



Full wwPDB EM Validation Report ⓘ

Mar 5, 2026 – 06:30 PM UTC

PDB ID : 9NL6 / pdb_00009nl6
EMDB ID : EMD-40927
Title : E. coli initiation complex with EQ2-YbiT in Non-hydrolytic 1/PtIM(a) con-
formation
Authors : Singh, S.; Hunt, J.F.
Deposited on : 2025-03-02
Resolution : 3.20 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

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>.

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

EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
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

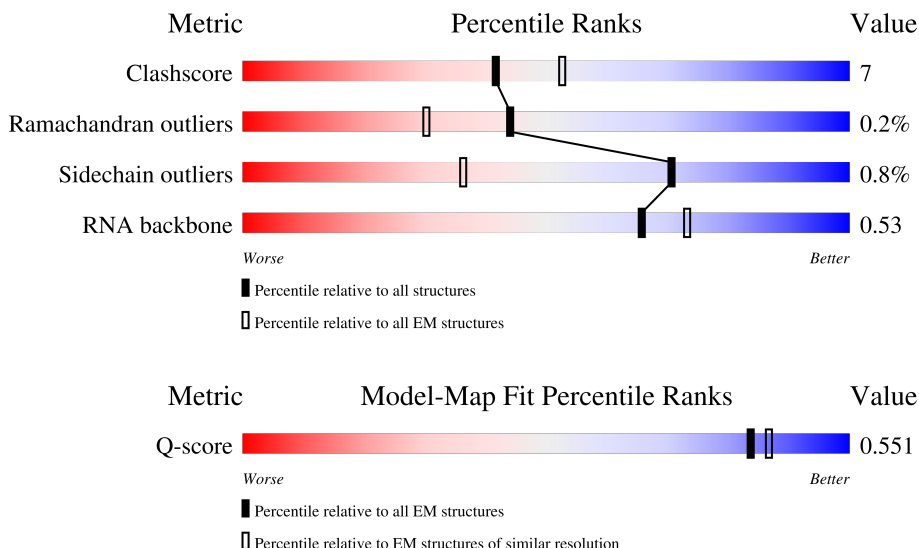
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.20 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.



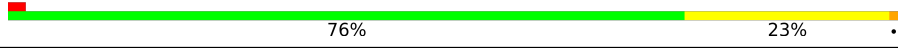
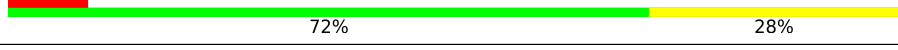
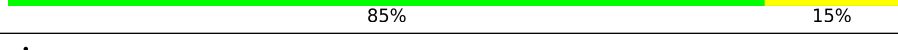
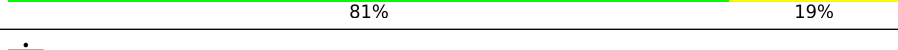
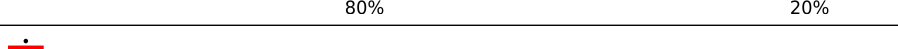
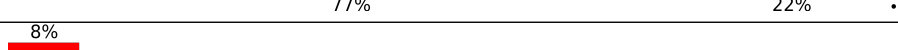
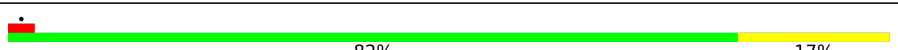
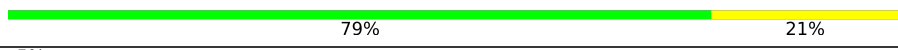
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	15020 (2.70 - 3.70)

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 ≥ 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	1	220	64% 84% 16%
2	13	142	87% 13%
3	14	122	80% 20%

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Mol	Chain	Length	Quality of chain
4	15	144	 78%22%
5	16	136	 71%29%
6	17	120	 76%23%
7	18	116	 9%72%28%
8	19	114	 78%22%
9	2	271	 78%22%
10	20	117	 85%15%
11	21	103	 81%19%
12	22	110	 80%20%
13	23	93	 77%22%
14	24	102	 8%81%19%
15	25	94	 7%73%27%
16	27	75	 81%17%
17	28	77	 88%12%
18	29	63	 8%76%24%
19	3	209	 82%17%
20	30	58	 5%83%17%
21	31	66	 85%67%33%
22	32	56	 70%30%
23	34	46	 80%20%
24	35	64	 83%17%
25	36	38	 79%21%
26	4	201	 5%80%20%
27	5	177	 46%70%30%
28	6	176	 15%80%20%

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Mol	Chain	Length	Quality of chain
29	9	149	
30	R1	2903	
31	R2	119	
32	R3	1539	
33	T	77	
34	Y	530	
35	M	9	
36	sb	218	
37	sc	206	
38	sd	205	
39	se	157	
40	sf	100	
41	sg	151	
42	sh	129	
43	si	127	
44	sj	98	
45	sk	116	
46	sl	123	
47	sm	114	
48	sn	100	
49	so	88	
50	sp	82	
51	sq	80	
52	sr	65	
53	ss	79	

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Mol	Chain	Length	Quality of chain
54	st	85	
55	su	70	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
33	H2U	T	20	X	-	-	-
33	4OC	T	32	X	-	-	-
33	5MU	T	54	X	-	-	-
33	PSU	T	55	X	-	-	-
33	4SU	T	8	X	-	-	-

2 Entry composition [i](#)

There are 59 unique types of molecules in this entry. The entry contains 149664 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 protein called Large ribosomal subunit protein uL1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	220	Total	C	N	O	S	0	0
			1353	804	270	277	2		

- Molecule 2 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	13	142	Total	C	N	O	S	0	0
			1129	714	212	199	4		

- Molecule 3 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	14	122	Total	C	N	O	S	0	0
			938	587	180	165	6		

- Molecule 4 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	15	144	Total	C	N	O	S	0	0
			1053	654	207	190	2		

- Molecule 5 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	16	136	Total	C	N	O	S	0	0
			1074	686	205	177	6		

- Molecule 6 is a protein called Large ribosomal subunit protein bL17.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	17	120	Total	C	N	O	S	0	0
			960	593	196	166	5		

- Molecule 7 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	18	116	Total	C	N	O	0	0
			892	552	178	162		

- Molecule 8 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	19	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 9 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	2	271	Total	C	N	O	S	0	0
			2082	1288	423	364	7		

- Molecule 10 is a protein called Large ribosomal subunit protein bL20.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	20	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 11 is a protein called Large ribosomal subunit protein bL21.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	21	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 12 is a protein called Large ribosomal subunit protein uL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	22	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 13 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	23	93	Total	C	N	O	S	0	0
			738	466	139	131	2		

- Molecule 14 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	24	102	Total	C	N	O		
			779	492	146	141	0	0

- Molecule 15 is a protein called Large ribosomal subunit protein bL25.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	25	94	Total	C	N	O	S		
			753	479	137	134	3	0	0

- Molecule 16 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	27	75	Total	C	N	O	S		
			575	356	116	102	1	0	0

- Molecule 17 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	28	77	Total	C	N	O	S		
			625	388	129	106	2	0	0

- Molecule 18 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	29	63	Total	C	N	O	S		
			509	313	99	95	2	0	0

- Molecule 19 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	3	209	Total	C	N	O	S		
			1565	979	288	294	4	0	0

- Molecule 20 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	30	58	Total	C	N	O	S		
			449	281	87	79	2	0	0

- Molecule 21 is a protein called Large ribosomal subunit protein bL31.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	31	66	Total	C	N	O	S	0	0
			522	323	99	94	6		

- Molecule 22 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	32	56	Total	C	N	O	S	0	0
			444	269	94	80	1		

- Molecule 23 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	34	46	Total	C	N	O	S	0	0
			377	228	90	57	2		

- Molecule 24 is a protein called Large ribosomal subunit protein bL35.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	35	64	Total	C	N	O	S	0	0
			504	323	105	74	2		

- Molecule 25 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	36	38	Total	C	N	O	S	0	0
			302	185	65	48	4		

- Molecule 26 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	4	201	Total	C	N	O	S	0	0
			1552	974	283	290	5		

- Molecule 27 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	5	177	Total	C	N	O	S	0	0
			1410	899	249	256	6		

- Molecule 28 is a protein called Large ribosomal subunit protein uL6.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	6	176	Total	C	N	O	S	0	0
			1323	832	243	246	2		

- Molecule 29 is a protein called Large ribosomal subunit protein bL9.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	9	149	Total	C	N	O	S	0	0
			1111	699	197	214	1		

- Molecule 30 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	R1	2903	Total	C	N	O	P	0	0
			62318	27801	11467	20148	2902		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R1	1847	G	A	conflict	GB 2019144442

- Molecule 31 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	R2	119	Total	C	N	O	P	0	0
			2546	1135	466	827	118		

- Molecule 32 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	R3	1539	Total	C	N	O	P	0	0
			33012	14725	6052	10697	1538		

- Molecule 33 is a RNA chain called tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
33	T	77	Total	C	N	O	P	S	0	0
			1639	734	294	534	76	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
T	8	4SU	G	conflict	GB 932857508

- Molecule 34 is a protein called Probable ATP-binding protein YbiT.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	Y	530	Total	C	N	O	S	0	0
			4210	2659	718	814	19		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	181	GLN	GLU	conflict	UNP P0A9U3
Y	464	GLN	GLU	conflict	UNP P0A9U3

- Molecule 35 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	M	9	Total	C	N	O	P	0	0
			195	88	40	58	9		

- Molecule 36 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	sb	218	Total	C	N	O	S	0	0
			1704	1081	305	311	7		

- Molecule 37 is a protein called Small ribosomal subunit protein uS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	sc	206	Total	C	N	O	S	0	0
			1624	1028	305	288	3		

- Molecule 38 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	sd	205	Total	C	N	O	S	0	0
			1643	1026	315	298	4		

- Molecule 39 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	se	157	Total	C	N	O	S	0	0
			1156	719	218	213	6		

- Molecule 40 is a protein called 30S ribosomal protein S6, non-modified isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	sf	100	Total	C	N	O	S	0	0
			817	515	148	148	6		

- Molecule 41 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	sg	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 42 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	sh	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 43 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	si	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 44 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	sj	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 45 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	sk	116	Total	C	N	O	S	0	0
			869	535	173	158	3		

- Molecule 46 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	sl	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 47 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	sm	114	Total	C	N	O	S	0	0
			883	546	178	156	3		

- Molecule 48 is a protein called Small ribosomal subunit protein uS14.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	sn	100	Total	C	N	O	S	0	0
			805	499	164	139	3		

- Molecule 49 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	so	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 50 is a protein called Small ribosomal subunit protein bS16.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	sp	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 51 is a protein called Small ribosomal subunit protein uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	sq	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 52 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	sr	65	Total	C	N	O	S	0	0
			535	339	100	95	1		

- Molecule 53 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	ss	79	Total	C	N	O	S	0	0
			637	408	120	107	2		

- Molecule 54 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	st	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

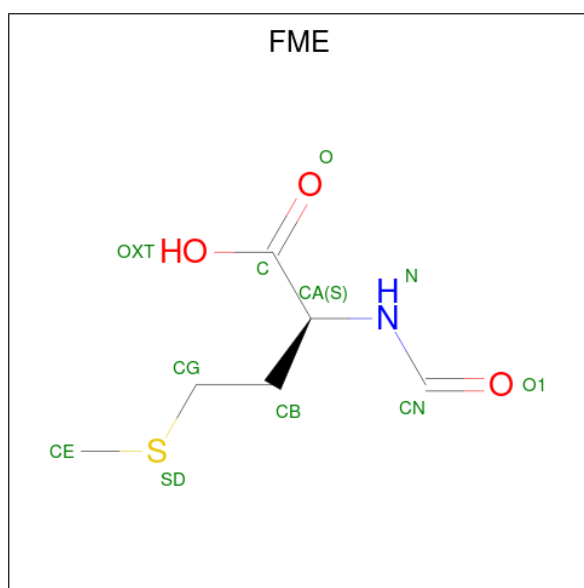
- Molecule 55 is a protein called Small ribosomal subunit protein bS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	su	70	Total	C	N	O	S	0	0
			590	366	125	98	1		

- Molecule 56 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

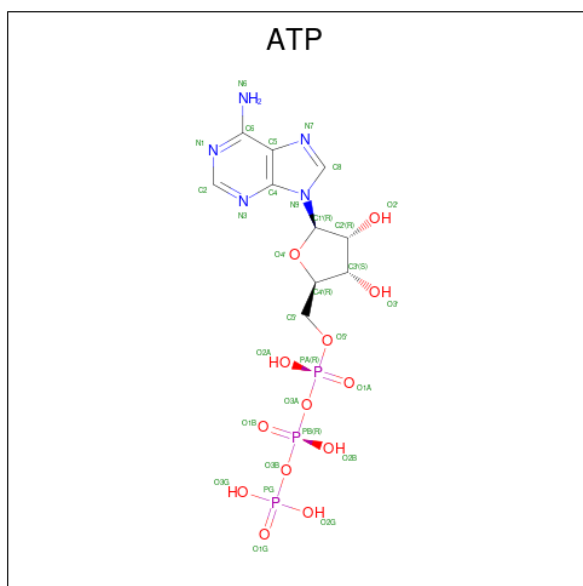
Mol	Chain	Residues	Atoms		AltConf
56	17	1	Total	Mg	0
			1	1	
56	32	1	Total	Mg	0
			1	1	
56	R1	185	Total	Mg	0
			185	185	
56	R3	64	Total	Mg	0
			64	64	
56	M	1	Total	Mg	0
			1	1	

- Molecule 57 is N-FORMYLMETHIONINE (CCD ID: FME) (formula: C₆H₁₁NO₃S).



Mol	Chain	Residues	Atoms					AltConf
57	T	1	Total	C	N	O	S	0
			10	6	1	2	1	

- Molecule 58 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
58	Y	1	Total	C	N	O	P	0
			31	10	5	13	3	
58	Y	1	Total	C	N	O	P	0
			31	10	5	13	3	

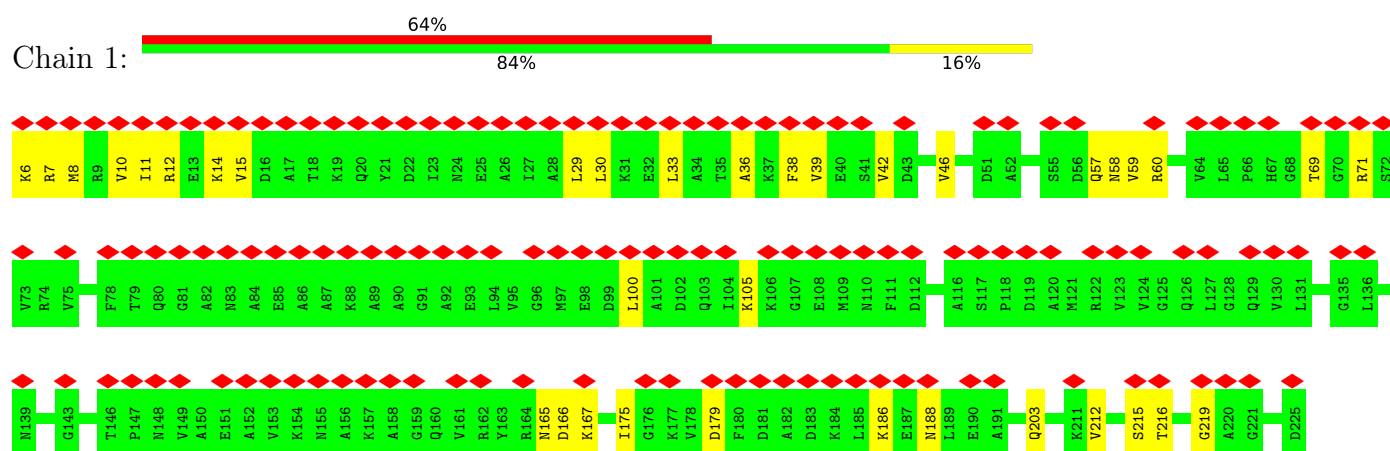
- Molecule 59 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		AltConf
59	Y	2	Total	Na	0
			2	2	

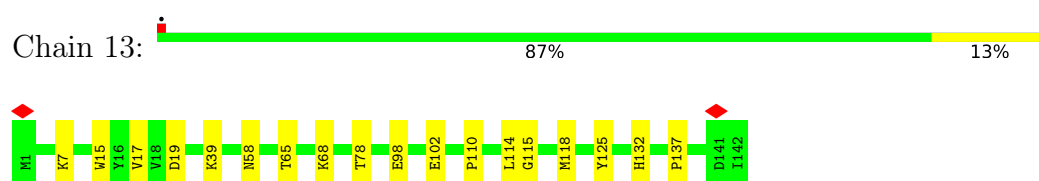
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

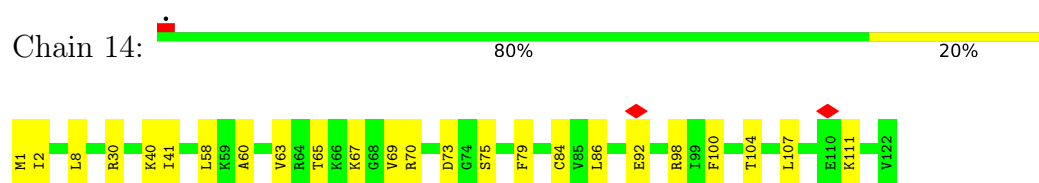
• Molecule 1: Large ribosomal subunit protein uL1



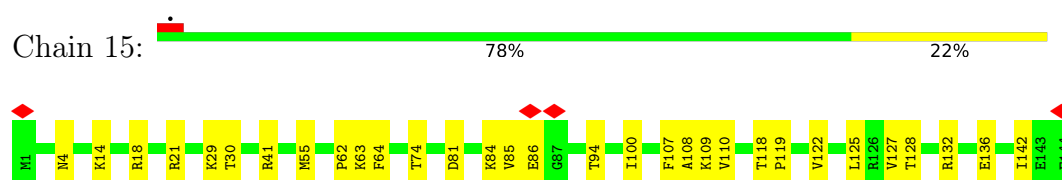
• Molecule 2: Large ribosomal subunit protein uL13



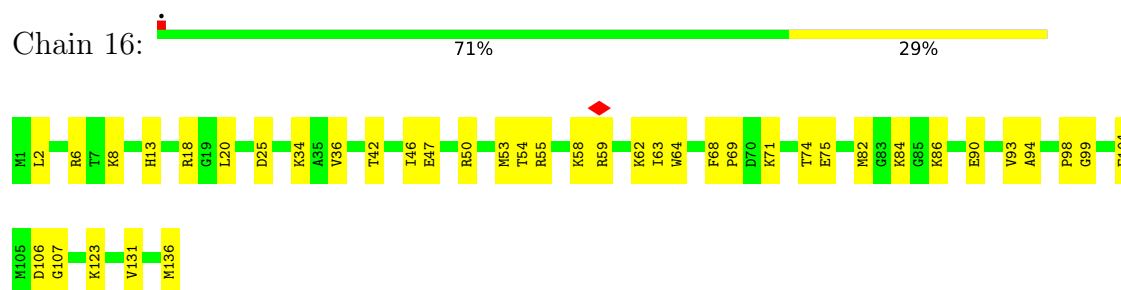
• Molecule 3: 50S ribosomal protein L14



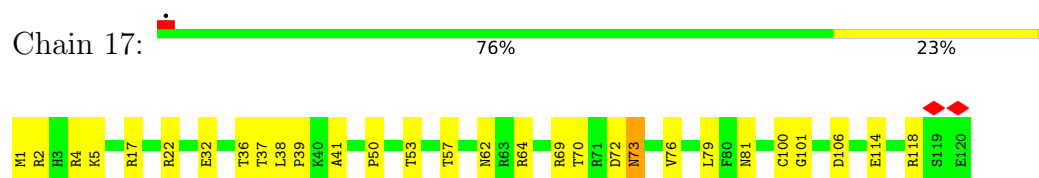
• Molecule 4: Large ribosomal subunit protein uL15



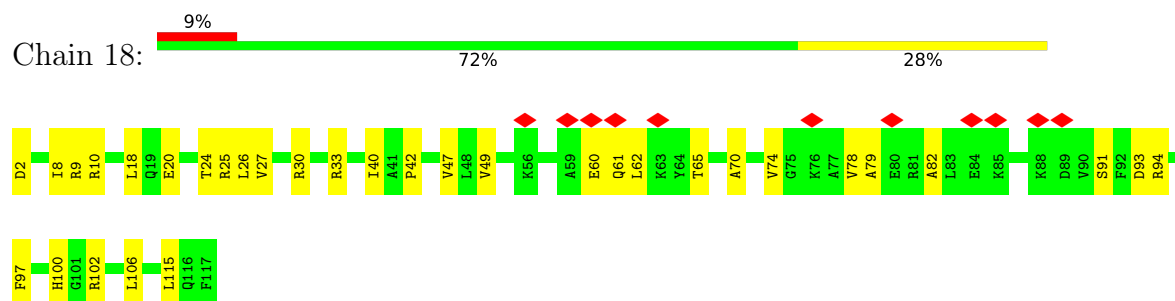
- Molecule 5: 50S ribosomal protein L16



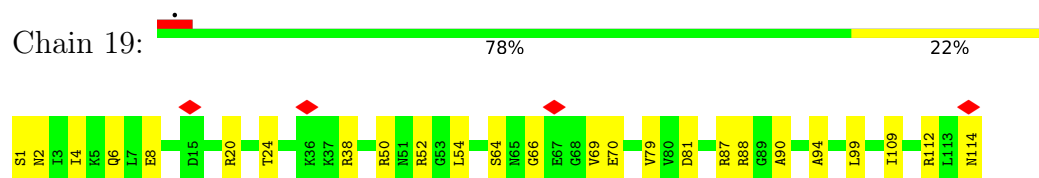
- Molecule 6: Large ribosomal subunit protein bL17



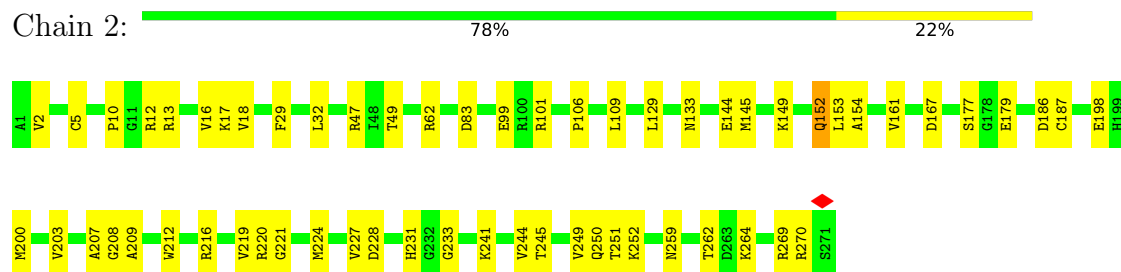
- Molecule 7: Large ribosomal subunit protein uL18



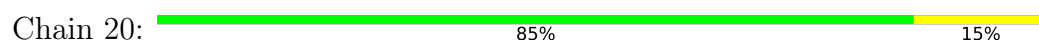
- Molecule 8: 50S ribosomal protein L19



- Molecule 9: 50S ribosomal protein L2

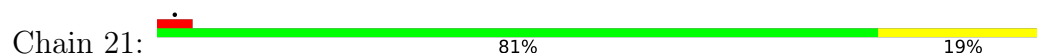


- Molecule 10: Large ribosomal subunit protein bL20

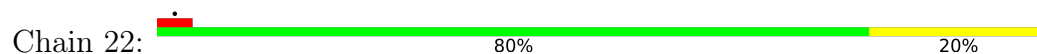




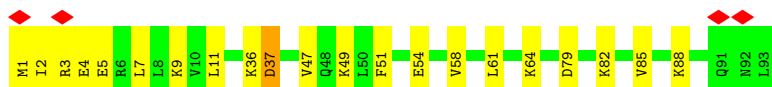
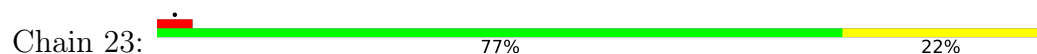
- Molecule 11: Large ribosomal subunit protein bL21



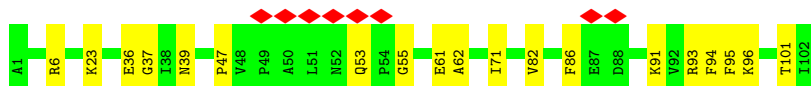
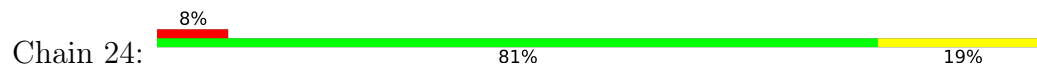
- Molecule 12: Large ribosomal subunit protein uL22



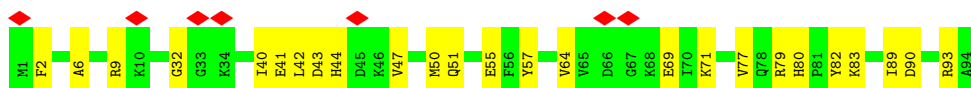
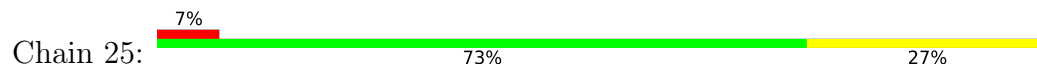
- Molecule 13: Large ribosomal subunit protein uL23



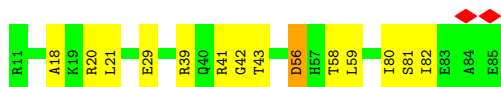
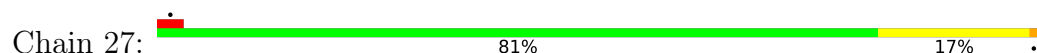
- Molecule 14: Large ribosomal subunit protein uL24



- Molecule 15: Large ribosomal subunit protein bL25



- Molecule 16: 50S ribosomal protein L27



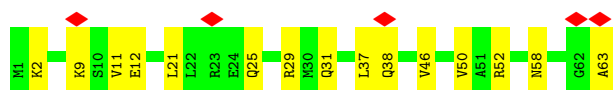
- Molecule 17: 50S ribosomal protein L28

Chain 28:  88% 12%



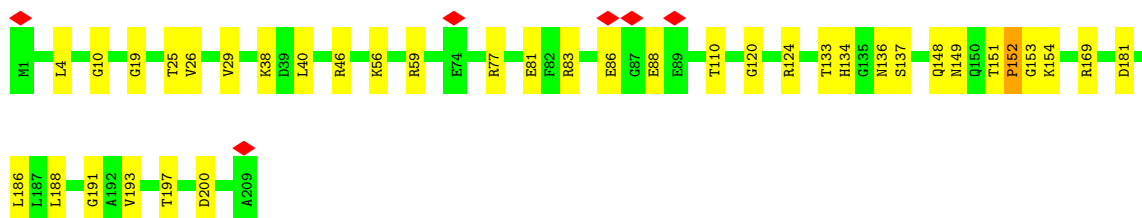
- Molecule 18: Large ribosomal subunit protein uL29

Chain 29:  8% 76% 24%



- Molecule 19: 50S ribosomal protein L3

Chain 3:  82% 17%



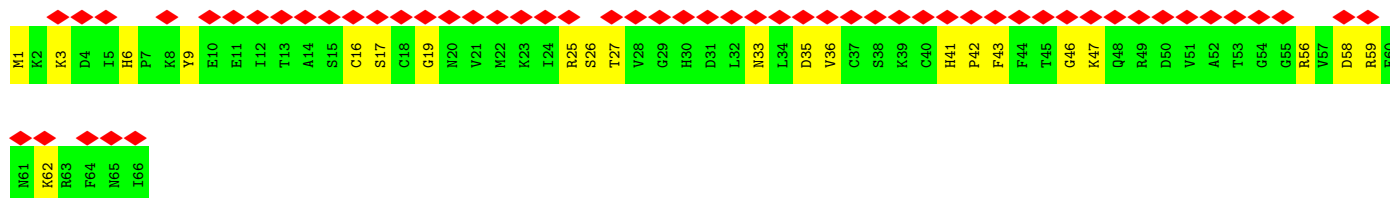
- Molecule 20: 50S ribosomal protein L30

Chain 30:  5% 83% 17%



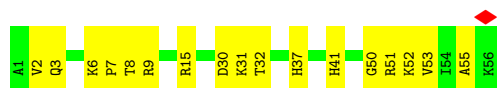
- Molecule 21: Large ribosomal subunit protein bL31

Chain 31:  85% 67% 33%

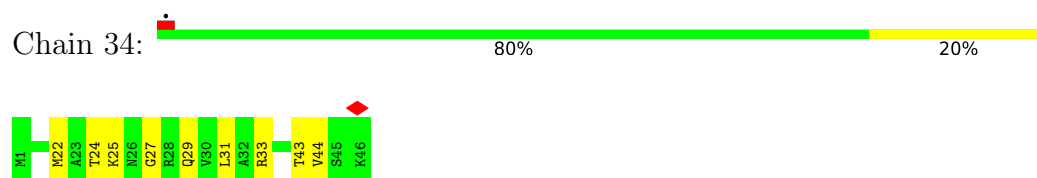


- Molecule 22: 50S ribosomal protein L32

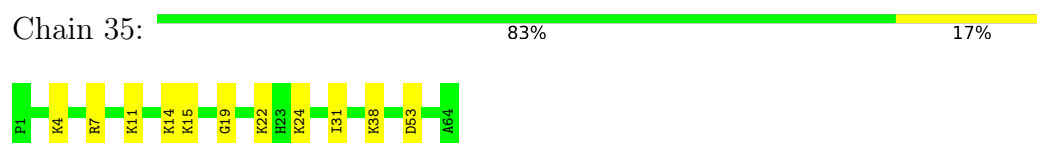
Chain 32:  70% 30%



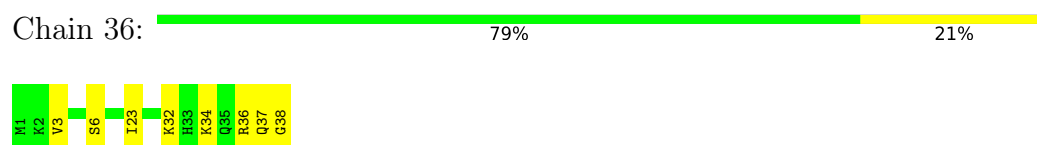
- Molecule 23: 50S ribosomal protein L34



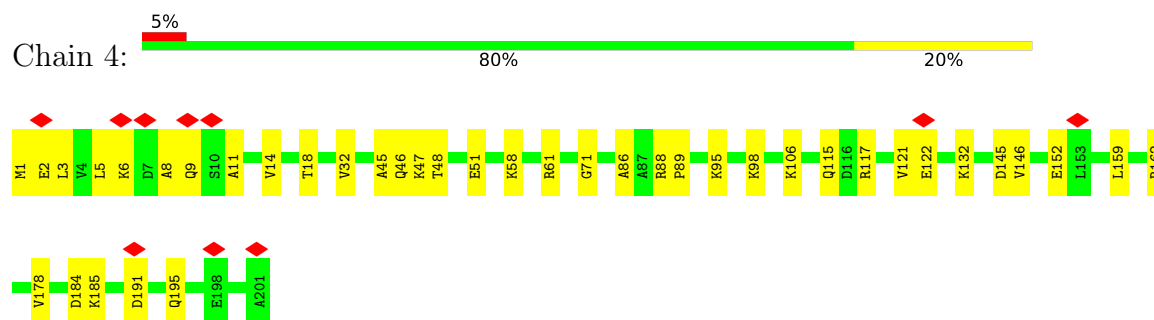
- Molecule 24: Large ribosomal subunit protein bL35



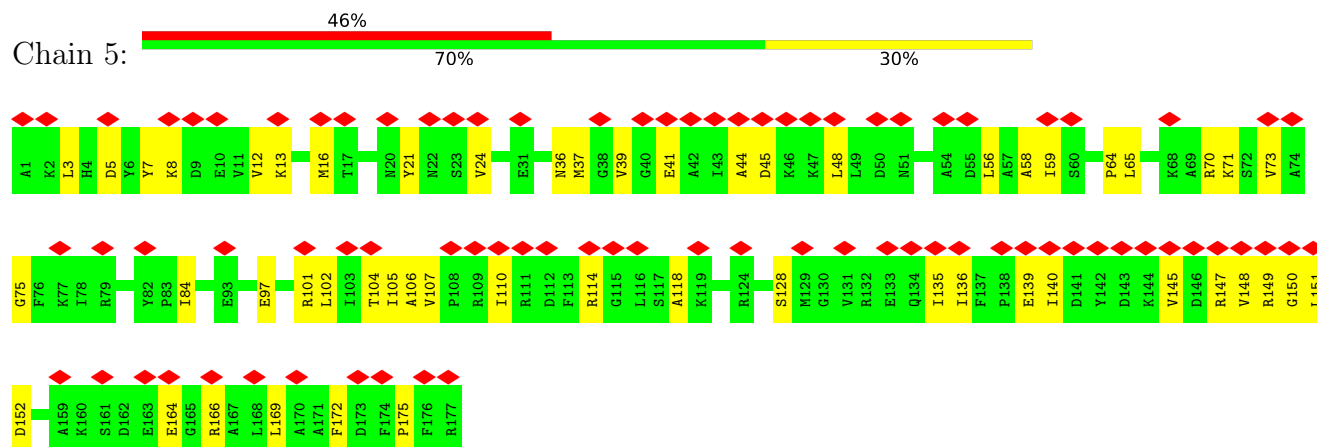
- Molecule 25: 50S ribosomal protein L36



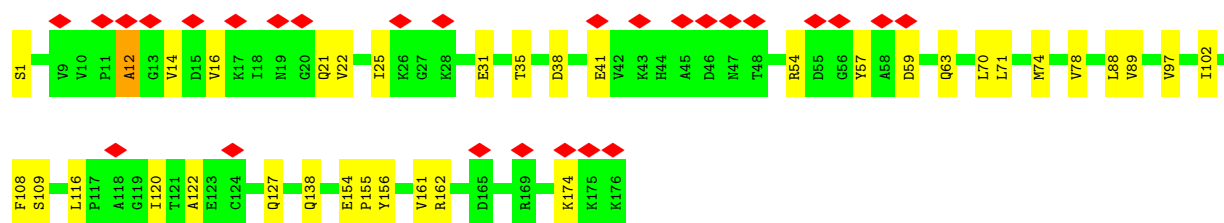
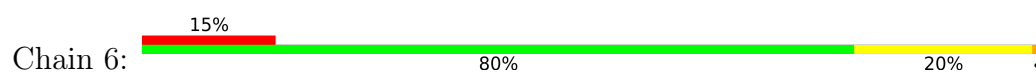
- Molecule 26: Large ribosomal subunit protein uL4



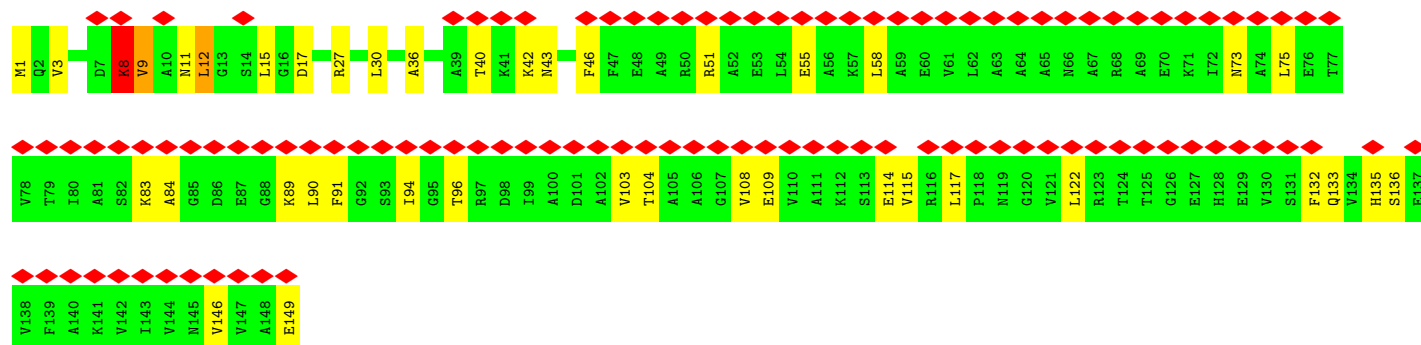
- Molecule 27: 50S ribosomal protein L5



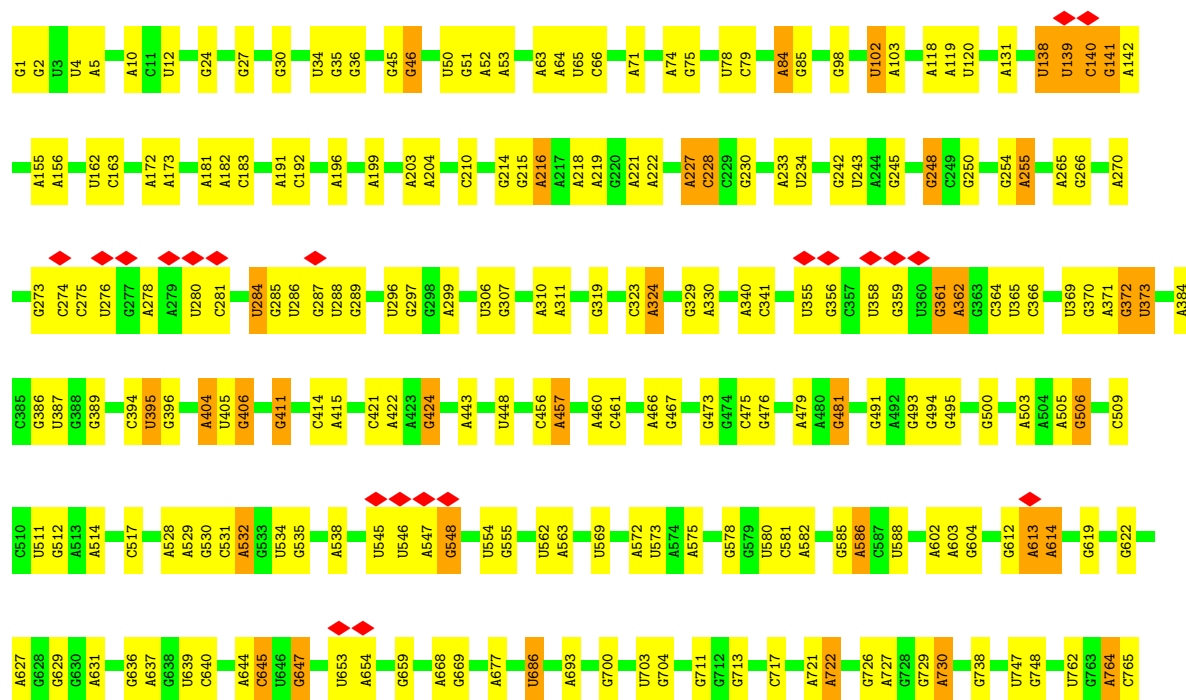
- Molecule 28: Large ribosomal subunit protein uL6



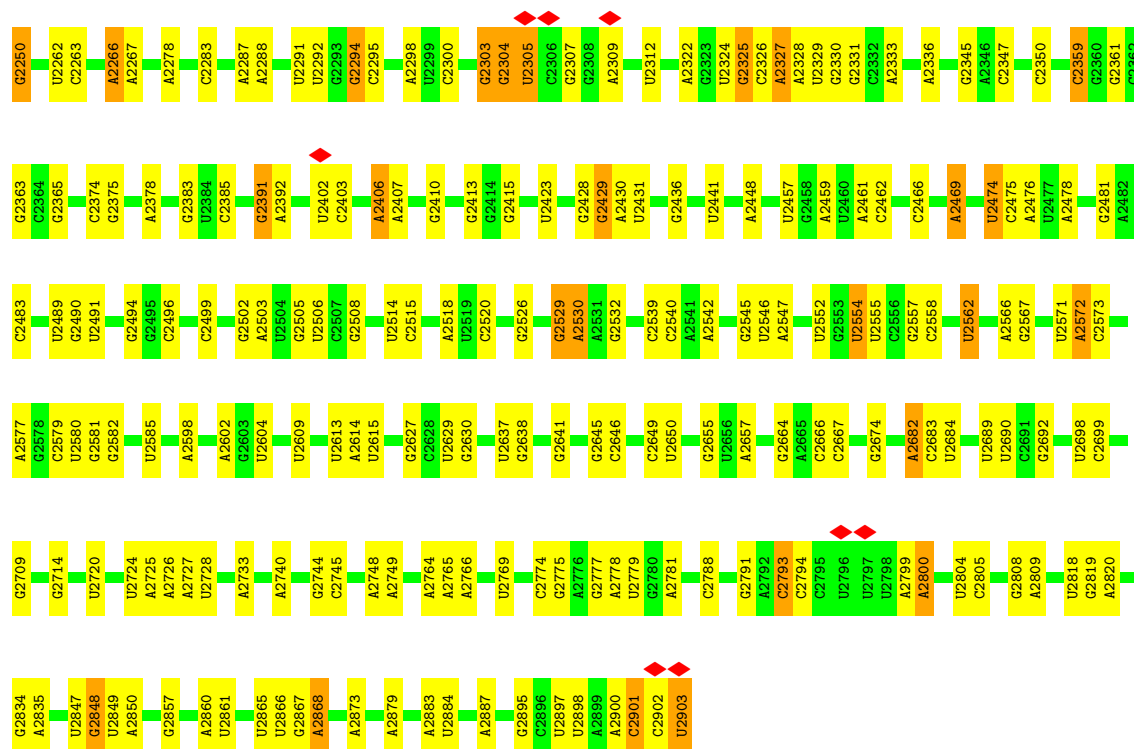
• Molecule 29: Large ribosomal subunit protein bL9



• Molecule 30: 23S ribosomal RNA







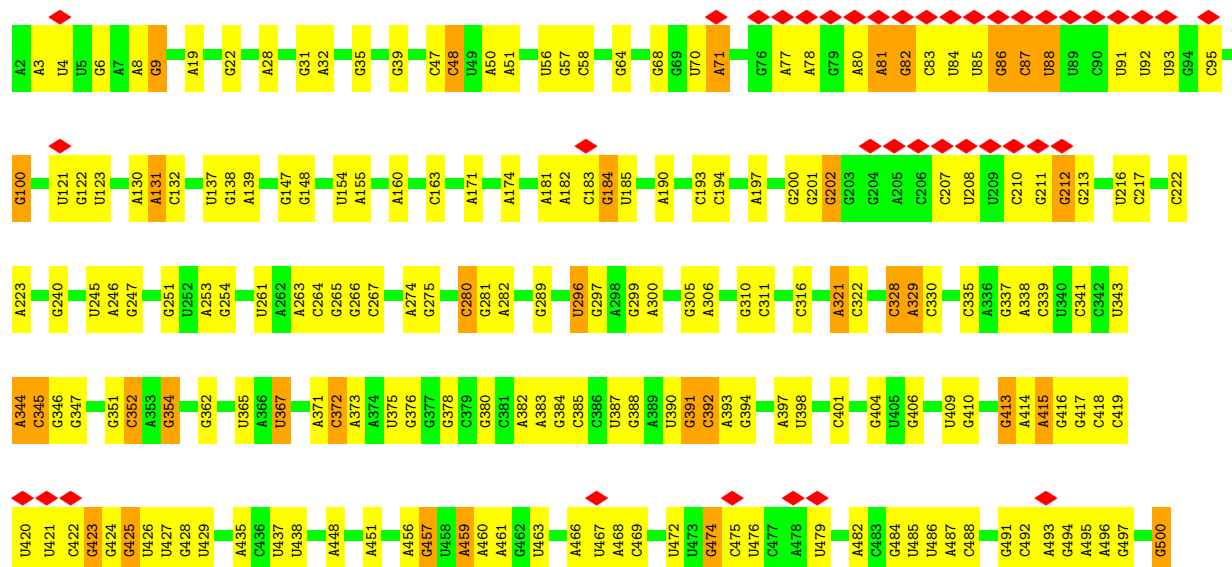
• Molecule 31: 5S ribosomal RNA

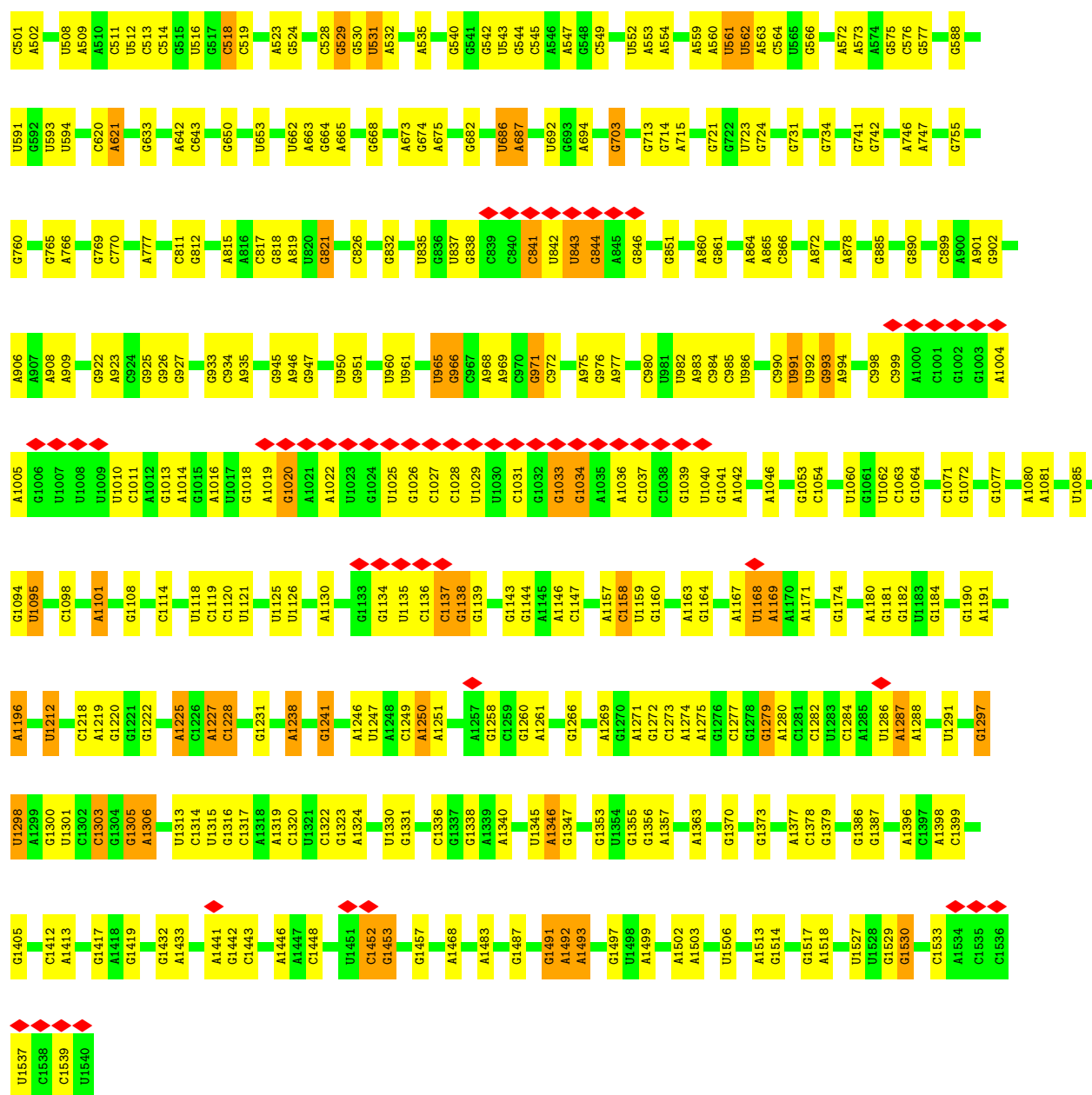
Chain R2: 65% 31%



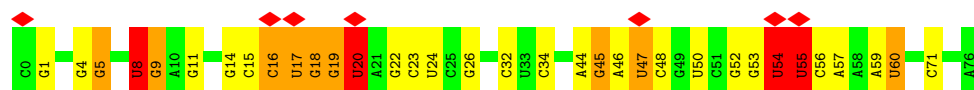
• Molecule 32: 16S ribosomal RNA

Chain R3: 6% 64% 30% 5%



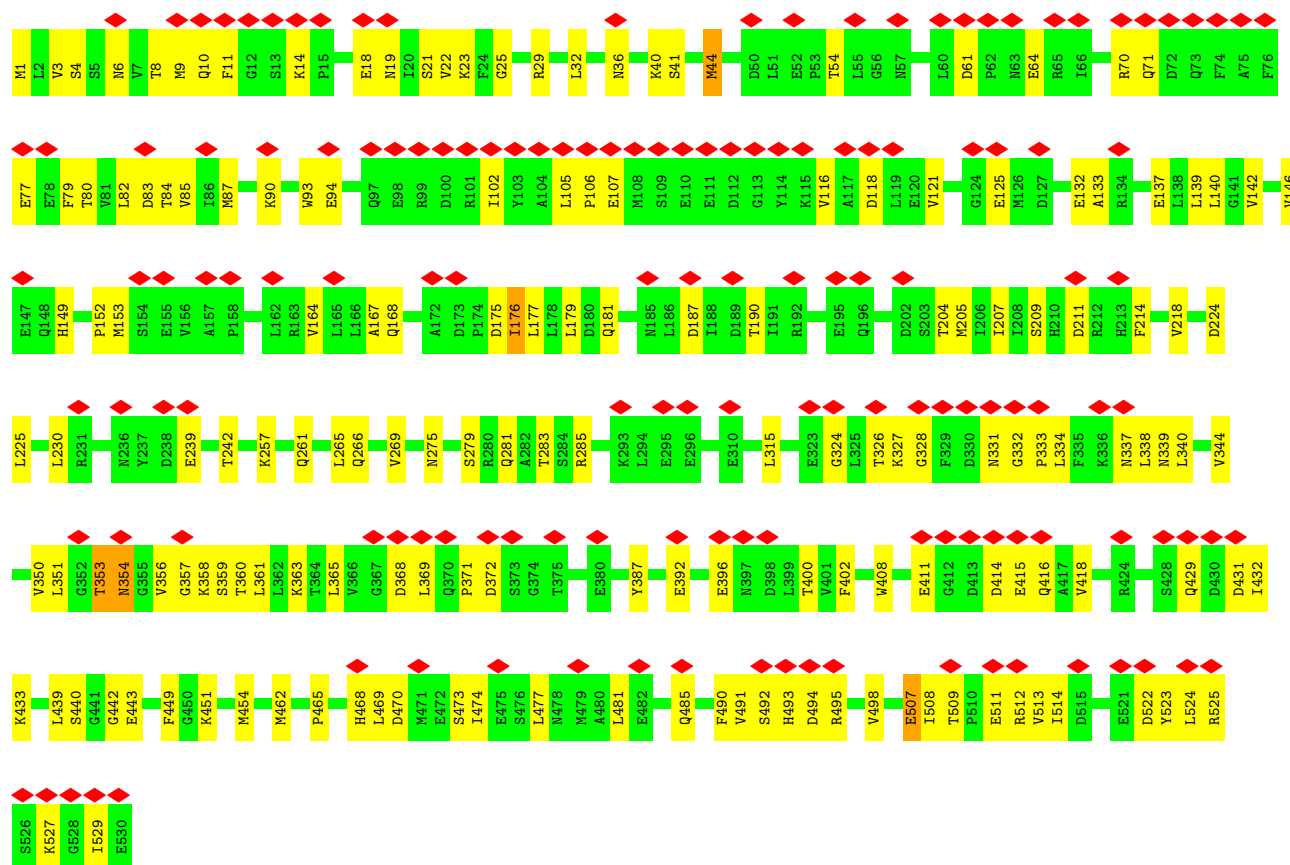


• Molecule 33: tRNA

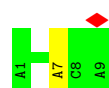
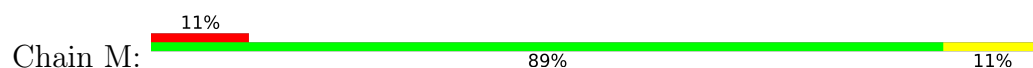


• Molecule 34: Probable ATP-binding protein YbiT

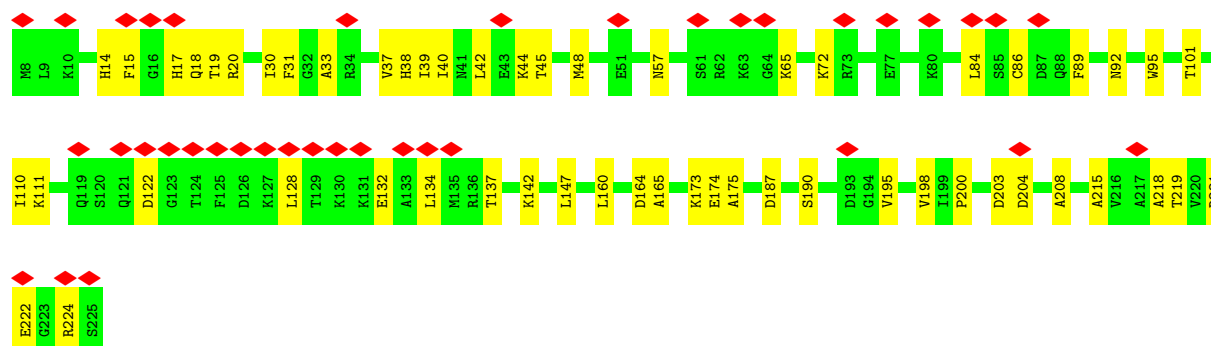
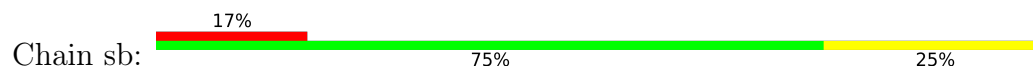




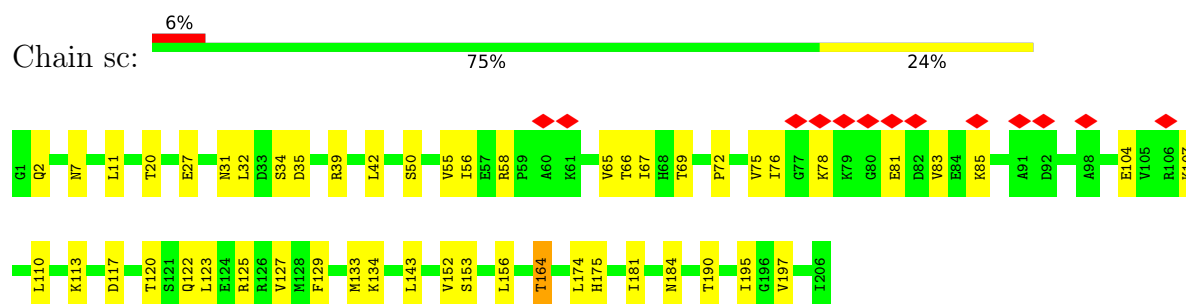
- Molecule 35: mRNA



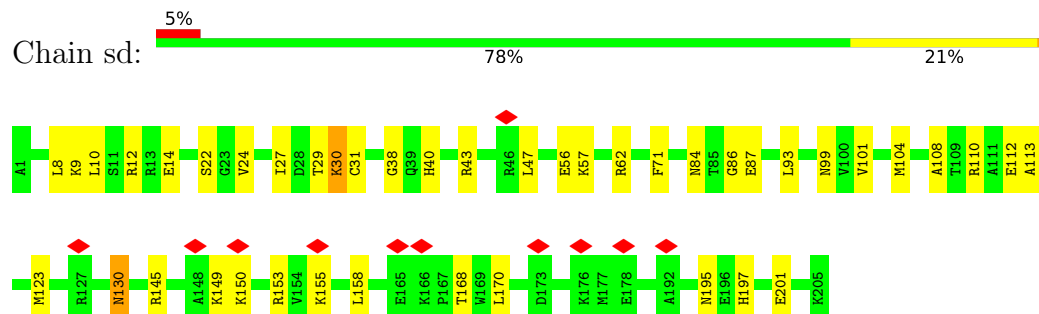
- Molecule 36: Small ribosomal subunit protein uS2



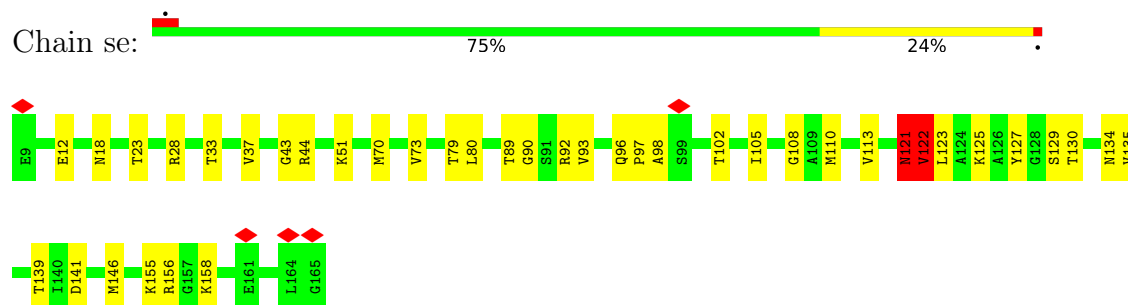
- Molecule 37: Small ribosomal subunit protein uS3



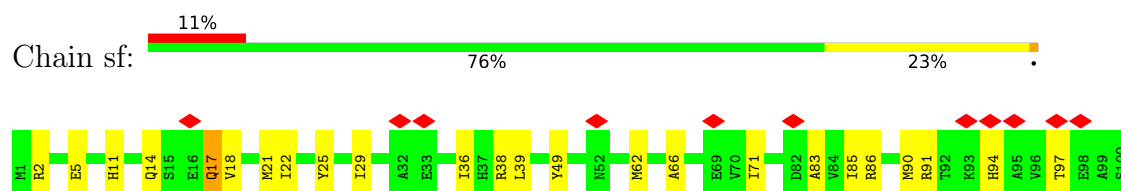
• Molecule 38: 30S ribosomal protein S4



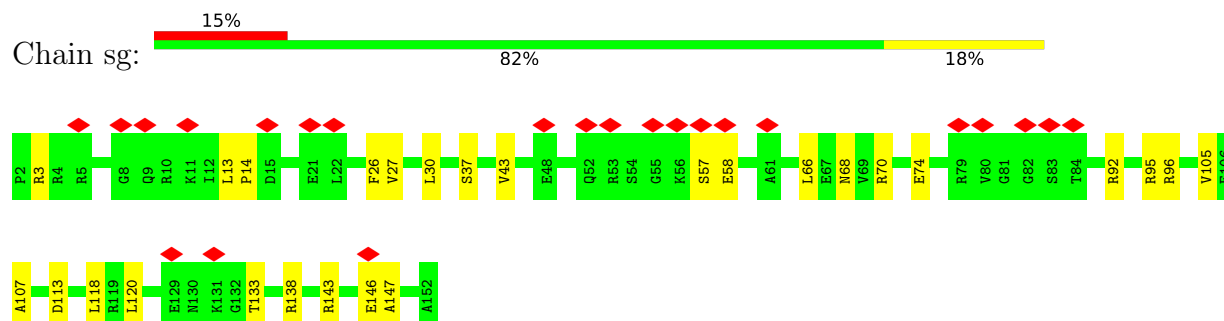
• Molecule 39: Small ribosomal subunit protein uS5



• Molecule 40: 30S ribosomal protein S6, non-modified isoform

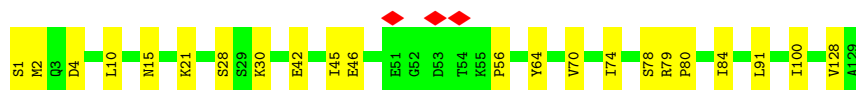


• Molecule 41: 30S ribosomal protein S7



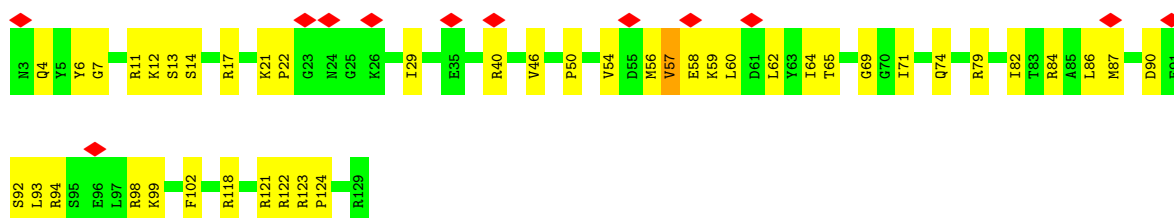
- Molecule 42: 30S ribosomal protein S8

Chain sh:  83% 17%



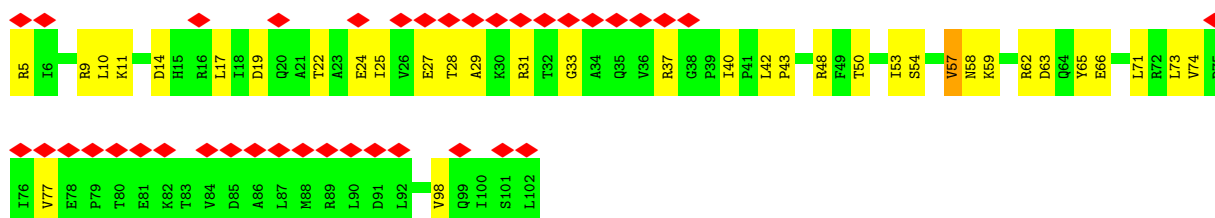
- Molecule 43: Small ribosomal subunit protein uS9

Chain si:  9% 66% 33%



- Molecule 44: 30S ribosomal protein S10

Chain sj:  39% 64% 35%



- Molecule 45: Small ribosomal subunit protein uS11

Chain sk:  73% 27%

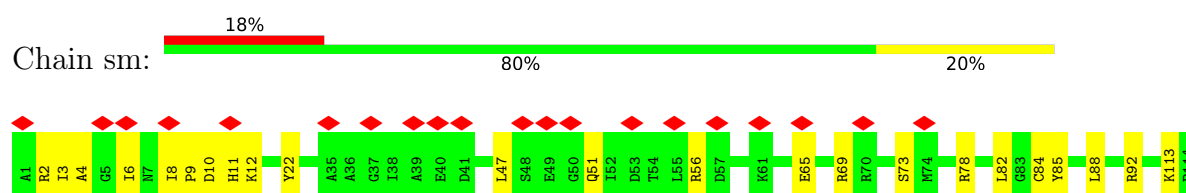


- Molecule 46: Small ribosomal subunit protein uS12

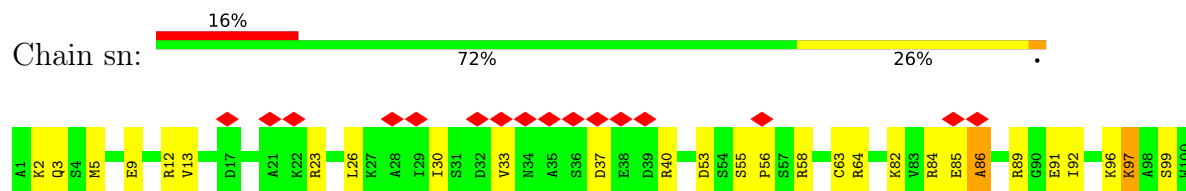
Chain sl:  9% 79% 20%



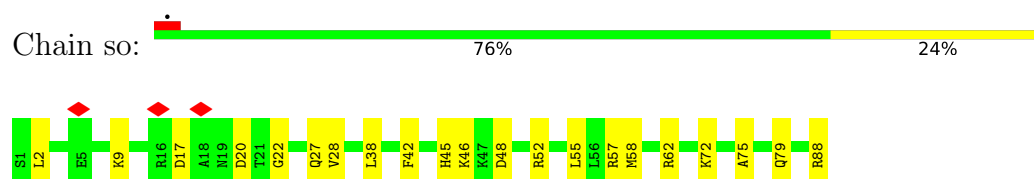
- Molecule 47: 30S ribosomal protein S13



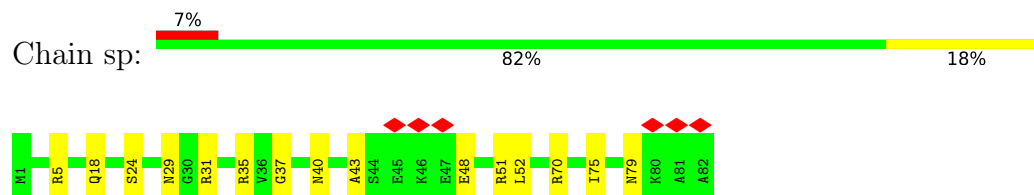
- Molecule 48: Small ribosomal subunit protein uS14



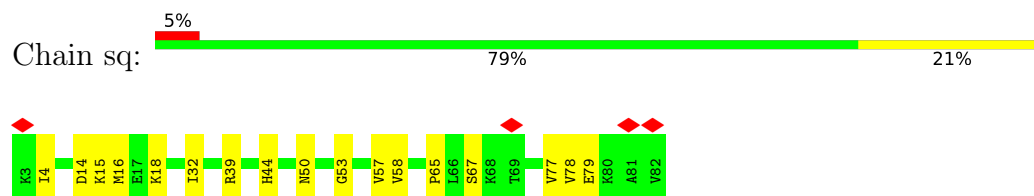
- Molecule 49: Small ribosomal subunit protein uS15



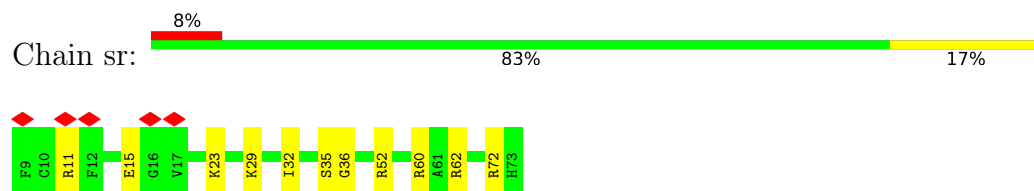
- Molecule 50: Small ribosomal subunit protein bS16



- Molecule 51: Small ribosomal subunit protein uS17

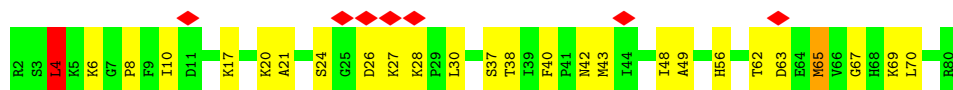


- Molecule 52: 30S ribosomal protein S18

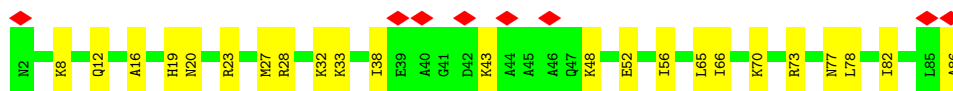
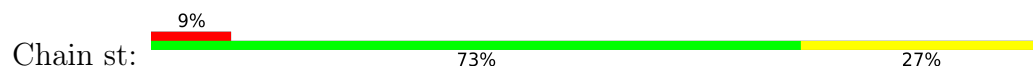


- Molecule 53: 30S ribosomal protein S19

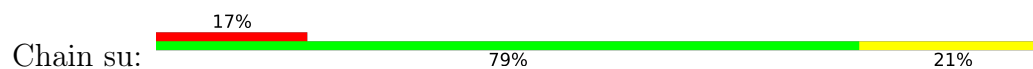




- Molecule 54: 30S ribosomal protein S20



- Molecule 55: Small ribosomal subunit protein bS21



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	78136	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	56.8	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	8.260	Depositor
Minimum map value	-5.124	Depositor
Average map value	0.016	Depositor
Map value standard deviation	0.295	Depositor
Recommended contour level	1	Depositor
Map size (Å)	423.99997, 423.99997, 423.99997	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 4OC, H2U, 5MU, FME, 4SU, NA, ATP, MG, PSU

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	1	0.13	0/1361	0.28	0/1796
2	13	0.29	0/1152	0.32	0/1551
3	14	0.30	0/947	0.38	0/1268
4	15	0.29	0/1062	0.40	0/1413
5	16	0.28	0/1093	0.37	0/1460
6	17	0.32	0/973	0.39	0/1301
7	18	0.20	0/902	0.33	0/1209
8	19	0.29	0/929	0.35	0/1242
9	2	0.33	0/2121	0.39	0/2852
10	20	0.34	0/960	0.34	0/1278
11	21	0.29	0/829	0.38	0/1107
12	22	0.30	0/864	0.33	0/1156
13	23	0.28	0/744	0.40	0/994
14	24	0.22	0/787	0.36	0/1051
15	25	0.23	0/766	0.36	0/1025
16	27	0.30	0/582	0.37	0/769
17	28	0.31	0/635	0.29	0/848
18	29	0.22	0/510	0.29	0/677
19	3	0.33	0/1586	0.43	0/2134
20	30	0.28	0/453	0.32	0/605
21	31	0.11	0/531	0.30	0/709
22	32	0.30	0/450	0.42	0/599
23	34	0.34	0/380	0.40	0/498
24	35	0.31	0/513	0.39	0/676
25	36	0.28	0/303	0.31	0/397
26	4	0.28	0/1571	0.36	0/2113
27	5	0.16	0/1434	0.35	0/1926
28	6	0.19	0/1343	0.38	0/1816
29	9	0.18	0/1122	0.45	0/1515
30	R1	0.33	0/69797	0.33	0/108890
31	R2	0.23	0/2847	0.29	0/4440
32	R3	0.27	0/36961	0.30	0/57654

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	T	0.26	1/1716 (0.1%)	0.31	0/2672
34	Y	0.20	0/4285	0.44	1/5774 (0.0%)
35	M	0.20	0/219	0.20	0/339
36	sb	0.19	0/1735	0.36	0/2338
37	sc	0.20	0/1651	0.28	0/2225
38	sd	0.21	0/1665	0.37	0/2227
39	se	0.25	0/1169	0.50	0/1573
40	sf	0.22	0/835	0.40	0/1128
41	sg	0.19	0/1195	0.29	0/1602
42	sh	0.25	0/989	0.32	0/1326
43	si	0.22	0/1034	0.46	0/1375
44	sj	0.20	0/796	0.41	0/1077
45	sk	0.23	0/885	0.34	0/1195
46	sl	0.25	0/969	0.46	0/1300
47	sm	0.18	0/892	0.35	0/1193
48	sn	0.21	0/817	0.45	0/1088
49	so	0.23	0/722	0.30	0/964
50	sp	0.23	0/659	0.35	0/884
51	sq	0.23	0/657	0.33	0/881
52	sr	0.24	0/544	0.33	0/731
53	ss	0.20	0/652	0.43	0/877
54	st	0.23	0/671	0.31	0/888
55	su	0.17	0/598	0.27	0/792
All	All	0.29	1/161863 (0.0%)	0.34	1/241418 (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
13	23	0	1
19	3	0	2
28	6	0	1
29	9	0	1
33	T	9	0
34	Y	0	1
39	se	0	1
46	sl	0	1
48	sn	0	1
All	All	9	9

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
33	T	8	4SU	O3'-P	5.07	1.61	1.56

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	Y	353	THR	N-CA-C	5.23	118.70	107.67

All (9) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
33	T	8	4SU	C1',C2'
33	T	20	H2U	C2'
33	T	32	4OC	C2'
33	T	54	5MU	C2',C3',C4'
33	T	55	PSU	C2',C4'

All (9) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
13	23	37	ASP	Peptide
19	3	151	THR	Peptide
19	3	152	PRO	Peptide
28	6	12	ALA	Peptide
29	9	8	LYS	Peptide
34	Y	353	THR	Peptide
39	se	121	ASN	Peptide
46	sl	86	VAL	Peptide
48	sn	86	ALA	Peptide

5.2 Too-close contacts [i](#)

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	1	1353	0	1159	25	0
2	13	1129	0	1162	14	0
3	14	938	0	1012	18	0
4	15	1053	0	1129	23	0
5	16	1074	0	1157	31	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	17	960	0	1000	20	0
7	18	892	0	923	23	0
8	19	917	0	965	17	0
9	2	2082	0	2157	42	0
10	20	947	0	1022	19	0
11	21	816	0	839	16	0
12	22	857	0	922	16	0
13	23	738	0	807	14	0
14	24	779	0	834	14	0
15	25	753	0	780	18	0
16	27	575	0	592	10	0
17	28	625	0	655	6	0
18	29	509	0	543	11	0
19	3	1565	0	1616	25	0
20	30	449	0	491	8	0
21	31	522	0	524	20	0
22	32	444	0	461	15	0
23	34	377	0	418	5	0
24	35	504	0	574	9	0
25	36	302	0	343	8	0
26	4	1552	0	1619	22	0
27	5	1410	0	1447	44	0
28	6	1323	0	1374	29	0
29	9	1111	0	1148	35	0
30	R1	62318	0	31345	490	0
31	R2	2546	0	1292	27	0
32	R3	33012	0	16620	267	0
33	T	1639	0	843	18	0
34	Y	4210	0	4175	123	0
35	M	195	0	99	0	0
36	sb	1704	0	1732	40	0
37	sc	1624	0	1699	33	0
38	sd	1643	0	1710	32	0
39	se	1156	0	1199	38	0
40	sf	817	0	808	16	0
41	sg	1181	0	1238	21	0
42	sh	979	0	1034	18	0
43	si	1022	0	1070	35	0
44	sj	786	0	828	28	0
45	sk	869	0	878	19	0
46	sl	955	0	1019	24	0
47	sm	883	0	944	19	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
48	sn	805	0	847	24	0
49	so	714	0	737	15	0
50	sp	649	0	666	11	0
51	sq	648	0	691	14	0
52	sr	535	0	552	8	0
53	ss	637	0	665	19	0
54	st	665	0	714	15	0
55	su	590	0	629	12	0
56	17	1	0	0	0	0
56	32	1	0	0	0	0
56	M	1	0	0	0	0
56	R1	185	0	0	0	0
56	R3	64	0	0	0	0
57	T	10	0	10	1	0
58	Y	62	0	24	5	0
59	Y	2	0	0	0	0
All	All	149664	0	101741	1680	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 (1680) 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)
19:3:148:GLN:HB2	19:3:152:PRO:HG3	1.59	0.85
39:se:79:THR:OG1	39:se:121:ASN:ND2	2.09	0.85
40:sf:22:ILE:HD11	40:sf:39:LEU:HD11	1.59	0.82
39:se:98:ALA:HB2	39:se:123:LEU:HD12	1.61	0.82
30:R1:1450:G:N2	30:R1:1452:G:O6	2.13	0.82
32:R3:419:C:O2	32:R3:425:G:N2	2.13	0.81
43:si:56:MET:HE3	43:si:59:LYS:HG2	1.63	0.81
46:sl:86:VAL:HG23	46:sl:87:LYS:H	1.46	0.81
7:18:24:THR:HG22	7:18:42:PRO:HD3	1.63	0.80
5:16:82:MET:HE2	30:R1:960:A:H61	1.47	0.80
47:sm:3:ILE:HG22	47:sm:4:ALA:H	1.46	0.79
34:Y:525:ARG:HH22	41:sg:143:ARG:HH11	1.27	0.78
36:sb:15:PHE:HB2	36:sb:17:HIS:CE1	2.19	0.78
30:R1:1054:A:H61	30:R1:1105:U:H3	1.29	0.78
39:se:93:VAL:HG22	39:se:110:MET:HE2	1.66	0.78
32:R3:1147:C:H4'	43:si:6:TYR:HE2	1.50	0.77
28:6:41:GLU:OE2	28:6:54:ARG:NH1	2.18	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:Y:10:GLN:NE2	34:Y:14:LYS:O	2.18	0.77
4:15:127:VAL:HG21	4:15:142:ILE:HD13	1.66	0.77
30:R1:1070:A:OP2	30:R1:1075:C:N4	2.17	0.77
2:13:125:TYR:OH	2:13:132:HIS:NE2	2.19	0.76
24:35:4:LYS:NZ	30:R1:254:G:N7	2.34	0.76
32:R3:933:G:N7	41:sg:3:ARG:NH1	2.33	0.76
30:R1:2469:A:N6	30:R1:2481:G:O2'	2.19	0.76
30:R1:547:A:H5''	30:R1:548:G:H5'	1.68	0.75
8:19:2:ASN:O	8:19:6:GLN:NE2	2.20	0.75
10:20:57:ARG:NH1	30:R1:1154:G:OP2	2.19	0.75
30:R1:2391:G:O2'	30:R1:2429:G:N2	2.20	0.74
32:R3:9:G:OP2	39:se:125:LYS:NZ	2.20	0.74
32:R3:686:U:H1'	45:sk:43:TRP:HE1	1.52	0.74
30:R1:306:U:H3	30:R1:310:A:H62	1.36	0.74
30:R1:1779:U:OP2	30:R1:1784:A:N6	2.21	0.74
6:17:22:ARG:HG3	6:17:70:THR:HA	1.69	0.74
23:34:24:THR:HG23	23:34:27:GLY:H	1.53	0.74
37:sc:34:SER:OG	37:sc:58:ARG:NH2	2.20	0.73
30:R1:1053:C:N3	30:R1:1106:G:N1	2.28	0.73
30:R1:2136:G:H22	30:R1:2156:G:H21	1.36	0.73
32:R3:1306:A:N6	32:R3:1331:G:O2'	2.21	0.73
14:24:47:PRO:HB3	14:24:53:GLN:HE21	1.52	0.73
8:19:50:ARG:NH2	30:R1:2683:C:OP1	2.22	0.73
32:R3:1081:A:OP2	39:se:51:LYS:NZ	2.21	0.73
34:Y:387:TYR:HB3	34:Y:462:MET:HG2	1.69	0.73
11:21:80:ARG:NH2	30:R1:572:A:OP2	2.22	0.72
30:R1:1068:G:N2	30:R1:1096:A:OP1	2.22	0.72
36:sb:18:GLN:NE2	36:sb:187:ASP:OD2	2.22	0.72
41:sg:107:ALA:HB1	41:sg:133:THR:HG23	1.69	0.72
46:sl:109:ARG:HB3	46:sl:118:VAL:HG21	1.72	0.72
5:16:75:GLU:HB2	5:16:90:GLU:HG3	1.72	0.72
32:R3:542:G:OP1	38:sd:9:LYS:NZ	2.23	0.72
45:sk:36:ARG:NH1	45:sk:82:GLU:OE2	2.22	0.72
47:sm:82:LEU:HD21	53:ss:65:MET:HG2	1.70	0.72
7:18:30:ARG:NH2	31:R2:48:U:OP1	2.22	0.72
30:R1:2116:G:O6	30:R1:2171:A:N6	2.21	0.71
52:sr:15:GLU:N	52:sr:15:GLU:OE2	2.23	0.71
13:23:61:LEU:HD13	30:R1:1341:G:H5'	1.72	0.71
9:2:270:ARG:NH2	30:R1:1798:U:OP2	2.24	0.71
34:Y:187:ASP:OD2	34:Y:354:ASN:ND2	2.24	0.71
9:2:216:ARG:NH2	30:R1:781:A:OP1	2.23	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:976:G:HO2'	30:R1:1155:A:HO2'	1.36	0.70
30:R1:1847:G:N2	30:R1:1849:G:O6	2.23	0.70
30:R1:1534:U:H2'	30:R1:1536:C:H1'	1.74	0.70
30:R1:284:U:H3	30:R1:356:G:H1	0.80	0.70
5:16:123:LYS:NZ	30:R1:2483:C:N3	2.38	0.70
19:3:133:THR:HG22	19:3:134:HIS:H	1.54	0.70
30:R1:2136:G:H1	30:R1:2156:G:N2	1.88	0.70
32:R3:971:G:OP2	32:R3:1231:G:N2	2.18	0.70
4:15:18:ARG:NH2	30:R1:1250:G:N7	2.34	0.70
32:R3:261:U:OP2	54:st:73:ARG:NH2	2.25	0.70
32:R3:673:A:H2'	32:R3:674:G:C8	2.26	0.70
15:25:43:ASP:OD2	15:25:44:HIS:N	2.24	0.70
30:R1:2111:U:O4'	30:R1:2118:U:O2'	2.10	0.70
30:R1:481:G:O2'	30:R1:506:G:N2	2.25	0.70
27:5:107:VAL:HG11	27:5:175:PRO:HG2	1.74	0.69
28:6:22:VAL:HG22	28:6:35:THR:HG22	1.74	0.69
34:Y:142:VAL:HG21	34:Y:167:ALA:HB2	1.74	0.69
30:R1:1645:G:H5''	30:R1:1646:C:H5'	1.75	0.69
30:R1:2143:C:N4	30:R1:2144:G:O6	2.26	0.69
19:3:181:ASP:HB2	19:3:186:LEU:HB2	1.75	0.68
15:25:51:GLN:OE1	15:25:57:TYR:OH	2.09	0.68
22:32:15:ARG:NH1	30:R1:1266:G:OP2	2.26	0.68
32:R3:1316:G:H5''	48:sn:56:PRO:HG2	1.75	0.68
2:13:39:LYS:NZ	30:R1:1009:A:OP1	2.26	0.68
30:R1:2136:G:H1	30:R1:2156:G:H22	1.42	0.68
33:T:47:U:O2'	33:T:50:U:OP1	2.12	0.68
32:R3:1137:C:O2'	32:R3:1138:G:N2	2.26	0.68
10:20:5:ARG:NH2	30:R1:585:G:N7	2.40	0.68
10:20:49:ARG:O	10:20:53:LYS:NZ	2.27	0.68
27:5:104:THR:HG23	27:5:105:ILE:HG23	1.75	0.68
30:R1:1936:A:H2	30:R1:1943:U:H3	1.42	0.68
38:sd:8:LEU:HD13	38:sd:31:CYS:HB2	1.76	0.68
38:sd:116:LEU:HD13	38:sd:153:ARG:HH21	1.59	0.67
27:5:59:ILE:O	27:5:101:ARG:NH2	2.26	0.67
30:R1:284:U:O2	30:R1:356:G:N2	2.23	0.67
30:R1:1536:C:O2'	30:R1:1537:G:N2	2.27	0.67
28:6:21:GLN:HE22	28:6:38:ASP:HA	1.57	0.67
34:Y:140:LEU:HD11	34:Y:146:VAL:HG22	1.77	0.67
43:si:118:ARG:HH21	43:si:124:PRO:HB3	1.58	0.67
32:R3:1060:U:H4'	44:sj:53:ILE:HG23	1.75	0.67
39:se:156:ARG:HA	39:se:158:LYS:HZ2	1.60	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:2:264:LYS:NZ	30:R1:2223:G:O2'	2.28	0.67
1:1:7:ARG:HH12	1:1:36:ALA:HB2	1.59	0.67
27:5:48:LEU:HD22	27:5:149:ARG:HH22	1.60	0.67
30:R1:1869:G:N2	30:R1:1872:A:OP2	2.26	0.67
30:R1:2682:A:H61	30:R1:2728:U:HI'	1.60	0.66
8:19:52:ARG:NH2	30:R1:2720:U:OP1	2.28	0.66
39:se:155:LYS:NZ	42:sh:70:VAL:O	2.28	0.66
50:sp:37:GLY:HA3	50:sp:52:LEU:HA	1.77	0.66
30:R1:1053:C:O2	30:R1:1106:G:N2	2.18	0.66
34:Y:492:SER:OG	34:Y:494:ASP:OD1	2.13	0.66
34:Y:508:ILE:HG22	34:Y:513:VAL:HG13	1.78	0.66
14:24:39:ASN:HB3	14:24:62:ALA:HB3	1.76	0.66
30:R1:613:A:H4'	30:R1:614:A:H8	1.61	0.66
32:R3:427:U:OP1	38:sd:12:ARG:NH2	2.28	0.66
45:sk:83:VAL:HG11	45:sk:96:ILE:HG12	1.77	0.66
2:13:19:ASP:OD2	2:13:58:ASN:ND2	2.27	0.66
30:R1:1527:G:N1	30:R1:1544:A:OP2	2.23	0.66
46:sl:113:ARG:HB2	46:sl:118:VAL:HB	1.77	0.66
28:6:138:GLN:NE2	30:R1:2745:C:O2	2.28	0.66
32:R3:687:A:N6	32:R3:703:G:O2'	2.28	0.66
30:R1:475:C:O2	30:R1:479:A:N6	2.28	0.66
44:sj:40:ILE:HB	44:sj:73:LEU:HB3	1.78	0.66
44:sj:48:ARG:NH1	44:sj:66:GLU:OE1	2.29	0.66
29:9:40:THR:OG1	29:9:43:ASN:OD1	2.14	0.65
29:9:73:ASN:HB2	29:9:108:VAL:HG11	1.77	0.65
33:T:20:H2U:OP2	33:T:20:H2U:O2	2.14	0.65
36:sb:17:HIS:NE2	36:sb:39:ILE:HA	2.11	0.65
30:R1:2304:G:H22	30:R1:2312:U:H3	1.44	0.65
32:R3:946:A:H2'	32:R3:947:G:C8	2.30	0.65
34:Y:469:LEU:HD13	34:Y:473:SER:HB3	1.79	0.65
19:3:38:LYS:NZ	19:3:81:GLU:OE1	2.29	0.65
30:R1:1923:U:OP1	33:T:24:U:O2'	2.15	0.65
34:Y:77:GLU:HA	34:Y:153:MET:HB3	1.77	0.65
45:sk:108:ASN:HB2	55:su:5:LYS:HA	1.78	0.65
9:2:5:CYS:SG	9:2:12:ARG:NH2	2.70	0.65
29:9:109:GLU:OE1	29:9:109:GLU:N	2.30	0.65
41:sg:68:ASN:O	41:sg:138:ARG:NH1	2.29	0.65
36:sb:110:ILE:HG12	36:sb:147:LEU:HD21	1.79	0.65
13:23:11:LEU:O	18:29:29:ARG:NH1	2.29	0.65
30:R1:2155:U:H3'	30:R1:2156:G:H8	1.62	0.64
40:sf:5:GLU:OE1	52:sr:23:LYS:NZ	2.29	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
45:sk:87:GLY:O	45:sk:92:ARG:NH1	2.29	0.64
16:27:43:THR:HG21	30:R1:2336:A:H61	1.61	0.64
32:R3:878:A:OP1	42:sh:79:ARG:NH1	2.30	0.64
32:R3:147:G:H2'	32:R3:148:G:C8	2.32	0.64
32:R3:418:C:OP1	32:R3:513:C:O2'	2.15	0.64
47:sm:6:ILE:HB	47:sm:8:ILE:HG23	1.80	0.64
12:22:5:ALA:O	30:R1:494:G:O2'	2.14	0.64
34:Y:36:ASN:ND2	34:Y:468:HIS:O	2.31	0.64
39:se:105:ILE:HD11	39:se:123:LEU:HD23	1.78	0.64
5:16:47:GLU:OE2	5:16:50:ARG:NH2	2.23	0.64
5:16:84:LYS:NZ	30:R1:2250:G:OP1	2.31	0.64
44:sj:19:ASP:HA	44:sj:22:THR:HG22	1.78	0.64
2:13:125:TYR:HH	2:13:132:HIS:CD2	2.15	0.64
19:3:25:THR:OG1	19:3:191:GLY:O	2.15	0.64
36:sb:86:CYS:SG	36:sb:221:ARG:NH2	2.71	0.64
39:se:156:ARG:NH1	42:sh:42:GLU:O	2.31	0.64
48:sn:26:LEU:H	48:sn:26:LEU:HD12	1.63	0.64
27:5:37:MET:HE3	27:5:151:LEU:HD23	1.79	0.63
6:17:4:ARG:O	30:R1:2873:A:O2'	2.17	0.63
9:2:231:HIS:HA	9:2:241:LYS:HE3	1.79	0.63
36:sb:17:HIS:CD2	36:sb:39:ILE:HA	2.33	0.63
42:sh:10:LEU:HD23	42:sh:74:ILE:HG12	1.81	0.63
55:su:17:ARG:HA	55:su:20:LYS:HD2	1.80	0.63
6:17:17:ARG:NH2	30:R1:2002:G:OP1	2.31	0.63
9:2:177:SER:OG	30:R1:1799:G:N7	2.30	0.63
15:25:2:PHE:HE1	15:25:50:MET:HG3	1.64	0.63
22:32:32:THR:HG22	22:32:50:GLY:HA2	1.79	0.63
32:R3:946:A:H2'	32:R3:947:G:H8	1.63	0.63
32:R3:1291:U:OP1	41:sg:37:SER:OG	2.16	0.63
39:se:79:THR:HG1	39:se:121:ASN:HD22	1.42	0.63
29:9:27:ARG:NH1	30:R1:2092:U:OP2	2.32	0.63
32:R3:275:G:H5'	51:sq:15:LYS:HG3	1.81	0.63
30:R1:932:U:O2'	30:R1:934:U:O4	2.16	0.62
30:R1:45:G:H5''	30:R1:46:G:H5'	1.80	0.62
32:R3:1356:G:H2'	32:R3:1357:A:C8	2.34	0.62
37:sc:72:PRO:HG3	37:sc:104:GLU:HG2	1.81	0.62
16:27:56:ASP:HB3	16:27:58:THR:HG23	1.81	0.62
30:R1:286:U:H2'	30:R1:287:G:H8	1.64	0.62
30:R1:476:G:N1	30:R1:479:A:OP2	2.32	0.62
32:R3:280:C:H1'	51:sq:39:ARG:HH12	1.65	0.62
1:1:12:ARG:NH2	30:R1:2176:A:OP1	2.28	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:Y:41:SER:OG	58:Y:601:ATP:O2G	2.17	0.62
44:sj:53:ILE:HD13	44:sj:63:ASP:HB2	1.81	0.62
5:16:42:THR:HG22	5:16:93:VAL:HG12	1.81	0.62
27:5:118:ALA:O	27:5:166:ARG:NH1	2.28	0.62
30:R1:1521:G:H3'	30:R1:1522:A:H5''	1.82	0.62
36:sb:33:ALA:HB2	36:sb:39:ILE:HG13	1.82	0.62
42:sh:1:SER:OG	42:sh:2:MET:N	2.32	0.62
36:sb:215:ALA:O	36:sb:219:THR:OG1	2.18	0.62
1:1:59:VAL:H	1:1:165:ASN:HD21	1.46	0.62
30:R1:219:A:N3	30:R1:234:U:O2'	2.27	0.62
32:R3:1013:G:N2	32:R3:1016:A:OP2	2.31	0.62
30:R1:827:U:O2'	30:R1:2068:U:N3	2.32	0.61
32:R3:1040:U:H2'	32:R3:1041:G:H8	1.65	0.61
32:R3:1452:C:H4'	32:R3:1453:G:C2	2.35	0.61
30:R1:288:U:H2'	30:R1:289:G:H8	1.65	0.61
32:R3:71:A:N6	32:R3:100:G:N3	2.48	0.61
32:R3:545:C:OP1	38:sd:57:LYS:NZ	2.33	0.61
32:R3:1125:U:OP1	44:sj:37:ARG:NH2	2.32	0.61
44:sj:28:THR:HA	44:sj:31:ARG:HE	1.66	0.61
53:ss:40:PHE:H	53:ss:43:MET:HE3	1.64	0.61
4:15:63:LYS:HE3	24:35:11:LYS:HD3	1.82	0.61
32:R3:841:C:O2'	32:R3:843:U:O4'	2.17	0.61
32:R3:1227:A:O2'	47:sm:113:LYS:NZ	2.34	0.61
36:sb:72:LYS:NZ	36:sb:164:ASP:OD2	2.29	0.61
9:2:16:VAL:HB	9:2:203:VAL:HG22	1.82	0.61
30:R1:2655:G:O2'	30:R1:2664:G:O6	2.18	0.61
32:R3:337:G:H2'	32:R3:338:A:C8	2.35	0.61
32:R3:980:C:O2'	48:sn:12:ARG:NH1	2.33	0.61
34:Y:177:LEU:HD12	34:Y:205:MET:HE2	1.82	0.61
1:1:219:GLY:O	30:R1:2175:C:O2'	2.17	0.61
9:2:179:GLU:OE2	9:2:269:ARG:NH1	2.33	0.61
22:32:7:PRO:HD2	30:R1:1263:U:O2'	2.01	0.61
30:R1:1063:G:N2	30:R1:1070:A:OP1	2.34	0.61
32:R3:335:C:O2'	32:R3:1433:A:N3	2.32	0.61
16:27:29:GLU:OE2	30:R1:922:C:O2'	2.18	0.61
53:ss:49:ALA:HB1	53:ss:56:HIS:HB3	1.82	0.61
4:15:110:VAL:HB	4:15:127:VAL:HG12	1.83	0.61
50:sp:24:SER:O	50:sp:24:SER:OG	2.15	0.61
29:9:83:LYS:HA	29:9:149:GLU:HB2	1.82	0.61
30:R1:631:A:N3	30:R1:2415:G:O2'	2.29	0.61
32:R3:8:A:N6	38:sd:201:GLU:O	2.32	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:602:A:HO2'	30:R1:604:G:HO2'	1.48	0.60
30:R1:1086:A:H5''	30:R1:1087:G:H5'	1.83	0.60
30:R1:2804:U:H2'	30:R1:2805:C:C6	2.36	0.60
51:sq:16:MET:HE1	51:sq:44:HIS:ND1	2.16	0.60
30:R1:2111:U:O2	30:R1:2115:G:O6	2.19	0.60
4:15:4:ASN:HB3	30:R1:1203:U:H1'	1.83	0.60
26:4:58:LYS:HG2	26:4:71:GLY:HA2	1.83	0.60
34:Y:9:MET:SD	34:Y:10:GLN:N	2.75	0.60
49:so:46:LYS:O	49:so:52:ARG:NH2	2.33	0.60
32:R3:401:C:O2'	32:R3:621:A:N3	2.34	0.60
26:4:98:LYS:NZ	30:R1:619:G:O6	2.33	0.60
32:R3:1266:G:N2	32:R3:1269:A:OP2	2.24	0.60
32:R3:1323:G:H2'	32:R3:1324:A:C8	2.36	0.60
34:Y:80:THR:O	34:Y:84:THR:OG1	2.17	0.60
6:17:32:GLU:HB2	6:17:118:ARG:HD2	1.83	0.60
16:27:42:GLY:HA2	30:R1:2330:G:H21	1.66	0.60
19:3:148:GLN:HB2	19:3:152:PRO:CG	2.30	0.60
12:22:18:ARG:HG3	12:22:76:VAL:HG22	1.83	0.60
32:R3:1356:G:H2'	32:R3:1357:A:H8	1.66	0.60
34:Y:358:LYS:NZ	58:Y:602:ATP:O1G	2.33	0.60
7:18:49:VAL:HG21	7:18:82:ALA:HA	1.82	0.60
27:5:70:ARG:NH1	30:R1:2298:A:OP1	2.30	0.60
30:R1:1176:U:O4	30:R1:1178:C:N4	2.35	0.60
30:R1:2328:A:H2'	30:R1:2329:U:C6	2.37	0.60
2:13:17:VAL:HG23	2:13:137:PRO:HB2	1.83	0.60
30:R1:270:A:N1	30:R1:369:U:O2'	2.34	0.59
45:sk:66:ALA:HB2	45:sk:95:THR:HG23	1.83	0.59
49:so:55:LEU:HA	49:so:58:MET:HE2	1.83	0.59
1:1:14:LYS:HG3	1:1:15:VAL:HG13	1.84	0.59
1:1:15:VAL:HG12	1:1:29:LEU:HD21	1.84	0.59
30:R1:1236:G:O2'	30:R1:1237:A:O5'	2.20	0.59
9:2:106:PRO:HD2	9:2:109:LEU:HD22	1.84	0.59
32:R3:501:C:OP1	46:sl:113:ARG:NH2	2.33	0.59
30:R1:1009:A:N3	30:R1:1153:C:O2'	2.30	0.59
30:R1:2857:G:N2	30:R1:2860:A:OP2	2.32	0.59
32:R3:82:G:N2	32:R3:85:U:OP2	2.33	0.59
32:R3:1147:C:H4'	43:si:6:TYR:CE2	2.34	0.59
3:14:70:ARG:NH1	30:R1:2684:U:O4'	2.35	0.59
25:36:36:ARG:HG2	25:36:37:GLN:N	2.18	0.59
30:R1:2134:A:H62	30:R1:2136:G:N2	2.00	0.59
30:R1:299:A:N3	30:R1:319:G:O2'	2.29	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:774:G:O2'	30:R1:775:G:H5''	2.02	0.59
32:R3:1040:U:H2'	32:R3:1041:G:C8	2.36	0.59
45:sk:20:ALA:HB2	45:sk:81:LEU:HD13	1.84	0.59
39:se:18:ASN:OD1	39:se:33:THR:OG1	2.21	0.59
30:R1:155:A:H2'	30:R1:156:A:H8	1.68	0.59
38:sd:101:VAL:HG13	38:sd:113:ALA:HB1	1.84	0.59
30:R1:569:U:O2'	30:R1:983:A:N1	2.35	0.59
30:R1:713:G:N7	49:so:88:ARG:NH1	2.50	0.59
34:Y:327:LYS:HD2	34:Y:371:PRO:HA	1.85	0.59
36:sb:165:ALA:HB3	36:sb:190:SER:HB3	1.84	0.59
43:si:29:ILE:HG22	43:si:64:ILE:HB	1.85	0.59
28:6:116:LEU:HD12	28:6:120:ILE:HB	1.85	0.58
21:31:16:CYS:SG	21:31:17:SER:N	2.76	0.58
12:22:5:ALA:HB2	12:22:54:ALA:HB2	1.86	0.58
21:31:42:PRO:O	21:31:46:GLY:N	2.23	0.58
30:R1:1363:C:O2'	30:R1:1809:A:N3	2.35	0.58
32:R3:415:A:H61	32:R3:427:U:H3	1.50	0.58
55:su:40:LYS:HG2	55:su:42:THR:HG22	1.84	0.58
32:R3:1054:C:O2	32:R3:1196:A:N6	2.35	0.58
32:R3:1297:G:H4'	32:R3:1298:U:O5'	2.02	0.58
34:Y:4:SER:O	34:Y:21:SER:HA	2.03	0.58
27:5:44:ALA:HA	34:Y:414:ASP:OD1	2.03	0.58
30:R1:880:G:H2'	30:R1:881:G:H8	1.68	0.58
34:Y:175:ASP:N	34:Y:175:ASP:OD1	2.35	0.58
36:sb:17:HIS:HB2	36:sb:37:VAL:HB	1.84	0.58
45:sk:49:SER:OG	45:sk:68:ARG:NH2	2.33	0.58
32:R3:1222:G:OP2	32:R3:1322:C:N4	2.34	0.58
28:6:12:ALA:O	28:6:14:VAL:N	2.36	0.58
30:R1:1087:G:N2	30:R1:1102:C:H42	2.01	0.58
30:R1:1693:U:H5''	30:R1:1694:C:H5	1.68	0.58
30:R1:2532:G:O2'	30:R1:2657:A:N1	2.37	0.58
47:sm:2:ARG:HB3	47:sm:56:ARG:HH21	1.69	0.58
4:15:29:LYS:O	4:15:30:THR:OG1	2.20	0.58
3:14:2:ILE:HD13	3:14:8:LEU:HD21	1.85	0.58
4:15:81:ASP:HB3	4:15:100:ILE:HD13	1.86	0.58
30:R1:704:G:H2'	30:R1:726:G:H22	1.69	0.58
34:Y:485:GLN:N	34:Y:485:GLN:OE1	2.37	0.58
46:sl:86:VAL:HG23	46:sl:87:LYS:N	2.16	0.57
32:R3:516:U:HO2'	32:R3:519:C:H5	1.52	0.57
41:sg:27:VAL:HG12	41:sg:43:VAL:HG21	1.87	0.57
7:18:9:ARG:NH2	30:R1:2295:C:OP2	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
20:30:40:THR:HG22	20:30:42:ALA:H	1.69	0.57
28:6:31:GLU:N	28:6:31:GLU:OE2	2.37	0.57
30:R1:700:G:O2'	30:R1:1632:A:N3	2.34	0.57
32:R3:766:A:OP2	32:R3:812:G:N2	2.36	0.57
11:21:23:GLU:OE2	30:R1:993:G:N2	2.37	0.57
30:R1:554:U:H2'	30:R1:555:G:O4'	2.05	0.57
32:R3:1271:A:N6	32:R3:1272:G:O6	2.38	0.57
46:sl:49:ARG:HG3	46:sl:89:LEU:HD11	1.84	0.57
19:3:46:ARG:HH22	19:3:88:GLU:HB2	1.70	0.57
24:35:7:ARG:NH1	30:R1:243:U:OP2	2.38	0.57
32:R3:19:A:OP1	39:se:134:ASN:ND2	2.37	0.57
39:se:93:VAL:HG11	39:se:139:THR:HG22	1.84	0.57
43:si:56:MET:HE2	43:si:60:LEU:HB2	1.86	0.57
30:R1:2112:G:N7	34:Y:140:LEU:HD23	2.20	0.57
30:R1:2155:U:H3'	30:R1:2156:G:C8	2.39	0.57
53:ss:21:ALA:O	53:ss:27:LYS:NZ	2.31	0.57
5:16:74:THR:HG21	5:16:86:LYS:HE3	1.86	0.57
28:6:154:GLU:OE2	28:6:155:PRO:HD2	2.04	0.57
32:R3:181:A:H2'	32:R3:182:A:C8	2.40	0.57
32:R3:1405:G:H21	32:R3:1518:A:H8	1.52	0.57
27:5:150:GLY:O	30:R1:2305:U:N3	2.38	0.57
30:R1:2172:U:O2'	30:R1:2174:C:OP1	2.16	0.57
31:R2:5:U:OP1	31:R2:61:G:O2'	2.19	0.57
32:R3:212:G:H2'	32:R3:213:G:H8	1.70	0.57
32:R3:620:C:O2'	32:R3:621:A:O4'	2.22	0.57
34:Y:440:SER:OG	58:Y:601:ATP:O1B	2.22	0.57
10:20:51:GLN:HA	10:20:54:ARG:HG2	1.86	0.57
30:R1:155:A:H2'	30:R1:156:A:C8	2.40	0.57
41:sg:147:ALA:O	45:sk:55:ARG:NH1	2.38	0.57
7:18:94:ARG:HG2	7:18:97:PHE:O	2.04	0.57
25:36:6:SER:O	25:36:6:SER:OG	2.23	0.57
39:se:98:ALA:HB3	39:se:122:VAL:HA	1.86	0.57
7:18:10:ARG:HD3	30:R1:2294:G:H5''	1.87	0.56
26:4:3:LEU:HD12	26:4:14:VAL:HG21	1.87	0.56
1:1:175:ILE:O	1:1:188:ASN:ND2	2.38	0.56
30:R1:1583:A:O2'	30:R1:1585:C:N4	2.36	0.56
5:16:18:ARG:NH1	31:R2:90:C:OP2	2.39	0.56
7:18:33:ARG:HD3	31:R2:52:A:H62	1.69	0.56
8:19:87:ARG:NH2	8:19:109:ILE:O	2.38	0.56
13:23:64:LYS:HA	13:23:79:ASP:HB2	1.88	0.56
17:28:22:ASN:OD1	30:R1:2079:U:O2'	2.23	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:6:108:PHE:O	30:R1:2666:C:N4	2.38	0.56
29:9:89:LYS:HD2	29:9:90:LEU:N	2.19	0.56
30:R1:1048:A:OP2	30:R1:1110:G:N2	2.37	0.56
30:R1:1779:U:H5	30:R1:1784:A:N7	2.04	0.56
34:Y:8:THR:HG23	34:Y:19:ASN:H	1.70	0.56
34:Y:224:ASP:OD1	34:Y:225:LEU:N	2.39	0.56
34:Y:266:GLN:O	34:Y:266:GLN:NE2	2.39	0.56
37:sc:174:LEU:HD23	37:sc:181:ILE:HD13	1.88	0.56
42:sh:28:SER:HB3	42:sh:56:PRO:HB2	1.88	0.56
43:si:56:MET:O	43:si:58:GLU:N	2.38	0.56
54:st:43:LYS:HD3	54:st:86:ALA:HB2	1.87	0.56
15:25:32:GLY:HA3	15:25:93:ARG:HB2	1.87	0.56
30:R1:1417:C:HO2'	30:R1:1587:G:HO2'	1.53	0.56
30:R1:1900:A:H1'	30:R1:1970:A:H2'	1.88	0.56
30:R1:2120:G:H2'	30:R1:2121:G:C8	2.40	0.56
30:R1:2184:A:H2'	30:R1:2185:U:C6	2.40	0.56
36:sb:17:HIS:HD2	36:sb:40:ILE:HG12	1.70	0.56
24:35:53:ASP:OD2	30:R1:2359:C:O2'	2.21	0.56
3:14:92:GLU:HG3	3:14:111:LYS:NZ	2.20	0.56
19:3:148:GLN:NE2	30:R1:2571:U:O2	2.37	0.56
30:R1:324:A:OP2	30:R1:1205:A:N6	2.39	0.56
30:R1:2126:A:H1'	30:R1:2173:A:H61	1.70	0.56
30:R1:2577:A:H2'	30:R1:2614:A:N6	2.21	0.56
44:sj:57:VAL:HG22	44:sj:58:ASN:H	1.71	0.56
54:st:65:LEU:HD23	54:st:66:ILE:HG12	1.87	0.56
9:2:200:MET:HG3	30:R1:1820:U:C2	2.41	0.56
16:27:18:ALA:O	16:27:20:ARG:NH1	2.39	0.56
30:R1:389:G:C8	30:R1:2413:G:H4'	2.40	0.56
32:R3:588:G:N2	32:R3:653:U:O4	2.34	0.56
45:sk:112:VAL:HG12	52:sr:72:ARG:HD2	1.86	0.56
30:R1:370:G:O2'	30:R1:424:G:OP1	2.22	0.55
30:R1:807:U:O2'	30:R1:2060:A:N1	2.38	0.55
43:si:40:ARG:HD3	43:si:71:ILE:HG21	1.88	0.55
46:sl:98:ARG:HB2	46:sl:116:TYR:HA	1.88	0.55
5:16:59:ARG:NE	5:16:59:ARG:HA	2.21	0.55
30:R1:141:G:N2	30:R1:141:G:OP2	2.40	0.55
30:R1:2848:G:O2'	30:R1:2868:A:N6	2.38	0.55
47:sm:47:LEU:HD11	47:sm:51:GLN:HB2	1.89	0.55
48:sn:2:LYS:O	48:sn:5:MET:N	2.30	0.55
29:9:3:VAL:HG13	29:9:36:ALA:HB1	1.87	0.55
30:R1:1847:G:O2'	30:R1:1848:A:H8	1.90	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:R3:337:G:H2'	32:R3:338:A:H8	1.71	0.55
32:R3:375:U:OP1	50:sp:70:ARG:NH1	2.40	0.55
34:Y:439:LEU:HD22	34:Y:443:GLU:HG2	1.87	0.55
19:3:83:ARG:NH1	30:R1:2637:U:H5''	2.21	0.55
30:R1:848:C:H2'	30:R1:849:A:H8	1.71	0.55
30:R1:613:A:H4'	30:R1:614:A:C8	2.42	0.55
30:R1:2637:U:H2'	30:R1:2638:G:O4'	2.07	0.55
32:R3:561:U:O2'	32:R3:562:U:OP2	2.19	0.55
11:21:15:SER:OG	11:21:16:GLU:N	2.38	0.55
30:R1:1085:A:H2'	30:R1:1086:A:N3	2.22	0.55
32:R3:344:A:H5''	32:R3:345:C:H5	1.72	0.55
34:Y:40:LYS:N	58:Y:601:ATP:O1A	2.40	0.55
43:si:7:GLY:HA3	43:si:84:ARG:HB3	1.88	0.55
28:6:74:MET:O	28:6:78:VAL:HG22	2.06	0.55
30:R1:227:A:O2'	30:R1:228:C:O5'	2.24	0.55
30:R1:414:C:H2'	30:R1:415:A:H8	1.71	0.55
38:sd:108:ALA:N	38:sd:112:GLU:OE1	2.33	0.55
1:1:100:LEU:O	1:1:105:LYS:N	2.40	0.55
5:16:55:ARG:HD2	30:R1:2469:A:H4'	1.89	0.55
13:23:54:GLU:HB3	13:23:88:LYS:HD2	1.89	0.55
13:23:58:VAL:HG22	13:23:85:VAL:HG13	1.88	0.55
22:32:52:LYS:HZ2	22:32:55:ALA:HA	1.72	0.55
32:R3:945:G:C2	32:R3:946:A:C8	2.94	0.55
53:ss:62:THR:HG22	53:ss:63:ASP:H	1.70	0.55
3:14:98:ARG:HE	3:14:100:PHE:HE2	1.54	0.55
12:22:4:ILE:H	12:22:4:ILE:HD12	1.72	0.55
30:R1:1607:C:N4	30:R1:1622:G:OP2	2.34	0.55
13:23:3:ARG:C	13:23:5:GLU:H	2.15	0.54
15:25:77:VAL:HG12	15:25:89:ILE:HG12	1.89	0.54
25:36:3:VAL:HG11	30:R1:2539:C:H5'	1.88	0.54
32:R3:518:C:H4'	32:R3:519:C:O2	2.06	0.54
34:Y:507:GLU:HG3	34:Y:514:ILE:HG23	1.89	0.54
49:so:28:VAL:HG13	49:so:62:ARG:HG3	1.89	0.54
8:19:94:ALA:HB2	30:R1:2848:G:C8	2.41	0.54
29:9:90:LEU:HD11	29:9:146:VAL:HG21	1.89	0.54
31:R2:14:U:OP2	31:R2:70:C:O2'	2.24	0.54
37:sc:76:ILE:HA	37:sc:83:VAL:HG23	1.88	0.54
9:2:47:ARG:HD3	30:R1:778:G:H5''	1.90	0.54
30:R1:1061:U:O2'	30:R1:1070:A:O3'	2.25	0.54
32:R3:410:G:OP2	38:sd:30:LYS:NZ	2.38	0.54
36:sb:17:HIS:HB3	36:sb:38:HIS:H	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:60:ARG:HH21	34:Y:125:GLU:HG2	1.71	0.54
30:R1:1053:C:N4	30:R1:1106:G:O6	2.27	0.54
32:R3:1120:C:H2'	32:R3:1121:U:H6	1.73	0.54
36:sb:31:PHE:HB2	36:sb:39:ILE:HB	1.90	0.54
25:36:23:ILE:HB	25:36:38:GLY:HA3	1.89	0.54
28:6:54:ARG:HD2	28:6:57:TYR:HE2	1.72	0.54
30:R1:856:G:H2'	30:R1:857:G:C8	2.43	0.54
34:Y:363:LYS:HE3	34:Y:368:ASP:OD2	2.07	0.54
4:15:85:VAL:HB	4:15:94:THR:HG22	1.89	0.54
30:R1:721:A:H2'	30:R1:722:A:C8	2.43	0.54
30:R1:1597:A:H5''	30:R1:1598:A:H5'	1.88	0.54
30:R1:1720:U:H2'	30:R1:1721:G:O4'	2.07	0.54
32:R3:280:C:O2'	51:sq:39:ARG:NH2	2.36	0.54
36:sb:134:LEU:HA	36:sb:137:THR:HG22	1.89	0.54
21:31:26:SER:OG	27:5:139:GLU:OE2	2.24	0.54
23:34:22:MET:HE2	23:34:31:LEU:HD13	1.89	0.54
32:R3:999:C:N3	32:R3:1042:A:N6	2.55	0.54
41:sg:74:GLU:OE2	41:sg:95:ARG:NH1	2.39	0.54
30:R1:1582:C:O2'	30:R1:1585:C:N3	2.32	0.54
30:R1:2137:U:H2'	30:R1:2138:G:H8	1.71	0.54
5:16:62:LYS:HG2	5:16:64:TRP:CZ2	2.43	0.54
18:29:58:ASN:ND2	18:29:63:ALA:OXT	2.38	0.54
30:R1:2788:C:O2'	30:R1:2809:A:N3	2.39	0.54
34:Y:493:HIS:O	34:Y:495:ARG:NH1	2.38	0.54
47:sm:8:ILE:HG13	47:sm:9:PRO:HD3	1.89	0.54
13:23:37:ASP:OD1	13:23:37:ASP:N	2.38	0.54
28:6:88:LEU:HG	28:6:161:VAL:HG22	1.90	0.54
27:5:59:ILE:HA	27:5:139:GLU:HG3	1.89	0.53
30:R1:284:U:O4	30:R1:356:G:O6	2.26	0.53
30:R1:2327:A:H2'	30:R1:2328:A:C8	2.42	0.53
43:si:56:MET:HE2	43:si:60:LEU:HD22	1.91	0.53
6:17:64:ARG:NH1	30:R1:1454:C:O2	2.41	0.53
11:21:49:ILE:HG12	11:21:53:PHE:O	2.08	0.53
30:R1:394:C:H2'	30:R1:395:U:O4'	2.08	0.53
30:R1:880:G:H2'	30:R1:881:G:C8	2.43	0.53
43:si:14:SER:HB3	43:si:69:GLY:HA3	1.89	0.53
1:1:57:GLN:NE2	1:1:203:GLN:O	2.35	0.53
7:18:27:VAL:HA	7:18:93:ASP:HB3	1.90	0.53
28:6:174:LYS:HG3	30:R1:2529:G:H4'	1.91	0.53
30:R1:286:U:H2'	30:R1:287:G:C8	2.44	0.53
32:R3:1126:U:O4	44:sj:9:ARG:NH1	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:sf:14:GLN:HB3	40:sf:17:GLN:HB2	1.90	0.53
43:si:90:ASP:HB3	43:si:93:LEU:HD12	1.90	0.53
45:sk:34:THR:HG22	45:sk:40:ALA:HA	1.89	0.53
6:17:69:ARG:O	6:17:70:THR:OG1	2.24	0.53
6:17:106:ASP:OD1	6:17:106:ASP:N	2.39	0.53
9:2:144:GLU:HB2	9:2:187:CYS:HB3	1.89	0.53
30:R1:1266:G:O2'	30:R1:2012:G:O6	2.22	0.53
30:R1:2725:A:O2'	30:R1:2726:A:O5'	2.26	0.53
34:Y:431:ASP:N	34:Y:431:ASP:OD1	2.40	0.53
13:23:1:MET:HE1	30:R1:138:U:C2	2.44	0.53
30:R1:1386:C:H2'	30:R1:1387:A:C8	2.43	0.53
30:R1:1504:A:H2'	30:R1:1505:A:C8	2.43	0.53
39:se:135:VAL:O	39:se:139:THR:HG23	2.09	0.53
47:sm:84:CYS:SG	47:sm:85:TYR:N	2.81	0.53
4:15:132:ARG:O	4:15:136:GLU:HG3	2.09	0.53
18:29:2:LYS:HG3	18:29:52:ARG:HD3	1.89	0.53
19:3:110:THR:HG21	19:3:169:ARG:HE	1.73	0.53
27:5:45:ASP:HB3	27:5:48:LEU:HD12	1.89	0.53
30:R1:955:U:H5	30:R1:962:G:H1	1.55	0.53
31:R2:1:U:H2'	31:R2:2:G:H8	1.73	0.53
42:sh:74:ILE:HG13	42:sh:128:VAL:HG22	1.90	0.53
9:2:244:VAL:HG12	9:2:250:GLN:HA	1.91	0.53
14:24:82:VAL:HG13	14:24:93:ARG:HB3	1.90	0.53
21:31:58:ASP:OD1	21:31:59:ARG:N	2.42	0.53
34:Y:187:ASP:OD1	34:Y:190:THR:N	2.30	0.53
48:sn:89:ARG:NH1	48:sn:91:GLU:OE2	2.36	0.53
2:13:98:GLU:O	2:13:102:GLU:HG3	2.09	0.53
29:9:94:ILE:HG22	29:9:122:LEU:HB2	1.91	0.53
30:R1:1:G:H2'	30:R1:2:G:H8	1.74	0.53
32:R3:575:G:O2'	32:R3:821:G:OP2	2.21	0.53
38:sd:27:ILE:H	38:sd:27:ILE:HD12	1.74	0.53
29:9:103:VAL:HG21	29:9:132:PHE:HZ	1.74	0.53
32:R3:1071:C:H2'	32:R3:1072:G:H8	1.73	0.53
32:R3:1377:A:OP1	41:sg:92:ARG:NH2	2.32	0.53
40:sf:90:MET:SD	52:sr:60:ARG:NH1	2.79	0.53
53:ss:26:ASP:C	53:ss:27:LYS:HD3	2.34	0.53
8:19:94:ALA:HB2	30:R1:2848:G:H8	1.74	0.53
30:R1:528:A:C2	30:R1:2043:C:H4'	2.44	0.53
30:R1:1930:G:O2'	30:R1:1968:G:O6	2.23	0.53
38:sd:120:LYS:HG2	38:sd:130:ASN:OD1	2.09	0.53
30:R1:65:U:H2'	30:R1:66:C:H6	1.74	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:358:U:H2'	30:R1:359:G:C8	2.44	0.52
32:R3:280:C:H1'	51:sq:39:ARG:NH1	2.24	0.52
27:5:21:TYR:OH	27:5:164:GLU:OE1	2.22	0.52
32:R3:77:A:H2'	32:R3:78:A:C8	2.43	0.52
32:R3:416:G:H2'	32:R3:417:G:C8	2.44	0.52
32:R3:523:A:C2	46:sl:87:LYS:HB3	2.43	0.52
32:R3:1305:G:O2'	32:R3:1306:A:H8	1.91	0.52
32:R3:1412:C:H2'	32:R3:1413:A:C8	2.43	0.52
38:sd:29:THR:OG1	38:sd:29:THR:O	2.26	0.52
39:se:130:THR:O	39:se:130:THR:OG1	2.23	0.52
43:si:46:VAL:HG22	43:si:79:ARG:HD3	1.92	0.52
45:sk:92:ARG:NH2	45:sk:111:ASP:OD2	2.42	0.52
3:14:1:MET:HG3	3:14:67:LYS:HD2	1.92	0.52
16:27:81:SER:OG	16:27:82:ILE:N	2.40	0.52
18:29:9:LYS:HE2	18:29:12:GLU:HG2	1.92	0.52
30:R1:532:A:N7	30:R1:2021:C:O2'	2.39	0.52
30:R1:2175:C:H2'	30:R1:2176:A:O4'	2.10	0.52
32:R3:1492:A:H5'	32:R3:1493:A:OP2	2.10	0.52
34:Y:470:ASP:O	34:Y:474:ILE:HG12	2.09	0.52
26:4:46:GLN:O	26:4:88:ARG:NH2	2.42	0.52
30:R1:1056:G:N1	30:R1:1102:C:OP2	2.39	0.52
30:R1:1085:A:H2'	30:R1:1086:A:C4	2.44	0.52
34:Y:1:MET:HB2	34:Y:25:GLY:HA3	1.91	0.52
48:sn:82:LYS:HA	48:sn:85:GLU:HB2	1.91	0.52
8:19:64:SER:C	8:19:66:GLY:H	2.16	0.52
27:5:150:GLY:N	30:R1:2305:U:O2	2.41	0.52
30:R1:1054:A:N6	30:R1:1106:G:O6	2.43	0.52
32:R3:264:C:O2'	51:sq:65:PRO:O	2.21	0.52
32:R3:1305:G:HO2'	32:R3:1306:A:H8	1.56	0.52
34:Y:359:SER:O	34:Y:360:THR:OG1	2.24	0.52
15:25:64:VAL:HG22	15:25:69:GLU:HG2	1.91	0.52
30:R1:514:A:N3	30:R1:581:C:O2'	2.38	0.52
32:R3:591:U:OP2	42:sh:30:LYS:NZ	2.34	0.52
32:R3:1345:U:OP1	43:si:121:ARG:NH1	2.42	0.52
33:T:54:5MU:O2'	33:T:55:PSU:O4'	2.28	0.52
37:sc:7:ASN:ND2	48:sn:89:ARG:O	2.43	0.52
43:si:11:ARG:HH11	43:si:12:LYS:HB2	1.74	0.52
1:1:58:ASN:OD1	1:1:165:ASN:ND2	2.41	0.52
8:19:20:ARG:NH2	30:R1:2849:U:O4	2.42	0.52
28:6:1:SER:N	30:R1:2749:A:OP1	2.40	0.52
30:R1:1:G:N2	30:R1:2903:U:HO2'	2.07	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:310:A:O2'	30:R1:311:A:H2'	2.09	0.52
30:R1:1038:G:H2'	30:R1:1039:A:C8	2.44	0.52
9:2:2:VAL:HG12	9:2:18:VAL:HG22	1.92	0.52
12:22:4:ILE:HG13	12:22:106:VAL:HG22	1.91	0.52
30:R1:2136:G:H2'	30:R1:2137:U:O4'	2.08	0.52
30:R1:2138:G:H2'	30:R1:2139:U:C6	2.45	0.52
32:R3:77:A:H2'	32:R3:78:A:H8	1.74	0.52
33:T:18:G:O2'	33:T:19:G:H5''	2.10	0.52
37:sc:152:VAL:HG22	37:sc:197:VAL:HG22	1.91	0.52
45:sk:54:SER:OG	45:sk:54:SER:O	2.28	0.52
49:so:9:LYS:NZ	49:so:9:LYS:HB3	2.25	0.52
55:su:31:GLU:OE1	55:su:35:ARG:NH1	2.43	0.52
30:R1:895:U:O2'	30:R1:896:A:N7	2.43	0.52
36:sb:44:LYS:O	36:sb:48:MET:HG3	2.10	0.52
39:se:44:ARG:HE	39:se:70:MET:HE3	1.74	0.52
40:sf:11:HIS:HB3	40:sf:14:GLN:HG2	1.92	0.52
9:2:149:LYS:HD3	30:R1:2204:G:H4'	1.91	0.52
26:4:159:LEU:HD22	26:4:162:ARG:HH21	1.74	0.52
31:R2:32:U:N3	31:R2:51:G:N2	2.58	0.52
32:R3:1405:G:N2	32:R3:1518:A:H8	2.07	0.52
3:14:70:ARG:NH2	30:R1:2683:C:O2	2.43	0.51
6:17:1:MET:N	30:R1:1654:A:OP2	2.30	0.51
15:25:9:ARG:HG2	15:25:41:GLU:HB3	1.92	0.51
18:29:31:GLN:HG2	18:29:37:LEU:HB2	1.92	0.51
19:3:46:ARG:NH1	19:3:86:GLU:O	2.40	0.51
28:6:154:GLU:HG3	28:6:156:TYR:H	1.74	0.51
30:R1:242:G:N2	30:R1:255:A:OP2	2.26	0.51
31:R2:33:G:C2	31:R2:50:A:C2	2.98	0.51
1:1:7:ARG:HA	1:1:10:VAL:HG22	1.91	0.51
15:25:6:ALA:HB3	15:25:40:ILE:HD11	1.93	0.51
26:4:6:LYS:HB3	26:4:121:VAL:HG12	1.92	0.51
30:R1:12:U:O2	30:R1:12:U:H2'	2.10	0.51
30:R1:414:C:H2'	30:R1:415:A:C8	2.46	0.51
30:R1:1177:G:H2'	30:R1:1178:C:O4'	2.10	0.51
34:Y:512:ARG:NH2	34:Y:514:ILE:HB	2.26	0.51
13:23:7:LEU:HD23	13:23:49:LYS:HD3	1.91	0.51
30:R1:1715:G:HO2'	30:R1:1716:U:H6	1.59	0.51
31:R2:13:G:O2'	31:R2:15:A:H2'	2.11	0.51
32:R3:746:A:H2'	32:R3:747:A:C8	2.44	0.51
44:sj:65:TYR:HA	48:sn:97:LYS:O	2.11	0.51
12:22:89:ALA:HB1	30:R1:748:G:C8	2.45	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:34:43:THR:OG1	23:34:44:VAL:N	2.39	0.51
30:R1:1746:A:H2'	30:R1:1747:U:C6	2.45	0.51
30:R1:411:G:OP2	30:R1:2406:A:O2'	2.27	0.51
30:R1:2540:C:O2'	30:R1:2740:A:N3	2.37	0.51
29:9:30:LEU:HB3	29:9:36:ALA:HB3	1.92	0.51
30:R1:1858:A:N6	30:R1:1884:G:O2'	2.43	0.51
30:R1:2581:G:OP2	30:R1:2581:G:N2	2.40	0.51
48:sn:96:LYS:HG3	48:sn:97:LYS:H	1.75	0.51
21:31:1:MET:HB3	21:31:6:HIS:CD2	2.45	0.51
30:R1:500:G:N1	30:R1:503:A:OP2	2.42	0.51
30:R1:1236:G:HO2'	30:R1:1237:A:P	2.34	0.51
39:se:97:PRO:O	39:se:122:VAL:HG12	2.10	0.51
43:si:90:ASP:OD1	43:si:92:SER:OG	2.29	0.51
3:14:69:VAL:HG11	3:14:104:THR:HG21	1.92	0.51
4:15:21:ARG:HA	30:R1:811:U:H2'	1.93	0.51
30:R1:1059:G:H5''	30:R1:1060:U:H2'	1.92	0.51
37:sc:42:LEU:HD13	37:sc:67:ILE:HD11	1.91	0.51
39:se:23:THR:HA	39:se:28:ARG:HA	1.92	0.51
39:se:90:GLY:O	39:se:129:SER:N	2.39	0.51
48:sn:37:ASP:OD1	48:sn:37:ASP:N	2.42	0.51
54:st:28:ARG:O	54:st:32:LYS:HG3	2.11	0.51
14:24:71:ILE:HD12	14:24:95:PHE:CE1	2.46	0.51
30:R1:4:U:H2'	30:R1:5:A:C8	2.46	0.51
30:R1:228:C:N4	30:R1:2407:A:N3	2.58	0.51
32:R3:991:U:O4	32:R3:1212:U:O2'	2.23	0.51
32:R3:1062:U:H2'	32:R3:1063:C:C6	2.46	0.51
30:R1:288:U:H2'	30:R1:289:G:C8	2.45	0.51
30:R1:307:G:N1	30:R1:310:A:OP2	2.39	0.51
30:R1:1802:A:H2'	30:R1:1803:A:C8	2.45	0.51
30:R1:2144:G:N2	30:R1:2146:C:O2'	2.44	0.51
32:R3:56:U:H2'	32:R3:57:G:H8	1.75	0.51
32:R3:56:U:H2'	32:R3:57:G:C8	2.46	0.51
32:R3:542:G:H5'	38:sd:38:GLY:HA2	1.91	0.51
47:sm:3:ILE:HG22	47:sm:4:ALA:N	2.23	0.51
12:22:59:GLU:HA	12:22:64:ALA:HA	1.92	0.50
29:9:55:GLU:HA	29:9:58:LEU:HB3	1.92	0.50
32:R3:1098:C:O2'	55:su:71:TYR:OXT	2.19	0.50
22:32:30:ASP:OD1	22:32:31:LYS:N	2.44	0.50
30:R1:4:U:H2'	30:R1:5:A:H8	1.76	0.50
30:R1:2457:U:H5	30:R1:2494:G:H1	1.58	0.50
32:R3:835:U:OP1	52:sr:52:ARG:NH2	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:R3:1095:U:P	32:R3:1108:G:H1	2.34	0.50
27:5:56:LEU:HD23	27:5:64:PRO:HB3	1.93	0.50
29:9:11:ASN:O	29:9:11:ASN:ND2	2.42	0.50
30:R1:2436:G:O2'	34:Y:281:GLN:NE2	2.44	0.50
38:sd:195:ASN:OD1	38:sd:197:HIS:NE2	2.44	0.50
44:sj:11:LYS:HG2	44:sj:71:LEU:HD12	1.93	0.50
49:so:17:ASP:HB2	49:so:20:ASP:HB2	1.92	0.50
10:20:108:LEU:HG	11:21:48:LYS:NZ	2.26	0.50
30:R1:2850:A:N7	30:R1:2868:A:O2'	2.36	0.50
32:R3:508:U:H1'	32:R3:509:A:H2	1.77	0.50
37:sc:117:ASP:HA	37:sc:120:THR:HG22	1.93	0.50
8:19:79:VAL:HG23	19:3:19:GLY:HA3	1.91	0.50
8:19:90:ALA:HB2	8:19:112:ARG:HA	1.92	0.50
30:R1:703:U:H2'	30:R1:704:G:O4'	2.12	0.50
32:R3:201:G:O2'	32:R3:469:C:O2'	2.29	0.50
44:sj:50:THR:HG22	44:sj:62:ARG:HD2	1.94	0.50
52:sr:36:GLY:O	52:sr:62:ARG:NH2	2.39	0.50
54:st:38:ILE:HD11	54:st:82:ILE:HG22	1.93	0.50
2:13:78:THR:HB	30:R1:2641:G:H5''	1.92	0.50
2:13:110:PRO:O	2:13:115:GLY:HA3	2.11	0.50
17:28:11:PRO:HB3	17:28:29:LEU:HD23	1.92	0.50
19:3:149:ASN:HB3	30:R1:2572:A:OP2	2.12	0.50
16:27:43:THR:CG2	30:R1:2336:A:H61	2.24	0.50
27:5:65:LEU:HD13	31:R2:42:C:C5	2.47	0.50
32:R3:321:A:H2'	32:R3:322:C:C6	2.47	0.50
44:sj:37:ARG:HB3	44:sj:74:VAL:O	2.11	0.50
30:R1:1386:C:H2'	30:R1:1387:A:H8	1.76	0.50
30:R1:2158:A:H4'	30:R1:2159:G:O4'	2.11	0.50
32:R3:423:G:H21	32:R3:424:G:H21	1.60	0.50
34:Y:327:LYS:HA	34:Y:372:ASP:HB2	1.94	0.50
34:Y:358:LYS:HZ2	58:Y:602:ATP:PB	2.34	0.50
34:Y:361:LEU:O	34:Y:365:LEU:HG	2.12	0.50
34:Y:415:GLU:HA	34:Y:418:VAL:HB	1.94	0.50
37:sc:20:THR:O	37:sc:20:THR:OG1	2.25	0.50
40:sf:85:ILE:HG22	40:sf:86:ARG:HG2	1.93	0.50
46:sl:31:GLY:HA3	46:sl:54:VAL:HG22	1.94	0.50
50:sp:40:ASN:HB3	50:sp:43:ALA:HB2	1.92	0.50
1:1:14:LYS:HD3	1:1:33:LEU:HD21	1.92	0.49
9:2:259:ASN:OD1	9:2:262:THR:OG1	2.19	0.49
30:R1:639:U:H2'	30:R1:640:C:C6	2.46	0.49
30:R1:1537:G:C5	30:R1:1538:G:H1'	2.47	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:29:9:LYS:HG2	18:29:12:GLU:HG2	1.94	0.49
32:R3:890:G:O2'	32:R3:906:A:N6	2.44	0.49
34:Y:525:ARG:NH2	41:sg:143:ARG:HD3	2.27	0.49
46:sl:23:LEU:HB2	46:sl:58:ASN:ND2	2.27	0.49
37:sc:32:LEU:HD21	48:sn:92:ILE:HG12	1.93	0.49
1:1:38:PHE:HD1	1:1:39:VAL:H	1.61	0.49
22:32:52:LYS:NZ	22:32:55:ALA:HA	2.26	0.49
24:35:15:LYS:HE3	24:35:19:GLY:HA2	1.93	0.49
26:4:115:GLN:OE1	26:4:117:ARG:NH1	2.45	0.49
26:4:146:VAL:HG12	26:4:185:LYS:HB2	1.93	0.49
29:9:8:LYS:HA	29:9:15:LEU:HB3	1.94	0.49
38:sd:22:SER:HB3	38:sd:108:ALA:HB1	1.93	0.49
43:si:22:PRO:HA	43:si:60:LEU:HD12	1.92	0.49
51:sq:18:LYS:HG3	51:sq:50:ASN:HD21	1.78	0.49
4:15:122:VAL:HG13	4:15:125:LEU:HD12	1.93	0.49
30:R1:704:G:O2'	30:R1:727:A:N6	2.46	0.49
30:R1:1522:A:H8	30:R1:1522:A:OP1	1.95	0.49
30:R1:2109:U:OP1	30:R1:2149:U:O2'	2.27	0.49
30:R1:2213:U:H5''	30:R1:2214:C:OP2	2.12	0.49
32:R3:742:G:OP1	49:so:57:ARG:NH2	2.45	0.49
32:R3:1491:G:H2'	32:R3:1492:A:C8	2.48	0.49
36:sb:30:ILE:HG22	36:sb:40:ILE:HD13	1.93	0.49
38:sd:14:GLU:OE2	38:sd:62:ARG:NH1	2.46	0.49
30:R1:547:A:H4'	30:R1:548:G:C8	2.47	0.49
30:R1:1509:A:H2'	30:R1:1510:G:C8	2.47	0.49
30:R1:2125:G:H22	30:R1:2174:C:H42	1.61	0.49
32:R3:380:G:N2	32:R3:383:A:OP2	2.43	0.49
32:R3:560:A:H4'	32:R3:561:U:H5''	1.93	0.49
34:Y:338:LEU:HD11	34:Y:340:LEU:HD23	1.95	0.49
2:13:65:THR:OG1	30:R1:1141:U:OP2	2.28	0.49
30:R1:881:G:O6	30:R1:895:U:O2	2.31	0.49
30:R1:918:A:N3	31:R2:80:U:O2'	2.44	0.49
30:R1:2324:U:H3'	30:R1:2325:G:H5'	1.94	0.49
30:R1:2900:A:H2'	30:R1:2901:C:C6	2.48	0.49
33:T:16:C:H4'	33:T:17:U:O4'	2.12	0.49
9:2:219:VAL:HG21	30:R1:782:A:N7	2.27	0.49
28:6:21:GLN:NE2	28:6:38:ASP:HA	2.26	0.49
30:R1:296:U:H2'	30:R1:297:G:H8	1.77	0.49
30:R1:851:C:H2'	30:R1:852:U:C6	2.47	0.49
30:R1:1796:U:H2'	30:R1:1797:G:H8	1.77	0.49
32:R3:1101:A:H61	36:sb:101:THR:HG21	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:Y:6:ASN:HA	34:Y:19:ASN:HA	1.95	0.49
5:16:34:LYS:HD2	5:16:99:GLY:HA2	1.95	0.49
9:2:154:ALA:HB2	9:2:161:VAL:HG23	1.94	0.49
30:R1:2246:G:H2'	30:R1:2247:A:H8	1.77	0.49
30:R1:2246:G:H2'	30:R1:2247:A:C8	2.47	0.49
32:R3:6:G:H2'	39:se:123:LEU:HD21	1.94	0.49
32:R3:367:U:H3	32:R3:393:A:H62	1.60	0.49
33:T:9:G:N2	33:T:26:G:H1'	2.28	0.49
39:se:23:THR:HG23	39:se:23:THR:O	2.13	0.49
39:se:80:LEU:HD13	39:se:122:VAL:HG11	1.94	0.49
41:sg:26:PHE:HZ	41:sg:120:LEU:HD11	1.77	0.49
3:14:92:GLU:HG3	3:14:111:LYS:HZ1	1.77	0.49
7:18:30:ARG:HH22	31:R2:48:U:P	2.34	0.49
32:R3:9:G:H4'	39:se:108:GLY:H	1.78	0.49
34:Y:80:THR:HA	34:Y:152:PRO:HA	1.95	0.49
39:se:80:LEU:HG	39:se:146:MET:SD	2.52	0.49
50:sp:79:ASN:OD1	50:sp:79:ASN:N	2.46	0.49
1:1:6:LYS:HD2	1:1:8:MET:HG2	1.95	0.48
20:30:23:LEU:HD11	20:30:53:MET:SD	2.53	0.48
25:36:34:LYS:NZ	30:R1:2526:G:O2'	2.43	0.48
30:R1:2127:G:O2'	30:R1:2128:G:O4'	2.29	0.48
32:R3:1323:G:H2'	32:R3:1324:A:H8	1.77	0.48
38:sd:10:LEU:HD13	38:sd:62:ARG:HD3	1.94	0.48
38:sd:104:MET:SD	38:sd:170:LEU:HD13	2.53	0.48
41:sg:30:LEU:HD12	41:sg:105:VAL:HG22	1.94	0.48
28:6:1:SER:H1	30:R1:2749:A:H5''	1.78	0.48
30:R1:2187:U:H2'	30:R1:2188:U:C6	2.48	0.48
37:sc:69:THR:HG21	37:sc:75:VAL:HG21	1.95	0.48
38:sd:99:ASN:OD1	38:sd:110:ARG:NH1	2.46	0.48
47:sm:88:LEU:O	47:sm:92:ARG:HG2	2.14	0.48
1:1:60:ARG:NH2	34:Y:125:GLU:HG2	2.27	0.48
28:6:16:VAL:HG22	28:6:25:ILE:HD13	1.96	0.48
31:R2:44:G:H1'	31:R2:47:C:H42	1.76	0.48
34:Y:449:PHE:CE2	34:Y:477:LEU:HD13	2.48	0.48
43:si:79:ARG:HD2	43:si:102:PHE:CD1	2.48	0.48
44:sj:25:ILE:HG22	44:sj:74:VAL:HG11	1.96	0.48
53:ss:48:ILE:HD12	53:ss:70:LEU:HD11	1.95	0.48
7:18:25:ARG:NH2	31:R2:8:C:O3'	2.47	0.48
16:27:39:ARG:HH21	30:R1:2363:G:H21	1.62	0.48
30:R1:1094:U:N3	30:R1:1097:U:OP2	2.36	0.48
32:R3:1033:G:H2'	32:R3:1034:G:C8	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:sb:101:THR:HG22	36:sb:174:GLU:HG2	1.95	0.48
47:sm:2:ARG:HG2	47:sm:2:ARG:HH11	1.78	0.48
52:sr:29:LYS:HE2	52:sr:32:ILE:HD11	1.96	0.48
27:5:140:ILE:HG21	27:5:145:VAL:HG13	1.94	0.48
30:R1:1441:G:H2'	30:R1:1442:U:C6	2.47	0.48
37:sc:153:SER:HB3	37:sc:164:THR:HB	1.94	0.48
43:si:11:ARG:O	43:si:14:SER:OG	2.31	0.48
44:sj:27:GLU:HG3	44:sj:31:ARG:CZ	2.43	0.48
3:14:8:LEU:HD22	3:14:84:CYS:HB3	1.96	0.48
12:22:61:ASN:HD21	30:R1:495:G:H21	1.60	0.48
12:22:68:ASP:O	12:22:109:ASP:HB3	2.13	0.48
14:24:86:PHE:HA	14:24:91:LYS:HA	1.95	0.48
30:R1:1539:U:H2'	30:R1:1540:G:H8	1.78	0.48
30:R1:1874:C:H2'	30:R1:1875:G:O4'	2.13	0.48
30:R1:2834:G:H2'	30:R1:2879:A:N6	2.29	0.48
43:si:56:MET:HB2	43:si:59:LYS:NZ	2.29	0.48
6:17:38:LEU:HB3	6:17:39:PRO:HD3	1.96	0.48
12:22:88:ARG:HB2	12:22:92:ARG:HG3	1.95	0.48
30:R1:2324:U:H3'	30:R1:2325:G:C5'	2.44	0.48
32:R3:460:A:H2'	32:R3:461:A:H8	1.79	0.48
32:R3:1168:U:H5'	32:R3:1169:A:OP2	2.14	0.48
32:R3:1218:C:H2'	32:R3:1219:A:C8	2.48	0.48
34:Y:8:THR:O	34:Y:54:THR:HB	2.14	0.48
34:Y:8:THR:CG2	34:Y:19:ASN:H	2.27	0.48
36:sb:122:ASP:N	36:sb:122:ASP:OD1	2.46	0.48
51:sq:57:VAL:HG12	51:sq:78:VAL:HB	1.95	0.48
15:25:42:LEU:HD13	15:25:47:VAL:HG21	1.96	0.48
19:3:137:SER:O	19:3:137:SER:OG	2.31	0.48
30:R1:1288:G:OP2	30:R1:1288:G:N2	2.44	0.48
30:R1:1864:U:OP1	30:R1:2410:G:O2'	2.31	0.48
30:R1:2134:A:H62	30:R1:2136:G:H21	1.61	0.48
32:R3:908:A:H2'	32:R3:909:A:C8	2.49	0.48
30:R1:1912:A:H62	30:R1:1917:U:H5	1.60	0.48
30:R1:2025:C:H2'	30:R1:2026:U:C6	2.48	0.48
30:R1:2250:G:O2'	30:R1:2496:C:OP1	2.28	0.48
32:R3:28:A:H1'	32:R3:296:U:H5'	1.96	0.48
18:29:9:LYS:HG3	18:29:11:VAL:H	1.79	0.48
29:9:75:LEU:HD23	29:9:75:LEU:H	1.78	0.48
30:R1:78:U:H2'	30:R1:79:C:C6	2.49	0.48
30:R1:84:A:N1	30:R1:98:G:O2'	2.43	0.48
30:R1:355:U:H2'	30:R1:356:G:C8	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:827:U:O2'	30:R1:2068:U:C2	2.67	0.48
30:R1:1306:C:N4	30:R1:1606:C:H2'	2.29	0.48
30:R1:1306:C:H41	30:R1:1606:C:H2'	1.78	0.48
31:R2:51:G:H2'	31:R2:52:A:O4'	2.13	0.48
32:R3:1530:G:O6	55:su:46:LYS:NZ	2.47	0.48
34:Y:357:GLY:C	34:Y:508:ILE:HD11	2.39	0.48
36:sb:218:ALA:O	36:sb:222:GLU:HG2	2.14	0.48
42:sh:21:LYS:O	42:sh:64:TYR:OH	2.19	0.48
51:sq:57:VAL:HB	51:sq:79:GLU:HG2	1.96	0.48
7:18:26:LEU:HD11	7:18:78:VAL:HG11	1.96	0.47
32:R3:137:U:H2'	32:R3:138:G:H8	1.78	0.47
42:sh:78:SER:HB2	42:sh:84:ILE:H	1.78	0.47
55:su:10:GLU:OE1	55:su:10:GLU:N	2.46	0.47
4:15:62:PRO:HG2	24:35:24:LYS:HB3	1.95	0.47
6:17:100:CYS:SG	6:17:101:GLY:N	2.87	0.47
20:30:52:PHE:CE1	20:30:53:MET:HE2	2.49	0.47
30:R1:1079:C:N4	30:R1:1088:A:O4'	2.47	0.47
32:R3:1249:C:O2'	43:si:74:GLN:OE1	2.21	0.47
33:T:14:G:H2'	33:T:59:A:H61	1.79	0.47
34:Y:462:MET:HE1	34:Y:481:LEU:HD11	1.96	0.47
3:14:73:ASP:OD2	3:14:75:SER:OG	2.30	0.47
5:16:64:TRP:HB2	5:16:104:GLU:HG3	1.97	0.47
6:17:114:GLU:OE1	6:17:118:ARG:NE	2.46	0.47
8:19:8:GLU:HB2	8:19:54:LEU:HD22	1.95	0.47
15:25:55:GLU:OE1	15:25:55:GLU:N	2.46	0.47
30:R1:355:U:H2'	30:R1:356:G:H8	1.80	0.47
30:R1:2123:G:N2	30:R1:2124:G:O6	2.47	0.47
30:R1:2514:U:H2'	30:R1:2515:C:C6	2.49	0.47
32:R3:1238:A:H2	32:R3:1241:G:N3	2.12	0.47
8:19:24:THR:HB	8:19:87:ARG:HB2	1.95	0.47
10:20:86:SER:OG	11:21:50:GLY:O	2.31	0.47
13:23:47:VAL:HG13	13:23:51:PHE:HD2	1.78	0.47
25:36:34:LYS:NZ	30:R1:2526:G:HO2'	2.13	0.47
32:R3:673:A:O3'	40:sf:86:ARG:NH2	2.47	0.47
32:R3:714:G:H2'	32:R3:715:A:C8	2.49	0.47
32:R3:826:C:O2	42:sh:15:ASN:ND2	2.47	0.47
34:Y:179:LEU:HD12	34:Y:207:ILE:HG12	1.96	0.47
40:sf:36:ILE:HD11	40:sf:39:LEU:HB2	1.97	0.47
4:15:85:VAL:HG23	4:15:86:GLU:N	2.29	0.47
9:2:208:GLY:HA3	30:R1:764:A:H5''	1.96	0.47
21:31:41:HIS:ND1	21:31:42:PRO:HD2	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:31:41:HIS:HD2	21:31:43:PHE:HB3	1.79	0.47
22:32:9:ARG:NH1	30:R1:517:C:OP2	2.47	0.47
28:6:89:VAL:HG11	28:6:162:ARG:HH11	1.79	0.47
30:R1:296:U:H2'	30:R1:297:G:C8	2.49	0.47
30:R1:1352:U:O2'	30:R1:1570:A:N3	2.37	0.47
30:R1:1721:G:O2'	30:R1:1739:A:N6	2.46	0.47
30:R1:2101:A:H2'	30:R1:2102:G:H8	1.80	0.47
30:R1:2557:G:H2'	30:R1:2558:C:C6	2.49	0.47
32:R3:200:G:H2'	32:R3:201:G:H8	1.79	0.47
32:R3:664:G:H22	32:R3:741:G:H1	1.63	0.47
34:Y:369:LEU:HD23	34:Y:369:LEU:HA	1.76	0.47
9:2:13:ARG:NH2	30:R1:1693:U:O2'	2.44	0.47
22:32:15:ARG:NH2	30:R1:1264:A:OP1	2.40	0.47
30:R1:2029:G:N1	30:R1:2033:A:OP2	2.41	0.47
32:R3:692:U:O2'	32:R3:694:A:N7	2.36	0.47
33:T:53:G:H2'	33:T:54:5MU:C6	2.50	0.47
34:Y:176:ILE:HA	34:Y:204:THR:O	2.15	0.47
34:Y:418:VAL:HG22	34:Y:454:MET:CE	2.44	0.47
37:sc:50:SER:O	37:sc:50:SER:OG	2.31	0.47
41:sg:13:LEU:HD23	41:sg:14:PRO:HD2	1.95	0.47
49:so:42:PHE:HE1	49:so:48:ASP:HB3	1.79	0.47
5:16:71:LYS:HB3	5:16:93:VAL:O	2.15	0.47
9:2:10:PRO:O	30:R1:729:G:N2	2.48	0.47
12:22:7:HIS:HB2	12:22:50:VAL:CG2	2.45	0.47
15:25:80:HIS:CE1	15:25:83:LYS:HD2	2.50	0.47
21:31:27:THR:OG1	27:5:58:ALA:O	2.24	0.47
21:31:47:LYS:HE3	27:5:114:ARG:HD2	1.96	0.47
26:4:45:ALA:HB2	26:4:89:PRO:HD3	1.96	0.47
29:9:9:VAL:HG12	29:9:11:ASN:H	1.80	0.47
30:R1:172:A:H2'	30:R1:173:A:H8	1.80	0.47
30:R1:456:C:H5''	30:R1:457:A:OP1	2.15	0.47
30:R1:1028:A:N6	30:R1:1125:G:H2'	2.30	0.47
30:R1:2328:A:H2'	30:R1:2329:U:H6	1.79	0.47
32:R3:80:A:H2'	32:R3:81:A:H4'	1.96	0.47
32:R3:501:C:H2'	32:R3:502:A:H8	1.80	0.47
32:R3:1347:G:O2'	32:R3:1373:G:O6	2.29	0.47
34:Y:392:GLU:O	34:Y:396:GLU:HG2	2.14	0.47
34:Y:408:TRP:CD1	34:Y:451:LYS:HG3	2.49	0.47
34:Y:490:PHE:CE2	34:Y:498:VAL:HG12	2.50	0.47
34:Y:522:ASP:O	34:Y:525:ARG:HG2	2.14	0.47
36:sb:203:ASP:OD1	36:sb:204:ASP:N	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
37:sc:55:VAL:HG13	37:sc:66:THR:HB	1.97	0.47
44:sj:28:THR:N	44:sj:31:ARG:HH21	2.12	0.47
15:25:71:LYS:HZ2	15:25:71:LYS:HB3	1.79	0.47
30:R1:27:G:N2	30:R1:512:G:H1'	2.30	0.47
30:R1:693:A:O2'	30:R1:1353:A:N3	2.36	0.47
30:R1:890:C:H3'	30:R1:891:G:H4'	1.97	0.47
30:R1:2725:A:O2'	30:R1:2726:A:C8	2.66	0.47
32:R3:413:G:H1'	32:R3:428:G:H22	1.79	0.47
34:Y:350:VAL:HG13	34:Y:491:VAL:HB	1.96	0.47
3:14:41:ILE:HD13	3:14:60:ALA:HB2	1.97	0.47
7:18:40:ILE:HG12	7:18:47:VAL:HG12	1.97	0.47
19:3:120:GLY:O	19:3:124:ARG:HB2	2.15	0.47
29:9:3:VAL:CG1	29:9:36:ALA:HB1	2.44	0.47
30:R1:1747:U:H2'	30:R1:1748:C:C6	2.50	0.47
30:R1:1873:G:H2'	30:R1:1874:C:C6	2.50	0.47
30:R1:2071:A:H2'	30:R1:2072:C:C6	2.49	0.47
34:Y:90:LYS:O	34:Y:94:GLU:HG2	2.14	0.47
34:Y:279:SER:O	34:Y:283:THR:HG23	2.14	0.47
49:so:22:GLY:O	49:so:27:GLN:NE2	2.48	0.47
8:19:88:ARG:NH2	8:19:114:ASN:O	2.46	0.47
26:4:8:ALA:O	26:4:9:GLN:HG3	2.16	0.47
32:R3:91:U:H2'	32:R3:92:U:C6	2.50	0.47
32:R3:563:A:HO2'	32:R3:566:G:HO2'	1.60	0.47
32:R3:1330:U:H4'	47:sm:22:TYR:CE2	2.50	0.47
34:Y:181:GLN:OE1	34:Y:468:HIS:ND1	2.46	0.47
34:Y:239:GLU:HA	34:Y:242:THR:HG22	1.96	0.47
34:Y:351:LEU:HB2	34:Y:507:GLU:HB3	1.96	0.47
12:22:4:ILE:HD12	12:22:4:ILE:N	2.30	0.46
21:31:3:LYS:HD3	21:31:3:LYS:HA	1.70	0.46
29:9:133:GLN:NE2	29:9:135:HIS:O	2.48	0.46
30:R1:242:G:O2'	30:R1:254:G:O6	2.32	0.46
30:R1:1181:U:H2'	30:R1:1182:G:C8	2.51	0.46
32:R3:1120:C:H2'	32:R3:1121:U:C6	2.50	0.46
32:R3:1272:G:H2'	32:R3:1273:C:C6	2.51	0.46
47:sm:22:TYR:H	47:sm:65:GLU:HG2	1.80	0.46
30:R1:1263:U:H2'	30:R1:1264:A:C8	2.49	0.46
30:R1:2109:U:H2'	30:R1:2110:G:C8	2.50	0.46
32:R3:662:U:H2'	32:R3:663:A:C8	2.50	0.46
32:R3:1313:U:OP2	53:ss:4:LEU:HA	2.16	0.46
36:sb:198:VAL:HG12	36:sb:200:PRO:HD3	1.97	0.46
48:sn:63:CYS:SG	48:sn:64:ARG:N	2.88	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:so:75:ALA:O	49:so:79:GLN:HG3	2.14	0.46
53:ss:38:THR:HA	53:ss:69:LYS:HA	1.97	0.46
9:2:186:ASP:OD1	9:2:186:ASP:N	2.48	0.46
10:20:81:GLY:HA2	10:20:116:LEU:HD13	1.97	0.46
26:4:47:LYS:HG2	26:4:51:GLU:HB2	1.96	0.46
30:R1:784:G:H5'	30:R1:785:G:OP1	2.16	0.46
30:R1:875:G:H2'	30:R1:876:C:C6	2.51	0.46
30:R1:1076:C:H2'	30:R1:1077:A:C8	2.50	0.46
30:R1:1080:A:O2'	30:R1:1081:U:O4'	2.33	0.46
30:R1:1447:C:O2'	30:R1:1544:A:N3	2.38	0.46
30:R1:1794:A:H2'	30:R1:1795:C:C6	2.50	0.46
32:R3:1157:A:N7	32:R3:1180:A:N6	2.63	0.46
34:Y:3:VAL:HG22	34:Y:23:LYS:HG2	1.97	0.46
34:Y:82:LEU:HD21	34:Y:132:GLU:HB3	1.96	0.46
49:so:2:LEU:HD12	49:so:2:LEU:HA	1.78	0.46
7:18:18:LEU:HD21	7:18:91:SER:HB2	1.97	0.46
11:21:68:ARG:NH1	30:R1:1223:G:OP1	2.48	0.46
19:3:25:THR:HG21	19:3:193:VAL:HG22	1.98	0.46
28:6:70:LEU:O	28:6:74:MET:HG3	2.15	0.46
30:R1:30:G:O2'	30:R1:1214:A:N3	2.37	0.46
30:R1:848:C:H2'	30:R1:849:A:C8	2.51	0.46
30:R1:1715:G:O2'	30:R1:1716:U:H6	1.99	0.46
30:R1:2125:G:N2	30:R1:2174:C:H42	2.12	0.46
30:R1:2266:A:H4'	30:R1:2267:A:O5'	2.15	0.46
32:R3:391:G:H2'	32:R3:392:C:O4'	2.16	0.46
32:R3:1316:G:N1	32:R3:1319:A:OP2	2.46	0.46
34:Y:265:LEU:O	34:Y:269:VAL:HG23	2.16	0.46
19:3:133:THR:HG22	30:R1:1675:C:O2	2.16	0.46
23:34:25:LYS:HE3	30:R1:210:C:H5''	1.96	0.46
27:5:65:LEU:HD12	31:R2:41:G:H2'	1.97	0.46
30:R1:1186:G:H2'	30:R1:1187:G:O4'	2.16	0.46
30:R1:2804:U:H2'	30:R1:2805:C:H6	1.80	0.46
32:R3:201:G:HO2'	32:R3:469:C:HO2'	1.64	0.46
33:T:17:U:O2'	33:T:18:G:OP1	2.30	0.46
39:se:96:GLN:O	39:se:122:VAL:HB	2.15	0.46
40:sf:2:ARG:HD3	40:sf:91:ARG:HE	1.81	0.46
7:18:2:ASP:N	7:18:2:ASP:OD1	2.48	0.46
29:9:114:GLU:HB2	29:9:133:GLN:O	2.16	0.46
30:R1:686:U:H2'	30:R1:788:A:N1	2.31	0.46
30:R1:1866:A:C6	30:R1:1876:A:N7	2.83	0.46
31:R2:48:U:H2'	31:R2:49:C:C6	2.50	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:R3:494:G:O2'	32:R3:496:A:H1'	2.15	0.46
32:R3:1134:G:H2'	32:R3:1135:U:O4'	2.16	0.46
37:sc:152:VAL:HG12	37:sc:156:LEU:HD21	1.97	0.46
51:sq:58:VAL:HG12	51:sq:77:VAL:HG22	1.97	0.46
4:15:64:PHE:HB3	24:35:24:LYS:HD2	1.98	0.46
14:24:53:GLN:NE2	14:24:55:GLY:HA3	2.31	0.46
32:R3:922:G:H2'	32:R3:923:A:C8	2.51	0.46
40:sf:25:TYR:HB2	40:sf:62:MET:HE1	1.98	0.46
42:sh:42:GLU:HG3	42:sh:100:ILE:HG21	1.97	0.46
4:15:110:VAL:O	4:15:128:THR:HG23	2.15	0.46
9:2:145:MET:HE2	9:2:153:LEU:HD21	1.97	0.46
9:2:224:MET:SD	30:R1:782:A:C2	3.09	0.46
26:4:191:ASP:O	26:4:195:GLN:HG3	2.16	0.46
30:R1:1105:U:H2'	30:R1:1106:G:C8	2.50	0.46
30:R1:2243:U:H2'	30:R1:2244:U:C6	2.51	0.46
32:R3:131:A:H2'	32:R3:132:C:C6	2.51	0.46
34:Y:85:VAL:HG23	34:Y:168:GLN:HA	1.97	0.46
38:sd:123:MET:HE3	38:sd:145:ARG:HG2	1.96	0.46
41:sg:113:ASP:OD1	41:sg:113:ASP:N	2.49	0.46
42:sh:78:SER:O	42:sh:78:SER:OG	2.30	0.46
44:sj:42:LEU:HB3	44:sj:43:PRO:HD2	1.97	0.46
9:2:152:GLN:O	30:R1:1818:U:O2'	2.29	0.46
27:5:73:VAL:HG22	27:5:75:GLY:H	1.80	0.46
32:R3:382:A:H2'	32:R3:383:A:C8	2.51	0.46
32:R3:1077:G:N2	32:R3:1080:A:OP2	2.41	0.46
37:sc:123:LEU:HD21	37:sc:129:PHE:HB3	1.98	0.46
1:1:69:THR:HG23	1:1:71:ARG:H	1.80	0.46
5:16:106:ASP:OD2	5:16:107:GLY:N	2.49	0.46
6:17:2:ARG:HA	6:17:5:LYS:HD2	1.98	0.46
7:18:33:ARG:HH11	31:R2:52:A:H62	1.63	0.46
22:32:2:VAL:HG13	30:R1:2015:A:C2	2.51	0.46
30:R1:2291:U:H2'	30:R1:2292:U:C6	2.51	0.46
33:T:54:5MU:H4'	33:T:55:PSU:OP2	2.15	0.46
5:16:69:PRO:HA	5:16:94:ALA:HB2	1.98	0.45
9:2:209:ALA:HA	9:2:212:TRP:CE2	2.51	0.45
17:28:17:ARG:CZ	17:28:23:ALA:HB2	2.46	0.45
29:9:133:GLN:HE22	29:9:136:SER:HA	1.81	0.45
30:R1:581:C:H2'	30:R1:582:A:C8	2.51	0.45
30:R1:1103:A:OP2	30:R1:1104:C:H5	1.99	0.45
32:R3:246:A:C2	32:R3:282:A:C5	3.03	0.45
32:R3:668:G:H21	49:so:45:HIS:CE1	2.33	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:R3:966:G:C2	33:T:34:C:H5'	2.52	0.45
32:R3:1225:A:H2'	32:R3:1225:A:N3	2.31	0.45
33:T:59:A:O2'	33:T:60:U:O5'	2.34	0.45
34:Y:36:ASN:ND2	34:Y:442:GLY:HA3	2.30	0.45
34:Y:214:PHE:O	34:Y:218:VAL:HG22	2.16	0.45
43:si:6:TYR:HD1	43:si:7:GLY:N	2.13	0.45
47:sm:2:ARG:O	47:sm:56:ARG:NE	2.47	0.45
4:15:41:ARG:NH2	30:R1:807:U:OP2	2.48	0.45
30:R1:1087:G:H22	30:R1:1102:C:H42	1.63	0.45
30:R1:1615:C:OP2	30:R1:1617:C:N4	2.29	0.45
30:R1:2774:C:H2'	30:R1:2775:G:O4'	2.16	0.45
32:R3:528:C:H3'	32:R3:529:G:H5''	1.97	0.45
32:R3:1250:A:H2'	32:R3:1251:A:C8	2.51	0.45
32:R3:1273:C:H2'	32:R3:1274:A:O4'	2.16	0.45
36:sb:42:LEU:HA	36:sb:45:THR:HG22	1.97	0.45
39:se:97:PRO:HA	39:se:122:VAL:HG12	1.98	0.45
5:16:6:ARG:HH12	5:16:8:LYS:HA	1.81	0.45
6:17:73:ASN:OD1	6:17:73:ASN:N	2.37	0.45
6:17:79:LEU:C	6:17:81:ASN:H	2.24	0.45
25:36:32:LYS:HD3	30:R1:2478:A:H5'	1.98	0.45
27:5:12:VAL:O	27:5:16:MET:HG3	2.16	0.45
27:5:128:SER:HB3	30:R1:2303:G:O2'	2.17	0.45
29:9:83:LYS:HD2	29:9:149:GLU:HB2	1.97	0.45
29:9:96:THR:HG23	29:9:117:LEU:HD11	1.98	0.45
32:R3:459:A:H2'	32:R3:460:A:H8	1.80	0.45
32:R3:1071:C:H2'	32:R3:1072:G:C8	2.51	0.45
37:sc:190:THR:HG21	37:sc:195:ILE:HD12	1.99	0.45
40:sf:38:ARG:NE	40:sf:97:THR:H	2.14	0.45
47:sm:69:ARG:O	47:sm:73:SER:OG	2.29	0.45
6:17:50:PRO:HA	6:17:53:THR:HG22	1.98	0.45
10:20:49:ARG:HD2	30:R1:993:G:OP1	2.16	0.45
10:20:108:LEU:HG	11:21:48:LYS:HZ2	1.80	0.45
19:3:56:LYS:HB2	19:3:59:ARG:HB2	1.97	0.45
22:32:51:ARG:CZ	22:32:53:VAL:HG12	2.46	0.45
30:R1:1182:G:H2'	30:R1:1183:U:O4'	2.16	0.45
32:R3:530:G:O2'	32:R3:531:U:OP1	2.32	0.45
32:R3:983:A:H5'	32:R3:984:C:OP2	2.16	0.45
34:Y:411:GLU:OE1	34:Y:411:GLU:N	2.49	0.45
43:si:4:GLN:HB3	43:si:21:LYS:HG2	1.98	0.45
48:sn:96:LYS:HG3	48:sn:97:LYS:N	2.31	0.45
54:st:19:HIS:O	54:st:23:ARG:HG3	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:21:5:PHE:HB3	11:21:59:ILE:HD12	1.98	0.45
19:3:77:ARG:NH1	19:3:200:ASP:OD1	2.49	0.45
32:R3:811:C:O2'	32:R3:901:A:N1	2.49	0.45
34:Y:32:LEU:HD13	34:Y:44:MET:HE2	1.99	0.45
3:14:65:THR:HG22	3:14:67:LYS:H	1.82	0.45
11:21:41:ILE:HB	11:21:47:VAL:HB	1.98	0.45
27:5:169:LEU:HD23	27:5:169:LEU:HA	1.83	0.45
30:R1:65:U:O2'	30:R1:456:C:O2	2.31	0.45
32:R3:494:G:H2'	32:R3:496:A:H8	1.80	0.45
32:R3:1114:C:H1'	48:sn:99:SER:HB2	1.98	0.45
41:sg:143:ARG:O	41:sg:146:GLU:HG2	2.17	0.45
3:14:79:PHE:CD1	8:19:69:VAL:HG12	2.52	0.45
30:R1:191:A:H2'	30:R1:192:C:C6	2.52	0.45
30:R1:1296:G:OP1	30:R1:2709:G:O2'	2.33	0.45
30:R1:1490:A:H5'	30:R1:1491:G:OP2	2.16	0.45
32:R3:908:A:H2'	32:R3:909:A:H8	1.81	0.45
32:R3:985:C:H2'	32:R3:986:U:C6	2.52	0.45
42:sh:45:ILE:HG22	42:sh:46:GLU:O	2.16	0.45
2:13:114:LEU:O	2:13:118:MET:HG3	2.17	0.45
4:15:81:ASP:HA	4:15:84:LYS:HD2	1.99	0.45
14:24:71:ILE:HD12	14:24:95:PHE:HE1	1.82	0.45
19:3:10:GLY:H	19:3:197:THR:HG23	1.81	0.45
30:R1:1475:G:O2'	30:R1:1476:U:H6	2.00	0.45
30:R1:2291:U:O2'	30:R1:2374:C:O2	2.33	0.45
30:R1:2818:U:H2'	30:R1:2819:G:H8	1.82	0.45
32:R3:264:C:H2'	32:R3:265:G:O4'	2.17	0.45
32:R3:328:C:H4'	32:R3:329:A:H5''	1.99	0.45
32:R3:423:G:N2	32:R3:424:G:N3	2.65	0.45
32:R3:1143:G:H2'	32:R3:1144:G:H8	1.81	0.45
32:R3:1355:G:H2'	32:R3:1356:G:H8	1.80	0.45
34:Y:80:THR:HG23	34:Y:83:ASP:H	1.82	0.45
46:sl:43:LYS:HA	46:sl:43:LYS:HD2	1.75	0.45
5:16:20:LEU:HD23	5:16:98:PRO:HG2	1.98	0.45
12:22:93:ALA:HB2	30:R1:1614:A:C2	2.52	0.45
18:29:21:LEU:HA	18:29:25:GLN:HB2	1.98	0.45
19:3:152:PRO:O	19:3:154:LYS:N	2.47	0.45
29:9:40:THR:C	29:9:42:LYS:H	2.24	0.45
30:R1:1509:A:H2'	30:R1:1510:G:H8	1.81	0.45
30:R1:2064:C:H2'	30:R1:2065:C:C6	2.51	0.45
32:R3:437:U:O2'	38:sd:119:HIS:ND1	2.31	0.45
32:R3:1417:G:O2'	32:R3:1483:A:N6	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:Y:400:THR:HG22	34:Y:402:PHE:H	1.81	0.45
39:se:105:ILE:HG13	39:se:105:ILE:O	2.17	0.45
7:18:79:ALA:HA	7:18:115:LEU:HD13	1.98	0.45
12:22:72:THR:HG22	12:22:73:LYS:HG3	1.98	0.45
21:31:33:ASN:OD1	21:31:33:ASN:N	2.50	0.45
27:5:12:VAL:HG11	27:5:24:VAL:HG23	1.99	0.45
30:R1:1688:U:O2'	30:R1:1700:A:N7	2.47	0.45
32:R3:552:U:H4'	46:sl:82:ARG:HG3	1.99	0.45
34:Y:209:SER:OG	34:Y:211:ASP:OD1	2.28	0.45
53:ss:8:PRO:HB2	53:ss:38:THR:HG21	1.99	0.45
54:st:16:ALA:O	54:st:20:ASN:ND2	2.41	0.45
1:1:11:ILE:O	1:1:15:VAL:HG22	2.17	0.44
5:16:54:THR:HG22	5:16:63:ILE:HD12	1.98	0.44
7:18:102:ARG:HG2	31:R2:49:C:OP1	2.16	0.44
29:9:104:THR:HG22	29:9:109:GLU:HA	1.99	0.44
30:R1:1000:A:H2'	30:R1:1001:A:C8	2.52	0.44
30:R1:2124:G:H2'	30:R1:2125:G:O4'	2.17	0.44
34:Y:87:MET:HB3	34:Y:93:TRP:CD2	2.51	0.44
34:Y:414:ASP:HB3	34:Y:416:GLN:H	1.81	0.44
40:sf:18:VAL:HA	40:sf:21:MET:HG2	1.99	0.44
47:sm:78:ARG:O	47:sm:82:LEU:HB2	2.17	0.44
53:ss:4:LEU:HD11	53:ss:6:LYS:HE3	1.99	0.44
11:21:3:ALA:HB3	11:21:59:ILE:HD11	1.98	0.44
12:22:13:SER:HB3	12:22:16:LYS:HD3	2.00	0.44
14:24:36:GLU:O	14:24:36:GLU:HG3	2.17	0.44
20:30:51:SER:O	20:30:51:SER:OG	2.30	0.44
43:si:13:SER:O	43:si:13:SER:OG	2.20	0.44
54:st:8:LYS:NZ	54:st:12:GLN:OE1	2.28	0.44
55:su:25:LYS:HB2	55:su:25:LYS:HE3	1.80	0.44
6:17:57:THR:HG23	6:17:62:ASN:ND2	2.32	0.44
17:28:32:LEU:HD23	17:28:32:LEU:HA	1.80	0.44
21:31:16:CYS:N	21:31:19:GLY:O	2.44	0.44
26:4:145:ASP:HB3	26:4:184:ASP:HB2	1.98	0.44
27:5:39:VAL:HG22	27:5:84:ILE:O	2.18	0.44
30:R1:1327:A:H2'	30:R1:1328:A:O4'	2.17	0.44
30:R1:2508:G:H1	30:R1:2580:U:H5	1.66	0.44
31:R2:50:A:H2'	31:R2:51:G:O4'	2.17	0.44
32:R3:193:C:H2'	32:R3:194:C:C6	2.52	0.44
32:R3:769:G:H4'	32:R3:1513:A:H4'	1.98	0.44
32:R3:923:A:O2'	32:R3:1399:C:OP2	2.28	0.44
34:Y:523:TYR:CZ	34:Y:527:LYS:HE2	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
36:sb:19:THR:HG22	36:sb:20:ARG:H	1.82	0.44
41:sg:70:ARG:HB3	41:sg:96:ARG:HG2	1.99	0.44
43:si:50:PRO:HD3	43:si:79:ARG:HG3	1.98	0.44
4:15:109:LYS:HE2	30:R1:636:G:N7	2.32	0.44
9:2:152:GLN:N	9:2:152:GLN:HE21	2.14	0.44
11:21:48:LYS:HB2	11:21:48:LYS:HE3	1.46	0.44
14:24:37:GLY:N	14:24:61:GLU:OE2	2.29	0.44
16:27:41:ARG:HD3	16:27:41:ARG:HA	1.48	0.44
20:30:5:LYS:HG3	20:30:36:GLU:HG2	1.98	0.44
26:4:32:VAL:HG13	26:4:178:VAL:HG22	1.99	0.44
29:9:89:LYS:HD2	29:9:89:LYS:C	2.42	0.44
30:R1:819:A:OP2	30:R1:1187:G:N2	2.24	0.44
30:R1:1213:A:H62	30:R1:1236:G:H1'	1.82	0.44
30:R1:1300:G:H4'	30:R1:1301:A:H5''	2.00	0.44
30:R1:1466:U:O2'	30:R1:1546:G:O2'	2.17	0.44
32:R3:1014:A:OP2	53:ss:17:LYS:NZ	2.50	0.44
32:R3:1063:C:OP2	32:R3:1064:G:O2'	2.35	0.44
36:sb:14:HIS:HB3	36:sb:208:ALA:HB2	1.98	0.44
37:sc:122:GLN:HB3	37:sc:127:VAL:HG21	2.00	0.44
3:14:63:VAL:HG12	3:14:107:LEU:HD21	2.00	0.44
4:15:55:MET:HE2	30:R1:2392:A:H2	1.82	0.44
7:18:60:GLU:HG2	7:18:61:GLN:OE1	2.17	0.44
12:22:78:GLU:O	30:R1:24:G:O2'	2.31	0.44
21:31:62:LYS:HE2	21:31:62:LYS:HB3	1.74	0.44
26:4:61:ARG:HB2	26:4:61:ARG:HH11	1.82	0.44
28:6:127:GLN:HA	28:6:127:GLN:OE1	2.17	0.44
34:Y:327:LYS:O	34:Y:334:LEU:HB2	2.17	0.44
38:sd:84:ASN:CG	38:sd:87:GLU:HG3	2.42	0.44
39:se:92:ARG:HB2	39:se:127:TYR:HB2	2.00	0.44
1:1:179:ASP:N	1:1:179:ASP:OD1	2.51	0.44
5:16:25:ASP:OD2	5:16:136:MET:HE1	2.17	0.44
7:18:62:LEU:HD22	7:18:70:ALA:HA	2.00	0.44
7:18:74:VAL:HG13	7:18:106:LEU:HD13	1.99	0.44
28:6:25:ILE:HG22	28:6:78:VAL:HG21	1.98	0.44
30:R1:365:U:H2'	30:R1:366:C:C6	2.53	0.44
30:R1:547:A:H5'	30:R1:548:G:C4	2.53	0.44
30:R1:849:A:H2'	30:R1:850:U:H6	1.83	0.44
30:R1:2391:G:HO2'	30:R1:2429:G:N2	2.16	0.44
32:R3:1314:C:H2'	32:R3:1315:U:H6	1.83	0.44
32:R3:1457:G:OP1	54:st:33:LYS:NZ	2.41	0.44
6:17:72:ASP:O	6:17:76:VAL:HG23	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:24:53:GLN:HE21	14:24:55:GLY:HA3	1.83	0.44
30:R1:274:C:H2'	30:R1:275:C:O4'	2.18	0.44
34:Y:102:ILE:HG21	34:Y:116:VAL:CG2	2.48	0.44
34:Y:354:ASN:C	34:Y:356:VAL:H	2.25	0.44
36:sb:65:LYS:HB3	36:sb:89:PHE:HE2	1.83	0.44
37:sc:72:PRO:O	37:sc:76:ILE:HG13	2.17	0.44
4:15:74:THR:HA	4:15:107:PHE:O	2.18	0.44
14:24:94:PHE:HA	14:24:101:THR:HA	2.00	0.44
22:32:8:THR:HG22	22:32:9:ARG:N	2.33	0.44
28:6:97:VAL:HG22	28:6:102:ILE:HD13	1.99	0.44
30:R1:2030:A:C2	30:R1:2499:C:H5''	2.52	0.44
32:R3:593:U:H2'	32:R3:594:U:H6	1.82	0.44
34:Y:61:ASP:HB2	34:Y:64:GLU:HG3	1.99	0.44
43:si:122:ARG:NH1	43:si:123:ARG:O	2.49	0.44
55:su:13:ASP:OD1	55:su:13:ASP:N	2.50	0.44
9:2:221:GLY:HA2	9:2:224:MET:HG3	2.00	0.44
9:2:227:VAL:HG13	9:2:228:ASP:OD1	2.18	0.44
20:30:10:ARG:HB2	20:30:53:MET:HB2	1.98	0.44
27:5:36:ASN:OD1	27:5:152:ASP:HB2	2.18	0.44
30:R1:1:G:N2	30:R1:2903:U:O2'	2.51	0.44
30:R1:851:C:H2'	30:R1:852:U:H6	1.82	0.44
30:R1:1923:U:O2'	33:T:11:G:H1'	2.17	0.44
30:R1:2897:U:H2'	30:R1:2898:U:C6	2.53	0.44
31:R2:44:G:H1'	31:R2:47:C:N4	2.32	0.44
32:R3:123:U:OP1	32:R3:311:C:O2'	2.26	0.44
32:R3:202:G:N2	32:R3:216:U:O2	2.51	0.44
34:Y:524:LEU:HD22	34:Y:529:ILE:HG13	2.00	0.44
37:sc:107:LYS:HB3	37:sc:110:LEU:HB2	1.98	0.44
53:ss:42:ASN:C	53:ss:42:ASN:OD1	2.60	0.44
10:20:3:VAL:HG21	30:R1:1249:U:H4'	1.99	0.43
13:23:82:LYS:NZ	30:R1:1340:U:OP2	2.45	0.43
27:5:102:LEU:HD12	27:5:106:ALA:HB3	1.99	0.43
30:R1:818:G:N1	30:R1:1188:U:OP2	2.28	0.43
32:R3:864:A:H5'	39:se:89:THR:O	2.18	0.43
34:Y:525:ARG:HH22	41:sg:143:ARG:HD3	1.82	0.43
38:sd:43:ARG:HE	38:sd:43:ARG:HB2	1.65	0.43
39:se:80:LEU:HD22	39:se:122:VAL:HG11	1.99	0.43
45:sk:33:ILE:HG13	45:sk:69:CYS:SG	2.58	0.43
48:sn:9:GLU:O	48:sn:13:VAL:HG23	2.17	0.43
9:2:129:LEU:HD12	9:2:133:ASN:HB2	1.99	0.43
9:2:251:THR:OG1	9:2:252:LYS:N	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:32:3:GLN:NE2	30:R1:2016:U:O2	2.50	0.43
30:R1:139:U:H2'	30:R1:140:C:H5	1.83	0.43
30:R1:372:G:O2'	30:R1:373:U:P	2.76	0.43
30:R1:1871:A:H8	30:R1:1872:A:C8	2.36	0.43
30:R1:2177:C:H2'	30:R1:2178:C:O4'	2.18	0.43
32:R3:202:G:N2	32:R3:466:A:H61	2.17	0.43
33:T:59:A:O2'	33:T:60:U:O4'	2.35	0.43
36:sb:128:LEU:HD12	36:sb:132:GLU:HB3	1.99	0.43
40:sf:49:TYR:OH	52:sr:62:ARG:O	2.32	0.43
51:sq:15:LYS:H	51:sq:15:LYS:HG2	1.59	0.43
55:su:4:ILE:HD13	55:su:4:ILE:HA	1.85	0.43
1:1:46:VAL:HG12	1:1:212:VAL:HG22	1.99	0.43
9:2:99:GLU:OE2	9:2:101:ARG:NE	2.48	0.43
30:R1:729:G:H5'	30:R1:730:A:H5''	2.00	0.43
31:R2:28:C:H2'	31:R2:29:A:C8	2.53	0.43
32:R3:511:C:O2'	32:R3:512:U:O4'	2.37	0.43
32:R3:1018:G:H2'	32:R3:1019:A:H8	1.83	0.43
32:R3:1346:A:OP1	43:si:121:ARG:NH1	2.39	0.43
36:sb:15:PHE:HB2	36:sb:17:HIS:HE1	1.77	0.43
36:sb:173:LYS:HE3	36:sb:173:LYS:HB2	1.64	0.43
53:ss:20:LYS:N	53:ss:20:LYS:HD3	2.33	0.43
5:16:13:HIS:CG	30:R1:954:G:H5'	2.54	0.43
15:25:80:HIS:ND1	15:25:83:LYS:HB2	2.32	0.43
26:4:2:GLU:HB3	26:4:11:ALA:HB1	2.00	0.43
30:R1:280:U:O4	30:R1:361:G:N2	2.52	0.43
32:R3:1060:U:O2'	44:sj:54:SER:HB2	2.18	0.43
46:sl:113:ARG:HH11	46:sl:113:ARG:HG3	1.83	0.43
9:2:2:VAL:HA	9:2:17:LYS:O	2.18	0.43
9:2:10:PRO:HA	9:2:13:ARG:HG3	2.00	0.43
30:R1:278:A:H2	30:R1:361:G:C2	2.36	0.43
30:R1:981:A:OP2	30:R1:982:C:N4	2.37	0.43
30:R1:2800:A:C2	30:R1:2895:G:H1'	2.54	0.43
31:R2:29:A:H2'	31:R2:30:C:C6	2.54	0.43
32:R3:254:G:P	51:sq:67:SER:HG	2.41	0.43
32:R3:310:G:H5''	50:sp:31:ARG:HB2	2.00	0.43
32:R3:1260:G:OP1	32:R3:1284:C:O2'	2.31	0.43
21:31:35:ASP:N	21:31:35:ASP:OD1	2.52	0.43
24:35:38:LYS:NZ	30:R1:2365:G:N7	2.48	0.43
26:4:5:LEU:HD21	26:4:122:GLU:HB2	2.01	0.43
29:9:46:PHE:CE1	29:9:51:ARG:HD2	2.53	0.43
30:R1:629:G:N3	30:R1:639:U:O2'	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:1069:A:H1'	30:R1:1096:A:H4'	2.01	0.43
30:R1:1508:A:O2'	30:R1:1509:A:O4'	2.24	0.43
32:R3:253:A:N6	32:R3:274:A:N1	2.67	0.43
32:R3:642:A:H2'	32:R3:643:C:H6	1.82	0.43
37:sc:39:ARG:HE	37:sc:56:ILE:HD12	1.83	0.43
37:sc:56:ILE:HG12	37:sc:65:VAL:HG13	2.01	0.43
46:sl:36:VAL:HG21	46:sl:73:LEU:HB3	2.00	0.43
54:st:66:ILE:HD12	54:st:70:LYS:HD3	2.00	0.43
16:27:59:LEU:HD12	16:27:80:ILE:HD12	2.00	0.43
20:30:15:ARG:HG3	20:30:53:MET:HE1	2.00	0.43
28:6:59:ASP:OD1	28:6:63:GLN:NE2	2.50	0.43
30:R1:586:A:N1	30:R1:809:G:O2'	2.45	0.43
32:R3:87:C:H2'	32:R3:88:U:C6	2.53	0.43
32:R3:362:G:N1	32:R3:365:U:OP2	2.49	0.43
32:R3:419:C:H1'	32:R3:425:G:N2	2.33	0.43
32:R3:686:U:O4	32:R3:703:G:H2'	2.18	0.43
32:R3:993:G:O2'	32:R3:994:A:N7	2.50	0.43
32:R3:1355:G:H2'	32:R3:1356:G:C8	2.54	0.43
34:Y:102:ILE:HD13	34:Y:105:LEU:HD21	1.99	0.43
48:sn:30:ILE:HG22	48:sn:40:ARG:HG3	2.00	0.43
54:st:27:MET:HE1	54:st:66:ILE:HG13	1.99	0.43
1:1:42:VAL:HG12	1:1:216:THR:HG22	2.01	0.43
3:14:58:LEU:HD11	3:14:86:LEU:HD12	1.99	0.43
9:2:208:GLY:CA	30:R1:764:A:H5''	2.49	0.43
11:21:95:ASP:N	11:21:95:ASP:OD1	2.52	0.43
18:29:2:LYS:HE2	30:R1:102:U:C4	2.54	0.43
24:35:14:LYS:HB2	24:35:22:LYS:HE2	2.00	0.43
26:4:48:THR:HG23	26:4:86:ALA:HB3	2.01	0.43
27:5:59:ILE:HD13	27:5:139:GLU:HB2	1.99	0.43
30:R1:245:G:O2'	30:R1:384:A:N1	2.46	0.43
30:R1:1020:A:H4'	30:R1:1021:A:O5'	2.19	0.43
30:R1:1794:A:H2'	30:R1:1795:C:H6	1.83	0.43
32:R3:765:G:H1	32:R3:812:G:HO2'	1.66	0.43
32:R3:1228:C:H5'	47:sm:113:LYS:O	2.18	0.43
33:T:55:PSU:H3'	33:T:57:A:OP2	2.19	0.43
34:Y:118:ASP:HA	34:Y:121:VAL:HG12	2.00	0.43
34:Y:324:GLY:N	34:Y:339:ASN:OD1	2.40	0.43
36:sb:95:TRP:NE1	36:sb:174:GLU:OE1	2.46	0.43
38:sd:155:LYS:H	38:sd:155:LYS:HG2	1.67	0.43
43:si:6:TYR:CD1	43:si:6:TYR:C	2.96	0.43
4:15:14:LYS:HE2	4:15:14:LYS:HB3	1.90	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:20:116:LEU:HD12	10:20:116:LEU:HA	1.84	0.43
22:32:6:LYS:HE3	30:R1:1262:A:N3	2.33	0.43
26:4:95:LYS:O	30:R1:659:G:O2'	2.34	0.43
28:6:154:GLU:CD	28:6:155:PRO:HD2	2.43	0.43
29:9:9:VAL:HB	29:9:12:LEU:O	2.18	0.43
30:R1:581:C:H2'	30:R1:582:A:H8	1.83	0.43
30:R1:2552:U:C5	30:R1:2554:U:H5'	2.54	0.43
30:R1:2793:C:H2'	30:R1:2794:C:C6	2.53	0.43
32:R3:950:U:H2'	32:R3:951:G:C8	2.54	0.43
34:Y:328:GLY:HA3	34:Y:332:GLY:O	2.18	0.43
36:sb:17:HIS:CD2	36:sb:38:HIS:O	2.71	0.43
38:sd:149:LYS:C	38:sd:150:LYS:HG3	2.44	0.43
42:sh:4:ASP:HB2	42:sh:80:PRO:HG3	2.00	0.43
14:24:6:ARG:HB2	30:R1:85:G:OP2	2.19	0.43
18:29:46:VAL:O	18:29:50:VAL:HG13	2.19	0.43
27:5:114:ARG:NE	27:5:114:ARG:O	2.52	0.43
30:R1:580:U:H2'	30:R1:581:C:C6	2.54	0.43
30:R1:2104:C:H2'	30:R1:2105:U:C6	2.54	0.43
30:R1:2461:A:H2'	30:R1:2462:C:C6	2.54	0.43
32:R3:297:G:N2	32:R3:300:A:OP2	2.49	0.43
32:R3:922:G:N3	32:R3:1398:A:H2	2.16	0.43
32:R3:1060:U:OP1	48:sn:84:ARG:NH2	2.45	0.43
34:Y:8:THR:HG22	34:Y:18:GLU:OE1	2.19	0.43
34:Y:18:GLU:OE1	34:Y:18:GLU:HA	2.19	0.43
34:Y:261:GLN:O	34:Y:265:LEU:HD12	2.19	0.43
43:si:17:ARG:HG3	43:si:65:THR:HB	2.01	0.43
44:sj:14:ASP:OD2	44:sj:17:LEU:HB3	2.19	0.43
47:sm:10:ASP:O	47:sm:11:HIS:ND1	2.52	0.43
50:sp:29:ASN:OD1	50:sp:29:ASN:N	2.52	0.43
55:su:62:ARG:HB2	55:su:66:ARG:HH21	1.83	0.43
10:20:48:ASP:OD2	30:R1:534:U:O2'	2.30	0.42
11:21:38:VAL:HG21	11:21:41:ILE:HD11	2.01	0.42
14:24:23:LYS:HE2	14:24:23:LYS:HB2	1.85	0.42
21:31:16:CYS:SG	21:31:36:VAL:HA	2.60	0.42
22:32:37:HIS:ND1	22:32:41:HIS:O	2.52	0.42
27:5:135:ILE:HD13	27:5:135:ILE:HA	1.88	0.42
30:R1:882:G:N2	30:R1:894:U:O2	2.46	0.42
30:R1:1072:C:OP2	30:R1:1075:C:N4	2.51	0.42
34:Y:326:THR:HG22	34:Y:337:ASN:H	1.84	0.42
38:sd:158:LEU:HD12	38:sd:158:LEU:HA	1.81	0.42
43:si:82:ILE:O	43:si:86:LEU:HD12	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
48:sn:82:LYS:HA	48:sn:82:LYS:HD3	1.84	0.42
51:sq:14:ASP:OD2	51:sq:53:GLY:HA2	2.19	0.42
2:13:68:LYS:NZ	30:R1:1022:G:O6	2.35	0.42
9:2:220:ARG:NH1	30:R1:1789:A:OP2	2.53	0.42
30:R1:1315:C:O2'	30:R1:1392:A:N3	2.40	0.42
32:R3:509:A:C8	32:R3:543:U:O2'	2.67	0.42
34:Y:449:PHE:HE2	34:Y:469:LEU:HD11	1.84	0.42
36:sb:31:PHE:N	36:sb:39:ILE:O	2.27	0.42
37:sc:27:GLU:O	37:sc:31:ASN:HB2	2.19	0.42
45:sk:85:VAL:HG21	45:sk:96:ILE:HD11	2.01	0.42
5:16:50:ARG:O	5:16:54:THR:HG23	2.20	0.42
7:18:100:HIS:ND1	31:R2:48:U:H4'	2.34	0.42
19:3:136:ASN:OD1	30:R1:2579:C:O2'	2.36	0.42
22:32:2:VAL:O	22:32:3:GLN:HB3	2.19	0.42
26:4:152:GLU:OE1	26:4:152:GLU:N	2.53	0.42
27:5:136:ILE:H	27:5:136:ILE:HG13	1.61	0.42
30:R1:1682:G:H2'	30:R1:1683:U:C6	2.53	0.42
30:R1:1796:U:H2'	30:R1:1797:G:C8	2.54	0.42
30:R1:1801:A:H5''	30:R1:2203:U:O2'	2.19	0.42
30:R1:2554:U:H2'	30:R1:2555:U:C6	2.54	0.42
32:R3:387:U:H5'	32:R3:388:G:OP1	2.19	0.42
32:R3:860:A:H2'	32:R3:861:G:O4'	2.19	0.42
32:R3:1039:G:H2'	32:R3:1040:U:C6	2.55	0.42
32:R3:1190:G:H5'	37:sc:175:HIS:CE1	2.54	0.42
34:Y:357:GLY:O	34:Y:508:ILE:HD11	2.20	0.42
40:sf:14:GLN:HG3	40:sf:83:ALA:HB1	2.01	0.42
53:ss:30:LEU:HD12	53:ss:48:ILE:HG22	2.01	0.42
9:2:233:GLY:HA3	30:R1:2598:A:H5''	2.01	0.42
10:20:57:ARG:NH2	30:R1:998:C:OP2	2.52	0.42
13:23:36:LYS:HE2	13:23:79:ASP:OD2	2.18	0.42
19:3:26:VAL:HG22	19:3:188:LEU:HD22	2.01	0.42
28:6:109:SER:HB3	30:R1:2667:C:N3	2.35	0.42
30:R1:404:A:H1'	30:R1:406:G:C4	2.54	0.42
30:R1:849:A:H2'	30:R1:850:U:C6	2.54	0.42
30:R1:1676:A:H8	30:R1:1676:A:O5'	2.03	0.42
32:R3:972:C:OP2	44:sj:59:LYS:HE2	2.19	0.42
34:Y:507:GLU:HG2	34:Y:523:TYR:OH	2.19	0.42
36:sb:142:LYS:HB2	36:sb:142:LYS:HE3	1.72	0.42
37:sc:134:LYS:HE3	37:sc:134:LYS:HB2	1.87	0.42
42:sh:79:ARG:H	42:sh:79:ARG:HG2	1.63	0.42
44:sj:24:GLU:C	44:sj:24:GLU:OE1	2.62	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:so:72:LYS:HD3	49:so:72:LYS:HA	1.87	0.42
54:st:77:ASN:OD1	54:st:77:ASN:N	2.49	0.42
54:st:78:LEU:O	54:st:82:ILE:HG23	2.19	0.42
5:16:2:LEU:HD12	5:16:46:ILE:HG21	2.01	0.42
5:16:136:MET:HG2	15:25:79:ARG:HH12	1.84	0.42
9:2:245:THR:HG23	9:2:249:VAL:O	2.19	0.42
14:24:96:LYS:NZ	30:R1:299:A:OP1	2.46	0.42
21:31:58:ASP:OD1	21:31:58:ASP:C	2.62	0.42
29:9:84:ALA:HA	29:9:91:PHE:H	1.85	0.42
29:9:104:THR:HA	29:9:109:GLU:HA	2.02	0.42
30:R1:64:A:H2'	30:R1:65:U:C6	2.55	0.42
30:R1:1060:U:O4'	30:R1:1062:G:H5'	2.19	0.42
30:R1:1443:U:H2'	30:R1:1444:G:H8	1.85	0.42
30:R1:1538:G:H8	30:R1:1538:G:OP2	2.03	0.42
30:R1:1734:G:H2'	30:R1:1735:A:H8	1.84	0.42
30:R1:2156:G:O2'	30:R1:2157:G:OP1	2.38	0.42
30:R1:2545:G:H2'	30:R1:2546:U:O4'	2.20	0.42
32:R3:184:G:H2'	32:R3:185:U:H6	1.85	0.42
32:R3:371:A:H2'	32:R3:372:C:O4'	2.20	0.42
32:R3:376:G:H5''	50:sp:5:ARG:HB2	2.00	0.42
32:R3:1527:U:OP2	55:su:42:THR:OG1	2.32	0.42
39:se:158:LYS:HD2	39:se:158:LYS:N	2.35	0.42
43:si:57:VAL:HG13	43:si:58:GLU:H	1.83	0.42
7:18:62:LEU:HD12	7:18:65:THR:HG22	2.00	0.42
21:31:25:ARG:HD3	27:5:97:GLU:OE1	2.19	0.42
27:5:107:VAL:O	27:5:110:ILE:HG22	2.20	0.42
27:5:147:ARG:HG3	27:5:148:VAL:H	1.85	0.42
29:9:114:GLU:N	29:9:114:GLU:OE1	2.51	0.42
30:R1:214:G:N2	30:R1:216:A:N3	2.65	0.42
30:R1:2154:A:C4	30:R1:2156:G:O6	2.73	0.42
32:R3:222:C:H2'	32:R3:223:A:H8	1.83	0.42
32:R3:299:G:H2'	32:R3:300:A:C8	2.54	0.42
32:R3:460:A:H2'	32:R3:461:A:C8	2.55	0.42
32:R3:1277:C:H2'	32:R3:1279:G:H21	1.85	0.42
32:R3:1432:G:H1'	32:R3:1468:A:N6	2.33	0.42
41:sg:113:ASP:HB3	41:sg:118:LEU:HD22	2.01	0.42
44:sj:59:LYS:HE3	44:sj:62:ARG:HH12	1.84	0.42
46:sl:78:VAL:O	46:sl:102:ASP:HB2	2.19	0.42
46:sl:113:ARG:NH2	46:sl:120:ARG:HG3	2.34	0.42
1:1:186:LYS:HD3	1:1:186:LYS:HA	1.76	0.42
32:R3:321:A:H2'	32:R3:322:C:H6	1.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:R3:770:C:O2'	32:R3:899:C:N3	2.44	0.42
34:Y:102:ILE:HG21	34:Y:116:VAL:HG21	2.01	0.42
34:Y:275:ASN:O	34:Y:279:SER:HB3	2.20	0.42
34:Y:485:GLN:O	34:Y:485:GLN:HG2	2.19	0.42
43:si:54:VAL:HG21	43:si:86:LEU:HD22	2.01	0.42
19:3:4:LEU:HD13	19:3:29:VAL:HG11	2.02	0.42
26:4:18:THR:HA	26:4:106:LYS:HG2	2.02	0.42
30:R1:364:C:H2'	30:R1:365:U:C6	2.55	0.42
30:R1:1361:G:H2'	30:R1:1362:C:C6	2.54	0.42
30:R1:2103:C:H2'	30:R1:2104:C:H6	1.85	0.42
32:R3:202:G:H21	32:R3:466:A:H61	1.66	0.42
32:R3:1144:G:N2	32:R3:1146:A:H62	2.17	0.42
32:R3:1157:A:C2	32:R3:1181:G:C4	3.08	0.42
33:T:4:G:H2'	33:T:5:G:O4'	2.20	0.42
34:Y:106:PRO:HA	34:Y:107:GLU:HA	1.79	0.42
37:sc:122:GLN:HG2	37:sc:125:ARG:HH21	1.84	0.42
44:sj:42:LEU:HB2	44:sj:71:LEU:HD23	2.01	0.42
51:sq:4:ILE:HD12	51:sq:4:ILE:HA	1.86	0.42
3:14:30:ARG:HD2	30:R1:2674:G:H4'	2.02	0.42
28:6:97:VAL:HG11	28:6:122:ALA:O	2.19	0.42
29:9:1:MET:HE2	29:9:1:MET:HB3	1.97	0.42
32:R3:865:A:H2'	32:R3:866:C:C6	2.54	0.42
36:sb:42:LEU:HD23	36:sb:45:THR:HG21	2.02	0.42
46:sl:70:GLY:O	46:sl:98:ARG:NH2	2.32	0.42
3:14:40:LYS:NZ	30:R1:2562:U:OP1	2.53	0.42
5:16:136:MET:HE2	15:25:79:ARG:HH11	1.84	0.42
7:18:8:ILE:HD13	7:18:8:ILE:HA	1.81	0.42
9:2:29:PHE:HD2	9:2:32:LEU:HD12	1.85	0.42
9:2:207:ALA:HB2	30:R1:1790:C:O2'	2.19	0.42
10:20:10:ARG:NH2	30:R1:1216:G:OP1	2.44	0.42
13:23:2:ILE:O	13:23:4:GLU:N	2.52	0.42
30:R1:1590:A:H2'	30:R1:1591:A:C8	2.55	0.42
30:R1:2115:G:N3	30:R1:2117:A:N6	2.67	0.42
30:R1:2818:U:H2'	30:R1:2819:G:C8	2.55	0.42
32:R3:384:G:H2'	32:R3:385:C:C6	2.54	0.42
32:R3:426:U:H2'	32:R3:427:U:C6	2.55	0.42
32:R3:1118:U:H2'	32:R3:1119:C:H6	1.84	0.42
34:Y:70:ARG:HG3	34:Y:71:GLN:H	1.85	0.42
34:Y:265:LEU:HD23	34:Y:285:ARG:HG3	2.01	0.42
46:sl:113:ARG:HG3	46:sl:113:ARG:NH1	2.34	0.42
53:ss:10:ILE:HG13	53:ss:37:SER:HB2	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:20:52:ARG:HG3	30:R1:535:G:O2'	2.20	0.41
27:5:135:ILE:HD11	27:5:145:VAL:HG11	2.02	0.41
30:R1:2097:A:H2'	30:R1:2098:U:C6	2.55	0.41
30:R1:2585:U:C5	57:T:101:FME:HA	2.55	0.41
32:R3:1005:A:H4'	32:R3:1037:C:H1'	2.01	0.41
34:Y:356:VAL:O	34:Y:358:LYS:N	2.49	0.41
36:sb:111:LYS:HB2	36:sb:111:LYS:HE3	1.88	0.41
36:sb:160:LEU:HD23	36:sb:175:ALA:HB2	2.02	0.41
37:sc:85:LYS:O	37:sc:85:LYS:HD3	2.20	0.41
48:sn:23:ARG:NH2	48:sn:26:LEU:HD11	2.35	0.41
49:so:38:LEU:HD12	49:so:58:MET:HE1	2.02	0.41
50:sp:75:ILE:O	50:sp:79:ASN:N	2.54	0.41
5:16:34:LYS:HE2	5:16:131:VAL:HG11	2.02	0.41
8:19:38:ARG:NH2	32:R3:346:G:OP1	2.48	0.41
8:19:99:LEU:HD11	8:19:109:ILE:HD11	2.01	0.41
15:25:2:PHE:CE1	15:25:50:MET:HG3	2.49	0.41
18:29:38:GLN:HA	18:29:38:GLN:OE1	2.20	0.41
23:34:29:GLN:O	23:34:33:ARG:HG3	2.20	0.41
30:R1:892:A:H2'	30:R1:893:C:O4'	2.20	0.41
30:R1:2329:U:H2'	30:R1:2330:G:C8	2.55	0.41
30:R1:2645:G:OP2	30:R1:2645:G:N2	2.31	0.41
32:R3:417:G:H2'	32:R3:418:C:C6	2.55	0.41
32:R3:843:U:H5'	32:R3:844:G:N7	2.34	0.41
32:R3:1396:A:H2	39:se:23:THR:HG21	1.86	0.41
34:Y:29:ARG:HB3	34:Y:205:MET:HG3	2.02	0.41
34:Y:139:LEU:HD11	34:Y:164:VAL:HG22	2.02	0.41
43:si:94:ARG:O	43:si:98:ARG:HB3	2.20	0.41
5:16:2:LEU:O	5:16:69:PRO:HG2	2.20	0.41
5:16:58:LYS:O	5:16:59:ARG:HG2	2.20	0.41
27:5:5:ASP:HA	27:5:8:LYS:HG2	2.03	0.41
29:9:96:THR:HA	29:9:115:VAL:HG11	2.02	0.41
29:9:103:VAL:HG21	29:9:132:PHE:CZ	2.54	0.41
30:R1:340:A:H2'	30:R1:341:C:O4'	2.20	0.41
30:R1:460:A:H2'	30:R1:461:C:O4'	2.20	0.41
30:R1:2692:G:H1'	30:R1:2847:U:H1'	2.02	0.41
31:R2:3:C:H2'	31:R2:4:C:C6	2.55	0.41
31:R2:106:G:H2'	31:R2:107:G:O4'	2.21	0.41
32:R3:509:A:H8	32:R3:543:U:HO2'	1.54	0.41
32:R3:509:A:H8	32:R3:544:G:H5'	1.85	0.41
32:R3:1238:A:C8	32:R3:1303:C:H1'	2.54	0.41
32:R3:1287:A:H2'	32:R3:1288:A:C8	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
40:sf:29:ILE:HG23	40:sf:66:ALA:HB2	2.02	0.41
41:sg:57:SER:OG	41:sg:58:GLU:N	2.51	0.41
44:sj:53:ILE:HD12	44:sj:53:ILE:HA	1.86	0.41
45:sk:25:SER:OG	45:sk:26:PHE:N	2.52	0.41
48:sn:82:LYS:HD3	48:sn:85:GLU:HB2	2.02	0.41
6:17:2:ARG:HA	6:17:5:LYS:CD	2.50	0.41
28:6:155:PRO:HG3	30:R1:2530:A:N6	2.35	0.41
30:R1:52:A:H2'	30:R1:53:A:C8	2.55	0.41
32:R3:184:G:H2'	32:R3:185:U:C6	2.55	0.41
32:R3:456:A:H2'	32:R3:457:G:O4'	2.21	0.41
32:R3:501:C:O2	32:R3:549:C:O2'	2.39	0.41
32:R3:511:C:HO2'	38:sd:40:HIS:CE1	2.38	0.41
32:R3:1158:C:C4	32:R3:1160:G:C8	3.08	0.41
34:Y:429:GLN:HA	34:Y:432:ILE:HD11	2.01	0.41
34:Y:462:MET:HB3	34:Y:465:PRO:HG3	2.03	0.41
40:sf:66:ALA:HB3	40:sf:71:ILE:HD11	2.02	0.41
41:sg:66:LEU:O	41:sg:70:ARG:HG3	2.20	0.41
48:sn:33:VAL:O	48:sn:33:VAL:HG23	2.20	0.41
50:sp:48:GLU:OE2	50:sp:51:ARG:NH1	2.53	0.41
1:1:38:PHE:HD1	1:1:39:VAL:N	2.17	0.41
2:13:78:THR:H	2:13:78:THR:HG23	1.61	0.41
17:28:3:VAL:HG22	17:28:10:ARG:HG2	2.03	0.41
26:4:132:LYS:NZ	30:R1:319:G:OP1	2.53	0.41
30:R1:172:A:H2'	30:R1:173:A:C8	2.55	0.41
32:R3:554:A:H5'	46:sl:25:ALA:HB2	2.02	0.41
32:R3:1010:U:H2'	32:R3:1011:C:C6	2.56	0.41
34:Y:509:THR:O	34:Y:511:GLU:N	2.54	0.41
38:sd:56:GLU:OE2	38:sd:195:ASN:N	2.50	0.41
38:sd:86:GLY:H	39:se:102:THR:HG21	1.86	0.41
39:se:43:GLY:O	39:se:73:VAL:N	2.52	0.41
42:sh:42:GLU:OE1	42:sh:42:GLU:HA	2.20	0.41
44:sj:24:GLU:HA	44:sj:27:GLU:HB3	2.02	0.41
47:sm:9:PRO:HB2	47:sm:12:LYS:HD3	2.02	0.41
1:1:166:ASP:OD1	1:1:167:LYS:N	2.53	0.41
9:2:62:ARG:HD3	9:2:83:ASP:OD1	2.20	0.41
30:R1:2038:G:H2'	30:R1:2039:U:O4'	2.20	0.41
30:R1:2542:A:H5''	30:R1:2766:A:O2'	2.21	0.41
32:R3:1219:A:H2'	32:R3:1220:G:C8	2.55	0.41
34:Y:140:LEU:HD13	34:Y:149:HIS:CE1	2.55	0.41
46:sl:101:LEU:H	46:sl:101:LEU:HG	1.59	0.41
10:20:51:GLN:O	10:20:55:GLN:HB3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:21:68:ARG:HB2	11:21:90:ARG:HE	1.85	0.41
21:31:56:ARG:HH22	53:ss:67:GLY:HA3	1.86	0.41
30:R1:65:U:H2'	30:R1:66:C:C6	2.55	0.41
30:R1:1727:C:H2'	30:R1:1728:C:O4'	2.20	0.41
30:R1:1853:A:N3	30:R1:2233:U:O2'	2.47	0.41
30:R1:2262:U:H2'	30:R1:2263:C:H6	1.86	0.41
30:R1:2834:G:H2'	30:R1:2879:A:H61	1.85	0.41
30:R1:2865:U:OP2	30:R1:2866:U:O2'	2.30	0.41
30:R1:2902:C:H2'	30:R1:2903:U:H4'	2.02	0.41
32:R3:28:A:O2'	32:R3:296:U:OP1	2.35	0.41
32:R3:950:U:H2'	32:R3:951:G:H8	1.86	0.41
34:Y:433:LYS:HE3	34:Y:433:LYS:HB2	1.73	0.41
37:sc:113:LYS:HB2	37:sc:184:ASN:ND2	2.35	0.41
37:sc:143:LEU:HA	37:sc:143:LEU:HD12	1.88	0.41
46:sl:120:ARG:HG2	46:sl:121:PRO:HD2	2.01	0.41
48:sn:53:ASP:HA	48:sn:58:ARG:HD3	2.02	0.41
48:sn:82:LYS:O	48:sn:86:ALA:N	2.48	0.41
5:16:2:LEU:HD22	5:16:68:PHE:CE1	2.56	0.41
29:9:17:ASP:OD1	29:9:17:ASP:N	2.51	0.41
29:9:84:ALA:HA	29:9:91:PHE:N	2.36	0.41
30:R1:1541:C:H2'	30:R1:1542:U:C6	2.56	0.41
30:R1:1564:C:H2'	30:R1:1565:C:C6	2.56	0.41
30:R1:2489:U:H2'	30:R1:2490:G:O4'	2.20	0.41
32:R3:837:U:H2'	32:R3:838:G:H8	1.86	0.41
32:R3:1513:A:H2'	32:R3:1514:G:C8	2.56	0.41
34:Y:360:THR:HA	34:Y:363:LYS:HG3	2.02	0.41
36:sb:221:ARG:HA	36:sb:224:ARG:HG2	2.01	0.41
4:15:108:ALA:HB3	4:15:125:LEU:HD22	2.02	0.41
4:15:118:THR:HA	4:15:119:PRO:HD3	1.94	0.41
5:16:36:VAL:HG13	15:25:82:TYR:CD2	2.55	0.41
5:16:53:MET:HE2	5:16:63:ILE:HD13	2.02	0.41
10:20:3:VAL:HG12	30:R1:1199:U:H1'	2.03	0.41
13:23:9:LYS:HB2	13:23:9:LYS:HE3	1.69	0.41
17:28:70:LEU:HD23	17:28:70:LEU:HA	1.94	0.41
21:31:9:TYR:OH	27:5:101:ARG:NH1	2.54	0.41
21:31:56:ARG:HH12	53:ss:67:GLY:N	2.18	0.41
27:5:7:TYR:HB2	27:5:172:PHE:CZ	2.56	0.41
27:5:36:ASN:OD1	27:5:36:ASN:C	2.63	0.41
30:R1:227:A:O2'	30:R1:228:C:O4'	2.36	0.41
30:R1:645:C:H2'	30:R1:647:G:C8	2.56	0.41
30:R1:677:A:O2'	30:R1:2071:A:H5'	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
30:R1:1019:U:H3	30:R1:1142:A:H62	1.68	0.41
30:R1:1107:G:H2'	30:R1:1108:U:C6	2.56	0.41
30:R1:1385:A:O2'	30:R1:1396:U:O2	2.38	0.41
30:R1:1928:A:H2'	30:R1:1929:G:O4'	2.21	0.41
30:R1:2698:U:H2'	30:R1:2699:C:C6	2.56	0.41
32:R3:31:G:O2'	32:R3:48:C:N4	2.54	0.41
32:R3:352:C:O2'	32:R3:354:G:OP1	2.26	0.41
32:R3:553:A:H2'	32:R3:554:A:C8	2.56	0.41
32:R3:674:G:H2'	32:R3:675:A:H8	1.84	0.41
32:R3:925:G:C6	32:R3:927:G:N7	2.89	0.41
32:R3:1191:A:OP2	37:sc:2:GLN:NE2	2.54	0.41
34:Y:315:LEU:O	34:Y:344:VAL:HG21	2.20	0.41
34:Y:414:ASP:O	34:Y:418:VAL:HG23	2.21	0.41
34:Y:508:ILE:HG22	34:Y:513:VAL:HG22	2.03	0.41
36:sb:20:ARG:HG2	36:sb:38:HIS:NE2	2.36	0.41
39:se:141:ASP:OD2	39:se:141:ASP:C	2.64	0.41
42:sh:91:LEU:HD23	42:sh:91:LEU:HA	1.96	0.41
44:sj:5:ARG:N	44:sj:77:VAL:O	2.53	0.41
44:sj:29:ALA:O	44:sj:33:GLY:N	2.40	0.41
54:st:56:ILE:HD12	54:st:56:ILE:HA	1.87	0.41
9:2:49:THR:OG1	30:R1:1813:G:H1'	2.20	0.41
30:R1:1041:G:C2	30:R1:1042:G:N7	2.89	0.41
30:R1:2627:G:O2'	30:R1:2781:A:N1	2.45	0.41
32:R3:990:C:H2'	32:R3:991:U:C6	2.56	0.41
32:R3:1163:A:H2'	32:R3:1164:G:H8	1.86	0.41
32:R3:1386:G:H2'	32:R3:1387:G:H8	1.86	0.41
34:Y:351:LEU:HB2	34:Y:507:GLU:CB	2.51	0.41
37:sc:78:LYS:HD3	37:sc:78:LYS:HA	1.83	0.41
41:sg:92:ARG:H	41:sg:92:ARG:HG2	1.54	0.41
44:sj:10:LEU:HD23	44:sj:98:VAL:HG22	2.02	0.41
45:sk:59:PRO:O	45:sk:94:SER:OG	2.33	0.41
49:so:58:MET:HE3	49:so:58:MET:HB2	1.94	0.41
10:20:93:ILE:HG21	11:21:4:VAL:CG1	2.52	0.40
15:25:90:ASP:N	15:25:90:ASP:OD1	2.53	0.40
27:5:3:LEU:HA	27:5:3:LEU:HD23	1.79	0.40
27:5:41:GLU:HB2	27:5:44:ALA:HB3	2.02	0.40
30:R1:287:G:H2'	30:R1:288:U:H6	1.86	0.40
30:R1:704:G:H2'	30:R1:726:G:N2	2.34	0.40
32:R3:263:A:H2'	32:R3:264:C:C5	2.56	0.40
34:Y:22:VAL:HG21	34:Y:230:LEU:HD22	2.03	0.40
34:Y:133:ALA:O	34:Y:137:GLU:HG2	2.20	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
34:Y:257:LYS:HB3	34:Y:257:LYS:HE2	1.71	0.40
34:Y:494:ASP:OD1	34:Y:494:ASP:N	2.54	0.40
38:sd:71:PHE:HE1	38:sd:93:LEU:HD21	1.86	0.40
45:sk:71:ASP:C	45:sk:73:VAL:H	2.28	0.40
2:13:7:LYS:HE2	30:R1:538:A:H5'	2.03	0.40
2:13:15:TRP:HB3	2:13:137:PRO:HB3	2.03	0.40
3:14:98:ARG:NH1	32:R3:339:C:OP2	2.54	0.40
6:17:36:THR:OG1	6:17:37:THR:N	2.54	0.40
30:R1:612:G:N2	30:R1:614:A:O2'	2.54	0.40
30:R1:2150:C:H2'	30:R1:2151:U:C6	2.56	0.40
30:R1:2375:G:N2	30:R1:2378:A:OP2	2.41	0.40
32:R3:409:U:H5'	38:sd:24:VAL:HG21	2.03	0.40
32:R3:1019:A:H2'	32:R3:1020:G:O4'	2.21	0.40
34:Y:331:ASN:O	34:Y:333:PRO:HD2	2.21	0.40
36:sb:92:ASN:OD1	36:sb:92:ASN:N	2.50	0.40
39:se:37:VAL:HG21	39:se:113:VAL:HG12	2.02	0.40
54:st:48:LYS:O	54:st:52:GLU:HG2	2.22	0.40
8:19:1:SER:HA	8:19:4:ILE:HG22	2.03	0.40
10:20:15:LYS:O	10:20:19:GLN:HG3	2.21	0.40
19:3:149:ASN:O	19:3:152:PRO:HD2	2.22	0.40
27:5:13:LYS:H	27:5:13:LYS:HG2	1.56	0.40
30:R1:248:G:H5'	30:R1:250:G:N7	2.37	0.40
30:R1:362:A:OP2	30:R1:362:A:H8	2.04	0.40
30:R1:898:C:H2'	30:R1:899:A:O4'	2.21	0.40
30:R1:1536:C:H4'	30:R1:1537:G:C2	2.57	0.40
30:R1:2134:A:C5	30:R1:2157:G:H4'	2.57	0.40
30:R1:2146:C:H4'	30:R1:2147:A:C4	2.57	0.40
30:R1:2649:C:H2'	30:R1:2650:U:H6	1.85	0.40
32:R3:35:G:N3	46:sl:114:SER:OG	2.54	0.40
32:R3:1246:A:H2'	32:R3:1247:U:C6	2.57	0.40
38:sd:47:LEU:HD12	38:sd:47:LEU:HA	1.86	0.40
46:sl:49:ARG:H	46:sl:49:ARG:HG2	1.73	0.40
50:sp:18:GLN:OE1	50:sp:35:ARG:HD2	2.22	0.40
1:1:30:LEU:HD21	1:1:215:SER:HA	2.03	0.40
27:5:71:LYS:HE3	27:5:71:LYS:HB3	1.79	0.40
30:R1:182:A:H2'	30:R1:183:C:H6	1.87	0.40
30:R1:511:U:O4	30:R1:512:G:N1	2.55	0.40
30:R1:1322:A:N1	30:R1:1333:G:O2'	2.49	0.40
30:R1:1418:G:N2	30:R1:1579:A:C8	2.90	0.40
30:R1:2474:U:OP2	30:R1:2475:C:N4	2.52	0.40
31:R2:2:G:H2'	31:R2:3:C:C6	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
32:R3:500:G:H2'	32:R3:501:C:C6	2.56	0.40
32:R3:965:U:H5''	32:R3:966:G:OP1	2.21	0.40
34:Y:522:ASP:OD1	34:Y:525:ARG:NH1	2.54	0.40
39:se:79:THR:HG1	39:se:121:ASN:ND2	2.08	0.40
46:sl:107:LYS:HA	46:sl:107:LYS:HD3	1.87	0.40
48:sn:55:SER:OG	48:sn:56:PRO:HD3	2.21	0.40
53:ss:24:SER:HB2	53:ss:27:LYS:NZ	2.36	0.40
6:17:36:THR:HG23	6:17:41:ALA:HB2	2.04	0.40
20:30:15:ARG:HA	20:30:15:ARG:HD3	1.88	0.40
25:36:6:SER:HB3	30:R1:2466:C:H5''	2.03	0.40
28:6:74:MET:HB3	28:6:74:MET:HE3	1.82	0.40
30:R1:2050:C:H2'	30:R1:2051:A:O4'	2.22	0.40
30:R1:2514:U:H2'	30:R1:2515:C:H6	1.87	0.40
30:R1:2646:C:O5'	30:R1:2646:C:H6	2.05	0.40
32:R3:86:G:H1'	32:R3:87:C:C4	2.57	0.40
32:R3:343:U:O2'	32:R3:346:G:O6	2.33	0.40
32:R3:474:G:H2'	32:R3:474:G:N3	2.36	0.40
33:T:44:A:C2'	33:T:45:G:H5'	2.52	0.40
37:sc:11:LEU:HD23	37:sc:11:LEU:HA	1.92	0.40
37:sc:35:ASP:O	37:sc:39:ARG:HG2	2.22	0.40
43:si:62:LEU:HD23	43:si:62:LEU:HA	1.84	0.40
43:si:87:MET:HE1	43:si:93:LEU:C	2.46	0.40
45:sk:99:LEU:O	45:sk:104:PHE:HB2	2.21	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	
1	1	218/220 (99%)	205 (94%)	13 (6%)	0	100	100
2	13	140/142 (99%)	137 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	14	120/122 (98%)	104 (87%)	16 (13%)	0	100	100
4	15	142/144 (99%)	124 (87%)	18 (13%)	0	100	100
5	16	134/136 (98%)	123 (92%)	11 (8%)	0	100	100
6	17	118/120 (98%)	105 (89%)	13 (11%)	0	100	100
7	18	114/116 (98%)	110 (96%)	4 (4%)	0	100	100
8	19	112/114 (98%)	107 (96%)	5 (4%)	0	100	100
9	2	269/271 (99%)	251 (93%)	18 (7%)	0	100	100
10	20	115/117 (98%)	111 (96%)	4 (4%)	0	100	100
11	21	101/103 (98%)	88 (87%)	13 (13%)	0	100	100
12	22	108/110 (98%)	101 (94%)	7 (6%)	0	100	100
13	23	91/93 (98%)	80 (88%)	11 (12%)	0	100	100
14	24	100/102 (98%)	89 (89%)	11 (11%)	0	100	100
15	25	92/94 (98%)	90 (98%)	2 (2%)	0	100	100
16	27	73/75 (97%)	67 (92%)	6 (8%)	0	100	100
17	28	75/77 (97%)	71 (95%)	4 (5%)	0	100	100
18	29	61/63 (97%)	61 (100%)	0	0	100	100
19	3	207/209 (99%)	186 (90%)	20 (10%)	1 (0%)	24	59
20	30	56/58 (97%)	52 (93%)	4 (7%)	0	100	100
21	31	64/66 (97%)	56 (88%)	8 (12%)	0	100	100
22	32	54/56 (96%)	50 (93%)	4 (7%)	0	100	100
23	34	44/46 (96%)	40 (91%)	4 (9%)	0	100	100
24	35	62/64 (97%)	59 (95%)	3 (5%)	0	100	100
25	36	36/38 (95%)	34 (94%)	2 (6%)	0	100	100
26	4	199/201 (99%)	185 (93%)	14 (7%)	0	100	100
27	5	175/177 (99%)	166 (95%)	9 (5%)	0	100	100
28	6	174/176 (99%)	163 (94%)	11 (6%)	0	100	100
29	9	147/149 (99%)	131 (89%)	14 (10%)	2 (1%)	9	39
34	Y	528/530 (100%)	473 (90%)	53 (10%)	2 (0%)	30	62
36	sb	216/218 (99%)	191 (88%)	25 (12%)	0	100	100
37	sc	204/206 (99%)	185 (91%)	19 (9%)	0	100	100
38	sd	203/205 (99%)	182 (90%)	20 (10%)	1 (0%)	24	59

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
39	se	155/157 (99%)	131 (84%)	22 (14%)	2 (1%)	9	40
40	sf	98/100 (98%)	87 (89%)	11 (11%)	0	100	100
41	sg	149/151 (99%)	143 (96%)	6 (4%)	0	100	100
42	sh	127/129 (98%)	120 (94%)	7 (6%)	0	100	100
43	si	125/127 (98%)	110 (88%)	14 (11%)	1 (1%)	16	50
44	sj	96/98 (98%)	86 (90%)	9 (9%)	1 (1%)	12	45
45	sk	114/116 (98%)	108 (95%)	6 (5%)	0	100	100
46	sl	121/123 (98%)	94 (78%)	27 (22%)	0	100	100
47	sm	112/114 (98%)	99 (88%)	13 (12%)	0	100	100
48	sn	98/100 (98%)	76 (78%)	20 (20%)	2 (2%)	6	31
49	so	86/88 (98%)	82 (95%)	4 (5%)	0	100	100
50	sp	80/82 (98%)	71 (89%)	9 (11%)	0	100	100
51	sq	78/80 (98%)	68 (87%)	10 (13%)	0	100	100
52	sr	63/65 (97%)	59 (94%)	4 (6%)	0	100	100
53	ss	77/79 (98%)	69 (90%)	7 (9%)	1 (1%)	9	40
54	st	83/85 (98%)	82 (99%)	1 (1%)	0	100	100
55	su	68/70 (97%)	65 (96%)	3 (4%)	0	100	100
All	All	6282/6382 (98%)	5727 (91%)	542 (9%)	13 (0%)	44	73

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
39	se	122	VAL
43	si	57	VAL
53	ss	4	LEU
19	3	153	GLY
29	9	9	VAL
29	9	8	LYS
34	Y	354	ASN
38	sd	30	LYS
39	se	121	ASN
34	Y	176	ILE
48	sn	97	LYS
48	sn	3	GLN
44	sj	57	VAL

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	
1	1	106/171 (62%)	106 (100%)	0	100	100
2	13	116/116 (100%)	116 (100%)	0	100	100
3	14	103/103 (100%)	103 (100%)	0	100	100
4	15	103/103 (100%)	103 (100%)	0	100	100
5	16	109/109 (100%)	109 (100%)	0	100	100
6	17	100/100 (100%)	99 (99%)	1 (1%)	68	80
7	18	86/86 (100%)	85 (99%)	1 (1%)	63	79
8	19	99/99 (100%)	97 (98%)	2 (2%)	48	72
9	2	216/216 (100%)	213 (99%)	3 (1%)	59	77
10	20	89/89 (100%)	89 (100%)	0	100	100
11	21	84/84 (100%)	82 (98%)	2 (2%)	43	70
12	22	93/93 (100%)	93 (100%)	0	100	100
13	23	80/80 (100%)	80 (100%)	0	100	100
14	24	83/83 (100%)	83 (100%)	0	100	100
15	25	78/78 (100%)	78 (100%)	0	100	100
16	27	57/57 (100%)	55 (96%)	2 (4%)	32	64
17	28	67/67 (100%)	67 (100%)	0	100	100
18	29	55/55 (100%)	55 (100%)	0	100	100
19	3	164/164 (100%)	163 (99%)	1 (1%)	78	84
20	30	48/48 (100%)	48 (100%)	0	100	100
21	31	59/59 (100%)	59 (100%)	0	100	100
22	32	47/47 (100%)	47 (100%)	0	100	100
23	34	38/38 (100%)	38 (100%)	0	100	100
24	35	51/51 (100%)	50 (98%)	1 (2%)	48	72
25	36	34/34 (100%)	34 (100%)	0	100	100
26	4	165/165 (100%)	164 (99%)	1 (1%)	78	84

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
27	5	148/148 (100%)	148 (100%)	0	100	100
28	6	137/137 (100%)	136 (99%)	1 (1%)	76	83
29	9	114/114 (100%)	113 (99%)	1 (1%)	70	81
34	Y	456/456 (100%)	452 (99%)	4 (1%)	70	81
36	sb	180/180 (100%)	177 (98%)	3 (2%)	53	75
37	sc	170/170 (100%)	167 (98%)	3 (2%)	51	74
38	sd	172/172 (100%)	170 (99%)	2 (1%)	63	79
39	se	119/119 (100%)	117 (98%)	2 (2%)	53	75
40	sf	87/87 (100%)	85 (98%)	2 (2%)	44	70
41	sg	124/124 (100%)	124 (100%)	0	100	100
42	sh	104/104 (100%)	104 (100%)	0	100	100
43	si	105/105 (100%)	104 (99%)	1 (1%)	68	80
44	sj	86/86 (100%)	86 (100%)	0	100	100
45	sk	89/89 (100%)	89 (100%)	0	100	100
46	sl	103/103 (100%)	103 (100%)	0	100	100
47	sm	92/92 (100%)	92 (100%)	0	100	100
48	sn	83/83 (100%)	83 (100%)	0	100	100
49	so	76/76 (100%)	76 (100%)	0	100	100
50	sp	65/65 (100%)	65 (100%)	0	100	100
51	sq	74/74 (100%)	73 (99%)	1 (1%)	59	77
52	sr	56/56 (100%)	54 (96%)	2 (4%)	31	63
53	ss	70/70 (100%)	67 (96%)	3 (4%)	26	59
54	st	65/65 (100%)	65 (100%)	0	100	100
55	su	60/60 (100%)	60 (100%)	0	100	100
All	All	5165/5230 (99%)	5126 (99%)	39 (1%)	70	82

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	17	73	ASN
7	18	20	GLU
8	19	70	GLU
8	19	81	ASP
9	2	152	GLN

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Mol	Chain	Res	Type
9	2	167	ASP
9	2	198	GLU
11	21	52	PRO
11	21	98	ILE
16	27	21	LEU
16	27	56	ASP
19	3	40	LEU
24	35	31	ILE
26	4	1	MET
28	6	71	LEU
29	9	12	LEU
34	Y	11	PHE
34	Y	44	MET
34	Y	79	PHE
34	Y	507	GLU
36	sb	57	ASN
36	sb	84	LEU
36	sb	195	VAL
37	sc	81	GLU
37	sc	133	MET
37	sc	164	THR
38	sd	130	ASN
38	sd	168	THR
39	se	12	GLU
39	se	122	VAL
40	sf	17	GLN
40	sf	94	HIS
43	si	99	LYS
51	sq	32	ILE
52	sr	11	ARG
52	sr	35	SER
53	ss	4	LEU
53	ss	28	LYS
53	ss	65	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (46) such sidechains are listed below:

Mol	Chain	Res	Type
2	13	131	ASN
3	14	29	HIS
6	17	31	HIS
9	2	24	HIS

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Mol	Chain	Res	Type
9	2	238	ASN
10	20	19	GLN
12	22	61	ASN
14	24	53	GLN
16	27	76	ASN
18	29	39	GLN
19	3	32	ASN
19	3	126	ASN
19	3	140	HIS
21	31	41	HIS
23	34	13	ASN
24	35	30	HIS
27	5	126	ASN
28	6	21	GLN
28	6	29	ASN
29	9	133	GLN
34	Y	210	HIS
34	Y	221	HIS
34	Y	281	GLN
34	Y	354	ASN
34	Y	397	ASN
36	sb	17	HIS
36	sb	57	ASN
36	sb	93	HIS
36	sb	176	ASN
37	sc	24	ASN
37	sc	138	GLN
38	sd	35	GLN
38	sd	39	GLN
39	se	72	ASN
40	sf	37	HIS
40	sf	63	ASN
41	sg	52	GLN
42	sh	3	GLN
45	sk	39	ASN
49	so	37	HIS
49	so	61	GLN
50	sp	26	ASN
50	sp	59	HIS
51	sq	49	ASN
53	ss	13	HIS
55	su	9	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
30	R1	2902/2903 (99%)	483 (16%)	10 (0%)
31	R2	118/119 (99%)	17 (14%)	1 (0%)
32	R3	1536/1539 (99%)	270 (17%)	5 (0%)
33	T	76/77 (98%)	22 (28%)	3 (3%)
35	M	8/9 (88%)	1 (12%)	0
All	All	4640/4647 (99%)	793 (17%)	19 (0%)

All (793) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
30	R1	10	A
30	R1	34	U
30	R1	35	G
30	R1	36	G
30	R1	46	G
30	R1	50	U
30	R1	51	G
30	R1	63	A
30	R1	71	A
30	R1	74	A
30	R1	75	G
30	R1	84	A
30	R1	102	U
30	R1	103	A
30	R1	118	A
30	R1	119	A
30	R1	120	U
30	R1	131	A
30	R1	138	U
30	R1	139	U
30	R1	140	C
30	R1	141	G
30	R1	142	A
30	R1	162	U
30	R1	163	C
30	R1	181	A
30	R1	196	A
30	R1	199	A
30	R1	203	A
30	R1	204	A
30	R1	215	G

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Mol	Chain	Res	Type
30	R1	216	A
30	R1	218	A
30	R1	221	A
30	R1	222	A
30	R1	228	C
30	R1	230	G
30	R1	233	A
30	R1	248	G
30	R1	255	A
30	R1	265	A
30	R1	266	G
30	R1	273	G
30	R1	276	U
30	R1	281	C
30	R1	284	U
30	R1	285	G
30	R1	323	C
30	R1	324	A
30	R1	329	G
30	R1	330	A
30	R1	361	G
30	R1	362	A
30	R1	371	A
30	R1	372	G
30	R1	373	U
30	R1	386	G
30	R1	387	U
30	R1	395	U
30	R1	396	G
30	R1	404	A
30	R1	405	U
30	R1	406	G
30	R1	411	G
30	R1	422	A
30	R1	424	G
30	R1	443	A
30	R1	448	U
30	R1	457	A
30	R1	466	A
30	R1	467	G
30	R1	473	G
30	R1	481	G

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Mol	Chain	Res	Type
30	R1	491	G
30	R1	493	G
30	R1	505	A
30	R1	506	G
30	R1	509	C
30	R1	529	A
30	R1	530	G
30	R1	531	C
30	R1	532	A
30	R1	545	U
30	R1	546	U
30	R1	548	G
30	R1	562	U
30	R1	563	A
30	R1	573	U
30	R1	575	A
30	R1	578	G
30	R1	586	A
30	R1	588	U
30	R1	603	A
30	R1	613	A
30	R1	614	A
30	R1	622	G
30	R1	627	A
30	R1	637	A
30	R1	644	A
30	R1	645	C
30	R1	647	G
30	R1	653	U
30	R1	654	A
30	R1	668	A
30	R1	669	G
30	R1	686	U
30	R1	711	G
30	R1	717	C
30	R1	722	A
30	R1	730	A
30	R1	738	G
30	R1	747	U
30	R1	762	U
30	R1	764	A
30	R1	765	C

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Mol	Chain	Res	Type
30	R1	775	G
30	R1	776	G
30	R1	782	A
30	R1	784	G
30	R1	785	G
30	R1	805	G
30	R1	812	C
30	R1	819	A
30	R1	827	U
30	R1	829	A
30	R1	845	A
30	R1	846	U
30	R1	847	U
30	R1	857	G
30	R1	859	G
30	R1	877	A
30	R1	886	A
30	R1	887	U
30	R1	888	C
30	R1	889	C
30	R1	891	G
30	R1	892	A
30	R1	893	C
30	R1	896	A
30	R1	907	G
30	R1	910	A
30	R1	927	A
30	R1	932	U
30	R1	941	A
30	R1	946	C
30	R1	953	G
30	R1	954	G
30	R1	961	C
30	R1	973	A
30	R1	974	G
30	R1	983	A
30	R1	989	G
30	R1	990	A
30	R1	995	C
30	R1	996	A
30	R1	1005	C
30	R1	1008	A

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Mol	Chain	Res	Type
30	R1	1009	A
30	R1	1012	U
30	R1	1013	C
30	R1	1021	A
30	R1	1025	G
30	R1	1026	G
30	R1	1033	U
30	R1	1040	A
30	R1	1046	A
30	R1	1048	A
30	R1	1051	G
30	R1	1057	A
30	R1	1058	U
30	R1	1060	U
30	R1	1062	G
30	R1	1064	C
30	R1	1065	U
30	R1	1066	U
30	R1	1067	A
30	R1	1069	A
30	R1	1070	A
30	R1	1071	G
30	R1	1072	C
30	R1	1073	A
30	R1	1074	G
30	R1	1075	C
30	R1	1076	C
30	R1	1077	A
30	R1	1079	C
30	R1	1085	A
30	R1	1088	A
30	R1	1089	A
30	R1	1090	A
30	R1	1091	G
30	R1	1094	U
30	R1	1095	A
30	R1	1096	A
30	R1	1099	G
30	R1	1100	C
30	R1	1104	C
30	R1	1107	G
30	R1	1110	G

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Mol	Chain	Res	Type
30	R1	1111	A
30	R1	1112	G
30	R1	1115	G
30	R1	1130	U
30	R1	1132	U
30	R1	1134	A
30	R1	1135	C
30	R1	1139	G
30	R1	1142	A
30	R1	1169	A
30	R1	1173	U
30	R1	1174	U
30	R1	1175	A
30	R1	1176	U
30	R1	1177	G
30	R1	1178	C
30	R1	1180	U
30	R1	1210	G
30	R1	1212	G
30	R1	1237	A
30	R1	1253	A
30	R1	1256	G
30	R1	1271	G
30	R1	1272	A
30	R1	1273	U
30	R1	1288	G
30	R1	1300	G
30	R1	1301	A
30	R1	1329	U
30	R1	1345	C
30	R1	1352	U
30	R1	1365	A
30	R1	1368	G
30	R1	1379	U
30	R1	1383	A
30	R1	1395	A
30	R1	1416	G
30	R1	1427	A
30	R1	1428	C
30	R1	1434	A
30	R1	1452	G
30	R1	1453	A

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Mol	Chain	Res	Type
30	R1	1461	C
30	R1	1482	G
30	R1	1490	A
30	R1	1494	A
30	R1	1508	A
30	R1	1509	A
30	R1	1515	A
30	R1	1522	A
30	R1	1524	G
30	R1	1529	G
30	R1	1530	G
30	R1	1535	A
30	R1	1536	C
30	R1	1558	C
30	R1	1559	U
30	R1	1560	G
30	R1	1566	A
30	R1	1569	A
30	R1	1578	U
30	R1	1583	A
30	R1	1584	U
30	R1	1585	C
30	R1	1607	C
30	R1	1608	A
30	R1	1610	A
30	R1	1634	A
30	R1	1647	U
30	R1	1648	U
30	R1	1649	G
30	R1	1674	G
30	R1	1675	C
30	R1	1693	U
30	R1	1713	A
30	R1	1715	G
30	R1	1716	U
30	R1	1729	U
30	R1	1730	C
30	R1	1731	G
30	R1	1735	A
30	R1	1738	G
30	R1	1757	A
30	R1	1758	U

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Mol	Chain	Res	Type
30	R1	1764	C
30	R1	1773	A
30	R1	1776	G
30	R1	1782	U
30	R1	1786	A
30	R1	1791	A
30	R1	1800	C
30	R1	1801	A
30	R1	1802	A
30	R1	1808	A
30	R1	1811	G
30	R1	1816	C
30	R1	1829	A
30	R1	1847	G
30	R1	1870	C
30	R1	1871	A
30	R1	1884	G
30	R1	1901	A
30	R1	1903	G
30	R1	1906	G
30	R1	1913	A
30	R1	1914	C
30	R1	1919	A
30	R1	1929	G
30	R1	1930	G
30	R1	1937	A
30	R1	1938	A
30	R1	1955	U
30	R1	1966	A
30	R1	1967	C
30	R1	1970	A
30	R1	1971	U
30	R1	1972	G
30	R1	1991	U
30	R1	1992	G
30	R1	1993	U
30	R1	1996	C
30	R1	1997	C
30	R1	2002	G
30	R1	2022	U
30	R1	2023	C
30	R1	2031	A

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Mol	Chain	Res	Type
30	R1	2033	A
30	R1	2036	C
30	R1	2043	C
30	R1	2052	A
30	R1	2055	C
30	R1	2056	G
30	R1	2060	A
30	R1	2061	G
30	R1	2062	A
30	R1	2069	G
30	R1	2072	C
30	R1	2093	G
30	R1	2096	C
30	R1	2110	G
30	R1	2111	U
30	R1	2112	G
30	R1	2114	A
30	R1	2115	G
30	R1	2118	U
30	R1	2119	A
30	R1	2120	G
30	R1	2121	G
30	R1	2123	G
30	R1	2124	G
30	R1	2126	A
30	R1	2127	G
30	R1	2129	C
30	R1	2132	U
30	R1	2133	G
30	R1	2134	A
30	R1	2136	G
30	R1	2138	G
30	R1	2145	C
30	R1	2147	A
30	R1	2148	G
30	R1	2149	U
30	R1	2154	A
30	R1	2156	G
30	R1	2157	G
30	R1	2158	A
30	R1	2160	C
30	R1	2161	C

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Mol	Chain	Res	Type
30	R1	2163	A
30	R1	2166	U
30	R1	2172	U
30	R1	2173	A
30	R1	2174	C
30	R1	2176	A
30	R1	2178	C
30	R1	2182	U
30	R1	2188	U
30	R1	2189	U
30	R1	2190	G
30	R1	2195	U
30	R1	2198	A
30	R1	2204	G
30	R1	2211	A
30	R1	2212	A
30	R1	2214	C
30	R1	2225	A
30	R1	2238	G
30	R1	2239	G
30	R1	2243	U
30	R1	2250	G
30	R1	2266	A
30	R1	2278	A
30	R1	2283	C
30	R1	2287	A
30	R1	2288	A
30	R1	2294	G
30	R1	2300	C
30	R1	2303	G
30	R1	2304	G
30	R1	2305	U
30	R1	2307	G
30	R1	2309	A
30	R1	2322	A
30	R1	2325	G
30	R1	2327	A
30	R1	2331	G
30	R1	2333	A
30	R1	2345	G
30	R1	2347	C
30	R1	2350	C

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Mol	Chain	Res	Type
30	R1	2359	C
30	R1	2361	G
30	R1	2383	G
30	R1	2385	C
30	R1	2391	G
30	R1	2402	U
30	R1	2403	C
30	R1	2406	A
30	R1	2423	U
30	R1	2428	G
30	R1	2429	G
30	R1	2430	A
30	R1	2431	U
30	R1	2441	U
30	R1	2448	A
30	R1	2459	A
30	R1	2469	A
30	R1	2474	U
30	R1	2476	A
30	R1	2491	U
30	R1	2502	G
30	R1	2503	A
30	R1	2505	G
30	R1	2506	U
30	R1	2518	A
30	R1	2520	C
30	R1	2529	G
30	R1	2530	A
30	R1	2547	A
30	R1	2554	U
30	R1	2562	U
30	R1	2566	A
30	R1	2567	G
30	R1	2572	A
30	R1	2573	C
30	R1	2582	G
30	R1	2602	A
30	R1	2604	U
30	R1	2609	U
30	R1	2613	U
30	R1	2615	U
30	R1	2629	U

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Mol	Chain	Res	Type
30	R1	2630	G
30	R1	2682	A
30	R1	2689	U
30	R1	2690	U
30	R1	2714	G
30	R1	2724	U
30	R1	2727	A
30	R1	2733	A
30	R1	2744	G
30	R1	2748	A
30	R1	2764	A
30	R1	2765	A
30	R1	2769	U
30	R1	2777	G
30	R1	2778	A
30	R1	2779	U
30	R1	2791	G
30	R1	2793	C
30	R1	2799	A
30	R1	2800	A
30	R1	2808	G
30	R1	2820	A
30	R1	2835	A
30	R1	2848	G
30	R1	2861	U
30	R1	2867	G
30	R1	2868	A
30	R1	2883	A
30	R1	2884	U
30	R1	2887	A
30	R1	2901	C
30	R1	2903	U
31	R2	9	G
31	R2	12	C
31	R2	13	G
31	R2	24	G
31	R2	35	C
31	R2	42	C
31	R2	44	G
31	R2	45	A
31	R2	52	A
31	R2	67	G

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Mol	Chain	Res	Type
31	R2	87	U
31	R2	88	C
31	R2	89	U
31	R2	90	C
31	R2	108	A
31	R2	109	A
31	R2	119	A
32	R3	3	A
32	R3	4	U
32	R3	9	G
32	R3	22	G
32	R3	32	A
32	R3	39	G
32	R3	47	C
32	R3	48	C
32	R3	50	A
32	R3	51	A
32	R3	58	C
32	R3	64	G
32	R3	68	G
32	R3	70	U
32	R3	71	A
32	R3	81	A
32	R3	82	G
32	R3	83	C
32	R3	84	U
32	R3	86	G
32	R3	87	C
32	R3	88	U
32	R3	93	U
32	R3	95	C
32	R3	100	G
32	R3	121	U
32	R3	122	G
32	R3	130	A
32	R3	131	A
32	R3	139	A
32	R3	154	U
32	R3	155	A
32	R3	160	A
32	R3	163	C
32	R3	171	A

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Mol	Chain	Res	Type
32	R3	174	A
32	R3	183	C
32	R3	184	G
32	R3	190	A
32	R3	197	A
32	R3	202	G
32	R3	207	C
32	R3	208	U
32	R3	210	C
32	R3	211	G
32	R3	212	G
32	R3	217	C
32	R3	240	G
32	R3	245	U
32	R3	247	G
32	R3	251	G
32	R3	266	G
32	R3	267	C
32	R3	280	C
32	R3	281	G
32	R3	289	G
32	R3	296	U
32	R3	305	G
32	R3	306	A
32	R3	316	C
32	R3	321	A
32	R3	328	C
32	R3	329	A
32	R3	330	C
32	R3	341	C
32	R3	344	A
32	R3	345	C
32	R3	347	G
32	R3	351	G
32	R3	352	C
32	R3	354	G
32	R3	367	U
32	R3	372	C
32	R3	373	A
32	R3	378	G
32	R3	390	U
32	R3	391	G

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Mol	Chain	Res	Type
32	R3	392	C
32	R3	394	G
32	R3	397	A
32	R3	398	U
32	R3	404	G
32	R3	406	G
32	R3	413	G
32	R3	414	A
32	R3	415	A
32	R3	420	U
32	R3	421	U
32	R3	422	C
32	R3	423	G
32	R3	425	G
32	R3	429	U
32	R3	435	A
32	R3	438	U
32	R3	448	A
32	R3	451	A
32	R3	457	G
32	R3	459	A
32	R3	463	U
32	R3	467	U
32	R3	468	A
32	R3	472	U
32	R3	474	G
32	R3	475	C
32	R3	476	U
32	R3	479	U
32	R3	482	A
32	R3	484	G
32	R3	485	U
32	R3	486	U
32	R3	487	A
32	R3	488	C
32	R3	491	G
32	R3	492	C
32	R3	493	A
32	R3	495	A
32	R3	497	G
32	R3	500	G
32	R3	514	C

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Mol	Chain	Res	Type
32	R3	518	C
32	R3	524	G
32	R3	529	G
32	R3	531	U
32	R3	532	A
32	R3	535	A
32	R3	540	G
32	R3	547	A
32	R3	559	A
32	R3	562	U
32	R3	564	C
32	R3	572	A
32	R3	573	A
32	R3	576	C
32	R3	577	G
32	R3	621	A
32	R3	633	G
32	R3	650	G
32	R3	665	A
32	R3	682	G
32	R3	686	U
32	R3	687	A
32	R3	703	G
32	R3	713	G
32	R3	721	G
32	R3	723	U
32	R3	724	G
32	R3	731	G
32	R3	734	G
32	R3	755	G
32	R3	760	G
32	R3	777	A
32	R3	815	A
32	R3	817	C
32	R3	818	G
32	R3	819	A
32	R3	821	G
32	R3	832	G
32	R3	841	C
32	R3	842	U
32	R3	843	U
32	R3	844	G

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Mol	Chain	Res	Type
32	R3	846	G
32	R3	851	G
32	R3	872	A
32	R3	885	G
32	R3	902	G
32	R3	926	G
32	R3	934	C
32	R3	935	A
32	R3	960	U
32	R3	961	U
32	R3	965	U
32	R3	966	G
32	R3	968	A
32	R3	969	A
32	R3	971	G
32	R3	975	A
32	R3	976	G
32	R3	977	A
32	R3	982	U
32	R3	992	U
32	R3	993	G
32	R3	998	C
32	R3	1004	A
32	R3	1020	G
32	R3	1022	A
32	R3	1025	U
32	R3	1026	G
32	R3	1027	C
32	R3	1028	C
32	R3	1029	U
32	R3	1031	C
32	R3	1033	G
32	R3	1034	G
32	R3	1036	A
32	R3	1046	A
32	R3	1053	G
32	R3	1085	U
32	R3	1094	G
32	R3	1095	U
32	R3	1101	A
32	R3	1130	A
32	R3	1136	C

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Mol	Chain	Res	Type
32	R3	1137	C
32	R3	1138	G
32	R3	1139	G
32	R3	1158	C
32	R3	1159	U
32	R3	1167	A
32	R3	1168	U
32	R3	1169	A
32	R3	1171	A
32	R3	1174	G
32	R3	1182	G
32	R3	1184	G
32	R3	1196	A
32	R3	1212	U
32	R3	1225	A
32	R3	1227	A
32	R3	1228	C
32	R3	1238	A
32	R3	1241	G
32	R3	1250	A
32	R3	1258	G
32	R3	1261	A
32	R3	1275	A
32	R3	1279	G
32	R3	1280	A
32	R3	1282	C
32	R3	1286	U
32	R3	1287	A
32	R3	1298	U
32	R3	1300	G
32	R3	1301	U
32	R3	1303	C
32	R3	1306	A
32	R3	1317	C
32	R3	1320	C
32	R3	1336	C
32	R3	1338	G
32	R3	1340	A
32	R3	1346	A
32	R3	1353	G
32	R3	1363	A
32	R3	1370	G

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Mol	Chain	Res	Type
32	R3	1378	C
32	R3	1379	G
32	R3	1419	G
32	R3	1441	A
32	R3	1442	G
32	R3	1443	C
32	R3	1446	A
32	R3	1448	C
32	R3	1452	C
32	R3	1453	G
32	R3	1487	G
32	R3	1491	G
32	R3	1492	A
32	R3	1493	A
32	R3	1497	G
32	R3	1499	A
32	R3	1502	A
32	R3	1503	A
32	R3	1506	U
32	R3	1517	G
32	R3	1529	G
32	R3	1530	G
32	R3	1533	C
32	R3	1537	U
32	R3	1539	C
33	T	1	G
33	T	5	G
33	T	8	4SU
33	T	9	G
33	T	15	C
33	T	16	C
33	T	17	U
33	T	18	G
33	T	19	G
33	T	20	H2U
33	T	22	G
33	T	23	C
33	T	45	G
33	T	46	A
33	T	47	U
33	T	48	C
33	T	52	G

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Mol	Chain	Res	Type
33	T	54	5MU
33	T	55	PSU
33	T	56	C
33	T	60	U
33	T	71	C
35	M	7	A

All (19) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
30	R1	227	A
30	R1	372	G
30	R1	421	C
30	R1	784	G
30	R1	1020	A
30	R1	1211	C
30	R1	1236	G
30	R1	1715	G
30	R1	2156	G
30	R1	2326	C
31	R2	66	A
32	R3	391	G
32	R3	561	U
32	R3	991	U
32	R3	1297	G
32	R3	1305	G
33	T	8	4SU
33	T	17	U
33	T	55	PSU

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

5 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
33	PSU	T	55	33	18,21,22	2.14	7 (38%)	21,30,33	2.27	6 (28%)
33	H2U	T	20	33	18,21,22	4.51	5 (27%)	19,30,33	4.18	6 (31%)
33	4SU	T	8	33	18,21,22	3.60	8 (44%)	25,30,33	2.47	5 (20%)
33	4OC	T	32	33	20,23,24	2.53	5 (25%)	25,32,35	1.12	2 (8%)
33	5MU	T	54	33	19,22,23	2.08	9 (47%)	27,32,35	2.32	6 (22%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
33	PSU	T	55	33	2/2/5/5	3/7/25/26	0/2/2/2
33	H2U	T	20	33	1/1/8/9	5/7/38/39	0/2/2/2
33	4SU	T	8	33	2/2/5/5	2/7/25/26	0/2/2/2
33	4OC	T	32	33	1/1/5/6	1/9/29/30	0/2/2/2
33	5MU	T	54	33	3/3/5/5	3/7/25/26	0/2/2/2

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
33	T	20	H2U	O4-C4	11.03	1.45	1.23
33	T	20	H2U	C2-N1	8.96	1.48	1.35
33	T	32	4OC	O2-C2	8.60	1.39	1.23
33	T	20	H2U	O2-C2	8.21	1.37	1.23
33	T	8	4SU	C4-S4	7.88	1.82	1.68
33	T	20	H2U	C2-N3	7.32	1.50	1.38
33	T	8	4SU	C4-N3	-7.18	1.30	1.37
33	T	8	4SU	O2-C2	6.51	1.34	1.23
33	T	20	H2U	C4-N3	6.34	1.48	1.37
33	T	8	4SU	C5-C4	-4.81	1.36	1.42
33	T	8	4SU	C2-N1	-4.50	1.31	1.38
33	T	32	4OC	C4-N4	4.39	1.45	1.36
33	T	55	PSU	C1'-C5	-4.27	1.40	1.50
33	T	8	4SU	C6-N1	-4.11	1.28	1.38
33	T	32	4OC	C2-N1	-4.00	1.31	1.40
33	T	54	5MU	C2-N1	-3.94	1.32	1.38
33	T	55	PSU	C6-C5	3.67	1.39	1.35
33	T	54	5MU	C4-C5	-3.53	1.39	1.44
33	T	55	PSU	C2-N1	-3.49	1.32	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
33	T	54	5MU	C4-N3	-3.40	1.32	1.38
33	T	55	PSU	C4-N3	-3.32	1.32	1.38
33	T	54	5MU	C2-N3	-3.00	1.32	1.38
33	T	54	5MU	C6-N1	-2.98	1.32	1.38
33	T	55	PSU	C2-N3	-2.88	1.32	1.37
33	T	8	4SU	C6-C5	2.76	1.41	1.35
33	T	54	5MU	C6-C5	2.62	1.38	1.34
33	T	8	4SU	C2-N3	-2.61	1.33	1.38
33	T	54	5MU	O4-C4	-2.58	1.18	1.23
33	T	32	4OC	C6-N1	-2.54	1.32	1.38
33	T	32	4OC	C2-N3	-2.41	1.31	1.36
33	T	54	5MU	O2-C2	-2.34	1.18	1.23
33	T	54	5MU	C5M-C5	2.29	1.56	1.50
33	T	55	PSU	O4-C4	-2.12	1.19	1.23
33	T	55	PSU	C6-N1	-2.08	1.32	1.36

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
33	T	20	H2U	O2-C2-N1	-12.36	108.24	123.10
33	T	20	H2U	O2-C2-N3	-7.73	107.23	121.49
33	T	8	4SU	C4-N3-C2	-7.54	120.09	127.31
33	T	20	H2U	O4-C4-N3	-7.24	109.14	120.30
33	T	55	PSU	N1-C2-N3	6.79	122.33	115.17
33	T	20	H2U	O4-C4-C5	-6.25	109.41	122.20
33	T	8	4SU	N3-C2-N1	6.01	122.72	114.89
33	T	54	5MU	C4-N3-C2	-5.27	120.43	127.34
33	T	54	5MU	N3-C2-N1	5.12	121.55	114.89
33	T	8	4SU	C5-C4-N3	4.88	119.29	114.75
33	T	54	5MU	C5-C4-N3	4.78	119.48	115.32
33	T	55	PSU	C4-N3-C2	-4.64	119.97	126.37
33	T	54	5MU	C5-C6-N1	-4.43	118.50	123.31
33	T	54	5MU	O4-C4-C5	-4.17	120.14	124.92
33	T	55	PSU	O2-C2-N1	-3.85	118.82	122.79
33	T	20	H2U	N3-C2-N1	-3.80	112.83	116.65
33	T	8	4SU	C5-C4-S4	-3.40	120.42	124.31
33	T	20	H2U	C5-C4-N3	-3.23	113.25	116.69
33	T	8	4SU	O2-C2-N1	-3.17	118.67	122.80
33	T	54	5MU	O2-C2-N1	-2.85	119.09	122.80
33	T	32	4OC	O2-C2-N3	-2.65	118.15	122.33
33	T	32	4OC	C5-C4-N3	-2.30	119.01	122.60
33	T	55	PSU	C5-C6-N1	-2.21	119.07	122.14

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
33	T	55	PSU	C6-N1-C2	-2.20	120.65	122.69
33	T	55	PSU	O4'-C1'-C2'	2.13	108.10	105.15

All (9) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
33	T	20	H2U	C2'
33	T	32	4OC	C2'
33	T	54	5MU	C2'
33	T	54	5MU	C3'
33	T	54	5MU	C4'
33	T	55	PSU	C2'
33	T	55	PSU	C4'
33	T	8	4SU	C1'
33	T	8	4SU	C2'

All (14) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
33	T	20	H2U	O4'-C4'-C5'-O5'
33	T	20	H2U	O4'-C1'-N1-C2
33	T	20	H2U	O4'-C1'-N1-C6
33	T	54	5MU	C4'-C5'-O5'-P
33	T	55	PSU	C4'-C5'-O5'-P
33	T	8	4SU	O4'-C4'-C5'-O5'
33	T	20	H2U	C3'-C4'-C5'-O5'
33	T	8	4SU	C3'-C4'-C5'-O5'
33	T	54	5MU	C3'-C4'-C5'-O5'
33	T	54	5MU	O4'-C4'-C5'-O5'
33	T	55	PSU	C3'-C4'-C5'-O5'
33	T	32	4OC	C3'-C2'-O2'-CM2
33	T	55	PSU	O4'-C4'-C5'-O5'
33	T	20	H2U	C2'-C1'-N1-C6

There are no ring outliers.

3 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
33	T	55	PSU	3	0
33	T	20	H2U	1	0
33	T	54	5MU	3	0

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 257 ligands modelled in this entry, 254 are monoatomic - leaving 3 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
58	ATP	Y	602	59	32,33,33	0.31	0	48,52,52	0.27	0
58	ATP	Y	601	59	32,33,33	0.32	0	48,52,52	0.29	0
57	FME	T	101	33	8,9,10	0.96	0	8,9,11	0.97	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
58	ATP	Y	602	59	-	7/22/38/38	0/3/3/3
58	ATP	Y	601	59	-	3/22/38/38	0/3/3/3
57	FME	T	101	33	-	3/7/9/11	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (13) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
57	T	101	FME	O1-CN-N-CA
58	Y	601	ATP	C5'-O5'-PA-O1A
58	Y	601	ATP	C5'-O5'-PA-O3A
58	Y	602	ATP	C5'-O5'-PA-O1A

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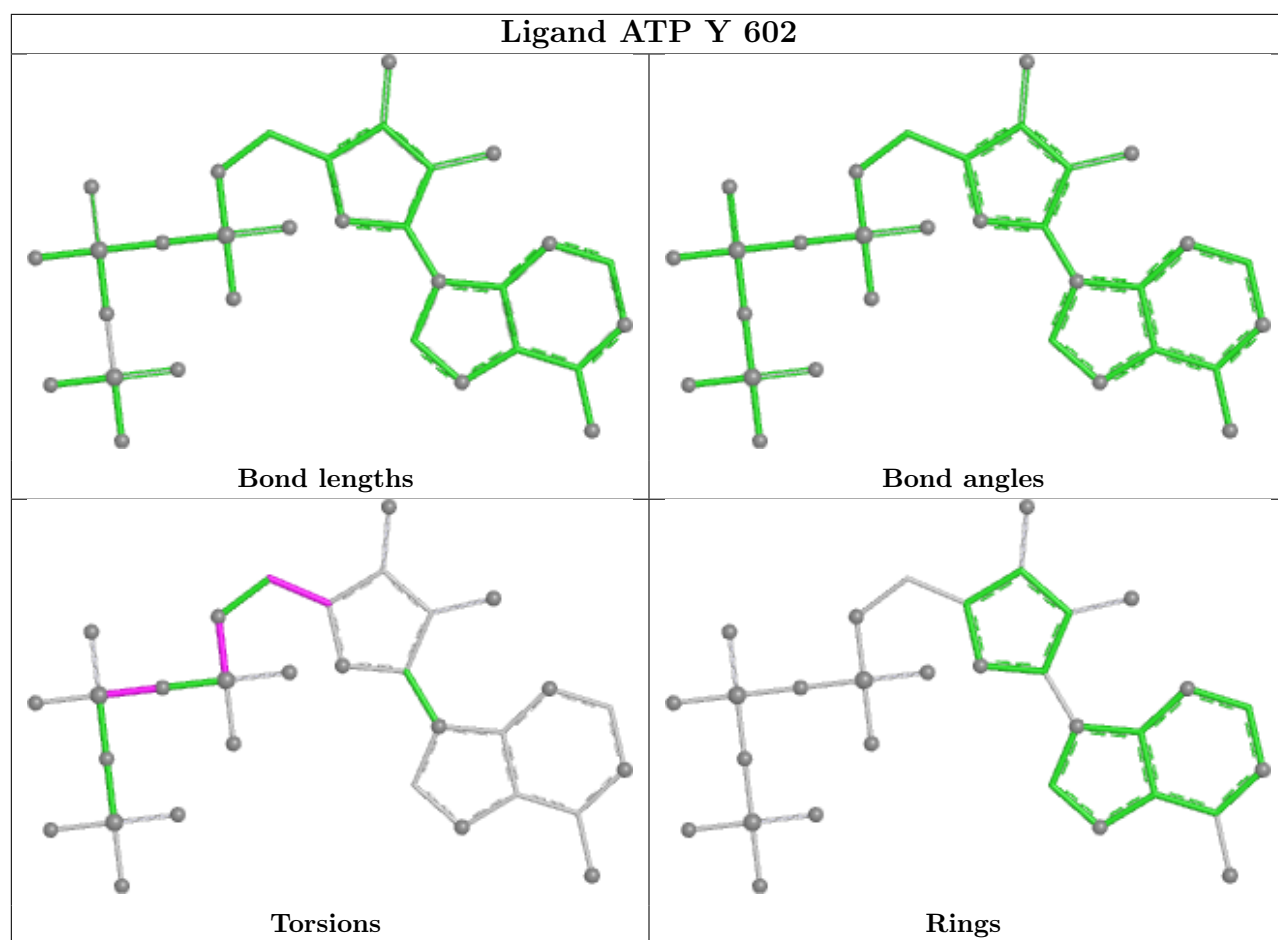
Mol	Chain	Res	Type	Atoms
58	Y	602	ATP	C5'-O5'-PA-O2A
58	Y	602	ATP	C5'-O5'-PA-O3A
58	Y	602	ATP	O4'-C4'-C5'-O5'
58	Y	602	ATP	C3'-C4'-C5'-O5'
57	T	101	FME	CB-CG-SD-CE
58	Y	601	ATP	PA-O3A-PB-O1B
57	T	101	FME	CB-CA-N-CN
58	Y	602	ATP	PA-O3A-PB-O1B
58	Y	602	ATP	PA-O3A-PB-O2B

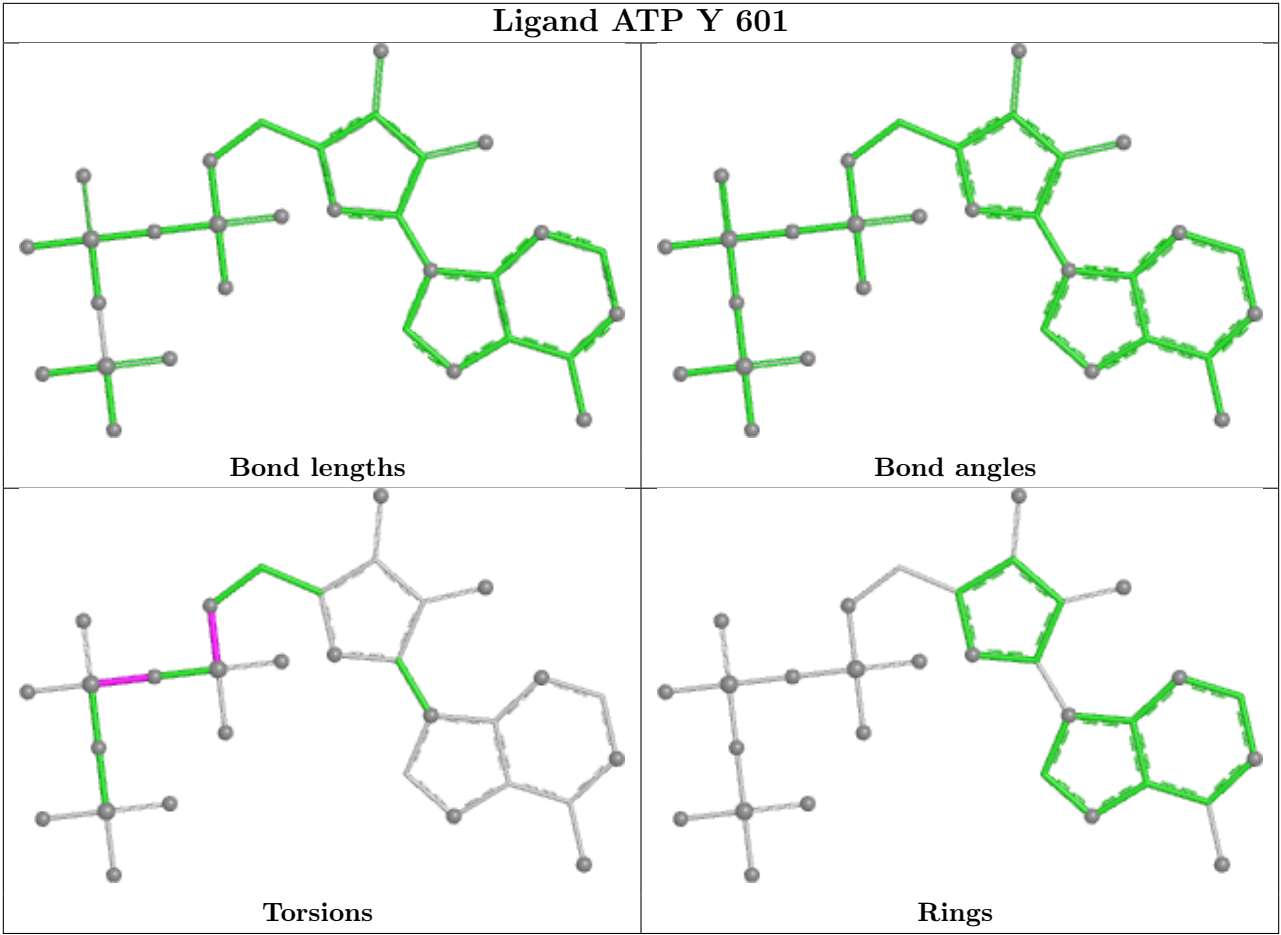
There are no ring outliers.

3 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
58	Y	602	ATP	2	0
58	Y	601	ATP	3	0
57	T	101	FME	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

The following chains have linkage breaks:

Mol	Chain	Number of breaks
32	R3	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	R3	1533:C	O3'	1534:A	P	3.68
1	R3	1301:U	O3'	1302:C	P	3.67

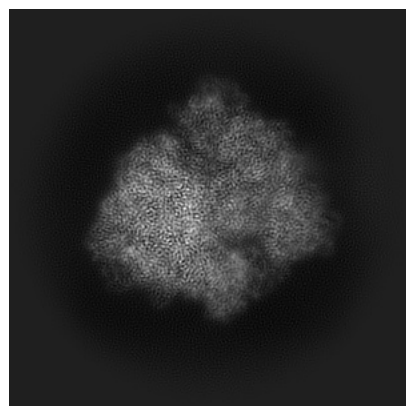
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-40927. These allow visual inspection of the internal detail of the map and identification of artifacts.

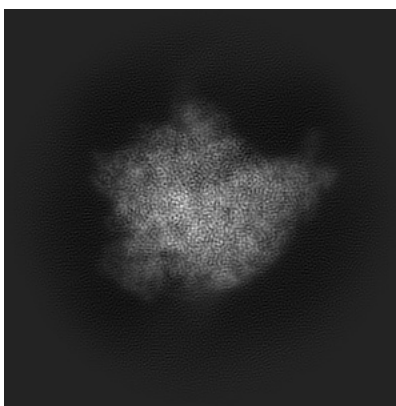
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

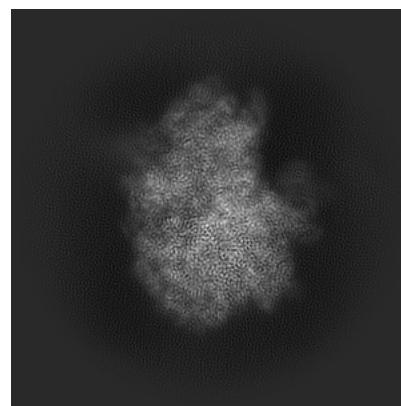
6.1.1 Primary map



X

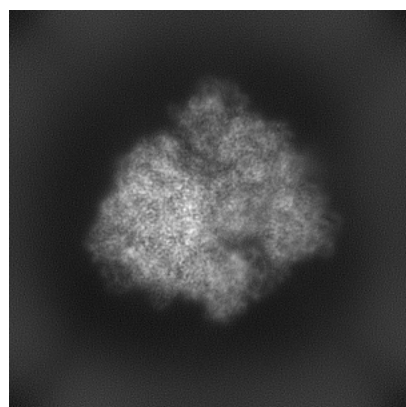


Y

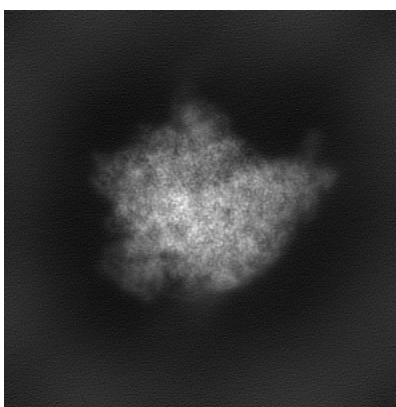


Z

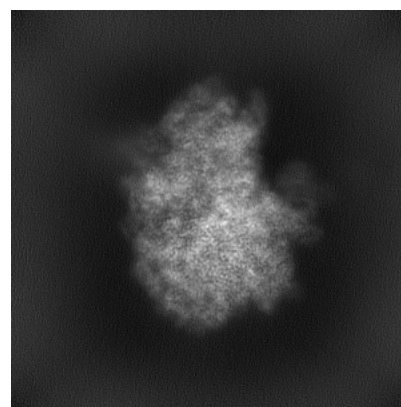
6.1.2 Raw map



X



Y

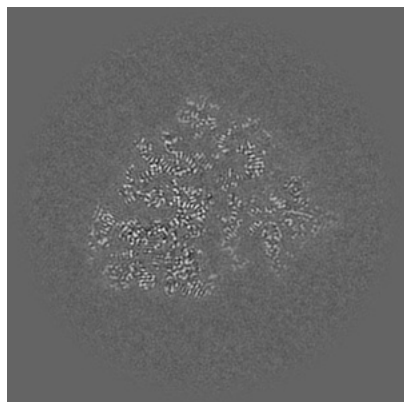


Z

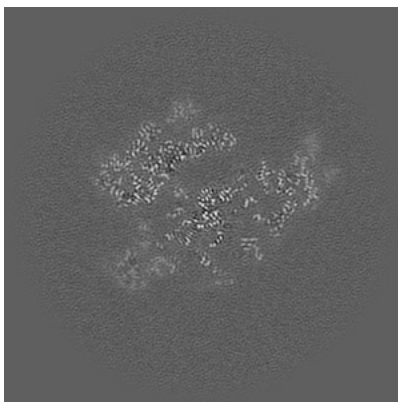
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

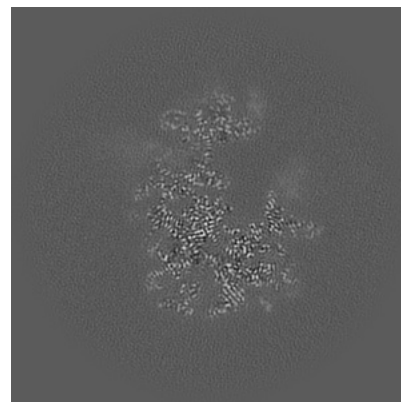
6.2.1 Primary map



X Index: 200

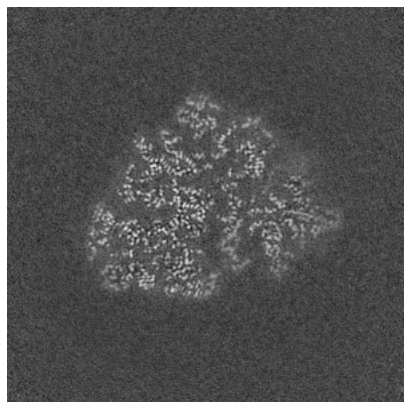


Y Index: 200

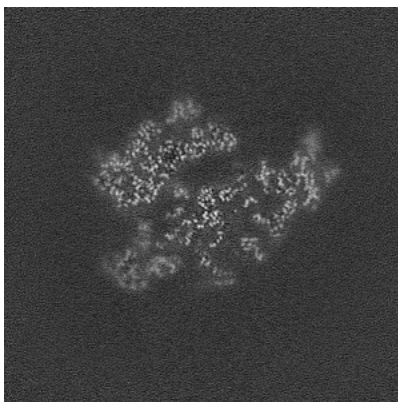


Z Index: 200

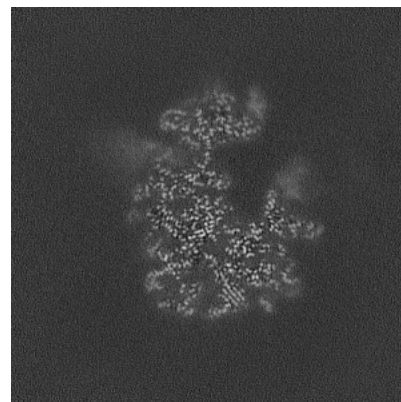
6.2.2 Raw map



X Index: 200



Y Index: 200

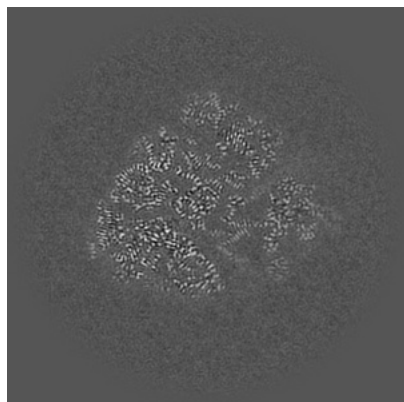


Z Index: 200

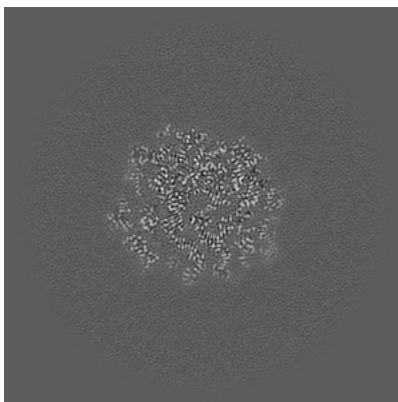
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

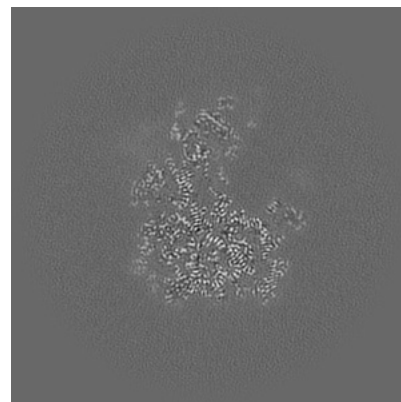
6.3.1 Primary map



X Index: 206

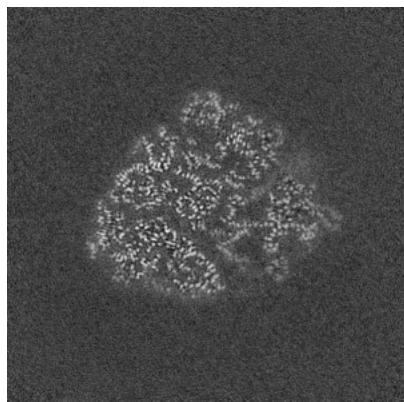


Y Index: 157

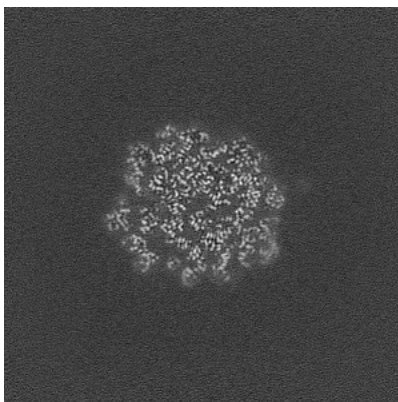


Z Index: 217

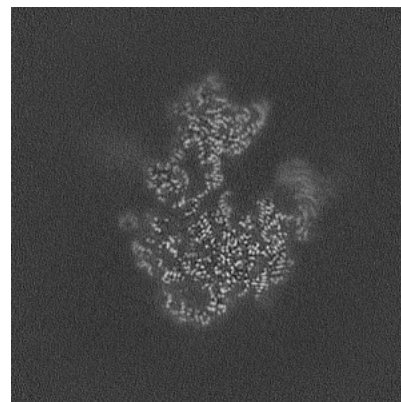
6.3.2 Raw map



X Index: 206



Y Index: 156

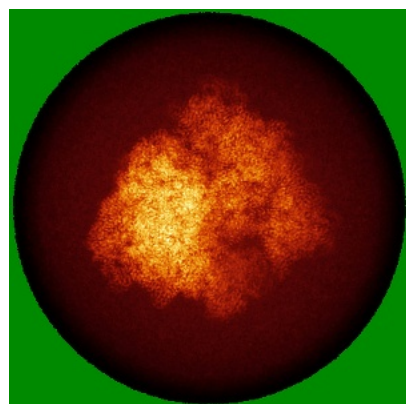


Z Index: 182

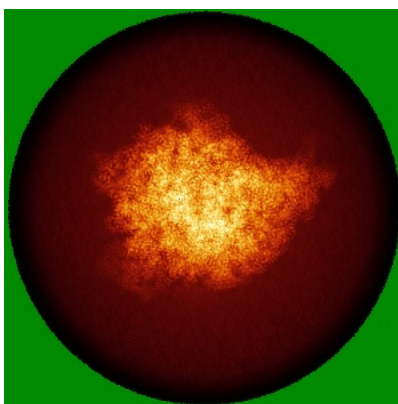
The images above show the largest variance slices of the map in three orthogonal directions.

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

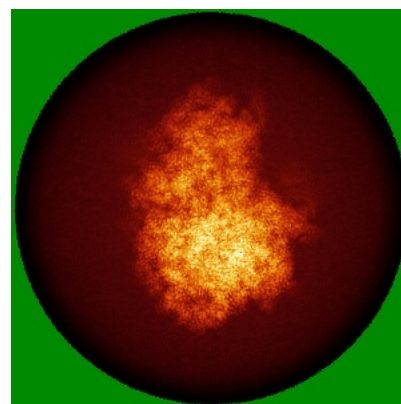
6.4.1 Primary map



X

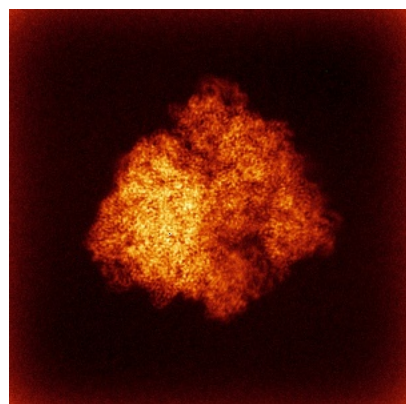


Y

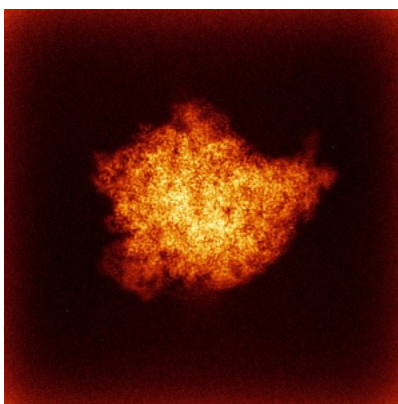


Z

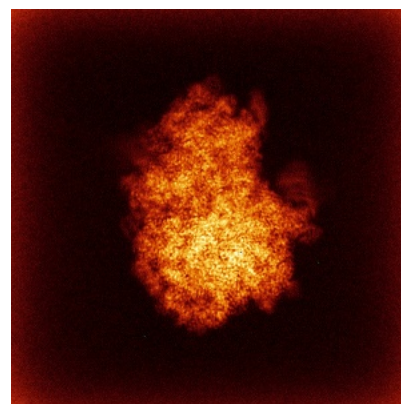
6.4.2 Raw map



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 [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 1.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

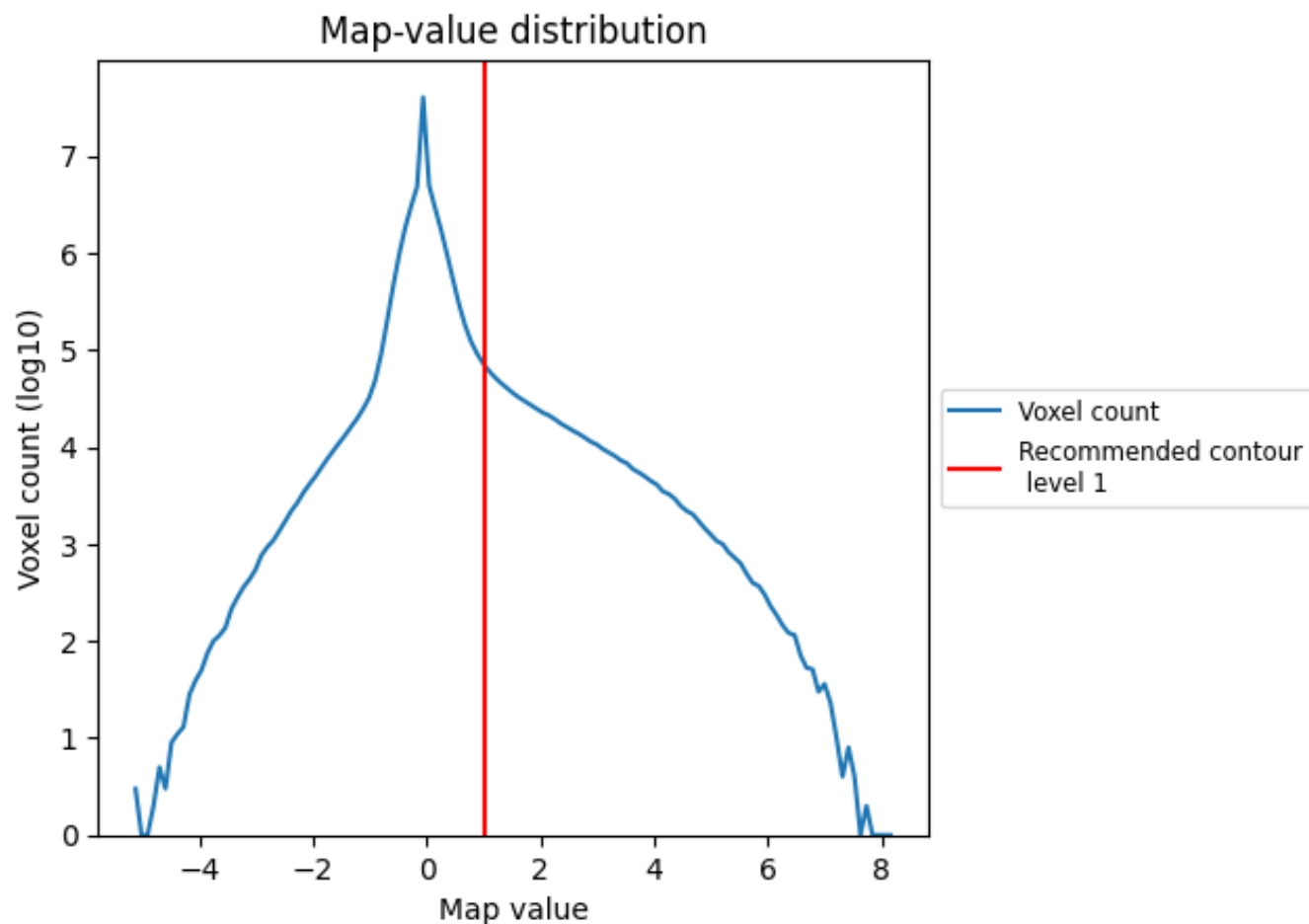
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

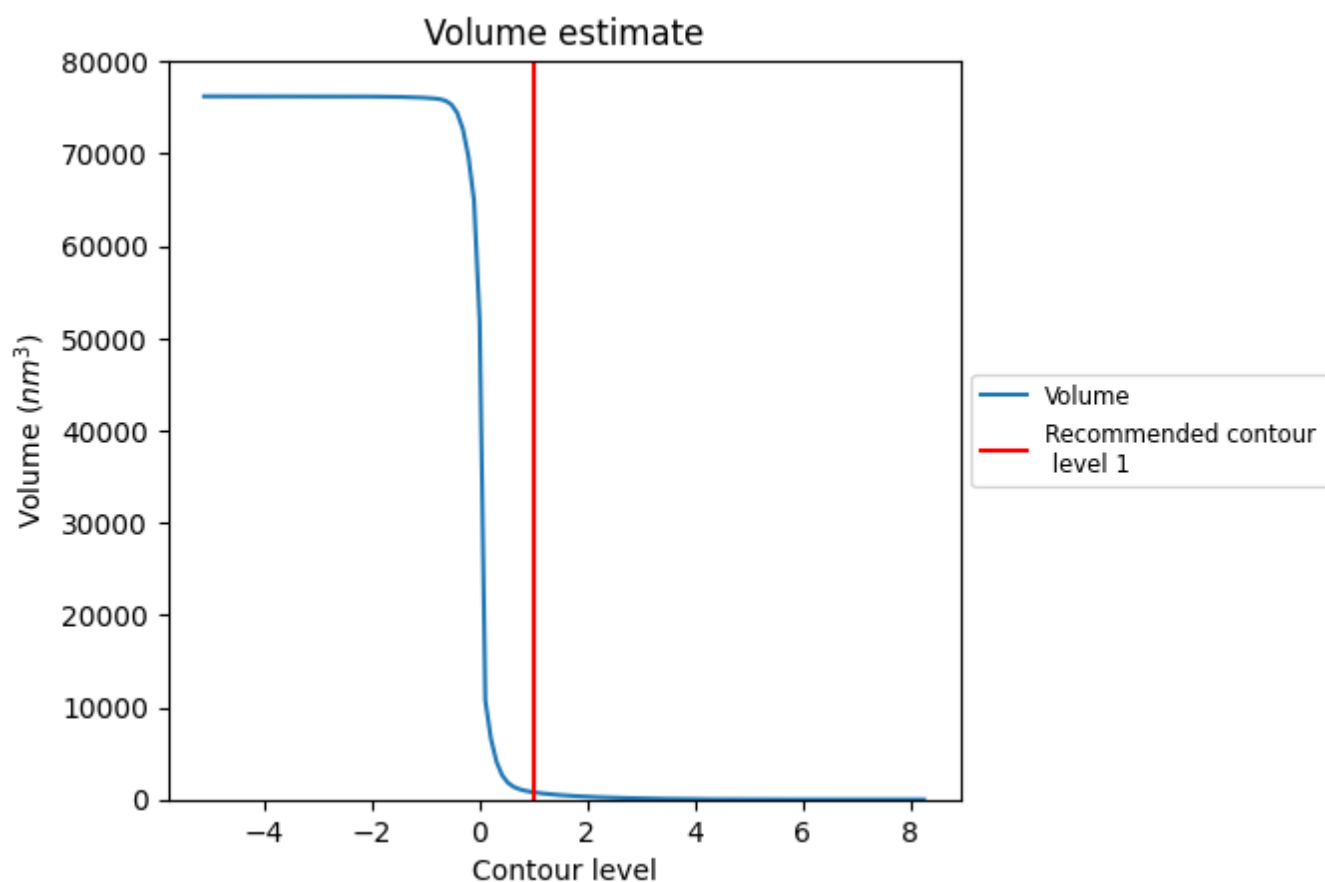
This section contains the results of statistical analysis of the map.

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.

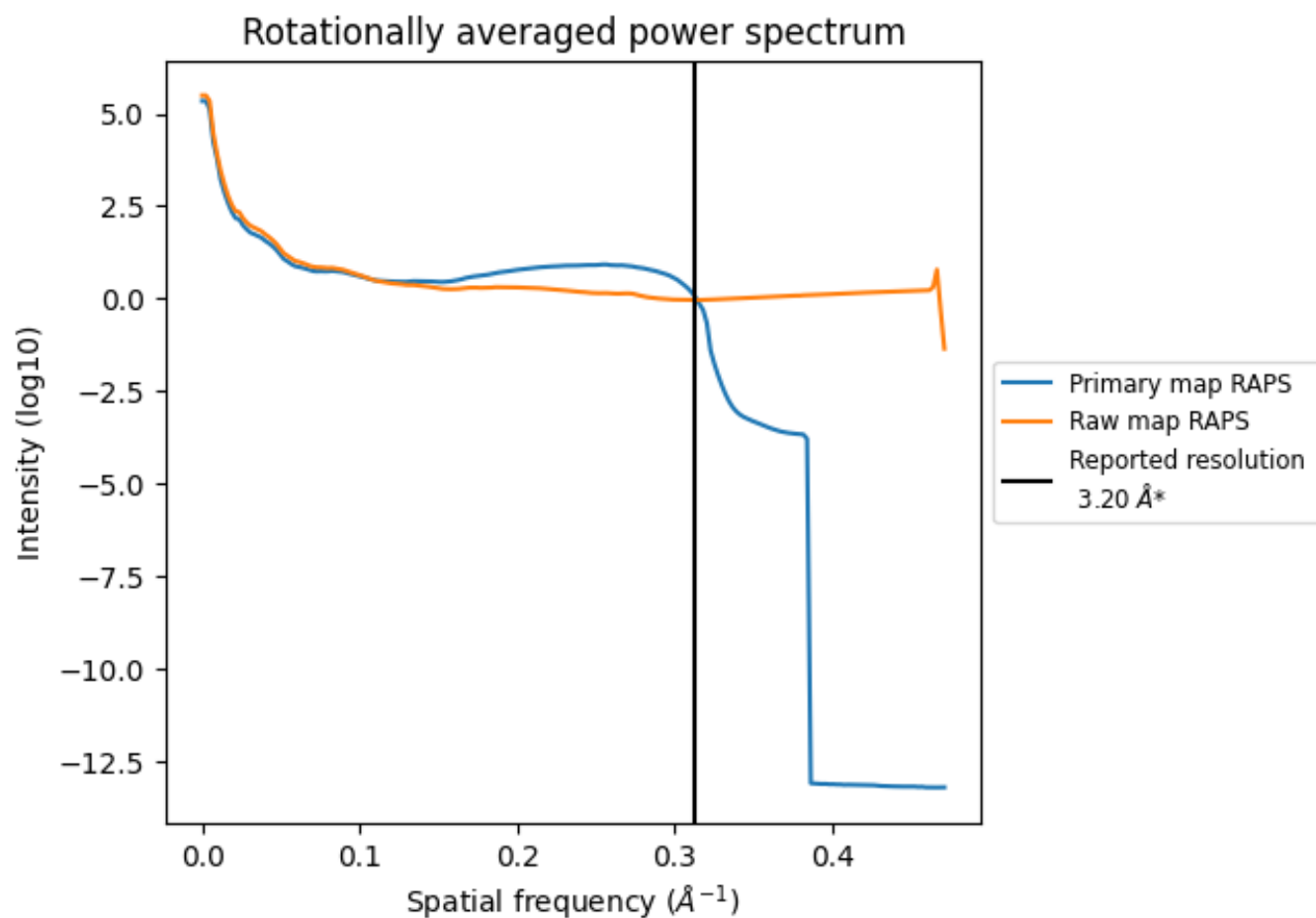
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 792 nm³; this corresponds to an approximate mass of 716 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 ⓘ

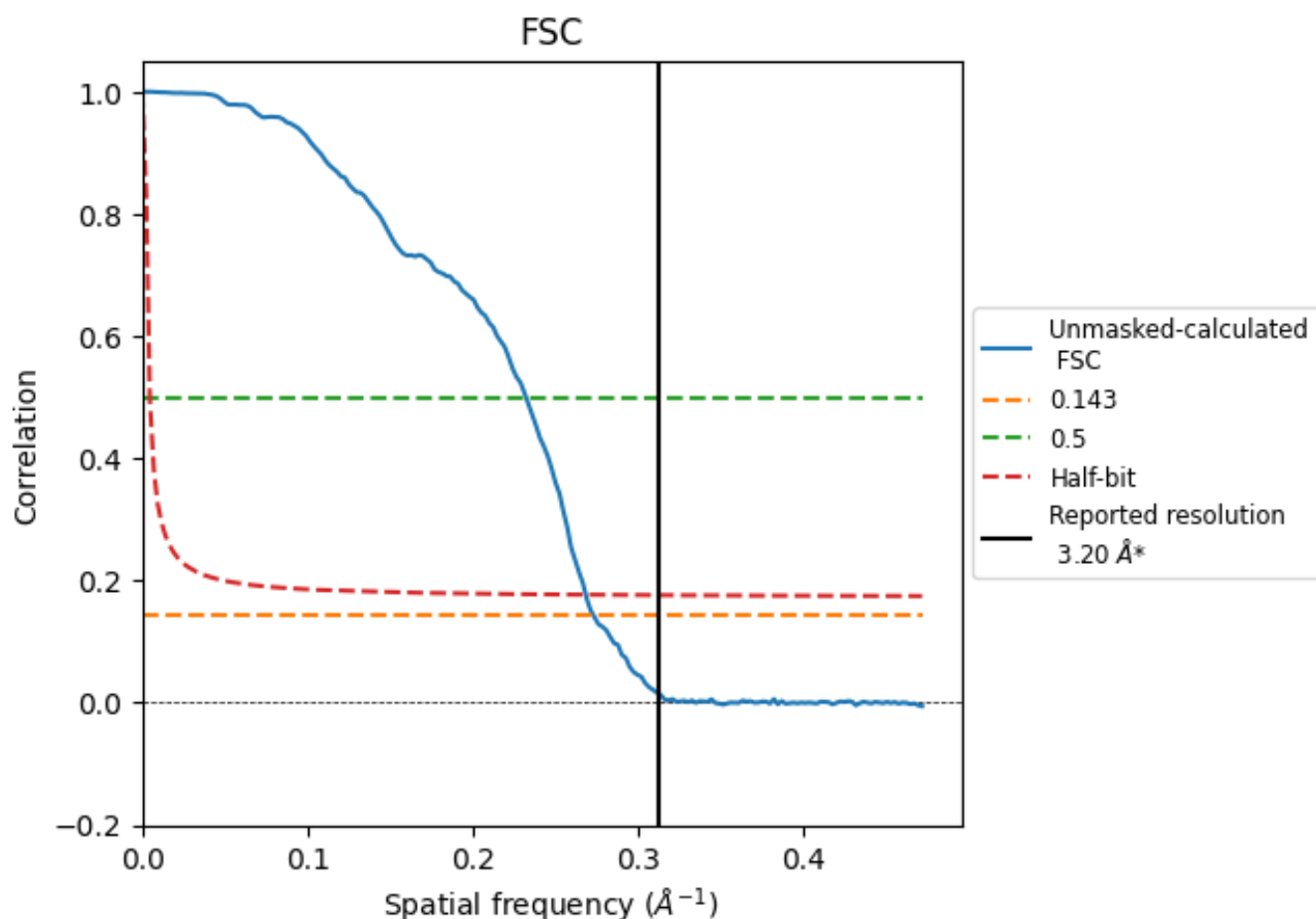


*Reported resolution corresponds to spatial frequency of 0.312 Å⁻¹

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 0.312 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.66	4.31	3.73

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.66 differs from the reported value 3.2 by more than 10 %

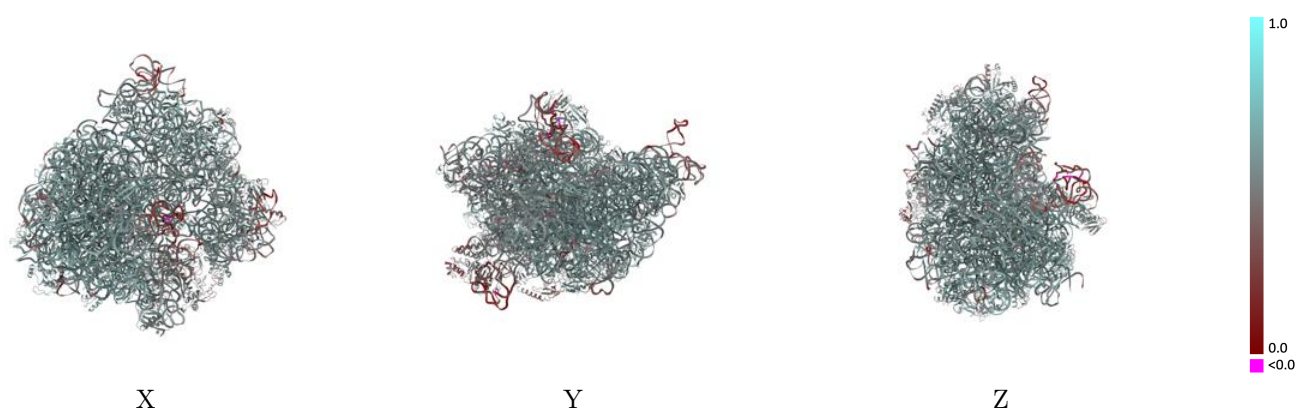
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-40927 and PDB model 9NL6. Per-residue inclusion information can be found in section 3 on page 16.

9.1 Map-model overlay [i](#)

This section was not generated.

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

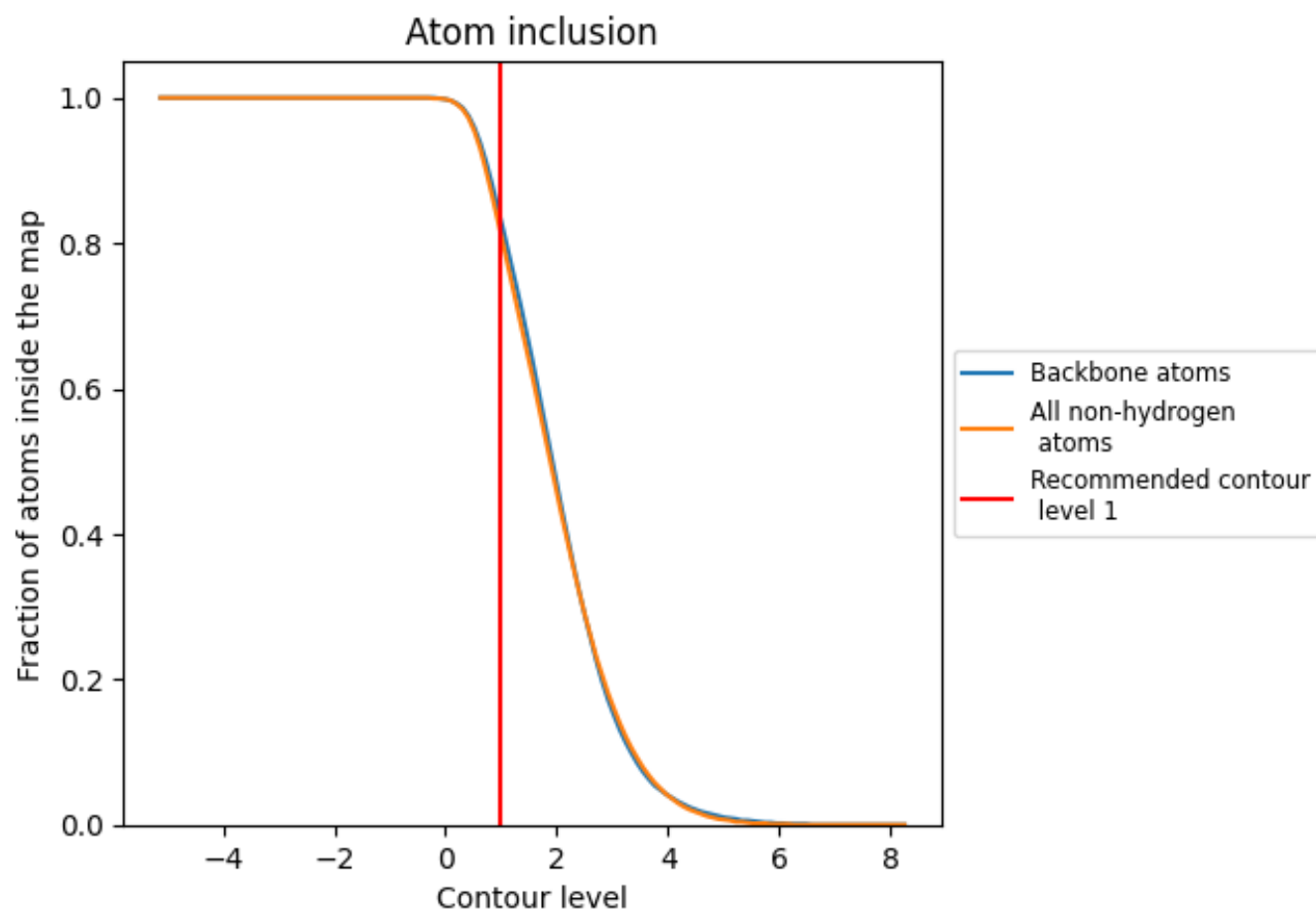


The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)

This section was not generated.

9.4 Atom inclusion [i](#)



At the recommended contour level, 83% of all backbone atoms, 81% 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 (1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8130	 0.5510
1	 0.3450	 0.4260
13	 0.8640	 0.5970
14	 0.8410	 0.5920
15	 0.8530	 0.5880
16	 0.8530	 0.5880
17	 0.8920	 0.5950
18	 0.7210	 0.5540
19	 0.8370	 0.5930
2	 0.8840	 0.5990
20	 0.8990	 0.6010
21	 0.8170	 0.5770
22	 0.8510	 0.5880
23	 0.8050	 0.5770
24	 0.7380	 0.5430
25	 0.7330	 0.5650
27	 0.8890	 0.6030
28	 0.8450	 0.6000
29	 0.7060	 0.5480
3	 0.8560	 0.5840
30	 0.8240	 0.5870
31	 0.1840	 0.3870
32	 0.8580	 0.5850
34	 0.8960	 0.6070
35	 0.9040	 0.6090
36	 0.8560	 0.5940
4	 0.7930	 0.5760
5	 0.4350	 0.4600
6	 0.6310	 0.5270
9	 0.2720	 0.4160
M	 0.7250	 0.5410
R1	 0.8760	 0.5600
R2	 0.8300	 0.5350
R3	 0.8410	 0.5410
T	 0.7660	 0.5110



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Chain	Atom inclusion	Q-score
Y	 0.5480	 0.5080
sb	 0.6360	 0.5070
sc	 0.7180	 0.5590
sd	 0.7280	 0.5570
se	 0.7710	 0.5530
sf	 0.7110	 0.5400
sg	 0.6530	 0.5480
sh	 0.7920	 0.5760
si	 0.6940	 0.5480
sj	 0.5190	 0.4820
sk	 0.7770	 0.5690
sl	 0.7730	 0.5630
sm	 0.6570	 0.5260
sn	 0.7050	 0.5210
so	 0.7750	 0.5680
sp	 0.7770	 0.5590
sq	 0.7310	 0.5550
sr	 0.7530	 0.5560
ss	 0.6670	 0.5320
st	 0.7630	 0.5640
su	 0.6620	 0.5510