



## Full wwPDB EM Validation Report ⓘ

Mar 8, 2026 – 04:12 PM UTC

PDB ID : 6IP5 / pdb\_00006ip5  
EMDB ID : EMD-9701  
Title : Cryo-EM structure of the CMV-stalled human 80S ribosome (Structure ii)  
Authors : Yokoyama, T.; Shigematsu, H.; Shirouzu, M.; Imataka, H.; Ito, T.  
Deposited on : 2018-11-02  
Resolution : 3.90 Å(reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>

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:

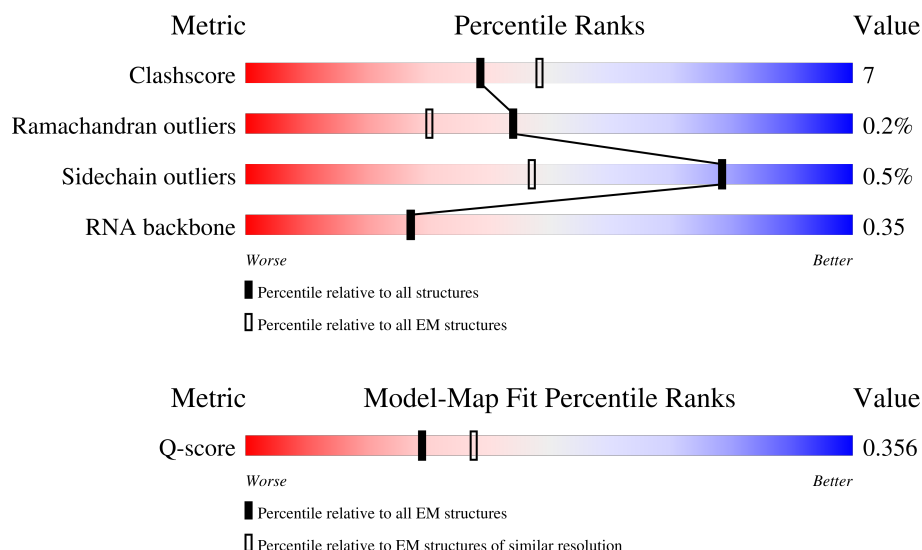
EMDB validation analysis : 0.0.1.dev132  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.90 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.



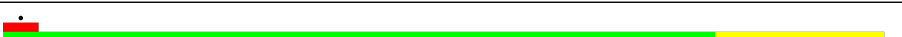
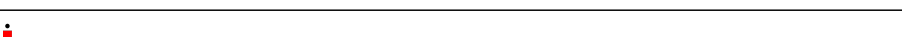
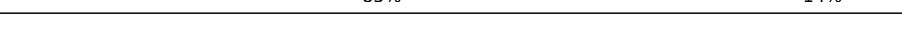
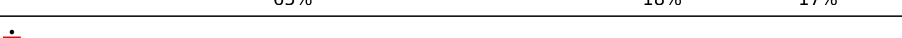
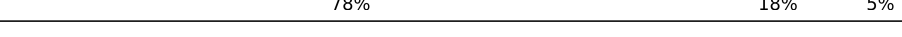
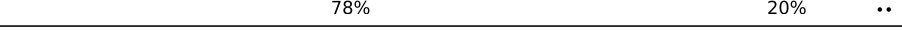
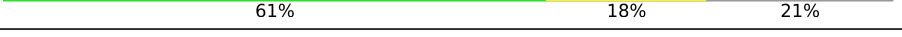
| Metric                | Whole archive<br>(#Entries) | EM structures<br>(#Entries) | Similar EM resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|-----------------------------|----------------------------------------------------------|
| Clashscore            | 229148                      | 23984                       | -                                                        |
| Ramachandran outliers | 224038                      | 23583                       | -                                                        |
| Sidechain outliers    | 223484                      | 23102                       | -                                                        |
| RNA backbone          | 8273                        | 3508                        | -                                                        |
| Q-score               | -                           | 25397                       | 8855 ( 3.40 - 4.40 )                                     |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | 1A    | 5070   |                  |
| 2   | 1B    | 121    |                  |
| 3   | 1C    | 157    |                  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 4   | 1D    | 257    |    |
| 5   | 1E    | 403    |    |
| 6   | 1F    | 427    |    |
| 7   | 1G    | 297    |    |
| 8   | 1H    | 288    |    |
| 9   | 2A    | 248    |    |
| 10  | 2B    | 266    |    |
| 11  | 2C    | 192    |    |
| 12  | 2D    | 214    |    |
| 13  | 2E    | 178    |    |
| 14  | 2F    | 211    |    |
| 15  | 2G    | 215    |    |
| 16  | 2H    | 204    |  |
| 17  | 2I    | 203    |  |
| 18  | 2J    | 184    |  |
| 19  | 2K    | 188    |  |
| 20  | 2L    | 196    |  |
| 21  | 2M    | 176    |  |
| 22  | 2N    | 160    |  |
| 23  | 2O    | 128    |  |
| 24  | 2P    | 140    |  |
| 25  | 2Q    | 157    |  |
| 26  | 2R    | 156    |  |
| 27  | 2S    | 145    |  |
| 28  | 2T    | 136    |  |

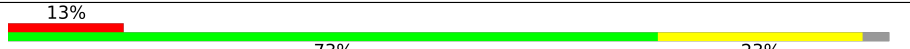
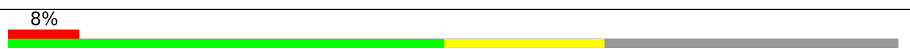
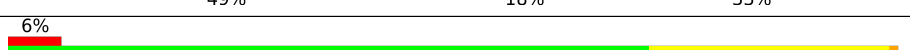
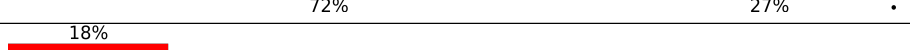
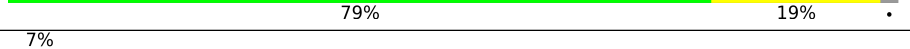
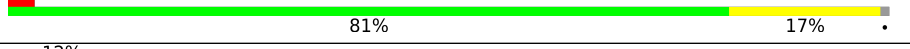
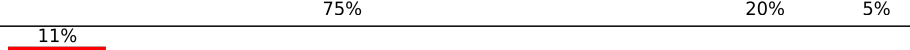
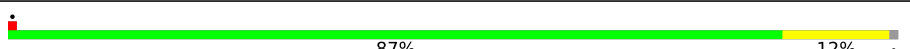
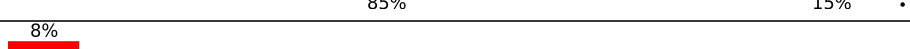
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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 29  | 2U    | 148    |                  |
| 30  | 2V    | 159    |                  |
| 31  | 2W    | 115    |                  |
| 32  | 2X    | 125    |                  |
| 33  | 2Y    | 135    |                  |
| 34  | 2Z    | 110    |                  |
| 35  | 2a    | 117    |                  |
| 36  | 2b    | 123    |                  |
| 37  | 2c    | 105    |                  |
| 38  | 2d    | 97     |                  |
| 39  | 2e    | 70     |                  |
| 40  | 2f    | 51     |                  |
| 41  | 2g    | 128    |                  |
| 42  | 2h    | 25     |                  |
| 43  | 2i    | 106    |                  |
| 44  | 2j    | 92     |                  |
| 45  | 2k    | 137    |                  |
| 46  | 2l    | 217    |                  |
| 47  | 2m    | 1869   |                  |
| 48  | 2n    | 295    |                  |
| 49  | 2o    | 264    |                  |
| 50  | 2p    | 243    |                  |
| 51  | 2q    | 263    |                  |
| 52  | 2r    | 204    |                  |
| 53  | 2s    | 194    |                  |

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| Mol | Chain | Length | Quality of chain                                                                     |
|-----|-------|--------|--------------------------------------------------------------------------------------|
| 54  | 2t    | 208    |    |
| 55  | 2u    | 165    |    |
| 56  | 2v    | 158    |    |
| 57  | 2w    | 145    |    |
| 58  | 2x    | 146    |    |
| 59  | 2y    | 135    |    |
| 60  | 2z    | 152    |    |
| 61  | 20    | 145    |    |
| 62  | 21    | 119    |    |
| 63  | 3A    | 83     |    |
| 64  | 3B    | 143    |    |
| 65  | 3C    | 115    |    |
| 66  | 3D    | 69     |   |
| 67  | 3E    | 56     |  |
| 68  | 3F    | 317    |  |
| 69  | 3G    | 293    |  |
| 70  | 3H    | 249    |  |
| 71  | 3I    | 194    |  |
| 72  | 3J    | 132    |  |
| 73  | 3K    | 151    |  |
| 74  | 3L    | 151    |  |
| 75  | 3M    | 130    |  |
| 76  | 3N    | 133    |  |
| 77  | 3O    | 125    |  |
| 78  | 3P    | 84     |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 79  | 3Q    | 59     |                  |
| 80  | 3R    | 156    |                  |
| 81  | zV    | 6      |                  |
| 82  | zX    | 17     |                  |
| 83  | zU    | 75     |                  |
| 83  | zY    | 75     |                  |

## 2 Entry composition [i](#)

There are 83 unique types of molecules in this entry. The entry contains 220009 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 28S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |       |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|-------|-------|------|---------|-------|
| 1   | 1A    | 3717     | Total | C     | N     | O     | P    | 0       | 0     |
|     |       |          | 79676 | 35480 | 14585 | 25895 | 3716 |         |       |

- Molecule 2 is a RNA chain called 5S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|-----|---------|-------|
| 2   | 1B    | 120      | Total | C    | N   | O   | P   | 0       | 0     |
|     |       |          | 2558  | 1141 | 456 | 842 | 119 |         |       |

- Molecule 3 is a RNA chain called 5.8S ribosomal RNA.

| Mol | Chain | Residues | Atoms |      |     |      |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|------|-----|---------|-------|
| 3   | 1C    | 156      | Total | C    | N   | O    | P   | 0       | 0     |
|     |       |          | 3314  | 1480 | 585 | 1094 | 155 |         |       |

- Molecule 4 is a protein called 60S ribosomal protein L8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 4   | 1D    | 248      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1898  | 1189 | 389 | 314 | 6 |         |       |

- Molecule 5 is a protein called 60S ribosomal protein L3.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 5   | 1E    | 402      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 3238  | 2060 | 608 | 556 | 14 |         |       |

- Molecule 6 is a protein called 60S ribosomal protein L4.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 6   | 1F    | 368      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2927  | 1840 | 583 | 489 | 15 |         |       |

- Molecule 7 is a protein called 60S ribosomal protein L5.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 7   | 1G    | 293      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2382  | 1507 | 434 | 427 | 14 |         |       |

- Molecule 8 is a protein called 60S ribosomal protein L6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 8   | 1H    | 237      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1913  | 1228 | 363 | 318 | 4 |         |       |

- Molecule 9 is a protein called 60S ribosomal protein L7.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 9   | 2A    | 225      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1870  | 1202 | 358 | 301 | 9 |         |       |

- Molecule 10 is a protein called 60S ribosomal protein L7a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 10  | 2B    | 241      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1927  | 1228 | 371 | 324 | 4 |         |       |

- Molecule 11 is a protein called 60S ribosomal protein L9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 11  | 2C    | 190      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1518  | 956 | 284 | 272 | 6 |         |       |

- Molecule 12 is a protein called 60S ribosomal protein L10-like.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 12  | 2D    | 213      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1711  | 1082 | 329 | 285 | 15 |         |       |

- Molecule 13 is a protein called 60S ribosomal protein L11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 13  | 2E    | 176      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1410  | 888 | 263 | 253 | 6 |         |       |

- Molecule 14 is a protein called 60S ribosomal protein L13.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 14  | 2F    | 210      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1701  | 1064 | 352 | 281 | 4 |         |       |

- Molecule 15 is a protein called 60S ribosomal protein L14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 15  | 2G    | 139      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1138  | 730 | 218 | 183 | 7 |         |       |

- Molecule 16 is a protein called 60S ribosomal protein L15.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 16  | 2H    | 203      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1701  | 1072 | 359 | 266 | 4 |         |       |

- Molecule 17 is a protein called 60S ribosomal protein L13a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 17  | 2I    | 201      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1650  | 1063 | 321 | 261 | 5 |         |       |

- Molecule 18 is a protein called 60S ribosomal protein L17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 18  | 2J    | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1242  | 776 | 241 | 216 | 9 |         |       |

- Molecule 19 is a protein called 60S ribosomal protein L18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 19  | 2K    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1513  | 944 | 314 | 250 | 5 |         |       |

- Molecule 20 is a protein called 60S ribosomal protein L19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 20  | 2L    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1566  | 971 | 336 | 250 | 9 |         |       |

- Molecule 21 is a protein called 60S ribosomal protein L18a.

| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 21  | 2M    | 175      | Total | C   | N   | O   | S  | 0       | 0     |
|     |       |          | 1453  | 925 | 283 | 235 | 10 |         |       |

- Molecule 22 is a protein called 60S ribosomal protein L21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 22  | 2N    | 159      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1298  | 823 | 252 | 217 | 6 |         |       |

- Molecule 23 is a protein called 60S ribosomal protein L22.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 23  | 2O    | 101      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 825   | 529 | 144 | 150 | 2 |         |       |

- Molecule 24 is a protein called 60S ribosomal protein L23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 24  | 2P    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 979   | 618 | 184 | 172 | 5 |         |       |

- Molecule 25 is a protein called 60S ribosomal protein L24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 25  | 2Q    | 124      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1015  | 634 | 207 | 170 | 4 |         |       |

- Molecule 26 is a protein called 60S ribosomal protein L23a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 26  | 2R    | 119      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 976   | 625 | 184 | 166 | 1 |         |       |

- Molecule 27 is a protein called 60S ribosomal protein L26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 27  | 2S    | 134      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1115  | 700 | 226 | 186 | 3 |         |       |

- Molecule 28 is a protein called 60S ribosomal protein L27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 28  | 2T    | 135      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1107  | 714 | 208 | 182 | 3 |         |       |

- Molecule 29 is a protein called 60S ribosomal protein L27a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 29  | 2U    | 147      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1162  | 736 | 237 | 186 | 3 |         |       |

- Molecule 30 is a protein called 60S ribosomal protein L29.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 30  | 2V    | 109      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 876   | 546 | 189 | 137 | 4 |         |       |

- Molecule 31 is a protein called 60S ribosomal protein L30.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 31  | 2W    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 764   | 485 | 135 | 138 | 6 |         |       |

- Molecule 32 is a protein called 60S ribosomal protein L31.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 32  | 2X    | 107      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 888   | 560 | 171 | 155 | 2 |         |       |

- Molecule 33 is a protein called 60S ribosomal protein L32.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 33  | 2Y    | 128      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1053  | 667 | 216 | 165 | 5 |         |       |

- Molecule 34 is a protein called 60S ribosomal protein L35a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 34  | 2Z    | 109      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 876   | 555 | 174 | 144 | 3 |         |       |

- Molecule 35 is a protein called 60S ribosomal protein L34.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 35  | 2a    | 113      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 895   | 560 | 183 | 146 | 6 |         |       |

- Molecule 36 is a protein called 60S ribosomal protein L35.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 36  | 2b    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1015  | 641 | 205 | 168 | 1 |         |       |

- Molecule 37 is a protein called 60S ribosomal protein L36.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 37  | 2c    | 102      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 832   | 521 | 177 | 129 | 5 |         |       |

- Molecule 38 is a protein called 60S ribosomal protein L37.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 38  | 2d    | 86       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 705   | 434 | 155 | 111 | 5 |         |       |

- Molecule 39 is a protein called 60S ribosomal protein L38.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 39  | 2e    | 69       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 569   | 366 | 103 | 99 | 1 |         |       |

- Molecule 40 is a protein called 60S ribosomal protein L39.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 40  | 2f    | 50       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 444   | 281 | 98 | 64 | 1 |         |       |

- Molecule 41 is a protein called Ubiquitin-60S ribosomal protein L40.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 41  | 2g    | 52       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 429   | 266 | 90 | 67 | 6 |         |       |

- Molecule 42 is a protein called 60S ribosomal protein L41.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 42  | 2h    | 24       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 230   | 139 | 62 | 26 | 3 |         |       |

- Molecule 43 is a protein called 60S ribosomal protein L36a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 43  | 2i    | 105      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 862   | 542 | 175 | 139 | 6 |         |       |

- Molecule 44 is a protein called 60S ribosomal protein L37a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 44  | 2j    | 91       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 708   | 445 | 136 | 120 | 7 |         |       |

- Molecule 45 is a protein called 60S ribosomal protein L28.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 45  | 2k    | 125      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1002  | 622 | 207 | 168 | 5 |         |       |

- Molecule 46 is a protein called 60S ribosomal protein L10a.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 46  | 2l    | 217      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1741  | 1113 | 312 | 307 | 9 |         |       |

- Molecule 47 is a RNA chain called 18S ribosomal RNA.

| Mol | Chain | Residues | Atoms |       |      |       |      | AltConf | Trace |
|-----|-------|----------|-------|-------|------|-------|------|---------|-------|
| 47  | 2m    | 1742     | Total | C     | N    | O     | P    | 0       | 0     |
|     |       |          | 36900 | 16458 | 6595 | 12106 | 1741 |         |       |

- Molecule 48 is a protein called 40S ribosomal protein SA.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 48  | 2n    | 221      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1741  | 1106 | 305 | 322 | 8 |         |       |

- Molecule 49 is a protein called 40S ribosomal protein S3a.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 49  | 2o    | 214      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1738  | 1103 | 310 | 311 | 14 |         |       |

- Molecule 50 is a protein called 40S ribosomal protein S3.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 50  | 2p    | 227      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1765  | 1125 | 317 | 315 | 8 |         |       |

- Molecule 51 is a protein called 40S ribosomal protein S4, X isoform.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 51  | 2q    | 262      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 2076  | 1324 | 386 | 358 | 8 |         |       |

- Molecule 52 is a protein called 40S ribosomal protein S5.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 52  | 2r    | 187      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1479  | 924 | 282 | 266 | 7 |         |       |

- Molecule 53 is a protein called 40S ribosomal protein S7.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 53  | 2s    | 189      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1521  | 969 | 280 | 271 | 1 |         |       |

- Molecule 54 is a protein called 40S ribosomal protein S8.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 54  | 2t    | 206      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1686  | 1058 | 332 | 291 | 5 |         |       |

- Molecule 55 is a protein called 40S ribosomal protein S10.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 55  | 2u    | 98       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 827   | 539 | 148 | 134 | 6 |         |       |

- Molecule 56 is a protein called 40S ribosomal protein S11.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 56  | 2v    | 153      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1247  | 793 | 234 | 214 | 6 |         |       |

- Molecule 57 is a protein called 40S ribosomal protein S15.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 57  | 2w    | 97       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 804   | 505 | 155 | 138 | 6 |         |       |

- Molecule 58 is a protein called 40S ribosomal protein S16.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 58  | 2x    | 146      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1158  | 736 | 218 | 200 | 4 |         |       |

- Molecule 59 is a protein called 40S ribosomal protein S17.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 59  | 2y    | 132      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1072  | 673 | 199 | 195 | 5 |         |       |

- Molecule 60 is a protein called 40S ribosomal protein S18.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 60  | 2z    | 150      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1235  | 776 | 250 | 208 | 1 |         |       |

- Molecule 61 is a protein called 40S ribosomal protein S19.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 61  | 20    | 143      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1112  | 697 | 214 | 198 | 3 |         |       |

- Molecule 62 is a protein called 40S ribosomal protein S20.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 62  | 21    | 104      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 821   | 514 | 155 | 148 | 4 |         |       |

- Molecule 63 is a protein called 40S ribosomal protein S21.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 63  | 3A    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 636   | 393 | 117 | 121 | 5 |         |       |

- Molecule 64 is a protein called 40S ribosomal protein S23.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 64  | 3B    | 141      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1098  | 693 | 219 | 183 | 3 |         |       |

- Molecule 65 is a protein called 40S ribosomal protein S26.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 65  | 3C    | 107      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 847   | 528 | 176 | 138 | 5 |         |       |

- Molecule 66 is a protein called 40S ribosomal protein S28.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 66  | 3D    | 64       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 506   | 308 | 102 | 94 | 2 |         |       |

- Molecule 67 is a protein called 40S ribosomal protein S29.

| Mol | Chain | Residues | Atoms |     |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---|---------|-------|
| 67  | 3E    | 53       | Total | C   | N  | O  | S | 0       | 0     |
|     |       |          | 445   | 278 | 90 | 72 | 5 |         |       |

- Molecule 68 is a protein called Receptor of activated protein C kinase 1.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 68  | 3F    | 313      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 2436  | 1535 | 424 | 465 | 12 |         |       |

- Molecule 69 is a protein called 40S ribosomal protein S2.

| Mol | Chain | Residues | Atoms |      |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|-------|
| 69  | 3G    | 222      | Total | C    | N   | O   | S  | 0       | 0     |
|     |       |          | 1725  | 1115 | 298 | 302 | 10 |         |       |

- Molecule 70 is a protein called 40S ribosomal protein S6.

| Mol | Chain | Residues | Atoms |      |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---|---------|-------|
| 70  | 3H    | 237      | Total | C    | N   | O   | S | 0       | 0     |
|     |       |          | 1923  | 1200 | 387 | 329 | 7 |         |       |

- Molecule 71 is a protein called 40S ribosomal protein S9.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 71  | 3I    | 185      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1525  | 969 | 306 | 248 | 2 |         |       |

- Molecule 72 is a protein called 40S ribosomal protein S12.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 72  | 3J    | 122      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 952   | 596 | 169 | 179 | 8 |         |       |

There are 3 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment  | Reference  |
|-------|---------|----------|--------|----------|------------|
| 3J    | 52      | GLN      | LEU    | conflict | UNP P25398 |
| 3J    | 69      | LEU      | CYS    | conflict | UNP P25398 |
| 3J    | 99      | ASN      | LYS    | conflict | UNP P25398 |

- Molecule 73 is a protein called 40S ribosomal protein S13.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 73  | 3K    | 150      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1208  | 773 | 229 | 205 | 1 |         |       |

- Molecule 74 is a protein called 40S ribosomal protein S14.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 74  | 3L    | 140      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1049  | 642 | 204 | 197 | 6 |         |       |

- Molecule 75 is a protein called 40S ribosomal protein S15a.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 75  | 3M    | 129      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1034  | 659 | 193 | 176 | 6 |         |       |

- Molecule 76 is a protein called 40S ribosomal protein S24.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 76  | 3N    | 131      | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 1065  | 673 | 209 | 178 | 5 |         |       |

- Molecule 77 is a protein called 40S ribosomal protein S25.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 77  | 3O    | 75       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 598   | 382 | 111 | 104 | 1 |         |       |

- Molecule 78 is a protein called 40S ribosomal protein S27.

| Mol | Chain | Residues | Atoms |     |     |     |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|-------|
| 78  | 3P    | 83       | Total | C   | N   | O   | S | 0       | 0     |
|     |       |          | 651   | 408 | 121 | 115 | 7 |         |       |

- Molecule 79 is a protein called 40S ribosomal protein S30.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 79  | 3Q    | 58       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 459   | 284 | 100 | 74 | 1 |         |       |

- Molecule 80 is a protein called Ubiquitin-40S ribosomal protein S27a.

| Mol | Chain | Residues | Atoms |     |     |    |   | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|----|---|---------|-------|
| 80  | 3R    | 67       | Total | C   | N   | O  | S | 0       | 0     |
|     |       |          | 548   | 346 | 102 | 93 | 7 |         |       |

- Molecule 81 is a RNA chain called mRNA.

| Mol | Chain | Residues | Atoms |    |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|---|---------|-------|
| 81  | zv    | 6        | Total | C  | N  | O  | P | 0       | 0     |
|     |       |          | 123   | 55 | 19 | 43 | 6 |         |       |

- Molecule 82 is a protein called nascent peptide.

| Mol | Chain | Residues | Atoms |    |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|---|---------|-------|
| 82  | zx    | 17       | Total | C  | N  | O  | S | 0       | 0     |
|     |       |          | 129   | 86 | 20 | 22 | 1 |         |       |

- Molecule 83 is a RNA chain called P-site tRNA.

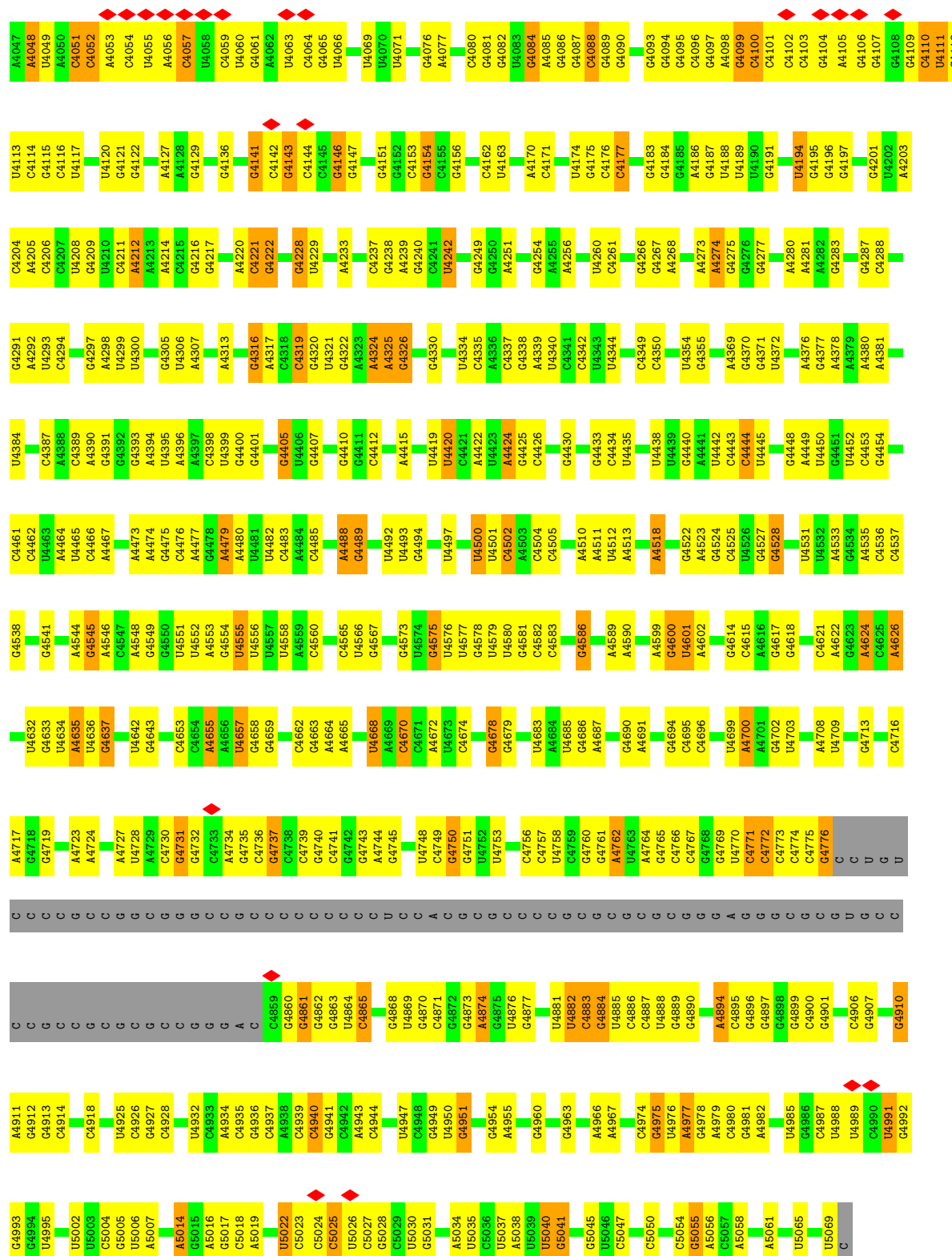
| Mol | Chain | Residues | Atoms |     |     |     |    | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|-------|
| 83  | zy    | 75       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1599  | 713 | 284 | 528 | 74 |         |       |
| 83  | zu    | 75       | Total | C   | N   | O   | P  | 0       | 0     |
|     |       |          | 1599  | 713 | 284 | 528 | 74 |         |       |

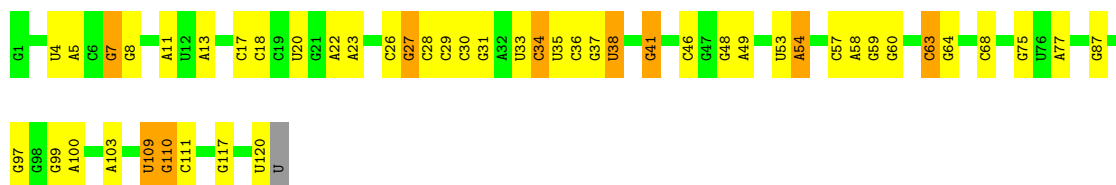






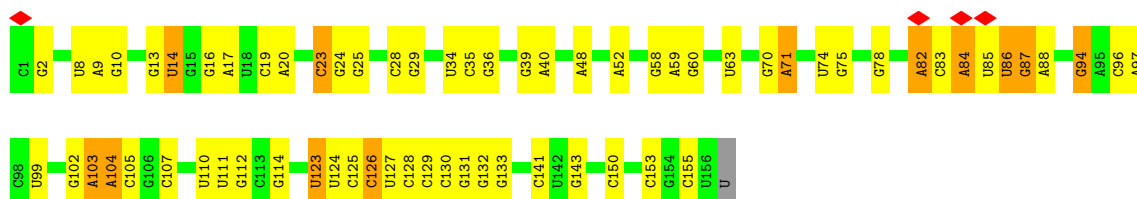
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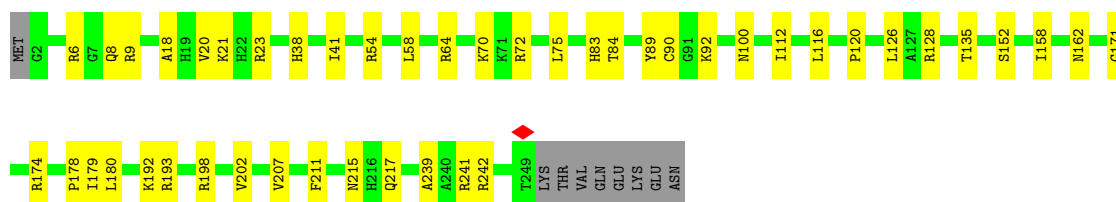
- Molecule 3: 5.8S ribosomal RNA

Chain 1C: 57% 35% 8% .



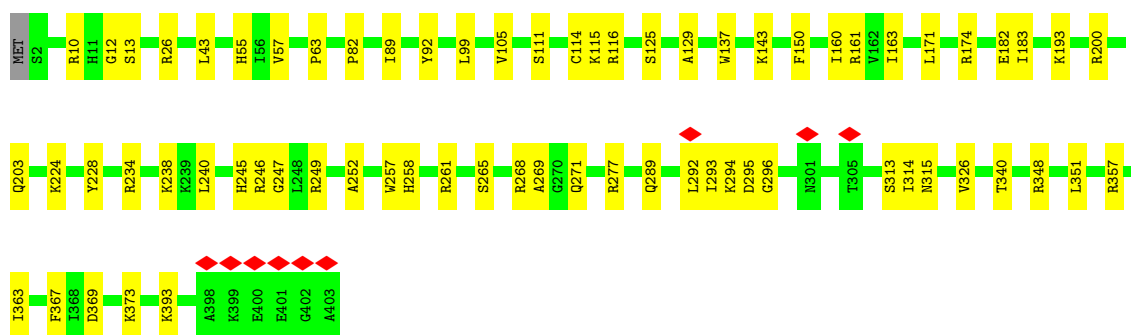
- Molecule 4: 60S ribosomal protein L8

Chain 1D: 79% 18% .



- Molecule 5: 60S ribosomal protein L3

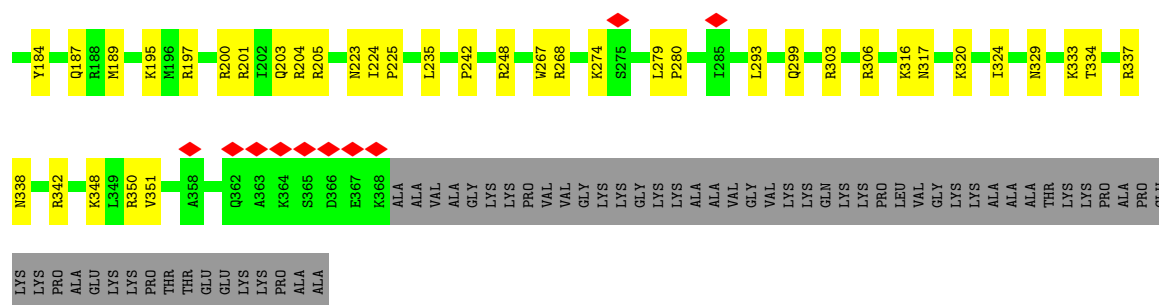
Chain 1E: 83% 17%



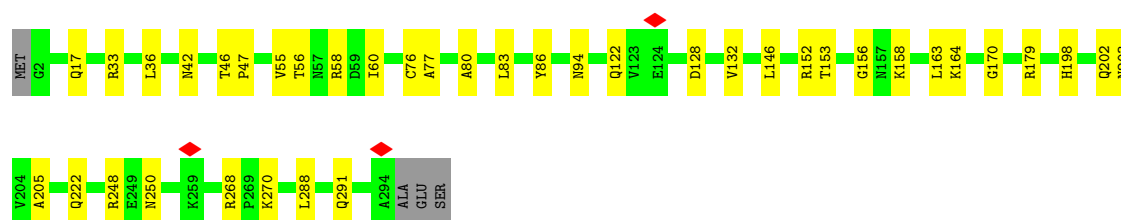
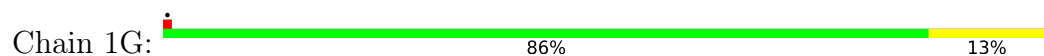
- Molecule 6: 60S ribosomal protein L4

Chain 1F: 70% 15% 14%

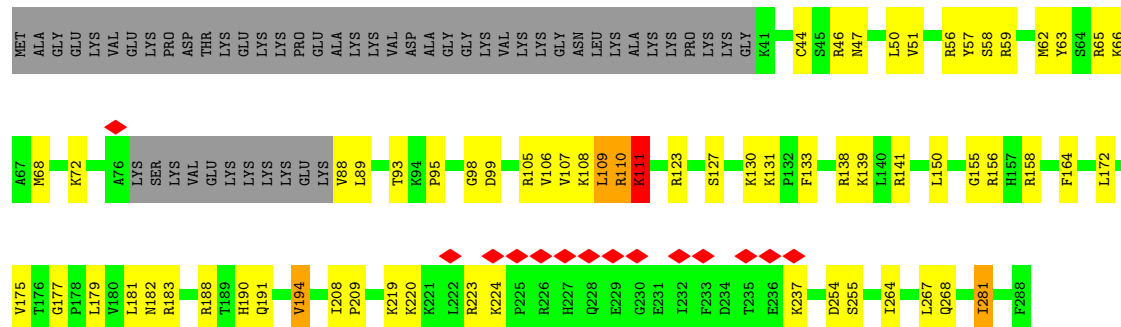




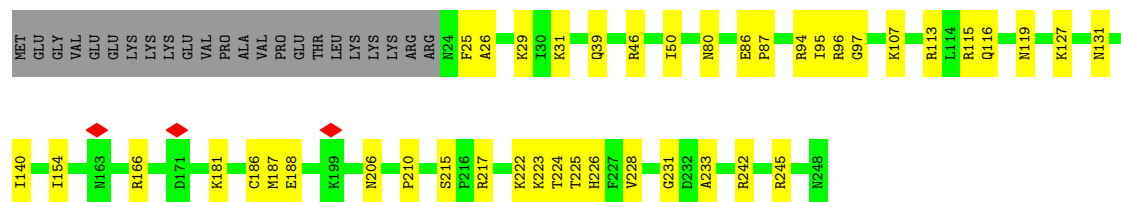
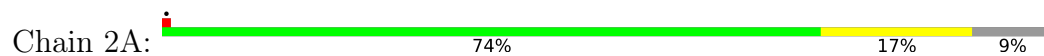
• Molecule 7: 60S ribosomal protein L5



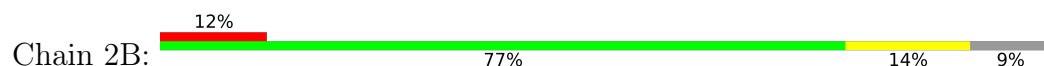
• Molecule 8: 60S ribosomal protein L6

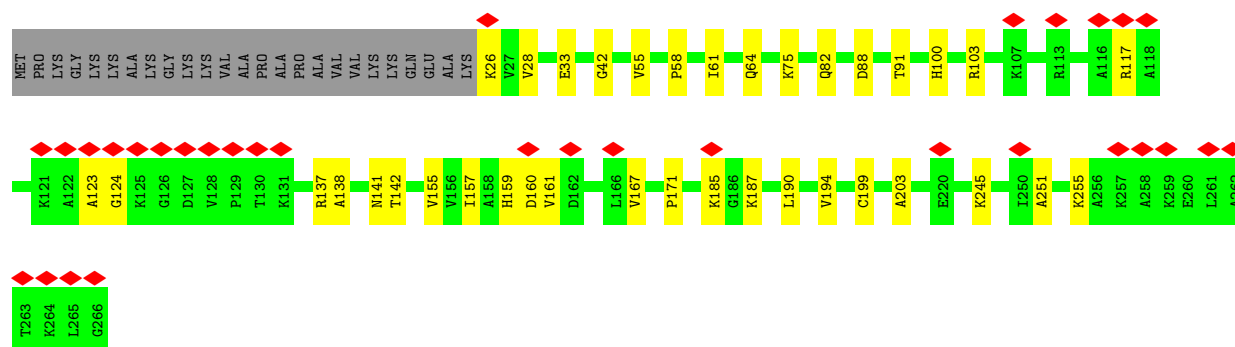


• Molecule 9: 60S ribosomal protein L7

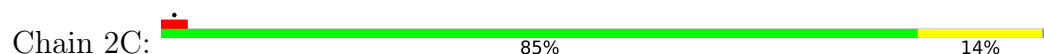


• Molecule 10: 60S ribosomal protein L7a

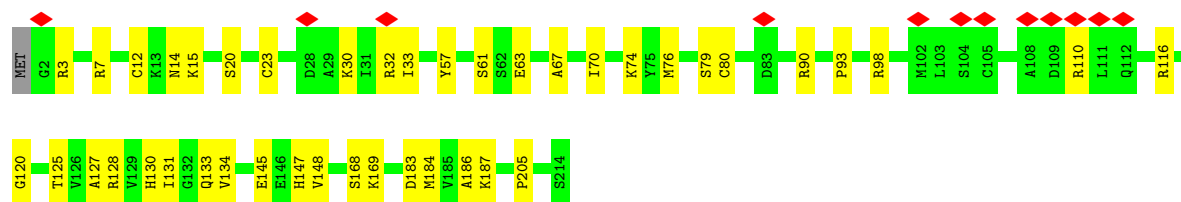
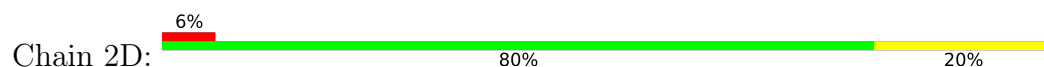




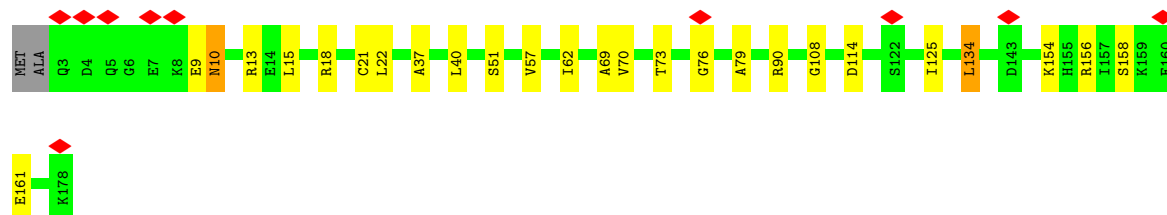
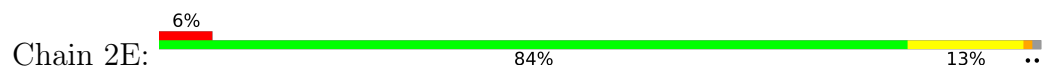
- Molecule 11: 60S ribosomal protein L9



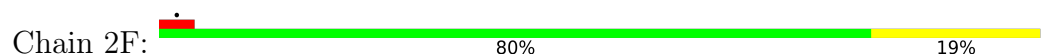
- Molecule 12: 60S ribosomal protein L10-like

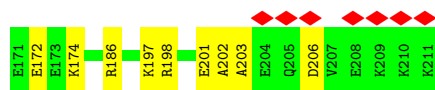


- Molecule 13: 60S ribosomal protein L11



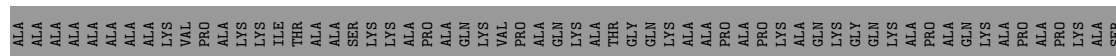
- Molecule 14: 60S ribosomal protein L13





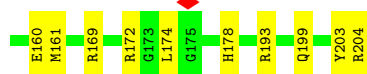
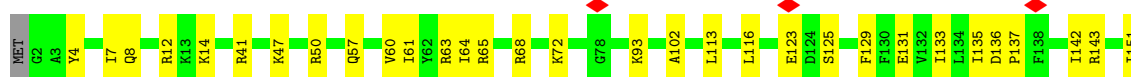
- Molecule 15: 60S ribosomal protein L14

Chain 2G: 55% 10% 35%



- Molecule 16: 60S ribosomal protein L15

Chain 2H: 79% 20%



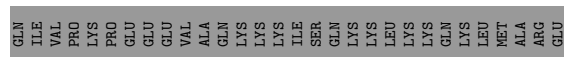
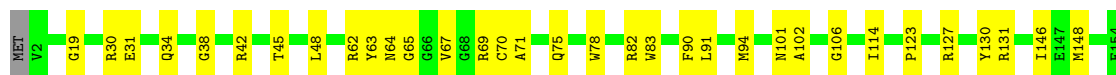
- Molecule 17: 60S ribosomal protein L13a

Chain 2I: 85% 14%



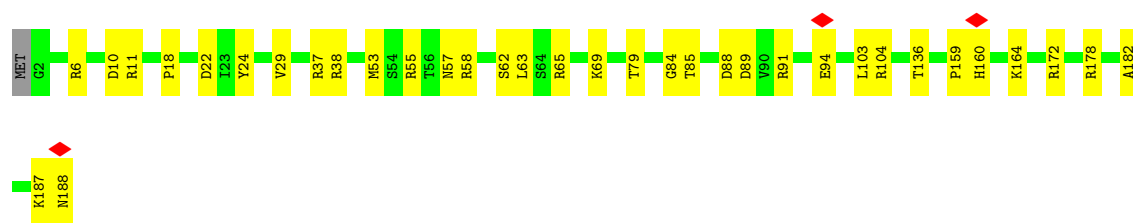
- Molecule 18: 60S ribosomal protein L17

Chain 2J: 65% 18% 17%

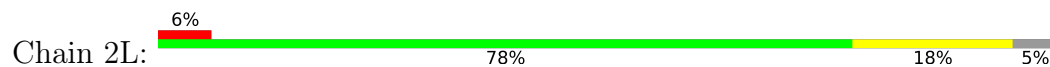


- Molecule 19: 60S ribosomal protein L18

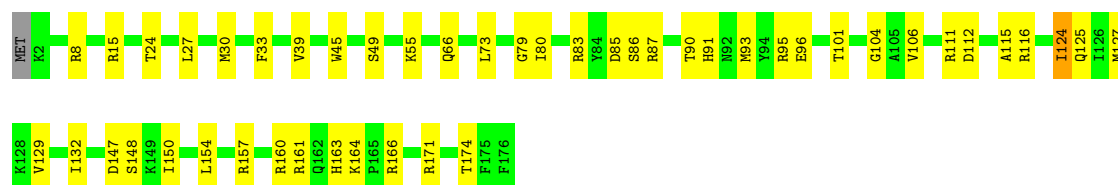
Chain 2K: 81% 19%



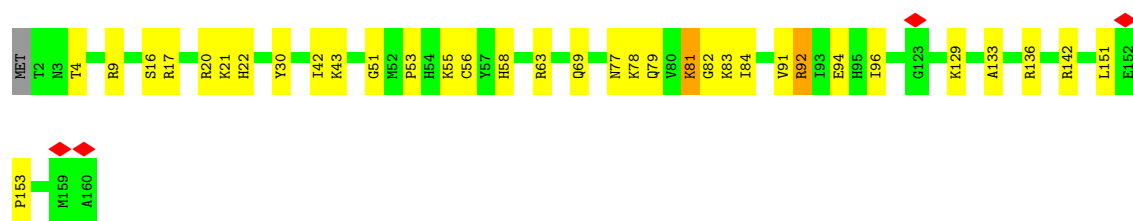
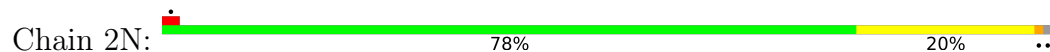
- Molecule 20: 60S ribosomal protein L19



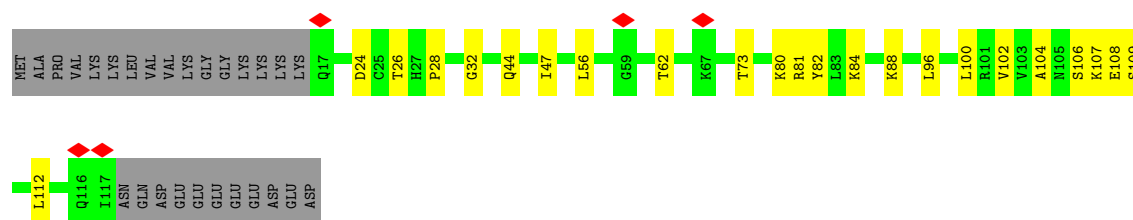
- Molecule 21: 60S ribosomal protein L18a



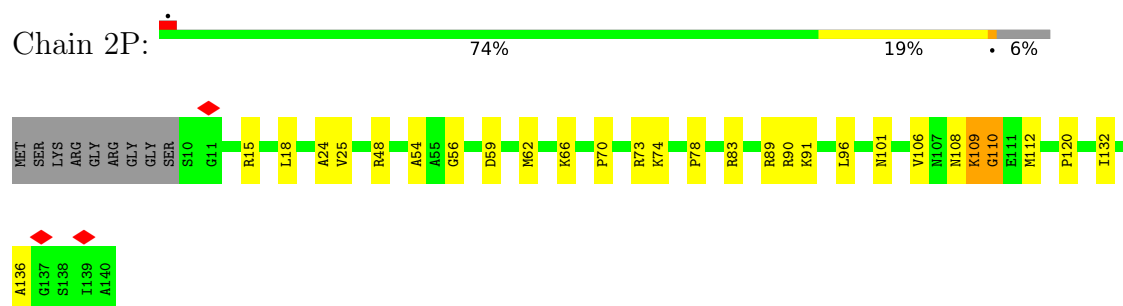
- Molecule 22: 60S ribosomal protein L21



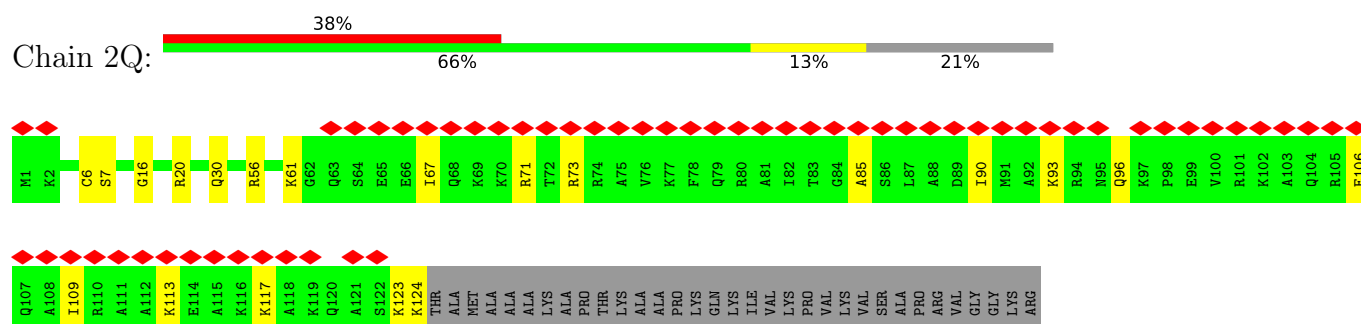
- Molecule 23: 60S ribosomal protein L22



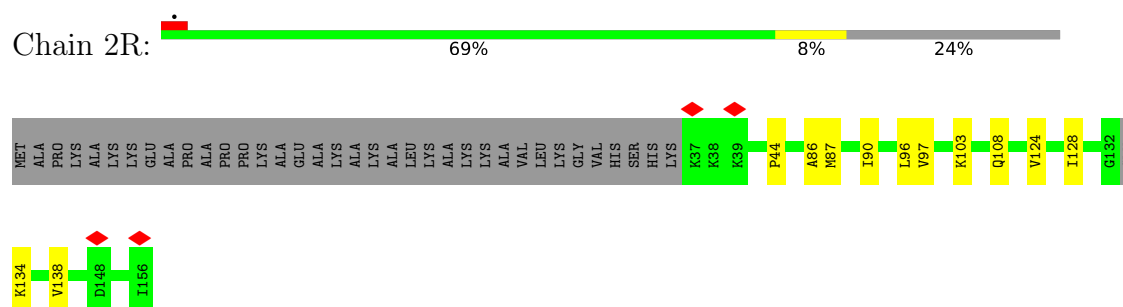
- Molecule 24: 60S ribosomal protein L23



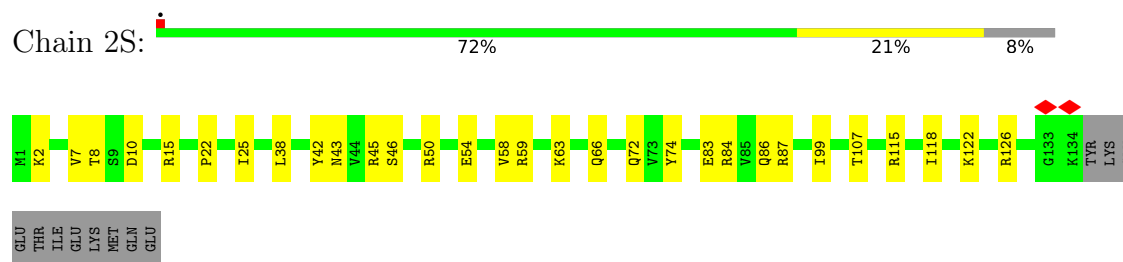
- Molecule 25: 60S ribosomal protein L24



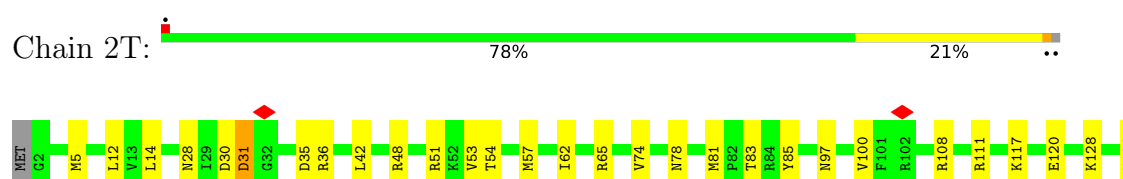
- Molecule 26: 60S ribosomal protein L23a



- Molecule 27: 60S ribosomal protein L26



- Molecule 28: 60S ribosomal protein L27



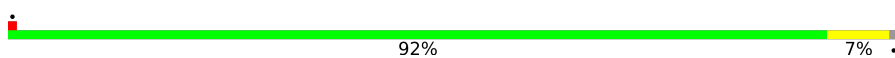


- Molecule 35: 60S ribosomal protein L34

Chain 2a:  81% 15%



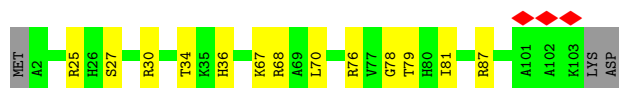
- Molecule 36: 60S ribosomal protein L35

Chain 2b:  92% 7%



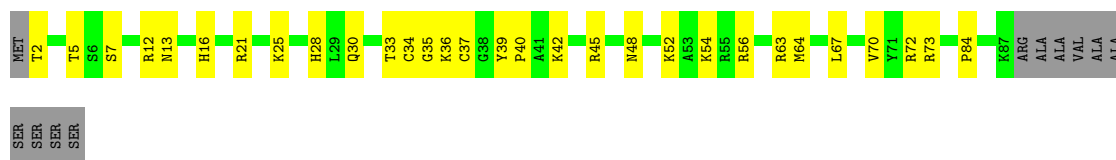
- Molecule 37: 60S ribosomal protein L36

Chain 2c:  85% 12%



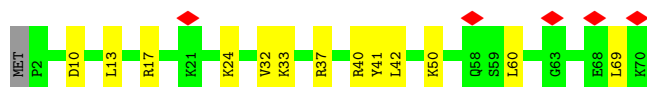
- Molecule 38: 60S ribosomal protein L37

Chain 2d:  58% 31% 11%



- Molecule 39: 60S ribosomal protein L38

Chain 2e:  7% 80% 19%



- Molecule 40: 60S ribosomal protein L39

Chain 2f:  75% 24%



- Molecule 41: Ubiquitin-60S ribosomal protein L40

Chain 2g:  33% 8% 59%

MET GLN ILE PHE VAL SER THR LEU THR GLY LYS THR LEU THR ILE THR LEU GLY VAL PRO SER ASP THR ILE GLN ASN VAL LYS ALA LYS ILE GLN ASP LYS GLY ILE PRO PRO ASP GLN GLN ARG LEU ILE PHE ALA GLY LYS LYS LEU GLU ASP GLY ARG THR LEU SER ASP TYR ASN

ILE GLN LYS GLU THR LEU HIS VAL LEU ARG ARG GLY I77 R97 Y100 A101 R102 C110 R111 K114 T118 N119 N120 V127 K128

- Molecule 42: 60S ribosomal protein L41

Chain 2h: 76% 20%

M1 K7 R12 R15 R21 Q22 R23 S24 LYS

- Molecule 43: 60S ribosomal protein L36a

Chain 2i: 5% 76% 23%

MET V2 R8 V23 Y26 K27 D31 S32 L33 Q36 K38 R39 R40 Q51 T52 K53 P54 R57 K65 I66 V67 L68 R69 P75 R78 S79 K80 R81 A84 L93 K100 G101 Q102 Q105 F106

- Molecule 44: 60S ribosomal protein L37a

Chain 2j: 72% 27%

MET A2 K3 R4 K7 R17 Y18 G19 L22 R23 K24 M25 V26 K27 H34 Y37 T38 C39 S40 T45 K46 K48 R49 W55 H56 C57 G58 S59 A68 W69 T70 Y71 N72 R85 K90 D91 Q92

- Molecule 45: 60S ribosomal protein L28

Chain 2k: 76% 15% 9%

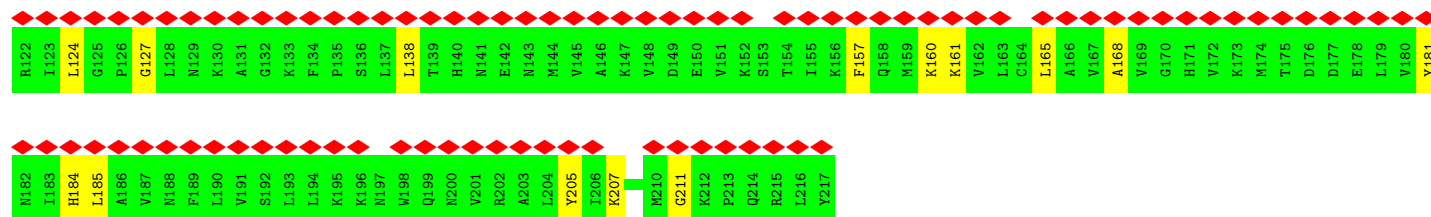
MET S2 Q6 S14 S15 F16 L17 R20 N21 E28 L43 A13 I44 H45 R46 P53 A54 A55 R66 R67 S68 R71 K72 V78 K99 D105 L106 R107 M108 I117 M125 V126 LYS ARG LYS ARG ARG THR ARG PRO THR LYS SER

- Molecule 46: 60S ribosomal protein L10a

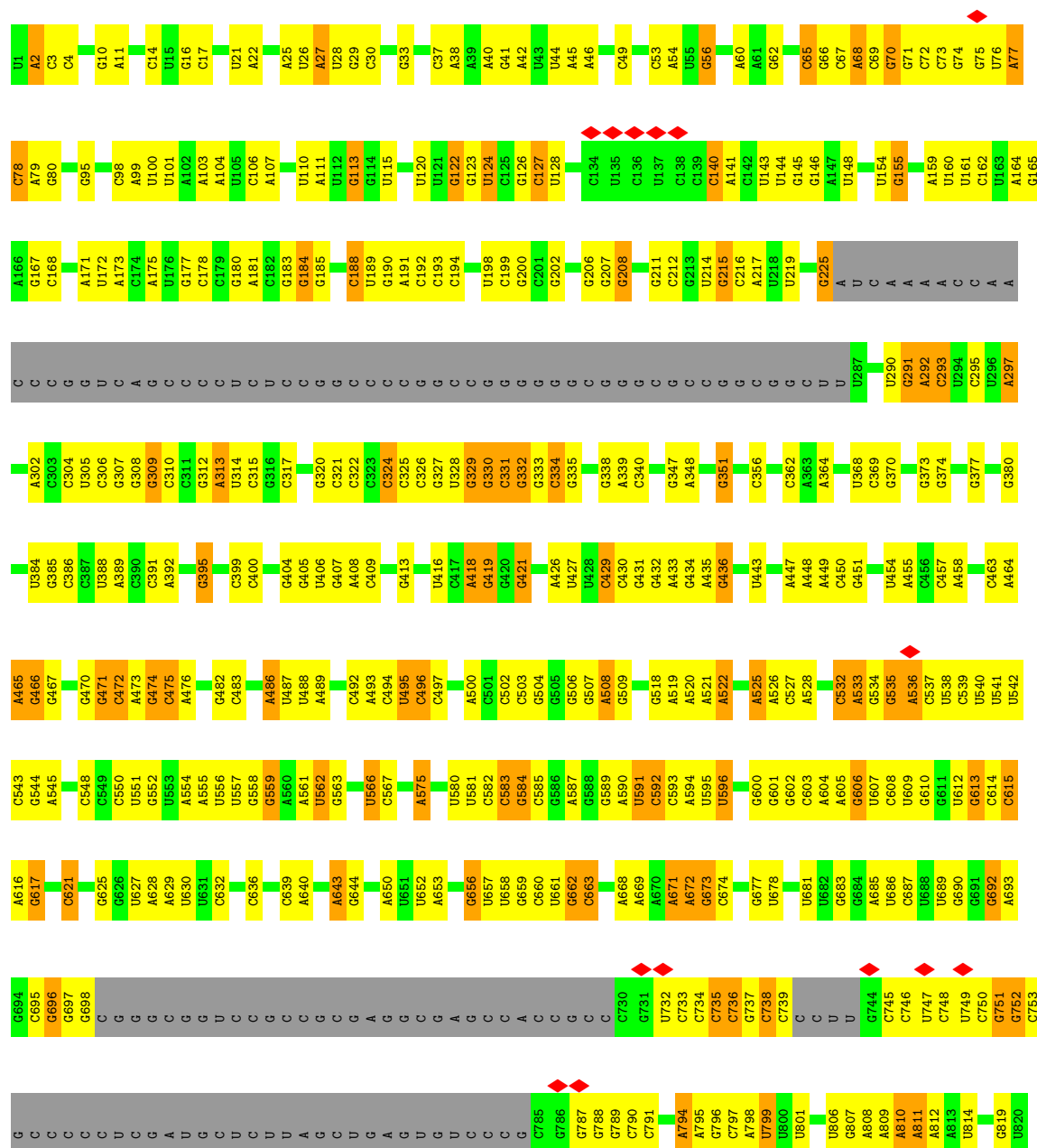
Chain 2l: 94% 85% 15%

M1 S2 S3 K4 V5 S6 R7 D8 T9 L10 L11 Y11 E12 A13 C14 V14 A15 E16 A17 K18 A19 H19 G20 Q21 Q22 R23 K24 A25 R26 K27 F28 L29 E30 T31 Y32 E33 L34 Q35 I36 S37 L38 K39 M40 Y41 D42 P43 Q44 K45 K46 D47 K48 R49 F49 S50 G51 T52 S53 R54 L55 K56 F59 R60 P61

K62 F63 S64 V65 C66 V67 L68 G69 D70 Q71 Q72 H73 C74 D75 E76 A77 K78 A79 V80 D81 I82 P83 H84 M85 D86 I87 E88 A89 L90 K91 K92 L93 I94 K95 N96 K97 K98 L99 V100 K101 K102 L103 A104 K105 K106 Y107 D108 A109 F110 L111 A112 S113 E114 S115 L116 I117 K118 Q119 I120 P121



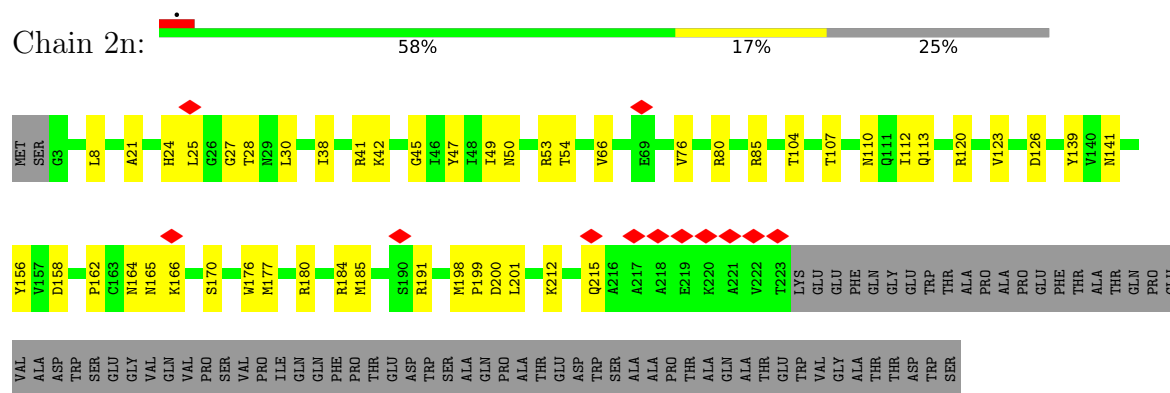
• Molecule 47: 18S ribosomal RNA



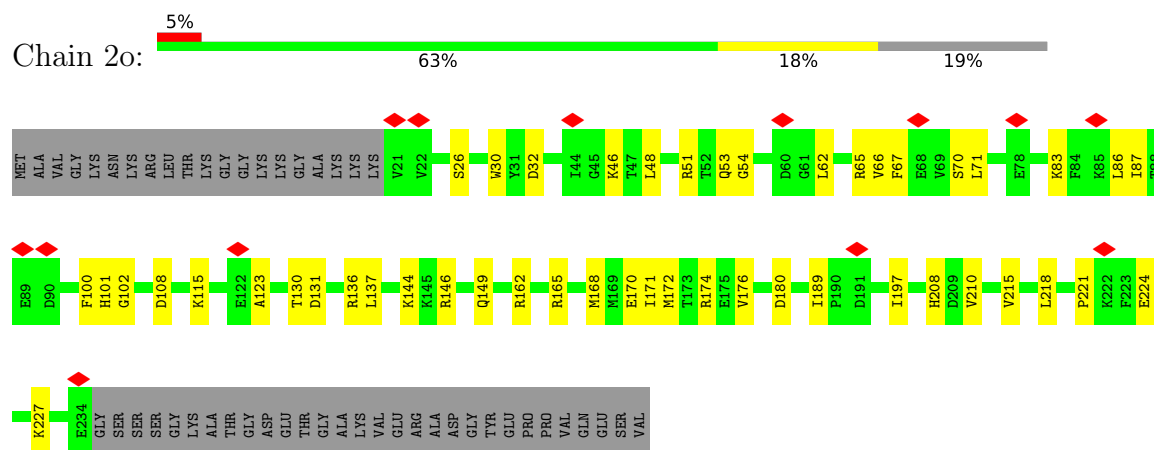
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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| G1798 | G1799 | A1800 | A1801 | C1802 | C1803 | U1804 | G1805 | U1808 | A1809 | C1810 | C1811 | U1812 | A1813 | G1814 | C1817 | A1818 | A1819 | G1820 | U1821 | A1825 | G1826 | U1827 | C1828 | G1829 | U1830 | A1831 | A1832 | C1833 | A1838 | U1839 | A1842 | U1843 | A1845 | G1846 | G1847 | U1848 | C1849 | A1850 | C1851 | G1852 | G1855 | A1859 | G1860 | A1862 | C1863 | U1864 | A1865 | C1866 | U1867 | G1789 |       |       |       |       |
| U1714 | A1715 | C1716 | C1717 | C1718 | C1719 | A1720 | U1721 | G1722 | U1729 | G1736 | G1737 | C1738 | C1739 | G1744 | A1745 | C1747 | G1748 | G1749 | C1753 | G1754 | C1755 | C1756 | G1757 | G1758 | G1759 | U1761 | G1762 | G1763 | G1764 | C1765 | C1766 | C1767 | A1768 | C1769 | G1770 | G1771 | C1772 | C1773 | C1774 | U1775 | G1779 | G1780 | A1781 | C1782 | C1783 | A1784 | C1785 | C1786 | U1787 |       |       |       |       |       |
| G1636 | A1637 | G1638 | G1639 | U1643 | G1644 | C1645 | C1646 | A1647 | G1648 | U1649 | A1650 | A1651 | G1652 | U1653 | G1654 | C1655 | G1656 | C1657 | U1658 | C1574 | G1575 | U1578 | A1579 | A1580 | G1584 | U1585 | U1586 | G1587 | A1588 | G1589 | C1592 | C1597 | G1598 | U1599 | U1602 | G1603 | G1604 | U1605 | G1606 | A1607 | U1608 | G1613 | A1614 | U1615 | U1616 | G1617 | A1620 | U1621 | U1622 | A1623 | U1624 | C1627 | G1632 | C1635 |
| A1486 | A1487 | C1488 | A1489 | G1490 | U1494 | G1495 | U1496 | A1497 | A1498 | U1505 | A1506 | G1507 | A1508 | U1509 | G1510 | U1511 | C1512 | C1513 | G1514 | G1515 | G1516 | G1517 | C1518 | U1519 | C1520 | C1521 | A1522 | C1523 | G1524 | C1525 | G1526 | C1527 | A1531 | C1532 | A1533 | C1534 | U1535 | G1536 | U1539 | G1540 | G1541 | C1542 | U1543 | C1544 | U1545 | G1548 | U1549 | G1550 | U1551 | C1553 |       |       |       |       |
| C1415 | C1416 | C1417 | C1418 | C1419 | G1420 | A1421 | G1422 | C1423 | G1424 | G1425 | U1426 | C1427 | G1428 | G1429 | C1430 | G1431 | U1432 | A1433 | C1436 | G1437 | A1438 | A1439 | C1440 | U1441 | U1442 | G1443 | U1444 | U1445 | A1446 | G1447 | A1448 | G1449 | G1450 | G1451 | A1452 | A1453 | A1454 | A1455 | G1458 | G1459 | C1460 | G1461 | U1462 | U1463 | C1464 | A1465 | U1468 | A1469 | G1473 | A1474 | U1475 | A1476 | U1477 | G1479 |
| G1324 | G1325 | U1326 | A1327 | C1328 | C1329 | A1330 | C1331 | A1332 | U1333 | U1342 | U1347 | G1348 | G1349 | U1350 | G1351 | G1352 | A1353 | G1354 | C1355 | U1358 | U1359 | U1360 | U1371 | U1372 | C1373 | A1378 | U1381 | A1382 | G1385 | A1386 | G1387 | G1393 | G1394 | C1395 | A1396 | U1397 | U1398 | A1401 | A1402 | C1403 | A1404 | A1405 | U1406 | U1407 | U1408 | A1409 | C1410 | G1411 | C1412 | G1413 | A1414 |       |       |       |
| G1257 | A1258 | A1259 | A1260 | C1261 | C1262 | U1263 | C1264 | A1265 | C1266 | G1270 | C1271 | C1272 | C1273 | G1274 | G1275 | C1276 | C1277 | A1278 | G1281 | A1282 | C1283 | A1284 | G1285 | G1286 | A1287 | U1288 | U1289 | G1290 | A1291 | C1292 | G1294 | A1295 | U1296 | U1297 | A1301 | G1302 | G1303 | U1304 | C1305 | U1306 | U1307 | U1308 | U1309 | C1310 | C1311 | G1312 | A1313 | U1314 | U1315 | C1316 | C1317 | G1318 | G1321 |       |
| U1186 | G1187 | A1188 | A1189 | A1190 | U1191 | G1192 | A1195 | A1196 | G1197 | G1198 | A1199 | U1202 | G1206 | G1207 | A1208 | A1209 | C1215 | C1216 | A1217 | A1220 | G1221 | G1222 | A1223 | G1224 | U1225 | G1226 | G1227 | A1228 | G1229 | G1230 | C1231 | U1232 | G1233 | C1234 | G1235 | U1239 | A1240 | A1241 | U1242 | U1243 | U1244 | G1245 | A1246 | C1247 | U1248 | C1249 | A1250 | G1251 | A1252 | A1253 | G1254 | G1255 | G1256 |       |
| U1115 | C1116 | C1117 | A1118 | A1119 | U1120 | G1121 | A1122 | G1126 | C1127 | C1128 | G1129 | U1130 | C1131 | C1132 | A1133 | C1138 | C1139 | G1140 | G1141 | G1142 | A1143 | A1144 | A1145 | A1148 | A1149 | A1150 | C1153 | U1154 | U1155 | U1156 | G1157 | G1158 | G1159 | G1164 | G1165 | G1166 | G1167 | G1168 | G1169 | A1170 | G1171 | U1172 | A1173 | U1174 | G1175 | U1178 | G1179 | A1180 | A1181 | A1182 | A1183 | G1184 | C1185 |       |
| G1032 | G1033 | A1042 | U1043 | G1044 | U1045 | U1046 | C1047 | G1048 | A1049 | C973  | C974  | G975  | G976  | C977  | C978  | C979  | A980  | A983  | C984  | G985  | G986  | A987  | C988  | C989  | A990  | G993  | A996  | A997  | A998  | G999  | U1002 | G1005 | A1008 | G1011 | A1012 | U1013 | G1014 | U1015 | U1016 | U1017 | U1018 | U1022 | A1023 | A1024 | U1025 | C1026 | A1027 | A1028 | G1029 | A1030 | U1031 |       |       |       |
| G895  | U896  | U897  | U898  | U899  | C900  | G901  | G902  | A903  | A904  | G907  | A908  | G909  | G910  | C911  | C912  | A913  | U914  | U917  | A918  | G919  | A920  | G921  | A922  | G923  | G924  | A925  | C926  | G927  | G928  | C930  | G932  | G933  | G934  | G935  | G936  | C937  | A938  | U939  | U940  | C941  | G942  | U943  | A944  | U945  | U946  | C947  | C948  | G949  | A955  | G958  | G959  | U960  | G961  |       |
| G821  | U822  | A827  | G828  | C829  | A830  | G831  | C834  | C835  | G836  | A837  | G838  | C839  | C840  | G841  | C842  | C843  | U844  | G845  | G846  | A847  | U848  | A849  | C850  | C851  | A861  | A862  | U863  | A864  | G867  | G868  | A869  | A870  | U871  | A872  | G873  | G874  | C877  | G878  | C879  | G880  | G881  | U882  | U883  | C884  | U885  | A886  | U887  | U888  | U889  | G890  | G891  | U892  | U893  | G894  |



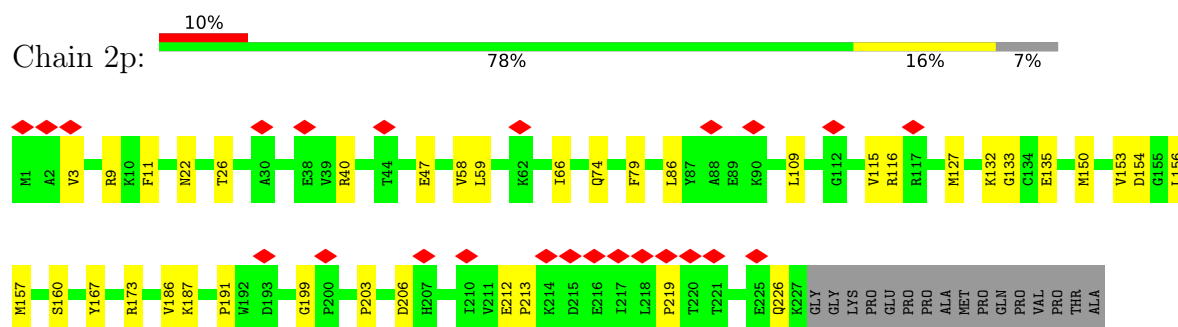
• Molecule 48: 40S ribosomal protein SA



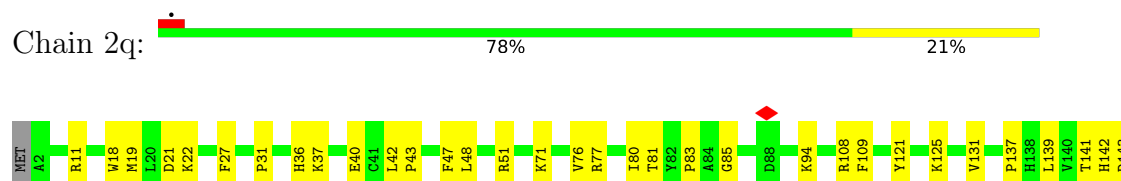
• Molecule 49: 40S ribosomal protein S3a



• Molecule 50: 40S ribosomal protein S3

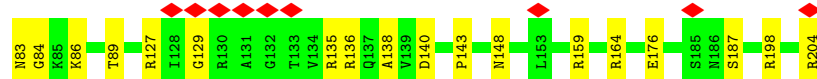
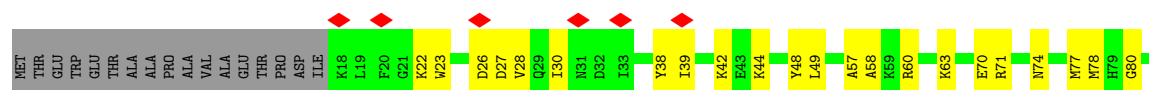
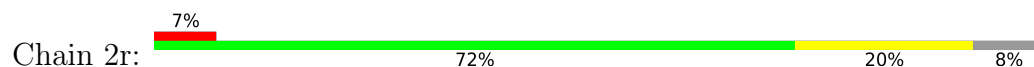


• Molecule 51: 40S ribosomal protein S4, X isoform

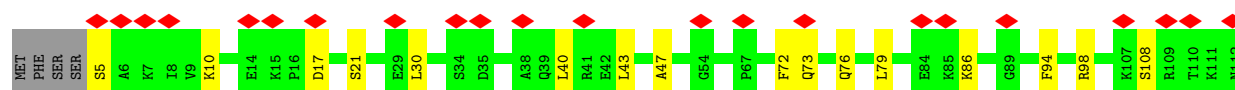
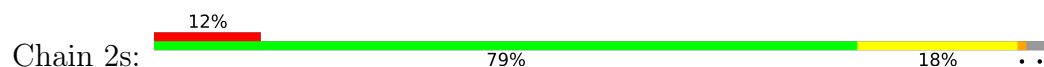




- Molecule 52: 40S ribosomal protein S5



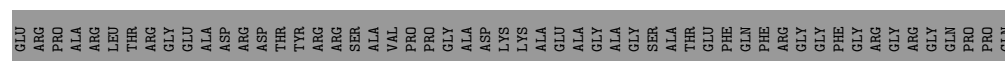
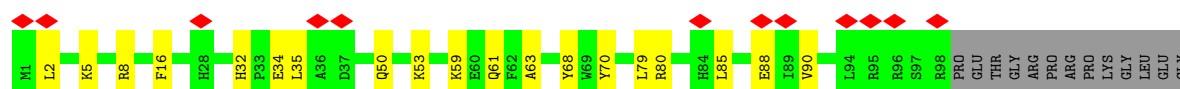
- Molecule 53: 40S ribosomal protein S7



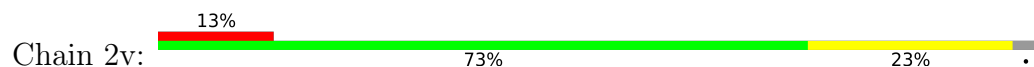
- Molecule 54: 40S ribosomal protein S8

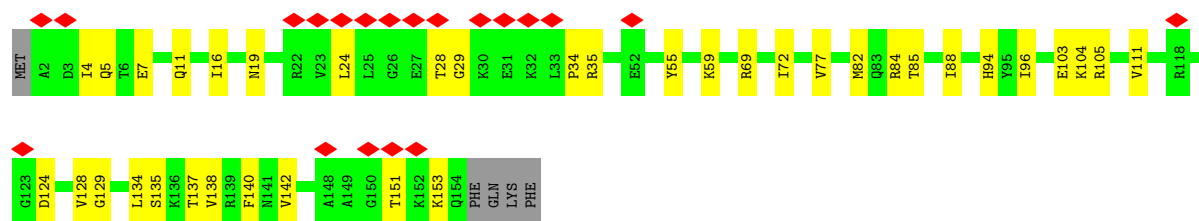


- Molecule 55: 40S ribosomal protein S10

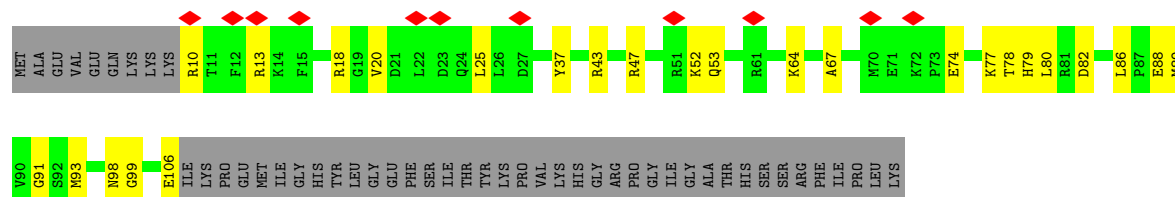


- Molecule 56: 40S ribosomal protein S11

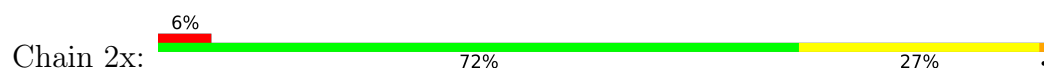




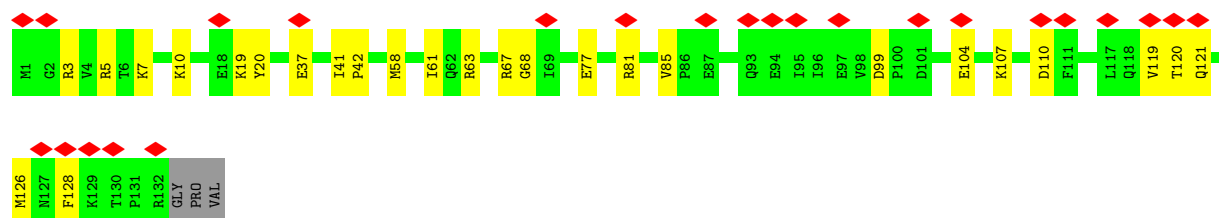
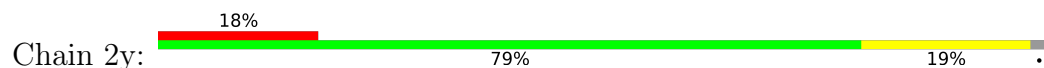
• Molecule 57: 40S ribosomal protein S15



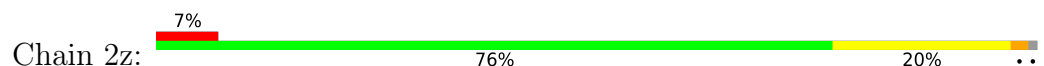
• Molecule 58: 40S ribosomal protein S16



• Molecule 59: 40S ribosomal protein S17

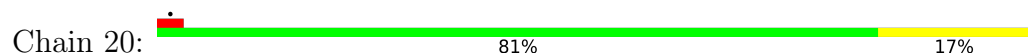


• Molecule 60: 40S ribosomal protein S18

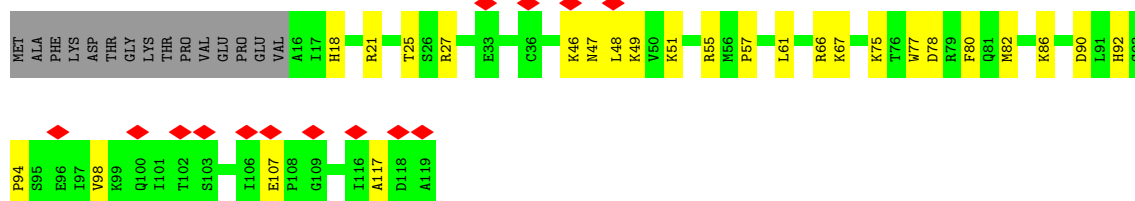




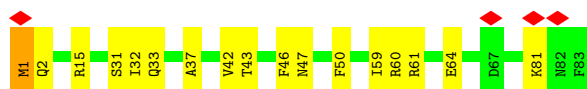
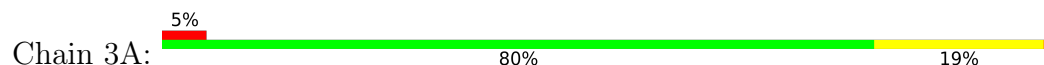
- Molecule 61: 40S ribosomal protein S19



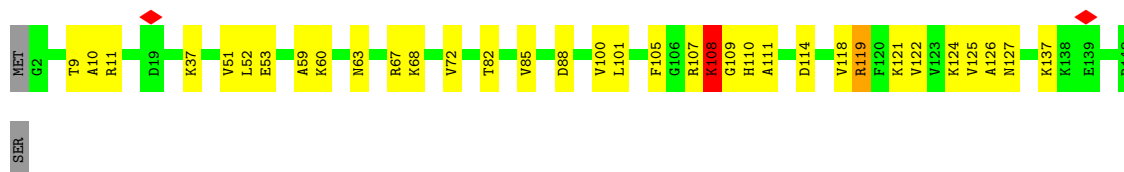
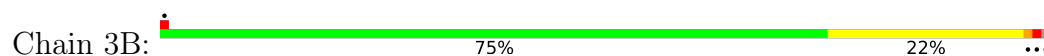
- Molecule 62: 40S ribosomal protein S20



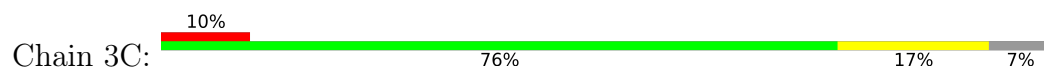
- Molecule 63: 40S ribosomal protein S21



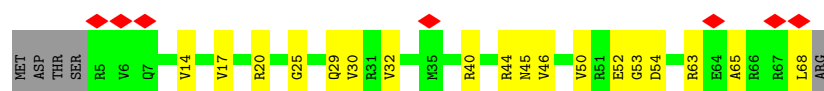
- Molecule 64: 40S ribosomal protein S23



- Molecule 65: 40S ribosomal protein S26



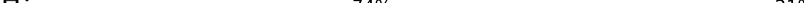
- Molecule 66: 40S ribosomal protein S28

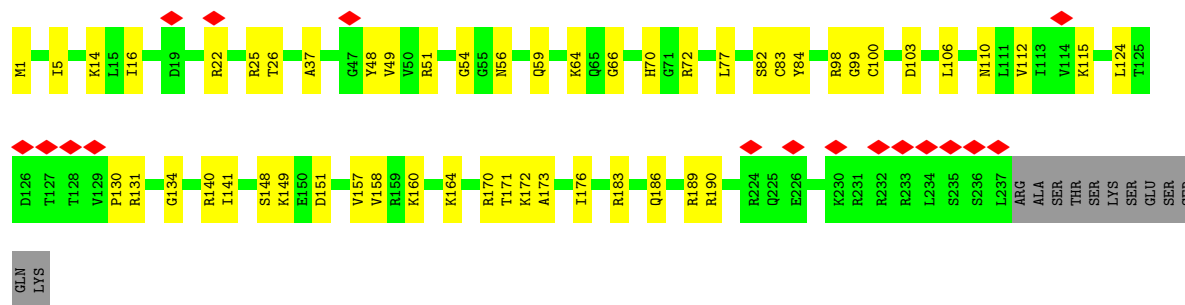


- 
- Sequence logo for the 1000bp upstream region of the H19 gene. The y-axis represents information content in bits (0.00 to 0.15). The x-axis shows positions from -1000 to +1000. The logo shows a strong enrichment of T and A at positions -1000 to -500, and a strong enrichment of G and C at positions -200 to +200. A red diamond marks the H19 TSS at position 0.

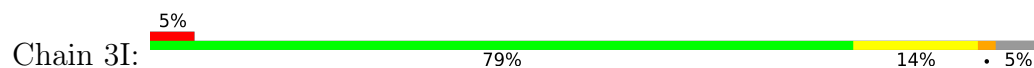
- |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| K271 | Q272 | E273 | V274 | L275 | S276 | T277 | K280 | A281 | E282 | P283 | C286 | T287 | V291 | L298 | D304 | N305 | L306 | V307 | R308 | V309 | W310 | Q311 | I314 | GLY  | THR  | ARG  |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| V174 | K175 | V176 | W177 | M178 | K183 | L184 | K185 | N186 | N187 | H188 | L189 | G190 | H191 | T192 | G193 | Y194 | L195 | M196 | L206 | C207 | A208 | S209 | G210 | G211 | K212 | A216 | M217 | L218 | E223 | L230 | D231 | Q232 | Q233 | C240 | F241 | S242 | R245 | V246 | W247 | L248 | C249 | T256 | W259 | E262 | G263 | K264 | L269 | E270 | L270 |
| S82  | L87  | R88  | T93  | T94  | T97  | T98  | R99  | R100 | F101 | T105 | K106 | D107 | V108 | S110 | V111 | A112 | M117 | I120 | V121 | S122 | G123 | S124 | T128 | I129 | K130 | L131 | W132 | G136 | K139 | V142 | Q143 | D144 | E145 | S146 | H147 | V154 | M159 | S160 | I164 | S167 | G168 | G169 | W170 |      |      |      |      |      |      |
| RET  | T2   | E3   | L7   | R8   | L11  | K12  | G13  | H14  | V18  | T19  | Q20  | T24  | F27  | L31  | L32  | S35  | T40  | I41  | W42  | W43  | T46  | R47  | D48  | E49  | N51  | Y52  | O53  | I54  | P55  | O56  | R57  | A58  | L59  | R60  | F65  | V66  | S67  | D68  | V69  | S72  | S73  | D74  | G75  | L79  | S80  | C91  |      |      |      |

- |      |      |     |
|------|------|-----|
| P210 | I75  | MET |
| D221 | L78  | ALA |
| R227 | I81  | ASP |
| G228 | I94  | GLY |
| F236 | F97  | ALA |
| P265 | L98  | GLY |
| Q267 | G99  | PRO |
| E268 | M110 | GLY |
| F289 | Q115 | PRO |
| T270 | T116 | GLY |
| L273 | G119 | PRO |
| T276 | R123 | GLY |
| H277 | F124 | ASN |
| T278 | K125 | ARG |
| R279 | G131 | GLY |
| V280 | M134 | PHE |
| SER  | V137 | ARG |
| VAL  |      | GLY |
| GLN  |      | GLY |
| ARG  |      | PHE |
| THR  | K142 | GLY |
| GLN  | C143 | SER |
| ALA  | S144 | GLY |
| PRO  | K145 | ILE |
| VAL  |      | ARG |
| ALA  | A150 | GLY |
| THR  |      | ARG |
| THR  | G153 | GLY |
|      | L157 | ARG |
|      | I162 | ARG |
|      |      | GLY |
|      | R166 | ARG |
|      | R167 | GLY |
|      | G168 | ARG |
|      | Y169 | ARG |
|      | W170 | GLY |
|      |      | ARG |
|      | G175 | GLY |
|      | P181 | ALA |
|      |      | ARG |
|      | S190 | GLY |
|      |      | LYS |
|      | P199 | ALA |
|      |      | GLU |
|      | G203 | ASP |
|      | I204 | LYS |
|      | V205 | E59 |

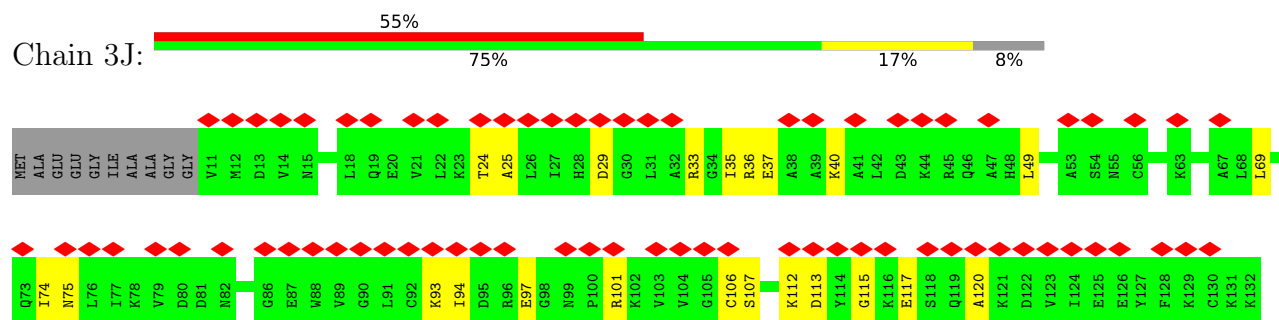
- Chain 3H: 



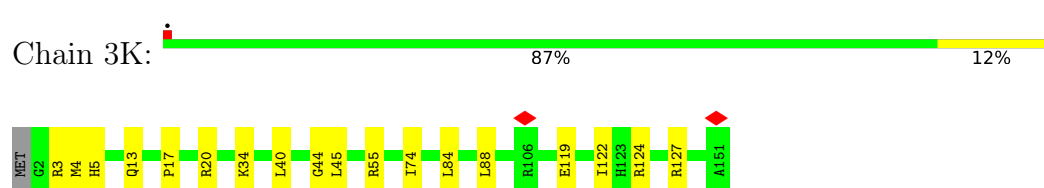
- Molecule 71: 40S ribosomal protein S9



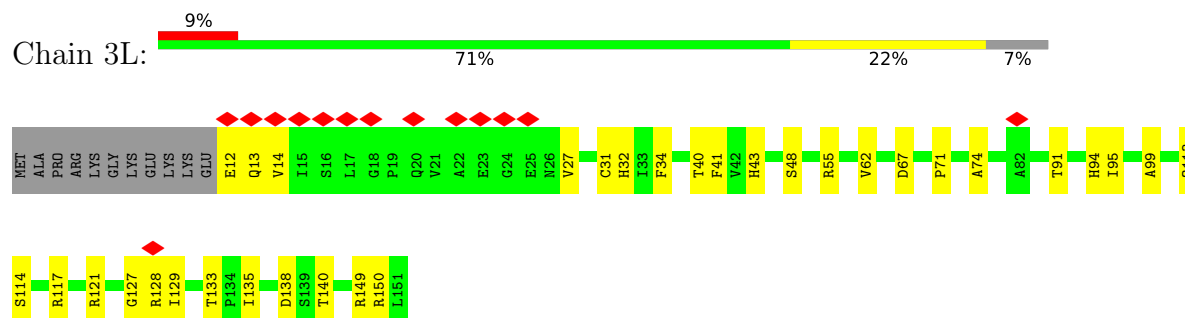
- Molecule 72: 40S ribosomal protein S12



- Molecule 73: 40S ribosomal protein S13



- Molecule 74: 40S ribosomal protein S14



- Molecule 75: 40S ribosomal protein S15a

Chain 3M:  85% 15% .

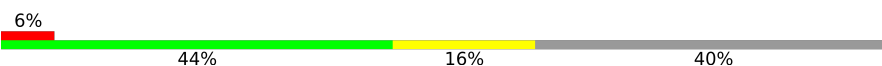


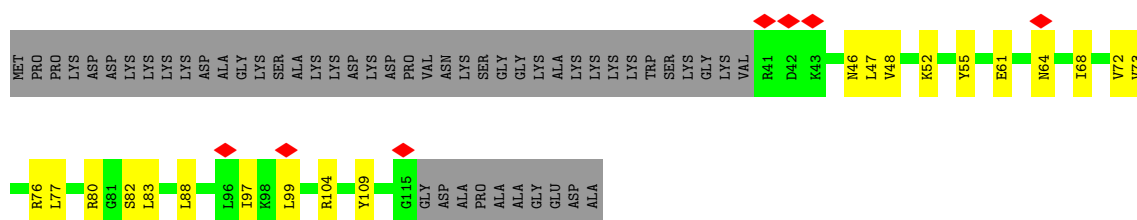
- Molecule 76: 40S ribosomal protein S24

Chain 3N:  8% 80% 18% .



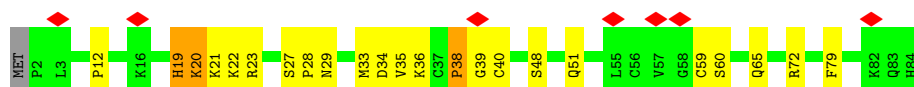
- Molecule 77: 40S ribosomal protein S25

Chain 3O:  6% 44% 16% 40%

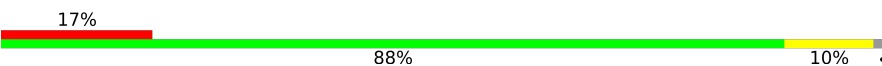


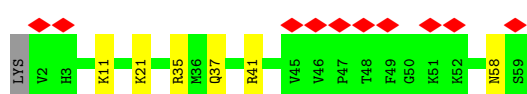
- Molecule 78: 40S ribosomal protein S27

Chain 3P:  8% 71% 24% . .



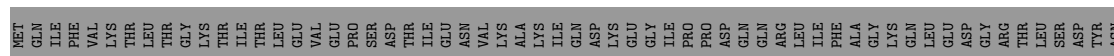
- Molecule 79: 40S ribosomal protein S30

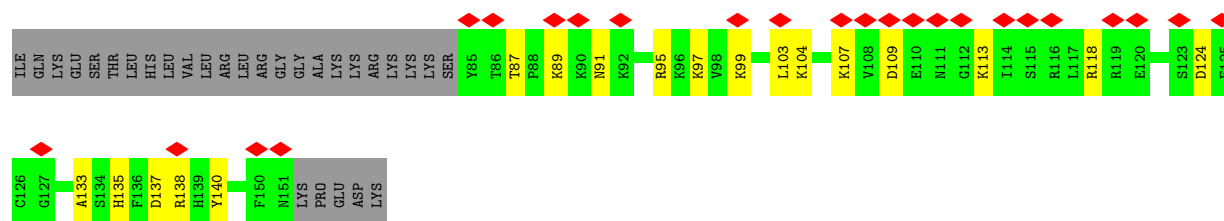
Chain 3Q:  17% 88% 10% .



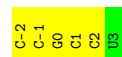
- Molecule 80: Ubiquitin-40S ribosomal protein S27a

Chain 3R:  15% 31% 12% 57%

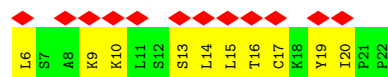
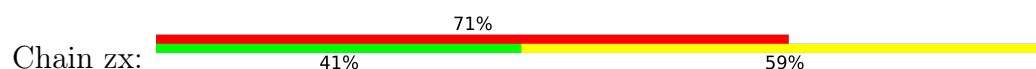




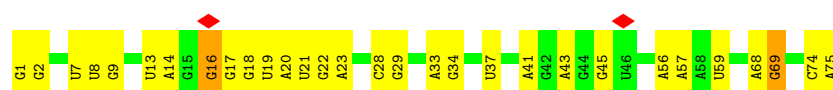
- Molecule 81: mRNA



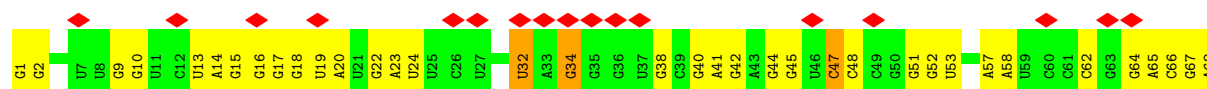
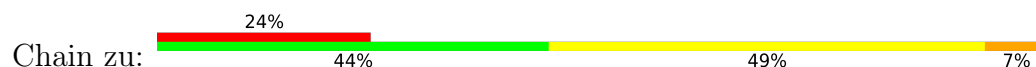
- Molecule 82: nascent peptide



- Molecule 83: P-site tRNA



- Molecule 83: P-site tRNA



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, C1                               | Depositor |
| Number of particles used             | 40295                                   | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | FEI TECNAI ARCTICA                      | Depositor |
| Voltage (kV)                         | 200                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 50                                      | Depositor |
| Minimum defocus (nm)                 | Not provided                            |           |
| Maximum defocus (nm)                 | Not provided                            |           |
| Magnification                        | 33557                                   | Depositor |
| Image detector                       | GATAN K2 SUMMIT (4k x 4k)               | Depositor |
| Maximum map value                    | 0.241                                   | Depositor |
| Minimum map value                    | -0.107                                  | Depositor |
| Average map value                    | 0.000                                   | Depositor |
| Map value standard deviation         | 0.010                                   | Depositor |
| Recommended contour level            | 0.03                                    | Depositor |
| Map size (Å)                         | 625.8, 625.8, 625.8                     | wwPDB     |
| Map dimensions                       | 420, 420, 420                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.49, 1.49, 1.49                        | Depositor |

## 5 Model quality

### 5.1 Standard geometry

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   | 1A    | 0.37         | 0/89129     | 0.49        | 8/139038 (0.0%) |
| 2   | 1B    | 0.36         | 0/2858      | 0.46        | 0/4455          |
| 3   | 1C    | 0.36         | 0/3701      | 0.46        | 0/5766          |
| 4   | 1D    | 0.36         | 0/1936      | 0.66        | 0/2596          |
| 5   | 1E    | 0.35         | 0/3306      | 0.65        | 0/4424          |
| 6   | 1F    | 0.36         | 0/2981      | 0.67        | 2/4002 (0.0%)   |
| 7   | 1G    | 0.29         | 0/2428      | 0.62        | 0/3252          |
| 8   | 1H    | 0.34         | 0/1951      | 0.80        | 2/2618 (0.1%)   |
| 9   | 2A    | 0.38         | 0/1905      | 0.70        | 0/2539          |
| 10  | 2B    | 0.31         | 0/1960      | 0.65        | 0/2637          |
| 11  | 2C    | 0.32         | 0/1537      | 0.67        | 0/2066          |
| 12  | 2D    | 0.33         | 0/1751      | 0.66        | 0/2340          |
| 13  | 2E    | 0.30         | 0/1433      | 0.65        | 0/1915          |
| 14  | 2F    | 0.32         | 0/1732      | 0.69        | 0/2315          |
| 15  | 2G    | 0.34         | 0/1161      | 0.59        | 0/1554          |
| 16  | 2H    | 0.41         | 0/1746      | 0.68        | 0/2338          |
| 17  | 2I    | 0.36         | 0/1682      | 0.60        | 0/2250          |
| 18  | 2J    | 0.35         | 0/1268      | 0.63        | 0/1701          |
| 19  | 2K    | 0.34         | 0/1537      | 0.60        | 0/2052          |
| 20  | 2L    | 0.35         | 0/1582      | 0.67        | 1/2091 (0.0%)   |
| 21  | 2M    | 0.36         | 0/1493      | 0.58        | 0/2003          |
| 22  | 2N    | 0.32         | 0/1326      | 0.66        | 1/1770 (0.1%)   |
| 23  | 2O    | 0.29         | 0/839       | 0.63        | 0/1126          |
| 24  | 2P    | 0.35         | 0/993       | 0.64        | 1/1332 (0.1%)   |
| 25  | 2Q    | 0.32         | 0/1030      | 0.62        | 0/1364          |
| 26  | 2R    | 0.30         | 0/992       | 0.59        | 0/1330          |
| 27  | 2S    | 0.31         | 0/1132      | 0.65        | 0/1504          |
| 28  | 2T    | 0.29         | 0/1130      | 0.60        | 0/1507          |
| 29  | 2U    | 0.36         | 0/1191      | 0.59        | 0/1591          |
| 30  | 2V    | 0.29         | 0/889       | 0.66        | 0/1175          |
| 31  | 2W    | 0.30         | 0/774       | 0.50        | 0/1038          |
| 32  | 2X    | 0.38         | 0/903       | 0.60        | 0/1216          |
| 33  | 2Y    | 0.36         | 0/1071      | 0.61        | 0/1429          |
| 34  | 2Z    | 0.39         | 0/895       | 0.68        | 0/1198          |

| Mol | Chain | Bond lengths |         | Bond angles |                |
|-----|-------|--------------|---------|-------------|----------------|
|     |       | RMSZ         | # Z  >5 | RMSZ        | # Z  >5        |
| 35  | 2a    | 0.32         | 0/904   | 0.62        | 0/1203         |
| 36  | 2b    | 0.28         | 0/1023  | 0.59        | 0/1351         |
| 37  | 2c    | 0.27         | 0/843   | 0.61        | 0/1115         |
| 38  | 2d    | 0.34         | 0/720   | 0.68        | 0/952          |
| 39  | 2e    | 0.29         | 0/575   | 0.64        | 0/761          |
| 40  | 2f    | 0.35         | 0/454   | 0.61        | 0/599          |
| 41  | 2g    | 0.29         | 0/435   | 0.61        | 0/575          |
| 42  | 2h    | 0.32         | 0/231   | 0.63        | 0/294          |
| 43  | 2i    | 0.36         | 0/876   | 0.67        | 2/1156 (0.2%)  |
| 44  | 2j    | 0.35         | 0/718   | 0.63        | 0/953          |
| 45  | 2k    | 0.34         | 0/1017  | 0.61        | 0/1364         |
| 46  | 2l    | 0.25         | 0/1769  | 0.60        | 0/2371         |
| 47  | 2m    | 0.34         | 0/41243 | 0.51        | 2/64257 (0.0%) |
| 48  | 2n    | 0.30         | 0/1778  | 0.59        | 0/2416         |
| 49  | 2o    | 0.28         | 0/1765  | 0.58        | 0/2362         |
| 50  | 2p    | 0.28         | 0/1793  | 0.64        | 1/2414 (0.0%)  |
| 51  | 2q    | 0.29         | 0/2118  | 0.62        | 0/2849         |
| 52  | 2r    | 0.29         | 0/1500  | 0.68        | 0/2015         |
| 53  | 2s    | 0.28         | 0/1544  | 0.68        | 0/2068         |
| 54  | 2t    | 0.31         | 0/1715  | 0.61        | 0/2287         |
| 55  | 2u    | 0.28         | 0/851   | 0.66        | 0/1147         |
| 56  | 2v    | 0.33         | 0/1268  | 0.59        | 0/1696         |
| 57  | 2w    | 0.30         | 0/815   | 0.78        | 0/1087         |
| 58  | 2x    | 0.29         | 0/1177  | 0.68        | 0/1575         |
| 59  | 2y    | 0.29         | 0/1086  | 0.66        | 0/1457         |
| 60  | 2z    | 0.33         | 0/1253  | 0.79        | 4/1676 (0.2%)  |
| 61  | 20    | 0.26         | 0/1131  | 0.55        | 0/1515         |
| 62  | 21    | 0.32         | 0/831   | 0.69        | 0/1115         |
| 63  | 3A    | 0.30         | 0/643   | 0.63        | 0/860          |
| 64  | 3B    | 0.35         | 0/1116  | 0.71        | 0/1490         |
| 65  | 3C    | 0.31         | 0/863   | 0.65        | 0/1159         |
| 66  | 3D    | 0.29         | 0/508   | 0.81        | 0/680          |
| 67  | 3E    | 0.31         | 0/455   | 0.64        | 0/603          |
| 68  | 3F    | 0.28         | 0/2493  | 0.65        | 0/3394         |
| 69  | 3G    | 0.31         | 0/1762  | 0.61        | 0/2381         |
| 70  | 3H    | 0.27         | 0/1946  | 0.71        | 3/2590 (0.1%)  |
| 71  | 3I    | 0.31         | 0/1550  | 0.74        | 2/2069 (0.1%)  |
| 72  | 3J    | 0.26         | 0/962   | 0.71        | 2/1290 (0.2%)  |
| 73  | 3K    | 0.34         | 0/1232  | 0.65        | 0/1656         |
| 74  | 3L    | 0.30         | 0/1062  | 0.69        | 0/1425         |
| 75  | 3M    | 0.35         | 0/1051  | 0.66        | 0/1406         |
| 76  | 3N    | 0.30         | 0/1083  | 0.54        | 0/1438         |
| 77  | 3O    | 0.30         | 0/604   | 0.81        | 2/810 (0.2%)   |

| Mol | Chain | Bond lengths |             | Bond angles |                  |
|-----|-------|--------------|-------------|-------------|------------------|
|     |       | RMSZ         | $\# Z  > 5$ | RMSZ        | $\# Z  > 5$      |
| 78  | 3P    | 0.31         | 0/665       | 0.65        | 0/891            |
| 79  | 3Q    | 0.25         | 0/465       | 0.51        | 0/612            |
| 80  | 3R    | 0.24         | 0/560       | 0.64        | 0/745            |
| 81  | zv    | 0.26         | 0/135       | 0.54        | 0/207            |
| 82  | zx    | 0.26         | 0/131       | 0.63        | 0/176            |
| 83  | zu    | 0.24         | 0/1786      | 0.44        | 0/2784           |
| 83  | zy    | 0.27         | 0/1786      | 0.43        | 0/2784           |
| All | All   | 0.34         | 0/236533    | 0.56        | 33/347612 (0.0%) |

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 |
|-----|-------|---------------------|---------------------|
| 4   | 1D    | 0                   | 1                   |
| 5   | 1E    | 0                   | 1                   |
| 8   | 1H    | 0                   | 4                   |
| 11  | 2C    | 0                   | 2                   |
| 12  | 2D    | 0                   | 1                   |
| 14  | 2F    | 0                   | 2                   |
| 15  | 2G    | 0                   | 2                   |
| 18  | 2J    | 0                   | 1                   |
| 19  | 2K    | 0                   | 1                   |
| 22  | 2N    | 0                   | 2                   |
| 24  | 2P    | 0                   | 2                   |
| 25  | 2Q    | 0                   | 1                   |
| 28  | 2T    | 0                   | 2                   |
| 32  | 2X    | 0                   | 1                   |
| 38  | 2d    | 0                   | 1                   |
| 43  | 2i    | 0                   | 1                   |
| 49  | 2o    | 0                   | 1                   |
| 53  | 2s    | 0                   | 1                   |
| 58  | 2x    | 0                   | 3                   |
| 60  | 2z    | 0                   | 2                   |
| 63  | 3A    | 0                   | 2                   |
| 64  | 3B    | 0                   | 4                   |
| 68  | 3F    | 0                   | 1                   |
| 71  | 3I    | 0                   | 5                   |
| 72  | 3J    | 0                   | 1                   |
| 78  | 3P    | 0                   | 1                   |
| All | All   | 0                   | 46                  |

There are no bond length outliers.

All (33) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms       | Z     | Observed(°) | Ideal(°) |
|-----|-------|------|------|-------------|-------|-------------|----------|
| 43  | 2i    | 101  | GLY  | CA-C-N      | 6.78  | 133.90      | 121.70   |
| 43  | 2i    | 101  | GLY  | C-N-CA      | 6.78  | 133.90      | 121.70   |
| 50  | 2p    | 199  | GLY  | N-CA-C      | 6.01  | 124.61      | 112.34   |
| 6   | 1F    | 109  | ARG  | CA-C-N      | 5.75  | 132.53      | 121.54   |
| 6   | 1F    | 109  | ARG  | C-N-CA      | 5.75  | 132.53      | 121.54   |
| 77  | 3O    | 99   | LEU  | CA-C-N      | 5.68  | 131.93      | 121.70   |
| 77  | 3O    | 99   | LEU  | C-N-CA      | 5.68  | 131.93      | 121.70   |
| 8   | 1H    | 95   | PRO  | CA-C-N      | 5.63  | 131.84      | 121.70   |
| 8   | 1H    | 95   | PRO  | C-N-CA      | 5.63  | 131.84      | 121.70   |
| 70  | 3H    | 171  | THR  | CA-C-N      | 5.63  | 132.29      | 121.54   |
| 70  | 3H    | 171  | THR  | C-N-CA      | 5.63  | 132.29      | 121.54   |
| 1   | 1A    | 1082 | C    | P-O3'-C3'   | 5.58  | 128.57      | 120.20   |
| 47  | 2m    | 1849 | G    | P-O3'-C3'   | 5.55  | 128.52      | 120.20   |
| 71  | 3I    | 4    | ALA  | CA-C-N      | 5.34  | 131.32      | 121.70   |
| 71  | 3I    | 4    | ALA  | C-N-CA      | 5.34  | 131.32      | 121.70   |
| 20  | 2L    | 40   | GLN  | N-CA-C      | -5.34 | 106.08      | 113.18   |
| 1   | 1A    | 4731 | G    | P-O3'-C3'   | 5.30  | 128.15      | 120.20   |
| 72  | 3J    | 93   | LYS  | CA-C-N      | 5.30  | 127.80      | 120.49   |
| 72  | 3J    | 93   | LYS  | C-N-CA      | 5.30  | 127.80      | 120.49   |
| 22  | 2N    | 136  | ARG  | CA-CB-CG    | 5.28  | 124.65      | 114.10   |
| 1   | 1A    | 485  | C    | C2-N1-C1'   | 5.18  | 134.35      | 118.80   |
| 60  | 2z    | 87   | GLN  | CA-C-N      | 5.17  | 131.41      | 121.54   |
| 60  | 2z    | 87   | GLN  | C-N-CA      | 5.17  | 131.41      | 121.54   |
| 60  | 2z    | 88   | LYS  | CA-C-N      | 5.16  | 130.15      | 122.82   |
| 60  | 2z    | 88   | LYS  | C-N-CA      | 5.16  | 130.15      | 122.82   |
| 1   | 1A    | 2389 | A    | C2'-C3'-O3' | 5.16  | 121.43      | 113.70   |
| 24  | 2P    | 110  | GLY  | N-CA-C      | 5.16  | 125.40      | 113.18   |
| 1   | 1A    | 914  | U    | P-O3'-C3'   | 5.15  | 127.93      | 120.20   |
| 1   | 1A    | 2760 | G    | P-O3'-C3'   | 5.15  | 127.93      | 120.20   |
| 70  | 3H    | 26   | THR  | N-CA-C      | -5.11 | 108.07      | 114.56   |
| 1   | 1A    | 2033 | A    | P-O3'-C3'   | 5.09  | 127.83      | 120.20   |
| 47  | 2m    | 1860 | A    | P-O3'-C3'   | 5.08  | 127.83      | 120.20   |
| 1   | 1A    | 2695 | A    | P-O3'-C3'   | 5.05  | 127.78      | 120.20   |

There are no chirality outliers.

All (46) planarity outliers are listed below:

| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 4   | 1D    | 239 | ALA  | Peptide |
| 5   | 1E    | 258 | HIS  | Peptide |

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| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 8   | 1H    | 109 | LEU  | Peptide |
| 8   | 1H    | 110 | ARG  | Peptide |
| 8   | 1H    | 111 | LYS  | Peptide |
| 8   | 1H    | 130 | LYS  | Peptide |
| 11  | 2C    | 106 | GLN  | Peptide |
| 11  | 2C    | 115 | ARG  | Peptide |
| 12  | 2D    | 14  | ASN  | Peptide |
| 14  | 2F    | 15  | HIS  | Peptide |
| 14  | 2F    | 47  | ALA  | Peptide |
| 15  | 2G    | 34  | ASN  | Peptide |
| 15  | 2G    | 64  | PHE  | Peptide |
| 18  | 2J    | 131 | ARG  | Peptide |
| 19  | 2K    | 94  | GLU  | Peptide |
| 22  | 2N    | 81  | LYS  | Peptide |
| 22  | 2N    | 92  | ARG  | Peptide |
| 24  | 2P    | 108 | ASN  | Peptide |
| 24  | 2P    | 109 | LYS  | Peptide |
| 25  | 2Q    | 96  | GLN  | Peptide |
| 28  | 2T    | 30  | ASP  | Peptide |
| 28  | 2T    | 36  | ARG  | Peptide |
| 32  | 2X    | 96  | GLU  | Peptide |
| 38  | 2d    | 39  | TYR  | Peptide |
| 43  | 2i    | 100 | LYS  | Peptide |
| 49  | 2o    | 221 | PRO  | Peptide |
| 53  | 2s    | 108 | SER  | Peptide |
| 58  | 2x    | 41  | MET  | Peptide |
| 58  | 2x    | 42  | ILE  | Peptide |
| 58  | 2x    | 43  | GLU  | Peptide |
| 60  | 2z    | 15  | VAL  | Peptide |
| 60  | 2z    | 16  | LEU  | Peptide |
| 63  | 3A    | 1   | MET  | Peptide |
| 63  | 3A    | 46  | PHE  | Peptide |
| 64  | 3B    | 108 | LYS  | Peptide |
| 64  | 3B    | 119 | ARG  | Peptide |
| 64  | 3B    | 126 | ALA  | Peptide |
| 64  | 3B    | 60  | LYS  | Peptide |
| 68  | 3F    | 246 | TYR  | Peptide |
| 71  | 3I    | 12  | THR  | Peptide |
| 71  | 3I    | 2   | PRO  | Peptide |
| 71  | 3I    | 3   | VAL  | Peptide |
| 71  | 3I    | 7   | TRP  | Peptide |
| 71  | 3I    | 9   | CYS  | Peptide |

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| Mol | Chain | Res | Type | Group   |
|-----|-------|-----|------|---------|
| 72  | 3J    | 113 | ASP  | Peptide |
| 78  | 3P    | 38  | PRO  | 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   | 1A    | 79676 | 0        | 40262    | 987     | 0            |
| 2   | 1B    | 2558  | 0        | 1296     | 33      | 0            |
| 3   | 1C    | 3314  | 0        | 1683     | 40      | 0            |
| 4   | 1D    | 1898  | 0        | 1993     | 37      | 0            |
| 5   | 1E    | 3238  | 0        | 3376     | 45      | 0            |
| 6   | 1F    | 2927  | 0        | 3104     | 57      | 0            |
| 7   | 1G    | 2382  | 0        | 2410     | 27      | 0            |
| 8   | 1H    | 1913  | 0        | 2067     | 43      | 0            |
| 9   | 2A    | 1870  | 0        | 1996     | 34      | 0            |
| 10  | 2B    | 1927  | 0        | 2074     | 25      | 0            |
| 11  | 2C    | 1518  | 0        | 1601     | 12      | 0            |
| 12  | 2D    | 1711  | 0        | 1749     | 27      | 0            |
| 13  | 2E    | 1410  | 0        | 1441     | 16      | 0            |
| 14  | 2F    | 1701  | 0        | 1818     | 27      | 0            |
| 15  | 2G    | 1138  | 0        | 1204     | 11      | 0            |
| 16  | 2H    | 1701  | 0        | 1749     | 38      | 0            |
| 17  | 2I    | 1650  | 0        | 1794     | 26      | 0            |
| 18  | 2J    | 1242  | 0        | 1269     | 22      | 0            |
| 19  | 2K    | 1513  | 0        | 1628     | 29      | 0            |
| 20  | 2L    | 1566  | 0        | 1729     | 26      | 0            |
| 21  | 2M    | 1453  | 0        | 1490     | 35      | 0            |
| 22  | 2N    | 1298  | 0        | 1366     | 22      | 0            |
| 23  | 2O    | 825   | 0        | 850      | 14      | 0            |
| 24  | 2P    | 979   | 0        | 1039     | 18      | 0            |
| 25  | 2Q    | 1015  | 0        | 1079     | 15      | 0            |
| 26  | 2R    | 976   | 0        | 1059     | 8       | 0            |
| 27  | 2S    | 1115  | 0        | 1205     | 21      | 0            |
| 28  | 2T    | 1107  | 0        | 1182     | 20      | 0            |
| 29  | 2U    | 1162  | 0        | 1213     | 21      | 0            |
| 30  | 2V    | 876   | 0        | 948      | 8       | 0            |
| 31  | 2W    | 764   | 0        | 804      | 10      | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 32  | 2X    | 888   | 0        | 930      | 8       | 0            |
| 33  | 2Y    | 1053  | 0        | 1147     | 15      | 0            |
| 34  | 2Z    | 876   | 0        | 912      | 12      | 0            |
| 35  | 2a    | 895   | 0        | 988      | 15      | 0            |
| 36  | 2b    | 1015  | 0        | 1148     | 6       | 0            |
| 37  | 2c    | 832   | 0        | 917      | 11      | 0            |
| 38  | 2d    | 705   | 0        | 741      | 24      | 0            |
| 39  | 2e    | 569   | 0        | 637      | 9       | 0            |
| 40  | 2f    | 444   | 0        | 483      | 10      | 0            |
| 41  | 2g    | 429   | 0        | 469      | 8       | 0            |
| 42  | 2h    | 230   | 0        | 276      | 4       | 0            |
| 43  | 2i    | 862   | 0        | 933      | 16      | 0            |
| 44  | 2j    | 708   | 0        | 760      | 17      | 0            |
| 45  | 2k    | 1002  | 0        | 1068     | 15      | 0            |
| 46  | 2l    | 1741  | 0        | 1854     | 20      | 0            |
| 47  | 2m    | 36900 | 0        | 18599    | 490     | 0            |
| 48  | 2n    | 1741  | 0        | 1746     | 31      | 0            |
| 49  | 2o    | 1738  | 0        | 1809     | 29      | 0            |
| 50  | 2p    | 1765  | 0        | 1865     | 26      | 0            |
| 51  | 2q    | 2076  | 0        | 2177     | 37      | 0            |
| 52  | 2r    | 1479  | 0        | 1534     | 35      | 0            |
| 53  | 2s    | 1521  | 0        | 1616     | 23      | 0            |
| 54  | 2t    | 1686  | 0        | 1772     | 39      | 0            |
| 55  | 2u    | 827   | 0        | 854      | 12      | 0            |
| 56  | 2v    | 1247  | 0        | 1323     | 24      | 0            |
| 57  | 2w    | 804   | 0        | 841      | 17      | 0            |
| 58  | 2x    | 1158  | 0        | 1232     | 31      | 0            |
| 59  | 2y    | 1072  | 0        | 1130     | 20      | 0            |
| 60  | 2z    | 1235  | 0        | 1309     | 29      | 0            |
| 61  | 20    | 1112  | 0        | 1146     | 20      | 0            |
| 62  | 21    | 821   | 0        | 883      | 17      | 0            |
| 63  | 3A    | 636   | 0        | 637      | 9       | 0            |
| 64  | 3B    | 1098  | 0        | 1167     | 22      | 0            |
| 65  | 3C    | 847   | 0        | 899      | 17      | 0            |
| 66  | 3D    | 506   | 0        | 536      | 16      | 0            |
| 67  | 3E    | 445   | 0        | 442      | 9       | 0            |
| 68  | 3F    | 2436  | 0        | 2393     | 65      | 0            |
| 69  | 3G    | 1725  | 0        | 1813     | 29      | 0            |
| 70  | 3H    | 1923  | 0        | 2089     | 38      | 0            |
| 71  | 3I    | 1525  | 0        | 1640     | 18      | 0            |
| 72  | 3J    | 952   | 0        | 983      | 13      | 0            |
| 73  | 3K    | 1208  | 0        | 1294     | 14      | 0            |

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| Mol | Chain | Non-H  | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|--------|----------|----------|---------|--------------|
| 74  | 3L    | 1049   | 0        | 1073     | 27      | 0            |
| 75  | 3M    | 1034   | 0        | 1080     | 12      | 0            |
| 76  | 3N    | 1065   | 0        | 1142     | 16      | 0            |
| 77  | 3O    | 598    | 0        | 656      | 14      | 0            |
| 78  | 3P    | 651    | 0        | 672      | 20      | 0            |
| 79  | 3Q    | 459    | 0        | 503      | 5       | 0            |
| 80  | 3R    | 548    | 0        | 555      | 15      | 0            |
| 81  | zv    | 123    | 0        | 66       | 1       | 0            |
| 82  | zx    | 129    | 0        | 148      | 9       | 0            |
| 83  | zu    | 1599   | 0        | 810      | 17      | 0            |
| 83  | zy    | 1599   | 0        | 809      | 15      | 0            |
| All | All   | 220009 | 0        | 162984   | 2629    | 0            |

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 7.

All (2629) 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) |
|-----------------|------------------|--------------------------|-------------------|
| 47:2m:902:G:O6  | 47:2m:904:A:C6   | 1.77                     | 1.34              |
| 47:2m:677:G:N2  | 47:2m:1028:A:H62 | 1.57                     | 1.01              |
| 1:1A:120:A:H62  | 1:1A:151:G:N2    | 1.59                     | 1.00              |
| 47:2m:616:A:H62 | 47:2m:625:G:H21  | 1.06                     | 0.98              |
| 1:1A:3961:G:N3  | 1:1A:4048:A:N6   | 2.12                     | 0.97              |
| 47:2m:677:G:H21 | 47:2m:1028:A:N6  | 1.60                     | 0.97              |
| 1:1A:3961:G:N2  | 1:1A:4048:A:C6   | 2.32                     | 0.96              |
| 47:2m:1748:G:H1 | 47:2m:1786:U:H3  | 1.02                     | 0.96              |
| 47:2m:1656:G:H1 | 47:2m:1668:U:H3  | 1.05                     | 0.95              |
| 1:1A:120:A:H62  | 1:1A:151:G:H21   | 1.05                     | 0.94              |
| 1:1A:512:U:H3   | 1:1A:647:G:H1    | 0.99                     | 0.93              |
| 1:1A:87:A:H62   | 1:1A:97:G:H21    | 1.08                     | 0.93              |
| 1:1A:2557:G:H1  | 1:1A:2570:U:H3   | 0.94                     | 0.92              |
| 1:1A:2845:A:H61 | 1:1A:3843:C:H42  | 1.02                     | 0.92              |
| 47:2m:902:G:O6  | 47:2m:904:A:N6   | 2.02                     | 0.92              |
| 1:1A:87:A:H62   | 1:1A:97:G:N2     | 1.66                     | 0.92              |
| 47:2m:925:G:H1  | 47:2m:1017:U:H3  | 0.98                     | 0.92              |
| 1:1A:2486:G:C8  | 1:1A:2493:G:N2   | 2.39                     | 0.91              |
| 47:2m:1172:U:H3 | 47:2m:1188:A:H62 | 1.16                     | 0.91              |
| 1:1A:2845:A:H61 | 1:1A:3843:C:N4   | 1.67                     | 0.91              |
| 1:1A:4690:G:H21 | 1:1A:4700:A:H62  | 1.13                     | 0.90              |
| 47:2m:924:G:H1  | 47:2m:1018:U:H3  | 0.92                     | 0.90              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 83:zy:8:U:H3      | 83:zy:14:A:H62     | 1.18                     | 0.90              |
| 1:1A:366:A:H62    | 1:1A:375:G:H21     | 1.19                     | 0.89              |
| 47:2m:1798:C:HO2' | 54:2t:2:GLY:N      | 1.71                     | 0.88              |
| 47:2m:1048:G:H21  | 47:2m:1070:A:H62   | 1.16                     | 0.88              |
| 1:1A:450:G:H1     | 1:1A:1297:U:H3     | 1.17                     | 0.87              |
| 1:1A:4633:G:N2    | 1:1A:4665:A:H62    | 1.74                     | 0.86              |
| 1:1A:2845:A:N6    | 1:1A:3843:C:H42    | 1.73                     | 0.85              |
| 1:1A:87:A:N6      | 1:1A:97:G:H21      | 1.74                     | 0.84              |
| 2:1B:30:C:C2      | 2:1B:48:G:C2       | 2.65                     | 0.84              |
| 1:1A:4633:G:H21   | 1:1A:4665:A:H62    | 1.24                     | 0.84              |
| 3:1C:71:A:H62     | 3:1C:87:G:H21      | 1.27                     | 0.82              |
| 1:1A:4633:G:H21   | 1:1A:4665:A:N6     | 1.76                     | 0.82              |
| 2:1B:30:C:C2      | 2:1B:48:G:N2       | 2.47                     | 0.82              |
| 47:2m:616:A:H62   | 47:2m:625:G:N2     | 1.76                     | 0.82              |
| 1:1A:4885:U:N3    | 1:1A:4936:G:C6     | 2.48                     | 0.81              |
| 82:zx:15:LEU:O    | 82:zx:19:TYR:HB2   | 1.78                     | 0.81              |
| 47:2m:146:G:H1    | 47:2m:173:A:H61    | 1.30                     | 0.81              |
| 2:1B:30:C:N3      | 2:1B:48:G:N1       | 2.30                     | 0.80              |
| 1:1A:4769:G:H1    | 1:1A:4865:C:H42    | 1.30                     | 0.80              |
| 47:2m:902:G:O6    | 47:2m:904:A:C5     | 2.35                     | 0.79              |
| 1:1A:3961:G:C2    | 1:1A:4048:A:N6     | 2.50                     | 0.79              |
| 1:1A:1098:G:H1    | 1:1A:1197:C:H42    | 1.29                     | 0.78              |
| 1:1A:3961:G:C2    | 1:1A:4048:A:C6     | 2.71                     | 0.77              |
| 1:1A:505:G:H1     | 1:1A:653:U:H3      | 1.30                     | 0.76              |
| 47:2m:1048:G:N2   | 47:2m:1070:A:H62   | 1.83                     | 0.76              |
| 1:1A:4748:U:H3    | 1:1A:4951:G:H1     | 1.36                     | 0.74              |
| 62:21:61:LEU:HB2  | 62:21:82:MET:HB3   | 1.70                     | 0.74              |
| 1:1A:2485:U:H3    | 1:1A:2489:C:HO2'   | 1.36                     | 0.74              |
| 47:2m:1173:A:H62  | 47:2m:1187:G:H21   | 1.36                     | 0.74              |
| 1:1A:366:A:H62    | 1:1A:375:G:N2      | 1.86                     | 0.73              |
| 1:1A:2486:G:H8    | 1:1A:2493:G:H22    | 1.29                     | 0.73              |
| 1:1A:2741:U:O2    | 1:1A:2742:G:O6     | 2.06                     | 0.73              |
| 3:1C:71:A:H62     | 3:1C:87:G:N2       | 1.85                     | 0.73              |
| 83:zy:8:U:H3      | 83:zy:14:A:N6      | 1.87                     | 0.73              |
| 1:1A:3765:G:HO2'  | 47:2m:1849:G:H1    | 1.35                     | 0.72              |
| 47:2m:902:G:C6    | 47:2m:904:A:C6     | 2.75                     | 0.72              |
| 47:2m:1413:G:H22  | 47:2m:1415:C:H6    | 1.37                     | 0.72              |
| 1:1A:73:A:H62     | 14:2F:103:ARG:HH22 | 1.37                     | 0.72              |
| 47:2m:315:C:H42   | 47:2m:335:G:H1     | 1.38                     | 0.72              |
| 1:1A:1100:U:H3    | 1:1A:1195:G:H1     | 1.36                     | 0.71              |
| 1:1A:2303:C:H5''  | 33:2Y:104:SER:HB3  | 1.71                     | 0.71              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 47:2m:1048:G:H21  | 47:2m:1070:A:N6    | 1.87                     | 0.71              |
| 36:2b:3:LYS:HB3   | 36:2b:4:ILE:HG13   | 1.72                     | 0.71              |
| 1:1A:2486:G:N7    | 1:1A:2493:G:N1     | 2.37                     | 0.71              |
| 47:2m:616:A:N6    | 47:2m:625:G:H21    | 1.87                     | 0.71              |
| 61:20:82:ARG:HH22 | 61:20:84:ARG:HE    | 1.39                     | 0.71              |
| 47:2m:1550:G:H3'  | 47:2m:1579:A:H61   | 1.56                     | 0.71              |
| 1:1A:3753:G:H22   | 1:1A:3770:U:H3     | 1.39                     | 0.70              |
| 47:2m:1412:C:N4   | 47:2m:1433:C:N3    | 2.39                     | 0.70              |
| 47:2m:1172:U:H3   | 47:2m:1188:A:N6    | 1.90                     | 0.70              |
| 1:1A:2741:U:O2    | 1:1A:2742:G:C6     | 2.44                     | 0.70              |
| 62:21:66:ARG:HH22 | 62:21:75:LYS:HG2   | 1.56                     | 0.70              |
| 41:2g:97:ARG:HD2  | 41:2g:120:ASN:HB3  | 1.73                     | 0.70              |
| 1:1A:2871:A:H62   | 1:1A:2878:G:N2     | 1.88                     | 0.70              |
| 28:2T:108:ARG:HG2 | 28:2T:111:ARG:HH21 | 1.57                     | 0.70              |
| 1:1A:2871:A:N6    | 1:1A:2878:G:H21    | 1.90                     | 0.70              |
| 1:1A:4690:G:H21   | 1:1A:4700:A:N6     | 1.89                     | 0.70              |
| 8:1H:59:ARG:O     | 8:1H:63:TYR:HB2    | 1.91                     | 0.70              |
| 76:3N:127:ALA:HA  | 76:3N:130:LYS:HD3  | 1.73                     | 0.69              |
| 1:1A:2622:G:O6    | 23:2O:81:ARG:NH2   | 2.25                     | 0.69              |
| 27:2S:58:VAL:HG12 | 27:2S:59:ARG:HG3   | 1.73                     | 0.69              |
| 1:1A:2112:G:H4'   | 1:1A:2251:G:H1     | 1.57                     | 0.68              |
| 27:2S:43:ASN:HB3  | 27:2S:126:ARG:HD3  | 1.75                     | 0.68              |
| 2:1B:30:C:O2      | 2:1B:48:G:C2       | 2.46                     | 0.68              |
| 49:2o:66:VAL:HG22 | 49:2o:87:ILE:HG22  | 1.75                     | 0.68              |
| 1:1A:756:G:H1     | 1:1A:907:C:H42     | 1.40                     | 0.68              |
| 47:2m:927:C:O2    | 78:3P:51:GLN:NE2   | 2.27                     | 0.67              |
| 1:1A:223:G:N3     | 6:1F:223:ASN:ND2   | 2.42                     | 0.67              |
| 47:2m:1650:A:H62  | 47:2m:1674:G:H21   | 1.40                     | 0.67              |
| 1:1A:120:A:N6     | 1:1A:151:G:H21     | 1.84                     | 0.67              |
| 47:2m:188:C:N3    | 47:2m:212:C:N4     | 2.43                     | 0.67              |
| 56:2v:16:ILE:HD13 | 56:2v:34:PRO:HG2   | 1.76                     | 0.67              |
| 47:2m:1396:A:O2'  | 47:2m:1398:G:N7    | 2.28                     | 0.67              |
| 69:3G:110:MET:HB3 | 69:3G:125:LYS:HB3  | 1.76                     | 0.67              |
| 1:1A:4552:U:H2'   | 1:1A:4553:A:H8     | 1.59                     | 0.66              |
| 1:1A:149:A:HO2'   | 10:2B:199:CYS:HG   | 1.41                     | 0.66              |
| 1:1A:1763:C:H41   | 1:1A:1764:G:H21    | 1.44                     | 0.66              |
| 2:1B:77:A:H62     | 2:1B:99:G:H21      | 1.44                     | 0.66              |
| 47:2m:750:C:H42   | 47:2m:794:A:H1'    | 1.60                     | 0.66              |
| 47:2m:1043:G:H21  | 47:2m:1073:U:H3    | 1.43                     | 0.66              |
| 1:1A:4690:G:N2    | 1:1A:4700:A:H62    | 1.89                     | 0.66              |
| 1:1A:3869:C:H1'   | 17:2I:68:ARG:HH22  | 1.61                     | 0.66              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 47:2m:639:C:H2'   | 47:2m:640:A:H8     | 1.61                     | 0.66              |
| 47:2m:103:A:H5''  | 54:2t:12:ARG:HH12  | 1.60                     | 0.65              |
| 53:2s:143:ARG:HB2 | 53:2s:155:LYS:HB2  | 1.78                     | 0.65              |
| 47:2m:993:G:N7    | 65:3C:15:ARG:NH2   | 2.44                     | 0.65              |
| 12:2D:98:ARG:HB3  | 12:2D:120:GLY:HA3  | 1.78                     | 0.65              |
| 1:1A:2373:C:H4'   | 32:2X:64:ILE:HD11  | 1.78                     | 0.65              |
| 52:2r:140:ASP:HB3 | 66:3D:46:VAL:HG12  | 1.79                     | 0.65              |
| 47:2m:191:A:N6    | 47:2m:208:G:O2'    | 2.29                     | 0.65              |
| 55:2u:88:GLU:HG2  | 55:2u:90:VAL:H     | 1.62                     | 0.65              |
| 80:3R:135:HIS:HD2 | 80:3R:137:ASP:H    | 1.44                     | 0.65              |
| 1:1A:143:C:H5''   | 1:1A:144:G:H5'     | 1.79                     | 0.64              |
| 19:2K:84:GLY:H    | 19:2K:103:LEU:HD13 | 1.62                     | 0.64              |
| 26:2R:86:ALA:HB1  | 26:2R:97:VAL:HG11  | 1.79                     | 0.64              |
| 47:2m:1495:G:H21  | 67:3E:41:GLN:HB3   | 1.62                     | 0.64              |
| 38:2d:36:LYS:HA   | 38:2d:45:ARG:HH11  | 1.61                     | 0.64              |
| 47:2m:333:G:N7    | 70:3H:190:ARG:NH1  | 2.45                     | 0.64              |
| 1:1A:4716:C:H2'   | 1:1A:4717:A:H8     | 1.63                     | 0.64              |
| 1:1A:2781:G:OP1   | 40:2f:10:LYS:NZ    | 2.27                     | 0.64              |
| 47:2m:677:G:H21   | 47:2m:1028:A:H62   | 0.78                     | 0.64              |
| 44:2j:39:CYS:SG   | 44:2j:40:SER:N     | 2.71                     | 0.64              |
| 47:2m:1276:A:H62  | 47:2m:1321:G:H8    | 1.46                     | 0.64              |
| 1:1A:489:C:H42    | 1:1A:664:G:H1      | 1.46                     | 0.64              |
| 47:2m:1679:A:H2'  | 52:2r:60:ARG:HD2   | 1.80                     | 0.64              |
| 1:1A:753:C:H41    | 1:1A:910:G:H1      | 1.45                     | 0.64              |
| 13:2E:10:ASN:N    | 13:2E:10:ASN:OD1   | 2.31                     | 0.63              |
| 1:1A:4761:G:N2    | 1:1A:4765:G:O2'    | 2.31                     | 0.63              |
| 47:2m:1860:A:N7   | 65:3C:34:LYS:NZ    | 2.46                     | 0.63              |
| 55:2u:61:GLN:HB3  | 55:2u:68:TYR:HB2   | 1.78                     | 0.63              |
| 1:1A:4242:U:O2    | 1:1A:4283:G:N2     | 2.31                     | 0.63              |
| 25:2Q:73:ARG:NH1  | 47:2m:1782:G:N7    | 2.46                     | 0.63              |
| 47:2m:1636:G:O2'  | 52:2r:164:ARG:NH1  | 2.31                     | 0.63              |
| 1:1A:2871:A:N6    | 1:1A:2878:G:N2     | 2.46                     | 0.63              |
| 1:1A:3974:G:N2    | 1:1A:4051:C:OP1    | 2.32                     | 0.63              |
| 47:2m:1305:C:OP2  | 80:3R:95:ARG:NH1   | 2.32                     | 0.63              |
| 47:2m:1650:A:H5'' | 58:2x:139:ALA:HB2  | 1.81                     | 0.63              |
| 1:1A:1718:C:N3    | 9:2A:181:LYS:NZ    | 2.43                     | 0.63              |
| 1:1A:1951:G:H1    | 1:1A:2032:U:H3     | 1.45                     | 0.63              |
| 5:1E:10:ARG:NH2   | 5:1E:12:GLY:O      | 2.32                     | 0.63              |
| 54:2t:98:LYS:HD3  | 54:2t:178:ARG:HB3  | 1.79                     | 0.63              |
| 1:1A:2656:U:OP1   | 28:2T:78:ASN:ND2   | 2.32                     | 0.63              |
| 47:2m:1169:G:H21  | 47:2m:1191:C:H41   | 1.47                     | 0.63              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:2t:123:ARG:HH21 | 54:2t:128:LYS:H    | 1.47                     | 0.63              |
| 66:3D:44:ARG:HG2   | 66:3D:63:ARG:HD2   | 1.79                     | 0.63              |
| 1:1A:2486:G:N7     | 1:1A:2493:G:C2     | 2.66                     | 0.63              |
| 47:2m:65:C:H1'     | 70:3H:172:LYS:HE3  | 1.79                     | 0.63              |
| 1:1A:4294:C:H5''   | 43:2i:81:ARG:HH12  | 1.63                     | 0.63              |
| 4:1D:120:PRO:HA    | 4:1D:162:ASN:HB3   | 1.81                     | 0.63              |
| 46:2l:205:TYR:HB3  | 46:2l:207:LYS:HG2  | 1.81                     | 0.63              |
| 53:2s:121:THR:HG22 | 53:2s:124:ALA:H    | 1.63                     | 0.63              |
| 1:1A:4342:C:O2'    | 83:zu:74:C:N4      | 2.32                     | 0.62              |
| 1:1A:4980:C:N3     | 18:2J:69:ARG:NH2   | 2.46                     | 0.62              |
| 6:1F:65:GLU:OE2    | 6:1F:80:ARG:NH1    | 2.31                     | 0.62              |
| 57:2w:78:THR:OG1   | 57:2w:79:HIS:N     | 2.31                     | 0.62              |
| 23:2O:62:THR:HB    | 23:2O:73:THR:HB    | 1.81                     | 0.62              |
| 47:2m:521:A:OP1    | 71:3I:45:ARG:NH1   | 2.32                     | 0.62              |
| 47:2m:1707:U:O2'   | 47:2m:1849:G:N2    | 2.32                     | 0.62              |
| 1:1A:366:A:N6      | 1:1A:375:G:H21     | 1.96                     | 0.62              |
| 1:1A:1468:C:OP1    | 29:2U:132:ARG:NH2  | 2.32                     | 0.62              |
| 1:1A:2738:C:N3     | 1:1A:2741:U:N3     | 2.46                     | 0.62              |
| 1:1A:227:A:H62     | 1:1A:241:G:H21     | 1.46                     | 0.62              |
| 19:2K:18:PRO:HG3   | 19:2K:29:VAL:HG21  | 1.80                     | 0.62              |
| 68:3F:65:PHE:O     | 68:3F:82:SER:OG    | 2.17                     | 0.62              |
| 1:1A:1661:C:OP1    | 33:2Y:36:ARG:NH2   | 2.32                     | 0.62              |
| 69:3G:131:GLY:HA3  | 69:3G:137:VAL:HG12 | 1.81                     | 0.62              |
| 1:1A:3937:C:H1'    | 16:2H:125:SER:HB3  | 1.82                     | 0.62              |
| 5:1E:348:ARG:HH12  | 5:1E:351:LEU:HD23  | 1.65                     | 0.62              |
| 47:2m:1402:A:H4'   | 62:2I:51:LYS:HD2   | 1.81                     | 0.62              |
| 47:2m:1694:U:HO2'  | 47:2m:1833:C:HO2'  | 1.48                     | 0.62              |
| 48:2n:54:THR:HG22  | 48:2n:162:PRO:HG2  | 1.81                     | 0.62              |
| 1:1A:138:G:H2'     | 1:1A:139:G:H8      | 1.64                     | 0.62              |
| 1:1A:3645:U:HO2'   | 1:1A:4553:A:HO2'   | 1.42                     | 0.62              |
| 9:2A:113:ARG:HH21  | 9:2A:210:PRO:HD3   | 1.65                     | 0.62              |
| 2:1B:26:C:H5''     | 7:1G:56:THR:HG21   | 1.80                     | 0.62              |
| 21:2M:85:ASP:HB3   | 21:2M:90:THR:HG22  | 1.80                     | 0.62              |
| 49:2o:67:PHE:HB3   | 74:3L:48:SER:HA    | 1.82                     | 0.62              |
| 1:1A:4894:A:OP2    | 17:2I:188:LYS:NZ   | 2.33                     | 0.62              |
| 1:1A:1100:U:O2     | 1:1A:1195:G:N2     | 2.32                     | 0.61              |
| 1:1A:4294:C:OP1    | 43:2i:81:ARG:NH1   | 2.33                     | 0.61              |
| 1:1A:4885:U:C4     | 1:1A:4936:G:O6     | 2.52                     | 0.61              |
| 1:1A:1570:G:N7     | 44:2j:3:LYS:NZ     | 2.48                     | 0.61              |
| 50:2p:213:PRO:HD3  | 59:2y:19:LYS:HD2   | 1.82                     | 0.61              |
| 1:1A:2406:G:N7     | 40:2f:2:SER:N      | 2.48                     | 0.61              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:2485:U:OP1    | 1:1A:2486:G:N2     | 2.33                     | 0.61              |
| 47:2m:1215:C:N4    | 47:2m:1220:A:H61   | 1.98                     | 0.61              |
| 1:1A:4546:A:N7     | 4:1D:215:ASN:ND2   | 2.49                     | 0.61              |
| 47:2m:525:A:H2'    | 47:2m:526:A:H8     | 1.65                     | 0.61              |
| 47:2m:681:U:H4'    | 64:3B:9:THR:HG22   | 1.82                     | 0.61              |
| 50:2p:74:GLN:NE2   | 50:2p:79:PHE:O     | 2.33                     | 0.61              |
| 77:3O:61:GLU:HA    | 77:3O:64:ASN:HD22  | 1.64                     | 0.61              |
| 1:1A:4940:C:OP2    | 8:1H:219:LYS:NZ    | 2.34                     | 0.61              |
| 63:3A:15:ARG:NH1   | 63:3A:33:GLN:OE1   | 2.33                     | 0.61              |
| 73:3K:55:ARG:NH2   | 78:3P:51:GLN:OE1   | 2.32                     | 0.61              |
| 1:1A:67:C:OP2      | 1:1A:312:G:N2      | 2.33                     | 0.61              |
| 1:1A:436:C:H2'     | 1:1A:437:G:H8      | 1.64                     | 0.61              |
| 1:1A:4621:C:OP1    | 24:2P:48:ARG:NH2   | 2.34                     | 0.61              |
| 24:2P:106:VAL:HG21 | 24:2P:132:ILE:HD11 | 1.83                     | 0.61              |
| 65:3C:25:ASN:HD21  | 65:3C:77:CYS:HB3   | 1.66                     | 0.61              |
| 1:1A:2706:G:N2     | 1:1A:2709:C:OP1    | 2.33                     | 0.61              |
| 1:1A:3653:A:N6     | 1:1A:3691:G:O2'    | 2.33                     | 0.61              |
| 1:1A:3903:A:N1     | 1:1A:3904:G:N2     | 2.48                     | 0.61              |
| 4:1D:6:ARG:HA      | 4:1D:9:ARG:HG2     | 1.83                     | 0.61              |
| 19:2K:53:MET:O     | 19:2K:58:ARG:NH1   | 2.34                     | 0.61              |
| 19:2K:178:ARG:H    | 29:2U:51:GLY:HA2   | 1.66                     | 0.61              |
| 63:3A:42:VAL:HG23  | 63:3A:43:THR:HG23  | 1.82                     | 0.61              |
| 1:1A:4407:G:H1     | 1:1A:4435:U:H3     | 1.49                     | 0.61              |
| 47:2m:1650:A:H62   | 47:2m:1674:G:N2    | 1.98                     | 0.61              |
| 1:1A:2780:C:H2'    | 1:1A:2781:G:H8     | 1.65                     | 0.61              |
| 29:2U:94:LYS:HG3   | 29:2U:95:THR:HG23  | 1.83                     | 0.61              |
| 61:20:124:THR:HG23 | 61:20:127:GLY:H    | 1.65                     | 0.61              |
| 1:1A:280:G:OP1     | 16:2H:47:LYS:NZ    | 2.34                     | 0.61              |
| 1:1A:352:G:N2      | 1:1A:360:A:N1      | 2.49                     | 0.61              |
| 2:1B:54:A:O2'      | 13:2E:13:ARG:NH2   | 2.34                     | 0.61              |
| 21:2M:147:ASP:HB3  | 21:2M:150:ILE:HG13 | 1.82                     | 0.61              |
| 1:1A:512:U:O4      | 1:1A:647:G:O6      | 2.19                     | 0.60              |
| 47:2m:1403:C:H42   | 47:2m:1436:C:H5''  | 1.66                     | 0.60              |
| 55:2u:5:LYS:HB2    | 72:3J:29:ASP:HB2   | 1.82                     | 0.60              |
| 1:1A:2489:C:O2'    | 1:1A:2491:C:N4     | 2.34                     | 0.60              |
| 1:1A:4622:A:H4'    | 5:1E:13:SER:HB2    | 1.81                     | 0.60              |
| 7:1G:128:ASP:O     | 7:1G:164:LYS:NZ    | 2.34                     | 0.60              |
| 8:1H:155:GLY:O     | 8:1H:158:ARG:NH1   | 2.34                     | 0.60              |
| 8:1H:177:GLY:HA3   | 8:1H:182:ASN:HD21  | 1.66                     | 0.60              |
| 1:1A:4376:A:O2'    | 29:2U:42:ARG:NH1   | 2.34                     | 0.60              |
| 1:1A:1885:G:OP1    | 34:2Z:20:ASN:ND2   | 2.34                     | 0.60              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:2385:U:OP1   | 20:2L:5:ARG:NH1    | 2.33                     | 0.60              |
| 1:1A:4274:A:H2'   | 1:1A:4275:G:H8     | 1.67                     | 0.60              |
| 3:1C:82:A:N6      | 3:1C:85:U:OP1      | 2.34                     | 0.60              |
| 6:1F:149:GLU:HG2  | 45:2k:72:LYS:HG2   | 1.84                     | 0.60              |
| 12:2D:76:MET:HE1  | 12:2D:147:HIS:HB3  | 1.83                     | 0.60              |
| 32:2X:81:PRO:HG2  | 32:2X:84:ILE:HD11  | 1.83                     | 0.60              |
| 47:2m:1046:U:H1'  | 74:3L:140:THR:HG21 | 1.83                     | 0.60              |
| 1:1A:667:A:O2'    | 45:2k:46:ARG:NH2   | 2.34                     | 0.60              |
| 1:1A:4420:U:O4    | 1:1A:4475:G:N2     | 2.35                     | 0.60              |
| 50:2p:132:LYS:HD2 | 50:2p:156:LEU:HD22 | 1.83                     | 0.60              |
| 70:3H:37:ALA:HA   | 70:3H:49:VAL:HA    | 1.81                     | 0.60              |
| 75:3M:80:ASP:HA   | 75:3M:124:LYS:HA   | 1.82                     | 0.60              |
| 3:1C:104:A:OP2    | 38:2d:42:LYS:NZ    | 2.33                     | 0.60              |
| 1:1A:109:G:OP2    | 14:2F:74:ARG:NH2   | 2.34                     | 0.60              |
| 1:1A:492:U:OP1    | 6:1F:268:ARG:NH2   | 2.34                     | 0.60              |
| 1:1A:1889:U:OP2   | 1:1A:1890:G:N2     | 2.35                     | 0.60              |
| 5:1E:289:GLN:HG3  | 5:1E:292:LEU:HD11  | 1.83                     | 0.60              |
| 47:2m:1113:A:H3'  | 47:2m:1114:U:H5'   | 1.83                     | 0.60              |
| 47:2m:1540:G:OP2  | 61:20:43:LYS:NZ    | 2.34                     | 0.60              |
| 68:3F:87:LEU:HB3  | 68:3F:101:PHE:HB2  | 1.82                     | 0.60              |
| 1:1A:3944:G:H1    | 1:1A:4069:U:H3     | 1.50                     | 0.60              |
| 16:2H:137:PRO:O   | 16:2H:143:ARG:NH1  | 2.34                     | 0.60              |
| 47:2m:696:G:N3    | 47:2m:736:C:N4     | 2.49                     | 0.60              |
| 47:2m:925:G:N2    | 47:2m:1017:U:O2    | 2.31                     | 0.60              |
| 1:1A:1336:G:H21   | 1:1A:2349:A:H62    | 1.49                     | 0.60              |
| 47:2m:1513:C:H2'  | 47:2m:1514:G:H8    | 1.67                     | 0.60              |
| 47:2m:1616:U:OP2  | 57:2w:43:ARG:NH2   | 2.35                     | 0.60              |
| 48:2n:141:ASN:ND2 | 63:3A:31:SER:O     | 2.35                     | 0.60              |
| 1:1A:2452:G:H21   | 1:1A:2507:A:H62    | 1.49                     | 0.59              |
| 2:1B:38:U:N3      | 2:1B:41:G:OP2      | 2.35                     | 0.59              |
| 47:2m:1372:U:OP1  | 47:2m:1385:G:N2    | 2.35                     | 0.59              |
| 72:3J:49:LEU:HD23 | 72:3J:75:ASN:H     | 1.67                     | 0.59              |
| 1:1A:2641:A:H62   | 1:1A:2693:G:H21    | 1.48                     | 0.59              |
| 1:1A:3918:G:N1    | 1:1A:4384:U:N3     | 2.50                     | 0.59              |
| 1:1A:4129:G:O6    | 1:1A:4156:G:N2     | 2.35                     | 0.59              |
| 20:2L:172:ARG:NH1 | 20:2L:175:GLU:OE1  | 2.35                     | 0.59              |
| 47:2m:127:C:N4    | 47:2m:181:A:O2'    | 2.35                     | 0.59              |
| 47:2m:1183:A:H2'  | 47:2m:1184:G:H8    | 1.65                     | 0.59              |
| 58:2x:86:GLN:HG2  | 58:2x:90:LYS:HE2   | 1.84                     | 0.59              |
| 1:1A:2743:A:O2'   | 4:1D:21:LYS:NZ     | 2.34                     | 0.59              |
| 47:2m:178:C:H3'   | 47:2m:313:A:H61    | 1.67                     | 0.59              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:1573:G:OP1   | 20:2L:92:LYS:NZ    | 2.33                     | 0.59              |
| 1:1A:4141:G:O2'   | 1:1A:4143:G:N7     | 2.34                     | 0.59              |
| 20:2L:176:ARG:NH1 | 47:2m:910:G:OP1    | 2.34                     | 0.59              |
| 66:3D:14:VAL:HG22 | 66:3D:53:GLY:HA2   | 1.84                     | 0.59              |
| 1:1A:4662:C:H2'   | 1:1A:4663:G:H8     | 1.68                     | 0.59              |
| 47:2m:575:A:OP2   | 76:3N:93:ARG:NH1   | 2.36                     | 0.59              |
| 65:3C:64:LEU:HD11 | 74:3L:129:ILE:HD12 | 1.84                     | 0.59              |
| 1:1A:4765:G:N1    | 1:1A:4870:G:N7     | 2.51                     | 0.59              |
| 8:1H:220:LYS:HE2  | 8:1H:237:LYS:HE2   | 1.85                     | 0.59              |
| 9:2A:26:ALA:HA    | 9:2A:29:LYS:HG2    | 1.85                     | 0.59              |
| 31:2W:28:VAL:HB   | 31:2W:95:ALA:HB3   | 1.83                     | 0.59              |
| 47:2m:566:U:H3    | 47:2m:584:G:H1     | 1.50                     | 0.59              |
| 47:2m:1657:G:H1   | 47:2m:1667:U:H3    | 1.50                     | 0.59              |
| 52:2r:129:GLY:HA3 | 52:2r:136:ARG:HH22 | 1.68                     | 0.59              |
| 1:1A:3961:G:N2    | 1:1A:4048:A:C5     | 2.71                     | 0.59              |
| 1:1A:4767:C:O2'   | 1:1A:4874:A:N6     | 2.34                     | 0.59              |
| 7:1G:80:ALA:HA    | 7:1G:83:LEU:HD13   | 1.83                     | 0.59              |
| 47:2m:617:G:H4'   | 64:3B:88:ASP:HB3   | 1.83                     | 0.59              |
| 47:2m:1024:A:OP2  | 73:3K:124:ARG:NH2  | 2.33                     | 0.59              |
| 57:2w:106:GLU:OE1 | 60:2z:116:LYS:NZ   | 2.33                     | 0.59              |
| 60:2z:113:ARG:HG3 | 60:2z:116:LYS:HD3  | 1.83                     | 0.59              |
| 1:1A:992:C:N4     | 1:1A:994:G:N7      | 2.49                     | 0.59              |
| 1:1A:4745:G:H22   | 1:1A:4954:G:H1     | 1.51                     | 0.59              |
| 6:1F:187:GLN:NE2  | 6:1F:203:GLN:OE1   | 2.34                     | 0.59              |
| 47:2m:659:G:O2'   | 47:2m:662:G:O2'    | 2.19                     | 0.59              |
| 1:1A:942:G:OP1    | 9:2A:245:ARG:NH1   | 2.35                     | 0.59              |
| 1:1A:1700:G:OP2   | 1:1A:1704:C:N4     | 2.36                     | 0.59              |
| 1:1A:3763:A:N7    | 1:1A:3764:U:N3     | 2.51                     | 0.59              |
| 1:1A:3918:G:C2    | 1:1A:4384:U:O2     | 2.56                     | 0.59              |
| 1:1A:4424:A:OP2   | 41:2g:97:ARG:NH2   | 2.35                     | 0.59              |
| 47:2m:1138:C:O2   | 63:3A:61:ARG:NH1   | 2.36                     | 0.59              |
| 47:2m:1144:A:OP1  | 47:2m:1355:C:N4    | 2.36                     | 0.59              |
| 47:2m:1438:A:N6   | 47:2m:1439:A:N1    | 2.50                     | 0.59              |
| 47:2m:1565:C:OP2  | 61:20:105:GLN:NE2  | 2.36                     | 0.59              |
| 64:3B:63:ASN:ND2  | 64:3B:114:ASP:OD2  | 2.36                     | 0.59              |
| 1:1A:2340:C:H1'   | 6:1F:45:ARG:HH22   | 1.68                     | 0.58              |
| 11:2C:114:ILE:HB  | 11:2C:124:ARG:HB2  | 1.85                     | 0.58              |
| 47:2m:49:C:OP1    | 47:2m:471:G:N2     | 2.36                     | 0.58              |
| 3:1C:9:A:H2'      | 3:1C:10:G:H8       | 1.68                     | 0.58              |
| 9:2A:222:LYS:HB3  | 9:2A:231:GLY:HA2   | 1.84                     | 0.58              |
| 24:2P:83:ARG:NH2  | 24:2P:120:PRO:O    | 2.35                     | 0.58              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:1A:4195:G:N2     | 1:1A:4222:G:OP2   | 2.36                     | 0.58              |
| 1:1A:4313:A:OP1    | 22:2N:92:ARG:NH2  | 2.36                     | 0.58              |
| 47:2m:322:C:N4     | 47:2m:329:G:O6    | 2.36                     | 0.58              |
| 47:2m:1348:G:H22   | 47:2m:1381:G:H1   | 1.49                     | 0.58              |
| 51:2q:51:ARG:NH2   | 51:2q:109:PHE:O   | 2.34                     | 0.58              |
| 1:1A:725:G:OP2     | 6:1F:350:ARG:NH2  | 2.35                     | 0.58              |
| 1:1A:2404:A:O2'    | 38:2d:12:ARG:O    | 2.22                     | 0.58              |
| 8:1H:93:THR:HG22   | 8:1H:106:VAL:HA   | 1.84                     | 0.58              |
| 10:2B:141:ASN:HD21 | 16:2H:4:TYR:HE2   | 1.51                     | 0.58              |
| 76:3N:44:LEU:HD23  | 76:3N:75:ILE:HD11 | 1.86                     | 0.58              |
| 1:1A:2772:C:O2'    | 39:2e:17:ARG:NH2  | 2.37                     | 0.58              |
| 1:1A:3680:U:OP2    | 4:1D:128:ARG:NH2  | 2.36                     | 0.58              |
| 1:1A:4054:C:O2     | 46:2l:35:GLN:NE2  | 2.36                     | 0.58              |
| 1:1A:4322:G:N2     | 1:1A:4325:A:OP2   | 2.34                     | 0.58              |
| 2:1B:8:G:OP1       | 7:1G:33:ARG:NH2   | 2.36                     | 0.58              |
| 47:2m:1005:G:OP2   | 49:2o:162:ARG:NH1 | 2.35                     | 0.58              |
| 48:2n:177:MET:SD   | 48:2n:180:ARG:NH2 | 2.74                     | 0.58              |
| 68:3F:31:ILE:HG23  | 68:3F:43:TRP:HB2  | 1.85                     | 0.58              |
| 1:1A:119:G:O6      | 10:2B:117:ARG:NH1 | 2.36                     | 0.58              |
| 1:1A:1207:C:H2'    | 1:1A:1208:G:H8    | 1.68                     | 0.58              |
| 1:1A:2825:A:H4'    | 1:1A:2826:U:H5'   | 1.86                     | 0.58              |
| 22:2N:63:ARG:NH2   | 30:2V:30:GLU:OE1  | 2.36                     | 0.58              |
| 47:2m:146:G:H1     | 47:2m:173:A:N6    | 2.00                     | 0.58              |
| 47:2m:155:G:N2     | 70:3H:56:ASN:OD1  | 2.36                     | 0.58              |
| 68:3F:109:LEU:HD23 | 68:3F:110:SER:H   | 1.69                     | 0.58              |
| 1:1A:509:A:N6      | 29:2U:102:ASP:O   | 2.36                     | 0.58              |
| 23:2O:107:LYS:HG3  | 23:2O:108:GLU:HG2 | 1.84                     | 0.58              |
| 37:2c:34:THR:HG22  | 37:2c:36:HIS:H    | 1.68                     | 0.58              |
| 47:2m:95:G:H21     | 47:2m:474:G:H5'   | 1.67                     | 0.58              |
| 52:2r:49:LEU:HD12  | 58:2x:50:LYS:HB3  | 1.86                     | 0.58              |
| 1:1A:3765:G:H21    | 1:1A:3766:A:H5'   | 1.68                     | 0.58              |
| 1:1A:3865:A:H61    | 1:1A:3881:G:H1    | 1.48                     | 0.58              |
| 14:2F:170:THR:HG22 | 14:2F:172:GLU:H   | 1.69                     | 0.58              |
| 47:2m:1172:U:O4    | 47:2m:1188:A:N7   | 2.37                     | 0.58              |
| 76:3N:5:VAL:HG11   | 76:3N:43:LYS:HE3  | 1.86                     | 0.58              |
| 1:1A:978:G:OP1     | 8:1H:47:ASN:ND2   | 2.37                     | 0.58              |
| 1:1A:3685:C:H5''   | 4:1D:193:ARG:HH22 | 1.69                     | 0.58              |
| 1:1A:4558:U:OP2    | 5:1E:246:ARG:NH2  | 2.36                     | 0.58              |
| 47:2m:1648:G:H22   | 47:2m:1674:G:H2'  | 1.69                     | 0.58              |
| 48:2n:66:VAL:O     | 63:3A:47:ASN:ND2  | 2.36                     | 0.58              |
| 52:2r:138:ALA:O    | 52:2r:204:ARG:NH1 | 2.37                     | 0.58              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:375:G:N7      | 38:2d:56:ARG:NH1   | 2.51                     | 0.58              |
| 10:2B:58:PRO:HD2   | 10:2B:61:ILE:HD11  | 1.86                     | 0.58              |
| 11:2C:18:ILE:HG22  | 11:2C:27:VAL:HG22  | 1.86                     | 0.58              |
| 28:2T:5:MET:O      | 28:2T:28:ASN:ND2   | 2.37                     | 0.58              |
| 47:2m:225:G:H1     | 47:2m:297:A:H61    | 1.50                     | 0.58              |
| 47:2m:1215:C:H42   | 47:2m:1220:A:N6    | 2.02                     | 0.58              |
| 1:1A:2775:C:H2'    | 1:1A:2776:G:H8     | 1.69                     | 0.57              |
| 5:1E:163:ILE:HG12  | 5:1E:182:GLU:HG2   | 1.85                     | 0.57              |
| 25:2Q:6:CYS:SG     | 25:2Q:7:SER:N      | 2.77                     | 0.57              |
| 47:2m:1256:G:H21   | 62:21:77:TRP:HZ3   | 1.50                     | 0.57              |
| 68:3F:99:ARG:HH21  | 68:3F:136:GLY:HA3  | 1.68                     | 0.57              |
| 1:1A:1951:G:H5'    | 21:2M:116:ARG:HH11 | 1.68                     | 0.57              |
| 1:1A:3725:G:N2     | 1:1A:3728:A:OP2    | 2.37                     | 0.57              |
| 9:2A:80:ASN:HD21   | 22:2N:142:ARG:HA   | 1.70                     | 0.57              |
| 47:2m:1651:A:N3    | 52:2r:83:ASN:ND2   | 2.52                     | 0.57              |
| 69:3G:199:PRO:HG2  | 71:3I:58:ARG:HE    | 1.69                     | 0.57              |
| 1:1A:1503:A:H4'    | 1:1A:1504:G:H5'    | 1.86                     | 0.57              |
| 1:1A:2263:A:H5''   | 45:2k:108:MET:HE3  | 1.86                     | 0.57              |
| 1:1A:3766:A:N6     | 47:2m:1850:A:N3    | 2.53                     | 0.57              |
| 4:1D:6:ARG:HH22    | 4:1D:198:ARG:HH11  | 1.52                     | 0.57              |
| 48:2n:30:LEU:HD21  | 48:2n:38:ILE:HG21  | 1.86                     | 0.57              |
| 49:2o:146:ARG:HB3  | 49:2o:149:GLN:HB2  | 1.85                     | 0.57              |
| 50:2p:40:ARG:NH1   | 62:21:107:GLU:OE1  | 2.38                     | 0.57              |
| 56:2v:103:GLU:OE2  | 56:2v:105:ARG:NH2  | 2.37                     | 0.57              |
| 71:3I:169:ARG:HH22 | 71:3I:175:ARG:HH21 | 1.51                     | 0.57              |
| 1:1A:2053:C:H5'    | 17:2I:17:GLY:HA3   | 1.87                     | 0.57              |
| 1:1A:3807:A:OP1    | 42:2h:23:ARG:NH1   | 2.37                     | 0.57              |
| 1:1A:4454:G:HO2'   | 1:1A:4500:U:HO2'   | 1.52                     | 0.57              |
| 7:1G:55:VAL:HG22   | 7:1G:60:ILE:HG23   | 1.85                     | 0.57              |
| 47:2m:1533:A:OP2   | 52:2r:164:ARG:NH2  | 2.38                     | 0.57              |
| 47:2m:1644:C:H4'   | 58:2x:140:ARG:HB2  | 1.86                     | 0.57              |
| 52:2r:135:ARG:NH2  | 83:zu:32:U:OP1     | 2.38                     | 0.57              |
| 62:21:25:THR:HG22  | 62:21:86:LYS:HG3   | 1.87                     | 0.57              |
| 1:1A:370:U:O3'     | 38:2d:25:LYS:NZ    | 2.36                     | 0.57              |
| 1:1A:977:C:OP2     | 8:1H:59:ARG:NH1    | 2.37                     | 0.57              |
| 1:1A:2621:A:OP1    | 23:2O:80:LYS:NZ    | 2.38                     | 0.57              |
| 1:1A:4861:G:OP1    | 17:2I:169:ARG:NH1  | 2.36                     | 0.57              |
| 49:2o:136:ARG:HE   | 49:2o:218:LEU:HD11 | 1.69                     | 0.57              |
| 52:2r:71:ARG:NH1   | 52:2r:148:ASN:OD1  | 2.37                     | 0.57              |
| 68:3F:11:LEU:HD22  | 68:3F:53:GLY:H     | 1.69                     | 0.57              |
| 2:1B:30:C:C2       | 2:1B:48:G:N1       | 2.72                     | 0.57              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 6:1F:33:ARG:NE    | 19:2K:22:ASP:OD1   | 2.37                     | 0.57              |
| 21:2M:30:MET:HE1  | 22:2N:151:LEU:HB2  | 1.86                     | 0.57              |
| 48:2n:66:VAL:HG21 | 48:2n:185:MET:HB2  | 1.87                     | 0.57              |
| 58:2x:16:LYS:H    | 58:2x:19:ALA:HB3   | 1.69                     | 0.57              |
| 1:1A:382:G:N1     | 1:1A:385:A:OP2     | 2.38                     | 0.57              |
| 1:1A:423:G:OP1    | 18:2J:62:ARG:NH2   | 2.38                     | 0.57              |
| 1:1A:4056:A:N3    | 1:1A:4057:C:N4     | 2.48                     | 0.57              |
| 3:1C:28:C:H2'     | 3:1C:29:G:H8       | 1.70                     | 0.57              |
| 51:2q:11:ARG:NH1  | 51:2q:21:ASP:O     | 2.37                     | 0.57              |
| 1:1A:460:C:OP1    | 8:1H:110:ARG:NH1   | 2.38                     | 0.57              |
| 1:1A:1394:G:OP1   | 14:2F:186:ARG:NH1  | 2.35                     | 0.57              |
| 1:1A:2336:G:O2'   | 45:2k:20:ARG:NH1   | 2.38                     | 0.57              |
| 1:1A:4099:G:O2'   | 1:1A:4111:U:N3     | 2.37                     | 0.57              |
| 1:1A:4885:U:N3    | 1:1A:4936:G:N1     | 2.53                     | 0.57              |
| 38:2d:34:CYS:SG   | 38:2d:35:GLY:N     | 2.77                     | 0.57              |
| 58:2x:27:ARG:HA   | 58:2x:66:VAL:HA    | 1.86                     | 0.57              |
| 3:1C:75:G:OP2     | 27:2S:74:TYR:OH    | 2.22                     | 0.57              |
| 7:1G:122:GLN:O    | 7:1G:248:ARG:NH2   | 2.37                     | 0.57              |
| 13:2E:114:ASP:OD1 | 60:2z:14:ARG:NH2   | 2.37                     | 0.57              |
| 1:1A:1265:G:OP1   | 30:2V:95:ARG:NH1   | 2.33                     | 0.57              |
| 1:1A:2378:G:N2    | 1:1A:2381:A:OP2    | 2.36                     | 0.57              |
| 1:1A:3940:U:H5''  | 10:2B:75:LYS:HE2   | 1.87                     | 0.57              |
| 1:1A:4670:C:O2'   | 1:1A:4672:A:OP2    | 2.23                     | 0.57              |
| 1:1A:4691:A:OP1   | 11:2C:71:ARG:NH1   | 2.37                     | 0.57              |
| 32:2X:26:THR:HB   | 32:2X:85:ARG:HH11  | 1.69                     | 0.57              |
| 49:2o:224:GLU:HG2 | 49:2o:227:LYS:H    | 1.69                     | 0.57              |
| 1:1A:2666:U:OP2   | 20:2L:103:ARG:NH1  | 2.38                     | 0.56              |
| 17:2I:186:GLU:HA  | 17:2I:189:ILE:HG22 | 1.86                     | 0.56              |
| 28:2T:83:THR:HG22 | 28:2T:85:TYR:H     | 1.70                     | 0.56              |
| 72:3J:36:ARG:NH2  | 80:3R:103:LEU:O    | 2.35                     | 0.56              |
| 1:1A:2260:C:O2'   | 45:2k:99:LYS:NZ    | 2.35                     | 0.56              |
| 1:1A:4967:A:OP1   | 5:1E:125:SER:OG    | 2.23                     | 0.56              |
| 1:1A:4981:G:H3'   | 1:1A:4982:A:H8     | 1.70                     | 0.56              |
| 47:2m:1232:U:H2'  | 47:2m:1233:G:H8    | 1.69                     | 0.56              |
| 51:2q:31:PRO:HB3  | 51:2q:43:PRO:HB3   | 1.86                     | 0.56              |
| 70:3H:54:GLY:O    | 70:3H:110:ASN:ND2  | 2.37                     | 0.56              |
| 1:1A:1086:C:H2'   | 1:1A:1087:A:H8     | 1.70                     | 0.56              |
| 1:1A:1700:G:H5''  | 1:1A:1704:C:H42    | 1.69                     | 0.56              |
| 1:1A:1800:U:OP1   | 22:2N:77:ASN:ND2   | 2.38                     | 0.56              |
| 1:1A:2835:A:O2'   | 5:1E:228:TYR:O     | 2.22                     | 0.56              |
| 1:1A:2899:C:OP1   | 20:2L:108:ARG:NH2  | 2.38                     | 0.56              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:1A:4885:U:C2     | 1:1A:4936:G:N1    | 2.73                     | 0.56              |
| 4:1D:64:ARG:NH2    | 10:2B:42:GLY:O    | 2.38                     | 0.56              |
| 14:2F:102:ARG:O    | 37:2c:25:ARG:NH1  | 2.39                     | 0.56              |
| 44:2j:19:GLY:O     | 44:2j:23:ARG:NH1  | 2.38                     | 0.56              |
| 44:2j:38:THR:HA    | 44:2j:45:THR:HA   | 1.87                     | 0.56              |
| 57:2w:53:GLN:NE2   | 57:2w:82:ASP:OD2  | 2.38                     | 0.56              |
| 83:zy:8:U:O4       | 83:zy:14:A:N7     | 2.38                     | 0.56              |
| 1:1A:1870:C:H2'    | 1:1A:1871:A:H8    | 1.71                     | 0.56              |
| 1:1A:2262:G:OP2    | 45:2k:107:ARG:NH2 | 2.38                     | 0.56              |
| 1:1A:3654:G:H22    | 1:1A:3691:G:H1'   | 1.71                     | 0.56              |
| 3:1C:71:A:OP1      | 27:2S:115:ARG:NH2 | 2.38                     | 0.56              |
| 10:2B:82:GLN:HE21  | 10:2B:171:PRO:HG2 | 1.71                     | 0.56              |
| 21:2M:157:ARG:O    | 21:2M:174:THR:OG1 | 2.22                     | 0.56              |
| 47:2m:1215:C:H42   | 47:2m:1220:A:H61  | 1.52                     | 0.56              |
| 1:1A:1844:G:OP1    | 30:2V:22:LYS:NZ   | 2.39                     | 0.56              |
| 34:2Z:50:VAL:HG12  | 34:2Z:69:VAL:HG12 | 1.86                     | 0.56              |
| 76:3N:57:VAL:HG12  | 76:3N:73:GLY:HA2  | 1.86                     | 0.56              |
| 3:1C:103:A:H3'     | 3:1C:104:A:H8     | 1.71                     | 0.56              |
| 47:2m:1452:A:N6    | 47:2m:1473:G:O2'  | 2.38                     | 0.56              |
| 47:2m:1562:C:H2'   | 47:2m:1563:G:H8   | 1.71                     | 0.56              |
| 50:2p:127:MET:HE3  | 50:2p:154:ASP:HB3 | 1.86                     | 0.56              |
| 56:2v:35:ARG:NH1   | 56:2v:55:TYR:O    | 2.39                     | 0.56              |
| 72:3J:106:CYS:SG   | 72:3J:107:SER:N   | 2.78                     | 0.56              |
| 1:1A:19:G:OP2      | 36:2b:93:ARG:NH2  | 2.39                     | 0.56              |
| 13:2E:18:ARG:H     | 13:2E:134:LEU:HA  | 1.70                     | 0.56              |
| 24:2P:106:VAL:HG22 | 24:2P:112:MET:HG2 | 1.88                     | 0.56              |
| 47:2m:506:G:OP1    | 76:3N:104:ARG:NH2 | 2.36                     | 0.56              |
| 47:2m:1413:G:N2    | 47:2m:1414:A:O3'  | 2.39                     | 0.56              |
| 68:3F:20:GLN:HG2   | 68:3F:69:VAL:H    | 1.70                     | 0.56              |
| 71:3I:113:GLN:NE2  | 71:3I:154:GLN:OE1 | 2.38                     | 0.56              |
| 1:1A:1252:C:H2'    | 1:1A:1254:A:H62   | 1.70                     | 0.56              |
| 1:1A:2088:A:OP1    | 19:2K:38:ARG:NH1  | 2.39                     | 0.56              |
| 1:1A:4292:A:O2'    | 43:2i:8:ARG:NH2   | 2.38                     | 0.56              |
| 2:1B:99:G:OP2      | 21:2M:55:LYS:NZ   | 2.38                     | 0.56              |
| 25:2Q:71:ARG:NH2   | 47:2m:1747:C:OP2  | 2.39                     | 0.56              |
| 52:2r:28:VAL:O     | 52:2r:42:LYS:NZ   | 2.38                     | 0.56              |
| 44:2j:7:LYS:O      | 44:2j:27:LYS:NZ   | 2.39                     | 0.56              |
| 58:2x:51:LEU:HD12  | 58:2x:81:ILE:HG23 | 1.87                     | 0.56              |
| 68:3F:286:CYS:SG   | 68:3F:287:THR:N   | 2.79                     | 0.56              |
| 1:1A:62:A:OP1      | 16:2H:172:ARG:NH1 | 2.38                     | 0.56              |
| 1:1A:183:C:O2'     | 1:1A:184:U:N3     | 2.36                     | 0.56              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:1628:C:H2'   | 1:1A:1629:G:H8     | 1.72                     | 0.56              |
| 1:1A:2457:G:OP1   | 16:2H:65:ARG:NH1   | 2.35                     | 0.56              |
| 24:2P:66:LYS:O    | 24:2P:73:ARG:NH1   | 2.39                     | 0.56              |
| 62:21:67:LYS:HB2  | 62:21:78:ASP:HB2   | 1.87                     | 0.56              |
| 73:3K:124:ARG:HG3 | 73:3K:127:ARG:HH21 | 1.71                     | 0.56              |
| 78:3P:20:LYS:O    | 78:3P:23:ARG:NH1   | 2.39                     | 0.56              |
| 1:1A:3658:C:H2'   | 1:1A:3659:G:H8     | 1.72                     | 0.55              |
| 1:1A:5022:U:N3    | 1:1A:5025:C:N3     | 2.54                     | 0.55              |
| 47:2m:106:C:H2'   | 47:2m:107:A:H8     | 1.71                     | 0.55              |
| 76:3N:4:THR:HB    | 76:3N:30:PRO:HD2   | 1.88                     | 0.55              |
| 1:1A:2737:C:OP1   | 44:2j:34:HIS:NE2   | 2.39                     | 0.55              |
| 1:1A:4466:C:H2'   | 1:1A:4467:A:H8     | 1.70                     | 0.55              |
| 3:1C:123:U:O2'    | 3:1C:128:C:N4      | 2.39                     | 0.55              |
| 40:2f:25:GLN:OE1  | 40:2f:28:ARG:NH2   | 2.39                     | 0.55              |
| 1:1A:4266:G:O2'   | 1:1A:4267:G:N2     | 2.39                     | 0.55              |
| 1:1A:4975:G:O2'   | 1:1A:4977:A:N6     | 2.39                     | 0.55              |
| 45:2k:14:SER:HB3  | 45:2k:17:LEU:HB2   | 1.88                     | 0.55              |
| 47:2m:110:U:O2    | 47:2m:351:G:N2     | 2.36                     | 0.55              |
| 47:2m:331:C:N4    | 70:3H:186:GLN:OE1  | 2.40                     | 0.55              |
| 47:2m:1112:U:H3   | 47:2m:1121:G:H1    | 1.53                     | 0.55              |
| 1:1A:3702:A:N6    | 1:1A:3774:A:N1     | 2.53                     | 0.55              |
| 12:2D:57:TYR:OH   | 12:2D:128:ARG:NH2  | 2.39                     | 0.55              |
| 13:2E:51:SER:HB2  | 13:2E:69:ALA:HB3   | 1.89                     | 0.55              |
| 47:2m:454:U:H2'   | 47:2m:455:A:H8     | 1.71                     | 0.55              |
| 47:2m:507:G:OP1   | 76:3N:104:ARG:NH2  | 2.35                     | 0.55              |
| 47:2m:1244:U:H2'  | 47:2m:1245:G:H8    | 1.69                     | 0.55              |
| 69:3G:203:GLY:N   | 69:3G:221:ASP:OD1  | 2.37                     | 0.55              |
| 78:3P:33:MET:HE2  | 78:3P:48:SER:HA    | 1.87                     | 0.55              |
| 1:1A:1636:U:H5''  | 1:1A:1637:A:H5'    | 1.87                     | 0.55              |
| 1:1A:4194:U:H1'   | 1:1A:4221:C:H41    | 1.71                     | 0.55              |
| 5:1E:224:LYS:HE2  | 5:1E:340:THR:HG23  | 1.88                     | 0.55              |
| 8:1H:133:PHE:O    | 8:1H:138:ARG:NH2   | 2.39                     | 0.55              |
| 12:2D:93:PRO:HA   | 12:2D:127:ALA:HB2  | 1.89                     | 0.55              |
| 47:2m:1617:G:O6   | 57:2w:43:ARG:NH1   | 2.40                     | 0.55              |
| 58:2x:41:MET:O    | 58:2x:48:GLN:NE2   | 2.39                     | 0.55              |
| 1:1A:679:C:H2'    | 1:1A:680:G:H8      | 1.72                     | 0.55              |
| 1:1A:1548:G:O2'   | 1:1A:2812:A:N3     | 2.39                     | 0.55              |
| 1:1A:1637:A:OP1   | 1:1A:1640:C:N4     | 2.39                     | 0.55              |
| 1:1A:1940:G:N1    | 1:1A:4435:U:OP1    | 2.39                     | 0.55              |
| 1:1A:2749:C:H2'   | 1:1A:2750:G:H8     | 1.71                     | 0.55              |
| 1:1A:4885:U:O4    | 1:1A:4936:G:O6     | 2.25                     | 0.55              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 16:2H:63:ARG:HG2  | 16:2H:131:GLU:HG2 | 1.88                     | 0.55              |
| 16:2H:68:ARG:NH2  | 16:2H:123:GLU:OE2 | 2.39                     | 0.55              |
| 23:2O:47:ILE:HG23 | 23:2O:82:TYR:HE2  | 1.72                     | 0.55              |
| 25:2Q:56:ARG:HE   | 25:2Q:61:LYS:HB2  | 1.72                     | 0.55              |
| 28:2T:12:LEU:HB2  | 28:2T:81:MET:HB3  | 1.88                     | 0.55              |
| 38:2d:48:ASN:HA   | 38:2d:54:LYS:HD2  | 1.89                     | 0.55              |
| 47:2m:122:G:OP1   | 51:2q:77:ARG:NH2  | 2.39                     | 0.55              |
| 47:2m:672:A:N6    | 47:2m:1027:A:OP1  | 2.40                     | 0.55              |
| 47:2m:1065:G:OP1  | 74:3L:149:ARG:NH1 | 2.39                     | 0.55              |
| 47:2m:1811:C:OP1  | 64:3B:37:LYS:NZ   | 2.36                     | 0.55              |
| 65:3C:44:ILE:O    | 74:3L:113:GLN:NE2 | 2.34                     | 0.55              |
| 68:3F:57:ARG:NH2  | 68:3F:93:THR:O    | 2.40                     | 0.55              |
| 77:3O:52:LYS:HA   | 77:3O:55:TYR:HB3  | 1.87                     | 0.55              |
| 83:zu:10:G:O6     | 83:zu:24:U:O2     | 2.25                     | 0.55              |
| 1:1A:1552:G:O2'   | 1:1A:1574:G:N2    | 2.39                     | 0.55              |
| 1:1A:3671:G:OP1   | 16:2H:72:LYS:NZ   | 2.39                     | 0.55              |
| 1:1A:4555:U:O2    | 82:zx:10:LYS:NZ   | 2.40                     | 0.55              |
| 3:1C:94:G:OP2     | 38:2d:72:ARG:NH1  | 2.37                     | 0.55              |
| 47:2m:466:G:O2'   | 70:3H:59:GLN:NE2  | 2.39                     | 0.55              |
| 47:2m:1281:G:O6   | 72:3J:101:ARG:NH2 | 2.40                     | 0.55              |
| 47:2m:1616:U:H3   | 47:2m:1620:A:H2   | 1.55                     | 0.55              |
| 57:2w:86:LEU:HG   | 57:2w:88:GLU:H    | 1.70                     | 0.55              |
| 58:2x:43:GLU:OE1  | 58:2x:45:ARG:NE   | 2.36                     | 0.55              |
| 1:1A:311:G:H2'    | 1:1A:312:G:H8     | 1.71                     | 0.55              |
| 9:2A:226:HIS:HA   | 9:2A:233:ALA:HB3  | 1.89                     | 0.55              |
| 21:2M:95:ARG:NH2  | 21:2M:112:ASP:OD2 | 2.40                     | 0.55              |
| 47:2m:140:C:H42   | 47:2m:144:U:H1'   | 1.71                     | 0.55              |
| 47:2m:1473:G:N2   | 47:2m:1475:G:OP2  | 2.40                     | 0.55              |
| 68:3F:120:ILE:O   | 68:3F:132:TRP:N   | 2.39                     | 0.55              |
| 74:3L:94:HIS:ND1  | 74:3L:127:GLY:O   | 2.39                     | 0.55              |
| 1:1A:752:G:O6     | 1:1A:912:G:N2     | 2.40                     | 0.55              |
| 1:1A:1442:C:O2'   | 1:1A:1443:A:O4'   | 2.25                     | 0.55              |
| 1:1A:2361:G:OP1   | 18:2J:65:GLY:N    | 2.35                     | 0.55              |
| 1:1A:2775:C:H2'   | 1:1A:2776:G:C8    | 2.41                     | 0.55              |
| 1:1A:3725:G:O6    | 37:2c:67:LYS:NZ   | 2.39                     | 0.55              |
| 6:1F:333:LYS:HE2  | 6:1F:337:ARG:HH21 | 1.71                     | 0.55              |
| 7:1G:17:GLN:NE2   | 22:2N:22:HIS:O    | 2.39                     | 0.55              |
| 19:2K:6:ARG:HH22  | 30:2V:18:ARG:HB3  | 1.70                     | 0.55              |
| 28:2T:14:LEU:HD23 | 35:2a:88:ARG:HB2  | 1.88                     | 0.55              |
| 47:2m:656:G:O5'   | 47:2m:662:G:N2    | 2.40                     | 0.55              |
| 47:2m:1060:A:O2'  | 47:2m:1062:A:N7   | 2.33                     | 0.55              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 47:2m:1566:G:OP2   | 61:20:102:ARG:NH1  | 2.40                     | 0.55              |
| 52:2r:30:ILE:HD13  | 52:2r:42:LYS:HD2   | 1.89                     | 0.55              |
| 54:2t:11:ARG:NH1   | 54:2t:15:GLY:O     | 2.37                     | 0.55              |
| 62:21:46:LYS:HE2   | 62:21:98:VAL:HB    | 1.88                     | 0.55              |
| 80:3R:104:LYS:HE2  | 80:3R:107:LYS:HA   | 1.88                     | 0.55              |
| 1:1A:1557:C:H2'    | 1:1A:1558:A:H8     | 1.72                     | 0.55              |
| 1:1A:2443:G:H5''   | 1:1A:2445:C:H41    | 1.72                     | 0.55              |
| 1:1A:4217:G:OP1    | 22:2N:55:LYS:NZ    | 2.37                     | 0.55              |
| 3:1C:96:C:H5''     | 36:2b:66:LYS:HD2   | 1.89                     | 0.55              |
| 19:2K:172:ARG:NH1  | 29:2U:58:MET:O     | 2.40                     | 0.55              |
| 21:2M:85:ASP:OD1   | 21:2M:85:ASP:N     | 2.40                     | 0.55              |
| 27:2S:50:ARG:HD3   | 27:2S:115:ARG:HH21 | 1.71                     | 0.55              |
| 31:2W:21:VAL:HG11  | 31:2W:96:ILE:HD12  | 1.89                     | 0.55              |
| 47:2m:391:C:H2'    | 47:2m:392:A:H8     | 1.72                     | 0.55              |
| 47:2m:1015:U:O2'   | 73:3K:55:ARG:NH1   | 2.39                     | 0.55              |
| 51:2q:37:LYS:HB2   | 51:2q:40:GLU:HG2   | 1.89                     | 0.55              |
| 65:3C:74:CYS:SG    | 65:3C:75:VAL:N     | 2.80                     | 0.55              |
| 66:3D:30:VAL:HG11  | 66:3D:50:VAL:HG11  | 1.89                     | 0.55              |
| 72:3J:40:LYS:O     | 72:3J:112:LYS:NZ   | 2.38                     | 0.55              |
| 74:3L:34:PHE:HB3   | 74:3L:41:PHE:HB2   | 1.88                     | 0.55              |
| 83:zu:15:G:N2      | 83:zu:47:C:O2      | 2.38                     | 0.55              |
| 1:1A:1601:A:OP2    | 1:1A:3643:A:N6     | 2.40                     | 0.54              |
| 1:1A:1735:U:H2'    | 1:1A:1736:A:H8     | 1.72                     | 0.54              |
| 6:1F:195:LYS:HB2   | 6:1F:200:ARG:HD2   | 1.89                     | 0.54              |
| 47:2m:934:G:O6     | 47:2m:1008:A:N1    | 2.40                     | 0.54              |
| 53:2s:154:ILE:HB   | 53:2s:185:VAL:HG12 | 1.89                     | 0.54              |
| 65:3C:23:CYS:SG    | 65:3C:24:THR:N     | 2.80                     | 0.54              |
| 1:1A:1973:G:OP1    | 1:1A:1984:A:O2'    | 2.25                     | 0.54              |
| 4:1D:116:LEU:HB2   | 4:1D:126:LEU:HB2   | 1.90                     | 0.54              |
| 17:2I:106:ASP:OD1  | 17:2I:106:ASP:N    | 2.39                     | 0.54              |
| 21:2M:86:SER:OG    | 21:2M:87:ARG:N     | 2.40                     | 0.54              |
| 46:2l:50:SER:HB3   | 46:2l:138:LEU:HB3  | 1.89                     | 0.54              |
| 47:2m:435:A:OP1    | 54:2t:23:LYS:NZ    | 2.40                     | 0.54              |
| 68:3F:40:ILE:HB    | 68:3F:59:LEU:HB2   | 1.89                     | 0.54              |
| 69:3G:170:TRP:O    | 75:3M:98:GLN:NE2   | 2.39                     | 0.54              |
| 1:1A:90:G:OP2      | 43:2i:40:ARG:NH2   | 2.40                     | 0.54              |
| 1:1A:1902:G:OP1    | 34:2Z:24:HIS:NE2   | 2.40                     | 0.54              |
| 1:1A:2281:U:H2'    | 1:1A:2282:A:H8     | 1.72                     | 0.54              |
| 1:1A:2557:G:N2     | 1:1A:2570:U:O2     | 2.32                     | 0.54              |
| 16:2H:113:LEU:HD22 | 16:2H:136:ASP:HB3  | 1.90                     | 0.54              |
| 38:2d:70:VAL:HA    | 38:2d:73:ARG:HG2   | 1.89                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 51:2q:137:PRO:HG2 | 51:2q:150:PRO:HD2  | 1.88                     | 0.54              |
| 57:2w:10:ARG:HB2  | 57:2w:13:ARG:HG2   | 1.90                     | 0.54              |
| 80:3R:109:ASP:O   | 80:3R:113:LYS:N    | 2.36                     | 0.54              |
| 1:1A:1353:G:OP2   | 19:2K:104:ARG:NH2  | 2.39                     | 0.54              |
| 1:1A:4541:G:N2    | 1:1A:4544:A:OP2    | 2.40                     | 0.54              |
| 1:1A:4760:G:N2    | 1:1A:4766:C:OP1    | 2.40                     | 0.54              |
| 47:2m:103:A:N6    | 47:2m:356:C:OP2    | 2.41                     | 0.54              |
| 47:2m:1754:G:H1   | 47:2m:1779:G:HO2'  | 1.55                     | 0.54              |
| 49:2o:131:ASP:OD1 | 49:2o:131:ASP:N    | 2.40                     | 0.54              |
| 1:1A:68:U:OP1     | 16:2H:178:HIS:ND1  | 2.40                     | 0.54              |
| 1:1A:146:G:H2'    | 1:1A:147:A:H8      | 1.71                     | 0.54              |
| 1:1A:2003:G:H1    | 1:1A:2016:C:H42    | 1.54                     | 0.54              |
| 5:1E:115:LYS:NZ   | 5:1E:129:ALA:O     | 2.40                     | 0.54              |
| 19:2K:89:ASP:HB3  | 19:2K:91:ARG:H     | 1.71                     | 0.54              |
| 24:2P:25:VAL:O    | 24:2P:101:ASN:ND2  | 2.40                     | 0.54              |
| 47:2m:686:U:OP1   | 75:3M:32:LYS:N     | 2.39                     | 0.54              |
| 47:2m:1533:A:H62  | 47:2m:1602:U:H3    | 1.56                     | 0.54              |
| 68:3F:193:GLY:HA3 | 68:3F:212:LYS:HB3  | 1.88                     | 0.54              |
| 1:1A:300:A:H2'    | 1:1A:301:G:H8      | 1.73                     | 0.54              |
| 1:1A:424:U:OP1    | 18:2J:34:GLN:NE2   | 2.41                     | 0.54              |
| 1:1A:2295:C:H2'   | 1:1A:2296:G:H8     | 1.72                     | 0.54              |
| 1:1A:2485:U:N3    | 1:1A:2489:C:O2'    | 2.35                     | 0.54              |
| 1:1A:4344:U:HO2'  | 43:2i:26:TYR:HH    | 1.54                     | 0.54              |
| 2:1B:27:G:N7      | 7:1G:58:ARG:NH1    | 2.55                     | 0.54              |
| 8:1H:50:LEU:HD12  | 8:1H:51:VAL:HG23   | 1.90                     | 0.54              |
| 14:2F:174:LYS:O   | 29:2U:138:LYS:NZ   | 2.39                     | 0.54              |
| 19:2K:53:MET:HB3  | 19:2K:57:ASN:HB2   | 1.90                     | 0.54              |
| 46:2l:67:VAL:HB   | 46:2l:68:LEU:HD23  | 1.90                     | 0.54              |
| 47:2m:65:C:N4     | 70:3H:134:GLY:O    | 2.41                     | 0.54              |
| 47:2m:1421:A:N1   | 47:2m:1427:C:O2'   | 2.40                     | 0.54              |
| 76:3N:110:ARG:HG3 | 76:3N:131:PRO:HG3  | 1.89                     | 0.54              |
| 1:1A:2553:A:N6    | 1:1A:2764:A:OP2    | 2.41                     | 0.54              |
| 1:1A:2647:A:H3'   | 1:1A:2648:G:H8     | 1.72                     | 0.54              |
| 3:1C:84:A:OP1     | 3:1C:86:U:N3       | 2.37                     | 0.54              |
| 5:1E:234:ARG:NH1  | 5:1E:268:ARG:O     | 2.41                     | 0.54              |
| 5:1E:313:SER:OG   | 5:1E:314:ILE:N     | 2.40                     | 0.54              |
| 17:2I:10:ASP:OD2  | 21:2M:171:ARG:NH2  | 2.41                     | 0.54              |
| 25:2Q:123:LYS:HB3 | 47:2m:324:C:H41    | 1.72                     | 0.54              |
| 46:2l:87:ILE:HG13 | 46:2l:90:LEU:HD12  | 1.90                     | 0.54              |
| 47:2m:2:A:H5'     | 69:3G:205:VAL:HG11 | 1.90                     | 0.54              |
| 47:2m:1273:C:OP2  | 47:2m:1274:G:N2    | 2.41                     | 0.54              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:1359:G:N2    | 1:1A:1507:C:OP1    | 2.41                     | 0.54              |
| 1:1A:1914:C:H4'   | 17:2I:89:PRO:HD3   | 1.90                     | 0.54              |
| 39:2e:37:ARG:HD3  | 39:2e:42:LEU:HD12  | 1.89                     | 0.54              |
| 47:2m:1273:C:H5'  | 47:2m:1274:G:H2'   | 1.88                     | 0.54              |
| 48:2n:200:ASP:HB3 | 59:2y:85:VAL:HG12  | 1.89                     | 0.54              |
| 74:3L:43:HIS:HD2  | 74:3L:55:ARG:HD3   | 1.73                     | 0.54              |
| 75:3M:102:ILE:H   | 75:3M:113:HIS:HD2  | 1.55                     | 0.54              |
| 83:zu:1:G:H2'     | 83:zu:2:G:H8       | 1.72                     | 0.54              |
| 1:1A:1175:A:O3'   | 7:1G:268:ARG:NH2   | 2.41                     | 0.54              |
| 1:1A:1375:C:OP1   | 6:1F:274:LYS:NZ    | 2.40                     | 0.54              |
| 1:1A:1613:A:N7    | 1:1A:3637:U:O4     | 2.40                     | 0.54              |
| 1:1A:3929:G:OP1   | 16:2H:72:LYS:NZ    | 2.35                     | 0.54              |
| 1:1A:5014:A:H2    | 1:1A:5035:U:H3     | 1.55                     | 0.54              |
| 2:1B:34:C:O2'     | 7:1G:203:ASN:ND2   | 2.40                     | 0.54              |
| 28:2T:78:ASN:OD1  | 31:2W:39:ARG:NH1   | 2.41                     | 0.54              |
| 46:2l:207:LYS:HD3 | 46:2l:211:GLY:HA3  | 1.90                     | 0.54              |
| 47:2m:466:G:O2'   | 70:3H:72:ARG:NH2   | 2.40                     | 0.54              |
| 47:2m:1551:U:H5'  | 47:2m:1558:C:H1'   | 1.90                     | 0.54              |
| 47:2m:1842:C:H2'  | 47:2m:1843:G:H8    | 1.72                     | 0.54              |
| 53:2s:40:LEU:HG   | 53:2s:43:LEU:HD11  | 1.90                     | 0.54              |
| 68:3F:12:LYS:HZ3  | 68:3F:306:LEU:HD22 | 1.73                     | 0.54              |
| 79:3Q:37:GLN:HE21 | 79:3Q:41:ARG:HE    | 1.56                     | 0.54              |
| 1:1A:230:G:OP1    | 27:2S:15:ARG:NH1   | 2.41                     | 0.54              |
| 1:1A:3610:A:O2'   | 54:2t:92:ARG:NH2   | 2.40                     | 0.54              |
| 1:1A:3887:C:OP2   | 17:2I:85:ARG:NH2   | 2.41                     | 0.54              |
| 1:1A:4389:C:H2'   | 1:1A:4390:A:H8     | 1.72                     | 0.54              |
| 1:1A:4536:C:OP1   | 4:1D:217:GLN:NE2   | 2.41                     | 0.54              |
| 6:1F:109:ARG:H    | 6:1F:111:TRP:CD1   | 2.26                     | 0.54              |
| 6:1F:122:TYR:HD1  | 6:1F:280:PRO:HG2   | 1.72                     | 0.54              |
| 13:2E:22:LEU:HD13 | 13:2E:40:LEU:HD22  | 1.90                     | 0.54              |
| 47:2m:111:A:O2'   | 56:2v:69:ARG:NH1   | 2.41                     | 0.54              |
| 1:1A:1700:G:H4'   | 6:1F:306:ARG:HH12  | 1.74                     | 0.53              |
| 1:1A:2302:C:O2'   | 33:2Y:102:ASN:O    | 2.25                     | 0.53              |
| 1:1A:4940:C:OP1   | 8:1H:156:ARG:NH2   | 2.38                     | 0.53              |
| 18:2J:70:CYS:SG   | 18:2J:71:ALA:N     | 2.81                     | 0.53              |
| 50:2p:132:LYS:HE2 | 50:2p:191:PRO:HB3  | 1.90                     | 0.53              |
| 60:2z:119:ALA:O   | 60:2z:123:LEU:N    | 2.38                     | 0.53              |
| 72:3J:25:ALA:HB3  | 72:3J:33:ARG:HH12  | 1.73                     | 0.53              |
| 1:1A:83:C:H5''    | 1:1A:84:A:H5''     | 1.89                     | 0.53              |
| 6:1F:189:MET:HE3  | 6:1F:200:ARG:HH21  | 1.72                     | 0.53              |
| 11:2C:82:LYS:HE2  | 11:2C:186:THR:HG21 | 1.90                     | 0.53              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 21:2M:127:MET:HB3  | 22:2N:153:PRO:HG2 | 1.89                     | 0.53              |
| 56:2v:128:VAL:HG22 | 56:2v:142:VAL:HA  | 1.90                     | 0.53              |
| 60:2z:85:ASN:OD1   | 60:2z:97:GLN:NE2  | 2.40                     | 0.53              |
| 1:1A:305:A:H5'     | 37:2c:76:ARG:HG2  | 1.91                     | 0.53              |
| 1:1A:1617:G:O3'    | 38:2d:12:ARG:NH2  | 2.37                     | 0.53              |
| 1:1A:3765:G:N2     | 1:1A:3767:C:OP1   | 2.41                     | 0.53              |
| 1:1A:4122:G:N2     | 35:2a:98:GLU:OE2  | 2.41                     | 0.53              |
| 13:2E:76:GLY:HA2   | 13:2E:79:ALA:HB3  | 1.90                     | 0.53              |
| 23:2O:24:ASP:HB2   | 23:2O:26:THR:HG23 | 1.89                     | 0.53              |
| 43:2i:36:GLN:HA    | 43:2i:39:ARG:HE   | 1.73                     | 0.53              |
| 47:2m:113:G:N2     | 47:2m:293:C:O4'   | 2.41                     | 0.53              |
| 47:2m:373:G:H2'    | 47:2m:374:G:H8    | 1.73                     | 0.53              |
| 47:2m:494:C:H42    | 47:2m:509:G:H21   | 1.56                     | 0.53              |
| 47:2m:984:C:O2'    | 74:3L:138:ASP:OD2 | 2.23                     | 0.53              |
| 47:2m:1226:G:N1    | 47:2m:1639:G:OP2  | 2.41                     | 0.53              |
| 47:2m:1430:C:O2'   | 47:2m:1431:G:N7   | 2.41                     | 0.53              |
| 48:2n:126:ASP:OD1  | 48:2n:165:ASN:ND2 | 2.41                     | 0.53              |
| 75:3M:60:LYS:NZ    | 78:3P:23:ARG:O    | 2.38                     | 0.53              |
| 1:1A:137:G:H2'     | 1:1A:138:G:C8     | 2.43                     | 0.53              |
| 1:1A:181:C:H2'     | 1:1A:182:G:C8     | 2.44                     | 0.53              |
| 3:1C:99:U:O2'      | 26:2R:103:LYS:NZ  | 2.40                     | 0.53              |
| 14:2F:163:LYS:NZ   | 14:2F:164:GLU:O   | 2.41                     | 0.53              |
| 19:2K:85:THR:HG22  | 19:2K:104:ARG:HB3 | 1.89                     | 0.53              |
| 47:2m:1533:A:OP1   | 52:2r:164:ARG:NH1 | 2.42                     | 0.53              |
| 59:2y:5:ARG:O      | 59:2y:10:LYS:NZ   | 2.40                     | 0.53              |
| 66:3D:20:ARG:NH1   | 66:3D:25:GLY:O    | 2.42                     | 0.53              |
| 1:1A:1370:G:OP1    | 6:1F:48:ASN:ND2   | 2.41                     | 0.53              |
| 1:1A:1558:A:H2'    | 1:1A:1559:G:H8    | 1.74                     | 0.53              |
| 1:1A:1577:G:OP1    | 44:2j:17:ARG:NH1  | 2.38                     | 0.53              |
| 1:1A:1971:C:N4     | 1:1A:2001:G:O4'   | 2.42                     | 0.53              |
| 1:1A:2878:G:H5''   | 1:1A:2879:A:H2'   | 1.90                     | 0.53              |
| 1:1A:3709:U:H3'    | 1:1A:3710:G:H8    | 1.73                     | 0.53              |
| 1:1A:4760:G:OP1    | 17:2I:37:ARG:NH1  | 2.41                     | 0.53              |
| 23:2O:84:LYS:NZ    | 23:2O:102:VAL:O   | 2.41                     | 0.53              |
| 47:2m:986:G:H5'    | 74:3L:138:ASP:HB2 | 1.90                     | 0.53              |
| 47:2m:1748:G:O6    | 47:2m:1786:U:O4   | 2.27                     | 0.53              |
| 51:2q:238:LEU:HD13 | 51:2q:242:LYS:HA  | 1.90                     | 0.53              |
| 54:2t:100:CYS:SG   | 54:2t:101:ILE:N   | 2.82                     | 0.53              |
| 58:2x:146:ARG:HH22 | 83:zy:34:G:H5'    | 1.74                     | 0.53              |
| 59:2y:37:GLU:OE2   | 68:3F:106:LYS:NZ  | 2.42                     | 0.53              |
| 1:1A:98:A:H2'      | 1:1A:99:A:C8      | 2.44                     | 0.53              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:1382:G:H2'    | 1:1A:1383:G:H8     | 1.72                     | 0.53              |
| 1:1A:1679:A:N6     | 1:1A:3912:U:O2     | 2.41                     | 0.53              |
| 42:2h:12:ARG:HG2   | 42:2h:15:ARG:HH21  | 1.74                     | 0.53              |
| 47:2m:1058:A:OP1   | 83:zy:37:U:O2'     | 2.26                     | 0.53              |
| 47:2m:1779:G:H2'   | 47:2m:1780:G:H8    | 1.72                     | 0.53              |
| 80:3R:133:ALA:N    | 80:3R:140:TYR:O    | 2.42                     | 0.53              |
| 1:1A:1521:C:OP1    | 6:1F:100:ARG:NH2   | 2.39                     | 0.53              |
| 1:1A:2523:G:OP2    | 35:2a:29:ARG:NH2   | 2.41                     | 0.53              |
| 1:1A:2780:C:H2'    | 1:1A:2781:G:C8     | 2.44                     | 0.53              |
| 1:1A:3870:C:H2'    | 1:1A:3871:A:H8     | 1.74                     | 0.53              |
| 31:2W:9:LYS:N      | 31:2W:12:GLU:OE1   | 2.42                     | 0.53              |
| 47:2m:1518:C:H5''  | 47:2m:1519:U:H5''  | 1.90                     | 0.53              |
| 52:2r:78:MET:HE3   | 52:2r:159:ARG:HH12 | 1.72                     | 0.53              |
| 55:2u:16:PHE:HB2   | 55:2u:79:LEU:HD22  | 1.90                     | 0.53              |
| 1:1A:2339:G:H21    | 6:1F:45:ARG:HH12   | 1.56                     | 0.53              |
| 1:1A:2768:C:O2     | 35:2a:69:LYS:NZ    | 2.37                     | 0.53              |
| 47:2m:384:U:O4     | 54:2t:5:ARG:NH1    | 2.42                     | 0.53              |
| 47:2m:1270:G:O2'   | 47:2m:1301:A:N7    | 2.42                     | 0.53              |
| 57:2w:52:LYS:HG2   | 57:2w:80:LEU:HD21  | 1.91                     | 0.53              |
| 60:2z:55:ARG:NH1   | 77:3O:82:SER:OG    | 2.41                     | 0.53              |
| 1:1A:2638:G:H4'    | 35:2a:28:ASN:HD21  | 1.74                     | 0.53              |
| 1:1A:4307:A:OP1    | 19:2K:188:ASN:ND2  | 2.42                     | 0.53              |
| 9:2A:94:ARG:NH2    | 9:2A:115:ARG:O     | 2.42                     | 0.53              |
| 10:2B:88:ASP:OD1   | 10:2B:91:THR:OG1   | 2.25                     | 0.53              |
| 14:2F:106:SER:OG   | 14:2F:107:THR:N    | 2.39                     | 0.53              |
| 47:2m:919:A:OP1    | 73:3K:20:ARG:NH1   | 2.41                     | 0.53              |
| 47:2m:1679:A:N6    | 52:2r:57:ALA:O     | 2.36                     | 0.53              |
| 1:1A:4586:G:OP2    | 17:2I:74:ARG:NH1   | 2.35                     | 0.53              |
| 25:2Q:73:ARG:NH1   | 47:2m:1784:G:N7    | 2.57                     | 0.53              |
| 26:2R:128:ILE:HG12 | 26:2R:134:LYS:HG2  | 1.91                     | 0.53              |
| 47:2m:752:G:OP2    | 47:2m:752:G:N2     | 2.40                     | 0.53              |
| 68:3F:154:VAL:HG12 | 68:3F:167:SER:HA   | 1.90                     | 0.53              |
| 1:1A:1253:G:O2'    | 1:1A:1255:A:OP1    | 2.28                     | 0.52              |
| 1:1A:3855:C:H2'    | 1:1A:3856:A:H8     | 1.74                     | 0.52              |
| 1:1A:5002:U:O2     | 1:1A:5045:G:N2     | 2.40                     | 0.52              |
| 3:1C:132:G:OP1     | 26:2R:108:GLN:NE2  | 2.42                     | 0.52              |
| 16:2H:160:GLU:HG2  | 16:2H:161:MET:HG3  | 1.90                     | 0.52              |
| 42:2h:7:LYS:NZ     | 47:2m:1843:G:OP1   | 2.38                     | 0.52              |
| 46:2I:77:ALA:HB1   | 46:2I:82:ILE:HB    | 1.90                     | 0.52              |
| 47:2m:829:C:OP1    | 51:2q:22:LYS:N     | 2.43                     | 0.52              |
| 47:2m:1661:A:OP2   | 67:3E:32:ARG:NH1   | 2.41                     | 0.52              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 58:2x:139:ALA:O    | 58:2x:140:ARG:NH2  | 2.39                     | 0.52              |
| 64:3B:100:VAL:HG12 | 64:3B:125:VAL:HG23 | 1.91                     | 0.52              |
| 65:3C:26:CYS:O     | 74:3L:149:ARG:N    | 2.38                     | 0.52              |
| 70:3H:51:ARG:HB3   | 70:3H:112:VAL:HB   | 1.91                     | 0.52              |
| 1:1A:4089:G:H2'    | 1:1A:4090:G:H8     | 1.74                     | 0.52              |
| 1:1A:4601:U:H2'    | 1:1A:4602:A:H8     | 1.74                     | 0.52              |
| 43:2i:51:GLN:NE2   | 43:2i:53:LYS:O     | 2.42                     | 0.52              |
| 47:2m:913:A:N6     | 53:2s:98:ARG:O     | 2.42                     | 0.52              |
| 47:2m:1126:G:OP1   | 48:2n:41:ARG:NH1   | 2.42                     | 0.52              |
| 47:2m:1839:U:O4    | 65:3C:28:ARG:NH2   | 2.42                     | 0.52              |
| 49:2o:62:LEU:HD12  | 49:2o:65:ARG:HD2   | 1.90                     | 0.52              |
| 1:1A:219:G:OP2     | 6:1F:172:LYS:NZ    | 2.36                     | 0.52              |
| 1:1A:1703:C:O2'    | 9:2A:39:GLN:NE2    | 2.42                     | 0.52              |
| 1:1A:1925:G:O2'    | 21:2M:116:ARG:NH2  | 2.40                     | 0.52              |
| 1:1A:2811:G:N1     | 1:1A:2814:C:OP2    | 2.34                     | 0.52              |
| 1:1A:4188:U:H2'    | 1:1A:4189:U:H6     | 1.75                     | 0.52              |
| 10:2B:137:ARG:HB2  | 10:2B:203:ALA:HB3  | 1.90                     | 0.52              |
| 47:2m:68:A:OP2     | 70:3H:164:LYS:NZ   | 2.35                     | 0.52              |
| 47:2m:1860:A:OP2   | 65:3C:10:ARG:NH2   | 2.39                     | 0.52              |
| 1:1A:1297:U:OP1    | 34:2Z:56:ASN:ND2   | 2.41                     | 0.52              |
| 1:1A:3680:U:OP1    | 4:1D:54:ARG:NH2    | 2.42                     | 0.52              |
| 2:1B:77:A:H62      | 2:1B:99:G:N2       | 2.06                     | 0.52              |
| 15:2G:31:ILE:HD11  | 15:2G:37:LEU:HB2   | 1.91                     | 0.52              |
| 16:2H:65:ARG:HG3   | 16:2H:129:PHE:HE1  | 1.74                     | 0.52              |
| 40:2f:28:ARG:HA    | 40:2f:33:ASN:HD22  | 1.75                     | 0.52              |
| 47:2m:736:C:H2'    | 47:2m:737:G:C8     | 2.45                     | 0.52              |
| 67:3E:30:LEU:HA    | 67:3E:39:CYS:HA    | 1.90                     | 0.52              |
| 77:3O:47:LEU:O     | 77:3O:80:ARG:N     | 2.42                     | 0.52              |
| 1:1A:3844:U:H2'    | 1:1A:3845:A:H8     | 1.75                     | 0.52              |
| 1:1A:3848:U:H2'    | 1:1A:3849:A:H8     | 1.75                     | 0.52              |
| 1:1A:4369:A:H2'    | 1:1A:4370:G:H8     | 1.74                     | 0.52              |
| 16:2H:137:PRO:HA   | 16:2H:142:ILE:HD11 | 1.91                     | 0.52              |
| 47:2m:1507:G:H22   | 80:3R:89:LYS:HB2   | 1.74                     | 0.52              |
| 53:2s:154:ILE:HD11 | 53:2s:183:LYS:HE2  | 1.92                     | 0.52              |
| 60:2z:23:ARG:HD2   | 77:3O:48:VAL:HG21  | 1.92                     | 0.52              |
| 1:1A:4771:C:OP2    | 1:1A:4772:C:N4     | 2.42                     | 0.52              |
| 7:1G:42:ASN:ND2    | 22:2N:69:GLN:OE1   | 2.35                     | 0.52              |
| 13:2E:37:ALA:HB2   | 13:2E:70:VAL:HG11  | 1.90                     | 0.52              |
| 13:2E:90:ARG:NH2   | 13:2E:108:GLY:O    | 2.37                     | 0.52              |
| 47:2m:189:U:O2     | 47:2m:211:G:N1     | 2.43                     | 0.52              |
| 47:2m:1241:A:O2'   | 47:2m:1266:C:O2'   | 2.28                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 47:2m:1562:C:H2'  | 47:2m:1563:G:C8    | 2.44                     | 0.52              |
| 48:2n:85:ARG:NE   | 48:2n:201:LEU:O    | 2.35                     | 0.52              |
| 80:3R:135:HIS:CD2 | 80:3R:138:ARG:H    | 2.27                     | 0.52              |
| 1:1A:2520:C:H2'   | 1:1A:2521:G:H8     | 1.74                     | 0.52              |
| 1:1A:4212:A:OP2   | 12:2D:15:LYS:NZ    | 2.42                     | 0.52              |
| 1:1A:4910:G:H1    | 17:2I:108:ILE:H    | 1.56                     | 0.52              |
| 3:1C:71:A:N6      | 3:1C:87:G:H21      | 2.03                     | 0.52              |
| 7:1G:132:VAL:HG11 | 7:1G:170:GLY:HA2   | 1.92                     | 0.52              |
| 46:2l:157:PHE:HB2 | 46:2l:165:LEU:HD23 | 1.90                     | 0.52              |
| 47:2m:56:G:OP1    | 76:3N:111:LYS:NZ   | 2.37                     | 0.52              |
| 47:2m:380:G:OP2   | 54:2t:54:LYS:NZ    | 2.42                     | 0.52              |
| 47:2m:567:C:H1'   | 47:2m:583:C:H42    | 1.73                     | 0.52              |
| 47:2m:692:G:N1    | 47:2m:738:C:O2'    | 2.39                     | 0.52              |
| 49:2o:144:LYS:HD2 | 49:2o:208:HIS:HB3  | 1.92                     | 0.52              |
| 53:2s:10:LYS:HE3  | 53:2s:47:ALA:HA    | 1.92                     | 0.52              |
| 68:3F:256:ILE:HB  | 68:3F:270:LEU:HD22 | 1.90                     | 0.52              |
| 70:3H:103:ASP:H   | 70:3H:106:LEU:HD13 | 1.75                     | 0.52              |
| 1:1A:2099:G:H5'   | 9:2A:31:LYS:HE3    | 1.92                     | 0.52              |
| 1:1A:2344:U:H3'   | 29:2U:9:ARG:HH12   | 1.73                     | 0.52              |
| 31:2W:48:LEU:HD21 | 31:2W:60:ILE:HG21  | 1.91                     | 0.52              |
| 32:2X:89:SER:OG   | 32:2X:91:LYS:NZ    | 2.42                     | 0.52              |
| 47:2m:1548:G:H1   | 47:2m:1584:G:H22   | 1.58                     | 0.52              |
| 48:2n:50:ASN:HD21 | 48:2n:53:ARG:HG3   | 1.75                     | 0.52              |
| 64:3B:108:LYS:O   | 64:3B:110:HIS:N    | 2.43                     | 0.52              |
| 1:1A:945:U:OP1    | 6:1F:342:ARG:NH2   | 2.42                     | 0.52              |
| 1:1A:1310:C:H2'   | 1:1A:1311:G:H8     | 1.75                     | 0.52              |
| 1:1A:1994:C:H2'   | 1:1A:1995:G:H4'    | 1.91                     | 0.52              |
| 1:1A:2763:U:H2'   | 1:1A:2764:A:H8     | 1.74                     | 0.52              |
| 12:2D:12:CYS:SG   | 12:2D:128:ARG:NH2  | 2.78                     | 0.52              |
| 21:2M:83:ARG:NH1  | 21:2M:125:GLN:OE1  | 2.43                     | 0.52              |
| 52:2r:74:ASN:HA   | 52:2r:77:MET:HE3   | 1.92                     | 0.52              |
| 54:2t:157:LYS:HB2 | 56:2v:24:LEU:HD21  | 1.91                     | 0.52              |
| 55:2u:80:ARG:HH11 | 55:2u:85:LEU:HB2   | 1.74                     | 0.52              |
| 70:3H:134:GLY:HA3 | 70:3H:158:VAL:HG21 | 1.92                     | 0.52              |
| 1:1A:2298:U:O2    | 1:1A:2336:G:O6     | 2.28                     | 0.52              |
| 1:1A:2623:A:H2'   | 1:1A:2624:G:H8     | 1.74                     | 0.52              |
| 1:1A:5006:U:H4'   | 1:1A:5007:A:H5'    | 1.91                     | 0.52              |
| 6:1F:141:GLY:O    | 6:1F:204:ARG:NH1   | 2.43                     | 0.52              |
| 42:2h:21:ARG:NH1  | 47:2m:1717:C:O3'   | 2.43                     | 0.52              |
| 47:2m:602:G:H3'   | 47:2m:603:C:H2'    | 1.92                     | 0.52              |
| 47:2m:671:A:H4'   | 47:2m:672:A:H5''   | 1.91                     | 0.52              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 54:2t:23:LYS:O    | 54:2t:25:ARG:NH2   | 2.43                     | 0.52              |
| 72:3J:117:GLU:HG2 | 72:3J:120:ALA:H    | 1.74                     | 0.52              |
| 1:1A:278:G:O5'    | 16:2H:8:GLN:NE2    | 2.42                     | 0.51              |
| 1:1A:1653:A:OP1   | 29:2U:32:ARG:NH2   | 2.43                     | 0.51              |
| 1:1A:2693:G:OP2   | 39:2e:33:LYS:NZ    | 2.37                     | 0.51              |
| 1:1A:3873:G:H2'   | 1:1A:3874:G:C8     | 2.45                     | 0.51              |
| 47:2m:77:A:H1'    | 70:3H:176:ILE:HD12 | 1.92                     | 0.51              |
| 47:2m:519:A:H2'   | 47:2m:520:A:H8     | 1.74                     | 0.51              |
| 47:2m:1460:C:N4   | 47:2m:1461:G:O6    | 2.44                     | 0.51              |
| 47:2m:1528:G:O2'  | 47:2m:1666:C:OP1   | 2.28                     | 0.51              |
| 47:2m:1592:C:OP2  | 77:3O:104:ARG:NH2  | 2.43                     | 0.51              |
| 68:3F:122:SER:HB2 | 68:3F:130:LYS:H    | 1.76                     | 0.51              |
| 1:1A:1269:G:H21   | 1:1A:1441:C:H1'    | 1.76                     | 0.51              |
| 10:2B:61:ILE:HA   | 10:2B:64:GLN:HG2   | 1.90                     | 0.51              |
| 14:2F:91:ALA:HB1  | 14:2F:96:ILE:HB    | 1.92                     | 0.51              |
| 20:2L:10:LEU:HD11 | 20:2L:38:ARG:HG3   | 1.91                     | 0.51              |
| 43:2i:67:VAL:HG22 | 43:2i:84:ALA:HA    | 1.92                     | 0.51              |
| 47:2m:351:G:OP1   | 54:2t:7:ASN:ND2    | 2.43                     | 0.51              |
| 47:2m:840:C:H5'   | 47:2m:841:G:H5''   | 1.91                     | 0.51              |
| 60:2z:28:PHE:O    | 60:2z:31:THR:OG1   | 2.25                     | 0.51              |
| 1:1A:85:G:N2      | 1:1A:98:A:OP2      | 2.42                     | 0.51              |
| 1:1A:935:A:O2'    | 15:2G:44:GLN:O     | 2.25                     | 0.51              |
| 1:1A:2044:U:O3'   | 17:2I:63:ASN:ND2   | 2.44                     | 0.51              |
| 1:1A:2295:C:H2'   | 1:1A:2296:G:C8     | 2.46                     | 0.51              |
| 1:1A:3594:C:O2'   | 1:1A:3597:G:N2     | 2.43                     | 0.51              |
| 1:1A:3888:G:O6    | 17:2I:96:GLN:NE2   | 2.44                     | 0.51              |
| 1:1A:4400:G:H2'   | 1:1A:4401:G:H8     | 1.75                     | 0.51              |
| 1:1A:4626:A:O2'   | 1:1A:4668:U:O4     | 2.25                     | 0.51              |
| 1:1A:4991:U:H2'   | 1:1A:4992:G:H8     | 1.75                     | 0.51              |
| 1:1A:5026:U:O2'   | 54:2t:77:ARG:NH2   | 2.43                     | 0.51              |
| 6:1F:60:HIS:HA    | 6:1F:92:PHE:HE1    | 1.74                     | 0.51              |
| 6:1F:110:ARG:HG2  | 16:2H:204:ARG:HD2  | 1.92                     | 0.51              |
| 14:2F:23:ALA:HB3  | 16:2H:199:GLN:HG3  | 1.91                     | 0.51              |
| 15:2G:104:MET:HG3 | 15:2G:108:ASP:HB2  | 1.93                     | 0.51              |
| 20:2L:157:ASP:HA  | 20:2L:160:GLU:HB3  | 1.92                     | 0.51              |
| 24:2P:70:PRO:HA   | 24:2P:73:ARG:HG3   | 1.90                     | 0.51              |
| 26:2R:96:LEU:HB2  | 26:2R:138:VAL:HB   | 1.92                     | 0.51              |
| 47:2m:692:G:N2    | 47:2m:739:C:O5'    | 2.43                     | 0.51              |
| 47:2m:1122:A:N3   | 49:2o:146:ARG:NH2  | 2.58                     | 0.51              |
| 47:2m:1173:A:H62  | 47:2m:1187:G:N2    | 2.05                     | 0.51              |
| 47:2m:1804:U:H2'  | 47:2m:1805:G:H8    | 1.76                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:108:A:N1      | 1:1A:333:U:O2'     | 2.38                     | 0.51              |
| 1:1A:422:C:H2'     | 1:1A:423:G:H8      | 1.75                     | 0.51              |
| 1:1A:1907:A:H4'    | 9:2A:223:LYS:HD3   | 1.91                     | 0.51              |
| 1:1A:2548:C:H2'    | 1:1A:2549:G:H8     | 1.75                     | 0.51              |
| 39:2e:37:ARG:HH11  | 39:2e:42:LEU:HB2   | 1.76                     | 0.51              |
| 43:2i:69:ARG:HH21  | 43:2i:80:LYS:HD3   | 1.75                     | 0.51              |
| 47:2m:628:A:N6     | 47:2m:1332:A:O2'   | 2.43                     | 0.51              |
| 47:2m:1358:U:OP2   | 69:3G:123:ARG:NH1  | 2.44                     | 0.51              |
| 51:2q:131:VAL:HA   | 51:2q:137:PRO:HA   | 1.92                     | 0.51              |
| 64:3B:107:ARG:NH1  | 64:3B:111:ALA:O    | 2.38                     | 0.51              |
| 70:3H:66:GLY:N     | 70:3H:100:CYS:SG   | 2.83                     | 0.51              |
| 71:3I:160:SER:HB3  | 71:3I:163:SER:HB3  | 1.93                     | 0.51              |
| 9:2A:154:ILE:HG22  | 9:2A:187:MET:HE2   | 1.92                     | 0.51              |
| 13:2E:9:GLU:HB3    | 13:2E:13:ARG:HD2   | 1.92                     | 0.51              |
| 14:2F:54:PRO:HB2   | 14:2F:97:SER:HB2   | 1.92                     | 0.51              |
| 15:2G:119:ARG:HA   | 17:2I:189:ILE:HD11 | 1.92                     | 0.51              |
| 24:2P:56:GLY:N     | 24:2P:59:ASP:OD2   | 2.43                     | 0.51              |
| 47:2m:683:G:N1     | 47:2m:1022:U:OP2   | 2.39                     | 0.51              |
| 47:2m:1476:A:N6    | 52:2r:58:ALA:O     | 2.44                     | 0.51              |
| 49:2o:87:ILE:HG12  | 49:2o:101:HIS:HB2  | 1.92                     | 0.51              |
| 52:2r:49:LEU:HD11  | 58:2x:49:TYR:HB3   | 1.93                     | 0.51              |
| 1:1A:1756:U:O2'    | 1:1A:1758:G:OP2    | 2.25                     | 0.51              |
| 1:1A:1759:G:H22    | 1:1A:1773:U:H3     | 1.58                     | 0.51              |
| 1:1A:1870:C:H2'    | 1:1A:1871:A:C8     | 2.46                     | 0.51              |
| 1:1A:4425:G:OP1    | 41:2g:100:TYR:OH   | 2.27                     | 0.51              |
| 1:1A:4670:C:H2'    | 24:2P:15:ARG:HH22  | 1.76                     | 0.51              |
| 11:2C:42:ASN:HD21  | 17:2I:131:PRO:HB2  | 1.76                     | 0.51              |
| 26:2R:124:VAL:HG12 | 26:2R:138:VAL:HA   | 1.93                     | 0.51              |
| 47:2m:1798:C:O2'   | 54:2t:2:GLY:N      | 2.38                     | 0.51              |
| 53:2s:193:GLN:HE21 | 78:3P:12:PRO:HG3   | 1.76                     | 0.51              |
| 1:1A:54:G:O2'      | 16:2H:161:MET:SD   | 2.68                     | 0.51              |
| 1:1A:1656:U:OP2    | 29:2U:26:ARG:NH2   | 2.44                     | 0.51              |
| 1:1A:2272:C:H2'    | 1:1A:2273:G:H8     | 1.74                     | 0.51              |
| 1:1A:2777:G:H5''   | 1:1A:2778:G:H5'    | 1.93                     | 0.51              |
| 1:1A:3661:G:N2     | 1:1A:3681:G:O2'    | 2.43                     | 0.51              |
| 1:1A:3684:G:OP1    | 4:1D:174:ARG:NH2   | 2.40                     | 0.51              |
| 1:1A:3802:U:O4     | 1:1A:4502:C:N4     | 2.43                     | 0.51              |
| 1:1A:3872:A:H2'    | 1:1A:3873:G:H8     | 1.76                     | 0.51              |
| 1:1A:3906:A:N7     | 6:1F:75:ARG:NH1    | 2.59                     | 0.51              |
| 1:1A:3965:A:N6     | 1:1A:4040:C:OP1    | 2.43                     | 0.51              |
| 1:1A:4299:U:H2'    | 1:1A:4300:U:H6     | 1.76                     | 0.51              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:4881:U:O2'    | 1:1A:4882:U:O4'    | 2.27                     | 0.51              |
| 4:1D:202:VAL:HG12  | 4:1D:211:PHE:HB3   | 1.93                     | 0.51              |
| 5:1E:315:ASN:OD1   | 5:1E:326:VAL:N     | 2.40                     | 0.51              |
| 13:2E:57:VAL:HG22  | 13:2E:62:ILE:HD11  | 1.93                     | 0.51              |
| 21:2M:80:ILE:HG12  | 21:2M:129:VAL:HG23 | 1.92                     | 0.51              |
| 31:2W:31:TYR:O     | 31:2W:34:THR:OG1   | 2.28                     | 0.51              |
| 44:2j:85:ARG:NH2   | 47:2m:939:U:O5'    | 2.43                     | 0.51              |
| 47:2m:519:A:H5''   | 71:3I:11:LYS:HD2   | 1.92                     | 0.51              |
| 47:2m:1264:C:OP1   | 67:3E:28:HIS:NE2   | 2.34                     | 0.51              |
| 47:2m:1352:G:H1    | 47:2m:1359:U:H3    | 1.58                     | 0.51              |
| 51:2q:11:ARG:NH1   | 51:2q:21:ASP:OD1   | 2.40                     | 0.51              |
| 51:2q:173:ILE:HD12 | 51:2q:230:LYS:HG2  | 1.93                     | 0.51              |
| 59:2y:77:GLU:OE1   | 59:2y:81:ARG:NH2   | 2.35                     | 0.51              |
| 68:3F:88:ARG:NH2   | 68:3F:97:THR:OG1   | 2.44                     | 0.51              |
| 1:1A:375:G:OP2     | 38:2d:52:LYS:NZ    | 2.44                     | 0.51              |
| 1:1A:1321:G:N2     | 1:1A:3876:A:O4'    | 2.43                     | 0.51              |
| 1:1A:1333:A:O2'    | 3:1C:17:A:O2'      | 2.28                     | 0.51              |
| 1:1A:2402:G:H2'    | 1:1A:2403:A:H8     | 1.75                     | 0.51              |
| 1:1A:2439:G:N2     | 1:1A:2518:G:O2'    | 2.44                     | 0.51              |
| 4:1D:158:ILE:HG23  | 4:1D:162:ASN:HD21  | 1.75                     | 0.51              |
| 24:2P:62:MET:HA    | 24:2P:78:PRO:HA    | 1.93                     | 0.51              |
| 47:2m:612:U:O2'    | 79:3Q:11:LYS:NZ    | 2.44                     | 0.51              |
| 47:2m:1128:C:O2'   | 78:3P:19:HIS:ND1   | 2.44                     | 0.51              |
| 47:2m:1679:A:OP1   | 66:3D:20:ARG:NH2   | 2.44                     | 0.51              |
| 76:3N:18:LEU:O     | 76:3N:85:ASN:ND2   | 2.44                     | 0.51              |
| 1:1A:253:G:N1      | 1:1A:254:G:N3      | 2.59                     | 0.51              |
| 1:1A:2897:G:H2'    | 1:1A:2898:G:H8     | 1.76                     | 0.51              |
| 1:1A:4444:C:H2'    | 1:1A:4445:U:H6     | 1.76                     | 0.51              |
| 6:1F:133:LEU:HD23  | 45:2k:6:GLN:HE21   | 1.75                     | 0.51              |
| 13:2E:21:CYS:HA    | 13:2E:73:THR:HA    | 1.92                     | 0.51              |
| 46:2l:120:ILE:HG13 | 46:2l:124:LEU:HD22 | 1.91                     | 0.51              |
| 47:2m:986:G:H21    | 74:3L:135:ILE:HG22 | 1.76                     | 0.51              |
| 47:2m:1101:U:H2'   | 47:2m:1102:G:C8    | 2.46                     | 0.51              |
| 47:2m:1301:A:H4'   | 67:3E:5:GLN:HG2    | 1.91                     | 0.51              |
| 51:2q:166:THR:HG22 | 51:2q:168:LYS:HB2  | 1.91                     | 0.51              |
| 1:1A:1440:U:H3     | 1:1A:2105:A:H2     | 1.59                     | 0.51              |
| 1:1A:1514:U:H2'    | 1:1A:1515:A:C8     | 2.46                     | 0.51              |
| 1:1A:2664:G:H5''   | 20:2L:110:ARG:HH12 | 1.75                     | 0.51              |
| 1:1A:3797:C:OP2    | 24:2P:74:LYS:NZ    | 2.44                     | 0.51              |
| 1:1A:4492:U:H5''   | 1:1A:4493:U:H5'    | 1.93                     | 0.51              |
| 4:1D:192:LYS:HG3   | 4:1D:193:ARG:HG2   | 1.92                     | 0.51              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 38:2d:2:THR:O     | 38:2d:7:SER:OG     | 2.27                     | 0.51              |
| 51:2q:43:PRO:HA   | 51:2q:83:PRO:HA    | 1.92                     | 0.51              |
| 1:1A:1351:G:OP1   | 6:1F:33:ARG:NH1    | 2.35                     | 0.50              |
| 38:2d:25:LYS:HD3  | 40:2f:51:LEU:HA    | 1.92                     | 0.50              |
| 47:2m:332:G:H2'   | 47:2m:333:G:H8     | 1.75                     | 0.50              |
| 47:2m:652:U:H2'   | 47:2m:653:A:C8     | 2.46                     | 0.50              |
| 47:2m:695:C:N3    | 47:2m:737:G:N2     | 2.59                     | 0.50              |
| 47:2m:1700:C:N3   | 47:2m:1834:A:N6    | 2.59                     | 0.50              |
| 57:2w:18:ARG:HH12 | 57:2w:37:TYR:HB3   | 1.76                     | 0.50              |
| 1:1A:327:U:O2'    | 37:2c:30:ARG:NH1   | 2.44                     | 0.50              |
| 1:1A:3610:A:H2'   | 1:1A:3611:A:H8     | 1.76                     | 0.50              |
| 2:1B:68:C:OP1     | 22:2N:20:ARG:NH2   | 2.45                     | 0.50              |
| 47:2m:388:U:H2'   | 47:2m:389:A:H8     | 1.75                     | 0.50              |
| 47:2m:1142:G:N2   | 47:2m:1145:A:OP2   | 2.36                     | 0.50              |
| 47:2m:1234:C:H2'  | 47:2m:1235:G:H8    | 1.76                     | 0.50              |
| 47:2m:1387:G:N2   | 50:2p:206:ASP:OD1  | 2.37                     | 0.50              |
| 58:2x:75:GLY:HA3  | 58:2x:80:GLN:HB3   | 1.93                     | 0.50              |
| 60:2z:14:ARG:NH1  | 60:2z:17:ASN:O     | 2.43                     | 0.50              |
| 69:3G:142:LYS:HD3 | 69:3G:153:GLY:HA3  | 1.93                     | 0.50              |
| 1:1A:188:G:N2     | 1:1A:190:G:O6      | 2.44                     | 0.50              |
| 1:1A:2057:A:N6    | 17:2I:17:GLY:O     | 2.43                     | 0.50              |
| 1:1A:2293:U:H2'   | 1:1A:2294:G:H8     | 1.76                     | 0.50              |
| 1:1A:3607:U:H2'   | 1:1A:3608:A:H8     | 1.76                     | 0.50              |
| 9:2A:94:ARG:NH1   | 9:2A:97:GLY:O      | 2.43                     | 0.50              |
| 47:2m:317:C:OP2   | 70:3H:183:ARG:NH1  | 2.43                     | 0.50              |
| 47:2m:457:C:H2'   | 47:2m:458:A:H8     | 1.77                     | 0.50              |
| 47:2m:1848:U:H2'  | 47:2m:1849:G:H2'   | 1.93                     | 0.50              |
| 57:2w:18:ARG:HH22 | 57:2w:37:TYR:HB3   | 1.76                     | 0.50              |
| 60:2z:62:ASP:HA   | 60:2z:65:GLU:HG2   | 1.93                     | 0.50              |
| 66:3D:17:VAL:HA   | 66:3D:30:VAL:HG12  | 1.93                     | 0.50              |
| 74:3L:27:VAL:O    | 74:3L:91:THR:OG1   | 2.28                     | 0.50              |
| 1:1A:82:U:O2'     | 1:1A:1382:G:O2'    | 2.30                     | 0.50              |
| 1:1A:1840:G:H5''  | 9:2A:113:ARG:HD2   | 1.92                     | 0.50              |
| 1:1A:2853:C:N4    | 1:1A:2854:G:O6     | 2.44                     | 0.50              |
| 7:1G:198:HIS:ND1  | 7:1G:203:ASN:OD1   | 2.45                     | 0.50              |
| 7:1G:202:GLN:HA   | 7:1G:205:ALA:HB3   | 1.93                     | 0.50              |
| 21:2M:33:PHE:HZ   | 21:2M:129:VAL:HG11 | 1.77                     | 0.50              |
| 24:2P:18:LEU:HD23 | 24:2P:54:ALA:HB3   | 1.93                     | 0.50              |
| 32:2X:57:MET:SD   | 32:2X:90:ARG:NH2   | 2.85                     | 0.50              |
| 47:2m:347:G:H2'   | 47:2m:348:A:H8     | 1.77                     | 0.50              |
| 75:3M:87:GLU:OE1  | 75:3M:90:GLN:NE2   | 2.41                     | 0.50              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 76:3N:76:TYR:HE2  | 76:3N:86:GLU:HB3   | 1.77                     | 0.50              |
| 83:zy:14:A:N1     | 83:zy:20:A:O2'     | 2.44                     | 0.50              |
| 1:1A:346:G:OP1    | 27:2S:8:THR:OG1    | 2.28                     | 0.50              |
| 1:1A:951:G:H2'    | 1:1A:952:G:H8      | 1.75                     | 0.50              |
| 1:1A:1732:C:H2'   | 1:1A:1733:G:C8     | 2.47                     | 0.50              |
| 1:1A:3710:G:O2'   | 1:1A:3711:A:N7     | 2.41                     | 0.50              |
| 22:2N:42:ILE:HA   | 22:2N:96:ILE:HG22  | 1.93                     | 0.50              |
| 47:2m:1617:G:N7   | 57:2w:47:ARG:NH2   | 2.50                     | 0.50              |
| 47:2m:1622:U:H3   | 60:2z:152:LYS:HB2  | 1.76                     | 0.50              |
| 51:2q:197:ASN:HB3 | 51:2q:209:HIS:HB2  | 1.93                     | 0.50              |
| 58:2x:60:LYS:HD2  | 58:2x:63:PHE:HD2   | 1.76                     | 0.50              |
| 1:1A:500:G:O4'    | 1:1A:504:G:N2      | 2.37                     | 0.50              |
| 1:1A:1174:G:H22   | 1:1A:1186:U:H3     | 1.59                     | 0.50              |
| 1:1A:2641:A:H62   | 1:1A:2693:G:N2     | 2.08                     | 0.50              |
| 1:1A:3660:C:H2'   | 1:1A:3682:A:H61    | 1.76                     | 0.50              |
| 1:1A:3779:A:H62   | 1:1A:3815:G:H21    | 1.58                     | 0.50              |
| 38:2d:35:GLY:O    | 38:2d:45:ARG:NE    | 2.44                     | 0.50              |
| 47:2m:475:C:H1'   | 47:2m:507:G:H1'    | 1.94                     | 0.50              |
| 60:2z:25:LYS:NZ   | 60:2z:53:THR:O     | 2.45                     | 0.50              |
| 62:21:21:ARG:HA   | 62:21:90:ASP:HA    | 1.93                     | 0.50              |
| 73:3K:13:GLN:HB2  | 78:3P:21:LYS:HD2   | 1.94                     | 0.50              |
| 1:1A:1100:U:O3'   | 1:1A:1167:C:N4     | 2.45                     | 0.50              |
| 1:1A:4581:G:OP2   | 5:1E:26:ARG:NH2    | 2.43                     | 0.50              |
| 17:2I:125:LYS:HG3 | 17:2I:129:LEU:HD12 | 1.93                     | 0.50              |
| 27:2S:8:THR:HG22  | 27:2S:10:ASP:H     | 1.76                     | 0.50              |
| 47:2m:1228:A:H2'  | 47:2m:1229:G:H8    | 1.76                     | 0.50              |
| 50:2p:11:PHE:HZ   | 62:21:27:ARG:HD3   | 1.76                     | 0.50              |
| 50:2p:40:ARG:HB2  | 50:2p:47:GLU:HB3   | 1.92                     | 0.50              |
| 54:2t:77:ARG:NH2  | 54:2t:105:ASP:OD2  | 2.45                     | 0.50              |
| 1:1A:27:C:N3      | 1:1A:56:A:N6       | 2.60                     | 0.50              |
| 1:1A:1437:C:O2'   | 1:1A:2099:G:OP2    | 2.24                     | 0.50              |
| 1:1A:4736:C:H2'   | 1:1A:4737:G:H8     | 1.76                     | 0.50              |
| 3:1C:8:U:H2'      | 3:1C:9:A:C8        | 2.47                     | 0.50              |
| 33:2Y:16:ARG:NE   | 33:2Y:18:LYS:O     | 2.45                     | 0.50              |
| 35:2a:61:PRO:HA   | 35:2a:64:LEU:HD13  | 1.94                     | 0.50              |
| 48:2n:156:TYR:O   | 63:3A:60:ARG:NH2   | 2.44                     | 0.50              |
| 53:2s:122:LEU:HA  | 53:2s:125:VAL:HB   | 1.94                     | 0.50              |
| 1:1A:27:C:OP1     | 16:2H:193:ARG:NH1  | 2.40                     | 0.50              |
| 1:1A:323:C:H2'    | 1:1A:324:A:H8      | 1.77                     | 0.50              |
| 1:1A:712:C:OP1    | 8:1H:139:LYS:NZ    | 2.42                     | 0.50              |
| 1:1A:1655:C:OP1   | 1:1A:1679:A:O2'    | 2.30                     | 0.50              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:1785:C:OP1    | 12:2D:133:GLN:NE2  | 2.45                     | 0.50              |
| 1:1A:4084:G:H5''   | 1:1A:4084:G:H8     | 1.77                     | 0.50              |
| 15:2G:96:GLU:O     | 15:2G:100:ARG:NH1  | 2.45                     | 0.50              |
| 22:2N:56:CYS:SG    | 22:2N:78:LYS:NZ    | 2.78                     | 0.50              |
| 23:2O:44:GLN:HA    | 23:2O:56:LEU:HD21  | 1.94                     | 0.50              |
| 47:2m:347:G:H2'    | 47:2m:348:A:C8     | 2.47                     | 0.50              |
| 68:3F:46:THR:OG1   | 68:3F:52:TYR:O     | 2.27                     | 0.50              |
| 69:3G:142:LYS:HB2  | 69:3G:157:LEU:HD12 | 1.93                     | 0.50              |
| 70:3H:141:ILE:HD11 | 70:3H:157:VAL:HA   | 1.94                     | 0.50              |
| 71:3I:124:HIS:CE1  | 79:3Q:35:ARG:HE    | 2.30                     | 0.50              |
| 1:1A:450:G:O6      | 1:1A:1297:U:O4     | 2.30                     | 0.49              |
| 5:1E:137:TRP:O     | 5:1E:143:LYS:NZ    | 2.38                     | 0.49              |
| 5:1E:369:ASP:OD2   | 5:1E:373:LYS:NZ    | 2.45                     | 0.49              |
| 24:2P:90:ARG:HH12  | 24:2P:96:LEU:HB3   | 1.77                     | 0.49              |
| 45:2k:105:ASP:OD1  | 45:2k:105:ASP:N    | 2.42                     | 0.49              |
| 47:2m:948:C:H2'    | 47:2m:949:G:H8     | 1.77                     | 0.49              |
| 47:2m:1386:A:OP2   | 50:2p:160:SER:OG   | 2.29                     | 0.49              |
| 47:2m:1608:U:OP1   | 60:2z:134:GLN:NE2  | 2.45                     | 0.49              |
| 47:2m:1661:A:OP1   | 67:3E:19:ARG:NH1   | 2.44                     | 0.49              |
| 50:2p:127:MET:HE1  | 50:2p:133:GLY:HA2  | 1.94                     | 0.49              |
| 1:1A:1952:G:H4'    | 21:2M:93:MET:HG3   | 1.94                     | 0.49              |
| 1:1A:2738:C:C4     | 1:1A:2741:U:N3     | 2.80                     | 0.49              |
| 1:1A:2820:C:H2'    | 1:1A:2821:U:H6     | 1.77                     | 0.49              |
| 1:1A:3946:G:O2'    | 1:1A:3948:C:OP2    | 2.30                     | 0.49              |
| 12:2D:110:ARG:NE   | 83:zy:1:G:O2'      | 2.45                     | 0.49              |
| 25:2Q:90:ILE:HG22  | 25:2Q:93:LYS:HZ1   | 1.77                     | 0.49              |
| 35:2a:63:VAL:HG13  | 35:2a:66:ARG:HE    | 1.78                     | 0.49              |
| 47:2m:1148:A:OP1   | 65:3C:6:ARG:NH2    | 2.37                     | 0.49              |
| 47:2m:1231:C:OP2   | 60:2z:139:THR:OG1  | 2.30                     | 0.49              |
| 47:2m:1494:U:H4'   | 47:2m:1495:G:H5''  | 1.94                     | 0.49              |
| 78:3P:35:VAL:HG23  | 78:3P:79:PHE:HB3   | 1.94                     | 0.49              |
| 83:zy:16:G:H5''    | 83:zy:59:U:H1'     | 1.93                     | 0.49              |
| 1:1A:1351:G:O6     | 19:2K:55:ARG:NH2   | 2.45                     | 0.49              |
| 1:1A:1373:A:O2'    | 6:1F:235:LEU:O     | 2.29                     | 0.49              |
| 1:1A:1507:C:H2'    | 1:1A:1508:A:C8     | 2.47                     | 0.49              |
| 1:1A:1896:A:OP1    | 9:2A:97:GLY:N      | 2.45                     | 0.49              |
| 14:2F:55:ILE:HG22  | 14:2F:96:ILE:HA    | 1.94                     | 0.49              |
| 34:2Z:41:PHE:O     | 34:2Z:45:LYS:NZ    | 2.33                     | 0.49              |
| 51:2q:80:ILE:HG13  | 51:2q:81:THR:HG23  | 1.94                     | 0.49              |
| 68:3F:72:SER:OG    | 68:3F:117:ASN:ND2  | 2.35                     | 0.49              |
| 1:1A:2512:A:N6     | 40:2f:5:LYS:O      | 2.45                     | 0.49              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:2557:G:O6     | 1:1A:2570:U:O4     | 2.30                     | 0.49              |
| 2:1B:18:C:OP1      | 13:2E:154:LYS:NZ   | 2.45                     | 0.49              |
| 6:1F:163:LYS:N     | 6:1F:166:GLU:OE2   | 2.43                     | 0.49              |
| 46:2l:95:LYS:HD3   | 46:2l:127:GLY:HA2  | 1.94                     | 0.49              |
| 47:2m:1446:A:H5'   | 62:2l:57:PRO:HA    | 1.94                     | 0.49              |
| 60:2z:16:LEU:HD12  | 60:2z:68:ILE:HG22  | 1.94                     | 0.49              |
| 64:3B:67:ARG:NH1   | 64:3B:114:ASP:OD2  | 2.45                     | 0.49              |
| 65:3C:49:ALA:HB2   | 74:3L:117:ARG:HG2  | 1.94                     | 0.49              |
| 1:1A:1557:C:H2'    | 1:1A:1558:A:C8     | 2.47                     | 0.49              |
| 1:1A:4522:G:O2'    | 1:1A:4525:C:OP2    | 2.25                     | 0.49              |
| 1:1A:4537:C:H2'    | 1:1A:4538:G:H8     | 1.78                     | 0.49              |
| 10:2B:160:ASP:OD1  | 10:2B:160:ASP:N    | 2.45                     | 0.49              |
| 47:2m:1648:G:N1    | 47:2m:1675:A:OP2   | 2.45                     | 0.49              |
| 59:2y:107:LYS:HA   | 59:2y:110:ASP:HB3  | 1.95                     | 0.49              |
| 68:3F:79:LEU:HD11  | 68:3F:120:ILE:HD13 | 1.95                     | 0.49              |
| 70:3H:48:TYR:HE1   | 70:3H:115:LYS:HB3  | 1.78                     | 0.49              |
| 1:1A:2422:C:OP1    | 18:2J:127:ARG:NH1  | 2.46                     | 0.49              |
| 1:1A:2576:G:OP1    | 28:2T:48:ARG:NH2   | 2.46                     | 0.49              |
| 1:1A:2696:A:N1     | 39:2e:24:LYS:NZ    | 2.60                     | 0.49              |
| 1:1A:2781:G:O2'    | 40:2f:3:SER:O      | 2.29                     | 0.49              |
| 11:2C:103:VAL:HG11 | 11:2C:144:LEU:HD21 | 1.95                     | 0.49              |
| 12:2D:79:SER:OG    | 12:2D:80:CYS:N     | 2.45                     | 0.49              |
| 21:2M:111:ARG:O    | 21:2M:115:ALA:HB2  | 2.12                     | 0.49              |
| 47:2m:192:C:OP1    | 54:2t:140:LYS:NZ   | 2.45                     | 0.49              |
| 47:2m:1051:G:H2'   | 47:2m:1052:A:H8    | 1.77                     | 0.49              |
| 58:2x:86:GLN:HE22  | 58:2x:122:ALA:HA   | 1.76                     | 0.49              |
| 78:3P:65:GLN:HB2   | 78:3P:72:ARG:HB3   | 1.94                     | 0.49              |
| 1:1A:1458:C:OP1    | 19:2K:69:LYS:NZ    | 2.35                     | 0.49              |
| 1:1A:1459:A:OP1    | 19:2K:65:ARG:NH2   | 2.36                     | 0.49              |
| 1:1A:1510:G:OP1    | 29:2U:6:ARG:NH2    | 2.44                     | 0.49              |
| 1:1A:1727:U:OP1    | 9:2A:131:ASN:ND2   | 2.46                     | 0.49              |
| 1:1A:2049:G:H2'    | 1:1A:2050:G:C8     | 2.48                     | 0.49              |
| 1:1A:3932:U:H2'    | 1:1A:3933:G:H8     | 1.77                     | 0.49              |
| 14:2F:80:GLU:OE1   | 14:2F:113:ASN:ND2  | 2.45                     | 0.49              |
| 47:2m:562:U:H2'    | 47:2m:563:G:H8     | 1.78                     | 0.49              |
| 47:2m:562:U:OP1    | 71:3I:134:HIS:NE2  | 2.45                     | 0.49              |
| 47:2m:659:G:HO2'   | 47:2m:662:G:HO2'   | 1.50                     | 0.49              |
| 50:2p:135:GLU:HG2  | 50:2p:153:VAL:HG23 | 1.94                     | 0.49              |
| 52:2r:143:PRO:HG2  | 66:3D:54:ASP:HB3   | 1.94                     | 0.49              |
| 61:20:31:PRO:HG3   | 61:20:102:ARG:HH21 | 1.78                     | 0.49              |
| 1:1A:940:C:OP1     | 9:2A:242:ARG:NH2   | 2.46                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1A:4987:C:OP1   | 5:1E:116:ARG:NH2  | 2.43                     | 0.49              |
| 6:1F:334:THR:O    | 6:1F:338:ASN:ND2  | 2.46                     | 0.49              |
| 47:2m:1478:U:H2'  | 47:2m:1479:G:C8   | 2.48                     | 0.49              |
| 61:20:82:ARG:NH1  | 61:20:90:SER:OG   | 2.44                     | 0.49              |
| 76:3N:18:LEU:HD12 | 76:3N:20:ARG:HH22 | 1.78                     | 0.49              |
| 1:1A:279:A:OP2    | 16:2H:50:ARG:NH2  | 2.45                     | 0.49              |
| 1:1A:3599:A:OP1   | 54:2t:200:ARG:NH1 | 2.46                     | 0.49              |
| 1:1A:3667:C:H2'   | 1:1A:3668:C:H6    | 1.78                     | 0.49              |
| 20:2L:3:MET:SD    | 20:2L:5:ARG:NH2   | 2.85                     | 0.49              |
| 47:2m:28:U:H2'    | 47:2m:29:G:C8     | 2.47                     | 0.49              |
| 47:2m:416:U:O2    | 47:2m:421:G:O6    | 2.30                     | 0.49              |
| 47:2m:562:U:O4    | 71:3I:172:ARG:NH1 | 2.45                     | 0.49              |
| 47:2m:609:U:H2'   | 47:2m:610:G:H8    | 1.77                     | 0.49              |
| 47:2m:1599:U:OP1  | 77:3O:46:ASN:ND2  | 2.45                     | 0.49              |
| 70:3H:160:LYS:HE2 | 70:3H:172:LYS:HG2 | 1.93                     | 0.49              |
| 1:1A:989:U:O2'    | 1:1A:990:C:O4'    | 2.30                     | 0.49              |
| 1:1A:1079:C:O2    | 1:1A:1221:G:N2    | 2.46                     | 0.49              |
| 1:1A:1174:G:H1    | 1:1A:1186:U:H3    | 1.61                     | 0.49              |
| 1:1A:1497:A:O2'   | 19:2K:164:LYS:NZ  | 2.39                     | 0.49              |
| 1:1A:1968:G:OP2   | 1:1A:1970:A:N6    | 2.42                     | 0.49              |
| 1:1A:2394:G:O2'   | 1:1A:2819:U:O4    | 2.28                     | 0.49              |
| 1:1A:3658:C:H2'   | 1:1A:3659:G:C8    | 2.48                     | 0.49              |
| 9:2A:96:ARG:NH2   | 9:2A:224:THR:O    | 2.46                     | 0.49              |
| 27:2S:46:SER:O    | 27:2S:122:LYS:NZ  | 2.42                     | 0.49              |
| 47:2m:110:U:H3    | 47:2m:351:G:H1    | 1.61                     | 0.49              |
| 47:2m:927:C:H2'   | 47:2m:928:G:H8    | 1.78                     | 0.49              |
| 47:2m:1588:A:N6   | 47:2m:1672:U:O2'  | 2.46                     | 0.49              |
| 68:3F:249:CYS:SG  | 68:3F:291:TRP:NE1 | 2.86                     | 0.49              |
| 78:3P:38:PRO:O    | 78:3P:40:CYS:N    | 2.46                     | 0.49              |
| 1:1A:67:C:H41     | 1:1A:326:C:H5'    | 1.77                     | 0.48              |
| 1:1A:246:G:H2'    | 1:1A:247:G:H8     | 1.78                     | 0.48              |
| 1:1A:347:A:O2'    | 6:1F:50:GLN:NE2   | 2.46                     | 0.48              |
| 1:1A:406:C:N4     | 1:1A:407:A:N1     | 2.61                     | 0.48              |
| 1:1A:1270:A:O2'   | 1:1A:1439:C:O2    | 2.30                     | 0.48              |
| 1:1A:1918:U:O4'   | 1:1A:2065:G:N2    | 2.46                     | 0.48              |
| 1:1A:2795:A:O4'   | 18:2J:130:TYR:OH  | 2.29                     | 0.48              |
| 1:1A:4748:U:O4    | 1:1A:4951:G:O6    | 2.30                     | 0.48              |
| 2:1B:17:C:OP1     | 13:2E:156:ARG:NH1 | 2.46                     | 0.48              |
| 11:2C:137:SER:OG  | 11:2C:138:GLN:N   | 2.46                     | 0.48              |
| 12:2D:3:ARG:NH1   | 12:2D:63:GLU:OE1  | 2.45                     | 0.48              |
| 28:2T:97:ASN:H    | 28:2T:100:VAL:HB  | 1.78                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 46:2l:114:GLU:O   | 46:2l:118:LYS:NZ   | 2.41                     | 0.48              |
| 47:2m:963:A:H2    | 47:2m:1055:A:H1'   | 1.78                     | 0.48              |
| 47:2m:1808:U:H2'  | 47:2m:1809:A:H8    | 1.77                     | 0.48              |
| 1:1A:2322:G:OP1   | 33:2Y:36:ARG:NH1   | 2.46                     | 0.48              |
| 1:1A:2694:G:OP2   | 1:1A:2696:A:N6     | 2.46                     | 0.48              |
| 1:1A:4096:C:H2'   | 1:1A:4097:G:H8     | 1.78                     | 0.48              |
| 6:1F:31:PRO:HB3   | 19:2K:24:TYR:HE2   | 1.78                     | 0.48              |
| 23:2O:96:LEU:HB3  | 23:2O:100:LEU:HD13 | 1.95                     | 0.48              |
| 47:2m:888:U:H2'   | 47:2m:898:U:H3     | 1.78                     | 0.48              |
| 47:2m:1589:A:H4'  | 61:20:82:ARG:HB2   | 1.95                     | 0.48              |
| 60:2z:14:ARG:NH1  | 60:2z:17:ASN:OD1   | 2.46                     | 0.48              |
| 73:3K:17:PRO:HB3  | 78:3P:28:PRO:HD3   | 1.94                     | 0.48              |
| 80:3R:109:ASP:HB2 | 80:3R:113:LYS:HB3  | 1.94                     | 0.48              |
| 1:1A:235:A:OP1    | 6:1F:201:ARG:NH2   | 2.37                     | 0.48              |
| 1:1A:300:A:H2'    | 1:1A:301:G:C8      | 2.48                     | 0.48              |
| 1:1A:318:A:H2'    | 1:1A:319:A:H8      | 1.78                     | 0.48              |
| 1:1A:1341:U:O3'   | 16:2H:204:ARG:NH1  | 2.46                     | 0.48              |
| 1:1A:1522:G:H2'   | 1:1A:1653:A:H61    | 1.77                     | 0.48              |
| 1:1A:1695:U:O2'   | 1:1A:1719:A:N1     | 2.46                     | 0.48              |
| 1:1A:1742:A:H2'   | 1:1A:1743:A:H8     | 1.79                     | 0.48              |
| 1:1A:2373:C:H2'   | 1:1A:2374:A:C8     | 2.49                     | 0.48              |
| 1:1A:3754:G:H2'   | 1:1A:3755:G:C8     | 2.49                     | 0.48              |
| 1:1A:4369:A:OP1   | 43:2i:65:LYS:NZ    | 2.41                     | 0.48              |
| 1:1A:4466:C:H2'   | 1:1A:4467:A:C8     | 2.48                     | 0.48              |
| 15:2G:57:LEU:HD11 | 21:2M:154:LEU:HD12 | 1.95                     | 0.48              |
| 47:2m:807:G:H2'   | 47:2m:808:A:H8     | 1.77                     | 0.48              |
| 47:2m:924:G:O6    | 47:2m:1018:U:O4    | 2.31                     | 0.48              |
| 1:1A:1335:G:N2    | 6:1F:95:MET:O      | 2.46                     | 0.48              |
| 1:1A:2373:C:H2'   | 1:1A:2374:A:H8     | 1.78                     | 0.48              |
| 1:1A:3653:A:H5''  | 4:1D:179:ILE:HD11  | 1.94                     | 0.48              |
| 1:1A:3681:G:OP2   | 4:1D:128:ARG:NE    | 2.46                     | 0.48              |
| 1:1A:4389:C:H2'   | 1:1A:4390:A:C8     | 2.48                     | 0.48              |
| 1:1A:4885:U:O2    | 1:1A:4936:G:C2     | 2.67                     | 0.48              |
| 18:2J:19:GLY:N    | 18:2J:146:ILE:O    | 2.46                     | 0.48              |
| 19:2K:63:LEU:HB2  | 19:2K:88:ASP:HA    | 1.95                     | 0.48              |
| 47:2m:636:C:OP2   | 79:3Q:21:LYS:NZ    | 2.39                     | 0.48              |
| 47:2m:1206:G:H1   | 47:2m:1692:U:H3    | 1.61                     | 0.48              |
| 47:2m:1859:A:OP1  | 65:3C:10:ARG:NH1   | 2.46                     | 0.48              |
| 51:2q:71:LYS:HA   | 51:2q:76:VAL:HA    | 1.95                     | 0.48              |
| 53:2s:73:GLN:HA   | 53:2s:135:PHE:HZ   | 1.78                     | 0.48              |
| 64:3B:105:PHE:HD1 | 64:3B:121:LYS:HB3  | 1.77                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 69:3G:134:ASN:O   | 69:3G:167:ARG:NH2  | 2.46                     | 0.48              |
| 1:1A:4208:U:H2'   | 1:1A:4209:G:H8     | 1.77                     | 0.48              |
| 1:1A:4369:A:H2'   | 1:1A:4370:G:C8     | 2.48                     | 0.48              |
| 1:1A:5065:U:H1'   | 18:2J:75:GLN:HE22  | 1.79                     | 0.48              |
| 2:1B:28:C:H1'     | 2:1B:54:A:H61      | 1.79                     | 0.48              |
| 12:2D:90:ARG:HH21 | 12:2D:134:VAL:HG11 | 1.77                     | 0.48              |
| 47:2m:433:A:OP1   | 54:2t:25:ARG:NH1   | 2.40                     | 0.48              |
| 47:2m:1568:C:OP1  | 61:20:96:SER:OG    | 2.31                     | 0.48              |
| 51:2q:212:ASP:OD1 | 51:2q:216:ASN:N    | 2.47                     | 0.48              |
| 1:1A:1933:G:H2'   | 1:1A:1934:A:C8     | 2.49                     | 0.48              |
| 1:1A:5055:G:H2'   | 1:1A:5056:A:H8     | 1.77                     | 0.48              |
| 10:2B:138:ALA:O   | 10:2B:142:THR:OG1  | 2.31                     | 0.48              |
| 24:2P:96:LEU:HD12 | 25:2Q:20:ARG:HD2   | 1.96                     | 0.48              |
| 38:2d:21:ARG:HE   | 38:2d:37:CYS:HB2   | 1.78                     | 0.48              |
| 38:2d:64:MET:HG2  | 38:2d:67:LEU:HB2   | 1.95                     | 0.48              |
| 47:2m:806:U:H2'   | 47:2m:807:G:H8     | 1.78                     | 0.48              |
| 47:2m:1053:C:H2'  | 47:2m:1054:G:H8    | 1.78                     | 0.48              |
| 47:2m:1587:G:OP2  | 47:2m:1587:G:N2    | 2.42                     | 0.48              |
| 49:2o:108:ASP:N   | 49:2o:108:ASP:OD1  | 2.45                     | 0.48              |
| 51:2q:198:ARG:HA  | 51:2q:208:VAL:HG23 | 1.95                     | 0.48              |
| 58:2x:26:LYS:HG3  | 58:2x:67:ASP:HB3   | 1.95                     | 0.48              |
| 83:zu:41:A:H2'    | 83:zu:42:G:C8      | 2.49                     | 0.48              |
| 1:1A:33:A:N7      | 1:1A:50:C:N4       | 2.62                     | 0.48              |
| 1:1A:279:A:C5     | 16:2H:12:ARG:HG3   | 2.49                     | 0.48              |
| 1:1A:1442:C:N4    | 1:1A:2104:G:H21    | 2.12                     | 0.48              |
| 1:1A:1554:A:OP2   | 44:2j:4:ARG:NH2    | 2.41                     | 0.48              |
| 1:1A:1876:U:H2'   | 1:1A:1877:G:C8     | 2.48                     | 0.48              |
| 1:1A:2544:G:N2    | 3:1C:126:C:OP1     | 2.47                     | 0.48              |
| 1:1A:2907:G:O2'   | 1:1A:3589:G:N2     | 2.47                     | 0.48              |
| 1:1A:4088:C:H2'   | 1:1A:4089:G:H8     | 1.79                     | 0.48              |
| 1:1A:4479:A:H3'   | 1:1A:4480:A:H8     | 1.78                     | 0.48              |
| 3:1C:16:G:O2'     | 3:1C:17:A:O4'      | 2.32                     | 0.48              |
| 7:1G:86:TYR:OH    | 7:1G:250:ASN:O     | 2.28                     | 0.48              |
| 10:2B:187:LYS:HA  | 10:2B:190:LEU:HD13 | 1.94                     | 0.48              |
| 12:2D:30:LYS:HG2  | 12:2D:63:GLU:HG3   | 1.96                     | 0.48              |
| 58:2x:54:PRO:O    | 58:2x:58:LEU:N     | 2.46                     | 0.48              |
| 82:zx:9:LYS:O     | 82:zx:13:SER:N     | 2.41                     | 0.48              |
| 1:1A:469:C:N3     | 8:1H:105:ARG:NH2   | 2.62                     | 0.48              |
| 1:1A:505:G:O6     | 1:1A:653:U:O4      | 2.32                     | 0.48              |
| 1:1A:710:G:O2'    | 8:1H:190:HIS:NE2   | 2.35                     | 0.48              |
| 1:1A:719:C:H2'    | 1:1A:720:G:H8      | 1.79                     | 0.48              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:753:C:H5     | 1:1A:910:G:H22     | 1.60                     | 0.48              |
| 1:1A:3811:G:O2'   | 1:1A:3814:U:OP2    | 2.32                     | 0.48              |
| 19:2K:159:PRO:HD3 | 19:2K:188:ASN:HD21 | 1.79                     | 0.48              |
| 25:2Q:20:ARG:HG3  | 25:2Q:30:GLN:HG3   | 1.95                     | 0.48              |
| 38:2d:28:HIS:HE1  | 38:2d:30:GLN:HB2   | 1.79                     | 0.48              |
| 39:2e:24:LYS:HB3  | 39:2e:69:LEU:HD11  | 1.96                     | 0.48              |
| 47:2m:930:C:O2'   | 47:2m:1104:G:OP1   | 2.32                     | 0.48              |
| 47:2m:1285:G:H5'' | 72:3J:35:ILE:HG21  | 1.96                     | 0.48              |
| 51:2q:94:LYS:HE3  | 76:3N:16:ARG:HD3   | 1.96                     | 0.48              |
| 65:3C:10:ARG:HB3  | 65:3C:34:LYS:HB2   | 1.96                     | 0.48              |
| 1:1A:208:A:N3     | 1:1A:232:G:O2'     | 2.47                     | 0.48              |
| 1:1A:1425:G:H3'   | 1:1A:1426:G:H8     | 1.79                     | 0.48              |
| 1:1A:2406:G:O6    | 1:1A:2784:C:N4     | 2.47                     | 0.48              |
| 1:1A:2519:U:O2'   | 1:1A:2530:U:O2     | 2.31                     | 0.48              |
| 1:1A:4566:U:O2'   | 5:1E:269:ALA:O     | 2.29                     | 0.48              |
| 1:1A:5040:U:H4'   | 1:1A:5041:G:H5'    | 1.96                     | 0.48              |
| 7:1G:76:CYS:SG    | 7:1G:77:ALA:N      | 2.86                     | 0.48              |
| 8:1H:141:ARG:HG2  | 8:1H:191:GLN:HE21  | 1.77                     | 0.48              |
| 15:2G:47:ARG:HD3  | 21:2M:73:LEU:HD21  | 1.95                     | 0.48              |
| 28:2T:54:THR:HG22 | 28:2T:57:MET:HE3   | 1.95                     | 0.48              |
| 45:2k:66:ARG:NE   | 45:2k:68:SER:OG    | 2.47                     | 0.48              |
| 46:2l:35:GLN:HE21 | 46:2l:207:LYS:HG3  | 1.78                     | 0.48              |
| 46:2l:90:LEU:HD13 | 46:2l:116:LEU:HB2  | 1.95                     | 0.48              |
| 47:2m:925:G:O6    | 47:2m:1017:U:O4    | 2.32                     | 0.48              |
| 47:2m:1178:U:H2'  | 47:2m:1179:G:H8    | 1.78                     | 0.48              |
| 58:2x:23:ALA:HB2  | 58:2x:70:VAL:HG13  | 1.96                     | 0.48              |
| 66:3D:63:ARG:HB3  | 66:3D:65:ALA:HB2   | 1.95                     | 0.48              |
| 68:3F:67:SER:OG   | 68:3F:81:GLY:O     | 2.31                     | 0.48              |
| 1:1A:162:A:H2'    | 1:1A:163:A:H8      | 1.78                     | 0.48              |
| 1:1A:2843:U:O2'   | 1:1A:4632:U:OP1    | 2.30                     | 0.48              |
| 1:1A:3660:C:OP1   | 4:1D:241:ARG:NH2   | 2.47                     | 0.48              |
| 1:1A:4485:C:O2'   | 41:2g:114:LYS:NZ   | 2.47                     | 0.48              |
| 1:1A:4939:C:H3'   | 8:1H:156:ARG:HH22  | 1.79                     | 0.48              |
| 6:1F:337:ARG:NH1  | 8:1H:56:ARG:O      | 2.47                     | 0.48              |
| 21:2M:8:ARG:HD2   | 21:2M:66:GLN:HE22  | 1.78                     | 0.48              |
| 47:2m:406:U:H2'   | 47:2m:408:A:C8     | 2.49                     | 0.48              |
| 47:2m:1259:A:N6   | 47:2m:1518:C:O2    | 2.47                     | 0.48              |
| 82:zx:10:LYS:HA   | 82:zx:13:SER:HB3   | 1.95                     | 0.48              |
| 1:1A:1620:U:H2'   | 1:1A:1621:A:H8     | 1.79                     | 0.47              |
| 1:1A:2112:G:O2'   | 1:1A:2250:C:N4     | 2.46                     | 0.47              |
| 1:1A:2518:G:H5'   | 35:2a:66:ARG:HH12  | 1.78                     | 0.47              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 21:2M:15:ARG:HB3  | 21:2M:27:LEU:HD23  | 1.96                     | 0.47              |
| 38:2d:13:ASN:N    | 38:2d:13:ASN:OD1   | 2.45                     | 0.47              |
| 47:2m:1353:A:OP1  | 48:2n:139:TYR:OH   | 2.32                     | 0.47              |
| 53:2s:178:LYS:HD2 | 53:2s:184:ASP:HB3  | 1.96                     | 0.47              |
| 83:zu:66:C:H2'    | 83:zu:67:G:H8      | 1.78                     | 0.47              |
| 1:1A:2699:C:H2'   | 1:1A:2700:G:H8     | 1.79                     | 0.47              |
| 1:1A:5037:U:H2'   | 1:1A:5038:A:C8     | 2.49                     | 0.47              |
| 4:1D:171:GLY:O    | 44:2j:68:ALA:N     | 2.47                     | 0.47              |
| 21:2M:112:ASP:OD1 | 21:2M:116:ARG:NE   | 2.47                     | 0.47              |
| 33:2Y:26:ASP:OD1  | 33:2Y:26:ASP:N     | 2.47                     | 0.47              |
| 47:2m:946:U:H4'   | 47:2m:1046:U:H5'   | 1.96                     | 0.47              |
| 47:2m:1393:G:H2'  | 47:2m:1394:G:C8    | 2.50                     | 0.47              |
| 47:2m:1560:U:O2   | 47:2m:1575:G:O6    | 2.33                     | 0.47              |
| 68:3F:18:VAL:HA   | 68:3F:35:SER:HA    | 1.96                     | 0.47              |
| 1:1A:2345:G:OP2   | 29:2U:9:ARG:NH2    | 2.38                     | 0.47              |
| 1:1A:4089:G:H2'   | 1:1A:4090:G:C8     | 2.48                     | 0.47              |
| 2:1B:109:U:OP2    | 7:1G:270:LYS:NZ    | 2.47                     | 0.47              |
| 10:2B:26:LYS:HG3  | 10:2B:28:VAL:H     | 1.79                     | 0.47              |
| 18:2J:67:VAL:HA   | 18:2J:82:ARG:HH21  | 1.78                     | 0.47              |
| 47:2m:563:G:O6    | 47:2m:592:C:N4     | 2.47                     | 0.47              |
| 56:2v:151:THR:OG1 | 56:2v:153:LYS:NZ   | 2.47                     | 0.47              |
| 58:2x:39:LEU:O    | 58:2x:48:GLN:NE2   | 2.47                     | 0.47              |
| 68:3F:178:ASN:HB2 | 68:3F:183:LYS:HB3  | 1.95                     | 0.47              |
| 69:3G:210:PRO:HD3 | 69:3G:236:PHE:HE2  | 1.78                     | 0.47              |
| 1:1A:102:G:O2'    | 1:1A:1381:U:O2'    | 2.30                     | 0.47              |
| 1:1A:181:C:H2'    | 1:1A:182:G:H8      | 1.79                     | 0.47              |
| 1:1A:679:C:H2'    | 1:1A:680:G:C8      | 2.50                     | 0.47              |
| 1:1A:748:G:O3'    | 21:2M:148:SER:OG   | 2.31                     | 0.47              |
| 1:1A:2449:A:H62   | 1:1A:2510:G:N2     | 2.12                     | 0.47              |
| 1:1A:2772:C:H2'   | 1:1A:2773:G:H8     | 1.79                     | 0.47              |
| 1:1A:3762:U:H2'   | 1:1A:3763:A:C4     | 2.49                     | 0.47              |
| 1:1A:4633:G:N2    | 1:1A:4664:A:N7     | 2.63                     | 0.47              |
| 1:1A:4974:C:H4'   | 5:1E:174:ARG:HH12  | 1.79                     | 0.47              |
| 47:2m:28:U:H2'    | 47:2m:29:G:H8      | 1.78                     | 0.47              |
| 47:2m:1232:U:OP2  | 60:2z:135:HIS:ND1  | 2.47                     | 0.47              |
| 68:3F:42:MET:O    | 68:3F:56:GLN:N     | 2.46                     | 0.47              |
| 74:3L:95:ILE:HB   | 74:3L:129:ILE:HG12 | 1.96                     | 0.47              |
| 1:1A:1350:C:H2'   | 1:1A:1351:G:C8     | 2.50                     | 0.47              |
| 1:1A:1906:U:H2'   | 1:1A:1907:A:H8     | 1.79                     | 0.47              |
| 1:1A:3918:G:N1    | 1:1A:4384:U:C2     | 2.82                     | 0.47              |
| 1:1A:4736:C:H2'   | 1:1A:4737:G:C8     | 2.48                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 5:1E:57:VAL:HB    | 5:1E:367:PHE:HB3  | 1.95                     | 0.47              |
| 32:2X:85:ARG:HG2  | 32:2X:114:PHE:HE1 | 1.79                     | 0.47              |
| 47:2m:69:C:H3'    | 47:2m:70:G:H8     | 1.79                     | 0.47              |
| 47:2m:373:G:OP1   | 56:2v:137:THR:OG1 | 2.29                     | 0.47              |
| 47:2m:558:G:N2    | 47:2m:559:G:H22   | 2.13                     | 0.47              |
| 47:2m:1112:U:H2'  | 47:2m:1113:A:H4'  | 1.96                     | 0.47              |
| 48:2n:42:LYS:NZ   | 59:2y:121:GLN:OE1 | 2.48                     | 0.47              |
| 50:2p:66:ILE:HD11 | 50:2p:86:LEU:HD11 | 1.96                     | 0.47              |
| 68:3F:175:LYS:NZ  | 68:3F:187:ASN:OD1 | 2.41                     | 0.47              |
| 1:1A:63:G:OP2     | 16:2H:169:ARG:NH2 | 2.47                     | 0.47              |
| 1:1A:1279:A:OP1   | 8:1H:131:LYS:NZ   | 2.39                     | 0.47              |
| 1:1A:1306:C:H2'   | 1:1A:1307:A:H8    | 1.80                     | 0.47              |
| 1:1A:1968:G:C6    | 1:1A:1969:G:O6    | 2.67                     | 0.47              |
| 1:1A:2562:G:O2'   | 1:1A:2564:G:N7    | 2.42                     | 0.47              |
| 1:1A:2566:G:H2'   | 1:1A:2567:G:C8    | 2.50                     | 0.47              |
| 1:1A:2822:G:OP2   | 20:2L:21:LYS:NZ   | 2.36                     | 0.47              |
| 1:1A:3917:A:H2'   | 1:1A:3918:G:H8    | 1.80                     | 0.47              |
| 1:1A:3927:U:H2'   | 1:1A:3928:A:H8    | 1.80                     | 0.47              |
| 36:2b:79:LYS:O    | 36:2b:84:ARG:NH2  | 2.38                     | 0.47              |
| 47:2m:935:G:H2'   | 47:2m:936:G:H8    | 1.80                     | 0.47              |
| 47:2m:955:A:N6    | 47:2m:971:G:O2'   | 2.42                     | 0.47              |
| 47:2m:1413:G:H21  | 47:2m:1415:C:H5'  | 1.79                     | 0.47              |
| 58:2x:146:ARG:NH2 | 83:zy:33:A:O3'    | 2.47                     | 0.47              |
| 66:3D:40:ARG:HH12 | 74:3L:121:ARG:HD2 | 1.79                     | 0.47              |
| 1:1A:32:G:H1'     | 1:1A:51:A:H61     | 1.79                     | 0.47              |
| 1:1A:311:G:H2'    | 1:1A:312:G:C8     | 2.49                     | 0.47              |
| 1:1A:496:G:H2'    | 1:1A:498:C:H5''   | 1.97                     | 0.47              |
| 1:1A:1502:G:OP2   | 19:2K:62:SER:OG   | 2.24                     | 0.47              |
| 1:1A:1669:A:N3    | 1:1A:1852:U:O2'   | 2.47                     | 0.47              |
| 1:1A:1839:U:H2'   | 1:1A:1840:G:C8    | 2.50                     | 0.47              |
| 1:1A:1919:G:O6    | 34:2Z:29:LYS:NZ   | 2.42                     | 0.47              |
| 1:1A:3607:U:H2'   | 1:1A:3608:A:C8    | 2.48                     | 0.47              |
| 1:1A:3848:U:O2'   | 1:1A:4634:U:O4    | 2.31                     | 0.47              |
| 2:1B:7:G:OP1      | 7:1G:33:ARG:NE    | 2.41                     | 0.47              |
| 9:2A:113:ARG:NH1  | 9:2A:206:ASN:OD1  | 2.38                     | 0.47              |
| 27:2S:54:GLU:OE1  | 27:2S:107:THR:OG1 | 2.31                     | 0.47              |
| 30:2V:105:GLY:O   | 30:2V:109:ARG:NH1 | 2.47                     | 0.47              |
| 35:2a:19:LYS:O    | 35:2a:35:THR:OG1  | 2.29                     | 0.47              |
| 37:2c:70:LEU:HD13 | 37:2c:87:ARG:HD2  | 1.96                     | 0.47              |
| 45:2k:14:SER:OG   | 45:2k:15:SER:N    | 2.46                     | 0.47              |
| 47:2m:380:G:H5''  | 54:2t:54:LYS:HZ1  | 1.80                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 47:2m:1422:G:H1'  | 47:2m:1424:G:C8   | 2.49                     | 0.47              |
| 47:2m:1736:G:H2'  | 47:2m:1737:G:H8   | 1.80                     | 0.47              |
| 47:2m:1779:G:H2'  | 47:2m:1780:G:C8   | 2.49                     | 0.47              |
| 52:2r:28:VAL:HB   | 52:2r:42:LYS:HG2  | 1.96                     | 0.47              |
| 53:2s:72:PHE:O    | 53:2s:76:GLN:HB2  | 2.15                     | 0.47              |
| 57:2w:74:GLU:H    | 57:2w:93:MET:HB3  | 1.80                     | 0.47              |
| 59:2y:67:ARG:HA   | 59:2y:68:GLY:HA3  | 1.72                     | 0.47              |
| 62:21:18:HIS:HB3  | 62:21:117:ALA:HB2 | 1.97                     | 0.47              |
| 66:3D:14:VAL:HA   | 66:3D:32:VAL:HA   | 1.97                     | 0.47              |
| 69:3G:169:TYR:OH  | 69:3G:175:GLY:O   | 2.33                     | 0.47              |
| 70:3H:1:MET:HE1   | 70:3H:106:LEU:HB2 | 1.97                     | 0.47              |
| 74:3L:71:PRO:O    | 74:3L:114:SER:OG  | 2.29                     | 0.47              |
| 75:3M:11:LEU:HD21 | 75:3M:37:PHE:HE2  | 1.80                     | 0.47              |
| 82:zx:19:TYR:HD2  | 82:zx:20:ILE:HG23 | 1.80                     | 0.47              |
| 1:1A:286:U:OP2    | 1:1A:296:A:N6     | 2.45                     | 0.47              |
| 1:1A:1555:G:H1    | 1:1A:1572:U:H3    | 1.62                     | 0.47              |
| 1:1A:1624:G:H2'   | 1:1A:1643:A:H62   | 1.80                     | 0.47              |
| 1:1A:1849:U:O2'   | 1:1A:1850:A:O4'   | 2.30                     | 0.47              |
| 1:1A:2599:G:H3'   | 1:1A:2600:A:H8    | 1.80                     | 0.47              |
| 1:1A:3805:U:H2'   | 1:1A:3806:G:H8    | 1.80                     | 0.47              |
| 7:1G:146:LEU:HD12 | 7:1G:163:LEU:HD13 | 1.97                     | 0.47              |
| 14:2F:31:ARG:HA   | 14:2F:34:ARG:HG2  | 1.97                     | 0.47              |
| 27:2S:59:ARG:HA   | 27:2S:63:LYS:HG2  | 1.97                     | 0.47              |
| 47:2m:1660:C:H4'  | 47:2m:1663:A:H62  | 1.80                     | 0.47              |
| 47:2m:1759:G:H2'  | 47:2m:1760:G:C8   | 2.50                     | 0.47              |
| 51:2q:36:HIS:CG   | 51:2q:85:GLY:HA3  | 2.50                     | 0.47              |
| 54:2t:191:GLU:O   | 56:2v:19:ASN:ND2  | 2.48                     | 0.47              |
| 59:2y:99:ASP:OD1  | 59:2y:99:ASP:N    | 2.47                     | 0.47              |
| 61:20:83:GLN:HB2  | 61:20:93:SER:HB2  | 1.95                     | 0.47              |
| 63:3A:1:MET:HG2   | 63:3A:2:GLN:HB2   | 1.97                     | 0.47              |
| 64:3B:52:LEU:HD12 | 64:3B:53:GLU:HB2  | 1.97                     | 0.47              |
| 69:3G:116:THR:OG1 | 69:3G:119:GLY:O   | 2.28                     | 0.47              |
| 70:3H:98:ARG:HH11 | 70:3H:99:GLY:H    | 1.62                     | 0.47              |
| 82:zx:14:LEU:HD12 | 82:zx:17:CYS:HB3  | 1.95                     | 0.47              |
| 1:1A:1750:G:H22   | 1:1A:1780:A:H2    | 1.62                     | 0.47              |
| 1:1A:2485:U:H4'   | 1:1A:2486:G:N2    | 2.30                     | 0.47              |
| 1:1A:2664:G:O6    | 1:1A:2671:C:N4    | 2.48                     | 0.47              |
| 1:1A:2817:C:O3'   | 1:1A:4655:A:O2'   | 2.33                     | 0.47              |
| 1:1A:3700:C:H1'   | 1:1A:3775:A:H8    | 1.80                     | 0.47              |
| 1:1A:3971:G:H1'   | 1:1A:3974:G:H21   | 1.79                     | 0.47              |
| 1:1A:4685:U:H2'   | 1:1A:4686:G:H8    | 1.80                     | 0.47              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 5:1E:160:ILE:HD11  | 5:1E:193:LYS:HG2   | 1.97                     | 0.47              |
| 7:1G:288:LEU:HA    | 7:1G:291:GLN:HE21  | 1.79                     | 0.47              |
| 12:2D:93:PRO:HB2   | 12:2D:125:THR:HG22 | 1.95                     | 0.47              |
| 14:2F:77:SER:OG    | 14:2F:102:ARG:NH2  | 2.48                     | 0.47              |
| 17:2I:157:GLU:HA   | 17:2I:160:ARG:HG2  | 1.96                     | 0.47              |
| 20:2L:157:ASP:O    | 20:2L:161:ALA:N    | 2.46                     | 0.47              |
| 22:2N:51:GLY:HA3   | 22:2N:92:ARG:HB2   | 1.97                     | 0.47              |
| 46:2I:181:TYR:HA   | 46:2I:184:HIS:HB2  | 1.97                     | 0.47              |
| 48:2n:27:GLY:HA3   | 48:2n:28:THR:HA    | 1.72                     | 0.47              |
| 77:3O:88:LEU:HB3   | 77:3O:109:TYR:HE2  | 1.80                     | 0.47              |
| 1:1A:159:C:OP2     | 37:2c:27:SER:N     | 2.48                     | 0.47              |
| 1:1A:297:U:H2'     | 1:1A:298:G:H8      | 1.80                     | 0.47              |
| 1:1A:1334:A:H2'    | 1:1A:1335:G:H8     | 1.80                     | 0.47              |
| 1:1A:1507:C:H2'    | 1:1A:1508:A:H8     | 1.80                     | 0.47              |
| 1:1A:2325:C:O2'    | 33:2Y:124:ASN:ND2  | 2.42                     | 0.47              |
| 1:1A:2521:G:H2'    | 1:1A:2522:G:H8     | 1.80                     | 0.47              |
| 1:1A:4685:U:H2'    | 1:1A:4686:G:C8     | 2.49                     | 0.47              |
| 47:2m:110:U:H2'    | 47:2m:111:A:C8     | 2.49                     | 0.47              |
| 47:2m:429:C:H1'    | 47:2m:811:A:H61    | 1.80                     | 0.47              |
| 47:2m:1808:U:H2'   | 47:2m:1809:A:C8    | 2.50                     | 0.47              |
| 56:2v:124:ASP:N    | 56:2v:124:ASP:OD1  | 2.47                     | 0.47              |
| 1:1A:1188:C:H2'    | 1:1A:1189:G:C8     | 2.50                     | 0.46              |
| 1:1A:1954:U:H2'    | 1:1A:1955:G:H8     | 1.81                     | 0.46              |
| 1:1A:2028:C:H2'    | 1:1A:2029:A:H8     | 1.80                     | 0.46              |
| 1:1A:4096:C:H2'    | 1:1A:4097:G:C8     | 2.50                     | 0.46              |
| 4:1D:18:ALA:HB1    | 4:1D:23:ARG:HH21   | 1.80                     | 0.46              |
| 4:1D:83:HIS:ND1    | 4:1D:84:THR:O      | 2.46                     | 0.46              |
| 16:2H:4:TYR:HA     | 16:2H:7:ILE:HG12   | 1.96                     | 0.46              |
| 48:2n:110:ASN:HD22 | 48:2n:113:GLN:HE21 | 1.62                     | 0.46              |
| 48:2n:120:ARG:NH2  | 69:3G:268:GLU:OE2  | 2.49                     | 0.46              |
| 48:2n:184:ARG:HB3  | 48:2n:191:ARG:HD3  | 1.96                     | 0.46              |
| 51:2q:204:SER:OG   | 51:2q:205:PHE:N    | 2.47                     | 0.46              |
| 54:2t:64:ASN:N     | 54:2t:186:ASP:OD1  | 2.46                     | 0.46              |
| 74:3L:13:GLN:HA    | 74:3L:14:VAL:HA    | 1.60                     | 0.46              |
| 80:3R:87:THR:OG1   | 80:3R:91:ASN:ND2   | 2.48                     | 0.46              |
| 1:1A:233:U:N3      | 1:1A:2304:U:O2'    | 2.46                     | 0.46              |
| 1:1A:1252:C:O2     | 1:1A:1254:A:N6     | 2.49                     | 0.46              |
| 1:1A:1346:C:H2'    | 1:1A:1347:G:C8     | 2.50                     | 0.46              |
| 1:1A:1601:A:OP1    | 38:2d:5:THR:OG1    | 2.31                     | 0.46              |
| 1:1A:2763:U:H2'    | 1:1A:2764:A:C8     | 2.50                     | 0.46              |
| 1:1A:4153:C:H2'    | 1:1A:4154:G:C8     | 2.49                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:4510:A:N6    | 1:1A:4511:A:N1     | 2.63                     | 0.46              |
| 6:1F:29:LYS:HB2   | 6:1F:267:TRP:HH2   | 1.80                     | 0.46              |
| 14:2F:90:VAL:O    | 14:2F:93:THR:OG1   | 2.34                     | 0.46              |
| 18:2J:42:ARG:HA   | 18:2J:45:THR:HG22  | 1.98                     | 0.46              |
| 47:2m:1673:U:H5'' | 58:2x:78:VAL:HB    | 1.97                     | 0.46              |
| 52:2r:176:GLU:OE1 | 52:2r:187:SER:OG   | 2.32                     | 0.46              |
| 59:2y:63:ARG:HH21 | 68:3F:281:ALA:HA   | 1.80                     | 0.46              |
| 1:1A:86:U:H2'     | 1:1A:87:A:H8       | 1.81                     | 0.46              |
| 1:1A:499:G:N3     | 1:1A:504:G:N1      | 2.64                     | 0.46              |
| 1:1A:1408:G:O2'   | 1:1A:1411:C:O2     | 2.27                     | 0.46              |
| 1:1A:1603:C:H2'   | 1:1A:1604:G:H8     | 1.81                     | 0.46              |
| 1:1A:2041:A:N7    | 1:1A:4434:C:O2'    | 2.48                     | 0.46              |
| 1:1A:3765:G:OP2   | 1:1A:3767:C:N4     | 2.49                     | 0.46              |
| 1:1A:3861:A:H2'   | 1:1A:3862:A:H8     | 1.80                     | 0.46              |
| 1:1A:3872:A:H2'   | 1:1A:3873:G:C8     | 2.50                     | 0.46              |
| 1:1A:4518:A:N7    | 5:1E:257:TRP:NE1   | 2.63                     | 0.46              |
| 1:1A:4750:G:H3'   | 1:1A:4751:G:H21    | 1.81                     | 0.46              |
| 2:1B:4:U:H2'      | 2:1B:5:A:H8        | 1.80                     | 0.46              |
| 4:1D:41:ILE:HG22  | 4:1D:90:CYS:HB2    | 1.97                     | 0.46              |
| 12:2D:184:MET:HA  | 12:2D:187:LYS:HG2  | 1.97                     | 0.46              |
| 13:2E:15:LEU:HD13 | 13:2E:134:LEU:HD13 | 1.95                     | 0.46              |
| 22:2N:17:ARG:NE   | 22:2N:21:LYS:O     | 2.48                     | 0.46              |
| 46:2l:90:LEU:HB3  | 46:2l:116:LEU:HD12 | 1.95                     | 0.46              |
| 49:2o:170:GLU:HB3 | 49:2o:174:ARG:HH21 | 1.81                     | 0.46              |
| 56:2v:7:GLU:HG3   | 56:2v:11:GLN:HE21  | 1.81                     | 0.46              |
| 56:2v:96:ILE:HD12 | 64:3B:10:ALA:HB1   | 1.97                     | 0.46              |
| 59:2y:119:VAL:HA  | 59:2y:120:THR:HA   | 1.70                     | 0.46              |
| 81:zv:-2:C:N4     | 83:zu:34:G:O6      | 2.49                     | 0.46              |
| 1:1A:2545:U:H3'   | 1:1A:2546:G:H4'    | 1.97                     | 0.46              |
| 1:1A:2673:G:H1'   | 31:2W:30:GLY:HA2   | 1.97                     | 0.46              |
| 1:1A:2735:G:H2'   | 1:1A:2736:G:H8     | 1.80                     | 0.46              |
| 1:1A:4991:U:H2'   | 1:1A:4992:G:C8     | 2.51                     | 0.46              |
| 2:1B:87:G:H5'     | 21:2M:87:ARG:HH21  | 1.80                     | 0.46              |
| 6:1F:49:ARG:HH11  | 6:1F:111:TRP:HA    | 1.80                     | 0.46              |
| 9:2A:225:THR:OG1  | 9:2A:226:HIS:N     | 2.49                     | 0.46              |
| 18:2J:31:GLU:OE2  | 18:2J:63:TYR:N     | 2.39                     | 0.46              |
| 23:2O:28:PRO:O    | 23:2O:32:GLY:N     | 2.48                     | 0.46              |
| 46:2l:33:GLU:HG2  | 46:2l:168:ALA:HA   | 1.96                     | 0.46              |
| 47:2m:78:C:H5'    | 70:3H:173:ALA:HB1  | 1.98                     | 0.46              |
| 47:2m:145:G:H2'   | 47:2m:146:G:C8     | 2.49                     | 0.46              |
| 52:2r:63:LYS:HZ3  | 52:2r:71:ARG:HE    | 1.64                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 64:3B:51:VAL:HA    | 64:3B:72:VAL:HG12  | 1.96                     | 0.46              |
| 64:3B:101:LEU:HD13 | 64:3B:124:LYS:HD2  | 1.97                     | 0.46              |
| 83:zu:1:G:H2'      | 83:zu:2:G:C8       | 2.50                     | 0.46              |
| 1:1A:297:U:H2'     | 1:1A:298:G:C8      | 2.51                     | 0.46              |
| 1:1A:352:G:H21     | 1:1A:360:A:N6      | 2.12                     | 0.46              |
| 1:1A:4635:A:O2'    | 1:1A:4637:G:OP1    | 2.32                     | 0.46              |
| 1:1A:4723:A:H2'    | 1:1A:4724:A:H8     | 1.80                     | 0.46              |
| 3:1C:23:C:OP2      | 27:2S:15:ARG:NE    | 2.38                     | 0.46              |
| 5:1E:293:ILE:O     | 5:1E:295:ASP:N     | 2.46                     | 0.46              |
| 12:2D:61:SER:OG    | 12:2D:63:GLU:OE1   | 2.33                     | 0.46              |
| 34:2Z:11:PHE:HD2   | 34:2Z:97:ILE:HA    | 1.80                     | 0.46              |
| 47:2m:374:G:H4'    | 56:2v:84:ARG:HG3   | 1.97                     | 0.46              |
| 47:2m:1373:C:OP1   | 59:2y:7:LYS:N      | 2.42                     | 0.46              |
| 47:2m:1542:C:H4'   | 61:20:11:GLN:HG3   | 1.97                     | 0.46              |
| 58:2x:86:GLN:NE2   | 58:2x:121:VAL:O    | 2.49                     | 0.46              |
| 68:3F:146:SER:OG   | 68:3F:147:HIS:N    | 2.48                     | 0.46              |
| 71:3I:50:LEU:HD13  | 71:3I:102:ILE:HD13 | 1.97                     | 0.46              |
| 1:1A:719:C:OP2     | 9:2A:217:ARG:NH1   | 2.48                     | 0.46              |
| 1:1A:1775:A:H3'    | 1:1A:1776:A:H8     | 1.80                     | 0.46              |
| 1:1A:1800:U:H2'    | 1:1A:1801:A:C8     | 2.51                     | 0.46              |
| 1:1A:2361:G:O2'    | 1:1A:3859:G:O6     | 2.30                     | 0.46              |
| 1:1A:4674:C:OP1    | 24:2P:91:LYS:NZ    | 2.47                     | 0.46              |
| 9:2A:50:ILE:HG12   | 9:2A:186:CYS:HB3   | 1.97                     | 0.46              |
| 22:2N:30:TYR:HE1   | 22:2N:94:GLU:HB3   | 1.81                     | 0.46              |
| 28:2T:51:ARG:HB3   | 28:2T:65:ARG:HG2   | 1.97                     | 0.46              |
| 47:2m:496:C:H2'    | 47:2m:497:C:C6     | 2.51                     | 0.46              |
| 47:2m:1059:G:N2    | 47:2m:1829:G:O3'   | 2.48                     | 0.46              |
| 47:2m:1098:C:H2'   | 47:2m:1099:G:C8    | 2.51                     | 0.46              |
| 52:2r:38:TYR:HE2   | 52:2r:143:PRO:HB2  | 1.81                     | 0.46              |
| 54:2t:57:ALA:HB1   | 54:2t:60:LEU:HD11  | 1.96                     | 0.46              |
| 1:1A:144:G:H2'     | 1:1A:145:G:H8      | 1.79                     | 0.46              |
| 1:1A:676:C:H2'     | 1:1A:677:G:C8      | 2.50                     | 0.46              |
| 1:1A:1563:A:H2'    | 1:1A:1564:A:C8     | 2.51                     | 0.46              |
| 1:1A:1645:C:H2'    | 1:1A:1646:A:C8     | 2.50                     | 0.46              |
| 1:1A:1645:C:H2'    | 1:1A:1646:A:H8     | 1.81                     | 0.46              |
| 1:1A:1833:G:N2     | 1:1A:1835:G:O4'    | 2.49                     | 0.46              |
| 1:1A:1951:G:N2     | 1:1A:2032:U:O2     | 2.32                     | 0.46              |
| 1:1A:2386:U:H2'    | 1:1A:2387:G:H8     | 1.80                     | 0.46              |
| 1:1A:4433:G:N7     | 12:2D:7:ARG:NH1    | 2.59                     | 0.46              |
| 1:1A:4537:C:H2'    | 1:1A:4538:G:C8     | 2.50                     | 0.46              |
| 3:1C:143:G:OP1     | 16:2H:57:GLN:NE2   | 2.48                     | 0.46              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 10:2B:100:HIS:CE1  | 10:2B:103:ARG:HH12 | 2.34                     | 0.46              |
| 17:2I:15:LEU:HD21  | 17:2I:129:LEU:HD11 | 1.98                     | 0.46              |
| 19:2K:182:ALA:HB2  | 19:2K:187:LYS:HB2  | 1.97                     | 0.46              |
| 47:2m:443:U:H3     | 47:2m:447:A:H62    | 1.62                     | 0.46              |
| 47:2m:987:A:H4'    | 65:3C:70:LYS:HD3   | 1.97                     | 0.46              |
| 47:2m:1221:G:H2'   | 47:2m:1222:G:C8    | 2.51                     | 0.46              |
| 56:2v:104:LYS:O    | 64:3B:11:ARG:NH2   | 2.43                     | 0.46              |
| 66:3D:40:ARG:HH22  | 74:3L:121:ARG:HD3  | 1.79                     | 0.46              |
| 1:1A:440:U:H2'     | 1:1A:441:G:H8      | 1.81                     | 0.46              |
| 1:1A:469:C:H2'     | 1:1A:470:A:H8      | 1.80                     | 0.46              |
| 1:1A:2039:G:H3'    | 1:1A:2040:A:H8     | 1.80                     | 0.46              |
| 1:1A:4760:G:H2'    | 1:1A:4761:G:C8     | 2.50                     | 0.46              |
| 9:2A:116:GLN:O     | 9:2A:119:ASN:ND2   | 2.49                     | 0.46              |
| 10:2B:123:ALA:HA   | 10:2B:124:GLY:HA2  | 1.63                     | 0.46              |
| 47:2m:1804:U:H2'   | 47:2m:1805:G:C8    | 2.51                     | 0.46              |
| 47:2m:1846:G:H2'   | 47:2m:1847:G:C8    | 2.51                     | 0.46              |
| 48:2n:21:ALA:O     | 48:2n:170:SER:OG   | 2.32                     | 0.46              |
| 49:2o:197:ILE:HD11 | 49:2o:210:VAL:HG11 | 1.97                     | 0.46              |
| 50:2p:157:MET:HE2  | 50:2p:187:LYS:HD3  | 1.97                     | 0.46              |
| 54:2t:124:LYS:HB2  | 54:2t:128:LYS:HD3  | 1.98                     | 0.46              |
| 57:2w:89:MET:HE3   | 57:2w:91:GLY:H     | 1.81                     | 0.46              |
| 59:2y:58:MET:HA    | 59:2y:61:ILE:HG12  | 1.98                     | 0.46              |
| 68:3F:108:VAL:HG23 | 68:3F:124:SER:HA   | 1.98                     | 0.46              |
| 1:1A:1837:A:H2'    | 1:1A:1838:A:H8     | 1.81                     | 0.46              |
| 1:1A:2666:U:OP1    | 20:2L:107:ARG:NH2  | 2.49                     | 0.46              |
| 1:1A:2694:G:H4'    | 1:1A:2695:A:H5'    | 1.98                     | 0.46              |
| 1:1A:3848:U:H4'    | 1:1A:4634:U:C4     | 2.51                     | 0.46              |
| 1:1A:3970:G:O6     | 1:1A:3972:A:N6     | 2.48                     | 0.46              |
| 3:1C:130:C:H2'     | 3:1C:131:G:H8      | 1.81                     | 0.46              |
| 10:2B:251:ALA:O    | 10:2B:255:LYS:N    | 2.46                     | 0.46              |
| 28:2T:117:LYS:HA   | 28:2T:120:GLU:HG2  | 1.97                     | 0.46              |
| 47:2m:1113:A:H8    | 47:2m:1114:U:H2'   | 1.79                     | 0.46              |
| 56:2v:94:HIS:N     | 56:2v:103:GLU:O    | 2.48                     | 0.46              |
| 68:3F:88:ARG:HE    | 68:3F:97:THR:HG21  | 1.80                     | 0.46              |
| 68:3F:298:LEU:N    | 68:3F:310:TRP:O    | 2.37                     | 0.46              |
| 68:3F:306:LEU:HD21 | 68:3F:308:ARG:HE   | 1.81                     | 0.46              |
| 78:3P:59:CYS:SG    | 78:3P:60:SER:N     | 2.87                     | 0.46              |
| 1:1A:2503:G:O4'    | 1:1A:4084:G:N2     | 2.49                     | 0.46              |
| 1:1A:2870:A:H2'    | 1:1A:2871:A:H8     | 1.81                     | 0.46              |
| 1:1A:4238:G:H2'    | 1:1A:4239:A:C8     | 2.51                     | 0.46              |
| 1:1A:4884:G:H22    | 1:1A:4936:G:H1     | 1.64                     | 0.46              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:4885:U:O4    | 1:1A:4935:C:N4     | 2.44                     | 0.46              |
| 47:2m:30:C:O3'    | 64:3B:137:LYS:NZ   | 2.43                     | 0.46              |
| 47:2m:467:G:O5'   | 70:3H:72:ARG:NH2   | 2.41                     | 0.46              |
| 47:2m:693:A:N6    | 47:2m:735:C:OP1    | 2.49                     | 0.46              |
| 47:2m:1227:G:N2   | 47:2m:1635:C:O2'   | 2.49                     | 0.46              |
| 48:2n:45:GLY:HA3  | 59:2y:126:MET:HB2  | 1.98                     | 0.46              |
| 48:2n:76:VAL:HG13 | 48:2n:123:VAL:HG23 | 1.98                     | 0.46              |
| 66:3D:52:GLU:HG3  | 66:3D:53:GLY:H     | 1.79                     | 0.46              |
| 1:1A:175:C:H2'    | 1:1A:176:G:H8      | 1.80                     | 0.45              |
| 1:1A:1433:A:H3'   | 1:1A:1434:G:H8     | 1.82                     | 0.45              |
| 1:1A:2296:G:O2'   | 6:1F:242:PRO:O     | 2.31                     | 0.45              |
| 1:1A:2520:C:H2'   | 1:1A:2521:G:C8     | 2.51                     | 0.45              |
| 1:1A:4239:A:H2'   | 1:1A:4240:G:C8     | 2.51                     | 0.45              |
| 1:1A:4600:G:N2    | 1:1A:4601:U:O4     | 2.41                     | 0.45              |
| 47:2m:106:C:H2'   | 47:2m:107:A:C8     | 2.50                     | 0.45              |
| 47:2m:941:C:H2'   | 47:2m:942:G:C8     | 2.51                     | 0.45              |
| 47:2m:943:U:H2'   | 47:2m:944:A:H8     | 1.80                     | 0.45              |
| 47:2m:1842:C:H2'  | 47:2m:1843:G:C8    | 2.50                     | 0.45              |
| 56:2v:135:SER:H   | 56:2v:138:VAL:HB   | 1.81                     | 0.45              |
| 1:1A:370:U:HO2'   | 38:2d:16:HIS:HD1   | 1.63                     | 0.45              |
| 1:1A:710:G:H2'    | 1:1A:711:A:H8      | 1.80                     | 0.45              |
| 1:1A:1332:C:H2'   | 1:1A:1333:A:C8     | 2.51                     | 0.45              |
| 1:1A:4324:A:O2'   | 1:1A:4325:A:O4'    | 2.29                     | 0.45              |
| 2:1B:36:C:H2'     | 2:1B:37:G:C8       | 2.51                     | 0.45              |
| 2:1B:48:G:O2'     | 7:1G:222:GLN:O     | 2.31                     | 0.45              |
| 8:1H:179:LEU:HD12 | 8:1H:183:ARG:HA    | 1.97                     | 0.45              |
| 9:2A:127:LYS:HB2  | 22:2N:133:ALA:HB3  | 1.98                     | 0.45              |
| 14:2F:64:VAL:HA   | 14:2F:67:HIS:HD2   | 1.81                     | 0.45              |
| 14:2F:127:PHE:O   | 36:2b:117:ARG:NH2  | 2.50                     | 0.45              |
| 34:2Z:109:ARG:HG3 | 34:2Z:110:ILE:HG22 | 1.97                     | 0.45              |
| 36:2b:62:ASN:HA   | 36:2b:65:GLN:HG2   | 1.97                     | 0.45              |
| 53:2s:30:LEU:HD11 | 53:2s:86:LYS:HG2   | 1.98                     | 0.45              |
| 55:2u:2:LEU:HD23  | 55:2u:8:ARG:HH11   | 1.82                     | 0.45              |
| 70:3H:5:ILE:HD12  | 70:3H:16:ILE:HD12  | 1.98                     | 0.45              |
| 70:3H:22:ARG:HA   | 70:3H:25:ARG:HH21  | 1.81                     | 0.45              |
| 71:3I:104:ASP:OD1 | 71:3I:105:PHE:N    | 2.49                     | 0.45              |
| 73:3K:40:LEU:HD22 | 73:3K:45:LEU:HD12  | 1.98                     | 0.45              |
| 73:3K:119:GLU:HA  | 73:3K:122:ILE:HD12 | 1.98                     | 0.45              |
| 74:3L:31:CYS:SG   | 74:3L:32:HIS:N     | 2.89                     | 0.45              |
| 76:3N:104:ARG:HA  | 76:3N:107:ARG:HG2  | 1.98                     | 0.45              |
| 1:1A:323:C:H2'    | 1:1A:324:A:C8      | 2.51                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:2851:G:N2     | 1:1A:3840:U:O2'    | 2.50                     | 0.45              |
| 1:1A:3717:A:H2'    | 1:1A:3718:A:C8     | 2.52                     | 0.45              |
| 21:2M:79:GLY:HA2   | 21:2M:96:GLU:HA    | 1.98                     | 0.45              |
| 21:2M:111:ARG:O    | 21:2M:115:ALA:CB   | 2.65                     | 0.45              |
| 47:2m:21:U:O4      | 47:2m:22:A:N6      | 2.49                     | 0.45              |
| 47:2m:902:G:O6     | 47:2m:904:A:N1     | 2.39                     | 0.45              |
| 47:2m:1589:A:H5'   | 61:20:81:GLY:HA2   | 1.98                     | 0.45              |
| 51:2q:139:LEU:HD23 | 51:2q:150:PRO:HB3  | 1.97                     | 0.45              |
| 51:2q:163:ASP:OD1  | 51:2q:163:ASP:N    | 2.50                     | 0.45              |
| 69:3G:144:SER:OG   | 69:3G:145:LYS:N    | 2.49                     | 0.45              |
| 69:3G:270:THR:HA   | 69:3G:273:LEU:HB3  | 1.98                     | 0.45              |
| 1:1A:1558:A:H2'    | 1:1A:1559:G:C8     | 2.51                     | 0.45              |
| 1:1A:2653:C:O4'    | 35:2a:54:ARG:NH2   | 2.49                     | 0.45              |
| 1:1A:3861:A:H2'    | 1:1A:3862:A:C8     | 2.52                     | 0.45              |
| 1:1A:4338:G:O2'    | 1:1A:4372:U:O4     | 2.35                     | 0.45              |
| 1:1A:4624:A:OP1    | 5:1E:277:ARG:NH2   | 2.47                     | 0.45              |
| 3:1C:126:C:N4      | 3:1C:128:C:O2      | 2.49                     | 0.45              |
| 4:1D:180:LEU:HD11  | 44:2j:26:VAL:HG11  | 1.97                     | 0.45              |
| 6:1F:279:LEU:HA    | 6:1F:280:PRO:HD3   | 1.81                     | 0.45              |
| 13:2E:158:SER:HB3  | 13:2E:161:GLU:HG2  | 1.99                     | 0.45              |
| 19:2K:79:THR:HB    | 19:2K:136:THR:HG22 | 1.98                     | 0.45              |
| 47:2m:71:G:H22     | 70:3H:170:ARG:HB2  | 1.81                     | 0.45              |
| 47:2m:433:A:H5''   | 54:2t:25:ARG:HH12  | 1.79                     | 0.45              |
| 47:2m:600:G:H2'    | 47:2m:601:G:H8     | 1.81                     | 0.45              |
| 47:2m:1398:G:H1    | 47:2m:1448:A:H61   | 1.65                     | 0.45              |
| 48:2n:120:ARG:HE   | 69:3G:267:GLN:HB3  | 1.82                     | 0.45              |
| 50:2p:226:GLN:HA   | 68:3F:186:THR:HB   | 1.99                     | 0.45              |
| 51:2q:121:TYR:HA   | 51:2q:163:ASP:HA   | 1.97                     | 0.45              |
| 1:1A:162:A:H2'     | 1:1A:163:A:C8      | 2.50                     | 0.45              |
| 1:1A:699:C:H2'     | 1:1A:700:G:H8      | 1.81                     | 0.45              |
| 1:1A:1485:C:H2'    | 14:2F:198:ARG:HH12 | 1.82                     | 0.45              |
| 1:1A:1705:G:O5'    | 9:2A:46:ARG:NH2    | 2.50                     | 0.45              |
| 1:1A:2411:C:H2'    | 1:1A:2412:A:H8     | 1.82                     | 0.45              |
| 1:1A:2610:G:H2'    | 1:1A:2611:A:H8     | 1.82                     | 0.45              |
| 1:1A:2738:C:C2     | 1:1A:2741:U:C4     | 3.04                     | 0.45              |
| 1:1A:3950:U:H5''   | 1:1A:3951:G:C8     | 2.51                     | 0.45              |
| 1:1A:4196:G:H2'    | 1:1A:4197:G:H8     | 1.82                     | 0.45              |
| 1:1A:4582:C:H4'    | 5:1E:99:LEU:HB2    | 1.98                     | 0.45              |
| 1:1A:4657:U:O2'    | 1:1A:4659:G:OP2    | 2.33                     | 0.45              |
| 7:1G:152:ARG:NH1   | 7:1G:153:THR:O     | 2.50                     | 0.45              |
| 8:1H:264:ILE:HG21  | 8:1H:267:LEU:HD13  | 1.99                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 37:2c:79:THR:HG22  | 37:2c:81:ILE:H     | 1.80                     | 0.45              |
| 41:2g:110:CYS:SG   | 41:2g:111:ARG:N    | 2.89                     | 0.45              |
| 44:2j:37:TYR:HB2   | 44:2j:47:MET:HB3   | 1.99                     | 0.45              |
| 50:2p:132:LYS:HB3  | 50:2p:156:LEU:HB2  | 1.99                     | 0.45              |
| 68:3F:8:ARG:NH1    | 68:3F:311:GLN:OE1  | 2.46                     | 0.45              |
| 83:zy:21:U:H2'     | 83:zy:22:G:C8      | 2.51                     | 0.45              |
| 1:1A:137:G:H2'     | 1:1A:138:G:H8      | 1.82                     | 0.45              |
| 1:1A:384:A:H61     | 1:1A:405:U:H4'     | 1.82                     | 0.45              |
| 1:1A:1332:C:H2'    | 1:1A:1333:A:H8     | 1.82                     | 0.45              |
| 6:1F:110:ARG:O     | 6:1F:112:HIS:N     | 2.50                     | 0.45              |
| 6:1F:224:ILE:HA    | 6:1F:225:PRO:HD3   | 1.85                     | 0.45              |
| 11:2C:23:ARG:NH2   | 11:2C:41:ILE:O     | 2.49                     | 0.45              |
| 21:2M:101:THR:HG23 | 21:2M:104:GLY:H    | 1.81                     | 0.45              |
| 23:2O:100:LEU:HD23 | 23:2O:112:LEU:HD23 | 1.99                     | 0.45              |
| 35:2a:15:THR:HG22  | 35:2a:17:SER:H     | 1.82                     | 0.45              |
| 45:2k:53:PRO:HB3   | 45:2k:117:ILE:HD11 | 1.98                     | 0.45              |
| 47:2m:40:A:H3'     | 47:2m:486:A:H62    | 1.81                     | 0.45              |
| 47:2m:291:G:H5''   | 51:2q:203:GLY:H    | 1.80                     | 0.45              |
| 47:2m:334:C:H2'    | 47:2m:335:G:H8     | 1.82                     | 0.45              |
| 47:2m:436:G:OP2    | 47:2m:471:G:O2'    | 2.35                     | 0.45              |
| 47:2m:613:G:N1     | 47:2m:629:A:OP1    | 2.47                     | 0.45              |
| 47:2m:1307:U:H1'   | 80:3R:135:HIS:CE1  | 2.51                     | 0.45              |
| 47:2m:1419:C:O2'   | 47:2m:1420:G:O4'   | 2.34                     | 0.45              |
| 69:3G:168:GLY:HA3  | 69:3G:181:PRO:HB3  | 1.99                     | 0.45              |
| 70:3H:64:LYS:HE3   | 70:3H:82:SER:H     | 1.82                     | 0.45              |
| 1:1A:2277:C:H2'    | 1:1A:2278:G:C8     | 2.51                     | 0.45              |
| 1:1A:2745:A:H2'    | 1:1A:2746:A:H8     | 1.80                     | 0.45              |
| 1:1A:3709:U:H3'    | 1:1A:3710:G:C8     | 2.52                     | 0.45              |
| 1:1A:4239:A:H2'    | 1:1A:4240:G:H8     | 1.81                     | 0.45              |
| 10:2B:155:VAL:HG12 | 10:2B:157:ILE:HG13 | 1.98                     | 0.45              |
| 12:2D:168:SER:OG   | 12:2D:169:LYS:N    | 2.48                     | 0.45              |
| 47:2m:395:G:H5'    | 56:2v:82:MET:HE3   | 1.98                     | 0.45              |
| 47:2m:996:A:H2'    | 47:2m:997:A:C8     | 2.50                     | 0.45              |
| 47:2m:1425:G:H22   | 58:2x:2:PRO:HB3    | 1.81                     | 0.45              |
| 47:2m:1551:U:OP1   | 50:2p:9:ARG:NH1    | 2.49                     | 0.45              |
| 69:3G:265:PRO:HA   | 69:3G:268:GLU:HB2  | 1.97                     | 0.45              |
| 83:zu:22:G:H2'     | 83:zu:23:A:H8      | 1.82                     | 0.45              |
| 83:zu:51:G:H2'     | 83:zu:52:G:H8      | 1.80                     | 0.45              |
| 1:1A:1511:U:H2'    | 1:1A:1512:G:H8     | 1.82                     | 0.45              |
| 1:1A:2088:A:OP2    | 19:2K:37:ARG:NH1   | 2.38                     | 0.45              |
| 1:1A:3689:G:O2'    | 1:1A:3818:U:OP2    | 2.34                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:3848:U:H2'    | 1:1A:3849:A:C8     | 2.51                     | 0.45              |
| 8:1H:281:ILE:H     | 8:1H:281:ILE:HG13  | 1.65                     | 0.45              |
| 11:2C:93:ARG:HA    | 11:2C:143:GLU:HA   | 1.99                     | 0.45              |
| 20:2L:182:GLU:HA   | 20:2L:185:ILE:HG12 | 1.98                     | 0.45              |
| 47:2m:127:C:O2'    | 47:2m:184:G:N1     | 2.47                     | 0.45              |
| 47:2m:827:A:H3'    | 47:2m:828:G:H8     | 1.82                     | 0.45              |
| 47:2m:948:C:H2'    | 47:2m:949:G:C8     | 2.51                     | 0.45              |
| 47:2m:1128:C:H4'   | 78:3P:19:HIS:HB2   | 1.98                     | 0.45              |
| 47:2m:1351:G:H1    | 47:2m:1360:U:H3    | 1.64                     | 0.45              |
| 47:2m:1407:U:H2'   | 47:2m:1409:A:H62   | 1.81                     | 0.45              |
| 48:2n:38:ILE:HD11  | 48:2n:47:TYR:HB3   | 1.99                     | 0.45              |
| 49:2o:171:ILE:HA   | 49:2o:174:ARG:HG2  | 1.99                     | 0.45              |
| 60:2z:60:THR:OG1   | 60:2z:62:ASP:OD1   | 2.33                     | 0.45              |
| 78:3P:34:ASP:OD2   | 78:3P:36:LYS:NZ    | 2.37                     | 0.45              |
| 83:zy:28:C:H2'     | 83:zy:29:G:H8      | 1.81                     | 0.45              |
| 83:zu:15:G:N2      | 83:zu:47:C:C2      | 2.78                     | 0.45              |
| 1:1A:252:C:H2'     | 1:1A:253:G:C8      | 2.52                     | 0.45              |
| 1:1A:1175:A:H2     | 1:1A:1185:G:H1     | 1.65                     | 0.45              |
| 1:1A:2579:G:H21    | 1:1A:2581:A:H8     | 1.64                     | 0.45              |
| 1:1A:4319:C:H2'    | 1:1A:4320:G:H8     | 1.80                     | 0.45              |
| 21:2M:45:TRP:O     | 21:2M:49:SER:OG    | 2.30                     | 0.45              |
| 34:2Z:40:GLU:HA    | 34:2Z:43:LEU:HB2   | 1.98                     | 0.45              |
| 47:2m:687:C:H4'    | 53:2s:121:THR:HG21 | 1.98                     | 0.45              |
| 47:2m:1191:C:H5''  | 64:3B:119:ARG:HH22 | 1.81                     | 0.45              |
| 48:2n:104:THR:O    | 48:2n:107:THR:OG1  | 2.32                     | 0.45              |
| 49:2o:53:GLN:HG3   | 49:2o:54:GLY:H     | 1.82                     | 0.45              |
| 53:2s:163:GLN:O    | 53:2s:167:GLU:HB3  | 2.16                     | 0.45              |
| 53:2s:184:ASP:OD1  | 53:2s:184:ASP:N    | 2.49                     | 0.45              |
| 68:3F:164:ILE:HG12 | 68:3F:178:ASN:HD22 | 1.82                     | 0.45              |
| 1:1A:102:G:H2'     | 1:1A:103:G:H8      | 1.82                     | 0.45              |
| 1:1A:4088:C:H2'    | 1:1A:4089:G:C8     | 2.51                     | 0.45              |
| 1:1A:4208:U:H2'    | 1:1A:4209:G:C8     | 2.51                     | 0.45              |
| 8:1H:58:SER:OG     | 8:1H:59:ARG:N      | 2.49                     | 0.45              |
| 11:2C:88:PHE:HE2   | 11:2C:151:ILE:HB   | 1.82                     | 0.45              |
| 12:2D:57:TYR:HD1   | 12:2D:130:HIS:HA   | 1.80                     | 0.45              |
| 18:2J:48:LEU:HD21  | 18:2J:91:LEU:HB3   | 1.99                     | 0.45              |
| 22:2N:81:LYS:O     | 22:2N:83:LYS:N     | 2.49                     | 0.45              |
| 47:2m:979:C:H2'    | 47:2m:980:A:H8     | 1.82                     | 0.45              |
| 47:2m:1262:C:O2'   | 67:3E:10:HIS:NE2   | 2.49                     | 0.45              |
| 47:2m:1448:A:O2'   | 47:2m:1449:G:O4'   | 2.35                     | 0.45              |
| 47:2m:1650:A:N1    | 52:2r:83:ASN:ND2   | 2.55                     | 0.45              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 47:2m:1656:G:N2    | 47:2m:1668:U:O2    | 2.41                     | 0.45              |
| 47:2m:1658:G:OP2   | 47:2m:1660:C:N4    | 2.49                     | 0.45              |
| 50:2p:109:LEU:HD11 | 50:2p:115:VAL:HG12 | 1.99                     | 0.45              |
| 60:2z:15:VAL:HG12  | 60:2z:16:LEU:HB2   | 1.98                     | 0.45              |
| 1:1A:176:G:H2'     | 1:1A:177:G:C8      | 2.52                     | 0.44              |
| 1:1A:678:C:H2'     | 1:1A:679:C:C6      | 2.52                     | 0.44              |
| 1:1A:1876:U:H2'    | 1:1A:1877:G:H8     | 1.82                     | 0.44              |
| 1:1A:2049:G:H2'    | 1:1A:2050:G:H8     | 1.82                     | 0.44              |
| 1:1A:2399:G:O2'    | 1:1A:2822:G:O2'    | 2.35                     | 0.44              |
| 1:1A:3961:G:N2     | 1:1A:4046:A:OP1    | 2.49                     | 0.44              |
| 1:1A:4238:G:H2'    | 1:1A:4239:A:H8     | 1.81                     | 0.44              |
| 1:1A:4473:A:P      | 41:2g:102:ARG:HH21 | 2.40                     | 0.44              |
| 12:2D:145:GLU:HA   | 12:2D:148:VAL:HG22 | 1.99                     | 0.44              |
| 27:2S:115:ARG:HA   | 27:2S:118:ILE:HG22 | 1.98                     | 0.44              |
| 43:2i:33:LEU:HA    | 43:2i:38:LYS:HG2   | 1.98                     | 0.44              |
| 45:2k:21:ASN:OD1   | 45:2k:21:ASN:N     | 2.50                     | 0.44              |
| 47:2m:606:G:H8     | 79:3Q:58:ASN:HD21  | 1.66                     | 0.44              |
| 47:2m:663:C:H4'    | 69:3G:227:ARG:HH22 | 1.82                     | 0.44              |
| 47:2m:1419:C:H5'   | 61:20:129:ARG:HB2  | 1.98                     | 0.44              |
| 54:2t:165:GLN:HG3  | 54:2t:171:LEU:HD23 | 1.98                     | 0.44              |
| 72:3J:37:GLU:HB3   | 72:3J:40:LYS:HB2   | 1.99                     | 0.44              |
| 1:1A:10:A:H2'      | 1:1A:11:G:C8       | 2.52                     | 0.44              |
| 1:1A:280:G:C5      | 16:2H:14:LYS:HD2   | 2.53                     | 0.44              |
| 1:1A:2521:G:H2'    | 1:1A:2522:G:C8     | 2.52                     | 0.44              |
| 1:1A:2664:G:OP1    | 20:2L:110:ARG:NH1  | 2.50                     | 0.44              |
| 4:1D:58:LEU:HD13   | 4:1D:75:LEU:HD21   | 1.99                     | 0.44              |
| 5:1E:55:HIS:NE2    | 25:2Q:16:GLY:HA3   | 2.32                     | 0.44              |
| 20:2L:106:LEU:HB3  | 20:2L:120:TYR:HE1  | 1.83                     | 0.44              |
| 21:2M:124:ILE:H    | 21:2M:124:ILE:HG13 | 1.48                     | 0.44              |
| 52:2r:26:ASP:HA    | 52:2r:27:ASP:HA    | 1.57                     | 0.44              |
| 55:2u:32:HIS:CD2   | 55:2u:34:GLU:H     | 2.35                     | 0.44              |
| 75:3M:114:GLU:HB3  | 75:3M:118:ARG:HH12 | 1.82                     | 0.44              |
| 78:3P:23:ARG:HH22  | 78:3P:29:ASN:HD21  | 1.66                     | 0.44              |
| 83:zy:68:A:H2'     | 83:zy:69:G:C8      | 2.53                     | 0.44              |
| 1:1A:186:G:O2'     | 1:1A:1366:G:N2     | 2.50                     | 0.44              |
| 1:1A:506:C:H2'     | 1:1A:507:G:H8      | 1.82                     | 0.44              |
| 1:1A:4100:C:H4'    | 1:1A:4110:C:H2'    | 1.99                     | 0.44              |
| 22:2N:4:THR:HG23   | 22:2N:9:ARG:HD3    | 1.99                     | 0.44              |
| 47:2m:291:G:H1'    | 47:2m:292:A:H2'    | 1.99                     | 0.44              |
| 47:2m:1671:G:H2'   | 47:2m:1672:U:C6    | 2.52                     | 0.44              |
| 48:2n:80:ARG:HH12  | 48:2n:166:LYS:HA   | 1.81                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 49:2o:32:ASP:OD1   | 49:2o:46:LYS:NZ    | 2.42                     | 0.44              |
| 68:3F:131:LEU:HD22 | 68:3F:139:LYS:HB3  | 1.99                     | 0.44              |
| 69:3G:144:SER:HB3  | 69:3G:150:ALA:HB2  | 1.99                     | 0.44              |
| 74:3L:40:THR:HG21  | 74:3L:74:ALA:HB2   | 1.99                     | 0.44              |
| 74:3L:94:HIS:HD1   | 74:3L:128:ARG:HB2  | 1.83                     | 0.44              |
| 1:1A:311:G:N2      | 1:1A:327:U:O2      | 2.50                     | 0.44              |
| 1:1A:362:A:N6      | 40:2f:39:SER:OG    | 2.50                     | 0.44              |
| 1:1A:407:A:O2'     | 1:1A:410:A:OP1     | 2.31                     | 0.44              |
| 1:1A:1336:G:H21    | 1:1A:2349:A:N6     | 2.13                     | 0.44              |
| 1:1A:1538:U:H2'    | 1:1A:1539:G:H8     | 1.83                     | 0.44              |
| 1:1A:3732:A:H2'    | 1:1A:3733:A:C8     | 2.52                     | 0.44              |
| 1:1A:4080:C:H2'    | 1:1A:4081:G:C8     | 2.52                     | 0.44              |
| 4:1D:20:VAL:HA     | 4:1D:23:ARG:HG2    | 1.99                     | 0.44              |
| 5:1E:92:TYR:HE2    | 5:1E:161:ARG:HD2   | 1.83                     | 0.44              |
| 15:2G:24:LEU:HD11  | 15:2G:86:TRP:CD2   | 2.53                     | 0.44              |
| 31:2W:74:TYR:OH    | 31:2W:80:GLU:OE2   | 2.33                     | 0.44              |
| 47:2m:1208:A:H2'   | 47:2m:1209:A:C8    | 2.52                     | 0.44              |
| 47:2m:1855:G:OP2   | 74:3L:150:ARG:NH1  | 2.51                     | 0.44              |
| 48:2n:176:TRP:CE2  | 48:2n:199:PRO:HG3  | 2.52                     | 0.44              |
| 52:2r:86:LYS:O     | 52:2r:89:THR:OG1   | 2.28                     | 0.44              |
| 68:3F:170:TRP:CG   | 68:3F:194:TYR:HB2  | 2.53                     | 0.44              |
| 1:1A:153:G:H2'     | 1:1A:154:G:C8      | 2.53                     | 0.44              |
| 1:1A:2326:G:OP2    | 33:2Y:101:HIS:ND1  | 2.44                     | 0.44              |
| 1:1A:2411:C:H2'    | 1:1A:2412:A:C8     | 2.53                     | 0.44              |
| 1:1A:2502:G:O2'    | 1:1A:2504:C:OP2    | 2.35                     | 0.44              |
| 1:1A:3661:G:O6     | 4:1D:152:SER:OG    | 2.34                     | 0.44              |
| 1:1A:3788:C:N4     | 1:1A:3812:C:O4'    | 2.51                     | 0.44              |
| 1:1A:4884:G:H22    | 1:1A:4936:G:H22    | 1.63                     | 0.44              |
| 2:1B:75:G:H22      | 2:1B:99:G:H2'      | 1.82                     | 0.44              |
| 3:1C:13:G:H2'      | 3:1C:14:U:C6       | 2.53                     | 0.44              |
| 3:1C:19:C:H2'      | 3:1C:20:A:C8       | 2.53                     | 0.44              |
| 8:1H:181:LEU:HD21  | 8:1H:268:GLN:HE21  | 1.82                     | 0.44              |
| 11:2C:173:ARG:HG2  | 41:2g:127:VAL:HG23 | 1.99                     | 0.44              |
| 18:2J:94:MET:HE2   | 18:2J:148:MET:HG2  | 1.99                     | 0.44              |
| 23:2O:106:SER:O    | 23:2O:109:SER:OG   | 2.30                     | 0.44              |
| 29:2U:117:LEU:HD12 | 29:2U:118:PRO:HD2  | 1.99                     | 0.44              |
| 41:2g:118:THR:OG1  | 41:2g:119:ASN:N    | 2.51                     | 0.44              |
| 47:2m:809:A:H8     | 47:2m:810:A:H5''   | 1.82                     | 0.44              |
| 47:2m:941:C:H2'    | 47:2m:942:G:H8     | 1.82                     | 0.44              |
| 47:2m:1248:U:H2'   | 47:2m:1249:C:C6    | 2.53                     | 0.44              |
| 47:2m:1636:G:H5''  | 47:2m:1638:G:H21   | 1.82                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 47:2m:1693:G:H21  | 47:2m:1834:A:H8    | 1.66                     | 0.44              |
| 47:2m:1694:U:O2'  | 47:2m:1833:C:O2'   | 2.24                     | 0.44              |
| 51:2q:141:THR:OG1 | 51:2q:143:ASP:O    | 2.26                     | 0.44              |
| 52:2r:198:ARG:NH2 | 83:zu:40:G:O2'     | 2.51                     | 0.44              |
| 57:2w:98:ASN:H    | 57:2w:99:GLY:C     | 2.25                     | 0.44              |
| 59:2y:126:MET:HE2 | 59:2y:128:PHE:HB3  | 2.00                     | 0.44              |
| 61:20:129:ARG:O   | 61:20:133:ARG:N    | 2.50                     | 0.44              |
| 68:3F:298:LEU:HB3 | 68:3F:310:TRP:HB2  | 1.98                     | 0.44              |
| 70:3H:148:SER:HA  | 70:3H:149:LYS:HA   | 1.70                     | 0.44              |
| 74:3L:12:GLU:HA   | 74:3L:13:GLN:HA    | 1.74                     | 0.44              |
| 1:1A:86:U:H2'     | 1:1A:87:A:C8       | 2.53                     | 0.44              |
| 1:1A:277:G:O2'    | 37:2c:30:ARG:NH2   | 2.50                     | 0.44              |
| 1:1A:1350:C:H2'   | 1:1A:1351:G:H8     | 1.82                     | 0.44              |
| 1:1A:1352:C:H3'   | 19:2K:104:ARG:HH22 | 1.83                     | 0.44              |
| 1:1A:2684:C:H5'   | 35:2a:55:GLY:HA2   | 1.98                     | 0.44              |
| 1:1A:2756:G:H2'   | 1:1A:2757:A:C8     | 2.53                     | 0.44              |
| 1:1A:4578:G:H2'   | 1:1A:4579:U:C6     | 2.53                     | 0.44              |
| 8:1H:164:PHE:HA   | 8:1H:175:VAL:HG12  | 1.99                     | 0.44              |
| 12:2D:183:ASP:HA  | 12:2D:186:ALA:HB3  | 2.00                     | 0.44              |
| 19:2K:159:PRO:HA  | 19:2K:160:HIS:HA   | 1.67                     | 0.44              |
| 38:2d:33:THR:HA   | 38:2d:40:PRO:HD3   | 1.99                     | 0.44              |
| 47:2m:432:G:H2'   | 47:2m:433:A:H8     | 1.82                     | 0.44              |
| 47:2m:1030:A:H2'  | 47:2m:1031:A:H8    | 1.81                     | 0.44              |
| 47:2m:1650:A:N6   | 47:2m:1674:G:H21   | 2.10                     | 0.44              |
| 55:2u:34:GLU:HA   | 55:2u:35:LEU:HA    | 1.79                     | 0.44              |
| 69:3G:94:ILE:O    | 69:3G:99:GLY:N     | 2.50                     | 0.44              |
| 70:3H:51:ARG:O    | 70:3H:112:VAL:N    | 2.45                     | 0.44              |
| 75:3M:52:ILE:HG22 | 75:3M:61:ILE:HG23  | 1.99                     | 0.44              |
| 1:1A:417:G:H5'    | 3:1C:17:A:H61      | 1.83                     | 0.44              |
| 1:1A:454:U:H1'    | 33:2Y:5:ARG:HH12   | 1.83                     | 0.44              |
| 1:1A:4093:G:H2'   | 1:1A:4094:G:C8     | 2.53                     | 0.44              |
| 1:1A:4186:A:H2'   | 1:1A:4187:G:H8     | 1.83                     | 0.44              |
| 1:1A:4642:U:H2'   | 1:1A:4643:G:H8     | 1.83                     | 0.44              |
| 14:2F:197:LYS:O   | 14:2F:201:GLU:N    | 2.50                     | 0.44              |
| 17:2I:10:ASP:HB2  | 17:2I:117:ARG:HE   | 1.83                     | 0.44              |
| 17:2I:100:ASP:N   | 17:2I:100:ASP:OD1  | 2.49                     | 0.44              |
| 39:2e:10:ASP:HA   | 39:2e:13:LEU:HD12  | 2.00                     | 0.44              |
| 47:2m:54:A:H2'    | 47:2m:451:G:H1     | 1.83                     | 0.44              |
| 47:2m:330:G:N7    | 70:3H:189:ARG:NH1  | 2.63                     | 0.44              |
| 47:2m:621:C:H5'   | 64:3B:107:ARG:HH22 | 1.83                     | 0.44              |
| 47:2m:1563:G:OP1  | 61:20:121:ARG:NH2  | 2.51                     | 0.44              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 47:2m:1653:U:H2'  | 47:2m:1654:G:C8    | 2.53                     | 0.44              |
| 64:3B:9:THR:OG1   | 64:3B:10:ALA:N     | 2.42                     | 0.44              |
| 68:3F:24:THR:OG1  | 68:3F:27:PHE:O     | 2.36                     | 0.44              |
| 68:3F:48:ASP:N    | 68:3F:48:ASP:OD1   | 2.51                     | 0.44              |
| 71:3I:176:LYS:O   | 71:3I:180:LYS:HB2  | 2.17                     | 0.44              |
| 1:1A:106:A:H1'    | 1:1A:336:A:C8      | 2.53                     | 0.44              |
| 1:1A:963:G:N7     | 1:1A:964:A:N6      | 2.66                     | 0.44              |
| 1:1A:1392:A:H2'   | 1:1A:1393:G:C8     | 2.52                     | 0.44              |
| 1:1A:1511:U:H2'   | 1:1A:1512:G:C8     | 2.53                     | 0.44              |
| 1:1A:4415:A:O2'   | 12:2D:74:LYS:NZ    | 2.45                     | 0.44              |
| 1:1A:5005:G:H22   | 1:1A:5041:G:H1'    | 1.82                     | 0.44              |
| 10:2B:55:VAL:HG12 | 26:2R:44:PRO:HA    | 1.99                     | 0.44              |
| 47:2m:30:C:O2'    | 47:2m:596:U:OP1    | 2.26                     | 0.44              |
| 47:2m:809:A:OP1   | 51:2q:187:ALA:N    | 2.37                     | 0.44              |
| 47:2m:902:G:C6    | 47:2m:904:A:N1     | 2.86                     | 0.44              |
| 47:2m:975:G:H2'   | 47:2m:976:G:C8     | 2.53                     | 0.44              |
| 47:2m:1202:U:O2'  | 69:3G:115:GLN:O    | 2.35                     | 0.44              |
| 47:2m:1673:U:O2'  | 52:2r:84:GLY:O     | 2.35                     | 0.44              |
| 49:2o:71:LEU:HD11 | 49:2o:189:ILE:HG23 | 1.99                     | 0.44              |
| 50:2p:167:TYR:OH  | 50:2p:203:PRO:O    | 2.36                     | 0.44              |
| 53:2s:5:SER:N     | 53:2s:21:SER:O     | 2.51                     | 0.44              |
| 68:3F:240:CYS:H   | 68:3F:249:CYS:HB3  | 1.83                     | 0.44              |
| 70:3H:70:HIS:HA   | 70:3H:98:ARG:HH12  | 1.81                     | 0.44              |
| 1:1A:229:G:H2'    | 1:1A:230:G:H8      | 1.83                     | 0.44              |
| 1:1A:239:C:H2'    | 1:1A:240:G:H8      | 1.83                     | 0.44              |
| 1:1A:423:G:H5''   | 18:2J:30:ARG:HE    | 1.83                     | 0.44              |
| 1:1A:693:C:H2'    | 1:1A:694:C:H6      | 1.82                     | 0.44              |
| 1:1A:1321:G:OP1   | 1:1A:1880:G:O2'    | 2.29                     | 0.44              |
| 1:1A:2622:G:OP1   | 23:2O:104:ALA:N    | 2.46                     | 0.44              |
| 1:1A:2749:C:H2'   | 1:1A:2750:G:C8     | 2.51                     | 0.44              |
| 1:1A:2843:U:H2'   | 1:1A:2844:A:C8     | 2.53                     | 0.44              |
| 1:1A:5018:C:H2'   | 1:1A:5019:A:C8     | 2.53                     | 0.44              |
| 20:2L:168:GLU:HA  | 20:2L:171:LYS:HG2  | 2.00                     | 0.44              |
| 22:2N:43:LYS:O    | 22:2N:58:HIS:ND1   | 2.51                     | 0.44              |
| 29:2U:14:HIS:HA   | 33:2Y:39:ARG:HD3   | 2.00                     | 0.44              |
| 47:2m:532:C:H1'   | 47:2m:533:A:C8     | 2.52                     | 0.44              |
| 47:2m:1099:G:H2'  | 47:2m:1100:A:H8    | 1.83                     | 0.44              |
| 47:2m:1208:A:H2'  | 47:2m:1209:A:H8    | 1.81                     | 0.44              |
| 58:2x:134:GLY:HA2 | 58:2x:141:TYR:HB2  | 2.00                     | 0.44              |
| 59:2y:41:ILE:HA   | 59:2y:42:PRO:HD3   | 1.91                     | 0.44              |
| 59:2y:104:GLU:HA  | 59:2y:107:LYS:HB2  | 1.99                     | 0.44              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 1:1A:279:A:H61     | 1:1A:306:A:H3'     | 1.83                     | 0.43              |
| 1:1A:451:C:H3'     | 1:1A:1294:A:H2     | 1.83                     | 0.43              |
| 1:1A:1366:G:O2'    | 1:1A:1367:C:O2     | 2.36                     | 0.43              |
| 1:1A:2360:A:H4'    | 18:2J:65:GLY:HA3   | 1.99                     | 0.43              |
| 1:1A:2647:A:H62    | 1:1A:2686:G:H8     | 1.66                     | 0.43              |
| 1:1A:4177:C:OP1    | 16:2H:93:LYS:NZ    | 2.51                     | 0.43              |
| 1:1A:4527:G:H4'    | 1:1A:4528:G:H5'    | 2.00                     | 0.43              |
| 47:2m:799:U:O4     | 47:2m:867:G:N2     | 2.51                     | 0.43              |
| 47:2m:1221:G:H2'   | 47:2m:1222:G:H8    | 1.83                     | 0.43              |
| 47:2m:1291:A:O2'   | 47:2m:1293:A:N6    | 2.50                     | 0.43              |
| 54:2t:110:ARG:NH1  | 54:2t:121:LEU:O    | 2.52                     | 0.43              |
| 64:3B:59:ALA:HB1   | 64:3B:114:ASP:HB2  | 2.00                     | 0.43              |
| 72:3J:94:ILE:HG23  | 72:3J:97:GLU:H     | 1.83                     | 0.43              |
| 83:zy:28:C:H2'     | 83:zy:29:G:C8      | 2.53                     | 0.43              |
| 1:1A:229:G:H2'     | 1:1A:230:G:C8      | 2.54                     | 0.43              |
| 1:1A:1321:G:H21    | 1:1A:3876:A:H5'    | 1.83                     | 0.43              |
| 1:1A:1346:C:H2'    | 1:1A:1347:G:H8     | 1.82                     | 0.43              |
| 1:1A:2387:G:H2'    | 1:1A:2388:A:H8     | 1.81                     | 0.43              |
| 3:1C:28:C:H2'      | 3:1C:29:G:C8       | 2.51                     | 0.43              |
| 3:1C:94:G:C5       | 38:2d:84:PRO:HG3   | 2.53                     | 0.43              |
| 18:2J:38:GLY:H     | 18:2J:114:ILE:HB   | 1.83                     | 0.43              |
| 47:2m:1043:G:H2'   | 47:2m:1044:G:C8    | 2.53                     | 0.43              |
| 49:2o:197:ILE:HD11 | 49:2o:210:VAL:HG21 | 1.98                     | 0.43              |
| 52:2r:48:TYR:HB3   | 58:2x:49:TYR:HE2   | 1.82                     | 0.43              |
| 54:2t:103:LEU:HD23 | 54:2t:170:LYS:HG2  | 2.00                     | 0.43              |
| 54:2t:119:LEU:HD11 | 54:2t:153:LYS:HG2  | 2.00                     | 0.43              |
| 60:2z:21:ASP:N     | 60:2z:21:ASP:OD1   | 2.51                     | 0.43              |
| 60:2z:55:ARG:HE    | 77:3O:83:LEU:HD11  | 1.83                     | 0.43              |
| 63:3A:37:ALA:HA    | 63:3A:50:PHE:HA    | 2.00                     | 0.43              |
| 70:3H:82:SER:OG    | 70:3H:83:CYS:N     | 2.52                     | 0.43              |
| 1:1A:1972:G:H1     | 1:1A:1993:C:H42    | 1.65                     | 0.43              |
| 1:1A:2599:G:N2     | 1:1A:2747:U:O4     | 2.51                     | 0.43              |
| 1:1A:4906:C:H2'    | 1:1A:4907:G:H8     | 1.84                     | 0.43              |
| 3:1C:14:U:H5'      | 18:2J:123:PRO:HD3  | 2.01                     | 0.43              |
| 8:1H:88:VAL:HA     | 8:1H:89:LEU:HA     | 1.53                     | 0.43              |
| 8:1H:111:LYS:HA    | 8:1H:111:LYS:HD2   | 1.79                     | 0.43              |
| 47:2m:522:A:H61    | 47:2m:643:A:H3'    | 1.82                     | 0.43              |
| 47:2m:1079:C:O2'   | 47:2m:1182:A:N6    | 2.52                     | 0.43              |
| 48:2n:212:LYS:HA   | 48:2n:215:GLN:HG2  | 2.00                     | 0.43              |
| 55:2u:50:GLN:HA    | 55:2u:53:LYS:HB3   | 2.00                     | 0.43              |
| 64:3B:82:THR:HG23  | 64:3B:118:VAL:HG13 | 1.99                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 68:3F:174:VAL:HB   | 68:3F:188:HIS:HB2  | 2.00                     | 0.43              |
| 1:1A:176:G:H2'     | 1:1A:177:G:H8      | 1.82                     | 0.43              |
| 1:1A:1359:G:H5'    | 6:1F:114:ARG:HE    | 1.83                     | 0.43              |
| 1:1A:1779:U:H2'    | 1:1A:1780:A:C8     | 2.54                     | 0.43              |
| 1:1A:2621:A:HO2'   | 1:1A:2701:U:HO2'   | 1.64                     | 0.43              |
| 1:1A:3842:C:OP1    | 5:1E:238:LYS:NZ    | 2.41                     | 0.43              |
| 1:1A:4762:A:C8     | 17:2I:126:VAL:HG21 | 2.54                     | 0.43              |
| 8:1H:208:ILE:HD12  | 8:1H:209:PRO:HD2   | 2.00                     | 0.43              |
| 28:2T:42:LEU:HD12  | 28:2T:74:VAL:HG22  | 2.00                     | 0.43              |
| 47:2m:535:G:N2     | 47:2m:536:A:N7     | 2.67                     | 0.43              |
| 47:2m:1830:U:O2    | 47:2m:1831:A:N6    | 2.40                     | 0.43              |
| 49:2o:168:MET:O    | 49:2o:172:MET:HB2  | 2.17                     | 0.43              |
| 54:2t:162:LEU:HD12 | 54:2t:165:GLN:HE21 | 1.83                     | 0.43              |
| 60:2z:65:GLU:HA    | 60:2z:68:ILE:HG12  | 2.00                     | 0.43              |
| 68:3F:230:LEU:HD11 | 68:3F:264:LYS:HB3  | 2.00                     | 0.43              |
| 69:3G:75:ILE:HG23  | 69:3G:97:PHE:HZ    | 1.83                     | 0.43              |
| 1:1A:53:C:H2'      | 1:1A:54:G:C8       | 2.52                     | 0.43              |
| 1:1A:106:A:H2'     | 1:1A:107:G:C8      | 2.53                     | 0.43              |
| 1:1A:420:A:O2'     | 1:1A:1331:C:O2'    | 2.31                     | 0.43              |
| 1:1A:425:U:H2'     | 1:1A:426:A:H8      | 1.84                     | 0.43              |
| 1:1A:1269:G:O6     | 1:1A:1270:A:N6     | 2.52                     | 0.43              |
| 1:1A:1759:G:N2     | 1:1A:1773:U:H3     | 2.16                     | 0.43              |
| 1:1A:1954:U:H2'    | 1:1A:1955:G:C8     | 2.54                     | 0.43              |
| 1:1A:3874:G:H2'    | 1:1A:3875:G:C8     | 2.53                     | 0.43              |
| 1:1A:4316:G:H2'    | 1:1A:4317:A:H8     | 1.84                     | 0.43              |
| 1:1A:4461:C:H2'    | 1:1A:4462:C:H6     | 1.83                     | 0.43              |
| 1:1A:4653:C:H5''   | 32:2X:79:ASN:HD22  | 1.84                     | 0.43              |
| 1:1A:4745:G:H22    | 1:1A:4954:G:H22    | 1.64                     | 0.43              |
| 1:1A:4745:G:N2     | 1:1A:4954:G:H22    | 2.16                     | 0.43              |
| 1:1A:4776:G:N3     | 1:1A:4860:G:N2     | 2.56                     | 0.43              |
| 1:1A:5055:G:H2'    | 1:1A:5056:A:C8     | 2.52                     | 0.43              |
| 8:1H:223:ARG:HA    | 8:1H:224:LYS:HA    | 1.79                     | 0.43              |
| 16:2H:151:ILE:H    | 16:2H:151:ILE:HG13 | 1.66                     | 0.43              |
| 24:2P:132:ILE:O    | 24:2P:136:ALA:N    | 2.52                     | 0.43              |
| 44:2j:70:THR:HG22  | 44:2j:72:ASN:H     | 1.83                     | 0.43              |
| 47:2m:373:G:H4'    | 56:2v:85:THR:HG21  | 2.01                     | 0.43              |
| 47:2m:1198:G:H2'   | 47:2m:1199:A:C8    | 2.53                     | 0.43              |
| 47:2m:1228:A:H2'   | 47:2m:1229:G:C8    | 2.52                     | 0.43              |
| 47:2m:1800:A:H3'   | 47:2m:1801:A:H8    | 1.82                     | 0.43              |
| 51:2q:19:MET:SD    | 51:2q:108:ARG:NH1  | 2.90                     | 0.43              |
| 68:3F:195:LEU:HA   | 68:3F:211:GLY:HA2  | 2.00                     | 0.43              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 71:3I:4:ALA:HB1    | 71:3I:5:ARG:HG3    | 2.00                     | 0.43              |
| 78:3P:23:ARG:NH1   | 78:3P:27:SER:O     | 2.51                     | 0.43              |
| 1:1A:149:A:H5''    | 1:1A:151:G:H5'     | 2.00                     | 0.43              |
| 1:1A:287:U:H2'     | 1:1A:288:G:C8      | 2.53                     | 0.43              |
| 1:1A:4208:U:OP1    | 1:1A:4334:U:O2'    | 2.30                     | 0.43              |
| 3:1C:58:G:N7       | 38:2d:63:ARG:NH2   | 2.67                     | 0.43              |
| 8:1H:107:VAL:HG13  | 8:1H:108:LYS:HB3   | 2.00                     | 0.43              |
| 20:2L:105:LEU:HD23 | 20:2L:138:LEU:HD23 | 2.00                     | 0.43              |
| 25:2Q:73:ARG:NH2   | 47:2m:1781:A:OP2   | 2.52                     | 0.43              |
| 47:2m:180:G:O2'    | 47:2m:181:A:N3     | 2.49                     | 0.43              |
| 47:2m:432:G:H2'    | 47:2m:433:A:C8     | 2.54                     | 0.43              |
| 47:2m:562:U:H2'    | 47:2m:563:G:C8     | 2.54                     | 0.43              |
| 47:2m:844:U:H2'    | 47:2m:845:G:H8     | 1.82                     | 0.43              |
| 47:2m:1309:C:O5'   | 80:3R:118:ARG:NH1  | 2.52                     | 0.43              |
| 51:2q:47:PHE:HD2   | 51:2q:48:LEU:HD12  | 1.82                     | 0.43              |
| 52:2r:127:ARG:NE   | 66:3D:68:LEU:O     | 2.51                     | 0.43              |
| 56:2v:77:VAL:HA    | 56:2v:88:ILE:HG22  | 2.00                     | 0.43              |
| 68:3F:196:ASN:N    | 68:3F:210:GLY:O    | 2.48                     | 0.43              |
| 70:3H:14:LYS:HB3   | 70:3H:124:LEU:HD21 | 2.00                     | 0.43              |
| 70:3H:77:LEU:HD13  | 70:3H:84:TYR:HB2   | 2.00                     | 0.43              |
| 74:3L:62:VAL:HG11  | 74:3L:67:ASP:HB2   | 2.01                     | 0.43              |
| 1:1A:1495:G:O3'    | 19:2K:187:LYS:NZ   | 2.47                     | 0.43              |
| 1:1A:1895:G:O3'    | 9:2A:223:LYS:NZ    | 2.50                     | 0.43              |
| 1:1A:2307:A:H5'    | 33:2Y:102:ASN:HD22 | 1.83                     | 0.43              |
| 1:1A:2385:U:H2'    | 1:1A:2386:U:C6     | 2.53                     | 0.43              |
| 1:1A:2442:G:OP1    | 35:2a:9:ARG:NH1    | 2.51                     | 0.43              |
| 1:1A:4146:G:H2'    | 1:1A:4147:G:H8     | 1.82                     | 0.43              |
| 16:2H:116:LEU:HD22 | 16:2H:135:ILE:HD11 | 2.00                     | 0.43              |
| 19:2K:10:ASP:OD1   | 19:2K:11:ARG:N     | 2.51                     | 0.43              |
| 47:2m:464:A:H3'    | 47:2m:465:A:H8     | 1.84                     | 0.43              |
| 47:2m:615:C:H2'    | 47:2m:616:A:C8     | 2.53                     | 0.43              |
| 47:2m:1179:G:N2    | 47:2m:1181:A:H5''  | 2.33                     | 0.43              |
| 47:2m:1780:G:H3'   | 47:2m:1781:A:C8    | 2.53                     | 0.43              |
| 48:2n:198:MET:HG3  | 48:2n:200:ASP:H    | 1.83                     | 0.43              |
| 51:2q:207:VAL:HG22 | 51:2q:221:ARG:HD3  | 2.00                     | 0.43              |
| 53:2s:158:LEU:HD12 | 53:2s:189:PHE:HE1  | 1.82                     | 0.43              |
| 54:2t:6:ASP:OD2    | 54:2t:8:TRP:NE1    | 2.52                     | 0.43              |
| 57:2w:64:LYS:HA    | 57:2w:67:ALA:HB3   | 2.01                     | 0.43              |
| 75:3M:6:VAL:HG13   | 75:3M:29:PRO:HG2   | 2.00                     | 0.43              |
| 1:1A:405:U:OP1     | 27:2S:87:ARG:NH1   | 2.48                     | 0.43              |
| 1:1A:676:C:H2'     | 1:1A:677:G:H8      | 1.84                     | 0.43              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:1950:U:H2'   | 1:1A:1951:G:H8     | 1.83                     | 0.43              |
| 1:1A:2452:G:N2    | 1:1A:2507:A:H62    | 2.16                     | 0.43              |
| 1:1A:3650:C:H2'   | 1:1A:3651:A:C8     | 2.54                     | 0.43              |
| 2:1B:57:C:H2'     | 2:1B:58:A:H8       | 1.84                     | 0.43              |
| 12:2D:20:SER:N    | 12:2D:23:CYS:SG    | 2.91                     | 0.43              |
| 15:2G:6:PHE:O     | 15:2G:11:ARG:NE    | 2.52                     | 0.43              |
| 16:2H:64:ILE:HD11 | 16:2H:102:ALA:HB1  | 2.01                     | 0.43              |
| 20:2L:67:THR:HG22 | 20:2L:70:ARG:HD2   | 2.01                     | 0.43              |
| 47:2m:508:A:H3'   | 47:2m:509:G:H8     | 1.83                     | 0.43              |
| 47:2m:1232:U:H2'  | 47:2m:1233:G:C8    | 2.51                     | 0.43              |
| 51:2q:180:LEU:H   | 51:2q:231:GLY:HA2  | 1.83                     | 0.43              |
| 52:2r:140:ASP:HB2 | 66:3D:63:ARG:HH22  | 1.83                     | 0.43              |
| 68:3F:48:ASP:OD2  | 68:3F:51:ASN:ND2   | 2.51                     | 0.43              |
| 1:1A:150:U:O2'    | 16:2H:41:ARG:NH2   | 2.49                     | 0.43              |
| 1:1A:199:G:OP2    | 27:2S:45:ARG:NH1   | 2.51                     | 0.43              |
| 1:1A:351:C:OP2    | 6:1F:197:ARG:NH2   | 2.51                     | 0.43              |
| 1:1A:1086:C:H2'   | 1:1A:1087:A:C8     | 2.53                     | 0.43              |
| 1:1A:1338:G:OP2   | 29:2U:12:ARG:NH1   | 2.48                     | 0.43              |
| 1:1A:1545:G:H2'   | 1:1A:1546:C:C6     | 2.54                     | 0.43              |
| 1:1A:3723:A:H2'   | 1:1A:3724:A:H8     | 1.82                     | 0.43              |
| 5:1E:245:HIS:CD2  | 5:1E:246:ARG:HG3   | 2.54                     | 0.43              |
| 5:1E:295:ASP:HA   | 5:1E:296:GLY:HA2   | 1.88                     | 0.43              |
| 47:2m:14:C:OP1    | 69:3G:190:SER:OG   | 2.32                     | 0.43              |
| 47:2m:495:U:O2'   | 51:2q:27:PHE:O     | 2.33                     | 0.43              |
| 47:2m:1173:A:N6   | 47:2m:1187:G:H21   | 2.12                     | 0.43              |
| 50:2p:132:LYS:O   | 50:2p:156:LEU:N    | 2.50                     | 0.43              |
| 63:3A:59:ILE:HG23 | 63:3A:64:GLU:HB3   | 2.00                     | 0.43              |
| 68:3F:56:GLN:HG3  | 68:3F:57:ARG:H     | 1.84                     | 0.43              |
| 68:3F:206:LEU:HB3 | 68:3F:218:LEU:HD23 | 2.01                     | 0.43              |
| 73:3K:34:LYS:HE2  | 73:3K:74:ILE:HD11  | 2.01                     | 0.43              |
| 1:1A:452:A:H4'    | 1:1A:453:G:H5'     | 2.00                     | 0.43              |
| 1:1A:714:G:H2'    | 1:1A:715:G:H8      | 1.83                     | 0.43              |
| 1:1A:1327:C:H2'   | 1:1A:1328:G:C8     | 2.54                     | 0.43              |
| 1:1A:1754:U:H2'   | 1:1A:1755:C:C6     | 2.54                     | 0.43              |
| 1:1A:2079:G:H2'   | 1:1A:2080:U:C6     | 2.54                     | 0.43              |
| 1:1A:2308:A:H61   | 1:1A:2330:G:H1'    | 1.83                     | 0.43              |
| 1:1A:3723:A:OP2   | 37:2c:68:ARG:NH1   | 2.38                     | 0.43              |
| 1:1A:3844:U:H2'   | 1:1A:3845:A:C8     | 2.53                     | 0.43              |
| 1:1A:4297:G:H2'   | 1:1A:4298:A:H8     | 1.84                     | 0.43              |
| 1:1A:4577:U:H2'   | 1:1A:4578:G:H8     | 1.84                     | 0.43              |
| 5:1E:105:VAL:HG11 | 5:1E:150:PHE:HZ    | 1.84                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 6:1F:7:LEU:O      | 45:2k:71:ARG:NH1  | 2.48                     | 0.43              |
| 10:2B:33:GLU:OE1  | 28:2T:128:LYS:NZ  | 2.42                     | 0.43              |
| 25:2Q:106:GLU:HA  | 25:2Q:109:ILE:HB  | 2.00                     | 0.43              |
| 25:2Q:113:LYS:O   | 25:2Q:117:LYS:HG2 | 2.19                     | 0.43              |
| 47:2m:551:U:H2'   | 47:2m:552:G:C8    | 2.54                     | 0.43              |
| 61:20:4:VAL:HG11  | 61:20:139:ALA:HB2 | 1.99                     | 0.43              |
| 65:3C:22:ARG:HD2  | 65:3C:27:ALA:HB1  | 2.00                     | 0.43              |
| 70:3H:149:LYS:HG3 | 70:3H:151:ASP:H   | 1.83                     | 0.43              |
| 83:zu:68:A:H2'    | 83:zu:69:G:H8     | 1.84                     | 0.43              |
| 1:1A:951:G:H2'    | 1:1A:952:G:C8     | 2.53                     | 0.42              |
| 1:1A:1725:U:H2'   | 1:1A:1726:U:H6    | 1.83                     | 0.42              |
| 1:1A:2838:G:H5'   | 5:1E:247:GLY:HA2  | 2.00                     | 0.42              |
| 1:1A:3918:G:C6    | 1:1A:4384:U:N3    | 2.80                     | 0.42              |
| 1:1A:4396:A:OP1   | 1:1A:4443:C:O2'   | 2.33                     | 0.42              |
| 1:1A:4601:U:H2'   | 1:1A:4602:A:C8    | 2.53                     | 0.42              |
| 2:1B:46:C:OP1     | 7:1G:158:LYS:N    | 2.47                     | 0.42              |
| 8:1H:72:LYS:HG3   | 30:2V:119:CYS:HB2 | 2.00                     | 0.42              |
| 9:2A:224:THR:OG1  | 9:2A:225:THR:N    | 2.51                     | 0.42              |
| 16:2H:61:ILE:HG22 | 16:2H:133:ILE:HA  | 2.01                     | 0.42              |
| 44:2j:49:ARG:HB2  | 44:2j:55:TRP:CZ3  | 2.54                     | 0.42              |
| 47:2m:431:G:H2'   | 47:2m:432:G:H8    | 1.84                     | 0.42              |
| 49:2o:123:ALA:HB2 | 49:2o:165:ARG:HB2 | 2.01                     | 0.42              |
| 58:2x:34:VAL:HG22 | 58:2x:70:VAL:HB   | 2.01                     | 0.42              |
| 68:3F:57:ARG:NH1  | 68:3F:94:THR:O    | 2.48                     | 0.42              |
| 83:zu:66:C:H2'    | 83:zu:67:G:C8     | 2.54                     | 0.42              |
| 1:1A:11:G:H2'     | 1:1A:12:A:C8      | 2.54                     | 0.42              |
| 1:1A:20:U:OP2     | 3:1C:36:G:N2      | 2.53                     | 0.42              |
| 1:1A:719:C:H2'    | 1:1A:720:G:C8     | 2.54                     | 0.42              |
| 1:1A:964:A:H2'    | 1:1A:965:G:H4'    | 2.01                     | 0.42              |
| 1:1A:1359:G:H4'   | 16:2H:203:TYR:HB2 | 2.00                     | 0.42              |
| 1:1A:1461:C:H2'   | 1:1A:1462:A:H8    | 1.84                     | 0.42              |
| 1:1A:1683:U:H2'   | 1:1A:1684:A:C8    | 2.54                     | 0.42              |
| 1:1A:2893:U:H2'   | 1:1A:2894:A:H8    | 1.84                     | 0.42              |
| 1:1A:2897:G:H2'   | 1:1A:2898:G:C8    | 2.54                     | 0.42              |
| 8:1H:44:CYS:SG    | 8:1H:46:ARG:NH2   | 2.92                     | 0.42              |
| 8:1H:98:GLY:HA3   | 8:1H:99:ASP:HA    | 1.82                     | 0.42              |
| 10:2B:100:HIS:O   | 10:2B:103:ARG:NH1 | 2.52                     | 0.42              |
| 20:2L:134:ASN:OD1 | 20:2L:134:ASN:N   | 2.51                     | 0.42              |
| 33:2Y:115:ALA:O   | 33:2Y:119:ALA:N   | 2.51                     | 0.42              |
| 47:2m:380:G:OP1   | 54:2t:56:ARG:NH2  | 2.51                     | 0.42              |
| 47:2m:750:C:H3'   | 47:2m:751:G:H4'   | 2.01                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 50:2p:212:GLU:O   | 59:2y:20:TYR:OH   | 2.35                     | 0.42              |
| 53:2s:5:SER:HA    | 53:2s:21:SER:HB2  | 2.00                     | 0.42              |
| 53:2s:79:LEU:HD23 | 53:2s:94:PHE:HE2  | 1.84                     | 0.42              |
| 56:2v:4:ILE:HG23  | 56:2v:5:GLN:HG2   | 2.01                     | 0.42              |
| 68:3F:216:ALA:HB3 | 68:3F:230:LEU:H   | 1.84                     | 0.42              |
| 70:3H:130:PRO:HA  | 70:3H:131:ARG:HA  | 1.80                     | 0.42              |
| 1:1A:92:C:H41     | 43:2i:40:ARG:HH12 | 1.67                     | 0.42              |
| 1:1A:512:U:C4     | 1:1A:647:G:O6     | 2.73                     | 0.42              |
| 1:1A:1569:U:H2'   | 1:1A:1570:G:H8    | 1.85                     | 0.42              |
| 1:1A:1741:G:O6    | 2:1B:103:A:O2'    | 2.27                     | 0.42              |
| 1:1A:2290:C:H2'   | 1:1A:2291:G:H8    | 1.84                     | 0.42              |
| 1:1A:2375:A:H2'   | 1:1A:2376:A:H8    | 1.85                     | 0.42              |
| 1:1A:3855:C:H4'   | 18:2J:83:TRP:HZ3  | 1.84                     | 0.42              |
| 1:1A:4940:C:C2    | 8:1H:219:LYS:HA   | 2.54                     | 0.42              |
| 3:1C:74:U:O4      | 27:2S:72:GLN:NE2  | 2.43                     | 0.42              |
| 4:1D:38:HIS:HA    | 4:1D:92:LYS:HE2   | 2.00                     | 0.42              |
| 4:1D:112:ILE:HG22 | 4:1D:135:THR:HG22 | 2.00                     | 0.42              |
| 17:2I:28:LEU:HD13 | 17:2I:94:ARG:HH12 | 1.84                     | 0.42              |
| 20:2L:59:SER:OG   | 20:2L:60:ARG:N    | 2.51                     | 0.42              |
| 39:2e:32:VAL:HG21 | 39:2e:50:LYS:HE3  | 2.02                     | 0.42              |
| 47:2m:885:U:O2    | 47:2m:901:G:N1    | 2.52                     | 0.42              |
| 49:2o:70:SER:HA   | 49:2o:83:LYS:HA   | 2.02                     | 0.42              |
| 51:2q:18:TRP:HE1  | 51:2q:42:LEU:HA   | 1.82                     | 0.42              |
| 60:2z:23:ARG:HD2  | 77:3O:48:VAL:HG11 | 2.01                     | 0.42              |
| 68:3F:185:LYS:HG2 | 68:3F:186:THR:H   | 1.84                     | 0.42              |
| 71:3I:91:LYS:HD3  | 71:3I:96:TYR:HD2  | 1.84                     | 0.42              |
| 77:3O:72:VAL:O    | 77:3O:76:ARG:HB2  | 2.18                     | 0.42              |
| 1:1A:175:C:H2'    | 1:1A:176:G:C8     | 2.54                     | 0.42              |
| 1:1A:399:G:N2     | 18:2J:101:ASN:OD1 | 2.49                     | 0.42              |
| 1:1A:921:C:H2'    | 1:1A:922:C:C6     | 2.54                     | 0.42              |
| 1:1A:2276:A:OP1   | 9:2A:166:ARG:NH1  | 2.47                     | 0.42              |
| 1:1A:3667:C:H4'   | 4:1D:8:GLN:HA     | 2.01                     | 0.42              |
| 1:1A:4321:U:H2'   | 1:1A:4322:G:C8    | 2.54                     | 0.42              |
| 8:1H:109:LEU:HA   | 8:1H:109:LEU:HD23 | 1.77                     | 0.42              |
| 29:2U:103:VAL:HB  | 29:2U:108:TYR:HB2 | 2.00                     | 0.42              |
| 38:2d:67:LEU:HA   | 38:2d:70:VAL:HG12 | 2.00                     | 0.42              |
| 46:2l:160:LYS:HG2 | 46:2l:161:LYS:H   | 1.84                     | 0.42              |
| 47:2m:164:A:H3'   | 47:2m:165:G:H21   | 1.84                     | 0.42              |
| 47:2m:828:G:H21   | 47:2m:830:A:H1'   | 1.84                     | 0.42              |
| 47:2m:1598:G:H5'  | 77:3O:80:ARG:HD3  | 2.01                     | 0.42              |
| 54:2t:36:THR:OG1  | 54:2t:96:LEU:O    | 2.38                     | 0.42              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 59:2y:58:MET:HG3   | 59:2y:61:ILE:HD11  | 2.01                     | 0.42              |
| 60:2z:7:GLU:HG2    | 60:2z:8:LYS:H      | 1.84                     | 0.42              |
| 62:21:47:ASN:HB3   | 62:21:48:LEU:H     | 1.65                     | 0.42              |
| 65:3C:33:ASP:OD1   | 65:3C:33:ASP:N     | 2.52                     | 0.42              |
| 74:3L:99:ALA:H     | 74:3L:133:THR:HB   | 1.85                     | 0.42              |
| 1:1A:239:C:H2'     | 1:1A:240:G:C8      | 2.53                     | 0.42              |
| 1:1A:262:G:H2'     | 1:1A:263:G:H8      | 1.84                     | 0.42              |
| 1:1A:284:G:H1'     | 37:2c:78:GLY:HA3   | 2.02                     | 0.42              |
| 1:1A:722:G:H2'     | 1:1A:723:A:C8      | 2.55                     | 0.42              |
| 1:1A:1315:C:N4     | 1:1A:1316:G:O6     | 2.52                     | 0.42              |
| 1:1A:2081:C:H2'    | 1:1A:2082:G:C8     | 2.54                     | 0.42              |
| 1:1A:2541:G:H2'    | 1:1A:2542:G:C8     | 2.54                     | 0.42              |
| 1:1A:2848:G:H5'    | 24:2P:24:ALA:HA    | 2.02                     | 0.42              |
| 1:1A:3937:C:H2'    | 1:1A:3938:G:N2     | 2.34                     | 0.42              |
| 1:1A:3969:G:H2'    | 1:1A:4052:C:H42    | 1.84                     | 0.42              |
| 1:1A:4954:G:H2'    | 1:1A:4955:A:H8     | 1.84                     | 0.42              |
| 16:2H:169:ARG:HB2  | 16:2H:174:LEU:HD11 | 2.00                     | 0.42              |
| 40:2f:38:ASN:HB3   | 40:2f:41:ARG:HB2   | 2.00                     | 0.42              |
| 46:2l:55:LEU:HD11  | 46:2l:185:LEU:H    | 1.84                     | 0.42              |
| 47:2m:1535:U:O4    | 52:2r:159:ARG:NE   | 2.51                     | 0.42              |
| 50:2p:58:VAL:HG23  | 50:2p:59:LEU:HD12  | 2.01                     | 0.42              |
| 54:2t:123:ARG:HG2  | 54:2t:129:LEU:HD13 | 2.01                     | 0.42              |
| 72:3J:69:LEU:HG    | 72:3J:74:ILE:HB    | 2.00                     | 0.42              |
| 1:1A:490:C:H2'     | 1:1A:491:G:C8      | 2.54                     | 0.42              |
| 1:1A:1800:U:H2'    | 1:1A:1801:A:H8     | 1.84                     | 0.42              |
| 1:1A:2081:C:H2'    | 1:1A:2082:G:H8     | 1.84                     | 0.42              |
| 1:1A:2865:U:H1'    | 20:2L:78:ILE:HD11  | 2.01                     | 0.42              |
| 3:1C:40:A:OP2      | 3:1C:102:G:N1      | 2.47                     | 0.42              |
| 20:2L:176:ARG:HH12 | 47:2m:909:G:H5'    | 1.84                     | 0.42              |
| 22:2N:53:PRO:HB3   | 22:2N:91:VAL:HG22  | 2.01                     | 0.42              |
| 29:2U:85:GLN:HA    | 29:2U:88:VAL:HB    | 2.02                     | 0.42              |
| 47:2m:591:U:OP1    | 47:2m:593:C:N4     | 2.52                     | 0.42              |
| 47:2m:1687:C:H2'   | 47:2m:1688:C:H6    | 1.84                     | 0.42              |
| 47:2m:1746:U:O4    | 47:2m:1789:G:N2    | 2.53                     | 0.42              |
| 49:2o:137:LEU:HD11 | 49:2o:176:VAL:HG21 | 2.02                     | 0.42              |
| 56:2v:72:ILE:HG13  | 56:2v:129:GLY:HA2  | 2.02                     | 0.42              |
| 68:3F:27:PHE:HE2   | 68:3F:75:GLY:HA3   | 1.84                     | 0.42              |
| 68:3F:242:SER:HB2  | 68:3F:247:TRP:HB2  | 2.01                     | 0.42              |
| 69:3G:278:THR:HA   | 69:3G:279:ARG:HA   | 1.65                     | 0.42              |
| 1:1A:159:C:O2      | 14:2F:88:LYS:NZ    | 2.37                     | 0.42              |
| 1:1A:164:G:H2'     | 1:1A:165:A:H8      | 1.83                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:188:G:N2     | 1:1A:189:G:O6      | 2.52                     | 0.42              |
| 1:1A:1595:G:H1'   | 1:1A:1597:G:H21    | 1.83                     | 0.42              |
| 1:1A:1662:C:H2'   | 1:1A:1663:C:H6     | 1.84                     | 0.42              |
| 1:1A:2490:U:H5''  | 1:1A:2491:C:C4     | 2.55                     | 0.42              |
| 1:1A:2624:G:O6    | 23:2O:88:LYS:NZ    | 2.52                     | 0.42              |
| 1:1A:4277:G:OP1   | 22:2N:16:SER:OG    | 2.34                     | 0.42              |
| 1:1A:4580:U:O2'   | 5:1E:182:GLU:OE2   | 2.32                     | 0.42              |
| 1:1A:4633:G:N1    | 1:1A:4664:A:OP2    | 2.47                     | 0.42              |
| 1:1A:4678:G:N2    | 1:1A:4713:G:H1'    | 2.35                     | 0.42              |
| 5:1E:43:LEU:HD23  | 5:1E:183:ILE:HG21  | 2.02                     | 0.42              |
| 5:1E:240:LEU:HD21 | 5:1E:252:ALA:HB2   | 2.01                     | 0.42              |
| 14:2F:42:LYS:O    | 14:2F:46:ILE:HG12  | 2.19                     | 0.42              |
| 15:2G:82:ILE:O    | 15:2G:86:TRP:N     | 2.50                     | 0.42              |
| 24:2P:89:ARG:HG2  | 24:2P:91:LYS:H     | 1.85                     | 0.42              |
| 27:2S:22:PRO:HD2  | 27:2S:25:ILE:HD12  | 2.01                     | 0.42              |
| 27:2S:83:GLU:O    | 27:2S:86:GLN:NE2   | 2.35                     | 0.42              |
| 29:2U:82:VAL:HG11 | 29:2U:101:ILE:HG12 | 2.01                     | 0.42              |
| 47:2m:49:C:H2'    | 47:2m:472:C:H41    | 1.85                     | 0.42              |
| 47:2m:388:U:H2'   | 47:2m:389:A:C8     | 2.53                     | 0.42              |
| 47:2m:873:G:H2'   | 47:2m:874:G:C8     | 2.55                     | 0.42              |
| 47:2m:1215:C:O2'  | 47:2m:1645:C:OP2   | 2.38                     | 0.42              |
| 47:2m:1428:G:H2'  | 47:2m:1429:G:H8    | 1.84                     | 0.42              |
| 47:2m:1597:C:O2'  | 47:2m:1598:G:O4'   | 2.37                     | 0.42              |
| 58:2x:47:LEU:HB3  | 58:2x:50:LYS:HE3   | 2.01                     | 0.42              |
| 1:1A:1798:G:H2'   | 1:1A:1799:G:H8     | 1.84                     | 0.42              |
| 1:1A:3640:U:H3'   | 1:1A:3646:A:N6     | 2.35                     | 0.42              |
| 1:1A:4196:G:H2'   | 1:1A:4197:G:C8     | 2.54                     | 0.42              |
| 1:1A:4260:U:H2'   | 1:1A:4261:C:C6     | 2.55                     | 0.42              |
| 1:1A:4493:U:H2'   | 1:1A:4494:G:H8     | 1.85                     | 0.42              |
| 1:1A:4723:A:H2'   | 1:1A:4724:A:C8     | 2.54                     | 0.42              |
| 6:1F:71:ARG:HG2   | 82:zx:6:LEU:HD22   | 2.02                     | 0.42              |
| 9:2A:25:PHE:HB3   | 9:2A:26:ALA:H      | 1.70                     | 0.42              |
| 10:2B:159:HIS:CD2 | 10:2B:185:LYS:HA   | 2.54                     | 0.42              |
| 32:2X:65:ASP:OD1  | 32:2X:66:THR:N     | 2.53                     | 0.42              |
| 43:2i:75:PRO:HA   | 43:2i:78:ARG:HE    | 1.84                     | 0.42              |
| 47:2m:429:C:H2'   | 47:2m:430:C:C6     | 2.55                     | 0.42              |
| 47:2m:1277:C:H2'  | 47:2m:1278:A:H8    | 1.84                     | 0.42              |
| 47:2m:1648:G:N2   | 47:2m:1649:U:O4    | 2.52                     | 0.42              |
| 47:2m:1736:G:H2'  | 47:2m:1737:G:C8    | 2.55                     | 0.42              |
| 49:2o:30:TRP:CE2  | 49:2o:48:LEU:HD13  | 2.54                     | 0.42              |
| 49:2o:102:GLY:HA2 | 49:2o:215:VAL:HG23 | 2.01                     | 0.42              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 61:20:104:LEU:HD13 | 61:20:121:ARG:HD2 | 2.01                     | 0.42              |
| 62:21:49:LYS:HG2   | 62:21:92:HIS:NE2  | 2.34                     | 0.42              |
| 69:3G:166:ARG:HG2  | 69:3G:181:PRO:HG3 | 2.01                     | 0.42              |
| 75:3M:3:ARG:HH22   | 75:3M:28:ARG:NH2  | 2.18                     | 0.42              |
| 1:1A:138:G:H2'     | 1:1A:139:G:C8     | 2.49                     | 0.42              |
| 1:1A:440:U:H2'     | 1:1A:441:G:C8     | 2.55                     | 0.42              |
| 1:1A:1310:C:H2'    | 1:1A:1311:G:C8    | 2.53                     | 0.42              |
| 1:1A:1367:C:O2'    | 1:1A:1369:C:OP2   | 2.37                     | 0.42              |
| 1:1A:1500:A:H5''   | 1:1A:1501:C:H5''  | 2.02                     | 0.42              |
| 1:1A:1734:G:N2     | 1:1A:1735:U:O4    | 2.49                     | 0.42              |
| 1:1A:1857:C:H2'    | 1:1A:1858:A:H8    | 1.84                     | 0.42              |
| 1:1A:2399:G:H2'    | 1:1A:2400:G:H8    | 1.84                     | 0.42              |
| 1:1A:2706:G:H21    | 1:1A:2709:C:P     | 2.40                     | 0.42              |
| 1:1A:3610:A:H2'    | 1:1A:3611:A:C8    | 2.53                     | 0.42              |
| 1:1A:3886:G:OP2    | 17:2I:90:HIS:NE2  | 2.51                     | 0.42              |
| 1:1A:3917:A:H2'    | 1:1A:3918:G:C8    | 2.55                     | 0.42              |
| 1:1A:4882:U:OP2    | 15:2G:121:ARG:NH1 | 2.53                     | 0.42              |
| 2:1B:36:C:H2'      | 2:1B:37:G:H8      | 1.83                     | 0.42              |
| 6:1F:205:ARG:HB3   | 6:1F:248:ARG:HH22 | 1.84                     | 0.42              |
| 6:1F:303:ARG:O     | 19:2K:38:ARG:NH2  | 2.42                     | 0.42              |
| 14:2F:203:ALA:HA   | 14:2F:206:ASP:HB2 | 2.00                     | 0.42              |
| 26:2R:87:MET:HA    | 26:2R:90:ILE:HD12 | 2.02                     | 0.42              |
| 29:2U:45:PHE:HD1   | 29:2U:45:PHE:HA   | 1.66                     | 0.42              |
| 39:2e:40:ARG:NH1   | 39:2e:41:TYR:OH   | 2.53                     | 0.42              |
| 47:2m:1117:C:H2'   | 47:2m:1118:C:C6   | 2.55                     | 0.42              |
| 47:2m:1401:A:H2'   | 47:2m:1402:A:C8   | 2.55                     | 0.42              |
| 51:2q:125:LYS:O    | 51:2q:142:HIS:N   | 2.53                     | 0.42              |
| 83:zy:22:G:H2'     | 83:zy:23:A:C8     | 2.55                     | 0.42              |
| 1:1A:216:C:OP2     | 1:1A:219:G:O2'    | 2.34                     | 0.42              |
| 1:1A:262:G:H2'     | 1:1A:263:G:C8     | 2.55                     | 0.42              |
| 1:1A:970:G:OP1     | 8:1H:123:ARG:NH1  | 2.53                     | 0.42              |
| 1:1A:1723:A:O3'    | 9:2A:107:LYS:NZ   | 2.52                     | 0.42              |
| 1:1A:1725:U:H2'    | 1:1A:1726:U:C6    | 2.54                     | 0.42              |
| 1:1A:1885:G:OP1    | 33:2Y:50:LYS:NZ   | 2.36                     | 0.42              |
| 1:1A:1901:C:H2'    | 1:1A:1902:G:H8    | 1.84                     | 0.42              |
| 1:1A:3839:G:N2     | 1:1A:3843:C:O2'   | 2.53                     | 0.42              |
| 1:1A:4488:A:H4'    | 1:1A:4489:G:H5'   | 2.02                     | 0.42              |
| 1:1A:4883:C:H4'    | 1:1A:4884:G:H4'   | 2.02                     | 0.42              |
| 2:1B:59:G:H2'      | 2:1B:60:G:H8      | 1.84                     | 0.42              |
| 6:1F:316:LYS:HB2   | 6:1F:324:ILE:HG13 | 2.01                     | 0.42              |
| 6:1F:317:ASN:HD21  | 6:1F:320:LYS:HD2  | 1.85                     | 0.42              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 34:2Z:56:ASN:HB3  | 34:2Z:64:PRO:HB3   | 2.01                     | 0.42              |
| 47:2m:878:G:O6    | 47:2m:907:G:N1     | 2.53                     | 0.42              |
| 47:2m:1049:A:N7   | 47:2m:1069:U:O2    | 2.52                     | 0.42              |
| 47:2m:1408:U:H3   | 47:2m:1442:U:H3    | 1.68                     | 0.42              |
| 47:2m:1461:G:O2'  | 47:2m:1464:C:N4    | 2.51                     | 0.42              |
| 67:3E:6:LEU:HA    | 67:3E:7:TYR:HA     | 1.75                     | 0.42              |
| 1:1A:1308:C:H2'   | 1:1A:1309:C:C6     | 2.54                     | 0.41              |
| 1:1A:1341:U:H2'   | 1:1A:1342:A:C8     | 2.55                     | 0.41              |
| 1:1A:1772:C:H2'   | 1:1A:1773:U:H6     | 1.85                     | 0.41              |
| 1:1A:3927:U:H2'   | 1:1A:3928:A:C8     | 2.54                     | 0.41              |
| 1:1A:4084:G:O6    | 4:1D:72:ARG:NH2    | 2.52                     | 0.41              |
| 1:1A:4099:G:HO2'  | 1:1A:4111:U:H3     | 1.66                     | 0.41              |
| 1:1A:4122:G:O6    | 35:2a:101:LYS:NZ   | 2.53                     | 0.41              |
| 5:1E:89:ILE:H     | 5:1E:89:ILE:HG13   | 1.75                     | 0.41              |
| 47:2m:404:G:H2'   | 47:2m:405:G:H8     | 1.85                     | 0.41              |
| 47:2m:1174:U:H2'  | 47:2m:1175:G:H8    | 1.84                     | 0.41              |
| 50:2p:22:ASN:O    | 50:2p:26:THR:OG1   | 2.29                     | 0.41              |
| 53:2s:10:LYS:NZ   | 53:2s:17:ASP:OD1   | 2.51                     | 0.41              |
| 58:2x:24:HIS:HE1  | 58:2x:26:LYS:HG2   | 1.85                     | 0.41              |
| 61:20:96:SER:HB3  | 61:20:99:VAL:HG22  | 2.02                     | 0.41              |
| 68:3F:12:LYS:HZ3  | 68:3F:306:LEU:HB2  | 1.85                     | 0.41              |
| 68:3F:12:LYS:NZ   | 68:3F:304:ASP:O    | 2.51                     | 0.41              |
| 1:1A:161:G:H2'    | 1:1A:162:A:C8      | 2.55                     | 0.41              |
| 1:1A:444:G:H2'    | 1:1A:445:U:C6      | 2.56                     | 0.41              |
| 1:1A:1189:G:H2'   | 1:1A:1190:C:C6     | 2.55                     | 0.41              |
| 1:1A:2057:A:OP1   | 17:2I:128:ARG:NH1  | 2.53                     | 0.41              |
| 1:1A:2745:A:H2'   | 1:1A:2746:A:C8     | 2.56                     | 0.41              |
| 1:1A:4088:C:O2    | 10:2B:245:LYS:NZ   | 2.53                     | 0.41              |
| 3:1C:96:C:H2'     | 3:1C:97:A:C8       | 2.55                     | 0.41              |
| 7:1G:33:ARG:HA    | 7:1G:36:LEU:HG     | 2.02                     | 0.41              |
| 22:2N:79:GLN:HE22 | 22:2N:84:ILE:HD11  | 1.84                     | 0.41              |
| 25:2Q:124:LYS:HD3 | 47:2m:324:C:H6     | 1.85                     | 0.41              |
| 47:2m:128:U:H5'   | 47:2m:215:G:C4     | 2.55                     | 0.41              |
| 47:2m:696:G:N2    | 47:2m:737:G:O6     | 2.53                     | 0.41              |
| 47:2m:1404:U:N3   | 47:2m:1580:A:OP1   | 2.42                     | 0.41              |
| 47:2m:1464:C:H2'  | 47:2m:1465:A:C4    | 2.55                     | 0.41              |
| 47:2m:1496:U:H2'  | 47:2m:1497:G:H3'   | 2.01                     | 0.41              |
| 47:2m:1602:U:H4'  | 60:2z:24:ARG:HH22  | 1.85                     | 0.41              |
| 47:2m:1714:U:H2'  | 47:2m:1715:A:H8    | 1.85                     | 0.41              |
| 56:2v:59:LYS:HD3  | 56:2v:134:LEU:HD23 | 2.02                     | 0.41              |
| 60:2z:16:LEU:O    | 60:2z:18:THR:N     | 2.53                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 1:1A:347:A:H2'     | 1:1A:348:G:C8     | 2.55                     | 0.41              |
| 1:1A:710:G:H2'     | 1:1A:711:A:C8     | 2.55                     | 0.41              |
| 1:1A:1175:A:H2     | 1:1A:1185:G:H22   | 1.68                     | 0.41              |
| 1:1A:1399:G:H2'    | 1:1A:1400:G:C8    | 2.55                     | 0.41              |
| 1:1A:1460:C:H2'    | 1:1A:1461:C:H6    | 1.85                     | 0.41              |
| 1:1A:2105:A:H2'    | 1:1A:2106:G:C8    | 2.56                     | 0.41              |
| 1:1A:3878:C:N4     | 1:1A:4518:A:O4'   | 2.52                     | 0.41              |
| 1:1A:3924:C:H4'    | 43:2i:57:ARG:HH12 | 1.85                     | 0.41              |
| 1:1A:4906:C:H2'    | 1:1A:4907:G:C8    | 2.56                     | 0.41              |
| 4:1D:178:PRO:HD3   | 44:2j:25:MET:HE2  | 2.02                     | 0.41              |
| 27:2S:66:GLN:HE21  | 27:2S:84:ARG:HG2  | 1.85                     | 0.41              |
| 28:2T:35:ASP:OD1   | 28:2T:35:ASP:N    | 2.52                     | 0.41              |
| 28:2T:53:VAL:HG21  | 28:2T:62:ILE:HG13 | 2.01                     | 0.41              |
| 28:2T:83:THR:HG23  | 35:2a:95:PHE:HZ   | 1.85                     | 0.41              |
| 46:2l:8:ASP:N      | 46:2l:8:ASP:OD1   | 2.53                     | 0.41              |
| 47:2m:26:U:H2'     | 47:2m:27:A:H8     | 1.85                     | 0.41              |
| 47:2m:193:C:H41    | 54:2t:141:ARG:NH2 | 2.18                     | 0.41              |
| 47:2m:217:A:H1'    | 47:2m:309:G:N2    | 2.35                     | 0.41              |
| 47:2m:1602:U:O2'   | 60:2z:24:ARG:NH2  | 2.54                     | 0.41              |
| 49:2o:26:SER:O     | 49:2o:51:ARG:NH2  | 2.39                     | 0.41              |
| 52:2r:70:GLU:OE2   | 52:2r:74:ASN:ND2  | 2.48                     | 0.41              |
| 57:2w:77:LYS:HA    | 57:2w:78:THR:HA   | 1.49                     | 0.41              |
| 83:zy:21:U:H2'     | 83:zy:22:G:H8     | 1.85                     | 0.41              |
| 1:1A:75:G:C6       | 14:2F:102:ARG:HA  | 2.55                     | 0.41              |
| 1:1A:422:C:H2'     | 1:1A:423:G:C8     | 2.54                     | 0.41              |
| 1:1A:438:G:N2      | 34:2Z:23:GLU:OE2  | 2.49                     | 0.41              |
| 1:1A:1700:G:O5'    | 6:1F:306:ARG:NH2  | 2.53                     | 0.41              |
| 1:1A:2293:U:H2'    | 1:1A:2294:G:C8    | 2.54                     | 0.41              |
| 1:1A:3599:A:H2'    | 1:1A:3600:G:H8    | 1.86                     | 0.41              |
| 1:1A:3722:G:H2'    | 1:1A:3723:A:H8    | 1.85                     | 0.41              |
| 1:1A:4041:C:OP1    | 1:1A:4045:G:N1    | 2.53                     | 0.41              |
| 1:1A:4174:U:H2'    | 1:1A:4175:G:H8    | 1.85                     | 0.41              |
| 1:1A:4339:A:H2'    | 1:1A:4340:U:H6    | 1.84                     | 0.41              |
| 6:1F:184:TYR:HE1   | 6:1F:225:PRO:HG2  | 1.86                     | 0.41              |
| 6:1F:329:ASN:ND2   | 9:2A:188:GLU:OE2  | 2.53                     | 0.41              |
| 20:2L:185:ILE:HG13 | 20:2L:186:LYS:HD2 | 2.02                     | 0.41              |
| 33:2Y:36:ARG:HA    | 33:2Y:36:ARG:HD3  | 1.95                     | 0.41              |
| 47:2m:180:G:O2'    | 47:2m:181:A:H2'   | 2.21                     | 0.41              |
| 47:2m:1445:U:O2'   | 62:21:55:ARG:O    | 2.38                     | 0.41              |
| 48:2n:25:LEU:O     | 48:2n:164:ASN:ND2 | 2.53                     | 0.41              |
| 50:2p:173:ARG:HA   | 50:2p:173:ARG:HD3 | 1.92                     | 0.41              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 51:2q:248:ILE:H   | 51:2q:248:ILE:HG13 | 1.53                     | 0.41              |
| 53:2s:163:GLN:HG2 | 53:2s:189:PHE:CE2  | 2.56                     | 0.41              |
| 60:2z:71:MET:HG3  | 60:2z:99:LEU:HD22  | 2.03                     | 0.41              |
| 68:3F:12:LYS:O    | 68:3F:14:HIS:N     | 2.53                     | 0.41              |
| 68:3F:72:SER:OG   | 68:3F:73:SER:N     | 2.53                     | 0.41              |
| 1:1A:151:G:N7     | 10:2B:141:ASN:ND2  | 2.69                     | 0.41              |
| 1:1A:1633:G:C5    | 4:1D:207:VAL:HG21  | 2.56                     | 0.41              |
| 1:1A:1699:A:O3'   | 6:1F:306:ARG:NH1   | 2.54                     | 0.41              |
| 1:1A:1905:U:O2    | 9:2A:215:SER:OG    | 2.32                     | 0.41              |
| 2:1B:48:G:OP1     | 7:1G:94:ASN:ND2    | 2.54                     | 0.41              |
| 5:1E:200:ARG:HA   | 5:1E:203:GLN:HG3   | 2.03                     | 0.41              |
| 21:2M:160:ARG:HD3 | 21:2M:160:ARG:HA   | 1.89                     | 0.41              |
| 34:2Z:18:LEU:HD12 | 34:2Z:18:LEU:HA    | 1.95                     | 0.41              |
| 58:2x:130:LYS:HE2 | 58:2x:136:GLY:H    | 1.86                     | 0.41              |
| 68:3F:106:LYS:HG2 | 68:3F:107:ASP:H    | 1.85                     | 0.41              |
| 69:3G:94:ILE:HG12 | 69:3G:162:ILE:HG21 | 2.02                     | 0.41              |
| 80:3R:124:ASP:N   | 80:3R:124:ASP:OD1  | 2.52                     | 0.41              |
| 82:zx:13:SER:O    | 82:zx:16:THR:OG1   | 2.30                     | 0.41              |
| 1:1A:20:U:P       | 3:1C:36:G:H22      | 2.43                     | 0.41              |
| 1:1A:132:G:H3'    | 1:1A:133:C:H4'     | 2.01                     | 0.41              |
| 1:1A:251:C:H2'    | 1:1A:252:C:H6      | 1.84                     | 0.41              |
| 1:1A:1519:C:H2'   | 1:1A:1520:C:C6     | 2.55                     | 0.41              |
| 1:1A:1978:C:C4    | 1:1A:1979:A:H1'    | 2.55                     | 0.41              |
| 1:1A:2428:A:H8    | 40:2f:45:ARG:HH22  | 1.68                     | 0.41              |
| 1:1A:2812:A:H2'   | 1:1A:2813:A:C8     | 2.55                     | 0.41              |
| 1:1A:4482:U:H2'   | 1:1A:4483:C:H6     | 1.85                     | 0.41              |
| 1:1A:4577:U:H2'   | 1:1A:4578:G:C8     | 2.55                     | 0.41              |
| 2:1B:110:G:H2'    | 2:1B:111:C:H6      | 1.86                     | 0.41              |
| 6:1F:293:LEU:O    | 6:1F:299:GLN:NE2   | 2.39                     | 0.41              |
| 6:1F:348:LYS:HA   | 6:1F:351:VAL:HG12  | 2.02                     | 0.41              |
| 20:2L:173:ARG:HG2 | 20:2L:176:ARG:HH12 | 1.85                     | 0.41              |
| 27:2S:38:LEU:O    | 27:2S:42:TYR:N     | 2.44                     | 0.41              |
| 43:2i:23:VAL:HG12 | 43:2i:93:LEU:HD11  | 2.03                     | 0.41              |
| 47:2m:26:U:H2'    | 47:2m:27:A:C8      | 2.55                     | 0.41              |
| 47:2m:177:G:H21   | 47:2m:178:C:H41    | 1.67                     | 0.41              |
| 47:2m:525:A:H2'   | 47:2m:526:A:C8     | 2.51                     | 0.41              |
| 47:2m:1103:C:H2'  | 47:2m:1104:G:C8    | 2.55                     | 0.41              |
| 47:2m:1129:G:H5'  | 78:3P:19:HIS:CD2   | 2.55                     | 0.41              |
| 47:2m:1170:A:N6   | 47:2m:1189:A:OP2   | 2.53                     | 0.41              |
| 47:2m:1534:C:H4'  | 47:2m:1535:U:H5''  | 2.02                     | 0.41              |
| 50:2p:219:PRO:HB2 | 68:3F:192:THR:HA   | 2.02                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 54:2t:76:THR:HG22  | 54:2t:108:PRO:HG2  | 2.02                     | 0.41              |
| 54:2t:199:LEU:HD23 | 54:2t:199:LEU:HA   | 1.95                     | 0.41              |
| 68:3F:54:ILE:HD12  | 68:3F:55:PRO:HD2   | 2.03                     | 0.41              |
| 71:3I:7:TRP:HB3    | 71:3I:8:VAL:H      | 1.72                     | 0.41              |
| 1:1A:10:A:H2'      | 1:1A:11:G:H8       | 1.85                     | 0.41              |
| 1:1A:251:C:H2'     | 1:1A:252:C:C6      | 2.56                     | 0.41              |
| 1:1A:267:G:H2'     | 1:1A:268:G:H8      | 1.86                     | 0.41              |
| 1:1A:920:C:H2'     | 1:1A:921:C:C6      | 2.56                     | 0.41              |
| 1:1A:1098:G:H2'    | 1:1A:1099:C:C6     | 2.56                     | 0.41              |
| 1:1A:1461:C:H2'    | 1:1A:1462:A:C8     | 2.56                     | 0.41              |
| 1:1A:2340:C:H2'    | 1:1A:2341:A:C8     | 2.55                     | 0.41              |
| 1:1A:2361:G:OP1    | 18:2J:64:ASN:N     | 2.54                     | 0.41              |
| 1:1A:2670:C:H2'    | 1:1A:2671:C:H6     | 1.85                     | 0.41              |
| 1:1A:3944:G:H2'    | 1:1A:3945:A:H8     | 1.86                     | 0.41              |
| 1:1A:4260:U:H2'    | 1:1A:4261:C:H6     | 1.86                     | 0.41              |
| 1:1A:4978:G:OP1    | 5:1E:271:GLN:NE2   | 2.53                     | 0.41              |
| 1:1A:5018:C:H2'    | 1:1A:5019:A:H8     | 1.85                     | 0.41              |
| 5:1E:82:PRO:HG3    | 5:1E:171:LEU:HD11  | 2.01                     | 0.41              |
| 7:1G:156:GLY:N     | 7:1G:179:ARG:O     | 2.54                     | 0.41              |
| 8:1H:172:LEU:HD23  | 8:1H:188:ARG:HB3   | 2.03                     | 0.41              |
| 11:2C:129:ARG:HH21 | 11:2C:156:ASN:HD21 | 1.68                     | 0.41              |
| 47:2m:1324:G:H2'   | 47:2m:1325:G:C8    | 2.56                     | 0.41              |
| 51:2q:21:ASP:OD1   | 51:2q:21:ASP:N     | 2.50                     | 0.41              |
| 54:2t:65:PHE:HD2   | 54:2t:104:ILE:HD13 | 1.85                     | 0.41              |
| 73:3K:4:MET:HG2    | 73:3K:5:HIS:CD2    | 2.55                     | 0.41              |
| 1:1A:123:C:H2'     | 1:1A:124:C:C6      | 2.55                     | 0.41              |
| 1:1A:2547:G:H2'    | 1:1A:2548:C:C6     | 2.56                     | 0.41              |
| 1:1A:2548:C:H2'    | 1:1A:2549:G:C8     | 2.54                     | 0.41              |
| 1:1A:3870:C:O3'    | 5:1E:261:ARG:NH1   | 2.54                     | 0.41              |
| 3:1C:84:A:H8       | 3:1C:85:U:C2       | 2.39                     | 0.41              |
| 3:1C:132:G:H2'     | 3:1C:133:G:H8      | 1.86                     | 0.41              |
| 4:1D:89:TYR:N      | 4:1D:100:ASN:OD1   | 2.54                     | 0.41              |
| 4:1D:158:ILE:HD13  | 4:1D:158:ILE:HA    | 1.91                     | 0.41              |
| 6:1F:24:LEU:HD12   | 6:1F:25:PRO:HD2    | 2.02                     | 0.41              |
| 14:2F:202:ALA:O    | 14:2F:206:ASP:N    | 2.54                     | 0.41              |
| 28:2T:31:ASP:OD1   | 28:2T:31:ASP:N     | 2.52                     | 0.41              |
| 47:2m:434:G:H2'    | 47:2m:435:A:C8     | 2.56                     | 0.41              |
| 47:2m:617:G:OP2    | 64:3B:68:LYS:NZ    | 2.41                     | 0.41              |
| 47:2m:656:G:H8     | 47:2m:656:G:H5''   | 1.85                     | 0.41              |
| 47:2m:1758:G:N2    | 47:2m:1775:U:H3    | 2.19                     | 0.41              |
| 47:2m:1845:A:H2'   | 47:2m:1846:G:H8    | 1.86                     | 0.41              |

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| Atom-1             | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|--------------------|--------------------------|-------------------|
| 55:2u:59:LYS:HB3   | 55:2u:70:TYR:HB2   | 2.02                     | 0.41              |
| 68:3F:147:HIS:NE2  | 68:3F:169:GLY:HA3  | 2.36                     | 0.41              |
| 72:3J:24:THR:HG23  | 72:3J:115:GLY:HA3  | 2.03                     | 0.41              |
| 80:3R:97:LYS:HB2   | 80:3R:99:LYS:HG2   | 2.03                     | 0.41              |
| 1:1A:19:G:H2'      | 1:1A:20:U:C6       | 2.56                     | 0.41              |
| 1:1A:66:A:N6       | 1:1A:282:C:O2'     | 2.54                     | 0.41              |
| 1:1A:141:C:H2'     | 1:1A:142:G:C8      | 2.56                     | 0.41              |
| 1:1A:164:G:H2'     | 1:1A:165:A:C8      | 2.56                     | 0.41              |
| 1:1A:169:G:O2'     | 14:2F:135:LYS:NZ   | 2.49                     | 0.41              |
| 1:1A:418:A:OP2     | 3:1C:16:G:N2       | 2.54                     | 0.41              |
| 1:1A:699:C:H2'     | 1:1A:700:G:C8      | 2.55                     | 0.41              |
| 1:1A:725:G:H2'     | 1:1A:726:G:H8      | 1.86                     | 0.41              |
| 1:1A:949:G:H2'     | 1:1A:950:G:C8      | 2.56                     | 0.41              |
| 1:1A:1883:G:O2'    | 33:2Y:48:ARG:O     | 2.38                     | 0.41              |
| 1:1A:2476:G:H2'    | 1:1A:2477:A:C8     | 2.56                     | 0.41              |
| 1:1A:2610:G:H2'    | 1:1A:2611:A:C8     | 2.56                     | 0.41              |
| 1:1A:2669:C:HO2'   | 1:1A:2670:C:C5'    | 2.34                     | 0.41              |
| 1:1A:2832:A:H2'    | 1:1A:2833:A:H8     | 1.86                     | 0.41              |
| 1:1A:2907:G:H1'    | 1:1A:3589:G:H1     | 1.86                     | 0.41              |
| 1:1A:3733:A:H2'    | 1:1A:3734:U:O4'    | 2.20                     | 0.41              |
| 1:1A:4081:G:H2'    | 1:1A:4082:G:C8     | 2.55                     | 0.41              |
| 1:1A:4174:U:H2'    | 1:1A:4175:G:C8     | 2.56                     | 0.41              |
| 1:1A:4228:G:N2     | 1:1A:4337:C:N3     | 2.68                     | 0.41              |
| 1:1A:4237:C:O3'    | 1:1A:4326:G:N2     | 2.54                     | 0.41              |
| 1:1A:4504:C:H2'    | 1:1A:4505:C:C6     | 2.56                     | 0.41              |
| 1:1A:4734:A:H2'    | 1:1A:4735:G:C8     | 2.56                     | 0.41              |
| 1:1A:5037:U:H2'    | 1:1A:5038:A:H8     | 1.86                     | 0.41              |
| 5:1E:10:ARG:NH1    | 5:1E:265:SER:O     | 2.54                     | 0.41              |
| 6:1F:71:ARG:HE     | 82:zx:6:LEU:HB3    | 1.85                     | 0.41              |
| 8:1H:46:ARG:HG3    | 8:1H:62:MET:HE1    | 2.02                     | 0.41              |
| 8:1H:150:LEU:HD13  | 8:1H:194:VAL:HG21  | 2.03                     | 0.41              |
| 10:2B:161:VAL:HG21 | 10:2B:167:VAL:HG11 | 2.02                     | 0.41              |
| 12:2D:57:TYR:HB2   | 12:2D:131:ILE:HG13 | 2.03                     | 0.41              |
| 20:2L:97:ARG:HG2   | 20:2L:101:ILE:HD11 | 2.02                     | 0.41              |
| 21:2M:161:ARG:HH22 | 21:2M:164:LYS:HE3  | 1.85                     | 0.41              |
| 44:2j:57:CYS:SG    | 44:2j:59:SER:OG    | 2.69                     | 0.41              |
| 46:2l:100:VAL:HG23 | 46:2l:102:LYS:HG2  | 2.03                     | 0.41              |
| 47:2m:522:A:H5'    | 71:3I:145:PRO:HD2  | 2.03                     | 0.41              |
| 47:2m:527:C:H2'    | 47:2m:528:A:C8     | 2.56                     | 0.41              |
| 47:2m:937:C:H2'    | 47:2m:938:A:C8     | 2.56                     | 0.41              |
| 47:2m:946:U:H2'    | 47:2m:947:G:C8     | 2.55                     | 0.41              |

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| Atom-1             | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|--------------------|-------------------|--------------------------|-------------------|
| 47:2m:963:A:H2'    | 47:2m:964:A:C8    | 2.55                     | 0.41              |
| 47:2m:1350:U:H2'   | 47:2m:1351:G:H8   | 1.85                     | 0.41              |
| 47:2m:1531:A:H2'   | 47:2m:1532:C:C6   | 2.56                     | 0.41              |
| 47:2m:1817:G:H2'   | 47:2m:1818:A:C8   | 2.56                     | 0.41              |
| 48:2n:24:HIS:HA    | 48:2n:49:ILE:HD12 | 2.02                     | 0.41              |
| 52:2r:22:LYS:HG3   | 52:2r:23:TRP:CD1  | 2.56                     | 0.41              |
| 56:2v:111:VAL:HG22 | 56:2v:140:PHE:HB2 | 2.03                     | 0.41              |
| 58:2x:54:PRO:HA    | 58:2x:57:LEU:HB3  | 2.02                     | 0.41              |
| 60:2z:23:ARG:HA    | 60:2z:23:ARG:HD3  | 1.94                     | 0.41              |
| 66:3D:29:GLN:HA    | 66:3D:45:ASN:HA   | 2.03                     | 0.41              |
| 68:3F:176:VAL:HB   | 68:3F:185:LYS:HB3 | 2.02                     | 0.41              |
| 77:3O:68:ILE:HB    | 77:3O:109:TYR:HB2 | 2.03                     | 0.41              |
| 77:3O:73:VAL:HG13  | 77:3O:77:LEU:HD13 | 2.03                     | 0.41              |
| 80:3R:133:ALA:O    | 80:3R:140:TYR:N   | 2.53                     | 0.41              |
| 83:zu:71:C:O2'     | 83:zu:72:C:OP1    | 2.36                     | 0.41              |
| 1:1A:513:U:H3'     | 1:1A:514:U:H4'    | 2.03                     | 0.41              |
| 1:1A:713:C:H2'     | 1:1A:714:G:C8     | 2.56                     | 0.41              |
| 1:1A:2340:C:H2'    | 1:1A:2341:A:H8    | 1.84                     | 0.41              |
| 1:1A:4545:G:H2'    | 1:1A:4546:A:H8    | 1.85                     | 0.41              |
| 6:1F:114:ARG:HD2   | 16:2H:203:TYR:HB3 | 2.03                     | 0.41              |
| 7:1G:46:THR:HA     | 7:1G:47:PRO:HD3   | 1.87                     | 0.41              |
| 8:1H:254:ASP:OD1   | 8:1H:255:SER:N    | 2.54                     | 0.41              |
| 30:2V:101:HIS:HA   | 30:2V:102:PRO:HD3 | 1.95                     | 0.41              |
| 43:2i:54:PRO:O     | 83:zu:74:C:O2'    | 2.33                     | 0.41              |
| 47:2m:418:A:H3'    | 47:2m:419:G:C8    | 2.56                     | 0.41              |
| 47:2m:927:C:H2'    | 47:2m:928:G:C8    | 2.55                     | 0.41              |
| 47:2m:1164:G:H2'   | 47:2m:1165:G:N3   | 2.36                     | 0.41              |
| 47:2m:1286:G:O2'   | 47:2m:1313:A:N6   | 2.54                     | 0.41              |
| 47:2m:1468:C:H2'   | 47:2m:1469:A:C8   | 2.56                     | 0.41              |
| 61:20:9:VAL:HG11   | 61:20:138:VAL:HB  | 2.03                     | 0.41              |
| 61:20:75:MET:HA    | 61:20:78:ILE:HB   | 2.03                     | 0.41              |
| 68:3F:190:GLY:HA3  | 68:3F:217:MET:HE1 | 2.02                     | 0.41              |
| 68:3F:248:LEU:HD22 | 68:3F:259:TRP:CE3 | 2.56                     | 0.41              |
| 73:3K:3:ARG:HD3    | 73:3K:3:ARG:HA    | 1.85                     | 0.41              |
| 76:3N:20:ARG:HD3   | 76:3N:22:GLN:HB3  | 2.03                     | 0.41              |
| 1:1A:104:G:H2'     | 1:1A:105:A:H8     | 1.86                     | 0.40              |
| 1:1A:288:G:H2'     | 1:1A:289:C:C6     | 2.57                     | 0.40              |
| 1:1A:1340:C:H2'    | 1:1A:1341:U:H6    | 1.86                     | 0.40              |
| 1:1A:1857:C:H2'    | 1:1A:1858:A:C8    | 2.56                     | 0.40              |
| 1:1A:3707:U:H2'    | 1:1A:3708:C:H6    | 1.86                     | 0.40              |
| 1:1A:4129:G:P      | 28:2T:54:THR:HG1  | 2.44                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1A:4935:C:H2'   | 1:1A:4936:G:C8    | 2.55                     | 0.40              |
| 12:2D:32:ARG:HG3  | 12:2D:33:ILE:H    | 1.85                     | 0.40              |
| 16:2H:136:ASP:OD1 | 16:2H:136:ASP:N   | 2.52                     | 0.40              |
| 18:2J:102:ALA:O   | 18:2J:106:GLY:N   | 2.51                     | 0.40              |
| 21:2M:163:HIS:CD2 | 21:2M:166:ARG:HE  | 2.38                     | 0.40              |
| 29:2U:37:GLY:H    | 29:2U:41:HIS:HB2  | 1.86                     | 0.40              |
| 31:2W:45:LEU:HB3  | 31:2W:96:ILE:HB   | 2.03                     | 0.40              |
| 47:2m:123:G:H2'   | 47:2m:124:U:O4'   | 2.21                     | 0.40              |
| 47:2m:1477:U:OP1  | 59:2y:3:ARG:NH1   | 2.55                     | 0.40              |
| 49:2o:130:THR:OG1 | 49:2o:180:ASP:OD1 | 2.39                     | 0.40              |
| 55:2u:2:LEU:HB3   | 55:2u:8:ARG:HH11  | 1.86                     | 0.40              |
| 56:2v:28:THR:HA   | 56:2v:29:GLY:HA2  | 1.67                     | 0.40              |
| 57:2w:20:VAL:HG12 | 57:2w:25:LEU:HD12 | 2.01                     | 0.40              |
| 62:21:80:PHE:HB3  | 67:3E:52:PHE:HB3  | 2.03                     | 0.40              |
| 1:1A:161:G:H2'    | 1:1A:162:A:H8     | 1.86                     | 0.40              |
| 1:1A:228:C:H2'    | 1:1A:229:G:C8     | 2.56                     | 0.40              |
| 1:1A:424:U:H2'    | 1:1A:425:U:C6     | 2.56                     | 0.40              |
| 1:1A:946:C:H2'    | 1:1A:947:C:H6     | 1.85                     | 0.40              |
| 1:1A:1325:C:N4    | 1:1A:3880:G:OP1   | 2.44                     | 0.40              |
| 1:1A:2837:U:OP1   | 5:1E:249:ARG:NE   | 2.40                     | 0.40              |
| 1:1A:4405:G:H1    | 1:1A:4440:G:H1'   | 1.86                     | 0.40              |
| 1:1A:4974:C:H4'   | 5:1E:174:ARG:NH1  | 2.37                     | 0.40              |
| 14:2F:16:LYS:HE2  | 14:2F:16:LYS:HB3  | 1.90                     | 0.40              |
| 30:2V:70:GLU:HA   | 30:2V:73:LYS:HB2  | 2.03                     | 0.40              |
| 31:2W:20:LEU:HD21 | 73:3K:44:GLY:HA3  | 2.02                     | 0.40              |
| 47:2m:673:G:H2'   | 47:2m:674:C:C6    | 2.56                     | 0.40              |
| 47:2m:1158:G:H2'  | 47:2m:1159:G:C8   | 2.56                     | 0.40              |
| 47:2m:1171:G:O2'  | 47:2m:1187:G:O6   | 2.35                     | 0.40              |
| 47:2m:1411:G:H2'  | 47:2m:1412:C:H4'  | 2.02                     | 0.40              |
| 47:2m:1869:A:C8   | 49:2o:115:LYS:HG2 | 2.57                     | 0.40              |
| 48:2n:38:ILE:HD12 | 48:2n:38:ILE:HA   | 1.94                     | 0.40              |
| 69:3G:78:LEU:HD23 | 69:3G:81:ILE:HD12 | 2.03                     | 0.40              |
| 70:3H:140:ARG:HA  | 70:3H:140:ARG:HD3 | 1.93                     | 0.40              |
| 74:3L:71:PRO:HB3  | 74:3L:114:SER:HB2 | 2.03                     | 0.40              |
| 1:1A:53:C:H2'     | 1:1A:54:G:H8      | 1.84                     | 0.40              |
| 1:1A:424:U:H2'    | 1:1A:425:U:H6     | 1.86                     | 0.40              |
| 1:1A:1523:A:N3    | 1:1A:4389:C:O2'   | 2.48                     | 0.40              |
| 1:1A:2033:A:H5''  | 21:2M:91:HIS:HE1  | 1.86                     | 0.40              |
| 1:1A:2478:C:H2'   | 1:1A:2479:G:C8    | 2.57                     | 0.40              |
| 1:1A:2730:U:H2'   | 1:1A:2731:C:C6    | 2.56                     | 0.40              |
| 1:1A:3723:A:H2'   | 1:1A:3724:A:C8    | 2.56                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:1A:4095:G:H2'   | 1:1A:4096:C:C2    | 2.56                     | 0.40              |
| 1:1A:4221:C:C2    | 12:2D:116:ARG:HD2 | 2.57                     | 0.40              |
| 1:1A:4578:G:H2'   | 1:1A:4579:U:H6    | 1.87                     | 0.40              |
| 1:1A:4664:A:H3'   | 1:1A:4665:A:H8    | 1.85                     | 0.40              |
| 4:1D:70:LYS:HD2   | 4:1D:72:ARG:HE    | 1.87                     | 0.40              |
| 8:1H:57:TYR:HD2   | 8:1H:65:ARG:HH11  | 1.69                     | 0.40              |
| 9:2A:86:GLU:HA    | 9:2A:87:PRO:HD3   | 1.91                     | 0.40              |
| 25:2Q:85:ALA:HB3  | 70:3H:130:PRO:HD2 | 2.04                     | 0.40              |
| 27:2S:2:LYS:HD2   | 27:2S:7:VAL:HG23  | 2.03                     | 0.40              |
| 47:2m:113:G:N2    | 47:2m:292:A:H1'   | 2.37                     | 0.40              |
| 47:2m:922:A:OP1   | 75:3M:28:ARG:NH2  | 2.45                     | 0.40              |
| 47:2m:1497:G:H21  | 55:2u:63:ALA:H    | 1.67                     | 0.40              |
| 47:2m:1606:G:O2'  | 47:2m:1607:A:O4'  | 2.39                     | 0.40              |
| 52:2r:49:LEU:HD23 | 52:2r:49:LEU:HA   | 1.91                     | 0.40              |
| 53:2s:147:LYS:HB3 | 53:2s:151:SER:HB3 | 2.03                     | 0.40              |
| 62:21:46:LYS:NZ   | 62:21:94:PRO:O    | 2.53                     | 0.40              |
| 73:3K:84:LEU:HD11 | 73:3K:88:LEU:HD23 | 2.03                     | 0.40              |
| 78:3P:19:HIS:O    | 78:3P:21:LYS:N    | 2.55                     | 0.40              |
| 1:1A:651:C:H2'    | 1:1A:652:G:C8     | 2.55                     | 0.40              |
| 1:1A:705:G:H2'    | 1:1A:706:C:H6     | 1.86                     | 0.40              |
| 1:1A:1327:C:H2'   | 1:1A:1328:G:H8    | 1.86                     | 0.40              |
| 1:1A:1629:G:N2    | 1:1A:1632:A:C2    | 2.84                     | 0.40              |
| 1:1A:1743:A:N1    | 1:1A:1789:C:O2'   | 2.47                     | 0.40              |
| 1:1A:2075:G:H2'   | 1:1A:2076:G:H8    | 1.86                     | 0.40              |
| 1:1A:2272:C:H2'   | 1:1A:2273:G:C8    | 2.56                     | 0.40              |
| 1:1A:2492:C:H2'   | 1:1A:2493:G:H8    | 1.86                     | 0.40              |
| 1:1A:3682:A:H4'   | 1:1A:3683:C:H5''  | 2.02                     | 0.40              |
| 1:1A:3745:U:H4'   | 4:1D:242:ARG:HG3  | 2.02                     | 0.40              |
| 1:1A:4575:G:H2'   | 1:1A:4576:U:H6    | 1.87                     | 0.40              |
| 1:1A:4727:A:H2'   | 1:1A:4728:U:O4'   | 2.20                     | 0.40              |
| 1:1A:4773:C:H2'   | 1:1A:4774:C:C6    | 2.56                     | 0.40              |
| 3:1C:141:C:H5''   | 16:2H:60:VAL:HG11 | 2.03                     | 0.40              |
| 8:1H:107:VAL:HA   | 8:1H:108:LYS:HA   | 1.90                     | 0.40              |
| 12:2D:67:ALA:HA   | 12:2D:70:ILE:HG22 | 2.02                     | 0.40              |
| 44:2j:22:LEU:HA   | 44:2j:25:MET:HG2  | 2.02                     | 0.40              |
| 45:2k:28:GLU:HB2  | 45:2k:43:LEU:HD21 | 2.03                     | 0.40              |
| 47:2m:814:U:OP1   | 51:2q:22:LYS:NZ   | 2.55                     | 0.40              |
| 47:2m:921:G:C5    | 78:3P:22:LYS:HG2  | 2.56                     | 0.40              |
| 47:2m:1033:G:N1   | 47:2m:1080:A:O2'  | 2.44                     | 0.40              |
| 54:2t:57:ALA:HB2  | 54:2t:183:GLY:HA2 | 2.04                     | 0.40              |
| 1:1A:1207:C:H2'   | 1:1A:1208:G:C8    | 2.53                     | 0.40              |

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| Atom-1            | Atom-2             | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|--------------------|--------------------------|-------------------|
| 1:1A:1543:G:OP1   | 1:1A:2514:G:O2'    | 2.33                     | 0.40              |
| 1:1A:1633:G:C6    | 4:1D:207:VAL:HG21  | 2.57                     | 0.40              |
| 1:1A:2079:G:H2'   | 1:1A:2080:U:H6     | 1.86                     | 0.40              |
| 1:1A:2387:G:H2'   | 1:1A:2388:A:C8     | 2.57                     | 0.40              |
| 1:1A:2754:G:OP2   | 28:2T:133:LYS:NZ   | 2.39                     | 0.40              |
| 1:1A:3930:U:H2'   | 1:1A:3931:C:C6     | 2.56                     | 0.40              |
| 2:1B:63:C:H5''    | 12:2D:205:PRO:HA   | 2.04                     | 0.40              |
| 5:1E:63:PRO:HG2   | 5:1E:357:ARG:HH21  | 1.85                     | 0.40              |
| 5:1E:111:SER:OG   | 5:1E:114:CYS:SG    | 2.77                     | 0.40              |
| 8:1H:66:LYS:HD2   | 8:1H:68:MET:HE2    | 2.02                     | 0.40              |
| 9:2A:228:VAL:HB   | 21:2M:39:VAL:HG23  | 2.03                     | 0.40              |
| 21:2M:33:PHE:CD2  | 21:2M:106:VAL:HG11 | 2.56                     | 0.40              |
| 29:2U:73:VAL:HB   | 29:2U:108:TYR:CD1  | 2.57                     | 0.40              |
| 47:2m:830:A:OP2   | 47:2m:846:G:N2     | 2.55                     | 0.40              |
| 47:2m:960:U:H1'   | 47:2m:963:A:H62    | 1.86                     | 0.40              |
| 47:2m:1195:A:H2'  | 47:2m:1196:A:H8    | 1.86                     | 0.40              |
| 47:2m:1426:U:H2'  | 47:2m:1427:C:H4'   | 2.03                     | 0.40              |
| 47:2m:1738:C:H2'  | 47:2m:1739:C:C6    | 2.56                     | 0.40              |
| 49:2o:86:LEU:HD23 | 49:2o:100:PHE:HA   | 2.04                     | 0.40              |
| 50:2p:116:ARG:HG2 | 50:2p:150:MET:HE1  | 2.03                     | 0.40              |
| 58:2x:24:HIS:CE1  | 58:2x:26:LYS:HE3   | 2.57                     | 0.40              |
| 64:3B:85:VAL:HG12 | 64:3B:122:VAL:HB   | 2.02                     | 0.40              |
| 71:3I:61:LEU:HA   | 71:3I:70:ARG:HH12  | 1.85                     | 0.40              |
| 71:3I:169:ARG:HD2 | 71:3I:170:PRO:HD2  | 2.03                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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 |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 4   | 1D    | 246/257 (96%) | 221 (90%) | 25 (10%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 5   | 1E    | 400/403 (99%) | 353 (88%) | 45 (11%) | 2 (0%)   | 24          | 59  |
| 6   | 1F    | 366/427 (86%) | 328 (90%) | 37 (10%) | 1 (0%)   | 36          | 69  |
| 7   | 1G    | 291/297 (98%) | 260 (89%) | 31 (11%) | 0        | 100         | 100 |
| 8   | 1H    | 233/288 (81%) | 196 (84%) | 35 (15%) | 2 (1%)   | 14          | 47  |
| 9   | 2A    | 223/248 (90%) | 199 (89%) | 24 (11%) | 0        | 100         | 100 |
| 10  | 2B    | 239/266 (90%) | 205 (86%) | 34 (14%) | 0        | 100         | 100 |
| 11  | 2C    | 188/192 (98%) | 163 (87%) | 25 (13%) | 0        | 100         | 100 |
| 12  | 2D    | 211/214 (99%) | 181 (86%) | 30 (14%) | 0        | 100         | 100 |
| 13  | 2E    | 174/178 (98%) | 155 (89%) | 19 (11%) | 0        | 100         | 100 |
| 14  | 2F    | 208/211 (99%) | 181 (87%) | 26 (12%) | 1 (0%)   | 24          | 59  |
| 15  | 2G    | 137/215 (64%) | 125 (91%) | 12 (9%)  | 0        | 100         | 100 |
| 16  | 2H    | 201/204 (98%) | 187 (93%) | 14 (7%)  | 0        | 100         | 100 |
| 17  | 2I    | 199/203 (98%) | 188 (94%) | 11 (6%)  | 0        | 100         | 100 |
| 18  | 2J    | 151/184 (82%) | 135 (89%) | 16 (11%) | 0        | 100         | 100 |
| 19  | 2K    | 185/188 (98%) | 174 (94%) | 11 (6%)  | 0        | 100         | 100 |
| 20  | 2L    | 185/196 (94%) | 176 (95%) | 9 (5%)   | 0        | 100         | 100 |
| 21  | 2M    | 173/176 (98%) | 147 (85%) | 26 (15%) | 0        | 100         | 100 |
| 22  | 2N    | 157/160 (98%) | 134 (85%) | 21 (13%) | 2 (1%)   | 9           | 40  |
| 23  | 2O    | 99/128 (77%)  | 89 (90%)  | 10 (10%) | 0        | 100         | 100 |
| 24  | 2P    | 129/140 (92%) | 112 (87%) | 15 (12%) | 2 (2%)   | 7           | 36  |
| 25  | 2Q    | 122/157 (78%) | 108 (88%) | 14 (12%) | 0        | 100         | 100 |
| 26  | 2R    | 115/156 (74%) | 107 (93%) | 8 (7%)   | 0        | 100         | 100 |
| 27  | 2S    | 132/145 (91%) | 121 (92%) | 11 (8%)  | 0        | 100         | 100 |
| 28  | 2T    | 133/136 (98%) | 121 (91%) | 11 (8%)  | 1 (1%)   | 16          | 50  |
| 29  | 2U    | 145/148 (98%) | 133 (92%) | 12 (8%)  | 0        | 100         | 100 |
| 30  | 2V    | 105/159 (66%) | 94 (90%)  | 11 (10%) | 0        | 100         | 100 |
| 31  | 2W    | 96/115 (84%)  | 89 (93%)  | 7 (7%)   | 0        | 100         | 100 |
| 32  | 2X    | 105/125 (84%) | 92 (88%)  | 13 (12%) | 0        | 100         | 100 |
| 33  | 2Y    | 126/135 (93%) | 117 (93%) | 9 (7%)   | 0        | 100         | 100 |
| 34  | 2Z    | 107/110 (97%) | 98 (92%)  | 9 (8%)   | 0        | 100         | 100 |
| 35  | 2a    | 109/117 (93%) | 103 (94%) | 6 (6%)   | 0        | 100         | 100 |

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| Mol | Chain | Analysed      | Favoured  | Allowed  | Outliers | Percentiles |     |
|-----|-------|---------------|-----------|----------|----------|-------------|-----|
| 36  | 2b    | 120/123 (98%) | 116 (97%) | 4 (3%)   | 0        | 100         | 100 |
| 37  | 2c    | 100/105 (95%) | 95 (95%)  | 5 (5%)   | 0        | 100         | 100 |
| 38  | 2d    | 84/97 (87%)   | 70 (83%)  | 14 (17%) | 0        | 100         | 100 |
| 39  | 2e    | 67/70 (96%)   | 58 (87%)  | 9 (13%)  | 0        | 100         | 100 |
| 40  | 2f    | 48/51 (94%)   | 45 (94%)  | 3 (6%)   | 0        | 100         | 100 |
| 41  | 2g    | 50/128 (39%)  | 44 (88%)  | 6 (12%)  | 0        | 100         | 100 |
| 42  | 2h    | 22/25 (88%)   | 21 (96%)  | 1 (4%)   | 0        | 100         | 100 |
| 43  | 2i    | 103/106 (97%) | 92 (89%)  | 11 (11%) | 0        | 100         | 100 |
| 44  | 2j    | 89/92 (97%)   | 79 (89%)  | 10 (11%) | 0        | 100         | 100 |
| 45  | 2k    | 123/137 (90%) | 116 (94%) | 7 (6%)   | 0        | 100         | 100 |
| 46  | 2l    | 215/217 (99%) | 176 (82%) | 39 (18%) | 0        | 100         | 100 |
| 48  | 2n    | 219/295 (74%) | 196 (90%) | 22 (10%) | 1 (0%)   | 24          | 59  |
| 49  | 2o    | 212/264 (80%) | 192 (91%) | 20 (9%)  | 0        | 100         | 100 |
| 50  | 2p    | 225/243 (93%) | 193 (86%) | 32 (14%) | 0        | 100         | 100 |
| 51  | 2q    | 260/263 (99%) | 230 (88%) | 30 (12%) | 0        | 100         | 100 |
| 52  | 2r    | 185/204 (91%) | 161 (87%) | 22 (12%) | 2 (1%)   | 11          | 43  |
| 53  | 2s    | 187/194 (96%) | 161 (86%) | 26 (14%) | 0        | 100         | 100 |
| 54  | 2t    | 204/208 (98%) | 185 (91%) | 19 (9%)  | 0        | 100         | 100 |
| 55  | 2u    | 96/165 (58%)  | 85 (88%)  | 11 (12%) | 0        | 100         | 100 |
| 56  | 2v    | 151/158 (96%) | 135 (89%) | 16 (11%) | 0        | 100         | 100 |
| 57  | 2w    | 95/145 (66%)  | 76 (80%)  | 19 (20%) | 0        | 100         | 100 |
| 58  | 2x    | 144/146 (99%) | 120 (83%) | 24 (17%) | 0        | 100         | 100 |
| 59  | 2y    | 130/135 (96%) | 113 (87%) | 17 (13%) | 0        | 100         | 100 |
| 60  | 2z    | 148/152 (97%) | 124 (84%) | 23 (16%) | 1 (1%)   | 18          | 53  |
| 61  | 20    | 141/145 (97%) | 127 (90%) | 14 (10%) | 0        | 100         | 100 |
| 62  | 21    | 102/119 (86%) | 86 (84%)  | 16 (16%) | 0        | 100         | 100 |
| 63  | 3A    | 81/83 (98%)   | 70 (86%)  | 10 (12%) | 1 (1%)   | 10          | 41  |
| 64  | 3B    | 139/143 (97%) | 120 (86%) | 16 (12%) | 3 (2%)   | 5           | 31  |
| 65  | 3C    | 105/115 (91%) | 95 (90%)  | 10 (10%) | 0        | 100         | 100 |
| 66  | 3D    | 62/69 (90%)   | 49 (79%)  | 13 (21%) | 0        | 100         | 100 |
| 67  | 3E    | 51/56 (91%)   | 47 (92%)  | 4 (8%)   | 0        | 100         | 100 |

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| Mol | Chain | Analysed          | Favoured    | Allowed    | Outliers | Percentiles |     |
|-----|-------|-------------------|-------------|------------|----------|-------------|-----|
| 68  | 3F    | 311/317 (98%)     | 263 (85%)   | 47 (15%)   | 1 (0%)   | 36          | 69  |
| 69  | 3G    | 220/293 (75%)     | 200 (91%)   | 19 (9%)    | 1 (0%)   | 24          | 59  |
| 70  | 3H    | 235/249 (94%)     | 205 (87%)   | 30 (13%)   | 0        | 100         | 100 |
| 71  | 3I    | 183/194 (94%)     | 156 (85%)   | 25 (14%)   | 2 (1%)   | 11          | 43  |
| 72  | 3J    | 120/132 (91%)     | 99 (82%)    | 21 (18%)   | 0        | 100         | 100 |
| 73  | 3K    | 148/151 (98%)     | 133 (90%)   | 15 (10%)   | 0        | 100         | 100 |
| 74  | 3L    | 138/151 (91%)     | 117 (85%)   | 21 (15%)   | 0        | 100         | 100 |
| 75  | 3M    | 127/130 (98%)     | 112 (88%)   | 15 (12%)   | 0        | 100         | 100 |
| 76  | 3N    | 129/133 (97%)     | 119 (92%)   | 10 (8%)    | 0        | 100         | 100 |
| 77  | 3O    | 73/125 (58%)      | 55 (75%)    | 18 (25%)   | 0        | 100         | 100 |
| 78  | 3P    | 81/84 (96%)       | 67 (83%)    | 11 (14%)   | 3 (4%)   | 2           | 22  |
| 79  | 3Q    | 56/59 (95%)       | 51 (91%)    | 5 (9%)     | 0        | 100         | 100 |
| 80  | 3R    | 65/156 (42%)      | 54 (83%)    | 11 (17%)   | 0        | 100         | 100 |
| 82  | zx    | 15/17 (88%)       | 11 (73%)    | 4 (27%)    | 0        | 100         | 100 |
| All | All   | 11549/12922 (89%) | 10211 (88%) | 1312 (11%) | 26 (0%)  | 44          | 74  |

All (26) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 6   | 1F    | 111 | TRP  |
| 8   | 1H    | 111 | LYS  |
| 24  | 2P    | 110 | GLY  |
| 60  | 2z    | 17  | ASN  |
| 64  | 3B    | 109 | GLY  |
| 78  | 3P    | 20  | LYS  |
| 8   | 1H    | 127 | SER  |
| 22  | 2N    | 82  | GLY  |
| 28  | 2T    | 31  | ASP  |
| 52  | 2r    | 80  | GLY  |
| 63  | 3A    | 81  | LYS  |
| 64  | 3B    | 127 | ASN  |
| 69  | 3G    | 78  | LEU  |
| 71  | 3I    | 8   | VAL  |
| 78  | 3P    | 39  | GLY  |
| 5   | 1E    | 294 | LYS  |
| 22  | 2N    | 129 | LYS  |
| 24  | 2P    | 109 | LYS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 64  | 3B    | 108 | LYS  |
| 5   | 1E    | 393 | LYS  |
| 68  | 3F    | 283 | PRO  |
| 71  | 3I    | 9   | CYS  |
| 14  | 2F    | 48  | PRO  |
| 48  | 2n    | 158 | ASP  |
| 78  | 3P    | 19  | HIS  |
| 52  | 2r    | 39  | ILE  |

### 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 PDB entries followed by that with respect to all EM entries.

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 |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 4   | 1D    | 190/199 (96%)  | 190 (100%) | 0        | 100         | 100 |
| 5   | 1E    | 348/349 (100%) | 347 (100%) | 1 (0%)   | 86          | 85  |
| 6   | 1F    | 306/348 (88%)  | 306 (100%) | 0        | 100         | 100 |
| 7   | 1G    | 246/250 (98%)  | 246 (100%) | 0        | 100         | 100 |
| 8   | 1H    | 210/252 (83%)  | 208 (99%)  | 2 (1%)   | 68          | 75  |
| 9   | 2A    | 194/215 (90%)  | 192 (99%)  | 2 (1%)   | 68          | 75  |
| 10  | 2B    | 203/223 (91%)  | 202 (100%) | 1 (0%)   | 81          | 82  |
| 11  | 2C    | 169/171 (99%)  | 165 (98%)  | 4 (2%)   | 43          | 63  |
| 12  | 2D    | 180/181 (99%)  | 180 (100%) | 0        | 100         | 100 |
| 13  | 2E    | 148/149 (99%)  | 145 (98%)  | 3 (2%)   | 48          | 65  |
| 14  | 2F    | 176/177 (99%)  | 176 (100%) | 0        | 100         | 100 |
| 15  | 2G    | 118/161 (73%)  | 115 (98%)  | 3 (2%)   | 42          | 62  |
| 16  | 2H    | 171/172 (99%)  | 171 (100%) | 0        | 100         | 100 |
| 17  | 2I    | 173/174 (99%)  | 173 (100%) | 0        | 100         | 100 |
| 18  | 2J    | 134/163 (82%)  | 132 (98%)  | 2 (2%)   | 57          | 70  |
| 19  | 2K    | 164/165 (99%)  | 164 (100%) | 0        | 100         | 100 |
| 20  | 2L    | 166/175 (95%)  | 166 (100%) | 0        | 100         | 100 |

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| Mol | Chain | Analysed       | Rotameric  | Outliers | Percentiles |     |
|-----|-------|----------------|------------|----------|-------------|-----|
| 21  | 2M    | 156/157 (99%)  | 153 (98%)  | 3 (2%)   | 50          | 66  |
| 22  | 2N    | 139/140 (99%)  | 139 (100%) | 0        | 100         | 100 |
| 23  | 2O    | 91/115 (79%)   | 91 (100%)  | 0        | 100         | 100 |
| 24  | 2P    | 101/107 (94%)  | 101 (100%) | 0        | 100         | 100 |
| 25  | 2Q    | 103/126 (82%)  | 102 (99%)  | 1 (1%)   | 68          | 75  |
| 26  | 2R    | 107/133 (80%)  | 107 (100%) | 0        | 100         | 100 |
| 27  | 2S    | 124/135 (92%)  | 123 (99%)  | 1 (1%)   | 73          | 77  |
| 28  | 2T    | 117/118 (99%)  | 117 (100%) | 0        | 100         | 100 |
| 29  | 2U    | 120/121 (99%)  | 118 (98%)  | 2 (2%)   | 53          | 68  |
| 30  | 2V    | 88/126 (70%)   | 88 (100%)  | 0        | 100         | 100 |
| 31  | 2W    | 83/97 (86%)    | 83 (100%)  | 0        | 100         | 100 |
| 32  | 2X    | 98/110 (89%)   | 98 (100%)  | 0        | 100         | 100 |
| 33  | 2Y    | 114/121 (94%)  | 113 (99%)  | 1 (1%)   | 70          | 75  |
| 34  | 2Z    | 88/89 (99%)    | 88 (100%)  | 0        | 100         | 100 |
| 35  | 2a    | 97/100 (97%)   | 97 (100%)  | 0        | 100         | 100 |
| 36  | 2b    | 109/110 (99%)  | 109 (100%) | 0        | 100         | 100 |
| 37  | 2c    | 86/89 (97%)    | 86 (100%)  | 0        | 100         | 100 |
| 38  | 2d    | 73/80 (91%)    | 73 (100%)  | 0        | 100         | 100 |
| 39  | 2e    | 64/65 (98%)    | 63 (98%)   | 1 (2%)   | 55          | 69  |
| 40  | 2f    | 47/48 (98%)    | 47 (100%)  | 0        | 100         | 100 |
| 41  | 2g    | 48/116 (41%)   | 48 (100%)  | 0        | 100         | 100 |
| 42  | 2h    | 23/24 (96%)    | 23 (100%)  | 0        | 100         | 100 |
| 43  | 2i    | 93/94 (99%)    | 92 (99%)   | 1 (1%)   | 65          | 74  |
| 44  | 2j    | 74/75 (99%)    | 74 (100%)  | 0        | 100         | 100 |
| 45  | 2k    | 109/121 (90%)  | 106 (97%)  | 3 (3%)   | 38          | 59  |
| 46  | 2l    | 195/196 (100%) | 195 (100%) | 0        | 100         | 100 |
| 48  | 2n    | 183/243 (75%)  | 181 (99%)  | 2 (1%)   | 65          | 74  |
| 49  | 2o    | 195/231 (84%)  | 195 (100%) | 0        | 100         | 100 |
| 50  | 2p    | 190/202 (94%)  | 188 (99%)  | 2 (1%)   | 65          | 74  |
| 51  | 2q    | 224/225 (100%) | 223 (100%) | 1 (0%)   | 84          | 83  |
| 52  | 2r    | 157/170 (92%)  | 156 (99%)  | 1 (1%)   | 78          | 80  |

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| Mol | Chain | Analysed          | Rotameric    | Outliers | Percentiles |     |
|-----|-------|-------------------|--------------|----------|-------------|-----|
| 53  | 2s    | 169/174 (97%)     | 168 (99%)    | 1 (1%)   | 78          | 80  |
| 54  | 2t    | 178/180 (99%)     | 178 (100%)   | 0        | 100         | 100 |
| 55  | 2u    | 89/136 (65%)      | 89 (100%)    | 0        | 100         | 100 |
| 56  | 2v    | 137/142 (96%)     | 137 (100%)   | 0        | 100         | 100 |
| 57  | 2w    | 87/130 (67%)      | 87 (100%)    | 0        | 100         | 100 |
| 58  | 2x    | 121/121 (100%)    | 121 (100%)   | 0        | 100         | 100 |
| 59  | 2y    | 120/122 (98%)     | 120 (100%)   | 0        | 100         | 100 |
| 60  | 2z    | 130/132 (98%)     | 129 (99%)    | 1 (1%)   | 73          | 77  |
| 61  | 20    | 113/115 (98%)     | 113 (100%)   | 0        | 100         | 100 |
| 62  | 21    | 94/107 (88%)      | 94 (100%)    | 0        | 100         | 100 |
| 63  | 3A    | 67/67 (100%)      | 66 (98%)     | 1 (2%)   | 57          | 70  |
| 64  | 3B    | 113/115 (98%)     | 113 (100%)   | 0        | 100         | 100 |
| 65  | 3C    | 90/98 (92%)       | 89 (99%)     | 1 (1%)   | 65          | 74  |
| 66  | 3D    | 57/62 (92%)       | 57 (100%)    | 0        | 100         | 100 |
| 67  | 3E    | 47/49 (96%)       | 47 (100%)    | 0        | 100         | 100 |
| 68  | 3F    | 272/275 (99%)     | 269 (99%)    | 3 (1%)   | 65          | 74  |
| 69  | 3G    | 188/225 (84%)     | 188 (100%)   | 0        | 100         | 100 |
| 70  | 3H    | 207/218 (95%)     | 207 (100%)   | 0        | 100         | 100 |
| 71  | 3I    | 161/168 (96%)     | 161 (100%)   | 0        | 100         | 100 |
| 72  | 3J    | 104/108 (96%)     | 104 (100%)   | 0        | 100         | 100 |
| 73  | 3K    | 130/131 (99%)     | 130 (100%)   | 0        | 100         | 100 |
| 74  | 3L    | 110/119 (92%)     | 110 (100%)   | 0        | 100         | 100 |
| 75  | 3M    | 112/113 (99%)     | 112 (100%)   | 0        | 100         | 100 |
| 76  | 3N    | 113/115 (98%)     | 112 (99%)    | 1 (1%)   | 70          | 75  |
| 77  | 3O    | 66/103 (64%)      | 65 (98%)     | 1 (2%)   | 57          | 70  |
| 78  | 3P    | 75/76 (99%)       | 75 (100%)    | 0        | 100         | 100 |
| 79  | 3Q    | 47/48 (98%)       | 47 (100%)    | 0        | 100         | 100 |
| 80  | 3R    | 60/140 (43%)      | 60 (100%)    | 0        | 100         | 100 |
| 82  | zx    | 16/16 (100%)      | 16 (100%)    | 0        | 100         | 100 |
| All | All   | 10065/11013 (91%) | 10019 (100%) | 46 (0%)  | 78          | 82  |

All (46) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 5   | 1E    | 363 | ILE  |
| 8   | 1H    | 194 | VAL  |
| 8   | 1H    | 281 | ILE  |
| 9   | 2A    | 95  | ILE  |
| 9   | 2A    | 140 | ILE  |
| 10  | 2B    | 194 | VAL  |
| 11  | 2C    | 105 | ILE  |
| 11  | 2C    | 145 | ILE  |
| 11  | 2C    | 172 | ILE  |
| 11  | 2C    | 176 | LEU  |
| 13  | 2E    | 10  | ASN  |
| 13  | 2E    | 125 | ILE  |
| 13  | 2E    | 134 | LEU  |
| 15  | 2G    | 61  | ILE  |
| 15  | 2G    | 73  | VAL  |
| 15  | 2G    | 122 | ILE  |
| 18  | 2J    | 78  | TRP  |
| 18  | 2J    | 90  | PHE  |
| 21  | 2M    | 24  | THR  |
| 21  | 2M    | 124 | ILE  |
| 21  | 2M    | 132 | ILE  |
| 25  | 2Q    | 67  | ILE  |
| 27  | 2S    | 99  | ILE  |
| 29  | 2U    | 5   | LEU  |
| 29  | 2U    | 45  | PHE  |
| 33  | 2Y    | 21  | ILE  |
| 39  | 2e    | 60  | LEU  |
| 43  | 2i    | 68  | LEU  |
| 45  | 2k    | 43  | LEU  |
| 45  | 2k    | 44  | ILE  |
| 45  | 2k    | 78  | VAL  |
| 48  | 2n    | 8   | LEU  |
| 48  | 2n    | 112 | ILE  |
| 50  | 2p    | 3   | VAL  |
| 50  | 2p    | 186 | VAL  |
| 51  | 2q    | 248 | ILE  |
| 52  | 2r    | 44  | LYS  |
| 53  | 2s    | 121 | THR  |
| 60  | 2z    | 36  | VAL  |
| 63  | 3A    | 32  | ILE  |
| 65  | 3C    | 45  | VAL  |
| 68  | 3F    | 11  | LEU  |
| 68  | 3F    | 32  | LEU  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 68  | 3F    | 108 | VAL  |
| 76  | 3N    | 102 | THR  |
| 77  | 3O    | 97  | ILE  |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (127) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 4   | 1D    | 139 | HIS  |
| 4   | 1D    | 215 | ASN  |
| 4   | 1D    | 218 | HIS  |
| 5   | 1E    | 167 | GLN  |
| 5   | 1E    | 245 | HIS  |
| 5   | 1E    | 328 | ASN  |
| 6   | 1F    | 50  | GLN  |
| 6   | 1F    | 116 | ASN  |
| 6   | 1F    | 198 | ASN  |
| 7   | 1G    | 39  | GLN  |
| 7   | 1G    | 94  | ASN  |
| 7   | 1G    | 122 | GLN  |
| 7   | 1G    | 203 | ASN  |
| 7   | 1G    | 222 | GLN  |
| 8   | 1H    | 47  | ASN  |
| 8   | 1H    | 182 | ASN  |
| 8   | 1H    | 191 | GLN  |
| 8   | 1H    | 211 | HIS  |
| 8   | 1H    | 256 | GLN  |
| 8   | 1H    | 268 | GLN  |
| 9   | 2A    | 39  | GLN  |
| 9   | 2A    | 119 | ASN  |
| 10  | 2B    | 141 | ASN  |
| 10  | 2B    | 206 | GLN  |
| 10  | 2B    | 227 | ASN  |
| 10  | 2B    | 236 | HIS  |
| 11  | 2C    | 42  | ASN  |
| 12  | 2D    | 51  | HIS  |
| 14  | 2F    | 115 | GLN  |
| 15  | 2G    | 34  | ASN  |
| 15  | 2G    | 70  | GLN  |
| 17  | 2I    | 42  | ASN  |
| 17  | 2I    | 50  | ASN  |
| 17  | 2I    | 96  | GLN  |
| 18  | 2J    | 75  | GLN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 19  | 2K    | 21  | GLN  |
| 19  | 2K    | 77  | ASN  |
| 20  | 2L    | 39  | GLN  |
| 21  | 2M    | 50  | GLN  |
| 21  | 2M    | 66  | GLN  |
| 21  | 2M    | 163 | HIS  |
| 22  | 2N    | 49  | GLN  |
| 22  | 2N    | 79  | GLN  |
| 25  | 2Q    | 17  | HIS  |
| 25  | 2Q    | 68  | GLN  |
| 25  | 2Q    | 95  | ASN  |
| 26  | 2R    | 107 | HIS  |
| 26  | 2R    | 108 | GLN  |
| 27  | 2S    | 14  | ASN  |
| 27  | 2S    | 20  | ASN  |
| 27  | 2S    | 127 | GLN  |
| 28  | 2T    | 40  | HIS  |
| 28  | 2T    | 127 | ASN  |
| 29  | 2U    | 40  | HIS  |
| 29  | 2U    | 41  | HIS  |
| 32  | 2X    | 28  | ASN  |
| 32  | 2X    | 34  | HIS  |
| 32  | 2X    | 79  | ASN  |
| 33  | 2Y    | 57  | ASN  |
| 33  | 2Y    | 102 | ASN  |
| 35  | 2a    | 28  | ASN  |
| 44  | 2j    | 33  | GLN  |
| 44  | 2j    | 72  | ASN  |
| 45  | 2k    | 6   | GLN  |
| 46  | 2l    | 35  | GLN  |
| 46  | 2l    | 184 | HIS  |
| 46  | 2l    | 199 | GLN  |
| 48  | 2n    | 113 | GLN  |
| 49  | 2o    | 43  | ASN  |
| 49  | 2o    | 202 | GLN  |
| 50  | 2p    | 56  | GLN  |
| 51  | 2q    | 36  | HIS  |
| 51  | 2q    | 224 | ASN  |
| 52  | 2r    | 31  | ASN  |
| 52  | 2r    | 79  | HIS  |
| 52  | 2r    | 95  | HIS  |
| 52  | 2r    | 101 | HIS  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 52  | 2r    | 107 | ASN  |
| 53  | 2s    | 76  | GLN  |
| 53  | 2s    | 91  | HIS  |
| 53  | 2s    | 162 | GLN  |
| 53  | 2s    | 193 | GLN  |
| 54  | 2t    | 146 | GLN  |
| 54  | 2t    | 165 | GLN  |
| 54  | 2t    | 181 | GLN  |
| 55  | 2u    | 32  | HIS  |
| 55  | 2u    | 84  | HIS  |
| 56  | 2v    | 11  | GLN  |
| 56  | 2v    | 19  | ASN  |
| 56  | 2v    | 83  | GLN  |
| 57  | 2w    | 32  | GLN  |
| 57  | 2w    | 53  | GLN  |
| 58  | 2x    | 11  | GLN  |
| 58  | 2x    | 86  | GLN  |
| 58  | 2x    | 114 | GLN  |
| 59  | 2y    | 48  | ASN  |
| 61  | 20    | 10  | ASN  |
| 61  | 20    | 83  | GLN  |
| 61  | 20    | 91  | HIS  |
| 64  | 3B    | 20  | GLN  |
| 65  | 3C    | 86  | ASN  |
| 67  | 3E    | 4   | GLN  |
| 68  | 3F    | 20  | GLN  |
| 68  | 3F    | 56  | GLN  |
| 70  | 3H    | 13  | GLN  |
| 70  | 3H    | 59  | GLN  |
| 70  | 3H    | 65  | GLN  |
| 70  | 3H    | 81  | HIS  |
| 70  | 3H    | 177 | GLN  |
| 70  | 3H    | 225 | GLN  |
| 71  | 3I    | 132 | GLN  |
| 72  | 3J    | 52  | GLN  |
| 72  | 3J    | 82  | ASN  |
| 72  | 3J    | 99  | ASN  |
| 73  | 3K    | 62  | GLN  |
| 73  | 3K    | 101 | HIS  |
| 73  | 3K    | 123 | HIS  |
| 74  | 3L    | 32  | HIS  |
| 74  | 3L    | 103 | ASN  |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 75  | 3M    | 15  | ASN  |
| 75  | 3M    | 113 | HIS  |
| 76  | 3N    | 63  | HIS  |
| 76  | 3N    | 89  | HIS  |
| 77  | 3O    | 64  | ASN  |
| 79  | 3Q    | 37  | GLN  |
| 79  | 3Q    | 58  | ASN  |
| 80  | 3R    | 91  | ASN  |

### 5.3.3 RNA ⓘ

| Mol | Chain | Analysed        | Backbone Outliers | Pucker Outliers |
|-----|-------|-----------------|-------------------|-----------------|
| 1   | 1A    | 3704/5070 (73%) | 1237 (33%)        | 31 (0%)         |
| 2   | 1B    | 119/121 (98%)   | 25 (21%)          | 1 (0%)          |
| 3   | 1C    | 155/157 (98%)   | 40 (25%)          | 2 (1%)          |
| 47  | 2m    | 1714/1869 (91%) | 659 (38%)         | 0               |
| 81  | zv    | 5/6 (83%)       | 4 (80%)           | 0               |
| 83  | zu    | 74/75 (98%)     | 25 (33%)          | 0               |
| 83  | zy    | 74/75 (98%)     | 16 (21%)          | 0               |
| All | All   | 5845/7373 (79%) | 2006 (34%)        | 34 (0%)         |

All (2006) RNA backbone outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1A    | 15  | A    |
| 1   | 1A    | 17  | A    |
| 1   | 1A    | 18  | C    |
| 1   | 1A    | 22  | G    |
| 1   | 1A    | 23  | C    |
| 1   | 1A    | 24  | G    |
| 1   | 1A    | 25  | A    |
| 1   | 1A    | 26  | C    |
| 1   | 1A    | 30  | C    |
| 1   | 1A    | 36  | U    |
| 1   | 1A    | 39  | A    |
| 1   | 1A    | 42  | A    |
| 1   | 1A    | 47  | A    |
| 1   | 1A    | 48  | G    |
| 1   | 1A    | 56  | A    |
| 1   | 1A    | 58  | G    |
| 1   | 1A    | 59  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1A    | 64  | A    |
| 1   | 1A    | 65  | A    |
| 1   | 1A    | 66  | A    |
| 1   | 1A    | 72  | C    |
| 1   | 1A    | 73  | A    |
| 1   | 1A    | 74  | G    |
| 1   | 1A    | 76  | A    |
| 1   | 1A    | 82  | U    |
| 1   | 1A    | 83  | C    |
| 1   | 1A    | 84  | A    |
| 1   | 1A    | 93  | G    |
| 1   | 1A    | 95  | G    |
| 1   | 1A    | 108 | A    |
| 1   | 1A    | 109 | G    |
| 1   | 1A    | 110 | C    |
| 1   | 1A    | 116 | G    |
| 1   | 1A    | 117 | C    |
| 1   | 1A    | 119 | G    |
| 1   | 1A    | 120 | A    |
| 1   | 1A    | 121 | A    |
| 1   | 1A    | 122 | U    |
| 1   | 1A    | 126 | C    |
| 1   | 1A    | 127 | G    |
| 1   | 1A    | 128 | C    |
| 1   | 1A    | 131 | C    |
| 1   | 1A    | 133 | C    |
| 1   | 1A    | 134 | G    |
| 1   | 1A    | 135 | G    |
| 1   | 1A    | 136 | C    |
| 1   | 1A    | 144 | G    |
| 1   | 1A    | 149 | A    |
| 1   | 1A    | 150 | U    |
| 1   | 1A    | 159 | C    |
| 1   | 1A    | 160 | G    |
| 1   | 1A    | 169 | G    |
| 1   | 1A    | 170 | C    |
| 1   | 1A    | 171 | U    |
| 1   | 1A    | 172 | C    |
| 1   | 1A    | 177 | G    |
| 1   | 1A    | 179 | G    |
| 1   | 1A    | 180 | C    |
| 1   | 1A    | 181 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1A    | 183 | C    |
| 1   | 1A    | 184 | U    |
| 1   | 1A    | 185 | C    |
| 1   | 1A    | 187 | U    |
| 1   | 1A    | 188 | G    |
| 1   | 1A    | 189 | G    |
| 1   | 1A    | 199 | G    |
| 1   | 1A    | 200 | U    |
| 1   | 1A    | 201 | C    |
| 1   | 1A    | 205 | C    |
| 1   | 1A    | 208 | A    |
| 1   | 1A    | 209 | U    |
| 1   | 1A    | 214 | G    |
| 1   | 1A    | 216 | C    |
| 1   | 1A    | 217 | C    |
| 1   | 1A    | 218 | A    |
| 1   | 1A    | 219 | G    |
| 1   | 1A    | 227 | A    |
| 1   | 1A    | 228 | C    |
| 1   | 1A    | 233 | U    |
| 1   | 1A    | 234 | G    |
| 1   | 1A    | 246 | G    |
| 1   | 1A    | 253 | G    |
| 1   | 1A    | 256 | G    |
| 1   | 1A    | 264 | C    |
| 1   | 1A    | 265 | C    |
| 1   | 1A    | 266 | C    |
| 1   | 1A    | 274 | C    |
| 1   | 1A    | 275 | C    |
| 1   | 1A    | 278 | G    |
| 1   | 1A    | 280 | G    |
| 1   | 1A    | 294 | G    |
| 1   | 1A    | 295 | A    |
| 1   | 1A    | 296 | A    |
| 1   | 1A    | 297 | U    |
| 1   | 1A    | 306 | A    |
| 1   | 1A    | 315 | G    |
| 1   | 1A    | 316 | U    |
| 1   | 1A    | 322 | C    |
| 1   | 1A    | 340 | C    |
| 1   | 1A    | 345 | C    |
| 1   | 1A    | 346 | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1A    | 357 | U    |
| 1   | 1A    | 360 | A    |
| 1   | 1A    | 363 | A    |
| 1   | 1A    | 364 | G    |
| 1   | 1A    | 370 | U    |
| 1   | 1A    | 373 | G    |
| 1   | 1A    | 379 | G    |
| 1   | 1A    | 381 | U    |
| 1   | 1A    | 382 | G    |
| 1   | 1A    | 383 | A    |
| 1   | 1A    | 384 | A    |
| 1   | 1A    | 385 | A    |
| 1   | 1A    | 387 | G    |
| 1   | 1A    | 389 | A    |
| 1   | 1A    | 396 | A    |
| 1   | 1A    | 399 | G    |
| 1   | 1A    | 401 | G    |
| 1   | 1A    | 407 | A    |
| 1   | 1A    | 409 | G    |
| 1   | 1A    | 410 | A    |
| 1   | 1A    | 412 | G    |
| 1   | 1A    | 413 | G    |
| 1   | 1A    | 414 | C    |
| 1   | 1A    | 415 | G    |
| 1   | 1A    | 417 | G    |
| 1   | 1A    | 418 | A    |
| 1   | 1A    | 438 | G    |
| 1   | 1A    | 439 | G    |
| 1   | 1A    | 440 | U    |
| 1   | 1A    | 446 | C    |
| 1   | 1A    | 449 | C    |
| 1   | 1A    | 450 | G    |
| 1   | 1A    | 452 | A    |
| 1   | 1A    | 453 | G    |
| 1   | 1A    | 454 | U    |
| 1   | 1A    | 456 | C    |
| 1   | 1A    | 457 | G    |
| 1   | 1A    | 464 | G    |
| 1   | 1A    | 465 | G    |
| 1   | 1A    | 467 | U    |
| 1   | 1A    | 478 | G    |
| 1   | 1A    | 484 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1A    | 485 | C    |
| 1   | 1A    | 486 | C    |
| 1   | 1A    | 489 | C    |
| 1   | 1A    | 493 | G    |
| 1   | 1A    | 494 | U    |
| 1   | 1A    | 496 | G    |
| 1   | 1A    | 497 | G    |
| 1   | 1A    | 498 | C    |
| 1   | 1A    | 500 | G    |
| 1   | 1A    | 501 | C    |
| 1   | 1A    | 502 | C    |
| 1   | 1A    | 503 | C    |
| 1   | 1A    | 504 | G    |
| 1   | 1A    | 505 | G    |
| 1   | 1A    | 506 | C    |
| 1   | 1A    | 509 | A    |
| 1   | 1A    | 510 | U    |
| 1   | 1A    | 512 | U    |
| 1   | 1A    | 513 | U    |
| 1   | 1A    | 514 | U    |
| 1   | 1A    | 516 | C    |
| 1   | 1A    | 517 | C    |
| 1   | 1A    | 518 | G    |
| 1   | 1A    | 643 | C    |
| 1   | 1A    | 644 | G    |
| 1   | 1A    | 645 | G    |
| 1   | 1A    | 646 | G    |
| 1   | 1A    | 653 | U    |
| 1   | 1A    | 654 | C    |
| 1   | 1A    | 656 | C    |
| 1   | 1A    | 657 | C    |
| 1   | 1A    | 659 | G    |
| 1   | 1A    | 665 | C    |
| 1   | 1A    | 666 | G    |
| 1   | 1A    | 667 | A    |
| 1   | 1A    | 668 | C    |
| 1   | 1A    | 670 | G    |
| 1   | 1A    | 673 | C    |
| 1   | 1A    | 674 | G    |
| 1   | 1A    | 675 | C    |
| 1   | 1A    | 685 | C    |
| 1   | 1A    | 686 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | 1A    | 687 | U    |
| 1   | 1A    | 696 | C    |
| 1   | 1A    | 697 | G    |
| 1   | 1A    | 701 | G    |
| 1   | 1A    | 703 | G    |
| 1   | 1A    | 704 | C    |
| 1   | 1A    | 705 | G    |
| 1   | 1A    | 708 | G    |
| 1   | 1A    | 719 | C    |
| 1   | 1A    | 731 | G    |
| 1   | 1A    | 738 | C    |
| 1   | 1A    | 739 | G    |
| 1   | 1A    | 747 | A    |
| 1   | 1A    | 750 | U    |
| 1   | 1A    | 753 | C    |
| 1   | 1A    | 757 | G    |
| 1   | 1A    | 758 | G    |
| 1   | 1A    | 904 | C    |
| 1   | 1A    | 905 | C    |
| 1   | 1A    | 907 | C    |
| 1   | 1A    | 910 | G    |
| 1   | 1A    | 912 | G    |
| 1   | 1A    | 913 | U    |
| 1   | 1A    | 914 | U    |
| 1   | 1A    | 915 | A    |
| 1   | 1A    | 916 | C    |
| 1   | 1A    | 917 | A    |
| 1   | 1A    | 918 | G    |
| 1   | 1A    | 923 | C    |
| 1   | 1A    | 924 | C    |
| 1   | 1A    | 925 | C    |
| 1   | 1A    | 926 | G    |
| 1   | 1A    | 932 | A    |
| 1   | 1A    | 933 | G    |
| 1   | 1A    | 934 | C    |
| 1   | 1A    | 935 | A    |
| 1   | 1A    | 936 | C    |
| 1   | 1A    | 941 | C    |
| 1   | 1A    | 943 | A    |
| 1   | 1A    | 944 | A    |
| 1   | 1A    | 945 | U    |
| 1   | 1A    | 955 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 959  | G    |
| 1   | 1A    | 960  | A    |
| 1   | 1A    | 961  | G    |
| 1   | 1A    | 962  | C    |
| 1   | 1A    | 963  | G    |
| 1   | 1A    | 965  | G    |
| 1   | 1A    | 966  | A    |
| 1   | 1A    | 967  | C    |
| 1   | 1A    | 968  | C    |
| 1   | 1A    | 970  | G    |
| 1   | 1A    | 971  | U    |
| 1   | 1A    | 982  | U    |
| 1   | 1A    | 983  | C    |
| 1   | 1A    | 984  | C    |
| 1   | 1A    | 988  | C    |
| 1   | 1A    | 989  | U    |
| 1   | 1A    | 990  | C    |
| 1   | 1A    | 991  | C    |
| 1   | 1A    | 992  | C    |
| 1   | 1A    | 993  | G    |
| 1   | 1A    | 995  | C    |
| 1   | 1A    | 996  | G    |
| 1   | 1A    | 1048 | G    |
| 1   | 1A    | 1051 | G    |
| 1   | 1A    | 1070 | G    |
| 1   | 1A    | 1071 | C    |
| 1   | 1A    | 1072 | C    |
| 1   | 1A    | 1074 | G    |
| 1   | 1A    | 1075 | G    |
| 1   | 1A    | 1076 | C    |
| 1   | 1A    | 1082 | C    |
| 1   | 1A    | 1083 | U    |
| 1   | 1A    | 1089 | G    |
| 1   | 1A    | 1092 | G    |
| 1   | 1A    | 1095 | A    |
| 1   | 1A    | 1096 | C    |
| 1   | 1A    | 1099 | C    |
| 1   | 1A    | 1168 | G    |
| 1   | 1A    | 1171 | G    |
| 1   | 1A    | 1173 | G    |
| 1   | 1A    | 1178 | G    |
| 1   | 1A    | 1179 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 1180 | C    |
| 1   | 1A    | 1181 | C    |
| 1   | 1A    | 1182 | C    |
| 1   | 1A    | 1183 | C    |
| 1   | 1A    | 1184 | A    |
| 1   | 1A    | 1187 | G    |
| 1   | 1A    | 1191 | C    |
| 1   | 1A    | 1192 | C    |
| 1   | 1A    | 1193 | C    |
| 1   | 1A    | 1196 | G    |
| 1   | 1A    | 1197 | C    |
| 1   | 1A    | 1198 | G    |
| 1   | 1A    | 1200 | G    |
| 1   | 1A    | 1202 | C    |
| 1   | 1A    | 1203 | G    |
| 1   | 1A    | 1211 | G    |
| 1   | 1A    | 1212 | G    |
| 1   | 1A    | 1214 | C    |
| 1   | 1A    | 1215 | C    |
| 1   | 1A    | 1216 | C    |
| 1   | 1A    | 1217 | G    |
| 1   | 1A    | 1218 | G    |
| 1   | 1A    | 1219 | G    |
| 1   | 1A    | 1220 | G    |
| 1   | 1A    | 1221 | G    |
| 1   | 1A    | 1222 | A    |
| 1   | 1A    | 1235 | G    |
| 1   | 1A    | 1239 | C    |
| 1   | 1A    | 1241 | C    |
| 1   | 1A    | 1243 | C    |
| 1   | 1A    | 1252 | C    |
| 1   | 1A    | 1254 | A    |
| 1   | 1A    | 1255 | A    |
| 1   | 1A    | 1261 | G    |
| 1   | 1A    | 1262 | G    |
| 1   | 1A    | 1263 | A    |
| 1   | 1A    | 1266 | G    |
| 1   | 1A    | 1267 | C    |
| 1   | 1A    | 1269 | G    |
| 1   | 1A    | 1270 | A    |
| 1   | 1A    | 1271 | G    |
| 1   | 1A    | 1272 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 1273 | G    |
| 1   | 1A    | 1274 | A    |
| 1   | 1A    | 1275 | G    |
| 1   | 1A    | 1277 | G    |
| 1   | 1A    | 1279 | A    |
| 1   | 1A    | 1280 | C    |
| 1   | 1A    | 1284 | G    |
| 1   | 1A    | 1285 | U    |
| 1   | 1A    | 1287 | G    |
| 1   | 1A    | 1293 | G    |
| 1   | 1A    | 1294 | A    |
| 1   | 1A    | 1295 | C    |
| 1   | 1A    | 1296 | G    |
| 1   | 1A    | 1301 | C    |
| 1   | 1A    | 1302 | U    |
| 1   | 1A    | 1303 | A    |
| 1   | 1A    | 1314 | C    |
| 1   | 1A    | 1322 | A    |
| 1   | 1A    | 1323 | A    |
| 1   | 1A    | 1326 | A    |
| 1   | 1A    | 1338 | G    |
| 1   | 1A    | 1344 | C    |
| 1   | 1A    | 1354 | A    |
| 1   | 1A    | 1358 | G    |
| 1   | 1A    | 1359 | G    |
| 1   | 1A    | 1360 | G    |
| 1   | 1A    | 1365 | C    |
| 1   | 1A    | 1367 | C    |
| 1   | 1A    | 1370 | G    |
| 1   | 1A    | 1371 | A    |
| 1   | 1A    | 1372 | A    |
| 1   | 1A    | 1377 | G    |
| 1   | 1A    | 1378 | C    |
| 1   | 1A    | 1379 | C    |
| 1   | 1A    | 1381 | U    |
| 1   | 1A    | 1387 | A    |
| 1   | 1A    | 1394 | G    |
| 1   | 1A    | 1397 | A    |
| 1   | 1A    | 1398 | A    |
| 1   | 1A    | 1399 | G    |
| 1   | 1A    | 1402 | C    |
| 1   | 1A    | 1403 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 1404 | G    |
| 1   | 1A    | 1405 | C    |
| 1   | 1A    | 1407 | C    |
| 1   | 1A    | 1409 | C    |
| 1   | 1A    | 1410 | U    |
| 1   | 1A    | 1411 | C    |
| 1   | 1A    | 1416 | G    |
| 1   | 1A    | 1417 | C    |
| 1   | 1A    | 1420 | A    |
| 1   | 1A    | 1425 | G    |
| 1   | 1A    | 1435 | G    |
| 1   | 1A    | 1439 | C    |
| 1   | 1A    | 1440 | U    |
| 1   | 1A    | 1441 | C    |
| 1   | 1A    | 1443 | A    |
| 1   | 1A    | 1444 | G    |
| 1   | 1A    | 1446 | C    |
| 1   | 1A    | 1447 | C    |
| 1   | 1A    | 1457 | G    |
| 1   | 1A    | 1472 | C    |
| 1   | 1A    | 1482 | G    |
| 1   | 1A    | 1483 | C    |
| 1   | 1A    | 1497 | A    |
| 1   | 1A    | 1498 | G    |
| 1   | 1A    | 1501 | C    |
| 1   | 1A    | 1518 | A    |
| 1   | 1A    | 1523 | A    |
| 1   | 1A    | 1525 | A    |
| 1   | 1A    | 1534 | A    |
| 1   | 1A    | 1547 | A    |
| 1   | 1A    | 1549 | G    |
| 1   | 1A    | 1564 | A    |
| 1   | 1A    | 1566 | C    |
| 1   | 1A    | 1574 | G    |
| 1   | 1A    | 1575 | A    |
| 1   | 1A    | 1578 | U    |
| 1   | 1A    | 1581 | G    |
| 1   | 1A    | 1582 | U    |
| 1   | 1A    | 1591 | U    |
| 1   | 1A    | 1596 | U    |
| 1   | 1A    | 1601 | A    |
| 1   | 1A    | 1609 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 1611 | C    |
| 1   | 1A    | 1614 | C    |
| 1   | 1A    | 1621 | A    |
| 1   | 1A    | 1624 | G    |
| 1   | 1A    | 1625 | G    |
| 1   | 1A    | 1631 | A    |
| 1   | 1A    | 1633 | G    |
| 1   | 1A    | 1634 | A    |
| 1   | 1A    | 1641 | G    |
| 1   | 1A    | 1649 | U    |
| 1   | 1A    | 1650 | A    |
| 1   | 1A    | 1654 | G    |
| 1   | 1A    | 1658 | G    |
| 1   | 1A    | 1660 | U    |
| 1   | 1A    | 1661 | C    |
| 1   | 1A    | 1676 | C    |
| 1   | 1A    | 1677 | U    |
| 1   | 1A    | 1678 | C    |
| 1   | 1A    | 1681 | G    |
| 1   | 1A    | 1683 | U    |
| 1   | 1A    | 1688 | G    |
| 1   | 1A    | 1691 | G    |
| 1   | 1A    | 1694 | C    |
| 1   | 1A    | 1697 | G    |
| 1   | 1A    | 1699 | A    |
| 1   | 1A    | 1700 | G    |
| 1   | 1A    | 1701 | A    |
| 1   | 1A    | 1703 | C    |
| 1   | 1A    | 1704 | C    |
| 1   | 1A    | 1705 | G    |
| 1   | 1A    | 1707 | C    |
| 1   | 1A    | 1709 | C    |
| 1   | 1A    | 1719 | A    |
| 1   | 1A    | 1724 | G    |
| 1   | 1A    | 1734 | G    |
| 1   | 1A    | 1735 | U    |
| 1   | 1A    | 1740 | C    |
| 1   | 1A    | 1742 | A    |
| 1   | 1A    | 1743 | A    |
| 1   | 1A    | 1745 | G    |
| 1   | 1A    | 1746 | A    |
| 1   | 1A    | 1749 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 1750 | G    |
| 1   | 1A    | 1755 | C    |
| 1   | 1A    | 1757 | U    |
| 1   | 1A    | 1758 | G    |
| 1   | 1A    | 1760 | G    |
| 1   | 1A    | 1761 | G    |
| 1   | 1A    | 1762 | C    |
| 1   | 1A    | 1763 | C    |
| 1   | 1A    | 1764 | G    |
| 1   | 1A    | 1765 | A    |
| 1   | 1A    | 1766 | A    |
| 1   | 1A    | 1768 | C    |
| 1   | 1A    | 1769 | G    |
| 1   | 1A    | 1770 | A    |
| 1   | 1A    | 1772 | C    |
| 1   | 1A    | 1775 | A    |
| 1   | 1A    | 1776 | A    |
| 1   | 1A    | 1785 | C    |
| 1   | 1A    | 1787 | A    |
| 1   | 1A    | 1792 | U    |
| 1   | 1A    | 1797 | G    |
| 1   | 1A    | 1803 | G    |
| 1   | 1A    | 1804 | A    |
| 1   | 1A    | 1806 | G    |
| 1   | 1A    | 1810 | G    |
| 1   | 1A    | 1819 | G    |
| 1   | 1A    | 1821 | G    |
| 1   | 1A    | 1822 | U    |
| 1   | 1A    | 1823 | G    |
| 1   | 1A    | 1834 | U    |
| 1   | 1A    | 1836 | G    |
| 1   | 1A    | 1837 | A    |
| 1   | 1A    | 1842 | G    |
| 1   | 1A    | 1843 | A    |
| 1   | 1A    | 1852 | U    |
| 1   | 1A    | 1853 | G    |
| 1   | 1A    | 1855 | G    |
| 1   | 1A    | 1869 | G    |
| 1   | 1A    | 1881 | C    |
| 1   | 1A    | 1889 | U    |
| 1   | 1A    | 1890 | G    |
| 1   | 1A    | 1893 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 1897 | A    |
| 1   | 1A    | 1898 | C    |
| 1   | 1A    | 1918 | U    |
| 1   | 1A    | 1919 | G    |
| 1   | 1A    | 1920 | C    |
| 1   | 1A    | 1921 | C    |
| 1   | 1A    | 1922 | G    |
| 1   | 1A    | 1931 | C    |
| 1   | 1A    | 1932 | A    |
| 1   | 1A    | 1935 | C    |
| 1   | 1A    | 1936 | C    |
| 1   | 1A    | 1938 | C    |
| 1   | 1A    | 1940 | G    |
| 1   | 1A    | 1945 | G    |
| 1   | 1A    | 1948 | G    |
| 1   | 1A    | 1959 | U    |
| 1   | 1A    | 1960 | A    |
| 1   | 1A    | 1961 | G    |
| 1   | 1A    | 1962 | A    |
| 1   | 1A    | 1965 | G    |
| 1   | 1A    | 1966 | C    |
| 1   | 1A    | 1967 | A    |
| 1   | 1A    | 1968 | G    |
| 1   | 1A    | 1969 | G    |
| 1   | 1A    | 1970 | A    |
| 1   | 1A    | 1973 | G    |
| 1   | 1A    | 1974 | U    |
| 1   | 1A    | 1975 | G    |
| 1   | 1A    | 1976 | G    |
| 1   | 1A    | 1977 | C    |
| 1   | 1A    | 1979 | A    |
| 1   | 1A    | 1980 | U    |
| 1   | 1A    | 1981 | G    |
| 1   | 1A    | 1982 | G    |
| 1   | 1A    | 1983 | A    |
| 1   | 1A    | 1984 | A    |
| 1   | 1A    | 1985 | G    |
| 1   | 1A    | 1987 | C    |
| 1   | 1A    | 1988 | G    |
| 1   | 1A    | 1989 | G    |
| 1   | 1A    | 1991 | A    |
| 1   | 1A    | 1993 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 1995 | G    |
| 1   | 1A    | 1996 | C    |
| 1   | 1A    | 1997 | U    |
| 1   | 1A    | 1998 | A    |
| 1   | 1A    | 1999 | A    |
| 1   | 1A    | 2002 | A    |
| 1   | 1A    | 2003 | G    |
| 1   | 1A    | 2004 | U    |
| 1   | 1A    | 2006 | U    |
| 1   | 1A    | 2007 | G    |
| 1   | 1A    | 2009 | A    |
| 1   | 1A    | 2010 | A    |
| 1   | 1A    | 2011 | C    |
| 1   | 1A    | 2012 | A    |
| 1   | 1A    | 2013 | A    |
| 1   | 1A    | 2015 | U    |
| 1   | 1A    | 2016 | C    |
| 1   | 1A    | 2018 | C    |
| 1   | 1A    | 2019 | C    |
| 1   | 1A    | 2020 | U    |
| 1   | 1A    | 2025 | A    |
| 1   | 1A    | 2026 | A    |
| 1   | 1A    | 2033 | A    |
| 1   | 1A    | 2034 | G    |
| 1   | 1A    | 2038 | U    |
| 1   | 1A    | 2040 | A    |
| 1   | 1A    | 2044 | U    |
| 1   | 1A    | 2046 | G    |
| 1   | 1A    | 2048 | U    |
| 1   | 1A    | 2052 | G    |
| 1   | 1A    | 2054 | U    |
| 1   | 1A    | 2055 | G    |
| 1   | 1A    | 2056 | G    |
| 1   | 1A    | 2062 | C    |
| 1   | 1A    | 2069 | A    |
| 1   | 1A    | 2084 | C    |
| 1   | 1A    | 2085 | G    |
| 1   | 1A    | 2089 | G    |
| 1   | 1A    | 2090 | U    |
| 1   | 1A    | 2091 | C    |
| 1   | 1A    | 2092 | G    |
| 1   | 1A    | 2093 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 2095 | A    |
| 1   | 1A    | 2096 | G    |
| 1   | 1A    | 2097 | U    |
| 1   | 1A    | 2098 | G    |
| 1   | 1A    | 2101 | C    |
| 1   | 1A    | 2102 | G    |
| 1   | 1A    | 2103 | G    |
| 1   | 1A    | 2106 | G    |
| 1   | 1A    | 2107 | C    |
| 1   | 1A    | 2108 | G    |
| 1   | 1A    | 2111 | G    |
| 1   | 1A    | 2112 | G    |
| 1   | 1A    | 2252 | G    |
| 1   | 1A    | 2253 | A    |
| 1   | 1A    | 2256 | C    |
| 1   | 1A    | 2259 | G    |
| 1   | 1A    | 2260 | C    |
| 1   | 1A    | 2262 | G    |
| 1   | 1A    | 2266 | C    |
| 1   | 1A    | 2268 | A    |
| 1   | 1A    | 2275 | G    |
| 1   | 1A    | 2288 | G    |
| 1   | 1A    | 2289 | C    |
| 1   | 1A    | 2290 | C    |
| 1   | 1A    | 2299 | G    |
| 1   | 1A    | 2300 | A    |
| 1   | 1A    | 2301 | G    |
| 1   | 1A    | 2306 | G    |
| 1   | 1A    | 2307 | A    |
| 1   | 1A    | 2313 | A    |
| 1   | 1A    | 2316 | G    |
| 1   | 1A    | 2318 | G    |
| 1   | 1A    | 2321 | G    |
| 1   | 1A    | 2322 | G    |
| 1   | 1A    | 2327 | G    |
| 1   | 1A    | 2328 | G    |
| 1   | 1A    | 2331 | G    |
| 1   | 1A    | 2332 | A    |
| 1   | 1A    | 2333 | G    |
| 1   | 1A    | 2337 | C    |
| 1   | 1A    | 2342 | G    |
| 1   | 1A    | 2343 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 2346 | C    |
| 1   | 1A    | 2347 | A    |
| 1   | 1A    | 2348 | G    |
| 1   | 1A    | 2350 | U    |
| 1   | 1A    | 2351 | C    |
| 1   | 1A    | 2352 | U    |
| 1   | 1A    | 2360 | A    |
| 1   | 1A    | 2369 | U    |
| 1   | 1A    | 2370 | A    |
| 1   | 1A    | 2379 | A    |
| 1   | 1A    | 2383 | C    |
| 1   | 1A    | 2390 | G    |
| 1   | 1A    | 2391 | G    |
| 1   | 1A    | 2392 | C    |
| 1   | 1A    | 2395 | A    |
| 1   | 1A    | 2396 | A    |
| 1   | 1A    | 2397 | G    |
| 1   | 1A    | 2402 | G    |
| 1   | 1A    | 2404 | A    |
| 1   | 1A    | 2409 | U    |
| 1   | 1A    | 2410 | C    |
| 1   | 1A    | 2412 | A    |
| 1   | 1A    | 2416 | G    |
| 1   | 1A    | 2417 | A    |
| 1   | 1A    | 2418 | A    |
| 1   | 1A    | 2421 | G    |
| 1   | 1A    | 2422 | C    |
| 1   | 1A    | 2426 | U    |
| 1   | 1A    | 2428 | A    |
| 1   | 1A    | 2437 | C    |
| 1   | 1A    | 2439 | G    |
| 1   | 1A    | 2440 | U    |
| 1   | 1A    | 2441 | C    |
| 1   | 1A    | 2442 | G    |
| 1   | 1A    | 2444 | U    |
| 1   | 1A    | 2450 | G    |
| 1   | 1A    | 2460 | A    |
| 1   | 1A    | 2461 | G    |
| 1   | 1A    | 2463 | G    |
| 1   | 1A    | 2465 | C    |
| 1   | 1A    | 2471 | G    |
| 1   | 1A    | 2474 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 2475 | G    |
| 1   | 1A    | 2483 | G    |
| 1   | 1A    | 2484 | A    |
| 1   | 1A    | 2485 | U    |
| 1   | 1A    | 2486 | G    |
| 1   | 1A    | 2487 | G    |
| 1   | 1A    | 2488 | C    |
| 1   | 1A    | 2489 | C    |
| 1   | 1A    | 2491 | C    |
| 1   | 1A    | 2494 | U    |
| 1   | 1A    | 2495 | U    |
| 1   | 1A    | 2496 | G    |
| 1   | 1A    | 2498 | C    |
| 1   | 1A    | 2503 | G    |
| 1   | 1A    | 2504 | C    |
| 1   | 1A    | 2505 | C    |
| 1   | 1A    | 2506 | G    |
| 1   | 1A    | 2507 | A    |
| 1   | 1A    | 2511 | A    |
| 1   | 1A    | 2512 | A    |
| 1   | 1A    | 2513 | A    |
| 1   | 1A    | 2514 | G    |
| 1   | 1A    | 2529 | A    |
| 1   | 1A    | 2530 | U    |
| 1   | 1A    | 2532 | C    |
| 1   | 1A    | 2537 | A    |
| 1   | 1A    | 2544 | G    |
| 1   | 1A    | 2545 | U    |
| 1   | 1A    | 2546 | G    |
| 1   | 1A    | 2547 | G    |
| 1   | 1A    | 2553 | A    |
| 1   | 1A    | 2554 | U    |
| 1   | 1A    | 2555 | G    |
| 1   | 1A    | 2556 | G    |
| 1   | 1A    | 2560 | C    |
| 1   | 1A    | 2563 | C    |
| 1   | 1A    | 2566 | G    |
| 1   | 1A    | 2567 | G    |
| 1   | 1A    | 2573 | A    |
| 1   | 1A    | 2575 | U    |
| 1   | 1A    | 2583 | C    |
| 1   | 1A    | 2586 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 2587 | A    |
| 1   | 1A    | 2588 | C    |
| 1   | 1A    | 2589 | C    |
| 1   | 1A    | 2599 | G    |
| 1   | 1A    | 2600 | A    |
| 1   | 1A    | 2601 | A    |
| 1   | 1A    | 2606 | G    |
| 1   | 1A    | 2609 | G    |
| 1   | 1A    | 2610 | G    |
| 1   | 1A    | 2618 | G    |
| 1   | 1A    | 2624 | G    |
| 1   | 1A    | 2627 | C    |
| 1   | 1A    | 2631 | U    |
| 1   | 1A    | 2637 | U    |
| 1   | 1A    | 2639 | U    |
| 1   | 1A    | 2647 | A    |
| 1   | 1A    | 2653 | C    |
| 1   | 1A    | 2661 | U    |
| 1   | 1A    | 2662 | G    |
| 1   | 1A    | 2669 | C    |
| 1   | 1A    | 2670 | C    |
| 1   | 1A    | 2673 | G    |
| 1   | 1A    | 2675 | G    |
| 1   | 1A    | 2681 | G    |
| 1   | 1A    | 2686 | G    |
| 1   | 1A    | 2687 | U    |
| 1   | 1A    | 2694 | G    |
| 1   | 1A    | 2696 | A    |
| 1   | 1A    | 2705 | G    |
| 1   | 1A    | 2707 | U    |
| 1   | 1A    | 2708 | U    |
| 1   | 1A    | 2710 | C    |
| 1   | 1A    | 2711 | G    |
| 1   | 1A    | 2712 | G    |
| 1   | 1A    | 2714 | G    |
| 1   | 1A    | 2715 | G    |
| 1   | 1A    | 2721 | G    |
| 1   | 1A    | 2724 | G    |
| 1   | 1A    | 2725 | A    |
| 1   | 1A    | 2726 | G    |
| 1   | 1A    | 2739 | C    |
| 1   | 1A    | 2740 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 2743 | A    |
| 1   | 1A    | 2753 | G    |
| 1   | 1A    | 2761 | U    |
| 1   | 1A    | 2762 | G    |
| 1   | 1A    | 2763 | U    |
| 1   | 1A    | 2767 | U    |
| 1   | 1A    | 2768 | C    |
| 1   | 1A    | 2769 | U    |
| 1   | 1A    | 2770 | C    |
| 1   | 1A    | 2772 | C    |
| 1   | 1A    | 2776 | G    |
| 1   | 1A    | 2787 | A    |
| 1   | 1A    | 2788 | U    |
| 1   | 1A    | 2789 | A    |
| 1   | 1A    | 2791 | C    |
| 1   | 1A    | 2794 | C    |
| 1   | 1A    | 2795 | A    |
| 1   | 1A    | 2796 | G    |
| 1   | 1A    | 2797 | C    |
| 1   | 1A    | 2798 | A    |
| 1   | 1A    | 2822 | G    |
| 1   | 1A    | 2826 | U    |
| 1   | 1A    | 2827 | G    |
| 1   | 1A    | 2828 | U    |
| 1   | 1A    | 2842 | G    |
| 1   | 1A    | 2855 | G    |
| 1   | 1A    | 2860 | C    |
| 1   | 1A    | 2862 | G    |
| 1   | 1A    | 2864 | A    |
| 1   | 1A    | 2870 | A    |
| 1   | 1A    | 2872 | C    |
| 1   | 1A    | 2874 | U    |
| 1   | 1A    | 2875 | C    |
| 1   | 1A    | 2876 | G    |
| 1   | 1A    | 2877 | G    |
| 1   | 1A    | 2879 | A    |
| 1   | 1A    | 2880 | U    |
| 1   | 1A    | 2892 | C    |
| 1   | 1A    | 2894 | A    |
| 1   | 1A    | 2899 | C    |
| 1   | 1A    | 2901 | G    |
| 1   | 1A    | 2902 | G    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 2903 | G    |
| 1   | 1A    | 2904 | U    |
| 1   | 1A    | 2906 | G    |
| 1   | 1A    | 2907 | G    |
| 1   | 1A    | 2908 | U    |
| 1   | 1A    | 2910 | G    |
| 1   | 1A    | 3585 | G    |
| 1   | 1A    | 3586 | G    |
| 1   | 1A    | 3590 | G    |
| 1   | 1A    | 3591 | C    |
| 1   | 1A    | 3592 | G    |
| 1   | 1A    | 3593 | C    |
| 1   | 1A    | 3594 | C    |
| 1   | 1A    | 3595 | U    |
| 1   | 1A    | 3596 | A    |
| 1   | 1A    | 3597 | G    |
| 1   | 1A    | 3614 | G    |
| 1   | 1A    | 3615 | G    |
| 1   | 1A    | 3616 | U    |
| 1   | 1A    | 3619 | G    |
| 1   | 1A    | 3620 | G    |
| 1   | 1A    | 3626 | G    |
| 1   | 1A    | 3630 | A    |
| 1   | 1A    | 3635 | A    |
| 1   | 1A    | 3637 | U    |
| 1   | 1A    | 3640 | U    |
| 1   | 1A    | 3641 | U    |
| 1   | 1A    | 3642 | A    |
| 1   | 1A    | 3646 | A    |
| 1   | 1A    | 3651 | A    |
| 1   | 1A    | 3652 | A    |
| 1   | 1A    | 3662 | A    |
| 1   | 1A    | 3663 | A    |
| 1   | 1A    | 3664 | G    |
| 1   | 1A    | 3670 | C    |
| 1   | 1A    | 3671 | G    |
| 1   | 1A    | 3672 | G    |
| 1   | 1A    | 3673 | C    |
| 1   | 1A    | 3678 | G    |
| 1   | 1A    | 3679 | U    |
| 1   | 1A    | 3680 | U    |
| 1   | 1A    | 3683 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 3690 | U    |
| 1   | 1A    | 3691 | G    |
| 1   | 1A    | 3692 | A    |
| 1   | 1A    | 3696 | C    |
| 1   | 1A    | 3702 | A    |
| 1   | 1A    | 3705 | G    |
| 1   | 1A    | 3709 | U    |
| 1   | 1A    | 3711 | A    |
| 1   | 1A    | 3712 | A    |
| 1   | 1A    | 3713 | U    |
| 1   | 1A    | 3726 | A    |
| 1   | 1A    | 3728 | A    |
| 1   | 1A    | 3729 | U    |
| 1   | 1A    | 3735 | G    |
| 1   | 1A    | 3736 | A    |
| 1   | 1A    | 3750 | G    |
| 1   | 1A    | 3753 | G    |
| 1   | 1A    | 3757 | G    |
| 1   | 1A    | 3758 | U    |
| 1   | 1A    | 3759 | A    |
| 1   | 1A    | 3760 | A    |
| 1   | 1A    | 3761 | C    |
| 1   | 1A    | 3762 | U    |
| 1   | 1A    | 3763 | A    |
| 1   | 1A    | 3766 | A    |
| 1   | 1A    | 3767 | C    |
| 1   | 1A    | 3768 | U    |
| 1   | 1A    | 3769 | C    |
| 1   | 1A    | 3773 | U    |
| 1   | 1A    | 3774 | A    |
| 1   | 1A    | 3776 | G    |
| 1   | 1A    | 3777 | G    |
| 1   | 1A    | 3778 | U    |
| 1   | 1A    | 3783 | A    |
| 1   | 1A    | 3784 | A    |
| 1   | 1A    | 3785 | A    |
| 1   | 1A    | 3786 | U    |
| 1   | 1A    | 3787 | G    |
| 1   | 1A    | 3789 | C    |
| 1   | 1A    | 3790 | U    |
| 1   | 1A    | 3791 | C    |
| 1   | 1A    | 3794 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 3810 | C    |
| 1   | 1A    | 3811 | G    |
| 1   | 1A    | 3812 | C    |
| 1   | 1A    | 3814 | U    |
| 1   | 1A    | 3816 | A    |
| 1   | 1A    | 3817 | A    |
| 1   | 1A    | 3818 | U    |
| 1   | 1A    | 3819 | G    |
| 1   | 1A    | 3839 | G    |
| 1   | 1A    | 3841 | C    |
| 1   | 1A    | 3850 | C    |
| 1   | 1A    | 3851 | U    |
| 1   | 1A    | 3860 | A    |
| 1   | 1A    | 3865 | A    |
| 1   | 1A    | 3867 | A    |
| 1   | 1A    | 3869 | C    |
| 1   | 1A    | 3874 | G    |
| 1   | 1A    | 3876 | A    |
| 1   | 1A    | 3877 | A    |
| 1   | 1A    | 3878 | C    |
| 1   | 1A    | 3879 | G    |
| 1   | 1A    | 3880 | G    |
| 1   | 1A    | 3883 | U    |
| 1   | 1A    | 3887 | C    |
| 1   | 1A    | 3889 | G    |
| 1   | 1A    | 3890 | A    |
| 1   | 1A    | 3892 | U    |
| 1   | 1A    | 3895 | G    |
| 1   | 1A    | 3896 | C    |
| 1   | 1A    | 3901 | A    |
| 1   | 1A    | 3902 | A    |
| 1   | 1A    | 3904 | G    |
| 1   | 1A    | 3905 | A    |
| 1   | 1A    | 3906 | A    |
| 1   | 1A    | 3907 | G    |
| 1   | 1A    | 3908 | A    |
| 1   | 1A    | 3909 | C    |
| 1   | 1A    | 3910 | C    |
| 1   | 1A    | 3913 | G    |
| 1   | 1A    | 3914 | U    |
| 1   | 1A    | 3915 | U    |
| 1   | 1A    | 3921 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 3923 | A    |
| 1   | 1A    | 3928 | A    |
| 1   | 1A    | 3938 | G    |
| 1   | 1A    | 3939 | G    |
| 1   | 1A    | 3943 | A    |
| 1   | 1A    | 3946 | G    |
| 1   | 1A    | 3948 | C    |
| 1   | 1A    | 3951 | G    |
| 1   | 1A    | 3952 | A    |
| 1   | 1A    | 3953 | G    |
| 1   | 1A    | 3954 | A    |
| 1   | 1A    | 3955 | G    |
| 1   | 1A    | 3956 | G    |
| 1   | 1A    | 3957 | U    |
| 1   | 1A    | 3959 | U    |
| 1   | 1A    | 3960 | A    |
| 1   | 1A    | 3961 | G    |
| 1   | 1A    | 3962 | A    |
| 1   | 1A    | 3963 | A    |
| 1   | 1A    | 3965 | A    |
| 1   | 1A    | 3966 | A    |
| 1   | 1A    | 3967 | G    |
| 1   | 1A    | 3968 | U    |
| 1   | 1A    | 3970 | G    |
| 1   | 1A    | 3971 | G    |
| 1   | 1A    | 3973 | G    |
| 1   | 1A    | 3974 | G    |
| 1   | 1A    | 3975 | C    |
| 1   | 1A    | 3977 | C    |
| 1   | 1A    | 4035 | G    |
| 1   | 1A    | 4036 | G    |
| 1   | 1A    | 4038 | C    |
| 1   | 1A    | 4039 | G    |
| 1   | 1A    | 4041 | C    |
| 1   | 1A    | 4042 | G    |
| 1   | 1A    | 4043 | G    |
| 1   | 1A    | 4044 | U    |
| 1   | 1A    | 4046 | A    |
| 1   | 1A    | 4048 | A    |
| 1   | 1A    | 4049 | U    |
| 1   | 1A    | 4051 | C    |
| 1   | 1A    | 4052 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4053 | A    |
| 1   | 1A    | 4055 | U    |
| 1   | 1A    | 4057 | C    |
| 1   | 1A    | 4059 | C    |
| 1   | 1A    | 4060 | U    |
| 1   | 1A    | 4061 | G    |
| 1   | 1A    | 4063 | U    |
| 1   | 1A    | 4064 | C    |
| 1   | 1A    | 4065 | G    |
| 1   | 1A    | 4066 | U    |
| 1   | 1A    | 4071 | U    |
| 1   | 1A    | 4076 | G    |
| 1   | 1A    | 4077 | A    |
| 1   | 1A    | 4084 | G    |
| 1   | 1A    | 4085 | A    |
| 1   | 1A    | 4086 | G    |
| 1   | 1A    | 4087 | G    |
| 1   | 1A    | 4088 | C    |
| 1   | 1A    | 4098 | A    |
| 1   | 1A    | 4099 | G    |
| 1   | 1A    | 4100 | C    |
| 1   | 1A    | 4101 | C    |
| 1   | 1A    | 4102 | C    |
| 1   | 1A    | 4103 | C    |
| 1   | 1A    | 4104 | G    |
| 1   | 1A    | 4105 | A    |
| 1   | 1A    | 4106 | G    |
| 1   | 1A    | 4107 | G    |
| 1   | 1A    | 4109 | G    |
| 1   | 1A    | 4111 | U    |
| 1   | 1A    | 4112 | C    |
| 1   | 1A    | 4113 | U    |
| 1   | 1A    | 4114 | C    |
| 1   | 1A    | 4115 | G    |
| 1   | 1A    | 4116 | C    |
| 1   | 1A    | 4117 | U    |
| 1   | 1A    | 4120 | U    |
| 1   | 1A    | 4121 | G    |
| 1   | 1A    | 4127 | A    |
| 1   | 1A    | 4136 | G    |
| 1   | 1A    | 4141 | G    |
| 1   | 1A    | 4142 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4143 | G    |
| 1   | 1A    | 4144 | C    |
| 1   | 1A    | 4146 | G    |
| 1   | 1A    | 4151 | G    |
| 1   | 1A    | 4154 | G    |
| 1   | 1A    | 4162 | C    |
| 1   | 1A    | 4163 | U    |
| 1   | 1A    | 4170 | A    |
| 1   | 1A    | 4171 | C    |
| 1   | 1A    | 4176 | C    |
| 1   | 1A    | 4177 | C    |
| 1   | 1A    | 4183 | G    |
| 1   | 1A    | 4184 | G    |
| 1   | 1A    | 4191 | G    |
| 1   | 1A    | 4194 | U    |
| 1   | 1A    | 4201 | G    |
| 1   | 1A    | 4203 | A    |
| 1   | 1A    | 4204 | C    |
| 1   | 1A    | 4205 | A    |
| 1   | 1A    | 4206 | C    |
| 1   | 1A    | 4211 | C    |
| 1   | 1A    | 4212 | A    |
| 1   | 1A    | 4214 | A    |
| 1   | 1A    | 4216 | G    |
| 1   | 1A    | 4220 | A    |
| 1   | 1A    | 4221 | C    |
| 1   | 1A    | 4222 | G    |
| 1   | 1A    | 4228 | G    |
| 1   | 1A    | 4229 | U    |
| 1   | 1A    | 4233 | A    |
| 1   | 1A    | 4242 | U    |
| 1   | 1A    | 4249 | G    |
| 1   | 1A    | 4251 | A    |
| 1   | 1A    | 4254 | G    |
| 1   | 1A    | 4256 | A    |
| 1   | 1A    | 4268 | A    |
| 1   | 1A    | 4273 | A    |
| 1   | 1A    | 4274 | A    |
| 1   | 1A    | 4280 | A    |
| 1   | 1A    | 4281 | A    |
| 1   | 1A    | 4287 | G    |
| 1   | 1A    | 4288 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4291 | G    |
| 1   | 1A    | 4293 | U    |
| 1   | 1A    | 4305 | G    |
| 1   | 1A    | 4306 | U    |
| 1   | 1A    | 4316 | G    |
| 1   | 1A    | 4319 | C    |
| 1   | 1A    | 4324 | A    |
| 1   | 1A    | 4325 | A    |
| 1   | 1A    | 4326 | G    |
| 1   | 1A    | 4330 | G    |
| 1   | 1A    | 4335 | C    |
| 1   | 1A    | 4349 | C    |
| 1   | 1A    | 4350 | C    |
| 1   | 1A    | 4354 | U    |
| 1   | 1A    | 4355 | G    |
| 1   | 1A    | 4371 | G    |
| 1   | 1A    | 4377 | G    |
| 1   | 1A    | 4378 | A    |
| 1   | 1A    | 4380 | A    |
| 1   | 1A    | 4381 | A    |
| 1   | 1A    | 4387 | C    |
| 1   | 1A    | 4391 | G    |
| 1   | 1A    | 4393 | G    |
| 1   | 1A    | 4394 | A    |
| 1   | 1A    | 4395 | U    |
| 1   | 1A    | 4398 | C    |
| 1   | 1A    | 4399 | U    |
| 1   | 1A    | 4405 | G    |
| 1   | 1A    | 4410 | G    |
| 1   | 1A    | 4412 | C    |
| 1   | 1A    | 4420 | U    |
| 1   | 1A    | 4422 | A    |
| 1   | 1A    | 4424 | A    |
| 1   | 1A    | 4426 | C    |
| 1   | 1A    | 4430 | G    |
| 1   | 1A    | 4438 | U    |
| 1   | 1A    | 4442 | U    |
| 1   | 1A    | 4444 | C    |
| 1   | 1A    | 4448 | G    |
| 1   | 1A    | 4449 | A    |
| 1   | 1A    | 4450 | U    |
| 1   | 1A    | 4453 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4464 | A    |
| 1   | 1A    | 4465 | U    |
| 1   | 1A    | 4474 | A    |
| 1   | 1A    | 4476 | C    |
| 1   | 1A    | 4477 | A    |
| 1   | 1A    | 4479 | A    |
| 1   | 1A    | 4488 | A    |
| 1   | 1A    | 4489 | G    |
| 1   | 1A    | 4497 | U    |
| 1   | 1A    | 4500 | U    |
| 1   | 1A    | 4501 | U    |
| 1   | 1A    | 4502 | C    |
| 1   | 1A    | 4512 | U    |
| 1   | 1A    | 4513 | A    |
| 1   | 1A    | 4518 | A    |
| 1   | 1A    | 4523 | A    |
| 1   | 1A    | 4524 | G    |
| 1   | 1A    | 4528 | G    |
| 1   | 1A    | 4531 | U    |
| 1   | 1A    | 4533 | A    |
| 1   | 1A    | 4535 | A    |
| 1   | 1A    | 4545 | G    |
| 1   | 1A    | 4548 | A    |
| 1   | 1A    | 4549 | G    |
| 1   | 1A    | 4551 | U    |
| 1   | 1A    | 4554 | G    |
| 1   | 1A    | 4555 | U    |
| 1   | 1A    | 4556 | U    |
| 1   | 1A    | 4560 | C    |
| 1   | 1A    | 4565 | C    |
| 1   | 1A    | 4567 | G    |
| 1   | 1A    | 4573 | G    |
| 1   | 1A    | 4575 | G    |
| 1   | 1A    | 4583 | C    |
| 1   | 1A    | 4586 | G    |
| 1   | 1A    | 4589 | A    |
| 1   | 1A    | 4590 | A    |
| 1   | 1A    | 4599 | A    |
| 1   | 1A    | 4600 | G    |
| 1   | 1A    | 4601 | U    |
| 1   | 1A    | 4614 | G    |
| 1   | 1A    | 4615 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4617 | G    |
| 1   | 1A    | 4618 | G    |
| 1   | 1A    | 4624 | A    |
| 1   | 1A    | 4626 | A    |
| 1   | 1A    | 4635 | A    |
| 1   | 1A    | 4636 | U    |
| 1   | 1A    | 4637 | G    |
| 1   | 1A    | 4655 | A    |
| 1   | 1A    | 4657 | U    |
| 1   | 1A    | 4658 | G    |
| 1   | 1A    | 4668 | U    |
| 1   | 1A    | 4670 | C    |
| 1   | 1A    | 4678 | G    |
| 1   | 1A    | 4679 | G    |
| 1   | 1A    | 4683 | U    |
| 1   | 1A    | 4687 | A    |
| 1   | 1A    | 4694 | G    |
| 1   | 1A    | 4695 | C    |
| 1   | 1A    | 4696 | C    |
| 1   | 1A    | 4700 | A    |
| 1   | 1A    | 4702 | G    |
| 1   | 1A    | 4703 | U    |
| 1   | 1A    | 4708 | A    |
| 1   | 1A    | 4709 | U    |
| 1   | 1A    | 4719 | G    |
| 1   | 1A    | 4730 | C    |
| 1   | 1A    | 4732 | G    |
| 1   | 1A    | 4737 | G    |
| 1   | 1A    | 4739 | C    |
| 1   | 1A    | 4740 | G    |
| 1   | 1A    | 4741 | C    |
| 1   | 1A    | 4743 | G    |
| 1   | 1A    | 4744 | A    |
| 1   | 1A    | 4749 | C    |
| 1   | 1A    | 4750 | G    |
| 1   | 1A    | 4753 | U    |
| 1   | 1A    | 4756 | C    |
| 1   | 1A    | 4757 | C    |
| 1   | 1A    | 4758 | U    |
| 1   | 1A    | 4762 | A    |
| 1   | 1A    | 4764 | A    |
| 1   | 1A    | 4770 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4771 | C    |
| 1   | 1A    | 4772 | C    |
| 1   | 1A    | 4775 | C    |
| 1   | 1A    | 4776 | G    |
| 1   | 1A    | 4861 | G    |
| 1   | 1A    | 4862 | G    |
| 1   | 1A    | 4863 | G    |
| 1   | 1A    | 4864 | U    |
| 1   | 1A    | 4865 | C    |
| 1   | 1A    | 4868 | G    |
| 1   | 1A    | 4869 | U    |
| 1   | 1A    | 4871 | C    |
| 1   | 1A    | 4873 | G    |
| 1   | 1A    | 4874 | A    |
| 1   | 1A    | 4876 | U    |
| 1   | 1A    | 4877 | G    |
| 1   | 1A    | 4882 | U    |
| 1   | 1A    | 4883 | C    |
| 1   | 1A    | 4884 | G    |
| 1   | 1A    | 4886 | C    |
| 1   | 1A    | 4887 | C    |
| 1   | 1A    | 4888 | U    |
| 1   | 1A    | 4889 | G    |
| 1   | 1A    | 4890 | G    |
| 1   | 1A    | 4894 | A    |
| 1   | 1A    | 4895 | C    |
| 1   | 1A    | 4897 | G    |
| 1   | 1A    | 4899 | G    |
| 1   | 1A    | 4900 | C    |
| 1   | 1A    | 4901 | G    |
| 1   | 1A    | 4910 | G    |
| 1   | 1A    | 4911 | A    |
| 1   | 1A    | 4912 | G    |
| 1   | 1A    | 4913 | G    |
| 1   | 1A    | 4914 | C    |
| 1   | 1A    | 4918 | C    |
| 1   | 1A    | 4925 | U    |
| 1   | 1A    | 4926 | C    |
| 1   | 1A    | 4927 | G    |
| 1   | 1A    | 4928 | C    |
| 1   | 1A    | 4932 | U    |
| 1   | 1A    | 4934 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4937 | C    |
| 1   | 1A    | 4940 | C    |
| 1   | 1A    | 4941 | G    |
| 1   | 1A    | 4943 | A    |
| 1   | 1A    | 4944 | C    |
| 1   | 1A    | 4947 | U    |
| 1   | 1A    | 4949 | G    |
| 1   | 1A    | 4950 | U    |
| 1   | 1A    | 4951 | G    |
| 1   | 1A    | 4960 | G    |
| 1   | 1A    | 4963 | G    |
| 1   | 1A    | 4966 | A    |
| 1   | 1A    | 4975 | G    |
| 1   | 1A    | 4976 | U    |
| 1   | 1A    | 4977 | A    |
| 1   | 1A    | 4979 | A    |
| 1   | 1A    | 4985 | U    |
| 1   | 1A    | 4988 | U    |
| 1   | 1A    | 4989 | U    |
| 1   | 1A    | 4991 | U    |
| 1   | 1A    | 4993 | G    |
| 1   | 1A    | 4995 | U    |
| 1   | 1A    | 5004 | C    |
| 1   | 1A    | 5014 | A    |
| 1   | 1A    | 5016 | A    |
| 1   | 1A    | 5017 | G    |
| 1   | 1A    | 5022 | U    |
| 1   | 1A    | 5023 | C    |
| 1   | 1A    | 5024 | C    |
| 1   | 1A    | 5025 | C    |
| 1   | 1A    | 5027 | C    |
| 1   | 1A    | 5028 | G    |
| 1   | 1A    | 5030 | U    |
| 1   | 1A    | 5031 | G    |
| 1   | 1A    | 5034 | A    |
| 1   | 1A    | 5040 | U    |
| 1   | 1A    | 5041 | G    |
| 1   | 1A    | 5047 | C    |
| 1   | 1A    | 5050 | C    |
| 1   | 1A    | 5054 | C    |
| 1   | 1A    | 5055 | G    |
| 1   | 1A    | 5058 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 5061 | A    |
| 1   | 1A    | 5069 | U    |
| 2   | 1B    | 7    | G    |
| 2   | 1B    | 11   | A    |
| 2   | 1B    | 13   | A    |
| 2   | 1B    | 20   | U    |
| 2   | 1B    | 22   | A    |
| 2   | 1B    | 23   | A    |
| 2   | 1B    | 27   | G    |
| 2   | 1B    | 29   | C    |
| 2   | 1B    | 31   | G    |
| 2   | 1B    | 33   | U    |
| 2   | 1B    | 34   | C    |
| 2   | 1B    | 35   | U    |
| 2   | 1B    | 38   | U    |
| 2   | 1B    | 41   | G    |
| 2   | 1B    | 49   | A    |
| 2   | 1B    | 53   | U    |
| 2   | 1B    | 54   | A    |
| 2   | 1B    | 63   | C    |
| 2   | 1B    | 64   | G    |
| 2   | 1B    | 97   | G    |
| 2   | 1B    | 100  | A    |
| 2   | 1B    | 109  | U    |
| 2   | 1B    | 110  | G    |
| 2   | 1B    | 117  | G    |
| 2   | 1B    | 120  | U    |
| 3   | 1C    | 2    | G    |
| 3   | 1C    | 14   | U    |
| 3   | 1C    | 23   | C    |
| 3   | 1C    | 24   | G    |
| 3   | 1C    | 25   | G    |
| 3   | 1C    | 34   | U    |
| 3   | 1C    | 35   | C    |
| 3   | 1C    | 39   | G    |
| 3   | 1C    | 48   | A    |
| 3   | 1C    | 52   | A    |
| 3   | 1C    | 59   | A    |
| 3   | 1C    | 60   | G    |
| 3   | 1C    | 63   | U    |
| 3   | 1C    | 70   | G    |
| 3   | 1C    | 71   | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3   | 1C    | 78  | G    |
| 3   | 1C    | 82  | A    |
| 3   | 1C    | 83  | C    |
| 3   | 1C    | 84  | A    |
| 3   | 1C    | 86  | U    |
| 3   | 1C    | 87  | G    |
| 3   | 1C    | 88  | A    |
| 3   | 1C    | 94  | G    |
| 3   | 1C    | 103 | A    |
| 3   | 1C    | 104 | A    |
| 3   | 1C    | 105 | C    |
| 3   | 1C    | 107 | C    |
| 3   | 1C    | 110 | U    |
| 3   | 1C    | 111 | U    |
| 3   | 1C    | 112 | G    |
| 3   | 1C    | 114 | G    |
| 3   | 1C    | 123 | U    |
| 3   | 1C    | 124 | U    |
| 3   | 1C    | 125 | C    |
| 3   | 1C    | 126 | C    |
| 3   | 1C    | 127 | U    |
| 3   | 1C    | 129 | C    |
| 3   | 1C    | 150 | C    |
| 3   | 1C    | 153 | C    |
| 3   | 1C    | 155 | C    |
| 47  | 2m    | 2   | A    |
| 47  | 2m    | 3   | C    |
| 47  | 2m    | 4   | C    |
| 47  | 2m    | 10  | G    |
| 47  | 2m    | 11  | A    |
| 47  | 2m    | 16  | G    |
| 47  | 2m    | 17  | C    |
| 47  | 2m    | 25  | A    |
| 47  | 2m    | 27  | A    |
| 47  | 2m    | 33  | G    |
| 47  | 2m    | 37  | C    |
| 47  | 2m    | 38  | A    |
| 47  | 2m    | 41  | G    |
| 47  | 2m    | 42  | A    |
| 47  | 2m    | 44  | U    |
| 47  | 2m    | 45  | A    |
| 47  | 2m    | 46  | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | 2m    | 53  | C    |
| 47  | 2m    | 56  | G    |
| 47  | 2m    | 60  | A    |
| 47  | 2m    | 62  | G    |
| 47  | 2m    | 65  | C    |
| 47  | 2m    | 66  | G    |
| 47  | 2m    | 67  | C    |
| 47  | 2m    | 68  | A    |
| 47  | 2m    | 70  | G    |
| 47  | 2m    | 72  | C    |
| 47  | 2m    | 73  | C    |
| 47  | 2m    | 74  | G    |
| 47  | 2m    | 75  | G    |
| 47  | 2m    | 76  | U    |
| 47  | 2m    | 77  | A    |
| 47  | 2m    | 78  | C    |
| 47  | 2m    | 79  | A    |
| 47  | 2m    | 80  | G    |
| 47  | 2m    | 98  | C    |
| 47  | 2m    | 99  | A    |
| 47  | 2m    | 100 | U    |
| 47  | 2m    | 101 | U    |
| 47  | 2m    | 104 | A    |
| 47  | 2m    | 113 | G    |
| 47  | 2m    | 115 | U    |
| 47  | 2m    | 120 | U    |
| 47  | 2m    | 122 | G    |
| 47  | 2m    | 124 | U    |
| 47  | 2m    | 126 | G    |
| 47  | 2m    | 127 | C    |
| 47  | 2m    | 140 | C    |
| 47  | 2m    | 141 | A    |
| 47  | 2m    | 143 | U    |
| 47  | 2m    | 148 | U    |
| 47  | 2m    | 154 | U    |
| 47  | 2m    | 155 | G    |
| 47  | 2m    | 159 | A    |
| 47  | 2m    | 160 | U    |
| 47  | 2m    | 161 | U    |
| 47  | 2m    | 162 | C    |
| 47  | 2m    | 167 | G    |
| 47  | 2m    | 168 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | 2m    | 171 | A    |
| 47  | 2m    | 172 | U    |
| 47  | 2m    | 175 | A    |
| 47  | 2m    | 183 | G    |
| 47  | 2m    | 184 | G    |
| 47  | 2m    | 185 | G    |
| 47  | 2m    | 188 | C    |
| 47  | 2m    | 190 | G    |
| 47  | 2m    | 194 | C    |
| 47  | 2m    | 198 | U    |
| 47  | 2m    | 199 | C    |
| 47  | 2m    | 200 | G    |
| 47  | 2m    | 202 | G    |
| 47  | 2m    | 206 | G    |
| 47  | 2m    | 207 | G    |
| 47  | 2m    | 208 | G    |
| 47  | 2m    | 214 | U    |
| 47  | 2m    | 215 | G    |
| 47  | 2m    | 216 | C    |
| 47  | 2m    | 219 | U    |
| 47  | 2m    | 225 | G    |
| 47  | 2m    | 290 | U    |
| 47  | 2m    | 291 | G    |
| 47  | 2m    | 292 | A    |
| 47  | 2m    | 293 | C    |
| 47  | 2m    | 295 | C    |
| 47  | 2m    | 297 | A    |
| 47  | 2m    | 302 | A    |
| 47  | 2m    | 304 | C    |
| 47  | 2m    | 305 | U    |
| 47  | 2m    | 306 | C    |
| 47  | 2m    | 307 | G    |
| 47  | 2m    | 308 | G    |
| 47  | 2m    | 309 | G    |
| 47  | 2m    | 310 | C    |
| 47  | 2m    | 312 | G    |
| 47  | 2m    | 313 | A    |
| 47  | 2m    | 314 | U    |
| 47  | 2m    | 320 | G    |
| 47  | 2m    | 321 | C    |
| 47  | 2m    | 324 | C    |
| 47  | 2m    | 325 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | 2m    | 326 | C    |
| 47  | 2m    | 327 | G    |
| 47  | 2m    | 328 | U    |
| 47  | 2m    | 329 | G    |
| 47  | 2m    | 330 | G    |
| 47  | 2m    | 331 | C    |
| 47  | 2m    | 332 | G    |
| 47  | 2m    | 334 | C    |
| 47  | 2m    | 338 | G    |
| 47  | 2m    | 339 | A    |
| 47  | 2m    | 340 | C    |
| 47  | 2m    | 351 | G    |
| 47  | 2m    | 362 | C    |
| 47  | 2m    | 364 | A    |
| 47  | 2m    | 368 | U    |
| 47  | 2m    | 369 | C    |
| 47  | 2m    | 370 | G    |
| 47  | 2m    | 377 | G    |
| 47  | 2m    | 385 | G    |
| 47  | 2m    | 386 | C    |
| 47  | 2m    | 395 | G    |
| 47  | 2m    | 399 | C    |
| 47  | 2m    | 400 | C    |
| 47  | 2m    | 407 | G    |
| 47  | 2m    | 409 | C    |
| 47  | 2m    | 413 | G    |
| 47  | 2m    | 418 | A    |
| 47  | 2m    | 419 | G    |
| 47  | 2m    | 421 | G    |
| 47  | 2m    | 426 | A    |
| 47  | 2m    | 427 | U    |
| 47  | 2m    | 429 | C    |
| 47  | 2m    | 436 | G    |
| 47  | 2m    | 448 | A    |
| 47  | 2m    | 449 | A    |
| 47  | 2m    | 450 | C    |
| 47  | 2m    | 463 | C    |
| 47  | 2m    | 465 | A    |
| 47  | 2m    | 466 | G    |
| 47  | 2m    | 470 | G    |
| 47  | 2m    | 471 | G    |
| 47  | 2m    | 472 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | 2m    | 473 | A    |
| 47  | 2m    | 474 | G    |
| 47  | 2m    | 475 | C    |
| 47  | 2m    | 476 | A    |
| 47  | 2m    | 482 | G    |
| 47  | 2m    | 483 | C    |
| 47  | 2m    | 486 | A    |
| 47  | 2m    | 487 | U    |
| 47  | 2m    | 488 | U    |
| 47  | 2m    | 489 | A    |
| 47  | 2m    | 492 | C    |
| 47  | 2m    | 493 | A    |
| 47  | 2m    | 495 | U    |
| 47  | 2m    | 496 | C    |
| 47  | 2m    | 500 | A    |
| 47  | 2m    | 502 | C    |
| 47  | 2m    | 503 | C    |
| 47  | 2m    | 504 | G    |
| 47  | 2m    | 508 | A    |
| 47  | 2m    | 518 | G    |
| 47  | 2m    | 522 | A    |
| 47  | 2m    | 525 | A    |
| 47  | 2m    | 532 | C    |
| 47  | 2m    | 533 | A    |
| 47  | 2m    | 534 | G    |
| 47  | 2m    | 535 | G    |
| 47  | 2m    | 536 | A    |
| 47  | 2m    | 537 | C    |
| 47  | 2m    | 538 | U    |
| 47  | 2m    | 539 | C    |
| 47  | 2m    | 540 | U    |
| 47  | 2m    | 541 | U    |
| 47  | 2m    | 542 | U    |
| 47  | 2m    | 543 | C    |
| 47  | 2m    | 544 | G    |
| 47  | 2m    | 545 | A    |
| 47  | 2m    | 548 | C    |
| 47  | 2m    | 550 | C    |
| 47  | 2m    | 554 | A    |
| 47  | 2m    | 555 | A    |
| 47  | 2m    | 556 | U    |
| 47  | 2m    | 557 | U    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | 2m    | 559 | G    |
| 47  | 2m    | 561 | A    |
| 47  | 2m    | 562 | U    |
| 47  | 2m    | 566 | U    |
| 47  | 2m    | 575 | A    |
| 47  | 2m    | 580 | U    |
| 47  | 2m    | 581 | U    |
| 47  | 2m    | 582 | C    |
| 47  | 2m    | 583 | C    |
| 47  | 2m    | 584 | G    |
| 47  | 2m    | 585 | C    |
| 47  | 2m    | 587 | A    |
| 47  | 2m    | 589 | G    |
| 47  | 2m    | 590 | A    |
| 47  | 2m    | 591 | U    |
| 47  | 2m    | 592 | C    |
| 47  | 2m    | 594 | A    |
| 47  | 2m    | 595 | U    |
| 47  | 2m    | 596 | U    |
| 47  | 2m    | 604 | A    |
| 47  | 2m    | 605 | A    |
| 47  | 2m    | 606 | G    |
| 47  | 2m    | 607 | U    |
| 47  | 2m    | 608 | C    |
| 47  | 2m    | 613 | G    |
| 47  | 2m    | 614 | C    |
| 47  | 2m    | 615 | C    |
| 47  | 2m    | 617 | G    |
| 47  | 2m    | 621 | C    |
| 47  | 2m    | 627 | U    |
| 47  | 2m    | 630 | U    |
| 47  | 2m    | 632 | C    |
| 47  | 2m    | 643 | A    |
| 47  | 2m    | 644 | G    |
| 47  | 2m    | 650 | A    |
| 47  | 2m    | 656 | G    |
| 47  | 2m    | 657 | U    |
| 47  | 2m    | 658 | U    |
| 47  | 2m    | 660 | C    |
| 47  | 2m    | 661 | U    |
| 47  | 2m    | 662 | G    |
| 47  | 2m    | 663 | C    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | 2m    | 668 | A    |
| 47  | 2m    | 669 | A    |
| 47  | 2m    | 671 | A    |
| 47  | 2m    | 672 | A    |
| 47  | 2m    | 673 | G    |
| 47  | 2m    | 678 | U    |
| 47  | 2m    | 685 | A    |
| 47  | 2m    | 689 | U    |
| 47  | 2m    | 690 | G    |
| 47  | 2m    | 692 | G    |
| 47  | 2m    | 696 | G    |
| 47  | 2m    | 697 | G    |
| 47  | 2m    | 698 | G    |
| 47  | 2m    | 732 | U    |
| 47  | 2m    | 733 | C    |
| 47  | 2m    | 734 | C    |
| 47  | 2m    | 735 | C    |
| 47  | 2m    | 736 | C    |
| 47  | 2m    | 738 | C    |
| 47  | 2m    | 745 | C    |
| 47  | 2m    | 746 | C    |
| 47  | 2m    | 747 | U    |
| 47  | 2m    | 748 | C    |
| 47  | 2m    | 749 | U    |
| 47  | 2m    | 751 | G    |
| 47  | 2m    | 752 | G    |
| 47  | 2m    | 753 | C    |
| 47  | 2m    | 787 | G    |
| 47  | 2m    | 788 | G    |
| 47  | 2m    | 789 | G    |
| 47  | 2m    | 790 | C    |
| 47  | 2m    | 791 | C    |
| 47  | 2m    | 794 | A    |
| 47  | 2m    | 795 | A    |
| 47  | 2m    | 796 | G    |
| 47  | 2m    | 797 | C    |
| 47  | 2m    | 798 | A    |
| 47  | 2m    | 799 | U    |
| 47  | 2m    | 801 | U    |
| 47  | 2m    | 810 | A    |
| 47  | 2m    | 811 | A    |
| 47  | 2m    | 812 | A    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 47  | 2m    | 819 | G    |
| 47  | 2m    | 821 | G    |
| 47  | 2m    | 822 | U    |
| 47  | 2m    | 827 | A    |
| 47  | 2m    | 830 | A    |
| 47  | 2m    | 831 | G    |
| 47  | 2m    | 834 | C    |
| 47  | 2m    | 836 | G    |
| 47  | 2m    | 837 | A    |
| 47  | 2m    | 838 | G    |
| 47  | 2m    | 839 | C    |
| 47  | 2m    | 840 | C    |
| 47  | 2m    | 842 | C    |
| 47  | 2m    | 847 | A    |
| 47  | 2m    | 848 | U    |
| 47  | 2m    | 850 | C    |
| 47  | 2m    | 851 | C    |
| 47  | 2m    | 861 | A    |
| 47  | 2m    | 862 | A    |
| 47  | 2m    | 864 | A    |
| 47  | 2m    | 869 | A    |
| 47  | 2m    | 870 | A    |
| 47  | 2m    | 872 | A    |
| 47  | 2m    | 873 | G    |
| 47  | 2m    | 874 | G    |
| 47  | 2m    | 877 | C    |
| 47  | 2m    | 878 | G    |
| 47  | 2m    | 879 | C    |
| 47  | 2m    | 880 | G    |
| 47  | 2m    | 882 | U    |
| 47  | 2m    | 883 | U    |
| 47  | 2m    | 885 | U    |
| 47  | 2m    | 886 | A    |
| 47  | 2m    | 888 | U    |
| 47  | 2m    | 889 | U    |
| 47  | 2m    | 890 | U    |
| 47  | 2m    | 891 | G    |
| 47  | 2m    | 893 | U    |
| 47  | 2m    | 894 | G    |
| 47  | 2m    | 895 | G    |
| 47  | 2m    | 896 | U    |
| 47  | 2m    | 897 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 898  | U    |
| 47  | 2m    | 899  | U    |
| 47  | 2m    | 900  | C    |
| 47  | 2m    | 901  | G    |
| 47  | 2m    | 903  | A    |
| 47  | 2m    | 907  | G    |
| 47  | 2m    | 908  | A    |
| 47  | 2m    | 911  | C    |
| 47  | 2m    | 912  | C    |
| 47  | 2m    | 913  | A    |
| 47  | 2m    | 914  | U    |
| 47  | 2m    | 917  | U    |
| 47  | 2m    | 919  | A    |
| 47  | 2m    | 920  | A    |
| 47  | 2m    | 921  | G    |
| 47  | 2m    | 922  | A    |
| 47  | 2m    | 932  | G    |
| 47  | 2m    | 933  | G    |
| 47  | 2m    | 934  | G    |
| 47  | 2m    | 958  | G    |
| 47  | 2m    | 962  | A    |
| 47  | 2m    | 966  | U    |
| 47  | 2m    | 969  | U    |
| 47  | 2m    | 970  | G    |
| 47  | 2m    | 971  | G    |
| 47  | 2m    | 972  | A    |
| 47  | 2m    | 973  | C    |
| 47  | 2m    | 978  | G    |
| 47  | 2m    | 979  | C    |
| 47  | 2m    | 983  | A    |
| 47  | 2m    | 989  | C    |
| 47  | 2m    | 990  | A    |
| 47  | 2m    | 999  | G    |
| 47  | 2m    | 1002 | U    |
| 47  | 2m    | 1008 | A    |
| 47  | 2m    | 1011 | A    |
| 47  | 2m    | 1012 | A    |
| 47  | 2m    | 1014 | G    |
| 47  | 2m    | 1023 | A    |
| 47  | 2m    | 1025 | U    |
| 47  | 2m    | 1027 | A    |
| 47  | 2m    | 1042 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1043 | G    |
| 47  | 2m    | 1045 | U    |
| 47  | 2m    | 1046 | U    |
| 47  | 2m    | 1050 | A    |
| 47  | 2m    | 1060 | A    |
| 47  | 2m    | 1061 | U    |
| 47  | 2m    | 1062 | A    |
| 47  | 2m    | 1070 | A    |
| 47  | 2m    | 1076 | G    |
| 47  | 2m    | 1082 | A    |
| 47  | 2m    | 1083 | A    |
| 47  | 2m    | 1084 | A    |
| 47  | 2m    | 1085 | C    |
| 47  | 2m    | 1088 | U    |
| 47  | 2m    | 1096 | G    |
| 47  | 2m    | 1105 | G    |
| 47  | 2m    | 1109 | C    |
| 47  | 2m    | 1110 | G    |
| 47  | 2m    | 1113 | A    |
| 47  | 2m    | 1114 | U    |
| 47  | 2m    | 1115 | U    |
| 47  | 2m    | 1116 | C    |
| 47  | 2m    | 1118 | C    |
| 47  | 2m    | 1119 | A    |
| 47  | 2m    | 1126 | G    |
| 47  | 2m    | 1131 | G    |
| 47  | 2m    | 1133 | A    |
| 47  | 2m    | 1139 | C    |
| 47  | 2m    | 1140 | G    |
| 47  | 2m    | 1141 | G    |
| 47  | 2m    | 1143 | A    |
| 47  | 2m    | 1144 | A    |
| 47  | 2m    | 1149 | A    |
| 47  | 2m    | 1150 | A    |
| 47  | 2m    | 1153 | C    |
| 47  | 2m    | 1154 | U    |
| 47  | 2m    | 1155 | U    |
| 47  | 2m    | 1157 | G    |
| 47  | 2m    | 1159 | G    |
| 47  | 2m    | 1166 | G    |
| 47  | 2m    | 1168 | G    |
| 47  | 2m    | 1170 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1178 | U    |
| 47  | 2m    | 1180 | C    |
| 47  | 2m    | 1181 | A    |
| 47  | 2m    | 1183 | A    |
| 47  | 2m    | 1186 | U    |
| 47  | 2m    | 1192 | U    |
| 47  | 2m    | 1195 | A    |
| 47  | 2m    | 1207 | G    |
| 47  | 2m    | 1208 | A    |
| 47  | 2m    | 1215 | C    |
| 47  | 2m    | 1216 | C    |
| 47  | 2m    | 1217 | A    |
| 47  | 2m    | 1221 | G    |
| 47  | 2m    | 1224 | G    |
| 47  | 2m    | 1239 | U    |
| 47  | 2m    | 1241 | A    |
| 47  | 2m    | 1242 | U    |
| 47  | 2m    | 1243 | U    |
| 47  | 2m    | 1247 | C    |
| 47  | 2m    | 1248 | U    |
| 47  | 2m    | 1250 | A    |
| 47  | 2m    | 1251 | A    |
| 47  | 2m    | 1253 | A    |
| 47  | 2m    | 1255 | G    |
| 47  | 2m    | 1256 | G    |
| 47  | 2m    | 1257 | G    |
| 47  | 2m    | 1258 | A    |
| 47  | 2m    | 1259 | A    |
| 47  | 2m    | 1261 | C    |
| 47  | 2m    | 1262 | C    |
| 47  | 2m    | 1263 | U    |
| 47  | 2m    | 1264 | C    |
| 47  | 2m    | 1265 | A    |
| 47  | 2m    | 1270 | G    |
| 47  | 2m    | 1272 | C    |
| 47  | 2m    | 1273 | C    |
| 47  | 2m    | 1274 | G    |
| 47  | 2m    | 1275 | G    |
| 47  | 2m    | 1276 | A    |
| 47  | 2m    | 1281 | G    |
| 47  | 2m    | 1282 | A    |
| 47  | 2m    | 1283 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1284 | A    |
| 47  | 2m    | 1285 | G    |
| 47  | 2m    | 1286 | G    |
| 47  | 2m    | 1287 | A    |
| 47  | 2m    | 1288 | U    |
| 47  | 2m    | 1289 | U    |
| 47  | 2m    | 1290 | G    |
| 47  | 2m    | 1291 | A    |
| 47  | 2m    | 1292 | C    |
| 47  | 2m    | 1293 | A    |
| 47  | 2m    | 1294 | G    |
| 47  | 2m    | 1295 | A    |
| 47  | 2m    | 1297 | U    |
| 47  | 2m    | 1302 | G    |
| 47  | 2m    | 1303 | C    |
| 47  | 2m    | 1306 | U    |
| 47  | 2m    | 1307 | U    |
| 47  | 2m    | 1308 | U    |
| 47  | 2m    | 1310 | U    |
| 47  | 2m    | 1311 | C    |
| 47  | 2m    | 1314 | U    |
| 47  | 2m    | 1315 | U    |
| 47  | 2m    | 1316 | C    |
| 47  | 2m    | 1317 | C    |
| 47  | 2m    | 1318 | G    |
| 47  | 2m    | 1321 | G    |
| 47  | 2m    | 1326 | U    |
| 47  | 2m    | 1327 | G    |
| 47  | 2m    | 1330 | G    |
| 47  | 2m    | 1331 | C    |
| 47  | 2m    | 1332 | A    |
| 47  | 2m    | 1333 | U    |
| 47  | 2m    | 1342 | U    |
| 47  | 2m    | 1347 | U    |
| 47  | 2m    | 1358 | U    |
| 47  | 2m    | 1371 | U    |
| 47  | 2m    | 1372 | U    |
| 47  | 2m    | 1378 | A    |
| 47  | 2m    | 1382 | A    |
| 47  | 2m    | 1395 | C    |
| 47  | 2m    | 1396 | A    |
| 47  | 2m    | 1397 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1401 | A    |
| 47  | 2m    | 1403 | C    |
| 47  | 2m    | 1404 | U    |
| 47  | 2m    | 1405 | A    |
| 47  | 2m    | 1409 | A    |
| 47  | 2m    | 1411 | G    |
| 47  | 2m    | 1412 | C    |
| 47  | 2m    | 1413 | G    |
| 47  | 2m    | 1414 | A    |
| 47  | 2m    | 1415 | C    |
| 47  | 2m    | 1416 | C    |
| 47  | 2m    | 1417 | C    |
| 47  | 2m    | 1418 | C    |
| 47  | 2m    | 1419 | C    |
| 47  | 2m    | 1420 | G    |
| 47  | 2m    | 1422 | G    |
| 47  | 2m    | 1424 | G    |
| 47  | 2m    | 1425 | G    |
| 47  | 2m    | 1426 | U    |
| 47  | 2m    | 1427 | C    |
| 47  | 2m    | 1428 | G    |
| 47  | 2m    | 1431 | G    |
| 47  | 2m    | 1432 | U    |
| 47  | 2m    | 1433 | C    |
| 47  | 2m    | 1436 | C    |
| 47  | 2m    | 1438 | A    |
| 47  | 2m    | 1439 | A    |
| 47  | 2m    | 1440 | C    |
| 47  | 2m    | 1442 | U    |
| 47  | 2m    | 1444 | U    |
| 47  | 2m    | 1446 | A    |
| 47  | 2m    | 1448 | A    |
| 47  | 2m    | 1449 | G    |
| 47  | 2m    | 1450 | G    |
| 47  | 2m    | 1453 | C    |
| 47  | 2m    | 1454 | A    |
| 47  | 2m    | 1455 | A    |
| 47  | 2m    | 1458 | G    |
| 47  | 2m    | 1459 | G    |
| 47  | 2m    | 1461 | G    |
| 47  | 2m    | 1462 | U    |
| 47  | 2m    | 1463 | U    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1473 | G    |
| 47  | 2m    | 1475 | G    |
| 47  | 2m    | 1476 | A    |
| 47  | 2m    | 1477 | U    |
| 47  | 2m    | 1486 | A    |
| 47  | 2m    | 1487 | A    |
| 47  | 2m    | 1489 | A    |
| 47  | 2m    | 1490 | G    |
| 47  | 2m    | 1496 | U    |
| 47  | 2m    | 1497 | G    |
| 47  | 2m    | 1498 | A    |
| 47  | 2m    | 1505 | U    |
| 47  | 2m    | 1506 | A    |
| 47  | 2m    | 1507 | G    |
| 47  | 2m    | 1508 | A    |
| 47  | 2m    | 1510 | G    |
| 47  | 2m    | 1512 | C    |
| 47  | 2m    | 1514 | G    |
| 47  | 2m    | 1515 | G    |
| 47  | 2m    | 1517 | G    |
| 47  | 2m    | 1519 | U    |
| 47  | 2m    | 1520 | G    |
| 47  | 2m    | 1521 | C    |
| 47  | 2m    | 1522 | A    |
| 47  | 2m    | 1523 | C    |
| 47  | 2m    | 1524 | G    |
| 47  | 2m    | 1525 | C    |
| 47  | 2m    | 1526 | G    |
| 47  | 2m    | 1527 | C    |
| 47  | 2m    | 1528 | G    |
| 47  | 2m    | 1531 | A    |
| 47  | 2m    | 1533 | A    |
| 47  | 2m    | 1535 | U    |
| 47  | 2m    | 1536 | G    |
| 47  | 2m    | 1539 | U    |
| 47  | 2m    | 1543 | U    |
| 47  | 2m    | 1544 | C    |
| 47  | 2m    | 1545 | A    |
| 47  | 2m    | 1552 | G    |
| 47  | 2m    | 1553 | C    |
| 47  | 2m    | 1557 | C    |
| 47  | 2m    | 1558 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1565 | C    |
| 47  | 2m    | 1566 | G    |
| 47  | 2m    | 1567 | G    |
| 47  | 2m    | 1568 | C    |
| 47  | 2m    | 1570 | G    |
| 47  | 2m    | 1574 | C    |
| 47  | 2m    | 1578 | U    |
| 47  | 2m    | 1580 | A    |
| 47  | 2m    | 1584 | G    |
| 47  | 2m    | 1585 | U    |
| 47  | 2m    | 1586 | U    |
| 47  | 2m    | 1588 | A    |
| 47  | 2m    | 1589 | A    |
| 47  | 2m    | 1598 | G    |
| 47  | 2m    | 1599 | U    |
| 47  | 2m    | 1604 | G    |
| 47  | 2m    | 1613 | G    |
| 47  | 2m    | 1615 | U    |
| 47  | 2m    | 1617 | G    |
| 47  | 2m    | 1621 | U    |
| 47  | 2m    | 1623 | A    |
| 47  | 2m    | 1624 | U    |
| 47  | 2m    | 1627 | C    |
| 47  | 2m    | 1632 | G    |
| 47  | 2m    | 1636 | G    |
| 47  | 2m    | 1639 | G    |
| 47  | 2m    | 1643 | U    |
| 47  | 2m    | 1644 | C    |
| 47  | 2m    | 1646 | C    |
| 47  | 2m    | 1648 | G    |
| 47  | 2m    | 1652 | G    |
| 47  | 2m    | 1654 | G    |
| 47  | 2m    | 1663 | A    |
| 47  | 2m    | 1664 | A    |
| 47  | 2m    | 1665 | G    |
| 47  | 2m    | 1672 | U    |
| 47  | 2m    | 1676 | U    |
| 47  | 2m    | 1678 | A    |
| 47  | 2m    | 1680 | G    |
| 47  | 2m    | 1682 | C    |
| 47  | 2m    | 1693 | G    |
| 47  | 2m    | 1698 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1699 | A    |
| 47  | 2m    | 1700 | C    |
| 47  | 2m    | 1701 | C    |
| 47  | 2m    | 1702 | G    |
| 47  | 2m    | 1703 | C    |
| 47  | 2m    | 1719 | A    |
| 47  | 2m    | 1721 | U    |
| 47  | 2m    | 1722 | G    |
| 47  | 2m    | 1729 | U    |
| 47  | 2m    | 1744 | G    |
| 47  | 2m    | 1745 | A    |
| 47  | 2m    | 1746 | U    |
| 47  | 2m    | 1747 | C    |
| 47  | 2m    | 1748 | G    |
| 47  | 2m    | 1749 | G    |
| 47  | 2m    | 1753 | C    |
| 47  | 2m    | 1754 | G    |
| 47  | 2m    | 1755 | C    |
| 47  | 2m    | 1756 | C    |
| 47  | 2m    | 1758 | G    |
| 47  | 2m    | 1760 | G    |
| 47  | 2m    | 1761 | U    |
| 47  | 2m    | 1772 | C    |
| 47  | 2m    | 1773 | C    |
| 47  | 2m    | 1774 | C    |
| 47  | 2m    | 1779 | G    |
| 47  | 2m    | 1780 | G    |
| 47  | 2m    | 1783 | C    |
| 47  | 2m    | 1786 | U    |
| 47  | 2m    | 1789 | G    |
| 47  | 2m    | 1799 | G    |
| 47  | 2m    | 1803 | U    |
| 47  | 2m    | 1813 | A    |
| 47  | 2m    | 1814 | G    |
| 47  | 2m    | 1818 | A    |
| 47  | 2m    | 1819 | A    |
| 47  | 2m    | 1821 | U    |
| 47  | 2m    | 1825 | A    |
| 47  | 2m    | 1827 | U    |
| 47  | 2m    | 1829 | G    |
| 47  | 2m    | 1830 | U    |
| 47  | 2m    | 1832 | A    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 47  | 2m    | 1838 | U    |
| 47  | 2m    | 1839 | U    |
| 47  | 2m    | 1849 | G    |
| 47  | 2m    | 1850 | A    |
| 47  | 2m    | 1852 | C    |
| 47  | 2m    | 1860 | A    |
| 47  | 2m    | 1861 | G    |
| 47  | 2m    | 1862 | G    |
| 47  | 2m    | 1863 | A    |
| 47  | 2m    | 1865 | C    |
| 47  | 2m    | 1867 | U    |
| 47  | 2m    | 1869 | A    |
| 81  | zv    | -1   | C    |
| 81  | zv    | 0    | G    |
| 81  | zv    | 1    | C    |
| 81  | zv    | 2    | C    |
| 83  | zy    | 2    | G    |
| 83  | zy    | 7    | U    |
| 83  | zy    | 9    | G    |
| 83  | zy    | 13   | U    |
| 83  | zy    | 16   | G    |
| 83  | zy    | 17   | G    |
| 83  | zy    | 18   | G    |
| 83  | zy    | 19   | U    |
| 83  | zy    | 41   | A    |
| 83  | zy    | 43   | A    |
| 83  | zy    | 45   | G    |
| 83  | zy    | 56   | A    |
| 83  | zy    | 57   | A    |
| 83  | zy    | 69   | G    |
| 83  | zy    | 74   | C    |
| 83  | zy    | 75   | A    |
| 83  | zu    | 9    | G    |
| 83  | zu    | 13   | U    |
| 83  | zu    | 14   | A    |
| 83  | zu    | 16   | G    |
| 83  | zu    | 17   | G    |
| 83  | zu    | 18   | G    |
| 83  | zu    | 19   | U    |
| 83  | zu    | 20   | A    |
| 83  | zu    | 32   | U    |
| 83  | zu    | 34   | G    |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 83  | zu    | 38  | G    |
| 83  | zu    | 44  | G    |
| 83  | zu    | 45  | G    |
| 83  | zu    | 47  | C    |
| 83  | zu    | 48  | C    |
| 83  | zu    | 53  | U    |
| 83  | zu    | 57  | A    |
| 83  | zu    | 58  | A    |
| 83  | zu    | 62  | C    |
| 83  | zu    | 64  | G    |
| 83  | zu    | 65  | A    |
| 83  | zu    | 71  | C    |
| 83  | zu    | 72  | C    |
| 83  | zu    | 73  | C    |
| 83  | zu    | 75  | A    |

All (34) RNA pucker outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 218  | A    |
| 1   | 1A    | 264  | C    |
| 1   | 1A    | 406  | C    |
| 1   | 1A    | 417  | G    |
| 1   | 1A    | 504  | G    |
| 1   | 1A    | 914  | U    |
| 1   | 1A    | 981  | C    |
| 1   | 1A    | 1082 | C    |
| 1   | 1A    | 2019 | C    |
| 1   | 1A    | 2033 | A    |
| 1   | 1A    | 2084 | C    |
| 1   | 1A    | 2299 | G    |
| 1   | 1A    | 2389 | A    |
| 1   | 1A    | 2408 | U    |
| 1   | 1A    | 2695 | A    |
| 1   | 1A    | 2760 | G    |
| 1   | 1A    | 2775 | C    |
| 1   | 1A    | 2854 | G    |
| 1   | 1A    | 3773 | U    |
| 1   | 1A    | 3810 | C    |
| 1   | 1A    | 3888 | G    |
| 1   | 1A    | 4060 | U    |
| 1   | 1A    | 4110 | C    |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | 1A    | 4419 | U    |
| 1   | 1A    | 4452 | U    |
| 1   | 1A    | 4600 | G    |
| 1   | 1A    | 4699 | U    |
| 1   | 1A    | 4731 | G    |
| 1   | 1A    | 4896 | G    |
| 1   | 1A    | 4913 | G    |
| 1   | 1A    | 4949 | G    |
| 2   | 1B    | 109  | U    |
| 3   | 1C    | 86   | U    |
| 3   | 1C    | 87   | G    |

## 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](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

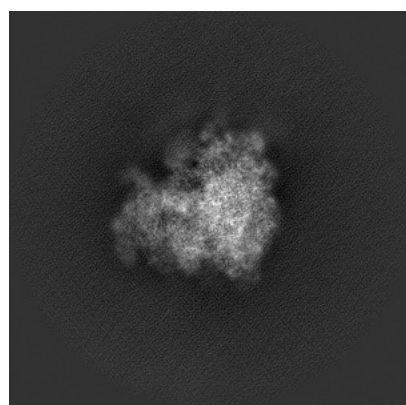
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9701. These allow visual inspection of the internal detail of the map and identification of artifacts.

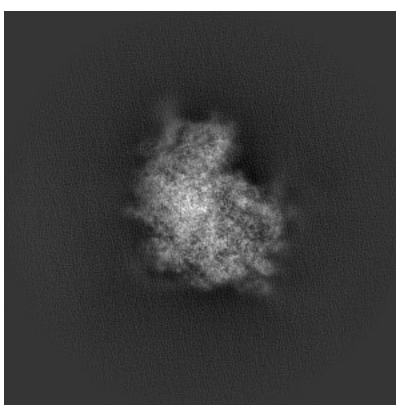
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

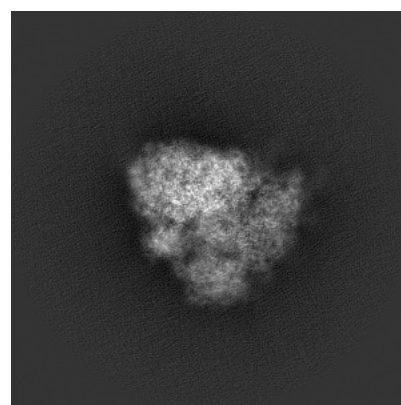
#### 6.1.1 Primary map



X



Y

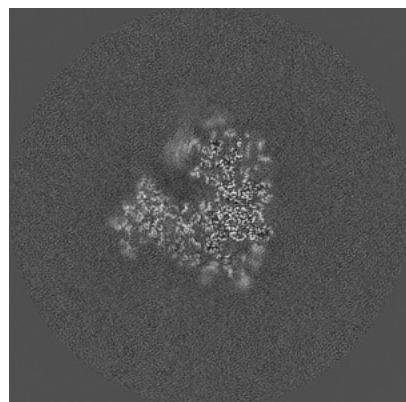


Z

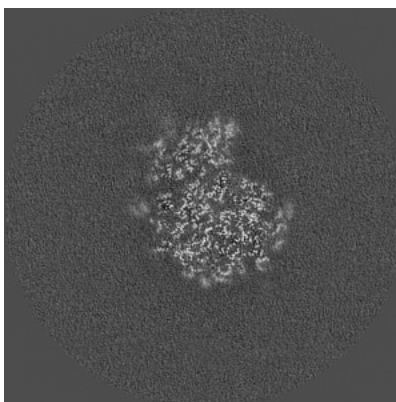
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

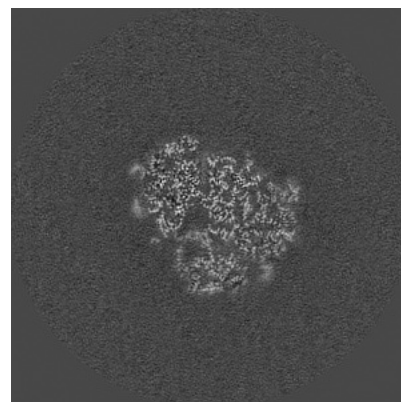
#### 6.2.1 Primary map



X Index: 210



Y Index: 210

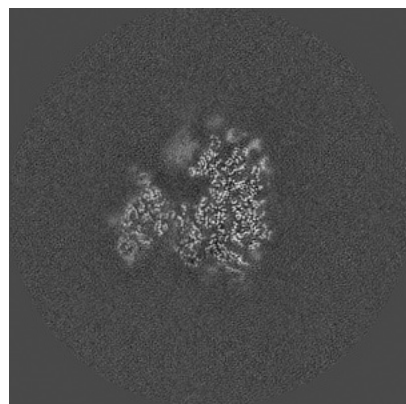


Z Index: 210

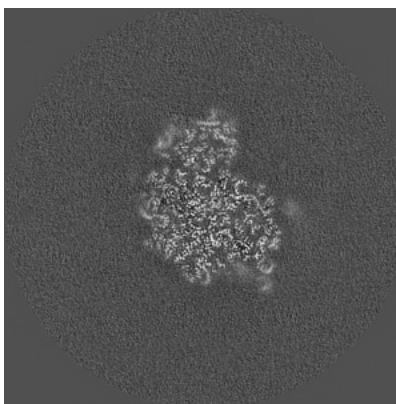
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

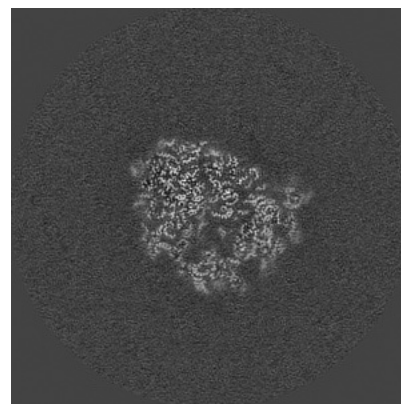
### 6.3.1 Primary map



X Index: 215



Y Index: 219

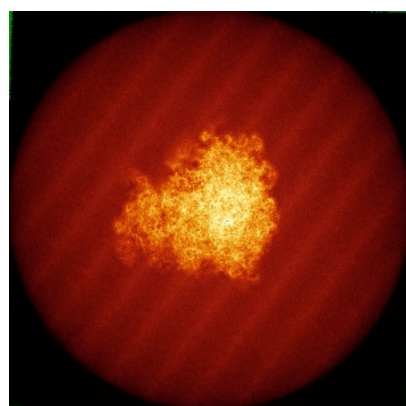


Z Index: 217

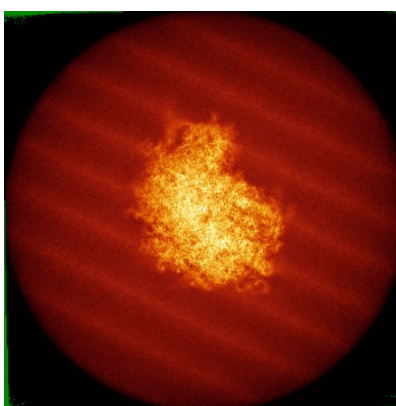
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

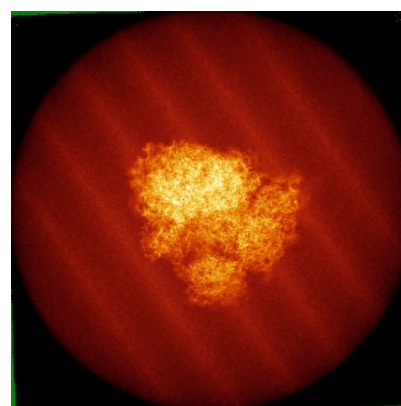
### 6.4.1 Primary map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

## 6.5 Orthogonal surface views

This section was not generated.

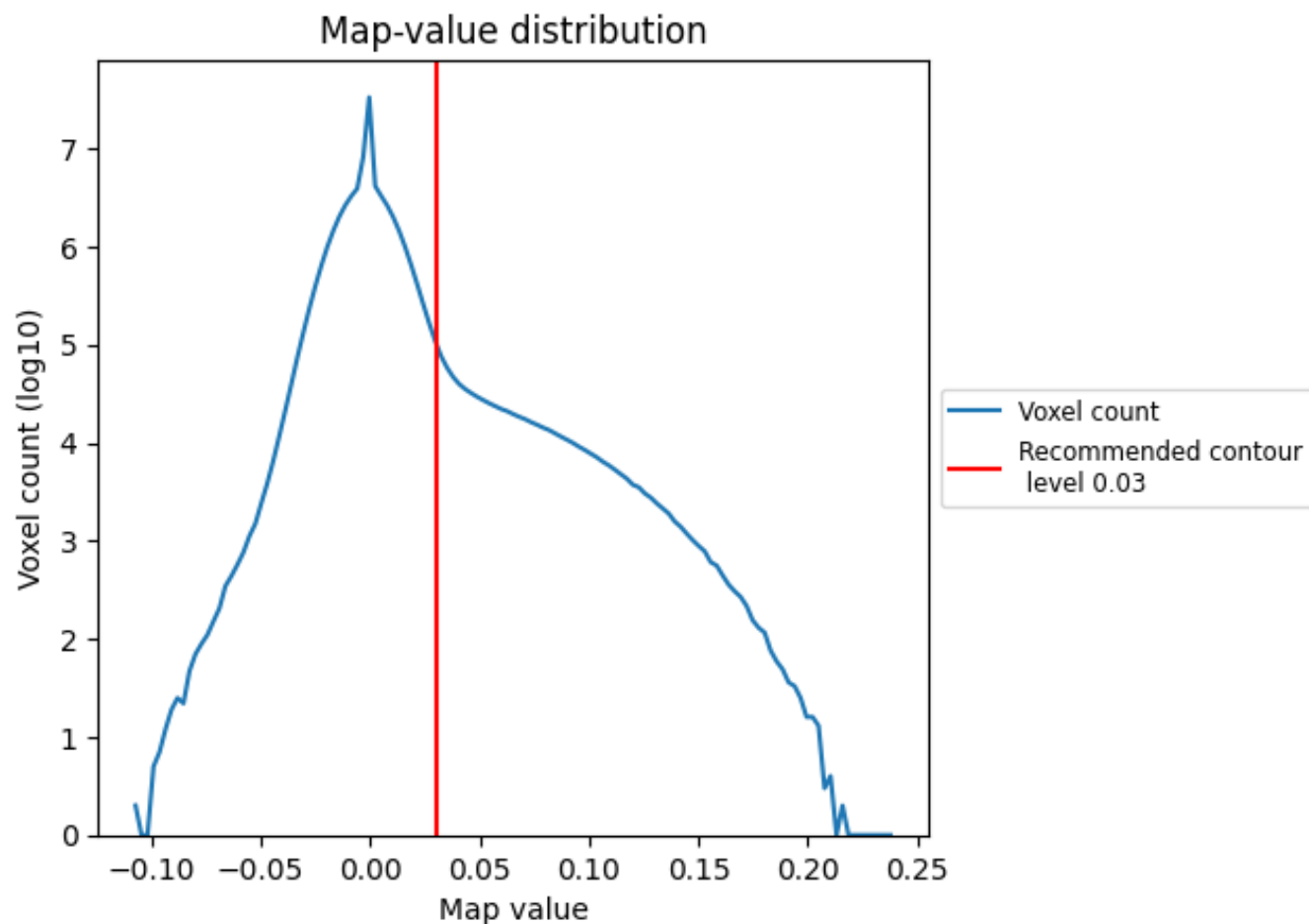
## 6.6 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

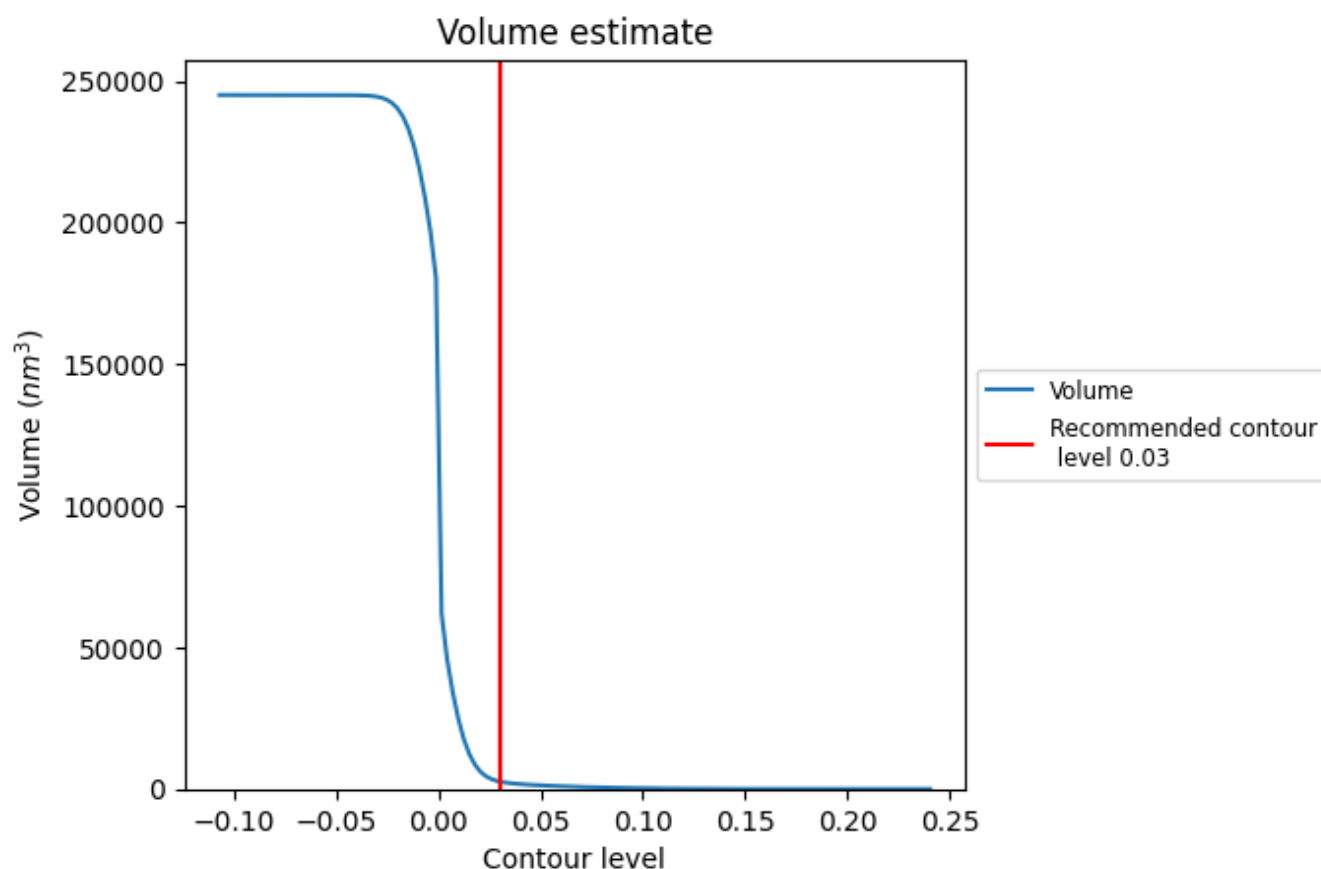
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

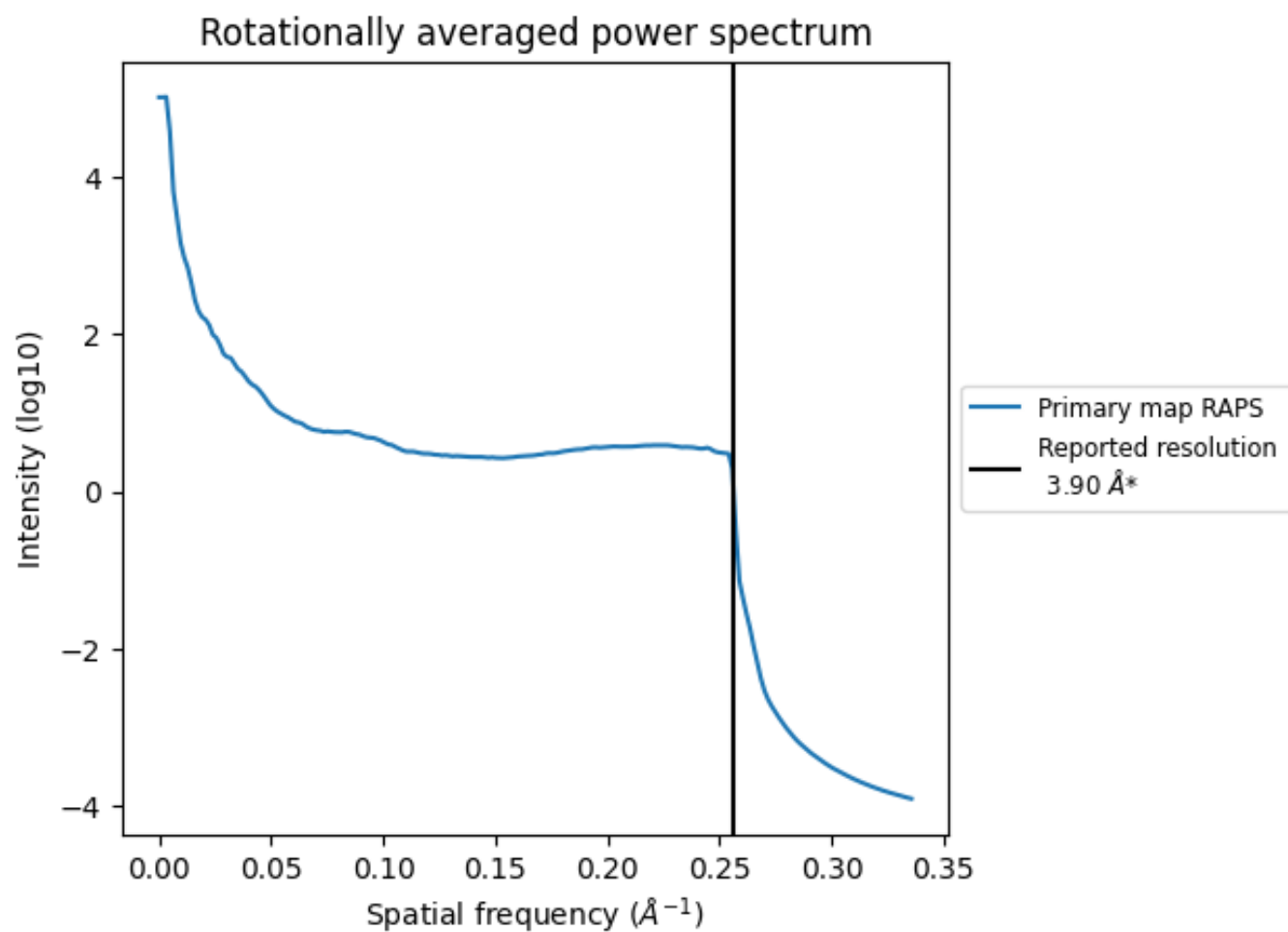
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2603 nm<sup>3</sup>; this corresponds to an approximate mass of 2351 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum ⓘ

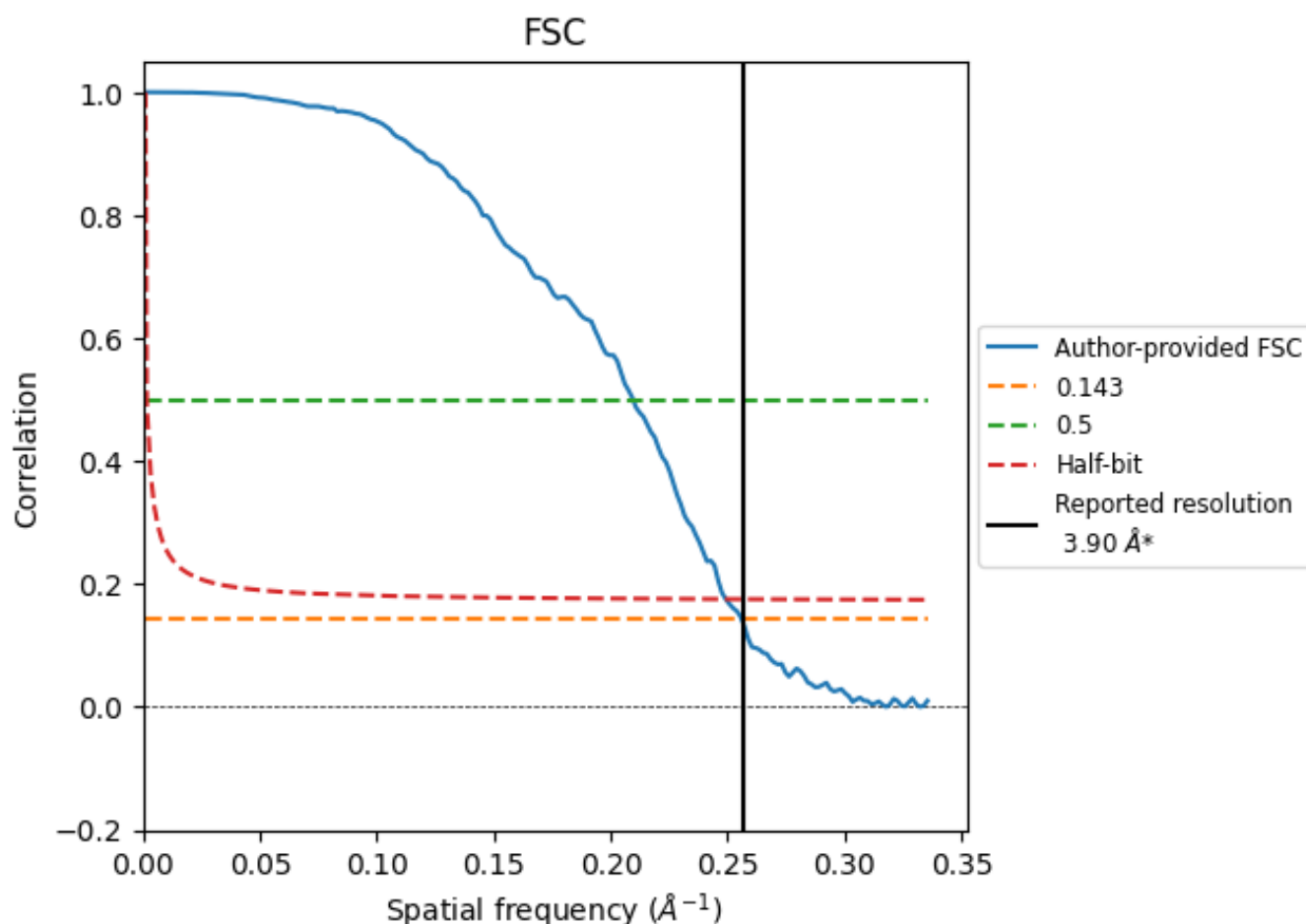


\*Reported resolution corresponds to spatial frequency of 0.256 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.256 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

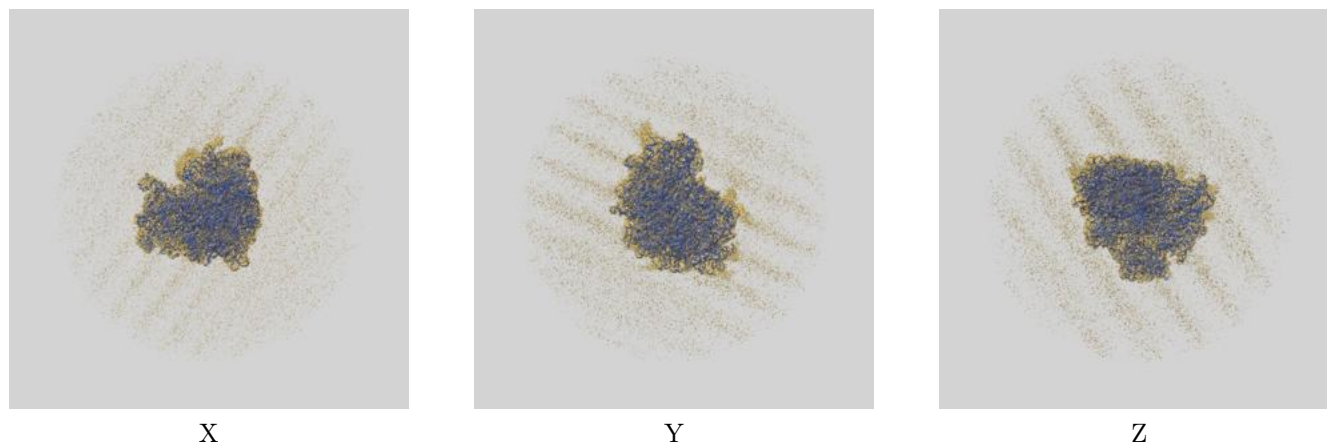
| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 3.90                               | -    | -        |
| Author-provided FSC curve | 3.91                               | 4.77 | 4.01     |
| Unmasked-calculated*      | -                                  | -    | -        |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

## 9 Map-model fit [i](#)

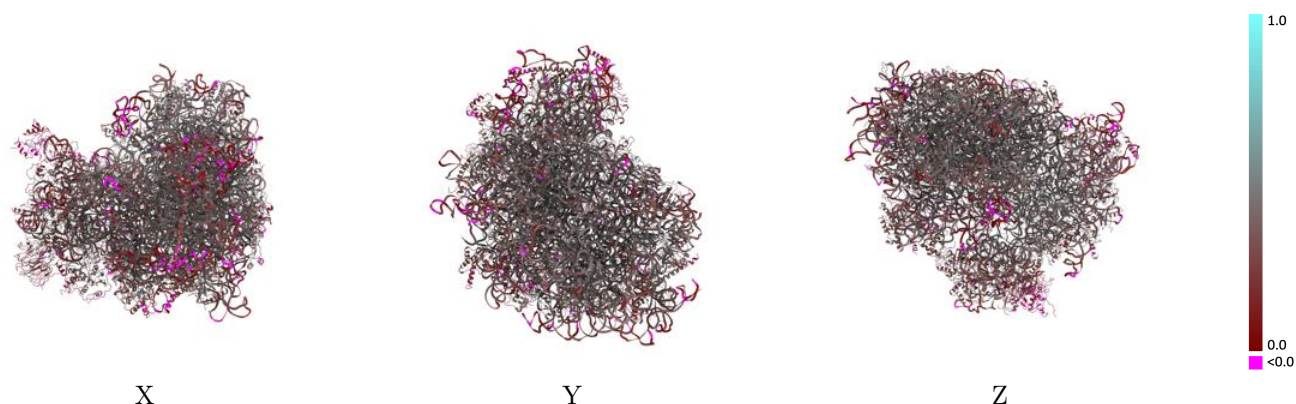
This section contains information regarding the fit between EMDB map EMD-9701 and PDB model 6IP5. Per-residue inclusion information can be found in [section 3](#) on [page 20](#).

### 9.1 Map-model overlay [i](#)



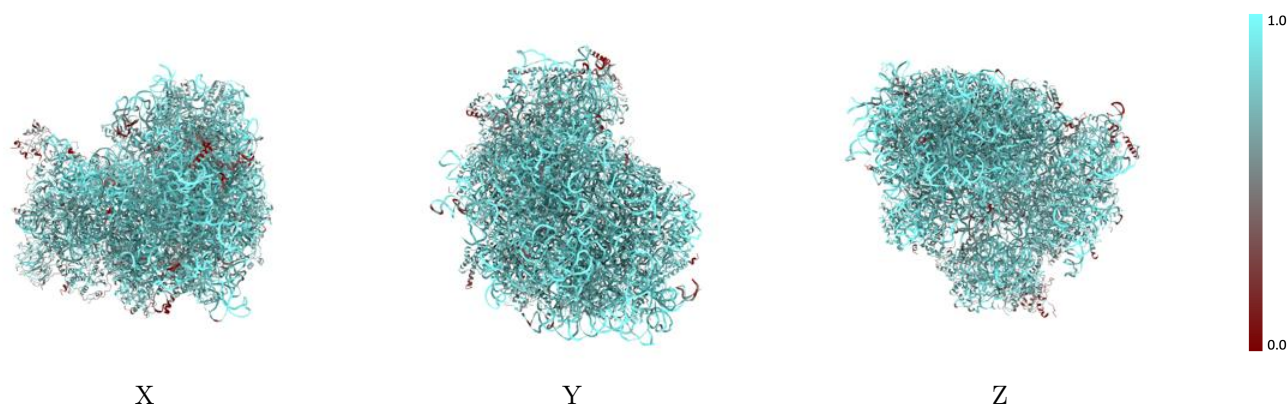
The images above show the 3D surface view of the map at the recommended contour level 0.03 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



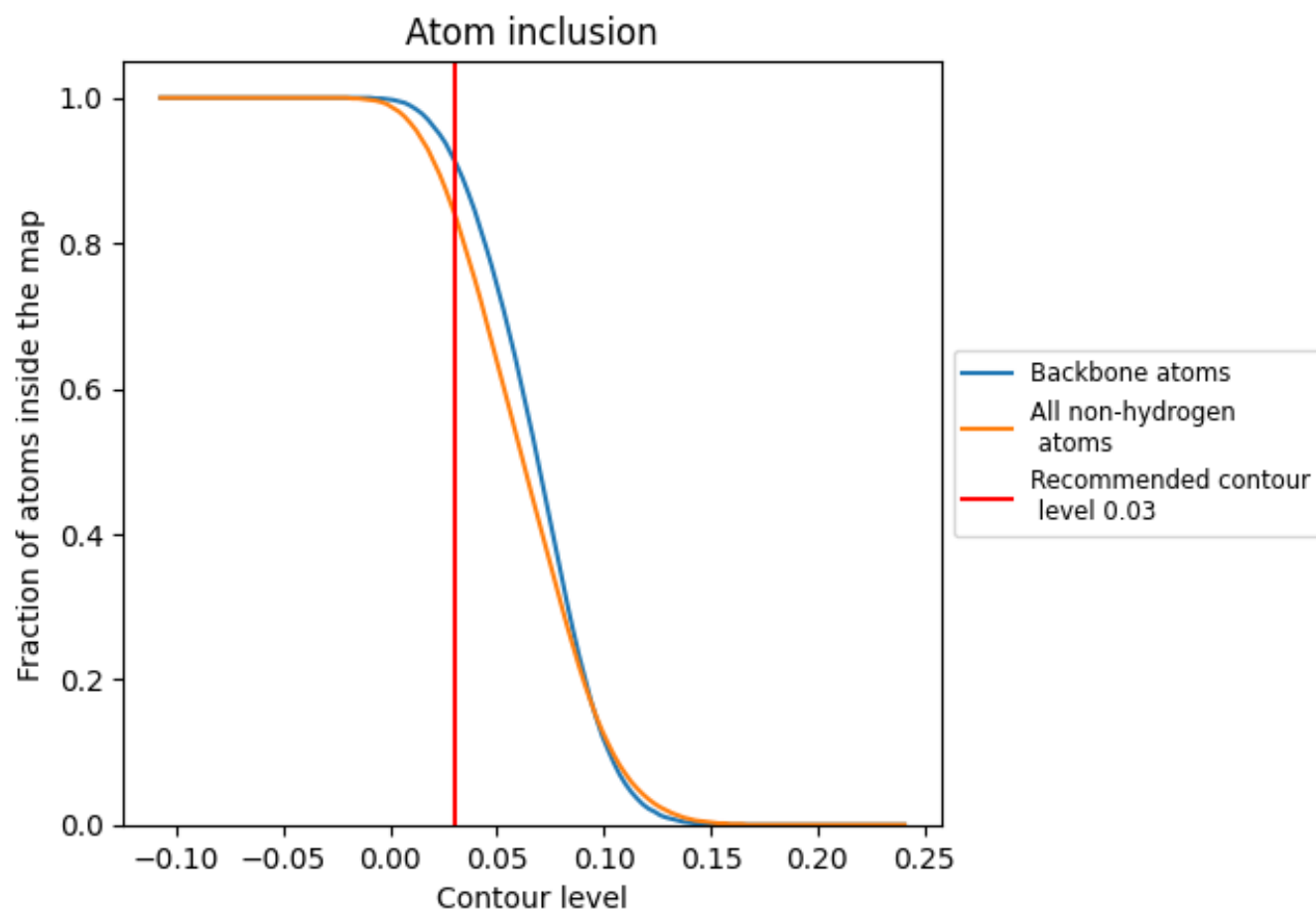
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.03).

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.03) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| All   |  0.8420   |  0.3560   |
| 1A    |  0.9250   |  0.3700   |
| 1B    |  0.9730   |  0.4160   |
| 1C    |  0.9500   |  0.3860   |
| 1D    |  0.7900   |  0.4130   |
| 1E    |  0.7950   |  0.4030   |
| 1F    |  0.7970   |  0.4020   |
| 1G    |  0.8130   |  0.3590   |
| 1H    |  0.7450   |  0.3460   |
| 20    |  0.7540   |  0.3090   |
| 21    |  0.6460   |  0.2840   |
| 2A    |  0.8080   |  0.4040   |
| 2B    |  0.6950   |  0.3250   |
| 2C    |  0.7730   |  0.3980   |
| 2D    |  0.7530  |  0.3660  |
| 2E    |  0.7340 |  0.3250 |
| 2F    |  0.7640 |  0.3650 |
| 2G    |  0.8110 |  0.3880 |
| 2H    |  0.8110 |  0.4160 |
| 2I    |  0.7940 |  0.4090 |
| 2J    |  0.8100 |  0.4100 |
| 2K    |  0.8050 |  0.4050 |
| 2L    |  0.7490 |  0.3680 |
| 2M    |  0.8330 |  0.4180 |
| 2N    |  0.7970 |  0.4120 |
| 2O    |  0.7370 |  0.3280 |
| 2P    |  0.7680 |  0.4160 |
| 2Q    |  0.4840 |  0.2410 |
| 2R    |  0.7770 |  0.3870 |
| 2S    |  0.8010 |  0.3790 |
| 2T    |  0.7870 |  0.3700 |
| 2U    |  0.8310 |  0.4210 |
| 2V    |  0.7430 |  0.3480 |
| 2W    |  0.7510 |  0.3700 |
| 2X    |  0.8090 |  0.4090 |



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| Chain | Atom inclusion                                                                             | Q-score                                                                                    |
|-------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| 2Y    |  0.8250   |  0.4320   |
| 2Z    |  0.8180   |  0.4330   |
| 2a    |  0.7530   |  0.3820   |
| 2b    |  0.7720   |  0.3610   |
| 2c    |  0.7660   |  0.3470   |
| 2d    |  0.8360   |  0.4220   |
| 2e    |  0.7090   |  0.3240   |
| 2f    |  0.7940   |  0.4010   |
| 2g    |  0.7880   |  0.3950   |
| 2h    |  0.7940   |  0.4090   |
| 2i    |  0.7670   |  0.3760   |
| 2j    |  0.7640   |  0.4050   |
| 2k    |  0.8280   |  0.4080   |
| 2l    |  0.0900   |  0.0020   |
| 2m    |  0.9310   |  0.3540   |
| 2n    |  0.7140   |  0.3410   |
| 2o    |  0.7040   |  0.3460   |
| 2p    |  0.6540  |  0.2790  |
| 2q    |  0.7590 |  0.3730 |
| 2r    |  0.7070 |  0.2990 |
| 2s    |  0.6470 |  0.2860 |
| 2t    |  0.7670 |  0.3610 |
| 2u    |  0.6740 |  0.2550 |
| 2v    |  0.7120 |  0.3660 |
| 2w    |  0.6860 |  0.2450 |
| 2x    |  0.7300 |  0.2970 |
| 2y    |  0.6150 |  0.2680 |
| 2z    |  0.7060 |  0.2640 |
| 3A    |  0.7360 |  0.3480 |
| 3B    |  0.7810 |  0.3970 |
| 3C    |  0.7240 |  0.3380 |
| 3D    |  0.6400 |  0.2980 |
| 3E    |  0.7840 |  0.3390 |
| 3F    |  0.6750 |  0.2300 |
| 3G    |  0.7400 |  0.3630 |
| 3H    |  0.7140 |  0.2800 |
| 3I    |  0.7520 |  0.3340 |
| 3J    |  0.3090 |  0.0650 |
| 3K    |  0.7660 |  0.3950 |
| 3L    |  0.6970 |  0.3470 |
| 3M    |  0.7780 |  0.3900 |
| 3N    |  0.7430 |  0.3010 |

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| Chain | Atom inclusion                                                                           | Q-score                                                                                  |
|-------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 3O    |  0.6480 |  0.2540 |
| 3P    |  0.7210 |  0.3460 |
| 3Q    |  0.6600 |  0.3050 |
| 3R    |  0.4950 |  0.1450 |
| zu    |  0.5410 |  0.1500 |
| zv    |  0.9020 |  0.3800 |
| zx    |  0.2580 |  0.1930 |
| zy    |  0.8780 |  0.3500 |