427:G:H2'    | 1:H1:1428:G:O5'    | 2.19                     | 0.43              |
| 1:H1:1593:A:C4     | 1:H1:1594:C:C4     | 3.07                     | 0.43              |
| 1:H1:1617:G:H4'    | 1:H1:1618:A:OP2    | 2.18                     | 0.43              |
| 1:H1:1863:A:N6     | 1:H1:1867:C:C2     | 2.86                     | 0.43              |
| 1:H1:1875:G:O2'    | 2:HA:6:PRO:HB3     | 2.19                     | 0.43              |
| 1:H1:2432:G:N2     | 1:H1:2506:G:H1'    | 2.33                     | 0.43              |
| 1:H1:2434:A:H2'    | 1:H1:2435:A:C8     | 2.53                     | 0.43              |
| 1:H1:2655:C:C5     | 1:H1:2676:G:N2     | 2.87                     | 0.43              |
| 1:H1:2683:A:C5'    | 1:H1:2684:A:OP2    | 2.66                     | 0.43              |
| 1:H1:3136:A:C6     | 1:H1:3137:U:C4     | 3.07                     | 0.43              |
| 1:H1:3193:G:O2'    | 1:H1:3194:G:H5'    | 2.19                     | 0.43              |
| 12:HM:32:ILE:HG21  | 12:HM:61:ASP:O     | 2.18                     | 0.43              |
| 18:HU:22:THR:CG2   | 18:HU:24:PHE:HD1   | 2.27                     | 0.43              |
| 19:HX:44:PHE:CE2   | 19:HX:117:VAL:HG21 | 2.53                     | 0.43              |
| 1:A1:52:C:O2'      | 1:A1:53:G:H5'      | 2.18                     | 0.43              |
| 1:A1:97:A:OP1      | 33:BL:195:ARG:HD3  | 2.17                     | 0.43              |
| 1:A1:459:G:C5      | 1:A1:517:A:C6      | 3.06                     | 0.43              |
| 1:A1:605:C:O4'     | 19:AX:6:ALA:HA     | 2.18                     | 0.43              |
| 1:A1:644:A:H2'     | 1:A1:645:A:C4'     | 2.47                     | 0.43              |
| 1:A1:768:A:O2'     | 1:A1:769:G:H5'     | 2.19                     | 0.43              |
| 1:A1:855:A:O2'     | 1:A1:1890:C:H2'    | 2.18                     | 0.43              |
| 1:A1:906:C:H1'     | 1:A1:1874:A:C8     | 2.54                     | 0.43              |
| 1:A1:935:G:H3'     | 1:A1:936:C:C6      | 2.54                     | 0.43              |
| 1:A1:992:A:N6      | 1:A1:993:G:C6      | 2.87                     | 0.43              |
| 1:A1:1391:U:OP1    | 35:BN:3:ILE:CD1    | 2.66                     | 0.43              |
| 1:A1:1656:G:C6     | 1:A1:1657:C:C4     | 3.07                     | 0.43              |
| 1:A1:1657:C:C5     | 13:AN:17:ARG:NH2   | 2.86                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1752:G:H2'    | 7:AG:85:HIS:HD2    | 1.73                     | 0.43              |
| 1:A1:1839:A:H4'    | 1:A1:1840:U:C5'    | 2.48                     | 0.43              |
| 1:A1:1867:C:OP1    | 3:AB:48:LYS:NZ     | 2.50                     | 0.43              |
| 1:A1:2253:U:C2'    | 1:A1:2254:A:C8     | 2.86                     | 0.43              |
| 1:A1:2654:U:H4'    | 1:A1:2655:C:OP1    | 2.17                     | 0.43              |
| 3:AB:9:MET:HB3     | 3:AB:13:PHE:CE2    | 2.50                     | 0.43              |
| 4:AC:16:ASN:CG     | 4:AC:16:ASN:O      | 2.62                     | 0.43              |
| 4:AC:55:ILE:HD12   | 4:AC:57:ARG:NH2    | 2.32                     | 0.43              |
| 6:AF:34:ASN:O      | 6:AF:50:ILE:N      | 2.48                     | 0.43              |
| 9:AJ:102:SER:H     | 31:BJ:139:SER:HA   | 1.82                     | 0.43              |
| 9:AJ:119:PRO:HA    | 9:AJ:139:ARG:HB3   | 2.00                     | 0.43              |
| 9:AJ:161:VAL:HG12  | 9:AJ:162:HIS:N     | 2.33                     | 0.43              |
| 12:AM:96:TYR:HD1   | 12:AM:110:PHE:HD1  | 1.67                     | 0.43              |
| 14:AO:49:ALA:O     | 14:AO:50:LEU:HD23  | 2.18                     | 0.43              |
| 19:AX:109:ARG:NH1  | 19:AX:156:MET:HB2  | 2.34                     | 0.43              |
| 20:B2:52:G:C6      | 20:B2:80:A:C2      | 3.07                     | 0.43              |
| 20:B2:58:U:C2      | 20:B2:65:C:H5      | 2.35                     | 0.43              |
| 20:B2:105:A:OP2    | 20:B2:106:A:H2'    | 2.19                     | 0.43              |
| 20:B2:134:C:H3'    | 20:B2:134:C:H6     | 1.83                     | 0.43              |
| 22:BA:133:CYS:O    | 22:BA:170:VAL:HG23 | 2.17                     | 0.43              |
| 23:BB:228:ILE:O    | 23:BB:232:GLY:HA2  | 2.19                     | 0.43              |
| 23:BB:230:ARG:HG2  | 23:BB:231:PHE:CZ   | 2.54                     | 0.43              |
| 24:BC:27:ALA:HA    | 24:BC:30:THR:OG1   | 2.19                     | 0.43              |
| 24:BC:205:ARG:HH21 | 40:BS:11:ARG:NH1   | 2.16                     | 0.43              |
| 27:BF:142:LYS:HE3  | 27:BF:194:THR:O    | 2.19                     | 0.43              |
| 27:BF:142:LYS:NZ   | 27:BF:201:LYS:NZ   | 2.67                     | 0.43              |
| 27:BF:169:PRO:HB2  | 27:BF:211:PHE:CB   | 2.46                     | 0.43              |
| 34:BM:83:LEU:O     | 34:BM:88:VAL:HG22  | 2.19                     | 0.43              |
| 34:BM:231:TRP:CZ2  | 34:BM:243:VAL:HG22 | 2.53                     | 0.43              |
| 35:BN:52:ARG:HH12  | 35:BN:141:ARG:CD   | 2.31                     | 0.43              |
| 36:BO:28:GLU:HB3   | 36:BO:49:LEU:HD13  | 2.00                     | 0.43              |
| 36:BO:76:THR:HG22  | 36:BO:81:ARG:HH21  | 1.84                     | 0.43              |
| 36:BO:84:THR:OG1   | 36:BO:87:ALA:HB2   | 2.18                     | 0.43              |
| 38:BQ:76:HIS:O     | 38:BQ:78:PHE:N     | 2.52                     | 0.43              |
| 41:BT:8:CYS:O      | 41:BT:12:GLU:HA    | 2.18                     | 0.43              |
| 43:BV:93:HIS:CG    | 43:BV:94:PRO:HD2   | 2.54                     | 0.43              |
| 45:BX:65:THR:O     | 45:BX:68:LEU:HB2   | 2.18                     | 0.43              |
| 20:C2:37:A:C4'     | 20:C2:38:C:OP1     | 2.43                     | 0.43              |
| 20:C2:90:G:C6      | 20:C2:92:C:C4      | 3.07                     | 0.43              |
| 22:CA:41:TYR:CZ    | 1:D1:2541:U:C2     | 3.07                     | 0.43              |
| 22:CA:103:LEU:HD12 | 22:CA:108:ILE:HD13 | 2.00                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:CB:93:ILE:CD1   | 23:CB:102:LEU:HD22 | 2.48                     | 0.43              |
| 27:CF:155:LEU:HD11 | 1:D1:147:U:H1'     | 1.98                     | 0.43              |
| 29:CH:34:TYR:CZ    | 29:CH:92:HIS:CE1   | 3.07                     | 0.43              |
| 30:CI:184:PRO:HA   | 30:CI:187:LYS:CE   | 2.48                     | 0.43              |
| 30:CI:193:LEU:HD21 | 6:DF:114:LEU:HB3   | 1.99                     | 0.43              |
| 33:CL:93:LYS:HG3   | 1:D1:288:A:N3      | 2.34                     | 0.43              |
| 34:CM:111:LYS:HA   | 34:CM:116:ASP:OD2  | 2.19                     | 0.43              |
| 34:CM:120:ALA:O    | 34:CM:255:ARG:NH1  | 2.31                     | 0.43              |
| 34:CM:228:PHE:CD2  | 34:CM:231:TRP:CD1  | 3.02                     | 0.43              |
| 35:CN:131:ALA:O    | 35:CN:134:GLY:N    | 2.50                     | 0.43              |
| 47:CO:150:UNK:O    | 47:CO:153:UNK:HG3  | 2.19                     | 0.43              |
| 47:CO:170:UNK:C    | 47:CO:174:UNK:HG3  | 2.47                     | 0.43              |
| 37:CP:42:ILE:CD1   | 37:CP:91:VAL:HG21  | 2.48                     | 0.43              |
| 39:CR:91:VAL:HG13  | 39:CR:131:TYR:CD1  | 2.54                     | 0.43              |
| 42:CU:78:SER:O     | 42:CU:79:LEU:HB2   | 2.18                     | 0.43              |
| 43:CV:93:HIS:CG    | 43:CV:94:PRO:HD2   | 2.52                     | 0.43              |
| 43:CV:188:VAL:HG12 | 43:CV:188:VAL:O    | 2.18                     | 0.43              |
| 46:CY:51:ALA:HA    | 1:D1:1821:U:O4     | 2.18                     | 0.43              |
| 1:D1:355:C:O5'     | 1:D1:355:C:H6      | 2.01                     | 0.43              |
| 1:D1:357:G:OP2     | 50:D1:3886:HOH:O   | 2.21                     | 0.43              |
| 1:D1:397:A:HO2'    | 1:D1:400:C:HO2'    | 1.57                     | 0.43              |
| 1:D1:709:G:H5''    | 18:DU:37:ARG:CZ    | 2.49                     | 0.43              |
| 1:D1:841:A:OP2     | 2:DA:28:HIS:HE1    | 2.00                     | 0.43              |
| 1:D1:1078:U:C5     | 1:D1:1079:A:N7     | 2.86                     | 0.43              |
| 1:D1:1240:G:O2'    | 1:D1:1241:U:H5'    | 2.19                     | 0.43              |
| 1:D1:1597:U:C2'    | 1:D1:1598:C:C6     | 2.95                     | 0.43              |
| 1:D1:1652:U:H4'    | 1:D1:1655:A:H5'    | 2.01                     | 0.43              |
| 1:D1:1945:A:C2     | 1:D1:1956:A:C2     | 3.07                     | 0.43              |
| 1:D1:2383:U:H5''   | 1:D1:2383:U:H6     | 1.84                     | 0.43              |
| 1:D1:2509:U:OP1    | 1:D1:2509:U:H6     | 2.01                     | 0.43              |
| 1:D1:2630:U:H5''   | 1:D1:2631:A:OP1    | 2.18                     | 0.43              |
| 1:D1:3115:C:C2'    | 1:D1:3116:A:O5'    | 2.66                     | 0.43              |
| 2:DA:33:ARG:NE     | 2:DA:41:ASP:OD2    | 2.51                     | 0.43              |
| 5:DE:62:ARG:CZ     | 6:DF:105:ASP:OD1   | 2.66                     | 0.43              |
| 6:DF:28:VAL:CG1    | 6:DF:66:ASN:CA     | 2.96                     | 0.43              |
| 7:DG:8:ASP:HA      | 7:DG:11:GLN:HE21   | 1.82                     | 0.43              |
| 9:DJ:49:ILE:HD11   | 9:DJ:88:LEU:HD13   | 2.01                     | 0.43              |
| 9:DJ:117:ILE:HD13  | 9:DJ:137:VAL:CG1   | 2.49                     | 0.43              |
| 13:DN:52:LYS:O     | 13:DN:65:ARG:NE    | 2.51                     | 0.43              |
| 14:DO:75:THR:CG2   | 14:DO:77:GLU:CG    | 2.97                     | 0.43              |
| 18:DU:131:ALA:HB3  | 18:DU:136:VAL:HG21 | 2.00                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 18:DU:181:ILE:HG13 | 18:DU:181:ILE:H    | 1.59                     | 0.43              |
| 20:E2:14:C:O2'     | 38:EQ:7:SER:HA     | 2.17                     | 0.43              |
| 20:E2:57:A:C6      | 20:E2:58:U:C4      | 3.07                     | 0.43              |
| 20:E2:67:C:H6      | 20:E2:67:C:H5''    | 1.84                     | 0.43              |
| 21:E3:4:G:C2'      | 21:E3:5:U:H5'      | 2.49                     | 0.43              |
| 21:E3:10:C:C4      | 34:EM:20:TYR:CD1   | 3.06                     | 0.43              |
| 22:EA:179:PRO:HG2  | 46:EY:26:VAL:CG2   | 2.49                     | 0.43              |
| 23:EB:233:VAL:HG12 | 23:EB:234:LYS:N    | 2.34                     | 0.43              |
| 24:EC:42:PHE:CD1   | 24:EC:244:LEU:HD23 | 2.53                     | 0.43              |
| 24:EC:89:THR:HG23  | 1:F1:364:A:H1'     | 1.99                     | 0.43              |
| 24:EC:198:GLN:O    | 24:EC:199:GLY:C    | 2.62                     | 0.43              |
| 32:EK:38:GLY:HA3   | 32:EK:42:HIS:CE1   | 2.53                     | 0.43              |
| 32:EK:89:ARG:HA    | 32:EK:121:GLN:HE22 | 1.84                     | 0.43              |
| 32:EK:148:THR:CG2  | 32:EK:149:ALA:H    | 2.32                     | 0.43              |
| 33:EL:33:LEU:O     | 33:EL:65:ARG:NH1   | 2.51                     | 0.43              |
| 34:EM:35:ARG:CB    | 1:F1:2737:A:C2     | 3.02                     | 0.43              |
| 43:EV:82:PHE:HB3   | 43:EV:231:ILE:HD13 | 2.00                     | 0.43              |
| 43:EV:180:ASP:O    | 43:EV:181:LEU:C    | 2.62                     | 0.43              |
| 45:EX:22:PHE:CD2   | 45:EX:23:GLU:HG3   | 2.54                     | 0.43              |
| 1:F1:9:G:O2'       | 1:F1:1587:A:N6     | 2.51                     | 0.43              |
| 1:F1:80:C:H2'      | 1:F1:81:C:O5'      | 2.18                     | 0.43              |
| 1:F1:284:U:P       | 1:F1:284:U:O4'     | 2.76                     | 0.43              |
| 1:F1:533:G:H2'     | 1:F1:534:U:C6      | 2.54                     | 0.43              |
| 1:F1:636:U:O2'     | 5:FE:34:LYS:HG2    | 2.18                     | 0.43              |
| 1:F1:894:G:C6      | 1:F1:895:A:C6      | 3.07                     | 0.43              |
| 1:F1:1050:C:C5     | 1:F1:1051:C:C4     | 3.06                     | 0.43              |
| 1:F1:1107:A:C3'    | 1:F1:1108:A:H8     | 2.28                     | 0.43              |
| 1:F1:1135:U:C5'    | 1:F1:1135:U:H6     | 2.31                     | 0.43              |
| 1:F1:1591:A:O2'    | 1:F1:1592:G:H5'    | 2.18                     | 0.43              |
| 1:F1:1594:C:H2'    | 1:F1:1595:A:C5'    | 2.45                     | 0.43              |
| 1:F1:2212:U:H2'    | 1:F1:2213:G:H8     | 1.82                     | 0.43              |
| 1:F1:2935:G:H4'    | 1:F1:2935:G:OP2    | 2.18                     | 0.43              |
| 1:F1:3175:A:C6     | 1:F1:3177:G:C6     | 3.06                     | 0.43              |
| 1:F1:3228:U:N3     | 5:FE:146:LYS:HG3   | 2.34                     | 0.43              |
| 5:FE:41:LEU:CG     | 5:FE:68:GLN:OE1    | 2.55                     | 0.43              |
| 6:FF:28:VAL:CG1    | 6:FF:66:ASN:CA     | 2.97                     | 0.43              |
| 19:FX:16:MET:CG    | 19:FX:17:LYS:H     | 2.28                     | 0.43              |
| 20:G2:75:A:N3      | 20:G2:89:A:O2'     | 2.51                     | 0.43              |
| 24:GC:33:ILE:HD13  | 24:GC:135:ALA:CA   | 2.48                     | 0.43              |
| 24:GC:194:LEU:HD23 | 24:GC:194:LEU:HA   | 1.68                     | 0.43              |
| 26:GE:91:LYS:HG2   | 26:GE:180:SER:CB   | 2.43                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:GE:148:ASP:OD1  | 26:GE:148:ASP:C    | 2.61                     | 0.43              |
| 27:GF:50:TYR:O     | 27:GF:54:GLN:HG3   | 2.18                     | 0.43              |
| 27:GF:63:ARG:CZ    | 27:GF:231:GLY:HA3  | 2.48                     | 0.43              |
| 30:GI:10:ALA:O     | 30:GI:13:HIS:HB2   | 2.18                     | 0.43              |
| 30:GI:91:THR:HG22  | 30:GI:93:LYS:N     | 2.33                     | 0.43              |
| 33:GL:14:LYS:HZ1   | 1:H1:268:G:C4'     | 2.29                     | 0.43              |
| 34:GM:66:TYR:HH    | 34:GM:73:ARG:HD2   | 1.84                     | 0.43              |
| 34:GM:231:TRP:CZ2  | 34:GM:243:VAL:HG22 | 2.54                     | 0.43              |
| 40:GS:21:SER:CB    | 40:GS:26:ARG:HG2   | 2.48                     | 0.43              |
| 42:GU:98:LYS:CG    | 1:H1:242:G:OP1     | 2.66                     | 0.43              |
| 43:GV:160:LEU:HD23 | 43:GV:160:LEU:HA   | 1.81                     | 0.43              |
| 46:GY:55:TRP:CD1   | 46:GY:55:TRP:N     | 2.86                     | 0.43              |
| 1:H1:338:C:H6      | 1:H1:338:C:C5'     | 2.30                     | 0.43              |
| 1:H1:1089:G:N7     | 1:H1:1124:G:H2'    | 2.33                     | 0.43              |
| 1:H1:1096:G:C2'    | 1:H1:1097:G:H5''   | 2.39                     | 0.43              |
| 1:H1:1185:A:C3'    | 1:H1:1186:A:C5'    | 2.88                     | 0.43              |
| 1:H1:1475:A:H2'    | 1:H1:1476:G:O4'    | 2.19                     | 0.43              |
| 1:H1:1681:C:C5     | 1:H1:1823:A:H5''   | 2.53                     | 0.43              |
| 1:H1:2561:A:C2     | 1:H1:2563:U:C2     | 3.06                     | 0.43              |
| 1:H1:2563:U:C2     | 1:H1:2564:G:C8     | 3.07                     | 0.43              |
| 1:H1:2829:G:H5''   | 1:H1:2830:U:H5'    | 1.99                     | 0.43              |
| 1:H1:3316:C:N4     | 1:H1:3317:G:C6     | 2.86                     | 0.43              |
| 5:HE:46:ALA:HB3    | 5:HE:49:THR:HG1    | 1.83                     | 0.43              |
| 5:HE:114:ASP:C     | 5:HE:116:TYR:H     | 2.27                     | 0.43              |
| 6:HF:11:ARG:O      | 6:HF:26:VAL:HA     | 2.17                     | 0.43              |
| 10:HK:80:PRO:HA    | 10:HK:83:ALA:HB3   | 2.00                     | 0.43              |
| 13:HN:95:GLU:O     | 13:HN:98:LYS:HE2   | 2.17                     | 0.43              |
| 15:HP:15:TRP:O     | 15:HP:72:TYR:CE1   | 2.71                     | 0.43              |
| 1:A1:90:G:OP2      | 1:A1:91:C:H5''     | 2.18                     | 0.43              |
| 1:A1:340:G:H8      | 1:A1:340:G:OP2     | 2.01                     | 0.43              |
| 1:A1:519:A:C5'     | 14:AO:89:ARG:HH11  | 2.32                     | 0.43              |
| 1:A1:528:C:O2'     | 14:AO:115:HIS:CE1  | 2.68                     | 0.43              |
| 1:A1:550:G:C5      | 1:A1:551:U:C5      | 3.07                     | 0.43              |
| 1:A1:561:A:O2'     | 1:A1:562:G:H5'     | 2.18                     | 0.43              |
| 1:A1:741:G:C4      | 32:BK:136:ARG:NH1  | 2.86                     | 0.43              |
| 1:A1:1053:A:H8     | 1:A1:1054:G:C5     | 2.37                     | 0.43              |
| 1:A1:1105:U:H4'    | 34:BM:43:LYS:HG2   | 2.00                     | 0.43              |
| 1:A1:1107:A:C5     | 34:BM:142:PHE:HE1  | 2.37                     | 0.43              |
| 1:A1:1111:G:H3'    | 1:A1:1112:A:H8     | 1.83                     | 0.43              |
| 1:A1:1195:U:C1'    | 43:BV:206:THR:CG2  | 2.97                     | 0.43              |
| 1:A1:1222:A:C2     | 1:A1:1336:U:C2     | 3.06                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1322:G:H2'    | 1:A1:1323:C:C6     | 2.54                     | 0.43              |
| 1:A1:1409:C:H2'    | 1:A1:1410:G:O5'    | 2.18                     | 0.43              |
| 1:A1:1507:A:H1'    | 11:AL:4:ARG:HH21   | 1.84                     | 0.43              |
| 1:A1:1518:G:N7     | 3:AB:2:GLY:N       | 2.66                     | 0.43              |
| 1:A1:1746:U:C4     | 1:A1:1747:A:N7     | 2.86                     | 0.43              |
| 1:A1:1925:A:H4'    | 1:A1:2906:G:H4'    | 1.99                     | 0.43              |
| 1:A1:2208:A:H1'    | 1:A1:2590:A:O2'    | 2.18                     | 0.43              |
| 1:A1:2255:U:O2'    | 1:A1:2301:C:C4'    | 2.67                     | 0.43              |
| 1:A1:3019:G:C5     | 1:A1:3020:G:C5     | 3.06                     | 0.43              |
| 1:A1:3102:A:H2'    | 1:A1:3103:A:C8     | 2.53                     | 0.43              |
| 1:A1:3268:C:N4     | 1:A1:3269:G:C5     | 2.86                     | 0.43              |
| 5:AE:153:GLN:O     | 5:AE:154:GLN:C     | 2.62                     | 0.43              |
| 7:AG:11:GLN:HE22   | 1:H1:2249:U:H4'    | 1.84                     | 0.43              |
| 8:AH:93:HIS:O      | 8:AH:94:ASN:C      | 2.60                     | 0.43              |
| 20:B2:76:U:H5'     | 20:B2:77:U:OP2     | 2.18                     | 0.43              |
| 20:B2:111:A:O2'    | 20:B2:112:G:H5''   | 2.19                     | 0.43              |
| 23:BB:52:GLY:HA3   | 23:BB:309:PHE:HD1  | 1.81                     | 0.43              |
| 23:BB:377:PHE:CZ   | 41:BT:13:TYR:HE1   | 2.37                     | 0.43              |
| 29:BH:16:PRO:O     | 29:BH:18:PRO:HD3   | 2.19                     | 0.43              |
| 30:BI:96:ALA:O     | 30:BI:97:ALA:C     | 2.62                     | 0.43              |
| 31:BJ:58:ILE:HG13  | 31:BJ:85:GLN:OE1   | 2.18                     | 0.43              |
| 31:BJ:105:VAL:HG11 | 31:BJ:113:MET:HE3  | 2.00                     | 0.43              |
| 32:BK:99:VAL:CG2   | 32:BK:122:PRO:HB2  | 2.48                     | 0.43              |
| 34:BM:99:TYR:CG    | 34:BM:204:ILE:HG23 | 2.52                     | 0.43              |
| 35:BN:77:LYS:HE2   | 35:BN:98:LYS:HE2   | 1.99                     | 0.43              |
| 35:BN:87:VAL:HG23  | 35:BN:103:ALA:HB2  | 2.01                     | 0.43              |
| 40:BS:3:THR:O      | 40:BS:3:THR:HG22   | 2.17                     | 0.43              |
| 43:BV:57:LYS:HE3   | 43:BV:61:ASP:OD2   | 2.19                     | 0.43              |
| 20:C2:134:C:H3'    | 20:C2:134:C:H6     | 1.83                     | 0.43              |
| 21:C3:11:A:C2'     | 21:C3:12:U:H5''    | 2.48                     | 0.43              |
| 21:C3:45:U:H4'     | 34:CM:154:THR:OG1  | 2.18                     | 0.43              |
| 22:CA:109:PRO:HG2  | 22:CA:112:THR:OG1  | 2.18                     | 0.43              |
| 23:CB:23:ARG:HE    | 23:CB:24:HIS:CE1   | 2.37                     | 0.43              |
| 23:CB:66:ARG:HH12  | 31:CJ:13:THR:C     | 2.26                     | 0.43              |
| 23:CB:82:PRO:HG3   | 23:CB:167:LEU:HD21 | 2.00                     | 0.43              |
| 23:CB:218:VAL:HB   | 23:CB:332:ARG:NE   | 2.34                     | 0.43              |
| 24:CC:50:LYS:CD    | 24:CC:116:VAL:HG11 | 2.48                     | 0.43              |
| 24:CC:111:LYS:HB3  | 24:CC:113:TYR:CE1  | 2.54                     | 0.43              |
| 24:CC:163:VAL:HG21 | 24:CC:175:PHE:CE2  | 2.53                     | 0.43              |
| 24:CC:380:PHE:CE1  | 19:DX:22:VAL:HG22  | 2.51                     | 0.43              |
| 26:CE:49:THR:C     | 26:CE:51:ASP:N     | 2.75                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:CE:90:MET:HE2   | 26:CE:177:ILE:HG22 | 2.01                     | 0.43              |
| 26:CE:148:ASP:OD1  | 26:CE:148:ASP:C    | 2.62                     | 0.43              |
| 30:CI:17:ARG:NH2   | 30:CI:127:ARG:HD2  | 2.33                     | 0.43              |
| 30:CI:107:ILE:HA   | 30:CI:108:PRO:HD3  | 1.72                     | 0.43              |
| 34:CM:153:THR:O    | 34:CM:154:THR:C    | 2.61                     | 0.43              |
| 34:CM:216:LEU:HD12 | 34:CM:228:PHE:CD1  | 2.54                     | 0.43              |
| 35:CN:6:HIS:C      | 35:CN:8:GLN:H      | 2.26                     | 0.43              |
| 35:CN:30:LEU:HD11  | 35:CN:124:PHE:CB   | 2.48                     | 0.43              |
| 35:CN:102:CYS:HB2  | 35:CN:122:LEU:HB3  | 2.00                     | 0.43              |
| 35:CN:146:ARG:CB   | 35:CN:149:TYR:CD2  | 3.02                     | 0.43              |
| 45:CX:89:MET:HE2   | 45:CX:89:MET:HB3   | 1.95                     | 0.43              |
| 45:CX:105:GLN:HG3  | 45:CX:106:VAL:N    | 2.34                     | 0.43              |
| 46:CY:55:TRP:CD1   | 46:CY:66:GLY:HA3   | 2.54                     | 0.43              |
| 1:D1:297:U:O4      | 16:DQ:33:LYS:HE2   | 2.19                     | 0.43              |
| 1:D1:762:G:C2      | 1:D1:763:G:C8      | 3.07                     | 0.43              |
| 1:D1:1191:G:H5'    | 8:DH:33:ASN:HD21   | 1.84                     | 0.43              |
| 1:D1:2408:A:H8     | 1:D1:2408:A:O5'    | 2.01                     | 0.43              |
| 1:D1:2607:G:OP1    | 1:D1:2633:C:H2'    | 2.19                     | 0.43              |
| 1:D1:2649:G:H2'    | 1:D1:2650:U:H6     | 1.82                     | 0.43              |
| 1:D1:2735:A:H2'    | 1:D1:2736:A:O4'    | 2.18                     | 0.43              |
| 1:D1:2765:C:H4'    | 1:D1:2766:A:O5'    | 2.18                     | 0.43              |
| 1:D1:3190:A:C6     | 1:D1:3191:G:C2     | 3.07                     | 0.43              |
| 3:DB:6:THR:HG22    | 3:DB:8:ASN:H       | 1.83                     | 0.43              |
| 3:DB:12:ARG:O      | 3:DB:15:ARG:HB3    | 2.18                     | 0.43              |
| 5:DE:173:TYR:CD2   | 6:DF:106:PHE:HA    | 2.53                     | 0.43              |
| 9:DJ:74:ASN:OD1    | 9:DJ:74:ASN:C      | 2.62                     | 0.43              |
| 9:DJ:211:THR:OG1   | 9:DJ:214:GLU:HG3   | 2.18                     | 0.43              |
| 11:DL:41:TYR:CB    | 11:DL:58:GLN:HE21  | 2.30                     | 0.43              |
| 13:DN:83:THR:HG21  | 13:DN:85:TYR:HD2   | 1.84                     | 0.43              |
| 14:DO:26:THR:HG22  | 14:DO:26:THR:O     | 2.18                     | 0.43              |
| 16:DQ:15:THR:HG21  | 18:DU:103:CYS:SG   | 2.58                     | 0.43              |
| 22:EA:84:TYR:CE1   | 22:EA:87:GLN:HB2   | 2.54                     | 0.43              |
| 23:EB:178:GLU:HB2  | 1:F1:2992:G:OP1    | 2.17                     | 0.43              |
| 23:EB:257:ARG:HD3  | 30:EI:63:HIS:CE1   | 2.54                     | 0.43              |
| 23:EB:294:THR:HB   | 23:EB:297:ASP:H    | 1.83                     | 0.43              |
| 27:EF:46:ARG:CD    | 1:F1:2518:A:H5'    | 2.49                     | 0.43              |
| 30:EI:22:VAL:O     | 30:EI:26:LEU:HG    | 2.18                     | 0.43              |
| 31:EJ:16:LYS:HE2   | 1:F1:3030:A:P      | 2.59                     | 0.43              |
| 32:EK:136:ARG:NH2  | 1:F1:741:G:C4      | 2.87                     | 0.43              |
| 33:EL:142:ILE:HG23 | 33:EL:148:ILE:CG2  | 2.48                     | 0.43              |
| 35:EN:73:ASN:H     | 35:EN:76:ASN:CG    | 2.25                     | 0.43              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 36:EO:94:LEU:HD23  | 36:EO:94:LEU:HA   | 1.77                     | 0.43              |
| 36:EO:96:MET:HG2   | 1:F1:1746:U:O4'   | 2.19                     | 0.43              |
| 36:EO:120:TYR:CE2  | 1:F1:1744:A:OP2   | 2.66                     | 0.43              |
| 39:ER:113:VAL:HG13 | 39:ER:138:SER:OG  | 2.19                     | 0.43              |
| 40:ES:3:THR:O      | 40:ES:3:THR:CG2   | 2.67                     | 0.43              |
| 40:ES:55:VAL:CG1   | 40:ES:103:LEU:HB3 | 2.47                     | 0.43              |
| 41:ET:35:THR:HG21  | 41:ET:37:LYS:HG2  | 1.99                     | 0.43              |
| 46:EY:8:VAL:HG13   | 46:EY:11:THR:CB   | 2.47                     | 0.43              |
| 1:F1:164:A:C2'     | 1:F1:165:C:H5'    | 2.47                     | 0.43              |
| 1:F1:439:A:N6      | 1:F1:539:A:H1'    | 2.33                     | 0.43              |
| 1:F1:517:A:C4'     | 1:F1:518:G:OP1    | 2.61                     | 0.43              |
| 1:F1:528:C:H2'     | 1:F1:529:G:C8     | 2.53                     | 0.43              |
| 1:F1:833:A:O2'     | 1:F1:2408:A:H5'   | 2.18                     | 0.43              |
| 1:F1:1105:U:C2     | 1:F1:1111:G:C2    | 3.06                     | 0.43              |
| 1:F1:1191:G:H5''   | 8:FH:33:ASN:ND2   | 2.34                     | 0.43              |
| 1:F1:1337:G:H8     | 50:F1:4158:HOH:O  | 2.01                     | 0.43              |
| 1:F1:1355:C:H2'    | 1:F1:1356:G:O5'   | 2.18                     | 0.43              |
| 1:F1:1937:G:O2'    | 1:F1:2116:A:H1'   | 2.18                     | 0.43              |
| 1:F1:2239:A:O2'    | 1:F1:2240:C:H5'   | 2.19                     | 0.43              |
| 1:F1:2267:G:N3     | 1:F1:2267:G:H2'   | 2.32                     | 0.43              |
| 1:F1:2634:G:C2'    | 1:F1:2635:C:C5'   | 2.96                     | 0.43              |
| 1:F1:2927:G:O2'    | 1:F1:2928:A:H5'   | 2.19                     | 0.43              |
| 1:F1:3067:A:O2'    | 1:F1:3068:U:P     | 2.77                     | 0.43              |
| 5:FE:187:HIS:HA    | 8:FH:50:PHE:CE2   | 2.54                     | 0.43              |
| 11:FL:21:ARG:HG2   | 11:FL:22:LYS:N    | 2.29                     | 0.43              |
| 18:FU:45:PHE:CD1   | 18:FU:45:PHE:C    | 2.96                     | 0.43              |
| 18:FU:74:THR:HB    | 18:FU:101:ASN:ND2 | 2.33                     | 0.43              |
| 19:FX:8:GLU:CD     | 19:FX:19:ARG:HH11 | 2.24                     | 0.43              |
| 20:G2:13:A:H2'     | 20:G2:14:C:H6     | 1.79                     | 0.43              |
| 20:G2:111:A:H8     | 20:G2:111:A:O5'   | 2.00                     | 0.43              |
| 24:GC:28:VAL:HG13  | 24:GC:270:PHE:CE2 | 2.54                     | 0.43              |
| 24:GC:81:ILE:HG23  | 24:GC:82:PRO:N    | 2.33                     | 0.43              |
| 25:GD:99:THR:HG23  | 1:H1:2673:C:O2'   | 2.18                     | 0.43              |
| 26:GE:7:GLU:CG     | 26:GE:56:GLN:HG2  | 2.43                     | 0.43              |
| 26:GE:127:LEU:HD23 | 26:GE:127:LEU:HA  | 1.79                     | 0.43              |
| 29:GH:22:TYR:CZ    | 1:H1:1074:A:H2'   | 2.53                     | 0.43              |
| 32:GK:91:LYS:HG2   | 32:GK:92:TYR:CE1  | 2.54                     | 0.43              |
| 34:GM:95:TYR:OH    | 34:GM:200:HIS:HE1 | 2.01                     | 0.43              |
| 34:GM:106:ALA:CB   | 34:GM:169:GLY:HA3 | 2.48                     | 0.43              |
| 35:GN:73:ASN:OD1   | 35:GN:74:GLU:OE1  | 2.36                     | 0.43              |
| 36:GO:18:GLY:HA3   | 1:H1:1898:G:H5''  | 2.00                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 39:GR:52:SER:CB   | 39:GR:58:HIS:HB2  | 2.48                     | 0.43              |
| 40:GS:8:SER:OG    | 1:H1:334:G:H5''   | 2.18                     | 0.43              |
| 42:GU:58:TYR:C    | 42:GU:62:ILE:HD12 | 2.43                     | 0.43              |
| 43:GV:215:ARG:NH1 | 1:H1:1183:C:O3'   | 2.49                     | 0.43              |
| 46:GY:12:ARG:HH12 | 1:H1:1952:G:P     | 2.41                     | 0.43              |
| 1:H1:26:C:H2'     | 1:H1:26:C:O2      | 2.17                     | 0.43              |
| 1:H1:70:C:O2'     | 1:H1:71:U:H5''    | 2.19                     | 0.43              |
| 1:H1:303:A:H2'    | 1:H1:303:A:N3     | 2.33                     | 0.43              |
| 1:H1:603:A:H2'    | 1:H1:604:A:H8     | 1.84                     | 0.43              |
| 1:H1:729:A:C1'    | 1:H1:810:G:N2     | 2.81                     | 0.43              |
| 1:H1:1432:G:N2    | 1:H1:1433:A:C2    | 2.86                     | 0.43              |
| 1:H1:2793:G:H2'   | 1:H1:2794:U:H6    | 1.82                     | 0.43              |
| 1:H1:2999:U:C5    | 50:H1:4347:HOH:O  | 2.72                     | 0.43              |
| 1:H1:3083:A:H2'   | 1:H1:3084:U:H6    | 1.84                     | 0.43              |
| 1:H1:3102:A:H2'   | 1:H1:3103:A:C8    | 2.53                     | 0.43              |
| 1:H1:3198:A:N6    | 1:H1:3213:G:H1'   | 2.34                     | 0.43              |
| 3:HB:9:MET:O      | 3:HB:10:LYS:C     | 2.60                     | 0.43              |
| 5:HE:11:GLY:HA2   | 5:HE:14:LYS:HE3   | 2.01                     | 0.43              |
| 5:HE:157:ASP:O    | 5:HE:160:LEU:HB2  | 2.18                     | 0.43              |
| 5:HE:173:TYR:OH   | 6:HF:105:ASP:HB3  | 2.19                     | 0.43              |
| 7:HG:62:LEU:HB3   | 13:HN:4:PHE:CD2   | 2.51                     | 0.43              |
| 9:HJ:97:ILE:HD12  | 9:HJ:104:LEU:HD13 | 1.99                     | 0.43              |
| 14:HO:5:VAL:O     | 14:HO:9:VAL:HG23  | 2.19                     | 0.43              |
| 14:HO:6:TRP:CE3   | 14:HO:6:TRP:HA    | 2.54                     | 0.43              |
| 19:HX:41:MET:CE   | 19:HX:59:MET:HE2  | 2.49                     | 0.43              |
| 1:A1:131:G:C6     | 1:A1:133:C:H1'    | 2.53                     | 0.43              |
| 1:A1:147:U:C4'    | 1:A1:148:G:OP2    | 2.64                     | 0.43              |
| 1:A1:213:A:H2'    | 1:A1:214:G:O4'    | 2.19                     | 0.43              |
| 1:A1:291:C:C3'    | 1:A1:292:C:H5''   | 2.49                     | 0.43              |
| 1:A1:402:U:C2'    | 1:A1:403:G:H5'    | 2.48                     | 0.43              |
| 1:A1:567:C:N4     | 1:A1:603:A:C2     | 2.86                     | 0.43              |
| 1:A1:827:C:H2'    | 1:A1:828:C:H6     | 1.83                     | 0.43              |
| 1:A1:1009:A:OP1   | 17:AT:23:LYS:NZ   | 2.46                     | 0.43              |
| 1:A1:1053:A:C1'   | 1:A1:1054:G:P     | 3.07                     | 0.43              |
| 1:A1:1112:A:N6    | 1:A1:1113:A:N6    | 2.67                     | 0.43              |
| 1:A1:1381:G:H2'   | 1:A1:1381:G:N3    | 2.33                     | 0.43              |
| 1:A1:1402:G:O2'   | 1:A1:1433:A:N1    | 2.50                     | 0.43              |
| 1:A1:1549:U:H3    | 39:BR:83:LYS:HZ3  | 1.67                     | 0.43              |
| 1:A1:1738:A:C8    | 1:A1:1752:G:C2    | 3.06                     | 0.43              |
| 1:A1:2258:C:O2'   | 1:A1:2259:U:H5'   | 2.19                     | 0.43              |
| 1:A1:2549:U:H5'   | 27:BF:35:ILE:HD12 | 2.00                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2844:G:H2'    | 1:A1:2845:C:H6     | 1.82                     | 0.43              |
| 1:A1:2907:A:N1     | 1:A1:2915:C:O2     | 2.52                     | 0.43              |
| 1:A1:2955:A:OP1    | 22:BA:214:GLY:CA   | 2.67                     | 0.43              |
| 1:A1:3109:C:H5''   | 10:AK:111:ARG:HH22 | 1.83                     | 0.43              |
| 1:A1:3175:A:H4'    | 1:A1:3176:A:OP1    | 2.17                     | 0.43              |
| 1:A1:3215:C:H2'    | 1:A1:3216:C:C6     | 2.54                     | 0.43              |
| 1:A1:3234:U:O4     | 1:A1:3236:C:C5     | 2.72                     | 0.43              |
| 3:AB:6:THR:HG22    | 3:AB:7:LEU:N       | 2.33                     | 0.43              |
| 5:AE:98:THR:HG22   | 5:AE:100:THR:H     | 1.82                     | 0.43              |
| 6:AF:32:ASN:OD1    | 6:AF:32:ASN:C      | 2.61                     | 0.43              |
| 8:AH:40:GLN:HG2    | 8:AH:41:ASN:ND2    | 2.33                     | 0.43              |
| 9:AJ:126:GLU:OE2   | 9:HJ:123:ARG:NH1   | 2.52                     | 0.43              |
| 9:AJ:128:ILE:O     | 9:AJ:132:THR:HB    | 2.18                     | 0.43              |
| 13:AN:130:LYS:H    | 13:AN:130:LYS:HG3  | 1.65                     | 0.43              |
| 14:AO:7:GLU:CB     | 35:BN:25:VAL:CG1   | 2.96                     | 0.43              |
| 14:AO:58:ILE:O     | 14:AO:83:VAL:HG22  | 2.19                     | 0.43              |
| 18:AU:124:PHE:HA   | 18:AU:125:PRO:HD2  | 1.77                     | 0.43              |
| 20:B2:77:U:C4      | 40:BS:73:TYR:CE2   | 3.07                     | 0.43              |
| 21:B3:63:A:C2      | 29:BH:202:GLU:HG2  | 2.54                     | 0.43              |
| 22:BA:117:VAL:CG1  | 22:BA:118:GLU:N    | 2.81                     | 0.43              |
| 24:BC:40:LYS:O     | 24:BC:43:THR:HB    | 2.18                     | 0.43              |
| 24:BC:202:ARG:HD3  | 24:BC:202:ARG:HA   | 1.85                     | 0.43              |
| 24:BC:289:LEU:HA   | 24:BC:289:LEU:HD23 | 1.49                     | 0.43              |
| 26:BE:88:PHE:HD2   | 26:BE:152:VAL:CG1  | 2.31                     | 0.43              |
| 30:BI:73:ARG:HD3   | 30:BI:144:VAL:O    | 2.19                     | 0.43              |
| 33:BL:7:LEU:O      | 33:BL:8:GLU:C      | 2.61                     | 0.43              |
| 34:BM:274:HIS:O    | 34:BM:278:TYR:CD2  | 2.59                     | 0.43              |
| 39:BR:71:VAL:HG21  | 39:BR:107:PHE:HD1  | 1.83                     | 0.43              |
| 40:BS:18:HIS:CE1   | 40:BS:77:TRP:CH2   | 3.07                     | 0.43              |
| 21:C3:5:U:H2'      | 21:C3:6:C:H6       | 1.84                     | 0.43              |
| 22:CA:16:VAL:CG2   | 1:D1:936:C:C5'     | 2.94                     | 0.43              |
| 22:CA:220:ILE:C    | 22:CA:222:HIS:H    | 2.27                     | 0.43              |
| 23:CB:89:VAL:O     | 23:CB:104:THR:HA   | 2.18                     | 0.43              |
| 23:CB:108:LYS:HE2  | 23:CB:137:PHE:CD1  | 2.53                     | 0.43              |
| 24:CC:106:MET:HE3  | 1:D1:1455:G:N3     | 2.33                     | 0.43              |
| 24:CC:207:LYS:NZ   | 1:D1:1411:U:O4     | 2.40                     | 0.43              |
| 24:CC:330:LEU:HD23 | 24:CC:330:LEU:HA   | 1.79                     | 0.43              |
| 27:CF:131:HIS:NE2  | 1:D1:117:G:H2'     | 2.34                     | 0.43              |
| 29:CH:74:LYS:O     | 29:CH:75:ASN:C     | 2.62                     | 0.43              |
| 30:CI:24:LYS:O     | 30:CI:28:SER:OG    | 2.37                     | 0.43              |
| 30:CI:127:ARG:NH1  | 1:D1:1344:A:H5''   | 2.33                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 33:CL:37:HIS:NE2   | 33:CL:63:ARG:HB2   | 2.34                     | 0.43              |
| 38:CQ:117:GLN:O    | 38:CQ:151:PHE:O    | 2.36                     | 0.43              |
| 39:CR:147:ILE:HG22 | 42:CU:34:ILE:HG21  | 1.99                     | 0.43              |
| 42:CU:20:GLY:O     | 42:CU:24:LYS:HG3   | 2.19                     | 0.43              |
| 43:CV:84:ILE:HD12  | 43:CV:234:LEU:HD23 | 2.01                     | 0.43              |
| 45:CX:22:PHE:CE2   | 45:CX:23:GLU:HG3   | 2.53                     | 0.43              |
| 45:CX:27:PHE:CD2   | 45:CX:29:LYS:HE2   | 2.54                     | 0.43              |
| 1:D1:9:G:O2'       | 1:D1:1587:A:N6     | 2.52                     | 0.43              |
| 1:D1:452:U:O2'     | 1:D1:453:A:O5'     | 2.35                     | 0.43              |
| 1:D1:710:G:C2'     | 1:D1:711:U:O5'     | 2.67                     | 0.43              |
| 1:D1:1066:A:C2     | 1:D1:1067:U:N1     | 2.87                     | 0.43              |
| 1:D1:1221:G:H8     | 1:D1:1221:G:O5'    | 2.01                     | 0.43              |
| 1:D1:1445:G:C3'    | 1:D1:1446:C:H5''   | 2.48                     | 0.43              |
| 1:D1:1599:G:N1     | 1:D1:1600:U:C2     | 2.87                     | 0.43              |
| 1:D1:1737:A:H61    | 7:DG:28:LYS:HD2    | 1.80                     | 0.43              |
| 1:D1:1770:A:H2'    | 1:D1:1771:U:H6     | 1.84                     | 0.43              |
| 1:D1:1783:U:C2     | 1:D1:1794:G:C2     | 3.07                     | 0.43              |
| 1:D1:1845:U:C5'    | 1:D1:1846:C:OP2    | 2.67                     | 0.43              |
| 1:D1:2194:G:C2'    | 1:D1:2195:U:H5'    | 2.48                     | 0.43              |
| 1:D1:2283:G:C6     | 1:D1:2284:U:C4     | 3.07                     | 0.43              |
| 1:D1:2290:A:C6     | 1:D1:2291:A:C6     | 3.06                     | 0.43              |
| 1:D1:2702:U:H3'    | 4:DC:9:LYS:O       | 2.18                     | 0.43              |
| 1:D1:2741:U:C4'    | 1:D1:2742:G:OP2    | 2.64                     | 0.43              |
| 11:DL:14:ASN:OD1   | 11:DL:14:ASN:C     | 2.61                     | 0.43              |
| 14:DO:102:GLY:O    | 14:DO:105:GLN:N    | 2.52                     | 0.43              |
| 15:DP:15:TRP:CE3   | 15:DP:69:PRO:HG3   | 2.53                     | 0.43              |
| 16:DQ:46:ARG:NH2   | 16:DQ:51:PHE:CD2   | 2.84                     | 0.43              |
| 19:DX:16:MET:CG    | 19:DX:17:LYS:N     | 2.80                     | 0.43              |
| 19:DX:45:ALA:HB1   | 19:DX:50:HIS:HB3   | 2.01                     | 0.43              |
| 20:E2:22:A:O2'     | 20:E2:23:U:H5'     | 2.19                     | 0.43              |
| 20:E2:90:G:C6      | 20:E2:92:C:C4      | 3.07                     | 0.43              |
| 21:E3:33:U:N3      | 34:EM:212:TYR:CE1  | 2.87                     | 0.43              |
| 21:E3:89:G:H2'     | 21:E3:90:A:H8      | 1.78                     | 0.43              |
| 24:EC:43:THR:CG2   | 24:EC:47:LYS:HE3   | 2.49                     | 0.43              |
| 26:EE:46:GLN:CD    | 26:EE:54:LYS:HB3   | 2.44                     | 0.43              |
| 26:EE:80:ARG:O     | 26:EE:84:GLU:O     | 2.37                     | 0.43              |
| 26:EE:148:ASP:OD1  | 26:EE:148:ASP:C    | 2.61                     | 0.43              |
| 27:EF:183:VAL:O    | 27:EF:184:ASN:HB2  | 2.18                     | 0.43              |
| 27:EF:220:GLU:O    | 27:EF:224:THR:N    | 2.51                     | 0.43              |
| 29:EH:19:LYS:HG3   | 29:EH:26:VAL:CG1   | 2.48                     | 0.43              |
| 32:EK:9:ARG:HD2    | 1:F1:1456:U:C4     | 2.54                     | 0.43              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 34:EM:17:GLN:OE1   | 37:EP:20:LYS:CA   | 2.58                     | 0.43              |
| 34:EM:44:TYR:HD2   | 37:EP:34:TYR:O    | 2.01                     | 0.43              |
| 35:EN:146:ARG:HB3  | 35:EN:149:TYR:HD2 | 1.81                     | 0.43              |
| 36:EO:28:GLU:O     | 36:EO:31:GLU:HB3  | 2.19                     | 0.43              |
| 37:EP:110:GLN:HG2  | 1:F1:1093:C:O2'   | 2.19                     | 0.43              |
| 38:EQ:66:THR:HG23  | 38:EQ:82:GLN:NE2  | 2.34                     | 0.43              |
| 40:ES:105:LEU:HD23 | 40:ES:105:LEU:HA  | 1.78                     | 0.43              |
| 43:EV:48:TYR:HE1   | 43:EV:183:HIS:CD2 | 2.37                     | 0.43              |
| 43:EV:98:ARG:CG    | 43:EV:98:ARG:NH1  | 2.66                     | 0.43              |
| 43:EV:139:ASN:ND2  | 1:F1:608:C:H5''   | 2.34                     | 0.43              |
| 1:F1:131:G:C6      | 1:F1:133:C:H1'    | 2.53                     | 0.43              |
| 1:F1:355:C:O5'     | 1:F1:355:C:H6     | 2.01                     | 0.43              |
| 1:F1:393:U:O2      | 1:F1:395:A:C8     | 2.71                     | 0.43              |
| 1:F1:752:C:C5'     | 1:F1:1002:A:C2    | 3.01                     | 0.43              |
| 1:F1:1017:U:H6     | 1:F1:1017:U:H5'   | 1.84                     | 0.43              |
| 1:F1:1147:A:H2'    | 1:F1:1148:U:C6    | 2.52                     | 0.43              |
| 1:F1:1769:U:H2'    | 1:F1:1770:A:C8    | 2.54                     | 0.43              |
| 1:F1:1839:A:O2'    | 1:F1:1840:U:P     | 2.77                     | 0.43              |
| 1:F1:2221:U:H2'    | 1:F1:2222:C:C6    | 2.54                     | 0.43              |
| 1:F1:2377:G:C2'    | 1:F1:2378:A:H5'   | 2.49                     | 0.43              |
| 1:F1:3085:C:H2'    | 1:F1:3086:U:H6    | 1.83                     | 0.43              |
| 1:F1:3144:G:C2     | 1:F1:3249:U:O2    | 2.71                     | 0.43              |
| 1:F1:3198:A:C6     | 1:F1:3199:G:C5    | 3.07                     | 0.43              |
| 1:F1:3349:U:H2'    | 1:F1:3350:U:C6    | 2.54                     | 0.43              |
| 2:FA:8:PHE:N       | 2:FA:8:PHE:CD1    | 2.85                     | 0.43              |
| 9:FJ:93:ARG:HH22   | 9:HJ:93:ARG:CG    | 2.31                     | 0.43              |
| 14:FO:91:ALA:O     | 14:FO:95:ARG:HG3  | 2.18                     | 0.43              |
| 15:FP:61:ALA:O     | 15:FP:65:LYS:HG3  | 2.18                     | 0.43              |
| 19:FX:16:MET:CG    | 19:FX:17:LYS:N    | 2.79                     | 0.43              |
| 19:FX:41:MET:HE2   | 19:FX:41:MET:HB2  | 1.82                     | 0.43              |
| 21:G3:43:A:C5      | 21:G3:44:C:C4     | 3.07                     | 0.43              |
| 22:GA:12:ARG:HH21  | 22:GA:14:ASN:ND2  | 2.11                     | 0.43              |
| 22:GA:210:HIS:HE1  | 1:H1:2179:U:OP1   | 2.01                     | 0.43              |
| 23:GB:102:LEU:HD12 | 23:GB:102:LEU:HA  | 1.72                     | 0.43              |
| 24:GC:126:ARG:HD3  | 24:GC:283:TYR:HD2 | 1.84                     | 0.43              |
| 25:GD:84:LEU:HB3   | 25:GD:89:MET:HE3  | 1.99                     | 0.43              |
| 27:GF:44:PHE:HD1   | 1:H1:2576:C:O2'   | 2.02                     | 0.43              |
| 29:GH:116:ARG:C    | 1:H1:2633:C:HO2'  | 2.25                     | 0.43              |
| 30:GI:22:VAL:O     | 30:GI:26:LEU:HG   | 2.19                     | 0.43              |
| 32:GK:120:ASN:ND2  | 1:H1:743:A:C2     | 2.86                     | 0.43              |
| 34:GM:177:GLU:O    | 34:GM:177:GLU:HG3 | 2.17                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 35:GN:93:LEU:HD23  | 35:GN:93:LEU:HA    | 1.88                     | 0.43              |
| 36:GO:82:LYS:HE3   | 1:H1:2111:G:O2'    | 2.19                     | 0.43              |
| 39:GR:74:PRO:HB2   | 39:GR:149:LEU:HD11 | 2.00                     | 0.43              |
| 39:GR:104:LYS:HG3  | 39:GR:115:VAL:HB   | 2.00                     | 0.43              |
| 41:GT:58:ARG:NE    | 1:H1:3325:G:N7     | 2.67                     | 0.43              |
| 1:H1:73:G:OP1      | 18:HU:56:VAL:CG1   | 2.65                     | 0.43              |
| 1:H1:219:A:N1      | 1:H1:1416:U:C2'    | 2.81                     | 0.43              |
| 1:H1:281:G:H5''    | 1:H1:282:G:P       | 2.56                     | 0.43              |
| 1:H1:470:C:O2'     | 1:H1:471:A:H5'     | 2.18                     | 0.43              |
| 1:H1:510:A:C5'     | 14:HO:68:HIS:O     | 2.67                     | 0.43              |
| 1:H1:1196:A:N1     | 1:H1:1357:A:C4     | 2.86                     | 0.43              |
| 1:H1:1465:U:C2     | 1:H1:1466:G:C8     | 3.06                     | 0.43              |
| 1:H1:1636:C:C2     | 1:H1:1637:A:C8     | 3.06                     | 0.43              |
| 1:H1:1828:C:H2'    | 1:H1:1829:U:O4'    | 2.19                     | 0.43              |
| 1:H1:1936:U:O2     | 1:H1:2117:A:H3'    | 2.19                     | 0.43              |
| 1:H1:2109:G:H2'    | 1:H1:2110:C:H5'    | 1.99                     | 0.43              |
| 1:H1:2504:U:H2'    | 1:H1:2505:U:C6     | 2.54                     | 0.43              |
| 1:H1:2552:A:H2'    | 1:H1:2553:G:H5'    | 1.99                     | 0.43              |
| 1:H1:2634:G:C2'    | 1:H1:2635:C:C5'    | 2.95                     | 0.43              |
| 1:H1:2775:G:H2'    | 1:H1:2776:C:C6     | 2.53                     | 0.43              |
| 1:H1:3349:U:H2'    | 1:H1:3350:U:C6     | 2.54                     | 0.43              |
| 8:HH:26:SER:O      | 8:HH:27:LYS:C      | 2.60                     | 0.43              |
| 13:HN:114:LEU:HD22 | 13:HN:118:PHE:CE1  | 2.51                     | 0.43              |
| 1:A1:112:A:H2'     | 1:A1:113:A:O4'     | 2.18                     | 0.43              |
| 1:A1:143:G:C2'     | 1:A1:144:A:H5'     | 2.49                     | 0.43              |
| 1:A1:509:A:C2      | 1:A1:510:A:C8      | 3.07                     | 0.43              |
| 1:A1:600:G:H5''    | 1:A1:601:A:OP2     | 2.19                     | 0.43              |
| 1:A1:624:G:C6      | 1:A1:625:C:N4      | 2.87                     | 0.43              |
| 1:A1:627:U:O2      | 1:A1:630:G:O6      | 2.36                     | 0.43              |
| 1:A1:651:U:C4      | 1:A1:652:U:C5      | 3.06                     | 0.43              |
| 1:A1:755:G:H4'     | 35:BN:134:GLY:O    | 2.18                     | 0.43              |
| 1:A1:810:G:N7      | 35:BN:92:ARG:NE    | 2.67                     | 0.43              |
| 1:A1:1315:U:H2'    | 1:A1:1316:G:H5''   | 2.00                     | 0.43              |
| 1:A1:1461:A:H5''   | 1:A1:1462:U:C5'    | 2.42                     | 0.43              |
| 1:A1:1820:U:O2'    | 1:A1:1822:G:N2     | 2.52                     | 0.43              |
| 1:A1:1902:C:HO2'   | 1:A1:1903:A:P      | 2.33                     | 0.43              |
| 1:A1:2276:A:N6     | 1:A1:2947:C:O2'    | 2.52                     | 0.43              |
| 1:A1:2345:C:O2'    | 1:A1:2346:U:H5'    | 2.19                     | 0.43              |
| 1:A1:2607:G:OP1    | 29:BH:116:ARG:HD3  | 2.18                     | 0.43              |
| 1:A1:3175:A:C6     | 1:A1:3177:G:C6     | 3.06                     | 0.43              |
| 1:A1:3283:C:H2'    | 1:A1:3284:G:C8     | 2.54                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:AE:42:ARG:NH2    | 5:AE:95:THR:O      | 2.44                     | 0.43              |
| 5:AE:173:TYR:CD2   | 6:AF:106:PHE:HD1   | 2.36                     | 0.43              |
| 9:AJ:158:GLY:CA    | 9:AJ:179:ILE:HD12  | 2.49                     | 0.43              |
| 14:AO:29:PHE:HA    | 14:AO:48:VAL:O     | 2.19                     | 0.43              |
| 14:AO:87:VAL:HG21  | 14:AO:115:HIS:CD2  | 2.53                     | 0.43              |
| 19:AX:7:GLN:HE22   | 19:AX:80:GLU:CA    | 2.31                     | 0.43              |
| 20:B2:88:G:HO2'    | 20:B2:89:A:P       | 2.42                     | 0.43              |
| 21:B3:15:U:H1'     | 34:BM:13:PHE:HE2   | 1.83                     | 0.43              |
| 21:B3:108:G:H2'    | 21:B3:109:U:O4'    | 2.19                     | 0.43              |
| 22:BA:115:CYS:O    | 22:BA:116:ASN:C    | 2.61                     | 0.43              |
| 23:BB:42:HIS:ND1   | 23:BB:182:ASN:O    | 2.52                     | 0.43              |
| 23:BB:56:ILE:HD11  | 23:BB:321:MET:SD   | 2.58                     | 0.43              |
| 24:BC:26:PRO:HG2   | 24:BC:29:PHE:CE1   | 2.53                     | 0.43              |
| 24:BC:195:ARG:NH1  | 24:BC:204:ARG:HB2  | 2.34                     | 0.43              |
| 26:BE:82:VAL:O     | 26:BE:82:VAL:HG12  | 2.18                     | 0.43              |
| 26:BE:113:LYS:CE   | 26:BE:114:HIS:HB2  | 2.49                     | 0.43              |
| 28:BG:57:UNK:HG3   | 28:BG:58:UNK:N     | 2.33                     | 0.43              |
| 29:BH:80:ILE:HD11  | 29:BH:144:HIS:HB3  | 1.97                     | 0.43              |
| 32:BK:61:ARG:HA    | 35:BN:172:ARG:NH1  | 2.20                     | 0.43              |
| 32:BK:109:PHE:C    | 32:BK:110:PHE:CD1  | 2.95                     | 0.43              |
| 33:BL:23:LEU:O     | 33:BL:24:ARG:C     | 2.62                     | 0.43              |
| 35:BN:172:ARG:HG2  | 35:BN:173:LYS:N    | 2.33                     | 0.43              |
| 37:BP:27:ILE:CA    | 37:BP:30:TYR:HD2   | 2.22                     | 0.43              |
| 38:BQ:96:LEU:HD23  | 38:BQ:96:LEU:HA    | 1.83                     | 0.43              |
| 38:BQ:99:ASN:O     | 38:BQ:99:ASN:ND2   | 2.52                     | 0.43              |
| 41:BT:5:THR:HG21   | 41:BT:14:ARG:NE    | 2.34                     | 0.43              |
| 43:BV:41:TRP:CG    | 43:BV:177:CYS:SG   | 3.12                     | 0.43              |
| 44:BW:43:MET:HG3   | 44:BW:90:THR:CG2   | 2.49                     | 0.43              |
| 21:C3:7:G:O3'      | 34:CM:33:ARG:CZ    | 2.66                     | 0.43              |
| 22:CA:70:TYR:HE1   | 1:D1:2549:U:C6     | 2.34                     | 0.43              |
| 24:CC:333:LEU:HD22 | 43:CV:178:VAL:HG21 | 2.01                     | 0.43              |
| 24:CC:364:LYS:O    | 24:CC:365:ALA:C    | 2.62                     | 0.43              |
| 25:CD:57:PHE:HE1   | 1:D1:2666:G:O6     | 2.01                     | 0.43              |
| 25:CD:94:LYS:O     | 1:D1:2661:G:H5''   | 2.19                     | 0.43              |
| 26:CE:92:LEU:HD12  | 26:CE:177:ILE:HG12 | 2.00                     | 0.43              |
| 27:CF:19:ASN:C     | 27:CF:20:PRO:O     | 2.62                     | 0.43              |
| 27:CF:233:LYS:HB2  | 1:D1:2575:G:C6     | 2.50                     | 0.43              |
| 31:CJ:35:ALA:HB1   | 31:CJ:66:VAL:HG11  | 2.01                     | 0.43              |
| 32:CK:47:MET:HE1   | 18:DU:7:LEU:CD1    | 2.48                     | 0.43              |
| 33:CL:64:VAL:CG2   | 33:CL:106:VAL:CG2  | 2.97                     | 0.43              |
| 35:CN:45:PHE:CZ    | 35:CN:49:ILE:HD11  | 2.54                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 47:CO:168:UNK:O    | 47:CO:171:UNK:CG   | 2.48                     | 0.43              |
| 47:CO:170:UNK:CA   | 47:CO:174:UNK:HG3  | 2.47                     | 0.43              |
| 38:CQ:21:ALA:HB2   | 38:CQ:96:LEU:HD21  | 2.00                     | 0.43              |
| 43:CV:173:PHE:CD1  | 43:CV:191:HIS:ND1  | 2.87                     | 0.43              |
| 46:CY:55:TRP:CZ2   | 46:CY:70:GLU:O     | 2.72                     | 0.43              |
| 1:D1:459:G:H1'     | 1:D1:519:A:H62     | 1.83                     | 0.43              |
| 1:D1:646:A:H2'     | 1:D1:647:U:C6      | 2.54                     | 0.43              |
| 1:D1:792:G:H2'     | 1:D1:793:A:H8      | 1.84                     | 0.43              |
| 1:D1:1019:G:N3     | 1:D1:2626:A:H2'    | 2.34                     | 0.43              |
| 1:D1:1089:G:N7     | 1:D1:1124:G:H2'    | 2.33                     | 0.43              |
| 1:D1:1254:C:H2'    | 1:D1:1255:A:H5''   | 2.01                     | 0.43              |
| 1:D1:1388:U:H2'    | 1:D1:1389:G:C8     | 2.54                     | 0.43              |
| 1:D1:1614:A:C6     | 11:DL:13:TYR:CE2   | 3.05                     | 0.43              |
| 1:D1:1966:U:C2'    | 1:D1:1967:C:O5'    | 2.66                     | 0.43              |
| 1:D1:2147:C:O2'    | 1:D1:2238:A:N1     | 2.43                     | 0.43              |
| 1:D1:2212:U:H2'    | 1:D1:2213:G:H8     | 1.83                     | 0.43              |
| 1:D1:2599:G:H2'    | 1:D1:2600:U:O4'    | 2.19                     | 0.43              |
| 1:D1:3029:A:H2'    | 1:D1:3030:A:H8     | 1.83                     | 0.43              |
| 1:D1:3047:U:C6     | 1:D1:3047:U:C3'    | 3.01                     | 0.43              |
| 2:DA:6:PRO:HD2     | 2:DA:7:ALA:H       | 1.84                     | 0.43              |
| 4:DC:25:GLN:HG2    | 4:DC:26:TYR:N      | 2.34                     | 0.43              |
| 5:DE:42:ARG:HG2    | 5:DE:92:GLN:NE2    | 2.34                     | 0.43              |
| 6:DF:85:TYR:CE2    | 6:DF:91:ALA:HB2    | 2.54                     | 0.43              |
| 13:DN:29:SER:O     | 13:DN:30:GLU:C     | 2.61                     | 0.43              |
| 15:DP:11:PHE:O     | 15:DP:15:TRP:HD1   | 2.02                     | 0.43              |
| 15:DP:34:LYS:HG2   | 15:DP:35:THR:N     | 2.34                     | 0.43              |
| 18:DU:40:GLN:OE1   | 18:DU:40:GLN:HA    | 2.19                     | 0.43              |
| 24:EC:108:ALA:O    | 24:EC:109:PRO:C    | 2.59                     | 0.43              |
| 24:EC:153:GLN:OE1  | 24:EC:153:GLN:HA   | 2.18                     | 0.43              |
| 24:EC:294:ASP:OD1  | 14:FO:1:MET:N      | 2.50                     | 0.43              |
| 24:EC:320:LYS:HB2  | 43:EV:159:PRO:HB3  | 1.99                     | 0.43              |
| 25:ED:133:ARG:CB   | 25:ED:134:PRO:CD   | 2.92                     | 0.43              |
| 27:EF:48:PRO:O     | 27:EF:49:ARG:C     | 2.59                     | 0.43              |
| 29:EH:159:PHE:HB3  | 29:EH:163:GLN:CD   | 2.41                     | 0.43              |
| 29:EH:203:ARG:HD3  | 29:EH:203:ARG:HA   | 1.76                     | 0.43              |
| 30:EI:17:ARG:NH2   | 30:EI:127:ARG:HD2  | 2.33                     | 0.43              |
| 30:EI:36:ARG:HG3   | 30:EI:107:ILE:HD11 | 1.99                     | 0.43              |
| 30:EI:118:VAL:HG21 | 19:FX:185:ARG:HG2  | 2.01                     | 0.43              |
| 30:EI:186:LEU:O    | 30:EI:187:LYS:C    | 2.62                     | 0.43              |
| 32:EK:27:LYS:NZ    | 1:F1:826:A:P       | 2.92                     | 0.43              |
| 34:EM:86:PHE:CE1   | 34:EM:253:GLU:HB3  | 2.54                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 36:EO:96:MET:CE    | 36:EO:100:ARG:NH2  | 2.82                     | 0.43              |
| 39:ER:145:ASN:HD22 | 39:ER:150:ILE:HD11 | 1.84                     | 0.43              |
| 44:EW:7:LYS:HD3    | 44:EW:43:MET:HE1   | 2.00                     | 0.43              |
| 45:EX:49:ARG:HB3   | 1:F1:1173:A:OP1    | 2.18                     | 0.43              |
| 45:EX:79:ARG:NH1   | 1:F1:1448:G:C1'    | 2.81                     | 0.43              |
| 46:EY:24:LYS:O     | 46:EY:25:VAL:C     | 2.62                     | 0.43              |
| 1:F1:119:A:O2'     | 1:F1:120:A:P       | 2.76                     | 0.43              |
| 1:F1:270:C:H2'     | 1:F1:271:G:O5'     | 2.18                     | 0.43              |
| 1:F1:513:G:C4      | 1:F1:514:U:C5      | 3.07                     | 0.43              |
| 1:F1:559:G:C6      | 1:F1:609:A:C6      | 3.07                     | 0.43              |
| 1:F1:661:C:H1'     | 1:F1:662:C:C6      | 2.53                     | 0.43              |
| 1:F1:775:C:O2      | 1:F1:775:C:C2'     | 2.59                     | 0.43              |
| 1:F1:917:U:H2'     | 1:F1:918:C:O4'     | 2.19                     | 0.43              |
| 1:F1:1063:C:H2'    | 1:F1:1064:C:H6     | 1.83                     | 0.43              |
| 1:F1:1065:U:O4     | 1:F1:1066:A:N6     | 2.52                     | 0.43              |
| 1:F1:1377:A:H2'    | 1:F1:1378:U:O4'    | 2.19                     | 0.43              |
| 1:F1:1662:A:N1     | 1:F1:1761:G:O2'    | 2.39                     | 0.43              |
| 1:F1:1697:U:H2'    | 1:F1:1698:G:C8     | 2.54                     | 0.43              |
| 1:F1:1839:A:H4'    | 1:F1:1840:U:C5'    | 2.49                     | 0.43              |
| 1:F1:1926:G:C6     | 1:F1:1927:U:C2     | 3.06                     | 0.43              |
| 1:F1:2118:G:C6     | 1:F1:2327:A:C2     | 3.07                     | 0.43              |
| 1:F1:2264:U:C2'    | 1:F1:2265:A:O5'    | 2.66                     | 0.43              |
| 1:F1:2270:A:H2'    | 1:F1:2270:A:N3     | 2.33                     | 0.43              |
| 1:F1:2683:A:H5''   | 1:F1:2684:A:OP2    | 2.18                     | 0.43              |
| 1:F1:2735:A:H2'    | 1:F1:2736:A:O4'    | 2.19                     | 0.43              |
| 1:F1:2824:C:H2'    | 1:F1:2825:A:O4'    | 2.19                     | 0.43              |
| 1:F1:2869:C:O2'    | 1:F1:2870:U:H5'    | 2.19                     | 0.43              |
| 1:F1:3078:C:C4     | 1:F1:3079:U:C4     | 3.07                     | 0.43              |
| 1:F1:3086:U:H2'    | 1:F1:3087:G:C8     | 2.54                     | 0.43              |
| 5:FE:136:GLU:OE1   | 5:FE:139:LYS:HD2   | 2.18                     | 0.43              |
| 9:FJ:5:CYS:SG      | 9:FJ:13:ILE:CD1    | 3.07                     | 0.43              |
| 9:FJ:115:ALA:CB    | 9:FJ:135:VAL:HG11  | 2.49                     | 0.43              |
| 14:FO:62:LEU:O     | 14:FO:63:ARG:C     | 2.62                     | 0.43              |
| 18:FU:81:ALA:HB2   | 18:FU:114:LEU:HD13 | 2.01                     | 0.43              |
| 19:FX:7:GLN:HE22   | 19:FX:80:GLU:CA    | 2.31                     | 0.43              |
| 20:G2:2:G:O2'      | 1:H1:2983:A:C1'    | 2.64                     | 0.43              |
| 20:G2:38:C:O3'     | 2:HA:67:TYR:HE2    | 2.01                     | 0.43              |
| 21:G3:16:A:C6      | 21:G3:64:A:C6      | 3.06                     | 0.43              |
| 22:GA:148:ARG:NH1  | 22:GA:158:THR:OG1  | 2.32                     | 0.43              |
| 23:GB:105:VAL:HG13 | 23:GB:142:GLN:OE1  | 2.19                     | 0.43              |
| 24:GC:75:GLY:O     | 1:H1:2396:A:H4'    | 2.18                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:276:THR:HG23 | 24:GC:277:GLY:N    | 2.32                     | 0.43              |
| 24:GC:380:PHE:O    | 24:GC:383:ALA:HB3  | 2.19                     | 0.43              |
| 27:GF:196:VAL:HG21 | 27:GF:204:LEU:HD11 | 2.01                     | 0.43              |
| 33:GL:120:TRP:CE3  | 1:H1:268:G:H5'     | 2.54                     | 0.43              |
| 34:GM:46:THR:HA    | 34:GM:47:PRO:HD3   | 1.85                     | 0.43              |
| 39:GR:124:ILE:H    | 39:GR:124:ILE:HG13 | 1.51                     | 0.43              |
| 46:GY:24:LYS:O     | 46:GY:25:VAL:C     | 2.62                     | 0.43              |
| 1:H1:39:G:C5       | 1:H1:2789:A:C2     | 3.07                     | 0.43              |
| 1:H1:143:G:C2'     | 1:H1:144:A:H5'     | 2.48                     | 0.43              |
| 1:H1:513:G:C4      | 1:H1:514:U:C5      | 3.07                     | 0.43              |
| 1:H1:637:U:C2      | 1:H1:638:U:C5      | 3.07                     | 0.43              |
| 1:H1:882:G:HO2'    | 1:H1:883:A:P       | 2.42                     | 0.43              |
| 1:H1:1178:U:H5''   | 1:H1:1179:G:OP2    | 2.19                     | 0.43              |
| 1:H1:1517:G:H5'    | 2:HA:12:HIS:O      | 2.19                     | 0.43              |
| 1:H1:1592:G:N2     | 1:H1:1602:U:H1'    | 2.33                     | 0.43              |
| 1:H1:1918:U:H2'    | 1:H1:1919:A:H5'    | 1.93                     | 0.43              |
| 1:H1:2148:A:H2'    | 1:H1:2149:U:C6     | 2.54                     | 0.43              |
| 1:H1:2168:U:H2'    | 1:H1:2169:G:C8     | 2.54                     | 0.43              |
| 1:H1:2587:G:C6     | 1:H1:2588:U:C4     | 3.07                     | 0.43              |
| 1:H1:2849:U:H3'    | 1:H1:2850:U:H6     | 1.82                     | 0.43              |
| 1:H1:2888:A:O2'    | 1:H1:2889:G:H5'    | 2.18                     | 0.43              |
| 1:H1:2987:A:H2'    | 1:H1:2988:U:O4'    | 2.18                     | 0.43              |
| 1:H1:2990:U:H2'    | 1:H1:2991:U:H6     | 1.82                     | 0.43              |
| 1:H1:3175:A:C4'    | 1:H1:3176:A:OP1    | 2.67                     | 0.43              |
| 8:HH:46:GLU:H      | 8:HH:46:GLU:CD     | 2.27                     | 0.43              |
| 18:HU:87:PHE:CD2   | 18:HU:91:ILE:HD11  | 2.54                     | 0.43              |
| 1:A1:296:G:H8      | 1:A1:296:G:O5'     | 2.01                     | 0.43              |
| 1:A1:301:A:C5'     | 33:BL:180:ARG:HH22 | 2.32                     | 0.43              |
| 1:A1:436:U:C2'     | 1:A1:437:A:H5'     | 2.49                     | 0.43              |
| 1:A1:459:G:H2'     | 1:A1:517:A:C2      | 2.54                     | 0.43              |
| 1:A1:469:U:O2      | 1:A1:510:A:N1      | 2.52                     | 0.43              |
| 1:A1:607:U:H2'     | 1:A1:608:C:C6      | 2.54                     | 0.43              |
| 1:A1:620:A:H1'     | 1:A1:1364:A:H5''   | 2.01                     | 0.43              |
| 1:A1:718:A:C2'     | 24:BC:242:ASN:HD21 | 2.32                     | 0.43              |
| 1:A1:779:A:C2      | 1:A1:780:C:C2      | 3.06                     | 0.43              |
| 1:A1:1172:G:H1'    | 1:A1:1187:C:N3     | 2.33                     | 0.43              |
| 1:A1:1239:G:O3'    | 19:AX:106:LYS:NZ   | 2.46                     | 0.43              |
| 1:A1:1398:G:C2'    | 1:A1:1399:A:O5'    | 2.67                     | 0.43              |
| 1:A1:1551:C:C4     | 1:A1:1552:U:O4     | 2.72                     | 0.43              |
| 1:A1:1662:A:H4'    | 11:AL:76:ARG:NH2   | 2.32                     | 0.43              |
| 1:A1:1812:G:O2'    | 1:A1:1813:A:H5'    | 2.19                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:1966:U:C2'    | 1:A1:1967:C:O5'    | 2.67                     | 0.43              |
| 1:A1:2391:G:C5'    | 1:A1:2392:A:H4'    | 2.43                     | 0.43              |
| 1:A1:2541:U:C2     | 22:BA:41:TYR:CZ    | 3.07                     | 0.43              |
| 1:A1:2641:U:C4     | 1:A1:2748:U:O2     | 2.71                     | 0.43              |
| 1:A1:2862:G:HO2'   | 1:A1:2863:U:H6     | 1.56                     | 0.43              |
| 1:A1:3228:U:H5''   | 1:A1:3229:C:C5'    | 2.48                     | 0.43              |
| 3:AB:2:GLY:HA3     | 50:AB:105:HOH:O    | 2.19                     | 0.43              |
| 5:AE:68:GLN:O      | 5:AE:68:GLN:CG     | 2.66                     | 0.43              |
| 6:AF:13:VAL:CG1    | 6:AF:53:VAL:HG13   | 2.48                     | 0.43              |
| 6:AF:109:PHE:O     | 6:AF:113:VAL:HG23  | 2.18                     | 0.43              |
| 8:AH:46:GLU:CD     | 8:AH:46:GLU:H      | 2.27                     | 0.43              |
| 14:AO:27:ASP:OD2   | 14:AO:42:PHE:HD1   | 2.02                     | 0.43              |
| 16:AQ:49:THR:HG23  | 33:BL:16:SER:CB    | 2.49                     | 0.43              |
| 20:B2:129:A:O3'    | 39:BR:99:THR:HG21  | 2.18                     | 0.43              |
| 21:B3:74:A:H4'     | 21:B3:75:G:OP1     | 2.18                     | 0.43              |
| 21:B3:103:U:O5'    | 21:B3:103:U:H6     | 2.02                     | 0.43              |
| 23:BB:56:ILE:O     | 23:BB:73:VAL:HA    | 2.18                     | 0.43              |
| 23:BB:301:LYS:HD3  | 23:BB:359:THR:CG2  | 2.49                     | 0.43              |
| 23:BB:376:LYS:HZ2  | 9:DJ:44:PRO:CD     | 2.17                     | 0.43              |
| 25:BD:12:VAL:O     | 25:BD:12:VAL:HG23  | 2.18                     | 0.43              |
| 25:BD:32:LYS:HB3   | 25:BD:119:SER:O    | 2.19                     | 0.43              |
| 27:BF:145:VAL:HG13 | 27:BF:173:VAL:CG2  | 2.49                     | 0.43              |
| 29:BH:156:LYS:O    | 29:BH:159:PHE:HB2  | 2.18                     | 0.43              |
| 30:BI:17:ARG:O     | 30:BI:18:LEU:C     | 2.61                     | 0.43              |
| 32:BK:86:ASP:O     | 32:BK:87:ALA:C     | 2.62                     | 0.43              |
| 32:BK:148:THR:CG2  | 32:BK:149:ALA:H    | 2.32                     | 0.43              |
| 33:BL:192:TRP:CZ2  | 33:BL:196:GLN:HG3  | 2.54                     | 0.43              |
| 34:BM:30:TYR:CD1   | 37:BP:27:ILE:HD11  | 2.54                     | 0.43              |
| 34:BM:60:ILE:HD13  | 34:BM:98:ALA:HB2   | 2.01                     | 0.43              |
| 34:BM:110:LEU:CD1  | 34:BM:169:GLY:O    | 2.66                     | 0.43              |
| 37:BP:102:LYS:HA   | 37:BP:102:LYS:HD3  | 1.58                     | 0.43              |
| 40:BS:49:VAL:HG12  | 40:BS:50:ARG:N     | 2.34                     | 0.43              |
| 43:BV:103:PHE:CZ   | 43:BV:124:ILE:CG1  | 3.02                     | 0.43              |
| 20:C2:44:A:OP1     | 2:DA:68:MET:CG     | 2.67                     | 0.43              |
| 20:C2:76:U:H5'     | 20:C2:77:U:OP2     | 2.19                     | 0.43              |
| 20:C2:130:C:O2'    | 39:CR:64:HIS:HD2   | 2.01                     | 0.43              |
| 22:CA:187:PHE:HB2  | 22:CA:197:TRP:CZ3  | 2.54                     | 0.43              |
| 23:CB:93:ILE:CD1   | 23:CB:102:LEU:HD13 | 2.48                     | 0.43              |
| 23:CB:250:ILE:CG1  | 1:D1:2388:G:H4'    | 2.49                     | 0.43              |
| 27:CF:103:ARG:HG2  | 27:CF:104:LEU:N    | 2.25                     | 0.43              |
| 30:CI:68:GLY:HA2   | 1:D1:2378:A:O3'    | 2.19                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 32:CK:46:LEU:O     | 32:CK:47:MET:C     | 2.60                     | 0.43              |
| 32:CK:48:GLU:OE1   | 32:CK:48:GLU:CA    | 2.53                     | 0.43              |
| 34:CM:132:VAL:O    | 34:CM:132:VAL:HG12 | 2.18                     | 0.43              |
| 35:CN:146:ARG:HB3  | 35:CN:149:TYR:HD2  | 1.82                     | 0.43              |
| 37:CP:15:PHE:N     | 37:CP:15:PHE:HD1   | 2.17                     | 0.43              |
| 38:CQ:45:ASN:O     | 38:CQ:46:ALA:C     | 2.62                     | 0.43              |
| 43:CV:128:LEU:N    | 43:CV:129:PRO:CD   | 2.82                     | 0.43              |
| 1:D1:29:C:C2'      | 1:D1:30:U:H5'      | 2.48                     | 0.43              |
| 1:D1:90:G:OP2      | 1:D1:91:C:H5''     | 2.19                     | 0.43              |
| 1:D1:114:A:C5'     | 16:DQ:37:ARG:HH22  | 2.29                     | 0.43              |
| 1:D1:619:G:O2'     | 1:D1:620:A:C2      | 2.71                     | 0.43              |
| 1:D1:623:G:H22     | 5:DE:30:ARG:NH1    | 2.16                     | 0.43              |
| 1:D1:820:G:H21     | 18:DU:5:ASN:ND2    | 2.15                     | 0.43              |
| 1:D1:827:C:H2'     | 1:D1:828:C:H6      | 1.84                     | 0.43              |
| 1:D1:914:U:H2'     | 1:D1:915:C:O4'     | 2.19                     | 0.43              |
| 1:D1:1039:G:O2'    | 1:D1:1041:C:N4     | 2.37                     | 0.43              |
| 1:D1:1041:C:O2     | 1:D1:1041:C:C2'    | 2.64                     | 0.43              |
| 1:D1:1046:G:H2'    | 1:D1:1047:G:C8     | 2.54                     | 0.43              |
| 1:D1:1316:G:H5''   | 1:D1:1316:G:H8     | 1.84                     | 0.43              |
| 1:D1:1370:A:N3     | 1:D1:1389:G:C2     | 2.87                     | 0.43              |
| 1:D1:1393:A:H2'    | 1:D1:1394:G:C8     | 2.54                     | 0.43              |
| 1:D1:1657:C:C5     | 13:DN:17:ARG:NH2   | 2.86                     | 0.43              |
| 1:D1:1954:A:H4'    | 1:D1:1955:U:OP1    | 2.18                     | 0.43              |
| 1:D1:2690:U:H5'    | 1:D1:2694:A:N6     | 2.33                     | 0.43              |
| 1:D1:3086:U:H2'    | 1:D1:3087:G:C8     | 2.54                     | 0.43              |
| 1:D1:3127:U:O2'    | 1:D1:3128:G:H5''   | 2.16                     | 0.43              |
| 1:D1:3175:A:N1     | 1:D1:3177:G:N1     | 2.67                     | 0.43              |
| 6:DF:14:TYR:CE1    | 6:DF:90:PHE:HE2    | 2.37                     | 0.43              |
| 9:DJ:117:ILE:HD13  | 9:DJ:137:VAL:HG11  | 2.01                     | 0.43              |
| 19:DX:161:LEU:HA   | 19:DX:161:LEU:HD12 | 1.43                     | 0.43              |
| 20:E2:76:U:H5'     | 20:E2:77:U:OP2     | 2.17                     | 0.43              |
| 21:E3:48:G:O2'     | 34:EM:227:GLN:HG3  | 2.19                     | 0.43              |
| 21:E3:65:G:H2'     | 21:E3:66:G:O4'     | 2.19                     | 0.43              |
| 23:EB:103:THR:CG2  | 23:EB:104:THR:H    | 2.32                     | 0.43              |
| 23:EB:264:ARG:NH1  | 1:F1:2976:C:O2     | 2.51                     | 0.43              |
| 23:EB:301:LYS:HG2  | 23:EB:359:THR:HG21 | 2.01                     | 0.43              |
| 23:EB:332:ARG:HH11 | 23:EB:332:ARG:HB2  | 1.82                     | 0.43              |
| 24:EC:35:THR:O     | 24:EC:36:ASP:C     | 2.61                     | 0.43              |
| 24:EC:127:HIS:CD2  | 24:EC:286:GLN:OE1  | 2.72                     | 0.43              |
| 24:EC:330:LEU:HD23 | 24:EC:330:LEU:HA   | 1.76                     | 0.43              |
| 24:EC:380:PHE:CZ   | 19:FX:78:ILE:HD13  | 2.53                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 26:EE:132:ILE:HG23 | 26:EE:144:LEU:HD21 | 2.01                     | 0.43              |
| 27:EF:35:ILE:HD12  | 1:F1:2549:U:H5'    | 2.01                     | 0.43              |
| 28:EG:28:UNK:N     | 28:EG:112:UNK:O    | 2.51                     | 0.43              |
| 29:EH:3:ARG:HH12   | 29:EH:63:GLU:HB2   | 1.83                     | 0.43              |
| 29:EH:34:TYR:CE1   | 29:EH:92:HIS:CE1   | 3.07                     | 0.43              |
| 30:EI:45:SER:HB2   | 30:EI:48:ARG:H     | 1.84                     | 0.43              |
| 33:EL:180:ARG:H    | 33:EL:180:ARG:HG2  | 1.56                     | 0.43              |
| 34:EM:27:LEU:HD23  | 34:EM:27:LEU:HA    | 1.79                     | 0.43              |
| 34:EM:157:ASN:OD1  | 34:EM:158:ARG:N    | 2.52                     | 0.43              |
| 34:EM:212:TYR:CE2  | 34:EM:227:GLN:NE2  | 2.87                     | 0.43              |
| 36:EO:28:GLU:CB    | 36:EO:49:LEU:HD13  | 2.49                     | 0.43              |
| 39:ER:84:MET:HA    | 39:ER:89:THR:O     | 2.19                     | 0.43              |
| 43:EV:80:VAL:HG22  | 43:EV:188:VAL:HG21 | 1.99                     | 0.43              |
| 43:EV:124:ILE:HG22 | 43:EV:128:LEU:HD23 | 2.01                     | 0.43              |
| 46:EY:10:ILE:HG23  | 1:F1:862:A:H4'     | 1.99                     | 0.43              |
| 1:F1:12:A:H2'      | 1:F1:13:C:C6       | 2.54                     | 0.43              |
| 1:F1:159:G:C4      | 1:F1:160:G:C8      | 3.06                     | 0.43              |
| 1:F1:399:A:N3      | 1:F1:400:C:N3      | 2.67                     | 0.43              |
| 1:F1:439:A:C5'     | 5:FE:126:HIS:HD1   | 2.31                     | 0.43              |
| 1:F1:462:G:H2'     | 1:F1:463:U:H6      | 1.81                     | 0.43              |
| 1:F1:627:U:O2      | 1:F1:630:G:C6      | 2.71                     | 0.43              |
| 1:F1:707:A:H2'     | 1:F1:708:G:O4'     | 2.19                     | 0.43              |
| 1:F1:742:U:O4      | 17:FT:61:LYS:HB3   | 2.18                     | 0.43              |
| 1:F1:970:C:C2      | 1:F1:971:C:C6      | 3.07                     | 0.43              |
| 1:F1:1038:G:O2'    | 1:F1:1039:G:H5'    | 2.19                     | 0.43              |
| 1:F1:1108:A:N3     | 1:F1:1108:A:H2'    | 2.34                     | 0.43              |
| 1:F1:1440:A:C6     | 1:F1:1441:U:C4     | 3.07                     | 0.43              |
| 1:F1:1497:U:C2     | 1:F1:1498:U:C5     | 3.07                     | 0.43              |
| 1:F1:2343:A:H2'    | 1:F1:2344:U:H5''   | 2.01                     | 0.43              |
| 1:F1:2613:G:N2     | 1:F1:2615:A:H2     | 2.13                     | 0.43              |
| 1:F1:2817:U:H2'    | 1:F1:2818:G:H5'    | 2.01                     | 0.43              |
| 1:F1:3144:G:H4'    | 1:F1:3144:G:OP1    | 2.18                     | 0.43              |
| 3:FB:50:LYS:C      | 3:FB:51:ILE:HG13   | 2.44                     | 0.43              |
| 13:FN:26:VAL:HG22  | 13:FN:93:PHE:HB3   | 1.99                     | 0.43              |
| 13:FN:31:ASP:OD1   | 13:FN:31:ASP:N     | 2.45                     | 0.43              |
| 13:FN:54:THR:HG22  | 13:FN:55:LYS:N     | 2.34                     | 0.43              |
| 13:FN:142:LEU:HD12 | 13:FN:143:ARG:H    | 1.84                     | 0.43              |
| 18:FU:177:VAL:HG12 | 18:FU:181:ILE:HD11 | 2.01                     | 0.43              |
| 23:GB:240:THR:HG23 | 1:H1:2936:C:H4'    | 2.00                     | 0.43              |
| 23:GB:278:LYS:HB3  | 23:GB:322:ILE:CG2  | 2.49                     | 0.43              |
| 24:GC:99:ASN:HD21  | 1:H1:828:C:H4'     | 1.83                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:164:GLU:OE1  | 24:GC:218:ASN:HB2  | 2.17                     | 0.43              |
| 27:GF:41:LEU:HD23  | 27:GF:41:LEU:HA    | 1.84                     | 0.43              |
| 29:GH:44:GLU:HA    | 29:GH:44:GLU:OE1   | 2.18                     | 0.43              |
| 29:GH:84:ALA:O     | 29:GH:140:VAL:HG13 | 2.19                     | 0.43              |
| 30:GI:27:LEU:HD23  | 30:GI:27:LEU:HA    | 1.80                     | 0.43              |
| 30:GI:59:LYS:O     | 30:GI:71:HIS:CE1   | 2.71                     | 0.43              |
| 30:GI:109:THR:CG2  | 30:GI:110:PRO:CD   | 2.87                     | 0.43              |
| 34:GM:99:TYR:CG    | 34:GM:204:ILE:HG23 | 2.53                     | 0.43              |
| 34:GM:157:ASN:OD1  | 34:GM:158:ARG:N    | 2.52                     | 0.43              |
| 35:GN:91:GLU:H     | 35:GN:91:GLU:HG3   | 1.41                     | 0.43              |
| 37:GP:15:PHE:HE2   | 37:GP:52:MET:CE    | 2.32                     | 0.43              |
| 37:GP:105:LEU:HD23 | 37:GP:105:LEU:HA   | 1.87                     | 0.43              |
| 37:GP:145:VAL:CG2  | 19:HX:40:GLN:OE1   | 2.61                     | 0.43              |
| 38:GQ:133:ARG:CG   | 38:GQ:139:ASN:ND2  | 2.56                     | 0.43              |
| 40:GS:44:VAL:HG11  | 40:GS:47:MET:HE1   | 2.00                     | 0.43              |
| 40:GS:45:ARG:NH2   | 1:H1:189:G:OP2     | 2.50                     | 0.43              |
| 43:GV:107:GLN:HE22 | 43:GV:203:LYS:HE2  | 1.84                     | 0.43              |
| 43:GV:124:ILE:HG22 | 43:GV:128:LEU:HD23 | 2.01                     | 0.43              |
| 43:GV:195:ALA:O    | 43:GV:198:PHE:HB3  | 2.19                     | 0.43              |
| 45:GX:44:VAL:C     | 45:GX:46:ARG:N     | 2.75                     | 0.43              |
| 1:H1:170:A:N6      | 1:H1:249:G:H1'     | 2.27                     | 0.43              |
| 1:H1:222:A:C6      | 1:H1:223:C:C4      | 3.07                     | 0.43              |
| 1:H1:524:G:H8      | 1:H1:524:G:O5'     | 2.00                     | 0.43              |
| 1:H1:738:U:C2'     | 1:H1:739:G:H5'     | 2.49                     | 0.43              |
| 1:H1:997:G:C5'     | 1:H1:1399:A:O2'    | 2.67                     | 0.43              |
| 1:H1:1173:A:C2     | 1:H1:1174:G:C5     | 3.07                     | 0.43              |
| 1:H1:1519:G:C2     | 3:HB:13:PHE:CE1    | 3.06                     | 0.43              |
| 1:H1:1595:A:C5     | 1:H1:1596:U:C1'    | 2.94                     | 0.43              |
| 1:H1:2263:U:C5'    | 1:H1:2264:U:OP2    | 2.66                     | 0.43              |
| 1:H1:2576:C:C2'    | 1:H1:2577:G:C5'    | 2.90                     | 0.43              |
| 1:H1:3283:C:H2'    | 1:H1:3284:G:C8     | 2.54                     | 0.43              |
| 2:HA:25:ALA:HB1    | 3:HB:52:TYR:CD2    | 2.54                     | 0.43              |
| 5:HE:124:LYS:HB3   | 5:HE:130:PHE:HA    | 2.00                     | 0.43              |
| 6:HF:27:ILE:CD1    | 6:HF:36:ILE:HD12   | 2.48                     | 0.43              |
| 6:HF:49:PRO:C      | 6:HF:51:ARG:N      | 2.77                     | 0.43              |
| 7:HG:14:LEU:O      | 7:HG:18:MET:HG2    | 2.18                     | 0.43              |
| 9:HJ:14:GLY:N      | 9:HJ:195:ALA:O     | 2.52                     | 0.43              |
| 9:HJ:111:ASN:HD22  | 9:HJ:156:ASN:HA    | 1.83                     | 0.43              |
| 11:HL:92:ILE:HG23  | 13:HN:81:MET:HE3   | 2.01                     | 0.43              |
| 18:HU:60:THR:HG22  | 18:HU:62:ARG:H     | 1.83                     | 0.43              |
| 1:A1:9:G:O2'       | 1:A1:1587:A:N6     | 2.52                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:63:A:H5''     | 1:A1:64:A:H4'      | 2.00                     | 0.43              |
| 1:A1:104:U:H5''    | 18:AU:37:ARG:HH22  | 1.84                     | 0.43              |
| 1:A1:174:A:N1      | 1:A1:246:G:C4      | 2.86                     | 0.43              |
| 1:A1:301:A:H5'     | 33:BL:180:ARG:HH22 | 1.84                     | 0.43              |
| 1:A1:359:G:H2'     | 1:A1:360:A:C8      | 2.53                     | 0.43              |
| 1:A1:545:A:H2'     | 1:A1:546:A:H8      | 1.84                     | 0.43              |
| 1:A1:1048:U:C4     | 1:A1:1049:U:C5     | 3.07                     | 0.43              |
| 1:A1:1109:A:C4'    | 1:A1:1110:U:O5'    | 2.62                     | 0.43              |
| 1:A1:1309:G:H5'    | 28:BG:59:UNK:CB    | 2.46                     | 0.43              |
| 1:A1:1808:A:H2'    | 1:A1:1809:C:H6     | 1.84                     | 0.43              |
| 1:A1:1902:C:C2'    | 1:A1:1903:A:H5''   | 2.49                     | 0.43              |
| 1:A1:1950:C:H2'    | 46:BY:7:LYS:CE     | 2.46                     | 0.43              |
| 1:A1:2228:A:N7     | 1:A1:2229:G:N7     | 2.67                     | 0.43              |
| 1:A1:2290:A:C6     | 1:A1:2291:A:C6     | 3.07                     | 0.43              |
| 1:A1:2504:U:H2'    | 1:A1:2505:U:C6     | 2.53                     | 0.43              |
| 1:A1:2731:C:H4'    | 4:AC:18:HIS:CD2    | 2.54                     | 0.43              |
| 1:A1:2907:A:H5''   | 1:A1:2907:A:H8     | 1.84                     | 0.43              |
| 1:A1:3048:A:H5''   | 44:BW:68:ARG:HH22  | 1.84                     | 0.43              |
| 2:AA:21:ARG:NH2    | 2:AA:42:ALA:HA     | 2.33                     | 0.43              |
| 2:AA:71:ILE:CD1    | 20:B2:38:C:H4'     | 2.46                     | 0.43              |
| 5:AE:19:TYR:CD2    | 14:AO:108:LEU:HB3  | 2.50                     | 0.43              |
| 5:AE:56:GLY:C      | 5:AE:58:PHE:H      | 2.26                     | 0.43              |
| 5:AE:68:GLN:O      | 5:AE:68:GLN:HG3    | 2.19                     | 0.43              |
| 9:AJ:49:ILE:HD11   | 9:AJ:88:LEU:HD13   | 2.01                     | 0.43              |
| 11:AL:56:ILE:HG23  | 11:AL:71:ALA:O     | 2.19                     | 0.43              |
| 14:AO:29:PHE:HB2   | 14:AO:41:GLY:HA3   | 2.01                     | 0.43              |
| 19:AX:44:PHE:CD2   | 19:AX:117:VAL:HG21 | 2.54                     | 0.43              |
| 23:BB:50:LYS:NZ    | 23:BB:328:GLY:O    | 2.43                     | 0.43              |
| 23:BB:93:ILE:CD1   | 23:BB:102:LEU:HD22 | 2.45                     | 0.43              |
| 24:BC:102:ARG:O    | 24:BC:103:LYS:HB2  | 2.19                     | 0.43              |
| 27:BF:30:ARG:HD2   | 27:BF:31:VAL:H     | 1.83                     | 0.43              |
| 27:BF:69:GLN:HE21  | 27:BF:222:ARG:HH12 | 1.66                     | 0.43              |
| 27:BF:220:GLU:O    | 27:BF:224:THR:N    | 2.52                     | 0.43              |
| 29:BH:49:VAL:HA    | 29:BH:138:VAL:O    | 2.19                     | 0.43              |
| 30:BI:35:VAL:HG11  | 30:BI:107:ILE:HG23 | 2.01                     | 0.43              |
| 30:BI:184:PRO:HA   | 30:BI:187:LYS:HE2  | 1.99                     | 0.43              |
| 30:BI:186:LEU:O    | 30:BI:187:LYS:C    | 2.61                     | 0.43              |
| 34:BM:76:CYS:HB3   | 34:BM:105:LEU:CD1  | 2.49                     | 0.43              |
| 34:BM:125:VAL:HG23 | 34:BM:201:LYS:CE   | 2.48                     | 0.43              |
| 35:BN:88:THR:HG22  | 35:BN:107:THR:CG2  | 2.49                     | 0.43              |
| 35:BN:89:ASN:ND2   | 35:BN:109:THR:HG22 | 2.25                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 36:BO:115:ILE:HG22 | 36:BO:119:GLN:HB3  | 2.01                     | 0.43              |
| 39:BR:52:SER:CB    | 39:BR:58:HIS:HB2   | 2.49                     | 0.43              |
| 39:BR:55:VAL:HG23  | 42:BU:83:ASP:CB    | 2.49                     | 0.43              |
| 40:BS:3:THR:O      | 40:BS:3:THR:CG2    | 2.66                     | 0.43              |
| 43:BV:100:LEU:HA   | 43:BV:100:LEU:HD23 | 1.60                     | 0.43              |
| 20:C2:67:C:H6      | 20:C2:67:C:H5'     | 1.84                     | 0.43              |
| 20:C2:105:A:OP2    | 20:C2:106:A:H2'    | 2.19                     | 0.43              |
| 21:C3:98:G:OP2     | 19:DX:66:LYS:NZ    | 2.43                     | 0.43              |
| 23:CB:114:THR:CG2  | 23:CB:115:LYS:N    | 2.82                     | 0.43              |
| 24:CC:133:LEU:HD23 | 24:CC:133:LEU:HA   | 1.88                     | 0.43              |
| 24:CC:166:TYR:HD1  | 24:CC:171:GLN:CD   | 2.27                     | 0.43              |
| 24:CC:198:GLN:O    | 24:CC:199:GLY:C    | 2.60                     | 0.43              |
| 24:CC:388:ILE:O    | 24:CC:391:ALA:HB3  | 2.18                     | 0.43              |
| 27:CF:53:LEU:O     | 27:CF:54:GLN:C     | 2.61                     | 0.43              |
| 28:CG:57:UNK:HG3   | 28:CG:58:UNK:N     | 2.32                     | 0.43              |
| 29:CH:22:TYR:CZ    | 1:D1:1074:A:H2'    | 2.54                     | 0.43              |
| 29:CH:190:LEU:HD22 | 29:CH:197:VAL:CG1  | 2.49                     | 0.43              |
| 30:CI:13:HIS:HA    | 30:CI:122:ALA:O    | 2.19                     | 0.43              |
| 30:CI:35:VAL:CG1   | 30:CI:36:ARG:N     | 2.82                     | 0.43              |
| 32:CK:76:ASN:HB3   | 32:CK:78:ASP:OD1   | 2.18                     | 0.43              |
| 33:CL:180:ARG:HH22 | 1:D1:301:A:C5'     | 2.32                     | 0.43              |
| 35:CN:26:TYR:CE1   | 14:DO:4:LEU:HD11   | 2.54                     | 0.43              |
| 35:CN:73:ASN:OD1   | 35:CN:74:GLU:OE1   | 2.37                     | 0.43              |
| 35:CN:138:PHE:CE2  | 35:CN:140:LEU:HD13 | 2.54                     | 0.43              |
| 40:CS:31:SER:CB    | 40:CS:48:PRO:HA    | 2.48                     | 0.43              |
| 42:CU:35:ALA:HB1   | 42:CU:44:LYS:HD3   | 2.01                     | 0.43              |
| 43:CV:64:ARG:HD3   | 1:D1:565:G:C6      | 2.54                     | 0.43              |
| 43:CV:107:GLN:NE2  | 43:CV:203:LYS:HE2  | 2.33                     | 0.43              |
| 1:D1:136:C:C2'     | 1:D1:137:A:H5'     | 2.49                     | 0.43              |
| 1:D1:148:G:O2'     | 1:D1:149:U:C6      | 2.67                     | 0.43              |
| 1:D1:156:A:P       | 16:DQ:27:ALA:HB3   | 2.59                     | 0.43              |
| 1:D1:169:A:C6      | 1:D1:251:A:C6      | 3.06                     | 0.43              |
| 1:D1:284:U:O2      | 1:D1:284:U:H2'     | 2.19                     | 0.43              |
| 1:D1:368:A:C5'     | 1:D1:369:U:OP2     | 2.66                     | 0.43              |
| 1:D1:742:U:O4      | 17:DT:61:LYS:CB    | 2.67                     | 0.43              |
| 1:D1:790:C:O2      | 1:D1:790:C:C2'     | 2.62                     | 0.43              |
| 1:D1:966:G:H2'     | 1:D1:967:U:H5'     | 2.01                     | 0.43              |
| 1:D1:997:G:H4'     | 1:D1:1399:A:O2'    | 2.19                     | 0.43              |
| 1:D1:1073:A:C2'    | 1:D1:1074:A:O5'    | 2.67                     | 0.43              |
| 1:D1:1175:G:H2'    | 1:D1:1176:G:C5'    | 2.49                     | 0.43              |
| 1:D1:1240:G:C4'    | 19:DX:104:MET:HE3  | 2.49                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:1465:U:C2    | 1:D1:1466:G:C8     | 3.07                     | 0.43              |
| 1:D1:1539:G:H2'   | 1:D1:1541:U:C5     | 2.53                     | 0.43              |
| 1:D1:1592:G:H2'   | 1:D1:1593:A:O4'    | 2.19                     | 0.43              |
| 1:D1:1595:A:H3'   | 1:D1:1596:U:C6     | 2.53                     | 0.43              |
| 1:D1:1661:A:H5''  | 13:DN:15:GLN:O     | 2.18                     | 0.43              |
| 1:D1:1839:A:O2'   | 1:D1:1840:U:C6     | 2.72                     | 0.43              |
| 1:D1:1909:C:H5''  | 1:D1:3266:G:C2     | 2.54                     | 0.43              |
| 1:D1:2353:C:H3'   | 1:D1:2354:C:C6     | 2.54                     | 0.43              |
| 1:D1:2508:U:H2'   | 1:D1:2581:G:N1     | 2.32                     | 0.43              |
| 1:D1:2519:A:O2'   | 1:D1:2520:G:H5'    | 2.18                     | 0.43              |
| 1:D1:2769:U:H2'   | 1:D1:2770:U:O4'    | 2.18                     | 0.43              |
| 1:D1:3100:U:C2'   | 1:D1:3101:G:C5'    | 2.97                     | 0.43              |
| 1:D1:3122:C:H2'   | 1:D1:3123:A:O4'    | 2.18                     | 0.43              |
| 1:D1:3197:A:OP2   | 1:D1:3213:G:N1     | 2.46                     | 0.43              |
| 1:D1:3234:U:O4    | 1:D1:3236:C:C5     | 2.71                     | 0.43              |
| 1:D1:3340:U:H2'   | 1:D1:3341:C:C6     | 2.53                     | 0.43              |
| 8:DH:98:GLN:C     | 8:DH:100:ILE:N     | 2.75                     | 0.43              |
| 9:DJ:46:ILE:HD11  | 9:DJ:202:TRP:CZ2   | 2.53                     | 0.43              |
| 12:DM:79:LYS:HB2  | 12:DM:105:TYR:CE2  | 2.54                     | 0.43              |
| 16:DQ:5:GLN:O     | 16:DQ:12:GLY:CA    | 2.66                     | 0.43              |
| 19:DX:42:ARG:NE   | 19:DX:44:PHE:HE1   | 2.15                     | 0.43              |
| 21:E3:90:A:H8     | 21:E3:90:A:O5'     | 2.02                     | 0.43              |
| 21:E3:120:U:O2'   | 34:EM:265:LYS:NZ   | 2.42                     | 0.43              |
| 23:EB:294:THR:CG2 | 23:EB:295:ALA:N    | 2.77                     | 0.43              |
| 24:EC:100:GLN:H   | 24:EC:100:GLN:HG2  | 1.14                     | 0.43              |
| 24:EC:163:VAL:CA  | 24:EC:166:TYR:CD2  | 2.99                     | 0.43              |
| 27:EF:50:TYR:CD2  | 1:F1:9:G:H1'       | 2.54                     | 0.43              |
| 29:EH:41:ALA:HB3  | 29:EH:139:ARG:HH21 | 1.82                     | 0.43              |
| 29:EH:193:ASP:OD1 | 29:EH:198:LYS:HE3  | 2.19                     | 0.43              |
| 30:EI:35:VAL:CG1  | 30:EI:107:ILE:HG12 | 2.48                     | 0.43              |
| 30:EI:196:PHE:HZ  | 6:FF:107:ASP:HA    | 1.84                     | 0.43              |
| 31:EJ:91:ARG:O    | 31:EJ:93:ASP:N     | 2.52                     | 0.43              |
| 32:EK:99:VAL:CG2  | 32:EK:122:PRO:HB2  | 2.49                     | 0.43              |
| 34:EM:135:ASP:OD1 | 34:EM:135:ASP:O    | 2.37                     | 0.43              |
| 37:EP:29:ARG:HG3  | 37:EP:29:ARG:H     | 1.54                     | 0.43              |
| 37:EP:42:ILE:CD1  | 37:EP:91:VAL:HG21  | 2.49                     | 0.43              |
| 37:EP:52:MET:HE2  | 37:EP:52:MET:HB3   | 1.80                     | 0.43              |
| 38:EQ:38:ILE:CD1  | 38:EQ:93:ILE:HG21  | 2.42                     | 0.43              |
| 41:ET:14:ARG:NH1  | 9:HJ:44:PRO:CG     | 2.82                     | 0.43              |
| 42:EU:20:GLY:O    | 42:EU:24:LYS:HG3   | 2.18                     | 0.43              |
| 42:EU:36:LYS:HE3  | 42:EU:48:ILE:HD12  | 2.00                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 43:EV:195:ALA:O    | 43:EV:198:PHE:HB3  | 2.19                     | 0.43              |
| 45:EX:27:PHE:CE1   | 50:EX:202:HOH:O    | 2.56                     | 0.43              |
| 1:F1:807:G:H2'     | 1:F1:808:A:O4'     | 2.18                     | 0.43              |
| 1:F1:977:A:C2'     | 1:F1:978:G:H5''    | 2.46                     | 0.43              |
| 1:F1:1167:G:H2'    | 1:F1:1168:C:C6     | 2.50                     | 0.43              |
| 1:F1:1315:U:H2'    | 1:F1:1316:G:H5''   | 2.00                     | 0.43              |
| 1:F1:1382:A:C4'    | 1:F1:1383:G:O5'    | 2.64                     | 0.43              |
| 1:F1:1402:G:C2     | 1:F1:1403:C:C5     | 3.07                     | 0.43              |
| 1:F1:1428:G:C2     | 1:F1:1429:C:C6     | 3.07                     | 0.43              |
| 1:F1:1614:A:C6     | 11:FL:13:TYR:CE2   | 3.07                     | 0.43              |
| 1:F1:1618:A:H4'    | 11:FL:62:ALA:HB1   | 2.01                     | 0.43              |
| 1:F1:1926:G:C2     | 1:F1:1927:U:H1'    | 2.54                     | 0.43              |
| 1:F1:2250:A:O2'    | 1:F1:2254:A:C2     | 2.71                     | 0.43              |
| 1:F1:2659:G:H2'    | 1:F1:2660:A:H8     | 1.78                     | 0.43              |
| 1:F1:2678:A:H5'    | 1:F1:2679:G:C8     | 2.54                     | 0.43              |
| 1:F1:2827:G:C2'    | 1:F1:2828:A:H5'    | 2.48                     | 0.43              |
| 1:F1:3151:G:H2'    | 1:F1:3152:A:C8     | 2.53                     | 0.43              |
| 2:FA:11:ARG:HG3    | 2:FA:11:ARG:H      | 1.64                     | 0.43              |
| 3:FB:4:ASN:C       | 3:FB:5:LYS:HG3     | 2.44                     | 0.43              |
| 5:FE:42:ARG:HG2    | 5:FE:92:GLN:NE2    | 2.33                     | 0.43              |
| 5:FE:98:THR:HG21   | 5:FE:173:TYR:OH    | 2.19                     | 0.43              |
| 6:FF:106:PHE:HD2   | 6:FF:110:ARG:HH21  | 1.66                     | 0.43              |
| 19:FX:28:LEU:HD13  | 19:FX:70:GLY:O     | 2.19                     | 0.43              |
| 19:FX:55:PHE:CZ    | 19:FX:59:MET:CE    | 2.99                     | 0.43              |
| 20:G2:87:C:O2      | 20:G2:87:C:O4'     | 2.35                     | 0.43              |
| 21:G3:10:C:N3      | 34:GM:20:TYR:HD1   | 2.17                     | 0.43              |
| 21:G3:27:A:H2'     | 21:G3:28:C:H6      | 1.81                     | 0.43              |
| 21:G3:65:G:H2'     | 21:G3:66:G:O4'     | 2.19                     | 0.43              |
| 22:GA:55:ARG:NH2   | 1:H1:2171:U:OP1    | 2.50                     | 0.43              |
| 24:GC:129:VAL:HG13 | 24:GC:246:LEU:HD12 | 2.01                     | 0.43              |
| 24:GC:145:ARG:NH2  | 1:H1:1410:G:O3'    | 2.47                     | 0.43              |
| 26:GE:49:THR:C     | 26:GE:51:ASP:N     | 2.74                     | 0.43              |
| 26:GE:82:VAL:O     | 26:GE:82:VAL:HG12  | 2.19                     | 0.43              |
| 27:GF:45:VAL:CG1   | 27:GF:46:ARG:N     | 2.81                     | 0.43              |
| 27:GF:232:GLN:NE2  | 1:H1:2573:U:C4'    | 2.62                     | 0.43              |
| 32:GK:21:ARG:NH1   | 45:GX:40:ILE:HG22  | 2.30                     | 0.43              |
| 32:GK:129:TYR:HE2  | 16:HQ:7:VAL:HG21   | 1.83                     | 0.43              |
| 33:GL:26:ARG:C     | 33:GL:30:TYR:CD1   | 2.97                     | 0.43              |
| 33:GL:122:GLY:O    | 33:GL:129:PHE:HD1  | 2.01                     | 0.43              |
| 34:GM:140:LYS:HD3  | 1:H1:1108:A:OP2    | 2.19                     | 0.43              |
| 34:GM:153:THR:O    | 34:GM:153:THR:CG2  | 2.67                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:GM:153:THR:O   | 34:GM:154:THR:C    | 2.62                     | 0.43              |
| 35:GN:146:ARG:CB  | 35:GN:149:TYR:CD2  | 3.02                     | 0.43              |
| 36:GO:12:ALA:N    | 36:GO:22:LEU:HD11  | 2.34                     | 0.43              |
| 43:GV:134:GLY:HA3 | 43:GV:231:ILE:CG2  | 2.48                     | 0.43              |
| 43:GV:231:ILE:O   | 43:GV:235:VAL:HG23 | 2.18                     | 0.43              |
| 1:H1:81:C:H2'     | 1:H1:82:C:O4'      | 2.19                     | 0.43              |
| 1:H1:1052:A:H2    | 1:H1:1053:A:C6     | 2.35                     | 0.43              |
| 1:H1:1104:C:C6    | 17:HT:42:ASN:OD1   | 2.72                     | 0.43              |
| 1:H1:1460:G:P     | 50:H1:3771:HOH:O   | 2.77                     | 0.43              |
| 1:H1:1517:G:H5'   | 2:HA:14:LYS:HD2    | 2.00                     | 0.43              |
| 1:H1:1595:A:H3'   | 1:H1:1596:U:C6     | 2.54                     | 0.43              |
| 1:H1:1598:C:C5    | 1:H1:1599:G:C8     | 3.07                     | 0.43              |
| 1:H1:1652:U:H4'   | 1:H1:1655:A:H5'    | 2.01                     | 0.43              |
| 1:H1:1845:U:C5'   | 1:H1:1846:C:OP2    | 2.67                     | 0.43              |
| 1:H1:1891:A:H2'   | 1:H1:1892:G:C8     | 2.54                     | 0.43              |
| 1:H1:2215:C:H2'   | 1:H1:2216:G:O4'    | 2.19                     | 0.43              |
| 1:H1:2239:A:C2'   | 1:H1:2240:C:H5'    | 2.49                     | 0.43              |
| 1:H1:2545:A:H2'   | 11:HL:47:ALA:HB3   | 2.01                     | 0.43              |
| 1:H1:2700:A:H2'   | 1:H1:2701:U:C6     | 2.53                     | 0.43              |
| 1:H1:2804:G:C8    | 1:H1:2858:C:OP2    | 2.72                     | 0.43              |
| 1:H1:2907:A:C5'   | 1:H1:2907:A:C8     | 2.98                     | 0.43              |
| 1:H1:2920:U:H1'   | 1:H1:2923:U:C4     | 2.53                     | 0.43              |
| 1:H1:3042:G:C6    | 1:H1:3043:U:C4     | 3.07                     | 0.43              |
| 1:H1:3073:U:C2'   | 1:H1:3074:G:H5'    | 2.49                     | 0.43              |
| 1:H1:3132:A:C2'   | 1:H1:3133:G:OP1    | 2.67                     | 0.43              |
| 1:H1:3137:U:O2'   | 1:H1:3138:G:H5'    | 2.19                     | 0.43              |
| 1:H1:3215:C:H2'   | 1:H1:3216:C:C6     | 2.54                     | 0.43              |
| 8:HH:50:PHE:CD1   | 8:HH:50:PHE:C      | 2.97                     | 0.43              |
| 11:HL:15:THR:HG22 | 11:HL:17:SER:H     | 1.83                     | 0.43              |
| 14:HO:29:PHE:HA   | 14:HO:48:VAL:O     | 2.19                     | 0.43              |
| 14:HO:62:LEU:HD11 | 14:HO:97:ARG:NE    | 2.33                     | 0.43              |
| 19:HX:3:ARG:O     | 19:HX:19:ARG:NH2   | 2.51                     | 0.43              |
| 19:HX:108:TYR:CZ  | 19:HX:120:LEU:HA   | 2.53                     | 0.43              |
| 1:A1:263:A:C4     | 16:AQ:30:ARG:NH1   | 2.86                     | 0.42              |
| 1:A1:389:G:C6     | 1:A1:390:G:C4      | 3.06                     | 0.42              |
| 1:A1:632:G:C5     | 1:A1:633:C:C4      | 3.07                     | 0.42              |
| 1:A1:697:A:H5'    | 35:BN:57:ARG:NH1   | 2.33                     | 0.42              |
| 1:A1:1053:A:C2'   | 1:A1:1054:G:OP2    | 2.67                     | 0.42              |
| 1:A1:1394:G:HO2'  | 1:A1:1395:U:P      | 2.41                     | 0.42              |
| 1:A1:1466:G:O2'   | 1:A1:1467:G:H5'    | 2.19                     | 0.42              |
| 1:A1:1601:U:O2'   | 1:A1:1602:U:H5'    | 2.19                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:A1:1642:G:C2     | 1:A1:1852:A:C2    | 3.07                     | 0.42              |
| 1:A1:1966:U:H2'    | 1:A1:1967:C:O5'   | 2.19                     | 0.42              |
| 1:A1:2099:C:OP1    | 36:BO:81:ARG:NH1  | 2.52                     | 0.42              |
| 1:A1:2162:A:H1'    | 33:BL:74:PRO:HA   | 2.01                     | 0.42              |
| 1:A1:2187:C:H2'    | 1:A1:2188:U:C5'   | 2.48                     | 0.42              |
| 1:A1:2545:A:N3     | 22:BA:86:GLY:CA   | 2.81                     | 0.42              |
| 1:A1:2762:U:O2     | 1:A1:2762:U:H2'   | 2.18                     | 0.42              |
| 1:A1:2801:A:N6     | 1:A1:2802:G:C6    | 2.87                     | 0.42              |
| 1:A1:2847:U:H4'    | 1:A1:2848:U:O5'   | 2.15                     | 0.42              |
| 1:A1:2849:U:H3'    | 1:A1:2850:U:H6    | 1.84                     | 0.42              |
| 1:A1:2989:G:N2     | 23:BB:118:PHE:CE2 | 2.70                     | 0.42              |
| 1:A1:3069:G:OP2    | 44:BW:64:ARG:NH1  | 2.43                     | 0.42              |
| 1:A1:3157:C:H4'    | 1:A1:3158:G:O5'   | 2.15                     | 0.42              |
| 2:AA:21:ARG:CZ     | 2:AA:44:MET:HE1   | 2.49                     | 0.42              |
| 3:AB:11:LYS:HZ1    | 20:B2:114:G:N2    | 2.16                     | 0.42              |
| 5:AE:88:LYS:HG3    | 5:AE:89:ARG:C     | 2.43                     | 0.42              |
| 6:AF:7:VAL:HG22    | 6:AF:55:LEU:HD21  | 2.00                     | 0.42              |
| 9:AJ:46:ILE:HG22   | 9:AJ:47:PRO:O     | 2.19                     | 0.42              |
| 9:AJ:188:ARG:HG3   | 9:AJ:188:ARG:O    | 2.18                     | 0.42              |
| 11:AL:83:CYS:O     | 11:AL:87:VAL:HG23 | 2.19                     | 0.42              |
| 13:AN:132:ALA:O    | 13:AN:133:SER:C   | 2.62                     | 0.42              |
| 14:AO:13:ASN:ND2   | 14:AO:16:LEU:HB2  | 2.34                     | 0.42              |
| 14:AO:124:ASN:O    | 14:AO:128:GLU:HG3 | 2.19                     | 0.42              |
| 16:AQ:42:ARG:HA    | 33:BL:9:GLU:OE1   | 2.19                     | 0.42              |
| 23:BB:82:PRO:HA    | 23:BB:83:PRO:HD3  | 1.89                     | 0.42              |
| 23:BB:230:ARG:HG2  | 23:BB:231:PHE:CE1 | 2.54                     | 0.42              |
| 23:BB:294:THR:HB   | 23:BB:297:ASP:H   | 1.84                     | 0.42              |
| 27:BF:45:VAL:HB    | 27:BF:47:TRP:CZ2  | 2.54                     | 0.42              |
| 28:BG:109:UNK:O    | 28:BG:112:UNK:HB2 | 2.19                     | 0.42              |
| 33:BL:184:LEU:CD2  | 33:BL:188:ARG:HD2 | 2.48                     | 0.42              |
| 38:BQ:61:PRO:HG2   | 38:BQ:78:PHE:CD1  | 2.54                     | 0.42              |
| 20:C2:10:U:H2'     | 20:C2:11:C:H6     | 1.81                     | 0.42              |
| 21:C3:39:U:C2      | 25:CD:46:VAL:CG2  | 3.02                     | 0.42              |
| 22:CA:210:HIS:HA   | 22:CA:211:PRO:HD3 | 1.93                     | 0.42              |
| 23:CB:22:THR:OG1   | 23:CB:271:HIS:HA  | 2.18                     | 0.42              |
| 23:CB:119:TYR:HE1  | 1:D1:3255:A:C5'   | 2.32                     | 0.42              |
| 23:CB:294:THR:CG2  | 23:CB:354:LEU:O   | 2.67                     | 0.42              |
| 24:CC:195:ARG:HH11 | 24:CC:204:ARG:CB  | 2.31                     | 0.42              |
| 24:CC:380:PHE:HD2  | 24:CC:381:ASN:OD1 | 2.02                     | 0.42              |
| 27:CF:45:VAL:CG1   | 27:CF:46:ARG:N    | 2.82                     | 0.42              |
| 27:CF:131:HIS:CD2  | 1:D1:117:G:C2     | 3.07                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:CF:155:LEU:HD23 | 33:CL:7:LEU:HD11   | 2.01                     | 0.42              |
| 30:CI:107:ILE:HG13 | 30:CI:159:ARG:HH12 | 1.82                     | 0.42              |
| 32:CK:36:LYS:HA    | 18:DU:1:MET:CE     | 2.40                     | 0.42              |
| 33:CL:7:LEU:O      | 33:CL:8:GLU:C      | 2.61                     | 0.42              |
| 34:CM:54:ARG:CZ    | 34:CM:149:GLY:HA3  | 2.49                     | 0.42              |
| 34:CM:128:ALA:O    | 34:CM:129:TYR:C    | 2.61                     | 0.42              |
| 35:CN:6:HIS:C      | 35:CN:8:GLN:N      | 2.75                     | 0.42              |
| 35:CN:38:VAL:HG13  | 35:CN:47:GLN:HG2   | 2.00                     | 0.42              |
| 37:CP:43:MET:HE3   | 37:CP:43:MET:HB3   | 1.53                     | 0.42              |
| 38:CQ:113:ASN:O    | 38:CQ:154:GLU:HA   | 2.19                     | 0.42              |
| 42:CU:42:ALA:HA    | 42:CU:45:LEU:HG    | 1.99                     | 0.42              |
| 42:CU:81:PRO:HG2   | 42:CU:84:ILE:HD12  | 2.01                     | 0.42              |
| 43:CV:127:VAL:O    | 43:CV:128:LEU:C    | 2.62                     | 0.42              |
| 43:CV:145:ILE:HD12 | 43:CV:182:ILE:HG12 | 1.99                     | 0.42              |
| 44:CW:43:MET:HG3   | 44:CW:90:THR:CG2   | 2.49                     | 0.42              |
| 45:CX:31:ASP:CG    | 45:CX:32:SER:N     | 2.76                     | 0.42              |
| 1:D1:139:A:O2'     | 1:D1:140:A:H8      | 2.02                     | 0.42              |
| 1:D1:307:A:C2      | 1:D1:2770:U:O2     | 2.72                     | 0.42              |
| 1:D1:436:U:H2'     | 1:D1:437:A:H5'     | 2.01                     | 0.42              |
| 1:D1:609:A:C2      | 1:D1:610:A:C5      | 3.07                     | 0.42              |
| 1:D1:635:A:HO2'    | 1:D1:636:U:P       | 2.30                     | 0.42              |
| 1:D1:775:C:O2      | 1:D1:775:C:C2'     | 2.62                     | 0.42              |
| 1:D1:840:G:C2      | 1:D1:951:A:C2      | 3.07                     | 0.42              |
| 1:D1:1147:A:H2'    | 1:D1:1148:U:C6     | 2.54                     | 0.42              |
| 1:D1:1211:A:C2     | 1:D1:1350:G:C4     | 3.07                     | 0.42              |
| 1:D1:1350:G:H4'    | 19:DX:16:MET:SD    | 2.59                     | 0.42              |
| 1:D1:1415:C:O2     | 1:D1:1415:C:C2'    | 2.67                     | 0.42              |
| 1:D1:1738:A:C8     | 1:D1:1752:G:C2     | 3.06                     | 0.42              |
| 1:D1:2146:G:H5''   | 50:D1:4659:HOH:O   | 2.18                     | 0.42              |
| 1:D1:2391:G:H5'    | 1:D1:2392:A:C4'    | 2.41                     | 0.42              |
| 1:D1:2432:G:N2     | 1:D1:2506:G:H1'    | 2.34                     | 0.42              |
| 2:DA:21:ARG:HH11   | 2:DA:44:MET:HE1    | 1.80                     | 0.42              |
| 5:DE:18:TRP:CD1    | 5:DE:18:TRP:H      | 2.36                     | 0.42              |
| 5:DE:122:ALA:CB    | 5:DE:132:ALA:HB1   | 2.48                     | 0.42              |
| 8:DH:18:ALA:HB2    | 8:DH:39:LEU:HD22   | 2.00                     | 0.42              |
| 9:DJ:118:HIS:HA    | 9:DJ:119:PRO:HD2   | 1.83                     | 0.42              |
| 9:DJ:158:GLY:HA2   | 9:DJ:179:ILE:HD12  | 2.00                     | 0.42              |
| 13:DN:30:GLU:C     | 13:DN:30:GLU:CD    | 2.87                     | 0.42              |
| 13:DN:81:MET:SD    | 13:DN:82:PRO:HD2   | 2.59                     | 0.42              |
| 14:DO:118:ASN:OD1  | 14:DO:122:GLN:NE2  | 2.52                     | 0.42              |
| 17:DT:59:LEU:HA    | 17:DT:59:LEU:HD12  | 1.70                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 18:DU:166:VAL:O    | 18:DU:167:SER:C   | 2.62                     | 0.42              |
| 19:DX:187:THR:CG2  | 19:DX:188:THR:N   | 2.82                     | 0.42              |
| 20:E2:17:U:H5''    | 20:E2:18:G:OP2    | 2.19                     | 0.42              |
| 24:EC:69:ALA:HB1   | 24:EC:96:ALA:CB   | 2.49                     | 0.42              |
| 24:EC:99:ASN:HD21  | 1:F1:828:C:H4'    | 1.82                     | 0.42              |
| 26:EE:139:LYS:O    | 26:EE:140:ASN:HB2 | 2.20                     | 0.42              |
| 31:EJ:35:ALA:HB1   | 31:EJ:66:VAL:HG11 | 2.01                     | 0.42              |
| 33:EL:16:SER:HB3   | 16:FQ:49:THR:CG2  | 2.48                     | 0.42              |
| 33:EL:33:LEU:HB3   | 33:EL:34:PRO:HD2  | 2.00                     | 0.42              |
| 34:EM:11:ALA:O     | 34:EM:12:TYR:C    | 2.62                     | 0.42              |
| 34:EM:164:LYS:HA   | 34:EM:167:CYS:SG  | 2.59                     | 0.42              |
| 35:EN:62:PRO:O     | 35:EN:142:ALA:HB1 | 2.18                     | 0.42              |
| 35:EN:167:VAL:HG13 | 35:EN:169:SER:O   | 2.19                     | 0.42              |
| 36:EO:42:ARG:HH21  | 1:F1:1626:U:P     | 2.42                     | 0.42              |
| 36:EO:115:ILE:CG2  | 36:EO:119:GLN:HB3 | 2.48                     | 0.42              |
| 37:EP:101:VAL:HG22 | 1:F1:1016:U:H1'   | 2.01                     | 0.42              |
| 38:EQ:39:LYS:HE2   | 38:EQ:119:GLY:N   | 2.26                     | 0.42              |
| 40:ES:3:THR:CB     | 1:F1:229:A:H5''   | 2.49                     | 0.42              |
| 40:ES:51:LYS:O     | 40:ES:51:LYS:HG3  | 2.18                     | 0.42              |
| 42:EU:7:VAL:HG13   | 42:EU:61:ILE:HD11 | 2.00                     | 0.42              |
| 42:EU:53:LYS:O     | 42:EU:57:LYS:HG3  | 2.19                     | 0.42              |
| 42:EU:66:ARG:O     | 42:EU:69:ALA:HB3  | 2.18                     | 0.42              |
| 43:EV:123:MET:HB3  | 43:EV:123:MET:HE2 | 1.73                     | 0.42              |
| 43:EV:124:ILE:O    | 43:EV:125:LYS:C   | 2.62                     | 0.42              |
| 46:EY:55:TRP:CD1   | 46:EY:66:GLY:HA3  | 2.54                     | 0.42              |
| 1:F1:68:A:H1'      | 1:F1:70:C:H41     | 1.84                     | 0.42              |
| 1:F1:141:C:O5'     | 1:F1:141:C:H6     | 2.02                     | 0.42              |
| 1:F1:581:C:H2'     | 1:F1:582:A:C4'    | 2.48                     | 0.42              |
| 1:F1:723:U:O3'     | 1:F1:724:C:H6     | 2.02                     | 0.42              |
| 1:F1:765:A:C6      | 1:F1:766:G:C2     | 3.07                     | 0.42              |
| 1:F1:914:U:H2'     | 1:F1:915:C:O4'    | 2.19                     | 0.42              |
| 1:F1:1215:U:C2     | 1:F1:1344:A:N6    | 2.87                     | 0.42              |
| 1:F1:1222:A:C2     | 1:F1:1336:U:C4    | 3.08                     | 0.42              |
| 1:F1:1370:A:C2     | 1:F1:1389:G:N1    | 2.87                     | 0.42              |
| 1:F1:1394:G:O2'    | 1:F1:1395:U:H6    | 2.02                     | 0.42              |
| 1:F1:1427:G:H2'    | 1:F1:1428:G:O5'   | 2.18                     | 0.42              |
| 1:F1:1531:C:C4     | 1:F1:1532:A:N7    | 2.87                     | 0.42              |
| 1:F1:1617:G:H4'    | 1:F1:1618:A:OP2   | 2.18                     | 0.42              |
| 1:F1:2180:G:O2'    | 50:F1:4076:HOH:O  | 2.22                     | 0.42              |
| 1:F1:2251:A:OP2    | 1:F1:2254:A:N1    | 2.52                     | 0.42              |
| 1:F1:2290:A:C6     | 1:F1:2291:A:C6    | 3.07                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2358:A:N1     | 1:F1:2359:G:C6     | 2.87                     | 0.42              |
| 1:F1:2873:C:C4     | 1:F1:2874:U:O4     | 2.72                     | 0.42              |
| 1:F1:3294:A:H2'    | 1:F1:3295:G:H5'    | 2.01                     | 0.42              |
| 2:FA:4:GLY:O       | 2:FA:7:ALA:HB3     | 2.19                     | 0.42              |
| 8:FH:13:ARG:CG     | 8:FH:15:TRP:CE3    | 2.95                     | 0.42              |
| 10:FK:84:ALA:O     | 10:FK:88:LYS:HG3   | 2.18                     | 0.42              |
| 11:FL:68:ALA:O     | 11:FL:69:ARG:C     | 2.61                     | 0.42              |
| 16:FQ:2:ALA:CB     | 16:FQ:5:GLN:OE1    | 2.66                     | 0.42              |
| 19:FX:52:LYS:O     | 19:FX:55:PHE:HB3   | 2.19                     | 0.42              |
| 23:GB:86:ILE:HD13  | 23:GB:196:LEU:HD13 | 2.00                     | 0.42              |
| 24:GC:108:ALA:O    | 24:GC:109:PRO:C    | 2.58                     | 0.42              |
| 24:GC:391:ALA:O    | 24:GC:392:ARG:C    | 2.62                     | 0.42              |
| 26:GE:154:GLN:NE2  | 1:H1:3115:C:C1'    | 2.78                     | 0.42              |
| 27:GF:127:TYR:HE1  | 1:H1:146:U:C2      | 2.37                     | 0.42              |
| 27:GF:222:ARG:HA   | 27:GF:222:ARG:HD2  | 1.81                     | 0.42              |
| 29:GH:34:TYR:CE1   | 29:GH:92:HIS:CE1   | 3.07                     | 0.42              |
| 29:GH:166:VAL:CG1  | 29:GH:167:THR:N    | 2.81                     | 0.42              |
| 34:GM:60:ILE:HD13  | 34:GM:98:ALA:HB2   | 2.01                     | 0.42              |
| 35:GN:6:HIS:HB2    | 1:H1:1131:G:C5     | 2.53                     | 0.42              |
| 35:GN:30:LEU:HD11  | 35:GN:124:PHE:CB   | 2.49                     | 0.42              |
| 35:GN:52:ARG:HH12  | 35:GN:141:ARG:CD   | 2.32                     | 0.42              |
| 35:GN:94:LEU:HD23  | 35:GN:94:LEU:HA    | 1.76                     | 0.42              |
| 35:GN:172:ARG:HG2  | 35:GN:173:LYS:N    | 2.32                     | 0.42              |
| 38:GQ:8:ARG:HH12   | 38:GQ:118:HIS:N    | 2.17                     | 0.42              |
| 39:GR:89:THR:HA    | 39:GR:132:ILE:O    | 2.19                     | 0.42              |
| 39:GR:113:VAL:HG12 | 39:GR:114:LYS:N    | 2.33                     | 0.42              |
| 40:GS:31:SER:HA    | 40:GS:49:VAL:HG23  | 2.01                     | 0.42              |
| 41:GT:8:CYS:O      | 41:GT:12:GLU:HA    | 2.19                     | 0.42              |
| 44:GW:79:ASN:OD1   | 44:GW:81:GLU:HG2   | 2.19                     | 0.42              |
| 46:GY:4:ARG:NH2    | 1:H1:864:C:N4      | 2.66                     | 0.42              |
| 46:GY:38:GLY:HA2   | 46:GY:45:VAL:HA    | 2.00                     | 0.42              |
| 1:H1:90:G:OP2      | 1:H1:91:C:H5''     | 2.18                     | 0.42              |
| 1:H1:292:C:O2'     | 16:HQ:80:ARG:HA    | 2.18                     | 0.42              |
| 1:H1:340:G:C5'     | 1:H1:343:A:H1'     | 2.48                     | 0.42              |
| 1:H1:350:A:N6      | 3:HB:35:ILE:HG23   | 2.34                     | 0.42              |
| 1:H1:389:G:C6      | 1:H1:390:G:C4      | 3.07                     | 0.42              |
| 1:H1:581:C:H2'     | 1:H1:582:A:C4'     | 2.49                     | 0.42              |
| 1:H1:646:A:H2'     | 1:H1:647:U:H6      | 1.83                     | 0.42              |
| 1:H1:1051:C:N1     | 1:H1:1052:A:C8     | 2.87                     | 0.42              |
| 1:H1:1056:A:C2'    | 1:H1:1057:U:H5'    | 2.49                     | 0.42              |
| 1:H1:1107:A:H3'    | 1:H1:1108:A:C8     | 2.43                     | 0.42              |

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| Atom-1          | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-----------------|--------------------|--------------------------|-------------------|
| 1:H1:1310:C:C5  | 1:H1:1311:C:C4     | 3.07                     | 0.42              |
| 1:H1:1312:G:H2' | 1:H1:1313:A:C8     | 2.54                     | 0.42              |
| 1:H1:1355:C:N4  | 1:H1:1356:G:C6     | 2.86                     | 0.42              |
| 1:H1:1527:A:O2' | 1:H1:1528:G:H8     | 2.02                     | 0.42              |
| 1:H1:1880:C:H2' | 1:H1:1881:C:C6     | 2.54                     | 0.42              |
| 1:H1:2358:A:C2  | 1:H1:2359:G:C4     | 3.06                     | 0.42              |
| 1:H1:2736:A:H2' | 1:H1:2737:A:C8     | 2.54                     | 0.42              |
| 1:H1:2766:A:C3' | 1:H1:2767:A:H5'    | 2.49                     | 0.42              |
| 1:H1:2801:A:N6  | 1:H1:2802:G:C5     | 2.87                     | 0.42              |
| 1:H1:2824:C:H2' | 1:H1:2825:A:O4'    | 2.19                     | 0.42              |
| 1:H1:2833:A:C5  | 1:H1:2834:U:C5     | 3.07                     | 0.42              |
| 1:H1:3190:A:C6  | 1:H1:3191:G:C2     | 3.07                     | 0.42              |
| 6:HF:15:ILE:O   | 6:HF:21:LYS:HA     | 2.18                     | 0.42              |
| 6:HF:23:LYS:HB2 | 6:HF:43:ILE:HD11   | 2.00                     | 0.42              |
| 6:HF:32:ASN:OD1 | 6:HF:32:ASN:C      | 2.61                     | 0.42              |
| 1:A1:43:A:C5    | 1:A1:44:U:C5       | 3.07                     | 0.42              |
| 1:A1:47:G:O2'   | 1:A1:48:U:OP1      | 2.37                     | 0.42              |
| 1:A1:70:C:C5    | 1:A1:72:A:C4       | 3.07                     | 0.42              |
| 1:A1:115:G:H1   | 1:A1:159:G:H4'     | 1.83                     | 0.42              |
| 1:A1:269:U:C2   | 1:A1:270:C:C5      | 3.07                     | 0.42              |
| 1:A1:279:U:C5'  | 33:BL:188:ARG:HH21 | 2.32                     | 0.42              |
| 1:A1:296:G:H3'  | 16:AQ:34:LEU:HD21  | 2.00                     | 0.42              |
| 1:A1:564:A:C6   | 1:A1:567:C:H4'     | 2.54                     | 0.42              |
| 1:A1:666:U:H5'  | 1:A1:1143:G:O6     | 2.19                     | 0.42              |
| 1:A1:707:A:H2'  | 1:A1:708:G:O4'     | 2.19                     | 0.42              |
| 1:A1:792:G:H2'  | 1:A1:793:A:H8      | 1.84                     | 0.42              |
| 1:A1:969:C:H1'  | 1:A1:1457:G:N2     | 2.35                     | 0.42              |
| 1:A1:997:G:C5'  | 1:A1:1399:A:O2'    | 2.67                     | 0.42              |
| 1:A1:1035:A:H2' | 1:A1:1036:G:C8     | 2.54                     | 0.42              |
| 1:A1:1043:C:O5' | 1:A1:1043:C:H6     | 2.03                     | 0.42              |
| 1:A1:1064:C:H4' | 34:BM:6:VAL:H      | 1.84                     | 0.42              |
| 1:A1:1073:A:N3  | 1:A1:2622:U:O2'    | 2.47                     | 0.42              |
| 1:A1:1105:U:C2  | 1:A1:1111:G:C2     | 3.06                     | 0.42              |
| 1:A1:1355:C:C2' | 1:A1:1356:G:O5'    | 2.67                     | 0.42              |
| 1:A1:1382:A:C4' | 1:A1:1383:G:O5'    | 2.62                     | 0.42              |
| 1:A1:1404:G:H2' | 1:A1:1405:U:H6     | 1.84                     | 0.42              |
| 1:A1:1439:U:H2' | 1:A1:1440:A:H8     | 1.85                     | 0.42              |
| 1:A1:1608:G:C2' | 1:A1:1609:U:O5'    | 2.67                     | 0.42              |
| 1:A1:1681:C:O2' | 1:A1:1823:A:OP2    | 2.26                     | 0.42              |
| 1:A1:1728:A:C2' | 1:A1:1729:U:OP2    | 2.66                     | 0.42              |
| 1:A1:2104:C:O2' | 1:A1:2105:U:H5'    | 2.18                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2276:A:C6     | 1:A1:2947:C:H1'    | 2.53                     | 0.42              |
| 1:A1:2416:U:H6     | 1:A1:2416:U:C5'    | 2.21                     | 0.42              |
| 1:A1:2417:C:H5'    | 4:AC:50:GLY:HA2    | 2.00                     | 0.42              |
| 1:A1:2518:A:H5'    | 27:BF:46:ARG:CD    | 2.49                     | 0.42              |
| 1:A1:2706:U:H5'    | 1:A1:2706:U:H6     | 1.84                     | 0.42              |
| 1:A1:2908:U:P      | 50:A1:4500:HOH:O   | 2.66                     | 0.42              |
| 1:A1:3008:U:O5'    | 1:A1:3008:U:H6     | 2.01                     | 0.42              |
| 1:A1:3083:A:H2'    | 1:A1:3084:U:C6     | 2.54                     | 0.42              |
| 1:A1:3098:A:N1     | 1:A1:3115:C:C4     | 2.87                     | 0.42              |
| 1:A1:3175:A:N3     | 1:A1:3175:A:H3'    | 2.33                     | 0.42              |
| 2:AA:71:ILE:O      | 2:AA:75:ALA:HB2    | 2.19                     | 0.42              |
| 3:AB:6:THR:HB      | 3:AB:9:MET:H       | 1.83                     | 0.42              |
| 4:AC:25:GLN:HG2    | 4:AC:26:TYR:N      | 2.34                     | 0.42              |
| 4:AC:93:ASP:O      | 4:AC:97:ILE:HG13   | 2.18                     | 0.42              |
| 5:AE:56:GLY:N      | 5:AE:59:ARG:HB3    | 2.34                     | 0.42              |
| 6:AF:2:VAL:CG1     | 6:AF:3:PHE:N       | 2.82                     | 0.42              |
| 6:AF:28:VAL:CG1    | 6:AF:66:ASN:CA     | 2.97                     | 0.42              |
| 8:AH:9:VAL:CG1     | 8:AH:10:ALA:H      | 2.31                     | 0.42              |
| 8:AH:48:VAL:CG1    | 8:AH:87:ALA:HB2    | 2.49                     | 0.42              |
| 9:AJ:211:THR:OG1   | 9:AJ:214:GLU:HG3   | 2.19                     | 0.42              |
| 10:AK:80:PRO:HA    | 10:AK:83:ALA:HB3   | 2.01                     | 0.42              |
| 12:AM:32:ILE:HG21  | 12:AM:61:ASP:O     | 2.18                     | 0.42              |
| 13:AN:30:GLU:C     | 13:AN:30:GLU:CD    | 2.86                     | 0.42              |
| 13:AN:95:GLU:OE1   | 13:AN:95:GLU:HA    | 2.18                     | 0.42              |
| 16:AQ:83:THR:CG2   | 16:AQ:85:ARG:HB3   | 2.50                     | 0.42              |
| 19:AX:48:GLU:O     | 19:AX:52:LYS:HG3   | 2.20                     | 0.42              |
| 20:B2:30:U:H2'     | 20:B2:31:C:C6      | 2.54                     | 0.42              |
| 22:BA:176:THR:O    | 22:BA:176:THR:CG2  | 2.68                     | 0.42              |
| 24:BC:164:GLU:HB3  | 24:BC:221:SER:HB3  | 2.01                     | 0.42              |
| 24:BC:313:THR:HG22 | 24:BC:314:THR:H    | 1.84                     | 0.42              |
| 24:BC:374:GLN:HA   | 24:BC:377:ILE:HD12 | 2.00                     | 0.42              |
| 25:BD:138:VAL:HG13 | 25:BD:141:ARG:NH2  | 2.34                     | 0.42              |
| 27:BF:25:LYS:HA    | 27:BF:26:PRO:HD3   | 1.81                     | 0.42              |
| 27:BF:136:ILE:O    | 27:BF:166:ASN:ND2  | 2.52                     | 0.42              |
| 27:BF:144:VAL:HG23 | 27:BF:168:VAL:CG1  | 2.49                     | 0.42              |
| 30:BI:60:TRP:CD1   | 30:BI:60:TRP:O     | 2.72                     | 0.42              |
| 30:BI:184:PRO:HA   | 30:BI:187:LYS:CE   | 2.50                     | 0.42              |
| 34:BM:153:THR:HG22 | 34:BM:179:ARG:NH1  | 2.30                     | 0.42              |
| 35:BN:155:ALA:CB   | 35:BN:158:GLN:NE2  | 2.67                     | 0.42              |
| 40:BS:58:VAL:HG12  | 40:BS:59:ARG:CG    | 2.47                     | 0.42              |
| 42:BU:86:VAL:HG12  | 42:BU:88:LYS:HG3   | 2.01                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 46:BY:17:ARG:HB2   | 46:BY:18:TYR:CE2   | 2.54                     | 0.42              |
| 22:CA:3:ARG:HB3    | 22:CA:208:VAL:O    | 2.18                     | 0.42              |
| 22:CA:70:TYR:CD2   | 1:D1:1674:C:C4'    | 2.99                     | 0.42              |
| 22:CA:138:ILE:HD11 | 22:CA:150:ARG:HB2  | 2.01                     | 0.42              |
| 23:CB:102:LEU:HD12 | 23:CB:102:LEU:HA   | 1.66                     | 0.42              |
| 23:CB:238:LYS:HE3  | 1:D1:2332:C:P      | 2.59                     | 0.42              |
| 23:CB:240:THR:HA   | 1:D1:2936:C:O2'    | 2.19                     | 0.42              |
| 23:CB:310:PRO:HA   | 1:D1:3334:C:O2'    | 2.19                     | 0.42              |
| 25:CD:94:LYS:O     | 25:CD:94:LYS:HG3   | 2.18                     | 0.42              |
| 26:CE:7:GLU:OE1    | 26:CE:54:LYS:HE2   | 2.18                     | 0.42              |
| 26:CE:88:PHE:HD1   | 26:CE:182:LYS:HA   | 1.79                     | 0.42              |
| 30:CI:17:ARG:O     | 30:CI:18:LEU:C     | 2.61                     | 0.42              |
| 30:CI:35:VAL:HG12  | 30:CI:107:ILE:HG12 | 2.01                     | 0.42              |
| 30:CI:80:TRP:HH2   | 30:CI:84:ARG:HH12  | 1.66                     | 0.42              |
| 30:CI:177:ARG:HA   | 30:CI:180:GLU:HG2  | 2.00                     | 0.42              |
| 32:CK:58:LEU:HD23  | 32:CK:58:LEU:HA    | 1.53                     | 0.42              |
| 32:CK:145:CYS:HB3  | 18:DU:177:VAL:HG21 | 2.00                     | 0.42              |
| 35:CN:43:SER:O     | 35:CN:43:SER:OG    | 2.35                     | 0.42              |
| 35:CN:155:ALA:CB   | 35:CN:158:GLN:NE2  | 2.64                     | 0.42              |
| 47:CO:68:GLU:HA    | 47:CO:68:GLU:OE1   | 2.19                     | 0.42              |
| 37:CP:80:VAL:O     | 37:CP:83:ARG:HG2   | 2.19                     | 0.42              |
| 39:CR:43:LEU:HD13  | 1:D1:1599:G:H5''   | 1.99                     | 0.42              |
| 40:CS:80:HIS:ND1   | 40:CS:95:GLN:CB    | 2.77                     | 0.42              |
| 43:CV:189:GLY:HA3  | 43:CV:190:PRO:HD2  | 1.80                     | 0.42              |
| 1:D1:146:U:O2'     | 1:D1:147:U:OP2     | 2.37                     | 0.42              |
| 1:D1:159:G:C4      | 1:D1:160:G:C8      | 3.07                     | 0.42              |
| 1:D1:469:U:O2      | 1:D1:510:A:N1      | 2.52                     | 0.42              |
| 1:D1:831:A:H2'     | 1:D1:832:A:C8      | 2.54                     | 0.42              |
| 1:D1:1208:U:H5'    | 19:DX:178:ARG:CZ   | 2.43                     | 0.42              |
| 1:D1:1355:C:H2'    | 1:D1:1356:G:O5'    | 2.20                     | 0.42              |
| 1:D1:1681:C:OP1    | 11:DL:40:ASN:ND2   | 2.53                     | 0.42              |
| 1:D1:1815:G:H2'    | 1:D1:1816:A:C8     | 2.54                     | 0.42              |
| 1:D1:1832:G:OP1    | 11:DL:77:VAL:O     | 2.37                     | 0.42              |
| 1:D1:2543:C:H42    | 7:DG:54:SER:HB3    | 1.84                     | 0.42              |
| 1:D1:2667:A:N6     | 1:D1:2668:A:C6     | 2.88                     | 0.42              |
| 1:D1:2833:A:C5     | 1:D1:2834:U:C5     | 3.07                     | 0.42              |
| 1:D1:3175:A:C5'    | 1:D1:3176:A:OP1    | 2.67                     | 0.42              |
| 3:DB:6:THR:HB      | 3:DB:9:MET:H       | 1.84                     | 0.42              |
| 8:DH:15:TRP:CD2    | 8:DH:105:ARG:HD3   | 2.55                     | 0.42              |
| 9:DJ:53:ILE:HD12   | 9:DJ:59:VAL:HA     | 2.01                     | 0.42              |
| 9:DJ:224:LEU:HD23  | 9:DJ:224:LEU:HA    | 1.68                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 16:DQ:61:LEU:HD13 | 16:DQ:72:LYS:CB    | 2.49                     | 0.42              |
| 18:DU:81:ALA:HB2  | 18:DU:114:LEU:HD13 | 2.01                     | 0.42              |
| 19:DX:124:MET:HE3 | 19:DX:128:HIS:CD2  | 2.54                     | 0.42              |
| 20:E2:10:U:C4     | 20:E2:11:C:N4      | 2.87                     | 0.42              |
| 20:E2:80:A:H8     | 20:E2:80:A:O5'     | 2.02                     | 0.42              |
| 23:EB:54:THR:HG23 | 23:EB:55:HIS:H     | 1.82                     | 0.42              |
| 24:EC:166:TYR:HD1 | 24:EC:171:GLN:HG3  | 1.85                     | 0.42              |
| 24:EC:230:ILE:HB  | 24:EC:233:VAL:HG11 | 2.01                     | 0.42              |
| 24:EC:380:PHE:CE1 | 19:FX:22:VAL:HG22  | 2.53                     | 0.42              |
| 32:EK:84:VAL:HG13 | 1:F1:485:A:H2'     | 2.01                     | 0.42              |
| 33:EL:63:ARG:HG2  | 33:EL:131:GLU:HG3  | 2.01                     | 0.42              |
| 34:EM:60:ILE:HD13 | 34:EM:98:ALA:HB2   | 2.00                     | 0.42              |
| 37:EP:11:THR:CG2  | 37:EP:15:PHE:CG    | 3.02                     | 0.42              |
| 39:ER:91:VAL:HG13 | 39:ER:131:TYR:CD1  | 2.54                     | 0.42              |
| 40:ES:61:LYS:HE2  | 1:F1:218:G:H1      | 1.82                     | 0.42              |
| 41:ET:5:THR:HG21  | 41:ET:14:ARG:NE    | 2.34                     | 0.42              |
| 1:F1:114:A:H2'    | 1:F1:115:G:H8      | 1.83                     | 0.42              |
| 1:F1:136:C:C2'    | 1:F1:137:A:H5'     | 2.50                     | 0.42              |
| 1:F1:155:A:O3'    | 16:FQ:28:VAL:HG23  | 2.19                     | 0.42              |
| 1:F1:165:C:H4'    | 18:FU:132:LYS:HD2  | 2.00                     | 0.42              |
| 1:F1:168:G:H2'    | 1:F1:169:A:OP2     | 2.20                     | 0.42              |
| 1:F1:402:U:C2'    | 1:F1:403:G:H5'     | 2.50                     | 0.42              |
| 1:F1:567:C:N4     | 1:F1:603:A:C2      | 2.87                     | 0.42              |
| 1:F1:646:A:H2'    | 1:F1:647:U:C6      | 2.55                     | 0.42              |
| 1:F1:669:A:C6     | 1:F1:673:A:C8      | 3.07                     | 0.42              |
| 1:F1:1248:G:O5'   | 1:F1:1248:G:H8     | 2.02                     | 0.42              |
| 1:F1:1388:U:H2'   | 1:F1:1389:G:C8     | 2.54                     | 0.42              |
| 1:F1:1404:G:H2'   | 1:F1:1405:U:H6     | 1.84                     | 0.42              |
| 1:F1:1407:A:H2'   | 1:F1:1408:U:C6     | 2.54                     | 0.42              |
| 1:F1:1599:G:N1    | 1:F1:1600:U:C2     | 2.87                     | 0.42              |
| 1:F1:1689:G:H2'   | 1:F1:1690:G:C8     | 2.54                     | 0.42              |
| 1:F1:2149:U:O2'   | 1:F1:2150:U:H5''   | 2.19                     | 0.42              |
| 1:F1:2227:A:H2'   | 1:F1:2228:A:O4'    | 2.19                     | 0.42              |
| 1:F1:2371:G:C6    | 1:F1:2372:G:C6     | 3.07                     | 0.42              |
| 1:F1:2801:A:N6    | 1:F1:2802:G:C5     | 2.86                     | 0.42              |
| 1:F1:3128:G:H2'   | 1:F1:3129:G:O4'    | 2.20                     | 0.42              |
| 1:F1:3193:G:O2'   | 1:F1:3194:G:H5'    | 2.19                     | 0.42              |
| 1:F1:3309:U:C2'   | 1:F1:3310:U:O5'    | 2.67                     | 0.42              |
| 4:FC:10:THR:C     | 4:FC:18:HIS:ND1    | 2.77                     | 0.42              |
| 4:FC:11:TYR:CE1   | 4:FC:13:LYS:HA     | 2.54                     | 0.42              |
| 5:FE:28:PHE:C     | 5:FE:28:PHE:HD1    | 2.27                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 5:FE:54:LEU:O      | 5:FE:59:ARG:CB    | 2.53                     | 0.42              |
| 5:FE:54:LEU:C      | 5:FE:59:ARG:HB2   | 2.37                     | 0.42              |
| 5:FE:68:GLN:O      | 5:FE:68:GLN:CG    | 2.67                     | 0.42              |
| 5:FE:153:GLN:O     | 5:FE:154:GLN:C    | 2.62                     | 0.42              |
| 8:FH:9:VAL:CG1     | 8:FH:10:ALA:H     | 2.31                     | 0.42              |
| 8:FH:50:PHE:CD1    | 8:FH:50:PHE:C     | 2.96                     | 0.42              |
| 9:FJ:70:LEU:HD12   | 9:FJ:70:LEU:HA    | 1.86                     | 0.42              |
| 14:FO:13:ASN:OD1   | 14:FO:13:ASN:C    | 2.63                     | 0.42              |
| 18:FU:57:ARG:HD2   | 18:FU:64:ASN:O    | 2.19                     | 0.42              |
| 19:FX:61:LYS:HD3   | 19:FX:61:LYS:HA   | 1.77                     | 0.42              |
| 20:G2:56:A:H2'     | 20:G2:57:A:C8     | 2.54                     | 0.42              |
| 20:G2:87:C:O2'     | 20:G2:88:G:H5'    | 2.19                     | 0.42              |
| 22:GA:205:MET:HE2  | 22:GA:209:ASP:CB  | 2.48                     | 0.42              |
| 22:GA:210:HIS:CD2  | 22:GA:211:PRO:CD  | 2.99                     | 0.42              |
| 24:GC:74:THR:HG22  | 1:H1:2397:A:H5''  | 2.00                     | 0.42              |
| 26:GE:153:SER:OG   | 1:H1:3099:C:O2'   | 2.35                     | 0.42              |
| 27:GF:186:LYS:NZ   | 1:H1:144:A:OP1    | 2.37                     | 0.42              |
| 28:GG:7:UNK:HG1    | 1:H1:1248:G:H2'   | 2.00                     | 0.42              |
| 28:GG:30:UNK:HG3   | 28:GG:81:UNK:HB2  | 2.00                     | 0.42              |
| 29:GH:139:ARG:CG   | 29:GH:173:PHE:CE1 | 2.99                     | 0.42              |
| 29:GH:190:LEU:HD22 | 29:GH:197:VAL:CG1 | 2.49                     | 0.42              |
| 30:GI:92:PRO:O     | 30:GI:95:ALA:HB3  | 2.18                     | 0.42              |
| 31:GJ:139:SER:HB3  | 9:HJ:100:LYS:O    | 2.20                     | 0.42              |
| 32:GK:118:LEU:HB2  | 32:GK:141:VAL:CG2 | 2.43                     | 0.42              |
| 34:GM:49:TYR:HB2   | 34:GM:143:LYS:O   | 2.19                     | 0.42              |
| 35:GN:102:CYS:HB2  | 35:GN:122:LEU:HB3 | 2.01                     | 0.42              |
| 39:GR:77:THR:HG21  | 1:H1:1546:G:O3'   | 2.20                     | 0.42              |
| 39:GR:90:MET:HE2   | 39:GR:90:MET:HB3  | 1.54                     | 0.42              |
| 40:GS:73:TYR:HD1   | 40:GS:76:LYS:H    | 1.66                     | 0.42              |
| 40:GS:117:LEU:HD23 | 40:GS:120:ARG:CZ  | 2.49                     | 0.42              |
| 43:GV:37:ARG:O     | 43:GV:38:LYS:C    | 2.61                     | 0.42              |
| 1:H1:213:A:H2'     | 1:H1:214:G:O4'    | 2.19                     | 0.42              |
| 1:H1:401:U:OP1     | 1:H1:403:G:O6     | 2.37                     | 0.42              |
| 1:H1:549:G:H2'     | 1:H1:550:G:H8     | 1.84                     | 0.42              |
| 1:H1:564:A:N3      | 1:H1:564:A:C2'    | 2.75                     | 0.42              |
| 1:H1:632:G:C5      | 1:H1:633:C:C4     | 3.07                     | 0.42              |
| 1:H1:633:C:H3'     | 5:HE:30:ARG:NH2   | 2.33                     | 0.42              |
| 1:H1:1006:C:H2'    | 1:H1:1007:G:OP1   | 2.19                     | 0.42              |
| 1:H1:1074:A:C2     | 1:H1:2635:C:O2    | 2.70                     | 0.42              |
| 1:H1:1098:A:H2'    | 1:H1:1099:G:H5''  | 2.01                     | 0.42              |
| 1:H1:1326:U:O2'    | 10:HK:114:LYS:O   | 2.24                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:H1:1823:A:H2'   | 1:H1:1824:A:O4'   | 2.18                     | 0.42              |
| 1:H1:1883:A:C2    | 1:H1:1884:G:C8    | 3.07                     | 0.42              |
| 1:H1:2343:A:C2'   | 1:H1:2344:U:H5''  | 2.49                     | 0.42              |
| 1:H1:2689:G:O2'   | 1:H1:2694:A:N1    | 2.52                     | 0.42              |
| 1:H1:2771:U:C5    | 1:H1:2772:U:C5    | 3.07                     | 0.42              |
| 1:H1:3155:A:N7    | 8:HH:101:GLY:C    | 2.77                     | 0.42              |
| 9:HJ:97:ILE:HD12  | 9:HJ:104:LEU:CD1  | 2.48                     | 0.42              |
| 12:HM:19:ILE:CD1  | 12:HM:105:TYR:HB2 | 2.48                     | 0.42              |
| 13:HN:30:GLU:C    | 13:HN:30:GLU:CD   | 2.87                     | 0.42              |
| 14:HO:48:VAL:HA   | 14:HO:61:SER:O    | 2.18                     | 0.42              |
| 14:HO:62:LEU:O    | 14:HO:63:ARG:C    | 2.59                     | 0.42              |
| 15:HP:41:LYS:HD3  | 15:HP:52:THR:HG21 | 2.01                     | 0.42              |
| 1:A1:148:G:O2'    | 1:A1:149:U:C6     | 2.69                     | 0.42              |
| 1:A1:270:C:H2'    | 1:A1:271:G:O5'    | 2.19                     | 0.42              |
| 1:A1:282:G:C4     | 32:BK:63:PHE:CE1  | 3.07                     | 0.42              |
| 1:A1:369:U:H4'    | 1:A1:400:C:H2'    | 2.01                     | 0.42              |
| 1:A1:371:A:C6     | 1:A1:372:A:C6     | 3.08                     | 0.42              |
| 1:A1:462:G:H5''   | 14:AO:64:LYS:CE   | 2.50                     | 0.42              |
| 1:A1:581:C:H2'    | 1:A1:582:A:O4'    | 2.19                     | 0.42              |
| 1:A1:885:G:P      | 22:BA:182:LYS:HD3 | 2.60                     | 0.42              |
| 1:A1:927:G:C4     | 1:A1:928:U:C5     | 3.06                     | 0.42              |
| 1:A1:1004:U:C4'   | 1:A1:1005:A:OP1   | 2.68                     | 0.42              |
| 1:A1:1029:A:H1'   | 34:BM:15:ARG:NH2  | 2.35                     | 0.42              |
| 1:A1:1082:U:H4'   | 21:B3:80:A:H4'    | 2.00                     | 0.42              |
| 1:A1:1318:A:N6    | 1:A1:1319:C:C4    | 2.87                     | 0.42              |
| 1:A1:1407:A:H2'   | 1:A1:1408:U:C6    | 2.55                     | 0.42              |
| 1:A1:1423:A:H2'   | 1:A1:1424:U:O5'   | 2.18                     | 0.42              |
| 1:A1:1669:G:C2    | 1:A1:1670:A:C5    | 3.07                     | 0.42              |
| 1:A1:1824:A:H2'   | 1:A1:1825:A:C8    | 2.54                     | 0.42              |
| 1:A1:2434:A:H2'   | 1:A1:2435:A:C8    | 2.54                     | 0.42              |
| 1:A1:2737:A:N3    | 34:BM:36:LEU:HD23 | 2.34                     | 0.42              |
| 1:A1:2782:G:O2'   | 1:A1:2783:U:OP2   | 2.28                     | 0.42              |
| 1:A1:2935:G:OP2   | 1:A1:2935:G:H4'   | 2.19                     | 0.42              |
| 1:A1:3171:A:N6    | 1:A1:3172:A:N6    | 2.66                     | 0.42              |
| 1:A1:3173:U:H5''  | 1:A1:3174:U:OP2   | 2.20                     | 0.42              |
| 1:A1:3197:A:OP2   | 1:A1:3213:G:N1    | 2.51                     | 0.42              |
| 1:A1:3222:U:C2'   | 1:A1:3223:G:H5'   | 2.49                     | 0.42              |
| 4:AC:83:ILE:HG22  | 4:AC:84:LYS:N     | 2.33                     | 0.42              |
| 5:AE:185:ARG:HD2  | 5:AE:188:GLU:OE2  | 2.20                     | 0.42              |
| 9:AJ:186:ILE:HD13 | 9:AJ:196:GLY:C    | 2.44                     | 0.42              |
| 12:AM:44:LYS:HA   | 12:AM:48:LYS:O    | 2.19                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:AP:41:LYS:HD3   | 15:AP:52:THR:HG21  | 2.01                     | 0.42              |
| 19:AX:131:GLN:O    | 19:AX:134:THR:HB   | 2.19                     | 0.42              |
| 19:AX:150:ARG:O    | 19:AX:154:LEU:HG   | 2.18                     | 0.42              |
| 21:B3:83:G:C5'     | 50:B3:306:HOH:O    | 2.66                     | 0.42              |
| 21:B3:95:U:H2'     | 21:B3:96:U:C6      | 2.54                     | 0.42              |
| 23:BB:330:LYS:H    | 23:BB:330:LYS:HG2  | 1.64                     | 0.42              |
| 23:BB:356:PHE:CE2  | 23:BB:358:ASP:HA   | 2.54                     | 0.42              |
| 23:BB:377:PHE:HZ   | 41:BT:13:TYR:HE1   | 1.66                     | 0.42              |
| 24:BC:267:ASN:O    | 24:BC:271:GLY:N    | 2.52                     | 0.42              |
| 26:BE:90:MET:HE2   | 26:BE:177:ILE:HG22 | 2.01                     | 0.42              |
| 30:BI:37:THR:C     | 30:BI:39:ALA:H     | 2.27                     | 0.42              |
| 30:BI:50:ARG:O     | 30:BI:54:SER:HB2   | 2.19                     | 0.42              |
| 30:BI:73:ARG:HD3   | 30:BI:144:VAL:CG1  | 2.29                     | 0.42              |
| 32:BK:52:PRO:HG3   | 35:BN:157:GLY:HA3  | 2.00                     | 0.42              |
| 32:BK:75:VAL:HG23  | 32:BK:109:PHE:CG   | 2.51                     | 0.42              |
| 32:BK:101:VAL:HG22 | 32:BK:124:VAL:HB   | 2.00                     | 0.42              |
| 34:BM:173:ILE:HA   | 34:BM:174:PRO:HD3  | 1.79                     | 0.42              |
| 37:BP:116:LYS:HZ1  | 37:BP:128:THR:CB   | 2.18                     | 0.42              |
| 40:BS:60:GLY:C     | 40:BS:62:PHE:N     | 2.73                     | 0.42              |
| 43:BV:227:ARG:O    | 43:BV:228:GLU:C    | 2.61                     | 0.42              |
| 44:BW:7:LYS:HD3    | 44:BW:43:MET:HE1   | 2.00                     | 0.42              |
| 20:C2:75:A:N3      | 20:C2:89:A:O2'     | 2.51                     | 0.42              |
| 20:C2:104:G:C6     | 20:C2:106:A:C6     | 3.06                     | 0.42              |
| 21:C3:4:G:C2'      | 21:C3:5:U:H5'      | 2.49                     | 0.42              |
| 21:C3:90:A:C5      | 21:C3:91:C:H1'     | 2.55                     | 0.42              |
| 22:CA:41:TYR:OH    | 1:D1:2541:U:H2'    | 2.20                     | 0.42              |
| 22:CA:49:ILE:HA    | 22:CA:59:LEU:O     | 2.19                     | 0.42              |
| 23:CB:111:ASP:OD1  | 23:CB:111:ASP:N    | 2.48                     | 0.42              |
| 23:CB:264:ARG:HH11 | 1:D1:2386:G:H22    | 1.66                     | 0.42              |
| 25:CD:17:LEU:CD1   | 25:CD:129:VAL:HG22 | 2.49                     | 0.42              |
| 25:CD:32:LYS:HB3   | 25:CD:119:SER:O    | 2.20                     | 0.42              |
| 25:CD:142:ARG:O    | 25:CD:145:THR:OG1  | 2.38                     | 0.42              |
| 27:CF:220:GLU:O    | 27:CF:224:THR:N    | 2.52                     | 0.42              |
| 27:CF:233:LYS:HA   | 27:CF:236:HIS:HD2  | 1.85                     | 0.42              |
| 28:CG:5:UNK:C      | 28:CG:7:UNK:N      | 2.80                     | 0.42              |
| 30:CI:64:ASN:HD21  | 30:CI:66:ARG:CG    | 2.24                     | 0.42              |
| 30:CI:127:ARG:HD3  | 30:CI:127:ARG:HA   | 1.80                     | 0.42              |
| 32:CK:75:VAL:CG1   | 32:CK:76:ASN:N     | 2.82                     | 0.42              |
| 34:CM:20:TYR:O     | 34:CM:21:ARG:C     | 2.61                     | 0.42              |
| 34:CM:110:LEU:CD1  | 34:CM:169:GLY:O    | 2.67                     | 0.42              |
| 35:CN:152:TRP:CE2  | 1:D1:1136:C:H4'    | 2.54                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 47:CO:76:THR:HG22  | 47:CO:81:ARG:HH21  | 1.84                     | 0.42              |
| 40:CS:125:LEU:HD23 | 40:CS:125:LEU:HA   | 1.87                     | 0.42              |
| 41:CT:58:ARG:NH2   | 1:D1:3325:G:N9     | 2.66                     | 0.42              |
| 46:CY:49:ARG:HB2   | 46:CY:55:TRP:CZ3   | 2.54                     | 0.42              |
| 1:D1:111:C:H3'     | 1:D1:154:U:O4      | 2.19                     | 0.42              |
| 1:D1:559:G:C6      | 1:D1:609:A:C6      | 3.08                     | 0.42              |
| 1:D1:624:G:O2'     | 1:D1:625:C:H6      | 2.02                     | 0.42              |
| 1:D1:705:A:C5      | 1:D1:706:U:C5      | 3.07                     | 0.42              |
| 1:D1:800:G:C4'     | 1:D1:801:U:OP1     | 2.61                     | 0.42              |
| 1:D1:882:G:O2'     | 1:D1:883:A:P       | 2.77                     | 0.42              |
| 1:D1:1005:A:C2     | 1:D1:1007:G:C6     | 3.08                     | 0.42              |
| 1:D1:1037:A:O2'    | 1:D1:1038:G:H5'    | 2.20                     | 0.42              |
| 1:D1:1060:C:C4     | 1:D1:1061:G:N7     | 2.86                     | 0.42              |
| 1:D1:1414:C:N3     | 1:D1:1415:C:C5     | 2.87                     | 0.42              |
| 1:D1:1427:G:H2'    | 1:D1:1428:G:O5'    | 2.19                     | 0.42              |
| 1:D1:1846:C:H2'    | 1:D1:1847:A:H8     | 1.85                     | 0.42              |
| 1:D1:2228:A:N7     | 1:D1:2229:G:N7     | 2.67                     | 0.42              |
| 1:D1:2292:U:C2     | 1:D1:2294:A:C6     | 3.07                     | 0.42              |
| 1:D1:2404:G:H5''   | 50:D1:3773:HOH:O   | 2.20                     | 0.42              |
| 1:D1:3144:G:H4'    | 1:D1:3144:G:OP1    | 2.18                     | 0.42              |
| 1:D1:3175:A:C4'    | 1:D1:3176:A:OP1    | 2.66                     | 0.42              |
| 1:D1:3268:C:N4     | 1:D1:3269:G:C5     | 2.87                     | 0.42              |
| 3:DB:44:TRP:CH2    | 3:DB:45:ARG:HD3    | 2.54                     | 0.42              |
| 4:DC:10:THR:C      | 4:DC:18:HIS:ND1    | 2.78                     | 0.42              |
| 5:DE:117:PHE:HA    | 5:DE:149:ARG:NH2   | 2.34                     | 0.42              |
| 8:DH:91:PHE:CZ     | 8:DH:95:LEU:HD11   | 2.53                     | 0.42              |
| 8:DH:107:MET:CB    | 8:DH:109:TYR:CE2   | 3.02                     | 0.42              |
| 9:DJ:111:ASN:HB3   | 9:DJ:154:ILE:HG22  | 2.01                     | 0.42              |
| 9:DJ:111:ASN:HD22  | 9:DJ:156:ASN:HA    | 1.84                     | 0.42              |
| 13:DN:5:LEU:HD23   | 13:DN:5:LEU:HA     | 1.78                     | 0.42              |
| 14:DO:102:GLY:O    | 14:DO:103:LEU:C    | 2.62                     | 0.42              |
| 15:DP:67:ALA:O     | 15:DP:69:PRO:HD3   | 2.20                     | 0.42              |
| 18:DU:40:GLN:O     | 18:DU:41:ALA:C     | 2.62                     | 0.42              |
| 19:DX:93:LEU:O     | 19:DX:103:ASN:HA   | 2.18                     | 0.42              |
| 19:DX:143:LEU:HD13 | 19:DX:148:ILE:HG22 | 2.00                     | 0.42              |
| 21:E3:5:U:H1'      | 34:EM:63:GLN:HE22  | 1.84                     | 0.42              |
| 21:E3:21:G:H4'     | 34:EM:277:PHE:CE2  | 2.50                     | 0.42              |
| 21:E3:54:A:H2'     | 25:ED:152:GLN:HE21 | 1.84                     | 0.42              |
| 22:EA:86:GLY:HA3   | 1:F1:2545:A:C4     | 2.53                     | 0.42              |
| 24:EC:102:ARG:O    | 24:EC:103:LYS:HB2  | 2.19                     | 0.42              |
| 24:EC:126:ARG:CB   | 24:EC:283:TYR:HE2  | 2.32                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:EC:298:ILE:O    | 24:EC:304:VAL:CG2  | 2.64                     | 0.42              |
| 24:EC:369:HIS:O    | 24:EC:372:GLY:N    | 2.52                     | 0.42              |
| 25:ED:138:VAL:HG13 | 25:ED:141:ARG:NH2  | 2.34                     | 0.42              |
| 26:EE:90:MET:HE2   | 26:EE:177:ILE:HG22 | 2.01                     | 0.42              |
| 27:EF:48:PRO:HG2   | 1:F1:1587:A:C8     | 2.54                     | 0.42              |
| 29:EH:19:LYS:HG3   | 29:EH:26:VAL:HG11  | 2.00                     | 0.42              |
| 29:EH:76:LEU:HD21  | 29:EH:151:ALA:HB3  | 2.02                     | 0.42              |
| 30:EI:139:ASP:O    | 30:EI:142:ALA:HB3  | 2.19                     | 0.42              |
| 30:EI:140:LEU:HA   | 30:EI:140:LEU:HD12 | 1.83                     | 0.42              |
| 32:EK:84:VAL:CG1   | 1:F1:485:A:H2'     | 2.49                     | 0.42              |
| 32:EK:101:VAL:HG22 | 32:EK:124:VAL:HB   | 2.02                     | 0.42              |
| 33:EL:106:VAL:HG21 | 33:EL:132:VAL:HG21 | 2.01                     | 0.42              |
| 35:EN:10:ARG:O     | 35:EN:11:VAL:C     | 2.62                     | 0.42              |
| 36:EO:96:MET:HE3   | 36:EO:100:ARG:NH2  | 2.33                     | 0.42              |
| 37:EP:138:ALA:HA   | 43:EV:74:VAL:O     | 2.19                     | 0.42              |
| 41:ET:22:ARG:NH2   | 41:ET:32:PHE:CE2   | 2.87                     | 0.42              |
| 42:EU:78:SER:O     | 42:EU:79:LEU:CB    | 2.67                     | 0.42              |
| 43:EV:134:GLY:HA3  | 43:EV:231:ILE:CG2  | 2.49                     | 0.42              |
| 43:EV:189:GLY:HA3  | 43:EV:190:PRO:HD2  | 1.78                     | 0.42              |
| 1:F1:340:G:H8      | 1:F1:340:G:OP2     | 2.03                     | 0.42              |
| 1:F1:467:A:N1      | 1:F1:468:A:C4      | 2.87                     | 0.42              |
| 1:F1:528:C:O2'     | 14:FO:115:HIS:CE1  | 2.68                     | 0.42              |
| 1:F1:680:A:C6      | 1:F1:681:A:C6      | 3.07                     | 0.42              |
| 1:F1:747:G:C2'     | 1:F1:748:G:H5'     | 2.49                     | 0.42              |
| 1:F1:1434:G:C2'    | 1:F1:1435:C:H5'    | 2.41                     | 0.42              |
| 1:F1:1646:G:O2'    | 1:F1:1647:U:H5'    | 2.19                     | 0.42              |
| 1:F1:1880:C:H2'    | 1:F1:1881:C:C6     | 2.54                     | 0.42              |
| 1:F1:2189:G:C5     | 50:F1:4381:HOH:O   | 2.73                     | 0.42              |
| 1:F1:2369:C:N4     | 1:F1:2929:A:C4     | 2.87                     | 0.42              |
| 1:F1:2733:C:H2'    | 1:F1:2734:G:C8     | 2.54                     | 0.42              |
| 1:F1:2765:C:H4'    | 1:F1:2766:A:O5'    | 2.19                     | 0.42              |
| 1:F1:3008:U:H2'    | 1:F1:3009:U:H6     | 1.85                     | 0.42              |
| 1:F1:3075:A:H2'    | 1:F1:3076:A:C8     | 2.54                     | 0.42              |
| 1:F1:3103:A:H2'    | 1:F1:3104:G:N7     | 2.35                     | 0.42              |
| 1:F1:3160:A:N3     | 1:F1:3160:A:H2'    | 2.34                     | 0.42              |
| 1:F1:3175:A:C2     | 1:F1:3177:G:C5     | 3.08                     | 0.42              |
| 1:F1:3225:U:C4     | 1:F1:3226:A:N7     | 2.87                     | 0.42              |
| 5:FE:18:TRP:CD1    | 5:FE:18:TRP:H      | 2.37                     | 0.42              |
| 7:FG:62:LEU:HD23   | 13:FN:4:PHE:CE2    | 2.54                     | 0.42              |
| 9:FJ:161:VAL:O     | 9:FJ:162:HIS:C     | 2.62                     | 0.42              |
| 11:FL:64:TYR:O     | 11:FL:72:LYS:HE2   | 2.18                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 13:FN:83:THR:HG21 | 13:FN:85:TYR:HD2   | 1.85                     | 0.42              |
| 13:FN:110:VAL:O   | 13:FN:111:ARG:C    | 2.62                     | 0.42              |
| 14:FO:5:VAL:O     | 14:FO:9:VAL:HG23   | 2.19                     | 0.42              |
| 14:FO:111:LEU:HA  | 14:FO:111:LEU:HD23 | 1.34                     | 0.42              |
| 21:G3:8:G:C5      | 21:G3:9:C:C5       | 3.07                     | 0.42              |
| 22:GA:86:GLY:HA2  | 1:H1:2545:A:N3     | 2.34                     | 0.42              |
| 23:GB:47:THR:OG1  | 23:GB:177:LEU:CD1  | 2.67                     | 0.42              |
| 23:GB:49:PHE:CD1  | 23:GB:49:PHE:N     | 2.87                     | 0.42              |
| 23:GB:212:MET:HE3 | 23:GB:212:MET:HB3  | 1.89                     | 0.42              |
| 23:GB:330:LYS:O   | 23:GB:331:LYS:CB   | 2.66                     | 0.42              |
| 24:GC:126:ARG:CB  | 24:GC:283:TYR:HE2  | 2.32                     | 0.42              |
| 24:GC:405:ILE:CD1 | 29:GH:183:ARG:HE   | 2.29                     | 0.42              |
| 26:GE:1:MET:HA    | 26:GE:1:MET:HE2    | 2.01                     | 0.42              |
| 27:GF:50:TYR:CZ   | 27:GF:51:ILE:HG23  | 2.53                     | 0.42              |
| 29:GH:34:TYR:HD2  | 29:GH:89:CYS:HB3   | 1.84                     | 0.42              |
| 29:GH:49:VAL:HA   | 29:GH:138:VAL:O    | 2.18                     | 0.42              |
| 30:GI:35:VAL:HG11 | 30:GI:107:ILE:HG23 | 2.01                     | 0.42              |
| 30:GI:184:PRO:HA  | 30:GI:187:LYS:CE   | 2.49                     | 0.42              |
| 32:GK:75:VAL:HG21 | 32:GK:104:VAL:HG13 | 2.02                     | 0.42              |
| 32:GK:132:LYS:HG2 | 18:HU:178:TYR:CZ   | 2.54                     | 0.42              |
| 35:GN:45:PHE:CZ   | 35:GN:49:ILE:HD11  | 2.54                     | 0.42              |
| 35:GN:92:ARG:HH22 | 1:H1:809:A:H4'     | 1.79                     | 0.42              |
| 37:GP:82:GLY:O    | 17:HT:21:ILE:HA    | 2.19                     | 0.42              |
| 38:GQ:94:LEU:HA   | 38:GQ:94:LEU:HD12  | 1.69                     | 0.42              |
| 39:GR:51:TYR:CE1  | 1:H1:16:G:OP2      | 2.72                     | 0.42              |
| 44:GW:7:LYS:H     | 44:GW:76:LYS:HB3   | 1.85                     | 0.42              |
| 1:H1:90:G:H4'     | 4:HC:53:LYS:NZ     | 2.34                     | 0.42              |
| 1:H1:139:A:O2'    | 1:H1:140:A:H8      | 2.01                     | 0.42              |
| 1:H1:156:A:OP1    | 16:HQ:28:VAL:HG23  | 2.19                     | 0.42              |
| 1:H1:877:U:O2'    | 1:H1:878:G:H5'     | 2.19                     | 0.42              |
| 1:H1:881:G:C6     | 1:H1:882:G:C2      | 3.07                     | 0.42              |
| 1:H1:894:G:C6     | 1:H1:895:A:C6      | 3.07                     | 0.42              |
| 1:H1:1046:G:C4    | 1:H1:1047:G:C8     | 3.07                     | 0.42              |
| 1:H1:1050:C:C5    | 1:H1:1051:C:N3     | 2.87                     | 0.42              |
| 1:H1:1147:A:C4    | 1:H1:1148:U:C5     | 3.07                     | 0.42              |
| 1:H1:1184:U:H5'   | 1:H1:1184:U:C6     | 2.36                     | 0.42              |
| 1:H1:1245:U:H6    | 1:H1:1245:U:C5'    | 2.26                     | 0.42              |
| 1:H1:1591:A:O2'   | 1:H1:1592:G:H5'    | 2.18                     | 0.42              |
| 1:H1:1736:G:N1    | 1:H1:1737:A:C2     | 2.88                     | 0.42              |
| 1:H1:1752:G:H5''  | 1:H1:1753:A:C3'    | 2.40                     | 0.42              |
| 1:H1:2765:C:H4'   | 1:H1:2766:A:O5'    | 2.17                     | 0.42              |

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| Atom-1           | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|--------------------|--------------------------|-------------------|
| 1:H1:2801:A:C6   | 1:H1:2802:G:C5     | 3.08                     | 0.42              |
| 1:H1:2827:G:C2'  | 1:H1:2828:A:H5'    | 2.49                     | 0.42              |
| 1:H1:2920:U:O2   | 1:H1:2922:A:H8     | 2.03                     | 0.42              |
| 1:H1:3173:U:H5'' | 1:H1:3174:U:OP2    | 2.19                     | 0.42              |
| 1:H1:3175:A:C2   | 1:H1:3177:G:C6     | 3.07                     | 0.42              |
| 1:H1:3228:U:C2   | 5:HE:142:GLU:HG3   | 2.54                     | 0.42              |
| 2:HA:2:THR:HG22  | 2:HA:4:GLY:H       | 1.83                     | 0.42              |
| 2:HA:5:THR:N     | 2:HA:6:PRO:CD      | 2.82                     | 0.42              |
| 5:HE:42:ARG:HH12 | 8:HH:111:ASN:HD22  | 1.65                     | 0.42              |
| 5:HE:103:ASP:OD1 | 5:HE:104:LEU:N     | 2.52                     | 0.42              |
| 8:HH:98:GLN:C    | 8:HH:100:ILE:H     | 2.27                     | 0.42              |
| 9:HJ:46:ILE:HG22 | 9:HJ:47:PRO:N      | 2.34                     | 0.42              |
| 18:HU:166:VAL:CA | 18:HU:169:ILE:HD12 | 2.20                     | 0.42              |
| 1:A1:315:U:H4'   | 1:A1:316:A:H5'     | 2.01                     | 0.42              |
| 1:A1:545:A:H4'   | 5:AE:91:ASN:HD21   | 1.84                     | 0.42              |
| 1:A1:628:A:C2    | 43:BV:41:TRP:HZ3   | 2.38                     | 0.42              |
| 1:A1:630:G:H2'   | 1:A1:631:G:C4'     | 2.49                     | 0.42              |
| 1:A1:806:G:H2'   | 1:A1:807:G:H5'     | 2.01                     | 0.42              |
| 1:A1:824:G:H1'   | 18:AU:12:LEU:HB2   | 2.02                     | 0.42              |
| 1:A1:917:U:H2'   | 1:A1:918:C:O4'     | 2.19                     | 0.42              |
| 1:A1:1017:U:H6   | 1:A1:1017:U:H5'    | 1.84                     | 0.42              |
| 1:A1:1021:U:O2'  | 1:A1:2625:A:H4'    | 2.20                     | 0.42              |
| 1:A1:1057:U:H2'  | 1:A1:1058:C:C6     | 2.54                     | 0.42              |
| 1:A1:1361:U:C6   | 1:A1:1361:U:C5'    | 2.95                     | 0.42              |
| 1:A1:1379:G:O6   | 14:AO:101:LYS:HE2  | 2.19                     | 0.42              |
| 1:A1:1636:C:C2   | 1:A1:1637:A:C8     | 3.07                     | 0.42              |
| 1:A1:1697:U:H2'  | 1:A1:1698:G:C8     | 2.54                     | 0.42              |
| 1:A1:1700:A:P    | 12:AM:74:SER:HB2   | 2.59                     | 0.42              |
| 1:A1:1758:U:C5'  | 1:A1:1759:C:OP2    | 2.67                     | 0.42              |
| 1:A1:2242:G:N3   | 1:A1:2266:A:C2     | 2.87                     | 0.42              |
| 1:A1:2371:G:C6   | 1:A1:2372:G:C6     | 3.07                     | 0.42              |
| 1:A1:2376:A:C2   | 1:A1:2377:G:C8     | 3.07                     | 0.42              |
| 1:A1:3096:U:O5'  | 1:A1:3096:U:H6     | 2.01                     | 0.42              |
| 1:A1:3227:A:H5'  | 5:AE:58:PHE:HZ     | 1.84                     | 0.42              |
| 1:A1:3309:U:C2'  | 1:A1:3310:U:O5'    | 2.67                     | 0.42              |
| 5:AE:58:PHE:HB3  | 5:AE:85:VAL:CG2    | 2.50                     | 0.42              |
| 6:AF:30:ILE:HD13 | 19:AX:163:PHE:CE2  | 2.55                     | 0.42              |
| 7:AG:50:THR:O    | 7:AG:51:VAL:C      | 2.63                     | 0.42              |
| 9:AJ:192:VAL:O   | 9:AJ:193:ILE:C     | 2.63                     | 0.42              |
| 12:AM:45:VAL:O   | 12:AM:46:GLY:C     | 2.62                     | 0.42              |
| 14:AO:40:LEU:O   | 14:AO:44:HIS:ND1   | 2.53                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:AP:43:LYS:HA    | 15:AP:51:TYR:O     | 2.19                     | 0.42              |
| 17:AT:37:PRO:O     | 17:AT:41:ARG:HG3   | 2.20                     | 0.42              |
| 19:AX:34:THR:O     | 19:AX:36:PRO:HD3   | 2.20                     | 0.42              |
| 20:B2:52:G:H4'     | 42:BU:36:LYS:HZ2   | 1.83                     | 0.42              |
| 21:B3:1:G:P        | 34:BM:275:LYS:HZ1  | 2.39                     | 0.42              |
| 22:BA:112:THR:HG22 | 22:BA:113:VAL:N    | 2.34                     | 0.42              |
| 23:BB:22:THR:OG1   | 23:BB:271:HIS:HA   | 2.20                     | 0.42              |
| 23:BB:65:SER:O     | 23:BB:66:ARG:C     | 2.61                     | 0.42              |
| 23:BB:373:GLU:OE2  | 41:BT:16:TYR:OH    | 2.37                     | 0.42              |
| 24:BC:129:VAL:O    | 24:BC:132:ALA:HB3  | 2.20                     | 0.42              |
| 24:BC:391:ALA:O    | 24:BC:392:ARG:C    | 2.61                     | 0.42              |
| 25:BD:16:LYS:HD3   | 25:BD:72:ARG:HH21  | 1.85                     | 0.42              |
| 27:BF:19:ASN:C     | 27:BF:20:PRO:O     | 2.63                     | 0.42              |
| 27:BF:125:LEU:HD12 | 27:BF:192:ALA:O    | 2.19                     | 0.42              |
| 30:BI:37:THR:C     | 30:BI:39:ALA:N     | 2.77                     | 0.42              |
| 30:BI:61:MET:HE1   | 30:BI:68:GLY:CA    | 2.41                     | 0.42              |
| 30:BI:61:MET:HE3   | 30:BI:67:ARG:O     | 2.19                     | 0.42              |
| 30:BI:107:ILE:HA   | 30:BI:108:PRO:HD3  | 1.73                     | 0.42              |
| 30:BI:148:LYS:O    | 30:BI:149:GLN:C    | 2.62                     | 0.42              |
| 31:BJ:50:LEU:HA    | 31:BJ:50:LEU:HD23  | 1.79                     | 0.42              |
| 32:BK:75:VAL:CG1   | 32:BK:76:ASN:N     | 2.83                     | 0.42              |
| 33:BL:26:ARG:O     | 33:BL:29:GLU:N     | 2.53                     | 0.42              |
| 34:BM:34:LYS:HE3   | 37:BP:30:TYR:CE1   | 2.54                     | 0.42              |
| 34:BM:212:TYR:CD2  | 34:BM:228:PHE:CE1  | 3.07                     | 0.42              |
| 34:BM:242:SER:OG   | 34:BM:245:LYS:HG2  | 2.18                     | 0.42              |
| 35:BN:102:CYS:HB2  | 35:BN:122:LEU:HB3  | 2.01                     | 0.42              |
| 36:BO:76:THR:CG2   | 36:BO:81:ARG:HH21  | 2.32                     | 0.42              |
| 40:BS:10:ALA:HB3   | 40:BS:13:LYS:HG3   | 2.01                     | 0.42              |
| 40:BS:26:ARG:O     | 40:BS:27:GLN:C     | 2.63                     | 0.42              |
| 22:CA:133:CYS:SG   | 1:D1:2173:A:H5''   | 2.59                     | 0.42              |
| 23:CB:138:ASP:CG   | 23:CB:140:LYS:HG2  | 2.44                     | 0.42              |
| 23:CB:294:THR:HB   | 23:CB:297:ASP:H    | 1.84                     | 0.42              |
| 24:CC:2:THR:HG23   | 24:CC:30:THR:HG23  | 2.01                     | 0.42              |
| 24:CC:242:ASN:HD21 | 1:D1:718:A:C3'     | 2.32                     | 0.42              |
| 25:CD:84:LEU:HB3   | 25:CD:89:MET:HE3   | 2.00                     | 0.42              |
| 26:CE:63:LYS:HD3   | 26:CE:63:LYS:HA    | 1.77                     | 0.42              |
| 27:CF:50:TYR:CD2   | 1:D1:9:G:H1'       | 2.54                     | 0.42              |
| 27:CF:142:LYS:HE3  | 27:CF:194:THR:O    | 2.18                     | 0.42              |
| 29:CH:44:GLU:CD    | 29:CH:181:TYR:HH   | 2.27                     | 0.42              |
| 29:CH:99:ILE:HG22  | 29:CH:123:LEU:HB2  | 2.00                     | 0.42              |
| 29:CH:138:VAL:CG2  | 29:CH:152:LEU:HD11 | 2.49                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:CH:189:LYS:HE2  | 29:CH:199:VAL:HG12 | 2.02                     | 0.42              |
| 30:CI:63:HIS:CD2   | 30:CI:64:ASN:HB2   | 2.55                     | 0.42              |
| 31:CJ:10:GLN:HG3   | 31:CJ:129:ILE:HG22 | 1.95                     | 0.42              |
| 32:CK:20:GLY:O     | 32:CK:24:LYS:HG2   | 2.18                     | 0.42              |
| 32:CK:84:VAL:HG12  | 1:D1:485:A:H2'     | 2.01                     | 0.42              |
| 33:CL:74:PRO:HA    | 1:D1:2162:A:C1'    | 2.49                     | 0.42              |
| 33:CL:124:ASP:OD1  | 33:CL:124:ASP:C    | 2.62                     | 0.42              |
| 47:CO:42:ARG:HA    | 47:CO:45:ILE:HD12  | 2.00                     | 0.42              |
| 38:CQ:50:LEU:HD12  | 38:CQ:94:LEU:HD13  | 2.01                     | 0.42              |
| 38:CQ:94:LEU:HA    | 38:CQ:94:LEU:HD12  | 1.67                     | 0.42              |
| 39:CR:124:ILE:O    | 3:DB:14:GLY:HA3    | 2.20                     | 0.42              |
| 42:CU:97:THR:HB    | 42:CU:100:GLN:HG3  | 2.01                     | 0.42              |
| 43:CV:91:GLN:HE21  | 1:D1:1167:G:C4'    | 2.23                     | 0.42              |
| 43:CV:105:LEU:HD12 | 43:CV:131:ILE:CD1  | 2.49                     | 0.42              |
| 43:CV:117:ASN:HB2  | 43:CV:120:SER:OG   | 2.20                     | 0.42              |
| 1:D1:64:A:N6       | 1:D1:66:C:C2       | 2.87                     | 0.42              |
| 1:D1:77:A:H2'      | 1:D1:78:G:C8       | 2.53                     | 0.42              |
| 1:D1:661:C:H1'     | 1:D1:662:C:C6      | 2.54                     | 0.42              |
| 1:D1:1055:A:C5     | 1:D1:1056:A:N7     | 2.87                     | 0.42              |
| 1:D1:1195:U:H5''   | 1:D1:1356:G:O6     | 2.19                     | 0.42              |
| 1:D1:1506:G:N1     | 1:D1:1896:C:OP2    | 2.52                     | 0.42              |
| 1:D1:1820:U:O2'    | 1:D1:1822:G:N2     | 2.52                     | 0.42              |
| 1:D1:1923:G:O2'    | 1:D1:2329:U:O4     | 2.32                     | 0.42              |
| 1:D1:2605:C:H2'    | 1:D1:2606:U:H5'    | 2.02                     | 0.42              |
| 1:D1:2634:G:C2'    | 1:D1:2635:C:C5'    | 2.97                     | 0.42              |
| 1:D1:2706:U:H5'    | 1:D1:2706:U:H6     | 1.84                     | 0.42              |
| 1:D1:2817:U:H2'    | 1:D1:2818:G:H5'    | 2.00                     | 0.42              |
| 1:D1:3155:A:H62    | 8:DH:101:GLY:H     | 1.65                     | 0.42              |
| 1:D1:3193:G:O2'    | 1:D1:3194:G:H5'    | 2.19                     | 0.42              |
| 1:D1:3198:A:N6     | 1:D1:3213:G:H1'    | 2.34                     | 0.42              |
| 7:DG:52:ARG:O      | 7:DG:56:ILE:HG13   | 2.20                     | 0.42              |
| 7:DG:87:CYS:SG     | 7:DG:89:THR:O      | 2.78                     | 0.42              |
| 11:DL:53:LEU:HD23  | 11:DL:53:LEU:HA    | 1.85                     | 0.42              |
| 16:DQ:83:THR:CG2   | 16:DQ:85:ARG:HB3   | 2.49                     | 0.42              |
| 18:DU:77:GLU:HG3   | 18:DU:101:ASN:HD21 | 1.85                     | 0.42              |
| 18:DU:121:LEU:HG   | 18:DU:122:VAL:N    | 2.34                     | 0.42              |
| 20:E2:50:C:N4      | 50:E2:313:HOH:O    | 2.51                     | 0.42              |
| 20:E2:89:A:H2'     | 20:E2:90:G:O4'     | 2.20                     | 0.42              |
| 20:E2:110:A:C6     | 20:E2:111:A:C6     | 3.07                     | 0.42              |
| 22:EA:71:LYS:HE2   | 1:F1:2517:G:O6     | 2.18                     | 0.42              |
| 22:EA:94:LYS:O     | 22:EA:95:ALA:C     | 2.63                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:43:LEU:HD23  | 23:EB:43:LEU:HA    | 1.85                     | 0.42              |
| 23:EB:101:ALA:O    | 1:F1:3136:A:H5'    | 2.19                     | 0.42              |
| 25:ED:20:ASN:OD1   | 25:ED:20:ASN:C     | 2.62                     | 0.42              |
| 25:ED:57:PHE:HE1   | 1:F1:2666:G:O6     | 2.03                     | 0.42              |
| 26:EE:172:GLN:OE1  | 1:F1:2888:A:H4'    | 2.18                     | 0.42              |
| 30:EI:35:VAL:CG1   | 30:EI:106:GLY:O    | 2.67                     | 0.42              |
| 30:EI:75:PRO:CB    | 30:EI:137:LEU:HD23 | 2.49                     | 0.42              |
| 32:EK:21:ARG:HD2   | 1:F1:1396:A:H5''   | 2.01                     | 0.42              |
| 33:EL:14:LYS:HZ1   | 1:F1:268:G:C4'     | 2.32                     | 0.42              |
| 34:EM:5:LYS:CD     | 1:F1:1064:C:C5'    | 2.90                     | 0.42              |
| 34:EM:34:LYS:HA    | 34:EM:37:ILE:HG22  | 2.01                     | 0.42              |
| 34:EM:153:THR:O    | 34:EM:154:THR:C    | 2.62                     | 0.42              |
| 35:EN:61:PHE:HA    | 35:EN:62:PRO:HD3   | 1.81                     | 0.42              |
| 39:ER:113:VAL:HG13 | 39:ER:138:SER:CB   | 2.49                     | 0.42              |
| 43:EV:27:ARG:CZ    | 1:F1:627:U:OP2     | 2.67                     | 0.42              |
| 45:EX:107:LYS:HE2  | 45:EX:125:ASN:HB2  | 2.01                     | 0.42              |
| 46:EY:32:THR:HG21  | 46:EY:70:GLU:CG    | 2.49                     | 0.42              |
| 46:EY:55:TRP:CZ2   | 46:EY:70:GLU:O     | 2.72                     | 0.42              |
| 46:EY:96:ALA:O     | 46:EY:99:LEU:HB3   | 2.19                     | 0.42              |
| 1:F1:71:U:C2'      | 1:F1:72:A:OP1      | 2.67                     | 0.42              |
| 1:F1:90:G:H4'      | 4:FC:53:LYS:NZ     | 2.34                     | 0.42              |
| 1:F1:101:G:H4'     | 18:FU:63:TYR:CE1   | 2.55                     | 0.42              |
| 1:F1:166:C:O2      | 1:F1:166:C:H2'     | 2.19                     | 0.42              |
| 1:F1:685:G:O2'     | 1:F1:686:U:P       | 2.77                     | 0.42              |
| 1:F1:935:G:H3'     | 1:F1:936:C:C6      | 2.54                     | 0.42              |
| 1:F1:1018:A:C2'    | 1:F1:1019:G:H5'    | 2.49                     | 0.42              |
| 1:F1:1059:U:H2'    | 1:F1:1060:C:C5'    | 2.42                     | 0.42              |
| 1:F1:1060:C:C4     | 1:F1:1061:G:N7     | 2.87                     | 0.42              |
| 1:F1:1089:G:N7     | 1:F1:1124:G:H2'    | 2.34                     | 0.42              |
| 1:F1:1195:U:H5''   | 1:F1:1356:G:O6     | 2.18                     | 0.42              |
| 1:F1:1318:A:H2'    | 1:F1:1319:C:H5''   | 2.02                     | 0.42              |
| 1:F1:1355:C:N4     | 1:F1:1356:G:C6     | 2.87                     | 0.42              |
| 1:F1:1438:A:H2'    | 1:F1:1439:U:H6     | 1.84                     | 0.42              |
| 1:F1:1635:U:H2'    | 1:F1:1636:C:C6     | 2.54                     | 0.42              |
| 1:F1:2293:U:O2'    | 1:F1:2294:A:H5'    | 2.19                     | 0.42              |
| 1:F1:2429:U:C4'    | 1:F1:2430:G:O5'    | 2.68                     | 0.42              |
| 1:F1:2632:A:C2'    | 1:F1:2634:G:OP1    | 2.67                     | 0.42              |
| 1:F1:2796:A:C8     | 1:F1:2943:U:H4'    | 2.54                     | 0.42              |
| 1:F1:3020:G:C2'    | 1:F1:3021:A:H5''   | 2.49                     | 0.42              |
| 1:F1:3062:A:H2'    | 1:F1:3063:G:O4'    | 2.19                     | 0.42              |
| 5:FE:45:ILE:O      | 5:FE:45:ILE:HG23   | 2.19                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:FE:103:ASP:OD1   | 5:FE:104:LEU:N     | 2.52                     | 0.42              |
| 6:FF:112:MET:HE2   | 6:FF:112:MET:HB3   | 1.77                     | 0.42              |
| 8:FH:40:GLN:HG2    | 8:FH:41:ASN:ND2    | 2.33                     | 0.42              |
| 8:FH:98:GLN:C      | 8:FH:100:ILE:H     | 2.26                     | 0.42              |
| 9:FJ:25:LEU:HD11   | 9:FJ:70:LEU:HD21   | 2.01                     | 0.42              |
| 9:FJ:30:ALA:HB3    | 9:FJ:35:TYR:CE1    | 2.54                     | 0.42              |
| 11:FL:56:ILE:HG23  | 11:FL:71:ALA:O     | 2.20                     | 0.42              |
| 12:FM:98:THR:O     | 12:FM:105:TYR:HD1  | 2.03                     | 0.42              |
| 13:FN:46:VAL:O     | 13:FN:46:VAL:HG13  | 2.20                     | 0.42              |
| 17:FT:59:LEU:HD12  | 17:FT:59:LEU:HA    | 1.74                     | 0.42              |
| 19:FX:16:MET:CE    | 19:FX:18:VAL:CG2   | 2.93                     | 0.42              |
| 21:G3:64:A:H5'     | 21:G3:65:G:OP2     | 2.19                     | 0.42              |
| 23:GB:45:ALA:H     | 23:GB:179:ILE:HG23 | 1.84                     | 0.42              |
| 23:GB:113:ASN:C    | 23:GB:174:ASN:ND2  | 2.78                     | 0.42              |
| 23:GB:235:HIS:CD2  | 23:GB:235:HIS:O    | 2.72                     | 0.42              |
| 24:GC:245:GLN:O    | 24:GC:254:ARG:NH1  | 2.36                     | 0.42              |
| 26:GE:5:LEU:HD13   | 26:GE:58:TRP:CZ2   | 2.55                     | 0.42              |
| 28:GG:123:UNK:O    | 28:GG:123:UNK:HG2  | 2.20                     | 0.42              |
| 29:GH:4:ARG:HA     | 29:GH:5:PRO:HD3    | 1.87                     | 0.42              |
| 29:GH:193:ASP:OD1  | 29:GH:198:LYS:HE3  | 2.19                     | 0.42              |
| 30:GI:60:TRP:O     | 1:H1:1333:G:C4     | 2.72                     | 0.42              |
| 32:GK:27:LYS:NZ    | 1:H1:826:A:P       | 2.92                     | 0.42              |
| 32:GK:86:ASP:O     | 32:GK:87:ALA:C     | 2.61                     | 0.42              |
| 32:GK:141:VAL:O    | 32:GK:141:VAL:CG1  | 2.67                     | 0.42              |
| 34:GM:111:LYS:HA   | 34:GM:116:ASP:OD2  | 2.19                     | 0.42              |
| 34:GM:125:VAL:HG23 | 34:GM:201:LYS:CE   | 2.49                     | 0.42              |
| 34:GM:212:TYR:HE2  | 34:GM:227:GLN:CD   | 2.27                     | 0.42              |
| 35:GN:3:ILE:HD11   | 1:H1:1391:U:OP1    | 2.19                     | 0.42              |
| 43:GV:213:ASN:HD22 | 43:GV:216:HIS:CD2  | 2.37                     | 0.42              |
| 43:GV:213:ASN:HD22 | 43:GV:216:HIS:HD2  | 1.67                     | 0.42              |
| 45:GX:4:LYS:C      | 45:GX:73:PHE:HZ    | 2.28                     | 0.42              |
| 1:H1:124:U:C2'     | 1:H1:125:G:H5'     | 2.49                     | 0.42              |
| 1:H1:343:A:C4      | 1:H1:344:G:C8      | 3.07                     | 0.42              |
| 1:H1:436:U:C2'     | 1:H1:437:A:H5'     | 2.50                     | 0.42              |
| 1:H1:533:G:N2      | 1:H1:534:U:C2      | 2.87                     | 0.42              |
| 1:H1:579:G:O2'     | 19:HX:158:ASN:C    | 2.61                     | 0.42              |
| 1:H1:846:C:H1'     | 1:H1:936:C:O3'     | 2.20                     | 0.42              |
| 1:H1:940:A:C5      | 1:H1:942:A:H1'     | 2.54                     | 0.42              |
| 1:H1:1006:C:C2'    | 1:H1:1007:G:OP1    | 2.67                     | 0.42              |
| 1:H1:1101:U:C5'    | 17:HT:49:ASN:HD22  | 2.18                     | 0.42              |
| 1:H1:1133:G:H2'    | 1:H1:1134:C:O4'    | 2.20                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1177:A:N7    | 1:H1:1337:G:H5'    | 2.35                     | 0.42              |
| 1:H1:1195:U:H5''  | 1:H1:1356:G:O6     | 2.18                     | 0.42              |
| 1:H1:1661:A:H5''  | 13:HN:15:GLN:O     | 2.19                     | 0.42              |
| 1:H1:1824:A:H2'   | 1:H1:1825:A:C8     | 2.55                     | 0.42              |
| 1:H1:2256:G:H2'   | 1:H1:2257:A:O5'    | 2.19                     | 0.42              |
| 1:H1:2343:A:H2'   | 1:H1:2344:U:H5''   | 2.02                     | 0.42              |
| 1:H1:2548:G:HO2'  | 1:H1:2549:U:P      | 2.37                     | 0.42              |
| 1:H1:2602:U:O2    | 1:H1:2792:A:C8     | 2.72                     | 0.42              |
| 1:H1:2715:C:H2'   | 1:H1:2717:G:N3     | 2.33                     | 0.42              |
| 1:H1:3225:U:C4    | 1:H1:3226:A:N7     | 2.87                     | 0.42              |
| 1:H1:3236:C:O2    | 1:H1:3236:C:H2'    | 2.19                     | 0.42              |
| 5:HE:68:GLN:O     | 5:HE:68:GLN:CG     | 2.67                     | 0.42              |
| 12:HM:56:ILE:HG13 | 12:HM:69:SER:OG    | 2.20                     | 0.42              |
| 13:HN:46:VAL:O    | 13:HN:46:VAL:HG13  | 2.19                     | 0.42              |
| 13:HN:83:THR:HG21 | 13:HN:85:TYR:HD2   | 1.84                     | 0.42              |
| 1:A1:86:A:P       | 35:BN:173:LYS:HE3  | 2.59                     | 0.42              |
| 1:A1:242:G:H5'    | 42:BU:98:LYS:HZ2   | 1.84                     | 0.42              |
| 1:A1:297:U:O4'    | 16:AQ:32:GLY:HA3   | 2.19                     | 0.42              |
| 1:A1:559:G:H5''   | 24:BC:355:ARG:NH1  | 2.35                     | 0.42              |
| 1:A1:592:A:H2'    | 1:A1:593:U:H6      | 1.79                     | 0.42              |
| 1:A1:631:G:N7     | 5:AE:31:ARG:NH2    | 2.66                     | 0.42              |
| 1:A1:815:U:OP1    | 33:BL:204:ARG:CZ   | 2.68                     | 0.42              |
| 1:A1:1050:C:O2    | 1:A1:1055:A:H2     | 2.01                     | 0.42              |
| 1:A1:1209:G:OP2   | 50:A1:4284:HOH:O   | 2.19                     | 0.42              |
| 1:A1:1237:U:O2'   | 1:A1:1238:U:H5'    | 2.19                     | 0.42              |
| 1:A1:1389:G:C1'   | 43:BV:156:GLN:OE1  | 2.66                     | 0.42              |
| 1:A1:1617:G:O2'   | 1:A1:1618:A:P      | 2.75                     | 0.42              |
| 1:A1:2239:A:P     | 22:BA:244:THR:HG22 | 2.59                     | 0.42              |
| 1:A1:2293:U:O2'   | 1:A1:2294:A:H5'    | 2.20                     | 0.42              |
| 1:A1:2303:C:H2'   | 1:A1:2304:A:OP1    | 2.20                     | 0.42              |
| 1:A1:2378:A:C6    | 30:BI:90:LYS:HG2   | 2.55                     | 0.42              |
| 1:A1:2521:A:N1    | 1:A1:2522:A:C6     | 2.87                     | 0.42              |
| 1:A1:2678:A:H5'   | 1:A1:2679:G:C5     | 2.55                     | 0.42              |
| 1:A1:2804:G:H8    | 1:A1:2858:C:OP2    | 2.03                     | 0.42              |
| 1:A1:3020:G:C2'   | 1:A1:3021:A:H5''   | 2.49                     | 0.42              |
| 1:A1:3237:C:N4    | 8:AH:9:VAL:C       | 2.77                     | 0.42              |
| 5:AE:136:GLU:OE1  | 5:AE:139:LYS:HD2   | 2.19                     | 0.42              |
| 7:AG:56:ILE:O     | 7:AG:57:GLU:C      | 2.63                     | 0.42              |
| 8:AH:47:ASP:N     | 8:AH:47:ASP:OD1    | 2.51                     | 0.42              |
| 8:AH:104:LEU:HD23 | 8:AH:104:LEU:HA    | 1.64                     | 0.42              |
| 9:AJ:187:ASN:O    | 9:AJ:188:ARG:HB3   | 2.19                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 11:AL:68:ALA:O     | 11:AL:69:ARG:C     | 2.61                     | 0.42              |
| 13:AN:142:LEU:HD12 | 13:AN:142:LEU:HA   | 1.79                     | 0.42              |
| 15:AP:13:LYS:HE2   | 15:AP:13:LYS:HB3   | 1.79                     | 0.42              |
| 18:AU:166:VAL:O    | 18:AU:167:SER:C    | 2.63                     | 0.42              |
| 18:AU:178:TYR:OH   | 32:BK:132:LYS:HE2  | 2.19                     | 0.42              |
| 19:AX:143:LEU:HD13 | 19:AX:148:ILE:HG22 | 2.02                     | 0.42              |
| 21:B3:64:A:N3      | 21:B3:64:A:H2'     | 2.33                     | 0.42              |
| 22:BA:212:HIS:O    | 22:BA:214:GLY:N    | 2.53                     | 0.42              |
| 23:BB:254:HIS:HA   | 23:BB:255:PRO:C    | 2.44                     | 0.42              |
| 23:BB:278:LYS:HB3  | 23:BB:322:ILE:CG2  | 2.50                     | 0.42              |
| 24:BC:166:TYR:CE1  | 24:BC:171:GLN:HB2  | 2.54                     | 0.42              |
| 24:BC:310:VAL:HG12 | 24:BC:311:ALA:N    | 2.34                     | 0.42              |
| 25:BD:77:ARG:HH22  | 25:BD:166:GLU:HG3  | 1.84                     | 0.42              |
| 25:BD:142:ARG:O    | 25:BD:145:THR:OG1  | 2.37                     | 0.42              |
| 27:BF:45:VAL:CG1   | 27:BF:46:ARG:N     | 2.82                     | 0.42              |
| 27:BF:161:GLN:OE1  | 27:BF:164:ARG:NH1  | 2.52                     | 0.42              |
| 32:BK:20:GLY:O     | 32:BK:24:LYS:HG2   | 2.19                     | 0.42              |
| 39:BR:55:VAL:O     | 39:BR:56:ARG:C     | 2.62                     | 0.42              |
| 39:BR:123:THR:HG22 | 39:BR:125:THR:H    | 1.85                     | 0.42              |
| 43:BV:84:ILE:HD12  | 43:BV:234:LEU:CD2  | 2.50                     | 0.42              |
| 20:C2:30:U:H2'     | 20:C2:31:C:C6      | 2.54                     | 0.42              |
| 22:CA:20:HIS:HD2   | 22:CA:193:LYS:C    | 2.26                     | 0.42              |
| 23:CB:224:PHE:HB2  | 1:D1:3267:A:OP1    | 2.19                     | 0.42              |
| 23:CB:278:LYS:HB3  | 23:CB:322:ILE:CG2  | 2.50                     | 0.42              |
| 24:CC:24:THR:HG21  | 1:D1:472:C:OP1     | 2.19                     | 0.42              |
| 24:CC:149:ILE:HG22 | 14:DO:76:ILE:HD12  | 2.02                     | 0.42              |
| 24:CC:258:TRP:CZ3  | 24:CC:266:LEU:HD21 | 2.55                     | 0.42              |
| 25:CD:65:MET:HE1   | 1:D1:2670:U:O4'    | 2.19                     | 0.42              |
| 25:CD:65:MET:CE    | 1:D1:2670:U:H4'    | 2.49                     | 0.42              |
| 25:CD:131:LEU:HD11 | 25:CD:162:TRP:CE3  | 2.54                     | 0.42              |
| 25:CD:143:ARG:HH21 | 34:CM:27:LEU:HD22  | 1.83                     | 0.42              |
| 26:CE:19:THR:HB    | 26:CE:26:GLU:HB2   | 2.01                     | 0.42              |
| 26:CE:139:LYS:O    | 26:CE:140:ASN:HB2  | 2.19                     | 0.42              |
| 29:CH:26:VAL:HA    | 29:CH:27:PRO:HD2   | 1.85                     | 0.42              |
| 30:CI:3:ASP:OD1    | 1:D1:3160:A:OP2    | 2.36                     | 0.42              |
| 30:CI:59:LYS:O     | 30:CI:71:HIS:CE1   | 2.72                     | 0.42              |
| 32:CK:29:GLY:CA    | 1:D1:962:G:H5'     | 2.41                     | 0.42              |
| 33:CL:120:TRP:CE2  | 33:CL:122:GLY:CA   | 3.01                     | 0.42              |
| 33:CL:182:LYS:CG   | 33:CL:183:SER:N    | 2.74                     | 0.42              |
| 38:CQ:139:ASN:OD1  | 1:D1:2352:A:H4'    | 2.20                     | 0.42              |
| 39:CR:74:PRO:HB3   | 39:CR:149:LEU:HD11 | 2.02                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 40:CS:4:HIS:HE1   | 1:D1:232:C:OP2     | 2.01                     | 0.42              |
| 41:CT:33:PHE:HZ   | 41:CT:42:SER:HG    | 1.65                     | 0.42              |
| 45:CX:14:LYS:HD2  | 45:CX:59:PHE:C     | 2.44                     | 0.42              |
| 1:D1:124:U:C2'    | 1:D1:125:G:H5'     | 2.50                     | 0.42              |
| 1:D1:298:G:C6     | 16:DQ:31:LYS:HG3   | 2.54                     | 0.42              |
| 1:D1:426:A:H4'    | 8:DH:94:ASN:O      | 2.19                     | 0.42              |
| 1:D1:452:U:O5'    | 1:D1:452:U:H6      | 2.02                     | 0.42              |
| 1:D1:528:C:H6     | 1:D1:528:C:C5'     | 2.29                     | 0.42              |
| 1:D1:574:G:H2'    | 1:D1:575:A:H8      | 1.85                     | 0.42              |
| 1:D1:592:A:H2'    | 1:D1:593:U:H6      | 1.80                     | 0.42              |
| 1:D1:611:A:H8     | 1:D1:611:A:O5'     | 2.02                     | 0.42              |
| 1:D1:624:G:C6     | 1:D1:625:C:N4      | 2.88                     | 0.42              |
| 1:D1:685:G:O2'    | 1:D1:686:U:P       | 2.76                     | 0.42              |
| 1:D1:833:A:O2'    | 1:D1:2408:A:H5'    | 2.20                     | 0.42              |
| 1:D1:938:A:C2'    | 1:D1:939:A:OP2     | 2.67                     | 0.42              |
| 1:D1:1201:G:C6    | 1:D1:1202:C:N4     | 2.87                     | 0.42              |
| 1:D1:1373:G:C5    | 1:D1:1374:C:C5     | 3.06                     | 0.42              |
| 1:D1:1549:U:H5''  | 1:D1:1632:U:O2     | 2.20                     | 0.42              |
| 1:D1:1593:A:H2'   | 1:D1:1594:C:H6     | 1.73                     | 0.42              |
| 1:D1:1646:G:O2'   | 1:D1:1647:U:H5'    | 2.19                     | 0.42              |
| 1:D1:1680:A:H4'   | 1:D1:1681:C:O5'    | 2.20                     | 0.42              |
| 1:D1:1769:U:H2'   | 1:D1:1770:A:C8     | 2.55                     | 0.42              |
| 1:D1:1837:A:H2'   | 1:D1:1838:C:C6     | 2.55                     | 0.42              |
| 1:D1:2391:G:H5''  | 1:D1:2393:A:H5''   | 2.01                     | 0.42              |
| 1:D1:2522:A:N6    | 1:D1:2523:A:N6     | 2.68                     | 0.42              |
| 1:D1:2552:A:H2'   | 1:D1:2553:G:H5'    | 2.01                     | 0.42              |
| 1:D1:2899:C:P     | 50:D1:4561:HOH:O   | 2.68                     | 0.42              |
| 1:D1:3062:A:H2'   | 1:D1:3063:G:O4'    | 2.19                     | 0.42              |
| 1:D1:3106:C:C3'   | 1:D1:3107:C:C5'    | 2.98                     | 0.42              |
| 6:DF:26:VAL:HB    | 6:DF:72:LEU:HD21   | 2.01                     | 0.42              |
| 6:DF:106:PHE:HD2  | 6:DF:110:ARG:HH21  | 1.67                     | 0.42              |
| 9:DJ:4:ARG:HB3    | 9:DJ:208:LEU:HA    | 2.01                     | 0.42              |
| 10:DK:79:GLU:O    | 10:DK:82:ILE:N     | 2.48                     | 0.42              |
| 11:DL:31:VAL:HG12 | 11:DL:32:ALA:O     | 2.20                     | 0.42              |
| 11:DL:64:TYR:O    | 11:DL:72:LYS:HE2   | 2.18                     | 0.42              |
| 14:DO:101:LYS:O   | 14:DO:104:LYS:HB2  | 2.19                     | 0.42              |
| 20:E2:67:C:H5''   | 20:E2:67:C:C6      | 2.54                     | 0.42              |
| 20:E2:90:G:C6     | 20:E2:92:C:N4      | 2.87                     | 0.42              |
| 22:EA:205:MET:O   | 22:EA:213:GLY:HA3  | 2.19                     | 0.42              |
| 23:EB:45:ALA:H    | 23:EB:179:ILE:HG23 | 1.85                     | 0.42              |
| 24:EC:49:ARG:CZ   | 1:F1:713:G:N2      | 2.82                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 24:EC:81:ILE:HG23 | 24:EC:82:PRO:N     | 2.34                     | 0.42              |
| 24:EC:328:ASN:OD1 | 24:EC:328:ASN:C    | 2.61                     | 0.42              |
| 26:EE:22:GLN:OE1  | 26:EE:39:ARG:NH2   | 2.53                     | 0.42              |
| 27:EF:142:LYS:HE3 | 27:EF:194:THR:O    | 2.19                     | 0.42              |
| 29:EH:189:LYS:HE2 | 29:EH:199:VAL:HG12 | 2.00                     | 0.42              |
| 29:EH:191:VAL:HB  | 29:EH:198:LYS:HB2  | 2.00                     | 0.42              |
| 30:EI:13:HIS:HA   | 30:EI:122:ALA:O    | 2.19                     | 0.42              |
| 30:EI:171:VAL:O   | 30:EI:172:LYS:C    | 2.60                     | 0.42              |
| 31:EJ:44:PHE:CZ   | 31:EJ:63:LEU:HD13  | 2.54                     | 0.42              |
| 31:EJ:87:ARG:HD2  | 31:EJ:88:PRO:CD    | 2.48                     | 0.42              |
| 33:EL:73:ARG:HA   | 33:EL:74:PRO:HD2   | 1.55                     | 0.42              |
| 34:EM:140:LYS:NZ  | 1:F1:1108:A:OP1    | 2.49                     | 0.42              |
| 34:EM:213:MET:HB3 | 34:EM:213:MET:HE3  | 1.94                     | 0.42              |
| 35:EN:6:HIS:C     | 35:EN:8:GLN:N      | 2.77                     | 0.42              |
| 35:EN:67:ARG:HG2  | 1:F1:810:G:OP1     | 2.20                     | 0.42              |
| 35:EN:73:ASN:OD1  | 35:EN:74:GLU:OE1   | 2.38                     | 0.42              |
| 37:EP:8:ARG:CD    | 37:EP:11:THR:HG21  | 2.49                     | 0.42              |
| 38:EQ:133:ARG:HG3 | 38:EQ:139:ASN:HD21 | 1.72                     | 0.42              |
| 43:EV:217:ALA:O   | 43:EV:218:TYR:C    | 2.61                     | 0.42              |
| 45:EX:40:ILE:HG23 | 1:F1:664:U:OP2     | 2.19                     | 0.42              |
| 1:F1:29:C:C2'     | 1:F1:30:U:H5'      | 2.49                     | 0.42              |
| 1:F1:43:A:C5      | 1:F1:44:U:C5       | 3.07                     | 0.42              |
| 1:F1:615:G:N2     | 8:FH:79:LYS:HE2    | 2.33                     | 0.42              |
| 1:F1:726:G:O2'    | 1:F1:727:C:H5'     | 2.19                     | 0.42              |
| 1:F1:835:A:H2'    | 1:F1:836:U:H6      | 1.84                     | 0.42              |
| 1:F1:1235:U:C6    | 10:FK:109:ASN:ND2  | 2.74                     | 0.42              |
| 1:F1:1398:G:H2'   | 1:F1:1399:A:O5'    | 2.19                     | 0.42              |
| 1:F1:1595:A:H3'   | 1:F1:1596:U:C6     | 2.55                     | 0.42              |
| 1:F1:1668:A:C8    | 11:FL:69:ARG:NH1   | 2.87                     | 0.42              |
| 1:F1:1681:C:C5    | 1:F1:1823:A:H5''   | 2.54                     | 0.42              |
| 1:F1:2246:G:C2    | 1:F1:2261:U:O2     | 2.72                     | 0.42              |
| 1:F1:2587:G:C6    | 1:F1:2588:U:C4     | 3.08                     | 0.42              |
| 1:F1:2641:U:C4    | 1:F1:2748:U:O2     | 2.73                     | 0.42              |
| 1:F1:2680:A:H2'   | 1:F1:2681:A:O5'    | 2.20                     | 0.42              |
| 1:F1:2904:C:O5'   | 1:F1:2904:C:H6     | 2.02                     | 0.42              |
| 1:F1:3011:G:C1'   | 1:F1:3012:U:OP2    | 2.67                     | 0.42              |
| 1:F1:3031:U:C2'   | 1:F1:3032:C:H5'    | 2.49                     | 0.42              |
| 1:F1:3061:A:H2'   | 1:F1:3062:A:H5'    | 2.02                     | 0.42              |
| 5:FE:56:GLY:N     | 5:FE:59:ARG:HB3    | 2.33                     | 0.42              |
| 5:FE:77:THR:HG23  | 5:FE:87:LEU:HD23   | 2.02                     | 0.42              |
| 9:FJ:49:ILE:HD11  | 9:FJ:88:LEU:HD13   | 2.00                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:FM:43:ILE:CD1   | 12:FM:58:ILE:HD11  | 2.50                     | 0.42              |
| 13:FN:132:ALA:O    | 13:FN:133:SER:C    | 2.61                     | 0.42              |
| 14:FO:6:TRP:HA     | 14:FO:6:TRP:CE3    | 2.55                     | 0.42              |
| 16:FQ:5:GLN:O      | 16:FQ:12:GLY:CA    | 2.67                     | 0.42              |
| 19:FX:42:ARG:NH2   | 19:FX:140:THR:CB   | 2.64                     | 0.42              |
| 20:G2:69:A:H5'     | 42:GU:11:ARG:HH22  | 1.83                     | 0.42              |
| 20:G2:76:U:H5'     | 20:G2:77:U:OP2     | 2.20                     | 0.42              |
| 21:G3:33:U:C2      | 34:GM:212:TYR:HD1  | 2.37                     | 0.42              |
| 21:G3:39:U:N1      | 25:GD:46:VAL:CG2   | 2.82                     | 0.42              |
| 21:G3:108:G:H2'    | 21:G3:109:U:O4'    | 2.19                     | 0.42              |
| 23:GB:224:PHE:HB2  | 1:H1:3267:A:OP1    | 2.19                     | 0.42              |
| 23:GB:254:HIS:HA   | 23:GB:255:PRO:C    | 2.43                     | 0.42              |
| 24:GC:19:THR:CG2   | 24:GC:20:ALA:N     | 2.81                     | 0.42              |
| 24:GC:34:ARG:NE    | 35:GN:24:ASN:CB    | 2.83                     | 0.42              |
| 24:GC:153:GLN:OE1  | 24:GC:153:GLN:HA   | 2.19                     | 0.42              |
| 24:GC:215:VAL:HG23 | 24:GC:256:ILE:CG2  | 2.48                     | 0.42              |
| 24:GC:242:ASN:C    | 24:GC:244:LEU:H    | 2.27                     | 0.42              |
| 29:GH:213:ARG:HH12 | 1:H1:1040:A:H1'    | 1.83                     | 0.42              |
| 30:GI:69:VAL:HG22  | 1:H1:2377:G:O2'    | 2.17                     | 0.42              |
| 33:GL:26:ARG:O     | 33:GL:27:THR:C     | 2.62                     | 0.42              |
| 35:GN:6:HIS:ND1    | 1:H1:1131:G:C4     | 2.88                     | 0.42              |
| 39:GR:74:PRO:HB3   | 39:GR:149:LEU:HD11 | 2.00                     | 0.42              |
| 39:GR:91:VAL:HG13  | 39:GR:131:TYR:CD1  | 2.54                     | 0.42              |
| 43:GV:107:GLN:HG2  | 43:GV:110:ASN:HD21 | 1.84                     | 0.42              |
| 1:H1:34:C:H4'      | 1:H1:833:A:C2      | 2.53                     | 0.42              |
| 1:H1:73:G:H5'      | 18:HU:56:VAL:HG11  | 2.01                     | 0.42              |
| 1:H1:159:G:C2      | 1:H1:262:C:O2      | 2.73                     | 0.42              |
| 1:H1:239:G:C6      | 1:H1:240:A:N6      | 2.87                     | 0.42              |
| 1:H1:361:A:C3'     | 1:H1:362:G:H5''    | 2.48                     | 0.42              |
| 1:H1:468:A:N6      | 1:H1:469:U:C4      | 2.87                     | 0.42              |
| 1:H1:469:U:H3      | 1:H1:510:A:H61     | 1.68                     | 0.42              |
| 1:H1:997:G:H4'     | 1:H1:1399:A:O2'    | 2.18                     | 0.42              |
| 1:H1:1384:G:C2     | 1:H1:1385:C:C6     | 3.08                     | 0.42              |
| 1:H1:1435:C:O2'    | 1:H1:1436:C:H5'    | 2.19                     | 0.42              |
| 1:H1:1554:G:H2'    | 1:H1:1555:A:H8     | 1.83                     | 0.42              |
| 1:H1:2255:U:C2'    | 1:H1:2256:G:C8     | 3.00                     | 0.42              |
| 1:H1:2255:U:C3'    | 1:H1:2256:G:C8     | 3.02                     | 0.42              |
| 1:H1:2345:C:O2'    | 1:H1:2346:U:H5'    | 2.19                     | 0.42              |
| 1:H1:2391:G:H3'    | 1:H1:2393:A:H5''   | 2.02                     | 0.42              |
| 1:H1:2753:C:C5     | 1:H1:2754:C:C5     | 3.07                     | 0.42              |
| 3:HB:6:THR:HG22    | 3:HB:8:ASN:H       | 1.84                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:HH:20:PHE:CE2    | 8:HH:99:ALA:HB3    | 2.55                     | 0.42              |
| 8:HH:38:LYS:HE2    | 8:HH:42:VAL:O      | 2.20                     | 0.42              |
| 8:HH:56:VAL:HG22   | 8:HH:106:VAL:HG22  | 2.01                     | 0.42              |
| 18:HU:40:GLN:OE1   | 18:HU:40:GLN:HA    | 2.19                     | 0.42              |
| 1:A1:47:G:OP1      | 33:BL:192:TRP:NE1  | 2.53                     | 0.42              |
| 1:A1:57:G:O3'      | 1:A1:58:A:C4'      | 2.59                     | 0.42              |
| 1:A1:174:A:N6      | 1:A1:246:G:C5      | 2.87                     | 0.42              |
| 1:A1:348:A:C4      | 20:B2:27:G:H1'     | 2.54                     | 0.42              |
| 1:A1:459:G:H1'     | 1:A1:519:A:H62     | 1.83                     | 0.42              |
| 1:A1:471:A:C2'     | 1:A1:472:C:O5'     | 2.68                     | 0.42              |
| 1:A1:611:A:H8      | 1:A1:611:A:O5'     | 2.03                     | 0.42              |
| 1:A1:1025:G:H1'    | 1:A1:1028:A:N6     | 2.35                     | 0.42              |
| 1:A1:1048:U:O2'    | 1:A1:1049:U:H5'    | 2.20                     | 0.42              |
| 1:A1:1167:G:H2'    | 1:A1:1168:C:C6     | 2.52                     | 0.42              |
| 1:A1:1344:A:O2'    | 1:A1:1345:A:H3'    | 2.20                     | 0.42              |
| 1:A1:1427:G:H2'    | 1:A1:1428:G:O5'    | 2.19                     | 0.42              |
| 1:A1:1435:C:O2'    | 1:A1:1436:C:H5'    | 2.19                     | 0.42              |
| 1:A1:1820:U:C4'    | 1:A1:1821:U:OP1    | 2.67                     | 0.42              |
| 1:A1:2561:A:C2     | 1:A1:2563:U:C4     | 3.08                     | 0.42              |
| 1:A1:2793:G:C5     | 1:A1:2794:U:C5     | 3.07                     | 0.42              |
| 1:A1:2887:C:C5     | 26:BE:171:ARG:NH2  | 2.85                     | 0.42              |
| 1:A1:3160:A:OP2    | 30:BI:3:ASP:OD1    | 2.37                     | 0.42              |
| 3:AB:50:LYS:C      | 3:AB:51:ILE:HG13   | 2.45                     | 0.42              |
| 6:AF:93:LYS:O      | 6:AF:97:LYS:HG2    | 2.19                     | 0.42              |
| 8:AH:107:MET:CB    | 8:AH:109:TYR:CE2   | 3.03                     | 0.42              |
| 9:AJ:36:SER:O      | 9:AJ:37:VAL:C      | 2.61                     | 0.42              |
| 12:AM:79:LYS:HB2   | 12:AM:105:TYR:CE2  | 2.53                     | 0.42              |
| 13:AN:23:ALA:CB    | 13:AN:43:VAL:HG12  | 2.46                     | 0.42              |
| 15:AP:15:TRP:O     | 15:AP:72:TYR:CE1   | 2.73                     | 0.42              |
| 15:AP:15:TRP:CE3   | 15:AP:69:PRO:HG3   | 2.54                     | 0.42              |
| 20:B2:22:A:O2'     | 20:B2:23:U:H5'     | 2.20                     | 0.42              |
| 20:B2:75:A:N3      | 20:B2:89:A:O2'     | 2.53                     | 0.42              |
| 22:BA:12:ARG:NH2   | 22:BA:14:ASN:HD22  | 2.12                     | 0.42              |
| 23:BB:39:LYS:C     | 23:BB:40:LYS:O     | 2.57                     | 0.42              |
| 23:BB:157:ARG:HG2  | 23:BB:180:GLN:CB   | 2.50                     | 0.42              |
| 23:BB:218:VAL:O    | 23:BB:332:ARG:NE   | 2.53                     | 0.42              |
| 24:BC:33:ILE:O     | 24:BC:33:ILE:CG2   | 2.66                     | 0.42              |
| 26:BE:80:ARG:O     | 26:BE:84:GLU:O     | 2.38                     | 0.42              |
| 26:BE:141:THR:HG22 | 26:BE:142:LEU:H    | 1.83                     | 0.42              |
| 30:BI:140:LEU:HD12 | 30:BI:140:LEU:HA   | 1.82                     | 0.42              |
| 39:BR:145:ASN:HA   | 39:BR:150:ILE:HD11 | 2.00                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 40:BS:33:HIS:O     | 40:BS:104:VAL:HA  | 2.20                     | 0.42              |
| 42:BU:78:SER:O     | 42:BU:79:LEU:CB   | 2.68                     | 0.42              |
| 44:BW:7:LYS:H      | 44:BW:76:LYS:HB3  | 1.83                     | 0.42              |
| 45:BX:6:VAL:CG1    | 45:BX:7:ALA:N     | 2.69                     | 0.42              |
| 45:BX:75:LYS:NZ    | 45:BX:97:GLU:OE1  | 2.49                     | 0.42              |
| 20:C2:2:G:O2'      | 1:D1:2983:A:H1'   | 2.19                     | 0.42              |
| 21:C3:75:G:O2'     | 21:C3:76:U:P      | 2.77                     | 0.42              |
| 23:CB:292:ALA:HB2  | 23:CB:302:ALA:C   | 2.45                     | 0.42              |
| 24:CC:55:VAL:CG1   | 1:D1:345:C:OP1    | 2.66                     | 0.42              |
| 24:CC:69:ALA:HB1   | 24:CC:96:ALA:CB   | 2.49                     | 0.42              |
| 24:CC:200:LYS:NZ   | 1:D1:1446:C:OP2   | 2.37                     | 0.42              |
| 25:CD:57:PHE:HE1   | 1:D1:2666:G:C6    | 2.38                     | 0.42              |
| 27:CF:144:VAL:HG23 | 27:CF:168:VAL:CG1 | 2.49                     | 0.42              |
| 28:CG:28:UNK:N     | 28:CG:112:UNK:O   | 2.52                     | 0.42              |
| 31:CJ:11:VAL:HG21  | 31:CJ:131:PRO:HD3 | 2.01                     | 0.42              |
| 33:CL:44:ARG:NH1   | 33:CL:47:LYS:HG2  | 2.34                     | 0.42              |
| 33:CL:65:ARG:HB2   | 33:CL:127:TYR:CD2 | 2.43                     | 0.42              |
| 35:CN:141:ARG:HH22 | 1:D1:1002:A:P     | 2.42                     | 0.42              |
| 37:CP:54:TYR:CE1   | 1:D1:2713:U:H4'   | 2.55                     | 0.42              |
| 38:CQ:77:GLU:HB2   | 38:CQ:78:PHE:CD2  | 2.54                     | 0.42              |
| 45:CX:46:ARG:HD2   | 45:CX:48:PHE:CE2  | 2.55                     | 0.42              |
| 1:D1:63:A:H5''     | 1:D1:64:A:H4'     | 2.00                     | 0.42              |
| 1:D1:221:A:H2'     | 50:D1:3839:HOH:O  | 2.20                     | 0.42              |
| 1:D1:663:G:H4'     | 1:D1:1460:G:O6    | 2.19                     | 0.42              |
| 1:D1:689:A:H2'     | 1:D1:690:U:H6     | 1.85                     | 0.42              |
| 1:D1:977:A:H4'     | 1:D1:993:G:N2     | 2.34                     | 0.42              |
| 1:D1:1150:U:H2'    | 1:D1:1151:U:O5'   | 2.19                     | 0.42              |
| 1:D1:1312:G:H2'    | 1:D1:1313:A:C8    | 2.55                     | 0.42              |
| 1:D1:1652:U:H6     | 1:D1:1652:U:H3'   | 1.85                     | 0.42              |
| 1:D1:1660:U:H5''   | 13:DN:73:LYS:HZ2  | 1.85                     | 0.42              |
| 1:D1:1663:C:OP1    | 11:DL:54:ASN:HB2  | 2.20                     | 0.42              |
| 1:D1:1818:C:H2'    | 1:D1:1821:U:C5    | 2.55                     | 0.42              |
| 1:D1:2187:C:C2'    | 1:D1:2188:U:C5'   | 2.97                     | 0.42              |
| 1:D1:2194:G:O2'    | 1:D1:2195:U:H5'   | 2.19                     | 0.42              |
| 1:D1:2260:C:H2'    | 1:D1:2261:U:C6    | 2.55                     | 0.42              |
| 1:D1:2558:U:H2'    | 1:D1:2559:U:C6    | 2.55                     | 0.42              |
| 1:D1:2563:U:C2     | 1:D1:2564:G:C8    | 3.07                     | 0.42              |
| 1:D1:2710:A:C2     | 1:D1:2725:A:C2    | 3.07                     | 0.42              |
| 1:D1:2751:A:N6     | 1:D1:2788:G:H2'   | 2.35                     | 0.42              |
| 1:D1:2871:U:H2'    | 1:D1:2872:C:C6    | 2.54                     | 0.42              |
| 1:D1:2971:C:O2'    | 1:D1:2972:C:H5'   | 2.20                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3096:U:O5'    | 1:D1:3096:U:H6     | 2.03                     | 0.42              |
| 1:D1:3110:U:H4'    | 1:D1:3111:A:H5'    | 2.02                     | 0.42              |
| 1:D1:3115:C:H2'    | 1:D1:3116:A:O4'    | 2.19                     | 0.42              |
| 1:D1:3169:A:C8     | 19:DX:189:PHE:CE2  | 3.07                     | 0.42              |
| 1:D1:3230:G:C5     | 5:DE:119:ARG:HD2   | 2.54                     | 0.42              |
| 2:DA:68:MET:HE2    | 2:DA:68:MET:HB3    | 1.95                     | 0.42              |
| 5:DE:45:ILE:O      | 5:DE:45:ILE:HG23   | 2.19                     | 0.42              |
| 5:DE:56:GLY:C      | 5:DE:58:PHE:H      | 2.25                     | 0.42              |
| 8:DH:20:PHE:CE2    | 8:DH:99:ALA:HB3    | 2.55                     | 0.42              |
| 9:DJ:42:LEU:HD21   | 9:DJ:205:PHE:CE1   | 2.54                     | 0.42              |
| 9:DJ:46:ILE:HG22   | 9:DJ:47:PRO:O      | 2.18                     | 0.42              |
| 9:DJ:111:ASN:OD1   | 9:DJ:111:ASN:C     | 2.61                     | 0.42              |
| 13:DN:22:LYS:HZ1   | 13:DN:140:SER:HB3  | 1.85                     | 0.42              |
| 16:DQ:36:LYS:O     | 16:DQ:40:LEU:HG    | 2.19                     | 0.42              |
| 19:DX:134:THR:CG2  | 19:DX:134:THR:O    | 2.67                     | 0.42              |
| 19:DX:150:ARG:O    | 19:DX:154:LEU:HG   | 2.19                     | 0.42              |
| 20:E2:40:A:H5''    | 20:E2:42:G:O4'     | 2.19                     | 0.42              |
| 20:E2:67:C:P       | 42:EU:53:LYS:HZ3   | 2.36                     | 0.42              |
| 20:E2:71:G:H2'     | 20:E2:72:C:H6      | 1.84                     | 0.42              |
| 21:E3:96:U:H2'     | 21:E3:97:G:H5''    | 2.01                     | 0.42              |
| 22:EA:41:TYR:N     | 22:EA:41:TYR:CD1   | 2.87                     | 0.42              |
| 23:EB:82:PRO:HG3   | 23:EB:167:LEU:HD21 | 2.02                     | 0.42              |
| 23:EB:374:LYS:NZ   | 1:F1:3288:A:OP2    | 2.36                     | 0.42              |
| 24:EC:194:LEU:HD23 | 24:EC:194:LEU:HA   | 1.64                     | 0.42              |
| 27:EF:45:VAL:HB    | 27:EF:47:TRP:CZ2   | 2.55                     | 0.42              |
| 29:EH:44:GLU:CD    | 29:EH:181:TYR:HH   | 2.26                     | 0.42              |
| 30:EI:86:MET:CE    | 1:F1:1202:C:H1'    | 2.36                     | 0.42              |
| 30:EI:128:LEU:O    | 30:EI:129:ARG:C    | 2.62                     | 0.42              |
| 33:EL:74:PRO:HA    | 1:F1:2162:A:H1'    | 2.01                     | 0.42              |
| 33:EL:93:LYS:HG3   | 1:F1:288:A:N3      | 2.35                     | 0.42              |
| 34:EM:173:ILE:HA   | 34:EM:174:PRO:HD3  | 1.80                     | 0.42              |
| 34:EM:283:THR:HG22 | 34:EM:284:ALA:N    | 2.34                     | 0.42              |
| 37:EP:43:MET:HB3   | 37:EP:43:MET:HE3   | 1.53                     | 0.42              |
| 40:ES:3:THR:O      | 40:ES:3:THR:HG22   | 2.20                     | 0.42              |
| 41:ET:50:LYS:HB3   | 1:F1:2107:A:H5'    | 2.01                     | 0.42              |
| 43:EV:64:ARG:HD3   | 1:F1:565:G:C6      | 2.54                     | 0.42              |
| 43:EV:107:GLN:NE2  | 43:EV:203:LYS:HE2  | 2.34                     | 0.42              |
| 44:EW:79:ASN:OD1   | 44:EW:81:GLU:HG2   | 2.20                     | 0.42              |
| 46:EY:27:LYS:O     | 46:EY:28:LYS:C     | 2.62                     | 0.42              |
| 46:EY:51:ALA:HA    | 1:F1:1821:U:O4     | 2.20                     | 0.42              |
| 1:F1:296:G:N7      | 16:FQ:42:ARG:NH1   | 2.67                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:459:G:H2'     | 1:F1:517:A:C2      | 2.55                     | 0.42              |
| 1:F1:627:U:O2      | 1:F1:630:G:O6      | 2.38                     | 0.42              |
| 1:F1:970:C:O2'     | 1:F1:1432:G:H1'    | 2.20                     | 0.42              |
| 1:F1:1102:U:H2'    | 17:FT:45:ARG:HH12  | 1.84                     | 0.42              |
| 1:F1:1246:A:C4     | 1:F1:1314:A:C2     | 3.08                     | 0.42              |
| 1:F1:1594:C:C2'    | 1:F1:1595:A:H5'    | 2.48                     | 0.42              |
| 1:F1:1706:U:O2     | 12:FM:84:LYS:HE3   | 2.19                     | 0.42              |
| 1:F1:1831:G:O2'    | 11:FL:78:TYR:HD2   | 2.03                     | 0.42              |
| 1:F1:1845:U:O2     | 11:FL:69:ARG:HB2   | 2.20                     | 0.42              |
| 1:F1:1926:G:OP2    | 1:F1:2907:A:OP1    | 2.37                     | 0.42              |
| 1:F1:2667:A:C6     | 1:F1:2668:A:C6     | 3.08                     | 0.42              |
| 1:F1:2678:A:H5'    | 1:F1:2679:G:C5     | 2.55                     | 0.42              |
| 1:F1:2701:U:H4'    | 1:F1:2732:G:O3'    | 2.19                     | 0.42              |
| 1:F1:2793:G:H2'    | 1:F1:2794:U:H6     | 1.83                     | 0.42              |
| 1:F1:3177:G:C2     | 19:FX:177:TYR:CD2  | 3.08                     | 0.42              |
| 1:F1:3198:A:N6     | 1:F1:3213:G:H1'    | 2.35                     | 0.42              |
| 6:FF:67:GLN:HE22   | 6:FF:75:LYS:HG3    | 1.85                     | 0.42              |
| 9:FJ:101:LEU:HD11  | 9:FJ:118:HIS:CD2   | 2.54                     | 0.42              |
| 9:FJ:112:ASP:N     | 9:FJ:156:ASN:HD21  | 2.11                     | 0.42              |
| 14:FO:56:GLN:HE21  | 14:FO:56:GLN:HB2   | 1.50                     | 0.42              |
| 15:FP:11:PHE:O     | 15:FP:15:TRP:HD1   | 2.02                     | 0.42              |
| 18:FU:123:LEU:O    | 18:FU:125:PRO:HD3  | 2.20                     | 0.42              |
| 18:FU:166:VAL:O    | 18:FU:167:SER:C    | 2.61                     | 0.42              |
| 19:FX:48:GLU:O     | 19:FX:52:LYS:HG3   | 2.20                     | 0.42              |
| 22:GA:186:GLN:HB3  | 22:GA:197:TRP:CZ2  | 2.55                     | 0.42              |
| 22:GA:241:ALA:HB2  | 1:H1:2150:U:O2'    | 2.20                     | 0.42              |
| 23:GB:33:PRO:CD    | 23:GB:44:THR:CG2   | 2.97                     | 0.42              |
| 23:GB:119:TYR:CE1  | 1:H1:3255:A:C5'    | 3.03                     | 0.42              |
| 23:GB:365:HIS:HA   | 41:GT:19:ARG:HH22  | 1.83                     | 0.42              |
| 24:GC:28:VAL:HG13  | 24:GC:270:PHE:CD2  | 2.54                     | 0.42              |
| 24:GC:42:PHE:CD1   | 24:GC:244:LEU:HD23 | 2.54                     | 0.42              |
| 24:GC:166:TYR:OH   | 24:GC:175:PHE:HD2  | 2.02                     | 0.42              |
| 27:GF:66:VAL:N     | 27:GF:226:GLY:O    | 2.52                     | 0.42              |
| 27:GF:142:LYS:NZ   | 27:GF:201:LYS:NZ   | 2.68                     | 0.42              |
| 27:GF:170:PHE:CD1  | 27:GF:216:ASN:OD1  | 2.73                     | 0.42              |
| 28:GG:109:UNK:O    | 28:GG:112:UNK:HB2  | 2.19                     | 0.42              |
| 30:GI:13:HIS:HA    | 30:GI:122:ALA:O    | 2.19                     | 0.42              |
| 30:GI:137:LEU:HD12 | 30:GI:137:LEU:HA   | 1.89                     | 0.42              |
| 30:GI:153:GLU:O    | 30:GI:154:LYS:C    | 2.63                     | 0.42              |
| 31:GJ:84:ARG:HG2   | 31:GJ:99:PHE:CG    | 2.55                     | 0.42              |
| 32:GK:131:SER:O    | 32:GK:132:LYS:C    | 2.62                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 37:GP:80:VAL:O    | 37:GP:83:ARG:HG2   | 2.19                     | 0.42              |
| 38:GQ:133:ARG:HG3 | 38:GQ:139:ASN:HD21 | 1.69                     | 0.42              |
| 43:GV:227:ARG:O   | 43:GV:228:GLU:C    | 2.62                     | 0.42              |
| 46:GY:32:THR:CG2  | 46:GY:70:GLU:HG2   | 2.50                     | 0.42              |
| 1:H1:459:G:C5     | 1:H1:517:A:C6      | 3.08                     | 0.42              |
| 1:H1:486:C:H2'    | 1:H1:487:G:H5'     | 2.00                     | 0.42              |
| 1:H1:612:C:C2'    | 1:H1:613:U:H5'     | 2.49                     | 0.42              |
| 1:H1:680:A:H2'    | 1:H1:681:A:C8      | 2.54                     | 0.42              |
| 1:H1:685:G:H1'    | 1:H1:827:C:H4'     | 2.02                     | 0.42              |
| 1:H1:689:A:O2'    | 1:H1:690:U:H5'     | 2.19                     | 0.42              |
| 1:H1:875:U:H2'    | 1:H1:876:C:C6      | 2.55                     | 0.42              |
| 1:H1:1053:A:O4'   | 1:H1:1054:G:O4'    | 2.38                     | 0.42              |
| 1:H1:1150:U:H2'   | 1:H1:1151:U:O4'    | 2.18                     | 0.42              |
| 1:H1:1171:U:H4'   | 1:H1:1172:G:O5'    | 2.19                     | 0.42              |
| 1:H1:1338:G:O2'   | 1:H1:2376:A:H4'    | 2.20                     | 0.42              |
| 1:H1:1430:G:C6    | 1:H1:1434:G:C6     | 3.08                     | 0.42              |
| 1:H1:1497:U:C2    | 1:H1:1498:U:C5     | 3.07                     | 0.42              |
| 1:H1:1599:G:N1    | 1:H1:1600:U:C2     | 2.88                     | 0.42              |
| 1:H1:1614:A:C6    | 11:HL:13:TYR:CE2   | 3.08                     | 0.42              |
| 1:H1:1646:G:O2'   | 1:H1:1647:U:H5'    | 2.18                     | 0.42              |
| 1:H1:1669:G:C2    | 1:H1:1670:A:C5     | 3.08                     | 0.42              |
| 1:H1:1691:U:H2'   | 1:H1:1692:G:H8     | 1.83                     | 0.42              |
| 1:H1:1909:C:H5''  | 1:H1:3266:G:C2     | 2.54                     | 0.42              |
| 1:H1:1919:A:H2'   | 50:H1:4179:HOH:O   | 2.18                     | 0.42              |
| 1:H1:2253:U:OP2   | 1:H1:2253:U:C5     | 2.72                     | 0.42              |
| 1:H1:2312:A:C2'   | 1:H1:2313:U:O5'    | 2.67                     | 0.42              |
| 1:H1:2873:C:C4    | 1:H1:2874:U:O4     | 2.73                     | 0.42              |
| 1:H1:3079:U:C2'   | 1:H1:3080:A:O5'    | 2.68                     | 0.42              |
| 1:H1:3115:C:H6    | 1:H1:3115:C:C5'    | 2.25                     | 0.42              |
| 1:H1:3229:C:O2'   | 1:H1:3230:G:OP1    | 2.32                     | 0.42              |
| 1:H1:3309:U:C2'   | 1:H1:3310:U:O5'    | 2.67                     | 0.42              |
| 7:HG:64:GLN:OE1   | 7:HG:64:GLN:HA     | 2.20                     | 0.42              |
| 8:HH:107:MET:CB   | 8:HH:109:TYR:CE2   | 3.03                     | 0.42              |
| 11:HL:78:TYR:HE1  | 13:HN:144:PHE:HB2  | 1.84                     | 0.42              |
| 12:HM:60:ASN:OD1  | 12:HM:60:ASN:C     | 2.63                     | 0.42              |
| 12:HM:79:LYS:HB2  | 12:HM:105:TYR:CE2  | 2.54                     | 0.42              |
| 14:HO:12:ASN:O    | 14:HO:12:ASN:CG    | 2.63                     | 0.42              |
| 14:HO:26:THR:HG22 | 14:HO:26:THR:O     | 2.20                     | 0.42              |
| 19:HX:94:LYS:HE2  | 19:HX:136:GLN:HG2  | 2.01                     | 0.42              |
| 1:A1:588:G:H2'    | 1:A1:589:C:C6      | 2.55                     | 0.42              |
| 1:A1:607:U:H2'    | 1:A1:608:C:H6      | 1.83                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:637:U:C2      | 1:A1:638:U:C5      | 3.08                     | 0.42              |
| 1:A1:651:U:H2'     | 1:A1:652:U:H6      | 1.85                     | 0.42              |
| 1:A1:718:A:H2'     | 1:A1:719:C:H6      | 1.83                     | 0.42              |
| 1:A1:1040:A:H2'    | 1:A1:1041:C:C5'    | 2.50                     | 0.42              |
| 1:A1:1150:U:H2'    | 1:A1:1151:U:O5'    | 2.19                     | 0.42              |
| 1:A1:1227:A:C4'    | 1:A1:1228:C:O5'    | 2.65                     | 0.42              |
| 1:A1:1248:G:O5'    | 1:A1:1248:G:H8     | 2.03                     | 0.42              |
| 1:A1:1597:U:C5     | 1:A1:1598:C:C4     | 3.08                     | 0.42              |
| 1:A1:1880:C:C1'    | 11:AL:7:TYR:CE1    | 3.03                     | 0.42              |
| 1:A1:1883:A:O4'    | 11:AL:2:ALA:HB2    | 2.19                     | 0.42              |
| 1:A1:2154:A:C8     | 1:A1:2172:G:N2     | 2.87                     | 0.42              |
| 1:A1:2162:A:C1'    | 33:BL:74:PRO:HA    | 2.50                     | 0.42              |
| 1:A1:2277:U:HO2'   | 1:A1:2278:G:P      | 2.39                     | 0.42              |
| 1:A1:2519:A:O2'    | 1:A1:2520:G:H5'    | 2.19                     | 0.42              |
| 1:A1:2559:U:O2     | 1:A1:2561:A:N1     | 2.52                     | 0.42              |
| 1:A1:2574:U:O2     | 27:BF:58:ARG:HG2   | 2.19                     | 0.42              |
| 1:A1:3033:A:H4'    | 23:BB:13:SER:HB2   | 2.02                     | 0.42              |
| 1:A1:3132:A:C2'    | 20:B2:2:G:O6       | 2.61                     | 0.42              |
| 1:A1:3156:A:H4'    | 1:A1:3159:A:C5     | 2.55                     | 0.42              |
| 1:A1:3206:A:H2'    | 30:BI:109:THR:HG22 | 2.00                     | 0.42              |
| 1:A1:3325:G:H22    | 23:BB:378:PHE:HA   | 1.83                     | 0.42              |
| 9:AJ:115:ALA:CB    | 9:AJ:135:VAL:HG11  | 2.49                     | 0.42              |
| 12:AM:60:ASN:OD1   | 12:AM:60:ASN:C     | 2.63                     | 0.42              |
| 14:AO:6:TRP:HA     | 14:AO:6:TRP:CE3    | 2.55                     | 0.42              |
| 14:AO:43:THR:HB    | 14:AO:44:HIS:H     | 1.61                     | 0.42              |
| 19:AX:124:MET:CE   | 19:AX:128:HIS:HB2  | 2.50                     | 0.42              |
| 23:BB:233:VAL:HG12 | 23:BB:234:LYS:O    | 2.19                     | 0.42              |
| 24:BC:173:VAL:O    | 24:BC:177:LYS:HG3  | 2.20                     | 0.42              |
| 27:BF:63:ARG:CZ    | 27:BF:231:GLY:HA3  | 2.50                     | 0.42              |
| 29:BH:34:TYR:HD2   | 29:BH:89:CYS:HB3   | 1.84                     | 0.42              |
| 32:BK:89:ARG:HA    | 32:BK:121:GLN:HE22 | 1.85                     | 0.42              |
| 33:BL:26:ARG:O     | 33:BL:27:THR:C     | 2.62                     | 0.42              |
| 33:BL:183:SER:HB3  | 33:BL:195:ARG:HH22 | 1.84                     | 0.42              |
| 35:BN:61:PHE:HA    | 35:BN:62:PRO:HD3   | 1.83                     | 0.42              |
| 40:BS:58:VAL:C     | 40:BS:59:ARG:HG2   | 2.45                     | 0.42              |
| 45:BX:88:LEU:HD12  | 45:BX:88:LEU:HA    | 1.75                     | 0.42              |
| 20:C2:2:G:C5       | 1:D1:2983:A:C2     | 3.08                     | 0.42              |
| 20:C2:67:C:H5''    | 20:C2:67:C:C6      | 2.54                     | 0.42              |
| 20:C2:110:A:C2     | 20:C2:115:G:O6     | 2.73                     | 0.42              |
| 21:C3:11:A:H2'     | 21:C3:12:U:H5''    | 2.02                     | 0.42              |
| 22:CA:35:PHE:O     | 22:CA:38:ARG:HG3   | 2.20                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:CA:192:ARG:CZ   | 1:D1:1821:U:OP1    | 2.68                     | 0.42              |
| 23:CB:141:ALA:O    | 23:CB:144:LEU:HB2  | 2.20                     | 0.42              |
| 23:CB:171:GLN:CG   | 1:D1:3273:U:H5''   | 2.50                     | 0.42              |
| 24:CC:145:ARG:HH22 | 24:CC:248:PRO:HB2  | 1.85                     | 0.42              |
| 24:CC:314:THR:CG2  | 1:D1:1372:A:N3     | 2.82                     | 0.42              |
| 27:CF:170:PHE:CE1  | 27:CF:216:ASN:OD1  | 2.72                     | 0.42              |
| 27:CF:243:LYS:O    | 27:CF:247:GLU:HG3  | 2.20                     | 0.42              |
| 30:CI:69:VAL:HG22  | 1:D1:2377:G:O2'    | 2.18                     | 0.42              |
| 30:CI:148:LYS:O    | 30:CI:149:GLN:C    | 2.61                     | 0.42              |
| 32:CK:60:MET:HB3   | 32:CK:60:MET:HE2   | 1.81                     | 0.42              |
| 32:CK:79:LYS:O     | 32:CK:82:SER:OG    | 2.33                     | 0.42              |
| 32:CK:101:VAL:HG22 | 32:CK:124:VAL:HB   | 2.01                     | 0.42              |
| 33:CL:148:ILE:O    | 33:CL:148:ILE:CG2  | 2.68                     | 0.42              |
| 34:CM:48:LYS:HE2   | 34:CM:145:ILE:HD11 | 2.01                     | 0.42              |
| 34:CM:83:LEU:O     | 34:CM:88:VAL:HG22  | 2.19                     | 0.42              |
| 34:CM:212:TYR:CE2  | 34:CM:227:GLN:NE2  | 2.88                     | 0.42              |
| 47:CO:106:LEU:HD11 | 47:CO:123:PHE:HB3  | 2.01                     | 0.42              |
| 38:CQ:76:HIS:O     | 38:CQ:78:PHE:N     | 2.53                     | 0.42              |
| 40:CS:51:LYS:O     | 40:CS:51:LYS:HG3   | 2.18                     | 0.42              |
| 41:CT:27:ASP:N     | 41:CT:27:ASP:OD1   | 2.51                     | 0.42              |
| 43:CV:124:ILE:O    | 43:CV:125:LYS:C    | 2.62                     | 0.42              |
| 43:CV:134:GLY:HA3  | 43:CV:231:ILE:CG2  | 2.50                     | 0.42              |
| 44:CW:105:THR:HG21 | 1:D1:3341:C:H1'    | 2.01                     | 0.42              |
| 46:CY:61:LYS:HD3   | 11:DL:48:GLY:O     | 2.19                     | 0.42              |
| 46:CY:71:LEU:HD12  | 46:CY:71:LEU:C     | 2.40                     | 0.42              |
| 1:D1:13:C:H2'      | 1:D1:14:A:H8       | 1.85                     | 0.42              |
| 1:D1:130:G:C6      | 1:D1:137:A:C6      | 3.08                     | 0.42              |
| 1:D1:148:G:O2'     | 1:D1:149:U:O5'     | 2.37                     | 0.42              |
| 1:D1:393:U:O2      | 1:D1:395:A:C8      | 2.72                     | 0.42              |
| 1:D1:440:C:C4      | 1:D1:538:A:H2      | 2.38                     | 0.42              |
| 1:D1:591:G:H4'     | 6:DF:64:GLU:OE1    | 2.19                     | 0.42              |
| 1:D1:703:U:H2'     | 1:D1:704:G:C8      | 2.54                     | 0.42              |
| 1:D1:773:C:C2'     | 1:D1:774:A:O5'     | 2.67                     | 0.42              |
| 1:D1:788:C:H1'     | 18:DU:179:ARG:NH2  | 2.34                     | 0.42              |
| 1:D1:1022:A:H2'    | 1:D1:1023:A:O4'    | 2.20                     | 0.42              |
| 1:D1:1050:C:C5     | 1:D1:1051:C:N3     | 2.87                     | 0.42              |
| 1:D1:1052:A:N3     | 1:D1:1052:A:H2'    | 2.35                     | 0.42              |
| 1:D1:1109:A:C4'    | 1:D1:1110:U:O5'    | 2.62                     | 0.42              |
| 1:D1:1370:A:C2     | 1:D1:1389:G:N1     | 2.87                     | 0.42              |
| 1:D1:1379:G:OP1    | 14:DO:102:GLY:CA   | 2.67                     | 0.42              |
| 1:D1:1481:U:O2'    | 1:D1:1482:A:P      | 2.77                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1522:C:C2     | 1:D1:1547:G:N2     | 2.87                     | 0.42              |
| 1:D1:1668:A:N7     | 11:DL:69:ARG:NH1   | 2.67                     | 0.42              |
| 1:D1:1771:U:H4'    | 15:DP:54:LYS:HZ2   | 1.85                     | 0.42              |
| 1:D1:1795:C:O2'    | 1:D1:1796:U:H5'    | 2.19                     | 0.42              |
| 1:D1:1817:C:H2'    | 1:D1:1818:C:C6     | 2.54                     | 0.42              |
| 1:D1:1932:A:H2'    | 1:D1:1933:A:O4'    | 2.19                     | 0.42              |
| 1:D1:2543:C:H5''   | 1:D1:2544:U:C5     | 2.55                     | 0.42              |
| 1:D1:2546:A:O2'    | 11:DL:90:ARG:HD3   | 2.19                     | 0.42              |
| 1:D1:2595:G:H4'    | 1:D1:2596:G:OP1    | 2.19                     | 0.42              |
| 1:D1:2601:U:H1'    | 1:D1:2791:A:N3     | 2.35                     | 0.42              |
| 1:D1:2759:A:O2'    | 1:D1:2760:C:H5'    | 2.20                     | 0.42              |
| 1:D1:2767:A:C6     | 1:D1:2768:G:C5     | 3.08                     | 0.42              |
| 1:D1:3185:G:C5     | 1:D1:3237:C:C4     | 3.07                     | 0.42              |
| 1:D1:3194:G:N2     | 1:D1:3217:U:H1'    | 2.35                     | 0.42              |
| 1:D1:3198:A:C6     | 1:D1:3199:G:C6     | 3.08                     | 0.42              |
| 1:D1:3205:A:H4'    | 1:D1:3206:A:OP2    | 2.20                     | 0.42              |
| 1:D1:3349:U:H2'    | 1:D1:3350:U:C6     | 2.54                     | 0.42              |
| 6:DF:27:ILE:CD1    | 6:DF:36:ILE:HD12   | 2.50                     | 0.42              |
| 6:DF:112:MET:HE2   | 6:DF:112:MET:HB3   | 1.79                     | 0.42              |
| 12:DM:15:LEU:HG    | 12:DM:17:PHE:CE2   | 2.55                     | 0.42              |
| 16:DQ:68:LYS:HZ2   | 16:DQ:72:LYS:HG3   | 1.84                     | 0.42              |
| 18:DU:123:LEU:HD22 | 18:DU:135:LEU:O    | 2.20                     | 0.42              |
| 19:DX:96:GLN:CB    | 19:DX:134:THR:CG2  | 2.97                     | 0.42              |
| 20:E2:77:U:H2'     | 40:ES:73:TYR:OH    | 2.20                     | 0.42              |
| 20:E2:87:C:O2'     | 20:E2:88:G:H5'     | 2.18                     | 0.42              |
| 22:EA:55:ARG:HH12  | 1:F1:2172:G:P      | 2.43                     | 0.42              |
| 23:EB:278:LYS:HB3  | 23:EB:322:ILE:CG2  | 2.49                     | 0.42              |
| 24:EC:25:LEU:HA    | 24:EC:26:PRO:HD2   | 1.86                     | 0.42              |
| 24:EC:145:ARG:HH22 | 24:EC:248:PRO:HB2  | 1.85                     | 0.42              |
| 24:EC:260:GLU:OE1  | 24:EC:264:LYS:HE3  | 2.19                     | 0.42              |
| 26:EE:94:PHE:CD1   | 26:EE:98:PRO:HA    | 2.55                     | 0.42              |
| 27:EF:115:LYS:HG2  | 27:EF:116:GLN:N    | 2.34                     | 0.42              |
| 27:EF:145:VAL:HG13 | 27:EF:173:VAL:HG23 | 2.02                     | 0.42              |
| 27:EF:196:VAL:HG21 | 27:EF:204:LEU:HD11 | 2.01                     | 0.42              |
| 29:EH:54:SER:O     | 29:EH:54:SER:OG    | 2.37                     | 0.42              |
| 34:EM:36:LEU:HD23  | 1:F1:2737:A:N3     | 2.35                     | 0.42              |
| 35:EN:25:VAL:CG1   | 14:FO:7:GLU:CB     | 2.97                     | 0.42              |
| 35:EN:61:PHE:CD2   | 35:EN:144:LYS:HA   | 2.55                     | 0.42              |
| 35:EN:174:PHE:O    | 35:EN:176:ARG:N    | 2.53                     | 0.42              |
| 36:EO:21:ARG:O     | 36:EO:53:ARG:HG3   | 2.19                     | 0.42              |
| 38:EQ:62:PHE:HE1   | 38:EQ:84:ARG:HB2   | 1.82                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 39:ER:35:VAL:HG11  | 1:F1:2518:A:H3'   | 2.02                     | 0.42              |
| 39:ER:39:ARG:NH1   | 1:F1:11:A:H4'     | 2.34                     | 0.42              |
| 39:ER:55:VAL:O     | 39:ER:56:ARG:C    | 2.63                     | 0.42              |
| 42:EU:98:LYS:O     | 42:EU:99:LYS:C    | 2.62                     | 0.42              |
| 42:EU:104:VAL:HG13 | 42:EU:108:THR:CB  | 2.46                     | 0.42              |
| 45:EX:75:LYS:NZ    | 45:EX:97:GLU:OE1  | 2.49                     | 0.42              |
| 46:EY:9:GLY:C      | 1:F1:862:A:H5'    | 2.44                     | 0.42              |
| 1:F1:61:A:C6       | 1:F1:62:G:C6      | 3.07                     | 0.42              |
| 1:F1:135:A:C4'     | 1:F1:136:C:OP2    | 2.67                     | 0.42              |
| 1:F1:190:U:C4      | 1:F1:224:C:O4'    | 2.73                     | 0.42              |
| 1:F1:296:G:H8      | 1:F1:296:G:P      | 2.42                     | 0.42              |
| 1:F1:347:A:H4'     | 1:F1:366:A:H62    | 1.84                     | 0.42              |
| 1:F1:591:G:H8      | 1:F1:591:G:C5'    | 2.33                     | 0.42              |
| 1:F1:603:A:H2'     | 1:F1:604:A:H8     | 1.83                     | 0.42              |
| 1:F1:612:C:C2'     | 1:F1:613:U:H5'    | 2.50                     | 0.42              |
| 1:F1:630:G:H2'     | 1:F1:631:G:C4'    | 2.49                     | 0.42              |
| 1:F1:788:C:C5      | 1:F1:790:C:C5     | 3.07                     | 0.42              |
| 1:F1:792:G:H5'     | 18:FU:190:TRP:CE3 | 2.54                     | 0.42              |
| 1:F1:805:A:C5'     | 1:F1:806:G:OP2    | 2.67                     | 0.42              |
| 1:F1:1158:G:C4     | 1:F1:2368:A:C2    | 3.07                     | 0.42              |
| 1:F1:1227:A:HO2'   | 1:F1:1228:C:P     | 2.42                     | 0.42              |
| 1:F1:1397:G:N7     | 50:F1:4103:HOH:O  | 2.51                     | 0.42              |
| 1:F1:1617:G:O2'    | 1:F1:1618:A:P     | 2.77                     | 0.42              |
| 1:F1:1652:U:H4'    | 1:F1:1655:A:H5'   | 2.02                     | 0.42              |
| 1:F1:1865:A:H1'    | 3:FB:45:ARG:HH22  | 1.83                     | 0.42              |
| 1:F1:2255:U:OP2    | 1:F1:2255:U:C6    | 2.73                     | 0.42              |
| 1:F1:2353:C:H3'    | 1:F1:2354:C:C6    | 2.54                     | 0.42              |
| 1:F1:2783:U:OP2    | 4:FC:61:LYS:HG2   | 2.20                     | 0.42              |
| 1:F1:2871:U:H2'    | 1:F1:2872:C:H6    | 1.85                     | 0.42              |
| 1:F1:3047:U:C6     | 1:F1:3047:U:C3'   | 3.02                     | 0.42              |
| 1:F1:3053:U:C4     | 1:F1:3069:G:N1    | 2.88                     | 0.42              |
| 1:F1:3095:A:H61    | 1:F1:3117:G:H1'   | 1.85                     | 0.42              |
| 1:F1:3127:U:O2'    | 1:F1:3128:G:H5''  | 2.18                     | 0.42              |
| 1:F1:3222:U:C2'    | 1:F1:3223:G:H5'   | 2.50                     | 0.42              |
| 5:FE:75:LEU:HA     | 5:FE:75:LEU:HD23  | 1.48                     | 0.42              |
| 5:FE:122:ALA:HB3   | 5:FE:132:ALA:HB1  | 2.02                     | 0.42              |
| 5:FE:179:THR:OG1   | 8:FH:12:THR:HA    | 2.20                     | 0.42              |
| 7:FG:8:ASP:HA      | 7:FG:11:GLN:HE21  | 1.82                     | 0.42              |
| 9:FJ:42:LEU:HD21   | 9:FJ:205:PHE:HE1  | 1.85                     | 0.42              |
| 13:FN:114:LEU:O    | 13:FN:115:LYS:C   | 2.62                     | 0.42              |
| 14:FO:40:LEU:O     | 14:FO:44:HIS:ND1  | 2.52                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:FP:46:GLY:O     | 15:FP:47:LYS:C     | 2.61                     | 0.42              |
| 17:FT:30:ILE:HG22  | 17:FT:31:SER:N     | 2.35                     | 0.42              |
| 23:GB:72:VAL:HG12  | 23:GB:73:VAL:N     | 2.35                     | 0.42              |
| 23:GB:138:ASP:CG   | 23:GB:140:LYS:HG2  | 2.44                     | 0.42              |
| 24:GC:23:LEU:HD11  | 24:GC:264:LYS:HE2  | 2.02                     | 0.42              |
| 24:GC:43:THR:CG2   | 24:GC:47:LYS:HE3   | 2.50                     | 0.42              |
| 24:GC:184:ASP:OD1  | 24:GC:184:ASP:C    | 2.63                     | 0.42              |
| 24:GC:316:THR:O    | 24:GC:317:HIS:CD2  | 2.69                     | 0.42              |
| 25:GD:17:LEU:CD1   | 25:GD:129:VAL:HG22 | 2.47                     | 0.42              |
| 26:GE:144:LEU:HD13 | 26:GE:155:THR:CG2  | 2.50                     | 0.42              |
| 27:GF:124:VAL:HG12 | 27:GF:125:LEU:N    | 2.35                     | 0.42              |
| 30:GI:61:MET:HE3   | 30:GI:61:MET:HB2   | 1.75                     | 0.42              |
| 30:GI:132:ARG:NH1  | 1:H1:1216:C:O2'    | 2.53                     | 0.42              |
| 36:GO:28:GLU:O     | 36:GO:31:GLU:HB3   | 2.19                     | 0.42              |
| 37:GP:11:THR:CG2   | 37:GP:15:PHE:CD2   | 3.03                     | 0.42              |
| 1:H1:121:A:C6      | 1:H1:150:A:C6      | 3.07                     | 0.42              |
| 1:H1:977:A:H4'     | 1:H1:993:G:N2      | 2.34                     | 0.42              |
| 1:H1:1021:U:H2'    | 1:H1:1022:A:H5'    | 2.00                     | 0.42              |
| 1:H1:1048:U:N3     | 1:H1:1049:U:C5     | 2.88                     | 0.42              |
| 1:H1:1091:G:H1'    | 17:HT:28:ARG:NH1   | 2.35                     | 0.42              |
| 1:H1:1240:G:O4'    | 19:HX:104:MET:HE3  | 2.20                     | 0.42              |
| 1:H1:1370:A:N3     | 1:H1:1389:G:C2     | 2.88                     | 0.42              |
| 1:H1:1533:G:H5''   | 1:H1:1533:G:C8     | 2.55                     | 0.42              |
| 1:H1:1755:A:O2'    | 1:H1:1756:U:H5'    | 2.19                     | 0.42              |
| 1:H1:1758:U:C5'    | 1:H1:1759:C:OP2    | 2.68                     | 0.42              |
| 1:H1:1856:C:H4'    | 3:HB:7:LEU:HG      | 2.00                     | 0.42              |
| 1:H1:1869:G:H4'    | 2:HA:8:PHE:HD2     | 1.84                     | 0.42              |
| 1:H1:2178:A:C2'    | 1:H1:2179:U:O5'    | 2.68                     | 0.42              |
| 1:H1:2292:U:O2'    | 1:H1:2908:U:H4'    | 2.20                     | 0.42              |
| 1:H1:2749:C:O2     | 1:H1:2749:C:H2'    | 2.19                     | 0.42              |
| 1:H1:3095:A:H61    | 1:H1:3117:G:H1'    | 1.83                     | 0.42              |
| 1:H1:3229:C:O2     | 1:H1:3229:C:C2'    | 2.68                     | 0.42              |
| 2:HA:36:ALA:HB1    | 2:HA:58:LYS:NZ     | 2.35                     | 0.42              |
| 3:HB:4:ASN:C       | 3:HB:5:LYS:HG3     | 2.44                     | 0.42              |
| 5:HE:40:LYS:O      | 5:HE:41:LEU:HD23   | 2.19                     | 0.42              |
| 5:HE:73:LEU:H      | 5:HE:73:LEU:HG     | 1.60                     | 0.42              |
| 5:HE:185:ARG:HB3   | 5:HE:187:HIS:CE1   | 2.54                     | 0.42              |
| 6:HF:106:PHE:HD2   | 6:HF:110:ARG:HH21  | 1.65                     | 0.42              |
| 9:HJ:30:ALA:HB3    | 9:HJ:35:TYR:CE1    | 2.54                     | 0.42              |
| 9:HJ:42:LEU:HD21   | 9:HJ:205:PHE:CE1   | 2.55                     | 0.42              |
| 9:HJ:71:LEU:HB3    | 9:HJ:97:ILE:CD1    | 2.49                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 19:HX:113:LEU:HD12 | 19:HX:116:ALA:HB3 | 2.02                     | 0.42              |
| 1:A1:116:U:H3'     | 1:A1:117:G:C8     | 2.53                     | 0.42              |
| 1:A1:136:C:O2'     | 1:A1:137:A:H5'    | 2.20                     | 0.42              |
| 1:A1:282:G:N3      | 32:BK:63:PHE:CE1  | 2.88                     | 0.42              |
| 1:A1:283:A:N7      | 1:A1:305:A:C8     | 2.87                     | 0.42              |
| 1:A1:296:G:H8      | 1:A1:296:G:P      | 2.42                     | 0.42              |
| 1:A1:452:U:O2'     | 1:A1:453:A:O5'    | 2.37                     | 0.42              |
| 1:A1:499:U:H3'     | 1:A1:500:G:H8     | 1.84                     | 0.42              |
| 1:A1:577:C:C2'     | 1:A1:578:G:H5'    | 2.50                     | 0.42              |
| 1:A1:729:A:C4'     | 1:A1:810:G:H21    | 2.33                     | 0.42              |
| 1:A1:734:A:H1'     | 32:BK:59:GLY:HA3  | 2.01                     | 0.42              |
| 1:A1:762:G:C2      | 1:A1:763:G:C8     | 3.07                     | 0.42              |
| 1:A1:894:G:C6      | 1:A1:895:A:C6     | 3.08                     | 0.42              |
| 1:A1:1018:A:C2'    | 1:A1:1019:G:H5'   | 2.50                     | 0.42              |
| 1:A1:1050:C:C4     | 1:A1:1051:C:N3    | 2.88                     | 0.42              |
| 1:A1:1310:C:C5     | 1:A1:1311:C:C4    | 3.08                     | 0.42              |
| 1:A1:1495:C:O2     | 1:A1:1535:A:C2    | 2.73                     | 0.42              |
| 1:A1:1592:G:N2     | 1:A1:1602:U:H1'   | 2.34                     | 0.42              |
| 1:A1:1595:A:H2'    | 1:A1:1596:U:O4'   | 2.20                     | 0.42              |
| 1:A1:1662:A:OP2    | 13:AN:16:GLY:HA2  | 2.20                     | 0.42              |
| 1:A1:1682:G:H2'    | 1:A1:1683:U:C6    | 2.55                     | 0.42              |
| 1:A1:1757:A:H2'    | 1:A1:1758:U:C6    | 2.54                     | 0.42              |
| 1:A1:1849:G:OP1    | 15:AP:47:LYS:HB2  | 2.19                     | 0.42              |
| 1:A1:2170:A:O2'    | 22:BA:24:ARG:HD2  | 2.20                     | 0.42              |
| 1:A1:2247:A:C4     | 1:A1:2248:G:C8    | 3.08                     | 0.42              |
| 1:A1:2558:U:H2'    | 1:A1:2559:U:C6    | 2.55                     | 0.42              |
| 1:A1:2765:C:O2     | 1:A1:2765:C:C2'   | 2.64                     | 0.42              |
| 1:A1:3086:U:H2'    | 1:A1:3087:G:H8    | 1.83                     | 0.42              |
| 1:A1:3106:C:H2'    | 1:A1:3107:C:C5'   | 2.46                     | 0.42              |
| 1:A1:3175:A:N1     | 1:A1:3177:G:N1    | 2.68                     | 0.42              |
| 1:A1:3230:G:O2'    | 1:A1:3231:U:OP1   | 2.38                     | 0.42              |
| 1:A1:3308:A:C2     | 1:A1:3309:U:C2    | 3.08                     | 0.42              |
| 1:A1:3344:U:O2     | 1:A1:3344:U:H2'   | 2.20                     | 0.42              |
| 2:AA:68:MET:HG3    | 20:B2:44:A:OP1    | 2.20                     | 0.42              |
| 2:AA:84:GLN:HA     | 2:AA:84:GLN:OE1   | 2.19                     | 0.42              |
| 5:AE:56:GLY:O      | 5:AE:57:ARG:C     | 2.62                     | 0.42              |
| 6:AF:11:ARG:O      | 6:AF:26:VAL:HA    | 2.20                     | 0.42              |
| 9:AJ:187:ASN:ND2   | 9:AJ:207:GLY:HA3  | 2.19                     | 0.42              |
| 11:AL:7:TYR:HE2    | 11:AL:18:ASN:OD1  | 2.03                     | 0.42              |
| 11:AL:59:VAL:HG12  | 11:AL:60:ARG:O    | 2.20                     | 0.42              |
| 12:AM:56:ILE:HG13  | 12:AM:69:SER:OG   | 2.19                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 14:AO:44:HIS:HD2   | 14:AO:46:HIS:HD2   | 1.68                     | 0.42              |
| 15:AP:11:PHE:O     | 15:AP:15:TRP:HD1   | 2.02                     | 0.42              |
| 19:AX:16:MET:CG    | 19:AX:17:LYS:H     | 2.33                     | 0.42              |
| 21:B3:7:G:O6       | 34:BM:21:ARG:NH1   | 2.49                     | 0.42              |
| 22:BA:188:HIS:O    | 22:BA:191:ALA:HB3  | 2.20                     | 0.42              |
| 23:BB:22:THR:HG22  | 23:BB:23:ARG:N     | 2.33                     | 0.42              |
| 24:BC:34:ARG:O     | 24:BC:38:VAL:HG23  | 2.20                     | 0.42              |
| 24:BC:323:PRO:HG2  | 43:BV:146:TYR:HB3  | 2.02                     | 0.42              |
| 25:BD:80:LEU:HD23  | 25:BD:80:LEU:HA    | 1.97                     | 0.42              |
| 25:BD:89:MET:HA    | 25:BD:89:MET:HE3   | 2.00                     | 0.42              |
| 26:BE:70:SER:O     | 26:BE:74:GLN:HG3   | 2.20                     | 0.42              |
| 27:BF:19:ASN:CB    | 27:BF:20:PRO:CD    | 2.95                     | 0.42              |
| 31:BJ:113:MET:HE2  | 31:BJ:113:MET:HB3  | 1.76                     | 0.42              |
| 33:BL:26:ARG:C     | 33:BL:30:TYR:CD1   | 2.98                     | 0.42              |
| 33:BL:145:ASP:HA   | 33:BL:146:PRO:HD3  | 1.85                     | 0.42              |
| 33:BL:148:ILE:O    | 33:BL:148:ILE:CG2  | 2.67                     | 0.42              |
| 34:BM:38:ILE:HD12  | 37:BP:70:ARG:NH1   | 2.35                     | 0.42              |
| 34:BM:60:ILE:HD12  | 34:BM:98:ALA:N     | 2.35                     | 0.42              |
| 34:BM:240:VAL:HG12 | 34:BM:241:ASP:N    | 2.35                     | 0.42              |
| 40:BS:113:SER:O    | 40:BS:117:LEU:HG   | 2.19                     | 0.42              |
| 43:BV:124:ILE:HG22 | 43:BV:128:LEU:HD23 | 2.01                     | 0.42              |
| 46:BY:27:LYS:O     | 46:BY:28:LYS:C     | 2.60                     | 0.42              |
| 20:C2:153:A:N6     | 1:D1:2:U:N3        | 2.66                     | 0.42              |
| 22:CA:3:ARG:CG     | 22:CA:4:VAL:H      | 2.32                     | 0.42              |
| 22:CA:25:ILE:HG13  | 22:CA:52:GLU:HG3   | 2.01                     | 0.42              |
| 22:CA:153:SER:OG   | 1:D1:2153:G:N7     | 2.49                     | 0.42              |
| 23:CB:119:TYR:HE1  | 1:D1:3255:A:H5'    | 1.85                     | 0.42              |
| 23:CB:211:GLU:OE2  | 23:CB:338:LYS:HE2  | 2.20                     | 0.42              |
| 23:CB:218:VAL:HB   | 23:CB:332:ARG:HE   | 1.85                     | 0.42              |
| 28:CG:22:UNK:HG1   | 28:CG:92:UNK:HB1   | 2.01                     | 0.42              |
| 29:CH:166:VAL:CG1  | 29:CH:167:THR:N    | 2.83                     | 0.42              |
| 30:CI:109:THR:O    | 30:CI:111:TYR:N    | 2.53                     | 0.42              |
| 31:CJ:57:SER:O     | 31:CJ:58:ILE:C     | 2.61                     | 0.42              |
| 32:CK:89:ARG:HA    | 32:CK:121:GLN:HE22 | 1.84                     | 0.42              |
| 32:CK:91:LYS:NZ    | 1:D1:487:G:H5''    | 2.35                     | 0.42              |
| 33:CL:93:LYS:HE3   | 1:D1:275:U:O2      | 2.18                     | 0.42              |
| 33:CL:188:ARG:HH21 | 1:D1:279:U:H4'     | 1.85                     | 0.42              |
| 34:CM:11:ALA:O     | 34:CM:12:TYR:C     | 2.61                     | 0.42              |
| 34:CM:133:ASP:HB3  | 34:CM:172:ASN:ND2  | 2.35                     | 0.42              |
| 39:CR:150:ILE:H    | 39:CR:150:ILE:CD1  | 2.19                     | 0.42              |
| 40:CS:14:GLN:O     | 40:CS:15:ARG:C     | 2.62                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 40:CS:26:ARG:NH1   | 40:CS:74:ARG:O     | 2.52                     | 0.42              |
| 41:CT:52:THR:HB    | 1:D1:3292:U:C5     | 2.55                     | 0.42              |
| 45:CX:113:ARG:HE   | 45:CX:117:LEU:HD11 | 1.85                     | 0.42              |
| 1:D1:40:C:H6       | 1:D1:40:C:O5'      | 2.03                     | 0.42              |
| 1:D1:80:C:C2'      | 1:D1:81:C:O5'      | 2.68                     | 0.42              |
| 1:D1:80:C:H2'      | 1:D1:81:C:O5'      | 2.19                     | 0.42              |
| 1:D1:135:A:C5'     | 1:D1:136:C:OP2     | 2.67                     | 0.42              |
| 1:D1:223:C:O2'     | 1:D1:224:C:P       | 2.72                     | 0.42              |
| 1:D1:624:G:HO2'    | 1:D1:625:C:H6      | 1.57                     | 0.42              |
| 1:D1:788:C:C5      | 1:D1:790:C:C5      | 3.07                     | 0.42              |
| 1:D1:801:U:H4'     | 17:DT:37:PRO:HG3   | 2.02                     | 0.42              |
| 1:D1:853:A:H2'     | 1:D1:854:U:C6      | 2.55                     | 0.42              |
| 1:D1:868:G:C6      | 1:D1:869:G:N7      | 2.88                     | 0.42              |
| 1:D1:917:U:H2'     | 1:D1:918:C:O4'     | 2.19                     | 0.42              |
| 1:D1:1018:A:C2'    | 1:D1:1019:G:H5'    | 2.49                     | 0.42              |
| 1:D1:1064:C:O2'    | 1:D1:1065:U:H5'    | 2.20                     | 0.42              |
| 1:D1:1098:A:H2'    | 1:D1:1099:G:H5''   | 2.01                     | 0.42              |
| 1:D1:1171:U:H4'    | 1:D1:1172:G:O5'    | 2.19                     | 0.42              |
| 1:D1:1440:A:C6     | 1:D1:1441:U:C4     | 3.08                     | 0.42              |
| 1:D1:1601:U:O2'    | 1:D1:1602:U:H5'    | 2.20                     | 0.42              |
| 1:D1:1839:A:C4'    | 1:D1:1840:U:O5'    | 2.67                     | 0.42              |
| 1:D1:2208:A:C5     | 1:D1:2227:A:C6     | 3.07                     | 0.42              |
| 1:D1:2221:U:H2'    | 1:D1:2222:C:C6     | 2.55                     | 0.42              |
| 1:D1:2378:A:H2'    | 1:D1:2379:A:C8     | 2.55                     | 0.42              |
| 1:D1:2434:A:H2'    | 1:D1:2435:A:C8     | 2.54                     | 0.42              |
| 1:D1:2558:U:C5     | 1:D1:2559:U:C4     | 3.08                     | 0.42              |
| 1:D1:2561:A:C2     | 1:D1:2563:U:C4     | 3.08                     | 0.42              |
| 1:D1:2576:C:C6     | 1:D1:2576:C:C4'    | 3.03                     | 0.42              |
| 1:D1:3175:A:C6     | 1:D1:3177:G:C6     | 3.07                     | 0.42              |
| 1:D1:3234:U:O4     | 8:DH:68:SER:HB2    | 2.19                     | 0.42              |
| 4:DC:55:ILE:HD12   | 4:DC:57:ARG:NH2    | 2.35                     | 0.42              |
| 5:DE:73:LEU:H      | 5:DE:73:LEU:HG     | 1.58                     | 0.42              |
| 6:DF:96:ILE:O      | 6:DF:99:LYS:HB2    | 2.20                     | 0.42              |
| 8:DH:57:VAL:O      | 8:DH:104:LEU:HD22  | 2.19                     | 0.42              |
| 8:DH:99:ALA:O      | 8:DH:102:SER:OG    | 2.28                     | 0.42              |
| 8:DH:104:LEU:HD23  | 8:DH:104:LEU:HA    | 1.64                     | 0.42              |
| 12:DM:97:VAL:HG22  | 12:DM:107:LEU:CD2  | 2.49                     | 0.42              |
| 14:DO:49:ALA:O     | 14:DO:50:LEU:HD23  | 2.18                     | 0.42              |
| 20:E2:87:C:O2'     | 20:E2:88:G:C5'     | 2.68                     | 0.42              |
| 23:EB:277:ASN:ND2  | 23:EB:343:GLN:HE21 | 2.10                     | 0.42              |
| 23:EB:382:ARG:HH22 | 1:F1:3287:U:P      | 2.42                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:EC:67:HIS:CD2   | 24:EC:91:ARG:HH21  | 2.38                     | 0.42              |
| 24:EC:103:LYS:NZ   | 1:F1:365:A:OP1     | 2.53                     | 0.42              |
| 24:EC:289:LEU:HA   | 24:EC:289:LEU:HD23 | 1.59                     | 0.42              |
| 26:EE:1:MET:HE2    | 26:EE:1:MET:HA     | 2.01                     | 0.42              |
| 26:EE:89:LYS:HB2   | 26:EE:181:ASP:HB2  | 2.01                     | 0.42              |
| 29:EH:115:MET:O    | 29:EH:116:ARG:C    | 2.63                     | 0.42              |
| 29:EH:139:ARG:C    | 29:EH:140:VAL:HG23 | 2.45                     | 0.42              |
| 34:EM:34:LYS:HE3   | 37:EP:30:TYR:HE1   | 1.84                     | 0.42              |
| 34:EM:106:ALA:CB   | 34:EM:169:GLY:HA3  | 2.49                     | 0.42              |
| 36:EO:123:PHE:CE2  | 36:EO:142:ILE:HG12 | 2.55                     | 0.42              |
| 39:ER:121:LEU:HD23 | 39:ER:121:LEU:HA   | 1.73                     | 0.42              |
| 43:EV:18:LYS:O     | 43:EV:21:LYS:HB2   | 2.19                     | 0.42              |
| 43:EV:41:TRP:HE1   | 43:EV:176:THR:HG22 | 1.85                     | 0.42              |
| 46:EY:88:LYS:HG2   | 46:EY:89:LEU:N     | 2.34                     | 0.42              |
| 1:F1:80:C:C2'      | 1:F1:81:C:O5'      | 2.67                     | 0.42              |
| 1:F1:315:U:H4'     | 1:F1:316:A:H5'     | 2.01                     | 0.42              |
| 1:F1:636:U:H4'     | 5:FE:34:LYS:HE2    | 2.02                     | 0.42              |
| 1:F1:788:C:H1'     | 18:FU:179:ARG:NH2  | 2.35                     | 0.42              |
| 1:F1:841:A:OP2     | 2:FA:28:HIS:HE1    | 2.02                     | 0.42              |
| 1:F1:1062:A:H2'    | 1:F1:1063:C:C5'    | 2.45                     | 0.42              |
| 1:F1:1240:G:O2'    | 1:F1:1241:U:H5'    | 2.20                     | 0.42              |
| 1:F1:1248:G:O2'    | 1:F1:1249:G:OP2    | 2.28                     | 0.42              |
| 1:F1:1254:C:H2'    | 1:F1:1255:A:H5''   | 2.02                     | 0.42              |
| 1:F1:1427:G:C2'    | 1:F1:1428:G:O5'    | 2.68                     | 0.42              |
| 1:F1:1883:A:C2     | 1:F1:1884:G:C8     | 3.08                     | 0.42              |
| 1:F1:2153:G:H5'    | 1:F1:2173:A:N6     | 2.35                     | 0.42              |
| 1:F1:2254:A:H5'    | 1:F1:2255:U:OP2    | 2.19                     | 0.42              |
| 1:F1:3215:C:H2'    | 1:F1:3216:C:C6     | 2.55                     | 0.42              |
| 1:F1:3230:G:O2'    | 1:F1:3231:U:OP1    | 2.38                     | 0.42              |
| 5:FE:128:ASN:OD1   | 5:FE:130:PHE:N     | 2.51                     | 0.42              |
| 6:FF:85:TYR:CE2    | 6:FF:91:ALA:HB2    | 2.54                     | 0.42              |
| 6:FF:109:PHE:O     | 6:FF:113:VAL:HG23  | 2.20                     | 0.42              |
| 9:FJ:74:ASN:OD1    | 9:FJ:74:ASN:C      | 2.63                     | 0.42              |
| 12:FM:19:ILE:CD1   | 12:FM:105:TYR:HB2  | 2.49                     | 0.42              |
| 14:FO:24:PHE:CD1   | 14:FO:34:ARG:HG2   | 2.55                     | 0.42              |
| 18:FU:184:GLU:O    | 18:FU:185:LYS:C    | 2.63                     | 0.42              |
| 19:FX:19:ARG:HG3   | 19:FX:21:TYR:OH    | 2.19                     | 0.42              |
| 19:FX:28:LEU:HD13  | 19:FX:70:GLY:C     | 2.45                     | 0.42              |
| 19:FX:56:TRP:O     | 19:FX:57:TYR:C     | 2.59                     | 0.42              |
| 19:FX:124:MET:CE   | 19:FX:128:HIS:HB2  | 2.50                     | 0.42              |
| 19:FX:167:LYS:HG2  | 19:FX:188:THR:CG2  | 2.48                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 20:G2:103:U:C4     | 20:G2:104:G:C6    | 3.08                     | 0.42              |
| 20:G2:130:C:O2     | 20:G2:130:C:H2'   | 2.20                     | 0.42              |
| 21:G3:21:G:H4'     | 34:GM:277:PHE:CE1 | 2.54                     | 0.42              |
| 21:G3:83:G:C2      | 21:G3:93:G:N2     | 2.88                     | 0.42              |
| 22:GA:3:ARG:CG     | 22:GA:4:VAL:H     | 2.32                     | 0.42              |
| 22:GA:109:PRO:HG2  | 22:GA:112:THR:OG1 | 2.20                     | 0.42              |
| 22:GA:112:THR:HG22 | 22:GA:113:VAL:N   | 2.34                     | 0.42              |
| 22:GA:216:ASN:HB3  | 1:H1:2956:G:N7    | 2.34                     | 0.42              |
| 23:GB:233:VAL:HG12 | 23:GB:234:LYS:O   | 2.19                     | 0.42              |
| 23:GB:235:HIS:CD2  | 23:GB:235:HIS:C   | 2.98                     | 0.42              |
| 24:GC:33:ILE:O     | 24:GC:33:ILE:CG2  | 2.65                     | 0.42              |
| 24:GC:303:GLU:OE1  | 24:GC:303:GLU:N   | 2.48                     | 0.42              |
| 25:GD:25:GLU:O     | 25:GD:30:LEU:CD1  | 2.67                     | 0.42              |
| 25:GD:45:PRO:HA    | 25:GD:69:VAL:HG22 | 2.02                     | 0.42              |
| 25:GD:92:ARG:H     | 25:GD:95:ASN:HD22 | 1.64                     | 0.42              |
| 34:GM:60:ILE:HD12  | 34:GM:98:ALA:N    | 2.35                     | 0.42              |
| 34:GM:133:ASP:HB3  | 34:GM:172:ASN:ND2 | 2.35                     | 0.42              |
| 34:GM:231:TRP:CZ2  | 34:GM:243:VAL:CG2 | 3.01                     | 0.42              |
| 36:GO:95:TRP:CZ2   | 1:H1:880:U:H4'    | 2.54                     | 0.42              |
| 37:GP:11:THR:CG2   | 37:GP:15:PHE:CG   | 3.03                     | 0.42              |
| 37:GP:21:THR:HA    | 37:GP:24:HIS:HD2  | 1.79                     | 0.42              |
| 38:GQ:141:TYR:CD1  | 1:H1:2350:G:H4'   | 2.54                     | 0.42              |
| 42:GU:29:LEU:HD23  | 42:GU:29:LEU:HA   | 1.87                     | 0.42              |
| 42:GU:118:ARG:O    | 18:HU:47:ARG:NH1  | 2.53                     | 0.42              |
| 43:GV:82:PHE:CD1   | 43:GV:112:ALA:O   | 2.73                     | 0.42              |
| 1:H1:20:G:C5       | 1:H1:21:A:C8      | 3.08                     | 0.42              |
| 1:H1:60:A:H8       | 1:H1:60:A:O5'     | 2.03                     | 0.42              |
| 1:H1:148:G:O2'     | 1:H1:149:U:C6     | 2.69                     | 0.42              |
| 1:H1:236:G:O2'     | 2:HA:88:LYS:O     | 2.37                     | 0.42              |
| 1:H1:431:A:C6      | 1:H1:432:G:C6     | 3.08                     | 0.42              |
| 1:H1:762:G:C2      | 1:H1:763:G:C8     | 3.08                     | 0.42              |
| 1:H1:1601:U:O2'    | 1:H1:1602:U:H5'   | 2.20                     | 0.42              |
| 1:H1:1903:A:N1     | 50:H1:4092:HOH:O  | 2.37                     | 0.42              |
| 1:H1:2255:U:C6     | 1:H1:2256:G:C8    | 3.07                     | 0.42              |
| 1:H1:2369:C:O2     | 1:H1:2369:C:C2'   | 2.58                     | 0.42              |
| 1:H1:2673:C:H2'    | 1:H1:2674:A:H8    | 1.85                     | 0.42              |
| 1:H1:2762:U:O2     | 1:H1:2763:U:C6    | 2.73                     | 0.42              |
| 1:H1:3106:C:C3'    | 1:H1:3107:C:C5'   | 2.98                     | 0.42              |
| 1:H1:3128:G:H2'    | 1:H1:3129:G:O4'   | 2.20                     | 0.42              |
| 1:H1:3160:A:N3     | 1:H1:3160:A:H2'   | 2.35                     | 0.42              |
| 1:H1:3171:A:N6     | 1:H1:3172:A:N6    | 2.67                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:3185:G:O6    | 1:H1:3235:U:O3'    | 2.37                     | 0.42              |
| 5:HE:116:TYR:OH   | 5:HE:149:ARG:HG2   | 2.19                     | 0.42              |
| 7:HG:15:ALA:O     | 7:HG:19:ARG:HG3    | 2.20                     | 0.42              |
| 11:HL:20:VAL:CG1  | 11:HL:21:ARG:N     | 2.82                     | 0.42              |
| 13:HN:122:TYR:O   | 13:HN:125:ILE:HG13 | 2.20                     | 0.42              |
| 14:HO:75:THR:CG2  | 14:HO:77:GLU:CG    | 2.94                     | 0.42              |
| 17:HT:30:ILE:HG22 | 17:HT:31:SER:N     | 2.34                     | 0.42              |
| 18:HU:121:LEU:HG  | 18:HU:122:VAL:N    | 2.34                     | 0.42              |
| 19:HX:124:MET:HE3 | 19:HX:128:HIS:CD2  | 2.54                     | 0.42              |
| 19:HX:137:ILE:O   | 19:HX:137:ILE:HG13 | 2.19                     | 0.42              |
| 1:A1:31:G:H1'     | 1:A1:49:A:N6       | 2.34                     | 0.42              |
| 1:A1:39:G:C4      | 1:A1:2789:A:C2     | 3.07                     | 0.42              |
| 1:A1:164:A:C2'    | 1:A1:165:C:H5'     | 2.47                     | 0.42              |
| 1:A1:186:U:H4'    | 40:BS:125:LEU:CD2  | 2.50                     | 0.42              |
| 1:A1:229:A:H5''   | 40:BS:3:THR:HB     | 2.02                     | 0.42              |
| 1:A1:440:C:C4     | 1:A1:538:A:H2      | 2.38                     | 0.42              |
| 1:A1:524:G:O5'    | 1:A1:524:G:H8      | 2.02                     | 0.42              |
| 1:A1:740:A:C5'    | 32:BK:114:GLY:O    | 2.68                     | 0.42              |
| 1:A1:773:C:C2'    | 1:A1:774:A:O5'     | 2.68                     | 0.42              |
| 1:A1:852:A:C2     | 1:A1:853:A:C4      | 3.07                     | 0.42              |
| 1:A1:938:A:C2'    | 1:A1:939:A:OP2     | 2.68                     | 0.42              |
| 1:A1:949:G:N7     | 1:A1:2797:C:H1'    | 2.34                     | 0.42              |
| 1:A1:1191:G:H5''  | 8:AH:33:ASN:ND2    | 2.35                     | 0.42              |
| 1:A1:1314:A:H2'   | 1:A1:1315:U:H6     | 1.85                     | 0.42              |
| 1:A1:1316:G:H5''  | 1:A1:1316:G:H8     | 1.85                     | 0.42              |
| 1:A1:1377:A:H2'   | 1:A1:1378:U:O4'    | 2.20                     | 0.42              |
| 1:A1:1608:G:H2'   | 1:A1:1609:U:O5'    | 2.20                     | 0.42              |
| 1:A1:1616:G:C2'   | 1:A1:1617:G:H5'    | 2.49                     | 0.42              |
| 1:A1:1922:G:H2'   | 1:A1:1923:G:C5'    | 2.50                     | 0.42              |
| 1:A1:2168:U:H2'   | 1:A1:2169:G:C8     | 2.54                     | 0.42              |
| 1:A1:2435:A:C2    | 1:A1:2503:U:C2     | 3.07                     | 0.42              |
| 1:A1:3031:U:C2'   | 1:A1:3032:C:H5'    | 2.50                     | 0.42              |
| 1:A1:3156:A:H4'   | 1:A1:3159:A:N7     | 2.35                     | 0.42              |
| 3:AB:12:ARG:HD3   | 20:B2:48:C:OP1     | 2.19                     | 0.42              |
| 3:AB:50:LYS:O     | 3:AB:51:ILE:HG13   | 2.19                     | 0.42              |
| 8:AH:39:LEU:HD22  | 8:AH:106:VAL:HG21  | 2.00                     | 0.42              |
| 13:AN:100:ASP:HB3 | 13:AN:104:ASN:ND2  | 2.34                     | 0.42              |
| 14:AO:7:GLU:OE1   | 14:AO:7:GLU:HA     | 2.19                     | 0.42              |
| 14:AO:104:LYS:O   | 14:AO:108:LEU:HG   | 2.19                     | 0.42              |
| 18:AU:31:LYS:O    | 18:AU:34:LEU:HB2   | 2.20                     | 0.42              |
| 19:AX:25:ALA:CA   | 19:AX:73:LEU:HG    | 2.42                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:AX:45:ALA:HB1   | 19:AX:50:HIS:HB3   | 2.01                     | 0.42              |
| 20:B2:28:G:C6      | 20:B2:29:U:C4      | 3.08                     | 0.42              |
| 20:B2:58:U:N3      | 20:B2:65:C:C5      | 2.72                     | 0.42              |
| 22:BA:35:PHE:O     | 22:BA:38:ARG:HG3   | 2.20                     | 0.42              |
| 23:BB:32:PHE:CD2   | 23:BB:44:THR:HG21  | 2.53                     | 0.42              |
| 23:BB:138:ASP:OD1  | 23:BB:140:LYS:HG2  | 2.20                     | 0.42              |
| 23:BB:218:VAL:HB   | 23:BB:332:ARG:HE   | 1.85                     | 0.42              |
| 24:BC:142:VAL:HG11 | 24:BC:149:ILE:HD11 | 2.02                     | 0.42              |
| 26:BE:63:LYS:HA    | 26:BE:63:LYS:HD3   | 1.79                     | 0.42              |
| 26:BE:113:LYS:CD   | 26:BE:114:HIS:HB2  | 2.49                     | 0.42              |
| 33:BL:164:LEU:HD23 | 33:BL:172:ARG:NH2  | 2.34                     | 0.42              |
| 34:BM:287:ARG:O    | 34:BM:291:VAL:HG23 | 2.20                     | 0.42              |
| 36:BO:94:LEU:HD23  | 36:BO:94:LEU:HA    | 1.72                     | 0.42              |
| 39:BR:42:THR:HG22  | 39:BR:43:LEU:N     | 2.35                     | 0.42              |
| 40:BS:33:HIS:CE1   | 40:BS:39:ARG:HE    | 2.38                     | 0.42              |
| 42:BU:42:ALA:HA    | 42:BU:45:LEU:HG    | 2.02                     | 0.42              |
| 43:BV:108:LEU:O    | 43:BV:109:HIS:HB2  | 2.19                     | 0.42              |
| 20:C2:86:G:C6      | 40:CS:111:ASP:OD2  | 2.73                     | 0.42              |
| 20:C2:87:C:O2'     | 20:C2:88:G:H5'     | 2.20                     | 0.42              |
| 22:CA:102:VAL:O    | 22:CA:103:LEU:HD23 | 2.20                     | 0.42              |
| 22:CA:183:ALA:HB1  | 22:CA:197:TRP:HH2  | 1.85                     | 0.42              |
| 22:CA:214:GLY:HA3  | 1:D1:2955:A:OP1    | 2.19                     | 0.42              |
| 24:CC:101:CYS:O    | 24:CC:102:ARG:C    | 2.61                     | 0.42              |
| 28:CG:81:UNK:HG2   | 1:D1:1309:G:H1'    | 2.02                     | 0.42              |
| 29:CH:34:TYR:HB2   | 1:D1:1034:U:O2'    | 2.20                     | 0.42              |
| 33:CL:7:LEU:O      | 33:CL:10:LEU:HB2   | 2.20                     | 0.42              |
| 33:CL:72:LYS:O     | 33:CL:74:PRO:HD3   | 2.20                     | 0.42              |
| 47:CO:89:MET:HG3   | 47:CO:90:PRO:HD2   | 2.02                     | 0.42              |
| 47:CO:105:LEU:HD13 | 47:CO:135:LYS:HE3  | 2.01                     | 0.42              |
| 47:CO:135:LYS:HB3  | 1:D1:1972:G:OP1    | 2.19                     | 0.42              |
| 47:CO:161:UNK:CA   | 47:CO:164:UNK:HG3  | 2.50                     | 0.42              |
| 38:CQ:66:THR:HG23  | 38:CQ:82:GLN:NE2   | 2.35                     | 0.42              |
| 41:CT:15:ILE:HD13  | 41:CT:32:PHE:HE1   | 1.85                     | 0.42              |
| 41:CT:54:THR:HG22  | 41:CT:55:ILE:N     | 2.35                     | 0.42              |
| 43:CV:124:ILE:HG22 | 43:CV:128:LEU:HD23 | 2.01                     | 0.42              |
| 1:D1:213:A:H2'     | 1:D1:214:G:O4'     | 2.20                     | 0.42              |
| 1:D1:222:A:C6      | 1:D1:223:C:C4      | 3.08                     | 0.42              |
| 1:D1:292:C:OP1     | 1:D1:2427:U:C5'    | 2.68                     | 0.42              |
| 1:D1:415:A:C4'     | 1:D1:653:C:H4'     | 2.50                     | 0.42              |
| 1:D1:528:C:O2'     | 14:DO:115:HIS:CE1  | 2.72                     | 0.42              |
| 1:D1:567:C:C4      | 1:D1:603:A:N1      | 2.87                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:651:U:C4      | 1:D1:652:U:C5      | 3.08                     | 0.42              |
| 1:D1:773:C:C2      | 1:D1:774:A:C8      | 3.08                     | 0.42              |
| 1:D1:805:A:H5''    | 1:D1:806:G:OP2     | 2.19                     | 0.42              |
| 1:D1:821:U:H6      | 1:D1:821:U:C5'     | 2.28                     | 0.42              |
| 1:D1:895:A:OP1     | 50:D1:4195:HOH:O   | 2.21                     | 0.42              |
| 1:D1:927:G:C4      | 1:D1:928:U:C5      | 3.08                     | 0.42              |
| 1:D1:1004:U:C4'    | 1:D1:1005:A:OP1    | 2.68                     | 0.42              |
| 1:D1:1021:U:O2     | 1:D1:1021:U:H2'    | 2.20                     | 0.42              |
| 1:D1:1054:G:H2'    | 1:D1:1055:A:N7     | 2.28                     | 0.42              |
| 1:D1:1165:U:C2'    | 1:D1:1166:G:H5''   | 2.49                     | 0.42              |
| 1:D1:1173:A:H4'    | 1:D1:1358:U:C4     | 2.55                     | 0.42              |
| 1:D1:1198:G:C5     | 50:D1:4426:HOH:O   | 2.70                     | 0.42              |
| 1:D1:1203:C:OP2    | 1:D1:1204:C:H3'    | 2.20                     | 0.42              |
| 1:D1:1233:G:H2'    | 1:D1:1234:G:H5'    | 2.02                     | 0.42              |
| 1:D1:2353:C:O2     | 1:D1:2353:C:C2'    | 2.59                     | 0.42              |
| 1:D1:2435:A:C2     | 1:D1:2503:U:C2     | 3.07                     | 0.42              |
| 1:D1:2731:C:C4'    | 4:DC:18:HIS:HD2    | 2.32                     | 0.42              |
| 1:D1:3185:G:O6     | 1:D1:3235:U:O3'    | 2.38                     | 0.42              |
| 4:DC:26:TYR:HB2    | 4:DC:67:ALA:HB3    | 1.98                     | 0.42              |
| 5:DE:124:LYS:HB3   | 5:DE:130:PHE:HA    | 2.02                     | 0.42              |
| 5:DE:173:TYR:CD2   | 6:DF:106:PHE:HD1   | 2.37                     | 0.42              |
| 5:DE:178:PHE:O     | 8:DH:12:THR:CG2    | 2.68                     | 0.42              |
| 14:DO:12:ASN:CG    | 14:DO:12:ASN:O     | 2.63                     | 0.42              |
| 18:DU:17:GLN:H     | 18:DU:17:GLN:HG3   | 1.23                     | 0.42              |
| 20:E2:2:G:HO2'     | 1:F1:2983:A:C2'    | 2.23                     | 0.42              |
| 20:E2:148:U:O4     | 27:EF:43:ARG:HA    | 2.20                     | 0.42              |
| 21:E3:108:G:H2'    | 21:E3:109:U:O4'    | 2.20                     | 0.42              |
| 22:EA:206:ASN:O    | 22:EA:208:VAL:N    | 2.53                     | 0.42              |
| 23:EB:39:LYS:C     | 23:EB:40:LYS:O     | 2.59                     | 0.42              |
| 23:EB:113:ASN:O    | 23:EB:116:LYS:HB2  | 2.19                     | 0.42              |
| 23:EB:367:ARG:NH1  | 41:ET:13:TYR:CD1   | 2.87                     | 0.42              |
| 24:EC:129:VAL:HG13 | 24:EC:246:LEU:HD12 | 2.01                     | 0.42              |
| 25:ED:77:ARG:HH22  | 25:ED:166:GLU:HG3  | 1.83                     | 0.42              |
| 25:ED:132:GLU:C    | 25:ED:154:ILE:HD11 | 2.44                     | 0.42              |
| 26:EE:120:ARG:NH1  | 26:EE:122:ARG:NH1  | 2.68                     | 0.42              |
| 27:EF:21:LEU:HD12  | 27:EF:21:LEU:HA    | 1.72                     | 0.42              |
| 30:EI:64:ASN:HD21  | 30:EI:66:ARG:CG    | 2.22                     | 0.42              |
| 33:EL:11:TRP:HH2   | 33:EL:26:ARG:NH1   | 2.18                     | 0.42              |
| 34:EM:6:VAL:O      | 34:EM:6:VAL:CG1    | 2.66                     | 0.42              |
| 34:EM:88:VAL:CG1   | 34:EM:246:LEU:HD21 | 2.50                     | 0.42              |
| 34:EM:133:ASP:HB3  | 34:EM:172:ASN:ND2  | 2.35                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 39:ER:90:MET:HE2   | 39:ER:92:PHE:CE1  | 2.55                     | 0.42              |
| 40:ES:98:LEU:HA    | 40:ES:98:LEU:HD23 | 1.75                     | 0.42              |
| 43:EV:82:PHE:CD1   | 43:EV:112:ALA:O   | 2.73                     | 0.42              |
| 44:EW:7:LYS:H      | 44:EW:76:LYS:HB3  | 1.85                     | 0.42              |
| 44:EW:14:ASN:HD21  | 44:EW:69:ARG:NH2  | 2.17                     | 0.42              |
| 45:EX:27:PHE:HB2   | 45:EX:30:LEU:HB2  | 2.02                     | 0.42              |
| 46:EY:51:ALA:HB3   | 46:EY:54:ILE:HB   | 2.01                     | 0.42              |
| 1:F1:170:A:C2      | 1:F1:250:U:C2     | 3.08                     | 0.42              |
| 1:F1:263:A:C5      | 16:FQ:30:ARG:NH2  | 2.87                     | 0.42              |
| 1:F1:402:U:OP2     | 1:F1:403:G:N7     | 2.53                     | 0.42              |
| 1:F1:983:U:OP1     | 1:F1:2787:A:H3'   | 2.19                     | 0.42              |
| 1:F1:1222:A:C2     | 1:F1:1336:U:C2    | 3.07                     | 0.42              |
| 1:F1:1381:G:C5'    | 14:FO:37:GLN:HG3  | 2.48                     | 0.42              |
| 1:F1:1470:G:H2'    | 1:F1:1471:U:O4'   | 2.20                     | 0.42              |
| 1:F1:1512:G:N7     | 50:F1:4243:HOH:O  | 2.37                     | 0.42              |
| 1:F1:1604:C:H2'    | 1:F1:1605:G:O5'   | 2.20                     | 0.42              |
| 1:F1:1616:G:H4'    | 1:F1:1680:A:OP1   | 2.20                     | 0.42              |
| 1:F1:1636:C:C2     | 1:F1:1637:A:C8    | 3.08                     | 0.42              |
| 1:F1:1701:A:H5''   | 12:FM:99:SER:HB2  | 2.01                     | 0.42              |
| 1:F1:1757:A:H2'    | 1:F1:1758:U:C6    | 2.55                     | 0.42              |
| 1:F1:1839:A:O2'    | 1:F1:1840:U:C6    | 2.73                     | 0.42              |
| 1:F1:1846:C:H2'    | 1:F1:1847:A:H8    | 1.84                     | 0.42              |
| 1:F1:2283:G:C4     | 1:F1:2284:U:C5    | 3.08                     | 0.42              |
| 1:F1:2710:A:C2     | 1:F1:2725:A:C2    | 3.07                     | 0.42              |
| 1:F1:2859:G:HO2'   | 1:F1:2860:A:P     | 2.43                     | 0.42              |
| 1:F1:2902:G:N3     | 1:F1:2922:A:H2    | 2.17                     | 0.42              |
| 1:F1:2963:U:H2'    | 1:F1:2964:A:C8    | 2.54                     | 0.42              |
| 1:F1:3308:A:H2'    | 1:F1:3309:U:C6    | 2.55                     | 0.42              |
| 5:FE:128:ASN:OD1   | 5:FE:128:ASN:C    | 2.62                     | 0.42              |
| 7:FG:73:SER:O      | 7:FG:74:ASN:C     | 2.63                     | 0.42              |
| 9:FJ:97:ILE:HG22   | 9:FJ:98:GLU:N     | 2.34                     | 0.42              |
| 9:FJ:101:LEU:CD1   | 9:FJ:118:HIS:CD2  | 3.02                     | 0.42              |
| 10:FK:93:LYS:HA    | 10:FK:105:PRO:HD3 | 2.00                     | 0.42              |
| 13:FN:39:GLY:O     | 13:FN:77:LEU:HG   | 2.20                     | 0.42              |
| 20:G2:30:U:OP1     | 24:GC:56:LYS:HA   | 2.20                     | 0.42              |
| 22:GA:206:ASN:O    | 22:GA:208:VAL:N   | 2.53                     | 0.42              |
| 23:GB:33:PRO:HD3   | 23:GB:44:THR:CG2  | 2.49                     | 0.42              |
| 23:GB:60:VAL:CG2   | 23:GB:67:HIS:O    | 2.68                     | 0.42              |
| 23:GB:102:LEU:O    | 23:GB:103:THR:OG1 | 2.27                     | 0.42              |
| 23:GB:294:THR:HG21 | 23:GB:354:LEU:O   | 2.19                     | 0.42              |
| 25:GD:23:VAL:HG23  | 25:GD:25:GLU:N    | 2.35                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 27:GF:41:LEU:HD21  | 1:H1:2519:A:C2    | 2.50                     | 0.42              |
| 27:GF:72:GLN:HE21  | 27:GF:160:PRO:HG2 | 1.84                     | 0.42              |
| 27:GF:155:LEU:HD11 | 1:H1:147:U:H1'    | 2.01                     | 0.42              |
| 29:GH:140:VAL:CG1  | 29:GH:141:LYS:N   | 2.82                     | 0.42              |
| 30:GI:10:ALA:C     | 30:GI:13:HIS:CD2  | 2.96                     | 0.42              |
| 30:GI:25:GLU:HB3   | 30:GI:30:GLN:HB3  | 2.01                     | 0.42              |
| 33:GL:142:ILE:HG23 | 33:GL:148:ILE:CG2 | 2.49                     | 0.42              |
| 34:GM:107:ARG:HD2  | 34:GM:107:ARG:HA  | 1.76                     | 0.42              |
| 34:GM:252:ALA:O    | 34:GM:256:LYS:HG3 | 2.20                     | 0.42              |
| 35:GN:57:ARG:CB    | 1:H1:696:A:OP2    | 2.68                     | 0.42              |
| 36:GO:18:GLY:O     | 36:GO:19:GLN:C    | 2.61                     | 0.42              |
| 38:GQ:47:LYS:HE2   | 38:GQ:98:ASP:OD1  | 2.20                     | 0.42              |
| 42:GU:81:PRO:HG2   | 42:GU:84:ILE:HD12 | 2.02                     | 0.42              |
| 44:GW:32:ILE:CD1   | 1:H1:1485:C:H5'   | 2.50                     | 0.42              |
| 45:GX:8:HIS:CE1    | 45:GX:72:GLY:HA2  | 2.54                     | 0.42              |
| 45:GX:45:ARG:HE    | 1:H1:1395:U:H5'   | 1.84                     | 0.42              |
| 46:GY:9:GLY:C      | 1:H1:862:A:H5'    | 2.45                     | 0.42              |
| 1:H1:414:G:H1'     | 1:H1:652:U:O2'    | 2.19                     | 0.42              |
| 1:H1:636:U:O2'     | 5:HE:34:LYS:HG2   | 2.20                     | 0.42              |
| 1:H1:687:C:N3      | 1:H1:688:U:C5     | 2.88                     | 0.42              |
| 1:H1:753:A:H5'     | 1:H1:1002:A:O4'   | 2.20                     | 0.42              |
| 1:H1:840:G:C2      | 1:H1:951:A:C2     | 3.07                     | 0.42              |
| 1:H1:852:A:C2      | 1:H1:853:A:C4     | 3.08                     | 0.42              |
| 1:H1:1227:A:C4'    | 1:H1:1228:C:O5'   | 2.65                     | 0.42              |
| 1:H1:1370:A:C2     | 1:H1:1389:G:N1    | 2.87                     | 0.42              |
| 1:H1:1427:G:C2'    | 1:H1:1428:G:O5'   | 2.67                     | 0.42              |
| 1:H1:1608:G:C2'    | 1:H1:1609:U:O5'   | 2.68                     | 0.42              |
| 1:H1:1915:A:O2'    | 1:H1:1916:G:H5'   | 2.20                     | 0.42              |
| 1:H1:2383:U:H6     | 1:H1:2383:U:H5''  | 1.85                     | 0.42              |
| 1:H1:2522:A:N6     | 1:H1:2523:A:N6    | 2.68                     | 0.42              |
| 1:H1:2751:A:N6     | 1:H1:2788:G:H2'   | 2.35                     | 0.42              |
| 1:H1:2962:U:H6     | 1:H1:2962:U:C5'   | 2.30                     | 0.42              |
| 1:H1:3175:A:C5'    | 1:H1:3176:A:OP1   | 2.68                     | 0.42              |
| 1:H1:3227:A:H5'    | 5:HE:57:ARG:NH1   | 2.32                     | 0.42              |
| 5:HE:7:GLY:C       | 5:HE:9:ASN:N      | 2.75                     | 0.42              |
| 6:HF:14:TYR:CE1    | 6:HF:90:PHE:HE2   | 2.38                     | 0.42              |
| 15:HP:15:TRP:CE3   | 15:HP:69:PRO:HG3  | 2.55                     | 0.42              |
| 17:HT:40:LEU:O     | 17:HT:44:ARG:HG3  | 2.20                     | 0.42              |
| 19:HX:56:TRP:O     | 19:HX:57:TYR:C    | 2.60                     | 0.42              |
| 1:A1:40:C:H3'      | 1:A1:40:C:H6      | 1.85                     | 0.42              |
| 1:A1:49:A:C2'      | 1:A1:50:A:H5'     | 2.50                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:127:A:H5''    | 50:A1:3814:HOH:O   | 2.20                     | 0.42              |
| 1:A1:135:A:C5'     | 1:A1:136:C:OP2     | 2.68                     | 0.42              |
| 1:A1:136:C:C2'     | 1:A1:137:A:H5'     | 2.50                     | 0.42              |
| 1:A1:283:A:H4'     | 1:A1:283:A:OP2     | 2.19                     | 0.42              |
| 1:A1:406:A:C8      | 1:A1:407:C:C5      | 3.08                     | 0.42              |
| 1:A1:653:C:C2      | 1:A1:654:U:C5      | 3.07                     | 0.42              |
| 1:A1:853:A:H2'     | 1:A1:854:U:C6      | 2.54                     | 0.42              |
| 1:A1:1229:A:O2'    | 1:A1:1230:A:H5'    | 2.20                     | 0.42              |
| 1:A1:1669:G:C2     | 1:A1:1670:A:C6     | 3.08                     | 0.42              |
| 1:A1:1776:G:N7     | 15:AP:34:LYS:HD2   | 2.35                     | 0.42              |
| 1:A1:1932:A:H2'    | 1:A1:1933:A:O4'    | 2.20                     | 0.42              |
| 1:A1:2269:U:O2     | 1:A1:2269:U:H2'    | 2.20                     | 0.42              |
| 1:A1:2370:G:OP2    | 50:A1:3947:HOH:O   | 2.21                     | 0.42              |
| 1:A1:2438:G:C6     | 1:A1:2439:C:C4     | 3.08                     | 0.42              |
| 1:A1:2673:C:H1'    | 25:BD:99:THR:OG1   | 2.19                     | 0.42              |
| 1:A1:2883:G:H5'    | 1:A1:3096:U:O2'    | 2.19                     | 0.42              |
| 1:A1:3160:A:N3     | 1:A1:3160:A:H2'    | 2.35                     | 0.42              |
| 1:A1:3168:A:N3     | 26:BE:42:SER:O     | 2.52                     | 0.42              |
| 1:A1:3234:U:O5'    | 1:A1:3234:U:H6     | 2.03                     | 0.42              |
| 5:AE:114:ASP:C     | 5:AE:116:TYR:N     | 2.74                     | 0.42              |
| 6:AF:23:LYS:HB2    | 6:AF:43:ILE:HD11   | 2.02                     | 0.42              |
| 8:AH:18:ALA:HB2    | 8:AH:39:LEU:HD22   | 2.02                     | 0.42              |
| 12:AM:19:ILE:CD1   | 12:AM:105:TYR:HB2  | 2.50                     | 0.42              |
| 13:AN:83:THR:CG2   | 13:AN:85:TYR:HD2   | 2.33                     | 0.42              |
| 14:AO:118:ASN:OD1  | 14:AO:122:GLN:NE2  | 2.52                     | 0.42              |
| 19:AX:56:TRP:O     | 19:AX:57:TYR:C     | 2.63                     | 0.42              |
| 19:AX:71:ARG:HH21  | 43:BV:74:VAL:HG12  | 1.85                     | 0.42              |
| 19:AX:73:LEU:HA    | 43:BV:74:VAL:CG2   | 2.50                     | 0.42              |
| 20:B2:29:U:H5''    | 24:BC:56:LYS:HD2   | 2.02                     | 0.42              |
| 20:B2:90:G:C6      | 20:B2:92:C:C4      | 3.07                     | 0.42              |
| 20:B2:129:A:C4     | 20:B2:130:C:C6     | 3.08                     | 0.42              |
| 21:B3:43:A:H4'     | 25:BD:140:ARG:O    | 2.19                     | 0.42              |
| 22:BA:99:VAL:HG22  | 46:BY:83:MET:HE1   | 2.02                     | 0.42              |
| 23:BB:111:ASP:O    | 23:BB:112:ASN:C    | 2.62                     | 0.42              |
| 23:BB:291:ASN:CG   | 23:BB:303:ILE:HD11 | 2.44                     | 0.42              |
| 23:BB:299:THR:HG22 | 23:BB:300:ASP:N    | 2.35                     | 0.42              |
| 23:BB:375:ASP:CB   | 23:BB:380:ARG:O    | 2.65                     | 0.42              |
| 26:BE:4:LEU:HD12   | 26:BE:4:LEU:HA     | 1.65                     | 0.42              |
| 30:BI:105:GLU:C    | 30:BI:152:ILE:HD11 | 2.45                     | 0.42              |
| 30:BI:153:GLU:O    | 30:BI:154:LYS:C    | 2.61                     | 0.42              |
| 34:BM:267:ASN:HD21 | 34:BM:270:PRO:CG   | 2.33                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 42:BU:97:THR:HG22  | 42:BU:99:LYS:H    | 1.85                     | 0.42              |
| 43:BV:100:LEU:HD21 | 43:BV:127:VAL:CG1 | 2.39                     | 0.42              |
| 46:BY:32:THR:CG2   | 46:BY:70:GLU:HG2  | 2.50                     | 0.42              |
| 46:BY:74:PRO:N     | 46:BY:75:PRO:CD   | 2.83                     | 0.42              |
| 20:C2:96:A:N1      | 2:DA:85:ALA:HA    | 2.35                     | 0.42              |
| 23:CB:33:PRO:HD3   | 23:CB:44:THR:CG2  | 2.50                     | 0.42              |
| 23:CB:48:GLY:C     | 23:CB:49:PHE:CD1  | 2.98                     | 0.42              |
| 23:CB:58:ARG:HH21  | 23:CB:60:VAL:HG12 | 1.81                     | 0.42              |
| 23:CB:233:VAL:HG12 | 23:CB:234:LYS:N   | 2.34                     | 0.42              |
| 24:CC:89:THR:HG21  | 1:D1:363:G:O2'    | 2.19                     | 0.42              |
| 24:CC:107:PHE:CD2  | 24:CC:107:PHE:C   | 2.97                     | 0.42              |
| 27:CF:21:LEU:HD12  | 27:CF:21:LEU:HA   | 1.72                     | 0.42              |
| 27:CF:222:ARG:HA   | 27:CF:222:ARG:HD2 | 1.81                     | 0.42              |
| 30:CI:109:THR:C    | 30:CI:111:TYR:N   | 2.77                     | 0.42              |
| 31:CJ:46:ILE:CD1   | 31:CJ:54:PRO:CB   | 2.95                     | 0.42              |
| 34:CM:59:ARG:CD    | 34:CM:61:ILE:HG12 | 2.45                     | 0.42              |
| 35:CN:10:ARG:O     | 1:D1:1369:C:H4'   | 2.20                     | 0.42              |
| 35:CN:34:TYR:CD2   | 35:CN:37:LEU:HD12 | 2.55                     | 0.42              |
| 35:CN:63:LEU:HD12  | 35:CN:63:LEU:HA   | 1.63                     | 0.42              |
| 35:CN:65:LEU:O     | 35:CN:69:VAL:HG23 | 2.19                     | 0.42              |
| 35:CN:85:SER:O     | 35:CN:103:ALA:HB1 | 2.20                     | 0.42              |
| 47:CO:4:LEU:HA     | 47:CO:7:GLN:HG2   | 2.02                     | 0.42              |
| 47:CO:109:TYR:HB3  | 47:CO:115:ILE:CD1 | 2.49                     | 0.42              |
| 38:CQ:45:ASN:HD22  | 38:CQ:45:ASN:HA   | 1.70                     | 0.42              |
| 39:CR:90:MET:HA    | 39:CR:90:MET:HE3  | 2.00                     | 0.42              |
| 40:CS:24:HIS:CD2   | 40:CS:25:LEU:HG   | 2.55                     | 0.42              |
| 40:CS:61:LYS:HG2   | 1:D1:218:G:O6     | 2.20                     | 0.42              |
| 43:CV:84:ILE:HA    | 43:CV:110:ASN:O   | 2.20                     | 0.42              |
| 45:CX:57:ILE:C     | 45:CX:59:PHE:H    | 2.27                     | 0.42              |
| 46:CY:32:THR:HG21  | 46:CY:70:GLU:CG   | 2.49                     | 0.42              |
| 1:D1:134:A:C6      | 1:D1:135:A:C6     | 3.08                     | 0.42              |
| 1:D1:169:A:OP2     | 1:D1:249:G:C2     | 2.72                     | 0.42              |
| 1:D1:169:A:C8      | 1:D1:250:U:O4     | 2.73                     | 0.42              |
| 1:D1:358:C:O2      | 1:D1:840:G:H4'    | 2.20                     | 0.42              |
| 1:D1:533:G:N2      | 1:D1:534:U:C2     | 2.88                     | 0.42              |
| 1:D1:573:A:C6      | 1:D1:596:A:N7     | 2.88                     | 0.42              |
| 1:D1:752:C:C5'     | 1:D1:1002:A:C2    | 3.01                     | 0.42              |
| 1:D1:978:G:P       | 17:DT:15:LYS:HZ1  | 2.40                     | 0.42              |
| 1:D1:1060:C:C2     | 1:D1:1061:G:C8    | 3.07                     | 0.42              |
| 1:D1:1215:U:C2     | 1:D1:1344:A:N6    | 2.87                     | 0.42              |
| 1:D1:1242:U:H2'    | 1:D1:1243:C:H6    | 1.84                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:1839:A:O2'   | 1:D1:1840:U:P      | 2.78                     | 0.42              |
| 1:D1:1865:A:H1'   | 3:DB:45:ARG:HH22   | 1.85                     | 0.42              |
| 1:D1:1880:C:O2'   | 11:DL:7:TYR:HE1    | 2.03                     | 0.42              |
| 1:D1:2251:A:H1'   | 46:EY:74:PRO:HG2   | 2.01                     | 0.42              |
| 1:D1:2749:C:O2    | 1:D1:2749:C:H2'    | 2.20                     | 0.42              |
| 1:D1:2907:A:C5'   | 1:D1:2907:A:C8     | 3.00                     | 0.42              |
| 1:D1:3215:C:H2'   | 1:D1:3216:C:C6     | 2.54                     | 0.42              |
| 2:DA:26:THR:HG21  | 2:DA:36:ALA:HB2    | 2.02                     | 0.42              |
| 2:DA:65:MET:HE2   | 2:DA:68:MET:HG3    | 2.02                     | 0.42              |
| 5:DE:173:TYR:CD1  | 5:DE:173:TYR:C     | 2.98                     | 0.42              |
| 9:DJ:13:ILE:H     | 9:DJ:13:ILE:HG13   | 1.73                     | 0.42              |
| 14:DO:1:MET:C     | 14:DO:3:GLN:N      | 2.76                     | 0.42              |
| 16:DQ:51:PHE:CD1  | 16:DQ:51:PHE:N     | 2.88                     | 0.42              |
| 18:DU:131:ALA:HB3 | 18:DU:136:VAL:CG2  | 2.50                     | 0.42              |
| 20:E2:93:A:H2'    | 20:E2:94:U:H6      | 1.85                     | 0.42              |
| 21:E3:11:A:H4'    | 21:E3:13:A:C8      | 2.55                     | 0.42              |
| 21:E3:45:U:H5'    | 34:EM:154:THR:HG21 | 2.02                     | 0.42              |
| 21:E3:71:G:H2'    | 21:E3:72:U:H6      | 1.85                     | 0.42              |
| 23:EB:119:TYR:CE1 | 1:F1:3255:A:C5'    | 3.03                     | 0.42              |
| 24:EC:39:HIS:O    | 24:EC:40:LYS:C     | 2.62                     | 0.42              |
| 24:EC:205:ARG:HB3 | 24:EC:206:TYR:CD2  | 2.55                     | 0.42              |
| 24:EC:376:TRP:CD1 | 1:F1:564:A:O4'     | 2.73                     | 0.42              |
| 27:EF:53:LEU:O    | 27:EF:54:GLN:C     | 2.62                     | 0.42              |
| 27:EF:69:GLN:CG   | 27:EF:222:ARG:HH12 | 2.32                     | 0.42              |
| 27:EF:83:SER:HA   | 27:EF:86:PHE:HD2   | 1.85                     | 0.42              |
| 32:EK:78:ASP:OD2  | 32:EK:115:LYS:HD3  | 2.20                     | 0.42              |
| 32:EK:99:VAL:HG13 | 32:EK:100:PRO:HD2  | 2.02                     | 0.42              |
| 33:EL:26:ARG:O    | 33:EL:29:GLU:N     | 2.52                     | 0.42              |
| 33:EL:79:ILE:CD1  | 1:F1:2597:G:O2'    | 2.67                     | 0.42              |
| 33:EL:196:GLN:CB  | 18:FU:19:ARG:HD2   | 2.50                     | 0.42              |
| 35:EN:36:PHE:HE2  | 1:F1:1375:A:H2'    | 1.84                     | 0.42              |
| 36:EO:12:ALA:N    | 36:EO:22:LEU:HD11  | 2.34                     | 0.42              |
| 39:ER:71:VAL:HG21 | 39:ER:107:PHE:HD1  | 1.84                     | 0.42              |
| 40:ES:113:SER:O   | 40:ES:117:LEU:HG   | 2.19                     | 0.42              |
| 43:EV:123:MET:HG3 | 1:F1:1012:U:H1'    | 2.02                     | 0.42              |
| 43:EV:170:LEU:HA  | 43:EV:170:LEU:HD23 | 1.60                     | 0.42              |
| 1:F1:111:C:O2     | 1:F1:111:C:C2'     | 2.64                     | 0.42              |
| 1:F1:687:C:H2'    | 1:F1:688:U:C6      | 2.54                     | 0.42              |
| 1:F1:1506:G:N1    | 1:F1:1896:C:OP2    | 2.52                     | 0.42              |
| 1:F1:1736:G:O5'   | 1:F1:1736:G:H8     | 2.02                     | 0.42              |
| 1:F1:2885:A:O2'   | 1:F1:2886:G:H3'    | 2.20                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:2987:A:H2'    | 1:F1:2988:U:O4'    | 2.20                     | 0.42              |
| 1:F1:3229:C:C2     | 5:FE:57:ARG:HG3    | 2.55                     | 0.42              |
| 2:FA:71:ILE:O      | 2:FA:75:ALA:HB2    | 2.20                     | 0.42              |
| 4:FC:19:THR:CG2    | 4:FC:20:ASN:N      | 2.83                     | 0.42              |
| 5:FE:50:VAL:HA     | 5:FE:63:VAL:O      | 2.20                     | 0.42              |
| 6:FF:23:LYS:CB     | 6:FF:43:ILE:HD11   | 2.49                     | 0.42              |
| 6:FF:80:ASP:C      | 6:FF:82:THR:N      | 2.74                     | 0.42              |
| 6:FF:113:VAL:O     | 6:FF:117:LYS:HG3   | 2.20                     | 0.42              |
| 9:FJ:112:ASP:H     | 9:FJ:156:ASN:ND2   | 2.07                     | 0.42              |
| 11:FL:104:LYS:O    | 11:FL:108:ILE:HG13 | 2.20                     | 0.42              |
| 13:FN:142:LEU:HD12 | 13:FN:142:LEU:HA   | 1.78                     | 0.42              |
| 14:FO:104:LYS:O    | 14:FO:108:LEU:HG   | 2.18                     | 0.42              |
| 15:FP:8:ILE:HG12   | 15:FP:53:PHE:HZ    | 1.84                     | 0.42              |
| 15:FP:41:LYS:HD3   | 15:FP:52:THR:HG21  | 2.00                     | 0.42              |
| 17:FT:19:ASN:N     | 50:FT:202:HOH:O    | 2.36                     | 0.42              |
| 20:G2:5:A:C2'      | 20:G2:6:A:H5'      | 2.49                     | 0.42              |
| 20:G2:40:A:H5''    | 20:G2:42:G:O4'     | 2.19                     | 0.42              |
| 22:GA:30:TYR:H     | 22:GA:124:ARG:HB3  | 1.85                     | 0.42              |
| 23:GB:27:GLY:HA2   | 23:GB:272:HIS:CE1  | 2.50                     | 0.42              |
| 23:GB:365:HIS:HA   | 41:GT:19:ARG:NH2   | 2.35                     | 0.42              |
| 24:GC:39:HIS:O     | 24:GC:40:LYS:C     | 2.63                     | 0.42              |
| 25:GD:65:MET:HE2   | 25:GD:65:MET:HB3   | 1.59                     | 0.42              |
| 26:GE:139:LYS:O    | 26:GE:140:ASN:HB2  | 2.19                     | 0.42              |
| 26:GE:141:THR:HG22 | 26:GE:142:LEU:H    | 1.84                     | 0.42              |
| 29:GH:69:ARG:O     | 29:GH:70:ILE:C     | 2.63                     | 0.42              |
| 29:GH:139:ARG:HB3  | 29:GH:173:PHE:CE1  | 2.54                     | 0.42              |
| 32:GK:46:LEU:O     | 32:GK:47:MET:C     | 2.63                     | 0.42              |
| 32:GK:77:ILE:HG13  | 32:GK:114:GLY:HA2  | 2.01                     | 0.42              |
| 32:GK:129:TYR:CD1  | 32:GK:129:TYR:N    | 2.87                     | 0.42              |
| 33:GL:26:ARG:CB    | 33:GL:30:TYR:HE1   | 2.21                     | 0.42              |
| 33:GL:81:TYR:OH    | 1:H1:933:G:H5'     | 2.20                     | 0.42              |
| 34:GM:75:LEU:HA    | 34:GM:75:LEU:HD23  | 1.61                     | 0.42              |
| 34:GM:212:TYR:CE2  | 34:GM:227:GLN:NE2  | 2.88                     | 0.42              |
| 42:GU:81:PRO:HG2   | 42:GU:84:ILE:CD1   | 2.50                     | 0.42              |
| 42:GU:119:LYS:CB   | 18:HU:124:PHE:CD1  | 3.03                     | 0.42              |
| 43:GV:85:ARG:CZ    | 43:GV:100:LEU:CD1  | 2.97                     | 0.42              |
| 43:GV:217:ALA:O    | 43:GV:218:TYR:C    | 2.61                     | 0.42              |
| 44:GW:71:ARG:CD    | 44:GW:103:LEU:HD13 | 2.47                     | 0.42              |
| 45:GX:4:LYS:C      | 45:GX:73:PHE:CZ    | 2.98                     | 0.42              |
| 45:GX:13:LYS:NZ    | 1:H1:1430:G:OP2    | 2.53                     | 0.42              |
| 1:H1:33:A:H2'      | 1:H1:34:C:H6       | 1.84                     | 0.42              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:H1:101:G:P     | 50:H1:3650:HOH:O  | 2.77                     | 0.42              |
| 1:H1:169:A:C6    | 1:H1:251:A:C6     | 3.07                     | 0.42              |
| 1:H1:284:U:P     | 1:H1:284:U:O4'    | 2.78                     | 0.42              |
| 1:H1:467:A:N1    | 1:H1:468:A:C4     | 2.88                     | 0.42              |
| 1:H1:514:U:O2'   | 1:H1:515:A:H5'    | 2.20                     | 0.42              |
| 1:H1:528:C:O2'   | 14:HO:115:HIS:CE1 | 2.70                     | 0.42              |
| 1:H1:573:A:C6    | 1:H1:596:A:N7     | 2.88                     | 0.42              |
| 1:H1:583:G:N3    | 1:H1:585:A:OP2    | 2.53                     | 0.42              |
| 1:H1:614:G:OP1   | 8:HH:113:ALA:C    | 2.63                     | 0.42              |
| 1:H1:1209:G:H2'  | 1:H1:1210:C:C6    | 2.55                     | 0.42              |
| 1:H1:1554:G:N2   | 1:H1:1857:G:C4    | 2.88                     | 0.42              |
| 1:H1:2657:G:H2'  | 1:H1:2658:U:H6    | 1.85                     | 0.42              |
| 1:H1:2803:G:C5'  | 1:H1:2804:G:OP2   | 2.62                     | 0.42              |
| 1:H1:2914:A:H2'  | 1:H1:2915:C:H6    | 1.84                     | 0.42              |
| 1:H1:3272:U:C4   | 1:H1:3273:U:C5    | 3.07                     | 0.42              |
| 5:HE:58:PHE:HB3  | 5:HE:85:VAL:CG2   | 2.50                     | 0.42              |
| 5:HE:142:GLU:OE1 | 5:HE:145:ARG:HD2  | 2.19                     | 0.42              |
| 8:HH:57:VAL:HG22 | 8:HH:74:TRP:CH2   | 2.55                     | 0.42              |
| 9:HJ:4:ARG:HB3   | 9:HJ:208:LEU:HA   | 2.01                     | 0.42              |
| 9:HJ:43:VAL:CG1  | 9:HJ:44:PRO:N     | 2.78                     | 0.42              |
| 9:HJ:119:PRO:HA  | 9:HJ:139:ARG:HB3  | 2.01                     | 0.42              |
| 13:HN:23:ALA:CB  | 13:HN:43:VAL:HG12 | 2.45                     | 0.42              |
| 14:HO:7:GLU:HA   | 14:HO:7:GLU:OE1   | 2.20                     | 0.42              |
| 1:A1:191:U:O2    | 1:A1:191:U:H2'    | 2.19                     | 0.41              |
| 1:A1:525:C:C4'   | 1:A1:526:U:OP1    | 2.65                     | 0.41              |
| 1:A1:609:A:C2    | 1:A1:610:A:C5     | 3.08                     | 0.41              |
| 1:A1:624:G:C4    | 1:A1:625:C:C4     | 3.08                     | 0.41              |
| 1:A1:838:G:C4    | 1:A1:839:U:C5     | 3.08                     | 0.41              |
| 1:A1:938:A:H2'   | 1:A1:939:A:OP2    | 2.20                     | 0.41              |
| 1:A1:1022:A:C2   | 1:A1:1080:A:C4    | 3.08                     | 0.41              |
| 1:A1:1055:A:H2'  | 1:A1:1056:A:C8    | 2.54                     | 0.41              |
| 1:A1:1123:A:OP1  | 1:A1:1124:G:C8    | 2.73                     | 0.41              |
| 1:A1:1135:U:C5'  | 1:A1:1135:U:C6    | 3.02                     | 0.41              |
| 1:A1:1196:A:C6   | 1:A1:1357:A:N7    | 2.88                     | 0.41              |
| 1:A1:1233:G:C2'  | 1:A1:1234:G:H5'   | 2.50                     | 0.41              |
| 1:A1:1414:C:C4   | 1:A1:1415:C:C5    | 3.08                     | 0.41              |
| 1:A1:1598:C:H2'  | 1:A1:1599:G:C5'   | 2.48                     | 0.41              |
| 1:A1:1604:C:H2'  | 1:A1:1605:G:O5'   | 2.20                     | 0.41              |
| 1:A1:1880:C:H2'  | 1:A1:1881:C:C6    | 2.55                     | 0.41              |
| 1:A1:2352:A:H2   | 50:A1:4343:HOH:O  | 2.02                     | 0.41              |
| 1:A1:2378:A:H2'  | 1:A1:2379:A:C8    | 2.54                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2543:C:H5''   | 1:A1:2544:U:C5     | 2.55                     | 0.41              |
| 1:A1:2564:G:C6     | 1:A1:2565:A:C5     | 3.08                     | 0.41              |
| 1:A1:2619:C:C2     | 1:A1:2638:G:C2     | 3.08                     | 0.41              |
| 1:A1:2726:C:O2'    | 17:AT:36:ASN:HB2   | 2.20                     | 0.41              |
| 1:A1:2873:C:C4     | 1:A1:2874:U:O4     | 2.73                     | 0.41              |
| 1:A1:2920:U:H1'    | 1:A1:2923:U:C4     | 2.55                     | 0.41              |
| 1:A1:3028:A:H2'    | 1:A1:3029:A:C8     | 2.55                     | 0.41              |
| 1:A1:3086:U:H2'    | 1:A1:3087:G:C8     | 2.55                     | 0.41              |
| 1:A1:3111:A:H2'    | 1:A1:3112:A:H5''   | 2.02                     | 0.41              |
| 1:A1:3345:A:OP2    | 1:A1:3345:A:C8     | 2.72                     | 0.41              |
| 2:AA:69:LYS:H      | 2:AA:69:LYS:HG2    | 1.67                     | 0.41              |
| 4:AC:41:TYR:O      | 4:AC:45:GLN:HG3    | 2.20                     | 0.41              |
| 6:AF:30:ILE:HD12   | 19:AX:161:LEU:HD23 | 2.02                     | 0.41              |
| 9:AJ:35:TYR:CZ     | 9:AJ:50:HIS:CE1    | 3.08                     | 0.41              |
| 9:AJ:97:ILE:HG22   | 9:AJ:98:GLU:N      | 2.34                     | 0.41              |
| 12:AM:43:ILE:CD1   | 12:AM:58:ILE:HD11  | 2.49                     | 0.41              |
| 14:AO:13:ASN:OD1   | 14:AO:15:PHE:HB2   | 2.20                     | 0.41              |
| 14:AO:120:ARG:O    | 14:AO:124:ASN:ND2  | 2.52                     | 0.41              |
| 17:AT:48:LYS:O     | 17:AT:55:LYS:NZ    | 2.50                     | 0.41              |
| 17:AT:50:ASP:HB3   | 17:AT:53:ILE:HD12  | 2.02                     | 0.41              |
| 19:AX:45:ALA:CB    | 19:AX:50:HIS:CD2   | 2.98                     | 0.41              |
| 21:B3:11:A:OP2     | 34:BM:18:THR:CG2   | 2.68                     | 0.41              |
| 21:B3:45:U:H5'     | 34:BM:154:THR:HG21 | 2.02                     | 0.41              |
| 22:BA:205:MET:HE2  | 22:BA:209:ASP:CB   | 2.50                     | 0.41              |
| 24:BC:270:PHE:HB3  | 24:BC:285:LEU:HD21 | 2.02                     | 0.41              |
| 27:BF:170:PHE:CE1  | 27:BF:216:ASN:OD1  | 2.73                     | 0.41              |
| 29:BH:99:ILE:HG22  | 29:BH:123:LEU:HB2  | 2.02                     | 0.41              |
| 30:BI:196:PHE:CD1  | 30:BI:196:PHE:O    | 2.73                     | 0.41              |
| 41:BT:44:ARG:HB3   | 41:BT:46:VAL:HG23  | 2.02                     | 0.41              |
| 42:BU:66:ARG:O     | 42:BU:69:ALA:HB3   | 2.20                     | 0.41              |
| 20:C2:118:G:H2'    | 20:C2:119:A:C8     | 2.55                     | 0.41              |
| 22:CA:33:TYR:CD1   | 22:CA:164:ARG:NH2  | 2.84                     | 0.41              |
| 23:CB:47:THR:OG1   | 23:CB:177:LEU:CD1  | 2.66                     | 0.41              |
| 23:CB:86:ILE:CD1   | 23:CB:196:LEU:HD13 | 2.50                     | 0.41              |
| 23:CB:113:ASN:O    | 23:CB:116:LYS:HB2  | 2.20                     | 0.41              |
| 24:CC:163:VAL:CA   | 24:CC:166:TYR:CD2  | 3.00                     | 0.41              |
| 24:CC:313:THR:HG22 | 24:CC:314:THR:H    | 1.84                     | 0.41              |
| 26:CE:82:VAL:O     | 26:CE:82:VAL:HG12  | 2.20                     | 0.41              |
| 27:CF:36:GLN:HB3   | 1:D1:2519:A:H61    | 1.85                     | 0.41              |
| 27:CF:61:LEU:HD23  | 27:CF:61:LEU:HA    | 1.79                     | 0.41              |
| 30:CI:26:LEU:CD2   | 30:CI:100:ARG:HB2  | 2.48                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:CI:35:VAL:HG11  | 30:CI:107:ILE:HG23 | 2.02                     | 0.41              |
| 32:CK:62:THR:N     | 1:D1:87:A:OP1      | 2.49                     | 0.41              |
| 32:CK:76:ASN:OD1   | 32:CK:113:LEU:HB2  | 2.20                     | 0.41              |
| 47:CO:165:UNK:HG2  | 47:CO:166:UNK:N    | 2.35                     | 0.41              |
| 37:CP:139:VAL:HG12 | 37:CP:140:GLN:N    | 2.35                     | 0.41              |
| 38:CQ:8:ARG:HH12   | 38:CQ:118:HIS:N    | 2.18                     | 0.41              |
| 38:CQ:27:HIS:CG    | 1:D1:1473:G:O6     | 2.73                     | 0.41              |
| 38:CQ:66:THR:O     | 38:CQ:67:GLY:C     | 2.61                     | 0.41              |
| 38:CQ:131:THR:OG1  | 1:D1:1533:G:N2     | 2.52                     | 0.41              |
| 42:CU:121:ALA:HB1  | 18:DU:146:ALA:HB3  | 2.02                     | 0.41              |
| 46:CY:12:ARG:HG2   | 1:D1:861:A:H4'     | 2.02                     | 0.41              |
| 1:D1:95:U:O2       | 1:D1:95:U:H2'      | 2.20                     | 0.41              |
| 1:D1:101:G:H4'     | 18:DU:63:TYR:CD1   | 2.55                     | 0.41              |
| 1:D1:298:G:C5      | 16:DQ:31:LYS:HG3   | 2.55                     | 0.41              |
| 1:D1:401:U:C2      | 1:D1:402:U:C6      | 3.08                     | 0.41              |
| 1:D1:589:C:C2      | 1:D1:590:A:C8      | 3.08                     | 0.41              |
| 1:D1:615:G:C2      | 1:D1:616:A:C4      | 3.08                     | 0.41              |
| 1:D1:620:A:H1'     | 1:D1:1364:A:H5''   | 2.02                     | 0.41              |
| 1:D1:1165:U:H2'    | 1:D1:1166:G:O4'    | 2.20                     | 0.41              |
| 1:D1:1427:G:C2'    | 1:D1:1428:G:O5'    | 2.68                     | 0.41              |
| 1:D1:1521:U:H5'    | 1:D1:1522:C:C5     | 2.55                     | 0.41              |
| 1:D1:1616:G:C2'    | 1:D1:1617:G:H5'    | 2.50                     | 0.41              |
| 1:D1:1681:C:C5     | 1:D1:1823:A:H5''   | 2.55                     | 0.41              |
| 1:D1:1735:U:OP1    | 13:DN:76:ASN:ND2   | 2.50                     | 0.41              |
| 1:D1:1850:C:C2'    | 1:D1:1851:C:H5'    | 2.50                     | 0.41              |
| 1:D1:2128:C:P      | 50:D1:4187:HOH:O   | 2.70                     | 0.41              |
| 1:D1:2261:U:H2'    | 1:D1:2262:C:C6     | 2.55                     | 0.41              |
| 1:D1:2264:U:C2'    | 1:D1:2265:A:O5'    | 2.67                     | 0.41              |
| 1:D1:2339:U:H5'    | 1:D1:3045:A:O2'    | 2.20                     | 0.41              |
| 1:D1:2369:C:N4     | 1:D1:2929:A:C4     | 2.88                     | 0.41              |
| 1:D1:2377:G:C2'    | 1:D1:2378:A:H5'    | 2.50                     | 0.41              |
| 1:D1:2409:G:C2'    | 1:D1:2410:C:O5'    | 2.68                     | 0.41              |
| 1:D1:2641:U:C4     | 1:D1:2748:U:O2     | 2.73                     | 0.41              |
| 1:D1:2771:U:C5     | 1:D1:2772:U:C5     | 3.08                     | 0.41              |
| 1:D1:2883:G:H5'    | 1:D1:3096:U:O2'    | 2.20                     | 0.41              |
| 1:D1:3056:C:C2     | 1:D1:3057:U:C5     | 3.07                     | 0.41              |
| 1:D1:3185:G:C4     | 1:D1:3237:C:C4     | 3.08                     | 0.41              |
| 3:DB:44:TRP:CH2    | 3:DB:45:ARG:CD     | 3.04                     | 0.41              |
| 7:DG:21:GLY:HA3    | 7:DG:94:ASP:O      | 2.19                     | 0.41              |
| 9:DJ:14:GLY:N      | 9:DJ:195:ALA:O     | 2.53                     | 0.41              |
| 13:DN:46:VAL:O     | 13:DN:46:VAL:HG13  | 2.19                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 14:DO:124:ASN:O    | 14:DO:128:GLU:HG3  | 2.20                     | 0.41              |
| 16:DQ:57:ARG:HD3   | 16:DQ:76:ILE:HD13  | 2.02                     | 0.41              |
| 18:DU:34:LEU:HA    | 18:DU:34:LEU:HD23  | 1.80                     | 0.41              |
| 20:E2:114:G:N2     | 3:FB:11:LYS:HZ1    | 2.17                     | 0.41              |
| 22:EA:12:ARG:HH21  | 22:EA:14:ASN:ND2   | 2.12                     | 0.41              |
| 22:EA:151:LEU:O    | 22:EA:154:GLY:N    | 2.51                     | 0.41              |
| 22:EA:178:LYS:HE3  | 46:EY:26:VAL:HG13  | 2.02                     | 0.41              |
| 22:EA:210:HIS:CE1  | 22:EA:236:VAL:HG12 | 2.55                     | 0.41              |
| 23:EB:60:VAL:CG2   | 23:EB:67:HIS:O     | 2.68                     | 0.41              |
| 23:EB:105:VAL:HG13 | 23:EB:142:GLN:OE1  | 2.21                     | 0.41              |
| 24:EC:213:LEU:HD12 | 24:EC:234:ASP:C    | 2.44                     | 0.41              |
| 24:EC:388:ILE:O    | 24:EC:391:ALA:HB3  | 2.20                     | 0.41              |
| 27:EF:127:TYR:CB   | 27:EF:183:VAL:HG11 | 2.49                     | 0.41              |
| 31:EJ:50:LEU:HD23  | 31:EJ:50:LEU:HA    | 1.81                     | 0.41              |
| 32:EK:58:LEU:HD23  | 32:EK:58:LEU:HA    | 1.58                     | 0.41              |
| 34:EM:9:THR:OG1    | 34:EM:11:ALA:HB3   | 2.20                     | 0.41              |
| 34:EM:111:LYS:HA   | 34:EM:116:ASP:OD2  | 2.20                     | 0.41              |
| 34:EM:175:HIS:HD2  | 34:EM:180:PHE:CE2  | 2.34                     | 0.41              |
| 34:EM:250:VAL:O    | 34:EM:254:ILE:CG1  | 2.67                     | 0.41              |
| 35:EN:168:ARG:NH1  | 18:FU:9:VAL:HG22   | 2.34                     | 0.41              |
| 43:EV:12:LYS:NZ    | 1:F1:1377:A:C5'    | 2.83                     | 0.41              |
| 43:EV:44:LYS:O     | 43:EV:45:ALA:C     | 2.63                     | 0.41              |
| 46:EY:21:SER:OG    | 1:F1:2184:U:O3'    | 2.38                     | 0.41              |
| 1:F1:79:C:H2'      | 1:F1:80:C:H5'      | 2.02                     | 0.41              |
| 1:F1:143:G:C2'     | 1:F1:144:A:H5'     | 2.49                     | 0.41              |
| 1:F1:263:A:C4      | 16:FQ:30:ARG:NH1   | 2.86                     | 0.41              |
| 1:F1:291:C:C3'     | 1:F1:292:C:H5''    | 2.49                     | 0.41              |
| 1:F1:514:U:O2'     | 1:F1:515:A:H5'     | 2.19                     | 0.41              |
| 1:F1:805:A:H5''    | 1:F1:806:G:OP2     | 2.20                     | 0.41              |
| 1:F1:1055:A:H2'    | 1:F1:1056:A:H8     | 1.84                     | 0.41              |
| 1:F1:1146:C:N4     | 17:FT:10:LYS:HZ2   | 2.18                     | 0.41              |
| 1:F1:1381:G:H4'    | 1:F1:1382:A:OP2    | 2.16                     | 0.41              |
| 1:F1:1598:C:C5     | 1:F1:1599:G:C8     | 3.08                     | 0.41              |
| 1:F1:1652:U:H6     | 1:F1:1652:U:H3'    | 1.84                     | 0.41              |
| 1:F1:1658:G:P      | 13:FN:107:LYS:HZ1  | 2.43                     | 0.41              |
| 1:F1:1725:A:C2'    | 1:F1:1726:C:O5'    | 2.68                     | 0.41              |
| 1:F1:1845:U:C5'    | 1:F1:1846:C:OP2    | 2.68                     | 0.41              |
| 1:F1:1902:C:C2'    | 1:F1:1903:A:H5''   | 2.50                     | 0.41              |
| 1:F1:2303:C:C2'    | 1:F1:2304:A:OP1    | 2.67                     | 0.41              |
| 1:F1:2634:G:H2'    | 1:F1:2635:C:H5''   | 2.02                     | 0.41              |
| 1:F1:2889:G:N2     | 1:F1:3019:G:O2'    | 2.52                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3136:A:C5     | 1:F1:3137:U:C5     | 3.07                     | 0.41              |
| 1:F1:3227:A:H5'    | 5:FE:58:PHE:HZ     | 1.85                     | 0.41              |
| 1:F1:3227:A:N1     | 5:FE:150:LYS:HD3   | 2.35                     | 0.41              |
| 1:F1:3340:U:H2'    | 1:F1:3341:C:H6     | 1.84                     | 0.41              |
| 5:FE:124:LYS:HB3   | 5:FE:130:PHE:HA    | 2.01                     | 0.41              |
| 8:FH:14:LEU:O      | 8:FH:107:MET:HE3   | 2.20                     | 0.41              |
| 8:FH:56:VAL:HG22   | 8:FH:106:VAL:HG22  | 2.02                     | 0.41              |
| 11:FL:87:VAL:O     | 11:FL:90:ARG:HB2   | 2.19                     | 0.41              |
| 13:FN:100:ASP:HB3  | 13:FN:104:ASN:ND2  | 2.35                     | 0.41              |
| 14:FO:104:LYS:O    | 14:FO:105:GLN:C    | 2.63                     | 0.41              |
| 16:FQ:83:THR:CG2   | 16:FQ:85:ARG:HB3   | 2.50                     | 0.41              |
| 22:GA:71:LYS:HE3   | 22:GA:73:ASN:ND2   | 2.35                     | 0.41              |
| 23:GB:304:THR:HG22 | 23:GB:308:GLY:HA2  | 2.02                     | 0.41              |
| 23:GB:368:PHE:CE1  | 23:GB:374:LYS:HA   | 2.55                     | 0.41              |
| 24:GC:31:ALA:O     | 24:GC:134:ALA:CB   | 2.68                     | 0.41              |
| 24:GC:81:ILE:HG12  | 24:GC:82:PRO:HD2   | 2.02                     | 0.41              |
| 26:GE:43:VAL:CG1   | 26:GE:44:ASP:N     | 2.83                     | 0.41              |
| 26:GE:94:PHE:CE1   | 26:GE:98:PRO:HA    | 2.55                     | 0.41              |
| 27:GF:32:GLY:HA3   | 1:H1:2541:U:C2     | 2.55                     | 0.41              |
| 27:GF:126:LYS:CE   | 27:GF:194:THR:OG1  | 2.66                     | 0.41              |
| 29:GH:39:LYS:O     | 1:H1:1036:G:H4'    | 2.20                     | 0.41              |
| 30:GI:133:PRO:C    | 30:GI:134:VAL:HG13 | 2.45                     | 0.41              |
| 32:GK:84:VAL:HG13  | 1:H1:485:A:H2'     | 2.01                     | 0.41              |
| 32:GK:132:LYS:HG3  | 18:HU:178:TYR:CE2  | 2.55                     | 0.41              |
| 33:GL:53:TYR:C     | 33:GL:54:LYS:HG2   | 2.45                     | 0.41              |
| 37:GP:125:ARG:HG2  | 1:H1:1122:A:N7     | 2.35                     | 0.41              |
| 39:GR:81:MET:HE2   | 39:GR:81:MET:HB3   | 1.77                     | 0.41              |
| 43:GV:217:ALA:C    | 43:GV:219:HIS:N    | 2.76                     | 0.41              |
| 46:GY:21:SER:O     | 46:GY:25:VAL:HG23  | 2.20                     | 0.41              |
| 46:GY:49:ARG:HB2   | 46:GY:55:TRP:CZ3   | 2.55                     | 0.41              |
| 1:H1:70:C:C4'      | 18:HU:64:ASN:HD21  | 2.33                     | 0.41              |
| 1:H1:283:A:OP2     | 1:H1:283:A:C4'     | 2.68                     | 0.41              |
| 1:H1:452:U:O2'     | 1:H1:453:A:C5'     | 2.68                     | 0.41              |
| 1:H1:550:G:C5      | 1:H1:551:U:C5      | 3.07                     | 0.41              |
| 1:H1:591:G:H8      | 1:H1:591:G:C5'     | 2.32                     | 0.41              |
| 1:H1:646:A:H2'     | 1:H1:647:U:C6      | 2.55                     | 0.41              |
| 1:H1:726:G:H2'     | 1:H1:727:C:H6      | 1.82                     | 0.41              |
| 1:H1:1018:A:H1'    | 1:H1:1084:G:N2     | 2.35                     | 0.41              |
| 1:H1:1355:C:H2'    | 1:H1:1356:G:O5'    | 2.19                     | 0.41              |
| 1:H1:1681:C:O2'    | 1:H1:1823:A:OP2    | 2.12                     | 0.41              |
| 1:H1:1810:C:H2'    | 1:H1:1811:U:C6     | 2.55                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1818:C:H5''  | 1:H1:1819:C:P      | 2.60                     | 0.41              |
| 1:H1:1907:A:H2'   | 1:H1:1908:A:O5'    | 2.19                     | 0.41              |
| 1:H1:1926:G:C6    | 1:H1:1927:U:C2     | 3.08                     | 0.41              |
| 1:H1:2558:U:H2'   | 1:H1:2559:U:C6     | 2.54                     | 0.41              |
| 1:H1:2559:U:O2    | 1:H1:2561:A:N1     | 2.52                     | 0.41              |
| 1:H1:2907:A:N1    | 1:H1:2915:C:O2     | 2.52                     | 0.41              |
| 5:HE:128:ASN:OD1  | 5:HE:128:ASN:C     | 2.63                     | 0.41              |
| 5:HE:153:GLN:O    | 5:HE:154:GLN:C     | 2.63                     | 0.41              |
| 9:HJ:112:ASP:H    | 9:HJ:156:ASN:ND2   | 2.06                     | 0.41              |
| 9:HJ:158:GLY:CA   | 9:HJ:179:ILE:HD12  | 2.50                     | 0.41              |
| 11:HL:59:VAL:HG12 | 11:HL:60:ARG:O     | 2.20                     | 0.41              |
| 19:HX:34:THR:O    | 19:HX:36:PRO:HD3   | 2.20                     | 0.41              |
| 1:A1:61:A:C6      | 1:A1:62:G:C6       | 3.08                     | 0.41              |
| 1:A1:134:A:C6     | 1:A1:135:A:C6      | 3.08                     | 0.41              |
| 1:A1:279:U:H5'    | 33:BL:188:ARG:HH21 | 1.86                     | 0.41              |
| 1:A1:331:C:H2'    | 1:A1:332:G:C5'     | 2.45                     | 0.41              |
| 1:A1:528:C:H2'    | 1:A1:529:G:C8      | 2.55                     | 0.41              |
| 1:A1:1052:A:C2    | 1:A1:1053:A:N7     | 2.82                     | 0.41              |
| 1:A1:1078:U:C5    | 1:A1:1079:A:C5     | 3.07                     | 0.41              |
| 1:A1:1840:U:OP2   | 1:A1:1840:U:C6     | 2.70                     | 0.41              |
| 1:A1:2185:U:C4    | 1:A1:2186:U:C4     | 3.08                     | 0.41              |
| 1:A1:2350:G:OP2   | 38:BQ:27:HIS:HE1   | 2.03                     | 0.41              |
| 1:A1:2552:A:C2'   | 1:A1:2553:G:H5'    | 2.50                     | 0.41              |
| 1:A1:2886:G:C8    | 1:A1:2886:G:C3'    | 3.01                     | 0.41              |
| 1:A1:3106:C:C3'   | 1:A1:3107:C:C5'    | 2.98                     | 0.41              |
| 2:AA:14:LYS:NZ    | 3:AB:52:TYR:CE1    | 2.88                     | 0.41              |
| 4:AC:77:THR:CG2   | 4:AC:78:LYS:N      | 2.82                     | 0.41              |
| 7:AG:21:GLY:CA    | 7:AG:94:ASP:O      | 2.68                     | 0.41              |
| 9:AJ:224:LEU:HD23 | 9:AJ:224:LEU:HA    | 1.67                     | 0.41              |
| 11:AL:60:ARG:HA   | 11:AL:61:PRO:HD3   | 1.85                     | 0.41              |
| 12:AM:15:LEU:HG   | 12:AM:17:PHE:CE2   | 2.55                     | 0.41              |
| 14:AO:12:ASN:O    | 14:AO:12:ASN:CG    | 2.63                     | 0.41              |
| 14:AO:83:VAL:HG21 | 14:AO:90:VAL:CG2   | 2.50                     | 0.41              |
| 16:AQ:46:ARG:HH22 | 16:AQ:55:GLU:CD    | 2.28                     | 0.41              |
| 18:AU:128:GLN:OE1 | 18:AU:128:GLN:HA   | 2.19                     | 0.41              |
| 18:AU:131:ALA:HB3 | 18:AU:136:VAL:CG2  | 2.50                     | 0.41              |
| 20:B2:90:G:C6     | 20:B2:92:C:N4      | 2.88                     | 0.41              |
| 21:B3:90:A:H8     | 21:B3:90:A:O5'     | 2.03                     | 0.41              |
| 23:BB:45:ALA:H    | 23:BB:179:ILE:HG23 | 1.84                     | 0.41              |
| 23:BB:257:ARG:HD3 | 30:BI:63:HIS:CE1   | 2.55                     | 0.41              |
| 23:BB:294:THR:CG2 | 23:BB:354:LEU:O    | 2.68                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:BC:149:ILE:O    | 24:BC:150:SER:C    | 2.63                     | 0.41              |
| 24:BC:166:TYR:HD1  | 24:BC:171:GLN:CD   | 2.28                     | 0.41              |
| 24:BC:242:ASN:C    | 24:BC:244:LEU:H    | 2.28                     | 0.41              |
| 25:BD:25:GLU:O     | 25:BD:30:LEU:CD1   | 2.68                     | 0.41              |
| 26:BE:83:THR:HB    | 26:BE:84:GLU:H     | 1.68                     | 0.41              |
| 27:BF:124:VAL:HG12 | 27:BF:125:LEU:N    | 2.34                     | 0.41              |
| 32:BK:49:LYS:HE2   | 32:BK:50:TRP:CZ2   | 2.55                     | 0.41              |
| 34:BM:82:GLU:O     | 34:BM:85:ARG:HB2   | 2.19                     | 0.41              |
| 39:BR:90:MET:HE2   | 39:BR:92:PHE:HE1   | 1.85                     | 0.41              |
| 46:BY:57:CYS:SG    | 46:BY:59:PRO:CG    | 3.08                     | 0.41              |
| 20:C2:27:G:H5'     | 20:C2:27:G:C8      | 2.49                     | 0.41              |
| 20:C2:80:A:H8      | 20:C2:80:A:O5'     | 2.03                     | 0.41              |
| 20:C2:90:G:C6      | 20:C2:92:C:N4      | 2.88                     | 0.41              |
| 23:CB:20:ARG:CB    | 1:D1:2979:A:P      | 3.08                     | 0.41              |
| 23:CB:220:LYS:CD   | 1:D1:3036:U:OP2    | 2.68                     | 0.41              |
| 23:CB:340:ILE:HG13 | 23:CB:341:ILE:H    | 1.85                     | 0.41              |
| 24:CC:227:LEU:HA   | 24:CC:230:ILE:CD1  | 2.41                     | 0.41              |
| 29:CH:4:ARG:HA     | 29:CH:5:PRO:HD3    | 1.90                     | 0.41              |
| 31:CJ:7:ARG:HA     | 31:CJ:61:MET:HE2   | 2.03                     | 0.41              |
| 33:CL:58:GLY:C     | 33:CL:142:ILE:HD11 | 2.45                     | 0.41              |
| 33:CL:183:SER:HB3  | 33:CL:195:ARG:HH22 | 1.84                     | 0.41              |
| 38:CQ:34:VAL:O     | 38:CQ:38:ILE:HG13  | 2.20                     | 0.41              |
| 39:CR:111:TYR:HD2  | 39:CR:143:LEU:HD11 | 1.84                     | 0.41              |
| 39:CR:123:THR:HG22 | 39:CR:125:THR:H    | 1.85                     | 0.41              |
| 39:CR:149:LEU:HD23 | 39:CR:149:LEU:HA   | 1.80                     | 0.41              |
| 42:CU:67:ARG:O     | 42:CU:68:GLN:C     | 2.63                     | 0.41              |
| 43:CV:58:LYS:O     | 43:CV:62:GLU:HG2   | 2.21                     | 0.41              |
| 45:CX:4:LYS:C      | 45:CX:73:PHE:HZ    | 2.28                     | 0.41              |
| 45:CX:29:LYS:HD3   | 1:D1:679:C:OP2     | 2.20                     | 0.41              |
| 46:CY:23:ARG:H     | 46:CY:23:ARG:HG2   | 1.73                     | 0.41              |
| 46:CY:27:LYS:O     | 46:CY:28:LYS:C     | 2.63                     | 0.41              |
| 1:D1:13:C:H2'      | 1:D1:14:A:C8       | 2.55                     | 0.41              |
| 1:D1:219:A:N1      | 1:D1:1416:U:C2'    | 2.83                     | 0.41              |
| 1:D1:256:A:H4'     | 18:DU:84:SER:HB3   | 2.01                     | 0.41              |
| 1:D1:350:A:N6      | 3:DB:35:ILE:HG23   | 2.34                     | 0.41              |
| 1:D1:467:A:N1      | 1:D1:468:A:C4      | 2.88                     | 0.41              |
| 1:D1:545:A:H2'     | 1:D1:546:A:H8      | 1.84                     | 0.41              |
| 1:D1:658:G:H5'     | 8:DH:28:HIS:O      | 2.19                     | 0.41              |
| 1:D1:747:G:C2'     | 1:D1:748:G:H5'     | 2.51                     | 0.41              |
| 1:D1:837:G:H21     | 2:DA:50:TRP:HZ2    | 1.67                     | 0.41              |
| 1:D1:927:G:H2'     | 1:D1:928:U:C6      | 2.54                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:1107:A:C5     | 1:D1:1108:A:C5    | 3.08                     | 0.41              |
| 1:D1:1108:A:H2'    | 1:D1:1108:A:N3    | 2.34                     | 0.41              |
| 1:D1:1351:U:OP1    | 19:DX:17:LYS:HB2  | 2.20                     | 0.41              |
| 1:D1:1380:C:C4     | 14:DO:32:THR:HG21 | 2.55                     | 0.41              |
| 1:D1:1433:A:H3'    | 1:D1:1434:G:O4'   | 2.20                     | 0.41              |
| 1:D1:1495:C:O2     | 1:D1:1535:A:C2    | 2.73                     | 0.41              |
| 1:D1:1517:G:H5'    | 2:DA:12:HIS:O     | 2.19                     | 0.41              |
| 1:D1:1635:U:H2'    | 1:D1:1636:C:C6    | 2.55                     | 0.41              |
| 1:D1:1683:U:H2'    | 1:D1:1684:C:H6    | 1.85                     | 0.41              |
| 1:D1:1697:U:H2'    | 1:D1:1698:G:C8    | 2.55                     | 0.41              |
| 1:D1:1755:A:O2'    | 1:D1:1756:U:H5'   | 2.20                     | 0.41              |
| 1:D1:1758:U:C5'    | 1:D1:1759:C:OP2   | 2.68                     | 0.41              |
| 1:D1:2276:A:C6     | 1:D1:2947:C:H1'   | 2.55                     | 0.41              |
| 1:D1:2659:G:H2'    | 1:D1:2660:A:H8    | 1.79                     | 0.41              |
| 1:D1:2716:A:O3'    | 1:D1:2717:G:C4'   | 2.56                     | 0.41              |
| 1:D1:2801:A:N6     | 1:D1:2802:G:C5    | 2.88                     | 0.41              |
| 5:DE:67:LYS:HD2    | 5:DE:109:THR:CB   | 2.49                     | 0.41              |
| 7:DG:73:SER:O      | 7:DG:74:ASN:C     | 2.63                     | 0.41              |
| 9:DJ:140:THR:CG2   | 9:DJ:141:THR:H    | 2.18                     | 0.41              |
| 11:DL:21:ARG:HG2   | 11:DL:22:LYS:N    | 2.29                     | 0.41              |
| 11:DL:60:ARG:HA    | 11:DL:61:PRO:HD3  | 1.82                     | 0.41              |
| 12:DM:56:ILE:HG13  | 12:DM:69:SER:OG   | 2.21                     | 0.41              |
| 14:DO:6:TRP:HA     | 14:DO:6:TRP:CE3   | 2.55                     | 0.41              |
| 14:DO:106:PHE:O    | 14:DO:107:ALA:C   | 2.62                     | 0.41              |
| 15:DP:31:VAL:HG22  | 15:DP:44:LEU:HD21 | 2.00                     | 0.41              |
| 19:DX:93:LEU:HD21  | 19:DX:120:LEU:CD2 | 2.42                     | 0.41              |
| 21:E3:32:A:C2      | 21:E3:41:G:C5     | 3.08                     | 0.41              |
| 22:EA:20:HIS:HD2   | 22:EA:193:LYS:C   | 2.28                     | 0.41              |
| 23:EB:23:ARG:HE    | 23:EB:24:HIS:CE1  | 2.37                     | 0.41              |
| 23:EB:233:VAL:CG1  | 23:EB:234:LYS:N   | 2.83                     | 0.41              |
| 23:EB:301:LYS:HD3  | 23:EB:359:THR:CG2 | 2.50                     | 0.41              |
| 24:EC:40:LYS:HZ3   | 1:F1:815:U:H1'    | 1.85                     | 0.41              |
| 24:EC:80:ARG:NH2   | 1:F1:2397:A:C6    | 2.88                     | 0.41              |
| 24:EC:148:ARG:NE   | 24:EC:187:ARG:HD2 | 2.34                     | 0.41              |
| 25:ED:9:MET:O      | 25:ED:134:PRO:HD3 | 2.20                     | 0.41              |
| 25:ED:120:THR:O    | 25:ED:121:GLY:C   | 2.64                     | 0.41              |
| 27:EF:63:ARG:CZ    | 27:EF:231:GLY:HA3 | 2.49                     | 0.41              |
| 29:EH:4:ARG:HA     | 29:EH:5:PRO:HD3   | 1.87                     | 0.41              |
| 32:EK:88:THR:CG2   | 18:FU:164:LYS:HZ1 | 2.32                     | 0.41              |
| 33:EL:180:ARG:HH22 | 1:F1:301:A:H5'    | 1.84                     | 0.41              |
| 34:EM:75:LEU:HD23  | 34:EM:75:LEU:HA   | 1.63                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 34:EM:201:LYS:HA   | 34:EM:204:ILE:HG13 | 2.02                     | 0.41              |
| 35:EN:152:TRP:CG   | 1:F1:1136:C:H5'    | 2.54                     | 0.41              |
| 36:EO:144:VAL:O    | 36:EO:147:ALA:HB3  | 2.20                     | 0.41              |
| 40:ES:23:SER:O     | 40:ES:26:ARG:HB2   | 2.20                     | 0.41              |
| 40:ES:61:LYS:HG2   | 1:F1:218:G:O6      | 2.21                     | 0.41              |
| 43:EV:125:LYS:O    | 43:EV:128:LEU:HG   | 2.19                     | 0.41              |
| 1:F1:134:A:C6      | 1:F1:135:A:C6      | 3.08                     | 0.41              |
| 1:F1:136:C:O2'     | 1:F1:137:A:H5'     | 2.19                     | 0.41              |
| 1:F1:223:C:O2'     | 1:F1:224:C:P       | 2.76                     | 0.41              |
| 1:F1:371:A:C6      | 1:F1:372:A:C6      | 3.07                     | 0.41              |
| 1:F1:683:G:H22     | 1:F1:1460:G:C5'    | 2.34                     | 0.41              |
| 1:F1:729:A:H1'     | 1:F1:810:G:N2      | 2.35                     | 0.41              |
| 1:F1:766:G:O2'     | 1:F1:767:C:O5'     | 2.37                     | 0.41              |
| 1:F1:835:A:H2'     | 1:F1:836:U:C6      | 2.55                     | 0.41              |
| 1:F1:852:A:C2      | 1:F1:853:A:C4      | 3.08                     | 0.41              |
| 1:F1:1083:U:O2     | 1:F1:1083:U:H2'    | 2.20                     | 0.41              |
| 1:F1:1179:G:H1     | 1:F1:1226:C:N4     | 2.17                     | 0.41              |
| 1:F1:1312:G:H2'    | 1:F1:1313:A:C8     | 2.55                     | 0.41              |
| 1:F1:1615:G:H5'    | 11:FL:15:THR:HG21  | 2.02                     | 0.41              |
| 1:F1:1669:G:C2     | 1:F1:1670:A:C5     | 3.09                     | 0.41              |
| 1:F1:2109:G:H2'    | 1:F1:2110:C:H5'    | 2.00                     | 0.41              |
| 1:F1:2242:G:C5     | 1:F1:2243:C:C5     | 3.08                     | 0.41              |
| 1:F1:2245:G:O2'    | 1:F1:2246:G:H5'    | 2.20                     | 0.41              |
| 1:F1:2268:G:O2'    | 1:F1:2269:U:OP2    | 2.38                     | 0.41              |
| 1:F1:2361:U:H3'    | 50:F1:3771:HOH:O   | 2.20                     | 0.41              |
| 1:F1:2561:A:C2     | 1:F1:2563:U:C2     | 3.08                     | 0.41              |
| 1:F1:2576:C:H2'    | 1:F1:2577:G:C5'    | 2.30                     | 0.41              |
| 1:F1:3115:C:H2'    | 1:F1:3116:A:O4'    | 2.20                     | 0.41              |
| 1:F1:3137:U:O2'    | 1:F1:3138:G:H5'    | 2.19                     | 0.41              |
| 1:F1:3155:A:N7     | 8:FH:101:GLY:O     | 2.53                     | 0.41              |
| 5:FE:182:ASN:HD22  | 5:FE:182:ASN:HA    | 1.69                     | 0.41              |
| 6:FF:23:LYS:HB2    | 6:FF:43:ILE:HD11   | 2.01                     | 0.41              |
| 9:FJ:111:ASN:HD22  | 9:FJ:156:ASN:HA    | 1.86                     | 0.41              |
| 14:FO:69:LYS:CG    | 14:FO:70:VAL:H     | 2.25                     | 0.41              |
| 18:FU:132:LYS:O    | 18:FU:135:LEU:HD13 | 2.20                     | 0.41              |
| 19:FX:179:THR:HG22 | 19:FX:181:TYR:N    | 2.35                     | 0.41              |
| 20:G2:67:C:H5'     | 20:G2:67:C:H6      | 1.85                     | 0.41              |
| 20:G2:77:U:H2'     | 40:GS:73:TYR:OH    | 2.20                     | 0.41              |
| 21:G3:15:U:H1'     | 34:GM:13:PHE:HE1   | 1.85                     | 0.41              |
| 22:GA:20:HIS:HD2   | 22:GA:193:LYS:C    | 2.28                     | 0.41              |
| 22:GA:238:LEU:HD22 | 1:H1:2149:U:O2     | 2.20                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:GB:46:PHE:HD1   | 23:GB:206:ILE:CD1  | 2.34                     | 0.41              |
| 23:GB:89:VAL:O     | 23:GB:104:THR:HA   | 2.21                     | 0.41              |
| 23:GB:93:ILE:CD1   | 23:GB:102:LEU:HD13 | 2.50                     | 0.41              |
| 23:GB:230:ARG:HG2  | 23:GB:231:PHE:CZ   | 2.55                     | 0.41              |
| 23:GB:245:ARG:HG3  | 1:H1:1913:G:P      | 2.60                     | 0.41              |
| 24:GC:44:ASP:HB3   | 24:GC:118:ARG:HB2  | 2.01                     | 0.41              |
| 24:GC:107:PHE:CD2  | 24:GC:107:PHE:C    | 2.98                     | 0.41              |
| 24:GC:198:GLN:O    | 24:GC:199:GLY:C    | 2.63                     | 0.41              |
| 26:GE:90:MET:C     | 26:GE:141:THR:HG23 | 2.45                     | 0.41              |
| 27:GF:45:VAL:HB    | 27:GF:47:TRP:CE2   | 2.55                     | 0.41              |
| 27:GF:92:TYR:HE1   | 27:GF:200:ASP:OD2  | 2.03                     | 0.41              |
| 27:GF:145:VAL:HG13 | 27:GF:173:VAL:HG23 | 2.02                     | 0.41              |
| 30:GI:21:TYR:CE2   | 30:GI:121:ASP:HB3  | 2.54                     | 0.41              |
| 31:GJ:25:ALA:HA    | 1:H1:1922:G:O2'    | 2.20                     | 0.41              |
| 33:GL:147:ARG:O    | 33:GL:150:TRP:CD1  | 2.72                     | 0.41              |
| 34:GM:52:VAL:O     | 34:GM:52:VAL:HG23  | 2.21                     | 0.41              |
| 34:GM:142:PHE:HB3  | 34:GM:171:ILE:HG23 | 2.02                     | 0.41              |
| 34:GM:242:SER:OG   | 34:GM:245:LYS:HG2  | 2.20                     | 0.41              |
| 35:GN:34:TYR:O     | 35:GN:38:VAL:CG2   | 2.66                     | 0.41              |
| 35:GN:146:ARG:HB3  | 35:GN:149:TYR:HD2  | 1.83                     | 0.41              |
| 35:GN:173:LYS:HE3  | 1:H1:86:A:OP1      | 2.20                     | 0.41              |
| 38:GQ:128:ARG:HG2  | 38:GQ:142:LEU:HD22 | 2.02                     | 0.41              |
| 39:GR:69:SER:O     | 39:GR:95:HIS:HB2   | 2.19                     | 0.41              |
| 42:GU:120:PHE:CD1  | 18:HU:47:ARG:HB3   | 2.54                     | 0.41              |
| 44:GW:43:MET:HE2   | 44:GW:43:MET:CA    | 2.40                     | 0.41              |
| 46:GY:8:VAL:O      | 46:GY:11:THR:HB    | 2.20                     | 0.41              |
| 1:H1:19:A:C4'      | 1:H1:20:G:OP2      | 2.66                     | 0.41              |
| 1:H1:146:U:H6      | 1:H1:146:U:C5'     | 2.32                     | 0.41              |
| 1:H1:297:U:O2      | 16:HQ:31:LYS:HE2   | 2.21                     | 0.41              |
| 1:H1:347:A:H4'     | 1:H1:366:A:H62     | 1.85                     | 0.41              |
| 1:H1:402:U:C2'     | 1:H1:403:G:H5'     | 2.50                     | 0.41              |
| 1:H1:437:A:H4'     | 1:H1:540:G:O2'     | 2.20                     | 0.41              |
| 1:H1:454:A:N6      | 1:H1:524:G:H1'     | 2.31                     | 0.41              |
| 1:H1:526:U:H4'     | 5:HE:10:ARG:HG3    | 2.02                     | 0.41              |
| 1:H1:685:G:H2'     | 1:H1:686:U:OP2     | 2.19                     | 0.41              |
| 1:H1:920:A:C6      | 1:H1:922:U:C2      | 3.07                     | 0.41              |
| 1:H1:970:C:O2      | 1:H1:971:C:C6      | 2.73                     | 0.41              |
| 1:H1:970:C:O2'     | 1:H1:1432:G:H1'    | 2.20                     | 0.41              |
| 1:H1:1053:A:H1'    | 1:H1:1054:G:P      | 2.59                     | 0.41              |
| 1:H1:1085:G:H8     | 1:H1:1085:G:C5'    | 2.34                     | 0.41              |
| 1:H1:1608:G:H2'    | 1:H1:1609:U:O5'    | 2.20                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:1642:G:C2    | 1:H1:1852:A:C2     | 3.08                     | 0.41              |
| 1:H1:1663:C:C2'   | 1:H1:1664:G:H5'    | 2.50                     | 0.41              |
| 1:H1:2150:U:O2'   | 1:H1:2151:G:H5'    | 2.20                     | 0.41              |
| 1:H1:2303:C:H2'   | 1:H1:2304:A:OP1    | 2.21                     | 0.41              |
| 1:H1:2543:C:H5''  | 1:H1:2544:U:C5     | 2.55                     | 0.41              |
| 1:H1:2576:C:H5''  | 1:H1:2576:C:C6     | 2.44                     | 0.41              |
| 1:H1:3278:U:H4'   | 1:H1:3279:G:OP2    | 2.21                     | 0.41              |
| 2:HA:84:GLN:OE1   | 2:HA:84:GLN:HA     | 2.19                     | 0.41              |
| 6:HF:28:VAL:HG11  | 6:HF:66:ASN:HA     | 2.02                     | 0.41              |
| 6:HF:80:ASP:C     | 6:HF:82:THR:N      | 2.74                     | 0.41              |
| 8:HH:26:SER:HG    | 8:HH:29:THR:HB     | 1.84                     | 0.41              |
| 9:HJ:116:LEU:HD11 | 9:HJ:177:LEU:HD21  | 2.01                     | 0.41              |
| 13:HN:5:LEU:HA    | 13:HN:5:LEU:HD23   | 1.76                     | 0.41              |
| 13:HN:126:ASN:HA  | 13:HN:127:PRO:HD3  | 1.77                     | 0.41              |
| 14:HO:53:GLY:O    | 14:HO:57:ALA:HB3   | 2.20                     | 0.41              |
| 19:HX:96:GLN:CB   | 19:HX:134:THR:HG21 | 2.49                     | 0.41              |
| 19:HX:122:GLN:OE1 | 19:HX:122:GLN:HA   | 2.18                     | 0.41              |
| 19:HX:176:LYS:HE2 | 19:HX:177:TYR:OH   | 2.19                     | 0.41              |
| 1:A1:50:A:H1'     | 1:A1:836:U:O2'     | 2.20                     | 0.41              |
| 1:A1:76:U:O2'     | 1:A1:77:A:H5'      | 2.20                     | 0.41              |
| 1:A1:147:U:H1'    | 27:BF:155:LEU:HD11 | 2.01                     | 0.41              |
| 1:A1:230:G:OP1    | 40:BS:3:THR:HG21   | 2.19                     | 0.41              |
| 1:A1:282:G:H22    | 1:A1:304:U:H4'     | 1.75                     | 0.41              |
| 1:A1:462:G:H8     | 1:A1:462:G:O5'     | 2.03                     | 0.41              |
| 1:A1:498:A:H5''   | 24:BC:275:THR:HG1  | 1.85                     | 0.41              |
| 1:A1:591:G:H8     | 1:A1:591:G:C5'     | 2.33                     | 0.41              |
| 1:A1:628:A:C4'    | 1:A1:629:A:OP2     | 2.66                     | 0.41              |
| 1:A1:658:G:H5'    | 8:AH:28:HIS:O      | 2.20                     | 0.41              |
| 1:A1:713:G:N2     | 24:BC:49:ARG:CZ    | 2.83                     | 0.41              |
| 1:A1:1074:A:H2'   | 29:BH:22:TYR:CZ    | 2.55                     | 0.41              |
| 1:A1:1254:C:H2'   | 1:A1:1255:A:H5''   | 2.03                     | 0.41              |
| 1:A1:1370:A:C2    | 1:A1:1389:G:N1     | 2.88                     | 0.41              |
| 1:A1:1376:A:H3'   | 43:BV:12:LYS:NZ    | 2.35                     | 0.41              |
| 1:A1:1427:G:C2'   | 1:A1:1428:G:O5'    | 2.67                     | 0.41              |
| 1:A1:1563:A:H2'   | 1:A1:1564:C:C6     | 2.55                     | 0.41              |
| 1:A1:1902:C:O2    | 1:A1:1902:C:C2'    | 2.68                     | 0.41              |
| 1:A1:2103:A:H2'   | 1:A1:2104:C:C6     | 2.55                     | 0.41              |
| 1:A1:2146:G:O2'   | 1:A1:2184:U:OP1    | 2.38                     | 0.41              |
| 1:A1:2191:C:O2'   | 1:A1:2265:A:N3     | 2.48                     | 0.41              |
| 1:A1:2216:G:O6    | 16:AQ:75:LYS:NZ    | 2.52                     | 0.41              |
| 1:A1:2403:U:C2    | 1:A1:2802:G:N2     | 2.88                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2601:U:H1'    | 1:A1:2791:A:N3     | 2.35                     | 0.41              |
| 1:A1:2710:A:C2     | 1:A1:2725:A:C2     | 3.08                     | 0.41              |
| 1:A1:2716:A:O3'    | 1:A1:2717:G:C4'    | 2.55                     | 0.41              |
| 1:A1:2753:C:C5     | 1:A1:2754:C:C5     | 3.08                     | 0.41              |
| 1:A1:2913:C:H2'    | 1:A1:2914:A:C5'    | 2.50                     | 0.41              |
| 1:A1:3185:G:C4     | 1:A1:3237:C:C4     | 3.08                     | 0.41              |
| 1:A1:3193:G:O2'    | 1:A1:3194:G:H5'    | 2.20                     | 0.41              |
| 9:AJ:97:ILE:HD12   | 9:AJ:104:LEU:HD13  | 2.03                     | 0.41              |
| 9:AJ:100:LYS:O     | 31:BJ:139:SER:HB3  | 2.20                     | 0.41              |
| 11:AL:15:THR:HG22  | 11:AL:17:SER:H     | 1.85                     | 0.41              |
| 14:AO:110:LYS:HB2  | 45:BX:89:MET:CE    | 2.50                     | 0.41              |
| 17:AT:56:SER:OG    | 17:AT:57:LYS:N     | 2.53                     | 0.41              |
| 20:B2:43:A:C2'     | 20:B2:44:A:O5'     | 2.69                     | 0.41              |
| 20:B2:118:G:H2'    | 20:B2:119:A:H8     | 1.86                     | 0.41              |
| 20:B2:146:A:H2     | 27:BF:50:TYR:HE2   | 1.68                     | 0.41              |
| 22:BA:52:GLU:HA    | 22:BA:53:PRO:HD3   | 1.83                     | 0.41              |
| 22:BA:186:GLN:HB3  | 22:BA:197:TRP:CZ2  | 2.56                     | 0.41              |
| 23:BB:36:ASP:HA    | 23:BB:37:PRO:HD2   | 1.74                     | 0.41              |
| 24:BC:35:THR:O     | 24:BC:36:ASP:C     | 2.64                     | 0.41              |
| 24:BC:127:HIS:CE1  | 24:BC:286:GLN:OE1  | 2.73                     | 0.41              |
| 24:BC:163:VAL:CA   | 24:BC:166:TYR:CD2  | 3.01                     | 0.41              |
| 24:BC:330:LEU:HD23 | 24:BC:330:LEU:HA   | 1.77                     | 0.41              |
| 24:BC:359:LEU:HD21 | 24:BC:363:ARG:HH21 | 1.84                     | 0.41              |
| 26:BE:94:PHE:CD1   | 26:BE:98:PRO:HA    | 2.55                     | 0.41              |
| 27:BF:89:LEU:HD23  | 27:BF:193:LEU:HD21 | 2.02                     | 0.41              |
| 27:BF:176:LYS:HD2  | 27:BF:187:THR:CG2  | 2.49                     | 0.41              |
| 32:BK:38:GLY:HA3   | 32:BK:42:HIS:CE1   | 2.55                     | 0.41              |
| 34:BM:252:ALA:O    | 34:BM:256:LYS:HG3  | 2.21                     | 0.41              |
| 37:BP:5:TYR:HA     | 37:BP:9:ARG:HD2    | 2.02                     | 0.41              |
| 37:BP:31:LEU:HD23  | 37:BP:31:LEU:HA    | 1.81                     | 0.41              |
| 37:BP:108:ARG:NH2  | 37:BP:130:ARG:HG2  | 2.35                     | 0.41              |
| 38:BQ:114:LEU:HD23 | 38:BQ:114:LEU:HA   | 1.61                     | 0.41              |
| 40:BS:33:HIS:NE2   | 40:BS:39:ARG:NH2   | 2.68                     | 0.41              |
| 42:BU:11:ARG:HG2   | 42:BU:61:ILE:HD12  | 2.02                     | 0.41              |
| 42:BU:61:ILE:HD13  | 42:BU:61:ILE:HA    | 1.82                     | 0.41              |
| 20:C2:45:G:C6      | 20:C2:104:G:N3     | 2.88                     | 0.41              |
| 20:C2:139:U:H1'    | 33:CL:136:ASP:OD2  | 2.21                     | 0.41              |
| 21:C3:71:G:H2'     | 21:C3:72:U:H6      | 1.84                     | 0.41              |
| 23:CB:356:PHE:CE2  | 23:CB:358:ASP:HA   | 2.55                     | 0.41              |
| 23:CB:363:ILE:O    | 1:D1:3075:A:O3'    | 2.38                     | 0.41              |
| 23:CB:375:ASP:OD2  | 23:CB:382:ARG:HG3  | 2.20                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:41:VAL:HG12  | 24:CC:45:LEU:HD12  | 2.01                     | 0.41              |
| 24:CC:89:THR:HG22  | 24:CC:91:ARG:HB3   | 2.03                     | 0.41              |
| 24:CC:106:MET:HE3  | 1:D1:1455:G:C4     | 2.55                     | 0.41              |
| 26:CE:58:TRP:NE1   | 19:DX:164:PRO:HG2  | 2.35                     | 0.41              |
| 27:CF:143:LEU:HD23 | 27:CF:143:LEU:HA   | 1.84                     | 0.41              |
| 29:CH:139:ARG:C    | 29:CH:140:VAL:HG23 | 2.46                     | 0.41              |
| 30:CI:24:LYS:O     | 30:CI:25:GLU:C     | 2.61                     | 0.41              |
| 30:CI:36:ARG:HG3   | 30:CI:107:ILE:HD11 | 2.02                     | 0.41              |
| 30:CI:96:ALA:O     | 30:CI:97:ALA:C     | 2.63                     | 0.41              |
| 32:CK:135:GLU:O    | 32:CK:136:ARG:C    | 2.63                     | 0.41              |
| 33:CL:61:ILE:HD13  | 33:CL:133:ILE:HA   | 2.03                     | 0.41              |
| 33:CL:145:ASP:HA   | 33:CL:146:PRO:HD3  | 1.85                     | 0.41              |
| 34:CM:106:ALA:CB   | 34:CM:169:GLY:HA3  | 2.50                     | 0.41              |
| 34:CM:125:VAL:CG2  | 34:CM:205:PHE:CE1  | 2.95                     | 0.41              |
| 35:CN:93:LEU:HD23  | 35:CN:93:LEU:HA    | 1.83                     | 0.41              |
| 47:CO:84:THR:HB    | 47:CO:87:ALA:H     | 1.85                     | 0.41              |
| 37:CP:11:THR:O     | 37:CP:11:THR:CG2   | 2.68                     | 0.41              |
| 40:CS:10:ALA:HB3   | 40:CS:13:LYS:HG3   | 2.01                     | 0.41              |
| 43:CV:41:TRP:HE1   | 43:CV:176:THR:HG22 | 1.85                     | 0.41              |
| 43:CV:91:GLN:HG2   | 1:D1:1166:G:O2'    | 2.21                     | 0.41              |
| 1:D1:174:A:N6      | 1:D1:246:G:C5      | 2.88                     | 0.41              |
| 1:D1:514:U:O2'     | 1:D1:515:A:H5'     | 2.20                     | 0.41              |
| 1:D1:742:U:H5      | 17:DT:61:LYS:HD2   | 1.86                     | 0.41              |
| 1:D1:969:C:OP1     | 1:D1:1458:C:H4'    | 2.20                     | 0.41              |
| 1:D1:1050:C:H2'    | 1:D1:1051:C:O4'    | 2.19                     | 0.41              |
| 1:D1:1127:U:C2     | 1:D1:1128:G:C8     | 3.08                     | 0.41              |
| 1:D1:1555:A:OP2    | 1:D1:1617:G:N2     | 2.52                     | 0.41              |
| 1:D1:1728:A:C2'    | 1:D1:1729:U:OP2    | 2.68                     | 0.41              |
| 1:D1:2242:G:N3     | 1:D1:2266:A:H2     | 2.17                     | 0.41              |
| 1:D1:2303:C:H2'    | 1:D1:2304:A:OP1    | 2.20                     | 0.41              |
| 1:D1:2873:C:N4     | 1:D1:2874:U:O4     | 2.54                     | 0.41              |
| 1:D1:3226:A:N3     | 5:DE:84:GLY:HA3    | 2.34                     | 0.41              |
| 5:DE:49:THR:HG22   | 5:DE:50:VAL:H      | 1.85                     | 0.41              |
| 6:DF:3:PHE:CE1     | 19:DX:164:PRO:HB3  | 2.54                     | 0.41              |
| 8:DH:98:GLN:C      | 8:DH:100:ILE:H     | 2.27                     | 0.41              |
| 15:DP:15:TRP:O     | 15:DP:72:TYR:CE1   | 2.73                     | 0.41              |
| 17:DT:50:ASP:HB3   | 17:DT:53:ILE:HD12  | 2.03                     | 0.41              |
| 18:DU:74:THR:HB    | 18:DU:101:ASN:ND2  | 2.35                     | 0.41              |
| 20:E2:75:A:N3      | 20:E2:89:A:O2'     | 2.52                     | 0.41              |
| 20:E2:81:G:C4'     | 42:EU:42:ALA:HB1   | 2.50                     | 0.41              |
| 23:EB:270:TYR:CD2  | 1:F1:3265:A:H5'    | 2.54                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:294:THR:HG22 | 23:EB:295:ALA:H    | 1.83                     | 0.41              |
| 24:EC:149:ILE:O    | 24:EC:150:SER:C    | 2.63                     | 0.41              |
| 24:EC:270:PHE:HB3  | 24:EC:285:LEU:HD21 | 2.01                     | 0.41              |
| 24:EC:273:TYR:HB3  | 24:EC:287:ARG:HH12 | 1.86                     | 0.41              |
| 27:EF:19:ASN:C     | 27:EF:20:PRO:O     | 2.61                     | 0.41              |
| 29:EH:43:VAL:O     | 29:EH:171:TRP:NE1  | 2.53                     | 0.41              |
| 30:EI:156:GLU:OE1  | 30:EI:156:GLU:HA   | 2.19                     | 0.41              |
| 33:EL:202:ARG:NH1  | 18:FU:27:ALA:HB2   | 2.28                     | 0.41              |
| 34:EM:99:TYR:HD2   | 34:EM:251:HIS:HE1  | 1.68                     | 0.41              |
| 34:EM:212:TYR:HE2  | 34:EM:227:GLN:CD   | 2.28                     | 0.41              |
| 35:EN:31:ILE:O     | 35:EN:32:LYS:C     | 2.64                     | 0.41              |
| 39:ER:113:VAL:CG1  | 39:ER:138:SER:OG   | 2.69                     | 0.41              |
| 39:ER:121:LEU:O    | 39:ER:128:LYS:HA   | 2.20                     | 0.41              |
| 43:EV:117:ASN:HB2  | 43:EV:120:SER:OG   | 2.20                     | 0.41              |
| 45:EX:14:LYS:HD2   | 45:EX:59:PHE:C     | 2.45                     | 0.41              |
| 45:EX:22:PHE:CE2   | 45:EX:23:GLU:HG3   | 2.55                     | 0.41              |
| 45:EX:25:GLU:OE1   | 45:EX:25:GLU:N     | 2.42                     | 0.41              |
| 45:EX:65:THR:O     | 45:EX:68:LEU:HB2   | 2.20                     | 0.41              |
| 1:F1:101:G:H4'     | 18:FU:63:TYR:CD1   | 2.55                     | 0.41              |
| 1:F1:468:A:N6      | 1:F1:469:U:C4      | 2.88                     | 0.41              |
| 1:F1:524:G:H8      | 1:F1:524:G:O5'     | 2.02                     | 0.41              |
| 1:F1:545:A:H2'     | 1:F1:546:A:H8      | 1.85                     | 0.41              |
| 1:F1:651:U:C4      | 1:F1:652:U:C5      | 3.09                     | 0.41              |
| 1:F1:920:A:C6      | 1:F1:922:U:C2      | 3.07                     | 0.41              |
| 1:F1:969:C:H2'     | 1:F1:970:C:H6      | 1.85                     | 0.41              |
| 1:F1:1032:A:H5'    | 1:F1:1033:U:OP2    | 2.21                     | 0.41              |
| 1:F1:1070:U:H2'    | 1:F1:1071:C:O5'    | 2.19                     | 0.41              |
| 1:F1:1133:G:H2'    | 1:F1:1134:C:O4'    | 2.20                     | 0.41              |
| 1:F1:1175:G:H2'    | 1:F1:1176:G:C5'    | 2.50                     | 0.41              |
| 1:F1:1244:A:C2'    | 1:F1:1245:U:H5''   | 2.50                     | 0.41              |
| 1:F1:1453:U:O2'    | 1:F1:1454:A:H5'    | 2.19                     | 0.41              |
| 1:F1:1616:G:C2'    | 1:F1:1617:G:H5'    | 2.51                     | 0.41              |
| 1:F1:1725:A:H2'    | 1:F1:1726:C:O5'    | 2.19                     | 0.41              |
| 1:F1:2228:A:N7     | 1:F1:2229:G:N7     | 2.68                     | 0.41              |
| 1:F1:2801:A:C6     | 1:F1:2802:G:C5     | 3.08                     | 0.41              |
| 1:F1:3028:A:H2'    | 1:F1:3029:A:C8     | 2.55                     | 0.41              |
| 2:FA:28:HIS:CD2    | 2:FA:31:LYS:N      | 2.76                     | 0.41              |
| 5:FE:116:TYR:OH    | 5:FE:149:ARG:HG2   | 2.19                     | 0.41              |
| 6:FF:11:ARG:O      | 6:FF:26:VAL:HA     | 2.19                     | 0.41              |
| 6:FF:106:PHE:CE2   | 6:FF:110:ARG:NE    | 2.87                     | 0.41              |
| 6:FF:111:VAL:CG1   | 6:FF:115:LYS:HE3   | 2.49                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 8:FH:107:MET:CB    | 8:FH:109:TYR:CE2   | 3.03                     | 0.41              |
| 9:FJ:53:ILE:HD13   | 9:FJ:63:THR:HG23   | 2.02                     | 0.41              |
| 9:FJ:58:ILE:C      | 9:FJ:60:GLY:N      | 2.79                     | 0.41              |
| 13:FN:9:ARG:HD2    | 13:FN:83:THR:O     | 2.20                     | 0.41              |
| 14:FO:53:GLY:O     | 14:FO:57:ALA:HB3   | 2.20                     | 0.41              |
| 14:FO:69:LYS:CG    | 14:FO:70:VAL:N     | 2.80                     | 0.41              |
| 14:FO:115:HIS:O    | 14:FO:116:ARG:C    | 2.63                     | 0.41              |
| 17:FT:40:LEU:O     | 17:FT:44:ARG:HG3   | 2.21                     | 0.41              |
| 19:FX:44:PHE:HD1   | 19:FX:137:ILE:HD11 | 1.84                     | 0.41              |
| 20:G2:2:G:O2'      | 1:H1:2983:A:C2'    | 2.68                     | 0.41              |
| 22:GA:95:ALA:HB3   | 22:GA:103:LEU:HD22 | 2.02                     | 0.41              |
| 23:GB:5:LYS:HZ2    | 1:H1:2866:G:H5''   | 1.85                     | 0.41              |
| 23:GB:233:VAL:HG12 | 23:GB:234:LYS:N    | 2.35                     | 0.41              |
| 24:GC:251:HIS:CE1  | 14:HO:12:ASN:OD1   | 2.73                     | 0.41              |
| 24:GC:323:PRO:HG2  | 43:GV:146:TYR:HB3  | 2.01                     | 0.41              |
| 24:GC:364:LYS:O    | 24:GC:365:ALA:C    | 2.64                     | 0.41              |
| 24:GC:388:ILE:O    | 24:GC:391:ALA:HB3  | 2.21                     | 0.41              |
| 26:GE:113:LYS:CD   | 26:GE:114:HIS:HB2  | 2.50                     | 0.41              |
| 26:GE:132:ILE:HG23 | 26:GE:144:LEU:HD21 | 2.01                     | 0.41              |
| 27:GF:68:PRO:CD    | 27:GF:225:TRP:NE1  | 2.83                     | 0.41              |
| 32:GK:39:GLY:HA3   | 32:GK:55:TYR:OH    | 2.20                     | 0.41              |
| 33:GL:44:ARG:NH1   | 33:GL:47:LYS:HG2   | 2.36                     | 0.41              |
| 34:GM:109:LEU:CD2  | 34:GM:142:PHE:CD2  | 3.03                     | 0.41              |
| 35:GN:6:HIS:C      | 35:GN:8:GLN:N      | 2.76                     | 0.41              |
| 35:GN:63:LEU:CD2   | 35:GN:83:SER:HB3   | 2.51                     | 0.41              |
| 35:GN:73:ASN:H     | 35:GN:76:ASN:CG    | 2.27                     | 0.41              |
| 35:GN:158:GLN:CD   | 50:H1:4322:HOH:O   | 2.64                     | 0.41              |
| 37:GP:5:TYR:HA     | 37:GP:9:ARG:HD2    | 2.01                     | 0.41              |
| 38:GQ:103:ASN:OD1  | 1:H1:388:A:H4'     | 2.20                     | 0.41              |
| 41:GT:11:CYS:O     | 41:GT:55:ILE:HB    | 2.20                     | 0.41              |
| 42:GU:42:ALA:HA    | 42:GU:45:LEU:HG    | 2.02                     | 0.41              |
| 42:GU:118:ARG:NH1  | 18:HU:123:LEU:HD21 | 2.34                     | 0.41              |
| 43:GV:8:ASN:HB3    | 1:H1:1376:A:H2'    | 2.01                     | 0.41              |
| 43:GV:93:HIS:CG    | 43:GV:94:PRO:HD2   | 2.55                     | 0.41              |
| 45:GX:47:ARG:HB3   | 45:GX:53:ARG:HH12  | 1.86                     | 0.41              |
| 1:H1:453:A:N7      | 1:H1:526:U:C2      | 2.89                     | 0.41              |
| 1:H1:487:G:H2'     | 1:H1:488:U:C6      | 2.55                     | 0.41              |
| 1:H1:588:G:H2'     | 1:H1:589:C:C6      | 2.54                     | 0.41              |
| 1:H1:847:G:H8      | 1:H1:847:G:C5'     | 2.33                     | 0.41              |
| 1:H1:847:G:H8      | 1:H1:847:G:H5'     | 1.84                     | 0.41              |
| 1:H1:1146:C:N4     | 17:HT:10:LYS:NZ    | 2.62                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:H1:1233:G:H1'    | 50:H1:4516:HOH:O  | 2.19                     | 0.41              |
| 1:H1:1438:A:H2'    | 1:H1:1439:U:H6    | 1.85                     | 0.41              |
| 1:H1:1517:G:H21    | 1:H1:1867:C:H5'   | 1.85                     | 0.41              |
| 1:H1:1653:A:N6     | 1:H1:1839:A:C2    | 2.88                     | 0.41              |
| 1:H1:1728:A:C2'    | 1:H1:1729:U:OP2   | 2.68                     | 0.41              |
| 1:H1:1818:C:H5''   | 1:H1:1819:C:OP1   | 2.21                     | 0.41              |
| 1:H1:1945:A:C2     | 1:H1:1956:A:C2    | 3.08                     | 0.41              |
| 1:H1:2111:G:O2'    | 1:H1:2112:G:OP1   | 2.29                     | 0.41              |
| 1:H1:2287:U:C4     | 1:H1:2288:C:N4    | 2.89                     | 0.41              |
| 1:H1:2692:A:H5''   | 1:H1:2693:A:H5'   | 2.02                     | 0.41              |
| 1:H1:2762:U:O2     | 1:H1:2762:U:H2'   | 2.20                     | 0.41              |
| 1:H1:3228:U:C3'    | 1:H1:3229:C:H5'   | 2.47                     | 0.41              |
| 1:H1:3229:C:O2     | 5:HE:57:ARG:HG3   | 2.21                     | 0.41              |
| 1:H1:3298:U:H1'    | 1:H1:3299:G:OP1   | 2.21                     | 0.41              |
| 2:HA:28:HIS:NE2    | 2:HA:31:LYS:HG3   | 2.34                     | 0.41              |
| 5:HE:28:PHE:C      | 5:HE:28:PHE:HD1   | 2.26                     | 0.41              |
| 5:HE:173:TYR:CD1   | 5:HE:173:TYR:C    | 2.98                     | 0.41              |
| 9:HJ:53:ILE:HD13   | 9:HJ:63:THR:CG2   | 2.50                     | 0.41              |
| 9:HJ:188:ARG:O     | 9:HJ:188:ARG:HG3  | 2.19                     | 0.41              |
| 11:HL:21:ARG:HG2   | 11:HL:22:LYS:N    | 2.31                     | 0.41              |
| 12:HM:98:THR:O     | 12:HM:105:TYR:HD1 | 2.02                     | 0.41              |
| 13:HN:142:LEU:HD12 | 13:HN:142:LEU:HA  | 1.81                     | 0.41              |
| 14:HO:49:ALA:O     | 14:HO:50:LEU:HD23 | 2.20                     | 0.41              |
| 19:HX:161:LEU:HD12 | 19:HX:161:LEU:HA  | 1.42                     | 0.41              |
| 1:A1:146:U:O2'     | 1:A1:147:U:OP2    | 2.38                     | 0.41              |
| 1:A1:195:U:O2'     | 1:A1:1417:A:OP2   | 2.30                     | 0.41              |
| 1:A1:298:G:C6      | 16:AQ:31:LYS:HB2  | 2.56                     | 0.41              |
| 1:A1:710:G:C2'     | 1:A1:711:U:O5'    | 2.68                     | 0.41              |
| 1:A1:825:G:N2      | 1:A1:826:A:C2     | 2.88                     | 0.41              |
| 1:A1:1027:G:N3     | 1:A1:1027:G:C2'   | 2.81                     | 0.41              |
| 1:A1:1062:A:N6     | 1:A1:1063:C:N4    | 2.68                     | 0.41              |
| 1:A1:1428:G:H2'    | 1:A1:1429:C:H6    | 1.86                     | 0.41              |
| 1:A1:1445:G:C3'    | 1:A1:1446:C:H5''  | 2.48                     | 0.41              |
| 1:A1:2121:A:H2'    | 1:A1:2122:A:O5'   | 2.21                     | 0.41              |
| 1:A1:2377:G:C2'    | 1:A1:2378:A:H5'   | 2.50                     | 0.41              |
| 1:A1:2564:G:O6     | 1:A1:2565:A:N6    | 2.53                     | 0.41              |
| 1:A1:2703:G:OP2    | 1:A1:2705:U:C1'   | 2.62                     | 0.41              |
| 1:A1:3062:A:H2'    | 1:A1:3063:G:O4'   | 2.20                     | 0.41              |
| 1:A1:3194:G:N2     | 1:A1:3217:U:H1'   | 2.35                     | 0.41              |
| 3:AB:7:LEU:HD23    | 3:AB:7:LEU:HA     | 1.66                     | 0.41              |
| 8:AH:91:PHE:CZ     | 8:AH:95:LEU:HD11  | 2.55                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 14:AO:52:GLY:CA    | 14:AO:118:ASN:HD21 | 2.26                     | 0.41              |
| 21:B3:63:A:N3      | 29:BH:202:GLU:HB3  | 2.35                     | 0.41              |
| 22:BA:31:ARG:O     | 22:BA:164:ARG:NH1  | 2.36                     | 0.41              |
| 23:BB:113:ASN:O    | 23:BB:116:LYS:HB2  | 2.20                     | 0.41              |
| 30:BI:11:LYS:O     | 30:BI:13:HIS:CD2   | 2.73                     | 0.41              |
| 30:BI:26:LEU:CD2   | 30:BI:100:ARG:HB2  | 2.50                     | 0.41              |
| 31:BJ:9:GLY:HA3    | 31:BJ:110:LYS:O    | 2.20                     | 0.41              |
| 32:BK:46:LEU:CD2   | 32:BK:50:TRP:CZ3   | 3.03                     | 0.41              |
| 32:BK:110:PHE:HD2  | 32:BK:128:LYS:HD2  | 1.83                     | 0.41              |
| 36:BO:21:ARG:NH1   | 36:BO:52:LYS:HE3   | 2.35                     | 0.41              |
| 36:BO:165:LYS:O    | 36:BO:165:LYS:HG2  | 2.19                     | 0.41              |
| 37:BP:141:VAL:O    | 43:BV:71:ALA:HB1   | 2.19                     | 0.41              |
| 39:BR:84:MET:HG2   | 39:BR:89:THR:O     | 2.20                     | 0.41              |
| 39:BR:113:VAL:HG12 | 39:BR:114:LYS:N    | 2.34                     | 0.41              |
| 40:BS:86:LYS:HE3   | 40:BS:96:ILE:CD1   | 2.49                     | 0.41              |
| 43:BV:80:VAL:HG22  | 43:BV:188:VAL:HG21 | 1.98                     | 0.41              |
| 43:BV:217:ALA:C    | 43:BV:219:HIS:N    | 2.77                     | 0.41              |
| 21:C3:67:C:C2      | 21:C3:68:U:C5      | 3.09                     | 0.41              |
| 22:CA:195:LYS:O    | 22:CA:195:LYS:CG   | 2.64                     | 0.41              |
| 23:CB:185:LYS:HB2  | 23:CB:188:GLU:CG   | 2.44                     | 0.41              |
| 23:CB:221:GLY:HA3  | 1:D1:3265:A:H5''   | 2.02                     | 0.41              |
| 23:CB:250:ILE:HD13 | 23:CB:250:ILE:HA   | 1.67                     | 0.41              |
| 24:CC:41:VAL:HG12  | 24:CC:45:LEU:CD1   | 2.50                     | 0.41              |
| 24:CC:126:ARG:HD3  | 24:CC:283:TYR:HD2  | 1.85                     | 0.41              |
| 25:CD:99:THR:O     | 25:CD:99:THR:HG22  | 2.19                     | 0.41              |
| 26:CE:113:LYS:CD   | 26:CE:114:HIS:HB2  | 2.50                     | 0.41              |
| 27:CF:41:LEU:HD23  | 27:CF:41:LEU:HA    | 1.86                     | 0.41              |
| 27:CF:115:LYS:HG2  | 27:CF:116:GLN:N    | 2.36                     | 0.41              |
| 30:CI:48:ARG:HH12  | 1:D1:1217:A:H8     | 1.68                     | 0.41              |
| 30:CI:98:LEU:O     | 30:CI:99:GLU:C     | 2.63                     | 0.41              |
| 32:CK:22:VAL:HG22  | 1:D1:666:U:OP1     | 2.20                     | 0.41              |
| 33:CL:126:THR:C    | 33:CL:127:TYR:HD1  | 2.27                     | 0.41              |
| 33:CL:185:ARG:O    | 33:CL:186:THR:HB   | 2.20                     | 0.41              |
| 33:CL:196:GLN:HB3  | 18:DU:19:ARG:HD2   | 2.02                     | 0.41              |
| 33:CL:202:ARG:HH21 | 18:DU:26:GLN:HE21  | 1.67                     | 0.41              |
| 34:CM:37:ILE:O     | 34:CM:37:ILE:HG12  | 2.20                     | 0.41              |
| 34:CM:157:ASN:OD1  | 34:CM:158:ARG:N    | 2.53                     | 0.41              |
| 34:CM:176:SER:HB3  | 50:D1:4713:HOH:O   | 2.20                     | 0.41              |
| 47:CO:170:UNK:O    | 47:CO:174:UNK:CG   | 2.65                     | 0.41              |
| 37:CP:42:ILE:HD12  | 37:CP:91:VAL:HG21  | 2.03                     | 0.41              |
| 40:CS:23:SER:O     | 40:CS:26:ARG:HB2   | 2.20                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 41:CT:11:CYS:O    | 41:CT:55:ILE:HB   | 2.19                     | 0.41              |
| 42:CU:98:LYS:O    | 42:CU:99:LYS:C    | 2.60                     | 0.41              |
| 43:CV:125:LYS:O   | 43:CV:128:LEU:HG  | 2.20                     | 0.41              |
| 1:D1:206:G:C6     | 1:D1:207:U:C5     | 3.08                     | 0.41              |
| 1:D1:468:A:N6     | 1:D1:469:U:C4     | 2.88                     | 0.41              |
| 1:D1:681:A:H3'    | 50:D1:3873:HOH:O  | 2.20                     | 0.41              |
| 1:D1:1143:G:N2    | 1:D1:2805:A:O4'   | 2.54                     | 0.41              |
| 1:D1:1227:A:C4'   | 1:D1:1228:C:O5'   | 2.66                     | 0.41              |
| 1:D1:1248:G:C8    | 1:D1:1248:G:O5'   | 2.74                     | 0.41              |
| 1:D1:1475:A:C2    | 1:D1:2351:A:C5    | 3.08                     | 0.41              |
| 1:D1:1519:G:N3    | 3:DB:13:PHE:HE1   | 2.17                     | 0.41              |
| 1:D1:1594:C:N4    | 1:D1:1595:A:N7    | 2.67                     | 0.41              |
| 1:D1:1598:C:C5    | 1:D1:1599:G:C8    | 3.07                     | 0.41              |
| 1:D1:1921:G:H2'   | 1:D1:1922:G:C5'   | 2.47                     | 0.41              |
| 1:D1:2283:G:C4    | 1:D1:2284:U:C5    | 3.08                     | 0.41              |
| 1:D1:2423:U:H2'   | 1:D1:2424:A:C8    | 2.55                     | 0.41              |
| 1:D1:2650:U:H2'   | 1:D1:2651:A:H8    | 1.86                     | 0.41              |
| 1:D1:2801:A:C6    | 1:D1:2802:G:C5    | 3.08                     | 0.41              |
| 1:D1:3144:G:C2    | 1:D1:3249:U:O2    | 2.74                     | 0.41              |
| 1:D1:3175:A:H5'   | 1:D1:3176:A:OP1   | 2.20                     | 0.41              |
| 1:D1:3278:U:H4'   | 1:D1:3279:G:OP2   | 2.20                     | 0.41              |
| 5:DE:114:ASP:O    | 5:DE:116:TYR:N    | 2.53                     | 0.41              |
| 7:DG:11:GLN:CG    | 7:DG:12:SER:N     | 2.83                     | 0.41              |
| 7:DG:40:LYS:NZ    | 1:F1:1047:G:OP1   | 2.53                     | 0.41              |
| 8:DH:48:VAL:CG1   | 8:DH:87:ALA:HB2   | 2.50                     | 0.41              |
| 9:DJ:97:ILE:HD12  | 9:DJ:104:LEU:CD1  | 2.50                     | 0.41              |
| 9:DJ:114:VAL:HG12 | 9:DJ:115:ALA:N    | 2.35                     | 0.41              |
| 13:DN:132:ALA:O   | 13:DN:133:SER:C   | 2.62                     | 0.41              |
| 14:DO:24:PHE:CD1  | 14:DO:34:ARG:HG2  | 2.54                     | 0.41              |
| 14:DO:48:VAL:HG23 | 14:DO:98:PHE:HZ   | 1.85                     | 0.41              |
| 14:DO:94:ILE:HD13 | 14:DO:107:ALA:CB  | 2.49                     | 0.41              |
| 14:DO:115:HIS:O   | 14:DO:116:ARG:C   | 2.62                     | 0.41              |
| 16:DQ:40:LEU:O    | 16:DQ:44:VAL:HG23 | 2.20                     | 0.41              |
| 19:DX:44:PHE:CD1  | 19:DX:137:ILE:CD1 | 3.03                     | 0.41              |
| 20:E2:58:U:H2'    | 20:E2:59:G:H8     | 1.84                     | 0.41              |
| 20:E2:107:C:C5    | 20:E2:135:A:C4    | 3.08                     | 0.41              |
| 22:EA:99:VAL:HG22 | 46:EY:83:MET:HE1  | 2.01                     | 0.41              |
| 22:EA:106:ASN:HA  | 22:EA:140:HIS:CE1 | 2.54                     | 0.41              |
| 23:EB:11:HIS:HB2  | 1:F1:2870:U:OP1   | 2.19                     | 0.41              |
| 23:EB:26:ARG:NH1  | 23:EB:176:ILE:C   | 2.73                     | 0.41              |
| 23:EB:41:PRO:HA   | 23:EB:183:GLY:HA3 | 2.02                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:EB:105:VAL:HG11 | 23:EB:146:LEU:HD21 | 2.03                     | 0.41              |
| 23:EB:138:ASP:OD1  | 23:EB:140:LYS:HG2  | 2.20                     | 0.41              |
| 24:EC:24:THR:HG21  | 1:F1:472:C:OP1     | 2.20                     | 0.41              |
| 24:EC:230:ILE:CG2  | 24:EC:233:VAL:CG1  | 2.98                     | 0.41              |
| 24:EC:398:PHE:CG   | 37:EP:154:ARG:NH1  | 2.88                     | 0.41              |
| 25:ED:93:LYS:HE2   | 25:ED:156:LYS:NZ   | 2.35                     | 0.41              |
| 26:EE:27:VAL:HG12  | 26:EE:82:VAL:HG21  | 2.02                     | 0.41              |
| 29:EH:64:ALA:O     | 29:EH:67:ALA:HB3   | 2.21                     | 0.41              |
| 30:EI:21:TYR:CE2   | 30:EI:121:ASP:HB3  | 2.55                     | 0.41              |
| 30:EI:81:ARG:HH11  | 30:EI:81:ARG:CG    | 2.32                     | 0.41              |
| 33:EL:53:TYR:C     | 33:EL:54:LYS:HG2   | 2.45                     | 0.41              |
| 34:EM:76:CYS:HB3   | 34:EM:105:LEU:HD12 | 2.01                     | 0.41              |
| 36:EO:134:ASN:ND2  | 1:F1:1971:G:C5'    | 2.84                     | 0.41              |
| 37:EP:11:THR:CG2   | 37:EP:15:PHE:CD2   | 3.03                     | 0.41              |
| 38:EQ:24:LEU:HB2   | 38:EQ:146:CYS:HB2  | 2.02                     | 0.41              |
| 38:EQ:76:HIS:C     | 38:EQ:78:PHE:N     | 2.79                     | 0.41              |
| 39:ER:104:LYS:HG3  | 39:ER:115:VAL:HB   | 2.02                     | 0.41              |
| 45:EX:96:GLY:N     | 45:EX:120:ARG:O    | 2.44                     | 0.41              |
| 1:F1:298:G:C6      | 16:FQ:31:LYS:HG3   | 2.54                     | 0.41              |
| 1:F1:397:A:O2'     | 1:F1:400:C:O2'     | 2.26                     | 0.41              |
| 1:F1:997:G:C5'     | 1:F1:1399:A:O2'    | 2.68                     | 0.41              |
| 1:F1:1414:C:C2     | 1:F1:1415:C:C6     | 3.08                     | 0.41              |
| 1:F1:1551:C:O2     | 1:F1:1619:A:H2     | 2.03                     | 0.41              |
| 1:F1:1597:U:C2'    | 1:F1:1598:C:C6     | 2.96                     | 0.41              |
| 1:F1:1737:A:C4'    | 1:F1:1738:A:OP1    | 2.59                     | 0.41              |
| 1:F1:2126:G:N3     | 50:F1:3987:HOH:O   | 2.50                     | 0.41              |
| 1:F1:2221:U:H2'    | 1:F1:2222:C:H6     | 1.85                     | 0.41              |
| 1:F1:2391:G:H5''   | 1:F1:2393:A:H5''   | 2.01                     | 0.41              |
| 1:F1:2703:G:C8     | 1:F1:2705:U:C4     | 3.09                     | 0.41              |
| 1:F1:2766:A:C3'    | 1:F1:2767:A:H5'    | 2.50                     | 0.41              |
| 1:F1:2945:G:C2'    | 1:F1:2946:A:H5'    | 2.50                     | 0.41              |
| 1:F1:3080:A:OP2    | 50:F1:4448:HOH:O   | 2.22                     | 0.41              |
| 50:F1:3657:HOH:O   | 18:FU:15:HIS:CE1   | 2.69                     | 0.41              |
| 4:FC:4:VAL:O       | 4:FC:91:PHE:HA     | 2.21                     | 0.41              |
| 4:FC:25:GLN:HG2    | 4:FC:26:TYR:N      | 2.36                     | 0.41              |
| 5:FE:58:PHE:HB3    | 5:FE:85:VAL:CG2    | 2.49                     | 0.41              |
| 5:FE:73:LEU:H      | 5:FE:73:LEU:HG     | 1.63                     | 0.41              |
| 6:FF:29:ASN:OD1    | 19:FX:109:ARG:NH2  | 2.53                     | 0.41              |
| 7:FG:90:MET:CG     | 7:FG:91:ALA:N      | 2.83                     | 0.41              |
| 9:FJ:158:GLY:HA2   | 9:FJ:179:ILE:HD12  | 2.03                     | 0.41              |
| 11:FL:59:VAL:HG12  | 11:FL:60:ARG:O     | 2.20                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 15:FP:15:TRP:O     | 15:FP:72:TYR:CE1   | 2.73                     | 0.41              |
| 15:FP:15:TRP:CE3   | 15:FP:69:PRO:HG3   | 2.55                     | 0.41              |
| 18:FU:34:LEU:HA    | 18:FU:34:LEU:HD23  | 1.79                     | 0.41              |
| 18:FU:100:LYS:HE3  | 18:FU:102:ARG:HH21 | 1.86                     | 0.41              |
| 20:G2:60:C:C5      | 2:HA:64:ARG:NH1    | 2.89                     | 0.41              |
| 22:GA:20:HIS:CE1   | 1:H1:848:C:H5'     | 2.54                     | 0.41              |
| 23:GB:55:HIS:ND1   | 41:GT:18:GLY:HA3   | 2.35                     | 0.41              |
| 24:GC:34:ARG:CZ    | 35:GN:24:ASN:CB    | 2.99                     | 0.41              |
| 24:GC:157:TYR:CE1  | 24:GC:179:VAL:CG1  | 3.04                     | 0.41              |
| 24:GC:179:VAL:O    | 24:GC:179:VAL:HG12 | 2.21                     | 0.41              |
| 25:GD:112:LEU:HD23 | 25:GD:112:LEU:HA   | 1.86                     | 0.41              |
| 25:GD:120:THR:O    | 25:GD:121:GLY:C    | 2.62                     | 0.41              |
| 32:GK:25:HIS:HD2   | 1:H1:827:C:C6      | 2.38                     | 0.41              |
| 32:GK:49:LYS:HE2   | 32:GK:50:TRP:CZ2   | 2.56                     | 0.41              |
| 32:GK:123:VAL:O    | 32:GK:144:ALA:N    | 2.45                     | 0.41              |
| 32:GK:148:THR:CG2  | 32:GK:149:ALA:H    | 2.34                     | 0.41              |
| 34:GM:166:ALA:HB1  | 34:GM:173:ILE:HD11 | 2.01                     | 0.41              |
| 34:GM:264:THR:HG22 | 34:GM:264:THR:O    | 2.20                     | 0.41              |
| 36:GO:68:GLU:OE1   | 36:GO:68:GLU:HA    | 2.19                     | 0.41              |
| 36:GO:115:ILE:CG2  | 36:GO:119:GLN:HB3  | 2.50                     | 0.41              |
| 37:GP:48:GLN:HG3   | 37:GP:94:GLU:HG3   | 2.02                     | 0.41              |
| 39:GR:85:GLU:HA    | 39:GR:141:LEU:HD21 | 2.03                     | 0.41              |
| 40:GS:35:SER:O     | 40:GS:36:LYS:C     | 2.63                     | 0.41              |
| 42:GU:124:ALA:HB1  | 18:HU:152:THR:HG22 | 2.03                     | 0.41              |
| 45:GX:113:ARG:O    | 45:GX:113:ARG:HD2  | 2.20                     | 0.41              |
| 1:H1:169:A:OP2     | 1:H1:249:G:C2      | 2.74                     | 0.41              |
| 1:H1:547:U:H2'     | 1:H1:548:G:C8      | 2.55                     | 0.41              |
| 1:H1:680:A:C6      | 1:H1:681:A:C6      | 3.09                     | 0.41              |
| 1:H1:1005:A:C2     | 1:H1:1007:G:C6     | 3.09                     | 0.41              |
| 1:H1:1107:A:C3'    | 1:H1:1108:A:H8     | 2.28                     | 0.41              |
| 1:H1:1398:G:H2'    | 1:H1:1399:A:O5'    | 2.21                     | 0.41              |
| 1:H1:1440:A:C6     | 1:H1:1441:U:C4     | 3.07                     | 0.41              |
| 1:H1:1549:U:H2'    | 1:H1:1632:U:O2     | 2.20                     | 0.41              |
| 1:H1:1597:U:C5     | 1:H1:1598:C:C4     | 3.08                     | 0.41              |
| 1:H1:1812:G:O2'    | 1:H1:1813:A:H5'    | 2.20                     | 0.41              |
| 1:H1:2371:G:C6     | 1:H1:2372:G:C6     | 3.09                     | 0.41              |
| 1:H1:2915:C:H2'    | 1:H1:2916:C:H6     | 1.85                     | 0.41              |
| 1:H1:2994:G:C2'    | 1:H1:2995:A:OP2    | 2.68                     | 0.41              |
| 1:H1:3079:U:O2'    | 1:H1:3080:A:C5'    | 2.69                     | 0.41              |
| 1:H1:3092:A:H2'    | 1:H1:3093:U:O5'    | 2.20                     | 0.41              |
| 6:HF:109:PHE:O     | 6:HF:113:VAL:HG23  | 2.19                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 7:HG:57:GLU:HA    | 7:HG:67:ILE:HD13  | 1.96                     | 0.41              |
| 11:HL:41:TYR:CB   | 11:HL:58:GLN:HE21 | 2.30                     | 0.41              |
| 11:HL:53:LEU:HD23 | 11:HL:53:LEU:HA   | 1.84                     | 0.41              |
| 11:HL:87:VAL:O    | 11:HL:90:ARG:HB2  | 2.20                     | 0.41              |
| 13:HN:41:VAL:HG12 | 13:HN:43:VAL:HG23 | 2.00                     | 0.41              |
| 13:HN:75:VAL:HG13 | 13:HN:79:HIS:HB2  | 2.02                     | 0.41              |
| 14:HO:52:GLY:HA3  | 14:HO:118:ASN:ND2 | 2.31                     | 0.41              |
| 15:HP:13:LYS:HB3  | 15:HP:13:LYS:HE2  | 1.80                     | 0.41              |
| 16:HQ:68:LYS:HG3  | 16:HQ:69:ASP:N    | 2.35                     | 0.41              |
| 18:HU:156:LEU:HA  | 18:HU:157:PRO:HD2 | 1.95                     | 0.41              |
| 19:HX:134:THR:CG2 | 19:HX:134:THR:O   | 2.66                     | 0.41              |
| 1:A1:27:C:H2'     | 1:A1:28:G:O5'     | 2.21                     | 0.41              |
| 1:A1:145:A:P      | 50:A1:3710:HOH:O  | 2.78                     | 0.41              |
| 1:A1:150:A:O2'    | 1:A1:151:A:H5'    | 2.21                     | 0.41              |
| 1:A1:284:U:O4'    | 1:A1:284:U:P      | 2.79                     | 0.41              |
| 1:A1:291:C:P      | 33:BL:68:ARG:HH12 | 2.42                     | 0.41              |
| 1:A1:297:U:O4     | 16:AQ:30:ARG:HA   | 2.19                     | 0.41              |
| 1:A1:469:U:O2     | 1:A1:469:U:H2'    | 2.18                     | 0.41              |
| 1:A1:612:C:C2'    | 1:A1:613:U:H5'    | 2.50                     | 0.41              |
| 1:A1:833:A:O2'    | 1:A1:2408:A:H5'   | 2.20                     | 0.41              |
| 1:A1:975:G:C2     | 1:A1:1397:G:O6    | 2.74                     | 0.41              |
| 1:A1:1108:A:H3'   | 1:A1:1110:U:C6    | 2.55                     | 0.41              |
| 1:A1:1865:A:N1    | 1:A1:1872:U:C4    | 2.89                     | 0.41              |
| 1:A1:2198:U:O2    | 1:A1:2235:G:C2    | 2.73                     | 0.41              |
| 1:A1:2255:U:C4'   | 1:A1:2301:C:O4'   | 2.68                     | 0.41              |
| 1:A1:2388:G:H4'   | 23:BB:250:ILE:CG1 | 2.51                     | 0.41              |
| 1:A1:2632:A:H5'   | 17:AT:6:ASN:OD1   | 2.20                     | 0.41              |
| 1:A1:2669:A:C6    | 25:BD:57:PHE:CD1  | 3.08                     | 0.41              |
| 1:A1:3078:C:C4    | 1:A1:3079:U:C4    | 3.08                     | 0.41              |
| 1:A1:3316:C:N4    | 1:A1:3317:G:C6    | 2.88                     | 0.41              |
| 2:AA:5:THR:N      | 2:AA:6:PRO:CD     | 2.84                     | 0.41              |
| 5:AE:56:GLY:O     | 5:AE:59:ARG:N     | 2.34                     | 0.41              |
| 6:AF:56:THR:O     | 6:AF:57:LYS:CG    | 2.47                     | 0.41              |
| 7:AG:10:ILE:HG12  | 7:AG:13:LYS:NZ    | 2.35                     | 0.41              |
| 16:AQ:36:LYS:O    | 16:AQ:40:LEU:HG   | 2.20                     | 0.41              |
| 17:AT:30:ILE:HG22 | 17:AT:31:SER:N    | 2.36                     | 0.41              |
| 18:AU:87:PHE:CD2  | 18:AU:91:ILE:HD11 | 2.55                     | 0.41              |
| 19:AX:19:ARG:HG3  | 19:AX:21:TYR:OH   | 2.21                     | 0.41              |
| 19:AX:61:LYS:HA   | 19:AX:61:LYS:HD3  | 1.79                     | 0.41              |
| 21:B3:4:G:C2'     | 21:B3:5:U:H5'     | 2.50                     | 0.41              |
| 22:BA:5:ILE:CG2   | 22:BA:6:ARG:N     | 2.83                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 22:BA:94:LYS:O    | 22:BA:95:ALA:C     | 2.62                     | 0.41              |
| 22:BA:176:THR:O   | 22:BA:176:THR:HG22 | 2.20                     | 0.41              |
| 23:BB:46:PHE:HD1  | 23:BB:206:ILE:CD1  | 2.33                     | 0.41              |
| 28:BG:22:UNK:HG1  | 28:BG:92:UNK:HB1   | 2.02                     | 0.41              |
| 29:BH:146:LYS:HD3 | 29:BH:146:LYS:HA   | 1.92                     | 0.41              |
| 30:BI:23:ALA:O    | 30:BI:26:LEU:HB2   | 2.20                     | 0.41              |
| 30:BI:32:ILE:HG22 | 30:BI:33:VAL:N     | 2.36                     | 0.41              |
| 45:BX:46:ARG:HD2  | 45:BX:48:PHE:CE2   | 2.54                     | 0.41              |
| 45:BX:81:PRO:O    | 45:BX:84:LEU:HB2   | 2.20                     | 0.41              |
| 24:CC:42:PHE:CD1  | 24:CC:244:LEU:HD23 | 2.55                     | 0.41              |
| 24:CC:119:ARG:NH2 | 1:D1:704:G:HO2'    | 2.11                     | 0.41              |
| 24:CC:328:ASN:OD1 | 24:CC:328:ASN:C    | 2.61                     | 0.41              |
| 26:CE:101:GLU:H   | 26:CE:101:GLU:HG2  | 1.77                     | 0.41              |
| 26:CE:110:ILE:CD1 | 26:CE:159:ILE:HD11 | 2.50                     | 0.41              |
| 27:CF:21:LEU:HD21 | 13:DN:122:TYR:HE2  | 1.76                     | 0.41              |
| 27:CF:127:TYR:CE1 | 1:D1:146:U:C2      | 3.08                     | 0.41              |
| 30:CI:13:HIS:HE1  | 30:CI:119:VAL:H    | 1.69                     | 0.41              |
| 30:CI:168:ASP:O   | 30:CI:169:LYS:C    | 2.63                     | 0.41              |
| 33:CL:29:GLU:O    | 33:CL:32:GLN:HB2   | 2.21                     | 0.41              |
| 34:CM:60:ILE:HD13 | 34:CM:98:ALA:HB2   | 2.02                     | 0.41              |
| 34:CM:131:ASN:HB3 | 34:CM:133:ASP:OD1  | 2.20                     | 0.41              |
| 35:CN:88:THR:HG22 | 35:CN:107:THR:CG2  | 2.51                     | 0.41              |
| 38:CQ:62:PHE:CD2  | 38:CQ:69:ILE:HD13  | 2.56                     | 0.41              |
| 40:CS:33:HIS:O    | 40:CS:104:VAL:HA   | 2.20                     | 0.41              |
| 40:CS:98:LEU:HA   | 40:CS:98:LEU:HD23  | 1.72                     | 0.41              |
| 45:CX:29:LYS:HG2  | 1:D1:679:C:OP1     | 2.19                     | 0.41              |
| 45:CX:48:PHE:O    | 45:CX:49:ARG:C     | 2.63                     | 0.41              |
| 1:D1:33:A:H2'     | 1:D1:34:C:H6       | 1.85                     | 0.41              |
| 1:D1:114:A:H2'    | 1:D1:115:G:H8      | 1.83                     | 0.41              |
| 1:D1:116:U:C5     | 1:D1:117:G:N7      | 2.88                     | 0.41              |
| 1:D1:181:U:O2'    | 1:D1:182:C:H5'     | 2.20                     | 0.41              |
| 1:D1:577:C:C2'    | 1:D1:578:G:H5'     | 2.51                     | 0.41              |
| 1:D1:753:A:H5'    | 1:D1:1002:A:O4'    | 2.21                     | 0.41              |
| 1:D1:784:G:O2'    | 1:D1:796:A:N6      | 2.53                     | 0.41              |
| 1:D1:881:G:C6     | 1:D1:882:G:C2      | 3.08                     | 0.41              |
| 1:D1:1046:G:H5''  | 13:FN:3:LYS:HG2    | 2.03                     | 0.41              |
| 1:D1:1047:G:C2'   | 1:D1:1048:U:H5''   | 2.50                     | 0.41              |
| 1:D1:1107:A:C6    | 1:D1:1108:A:C5     | 3.09                     | 0.41              |
| 1:D1:1130:A:C2    | 1:D1:1390:A:O2'    | 2.65                     | 0.41              |
| 1:D1:1191:G:H2'   | 1:D1:1192:A:C8     | 2.47                     | 0.41              |
| 1:D1:1245:U:N3    | 1:D1:1314:A:C2     | 2.89                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:1310:C:C5     | 1:D1:1311:C:C4     | 3.08                     | 0.41              |
| 1:D1:1377:A:H2'    | 1:D1:1378:U:O4'    | 2.20                     | 0.41              |
| 1:D1:1379:G:N2     | 5:DE:22:ASP:OD2    | 2.54                     | 0.41              |
| 1:D1:1380:C:O2'    | 14:DO:38:VAL:HB    | 2.19                     | 0.41              |
| 1:D1:1497:U:H2'    | 1:D1:1498:U:C6     | 2.56                     | 0.41              |
| 1:D1:1701:A:N6     | 12:DM:76:ARG:HH21  | 2.19                     | 0.41              |
| 1:D1:2250:A:C1'    | 1:D1:2251:A:OP2    | 2.69                     | 0.41              |
| 1:D1:2303:C:OP1    | 1:D1:2304:A:C2'    | 2.68                     | 0.41              |
| 1:D1:2387:C:H5''   | 1:D1:2388:G:OP2    | 2.21                     | 0.41              |
| 1:D1:2429:U:C4'    | 1:D1:2430:G:O5'    | 2.67                     | 0.41              |
| 1:D1:2545:A:H2'    | 11:DL:47:ALA:HB3   | 2.02                     | 0.41              |
| 1:D1:2680:A:H2'    | 1:D1:2681:A:O5'    | 2.21                     | 0.41              |
| 1:D1:2913:C:H2'    | 1:D1:2914:A:C5'    | 2.48                     | 0.41              |
| 1:D1:3095:A:H61    | 1:D1:3117:G:H1'    | 1.86                     | 0.41              |
| 5:DE:88:LYS:HG3    | 5:DE:89:ARG:C      | 2.46                     | 0.41              |
| 5:DE:185:ARG:HB3   | 5:DE:187:HIS:CE1   | 2.55                     | 0.41              |
| 8:DH:15:TRP:CZ2    | 8:DH:105:ARG:NE    | 2.89                     | 0.41              |
| 18:DU:131:ALA:H    | 18:DU:136:VAL:HB   | 1.85                     | 0.41              |
| 20:E2:129:A:C4     | 20:E2:130:C:C6     | 3.08                     | 0.41              |
| 23:EB:41:PRO:HG2   | 23:EB:192:PHE:CD1  | 2.55                     | 0.41              |
| 23:EB:130:PHE:CE1  | 1:F1:3138:G:H5''   | 2.56                     | 0.41              |
| 23:EB:245:ARG:NH2  | 1:F1:2336:A:OP2    | 2.54                     | 0.41              |
| 23:EB:250:ILE:HD13 | 23:EB:250:ILE:HA   | 1.70                     | 0.41              |
| 23:EB:291:ASN:CG   | 23:EB:303:ILE:HD11 | 2.46                     | 0.41              |
| 23:EB:375:ASP:CB   | 23:EB:380:ARG:O    | 2.66                     | 0.41              |
| 24:EC:300:ASN:HA   | 24:EC:305:GLN:HE21 | 1.84                     | 0.41              |
| 27:EF:143:LEU:HD23 | 27:EF:143:LEU:HA   | 1.82                     | 0.41              |
| 29:EH:49:VAL:HA    | 29:EH:138:VAL:O    | 2.20                     | 0.41              |
| 30:EI:168:ASP:O    | 30:EI:169:LYS:C    | 2.63                     | 0.41              |
| 32:EK:57:LYS:HE3   | 1:F1:91:C:O2'      | 2.21                     | 0.41              |
| 32:EK:60:MET:HE2   | 32:EK:60:MET:HB3   | 1.81                     | 0.41              |
| 33:EL:12:ARG:HG2   | 1:F1:267:A:C4      | 2.55                     | 0.41              |
| 34:EM:140:LYS:HB2  | 1:F1:1107:A:H4'    | 2.01                     | 0.41              |
| 34:EM:284:ALA:O    | 34:EM:288:LYS:HG2  | 2.20                     | 0.41              |
| 37:EP:141:VAL:HG13 | 19:FX:36:PRO:HG2   | 2.01                     | 0.41              |
| 38:EQ:66:THR:CG2   | 38:EQ:82:GLN:NE2   | 2.81                     | 0.41              |
| 42:EU:97:THR:HB    | 42:EU:100:GLN:HG3  | 2.02                     | 0.41              |
| 43:EV:74:VAL:HA    | 43:EV:75:PRO:HD2   | 1.84                     | 0.41              |
| 43:EV:157:ARG:HG3  | 43:EV:200:TRP:CD2  | 2.54                     | 0.41              |
| 44:EW:95:LEU:HA    | 44:EW:95:LEU:HD23  | 1.79                     | 0.41              |
| 45:EX:47:ARG:NH1   | 1:F1:1187:C:N3     | 2.67                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 46:EY:47:VAL:HG11  | 46:EY:71:LEU:HD22 | 2.01                     | 0.41              |
| 1:F1:165:C:C5'     | 18:FU:132:LYS:HD2 | 2.49                     | 0.41              |
| 1:F1:268:G:N2      | 1:F1:293:U:H2'    | 2.35                     | 0.41              |
| 1:F1:331:C:C2'     | 1:F1:332:G:H5''   | 2.48                     | 0.41              |
| 1:F1:621:G:O6      | 1:F1:622:G:N1     | 2.53                     | 0.41              |
| 1:F1:710:G:C2'     | 1:F1:711:U:O5'    | 2.69                     | 0.41              |
| 1:F1:882:G:HO2'    | 1:F1:883:A:P      | 2.43                     | 0.41              |
| 1:F1:971:C:O2'     | 1:F1:972:U:C5'    | 2.67                     | 0.41              |
| 1:F1:1069:C:C4     | 1:F1:1070:U:C5    | 3.08                     | 0.41              |
| 1:F1:1175:G:H2'    | 1:F1:1176:G:H5'   | 2.01                     | 0.41              |
| 1:F1:1175:G:OP2    | 8:FH:28:HIS:HD2   | 2.04                     | 0.41              |
| 1:F1:1185:A:H3'    | 1:F1:1186:A:C5'   | 2.49                     | 0.41              |
| 1:F1:1208:U:H5'    | 19:FX:178:ARG:CZ  | 2.48                     | 0.41              |
| 1:F1:1373:G:C5     | 1:F1:1374:C:C5    | 3.08                     | 0.41              |
| 1:F1:1379:G:O6     | 14:FO:101:LYS:HE2 | 2.21                     | 0.41              |
| 1:F1:1383:G:O2'    | 1:F1:1384:G:OP2   | 2.37                     | 0.41              |
| 1:F1:1547:G:C2     | 1:F1:1548:U:H5    | 2.38                     | 0.41              |
| 1:F1:1847:A:C4     | 1:F1:1848:C:C5    | 3.07                     | 0.41              |
| 1:F1:2146:G:C2'    | 1:F1:2147:C:H5'   | 2.50                     | 0.41              |
| 1:F1:2256:G:C2'    | 1:F1:2257:A:C5'   | 2.97                     | 0.41              |
| 1:F1:2296:U:O2'    | 1:F1:2297:G:H5'   | 2.21                     | 0.41              |
| 1:F1:2647:G:P      | 50:F1:4486:HOH:O  | 2.78                     | 0.41              |
| 1:F1:2700:A:H2'    | 1:F1:2701:U:C6    | 2.56                     | 0.41              |
| 1:F1:2762:U:O2     | 1:F1:2762:U:H2'   | 2.20                     | 0.41              |
| 1:F1:2902:G:C6     | 1:F1:2903:U:N3    | 2.89                     | 0.41              |
| 4:FC:41:TYR:O      | 4:FC:45:GLN:HG3   | 2.21                     | 0.41              |
| 5:FE:56:GLY:O      | 5:FE:57:ARG:C     | 2.60                     | 0.41              |
| 8:FH:36:LEU:HD22   | 8:FH:81:HIS:HD2   | 1.84                     | 0.41              |
| 9:FJ:129:ILE:O     | 9:FJ:133:LEU:HB2  | 2.21                     | 0.41              |
| 12:FM:15:LEU:HG    | 12:FM:17:PHE:CE2  | 2.56                     | 0.41              |
| 12:FM:56:ILE:HG13  | 12:FM:69:SER:OG   | 2.20                     | 0.41              |
| 12:FM:74:SER:OG    | 12:FM:76:ARG:HB2  | 2.20                     | 0.41              |
| 13:FN:38:PHE:HE2   | 13:FN:76:ASN:HB2  | 1.85                     | 0.41              |
| 14:FO:62:LEU:CD1   | 14:FO:97:ARG:HG2  | 2.48                     | 0.41              |
| 19:FX:96:GLN:CB    | 19:FX:134:THR:CG2 | 2.98                     | 0.41              |
| 19:FX:161:LEU:HD12 | 19:FX:161:LEU:HA  | 1.42                     | 0.41              |
| 20:G2:52:G:C6      | 20:G2:80:A:C2     | 3.09                     | 0.41              |
| 20:G2:62:A:OP1     | 20:G2:99:U:O2'    | 2.19                     | 0.41              |
| 20:G2:73:G:C2      | 20:G2:88:G:C2     | 3.09                     | 0.41              |
| 21:G3:8:G:H2'      | 21:G3:9:C:O4'     | 2.20                     | 0.41              |
| 21:G3:81:A:C3'     | 21:G3:82:G:C5'    | 2.99                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:GB:46:PHE:CE1   | 23:GB:84:MET:HG3   | 2.56                     | 0.41              |
| 24:GC:37:ILE:O     | 24:GC:41:VAL:HG23  | 2.20                     | 0.41              |
| 25:GD:48:SER:CB    | 1:H1:2671:C:OP1    | 2.62                     | 0.41              |
| 25:GD:104:PHE:CE1  | 25:GD:106:ILE:HD11 | 2.48                     | 0.41              |
| 27:GF:56:GLN:OE1   | 27:GF:56:GLN:HA    | 2.19                     | 0.41              |
| 27:GF:220:GLU:O    | 27:GF:224:THR:N    | 2.53                     | 0.41              |
| 27:GF:232:GLN:OE1  | 1:H1:2573:U:H1'    | 2.19                     | 0.41              |
| 29:GH:147:TYR:N    | 29:GH:147:TYR:CD1  | 2.87                     | 0.41              |
| 30:GI:32:ILE:HG22  | 30:GI:33:VAL:N     | 2.35                     | 0.41              |
| 30:GI:35:VAL:CG1   | 30:GI:106:GLY:O    | 2.66                     | 0.41              |
| 30:GI:107:ILE:HD12 | 30:GI:159:ARG:NH2  | 2.35                     | 0.41              |
| 31:GJ:35:ALA:HB1   | 31:GJ:66:VAL:CG1   | 2.50                     | 0.41              |
| 31:GJ:139:SER:HB3  | 9:HJ:102:SER:N     | 2.30                     | 0.41              |
| 33:GL:98:LEU:O     | 33:GL:101:CYS:HB2  | 2.20                     | 0.41              |
| 33:GL:123:GLN:HB2  | 33:GL:128:LYS:HG2  | 2.02                     | 0.41              |
| 35:GN:10:ARG:O     | 35:GN:11:VAL:C     | 2.64                     | 0.41              |
| 38:GQ:151:PHE:CD1  | 38:GQ:151:PHE:C    | 2.98                     | 0.41              |
| 40:GS:117:LEU:O    | 40:GS:118:LEU:C    | 2.63                     | 0.41              |
| 42:GU:63:ASN:O     | 42:GU:64:GLU:C     | 2.63                     | 0.41              |
| 42:GU:98:LYS:O     | 42:GU:99:LYS:C     | 2.62                     | 0.41              |
| 46:GY:71:LEU:HD12  | 46:GY:71:LEU:C     | 2.44                     | 0.41              |
| 46:GY:88:LYS:HG2   | 46:GY:89:LEU:N     | 2.35                     | 0.41              |
| 1:H1:526:U:O2'     | 1:H1:527:A:O5'     | 2.38                     | 0.41              |
| 1:H1:579:G:O2'     | 19:HX:158:ASN:CA   | 2.67                     | 0.41              |
| 1:H1:800:G:C4'     | 1:H1:801:U:OP1     | 2.62                     | 0.41              |
| 1:H1:971:C:O2'     | 1:H1:972:U:C5'     | 2.67                     | 0.41              |
| 1:H1:979:U:H4'     | 17:HT:8:THR:O      | 2.21                     | 0.41              |
| 1:H1:1239:G:O3'    | 19:HX:106:LYS:NZ   | 2.49                     | 0.41              |
| 1:H1:1404:G:H2'    | 1:H1:1405:U:H6     | 1.86                     | 0.41              |
| 1:H1:2558:U:C5     | 1:H1:2559:U:C4     | 3.08                     | 0.41              |
| 1:H1:2564:G:O6     | 1:H1:2565:A:N6     | 2.54                     | 0.41              |
| 1:H1:3115:C:C2'    | 1:H1:3116:A:O5'    | 2.68                     | 0.41              |
| 1:H1:3234:U:O4     | 8:HH:68:SER:HB2    | 2.21                     | 0.41              |
| 4:HC:9:LYS:HA      | 4:HC:19:THR:O      | 2.20                     | 0.41              |
| 4:HC:25:GLN:HG2    | 4:HC:26:TYR:N      | 2.36                     | 0.41              |
| 11:HL:104:LYS:O    | 11:HL:108:ILE:HG13 | 2.21                     | 0.41              |
| 13:HN:29:SER:O     | 13:HN:30:GLU:C     | 2.63                     | 0.41              |
| 19:HX:39:LEU:HD23  | 19:HX:39:LEU:HA    | 1.82                     | 0.41              |
| 1:A1:9:G:H1'       | 27:BF:50:TYR:CD2   | 2.56                     | 0.41              |
| 1:A1:81:C:H2'      | 1:A1:82:C:C6       | 2.56                     | 0.41              |
| 1:A1:165:C:H5''    | 18:AU:132:LYS:HZ2  | 1.84                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:208:C:O2'     | 1:A1:209:A:H5'     | 2.20                     | 0.41              |
| 1:A1:279:U:O4'     | 33:BL:188:ARG:NH2  | 2.54                     | 0.41              |
| 1:A1:350:A:N6      | 3:AB:35:ILE:HG23   | 2.34                     | 0.41              |
| 1:A1:679:C:O2'     | 1:A1:680:A:H5'     | 2.20                     | 0.41              |
| 1:A1:685:G:O6      | 32:BK:19:HIS:CD2   | 2.72                     | 0.41              |
| 1:A1:689:A:O2'     | 1:A1:690:U:H5'     | 2.20                     | 0.41              |
| 1:A1:920:A:C6      | 1:A1:922:U:C2      | 3.09                     | 0.41              |
| 1:A1:1060:C:H2'    | 1:A1:1061:G:O4'    | 2.20                     | 0.41              |
| 1:A1:1175:G:H2'    | 1:A1:1176:G:C5'    | 2.50                     | 0.41              |
| 1:A1:1185:A:H3'    | 1:A1:1186:A:C5'    | 2.51                     | 0.41              |
| 1:A1:1210:C:C2'    | 19:AX:13:THR:HG21  | 2.51                     | 0.41              |
| 1:A1:1395:U:H5'    | 45:BX:45:ARG:HE    | 1.84                     | 0.41              |
| 1:A1:1462:U:C4     | 24:BC:78:VAL:O     | 2.74                     | 0.41              |
| 1:A1:1547:G:C2     | 1:A1:1548:U:H5     | 2.39                     | 0.41              |
| 1:A1:1618:A:H4'    | 11:AL:62:ALA:HB1   | 2.03                     | 0.41              |
| 1:A1:1865:A:H1'    | 3:AB:45:ARG:HH22   | 1.85                     | 0.41              |
| 1:A1:2146:G:C2'    | 1:A1:2147:C:H5'    | 2.50                     | 0.41              |
| 1:A1:2228:A:C8     | 1:A1:2229:G:N7     | 2.89                     | 0.41              |
| 1:A1:2397:A:C6     | 24:BC:80:ARG:NH2   | 2.89                     | 0.41              |
| 1:A1:2529:G:H2'    | 1:A1:2530:G:H8     | 1.86                     | 0.41              |
| 1:A1:2620:U:O4     | 37:BP:3:HIS:NE2    | 2.40                     | 0.41              |
| 1:A1:2824:C:H2'    | 1:A1:2825:A:O4'    | 2.20                     | 0.41              |
| 1:A1:2902:G:C6     | 1:A1:2903:U:C4     | 3.08                     | 0.41              |
| 1:A1:2994:G:C2'    | 1:A1:2995:A:OP2    | 2.69                     | 0.41              |
| 1:A1:3146:G:C6     | 1:A1:3248:C:N4     | 2.88                     | 0.41              |
| 1:A1:3237:C:N3     | 8:AH:7:SER:OG      | 2.52                     | 0.41              |
| 10:AK:114:LYS:H    | 10:AK:114:LYS:HG3  | 1.70                     | 0.41              |
| 17:AT:27:HIS:O     | 17:AT:28:ARG:C     | 2.64                     | 0.41              |
| 18:AU:144:SER:CB   | 42:BU:123:LYS:NZ   | 2.64                     | 0.41              |
| 19:AX:7:GLN:HG2    | 19:AX:83:LEU:HD11  | 2.03                     | 0.41              |
| 19:AX:52:LYS:O     | 19:AX:55:PHE:HB3   | 2.21                     | 0.41              |
| 20:B2:87:C:O2'     | 20:B2:88:G:H5'     | 2.20                     | 0.41              |
| 20:B2:130:C:O2     | 20:B2:130:C:H2'    | 2.20                     | 0.41              |
| 21:B3:11:A:C2'     | 21:B3:12:U:H5''    | 2.51                     | 0.41              |
| 21:B3:120:U:O2'    | 34:BM:265:LYS:NZ   | 2.42                     | 0.41              |
| 22:BA:205:MET:O    | 22:BA:213:GLY:HA3  | 2.20                     | 0.41              |
| 23:BB:86:ILE:CD1   | 23:BB:196:LEU:HD13 | 2.51                     | 0.41              |
| 26:BE:46:GLN:OE1   | 26:BE:54:LYS:HB3   | 2.21                     | 0.41              |
| 26:BE:164:LEU:HD23 | 26:BE:164:LEU:HA   | 1.85                     | 0.41              |
| 27:BF:48:PRO:O     | 27:BF:49:ARG:C     | 2.62                     | 0.41              |
| 29:BH:42:THR:O     | 29:BH:43:VAL:C     | 2.64                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 30:BI:24:LYS:O     | 30:BI:25:GLU:C     | 2.61                     | 0.41              |
| 35:BN:82:VAL:HG21  | 35:BN:127:LEU:CD1  | 2.45                     | 0.41              |
| 39:BR:97:ARG:HA    | 39:BR:97:ARG:HD2   | 1.92                     | 0.41              |
| 39:BR:121:LEU:O    | 39:BR:128:LYS:HA   | 2.21                     | 0.41              |
| 43:BV:44:LYS:O     | 43:BV:45:ALA:C     | 2.63                     | 0.41              |
| 20:C2:96:A:C6      | 2:DA:80:ARG:NH1    | 2.89                     | 0.41              |
| 22:CA:16:VAL:HG21  | 1:D1:936:C:H5''    | 1.98                     | 0.41              |
| 22:CA:20:HIS:ND1   | 1:D1:848:C:C5'     | 2.83                     | 0.41              |
| 23:CB:291:ASN:CG   | 23:CB:303:ILE:HD11 | 2.44                     | 0.41              |
| 24:CC:240:ARG:HB2  | 1:D1:719:C:H1'     | 2.01                     | 0.41              |
| 24:CC:300:ASN:HA   | 24:CC:305:GLN:HE21 | 1.85                     | 0.41              |
| 27:CF:161:GLN:OE1  | 27:CF:164:ARG:NH1  | 2.53                     | 0.41              |
| 28:CG:109:UNK:O    | 28:CG:112:UNK:HB2  | 2.21                     | 0.41              |
| 29:CH:75:ASN:HB3   | 29:CH:151:ALA:HB2  | 2.03                     | 0.41              |
| 30:CI:133:PRO:C    | 30:CI:134:VAL:CG1  | 2.93                     | 0.41              |
| 31:CJ:46:ILE:HD13  | 31:CJ:54:PRO:HB3   | 1.99                     | 0.41              |
| 32:CK:91:LYS:HZ3   | 1:D1:487:G:C5'     | 2.33                     | 0.41              |
| 37:CP:105:LEU:HD23 | 37:CP:105:LEU:HA   | 1.83                     | 0.41              |
| 41:CT:16:TYR:HB3   | 41:CT:17:PRO:HD2   | 2.02                     | 0.41              |
| 43:CV:82:PHE:HB3   | 43:CV:231:ILE:HD13 | 2.03                     | 0.41              |
| 43:CV:82:PHE:CD1   | 43:CV:112:ALA:O    | 2.73                     | 0.41              |
| 1:D1:125:G:C6      | 1:D1:142:A:C6      | 3.08                     | 0.41              |
| 1:D1:169:A:N7      | 1:D1:250:U:C4      | 2.89                     | 0.41              |
| 1:D1:174:A:N1      | 1:D1:246:G:C4      | 2.89                     | 0.41              |
| 1:D1:567:C:H2'     | 1:D1:568:A:O4'     | 2.21                     | 0.41              |
| 1:D1:585:A:N6      | 1:D1:586:A:C6      | 2.89                     | 0.41              |
| 1:D1:591:G:H8      | 1:D1:591:G:C5'     | 2.33                     | 0.41              |
| 1:D1:729:A:C4'     | 1:D1:810:G:H21     | 2.33                     | 0.41              |
| 1:D1:807:G:H2'     | 1:D1:808:A:O4'     | 2.20                     | 0.41              |
| 1:D1:1344:A:O2'    | 1:D1:1345:A:H3'    | 2.21                     | 0.41              |
| 1:D1:1411:U:N3     | 1:D1:1412:U:C5     | 2.88                     | 0.41              |
| 1:D1:1519:G:C2     | 3:DB:13:PHE:CZ     | 3.08                     | 0.41              |
| 1:D1:1595:A:H2'    | 1:D1:1596:U:O4'    | 2.21                     | 0.41              |
| 1:D1:1597:U:C5     | 1:D1:1598:C:C4     | 3.09                     | 0.41              |
| 1:D1:1876:G:N3     | 2:DA:9:GLY:HA3     | 2.35                     | 0.41              |
| 1:D1:2247:A:C2     | 1:D1:2260:C:C2     | 3.09                     | 0.41              |
| 1:D1:2636:A:H2'    | 1:D1:2637:G:O5'    | 2.20                     | 0.41              |
| 1:D1:2934:A:H2'    | 1:D1:2970:A:N7     | 2.34                     | 0.41              |
| 1:D1:3007:G:H2'    | 1:D1:3008:U:O5'    | 2.20                     | 0.41              |
| 1:D1:3080:A:HO2'   | 1:D1:3081:C:P      | 2.43                     | 0.41              |
| 1:D1:3097:G:N1     | 1:D1:3116:A:C2     | 2.89                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:3311:U:H3'    | 1:D1:3311:U:H6     | 1.86                     | 0.41              |
| 5:DE:66:LEU:HD11   | 5:DE:77:THR:OG1    | 2.20                     | 0.41              |
| 6:DF:44:VAL:HG12   | 6:DF:45:ARG:N      | 2.35                     | 0.41              |
| 8:DH:12:THR:HG22   | 8:DH:14:LEU:HG     | 2.01                     | 0.41              |
| 8:DH:56:VAL:HG22   | 8:DH:106:VAL:HG22  | 2.02                     | 0.41              |
| 9:DJ:25:LEU:HD11   | 9:DJ:70:LEU:HD21   | 2.03                     | 0.41              |
| 9:DJ:101:LEU:HD11  | 9:DJ:118:HIS:CD2   | 2.56                     | 0.41              |
| 11:DL:87:VAL:O     | 11:DL:90:ARG:HB2   | 2.21                     | 0.41              |
| 13:DN:54:THR:HG22  | 13:DN:55:LYS:N     | 2.35                     | 0.41              |
| 14:DO:52:GLY:CA    | 14:DO:118:ASN:HD21 | 2.27                     | 0.41              |
| 19:DX:113:LEU:HD12 | 19:DX:116:ALA:HB3  | 2.01                     | 0.41              |
| 21:E3:10:C:C6      | 34:EM:20:TYR:CE1   | 3.08                     | 0.41              |
| 22:EA:236:VAL:HG12 | 1:F1:2179:U:OP1    | 2.21                     | 0.41              |
| 23:EB:56:ILE:HG21  | 23:EB:354:LEU:CD2  | 2.48                     | 0.41              |
| 24:EC:37:ILE:O     | 24:EC:41:VAL:HG23  | 2.20                     | 0.41              |
| 24:EC:80:ARG:HH11  | 1:F1:830:G:H1'     | 1.86                     | 0.41              |
| 26:EE:4:LEU:HD12   | 26:EE:4:LEU:HA     | 1.67                     | 0.41              |
| 26:EE:69:GLN:HB3   | 1:F1:3102:A:H4'    | 2.03                     | 0.41              |
| 26:EE:113:LYS:CD   | 26:EE:114:HIS:HB2  | 2.50                     | 0.41              |
| 26:EE:141:THR:CG2  | 26:EE:142:LEU:N    | 2.83                     | 0.41              |
| 29:EH:51:HIS:HB3   | 29:EH:134:ILE:HG23 | 2.03                     | 0.41              |
| 29:EH:190:LEU:HD22 | 29:EH:197:VAL:CG1  | 2.50                     | 0.41              |
| 34:EM:135:ASP:O    | 34:EM:137:LYS:HG3  | 2.21                     | 0.41              |
| 35:EN:36:PHE:CE1   | 35:EN:40:ARG:HD2   | 2.56                     | 0.41              |
| 35:EN:91:GLU:H     | 35:EN:91:GLU:HG3   | 1.39                     | 0.41              |
| 40:ES:73:TYR:HD1   | 40:ES:76:LYS:H     | 1.67                     | 0.41              |
| 43:EV:123:MET:CG   | 1:F1:1012:U:H1'    | 2.50                     | 0.41              |
| 43:EV:127:VAL:O    | 43:EV:128:LEU:C    | 2.63                     | 0.41              |
| 43:EV:206:THR:HG21 | 1:F1:1195:U:H1'    | 1.99                     | 0.41              |
| 44:EW:26:LYS:C     | 44:EW:29:PRO:HD2   | 2.46                     | 0.41              |
| 45:EX:4:LYS:C      | 45:EX:73:PHE:HZ    | 2.28                     | 0.41              |
| 45:EX:57:ILE:C     | 45:EX:59:PHE:H     | 2.28                     | 0.41              |
| 46:EY:8:VAL:O      | 46:EY:11:THR:HB    | 2.20                     | 0.41              |
| 1:F1:66:C:H2'      | 1:F1:67:U:O4'      | 2.21                     | 0.41              |
| 1:F1:81:C:H2'      | 1:F1:82:C:C6       | 2.55                     | 0.41              |
| 1:F1:169:A:C6      | 1:F1:251:A:C6      | 3.09                     | 0.41              |
| 1:F1:564:A:C6      | 1:F1:567:C:H4'     | 2.56                     | 0.41              |
| 1:F1:685:G:OP1     | 1:F1:685:G:C4'     | 2.69                     | 0.41              |
| 1:F1:685:G:H2'     | 1:F1:686:U:OP2     | 2.21                     | 0.41              |
| 1:F1:774:A:C5      | 1:F1:775:C:C5      | 3.08                     | 0.41              |
| 1:F1:806:G:H2'     | 1:F1:807:G:H5'     | 2.03                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1176:G:H5'    | 1:F1:1176:G:H8     | 1.85                     | 0.41              |
| 1:F1:1200:C:H1'    | 1:F1:1206:A:C4     | 2.56                     | 0.41              |
| 1:F1:1255:A:C2     | 1:F1:1309:G:C4     | 3.08                     | 0.41              |
| 1:F1:1580:G:O2'    | 1:F1:1581:C:H5''   | 2.20                     | 0.41              |
| 1:F1:1746:U:C4     | 1:F1:1747:A:N7     | 2.89                     | 0.41              |
| 1:F1:1880:C:C1'    | 11:FL:7:TYR:HE1    | 2.34                     | 0.41              |
| 1:F1:1921:G:H2'    | 1:F1:1922:G:C5'    | 2.50                     | 0.41              |
| 1:F1:2165:A:C2     | 1:F1:2166:G:C8     | 3.08                     | 0.41              |
| 1:F1:2312:A:C2'    | 1:F1:2313:U:O5'    | 2.69                     | 0.41              |
| 1:F1:2323:U:H2'    | 1:F1:2324:A:H5''   | 2.02                     | 0.41              |
| 1:F1:2353:C:H5''   | 1:F1:2354:C:OP2    | 2.21                     | 0.41              |
| 1:F1:2423:U:H2'    | 1:F1:2424:A:C8     | 2.55                     | 0.41              |
| 1:F1:2558:U:C5     | 1:F1:2559:U:C4     | 3.09                     | 0.41              |
| 1:F1:2569:A:O2'    | 1:F1:2570:U:OP2    | 2.38                     | 0.41              |
| 1:F1:2604:U:H2'    | 1:F1:2605:C:C6     | 2.55                     | 0.41              |
| 1:F1:2761:U:O2     | 18:FU:190:TRP:CZ2  | 2.73                     | 0.41              |
| 1:F1:2793:G:C5     | 1:F1:2794:U:C5     | 3.09                     | 0.41              |
| 1:F1:2820:C:C2'    | 1:F1:2821:A:O5'    | 2.68                     | 0.41              |
| 1:F1:2829:G:H5''   | 1:F1:2830:U:H5'    | 2.03                     | 0.41              |
| 1:F1:2920:U:H1'    | 1:F1:2923:U:C4     | 2.55                     | 0.41              |
| 1:F1:3108:U:H2'    | 1:F1:3109:C:C5'    | 2.49                     | 0.41              |
| 1:F1:3155:A:H62    | 8:FH:101:GLY:H     | 1.68                     | 0.41              |
| 2:FA:14:LYS:NZ     | 3:FB:52:TYR:CE1    | 2.81                     | 0.41              |
| 2:FA:58:LYS:HA     | 2:FA:62:THR:HG21   | 2.02                     | 0.41              |
| 5:FE:179:THR:HA    | 8:FH:12:THR:HG23   | 2.02                     | 0.41              |
| 5:FE:185:ARG:HD2   | 5:FE:188:GLU:OE2   | 2.20                     | 0.41              |
| 6:FF:49:PRO:C      | 6:FF:51:ARG:N      | 2.77                     | 0.41              |
| 6:FF:98:THR:O      | 6:FF:101:ALA:HB3   | 2.20                     | 0.41              |
| 8:FH:45:LYS:H      | 8:FH:45:LYS:HG2    | 1.66                     | 0.41              |
| 12:FM:13:VAL:CG1   | 12:FM:14:ASN:N     | 2.83                     | 0.41              |
| 13:FN:118:PHE:CE2  | 13:FN:138:PHE:HE2  | 2.38                     | 0.41              |
| 17:FT:48:LYS:O     | 17:FT:55:LYS:NZ    | 2.54                     | 0.41              |
| 20:G2:95:C:O2'     | 20:G2:96:A:H8      | 2.03                     | 0.41              |
| 21:G3:4:G:C2'      | 21:G3:5:U:H5'      | 2.51                     | 0.41              |
| 21:G3:42:A:N9      | 25:GD:72:ARG:NH1   | 2.69                     | 0.41              |
| 21:G3:43:A:OP1     | 25:GD:137:ARG:CD   | 2.61                     | 0.41              |
| 21:G3:116:A:C4'    | 34:GM:260:ARG:NH2  | 2.83                     | 0.41              |
| 23:GB:32:PHE:CD2   | 23:GB:44:THR:HG21  | 2.55                     | 0.41              |
| 23:GB:32:PHE:O     | 23:GB:33:PRO:C     | 2.64                     | 0.41              |
| 23:GB:299:THR:HG22 | 23:GB:300:ASP:N    | 2.34                     | 0.41              |
| 24:GC:65:MET:HE1   | 24:GC:105:ARG:HH11 | 1.82                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:GC:106:MET:HE3  | 1:H1:1455:G:N3     | 2.36                     | 0.41              |
| 24:GC:254:ARG:HG2  | 24:GC:255:PHE:N    | 2.36                     | 0.41              |
| 24:GC:310:VAL:HG12 | 24:GC:311:ALA:N    | 2.35                     | 0.41              |
| 25:GD:138:VAL:HG13 | 25:GD:141:ARG:NH2  | 2.35                     | 0.41              |
| 26:GE:141:THR:CG2  | 26:GE:142:LEU:N    | 2.80                     | 0.41              |
| 27:GF:48:PRO:O     | 27:GF:49:ARG:C     | 2.63                     | 0.41              |
| 30:GI:36:ARG:HG3   | 30:GI:107:ILE:HD11 | 2.03                     | 0.41              |
| 30:GI:193:LEU:HD21 | 6:HF:114:LEU:HB3   | 2.03                     | 0.41              |
| 31:GJ:87:ARG:HD2   | 31:GJ:88:PRO:CD    | 2.48                     | 0.41              |
| 31:GJ:117:GLN:HG2  | 9:HJ:146:VAL:CG2   | 2.51                     | 0.41              |
| 32:GK:15:VAL:HG21  | 32:GK:21:ARG:HH21  | 1.86                     | 0.41              |
| 32:GK:17:HIS:CE1   | 1:H1:685:G:H5''    | 2.55                     | 0.41              |
| 32:GK:35:GLY:C     | 32:GK:37:ALA:H     | 2.28                     | 0.41              |
| 32:GK:43:HIS:O     | 32:GK:44:ARG:C     | 2.62                     | 0.41              |
| 33:GL:11:TRP:HH2   | 33:GL:26:ARG:NH1   | 2.18                     | 0.41              |
| 33:GL:188:ARG:HH21 | 1:H1:279:U:C5'     | 2.33                     | 0.41              |
| 38:GQ:49:TYR:HD1   | 38:GQ:58:ARG:NH1   | 2.18                     | 0.41              |
| 39:GR:121:LEU:HD11 | 1:H1:1548:U:H3'    | 2.01                     | 0.41              |
| 41:GT:33:PHE:HZ    | 41:GT:42:SER:HG    | 1.64                     | 0.41              |
| 42:GU:61:ILE:HD13  | 42:GU:61:ILE:HA    | 1.88                     | 0.41              |
| 44:GW:22:ILE:HD13  | 44:GW:30:ARG:CG    | 2.34                     | 0.41              |
| 44:GW:32:ILE:HD13  | 1:H1:1485:C:H5'    | 2.01                     | 0.41              |
| 46:GY:12:ARG:NH1   | 1:H1:1951:G:O2'    | 2.50                     | 0.41              |
| 1:H1:45:C:OP2      | 1:H1:46:A:O2'      | 2.29                     | 0.41              |
| 1:H1:122:U:H4'     | 1:H1:150:A:C1'     | 2.51                     | 0.41              |
| 1:H1:147:U:C4'     | 1:H1:148:G:OP2     | 2.65                     | 0.41              |
| 1:H1:165:C:H5''    | 18:HU:132:LYS:CE   | 2.50                     | 0.41              |
| 1:H1:168:G:H2'     | 1:H1:169:A:OP2     | 2.21                     | 0.41              |
| 1:H1:371:A:C6      | 1:H1:372:A:C6      | 3.08                     | 0.41              |
| 1:H1:434:A:C4'     | 1:H1:435:A:OP1     | 2.67                     | 0.41              |
| 1:H1:452:U:HO2'    | 1:H1:453:A:H8      | 1.68                     | 0.41              |
| 1:H1:452:U:O5'     | 1:H1:452:U:H6      | 2.03                     | 0.41              |
| 1:H1:838:G:C4      | 1:H1:839:U:C5      | 3.09                     | 0.41              |
| 1:H1:1026:C:H5'    | 1:H1:1027:G:H5'    | 2.02                     | 0.41              |
| 1:H1:1045:G:C4     | 1:H1:1046:G:C8     | 3.08                     | 0.41              |
| 1:H1:1058:C:C2     | 1:H1:1059:U:C6     | 3.08                     | 0.41              |
| 1:H1:1070:U:C2'    | 1:H1:1071:C:O5'    | 2.69                     | 0.41              |
| 1:H1:1140:G:H4'    | 1:H1:1397:G:H5'    | 2.02                     | 0.41              |
| 1:H1:1186:A:O2'    | 1:H1:1187:C:P      | 2.77                     | 0.41              |
| 1:H1:1223:U:O2     | 1:H1:1223:U:C2'    | 2.57                     | 0.41              |
| 1:H1:1720:A:O2'    | 11:HL:33:GLN:NE2   | 2.49                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2189:G:H1'    | 1:H1:2269:U:C2     | 2.56                     | 0.41              |
| 1:H1:2307:A:H5''   | 50:H1:4239:HOH:O   | 2.20                     | 0.41              |
| 1:H1:2435:A:C2     | 1:H1:2503:U:C2     | 3.08                     | 0.41              |
| 1:H1:2630:U:H5''   | 1:H1:2631:A:OP1    | 2.20                     | 0.41              |
| 1:H1:2631:A:C5'    | 17:HT:7:SER:HB3    | 2.50                     | 0.41              |
| 1:H1:2644:U:O2'    | 4:HC:5:PRO:HG3     | 2.21                     | 0.41              |
| 1:H1:2733:C:H2'    | 1:H1:2734:G:C8     | 2.56                     | 0.41              |
| 1:H1:3102:A:N1     | 1:H1:3103:A:C2     | 2.88                     | 0.41              |
| 1:H1:3156:A:H4'    | 1:H1:3159:A:C5     | 2.56                     | 0.41              |
| 1:H1:3198:A:C6     | 1:H1:3199:G:C5     | 3.08                     | 0.41              |
| 1:H1:3228:U:H5''   | 1:H1:3229:C:C5'    | 2.49                     | 0.41              |
| 1:H1:3230:G:HO2'   | 1:H1:3231:U:P      | 2.39                     | 0.41              |
| 1:H1:3308:A:H2'    | 1:H1:3309:U:C6     | 2.56                     | 0.41              |
| 2:HA:8:PHE:N       | 2:HA:8:PHE:CD1     | 2.86                     | 0.41              |
| 5:HE:45:ILE:O      | 5:HE:45:ILE:HG23   | 2.19                     | 0.41              |
| 5:HE:90:VAL:HG13   | 5:HE:91:ASN:N      | 2.35                     | 0.41              |
| 7:HG:62:LEU:HD23   | 13:HN:4:PHE:CD2    | 2.56                     | 0.41              |
| 10:HK:105:PRO:C    | 10:HK:106:LYS:HG2  | 2.45                     | 0.41              |
| 12:HM:96:TYR:HD1   | 12:HM:110:PHE:HD1  | 1.68                     | 0.41              |
| 13:HN:10:VAL:CG1   | 13:HN:85:TYR:HB2   | 2.51                     | 0.41              |
| 14:HO:52:GLY:CA    | 14:HO:118:ASN:HD21 | 2.27                     | 0.41              |
| 18:HU:74:THR:CB    | 18:HU:101:ASN:HD21 | 2.33                     | 0.41              |
| 18:HU:123:LEU:HD23 | 18:HU:136:VAL:HG23 | 2.03                     | 0.41              |
| 1:A1:340:G:C5'     | 1:A1:343:A:H1'     | 2.51                     | 0.41              |
| 1:A1:583:G:N3      | 1:A1:585:A:OP2     | 2.54                     | 0.41              |
| 1:A1:615:G:N2      | 8:AH:79:LYS:NZ     | 2.68                     | 0.41              |
| 1:A1:634:G:C6      | 24:BC:319:ARG:NH2  | 2.89                     | 0.41              |
| 1:A1:790:C:HO2'    | 1:A1:791:C:H5      | 1.58                     | 0.41              |
| 1:A1:861:A:N6      | 1:A1:882:G:H1'     | 2.35                     | 0.41              |
| 1:A1:1141:U:C4     | 1:A1:1142:G:N2     | 2.88                     | 0.41              |
| 1:A1:1414:C:N3     | 1:A1:1415:C:C5     | 2.88                     | 0.41              |
| 1:A1:1617:G:H4'    | 1:A1:1618:A:OP2    | 2.19                     | 0.41              |
| 1:A1:1660:U:O2'    | 13:AN:79:HIS:CD2   | 2.72                     | 0.41              |
| 1:A1:1926:G:C6     | 1:A1:1927:U:C2     | 3.08                     | 0.41              |
| 1:A1:2596:G:C6     | 1:A1:2597:G:C5     | 3.09                     | 0.41              |
| 1:A1:2771:U:C5     | 1:A1:2772:U:C5     | 3.08                     | 0.41              |
| 1:A1:3007:G:H2'    | 1:A1:3008:U:O5'    | 2.20                     | 0.41              |
| 1:A1:3011:G:C1'    | 1:A1:3012:U:OP2    | 2.67                     | 0.41              |
| 1:A1:3305:A:H8     | 1:A1:3305:A:O5'    | 2.04                     | 0.41              |
| 1:A1:3308:A:H2'    | 1:A1:3309:U:C6     | 2.56                     | 0.41              |
| 4:AC:40:ARG:O      | 4:AC:41:TYR:C      | 2.62                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 6:AF:49:PRO:C      | 6:AF:51:ARG:N      | 2.77                     | 0.41              |
| 6:AF:111:VAL:CG2   | 30:BI:196:PHE:CE1  | 3.01                     | 0.41              |
| 7:AG:64:GLN:OE1    | 7:AG:64:GLN:HA     | 2.21                     | 0.41              |
| 12:AM:74:SER:OG    | 12:AM:76:ARG:HB2   | 2.21                     | 0.41              |
| 13:AN:23:ALA:HB1   | 13:AN:43:VAL:CG1   | 2.44                     | 0.41              |
| 18:AU:123:LEU:O    | 18:AU:125:PRO:HD3  | 2.21                     | 0.41              |
| 18:AU:154:VAL:N    | 18:AU:155:PRO:CD   | 2.84                     | 0.41              |
| 19:AX:96:GLN:CB    | 19:AX:134:THR:HG21 | 2.50                     | 0.41              |
| 20:B2:103:U:C4     | 20:B2:104:G:C6     | 3.08                     | 0.41              |
| 21:B3:15:U:H1'     | 34:BM:13:PHE:CE2   | 2.55                     | 0.41              |
| 21:B3:28:C:H5''    | 25:BD:137:ARG:HG2  | 2.03                     | 0.41              |
| 21:B3:63:A:C2      | 29:BH:202:GLU:CB   | 3.02                     | 0.41              |
| 21:B3:90:A:C2      | 29:BH:162:ARG:NH2  | 2.86                     | 0.41              |
| 23:BB:46:PHE:HD1   | 23:BB:206:ILE:HD12 | 1.82                     | 0.41              |
| 23:BB:76:VAL:HG22  | 23:BB:322:ILE:O    | 2.21                     | 0.41              |
| 23:BB:196:LEU:O    | 23:BB:199:LYS:HB2  | 2.20                     | 0.41              |
| 24:BC:107:PHE:CD2  | 24:BC:107:PHE:C    | 2.99                     | 0.41              |
| 24:BC:300:ASN:HA   | 24:BC:305:GLN:HE21 | 1.86                     | 0.41              |
| 30:BI:35:VAL:CG1   | 30:BI:106:GLY:O    | 2.69                     | 0.41              |
| 32:BK:77:ILE:HA    | 32:BK:80:LEU:HD12  | 2.03                     | 0.41              |
| 34:BM:135:ASP:O    | 34:BM:137:LYS:HG3  | 2.21                     | 0.41              |
| 35:BN:18:ARG:HH12  | 35:BN:56:SER:HA    | 1.86                     | 0.41              |
| 35:BN:167:VAL:HG13 | 35:BN:169:SER:O    | 2.20                     | 0.41              |
| 38:BQ:45:ASN:HD22  | 38:BQ:45:ASN:HA    | 1.71                     | 0.41              |
| 40:BS:73:TYR:HD1   | 40:BS:76:LYS:HB2   | 1.81                     | 0.41              |
| 40:BS:98:LEU:HD23  | 40:BS:98:LEU:HA    | 1.70                     | 0.41              |
| 41:BT:16:TYR:HB3   | 41:BT:17:PRO:HD2   | 2.03                     | 0.41              |
| 43:BV:74:VAL:HA    | 43:BV:75:PRO:HD2   | 1.86                     | 0.41              |
| 45:BX:36:ARG:HA    | 45:BX:37:PRO:HD2   | 1.80                     | 0.41              |
| 46:BY:10:ILE:O     | 46:BY:13:LYS:HG2   | 2.20                     | 0.41              |
| 20:C2:60:C:C5      | 2:DA:64:ARG:NH1    | 2.88                     | 0.41              |
| 21:C3:33:U:N3      | 34:CM:212:TYR:CD1  | 2.89                     | 0.41              |
| 21:C3:88:G:C6      | 21:C3:89:G:C4      | 3.09                     | 0.41              |
| 23:CB:230:ARG:HG2  | 23:CB:231:PHE:CE1  | 2.56                     | 0.41              |
| 24:CC:2:THR:CG2    | 24:CC:30:THR:HG23  | 2.51                     | 0.41              |
| 24:CC:25:LEU:HA    | 24:CC:26:PRO:HD2   | 1.85                     | 0.41              |
| 24:CC:55:VAL:O     | 24:CC:56:LYS:C     | 2.64                     | 0.41              |
| 24:CC:187:ARG:O    | 24:CC:188:VAL:C    | 2.62                     | 0.41              |
| 26:CE:26:GLU:HG2   | 26:CE:35:LYS:HB3   | 2.01                     | 0.41              |
| 27:CF:19:ASN:CB    | 27:CF:20:PRO:CD    | 2.93                     | 0.41              |
| 27:CF:45:VAL:HB    | 27:CF:47:TRP:CZ2   | 2.56                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 27:CF:82:SER:HB2   | 27:CF:86:PHE:CE2   | 2.56                     | 0.41              |
| 27:CF:92:TYR:CE2   | 27:CF:123:ILE:HG21 | 2.50                     | 0.41              |
| 27:CF:127:TYR:CZ   | 1:D1:117:G:N2      | 2.89                     | 0.41              |
| 27:CF:155:LEU:HD13 | 1:D1:147:U:C1'     | 2.49                     | 0.41              |
| 29:CH:34:TYR:HD2   | 29:CH:89:CYS:HB3   | 1.85                     | 0.41              |
| 32:CK:110:PHE:HD2  | 32:CK:128:LYS:HD2  | 1.84                     | 0.41              |
| 34:CM:76:CYS:O     | 34:CM:105:LEU:HD11 | 2.20                     | 0.41              |
| 34:CM:136:GLN:CB   | 34:CM:141:PRO:HD3  | 2.51                     | 0.41              |
| 38:CQ:29:LYS:H     | 38:CQ:29:LYS:HG2   | 1.42                     | 0.41              |
| 42:CU:98:LYS:NZ    | 1:D1:242:G:OP1     | 2.51                     | 0.41              |
| 1:D1:155:A:H1'     | 16:DQ:27:ALA:HB3   | 2.02                     | 0.41              |
| 1:D1:220:C:C4'     | 1:D1:221:A:OP2     | 2.57                     | 0.41              |
| 1:D1:687:C:N3      | 1:D1:688:U:C5      | 2.89                     | 0.41              |
| 1:D1:792:G:C2      | 1:D1:793:A:C4      | 3.08                     | 0.41              |
| 1:D1:824:G:H2'     | 1:D1:825:G:OP1     | 2.20                     | 0.41              |
| 1:D1:969:C:H2'     | 1:D1:970:C:H6      | 1.85                     | 0.41              |
| 1:D1:1398:G:H2'    | 1:D1:1399:A:O5'    | 2.21                     | 0.41              |
| 1:D1:1507:A:C2     | 11:DL:2:ALA:HB3    | 2.55                     | 0.41              |
| 1:D1:1608:G:C2'    | 1:D1:1609:U:O5'    | 2.68                     | 0.41              |
| 1:D1:1618:A:H4'    | 11:DL:62:ALA:HB1   | 2.02                     | 0.41              |
| 1:D1:1643:G:H5'    | 1:D1:1643:G:H8     | 1.86                     | 0.41              |
| 1:D1:1747:A:N1     | 1:D1:1814:U:O2'    | 2.37                     | 0.41              |
| 1:D1:1926:G:OP2    | 1:D1:2907:A:OP1    | 2.38                     | 0.41              |
| 1:D1:2559:U:O2     | 1:D1:2561:A:N1     | 2.54                     | 0.41              |
| 1:D1:2987:A:H2'    | 1:D1:2988:U:O4'    | 2.21                     | 0.41              |
| 1:D1:2989:G:C8     | 50:D1:5017:HOH:O   | 2.73                     | 0.41              |
| 1:D1:3020:G:C2'    | 1:D1:3021:A:H5''   | 2.50                     | 0.41              |
| 1:D1:3175:A:C2     | 1:D1:3177:G:C5     | 3.08                     | 0.41              |
| 4:DC:10:THR:HG23   | 4:DC:11:TYR:N      | 2.35                     | 0.41              |
| 7:DG:62:LEU:HD23   | 13:DN:4:PHE:CE2    | 2.55                     | 0.41              |
| 9:DJ:39:GLU:O      | 9:DJ:43:VAL:HB     | 2.20                     | 0.41              |
| 9:DJ:97:ILE:HD12   | 9:DJ:104:LEU:HD13  | 2.01                     | 0.41              |
| 9:DJ:167:VAL:HG21  | 1:F1:2108:A:H61    | 1.85                     | 0.41              |
| 21:E3:7:G:H4'      | 34:EM:33:ARG:NH2   | 2.35                     | 0.41              |
| 21:E3:11:A:H8      | 34:EM:18:THR:HG21  | 1.85                     | 0.41              |
| 23:EB:377:PHE:CZ   | 41:ET:13:TYR:HE1   | 2.38                     | 0.41              |
| 24:EC:89:THR:HG21  | 1:F1:363:G:O2'     | 2.21                     | 0.41              |
| 24:EC:107:PHE:CD2  | 24:EC:107:PHE:C    | 2.97                     | 0.41              |
| 24:EC:287:ARG:CD   | 35:EN:111:ARG:HH12 | 2.30                     | 0.41              |
| 24:EC:364:LYS:O    | 24:EC:365:ALA:C    | 2.62                     | 0.41              |
| 27:EF:37:PRO:HG2   | 27:EF:39:ARG:HE    | 1.86                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 28:EG:11:UNK:O     | 28:EG:15:UNK:CG    | 2.64                     | 0.41              |
| 28:EG:57:UNK:HG3   | 28:EG:58:UNK:N     | 2.35                     | 0.41              |
| 30:EI:26:LEU:CD2   | 30:EI:100:ARG:HB2  | 2.50                     | 0.41              |
| 32:EK:76:ASN:OD1   | 32:EK:115:LYS:HB2  | 2.20                     | 0.41              |
| 34:EM:240:VAL:HG12 | 34:EM:241:ASP:N    | 2.35                     | 0.41              |
| 34:EM:277:PHE:C    | 34:EM:279:PRO:HD3  | 2.45                     | 0.41              |
| 35:EN:45:PHE:CE1   | 35:EN:139:LEU:HB2  | 2.48                     | 0.41              |
| 35:EN:158:GLN:CD   | 50:EN:307:HOH:O    | 2.62                     | 0.41              |
| 36:EO:55:THR:HG22  | 36:EO:56:VAL:N     | 2.36                     | 0.41              |
| 37:EP:141:VAL:O    | 43:EV:71:ALA:HB1   | 2.21                     | 0.41              |
| 40:ES:33:HIS:O     | 40:ES:104:VAL:HA   | 2.21                     | 0.41              |
| 40:ES:55:VAL:HG22  | 40:ES:105:LEU:CD2  | 2.44                     | 0.41              |
| 42:EU:122:LEU:HD12 | 18:FU:48:PRO:HB3   | 2.02                     | 0.41              |
| 42:EU:122:LEU:HD21 | 18:FU:117:TYR:CE1  | 2.56                     | 0.41              |
| 1:F1:406:A:C8      | 1:F1:407:C:C5      | 3.08                     | 0.41              |
| 1:F1:792:G:H2'     | 1:F1:793:A:H8      | 1.86                     | 0.41              |
| 1:F1:801:U:H5'     | 17:FT:37:PRO:CB    | 2.50                     | 0.41              |
| 1:F1:997:G:H4'     | 1:F1:1399:A:H4'    | 2.02                     | 0.41              |
| 1:F1:1074:A:OP1    | 1:F1:1075:C:H5'    | 2.21                     | 0.41              |
| 1:F1:1107:A:C5     | 1:F1:1108:A:C5     | 3.09                     | 0.41              |
| 1:F1:1117:U:O2     | 1:F1:1117:U:H2'    | 2.21                     | 0.41              |
| 1:F1:1173:A:H4'    | 1:F1:1358:U:C4     | 2.56                     | 0.41              |
| 1:F1:1594:C:N4     | 1:F1:1595:A:N7     | 2.68                     | 0.41              |
| 1:F1:1747:A:N1     | 1:F1:1814:U:O2'    | 2.47                     | 0.41              |
| 1:F1:2134:A:O2'    | 2:FA:2:THR:HA      | 2.21                     | 0.41              |
| 1:F1:2303:C:OP1    | 1:F1:2304:A:C2'    | 2.68                     | 0.41              |
| 1:F1:2392:A:H8     | 1:F1:2929:A:N1     | 2.17                     | 0.41              |
| 1:F1:3106:C:C3'    | 1:F1:3107:C:C5'    | 2.98                     | 0.41              |
| 1:F1:3111:A:H2'    | 1:F1:3112:A:H5''   | 2.03                     | 0.41              |
| 1:F1:3140:C:H4'    | 1:F1:3254:A:C1'    | 2.50                     | 0.41              |
| 2:FA:2:THR:HG22    | 2:FA:4:GLY:H       | 1.86                     | 0.41              |
| 6:FF:3:PHE:CE1     | 19:FX:164:PRO:HB3  | 2.56                     | 0.41              |
| 8:FH:37:LEU:CD1    | 8:FH:89:ALA:HB2    | 2.51                     | 0.41              |
| 9:FJ:23:TYR:HA     | 9:FJ:46:ILE:HG21   | 1.99                     | 0.41              |
| 12:FM:42:LYS:HD3   | 12:FM:42:LYS:HA    | 1.85                     | 0.41              |
| 13:FN:10:VAL:CG1   | 13:FN:85:TYR:HB2   | 2.51                     | 0.41              |
| 18:FU:183:GLN:O    | 18:FU:187:ASN:ND2  | 2.53                     | 0.41              |
| 19:FX:143:LEU:CD1  | 19:FX:148:ILE:HG22 | 2.50                     | 0.41              |
| 22:GA:114:VAL:HG11 | 22:GA:165:ALA:CB   | 2.35                     | 0.41              |
| 23:GB:39:LYS:C     | 23:GB:40:LYS:O     | 2.61                     | 0.41              |
| 24:GC:172:ALA:O    | 24:GC:175:PHE:HB3  | 2.20                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 27:GF:27:ARG:HB3   | 27:GF:29:PHE:CE1  | 2.56                     | 0.41              |
| 28:GG:28:UNK:N     | 28:GG:112:UNK:O   | 2.53                     | 0.41              |
| 30:GI:139:ASP:O    | 30:GI:142:ALA:HB3 | 2.21                     | 0.41              |
| 30:GI:140:LEU:HD12 | 30:GI:140:LEU:HA  | 1.84                     | 0.41              |
| 32:GK:46:LEU:CD1   | 18:HU:1:MET:HG2   | 2.48                     | 0.41              |
| 33:GL:129:PHE:CD1  | 33:GL:129:PHE:N   | 2.88                     | 0.41              |
| 34:GM:11:ALA:O     | 34:GM:12:TYR:C    | 2.63                     | 0.41              |
| 34:GM:54:ARG:CZ    | 34:GM:149:GLY:HA3 | 2.50                     | 0.41              |
| 34:GM:140:LYS:NZ   | 1:H1:1108:A:P     | 2.94                     | 0.41              |
| 39:GR:75:LEU:HD12  | 39:GR:91:VAL:CG1  | 2.51                     | 0.41              |
| 39:GR:143:LEU:HG   | 39:GR:147:ILE:CD1 | 2.50                     | 0.41              |
| 41:GT:11:CYS:HA    | 41:GT:54:THR:HG23 | 2.03                     | 0.41              |
| 43:GV:108:LEU:O    | 43:GV:109:HIS:HB2 | 2.20                     | 0.41              |
| 43:GV:157:ARG:HG3  | 43:GV:200:TRP:CD2 | 2.56                     | 0.41              |
| 43:GV:227:ARG:HB3  | 43:GV:230:TYR:HB2 | 2.03                     | 0.41              |
| 1:H1:249:G:O6      | 18:HU:126:ARG:NH1 | 2.53                     | 0.41              |
| 1:H1:578:G:O2'     | 1:H1:579:G:H5''   | 2.20                     | 0.41              |
| 1:H1:583:G:C4      | 1:H1:585:A:OP2    | 2.73                     | 0.41              |
| 1:H1:632:G:C6      | 1:H1:633:C:C4     | 3.09                     | 0.41              |
| 1:H1:643:A:O2'     | 1:H1:644:A:P      | 2.75                     | 0.41              |
| 1:H1:726:G:O2'     | 1:H1:727:C:H5'    | 2.21                     | 0.41              |
| 1:H1:765:A:C6      | 1:H1:766:G:C2     | 3.08                     | 0.41              |
| 1:H1:821:U:H6      | 1:H1:821:U:C5'    | 2.30                     | 0.41              |
| 1:H1:949:G:N7      | 1:H1:2797:C:H1'   | 2.36                     | 0.41              |
| 1:H1:969:C:H2'     | 1:H1:970:C:H6     | 1.84                     | 0.41              |
| 1:H1:1171:U:H6     | 1:H1:1171:U:H2'   | 1.69                     | 0.41              |
| 1:H1:1215:U:C2     | 1:H1:1344:A:N6    | 2.88                     | 0.41              |
| 1:H1:1217:A:C4     | 1:H1:1220:A:H1'   | 2.56                     | 0.41              |
| 1:H1:1241:U:H2'    | 1:H1:1242:U:H6    | 1.85                     | 0.41              |
| 1:H1:1344:A:O2'    | 1:H1:1345:A:H3'   | 2.20                     | 0.41              |
| 1:H1:1396:A:H2'    | 1:H1:1397:G:O4'   | 2.21                     | 0.41              |
| 1:H1:1775:A:C8     | 1:H1:1777:A:C8    | 3.09                     | 0.41              |
| 1:H1:1839:A:O2'    | 1:H1:1840:U:C6    | 2.73                     | 0.41              |
| 1:H1:2248:G:H2'    | 1:H1:2249:U:O4'   | 2.20                     | 0.41              |
| 1:H1:2508:U:H2'    | 1:H1:2581:G:N1    | 2.33                     | 0.41              |
| 1:H1:2887:C:O2'    | 1:H1:2889:G:OP2   | 2.35                     | 0.41              |
| 1:H1:3151:G:H2'    | 1:H1:3152:A:C8    | 2.55                     | 0.41              |
| 1:H1:3344:U:O2     | 1:H1:3344:U:H2'   | 2.19                     | 0.41              |
| 5:HE:88:LYS:HG3    | 5:HE:89:ARG:C     | 2.46                     | 0.41              |
| 9:HJ:5:CYS:SG      | 9:HJ:13:ILE:CD1   | 3.07                     | 0.41              |
| 13:HN:26:VAL:HG22  | 13:HN:93:PHE:HB3  | 2.01                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 15:HP:12:MET:O    | 15:HP:16:GLN:CG   | 2.66                     | 0.41              |
| 16:HQ:46:ARG:HH22 | 16:HQ:55:GLU:CD   | 2.29                     | 0.41              |
| 1:A1:33:A:H2'     | 1:A1:34:C:H6      | 1.86                     | 0.41              |
| 1:A1:39:G:C2'     | 1:A1:40:C:H5'     | 2.51                     | 0.41              |
| 1:A1:210:A:H4'    | 1:A1:211:A:OP2    | 2.21                     | 0.41              |
| 1:A1:581:C:H2'    | 1:A1:582:A:C4'    | 2.49                     | 0.41              |
| 1:A1:655:A:H1'    | 8:AH:97:PRO:HG2   | 2.03                     | 0.41              |
| 1:A1:680:A:N6     | 1:A1:681:A:N6     | 2.68                     | 0.41              |
| 1:A1:800:G:C4'    | 1:A1:801:U:OP1    | 2.63                     | 0.41              |
| 1:A1:905:G:H5''   | 38:BQ:134:ALA:HB2 | 1.94                     | 0.41              |
| 1:A1:1107:A:C6    | 1:A1:1108:A:C5    | 3.09                     | 0.41              |
| 1:A1:1350:G:H4'   | 19:AX:16:MET:SD   | 2.60                     | 0.41              |
| 1:A1:1507:A:O2'   | 1:A1:1882:A:N3    | 2.49                     | 0.41              |
| 1:A1:1598:C:C5    | 1:A1:1599:G:C8    | 3.07                     | 0.41              |
| 1:A1:1635:U:H2'   | 1:A1:1636:C:C6    | 2.56                     | 0.41              |
| 1:A1:1865:A:C6    | 1:A1:1872:U:N3    | 2.89                     | 0.41              |
| 1:A1:1868:C:O2    | 2:AA:9:GLY:HA2    | 2.21                     | 0.41              |
| 1:A1:2189:G:C2'   | 1:A1:2190:C:H5'   | 2.51                     | 0.41              |
| 1:A1:2245:G:H2'   | 1:A1:2246:G:C8    | 2.55                     | 0.41              |
| 1:A1:2292:U:C2    | 1:A1:2294:A:C6    | 3.09                     | 0.41              |
| 1:A1:2429:U:C4'   | 1:A1:2430:G:O5'   | 2.69                     | 0.41              |
| 1:A1:2576:C:C3'   | 1:A1:2577:G:H5'   | 2.51                     | 0.41              |
| 1:A1:3073:U:H2'   | 1:A1:3074:G:H5'   | 2.02                     | 0.41              |
| 1:A1:3129:G:H8    | 1:A1:3129:G:O5'   | 2.04                     | 0.41              |
| 1:A1:3137:U:O2'   | 1:A1:3138:G:H5'   | 2.21                     | 0.41              |
| 1:A1:3144:G:C2    | 1:A1:3249:U:O2    | 2.73                     | 0.41              |
| 1:A1:3223:G:C2'   | 1:A1:3224:C:O5'   | 2.69                     | 0.41              |
| 1:A1:3268:C:N4    | 1:A1:3269:G:C6    | 2.88                     | 0.41              |
| 3:AB:23:LEU:HD22  | 3:AB:35:ILE:HG22  | 2.02                     | 0.41              |
| 7:AG:11:GLN:CG    | 7:AG:12:SER:N     | 2.83                     | 0.41              |
| 7:AG:73:SER:O     | 7:AG:74:ASN:C     | 2.63                     | 0.41              |
| 12:AM:52:LEU:HD23 | 12:AM:52:LEU:HA   | 1.85                     | 0.41              |
| 13:AN:33:THR:HB   | 13:AN:35:ASP:N    | 2.35                     | 0.41              |
| 15:AP:47:LYS:HD3  | 15:AP:47:LYS:HA   | 1.64                     | 0.41              |
| 16:AQ:78:ARG:HG3  | 16:AQ:84:HIS:HA   | 2.03                     | 0.41              |
| 17:AT:18:ARG:HH11 | 17:AT:18:ARG:HD3  | 1.69                     | 0.41              |
| 19:AX:16:MET:CG   | 19:AX:17:LYS:N    | 2.83                     | 0.41              |
| 20:B2:93:A:H2'    | 20:B2:94:U:H6     | 1.85                     | 0.41              |
| 22:BA:6:ARG:O     | 22:BA:7:ALA:C     | 2.63                     | 0.41              |
| 22:BA:81:GLU:OE1  | 46:BY:73:THR:OG1  | 2.34                     | 0.41              |
| 23:BB:27:GLY:HA2  | 23:BB:272:HIS:CE1 | 2.50                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 23:BB:86:ILE:CG1   | 23:BB:158:VAL:HG11 | 2.51                     | 0.41              |
| 28:BG:94:UNK:O     | 28:BG:98:UNK:HG2   | 2.20                     | 0.41              |
| 30:BI:27:LEU:HD23  | 30:BI:27:LEU:HA    | 1.78                     | 0.41              |
| 32:BK:7:LYS:O      | 32:BK:8:THR:C      | 2.63                     | 0.41              |
| 34:BM:164:LYS:HA   | 34:BM:167:CYS:SG   | 2.61                     | 0.41              |
| 35:BN:63:LEU:HD12  | 35:BN:63:LEU:HA    | 1.63                     | 0.41              |
| 35:BN:68:ILE:HG13  | 35:BN:68:ILE:H     | 1.57                     | 0.41              |
| 40:BS:80:HIS:ND1   | 40:BS:95:GLN:CB    | 2.78                     | 0.41              |
| 41:BT:11:CYS:HA    | 41:BT:54:THR:HG23  | 2.03                     | 0.41              |
| 20:C2:45:G:H2'     | 20:C2:46:A:H5'     | 2.03                     | 0.41              |
| 20:C2:52:G:C6      | 20:C2:80:A:C2      | 3.09                     | 0.41              |
| 21:C3:119:C:C2'    | 34:CM:270:PRO:HG2  | 2.47                     | 0.41              |
| 23:CB:230:ARG:HG2  | 23:CB:231:PHE:CZ   | 2.56                     | 0.41              |
| 24:CC:126:ARG:CB   | 24:CC:283:TYR:CE2  | 3.01                     | 0.41              |
| 24:CC:289:LEU:O    | 35:CN:123:THR:OG1  | 2.39                     | 0.41              |
| 25:CD:20:ASN:ND2   | 1:D1:2671:C:O4'    | 2.52                     | 0.41              |
| 26:CE:97:PHE:CE2   | 1:D1:3013:A:H4'    | 2.56                     | 0.41              |
| 26:CE:141:THR:CG2  | 26:CE:142:LEU:N    | 2.84                     | 0.41              |
| 28:CG:109:UNK:CG   | 28:CG:111:UNK:HG3  | 2.48                     | 0.41              |
| 29:CH:9:TYR:CG     | 29:CH:97:LEU:HD13  | 2.56                     | 0.41              |
| 29:CH:91:VAL:CG1   | 29:CH:127:ALA:HB1  | 2.51                     | 0.41              |
| 30:CI:21:TYR:CE2   | 30:CI:121:ASP:HB3  | 2.55                     | 0.41              |
| 31:CJ:9:GLY:HA3    | 31:CJ:110:LYS:O    | 2.21                     | 0.41              |
| 31:CJ:122:VAL:O    | 31:CJ:140:VAL:HA   | 2.19                     | 0.41              |
| 32:CK:19:HIS:HD2   | 1:D1:685:G:O6      | 2.03                     | 0.41              |
| 32:CK:39:GLY:HA3   | 32:CK:55:TYR:OH    | 2.20                     | 0.41              |
| 32:CK:46:LEU:CD1   | 18:DU:1:MET:HG2    | 2.51                     | 0.41              |
| 33:CL:160:GLU:HG2  | 33:CL:161:LEU:HG   | 2.02                     | 0.41              |
| 33:CL:180:ARG:HH22 | 1:D1:301:A:H5'     | 1.86                     | 0.41              |
| 33:CL:192:TRP:CE2  | 33:CL:196:GLN:HG3  | 2.56                     | 0.41              |
| 47:CO:6:LEU:HD11   | 47:CO:10:LEU:HD11  | 2.01                     | 0.41              |
| 37:CP:15:PHE:CE2   | 37:CP:52:MET:CE    | 3.04                     | 0.41              |
| 1:D1:726:G:O2'     | 1:D1:727:C:H5'     | 2.21                     | 0.41              |
| 1:D1:805:A:C5'     | 1:D1:806:G:OP2     | 2.69                     | 0.41              |
| 1:D1:1038:G:H2'    | 1:D1:1039:G:H8     | 1.84                     | 0.41              |
| 1:D1:1141:U:C4     | 1:D1:1142:G:N2     | 2.88                     | 0.41              |
| 1:D1:1160:A:H2'    | 1:D1:1161:G:H5''   | 2.03                     | 0.41              |
| 1:D1:1414:C:C4     | 1:D1:1415:C:C5     | 3.08                     | 0.41              |
| 1:D1:1620:U:C2     | 1:D1:1621:G:C8     | 3.08                     | 0.41              |
| 1:D1:1969:G:H2'    | 1:D1:1970:A:H8     | 1.86                     | 0.41              |
| 1:D1:2221:U:H2'    | 1:D1:2222:C:H6     | 1.86                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:D1:2296:U:O2'    | 1:D1:2297:G:H5'    | 2.21                     | 0.41              |
| 1:D1:2593:G:N1     | 50:D1:3707:HOH:O   | 2.52                     | 0.41              |
| 1:D1:3137:U:O2'    | 1:D1:3138:G:H5'    | 2.21                     | 0.41              |
| 1:D1:3223:G:C2'    | 1:D1:3224:C:O5'    | 2.69                     | 0.41              |
| 4:DC:11:TYR:CE1    | 4:DC:13:LYS:HA     | 2.56                     | 0.41              |
| 5:DE:56:GLY:N      | 5:DE:59:ARG:HB3    | 2.36                     | 0.41              |
| 5:DE:135:THR:O     | 5:DE:139:LYS:HG3   | 2.19                     | 0.41              |
| 5:DE:187:HIS:CD2   | 8:DH:47:ASP:HB3    | 2.55                     | 0.41              |
| 6:DF:3:PHE:CE1     | 19:DX:164:PRO:CB   | 3.04                     | 0.41              |
| 6:DF:30:ILE:HD13   | 19:DX:163:PHE:CE2  | 2.55                     | 0.41              |
| 6:DF:67:GLN:HE22   | 6:DF:75:LYS:HG3    | 1.86                     | 0.41              |
| 8:DH:57:VAL:HG22   | 8:DH:74:TRP:CH2    | 2.56                     | 0.41              |
| 9:DJ:42:LEU:HD21   | 9:DJ:205:PHE:HE1   | 1.85                     | 0.41              |
| 9:DJ:101:LEU:CD1   | 9:DJ:118:HIS:CD2   | 3.03                     | 0.41              |
| 13:DN:77:LEU:H     | 13:DN:77:LEU:HG    | 1.62                     | 0.41              |
| 22:EA:70:TYR:OH    | 1:F1:2548:G:OP1    | 2.38                     | 0.41              |
| 22:EA:206:ASN:ND2  | 22:EA:206:ASN:H    | 2.18                     | 0.41              |
| 23:EB:27:GLY:HA2   | 23:EB:272:HIS:CE1  | 2.50                     | 0.41              |
| 23:EB:49:PHE:CD2   | 23:EB:333:VAL:HG12 | 2.55                     | 0.41              |
| 23:EB:110:ILE:HG22 | 23:EB:114:THR:CG2  | 2.51                     | 0.41              |
| 23:EB:378:PHE:CD1  | 1:F1:3325:G:N2     | 2.87                     | 0.41              |
| 24:EC:276:THR:HG23 | 24:EC:277:GLY:N    | 2.27                     | 0.41              |
| 25:ED:32:LYS:HB3   | 25:ED:119:SER:O    | 2.21                     | 0.41              |
| 25:ED:109:HIS:O    | 25:ED:112:LEU:HB2  | 2.21                     | 0.41              |
| 26:EE:26:GLU:HG2   | 26:EE:35:LYS:HB3   | 2.02                     | 0.41              |
| 26:EE:82:VAL:O     | 26:EE:82:VAL:HG12  | 2.19                     | 0.41              |
| 27:EF:92:TYR:CE2   | 27:EF:123:ILE:CG2  | 3.01                     | 0.41              |
| 28:EG:5:UNK:C      | 28:EG:7:UNK:N      | 2.81                     | 0.41              |
| 28:EG:58:UNK:HB2   | 1:F1:1308:U:H5''   | 2.02                     | 0.41              |
| 30:EI:24:LYS:O     | 30:EI:25:GLU:C     | 2.64                     | 0.41              |
| 30:EI:148:LYS:O    | 30:EI:149:GLN:C    | 2.63                     | 0.41              |
| 30:EI:196:PHE:CD1  | 30:EI:196:PHE:O    | 2.73                     | 0.41              |
| 32:EK:28:GLY:HA2   | 32:EK:31:ARG:NE    | 2.36                     | 0.41              |
| 33:EL:74:PRO:HA    | 1:F1:2162:A:C1'    | 2.51                     | 0.41              |
| 37:EP:76:VAL:HG12  | 37:EP:77:HIS:H     | 1.83                     | 0.41              |
| 38:EQ:96:LEU:HD23  | 38:EQ:96:LEU:HA    | 1.83                     | 0.41              |
| 38:EQ:134:ALA:HB2  | 1:F1:905:G:H5''    | 2.00                     | 0.41              |
| 40:ES:70:THR:N     | 40:ES:80:HIS:O     | 2.51                     | 0.41              |
| 41:ET:16:TYR:HB3   | 41:ET:17:PRO:HD2   | 2.02                     | 0.41              |
| 43:EV:134:GLY:C    | 43:EV:231:ILE:HG21 | 2.46                     | 0.41              |
| 45:EX:45:ARG:HA    | 45:EX:54:MET:CE    | 2.43                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 45:EX:89:MET:HE2   | 14:FO:31:VAL:O     | 2.21                     | 0.41              |
| 1:F1:139:A:O2'     | 1:F1:140:A:H8      | 2.02                     | 0.41              |
| 1:F1:358:C:N3      | 1:F1:840:G:O2'     | 2.54                     | 0.41              |
| 1:F1:556:A:C6      | 1:F1:557:U:C5      | 3.09                     | 0.41              |
| 1:F1:832:A:N6      | 1:F1:959:G:H22     | 2.19                     | 0.41              |
| 1:F1:987:A:H3'     | 50:F1:4477:HOH:O   | 2.20                     | 0.41              |
| 1:F1:1310:C:C5     | 1:F1:1311:C:C4     | 3.08                     | 0.41              |
| 1:F1:1445:G:C3'    | 1:F1:1446:C:H5''   | 2.49                     | 0.41              |
| 1:F1:1712:U:C4     | 12:FM:80:TYR:HD1   | 2.38                     | 0.41              |
| 1:F1:2117:A:OP1    | 1:F1:2117:A:H4'    | 2.20                     | 0.41              |
| 1:F1:2163:A:H4'    | 50:F1:3622:HOH:O   | 2.20                     | 0.41              |
| 1:F1:2625:A:H5'    | 1:F1:2626:A:H5''   | 1.99                     | 0.41              |
| 1:F1:3223:G:C2'    | 1:F1:3224:C:O5'    | 2.69                     | 0.41              |
| 1:F1:3345:A:OP2    | 1:F1:3345:A:C8     | 2.73                     | 0.41              |
| 50:F1:4257:HOH:O   | 3:FB:9:MET:HE1     | 2.20                     | 0.41              |
| 2:FA:28:HIS:NE2    | 2:FA:31:LYS:HG3    | 2.34                     | 0.41              |
| 6:FF:3:PHE:CD1     | 19:FX:164:PRO:CB   | 3.01                     | 0.41              |
| 8:FH:20:PHE:CE2    | 8:FH:99:ALA:HB3    | 2.56                     | 0.41              |
| 10:FK:79:GLU:O     | 10:FK:82:ILE:N     | 2.49                     | 0.41              |
| 11:FL:20:VAL:HG11  | 11:FL:32:ALA:HB1   | 2.02                     | 0.41              |
| 14:FO:7:GLU:OE1    | 14:FO:7:GLU:HA     | 2.21                     | 0.41              |
| 14:FO:69:LYS:HD3   | 14:FO:71:LYS:O     | 2.21                     | 0.41              |
| 20:G2:107:C:C5     | 20:G2:135:A:C6     | 3.09                     | 0.41              |
| 20:G2:118:G:H2'    | 20:G2:119:A:C8     | 2.56                     | 0.41              |
| 21:G3:1:G:C2       | 34:GM:274:HIS:NE2  | 2.85                     | 0.41              |
| 21:G3:11:A:H8      | 34:GM:18:THR:HG21  | 1.85                     | 0.41              |
| 23:GB:121:ASN:HD21 | 23:GB:124:ASN:HB2  | 1.86                     | 0.41              |
| 23:GB:211:GLU:OE2  | 23:GB:338:LYS:HE2  | 2.20                     | 0.41              |
| 23:GB:356:PHE:CE2  | 23:GB:358:ASP:HA   | 2.55                     | 0.41              |
| 27:GF:127:TYR:CB   | 27:GF:183:VAL:HG11 | 2.51                     | 0.41              |
| 28:GG:94:UNK:O     | 28:GG:98:UNK:HG2   | 2.20                     | 0.41              |
| 29:GH:15:LYS:HA    | 29:GH:16:PRO:HD3   | 1.79                     | 0.41              |
| 30:GI:196:PHE:CE1  | 6:HF:107:ASP:O     | 2.74                     | 0.41              |
| 31:GJ:7:ARG:HB2    | 31:GJ:130:TRP:HH2  | 1.86                     | 0.41              |
| 33:GL:104:GLU:HB2  | 33:GL:161:LEU:CD2  | 2.51                     | 0.41              |
| 34:GM:82:GLU:O     | 34:GM:85:ARG:HB2   | 2.21                     | 0.41              |
| 35:GN:69:VAL:CG2   | 35:GN:93:LEU:HD11  | 2.49                     | 0.41              |
| 36:GO:21:ARG:NH1   | 36:GO:52:LYS:HE3   | 2.36                     | 0.41              |
| 38:GQ:31:THR:O     | 38:GQ:32:TYR:C     | 2.64                     | 0.41              |
| 38:GQ:139:ASN:OD1  | 1:H1:2352:A:H4'    | 2.21                     | 0.41              |
| 39:GR:131:TYR:CD2  | 1:H1:1549:U:C2     | 3.09                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 40:GS:105:LEU:HD13 | 40:GS:108:LEU:HD21 | 2.02                     | 0.41              |
| 42:GU:78:SER:O     | 42:GU:79:LEU:CB    | 2.68                     | 0.41              |
| 45:GX:20:VAL:HG12  | 45:GX:52:ARG:HH12  | 1.85                     | 0.41              |
| 1:H1:74:G:H2'      | 18:HU:98:ARG:HD2   | 2.01                     | 0.41              |
| 1:H1:116:U:C6      | 1:H1:117:G:N7      | 2.88                     | 0.41              |
| 1:H1:469:U:O2      | 1:H1:510:A:N1      | 2.53                     | 0.41              |
| 1:H1:510:A:H5''    | 14:HO:68:HIS:O     | 2.21                     | 0.41              |
| 1:H1:663:G:H4'     | 1:H1:1460:G:O6     | 2.21                     | 0.41              |
| 1:H1:685:G:N9      | 1:H1:827:C:O4'     | 2.54                     | 0.41              |
| 1:H1:729:A:C4'     | 1:H1:810:G:H21     | 2.34                     | 0.41              |
| 1:H1:752:C:C5'     | 1:H1:1002:A:C2     | 3.01                     | 0.41              |
| 1:H1:774:A:C5      | 1:H1:775:C:C5      | 3.09                     | 0.41              |
| 1:H1:792:G:H4'     | 18:HU:190:TRP:CD1  | 2.55                     | 0.41              |
| 1:H1:1200:C:H1'    | 1:H1:1206:A:C4     | 2.56                     | 0.41              |
| 1:H1:1516:A:O2'    | 2:HA:12:HIS:HD2    | 2.04                     | 0.41              |
| 1:H1:1708:U:OP1    | 12:HM:88:LYS:HE2   | 2.21                     | 0.41              |
| 1:H1:2121:A:H2'    | 1:H1:2122:A:O5'    | 2.20                     | 0.41              |
| 1:H1:2125:C:O2'    | 1:H1:2140:A:O4'    | 2.38                     | 0.41              |
| 1:H1:2561:A:C2     | 1:H1:2563:U:C4     | 3.08                     | 0.41              |
| 1:H1:2564:G:C6     | 1:H1:2565:A:C5     | 3.08                     | 0.41              |
| 1:H1:2915:C:H2'    | 1:H1:2916:C:C6     | 2.56                     | 0.41              |
| 1:H1:3230:G:C5     | 5:HE:119:ARG:HD2   | 2.55                     | 0.41              |
| 1:H1:3305:A:H8     | 1:H1:3305:A:O5'    | 2.04                     | 0.41              |
| 1:H1:3346:G:H2'    | 1:H1:3347:A:H8     | 1.85                     | 0.41              |
| 3:HB:7:LEU:HD23    | 3:HB:7:LEU:HA      | 1.64                     | 0.41              |
| 5:HE:78:GLY:O      | 5:HE:79:PRO:C      | 2.56                     | 0.41              |
| 8:HH:14:LEU:O      | 8:HH:107:MET:HE3   | 2.21                     | 0.41              |
| 11:HL:62:ALA:C     | 11:HL:64:TYR:N     | 2.78                     | 0.41              |
| 14:HO:29:PHE:HB2   | 14:HO:41:GLY:HA3   | 2.03                     | 0.41              |
| 18:HU:59:GLN:O     | 18:HU:59:GLN:CG    | 2.67                     | 0.41              |
| 18:HU:74:THR:O     | 18:HU:77:GLU:N     | 2.54                     | 0.41              |
| 18:HU:132:LYS:O    | 18:HU:135:LEU:HD13 | 2.21                     | 0.41              |
| 18:HU:166:VAL:O    | 18:HU:169:ILE:N    | 2.54                     | 0.41              |
| 19:HX:117:VAL:O    | 19:HX:120:LEU:HB3  | 2.21                     | 0.41              |
| 1:A1:26:C:O2'      | 1:A1:59:A:H1'      | 2.21                     | 0.41              |
| 1:A1:64:A:H5'      | 1:A1:315:U:OP1     | 2.21                     | 0.41              |
| 1:A1:64:A:C2       | 1:A1:75:A:H5''     | 2.55                     | 0.41              |
| 1:A1:117:G:N2      | 27:BF:127:TYR:CE2  | 2.89                     | 0.41              |
| 1:A1:147:U:N3      | 27:BF:151:ASP:O    | 2.54                     | 0.41              |
| 1:A1:148:G:O2'     | 1:A1:149:U:O5'     | 2.39                     | 0.41              |
| 1:A1:159:G:C4      | 1:A1:160:G:C8      | 3.09                     | 0.41              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A1:168:G:H2'   | 1:A1:169:A:OP2    | 2.20                     | 0.41              |
| 1:A1:187:A:C4    | 1:A1:211:A:C6     | 3.09                     | 0.41              |
| 1:A1:319:G:OP1   | 33:BL:166:SER:HB3 | 2.21                     | 0.41              |
| 1:A1:399:A:N3    | 1:A1:400:C:N3     | 2.69                     | 0.41              |
| 1:A1:528:C:H6    | 1:A1:528:C:C5'    | 2.30                     | 0.41              |
| 1:A1:589:C:O2'   | 1:A1:590:A:H5'    | 2.20                     | 0.41              |
| 1:A1:698:G:H2'   | 1:A1:699:C:C6     | 2.56                     | 0.41              |
| 1:A1:788:C:C4    | 1:A1:790:C:C6     | 3.09                     | 0.41              |
| 1:A1:977:A:C2'   | 1:A1:978:G:H5''   | 2.51                     | 0.41              |
| 1:A1:1083:U:O2'  | 1:A1:1084:G:H5'   | 2.21                     | 0.41              |
| 1:A1:1133:G:H2'  | 1:A1:1134:C:O4'   | 2.20                     | 0.41              |
| 1:A1:1160:A:H2'  | 1:A1:1161:G:H5''  | 2.02                     | 0.41              |
| 1:A1:1175:G:OP2  | 8:AH:28:HIS:HD2   | 2.03                     | 0.41              |
| 1:A1:1373:G:C5   | 1:A1:1374:C:C5    | 3.08                     | 0.41              |
| 1:A1:1432:G:N2   | 1:A1:1433:A:C2    | 2.89                     | 0.41              |
| 1:A1:1433:A:H3'  | 1:A1:1434:G:O4'   | 2.21                     | 0.41              |
| 1:A1:1531:C:C4   | 1:A1:1532:A:N7    | 2.88                     | 0.41              |
| 1:A1:1658:G:P    | 13:AN:107:LYS:NZ  | 2.94                     | 0.41              |
| 1:A1:1701:A:H5'' | 12:AM:99:SER:CB   | 2.51                     | 0.41              |
| 1:A1:2106:G:O2'  | 1:A1:2107:A:OP1   | 2.38                     | 0.41              |
| 1:A1:2111:G:O2'  | 36:BO:82:LYS:HE3  | 2.20                     | 0.41              |
| 1:A1:2118:G:C6   | 1:A1:2327:A:C2    | 3.09                     | 0.41              |
| 1:A1:2171:U:H5'' | 22:BA:55:ARG:NH2  | 2.36                     | 0.41              |
| 1:A1:2215:C:H2'  | 1:A1:2216:G:O4'   | 2.21                     | 0.41              |
| 1:A1:2362:A:C8   | 50:A1:3890:HOH:O  | 2.73                     | 0.41              |
| 1:A1:2411:U:H2'  | 1:A1:2412:U:H6    | 1.84                     | 0.41              |
| 1:A1:2415:C:C2'  | 1:A1:2416:U:C5'   | 2.88                     | 0.41              |
| 1:A1:2432:G:C6   | 1:A1:2506:G:C5    | 3.09                     | 0.41              |
| 1:A1:2558:U:C5   | 1:A1:2559:U:C4    | 3.09                     | 0.41              |
| 1:A1:2636:A:H2'  | 1:A1:2637:G:O5'   | 2.21                     | 0.41              |
| 1:A1:2716:A:C2   | 32:BK:45:ILE:HG23 | 2.55                     | 0.41              |
| 1:A1:2776:C:P    | 32:BK:59:GLY:HA2  | 2.60                     | 0.41              |
| 1:A1:2938:G:N3   | 1:A1:2938:G:H2'   | 2.36                     | 0.41              |
| 1:A1:2975:A:O2'  | 23:BB:257:ARG:HB3 | 2.21                     | 0.41              |
| 1:A1:3036:U:O4   | 1:A1:3037:A:N6    | 2.54                     | 0.41              |
| 1:A1:3037:A:C2   | 1:A1:3079:U:N3    | 2.89                     | 0.41              |
| 1:A1:3143:A:OP2  | 1:A1:3143:A:C8    | 2.73                     | 0.41              |
| 1:A1:3175:A:C2   | 1:A1:3177:G:C5    | 3.09                     | 0.41              |
| 1:A1:3175:A:C5'  | 1:A1:3176:A:OP1   | 2.68                     | 0.41              |
| 1:A1:3232:A:N6   | 1:A1:3233:A:C2    | 2.88                     | 0.41              |
| 1:A1:3332:A:C3'  | 1:A1:3333:G:C5'   | 2.94                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:A1:3348:U:H4'   | 38:BQ:58:ARG:NH2   | 2.36                     | 0.41              |
| 2:AA:64:ARG:HA    | 50:AA:204:HOH:O    | 2.21                     | 0.41              |
| 5:AE:77:THR:HG23  | 5:AE:87:LEU:HD23   | 2.03                     | 0.41              |
| 5:AE:124:LYS:HG2  | 5:AE:132:ALA:CB    | 2.47                     | 0.41              |
| 6:AF:39:ASP:HB3   | 6:AF:72:LEU:CD2    | 2.50                     | 0.41              |
| 7:AG:71:VAL:O     | 7:AG:71:VAL:CG1    | 2.68                     | 0.41              |
| 8:AH:8:PRO:C      | 8:AH:9:VAL:HG23    | 2.45                     | 0.41              |
| 8:AH:17:LYS:HG3   | 8:AH:40:GLN:OE1    | 2.20                     | 0.41              |
| 9:AJ:12:ASP:C     | 9:AJ:14:GLY:N      | 2.77                     | 0.41              |
| 11:AL:14:ASN:C    | 11:AL:14:ASN:OD1   | 2.63                     | 0.41              |
| 11:AL:84:HIS:O    | 11:AL:85:THR:C     | 2.61                     | 0.41              |
| 12:AM:82:THR:HG21 | 12:AM:97:VAL:HG21  | 2.02                     | 0.41              |
| 14:AO:53:GLY:O    | 14:AO:57:ALA:HB3   | 2.21                     | 0.41              |
| 15:AP:45:ARG:NH1  | 15:AP:50:LEU:HB2   | 2.36                     | 0.41              |
| 18:AU:131:ALA:HB3 | 18:AU:136:VAL:HG21 | 2.01                     | 0.41              |
| 18:AU:131:ALA:H   | 18:AU:136:VAL:HB   | 1.86                     | 0.41              |
| 19:AX:15:GLN:NE2  | 19:AX:115:GLY:CA   | 2.84                     | 0.41              |
| 19:AX:22:VAL:HG22 | 24:BC:380:PHE:CE1  | 2.56                     | 0.41              |
| 19:AX:134:THR:CG2 | 19:AX:134:THR:O    | 2.64                     | 0.41              |
| 20:B2:52:G:H4'    | 42:BU:36:LYS:NZ    | 2.36                     | 0.41              |
| 20:B2:89:A:H2'    | 20:B2:90:G:O4'     | 2.21                     | 0.41              |
| 21:B3:27:A:H2'    | 21:B3:28:C:H6      | 1.83                     | 0.41              |
| 21:B3:40:C:O2     | 21:B3:40:C:C2'     | 2.67                     | 0.41              |
| 22:BA:175:ARG:HA  | 46:BY:69:TRP:NE1   | 2.34                     | 0.41              |
| 23:BB:65:SER:C    | 23:BB:67:HIS:N     | 2.78                     | 0.41              |
| 23:BB:260:PHE:HD1 | 30:BI:63:HIS:O     | 2.04                     | 0.41              |
| 23:BB:277:ASN:ND2 | 23:BB:343:GLN:HE21 | 2.12                     | 0.41              |
| 23:BB:365:HIS:HA  | 41:BT:19:ARG:HH22  | 1.85                     | 0.41              |
| 24:BC:23:LEU:HD11 | 24:BC:264:LYS:HE2  | 2.03                     | 0.41              |
| 24:BC:62:THR:O    | 24:BC:65:MET:HB2   | 2.21                     | 0.41              |
| 24:BC:89:THR:HG21 | 24:BC:91:ARG:HB3   | 2.01                     | 0.41              |
| 24:BC:101:CYS:O   | 24:BC:102:ARG:C    | 2.63                     | 0.41              |
| 25:BD:29:LYS:O    | 25:BD:32:LYS:HB2   | 2.21                     | 0.41              |
| 25:BD:50:ALA:CB   | 25:BD:59:ILE:HG23  | 2.50                     | 0.41              |
| 25:BD:86:VAL:HG21 | 25:BD:112:LEU:HD23 | 2.02                     | 0.41              |
| 25:BD:102:PHE:CE1 | 25:BD:129:VAL:HB   | 2.55                     | 0.41              |
| 26:BE:97:PHE:HB3  | 26:BE:114:HIS:HD2  | 1.85                     | 0.41              |
| 26:BE:134:ARG:HG3 | 26:BE:141:THR:O    | 2.21                     | 0.41              |
| 27:BF:35:ILE:O    | 27:BF:36:GLN:C     | 2.61                     | 0.41              |
| 28:BG:109:UNK:CG  | 28:BG:111:UNK:HG3  | 2.48                     | 0.41              |
| 29:BH:15:LYS:HA   | 29:BH:16:PRO:HD3   | 1.75                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 29:BH:61:THR:O     | 29:BH:64:ALA:HB3   | 2.21                     | 0.41              |
| 29:BH:68:ALA:HB2   | 29:BH:158:LYS:HB2  | 2.02                     | 0.41              |
| 30:BI:10:ALA:C     | 30:BI:13:HIS:CD2   | 2.97                     | 0.41              |
| 30:BI:101:LEU:HD12 | 30:BI:101:LEU:C    | 2.46                     | 0.41              |
| 32:BK:46:LEU:CD2   | 32:BK:50:TRP:CE3   | 3.04                     | 0.41              |
| 32:BK:121:GLN:HA   | 32:BK:122:PRO:HD3  | 1.62                     | 0.41              |
| 33:BL:33:LEU:HA    | 33:BL:33:LEU:HD23  | 1.78                     | 0.41              |
| 34:BM:105:LEU:HD12 | 34:BM:105:LEU:HA   | 1.85                     | 0.41              |
| 34:BM:119:TYR:HD1  | 34:BM:132:VAL:CG1  | 2.24                     | 0.41              |
| 34:BM:212:TYR:CE2  | 34:BM:227:GLN:NE2  | 2.89                     | 0.41              |
| 35:BN:174:PHE:O    | 35:BN:176:ARG:N    | 2.54                     | 0.41              |
| 37:BP:8:ARG:CD     | 37:BP:11:THR:HG21  | 2.50                     | 0.41              |
| 37:BP:11:THR:O     | 37:BP:11:THR:CG2   | 2.68                     | 0.41              |
| 38:BQ:151:PHE:CD1  | 38:BQ:151:PHE:C    | 2.99                     | 0.41              |
| 43:BV:93:HIS:CE1   | 43:BV:94:PRO:HD2   | 2.56                     | 0.41              |
| 43:BV:148:ARG:HA   | 43:BV:148:ARG:HD3  | 1.94                     | 0.41              |
| 43:BV:217:ALA:O    | 43:BV:218:TYR:C    | 2.64                     | 0.41              |
| 44:BW:42:THR:CG2   | 44:BW:43:MET:HE3   | 2.19                     | 0.41              |
| 46:BY:99:LEU:HD12  | 46:BY:99:LEU:O     | 2.21                     | 0.41              |
| 20:C2:43:A:H3'     | 20:C2:43:A:C8      | 2.56                     | 0.41              |
| 20:C2:43:A:C2'     | 20:C2:44:A:O5'     | 2.69                     | 0.41              |
| 20:C2:91:U:O2'     | 20:C2:92:C:H5''    | 2.21                     | 0.41              |
| 20:C2:105:A:H5'    | 20:C2:106:A:P      | 2.60                     | 0.41              |
| 21:C3:64:A:H3'     | 50:C3:331:HOH:O    | 2.21                     | 0.41              |
| 22:CA:6:ARG:O      | 22:CA:7:ALA:C      | 2.61                     | 0.41              |
| 22:CA:8:GLN:O      | 1:D1:2159:C:O2'    | 2.33                     | 0.41              |
| 22:CA:30:TYR:H     | 22:CA:124:ARG:HB3  | 1.86                     | 0.41              |
| 22:CA:84:TYR:CD1   | 22:CA:87:GLN:HB2   | 2.55                     | 0.41              |
| 22:CA:115:CYS:O    | 22:CA:116:ASN:C    | 2.62                     | 0.41              |
| 22:CA:200:VAL:HA   | 1:D1:2143:A:OP1    | 2.21                     | 0.41              |
| 23:CB:56:ILE:CG2   | 23:CB:57:LEU:N     | 2.82                     | 0.41              |
| 23:CB:86:ILE:CG1   | 23:CB:158:VAL:HG11 | 2.51                     | 0.41              |
| 23:CB:220:LYS:HD2  | 1:D1:3036:U:C5'    | 2.50                     | 0.41              |
| 23:CB:332:ARG:HH11 | 23:CB:332:ARG:HB2  | 1.86                     | 0.41              |
| 23:CB:377:PHE:CZ   | 41:CT:13:TYR:HE1   | 2.39                     | 0.41              |
| 24:CC:91:ARG:HH12  | 24:CC:103:LYS:HB2  | 1.85                     | 0.41              |
| 24:CC:125:LYS:HD3  | 1:D1:719:C:OP1     | 2.20                     | 0.41              |
| 24:CC:163:VAL:HG12 | 24:CC:223:LEU:HG   | 2.03                     | 0.41              |
| 24:CC:203:ASN:ND2  | 40:CS:10:ALA:HA    | 2.35                     | 0.41              |
| 24:CC:272:THR:O    | 24:CC:275:THR:N    | 2.54                     | 0.41              |
| 24:CC:333:LEU:CD2  | 43:CV:161:THR:O    | 2.67                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:CC:374:GLN:HA   | 24:CC:377:ILE:HD12 | 2.03                     | 0.41              |
| 27:CF:125:LEU:HD11 | 27:CF:191:VAL:HG12 | 2.02                     | 0.41              |
| 27:CF:131:HIS:CG   | 1:D1:117:G:C2      | 3.09                     | 0.41              |
| 27:CF:208:SER:O    | 27:CF:212:LYS:N    | 2.44                     | 0.41              |
| 28:CG:30:UNK:HG3   | 28:CG:81:UNK:HB2   | 2.02                     | 0.41              |
| 29:CH:39:LYS:O     | 1:D1:1036:G:H4'    | 2.20                     | 0.41              |
| 29:CH:42:THR:HG22  | 29:CH:43:VAL:N     | 2.36                     | 0.41              |
| 29:CH:49:VAL:HA    | 29:CH:138:VAL:O    | 2.21                     | 0.41              |
| 29:CH:180:GLN:O    | 29:CH:184:LEU:HG   | 2.20                     | 0.41              |
| 30:CI:11:LYS:O     | 30:CI:13:HIS:CD2   | 2.74                     | 0.41              |
| 30:CI:128:LEU:O    | 30:CI:129:ARG:C    | 2.62                     | 0.41              |
| 30:CI:196:PHE:CD1  | 30:CI:196:PHE:O    | 2.73                     | 0.41              |
| 32:CK:52:PRO:HG3   | 35:CN:157:GLY:HA3  | 2.02                     | 0.41              |
| 34:CM:95:TYR:OH    | 34:CM:200:HIS:HE1  | 2.03                     | 0.41              |
| 34:CM:99:TYR:HD2   | 34:CM:251:HIS:HE1  | 1.68                     | 0.41              |
| 34:CM:164:LYS:HD3  | 34:CM:180:PHE:CE1  | 2.56                     | 0.41              |
| 34:CM:212:TYR:HE2  | 34:CM:227:GLN:CD   | 2.28                     | 0.41              |
| 35:CN:92:ARG:NE    | 1:D1:810:G:N7      | 2.68                     | 0.41              |
| 35:CN:141:ARG:HD3  | 1:D1:768:A:O4'     | 2.21                     | 0.41              |
| 47:CO:38:ARG:O     | 47:CO:39:ALA:C     | 2.64                     | 0.41              |
| 47:CO:131:LEU:HB2  | 47:CO:132:TYR:CE1  | 2.56                     | 0.41              |
| 47:CO:167:UNK:HA   | 47:CO:170:UNK:HG3  | 2.02                     | 0.41              |
| 38:CQ:49:TYR:HD1   | 38:CQ:58:ARG:NH1   | 2.19                     | 0.41              |
| 38:CQ:126:LYS:HG2  | 38:CQ:144:SER:HA   | 2.03                     | 0.41              |
| 38:CQ:128:ARG:HG2  | 38:CQ:142:LEU:HD22 | 2.02                     | 0.41              |
| 39:CR:42:THR:HG22  | 39:CR:43:LEU:N     | 2.36                     | 0.41              |
| 39:CR:55:VAL:HG23  | 42:CU:83:ASP:CG    | 2.46                     | 0.41              |
| 40:CS:55:VAL:HG22  | 40:CS:105:LEU:CD2  | 2.44                     | 0.41              |
| 42:CU:36:LYS:HE3   | 42:CU:48:ILE:HD12  | 2.03                     | 0.41              |
| 42:CU:78:SER:HB3   | 1:D1:134:A:H4'     | 2.03                     | 0.41              |
| 43:CV:173:PHE:HD1  | 43:CV:191:HIS:ND1  | 2.17                     | 0.41              |
| 45:CX:81:PRO:O     | 45:CX:84:LEU:HB2   | 2.21                     | 0.41              |
| 46:CY:88:LYS:HG2   | 46:CY:89:LEU:N     | 2.35                     | 0.41              |
| 1:D1:61:A:C6       | 1:D1:62:G:C6       | 3.08                     | 0.41              |
| 1:D1:77:A:C2       | 1:D1:324:A:N3      | 2.88                     | 0.41              |
| 1:D1:116:U:C5      | 1:D1:117:G:C5      | 3.09                     | 0.41              |
| 1:D1:296:G:C3'     | 16:DQ:34:LEU:HD21  | 2.51                     | 0.41              |
| 1:D1:361:A:C3'     | 1:D1:362:G:H5''    | 2.51                     | 0.41              |
| 1:D1:434:A:C4'     | 1:D1:435:A:OP1     | 2.68                     | 0.41              |
| 1:D1:469:U:O2      | 1:D1:469:U:H2'     | 2.19                     | 0.41              |
| 1:D1:508:A:H2'     | 1:D1:509:A:OP2     | 2.21                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:D1:564:A:C6     | 1:D1:567:C:H4'     | 2.55                     | 0.41              |
| 1:D1:620:A:N3     | 1:D1:620:A:O4'     | 2.54                     | 0.41              |
| 1:D1:621:G:O6     | 1:D1:622:G:N1      | 2.54                     | 0.41              |
| 1:D1:624:G:C4     | 1:D1:625:C:C4      | 3.08                     | 0.41              |
| 1:D1:698:G:H2'    | 1:D1:699:C:C6      | 2.56                     | 0.41              |
| 1:D1:766:G:O2'    | 1:D1:767:C:O5'     | 2.38                     | 0.41              |
| 1:D1:934:G:C2'    | 1:D1:935:G:O5'     | 2.69                     | 0.41              |
| 1:D1:975:G:C2     | 1:D1:1397:G:C6     | 3.09                     | 0.41              |
| 1:D1:1142:G:H3'   | 1:D1:1142:G:H8     | 1.86                     | 0.41              |
| 1:D1:1179:G:H1    | 1:D1:1226:C:N4     | 2.19                     | 0.41              |
| 1:D1:1200:C:H1'   | 1:D1:1206:A:C4     | 2.56                     | 0.41              |
| 1:D1:1381:G:N3    | 1:D1:1381:G:H2'    | 2.36                     | 0.41              |
| 1:D1:1462:U:O2    | 50:D1:4892:HOH:O   | 2.22                     | 0.41              |
| 1:D1:1517:G:OP2   | 50:D1:4528:HOH:O   | 2.22                     | 0.41              |
| 1:D1:1766:A:C4    | 1:D1:1768:G:C8     | 3.09                     | 0.41              |
| 1:D1:2125:C:O2'   | 1:D1:2140:A:O4'    | 2.39                     | 0.41              |
| 1:D1:2215:C:H2'   | 1:D1:2216:G:O4'    | 2.21                     | 0.41              |
| 1:D1:2247:A:C4    | 1:D1:2248:G:C8     | 3.09                     | 0.41              |
| 1:D1:2267:G:N3    | 1:D1:2267:G:H2'    | 2.35                     | 0.41              |
| 1:D1:2521:A:C2    | 1:D1:2522:A:C5     | 3.09                     | 0.41              |
| 1:D1:2561:A:C2    | 1:D1:2563:U:C2     | 3.09                     | 0.41              |
| 1:D1:2804:G:H8    | 1:D1:2858:C:OP2    | 2.04                     | 0.41              |
| 1:D1:2920:U:O2    | 1:D1:2922:A:C8     | 2.73                     | 0.41              |
| 1:D1:3004:U:C2    | 1:D1:3029:A:C2     | 3.09                     | 0.41              |
| 1:D1:3109:C:H5''  | 10:DK:111:ARG:HH22 | 1.86                     | 0.41              |
| 1:D1:3156:A:H4'   | 1:D1:3159:A:C5     | 2.55                     | 0.41              |
| 1:D1:3157:C:H4'   | 1:D1:3158:G:H5'    | 2.03                     | 0.41              |
| 1:D1:3173:U:H5''  | 1:D1:3174:U:OP2    | 2.21                     | 0.41              |
| 1:D1:3177:G:C8    | 1:D1:3177:G:OP1    | 2.74                     | 0.41              |
| 1:D1:3230:G:O2'   | 1:D1:3231:U:OP1    | 2.38                     | 0.41              |
| 2:DA:11:ARG:HG3   | 2:DA:11:ARG:H      | 1.56                     | 0.41              |
| 3:DB:33:THR:HG22  | 3:DB:35:ILE:N      | 2.04                     | 0.41              |
| 4:DC:14:LYS:HB2   | 4:DC:75:CYS:SG     | 2.61                     | 0.41              |
| 5:DE:56:GLY:O     | 5:DE:57:ARG:C      | 2.60                     | 0.41              |
| 5:DE:90:VAL:HG13  | 5:DE:91:ASN:N      | 2.36                     | 0.41              |
| 8:DH:54:LYS:CD    | 8:DH:110:PRO:HG2   | 2.46                     | 0.41              |
| 9:DJ:5:CYS:SG     | 9:DJ:13:ILE:CD1    | 3.08                     | 0.41              |
| 11:DL:7:TYR:HE2   | 11:DL:18:ASN:OD1   | 2.03                     | 0.41              |
| 13:DN:90:LEU:HD12 | 13:DN:90:LEU:HA    | 1.89                     | 0.41              |
| 16:DQ:18:LEU:HD23 | 16:DQ:18:LEU:HA    | 1.69                     | 0.41              |
| 17:DT:27:HIS:O    | 17:DT:28:ARG:C     | 2.63                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 19:DX:52:LYS:O     | 19:DX:55:PHE:HB3   | 2.21                     | 0.41              |
| 19:DX:175:LYS:HZ2  | 19:DX:178:ARG:CD   | 2.34                     | 0.41              |
| 20:E2:7:U:P        | 38:EQ:36:ARG:HH12  | 2.43                     | 0.41              |
| 20:E2:37:A:C4'     | 20:E2:38:C:OP1     | 2.46                     | 0.41              |
| 20:E2:96:A:O4'     | 2:FA:80:ARG:HB2    | 2.21                     | 0.41              |
| 21:E3:7:G:O3'      | 34:EM:33:ARG:CZ    | 2.69                     | 0.41              |
| 21:E3:12:U:OP2     | 21:E3:67:C:O2'     | 2.37                     | 0.41              |
| 22:EA:6:ARG:O      | 22:EA:7:ALA:C      | 2.64                     | 0.41              |
| 22:EA:10:LYS:O     | 22:EA:194:ARG:NH2  | 2.53                     | 0.41              |
| 22:EA:86:GLY:HA2   | 1:F1:2545:A:N3     | 2.36                     | 0.41              |
| 23:EB:5:LYS:HZ2    | 1:F1:2866:G:H5''   | 1.85                     | 0.41              |
| 23:EB:46:PHE:CE1   | 23:EB:84:MET:HG3   | 2.56                     | 0.41              |
| 23:EB:55:HIS:ND1   | 41:ET:18:GLY:HA3   | 2.34                     | 0.41              |
| 23:EB:121:ASN:HD21 | 23:EB:124:ASN:HB2  | 1.86                     | 0.41              |
| 23:EB:185:LYS:HB2  | 23:EB:188:GLU:CG   | 2.46                     | 0.41              |
| 23:EB:321:MET:HE2  | 23:EB:321:MET:HB3  | 1.95                     | 0.41              |
| 24:EC:126:ARG:O    | 24:EC:127:HIS:C    | 2.64                     | 0.41              |
| 24:EC:147:HIS:CD2  | 24:EC:254:ARG:HA   | 2.56                     | 0.41              |
| 24:EC:163:VAL:HG12 | 24:EC:223:LEU:HG   | 2.02                     | 0.41              |
| 24:EC:316:THR:O    | 24:EC:317:HIS:CD2  | 2.72                     | 0.41              |
| 24:EC:349:GLU:O    | 24:EC:350:ALA:C    | 2.62                     | 0.41              |
| 26:EE:45:ILE:HA    | 26:EE:55:LEU:CD2   | 2.44                     | 0.41              |
| 26:EE:90:MET:O     | 26:EE:141:THR:HG23 | 2.20                     | 0.41              |
| 26:EE:160:HIS:CE1  | 26:EE:164:LEU:HD21 | 2.56                     | 0.41              |
| 27:EF:45:VAL:CG1   | 27:EF:46:ARG:N     | 2.83                     | 0.41              |
| 27:EF:65:LYS:HD2   | 1:F1:2431:U:H5''   | 2.03                     | 0.41              |
| 29:EH:15:LYS:HA    | 29:EH:16:PRO:HD3   | 1.75                     | 0.41              |
| 29:EH:46:PHE:CZ    | 29:EH:84:ALA:HA    | 2.56                     | 0.41              |
| 29:EH:69:ARG:O     | 29:EH:70:ILE:C     | 2.64                     | 0.41              |
| 32:EK:45:ILE:HG12  | 1:F1:2716:A:N1     | 2.35                     | 0.41              |
| 33:EL:33:LEU:HA    | 33:EL:33:LEU:HD23  | 1.79                     | 0.41              |
| 33:EL:150:TRP:CE3  | 1:F1:320:C:H5''    | 2.56                     | 0.41              |
| 33:EL:185:ARG:O    | 33:EL:186:THR:HB   | 2.21                     | 0.41              |
| 34:EM:20:TYR:O     | 34:EM:21:ARG:C     | 2.64                     | 0.41              |
| 34:EM:83:LEU:O     | 34:EM:88:VAL:HG22  | 2.21                     | 0.41              |
| 35:EN:6:HIS:CD2    | 35:EN:7:LYS:HG2    | 2.56                     | 0.41              |
| 35:EN:24:ASN:HD21  | 35:EN:27:HIS:HB2   | 1.86                     | 0.41              |
| 39:ER:97:ARG:HA    | 39:ER:97:ARG:HD2   | 1.89                     | 0.41              |
| 39:ER:150:ILE:H    | 39:ER:150:ILE:CD1  | 2.18                     | 0.41              |
| 40:ES:18:HIS:CE1   | 40:ES:77:TRP:CH2   | 3.09                     | 0.41              |
| 40:ES:33:HIS:CE1   | 40:ES:39:ARG:HE    | 2.39                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 41:ET:57:ARG:HD2  | 41:ET:61:TRP:CD1   | 2.56                     | 0.41              |
| 42:EU:119:LYS:HB3 | 18:FU:124:PHE:CD1  | 2.56                     | 0.41              |
| 44:EW:43:MET:HE2  | 44:EW:43:MET:CA    | 2.37                     | 0.41              |
| 45:EX:53:ARG:HA   | 45:EX:53:ARG:HD3   | 1.41                     | 0.41              |
| 46:EY:12:ARG:HG2  | 1:F1:861:A:O4'     | 2.19                     | 0.41              |
| 46:EY:38:GLY:HA2  | 46:EY:45:VAL:HA    | 2.02                     | 0.41              |
| 46:EY:73:THR:HA   | 46:EY:74:PRO:HD2   | 1.94                     | 0.41              |
| 1:F1:34:C:H4'     | 1:F1:833:A:C2      | 2.56                     | 0.41              |
| 1:F1:76:U:O2'     | 1:F1:77:A:H5'      | 2.21                     | 0.41              |
| 1:F1:165:C:H5''   | 18:FU:132:LYS:HZ1  | 1.83                     | 0.41              |
| 1:F1:240:A:C4'    | 1:F1:241:A:OP2     | 2.35                     | 0.41              |
| 1:F1:282:G:O2'    | 4:FC:36:GLN:NE2    | 2.54                     | 0.41              |
| 1:F1:303:A:N3     | 1:F1:303:A:H2'     | 2.36                     | 0.41              |
| 1:F1:345:C:C4     | 1:F1:347:A:N7      | 2.89                     | 0.41              |
| 1:F1:454:A:N6     | 1:F1:524:G:H1'     | 2.31                     | 0.41              |
| 1:F1:469:U:O2     | 1:F1:510:A:N1      | 2.54                     | 0.41              |
| 1:F1:620:A:H1'    | 1:F1:1364:A:H5''   | 2.03                     | 0.41              |
| 1:F1:870:G:N2     | 1:F1:874:C:C4      | 2.89                     | 0.41              |
| 1:F1:1130:A:C2    | 1:F1:1390:A:O2'    | 2.64                     | 0.41              |
| 1:F1:1172:G:H1'   | 1:F1:1187:C:N3     | 2.35                     | 0.41              |
| 1:F1:1546:G:O2'   | 1:F1:1628:A:N1     | 2.52                     | 0.41              |
| 1:F1:1550:A:C5    | 1:F1:1632:U:C6     | 3.09                     | 0.41              |
| 1:F1:1597:U:C5    | 1:F1:1598:C:C4     | 3.08                     | 0.41              |
| 1:F1:1649:G:N2    | 1:F1:1650:U:C2     | 2.89                     | 0.41              |
| 1:F1:1909:C:H5''  | 1:F1:3266:G:C2     | 2.56                     | 0.41              |
| 1:F1:2132:U:C5'   | 50:F1:3909:HOH:O   | 2.64                     | 0.41              |
| 1:F1:2567:U:H2'   | 1:F1:2568:G:C8     | 2.56                     | 0.41              |
| 1:F1:2883:G:H5'   | 1:F1:3096:U:O2'    | 2.20                     | 0.41              |
| 1:F1:3064:A:H2'   | 1:F1:3065:C:C6     | 2.56                     | 0.41              |
| 1:F1:3189:G:OP2   | 50:F1:4533:HOH:O   | 2.21                     | 0.41              |
| 1:F1:3233:A:HO2'  | 1:F1:3234:U:P      | 2.31                     | 0.41              |
| 1:F1:3311:U:H6    | 1:F1:3311:U:H3'    | 1.86                     | 0.41              |
| 1:F1:3332:A:C3'   | 1:F1:3333:G:C5'    | 2.97                     | 0.41              |
| 5:FE:7:GLY:C      | 5:FE:9:ASN:H       | 2.29                     | 0.41              |
| 5:FE:88:LYS:HG3   | 5:FE:89:ARG:C      | 2.45                     | 0.41              |
| 6:FF:39:ASP:HB3   | 6:FF:72:LEU:CD2    | 2.50                     | 0.41              |
| 6:FF:60:ILE:CG2   | 6:FF:63:VAL:HG23   | 2.51                     | 0.41              |
| 6:FF:93:LYS:O     | 6:FF:97:LYS:HG2    | 2.20                     | 0.41              |
| 8:FH:12:THR:HG22  | 8:FH:14:LEU:HG     | 2.02                     | 0.41              |
| 8:FH:16:VAL:HG12  | 8:FH:17:LYS:N      | 2.35                     | 0.41              |
| 10:FK:108:THR:O   | 10:FK:108:THR:HG22 | 2.21                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 12:FM:96:TYR:HD1   | 12:FM:110:PHE:HD1  | 1.68                     | 0.41              |
| 13:FN:90:LEU:HD12  | 13:FN:90:LEU:HA    | 1.87                     | 0.41              |
| 14:FO:29:PHE:HB2   | 14:FO:41:GLY:HA3   | 2.02                     | 0.41              |
| 14:FO:105:GLN:OE1  | 14:FO:105:GLN:HA   | 2.21                     | 0.41              |
| 15:FP:67:ALA:O     | 15:FP:69:PRO:HD3   | 2.21                     | 0.41              |
| 16:FQ:16:THR:OG1   | 18:FU:105:GLU:OE2  | 2.28                     | 0.41              |
| 16:FQ:56:LYS:O     | 16:FQ:59:ILE:HB    | 2.20                     | 0.41              |
| 18:FU:177:VAL:O    | 18:FU:180:ILE:HB   | 2.21                     | 0.41              |
| 19:FX:15:GLN:NE2   | 19:FX:115:GLY:CA   | 2.84                     | 0.41              |
| 19:FX:44:PHE:CE2   | 19:FX:117:VAL:HG21 | 2.55                     | 0.41              |
| 19:FX:134:THR:CG2  | 19:FX:134:THR:O    | 2.66                     | 0.41              |
| 20:G2:15:G:N2      | 1:H1:409:G:C4      | 2.89                     | 0.41              |
| 20:G2:45:G:H5''    | 2:HA:63:GLY:H      | 1.85                     | 0.41              |
| 20:G2:74:A:H62     | 20:G2:88:G:H1'     | 1.74                     | 0.41              |
| 20:G2:146:A:C2'    | 20:G2:147:G:H5'    | 2.51                     | 0.41              |
| 22:GA:43:ARG:O     | 22:GA:43:ARG:HG3   | 2.21                     | 0.41              |
| 22:GA:183:ALA:HB2  | 1:H1:2144:A:O2'    | 2.20                     | 0.41              |
| 23:GB:85:THR:O     | 23:GB:161:HIS:N    | 2.51                     | 0.41              |
| 23:GB:213:LEU:O    | 23:GB:214:ASP:OD1  | 2.39                     | 0.41              |
| 23:GB:230:ARG:HG2  | 23:GB:231:PHE:CE1  | 2.55                     | 0.41              |
| 23:GB:272:HIS:CD2  | 1:H1:3127:U:OP1    | 2.61                     | 0.41              |
| 23:GB:374:LYS:NZ   | 1:H1:3288:A:OP2    | 2.40                     | 0.41              |
| 24:GC:67:HIS:CD2   | 24:GC:91:ARG:HH21  | 2.39                     | 0.41              |
| 24:GC:100:GLN:H    | 24:GC:100:GLN:HG2  | 1.19                     | 0.41              |
| 24:GC:242:ASN:HD21 | 1:H1:718:A:C3'     | 2.33                     | 0.41              |
| 24:GC:317:HIS:HE1  | 1:H1:1388:U:O2'    | 2.03                     | 0.41              |
| 24:GC:319:ARG:CZ   | 1:H1:620:A:N7      | 2.81                     | 0.41              |
| 26:GE:38:PHE:CD1   | 26:GE:38:PHE:N     | 2.89                     | 0.41              |
| 26:GE:110:ILE:CD1  | 26:GE:159:ILE:HD11 | 2.51                     | 0.41              |
| 27:GF:76:THR:HG21  | 27:GF:174:LYS:HG2  | 2.03                     | 0.41              |
| 27:GF:125:LEU:HD12 | 27:GF:192:ALA:O    | 2.20                     | 0.41              |
| 29:GH:74:LYS:O     | 29:GH:75:ASN:C     | 2.64                     | 0.41              |
| 30:GI:13:HIS:HE1   | 30:GI:119:VAL:H    | 1.68                     | 0.41              |
| 30:GI:127:ARG:O    | 1:H1:1343:G:H2'    | 2.20                     | 0.41              |
| 30:GI:133:PRO:C    | 30:GI:134:VAL:CG1  | 2.94                     | 0.41              |
| 30:GI:168:ASP:O    | 30:GI:169:LYS:C    | 2.64                     | 0.41              |
| 31:GJ:85:GLN:HA    | 31:GJ:102:ASN:ND2  | 2.33                     | 0.41              |
| 32:GK:68:ASN:HB2   | 32:GK:69:PRO:HD3   | 2.03                     | 0.41              |
| 33:GL:12:ARG:HG2   | 1:H1:267:A:C4      | 2.56                     | 0.41              |
| 33:GL:120:TRP:CD2  | 1:H1:268:G:H5'     | 2.56                     | 0.41              |
| 33:GL:181:ALA:O    | 33:GL:182:LYS:C    | 2.64                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 33:GL:188:ARG:HH21 | 1:H1:279:U:H5'     | 1.86                     | 0.41              |
| 33:GL:201:ARG:NH2  | 1:H1:79:C:O2'      | 2.54                     | 0.41              |
| 35:GN:61:PHE:HA    | 35:GN:62:PRO:HD3   | 1.83                     | 0.41              |
| 35:GN:62:PRO:O     | 35:GN:142:ALA:CB   | 2.69                     | 0.41              |
| 35:GN:92:ARG:NH2   | 1:H1:810:G:H8      | 2.19                     | 0.41              |
| 35:GN:128:ALA:O    | 35:GN:132:PRO:HD3  | 2.20                     | 0.41              |
| 35:GN:168:ARG:HE   | 35:GN:174:PHE:HE2  | 1.68                     | 0.41              |
| 36:GO:5:ARG:HD2    | 36:GO:5:ARG:HA     | 1.78                     | 0.41              |
| 36:GO:134:ASN:ND2  | 1:H1:1971:G:C5'    | 2.82                     | 0.41              |
| 38:GQ:86:PRO:O     | 38:GQ:90:VAL:HG23  | 2.19                     | 0.41              |
| 39:GR:113:VAL:HG13 | 39:GR:138:SER:OG   | 2.21                     | 0.41              |
| 41:GT:5:THR:HG21   | 41:GT:14:ARG:NE    | 2.36                     | 0.41              |
| 42:GU:10:LEU:HD21  | 42:GU:58:TYR:CZ    | 2.56                     | 0.41              |
| 44:GW:47:ASP:OD1   | 44:GW:47:ASP:C     | 2.64                     | 0.41              |
| 44:GW:105:THR:HG21 | 1:H1:3341:C:H1'    | 2.03                     | 0.41              |
| 45:GX:25:GLU:OE1   | 45:GX:25:GLU:N     | 2.39                     | 0.41              |
| 45:GX:76:PHE:CD1   | 45:GX:76:PHE:C     | 2.99                     | 0.41              |
| 45:GX:81:PRO:O     | 45:GX:84:LEU:HB2   | 2.21                     | 0.41              |
| 1:H1:13:C:H2'      | 1:H1:14:A:H8       | 1.86                     | 0.41              |
| 1:H1:130:G:C6      | 1:H1:137:A:C6      | 3.08                     | 0.41              |
| 1:H1:270:C:H2'     | 1:H1:271:G:O5'     | 2.21                     | 0.41              |
| 1:H1:279:U:O2      | 1:H1:281:G:C8      | 2.74                     | 0.41              |
| 1:H1:402:U:OP2     | 1:H1:403:G:N7      | 2.54                     | 0.41              |
| 1:H1:517:A:C4'     | 1:H1:518:G:OP1     | 2.63                     | 0.41              |
| 1:H1:685:G:O2'     | 1:H1:686:U:P       | 2.79                     | 0.41              |
| 1:H1:727:C:H2'     | 1:H1:728:G:C8      | 2.56                     | 0.41              |
| 1:H1:773:C:C2      | 1:H1:774:A:C8      | 3.09                     | 0.41              |
| 1:H1:787:U:H2'     | 18:HU:179:ARG:HH22 | 1.82                     | 0.41              |
| 1:H1:792:G:C2'     | 1:H1:793:A:O5'     | 2.69                     | 0.41              |
| 1:H1:984:C:N4      | 1:H1:2789:A:C8     | 2.89                     | 0.41              |
| 1:H1:1055:A:N6     | 1:H1:1056:A:N6     | 2.69                     | 0.41              |
| 1:H1:1402:G:O2'    | 1:H1:1433:A:N1     | 2.47                     | 0.41              |
| 1:H1:1508:A:N6     | 1:H1:1890:C:O2'    | 2.53                     | 0.41              |
| 1:H1:1902:C:HO2'   | 1:H1:1903:A:P      | 2.36                     | 0.41              |
| 1:H1:2106:G:O2'    | 1:H1:2107:A:OP1    | 2.37                     | 0.41              |
| 1:H1:2221:U:H2'    | 1:H1:2222:C:C6     | 2.56                     | 0.41              |
| 1:H1:2403:U:C2     | 1:H1:2802:G:N2     | 2.89                     | 0.41              |
| 1:H1:2409:G:C2'    | 1:H1:2410:C:O5'    | 2.69                     | 0.41              |
| 1:H1:2596:G:C6     | 1:H1:2597:G:C5     | 3.09                     | 0.41              |
| 1:H1:2703:G:H4'    | 1:H1:2704:A:C5'    | 2.49                     | 0.41              |
| 1:H1:2847:U:H4'    | 1:H1:2848:U:O5'    | 2.19                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:H1:2876:U:C4     | 1:H1:2898:A:C4     | 3.09                     | 0.41              |
| 1:H1:2883:G:H5'    | 1:H1:3096:U:O2'    | 2.21                     | 0.41              |
| 1:H1:2902:G:N3     | 1:H1:2922:A:H2     | 2.19                     | 0.41              |
| 1:H1:2995:A:H2'    | 1:H1:2996:C:O4'    | 2.21                     | 0.41              |
| 1:H1:3127:U:O2'    | 1:H1:3128:G:H5''   | 2.16                     | 0.41              |
| 1:H1:3235:U:O2     | 8:HH:10:ALA:HB1    | 2.21                     | 0.41              |
| 1:H1:3294:A:H2'    | 1:H1:3295:G:H5'    | 2.02                     | 0.41              |
| 6:HF:16:ASN:OD1    | 6:HF:17:TYR:N      | 2.54                     | 0.41              |
| 6:HF:28:VAL:CG1    | 6:HF:66:ASN:CA     | 2.98                     | 0.41              |
| 7:HG:32:LYS:HG2    | 7:HG:36:ASN:ND2    | 2.36                     | 0.41              |
| 7:HG:62:LEU:HD23   | 13:HN:4:PHE:CE2    | 2.55                     | 0.41              |
| 8:HH:104:LEU:HD23  | 8:HH:104:LEU:HA    | 1.66                     | 0.41              |
| 9:HJ:142:ILE:HD12  | 9:HJ:148:VAL:HG12  | 2.03                     | 0.41              |
| 15:HP:39:ILE:CG2   | 15:HP:40:THR:N     | 2.82                     | 0.41              |
| 18:HU:150:LEU:HD23 | 18:HU:150:LEU:HA   | 1.82                     | 0.41              |
| 19:HX:28:LEU:HD13  | 19:HX:70:GLY:C     | 2.46                     | 0.41              |
| 1:A1:116:U:C6      | 1:A1:117:G:N7      | 2.89                     | 0.41              |
| 1:A1:155:A:N3      | 1:A1:265:A:N1      | 2.68                     | 0.41              |
| 1:A1:219:A:H2      | 1:A1:1416:U:C2'    | 2.22                     | 0.41              |
| 1:A1:223:C:O2'     | 1:A1:224:C:P       | 2.75                     | 0.41              |
| 1:A1:467:A:N1      | 1:A1:468:A:C4      | 2.89                     | 0.41              |
| 1:A1:864:C:N3      | 1:A1:865:C:C5      | 2.89                     | 0.41              |
| 1:A1:1235:U:H2'    | 10:AK:109:ASN:HD21 | 1.83                     | 0.41              |
| 1:A1:1245:U:N3     | 1:A1:1314:A:C2     | 2.89                     | 0.41              |
| 1:A1:1376:A:H1'    | 24:BC:300:ASN:HB3  | 2.03                     | 0.41              |
| 1:A1:1481:U:C5     | 1:A1:3067:A:C2     | 3.09                     | 0.41              |
| 1:A1:1769:U:H2'    | 1:A1:1770:A:C8     | 2.56                     | 0.41              |
| 1:A1:1795:C:O2'    | 1:A1:1796:U:H5'    | 2.21                     | 0.41              |
| 1:A1:1958:G:C6     | 50:A1:4528:HOH:O   | 2.70                     | 0.41              |
| 1:A1:2179:U:OP1    | 22:BA:210:HIS:HE1  | 2.04                     | 0.41              |
| 1:A1:2242:G:H2'    | 1:A1:2243:C:H5'    | 2.03                     | 0.41              |
| 1:A1:2309:U:C5'    | 1:A1:2310:G:OP2    | 2.69                     | 0.41              |
| 1:A1:2312:A:H2'    | 1:A1:2313:U:O5'    | 2.20                     | 0.41              |
| 1:A1:2322:U:O2'    | 1:A1:2323:U:H5'    | 2.20                     | 0.41              |
| 1:A1:2546:A:HO2'   | 11:AL:90:ARG:HD3   | 1.86                     | 0.41              |
| 1:A1:2563:U:C2     | 1:A1:2564:G:C8     | 3.09                     | 0.41              |
| 1:A1:2576:C:C6     | 1:A1:2576:C:C4'    | 3.04                     | 0.41              |
| 1:A1:2590:A:H2'    | 1:A1:2591:G:C8     | 2.56                     | 0.41              |
| 1:A1:2677:U:C4     | 34:BM:19:LYS:HE3   | 2.55                     | 0.41              |
| 1:A1:2701:U:H2'    | 1:A1:2702:U:C6     | 2.55                     | 0.41              |
| 1:A1:2915:C:H2'    | 1:A1:2916:C:H6     | 1.85                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2991:U:H2'    | 1:A1:2992:G:O5'    | 2.21                     | 0.41              |
| 1:A1:3102:A:C2     | 1:A1:3111:A:C8     | 3.09                     | 0.41              |
| 1:A1:3227:A:O2'    | 5:AE:86:PRO:CG     | 2.67                     | 0.41              |
| 1:A1:3243:A:O4'    | 20:B2:3:A:H2       | 2.03                     | 0.41              |
| 4:AC:11:TYR:CE1    | 4:AC:13:LYS:HA     | 2.56                     | 0.41              |
| 5:AE:75:LEU:HA     | 5:AE:75:LEU:HD23   | 1.49                     | 0.41              |
| 6:AF:81:LEU:HD12   | 6:AF:81:LEU:HA     | 1.83                     | 0.41              |
| 9:AJ:58:ILE:C      | 9:AJ:60:GLY:N      | 2.78                     | 0.41              |
| 18:AU:181:ILE:HG13 | 18:AU:181:ILE:H    | 1.58                     | 0.41              |
| 20:B2:118:G:H2'    | 20:B2:119:A:C8     | 2.56                     | 0.41              |
| 22:BA:12:ARG:HH21  | 22:BA:14:ASN:ND2   | 2.14                     | 0.41              |
| 23:BB:233:VAL:HG12 | 23:BB:234:LYS:N    | 2.35                     | 0.41              |
| 24:BC:43:THR:CG2   | 24:BC:47:LYS:HE3   | 2.51                     | 0.41              |
| 24:BC:44:ASP:HB3   | 24:BC:118:ARG:HB2  | 2.02                     | 0.41              |
| 24:BC:152:VAL:CG1  | 24:BC:155:LEU:HD21 | 2.49                     | 0.41              |
| 24:BC:298:ILE:O    | 24:BC:304:VAL:CG2  | 2.69                     | 0.41              |
| 24:BC:309:LYS:HD3  | 35:BN:42:ASP:OD1   | 2.21                     | 0.41              |
| 25:BD:115:LYS:CG   | 25:BD:116:TYR:H    | 2.34                     | 0.41              |
| 26:BE:88:PHE:HD2   | 26:BE:152:VAL:HG12 | 1.83                     | 0.41              |
| 26:BE:132:ILE:HG23 | 26:BE:144:LEU:HD21 | 2.03                     | 0.41              |
| 29:BH:180:GLN:O    | 29:BH:184:LEU:HG   | 2.21                     | 0.41              |
| 30:BI:35:VAL:HG12  | 30:BI:107:ILE:HG12 | 2.03                     | 0.41              |
| 32:BK:14:HIS:CG    | 50:BK:203:HOH:O    | 2.74                     | 0.41              |
| 32:BK:52:PRO:HG3   | 35:BN:156:PRO:O    | 2.21                     | 0.41              |
| 32:BK:62:THR:HG21  | 32:BK:65:LEU:HB2   | 2.03                     | 0.41              |
| 34:BM:240:VAL:CG1  | 34:BM:245:LYS:HB2  | 2.50                     | 0.41              |
| 35:BN:37:LEU:O     | 35:BN:41:THR:CB    | 2.66                     | 0.41              |
| 36:BO:38:ARG:O     | 36:BO:39:ALA:C     | 2.64                     | 0.41              |
| 36:BO:176:LYS:HD3  | 36:BO:176:LYS:HA   | 1.87                     | 0.41              |
| 37:BP:6:GLY:O      | 37:BP:7:TYR:C      | 2.64                     | 0.41              |
| 39:BR:147:ILE:O    | 39:BR:147:ILE:HG22 | 2.20                     | 0.41              |
| 40:BS:38:LEU:O     | 40:BS:39:ARG:C     | 2.64                     | 0.41              |
| 41:BT:2:VAL:HG22   | 41:BT:3:VAL:N      | 2.36                     | 0.41              |
| 43:BV:33:GLN:O     | 43:BV:37:ARG:HG3   | 2.21                     | 0.41              |
| 20:C2:14:C:O2'     | 38:CQ:7:SER:HA     | 2.21                     | 0.41              |
| 21:C3:13:A:OP1     | 21:C3:109:U:C2'    | 2.69                     | 0.41              |
| 21:C3:64:A:H5'     | 50:C3:333:HOH:O    | 2.20                     | 0.41              |
| 21:C3:90:A:H2      | 29:CH:162:ARG:NH2  | 2.19                     | 0.41              |
| 22:CA:253:GLU:O    | 22:CA:257:MET:HB2  | 2.21                     | 0.41              |
| 23:CB:226:GLY:HA2  | 1:D1:1911:A:O2'    | 2.21                     | 0.41              |
| 24:CC:148:ARG:NE   | 24:CC:187:ARG:HD2  | 2.34                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 25:CD:104:PHE:HE1  | 25:CD:106:ILE:CG1  | 2.34                     | 0.41              |
| 30:CI:22:VAL:O     | 30:CI:26:LEU:HG    | 2.21                     | 0.41              |
| 30:CI:47:PHE:O     | 30:CI:50:ARG:N     | 2.54                     | 0.41              |
| 32:CK:43:HIS:CE1   | 18:DU:1:MET:HB3    | 2.56                     | 0.41              |
| 32:CK:46:LEU:HD23  | 32:CK:46:LEU:HA    | 1.75                     | 0.41              |
| 35:CN:125:ASP:OD1  | 35:CN:125:ASP:N    | 2.54                     | 0.41              |
| 47:CO:74:ARG:CZ    | 1:D1:1966:U:C5     | 3.04                     | 0.41              |
| 38:CQ:28:PHE:O     | 38:CQ:29:LYS:C     | 2.64                     | 0.41              |
| 39:CR:77:THR:O     | 39:CR:80:ALA:N     | 2.53                     | 0.41              |
| 39:CR:84:MET:HA    | 39:CR:89:THR:O     | 2.21                     | 0.41              |
| 40:CS:21:SER:OG    | 40:CS:26:ARG:HG2   | 2.21                     | 0.41              |
| 43:CV:86:ILE:HG12  | 43:CV:131:ILE:CA   | 2.46                     | 0.41              |
| 43:CV:206:THR:HG21 | 1:D1:1195:U:C1'    | 2.51                     | 0.41              |
| 43:CV:206:THR:CG2  | 1:D1:1195:U:H1'    | 2.51                     | 0.41              |
| 44:CW:97:VAL:HG12  | 44:CW:98:ASP:N     | 2.35                     | 0.41              |
| 45:CX:8:HIS:CE1    | 45:CX:72:GLY:HA2   | 2.56                     | 0.41              |
| 1:D1:168:G:H2'     | 1:D1:169:A:OP2     | 2.20                     | 0.41              |
| 1:D1:579:G:H1      | 6:DF:29:ASN:ND2    | 2.16                     | 0.41              |
| 1:D1:748:G:C5      | 1:D1:749:U:C5      | 3.09                     | 0.41              |
| 1:D1:1017:U:C2'    | 1:D1:1018:A:O5'    | 2.69                     | 0.41              |
| 1:D1:1344:A:N3     | 1:D1:1346:G:C8     | 2.89                     | 0.41              |
| 1:D1:1828:C:H2'    | 1:D1:1829:U:O4'    | 2.20                     | 0.41              |
| 1:D1:2396:A:C2     | 1:D1:2860:A:C6     | 3.09                     | 0.41              |
| 1:D1:2658:U:H2'    | 1:D1:2659:G:H8     | 1.86                     | 0.41              |
| 1:D1:2723:A:O2'    | 1:D1:2724:U:H5'    | 2.21                     | 0.41              |
| 1:D1:2761:U:O2     | 18:DU:190:TRP:CZ2  | 2.74                     | 0.41              |
| 1:D1:2827:G:C2'    | 1:D1:2828:A:H5'    | 2.51                     | 0.41              |
| 1:D1:2829:G:H5''   | 1:D1:2830:U:H5'    | 2.02                     | 0.41              |
| 1:D1:2977:U:H2'    | 1:D1:2978:G:O4'    | 2.21                     | 0.41              |
| 3:DB:4:ASN:C       | 3:DB:5:LYS:HG3     | 2.45                     | 0.41              |
| 6:DF:81:LEU:HD12   | 6:DF:81:LEU:HA     | 1.82                     | 0.41              |
| 7:DG:38:THR:HG22   | 7:DG:38:THR:O      | 2.21                     | 0.41              |
| 8:DH:9:VAL:CG1     | 8:DH:10:ALA:H      | 2.33                     | 0.41              |
| 9:DJ:119:PRO:HA    | 9:DJ:139:ARG:HB3   | 2.03                     | 0.41              |
| 21:E3:45:U:H4'     | 34:EM:154:THR:OG1  | 2.21                     | 0.41              |
| 22:EA:102:VAL:O    | 22:EA:103:LEU:HD23 | 2.20                     | 0.41              |
| 22:EA:153:SER:OG   | 1:F1:2153:G:N7     | 2.46                     | 0.41              |
| 23:EB:46:PHE:HD1   | 23:EB:206:ILE:CD1  | 2.33                     | 0.41              |
| 23:EB:62:ARG:NH2   | 1:F1:3027:U:OP1    | 2.54                     | 0.41              |
| 23:EB:93:ILE:CD1   | 23:EB:102:LEU:HD13 | 2.51                     | 0.41              |
| 23:EB:299:THR:HG22 | 23:EB:300:ASP:N    | 2.37                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 24:EC:359:LEU:HD21 | 24:EC:363:ARG:HH21 | 1.85                     | 0.41              |
| 24:EC:383:ALA:HB1  | 37:EP:147:PHE:CG   | 2.55                     | 0.41              |
| 26:EE:52:ASN:CG    | 26:EE:53:VAL:N     | 2.78                     | 0.41              |
| 27:EF:103:ARG:NH1  | 1:F1:119:A:C5      | 2.89                     | 0.41              |
| 35:EN:18:ARG:NH1   | 1:F1:696:A:OP1     | 2.49                     | 0.41              |
| 35:EN:57:ARG:CB    | 1:F1:696:A:OP2     | 2.69                     | 0.41              |
| 36:EO:131:LEU:HD11 | 1:F1:867:G:H5'     | 2.03                     | 0.41              |
| 37:EP:70:ARG:O     | 37:EP:93:ILE:HG13  | 2.21                     | 0.41              |
| 37:EP:139:VAL:HG12 | 37:EP:140:GLN:N    | 2.35                     | 0.41              |
| 38:EQ:128:ARG:HG2  | 38:EQ:142:LEU:CD2  | 2.51                     | 0.41              |
| 41:ET:11:CYS:O     | 41:ET:55:ILE:HB    | 2.21                     | 0.41              |
| 43:EV:81:ALA:HB3   | 43:EV:114:PHE:CZ   | 2.56                     | 0.41              |
| 45:EX:4:LYS:C      | 45:EX:73:PHE:CZ    | 2.98                     | 0.41              |
| 45:EX:30:LEU:HD23  | 45:EX:30:LEU:HA    | 1.88                     | 0.41              |
| 46:EY:55:TRP:CD1   | 46:EY:55:TRP:N     | 2.89                     | 0.41              |
| 1:F1:165:C:OP1     | 18:FU:132:LYS:NZ   | 2.54                     | 0.41              |
| 1:F1:583:G:N3      | 1:F1:585:A:OP2     | 2.54                     | 0.41              |
| 1:F1:624:G:O2'     | 1:F1:625:C:H6      | 2.02                     | 0.41              |
| 1:F1:934:G:C2'     | 1:F1:935:G:O5'     | 2.69                     | 0.41              |
| 1:F1:1110:U:O2     | 1:F1:1110:U:H2'    | 2.20                     | 0.41              |
| 1:F1:1196:A:C6     | 1:F1:1357:A:N7     | 2.89                     | 0.41              |
| 1:F1:1312:G:O2'    | 1:F1:1313:A:C8     | 2.73                     | 0.41              |
| 1:F1:1415:C:O2     | 1:F1:1415:C:C2'    | 2.69                     | 0.41              |
| 1:F1:1518:G:O3'    | 3:FB:48:LYS:HD2    | 2.21                     | 0.41              |
| 1:F1:1839:A:C4'    | 1:F1:1840:U:O5'    | 2.67                     | 0.41              |
| 1:F1:1925:A:H4'    | 1:F1:2906:G:H4'    | 2.02                     | 0.41              |
| 1:F1:2277:U:O2     | 1:F1:2277:U:H2'    | 2.21                     | 0.41              |
| 1:F1:2438:G:C6     | 1:F1:2439:C:C4     | 3.08                     | 0.41              |
| 1:F1:2543:C:H42    | 7:FG:54:SER:HB3    | 1.86                     | 0.41              |
| 1:F1:2706:U:H5'    | 1:F1:2706:U:H6     | 1.86                     | 0.41              |
| 1:F1:2783:U:P      | 4:FC:61:LYS:HG2    | 2.61                     | 0.41              |
| 1:F1:3007:G:C5     | 1:F1:3008:U:C4     | 3.09                     | 0.41              |
| 1:F1:3227:A:C8     | 5:FE:146:LYS:NZ    | 2.88                     | 0.41              |
| 5:FE:67:LYS:NZ     | 5:FE:109:THR:HB    | 2.36                     | 0.41              |
| 5:FE:104:LEU:HD13  | 5:FE:160:LEU:HG    | 2.02                     | 0.41              |
| 7:FG:21:GLY:CA     | 7:FG:94:ASP:O      | 2.69                     | 0.41              |
| 8:FH:54:LYS:HD3    | 8:FH:110:PRO:CG    | 2.46                     | 0.41              |
| 9:FJ:188:ARG:O     | 9:FJ:188:ARG:HG3   | 2.21                     | 0.41              |
| 14:FO:1:MET:C      | 14:FO:3:GLN:N      | 2.78                     | 0.41              |
| 14:FO:102:GLY:O    | 14:FO:105:GLN:N    | 2.54                     | 0.41              |
| 20:G2:87:C:O2'     | 20:G2:88:G:C5'     | 2.69                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 21:G3:45:U:H5'     | 34:GM:154:THR:HG21 | 2.02                     | 0.41              |
| 21:G3:54:A:O2'     | 25:GD:152:GLN:NE2  | 2.54                     | 0.41              |
| 22:GA:71:LYS:CE    | 1:H1:2517:G:O6     | 2.68                     | 0.41              |
| 22:GA:119:GLU:CA   | 22:GA:127:PHE:HE1  | 2.34                     | 0.41              |
| 23:GB:68:ASN:O     | 23:GB:70:LYS:HG3   | 2.21                     | 0.41              |
| 23:GB:128:LYS:HD3  | 23:GB:128:LYS:HA   | 1.81                     | 0.41              |
| 24:GC:240:ARG:HB2  | 1:H1:719:C:H1'     | 2.03                     | 0.41              |
| 24:GC:298:ILE:O    | 24:GC:304:VAL:CG2  | 2.68                     | 0.41              |
| 26:GE:110:ILE:HD12 | 26:GE:159:ILE:HD11 | 2.02                     | 0.41              |
| 27:GF:170:PHE:CE1  | 27:GF:216:ASN:OD1  | 2.74                     | 0.41              |
| 29:GH:46:PHE:CZ    | 29:GH:84:ALA:HA    | 2.55                     | 0.41              |
| 29:GH:61:THR:OG1   | 1:H1:2842:U:OP1    | 2.39                     | 0.41              |
| 29:GH:92:HIS:HB2   | 29:GH:94:TRP:NE1   | 2.36                     | 0.41              |
| 29:GH:213:ARG:HA   | 29:GH:213:ARG:HD2  | 1.89                     | 0.41              |
| 30:GI:79:PHE:CD2   | 30:GI:103:ILE:HD13 | 2.51                     | 0.41              |
| 30:GI:196:PHE:CD1  | 30:GI:196:PHE:O    | 2.74                     | 0.41              |
| 33:GL:120:TRP:CE2  | 33:GL:122:GLY:CA   | 3.01                     | 0.41              |
| 34:GM:88:VAL:CG1   | 34:GM:246:LEU:HD21 | 2.51                     | 0.41              |
| 35:GN:180:LEU:O    | 1:H1:2751:A:O2'    | 2.27                     | 0.41              |
| 36:GO:38:ARG:O     | 36:GO:39:ALA:C     | 2.64                     | 0.41              |
| 36:GO:133:LYS:CG   | 36:GO:134:ASN:H    | 2.26                     | 0.41              |
| 38:GQ:56:ARG:HH12  | 1:H1:2347:A:H5'    | 1.84                     | 0.41              |
| 43:GV:184:GLU:O    | 43:GV:188:VAL:HA   | 2.21                     | 0.41              |
| 45:GX:79:ARG:HH12  | 1:H1:1448:G:C1'    | 2.33                     | 0.41              |
| 1:H1:56:G:N2       | 1:H1:58:A:N3       | 2.68                     | 0.41              |
| 1:H1:116:U:C4      | 1:H1:117:G:C5      | 3.09                     | 0.41              |
| 1:H1:121:A:H61     | 1:H1:150:A:N6      | 2.18                     | 0.41              |
| 1:H1:206:G:N3      | 1:H1:206:G:H2'     | 2.36                     | 0.41              |
| 1:H1:567:C:N4      | 1:H1:603:A:C2      | 2.89                     | 0.41              |
| 1:H1:807:G:H2'     | 1:H1:808:A:O4'     | 2.21                     | 0.41              |
| 1:H1:909:A:OP2     | 2:HA:4:GLY:HA3     | 2.21                     | 0.41              |
| 1:H1:1045:G:N3     | 1:H1:1046:G:C8     | 2.89                     | 0.41              |
| 1:H1:1052:A:C2     | 1:H1:1053:A:C6     | 3.09                     | 0.41              |
| 1:H1:1054:G:C2'    | 1:H1:1055:A:O5'    | 2.68                     | 0.41              |
| 1:H1:1165:U:H2'    | 1:H1:1166:G:O4'    | 2.20                     | 0.41              |
| 1:H1:1495:C:O2     | 1:H1:1535:A:C2     | 2.74                     | 0.41              |
| 1:H1:1594:C:N4     | 1:H1:1595:A:N7     | 2.69                     | 0.41              |
| 1:H1:1776:G:N7     | 15:HP:34:LYS:HD2   | 2.36                     | 0.41              |
| 1:H1:2119:G:C2'    | 1:H1:2120:U:H5'    | 2.51                     | 0.41              |
| 1:H1:2153:G:H5'    | 1:H1:2173:A:N6     | 2.35                     | 0.41              |
| 1:H1:2313:U:C4     | 1:H1:2314:U:C4     | 3.08                     | 0.41              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:H1:2378:A:H2'  | 1:H1:2379:A:C8    | 2.56                     | 0.41              |
| 1:H1:2387:C:H5'' | 1:H1:2388:G:OP2   | 2.21                     | 0.41              |
| 6:HF:25:ALA:HB1  | 6:HF:38:ILE:HG23  | 2.02                     | 0.41              |
| 8:HH:15:TRP:CZ3  | 8:HH:105:ARG:CZ   | 3.03                     | 0.41              |
| 9:HJ:53:ILE:HD13 | 9:HJ:63:THR:HG23  | 2.03                     | 0.41              |
| 11:HL:83:CYS:O   | 11:HL:87:VAL:HG23 | 2.20                     | 0.41              |
| 12:HM:15:LEU:HG  | 12:HM:17:PHE:CE2  | 2.56                     | 0.41              |
| 14:HO:58:ILE:O   | 14:HO:83:VAL:HG22 | 2.21                     | 0.41              |
| 17:HT:50:ASP:HB3 | 17:HT:53:ILE:HD12 | 2.02                     | 0.41              |
| 19:HX:16:MET:CE  | 19:HX:18:VAL:CG2  | 2.93                     | 0.41              |
| 19:HX:93:LEU:O   | 19:HX:103:ASN:HA  | 2.21                     | 0.41              |
| 1:A1:20:G:C4     | 1:A1:21:A:C8      | 3.09                     | 0.40              |
| 1:A1:56:G:N2     | 1:A1:58:A:N3      | 2.69                     | 0.40              |
| 1:A1:307:A:C2    | 1:A1:2770:U:O2    | 2.74                     | 0.40              |
| 1:A1:517:A:C4'   | 1:A1:518:G:OP1    | 2.60                     | 0.40              |
| 1:A1:559:G:C6    | 1:A1:609:A:C6     | 3.10                     | 0.40              |
| 1:A1:573:A:C6    | 1:A1:596:A:N7     | 2.88                     | 0.40              |
| 1:A1:574:G:H2'   | 1:A1:575:A:H8     | 1.86                     | 0.40              |
| 1:A1:583:G:C4    | 1:A1:585:A:OP2    | 2.74                     | 0.40              |
| 1:A1:585:A:N6    | 1:A1:586:A:C6     | 2.90                     | 0.40              |
| 1:A1:696:A:C2'   | 1:A1:697:A:C5'    | 2.85                     | 0.40              |
| 1:A1:768:A:O4'   | 35:BN:141:ARG:HD3 | 2.20                     | 0.40              |
| 1:A1:818:U:H2'   | 1:A1:819:U:C6     | 2.56                     | 0.40              |
| 1:A1:1017:U:C2'  | 1:A1:1018:A:O5'   | 2.69                     | 0.40              |
| 1:A1:1019:G:N3   | 1:A1:2626:A:H2'   | 2.36                     | 0.40              |
| 1:A1:1064:C:P    | 34:BM:5:LYS:HD3   | 2.61                     | 0.40              |
| 1:A1:1142:G:H8   | 1:A1:1142:G:H3'   | 1.86                     | 0.40              |
| 1:A1:1460:G:P    | 50:A1:3957:HOH:O  | 2.63                     | 0.40              |
| 1:A1:1549:U:H3   | 39:BR:83:LYS:HZ1  | 1.61                     | 0.40              |
| 1:A1:1662:A:H5'  | 11:AL:76:ARG:CZ   | 2.42                     | 0.40              |
| 1:A1:1734:A:OP1  | 13:AN:79:HIS:HE1  | 2.03                     | 0.40              |
| 1:A1:2212:U:H2'  | 1:A1:2213:G:H8    | 1.85                     | 0.40              |
| 1:A1:2352:A:H4'  | 38:BQ:139:ASN:OD1 | 2.21                     | 0.40              |
| 1:A1:2650:U:H2'  | 1:A1:2651:A:H8    | 1.86                     | 0.40              |
| 1:A1:2910:G:H1'  | 1:A1:2939:G:N3    | 2.37                     | 0.40              |
| 1:A1:2961:G:H3'  | 1:A1:2962:U:H5''  | 2.01                     | 0.40              |
| 1:A1:3017:G:H2'  | 1:A1:3018:A:C8    | 2.56                     | 0.40              |
| 1:A1:3123:A:OP2  | 50:A1:4649:HOH:O  | 2.22                     | 0.40              |
| 1:A1:3308:A:C2   | 1:A1:3309:U:N3    | 2.89                     | 0.40              |
| 2:AA:21:ARG:CZ   | 2:AA:44:MET:CE    | 2.99                     | 0.40              |
| 2:AA:53:LYS:NZ   | 24:BC:66:GLY:O    | 2.41                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 3:AB:33:THR:HG22   | 3:AB:35:ILE:N      | 2.04                     | 0.40              |
| 5:AE:122:ALA:HB3   | 5:AE:132:ALA:HB1   | 2.04                     | 0.40              |
| 6:AF:25:ALA:HB1    | 6:AF:38:ILE:HG23   | 2.04                     | 0.40              |
| 6:AF:79:PHE:O      | 6:AF:80:ASP:HB2    | 2.20                     | 0.40              |
| 6:AF:85:TYR:CE2    | 6:AF:91:ALA:HB2    | 2.55                     | 0.40              |
| 7:AG:38:THR:HG22   | 7:AG:93:LEU:CD2    | 2.39                     | 0.40              |
| 8:AH:45:LYS:H      | 8:AH:45:LYS:HG2    | 1.67                     | 0.40              |
| 18:AU:74:THR:O     | 18:AU:77:GLU:N     | 2.53                     | 0.40              |
| 18:AU:183:GLN:O    | 18:AU:187:ASN:ND2  | 2.54                     | 0.40              |
| 19:AX:64:LYS:HD3   | 19:AX:64:LYS:HA    | 1.88                     | 0.40              |
| 22:BA:30:TYR:HH    | 22:BA:166:THR:HG1  | 1.56                     | 0.40              |
| 22:BA:256:ALA:CB   | 22:GA:253:GLU:OE2  | 2.69                     | 0.40              |
| 23:BB:216:LEU:HD23 | 23:BB:274:THR:HA   | 2.02                     | 0.40              |
| 23:BB:235:HIS:CD2  | 23:BB:235:HIS:C    | 2.98                     | 0.40              |
| 24:BC:37:ILE:O     | 24:BC:41:VAL:HG23  | 2.21                     | 0.40              |
| 24:BC:203:ASN:ND2  | 40:BS:10:ALA:HA    | 2.35                     | 0.40              |
| 26:BE:31:LEU:HD23  | 26:BE:31:LEU:HA    | 1.91                     | 0.40              |
| 29:BH:46:PHE:CZ    | 29:BH:84:ALA:HA    | 2.55                     | 0.40              |
| 30:BI:40:ILE:HG22  | 30:BI:41:ASN:N     | 2.37                     | 0.40              |
| 30:BI:106:GLY:N    | 30:BI:152:ILE:HD11 | 2.36                     | 0.40              |
| 36:BO:4:LEU:O      | 36:BO:5:ARG:C      | 2.64                     | 0.40              |
| 36:BO:96:MET:HE2   | 36:BO:96:MET:HB3   | 1.79                     | 0.40              |
| 36:BO:131:LEU:HB2  | 36:BO:132:TYR:CE1  | 2.56                     | 0.40              |
| 37:BP:74:VAL:HG12  | 37:BP:75:ILE:H     | 1.79                     | 0.40              |
| 38:BQ:59:CYS:HB3   | 38:BQ:74:GLN:CB    | 2.50                     | 0.40              |
| 39:BR:94:VAL:HG12  | 39:BR:95:HIS:N     | 2.36                     | 0.40              |
| 45:BX:4:LYS:C      | 45:BX:73:PHE:HZ    | 2.29                     | 0.40              |
| 20:C2:105:A:H1'    | 1:D1:20:G:H1'      | 2.02                     | 0.40              |
| 23:CB:130:PHE:O    | 23:CB:134:GLU:HG3  | 2.22                     | 0.40              |
| 23:CB:157:ARG:HG2  | 23:CB:180:GLN:CA   | 2.47                     | 0.40              |
| 24:CC:27:ALA:O     | 24:CC:28:VAL:C     | 2.64                     | 0.40              |
| 24:CC:194:LEU:HD23 | 24:CC:194:LEU:HA   | 1.62                     | 0.40              |
| 26:CE:94:PHE:CD1   | 26:CE:98:PRO:HA    | 2.55                     | 0.40              |
| 27:CF:92:TYR:HE1   | 27:CF:200:ASP:OD2  | 2.04                     | 0.40              |
| 29:CH:77:ILE:CG1   | 29:CH:78:LYS:N     | 2.82                     | 0.40              |
| 30:CI:48:ARG:HE    | 30:CI:48:ARG:HB2   | 1.69                     | 0.40              |
| 30:CI:81:ARG:NH2   | 1:D1:2378:A:P      | 2.93                     | 0.40              |
| 30:CI:90:LYS:HG2   | 1:D1:2378:A:C6     | 2.56                     | 0.40              |
| 33:CL:180:ARG:NH2  | 1:D1:301:A:H4'     | 2.36                     | 0.40              |
| 34:CM:76:CYS:HB3   | 34:CM:105:LEU:HD12 | 2.03                     | 0.40              |
| 35:CN:173:LYS:HE3  | 1:D1:86:A:P        | 2.61                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 38:CQ:31:THR:O     | 38:CQ:32:TYR:C     | 2.64                     | 0.40              |
| 41:CT:35:THR:HG22  | 41:CT:36:LYS:N     | 2.36                     | 0.40              |
| 45:CX:44:VAL:C     | 45:CX:46:ARG:N     | 2.79                     | 0.40              |
| 45:CX:88:LEU:HD12  | 45:CX:88:LEU:HA    | 1.78                     | 0.40              |
| 1:D1:146:U:H6      | 1:D1:146:U:C5'     | 2.33                     | 0.40              |
| 1:D1:270:C:H2'     | 1:D1:271:G:O5'     | 2.21                     | 0.40              |
| 1:D1:363:G:H8      | 1:D1:363:G:H5''    | 1.85                     | 0.40              |
| 1:D1:603:A:H2'     | 1:D1:604:A:H8      | 1.85                     | 0.40              |
| 1:D1:634:G:C2'     | 1:D1:635:A:OP1     | 2.69                     | 0.40              |
| 1:D1:651:U:H5'     | 1:D1:1425:U:H5'    | 2.03                     | 0.40              |
| 1:D1:1112:A:N6     | 1:D1:1113:A:N6     | 2.69                     | 0.40              |
| 1:D1:1184:U:H5'    | 1:D1:1184:U:C6     | 2.36                     | 0.40              |
| 1:D1:1319:C:H2'    | 1:D1:1320:U:C6     | 2.48                     | 0.40              |
| 1:D1:1373:G:C4     | 1:D1:1374:C:C5     | 3.09                     | 0.40              |
| 1:D1:1515:A:C4     | 1:D1:1516:A:C8     | 3.08                     | 0.40              |
| 1:D1:1581:C:O2'    | 1:D1:1582:A:OP1    | 2.30                     | 0.40              |
| 1:D1:1820:U:C4'    | 1:D1:1821:U:OP1    | 2.69                     | 0.40              |
| 1:D1:1868:C:H2'    | 1:D1:1869:G:O5'    | 2.21                     | 0.40              |
| 1:D1:1922:G:H2'    | 1:D1:1923:G:C5'    | 2.50                     | 0.40              |
| 1:D1:1937:G:O2'    | 1:D1:2116:A:H1'    | 2.21                     | 0.40              |
| 1:D1:2252:C:C5'    | 22:EA:177:ASP:OD2  | 2.68                     | 0.40              |
| 1:D1:2368:A:N3     | 1:D1:2812:G:O2'    | 2.48                     | 0.40              |
| 1:D1:3129:G:O5'    | 1:D1:3129:G:H8     | 2.04                     | 0.40              |
| 1:D1:3227:A:O2'    | 5:DE:86:PRO:CG     | 2.68                     | 0.40              |
| 4:DC:9:LYS:HA      | 4:DC:19:THR:O      | 2.20                     | 0.40              |
| 4:DC:16:ASN:O      | 4:DC:16:ASN:CG     | 2.62                     | 0.40              |
| 6:DF:93:LYS:O      | 6:DF:97:LYS:HG2    | 2.20                     | 0.40              |
| 6:DF:109:PHE:O     | 6:DF:113:VAL:HG23  | 2.21                     | 0.40              |
| 8:DH:29:THR:HG22   | 8:DH:30:GLN:N      | 2.32                     | 0.40              |
| 9:DJ:67:LYS:HE2    | 9:DJ:112:ASP:HB3   | 2.03                     | 0.40              |
| 11:DL:84:HIS:O     | 11:DL:85:THR:C     | 2.64                     | 0.40              |
| 16:DQ:46:ARG:HH22  | 16:DQ:55:GLU:CD    | 2.29                     | 0.40              |
| 22:EA:210:HIS:NE2  | 22:EA:236:VAL:HG11 | 2.36                     | 0.40              |
| 23:EB:250:ILE:HG13 | 23:EB:264:ARG:NH2  | 2.22                     | 0.40              |
| 24:EC:126:ARG:NE   | 24:EC:280:LYS:HD2  | 2.35                     | 0.40              |
| 24:EC:163:VAL:C    | 24:EC:166:TYR:HD2  | 2.27                     | 0.40              |
| 24:EC:314:THR:HG21 | 1:F1:1372:A:N3     | 2.36                     | 0.40              |
| 25:ED:23:VAL:HG23  | 25:ED:25:GLU:N     | 2.36                     | 0.40              |
| 25:ED:29:LYS:HG2   | 25:ED:32:LYS:HD2   | 2.02                     | 0.40              |
| 25:ED:60:LYS:O     | 25:ED:63:GLU:CB    | 2.68                     | 0.40              |
| 25:ED:117:ASP:H    | 25:ED:120:THR:HB   | 1.83                     | 0.40              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 26:EE:97:PHE:HB3   | 26:EE:114:HIS:HD2 | 1.86                     | 0.40              |
| 26:EE:168:LYS:HB2  | 26:EE:173:PHE:CD2 | 2.56                     | 0.40              |
| 29:EH:26:VAL:HA    | 29:EH:27:PRO:HD2  | 1.82                     | 0.40              |
| 34:EM:16:PHE:O     | 37:EP:20:LYS:HE2  | 2.21                     | 0.40              |
| 34:EM:125:VAL:HG23 | 34:EM:201:LYS:CE  | 2.51                     | 0.40              |
| 34:EM:128:ALA:O    | 34:EM:129:TYR:C   | 2.61                     | 0.40              |
| 34:EM:163:LEU:HD21 | 34:EM:175:HIS:HB3 | 1.99                     | 0.40              |
| 35:EN:62:PRO:O     | 35:EN:142:ALA:CB  | 2.69                     | 0.40              |
| 36:EO:110:ARG:HD2  | 36:EO:120:TYR:CD2 | 2.56                     | 0.40              |
| 37:EP:19:TYR:HE1   | 37:EP:20:LYS:CE   | 2.31                     | 0.40              |
| 43:EV:58:LYS:O     | 43:EV:62:GLU:HG2  | 2.22                     | 0.40              |
| 43:EV:206:THR:HG23 | 1:F1:1195:U:H1'   | 2.03                     | 0.40              |
| 1:F1:73:G:C5'      | 18:FU:56:VAL:HG11 | 2.51                     | 0.40              |
| 1:F1:243:G:H2'     | 1:F1:244:C:H6     | 1.85                     | 0.40              |
| 1:F1:292:C:OP1     | 1:F1:2427:U:C5'   | 2.69                     | 0.40              |
| 1:F1:315:U:C5      | 16:FQ:28:VAL:HG12 | 2.56                     | 0.40              |
| 1:F1:436:U:H2'     | 1:F1:437:A:H5'    | 2.02                     | 0.40              |
| 1:F1:440:C:N4      | 1:F1:538:A:H2     | 2.19                     | 0.40              |
| 1:F1:526:U:OP2     | 5:FE:10:ARG:HB2   | 2.21                     | 0.40              |
| 1:F1:631:G:C5      | 5:FE:31:ARG:NH2   | 2.89                     | 0.40              |
| 1:F1:748:G:C8      | 50:F1:3854:HOH:O  | 2.58                     | 0.40              |
| 1:F1:1239:G:N3     | 19:FX:128:HIS:CE1 | 2.85                     | 0.40              |
| 1:F1:1434:G:O2'    | 1:F1:1435:C:H5''  | 2.21                     | 0.40              |
| 1:F1:1902:C:O2     | 1:F1:1902:C:C2'   | 2.68                     | 0.40              |
| 1:F1:1969:G:H2'    | 1:F1:1970:A:H8    | 1.85                     | 0.40              |
| 1:F1:2185:U:C4     | 1:F1:2186:U:C4    | 3.08                     | 0.40              |
| 1:F1:2345:C:O2'    | 1:F1:2346:U:H5'   | 2.21                     | 0.40              |
| 1:F1:2347:A:C6     | 1:F1:2348:G:C5    | 3.09                     | 0.40              |
| 1:F1:2561:A:C2     | 1:F1:2563:U:C4    | 3.09                     | 0.40              |
| 1:F1:2576:C:H6     | 1:F1:2576:C:H5'   | 1.78                     | 0.40              |
| 1:F1:2576:C:H5''   | 1:F1:2576:C:C6    | 2.45                     | 0.40              |
| 1:F1:2588:U:H2'    | 1:F1:2589:U:H6    | 1.86                     | 0.40              |
| 1:F1:2594:G:H2'    | 1:F1:2596:G:O6    | 2.20                     | 0.40              |
| 1:F1:2968:U:O5'    | 1:F1:2968:U:H6    | 2.04                     | 0.40              |
| 1:F1:2994:G:C2'    | 1:F1:2995:A:OP2   | 2.69                     | 0.40              |
| 1:F1:3008:U:H2'    | 1:F1:3009:U:C6    | 2.57                     | 0.40              |
| 3:FB:6:THR:HG22    | 3:FB:8:ASN:H      | 1.86                     | 0.40              |
| 5:FE:18:TRP:CB     | 14:FO:95:ARG:HH21 | 2.33                     | 0.40              |
| 5:FE:90:VAL:HG13   | 5:FE:91:ASN:N     | 2.36                     | 0.40              |
| 7:FG:52:ARG:O      | 7:FG:56:ILE:HG13  | 2.21                     | 0.40              |
| 8:FH:18:ALA:HB2    | 8:FH:39:LEU:HD22  | 2.02                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:FJ:158:GLY:CA    | 9:FJ:179:ILE:HD12  | 2.52                     | 0.40              |
| 11:FL:60:ARG:HA    | 11:FL:61:PRO:HD3   | 1.85                     | 0.40              |
| 20:G2:48:C:OP1     | 3:HB:12:ARG:HD3    | 2.20                     | 0.40              |
| 20:G2:82:A:O2'     | 42:GU:50:ILE:HD11  | 2.20                     | 0.40              |
| 20:G2:96:A:C2      | 2:HA:85:ALA:HA     | 2.56                     | 0.40              |
| 21:G3:32:A:C2      | 21:G3:41:G:C5      | 3.09                     | 0.40              |
| 21:G3:45:U:OP1     | 34:GM:151:VAL:HG13 | 2.20                     | 0.40              |
| 24:GC:55:VAL:O     | 24:GC:56:LYS:C     | 2.64                     | 0.40              |
| 24:GC:81:ILE:HD13  | 24:GC:101:CYS:SG   | 2.61                     | 0.40              |
| 24:GC:272:THR:O    | 24:GC:275:THR:N    | 2.53                     | 0.40              |
| 27:GF:243:LYS:O    | 27:GF:247:GLU:HG3  | 2.21                     | 0.40              |
| 28:GG:5:UNK:C      | 28:GG:7:UNK:N      | 2.81                     | 0.40              |
| 30:GI:9:ASP:O      | 30:GI:13:HIS:NE2   | 2.54                     | 0.40              |
| 30:GI:50:ARG:O     | 30:GI:54:SER:HB2   | 2.22                     | 0.40              |
| 30:GI:130:ASN:HD21 | 19:HX:167:LYS:HE3  | 1.86                     | 0.40              |
| 30:GI:155:LEU:HD13 | 1:H1:3205:A:C8     | 2.56                     | 0.40              |
| 33:GL:20:SER:HB2   | 33:GL:24:ARG:HH21  | 1.87                     | 0.40              |
| 34:GM:166:ALA:HB1  | 34:GM:171:ILE:CD1  | 2.50                     | 0.40              |
| 34:GM:213:MET:HB3  | 34:GM:224:PHE:CE1  | 2.44                     | 0.40              |
| 35:GN:6:HIS:C      | 35:GN:8:GLN:H      | 2.28                     | 0.40              |
| 36:GO:9:ARG:O      | 36:GO:12:ALA:HB3   | 2.22                     | 0.40              |
| 36:GO:106:LEU:HD11 | 36:GO:123:PHE:HB3  | 2.03                     | 0.40              |
| 37:GP:100:ASN:ND2  | 1:H1:1017:U:OP1    | 2.54                     | 0.40              |
| 37:GP:101:VAL:HG22 | 1:H1:1016:U:H1'    | 2.02                     | 0.40              |
| 40:GS:31:SER:CB    | 40:GS:48:PRO:HA    | 2.51                     | 0.40              |
| 42:GU:21:GLU:HG2   | 42:GU:58:TYR:CE2   | 2.56                     | 0.40              |
| 42:GU:81:PRO:CD    | 42:GU:84:ILE:HD12  | 2.49                     | 0.40              |
| 43:GV:189:GLY:HA3  | 43:GV:190:PRO:HD2  | 1.78                     | 0.40              |
| 44:GW:97:VAL:HG12  | 44:GW:98:ASP:N     | 2.36                     | 0.40              |
| 1:H1:20:G:C4       | 1:H1:21:A:C8       | 3.09                     | 0.40              |
| 1:H1:418:G:N2      | 1:H1:2360:C:H1'    | 2.35                     | 0.40              |
| 1:H1:732:C:H1'     | 1:H1:778:G:H1'     | 2.03                     | 0.40              |
| 1:H1:807:G:H2'     | 1:H1:808:A:C8      | 2.57                     | 0.40              |
| 1:H1:1107:A:C4     | 1:H1:1108:A:C8     | 3.09                     | 0.40              |
| 1:H1:1175:G:H2'    | 1:H1:1176:G:C5'    | 2.51                     | 0.40              |
| 1:H1:1179:G:H8     | 1:H1:1179:G:P      | 2.44                     | 0.40              |
| 1:H1:1222:A:C2     | 1:H1:1336:U:C4     | 3.09                     | 0.40              |
| 1:H1:1659:G:O6     | 13:HN:17:ARG:HB3   | 2.21                     | 0.40              |
| 1:H1:1876:G:N3     | 2:HA:9:GLY:CA      | 2.84                     | 0.40              |
| 1:H1:1925:A:H5''   | 1:H1:1926:G:OP2    | 2.21                     | 0.40              |
| 1:H1:2255:U:C2'    | 1:H1:2256:G:O5'    | 2.69                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:2275:A:OP1   | 50:H1:4204:HOH:O   | 2.21                     | 0.40              |
| 1:H1:2279:C:O2    | 1:H1:2279:C:H2'    | 2.20                     | 0.40              |
| 1:H1:2509:U:O2'   | 1:H1:2510:A:H8     | 2.03                     | 0.40              |
| 1:H1:2773:A:O2'   | 4:HC:39:ARG:NH2    | 2.54                     | 0.40              |
| 1:H1:2914:A:O2'   | 1:H1:2915:C:H5'    | 2.21                     | 0.40              |
| 1:H1:3047:U:C6    | 1:H1:3047:U:C3'    | 3.03                     | 0.40              |
| 1:H1:3103:A:H2'   | 1:H1:3104:G:N7     | 2.36                     | 0.40              |
| 3:HB:51:ILE:O     | 3:HB:52:TYR:CD1    | 2.74                     | 0.40              |
| 5:HE:41:LEU:CB    | 5:HE:45:ILE:HG21   | 2.35                     | 0.40              |
| 5:HE:90:VAL:CG1   | 5:HE:91:ASN:N      | 2.84                     | 0.40              |
| 6:HF:93:LYS:O     | 6:HF:97:LYS:HG2    | 2.21                     | 0.40              |
| 9:HJ:111:ASN:HB3  | 9:HJ:154:ILE:HG22  | 2.03                     | 0.40              |
| 11:HL:59:VAL:HG12 | 11:HL:63:GLU:HB3   | 1.98                     | 0.40              |
| 14:HO:91:ALA:O    | 14:HO:95:ARG:HG3   | 2.21                     | 0.40              |
| 14:HO:102:GLY:O   | 14:HO:105:GLN:N    | 2.54                     | 0.40              |
| 16:HQ:59:ILE:CG2  | 16:HQ:63:LYS:HE3   | 2.51                     | 0.40              |
| 17:HT:27:HIS:O    | 17:HT:28:ARG:C     | 2.62                     | 0.40              |
| 19:HX:156:MET:HE3 | 19:HX:161:LEU:HD21 | 2.03                     | 0.40              |
| 1:A1:80:C:C2'     | 1:A1:81:C:O5'      | 2.69                     | 0.40              |
| 1:A1:310:U:H2'    | 1:A1:311:C:H6      | 1.86                     | 0.40              |
| 1:A1:514:U:O2'    | 1:A1:515:A:H5'     | 2.20                     | 0.40              |
| 1:A1:567:C:C4     | 1:A1:603:A:N1      | 2.89                     | 0.40              |
| 1:A1:643:A:C2'    | 5:AE:131:LYS:HE2   | 2.50                     | 0.40              |
| 1:A1:654:U:O2'    | 8:AH:98:GLN:NE2    | 2.54                     | 0.40              |
| 1:A1:723:U:O2'    | 1:A1:724:C:OP1     | 2.36                     | 0.40              |
| 1:A1:1034:U:C2'   | 1:A1:1035:A:H5''   | 2.51                     | 0.40              |
| 1:A1:1038:G:C2    | 1:A1:1039:G:C4     | 3.09                     | 0.40              |
| 1:A1:1110:U:O2    | 1:A1:1110:U:H2'    | 2.20                     | 0.40              |
| 1:A1:1201:G:H2'   | 1:A1:1202:C:C6     | 2.56                     | 0.40              |
| 1:A1:1249:G:H5''  | 28:BG:60:UNK:HG1   | 2.03                     | 0.40              |
| 1:A1:1365:C:H4'   | 45:BX:62:ASP:HB3   | 2.02                     | 0.40              |
| 1:A1:1473:G:O6    | 38:BQ:27:HIS:ND1   | 2.54                     | 0.40              |
| 1:A1:1868:C:H2'   | 1:A1:1869:G:O5'    | 2.21                     | 0.40              |
| 1:A1:1926:G:C2    | 1:A1:1927:U:H1'    | 2.56                     | 0.40              |
| 1:A1:2242:G:C6    | 1:A1:2243:C:C4     | 3.08                     | 0.40              |
| 1:A1:2688:G:H1    | 1:A1:2744:C:H42    | 1.68                     | 0.40              |
| 1:A1:2727:A:O4'   | 17:AT:37:PRO:CD    | 2.68                     | 0.40              |
| 1:A1:2729:A:H2'   | 1:A1:2730:C:H6     | 1.86                     | 0.40              |
| 1:A1:2915:C:H2'   | 1:A1:2916:C:C6     | 2.55                     | 0.40              |
| 1:A1:2926:G:C2'   | 1:A1:2927:G:H5'    | 2.52                     | 0.40              |
| 1:A1:3029:A:H2'   | 1:A1:3030:A:H8     | 1.84                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:3175:A:H5'    | 1:A1:3176:A:OP1    | 2.21                     | 0.40              |
| 1:A1:3298:U:H1'    | 1:A1:3299:G:OP1    | 2.20                     | 0.40              |
| 5:AE:7:GLY:C       | 5:AE:9:ASN:H       | 2.29                     | 0.40              |
| 5:AE:73:LEU:H      | 5:AE:73:LEU:HG     | 1.61                     | 0.40              |
| 6:AF:39:ASP:HB3    | 6:AF:72:LEU:HD22   | 2.04                     | 0.40              |
| 6:AF:80:ASP:C      | 6:AF:82:THR:N      | 2.75                     | 0.40              |
| 9:AJ:42:LEU:HD21   | 9:AJ:205:PHE:HE1   | 1.84                     | 0.40              |
| 9:AJ:111:ASN:HD22  | 9:AJ:156:ASN:HA    | 1.85                     | 0.40              |
| 11:AL:62:ALA:C     | 11:AL:64:TYR:H     | 2.29                     | 0.40              |
| 16:AQ:46:ARG:HA    | 16:AQ:46:ARG:HD2   | 1.89                     | 0.40              |
| 18:AU:150:LEU:HA   | 18:AU:150:LEU:HD23 | 1.86                     | 0.40              |
| 21:B3:1:G:OP1      | 34:BM:275:LYS:NZ   | 2.42                     | 0.40              |
| 21:B3:22:A:C6      | 34:BM:274:HIS:CG   | 3.09                     | 0.40              |
| 22:BA:41:TYR:CD1   | 22:BA:41:TYR:N     | 2.88                     | 0.40              |
| 24:BC:163:VAL:C    | 24:BC:166:TYR:HD2  | 2.28                     | 0.40              |
| 24:BC:163:VAL:HG12 | 24:BC:223:LEU:HG   | 2.03                     | 0.40              |
| 24:BC:369:HIS:O    | 24:BC:372:GLY:N    | 2.53                     | 0.40              |
| 25:BD:117:ASP:H    | 25:BD:120:THR:HB   | 1.85                     | 0.40              |
| 27:BF:69:GLN:CG    | 27:BF:222:ARG:HH12 | 2.34                     | 0.40              |
| 28:BG:123:UNK:O    | 28:BG:123:UNK:HG2  | 2.21                     | 0.40              |
| 29:BH:44:GLU:CD    | 29:BH:181:TYR:HH   | 2.27                     | 0.40              |
| 30:BI:59:LYS:O     | 30:BI:71:HIS:CE1   | 2.74                     | 0.40              |
| 32:BK:53:GLY:CA    | 35:BN:177:ALA:O    | 2.69                     | 0.40              |
| 34:BM:80:SER:OG    | 34:BM:92:LEU:HB3   | 2.21                     | 0.40              |
| 38:BQ:8:ARG:NH1    | 38:BQ:118:HIS:HB2  | 2.10                     | 0.40              |
| 38:BQ:133:ARG:HG3  | 38:BQ:133:ARG:NH1  | 2.35                     | 0.40              |
| 20:C2:5:A:C2'      | 20:C2:6:A:H5'      | 2.52                     | 0.40              |
| 20:C2:75:A:C2      | 20:C2:83:A:N1      | 2.89                     | 0.40              |
| 20:C2:119:A:C2     | 20:C2:133:U:O2     | 2.73                     | 0.40              |
| 21:C3:51:G:C6      | 21:C3:52:U:C4      | 3.09                     | 0.40              |
| 22:CA:175:ARG:NH2  | 1:D1:2175:A:OP1    | 2.51                     | 0.40              |
| 24:CC:6:GLN:CG     | 1:D1:471:A:H4'     | 2.52                     | 0.40              |
| 24:CC:9:VAL:O      | 24:CC:19:THR:HB    | 2.21                     | 0.40              |
| 24:CC:107:PHE:HB2  | 1:D1:684:A:H5'     | 2.04                     | 0.40              |
| 25:CD:9:MET:O      | 25:CD:134:PRO:HD3  | 2.21                     | 0.40              |
| 27:CF:185:LYS:NZ   | 1:D1:146:U:H2'     | 2.36                     | 0.40              |
| 29:CH:17:TYR:CZ    | 29:CH:23:ASN:OD1   | 2.73                     | 0.40              |
| 29:CH:191:VAL:HB   | 29:CH:198:LYS:HB2  | 2.03                     | 0.40              |
| 32:CK:132:LYS:HE2  | 18:DU:178:TYR:OH   | 2.20                     | 0.40              |
| 34:CM:60:ILE:HD12  | 34:CM:98:ALA:N     | 2.35                     | 0.40              |
| 34:CM:247:PHE:O    | 34:CM:251:HIS:CD2  | 2.74                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 35:CN:168:ARG:NH1 | 18:DU:9:VAL:HG22  | 2.35                     | 0.40              |
| 47:CO:28:GLU:CB   | 47:CO:49:LEU:HD13 | 2.50                     | 0.40              |
| 47:CO:95:TRP:CE3  | 1:D1:880:U:H4'    | 2.55                     | 0.40              |
| 37:CP:70:ARG:HB2  | 1:D1:2726:C:OP1   | 2.20                     | 0.40              |
| 37:CP:102:LYS:HA  | 37:CP:102:LYS:HD3 | 1.60                     | 0.40              |
| 40:CS:21:SER:HA   | 40:CS:22:PRO:HD3  | 1.84                     | 0.40              |
| 40:CS:58:VAL:C    | 40:CS:59:ARG:HG2  | 2.46                     | 0.40              |
| 40:CS:59:ARG:HH11 | 1:D1:200:C:P      | 2.44                     | 0.40              |
| 43:CV:98:ARG:NH1  | 43:CV:101:ARG:NH1 | 2.69                     | 0.40              |
| 43:CV:108:LEU:O   | 43:CV:109:HIS:HB2 | 2.21                     | 0.40              |
| 44:CW:7:LYS:H     | 44:CW:76:LYS:HB3  | 1.85                     | 0.40              |
| 46:CY:24:LYS:O    | 46:CY:25:VAL:C    | 2.61                     | 0.40              |
| 1:D1:196:G:H21    | 1:D1:219:A:H62    | 1.70                     | 0.40              |
| 1:D1:238:G:H5'    | 2:DA:86:ALA:HB3   | 2.02                     | 0.40              |
| 1:D1:545:A:H4'    | 5:DE:91:ASN:ND2   | 2.37                     | 0.40              |
| 1:D1:579:G:O2'    | 19:DX:158:ASN:HA  | 2.21                     | 0.40              |
| 1:D1:652:U:H2'    | 1:D1:653:C:H6     | 1.86                     | 0.40              |
| 1:D1:876:C:C2     | 1:D1:877:U:C5     | 3.09                     | 0.40              |
| 1:D1:1181:A:C5'   | 1:D1:1182:C:OP2   | 2.69                     | 0.40              |
| 1:D1:1196:A:C6    | 1:D1:1357:A:N7    | 2.89                     | 0.40              |
| 1:D1:1201:G:H2'   | 1:D1:1202:C:C6    | 2.56                     | 0.40              |
| 1:D1:1616:G:H4'   | 1:D1:1680:A:OP1   | 2.21                     | 0.40              |
| 1:D1:1617:G:H4'   | 1:D1:1618:A:OP2   | 2.22                     | 0.40              |
| 1:D1:1824:A:H2'   | 1:D1:1825:A:C8    | 2.56                     | 0.40              |
| 1:D1:1883:A:O4'   | 11:DL:2:ALA:HB2   | 2.21                     | 0.40              |
| 1:D1:2312:A:C2'   | 1:D1:2313:U:O5'   | 2.69                     | 0.40              |
| 1:D1:2392:A:H8    | 1:D1:2929:A:N1    | 2.19                     | 0.40              |
| 1:D1:2651:A:C5    | 50:D1:5039:HOH:O  | 2.64                     | 0.40              |
| 1:D1:2915:C:H2'   | 1:D1:2916:C:H6    | 1.86                     | 0.40              |
| 1:D1:2920:U:H1'   | 1:D1:2923:U:C4    | 2.56                     | 0.40              |
| 1:D1:3283:C:H2'   | 1:D1:3284:G:C8    | 2.56                     | 0.40              |
| 1:D1:3308:A:H2'   | 1:D1:3309:U:C6    | 2.56                     | 0.40              |
| 5:DE:142:GLU:OE1  | 5:DE:145:ARG:HD2  | 2.21                     | 0.40              |
| 7:DG:64:GLN:HA    | 7:DG:64:GLN:OE1   | 2.21                     | 0.40              |
| 9:DJ:23:TYR:CA    | 9:DJ:46:ILE:CG2   | 2.90                     | 0.40              |
| 9:DJ:78:ASP:OD1   | 9:DJ:96:ARG:NH2   | 2.54                     | 0.40              |
| 11:DL:20:VAL:CG1  | 11:DL:21:ARG:N    | 2.84                     | 0.40              |
| 14:DO:15:PHE:O    | 14:DO:25:THR:HA   | 2.22                     | 0.40              |
| 16:DQ:47:GLU:HA   | 16:DQ:47:GLU:OE1  | 2.21                     | 0.40              |
| 20:E2:18:G:H1'    | 1:F1:406:A:N6     | 2.32                     | 0.40              |
| 20:E2:30:U:H2'    | 20:E2:31:C:C6     | 2.56                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 20:E2:105:A:H5'   | 20:E2:106:A:P      | 2.61                     | 0.40              |
| 22:EA:35:PHE:O    | 22:EA:38:ARG:HG3   | 2.21                     | 0.40              |
| 22:EA:70:TYR:CD2  | 1:F1:1674:C:O4'    | 2.74                     | 0.40              |
| 23:EB:24:HIS:CE1  | 23:EB:28:ARG:CD    | 3.00                     | 0.40              |
| 23:EB:49:PHE:CD1  | 23:EB:49:PHE:N     | 2.88                     | 0.40              |
| 25:ED:80:LEU:O    | 25:ED:81:THR:C     | 2.64                     | 0.40              |
| 25:ED:124:GLY:HA3 | 1:F1:2663:A:N3     | 2.35                     | 0.40              |
| 30:EI:132:ARG:HB3 | 30:EI:133:PRO:HD2  | 2.03                     | 0.40              |
| 31:EJ:124:LYS:HE2 | 9:FJ:75:THR:HG23   | 2.03                     | 0.40              |
| 33:EL:50:LYS:HZ2  | 1:F1:267:A:P       | 2.44                     | 0.40              |
| 33:EL:159:ARG:HB2 | 33:EL:164:LEU:HB2  | 2.03                     | 0.40              |
| 34:EM:153:THR:O   | 34:EM:153:THR:CG2  | 2.68                     | 0.40              |
| 36:EO:74:ARG:HB3  | 1:F1:1965:C:OP2    | 2.22                     | 0.40              |
| 37:EP:3:HIS:NE2   | 1:F1:2620:U:O4     | 2.47                     | 0.40              |
| 37:EP:11:THR:HG23 | 37:EP:15:PHE:CG    | 2.56                     | 0.40              |
| 37:EP:23:GLY:HA3  | 1:F1:2691:A:OP1    | 2.20                     | 0.40              |
| 39:ER:52:SER:CB   | 39:ER:58:HIS:HB2   | 2.51                     | 0.40              |
| 39:ER:90:MET:HE2  | 39:ER:90:MET:HB3   | 1.53                     | 0.40              |
| 40:ES:33:HIS:NE2  | 40:ES:39:ARG:NH2   | 2.69                     | 0.40              |
| 42:EU:25:LEU:HB3  | 42:EU:55:ILE:HG12  | 2.03                     | 0.40              |
| 42:EU:29:LEU:HD23 | 42:EU:29:LEU:HA    | 1.88                     | 0.40              |
| 43:EV:66:ALA:O    | 43:EV:67:ARG:C     | 2.65                     | 0.40              |
| 1:F1:435:A:H1'    | 1:F1:1427:G:O2'    | 2.21                     | 0.40              |
| 1:F1:579:G:H1     | 19:FX:109:ARG:HH22 | 1.70                     | 0.40              |
| 1:F1:615:G:C2     | 1:F1:616:A:C4      | 3.09                     | 0.40              |
| 1:F1:880:U:C4     | 1:F1:881:G:C6      | 3.09                     | 0.40              |
| 1:F1:1078:U:C4    | 1:F1:1079:A:C5     | 3.09                     | 0.40              |
| 1:F1:1112:A:N6    | 1:F1:1113:A:N6     | 2.68                     | 0.40              |
| 1:F1:1172:G:C5    | 1:F1:1173:A:N7     | 2.89                     | 0.40              |
| 1:F1:1423:A:C2'   | 1:F1:1424:U:O5'    | 2.69                     | 0.40              |
| 1:F1:1433:A:H3'   | 1:F1:1434:G:O4'    | 2.22                     | 0.40              |
| 1:F1:1551:C:C4    | 1:F1:1552:U:O4     | 2.74                     | 0.40              |
| 1:F1:1595:A:H2'   | 1:F1:1596:U:O4'    | 2.21                     | 0.40              |
| 1:F1:1635:U:H2'   | 1:F1:1636:C:H6     | 1.86                     | 0.40              |
| 1:F1:1642:G:C2    | 1:F1:1852:A:C2     | 3.09                     | 0.40              |
| 1:F1:1766:A:C4    | 1:F1:1768:G:C8     | 3.09                     | 0.40              |
| 1:F1:1771:U:O2'   | 1:F1:1772:G:H5'    | 2.21                     | 0.40              |
| 1:F1:2208:A:C5    | 1:F1:2227:A:C6     | 3.09                     | 0.40              |
| 1:F1:2244:G:C4    | 1:F1:2245:G:N7     | 2.90                     | 0.40              |
| 1:F1:2673:C:H2'   | 1:F1:2674:A:H8     | 1.86                     | 0.40              |
| 1:F1:2727:A:HO2'  | 1:F1:2728:A:P      | 2.44                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:3110:U:H4'    | 1:F1:3111:A:H5'    | 2.03                     | 0.40              |
| 1:F1:3146:G:C6     | 1:F1:3248:C:N4     | 2.89                     | 0.40              |
| 1:F1:3156:A:H4'    | 1:F1:3159:A:C5     | 2.56                     | 0.40              |
| 1:F1:3277:A:C4     | 1:F1:3279:G:C8     | 3.09                     | 0.40              |
| 1:F1:3278:U:H4'    | 1:F1:3279:G:OP2    | 2.21                     | 0.40              |
| 2:FA:5:THR:N       | 2:FA:6:PRO:CD      | 2.84                     | 0.40              |
| 4:FC:14:LYS:HB2    | 4:FC:75:CYS:SG     | 2.61                     | 0.40              |
| 6:FF:27:ILE:CD1    | 6:FF:36:ILE:HD12   | 2.50                     | 0.40              |
| 6:FF:45:ARG:HH11   | 19:FX:84:ASN:HB3   | 1.83                     | 0.40              |
| 7:FG:38:THR:HG22   | 7:FG:38:THR:O      | 2.20                     | 0.40              |
| 8:FH:46:GLU:H      | 8:FH:46:GLU:CD     | 2.28                     | 0.40              |
| 18:FU:40:GLN:O     | 18:FU:41:ALA:C     | 2.65                     | 0.40              |
| 18:FU:131:ALA:H    | 18:FU:136:VAL:HB   | 1.87                     | 0.40              |
| 20:G2:15:G:C1'     | 38:GQ:7:SER:HB3    | 2.51                     | 0.40              |
| 20:G2:118:G:H2'    | 20:G2:119:A:H8     | 1.86                     | 0.40              |
| 21:G3:71:G:H2'     | 21:G3:72:U:H6      | 1.86                     | 0.40              |
| 22:GA:30:TYR:HE1   | 22:GA:102:VAL:CG2  | 2.34                     | 0.40              |
| 23:GB:226:GLY:HA3  | 1:H1:1911:A:O3'    | 2.21                     | 0.40              |
| 24:GC:166:TYR:CE1  | 24:GC:171:GLN:HB2  | 2.57                     | 0.40              |
| 24:GC:336:ALA:HB2  | 43:GV:45:ALA:HB3   | 2.03                     | 0.40              |
| 25:GD:60:LYS:O     | 25:GD:63:GLU:HB3   | 2.21                     | 0.40              |
| 27:GF:183:VAL:O    | 27:GF:184:ASN:HB2  | 2.21                     | 0.40              |
| 34:GM:105:LEU:HD12 | 34:GM:105:LEU:HA   | 1.80                     | 0.40              |
| 37:GP:14:LYS:CE    | 1:H1:1020:G:OP1    | 2.64                     | 0.40              |
| 38:GQ:4:THR:HG21   | 38:GQ:6:TYR:CZ     | 2.57                     | 0.40              |
| 38:GQ:87:VAL:HG12  | 38:GQ:88:LYS:N     | 2.35                     | 0.40              |
| 38:GQ:134:ALA:HB2  | 1:H1:905:G:H5''    | 1.94                     | 0.40              |
| 39:GR:145:ASN:HD22 | 39:GR:150:ILE:HD11 | 1.86                     | 0.40              |
| 43:GV:100:LEU:HD23 | 43:GV:100:LEU:HA   | 1.69                     | 0.40              |
| 43:GV:204:LEU:CB   | 43:GV:238:MET:HE2  | 2.51                     | 0.40              |
| 45:GX:79:ARG:NH1   | 1:H1:1448:G:O2'    | 2.53                     | 0.40              |
| 1:H1:13:C:H2'      | 1:H1:14:A:C8       | 2.56                     | 0.40              |
| 1:H1:22:U:H4'      | 2:HA:60:GLN:OE1    | 2.21                     | 0.40              |
| 1:H1:191:U:H2'     | 1:H1:191:U:O2      | 2.20                     | 0.40              |
| 1:H1:296:G:H8      | 1:H1:296:G:P       | 2.44                     | 0.40              |
| 1:H1:401:U:C2      | 1:H1:402:U:C6      | 3.09                     | 0.40              |
| 1:H1:420:A:N1      | 1:H1:421:G:C2      | 2.89                     | 0.40              |
| 1:H1:499:U:H3'     | 1:H1:500:G:H8      | 1.81                     | 0.40              |
| 1:H1:779:A:C2      | 1:H1:780:C:C2      | 3.09                     | 0.40              |
| 1:H1:788:C:C5      | 1:H1:790:C:C5      | 3.10                     | 0.40              |
| 1:H1:838:G:H2'     | 1:H1:839:U:C6      | 2.56                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:H1:959:G:H5''   | 1:H1:960:U:OP2     | 2.20                     | 0.40              |
| 1:H1:1074:A:H5''  | 1:H1:1075:C:O5'    | 2.20                     | 0.40              |
| 1:H1:1173:A:H4'   | 1:H1:1358:U:C4     | 2.57                     | 0.40              |
| 1:H1:1240:G:O2'   | 1:H1:1241:U:H5'    | 2.21                     | 0.40              |
| 1:H1:1407:A:H2'   | 1:H1:1408:U:C6     | 2.56                     | 0.40              |
| 1:H1:1445:G:C3'   | 1:H1:1446:C:H5''   | 2.51                     | 0.40              |
| 1:H1:1461:A:N7    | 1:H1:1463:C:C2     | 2.89                     | 0.40              |
| 1:H1:1595:A:H2'   | 1:H1:1596:U:O4'    | 2.21                     | 0.40              |
| 1:H1:1620:U:C2    | 1:H1:1621:G:C8     | 3.09                     | 0.40              |
| 1:H1:1697:U:H2'   | 1:H1:1698:G:C8     | 2.56                     | 0.40              |
| 1:H1:1837:A:H2'   | 1:H1:1838:C:C6     | 2.56                     | 0.40              |
| 1:H1:2149:U:O2'   | 1:H1:2150:U:H5''   | 2.21                     | 0.40              |
| 1:H1:2546:A:O2'   | 11:HL:90:ARG:HD3   | 2.22                     | 0.40              |
| 1:H1:2576:C:H2'   | 1:H1:2577:G:C5'    | 2.34                     | 0.40              |
| 1:H1:2678:A:H5'   | 1:H1:2679:G:C8     | 2.56                     | 0.40              |
| 1:H1:2902:G:C6    | 1:H1:2903:U:C4     | 3.08                     | 0.40              |
| 1:H1:3099:C:C4    | 1:H1:3100:U:C4     | 3.09                     | 0.40              |
| 1:H1:3177:G:C2    | 19:HX:177:TYR:CE2  | 3.09                     | 0.40              |
| 5:HE:67:LYS:NZ    | 5:HE:109:THR:HB    | 2.37                     | 0.40              |
| 5:HE:157:ASP:O    | 5:HE:161:LEU:HG    | 2.21                     | 0.40              |
| 6:HF:31:ILE:O     | 6:HF:35:ARG:O      | 2.39                     | 0.40              |
| 7:HG:21:GLY:CA    | 7:HG:94:ASP:O      | 2.68                     | 0.40              |
| 12:HM:82:THR:HG21 | 12:HM:97:VAL:HG21  | 2.04                     | 0.40              |
| 16:HQ:46:ARG:NH2  | 16:HQ:51:PHE:CD2   | 2.87                     | 0.40              |
| 18:HU:128:GLN:OE1 | 18:HU:128:GLN:HA   | 2.21                     | 0.40              |
| 18:HU:172:LEU:HG  | 18:HU:172:LEU:H    | 1.72                     | 0.40              |
| 18:HU:177:VAL:HA  | 18:HU:180:ILE:HD12 | 2.03                     | 0.40              |
| 1:A1:156:A:P      | 16:AQ:27:ALA:HB3   | 2.62                     | 0.40              |
| 1:A1:206:G:N3     | 1:A1:206:G:H2'     | 2.35                     | 0.40              |
| 1:A1:807:G:H2'    | 1:A1:808:A:O4'     | 2.22                     | 0.40              |
| 1:A1:1183:C:O3'   | 43:BV:215:ARG:NH1  | 2.52                     | 0.40              |
| 1:A1:1186:A:O2'   | 1:A1:1187:C:P      | 2.74                     | 0.40              |
| 1:A1:1240:G:O2'   | 19:AX:104:MET:HG2  | 2.21                     | 0.40              |
| 1:A1:1242:U:H2'   | 1:A1:1243:C:H6     | 1.86                     | 0.40              |
| 1:A1:1402:G:H2'   | 1:A1:1403:C:H5'    | 2.02                     | 0.40              |
| 1:A1:1455:G:C4    | 24:BC:106:MET:HE3  | 2.55                     | 0.40              |
| 1:A1:1519:G:H2'   | 3:AB:13:PHE:CD1    | 2.56                     | 0.40              |
| 1:A1:1599:G:C2    | 1:A1:1600:U:N1     | 2.89                     | 0.40              |
| 1:A1:1602:U:O2'   | 1:A1:1603:U:H5'    | 2.21                     | 0.40              |
| 1:A1:1773:G:OP1   | 15:AP:52:THR:HG21  | 2.21                     | 0.40              |
| 1:A1:1972:G:N2    | 1:A1:1973:A:C8     | 2.90                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2324:A:C6     | 1:A1:2325:C:C4     | 3.10                     | 0.40              |
| 1:A1:2630:U:H5''   | 1:A1:2631:A:OP1    | 2.21                     | 0.40              |
| 1:A1:2652:G:H5''   | 25:BD:142:ARG:NH1  | 2.36                     | 0.40              |
| 1:A1:2678:A:H5'    | 1:A1:2679:G:C8     | 2.56                     | 0.40              |
| 1:A1:2796:A:C8     | 1:A1:2943:U:H4'    | 2.55                     | 0.40              |
| 1:A1:3064:A:O2'    | 1:A1:3065:C:H5'    | 2.22                     | 0.40              |
| 1:A1:3308:A:C5     | 1:A1:3309:U:C4     | 3.10                     | 0.40              |
| 1:A1:3341:C:H1'    | 44:BW:105:THR:CG2  | 2.52                     | 0.40              |
| 2:AA:16:HIS:O      | 3:AB:52:TYR:HB3    | 2.21                     | 0.40              |
| 3:AB:14:GLY:HA3    | 39:BR:124:ILE:O    | 2.22                     | 0.40              |
| 5:AE:104:LEU:HD13  | 5:AE:160:LEU:HG    | 2.03                     | 0.40              |
| 6:AF:67:GLN:HE22   | 6:AF:75:LYS:HG3    | 1.86                     | 0.40              |
| 8:AH:56:VAL:CG2    | 8:AH:106:VAL:HG22  | 2.51                     | 0.40              |
| 9:AJ:129:ILE:O     | 9:AJ:133:LEU:HB2   | 2.22                     | 0.40              |
| 12:AM:80:TYR:HD2   | 12:AM:81:LEU:HD23  | 1.86                     | 0.40              |
| 18:AU:81:ALA:CB    | 18:AU:114:LEU:HD13 | 2.51                     | 0.40              |
| 20:B2:43:A:C8      | 20:B2:43:A:C3'     | 3.03                     | 0.40              |
| 20:B2:71:G:H2'     | 20:B2:72:C:H6      | 1.85                     | 0.40              |
| 22:BA:113:VAL:HG11 | 22:BA:169:ILE:HG13 | 2.02                     | 0.40              |
| 22:BA:253:GLU:O    | 22:BA:257:MET:HB2  | 2.22                     | 0.40              |
| 23:BB:218:VAL:HB   | 23:BB:332:ARG:NE   | 2.36                     | 0.40              |
| 24:BC:28:VAL:HG13  | 24:BC:270:PHE:CD2  | 2.56                     | 0.40              |
| 25:BD:29:LYS:HG2   | 25:BD:32:LYS:HD2   | 2.03                     | 0.40              |
| 26:BE:79:ILE:O     | 26:BE:80:ARG:C     | 2.64                     | 0.40              |
| 27:BF:209:GLU:O    | 27:BF:210:LEU:C    | 2.65                     | 0.40              |
| 29:BH:9:TYR:CD1    | 29:BH:9:TYR:N      | 2.89                     | 0.40              |
| 30:BI:139:ASP:O    | 30:BI:142:ALA:HB3  | 2.22                     | 0.40              |
| 34:BM:48:LYS:HE2   | 34:BM:145:ILE:HD11 | 2.03                     | 0.40              |
| 34:BM:213:MET:HB3  | 34:BM:213:MET:HE3  | 1.98                     | 0.40              |
| 35:BN:6:HIS:C      | 35:BN:8:GLN:H      | 2.28                     | 0.40              |
| 35:BN:24:ASN:HD21  | 35:BN:27:HIS:HB2   | 1.85                     | 0.40              |
| 35:BN:45:PHE:CZ    | 35:BN:49:ILE:HD11  | 2.56                     | 0.40              |
| 36:BO:169:SER:HB3  | 1:H1:2886:G:HO2'   | 1.81                     | 0.40              |
| 37:BP:15:PHE:HE2   | 37:BP:52:MET:CE    | 2.35                     | 0.40              |
| 40:BS:55:VAL:CG1   | 40:BS:103:LEU:HB3  | 2.50                     | 0.40              |
| 41:BT:57:ARG:HD2   | 41:BT:61:TRP:CD1   | 2.56                     | 0.40              |
| 43:BV:107:GLN:HE22 | 43:BV:203:LYS:HE2  | 1.85                     | 0.40              |
| 43:BV:157:ARG:HG3  | 43:BV:200:TRP:CD1  | 2.56                     | 0.40              |
| 46:BY:8:VAL:CG1    | 46:BY:12:ARG:N     | 2.85                     | 0.40              |
| 21:C3:103:U:H6     | 21:C3:103:U:O5'    | 2.03                     | 0.40              |
| 21:C3:104:C:H6     | 21:C3:104:C:O5'    | 2.04                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 22:CA:30:TYR:HE1   | 22:CA:102:VAL:CG2  | 2.34                     | 0.40              |
| 23:CB:233:VAL:CG1  | 23:CB:234:LYS:N    | 2.84                     | 0.40              |
| 24:CC:34:ARG:O     | 24:CC:38:VAL:HG23  | 2.22                     | 0.40              |
| 24:CC:149:ILE:O    | 24:CC:150:SER:C    | 2.64                     | 0.40              |
| 24:CC:258:TRP:HZ3  | 24:CC:266:LEU:HD21 | 1.87                     | 0.40              |
| 25:CD:99:THR:OG1   | 1:D1:2673:C:H1'    | 2.22                     | 0.40              |
| 27:CF:35:ILE:HD12  | 1:D1:2549:U:H5'    | 2.03                     | 0.40              |
| 27:CF:57:LYS:HE2   | 33:CL:29:GLU:CD    | 2.46                     | 0.40              |
| 30:CI:81:ARG:HH11  | 30:CI:81:ARG:CG    | 2.34                     | 0.40              |
| 33:CL:129:PHE:CD1  | 33:CL:129:PHE:N    | 2.89                     | 0.40              |
| 34:CM:6:VAL:O      | 34:CM:6:VAL:CG1    | 2.67                     | 0.40              |
| 34:CM:62:ALA:C     | 34:CM:105:LEU:HD22 | 2.46                     | 0.40              |
| 34:CM:82:GLU:O     | 34:CM:85:ARG:HB2   | 2.21                     | 0.40              |
| 35:CN:61:PHE:CD2   | 35:CN:144:LYS:HA   | 2.56                     | 0.40              |
| 35:CN:92:ARG:NH2   | 1:D1:810:G:H8      | 2.19                     | 0.40              |
| 35:CN:140:LEU:HD12 | 35:CN:140:LEU:HA   | 1.85                     | 0.40              |
| 40:CS:58:VAL:HG12  | 40:CS:59:ARG:CG    | 2.49                     | 0.40              |
| 40:CS:70:THR:N     | 40:CS:80:HIS:O     | 2.52                     | 0.40              |
| 44:CW:63:ILE:HG13  | 1:D1:1482:A:C6     | 2.55                     | 0.40              |
| 45:CX:62:ASP:CB    | 1:D1:1365:C:H4'    | 2.52                     | 0.40              |
| 1:D1:2:U:O5'       | 1:D1:2:U:H6        | 2.04                     | 0.40              |
| 1:D1:79:C:H2'      | 1:D1:80:C:H5'      | 2.03                     | 0.40              |
| 1:D1:440:C:N4      | 1:D1:538:A:H2      | 2.19                     | 0.40              |
| 1:D1:495:U:H2'     | 1:D1:496:C:C6      | 2.56                     | 0.40              |
| 1:D1:527:A:C3'     | 1:D1:528:C:H5''    | 2.50                     | 0.40              |
| 1:D1:636:U:HO2'    | 1:D1:637:U:H5'     | 1.85                     | 0.40              |
| 1:D1:707:A:H2'     | 1:D1:708:G:O4'     | 2.21                     | 0.40              |
| 1:D1:820:G:C2'     | 1:D1:821:U:H5''    | 2.52                     | 0.40              |
| 1:D1:1191:G:O6     | 1:D1:1363:A:N6     | 2.54                     | 0.40              |
| 1:D1:1217:A:H5'    | 1:D1:1218:U:OP1    | 2.22                     | 0.40              |
| 1:D1:1241:U:H2'    | 1:D1:1242:U:H6     | 1.85                     | 0.40              |
| 1:D1:1314:A:H2'    | 1:D1:1315:U:H6     | 1.85                     | 0.40              |
| 1:D1:1551:C:C4     | 1:D1:1552:U:O4     | 2.74                     | 0.40              |
| 1:D1:1725:A:H2'    | 1:D1:1726:C:O5'    | 2.21                     | 0.40              |
| 1:D1:1775:A:C8     | 1:D1:1777:A:C8     | 3.09                     | 0.40              |
| 1:D1:2191:C:O2'    | 1:D1:2265:A:N3     | 2.49                     | 0.40              |
| 1:D1:2347:A:C6     | 1:D1:2348:G:C5     | 3.09                     | 0.40              |
| 1:D1:3263:G:C4'    | 1:D1:3264:U:O5'    | 2.68                     | 0.40              |
| 1:D1:3286:G:H2'    | 1:D1:3287:U:O5'    | 2.20                     | 0.40              |
| 8:DH:37:LEU:CD1    | 8:DH:89:ALA:HB2    | 2.51                     | 0.40              |
| 9:DJ:99:GLU:O      | 9:DJ:100:LYS:C     | 2.64                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 9:DJ:108:VAL:HG22  | 9:DJ:117:ILE:HG22  | 2.01                     | 0.40              |
| 9:DJ:161:VAL:HG12  | 9:DJ:162:HIS:N     | 2.35                     | 0.40              |
| 10:DK:95:VAL:HG12  | 10:DK:96:CYS:N     | 2.35                     | 0.40              |
| 11:DL:104:LYS:O    | 11:DL:108:ILE:HG13 | 2.21                     | 0.40              |
| 14:DO:50:LEU:HA    | 14:DO:59:ALA:O     | 2.20                     | 0.40              |
| 16:DQ:68:LYS:HZ3   | 16:DQ:72:LYS:HE3   | 1.86                     | 0.40              |
| 20:E2:37:A:C2      | 2:FA:72:ALA:HA     | 2.57                     | 0.40              |
| 20:E2:75:A:C2      | 20:E2:83:A:N1      | 2.90                     | 0.40              |
| 20:E2:94:U:H2'     | 20:E2:95:C:O4'     | 2.21                     | 0.40              |
| 20:E2:129:A:H2'    | 20:E2:130:C:H6     | 1.87                     | 0.40              |
| 21:E3:8:G:H2'      | 21:E3:9:C:O4'      | 2.21                     | 0.40              |
| 22:EA:176:THR:O    | 22:EA:176:THR:CG2  | 2.70                     | 0.40              |
| 23:EB:86:ILE:HG12  | 23:EB:158:VAL:HG11 | 2.03                     | 0.40              |
| 23:EB:141:ALA:O    | 23:EB:144:LEU:HB2  | 2.21                     | 0.40              |
| 23:EB:196:LEU:O    | 23:EB:199:LYS:HB2  | 2.22                     | 0.40              |
| 23:EB:226:GLY:HA2  | 1:F1:1911:A:O2'    | 2.21                     | 0.40              |
| 23:EB:274:THR:HG21 | 1:F1:3126:C:H5''   | 2.04                     | 0.40              |
| 26:EE:168:LYS:CB   | 26:EE:173:PHE:CE2  | 3.04                     | 0.40              |
| 27:EF:39:ARG:HD2   | 1:F1:2519:A:C2     | 2.57                     | 0.40              |
| 28:EG:109:UNK:O    | 28:EG:112:UNK:HB2  | 2.21                     | 0.40              |
| 29:EH:72:ALA:O     | 29:EH:76:LEU:HG    | 2.21                     | 0.40              |
| 31:EJ:139:SER:CB   | 9:FJ:102:SER:H     | 2.34                     | 0.40              |
| 33:EL:65:ARG:HB3   | 33:EL:129:PHE:CD2  | 2.56                     | 0.40              |
| 33:EL:78:GLY:O     | 33:EL:89:ILE:HD11  | 2.21                     | 0.40              |
| 34:EM:82:GLU:O     | 34:EM:85:ARG:HB2   | 2.20                     | 0.40              |
| 35:EN:45:PHE:CZ    | 35:EN:49:ILE:HD11  | 2.56                     | 0.40              |
| 38:EQ:126:LYS:HE2  | 38:EQ:144:SER:HB3  | 2.02                     | 0.40              |
| 39:ER:131:TYR:CD2  | 1:F1:1549:U:C2     | 3.09                     | 0.40              |
| 41:ET:44:ARG:HB3   | 41:ET:46:VAL:HG23  | 2.02                     | 0.40              |
| 42:EU:9:LYS:HD3    | 42:EU:9:LYS:HA     | 1.94                     | 0.40              |
| 42:EU:81:PRO:CD    | 42:EU:84:ILE:HD12  | 2.52                     | 0.40              |
| 1:F1:49:A:C2'      | 1:F1:50:A:H5'      | 2.51                     | 0.40              |
| 1:F1:60:A:O5'      | 1:F1:60:A:H8       | 2.05                     | 0.40              |
| 1:F1:297:U:O4      | 16:FQ:30:ARG:HA    | 2.22                     | 0.40              |
| 1:F1:415:A:C4'     | 1:F1:653:C:H4'     | 2.52                     | 0.40              |
| 1:F1:522:U:H2'     | 1:F1:523:U:C6      | 2.57                     | 0.40              |
| 1:F1:574:G:H2'     | 1:F1:575:A:H8      | 1.85                     | 0.40              |
| 1:F1:589:C:O2'     | 1:F1:590:A:H5'     | 2.21                     | 0.40              |
| 1:F1:619:G:O2'     | 1:F1:620:A:H2      | 2.04                     | 0.40              |
| 1:F1:772:U:O2'     | 1:F1:773:C:H5'     | 2.21                     | 0.40              |
| 1:F1:832:A:N1      | 1:F1:2406:U:O2'    | 2.53                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:F1:1150:U:H2'    | 1:F1:1151:U:O5'    | 2.20                     | 0.40              |
| 1:F1:1409:C:H2'    | 1:F1:1410:G:O5'    | 2.22                     | 0.40              |
| 1:F1:1519:G:H2'    | 3:FB:13:PHE:CD1    | 2.56                     | 0.40              |
| 1:F1:1522:C:C2     | 1:F1:1547:G:N2     | 2.89                     | 0.40              |
| 1:F1:1537:U:OP2    | 1:F1:1538:U:O4     | 2.39                     | 0.40              |
| 1:F1:1620:U:C2     | 1:F1:1621:G:C8     | 3.09                     | 0.40              |
| 1:F1:2104:C:O2'    | 1:F1:2105:U:H5'    | 2.21                     | 0.40              |
| 1:F1:2187:C:C2'    | 1:F1:2188:U:C5'    | 2.98                     | 0.40              |
| 1:F1:2327:A:P      | 50:F1:4296:HOH:O   | 2.78                     | 0.40              |
| 1:F1:2426:C:H2'    | 1:F1:2427:U:H6     | 1.87                     | 0.40              |
| 1:F1:2641:U:OP2    | 4:FC:63:THR:OG1    | 2.39                     | 0.40              |
| 1:F1:2650:U:H2'    | 1:F1:2651:A:H8     | 1.86                     | 0.40              |
| 1:F1:2686:A:H2'    | 1:F1:2687:G:H8     | 1.83                     | 0.40              |
| 1:F1:2756:U:H2'    | 1:F1:2757:U:C6     | 2.56                     | 0.40              |
| 1:F1:3073:U:H2'    | 1:F1:3074:G:H5'    | 2.04                     | 0.40              |
| 1:F1:3298:U:H1'    | 1:F1:3299:G:OP1    | 2.21                     | 0.40              |
| 2:FA:21:ARG:NH2    | 2:FA:42:ALA:HA     | 2.36                     | 0.40              |
| 5:FE:114:ASP:O     | 5:FE:116:TYR:N     | 2.54                     | 0.40              |
| 5:FE:117:PHE:HA    | 5:FE:149:ARG:NH2   | 2.36                     | 0.40              |
| 9:FJ:23:TYR:CA     | 9:FJ:46:ILE:CG2    | 2.91                     | 0.40              |
| 18:FU:73:PHE:HD2   | 18:FU:94:LYS:O     | 2.05                     | 0.40              |
| 19:FX:44:PHE:CD1   | 19:FX:137:ILE:CD1  | 3.04                     | 0.40              |
| 21:G3:5:U:H1'      | 34:GM:63:GLN:HE22  | 1.86                     | 0.40              |
| 21:G3:116:A:O3'    | 34:GM:260:ARG:NH2  | 2.54                     | 0.40              |
| 23:GB:274:THR:HG21 | 1:H1:3126:C:H5''   | 2.03                     | 0.40              |
| 23:GB:291:ASN:CG   | 23:GB:303:ILE:HD11 | 2.47                     | 0.40              |
| 23:GB:292:ALA:HB2  | 23:GB:302:ALA:C    | 2.46                     | 0.40              |
| 23:GB:303:ILE:O    | 23:GB:305:PRO:HD3  | 2.21                     | 0.40              |
| 23:GB:360:SER:HB2  | 23:GB:369:GLN:NE2  | 2.36                     | 0.40              |
| 23:GB:365:HIS:CE1  | 50:H1:4160:HOH:O   | 2.74                     | 0.40              |
| 24:GC:166:TYR:HD1  | 24:GC:171:GLN:CD   | 2.29                     | 0.40              |
| 24:GC:302:ASN:O    | 24:GC:306:SER:OG   | 2.35                     | 0.40              |
| 24:GC:319:ARG:CD   | 1:H1:634:G:C8      | 3.04                     | 0.40              |
| 25:GD:19:ILE:HD12  | 25:GD:71:ILE:HD12  | 2.04                     | 0.40              |
| 25:GD:114:MET:HE2  | 25:GD:114:MET:HB3  | 1.81                     | 0.40              |
| 26:GE:46:GLN:O     | 26:GE:47:LYS:C     | 2.65                     | 0.40              |
| 27:GF:92:TYR:OH    | 27:GF:200:ASP:OD2  | 2.30                     | 0.40              |
| 30:GI:17:ARG:O     | 30:GI:18:LEU:C     | 2.64                     | 0.40              |
| 31:GJ:10:GLN:HG3   | 31:GJ:129:ILE:HG22 | 1.97                     | 0.40              |
| 32:GK:21:ARG:HG3   | 1:H1:1396:A:H5''   | 2.02                     | 0.40              |
| 32:GK:99:VAL:N     | 18:HU:166:VAL:HG23 | 2.36                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 33:GL:23:LEU:HD23 | 33:GL:23:LEU:HA   | 1.80                     | 0.40              |
| 34:GM:267:ASN:OD1 | 34:GM:268:ASP:N   | 2.55                     | 0.40              |
| 38:GQ:10:PRO:CB   | 38:GQ:153:GLN:NE2 | 2.78                     | 0.40              |
| 40:GS:33:HIS:NE2  | 40:GS:39:ARG:NH2  | 2.69                     | 0.40              |
| 43:GV:55:ALA:O    | 43:GV:58:LYS:HB3  | 2.21                     | 0.40              |
| 45:GX:53:ARG:HA   | 45:GX:53:ARG:HD3  | 1.38                     | 0.40              |
| 46:GY:36:LYS:HE2  | 46:GY:48:LYS:HE2  | 2.03                     | 0.40              |
| 46:GY:57:CYS:SG   | 46:GY:59:PRO:CG   | 3.09                     | 0.40              |
| 1:H1:66:C:H2'     | 1:H1:67:U:O4'     | 2.21                     | 0.40              |
| 1:H1:80:C:H2'     | 1:H1:81:C:O5'     | 2.21                     | 0.40              |
| 1:H1:158:G:H2'    | 1:H1:159:G:C8     | 2.55                     | 0.40              |
| 1:H1:345:C:C4     | 1:H1:347:A:C8     | 3.09                     | 0.40              |
| 1:H1:429:A:H2'    | 1:H1:430:G:C8     | 2.56                     | 0.40              |
| 1:H1:436:U:H2'    | 1:H1:437:A:H5'    | 2.03                     | 0.40              |
| 1:H1:791:C:H5''   | 18:HU:194:ARG:NH2 | 2.37                     | 0.40              |
| 1:H1:914:U:H2'    | 1:H1:915:C:O4'    | 2.21                     | 0.40              |
| 1:H1:927:G:O2'    | 1:H1:1561:A:N1    | 2.50                     | 0.40              |
| 1:H1:1003:G:H4'   | 1:H1:1004:U:OP2   | 2.21                     | 0.40              |
| 1:H1:1053:A:O2'   | 1:H1:1054:G:OP2   | 2.39                     | 0.40              |
| 1:H1:1145:C:O2'   | 1:H1:1181:A:N1    | 2.47                     | 0.40              |
| 1:H1:1162:A:OP2   | 17:HT:5:LYS:HD2   | 2.21                     | 0.40              |
| 1:H1:1196:A:C2    | 1:H1:1357:A:C5    | 3.09                     | 0.40              |
| 1:H1:1381:G:H4'   | 1:H1:1382:A:OP2   | 2.18                     | 0.40              |
| 1:H1:1490:G:N2    | 1:H1:1493:A:OP2   | 2.48                     | 0.40              |
| 1:H1:1563:A:H2'   | 1:H1:1564:C:C6    | 2.55                     | 0.40              |
| 1:H1:1669:G:C2    | 1:H1:1670:A:C6    | 3.09                     | 0.40              |
| 1:H1:1932:A:H2'   | 1:H1:1933:A:O4'   | 2.20                     | 0.40              |
| 1:H1:2258:C:C2'   | 1:H1:2259:U:H5'   | 2.50                     | 0.40              |
| 1:H1:2325:C:OP2   | 50:H1:4214:HOH:O  | 2.22                     | 0.40              |
| 1:H1:2750:G:N3    | 1:H1:2783:U:C5    | 2.89                     | 0.40              |
| 1:H1:2933:G:N3    | 1:H1:2933:G:C5'   | 2.77                     | 0.40              |
| 1:H1:2934:A:H2'   | 1:H1:2970:A:N7    | 2.36                     | 0.40              |
| 1:H1:3020:G:C2'   | 1:H1:3021:A:H5''  | 2.51                     | 0.40              |
| 1:H1:3204:A:O2'   | 1:H1:3205:A:O5'   | 2.38                     | 0.40              |
| 1:H1:3230:G:O2'   | 1:H1:3231:U:OP1   | 2.38                     | 0.40              |
| 9:HJ:115:ALA:CB   | 9:HJ:135:VAL:HG11 | 2.50                     | 0.40              |
| 9:HJ:224:LEU:HD23 | 9:HJ:224:LEU:HA   | 1.66                     | 0.40              |
| 14:HO:106:PHE:O   | 14:HO:107:ALA:C   | 2.63                     | 0.40              |
| 18:HU:50:GLU:O    | 18:HU:150:LEU:CD1 | 2.67                     | 0.40              |
| 1:A1:133:C:H3'    | 42:BU:75:LYS:HE3  | 2.03                     | 0.40              |
| 1:A1:242:G:OP1    | 42:BU:98:LYS:NZ   | 2.47                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:436:U:H2'     | 1:A1:437:A:H5'     | 2.03                     | 0.40              |
| 1:A1:485:A:H2'     | 32:BK:84:VAL:HG13  | 2.02                     | 0.40              |
| 1:A1:565:G:C6      | 43:BV:64:ARG:HD3   | 2.56                     | 0.40              |
| 1:A1:772:U:O2'     | 17:AT:29:HIS:HB3   | 2.21                     | 0.40              |
| 1:A1:792:G:C2      | 1:A1:793:A:C4      | 3.09                     | 0.40              |
| 1:A1:875:U:O2      | 1:A1:875:U:H2'     | 2.21                     | 0.40              |
| 1:A1:979:U:H4'     | 17:AT:8:THR:O      | 2.22                     | 0.40              |
| 1:A1:1061:G:C2     | 1:A1:1062:A:N9     | 2.90                     | 0.40              |
| 1:A1:1104:C:C6     | 17:AT:42:ASN:ND2   | 2.88                     | 0.40              |
| 1:A1:1130:A:C2     | 1:A1:1390:A:O2'    | 2.63                     | 0.40              |
| 1:A1:1215:U:C2     | 1:A1:1344:A:N6     | 2.89                     | 0.40              |
| 1:A1:1241:U:H2'    | 1:A1:1242:U:H6     | 1.87                     | 0.40              |
| 1:A1:1605:G:C2     | 39:BR:38:PHE:CD2   | 3.09                     | 0.40              |
| 1:A1:1662:A:N1     | 1:A1:1761:G:O2'    | 2.42                     | 0.40              |
| 1:A1:2275:A:O2'    | 1:A1:2276:A:P      | 2.76                     | 0.40              |
| 1:A1:2518:A:H3'    | 39:BR:35:VAL:HG12  | 2.00                     | 0.40              |
| 1:A1:2576:C:H6     | 1:A1:2576:C:H5'    | 1.80                     | 0.40              |
| 1:A1:2633:C:O2'    | 29:BH:116:ARG:C    | 2.63                     | 0.40              |
| 1:A1:2659:G:H2'    | 1:A1:2660:A:H8     | 1.86                     | 0.40              |
| 1:A1:2899:C:H4'    | 1:A1:2900:G:H8     | 1.85                     | 0.40              |
| 1:A1:3178:U:C5'    | 6:AF:97:LYS:NZ     | 2.82                     | 0.40              |
| 1:A1:3311:U:H6     | 1:A1:3311:U:H3'    | 1.86                     | 0.40              |
| 1:A1:3339:C:H2'    | 1:A1:3340:U:C5'    | 2.52                     | 0.40              |
| 6:AF:26:VAL:HB     | 6:AF:72:LEU:HD21   | 2.02                     | 0.40              |
| 7:AG:38:THR:HG22   | 7:AG:38:THR:O      | 2.20                     | 0.40              |
| 7:AG:77:LEU:HD23   | 7:AG:77:LEU:HA     | 1.71                     | 0.40              |
| 13:AN:23:ALA:CB    | 13:AN:43:VAL:CG1   | 2.99                     | 0.40              |
| 13:AN:24:VAL:C     | 13:AN:43:VAL:HG13  | 2.45                     | 0.40              |
| 13:AN:57:MET:HE2   | 13:AN:61:LYS:HB3   | 2.04                     | 0.40              |
| 14:AO:1:MET:C      | 14:AO:3:GLN:N      | 2.78                     | 0.40              |
| 14:AO:7:GLU:HB2    | 35:BN:25:VAL:HG11  | 2.04                     | 0.40              |
| 22:BA:102:VAL:O    | 22:BA:103:LEU:HD23 | 2.21                     | 0.40              |
| 23:BB:117:ARG:HA   | 23:BB:117:ARG:HD2  | 1.60                     | 0.40              |
| 24:BC:41:VAL:HG12  | 24:BC:45:LEU:CD1   | 2.52                     | 0.40              |
| 24:BC:111:LYS:HB3  | 24:BC:113:TYR:CE1  | 2.56                     | 0.40              |
| 24:BC:195:ARG:HH11 | 24:BC:204:ARG:HB2  | 1.87                     | 0.40              |
| 24:BC:214:VAL:HG21 | 24:BC:227:LEU:HD12 | 2.01                     | 0.40              |
| 24:BC:364:LYS:O    | 24:BC:365:ALA:C    | 2.63                     | 0.40              |
| 24:BC:388:ILE:N    | 24:BC:388:ILE:HD13 | 2.36                     | 0.40              |
| 25:BD:60:LYS:O     | 25:BD:63:GLU:CB    | 2.69                     | 0.40              |
| 25:BD:114:MET:HE2  | 25:BD:114:MET:HB3  | 1.80                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 25:BD:120:THR:O    | 25:BD:121:GLY:C    | 2.64                     | 0.40              |
| 26:BE:22:GLN:OE1   | 26:BE:39:ARG:NH2   | 2.54                     | 0.40              |
| 26:BE:127:LEU:HA   | 26:BE:127:LEU:HD23 | 1.85                     | 0.40              |
| 27:BF:115:LYS:HG2  | 27:BF:116:GLN:N    | 2.37                     | 0.40              |
| 28:BG:116:UNK:O    | 28:BG:123:UNK:HG3  | 2.21                     | 0.40              |
| 29:BH:166:VAL:CG1  | 29:BH:167:THR:N    | 2.85                     | 0.40              |
| 30:BI:35:VAL:CG1   | 30:BI:36:ARG:N     | 2.83                     | 0.40              |
| 32:BK:43:HIS:O     | 32:BK:44:ARG:C     | 2.63                     | 0.40              |
| 33:BL:30:TYR:CE2   | 33:BL:63:ARG:CD    | 2.88                     | 0.40              |
| 34:BM:99:TYR:HD2   | 34:BM:251:HIS:HE1  | 1.68                     | 0.40              |
| 46:BY:51:ALA:O     | 46:BY:52:VAL:C     | 2.63                     | 0.40              |
| 20:C2:28:G:C4      | 20:C2:29:U:C6      | 3.09                     | 0.40              |
| 20:C2:96:A:N3      | 2:DA:83:THR:CG2    | 2.84                     | 0.40              |
| 20:C2:107:C:C5     | 20:C2:135:A:C4     | 3.09                     | 0.40              |
| 21:C3:18:G:C2      | 21:C3:61:U:C2      | 3.09                     | 0.40              |
| 22:CA:187:PHE:CE2  | 1:D1:921:A:H4'     | 2.57                     | 0.40              |
| 23:CB:254:HIS:CD2  | 1:D1:2929:A:OP2    | 2.74                     | 0.40              |
| 24:CC:27:ALA:O     | 24:CC:30:THR:N     | 2.52                     | 0.40              |
| 25:CD:77:ARG:HH22  | 25:CD:166:GLU:HG3  | 1.87                     | 0.40              |
| 26:CE:7:GLU:CG     | 26:CE:56:GLN:HG2   | 2.44                     | 0.40              |
| 26:CE:38:PHE:CD1   | 26:CE:38:PHE:N     | 2.89                     | 0.40              |
| 27:CF:20:PRO:C     | 27:CF:22:PHE:H     | 2.29                     | 0.40              |
| 29:CH:3:ARG:HH12   | 29:CH:63:GLU:HB2   | 1.85                     | 0.40              |
| 30:CI:9:ASP:O      | 30:CI:13:HIS:NE2   | 2.55                     | 0.40              |
| 30:CI:40:ILE:HG22  | 30:CI:41:ASN:N     | 2.37                     | 0.40              |
| 31:CJ:99:PHE:CZ    | 31:CJ:123:ALA:HB2  | 2.57                     | 0.40              |
| 32:CK:123:VAL:HG12 | 32:CK:124:VAL:N    | 2.37                     | 0.40              |
| 34:CM:153:THR:O    | 34:CM:153:THR:CG2  | 2.68                     | 0.40              |
| 38:CQ:35:VAL:O     | 38:CQ:36:ARG:C     | 2.64                     | 0.40              |
| 38:CQ:134:ALA:C    | 38:CQ:135:HIS:CD2  | 3.00                     | 0.40              |
| 43:CV:151:ALA:HB1  | 43:CV:198:PHE:CE1  | 2.57                     | 0.40              |
| 44:CW:58:ILE:HD13  | 44:CW:58:ILE:HA    | 1.91                     | 0.40              |
| 45:CX:4:LYS:C      | 45:CX:73:PHE:CZ    | 2.99                     | 0.40              |
| 45:CX:57:ILE:HG23  | 1:D1:1366:C:O2'    | 2.22                     | 0.40              |
| 1:D1:81:C:H2'      | 1:D1:82:C:O4'      | 2.21                     | 0.40              |
| 1:D1:136:C:O2'     | 1:D1:137:A:H5'     | 2.21                     | 0.40              |
| 1:D1:283:A:N7      | 1:D1:305:A:C8      | 2.90                     | 0.40              |
| 1:D1:296:G:O2'     | 16:DQ:32:GLY:CA    | 2.69                     | 0.40              |
| 1:D1:315:U:H4'     | 1:D1:316:A:H5'     | 2.04                     | 0.40              |
| 1:D1:429:A:H2'     | 1:D1:430:G:H8      | 1.85                     | 0.40              |
| 1:D1:524:G:H8      | 1:D1:524:G:O5'     | 2.04                     | 0.40              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:532:G:C6      | 1:D1:533:G:C6     | 3.09                     | 0.40              |
| 1:D1:621:G:N7      | 1:D1:622:G:C6     | 2.89                     | 0.40              |
| 1:D1:623:G:N2      | 5:DE:30:ARG:NH1   | 2.69                     | 0.40              |
| 1:D1:631:G:C6      | 5:DE:31:ARG:NH2   | 2.89                     | 0.40              |
| 1:D1:872:A:H8      | 1:D1:872:A:O5'    | 2.03                     | 0.40              |
| 1:D1:1083:U:O2     | 1:D1:1083:U:H2'   | 2.22                     | 0.40              |
| 1:D1:1140:G:H4'    | 1:D1:1397:G:H5'   | 2.04                     | 0.40              |
| 1:D1:1573:A:O2'    | 1:D1:1574:C:H5'   | 2.21                     | 0.40              |
| 1:D1:1635:U:H2'    | 1:D1:1636:C:H6    | 1.86                     | 0.40              |
| 1:D1:2117:A:OP1    | 1:D1:2117:A:H4'   | 2.21                     | 0.40              |
| 1:D1:2553:G:C4     | 1:D1:2554:G:C8    | 3.10                     | 0.40              |
| 1:D1:2756:U:H5''   | 4:DC:30:LYS:O     | 2.21                     | 0.40              |
| 1:D1:2829:G:C5     | 1:D1:2832:C:C4    | 3.10                     | 0.40              |
| 1:D1:2961:G:H3'    | 1:D1:2962:U:H5''  | 2.01                     | 0.40              |
| 1:D1:3078:C:C4     | 1:D1:3079:U:C4    | 3.09                     | 0.40              |
| 1:D1:3198:A:C6     | 1:D1:3199:G:C5    | 3.09                     | 0.40              |
| 2:DA:2:THR:HG22    | 2:DA:4:GLY:H      | 1.86                     | 0.40              |
| 5:DE:77:THR:HG23   | 5:DE:87:LEU:HD23  | 2.02                     | 0.40              |
| 5:DE:129:LEU:O     | 5:DE:130:PHE:C    | 2.62                     | 0.40              |
| 9:DJ:188:ARG:O     | 9:DJ:188:ARG:HG3  | 2.21                     | 0.40              |
| 11:DL:62:ALA:C     | 11:DL:64:TYR:N    | 2.80                     | 0.40              |
| 13:DN:24:VAL:HG12  | 13:DN:25:ILE:N    | 2.36                     | 0.40              |
| 13:DN:125:ILE:HG21 | 13:DN:136:LYS:HE2 | 2.04                     | 0.40              |
| 14:DO:29:PHE:HB2   | 14:DO:41:GLY:HA3  | 2.03                     | 0.40              |
| 19:DX:53:THR:O     | 19:DX:54:LYS:C    | 2.64                     | 0.40              |
| 19:DX:92:VAL:O     | 19:DX:138:ILE:N   | 2.45                     | 0.40              |
| 19:DX:158:ASN:OD1  | 19:DX:159:ALA:N   | 2.54                     | 0.40              |
| 20:E2:103:U:C4     | 20:E2:104:G:C6    | 3.09                     | 0.40              |
| 21:E3:11:A:N7      | 34:EM:18:THR:HB   | 2.35                     | 0.40              |
| 22:EA:3:ARG:CG     | 22:EA:4:VAL:H     | 2.35                     | 0.40              |
| 23:EB:117:ARG:CZ   | 23:EB:173:LYS:HE2 | 2.51                     | 0.40              |
| 23:EB:138:ASP:CG   | 23:EB:140:LYS:HG2 | 2.46                     | 0.40              |
| 23:EB:240:THR:HG23 | 1:F1:2936:C:H4'   | 2.03                     | 0.40              |
| 24:EC:40:LYS:O     | 24:EC:43:THR:HB   | 2.21                     | 0.40              |
| 24:EC:283:TYR:HE1  | 24:EC:285:LEU:CA  | 2.32                     | 0.40              |
| 24:EC:319:ARG:CZ   | 1:F1:634:G:C5     | 3.03                     | 0.40              |
| 24:EC:383:ALA:HB1  | 37:EP:147:PHE:CD1 | 2.57                     | 0.40              |
| 26:EE:49:THR:O     | 26:EE:50:ALA:C    | 2.65                     | 0.40              |
| 26:EE:134:ARG:HG3  | 26:EE:141:THR:O   | 2.21                     | 0.40              |
| 27:EF:48:PRO:CG    | 1:F1:1587:A:C8    | 3.05                     | 0.40              |
| 27:EF:142:LYS:NZ   | 27:EF:201:LYS:NZ  | 2.69                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 27:EF:170:PHE:CE1 | 27:EF:216:ASN:OD1 | 2.74                     | 0.40              |
| 30:EI:25:GLU:HB3  | 30:EI:30:GLN:HB3  | 2.04                     | 0.40              |
| 31:EJ:91:ARG:HD2  | 31:EJ:97:ILE:HD11 | 2.04                     | 0.40              |
| 32:EK:63:PHE:CE1  | 1:F1:282:G:C4     | 3.09                     | 0.40              |
| 33:EL:71:ARG:NH2  | 1:F1:1572:A:N7    | 2.62                     | 0.40              |
| 33:EL:93:LYS:HG3  | 1:F1:288:A:H2     | 1.86                     | 0.40              |
| 36:EO:8:LYS:HG2   | 36:EO:22:LEU:HD12 | 2.02                     | 0.40              |
| 37:EP:15:PHE:O    | 37:EP:16:ALA:C    | 2.65                     | 0.40              |
| 37:EP:52:MET:HA   | 37:EP:95:HIS:CE1  | 2.56                     | 0.40              |
| 39:ER:122:ASN:O   | 3:FB:10:LYS:NZ    | 2.54                     | 0.40              |
| 39:ER:143:LEU:HG  | 39:ER:147:ILE:CD1 | 2.51                     | 0.40              |
| 41:ET:2:VAL:HG22  | 41:ET:3:VAL:N     | 2.36                     | 0.40              |
| 43:EV:93:HIS:CE1  | 43:EV:94:PRO:HD2  | 2.55                     | 0.40              |
| 43:EV:122:ASN:OD1 | 43:EV:125:LYS:HE3 | 2.22                     | 0.40              |
| 45:EX:81:PRO:O    | 45:EX:84:LEU:HB2  | 2.21                     | 0.40              |
| 46:EY:51:ALA:O    | 46:EY:52:VAL:C    | 2.64                     | 0.40              |
| 46:EY:101:LYS:O   | 46:EY:101:LYS:HG2 | 2.21                     | 0.40              |
| 1:F1:138:C:C3'    | 1:F1:139:A:H5'    | 2.52                     | 0.40              |
| 1:F1:174:A:N1     | 1:F1:246:G:C4     | 2.89                     | 0.40              |
| 1:F1:191:U:O2     | 1:F1:191:U:H2'    | 2.22                     | 0.40              |
| 1:F1:283:A:N7     | 1:F1:305:A:C8     | 2.90                     | 0.40              |
| 1:F1:343:A:C4     | 1:F1:344:G:C8     | 3.08                     | 0.40              |
| 1:F1:615:G:H2'    | 1:F1:616:A:C8     | 2.56                     | 0.40              |
| 1:F1:993:G:H21    | 17:FT:15:LYS:HZ3  | 1.70                     | 0.40              |
| 1:F1:1041:C:O2    | 1:F1:1041:C:C2'   | 2.66                     | 0.40              |
| 1:F1:1221:G:O5'   | 1:F1:1221:G:H8    | 2.04                     | 0.40              |
| 1:F1:1344:A:O2'   | 1:F1:1345:A:H3'   | 2.22                     | 0.40              |
| 1:F1:1507:A:O2'   | 1:F1:1882:A:N3    | 2.48                     | 0.40              |
| 1:F1:1599:G:C6    | 1:F1:1600:U:C5    | 3.09                     | 0.40              |
| 1:F1:1602:U:O2'   | 1:F1:1603:U:H5'   | 2.22                     | 0.40              |
| 1:F1:1608:G:C2'   | 1:F1:1609:U:O5'   | 2.70                     | 0.40              |
| 1:F1:1661:A:N3    | 1:F1:1733:C:O2'   | 2.49                     | 0.40              |
| 1:F1:1936:U:O2    | 1:F1:2118:G:O5'   | 2.39                     | 0.40              |
| 1:F1:2635:C:H5'   | 1:F1:2635:C:C6    | 2.45                     | 0.40              |
| 1:F1:2749:C:O2    | 1:F1:2749:C:H2'   | 2.21                     | 0.40              |
| 1:F1:3007:G:H2'   | 1:F1:3008:U:O5'   | 2.22                     | 0.40              |
| 1:F1:3177:G:C8    | 1:F1:3177:G:OP1   | 2.74                     | 0.40              |
| 1:F1:3308:A:C5    | 1:F1:3309:U:C4    | 3.10                     | 0.40              |
| 2:FA:19:CYS:O     | 2:FA:23:GLY:N     | 2.46                     | 0.40              |
| 8:FH:38:LYS:HE2   | 8:FH:42:VAL:O     | 2.22                     | 0.40              |
| 9:FJ:135:VAL:HG12 | 9:FJ:136:GLU:N    | 2.36                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 16:FQ:46:ARG:NH2  | 16:FQ:51:PHE:CD2   | 2.87                     | 0.40              |
| 18:FU:81:ALA:CB   | 18:FU:114:LEU:HD13 | 2.52                     | 0.40              |
| 18:FU:91:ILE:HG22 | 18:FU:91:ILE:O     | 2.20                     | 0.40              |
| 19:FX:43:VAL:HG11 | 19:FX:54:LYS:HB2   | 2.03                     | 0.40              |
| 19:FX:124:MET:HA  | 19:FX:124:MET:CE   | 2.51                     | 0.40              |
| 21:G3:13:A:OP1    | 21:G3:109:U:C2'    | 2.69                     | 0.40              |
| 22:GA:41:TYR:CE1  | 1:H1:2541:U:N3     | 2.89                     | 0.40              |
| 22:GA:179:PRO:HG2 | 46:GY:26:VAL:CG2   | 2.50                     | 0.40              |
| 22:GA:211:PRO:HD2 | 22:GA:236:VAL:HG11 | 2.03                     | 0.40              |
| 23:GB:25:HIS:CD2  | 23:GB:270:TYR:OH   | 2.71                     | 0.40              |
| 23:GB:62:ARG:HH22 | 23:GB:346:GLY:HA3  | 1.86                     | 0.40              |
| 23:GB:301:LYS:HG2 | 23:GB:359:THR:HG21 | 2.03                     | 0.40              |
| 24:GC:314:THR:CG2 | 1:H1:1372:A:N3     | 2.85                     | 0.40              |
| 24:GC:319:ARG:CZ  | 1:H1:634:G:C5      | 3.05                     | 0.40              |
| 24:GC:328:ASN:OD1 | 24:GC:328:ASN:C    | 2.65                     | 0.40              |
| 24:GC:374:GLN:HA  | 24:GC:377:ILE:HD12 | 2.03                     | 0.40              |
| 28:GG:57:UNK:HG3  | 28:GG:58:UNK:N     | 2.36                     | 0.40              |
| 29:GH:115:MET:O   | 29:GH:116:ARG:C    | 2.65                     | 0.40              |
| 31:GJ:88:PRO:HA   | 31:GJ:97:ILE:O     | 2.21                     | 0.40              |
| 31:GJ:127:ALA:CB  | 9:HJ:58:ILE:HD13   | 2.44                     | 0.40              |
| 32:GK:132:LYS:CG  | 18:HU:178:TYR:CE2  | 3.05                     | 0.40              |
| 33:GL:26:ARG:O    | 33:GL:29:GLU:N     | 2.55                     | 0.40              |
| 33:GL:142:ILE:CG2 | 33:GL:148:ILE:HG22 | 2.52                     | 0.40              |
| 34:GM:18:THR:O    | 34:GM:18:THR:CG2   | 2.69                     | 0.40              |
| 36:GO:109:TYR:HB3 | 36:GO:115:ILE:CD1  | 2.51                     | 0.40              |
| 39:GR:94:VAL:CG1  | 39:GR:98:SER:OG    | 2.68                     | 0.40              |
| 43:GV:117:ASN:HB2 | 43:GV:120:SER:OG   | 2.22                     | 0.40              |
| 43:GV:134:GLY:C   | 43:GV:231:ILE:HG21 | 2.47                     | 0.40              |
| 1:H1:78:G:C6      | 1:H1:79:C:C5       | 3.09                     | 0.40              |
| 1:H1:268:G:N2     | 1:H1:293:U:H2'     | 2.36                     | 0.40              |
| 1:H1:291:C:C3'    | 1:H1:292:C:H5''    | 2.51                     | 0.40              |
| 1:H1:295:A:OP1    | 16:HQ:90:LYS:NZ    | 2.53                     | 0.40              |
| 1:H1:355:C:H6     | 1:H1:355:C:O5'     | 2.04                     | 0.40              |
| 1:H1:574:G:H2'    | 1:H1:575:A:H8      | 1.85                     | 0.40              |
| 1:H1:635:A:C6     | 1:H1:636:U:C4      | 3.10                     | 0.40              |
| 1:H1:651:U:H5'    | 1:H1:1425:U:H5'    | 2.03                     | 0.40              |
| 1:H1:724:C:C2'    | 1:H1:725:C:H5'     | 2.51                     | 0.40              |
| 1:H1:847:G:H5'    | 1:H1:847:G:C8      | 2.57                     | 0.40              |
| 1:H1:908:A:C6     | 1:H1:946:A:C5      | 3.08                     | 0.40              |
| 1:H1:1040:A:N7    | 1:H1:1041:C:C5     | 2.89                     | 0.40              |
| 1:H1:1373:G:C5    | 1:H1:1374:C:C5     | 3.09                     | 0.40              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:H1:1446:C:O2'  | 1:H1:1447:A:H5'   | 2.21                     | 0.40              |
| 1:H1:1602:U:O2'  | 1:H1:1603:U:H5'   | 2.21                     | 0.40              |
| 1:H1:1725:A:C2'  | 1:H1:1726:C:O5'   | 2.69                     | 0.40              |
| 1:H1:1818:C:H2'  | 1:H1:1821:U:C5    | 2.56                     | 0.40              |
| 1:H1:1847:A:C4   | 1:H1:1848:C:C5    | 3.10                     | 0.40              |
| 1:H1:1925:A:H4'  | 1:H1:2906:G:H4'   | 2.02                     | 0.40              |
| 1:H1:2262:C:O2'  | 1:H1:2263:U:H5'   | 2.21                     | 0.40              |
| 1:H1:2347:A:C6   | 1:H1:2348:G:C5    | 3.09                     | 0.40              |
| 1:H1:2529:G:H2'  | 1:H1:2530:G:H8    | 1.86                     | 0.40              |
| 1:H1:3097:G:N1   | 1:H1:3116:A:C2    | 2.89                     | 0.40              |
| 1:H1:3106:C:H3'  | 1:H1:3107:C:H5'   | 2.03                     | 0.40              |
| 1:H1:3308:A:C2   | 1:H1:3309:U:C2    | 3.09                     | 0.40              |
| 4:HC:40:ARG:O    | 4:HC:41:TYR:C     | 2.64                     | 0.40              |
| 5:HE:26:THR:HA   | 5:HE:27:PRO:HD3   | 1.89                     | 0.40              |
| 9:HJ:187:ASN:O   | 9:HJ:188:ARG:HB3  | 2.21                     | 0.40              |
| 12:HM:43:ILE:CD1 | 12:HM:58:ILE:HD11 | 2.51                     | 0.40              |
| 14:HO:101:LYS:O  | 14:HO:104:LYS:HB2 | 2.21                     | 0.40              |
| 14:HO:102:GLY:O  | 14:HO:103:LEU:C   | 2.65                     | 0.40              |
| 16:HQ:57:ARG:HD3 | 16:HQ:76:ILE:HD13 | 2.03                     | 0.40              |
| 18:HU:4:ASN:O    | 18:HU:4:ASN:OD1   | 2.39                     | 0.40              |
| 18:HU:166:VAL:O  | 18:HU:167:SER:C   | 2.64                     | 0.40              |
| 1:A1:135:A:C4'   | 1:A1:136:C:OP2    | 2.70                     | 0.40              |
| 1:A1:437:A:H4'   | 1:A1:540:G:O2'    | 2.22                     | 0.40              |
| 1:A1:624:G:C4    | 1:A1:625:C:C5     | 3.09                     | 0.40              |
| 1:A1:632:G:C6    | 1:A1:633:C:C4     | 3.09                     | 0.40              |
| 1:A1:683:G:H22   | 1:A1:1460:G:C5'   | 2.34                     | 0.40              |
| 1:A1:729:A:H1'   | 1:A1:810:G:N2     | 2.37                     | 0.40              |
| 1:A1:805:A:C5'   | 1:A1:806:G:OP2    | 2.69                     | 0.40              |
| 1:A1:958:A:C2    | 24:BC:105:ARG:NH2 | 2.90                     | 0.40              |
| 1:A1:1052:A:H2   | 1:A1:1053:A:C5    | 2.38                     | 0.40              |
| 1:A1:1107:A:C5   | 1:A1:1108:A:C5    | 3.09                     | 0.40              |
| 1:A1:1147:A:H2'  | 1:A1:1148:U:C6    | 2.53                     | 0.40              |
| 1:A1:1245:U:H2'  | 1:A1:1246:A:C8    | 2.57                     | 0.40              |
| 1:A1:1360:C:OP1  | 35:BN:2:ALA:N     | 2.55                     | 0.40              |
| 1:A1:1488:A:C2'  | 1:A1:1489:U:H5'   | 2.51                     | 0.40              |
| 1:A1:1720:A:H4'  | 11:AL:23:VAL:HG11 | 2.03                     | 0.40              |
| 1:A1:1847:A:C4   | 1:A1:1848:C:C5    | 3.09                     | 0.40              |
| 1:A1:2117:A:H4'  | 1:A1:2117:A:OP1   | 2.21                     | 0.40              |
| 1:A1:2187:C:C2'  | 1:A1:2188:U:C5'   | 3.00                     | 0.40              |
| 1:A1:2278:G:C2'  | 1:A1:2279:C:OP2   | 2.69                     | 0.40              |
| 1:A1:2278:G:C2'  | 1:A1:2280:C:H41   | 2.34                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:A1:2385:A:O4'    | 1:A1:3267:A:C6     | 2.75                     | 0.40              |
| 1:A1:2520:G:C2'    | 22:BA:35:PHE:CD1   | 3.00                     | 0.40              |
| 1:A1:2670:U:C4'    | 25:BD:65:MET:HE1   | 2.52                     | 0.40              |
| 1:A1:2839:A:OP2    | 50:A1:4223:HOH:O   | 2.22                     | 0.40              |
| 1:A1:3036:U:OP2    | 23:BB:220:LYS:CD   | 2.70                     | 0.40              |
| 1:A1:3103:A:H3'    | 1:A1:3104:G:H8     | 1.86                     | 0.40              |
| 1:A1:3177:G:C8     | 1:A1:3177:G:OP1    | 2.75                     | 0.40              |
| 1:A1:3236:C:O2     | 1:A1:3236:C:H2'    | 2.21                     | 0.40              |
| 1:A1:3339:C:H2'    | 1:A1:3340:U:H5'    | 2.04                     | 0.40              |
| 2:AA:64:ARG:NH1    | 20:B2:60:C:C5      | 2.89                     | 0.40              |
| 5:AE:114:ASP:O     | 5:AE:116:TYR:N     | 2.55                     | 0.40              |
| 5:AE:173:TYR:CD2   | 6:AF:106:PHE:CD1   | 3.10                     | 0.40              |
| 5:AE:173:TYR:CD1   | 5:AE:173:TYR:C     | 2.99                     | 0.40              |
| 7:AG:38:THR:CG2    | 7:AG:93:LEU:HD13   | 2.51                     | 0.40              |
| 8:AH:57:VAL:HG12   | 8:AH:58:TYR:N      | 2.36                     | 0.40              |
| 9:AJ:77:ASN:OD1    | 9:AJ:78:ASP:N      | 2.55                     | 0.40              |
| 9:AJ:177:LEU:O     | 9:AJ:178:GLN:HB2   | 2.21                     | 0.40              |
| 12:AM:98:THR:O     | 12:AM:105:TYR:HD1  | 2.05                     | 0.40              |
| 17:AT:55:LYS:H     | 17:AT:55:LYS:HG2   | 1.77                     | 0.40              |
| 17:AT:59:LEU:HD12  | 17:AT:59:LEU:HA    | 1.70                     | 0.40              |
| 19:AX:16:MET:CE    | 19:AX:18:VAL:CG2   | 2.93                     | 0.40              |
| 19:AX:39:LEU:HD23  | 19:AX:39:LEU:HA    | 1.85                     | 0.40              |
| 22:BA:103:LEU:HD12 | 22:BA:108:ILE:HD13 | 2.03                     | 0.40              |
| 24:BC:149:ILE:O    | 24:BC:149:ILE:CG2  | 2.69                     | 0.40              |
| 24:BC:198:GLN:O    | 24:BC:199:GLY:C    | 2.63                     | 0.40              |
| 25:BD:94:LYS:O     | 25:BD:94:LYS:HG3   | 2.21                     | 0.40              |
| 29:BH:47:PRO:CD    | 29:BH:141:LYS:HD3  | 2.51                     | 0.40              |
| 29:BH:101:LYS:HB3  | 29:BH:121:LYS:HZ3  | 1.76                     | 0.40              |
| 34:BM:6:VAL:O      | 34:BM:6:VAL:CG1    | 2.67                     | 0.40              |
| 34:BM:192:SER:OG   | 34:BM:194:LYS:HG3  | 2.21                     | 0.40              |
| 35:BN:63:LEU:CD2   | 35:BN:83:SER:HB3   | 2.51                     | 0.40              |
| 36:BO:28:GLU:O     | 36:BO:31:GLU:HB3   | 2.21                     | 0.40              |
| 38:BQ:49:TYR:HD1   | 38:BQ:58:ARG:NH1   | 2.20                     | 0.40              |
| 40:BS:31:SER:CB    | 40:BS:48:PRO:HA    | 2.52                     | 0.40              |
| 40:BS:35:SER:O     | 40:BS:36:LYS:C     | 2.63                     | 0.40              |
| 42:BU:25:LEU:HB3   | 42:BU:55:ILE:HG12  | 2.03                     | 0.40              |
| 42:BU:81:PRO:CG    | 42:BU:84:ILE:HD12  | 2.51                     | 0.40              |
| 44:BW:47:ASP:OD1   | 44:BW:47:ASP:C     | 2.64                     | 0.40              |
| 20:C2:57:A:C6      | 20:C2:58:U:C4      | 3.10                     | 0.40              |
| 20:C2:94:U:H2'     | 20:C2:95:C:O4'     | 2.22                     | 0.40              |
| 21:C3:89:G:N2      | 29:CH:56:GLU:OE2   | 2.54                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 22:CA:41:TYR:CD1  | 22:CA:41:TYR:N     | 2.89                     | 0.40              |
| 22:CA:94:LYS:O    | 22:CA:95:ALA:C     | 2.65                     | 0.40              |
| 22:CA:216:ASN:HB3 | 1:D1:2956:G:N7     | 2.36                     | 0.40              |
| 23:CB:101:ALA:O   | 1:D1:3136:A:H5'    | 2.21                     | 0.40              |
| 24:CC:173:VAL:O   | 24:CC:177:LYS:HG3  | 2.21                     | 0.40              |
| 24:CC:230:ILE:CG2 | 24:CC:233:VAL:CG1  | 3.00                     | 0.40              |
| 24:CC:270:PHE:HB3 | 24:CC:285:LEU:HD21 | 2.04                     | 0.40              |
| 26:CE:5:LEU:HD13  | 26:CE:58:TRP:CH2   | 2.57                     | 0.40              |
| 26:CE:80:ARG:O    | 26:CE:84:GLU:O     | 2.39                     | 0.40              |
| 29:CH:204:GLY:CA  | 29:CH:208:ARG:NH2  | 2.83                     | 0.40              |
| 30:CI:111:TYR:O   | 30:CI:116:LYS:HE2  | 2.22                     | 0.40              |
| 31:CJ:140:VAL:H   | 9:DJ:102:SER:HB3   | 1.86                     | 0.40              |
| 33:CL:36:ILE:HD11 | 33:CL:105:ARG:HB3  | 2.03                     | 0.40              |
| 33:CL:147:ARG:O   | 33:CL:150:TRP:CD1  | 2.75                     | 0.40              |
| 34:CM:62:ALA:O    | 34:CM:105:LEU:HD22 | 2.21                     | 0.40              |
| 38:CQ:24:LEU:HA   | 38:CQ:24:LEU:HD23  | 1.84                     | 0.40              |
| 42:CU:53:LYS:O    | 42:CU:57:LYS:HG3   | 2.21                     | 0.40              |
| 42:CU:122:LEU:CD1 | 18:DU:150:LEU:CD2  | 2.97                     | 0.40              |
| 43:CV:35:LYS:O    | 43:CV:36:GLN:C     | 2.63                     | 0.40              |
| 43:CV:82:PHE:HB3  | 43:CV:231:ILE:CD1  | 2.51                     | 0.40              |
| 44:CW:50:ILE:O    | 1:D1:1486:A:H5'    | 2.21                     | 0.40              |
| 45:CX:79:ARG:NH1  | 1:D1:1448:G:C1'    | 2.85                     | 0.40              |
| 1:D1:60:A:H8      | 1:D1:60:A:O5'      | 2.04                     | 0.40              |
| 1:D1:146:U:O2'    | 1:D1:147:U:P       | 2.79                     | 0.40              |
| 1:D1:156:A:C6     | 18:DU:97:HIS:CE1   | 3.09                     | 0.40              |
| 1:D1:243:G:H2'    | 1:D1:244:C:H6      | 1.86                     | 0.40              |
| 1:D1:402:U:C3'    | 1:D1:403:G:H5'     | 2.52                     | 0.40              |
| 1:D1:459:G:C5     | 1:D1:517:A:C6      | 3.09                     | 0.40              |
| 1:D1:471:A:C2'    | 1:D1:472:C:O5'     | 2.69                     | 0.40              |
| 1:D1:627:U:O2     | 1:D1:630:G:C6      | 2.74                     | 0.40              |
| 1:D1:677:A:C2     | 1:D1:1469:G:C5     | 3.09                     | 0.40              |
| 1:D1:680:A:H2'    | 1:D1:681:A:C8      | 2.57                     | 0.40              |
| 1:D1:926:A:C5     | 1:D1:927:G:N7      | 2.90                     | 0.40              |
| 1:D1:945:A:H61    | 2:DA:15:THR:HG21   | 1.85                     | 0.40              |
| 1:D1:1038:G:C2    | 1:D1:1039:G:C4     | 3.09                     | 0.40              |
| 1:D1:1168:C:C4    | 1:D1:1169:G:C5     | 3.09                     | 0.40              |
| 1:D1:1866:A:C4'   | 3:DB:45:ARG:NH1    | 2.85                     | 0.40              |
| 1:D1:2189:G:C2'   | 1:D1:2190:C:H5'    | 2.51                     | 0.40              |
| 1:D1:2432:G:C6    | 1:D1:2433:A:C5     | 3.09                     | 0.40              |
| 1:D1:2567:U:H2'   | 1:D1:2568:G:C8     | 2.56                     | 0.40              |
| 1:D1:2766:A:C3'   | 1:D1:2767:A:H5'    | 2.51                     | 0.40              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:D1:3146:G:C6     | 1:D1:3248:C:N4    | 2.90                     | 0.40              |
| 1:D1:3275:A:H2'    | 1:D1:3276:C:OP2   | 2.19                     | 0.40              |
| 1:D1:3294:A:H2'    | 1:D1:3295:G:H5'   | 2.02                     | 0.40              |
| 1:D1:3308:A:C2     | 1:D1:3309:U:C2    | 3.09                     | 0.40              |
| 4:DC:77:THR:CG2    | 4:DC:78:LYS:N     | 2.85                     | 0.40              |
| 9:DJ:142:ILE:HD12  | 9:DJ:148:VAL:HG12 | 2.03                     | 0.40              |
| 9:DJ:186:ILE:HD13  | 9:DJ:196:GLY:C    | 2.47                     | 0.40              |
| 12:DM:52:LEU:HD23  | 12:DM:52:LEU:HA   | 1.86                     | 0.40              |
| 12:DM:96:TYR:CD1   | 12:DM:110:PHE:HD1 | 2.40                     | 0.40              |
| 13:DN:84:ARG:HD3   | 13:DN:85:TYR:N    | 2.36                     | 0.40              |
| 15:DP:13:LYS:HE2   | 15:DP:13:LYS:HB3  | 1.78                     | 0.40              |
| 15:DP:32:TYR:HB2   | 15:DP:43:LYS:HB2  | 2.02                     | 0.40              |
| 18:DU:73:PHE:HD2   | 18:DU:94:LYS:O    | 2.05                     | 0.40              |
| 19:DX:4:LYS:CE     | 19:DX:12:ASP:OD1  | 2.70                     | 0.40              |
| 19:DX:34:THR:C     | 19:DX:36:PRO:HD3  | 2.47                     | 0.40              |
| 20:E2:86:G:C6      | 40:ES:111:ASP:OD2 | 2.74                     | 0.40              |
| 20:E2:110:A:H5''   | 1:F1:1609:U:O2'   | 2.22                     | 0.40              |
| 21:E3:51:G:C6      | 21:E3:52:U:C4     | 3.10                     | 0.40              |
| 22:EA:210:HIS:CE1  | 22:EA:236:VAL:CG1 | 3.05                     | 0.40              |
| 22:EA:245:GLY:HA3  | 1:F1:2237:A:H5''  | 2.03                     | 0.40              |
| 23:EB:62:ARG:HH22  | 23:EB:346:GLY:HA3 | 1.86                     | 0.40              |
| 24:EC:81:ILE:HG13  | 1:F1:829:C:O2'    | 2.21                     | 0.40              |
| 24:EC:111:LYS:HB3  | 24:EC:113:TYR:CE1 | 2.56                     | 0.40              |
| 24:EC:166:TYR:HD1  | 24:EC:171:GLN:CD  | 2.29                     | 0.40              |
| 24:EC:166:TYR:OH   | 24:EC:175:PHE:HD2 | 2.05                     | 0.40              |
| 24:EC:245:GLN:O    | 24:EC:248:PRO:HD3 | 2.21                     | 0.40              |
| 24:EC:327:ASN:O    | 24:EC:328:ASN:C   | 2.64                     | 0.40              |
| 26:EE:19:THR:HB    | 26:EE:26:GLU:HB2  | 2.03                     | 0.40              |
| 26:EE:38:PHE:N     | 26:EE:38:PHE:CD1  | 2.89                     | 0.40              |
| 27:EF:243:LYS:O    | 27:EF:247:GLU:HG3 | 2.21                     | 0.40              |
| 30:EI:107:ILE:CG1  | 30:EI:159:ARG:NH1 | 2.83                     | 0.40              |
| 30:EI:193:LEU:HD21 | 6:FF:114:LEU:HB3  | 2.03                     | 0.40              |
| 31:EJ:63:LEU:HD12  | 31:EJ:63:LEU:HA   | 1.77                     | 0.40              |
| 32:EK:2:VAL:HG13   | 1:F1:818:U:OP1    | 2.21                     | 0.40              |
| 32:EK:29:GLY:CA    | 1:F1:962:G:H5'    | 2.43                     | 0.40              |
| 33:EL:7:LEU:O      | 33:EL:10:LEU:HB2  | 2.21                     | 0.40              |
| 34:EM:136:GLN:CB   | 34:EM:141:PRO:HD3 | 2.51                     | 0.40              |
| 38:EQ:45:ASN:O     | 38:EQ:46:ALA:C    | 2.63                     | 0.40              |
| 39:ER:81:MET:HE2   | 39:ER:81:MET:HB3  | 1.84                     | 0.40              |
| 1:F1:26:C:O2'      | 1:F1:59:A:H1'     | 2.21                     | 0.40              |
| 1:F1:499:U:H3'     | 1:F1:500:G:H8     | 1.83                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:F1:621:G:N7     | 1:F1:622:G:C6      | 2.89                     | 0.40              |
| 1:F1:624:G:C4     | 1:F1:625:C:C4      | 3.10                     | 0.40              |
| 1:F1:723:U:O2'    | 1:F1:724:C:OP1     | 2.33                     | 0.40              |
| 1:F1:748:G:C5     | 1:F1:749:U:C5      | 3.09                     | 0.40              |
| 1:F1:1213:G:C6    | 1:F1:1214:C:C4     | 3.10                     | 0.40              |
| 1:F1:1355:C:C2'   | 1:F1:1356:G:O5'    | 2.70                     | 0.40              |
| 1:F1:1475:A:H2'   | 1:F1:1476:G:O4'    | 2.22                     | 0.40              |
| 1:F1:1692:G:C6    | 1:F1:1693:U:C4     | 3.10                     | 0.40              |
| 1:F1:1704:G:OP2   | 12:FM:92:ARG:NH2   | 2.54                     | 0.40              |
| 1:F1:1712:U:C4    | 12:FM:80:TYR:CD1   | 3.10                     | 0.40              |
| 1:F1:1954:A:H4'   | 1:F1:1955:U:OP1    | 2.20                     | 0.40              |
| 1:F1:2121:A:H2'   | 1:F1:2122:A:O5'    | 2.22                     | 0.40              |
| 1:F1:2605:C:C2'   | 1:F1:2606:U:H5'    | 2.51                     | 0.40              |
| 1:F1:2833:A:C5    | 1:F1:2834:U:C5     | 3.10                     | 0.40              |
| 1:F1:2938:G:N3    | 1:F1:2938:G:H2'    | 2.36                     | 0.40              |
| 1:F1:3185:G:C4    | 1:F1:3237:C:C4     | 3.09                     | 0.40              |
| 1:F1:3308:A:C2    | 1:F1:3309:U:C2     | 3.09                     | 0.40              |
| 1:F1:3341:C:H2'   | 1:F1:3342:C:C6     | 2.56                     | 0.40              |
| 3:FB:38:ASN:ND2   | 3:FB:41:ARG:HG3    | 2.37                     | 0.40              |
| 5:FE:187:HIS:CD2  | 8:FH:47:ASP:HB3    | 2.57                     | 0.40              |
| 6:FF:29:ASN:OD1   | 6:FF:30:ILE:N      | 2.55                     | 0.40              |
| 7:FG:31:ILE:HD11  | 7:FG:56:ILE:HG12   | 2.04                     | 0.40              |
| 7:FG:100:ILE:O    | 7:FG:101:LEU:C     | 2.65                     | 0.40              |
| 10:FK:80:PRO:HA   | 10:FK:83:ALA:HB3   | 2.04                     | 0.40              |
| 14:FO:94:ILE:HD13 | 14:FO:107:ALA:CB   | 2.52                     | 0.40              |
| 19:FX:150:ARG:O   | 19:FX:154:LEU:HG   | 2.21                     | 0.40              |
| 20:G2:73:G:C5'    | 40:GS:117:LEU:HD11 | 2.51                     | 0.40              |
| 21:G3:75:G:O2'    | 21:G3:76:U:P       | 2.80                     | 0.40              |
| 22:GA:210:HIS:CE1 | 22:GA:236:VAL:CG1  | 3.04                     | 0.40              |
| 22:GA:210:HIS:NE2 | 22:GA:236:VAL:HG11 | 2.36                     | 0.40              |
| 24:GC:2:THR:CG2   | 24:GC:30:THR:HG23  | 2.51                     | 0.40              |
| 24:GC:12:ALA:C    | 24:GC:14:GLU:N     | 2.78                     | 0.40              |
| 24:GC:80:ARG:NH2  | 1:H1:2397:A:C6     | 2.90                     | 0.40              |
| 24:GC:81:ILE:CG2  | 24:GC:82:PRO:O     | 2.69                     | 0.40              |
| 24:GC:84:VAL:HG23 | 24:GC:94:GLN:O     | 2.21                     | 0.40              |
| 24:GC:230:ILE:CG2 | 24:GC:233:VAL:HG13 | 2.52                     | 0.40              |
| 27:GF:69:GLN:CG   | 27:GF:222:ARG:HH12 | 2.34                     | 0.40              |
| 30:GI:75:PRO:CB   | 30:GI:137:LEU:HD23 | 2.50                     | 0.40              |
| 30:GI:111:TYR:CD1 | 30:GI:111:TYR:N    | 2.90                     | 0.40              |
| 32:GK:77:ILE:CG1  | 32:GK:114:GLY:HA2  | 2.51                     | 0.40              |
| 32:GK:79:LYS:H    | 32:GK:79:LYS:HG2   | 1.60                     | 0.40              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 33:GL:139:HIS:HD2  | 33:GL:141:ALA:HB3  | 1.84                     | 0.40              |
| 33:GL:145:ASP:HA   | 33:GL:146:PRO:HD3  | 1.90                     | 0.40              |
| 33:GL:148:ILE:O    | 33:GL:148:ILE:CG2  | 2.69                     | 0.40              |
| 34:GM:222:GLU:O    | 34:GM:226:LYS:HG3  | 2.22                     | 0.40              |
| 34:GM:240:VAL:CG1  | 34:GM:245:LYS:HB2  | 2.49                     | 0.40              |
| 36:GO:97:ARG:O     | 36:GO:101:VAL:HG23 | 2.22                     | 0.40              |
| 37:GP:11:THR:O     | 37:GP:11:THR:CG2   | 2.68                     | 0.40              |
| 38:GQ:134:ALA:C    | 38:GQ:135:HIS:CD2  | 3.00                     | 0.40              |
| 42:GU:114:ASN:ND2  | 1:H1:254:G:O2'     | 2.55                     | 0.40              |
| 44:GW:75:CYS:O     | 44:GW:90:THR:HG23  | 2.22                     | 0.40              |
| 1:H1:296:G:HO2'    | 16:HQ:32:GLY:C     | 2.29                     | 0.40              |
| 1:H1:358:C:O2      | 1:H1:840:G:H4'     | 2.22                     | 0.40              |
| 1:H1:439:A:H5''    | 5:HE:126:HIS:HB3   | 2.03                     | 0.40              |
| 1:H1:527:A:C3'     | 1:H1:528:C:H5''    | 2.50                     | 0.40              |
| 1:H1:1017:U:H6     | 1:H1:1017:U:H5'    | 1.86                     | 0.40              |
| 1:H1:1052:A:N3     | 1:H1:1052:A:H2'    | 2.36                     | 0.40              |
| 1:H1:1105:U:C2     | 1:H1:1111:G:C2     | 3.10                     | 0.40              |
| 1:H1:1197:A:C8     | 1:H1:1198:G:C8     | 3.09                     | 0.40              |
| 1:H1:1248:G:O5'    | 1:H1:1248:G:H8     | 2.04                     | 0.40              |
| 1:H1:1604:C:H2'    | 1:H1:1605:G:O5'    | 2.22                     | 0.40              |
| 1:H1:1724:U:C2'    | 1:H1:1725:A:H5'    | 2.51                     | 0.40              |
| 1:H1:1725:A:H2'    | 1:H1:1726:C:O5'    | 2.21                     | 0.40              |
| 1:H1:1736:G:N1     | 1:H1:1737:A:N1     | 2.69                     | 0.40              |
| 1:H1:1740:U:C4'    | 1:H1:1741:U:OP2    | 2.70                     | 0.40              |
| 1:H1:1839:A:O2'    | 1:H1:1840:U:P      | 2.79                     | 0.40              |
| 1:H1:1843:U:O2'    | 1:H1:1844:U:H5'    | 2.22                     | 0.40              |
| 1:H1:2324:A:C6     | 1:H1:2325:C:C4     | 3.09                     | 0.40              |
| 1:H1:2380:U:O2     | 1:H1:2380:U:C2'    | 2.67                     | 0.40              |
| 1:H1:2423:U:H2'    | 1:H1:2424:A:C8     | 2.56                     | 0.40              |
| 1:H1:2610:G:C6     | 1:H1:2611:C:C4     | 3.10                     | 0.40              |
| 1:H1:2632:A:C2'    | 1:H1:2634:G:OP1    | 2.69                     | 0.40              |
| 1:H1:3175:A:H5'    | 1:H1:3176:A:OP1    | 2.20                     | 0.40              |
| 2:HA:21:ARG:CZ     | 2:HA:44:MET:HE3    | 2.51                     | 0.40              |
| 5:HE:114:ASP:O     | 5:HE:116:TYR:N     | 2.55                     | 0.40              |
| 6:HF:39:ASP:HB3    | 6:HF:72:LEU:CD2    | 2.51                     | 0.40              |
| 8:HH:20:PHE:C      | 8:HH:20:PHE:HD1    | 2.29                     | 0.40              |
| 12:HM:74:SER:OG    | 12:HM:76:ARG:HB2   | 2.21                     | 0.40              |
| 13:HN:57:MET:HE2   | 13:HN:61:LYS:HB3   | 2.03                     | 0.40              |
| 19:HX:143:LEU:HD13 | 19:HX:148:ILE:HG22 | 2.03                     | 0.40              |

All (12) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1            | Atom-2                   | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------------|--------------------------|-------------------|
| 34:CM:276:LYS:NZ  | 1:D1:259:U:O3'[2_546]    | 1.54                     | 0.66              |
| 34:GM:117:THR:OG1 | 1:H1:192:C:C4'[2_445]    | 1.57                     | 0.63              |
| 34:EM:214:LYS:NZ  | 1:F1:171:A:O4'[2_456]    | 1.76                     | 0.44              |
| 20:B2:87:C:N4     | 40:CS:82:GLU:OE2[1_545]  | 1.84                     | 0.36              |
| 1:A1:1840:U:O4    | 15:DP:74:LYS:N[1_545]    | 1.88                     | 0.32              |
| 16:AQ:3:LYS:NZ    | 1:H1:1840:U:C4[2_545]    | 1.92                     | 0.28              |
| 16:AQ:3:LYS:NZ    | 1:H1:1840:U:O4[2_545]    | 1.97                     | 0.23              |
| 34:EM:214:LYS:NZ  | 1:F1:171:A:C1'[2_456]    | 2.00                     | 0.20              |
| 34:GM:117:THR:CG2 | 1:H1:192:C:O2'[2_445]    | 2.02                     | 0.18              |
| 34:EM:214:LYS:NZ  | 1:F1:171:A:N9[2_456]     | 2.08                     | 0.12              |
| 27:EF:109:GLU:OE2 | 34:EM:236:GLU:OE1[2_446] | 2.10                     | 0.10              |
| 1:A1:1840:U:C5    | 15:DP:74:LYS:O[1_545]    | 2.11                     | 0.09              |

### 5.3 Torsion angles ⓘ

#### 5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed      | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 2   | AA    | 89/94 (95%)   | 85 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 2   | DA    | 89/94 (95%)   | 85 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 2   | FA    | 89/94 (95%)   | 85 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 2   | HA    | 89/94 (95%)   | 85 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 3   | AB    | 49/52 (94%)   | 46 (94%)  | 3 (6%)  | 0        | 100         | 100 |
| 3   | DB    | 49/52 (94%)   | 46 (94%)  | 3 (6%)  | 0        | 100         | 100 |
| 3   | FB    | 49/52 (94%)   | 46 (94%)  | 3 (6%)  | 0        | 100         | 100 |
| 3   | HB    | 49/52 (94%)   | 46 (94%)  | 3 (6%)  | 0        | 100         | 100 |
| 4   | AC    | 101/109 (93%) | 99 (98%)  | 2 (2%)  | 0        | 100         | 100 |
| 4   | DC    | 101/109 (93%) | 99 (98%)  | 2 (2%)  | 0        | 100         | 100 |
| 4   | FC    | 101/109 (93%) | 99 (98%)  | 2 (2%)  | 0        | 100         | 100 |
| 4   | HC    | 101/109 (93%) | 99 (98%)  | 2 (2%)  | 0        | 100         | 100 |
| 5   | AE    | 188/191 (98%) | 178 (95%) | 9 (5%)  | 1 (0%)   | 24          | 58  |

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| Mol | Chain | Analysed      | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 5   | DE    | 188/191 (98%) | 176 (94%) | 11 (6%) | 1 (0%)   | 24          | 58  |
| 5   | FE    | 188/191 (98%) | 178 (95%) | 9 (5%)  | 1 (0%)   | 24          | 58  |
| 5   | HE    | 188/191 (98%) | 177 (94%) | 10 (5%) | 1 (0%)   | 24          | 58  |
| 6   | AF    | 123/126 (98%) | 115 (94%) | 8 (6%)  | 0        | 100         | 100 |
| 6   | DF    | 123/126 (98%) | 116 (94%) | 7 (6%)  | 0        | 100         | 100 |
| 6   | FF    | 123/126 (98%) | 115 (94%) | 8 (6%)  | 0        | 100         | 100 |
| 6   | HF    | 123/126 (98%) | 114 (93%) | 9 (7%)  | 0        | 100         | 100 |
| 7   | AG    | 94/104 (90%)  | 90 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 7   | DG    | 94/104 (90%)  | 90 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 7   | FG    | 94/104 (90%)  | 90 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 7   | HG    | 94/104 (90%)  | 90 (96%)  | 4 (4%)  | 0        | 100         | 100 |
| 8   | AH    | 105/113 (93%) | 100 (95%) | 5 (5%)  | 0        | 100         | 100 |
| 8   | DH    | 105/113 (93%) | 100 (95%) | 5 (5%)  | 0        | 100         | 100 |
| 8   | FH    | 105/113 (93%) | 100 (95%) | 4 (4%)  | 1 (1%)   | 12          | 45  |
| 8   | HH    | 105/113 (93%) | 100 (95%) | 5 (5%)  | 0        | 100         | 100 |
| 9   | AJ    | 224/248 (90%) | 211 (94%) | 11 (5%) | 2 (1%)   | 14          | 48  |
| 9   | DJ    | 224/248 (90%) | 211 (94%) | 11 (5%) | 2 (1%)   | 14          | 48  |
| 9   | FJ    | 224/248 (90%) | 212 (95%) | 10 (4%) | 2 (1%)   | 14          | 48  |
| 9   | HJ    | 224/248 (90%) | 213 (95%) | 9 (4%)  | 2 (1%)   | 14          | 48  |
| 10  | AK    | 50/129 (39%)  | 43 (86%)  | 7 (14%) | 0        | 100         | 100 |
| 10  | DK    | 50/129 (39%)  | 44 (88%)  | 6 (12%) | 0        | 100         | 100 |
| 10  | FK    | 50/129 (39%)  | 44 (88%)  | 6 (12%) | 0        | 100         | 100 |
| 10  | HK    | 50/129 (39%)  | 43 (86%)  | 7 (14%) | 0        | 100         | 100 |
| 11  | AL    | 106/123 (86%) | 98 (92%)  | 8 (8%)  | 0        | 100         | 100 |
| 11  | DL    | 106/123 (86%) | 98 (92%)  | 8 (8%)  | 0        | 100         | 100 |
| 11  | FL    | 106/123 (86%) | 98 (92%)  | 8 (8%)  | 0        | 100         | 100 |
| 11  | HL    | 106/123 (86%) | 98 (92%)  | 8 (8%)  | 0        | 100         | 100 |
| 12  | AM    | 98/118 (83%)  | 92 (94%)  | 5 (5%)  | 1 (1%)   | 12          | 45  |
| 12  | DM    | 98/118 (83%)  | 94 (96%)  | 3 (3%)  | 1 (1%)   | 12          | 45  |
| 12  | FM    | 98/118 (83%)  | 93 (95%)  | 4 (4%)  | 1 (1%)   | 12          | 45  |
| 12  | HM    | 98/118 (83%)  | 92 (94%)  | 5 (5%)  | 1 (1%)   | 12          | 45  |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 13  | AN    | 141/144 (98%) | 133 (94%) | 7 (5%)   | 1 (1%)   | 18          | 52  |
| 13  | DN    | 141/144 (98%) | 133 (94%) | 7 (5%)   | 1 (1%)   | 18          | 52  |
| 13  | FN    | 141/144 (98%) | 133 (94%) | 8 (6%)   | 0        | 100         | 100 |
| 13  | HN    | 141/144 (98%) | 133 (94%) | 7 (5%)   | 1 (1%)   | 18          | 52  |
| 14  | AO    | 132/134 (98%) | 125 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 14  | DO    | 132/134 (98%) | 125 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 14  | FO    | 132/134 (98%) | 125 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 14  | HO    | 132/134 (98%) | 125 (95%) | 7 (5%)   | 0        | 100         | 100 |
| 15  | AP    | 62/89 (70%)   | 58 (94%)  | 4 (6%)   | 0        | 100         | 100 |
| 15  | DP    | 62/89 (70%)   | 58 (94%)  | 4 (6%)   | 0        | 100         | 100 |
| 15  | FP    | 62/89 (70%)   | 58 (94%)  | 4 (6%)   | 0        | 100         | 100 |
| 15  | HP    | 62/89 (70%)   | 58 (94%)  | 4 (6%)   | 0        | 100         | 100 |
| 16  | AQ    | 100/104 (96%) | 89 (89%)  | 9 (9%)   | 2 (2%)   | 6           | 32  |
| 16  | DQ    | 100/104 (96%) | 89 (89%)  | 9 (9%)   | 2 (2%)   | 6           | 32  |
| 16  | FQ    | 100/104 (96%) | 88 (88%)  | 10 (10%) | 2 (2%)   | 6           | 32  |
| 16  | HQ    | 100/104 (96%) | 89 (89%)  | 9 (9%)   | 2 (2%)   | 6           | 32  |
| 17  | AT    | 63/66 (96%)   | 59 (94%)  | 3 (5%)   | 1 (2%)   | 7           | 36  |
| 17  | DT    | 63/66 (96%)   | 60 (95%)  | 2 (3%)   | 1 (2%)   | 7           | 36  |
| 17  | FT    | 63/66 (96%)   | 60 (95%)  | 2 (3%)   | 1 (2%)   | 7           | 36  |
| 17  | HT    | 63/66 (96%)   | 60 (95%)  | 2 (3%)   | 1 (2%)   | 7           | 36  |
| 18  | AU    | 201/206 (98%) | 188 (94%) | 12 (6%)  | 1 (0%)   | 24          | 58  |
| 18  | DU    | 201/206 (98%) | 187 (93%) | 13 (6%)  | 1 (0%)   | 24          | 58  |
| 18  | FU    | 201/206 (98%) | 187 (93%) | 13 (6%)  | 1 (0%)   | 24          | 58  |
| 18  | HU    | 201/206 (98%) | 189 (94%) | 11 (6%)  | 1 (0%)   | 24          | 58  |
| 19  | AX    | 186/189 (98%) | 177 (95%) | 8 (4%)   | 1 (0%)   | 24          | 58  |
| 19  | DX    | 186/189 (98%) | 178 (96%) | 6 (3%)   | 2 (1%)   | 11          | 44  |
| 19  | FX    | 186/189 (98%) | 178 (96%) | 6 (3%)   | 2 (1%)   | 11          | 44  |
| 19  | HX    | 186/189 (98%) | 177 (95%) | 7 (4%)   | 2 (1%)   | 11          | 44  |
| 22  | BA    | 255/264 (97%) | 236 (92%) | 19 (8%)  | 0        | 100         | 100 |
| 22  | CA    | 255/264 (97%) | 235 (92%) | 20 (8%)  | 0        | 100         | 100 |
| 22  | EA    | 255/264 (97%) | 234 (92%) | 21 (8%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 22  | GA    | 255/264 (97%) | 237 (93%) | 18 (7%) | 0        | 100         | 100 |
| 23  | BB    | 384/391 (98%) | 371 (97%) | 13 (3%) | 0        | 100         | 100 |
| 23  | CB    | 384/391 (98%) | 371 (97%) | 13 (3%) | 0        | 100         | 100 |
| 23  | EB    | 384/391 (98%) | 371 (97%) | 13 (3%) | 0        | 100         | 100 |
| 23  | GB    | 384/391 (98%) | 370 (96%) | 14 (4%) | 0        | 100         | 100 |
| 24  | BC    | 407/410 (99%) | 383 (94%) | 24 (6%) | 0        | 100         | 100 |
| 24  | CC    | 407/410 (99%) | 387 (95%) | 20 (5%) | 0        | 100         | 100 |
| 24  | EC    | 407/410 (99%) | 384 (94%) | 23 (6%) | 0        | 100         | 100 |
| 24  | GC    | 407/410 (99%) | 386 (95%) | 21 (5%) | 0        | 100         | 100 |
| 25  | BD    | 167/172 (97%) | 156 (93%) | 11 (7%) | 0        | 100         | 100 |
| 25  | CD    | 167/172 (97%) | 156 (93%) | 11 (7%) | 0        | 100         | 100 |
| 25  | ED    | 167/172 (97%) | 156 (93%) | 11 (7%) | 0        | 100         | 100 |
| 25  | GD    | 167/172 (97%) | 156 (93%) | 11 (7%) | 0        | 100         | 100 |
| 26  | BE    | 184/188 (98%) | 171 (93%) | 13 (7%) | 0        | 100         | 100 |
| 26  | CE    | 184/188 (98%) | 171 (93%) | 13 (7%) | 0        | 100         | 100 |
| 26  | EE    | 184/188 (98%) | 171 (93%) | 13 (7%) | 0        | 100         | 100 |
| 26  | GE    | 184/188 (98%) | 171 (93%) | 13 (7%) | 0        | 100         | 100 |
| 27  | BF    | 229/255 (90%) | 219 (96%) | 10 (4%) | 0        | 100         | 100 |
| 27  | CF    | 229/255 (90%) | 219 (96%) | 10 (4%) | 0        | 100         | 100 |
| 27  | EF    | 229/255 (90%) | 219 (96%) | 9 (4%)  | 1 (0%)   | 30          | 62  |
| 27  | GF    | 229/255 (90%) | 219 (96%) | 10 (4%) | 0        | 100         | 100 |
| 29  | BH    | 197/215 (92%) | 186 (94%) | 11 (6%) | 0        | 100         | 100 |
| 29  | CH    | 197/215 (92%) | 187 (95%) | 10 (5%) | 0        | 100         | 100 |
| 29  | EH    | 197/215 (92%) | 186 (94%) | 11 (6%) | 0        | 100         | 100 |
| 29  | GH    | 197/215 (92%) | 186 (94%) | 11 (6%) | 0        | 100         | 100 |
| 30  | BI    | 196/198 (99%) | 189 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 30  | CI    | 196/198 (99%) | 189 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 30  | EI    | 196/198 (99%) | 189 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 30  | GI    | 196/198 (99%) | 189 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 31  | BJ    | 136/141 (96%) | 132 (97%) | 4 (3%)  | 0        | 100         | 100 |
| 31  | CJ    | 136/141 (96%) | 132 (97%) | 4 (3%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|---------|----------|-------------|-----|
| 31  | EJ    | 136/141 (96%) | 131 (96%) | 5 (4%)  | 0        | 100         | 100 |
| 31  | GJ    | 136/141 (96%) | 132 (97%) | 4 (3%)  | 0        | 100         | 100 |
| 32  | BK    | 146/149 (98%) | 136 (93%) | 8 (6%)  | 2 (1%)   | 9           | 38  |
| 32  | CK    | 146/149 (98%) | 135 (92%) | 8 (6%)  | 3 (2%)   | 5           | 31  |
| 32  | EK    | 146/149 (98%) | 137 (94%) | 7 (5%)  | 2 (1%)   | 9           | 38  |
| 32  | GK    | 146/149 (98%) | 135 (92%) | 8 (6%)  | 3 (2%)   | 5           | 31  |
| 33  | BL    | 201/204 (98%) | 191 (95%) | 10 (5%) | 0        | 100         | 100 |
| 33  | CL    | 201/204 (98%) | 191 (95%) | 10 (5%) | 0        | 100         | 100 |
| 33  | EL    | 201/204 (98%) | 191 (95%) | 10 (5%) | 0        | 100         | 100 |
| 33  | GL    | 201/204 (98%) | 193 (96%) | 7 (4%)  | 1 (0%)   | 24          | 58  |
| 34  | BM    | 296/301 (98%) | 282 (95%) | 13 (4%) | 1 (0%)   | 36          | 66  |
| 34  | CM    | 298/301 (99%) | 282 (95%) | 15 (5%) | 1 (0%)   | 36          | 66  |
| 34  | EM    | 298/301 (99%) | 283 (95%) | 14 (5%) | 1 (0%)   | 36          | 66  |
| 34  | GM    | 298/301 (99%) | 285 (96%) | 12 (4%) | 1 (0%)   | 36          | 66  |
| 35  | BN    | 178/181 (98%) | 168 (94%) | 10 (6%) | 0        | 100         | 100 |
| 35  | CN    | 178/181 (98%) | 168 (94%) | 10 (6%) | 0        | 100         | 100 |
| 35  | EN    | 178/181 (98%) | 168 (94%) | 10 (6%) | 0        | 100         | 100 |
| 35  | GN    | 178/181 (98%) | 168 (94%) | 10 (6%) | 0        | 100         | 100 |
| 36  | BO    | 182/185 (98%) | 170 (93%) | 11 (6%) | 1 (0%)   | 24          | 58  |
| 36  | EO    | 144/185 (78%) | 137 (95%) | 7 (5%)  | 0        | 100         | 100 |
| 36  | GO    | 151/185 (82%) | 143 (95%) | 8 (5%)  | 0        | 100         | 100 |
| 37  | BP    | 154/157 (98%) | 148 (96%) | 6 (4%)  | 0        | 100         | 100 |
| 37  | CP    | 154/157 (98%) | 147 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 37  | EP    | 154/157 (98%) | 148 (96%) | 6 (4%)  | 0        | 100         | 100 |
| 37  | GP    | 154/157 (98%) | 147 (96%) | 7 (4%)  | 0        | 100         | 100 |
| 38  | BQ    | 155/183 (85%) | 146 (94%) | 9 (6%)  | 0        | 100         | 100 |
| 38  | CQ    | 155/183 (85%) | 147 (95%) | 8 (5%)  | 0        | 100         | 100 |
| 38  | EQ    | 155/183 (85%) | 147 (95%) | 8 (5%)  | 0        | 100         | 100 |
| 38  | GQ    | 155/183 (85%) | 147 (95%) | 8 (5%)  | 0        | 100         | 100 |
| 39  | BR    | 119/150 (79%) | 115 (97%) | 4 (3%)  | 0        | 100         | 100 |
| 39  | CR    | 119/150 (79%) | 116 (98%) | 3 (2%)  | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 39  | ER    | 119/150 (79%) | 115 (97%) | 4 (3%)   | 0        | 100         | 100 |
| 39  | GR    | 119/150 (79%) | 114 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 40  | BS    | 124/135 (92%) | 119 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 40  | CS    | 124/135 (92%) | 119 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 40  | ES    | 124/135 (92%) | 119 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 40  | GS    | 124/135 (92%) | 118 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 41  | BT    | 59/158 (37%)  | 57 (97%)  | 2 (3%)   | 0        | 100         | 100 |
| 41  | CT    | 59/158 (37%)  | 56 (95%)  | 3 (5%)   | 0        | 100         | 100 |
| 41  | ET    | 59/158 (37%)  | 57 (97%)  | 2 (3%)   | 0        | 100         | 100 |
| 41  | GT    | 59/158 (37%)  | 57 (97%)  | 2 (3%)   | 0        | 100         | 100 |
| 42  | BU    | 121/124 (98%) | 112 (93%) | 9 (7%)   | 0        | 100         | 100 |
| 42  | CU    | 121/124 (98%) | 111 (92%) | 10 (8%)  | 0        | 100         | 100 |
| 42  | EU    | 121/124 (98%) | 113 (93%) | 8 (7%)   | 0        | 100         | 100 |
| 42  | GU    | 121/124 (98%) | 112 (93%) | 9 (7%)   | 0        | 100         | 100 |
| 43  | BV    | 232/239 (97%) | 216 (93%) | 16 (7%)  | 0        | 100         | 100 |
| 43  | CV    | 232/239 (97%) | 216 (93%) | 16 (7%)  | 0        | 100         | 100 |
| 43  | EV    | 232/239 (97%) | 216 (93%) | 15 (6%)  | 1 (0%)   | 30          | 62  |
| 43  | GV    | 232/239 (97%) | 216 (93%) | 15 (6%)  | 1 (0%)   | 30          | 62  |
| 44  | BW    | 108/111 (97%) | 102 (94%) | 6 (6%)   | 0        | 100         | 100 |
| 44  | CW    | 108/111 (97%) | 102 (94%) | 6 (6%)   | 0        | 100         | 100 |
| 44  | EW    | 108/111 (97%) | 101 (94%) | 7 (6%)   | 0        | 100         | 100 |
| 44  | GW    | 108/111 (97%) | 102 (94%) | 6 (6%)   | 0        | 100         | 100 |
| 45  | BX    | 123/134 (92%) | 119 (97%) | 4 (3%)   | 0        | 100         | 100 |
| 45  | CX    | 123/134 (92%) | 117 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 45  | EX    | 123/134 (92%) | 118 (96%) | 5 (4%)   | 0        | 100         | 100 |
| 45  | GX    | 123/134 (92%) | 117 (95%) | 6 (5%)   | 0        | 100         | 100 |
| 46  | BY    | 100/103 (97%) | 91 (91%)  | 9 (9%)   | 0        | 100         | 100 |
| 46  | CY    | 100/103 (97%) | 90 (90%)  | 10 (10%) | 0        | 100         | 100 |
| 46  | EY    | 100/103 (97%) | 90 (90%)  | 10 (10%) | 0        | 100         | 100 |
| 46  | GY    | 100/103 (97%) | 90 (90%)  | 10 (10%) | 0        | 100         | 100 |
| 47  | CO    | 145/185 (78%) | 138 (95%) | 7 (5%)   | 0        | 100         | 100 |

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| Mol | Chain | Analysed          | Favoured    | Allowed   | Outliers | Percentiles |    |
|-----|-------|-------------------|-------------|-----------|----------|-------------|----|
| All | All   | 26160/28348 (92%) | 24720 (94%) | 1378 (5%) | 62 (0%)  | 43          | 74 |

All (62) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | AQ    | 7   | VAL  |
| 32  | BK    | 24  | LYS  |
| 32  | CK    | 24  | LYS  |
| 16  | DQ    | 7   | VAL  |
| 32  | EK    | 24  | LYS  |
| 16  | FQ    | 7   | VAL  |
| 32  | GK    | 24  | LYS  |
| 16  | HQ    | 7   | VAL  |
| 32  | BK    | 15  | VAL  |
| 36  | BO    | 152 | SER  |
| 32  | CK    | 15  | VAL  |
| 32  | EK    | 15  | VAL  |
| 32  | GK    | 15  | VAL  |
| 5   | AE    | 86  | PRO  |
| 5   | DE    | 86  | PRO  |
| 5   | FE    | 86  | PRO  |
| 5   | HE    | 86  | PRO  |
| 17  | AT    | 10  | LYS  |
| 17  | DT    | 10  | LYS  |
| 18  | DU    | 135 | LEU  |
| 16  | FQ    | 13  | PHE  |
| 17  | FT    | 10  | LYS  |
| 17  | HT    | 10  | LYS  |
| 9   | AJ    | 13  | ILE  |
| 16  | AQ    | 13  | PHE  |
| 18  | AU    | 135 | LEU  |
| 19  | AX    | 81  | LYS  |
| 32  | CK    | 46  | LEU  |
| 9   | DJ    | 13  | ILE  |
| 13  | DN    | 30  | GLU  |
| 16  | DQ    | 13  | PHE  |
| 19  | DX    | 81  | LYS  |
| 27  | EF    | 115 | LYS  |
| 19  | FX    | 81  | LYS  |
| 32  | GK    | 46  | LEU  |
| 9   | HJ    | 13  | ILE  |
| 13  | HN    | 30  | GLU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | HQ    | 13  | PHE  |
| 18  | HU    | 135 | LEU  |
| 19  | HX    | 81  | LYS  |
| 13  | AN    | 30  | GLU  |
| 9   | FJ    | 13  | ILE  |
| 18  | FU    | 135 | LEU  |
| 33  | GL    | 187 | SER  |
| 43  | GV    | 228 | GLU  |
| 9   | AJ    | 193 | ILE  |
| 9   | DJ    | 193 | ILE  |
| 12  | DM    | 53  | GLY  |
| 9   | FJ    | 193 | ILE  |
| 12  | FM    | 53  | GLY  |
| 9   | HJ    | 193 | ILE  |
| 12  | HM    | 53  | GLY  |
| 12  | AM    | 53  | GLY  |
| 34  | EM    | 270 | PRO  |
| 34  | GM    | 270 | PRO  |
| 34  | BM    | 270 | PRO  |
| 34  | CM    | 270 | PRO  |
| 19  | DX    | 30  | ILE  |
| 8   | FH    | 9   | VAL  |
| 19  | FX    | 30  | ILE  |
| 19  | HX    | 30  | ILE  |
| 43  | EV    | 188 | VAL  |

### 5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

| Mol | Chain | Analysed    | Rotameric | Outliers | Percentiles |    |
|-----|-------|-------------|-----------|----------|-------------|----|
| 2   | AA    | 69/72 (96%) | 58 (84%)  | 11 (16%) | 2           | 15 |
| 2   | DA    | 69/72 (96%) | 57 (83%)  | 12 (17%) | 2           | 11 |
| 2   | FA    | 69/72 (96%) | 57 (83%)  | 12 (17%) | 2           | 11 |
| 2   | HA    | 69/72 (96%) | 57 (83%)  | 12 (17%) | 2           | 11 |
| 3   | AB    | 48/49 (98%) | 42 (88%)  | 6 (12%)  | 4           | 22 |

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| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |    |
|-----|-------|---------------|-----------|----------|-------------|----|
| 3   | DB    | 48/49 (98%)   | 44 (92%)  | 4 (8%)   | 10          | 35 |
| 3   | FB    | 48/49 (98%)   | 44 (92%)  | 4 (8%)   | 10          | 35 |
| 3   | HB    | 48/49 (98%)   | 44 (92%)  | 4 (8%)   | 10          | 35 |
| 4   | AC    | 95/101 (94%)  | 91 (96%)  | 4 (4%)   | 26          | 52 |
| 4   | DC    | 95/101 (94%)  | 91 (96%)  | 4 (4%)   | 26          | 52 |
| 4   | FC    | 95/101 (94%)  | 91 (96%)  | 4 (4%)   | 26          | 52 |
| 4   | HC    | 95/101 (94%)  | 91 (96%)  | 4 (4%)   | 26          | 52 |
| 5   | AE    | 162/163 (99%) | 150 (93%) | 12 (7%)  | 13          | 38 |
| 5   | DE    | 162/163 (99%) | 152 (94%) | 10 (6%)  | 16          | 44 |
| 5   | FE    | 162/163 (99%) | 149 (92%) | 13 (8%)  | 11          | 36 |
| 5   | HE    | 162/163 (99%) | 150 (93%) | 12 (7%)  | 13          | 38 |
| 6   | AF    | 111/112 (99%) | 107 (96%) | 4 (4%)   | 31          | 57 |
| 6   | DF    | 111/112 (99%) | 107 (96%) | 4 (4%)   | 31          | 57 |
| 6   | FF    | 111/112 (99%) | 107 (96%) | 4 (4%)   | 31          | 57 |
| 6   | HF    | 111/112 (99%) | 107 (96%) | 4 (4%)   | 31          | 57 |
| 7   | AG    | 80/88 (91%)   | 75 (94%)  | 5 (6%)   | 16          | 43 |
| 7   | DG    | 80/88 (91%)   | 75 (94%)  | 5 (6%)   | 16          | 43 |
| 7   | FG    | 80/88 (91%)   | 75 (94%)  | 5 (6%)   | 16          | 43 |
| 7   | HG    | 80/88 (91%)   | 76 (95%)  | 4 (5%)   | 22          | 49 |
| 8   | AH    | 87/92 (95%)   | 79 (91%)  | 8 (9%)   | 8           | 32 |
| 8   | DH    | 87/92 (95%)   | 79 (91%)  | 8 (9%)   | 8           | 32 |
| 8   | FH    | 87/92 (95%)   | 79 (91%)  | 8 (9%)   | 8           | 32 |
| 8   | HH    | 87/92 (95%)   | 78 (90%)  | 9 (10%)  | 7           | 29 |
| 9   | AJ    | 195/216 (90%) | 173 (89%) | 22 (11%) | 5           | 26 |
| 9   | DJ    | 195/216 (90%) | 172 (88%) | 23 (12%) | 5           | 24 |
| 9   | FJ    | 195/216 (90%) | 173 (89%) | 22 (11%) | 5           | 26 |
| 9   | HJ    | 195/216 (90%) | 173 (89%) | 22 (11%) | 5           | 26 |
| 10  | AK    | 46/113 (41%)  | 41 (89%)  | 5 (11%)  | 6           | 27 |
| 10  | DK    | 46/113 (41%)  | 42 (91%)  | 4 (9%)   | 9           | 33 |
| 10  | FK    | 46/113 (41%)  | 40 (87%)  | 6 (13%)  | 4           | 21 |
| 10  | HK    | 46/113 (41%)  | 41 (89%)  | 5 (11%)  | 6           | 27 |

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| Mol | Chain | Analysed       | Rotameric | Outliers | Percentiles |    |
|-----|-------|----------------|-----------|----------|-------------|----|
| 11  | AL    | 92/107 (86%)   | 85 (92%)  | 7 (8%)   | 12          | 38 |
| 11  | DL    | 92/107 (86%)   | 86 (94%)  | 6 (6%)   | 15          | 42 |
| 11  | FL    | 92/107 (86%)   | 86 (94%)  | 6 (6%)   | 15          | 42 |
| 11  | HL    | 92/107 (86%)   | 85 (92%)  | 7 (8%)   | 12          | 38 |
| 12  | AM    | 93/110 (84%)   | 92 (99%)  | 1 (1%)   | 65          | 75 |
| 12  | DM    | 93/110 (84%)   | 92 (99%)  | 1 (1%)   | 65          | 75 |
| 12  | FM    | 93/110 (84%)   | 92 (99%)  | 1 (1%)   | 65          | 75 |
| 12  | HM    | 93/110 (84%)   | 92 (99%)  | 1 (1%)   | 65          | 75 |
| 13  | AN    | 130/131 (99%)  | 120 (92%) | 10 (8%)  | 12          | 38 |
| 13  | DN    | 130/131 (99%)  | 122 (94%) | 8 (6%)   | 16          | 44 |
| 13  | FN    | 130/131 (99%)  | 122 (94%) | 8 (6%)   | 16          | 44 |
| 13  | HN    | 130/131 (99%)  | 121 (93%) | 9 (7%)   | 14          | 40 |
| 14  | AO    | 108/108 (100%) | 101 (94%) | 7 (6%)   | 15          | 42 |
| 14  | DO    | 108/108 (100%) | 102 (94%) | 6 (6%)   | 19          | 46 |
| 14  | FO    | 108/108 (100%) | 102 (94%) | 6 (6%)   | 19          | 46 |
| 14  | HO    | 108/108 (100%) | 102 (94%) | 6 (6%)   | 19          | 46 |
| 15  | AP    | 60/77 (78%)    | 54 (90%)  | 6 (10%)  | 7           | 29 |
| 15  | DP    | 60/77 (78%)    | 54 (90%)  | 6 (10%)  | 7           | 29 |
| 15  | FP    | 60/77 (78%)    | 54 (90%)  | 6 (10%)  | 7           | 29 |
| 15  | HP    | 60/77 (78%)    | 54 (90%)  | 6 (10%)  | 7           | 29 |
| 16  | AQ    | 81/83 (98%)    | 75 (93%)  | 6 (7%)   | 13          | 38 |
| 16  | DQ    | 81/83 (98%)    | 75 (93%)  | 6 (7%)   | 13          | 38 |
| 16  | FQ    | 81/83 (98%)    | 75 (93%)  | 6 (7%)   | 13          | 38 |
| 16  | HQ    | 81/83 (98%)    | 75 (93%)  | 6 (7%)   | 13          | 38 |
| 17  | AT    | 61/62 (98%)    | 57 (93%)  | 4 (7%)   | 15          | 42 |
| 17  | DT    | 61/62 (98%)    | 57 (93%)  | 4 (7%)   | 15          | 42 |
| 17  | FT    | 61/62 (98%)    | 57 (93%)  | 4 (7%)   | 15          | 42 |
| 17  | HT    | 61/62 (98%)    | 57 (93%)  | 4 (7%)   | 15          | 42 |
| 18  | AU    | 169/171 (99%)  | 158 (94%) | 11 (6%)  | 15          | 42 |
| 18  | DU    | 169/171 (99%)  | 159 (94%) | 10 (6%)  | 18          | 45 |
| 18  | FU    | 169/171 (99%)  | 159 (94%) | 10 (6%)  | 18          | 45 |

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| Mol | Chain | Analysed       | Rotameric | Outliers | Percentiles |    |
|-----|-------|----------------|-----------|----------|-------------|----|
| 18  | HU    | 169/171 (99%)  | 158 (94%) | 11 (6%)  | 15          | 42 |
| 19  | AX    | 167/168 (99%)  | 151 (90%) | 16 (10%) | 8           | 31 |
| 19  | DX    | 167/168 (99%)  | 151 (90%) | 16 (10%) | 8           | 31 |
| 19  | FX    | 167/168 (99%)  | 149 (89%) | 18 (11%) | 6           | 27 |
| 19  | HX    | 167/168 (99%)  | 151 (90%) | 16 (10%) | 8           | 31 |
| 22  | BA    | 196/198 (99%)  | 163 (83%) | 33 (17%) | 2           | 13 |
| 22  | CA    | 196/198 (99%)  | 163 (83%) | 33 (17%) | 2           | 13 |
| 22  | EA    | 196/198 (99%)  | 162 (83%) | 34 (17%) | 2           | 12 |
| 22  | GA    | 196/198 (99%)  | 164 (84%) | 32 (16%) | 2           | 14 |
| 23  | BB    | 330/334 (99%)  | 302 (92%) | 28 (8%)  | 10          | 34 |
| 23  | CB    | 330/334 (99%)  | 300 (91%) | 30 (9%)  | 9           | 32 |
| 23  | EB    | 330/334 (99%)  | 304 (92%) | 26 (8%)  | 11          | 37 |
| 23  | GB    | 330/334 (99%)  | 302 (92%) | 28 (8%)  | 10          | 34 |
| 24  | BC    | 325/326 (100%) | 293 (90%) | 32 (10%) | 7           | 30 |
| 24  | CC    | 325/326 (100%) | 289 (89%) | 36 (11%) | 6           | 27 |
| 24  | EC    | 325/326 (100%) | 293 (90%) | 32 (10%) | 7           | 30 |
| 24  | GC    | 325/326 (100%) | 292 (90%) | 33 (10%) | 7           | 29 |
| 25  | BD    | 146/149 (98%)  | 133 (91%) | 13 (9%)  | 9           | 33 |
| 25  | CD    | 146/149 (98%)  | 133 (91%) | 13 (9%)  | 9           | 33 |
| 25  | ED    | 146/149 (98%)  | 133 (91%) | 13 (9%)  | 9           | 33 |
| 25  | GD    | 146/149 (98%)  | 133 (91%) | 13 (9%)  | 9           | 33 |
| 26  | BE    | 163/165 (99%)  | 157 (96%) | 6 (4%)   | 30          | 57 |
| 26  | CE    | 163/165 (99%)  | 157 (96%) | 6 (4%)   | 30          | 57 |
| 26  | EE    | 163/165 (99%)  | 157 (96%) | 6 (4%)   | 30          | 57 |
| 26  | GE    | 163/165 (99%)  | 156 (96%) | 7 (4%)   | 26          | 51 |
| 27  | BF    | 201/222 (90%)  | 193 (96%) | 8 (4%)   | 28          | 54 |
| 27  | CF    | 201/222 (90%)  | 193 (96%) | 8 (4%)   | 28          | 54 |
| 27  | EF    | 201/222 (90%)  | 193 (96%) | 8 (4%)   | 28          | 54 |
| 27  | GF    | 201/222 (90%)  | 193 (96%) | 8 (4%)   | 28          | 54 |
| 29  | BH    | 169/180 (94%)  | 155 (92%) | 14 (8%)  | 10          | 35 |
| 29  | CH    | 169/180 (94%)  | 155 (92%) | 14 (8%)  | 10          | 35 |

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| Mol | Chain | Analysed       | Rotameric | Outliers | Percentiles |    |
|-----|-------|----------------|-----------|----------|-------------|----|
| 29  | EH    | 169/180 (94%)  | 155 (92%) | 14 (8%)  | 10          | 35 |
| 29  | GH    | 169/180 (94%)  | 155 (92%) | 14 (8%)  | 10          | 35 |
| 30  | BI    | 166/166 (100%) | 147 (89%) | 19 (11%) | 5           | 25 |
| 30  | CI    | 166/166 (100%) | 147 (89%) | 19 (11%) | 5           | 25 |
| 30  | EI    | 166/166 (100%) | 146 (88%) | 20 (12%) | 5           | 23 |
| 30  | GI    | 166/166 (100%) | 149 (90%) | 17 (10%) | 7           | 29 |
| 31  | BJ    | 107/108 (99%)  | 99 (92%)  | 8 (8%)   | 12          | 38 |
| 31  | CJ    | 107/108 (99%)  | 99 (92%)  | 8 (8%)   | 12          | 38 |
| 31  | EJ    | 107/108 (99%)  | 99 (92%)  | 8 (8%)   | 12          | 38 |
| 31  | GJ    | 107/108 (99%)  | 98 (92%)  | 9 (8%)   | 10          | 34 |
| 32  | BK    | 120/121 (99%)  | 105 (88%) | 15 (12%) | 4           | 22 |
| 32  | CK    | 120/121 (99%)  | 106 (88%) | 14 (12%) | 5           | 25 |
| 32  | EK    | 120/121 (99%)  | 107 (89%) | 13 (11%) | 6           | 27 |
| 32  | GK    | 120/121 (99%)  | 105 (88%) | 15 (12%) | 4           | 22 |
| 33  | BL    | 174/175 (99%)  | 165 (95%) | 9 (5%)   | 21          | 48 |
| 33  | CL    | 174/175 (99%)  | 164 (94%) | 10 (6%)  | 18          | 46 |
| 33  | EL    | 174/175 (99%)  | 164 (94%) | 10 (6%)  | 18          | 46 |
| 33  | GL    | 174/175 (99%)  | 165 (95%) | 9 (5%)   | 21          | 48 |
| 34  | BM    | 252/254 (99%)  | 241 (96%) | 11 (4%)  | 25          | 51 |
| 34  | CM    | 253/254 (100%) | 241 (95%) | 12 (5%)  | 23          | 50 |
| 34  | EM    | 253/254 (100%) | 241 (95%) | 12 (5%)  | 23          | 50 |
| 34  | GM    | 253/254 (100%) | 239 (94%) | 14 (6%)  | 19          | 46 |
| 35  | BN    | 159/160 (99%)  | 140 (88%) | 19 (12%) | 5           | 24 |
| 35  | CN    | 159/160 (99%)  | 142 (89%) | 17 (11%) | 6           | 28 |
| 35  | EN    | 159/160 (99%)  | 140 (88%) | 19 (12%) | 5           | 24 |
| 35  | GN    | 159/160 (99%)  | 140 (88%) | 19 (12%) | 5           | 24 |
| 36  | BO    | 158/159 (99%)  | 146 (92%) | 12 (8%)  | 12          | 38 |
| 36  | EO    | 126/159 (79%)  | 114 (90%) | 12 (10%) | 8           | 31 |
| 36  | GO    | 127/159 (80%)  | 115 (91%) | 12 (9%)  | 8           | 31 |
| 37  | BP    | 134/135 (99%)  | 125 (93%) | 9 (7%)   | 15          | 41 |
| 37  | CP    | 134/135 (99%)  | 123 (92%) | 11 (8%)  | 10          | 35 |

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| Mol | Chain | Analysed      | Rotameric | Outliers | Percentiles |    |
|-----|-------|---------------|-----------|----------|-------------|----|
| 37  | EP    | 134/135 (99%) | 125 (93%) | 9 (7%)   | 15          | 41 |
| 37  | GP    | 134/135 (99%) | 124 (92%) | 10 (8%)  | 12          | 38 |
| 38  | BQ    | 128/148 (86%) | 111 (87%) | 17 (13%) | 4           | 21 |
| 38  | CQ    | 128/148 (86%) | 110 (86%) | 18 (14%) | 3           | 19 |
| 38  | EQ    | 128/148 (86%) | 110 (86%) | 18 (14%) | 3           | 19 |
| 38  | GQ    | 128/148 (86%) | 111 (87%) | 17 (13%) | 4           | 21 |
| 39  | BR    | 108/132 (82%) | 100 (93%) | 8 (7%)   | 13          | 38 |
| 39  | CR    | 108/132 (82%) | 100 (93%) | 8 (7%)   | 13          | 38 |
| 39  | ER    | 108/132 (82%) | 100 (93%) | 8 (7%)   | 13          | 38 |
| 39  | GR    | 108/132 (82%) | 101 (94%) | 7 (6%)   | 15          | 42 |
| 40  | BS    | 113/120 (94%) | 104 (92%) | 9 (8%)   | 11          | 36 |
| 40  | CS    | 113/120 (94%) | 104 (92%) | 9 (8%)   | 11          | 36 |
| 40  | ES    | 113/120 (94%) | 106 (94%) | 7 (6%)   | 16          | 44 |
| 40  | GS    | 113/120 (94%) | 105 (93%) | 8 (7%)   | 13          | 39 |
| 41  | BT    | 52/130 (40%)  | 48 (92%)  | 4 (8%)   | 12          | 38 |
| 41  | CT    | 52/130 (40%)  | 48 (92%)  | 4 (8%)   | 12          | 38 |
| 41  | ET    | 52/130 (40%)  | 48 (92%)  | 4 (8%)   | 12          | 38 |
| 41  | GT    | 52/130 (40%)  | 48 (92%)  | 4 (8%)   | 12          | 38 |
| 42  | BU    | 105/106 (99%) | 95 (90%)  | 10 (10%) | 8           | 31 |
| 42  | CU    | 105/106 (99%) | 95 (90%)  | 10 (10%) | 8           | 31 |
| 42  | EU    | 105/106 (99%) | 95 (90%)  | 10 (10%) | 8           | 31 |
| 42  | GU    | 105/106 (99%) | 95 (90%)  | 10 (10%) | 8           | 31 |
| 43  | BV    | 197/202 (98%) | 189 (96%) | 8 (4%)   | 27          | 53 |
| 43  | CV    | 197/202 (98%) | 189 (96%) | 8 (4%)   | 27          | 53 |
| 43  | EV    | 197/202 (98%) | 189 (96%) | 8 (4%)   | 27          | 53 |
| 43  | GV    | 197/202 (98%) | 189 (96%) | 8 (4%)   | 27          | 53 |
| 44  | BW    | 100/101 (99%) | 92 (92%)  | 8 (8%)   | 11          | 36 |
| 44  | CW    | 100/101 (99%) | 91 (91%)  | 9 (9%)   | 9           | 33 |
| 44  | EW    | 100/101 (99%) | 91 (91%)  | 9 (9%)   | 9           | 33 |
| 44  | GW    | 100/101 (99%) | 91 (91%)  | 9 (9%)   | 9           | 33 |
| 45  | BX    | 104/111 (94%) | 89 (86%)  | 15 (14%) | 3           | 18 |

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| Mol | Chain | Analysed          | Rotameric   | Outliers  | Percentiles |    |
|-----|-------|-------------------|-------------|-----------|-------------|----|
| 45  | CX    | 104/111 (94%)     | 89 (86%)    | 15 (14%)  | 3           | 18 |
| 45  | EX    | 104/111 (94%)     | 89 (86%)    | 15 (14%)  | 3           | 18 |
| 45  | GX    | 104/111 (94%)     | 89 (86%)    | 15 (14%)  | 3           | 18 |
| 46  | BY    | 79/80 (99%)       | 70 (89%)    | 9 (11%)   | 5           | 25 |
| 46  | CY    | 79/80 (99%)       | 70 (89%)    | 9 (11%)   | 5           | 25 |
| 46  | EY    | 79/80 (99%)       | 71 (90%)    | 8 (10%)   | 7           | 29 |
| 46  | GY    | 79/80 (99%)       | 72 (91%)    | 7 (9%)    | 9           | 33 |
| 47  | CO    | 126/127 (99%)     | 115 (91%)   | 11 (9%)   | 9           | 33 |
| All | All   | 22468/23988 (94%) | 20597 (92%) | 1871 (8%) | 10          | 35 |

All (1871) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | AA    | 19  | CYS  |
| 2   | AA    | 24  | LYS  |
| 2   | AA    | 26  | THR  |
| 2   | AA    | 29  | LYS  |
| 2   | AA    | 34  | CYS  |
| 2   | AA    | 43  | LYS  |
| 2   | AA    | 44  | MET  |
| 2   | AA    | 46  | ARG  |
| 2   | AA    | 55  | ARG  |
| 2   | AA    | 62  | THR  |
| 2   | AA    | 73  | ARG  |
| 3   | AB    | 4   | ASN  |
| 3   | AB    | 7   | LEU  |
| 3   | AB    | 32  | ASP  |
| 3   | AB    | 41  | ARG  |
| 3   | AB    | 45  | ARG  |
| 3   | AB    | 49  | LEU  |
| 4   | AC    | 27  | LYS  |
| 4   | AC    | 58  | LYS  |
| 4   | AC    | 83  | ILE  |
| 4   | AC    | 95  | THR  |
| 5   | AE    | 15  | ILE  |
| 5   | AE    | 23  | ASP  |
| 5   | AE    | 59  | ARG  |
| 5   | AE    | 64  | VAL  |
| 5   | AE    | 85  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | AE    | 90  | VAL  |
| 5   | AE    | 95  | THR  |
| 5   | AE    | 97  | SER  |
| 5   | AE    | 107 | VAL  |
| 5   | AE    | 115 | ASP  |
| 5   | AE    | 117 | PHE  |
| 5   | AE    | 186 | PRO  |
| 6   | AF    | 8   | GLN  |
| 6   | AF    | 39  | ASP  |
| 6   | AF    | 53  | VAL  |
| 6   | AF    | 82  | THR  |
| 7   | AG    | 24  | THR  |
| 7   | AG    | 29  | SER  |
| 7   | AG    | 62  | LEU  |
| 7   | AG    | 66  | SER  |
| 7   | AG    | 86  | ARG  |
| 8   | AH    | 13  | ARG  |
| 8   | AH    | 21  | THR  |
| 8   | AH    | 30  | GLN  |
| 8   | AH    | 32  | SER  |
| 8   | AH    | 38  | LYS  |
| 8   | AH    | 44  | THR  |
| 8   | AH    | 91  | PHE  |
| 8   | AH    | 104 | LEU  |
| 9   | AJ    | 1   | MET  |
| 9   | AJ    | 5   | CYS  |
| 9   | AJ    | 6   | GLN  |
| 9   | AJ    | 36  | SER  |
| 9   | AJ    | 37  | VAL  |
| 9   | AJ    | 42  | LEU  |
| 9   | AJ    | 43  | VAL  |
| 9   | AJ    | 57  | ARG  |
| 9   | AJ    | 62  | VAL  |
| 9   | AJ    | 67  | LYS  |
| 9   | AJ    | 88  | LEU  |
| 9   | AJ    | 120 | ASP  |
| 9   | AJ    | 128 | ILE  |
| 9   | AJ    | 139 | ARG  |
| 9   | AJ    | 142 | ILE  |
| 9   | AJ    | 144 | ASN  |
| 9   | AJ    | 146 | VAL  |
| 9   | AJ    | 152 | CYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | AJ    | 157 | ARG  |
| 9   | AJ    | 198 | VAL  |
| 9   | AJ    | 199 | VAL  |
| 9   | AJ    | 206 | CYS  |
| 10  | AK    | 82  | ILE  |
| 10  | AK    | 85  | LEU  |
| 10  | AK    | 118 | SER  |
| 10  | AK    | 122 | ARG  |
| 10  | AK    | 125 | LYS  |
| 11  | AL    | 4   | ARG  |
| 11  | AL    | 12  | SER  |
| 11  | AL    | 21  | ARG  |
| 11  | AL    | 35  | VAL  |
| 11  | AL    | 61  | PRO  |
| 11  | AL    | 73  | THR  |
| 11  | AL    | 100 | VAL  |
| 12  | AM    | 51  | ASN  |
| 13  | AN    | 4   | PHE  |
| 13  | AN    | 31  | ASP  |
| 13  | AN    | 33  | THR  |
| 13  | AN    | 36  | ARG  |
| 13  | AN    | 49  | SER  |
| 13  | AN    | 52  | LYS  |
| 13  | AN    | 77  | LEU  |
| 13  | AN    | 84  | ARG  |
| 13  | AN    | 108 | SER  |
| 13  | AN    | 143 | ARG  |
| 14  | AO    | 9   | VAL  |
| 14  | AO    | 13  | ASN  |
| 14  | AO    | 36  | THR  |
| 14  | AO    | 43  | THR  |
| 14  | AO    | 46  | HIS  |
| 14  | AO    | 70  | VAL  |
| 14  | AO    | 76  | ILE  |
| 15  | AP    | 4   | GLU  |
| 15  | AP    | 5   | ILE  |
| 15  | AP    | 6   | THR  |
| 15  | AP    | 35  | THR  |
| 15  | AP    | 43  | LYS  |
| 15  | AP    | 55  | THR  |
| 16  | AQ    | 15  | THR  |
| 16  | AQ    | 16  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | AQ    | 31  | LYS  |
| 16  | AQ    | 37  | ARG  |
| 16  | AQ    | 68  | LYS  |
| 16  | AQ    | 101 | GLN  |
| 17  | AT    | 3   | LYS  |
| 17  | AT    | 7   | SER  |
| 17  | AT    | 18  | ARG  |
| 17  | AT    | 55  | LYS  |
| 18  | AU    | 17  | GLN  |
| 18  | AU    | 22  | THR  |
| 18  | AU    | 47  | ARG  |
| 18  | AU    | 74  | THR  |
| 18  | AU    | 98  | ARG  |
| 18  | AU    | 102 | ARG  |
| 18  | AU    | 136 | VAL  |
| 18  | AU    | 161 | LYS  |
| 18  | AU    | 166 | VAL  |
| 18  | AU    | 174 | LYS  |
| 18  | AU    | 181 | ILE  |
| 19  | AX    | 18  | VAL  |
| 19  | AX    | 19  | ARG  |
| 19  | AX    | 24  | SER  |
| 19  | AX    | 30  | ILE  |
| 19  | AX    | 42  | ARG  |
| 19  | AX    | 43  | VAL  |
| 19  | AX    | 46  | ARG  |
| 19  | AX    | 85  | THR  |
| 19  | AX    | 87  | LYS  |
| 19  | AX    | 109 | ARG  |
| 19  | AX    | 124 | MET  |
| 19  | AX    | 132 | PRO  |
| 19  | AX    | 153 | THR  |
| 19  | AX    | 173 | SER  |
| 19  | AX    | 180 | VAL  |
| 19  | AX    | 189 | PHE  |
| 22  | BA    | 5   | ILE  |
| 22  | BA    | 14  | ASN  |
| 22  | BA    | 19  | SER  |
| 22  | BA    | 25  | ILE  |
| 22  | BA    | 29  | GLN  |
| 22  | BA    | 31  | ARG  |
| 22  | BA    | 32  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | BA    | 42  | ILE  |
| 22  | BA    | 45  | CYS  |
| 22  | BA    | 49  | ILE  |
| 22  | BA    | 50  | VAL  |
| 22  | BA    | 93  | LEU  |
| 22  | BA    | 99  | VAL  |
| 22  | BA    | 108 | ILE  |
| 22  | BA    | 128 | SER  |
| 22  | BA    | 145 | ASP  |
| 22  | BA    | 167 | VAL  |
| 22  | BA    | 180 | ILE  |
| 22  | BA    | 186 | GLN  |
| 22  | BA    | 194 | ARG  |
| 22  | BA    | 196 | SER  |
| 22  | BA    | 217 | HIS  |
| 22  | BA    | 220 | ILE  |
| 22  | BA    | 225 | THR  |
| 22  | BA    | 226 | VAL  |
| 22  | BA    | 227 | SER  |
| 22  | BA    | 231 | SER  |
| 22  | BA    | 236 | VAL  |
| 22  | BA    | 238 | LEU  |
| 22  | BA    | 239 | ARG  |
| 22  | BA    | 243 | ARG  |
| 22  | BA    | 244 | THR  |
| 22  | BA    | 246 | LEU  |
| 23  | BB    | 4   | ARG  |
| 23  | BB    | 29  | CYS  |
| 23  | BB    | 55  | HIS  |
| 23  | BB    | 58  | ARG  |
| 23  | BB    | 60  | VAL  |
| 23  | BB    | 62  | ARG  |
| 23  | BB    | 76  | VAL  |
| 23  | BB    | 85  | THR  |
| 23  | BB    | 95  | THR  |
| 23  | BB    | 97  | ARG  |
| 23  | BB    | 162 | THR  |
| 23  | BB    | 172 | LYS  |
| 23  | BB    | 201 | VAL  |
| 23  | BB    | 204 | ASP  |
| 23  | BB    | 250 | ILE  |
| 23  | BB    | 257 | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | BB    | 262 | VAL  |
| 23  | BB    | 264 | ARG  |
| 23  | BB    | 276 | THR  |
| 23  | BB    | 278 | LYS  |
| 23  | BB    | 318 | ASP  |
| 23  | BB    | 327 | VAL  |
| 23  | BB    | 332 | ARG  |
| 23  | BB    | 333 | VAL  |
| 23  | BB    | 339 | SER  |
| 23  | BB    | 351 | ILE  |
| 23  | BB    | 367 | ARG  |
| 23  | BB    | 370 | THR  |
| 24  | BC    | 19  | THR  |
| 24  | BC    | 33  | ILE  |
| 24  | BC    | 36  | ASP  |
| 24  | BC    | 44  | ASP  |
| 24  | BC    | 59  | THR  |
| 24  | BC    | 74  | THR  |
| 24  | BC    | 81  | ILE  |
| 24  | BC    | 87  | SER  |
| 24  | BC    | 89  | THR  |
| 24  | BC    | 97  | PHE  |
| 24  | BC    | 99  | ASN  |
| 24  | BC    | 100 | GLN  |
| 24  | BC    | 138 | LEU  |
| 24  | BC    | 143 | PHE  |
| 24  | BC    | 145 | ARG  |
| 24  | BC    | 157 | TYR  |
| 24  | BC    | 161 | ASP  |
| 24  | BC    | 169 | THR  |
| 24  | BC    | 186 | LEU  |
| 24  | BC    | 187 | ARG  |
| 24  | BC    | 201 | LEU  |
| 24  | BC    | 209 | ARG  |
| 24  | BC    | 223 | LEU  |
| 24  | BC    | 276 | THR  |
| 24  | BC    | 298 | ILE  |
| 24  | BC    | 304 | VAL  |
| 24  | BC    | 306 | SER  |
| 24  | BC    | 328 | ASN  |
| 24  | BC    | 330 | LEU  |
| 24  | BC    | 356 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 24  | BC    | 377 | ILE  |
| 24  | BC    | 382 | LYS  |
| 25  | BD    | 10  | ARG  |
| 25  | BD    | 20  | ASN  |
| 25  | BD    | 23  | VAL  |
| 25  | BD    | 26  | SER  |
| 25  | BD    | 37  | LEU  |
| 25  | BD    | 48  | SER  |
| 25  | BD    | 49  | ARG  |
| 25  | BD    | 56  | SER  |
| 25  | BD    | 89  | MET  |
| 25  | BD    | 108 | GLU  |
| 25  | BD    | 114 | MET  |
| 25  | BD    | 138 | VAL  |
| 25  | BD    | 146 | SER  |
| 26  | BE    | 62  | ARG  |
| 26  | BE    | 70  | SER  |
| 26  | BE    | 103 | VAL  |
| 26  | BE    | 113 | LYS  |
| 26  | BE    | 168 | LYS  |
| 26  | BE    | 171 | ARG  |
| 27  | BF    | 52  | THR  |
| 27  | BF    | 53  | LEU  |
| 27  | BF    | 74  | THR  |
| 27  | BF    | 103 | ARG  |
| 27  | BF    | 149 | ASP  |
| 27  | BF    | 156 | VAL  |
| 27  | BF    | 196 | VAL  |
| 27  | BF    | 197 | ARG  |
| 29  | BH    | 24  | ARG  |
| 29  | BH    | 26  | VAL  |
| 29  | BH    | 32  | ARG  |
| 29  | BH    | 49  | VAL  |
| 29  | BH    | 54  | SER  |
| 29  | BH    | 61  | THR  |
| 29  | BH    | 98  | ARG  |
| 29  | BH    | 115 | MET  |
| 29  | BH    | 133 | SER  |
| 29  | BH    | 138 | VAL  |
| 29  | BH    | 154 | ARG  |
| 29  | BH    | 168 | SER  |
| 29  | BH    | 195 | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29  | BH    | 200 | ILE  |
| 30  | BI    | 24  | LYS  |
| 30  | BI    | 28  | SER  |
| 30  | BI    | 32  | ILE  |
| 30  | BI    | 37  | THR  |
| 30  | BI    | 43  | SER  |
| 30  | BI    | 54  | SER  |
| 30  | BI    | 67  | ARG  |
| 30  | BI    | 76  | SER  |
| 30  | BI    | 84  | ARG  |
| 30  | BI    | 103 | ILE  |
| 30  | BI    | 105 | GLU  |
| 30  | BI    | 107 | ILE  |
| 30  | BI    | 116 | LYS  |
| 30  | BI    | 135 | CYS  |
| 30  | BI    | 136 | LYS  |
| 30  | BI    | 143 | SER  |
| 30  | BI    | 152 | ILE  |
| 30  | BI    | 159 | ARG  |
| 30  | BI    | 198 | TYR  |
| 31  | BJ    | 18  | SER  |
| 31  | BJ    | 23  | VAL  |
| 31  | BJ    | 47  | LYS  |
| 31  | BJ    | 50  | LEU  |
| 31  | BJ    | 61  | MET  |
| 31  | BJ    | 70  | SER  |
| 31  | BJ    | 116 | SER  |
| 31  | BJ    | 126 | CYS  |
| 32  | BK    | 7   | LYS  |
| 32  | BK    | 12  | ARG  |
| 32  | BK    | 17  | HIS  |
| 32  | BK    | 22  | VAL  |
| 32  | BK    | 46  | LEU  |
| 32  | BK    | 48  | GLU  |
| 32  | BK    | 58  | LEU  |
| 32  | BK    | 70  | LEU  |
| 32  | BK    | 77  | ILE  |
| 32  | BK    | 78  | ASP  |
| 32  | BK    | 79  | LYS  |
| 32  | BK    | 84  | VAL  |
| 32  | BK    | 91  | LYS  |
| 32  | BK    | 123 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 32  | BK    | 129 | TYR  |
| 33  | BL    | 42  | SER  |
| 33  | BL    | 80  | VAL  |
| 33  | BL    | 89  | ILE  |
| 33  | BL    | 148 | ILE  |
| 33  | BL    | 152 | CYS  |
| 33  | BL    | 154 | SER  |
| 33  | BL    | 159 | ARG  |
| 33  | BL    | 165 | THR  |
| 33  | BL    | 199 | LYS  |
| 34  | BM    | 19  | LYS  |
| 34  | BM    | 23  | ARG  |
| 34  | BM    | 61  | ILE  |
| 34  | BM    | 79  | ASP  |
| 34  | BM    | 107 | ARG  |
| 34  | BM    | 134 | GLU  |
| 34  | BM    | 140 | LYS  |
| 34  | BM    | 178 | SER  |
| 34  | BM    | 213 | MET  |
| 34  | BM    | 234 | THR  |
| 34  | BM    | 269 | LYS  |
| 35  | BN    | 3   | ILE  |
| 35  | BN    | 4   | ASP  |
| 35  | BN    | 11  | VAL  |
| 35  | BN    | 14  | ARG  |
| 35  | BN    | 17  | VAL  |
| 35  | BN    | 20  | THR  |
| 35  | BN    | 23  | THR  |
| 35  | BN    | 51  | LYS  |
| 35  | BN    | 52  | ARG  |
| 35  | BN    | 55  | SER  |
| 35  | BN    | 75  | THR  |
| 35  | BN    | 84  | THR  |
| 35  | BN    | 91  | GLU  |
| 35  | BN    | 93  | LEU  |
| 35  | BN    | 122 | LEU  |
| 35  | BN    | 140 | LEU  |
| 35  | BN    | 145 | SER  |
| 35  | BN    | 167 | VAL  |
| 35  | BN    | 170 | GLU  |
| 36  | BO    | 5   | ARG  |
| 36  | BO    | 9   | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 36  | BO    | 17  | CYS  |
| 36  | BO    | 57  | ILE  |
| 36  | BO    | 61  | SER  |
| 36  | BO    | 84  | THR  |
| 36  | BO    | 85  | ARG  |
| 36  | BO    | 110 | ARG  |
| 36  | BO    | 115 | ILE  |
| 36  | BO    | 127 | SER  |
| 36  | BO    | 131 | LEU  |
| 36  | BO    | 137 | VAL  |
| 37  | BP    | 8   | ARG  |
| 37  | BP    | 29  | ARG  |
| 37  | BP    | 45  | ASP  |
| 37  | BP    | 79  | ILE  |
| 37  | BP    | 94  | GLU  |
| 37  | BP    | 116 | LYS  |
| 37  | BP    | 128 | THR  |
| 37  | BP    | 130 | ARG  |
| 37  | BP    | 149 | HIS  |
| 38  | BQ    | 17  | VAL  |
| 38  | BQ    | 26  | VAL  |
| 38  | BQ    | 29  | LYS  |
| 38  | BQ    | 58  | ARG  |
| 38  | BQ    | 59  | CYS  |
| 38  | BQ    | 63  | THR  |
| 38  | BQ    | 72  | THR  |
| 38  | BQ    | 82  | GLN  |
| 38  | BQ    | 87  | VAL  |
| 38  | BQ    | 89  | SER  |
| 38  | BQ    | 93  | ILE  |
| 38  | BQ    | 115 | VAL  |
| 38  | BQ    | 120 | GLN  |
| 38  | BQ    | 131 | THR  |
| 38  | BQ    | 142 | LEU  |
| 38  | BQ    | 144 | SER  |
| 38  | BQ    | 150 | ILE  |
| 39  | BR    | 69  | SER  |
| 39  | BR    | 81  | MET  |
| 39  | BR    | 90  | MET  |
| 39  | BR    | 91  | VAL  |
| 39  | BR    | 118 | VAL  |
| 39  | BR    | 121 | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 39  | BR    | 124 | ILE  |
| 39  | BR    | 150 | ILE  |
| 40  | BS    | 5   | VAL  |
| 40  | BS    | 12  | ARG  |
| 40  | BS    | 28  | THR  |
| 40  | BS    | 46  | SER  |
| 40  | BS    | 51  | LYS  |
| 40  | BS    | 68  | LYS  |
| 40  | BS    | 107 | LYS  |
| 40  | BS    | 111 | ASP  |
| 40  | BS    | 118 | LEU  |
| 41  | BT    | 27  | ASP  |
| 41  | BT    | 42  | SER  |
| 41  | BT    | 52  | THR  |
| 41  | BT    | 60  | LEU  |
| 42  | BU    | 14  | THR  |
| 42  | BU    | 41  | THR  |
| 42  | BU    | 43  | ASN  |
| 42  | BU    | 48  | ILE  |
| 42  | BU    | 62  | ILE  |
| 42  | BU    | 83  | ASP  |
| 42  | BU    | 93  | ARG  |
| 42  | BU    | 104 | VAL  |
| 42  | BU    | 109 | GLN  |
| 42  | BU    | 120 | PHE  |
| 43  | BV    | 15  | ARG  |
| 43  | BV    | 63  | LYS  |
| 43  | BV    | 98  | ARG  |
| 43  | BV    | 121 | LEU  |
| 43  | BV    | 161 | THR  |
| 43  | BV    | 164 | THR  |
| 43  | BV    | 166 | VAL  |
| 43  | BV    | 227 | ARG  |
| 44  | BW    | 11  | THR  |
| 44  | BW    | 16  | HIS  |
| 44  | BW    | 23  | SER  |
| 44  | BW    | 32  | ILE  |
| 44  | BW    | 45  | THR  |
| 44  | BW    | 52  | THR  |
| 44  | BW    | 66  | ILE  |
| 44  | BW    | 75  | CYS  |
| 45  | BX    | 32  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 45  | BX    | 33  | SER  |
| 45  | BX    | 35  | ARG  |
| 45  | BX    | 36  | ARG  |
| 45  | BX    | 40  | ILE  |
| 45  | BX    | 52  | ARG  |
| 45  | BX    | 57  | ILE  |
| 45  | BX    | 62  | ASP  |
| 45  | BX    | 75  | LYS  |
| 45  | BX    | 77  | LEU  |
| 45  | BX    | 84  | LEU  |
| 45  | BX    | 86  | ILE  |
| 45  | BX    | 89  | MET  |
| 45  | BX    | 113 | ARG  |
| 45  | BX    | 125 | ASN  |
| 46  | BY    | 4   | ARG  |
| 46  | BY    | 7   | LYS  |
| 46  | BY    | 16  | THR  |
| 46  | BY    | 21  | SER  |
| 46  | BY    | 60  | CYS  |
| 46  | BY    | 71  | LEU  |
| 46  | BY    | 72  | THR  |
| 46  | BY    | 73  | THR  |
| 46  | BY    | 99  | LEU  |
| 22  | CA    | 5   | ILE  |
| 22  | CA    | 14  | ASN  |
| 22  | CA    | 19  | SER  |
| 22  | CA    | 25  | ILE  |
| 22  | CA    | 29  | GLN  |
| 22  | CA    | 31  | ARG  |
| 22  | CA    | 32  | VAL  |
| 22  | CA    | 42  | ILE  |
| 22  | CA    | 45  | CYS  |
| 22  | CA    | 49  | ILE  |
| 22  | CA    | 50  | VAL  |
| 22  | CA    | 93  | LEU  |
| 22  | CA    | 99  | VAL  |
| 22  | CA    | 108 | ILE  |
| 22  | CA    | 128 | SER  |
| 22  | CA    | 167 | VAL  |
| 22  | CA    | 180 | ILE  |
| 22  | CA    | 186 | GLN  |
| 22  | CA    | 194 | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | CA    | 196 | SER  |
| 22  | CA    | 206 | ASN  |
| 22  | CA    | 217 | HIS  |
| 22  | CA    | 220 | ILE  |
| 22  | CA    | 225 | THR  |
| 22  | CA    | 226 | VAL  |
| 22  | CA    | 227 | SER  |
| 22  | CA    | 231 | SER  |
| 22  | CA    | 236 | VAL  |
| 22  | CA    | 238 | LEU  |
| 22  | CA    | 239 | ARG  |
| 22  | CA    | 243 | ARG  |
| 22  | CA    | 244 | THR  |
| 22  | CA    | 246 | LEU  |
| 23  | CB    | 4   | ARG  |
| 23  | CB    | 29  | CYS  |
| 23  | CB    | 55  | HIS  |
| 23  | CB    | 58  | ARG  |
| 23  | CB    | 60  | VAL  |
| 23  | CB    | 62  | ARG  |
| 23  | CB    | 76  | VAL  |
| 23  | CB    | 85  | THR  |
| 23  | CB    | 95  | THR  |
| 23  | CB    | 97  | ARG  |
| 23  | CB    | 100 | ARG  |
| 23  | CB    | 162 | THR  |
| 23  | CB    | 172 | LYS  |
| 23  | CB    | 201 | VAL  |
| 23  | CB    | 204 | ASP  |
| 23  | CB    | 210 | ASN  |
| 23  | CB    | 250 | ILE  |
| 23  | CB    | 257 | ARG  |
| 23  | CB    | 262 | VAL  |
| 23  | CB    | 264 | ARG  |
| 23  | CB    | 276 | THR  |
| 23  | CB    | 278 | LYS  |
| 23  | CB    | 318 | ASP  |
| 23  | CB    | 327 | VAL  |
| 23  | CB    | 332 | ARG  |
| 23  | CB    | 333 | VAL  |
| 23  | CB    | 339 | SER  |
| 23  | CB    | 351 | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | CB    | 367 | ARG  |
| 23  | CB    | 370 | THR  |
| 24  | CC    | 19  | THR  |
| 24  | CC    | 21  | THR  |
| 24  | CC    | 28  | VAL  |
| 24  | CC    | 33  | ILE  |
| 24  | CC    | 36  | ASP  |
| 24  | CC    | 44  | ASP  |
| 24  | CC    | 59  | THR  |
| 24  | CC    | 74  | THR  |
| 24  | CC    | 81  | ILE  |
| 24  | CC    | 87  | SER  |
| 24  | CC    | 89  | THR  |
| 24  | CC    | 97  | PHE  |
| 24  | CC    | 99  | ASN  |
| 24  | CC    | 100 | GLN  |
| 24  | CC    | 138 | LEU  |
| 24  | CC    | 143 | PHE  |
| 24  | CC    | 145 | ARG  |
| 24  | CC    | 157 | TYR  |
| 24  | CC    | 161 | ASP  |
| 24  | CC    | 169 | THR  |
| 24  | CC    | 185 | VAL  |
| 24  | CC    | 186 | LEU  |
| 24  | CC    | 187 | ARG  |
| 24  | CC    | 201 | LEU  |
| 24  | CC    | 209 | ARG  |
| 24  | CC    | 223 | LEU  |
| 24  | CC    | 274 | SER  |
| 24  | CC    | 276 | THR  |
| 24  | CC    | 298 | ILE  |
| 24  | CC    | 304 | VAL  |
| 24  | CC    | 306 | SER  |
| 24  | CC    | 328 | ASN  |
| 24  | CC    | 330 | LEU  |
| 24  | CC    | 356 | GLN  |
| 24  | CC    | 377 | ILE  |
| 24  | CC    | 382 | LYS  |
| 25  | CD    | 10  | ARG  |
| 25  | CD    | 20  | ASN  |
| 25  | CD    | 23  | VAL  |
| 25  | CD    | 26  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25  | CD    | 37  | LEU  |
| 25  | CD    | 48  | SER  |
| 25  | CD    | 49  | ARG  |
| 25  | CD    | 56  | SER  |
| 25  | CD    | 89  | MET  |
| 25  | CD    | 108 | GLU  |
| 25  | CD    | 114 | MET  |
| 25  | CD    | 138 | VAL  |
| 25  | CD    | 146 | SER  |
| 26  | CE    | 62  | ARG  |
| 26  | CE    | 70  | SER  |
| 26  | CE    | 103 | VAL  |
| 26  | CE    | 113 | LYS  |
| 26  | CE    | 168 | LYS  |
| 26  | CE    | 171 | ARG  |
| 27  | CF    | 52  | THR  |
| 27  | CF    | 53  | LEU  |
| 27  | CF    | 74  | THR  |
| 27  | CF    | 103 | ARG  |
| 27  | CF    | 149 | ASP  |
| 27  | CF    | 156 | VAL  |
| 27  | CF    | 196 | VAL  |
| 27  | CF    | 197 | ARG  |
| 29  | CH    | 24  | ARG  |
| 29  | CH    | 26  | VAL  |
| 29  | CH    | 32  | ARG  |
| 29  | CH    | 49  | VAL  |
| 29  | CH    | 54  | SER  |
| 29  | CH    | 61  | THR  |
| 29  | CH    | 98  | ARG  |
| 29  | CH    | 115 | MET  |
| 29  | CH    | 133 | SER  |
| 29  | CH    | 138 | VAL  |
| 29  | CH    | 154 | ARG  |
| 29  | CH    | 168 | SER  |
| 29  | CH    | 195 | SER  |
| 29  | CH    | 200 | ILE  |
| 30  | CI    | 24  | LYS  |
| 30  | CI    | 28  | SER  |
| 30  | CI    | 32  | ILE  |
| 30  | CI    | 43  | SER  |
| 30  | CI    | 54  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 30  | CI    | 67  | ARG  |
| 30  | CI    | 76  | SER  |
| 30  | CI    | 84  | ARG  |
| 30  | CI    | 103 | ILE  |
| 30  | CI    | 105 | GLU  |
| 30  | CI    | 107 | ILE  |
| 30  | CI    | 116 | LYS  |
| 30  | CI    | 125 | VAL  |
| 30  | CI    | 135 | CYS  |
| 30  | CI    | 136 | LYS  |
| 30  | CI    | 143 | SER  |
| 30  | CI    | 152 | ILE  |
| 30  | CI    | 159 | ARG  |
| 30  | CI    | 198 | TYR  |
| 31  | CJ    | 23  | VAL  |
| 31  | CJ    | 26  | VAL  |
| 31  | CJ    | 47  | LYS  |
| 31  | CJ    | 50  | LEU  |
| 31  | CJ    | 61  | MET  |
| 31  | CJ    | 70  | SER  |
| 31  | CJ    | 116 | SER  |
| 31  | CJ    | 126 | CYS  |
| 32  | CK    | 7   | LYS  |
| 32  | CK    | 12  | ARG  |
| 32  | CK    | 17  | HIS  |
| 32  | CK    | 46  | LEU  |
| 32  | CK    | 48  | GLU  |
| 32  | CK    | 58  | LEU  |
| 32  | CK    | 70  | LEU  |
| 32  | CK    | 77  | ILE  |
| 32  | CK    | 78  | ASP  |
| 32  | CK    | 79  | LYS  |
| 32  | CK    | 84  | VAL  |
| 32  | CK    | 91  | LYS  |
| 32  | CK    | 123 | VAL  |
| 32  | CK    | 129 | TYR  |
| 33  | CL    | 42  | SER  |
| 33  | CL    | 54  | LYS  |
| 33  | CL    | 80  | VAL  |
| 33  | CL    | 89  | ILE  |
| 33  | CL    | 148 | ILE  |
| 33  | CL    | 152 | CYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 33  | CL    | 154 | SER  |
| 33  | CL    | 159 | ARG  |
| 33  | CL    | 165 | THR  |
| 33  | CL    | 199 | LYS  |
| 34  | CM    | 19  | LYS  |
| 34  | CM    | 23  | ARG  |
| 34  | CM    | 61  | ILE  |
| 34  | CM    | 79  | ASP  |
| 34  | CM    | 107 | ARG  |
| 34  | CM    | 134 | GLU  |
| 34  | CM    | 140 | LYS  |
| 34  | CM    | 176 | SER  |
| 34  | CM    | 178 | SER  |
| 34  | CM    | 213 | MET  |
| 34  | CM    | 234 | THR  |
| 34  | CM    | 269 | LYS  |
| 35  | CN    | 3   | ILE  |
| 35  | CN    | 4   | ASP  |
| 35  | CN    | 11  | VAL  |
| 35  | CN    | 14  | ARG  |
| 35  | CN    | 20  | THR  |
| 35  | CN    | 23  | THR  |
| 35  | CN    | 51  | LYS  |
| 35  | CN    | 52  | ARG  |
| 35  | CN    | 55  | SER  |
| 35  | CN    | 75  | THR  |
| 35  | CN    | 84  | THR  |
| 35  | CN    | 91  | GLU  |
| 35  | CN    | 93  | LEU  |
| 35  | CN    | 122 | LEU  |
| 35  | CN    | 145 | SER  |
| 35  | CN    | 167 | VAL  |
| 35  | CN    | 170 | GLU  |
| 47  | CO    | 5   | ARG  |
| 47  | CO    | 9   | ARG  |
| 47  | CO    | 17  | CYS  |
| 47  | CO    | 57  | ILE  |
| 47  | CO    | 61  | SER  |
| 47  | CO    | 84  | THR  |
| 47  | CO    | 85  | ARG  |
| 47  | CO    | 110 | ARG  |
| 47  | CO    | 115 | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | CO    | 127 | SER  |
| 47  | CO    | 137 | VAL  |
| 37  | CP    | 8   | ARG  |
| 37  | CP    | 29  | ARG  |
| 37  | CP    | 43  | MET  |
| 37  | CP    | 45  | ASP  |
| 37  | CP    | 52  | MET  |
| 37  | CP    | 79  | ILE  |
| 37  | CP    | 94  | GLU  |
| 37  | CP    | 116 | LYS  |
| 37  | CP    | 128 | THR  |
| 37  | CP    | 130 | ARG  |
| 37  | CP    | 149 | HIS  |
| 38  | CQ    | 17  | VAL  |
| 38  | CQ    | 26  | VAL  |
| 38  | CQ    | 29  | LYS  |
| 38  | CQ    | 59  | CYS  |
| 38  | CQ    | 63  | THR  |
| 38  | CQ    | 68  | CYS  |
| 38  | CQ    | 72  | THR  |
| 38  | CQ    | 82  | GLN  |
| 38  | CQ    | 87  | VAL  |
| 38  | CQ    | 89  | SER  |
| 38  | CQ    | 93  | ILE  |
| 38  | CQ    | 115 | VAL  |
| 38  | CQ    | 120 | GLN  |
| 38  | CQ    | 121 | VAL  |
| 38  | CQ    | 131 | THR  |
| 38  | CQ    | 142 | LEU  |
| 38  | CQ    | 144 | SER  |
| 38  | CQ    | 150 | ILE  |
| 39  | CR    | 69  | SER  |
| 39  | CR    | 81  | MET  |
| 39  | CR    | 90  | MET  |
| 39  | CR    | 91  | VAL  |
| 39  | CR    | 118 | VAL  |
| 39  | CR    | 121 | LEU  |
| 39  | CR    | 124 | ILE  |
| 39  | CR    | 150 | ILE  |
| 40  | CS    | 5   | VAL  |
| 40  | CS    | 12  | ARG  |
| 40  | CS    | 28  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 40  | CS    | 46  | SER  |
| 40  | CS    | 51  | LYS  |
| 40  | CS    | 68  | LYS  |
| 40  | CS    | 107 | LYS  |
| 40  | CS    | 111 | ASP  |
| 40  | CS    | 118 | LEU  |
| 41  | CT    | 27  | ASP  |
| 41  | CT    | 42  | SER  |
| 41  | CT    | 52  | THR  |
| 41  | CT    | 60  | LEU  |
| 42  | CU    | 14  | THR  |
| 42  | CU    | 41  | THR  |
| 42  | CU    | 43  | ASN  |
| 42  | CU    | 48  | ILE  |
| 42  | CU    | 62  | ILE  |
| 42  | CU    | 83  | ASP  |
| 42  | CU    | 93  | ARG  |
| 42  | CU    | 104 | VAL  |
| 42  | CU    | 109 | GLN  |
| 42  | CU    | 120 | PHE  |
| 43  | CV    | 15  | ARG  |
| 43  | CV    | 63  | LYS  |
| 43  | CV    | 98  | ARG  |
| 43  | CV    | 121 | LEU  |
| 43  | CV    | 161 | THR  |
| 43  | CV    | 164 | THR  |
| 43  | CV    | 166 | VAL  |
| 43  | CV    | 227 | ARG  |
| 44  | CW    | 11  | THR  |
| 44  | CW    | 16  | HIS  |
| 44  | CW    | 23  | SER  |
| 44  | CW    | 32  | ILE  |
| 44  | CW    | 43  | MET  |
| 44  | CW    | 45  | THR  |
| 44  | CW    | 52  | THR  |
| 44  | CW    | 66  | ILE  |
| 44  | CW    | 75  | CYS  |
| 45  | CX    | 32  | SER  |
| 45  | CX    | 33  | SER  |
| 45  | CX    | 35  | ARG  |
| 45  | CX    | 36  | ARG  |
| 45  | CX    | 40  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 45  | CX    | 52  | ARG  |
| 45  | CX    | 57  | ILE  |
| 45  | CX    | 62  | ASP  |
| 45  | CX    | 75  | LYS  |
| 45  | CX    | 77  | LEU  |
| 45  | CX    | 84  | LEU  |
| 45  | CX    | 86  | ILE  |
| 45  | CX    | 89  | MET  |
| 45  | CX    | 113 | ARG  |
| 45  | CX    | 125 | ASN  |
| 46  | CY    | 4   | ARG  |
| 46  | CY    | 7   | LYS  |
| 46  | CY    | 16  | THR  |
| 46  | CY    | 21  | SER  |
| 46  | CY    | 60  | CYS  |
| 46  | CY    | 71  | LEU  |
| 46  | CY    | 72  | THR  |
| 46  | CY    | 73  | THR  |
| 46  | CY    | 99  | LEU  |
| 2   | DA    | 11  | ARG  |
| 2   | DA    | 24  | LYS  |
| 2   | DA    | 26  | THR  |
| 2   | DA    | 29  | LYS  |
| 2   | DA    | 34  | CYS  |
| 2   | DA    | 43  | LYS  |
| 2   | DA    | 44  | MET  |
| 2   | DA    | 46  | ARG  |
| 2   | DA    | 55  | ARG  |
| 2   | DA    | 62  | THR  |
| 2   | DA    | 68  | MET  |
| 2   | DA    | 73  | ARG  |
| 3   | DB    | 4   | ASN  |
| 3   | DB    | 32  | ASP  |
| 3   | DB    | 41  | ARG  |
| 3   | DB    | 45  | ARG  |
| 4   | DC    | 27  | LYS  |
| 4   | DC    | 58  | LYS  |
| 4   | DC    | 83  | ILE  |
| 4   | DC    | 95  | THR  |
| 5   | DE    | 23  | ASP  |
| 5   | DE    | 59  | ARG  |
| 5   | DE    | 64  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | DE    | 85  | VAL  |
| 5   | DE    | 90  | VAL  |
| 5   | DE    | 95  | THR  |
| 5   | DE    | 97  | SER  |
| 5   | DE    | 107 | VAL  |
| 5   | DE    | 115 | ASP  |
| 5   | DE    | 117 | PHE  |
| 6   | DF    | 8   | GLN  |
| 6   | DF    | 39  | ASP  |
| 6   | DF    | 53  | VAL  |
| 6   | DF    | 82  | THR  |
| 7   | DG    | 24  | THR  |
| 7   | DG    | 29  | SER  |
| 7   | DG    | 62  | LEU  |
| 7   | DG    | 66  | SER  |
| 7   | DG    | 86  | ARG  |
| 8   | DH    | 13  | ARG  |
| 8   | DH    | 21  | THR  |
| 8   | DH    | 30  | GLN  |
| 8   | DH    | 32  | SER  |
| 8   | DH    | 38  | LYS  |
| 8   | DH    | 44  | THR  |
| 8   | DH    | 72  | THR  |
| 8   | DH    | 104 | LEU  |
| 9   | DJ    | 1   | MET  |
| 9   | DJ    | 5   | CYS  |
| 9   | DJ    | 6   | GLN  |
| 9   | DJ    | 36  | SER  |
| 9   | DJ    | 37  | VAL  |
| 9   | DJ    | 42  | LEU  |
| 9   | DJ    | 43  | VAL  |
| 9   | DJ    | 48  | VAL  |
| 9   | DJ    | 57  | ARG  |
| 9   | DJ    | 62  | VAL  |
| 9   | DJ    | 67  | LYS  |
| 9   | DJ    | 88  | LEU  |
| 9   | DJ    | 120 | ASP  |
| 9   | DJ    | 128 | ILE  |
| 9   | DJ    | 139 | ARG  |
| 9   | DJ    | 142 | ILE  |
| 9   | DJ    | 144 | ASN  |
| 9   | DJ    | 146 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | DJ    | 152 | CYS  |
| 9   | DJ    | 157 | ARG  |
| 9   | DJ    | 198 | VAL  |
| 9   | DJ    | 199 | VAL  |
| 9   | DJ    | 206 | CYS  |
| 10  | DK    | 82  | ILE  |
| 10  | DK    | 85  | LEU  |
| 10  | DK    | 122 | ARG  |
| 10  | DK    | 125 | LYS  |
| 11  | DL    | 4   | ARG  |
| 11  | DL    | 12  | SER  |
| 11  | DL    | 21  | ARG  |
| 11  | DL    | 35  | VAL  |
| 11  | DL    | 73  | THR  |
| 11  | DL    | 100 | VAL  |
| 12  | DM    | 51  | ASN  |
| 13  | DN    | 4   | PHE  |
| 13  | DN    | 31  | ASP  |
| 13  | DN    | 33  | THR  |
| 13  | DN    | 49  | SER  |
| 13  | DN    | 77  | LEU  |
| 13  | DN    | 84  | ARG  |
| 13  | DN    | 108 | SER  |
| 13  | DN    | 143 | ARG  |
| 14  | DO    | 9   | VAL  |
| 14  | DO    | 13  | ASN  |
| 14  | DO    | 36  | THR  |
| 14  | DO    | 43  | THR  |
| 14  | DO    | 46  | HIS  |
| 14  | DO    | 76  | ILE  |
| 15  | DP    | 4   | GLU  |
| 15  | DP    | 5   | ILE  |
| 15  | DP    | 6   | THR  |
| 15  | DP    | 35  | THR  |
| 15  | DP    | 43  | LYS  |
| 15  | DP    | 55  | THR  |
| 16  | DQ    | 15  | THR  |
| 16  | DQ    | 16  | THR  |
| 16  | DQ    | 31  | LYS  |
| 16  | DQ    | 37  | ARG  |
| 16  | DQ    | 68  | LYS  |
| 16  | DQ    | 101 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 17  | DT    | 3   | LYS  |
| 17  | DT    | 7   | SER  |
| 17  | DT    | 18  | ARG  |
| 17  | DT    | 55  | LYS  |
| 18  | DU    | 17  | GLN  |
| 18  | DU    | 22  | THR  |
| 18  | DU    | 47  | ARG  |
| 18  | DU    | 74  | THR  |
| 18  | DU    | 98  | ARG  |
| 18  | DU    | 102 | ARG  |
| 18  | DU    | 136 | VAL  |
| 18  | DU    | 161 | LYS  |
| 18  | DU    | 166 | VAL  |
| 18  | DU    | 174 | LYS  |
| 19  | DX    | 18  | VAL  |
| 19  | DX    | 19  | ARG  |
| 19  | DX    | 24  | SER  |
| 19  | DX    | 30  | ILE  |
| 19  | DX    | 42  | ARG  |
| 19  | DX    | 43  | VAL  |
| 19  | DX    | 46  | ARG  |
| 19  | DX    | 85  | THR  |
| 19  | DX    | 87  | LYS  |
| 19  | DX    | 109 | ARG  |
| 19  | DX    | 124 | MET  |
| 19  | DX    | 132 | PRO  |
| 19  | DX    | 153 | THR  |
| 19  | DX    | 173 | SER  |
| 19  | DX    | 180 | VAL  |
| 19  | DX    | 189 | PHE  |
| 22  | EA    | 5   | ILE  |
| 22  | EA    | 14  | ASN  |
| 22  | EA    | 19  | SER  |
| 22  | EA    | 25  | ILE  |
| 22  | EA    | 29  | GLN  |
| 22  | EA    | 31  | ARG  |
| 22  | EA    | 32  | VAL  |
| 22  | EA    | 42  | ILE  |
| 22  | EA    | 45  | CYS  |
| 22  | EA    | 49  | ILE  |
| 22  | EA    | 50  | VAL  |
| 22  | EA    | 93  | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | EA    | 99  | VAL  |
| 22  | EA    | 108 | ILE  |
| 22  | EA    | 128 | SER  |
| 22  | EA    | 145 | ASP  |
| 22  | EA    | 167 | VAL  |
| 22  | EA    | 180 | ILE  |
| 22  | EA    | 186 | GLN  |
| 22  | EA    | 194 | ARG  |
| 22  | EA    | 196 | SER  |
| 22  | EA    | 206 | ASN  |
| 22  | EA    | 217 | HIS  |
| 22  | EA    | 220 | ILE  |
| 22  | EA    | 225 | THR  |
| 22  | EA    | 226 | VAL  |
| 22  | EA    | 227 | SER  |
| 22  | EA    | 231 | SER  |
| 22  | EA    | 236 | VAL  |
| 22  | EA    | 238 | LEU  |
| 22  | EA    | 239 | ARG  |
| 22  | EA    | 243 | ARG  |
| 22  | EA    | 244 | THR  |
| 22  | EA    | 246 | LEU  |
| 23  | EB    | 4   | ARG  |
| 23  | EB    | 29  | CYS  |
| 23  | EB    | 55  | HIS  |
| 23  | EB    | 58  | ARG  |
| 23  | EB    | 60  | VAL  |
| 23  | EB    | 62  | ARG  |
| 23  | EB    | 76  | VAL  |
| 23  | EB    | 95  | THR  |
| 23  | EB    | 97  | ARG  |
| 23  | EB    | 100 | ARG  |
| 23  | EB    | 162 | THR  |
| 23  | EB    | 172 | LYS  |
| 23  | EB    | 201 | VAL  |
| 23  | EB    | 204 | ASP  |
| 23  | EB    | 250 | ILE  |
| 23  | EB    | 257 | ARG  |
| 23  | EB    | 262 | VAL  |
| 23  | EB    | 264 | ARG  |
| 23  | EB    | 278 | LYS  |
| 23  | EB    | 327 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | EB    | 332 | ARG  |
| 23  | EB    | 333 | VAL  |
| 23  | EB    | 339 | SER  |
| 23  | EB    | 351 | ILE  |
| 23  | EB    | 367 | ARG  |
| 23  | EB    | 370 | THR  |
| 24  | EC    | 19  | THR  |
| 24  | EC    | 33  | ILE  |
| 24  | EC    | 36  | ASP  |
| 24  | EC    | 44  | ASP  |
| 24  | EC    | 59  | THR  |
| 24  | EC    | 74  | THR  |
| 24  | EC    | 81  | ILE  |
| 24  | EC    | 87  | SER  |
| 24  | EC    | 89  | THR  |
| 24  | EC    | 97  | PHE  |
| 24  | EC    | 99  | ASN  |
| 24  | EC    | 100 | GLN  |
| 24  | EC    | 138 | LEU  |
| 24  | EC    | 143 | PHE  |
| 24  | EC    | 145 | ARG  |
| 24  | EC    | 157 | TYR  |
| 24  | EC    | 161 | ASP  |
| 24  | EC    | 169 | THR  |
| 24  | EC    | 186 | LEU  |
| 24  | EC    | 187 | ARG  |
| 24  | EC    | 201 | LEU  |
| 24  | EC    | 209 | ARG  |
| 24  | EC    | 223 | LEU  |
| 24  | EC    | 276 | THR  |
| 24  | EC    | 298 | ILE  |
| 24  | EC    | 304 | VAL  |
| 24  | EC    | 306 | SER  |
| 24  | EC    | 328 | ASN  |
| 24  | EC    | 330 | LEU  |
| 24  | EC    | 356 | GLN  |
| 24  | EC    | 377 | ILE  |
| 24  | EC    | 382 | LYS  |
| 25  | ED    | 10  | ARG  |
| 25  | ED    | 20  | ASN  |
| 25  | ED    | 23  | VAL  |
| 25  | ED    | 26  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 25  | ED    | 37  | LEU  |
| 25  | ED    | 48  | SER  |
| 25  | ED    | 49  | ARG  |
| 25  | ED    | 56  | SER  |
| 25  | ED    | 89  | MET  |
| 25  | ED    | 108 | GLU  |
| 25  | ED    | 114 | MET  |
| 25  | ED    | 138 | VAL  |
| 25  | ED    | 146 | SER  |
| 26  | EE    | 62  | ARG  |
| 26  | EE    | 70  | SER  |
| 26  | EE    | 103 | VAL  |
| 26  | EE    | 113 | LYS  |
| 26  | EE    | 168 | LYS  |
| 26  | EE    | 171 | ARG  |
| 27  | EF    | 52  | THR  |
| 27  | EF    | 53  | LEU  |
| 27  | EF    | 74  | THR  |
| 27  | EF    | 103 | ARG  |
| 27  | EF    | 149 | ASP  |
| 27  | EF    | 156 | VAL  |
| 27  | EF    | 196 | VAL  |
| 27  | EF    | 197 | ARG  |
| 29  | EH    | 24  | ARG  |
| 29  | EH    | 26  | VAL  |
| 29  | EH    | 32  | ARG  |
| 29  | EH    | 49  | VAL  |
| 29  | EH    | 54  | SER  |
| 29  | EH    | 61  | THR  |
| 29  | EH    | 98  | ARG  |
| 29  | EH    | 115 | MET  |
| 29  | EH    | 133 | SER  |
| 29  | EH    | 138 | VAL  |
| 29  | EH    | 154 | ARG  |
| 29  | EH    | 168 | SER  |
| 29  | EH    | 195 | SER  |
| 29  | EH    | 200 | ILE  |
| 30  | EI    | 24  | LYS  |
| 30  | EI    | 28  | SER  |
| 30  | EI    | 32  | ILE  |
| 30  | EI    | 37  | THR  |
| 30  | EI    | 43  | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 30  | EI    | 54  | SER  |
| 30  | EI    | 67  | ARG  |
| 30  | EI    | 76  | SER  |
| 30  | EI    | 84  | ARG  |
| 30  | EI    | 103 | ILE  |
| 30  | EI    | 105 | GLU  |
| 30  | EI    | 107 | ILE  |
| 30  | EI    | 116 | LYS  |
| 30  | EI    | 125 | VAL  |
| 30  | EI    | 135 | CYS  |
| 30  | EI    | 136 | LYS  |
| 30  | EI    | 143 | SER  |
| 30  | EI    | 152 | ILE  |
| 30  | EI    | 159 | ARG  |
| 30  | EI    | 198 | TYR  |
| 31  | EJ    | 23  | VAL  |
| 31  | EJ    | 26  | VAL  |
| 31  | EJ    | 47  | LYS  |
| 31  | EJ    | 50  | LEU  |
| 31  | EJ    | 61  | MET  |
| 31  | EJ    | 70  | SER  |
| 31  | EJ    | 116 | SER  |
| 31  | EJ    | 126 | CYS  |
| 32  | EK    | 7   | LYS  |
| 32  | EK    | 17  | HIS  |
| 32  | EK    | 46  | LEU  |
| 32  | EK    | 48  | GLU  |
| 32  | EK    | 58  | LEU  |
| 32  | EK    | 70  | LEU  |
| 32  | EK    | 77  | ILE  |
| 32  | EK    | 78  | ASP  |
| 32  | EK    | 79  | LYS  |
| 32  | EK    | 84  | VAL  |
| 32  | EK    | 91  | LYS  |
| 32  | EK    | 123 | VAL  |
| 32  | EK    | 129 | TYR  |
| 33  | EL    | 42  | SER  |
| 33  | EL    | 79  | ILE  |
| 33  | EL    | 80  | VAL  |
| 33  | EL    | 89  | ILE  |
| 33  | EL    | 148 | ILE  |
| 33  | EL    | 152 | CYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 33  | EL    | 154 | SER  |
| 33  | EL    | 159 | ARG  |
| 33  | EL    | 165 | THR  |
| 33  | EL    | 199 | LYS  |
| 34  | EM    | 3   | PHE  |
| 34  | EM    | 19  | LYS  |
| 34  | EM    | 23  | ARG  |
| 34  | EM    | 61  | ILE  |
| 34  | EM    | 79  | ASP  |
| 34  | EM    | 107 | ARG  |
| 34  | EM    | 134 | GLU  |
| 34  | EM    | 140 | LYS  |
| 34  | EM    | 178 | SER  |
| 34  | EM    | 213 | MET  |
| 34  | EM    | 234 | THR  |
| 34  | EM    | 269 | LYS  |
| 35  | EN    | 3   | ILE  |
| 35  | EN    | 4   | ASP  |
| 35  | EN    | 11  | VAL  |
| 35  | EN    | 14  | ARG  |
| 35  | EN    | 17  | VAL  |
| 35  | EN    | 20  | THR  |
| 35  | EN    | 23  | THR  |
| 35  | EN    | 51  | LYS  |
| 35  | EN    | 52  | ARG  |
| 35  | EN    | 55  | SER  |
| 35  | EN    | 75  | THR  |
| 35  | EN    | 84  | THR  |
| 35  | EN    | 91  | GLU  |
| 35  | EN    | 93  | LEU  |
| 35  | EN    | 122 | LEU  |
| 35  | EN    | 140 | LEU  |
| 35  | EN    | 145 | SER  |
| 35  | EN    | 167 | VAL  |
| 35  | EN    | 170 | GLU  |
| 36  | EO    | 5   | ARG  |
| 36  | EO    | 9   | ARG  |
| 36  | EO    | 17  | CYS  |
| 36  | EO    | 57  | ILE  |
| 36  | EO    | 61  | SER  |
| 36  | EO    | 84  | THR  |
| 36  | EO    | 85  | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 36  | EO    | 110 | ARG  |
| 36  | EO    | 115 | ILE  |
| 36  | EO    | 127 | SER  |
| 36  | EO    | 131 | LEU  |
| 36  | EO    | 137 | VAL  |
| 37  | EP    | 8   | ARG  |
| 37  | EP    | 29  | ARG  |
| 37  | EP    | 45  | ASP  |
| 37  | EP    | 79  | ILE  |
| 37  | EP    | 94  | GLU  |
| 37  | EP    | 116 | LYS  |
| 37  | EP    | 128 | THR  |
| 37  | EP    | 130 | ARG  |
| 37  | EP    | 149 | HIS  |
| 38  | EQ    | 17  | VAL  |
| 38  | EQ    | 26  | VAL  |
| 38  | EQ    | 29  | LYS  |
| 38  | EQ    | 58  | ARG  |
| 38  | EQ    | 59  | CYS  |
| 38  | EQ    | 63  | THR  |
| 38  | EQ    | 72  | THR  |
| 38  | EQ    | 82  | GLN  |
| 38  | EQ    | 87  | VAL  |
| 38  | EQ    | 89  | SER  |
| 38  | EQ    | 93  | ILE  |
| 38  | EQ    | 115 | VAL  |
| 38  | EQ    | 120 | GLN  |
| 38  | EQ    | 121 | VAL  |
| 38  | EQ    | 131 | THR  |
| 38  | EQ    | 142 | LEU  |
| 38  | EQ    | 144 | SER  |
| 38  | EQ    | 150 | ILE  |
| 39  | ER    | 69  | SER  |
| 39  | ER    | 81  | MET  |
| 39  | ER    | 90  | MET  |
| 39  | ER    | 91  | VAL  |
| 39  | ER    | 118 | VAL  |
| 39  | ER    | 121 | LEU  |
| 39  | ER    | 124 | ILE  |
| 39  | ER    | 150 | ILE  |
| 40  | ES    | 5   | VAL  |
| 40  | ES    | 12  | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 40  | ES    | 46  | SER  |
| 40  | ES    | 51  | LYS  |
| 40  | ES    | 68  | LYS  |
| 40  | ES    | 107 | LYS  |
| 40  | ES    | 111 | ASP  |
| 41  | ET    | 27  | ASP  |
| 41  | ET    | 42  | SER  |
| 41  | ET    | 52  | THR  |
| 41  | ET    | 60  | LEU  |
| 42  | EU    | 14  | THR  |
| 42  | EU    | 41  | THR  |
| 42  | EU    | 43  | ASN  |
| 42  | EU    | 48  | ILE  |
| 42  | EU    | 62  | ILE  |
| 42  | EU    | 83  | ASP  |
| 42  | EU    | 93  | ARG  |
| 42  | EU    | 104 | VAL  |
| 42  | EU    | 109 | GLN  |
| 42  | EU    | 120 | PHE  |
| 43  | EV    | 15  | ARG  |
| 43  | EV    | 63  | LYS  |
| 43  | EV    | 98  | ARG  |
| 43  | EV    | 121 | LEU  |
| 43  | EV    | 161 | THR  |
| 43  | EV    | 164 | THR  |
| 43  | EV    | 166 | VAL  |
| 43  | EV    | 227 | ARG  |
| 44  | EW    | 11  | THR  |
| 44  | EW    | 16  | HIS  |
| 44  | EW    | 23  | SER  |
| 44  | EW    | 32  | ILE  |
| 44  | EW    | 43  | MET  |
| 44  | EW    | 45  | THR  |
| 44  | EW    | 52  | THR  |
| 44  | EW    | 66  | ILE  |
| 44  | EW    | 75  | CYS  |
| 45  | EX    | 32  | SER  |
| 45  | EX    | 33  | SER  |
| 45  | EX    | 35  | ARG  |
| 45  | EX    | 36  | ARG  |
| 45  | EX    | 40  | ILE  |
| 45  | EX    | 52  | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 45  | EX    | 57  | ILE  |
| 45  | EX    | 62  | ASP  |
| 45  | EX    | 75  | LYS  |
| 45  | EX    | 77  | LEU  |
| 45  | EX    | 84  | LEU  |
| 45  | EX    | 86  | ILE  |
| 45  | EX    | 89  | MET  |
| 45  | EX    | 113 | ARG  |
| 45  | EX    | 125 | ASN  |
| 46  | EY    | 4   | ARG  |
| 46  | EY    | 7   | LYS  |
| 46  | EY    | 16  | THR  |
| 46  | EY    | 21  | SER  |
| 46  | EY    | 60  | CYS  |
| 46  | EY    | 71  | LEU  |
| 46  | EY    | 73  | THR  |
| 46  | EY    | 99  | LEU  |
| 2   | FA    | 11  | ARG  |
| 2   | FA    | 24  | LYS  |
| 2   | FA    | 26  | THR  |
| 2   | FA    | 29  | LYS  |
| 2   | FA    | 34  | CYS  |
| 2   | FA    | 43  | LYS  |
| 2   | FA    | 44  | MET  |
| 2   | FA    | 46  | ARG  |
| 2   | FA    | 55  | ARG  |
| 2   | FA    | 62  | THR  |
| 2   | FA    | 68  | MET  |
| 2   | FA    | 73  | ARG  |
| 3   | FB    | 4   | ASN  |
| 3   | FB    | 32  | ASP  |
| 3   | FB    | 41  | ARG  |
| 3   | FB    | 45  | ARG  |
| 4   | FC    | 27  | LYS  |
| 4   | FC    | 58  | LYS  |
| 4   | FC    | 83  | ILE  |
| 4   | FC    | 95  | THR  |
| 5   | FE    | 15  | ILE  |
| 5   | FE    | 23  | ASP  |
| 5   | FE    | 59  | ARG  |
| 5   | FE    | 64  | VAL  |
| 5   | FE    | 85  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | FE    | 90  | VAL  |
| 5   | FE    | 95  | THR  |
| 5   | FE    | 97  | SER  |
| 5   | FE    | 107 | VAL  |
| 5   | FE    | 115 | ASP  |
| 5   | FE    | 117 | PHE  |
| 5   | FE    | 142 | GLU  |
| 5   | FE    | 186 | PRO  |
| 6   | FF    | 8   | GLN  |
| 6   | FF    | 39  | ASP  |
| 6   | FF    | 53  | VAL  |
| 6   | FF    | 82  | THR  |
| 7   | FG    | 24  | THR  |
| 7   | FG    | 29  | SER  |
| 7   | FG    | 62  | LEU  |
| 7   | FG    | 66  | SER  |
| 7   | FG    | 86  | ARG  |
| 8   | FH    | 13  | ARG  |
| 8   | FH    | 21  | THR  |
| 8   | FH    | 30  | GLN  |
| 8   | FH    | 32  | SER  |
| 8   | FH    | 38  | LYS  |
| 8   | FH    | 44  | THR  |
| 8   | FH    | 91  | PHE  |
| 8   | FH    | 104 | LEU  |
| 9   | FJ    | 1   | MET  |
| 9   | FJ    | 5   | CYS  |
| 9   | FJ    | 6   | GLN  |
| 9   | FJ    | 36  | SER  |
| 9   | FJ    | 37  | VAL  |
| 9   | FJ    | 42  | LEU  |
| 9   | FJ    | 43  | VAL  |
| 9   | FJ    | 48  | VAL  |
| 9   | FJ    | 57  | ARG  |
| 9   | FJ    | 62  | VAL  |
| 9   | FJ    | 67  | LYS  |
| 9   | FJ    | 88  | LEU  |
| 9   | FJ    | 128 | ILE  |
| 9   | FJ    | 139 | ARG  |
| 9   | FJ    | 142 | ILE  |
| 9   | FJ    | 144 | ASN  |
| 9   | FJ    | 146 | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | FJ    | 152 | CYS  |
| 9   | FJ    | 157 | ARG  |
| 9   | FJ    | 198 | VAL  |
| 9   | FJ    | 199 | VAL  |
| 9   | FJ    | 206 | CYS  |
| 10  | FK    | 82  | ILE  |
| 10  | FK    | 85  | LEU  |
| 10  | FK    | 115 | CYS  |
| 10  | FK    | 118 | SER  |
| 10  | FK    | 122 | ARG  |
| 10  | FK    | 125 | LYS  |
| 11  | FL    | 4   | ARG  |
| 11  | FL    | 12  | SER  |
| 11  | FL    | 21  | ARG  |
| 11  | FL    | 35  | VAL  |
| 11  | FL    | 73  | THR  |
| 11  | FL    | 100 | VAL  |
| 12  | FM    | 51  | ASN  |
| 13  | FN    | 4   | PHE  |
| 13  | FN    | 33  | THR  |
| 13  | FN    | 49  | SER  |
| 13  | FN    | 52  | LYS  |
| 13  | FN    | 77  | LEU  |
| 13  | FN    | 84  | ARG  |
| 13  | FN    | 108 | SER  |
| 13  | FN    | 143 | ARG  |
| 14  | FO    | 9   | VAL  |
| 14  | FO    | 13  | ASN  |
| 14  | FO    | 36  | THR  |
| 14  | FO    | 46  | HIS  |
| 14  | FO    | 68  | HIS  |
| 14  | FO    | 76  | ILE  |
| 15  | FP    | 4   | GLU  |
| 15  | FP    | 5   | ILE  |
| 15  | FP    | 6   | THR  |
| 15  | FP    | 35  | THR  |
| 15  | FP    | 43  | LYS  |
| 15  | FP    | 55  | THR  |
| 16  | FQ    | 15  | THR  |
| 16  | FQ    | 16  | THR  |
| 16  | FQ    | 31  | LYS  |
| 16  | FQ    | 37  | ARG  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | FQ    | 68  | LYS  |
| 16  | FQ    | 101 | GLN  |
| 17  | FT    | 3   | LYS  |
| 17  | FT    | 7   | SER  |
| 17  | FT    | 18  | ARG  |
| 17  | FT    | 55  | LYS  |
| 18  | FU    | 17  | GLN  |
| 18  | FU    | 22  | THR  |
| 18  | FU    | 47  | ARG  |
| 18  | FU    | 74  | THR  |
| 18  | FU    | 98  | ARG  |
| 18  | FU    | 102 | ARG  |
| 18  | FU    | 136 | VAL  |
| 18  | FU    | 161 | LYS  |
| 18  | FU    | 166 | VAL  |
| 18  | FU    | 174 | LYS  |
| 19  | FX    | 18  | VAL  |
| 19  | FX    | 19  | ARG  |
| 19  | FX    | 24  | SER  |
| 19  | FX    | 30  | ILE  |
| 19  | FX    | 42  | ARG  |
| 19  | FX    | 43  | VAL  |
| 19  | FX    | 46  | ARG  |
| 19  | FX    | 78  | ILE  |
| 19  | FX    | 85  | THR  |
| 19  | FX    | 87  | LYS  |
| 19  | FX    | 109 | ARG  |
| 19  | FX    | 124 | MET  |
| 19  | FX    | 132 | PRO  |
| 19  | FX    | 153 | THR  |
| 19  | FX    | 162 | LYS  |
| 19  | FX    | 173 | SER  |
| 19  | FX    | 180 | VAL  |
| 19  | FX    | 189 | PHE  |
| 22  | GA    | 5   | ILE  |
| 22  | GA    | 14  | ASN  |
| 22  | GA    | 19  | SER  |
| 22  | GA    | 25  | ILE  |
| 22  | GA    | 29  | GLN  |
| 22  | GA    | 31  | ARG  |
| 22  | GA    | 32  | VAL  |
| 22  | GA    | 42  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | GA    | 45  | CYS  |
| 22  | GA    | 49  | ILE  |
| 22  | GA    | 50  | VAL  |
| 22  | GA    | 93  | LEU  |
| 22  | GA    | 99  | VAL  |
| 22  | GA    | 108 | ILE  |
| 22  | GA    | 128 | SER  |
| 22  | GA    | 167 | VAL  |
| 22  | GA    | 180 | ILE  |
| 22  | GA    | 186 | GLN  |
| 22  | GA    | 194 | ARG  |
| 22  | GA    | 196 | SER  |
| 22  | GA    | 206 | ASN  |
| 22  | GA    | 217 | HIS  |
| 22  | GA    | 220 | ILE  |
| 22  | GA    | 225 | THR  |
| 22  | GA    | 226 | VAL  |
| 22  | GA    | 227 | SER  |
| 22  | GA    | 231 | SER  |
| 22  | GA    | 236 | VAL  |
| 22  | GA    | 238 | LEU  |
| 22  | GA    | 239 | ARG  |
| 22  | GA    | 244 | THR  |
| 22  | GA    | 246 | LEU  |
| 23  | GB    | 4   | ARG  |
| 23  | GB    | 29  | CYS  |
| 23  | GB    | 55  | HIS  |
| 23  | GB    | 58  | ARG  |
| 23  | GB    | 60  | VAL  |
| 23  | GB    | 62  | ARG  |
| 23  | GB    | 76  | VAL  |
| 23  | GB    | 85  | THR  |
| 23  | GB    | 95  | THR  |
| 23  | GB    | 97  | ARG  |
| 23  | GB    | 162 | THR  |
| 23  | GB    | 172 | LYS  |
| 23  | GB    | 201 | VAL  |
| 23  | GB    | 204 | ASP  |
| 23  | GB    | 247 | VAL  |
| 23  | GB    | 250 | ILE  |
| 23  | GB    | 257 | ARG  |
| 23  | GB    | 261 | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | GB    | 262 | VAL  |
| 23  | GB    | 264 | ARG  |
| 23  | GB    | 278 | LYS  |
| 23  | GB    | 327 | VAL  |
| 23  | GB    | 332 | ARG  |
| 23  | GB    | 333 | VAL  |
| 23  | GB    | 339 | SER  |
| 23  | GB    | 351 | ILE  |
| 23  | GB    | 367 | ARG  |
| 23  | GB    | 370 | THR  |
| 24  | GC    | 19  | THR  |
| 24  | GC    | 21  | THR  |
| 24  | GC    | 33  | ILE  |
| 24  | GC    | 36  | ASP  |
| 24  | GC    | 44  | ASP  |
| 24  | GC    | 74  | THR  |
| 24  | GC    | 81  | ILE  |
| 24  | GC    | 87  | SER  |
| 24  | GC    | 89  | THR  |
| 24  | GC    | 97  | PHE  |
| 24  | GC    | 99  | ASN  |
| 24  | GC    | 100 | GLN  |
| 24  | GC    | 138 | LEU  |
| 24  | GC    | 143 | PHE  |
| 24  | GC    | 145 | ARG  |
| 24  | GC    | 157 | TYR  |
| 24  | GC    | 161 | ASP  |
| 24  | GC    | 169 | THR  |
| 24  | GC    | 186 | LEU  |
| 24  | GC    | 187 | ARG  |
| 24  | GC    | 201 | LEU  |
| 24  | GC    | 209 | ARG  |
| 24  | GC    | 223 | LEU  |
| 24  | GC    | 274 | SER  |
| 24  | GC    | 276 | THR  |
| 24  | GC    | 298 | ILE  |
| 24  | GC    | 304 | VAL  |
| 24  | GC    | 306 | SER  |
| 24  | GC    | 328 | ASN  |
| 24  | GC    | 330 | LEU  |
| 24  | GC    | 356 | GLN  |
| 24  | GC    | 377 | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 24  | GC    | 382 | LYS  |
| 25  | GD    | 10  | ARG  |
| 25  | GD    | 20  | ASN  |
| 25  | GD    | 23  | VAL  |
| 25  | GD    | 26  | SER  |
| 25  | GD    | 37  | LEU  |
| 25  | GD    | 48  | SER  |
| 25  | GD    | 49  | ARG  |
| 25  | GD    | 56  | SER  |
| 25  | GD    | 89  | MET  |
| 25  | GD    | 108 | GLU  |
| 25  | GD    | 114 | MET  |
| 25  | GD    | 138 | VAL  |
| 25  | GD    | 146 | SER  |
| 26  | GE    | 1   | MET  |
| 26  | GE    | 62  | ARG  |
| 26  | GE    | 70  | SER  |
| 26  | GE    | 103 | VAL  |
| 26  | GE    | 113 | LYS  |
| 26  | GE    | 168 | LYS  |
| 26  | GE    | 171 | ARG  |
| 27  | GF    | 52  | THR  |
| 27  | GF    | 53  | LEU  |
| 27  | GF    | 74  | THR  |
| 27  | GF    | 103 | ARG  |
| 27  | GF    | 149 | ASP  |
| 27  | GF    | 156 | VAL  |
| 27  | GF    | 196 | VAL  |
| 27  | GF    | 197 | ARG  |
| 29  | GH    | 24  | ARG  |
| 29  | GH    | 26  | VAL  |
| 29  | GH    | 32  | ARG  |
| 29  | GH    | 49  | VAL  |
| 29  | GH    | 54  | SER  |
| 29  | GH    | 61  | THR  |
| 29  | GH    | 98  | ARG  |
| 29  | GH    | 115 | MET  |
| 29  | GH    | 133 | SER  |
| 29  | GH    | 138 | VAL  |
| 29  | GH    | 154 | ARG  |
| 29  | GH    | 168 | SER  |
| 29  | GH    | 195 | SER  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 29  | GH    | 200 | ILE  |
| 30  | GI    | 24  | LYS  |
| 30  | GI    | 28  | SER  |
| 30  | GI    | 32  | ILE  |
| 30  | GI    | 54  | SER  |
| 30  | GI    | 67  | ARG  |
| 30  | GI    | 76  | SER  |
| 30  | GI    | 84  | ARG  |
| 30  | GI    | 103 | ILE  |
| 30  | GI    | 105 | GLU  |
| 30  | GI    | 107 | ILE  |
| 30  | GI    | 116 | LYS  |
| 30  | GI    | 135 | CYS  |
| 30  | GI    | 136 | LYS  |
| 30  | GI    | 143 | SER  |
| 30  | GI    | 152 | ILE  |
| 30  | GI    | 159 | ARG  |
| 30  | GI    | 198 | TYR  |
| 31  | GJ    | 23  | VAL  |
| 31  | GJ    | 26  | VAL  |
| 31  | GJ    | 47  | LYS  |
| 31  | GJ    | 50  | LEU  |
| 31  | GJ    | 61  | MET  |
| 31  | GJ    | 70  | SER  |
| 31  | GJ    | 92  | ARG  |
| 31  | GJ    | 116 | SER  |
| 31  | GJ    | 126 | CYS  |
| 32  | GK    | 7   | LYS  |
| 32  | GK    | 17  | HIS  |
| 32  | GK    | 22  | VAL  |
| 32  | GK    | 46  | LEU  |
| 32  | GK    | 48  | GLU  |
| 32  | GK    | 58  | LEU  |
| 32  | GK    | 60  | MET  |
| 32  | GK    | 70  | LEU  |
| 32  | GK    | 77  | ILE  |
| 32  | GK    | 78  | ASP  |
| 32  | GK    | 79  | LYS  |
| 32  | GK    | 84  | VAL  |
| 32  | GK    | 91  | LYS  |
| 32  | GK    | 123 | VAL  |
| 32  | GK    | 129 | TYR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 33  | GL    | 42  | SER  |
| 33  | GL    | 54  | LYS  |
| 33  | GL    | 80  | VAL  |
| 33  | GL    | 89  | ILE  |
| 33  | GL    | 148 | ILE  |
| 33  | GL    | 152 | CYS  |
| 33  | GL    | 154 | SER  |
| 33  | GL    | 159 | ARG  |
| 33  | GL    | 165 | THR  |
| 34  | GM    | 3   | PHE  |
| 34  | GM    | 19  | LYS  |
| 34  | GM    | 23  | ARG  |
| 34  | GM    | 44  | TYR  |
| 34  | GM    | 61  | ILE  |
| 34  | GM    | 79  | ASP  |
| 34  | GM    | 107 | ARG  |
| 34  | GM    | 134 | GLU  |
| 34  | GM    | 140 | LYS  |
| 34  | GM    | 178 | SER  |
| 34  | GM    | 213 | MET  |
| 34  | GM    | 234 | THR  |
| 34  | GM    | 265 | LYS  |
| 34  | GM    | 269 | LYS  |
| 35  | GN    | 3   | ILE  |
| 35  | GN    | 4   | ASP  |
| 35  | GN    | 11  | VAL  |
| 35  | GN    | 14  | ARG  |
| 35  | GN    | 17  | VAL  |
| 35  | GN    | 20  | THR  |
| 35  | GN    | 23  | THR  |
| 35  | GN    | 51  | LYS  |
| 35  | GN    | 52  | ARG  |
| 35  | GN    | 55  | SER  |
| 35  | GN    | 75  | THR  |
| 35  | GN    | 84  | THR  |
| 35  | GN    | 91  | GLU  |
| 35  | GN    | 93  | LEU  |
| 35  | GN    | 122 | LEU  |
| 35  | GN    | 140 | LEU  |
| 35  | GN    | 145 | SER  |
| 35  | GN    | 167 | VAL  |
| 35  | GN    | 170 | GLU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 36  | GO    | 5   | ARG  |
| 36  | GO    | 9   | ARG  |
| 36  | GO    | 17  | CYS  |
| 36  | GO    | 57  | ILE  |
| 36  | GO    | 61  | SER  |
| 36  | GO    | 84  | THR  |
| 36  | GO    | 85  | ARG  |
| 36  | GO    | 110 | ARG  |
| 36  | GO    | 115 | ILE  |
| 36  | GO    | 127 | SER  |
| 36  | GO    | 131 | LEU  |
| 36  | GO    | 137 | VAL  |
| 37  | GP    | 8   | ARG  |
| 37  | GP    | 29  | ARG  |
| 37  | GP    | 40  | VAL  |
| 37  | GP    | 45  | ASP  |
| 37  | GP    | 79  | ILE  |
| 37  | GP    | 94  | GLU  |
| 37  | GP    | 116 | LYS  |
| 37  | GP    | 128 | THR  |
| 37  | GP    | 130 | ARG  |
| 37  | GP    | 149 | HIS  |
| 38  | GQ    | 17  | VAL  |
| 38  | GQ    | 26  | VAL  |
| 38  | GQ    | 29  | LYS  |
| 38  | GQ    | 58  | ARG  |
| 38  | GQ    | 59  | CYS  |
| 38  | GQ    | 63  | THR  |
| 38  | GQ    | 72  | THR  |
| 38  | GQ    | 82  | GLN  |
| 38  | GQ    | 87  | VAL  |
| 38  | GQ    | 89  | SER  |
| 38  | GQ    | 93  | ILE  |
| 38  | GQ    | 115 | VAL  |
| 38  | GQ    | 120 | GLN  |
| 38  | GQ    | 131 | THR  |
| 38  | GQ    | 142 | LEU  |
| 38  | GQ    | 144 | SER  |
| 38  | GQ    | 150 | ILE  |
| 39  | GR    | 81  | MET  |
| 39  | GR    | 90  | MET  |
| 39  | GR    | 91  | VAL  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 39  | GR    | 118 | VAL  |
| 39  | GR    | 121 | LEU  |
| 39  | GR    | 124 | ILE  |
| 39  | GR    | 150 | ILE  |
| 40  | GS    | 5   | VAL  |
| 40  | GS    | 12  | ARG  |
| 40  | GS    | 46  | SER  |
| 40  | GS    | 51  | LYS  |
| 40  | GS    | 68  | LYS  |
| 40  | GS    | 107 | LYS  |
| 40  | GS    | 111 | ASP  |
| 40  | GS    | 118 | LEU  |
| 41  | GT    | 27  | ASP  |
| 41  | GT    | 42  | SER  |
| 41  | GT    | 52  | THR  |
| 41  | GT    | 60  | LEU  |
| 42  | GU    | 14  | THR  |
| 42  | GU    | 41  | THR  |
| 42  | GU    | 43  | ASN  |
| 42  | GU    | 48  | ILE  |
| 42  | GU    | 62  | ILE  |
| 42  | GU    | 83  | ASP  |
| 42  | GU    | 93  | ARG  |
| 42  | GU    | 104 | VAL  |
| 42  | GU    | 109 | GLN  |
| 42  | GU    | 120 | PHE  |
| 43  | GV    | 15  | ARG  |
| 43  | GV    | 63  | LYS  |
| 43  | GV    | 98  | ARG  |
| 43  | GV    | 121 | LEU  |
| 43  | GV    | 161 | THR  |
| 43  | GV    | 164 | THR  |
| 43  | GV    | 166 | VAL  |
| 43  | GV    | 227 | ARG  |
| 44  | GW    | 11  | THR  |
| 44  | GW    | 16  | HIS  |
| 44  | GW    | 23  | SER  |
| 44  | GW    | 32  | ILE  |
| 44  | GW    | 43  | MET  |
| 44  | GW    | 45  | THR  |
| 44  | GW    | 52  | THR  |
| 44  | GW    | 66  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 44  | GW    | 75  | CYS  |
| 45  | GX    | 32  | SER  |
| 45  | GX    | 33  | SER  |
| 45  | GX    | 35  | ARG  |
| 45  | GX    | 36  | ARG  |
| 45  | GX    | 40  | ILE  |
| 45  | GX    | 52  | ARG  |
| 45  | GX    | 57  | ILE  |
| 45  | GX    | 62  | ASP  |
| 45  | GX    | 75  | LYS  |
| 45  | GX    | 77  | LEU  |
| 45  | GX    | 84  | LEU  |
| 45  | GX    | 86  | ILE  |
| 45  | GX    | 89  | MET  |
| 45  | GX    | 113 | ARG  |
| 45  | GX    | 125 | ASN  |
| 46  | GY    | 4   | ARG  |
| 46  | GY    | 7   | LYS  |
| 46  | GY    | 16  | THR  |
| 46  | GY    | 60  | CYS  |
| 46  | GY    | 71  | LEU  |
| 46  | GY    | 73  | THR  |
| 46  | GY    | 99  | LEU  |
| 2   | HA    | 11  | ARG  |
| 2   | HA    | 24  | LYS  |
| 2   | HA    | 26  | THR  |
| 2   | HA    | 29  | LYS  |
| 2   | HA    | 34  | CYS  |
| 2   | HA    | 43  | LYS  |
| 2   | HA    | 44  | MET  |
| 2   | HA    | 46  | ARG  |
| 2   | HA    | 55  | ARG  |
| 2   | HA    | 62  | THR  |
| 2   | HA    | 68  | MET  |
| 2   | HA    | 73  | ARG  |
| 3   | HB    | 4   | ASN  |
| 3   | HB    | 32  | ASP  |
| 3   | HB    | 41  | ARG  |
| 3   | HB    | 45  | ARG  |
| 4   | HC    | 27  | LYS  |
| 4   | HC    | 58  | LYS  |
| 4   | HC    | 83  | ILE  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | HC    | 95  | THR  |
| 5   | HE    | 15  | ILE  |
| 5   | HE    | 23  | ASP  |
| 5   | HE    | 59  | ARG  |
| 5   | HE    | 64  | VAL  |
| 5   | HE    | 85  | VAL  |
| 5   | HE    | 90  | VAL  |
| 5   | HE    | 95  | THR  |
| 5   | HE    | 97  | SER  |
| 5   | HE    | 107 | VAL  |
| 5   | HE    | 115 | ASP  |
| 5   | HE    | 117 | PHE  |
| 5   | HE    | 186 | PRO  |
| 6   | HF    | 8   | GLN  |
| 6   | HF    | 39  | ASP  |
| 6   | HF    | 53  | VAL  |
| 6   | HF    | 82  | THR  |
| 7   | HG    | 24  | THR  |
| 7   | HG    | 29  | SER  |
| 7   | HG    | 62  | LEU  |
| 7   | HG    | 66  | SER  |
| 8   | HH    | 13  | ARG  |
| 8   | HH    | 21  | THR  |
| 8   | HH    | 30  | GLN  |
| 8   | HH    | 32  | SER  |
| 8   | HH    | 38  | LYS  |
| 8   | HH    | 44  | THR  |
| 8   | HH    | 47  | ASP  |
| 8   | HH    | 91  | PHE  |
| 8   | HH    | 104 | LEU  |
| 9   | HJ    | 1   | MET  |
| 9   | HJ    | 5   | CYS  |
| 9   | HJ    | 6   | GLN  |
| 9   | HJ    | 36  | SER  |
| 9   | HJ    | 37  | VAL  |
| 9   | HJ    | 42  | LEU  |
| 9   | HJ    | 43  | VAL  |
| 9   | HJ    | 48  | VAL  |
| 9   | HJ    | 57  | ARG  |
| 9   | HJ    | 62  | VAL  |
| 9   | HJ    | 67  | LYS  |
| 9   | HJ    | 88  | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 9   | HJ    | 128 | ILE  |
| 9   | HJ    | 139 | ARG  |
| 9   | HJ    | 142 | ILE  |
| 9   | HJ    | 144 | ASN  |
| 9   | HJ    | 146 | VAL  |
| 9   | HJ    | 152 | CYS  |
| 9   | HJ    | 157 | ARG  |
| 9   | HJ    | 198 | VAL  |
| 9   | HJ    | 199 | VAL  |
| 9   | HJ    | 206 | CYS  |
| 10  | HK    | 82  | ILE  |
| 10  | HK    | 85  | LEU  |
| 10  | HK    | 115 | CYS  |
| 10  | HK    | 122 | ARG  |
| 10  | HK    | 125 | LYS  |
| 11  | HL    | 4   | ARG  |
| 11  | HL    | 12  | SER  |
| 11  | HL    | 21  | ARG  |
| 11  | HL    | 25  | THR  |
| 11  | HL    | 35  | VAL  |
| 11  | HL    | 73  | THR  |
| 11  | HL    | 100 | VAL  |
| 12  | HM    | 51  | ASN  |
| 13  | HN    | 4   | PHE  |
| 13  | HN    | 31  | ASP  |
| 13  | HN    | 33  | THR  |
| 13  | HN    | 36  | ARG  |
| 13  | HN    | 49  | SER  |
| 13  | HN    | 77  | LEU  |
| 13  | HN    | 84  | ARG  |
| 13  | HN    | 108 | SER  |
| 13  | HN    | 143 | ARG  |
| 14  | HO    | 9   | VAL  |
| 14  | HO    | 13  | ASN  |
| 14  | HO    | 36  | THR  |
| 14  | HO    | 43  | THR  |
| 14  | HO    | 46  | HIS  |
| 14  | HO    | 76  | ILE  |
| 15  | HP    | 4   | GLU  |
| 15  | HP    | 5   | ILE  |
| 15  | HP    | 6   | THR  |
| 15  | HP    | 35  | THR  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 15  | HP    | 43  | LYS  |
| 15  | HP    | 55  | THR  |
| 16  | HQ    | 15  | THR  |
| 16  | HQ    | 16  | THR  |
| 16  | HQ    | 31  | LYS  |
| 16  | HQ    | 37  | ARG  |
| 16  | HQ    | 68  | LYS  |
| 16  | HQ    | 101 | GLN  |
| 17  | HT    | 3   | LYS  |
| 17  | HT    | 7   | SER  |
| 17  | HT    | 18  | ARG  |
| 17  | HT    | 55  | LYS  |
| 18  | HU    | 17  | GLN  |
| 18  | HU    | 22  | THR  |
| 18  | HU    | 47  | ARG  |
| 18  | HU    | 74  | THR  |
| 18  | HU    | 98  | ARG  |
| 18  | HU    | 102 | ARG  |
| 18  | HU    | 136 | VAL  |
| 18  | HU    | 161 | LYS  |
| 18  | HU    | 166 | VAL  |
| 18  | HU    | 174 | LYS  |
| 18  | HU    | 181 | ILE  |
| 19  | HX    | 18  | VAL  |
| 19  | HX    | 19  | ARG  |
| 19  | HX    | 24  | SER  |
| 19  | HX    | 30  | ILE  |
| 19  | HX    | 42  | ARG  |
| 19  | HX    | 43  | VAL  |
| 19  | HX    | 46  | ARG  |
| 19  | HX    | 85  | THR  |
| 19  | HX    | 87  | LYS  |
| 19  | HX    | 109 | ARG  |
| 19  | HX    | 124 | MET  |
| 19  | HX    | 132 | PRO  |
| 19  | HX    | 153 | THR  |
| 19  | HX    | 173 | SER  |
| 19  | HX    | 180 | VAL  |
| 19  | HX    | 189 | PHE  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (814) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2   | AA    | 16  | HIS  |
| 2   | AA    | 28  | HIS  |
| 3   | AB    | 4   | ASN  |
| 4   | AC    | 20  | ASN  |
| 4   | AC    | 34  | HIS  |
| 5   | AE    | 29  | HIS  |
| 5   | AE    | 92  | GLN  |
| 5   | AE    | 153 | GLN  |
| 5   | AE    | 182 | ASN  |
| 6   | AF    | 8   | GLN  |
| 6   | AF    | 67  | GLN  |
| 7   | AG    | 68  | HIS  |
| 8   | AH    | 28  | HIS  |
| 8   | AH    | 69  | ASN  |
| 8   | AH    | 81  | HIS  |
| 8   | AH    | 94  | ASN  |
| 8   | AH    | 98  | GLN  |
| 8   | AH    | 111 | ASN  |
| 9   | AJ    | 50  | HIS  |
| 9   | AJ    | 118 | HIS  |
| 9   | AJ    | 144 | ASN  |
| 9   | AJ    | 145 | ASN  |
| 9   | AJ    | 156 | ASN  |
| 9   | AJ    | 162 | HIS  |
| 9   | AJ    | 187 | ASN  |
| 9   | AJ    | 225 | ASN  |
| 10  | AK    | 90  | ASN  |
| 10  | AK    | 109 | ASN  |
| 10  | AK    | 119 | ASN  |
| 11  | AL    | 50  | ASN  |
| 11  | AL    | 54  | ASN  |
| 11  | AL    | 58  | GLN  |
| 12  | AM    | 14  | ASN  |
| 12  | AM    | 51  | ASN  |
| 12  | AM    | 55  | ASN  |
| 12  | AM    | 68  | GLN  |
| 13  | AN    | 15  | GLN  |
| 13  | AN    | 79  | HIS  |
| 13  | AN    | 126 | ASN  |
| 14  | AO    | 19  | ASN  |
| 14  | AO    | 44  | HIS  |
| 14  | AO    | 46  | HIS  |
| 14  | AO    | 56  | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 14  | AO    | 113 | ASN  |
| 14  | AO    | 115 | HIS  |
| 14  | AO    | 118 | ASN  |
| 14  | AO    | 122 | GLN  |
| 16  | AQ    | 23  | GLN  |
| 16  | AQ    | 25  | HIS  |
| 17  | AT    | 17  | HIS  |
| 17  | AT    | 49  | ASN  |
| 17  | AT    | 58  | ASN  |
| 18  | AU    | 3   | HIS  |
| 18  | AU    | 5   | ASN  |
| 18  | AU    | 6   | GLN  |
| 18  | AU    | 16  | GLN  |
| 18  | AU    | 26  | GLN  |
| 18  | AU    | 61  | GLN  |
| 18  | AU    | 64  | ASN  |
| 18  | AU    | 101 | ASN  |
| 18  | AU    | 137 | ASN  |
| 18  | AU    | 168 | ASN  |
| 18  | AU    | 187 | ASN  |
| 19  | AX    | 15  | GLN  |
| 19  | AX    | 20  | GLN  |
| 19  | AX    | 40  | GLN  |
| 19  | AX    | 50  | HIS  |
| 19  | AX    | 58  | ASN  |
| 19  | AX    | 76  | ASN  |
| 19  | AX    | 84  | ASN  |
| 19  | AX    | 114 | ASN  |
| 19  | AX    | 119 | GLN  |
| 19  | AX    | 136 | GLN  |
| 22  | BA    | 14  | ASN  |
| 22  | BA    | 20  | HIS  |
| 22  | BA    | 51  | HIS  |
| 22  | BA    | 206 | ASN  |
| 22  | BA    | 210 | HIS  |
| 22  | BA    | 216 | ASN  |
| 22  | BA    | 251 | GLN  |
| 23  | BB    | 24  | HIS  |
| 23  | BB    | 25  | HIS  |
| 23  | BB    | 55  | HIS  |
| 23  | BB    | 68  | ASN  |
| 23  | BB    | 124 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | BB    | 133 | HIS  |
| 23  | BB    | 163 | ASN  |
| 23  | BB    | 168 | ASN  |
| 23  | BB    | 171 | GLN  |
| 23  | BB    | 174 | ASN  |
| 23  | BB    | 175 | HIS  |
| 23  | BB    | 210 | ASN  |
| 23  | BB    | 235 | HIS  |
| 23  | BB    | 254 | HIS  |
| 23  | BB    | 271 | HIS  |
| 23  | BB    | 272 | HIS  |
| 23  | BB    | 277 | ASN  |
| 23  | BB    | 343 | GLN  |
| 24  | BC    | 6   | GLN  |
| 24  | BC    | 67  | HIS  |
| 24  | BC    | 99  | ASN  |
| 24  | BC    | 100 | GLN  |
| 24  | BC    | 117 | HIS  |
| 24  | BC    | 123 | ASN  |
| 24  | BC    | 171 | GLN  |
| 24  | BC    | 229 | ASN  |
| 24  | BC    | 242 | ASN  |
| 24  | BC    | 292 | ASN  |
| 24  | BC    | 317 | HIS  |
| 25  | BD    | 7   | ASN  |
| 25  | BD    | 68  | HIS  |
| 25  | BD    | 95  | ASN  |
| 25  | BD    | 98  | ASN  |
| 25  | BD    | 152 | GLN  |
| 26  | BE    | 56  | GLN  |
| 26  | BE    | 150 | ASN  |
| 26  | BE    | 154 | GLN  |
| 26  | BE    | 160 | HIS  |
| 27  | BF    | 36  | GLN  |
| 27  | BF    | 54  | GLN  |
| 27  | BF    | 62  | GLN  |
| 27  | BF    | 71  | HIS  |
| 27  | BF    | 72  | GLN  |
| 27  | BF    | 107 | GLN  |
| 27  | BF    | 138 | ASN  |
| 27  | BF    | 166 | ASN  |
| 27  | BF    | 216 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27  | BF    | 232 | GLN  |
| 27  | BF    | 236 | HIS  |
| 29  | BH    | 59  | GLN  |
| 29  | BH    | 75  | ASN  |
| 29  | BH    | 86  | HIS  |
| 29  | BH    | 144 | HIS  |
| 29  | BH    | 196 | ASN  |
| 30  | BI    | 13  | HIS  |
| 30  | BI    | 30  | GLN  |
| 30  | BI    | 49  | ASN  |
| 30  | BI    | 64  | ASN  |
| 30  | BI    | 89  | HIS  |
| 31  | BJ    | 32  | ASN  |
| 31  | BJ    | 102 | ASN  |
| 32  | BK    | 14  | HIS  |
| 32  | BK    | 17  | HIS  |
| 32  | BK    | 19  | HIS  |
| 32  | BK    | 43  | HIS  |
| 32  | BK    | 51  | HIS  |
| 32  | BK    | 68  | ASN  |
| 32  | BK    | 120 | ASN  |
| 33  | BL    | 90  | ASN  |
| 33  | BL    | 144 | ASN  |
| 33  | BL    | 158 | HIS  |
| 33  | BL    | 179 | HIS  |
| 33  | BL    | 191 | ASN  |
| 34  | BM    | 39  | GLN  |
| 34  | BM    | 57  | ASN  |
| 34  | BM    | 200 | HIS  |
| 34  | BM    | 227 | GLN  |
| 34  | BM    | 251 | HIS  |
| 35  | BN    | 79  | GLN  |
| 36  | BO    | 99  | GLN  |
| 36  | BO    | 118 | HIS  |
| 36  | BO    | 119 | GLN  |
| 36  | BO    | 134 | ASN  |
| 36  | BO    | 174 | ASN  |
| 37  | BP    | 49  | HIS  |
| 37  | BP    | 77  | HIS  |
| 37  | BP    | 90  | HIS  |
| 37  | BP    | 112 | ASN  |
| 37  | BP    | 131 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 38  | BQ    | 30  | ASN  |
| 38  | BQ    | 45  | ASN  |
| 38  | BQ    | 76  | HIS  |
| 38  | BQ    | 82  | GLN  |
| 38  | BQ    | 103 | ASN  |
| 38  | BQ    | 113 | ASN  |
| 38  | BQ    | 117 | GLN  |
| 38  | BQ    | 120 | GLN  |
| 38  | BQ    | 135 | HIS  |
| 38  | BQ    | 139 | ASN  |
| 38  | BQ    | 153 | GLN  |
| 39  | BR    | 44  | GLN  |
| 39  | BR    | 64  | HIS  |
| 39  | BR    | 95  | HIS  |
| 39  | BR    | 145 | ASN  |
| 40  | BS    | 4   | HIS  |
| 40  | BS    | 18  | HIS  |
| 40  | BS    | 43  | ASN  |
| 42  | BU    | 63  | ASN  |
| 42  | BU    | 114 | ASN  |
| 43  | BV    | 91  | GLN  |
| 43  | BV    | 107 | GLN  |
| 43  | BV    | 109 | HIS  |
| 43  | BV    | 139 | ASN  |
| 43  | BV    | 216 | HIS  |
| 43  | BV    | 219 | HIS  |
| 44  | BW    | 4   | GLN  |
| 44  | BW    | 16  | HIS  |
| 44  | BW    | 20  | HIS  |
| 44  | BW    | 65  | ASN  |
| 44  | BW    | 94  | HIS  |
| 45  | BX    | 42  | ASN  |
| 45  | BX    | 123 | ASN  |
| 45  | BX    | 125 | ASN  |
| 46  | BY    | 103 | ASN  |
| 22  | CA    | 14  | ASN  |
| 22  | CA    | 20  | HIS  |
| 22  | CA    | 51  | HIS  |
| 22  | CA    | 206 | ASN  |
| 22  | CA    | 210 | HIS  |
| 22  | CA    | 216 | ASN  |
| 22  | CA    | 222 | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 22  | CA    | 251 | GLN  |
| 23  | CB    | 24  | HIS  |
| 23  | CB    | 25  | HIS  |
| 23  | CB    | 55  | HIS  |
| 23  | CB    | 121 | ASN  |
| 23  | CB    | 133 | HIS  |
| 23  | CB    | 161 | HIS  |
| 23  | CB    | 163 | ASN  |
| 23  | CB    | 168 | ASN  |
| 23  | CB    | 174 | ASN  |
| 23  | CB    | 175 | HIS  |
| 23  | CB    | 210 | ASN  |
| 23  | CB    | 235 | HIS  |
| 23  | CB    | 254 | HIS  |
| 23  | CB    | 271 | HIS  |
| 23  | CB    | 272 | HIS  |
| 23  | CB    | 277 | ASN  |
| 23  | CB    | 343 | GLN  |
| 24  | CC    | 6   | GLN  |
| 24  | CC    | 67  | HIS  |
| 24  | CC    | 99  | ASN  |
| 24  | CC    | 100 | GLN  |
| 24  | CC    | 117 | HIS  |
| 24  | CC    | 123 | ASN  |
| 24  | CC    | 171 | GLN  |
| 24  | CC    | 203 | ASN  |
| 24  | CC    | 242 | ASN  |
| 24  | CC    | 251 | HIS  |
| 24  | CC    | 292 | ASN  |
| 24  | CC    | 317 | HIS  |
| 25  | CD    | 7   | ASN  |
| 25  | CD    | 95  | ASN  |
| 25  | CD    | 152 | GLN  |
| 26  | CE    | 56  | GLN  |
| 26  | CE    | 160 | HIS  |
| 27  | CF    | 36  | GLN  |
| 27  | CF    | 54  | GLN  |
| 27  | CF    | 62  | GLN  |
| 27  | CF    | 69  | GLN  |
| 27  | CF    | 71  | HIS  |
| 27  | CF    | 72  | GLN  |
| 27  | CF    | 107 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 27  | CF    | 138 | ASN  |
| 27  | CF    | 166 | ASN  |
| 27  | CF    | 216 | ASN  |
| 27  | CF    | 232 | GLN  |
| 27  | CF    | 236 | HIS  |
| 29  | CH    | 59  | GLN  |
| 29  | CH    | 75  | ASN  |
| 29  | CH    | 86  | HIS  |
| 29  | CH    | 144 | HIS  |
| 30  | CI    | 13  | HIS  |
| 30  | CI    | 30  | GLN  |
| 30  | CI    | 49  | ASN  |
| 30  | CI    | 64  | ASN  |
| 30  | CI    | 89  | HIS  |
| 31  | CJ    | 32  | ASN  |
| 31  | CJ    | 102 | ASN  |
| 32  | CK    | 14  | HIS  |
| 32  | CK    | 17  | HIS  |
| 32  | CK    | 19  | HIS  |
| 32  | CK    | 43  | HIS  |
| 32  | CK    | 51  | HIS  |
| 32  | CK    | 120 | ASN  |
| 33  | CL    | 90  | ASN  |
| 33  | CL    | 144 | ASN  |
| 33  | CL    | 158 | HIS  |
| 33  | CL    | 179 | HIS  |
| 33  | CL    | 191 | ASN  |
| 34  | CM    | 57  | ASN  |
| 34  | CM    | 63  | GLN  |
| 34  | CM    | 200 | HIS  |
| 34  | CM    | 208 | HIS  |
| 34  | CM    | 227 | GLN  |
| 34  | CM    | 251 | HIS  |
| 35  | CN    | 46  | ASN  |
| 35  | CN    | 79  | GLN  |
| 35  | CN    | 158 | GLN  |
| 47  | CO    | 58  | HIS  |
| 47  | CO    | 118 | HIS  |
| 47  | CO    | 121 | HIS  |
| 47  | CO    | 134 | ASN  |
| 37  | CP    | 49  | HIS  |
| 37  | CP    | 77  | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 37  | CP    | 90  | HIS  |
| 37  | CP    | 100 | ASN  |
| 37  | CP    | 112 | ASN  |
| 37  | CP    | 131 | ASN  |
| 38  | CQ    | 27  | HIS  |
| 38  | CQ    | 30  | ASN  |
| 38  | CQ    | 45  | ASN  |
| 38  | CQ    | 76  | HIS  |
| 38  | CQ    | 82  | GLN  |
| 38  | CQ    | 103 | ASN  |
| 38  | CQ    | 113 | ASN  |
| 38  | CQ    | 117 | GLN  |
| 38  | CQ    | 135 | HIS  |
| 38  | CQ    | 139 | ASN  |
| 38  | CQ    | 153 | GLN  |
| 39  | CR    | 44  | GLN  |
| 39  | CR    | 64  | HIS  |
| 39  | CR    | 145 | ASN  |
| 40  | CS    | 4   | HIS  |
| 40  | CS    | 43  | ASN  |
| 42  | CU    | 114 | ASN  |
| 43  | CV    | 90  | ASN  |
| 43  | CV    | 91  | GLN  |
| 43  | CV    | 107 | GLN  |
| 43  | CV    | 109 | HIS  |
| 43  | CV    | 139 | ASN  |
| 43  | CV    | 216 | HIS  |
| 43  | CV    | 219 | HIS  |
| 44  | CW    | 4   | GLN  |
| 44  | CW    | 14  | ASN  |
| 44  | CW    | 16  | HIS  |
| 44  | CW    | 20  | HIS  |
| 44  | CW    | 65  | ASN  |
| 44  | CW    | 94  | HIS  |
| 45  | CX    | 42  | ASN  |
| 45  | CX    | 67  | HIS  |
| 45  | CX    | 123 | ASN  |
| 45  | CX    | 125 | ASN  |
| 46  | CY    | 103 | ASN  |
| 2   | DA    | 12  | HIS  |
| 2   | DA    | 16  | HIS  |
| 2   | DA    | 28  | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | DB    | 4   | ASN  |
| 4   | DC    | 20  | ASN  |
| 4   | DC    | 34  | HIS  |
| 5   | DE    | 29  | HIS  |
| 5   | DE    | 92  | GLN  |
| 5   | DE    | 153 | GLN  |
| 5   | DE    | 182 | ASN  |
| 6   | DF    | 8   | GLN  |
| 6   | DF    | 42  | HIS  |
| 6   | DF    | 67  | GLN  |
| 7   | DG    | 68  | HIS  |
| 8   | DH    | 28  | HIS  |
| 8   | DH    | 69  | ASN  |
| 8   | DH    | 81  | HIS  |
| 8   | DH    | 94  | ASN  |
| 8   | DH    | 98  | GLN  |
| 8   | DH    | 111 | ASN  |
| 9   | DJ    | 50  | HIS  |
| 9   | DJ    | 118 | HIS  |
| 9   | DJ    | 144 | ASN  |
| 9   | DJ    | 145 | ASN  |
| 9   | DJ    | 156 | ASN  |
| 9   | DJ    | 162 | HIS  |
| 9   | DJ    | 187 | ASN  |
| 9   | DJ    | 225 | ASN  |
| 10  | DK    | 109 | ASN  |
| 11  | DL    | 50  | ASN  |
| 11  | DL    | 54  | ASN  |
| 12  | DM    | 14  | ASN  |
| 12  | DM    | 51  | ASN  |
| 12  | DM    | 55  | ASN  |
| 12  | DM    | 68  | GLN  |
| 13  | DN    | 15  | GLN  |
| 13  | DN    | 79  | HIS  |
| 13  | DN    | 126 | ASN  |
| 14  | DO    | 19  | ASN  |
| 14  | DO    | 46  | HIS  |
| 14  | DO    | 56  | GLN  |
| 14  | DO    | 88  | GLN  |
| 14  | DO    | 113 | ASN  |
| 14  | DO    | 115 | HIS  |
| 14  | DO    | 122 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 16  | DQ    | 23  | GLN  |
| 16  | DQ    | 25  | HIS  |
| 17  | DT    | 17  | HIS  |
| 17  | DT    | 49  | ASN  |
| 17  | DT    | 58  | ASN  |
| 18  | DU    | 3   | HIS  |
| 18  | DU    | 5   | ASN  |
| 18  | DU    | 6   | GLN  |
| 18  | DU    | 16  | GLN  |
| 18  | DU    | 26  | GLN  |
| 18  | DU    | 61  | GLN  |
| 18  | DU    | 101 | ASN  |
| 18  | DU    | 137 | ASN  |
| 18  | DU    | 148 | ASN  |
| 18  | DU    | 168 | ASN  |
| 18  | DU    | 187 | ASN  |
| 19  | DX    | 15  | GLN  |
| 19  | DX    | 20  | GLN  |
| 19  | DX    | 40  | GLN  |
| 19  | DX    | 50  | HIS  |
| 19  | DX    | 84  | ASN  |
| 19  | DX    | 114 | ASN  |
| 19  | DX    | 119 | GLN  |
| 19  | DX    | 136 | GLN  |
| 22  | EA    | 14  | ASN  |
| 22  | EA    | 20  | HIS  |
| 22  | EA    | 51  | HIS  |
| 22  | EA    | 206 | ASN  |
| 22  | EA    | 210 | HIS  |
| 22  | EA    | 222 | HIS  |
| 22  | EA    | 251 | GLN  |
| 23  | EB    | 24  | HIS  |
| 23  | EB    | 25  | HIS  |
| 23  | EB    | 55  | HIS  |
| 23  | EB    | 68  | ASN  |
| 23  | EB    | 124 | ASN  |
| 23  | EB    | 133 | HIS  |
| 23  | EB    | 163 | ASN  |
| 23  | EB    | 168 | ASN  |
| 23  | EB    | 174 | ASN  |
| 23  | EB    | 175 | HIS  |
| 23  | EB    | 210 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 23  | EB    | 235 | HIS  |
| 23  | EB    | 254 | HIS  |
| 23  | EB    | 271 | HIS  |
| 23  | EB    | 272 | HIS  |
| 23  | EB    | 277 | ASN  |
| 23  | EB    | 343 | GLN  |
| 24  | EC    | 6   | GLN  |
| 24  | EC    | 39  | HIS  |
| 24  | EC    | 67  | HIS  |
| 24  | EC    | 99  | ASN  |
| 24  | EC    | 100 | GLN  |
| 24  | EC    | 117 | HIS  |
| 24  | EC    | 123 | ASN  |
| 24  | EC    | 171 | GLN  |
| 24  | EC    | 203 | ASN  |
| 24  | EC    | 229 | ASN  |
| 24  | EC    | 242 | ASN  |
| 24  | EC    | 251 | HIS  |
| 24  | EC    | 292 | ASN  |
| 24  | EC    | 317 | HIS  |
| 25  | ED    | 7   | ASN  |
| 25  | ED    | 68  | HIS  |
| 25  | ED    | 95  | ASN  |
| 25  | ED    | 98  | ASN  |
| 25  | ED    | 152 | GLN  |
| 26  | EE    | 56  | GLN  |
| 26  | EE    | 160 | HIS  |
| 27  | EF    | 36  | GLN  |
| 27  | EF    | 54  | GLN  |
| 27  | EF    | 62  | GLN  |
| 27  | EF    | 71  | HIS  |
| 27  | EF    | 72  | GLN  |
| 27  | EF    | 107 | GLN  |
| 27  | EF    | 138 | ASN  |
| 27  | EF    | 166 | ASN  |
| 27  | EF    | 216 | ASN  |
| 27  | EF    | 232 | GLN  |
| 27  | EF    | 236 | HIS  |
| 29  | EH    | 59  | GLN  |
| 29  | EH    | 75  | ASN  |
| 29  | EH    | 86  | HIS  |
| 29  | EH    | 144 | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 30  | EI    | 13  | HIS  |
| 30  | EI    | 30  | GLN  |
| 30  | EI    | 49  | ASN  |
| 30  | EI    | 64  | ASN  |
| 30  | EI    | 89  | HIS  |
| 31  | EJ    | 32  | ASN  |
| 31  | EJ    | 102 | ASN  |
| 32  | EK    | 17  | HIS  |
| 32  | EK    | 19  | HIS  |
| 32  | EK    | 43  | HIS  |
| 32  | EK    | 51  | HIS  |
| 32  | EK    | 68  | ASN  |
| 32  | EK    | 120 | ASN  |
| 33  | EL    | 90  | ASN  |
| 33  | EL    | 144 | ASN  |
| 33  | EL    | 179 | HIS  |
| 33  | EL    | 191 | ASN  |
| 34  | EM    | 57  | ASN  |
| 34  | EM    | 200 | HIS  |
| 34  | EM    | 227 | GLN  |
| 34  | EM    | 251 | HIS  |
| 35  | EN    | 79  | GLN  |
| 35  | EN    | 158 | GLN  |
| 36  | EO    | 58  | HIS  |
| 36  | EO    | 99  | GLN  |
| 36  | EO    | 118 | HIS  |
| 36  | EO    | 121 | HIS  |
| 36  | EO    | 134 | ASN  |
| 37  | EP    | 49  | HIS  |
| 37  | EP    | 77  | HIS  |
| 37  | EP    | 90  | HIS  |
| 37  | EP    | 100 | ASN  |
| 37  | EP    | 112 | ASN  |
| 37  | EP    | 131 | ASN  |
| 38  | EQ    | 27  | HIS  |
| 38  | EQ    | 30  | ASN  |
| 38  | EQ    | 45  | ASN  |
| 38  | EQ    | 76  | HIS  |
| 38  | EQ    | 82  | GLN  |
| 38  | EQ    | 103 | ASN  |
| 38  | EQ    | 113 | ASN  |
| 38  | EQ    | 117 | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 38  | EQ    | 120 | GLN  |
| 38  | EQ    | 135 | HIS  |
| 38  | EQ    | 139 | ASN  |
| 38  | EQ    | 153 | GLN  |
| 39  | ER    | 64  | HIS  |
| 39  | ER    | 95  | HIS  |
| 39  | ER    | 145 | ASN  |
| 40  | ES    | 4   | HIS  |
| 40  | ES    | 18  | HIS  |
| 40  | ES    | 43  | ASN  |
| 42  | EU    | 114 | ASN  |
| 43  | EV    | 91  | GLN  |
| 43  | EV    | 107 | GLN  |
| 43  | EV    | 109 | HIS  |
| 43  | EV    | 139 | ASN  |
| 43  | EV    | 216 | HIS  |
| 43  | EV    | 219 | HIS  |
| 43  | EV    | 220 | GLN  |
| 44  | EW    | 4   | GLN  |
| 44  | EW    | 14  | ASN  |
| 44  | EW    | 16  | HIS  |
| 44  | EW    | 20  | HIS  |
| 44  | EW    | 65  | ASN  |
| 44  | EW    | 94  | HIS  |
| 45  | EX    | 42  | ASN  |
| 45  | EX    | 80  | ASN  |
| 45  | EX    | 123 | ASN  |
| 45  | EX    | 125 | ASN  |
| 46  | EY    | 103 | ASN  |
| 2   | FA    | 16  | HIS  |
| 2   | FA    | 28  | HIS  |
| 2   | FA    | 30  | GLN  |
| 3   | FB    | 4   | ASN  |
| 4   | FC    | 20  | ASN  |
| 5   | FE    | 29  | HIS  |
| 5   | FE    | 92  | GLN  |
| 5   | FE    | 153 | GLN  |
| 5   | FE    | 182 | ASN  |
| 6   | FF    | 8   | GLN  |
| 6   | FF    | 42  | HIS  |
| 6   | FF    | 67  | GLN  |
| 7   | FG    | 68  | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | FH    | 28  | HIS  |
| 8   | FH    | 69  | ASN  |
| 8   | FH    | 81  | HIS  |
| 8   | FH    | 94  | ASN  |
| 8   | FH    | 98  | GLN  |
| 9   | FJ    | 45  | HIS  |
| 9   | FJ    | 50  | HIS  |
| 9   | FJ    | 118 | HIS  |
| 9   | FJ    | 144 | ASN  |
| 9   | FJ    | 145 | ASN  |
| 9   | FJ    | 156 | ASN  |
| 9   | FJ    | 162 | HIS  |
| 9   | FJ    | 187 | ASN  |
| 9   | FJ    | 225 | ASN  |
| 10  | FK    | 109 | ASN  |
| 11  | FL    | 18  | ASN  |
| 11  | FL    | 54  | ASN  |
| 12  | FM    | 14  | ASN  |
| 12  | FM    | 51  | ASN  |
| 12  | FM    | 55  | ASN  |
| 12  | FM    | 68  | GLN  |
| 13  | FN    | 15  | GLN  |
| 13  | FN    | 79  | HIS  |
| 13  | FN    | 126 | ASN  |
| 14  | FO    | 19  | ASN  |
| 14  | FO    | 44  | HIS  |
| 14  | FO    | 46  | HIS  |
| 14  | FO    | 56  | GLN  |
| 14  | FO    | 68  | HIS  |
| 14  | FO    | 88  | GLN  |
| 14  | FO    | 113 | ASN  |
| 14  | FO    | 115 | HIS  |
| 14  | FO    | 118 | ASN  |
| 14  | FO    | 122 | GLN  |
| 16  | FQ    | 23  | GLN  |
| 16  | FQ    | 25  | HIS  |
| 17  | FT    | 17  | HIS  |
| 17  | FT    | 49  | ASN  |
| 17  | FT    | 58  | ASN  |
| 18  | FU    | 3   | HIS  |
| 18  | FU    | 5   | ASN  |
| 18  | FU    | 15  | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18  | FU    | 16  | GLN  |
| 18  | FU    | 61  | GLN  |
| 18  | FU    | 76  | GLN  |
| 18  | FU    | 101 | ASN  |
| 18  | FU    | 137 | ASN  |
| 18  | FU    | 168 | ASN  |
| 18  | FU    | 187 | ASN  |
| 19  | FX    | 15  | GLN  |
| 19  | FX    | 20  | GLN  |
| 19  | FX    | 40  | GLN  |
| 19  | FX    | 50  | HIS  |
| 19  | FX    | 76  | ASN  |
| 19  | FX    | 84  | ASN  |
| 19  | FX    | 114 | ASN  |
| 19  | FX    | 119 | GLN  |
| 19  | FX    | 136 | GLN  |
| 22  | GA    | 14  | ASN  |
| 22  | GA    | 20  | HIS  |
| 22  | GA    | 51  | HIS  |
| 22  | GA    | 206 | ASN  |
| 22  | GA    | 210 | HIS  |
| 22  | GA    | 222 | HIS  |
| 22  | GA    | 251 | GLN  |
| 23  | GB    | 24  | HIS  |
| 23  | GB    | 25  | HIS  |
| 23  | GB    | 55  | HIS  |
| 23  | GB    | 68  | ASN  |
| 23  | GB    | 121 | ASN  |
| 23  | GB    | 133 | HIS  |
| 23  | GB    | 163 | ASN  |
| 23  | GB    | 168 | ASN  |
| 23  | GB    | 171 | GLN  |
| 23  | GB    | 174 | ASN  |
| 23  | GB    | 175 | HIS  |
| 23  | GB    | 210 | ASN  |
| 23  | GB    | 235 | HIS  |
| 23  | GB    | 254 | HIS  |
| 23  | GB    | 271 | HIS  |
| 23  | GB    | 272 | HIS  |
| 23  | GB    | 277 | ASN  |
| 23  | GB    | 343 | GLN  |
| 24  | GC    | 6   | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 24  | GC    | 67  | HIS  |
| 24  | GC    | 99  | ASN  |
| 24  | GC    | 100 | GLN  |
| 24  | GC    | 117 | HIS  |
| 24  | GC    | 123 | ASN  |
| 24  | GC    | 171 | GLN  |
| 24  | GC    | 229 | ASN  |
| 24  | GC    | 242 | ASN  |
| 24  | GC    | 292 | ASN  |
| 24  | GC    | 317 | HIS  |
| 25  | GD    | 7   | ASN  |
| 25  | GD    | 43  | GLN  |
| 25  | GD    | 68  | HIS  |
| 25  | GD    | 95  | ASN  |
| 25  | GD    | 152 | GLN  |
| 26  | GE    | 56  | GLN  |
| 26  | GE    | 74  | GLN  |
| 26  | GE    | 100 | GLN  |
| 26  | GE    | 160 | HIS  |
| 27  | GF    | 36  | GLN  |
| 27  | GF    | 54  | GLN  |
| 27  | GF    | 62  | GLN  |
| 27  | GF    | 69  | GLN  |
| 27  | GF    | 71  | HIS  |
| 27  | GF    | 72  | GLN  |
| 27  | GF    | 107 | GLN  |
| 27  | GF    | 138 | ASN  |
| 27  | GF    | 166 | ASN  |
| 27  | GF    | 216 | ASN  |
| 27  | GF    | 232 | GLN  |
| 27  | GF    | 236 | HIS  |
| 29  | GH    | 59  | GLN  |
| 29  | GH    | 75  | ASN  |
| 29  | GH    | 86  | HIS  |
| 29  | GH    | 144 | HIS  |
| 30  | GI    | 13  | HIS  |
| 30  | GI    | 30  | GLN  |
| 30  | GI    | 49  | ASN  |
| 30  | GI    | 62  | ASN  |
| 30  | GI    | 64  | ASN  |
| 30  | GI    | 89  | HIS  |
| 31  | GJ    | 32  | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 31  | GJ    | 102 | ASN  |
| 32  | GK    | 14  | HIS  |
| 32  | GK    | 17  | HIS  |
| 32  | GK    | 19  | HIS  |
| 32  | GK    | 43  | HIS  |
| 32  | GK    | 51  | HIS  |
| 32  | GK    | 120 | ASN  |
| 33  | GL    | 90  | ASN  |
| 33  | GL    | 144 | ASN  |
| 33  | GL    | 158 | HIS  |
| 33  | GL    | 179 | HIS  |
| 33  | GL    | 191 | ASN  |
| 34  | GM    | 39  | GLN  |
| 34  | GM    | 57  | ASN  |
| 34  | GM    | 200 | HIS  |
| 34  | GM    | 227 | GLN  |
| 34  | GM    | 251 | HIS  |
| 35  | GN    | 46  | ASN  |
| 35  | GN    | 79  | GLN  |
| 36  | GO    | 99  | GLN  |
| 36  | GO    | 118 | HIS  |
| 36  | GO    | 134 | ASN  |
| 37  | GP    | 49  | HIS  |
| 37  | GP    | 77  | HIS  |
| 37  | GP    | 90  | HIS  |
| 37  | GP    | 100 | ASN  |
| 37  | GP    | 110 | GLN  |
| 37  | GP    | 112 | ASN  |
| 37  | GP    | 131 | ASN  |
| 38  | GQ    | 27  | HIS  |
| 38  | GQ    | 30  | ASN  |
| 38  | GQ    | 45  | ASN  |
| 38  | GQ    | 76  | HIS  |
| 38  | GQ    | 82  | GLN  |
| 38  | GQ    | 103 | ASN  |
| 38  | GQ    | 113 | ASN  |
| 38  | GQ    | 117 | GLN  |
| 38  | GQ    | 120 | GLN  |
| 38  | GQ    | 135 | HIS  |
| 38  | GQ    | 139 | ASN  |
| 38  | GQ    | 153 | GLN  |
| 39  | GR    | 44  | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 39  | GR    | 64  | HIS  |
| 39  | GR    | 145 | ASN  |
| 40  | GS    | 4   | HIS  |
| 40  | GS    | 18  | HIS  |
| 40  | GS    | 43  | ASN  |
| 42  | GU    | 63  | ASN  |
| 42  | GU    | 114 | ASN  |
| 43  | GV    | 46  | GLN  |
| 43  | GV    | 91  | GLN  |
| 43  | GV    | 107 | GLN  |
| 43  | GV    | 109 | HIS  |
| 43  | GV    | 139 | ASN  |
| 43  | GV    | 216 | HIS  |
| 43  | GV    | 219 | HIS  |
| 43  | GV    | 220 | GLN  |
| 44  | GW    | 4   | GLN  |
| 44  | GW    | 14  | ASN  |
| 44  | GW    | 16  | HIS  |
| 44  | GW    | 20  | HIS  |
| 44  | GW    | 65  | ASN  |
| 44  | GW    | 94  | HIS  |
| 45  | GX    | 42  | ASN  |
| 45  | GX    | 80  | ASN  |
| 45  | GX    | 123 | ASN  |
| 45  | GX    | 125 | ASN  |
| 46  | GY    | 103 | ASN  |
| 2   | HA    | 12  | HIS  |
| 2   | HA    | 16  | HIS  |
| 2   | HA    | 28  | HIS  |
| 3   | HB    | 4   | ASN  |
| 5   | HE    | 29  | HIS  |
| 5   | HE    | 92  | GLN  |
| 5   | HE    | 153 | GLN  |
| 5   | HE    | 182 | ASN  |
| 5   | HE    | 187 | HIS  |
| 6   | HF    | 8   | GLN  |
| 6   | HF    | 67  | GLN  |
| 7   | HG    | 68  | HIS  |
| 8   | HH    | 28  | HIS  |
| 8   | HH    | 69  | ASN  |
| 8   | HH    | 81  | HIS  |
| 8   | HH    | 83  | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 8   | HH    | 94  | ASN  |
| 8   | HH    | 98  | GLN  |
| 8   | HH    | 111 | ASN  |
| 9   | HJ    | 45  | HIS  |
| 9   | HJ    | 50  | HIS  |
| 9   | HJ    | 118 | HIS  |
| 9   | HJ    | 144 | ASN  |
| 9   | HJ    | 145 | ASN  |
| 9   | HJ    | 156 | ASN  |
| 9   | HJ    | 162 | HIS  |
| 9   | HJ    | 187 | ASN  |
| 9   | HJ    | 225 | ASN  |
| 10  | HK    | 109 | ASN  |
| 10  | HK    | 119 | ASN  |
| 11  | HL    | 18  | ASN  |
| 11  | HL    | 50  | ASN  |
| 11  | HL    | 54  | ASN  |
| 12  | HM    | 14  | ASN  |
| 12  | HM    | 51  | ASN  |
| 12  | HM    | 55  | ASN  |
| 12  | HM    | 68  | GLN  |
| 13  | HN    | 79  | HIS  |
| 13  | HN    | 126 | ASN  |
| 14  | HO    | 19  | ASN  |
| 14  | HO    | 44  | HIS  |
| 14  | HO    | 46  | HIS  |
| 14  | HO    | 56  | GLN  |
| 14  | HO    | 88  | GLN  |
| 14  | HO    | 113 | ASN  |
| 14  | HO    | 115 | HIS  |
| 14  | HO    | 122 | GLN  |
| 17  | HT    | 17  | HIS  |
| 17  | HT    | 49  | ASN  |
| 17  | HT    | 58  | ASN  |
| 18  | HU    | 3   | HIS  |
| 18  | HU    | 5   | ASN  |
| 18  | HU    | 6   | GLN  |
| 18  | HU    | 15  | HIS  |
| 18  | HU    | 16  | GLN  |
| 18  | HU    | 61  | GLN  |
| 18  | HU    | 64  | ASN  |
| 18  | HU    | 101 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 18  | HU    | 137 | ASN  |
| 18  | HU    | 148 | ASN  |
| 18  | HU    | 168 | ASN  |
| 18  | HU    | 187 | ASN  |
| 19  | HX    | 15  | GLN  |
| 19  | HX    | 20  | GLN  |
| 19  | HX    | 40  | GLN  |
| 19  | HX    | 50  | HIS  |
| 19  | HX    | 58  | ASN  |
| 19  | HX    | 76  | ASN  |
| 19  | HX    | 84  | ASN  |
| 19  | HX    | 114 | ASN  |
| 19  | HX    | 119 | GLN  |
| 19  | HX    | 122 | GLN  |
| 19  | HX    | 136 | GLN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed          | Backbone Outliers | Pucker Outliers |
|-----|-------|-------------------|-------------------|-----------------|
| 1   | A1    | 3114/3354 (92%)   | 1122 (36%)        | 209 (6%)        |
| 1   | D1    | 3114/3354 (92%)   | 1117 (35%)        | 215 (6%)        |
| 1   | F1    | 3114/3354 (92%)   | 1116 (35%)        | 211 (6%)        |
| 1   | H1    | 3114/3354 (92%)   | 1117 (35%)        | 210 (6%)        |
| 20  | B2    | 154/154 (100%)    | 58 (37%)          | 13 (8%)         |
| 20  | C2    | 154/154 (100%)    | 60 (38%)          | 13 (8%)         |
| 20  | E2    | 154/154 (100%)    | 60 (38%)          | 13 (8%)         |
| 20  | G2    | 154/154 (100%)    | 60 (38%)          | 13 (8%)         |
| 21  | B3    | 119/120 (99%)     | 38 (31%)          | 1 (0%)          |
| 21  | C3    | 119/120 (99%)     | 39 (32%)          | 1 (0%)          |
| 21  | E3    | 119/120 (99%)     | 38 (31%)          | 1 (0%)          |
| 21  | G3    | 119/120 (99%)     | 38 (31%)          | 1 (0%)          |
| All | All   | 13548/14512 (93%) | 4863 (35%)        | 901 (6%)        |

All (4863) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 9   | G    |
| 1   | A1    | 16  | G    |
| 1   | A1    | 17  | C    |
| 1   | A1    | 19  | A    |
| 1   | A1    | 20  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 24  | A    |
| 1   | A1    | 27  | C    |
| 1   | A1    | 32  | A    |
| 1   | A1    | 36  | U    |
| 1   | A1    | 38  | A    |
| 1   | A1    | 41  | A    |
| 1   | A1    | 43  | A    |
| 1   | A1    | 47  | G    |
| 1   | A1    | 48  | U    |
| 1   | A1    | 57  | G    |
| 1   | A1    | 58  | A    |
| 1   | A1    | 63  | A    |
| 1   | A1    | 64  | A    |
| 1   | A1    | 66  | C    |
| 1   | A1    | 67  | U    |
| 1   | A1    | 69  | A    |
| 1   | A1    | 70  | C    |
| 1   | A1    | 71  | U    |
| 1   | A1    | 72  | A    |
| 1   | A1    | 74  | G    |
| 1   | A1    | 75  | A    |
| 1   | A1    | 81  | C    |
| 1   | A1    | 83  | A    |
| 1   | A1    | 84  | G    |
| 1   | A1    | 87  | A    |
| 1   | A1    | 89  | G    |
| 1   | A1    | 90  | G    |
| 1   | A1    | 92  | G    |
| 1   | A1    | 93  | A    |
| 1   | A1    | 95  | U    |
| 1   | A1    | 97  | A    |
| 1   | A1    | 107 | A    |
| 1   | A1    | 108 | G    |
| 1   | A1    | 112 | A    |
| 1   | A1    | 114 | A    |
| 1   | A1    | 115 | G    |
| 1   | A1    | 116 | U    |
| 1   | A1    | 118 | A    |
| 1   | A1    | 119 | A    |
| 1   | A1    | 120 | A    |
| 1   | A1    | 121 | A    |
| 1   | A1    | 122 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 127 | A    |
| 1   | A1    | 128 | G    |
| 1   | A1    | 130 | G    |
| 1   | A1    | 133 | C    |
| 1   | A1    | 134 | A    |
| 1   | A1    | 135 | A    |
| 1   | A1    | 136 | C    |
| 1   | A1    | 137 | A    |
| 1   | A1    | 138 | C    |
| 1   | A1    | 139 | A    |
| 1   | A1    | 143 | G    |
| 1   | A1    | 147 | U    |
| 1   | A1    | 148 | G    |
| 1   | A1    | 149 | U    |
| 1   | A1    | 152 | U    |
| 1   | A1    | 156 | A    |
| 1   | A1    | 157 | A    |
| 1   | A1    | 162 | C    |
| 1   | A1    | 166 | C    |
| 1   | A1    | 169 | A    |
| 1   | A1    | 174 | A    |
| 1   | A1    | 176 | G    |
| 1   | A1    | 177 | C    |
| 1   | A1    | 182 | C    |
| 1   | A1    | 188 | A    |
| 1   | A1    | 189 | G    |
| 1   | A1    | 190 | U    |
| 1   | A1    | 191 | U    |
| 1   | A1    | 193 | C    |
| 1   | A1    | 196 | G    |
| 1   | A1    | 201 | A    |
| 1   | A1    | 203 | G    |
| 1   | A1    | 205 | C    |
| 1   | A1    | 207 | U    |
| 1   | A1    | 211 | A    |
| 1   | A1    | 215 | G    |
| 1   | A1    | 217 | U    |
| 1   | A1    | 218 | G    |
| 1   | A1    | 219 | A    |
| 1   | A1    | 220 | C    |
| 1   | A1    | 221 | A    |
| 1   | A1    | 223 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 224 | C    |
| 1   | A1    | 227 | G    |
| 1   | A1    | 231 | U    |
| 1   | A1    | 232 | C    |
| 1   | A1    | 233 | G    |
| 1   | A1    | 240 | A    |
| 1   | A1    | 241 | A    |
| 1   | A1    | 242 | G    |
| 1   | A1    | 243 | G    |
| 1   | A1    | 250 | U    |
| 1   | A1    | 252 | A    |
| 1   | A1    | 254 | G    |
| 1   | A1    | 255 | G    |
| 1   | A1    | 258 | A    |
| 1   | A1    | 261 | U    |
| 1   | A1    | 262 | C    |
| 1   | A1    | 264 | A    |
| 1   | A1    | 265 | A    |
| 1   | A1    | 268 | G    |
| 1   | A1    | 271 | G    |
| 1   | A1    | 281 | G    |
| 1   | A1    | 282 | G    |
| 1   | A1    | 283 | A    |
| 1   | A1    | 284 | U    |
| 1   | A1    | 289 | G    |
| 1   | A1    | 292 | C    |
| 1   | A1    | 293 | U    |
| 1   | A1    | 294 | A    |
| 1   | A1    | 297 | U    |
| 1   | A1    | 299 | G    |
| 1   | A1    | 300 | G    |
| 1   | A1    | 304 | U    |
| 1   | A1    | 305 | A    |
| 1   | A1    | 307 | A    |
| 1   | A1    | 315 | U    |
| 1   | A1    | 328 | A    |
| 1   | A1    | 329 | C    |
| 1   | A1    | 332 | G    |
| 1   | A1    | 333 | G    |
| 1   | A1    | 334 | G    |
| 1   | A1    | 335 | A    |
| 1   | A1    | 337 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 338 | C    |
| 1   | A1    | 339 | C    |
| 1   | A1    | 340 | G    |
| 1   | A1    | 341 | A    |
| 1   | A1    | 351 | A    |
| 1   | A1    | 352 | G    |
| 1   | A1    | 361 | A    |
| 1   | A1    | 362 | G    |
| 1   | A1    | 363 | G    |
| 1   | A1    | 368 | A    |
| 1   | A1    | 369 | U    |
| 1   | A1    | 370 | G    |
| 1   | A1    | 373 | A    |
| 1   | A1    | 374 | A    |
| 1   | A1    | 375 | G    |
| 1   | A1    | 376 | A    |
| 1   | A1    | 377 | A    |
| 1   | A1    | 383 | A    |
| 1   | A1    | 385 | A    |
| 1   | A1    | 386 | A    |
| 1   | A1    | 389 | G    |
| 1   | A1    | 396 | A    |
| 1   | A1    | 397 | A    |
| 1   | A1    | 399 | A    |
| 1   | A1    | 400 | C    |
| 1   | A1    | 414 | G    |
| 1   | A1    | 416 | A    |
| 1   | A1    | 418 | G    |
| 1   | A1    | 419 | A    |
| 1   | A1    | 432 | G    |
| 1   | A1    | 433 | C    |
| 1   | A1    | 434 | A    |
| 1   | A1    | 435 | A    |
| 1   | A1    | 438 | A    |
| 1   | A1    | 439 | A    |
| 1   | A1    | 440 | C    |
| 1   | A1    | 442 | G    |
| 1   | A1    | 448 | C    |
| 1   | A1    | 449 | G    |
| 1   | A1    | 450 | C    |
| 1   | A1    | 451 | A    |
| 1   | A1    | 453 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 460 | A    |
| 1   | A1    | 461 | A    |
| 1   | A1    | 465 | C    |
| 1   | A1    | 466 | U    |
| 1   | A1    | 467 | A    |
| 1   | A1    | 469 | U    |
| 1   | A1    | 470 | C    |
| 1   | A1    | 471 | A    |
| 1   | A1    | 472 | C    |
| 1   | A1    | 486 | C    |
| 1   | A1    | 487 | G    |
| 1   | A1    | 489 | A    |
| 1   | A1    | 490 | A    |
| 1   | A1    | 492 | A    |
| 1   | A1    | 498 | A    |
| 1   | A1    | 499 | U    |
| 1   | A1    | 501 | A    |
| 1   | A1    | 502 | G    |
| 1   | A1    | 503 | U    |
| 1   | A1    | 505 | A    |
| 1   | A1    | 507 | G    |
| 1   | A1    | 516 | C    |
| 1   | A1    | 517 | A    |
| 1   | A1    | 518 | G    |
| 1   | A1    | 519 | A    |
| 1   | A1    | 521 | C    |
| 1   | A1    | 523 | U    |
| 1   | A1    | 525 | C    |
| 1   | A1    | 526 | U    |
| 1   | A1    | 527 | A    |
| 1   | A1    | 528 | C    |
| 1   | A1    | 532 | G    |
| 1   | A1    | 533 | G    |
| 1   | A1    | 539 | A    |
| 1   | A1    | 541 | A    |
| 1   | A1    | 543 | A    |
| 1   | A1    | 552 | U    |
| 1   | A1    | 556 | A    |
| 1   | A1    | 562 | G    |
| 1   | A1    | 564 | A    |
| 1   | A1    | 565 | G    |
| 1   | A1    | 566 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 567 | C    |
| 1   | A1    | 568 | A    |
| 1   | A1    | 572 | G    |
| 1   | A1    | 576 | U    |
| 1   | A1    | 578 | G    |
| 1   | A1    | 579 | G    |
| 1   | A1    | 580 | G    |
| 1   | A1    | 582 | A    |
| 1   | A1    | 584 | C    |
| 1   | A1    | 586 | A    |
| 1   | A1    | 587 | U    |
| 1   | A1    | 591 | G    |
| 1   | A1    | 592 | A    |
| 1   | A1    | 595 | A    |
| 1   | A1    | 599 | G    |
| 1   | A1    | 600 | G    |
| 1   | A1    | 611 | A    |
| 1   | A1    | 612 | C    |
| 1   | A1    | 614 | G    |
| 1   | A1    | 615 | G    |
| 1   | A1    | 618 | U    |
| 1   | A1    | 620 | A    |
| 1   | A1    | 622 | G    |
| 1   | A1    | 623 | G    |
| 1   | A1    | 625 | C    |
| 1   | A1    | 626 | C    |
| 1   | A1    | 627 | U    |
| 1   | A1    | 628 | A    |
| 1   | A1    | 629 | A    |
| 1   | A1    | 631 | G    |
| 1   | A1    | 634 | G    |
| 1   | A1    | 635 | A    |
| 1   | A1    | 636 | U    |
| 1   | A1    | 643 | A    |
| 1   | A1    | 644 | A    |
| 1   | A1    | 645 | A    |
| 1   | A1    | 646 | A    |
| 1   | A1    | 660 | C    |
| 1   | A1    | 661 | C    |
| 1   | A1    | 662 | C    |
| 1   | A1    | 663 | G    |
| 1   | A1    | 666 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 673 | A    |
| 1   | A1    | 684 | A    |
| 1   | A1    | 685 | G    |
| 1   | A1    | 686 | U    |
| 1   | A1    | 697 | A    |
| 1   | A1    | 701 | A    |
| 1   | A1    | 709 | G    |
| 1   | A1    | 711 | U    |
| 1   | A1    | 719 | C    |
| 1   | A1    | 720 | C    |
| 1   | A1    | 723 | U    |
| 1   | A1    | 724 | C    |
| 1   | A1    | 728 | G    |
| 1   | A1    | 729 | A    |
| 1   | A1    | 730 | A    |
| 1   | A1    | 733 | G    |
| 1   | A1    | 737 | G    |
| 1   | A1    | 740 | A    |
| 1   | A1    | 741 | G    |
| 1   | A1    | 742 | U    |
| 1   | A1    | 743 | A    |
| 1   | A1    | 745 | A    |
| 1   | A1    | 747 | G    |
| 1   | A1    | 751 | C    |
| 1   | A1    | 753 | A    |
| 1   | A1    | 757 | C    |
| 1   | A1    | 761 | A    |
| 1   | A1    | 767 | C    |
| 1   | A1    | 773 | C    |
| 1   | A1    | 775 | C    |
| 1   | A1    | 777 | C    |
| 1   | A1    | 788 | C    |
| 1   | A1    | 789 | U    |
| 1   | A1    | 790 | C    |
| 1   | A1    | 791 | C    |
| 1   | A1    | 792 | G    |
| 1   | A1    | 799 | G    |
| 1   | A1    | 800 | G    |
| 1   | A1    | 801 | U    |
| 1   | A1    | 803 | C    |
| 1   | A1    | 805 | A    |
| 1   | A1    | 806 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 807 | G    |
| 1   | A1    | 810 | G    |
| 1   | A1    | 811 | A    |
| 1   | A1    | 821 | U    |
| 1   | A1    | 825 | G    |
| 1   | A1    | 827 | C    |
| 1   | A1    | 831 | A    |
| 1   | A1    | 833 | A    |
| 1   | A1    | 840 | G    |
| 1   | A1    | 842 | A    |
| 1   | A1    | 847 | G    |
| 1   | A1    | 855 | A    |
| 1   | A1    | 861 | A    |
| 1   | A1    | 862 | A    |
| 1   | A1    | 863 | G    |
| 1   | A1    | 869 | G    |
| 1   | A1    | 870 | G    |
| 1   | A1    | 872 | A    |
| 1   | A1    | 873 | A    |
| 1   | A1    | 881 | G    |
| 1   | A1    | 883 | A    |
| 1   | A1    | 886 | C    |
| 1   | A1    | 894 | G    |
| 1   | A1    | 896 | U    |
| 1   | A1    | 898 | C    |
| 1   | A1    | 899 | U    |
| 1   | A1    | 904 | U    |
| 1   | A1    | 905 | G    |
| 1   | A1    | 908 | A    |
| 1   | A1    | 919 | A    |
| 1   | A1    | 921 | A    |
| 1   | A1    | 922 | U    |
| 1   | A1    | 930 | U    |
| 1   | A1    | 932 | G    |
| 1   | A1    | 933 | G    |
| 1   | A1    | 934 | G    |
| 1   | A1    | 935 | G    |
| 1   | A1    | 939 | A    |
| 1   | A1    | 940 | A    |
| 1   | A1    | 941 | G    |
| 1   | A1    | 942 | A    |
| 1   | A1    | 944 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 946  | A    |
| 1   | A1    | 948  | C    |
| 1   | A1    | 957  | U    |
| 1   | A1    | 958  | A    |
| 1   | A1    | 959  | G    |
| 1   | A1    | 961  | A    |
| 1   | A1    | 962  | G    |
| 1   | A1    | 969  | C    |
| 1   | A1    | 972  | U    |
| 1   | A1    | 973  | C    |
| 1   | A1    | 978  | G    |
| 1   | A1    | 983  | U    |
| 1   | A1    | 984  | C    |
| 1   | A1    | 985  | U    |
| 1   | A1    | 986  | C    |
| 1   | A1    | 987  | A    |
| 1   | A1    | 988  | G    |
| 1   | A1    | 989  | G    |
| 1   | A1    | 990  | A    |
| 1   | A1    | 992  | A    |
| 1   | A1    | 999  | G    |
| 1   | A1    | 1003 | G    |
| 1   | A1    | 1004 | U    |
| 1   | A1    | 1005 | A    |
| 1   | A1    | 1006 | C    |
| 1   | A1    | 1007 | G    |
| 1   | A1    | 1008 | C    |
| 1   | A1    | 1012 | U    |
| 1   | A1    | 1017 | U    |
| 1   | A1    | 1018 | A    |
| 1   | A1    | 1019 | G    |
| 1   | A1    | 1020 | G    |
| 1   | A1    | 1021 | U    |
| 1   | A1    | 1027 | G    |
| 1   | A1    | 1028 | A    |
| 1   | A1    | 1031 | G    |
| 1   | A1    | 1034 | U    |
| 1   | A1    | 1035 | A    |
| 1   | A1    | 1036 | G    |
| 1   | A1    | 1039 | G    |
| 1   | A1    | 1040 | A    |
| 1   | A1    | 1041 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1042 | U    |
| 1   | A1    | 1048 | U    |
| 1   | A1    | 1052 | A    |
| 1   | A1    | 1054 | G    |
| 1   | A1    | 1058 | C    |
| 1   | A1    | 1060 | C    |
| 1   | A1    | 1061 | G    |
| 1   | A1    | 1063 | C    |
| 1   | A1    | 1066 | A    |
| 1   | A1    | 1067 | U    |
| 1   | A1    | 1072 | A    |
| 1   | A1    | 1073 | A    |
| 1   | A1    | 1074 | A    |
| 1   | A1    | 1075 | C    |
| 1   | A1    | 1083 | U    |
| 1   | A1    | 1085 | G    |
| 1   | A1    | 1087 | A    |
| 1   | A1    | 1090 | A    |
| 1   | A1    | 1091 | G    |
| 1   | A1    | 1092 | C    |
| 1   | A1    | 1095 | C    |
| 1   | A1    | 1096 | G    |
| 1   | A1    | 1097 | G    |
| 1   | A1    | 1098 | A    |
| 1   | A1    | 1099 | G    |
| 1   | A1    | 1101 | U    |
| 1   | A1    | 1102 | U    |
| 1   | A1    | 1103 | A    |
| 1   | A1    | 1104 | C    |
| 1   | A1    | 1108 | A    |
| 1   | A1    | 1109 | A    |
| 1   | A1    | 1110 | U    |
| 1   | A1    | 1111 | G    |
| 1   | A1    | 1115 | U    |
| 1   | A1    | 1116 | C    |
| 1   | A1    | 1122 | A    |
| 1   | A1    | 1123 | A    |
| 1   | A1    | 1124 | G    |
| 1   | A1    | 1125 | A    |
| 1   | A1    | 1129 | C    |
| 1   | A1    | 1130 | A    |
| 1   | A1    | 1131 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1132 | U    |
| 1   | A1    | 1135 | U    |
| 1   | A1    | 1142 | G    |
| 1   | A1    | 1143 | G    |
| 1   | A1    | 1144 | G    |
| 1   | A1    | 1151 | U    |
| 1   | A1    | 1155 | U    |
| 1   | A1    | 1158 | G    |
| 1   | A1    | 1159 | C    |
| 1   | A1    | 1161 | G    |
| 1   | A1    | 1166 | G    |
| 1   | A1    | 1169 | G    |
| 1   | A1    | 1170 | A    |
| 1   | A1    | 1176 | G    |
| 1   | A1    | 1178 | U    |
| 1   | A1    | 1180 | A    |
| 1   | A1    | 1181 | A    |
| 1   | A1    | 1182 | C    |
| 1   | A1    | 1184 | U    |
| 1   | A1    | 1185 | A    |
| 1   | A1    | 1186 | A    |
| 1   | A1    | 1187 | C    |
| 1   | A1    | 1198 | G    |
| 1   | A1    | 1199 | G    |
| 1   | A1    | 1202 | C    |
| 1   | A1    | 1203 | C    |
| 1   | A1    | 1204 | C    |
| 1   | A1    | 1205 | A    |
| 1   | A1    | 1206 | A    |
| 1   | A1    | 1207 | A    |
| 1   | A1    | 1208 | U    |
| 1   | A1    | 1209 | G    |
| 1   | A1    | 1212 | C    |
| 1   | A1    | 1213 | G    |
| 1   | A1    | 1216 | C    |
| 1   | A1    | 1217 | A    |
| 1   | A1    | 1218 | U    |
| 1   | A1    | 1219 | C    |
| 1   | A1    | 1220 | A    |
| 1   | A1    | 1224 | A    |
| 1   | A1    | 1226 | C    |
| 1   | A1    | 1227 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1228 | C    |
| 1   | A1    | 1233 | G    |
| 1   | A1    | 1234 | G    |
| 1   | A1    | 1235 | U    |
| 1   | A1    | 1236 | G    |
| 1   | A1    | 1243 | C    |
| 1   | A1    | 1244 | A    |
| 1   | A1    | 1245 | U    |
| 1   | A1    | 1246 | A    |
| 1   | A1    | 1248 | G    |
| 1   | A1    | 1249 | G    |
| 1   | A1    | 1250 | A    |
| 1   | A1    | 1255 | A    |
| 1   | A1    | 1257 | G    |
| 1   | A1    | 1309 | G    |
| 1   | A1    | 1313 | A    |
| 1   | A1    | 1314 | A    |
| 1   | A1    | 1316 | G    |
| 1   | A1    | 1319 | C    |
| 1   | A1    | 1334 | G    |
| 1   | A1    | 1335 | A    |
| 1   | A1    | 1336 | U    |
| 1   | A1    | 1339 | C    |
| 1   | A1    | 1340 | G    |
| 1   | A1    | 1343 | G    |
| 1   | A1    | 1344 | A    |
| 1   | A1    | 1351 | U    |
| 1   | A1    | 1353 | G    |
| 1   | A1    | 1356 | G    |
| 1   | A1    | 1357 | A    |
| 1   | A1    | 1358 | U    |
| 1   | A1    | 1361 | U    |
| 1   | A1    | 1363 | A    |
| 1   | A1    | 1371 | G    |
| 1   | A1    | 1374 | C    |
| 1   | A1    | 1375 | A    |
| 1   | A1    | 1376 | A    |
| 1   | A1    | 1377 | A    |
| 1   | A1    | 1378 | U    |
| 1   | A1    | 1380 | C    |
| 1   | A1    | 1381 | G    |
| 1   | A1    | 1382 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1383 | G    |
| 1   | A1    | 1384 | G    |
| 1   | A1    | 1387 | U    |
| 1   | A1    | 1392 | G    |
| 1   | A1    | 1395 | U    |
| 1   | A1    | 1399 | A    |
| 1   | A1    | 1400 | G    |
| 1   | A1    | 1401 | G    |
| 1   | A1    | 1403 | C    |
| 1   | A1    | 1405 | U    |
| 1   | A1    | 1406 | G    |
| 1   | A1    | 1410 | G    |
| 1   | A1    | 1413 | G    |
| 1   | A1    | 1416 | U    |
| 1   | A1    | 1424 | U    |
| 1   | A1    | 1425 | U    |
| 1   | A1    | 1426 | G    |
| 1   | A1    | 1430 | G    |
| 1   | A1    | 1431 | U    |
| 1   | A1    | 1434 | G    |
| 1   | A1    | 1435 | C    |
| 1   | A1    | 1437 | U    |
| 1   | A1    | 1445 | G    |
| 1   | A1    | 1446 | C    |
| 1   | A1    | 1456 | U    |
| 1   | A1    | 1460 | G    |
| 1   | A1    | 1461 | A    |
| 1   | A1    | 1463 | C    |
| 1   | A1    | 1468 | U    |
| 1   | A1    | 1469 | G    |
| 1   | A1    | 1472 | A    |
| 1   | A1    | 1478 | A    |
| 1   | A1    | 1479 | A    |
| 1   | A1    | 1481 | U    |
| 1   | A1    | 1482 | A    |
| 1   | A1    | 1494 | A    |
| 1   | A1    | 1495 | C    |
| 1   | A1    | 1496 | U    |
| 1   | A1    | 1507 | A    |
| 1   | A1    | 1508 | A    |
| 1   | A1    | 1509 | G    |
| 1   | A1    | 1521 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1528 | G    |
| 1   | A1    | 1533 | G    |
| 1   | A1    | 1534 | C    |
| 1   | A1    | 1537 | U    |
| 1   | A1    | 1538 | U    |
| 1   | A1    | 1539 | G    |
| 1   | A1    | 1540 | U    |
| 1   | A1    | 1545 | G    |
| 1   | A1    | 1547 | G    |
| 1   | A1    | 1548 | U    |
| 1   | A1    | 1549 | U    |
| 1   | A1    | 1551 | C    |
| 1   | A1    | 1552 | U    |
| 1   | A1    | 1562 | G    |
| 1   | A1    | 1575 | U    |
| 1   | A1    | 1578 | U    |
| 1   | A1    | 1581 | C    |
| 1   | A1    | 1582 | A    |
| 1   | A1    | 1583 | A    |
| 1   | A1    | 1584 | U    |
| 1   | A1    | 1585 | A    |
| 1   | A1    | 1587 | A    |
| 1   | A1    | 1588 | A    |
| 1   | A1    | 1589 | G    |
| 1   | A1    | 1595 | A    |
| 1   | A1    | 1596 | U    |
| 1   | A1    | 1597 | U    |
| 1   | A1    | 1599 | G    |
| 1   | A1    | 1600 | U    |
| 1   | A1    | 1605 | G    |
| 1   | A1    | 1606 | U    |
| 1   | A1    | 1608 | G    |
| 1   | A1    | 1609 | U    |
| 1   | A1    | 1613 | A    |
| 1   | A1    | 1614 | A    |
| 1   | A1    | 1618 | A    |
| 1   | A1    | 1621 | G    |
| 1   | A1    | 1625 | U    |
| 1   | A1    | 1629 | U    |
| 1   | A1    | 1630 | A    |
| 1   | A1    | 1631 | U    |
| 1   | A1    | 1632 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1633 | C    |
| 1   | A1    | 1638 | A    |
| 1   | A1    | 1639 | G    |
| 1   | A1    | 1643 | G    |
| 1   | A1    | 1644 | A    |
| 1   | A1    | 1645 | C    |
| 1   | A1    | 1649 | G    |
| 1   | A1    | 1650 | U    |
| 1   | A1    | 1651 | A    |
| 1   | A1    | 1652 | U    |
| 1   | A1    | 1654 | G    |
| 1   | A1    | 1655 | A    |
| 1   | A1    | 1656 | G    |
| 1   | A1    | 1662 | A    |
| 1   | A1    | 1663 | C    |
| 1   | A1    | 1666 | A    |
| 1   | A1    | 1668 | A    |
| 1   | A1    | 1676 | G    |
| 1   | A1    | 1681 | C    |
| 1   | A1    | 1682 | G    |
| 1   | A1    | 1686 | G    |
| 1   | A1    | 1698 | G    |
| 1   | A1    | 1707 | A    |
| 1   | A1    | 1714 | C    |
| 1   | A1    | 1715 | U    |
| 1   | A1    | 1716 | U    |
| 1   | A1    | 1717 | U    |
| 1   | A1    | 1726 | C    |
| 1   | A1    | 1729 | U    |
| 1   | A1    | 1737 | A    |
| 1   | A1    | 1738 | A    |
| 1   | A1    | 1739 | A    |
| 1   | A1    | 1740 | U    |
| 1   | A1    | 1741 | U    |
| 1   | A1    | 1742 | G    |
| 1   | A1    | 1748 | U    |
| 1   | A1    | 1753 | A    |
| 1   | A1    | 1754 | G    |
| 1   | A1    | 1759 | C    |
| 1   | A1    | 1760 | G    |
| 1   | A1    | 1766 | A    |
| 1   | A1    | 1767 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1768 | G    |
| 1   | A1    | 1775 | A    |
| 1   | A1    | 1776 | G    |
| 1   | A1    | 1777 | A    |
| 1   | A1    | 1783 | U    |
| 1   | A1    | 1793 | A    |
| 1   | A1    | 1798 | U    |
| 1   | A1    | 1805 | C    |
| 1   | A1    | 1806 | G    |
| 1   | A1    | 1807 | C    |
| 1   | A1    | 1819 | C    |
| 1   | A1    | 1820 | U    |
| 1   | A1    | 1821 | U    |
| 1   | A1    | 1823 | A    |
| 1   | A1    | 1834 | G    |
| 1   | A1    | 1839 | A    |
| 1   | A1    | 1840 | U    |
| 1   | A1    | 1841 | A    |
| 1   | A1    | 1845 | U    |
| 1   | A1    | 1846 | C    |
| 1   | A1    | 1852 | A    |
| 1   | A1    | 1861 | C    |
| 1   | A1    | 1863 | A    |
| 1   | A1    | 1865 | A    |
| 1   | A1    | 1866 | A    |
| 1   | A1    | 1869 | G    |
| 1   | A1    | 1870 | C    |
| 1   | A1    | 1873 | C    |
| 1   | A1    | 1874 | A    |
| 1   | A1    | 1882 | A    |
| 1   | A1    | 1885 | G    |
| 1   | A1    | 1886 | U    |
| 1   | A1    | 1890 | C    |
| 1   | A1    | 1895 | U    |
| 1   | A1    | 1902 | C    |
| 1   | A1    | 1903 | A    |
| 1   | A1    | 1904 | U    |
| 1   | A1    | 1905 | A    |
| 1   | A1    | 1908 | A    |
| 1   | A1    | 1909 | C    |
| 1   | A1    | 1910 | A    |
| 1   | A1    | 1917 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1919 | A    |
| 1   | A1    | 1920 | A    |
| 1   | A1    | 1923 | G    |
| 1   | A1    | 1924 | A    |
| 1   | A1    | 1925 | A    |
| 1   | A1    | 1929 | G    |
| 1   | A1    | 1930 | G    |
| 1   | A1    | 1937 | G    |
| 1   | A1    | 1938 | G    |
| 1   | A1    | 1942 | C    |
| 1   | A1    | 1943 | G    |
| 1   | A1    | 1950 | C    |
| 1   | A1    | 1951 | G    |
| 1   | A1    | 1952 | G    |
| 1   | A1    | 1955 | U    |
| 1   | A1    | 1956 | A    |
| 1   | A1    | 1957 | A    |
| 1   | A1    | 1958 | G    |
| 1   | A1    | 2101 | G    |
| 1   | A1    | 2102 | A    |
| 1   | A1    | 2106 | G    |
| 1   | A1    | 2107 | A    |
| 1   | A1    | 2108 | A    |
| 1   | A1    | 2109 | G    |
| 1   | A1    | 2110 | C    |
| 1   | A1    | 2111 | G    |
| 1   | A1    | 2117 | A    |
| 1   | A1    | 2118 | G    |
| 1   | A1    | 2119 | G    |
| 1   | A1    | 2127 | A    |
| 1   | A1    | 2130 | G    |
| 1   | A1    | 2133 | U    |
| 1   | A1    | 2134 | A    |
| 1   | A1    | 2136 | U    |
| 1   | A1    | 2146 | G    |
| 1   | A1    | 2147 | C    |
| 1   | A1    | 2150 | U    |
| 1   | A1    | 2154 | A    |
| 1   | A1    | 2156 | G    |
| 1   | A1    | 2157 | G    |
| 1   | A1    | 2159 | C    |
| 1   | A1    | 2162 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2165 | A    |
| 1   | A1    | 2178 | A    |
| 1   | A1    | 2183 | A    |
| 1   | A1    | 2189 | G    |
| 1   | A1    | 2190 | C    |
| 1   | A1    | 2191 | C    |
| 1   | A1    | 2196 | G    |
| 1   | A1    | 2199 | C    |
| 1   | A1    | 2200 | U    |
| 1   | A1    | 2202 | A    |
| 1   | A1    | 2216 | G    |
| 1   | A1    | 2217 | C    |
| 1   | A1    | 2218 | A    |
| 1   | A1    | 2220 | U    |
| 1   | A1    | 2223 | A    |
| 1   | A1    | 2239 | A    |
| 1   | A1    | 2240 | C    |
| 1   | A1    | 2241 | G    |
| 1   | A1    | 2244 | G    |
| 1   | A1    | 2249 | U    |
| 1   | A1    | 2251 | A    |
| 1   | A1    | 2252 | C    |
| 1   | A1    | 2254 | A    |
| 1   | A1    | 2255 | U    |
| 1   | A1    | 2265 | A    |
| 1   | A1    | 2266 | A    |
| 1   | A1    | 2268 | G    |
| 1   | A1    | 2271 | G    |
| 1   | A1    | 2273 | C    |
| 1   | A1    | 2275 | A    |
| 1   | A1    | 2276 | A    |
| 1   | A1    | 2277 | U    |
| 1   | A1    | 2278 | G    |
| 1   | A1    | 2279 | C    |
| 1   | A1    | 2280 | C    |
| 1   | A1    | 2281 | U    |
| 1   | A1    | 2283 | G    |
| 1   | A1    | 2286 | A    |
| 1   | A1    | 2292 | U    |
| 1   | A1    | 2293 | U    |
| 1   | A1    | 2298 | A    |
| 1   | A1    | 2301 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2302 | G    |
| 1   | A1    | 2303 | C    |
| 1   | A1    | 2304 | A    |
| 1   | A1    | 2305 | U    |
| 1   | A1    | 2308 | A    |
| 1   | A1    | 2309 | U    |
| 1   | A1    | 2310 | G    |
| 1   | A1    | 2317 | U    |
| 1   | A1    | 2321 | A    |
| 1   | A1    | 2324 | A    |
| 1   | A1    | 2329 | U    |
| 1   | A1    | 2330 | G    |
| 1   | A1    | 2331 | U    |
| 1   | A1    | 2335 | U    |
| 1   | A1    | 2342 | U    |
| 1   | A1    | 2343 | A    |
| 1   | A1    | 2344 | U    |
| 1   | A1    | 2353 | C    |
| 1   | A1    | 2356 | A    |
| 1   | A1    | 2357 | C    |
| 1   | A1    | 2358 | A    |
| 1   | A1    | 2361 | U    |
| 1   | A1    | 2366 | G    |
| 1   | A1    | 2367 | A    |
| 1   | A1    | 2368 | A    |
| 1   | A1    | 2369 | C    |
| 1   | A1    | 2370 | G    |
| 1   | A1    | 2372 | G    |
| 1   | A1    | 2378 | A    |
| 1   | A1    | 2379 | A    |
| 1   | A1    | 2380 | U    |
| 1   | A1    | 2383 | U    |
| 1   | A1    | 2386 | G    |
| 1   | A1    | 2388 | G    |
| 1   | A1    | 2389 | G    |
| 1   | A1    | 2391 | G    |
| 1   | A1    | 2392 | A    |
| 1   | A1    | 2393 | A    |
| 1   | A1    | 2394 | A    |
| 1   | A1    | 2396 | A    |
| 1   | A1    | 2397 | A    |
| 1   | A1    | 2398 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2399 | A    |
| 1   | A1    | 2400 | C    |
| 1   | A1    | 2406 | U    |
| 1   | A1    | 2407 | G    |
| 1   | A1    | 2410 | C    |
| 1   | A1    | 2412 | U    |
| 1   | A1    | 2413 | G    |
| 1   | A1    | 2414 | A    |
| 1   | A1    | 2416 | U    |
| 1   | A1    | 2417 | C    |
| 1   | A1    | 2421 | U    |
| 1   | A1    | 2430 | G    |
| 1   | A1    | 2508 | U    |
| 1   | A1    | 2509 | U    |
| 1   | A1    | 2510 | A    |
| 1   | A1    | 2515 | G    |
| 1   | A1    | 2517 | G    |
| 1   | A1    | 2518 | A    |
| 1   | A1    | 2519 | A    |
| 1   | A1    | 2520 | G    |
| 1   | A1    | 2521 | A    |
| 1   | A1    | 2524 | A    |
| 1   | A1    | 2532 | G    |
| 1   | A1    | 2541 | U    |
| 1   | A1    | 2542 | U    |
| 1   | A1    | 2543 | C    |
| 1   | A1    | 2545 | A    |
| 1   | A1    | 2546 | A    |
| 1   | A1    | 2548 | G    |
| 1   | A1    | 2549 | U    |
| 1   | A1    | 2550 | U    |
| 1   | A1    | 2551 | A    |
| 1   | A1    | 2552 | A    |
| 1   | A1    | 2554 | G    |
| 1   | A1    | 2560 | U    |
| 1   | A1    | 2562 | U    |
| 1   | A1    | 2563 | U    |
| 1   | A1    | 2566 | C    |
| 1   | A1    | 2569 | A    |
| 1   | A1    | 2570 | U    |
| 1   | A1    | 2574 | U    |
| 1   | A1    | 2575 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2576 | C    |
| 1   | A1    | 2577 | G    |
| 1   | A1    | 2578 | A    |
| 1   | A1    | 2580 | A    |
| 1   | A1    | 2582 | A    |
| 1   | A1    | 2583 | C    |
| 1   | A1    | 2595 | G    |
| 1   | A1    | 2603 | G    |
| 1   | A1    | 2614 | A    |
| 1   | A1    | 2615 | A    |
| 1   | A1    | 2616 | U    |
| 1   | A1    | 2617 | G    |
| 1   | A1    | 2618 | C    |
| 1   | A1    | 2622 | U    |
| 1   | A1    | 2625 | A    |
| 1   | A1    | 2626 | A    |
| 1   | A1    | 2627 | C    |
| 1   | A1    | 2633 | C    |
| 1   | A1    | 2634 | G    |
| 1   | A1    | 2635 | C    |
| 1   | A1    | 2637 | G    |
| 1   | A1    | 2638 | G    |
| 1   | A1    | 2639 | C    |
| 1   | A1    | 2640 | G    |
| 1   | A1    | 2641 | U    |
| 1   | A1    | 2642 | C    |
| 1   | A1    | 2644 | U    |
| 1   | A1    | 2645 | A    |
| 1   | A1    | 2646 | A    |
| 1   | A1    | 2647 | G    |
| 1   | A1    | 2655 | C    |
| 1   | A1    | 2666 | G    |
| 1   | A1    | 2667 | A    |
| 1   | A1    | 2670 | U    |
| 1   | A1    | 2672 | U    |
| 1   | A1    | 2678 | A    |
| 1   | A1    | 2679 | G    |
| 1   | A1    | 2680 | A    |
| 1   | A1    | 2683 | A    |
| 1   | A1    | 2684 | A    |
| 1   | A1    | 2685 | A    |
| 1   | A1    | 2693 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2702 | U    |
| 1   | A1    | 2703 | G    |
| 1   | A1    | 2704 | A    |
| 1   | A1    | 2705 | U    |
| 1   | A1    | 2706 | U    |
| 1   | A1    | 2707 | U    |
| 1   | A1    | 2708 | U    |
| 1   | A1    | 2717 | G    |
| 1   | A1    | 2718 | U    |
| 1   | A1    | 2721 | G    |
| 1   | A1    | 2726 | C    |
| 1   | A1    | 2727 | A    |
| 1   | A1    | 2728 | A    |
| 1   | A1    | 2729 | A    |
| 1   | A1    | 2735 | A    |
| 1   | A1    | 2741 | U    |
| 1   | A1    | 2742 | G    |
| 1   | A1    | 2743 | G    |
| 1   | A1    | 2744 | C    |
| 1   | A1    | 2749 | C    |
| 1   | A1    | 2751 | A    |
| 1   | A1    | 2761 | U    |
| 1   | A1    | 2762 | U    |
| 1   | A1    | 2765 | C    |
| 1   | A1    | 2766 | A    |
| 1   | A1    | 2767 | A    |
| 1   | A1    | 2768 | G    |
| 1   | A1    | 2772 | U    |
| 1   | A1    | 2774 | A    |
| 1   | A1    | 2775 | G    |
| 1   | A1    | 2779 | G    |
| 1   | A1    | 2784 | G    |
| 1   | A1    | 2787 | A    |
| 1   | A1    | 2788 | G    |
| 1   | A1    | 2789 | A    |
| 1   | A1    | 2790 | A    |
| 1   | A1    | 2791 | A    |
| 1   | A1    | 2798 | C    |
| 1   | A1    | 2802 | G    |
| 1   | A1    | 2804 | G    |
| 1   | A1    | 2805 | A    |
| 1   | A1    | 2806 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2815 | U    |
| 1   | A1    | 2816 | G    |
| 1   | A1    | 2817 | U    |
| 1   | A1    | 2821 | A    |
| 1   | A1    | 2822 | G    |
| 1   | A1    | 2827 | G    |
| 1   | A1    | 2829 | G    |
| 1   | A1    | 2830 | U    |
| 1   | A1    | 2831 | U    |
| 1   | A1    | 2833 | A    |
| 1   | A1    | 2847 | U    |
| 1   | A1    | 2848 | U    |
| 1   | A1    | 2849 | U    |
| 1   | A1    | 2855 | C    |
| 1   | A1    | 2857 | U    |
| 1   | A1    | 2858 | C    |
| 1   | A1    | 2859 | G    |
| 1   | A1    | 2860 | A    |
| 1   | A1    | 2863 | U    |
| 1   | A1    | 2875 | A    |
| 1   | A1    | 2876 | U    |
| 1   | A1    | 2887 | C    |
| 1   | A1    | 2899 | C    |
| 1   | A1    | 2900 | G    |
| 1   | A1    | 2902 | G    |
| 1   | A1    | 2907 | A    |
| 1   | A1    | 2911 | U    |
| 1   | A1    | 2912 | U    |
| 1   | A1    | 2913 | C    |
| 1   | A1    | 2916 | C    |
| 1   | A1    | 2918 | G    |
| 1   | A1    | 2923 | U    |
| 1   | A1    | 2924 | A    |
| 1   | A1    | 2925 | G    |
| 1   | A1    | 2930 | C    |
| 1   | A1    | 2932 | U    |
| 1   | A1    | 2933 | G    |
| 1   | A1    | 2934 | A    |
| 1   | A1    | 2935 | G    |
| 1   | A1    | 2936 | C    |
| 1   | A1    | 2947 | C    |
| 1   | A1    | 2955 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2956 | G    |
| 1   | A1    | 2958 | C    |
| 1   | A1    | 2959 | A    |
| 1   | A1    | 2960 | G    |
| 1   | A1    | 2961 | G    |
| 1   | A1    | 2962 | U    |
| 1   | A1    | 2965 | G    |
| 1   | A1    | 2967 | U    |
| 1   | A1    | 2971 | C    |
| 1   | A1    | 2972 | C    |
| 1   | A1    | 2978 | G    |
| 1   | A1    | 2985 | C    |
| 1   | A1    | 2986 | G    |
| 1   | A1    | 2995 | A    |
| 1   | A1    | 2996 | C    |
| 1   | A1    | 2999 | U    |
| 1   | A1    | 3000 | A    |
| 1   | A1    | 3001 | A    |
| 1   | A1    | 3008 | U    |
| 1   | A1    | 3011 | G    |
| 1   | A1    | 3012 | U    |
| 1   | A1    | 3019 | G    |
| 1   | A1    | 3021 | A    |
| 1   | A1    | 3028 | A    |
| 1   | A1    | 3036 | U    |
| 1   | A1    | 3041 | G    |
| 1   | A1    | 3044 | A    |
| 1   | A1    | 3045 | A    |
| 1   | A1    | 3046 | A    |
| 1   | A1    | 3047 | U    |
| 1   | A1    | 3048 | A    |
| 1   | A1    | 3063 | G    |
| 1   | A1    | 3066 | A    |
| 1   | A1    | 3068 | U    |
| 1   | A1    | 3072 | G    |
| 1   | A1    | 3080 | A    |
| 1   | A1    | 3081 | C    |
| 1   | A1    | 3087 | G    |
| 1   | A1    | 3088 | U    |
| 1   | A1    | 3104 | G    |
| 1   | A1    | 3105 | G    |
| 1   | A1    | 3106 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 3107 | C    |
| 1   | A1    | 3109 | C    |
| 1   | A1    | 3110 | U    |
| 1   | A1    | 3111 | A    |
| 1   | A1    | 3112 | A    |
| 1   | A1    | 3114 | U    |
| 1   | A1    | 3115 | C    |
| 1   | A1    | 3116 | A    |
| 1   | A1    | 3118 | A    |
| 1   | A1    | 3119 | A    |
| 1   | A1    | 3120 | U    |
| 1   | A1    | 3123 | A    |
| 1   | A1    | 3125 | G    |
| 1   | A1    | 3128 | G    |
| 1   | A1    | 3129 | G    |
| 1   | A1    | 3130 | A    |
| 1   | A1    | 3131 | A    |
| 1   | A1    | 3132 | A    |
| 1   | A1    | 3133 | G    |
| 1   | A1    | 3134 | C    |
| 1   | A1    | 3138 | G    |
| 1   | A1    | 3139 | U    |
| 1   | A1    | 3143 | A    |
| 1   | A1    | 3145 | U    |
| 1   | A1    | 3146 | G    |
| 1   | A1    | 3147 | U    |
| 1   | A1    | 3151 | G    |
| 1   | A1    | 3152 | A    |
| 1   | A1    | 3154 | A    |
| 1   | A1    | 3155 | A    |
| 1   | A1    | 3156 | A    |
| 1   | A1    | 3157 | C    |
| 1   | A1    | 3158 | G    |
| 1   | A1    | 3159 | A    |
| 1   | A1    | 3160 | A    |
| 1   | A1    | 3161 | A    |
| 1   | A1    | 3162 | A    |
| 1   | A1    | 3163 | A    |
| 1   | A1    | 3167 | U    |
| 1   | A1    | 3168 | A    |
| 1   | A1    | 3169 | A    |
| 1   | A1    | 3173 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 3174 | U    |
| 1   | A1    | 3175 | A    |
| 1   | A1    | 3176 | A    |
| 1   | A1    | 3177 | G    |
| 1   | A1    | 3178 | U    |
| 1   | A1    | 3179 | U    |
| 1   | A1    | 3183 | A    |
| 1   | A1    | 3184 | A    |
| 1   | A1    | 3185 | G    |
| 1   | A1    | 3186 | G    |
| 1   | A1    | 3188 | A    |
| 1   | A1    | 3191 | G    |
| 1   | A1    | 3192 | C    |
| 1   | A1    | 3193 | G    |
| 1   | A1    | 3197 | A    |
| 1   | A1    | 3201 | G    |
| 1   | A1    | 3202 | C    |
| 1   | A1    | 3205 | A    |
| 1   | A1    | 3206 | A    |
| 1   | A1    | 3207 | A    |
| 1   | A1    | 3208 | A    |
| 1   | A1    | 3215 | C    |
| 1   | A1    | 3217 | U    |
| 1   | A1    | 3219 | A    |
| 1   | A1    | 3224 | C    |
| 1   | A1    | 3226 | A    |
| 1   | A1    | 3229 | C    |
| 1   | A1    | 3230 | G    |
| 1   | A1    | 3231 | U    |
| 1   | A1    | 3232 | A    |
| 1   | A1    | 3234 | U    |
| 1   | A1    | 3235 | U    |
| 1   | A1    | 3236 | C    |
| 1   | A1    | 3237 | C    |
| 1   | A1    | 3238 | A    |
| 1   | A1    | 3241 | U    |
| 1   | A1    | 3242 | U    |
| 1   | A1    | 3247 | U    |
| 1   | A1    | 3251 | C    |
| 1   | A1    | 3252 | G    |
| 1   | A1    | 3264 | U    |
| 1   | A1    | 3265 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 3267 | A    |
| 1   | A1    | 3269 | G    |
| 1   | A1    | 3270 | A    |
| 1   | A1    | 3274 | A    |
| 1   | A1    | 3276 | C    |
| 1   | A1    | 3277 | A    |
| 1   | A1    | 3278 | U    |
| 1   | A1    | 3279 | G    |
| 1   | A1    | 3292 | U    |
| 1   | A1    | 3298 | U    |
| 1   | A1    | 3299 | G    |
| 1   | A1    | 3307 | A    |
| 1   | A1    | 3311 | U    |
| 1   | A1    | 3312 | C    |
| 1   | A1    | 3324 | U    |
| 1   | A1    | 3325 | G    |
| 1   | A1    | 3326 | A    |
| 1   | A1    | 3332 | A    |
| 1   | A1    | 3333 | G    |
| 1   | A1    | 3334 | C    |
| 1   | A1    | 3338 | U    |
| 1   | A1    | 3343 | U    |
| 1   | A1    | 3344 | U    |
| 1   | A1    | 3345 | A    |
| 1   | A1    | 3352 | U    |
| 20  | B2    | 2    | G    |
| 20  | B2    | 3    | A    |
| 20  | B2    | 4    | A    |
| 20  | B2    | 5    | A    |
| 20  | B2    | 6    | A    |
| 20  | B2    | 7    | U    |
| 20  | B2    | 8    | U    |
| 20  | B2    | 17   | U    |
| 20  | B2    | 26   | A    |
| 20  | B2    | 27   | G    |
| 20  | B2    | 28   | G    |
| 20  | B2    | 34   | G    |
| 20  | B2    | 35   | U    |
| 20  | B2    | 36   | G    |
| 20  | B2    | 38   | C    |
| 20  | B2    | 43   | A    |
| 20  | B2    | 44   | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | B2    | 45  | G    |
| 20  | B2    | 55  | A    |
| 20  | B2    | 62  | A    |
| 20  | B2    | 65  | C    |
| 20  | B2    | 66  | G    |
| 20  | B2    | 67  | C    |
| 20  | B2    | 73  | G    |
| 20  | B2    | 74  | A    |
| 20  | B2    | 75  | A    |
| 20  | B2    | 82  | A    |
| 20  | B2    | 84  | C    |
| 20  | B2    | 85  | C    |
| 20  | B2    | 86  | G    |
| 20  | B2    | 87  | C    |
| 20  | B2    | 88  | G    |
| 20  | B2    | 89  | A    |
| 20  | B2    | 91  | U    |
| 20  | B2    | 92  | C    |
| 20  | B2    | 96  | A    |
| 20  | B2    | 97  | G    |
| 20  | B2    | 100 | C    |
| 20  | B2    | 105 | A    |
| 20  | B2    | 106 | A    |
| 20  | B2    | 107 | C    |
| 20  | B2    | 108 | G    |
| 20  | B2    | 112 | G    |
| 20  | B2    | 113 | U    |
| 20  | B2    | 114 | G    |
| 20  | B2    | 117 | G    |
| 20  | B2    | 122 | U    |
| 20  | B2    | 127 | A    |
| 20  | B2    | 131 | C    |
| 20  | B2    | 134 | C    |
| 20  | B2    | 135 | A    |
| 20  | B2    | 137 | G    |
| 20  | B2    | 140 | U    |
| 20  | B2    | 141 | G    |
| 20  | B2    | 145 | C    |
| 20  | B2    | 146 | A    |
| 20  | B2    | 148 | U    |
| 20  | B2    | 149 | G    |
| 21  | B3    | 5   | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21  | B3    | 7   | G    |
| 21  | B3    | 9   | C    |
| 21  | B3    | 10  | C    |
| 21  | B3    | 13  | A    |
| 21  | B3    | 22  | A    |
| 21  | B3    | 25  | A    |
| 21  | B3    | 27  | A    |
| 21  | B3    | 38  | U    |
| 21  | B3    | 40  | C    |
| 21  | B3    | 41  | G    |
| 21  | B3    | 48  | G    |
| 21  | B3    | 49  | A    |
| 21  | B3    | 51  | G    |
| 21  | B3    | 53  | U    |
| 21  | B3    | 54  | A    |
| 21  | B3    | 55  | A    |
| 21  | B3    | 60  | C    |
| 21  | B3    | 62  | U    |
| 21  | B3    | 63  | A    |
| 21  | B3    | 64  | A    |
| 21  | B3    | 65  | G    |
| 21  | B3    | 82  | G    |
| 21  | B3    | 83  | G    |
| 21  | B3    | 89  | G    |
| 21  | B3    | 91  | C    |
| 21  | B3    | 97  | G    |
| 21  | B3    | 98  | G    |
| 21  | B3    | 100 | A    |
| 21  | B3    | 101 | A    |
| 21  | B3    | 105 | C    |
| 21  | B3    | 107 | A    |
| 21  | B3    | 110 | G    |
| 21  | B3    | 111 | U    |
| 21  | B3    | 112 | C    |
| 21  | B3    | 113 | G    |
| 21  | B3    | 118 | C    |
| 21  | B3    | 120 | U    |
| 20  | C2    | 2   | G    |
| 20  | C2    | 3   | A    |
| 20  | C2    | 4   | A    |
| 20  | C2    | 5   | A    |
| 20  | C2    | 6   | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | C2    | 7   | U    |
| 20  | C2    | 8   | U    |
| 20  | C2    | 17  | U    |
| 20  | C2    | 26  | A    |
| 20  | C2    | 27  | G    |
| 20  | C2    | 28  | G    |
| 20  | C2    | 34  | G    |
| 20  | C2    | 35  | U    |
| 20  | C2    | 36  | G    |
| 20  | C2    | 38  | C    |
| 20  | C2    | 43  | A    |
| 20  | C2    | 44  | A    |
| 20  | C2    | 45  | G    |
| 20  | C2    | 47  | A    |
| 20  | C2    | 55  | A    |
| 20  | C2    | 62  | A    |
| 20  | C2    | 65  | C    |
| 20  | C2    | 66  | G    |
| 20  | C2    | 67  | C    |
| 20  | C2    | 73  | G    |
| 20  | C2    | 74  | A    |
| 20  | C2    | 75  | A    |
| 20  | C2    | 82  | A    |
| 20  | C2    | 84  | C    |
| 20  | C2    | 85  | C    |
| 20  | C2    | 86  | G    |
| 20  | C2    | 87  | C    |
| 20  | C2    | 88  | G    |
| 20  | C2    | 89  | A    |
| 20  | C2    | 91  | U    |
| 20  | C2    | 92  | C    |
| 20  | C2    | 96  | A    |
| 20  | C2    | 97  | G    |
| 20  | C2    | 100 | C    |
| 20  | C2    | 105 | A    |
| 20  | C2    | 106 | A    |
| 20  | C2    | 107 | C    |
| 20  | C2    | 108 | G    |
| 20  | C2    | 112 | G    |
| 20  | C2    | 113 | U    |
| 20  | C2    | 114 | G    |
| 20  | C2    | 117 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | C2    | 122 | U    |
| 20  | C2    | 127 | A    |
| 20  | C2    | 131 | C    |
| 20  | C2    | 134 | C    |
| 20  | C2    | 135 | A    |
| 20  | C2    | 137 | G    |
| 20  | C2    | 140 | U    |
| 20  | C2    | 141 | G    |
| 20  | C2    | 145 | C    |
| 20  | C2    | 146 | A    |
| 20  | C2    | 148 | U    |
| 20  | C2    | 149 | G    |
| 20  | C2    | 150 | U    |
| 21  | C3    | 5   | U    |
| 21  | C3    | 7   | G    |
| 21  | C3    | 9   | C    |
| 21  | C3    | 10  | C    |
| 21  | C3    | 13  | A    |
| 21  | C3    | 22  | A    |
| 21  | C3    | 25  | A    |
| 21  | C3    | 27  | A    |
| 21  | C3    | 38  | U    |
| 21  | C3    | 40  | C    |
| 21  | C3    | 41  | G    |
| 21  | C3    | 48  | G    |
| 21  | C3    | 49  | A    |
| 21  | C3    | 51  | G    |
| 21  | C3    | 53  | U    |
| 21  | C3    | 54  | A    |
| 21  | C3    | 55  | A    |
| 21  | C3    | 60  | C    |
| 21  | C3    | 62  | U    |
| 21  | C3    | 63  | A    |
| 21  | C3    | 64  | A    |
| 21  | C3    | 65  | G    |
| 21  | C3    | 72  | U    |
| 21  | C3    | 82  | G    |
| 21  | C3    | 83  | G    |
| 21  | C3    | 89  | G    |
| 21  | C3    | 91  | C    |
| 21  | C3    | 97  | G    |
| 21  | C3    | 98  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21  | C3    | 100 | A    |
| 21  | C3    | 101 | A    |
| 21  | C3    | 105 | C    |
| 21  | C3    | 107 | A    |
| 21  | C3    | 110 | G    |
| 21  | C3    | 111 | U    |
| 21  | C3    | 112 | C    |
| 21  | C3    | 113 | G    |
| 21  | C3    | 118 | C    |
| 21  | C3    | 120 | U    |
| 1   | D1    | 9   | G    |
| 1   | D1    | 16  | G    |
| 1   | D1    | 17  | C    |
| 1   | D1    | 19  | A    |
| 1   | D1    | 20  | G    |
| 1   | D1    | 24  | A    |
| 1   | D1    | 27  | C    |
| 1   | D1    | 32  | A    |
| 1   | D1    | 36  | U    |
| 1   | D1    | 38  | A    |
| 1   | D1    | 41  | A    |
| 1   | D1    | 43  | A    |
| 1   | D1    | 47  | G    |
| 1   | D1    | 48  | U    |
| 1   | D1    | 57  | G    |
| 1   | D1    | 58  | A    |
| 1   | D1    | 63  | A    |
| 1   | D1    | 64  | A    |
| 1   | D1    | 66  | C    |
| 1   | D1    | 67  | U    |
| 1   | D1    | 69  | A    |
| 1   | D1    | 70  | C    |
| 1   | D1    | 71  | U    |
| 1   | D1    | 72  | A    |
| 1   | D1    | 74  | G    |
| 1   | D1    | 75  | A    |
| 1   | D1    | 81  | C    |
| 1   | D1    | 83  | A    |
| 1   | D1    | 84  | G    |
| 1   | D1    | 87  | A    |
| 1   | D1    | 89  | G    |
| 1   | D1    | 90  | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 92  | G    |
| 1   | D1    | 93  | A    |
| 1   | D1    | 95  | U    |
| 1   | D1    | 96  | G    |
| 1   | D1    | 97  | A    |
| 1   | D1    | 107 | A    |
| 1   | D1    | 108 | G    |
| 1   | D1    | 112 | A    |
| 1   | D1    | 114 | A    |
| 1   | D1    | 115 | G    |
| 1   | D1    | 116 | U    |
| 1   | D1    | 118 | A    |
| 1   | D1    | 119 | A    |
| 1   | D1    | 120 | A    |
| 1   | D1    | 121 | A    |
| 1   | D1    | 122 | U    |
| 1   | D1    | 127 | A    |
| 1   | D1    | 128 | G    |
| 1   | D1    | 130 | G    |
| 1   | D1    | 133 | C    |
| 1   | D1    | 134 | A    |
| 1   | D1    | 135 | A    |
| 1   | D1    | 136 | C    |
| 1   | D1    | 137 | A    |
| 1   | D1    | 138 | C    |
| 1   | D1    | 139 | A    |
| 1   | D1    | 143 | G    |
| 1   | D1    | 147 | U    |
| 1   | D1    | 148 | G    |
| 1   | D1    | 149 | U    |
| 1   | D1    | 152 | U    |
| 1   | D1    | 156 | A    |
| 1   | D1    | 157 | A    |
| 1   | D1    | 162 | C    |
| 1   | D1    | 166 | C    |
| 1   | D1    | 169 | A    |
| 1   | D1    | 174 | A    |
| 1   | D1    | 176 | G    |
| 1   | D1    | 177 | C    |
| 1   | D1    | 182 | C    |
| 1   | D1    | 188 | A    |
| 1   | D1    | 189 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 190 | U    |
| 1   | D1    | 191 | U    |
| 1   | D1    | 193 | C    |
| 1   | D1    | 196 | G    |
| 1   | D1    | 201 | A    |
| 1   | D1    | 203 | G    |
| 1   | D1    | 205 | C    |
| 1   | D1    | 207 | U    |
| 1   | D1    | 211 | A    |
| 1   | D1    | 215 | G    |
| 1   | D1    | 217 | U    |
| 1   | D1    | 218 | G    |
| 1   | D1    | 219 | A    |
| 1   | D1    | 220 | C    |
| 1   | D1    | 221 | A    |
| 1   | D1    | 223 | C    |
| 1   | D1    | 224 | C    |
| 1   | D1    | 227 | G    |
| 1   | D1    | 231 | U    |
| 1   | D1    | 232 | C    |
| 1   | D1    | 233 | G    |
| 1   | D1    | 240 | A    |
| 1   | D1    | 241 | A    |
| 1   | D1    | 242 | G    |
| 1   | D1    | 243 | G    |
| 1   | D1    | 250 | U    |
| 1   | D1    | 252 | A    |
| 1   | D1    | 254 | G    |
| 1   | D1    | 255 | G    |
| 1   | D1    | 258 | A    |
| 1   | D1    | 261 | U    |
| 1   | D1    | 262 | C    |
| 1   | D1    | 264 | A    |
| 1   | D1    | 265 | A    |
| 1   | D1    | 268 | G    |
| 1   | D1    | 281 | G    |
| 1   | D1    | 282 | G    |
| 1   | D1    | 283 | A    |
| 1   | D1    | 284 | U    |
| 1   | D1    | 289 | G    |
| 1   | D1    | 292 | C    |
| 1   | D1    | 293 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 294 | A    |
| 1   | D1    | 297 | U    |
| 1   | D1    | 299 | G    |
| 1   | D1    | 300 | G    |
| 1   | D1    | 304 | U    |
| 1   | D1    | 305 | A    |
| 1   | D1    | 307 | A    |
| 1   | D1    | 315 | U    |
| 1   | D1    | 328 | A    |
| 1   | D1    | 329 | C    |
| 1   | D1    | 332 | G    |
| 1   | D1    | 333 | G    |
| 1   | D1    | 334 | G    |
| 1   | D1    | 335 | A    |
| 1   | D1    | 337 | A    |
| 1   | D1    | 338 | C    |
| 1   | D1    | 339 | C    |
| 1   | D1    | 340 | G    |
| 1   | D1    | 341 | A    |
| 1   | D1    | 351 | A    |
| 1   | D1    | 352 | G    |
| 1   | D1    | 361 | A    |
| 1   | D1    | 362 | G    |
| 1   | D1    | 363 | G    |
| 1   | D1    | 368 | A    |
| 1   | D1    | 369 | U    |
| 1   | D1    | 370 | G    |
| 1   | D1    | 373 | A    |
| 1   | D1    | 374 | A    |
| 1   | D1    | 375 | G    |
| 1   | D1    | 376 | A    |
| 1   | D1    | 377 | A    |
| 1   | D1    | 383 | A    |
| 1   | D1    | 385 | A    |
| 1   | D1    | 386 | A    |
| 1   | D1    | 389 | G    |
| 1   | D1    | 396 | A    |
| 1   | D1    | 397 | A    |
| 1   | D1    | 399 | A    |
| 1   | D1    | 400 | C    |
| 1   | D1    | 414 | G    |
| 1   | D1    | 416 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 418 | G    |
| 1   | D1    | 419 | A    |
| 1   | D1    | 432 | G    |
| 1   | D1    | 433 | C    |
| 1   | D1    | 434 | A    |
| 1   | D1    | 435 | A    |
| 1   | D1    | 438 | A    |
| 1   | D1    | 439 | A    |
| 1   | D1    | 440 | C    |
| 1   | D1    | 442 | G    |
| 1   | D1    | 448 | C    |
| 1   | D1    | 449 | G    |
| 1   | D1    | 450 | C    |
| 1   | D1    | 451 | A    |
| 1   | D1    | 453 | A    |
| 1   | D1    | 460 | A    |
| 1   | D1    | 461 | A    |
| 1   | D1    | 465 | C    |
| 1   | D1    | 466 | U    |
| 1   | D1    | 467 | A    |
| 1   | D1    | 469 | U    |
| 1   | D1    | 470 | C    |
| 1   | D1    | 471 | A    |
| 1   | D1    | 472 | C    |
| 1   | D1    | 479 | G    |
| 1   | D1    | 486 | C    |
| 1   | D1    | 487 | G    |
| 1   | D1    | 489 | A    |
| 1   | D1    | 490 | A    |
| 1   | D1    | 492 | A    |
| 1   | D1    | 498 | A    |
| 1   | D1    | 499 | U    |
| 1   | D1    | 501 | A    |
| 1   | D1    | 502 | G    |
| 1   | D1    | 503 | U    |
| 1   | D1    | 505 | A    |
| 1   | D1    | 507 | G    |
| 1   | D1    | 516 | C    |
| 1   | D1    | 517 | A    |
| 1   | D1    | 518 | G    |
| 1   | D1    | 519 | A    |
| 1   | D1    | 521 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 523 | U    |
| 1   | D1    | 525 | C    |
| 1   | D1    | 526 | U    |
| 1   | D1    | 527 | A    |
| 1   | D1    | 528 | C    |
| 1   | D1    | 532 | G    |
| 1   | D1    | 533 | G    |
| 1   | D1    | 539 | A    |
| 1   | D1    | 541 | A    |
| 1   | D1    | 543 | A    |
| 1   | D1    | 552 | U    |
| 1   | D1    | 553 | C    |
| 1   | D1    | 556 | A    |
| 1   | D1    | 562 | G    |
| 1   | D1    | 564 | A    |
| 1   | D1    | 565 | G    |
| 1   | D1    | 566 | U    |
| 1   | D1    | 567 | C    |
| 1   | D1    | 568 | A    |
| 1   | D1    | 572 | G    |
| 1   | D1    | 576 | U    |
| 1   | D1    | 578 | G    |
| 1   | D1    | 579 | G    |
| 1   | D1    | 580 | G    |
| 1   | D1    | 582 | A    |
| 1   | D1    | 584 | C    |
| 1   | D1    | 586 | A    |
| 1   | D1    | 587 | U    |
| 1   | D1    | 591 | G    |
| 1   | D1    | 592 | A    |
| 1   | D1    | 595 | A    |
| 1   | D1    | 599 | G    |
| 1   | D1    | 600 | G    |
| 1   | D1    | 611 | A    |
| 1   | D1    | 612 | C    |
| 1   | D1    | 614 | G    |
| 1   | D1    | 615 | G    |
| 1   | D1    | 618 | U    |
| 1   | D1    | 620 | A    |
| 1   | D1    | 622 | G    |
| 1   | D1    | 623 | G    |
| 1   | D1    | 625 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 626 | C    |
| 1   | D1    | 627 | U    |
| 1   | D1    | 628 | A    |
| 1   | D1    | 629 | A    |
| 1   | D1    | 631 | G    |
| 1   | D1    | 634 | G    |
| 1   | D1    | 635 | A    |
| 1   | D1    | 636 | U    |
| 1   | D1    | 643 | A    |
| 1   | D1    | 644 | A    |
| 1   | D1    | 645 | A    |
| 1   | D1    | 646 | A    |
| 1   | D1    | 660 | C    |
| 1   | D1    | 661 | C    |
| 1   | D1    | 662 | C    |
| 1   | D1    | 663 | G    |
| 1   | D1    | 666 | U    |
| 1   | D1    | 673 | A    |
| 1   | D1    | 684 | A    |
| 1   | D1    | 685 | G    |
| 1   | D1    | 686 | U    |
| 1   | D1    | 697 | A    |
| 1   | D1    | 701 | A    |
| 1   | D1    | 709 | G    |
| 1   | D1    | 711 | U    |
| 1   | D1    | 719 | C    |
| 1   | D1    | 720 | C    |
| 1   | D1    | 723 | U    |
| 1   | D1    | 724 | C    |
| 1   | D1    | 728 | G    |
| 1   | D1    | 729 | A    |
| 1   | D1    | 730 | A    |
| 1   | D1    | 733 | G    |
| 1   | D1    | 737 | G    |
| 1   | D1    | 740 | A    |
| 1   | D1    | 741 | G    |
| 1   | D1    | 742 | U    |
| 1   | D1    | 743 | A    |
| 1   | D1    | 745 | A    |
| 1   | D1    | 747 | G    |
| 1   | D1    | 751 | C    |
| 1   | D1    | 753 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 757 | C    |
| 1   | D1    | 761 | A    |
| 1   | D1    | 767 | C    |
| 1   | D1    | 773 | C    |
| 1   | D1    | 775 | C    |
| 1   | D1    | 777 | C    |
| 1   | D1    | 786 | G    |
| 1   | D1    | 788 | C    |
| 1   | D1    | 789 | U    |
| 1   | D1    | 790 | C    |
| 1   | D1    | 791 | C    |
| 1   | D1    | 792 | G    |
| 1   | D1    | 799 | G    |
| 1   | D1    | 800 | G    |
| 1   | D1    | 801 | U    |
| 1   | D1    | 803 | C    |
| 1   | D1    | 805 | A    |
| 1   | D1    | 806 | G    |
| 1   | D1    | 807 | G    |
| 1   | D1    | 810 | G    |
| 1   | D1    | 811 | A    |
| 1   | D1    | 821 | U    |
| 1   | D1    | 825 | G    |
| 1   | D1    | 827 | C    |
| 1   | D1    | 831 | A    |
| 1   | D1    | 833 | A    |
| 1   | D1    | 834 | G    |
| 1   | D1    | 840 | G    |
| 1   | D1    | 842 | A    |
| 1   | D1    | 847 | G    |
| 1   | D1    | 855 | A    |
| 1   | D1    | 866 | A    |
| 1   | D1    | 870 | G    |
| 1   | D1    | 874 | C    |
| 1   | D1    | 881 | G    |
| 1   | D1    | 883 | A    |
| 1   | D1    | 886 | C    |
| 1   | D1    | 894 | G    |
| 1   | D1    | 896 | U    |
| 1   | D1    | 898 | C    |
| 1   | D1    | 899 | U    |
| 1   | D1    | 904 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 905  | G    |
| 1   | D1    | 908  | A    |
| 1   | D1    | 919  | A    |
| 1   | D1    | 921  | A    |
| 1   | D1    | 922  | U    |
| 1   | D1    | 930  | U    |
| 1   | D1    | 932  | G    |
| 1   | D1    | 933  | G    |
| 1   | D1    | 934  | G    |
| 1   | D1    | 935  | G    |
| 1   | D1    | 939  | A    |
| 1   | D1    | 940  | A    |
| 1   | D1    | 941  | G    |
| 1   | D1    | 942  | A    |
| 1   | D1    | 944  | U    |
| 1   | D1    | 946  | A    |
| 1   | D1    | 948  | C    |
| 1   | D1    | 957  | U    |
| 1   | D1    | 958  | A    |
| 1   | D1    | 959  | G    |
| 1   | D1    | 961  | A    |
| 1   | D1    | 962  | G    |
| 1   | D1    | 969  | C    |
| 1   | D1    | 972  | U    |
| 1   | D1    | 973  | C    |
| 1   | D1    | 978  | G    |
| 1   | D1    | 983  | U    |
| 1   | D1    | 984  | C    |
| 1   | D1    | 985  | U    |
| 1   | D1    | 986  | C    |
| 1   | D1    | 987  | A    |
| 1   | D1    | 988  | G    |
| 1   | D1    | 990  | A    |
| 1   | D1    | 992  | A    |
| 1   | D1    | 999  | G    |
| 1   | D1    | 1003 | G    |
| 1   | D1    | 1004 | U    |
| 1   | D1    | 1005 | A    |
| 1   | D1    | 1006 | C    |
| 1   | D1    | 1007 | G    |
| 1   | D1    | 1008 | C    |
| 1   | D1    | 1012 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1017 | U    |
| 1   | D1    | 1018 | A    |
| 1   | D1    | 1019 | G    |
| 1   | D1    | 1020 | G    |
| 1   | D1    | 1025 | G    |
| 1   | D1    | 1027 | G    |
| 1   | D1    | 1028 | A    |
| 1   | D1    | 1034 | U    |
| 1   | D1    | 1040 | A    |
| 1   | D1    | 1042 | U    |
| 1   | D1    | 1044 | G    |
| 1   | D1    | 1047 | G    |
| 1   | D1    | 1048 | U    |
| 1   | D1    | 1049 | U    |
| 1   | D1    | 1052 | A    |
| 1   | D1    | 1053 | A    |
| 1   | D1    | 1054 | G    |
| 1   | D1    | 1055 | A    |
| 1   | D1    | 1058 | C    |
| 1   | D1    | 1060 | C    |
| 1   | D1    | 1061 | G    |
| 1   | D1    | 1064 | C    |
| 1   | D1    | 1067 | U    |
| 1   | D1    | 1072 | A    |
| 1   | D1    | 1073 | A    |
| 1   | D1    | 1074 | A    |
| 1   | D1    | 1075 | C    |
| 1   | D1    | 1083 | U    |
| 1   | D1    | 1085 | G    |
| 1   | D1    | 1087 | A    |
| 1   | D1    | 1090 | A    |
| 1   | D1    | 1091 | G    |
| 1   | D1    | 1092 | C    |
| 1   | D1    | 1095 | C    |
| 1   | D1    | 1096 | G    |
| 1   | D1    | 1097 | G    |
| 1   | D1    | 1098 | A    |
| 1   | D1    | 1099 | G    |
| 1   | D1    | 1101 | U    |
| 1   | D1    | 1102 | U    |
| 1   | D1    | 1103 | A    |
| 1   | D1    | 1104 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1108 | A    |
| 1   | D1    | 1109 | A    |
| 1   | D1    | 1110 | U    |
| 1   | D1    | 1111 | G    |
| 1   | D1    | 1115 | U    |
| 1   | D1    | 1116 | C    |
| 1   | D1    | 1122 | A    |
| 1   | D1    | 1123 | A    |
| 1   | D1    | 1124 | G    |
| 1   | D1    | 1125 | A    |
| 1   | D1    | 1129 | C    |
| 1   | D1    | 1130 | A    |
| 1   | D1    | 1131 | G    |
| 1   | D1    | 1132 | U    |
| 1   | D1    | 1135 | U    |
| 1   | D1    | 1142 | G    |
| 1   | D1    | 1143 | G    |
| 1   | D1    | 1144 | G    |
| 1   | D1    | 1151 | U    |
| 1   | D1    | 1155 | U    |
| 1   | D1    | 1158 | G    |
| 1   | D1    | 1159 | C    |
| 1   | D1    | 1161 | G    |
| 1   | D1    | 1166 | G    |
| 1   | D1    | 1169 | G    |
| 1   | D1    | 1170 | A    |
| 1   | D1    | 1176 | G    |
| 1   | D1    | 1178 | U    |
| 1   | D1    | 1180 | A    |
| 1   | D1    | 1181 | A    |
| 1   | D1    | 1182 | C    |
| 1   | D1    | 1184 | U    |
| 1   | D1    | 1185 | A    |
| 1   | D1    | 1186 | A    |
| 1   | D1    | 1187 | C    |
| 1   | D1    | 1198 | G    |
| 1   | D1    | 1199 | G    |
| 1   | D1    | 1203 | C    |
| 1   | D1    | 1204 | C    |
| 1   | D1    | 1205 | A    |
| 1   | D1    | 1206 | A    |
| 1   | D1    | 1207 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1208 | U    |
| 1   | D1    | 1209 | G    |
| 1   | D1    | 1212 | C    |
| 1   | D1    | 1213 | G    |
| 1   | D1    | 1216 | C    |
| 1   | D1    | 1217 | A    |
| 1   | D1    | 1218 | U    |
| 1   | D1    | 1219 | C    |
| 1   | D1    | 1220 | A    |
| 1   | D1    | 1224 | A    |
| 1   | D1    | 1226 | C    |
| 1   | D1    | 1227 | A    |
| 1   | D1    | 1228 | C    |
| 1   | D1    | 1233 | G    |
| 1   | D1    | 1234 | G    |
| 1   | D1    | 1235 | U    |
| 1   | D1    | 1236 | G    |
| 1   | D1    | 1243 | C    |
| 1   | D1    | 1244 | A    |
| 1   | D1    | 1245 | U    |
| 1   | D1    | 1246 | A    |
| 1   | D1    | 1248 | G    |
| 1   | D1    | 1249 | G    |
| 1   | D1    | 1250 | A    |
| 1   | D1    | 1255 | A    |
| 1   | D1    | 1257 | G    |
| 1   | D1    | 1309 | G    |
| 1   | D1    | 1313 | A    |
| 1   | D1    | 1314 | A    |
| 1   | D1    | 1316 | G    |
| 1   | D1    | 1319 | C    |
| 1   | D1    | 1334 | G    |
| 1   | D1    | 1335 | A    |
| 1   | D1    | 1336 | U    |
| 1   | D1    | 1339 | C    |
| 1   | D1    | 1340 | G    |
| 1   | D1    | 1343 | G    |
| 1   | D1    | 1344 | A    |
| 1   | D1    | 1351 | U    |
| 1   | D1    | 1353 | G    |
| 1   | D1    | 1357 | A    |
| 1   | D1    | 1358 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1361 | U    |
| 1   | D1    | 1363 | A    |
| 1   | D1    | 1371 | G    |
| 1   | D1    | 1374 | C    |
| 1   | D1    | 1375 | A    |
| 1   | D1    | 1376 | A    |
| 1   | D1    | 1377 | A    |
| 1   | D1    | 1378 | U    |
| 1   | D1    | 1380 | C    |
| 1   | D1    | 1381 | G    |
| 1   | D1    | 1382 | A    |
| 1   | D1    | 1383 | G    |
| 1   | D1    | 1384 | G    |
| 1   | D1    | 1387 | U    |
| 1   | D1    | 1392 | G    |
| 1   | D1    | 1395 | U    |
| 1   | D1    | 1399 | A    |
| 1   | D1    | 1400 | G    |
| 1   | D1    | 1401 | G    |
| 1   | D1    | 1403 | C    |
| 1   | D1    | 1405 | U    |
| 1   | D1    | 1406 | G    |
| 1   | D1    | 1410 | G    |
| 1   | D1    | 1413 | G    |
| 1   | D1    | 1416 | U    |
| 1   | D1    | 1424 | U    |
| 1   | D1    | 1425 | U    |
| 1   | D1    | 1426 | G    |
| 1   | D1    | 1430 | G    |
| 1   | D1    | 1431 | U    |
| 1   | D1    | 1434 | G    |
| 1   | D1    | 1435 | C    |
| 1   | D1    | 1437 | U    |
| 1   | D1    | 1445 | G    |
| 1   | D1    | 1446 | C    |
| 1   | D1    | 1456 | U    |
| 1   | D1    | 1460 | G    |
| 1   | D1    | 1461 | A    |
| 1   | D1    | 1463 | C    |
| 1   | D1    | 1468 | U    |
| 1   | D1    | 1469 | G    |
| 1   | D1    | 1472 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1478 | A    |
| 1   | D1    | 1479 | A    |
| 1   | D1    | 1481 | U    |
| 1   | D1    | 1482 | A    |
| 1   | D1    | 1494 | A    |
| 1   | D1    | 1495 | C    |
| 1   | D1    | 1496 | U    |
| 1   | D1    | 1507 | A    |
| 1   | D1    | 1508 | A    |
| 1   | D1    | 1509 | G    |
| 1   | D1    | 1521 | U    |
| 1   | D1    | 1528 | G    |
| 1   | D1    | 1533 | G    |
| 1   | D1    | 1534 | C    |
| 1   | D1    | 1537 | U    |
| 1   | D1    | 1538 | U    |
| 1   | D1    | 1540 | U    |
| 1   | D1    | 1545 | G    |
| 1   | D1    | 1547 | G    |
| 1   | D1    | 1548 | U    |
| 1   | D1    | 1549 | U    |
| 1   | D1    | 1551 | C    |
| 1   | D1    | 1552 | U    |
| 1   | D1    | 1562 | G    |
| 1   | D1    | 1575 | U    |
| 1   | D1    | 1578 | U    |
| 1   | D1    | 1581 | C    |
| 1   | D1    | 1582 | A    |
| 1   | D1    | 1583 | A    |
| 1   | D1    | 1584 | U    |
| 1   | D1    | 1585 | A    |
| 1   | D1    | 1587 | A    |
| 1   | D1    | 1588 | A    |
| 1   | D1    | 1589 | G    |
| 1   | D1    | 1595 | A    |
| 1   | D1    | 1596 | U    |
| 1   | D1    | 1597 | U    |
| 1   | D1    | 1599 | G    |
| 1   | D1    | 1600 | U    |
| 1   | D1    | 1605 | G    |
| 1   | D1    | 1606 | U    |
| 1   | D1    | 1608 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1609 | U    |
| 1   | D1    | 1613 | A    |
| 1   | D1    | 1614 | A    |
| 1   | D1    | 1618 | A    |
| 1   | D1    | 1621 | G    |
| 1   | D1    | 1625 | U    |
| 1   | D1    | 1629 | U    |
| 1   | D1    | 1630 | A    |
| 1   | D1    | 1631 | U    |
| 1   | D1    | 1632 | U    |
| 1   | D1    | 1633 | C    |
| 1   | D1    | 1638 | A    |
| 1   | D1    | 1639 | G    |
| 1   | D1    | 1643 | G    |
| 1   | D1    | 1644 | A    |
| 1   | D1    | 1645 | C    |
| 1   | D1    | 1649 | G    |
| 1   | D1    | 1650 | U    |
| 1   | D1    | 1651 | A    |
| 1   | D1    | 1652 | U    |
| 1   | D1    | 1654 | G    |
| 1   | D1    | 1655 | A    |
| 1   | D1    | 1656 | G    |
| 1   | D1    | 1662 | A    |
| 1   | D1    | 1663 | C    |
| 1   | D1    | 1666 | A    |
| 1   | D1    | 1668 | A    |
| 1   | D1    | 1676 | G    |
| 1   | D1    | 1681 | C    |
| 1   | D1    | 1682 | G    |
| 1   | D1    | 1686 | G    |
| 1   | D1    | 1698 | G    |
| 1   | D1    | 1714 | C    |
| 1   | D1    | 1715 | U    |
| 1   | D1    | 1716 | U    |
| 1   | D1    | 1717 | U    |
| 1   | D1    | 1726 | C    |
| 1   | D1    | 1729 | U    |
| 1   | D1    | 1737 | A    |
| 1   | D1    | 1738 | A    |
| 1   | D1    | 1739 | A    |
| 1   | D1    | 1740 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1741 | U    |
| 1   | D1    | 1742 | G    |
| 1   | D1    | 1748 | U    |
| 1   | D1    | 1753 | A    |
| 1   | D1    | 1754 | G    |
| 1   | D1    | 1759 | C    |
| 1   | D1    | 1760 | G    |
| 1   | D1    | 1766 | A    |
| 1   | D1    | 1767 | U    |
| 1   | D1    | 1768 | G    |
| 1   | D1    | 1775 | A    |
| 1   | D1    | 1776 | G    |
| 1   | D1    | 1777 | A    |
| 1   | D1    | 1783 | U    |
| 1   | D1    | 1793 | A    |
| 1   | D1    | 1798 | U    |
| 1   | D1    | 1805 | C    |
| 1   | D1    | 1806 | G    |
| 1   | D1    | 1807 | C    |
| 1   | D1    | 1819 | C    |
| 1   | D1    | 1820 | U    |
| 1   | D1    | 1821 | U    |
| 1   | D1    | 1823 | A    |
| 1   | D1    | 1834 | G    |
| 1   | D1    | 1839 | A    |
| 1   | D1    | 1840 | U    |
| 1   | D1    | 1841 | A    |
| 1   | D1    | 1845 | U    |
| 1   | D1    | 1846 | C    |
| 1   | D1    | 1852 | A    |
| 1   | D1    | 1861 | C    |
| 1   | D1    | 1863 | A    |
| 1   | D1    | 1865 | A    |
| 1   | D1    | 1866 | A    |
| 1   | D1    | 1869 | G    |
| 1   | D1    | 1870 | C    |
| 1   | D1    | 1873 | C    |
| 1   | D1    | 1874 | A    |
| 1   | D1    | 1882 | A    |
| 1   | D1    | 1885 | G    |
| 1   | D1    | 1886 | U    |
| 1   | D1    | 1890 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1895 | U    |
| 1   | D1    | 1902 | C    |
| 1   | D1    | 1903 | A    |
| 1   | D1    | 1904 | U    |
| 1   | D1    | 1905 | A    |
| 1   | D1    | 1908 | A    |
| 1   | D1    | 1910 | A    |
| 1   | D1    | 1913 | G    |
| 1   | D1    | 1917 | A    |
| 1   | D1    | 1919 | A    |
| 1   | D1    | 1920 | A    |
| 1   | D1    | 1923 | G    |
| 1   | D1    | 1924 | A    |
| 1   | D1    | 1925 | A    |
| 1   | D1    | 1929 | G    |
| 1   | D1    | 1930 | G    |
| 1   | D1    | 1937 | G    |
| 1   | D1    | 1938 | G    |
| 1   | D1    | 1942 | C    |
| 1   | D1    | 1943 | G    |
| 1   | D1    | 1950 | C    |
| 1   | D1    | 1951 | G    |
| 1   | D1    | 1952 | G    |
| 1   | D1    | 1955 | U    |
| 1   | D1    | 1956 | A    |
| 1   | D1    | 1957 | A    |
| 1   | D1    | 1958 | G    |
| 1   | D1    | 2101 | G    |
| 1   | D1    | 2102 | A    |
| 1   | D1    | 2106 | G    |
| 1   | D1    | 2107 | A    |
| 1   | D1    | 2108 | A    |
| 1   | D1    | 2109 | G    |
| 1   | D1    | 2110 | C    |
| 1   | D1    | 2111 | G    |
| 1   | D1    | 2117 | A    |
| 1   | D1    | 2118 | G    |
| 1   | D1    | 2119 | G    |
| 1   | D1    | 2127 | A    |
| 1   | D1    | 2130 | G    |
| 1   | D1    | 2133 | U    |
| 1   | D1    | 2134 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2136 | U    |
| 1   | D1    | 2146 | G    |
| 1   | D1    | 2147 | C    |
| 1   | D1    | 2150 | U    |
| 1   | D1    | 2154 | A    |
| 1   | D1    | 2156 | G    |
| 1   | D1    | 2157 | G    |
| 1   | D1    | 2159 | C    |
| 1   | D1    | 2162 | A    |
| 1   | D1    | 2165 | A    |
| 1   | D1    | 2178 | A    |
| 1   | D1    | 2182 | G    |
| 1   | D1    | 2183 | A    |
| 1   | D1    | 2189 | G    |
| 1   | D1    | 2190 | C    |
| 1   | D1    | 2196 | G    |
| 1   | D1    | 2199 | C    |
| 1   | D1    | 2200 | U    |
| 1   | D1    | 2202 | A    |
| 1   | D1    | 2216 | G    |
| 1   | D1    | 2217 | C    |
| 1   | D1    | 2218 | A    |
| 1   | D1    | 2220 | U    |
| 1   | D1    | 2223 | A    |
| 1   | D1    | 2239 | A    |
| 1   | D1    | 2240 | C    |
| 1   | D1    | 2241 | G    |
| 1   | D1    | 2244 | G    |
| 1   | D1    | 2249 | U    |
| 1   | D1    | 2251 | A    |
| 1   | D1    | 2252 | C    |
| 1   | D1    | 2253 | U    |
| 1   | D1    | 2254 | A    |
| 1   | D1    | 2255 | U    |
| 1   | D1    | 2256 | G    |
| 1   | D1    | 2257 | A    |
| 1   | D1    | 2265 | A    |
| 1   | D1    | 2266 | A    |
| 1   | D1    | 2268 | G    |
| 1   | D1    | 2271 | G    |
| 1   | D1    | 2273 | C    |
| 1   | D1    | 2275 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2276 | A    |
| 1   | D1    | 2277 | U    |
| 1   | D1    | 2278 | G    |
| 1   | D1    | 2279 | C    |
| 1   | D1    | 2280 | C    |
| 1   | D1    | 2281 | U    |
| 1   | D1    | 2283 | G    |
| 1   | D1    | 2286 | A    |
| 1   | D1    | 2292 | U    |
| 1   | D1    | 2293 | U    |
| 1   | D1    | 2298 | A    |
| 1   | D1    | 2301 | C    |
| 1   | D1    | 2302 | G    |
| 1   | D1    | 2303 | C    |
| 1   | D1    | 2304 | A    |
| 1   | D1    | 2305 | U    |
| 1   | D1    | 2308 | A    |
| 1   | D1    | 2309 | U    |
| 1   | D1    | 2310 | G    |
| 1   | D1    | 2317 | U    |
| 1   | D1    | 2318 | G    |
| 1   | D1    | 2321 | A    |
| 1   | D1    | 2324 | A    |
| 1   | D1    | 2329 | U    |
| 1   | D1    | 2330 | G    |
| 1   | D1    | 2331 | U    |
| 1   | D1    | 2335 | U    |
| 1   | D1    | 2342 | U    |
| 1   | D1    | 2343 | A    |
| 1   | D1    | 2344 | U    |
| 1   | D1    | 2353 | C    |
| 1   | D1    | 2356 | A    |
| 1   | D1    | 2357 | C    |
| 1   | D1    | 2358 | A    |
| 1   | D1    | 2361 | U    |
| 1   | D1    | 2366 | G    |
| 1   | D1    | 2367 | A    |
| 1   | D1    | 2368 | A    |
| 1   | D1    | 2369 | C    |
| 1   | D1    | 2370 | G    |
| 1   | D1    | 2372 | G    |
| 1   | D1    | 2378 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2379 | A    |
| 1   | D1    | 2380 | U    |
| 1   | D1    | 2383 | U    |
| 1   | D1    | 2386 | G    |
| 1   | D1    | 2388 | G    |
| 1   | D1    | 2391 | G    |
| 1   | D1    | 2392 | A    |
| 1   | D1    | 2393 | A    |
| 1   | D1    | 2394 | A    |
| 1   | D1    | 2396 | A    |
| 1   | D1    | 2397 | A    |
| 1   | D1    | 2398 | G    |
| 1   | D1    | 2399 | A    |
| 1   | D1    | 2400 | C    |
| 1   | D1    | 2406 | U    |
| 1   | D1    | 2407 | G    |
| 1   | D1    | 2410 | C    |
| 1   | D1    | 2412 | U    |
| 1   | D1    | 2413 | G    |
| 1   | D1    | 2414 | A    |
| 1   | D1    | 2416 | U    |
| 1   | D1    | 2417 | C    |
| 1   | D1    | 2421 | U    |
| 1   | D1    | 2430 | G    |
| 1   | D1    | 2508 | U    |
| 1   | D1    | 2509 | U    |
| 1   | D1    | 2510 | A    |
| 1   | D1    | 2515 | G    |
| 1   | D1    | 2517 | G    |
| 1   | D1    | 2518 | A    |
| 1   | D1    | 2519 | A    |
| 1   | D1    | 2520 | G    |
| 1   | D1    | 2521 | A    |
| 1   | D1    | 2524 | A    |
| 1   | D1    | 2532 | G    |
| 1   | D1    | 2541 | U    |
| 1   | D1    | 2542 | U    |
| 1   | D1    | 2543 | C    |
| 1   | D1    | 2545 | A    |
| 1   | D1    | 2546 | A    |
| 1   | D1    | 2548 | G    |
| 1   | D1    | 2549 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2550 | U    |
| 1   | D1    | 2551 | A    |
| 1   | D1    | 2552 | A    |
| 1   | D1    | 2554 | G    |
| 1   | D1    | 2560 | U    |
| 1   | D1    | 2562 | U    |
| 1   | D1    | 2563 | U    |
| 1   | D1    | 2566 | C    |
| 1   | D1    | 2569 | A    |
| 1   | D1    | 2570 | U    |
| 1   | D1    | 2574 | U    |
| 1   | D1    | 2575 | G    |
| 1   | D1    | 2576 | C    |
| 1   | D1    | 2577 | G    |
| 1   | D1    | 2578 | A    |
| 1   | D1    | 2580 | A    |
| 1   | D1    | 2582 | A    |
| 1   | D1    | 2583 | C    |
| 1   | D1    | 2595 | G    |
| 1   | D1    | 2603 | G    |
| 1   | D1    | 2614 | A    |
| 1   | D1    | 2615 | A    |
| 1   | D1    | 2616 | U    |
| 1   | D1    | 2617 | G    |
| 1   | D1    | 2618 | C    |
| 1   | D1    | 2622 | U    |
| 1   | D1    | 2625 | A    |
| 1   | D1    | 2626 | A    |
| 1   | D1    | 2627 | C    |
| 1   | D1    | 2633 | C    |
| 1   | D1    | 2634 | G    |
| 1   | D1    | 2635 | C    |
| 1   | D1    | 2637 | G    |
| 1   | D1    | 2638 | G    |
| 1   | D1    | 2639 | C    |
| 1   | D1    | 2640 | G    |
| 1   | D1    | 2641 | U    |
| 1   | D1    | 2642 | C    |
| 1   | D1    | 2644 | U    |
| 1   | D1    | 2645 | A    |
| 1   | D1    | 2646 | A    |
| 1   | D1    | 2647 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2655 | C    |
| 1   | D1    | 2666 | G    |
| 1   | D1    | 2667 | A    |
| 1   | D1    | 2670 | U    |
| 1   | D1    | 2672 | U    |
| 1   | D1    | 2678 | A    |
| 1   | D1    | 2679 | G    |
| 1   | D1    | 2680 | A    |
| 1   | D1    | 2683 | A    |
| 1   | D1    | 2684 | A    |
| 1   | D1    | 2685 | A    |
| 1   | D1    | 2693 | A    |
| 1   | D1    | 2702 | U    |
| 1   | D1    | 2703 | G    |
| 1   | D1    | 2704 | A    |
| 1   | D1    | 2705 | U    |
| 1   | D1    | 2706 | U    |
| 1   | D1    | 2707 | U    |
| 1   | D1    | 2708 | U    |
| 1   | D1    | 2717 | G    |
| 1   | D1    | 2718 | U    |
| 1   | D1    | 2721 | G    |
| 1   | D1    | 2726 | C    |
| 1   | D1    | 2727 | A    |
| 1   | D1    | 2728 | A    |
| 1   | D1    | 2729 | A    |
| 1   | D1    | 2735 | A    |
| 1   | D1    | 2741 | U    |
| 1   | D1    | 2742 | G    |
| 1   | D1    | 2743 | G    |
| 1   | D1    | 2744 | C    |
| 1   | D1    | 2749 | C    |
| 1   | D1    | 2751 | A    |
| 1   | D1    | 2761 | U    |
| 1   | D1    | 2762 | U    |
| 1   | D1    | 2765 | C    |
| 1   | D1    | 2766 | A    |
| 1   | D1    | 2767 | A    |
| 1   | D1    | 2768 | G    |
| 1   | D1    | 2772 | U    |
| 1   | D1    | 2774 | A    |
| 1   | D1    | 2775 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2779 | G    |
| 1   | D1    | 2784 | G    |
| 1   | D1    | 2787 | A    |
| 1   | D1    | 2788 | G    |
| 1   | D1    | 2789 | A    |
| 1   | D1    | 2790 | A    |
| 1   | D1    | 2791 | A    |
| 1   | D1    | 2798 | C    |
| 1   | D1    | 2802 | G    |
| 1   | D1    | 2804 | G    |
| 1   | D1    | 2805 | A    |
| 1   | D1    | 2806 | U    |
| 1   | D1    | 2815 | U    |
| 1   | D1    | 2816 | G    |
| 1   | D1    | 2817 | U    |
| 1   | D1    | 2821 | A    |
| 1   | D1    | 2822 | G    |
| 1   | D1    | 2827 | G    |
| 1   | D1    | 2829 | G    |
| 1   | D1    | 2830 | U    |
| 1   | D1    | 2831 | U    |
| 1   | D1    | 2833 | A    |
| 1   | D1    | 2835 | A    |
| 1   | D1    | 2847 | U    |
| 1   | D1    | 2848 | U    |
| 1   | D1    | 2849 | U    |
| 1   | D1    | 2855 | C    |
| 1   | D1    | 2857 | U    |
| 1   | D1    | 2858 | C    |
| 1   | D1    | 2859 | G    |
| 1   | D1    | 2860 | A    |
| 1   | D1    | 2863 | U    |
| 1   | D1    | 2875 | A    |
| 1   | D1    | 2876 | U    |
| 1   | D1    | 2887 | C    |
| 1   | D1    | 2899 | C    |
| 1   | D1    | 2900 | G    |
| 1   | D1    | 2902 | G    |
| 1   | D1    | 2907 | A    |
| 1   | D1    | 2911 | U    |
| 1   | D1    | 2912 | U    |
| 1   | D1    | 2913 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2916 | C    |
| 1   | D1    | 2923 | U    |
| 1   | D1    | 2924 | A    |
| 1   | D1    | 2925 | G    |
| 1   | D1    | 2930 | C    |
| 1   | D1    | 2932 | U    |
| 1   | D1    | 2933 | G    |
| 1   | D1    | 2934 | A    |
| 1   | D1    | 2935 | G    |
| 1   | D1    | 2936 | C    |
| 1   | D1    | 2947 | C    |
| 1   | D1    | 2955 | A    |
| 1   | D1    | 2956 | G    |
| 1   | D1    | 2958 | C    |
| 1   | D1    | 2959 | A    |
| 1   | D1    | 2960 | G    |
| 1   | D1    | 2961 | G    |
| 1   | D1    | 2962 | U    |
| 1   | D1    | 2965 | G    |
| 1   | D1    | 2967 | U    |
| 1   | D1    | 2971 | C    |
| 1   | D1    | 2972 | C    |
| 1   | D1    | 2978 | G    |
| 1   | D1    | 2985 | C    |
| 1   | D1    | 2986 | G    |
| 1   | D1    | 2995 | A    |
| 1   | D1    | 2996 | C    |
| 1   | D1    | 2999 | U    |
| 1   | D1    | 3000 | A    |
| 1   | D1    | 3001 | A    |
| 1   | D1    | 3008 | U    |
| 1   | D1    | 3011 | G    |
| 1   | D1    | 3012 | U    |
| 1   | D1    | 3019 | G    |
| 1   | D1    | 3021 | A    |
| 1   | D1    | 3028 | A    |
| 1   | D1    | 3036 | U    |
| 1   | D1    | 3041 | G    |
| 1   | D1    | 3044 | A    |
| 1   | D1    | 3045 | A    |
| 1   | D1    | 3046 | A    |
| 1   | D1    | 3047 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 3048 | A    |
| 1   | D1    | 3063 | G    |
| 1   | D1    | 3066 | A    |
| 1   | D1    | 3068 | U    |
| 1   | D1    | 3072 | G    |
| 1   | D1    | 3080 | A    |
| 1   | D1    | 3081 | C    |
| 1   | D1    | 3087 | G    |
| 1   | D1    | 3088 | U    |
| 1   | D1    | 3104 | G    |
| 1   | D1    | 3105 | G    |
| 1   | D1    | 3106 | C    |
| 1   | D1    | 3107 | C    |
| 1   | D1    | 3109 | C    |
| 1   | D1    | 3110 | U    |
| 1   | D1    | 3111 | A    |
| 1   | D1    | 3112 | A    |
| 1   | D1    | 3114 | U    |
| 1   | D1    | 3115 | C    |
| 1   | D1    | 3116 | A    |
| 1   | D1    | 3118 | A    |
| 1   | D1    | 3119 | A    |
| 1   | D1    | 3120 | U    |
| 1   | D1    | 3123 | A    |
| 1   | D1    | 3125 | G    |
| 1   | D1    | 3128 | G    |
| 1   | D1    | 3129 | G    |
| 1   | D1    | 3130 | A    |
| 1   | D1    | 3131 | A    |
| 1   | D1    | 3132 | A    |
| 1   | D1    | 3133 | G    |
| 1   | D1    | 3134 | C    |
| 1   | D1    | 3138 | G    |
| 1   | D1    | 3139 | U    |
| 1   | D1    | 3143 | A    |
| 1   | D1    | 3145 | U    |
| 1   | D1    | 3146 | G    |
| 1   | D1    | 3147 | U    |
| 1   | D1    | 3151 | G    |
| 1   | D1    | 3152 | A    |
| 1   | D1    | 3154 | A    |
| 1   | D1    | 3155 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 3156 | A    |
| 1   | D1    | 3157 | C    |
| 1   | D1    | 3158 | G    |
| 1   | D1    | 3159 | A    |
| 1   | D1    | 3160 | A    |
| 1   | D1    | 3161 | A    |
| 1   | D1    | 3163 | A    |
| 1   | D1    | 3167 | U    |
| 1   | D1    | 3168 | A    |
| 1   | D1    | 3169 | A    |
| 1   | D1    | 3173 | U    |
| 1   | D1    | 3174 | U    |
| 1   | D1    | 3175 | A    |
| 1   | D1    | 3176 | A    |
| 1   | D1    | 3177 | G    |
| 1   | D1    | 3178 | U    |
| 1   | D1    | 3179 | U    |
| 1   | D1    | 3183 | A    |
| 1   | D1    | 3184 | A    |
| 1   | D1    | 3185 | G    |
| 1   | D1    | 3186 | G    |
| 1   | D1    | 3188 | A    |
| 1   | D1    | 3191 | G    |
| 1   | D1    | 3192 | C    |
| 1   | D1    | 3193 | G    |
| 1   | D1    | 3197 | A    |
| 1   | D1    | 3201 | G    |
| 1   | D1    | 3202 | C    |
| 1   | D1    | 3205 | A    |
| 1   | D1    | 3206 | A    |
| 1   | D1    | 3207 | A    |
| 1   | D1    | 3208 | A    |
| 1   | D1    | 3215 | C    |
| 1   | D1    | 3217 | U    |
| 1   | D1    | 3219 | A    |
| 1   | D1    | 3224 | C    |
| 1   | D1    | 3226 | A    |
| 1   | D1    | 3229 | C    |
| 1   | D1    | 3230 | G    |
| 1   | D1    | 3231 | U    |
| 1   | D1    | 3232 | A    |
| 1   | D1    | 3234 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 3235 | U    |
| 1   | D1    | 3236 | C    |
| 1   | D1    | 3237 | C    |
| 1   | D1    | 3238 | A    |
| 1   | D1    | 3241 | U    |
| 1   | D1    | 3242 | U    |
| 1   | D1    | 3247 | U    |
| 1   | D1    | 3251 | C    |
| 1   | D1    | 3252 | G    |
| 1   | D1    | 3264 | U    |
| 1   | D1    | 3265 | A    |
| 1   | D1    | 3267 | A    |
| 1   | D1    | 3270 | A    |
| 1   | D1    | 3274 | A    |
| 1   | D1    | 3276 | C    |
| 1   | D1    | 3277 | A    |
| 1   | D1    | 3278 | U    |
| 1   | D1    | 3279 | G    |
| 1   | D1    | 3292 | U    |
| 1   | D1    | 3298 | U    |
| 1   | D1    | 3299 | G    |
| 1   | D1    | 3307 | A    |
| 1   | D1    | 3311 | U    |
| 1   | D1    | 3312 | C    |
| 1   | D1    | 3324 | U    |
| 1   | D1    | 3325 | G    |
| 1   | D1    | 3326 | A    |
| 1   | D1    | 3332 | A    |
| 1   | D1    | 3333 | G    |
| 1   | D1    | 3334 | C    |
| 1   | D1    | 3338 | U    |
| 1   | D1    | 3343 | U    |
| 1   | D1    | 3344 | U    |
| 1   | D1    | 3345 | A    |
| 1   | D1    | 3352 | U    |
| 20  | E2    | 2    | G    |
| 20  | E2    | 3    | A    |
| 20  | E2    | 4    | A    |
| 20  | E2    | 5    | A    |
| 20  | E2    | 6    | A    |
| 20  | E2    | 7    | U    |
| 20  | E2    | 8    | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | E2    | 17  | U    |
| 20  | E2    | 26  | A    |
| 20  | E2    | 27  | G    |
| 20  | E2    | 28  | G    |
| 20  | E2    | 34  | G    |
| 20  | E2    | 35  | U    |
| 20  | E2    | 36  | G    |
| 20  | E2    | 38  | C    |
| 20  | E2    | 43  | A    |
| 20  | E2    | 44  | A    |
| 20  | E2    | 45  | G    |
| 20  | E2    | 47  | A    |
| 20  | E2    | 55  | A    |
| 20  | E2    | 62  | A    |
| 20  | E2    | 65  | C    |
| 20  | E2    | 66  | G    |
| 20  | E2    | 67  | C    |
| 20  | E2    | 73  | G    |
| 20  | E2    | 74  | A    |
| 20  | E2    | 75  | A    |
| 20  | E2    | 82  | A    |
| 20  | E2    | 84  | C    |
| 20  | E2    | 85  | C    |
| 20  | E2    | 86  | G    |
| 20  | E2    | 87  | C    |
| 20  | E2    | 88  | G    |
| 20  | E2    | 89  | A    |
| 20  | E2    | 91  | U    |
| 20  | E2    | 92  | C    |
| 20  | E2    | 96  | A    |
| 20  | E2    | 97  | G    |
| 20  | E2    | 100 | C    |
| 20  | E2    | 105 | A    |
| 20  | E2    | 106 | A    |
| 20  | E2    | 107 | C    |
| 20  | E2    | 108 | G    |
| 20  | E2    | 112 | G    |
| 20  | E2    | 113 | U    |
| 20  | E2    | 114 | G    |
| 20  | E2    | 117 | G    |
| 20  | E2    | 122 | U    |
| 20  | E2    | 127 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | E2    | 131 | C    |
| 20  | E2    | 134 | C    |
| 20  | E2    | 135 | A    |
| 20  | E2    | 137 | G    |
| 20  | E2    | 140 | U    |
| 20  | E2    | 141 | G    |
| 20  | E2    | 145 | C    |
| 20  | E2    | 146 | A    |
| 20  | E2    | 148 | U    |
| 20  | E2    | 149 | G    |
| 20  | E2    | 150 | U    |
| 21  | E3    | 5   | U    |
| 21  | E3    | 7   | G    |
| 21  | E3    | 9   | C    |
| 21  | E3    | 10  | C    |
| 21  | E3    | 13  | A    |
| 21  | E3    | 22  | A    |
| 21  | E3    | 25  | A    |
| 21  | E3    | 27  | A    |
| 21  | E3    | 38  | U    |
| 21  | E3    | 40  | C    |
| 21  | E3    | 41  | G    |
| 21  | E3    | 48  | G    |
| 21  | E3    | 49  | A    |
| 21  | E3    | 51  | G    |
| 21  | E3    | 53  | U    |
| 21  | E3    | 54  | A    |
| 21  | E3    | 55  | A    |
| 21  | E3    | 60  | C    |
| 21  | E3    | 62  | U    |
| 21  | E3    | 63  | A    |
| 21  | E3    | 64  | A    |
| 21  | E3    | 65  | G    |
| 21  | E3    | 82  | G    |
| 21  | E3    | 83  | G    |
| 21  | E3    | 89  | G    |
| 21  | E3    | 91  | C    |
| 21  | E3    | 97  | G    |
| 21  | E3    | 98  | G    |
| 21  | E3    | 100 | A    |
| 21  | E3    | 101 | A    |
| 21  | E3    | 105 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21  | E3    | 107 | A    |
| 21  | E3    | 110 | G    |
| 21  | E3    | 111 | U    |
| 21  | E3    | 112 | C    |
| 21  | E3    | 113 | G    |
| 21  | E3    | 118 | C    |
| 21  | E3    | 120 | U    |
| 1   | F1    | 9   | G    |
| 1   | F1    | 16  | G    |
| 1   | F1    | 17  | C    |
| 1   | F1    | 19  | A    |
| 1   | F1    | 20  | G    |
| 1   | F1    | 24  | A    |
| 1   | F1    | 27  | C    |
| 1   | F1    | 32  | A    |
| 1   | F1    | 36  | U    |
| 1   | F1    | 38  | A    |
| 1   | F1    | 41  | A    |
| 1   | F1    | 43  | A    |
| 1   | F1    | 47  | G    |
| 1   | F1    | 48  | U    |
| 1   | F1    | 57  | G    |
| 1   | F1    | 58  | A    |
| 1   | F1    | 63  | A    |
| 1   | F1    | 64  | A    |
| 1   | F1    | 66  | C    |
| 1   | F1    | 67  | U    |
| 1   | F1    | 69  | A    |
| 1   | F1    | 70  | C    |
| 1   | F1    | 71  | U    |
| 1   | F1    | 72  | A    |
| 1   | F1    | 74  | G    |
| 1   | F1    | 75  | A    |
| 1   | F1    | 81  | C    |
| 1   | F1    | 83  | A    |
| 1   | F1    | 84  | G    |
| 1   | F1    | 87  | A    |
| 1   | F1    | 89  | G    |
| 1   | F1    | 90  | G    |
| 1   | F1    | 92  | G    |
| 1   | F1    | 93  | A    |
| 1   | F1    | 95  | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 97  | A    |
| 1   | F1    | 107 | A    |
| 1   | F1    | 108 | G    |
| 1   | F1    | 112 | A    |
| 1   | F1    | 114 | A    |
| 1   | F1    | 115 | G    |
| 1   | F1    | 116 | U    |
| 1   | F1    | 118 | A    |
| 1   | F1    | 119 | A    |
| 1   | F1    | 120 | A    |
| 1   | F1    | 121 | A    |
| 1   | F1    | 122 | U    |
| 1   | F1    | 127 | A    |
| 1   | F1    | 128 | G    |
| 1   | F1    | 130 | G    |
| 1   | F1    | 133 | C    |
| 1   | F1    | 134 | A    |
| 1   | F1    | 135 | A    |
| 1   | F1    | 136 | C    |
| 1   | F1    | 137 | A    |
| 1   | F1    | 138 | C    |
| 1   | F1    | 139 | A    |
| 1   | F1    | 143 | G    |
| 1   | F1    | 147 | U    |
| 1   | F1    | 148 | G    |
| 1   | F1    | 149 | U    |
| 1   | F1    | 152 | U    |
| 1   | F1    | 156 | A    |
| 1   | F1    | 157 | A    |
| 1   | F1    | 162 | C    |
| 1   | F1    | 166 | C    |
| 1   | F1    | 169 | A    |
| 1   | F1    | 174 | A    |
| 1   | F1    | 176 | G    |
| 1   | F1    | 177 | C    |
| 1   | F1    | 182 | C    |
| 1   | F1    | 188 | A    |
| 1   | F1    | 189 | G    |
| 1   | F1    | 190 | U    |
| 1   | F1    | 191 | U    |
| 1   | F1    | 193 | C    |
| 1   | F1    | 196 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 201 | A    |
| 1   | F1    | 203 | G    |
| 1   | F1    | 205 | C    |
| 1   | F1    | 207 | U    |
| 1   | F1    | 211 | A    |
| 1   | F1    | 214 | G    |
| 1   | F1    | 215 | G    |
| 1   | F1    | 217 | U    |
| 1   | F1    | 218 | G    |
| 1   | F1    | 219 | A    |
| 1   | F1    | 220 | C    |
| 1   | F1    | 221 | A    |
| 1   | F1    | 223 | C    |
| 1   | F1    | 224 | C    |
| 1   | F1    | 227 | G    |
| 1   | F1    | 231 | U    |
| 1   | F1    | 232 | C    |
| 1   | F1    | 233 | G    |
| 1   | F1    | 240 | A    |
| 1   | F1    | 241 | A    |
| 1   | F1    | 242 | G    |
| 1   | F1    | 243 | G    |
| 1   | F1    | 250 | U    |
| 1   | F1    | 252 | A    |
| 1   | F1    | 254 | G    |
| 1   | F1    | 255 | G    |
| 1   | F1    | 258 | A    |
| 1   | F1    | 261 | U    |
| 1   | F1    | 262 | C    |
| 1   | F1    | 264 | A    |
| 1   | F1    | 265 | A    |
| 1   | F1    | 268 | G    |
| 1   | F1    | 281 | G    |
| 1   | F1    | 282 | G    |
| 1   | F1    | 283 | A    |
| 1   | F1    | 284 | U    |
| 1   | F1    | 289 | G    |
| 1   | F1    | 292 | C    |
| 1   | F1    | 293 | U    |
| 1   | F1    | 294 | A    |
| 1   | F1    | 297 | U    |
| 1   | F1    | 299 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 300 | G    |
| 1   | F1    | 304 | U    |
| 1   | F1    | 305 | A    |
| 1   | F1    | 307 | A    |
| 1   | F1    | 315 | U    |
| 1   | F1    | 328 | A    |
| 1   | F1    | 329 | C    |
| 1   | F1    | 332 | G    |
| 1   | F1    | 333 | G    |
| 1   | F1    | 334 | G    |
| 1   | F1    | 335 | A    |
| 1   | F1    | 337 | A    |
| 1   | F1    | 338 | C    |
| 1   | F1    | 339 | C    |
| 1   | F1    | 340 | G    |
| 1   | F1    | 341 | A    |
| 1   | F1    | 351 | A    |
| 1   | F1    | 352 | G    |
| 1   | F1    | 361 | A    |
| 1   | F1    | 362 | G    |
| 1   | F1    | 363 | G    |
| 1   | F1    | 368 | A    |
| 1   | F1    | 369 | U    |
| 1   | F1    | 370 | G    |
| 1   | F1    | 373 | A    |
| 1   | F1    | 374 | A    |
| 1   | F1    | 375 | G    |
| 1   | F1    | 376 | A    |
| 1   | F1    | 377 | A    |
| 1   | F1    | 383 | A    |
| 1   | F1    | 385 | A    |
| 1   | F1    | 386 | A    |
| 1   | F1    | 389 | G    |
| 1   | F1    | 396 | A    |
| 1   | F1    | 397 | A    |
| 1   | F1    | 399 | A    |
| 1   | F1    | 400 | C    |
| 1   | F1    | 414 | G    |
| 1   | F1    | 416 | A    |
| 1   | F1    | 418 | G    |
| 1   | F1    | 419 | A    |
| 1   | F1    | 432 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 433 | C    |
| 1   | F1    | 434 | A    |
| 1   | F1    | 435 | A    |
| 1   | F1    | 438 | A    |
| 1   | F1    | 439 | A    |
| 1   | F1    | 440 | C    |
| 1   | F1    | 442 | G    |
| 1   | F1    | 448 | C    |
| 1   | F1    | 449 | G    |
| 1   | F1    | 450 | C    |
| 1   | F1    | 451 | A    |
| 1   | F1    | 453 | A    |
| 1   | F1    | 460 | A    |
| 1   | F1    | 461 | A    |
| 1   | F1    | 465 | C    |
| 1   | F1    | 466 | U    |
| 1   | F1    | 467 | A    |
| 1   | F1    | 469 | U    |
| 1   | F1    | 470 | C    |
| 1   | F1    | 471 | A    |
| 1   | F1    | 472 | C    |
| 1   | F1    | 486 | C    |
| 1   | F1    | 487 | G    |
| 1   | F1    | 489 | A    |
| 1   | F1    | 490 | A    |
| 1   | F1    | 492 | A    |
| 1   | F1    | 498 | A    |
| 1   | F1    | 499 | U    |
| 1   | F1    | 501 | A    |
| 1   | F1    | 502 | G    |
| 1   | F1    | 503 | U    |
| 1   | F1    | 505 | A    |
| 1   | F1    | 507 | G    |
| 1   | F1    | 516 | C    |
| 1   | F1    | 517 | A    |
| 1   | F1    | 518 | G    |
| 1   | F1    | 519 | A    |
| 1   | F1    | 521 | C    |
| 1   | F1    | 523 | U    |
| 1   | F1    | 525 | C    |
| 1   | F1    | 526 | U    |
| 1   | F1    | 527 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 528 | C    |
| 1   | F1    | 532 | G    |
| 1   | F1    | 533 | G    |
| 1   | F1    | 539 | A    |
| 1   | F1    | 541 | A    |
| 1   | F1    | 543 | A    |
| 1   | F1    | 552 | U    |
| 1   | F1    | 553 | C    |
| 1   | F1    | 556 | A    |
| 1   | F1    | 562 | G    |
| 1   | F1    | 564 | A    |
| 1   | F1    | 565 | G    |
| 1   | F1    | 566 | U    |
| 1   | F1    | 567 | C    |
| 1   | F1    | 568 | A    |
| 1   | F1    | 572 | G    |
| 1   | F1    | 576 | U    |
| 1   | F1    | 578 | G    |
| 1   | F1    | 579 | G    |
| 1   | F1    | 580 | G    |
| 1   | F1    | 582 | A    |
| 1   | F1    | 584 | C    |
| 1   | F1    | 586 | A    |
| 1   | F1    | 587 | U    |
| 1   | F1    | 591 | G    |
| 1   | F1    | 592 | A    |
| 1   | F1    | 595 | A    |
| 1   | F1    | 599 | G    |
| 1   | F1    | 600 | G    |
| 1   | F1    | 611 | A    |
| 1   | F1    | 612 | C    |
| 1   | F1    | 614 | G    |
| 1   | F1    | 615 | G    |
| 1   | F1    | 618 | U    |
| 1   | F1    | 620 | A    |
| 1   | F1    | 622 | G    |
| 1   | F1    | 623 | G    |
| 1   | F1    | 625 | C    |
| 1   | F1    | 626 | C    |
| 1   | F1    | 627 | U    |
| 1   | F1    | 628 | A    |
| 1   | F1    | 629 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 631 | G    |
| 1   | F1    | 634 | G    |
| 1   | F1    | 635 | A    |
| 1   | F1    | 636 | U    |
| 1   | F1    | 643 | A    |
| 1   | F1    | 644 | A    |
| 1   | F1    | 645 | A    |
| 1   | F1    | 646 | A    |
| 1   | F1    | 660 | C    |
| 1   | F1    | 661 | C    |
| 1   | F1    | 662 | C    |
| 1   | F1    | 666 | U    |
| 1   | F1    | 673 | A    |
| 1   | F1    | 684 | A    |
| 1   | F1    | 685 | G    |
| 1   | F1    | 686 | U    |
| 1   | F1    | 697 | A    |
| 1   | F1    | 701 | A    |
| 1   | F1    | 709 | G    |
| 1   | F1    | 711 | U    |
| 1   | F1    | 719 | C    |
| 1   | F1    | 720 | C    |
| 1   | F1    | 723 | U    |
| 1   | F1    | 724 | C    |
| 1   | F1    | 728 | G    |
| 1   | F1    | 729 | A    |
| 1   | F1    | 730 | A    |
| 1   | F1    | 733 | G    |
| 1   | F1    | 737 | G    |
| 1   | F1    | 740 | A    |
| 1   | F1    | 741 | G    |
| 1   | F1    | 742 | U    |
| 1   | F1    | 743 | A    |
| 1   | F1    | 745 | A    |
| 1   | F1    | 747 | G    |
| 1   | F1    | 751 | C    |
| 1   | F1    | 753 | A    |
| 1   | F1    | 757 | C    |
| 1   | F1    | 761 | A    |
| 1   | F1    | 767 | C    |
| 1   | F1    | 773 | C    |
| 1   | F1    | 775 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 777 | C    |
| 1   | F1    | 786 | G    |
| 1   | F1    | 788 | C    |
| 1   | F1    | 789 | U    |
| 1   | F1    | 790 | C    |
| 1   | F1    | 791 | C    |
| 1   | F1    | 792 | G    |
| 1   | F1    | 799 | G    |
| 1   | F1    | 800 | G    |
| 1   | F1    | 801 | U    |
| 1   | F1    | 803 | C    |
| 1   | F1    | 805 | A    |
| 1   | F1    | 806 | G    |
| 1   | F1    | 807 | G    |
| 1   | F1    | 810 | G    |
| 1   | F1    | 811 | A    |
| 1   | F1    | 821 | U    |
| 1   | F1    | 825 | G    |
| 1   | F1    | 827 | C    |
| 1   | F1    | 831 | A    |
| 1   | F1    | 833 | A    |
| 1   | F1    | 834 | G    |
| 1   | F1    | 840 | G    |
| 1   | F1    | 842 | A    |
| 1   | F1    | 847 | G    |
| 1   | F1    | 855 | A    |
| 1   | F1    | 866 | A    |
| 1   | F1    | 870 | G    |
| 1   | F1    | 874 | C    |
| 1   | F1    | 881 | G    |
| 1   | F1    | 883 | A    |
| 1   | F1    | 886 | C    |
| 1   | F1    | 894 | G    |
| 1   | F1    | 896 | U    |
| 1   | F1    | 898 | C    |
| 1   | F1    | 899 | U    |
| 1   | F1    | 904 | U    |
| 1   | F1    | 905 | G    |
| 1   | F1    | 908 | A    |
| 1   | F1    | 919 | A    |
| 1   | F1    | 921 | A    |
| 1   | F1    | 930 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 932  | G    |
| 1   | F1    | 933  | G    |
| 1   | F1    | 934  | G    |
| 1   | F1    | 935  | G    |
| 1   | F1    | 939  | A    |
| 1   | F1    | 940  | A    |
| 1   | F1    | 941  | G    |
| 1   | F1    | 942  | A    |
| 1   | F1    | 944  | U    |
| 1   | F1    | 946  | A    |
| 1   | F1    | 948  | C    |
| 1   | F1    | 957  | U    |
| 1   | F1    | 958  | A    |
| 1   | F1    | 959  | G    |
| 1   | F1    | 961  | A    |
| 1   | F1    | 962  | G    |
| 1   | F1    | 969  | C    |
| 1   | F1    | 972  | U    |
| 1   | F1    | 973  | C    |
| 1   | F1    | 978  | G    |
| 1   | F1    | 983  | U    |
| 1   | F1    | 984  | C    |
| 1   | F1    | 985  | U    |
| 1   | F1    | 986  | C    |
| 1   | F1    | 987  | A    |
| 1   | F1    | 988  | G    |
| 1   | F1    | 989  | G    |
| 1   | F1    | 990  | A    |
| 1   | F1    | 992  | A    |
| 1   | F1    | 999  | G    |
| 1   | F1    | 1003 | G    |
| 1   | F1    | 1004 | U    |
| 1   | F1    | 1005 | A    |
| 1   | F1    | 1006 | C    |
| 1   | F1    | 1007 | G    |
| 1   | F1    | 1008 | C    |
| 1   | F1    | 1012 | U    |
| 1   | F1    | 1017 | U    |
| 1   | F1    | 1018 | A    |
| 1   | F1    | 1019 | G    |
| 1   | F1    | 1020 | G    |
| 1   | F1    | 1026 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1027 | G    |
| 1   | F1    | 1028 | A    |
| 1   | F1    | 1034 | U    |
| 1   | F1    | 1035 | A    |
| 1   | F1    | 1036 | G    |
| 1   | F1    | 1037 | A    |
| 1   | F1    | 1038 | G    |
| 1   | F1    | 1039 | G    |
| 1   | F1    | 1040 | A    |
| 1   | F1    | 1042 | U    |
| 1   | F1    | 1048 | U    |
| 1   | F1    | 1052 | A    |
| 1   | F1    | 1054 | G    |
| 1   | F1    | 1058 | C    |
| 1   | F1    | 1060 | C    |
| 1   | F1    | 1061 | G    |
| 1   | F1    | 1064 | C    |
| 1   | F1    | 1067 | U    |
| 1   | F1    | 1072 | A    |
| 1   | F1    | 1073 | A    |
| 1   | F1    | 1074 | A    |
| 1   | F1    | 1075 | C    |
| 1   | F1    | 1083 | U    |
| 1   | F1    | 1085 | G    |
| 1   | F1    | 1087 | A    |
| 1   | F1    | 1090 | A    |
| 1   | F1    | 1091 | G    |
| 1   | F1    | 1092 | C    |
| 1   | F1    | 1095 | C    |
| 1   | F1    | 1096 | G    |
| 1   | F1    | 1097 | G    |
| 1   | F1    | 1098 | A    |
| 1   | F1    | 1099 | G    |
| 1   | F1    | 1101 | U    |
| 1   | F1    | 1102 | U    |
| 1   | F1    | 1103 | A    |
| 1   | F1    | 1104 | C    |
| 1   | F1    | 1108 | A    |
| 1   | F1    | 1109 | A    |
| 1   | F1    | 1110 | U    |
| 1   | F1    | 1111 | G    |
| 1   | F1    | 1115 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1116 | C    |
| 1   | F1    | 1118 | C    |
| 1   | F1    | 1122 | A    |
| 1   | F1    | 1123 | A    |
| 1   | F1    | 1124 | G    |
| 1   | F1    | 1125 | A    |
| 1   | F1    | 1129 | C    |
| 1   | F1    | 1130 | A    |
| 1   | F1    | 1131 | G    |
| 1   | F1    | 1132 | U    |
| 1   | F1    | 1135 | U    |
| 1   | F1    | 1142 | G    |
| 1   | F1    | 1143 | G    |
| 1   | F1    | 1144 | G    |
| 1   | F1    | 1151 | U    |
| 1   | F1    | 1155 | U    |
| 1   | F1    | 1158 | G    |
| 1   | F1    | 1159 | C    |
| 1   | F1    | 1161 | G    |
| 1   | F1    | 1166 | G    |
| 1   | F1    | 1169 | G    |
| 1   | F1    | 1170 | A    |
| 1   | F1    | 1176 | G    |
| 1   | F1    | 1178 | U    |
| 1   | F1    | 1180 | A    |
| 1   | F1    | 1181 | A    |
| 1   | F1    | 1182 | C    |
| 1   | F1    | 1184 | U    |
| 1   | F1    | 1185 | A    |
| 1   | F1    | 1186 | A    |
| 1   | F1    | 1187 | C    |
| 1   | F1    | 1198 | G    |
| 1   | F1    | 1199 | G    |
| 1   | F1    | 1202 | C    |
| 1   | F1    | 1203 | C    |
| 1   | F1    | 1204 | C    |
| 1   | F1    | 1205 | A    |
| 1   | F1    | 1206 | A    |
| 1   | F1    | 1207 | A    |
| 1   | F1    | 1208 | U    |
| 1   | F1    | 1209 | G    |
| 1   | F1    | 1212 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1213 | G    |
| 1   | F1    | 1216 | C    |
| 1   | F1    | 1217 | A    |
| 1   | F1    | 1218 | U    |
| 1   | F1    | 1219 | C    |
| 1   | F1    | 1220 | A    |
| 1   | F1    | 1224 | A    |
| 1   | F1    | 1226 | C    |
| 1   | F1    | 1227 | A    |
| 1   | F1    | 1228 | C    |
| 1   | F1    | 1233 | G    |
| 1   | F1    | 1234 | G    |
| 1   | F1    | 1235 | U    |
| 1   | F1    | 1236 | G    |
| 1   | F1    | 1243 | C    |
| 1   | F1    | 1244 | A    |
| 1   | F1    | 1245 | U    |
| 1   | F1    | 1246 | A    |
| 1   | F1    | 1248 | G    |
| 1   | F1    | 1249 | G    |
| 1   | F1    | 1250 | A    |
| 1   | F1    | 1255 | A    |
| 1   | F1    | 1257 | G    |
| 1   | F1    | 1309 | G    |
| 1   | F1    | 1313 | A    |
| 1   | F1    | 1314 | A    |
| 1   | F1    | 1316 | G    |
| 1   | F1    | 1319 | C    |
| 1   | F1    | 1334 | G    |
| 1   | F1    | 1335 | A    |
| 1   | F1    | 1336 | U    |
| 1   | F1    | 1339 | C    |
| 1   | F1    | 1340 | G    |
| 1   | F1    | 1343 | G    |
| 1   | F1    | 1344 | A    |
| 1   | F1    | 1353 | G    |
| 1   | F1    | 1356 | G    |
| 1   | F1    | 1357 | A    |
| 1   | F1    | 1358 | U    |
| 1   | F1    | 1361 | U    |
| 1   | F1    | 1363 | A    |
| 1   | F1    | 1371 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1374 | C    |
| 1   | F1    | 1375 | A    |
| 1   | F1    | 1376 | A    |
| 1   | F1    | 1377 | A    |
| 1   | F1    | 1378 | U    |
| 1   | F1    | 1380 | C    |
| 1   | F1    | 1381 | G    |
| 1   | F1    | 1382 | A    |
| 1   | F1    | 1383 | G    |
| 1   | F1    | 1384 | G    |
| 1   | F1    | 1387 | U    |
| 1   | F1    | 1392 | G    |
| 1   | F1    | 1395 | U    |
| 1   | F1    | 1399 | A    |
| 1   | F1    | 1400 | G    |
| 1   | F1    | 1401 | G    |
| 1   | F1    | 1403 | C    |
| 1   | F1    | 1405 | U    |
| 1   | F1    | 1406 | G    |
| 1   | F1    | 1410 | G    |
| 1   | F1    | 1413 | G    |
| 1   | F1    | 1416 | U    |
| 1   | F1    | 1424 | U    |
| 1   | F1    | 1425 | U    |
| 1   | F1    | 1426 | G    |
| 1   | F1    | 1430 | G    |
| 1   | F1    | 1431 | U    |
| 1   | F1    | 1434 | G    |
| 1   | F1    | 1435 | C    |
| 1   | F1    | 1437 | U    |
| 1   | F1    | 1445 | G    |
| 1   | F1    | 1446 | C    |
| 1   | F1    | 1456 | U    |
| 1   | F1    | 1460 | G    |
| 1   | F1    | 1461 | A    |
| 1   | F1    | 1463 | C    |
| 1   | F1    | 1468 | U    |
| 1   | F1    | 1469 | G    |
| 1   | F1    | 1472 | A    |
| 1   | F1    | 1478 | A    |
| 1   | F1    | 1479 | A    |
| 1   | F1    | 1481 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1482 | A    |
| 1   | F1    | 1493 | A    |
| 1   | F1    | 1495 | C    |
| 1   | F1    | 1496 | U    |
| 1   | F1    | 1507 | A    |
| 1   | F1    | 1508 | A    |
| 1   | F1    | 1509 | G    |
| 1   | F1    | 1510 | U    |
| 1   | F1    | 1521 | U    |
| 1   | F1    | 1522 | C    |
| 1   | F1    | 1528 | G    |
| 1   | F1    | 1533 | G    |
| 1   | F1    | 1534 | C    |
| 1   | F1    | 1537 | U    |
| 1   | F1    | 1538 | U    |
| 1   | F1    | 1539 | G    |
| 1   | F1    | 1540 | U    |
| 1   | F1    | 1545 | G    |
| 1   | F1    | 1547 | G    |
| 1   | F1    | 1548 | U    |
| 1   | F1    | 1549 | U    |
| 1   | F1    | 1551 | C    |
| 1   | F1    | 1552 | U    |
| 1   | F1    | 1562 | G    |
| 1   | F1    | 1575 | U    |
| 1   | F1    | 1578 | U    |
| 1   | F1    | 1580 | G    |
| 1   | F1    | 1581 | C    |
| 1   | F1    | 1582 | A    |
| 1   | F1    | 1583 | A    |
| 1   | F1    | 1584 | U    |
| 1   | F1    | 1585 | A    |
| 1   | F1    | 1587 | A    |
| 1   | F1    | 1588 | A    |
| 1   | F1    | 1589 | G    |
| 1   | F1    | 1596 | U    |
| 1   | F1    | 1597 | U    |
| 1   | F1    | 1599 | G    |
| 1   | F1    | 1600 | U    |
| 1   | F1    | 1605 | G    |
| 1   | F1    | 1606 | U    |
| 1   | F1    | 1608 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1609 | U    |
| 1   | F1    | 1613 | A    |
| 1   | F1    | 1614 | A    |
| 1   | F1    | 1618 | A    |
| 1   | F1    | 1621 | G    |
| 1   | F1    | 1625 | U    |
| 1   | F1    | 1629 | U    |
| 1   | F1    | 1630 | A    |
| 1   | F1    | 1631 | U    |
| 1   | F1    | 1632 | U    |
| 1   | F1    | 1633 | C    |
| 1   | F1    | 1638 | A    |
| 1   | F1    | 1639 | G    |
| 1   | F1    | 1643 | G    |
| 1   | F1    | 1644 | A    |
| 1   | F1    | 1645 | C    |
| 1   | F1    | 1649 | G    |
| 1   | F1    | 1650 | U    |
| 1   | F1    | 1651 | A    |
| 1   | F1    | 1652 | U    |
| 1   | F1    | 1654 | G    |
| 1   | F1    | 1655 | A    |
| 1   | F1    | 1656 | G    |
| 1   | F1    | 1662 | A    |
| 1   | F1    | 1663 | C    |
| 1   | F1    | 1666 | A    |
| 1   | F1    | 1668 | A    |
| 1   | F1    | 1676 | G    |
| 1   | F1    | 1681 | C    |
| 1   | F1    | 1682 | G    |
| 1   | F1    | 1686 | G    |
| 1   | F1    | 1698 | G    |
| 1   | F1    | 1707 | A    |
| 1   | F1    | 1714 | C    |
| 1   | F1    | 1715 | U    |
| 1   | F1    | 1716 | U    |
| 1   | F1    | 1717 | U    |
| 1   | F1    | 1726 | C    |
| 1   | F1    | 1729 | U    |
| 1   | F1    | 1737 | A    |
| 1   | F1    | 1738 | A    |
| 1   | F1    | 1739 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1740 | U    |
| 1   | F1    | 1741 | U    |
| 1   | F1    | 1742 | G    |
| 1   | F1    | 1748 | U    |
| 1   | F1    | 1753 | A    |
| 1   | F1    | 1754 | G    |
| 1   | F1    | 1759 | C    |
| 1   | F1    | 1760 | G    |
| 1   | F1    | 1766 | A    |
| 1   | F1    | 1767 | U    |
| 1   | F1    | 1768 | G    |
| 1   | F1    | 1775 | A    |
| 1   | F1    | 1776 | G    |
| 1   | F1    | 1777 | A    |
| 1   | F1    | 1783 | U    |
| 1   | F1    | 1793 | A    |
| 1   | F1    | 1805 | C    |
| 1   | F1    | 1806 | G    |
| 1   | F1    | 1807 | C    |
| 1   | F1    | 1819 | C    |
| 1   | F1    | 1820 | U    |
| 1   | F1    | 1821 | U    |
| 1   | F1    | 1823 | A    |
| 1   | F1    | 1832 | G    |
| 1   | F1    | 1834 | G    |
| 1   | F1    | 1839 | A    |
| 1   | F1    | 1840 | U    |
| 1   | F1    | 1841 | A    |
| 1   | F1    | 1845 | U    |
| 1   | F1    | 1846 | C    |
| 1   | F1    | 1852 | A    |
| 1   | F1    | 1861 | C    |
| 1   | F1    | 1863 | A    |
| 1   | F1    | 1865 | A    |
| 1   | F1    | 1866 | A    |
| 1   | F1    | 1869 | G    |
| 1   | F1    | 1870 | C    |
| 1   | F1    | 1873 | C    |
| 1   | F1    | 1874 | A    |
| 1   | F1    | 1882 | A    |
| 1   | F1    | 1885 | G    |
| 1   | F1    | 1890 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1895 | U    |
| 1   | F1    | 1902 | C    |
| 1   | F1    | 1903 | A    |
| 1   | F1    | 1904 | U    |
| 1   | F1    | 1905 | A    |
| 1   | F1    | 1908 | A    |
| 1   | F1    | 1910 | A    |
| 1   | F1    | 1913 | G    |
| 1   | F1    | 1917 | A    |
| 1   | F1    | 1919 | A    |
| 1   | F1    | 1920 | A    |
| 1   | F1    | 1923 | G    |
| 1   | F1    | 1924 | A    |
| 1   | F1    | 1925 | A    |
| 1   | F1    | 1929 | G    |
| 1   | F1    | 1930 | G    |
| 1   | F1    | 1937 | G    |
| 1   | F1    | 1938 | G    |
| 1   | F1    | 1942 | C    |
| 1   | F1    | 1943 | G    |
| 1   | F1    | 1950 | C    |
| 1   | F1    | 1951 | G    |
| 1   | F1    | 1952 | G    |
| 1   | F1    | 1955 | U    |
| 1   | F1    | 1956 | A    |
| 1   | F1    | 1957 | A    |
| 1   | F1    | 1958 | G    |
| 1   | F1    | 2101 | G    |
| 1   | F1    | 2102 | A    |
| 1   | F1    | 2106 | G    |
| 1   | F1    | 2107 | A    |
| 1   | F1    | 2108 | A    |
| 1   | F1    | 2109 | G    |
| 1   | F1    | 2110 | C    |
| 1   | F1    | 2111 | G    |
| 1   | F1    | 2117 | A    |
| 1   | F1    | 2118 | G    |
| 1   | F1    | 2119 | G    |
| 1   | F1    | 2127 | A    |
| 1   | F1    | 2130 | G    |
| 1   | F1    | 2133 | U    |
| 1   | F1    | 2134 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2136 | U    |
| 1   | F1    | 2146 | G    |
| 1   | F1    | 2147 | C    |
| 1   | F1    | 2150 | U    |
| 1   | F1    | 2154 | A    |
| 1   | F1    | 2156 | G    |
| 1   | F1    | 2157 | G    |
| 1   | F1    | 2159 | C    |
| 1   | F1    | 2162 | A    |
| 1   | F1    | 2165 | A    |
| 1   | F1    | 2178 | A    |
| 1   | F1    | 2182 | G    |
| 1   | F1    | 2183 | A    |
| 1   | F1    | 2189 | G    |
| 1   | F1    | 2190 | C    |
| 1   | F1    | 2196 | G    |
| 1   | F1    | 2199 | C    |
| 1   | F1    | 2200 | U    |
| 1   | F1    | 2202 | A    |
| 1   | F1    | 2216 | G    |
| 1   | F1    | 2217 | C    |
| 1   | F1    | 2218 | A    |
| 1   | F1    | 2220 | U    |
| 1   | F1    | 2223 | A    |
| 1   | F1    | 2239 | A    |
| 1   | F1    | 2241 | G    |
| 1   | F1    | 2243 | C    |
| 1   | F1    | 2249 | U    |
| 1   | F1    | 2251 | A    |
| 1   | F1    | 2254 | A    |
| 1   | F1    | 2255 | U    |
| 1   | F1    | 2256 | G    |
| 1   | F1    | 2257 | A    |
| 1   | F1    | 2258 | C    |
| 1   | F1    | 2265 | A    |
| 1   | F1    | 2268 | G    |
| 1   | F1    | 2271 | G    |
| 1   | F1    | 2273 | C    |
| 1   | F1    | 2275 | A    |
| 1   | F1    | 2276 | A    |
| 1   | F1    | 2277 | U    |
| 1   | F1    | 2278 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2279 | C    |
| 1   | F1    | 2280 | C    |
| 1   | F1    | 2281 | U    |
| 1   | F1    | 2283 | G    |
| 1   | F1    | 2286 | A    |
| 1   | F1    | 2292 | U    |
| 1   | F1    | 2293 | U    |
| 1   | F1    | 2298 | A    |
| 1   | F1    | 2301 | C    |
| 1   | F1    | 2302 | G    |
| 1   | F1    | 2303 | C    |
| 1   | F1    | 2304 | A    |
| 1   | F1    | 2305 | U    |
| 1   | F1    | 2308 | A    |
| 1   | F1    | 2309 | U    |
| 1   | F1    | 2310 | G    |
| 1   | F1    | 2317 | U    |
| 1   | F1    | 2318 | G    |
| 1   | F1    | 2321 | A    |
| 1   | F1    | 2324 | A    |
| 1   | F1    | 2329 | U    |
| 1   | F1    | 2330 | G    |
| 1   | F1    | 2331 | U    |
| 1   | F1    | 2335 | U    |
| 1   | F1    | 2342 | U    |
| 1   | F1    | 2343 | A    |
| 1   | F1    | 2344 | U    |
| 1   | F1    | 2353 | C    |
| 1   | F1    | 2356 | A    |
| 1   | F1    | 2357 | C    |
| 1   | F1    | 2358 | A    |
| 1   | F1    | 2361 | U    |
| 1   | F1    | 2366 | G    |
| 1   | F1    | 2367 | A    |
| 1   | F1    | 2368 | A    |
| 1   | F1    | 2369 | C    |
| 1   | F1    | 2370 | G    |
| 1   | F1    | 2372 | G    |
| 1   | F1    | 2378 | A    |
| 1   | F1    | 2379 | A    |
| 1   | F1    | 2380 | U    |
| 1   | F1    | 2383 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2386 | G    |
| 1   | F1    | 2388 | G    |
| 1   | F1    | 2389 | G    |
| 1   | F1    | 2391 | G    |
| 1   | F1    | 2392 | A    |
| 1   | F1    | 2393 | A    |
| 1   | F1    | 2394 | A    |
| 1   | F1    | 2396 | A    |
| 1   | F1    | 2397 | A    |
| 1   | F1    | 2398 | G    |
| 1   | F1    | 2399 | A    |
| 1   | F1    | 2400 | C    |
| 1   | F1    | 2406 | U    |
| 1   | F1    | 2407 | G    |
| 1   | F1    | 2410 | C    |
| 1   | F1    | 2412 | U    |
| 1   | F1    | 2413 | G    |
| 1   | F1    | 2414 | A    |
| 1   | F1    | 2416 | U    |
| 1   | F1    | 2417 | C    |
| 1   | F1    | 2430 | G    |
| 1   | F1    | 2440 | A    |
| 1   | F1    | 2508 | U    |
| 1   | F1    | 2509 | U    |
| 1   | F1    | 2510 | A    |
| 1   | F1    | 2515 | G    |
| 1   | F1    | 2517 | G    |
| 1   | F1    | 2518 | A    |
| 1   | F1    | 2519 | A    |
| 1   | F1    | 2521 | A    |
| 1   | F1    | 2524 | A    |
| 1   | F1    | 2532 | G    |
| 1   | F1    | 2541 | U    |
| 1   | F1    | 2542 | U    |
| 1   | F1    | 2543 | C    |
| 1   | F1    | 2545 | A    |
| 1   | F1    | 2546 | A    |
| 1   | F1    | 2548 | G    |
| 1   | F1    | 2549 | U    |
| 1   | F1    | 2550 | U    |
| 1   | F1    | 2551 | A    |
| 1   | F1    | 2552 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2554 | G    |
| 1   | F1    | 2560 | U    |
| 1   | F1    | 2562 | U    |
| 1   | F1    | 2563 | U    |
| 1   | F1    | 2566 | C    |
| 1   | F1    | 2569 | A    |
| 1   | F1    | 2570 | U    |
| 1   | F1    | 2574 | U    |
| 1   | F1    | 2575 | G    |
| 1   | F1    | 2576 | C    |
| 1   | F1    | 2577 | G    |
| 1   | F1    | 2578 | A    |
| 1   | F1    | 2580 | A    |
| 1   | F1    | 2582 | A    |
| 1   | F1    | 2583 | C    |
| 1   | F1    | 2595 | G    |
| 1   | F1    | 2603 | G    |
| 1   | F1    | 2614 | A    |
| 1   | F1    | 2615 | A    |
| 1   | F1    | 2616 | U    |
| 1   | F1    | 2617 | G    |
| 1   | F1    | 2618 | C    |
| 1   | F1    | 2622 | U    |
| 1   | F1    | 2625 | A    |
| 1   | F1    | 2626 | A    |
| 1   | F1    | 2627 | C    |
| 1   | F1    | 2634 | G    |
| 1   | F1    | 2635 | C    |
| 1   | F1    | 2637 | G    |
| 1   | F1    | 2638 | G    |
| 1   | F1    | 2639 | C    |
| 1   | F1    | 2640 | G    |
| 1   | F1    | 2641 | U    |
| 1   | F1    | 2642 | C    |
| 1   | F1    | 2644 | U    |
| 1   | F1    | 2645 | A    |
| 1   | F1    | 2646 | A    |
| 1   | F1    | 2647 | G    |
| 1   | F1    | 2655 | C    |
| 1   | F1    | 2666 | G    |
| 1   | F1    | 2667 | A    |
| 1   | F1    | 2670 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2672 | U    |
| 1   | F1    | 2678 | A    |
| 1   | F1    | 2679 | G    |
| 1   | F1    | 2680 | A    |
| 1   | F1    | 2683 | A    |
| 1   | F1    | 2684 | A    |
| 1   | F1    | 2685 | A    |
| 1   | F1    | 2693 | A    |
| 1   | F1    | 2702 | U    |
| 1   | F1    | 2703 | G    |
| 1   | F1    | 2704 | A    |
| 1   | F1    | 2705 | U    |
| 1   | F1    | 2706 | U    |
| 1   | F1    | 2707 | U    |
| 1   | F1    | 2708 | U    |
| 1   | F1    | 2717 | G    |
| 1   | F1    | 2718 | U    |
| 1   | F1    | 2721 | G    |
| 1   | F1    | 2726 | C    |
| 1   | F1    | 2727 | A    |
| 1   | F1    | 2728 | A    |
| 1   | F1    | 2729 | A    |
| 1   | F1    | 2735 | A    |
| 1   | F1    | 2741 | U    |
| 1   | F1    | 2742 | G    |
| 1   | F1    | 2743 | G    |
| 1   | F1    | 2744 | C    |
| 1   | F1    | 2749 | C    |
| 1   | F1    | 2751 | A    |
| 1   | F1    | 2761 | U    |
| 1   | F1    | 2762 | U    |
| 1   | F1    | 2765 | C    |
| 1   | F1    | 2766 | A    |
| 1   | F1    | 2767 | A    |
| 1   | F1    | 2768 | G    |
| 1   | F1    | 2772 | U    |
| 1   | F1    | 2774 | A    |
| 1   | F1    | 2775 | G    |
| 1   | F1    | 2779 | G    |
| 1   | F1    | 2784 | G    |
| 1   | F1    | 2787 | A    |
| 1   | F1    | 2788 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2789 | A    |
| 1   | F1    | 2790 | A    |
| 1   | F1    | 2791 | A    |
| 1   | F1    | 2798 | C    |
| 1   | F1    | 2802 | G    |
| 1   | F1    | 2804 | G    |
| 1   | F1    | 2805 | A    |
| 1   | F1    | 2815 | U    |
| 1   | F1    | 2816 | G    |
| 1   | F1    | 2817 | U    |
| 1   | F1    | 2822 | G    |
| 1   | F1    | 2827 | G    |
| 1   | F1    | 2829 | G    |
| 1   | F1    | 2830 | U    |
| 1   | F1    | 2831 | U    |
| 1   | F1    | 2833 | A    |
| 1   | F1    | 2847 | U    |
| 1   | F1    | 2848 | U    |
| 1   | F1    | 2849 | U    |
| 1   | F1    | 2855 | C    |
| 1   | F1    | 2857 | U    |
| 1   | F1    | 2858 | C    |
| 1   | F1    | 2859 | G    |
| 1   | F1    | 2860 | A    |
| 1   | F1    | 2863 | U    |
| 1   | F1    | 2875 | A    |
| 1   | F1    | 2876 | U    |
| 1   | F1    | 2887 | C    |
| 1   | F1    | 2899 | C    |
| 1   | F1    | 2900 | G    |
| 1   | F1    | 2902 | G    |
| 1   | F1    | 2906 | G    |
| 1   | F1    | 2907 | A    |
| 1   | F1    | 2911 | U    |
| 1   | F1    | 2912 | U    |
| 1   | F1    | 2913 | C    |
| 1   | F1    | 2916 | C    |
| 1   | F1    | 2918 | G    |
| 1   | F1    | 2923 | U    |
| 1   | F1    | 2924 | A    |
| 1   | F1    | 2925 | G    |
| 1   | F1    | 2930 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2932 | U    |
| 1   | F1    | 2933 | G    |
| 1   | F1    | 2934 | A    |
| 1   | F1    | 2935 | G    |
| 1   | F1    | 2936 | C    |
| 1   | F1    | 2947 | C    |
| 1   | F1    | 2955 | A    |
| 1   | F1    | 2956 | G    |
| 1   | F1    | 2958 | C    |
| 1   | F1    | 2959 | A    |
| 1   | F1    | 2960 | G    |
| 1   | F1    | 2961 | G    |
| 1   | F1    | 2962 | U    |
| 1   | F1    | 2965 | G    |
| 1   | F1    | 2967 | U    |
| 1   | F1    | 2971 | C    |
| 1   | F1    | 2972 | C    |
| 1   | F1    | 2978 | G    |
| 1   | F1    | 2985 | C    |
| 1   | F1    | 2986 | G    |
| 1   | F1    | 2995 | A    |
| 1   | F1    | 2996 | C    |
| 1   | F1    | 2999 | U    |
| 1   | F1    | 3000 | A    |
| 1   | F1    | 3001 | A    |
| 1   | F1    | 3008 | U    |
| 1   | F1    | 3011 | G    |
| 1   | F1    | 3012 | U    |
| 1   | F1    | 3019 | G    |
| 1   | F1    | 3021 | A    |
| 1   | F1    | 3028 | A    |
| 1   | F1    | 3036 | U    |
| 1   | F1    | 3041 | G    |
| 1   | F1    | 3044 | A    |
| 1   | F1    | 3045 | A    |
| 1   | F1    | 3046 | A    |
| 1   | F1    | 3047 | U    |
| 1   | F1    | 3048 | A    |
| 1   | F1    | 3063 | G    |
| 1   | F1    | 3066 | A    |
| 1   | F1    | 3068 | U    |
| 1   | F1    | 3072 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 3080 | A    |
| 1   | F1    | 3081 | C    |
| 1   | F1    | 3087 | G    |
| 1   | F1    | 3088 | U    |
| 1   | F1    | 3104 | G    |
| 1   | F1    | 3105 | G    |
| 1   | F1    | 3106 | C    |
| 1   | F1    | 3107 | C    |
| 1   | F1    | 3109 | C    |
| 1   | F1    | 3110 | U    |
| 1   | F1    | 3111 | A    |
| 1   | F1    | 3112 | A    |
| 1   | F1    | 3114 | U    |
| 1   | F1    | 3115 | C    |
| 1   | F1    | 3116 | A    |
| 1   | F1    | 3118 | A    |
| 1   | F1    | 3119 | A    |
| 1   | F1    | 3120 | U    |
| 1   | F1    | 3123 | A    |
| 1   | F1    | 3125 | G    |
| 1   | F1    | 3128 | G    |
| 1   | F1    | 3129 | G    |
| 1   | F1    | 3130 | A    |
| 1   | F1    | 3131 | A    |
| 1   | F1    | 3132 | A    |
| 1   | F1    | 3133 | G    |
| 1   | F1    | 3134 | C    |
| 1   | F1    | 3138 | G    |
| 1   | F1    | 3139 | U    |
| 1   | F1    | 3143 | A    |
| 1   | F1    | 3145 | U    |
| 1   | F1    | 3146 | G    |
| 1   | F1    | 3147 | U    |
| 1   | F1    | 3151 | G    |
| 1   | F1    | 3152 | A    |
| 1   | F1    | 3154 | A    |
| 1   | F1    | 3155 | A    |
| 1   | F1    | 3156 | A    |
| 1   | F1    | 3157 | C    |
| 1   | F1    | 3158 | G    |
| 1   | F1    | 3159 | A    |
| 1   | F1    | 3160 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 3161 | A    |
| 1   | F1    | 3162 | A    |
| 1   | F1    | 3163 | A    |
| 1   | F1    | 3167 | U    |
| 1   | F1    | 3168 | A    |
| 1   | F1    | 3169 | A    |
| 1   | F1    | 3173 | U    |
| 1   | F1    | 3174 | U    |
| 1   | F1    | 3175 | A    |
| 1   | F1    | 3176 | A    |
| 1   | F1    | 3177 | G    |
| 1   | F1    | 3178 | U    |
| 1   | F1    | 3179 | U    |
| 1   | F1    | 3183 | A    |
| 1   | F1    | 3184 | A    |
| 1   | F1    | 3185 | G    |
| 1   | F1    | 3186 | G    |
| 1   | F1    | 3188 | A    |
| 1   | F1    | 3191 | G    |
| 1   | F1    | 3192 | C    |
| 1   | F1    | 3193 | G    |
| 1   | F1    | 3197 | A    |
| 1   | F1    | 3201 | G    |
| 1   | F1    | 3202 | C    |
| 1   | F1    | 3205 | A    |
| 1   | F1    | 3206 | A    |
| 1   | F1    | 3207 | A    |
| 1   | F1    | 3208 | A    |
| 1   | F1    | 3215 | C    |
| 1   | F1    | 3217 | U    |
| 1   | F1    | 3219 | A    |
| 1   | F1    | 3224 | C    |
| 1   | F1    | 3226 | A    |
| 1   | F1    | 3229 | C    |
| 1   | F1    | 3230 | G    |
| 1   | F1    | 3231 | U    |
| 1   | F1    | 3232 | A    |
| 1   | F1    | 3234 | U    |
| 1   | F1    | 3235 | U    |
| 1   | F1    | 3236 | C    |
| 1   | F1    | 3237 | C    |
| 1   | F1    | 3238 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 3241 | U    |
| 1   | F1    | 3242 | U    |
| 1   | F1    | 3247 | U    |
| 1   | F1    | 3251 | C    |
| 1   | F1    | 3252 | G    |
| 1   | F1    | 3264 | U    |
| 1   | F1    | 3265 | A    |
| 1   | F1    | 3267 | A    |
| 1   | F1    | 3270 | A    |
| 1   | F1    | 3274 | A    |
| 1   | F1    | 3276 | C    |
| 1   | F1    | 3277 | A    |
| 1   | F1    | 3278 | U    |
| 1   | F1    | 3279 | G    |
| 1   | F1    | 3292 | U    |
| 1   | F1    | 3298 | U    |
| 1   | F1    | 3299 | G    |
| 1   | F1    | 3307 | A    |
| 1   | F1    | 3311 | U    |
| 1   | F1    | 3312 | C    |
| 1   | F1    | 3324 | U    |
| 1   | F1    | 3325 | G    |
| 1   | F1    | 3326 | A    |
| 1   | F1    | 3332 | A    |
| 1   | F1    | 3333 | G    |
| 1   | F1    | 3334 | C    |
| 1   | F1    | 3338 | U    |
| 1   | F1    | 3343 | U    |
| 1   | F1    | 3344 | U    |
| 1   | F1    | 3345 | A    |
| 1   | F1    | 3352 | U    |
| 20  | G2    | 2    | G    |
| 20  | G2    | 3    | A    |
| 20  | G2    | 4    | A    |
| 20  | G2    | 5    | A    |
| 20  | G2    | 6    | A    |
| 20  | G2    | 7    | U    |
| 20  | G2    | 8    | U    |
| 20  | G2    | 17   | U    |
| 20  | G2    | 26   | A    |
| 20  | G2    | 27   | G    |
| 20  | G2    | 28   | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | G2    | 34  | G    |
| 20  | G2    | 35  | U    |
| 20  | G2    | 36  | G    |
| 20  | G2    | 38  | C    |
| 20  | G2    | 43  | A    |
| 20  | G2    | 44  | A    |
| 20  | G2    | 45  | G    |
| 20  | G2    | 47  | A    |
| 20  | G2    | 55  | A    |
| 20  | G2    | 62  | A    |
| 20  | G2    | 65  | C    |
| 20  | G2    | 66  | G    |
| 20  | G2    | 67  | C    |
| 20  | G2    | 73  | G    |
| 20  | G2    | 74  | A    |
| 20  | G2    | 75  | A    |
| 20  | G2    | 82  | A    |
| 20  | G2    | 84  | C    |
| 20  | G2    | 85  | C    |
| 20  | G2    | 86  | G    |
| 20  | G2    | 87  | C    |
| 20  | G2    | 88  | G    |
| 20  | G2    | 89  | A    |
| 20  | G2    | 91  | U    |
| 20  | G2    | 92  | C    |
| 20  | G2    | 96  | A    |
| 20  | G2    | 97  | G    |
| 20  | G2    | 100 | C    |
| 20  | G2    | 105 | A    |
| 20  | G2    | 106 | A    |
| 20  | G2    | 107 | C    |
| 20  | G2    | 108 | G    |
| 20  | G2    | 112 | G    |
| 20  | G2    | 113 | U    |
| 20  | G2    | 114 | G    |
| 20  | G2    | 117 | G    |
| 20  | G2    | 122 | U    |
| 20  | G2    | 127 | A    |
| 20  | G2    | 131 | C    |
| 20  | G2    | 134 | C    |
| 20  | G2    | 135 | A    |
| 20  | G2    | 137 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | G2    | 140 | U    |
| 20  | G2    | 141 | G    |
| 20  | G2    | 145 | C    |
| 20  | G2    | 146 | A    |
| 20  | G2    | 148 | U    |
| 20  | G2    | 149 | G    |
| 20  | G2    | 150 | U    |
| 21  | G3    | 5   | U    |
| 21  | G3    | 7   | G    |
| 21  | G3    | 9   | C    |
| 21  | G3    | 10  | C    |
| 21  | G3    | 13  | A    |
| 21  | G3    | 22  | A    |
| 21  | G3    | 25  | A    |
| 21  | G3    | 27  | A    |
| 21  | G3    | 38  | U    |
| 21  | G3    | 40  | C    |
| 21  | G3    | 41  | G    |
| 21  | G3    | 48  | G    |
| 21  | G3    | 49  | A    |
| 21  | G3    | 51  | G    |
| 21  | G3    | 53  | U    |
| 21  | G3    | 54  | A    |
| 21  | G3    | 55  | A    |
| 21  | G3    | 60  | C    |
| 21  | G3    | 62  | U    |
| 21  | G3    | 63  | A    |
| 21  | G3    | 64  | A    |
| 21  | G3    | 65  | G    |
| 21  | G3    | 82  | G    |
| 21  | G3    | 83  | G    |
| 21  | G3    | 89  | G    |
| 21  | G3    | 91  | C    |
| 21  | G3    | 97  | G    |
| 21  | G3    | 98  | G    |
| 21  | G3    | 100 | A    |
| 21  | G3    | 101 | A    |
| 21  | G3    | 105 | C    |
| 21  | G3    | 107 | A    |
| 21  | G3    | 110 | G    |
| 21  | G3    | 111 | U    |
| 21  | G3    | 112 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 21  | G3    | 113 | G    |
| 21  | G3    | 118 | C    |
| 21  | G3    | 120 | U    |
| 1   | H1    | 9   | G    |
| 1   | H1    | 16  | G    |
| 1   | H1    | 17  | C    |
| 1   | H1    | 19  | A    |
| 1   | H1    | 20  | G    |
| 1   | H1    | 24  | A    |
| 1   | H1    | 27  | C    |
| 1   | H1    | 32  | A    |
| 1   | H1    | 36  | U    |
| 1   | H1    | 38  | A    |
| 1   | H1    | 41  | A    |
| 1   | H1    | 43  | A    |
| 1   | H1    | 47  | G    |
| 1   | H1    | 48  | U    |
| 1   | H1    | 57  | G    |
| 1   | H1    | 58  | A    |
| 1   | H1    | 63  | A    |
| 1   | H1    | 64  | A    |
| 1   | H1    | 66  | C    |
| 1   | H1    | 67  | U    |
| 1   | H1    | 69  | A    |
| 1   | H1    | 70  | C    |
| 1   | H1    | 71  | U    |
| 1   | H1    | 72  | A    |
| 1   | H1    | 74  | G    |
| 1   | H1    | 75  | A    |
| 1   | H1    | 81  | C    |
| 1   | H1    | 83  | A    |
| 1   | H1    | 84  | G    |
| 1   | H1    | 87  | A    |
| 1   | H1    | 89  | G    |
| 1   | H1    | 90  | G    |
| 1   | H1    | 92  | G    |
| 1   | H1    | 93  | A    |
| 1   | H1    | 95  | U    |
| 1   | H1    | 97  | A    |
| 1   | H1    | 107 | A    |
| 1   | H1    | 108 | G    |
| 1   | H1    | 112 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H1    | 114 | A    |
| 1   | H1    | 115 | G    |
| 1   | H1    | 116 | U    |
| 1   | H1    | 118 | A    |
| 1   | H1    | 119 | A    |
| 1   | H1    | 120 | A    |
| 1   | H1    | 121 | A    |
| 1   | H1    | 122 | U    |
| 1   | H1    | 127 | A    |
| 1   | H1    | 128 | G    |
| 1   | H1    | 130 | G    |
| 1   | H1    | 133 | C    |
| 1   | H1    | 134 | A    |
| 1   | H1    | 135 | A    |
| 1   | H1    | 136 | C    |
| 1   | H1    | 137 | A    |
| 1   | H1    | 138 | C    |
| 1   | H1    | 139 | A    |
| 1   | H1    | 143 | G    |
| 1   | H1    | 147 | U    |
| 1   | H1    | 148 | G    |
| 1   | H1    | 152 | U    |
| 1   | H1    | 156 | A    |
| 1   | H1    | 157 | A    |
| 1   | H1    | 162 | C    |
| 1   | H1    | 166 | C    |
| 1   | H1    | 169 | A    |
| 1   | H1    | 174 | A    |
| 1   | H1    | 176 | G    |
| 1   | H1    | 177 | C    |
| 1   | H1    | 182 | C    |
| 1   | H1    | 188 | A    |
| 1   | H1    | 189 | G    |
| 1   | H1    | 190 | U    |
| 1   | H1    | 191 | U    |
| 1   | H1    | 193 | C    |
| 1   | H1    | 196 | G    |
| 1   | H1    | 201 | A    |
| 1   | H1    | 203 | G    |
| 1   | H1    | 205 | C    |
| 1   | H1    | 207 | U    |
| 1   | H1    | 211 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H1    | 215 | G    |
| 1   | H1    | 217 | U    |
| 1   | H1    | 218 | G    |
| 1   | H1    | 219 | A    |
| 1   | H1    | 220 | C    |
| 1   | H1    | 221 | A    |
| 1   | H1    | 223 | C    |
| 1   | H1    | 224 | C    |
| 1   | H1    | 227 | G    |
| 1   | H1    | 231 | U    |
| 1   | H1    | 232 | C    |
| 1   | H1    | 233 | G    |
| 1   | H1    | 240 | A    |
| 1   | H1    | 241 | A    |
| 1   | H1    | 242 | G    |
| 1   | H1    | 243 | G    |
| 1   | H1    | 250 | U    |
| 1   | H1    | 252 | A    |
| 1   | H1    | 254 | G    |
| 1   | H1    | 255 | G    |
| 1   | H1    | 258 | A    |
| 1   | H1    | 261 | U    |
| 1   | H1    | 262 | C    |
| 1   | H1    | 264 | A    |
| 1   | H1    | 265 | A    |
| 1   | H1    | 268 | G    |
| 1   | H1    | 271 | G    |
| 1   | H1    | 281 | G    |
| 1   | H1    | 282 | G    |
| 1   | H1    | 283 | A    |
| 1   | H1    | 284 | U    |
| 1   | H1    | 289 | G    |
| 1   | H1    | 292 | C    |
| 1   | H1    | 293 | U    |
| 1   | H1    | 294 | A    |
| 1   | H1    | 297 | U    |
| 1   | H1    | 299 | G    |
| 1   | H1    | 300 | G    |
| 1   | H1    | 304 | U    |
| 1   | H1    | 305 | A    |
| 1   | H1    | 307 | A    |
| 1   | H1    | 315 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H1    | 328 | A    |
| 1   | H1    | 329 | C    |
| 1   | H1    | 332 | G    |
| 1   | H1    | 333 | G    |
| 1   | H1    | 334 | G    |
| 1   | H1    | 335 | A    |
| 1   | H1    | 336 | G    |
| 1   | H1    | 337 | A    |
| 1   | H1    | 338 | C    |
| 1   | H1    | 339 | C    |
| 1   | H1    | 340 | G    |
| 1   | H1    | 341 | A    |
| 1   | H1    | 351 | A    |
| 1   | H1    | 352 | G    |
| 1   | H1    | 361 | A    |
| 1   | H1    | 362 | G    |
| 1   | H1    | 363 | G    |
| 1   | H1    | 368 | A    |
| 1   | H1    | 369 | U    |
| 1   | H1    | 370 | G    |
| 1   | H1    | 373 | A    |
| 1   | H1    | 374 | A    |
| 1   | H1    | 375 | G    |
| 1   | H1    | 376 | A    |
| 1   | H1    | 377 | A    |
| 1   | H1    | 383 | A    |
| 1   | H1    | 385 | A    |
| 1   | H1    | 386 | A    |
| 1   | H1    | 389 | G    |
| 1   | H1    | 396 | A    |
| 1   | H1    | 397 | A    |
| 1   | H1    | 399 | A    |
| 1   | H1    | 400 | C    |
| 1   | H1    | 412 | G    |
| 1   | H1    | 414 | G    |
| 1   | H1    | 416 | A    |
| 1   | H1    | 418 | G    |
| 1   | H1    | 419 | A    |
| 1   | H1    | 432 | G    |
| 1   | H1    | 433 | C    |
| 1   | H1    | 434 | A    |
| 1   | H1    | 435 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H1    | 438 | A    |
| 1   | H1    | 439 | A    |
| 1   | H1    | 440 | C    |
| 1   | H1    | 442 | G    |
| 1   | H1    | 448 | C    |
| 1   | H1    | 449 | G    |
| 1   | H1    | 450 | C    |
| 1   | H1    | 451 | A    |
| 1   | H1    | 453 | A    |
| 1   | H1    | 460 | A    |
| 1   | H1    | 461 | A    |
| 1   | H1    | 465 | C    |
| 1   | H1    | 466 | U    |
| 1   | H1    | 467 | A    |
| 1   | H1    | 469 | U    |
| 1   | H1    | 470 | C    |
| 1   | H1    | 471 | A    |
| 1   | H1    | 472 | C    |
| 1   | H1    | 486 | C    |
| 1   | H1    | 487 | G    |
| 1   | H1    | 489 | A    |
| 1   | H1    | 490 | A    |
| 1   | H1    | 492 | A    |
| 1   | H1    | 498 | A    |
| 1   | H1    | 499 | U    |
| 1   | H1    | 501 | A    |
| 1   | H1    | 502 | G    |
| 1   | H1    | 503 | U    |
| 1   | H1    | 505 | A    |
| 1   | H1    | 507 | G    |
| 1   | H1    | 516 | C    |
| 1   | H1    | 517 | A    |
| 1   | H1    | 518 | G    |
| 1   | H1    | 519 | A    |
| 1   | H1    | 521 | C    |
| 1   | H1    | 523 | U    |
| 1   | H1    | 525 | C    |
| 1   | H1    | 526 | U    |
| 1   | H1    | 527 | A    |
| 1   | H1    | 528 | C    |
| 1   | H1    | 532 | G    |
| 1   | H1    | 533 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H1    | 539 | A    |
| 1   | H1    | 541 | A    |
| 1   | H1    | 543 | A    |
| 1   | H1    | 552 | U    |
| 1   | H1    | 553 | C    |
| 1   | H1    | 556 | A    |
| 1   | H1    | 562 | G    |
| 1   | H1    | 564 | A    |
| 1   | H1    | 565 | G    |
| 1   | H1    | 566 | U    |
| 1   | H1    | 567 | C    |
| 1   | H1    | 568 | A    |
| 1   | H1    | 572 | G    |
| 1   | H1    | 576 | U    |
| 1   | H1    | 578 | G    |
| 1   | H1    | 579 | G    |
| 1   | H1    | 580 | G    |
| 1   | H1    | 582 | A    |
| 1   | H1    | 584 | C    |
| 1   | H1    | 586 | A    |
| 1   | H1    | 587 | U    |
| 1   | H1    | 591 | G    |
| 1   | H1    | 592 | A    |
| 1   | H1    | 595 | A    |
| 1   | H1    | 599 | G    |
| 1   | H1    | 600 | G    |
| 1   | H1    | 611 | A    |
| 1   | H1    | 612 | C    |
| 1   | H1    | 614 | G    |
| 1   | H1    | 615 | G    |
| 1   | H1    | 618 | U    |
| 1   | H1    | 620 | A    |
| 1   | H1    | 622 | G    |
| 1   | H1    | 623 | G    |
| 1   | H1    | 625 | C    |
| 1   | H1    | 626 | C    |
| 1   | H1    | 627 | U    |
| 1   | H1    | 628 | A    |
| 1   | H1    | 629 | A    |
| 1   | H1    | 631 | G    |
| 1   | H1    | 634 | G    |
| 1   | H1    | 635 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H1    | 636 | U    |
| 1   | H1    | 643 | A    |
| 1   | H1    | 644 | A    |
| 1   | H1    | 645 | A    |
| 1   | H1    | 646 | A    |
| 1   | H1    | 660 | C    |
| 1   | H1    | 661 | C    |
| 1   | H1    | 662 | C    |
| 1   | H1    | 663 | G    |
| 1   | H1    | 666 | U    |
| 1   | H1    | 673 | A    |
| 1   | H1    | 684 | A    |
| 1   | H1    | 685 | G    |
| 1   | H1    | 686 | U    |
| 1   | H1    | 697 | A    |
| 1   | H1    | 701 | A    |
| 1   | H1    | 709 | G    |
| 1   | H1    | 711 | U    |
| 1   | H1    | 719 | C    |
| 1   | H1    | 720 | C    |
| 1   | H1    | 723 | U    |
| 1   | H1    | 724 | C    |
| 1   | H1    | 728 | G    |
| 1   | H1    | 729 | A    |
| 1   | H1    | 730 | A    |
| 1   | H1    | 733 | G    |
| 1   | H1    | 737 | G    |
| 1   | H1    | 740 | A    |
| 1   | H1    | 741 | G    |
| 1   | H1    | 742 | U    |
| 1   | H1    | 743 | A    |
| 1   | H1    | 745 | A    |
| 1   | H1    | 747 | G    |
| 1   | H1    | 751 | C    |
| 1   | H1    | 753 | A    |
| 1   | H1    | 757 | C    |
| 1   | H1    | 761 | A    |
| 1   | H1    | 767 | C    |
| 1   | H1    | 773 | C    |
| 1   | H1    | 775 | C    |
| 1   | H1    | 777 | C    |
| 1   | H1    | 786 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | H1    | 788 | C    |
| 1   | H1    | 789 | U    |
| 1   | H1    | 790 | C    |
| 1   | H1    | 791 | C    |
| 1   | H1    | 792 | G    |
| 1   | H1    | 799 | G    |
| 1   | H1    | 800 | G    |
| 1   | H1    | 801 | U    |
| 1   | H1    | 803 | C    |
| 1   | H1    | 805 | A    |
| 1   | H1    | 806 | G    |
| 1   | H1    | 807 | G    |
| 1   | H1    | 810 | G    |
| 1   | H1    | 811 | A    |
| 1   | H1    | 821 | U    |
| 1   | H1    | 825 | G    |
| 1   | H1    | 827 | C    |
| 1   | H1    | 831 | A    |
| 1   | H1    | 833 | A    |
| 1   | H1    | 834 | G    |
| 1   | H1    | 840 | G    |
| 1   | H1    | 842 | A    |
| 1   | H1    | 847 | G    |
| 1   | H1    | 855 | A    |
| 1   | H1    | 866 | A    |
| 1   | H1    | 870 | G    |
| 1   | H1    | 874 | C    |
| 1   | H1    | 881 | G    |
| 1   | H1    | 883 | A    |
| 1   | H1    | 886 | C    |
| 1   | H1    | 894 | G    |
| 1   | H1    | 896 | U    |
| 1   | H1    | 898 | C    |
| 1   | H1    | 899 | U    |
| 1   | H1    | 904 | U    |
| 1   | H1    | 905 | G    |
| 1   | H1    | 908 | A    |
| 1   | H1    | 919 | A    |
| 1   | H1    | 921 | A    |
| 1   | H1    | 930 | U    |
| 1   | H1    | 932 | G    |
| 1   | H1    | 933 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 934  | G    |
| 1   | H1    | 935  | G    |
| 1   | H1    | 939  | A    |
| 1   | H1    | 940  | A    |
| 1   | H1    | 941  | G    |
| 1   | H1    | 942  | A    |
| 1   | H1    | 944  | U    |
| 1   | H1    | 946  | A    |
| 1   | H1    | 948  | C    |
| 1   | H1    | 957  | U    |
| 1   | H1    | 958  | A    |
| 1   | H1    | 959  | G    |
| 1   | H1    | 961  | A    |
| 1   | H1    | 962  | G    |
| 1   | H1    | 969  | C    |
| 1   | H1    | 972  | U    |
| 1   | H1    | 973  | C    |
| 1   | H1    | 978  | G    |
| 1   | H1    | 983  | U    |
| 1   | H1    | 984  | C    |
| 1   | H1    | 985  | U    |
| 1   | H1    | 986  | C    |
| 1   | H1    | 987  | A    |
| 1   | H1    | 988  | G    |
| 1   | H1    | 990  | A    |
| 1   | H1    | 992  | A    |
| 1   | H1    | 999  | G    |
| 1   | H1    | 1003 | G    |
| 1   | H1    | 1004 | U    |
| 1   | H1    | 1005 | A    |
| 1   | H1    | 1006 | C    |
| 1   | H1    | 1007 | G    |
| 1   | H1    | 1008 | C    |
| 1   | H1    | 1012 | U    |
| 1   | H1    | 1017 | U    |
| 1   | H1    | 1018 | A    |
| 1   | H1    | 1019 | G    |
| 1   | H1    | 1020 | G    |
| 1   | H1    | 1025 | G    |
| 1   | H1    | 1027 | G    |
| 1   | H1    | 1028 | A    |
| 1   | H1    | 1034 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1035 | A    |
| 1   | H1    | 1040 | A    |
| 1   | H1    | 1042 | U    |
| 1   | H1    | 1044 | G    |
| 1   | H1    | 1047 | G    |
| 1   | H1    | 1048 | U    |
| 1   | H1    | 1049 | U    |
| 1   | H1    | 1052 | A    |
| 1   | H1    | 1053 | A    |
| 1   | H1    | 1054 | G    |
| 1   | H1    | 1055 | A    |
| 1   | H1    | 1058 | C    |
| 1   | H1    | 1060 | C    |
| 1   | H1    | 1061 | G    |
| 1   | H1    | 1064 | C    |
| 1   | H1    | 1067 | U    |
| 1   | H1    | 1072 | A    |
| 1   | H1    | 1073 | A    |
| 1   | H1    | 1074 | A    |
| 1   | H1    | 1075 | C    |
| 1   | H1    | 1083 | U    |
| 1   | H1    | 1085 | G    |
| 1   | H1    | 1087 | A    |
| 1   | H1    | 1090 | A    |
| 1   | H1    | 1091 | G    |
| 1   | H1    | 1092 | C    |
| 1   | H1    | 1095 | C    |
| 1   | H1    | 1096 | G    |
| 1   | H1    | 1097 | G    |
| 1   | H1    | 1098 | A    |
| 1   | H1    | 1099 | G    |
| 1   | H1    | 1101 | U    |
| 1   | H1    | 1102 | U    |
| 1   | H1    | 1103 | A    |
| 1   | H1    | 1104 | C    |
| 1   | H1    | 1108 | A    |
| 1   | H1    | 1109 | A    |
| 1   | H1    | 1110 | U    |
| 1   | H1    | 1111 | G    |
| 1   | H1    | 1115 | U    |
| 1   | H1    | 1116 | C    |
| 1   | H1    | 1118 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1122 | A    |
| 1   | H1    | 1123 | A    |
| 1   | H1    | 1124 | G    |
| 1   | H1    | 1125 | A    |
| 1   | H1    | 1129 | C    |
| 1   | H1    | 1130 | A    |
| 1   | H1    | 1131 | G    |
| 1   | H1    | 1132 | U    |
| 1   | H1    | 1135 | U    |
| 1   | H1    | 1142 | G    |
| 1   | H1    | 1143 | G    |
| 1   | H1    | 1144 | G    |
| 1   | H1    | 1151 | U    |
| 1   | H1    | 1155 | U    |
| 1   | H1    | 1158 | G    |
| 1   | H1    | 1159 | C    |
| 1   | H1    | 1161 | G    |
| 1   | H1    | 1166 | G    |
| 1   | H1    | 1169 | G    |
| 1   | H1    | 1170 | A    |
| 1   | H1    | 1176 | G    |
| 1   | H1    | 1178 | U    |
| 1   | H1    | 1180 | A    |
| 1   | H1    | 1181 | A    |
| 1   | H1    | 1182 | C    |
| 1   | H1    | 1184 | U    |
| 1   | H1    | 1185 | A    |
| 1   | H1    | 1186 | A    |
| 1   | H1    | 1187 | C    |
| 1   | H1    | 1198 | G    |
| 1   | H1    | 1199 | G    |
| 1   | H1    | 1203 | C    |
| 1   | H1    | 1204 | C    |
| 1   | H1    | 1205 | A    |
| 1   | H1    | 1206 | A    |
| 1   | H1    | 1207 | A    |
| 1   | H1    | 1208 | U    |
| 1   | H1    | 1209 | G    |
| 1   | H1    | 1212 | C    |
| 1   | H1    | 1213 | G    |
| 1   | H1    | 1216 | C    |
| 1   | H1    | 1217 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1218 | U    |
| 1   | H1    | 1219 | C    |
| 1   | H1    | 1220 | A    |
| 1   | H1    | 1224 | A    |
| 1   | H1    | 1226 | C    |
| 1   | H1    | 1227 | A    |
| 1   | H1    | 1228 | C    |
| 1   | H1    | 1233 | G    |
| 1   | H1    | 1234 | G    |
| 1   | H1    | 1235 | U    |
| 1   | H1    | 1236 | G    |
| 1   | H1    | 1243 | C    |
| 1   | H1    | 1244 | A    |
| 1   | H1    | 1245 | U    |
| 1   | H1    | 1246 | A    |
| 1   | H1    | 1248 | G    |
| 1   | H1    | 1249 | G    |
| 1   | H1    | 1250 | A    |
| 1   | H1    | 1255 | A    |
| 1   | H1    | 1257 | G    |
| 1   | H1    | 1309 | G    |
| 1   | H1    | 1313 | A    |
| 1   | H1    | 1314 | A    |
| 1   | H1    | 1316 | G    |
| 1   | H1    | 1319 | C    |
| 1   | H1    | 1334 | G    |
| 1   | H1    | 1335 | A    |
| 1   | H1    | 1336 | U    |
| 1   | H1    | 1339 | C    |
| 1   | H1    | 1340 | G    |
| 1   | H1    | 1343 | G    |
| 1   | H1    | 1344 | A    |
| 1   | H1    | 1353 | G    |
| 1   | H1    | 1357 | A    |
| 1   | H1    | 1358 | U    |
| 1   | H1    | 1359 | A    |
| 1   | H1    | 1361 | U    |
| 1   | H1    | 1363 | A    |
| 1   | H1    | 1371 | G    |
| 1   | H1    | 1374 | C    |
| 1   | H1    | 1375 | A    |
| 1   | H1    | 1376 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1377 | A    |
| 1   | H1    | 1378 | U    |
| 1   | H1    | 1380 | C    |
| 1   | H1    | 1381 | G    |
| 1   | H1    | 1382 | A    |
| 1   | H1    | 1383 | G    |
| 1   | H1    | 1384 | G    |
| 1   | H1    | 1387 | U    |
| 1   | H1    | 1392 | G    |
| 1   | H1    | 1395 | U    |
| 1   | H1    | 1399 | A    |
| 1   | H1    | 1400 | G    |
| 1   | H1    | 1401 | G    |
| 1   | H1    | 1403 | C    |
| 1   | H1    | 1405 | U    |
| 1   | H1    | 1406 | G    |
| 1   | H1    | 1410 | G    |
| 1   | H1    | 1413 | G    |
| 1   | H1    | 1416 | U    |
| 1   | H1    | 1424 | U    |
| 1   | H1    | 1425 | U    |
| 1   | H1    | 1426 | G    |
| 1   | H1    | 1430 | G    |
| 1   | H1    | 1431 | U    |
| 1   | H1    | 1434 | G    |
| 1   | H1    | 1435 | C    |
| 1   | H1    | 1437 | U    |
| 1   | H1    | 1445 | G    |
| 1   | H1    | 1446 | C    |
| 1   | H1    | 1456 | U    |
| 1   | H1    | 1460 | G    |
| 1   | H1    | 1461 | A    |
| 1   | H1    | 1463 | C    |
| 1   | H1    | 1468 | U    |
| 1   | H1    | 1469 | G    |
| 1   | H1    | 1472 | A    |
| 1   | H1    | 1478 | A    |
| 1   | H1    | 1479 | A    |
| 1   | H1    | 1481 | U    |
| 1   | H1    | 1482 | A    |
| 1   | H1    | 1494 | A    |
| 1   | H1    | 1495 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1496 | U    |
| 1   | H1    | 1507 | A    |
| 1   | H1    | 1508 | A    |
| 1   | H1    | 1509 | G    |
| 1   | H1    | 1521 | U    |
| 1   | H1    | 1528 | G    |
| 1   | H1    | 1533 | G    |
| 1   | H1    | 1534 | C    |
| 1   | H1    | 1537 | U    |
| 1   | H1    | 1538 | U    |
| 1   | H1    | 1539 | G    |
| 1   | H1    | 1540 | U    |
| 1   | H1    | 1547 | G    |
| 1   | H1    | 1548 | U    |
| 1   | H1    | 1549 | U    |
| 1   | H1    | 1551 | C    |
| 1   | H1    | 1552 | U    |
| 1   | H1    | 1562 | G    |
| 1   | H1    | 1575 | U    |
| 1   | H1    | 1578 | U    |
| 1   | H1    | 1581 | C    |
| 1   | H1    | 1582 | A    |
| 1   | H1    | 1583 | A    |
| 1   | H1    | 1584 | U    |
| 1   | H1    | 1585 | A    |
| 1   | H1    | 1587 | A    |
| 1   | H1    | 1588 | A    |
| 1   | H1    | 1589 | G    |
| 1   | H1    | 1595 | A    |
| 1   | H1    | 1596 | U    |
| 1   | H1    | 1597 | U    |
| 1   | H1    | 1599 | G    |
| 1   | H1    | 1600 | U    |
| 1   | H1    | 1605 | G    |
| 1   | H1    | 1606 | U    |
| 1   | H1    | 1608 | G    |
| 1   | H1    | 1609 | U    |
| 1   | H1    | 1613 | A    |
| 1   | H1    | 1614 | A    |
| 1   | H1    | 1618 | A    |
| 1   | H1    | 1621 | G    |
| 1   | H1    | 1625 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1629 | U    |
| 1   | H1    | 1630 | A    |
| 1   | H1    | 1631 | U    |
| 1   | H1    | 1632 | U    |
| 1   | H1    | 1638 | A    |
| 1   | H1    | 1639 | G    |
| 1   | H1    | 1643 | G    |
| 1   | H1    | 1644 | A    |
| 1   | H1    | 1645 | C    |
| 1   | H1    | 1649 | G    |
| 1   | H1    | 1650 | U    |
| 1   | H1    | 1651 | A    |
| 1   | H1    | 1652 | U    |
| 1   | H1    | 1654 | G    |
| 1   | H1    | 1655 | A    |
| 1   | H1    | 1656 | G    |
| 1   | H1    | 1662 | A    |
| 1   | H1    | 1663 | C    |
| 1   | H1    | 1666 | A    |
| 1   | H1    | 1668 | A    |
| 1   | H1    | 1676 | G    |
| 1   | H1    | 1681 | C    |
| 1   | H1    | 1682 | G    |
| 1   | H1    | 1686 | G    |
| 1   | H1    | 1698 | G    |
| 1   | H1    | 1714 | C    |
| 1   | H1    | 1715 | U    |
| 1   | H1    | 1716 | U    |
| 1   | H1    | 1717 | U    |
| 1   | H1    | 1726 | C    |
| 1   | H1    | 1729 | U    |
| 1   | H1    | 1737 | A    |
| 1   | H1    | 1738 | A    |
| 1   | H1    | 1739 | A    |
| 1   | H1    | 1740 | U    |
| 1   | H1    | 1741 | U    |
| 1   | H1    | 1742 | G    |
| 1   | H1    | 1748 | U    |
| 1   | H1    | 1753 | A    |
| 1   | H1    | 1754 | G    |
| 1   | H1    | 1759 | C    |
| 1   | H1    | 1760 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1766 | A    |
| 1   | H1    | 1767 | U    |
| 1   | H1    | 1768 | G    |
| 1   | H1    | 1775 | A    |
| 1   | H1    | 1776 | G    |
| 1   | H1    | 1777 | A    |
| 1   | H1    | 1783 | U    |
| 1   | H1    | 1793 | A    |
| 1   | H1    | 1798 | U    |
| 1   | H1    | 1805 | C    |
| 1   | H1    | 1806 | G    |
| 1   | H1    | 1807 | C    |
| 1   | H1    | 1819 | C    |
| 1   | H1    | 1820 | U    |
| 1   | H1    | 1821 | U    |
| 1   | H1    | 1823 | A    |
| 1   | H1    | 1832 | G    |
| 1   | H1    | 1834 | G    |
| 1   | H1    | 1839 | A    |
| 1   | H1    | 1840 | U    |
| 1   | H1    | 1841 | A    |
| 1   | H1    | 1845 | U    |
| 1   | H1    | 1846 | C    |
| 1   | H1    | 1852 | A    |
| 1   | H1    | 1863 | A    |
| 1   | H1    | 1865 | A    |
| 1   | H1    | 1866 | A    |
| 1   | H1    | 1869 | G    |
| 1   | H1    | 1870 | C    |
| 1   | H1    | 1873 | C    |
| 1   | H1    | 1874 | A    |
| 1   | H1    | 1882 | A    |
| 1   | H1    | 1885 | G    |
| 1   | H1    | 1886 | U    |
| 1   | H1    | 1890 | C    |
| 1   | H1    | 1895 | U    |
| 1   | H1    | 1902 | C    |
| 1   | H1    | 1903 | A    |
| 1   | H1    | 1904 | U    |
| 1   | H1    | 1905 | A    |
| 1   | H1    | 1908 | A    |
| 1   | H1    | 1909 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1910 | A    |
| 1   | H1    | 1917 | A    |
| 1   | H1    | 1919 | A    |
| 1   | H1    | 1920 | A    |
| 1   | H1    | 1923 | G    |
| 1   | H1    | 1924 | A    |
| 1   | H1    | 1925 | A    |
| 1   | H1    | 1929 | G    |
| 1   | H1    | 1930 | G    |
| 1   | H1    | 1937 | G    |
| 1   | H1    | 1938 | G    |
| 1   | H1    | 1942 | C    |
| 1   | H1    | 1943 | G    |
| 1   | H1    | 1950 | C    |
| 1   | H1    | 1951 | G    |
| 1   | H1    | 1952 | G    |
| 1   | H1    | 1955 | U    |
| 1   | H1    | 1956 | A    |
| 1   | H1    | 1957 | A    |
| 1   | H1    | 1958 | G    |
| 1   | H1    | 2101 | G    |
| 1   | H1    | 2102 | A    |
| 1   | H1    | 2106 | G    |
| 1   | H1    | 2107 | A    |
| 1   | H1    | 2108 | A    |
| 1   | H1    | 2109 | G    |
| 1   | H1    | 2110 | C    |
| 1   | H1    | 2111 | G    |
| 1   | H1    | 2117 | A    |
| 1   | H1    | 2118 | G    |
| 1   | H1    | 2119 | G    |
| 1   | H1    | 2127 | A    |
| 1   | H1    | 2130 | G    |
| 1   | H1    | 2133 | U    |
| 1   | H1    | 2134 | A    |
| 1   | H1    | 2136 | U    |
| 1   | H1    | 2146 | G    |
| 1   | H1    | 2147 | C    |
| 1   | H1    | 2150 | U    |
| 1   | H1    | 2154 | A    |
| 1   | H1    | 2156 | G    |
| 1   | H1    | 2157 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2159 | C    |
| 1   | H1    | 2165 | A    |
| 1   | H1    | 2178 | A    |
| 1   | H1    | 2182 | G    |
| 1   | H1    | 2183 | A    |
| 1   | H1    | 2189 | G    |
| 1   | H1    | 2190 | C    |
| 1   | H1    | 2196 | G    |
| 1   | H1    | 2199 | C    |
| 1   | H1    | 2200 | U    |
| 1   | H1    | 2202 | A    |
| 1   | H1    | 2216 | G    |
| 1   | H1    | 2217 | C    |
| 1   | H1    | 2218 | A    |
| 1   | H1    | 2220 | U    |
| 1   | H1    | 2223 | A    |
| 1   | H1    | 2239 | A    |
| 1   | H1    | 2243 | C    |
| 1   | H1    | 2244 | G    |
| 1   | H1    | 2245 | G    |
| 1   | H1    | 2246 | G    |
| 1   | H1    | 2247 | A    |
| 1   | H1    | 2248 | G    |
| 1   | H1    | 2249 | U    |
| 1   | H1    | 2251 | A    |
| 1   | H1    | 2256 | G    |
| 1   | H1    | 2258 | C    |
| 1   | H1    | 2264 | U    |
| 1   | H1    | 2265 | A    |
| 1   | H1    | 2268 | G    |
| 1   | H1    | 2271 | G    |
| 1   | H1    | 2273 | C    |
| 1   | H1    | 2275 | A    |
| 1   | H1    | 2276 | A    |
| 1   | H1    | 2277 | U    |
| 1   | H1    | 2278 | G    |
| 1   | H1    | 2279 | C    |
| 1   | H1    | 2280 | C    |
| 1   | H1    | 2281 | U    |
| 1   | H1    | 2283 | G    |
| 1   | H1    | 2286 | A    |
| 1   | H1    | 2292 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2293 | U    |
| 1   | H1    | 2298 | A    |
| 1   | H1    | 2301 | C    |
| 1   | H1    | 2302 | G    |
| 1   | H1    | 2303 | C    |
| 1   | H1    | 2304 | A    |
| 1   | H1    | 2305 | U    |
| 1   | H1    | 2308 | A    |
| 1   | H1    | 2309 | U    |
| 1   | H1    | 2310 | G    |
| 1   | H1    | 2317 | U    |
| 1   | H1    | 2318 | G    |
| 1   | H1    | 2321 | A    |
| 1   | H1    | 2324 | A    |
| 1   | H1    | 2329 | U    |
| 1   | H1    | 2330 | G    |
| 1   | H1    | 2331 | U    |
| 1   | H1    | 2335 | U    |
| 1   | H1    | 2342 | U    |
| 1   | H1    | 2343 | A    |
| 1   | H1    | 2344 | U    |
| 1   | H1    | 2356 | A    |
| 1   | H1    | 2357 | C    |
| 1   | H1    | 2358 | A    |
| 1   | H1    | 2361 | U    |
| 1   | H1    | 2366 | G    |
| 1   | H1    | 2367 | A    |
| 1   | H1    | 2368 | A    |
| 1   | H1    | 2369 | C    |
| 1   | H1    | 2370 | G    |
| 1   | H1    | 2372 | G    |
| 1   | H1    | 2378 | A    |
| 1   | H1    | 2379 | A    |
| 1   | H1    | 2380 | U    |
| 1   | H1    | 2383 | U    |
| 1   | H1    | 2386 | G    |
| 1   | H1    | 2388 | G    |
| 1   | H1    | 2391 | G    |
| 1   | H1    | 2392 | A    |
| 1   | H1    | 2393 | A    |
| 1   | H1    | 2394 | A    |
| 1   | H1    | 2396 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2397 | A    |
| 1   | H1    | 2398 | G    |
| 1   | H1    | 2399 | A    |
| 1   | H1    | 2400 | C    |
| 1   | H1    | 2406 | U    |
| 1   | H1    | 2407 | G    |
| 1   | H1    | 2410 | C    |
| 1   | H1    | 2412 | U    |
| 1   | H1    | 2413 | G    |
| 1   | H1    | 2414 | A    |
| 1   | H1    | 2416 | U    |
| 1   | H1    | 2417 | C    |
| 1   | H1    | 2421 | U    |
| 1   | H1    | 2430 | G    |
| 1   | H1    | 2508 | U    |
| 1   | H1    | 2509 | U    |
| 1   | H1    | 2510 | A    |
| 1   | H1    | 2515 | G    |
| 1   | H1    | 2517 | G    |
| 1   | H1    | 2518 | A    |
| 1   | H1    | 2519 | A    |
| 1   | H1    | 2521 | A    |
| 1   | H1    | 2524 | A    |
| 1   | H1    | 2532 | G    |
| 1   | H1    | 2541 | U    |
| 1   | H1    | 2542 | U    |
| 1   | H1    | 2543 | C    |
| 1   | H1    | 2545 | A    |
| 1   | H1    | 2546 | A    |
| 1   | H1    | 2548 | G    |
| 1   | H1    | 2549 | U    |
| 1   | H1    | 2550 | U    |
| 1   | H1    | 2551 | A    |
| 1   | H1    | 2552 | A    |
| 1   | H1    | 2554 | G    |
| 1   | H1    | 2560 | U    |
| 1   | H1    | 2562 | U    |
| 1   | H1    | 2563 | U    |
| 1   | H1    | 2566 | C    |
| 1   | H1    | 2569 | A    |
| 1   | H1    | 2570 | U    |
| 1   | H1    | 2574 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2575 | G    |
| 1   | H1    | 2576 | C    |
| 1   | H1    | 2577 | G    |
| 1   | H1    | 2578 | A    |
| 1   | H1    | 2580 | A    |
| 1   | H1    | 2582 | A    |
| 1   | H1    | 2583 | C    |
| 1   | H1    | 2595 | G    |
| 1   | H1    | 2603 | G    |
| 1   | H1    | 2614 | A    |
| 1   | H1    | 2615 | A    |
| 1   | H1    | 2616 | U    |
| 1   | H1    | 2617 | G    |
| 1   | H1    | 2618 | C    |
| 1   | H1    | 2622 | U    |
| 1   | H1    | 2625 | A    |
| 1   | H1    | 2626 | A    |
| 1   | H1    | 2627 | C    |
| 1   | H1    | 2633 | C    |
| 1   | H1    | 2634 | G    |
| 1   | H1    | 2635 | C    |
| 1   | H1    | 2637 | G    |
| 1   | H1    | 2638 | G    |
| 1   | H1    | 2639 | C    |
| 1   | H1    | 2640 | G    |
| 1   | H1    | 2641 | U    |
| 1   | H1    | 2642 | C    |
| 1   | H1    | 2644 | U    |
| 1   | H1    | 2645 | A    |
| 1   | H1    | 2646 | A    |
| 1   | H1    | 2647 | G    |
| 1   | H1    | 2655 | C    |
| 1   | H1    | 2666 | G    |
| 1   | H1    | 2667 | A    |
| 1   | H1    | 2670 | U    |
| 1   | H1    | 2672 | U    |
| 1   | H1    | 2678 | A    |
| 1   | H1    | 2679 | G    |
| 1   | H1    | 2680 | A    |
| 1   | H1    | 2683 | A    |
| 1   | H1    | 2684 | A    |
| 1   | H1    | 2685 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2693 | A    |
| 1   | H1    | 2702 | U    |
| 1   | H1    | 2703 | G    |
| 1   | H1    | 2704 | A    |
| 1   | H1    | 2705 | U    |
| 1   | H1    | 2706 | U    |
| 1   | H1    | 2707 | U    |
| 1   | H1    | 2708 | U    |
| 1   | H1    | 2717 | G    |
| 1   | H1    | 2718 | U    |
| 1   | H1    | 2721 | G    |
| 1   | H1    | 2726 | C    |
| 1   | H1    | 2727 | A    |
| 1   | H1    | 2728 | A    |
| 1   | H1    | 2729 | A    |
| 1   | H1    | 2735 | A    |
| 1   | H1    | 2741 | U    |
| 1   | H1    | 2742 | G    |
| 1   | H1    | 2743 | G    |
| 1   | H1    | 2744 | C    |
| 1   | H1    | 2749 | C    |
| 1   | H1    | 2751 | A    |
| 1   | H1    | 2761 | U    |
| 1   | H1    | 2762 | U    |
| 1   | H1    | 2765 | C    |
| 1   | H1    | 2766 | A    |
| 1   | H1    | 2767 | A    |
| 1   | H1    | 2768 | G    |
| 1   | H1    | 2772 | U    |
| 1   | H1    | 2774 | A    |
| 1   | H1    | 2775 | G    |
| 1   | H1    | 2779 | G    |
| 1   | H1    | 2784 | G    |
| 1   | H1    | 2787 | A    |
| 1   | H1    | 2788 | G    |
| 1   | H1    | 2789 | A    |
| 1   | H1    | 2790 | A    |
| 1   | H1    | 2791 | A    |
| 1   | H1    | 2798 | C    |
| 1   | H1    | 2802 | G    |
| 1   | H1    | 2804 | G    |
| 1   | H1    | 2805 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2806 | U    |
| 1   | H1    | 2815 | U    |
| 1   | H1    | 2816 | G    |
| 1   | H1    | 2817 | U    |
| 1   | H1    | 2821 | A    |
| 1   | H1    | 2822 | G    |
| 1   | H1    | 2827 | G    |
| 1   | H1    | 2829 | G    |
| 1   | H1    | 2830 | U    |
| 1   | H1    | 2831 | U    |
| 1   | H1    | 2833 | A    |
| 1   | H1    | 2838 | G    |
| 1   | H1    | 2839 | A    |
| 1   | H1    | 2847 | U    |
| 1   | H1    | 2848 | U    |
| 1   | H1    | 2849 | U    |
| 1   | H1    | 2855 | C    |
| 1   | H1    | 2857 | U    |
| 1   | H1    | 2858 | C    |
| 1   | H1    | 2859 | G    |
| 1   | H1    | 2860 | A    |
| 1   | H1    | 2863 | U    |
| 1   | H1    | 2875 | A    |
| 1   | H1    | 2876 | U    |
| 1   | H1    | 2887 | C    |
| 1   | H1    | 2898 | A    |
| 1   | H1    | 2899 | C    |
| 1   | H1    | 2900 | G    |
| 1   | H1    | 2902 | G    |
| 1   | H1    | 2907 | A    |
| 1   | H1    | 2911 | U    |
| 1   | H1    | 2912 | U    |
| 1   | H1    | 2913 | C    |
| 1   | H1    | 2916 | C    |
| 1   | H1    | 2923 | U    |
| 1   | H1    | 2924 | A    |
| 1   | H1    | 2925 | G    |
| 1   | H1    | 2930 | C    |
| 1   | H1    | 2932 | U    |
| 1   | H1    | 2933 | G    |
| 1   | H1    | 2934 | A    |
| 1   | H1    | 2935 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2936 | C    |
| 1   | H1    | 2947 | C    |
| 1   | H1    | 2955 | A    |
| 1   | H1    | 2956 | G    |
| 1   | H1    | 2958 | C    |
| 1   | H1    | 2959 | A    |
| 1   | H1    | 2960 | G    |
| 1   | H1    | 2961 | G    |
| 1   | H1    | 2962 | U    |
| 1   | H1    | 2965 | G    |
| 1   | H1    | 2967 | U    |
| 1   | H1    | 2971 | C    |
| 1   | H1    | 2972 | C    |
| 1   | H1    | 2978 | G    |
| 1   | H1    | 2985 | C    |
| 1   | H1    | 2986 | G    |
| 1   | H1    | 2995 | A    |
| 1   | H1    | 2996 | C    |
| 1   | H1    | 2999 | U    |
| 1   | H1    | 3000 | A    |
| 1   | H1    | 3001 | A    |
| 1   | H1    | 3008 | U    |
| 1   | H1    | 3011 | G    |
| 1   | H1    | 3012 | U    |
| 1   | H1    | 3019 | G    |
| 1   | H1    | 3021 | A    |
| 1   | H1    | 3023 | C    |
| 1   | H1    | 3028 | A    |
| 1   | H1    | 3036 | U    |
| 1   | H1    | 3041 | G    |
| 1   | H1    | 3044 | A    |
| 1   | H1    | 3045 | A    |
| 1   | H1    | 3046 | A    |
| 1   | H1    | 3047 | U    |
| 1   | H1    | 3048 | A    |
| 1   | H1    | 3063 | G    |
| 1   | H1    | 3066 | A    |
| 1   | H1    | 3068 | U    |
| 1   | H1    | 3072 | G    |
| 1   | H1    | 3080 | A    |
| 1   | H1    | 3081 | C    |
| 1   | H1    | 3087 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 3088 | U    |
| 1   | H1    | 3093 | U    |
| 1   | H1    | 3104 | G    |
| 1   | H1    | 3105 | G    |
| 1   | H1    | 3106 | C    |
| 1   | H1    | 3107 | C    |
| 1   | H1    | 3109 | C    |
| 1   | H1    | 3110 | U    |
| 1   | H1    | 3111 | A    |
| 1   | H1    | 3112 | A    |
| 1   | H1    | 3115 | C    |
| 1   | H1    | 3116 | A    |
| 1   | H1    | 3118 | A    |
| 1   | H1    | 3119 | A    |
| 1   | H1    | 3120 | U    |
| 1   | H1    | 3123 | A    |
| 1   | H1    | 3125 | G    |
| 1   | H1    | 3128 | G    |
| 1   | H1    | 3129 | G    |
| 1   | H1    | 3130 | A    |
| 1   | H1    | 3131 | A    |
| 1   | H1    | 3132 | A    |
| 1   | H1    | 3133 | G    |
| 1   | H1    | 3134 | C    |
| 1   | H1    | 3137 | U    |
| 1   | H1    | 3138 | G    |
| 1   | H1    | 3139 | U    |
| 1   | H1    | 3143 | A    |
| 1   | H1    | 3145 | U    |
| 1   | H1    | 3146 | G    |
| 1   | H1    | 3147 | U    |
| 1   | H1    | 3151 | G    |
| 1   | H1    | 3152 | A    |
| 1   | H1    | 3154 | A    |
| 1   | H1    | 3155 | A    |
| 1   | H1    | 3156 | A    |
| 1   | H1    | 3157 | C    |
| 1   | H1    | 3158 | G    |
| 1   | H1    | 3159 | A    |
| 1   | H1    | 3160 | A    |
| 1   | H1    | 3161 | A    |
| 1   | H1    | 3163 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 3167 | U    |
| 1   | H1    | 3168 | A    |
| 1   | H1    | 3169 | A    |
| 1   | H1    | 3173 | U    |
| 1   | H1    | 3174 | U    |
| 1   | H1    | 3175 | A    |
| 1   | H1    | 3176 | A    |
| 1   | H1    | 3177 | G    |
| 1   | H1    | 3178 | U    |
| 1   | H1    | 3179 | U    |
| 1   | H1    | 3183 | A    |
| 1   | H1    | 3184 | A    |
| 1   | H1    | 3185 | G    |
| 1   | H1    | 3186 | G    |
| 1   | H1    | 3188 | A    |
| 1   | H1    | 3191 | G    |
| 1   | H1    | 3192 | C    |
| 1   | H1    | 3193 | G    |
| 1   | H1    | 3197 | A    |
| 1   | H1    | 3201 | G    |
| 1   | H1    | 3202 | C    |
| 1   | H1    | 3205 | A    |
| 1   | H1    | 3206 | A    |
| 1   | H1    | 3207 | A    |
| 1   | H1    | 3208 | A    |
| 1   | H1    | 3215 | C    |
| 1   | H1    | 3217 | U    |
| 1   | H1    | 3219 | A    |
| 1   | H1    | 3224 | C    |
| 1   | H1    | 3226 | A    |
| 1   | H1    | 3229 | C    |
| 1   | H1    | 3230 | G    |
| 1   | H1    | 3231 | U    |
| 1   | H1    | 3232 | A    |
| 1   | H1    | 3234 | U    |
| 1   | H1    | 3235 | U    |
| 1   | H1    | 3236 | C    |
| 1   | H1    | 3237 | C    |
| 1   | H1    | 3238 | A    |
| 1   | H1    | 3241 | U    |
| 1   | H1    | 3242 | U    |
| 1   | H1    | 3247 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 3251 | C    |
| 1   | H1    | 3252 | G    |
| 1   | H1    | 3264 | U    |
| 1   | H1    | 3265 | A    |
| 1   | H1    | 3267 | A    |
| 1   | H1    | 3270 | A    |
| 1   | H1    | 3274 | A    |
| 1   | H1    | 3276 | C    |
| 1   | H1    | 3277 | A    |
| 1   | H1    | 3278 | U    |
| 1   | H1    | 3279 | G    |
| 1   | H1    | 3292 | U    |
| 1   | H1    | 3298 | U    |
| 1   | H1    | 3299 | G    |
| 1   | H1    | 3307 | A    |
| 1   | H1    | 3311 | U    |
| 1   | H1    | 3312 | C    |
| 1   | H1    | 3324 | U    |
| 1   | H1    | 3325 | G    |
| 1   | H1    | 3326 | A    |
| 1   | H1    | 3332 | A    |
| 1   | H1    | 3333 | G    |
| 1   | H1    | 3334 | C    |
| 1   | H1    | 3338 | U    |
| 1   | H1    | 3343 | U    |
| 1   | H1    | 3344 | U    |
| 1   | H1    | 3345 | A    |
| 1   | H1    | 3352 | U    |

All (901) RNA pucker outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 19  | A    |
| 1   | A1    | 40  | C    |
| 1   | A1    | 46  | A    |
| 1   | A1    | 47  | G    |
| 1   | A1    | 71  | U    |
| 1   | A1    | 74  | G    |
| 1   | A1    | 83  | A    |
| 1   | A1    | 107 | A    |
| 1   | A1    | 113 | A    |
| 1   | A1    | 115 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A1    | 117 | G    |
| 1   | A1    | 118 | A    |
| 1   | A1    | 119 | A    |
| 1   | A1    | 120 | A    |
| 1   | A1    | 132 | U    |
| 1   | A1    | 133 | C    |
| 1   | A1    | 135 | A    |
| 1   | A1    | 146 | U    |
| 1   | A1    | 147 | U    |
| 1   | A1    | 148 | G    |
| 1   | A1    | 155 | A    |
| 1   | A1    | 210 | A    |
| 1   | A1    | 223 | C    |
| 1   | A1    | 232 | C    |
| 1   | A1    | 240 | A    |
| 1   | A1    | 281 | G    |
| 1   | A1    | 296 | G    |
| 1   | A1    | 304 | U    |
| 1   | A1    | 328 | A    |
| 1   | A1    | 341 | A    |
| 1   | A1    | 368 | A    |
| 1   | A1    | 396 | A    |
| 1   | A1    | 399 | A    |
| 1   | A1    | 419 | A    |
| 1   | A1    | 432 | G    |
| 1   | A1    | 434 | A    |
| 1   | A1    | 438 | A    |
| 1   | A1    | 452 | U    |
| 1   | A1    | 485 | A    |
| 1   | A1    | 500 | G    |
| 1   | A1    | 517 | A    |
| 1   | A1    | 518 | G    |
| 1   | A1    | 524 | G    |
| 1   | A1    | 525 | C    |
| 1   | A1    | 526 | U    |
| 1   | A1    | 563 | G    |
| 1   | A1    | 579 | G    |
| 1   | A1    | 622 | G    |
| 1   | A1    | 624 | G    |
| 1   | A1    | 628 | A    |
| 1   | A1    | 635 | A    |
| 1   | A1    | 643 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 645  | A    |
| 1   | A1    | 660  | C    |
| 1   | A1    | 685  | G    |
| 1   | A1    | 723  | U    |
| 1   | A1    | 740  | A    |
| 1   | A1    | 742  | U    |
| 1   | A1    | 766  | G    |
| 1   | A1    | 789  | U    |
| 1   | A1    | 790  | C    |
| 1   | A1    | 791  | C    |
| 1   | A1    | 800  | G    |
| 1   | A1    | 805  | A    |
| 1   | A1    | 882  | G    |
| 1   | A1    | 898  | C    |
| 1   | A1    | 904  | U    |
| 1   | A1    | 921  | A    |
| 1   | A1    | 986  | C    |
| 1   | A1    | 1004 | U    |
| 1   | A1    | 1027 | G    |
| 1   | A1    | 1053 | A    |
| 1   | A1    | 1090 | A    |
| 1   | A1    | 1091 | G    |
| 1   | A1    | 1108 | A    |
| 1   | A1    | 1109 | A    |
| 1   | A1    | 1122 | A    |
| 1   | A1    | 1123 | A    |
| 1   | A1    | 1131 | G    |
| 1   | A1    | 1143 | G    |
| 1   | A1    | 1181 | A    |
| 1   | A1    | 1207 | A    |
| 1   | A1    | 1216 | C    |
| 1   | A1    | 1219 | C    |
| 1   | A1    | 1226 | C    |
| 1   | A1    | 1227 | A    |
| 1   | A1    | 1248 | G    |
| 1   | A1    | 1249 | G    |
| 1   | A1    | 1313 | A    |
| 1   | A1    | 1343 | G    |
| 1   | A1    | 1375 | A    |
| 1   | A1    | 1376 | A    |
| 1   | A1    | 1380 | C    |
| 1   | A1    | 1381 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 1382 | A    |
| 1   | A1    | 1383 | G    |
| 1   | A1    | 1394 | G    |
| 1   | A1    | 1425 | U    |
| 1   | A1    | 1433 | A    |
| 1   | A1    | 1481 | U    |
| 1   | A1    | 1495 | C    |
| 1   | A1    | 1508 | A    |
| 1   | A1    | 1509 | G    |
| 1   | A1    | 1580 | G    |
| 1   | A1    | 1583 | A    |
| 1   | A1    | 1584 | U    |
| 1   | A1    | 1587 | A    |
| 1   | A1    | 1596 | U    |
| 1   | A1    | 1617 | G    |
| 1   | A1    | 1654 | G    |
| 1   | A1    | 1667 | A    |
| 1   | A1    | 1737 | A    |
| 1   | A1    | 1738 | A    |
| 1   | A1    | 1740 | U    |
| 1   | A1    | 1752 | G    |
| 1   | A1    | 1758 | U    |
| 1   | A1    | 1766 | A    |
| 1   | A1    | 1767 | U    |
| 1   | A1    | 1775 | A    |
| 1   | A1    | 1776 | G    |
| 1   | A1    | 1804 | G    |
| 1   | A1    | 1819 | C    |
| 1   | A1    | 1820 | U    |
| 1   | A1    | 1839 | A    |
| 1   | A1    | 1840 | U    |
| 1   | A1    | 1845 | U    |
| 1   | A1    | 1902 | C    |
| 1   | A1    | 1909 | C    |
| 1   | A1    | 1919 | A    |
| 1   | A1    | 1922 | G    |
| 1   | A1    | 1954 | A    |
| 1   | A1    | 2106 | G    |
| 1   | A1    | 2107 | A    |
| 1   | A1    | 2133 | U    |
| 1   | A1    | 2140 | A    |
| 1   | A1    | 2188 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 2217 | C    |
| 1   | A1    | 2265 | A    |
| 1   | A1    | 2275 | A    |
| 1   | A1    | 2277 | U    |
| 1   | A1    | 2278 | G    |
| 1   | A1    | 2300 | G    |
| 1   | A1    | 2301 | C    |
| 1   | A1    | 2309 | U    |
| 1   | A1    | 2367 | A    |
| 1   | A1    | 2391 | G    |
| 1   | A1    | 2413 | G    |
| 1   | A1    | 2429 | U    |
| 1   | A1    | 2508 | U    |
| 1   | A1    | 2517 | G    |
| 1   | A1    | 2518 | A    |
| 1   | A1    | 2520 | G    |
| 1   | A1    | 2540 | G    |
| 1   | A1    | 2542 | U    |
| 1   | A1    | 2545 | A    |
| 1   | A1    | 2548 | G    |
| 1   | A1    | 2550 | U    |
| 1   | A1    | 2562 | U    |
| 1   | A1    | 2569 | A    |
| 1   | A1    | 2574 | U    |
| 1   | A1    | 2575 | G    |
| 1   | A1    | 2654 | U    |
| 1   | A1    | 2666 | G    |
| 1   | A1    | 2669 | A    |
| 1   | A1    | 2716 | A    |
| 1   | A1    | 2727 | A    |
| 1   | A1    | 2741 | U    |
| 1   | A1    | 2761 | U    |
| 1   | A1    | 2765 | C    |
| 1   | A1    | 2815 | U    |
| 1   | A1    | 2838 | G    |
| 1   | A1    | 2847 | U    |
| 1   | A1    | 2886 | G    |
| 1   | A1    | 2899 | C    |
| 1   | A1    | 2933 | G    |
| 1   | A1    | 2994 | G    |
| 1   | A1    | 3011 | G    |
| 1   | A1    | 3035 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A1    | 3044 | A    |
| 1   | A1    | 3045 | A    |
| 1   | A1    | 3047 | U    |
| 1   | A1    | 3079 | U    |
| 1   | A1    | 3110 | U    |
| 1   | A1    | 3153 | U    |
| 1   | A1    | 3155 | A    |
| 1   | A1    | 3157 | C    |
| 1   | A1    | 3162 | A    |
| 1   | A1    | 3167 | U    |
| 1   | A1    | 3175 | A    |
| 1   | A1    | 3176 | A    |
| 1   | A1    | 3177 | G    |
| 1   | A1    | 3182 | A    |
| 1   | A1    | 3183 | A    |
| 1   | A1    | 3191 | G    |
| 1   | A1    | 3204 | A    |
| 1   | A1    | 3205 | A    |
| 1   | A1    | 3229 | C    |
| 1   | A1    | 3230 | G    |
| 1   | A1    | 3233 | A    |
| 1   | A1    | 3236 | C    |
| 1   | A1    | 3251 | C    |
| 1   | A1    | 3263 | G    |
| 1   | A1    | 3277 | A    |
| 1   | A1    | 3278 | U    |
| 1   | A1    | 3291 | G    |
| 1   | A1    | 3298 | U    |
| 1   | A1    | 3310 | U    |
| 1   | A1    | 3332 | A    |
| 1   | A1    | 3344 | U    |
| 20  | B2    | 1    | A    |
| 20  | B2    | 2    | G    |
| 20  | B2    | 3    | A    |
| 20  | B2    | 25   | U    |
| 20  | B2    | 37   | A    |
| 20  | B2    | 43   | A    |
| 20  | B2    | 88   | G    |
| 20  | B2    | 91   | U    |
| 20  | B2    | 96   | A    |
| 20  | B2    | 107  | C    |
| 20  | B2    | 111  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | B2    | 112 | G    |
| 20  | B2    | 134 | C    |
| 21  | B3    | 62  | U    |
| 20  | C2    | 1   | A    |
| 20  | C2    | 2   | G    |
| 20  | C2    | 3   | A    |
| 20  | C2    | 25  | U    |
| 20  | C2    | 37  | A    |
| 20  | C2    | 43  | A    |
| 20  | C2    | 88  | G    |
| 20  | C2    | 91  | U    |
| 20  | C2    | 96  | A    |
| 20  | C2    | 107 | C    |
| 20  | C2    | 111 | A    |
| 20  | C2    | 112 | G    |
| 20  | C2    | 134 | C    |
| 21  | C3    | 62  | U    |
| 1   | D1    | 19  | A    |
| 1   | D1    | 40  | C    |
| 1   | D1    | 46  | A    |
| 1   | D1    | 47  | G    |
| 1   | D1    | 71  | U    |
| 1   | D1    | 74  | G    |
| 1   | D1    | 83  | A    |
| 1   | D1    | 107 | A    |
| 1   | D1    | 113 | A    |
| 1   | D1    | 115 | G    |
| 1   | D1    | 117 | G    |
| 1   | D1    | 118 | A    |
| 1   | D1    | 119 | A    |
| 1   | D1    | 120 | A    |
| 1   | D1    | 132 | U    |
| 1   | D1    | 133 | C    |
| 1   | D1    | 135 | A    |
| 1   | D1    | 146 | U    |
| 1   | D1    | 147 | U    |
| 1   | D1    | 148 | G    |
| 1   | D1    | 155 | A    |
| 1   | D1    | 210 | A    |
| 1   | D1    | 223 | C    |
| 1   | D1    | 232 | C    |
| 1   | D1    | 240 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | D1    | 281 | G    |
| 1   | D1    | 296 | G    |
| 1   | D1    | 304 | U    |
| 1   | D1    | 328 | A    |
| 1   | D1    | 341 | A    |
| 1   | D1    | 368 | A    |
| 1   | D1    | 396 | A    |
| 1   | D1    | 399 | A    |
| 1   | D1    | 432 | G    |
| 1   | D1    | 434 | A    |
| 1   | D1    | 438 | A    |
| 1   | D1    | 452 | U    |
| 1   | D1    | 485 | A    |
| 1   | D1    | 500 | G    |
| 1   | D1    | 517 | A    |
| 1   | D1    | 518 | G    |
| 1   | D1    | 524 | G    |
| 1   | D1    | 525 | C    |
| 1   | D1    | 526 | U    |
| 1   | D1    | 563 | G    |
| 1   | D1    | 579 | G    |
| 1   | D1    | 622 | G    |
| 1   | D1    | 624 | G    |
| 1   | D1    | 628 | A    |
| 1   | D1    | 635 | A    |
| 1   | D1    | 643 | A    |
| 1   | D1    | 645 | A    |
| 1   | D1    | 660 | C    |
| 1   | D1    | 685 | G    |
| 1   | D1    | 723 | U    |
| 1   | D1    | 740 | A    |
| 1   | D1    | 742 | U    |
| 1   | D1    | 766 | G    |
| 1   | D1    | 789 | U    |
| 1   | D1    | 790 | C    |
| 1   | D1    | 791 | C    |
| 1   | D1    | 800 | G    |
| 1   | D1    | 805 | A    |
| 1   | D1    | 882 | G    |
| 1   | D1    | 898 | C    |
| 1   | D1    | 904 | U    |
| 1   | D1    | 921 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 986  | C    |
| 1   | D1    | 1004 | U    |
| 1   | D1    | 1027 | G    |
| 1   | D1    | 1053 | A    |
| 1   | D1    | 1090 | A    |
| 1   | D1    | 1091 | G    |
| 1   | D1    | 1108 | A    |
| 1   | D1    | 1109 | A    |
| 1   | D1    | 1122 | A    |
| 1   | D1    | 1123 | A    |
| 1   | D1    | 1131 | G    |
| 1   | D1    | 1143 | G    |
| 1   | D1    | 1181 | A    |
| 1   | D1    | 1207 | A    |
| 1   | D1    | 1216 | C    |
| 1   | D1    | 1226 | C    |
| 1   | D1    | 1227 | A    |
| 1   | D1    | 1248 | G    |
| 1   | D1    | 1249 | G    |
| 1   | D1    | 1313 | A    |
| 1   | D1    | 1343 | G    |
| 1   | D1    | 1375 | A    |
| 1   | D1    | 1376 | A    |
| 1   | D1    | 1380 | C    |
| 1   | D1    | 1381 | G    |
| 1   | D1    | 1382 | A    |
| 1   | D1    | 1383 | G    |
| 1   | D1    | 1394 | G    |
| 1   | D1    | 1425 | U    |
| 1   | D1    | 1481 | U    |
| 1   | D1    | 1495 | C    |
| 1   | D1    | 1508 | A    |
| 1   | D1    | 1509 | G    |
| 1   | D1    | 1580 | G    |
| 1   | D1    | 1583 | A    |
| 1   | D1    | 1584 | U    |
| 1   | D1    | 1587 | A    |
| 1   | D1    | 1596 | U    |
| 1   | D1    | 1617 | G    |
| 1   | D1    | 1654 | G    |
| 1   | D1    | 1667 | A    |
| 1   | D1    | 1737 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 1738 | A    |
| 1   | D1    | 1740 | U    |
| 1   | D1    | 1752 | G    |
| 1   | D1    | 1758 | U    |
| 1   | D1    | 1766 | A    |
| 1   | D1    | 1767 | U    |
| 1   | D1    | 1775 | A    |
| 1   | D1    | 1776 | G    |
| 1   | D1    | 1804 | G    |
| 1   | D1    | 1819 | C    |
| 1   | D1    | 1820 | U    |
| 1   | D1    | 1839 | A    |
| 1   | D1    | 1840 | U    |
| 1   | D1    | 1845 | U    |
| 1   | D1    | 1902 | C    |
| 1   | D1    | 1909 | C    |
| 1   | D1    | 1919 | A    |
| 1   | D1    | 1922 | G    |
| 1   | D1    | 1954 | A    |
| 1   | D1    | 2106 | G    |
| 1   | D1    | 2107 | A    |
| 1   | D1    | 2133 | U    |
| 1   | D1    | 2140 | A    |
| 1   | D1    | 2188 | U    |
| 1   | D1    | 2217 | C    |
| 1   | D1    | 2250 | A    |
| 1   | D1    | 2251 | A    |
| 1   | D1    | 2252 | C    |
| 1   | D1    | 2253 | U    |
| 1   | D1    | 2255 | U    |
| 1   | D1    | 2256 | G    |
| 1   | D1    | 2265 | A    |
| 1   | D1    | 2275 | A    |
| 1   | D1    | 2277 | U    |
| 1   | D1    | 2278 | G    |
| 1   | D1    | 2300 | G    |
| 1   | D1    | 2301 | C    |
| 1   | D1    | 2309 | U    |
| 1   | D1    | 2367 | A    |
| 1   | D1    | 2391 | G    |
| 1   | D1    | 2413 | G    |
| 1   | D1    | 2429 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 2508 | U    |
| 1   | D1    | 2517 | G    |
| 1   | D1    | 2518 | A    |
| 1   | D1    | 2520 | G    |
| 1   | D1    | 2540 | G    |
| 1   | D1    | 2542 | U    |
| 1   | D1    | 2545 | A    |
| 1   | D1    | 2548 | G    |
| 1   | D1    | 2550 | U    |
| 1   | D1    | 2562 | U    |
| 1   | D1    | 2569 | A    |
| 1   | D1    | 2574 | U    |
| 1   | D1    | 2575 | G    |
| 1   | D1    | 2640 | G    |
| 1   | D1    | 2654 | U    |
| 1   | D1    | 2666 | G    |
| 1   | D1    | 2669 | A    |
| 1   | D1    | 2716 | A    |
| 1   | D1    | 2727 | A    |
| 1   | D1    | 2741 | U    |
| 1   | D1    | 2761 | U    |
| 1   | D1    | 2765 | C    |
| 1   | D1    | 2815 | U    |
| 1   | D1    | 2838 | G    |
| 1   | D1    | 2847 | U    |
| 1   | D1    | 2886 | G    |
| 1   | D1    | 2899 | C    |
| 1   | D1    | 2933 | G    |
| 1   | D1    | 2962 | U    |
| 1   | D1    | 2994 | G    |
| 1   | D1    | 3011 | G    |
| 1   | D1    | 3035 | A    |
| 1   | D1    | 3044 | A    |
| 1   | D1    | 3045 | A    |
| 1   | D1    | 3047 | U    |
| 1   | D1    | 3079 | U    |
| 1   | D1    | 3110 | U    |
| 1   | D1    | 3153 | U    |
| 1   | D1    | 3155 | A    |
| 1   | D1    | 3157 | C    |
| 1   | D1    | 3162 | A    |
| 1   | D1    | 3167 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | D1    | 3175 | A    |
| 1   | D1    | 3176 | A    |
| 1   | D1    | 3177 | G    |
| 1   | D1    | 3182 | A    |
| 1   | D1    | 3183 | A    |
| 1   | D1    | 3191 | G    |
| 1   | D1    | 3204 | A    |
| 1   | D1    | 3205 | A    |
| 1   | D1    | 3229 | C    |
| 1   | D1    | 3230 | G    |
| 1   | D1    | 3233 | A    |
| 1   | D1    | 3236 | C    |
| 1   | D1    | 3251 | C    |
| 1   | D1    | 3263 | G    |
| 1   | D1    | 3275 | A    |
| 1   | D1    | 3277 | A    |
| 1   | D1    | 3278 | U    |
| 1   | D1    | 3291 | G    |
| 1   | D1    | 3298 | U    |
| 1   | D1    | 3310 | U    |
| 1   | D1    | 3332 | A    |
| 1   | D1    | 3344 | U    |
| 20  | E2    | 1    | A    |
| 20  | E2    | 2    | G    |
| 20  | E2    | 3    | A    |
| 20  | E2    | 25   | U    |
| 20  | E2    | 37   | A    |
| 20  | E2    | 43   | A    |
| 20  | E2    | 88   | G    |
| 20  | E2    | 91   | U    |
| 20  | E2    | 96   | A    |
| 20  | E2    | 107  | C    |
| 20  | E2    | 111  | A    |
| 20  | E2    | 112  | G    |
| 20  | E2    | 134  | C    |
| 21  | E3    | 62   | U    |
| 1   | F1    | 19   | A    |
| 1   | F1    | 40   | C    |
| 1   | F1    | 46   | A    |
| 1   | F1    | 47   | G    |
| 1   | F1    | 71   | U    |
| 1   | F1    | 74   | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | F1    | 83  | A    |
| 1   | F1    | 107 | A    |
| 1   | F1    | 113 | A    |
| 1   | F1    | 115 | G    |
| 1   | F1    | 117 | G    |
| 1   | F1    | 118 | A    |
| 1   | F1    | 119 | A    |
| 1   | F1    | 120 | A    |
| 1   | F1    | 132 | U    |
| 1   | F1    | 133 | C    |
| 1   | F1    | 135 | A    |
| 1   | F1    | 146 | U    |
| 1   | F1    | 147 | U    |
| 1   | F1    | 148 | G    |
| 1   | F1    | 155 | A    |
| 1   | F1    | 210 | A    |
| 1   | F1    | 223 | C    |
| 1   | F1    | 232 | C    |
| 1   | F1    | 240 | A    |
| 1   | F1    | 281 | G    |
| 1   | F1    | 296 | G    |
| 1   | F1    | 304 | U    |
| 1   | F1    | 328 | A    |
| 1   | F1    | 341 | A    |
| 1   | F1    | 368 | A    |
| 1   | F1    | 396 | A    |
| 1   | F1    | 399 | A    |
| 1   | F1    | 432 | G    |
| 1   | F1    | 434 | A    |
| 1   | F1    | 438 | A    |
| 1   | F1    | 452 | U    |
| 1   | F1    | 485 | A    |
| 1   | F1    | 500 | G    |
| 1   | F1    | 517 | A    |
| 1   | F1    | 518 | G    |
| 1   | F1    | 524 | G    |
| 1   | F1    | 525 | C    |
| 1   | F1    | 526 | U    |
| 1   | F1    | 563 | G    |
| 1   | F1    | 579 | G    |
| 1   | F1    | 622 | G    |
| 1   | F1    | 624 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 628  | A    |
| 1   | F1    | 633  | C    |
| 1   | F1    | 635  | A    |
| 1   | F1    | 643  | A    |
| 1   | F1    | 645  | A    |
| 1   | F1    | 660  | C    |
| 1   | F1    | 685  | G    |
| 1   | F1    | 723  | U    |
| 1   | F1    | 740  | A    |
| 1   | F1    | 742  | U    |
| 1   | F1    | 766  | G    |
| 1   | F1    | 789  | U    |
| 1   | F1    | 790  | C    |
| 1   | F1    | 791  | C    |
| 1   | F1    | 800  | G    |
| 1   | F1    | 805  | A    |
| 1   | F1    | 882  | G    |
| 1   | F1    | 898  | C    |
| 1   | F1    | 904  | U    |
| 1   | F1    | 921  | A    |
| 1   | F1    | 986  | C    |
| 1   | F1    | 1004 | U    |
| 1   | F1    | 1026 | C    |
| 1   | F1    | 1027 | G    |
| 1   | F1    | 1053 | A    |
| 1   | F1    | 1090 | A    |
| 1   | F1    | 1091 | G    |
| 1   | F1    | 1108 | A    |
| 1   | F1    | 1109 | A    |
| 1   | F1    | 1122 | A    |
| 1   | F1    | 1123 | A    |
| 1   | F1    | 1131 | G    |
| 1   | F1    | 1143 | G    |
| 1   | F1    | 1181 | A    |
| 1   | F1    | 1207 | A    |
| 1   | F1    | 1216 | C    |
| 1   | F1    | 1226 | C    |
| 1   | F1    | 1227 | A    |
| 1   | F1    | 1248 | G    |
| 1   | F1    | 1249 | G    |
| 1   | F1    | 1313 | A    |
| 1   | F1    | 1343 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 1375 | A    |
| 1   | F1    | 1376 | A    |
| 1   | F1    | 1380 | C    |
| 1   | F1    | 1381 | G    |
| 1   | F1    | 1382 | A    |
| 1   | F1    | 1383 | G    |
| 1   | F1    | 1394 | G    |
| 1   | F1    | 1425 | U    |
| 1   | F1    | 1481 | U    |
| 1   | F1    | 1495 | C    |
| 1   | F1    | 1508 | A    |
| 1   | F1    | 1509 | G    |
| 1   | F1    | 1580 | G    |
| 1   | F1    | 1583 | A    |
| 1   | F1    | 1584 | U    |
| 1   | F1    | 1587 | A    |
| 1   | F1    | 1596 | U    |
| 1   | F1    | 1617 | G    |
| 1   | F1    | 1654 | G    |
| 1   | F1    | 1667 | A    |
| 1   | F1    | 1737 | A    |
| 1   | F1    | 1738 | A    |
| 1   | F1    | 1740 | U    |
| 1   | F1    | 1752 | G    |
| 1   | F1    | 1758 | U    |
| 1   | F1    | 1766 | A    |
| 1   | F1    | 1767 | U    |
| 1   | F1    | 1775 | A    |
| 1   | F1    | 1776 | G    |
| 1   | F1    | 1804 | G    |
| 1   | F1    | 1819 | C    |
| 1   | F1    | 1820 | U    |
| 1   | F1    | 1839 | A    |
| 1   | F1    | 1840 | U    |
| 1   | F1    | 1845 | U    |
| 1   | F1    | 1902 | C    |
| 1   | F1    | 1909 | C    |
| 1   | F1    | 1919 | A    |
| 1   | F1    | 1922 | G    |
| 1   | F1    | 1954 | A    |
| 1   | F1    | 2106 | G    |
| 1   | F1    | 2107 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2133 | U    |
| 1   | F1    | 2140 | A    |
| 1   | F1    | 2188 | U    |
| 1   | F1    | 2217 | C    |
| 1   | F1    | 2250 | A    |
| 1   | F1    | 2254 | A    |
| 1   | F1    | 2275 | A    |
| 1   | F1    | 2276 | A    |
| 1   | F1    | 2277 | U    |
| 1   | F1    | 2278 | G    |
| 1   | F1    | 2300 | G    |
| 1   | F1    | 2301 | C    |
| 1   | F1    | 2309 | U    |
| 1   | F1    | 2367 | A    |
| 1   | F1    | 2391 | G    |
| 1   | F1    | 2413 | G    |
| 1   | F1    | 2429 | U    |
| 1   | F1    | 2508 | U    |
| 1   | F1    | 2517 | G    |
| 1   | F1    | 2518 | A    |
| 1   | F1    | 2520 | G    |
| 1   | F1    | 2540 | G    |
| 1   | F1    | 2542 | U    |
| 1   | F1    | 2545 | A    |
| 1   | F1    | 2548 | G    |
| 1   | F1    | 2550 | U    |
| 1   | F1    | 2562 | U    |
| 1   | F1    | 2569 | A    |
| 1   | F1    | 2574 | U    |
| 1   | F1    | 2575 | G    |
| 1   | F1    | 2640 | G    |
| 1   | F1    | 2654 | U    |
| 1   | F1    | 2666 | G    |
| 1   | F1    | 2669 | A    |
| 1   | F1    | 2716 | A    |
| 1   | F1    | 2727 | A    |
| 1   | F1    | 2741 | U    |
| 1   | F1    | 2761 | U    |
| 1   | F1    | 2765 | C    |
| 1   | F1    | 2815 | U    |
| 1   | F1    | 2838 | G    |
| 1   | F1    | 2847 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | F1    | 2886 | G    |
| 1   | F1    | 2899 | C    |
| 1   | F1    | 2933 | G    |
| 1   | F1    | 2994 | G    |
| 1   | F1    | 3011 | G    |
| 1   | F1    | 3035 | A    |
| 1   | F1    | 3044 | A    |
| 1   | F1    | 3045 | A    |
| 1   | F1    | 3047 | U    |
| 1   | F1    | 3079 | U    |
| 1   | F1    | 3110 | U    |
| 1   | F1    | 3153 | U    |
| 1   | F1    | 3155 | A    |
| 1   | F1    | 3157 | C    |
| 1   | F1    | 3162 | A    |
| 1   | F1    | 3167 | U    |
| 1   | F1    | 3175 | A    |
| 1   | F1    | 3176 | A    |
| 1   | F1    | 3177 | G    |
| 1   | F1    | 3182 | A    |
| 1   | F1    | 3183 | A    |
| 1   | F1    | 3191 | G    |
| 1   | F1    | 3204 | A    |
| 1   | F1    | 3205 | A    |
| 1   | F1    | 3229 | C    |
| 1   | F1    | 3230 | G    |
| 1   | F1    | 3233 | A    |
| 1   | F1    | 3236 | C    |
| 1   | F1    | 3251 | C    |
| 1   | F1    | 3263 | G    |
| 1   | F1    | 3277 | A    |
| 1   | F1    | 3278 | U    |
| 1   | F1    | 3291 | G    |
| 1   | F1    | 3298 | U    |
| 1   | F1    | 3310 | U    |
| 1   | F1    | 3332 | A    |
| 1   | F1    | 3344 | U    |
| 20  | G2    | 1    | A    |
| 20  | G2    | 2    | G    |
| 20  | G2    | 3    | A    |
| 20  | G2    | 25   | U    |
| 20  | G2    | 37   | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 20  | G2    | 43  | A    |
| 20  | G2    | 88  | G    |
| 20  | G2    | 91  | U    |
| 20  | G2    | 96  | A    |
| 20  | G2    | 107 | C    |
| 20  | G2    | 111 | A    |
| 20  | G2    | 112 | G    |
| 20  | G2    | 134 | C    |
| 21  | G3    | 62  | U    |
| 1   | H1    | 19  | A    |
| 1   | H1    | 40  | C    |
| 1   | H1    | 46  | A    |
| 1   | H1    | 47  | G    |
| 1   | H1    | 71  | U    |
| 1   | H1    | 74  | G    |
| 1   | H1    | 83  | A    |
| 1   | H1    | 107 | A    |
| 1   | H1    | 113 | A    |
| 1   | H1    | 115 | G    |
| 1   | H1    | 117 | G    |
| 1   | H1    | 118 | A    |
| 1   | H1    | 119 | A    |
| 1   | H1    | 120 | A    |
| 1   | H1    | 132 | U    |
| 1   | H1    | 133 | C    |
| 1   | H1    | 135 | A    |
| 1   | H1    | 146 | U    |
| 1   | H1    | 147 | U    |
| 1   | H1    | 155 | A    |
| 1   | H1    | 210 | A    |
| 1   | H1    | 223 | C    |
| 1   | H1    | 232 | C    |
| 1   | H1    | 240 | A    |
| 1   | H1    | 281 | G    |
| 1   | H1    | 296 | G    |
| 1   | H1    | 304 | U    |
| 1   | H1    | 328 | A    |
| 1   | H1    | 341 | A    |
| 1   | H1    | 368 | A    |
| 1   | H1    | 396 | A    |
| 1   | H1    | 399 | A    |
| 1   | H1    | 419 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 432  | G    |
| 1   | H1    | 434  | A    |
| 1   | H1    | 438  | A    |
| 1   | H1    | 452  | U    |
| 1   | H1    | 485  | A    |
| 1   | H1    | 500  | G    |
| 1   | H1    | 517  | A    |
| 1   | H1    | 518  | G    |
| 1   | H1    | 524  | G    |
| 1   | H1    | 525  | C    |
| 1   | H1    | 526  | U    |
| 1   | H1    | 563  | G    |
| 1   | H1    | 579  | G    |
| 1   | H1    | 622  | G    |
| 1   | H1    | 624  | G    |
| 1   | H1    | 628  | A    |
| 1   | H1    | 635  | A    |
| 1   | H1    | 643  | A    |
| 1   | H1    | 645  | A    |
| 1   | H1    | 660  | C    |
| 1   | H1    | 685  | G    |
| 1   | H1    | 723  | U    |
| 1   | H1    | 740  | A    |
| 1   | H1    | 742  | U    |
| 1   | H1    | 766  | G    |
| 1   | H1    | 789  | U    |
| 1   | H1    | 790  | C    |
| 1   | H1    | 791  | C    |
| 1   | H1    | 800  | G    |
| 1   | H1    | 805  | A    |
| 1   | H1    | 882  | G    |
| 1   | H1    | 898  | C    |
| 1   | H1    | 904  | U    |
| 1   | H1    | 921  | A    |
| 1   | H1    | 986  | C    |
| 1   | H1    | 1004 | U    |
| 1   | H1    | 1027 | G    |
| 1   | H1    | 1053 | A    |
| 1   | H1    | 1090 | A    |
| 1   | H1    | 1091 | G    |
| 1   | H1    | 1108 | A    |
| 1   | H1    | 1109 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1122 | A    |
| 1   | H1    | 1123 | A    |
| 1   | H1    | 1131 | G    |
| 1   | H1    | 1143 | G    |
| 1   | H1    | 1181 | A    |
| 1   | H1    | 1207 | A    |
| 1   | H1    | 1216 | C    |
| 1   | H1    | 1219 | C    |
| 1   | H1    | 1226 | C    |
| 1   | H1    | 1227 | A    |
| 1   | H1    | 1248 | G    |
| 1   | H1    | 1249 | G    |
| 1   | H1    | 1313 | A    |
| 1   | H1    | 1343 | G    |
| 1   | H1    | 1375 | A    |
| 1   | H1    | 1376 | A    |
| 1   | H1    | 1380 | C    |
| 1   | H1    | 1381 | G    |
| 1   | H1    | 1382 | A    |
| 1   | H1    | 1383 | G    |
| 1   | H1    | 1394 | G    |
| 1   | H1    | 1425 | U    |
| 1   | H1    | 1433 | A    |
| 1   | H1    | 1481 | U    |
| 1   | H1    | 1495 | C    |
| 1   | H1    | 1506 | G    |
| 1   | H1    | 1508 | A    |
| 1   | H1    | 1509 | G    |
| 1   | H1    | 1580 | G    |
| 1   | H1    | 1583 | A    |
| 1   | H1    | 1584 | U    |
| 1   | H1    | 1587 | A    |
| 1   | H1    | 1596 | U    |
| 1   | H1    | 1617 | G    |
| 1   | H1    | 1654 | G    |
| 1   | H1    | 1667 | A    |
| 1   | H1    | 1737 | A    |
| 1   | H1    | 1738 | A    |
| 1   | H1    | 1740 | U    |
| 1   | H1    | 1752 | G    |
| 1   | H1    | 1758 | U    |
| 1   | H1    | 1766 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 1767 | U    |
| 1   | H1    | 1775 | A    |
| 1   | H1    | 1776 | G    |
| 1   | H1    | 1804 | G    |
| 1   | H1    | 1819 | C    |
| 1   | H1    | 1820 | U    |
| 1   | H1    | 1839 | A    |
| 1   | H1    | 1840 | U    |
| 1   | H1    | 1845 | U    |
| 1   | H1    | 1902 | C    |
| 1   | H1    | 1909 | C    |
| 1   | H1    | 1919 | A    |
| 1   | H1    | 1922 | G    |
| 1   | H1    | 1954 | A    |
| 1   | H1    | 2106 | G    |
| 1   | H1    | 2107 | A    |
| 1   | H1    | 2133 | U    |
| 1   | H1    | 2140 | A    |
| 1   | H1    | 2188 | U    |
| 1   | H1    | 2217 | C    |
| 1   | H1    | 2255 | U    |
| 1   | H1    | 2275 | A    |
| 1   | H1    | 2277 | U    |
| 1   | H1    | 2278 | G    |
| 1   | H1    | 2300 | G    |
| 1   | H1    | 2301 | C    |
| 1   | H1    | 2309 | U    |
| 1   | H1    | 2367 | A    |
| 1   | H1    | 2391 | G    |
| 1   | H1    | 2413 | G    |
| 1   | H1    | 2429 | U    |
| 1   | H1    | 2508 | U    |
| 1   | H1    | 2517 | G    |
| 1   | H1    | 2518 | A    |
| 1   | H1    | 2520 | G    |
| 1   | H1    | 2540 | G    |
| 1   | H1    | 2542 | U    |
| 1   | H1    | 2545 | A    |
| 1   | H1    | 2548 | G    |
| 1   | H1    | 2550 | U    |
| 1   | H1    | 2562 | U    |
| 1   | H1    | 2569 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 2574 | U    |
| 1   | H1    | 2575 | G    |
| 1   | H1    | 2654 | U    |
| 1   | H1    | 2666 | G    |
| 1   | H1    | 2669 | A    |
| 1   | H1    | 2716 | A    |
| 1   | H1    | 2727 | A    |
| 1   | H1    | 2741 | U    |
| 1   | H1    | 2761 | U    |
| 1   | H1    | 2765 | C    |
| 1   | H1    | 2815 | U    |
| 1   | H1    | 2838 | G    |
| 1   | H1    | 2847 | U    |
| 1   | H1    | 2886 | G    |
| 1   | H1    | 2899 | C    |
| 1   | H1    | 2933 | G    |
| 1   | H1    | 2994 | G    |
| 1   | H1    | 3011 | G    |
| 1   | H1    | 3035 | A    |
| 1   | H1    | 3044 | A    |
| 1   | H1    | 3045 | A    |
| 1   | H1    | 3047 | U    |
| 1   | H1    | 3079 | U    |
| 1   | H1    | 3110 | U    |
| 1   | H1    | 3153 | U    |
| 1   | H1    | 3155 | A    |
| 1   | H1    | 3157 | C    |
| 1   | H1    | 3162 | A    |
| 1   | H1    | 3167 | U    |
| 1   | H1    | 3175 | A    |
| 1   | H1    | 3176 | A    |
| 1   | H1    | 3177 | G    |
| 1   | H1    | 3182 | A    |
| 1   | H1    | 3183 | A    |
| 1   | H1    | 3191 | G    |
| 1   | H1    | 3204 | A    |
| 1   | H1    | 3205 | A    |
| 1   | H1    | 3229 | C    |
| 1   | H1    | 3230 | G    |
| 1   | H1    | 3233 | A    |
| 1   | H1    | 3236 | C    |
| 1   | H1    | 3251 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | H1    | 3263 | G    |
| 1   | H1    | 3275 | A    |
| 1   | H1    | 3277 | A    |
| 1   | H1    | 3278 | U    |
| 1   | H1    | 3291 | G    |
| 1   | H1    | 3298 | U    |
| 1   | H1    | 3310 | U    |
| 1   | H1    | 3332 | A    |
| 1   | H1    | 3344 | U    |

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 885 ligands modelled in this entry, 885 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 1   | F1    | 1                |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1     | F1    | 2239:A    | O3'    | 2240:C    | P      | 1.91         |

## 6 Fit of model and data ⓘ

### 6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed        | <RSRZ> | #RSRZ>2   |     |     | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-----------------|--------|-----------|-----|-----|-----------------------|-------|
| 1   | A1    | 3119/3354 (92%) | 0.30   | 103 (3%)  | 49  | 27  | 42, 91, 187, 390      | 0     |
| 1   | D1    | 3119/3354 (92%) | 0.37   | 95 (3%)   | 52  | 29  | 40, 79, 164, 330      | 0     |
| 1   | F1    | 3119/3354 (92%) | 0.55   | 137 (4%)  | 39  | 21  | 51, 94, 176, 357      | 0     |
| 1   | H1    | 3119/3354 (92%) | 1.09   | 456 (14%) | 6   | 5   | 54, 121, 213, 367     | 0     |
| 2   | AA    | 91/94 (96%)     | 0.05   | 0         | 100 | 100 | 29, 65, 120, 243      | 0     |
| 2   | DA    | 91/94 (96%)     | 0.27   | 2 (2%)    | 62  | 35  | 34, 66, 123, 226      | 0     |
| 2   | FA    | 91/94 (96%)     | 0.16   | 2 (2%)    | 62  | 35  | 47, 83, 132, 204      | 0     |
| 2   | HA    | 91/94 (96%)     | 0.81   | 10 (10%)  | 10  | 7   | 74, 119, 186, 243     | 0     |
| 3   | AB    | 51/52 (98%)     | -0.11  | 0         | 100 | 100 | 44, 63, 110, 148      | 0     |
| 3   | DB    | 51/52 (98%)     | 0.02   | 0         | 100 | 100 | 49, 69, 111, 146      | 0     |
| 3   | FB    | 51/52 (98%)     | 0.10   | 1 (1%)    | 65  | 37  | 59, 86, 118, 167      | 0     |
| 3   | HB    | 51/52 (98%)     | 0.31   | 1 (1%)    | 65  | 37  | 90, 114, 144, 197     | 0     |
| 4   | AC    | 103/109 (94%)   | 0.20   | 1 (0%)    | 79  | 54  | 73, 117, 154, 228     | 0     |
| 4   | DC    | 103/109 (94%)   | 0.07   | 1 (0%)    | 79  | 54  | 46, 84, 135, 194      | 0     |
| 4   | FC    | 103/109 (94%)   | 0.21   | 2 (1%)    | 66  | 39  | 58, 96, 156, 192      | 0     |
| 4   | HC    | 103/109 (94%)   | 0.61   | 7 (6%)    | 23  | 14  | 81, 130, 176, 199     | 0     |
| 5   | AE    | 190/191 (99%)   | 0.21   | 2 (1%)    | 78  | 52  | 69, 122, 171, 214     | 0     |
| 5   | DE    | 190/191 (99%)   | 0.38   | 6 (3%)    | 50  | 28  | 74, 124, 169, 226     | 0     |
| 5   | FE    | 190/191 (99%)   | 0.40   | 5 (2%)    | 57  | 32  | 60, 123, 176, 227     | 0     |
| 5   | HE    | 190/191 (99%)   | 0.55   | 7 (3%)    | 45  | 25  | 76, 141, 194, 227     | 0     |
| 6   | AF    | 125/126 (99%)   | 0.12   | 1 (0%)    | 82  | 58  | 71, 111, 156, 213     | 0     |
| 6   | DF    | 125/126 (99%)   | 0.18   | 3 (2%)    | 59  | 34  | 70, 106, 157, 190     | 0     |
| 6   | FF    | 125/126 (99%)   | 0.22   | 4 (3%)    | 50  | 28  | 63, 109, 166, 245     | 0     |
| 6   | HF    | 125/126 (99%)   | 0.25   | 1 (0%)    | 82  | 58  | 74, 113, 163, 224     | 0     |

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| Mol | Chain | Analysed       | <RSRZ> | #RSRZ>2      | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|----------------|--------|--------------|-----------------------|-------|
| 7   | AG    | 96/104 (92%)   | 0.28   | 2 (2%) 63 36 | 62, 103, 188, 218     | 0     |
| 7   | DG    | 96/104 (92%)   | 0.41   | 3 (3%) 51 29 | 57, 114, 179, 222     | 0     |
| 7   | FG    | 96/104 (92%)   | 0.33   | 4 (4%) 40 21 | 81, 112, 176, 199     | 0     |
| 7   | HG    | 96/104 (92%)   | 0.53   | 7 (7%) 21 13 | 94, 134, 183, 218     | 0     |
| 8   | AH    | 107/113 (94%)  | 0.23   | 7 (6%) 25 15 | 61, 91, 127, 159      | 0     |
| 8   | DH    | 107/113 (94%)  | 0.33   | 3 (2%) 55 31 | 54, 89, 127, 138      | 0     |
| 8   | FH    | 107/113 (94%)  | 0.45   | 3 (2%) 55 31 | 57, 89, 122, 164      | 0     |
| 8   | HH    | 107/113 (94%)  | 0.59   | 4 (3%) 45 25 | 68, 109, 141, 181     | 0     |
| 9   | AJ    | 226/248 (91%)  | -0.12  | 0 100 100    | 52, 90, 138, 190      | 0     |
| 9   | DJ    | 226/248 (91%)  | -0.06  | 0 100 100    | 51, 89, 136, 206      | 0     |
| 9   | FJ    | 226/248 (91%)  | -0.12  | 1 (0%) 88 70 | 38, 82, 130, 183      | 0     |
| 9   | HJ    | 226/248 (91%)  | -0.18  | 0 100 100    | 40, 78, 123, 155      | 0     |
| 10  | AK    | 52/129 (40%)   | -0.01  | 0 100 100    | 73, 101, 146, 182     | 0     |
| 10  | DK    | 52/129 (40%)   | 0.00   | 1 (1%) 66 39 | 53, 79, 134, 151      | 0     |
| 10  | FK    | 52/129 (40%)   | -0.16  | 0 100 100    | 56, 81, 139, 189      | 0     |
| 10  | HK    | 52/129 (40%)   | 0.15   | 1 (1%) 66 39 | 61, 77, 118, 158      | 0     |
| 11  | AL    | 108/123 (87%)  | 0.05   | 1 (0%) 81 56 | 38, 73, 130, 165      | 0     |
| 11  | DL    | 108/123 (87%)  | 0.14   | 2 (1%) 66 39 | 47, 85, 144, 217      | 0     |
| 11  | FL    | 108/123 (87%)  | 0.20   | 2 (1%) 66 39 | 66, 98, 135, 174      | 0     |
| 11  | HL    | 108/123 (87%)  | 0.52   | 5 (4%) 37 19 | 90, 117, 156, 183     | 0     |
| 12  | AM    | 100/118 (84%)  | 0.02   | 0 100 100    | 72, 121, 155, 185     | 0     |
| 12  | DM    | 100/118 (84%)  | 0.18   | 1 (1%) 79 54 | 73, 126, 179, 199     | 0     |
| 12  | FM    | 100/118 (84%)  | 0.17   | 1 (1%) 79 54 | 93, 144, 196, 208     | 0     |
| 12  | HM    | 100/118 (84%)  | 0.31   | 0 100 100    | 98, 151, 195, 214     | 0     |
| 13  | AN    | 143/144 (99%)  | 0.00   | 3 (2%) 63 36 | 59, 97, 163, 189      | 0     |
| 13  | DN    | 143/144 (99%)  | 0.14   | 3 (2%) 63 36 | 73, 121, 179, 214     | 0     |
| 13  | FN    | 143/144 (99%)  | 0.21   | 2 (1%) 73 46 | 72, 122, 175, 208     | 0     |
| 13  | HN    | 143/144 (99%)  | 0.40   | 3 (2%) 63 36 | 92, 148, 189, 217     | 0     |
| 14  | AO    | 134/134 (100%) | 0.21   | 4 (2%) 52 29 | 66, 116, 162, 202     | 0     |
| 14  | DO    | 134/134 (100%) | 0.25   | 2 (1%) 72 44 | 52, 99, 151, 209      | 0     |
| 14  | FO    | 134/134 (100%) | 0.39   | 4 (2%) 52 29 | 65, 118, 167, 219     | 0     |

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| Mol | Chain | Analysed       | <RSRZ> | #RSRZ>2  |     |     | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|----------------|--------|----------|-----|-----|-----------------------|-------|
| 14  | HO    | 134/134 (100%) | 0.52   | 6 (4%)   | 38  | 20  | 96, 143, 197, 227     | 0     |
| 15  | AP    | 66/89 (74%)    | 0.23   | 1 (1%)   | 72  | 44  | 55, 128, 209, 241     | 0     |
| 15  | DP    | 66/89 (74%)    | 0.29   | 1 (1%)   | 72  | 44  | 73, 116, 176, 245     | 0     |
| 15  | FP    | 66/89 (74%)    | 0.31   | 1 (1%)   | 72  | 44  | 99, 143, 202, 214     | 0     |
| 15  | HP    | 66/89 (74%)    | 0.61   | 0        | 100 | 100 | 99, 149, 219, 247     | 0     |
| 16  | AQ    | 102/104 (98%)  | 0.11   | 2 (1%)   | 65  | 37  | 72, 122, 172, 208     | 0     |
| 16  | DQ    | 102/104 (98%)  | 0.17   | 1 (0%)   | 79  | 54  | 63, 105, 151, 186     | 0     |
| 16  | FQ    | 102/104 (98%)  | 0.32   | 1 (0%)   | 79  | 54  | 72, 114, 166, 190     | 0     |
| 16  | HQ    | 102/104 (98%)  | 0.51   | 5 (4%)   | 35  | 19  | 110, 154, 195, 203    | 0     |
| 17  | AT    | 65/66 (98%)    | 0.41   | 3 (4%)   | 37  | 19  | 76, 121, 156, 193     | 0     |
| 17  | DT    | 65/66 (98%)    | 0.37   | 2 (3%)   | 51  | 29  | 51, 87, 122, 211      | 0     |
| 17  | FT    | 65/66 (98%)    | 0.58   | 2 (3%)   | 51  | 29  | 51, 107, 144, 201     | 0     |
| 17  | HT    | 65/66 (98%)    | 0.92   | 6 (9%)   | 14  | 9   | 69, 136, 171, 222     | 0     |
| 18  | AU    | 203/206 (98%)  | 0.23   | 2 (0%)   | 79  | 54  | 74, 122, 179, 233     | 0     |
| 18  | DU    | 203/206 (98%)  | 0.33   | 10 (4%)  | 35  | 19  | 48, 98, 158, 198      | 0     |
| 18  | FU    | 203/206 (98%)  | 0.48   | 7 (3%)   | 48  | 27  | 67, 116, 174, 203     | 0     |
| 18  | HU    | 203/206 (98%)  | 0.72   | 13 (6%)  | 25  | 15  | 102, 155, 206, 240    | 0     |
| 19  | AX    | 188/189 (99%)  | 0.04   | 4 (2%)   | 63  | 36  | 72, 105, 145, 201     | 0     |
| 19  | DX    | 188/189 (99%)  | 0.12   | 2 (1%)   | 78  | 52  | 54, 89, 128, 170      | 0     |
| 19  | FX    | 188/189 (99%)  | 0.26   | 5 (2%)   | 56  | 32  | 62, 98, 141, 179      | 0     |
| 19  | HX    | 188/189 (99%)  | 0.35   | 6 (3%)   | 50  | 28  | 74, 106, 135, 193     | 0     |
| 20  | B2    | 154/154 (100%) | 0.26   | 5 (3%)   | 50  | 28  | 61, 80, 118, 192      | 0     |
| 20  | C2    | 154/154 (100%) | 0.45   | 4 (2%)   | 57  | 32  | 54, 80, 120, 186      | 0     |
| 20  | E2    | 154/154 (100%) | 0.75   | 10 (6%)  | 25  | 15  | 74, 105, 142, 189     | 0     |
| 20  | G2    | 154/154 (100%) | 1.51   | 35 (22%) | 2   | 2   | 98, 146, 182, 210     | 0     |
| 21  | B3    | 120/120 (100%) | 1.01   | 9 (7%)   | 20  | 13  | 90, 150, 184, 217     | 0     |
| 21  | C3    | 120/120 (100%) | 0.36   | 0        | 100 | 100 | 64, 98, 116, 161      | 0     |
| 21  | E3    | 120/120 (100%) | 0.58   | 2 (1%)   | 69  | 41  | 72, 120, 147, 172     | 0     |
| 21  | G3    | 120/120 (100%) | 1.11   | 15 (12%) | 8   | 6   | 95, 138, 175, 235     | 0     |
| 22  | BA    | 257/264 (97%)  | 0.14   | 6 (2%)   | 61  | 35  | 30, 70, 134, 233      | 0     |
| 22  | CA    | 257/264 (97%)  | 0.01   | 2 (0%)   | 82  | 58  | 31, 75, 139, 238      | 0     |

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| Mol | Chain | Analysed       | <RSRZ> | #RSRZ>2       | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|----------------|--------|---------------|-----------------------|-------|
| 22  | EA    | 257/264 (97%)  | 0.12   | 3 (1%) 76 50  | 40, 79, 136, 217      | 0     |
| 22  | GA    | 257/264 (97%)  | 0.44   | 6 (2%) 61 35  | 60, 106, 157, 242     | 0     |
| 23  | BB    | 386/391 (98%)  | -0.01  | 1 (0%) 90 75  | 33, 69, 120, 227      | 0     |
| 23  | CB    | 386/391 (98%)  | -0.09  | 2 (0%) 87 67  | 34, 75, 123, 222      | 0     |
| 23  | EB    | 386/391 (98%)  | -0.02  | 2 (0%) 87 67  | 38, 75, 123, 230      | 0     |
| 23  | GB    | 386/391 (98%)  | 0.04   | 2 (0%) 87 67  | 51, 82, 132, 217      | 0     |
| 24  | BC    | 409/410 (99%)  | 0.25   | 5 (1%) 76 50  | 37, 107, 173, 241     | 0     |
| 24  | CC    | 409/410 (99%)  | 0.18   | 2 (0%) 87 67  | 40, 91, 151, 206      | 0     |
| 24  | EC    | 409/410 (99%)  | 0.36   | 11 (2%) 56 32 | 54, 107, 162, 237     | 0     |
| 24  | GC    | 409/410 (99%)  | 0.67   | 9 (2%) 62 35  | 77, 143, 195, 252     | 0     |
| 25  | BD    | 169/172 (98%)  | 0.37   | 4 (2%) 59 34  | 116, 159, 200, 225    | 0     |
| 25  | CD    | 169/172 (98%)  | 0.12   | 0 100 100     | 70, 110, 151, 188     | 0     |
| 25  | ED    | 169/172 (98%)  | 0.25   | 3 (1%) 67 40  | 89, 133, 179, 209     | 0     |
| 25  | GD    | 169/172 (98%)  | 0.51   | 5 (2%) 52 29  | 96, 139, 182, 216     | 0     |
| 26  | BE    | 186/188 (98%)  | 0.23   | 1 (0%) 87 67  | 65, 109, 150, 194     | 0     |
| 26  | CE    | 186/188 (98%)  | 0.10   | 0 100 100     | 59, 94, 131, 171      | 0     |
| 26  | EE    | 186/188 (98%)  | 0.01   | 1 (0%) 87 67  | 60, 94, 139, 195      | 0     |
| 26  | GE    | 186/188 (98%)  | 0.14   | 2 (1%) 78 52  | 53, 91, 135, 220      | 0     |
| 27  | BF    | 231/255 (90%)  | 0.32   | 8 (3%) 47 26  | 70, 122, 176, 252     | 0     |
| 27  | CF    | 231/255 (90%)  | 0.20   | 5 (2%) 62 35  | 71, 115, 175, 233     | 0     |
| 27  | EF    | 231/255 (90%)  | 0.37   | 4 (1%) 69 41  | 76, 120, 187, 241     | 0     |
| 27  | GF    | 231/255 (90%)  | 0.52   | 4 (1%) 69 41  | 112, 166, 210, 233    | 0     |
| 28  | BG    | 0/123          | -      | -             | -                     | -     |
| 28  | CG    | 0/123          | -      | -             | -                     | -     |
| 28  | EG    | 0/123          | -      | -             | -                     | -     |
| 28  | GG    | 0/123          | -      | -             | -                     | -     |
| 29  | BH    | 201/215 (93%)  | 0.43   | 7 (3%) 47 26  | 79, 133, 181, 221     | 0     |
| 29  | CH    | 201/215 (93%)  | 0.14   | 6 (2%) 52 29  | 42, 93, 139, 153      | 0     |
| 29  | EH    | 201/215 (93%)  | 0.20   | 5 (2%) 58 33  | 50, 105, 158, 202     | 0     |
| 29  | GH    | 201/215 (93%)  | 0.37   | 10 (4%) 34 19 | 71, 118, 171, 203     | 0     |
| 30  | BI    | 198/198 (100%) | 0.02   | 0 100 100     | 51, 85, 152, 185      | 0     |
| 30  | CI    | 198/198 (100%) | -0.05  | 3 (1%) 72 44  | 48, 78, 149, 208      | 0     |

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| Mol | Chain | Analysed       | <RSRZ> | #RSRZ>2       | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|----------------|--------|---------------|-----------------------|-------|
| 30  | EI    | 198/198 (100%) | -0.07  | 2 (1%) 79 54  | 47, 79, 152, 174      | 0     |
| 30  | GI    | 198/198 (100%) | 0.02   | 2 (1%) 79 54  | 53, 91, 151, 195      | 0     |
| 31  | BJ    | 138/141 (97%)  | -0.06  | 0 100 100     | 42, 68, 112, 160      | 0     |
| 31  | CJ    | 138/141 (97%)  | -0.15  | 0 100 100     | 40, 65, 108, 150      | 0     |
| 31  | EJ    | 138/141 (97%)  | -0.24  | 1 (0%) 84 61  | 40, 65, 108, 202      | 0     |
| 31  | GJ    | 138/141 (97%)  | -0.17  | 0 100 100     | 30, 60, 98, 186       | 0     |
| 32  | BK    | 148/149 (99%)  | 0.37   | 7 (4%) 36 19  | 50, 105, 158, 221     | 0     |
| 32  | CK    | 148/149 (99%)  | 0.05   | 2 (1%) 73 46  | 36, 74, 124, 184      | 0     |
| 32  | EK    | 148/149 (99%)  | 0.29   | 1 (0%) 84 61  | 50, 95, 140, 228      | 0     |
| 32  | GK    | 148/149 (99%)  | 0.81   | 9 (6%) 27 16  | 78, 129, 181, 208     | 0     |
| 33  | BL    | 203/204 (99%)  | 0.21   | 6 (2%) 52 29  | 57, 83, 120, 153      | 0     |
| 33  | CL    | 203/204 (99%)  | 0.06   | 6 (2%) 52 29  | 37, 74, 106, 180      | 0     |
| 33  | EL    | 203/204 (99%)  | 0.27   | 5 (2%) 58 33  | 51, 89, 121, 160      | 0     |
| 33  | GL    | 203/204 (99%)  | 0.75   | 10 (4%) 35 19 | 89, 133, 165, 205     | 0     |
| 34  | BM    | 298/301 (99%)  | 0.56   | 9 (3%) 52 29  | 87, 152, 201, 240     | 0     |
| 34  | CM    | 300/301 (99%)  | 0.26   | 4 (1%) 75 48  | 61, 110, 166, 208     | 0     |
| 34  | EM    | 300/301 (99%)  | 0.39   | 7 (2%) 61 35  | 76, 127, 183, 233     | 0     |
| 34  | GM    | 300/301 (99%)  | 0.85   | 26 (8%) 16 10 | 98, 157, 204, 233     | 0     |
| 35  | BN    | 180/181 (99%)  | 0.29   | 4 (2%) 62 35  | 68, 110, 150, 224     | 0     |
| 35  | CN    | 180/181 (99%)  | 0.05   | 1 (0%) 85 64  | 47, 82, 125, 185      | 0     |
| 35  | EN    | 180/181 (99%)  | 0.29   | 1 (0%) 85 64  | 63, 101, 142, 187     | 0     |
| 35  | GN    | 180/181 (99%)  | 0.61   | 8 (4%) 39 21  | 94, 139, 188, 248     | 0     |
| 36  | BO    | 184/185 (99%)  | 0.03   | 3 (1%) 70 43  | 29, 78, 184, 207      | 0     |
| 36  | EO    | 146/185 (78%)  | 0.04   | 0 100 100     | 57, 95, 128, 194      | 0     |
| 36  | GO    | 153/185 (82%)  | 0.25   | 1 (0%) 84 61  | 67, 109, 153, 262     | 0     |
| 37  | BP    | 156/157 (99%)  | 0.35   | 1 (0%) 85 64  | 70, 116, 169, 203     | 0     |
| 37  | CP    | 156/157 (99%)  | -0.04  | 1 (0%) 85 64  | 42, 79, 136, 152      | 0     |
| 37  | EP    | 156/157 (99%)  | 0.24   | 0 100 100     | 56, 100, 148, 183     | 0     |
| 37  | GP    | 156/157 (99%)  | 0.62   | 7 (4%) 38 20  | 69, 122, 163, 222     | 0     |
| 38  | BQ    | 157/183 (85%)  | 0.04   | 4 (2%) 58 33  | 31, 68, 121, 173      | 0     |
| 38  | CQ    | 157/183 (85%)  | -0.06  | 2 (1%) 75 48  | 26, 70, 124, 158      | 0     |

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| Mol | Chain | Analysed      | <RSRZ> | #RSRZ>2 |     |     | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|---------------|--------|---------|-----|-----|-----------------------|-------|
| 38  | EQ    | 157/183 (85%) | 0.14   | 3 (1%)  | 66  | 39  | 48, 86, 141, 177      | 0     |
| 38  | GQ    | 157/183 (85%) | 0.33   | 6 (3%)  | 44  | 24  | 60, 106, 157, 200     | 0     |
| 39  | BR    | 121/150 (80%) | 0.13   | 3 (2%)  | 58  | 33  | 42, 78, 129, 185      | 0     |
| 39  | CR    | 121/150 (80%) | 0.08   | 1 (0%)  | 82  | 58  | 54, 88, 129, 172      | 0     |
| 39  | ER    | 121/150 (80%) | 0.20   | 2 (1%)  | 69  | 41  | 65, 112, 146, 172     | 0     |
| 39  | GR    | 121/150 (80%) | 0.48   | 4 (3%)  | 49  | 27  | 97, 138, 175, 191     | 0     |
| 40  | BS    | 126/135 (93%) | 0.05   | 0       | 100 | 100 | 62, 98, 133, 177      | 0     |
| 40  | CS    | 126/135 (93%) | 0.27   | 4 (3%)  | 50  | 28  | 46, 89, 127, 152      | 0     |
| 40  | ES    | 126/135 (93%) | 0.40   | 2 (1%)  | 70  | 43  | 74, 112, 151, 184     | 0     |
| 40  | GS    | 126/135 (93%) | 0.67   | 6 (4%)  | 35  | 19  | 101, 143, 186, 218    | 0     |
| 41  | BT    | 61/158 (38%)  | -0.08  | 0       | 100 | 100 | 39, 73, 127, 158      | 0     |
| 41  | CT    | 61/158 (38%)  | -0.09  | 0       | 100 | 100 | 37, 73, 105, 137      | 0     |
| 41  | ET    | 61/158 (38%)  | -0.11  | 0       | 100 | 100 | 45, 78, 113, 147      | 0     |
| 41  | GT    | 61/158 (38%)  | -0.07  | 2 (3%)  | 49  | 27  | 42, 76, 115, 138      | 0     |
| 42  | BU    | 123/124 (99%) | 0.13   | 0       | 100 | 100 | 59, 101, 139, 204     | 0     |
| 42  | CU    | 123/124 (99%) | 0.29   | 3 (2%)  | 59  | 34  | 49, 92, 143, 163      | 0     |
| 42  | EU    | 123/124 (99%) | 0.21   | 2 (1%)  | 70  | 43  | 79, 114, 157, 220     | 0     |
| 42  | GU    | 123/124 (99%) | 0.51   | 3 (2%)  | 59  | 34  | 113, 156, 193, 233    | 0     |
| 43  | BV    | 234/239 (97%) | 0.19   | 5 (2%)  | 63  | 36  | 61, 107, 160, 213     | 0     |
| 43  | CV    | 234/239 (97%) | 0.08   | 4 (1%)  | 69  | 41  | 47, 87, 145, 213      | 0     |
| 43  | EV    | 234/239 (97%) | 0.23   | 4 (1%)  | 69  | 41  | 53, 102, 159, 232     | 0     |
| 43  | GV    | 234/239 (97%) | 0.39   | 7 (2%)  | 52  | 29  | 75, 121, 173, 239     | 0     |
| 44  | BW    | 110/111 (99%) | -0.03  | 1 (0%)  | 81  | 56  | 36, 64, 155, 204      | 0     |
| 44  | CW    | 110/111 (99%) | -0.09  | 0       | 100 | 100 | 43, 76, 138, 178      | 0     |
| 44  | EW    | 110/111 (99%) | 0.08   | 1 (0%)  | 81  | 56  | 56, 88, 170, 227      | 0     |
| 44  | GW    | 110/111 (99%) | 0.08   | 2 (1%)  | 67  | 40  | 63, 102, 183, 216     | 0     |
| 45  | BX    | 125/134 (93%) | 0.15   | 0       | 100 | 100 | 53, 89, 128, 202      | 0     |
| 45  | CX    | 125/134 (93%) | 0.02   | 1 (0%)  | 82  | 58  | 40, 78, 116, 196      | 0     |
| 45  | EX    | 125/134 (93%) | 0.12   | 1 (0%)  | 82  | 58  | 49, 88, 129, 233      | 0     |
| 45  | GX    | 125/134 (93%) | 0.49   | 4 (3%)  | 50  | 28  | 73, 117, 162, 215     | 0     |
| 46  | BY    | 102/103 (99%) | 0.08   | 2 (1%)  | 65  | 37  | 40, 74, 164, 222      | 0     |

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| Mol | Chain | Analysed          | <RSRZ> | #RSRZ>2   |    |    | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-------------------|--------|-----------|----|----|-----------------------|-------|
| 46  | CY    | 102/103 (99%)     | -0.04  | 1 (0%)    | 79 | 54 | 41, 83, 173, 196      | 0     |
| 46  | EY    | 102/103 (99%)     | 0.09   | 1 (0%)    | 79 | 54 | 45, 84, 156, 193      | 0     |
| 46  | GY    | 102/103 (99%)     | 0.24   | 1 (0%)    | 79 | 54 | 53, 102, 189, 222     | 0     |
| 47  | CO    | 146/185 (78%)     | -0.06  | 2 (1%)    | 73 | 46 | 45, 79, 115, 148      | 0     |
| All | All   | 40083/43352 (92%) | 0.35   | 1403 (3%) | 47 | 26 | 26, 101, 177, 390     | 0     |

All (1403) RSRZ outliers are listed below:

| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 46  | EY    | 2    | ALA  | 6.1  |
| 33  | CL    | 9    | GLU  | 5.4  |
| 1   | A1    | 1308 | U    | 5.2  |
| 1   | F1    | 1109 | A    | 5.2  |
| 1   | F1    | 2278 | G    | 5.1  |
| 1   | F1    | 2899 | C    | 5.1  |
| 33  | BL    | 9    | GLU  | 5.0  |
| 1   | H1    | 1250 | A    | 5.0  |
| 19  | HX    | 183  | ALA  | 4.9  |
| 1   | D1    | 284  | U    | 4.8  |
| 1   | D1    | 2250 | A    | 4.7  |
| 1   | A1    | 2437 | G    | 4.6  |
| 1   | H1    | 168  | G    | 4.6  |
| 1   | H1    | 2899 | C    | 4.5  |
| 1   | H1    | 741  | G    | 4.5  |
| 1   | H1    | 1257 | G    | 4.5  |
| 1   | A1    | 2251 | A    | 4.5  |
| 29  | CH    | 116  | ARG  | 4.5  |
| 1   | H1    | 1254 | C    | 4.4  |
| 1   | F1    | 1110 | U    | 4.4  |
| 1   | H1    | 17   | C    | 4.3  |
| 1   | H1    | 2399 | A    | 4.2  |
| 1   | H1    | 200  | C    | 4.2  |
| 33  | CL    | 15   | GLN  | 4.2  |
| 1   | D1    | 563  | G    | 4.2  |
| 29  | BH    | 116  | ARG  | 4.2  |
| 1   | F1    | 628  | A    | 4.2  |
| 1   | D1    | 500  | G    | 4.1  |
| 29  | GH    | 116  | ARG  | 4.1  |
| 1   | A1    | 1043 | C    | 4.1  |
| 1   | H1    | 1308 | U    | 4.1  |
| 39  | BR    | 145  | ASN  | 4.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 20  | G2    | 61   | G    | 4.1  |
| 29  | EH    | 116  | ARG  | 4.1  |
| 1   | H1    | 2733 | C    | 4.0  |
| 34  | GM    | 127  | GLY  | 4.0  |
| 1   | H1    | 1661 | A    | 4.0  |
| 1   | A1    | 1309 | G    | 4.0  |
| 1   | H1    | 280  | G    | 4.0  |
| 1   | H1    | 778  | G    | 4.0  |
| 1   | A1    | 1246 | A    | 4.0  |
| 1   | H1    | 316  | A    | 4.0  |
| 18  | AU    | 59   | GLN  | 4.0  |
| 17  | FT    | 8    | THR  | 4.0  |
| 1   | A1    | 1307 | C    | 3.9  |
| 17  | HT    | 2    | ALA  | 3.9  |
| 1   | A1    | 2551 | A    | 3.9  |
| 1   | F1    | 2551 | A    | 3.9  |
| 20  | G2    | 44   | A    | 3.9  |
| 33  | GL    | 164  | LEU  | 3.9  |
| 1   | F1    | 2440 | A    | 3.9  |
| 17  | FT    | 2    | ALA  | 3.9  |
| 1   | H1    | 1246 | A    | 3.9  |
| 5   | FE    | 60   | GLY  | 3.8  |
| 22  | GA    | 216  | ASN  | 3.8  |
| 40  | ES    | 2    | LYS  | 3.8  |
| 1   | A1    | 467  | A    | 3.8  |
| 1   | H1    | 470  | C    | 3.8  |
| 1   | H1    | 284  | U    | 3.8  |
| 33  | GL    | 2    | GLY  | 3.8  |
| 1   | H1    | 1053 | A    | 3.8  |
| 1   | F1    | 148  | G    | 3.8  |
| 1   | H1    | 148  | G    | 3.8  |
| 1   | H1    | 76   | U    | 3.8  |
| 27  | BF    | 46   | ARG  | 3.7  |
| 22  | BA    | 214  | GLY  | 3.7  |
| 1   | A1    | 1249 | G    | 3.7  |
| 1   | H1    | 149  | U    | 3.7  |
| 1   | D1    | 2899 | C    | 3.7  |
| 1   | H1    | 1307 | C    | 3.7  |
| 27  | EF    | 128  | GLY  | 3.7  |
| 1   | H1    | 223  | C    | 3.7  |
| 40  | GS    | 2    | LYS  | 3.7  |
| 1   | D1    | 1109 | A    | 3.7  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 22  | BA    | 65   | ARG  | 3.7  |
| 1   | H1    | 2741 | U    | 3.7  |
| 17  | AT    | 3    | LYS  | 3.7  |
| 11  | HL    | 75   | SER  | 3.6  |
| 27  | CF    | 126  | LYS  | 3.6  |
| 1   | A1    | 786  | G    | 3.6  |
| 1   | D1    | 168  | G    | 3.6  |
| 1   | H1    | 282  | G    | 3.6  |
| 1   | H1    | 2278 | G    | 3.6  |
| 20  | G2    | 73   | G    | 3.6  |
| 24  | GC    | 196  | ALA  | 3.6  |
| 7   | FG    | 46   | ASN  | 3.6  |
| 22  | BA    | 216  | ASN  | 3.6  |
| 1   | A1    | 2933 | G    | 3.6  |
| 1   | F1    | 1804 | G    | 3.6  |
| 1   | H1    | 563  | G    | 3.6  |
| 1   | A1    | 1667 | A    | 3.6  |
| 1   | H1    | 871  | A    | 3.6  |
| 20  | C2    | 3    | A    | 3.6  |
| 29  | BH    | 162  | ARG  | 3.6  |
| 20  | G2    | 72   | C    | 3.6  |
| 42  | GU    | 63   | ASN  | 3.5  |
| 1   | H1    | 829  | C    | 3.5  |
| 40  | GS    | 32   | ALA  | 3.5  |
| 20  | G2    | 66   | G    | 3.5  |
| 43  | CV    | 177  | CYS  | 3.5  |
| 20  | G2    | 65   | C    | 3.5  |
| 1   | F1    | 168  | G    | 3.5  |
| 1   | H1    | 487  | G    | 3.5  |
| 24  | GC    | 370  | LYS  | 3.5  |
| 7   | DG    | 47   | ASN  | 3.5  |
| 18  | FU    | 59   | GLN  | 3.5  |
| 23  | BB    | 363  | ILE  | 3.5  |
| 1   | A1    | 2399 | A    | 3.5  |
| 1   | H1    | 229  | A    | 3.5  |
| 1   | H1    | 1054 | G    | 3.5  |
| 1   | H1    | 1256 | G    | 3.5  |
| 43  | CV    | 8    | ASN  | 3.5  |
| 1   | A1    | 2431 | U    | 3.4  |
| 34  | GM    | 170  | GLY  | 3.4  |
| 1   | D1    | 1249 | G    | 3.4  |
| 1   | H1    | 1249 | G    | 3.4  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 1752 | G    | 3.4  |
| 1   | H1    | 2263 | U    | 3.4  |
| 1   | D1    | 1667 | A    | 3.4  |
| 1   | H1    | 1701 | A    | 3.4  |
| 29  | GH    | 8    | CYS  | 3.4  |
| 30  | EI    | 162  | ARG  | 3.4  |
| 1   | A1    | 2278 | G    | 3.4  |
| 1   | D1    | 459  | G    | 3.4  |
| 1   | H1    | 398  | G    | 3.4  |
| 1   | H1    | 403  | G    | 3.4  |
| 23  | GB    | 297  | ASP  | 3.4  |
| 1   | F1    | 1667 | A    | 3.4  |
| 1   | H1    | 2666 | G    | 3.4  |
| 1   | F1    | 2439 | C    | 3.4  |
| 20  | G2    | 38   | C    | 3.4  |
| 1   | H1    | 77   | A    | 3.4  |
| 7   | AG    | 36   | ASN  | 3.3  |
| 1   | H1    | 704  | G    | 3.3  |
| 1   | H1    | 1804 | G    | 3.3  |
| 14  | FO    | 89   | ARG  | 3.3  |
| 22  | GA    | 2    | GLY  | 3.3  |
| 8   | HH    | 13   | ARG  | 3.3  |
| 2   | HA    | 50   | TRP  | 3.3  |
| 1   | D1    | 572  | G    | 3.3  |
| 1   | A1    | 2501 | A    | 3.3  |
| 1   | H1    | 157  | A    | 3.3  |
| 1   | H1    | 453  | A    | 3.3  |
| 1   | H1    | 1667 | A    | 3.3  |
| 20  | E2    | 3    | A    | 3.3  |
| 13  | FN    | 2    | ALA  | 3.3  |
| 23  | CB    | 363  | ILE  | 3.3  |
| 22  | GA    | 56   | GLY  | 3.3  |
| 16  | DQ    | 60   | GLU  | 3.3  |
| 1   | F1    | 284  | U    | 3.3  |
| 1   | A1    | 1064 | C    | 3.3  |
| 1   | H1    | 1311 | C    | 3.3  |
| 1   | F1    | 130  | G    | 3.3  |
| 20  | G2    | 2    | G    | 3.3  |
| 1   | H1    | 187  | A    | 3.3  |
| 1   | H1    | 2551 | A    | 3.3  |
| 25  | GD    | 7    | ASN  | 3.3  |
| 34  | GM    | 46   | THR  | 3.3  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 38  | CQ    | 68   | CYS  | 3.3  |
| 1   | A1    | 1306 | C    | 3.2  |
| 4   | FC    | 49   | GLY  | 3.2  |
| 20  | E2    | 73   | G    | 3.2  |
| 1   | F1    | 1186 | A    | 3.2  |
| 1   | H1    | 265  | A    | 3.2  |
| 1   | A1    | 1972 | G    | 3.2  |
| 1   | H1    | 737  | G    | 3.2  |
| 29  | EH    | 113  | SER  | 3.2  |
| 1   | F1    | 469  | U    | 3.2  |
| 1   | H1    | 1858 | U    | 3.2  |
| 1   | H1    | 2249 | U    | 3.2  |
| 1   | H1    | 150  | A    | 3.2  |
| 1   | H1    | 731  | A    | 3.2  |
| 1   | H1    | 752  | C    | 3.2  |
| 1   | H1    | 956  | C    | 3.2  |
| 1   | F1    | 458  | G    | 3.2  |
| 1   | F1    | 1547 | G    | 3.2  |
| 1   | H1    | 941  | G    | 3.2  |
| 20  | G2    | 54   | G    | 3.2  |
| 18  | FU    | 126  | ARG  | 3.2  |
| 11  | DL    | 81   | GLU  | 3.2  |
| 1   | A1    | 284  | U    | 3.2  |
| 1   | A1    | 150  | A    | 3.1  |
| 1   | H1    | 99   | C    | 3.1  |
| 1   | H1    | 1109 | A    | 3.1  |
| 25  | GD    | 103  | GLY  | 3.1  |
| 18  | FU    | 5    | ASN  | 3.1  |
| 1   | F1    | 2277 | U    | 3.1  |
| 17  | AT    | 2    | ALA  | 3.1  |
| 1   | F1    | 508  | A    | 3.1  |
| 1   | H1    | 50   | A    | 3.1  |
| 1   | H1    | 2276 | A    | 3.1  |
| 1   | A1    | 1006 | C    | 3.1  |
| 1   | A1    | 2899 | C    | 3.1  |
| 1   | F1    | 470  | C    | 3.1  |
| 1   | H1    | 225  | C    | 3.1  |
| 39  | ER    | 41   | LYS  | 3.1  |
| 1   | D1    | 282  | G    | 3.1  |
| 1   | D1    | 1179 | G    | 3.1  |
| 1   | F1    | 2933 | G    | 3.1  |
| 1   | H1    | 2429 | U    | 3.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 37  | GP    | 108  | ARG  | 3.1  |
| 1   | A1    | 1314 | A    | 3.1  |
| 1   | H1    | 2747 | A    | 3.1  |
| 1   | H1    | 2789 | A    | 3.1  |
| 1   | A1    | 470  | C    | 3.1  |
| 18  | DU    | 50   | GLU  | 3.1  |
| 33  | EL    | 9    | GLU  | 3.1  |
| 34  | GM    | 42   | ASP  | 3.1  |
| 1   | A1    | 2505 | U    | 3.1  |
| 11  | HL    | 73   | THR  | 3.1  |
| 1   | A1    | 2532 | G    | 3.1  |
| 19  | FX    | 189  | PHE  | 3.1  |
| 33  | BL    | 188  | ARG  | 3.1  |
| 33  | EL    | 204  | ARG  | 3.1  |
| 1   | A1    | 1109 | A    | 3.1  |
| 1   | H1    | 211  | A    | 3.1  |
| 21  | G3    | 101  | A    | 3.1  |
| 1   | H1    | 2776 | C    | 3.1  |
| 8   | FH    | 13   | ARG  | 3.0  |
| 1   | D1    | 1654 | G    | 3.0  |
| 8   | AH    | 78   | GLY  | 3.0  |
| 20  | G2    | 71   | G    | 3.0  |
| 1   | D1    | 2251 | A    | 3.0  |
| 1   | H1    | 753  | A    | 3.0  |
| 16  | HQ    | 6    | ALA  | 3.0  |
| 1   | F1    | 1311 | C    | 3.0  |
| 20  | G2    | 85   | C    | 3.0  |
| 43  | EV    | 177  | CYS  | 3.0  |
| 34  | GM    | 59   | ARG  | 3.0  |
| 1   | F1    | 487  | G    | 3.0  |
| 1   | H1    | 196  | G    | 3.0  |
| 1   | H1    | 1833 | G    | 3.0  |
| 1   | H1    | 2649 | G    | 3.0  |
| 1   | H1    | 2734 | G    | 3.0  |
| 1   | F1    | 467  | A    | 3.0  |
| 34  | GM    | 169  | GLY  | 3.0  |
| 1   | H1    | 1306 | C    | 3.0  |
| 1   | H1    | 1722 | C    | 3.0  |
| 1   | H1    | 1762 | C    | 3.0  |
| 39  | GR    | 121  | LEU  | 3.0  |
| 5   | DE    | 9    | ASN  | 3.0  |
| 34  | EM    | 244  | GLU  | 3.0  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 1105 | U    | 3.0  |
| 33  | EL    | 2    | GLY  | 3.0  |
| 1   | A1    | 2433 | A    | 3.0  |
| 1   | D1    | 2399 | A    | 3.0  |
| 1   | F1    | 69   | A    | 3.0  |
| 1   | F1    | 564  | A    | 3.0  |
| 1   | H1    | 96   | G    | 3.0  |
| 1   | H1    | 733  | G    | 3.0  |
| 1   | H1    | 1111 | G    | 3.0  |
| 1   | H1    | 2519 | A    | 3.0  |
| 8   | HH    | 79   | LYS  | 3.0  |
| 24  | EC    | 370  | LYS  | 3.0  |
| 25  | BD    | 135  | GLY  | 3.0  |
| 1   | A1    | 1110 | U    | 3.0  |
| 1   | H1    | 566  | U    | 3.0  |
| 1   | H1    | 1549 | U    | 3.0  |
| 1   | H1    | 2550 | U    | 3.0  |
| 1   | H1    | 2861 | U    | 3.0  |
| 6   | HF    | 65   | LEU  | 2.9  |
| 1   | H1    | 60   | A    | 2.9  |
| 1   | H1    | 808  | A    | 2.9  |
| 5   | HE    | 90   | VAL  | 2.9  |
| 1   | D1    | 2278 | G    | 2.9  |
| 1   | F1    | 282  | G    | 2.9  |
| 1   | H1    | 2256 | G    | 2.9  |
| 1   | H1    | 2738 | G    | 2.9  |
| 18  | DU    | 193  | LYS  | 2.9  |
| 1   | A1    | 2858 | C    | 2.9  |
| 1   | H1    | 40   | C    | 2.9  |
| 1   | H1    | 1104 | C    | 2.9  |
| 19  | AX    | 189  | PHE  | 2.9  |
| 6   | FF    | 2    | VAL  | 2.9  |
| 27  | EF    | 69   | GLN  | 2.9  |
| 1   | H1    | 221  | A    | 2.9  |
| 1   | H1    | 735  | A    | 2.9  |
| 1   | H1    | 1651 | A    | 2.9  |
| 43  | CV    | 167  | GLU  | 2.9  |
| 38  | BQ    | 2    | GLY  | 2.9  |
| 1   | A1    | 572  | G    | 2.9  |
| 1   | F1    | 462  | G    | 2.9  |
| 1   | F1    | 1312 | G    | 2.9  |
| 1   | F1    | 2437 | G    | 2.9  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 20   | G    | 2.9  |
| 1   | H1    | 1773 | G    | 2.9  |
| 1   | H1    | 2933 | G    | 2.9  |
| 21  | G3    | 113  | G    | 2.9  |
| 1   | D1    | 1310 | C    | 2.9  |
| 1   | F1    | 1805 | C    | 2.9  |
| 1   | H1    | 1141 | U    | 2.9  |
| 8   | AH    | 28   | HIS  | 2.9  |
| 26  | BE    | 83   | THR  | 2.9  |
| 33  | EL    | 186  | THR  | 2.9  |
| 1   | D1    | 2257 | A    | 2.9  |
| 1   | F1    | 2399 | A    | 2.9  |
| 1   | H1    | 295  | A    | 2.9  |
| 1   | A1    | 1257 | G    | 2.9  |
| 1   | F1    | 1179 | G    | 2.9  |
| 1   | F1    | 1249 | G    | 2.9  |
| 1   | H1    | 742  | U    | 2.9  |
| 1   | H1    | 2277 | U    | 2.9  |
| 20  | G2    | 67   | C    | 2.9  |
| 1   | H1    | 2703 | G    | 2.9  |
| 1   | H1    | 2856 | U    | 2.9  |
| 1   | H1    | 3105 | G    | 2.9  |
| 20  | G2    | 19   | G    | 2.9  |
| 29  | CH    | 113  | SER  | 2.9  |
| 33  | GL    | 3    | ALA  | 2.9  |
| 5   | AE    | 31   | ARG  | 2.9  |
| 24  | BC    | 406  | LYS  | 2.9  |
| 18  | DU    | 59   | GLN  | 2.8  |
| 1   | H1    | 1416 | U    | 2.8  |
| 1   | H1    | 81   | C    | 2.8  |
| 1   | H1    | 2765 | C    | 2.8  |
| 1   | A1    | 2371 | G    | 2.8  |
| 1   | A1    | 2432 | G    | 2.8  |
| 1   | D1    | 2568 | G    | 2.8  |
| 1   | F1    | 115  | G    | 2.8  |
| 1   | H1    | 1443 | G    | 2.8  |
| 20  | G2    | 36   | G    | 2.8  |
| 1   | A1    | 1250 | A    | 2.8  |
| 1   | A1    | 2250 | A    | 2.8  |
| 2   | HA    | 24   | LYS  | 2.8  |
| 14  | DO    | 64   | LYS  | 2.8  |
| 1   | A1    | 2436 | U    | 2.8  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | D1    | 1110 | U    | 2.8  |
| 20  | G2    | 113  | U    | 2.8  |
| 1   | H1    | 2730 | C    | 2.8  |
| 1   | H1    | 3157 | C    | 2.8  |
| 1   | A1    | 398  | G    | 2.8  |
| 1   | D1    | 249  | G    | 2.8  |
| 29  | GH    | 162  | ARG  | 2.8  |
| 44  | BW    | 64   | ARG  | 2.8  |
| 27  | BF    | 124  | VAL  | 2.8  |
| 1   | D1    | 2440 | A    | 2.8  |
| 1   | H1    | 805  | A    | 2.8  |
| 2   | DA    | 50   | TRP  | 2.8  |
| 18  | HU    | 13   | ARG  | 2.8  |
| 1   | D1    | 801  | U    | 2.8  |
| 1   | H1    | 1223 | U    | 2.8  |
| 4   | HC    | 80   | VAL  | 2.8  |
| 27  | BF    | 20   | PRO  | 2.8  |
| 1   | F1    | 3237 | C    | 2.8  |
| 1   | H1    | 270  | C    | 2.8  |
| 1   | H1    | 1093 | C    | 2.8  |
| 21  | G3    | 14   | C    | 2.8  |
| 34  | BM    | 63   | GLN  | 2.8  |
| 34  | BM    | 156  | GLY  | 2.8  |
| 8   | AH    | 113  | ALA  | 2.8  |
| 2   | HA    | 43   | LYS  | 2.8  |
| 1   | A1    | 1804 | G    | 2.8  |
| 1   | H1    | 62   | G    | 2.8  |
| 1   | H1    | 769  | G    | 2.8  |
| 1   | H1    | 1432 | G    | 2.8  |
| 38  | BQ    | 68   | CYS  | 2.8  |
| 1   | F1    | 2251 | A    | 2.8  |
| 1   | H1    | 564  | A    | 2.8  |
| 1   | H1    | 873  | A    | 2.8  |
| 1   | H1    | 1255 | A    | 2.8  |
| 1   | H1    | 1766 | A    | 2.8  |
| 1   | H1    | 1859 | A    | 2.8  |
| 35  | GN    | 9    | GLY  | 2.8  |
| 1   | A1    | 2249 | U    | 2.8  |
| 1   | F1    | 1223 | U    | 2.8  |
| 1   | H1    | 315  | U    | 2.8  |
| 1   | H1    | 967  | U    | 2.8  |
| 7   | DG    | 86   | ARG  | 2.7  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 8   | AH    | 13   | ARG  | 2.7  |
| 32  | BK    | 137  | ARG  | 2.7  |
| 1   | H1    | 345  | C    | 2.7  |
| 23  | EB    | 7    | GLU  | 2.7  |
| 24  | EC    | 315  | GLU  | 2.7  |
| 1   | H1    | 2529 | G    | 2.7  |
| 7   | HG    | 74   | ASN  | 2.7  |
| 32  | GK    | 127  | ALA  | 2.7  |
| 1   | F1    | 249  | G    | 2.7  |
| 1   | F1    | 2438 | G    | 2.7  |
| 1   | H1    | 249  | G    | 2.7  |
| 1   | H1    | 474  | G    | 2.7  |
| 33  | CL    | 186  | THR  | 2.7  |
| 33  | GL    | 186  | THR  | 2.7  |
| 33  | GL    | 180  | ARG  | 2.7  |
| 1   | D1    | 491  | A    | 2.7  |
| 1   | D1    | 1655 | A    | 2.7  |
| 1   | H1    | 68   | A    | 2.7  |
| 1   | H1    | 1207 | A    | 2.7  |
| 1   | H1    | 2716 | A    | 2.7  |
| 1   | F1    | 2253 | U    | 2.7  |
| 40  | CS    | 2    | LYS  | 2.7  |
| 1   | D1    | 2207 | C    | 2.7  |
| 1   | F1    | 756  | C    | 2.7  |
| 1   | H1    | 472  | C    | 2.7  |
| 18  | HU    | 5    | ASN  | 2.7  |
| 2   | HA    | 89   | VAL  | 2.7  |
| 8   | FH    | 79   | LYS  | 2.7  |
| 40  | GS    | 44   | VAL  | 2.7  |
| 1   | A1    | 2535 | A    | 2.7  |
| 1   | F1    | 2716 | A    | 2.7  |
| 1   | H1    | 504  | A    | 2.7  |
| 1   | H1    | 578  | G    | 2.7  |
| 1   | H1    | 1754 | G    | 2.7  |
| 1   | H1    | 1972 | G    | 2.7  |
| 1   | H1    | 2575 | G    | 2.7  |
| 1   | H1    | 2782 | G    | 2.7  |
| 41  | GT    | 4    | ARG  | 2.7  |
| 24  | GC    | 295  | ILE  | 2.7  |
| 37  | CP    | 2    | THR  | 2.7  |
| 1   | D1    | 1223 | U    | 2.7  |
| 1   | H1    | 88   | U    | 2.7  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 104  | U    | 2.7  |
| 20  | G2    | 23   | U    | 2.7  |
| 33  | GL    | 56   | LYS  | 2.7  |
| 1   | H1    | 984  | C    | 2.7  |
| 1   | H1    | 1006 | C    | 2.7  |
| 2   | HA    | 47   | TYR  | 2.7  |
| 17  | HT    | 43   | ARG  | 2.7  |
| 22  | BA    | 243  | ARG  | 2.7  |
| 29  | CH    | 114  | GLY  | 2.7  |
| 39  | GR    | 41   | LYS  | 2.7  |
| 1   | H1    | 145  | A    | 2.7  |
| 1   | H1    | 508  | A    | 2.7  |
| 1   | H1    | 2552 | A    | 2.7  |
| 11  | FL    | 45   | SER  | 2.7  |
| 1   | F1    | 129  | U    | 2.7  |
| 1   | F1    | 563  | G    | 2.7  |
| 1   | H1    | 189  | G    | 2.7  |
| 1   | H1    | 997  | G    | 2.7  |
| 1   | H1    | 1654 | G    | 2.7  |
| 1   | H1    | 2548 | G    | 2.7  |
| 33  | CL    | 188  | ARG  | 2.7  |
| 26  | GE    | 185  | ALA  | 2.7  |
| 33  | BL    | 186  | THR  | 2.7  |
| 13  | HN    | 107  | LYS  | 2.7  |
| 1   | H1    | 475  | C    | 2.7  |
| 1   | H1    | 732  | C    | 2.7  |
| 1   | H1    | 1380 | C    | 2.7  |
| 36  | GO    | 2    | VAL  | 2.6  |
| 2   | HA    | 66   | ARG  | 2.6  |
| 3   | HB    | 3    | ALA  | 2.6  |
| 41  | GT    | 20   | GLY  | 2.6  |
| 1   | A1    | 2959 | A    | 2.6  |
| 1   | H1    | 1737 | A    | 2.6  |
| 13  | HN    | 135  | THR  | 2.6  |
| 20  | B2    | 3    | A    | 2.6  |
| 21  | G3    | 55   | A    | 2.6  |
| 43  | CV    | 184  | GLU  | 2.6  |
| 1   | F1    | 3218 | U    | 2.6  |
| 1   | H1    | 706  | U    | 2.6  |
| 1   | H1    | 738  | U    | 2.6  |
| 1   | H1    | 1110 | U    | 2.6  |
| 1   | A1    | 1752 | G    | 2.6  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | F1    | 524  | G    | 2.6  |
| 1   | F1    | 1752 | G    | 2.6  |
| 1   | H1    | 90   | G    | 2.6  |
| 1   | H1    | 712  | G    | 2.6  |
| 1   | H1    | 1140 | G    | 2.6  |
| 1   | H1    | 1142 | G    | 2.6  |
| 1   | H1    | 1309 | G    | 2.6  |
| 20  | G2    | 42   | G    | 2.6  |
| 13  | HN    | 102  | ILE  | 2.6  |
| 29  | GH    | 7    | ARG  | 2.6  |
| 30  | GI    | 162  | ARG  | 2.6  |
| 22  | GA    | 214  | GLY  | 2.6  |
| 32  | GK    | 10   | LYS  | 2.6  |
| 42  | GU    | 58   | TYR  | 2.6  |
| 1   | A1    | 1598 | C    | 2.6  |
| 1   | A1    | 2226 | C    | 2.6  |
| 1   | F1    | 1598 | C    | 2.6  |
| 11  | FL    | 81   | GLU  | 2.6  |
| 35  | BN    | 37   | LEU  | 2.6  |
| 29  | BH    | 195  | SER  | 2.6  |
| 1   | D1    | 1122 | A    | 2.6  |
| 1   | H1    | 65   | A    | 2.6  |
| 1   | H1    | 219  | A    | 2.6  |
| 1   | H1    | 467  | A    | 2.6  |
| 1   | H1    | 1130 | A    | 2.6  |
| 1   | H1    | 2250 | A    | 2.6  |
| 1   | H1    | 3132 | A    | 2.6  |
| 22  | CA    | 243  | ARG  | 2.6  |
| 38  | GQ    | 68   | CYS  | 2.6  |
| 19  | AX    | 128  | HIS  | 2.6  |
| 1   | A1    | 2544 | U    | 2.6  |
| 1   | F1    | 186  | U    | 2.6  |
| 1   | H1    | 313  | U    | 2.6  |
| 1   | H1    | 2650 | U    | 2.6  |
| 14  | HO    | 32   | THR  | 2.6  |
| 6   | FF    | 58   | PHE  | 2.6  |
| 1   | F1    | 2575 | G    | 2.6  |
| 1   | H1    | 84   | G    | 2.6  |
| 1   | H1    | 630  | G    | 2.6  |
| 1   | H1    | 748  | G    | 2.6  |
| 1   | H1    | 792  | G    | 2.6  |
| 1   | H1    | 800  | G    | 2.6  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 989  | G    | 2.6  |
| 1   | H1    | 2859 | G    | 2.6  |
| 33  | GL    | 9    | GLU  | 2.6  |
| 42  | CU    | 64   | GLU  | 2.6  |
| 1   | F1    | 472  | C    | 2.6  |
| 1   | H1    | 724  | C    | 2.6  |
| 1   | H1    | 2739 | C    | 2.6  |
| 21  | E3    | 119  | C    | 2.6  |
| 27  | BF    | 232  | GLN  | 2.6  |
| 34  | BM    | 11   | ALA  | 2.6  |
| 29  | BH    | 161  | GLY  | 2.6  |
| 39  | ER    | 149  | LEU  | 2.6  |
| 18  | DU    | 60   | THR  | 2.6  |
| 1   | F1    | 3190 | A    | 2.6  |
| 1   | H1    | 188  | A    | 2.6  |
| 1   | H1    | 1252 | A    | 2.6  |
| 1   | H1    | 1359 | A    | 2.6  |
| 1   | H1    | 1444 | A    | 2.6  |
| 1   | H1    | 1550 | A    | 2.6  |
| 20  | G2    | 3    | A    | 2.6  |
| 1   | F1    | 2436 | U    | 2.6  |
| 34  | CM    | 45   | ASN  | 2.6  |
| 11  | AL    | 79   | GLY  | 2.6  |
| 1   | A1    | 3105 | G    | 2.6  |
| 1   | D1    | 578  | G    | 2.6  |
| 1   | F1    | 1257 | G    | 2.6  |
| 1   | H1    | 230  | G    | 2.6  |
| 1   | H1    | 266  | G    | 2.6  |
| 1   | H1    | 750  | G    | 2.6  |
| 1   | H1    | 1648 | G    | 2.6  |
| 1   | H1    | 2775 | G    | 2.6  |
| 20  | G2    | 114  | G    | 2.6  |
| 1   | F1    | 1050 | C    | 2.6  |
| 1   | H1    | 719  | C    | 2.6  |
| 1   | H1    | 725  | C    | 2.6  |
| 1   | H1    | 1251 | C    | 2.6  |
| 1   | H1    | 1310 | C    | 2.6  |
| 25  | GD    | 126  | ASP  | 2.6  |
| 17  | HT    | 10   | LYS  | 2.6  |
| 1   | A1    | 1244 | A    | 2.6  |
| 1   | A1    | 2519 | A    | 2.6  |
| 1   | H1    | 241  | A    | 2.6  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 454  | A    | 2.6  |
| 1   | H1    | 1122 | A    | 2.6  |
| 1   | H1    | 944  | U    | 2.6  |
| 25  | BD    | 104  | PHE  | 2.6  |
| 4   | HC    | 9    | LYS  | 2.5  |
| 5   | DE    | 31   | ARG  | 2.5  |
| 7   | FG    | 88   | SER  | 2.5  |
| 19  | FX    | 17   | LYS  | 2.5  |
| 33  | EL    | 188  | ARG  | 2.5  |
| 34  | EM    | 4    | VAL  | 2.5  |
| 35  | BN    | 140  | LEU  | 2.5  |
| 1   | F1    | 882  | G    | 2.5  |
| 1   | H1    | 78   | G    | 2.5  |
| 1   | H1    | 268  | G    | 2.5  |
| 1   | H1    | 493  | G    | 2.5  |
| 1   | H1    | 1649 | G    | 2.5  |
| 1   | H1    | 2568 | G    | 2.5  |
| 1   | H1    | 2595 | G    | 2.5  |
| 11  | HL    | 71   | ALA  | 2.5  |
| 19  | DX    | 189  | PHE  | 2.5  |
| 20  | G2    | 28   | G    | 2.5  |
| 1   | D1    | 1902 | C    | 2.5  |
| 1   | H1    | 224  | C    | 2.5  |
| 1   | H1    | 767  | C    | 2.5  |
| 1   | H1    | 2745 | C    | 2.5  |
| 17  | AT    | 8    | THR  | 2.5  |
| 32  | GK    | 24   | LYS  | 2.5  |
| 29  | CH    | 162  | ARG  | 2.5  |
| 33  | CL    | 180  | ARG  | 2.5  |
| 1   | A1    | 1042 | U    | 2.5  |
| 1   | A1    | 1737 | A    | 2.5  |
| 1   | D1    | 3250 | A    | 2.5  |
| 1   | F1    | 2861 | U    | 2.5  |
| 1   | H1    | 61   | A    | 2.5  |
| 1   | H1    | 325  | U    | 2.5  |
| 1   | H1    | 485  | A    | 2.5  |
| 1   | H1    | 519  | A    | 2.5  |
| 1   | H1    | 2727 | A    | 2.5  |
| 1   | H1    | 2759 | A    | 2.5  |
| 21  | G3    | 22   | A    | 2.5  |
| 34  | GM    | 71   | CYS  | 2.5  |
| 1   | H1    | 955  | U    | 2.5  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 7   | AG    | 97   | ASP  | 2.5  |
| 19  | FX    | 12   | ASP  | 2.5  |
| 24  | EC    | 327  | ASN  | 2.5  |
| 29  | GH    | 11   | GLN  | 2.5  |
| 34  | GM    | 258  | PRO  | 2.5  |
| 34  | GM    | 132  | VAL  | 2.5  |
| 1   | A1    | 1256 | G    | 2.5  |
| 1   | F1    | 230  | G    | 2.5  |
| 1   | H1    | 2676 | G    | 2.5  |
| 19  | AX    | 55   | PHE  | 2.5  |
| 20  | E2    | 86   | G    | 2.5  |
| 1   | H1    | 486  | C    | 2.5  |
| 1   | H1    | 687  | C    | 2.5  |
| 21  | G3    | 10   | C    | 2.5  |
| 27  | EF    | 44   | PHE  | 2.5  |
| 4   | HC    | 49   | GLY  | 2.5  |
| 34  | BM    | 19   | LYS  | 2.5  |
| 1   | A1    | 1313 | A    | 2.5  |
| 1   | D1    | 2551 | A    | 2.5  |
| 1   | F1    | 453  | A    | 2.5  |
| 1   | F1    | 2503 | U    | 2.5  |
| 1   | H1    | 59   | A    | 2.5  |
| 1   | H1    | 120  | A    | 2.5  |
| 1   | H1    | 498  | A    | 2.5  |
| 1   | H1    | 503  | U    | 2.5  |
| 1   | H1    | 635  | A    | 2.5  |
| 1   | H1    | 801  | U    | 2.5  |
| 1   | H1    | 2718 | U    | 2.5  |
| 1   | H1    | 3102 | A    | 2.5  |
| 1   | H1    | 3197 | A    | 2.5  |
| 14  | DO    | 89   | ARG  | 2.5  |
| 34  | BM    | 119  | TYR  | 2.5  |
| 34  | GM    | 259  | GLU  | 2.5  |
| 7   | HG    | 47   | ASN  | 2.5  |
| 25  | ED    | 167  | PHE  | 2.5  |
| 34  | EM    | 205  | PHE  | 2.5  |
| 43  | BV    | 177  | CYS  | 2.5  |
| 43  | EV    | 176  | THR  | 2.5  |
| 7   | HG    | 75   | VAL  | 2.5  |
| 1   | F1    | 516  | C    | 2.5  |
| 1   | H1    | 1534 | C    | 2.5  |
| 20  | E2    | 85   | C    | 2.5  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> | <b>RSRZ</b> |
|------------|--------------|------------|-------------|-------------|
| 1          | A1           | 2575       | G           | 2.5         |
| 1          | A1           | 2862       | G           | 2.5         |
| 1          | D1           | 741        | G           | 2.5         |
| 1          | D1           | 2862       | G           | 2.5         |
| 1          | F1           | 128        | G           | 2.5         |
| 1          | F1           | 459        | G           | 2.5         |
| 1          | H1           | 2743       | G           | 2.5         |
| 20         | G2           | 151        | G           | 2.5         |
| 1          | D1           | 2277       | U           | 2.5         |
| 1          | H1           | 36         | U           | 2.5         |
| 1          | A1           | 134        | A           | 2.5         |
| 1          | D1           | 150        | A           | 2.5         |
| 1          | D1           | 453        | A           | 2.5         |
| 1          | D1           | 1738       | A           | 2.5         |
| 1          | H1           | 437        | A           | 2.5         |
| 20         | G2           | 43         | A           | 2.5         |
| 38         | BQ           | 3          | LYS         | 2.5         |
| 32         | BK           | 100        | PRO         | 2.5         |
| 24         | GC           | 80         | ARG         | 2.5         |
| 34         | BM           | 72         | ASP         | 2.5         |
| 34         | CM           | 71         | CYS         | 2.5         |
| 14         | FO           | 31         | VAL         | 2.5         |
| 15         | AP           | 42         | PHE         | 2.4         |
| 29         | BH           | 44         | GLU         | 2.4         |
| 32         | BK           | 98         | LYS         | 2.4         |
| 36         | BO           | 149        | LYS         | 2.4         |
| 15         | DP           | 64         | ILE         | 2.4         |
| 9          | FJ           | 91         | ASN         | 2.4         |
| 24         | BC           | 153        | GLN         | 2.4         |
| 27         | BF           | 69         | GLN         | 2.4         |
| 29         | BH           | 139        | ARG         | 2.4         |
| 11         | HL           | 80         | GLY         | 2.4         |
| 22         | BA           | 213        | GLY         | 2.4         |
| 1          | H1           | 192        | C           | 2.4         |
| 20         | E2           | 72         | C           | 2.4         |
| 1          | A1           | 1840       | U           | 2.4         |
| 1          | A1           | 1845       | U           | 2.4         |
| 1          | H1           | 183        | U           | 2.4         |
| 21         | B3           | 5          | U           | 2.4         |
| 1          | A1           | 3213       | G           | 2.4         |
| 1          | D1           | 1506       | G           | 2.4         |
| 1          | D1           | 2530       | G           | 2.4         |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | F1    | 1773 | G    | 2.4  |
| 1   | F1    | 2519 | A    | 2.4  |
| 1   | F1    | 3219 | A    | 2.4  |
| 1   | H1    | 199  | A    | 2.4  |
| 1   | H1    | 1588 | A    | 2.4  |
| 1   | H1    | 2693 | A    | 2.4  |
| 13  | FN    | 55   | LYS  | 2.4  |
| 16  | AQ    | 31   | LYS  | 2.4  |
| 16  | FQ    | 33   | LYS  | 2.4  |
| 42  | CU    | 88   | LYS  | 2.4  |
| 16  | HQ    | 93   | LEU  | 2.4  |
| 34  | GM    | 231  | TRP  | 2.4  |
| 2   | FA    | 30   | GLN  | 2.4  |
| 24  | EC    | 198  | GLN  | 2.4  |
| 33  | BL    | 15   | GLN  | 2.4  |
| 42  | EU    | 114  | ASN  | 2.4  |
| 7   | DG    | 96   | GLY  | 2.4  |
| 8   | DH    | 79   | LYS  | 2.4  |
| 19  | HX    | 189  | PHE  | 2.4  |
| 7   | FG    | 87   | CYS  | 2.4  |
| 25  | BD    | 159  | CYS  | 2.4  |
| 1   | A1    | 1063 | C    | 2.4  |
| 1   | A1    | 1759 | C    | 2.4  |
| 1   | D1    | 70   | C    | 2.4  |
| 1   | D1    | 2558 | U    | 2.4  |
| 1   | F1    | 40   | C    | 2.4  |
| 1   | F1    | 985  | U    | 2.4  |
| 1   | H1    | 136  | C    | 2.4  |
| 1   | H1    | 147  | U    | 2.4  |
| 1   | H1    | 194  | U    | 2.4  |
| 1   | H1    | 1004 | U    | 2.4  |
| 1   | H1    | 1101 | U    | 2.4  |
| 1   | H1    | 1106 | U    | 2.4  |
| 1   | H1    | 1774 | C    | 2.4  |
| 5   | DE    | 32   | GLN  | 2.4  |
| 8   | DH    | 98   | GLN  | 2.4  |
| 20  | C2    | 85   | C    | 2.4  |
| 20  | G2    | 25   | U    | 2.4  |
| 21  | B3    | 14   | C    | 2.4  |
| 34  | GM    | 148  | ALA  | 2.4  |
| 43  | EV    | 126  | ARG  | 2.4  |
| 1   | H1    | 716  | A    | 2.4  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 1583 | A    | 2.4  |
| 22  | CA    | 214  | GLY  | 2.4  |
| 38  | GQ    | 83   | GLY  | 2.4  |
| 1   | A1    | 1248 | G    | 2.4  |
| 1   | A1    | 1654 | G    | 2.4  |
| 1   | D1    | 1257 | G    | 2.4  |
| 1   | F1    | 741  | G    | 2.4  |
| 1   | H1    | 227  | G    | 2.4  |
| 1   | H1    | 299  | G    | 2.4  |
| 1   | H1    | 870  | G    | 2.4  |
| 1   | H1    | 1099 | G    | 2.4  |
| 1   | H1    | 1179 | G    | 2.4  |
| 1   | H1    | 1776 | G    | 2.4  |
| 1   | H1    | 2732 | G    | 2.4  |
| 21  | B3    | 21   | G    | 2.4  |
| 7   | HG    | 28   | LYS  | 2.4  |
| 32  | GK    | 115  | LYS  | 2.4  |
| 39  | BR    | 41   | LYS  | 2.4  |
| 39  | CR    | 121  | LEU  | 2.4  |
| 25  | ED    | 22   | CYS  | 2.4  |
| 18  | FU    | 50   | GLU  | 2.4  |
| 7   | HG    | 86   | ARG  | 2.4  |
| 22  | GA    | 65   | ARG  | 2.4  |
| 24  | EC    | 317  | HIS  | 2.4  |
| 24  | EC    | 347  | ALA  | 2.4  |
| 34  | GM    | 85   | ARG  | 2.4  |
| 45  | CX    | 92   | ARG  | 2.4  |
| 32  | GK    | 100  | PRO  | 2.4  |
| 24  | BC    | 370  | LYS  | 2.4  |
| 38  | GQ    | 119  | GLY  | 2.4  |
| 24  | BC    | 74   | THR  | 2.4  |
| 1   | H1    | 1578 | U    | 2.4  |
| 23  | GB    | 363  | ILE  | 2.4  |
| 21  | B3    | 119  | C    | 2.4  |
| 1   | D1    | 1053 | A    | 2.4  |
| 1   | D1    | 2254 | A    | 2.4  |
| 1   | D1    | 2276 | A    | 2.4  |
| 1   | F1    | 471  | A    | 2.4  |
| 1   | H1    | 63   | A    | 2.4  |
| 1   | H1    | 317  | A    | 2.4  |
| 1   | H1    | 1668 | A    | 2.4  |
| 1   | H1    | 1753 | A    | 2.4  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 21  | G3    | 100  | A    | 2.4  |
| 4   | HC    | 8    | ARG  | 2.4  |
| 19  | FX    | 41   | MET  | 2.4  |
| 24  | EC    | 356  | GLN  | 2.4  |
| 27  | CF    | 69   | GLN  | 2.4  |
| 34  | EM    | 274  | HIS  | 2.4  |
| 1   | D1    | 243  | G    | 2.4  |
| 1   | H1    | 1124 | G    | 2.4  |
| 1   | H1    | 1617 | G    | 2.4  |
| 1   | H1    | 1869 | G    | 2.4  |
| 1   | H1    | 2788 | G    | 2.4  |
| 1   | H1    | 3058 | G    | 2.4  |
| 17  | DT    | 58   | ASN  | 2.4  |
| 37  | GP    | 59   | GLY  | 2.4  |
| 18  | DU    | 141  | ASP  | 2.4  |
| 16  | HQ    | 60   | GLU  | 2.4  |
| 17  | DT    | 2    | ALA  | 2.4  |
| 2   | HA    | 88   | LYS  | 2.4  |
| 34  | GM    | 271  | LYS  | 2.4  |
| 1   | F1    | 190  | U    | 2.3  |
| 1   | F1    | 944  | U    | 2.3  |
| 1   | H1    | 1652 | U    | 2.3  |
| 20  | B2    | 113  | U    | 2.3  |
| 8   | HH    | 82   | GLY  | 2.3  |
| 27  | CF    | 175  | GLY  | 2.3  |
| 32  | BK    | 29   | GLY  | 2.3  |
| 1   | F1    | 504  | A    | 2.3  |
| 1   | F1    | 515  | A    | 2.3  |
| 1   | F1    | 1344 | A    | 2.3  |
| 1   | F1    | 2276 | A    | 2.3  |
| 1   | F1    | 3140 | C    | 2.3  |
| 1   | H1    | 82   | C    | 2.3  |
| 1   | H1    | 86   | A    | 2.3  |
| 1   | H1    | 779  | A    | 2.3  |
| 1   | H1    | 811  | A    | 2.3  |
| 1   | H1    | 961  | A    | 2.3  |
| 1   | H1    | 1088 | A    | 2.3  |
| 1   | H1    | 1382 | A    | 2.3  |
| 1   | H1    | 2704 | A    | 2.3  |
| 16  | HQ    | 28   | VAL  | 2.3  |
| 5   | FE    | 3    | ARG  | 2.3  |
| 29  | GH    | 139  | ARG  | 2.3  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 206  | G    | 2.3  |
| 1   | H1    | 462  | G    | 2.3  |
| 1   | H1    | 978  | G    | 2.3  |
| 1   | H1    | 1834 | G    | 2.3  |
| 20  | C2    | 73   | G    | 2.3  |
| 20  | E2    | 88   | G    | 2.3  |
| 20  | G2    | 18   | G    | 2.3  |
| 20  | G2    | 49   | G    | 2.3  |
| 21  | B3    | 117  | G    | 2.3  |
| 21  | G3    | 48   | G    | 2.3  |
| 34  | GM    | 40   | ASP  | 2.3  |
| 26  | GE    | 167  | GLU  | 2.3  |
| 34  | GM    | 144  | ALA  | 2.3  |
| 11  | DL    | 108  | ILE  | 2.3  |
| 34  | GM    | 173  | ILE  | 2.3  |
| 5   | HE    | 102  | VAL  | 2.3  |
| 40  | GS    | 7    | VAL  | 2.3  |
| 1   | D1    | 1600 | U    | 2.3  |
| 1   | F1    | 526  | U    | 2.3  |
| 1   | F1    | 1057 | U    | 2.3  |
| 42  | CU    | 36   | LYS  | 2.3  |
| 1   | A1    | 133  | C    | 2.3  |
| 1   | F1    | 200  | C    | 2.3  |
| 1   | F1    | 434  | A    | 2.3  |
| 1   | H1    | 26   | C    | 2.3  |
| 1   | H1    | 684  | A    | 2.3  |
| 1   | H1    | 1522 | C    | 2.3  |
| 1   | H1    | 2219 | A    | 2.3  |
| 1   | H1    | 2522 | A    | 2.3  |
| 20  | B2    | 85   | C    | 2.3  |
| 21  | G3    | 118  | C    | 2.3  |
| 30  | CI    | 3    | ASP  | 2.3  |
| 34  | BM    | 188  | ASP  | 2.3  |
| 43  | BV    | 205  | ASP  | 2.3  |
| 13  | DN    | 144  | PHE  | 2.3  |
| 14  | FO    | 86   | GLY  | 2.3  |
| 37  | GP    | 90   | HIS  | 2.3  |
| 38  | EQ    | 70   | GLY  | 2.3  |
| 22  | EA    | 216  | ASN  | 2.3  |
| 27  | GF    | 191  | VAL  | 2.3  |
| 2   | DA    | 43   | LYS  | 2.3  |
| 8   | AH    | 79   | LYS  | 2.3  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 12  | FM    | 21   | CYS  | 2.3  |
| 32  | CK    | 24   | LYS  | 2.3  |
| 1   | D1    | 1312 | G    | 2.3  |
| 1   | D1    | 2933 | G    | 2.3  |
| 1   | D1    | 3105 | G    | 2.3  |
| 1   | F1    | 424  | G    | 2.3  |
| 1   | H1    | 296  | G    | 2.3  |
| 1   | H1    | 458  | G    | 2.3  |
| 20  | B2    | 86   | G    | 2.3  |
| 20  | G2    | 152  | G    | 2.3  |
| 40  | GS    | 125  | LEU  | 2.3  |
| 1   | F1    | 742  | U    | 2.3  |
| 1   | H1    | 186  | U    | 2.3  |
| 1   | H1    | 279  | U    | 2.3  |
| 1   | H1    | 2644 | U    | 2.3  |
| 20  | G2    | 63   | U    | 2.3  |
| 29  | CH    | 161  | GLY  | 2.3  |
| 32  | GK    | 116  | GLY  | 2.3  |
| 33  | CL    | 87   | VAL  | 2.3  |
| 34  | GM    | 159  | VAL  | 2.3  |
| 17  | HT    | 36   | ASN  | 2.3  |
| 1   | D1    | 564  | A    | 2.3  |
| 1   | F1    | 120  | A    | 2.3  |
| 1   | H1    | 318  | A    | 2.3  |
| 1   | H1    | 1618 | A    | 2.3  |
| 1   | H1    | 1720 | A    | 2.3  |
| 1   | H1    | 2774 | A    | 2.3  |
| 8   | DH    | 13   | ARG  | 2.3  |
| 10  | DK    | 112  | LYS  | 2.3  |
| 13  | AN    | 55   | LYS  | 2.3  |
| 14  | HO    | 89   | ARG  | 2.3  |
| 27  | CF    | 185  | LYS  | 2.3  |
| 35  | EN    | 10   | ARG  | 2.3  |
| 1   | F1    | 1522 | C    | 2.3  |
| 1   | H1    | 521  | C    | 2.3  |
| 1   | H1    | 918  | C    | 2.3  |
| 1   | H1    | 2749 | C    | 2.3  |
| 40  | CS    | 125  | LEU  | 2.3  |
| 34  | BM    | 254  | ILE  | 2.3  |
| 33  | BL    | 8    | GLU  | 2.3  |
| 34  | GM    | 72   | ASP  | 2.3  |
| 18  | FU    | 2    | LYS  | 2.3  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 18  | HU    | 100  | LYS  | 2.3  |
| 24  | CC    | 90   | HIS  | 2.3  |
| 44  | GW    | 25   | LYS  | 2.3  |
| 4   | HC    | 85   | ARG  | 2.3  |
| 19  | HX    | 178  | ARG  | 2.3  |
| 35  | GN    | 71   | ASN  | 2.3  |
| 47  | CO    | 74   | ARG  | 2.3  |
| 1   | A1    | 2302 | G    | 2.3  |
| 1   | D1    | 477  | G    | 2.3  |
| 1   | D1    | 591  | G    | 2.3  |
| 1   | D1    | 2575 | G    | 2.3  |
| 1   | F1    | 1833 | G    | 2.3  |
| 1   | H1    | 506  | G    | 2.3  |
| 1   | H1    | 579  | G    | 2.3  |
| 1   | H1    | 3303 | G    | 2.3  |
| 27  | GF    | 221  | LEU  | 2.3  |
| 1   | A1    | 1416 | U    | 2.3  |
| 1   | D1    | 469  | U    | 2.3  |
| 1   | D1    | 3231 | U    | 2.3  |
| 1   | H1    | 499  | U    | 2.3  |
| 1   | H1    | 972  | U    | 2.3  |
| 1   | H1    | 2264 | U    | 2.3  |
| 20  | G2    | 150  | U    | 2.3  |
| 29  | EH    | 85   | PHE  | 2.3  |
| 24  | GC    | 108  | ALA  | 2.3  |
| 8   | AH    | 52   | GLN  | 2.3  |
| 1   | A1    | 1053 | A    | 2.3  |
| 1   | F1    | 871  | A    | 2.3  |
| 1   | F1    | 1122 | A    | 2.3  |
| 1   | F1    | 1246 | A    | 2.3  |
| 1   | H1    | 100  | A    | 2.3  |
| 1   | H1    | 1364 | A    | 2.3  |
| 1   | H1    | 1560 | A    | 2.3  |
| 20  | G2    | 89   | A    | 2.3  |
| 21  | B3    | 54   | A    | 2.3  |
| 1   | H1    | 720  | C    | 2.3  |
| 1   | H1    | 970  | C    | 2.3  |
| 1   | H1    | 1247 | C    | 2.3  |
| 8   | AH    | 110  | PRO  | 2.3  |
| 15  | FP    | 2    | PRO  | 2.3  |
| 20  | G2    | 95   | C    | 2.3  |
| 25  | BD    | 148  | VAL  | 2.3  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 25  | GD    | 135  | GLY  | 2.3  |
| 43  | GV    | 153  | VAL  | 2.3  |
| 14  | AO    | 89   | ARG  | 2.3  |
| 14  | HO    | 115  | HIS  | 2.2  |
| 24  | BC    | 90   | HIS  | 2.2  |
| 27  | BF    | 19   | ASN  | 2.2  |
| 34  | GM    | 227  | GLN  | 2.2  |
| 38  | BQ    | 154  | GLU  | 2.2  |
| 1   | A1    | 1004 | U    | 2.2  |
| 1   | A1    | 1044 | G    | 2.2  |
| 1   | A1    | 1179 | G    | 2.2  |
| 1   | D1    | 1309 | G    | 2.2  |
| 1   | D1    | 1752 | G    | 2.2  |
| 1   | H1    | 346  | G    | 2.2  |
| 1   | H1    | 375  | G    | 2.2  |
| 1   | H1    | 988  | G    | 2.2  |
| 1   | H1    | 1047 | G    | 2.2  |
| 1   | H1    | 1428 | G    | 2.2  |
| 1   | H1    | 2564 | G    | 2.2  |
| 1   | H1    | 2588 | U    | 2.2  |
| 1   | H1    | 2748 | U    | 2.2  |
| 29  | EH    | 196  | ASN  | 2.2  |
| 1   | A1    | 3205 | A    | 2.2  |
| 1   | D1    | 467  | A    | 2.2  |
| 1   | D1    | 468  | A    | 2.2  |
| 1   | D1    | 1250 | A    | 2.2  |
| 1   | F1    | 1053 | A    | 2.2  |
| 1   | H1    | 527  | A    | 2.2  |
| 1   | H1    | 931  | A    | 2.2  |
| 1   | H1    | 1081 | A    | 2.2  |
| 1   | H1    | 2728 | A    | 2.2  |
| 1   | H1    | 2790 | A    | 2.2  |
| 1   | H1    | 3143 | A    | 2.2  |
| 1   | D1    | 1307 | C    | 2.2  |
| 1   | D1    | 2258 | C    | 2.2  |
| 1   | H1    | 80   | C    | 2.2  |
| 1   | H1    | 516  | C    | 2.2  |
| 1   | H1    | 756  | C    | 2.2  |
| 1   | H1    | 1415 | C    | 2.2  |
| 1   | H1    | 1551 | C    | 2.2  |
| 1   | H1    | 1633 | C    | 2.2  |
| 18  | FU    | 61   | GLN  | 2.2  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 32  | BK    | 24   | LYS  | 2.2  |
| 33  | GL    | 4    | TYR  | 2.2  |
| 38  | GQ    | 18   | LYS  | 2.2  |
| 14  | HO    | 87   | VAL  | 2.2  |
| 5   | DE    | 33   | LEU  | 2.2  |
| 43  | GV    | 209  | GLY  | 2.2  |
| 13  | DN    | 72   | ILE  | 2.2  |
| 5   | HE    | 28   | PHE  | 2.2  |
| 1   | A1    | 469  | U    | 2.2  |
| 1   | A1    | 2502 | U    | 2.2  |
| 1   | A1    | 2503 | U    | 2.2  |
| 1   | D1    | 2344 | U    | 2.2  |
| 1   | H1    | 1552 | U    | 2.2  |
| 1   | H1    | 1966 | U    | 2.2  |
| 7   | HG    | 53   | LYS  | 2.2  |
| 18  | HU    | 146  | ALA  | 2.2  |
| 32  | CK    | 98   | LYS  | 2.2  |
| 34  | GM    | 77   | ALA  | 2.2  |
| 2   | HA    | 68   | MET  | 2.2  |
| 1   | D1    | 115  | G    | 2.2  |
| 1   | D1    | 458  | G    | 2.2  |
| 1   | F1    | 227  | G    | 2.2  |
| 1   | F1    | 623  | G    | 2.2  |
| 1   | F1    | 3213 | G    | 2.2  |
| 1   | H1    | 447  | G    | 2.2  |
| 1   | H1    | 518  | G    | 2.2  |
| 1   | H1    | 1253 | G    | 2.2  |
| 2   | HA    | 64   | ARG  | 2.2  |
| 20  | B2    | 114  | G    | 2.2  |
| 20  | C2    | 114  | G    | 2.2  |
| 21  | B3    | 7    | G    | 2.2  |
| 21  | E3    | 21   | G    | 2.2  |
| 5   | FE    | 164  | VAL  | 2.2  |
| 13  | DN    | 90   | LEU  | 2.2  |
| 14  | AO    | 31   | VAL  | 2.2  |
| 23  | CB    | 7    | GLU  | 2.2  |
| 34  | GM    | 65   | VAL  | 2.2  |
| 1   | F1    | 140  | A    | 2.2  |
| 1   | F1    | 468  | A    | 2.2  |
| 1   | F1    | 2435 | A    | 2.2  |
| 1   | H1    | 134  | A    | 2.2  |
| 1   | H1    | 267  | A    | 2.2  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 628  | A    | 2.2  |
| 1   | H1    | 696  | A    | 2.2  |
| 1   | H1    | 3205 | A    | 2.2  |
| 14  | HO    | 106  | PHE  | 2.2  |
| 18  | DU    | 103  | CYS  | 2.2  |
| 22  | GA    | 127  | PHE  | 2.2  |
| 29  | GH    | 212  | PHE  | 2.2  |
| 1   | D1    | 223  | C    | 2.2  |
| 1   | F1    | 1310 | C    | 2.2  |
| 1   | H1    | 1446 | C    | 2.2  |
| 1   | H1    | 1870 | C    | 2.2  |
| 18  | DU    | 64   | ASN  | 2.2  |
| 43  | GV    | 117  | ASN  | 2.2  |
| 22  | BA    | 217  | HIS  | 2.2  |
| 24  | EC    | 207  | LYS  | 2.2  |
| 26  | EE    | 185  | ALA  | 2.2  |
| 35  | GN    | 110  | ALA  | 2.2  |
| 38  | GQ    | 102  | ALA  | 2.2  |
| 40  | GS    | 10   | ALA  | 2.2  |
| 25  | ED    | 153  | MET  | 2.2  |
| 18  | FU    | 107  | LEU  | 2.2  |
| 45  | GX    | 92   | ARG  | 2.2  |
| 6   | DF    | 2    | VAL  | 2.2  |
| 16  | AQ    | 60   | GLU  | 2.2  |
| 19  | HX    | 174  | GLU  | 2.2  |
| 22  | EA    | 214  | GLY  | 2.2  |
| 1   | D1    | 742  | U    | 2.2  |
| 1   | H1    | 191  | U    | 2.2  |
| 1   | H1    | 1855 | U    | 2.2  |
| 19  | HX    | 6    | ALA  | 2.2  |
| 1   | A1    | 1045 | G    | 2.2  |
| 1   | A1    | 1738 | A    | 2.2  |
| 1   | A1    | 2438 | G    | 2.2  |
| 1   | A1    | 2440 | A    | 2.2  |
| 1   | D1    | 524  | G    | 2.2  |
| 1   | D1    | 2716 | A    | 2.2  |
| 1   | D1    | 3219 | A    | 2.2  |
| 1   | F1    | 210  | A    | 2.2  |
| 1   | F1    | 442  | G    | 2.2  |
| 1   | F1    | 634  | G    | 2.2  |
| 1   | F1    | 870  | G    | 2.2  |
| 1   | F1    | 1595 | A    | 2.2  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | F1    | 1617 | G    | 2.2  |
| 1   | F1    | 3143 | A    | 2.2  |
| 1   | H1    | 19   | A    | 2.2  |
| 1   | H1    | 254  | G    | 2.2  |
| 1   | H1    | 340  | G    | 2.2  |
| 1   | H1    | 343  | A    | 2.2  |
| 1   | H1    | 344  | G    | 2.2  |
| 1   | H1    | 347  | A    | 2.2  |
| 1   | H1    | 456  | G    | 2.2  |
| 1   | H1    | 705  | A    | 2.2  |
| 1   | H1    | 768  | A    | 2.2  |
| 1   | H1    | 840  | G    | 2.2  |
| 1   | H1    | 869  | G    | 2.2  |
| 1   | H1    | 882  | G    | 2.2  |
| 1   | H1    | 1002 | A    | 2.2  |
| 1   | H1    | 1738 | A    | 2.2  |
| 1   | H1    | 2692 | A    | 2.2  |
| 6   | FF    | 81   | LEU  | 2.2  |
| 20  | G2    | 34   | G    | 2.2  |
| 27  | GF    | 46   | ARG  | 2.2  |
| 31  | EJ    | 117  | GLN  | 2.2  |
| 4   | HC    | 11   | TYR  | 2.2  |
| 33  | GL    | 66   | VAL  | 2.2  |
| 1   | D1    | 525  | C    | 2.2  |
| 1   | H1    | 803  | C    | 2.2  |
| 3   | FB    | 2    | GLY  | 2.2  |
| 21  | G3    | 44   | C    | 2.2  |
| 33  | BL    | 2    | GLY  | 2.2  |
| 18  | HU    | 58   | LYS  | 2.2  |
| 19  | FX    | 64   | LYS  | 2.2  |
| 24  | GC    | 103  | LYS  | 2.2  |
| 44  | GW    | 17   | LYS  | 2.2  |
| 45  | EX    | 4    | LYS  | 2.2  |
| 34  | GM    | 57   | ASN  | 2.2  |
| 37  | GP    | 89   | LEU  | 2.2  |
| 12  | DM    | 21   | CYS  | 2.1  |
| 18  | HU    | 194  | ARG  | 2.1  |
| 24  | EC    | 90   | HIS  | 2.1  |
| 1   | F1    | 1783 | U    | 2.1  |
| 1   | H1    | 190  | U    | 2.1  |
| 1   | H1    | 1195 | U    | 2.1  |
| 1   | H1    | 1431 | U    | 2.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 1596 | U    | 2.1  |
| 34  | BM    | 71   | CYS  | 2.1  |
| 35  | GN    | 159  | ARG  | 2.1  |
| 44  | EW    | 64   | ARG  | 2.1  |
| 6   | AF    | 2    | VAL  | 2.1  |
| 8   | FH    | 78   | GLY  | 2.1  |
| 18  | DU    | 70   | GLY  | 2.1  |
| 35  | BN    | 156  | PRO  | 2.1  |
| 35  | BN    | 181  | LYS  | 2.1  |
| 40  | CS    | 3    | THR  | 2.1  |
| 1   | A1    | 595  | A    | 2.1  |
| 1   | F1    | 1618 | A    | 2.1  |
| 1   | H1    | 87   | A    | 2.1  |
| 1   | H1    | 743  | A    | 2.1  |
| 1   | H1    | 1376 | A    | 2.1  |
| 1   | H1    | 1611 | A    | 2.1  |
| 1   | H1    | 1826 | A    | 2.1  |
| 1   | H1    | 2674 | A    | 2.1  |
| 1   | A1    | 282  | G    | 2.1  |
| 1   | A1    | 810  | G    | 2.1  |
| 1   | F1    | 2498 | G    | 2.1  |
| 1   | F1    | 2734 | G    | 2.1  |
| 1   | H1    | 108  | G    | 2.1  |
| 1   | H1    | 158  | G    | 2.1  |
| 1   | H1    | 298  | G    | 2.1  |
| 1   | H1    | 500  | G    | 2.1  |
| 1   | H1    | 1312 | G    | 2.1  |
| 1   | H1    | 1568 | G    | 2.1  |
| 1   | H1    | 1615 | G    | 2.1  |
| 1   | H1    | 1656 | G    | 2.1  |
| 1   | H1    | 2960 | G    | 2.1  |
| 1   | H1    | 3230 | G    | 2.1  |
| 6   | DF    | 65   | LEU  | 2.1  |
| 37  | BP    | 56   | LEU  | 2.1  |
| 36  | BO    | 74   | ARG  | 2.1  |
| 1   | D1    | 162  | C    | 2.1  |
| 1   | D1    | 470  | C    | 2.1  |
| 1   | D1    | 1050 | C    | 2.1  |
| 1   | F1    | 1380 | C    | 2.1  |
| 1   | H1    | 314  | C    | 2.1  |
| 1   | H1    | 525  | C    | 2.1  |
| 1   | H1    | 2556 | C    | 2.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 2655 | C    | 2.1  |
| 21  | G3    | 29   | C    | 2.1  |
| 33  | GL    | 154  | SER  | 2.1  |
| 38  | CQ    | 153  | GLN  | 2.1  |
| 2   | FA    | 50   | TRP  | 2.1  |
| 5   | HE    | 85   | VAL  | 2.1  |
| 11  | HL    | 74   | VAL  | 2.1  |
| 39  | GR    | 70   | VAL  | 2.1  |
| 18  | DU    | 164  | LYS  | 2.1  |
| 24  | CC    | 207  | LYS  | 2.1  |
| 39  | BR    | 30   | LYS  | 2.1  |
| 46  | BY    | 101  | LYS  | 2.1  |
| 4   | DC    | 49   | GLY  | 2.1  |
| 43  | GV    | 176  | THR  | 2.1  |
| 1   | A1    | 789  | U    | 2.1  |
| 1   | D1    | 186  | U    | 2.1  |
| 1   | F1    | 1245 | U    | 2.1  |
| 1   | H1    | 228  | U    | 2.1  |
| 1   | H1    | 850  | U    | 2.1  |
| 1   | H1    | 985  | U    | 2.1  |
| 1   | H1    | 2648 | U    | 2.1  |
| 1   | H1    | 3235 | U    | 2.1  |
| 37  | GP    | 52   | MET  | 2.1  |
| 13  | AN    | 111  | ARG  | 2.1  |
| 18  | AU    | 64   | ASN  | 2.1  |
| 18  | DU    | 165  | ALA  | 2.1  |
| 18  | HU    | 64   | ASN  | 2.1  |
| 30  | CI    | 62   | ASN  | 2.1  |
| 36  | BO    | 5    | ARG  | 2.1  |
| 37  | GP    | 81   | ASN  | 2.1  |
| 18  | HU    | 59   | GLN  | 2.1  |
| 16  | HQ    | 38   | VAL  | 2.1  |
| 24  | GC    | 139  | VAL  | 2.1  |
| 27  | EF    | 126  | LYS  | 2.1  |
| 35  | GN    | 96   | VAL  | 2.1  |
| 1   | A1    | 504  | A    | 2.1  |
| 1   | F1    | 1314 | A    | 2.1  |
| 1   | H1    | 72   | A    | 2.1  |
| 1   | H1    | 406  | A    | 2.1  |
| 1   | H1    | 1393 | A    | 2.1  |
| 1   | H1    | 2694 | A    | 2.1  |
| 1   | H1    | 2729 | A    | 2.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 2736 | A    | 2.1  |
| 45  | GX    | 48   | PHE  | 2.1  |
| 4   | FC    | 11   | TYR  | 2.1  |
| 14  | HO    | 33   | GLY  | 2.1  |
| 32  | GK    | 33   | GLY  | 2.1  |
| 45  | GX    | 70   | PRO  | 2.1  |
| 13  | AN    | 30   | GLU  | 2.1  |
| 1   | A1    | 634  | G    | 2.1  |
| 1   | A1    | 1142 | G    | 2.1  |
| 1   | A1    | 1754 | G    | 2.1  |
| 1   | A1    | 2520 | G    | 2.1  |
| 1   | A1    | 2530 | G    | 2.1  |
| 1   | F1    | 257  | G    | 2.1  |
| 1   | F1    | 619  | G    | 2.1  |
| 1   | F1    | 1309 | G    | 2.1  |
| 1   | H1    | 215  | G    | 2.1  |
| 1   | H1    | 675  | G    | 2.1  |
| 1   | H1    | 900  | G    | 2.1  |
| 1   | H1    | 1120 | G    | 2.1  |
| 1   | H1    | 1121 | G    | 2.1  |
| 1   | H1    | 1533 | G    | 2.1  |
| 1   | H1    | 1958 | G    | 2.1  |
| 21  | G3    | 4    | G    | 2.1  |
| 29  | GH    | 192  | THR  | 2.1  |
| 1   | A1    | 2439 | C    | 2.1  |
| 1   | F1    | 136  | C    | 2.1  |
| 1   | H1    | 103  | C    | 2.1  |
| 1   | H1    | 226  | C    | 2.1  |
| 1   | H1    | 777  | C    | 2.1  |
| 1   | H1    | 1673 | C    | 2.1  |
| 21  | G3    | 119  | C    | 2.1  |
| 10  | HK    | 109  | ASN  | 2.1  |
| 24  | GC    | 16   | ASN  | 2.1  |
| 30  | GI    | 158  | LYS  | 2.1  |
| 1   | A1    | 1223 | U    | 2.1  |
| 1   | A1    | 1315 | U    | 2.1  |
| 1   | D1    | 526  | U    | 2.1  |
| 1   | H1    | 1138 | U    | 2.1  |
| 1   | H1    | 1845 | U    | 2.1  |
| 1   | H1    | 2589 | U    | 2.1  |
| 20  | E2    | 63   | U    | 2.1  |
| 34  | CM    | 224  | PHE  | 2.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 42  | GU    | 86   | VAL  | 2.1  |
| 34  | EM    | 42   | ASP  | 2.1  |
| 34  | GM    | 174  | PRO  | 2.1  |
| 5   | HE    | 39   | THR  | 2.1  |
| 17  | HT    | 8    | THR  | 2.1  |
| 30  | CI    | 105  | GLU  | 2.1  |
| 34  | GM    | 76   | CYS  | 2.1  |
| 43  | BV    | 126  | ARG  | 2.1  |
| 1   | A1    | 539  | A    | 2.1  |
| 1   | D1    | 2519 | A    | 2.1  |
| 1   | F1    | 635  | A    | 2.1  |
| 1   | H1    | 55   | A    | 2.1  |
| 1   | H1    | 69   | A    | 2.1  |
| 1   | H1    | 139  | A    | 2.1  |
| 1   | H1    | 478  | A    | 2.1  |
| 1   | H1    | 492  | A    | 2.1  |
| 1   | H1    | 2764 | A    | 2.1  |
| 20  | G2    | 106  | A    | 2.1  |
| 34  | GM    | 111  | LYS  | 2.1  |
| 40  | CS    | 122  | ALA  | 2.1  |
| 42  | EU    | 121  | ALA  | 2.1  |
| 24  | EC    | 153  | GLN  | 2.1  |
| 35  | GN    | 89   | ASN  | 2.1  |
| 40  | ES    | 102  | GLN  | 2.1  |
| 43  | GV    | 8    | ASN  | 2.1  |
| 35  | GN    | 99   | LEU  | 2.1  |
| 1   | A1    | 2301 | C    | 2.1  |
| 1   | D1    | 612  | C    | 2.1  |
| 1   | D1    | 1380 | C    | 2.1  |
| 1   | F1    | 650  | C    | 2.1  |
| 1   | F1    | 2252 | C    | 2.1  |
| 1   | H1    | 193  | C    | 2.1  |
| 1   | H1    | 2618 | C    | 2.1  |
| 1   | H1    | 2858 | C    | 2.1  |
| 20  | G2    | 84   | C    | 2.1  |
| 45  | GX    | 100  | HIS  | 2.1  |
| 1   | A1    | 249  | G    | 2.1  |
| 1   | A1    | 344  | G    | 2.1  |
| 1   | A1    | 1027 | G    | 2.1  |
| 1   | A1    | 1599 | G    | 2.1  |
| 1   | D1    | 1599 | G    | 2.1  |
| 1   | D1    | 1972 | G    | 2.1  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | F1    | 443  | G    | 2.1  |
| 1   | F1    | 1047 | G    | 2.1  |
| 1   | H1    | 319  | G    | 2.1  |
| 1   | H1    | 572  | G    | 2.1  |
| 1   | H1    | 702  | G    | 2.1  |
| 1   | H1    | 975  | G    | 2.1  |
| 1   | H1    | 1089 | G    | 2.1  |
| 1   | H1    | 1248 | G    | 2.1  |
| 1   | H1    | 1404 | G    | 2.1  |
| 18  | HU    | 96   | ASP  | 2.1  |
| 20  | E2    | 54   | G    | 2.1  |
| 21  | G3    | 21   | G    | 2.1  |
| 5   | AE    | 39   | THR  | 2.1  |
| 47  | CO    | 76   | THR  | 2.1  |
| 6   | DF    | 68   | ARG  | 2.1  |
| 34  | CM    | 21   | ARG  | 2.1  |
| 1   | F1    | 149  | U    | 2.1  |
| 1   | F1    | 2499 | U    | 2.1  |
| 1   | H1    | 401  | U    | 2.1  |
| 1   | H1    | 523  | U    | 2.1  |
| 1   | H1    | 1411 | U    | 2.1  |
| 1   | H1    | 1556 | U    | 2.1  |
| 1   | H1    | 1597 | U    | 2.1  |
| 4   | HC    | 86   | CYS  | 2.1  |
| 18  | HU    | 68   | LYS  | 2.1  |
| 20  | E2    | 113  | U    | 2.1  |
| 21  | B3    | 53   | U    | 2.1  |
| 38  | EQ    | 68   | CYS  | 2.1  |
| 5   | FE    | 32   | GLN  | 2.1  |
| 27  | GF    | 44   | PHE  | 2.1  |
| 43  | BV    | 91   | GLN  | 2.1  |
| 43  | BV    | 239  | LEU  | 2.1  |
| 1   | A1    | 2276 | A    | 2.0  |
| 1   | D1    | 1668 | A    | 2.0  |
| 1   | D1    | 3308 | A    | 2.0  |
| 1   | F1    | 150  | A    | 2.0  |
| 1   | F1    | 3204 | A    | 2.0  |
| 1   | H1    | 394  | A    | 2.0  |
| 1   | H1    | 714  | A    | 2.0  |
| 1   | H1    | 1244 | A    | 2.0  |
| 1   | H1    | 2646 | A    | 2.0  |
| 6   | FF    | 85   | TYR  | 2.0  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 22  | EA    | 2    | GLY  | 2.0  |
| 27  | CF    | 128  | GLY  | 2.0  |
| 38  | EQ    | 2    | GLY  | 2.0  |
| 46  | CY    | 43   | GLY  | 2.0  |
| 8   | HH    | 72   | THR  | 2.0  |
| 18  | HU    | 62   | ARG  | 2.0  |
| 29  | GH    | 55   | ASP  | 2.0  |
| 35  | CN    | 133  | THR  | 2.0  |
| 38  | GQ    | 3    | LYS  | 2.0  |
| 43  | EV    | 184  | GLU  | 2.0  |
| 2   | HA    | 91   | ALA  | 2.0  |
| 19  | DX    | 5    | ALA  | 2.0  |
| 32  | GK    | 149  | ALA  | 2.0  |
| 35  | GN    | 164  | ALA  | 2.0  |
| 39  | GR    | 46   | ALA  | 2.0  |
| 19  | AX    | 163  | PHE  | 2.0  |
| 1   | D1    | 1306 | C    | 2.0  |
| 1   | F1    | 7    | C    | 2.0  |
| 1   | F1    | 392  | C    | 2.0  |
| 1   | F1    | 1774 | C    | 2.0  |
| 1   | H1    | 751  | C    | 2.0  |
| 1   | H1    | 973  | C    | 2.0  |
| 1   | H1    | 1846 | C    | 2.0  |
| 1   | H1    | 2726 | C    | 2.0  |
| 5   | DE    | 74   | LEU  | 2.0  |
| 20  | G2    | 107  | C    | 2.0  |
| 25  | GD    | 22   | CYS  | 2.0  |
| 32  | GK    | 145  | CYS  | 2.0  |
| 43  | GV    | 177  | CYS  | 2.0  |
| 32  | BK    | 123  | VAL  | 2.0  |
| 5   | HE    | 9    | ASN  | 2.0  |
| 1   | D1    | 462  | G    | 2.0  |
| 1   | D1    | 614  | G    | 2.0  |
| 1   | D1    | 1794 | G    | 2.0  |
| 1   | D1    | 1804 | G    | 2.0  |
| 1   | D1    | 2398 | G    | 2.0  |
| 1   | F1    | 398  | G    | 2.0  |
| 1   | F1    | 578  | G    | 2.0  |
| 1   | H1    | 51   | G    | 2.0  |
| 1   | H1    | 242  | G    | 2.0  |
| 1   | H1    | 446  | G    | 2.0  |
| 1   | H1    | 565  | G    | 2.0  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | H1    | 834  | G    | 2.0  |
| 1   | H1    | 1506 | G    | 2.0  |
| 1   | H1    | 1547 | G    | 2.0  |
| 1   | H1    | 1853 | G    | 2.0  |
| 20  | E2    | 39   | G    | 2.0  |
| 1   | A1    | 2848 | U    | 2.0  |
| 1   | D1    | 3009 | U    | 2.0  |
| 1   | F1    | 71   | U    | 2.0  |
| 1   | F1    | 1004 | U    | 2.0  |
| 1   | F1    | 1596 | U    | 2.0  |
| 1   | H1    | 154  | U    | 2.0  |
| 1   | H1    | 278  | U    | 2.0  |
| 1   | H1    | 511  | U    | 2.0  |
| 1   | H1    | 789  | U    | 2.0  |
| 1   | H1    | 1057 | U    | 2.0  |
| 1   | H1    | 1570 | U    | 2.0  |
| 1   | H1    | 2701 | U    | 2.0  |
| 24  | GC    | 180  | GLY  | 2.0  |
| 32  | BK    | 116  | GLY  | 2.0  |
| 46  | BY    | 43   | GLY  | 2.0  |
| 14  | AO    | 58   | ILE  | 2.0  |
| 18  | HU    | 161  | LYS  | 2.0  |
| 19  | HX    | 61   | LYS  | 2.0  |
| 24  | EC    | 34   | ARG  | 2.0  |
| 27  | BF    | 176  | LYS  | 2.0  |
| 29  | BH    | 203  | ARG  | 2.0  |
| 32  | EK    | 21   | ARG  | 2.0  |
| 34  | EM    | 85   | ARG  | 2.0  |
| 43  | GV    | 67   | ARG  | 2.0  |
| 34  | EM    | 72   | ASP  | 2.0  |
| 29  | EH    | 195  | SER  | 2.0  |
| 1   | F1    | 119  | A    | 2.0  |
| 1   | F1    | 435  | A    | 2.0  |
| 1   | F1    | 1550 | A    | 2.0  |
| 1   | H1    | 98   | A    | 2.0  |
| 1   | H1    | 107  | A    | 2.0  |
| 1   | H1    | 2669 | A    | 2.0  |
| 1   | H1    | 2725 | A    | 2.0  |
| 18  | HU    | 154  | VAL  | 2.0  |
| 20  | G2    | 127  | A    | 2.0  |
| 46  | GY    | 52   | VAL  | 2.0  |
| 4   | AC    | 49   | GLY  | 2.0  |

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| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 7   | FG    | 86   | ARG  | 2.0  |
| 7   | HG    | 83   | LYS  | 2.0  |
| 14  | AO    | 85   | GLY  | 2.0  |
| 29  | GH    | 158  | LYS  | 2.0  |
| 17  | HT    | 47   | ILE  | 2.0  |
| 27  | BF    | 127  | TYR  | 2.0  |
| 37  | GP    | 69   | PRO  | 2.0  |
| 14  | FO    | 32   | THR  | 2.0  |
| 1   | H1    | 378  | C    | 2.0  |
| 1   | H1    | 1403 | C    | 2.0  |
| 1   | H1    | 2164 | C    | 2.0  |
| 21  | G3    | 59   | C    | 2.0  |
| 5   | DE    | 73   | LEU  | 2.0  |
| 1   | H1    | 2702 | U    | 2.0  |
| 5   | HE    | 13   | SER  | 2.0  |
| 21  | B3    | 109  | U    | 2.0  |
| 23  | EB    | 2    | SER  | 2.0  |
| 29  | CH    | 55   | ASP  | 2.0  |
| 30  | EI    | 3    | ASP  | 2.0  |
| 1   | A1    | 1597 | U    | 2.0  |
| 1   | A1    | 2264 | U    | 2.0  |
| 1   | D1    | 1042 | U    | 2.0  |
| 1   | D1    | 1601 | U    | 2.0  |
| 1   | H1    | 35   | U    | 2.0  |
| 1   | H1    | 312  | U    | 2.0  |
| 1   | H1    | 1844 | U    | 2.0  |
| 5   | FE    | 82   | VAL  | 2.0  |

## 6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

## 6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum,

median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 48  | MG   | H1    | 3536 | 1/1   | 0.14 | 0.29 | 168,168,168,168            | 0     |
| 48  | MG   | H1    | 3489 | 1/1   | 0.15 | 0.14 | 206,206,206,206            | 0     |
| 48  | MG   | F1    | 3411 | 1/1   | 0.15 | 0.27 | 142,142,142,142            | 0     |
| 48  | MG   | H1    | 3412 | 1/1   | 0.16 | 0.40 | 173,173,173,173            | 0     |
| 48  | MG   | E2    | 205  | 1/1   | 0.18 | 0.27 | 140,140,140,140            | 0     |
| 48  | MG   | G2    | 204  | 1/1   | 0.20 | 0.21 | 181,181,181,181            | 0     |
| 48  | MG   | H1    | 3547 | 1/1   | 0.23 | 0.15 | 175,175,175,175            | 0     |
| 48  | MG   | E3    | 204  | 1/1   | 0.27 | 0.34 | 199,199,199,199            | 0     |
| 48  | MG   | A1    | 3568 | 1/1   | 0.31 | 0.14 | 173,173,173,173            | 0     |
| 48  | MG   | H1    | 3534 | 1/1   | 0.32 | 0.28 | 221,221,221,221            | 0     |
| 48  | MG   | EW    | 201  | 1/1   | 0.36 | 0.12 | 172,172,172,172            | 0     |
| 48  | MG   | C3    | 205  | 1/1   | 0.39 | 0.20 | 175,175,175,175            | 0     |
| 48  | MG   | D1    | 3463 | 1/1   | 0.39 | 0.23 | 176,176,176,176            | 0     |
| 48  | MG   | H1    | 3551 | 1/1   | 0.39 | 0.43 | 202,202,202,202            | 0     |
| 48  | MG   | G3    | 202  | 1/1   | 0.40 | 0.23 | 136,136,136,136            | 0     |
| 48  | MG   | D1    | 3446 | 1/1   | 0.43 | 0.24 | 176,176,176,176            | 0     |
| 48  | MG   | D1    | 3611 | 1/1   | 0.44 | 0.31 | 205,205,205,205            | 0     |
| 48  | MG   | F1    | 3566 | 1/1   | 0.44 | 0.35 | 146,146,146,146            | 0     |
| 48  | MG   | C3    | 207  | 1/1   | 0.45 | 0.22 | 160,160,160,160            | 0     |
| 48  | MG   | H1    | 3532 | 1/1   | 0.46 | 0.17 | 162,162,162,162            | 0     |
| 48  | MG   | F1    | 3422 | 1/1   | 0.47 | 0.19 | 149,149,149,149            | 0     |
| 48  | MG   | F1    | 3430 | 1/1   | 0.49 | 0.13 | 128,128,128,128            | 0     |
| 48  | MG   | A1    | 3593 | 1/1   | 0.50 | 0.17 | 158,158,158,158            | 0     |
| 48  | MG   | A1    | 3427 | 1/1   | 0.51 | 0.16 | 152,152,152,152            | 0     |
| 48  | MG   | B3    | 203  | 1/1   | 0.52 | 0.12 | 160,160,160,160            | 0     |
| 48  | MG   | D1    | 3528 | 1/1   | 0.53 | 0.15 | 123,123,123,123            | 0     |
| 48  | MG   | H1    | 3479 | 1/1   | 0.54 | 0.19 | 132,132,132,132            | 0     |
| 48  | MG   | A1    | 3585 | 1/1   | 0.55 | 0.16 | 152,152,152,152            | 0     |
| 48  | MG   | A1    | 3522 | 1/1   | 0.55 | 0.29 | 146,146,146,146            | 0     |
| 48  | MG   | D1    | 3592 | 1/1   | 0.56 | 0.27 | 159,159,159,159            | 0     |
| 48  | MG   | A1    | 3588 | 1/1   | 0.58 | 0.16 | 144,144,144,144            | 0     |
| 48  | MG   | F1    | 3575 | 1/1   | 0.58 | 0.14 | 130,130,130,130            | 0     |
| 48  | MG   | D1    | 3625 | 1/1   | 0.58 | 0.10 | 164,164,164,164            | 0     |
| 48  | MG   | E2    | 206  | 1/1   | 0.59 | 0.17 | 151,151,151,151            | 0     |
| 48  | MG   | A1    | 3573 | 1/1   | 0.59 | 0.28 | 186,186,186,186            | 0     |
| 48  | MG   | G3    | 205  | 1/1   | 0.60 | 0.16 | 171,171,171,171            | 0     |
| 48  | MG   | H1    | 3406 | 1/1   | 0.60 | 0.09 | 143,143,143,143            | 0     |
| 48  | MG   | B2    | 207  | 1/1   | 0.61 | 0.21 | 149,149,149,149            | 0     |
| 48  | MG   | G2    | 206  | 1/1   | 0.61 | 0.24 | 174,174,174,174            | 0     |
| 48  | MG   | H1    | 3531 | 1/1   | 0.61 | 0.15 | 157,157,157,157            | 0     |
| 48  | MG   | F1    | 3561 | 1/1   | 0.61 | 0.16 | 167,167,167,167            | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | D1    | 3608 | 1/1   | 0.62 | 0.12 | 115,115,115,115             | 0     |
| 48  | MG   | H1    | 3450 | 1/1   | 0.62 | 0.14 | 156,156,156,156             | 0     |
| 48  | MG   | D1    | 3548 | 1/1   | 0.62 | 0.16 | 183,183,183,183             | 0     |
| 48  | MG   | GN    | 201  | 1/1   | 0.62 | 0.19 | 212,212,212,212             | 0     |
| 48  | MG   | D1    | 3470 | 1/1   | 0.62 | 0.19 | 134,134,134,134             | 0     |
| 48  | MG   | H1    | 3529 | 1/1   | 0.63 | 0.26 | 214,214,214,214             | 0     |
| 48  | MG   | H1    | 3540 | 1/1   | 0.63 | 0.12 | 136,136,136,136             | 0     |
| 48  | MG   | F1    | 3560 | 1/1   | 0.64 | 0.15 | 169,169,169,169             | 0     |
| 48  | MG   | F1    | 3421 | 1/1   | 0.64 | 0.16 | 174,174,174,174             | 0     |
| 48  | MG   | D1    | 3433 | 1/1   | 0.64 | 0.10 | 149,149,149,149             | 0     |
| 48  | MG   | H1    | 3414 | 1/1   | 0.64 | 0.14 | 169,169,169,169             | 0     |
| 48  | MG   | D1    | 3437 | 1/1   | 0.64 | 0.12 | 148,148,148,148             | 0     |
| 48  | MG   | F1    | 3509 | 1/1   | 0.65 | 0.10 | 144,144,144,144             | 0     |
| 48  | MG   | A1    | 3430 | 1/1   | 0.65 | 0.14 | 146,146,146,146             | 0     |
| 48  | MG   | A1    | 3587 | 1/1   | 0.65 | 0.24 | 182,182,182,182             | 0     |
| 48  | MG   | D1    | 3624 | 1/1   | 0.65 | 0.17 | 162,162,162,162             | 0     |
| 48  | MG   | A1    | 3527 | 1/1   | 0.66 | 0.13 | 119,119,119,119             | 0     |
| 48  | MG   | A1    | 3437 | 1/1   | 0.66 | 0.19 | 141,141,141,141             | 0     |
| 48  | MG   | A1    | 3451 | 1/1   | 0.66 | 0.11 | 146,146,146,146             | 0     |
| 48  | MG   | D1    | 3598 | 1/1   | 0.66 | 0.11 | 159,159,159,159             | 0     |
| 48  | MG   | A1    | 3435 | 1/1   | 0.66 | 0.24 | 151,151,151,151             | 0     |
| 48  | MG   | F1    | 3574 | 1/1   | 0.67 | 0.19 | 161,161,161,161             | 0     |
| 48  | MG   | F1    | 3539 | 1/1   | 0.67 | 0.23 | 187,187,187,187             | 0     |
| 48  | MG   | F1    | 3490 | 1/1   | 0.67 | 0.12 | 139,139,139,139             | 0     |
| 48  | MG   | F1    | 3565 | 1/1   | 0.68 | 0.16 | 168,168,168,168             | 0     |
| 48  | MG   | H1    | 3477 | 1/1   | 0.68 | 0.17 | 103,103,103,103             | 0     |
| 48  | MG   | H1    | 3511 | 1/1   | 0.69 | 0.12 | 140,140,140,140             | 0     |
| 48  | MG   | H1    | 3525 | 1/1   | 0.69 | 0.17 | 157,157,157,157             | 0     |
| 48  | MG   | D1    | 3550 | 1/1   | 0.69 | 0.16 | 136,136,136,136             | 0     |
| 48  | MG   | C2    | 206  | 1/1   | 0.69 | 0.14 | 123,123,123,123             | 0     |
| 48  | MG   | A1    | 3402 | 1/1   | 0.69 | 0.15 | 143,143,143,143             | 0     |
| 48  | MG   | A1    | 3515 | 1/1   | 0.70 | 0.17 | 111,111,111,111             | 0     |
| 48  | MG   | H1    | 3436 | 1/1   | 0.70 | 0.10 | 146,146,146,146             | 0     |
| 48  | MG   | F1    | 3415 | 1/1   | 0.70 | 0.12 | 118,118,118,118             | 0     |
| 48  | MG   | F1    | 3493 | 1/1   | 0.70 | 0.19 | 145,145,145,145             | 0     |
| 48  | MG   | F1    | 3483 | 1/1   | 0.71 | 0.15 | 129,129,129,129             | 0     |
| 48  | MG   | H1    | 3537 | 1/1   | 0.71 | 0.11 | 152,152,152,152             | 0     |
| 48  | MG   | F1    | 3537 | 1/1   | 0.71 | 0.14 | 136,136,136,136             | 0     |
| 48  | MG   | D1    | 3603 | 1/1   | 0.71 | 0.18 | 125,125,125,125             | 0     |
| 48  | MG   | H1    | 3550 | 1/1   | 0.71 | 0.10 | 152,152,152,152             | 0     |
| 48  | MG   | A1    | 3530 | 1/1   | 0.71 | 0.12 | 149,149,149,149             | 0     |
| 48  | MG   | E2    | 207  | 1/1   | 0.72 | 0.14 | 147,147,147,147             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | A1    | 3586 | 1/1   | 0.72 | 0.11 | 177,177,177,177             | 0     |
| 48  | MG   | H1    | 3544 | 1/1   | 0.72 | 0.18 | 146,146,146,146             | 0     |
| 48  | MG   | H1    | 3418 | 1/1   | 0.72 | 0.11 | 141,141,141,141             | 0     |
| 48  | MG   | F1    | 3578 | 1/1   | 0.72 | 0.20 | 161,161,161,161             | 0     |
| 48  | MG   | H1    | 3410 | 1/1   | 0.72 | 0.13 | 192,192,192,192             | 0     |
| 48  | MG   | H1    | 3538 | 1/1   | 0.73 | 0.14 | 140,140,140,140             | 0     |
| 48  | MG   | D1    | 3583 | 1/1   | 0.73 | 0.09 | 139,139,139,139             | 0     |
| 48  | MG   | H1    | 3473 | 1/1   | 0.73 | 0.10 | 123,123,123,123             | 0     |
| 48  | MG   | H1    | 3519 | 1/1   | 0.73 | 0.13 | 151,151,151,151             | 0     |
| 48  | MG   | A1    | 3420 | 1/1   | 0.73 | 0.15 | 155,155,155,155             | 0     |
| 48  | MG   | A1    | 3428 | 1/1   | 0.73 | 0.16 | 159,159,159,159             | 0     |
| 48  | MG   | D1    | 3426 | 1/1   | 0.74 | 0.13 | 143,143,143,143             | 0     |
| 48  | MG   | H1    | 3535 | 1/1   | 0.74 | 0.18 | 150,150,150,150             | 0     |
| 48  | MG   | A1    | 3449 | 1/1   | 0.74 | 0.14 | 115,115,115,115             | 0     |
| 48  | MG   | D1    | 3434 | 1/1   | 0.74 | 0.12 | 144,144,144,144             | 0     |
| 48  | MG   | A1    | 3416 | 1/1   | 0.74 | 0.11 | 140,140,140,140             | 0     |
| 48  | MG   | D1    | 3606 | 1/1   | 0.74 | 0.17 | 157,157,157,157             | 0     |
| 48  | MG   | H1    | 3543 | 1/1   | 0.74 | 0.06 | 183,183,183,183             | 0     |
| 48  | MG   | F1    | 3540 | 1/1   | 0.74 | 0.12 | 111,111,111,111             | 0     |
| 48  | MG   | F1    | 3545 | 1/1   | 0.74 | 0.09 | 137,137,137,137             | 0     |
| 48  | MG   | A1    | 3438 | 1/1   | 0.74 | 0.10 | 148,148,148,148             | 0     |
| 48  | MG   | D1    | 3609 | 1/1   | 0.74 | 0.18 | 120,120,120,120             | 0     |
| 48  | MG   | A1    | 3453 | 1/1   | 0.75 | 0.14 | 184,184,184,184             | 0     |
| 48  | MG   | H1    | 3481 | 1/1   | 0.75 | 0.16 | 134,134,134,134             | 0     |
| 48  | MG   | D1    | 3576 | 1/1   | 0.75 | 0.13 | 150,150,150,150             | 0     |
| 48  | MG   | F1    | 3576 | 1/1   | 0.75 | 0.12 | 142,142,142,142             | 0     |
| 48  | MG   | B3    | 201  | 1/1   | 0.76 | 0.10 | 129,129,129,129             | 0     |
| 48  | MG   | A1    | 3580 | 1/1   | 0.76 | 0.10 | 130,130,130,130             | 0     |
| 48  | MG   | D1    | 3597 | 1/1   | 0.76 | 0.13 | 158,158,158,158             | 0     |
| 48  | MG   | EN    | 202  | 1/1   | 0.76 | 0.38 | 238,238,238,238             | 0     |
| 48  | MG   | A1    | 3551 | 1/1   | 0.77 | 0.18 | 123,123,123,123             | 0     |
| 48  | MG   | D1    | 3401 | 1/1   | 0.77 | 0.15 | 109,109,109,109             | 0     |
| 48  | MG   | F1    | 3424 | 1/1   | 0.77 | 0.14 | 114,114,114,114             | 0     |
| 48  | MG   | D1    | 3421 | 1/1   | 0.77 | 0.10 | 126,126,126,126             | 0     |
| 48  | MG   | H1    | 3470 | 1/1   | 0.77 | 0.11 | 140,140,140,140             | 0     |
| 48  | MG   | H1    | 3401 | 1/1   | 0.77 | 0.09 | 146,146,146,146             | 0     |
| 48  | MG   | B2    | 208  | 1/1   | 0.77 | 0.14 | 138,138,138,138             | 0     |
| 48  | MG   | A1    | 3555 | 1/1   | 0.77 | 0.17 | 128,128,128,128             | 0     |
| 48  | MG   | D1    | 3588 | 1/1   | 0.77 | 0.12 | 156,156,156,156             | 0     |
| 48  | MG   | G3    | 204  | 1/1   | 0.78 | 0.23 | 143,143,143,143             | 0     |
| 48  | MG   | F1    | 3555 | 1/1   | 0.78 | 0.16 | 168,168,168,168             | 0     |
| 48  | MG   | D1    | 3593 | 1/1   | 0.78 | 0.15 | 180,180,180,180             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | G2    | 205  | 1/1   | 0.78 | 0.10 | 146,146,146,146             | 0     |
| 48  | MG   | H1    | 3482 | 1/1   | 0.78 | 0.12 | 162,162,162,162             | 0     |
| 48  | MG   | A1    | 3556 | 1/1   | 0.78 | 0.15 | 124,124,124,124             | 0     |
| 48  | MG   | H1    | 3548 | 1/1   | 0.78 | 0.11 | 188,188,188,188             | 0     |
| 48  | MG   | H1    | 3549 | 1/1   | 0.78 | 0.19 | 124,124,124,124             | 0     |
| 48  | MG   | H1    | 3501 | 1/1   | 0.78 | 0.16 | 110,110,110,110             | 0     |
| 48  | MG   | A1    | 3472 | 1/1   | 0.78 | 0.15 | 149,149,149,149             | 0     |
| 48  | MG   | H1    | 3546 | 1/1   | 0.79 | 0.14 | 120,120,120,120             | 0     |
| 48  | MG   | D1    | 3616 | 1/1   | 0.79 | 0.09 | 150,150,150,150             | 0     |
| 48  | MG   | D1    | 3599 | 1/1   | 0.79 | 0.11 | 126,126,126,126             | 0     |
| 48  | MG   | D1    | 3605 | 1/1   | 0.79 | 0.11 | 108,108,108,108             | 0     |
| 48  | MG   | D1    | 3626 | 1/1   | 0.79 | 0.11 | 137,137,137,137             | 0     |
| 48  | MG   | F1    | 3522 | 1/1   | 0.79 | 0.10 | 111,111,111,111             | 0     |
| 48  | MG   | HT    | 101  | 1/1   | 0.79 | 0.07 | 174,174,174,174             | 0     |
| 48  | MG   | F1    | 3414 | 1/1   | 0.80 | 0.11 | 123,123,123,123             | 0     |
| 48  | MG   | D1    | 3497 | 1/1   | 0.80 | 0.20 | 151,151,151,151             | 0     |
| 48  | MG   | D1    | 3514 | 1/1   | 0.80 | 0.08 | 128,128,128,128             | 0     |
| 48  | MG   | A1    | 3414 | 1/1   | 0.80 | 0.08 | 142,142,142,142             | 0     |
| 48  | MG   | A1    | 3576 | 1/1   | 0.80 | 0.19 | 122,122,122,122             | 0     |
| 48  | MG   | A1    | 3567 | 1/1   | 0.80 | 0.14 | 144,144,144,144             | 0     |
| 48  | MG   | D1    | 3445 | 1/1   | 0.80 | 0.14 | 126,126,126,126             | 0     |
| 48  | MG   | A1    | 3422 | 1/1   | 0.80 | 0.13 | 144,144,144,144             | 0     |
| 48  | MG   | F1    | 3572 | 1/1   | 0.80 | 0.18 | 155,155,155,155             | 0     |
| 48  | MG   | H1    | 3516 | 1/1   | 0.80 | 0.08 | 129,129,129,129             | 0     |
| 48  | MG   | E3    | 205  | 1/1   | 0.80 | 0.15 | 127,127,127,127             | 0     |
| 48  | MG   | D1    | 3448 | 1/1   | 0.80 | 0.10 | 125,125,125,125             | 0     |
| 48  | MG   | F1    | 3511 | 1/1   | 0.80 | 0.14 | 154,154,154,154             | 0     |
| 48  | MG   | D1    | 3422 | 1/1   | 0.80 | 0.10 | 150,150,150,150             | 0     |
| 48  | MG   | B2    | 201  | 1/1   | 0.80 | 0.12 | 119,119,119,119             | 0     |
| 48  | MG   | A1    | 3578 | 1/1   | 0.81 | 0.09 | 117,117,117,117             | 0     |
| 48  | MG   | A1    | 3595 | 1/1   | 0.81 | 0.26 | 151,151,151,151             | 0     |
| 48  | MG   | F1    | 3567 | 1/1   | 0.81 | 0.14 | 128,128,128,128             | 0     |
| 48  | MG   | F1    | 3570 | 1/1   | 0.81 | 0.14 | 113,113,113,113             | 0     |
| 48  | MG   | A1    | 3417 | 1/1   | 0.81 | 0.12 | 150,150,150,150             | 0     |
| 48  | MG   | H1    | 3541 | 1/1   | 0.81 | 0.12 | 154,154,154,154             | 0     |
| 48  | MG   | D1    | 3521 | 1/1   | 0.81 | 0.21 | 129,129,129,129             | 0     |
| 48  | MG   | H1    | 3411 | 1/1   | 0.81 | 0.09 | 120,120,120,120             | 0     |
| 48  | MG   | D1    | 3424 | 1/1   | 0.81 | 0.13 | 150,150,150,150             | 0     |
| 48  | MG   | D1    | 3596 | 1/1   | 0.81 | 0.13 | 165,165,165,165             | 0     |
| 48  | MG   | F1    | 3477 | 1/1   | 0.81 | 0.12 | 146,146,146,146             | 0     |
| 48  | MG   | D1    | 3540 | 1/1   | 0.81 | 0.12 | 139,139,139,139             | 0     |
| 48  | MG   | A1    | 3401 | 1/1   | 0.81 | 0.10 | 108,108,108,108             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | A1    | 3589 | 1/1   | 0.81 | 0.11 | 113,113,113,113             | 0     |
| 48  | MG   | F1    | 3563 | 1/1   | 0.81 | 0.13 | 124,124,124,124             | 0     |
| 48  | MG   | F1    | 3580 | 1/1   | 0.82 | 0.11 | 147,147,147,147             | 0     |
| 48  | MG   | D1    | 3571 | 1/1   | 0.82 | 0.28 | 130,130,130,130             | 0     |
| 48  | MG   | A1    | 3592 | 1/1   | 0.82 | 0.08 | 134,134,134,134             | 0     |
| 48  | MG   | F1    | 3457 | 1/1   | 0.82 | 0.12 | 91,91,91,91                 | 0     |
| 48  | MG   | H1    | 3465 | 1/1   | 0.82 | 0.07 | 143,143,143,143             | 0     |
| 48  | MG   | H1    | 3553 | 1/1   | 0.82 | 0.13 | 146,146,146,146             | 0     |
| 48  | MG   | GO    | 201  | 1/1   | 0.82 | 0.14 | 141,141,141,141             | 0     |
| 48  | MG   | H1    | 3457 | 1/1   | 0.83 | 0.11 | 147,147,147,147             | 0     |
| 48  | MG   | A1    | 3594 | 1/1   | 0.83 | 0.15 | 150,150,150,150             | 0     |
| 48  | MG   | F1    | 3569 | 1/1   | 0.83 | 0.14 | 130,130,130,130             | 0     |
| 48  | MG   | A1    | 3424 | 1/1   | 0.83 | 0.20 | 150,150,150,150             | 0     |
| 48  | MG   | A1    | 3596 | 1/1   | 0.83 | 0.09 | 163,163,163,163             | 0     |
| 48  | MG   | F1    | 3482 | 1/1   | 0.83 | 0.12 | 130,130,130,130             | 0     |
| 48  | MG   | D1    | 3565 | 1/1   | 0.83 | 0.12 | 114,114,114,114             | 0     |
| 48  | MG   | H1    | 3402 | 1/1   | 0.83 | 0.09 | 118,118,118,118             | 0     |
| 48  | MG   | F1    | 3419 | 1/1   | 0.83 | 0.07 | 124,124,124,124             | 0     |
| 48  | MG   | D1    | 3522 | 1/1   | 0.83 | 0.16 | 162,162,162,162             | 0     |
| 48  | MG   | F1    | 3496 | 1/1   | 0.83 | 0.14 | 122,122,122,122             | 0     |
| 48  | MG   | FK    | 201  | 1/1   | 0.83 | 0.21 | 168,168,168,168             | 0     |
| 48  | MG   | G2    | 201  | 1/1   | 0.83 | 0.09 | 141,141,141,141             | 0     |
| 48  | MG   | E3    | 206  | 1/1   | 0.83 | 0.12 | 132,132,132,132             | 0     |
| 48  | MG   | A1    | 3513 | 1/1   | 0.83 | 0.10 | 133,133,133,133             | 0     |
| 48  | MG   | H1    | 3443 | 1/1   | 0.83 | 0.11 | 157,157,157,157             | 0     |
| 48  | MG   | F1    | 3515 | 1/1   | 0.83 | 0.08 | 143,143,143,143             | 0     |
| 48  | MG   | F1    | 3564 | 1/1   | 0.84 | 0.11 | 143,143,143,143             | 0     |
| 48  | MG   | H1    | 3521 | 1/1   | 0.84 | 0.14 | 123,123,123,123             | 0     |
| 48  | MG   | C2    | 205  | 1/1   | 0.84 | 0.11 | 127,127,127,127             | 0     |
| 48  | MG   | D1    | 3547 | 1/1   | 0.84 | 0.10 | 109,109,109,109             | 0     |
| 48  | MG   | D1    | 3516 | 1/1   | 0.84 | 0.15 | 82,82,82,82                 | 0     |
| 48  | MG   | F1    | 3548 | 1/1   | 0.84 | 0.11 | 106,106,106,106             | 0     |
| 48  | MG   | H1    | 3533 | 1/1   | 0.84 | 0.15 | 153,153,153,153             | 0     |
| 48  | MG   | H1    | 3484 | 1/1   | 0.84 | 0.10 | 166,166,166,166             | 0     |
| 48  | MG   | D1    | 3601 | 1/1   | 0.84 | 0.11 | 124,124,124,124             | 0     |
| 48  | MG   | B2    | 202  | 1/1   | 0.84 | 0.09 | 103,103,103,103             | 0     |
| 48  | MG   | D1    | 3417 | 1/1   | 0.84 | 0.10 | 132,132,132,132             | 0     |
| 48  | MG   | BN    | 201  | 1/1   | 0.84 | 0.11 | 147,147,147,147             | 0     |
| 48  | MG   | F1    | 3448 | 1/1   | 0.85 | 0.07 | 126,126,126,126             | 0     |
| 48  | MG   | D1    | 3427 | 1/1   | 0.85 | 0.12 | 153,153,153,153             | 0     |
| 48  | MG   | A1    | 3444 | 1/1   | 0.85 | 0.10 | 126,126,126,126             | 0     |
| 48  | MG   | H1    | 3523 | 1/1   | 0.85 | 0.09 | 167,167,167,167             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | CN    | 201  | 1/1   | 0.85 | 0.15 | 175,175,175,175             | 0     |
| 48  | MG   | AK    | 202  | 1/1   | 0.85 | 0.11 | 179,179,179,179             | 0     |
| 48  | MG   | H1    | 3415 | 1/1   | 0.85 | 0.08 | 133,133,133,133             | 0     |
| 48  | MG   | D1    | 3551 | 1/1   | 0.85 | 0.10 | 142,142,142,142             | 0     |
| 48  | MG   | H1    | 3420 | 1/1   | 0.85 | 0.12 | 113,113,113,113             | 0     |
| 48  | MG   | F1    | 3401 | 1/1   | 0.85 | 0.13 | 101,101,101,101             | 0     |
| 48  | MG   | A1    | 3441 | 1/1   | 0.85 | 0.12 | 127,127,127,127             | 0     |
| 48  | MG   | H1    | 3449 | 1/1   | 0.85 | 0.17 | 118,118,118,118             | 0     |
| 48  | MG   | H1    | 3554 | 1/1   | 0.85 | 0.13 | 128,128,128,128             | 0     |
| 48  | MG   | F1    | 3444 | 1/1   | 0.85 | 0.09 | 155,155,155,155             | 0     |
| 48  | MG   | F1    | 3549 | 1/1   | 0.86 | 0.07 | 125,125,125,125             | 0     |
| 48  | MG   | H1    | 3404 | 1/1   | 0.86 | 0.07 | 132,132,132,132             | 0     |
| 48  | MG   | F1    | 3428 | 1/1   | 0.86 | 0.09 | 111,111,111,111             | 0     |
| 48  | MG   | H1    | 3409 | 1/1   | 0.86 | 0.15 | 193,193,193,193             | 0     |
| 48  | MG   | D1    | 3543 | 1/1   | 0.86 | 0.12 | 127,127,127,127             | 0     |
| 48  | MG   | H1    | 3539 | 1/1   | 0.86 | 0.10 | 128,128,128,128             | 0     |
| 48  | MG   | D1    | 3575 | 1/1   | 0.86 | 0.09 | 124,124,124,124             | 0     |
| 48  | MG   | F1    | 3503 | 1/1   | 0.86 | 0.12 | 129,129,129,129             | 0     |
| 48  | MG   | H1    | 3542 | 1/1   | 0.86 | 0.13 | 137,137,137,137             | 0     |
| 48  | MG   | D1    | 3475 | 1/1   | 0.86 | 0.15 | 120,120,120,120             | 0     |
| 48  | MG   | F1    | 3453 | 1/1   | 0.86 | 0.12 | 131,131,131,131             | 0     |
| 48  | MG   | DJ    | 301  | 1/1   | 0.86 | 0.07 | 150,150,150,150             | 0     |
| 48  | MG   | F1    | 3462 | 1/1   | 0.86 | 0.07 | 118,118,118,118             | 0     |
| 48  | MG   | F1    | 3466 | 1/1   | 0.86 | 0.09 | 140,140,140,140             | 0     |
| 48  | MG   | E2    | 201  | 1/1   | 0.86 | 0.08 | 156,156,156,156             | 0     |
| 48  | MG   | GA    | 301  | 1/1   | 0.86 | 0.07 | 142,142,142,142             | 0     |
| 48  | MG   | A1    | 3510 | 1/1   | 0.86 | 0.10 | 109,109,109,109             | 0     |
| 48  | MG   | D1    | 3586 | 1/1   | 0.86 | 0.09 | 109,109,109,109             | 0     |
| 48  | MG   | GP    | 202  | 1/1   | 0.86 | 0.08 | 137,137,137,137             | 0     |
| 48  | MG   | F1    | 3488 | 1/1   | 0.86 | 0.12 | 110,110,110,110             | 0     |
| 48  | MG   | A1    | 3547 | 1/1   | 0.87 | 0.16 | 81,81,81,81                 | 0     |
| 48  | MG   | D1    | 3604 | 1/1   | 0.87 | 0.09 | 141,141,141,141             | 0     |
| 48  | MG   | D1    | 3622 | 1/1   | 0.87 | 0.15 | 133,133,133,133             | 0     |
| 48  | MG   | A1    | 3574 | 1/1   | 0.87 | 0.08 | 119,119,119,119             | 0     |
| 48  | MG   | H1    | 3496 | 1/1   | 0.87 | 0.10 | 141,141,141,141             | 0     |
| 48  | MG   | F1    | 3473 | 1/1   | 0.87 | 0.09 | 156,156,156,156             | 0     |
| 48  | MG   | D1    | 3444 | 1/1   | 0.87 | 0.07 | 139,139,139,139             | 0     |
| 48  | MG   | A1    | 3485 | 1/1   | 0.87 | 0.12 | 137,137,137,137             | 0     |
| 48  | MG   | F1    | 3447 | 1/1   | 0.87 | 0.07 | 156,156,156,156             | 0     |
| 48  | MG   | F1    | 3529 | 1/1   | 0.87 | 0.21 | 140,140,140,140             | 0     |
| 48  | MG   | A1    | 3504 | 1/1   | 0.87 | 0.19 | 138,138,138,138             | 0     |
| 48  | MG   | F1    | 3538 | 1/1   | 0.87 | 0.22 | 113,113,113,113             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | H1    | 3448 | 1/1   | 0.88 | 0.10 | 98,98,98,98                 | 0     |
| 48  | MG   | H1    | 3509 | 1/1   | 0.88 | 0.07 | 143,143,143,143             | 0     |
| 48  | MG   | D1    | 3439 | 1/1   | 0.88 | 0.10 | 146,146,146,146             | 0     |
| 48  | MG   | A1    | 3491 | 1/1   | 0.88 | 0.08 | 125,125,125,125             | 0     |
| 48  | MG   | D1    | 3482 | 1/1   | 0.88 | 0.08 | 106,106,106,106             | 0     |
| 48  | MG   | F1    | 3559 | 1/1   | 0.88 | 0.07 | 133,133,133,133             | 0     |
| 48  | MG   | H1    | 3469 | 1/1   | 0.88 | 0.11 | 119,119,119,119             | 0     |
| 48  | MG   | D1    | 3623 | 1/1   | 0.88 | 0.11 | 151,151,151,151             | 0     |
| 48  | MG   | F1    | 3469 | 1/1   | 0.88 | 0.09 | 112,112,112,112             | 0     |
| 48  | MG   | F1    | 3562 | 1/1   | 0.88 | 0.09 | 140,140,140,140             | 0     |
| 48  | MG   | B2    | 206  | 1/1   | 0.88 | 0.13 | 139,139,139,139             | 0     |
| 48  | MG   | F1    | 3501 | 1/1   | 0.88 | 0.08 | 116,116,116,116             | 0     |
| 48  | MG   | F1    | 3475 | 1/1   | 0.88 | 0.13 | 93,93,93,93                 | 0     |
| 48  | MG   | H1    | 3552 | 1/1   | 0.88 | 0.10 | 131,131,131,131             | 0     |
| 48  | MG   | H1    | 3431 | 1/1   | 0.88 | 0.10 | 94,94,94,94                 | 0     |
| 48  | MG   | FT    | 101  | 1/1   | 0.88 | 0.07 | 124,124,124,124             | 0     |
| 48  | MG   | D1    | 3467 | 1/1   | 0.88 | 0.08 | 123,123,123,123             | 0     |
| 48  | MG   | A1    | 3581 | 1/1   | 0.89 | 0.10 | 126,126,126,126             | 0     |
| 48  | MG   | A1    | 3584 | 1/1   | 0.89 | 0.11 | 125,125,125,125             | 0     |
| 48  | MG   | H1    | 3472 | 1/1   | 0.89 | 0.11 | 104,104,104,104             | 0     |
| 48  | MG   | F1    | 3431 | 1/1   | 0.89 | 0.07 | 103,103,103,103             | 0     |
| 48  | MG   | A1    | 3423 | 1/1   | 0.89 | 0.08 | 115,115,115,115             | 0     |
| 48  | MG   | D1    | 3613 | 1/1   | 0.89 | 0.07 | 120,120,120,120             | 0     |
| 48  | MG   | A1    | 3554 | 1/1   | 0.89 | 0.12 | 76,76,76,76                 | 0     |
| 48  | MG   | D1    | 3617 | 1/1   | 0.89 | 0.17 | 113,113,113,113             | 0     |
| 48  | MG   | D1    | 3442 | 1/1   | 0.89 | 0.12 | 126,126,126,126             | 0     |
| 48  | MG   | H1    | 3486 | 1/1   | 0.89 | 0.09 | 105,105,105,105             | 0     |
| 48  | MG   | D1    | 3506 | 1/1   | 0.89 | 0.09 | 132,132,132,132             | 0     |
| 48  | MG   | A1    | 3412 | 1/1   | 0.89 | 0.14 | 117,117,117,117             | 0     |
| 48  | MG   | H1    | 3422 | 1/1   | 0.89 | 0.06 | 151,151,151,151             | 0     |
| 48  | MG   | F1    | 3527 | 1/1   | 0.89 | 0.17 | 105,105,105,105             | 0     |
| 48  | MG   | H1    | 3510 | 1/1   | 0.89 | 0.13 | 120,120,120,120             | 0     |
| 48  | MG   | C2    | 201  | 1/1   | 0.89 | 0.08 | 121,121,121,121             | 0     |
| 48  | MG   | D1    | 3517 | 1/1   | 0.89 | 0.13 | 127,127,127,127             | 0     |
| 48  | MG   | A1    | 3531 | 1/1   | 0.89 | 0.10 | 128,128,128,128             | 0     |
| 48  | MG   | F1    | 3571 | 1/1   | 0.89 | 0.09 | 132,132,132,132             | 0     |
| 48  | MG   | A1    | 3564 | 1/1   | 0.89 | 0.06 | 141,141,141,141             | 0     |
| 48  | MG   | H1    | 3524 | 1/1   | 0.89 | 0.13 | 139,139,139,139             | 0     |
| 48  | MG   | E2    | 202  | 1/1   | 0.89 | 0.11 | 89,89,89,89                 | 0     |
| 48  | MG   | A1    | 3408 | 1/1   | 0.89 | 0.09 | 122,122,122,122             | 0     |
| 48  | MG   | H1    | 3530 | 1/1   | 0.89 | 0.07 | 154,154,154,154             | 0     |
| 48  | MG   | F1    | 3464 | 1/1   | 0.90 | 0.11 | 120,120,120,120             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | D1    | 3499 | 1/1   | 0.90 | 0.09 | 118,118,118,118             | 0     |
| 48  | MG   | H1    | 3468 | 1/1   | 0.90 | 0.09 | 121,121,121,121             | 0     |
| 48  | MG   | F1    | 3468 | 1/1   | 0.90 | 0.10 | 103,103,103,103             | 0     |
| 48  | MG   | A1    | 3507 | 1/1   | 0.90 | 0.08 | 129,129,129,129             | 0     |
| 48  | MG   | A1    | 3579 | 1/1   | 0.90 | 0.28 | 94,94,94,94                 | 0     |
| 48  | MG   | D1    | 3562 | 1/1   | 0.90 | 0.09 | 93,93,93,93                 | 0     |
| 48  | MG   | A1    | 3436 | 1/1   | 0.90 | 0.09 | 110,110,110,110             | 0     |
| 48  | MG   | H1    | 3408 | 1/1   | 0.90 | 0.09 | 111,111,111,111             | 0     |
| 48  | MG   | F1    | 3542 | 1/1   | 0.90 | 0.09 | 107,107,107,107             | 0     |
| 48  | MG   | F1    | 3577 | 1/1   | 0.90 | 0.07 | 152,152,152,152             | 0     |
| 48  | MG   | A1    | 3403 | 1/1   | 0.90 | 0.08 | 96,96,96,96                 | 0     |
| 48  | MG   | D1    | 3412 | 1/1   | 0.90 | 0.12 | 95,95,95,95                 | 0     |
| 48  | MG   | D1    | 3416 | 1/1   | 0.90 | 0.11 | 110,110,110,110             | 0     |
| 48  | MG   | F1    | 3446 | 1/1   | 0.90 | 0.11 | 130,130,130,130             | 0     |
| 48  | MG   | A1    | 3583 | 1/1   | 0.90 | 0.15 | 112,112,112,112             | 0     |
| 48  | MG   | A1    | 3505 | 1/1   | 0.90 | 0.11 | 137,137,137,137             | 0     |
| 48  | MG   | F1    | 3498 | 1/1   | 0.90 | 0.06 | 141,141,141,141             | 0     |
| 48  | MG   | F1    | 3451 | 1/1   | 0.90 | 0.16 | 122,122,122,122             | 0     |
| 48  | MG   | H1    | 3433 | 1/1   | 0.90 | 0.08 | 132,132,132,132             | 0     |
| 48  | MG   | G3    | 201  | 1/1   | 0.90 | 0.08 | 119,119,119,119             | 0     |
| 48  | MG   | D1    | 3491 | 1/1   | 0.90 | 0.07 | 97,97,97,97                 | 0     |
| 48  | MG   | A1    | 3516 | 1/1   | 0.90 | 0.11 | 88,88,88,88                 | 0     |
| 48  | MG   | F1    | 3417 | 1/1   | 0.90 | 0.09 | 110,110,110,110             | 0     |
| 48  | MG   | F1    | 3463 | 1/1   | 0.90 | 0.09 | 100,100,100,100             | 0     |
| 48  | MG   | H1    | 3528 | 1/1   | 0.90 | 0.10 | 119,119,119,119             | 0     |
| 48  | MG   | D1    | 3525 | 1/1   | 0.91 | 0.09 | 113,113,113,113             | 0     |
| 48  | MG   | F1    | 3413 | 1/1   | 0.91 | 0.12 | 110,110,110,110             | 0     |
| 48  | MG   | D1    | 3574 | 1/1   | 0.91 | 0.13 | 80,80,80,80                 | 0     |
| 48  | MG   | A1    | 3470 | 1/1   | 0.91 | 0.08 | 164,164,164,164             | 0     |
| 48  | MG   | H1    | 3474 | 1/1   | 0.91 | 0.07 | 123,123,123,123             | 0     |
| 48  | MG   | A1    | 3575 | 1/1   | 0.91 | 0.08 | 143,143,143,143             | 0     |
| 48  | MG   | G2    | 202  | 1/1   | 0.91 | 0.11 | 122,122,122,122             | 0     |
| 48  | MG   | D1    | 3579 | 1/1   | 0.91 | 0.06 | 97,97,97,97                 | 0     |
| 48  | MG   | F1    | 3465 | 1/1   | 0.91 | 0.08 | 101,101,101,101             | 0     |
| 48  | MG   | H1    | 3416 | 1/1   | 0.91 | 0.21 | 113,113,113,113             | 0     |
| 48  | MG   | A1    | 3536 | 1/1   | 0.91 | 0.08 | 104,104,104,104             | 0     |
| 48  | MG   | H1    | 3487 | 1/1   | 0.91 | 0.09 | 122,122,122,122             | 0     |
| 48  | MG   | D1    | 3432 | 1/1   | 0.91 | 0.07 | 118,118,118,118             | 0     |
| 48  | MG   | H1    | 3490 | 1/1   | 0.91 | 0.10 | 122,122,122,122             | 0     |
| 48  | MG   | A1    | 3497 | 1/1   | 0.91 | 0.06 | 116,116,116,116             | 0     |
| 48  | MG   | A1    | 3565 | 1/1   | 0.91 | 0.08 | 132,132,132,132             | 0     |
| 48  | MG   | A1    | 3450 | 1/1   | 0.91 | 0.05 | 133,133,133,133             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | F1    | 3476 | 1/1   | 0.91 | 0.07 | 99,99,99,99                 | 0     |
| 48  | MG   | D1    | 3555 | 1/1   | 0.91 | 0.09 | 119,119,119,119             | 0     |
| 48  | MG   | EN    | 201  | 1/1   | 0.91 | 0.09 | 111,111,111,111             | 0     |
| 48  | MG   | F1    | 3541 | 1/1   | 0.91 | 0.10 | 112,112,112,112             | 0     |
| 48  | MG   | GW    | 201  | 1/1   | 0.91 | 0.11 | 114,114,114,114             | 0     |
| 48  | MG   | D1    | 3557 | 1/1   | 0.91 | 0.07 | 116,116,116,116             | 0     |
| 48  | MG   | H1    | 3461 | 1/1   | 0.91 | 0.10 | 134,134,134,134             | 0     |
| 48  | MG   | A1    | 3553 | 1/1   | 0.91 | 0.07 | 108,108,108,108             | 0     |
| 48  | MG   | H1    | 3555 | 1/1   | 0.91 | 0.08 | 123,123,123,123             | 0     |
| 48  | MG   | A1    | 3454 | 1/1   | 0.91 | 0.07 | 101,101,101,101             | 0     |
| 48  | MG   | D1    | 3425 | 1/1   | 0.92 | 0.18 | 123,123,123,123             | 0     |
| 48  | MG   | A1    | 3560 | 1/1   | 0.92 | 0.10 | 138,138,138,138             | 0     |
| 48  | MG   | A1    | 3490 | 1/1   | 0.92 | 0.10 | 105,105,105,105             | 0     |
| 48  | MG   | A1    | 3411 | 1/1   | 0.92 | 0.08 | 83,83,83,83                 | 0     |
| 48  | MG   | GP    | 201  | 1/1   | 0.92 | 0.11 | 109,109,109,109             | 0     |
| 48  | MG   | H1    | 3464 | 1/1   | 0.92 | 0.06 | 108,108,108,108             | 0     |
| 48  | MG   | CL    | 301  | 1/1   | 0.92 | 0.07 | 109,109,109,109             | 0     |
| 48  | MG   | A1    | 3528 | 1/1   | 0.92 | 0.13 | 120,120,120,120             | 0     |
| 48  | MG   | D1    | 3498 | 1/1   | 0.92 | 0.17 | 99,99,99,99                 | 0     |
| 48  | MG   | A1    | 3483 | 1/1   | 0.92 | 0.07 | 83,83,83,83                 | 0     |
| 48  | MG   | D1    | 3408 | 1/1   | 0.92 | 0.10 | 106,106,106,106             | 0     |
| 48  | MG   | H1    | 3405 | 1/1   | 0.92 | 0.07 | 101,101,101,101             | 0     |
| 48  | MG   | A1    | 3569 | 1/1   | 0.92 | 0.07 | 91,91,91,91                 | 0     |
| 48  | MG   | D1    | 3515 | 1/1   | 0.92 | 0.06 | 106,106,106,106             | 0     |
| 48  | MG   | H1    | 3478 | 1/1   | 0.92 | 0.06 | 114,114,114,114             | 0     |
| 48  | MG   | A1    | 3582 | 1/1   | 0.92 | 0.05 | 110,110,110,110             | 0     |
| 48  | MG   | F1    | 3579 | 1/1   | 0.92 | 0.12 | 166,166,166,166             | 0     |
| 48  | MG   | A1    | 3572 | 1/1   | 0.92 | 0.09 | 121,121,121,121             | 0     |
| 48  | MG   | F1    | 3583 | 1/1   | 0.92 | 0.07 | 104,104,104,104             | 0     |
| 48  | MG   | F1    | 3491 | 1/1   | 0.92 | 0.08 | 96,96,96,96                 | 0     |
| 48  | MG   | F1    | 3550 | 1/1   | 0.92 | 0.13 | 154,154,154,154             | 0     |
| 48  | MG   | H1    | 3545 | 1/1   | 0.92 | 0.10 | 156,156,156,156             | 0     |
| 48  | MG   | F1    | 3554 | 1/1   | 0.92 | 0.07 | 131,131,131,131             | 0     |
| 48  | MG   | BQ    | 201  | 1/1   | 0.92 | 0.09 | 122,122,122,122             | 0     |
| 48  | MG   | A1    | 3431 | 1/1   | 0.92 | 0.07 | 90,90,90,90                 | 0     |
| 48  | MG   | F1    | 3497 | 1/1   | 0.92 | 0.08 | 93,93,93,93                 | 0     |
| 48  | MG   | H1    | 3503 | 1/1   | 0.92 | 0.17 | 91,91,91,91                 | 0     |
| 48  | MG   | H1    | 3425 | 1/1   | 0.92 | 0.07 | 108,108,108,108             | 0     |
| 48  | MG   | A1    | 3487 | 1/1   | 0.92 | 0.11 | 121,121,121,121             | 0     |
| 48  | MG   | D1    | 3466 | 1/1   | 0.92 | 0.07 | 132,132,132,132             | 0     |
| 48  | MG   | H1    | 3512 | 1/1   | 0.92 | 0.09 | 121,121,121,121             | 0     |
| 48  | MG   | D1    | 3618 | 1/1   | 0.92 | 0.07 | 95,95,95,95                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | D1    | 3537 | 1/1   | 0.92 | 0.10 | 121,121,121,121             | 0     |
| 48  | MG   | D1    | 3451 | 1/1   | 0.93 | 0.08 | 115,115,115,115             | 0     |
| 48  | MG   | B3    | 202  | 1/1   | 0.93 | 0.07 | 113,113,113,113             | 0     |
| 48  | MG   | DK    | 201  | 1/1   | 0.93 | 0.07 | 101,101,101,101             | 0     |
| 48  | MG   | H1    | 3417 | 1/1   | 0.93 | 0.07 | 114,114,114,114             | 0     |
| 48  | MG   | A1    | 3500 | 1/1   | 0.93 | 0.13 | 89,89,89,89                 | 0     |
| 48  | MG   | D1    | 3595 | 1/1   | 0.93 | 0.10 | 94,94,94,94                 | 0     |
| 48  | MG   | F1    | 3532 | 1/1   | 0.93 | 0.11 | 87,87,87,87                 | 0     |
| 48  | MG   | H1    | 3423 | 1/1   | 0.93 | 0.09 | 98,98,98,98                 | 0     |
| 48  | MG   | A1    | 3590 | 1/1   | 0.93 | 0.11 | 142,142,142,142             | 0     |
| 48  | MG   | FA    | 101  | 1/1   | 0.93 | 0.06 | 97,97,97,97                 | 0     |
| 48  | MG   | D1    | 3541 | 1/1   | 0.93 | 0.15 | 114,114,114,114             | 0     |
| 48  | MG   | H1    | 3526 | 1/1   | 0.93 | 0.15 | 94,94,94,94                 | 0     |
| 48  | MG   | A1    | 3591 | 1/1   | 0.93 | 0.08 | 121,121,121,121             | 0     |
| 48  | MG   | A1    | 3503 | 1/1   | 0.93 | 0.07 | 95,95,95,95                 | 0     |
| 48  | MG   | D1    | 3600 | 1/1   | 0.93 | 0.08 | 123,123,123,123             | 0     |
| 48  | MG   | D1    | 3481 | 1/1   | 0.93 | 0.12 | 114,114,114,114             | 0     |
| 48  | MG   | A1    | 3562 | 1/1   | 0.93 | 0.07 | 91,91,91,91                 | 0     |
| 48  | MG   | H1    | 3454 | 1/1   | 0.93 | 0.07 | 111,111,111,111             | 0     |
| 48  | MG   | D1    | 3484 | 1/1   | 0.93 | 0.07 | 96,96,96,96                 | 0     |
| 48  | MG   | D1    | 3431 | 1/1   | 0.93 | 0.08 | 95,95,95,95                 | 0     |
| 48  | MG   | H1    | 3462 | 1/1   | 0.93 | 0.09 | 131,131,131,131             | 0     |
| 48  | MG   | EW    | 202  | 1/1   | 0.93 | 0.06 | 121,121,121,121             | 0     |
| 48  | MG   | A1    | 3563 | 1/1   | 0.93 | 0.07 | 100,100,100,100             | 0     |
| 48  | MG   | D1    | 3561 | 1/1   | 0.93 | 0.09 | 57,57,57,57                 | 0     |
| 48  | MG   | F1    | 3556 | 1/1   | 0.93 | 0.06 | 90,90,90,90                 | 0     |
| 48  | MG   | F1    | 3558 | 1/1   | 0.93 | 0.09 | 144,144,144,144             | 0     |
| 48  | MG   | A1    | 3415 | 1/1   | 0.93 | 0.09 | 120,120,120,120             | 0     |
| 48  | MG   | A1    | 3419 | 1/1   | 0.93 | 0.08 | 100,100,100,100             | 0     |
| 48  | MG   | A1    | 3455 | 1/1   | 0.93 | 0.07 | 111,111,111,111             | 0     |
| 48  | MG   | D1    | 3615 | 1/1   | 0.93 | 0.09 | 132,132,132,132             | 0     |
| 48  | MG   | A1    | 3468 | 1/1   | 0.93 | 0.11 | 109,109,109,109             | 0     |
| 48  | MG   | F1    | 3492 | 1/1   | 0.93 | 0.14 | 78,78,78,78                 | 0     |
| 48  | MG   | A1    | 3407 | 1/1   | 0.93 | 0.07 | 83,83,83,83                 | 0     |
| 48  | MG   | A1    | 3571 | 1/1   | 0.93 | 0.11 | 100,100,100,100             | 0     |
| 48  | MG   | D1    | 3619 | 1/1   | 0.93 | 0.07 | 101,101,101,101             | 0     |
| 48  | MG   | H1    | 3407 | 1/1   | 0.93 | 0.06 | 105,105,105,105             | 0     |
| 48  | MG   | A1    | 3496 | 1/1   | 0.93 | 0.10 | 137,137,137,137             | 0     |
| 48  | MG   | D1    | 3582 | 1/1   | 0.93 | 0.08 | 93,93,93,93                 | 0     |
| 48  | MG   | F1    | 3502 | 1/1   | 0.93 | 0.10 | 108,108,108,108             | 0     |
| 48  | MG   | A1    | 3443 | 1/1   | 0.93 | 0.07 | 90,90,90,90                 | 0     |
| 48  | MG   | A1    | 3499 | 1/1   | 0.93 | 0.06 | 117,117,117,117             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | BP    | 200  | 1/1   | 0.94 | 0.06 | 123,123,123,123             | 0     |
| 48  | MG   | F1    | 3519 | 1/1   | 0.94 | 0.07 | 65,65,65,65                 | 0     |
| 48  | MG   | H1    | 3413 | 1/1   | 0.94 | 0.15 | 117,117,117,117             | 0     |
| 48  | MG   | A1    | 3512 | 1/1   | 0.94 | 0.07 | 90,90,90,90                 | 0     |
| 48  | MG   | D1    | 3419 | 1/1   | 0.94 | 0.07 | 92,92,92,92                 | 0     |
| 48  | MG   | A1    | 3493 | 1/1   | 0.94 | 0.09 | 113,113,113,113             | 0     |
| 48  | MG   | F1    | 3461 | 1/1   | 0.94 | 0.20 | 106,106,106,106             | 0     |
| 48  | MG   | H1    | 3505 | 1/1   | 0.94 | 0.06 | 95,95,95,95                 | 0     |
| 48  | MG   | D1    | 3511 | 1/1   | 0.94 | 0.09 | 118,118,118,118             | 0     |
| 48  | MG   | D1    | 3513 | 1/1   | 0.94 | 0.06 | 89,89,89,89                 | 0     |
| 48  | MG   | D1    | 3447 | 1/1   | 0.94 | 0.09 | 101,101,101,101             | 0     |
| 48  | MG   | A1    | 3467 | 1/1   | 0.94 | 0.07 | 106,106,106,106             | 0     |
| 48  | MG   | A1    | 3541 | 1/1   | 0.94 | 0.09 | 86,86,86,86                 | 0     |
| 48  | MG   | H1    | 3427 | 1/1   | 0.94 | 0.09 | 83,83,83,83                 | 0     |
| 48  | MG   | H1    | 3520 | 1/1   | 0.94 | 0.06 | 114,114,114,114             | 0     |
| 48  | MG   | A1    | 3544 | 1/1   | 0.94 | 0.14 | 135,135,135,135             | 0     |
| 48  | MG   | A1    | 3425 | 1/1   | 0.94 | 0.06 | 107,107,107,107             | 0     |
| 48  | MG   | H1    | 3434 | 1/1   | 0.94 | 0.08 | 93,93,93,93                 | 0     |
| 48  | MG   | A1    | 3548 | 1/1   | 0.94 | 0.07 | 124,124,124,124             | 0     |
| 48  | MG   | H1    | 3438 | 1/1   | 0.94 | 0.12 | 120,120,120,120             | 0     |
| 48  | MG   | F1    | 3407 | 1/1   | 0.94 | 0.07 | 111,111,111,111             | 0     |
| 48  | MG   | H1    | 3446 | 1/1   | 0.94 | 0.10 | 120,120,120,120             | 0     |
| 48  | MG   | A1    | 3519 | 1/1   | 0.94 | 0.05 | 113,113,113,113             | 0     |
| 48  | MG   | F1    | 3552 | 1/1   | 0.94 | 0.10 | 139,139,139,139             | 0     |
| 48  | MG   | D1    | 3527 | 1/1   | 0.94 | 0.12 | 106,106,106,106             | 0     |
| 48  | MG   | CQ    | 201  | 1/1   | 0.94 | 0.09 | 127,127,127,127             | 0     |
| 48  | MG   | H1    | 3455 | 1/1   | 0.94 | 0.06 | 113,113,113,113             | 0     |
| 48  | MG   | H1    | 3456 | 1/1   | 0.94 | 0.15 | 145,145,145,145             | 0     |
| 48  | MG   | D1    | 3585 | 1/1   | 0.94 | 0.06 | 108,108,108,108             | 0     |
| 48  | MG   | H1    | 3459 | 1/1   | 0.94 | 0.07 | 97,97,97,97                 | 0     |
| 48  | MG   | D1    | 3530 | 1/1   | 0.94 | 0.08 | 94,94,94,94                 | 0     |
| 48  | MG   | D1    | 3621 | 1/1   | 0.94 | 0.05 | 110,110,110,110             | 0     |
| 48  | MG   | D1    | 3532 | 1/1   | 0.94 | 0.06 | 119,119,119,119             | 0     |
| 48  | MG   | D1    | 3590 | 1/1   | 0.94 | 0.08 | 89,89,89,89                 | 0     |
| 48  | MG   | H1    | 3466 | 1/1   | 0.94 | 0.06 | 107,107,107,107             | 0     |
| 48  | MG   | H1    | 3467 | 1/1   | 0.94 | 0.07 | 95,95,95,95                 | 0     |
| 48  | MG   | CY    | 201  | 1/1   | 0.94 | 0.07 | 99,99,99,99                 | 0     |
| 48  | MG   | F1    | 3425 | 1/1   | 0.94 | 0.07 | 115,115,115,115             | 0     |
| 48  | MG   | A1    | 3461 | 1/1   | 0.94 | 0.06 | 67,67,67,67                 | 0     |
| 48  | MG   | H1    | 3471 | 1/1   | 0.94 | 0.09 | 124,124,124,124             | 0     |
| 48  | MG   | D1    | 3594 | 1/1   | 0.94 | 0.17 | 106,106,106,106             | 0     |
| 48  | MG   | H1    | 3403 | 1/1   | 0.94 | 0.07 | 111,111,111,111             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | D1    | 3627 | 1/1   | 0.94 | 0.05 | 119,119,119,119             | 0     |
| 48  | MG   | F1    | 3433 | 1/1   | 0.94 | 0.15 | 95,95,95,95                 | 0     |
| 48  | MG   | F1    | 3568 | 1/1   | 0.94 | 0.07 | 98,98,98,98                 | 0     |
| 48  | MG   | A1    | 3509 | 1/1   | 0.94 | 0.05 | 128,128,128,128             | 0     |
| 48  | MG   | F1    | 3506 | 1/1   | 0.94 | 0.10 | 114,114,114,114             | 0     |
| 48  | MG   | A1    | 3492 | 1/1   | 0.94 | 0.09 | 127,127,127,127             | 0     |
| 48  | MG   | D1    | 3492 | 1/1   | 0.94 | 0.08 | 125,125,125,125             | 0     |
| 48  | MG   | CW    | 201  | 1/1   | 0.95 | 0.09 | 90,90,90,90                 | 0     |
| 48  | MG   | A1    | 3433 | 1/1   | 0.95 | 0.06 | 84,84,84,84                 | 0     |
| 48  | MG   | H1    | 3492 | 1/1   | 0.95 | 0.06 | 96,96,96,96                 | 0     |
| 48  | MG   | D1    | 3602 | 1/1   | 0.95 | 0.06 | 118,118,118,118             | 0     |
| 48  | MG   | A1    | 3566 | 1/1   | 0.95 | 0.08 | 75,75,75,75                 | 0     |
| 48  | MG   | F1    | 3530 | 1/1   | 0.95 | 0.07 | 107,107,107,107             | 0     |
| 48  | MG   | A1    | 3486 | 1/1   | 0.95 | 0.07 | 93,93,93,93                 | 0     |
| 48  | MG   | F1    | 3533 | 1/1   | 0.95 | 0.07 | 101,101,101,101             | 0     |
| 48  | MG   | F1    | 3534 | 1/1   | 0.95 | 0.06 | 79,79,79,79                 | 0     |
| 48  | MG   | D1    | 3518 | 1/1   | 0.95 | 0.08 | 92,92,92,92                 | 0     |
| 48  | MG   | D1    | 3573 | 1/1   | 0.95 | 0.07 | 126,126,126,126             | 0     |
| 48  | MG   | G2    | 203  | 1/1   | 0.95 | 0.05 | 112,112,112,112             | 0     |
| 48  | MG   | D1    | 3607 | 1/1   | 0.95 | 0.15 | 89,89,89,89                 | 0     |
| 48  | MG   | D1    | 3472 | 1/1   | 0.95 | 0.08 | 82,82,82,82                 | 0     |
| 48  | MG   | A1    | 3409 | 1/1   | 0.95 | 0.06 | 87,87,87,87                 | 0     |
| 48  | MG   | D1    | 3523 | 1/1   | 0.95 | 0.06 | 105,105,105,105             | 0     |
| 48  | MG   | F1    | 3471 | 1/1   | 0.95 | 0.09 | 90,90,90,90                 | 0     |
| 48  | MG   | H1    | 3451 | 1/1   | 0.95 | 0.06 | 78,78,78,78                 | 0     |
| 48  | MG   | F1    | 3472 | 1/1   | 0.95 | 0.05 | 111,111,111,111             | 0     |
| 48  | MG   | D1    | 3415 | 1/1   | 0.95 | 0.07 | 117,117,117,117             | 0     |
| 48  | MG   | D1    | 3614 | 1/1   | 0.95 | 0.06 | 129,129,129,129             | 0     |
| 48  | MG   | GL    | 301  | 1/1   | 0.95 | 0.06 | 113,113,113,113             | 0     |
| 48  | MG   | D1    | 3580 | 1/1   | 0.95 | 0.06 | 95,95,95,95                 | 0     |
| 48  | MG   | A1    | 3577 | 1/1   | 0.95 | 0.09 | 104,104,104,104             | 0     |
| 48  | MG   | C3    | 201  | 1/1   | 0.95 | 0.08 | 123,123,123,123             | 0     |
| 48  | MG   | D1    | 3485 | 1/1   | 0.95 | 0.06 | 120,120,120,120             | 0     |
| 48  | MG   | F1    | 3485 | 1/1   | 0.95 | 0.08 | 117,117,117,117             | 0     |
| 48  | MG   | F1    | 3418 | 1/1   | 0.95 | 0.10 | 126,126,126,126             | 0     |
| 48  | MG   | D1    | 3443 | 1/1   | 0.95 | 0.09 | 112,112,112,112             | 0     |
| 48  | MG   | D1    | 3620 | 1/1   | 0.95 | 0.10 | 106,106,106,106             | 0     |
| 48  | MG   | A1    | 3552 | 1/1   | 0.95 | 0.07 | 97,97,97,97                 | 0     |
| 48  | MG   | D1    | 3589 | 1/1   | 0.95 | 0.08 | 107,107,107,107             | 0     |
| 48  | MG   | F1    | 3494 | 1/1   | 0.95 | 0.08 | 97,97,97,97                 | 0     |
| 48  | MG   | D1    | 3494 | 1/1   | 0.95 | 0.07 | 78,78,78,78                 | 0     |
| 48  | MG   | D1    | 3496 | 1/1   | 0.95 | 0.07 | 78,78,78,78                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | C3    | 206  | 1/1   | 0.95 | 0.10 | 120,120,120,120             | 0     |
| 48  | MG   | A1    | 3518 | 1/1   | 0.95 | 0.06 | 109,109,109,109             | 0     |
| 48  | MG   | A1    | 3529 | 1/1   | 0.95 | 0.08 | 96,96,96,96                 | 0     |
| 48  | MG   | F1    | 3441 | 1/1   | 0.95 | 0.06 | 111,111,111,111             | 0     |
| 48  | MG   | H1    | 3480 | 1/1   | 0.95 | 0.10 | 81,81,81,81                 | 0     |
| 48  | MG   | D1    | 3549 | 1/1   | 0.95 | 0.07 | 99,99,99,99                 | 0     |
| 48  | MG   | F1    | 3508 | 1/1   | 0.95 | 0.06 | 127,127,127,127             | 0     |
| 48  | MG   | H1    | 3483 | 1/1   | 0.95 | 0.07 | 108,108,108,108             | 0     |
| 48  | MG   | A1    | 3598 | 1/1   | 0.95 | 0.07 | 111,111,111,111             | 0     |
| 48  | MG   | H1    | 3485 | 1/1   | 0.95 | 0.06 | 104,104,104,104             | 0     |
| 48  | MG   | A1    | 3599 | 1/1   | 0.95 | 0.08 | 103,103,103,103             | 0     |
| 48  | MG   | D1    | 3452 | 1/1   | 0.95 | 0.10 | 106,106,106,106             | 0     |
| 48  | MG   | H1    | 3488 | 1/1   | 0.95 | 0.06 | 108,108,108,108             | 0     |
| 48  | MG   | D1    | 3542 | 1/1   | 0.96 | 0.04 | 71,71,71,71                 | 0     |
| 48  | MG   | F1    | 3581 | 1/1   | 0.96 | 0.07 | 144,144,144,144             | 0     |
| 48  | MG   | A1    | 3540 | 1/1   | 0.96 | 0.08 | 66,66,66,66                 | 0     |
| 48  | MG   | A1    | 3523 | 1/1   | 0.96 | 0.06 | 91,91,91,91                 | 0     |
| 48  | MG   | D1    | 3490 | 1/1   | 0.96 | 0.08 | 92,92,92,92                 | 0     |
| 48  | MG   | F1    | 3416 | 1/1   | 0.96 | 0.10 | 116,116,116,116             | 0     |
| 48  | MG   | D1    | 3436 | 1/1   | 0.96 | 0.05 | 78,78,78,78                 | 0     |
| 48  | MG   | A1    | 3557 | 1/1   | 0.96 | 0.08 | 104,104,104,104             | 0     |
| 48  | MG   | D1    | 3493 | 1/1   | 0.96 | 0.06 | 128,128,128,128             | 0     |
| 48  | MG   | F1    | 3420 | 1/1   | 0.96 | 0.07 | 88,88,88,88                 | 0     |
| 48  | MG   | A1    | 3558 | 1/1   | 0.96 | 0.06 | 91,91,91,91                 | 0     |
| 48  | MG   | F1    | 3512 | 1/1   | 0.96 | 0.05 | 94,94,94,94                 | 0     |
| 48  | MG   | F1    | 3513 | 1/1   | 0.96 | 0.07 | 79,79,79,79                 | 0     |
| 48  | MG   | D1    | 3610 | 1/1   | 0.96 | 0.06 | 66,66,66,66                 | 0     |
| 48  | MG   | F1    | 3516 | 1/1   | 0.96 | 0.05 | 121,121,121,121             | 0     |
| 48  | MG   | F1    | 3517 | 1/1   | 0.96 | 0.07 | 62,62,62,62                 | 0     |
| 48  | MG   | D1    | 3495 | 1/1   | 0.96 | 0.05 | 88,88,88,88                 | 0     |
| 48  | MG   | D1    | 3612 | 1/1   | 0.96 | 0.07 | 123,123,123,123             | 0     |
| 48  | MG   | F1    | 3526 | 1/1   | 0.96 | 0.06 | 72,72,72,72                 | 0     |
| 48  | MG   | D1    | 3440 | 1/1   | 0.96 | 0.05 | 99,99,99,99                 | 0     |
| 48  | MG   | A1    | 3542 | 1/1   | 0.96 | 0.07 | 96,96,96,96                 | 0     |
| 48  | MG   | D1    | 3563 | 1/1   | 0.96 | 0.07 | 93,93,93,93                 | 0     |
| 48  | MG   | GQ    | 201  | 1/1   | 0.96 | 0.08 | 102,102,102,102             | 0     |
| 48  | MG   | A1    | 3600 | 1/1   | 0.96 | 0.05 | 111,111,111,111             | 0     |
| 48  | MG   | F1    | 3437 | 1/1   | 0.96 | 0.09 | 100,100,100,100             | 0     |
| 48  | MG   | F1    | 3439 | 1/1   | 0.96 | 0.07 | 62,62,62,62                 | 0     |
| 48  | MG   | F1    | 3440 | 1/1   | 0.96 | 0.05 | 82,82,82,82                 | 0     |
| 48  | MG   | H1    | 3500 | 1/1   | 0.96 | 0.08 | 82,82,82,82                 | 0     |
| 48  | MG   | D1    | 3567 | 1/1   | 0.96 | 0.10 | 60,60,60,60                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | F1    | 3442 | 1/1   | 0.96 | 0.06 | 109,109,109,109             | 0     |
| 48  | MG   | D1    | 3414 | 1/1   | 0.96 | 0.08 | 96,96,96,96                 | 0     |
| 48  | MG   | D1    | 3572 | 1/1   | 0.96 | 0.10 | 69,69,69,69                 | 0     |
| 48  | MG   | C2    | 202  | 1/1   | 0.96 | 0.07 | 112,112,112,112             | 0     |
| 48  | MG   | F1    | 3543 | 1/1   | 0.96 | 0.08 | 71,71,71,71                 | 0     |
| 48  | MG   | F1    | 3544 | 1/1   | 0.96 | 0.07 | 97,97,97,97                 | 0     |
| 48  | MG   | H1    | 3513 | 1/1   | 0.96 | 0.06 | 87,87,87,87                 | 0     |
| 48  | MG   | D1    | 3510 | 1/1   | 0.96 | 0.06 | 81,81,81,81                 | 0     |
| 48  | MG   | H1    | 3517 | 1/1   | 0.96 | 0.07 | 79,79,79,79                 | 0     |
| 48  | MG   | A1    | 3484 | 1/1   | 0.96 | 0.07 | 108,108,108,108             | 0     |
| 48  | MG   | A1    | 3469 | 1/1   | 0.96 | 0.06 | 113,113,113,113             | 0     |
| 48  | MG   | D1    | 3418 | 1/1   | 0.96 | 0.04 | 114,114,114,114             | 0     |
| 48  | MG   | F1    | 3551 | 1/1   | 0.96 | 0.08 | 91,91,91,91                 | 0     |
| 48  | MG   | F1    | 3458 | 1/1   | 0.96 | 0.05 | 95,95,95,95                 | 0     |
| 48  | MG   | F1    | 3553 | 1/1   | 0.96 | 0.06 | 68,68,68,68                 | 0     |
| 48  | MG   | A1    | 3498 | 1/1   | 0.96 | 0.04 | 116,116,116,116             | 0     |
| 48  | MG   | D1    | 3581 | 1/1   | 0.96 | 0.06 | 68,68,68,68                 | 0     |
| 48  | MG   | C3    | 202  | 1/1   | 0.96 | 0.05 | 135,135,135,135             | 0     |
| 48  | MG   | D1    | 3628 | 1/1   | 0.96 | 0.05 | 107,107,107,107             | 0     |
| 48  | MG   | D1    | 3629 | 1/1   | 0.96 | 0.07 | 121,121,121,121             | 0     |
| 48  | MG   | H1    | 3426 | 1/1   | 0.96 | 0.07 | 105,105,105,105             | 0     |
| 48  | MG   | D1    | 3454 | 1/1   | 0.96 | 0.11 | 64,64,64,64                 | 0     |
| 48  | MG   | H1    | 3428 | 1/1   | 0.96 | 0.11 | 77,77,77,77                 | 0     |
| 48  | MG   | H1    | 3429 | 1/1   | 0.96 | 0.07 | 87,87,87,87                 | 0     |
| 48  | MG   | H1    | 3430 | 1/1   | 0.96 | 0.07 | 82,82,82,82                 | 0     |
| 48  | MG   | D1    | 3461 | 1/1   | 0.96 | 0.05 | 86,86,86,86                 | 0     |
| 48  | MG   | D1    | 3462 | 1/1   | 0.96 | 0.10 | 116,116,116,116             | 0     |
| 48  | MG   | C3    | 204  | 1/1   | 0.96 | 0.05 | 85,85,85,85                 | 0     |
| 48  | MG   | B2    | 204  | 1/1   | 0.96 | 0.06 | 85,85,85,85                 | 0     |
| 48  | MG   | A1    | 3479 | 1/1   | 0.96 | 0.09 | 120,120,120,120             | 0     |
| 48  | MG   | H1    | 3441 | 1/1   | 0.96 | 0.05 | 102,102,102,102             | 0     |
| 48  | MG   | D1    | 3468 | 1/1   | 0.96 | 0.05 | 75,75,75,75                 | 0     |
| 48  | MG   | E3    | 203  | 1/1   | 0.96 | 0.07 | 104,104,104,104             | 0     |
| 48  | MG   | H1    | 3447 | 1/1   | 0.96 | 0.06 | 110,110,110,110             | 0     |
| 48  | MG   | A1    | 3429 | 1/1   | 0.96 | 0.04 | 122,122,122,122             | 0     |
| 48  | MG   | F1    | 3479 | 1/1   | 0.96 | 0.15 | 81,81,81,81                 | 0     |
| 48  | MG   | CD    | 201  | 1/1   | 0.96 | 0.10 | 93,93,93,93                 | 0     |
| 48  | MG   | D1    | 3531 | 1/1   | 0.96 | 0.05 | 87,87,87,87                 | 0     |
| 48  | MG   | D1    | 3429 | 1/1   | 0.96 | 0.08 | 113,113,113,113             | 0     |
| 48  | MG   | D1    | 3534 | 1/1   | 0.96 | 0.09 | 98,98,98,98                 | 0     |
| 48  | MG   | D1    | 3476 | 1/1   | 0.96 | 0.06 | 43,43,43,43                 | 0     |
| 48  | MG   | D1    | 3538 | 1/1   | 0.96 | 0.07 | 119,119,119,119             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | A1    | 3533 | 1/1   | 0.96 | 0.12 | 73,73,73,73                 | 0     |
| 48  | MG   | F1    | 3403 | 1/1   | 0.96 | 0.04 | 96,96,96,96                 | 0     |
| 48  | MG   | A1    | 3494 | 1/1   | 0.96 | 0.07 | 98,98,98,98                 | 0     |
| 49  | ZN   | AC    | 201  | 1/1   | 0.96 | 0.06 | 143,143,143,143             | 0     |
| 48  | MG   | A1    | 3480 | 1/1   | 0.97 | 0.09 | 120,120,120,120             | 0     |
| 48  | MG   | D1    | 3420 | 1/1   | 0.97 | 0.05 | 105,105,105,105             | 0     |
| 48  | MG   | D1    | 3504 | 1/1   | 0.97 | 0.10 | 98,98,98,98                 | 0     |
| 48  | MG   | A1    | 3481 | 1/1   | 0.97 | 0.07 | 88,88,88,88                 | 0     |
| 48  | MG   | EJ    | 201  | 1/1   | 0.97 | 0.06 | 69,69,69,69                 | 0     |
| 48  | MG   | F1    | 3547 | 1/1   | 0.97 | 0.04 | 112,112,112,112             | 0     |
| 48  | MG   | EL    | 301  | 1/1   | 0.97 | 0.03 | 119,119,119,119             | 0     |
| 48  | MG   | D1    | 3552 | 1/1   | 0.97 | 0.06 | 55,55,55,55                 | 0     |
| 48  | MG   | D1    | 3553 | 1/1   | 0.97 | 0.05 | 90,90,90,90                 | 0     |
| 48  | MG   | EQ    | 201  | 1/1   | 0.97 | 0.08 | 88,88,88,88                 | 0     |
| 48  | MG   | D1    | 3508 | 1/1   | 0.97 | 0.05 | 86,86,86,86                 | 0     |
| 48  | MG   | D1    | 3556 | 1/1   | 0.97 | 0.06 | 76,76,76,76                 | 0     |
| 48  | MG   | D1    | 3455 | 1/1   | 0.97 | 0.04 | 80,80,80,80                 | 0     |
| 48  | MG   | D1    | 3558 | 1/1   | 0.97 | 0.05 | 56,56,56,56                 | 0     |
| 48  | MG   | H1    | 3491 | 1/1   | 0.97 | 0.06 | 111,111,111,111             | 0     |
| 48  | MG   | F1    | 3405 | 1/1   | 0.97 | 0.05 | 79,79,79,79                 | 0     |
| 48  | MG   | F1    | 3557 | 1/1   | 0.97 | 0.05 | 84,84,84,84                 | 0     |
| 48  | MG   | H1    | 3499 | 1/1   | 0.97 | 0.06 | 75,75,75,75                 | 0     |
| 48  | MG   | D1    | 3560 | 1/1   | 0.97 | 0.06 | 64,64,64,64                 | 0     |
| 48  | MG   | D1    | 3456 | 1/1   | 0.97 | 0.06 | 70,70,70,70                 | 0     |
| 48  | MG   | D1    | 3512 | 1/1   | 0.97 | 0.05 | 101,101,101,101             | 0     |
| 48  | MG   | H1    | 3504 | 1/1   | 0.97 | 0.05 | 111,111,111,111             | 0     |
| 48  | MG   | F1    | 3489 | 1/1   | 0.97 | 0.04 | 85,85,85,85                 | 0     |
| 48  | MG   | H1    | 3508 | 1/1   | 0.97 | 0.07 | 80,80,80,80                 | 0     |
| 48  | MG   | D1    | 3458 | 1/1   | 0.97 | 0.05 | 51,51,51,51                 | 0     |
| 48  | MG   | D1    | 3564 | 1/1   | 0.97 | 0.12 | 92,92,92,92                 | 0     |
| 48  | MG   | A1    | 3549 | 1/1   | 0.97 | 0.06 | 54,54,54,54                 | 0     |
| 48  | MG   | A1    | 3550 | 1/1   | 0.97 | 0.05 | 69,69,69,69                 | 0     |
| 48  | MG   | H1    | 3424 | 1/1   | 0.97 | 0.03 | 96,96,96,96                 | 0     |
| 48  | MG   | A1    | 3521 | 1/1   | 0.97 | 0.06 | 105,105,105,105             | 0     |
| 48  | MG   | F1    | 3495 | 1/1   | 0.97 | 0.05 | 83,83,83,83                 | 0     |
| 48  | MG   | H1    | 3518 | 1/1   | 0.97 | 0.07 | 110,110,110,110             | 0     |
| 48  | MG   | A1    | 3459 | 1/1   | 0.97 | 0.07 | 90,90,90,90                 | 0     |
| 48  | MG   | A1    | 3404 | 1/1   | 0.97 | 0.04 | 94,94,94,94                 | 0     |
| 48  | MG   | A1    | 3501 | 1/1   | 0.97 | 0.08 | 102,102,102,102             | 0     |
| 48  | MG   | H1    | 3522 | 1/1   | 0.97 | 0.07 | 107,107,107,107             | 0     |
| 48  | MG   | F1    | 3500 | 1/1   | 0.97 | 0.08 | 105,105,105,105             | 0     |
| 48  | MG   | A1    | 3413 | 1/1   | 0.97 | 0.07 | 136,136,136,136             | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors(Å <sup>2</sup> ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|----------------------------|-------|
| 48  | MG   | F1    | 3573 | 1/1   | 0.97 | 0.07 | 84,84,84,84                | 0     |
| 48  | MG   | A1    | 3439 | 1/1   | 0.97 | 0.04 | 106,106,106,106            | 0     |
| 48  | MG   | H1    | 3435 | 1/1   | 0.97 | 0.05 | 116,116,116,116            | 0     |
| 48  | MG   | A1    | 3445 | 1/1   | 0.97 | 0.08 | 88,88,88,88                | 0     |
| 48  | MG   | F1    | 3504 | 1/1   | 0.97 | 0.06 | 84,84,84,84                | 0     |
| 48  | MG   | A1    | 3488 | 1/1   | 0.97 | 0.05 | 91,91,91,91                | 0     |
| 48  | MG   | A1    | 3559 | 1/1   | 0.97 | 0.04 | 89,89,89,89                | 0     |
| 48  | MG   | A1    | 3532 | 1/1   | 0.97 | 0.05 | 74,74,74,74                | 0     |
| 48  | MG   | A1    | 3447 | 1/1   | 0.97 | 0.08 | 58,58,58,58                | 0     |
| 48  | MG   | F1    | 3434 | 1/1   | 0.97 | 0.04 | 83,83,83,83                | 0     |
| 48  | MG   | D1    | 3584 | 1/1   | 0.97 | 0.06 | 101,101,101,101            | 0     |
| 48  | MG   | F1    | 3584 | 1/1   | 0.97 | 0.06 | 97,97,97,97                | 0     |
| 48  | MG   | F1    | 3514 | 1/1   | 0.97 | 0.06 | 70,70,70,70                | 0     |
| 48  | MG   | FA    | 102  | 1/1   | 0.97 | 0.06 | 84,84,84,84                | 0     |
| 48  | MG   | F1    | 3438 | 1/1   | 0.97 | 0.05 | 58,58,58,58                | 0     |
| 48  | MG   | D1    | 3406 | 1/1   | 0.97 | 0.06 | 67,67,67,67                | 0     |
| 48  | MG   | D1    | 3441 | 1/1   | 0.97 | 0.07 | 75,75,75,75                | 0     |
| 48  | MG   | D1    | 3535 | 1/1   | 0.97 | 0.06 | 86,86,86,86                | 0     |
| 48  | MG   | A1    | 3535 | 1/1   | 0.97 | 0.05 | 99,99,99,99                | 0     |
| 48  | MG   | D1    | 3631 | 1/1   | 0.97 | 0.05 | 78,78,78,78                | 0     |
| 48  | MG   | F1    | 3445 | 1/1   | 0.97 | 0.08 | 78,78,78,78                | 0     |
| 48  | MG   | D1    | 3632 | 1/1   | 0.97 | 0.04 | 83,83,83,83                | 0     |
| 48  | MG   | A1    | 3471 | 1/1   | 0.97 | 0.04 | 88,88,88,88                | 0     |
| 48  | MG   | F1    | 3531 | 1/1   | 0.97 | 0.04 | 95,95,95,95                | 0     |
| 48  | MG   | D1    | 3591 | 1/1   | 0.97 | 0.05 | 55,55,55,55                | 0     |
| 48  | MG   | DQ    | 201  | 1/1   | 0.97 | 0.05 | 118,118,118,118            | 0     |
| 48  | MG   | A1    | 3448 | 1/1   | 0.97 | 0.05 | 78,78,78,78                | 0     |
| 48  | MG   | A1    | 3474 | 1/1   | 0.97 | 0.07 | 88,88,88,88                | 0     |
| 48  | MG   | A1    | 3477 | 1/1   | 0.97 | 0.06 | 62,62,62,62                | 0     |
| 48  | MG   | A1    | 3458 | 1/1   | 0.97 | 0.06 | 59,59,59,59                | 0     |
| 48  | MG   | A1    | 3545 | 1/1   | 0.97 | 0.09 | 71,71,71,71                | 0     |
| 48  | MG   | H1    | 3475 | 1/1   | 0.97 | 0.07 | 70,70,70,70                | 0     |
| 49  | ZN   | HC    | 201  | 1/1   | 0.97 | 0.04 | 168,168,168,168            | 0     |
| 48  | MG   | D1    | 3505 | 1/1   | 0.98 | 0.04 | 84,84,84,84                | 0     |
| 48  | MG   | D1    | 3453 | 1/1   | 0.98 | 0.05 | 54,54,54,54                | 0     |
| 48  | MG   | H1    | 3463 | 1/1   | 0.98 | 0.05 | 78,78,78,78                | 0     |
| 48  | MG   | D1    | 3507 | 1/1   | 0.98 | 0.07 | 75,75,75,75                | 0     |
| 48  | MG   | A1    | 3482 | 1/1   | 0.98 | 0.05 | 62,62,62,62                | 0     |
| 48  | MG   | F1    | 3582 | 1/1   | 0.98 | 0.06 | 77,77,77,77                | 0     |
| 48  | MG   | AA    | 102  | 1/1   | 0.98 | 0.04 | 98,98,98,98                | 0     |
| 48  | MG   | C3    | 203  | 1/1   | 0.98 | 0.06 | 69,69,69,69                | 0     |
| 48  | MG   | A1    | 3506 | 1/1   | 0.98 | 0.08 | 77,77,77,77                | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | D1    | 3460 | 1/1   | 0.98 | 0.05 | 85,85,85,85                 | 0     |
| 48  | MG   | D1    | 3568 | 1/1   | 0.98 | 0.07 | 105,105,105,105             | 0     |
| 48  | MG   | A1    | 3524 | 1/1   | 0.98 | 0.05 | 63,63,63,63                 | 0     |
| 48  | MG   | F1    | 3507 | 1/1   | 0.98 | 0.04 | 87,87,87,87                 | 0     |
| 48  | MG   | F1    | 3423 | 1/1   | 0.98 | 0.04 | 56,56,56,56                 | 0     |
| 48  | MG   | A1    | 3440 | 1/1   | 0.98 | 0.04 | 78,78,78,78                 | 0     |
| 48  | MG   | A1    | 3508 | 1/1   | 0.98 | 0.04 | 89,89,89,89                 | 0     |
| 48  | MG   | F1    | 3426 | 1/1   | 0.98 | 0.06 | 110,110,110,110             | 0     |
| 48  | MG   | B2    | 205  | 1/1   | 0.98 | 0.04 | 81,81,81,81                 | 0     |
| 48  | MG   | F1    | 3429 | 1/1   | 0.98 | 0.07 | 73,73,73,73                 | 0     |
| 48  | MG   | D1    | 3428 | 1/1   | 0.98 | 0.03 | 106,106,106,106             | 0     |
| 48  | MG   | D1    | 3519 | 1/1   | 0.98 | 0.03 | 72,72,72,72                 | 0     |
| 48  | MG   | D1    | 3577 | 1/1   | 0.98 | 0.04 | 121,121,121,121             | 0     |
| 48  | MG   | F1    | 3518 | 1/1   | 0.98 | 0.08 | 77,77,77,77                 | 0     |
| 48  | MG   | GJ    | 201  | 1/1   | 0.98 | 0.06 | 69,69,69,69                 | 0     |
| 48  | MG   | D1    | 3578 | 1/1   | 0.98 | 0.03 | 88,88,88,88                 | 0     |
| 48  | MG   | F1    | 3520 | 1/1   | 0.98 | 0.06 | 85,85,85,85                 | 0     |
| 48  | MG   | F1    | 3436 | 1/1   | 0.98 | 0.04 | 70,70,70,70                 | 0     |
| 48  | MG   | F1    | 3524 | 1/1   | 0.98 | 0.06 | 56,56,56,56                 | 0     |
| 48  | MG   | F1    | 3525 | 1/1   | 0.98 | 0.04 | 73,73,73,73                 | 0     |
| 48  | MG   | CJ    | 201  | 1/1   | 0.98 | 0.04 | 64,64,64,64                 | 0     |
| 48  | MG   | D1    | 3469 | 1/1   | 0.98 | 0.05 | 64,64,64,64                 | 0     |
| 48  | MG   | A1    | 3446 | 1/1   | 0.98 | 0.04 | 64,64,64,64                 | 0     |
| 48  | MG   | D1    | 3524 | 1/1   | 0.98 | 0.04 | 69,69,69,69                 | 0     |
| 48  | MG   | D1    | 3471 | 1/1   | 0.98 | 0.09 | 40,40,40,40                 | 0     |
| 48  | MG   | A1    | 3434 | 1/1   | 0.98 | 0.06 | 74,74,74,74                 | 0     |
| 48  | MG   | H1    | 3502 | 1/1   | 0.98 | 0.05 | 82,82,82,82                 | 0     |
| 48  | MG   | DA    | 101  | 1/1   | 0.98 | 0.04 | 82,82,82,82                 | 0     |
| 48  | MG   | DA    | 102  | 1/1   | 0.98 | 0.06 | 115,115,115,115             | 0     |
| 48  | MG   | F1    | 3536 | 1/1   | 0.98 | 0.05 | 67,67,67,67                 | 0     |
| 48  | MG   | H1    | 3507 | 1/1   | 0.98 | 0.05 | 64,64,64,64                 | 0     |
| 48  | MG   | D1    | 3474 | 1/1   | 0.98 | 0.06 | 58,58,58,58                 | 0     |
| 48  | MG   | A1    | 3511 | 1/1   | 0.98 | 0.04 | 90,90,90,90                 | 0     |
| 48  | MG   | D1    | 3587 | 1/1   | 0.98 | 0.07 | 93,93,93,93                 | 0     |
| 48  | MG   | F1    | 3449 | 1/1   | 0.98 | 0.05 | 90,90,90,90                 | 0     |
| 48  | MG   | A1    | 3462 | 1/1   | 0.98 | 0.05 | 46,46,46,46                 | 0     |
| 48  | MG   | F1    | 3452 | 1/1   | 0.98 | 0.05 | 50,50,50,50                 | 0     |
| 48  | MG   | D1    | 3477 | 1/1   | 0.98 | 0.04 | 60,60,60,60                 | 0     |
| 48  | MG   | E2    | 203  | 1/1   | 0.98 | 0.05 | 77,77,77,77                 | 0     |
| 48  | MG   | D1    | 3478 | 1/1   | 0.98 | 0.04 | 81,81,81,81                 | 0     |
| 48  | MG   | D1    | 3435 | 1/1   | 0.98 | 0.04 | 108,108,108,108             | 0     |
| 48  | MG   | A1    | 3466 | 1/1   | 0.98 | 0.03 | 40,40,40,40                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | H1    | 3419 | 1/1   | 0.98 | 0.06 | 62,62,62,62                 | 0     |
| 48  | MG   | E3    | 201  | 1/1   | 0.98 | 0.05 | 90,90,90,90                 | 0     |
| 48  | MG   | H1    | 3421 | 1/1   | 0.98 | 0.06 | 97,97,97,97                 | 0     |
| 48  | MG   | E3    | 202  | 1/1   | 0.98 | 0.05 | 122,122,122,122             | 0     |
| 48  | MG   | D1    | 3483 | 1/1   | 0.98 | 0.05 | 88,88,88,88                 | 0     |
| 48  | MG   | A1    | 3534 | 1/1   | 0.98 | 0.05 | 62,62,62,62                 | 0     |
| 48  | MG   | H1    | 3527 | 1/1   | 0.98 | 0.04 | 99,99,99,99                 | 0     |
| 48  | MG   | D1    | 3403 | 1/1   | 0.98 | 0.05 | 89,89,89,89                 | 0     |
| 48  | MG   | D1    | 3487 | 1/1   | 0.98 | 0.04 | 65,65,65,65                 | 0     |
| 48  | MG   | BJ    | 201  | 1/1   | 0.98 | 0.06 | 66,66,66,66                 | 0     |
| 48  | MG   | D1    | 3545 | 1/1   | 0.98 | 0.06 | 88,88,88,88                 | 0     |
| 48  | MG   | EL    | 302  | 1/1   | 0.98 | 0.05 | 68,68,68,68                 | 0     |
| 48  | MG   | F1    | 3474 | 1/1   | 0.98 | 0.12 | 64,64,64,64                 | 0     |
| 48  | MG   | D1    | 3407 | 1/1   | 0.98 | 0.03 | 70,70,70,70                 | 0     |
| 48  | MG   | H1    | 3432 | 1/1   | 0.98 | 0.04 | 91,91,91,91                 | 0     |
| 48  | MG   | A1    | 3514 | 1/1   | 0.98 | 0.06 | 59,59,59,59                 | 0     |
| 48  | MG   | D1    | 3409 | 1/1   | 0.98 | 0.07 | 57,57,57,57                 | 0     |
| 48  | MG   | A1    | 3478 | 1/1   | 0.98 | 0.06 | 79,79,79,79                 | 0     |
| 48  | MG   | F1    | 3480 | 1/1   | 0.98 | 0.05 | 59,59,59,59                 | 0     |
| 48  | MG   | H1    | 3437 | 1/1   | 0.98 | 0.04 | 93,93,93,93                 | 0     |
| 48  | MG   | F1    | 3481 | 1/1   | 0.98 | 0.08 | 45,45,45,45                 | 0     |
| 48  | MG   | H1    | 3439 | 1/1   | 0.98 | 0.08 | 75,75,75,75                 | 0     |
| 48  | MG   | D1    | 3413 | 1/1   | 0.98 | 0.05 | 51,51,51,51                 | 0     |
| 48  | MG   | H1    | 3442 | 1/1   | 0.98 | 0.06 | 79,79,79,79                 | 0     |
| 48  | MG   | A1    | 3405 | 1/1   | 0.98 | 0.07 | 65,65,65,65                 | 0     |
| 48  | MG   | F1    | 3484 | 1/1   | 0.98 | 0.04 | 78,78,78,78                 | 0     |
| 48  | MG   | F1    | 3402 | 1/1   | 0.98 | 0.04 | 83,83,83,83                 | 0     |
| 48  | MG   | F1    | 3486 | 1/1   | 0.98 | 0.06 | 90,90,90,90                 | 0     |
| 48  | MG   | F1    | 3487 | 1/1   | 0.98 | 0.04 | 60,60,60,60                 | 0     |
| 48  | MG   | A1    | 3502 | 1/1   | 0.98 | 0.06 | 80,80,80,80                 | 0     |
| 48  | MG   | F1    | 3404 | 1/1   | 0.98 | 0.05 | 75,75,75,75                 | 0     |
| 48  | MG   | H1    | 3452 | 1/1   | 0.98 | 0.06 | 108,108,108,108             | 0     |
| 48  | MG   | A1    | 3597 | 1/1   | 0.98 | 0.05 | 133,133,133,133             | 0     |
| 48  | MG   | F1    | 3406 | 1/1   | 0.98 | 0.04 | 83,83,83,83                 | 0     |
| 48  | MG   | A1    | 3418 | 1/1   | 0.98 | 0.04 | 117,117,117,117             | 0     |
| 48  | MG   | F1    | 3408 | 1/1   | 0.98 | 0.09 | 82,82,82,82                 | 0     |
| 48  | MG   | A1    | 3457 | 1/1   | 0.98 | 0.11 | 94,94,94,94                 | 0     |
| 49  | ZN   | FA    | 103  | 1/1   | 0.98 | 0.05 | 80,80,80,80                 | 0     |
| 48  | MG   | H1    | 3460 | 1/1   | 0.98 | 0.06 | 69,69,69,69                 | 0     |
| 48  | MG   | D1    | 3536 | 1/1   | 0.99 | 0.04 | 73,73,73,73                 | 0     |
| 48  | MG   | F1    | 3412 | 1/1   | 0.99 | 0.03 | 60,60,60,60                 | 0     |
| 48  | MG   | AA    | 103  | 1/1   | 0.99 | 0.03 | 56,56,56,56                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | D1    | 3430 | 1/1   | 0.99 | 0.02 | 59,59,59,59                 | 0     |
| 48  | MG   | D1    | 3539 | 1/1   | 0.99 | 0.04 | 57,57,57,57                 | 0     |
| 48  | MG   | A1    | 3442 | 1/1   | 0.99 | 0.03 | 52,52,52,52                 | 0     |
| 48  | MG   | D1    | 3480 | 1/1   | 0.99 | 0.04 | 32,32,32,32                 | 0     |
| 48  | MG   | A1    | 3473 | 1/1   | 0.99 | 0.03 | 55,55,55,55                 | 0     |
| 48  | MG   | A1    | 3463 | 1/1   | 0.99 | 0.06 | 59,59,59,59                 | 0     |
| 48  | MG   | D1    | 3544 | 1/1   | 0.99 | 0.04 | 50,50,50,50                 | 0     |
| 48  | MG   | B2    | 203  | 1/1   | 0.99 | 0.03 | 81,81,81,81                 | 0     |
| 48  | MG   | F1    | 3505 | 1/1   | 0.99 | 0.04 | 83,83,83,83                 | 0     |
| 48  | MG   | CL    | 302  | 1/1   | 0.99 | 0.06 | 68,68,68,68                 | 0     |
| 48  | MG   | A1    | 3517 | 1/1   | 0.99 | 0.05 | 74,74,74,74                 | 0     |
| 48  | MG   | D1    | 3486 | 1/1   | 0.99 | 0.08 | 47,47,47,47                 | 0     |
| 48  | MG   | H1    | 3476 | 1/1   | 0.99 | 0.03 | 52,52,52,52                 | 0     |
| 48  | MG   | A1    | 3475 | 1/1   | 0.99 | 0.04 | 80,80,80,80                 | 0     |
| 48  | MG   | F1    | 3510 | 1/1   | 0.99 | 0.04 | 95,95,95,95                 | 0     |
| 48  | MG   | D1    | 3488 | 1/1   | 0.99 | 0.03 | 97,97,97,97                 | 0     |
| 48  | MG   | G3    | 203  | 1/1   | 0.99 | 0.06 | 86,86,86,86                 | 0     |
| 48  | MG   | F1    | 3427 | 1/1   | 0.99 | 0.03 | 51,51,51,51                 | 0     |
| 48  | MG   | D1    | 3489 | 1/1   | 0.99 | 0.04 | 44,44,44,44                 | 0     |
| 48  | MG   | D1    | 3438 | 1/1   | 0.99 | 0.07 | 39,39,39,39                 | 0     |
| 48  | MG   | D1    | 3554 | 1/1   | 0.99 | 0.04 | 59,59,59,59                 | 0     |
| 48  | MG   | CQ    | 202  | 1/1   | 0.99 | 0.03 | 62,62,62,62                 | 0     |
| 48  | MG   | A1    | 3537 | 1/1   | 0.99 | 0.06 | 54,54,54,54                 | 0     |
| 48  | MG   | A1    | 3538 | 1/1   | 0.99 | 0.04 | 49,49,49,49                 | 0     |
| 48  | MG   | F1    | 3435 | 1/1   | 0.99 | 0.04 | 44,44,44,44                 | 0     |
| 48  | MG   | A1    | 3561 | 1/1   | 0.99 | 0.05 | 60,60,60,60                 | 0     |
| 48  | MG   | F1    | 3521 | 1/1   | 0.99 | 0.05 | 65,65,65,65                 | 0     |
| 48  | MG   | D1    | 3559 | 1/1   | 0.99 | 0.05 | 55,55,55,55                 | 0     |
| 48  | MG   | D1    | 3402 | 1/1   | 0.99 | 0.03 | 52,52,52,52                 | 0     |
| 48  | MG   | H1    | 3493 | 1/1   | 0.99 | 0.04 | 79,79,79,79                 | 0     |
| 48  | MG   | H1    | 3494 | 1/1   | 0.99 | 0.06 | 56,56,56,56                 | 0     |
| 48  | MG   | H1    | 3495 | 1/1   | 0.99 | 0.03 | 65,65,65,65                 | 0     |
| 48  | MG   | A1    | 3539 | 1/1   | 0.99 | 0.03 | 46,46,46,46                 | 0     |
| 48  | MG   | H1    | 3497 | 1/1   | 0.99 | 0.04 | 50,50,50,50                 | 0     |
| 48  | MG   | H1    | 3498 | 1/1   | 0.99 | 0.03 | 60,60,60,60                 | 0     |
| 48  | MG   | D1    | 3404 | 1/1   | 0.99 | 0.04 | 55,55,55,55                 | 0     |
| 48  | MG   | D1    | 3405 | 1/1   | 0.99 | 0.03 | 59,59,59,59                 | 0     |
| 48  | MG   | F1    | 3528 | 1/1   | 0.99 | 0.04 | 75,75,75,75                 | 0     |
| 48  | MG   | A1    | 3476 | 1/1   | 0.99 | 0.03 | 59,59,59,59                 | 0     |
| 48  | MG   | F1    | 3443 | 1/1   | 0.99 | 0.06 | 104,104,104,104             | 0     |
| 48  | MG   | D1    | 3500 | 1/1   | 0.99 | 0.08 | 44,44,44,44                 | 0     |
| 48  | MG   | D1    | 3630 | 1/1   | 0.99 | 0.05 | 71,71,71,71                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | H1    | 3506 | 1/1   | 0.99 | 0.05 | 75,75,75,75                 | 0     |
| 48  | MG   | D1    | 3566 | 1/1   | 0.99 | 0.03 | 80,80,80,80                 | 0     |
| 48  | MG   | D1    | 3501 | 1/1   | 0.99 | 0.04 | 51,51,51,51                 | 0     |
| 48  | MG   | F1    | 3535 | 1/1   | 0.99 | 0.07 | 58,58,58,58                 | 0     |
| 48  | MG   | D1    | 3502 | 1/1   | 0.99 | 0.03 | 38,38,38,38                 | 0     |
| 48  | MG   | D1    | 3569 | 1/1   | 0.99 | 0.03 | 48,48,48,48                 | 0     |
| 48  | MG   | D1    | 3570 | 1/1   | 0.99 | 0.09 | 54,54,54,54                 | 0     |
| 48  | MG   | D1    | 3503 | 1/1   | 0.99 | 0.04 | 82,82,82,82                 | 0     |
| 48  | MG   | H1    | 3514 | 1/1   | 0.99 | 0.04 | 66,66,66,66                 | 0     |
| 48  | MG   | H1    | 3515 | 1/1   | 0.99 | 0.07 | 73,73,73,73                 | 0     |
| 48  | MG   | A1    | 3520 | 1/1   | 0.99 | 0.04 | 70,70,70,70                 | 0     |
| 48  | MG   | F1    | 3454 | 1/1   | 0.99 | 0.03 | 56,56,56,56                 | 0     |
| 48  | MG   | F1    | 3455 | 1/1   | 0.99 | 0.06 | 65,65,65,65                 | 0     |
| 48  | MG   | F1    | 3456 | 1/1   | 0.99 | 0.04 | 62,62,62,62                 | 0     |
| 48  | MG   | D1    | 3449 | 1/1   | 0.99 | 0.03 | 68,68,68,68                 | 0     |
| 48  | MG   | A1    | 3464 | 1/1   | 0.99 | 0.04 | 64,64,64,64                 | 0     |
| 48  | MG   | F1    | 3546 | 1/1   | 0.99 | 0.04 | 59,59,59,59                 | 0     |
| 48  | MG   | F1    | 3459 | 1/1   | 0.99 | 0.06 | 79,79,79,79                 | 0     |
| 48  | MG   | BL    | 301  | 1/1   | 0.99 | 0.04 | 71,71,71,71                 | 0     |
| 48  | MG   | E2    | 204  | 1/1   | 0.99 | 0.03 | 75,75,75,75                 | 0     |
| 48  | MG   | D1    | 3411 | 1/1   | 0.99 | 0.04 | 44,44,44,44                 | 0     |
| 48  | MG   | A1    | 3543 | 1/1   | 0.99 | 0.10 | 96,96,96,96                 | 0     |
| 48  | MG   | A1    | 3465 | 1/1   | 0.99 | 0.04 | 54,54,54,54                 | 0     |
| 48  | MG   | A1    | 3456 | 1/1   | 0.99 | 0.04 | 49,49,49,49                 | 0     |
| 48  | MG   | D1    | 3457 | 1/1   | 0.99 | 0.05 | 34,34,34,34                 | 0     |
| 48  | MG   | BQ    | 202  | 1/1   | 0.99 | 0.03 | 53,53,53,53                 | 0     |
| 48  | MG   | F1    | 3470 | 1/1   | 0.99 | 0.04 | 49,49,49,49                 | 0     |
| 48  | MG   | D1    | 3459 | 1/1   | 0.99 | 0.04 | 63,63,63,63                 | 0     |
| 48  | MG   | BW    | 201  | 1/1   | 0.99 | 0.05 | 67,67,67,67                 | 0     |
| 48  | MG   | A1    | 3546 | 1/1   | 0.99 | 0.09 | 51,51,51,51                 | 0     |
| 48  | MG   | A1    | 3570 | 1/1   | 0.99 | 0.05 | 70,70,70,70                 | 0     |
| 48  | MG   | C2    | 203  | 1/1   | 0.99 | 0.03 | 63,63,63,63                 | 0     |
| 48  | MG   | D1    | 3520 | 1/1   | 0.99 | 0.03 | 93,93,93,93                 | 0     |
| 48  | MG   | H1    | 3440 | 1/1   | 0.99 | 0.03 | 73,73,73,73                 | 0     |
| 48  | MG   | D1    | 3464 | 1/1   | 0.99 | 0.04 | 44,44,44,44                 | 0     |
| 48  | MG   | F1    | 3478 | 1/1   | 0.99 | 0.05 | 73,73,73,73                 | 0     |
| 48  | MG   | D1    | 3465 | 1/1   | 0.99 | 0.05 | 65,65,65,65                 | 0     |
| 48  | MG   | H1    | 3444 | 1/1   | 0.99 | 0.04 | 65,65,65,65                 | 0     |
| 48  | MG   | H1    | 3445 | 1/1   | 0.99 | 0.04 | 68,68,68,68                 | 0     |
| 48  | MG   | C2    | 204  | 1/1   | 0.99 | 0.03 | 75,75,75,75                 | 0     |
| 48  | MG   | A1    | 3426 | 1/1   | 0.99 | 0.04 | 73,73,73,73                 | 0     |
| 48  | MG   | A1    | 3526 | 1/1   | 0.99 | 0.04 | 48,48,48,48                 | 0     |

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| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | D1    | 3423 | 1/1   | 0.99 | 0.05 | 67,67,67,67                 | 0     |
| 48  | MG   | A1    | 3495 | 1/1   | 0.99 | 0.03 | 70,70,70,70                 | 0     |
| 48  | MG   | D1    | 3529 | 1/1   | 0.99 | 0.05 | 80,80,80,80                 | 0     |
| 48  | MG   | A1    | 3452 | 1/1   | 0.99 | 0.06 | 90,90,90,90                 | 0     |
| 48  | MG   | H1    | 3453 | 1/1   | 0.99 | 0.05 | 66,66,66,66                 | 0     |
| 48  | MG   | A1    | 3406 | 1/1   | 0.99 | 0.04 | 75,75,75,75                 | 0     |
| 48  | MG   | D1    | 3473 | 1/1   | 0.99 | 0.03 | 63,63,63,63                 | 0     |
| 48  | MG   | A1    | 3460 | 1/1   | 0.99 | 0.04 | 61,61,61,61                 | 0     |
| 48  | MG   | A1    | 3421 | 1/1   | 0.99 | 0.03 | 71,71,71,71                 | 0     |
| 49  | ZN   | AA    | 101  | 1/1   | 0.99 | 0.05 | 64,64,64,64                 | 0     |
| 48  | MG   | H1    | 3458 | 1/1   | 0.99 | 0.04 | 90,90,90,90                 | 0     |
| 49  | ZN   | AK    | 201  | 1/1   | 0.99 | 0.03 | 89,89,89,89                 | 0     |
| 49  | ZN   | DL    | 201  | 1/1   | 0.99 | 0.04 | 86,86,86,86                 | 0     |
| 49  | ZN   | EY    | 201  | 1/1   | 0.99 | 0.02 | 77,77,77,77                 | 0     |
| 48  | MG   | F1    | 3409 | 1/1   | 0.99 | 0.04 | 60,60,60,60                 | 0     |
| 49  | ZN   | FC    | 201  | 1/1   | 0.99 | 0.03 | 108,108,108,108             | 0     |
| 49  | ZN   | FL    | 201  | 1/1   | 0.99 | 0.04 | 86,86,86,86                 | 0     |
| 49  | ZN   | GY    | 201  | 1/1   | 0.99 | 0.04 | 116,116,116,116             | 0     |
| 49  | ZN   | HA    | 101  | 1/1   | 0.99 | 0.05 | 112,112,112,112             | 0     |
| 48  | MG   | F1    | 3410 | 1/1   | 0.99 | 0.04 | 42,42,42,42                 | 0     |
| 49  | ZN   | HL    | 201  | 1/1   | 0.99 | 0.02 | 118,118,118,118             | 0     |
| 48  | MG   | F1    | 3460 | 1/1   | 1.00 | 0.02 | 36,36,36,36                 | 0     |
| 48  | MG   | F1    | 3523 | 1/1   | 1.00 | 0.04 | 55,55,55,55                 | 0     |
| 48  | MG   | D1    | 3410 | 1/1   | 1.00 | 0.01 | 39,39,39,39                 | 0     |
| 48  | MG   | A1    | 3525 | 1/1   | 1.00 | 0.03 | 51,51,51,51                 | 0     |
| 48  | MG   | A1    | 3489 | 1/1   | 1.00 | 0.02 | 33,33,33,33                 | 0     |
| 48  | MG   | F1    | 3450 | 1/1   | 1.00 | 0.02 | 59,59,59,59                 | 0     |
| 48  | MG   | A1    | 3410 | 1/1   | 1.00 | 0.04 | 62,62,62,62                 | 0     |
| 48  | MG   | D1    | 3479 | 1/1   | 1.00 | 0.02 | 50,50,50,50                 | 0     |
| 49  | ZN   | AL    | 201  | 1/1   | 1.00 | 0.01 | 70,70,70,70                 | 0     |
| 49  | ZN   | BY    | 201  | 1/1   | 1.00 | 0.02 | 59,59,59,59                 | 0     |
| 49  | ZN   | CY    | 202  | 1/1   | 1.00 | 0.02 | 70,70,70,70                 | 0     |
| 49  | ZN   | DA    | 103  | 1/1   | 1.00 | 0.05 | 69,69,69,69                 | 0     |
| 49  | ZN   | DC    | 201  | 1/1   | 1.00 | 0.05 | 89,89,89,89                 | 0     |
| 49  | ZN   | DK    | 202  | 1/1   | 1.00 | 0.02 | 68,68,68,68                 | 0     |
| 48  | MG   | F1    | 3467 | 1/1   | 1.00 | 0.04 | 57,57,57,57                 | 0     |
| 48  | MG   | D1    | 3533 | 1/1   | 1.00 | 0.02 | 41,41,41,41                 | 0     |
| 48  | MG   | F1    | 3499 | 1/1   | 1.00 | 0.02 | 57,57,57,57                 | 0     |
| 48  | MG   | A1    | 3432 | 1/1   | 1.00 | 0.03 | 45,45,45,45                 | 0     |
| 49  | ZN   | FK    | 202  | 1/1   | 1.00 | 0.04 | 74,74,74,74                 | 0     |
| 48  | MG   | D1    | 3509 | 1/1   | 1.00 | 0.03 | 41,41,41,41                 | 0     |
| 48  | MG   | D1    | 3546 | 1/1   | 1.00 | 0.03 | 49,49,49,49                 | 0     |

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*Continued from previous page...*

| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 48  | MG   | F1    | 3432 | 1/1   | 1.00 | 0.02 | 68,68,68,68                 | 0     |
| 48  | MG   | D1    | 3526 | 1/1   | 1.00 | 0.03 | 54,54,54,54                 | 0     |
| 49  | ZN   | HK    | 201  | 1/1   | 1.00 | 0.03 | 70,70,70,70                 | 0     |
| 48  | MG   | D1    | 3450 | 1/1   | 1.00 | 0.02 | 49,49,49,49                 | 0     |

## 6.5 Other polymers [i](#)

There are no such residues in this entry.