Full wwPDB EM Validation Report

Sep 28, 2024 – 07:28 pm BST

PDB ID	:	8P09
EMDB ID	:	EMD-17330
Title	:	48S late-stage initiation complex with non methylated mRNA
Authors	:	Guca, E.; Lima, L.H.F.; Boissier, F.; Hashem, Y.
Deposited on	:	2023-05-09
Resolution	:	3.30 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:

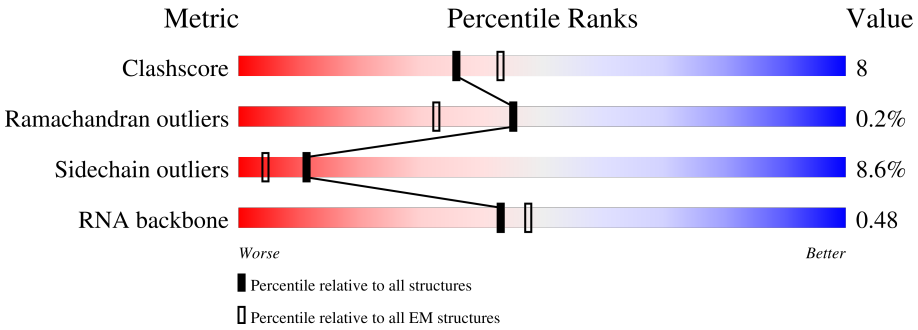
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 3.30 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)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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 <=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	75	28% 61% 35%
2	2	1863	6% 41% 37% 13% 7%
3	3	9	33% 22% 22% 56%
4	A	284	61% 47% 42% 5% 6%
5	C	207	74% 24%
6	D	215	75% 24%
7	E	270	63% 18% 16%

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Mol	Chain	Length	Quality of chain
8	F	227	67% 29%
9	G	263	81% 17%
10	H	191	81% 13%
11	I	237	7% 80% 16%
12	J	190	30% 76% 20%
13	K	206	7% 64% 33%
14	L	194	79% 16%
15	M	98	6% 83% 15%
16	N	158	15% 75% 25%
17	O	132	29% 75% 17% 6%
18	P	150	71% 25% 5%
19	Q	151	5% 72% 15% 10%
20	R	145	12% 79% 14%
21	S	141	64% 32%
22	T	135	14% 72% 19% 7%
23	U	152	7% 74% 20% 5%
24	V	141	82% 16%
25	W	119	5% 62% 24% 13%
26	X	83	77% 19%
27	Y	130	86% 11%
28	Z	143	86% 11%
29	a	133	5% 92% 5%
30	b	115	74% 12% 14%
31	c	84	6% 92% 8%
32	d	69	83% 10% 7%

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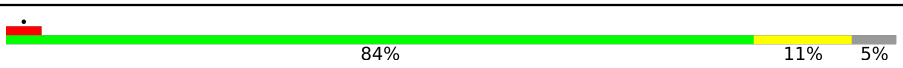
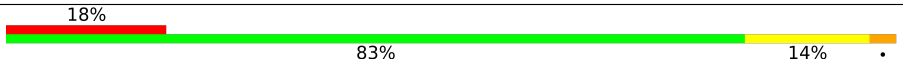
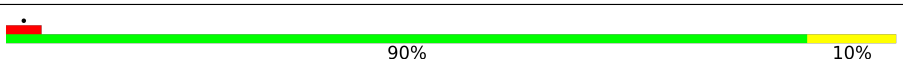
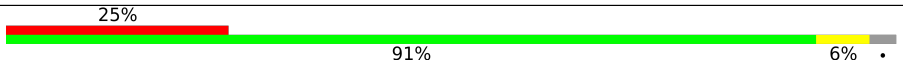
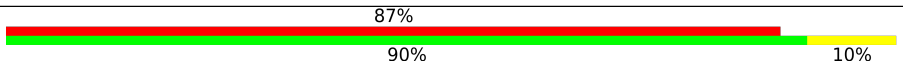
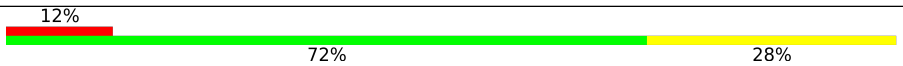
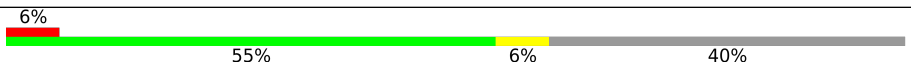
Mol	Chain	Length	Quality of chain
33	e	56	
34	f	71	
35	g	313	
36	i	133	
37	j	111	
38	k	595	
39	l	25	
40	n	124	

2 Entry composition

There are 41 unique types of molecules in this entry. The entry contains 86284 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called initiator methionylated tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	1	75	1617	722	299	521	75	0	0

- Molecule 2 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	2	1741	37147	16585	6650	12172	1740	0	0

- Molecule 3 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	3	9	192	86	36	61	9	0	0

- Molecule 4 is a protein called Eukaryotic translation initiation factor 2 subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	A	266	2146	1354	376	405	11	0	0

- Molecule 5 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	C	207	1637	1042	288	299	8	0	0

- Molecule 6 is a protein called ribosomal protein eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	D	215	1741	1107	309	310	15	0	0

- Molecule 7 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	E	226	Total	C	N	O	S	0	0
			1754	1139	298	310	7		

- Molecule 8 is a protein called Ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	F	227	Total	C	N	O	S	0	0
			1764	1124	317	315	8		

- Molecule 9 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	G	263	Total	C	N	O	S	0	0
			2083	1329	385	359	10		

- Molecule 10 is a protein called Ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	H	187	Total	C	N	O	S	0	0
			1482	928	279	268	7		

- Molecule 11 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	I	237	Total	C	N	O	S	0	0
			1924	1199	387	331	7		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
I	130	THR	PRO	conflict	UNP A0A5K1UJS7

- Molecule 12 is a protein called ribosomal protein eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	J	190	Total	C	N	O	S	0	0
			1530	975	281	273	1		

- Molecule 13 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	K	206	Total	C	N	O	S	0	0
			1680	1054	329	292	5		

- Molecule 14 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	L	188	Total	C	N	O	S	0	0
			1542	979	309	251	3		

- Molecule 15 is a protein called 40S ribosomal protein eS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	M	98	Total	C	N	O	S	0	0
			828	539	148	135	6		

- Molecule 16 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	N	158	Total	C	N	O	S	0	0
			1296	827	241	221	7		

- Molecule 17 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	O	124	Total	C	N	O	S	0	0
			958	600	170	179	9		

- Molecule 18 is a protein called ribosomal protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	P	150	Total	C	N	O	S	0	0
			1208	773	229	205	1		

- Molecule 19 is a protein called 40S ribosomal protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Q	136	Total	C	N	O	S	0	0
			1016	621	199	190	6		

- Molecule 20 is a protein called 40S ribosomal protein uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	R	140	Total	C	N	O	S	0	0
			1154	733	219	195	7		

- Molecule 21 is a protein called 40S ribosomal protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	S	141	Total	C	N	O	S	0	0
			1124	715	212	194	3		

- Molecule 22 is a protein called 40S ribosomal protein eS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	T	126	Total	C	N	O	S	0	0
			1019	639	188	187	5		

- Molecule 23 is a protein called 40S ribosomal protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	U	145	Total	C	N	O	S	0	0
			1194	747	243	203	1		

- Molecule 24 is a protein called 40S ribosomal protein eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	V	141	Total	C	N	O	S	0	0
			1113	701	213	196	3		

- Molecule 25 is a protein called 40S ribosomal protein uS10.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	W	104	Total	C	N	O	S	0	0
			822	514	156	148	4		

- Molecule 26 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	X	83	Total	C	N	O	S	0	0
			636	393	117	121	5		

- Molecule 27 is a protein called Ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Y	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 28 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Z	142	Total	C	N	O	S	0	0
			1106	698	220	184	4		

- Molecule 29 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	a	126	Total	C	N	O	S	0	0
			1021	645	198	173	5		

- Molecule 30 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	b	99	Total	C	N	O	S	0	0
			789	491	162	130	6		

- Molecule 31 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	c	84	Total	C	N	O	S	0	0
			659	413	122	116	8		

- Molecule 32 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	d	64	Total	C	N	O	S	0	0
			506	308	102	94	2		

- Molecule 33 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	e	53	Total	C	N	O	S	0	0
			444	278	90	71	5		

- Molecule 34 is a protein called ribosomal protein eS31.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	f	71	Total	C	N	O	S	0	0
			582	367	109	99	7		

- Molecule 35 is a protein called Ribosomal protein RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	g	313	Total	C	N	O	S	0	0
			2437	1535	424	466	12		

- Molecule 36 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	i	58	Total	C	N	O	S	0	0
			464	287	102	74	1		

- Molecule 37 is a protein called Eukaryotic translation initiation factor 4C.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	j	108	Total	C	N	O	S	0	0
			874	543	166	161	4		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
j	39	ILE	VAL	conflict	UNP G1SYS4
j	76	ILE	VAL	conflict	UNP G1SYS4

- Molecule 38 is a protein called ATP binding cassette subfamily E member 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	k	595	Total	C	N	O	S	0	0
			4693	2995	802	865	31		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
k	538	ILE	VAL	conflict	UNP G1SG72

- Molecule 39 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	l	25	Total	C	N	O	S	0	0
			240	145	64	28	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	n	75	Total	C	N	O	S	0	0
			598	382	111	104	1		

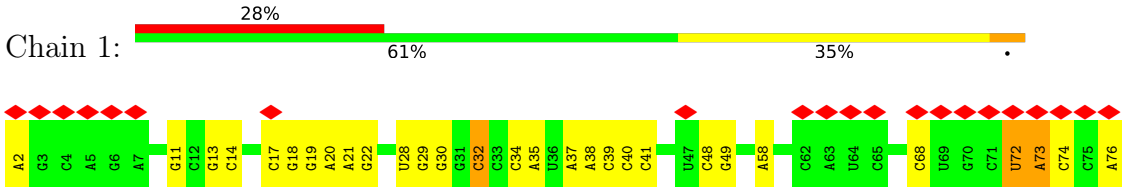
- Molecule 41 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
41	2	220	Total	Mg	0
			220	220	
41	3	3	Total	Mg	0
			3	3	
41	G	2	Total	Mg	0
			2	2	
41	I	2	Total	Mg	0
			2	2	
41	K	1	Total	Mg	0
			1	1	
41	L	1	Total	Mg	0
			1	1	
41	Z	1	Total	Mg	0
			1	1	

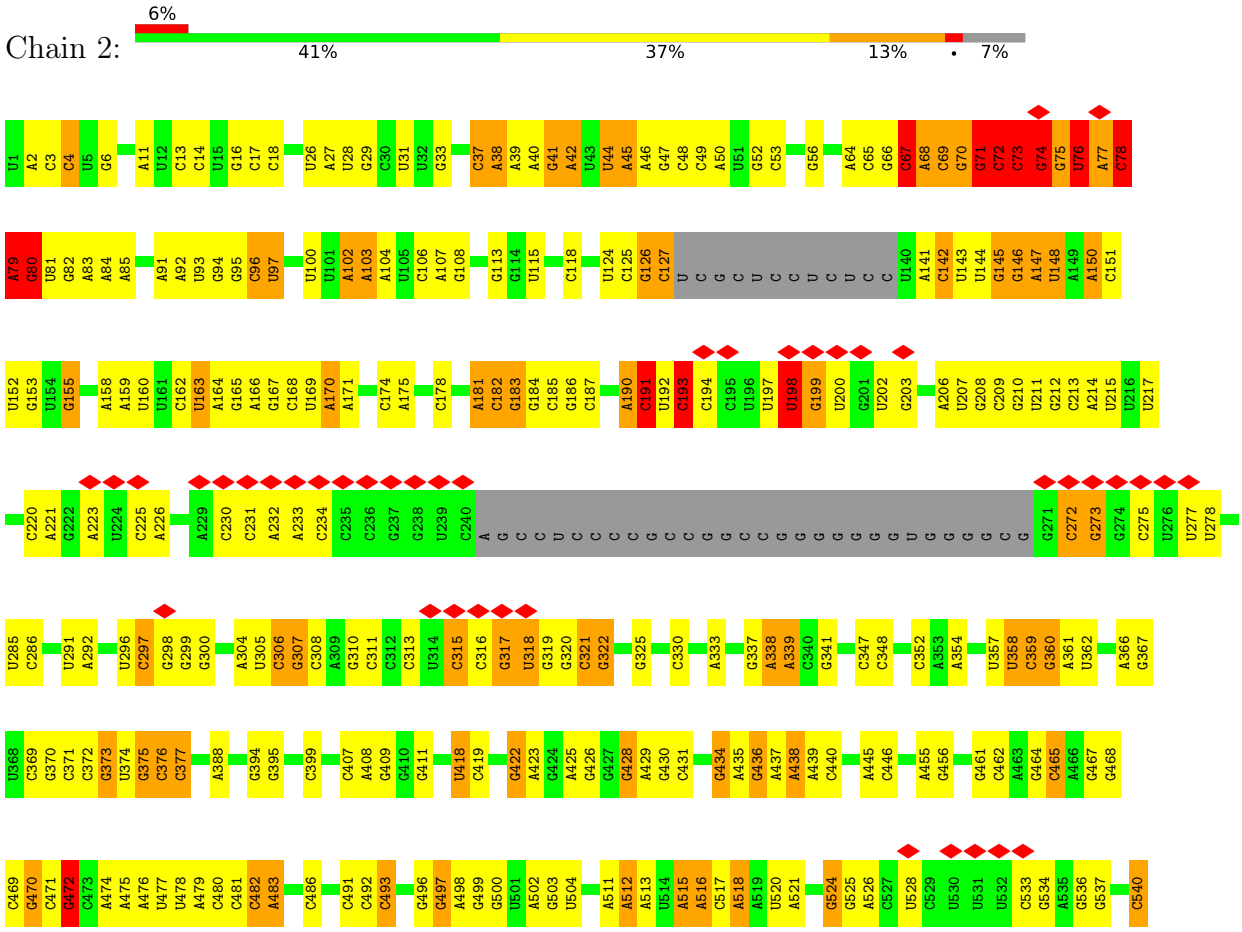
3 Residue-property plots (i)

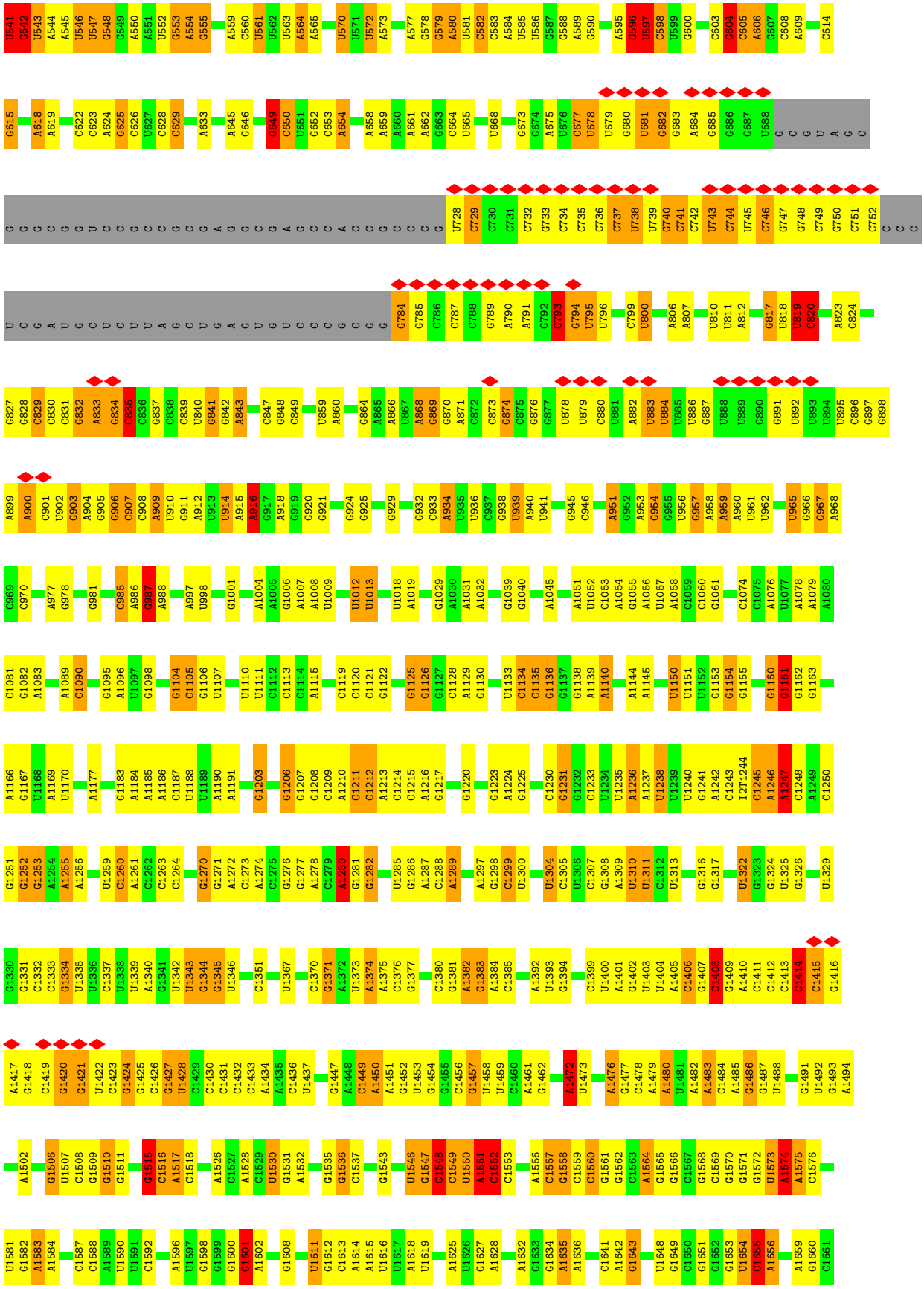
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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.

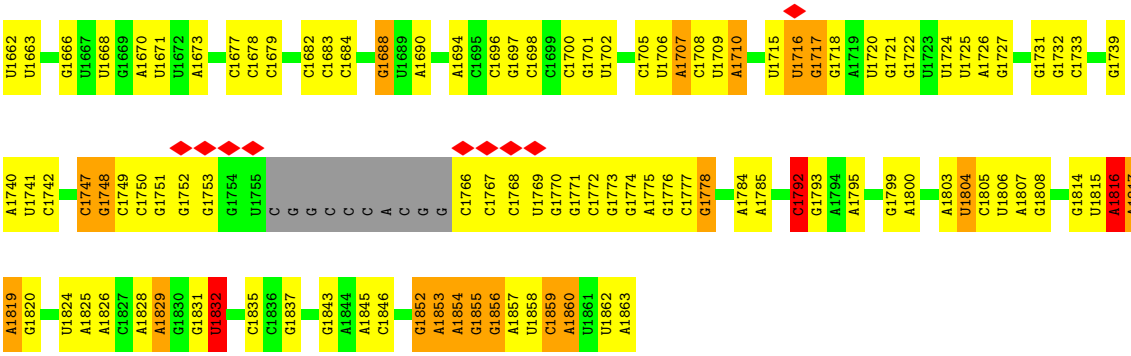
- Molecule 1: initiator methionylated tRNA



- Molecule 2: 18S ribosomal RNA

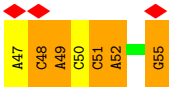






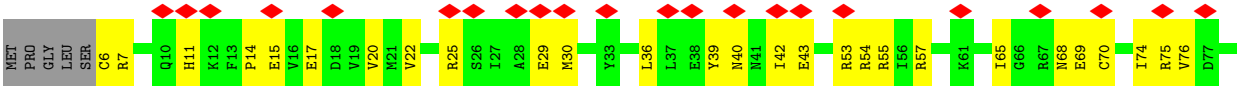
• Molecule 3: mRNA

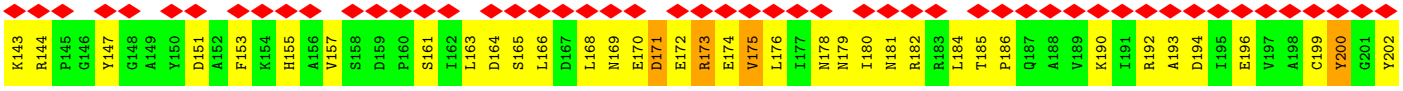
Chain 3:

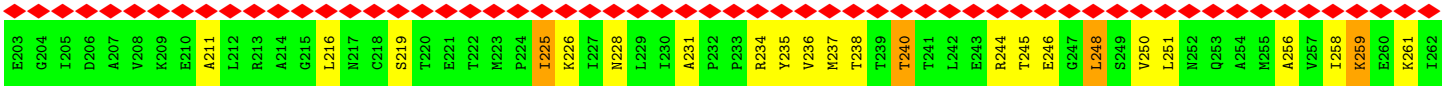


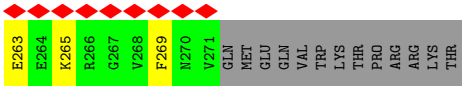
• Molecule 4: Eukaryotic translation initiation factor 2 subunit 1

Chain A:







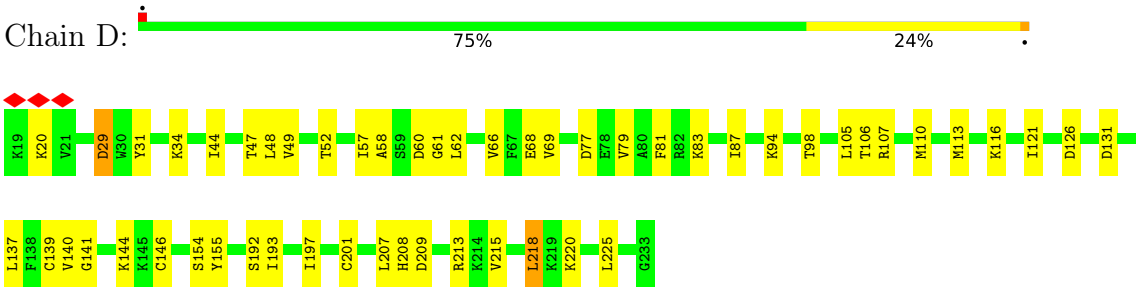


• Molecule 5: 40S ribosomal protein SA

Chain C:

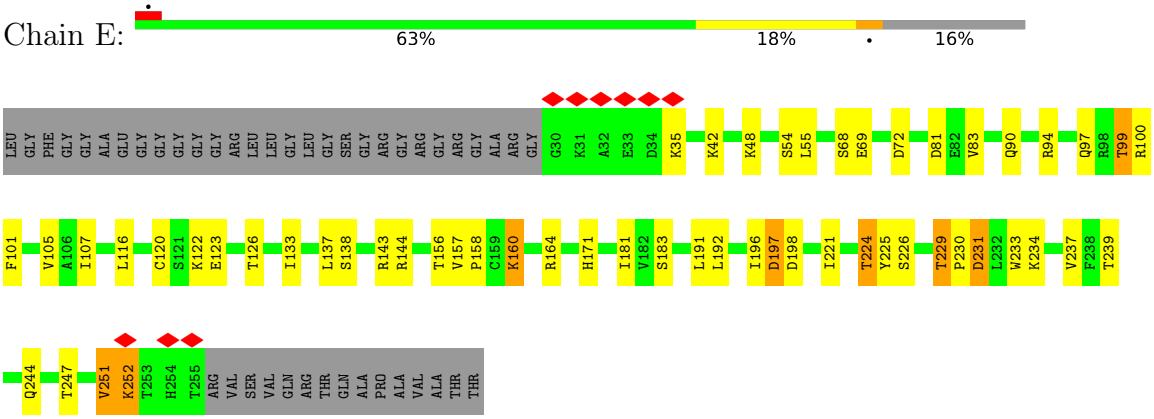
• Molecule 6: ribosomal protein eS1

Chain D:



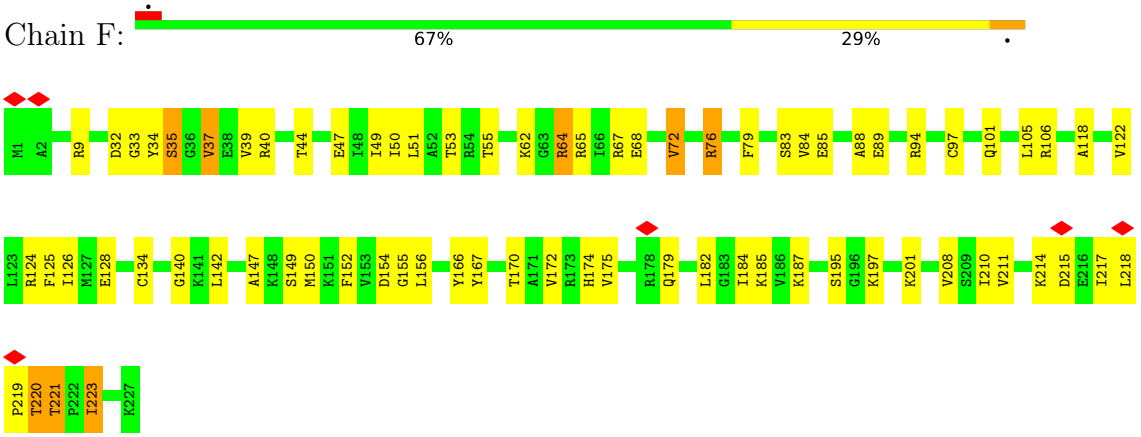
• Molecule 7: 40S ribosomal protein S2

Chain E:



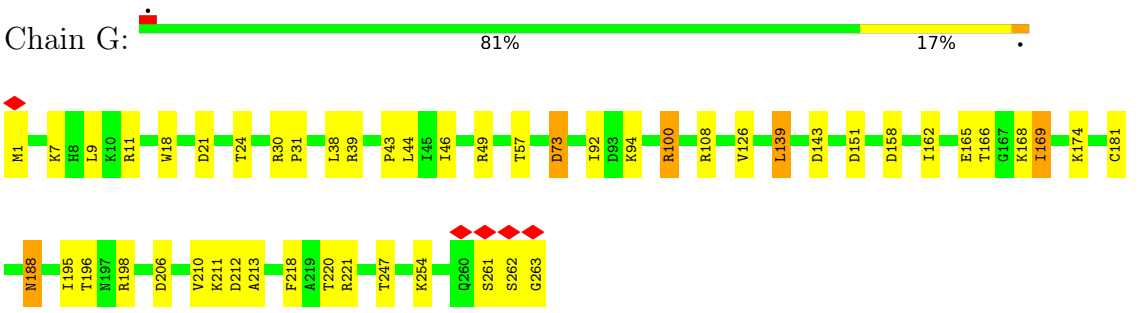
• Molecule 8: Ribosomal protein S3

Chain F:



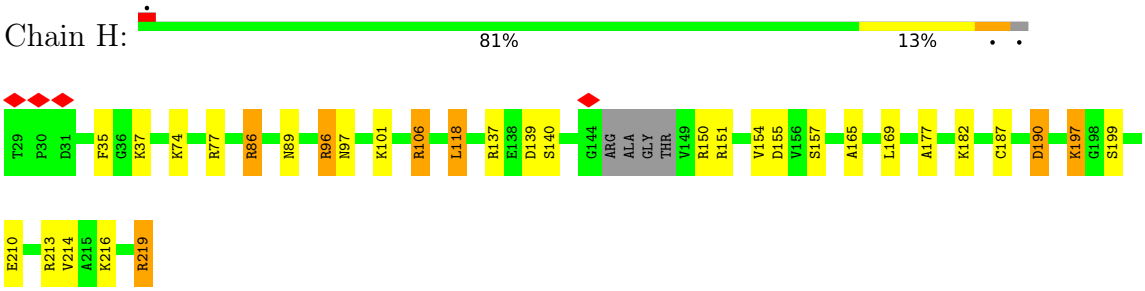
• Molecule 9: 40S ribosomal protein S4

Chain G:



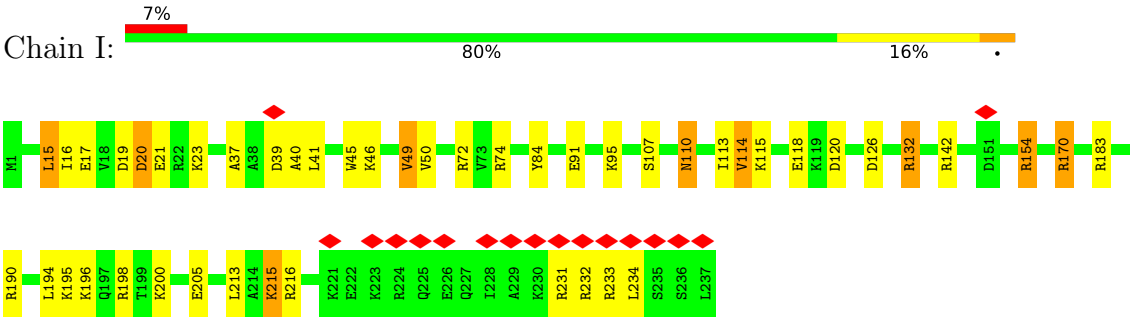
• Molecule 10: Ribosomal protein S5

Chain H:



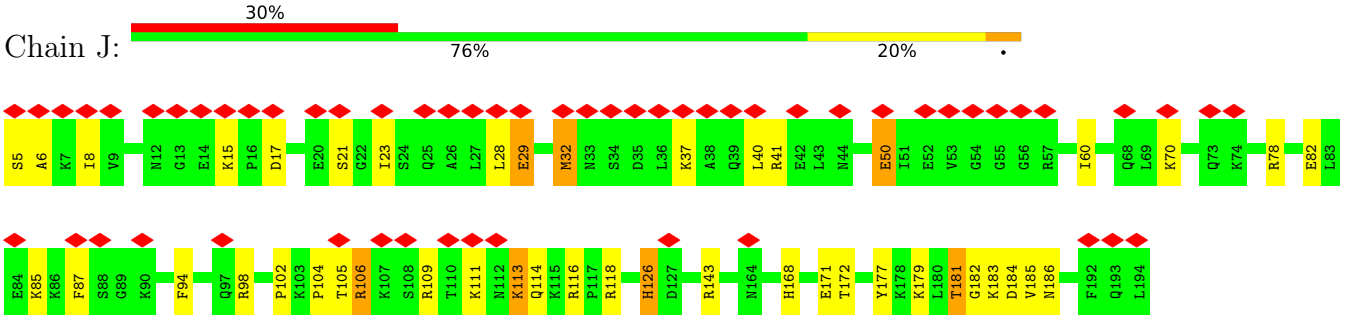
• Molecule 11: 40S ribosomal protein S6

Chain I:



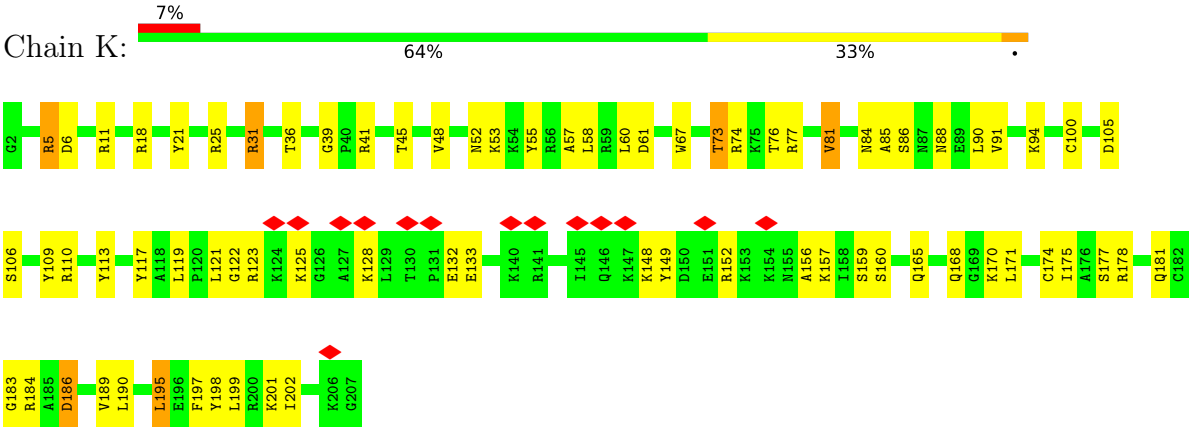
• Molecule 12: ribosomal protein eS7

Chain J:



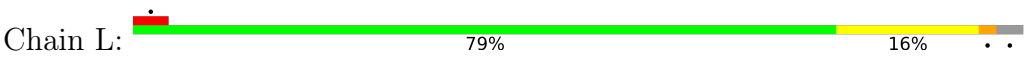
• Molecule 13: 40S ribosomal protein S8

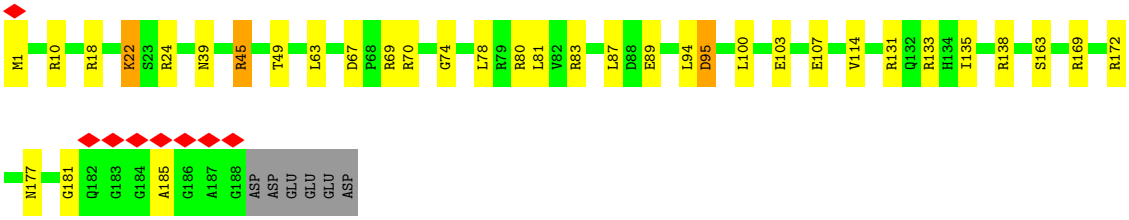
Chain K:



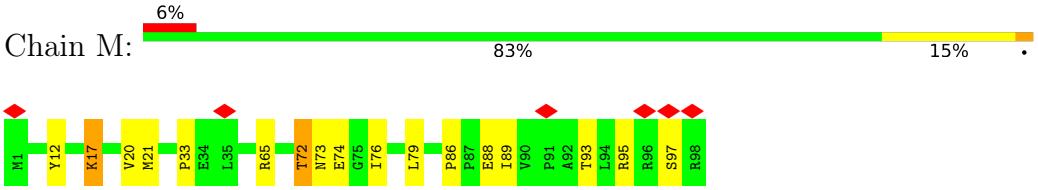
• Molecule 14: 40S ribosomal protein S9

Chain L:

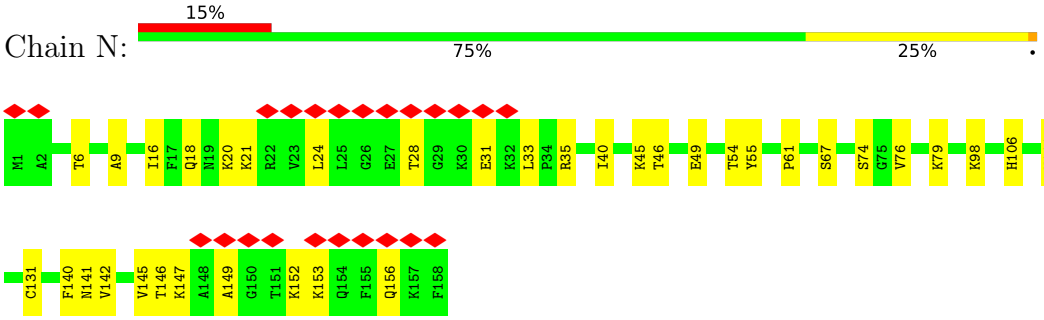




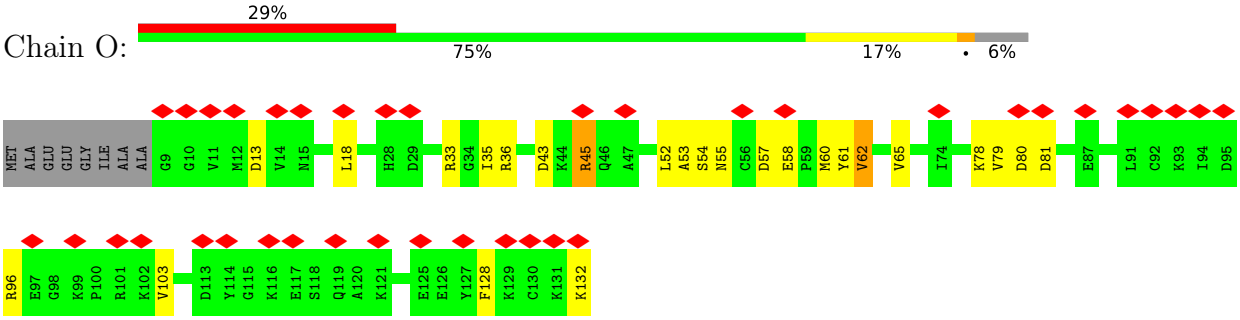
• Molecule 15: 40S ribosomal protein eS10



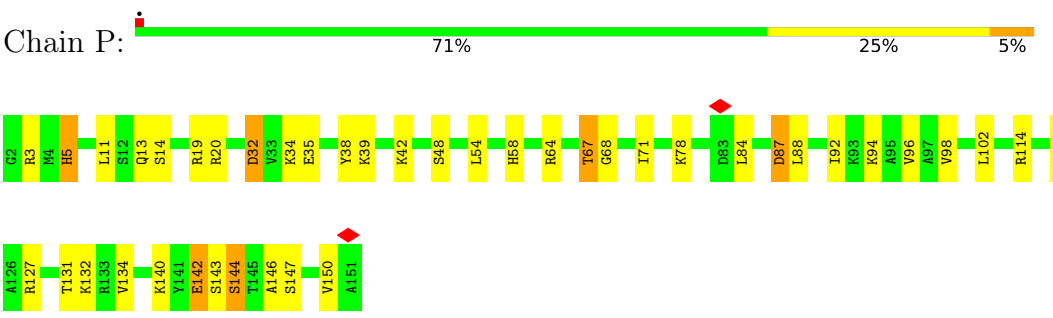
• Molecule 16: 40S ribosomal protein S11



• Molecule 17: 40S ribosomal protein S12

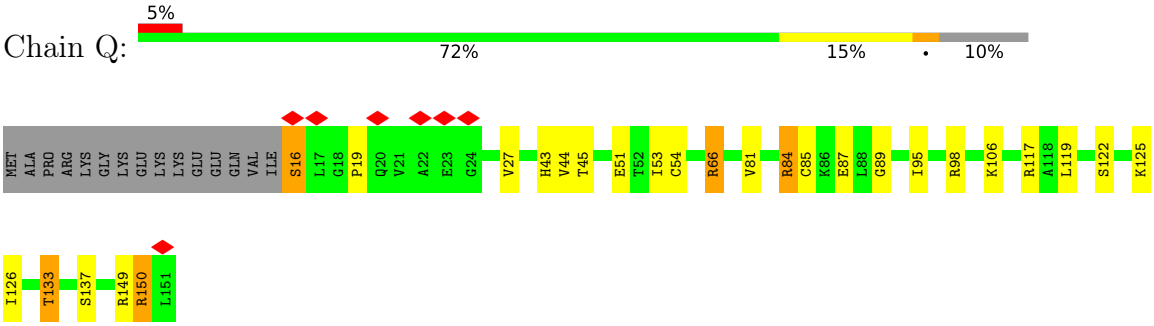


• Molecule 18: ribosomal protein uS15



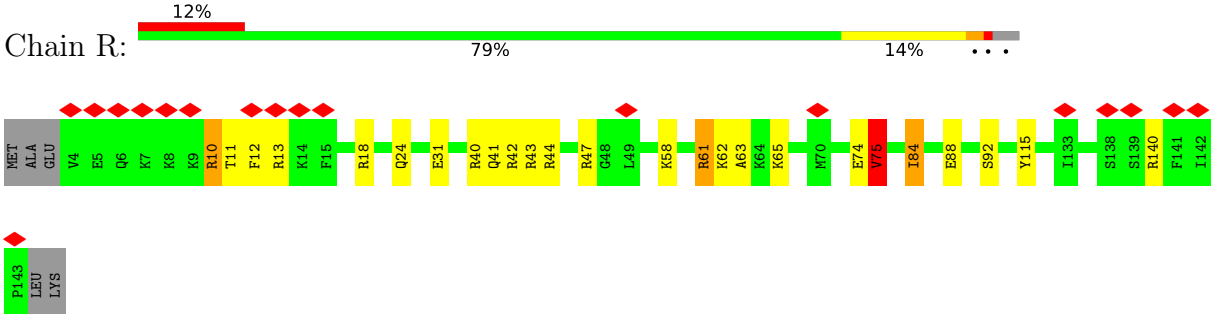
• Molecule 19: 40S ribosomal protein uS11

Chain Q:



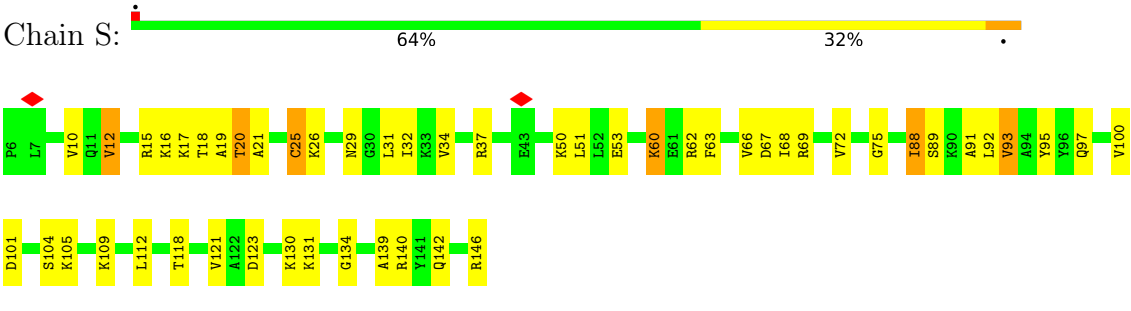
• Molecule 20: 40S ribosomal protein uS19

Chain R:



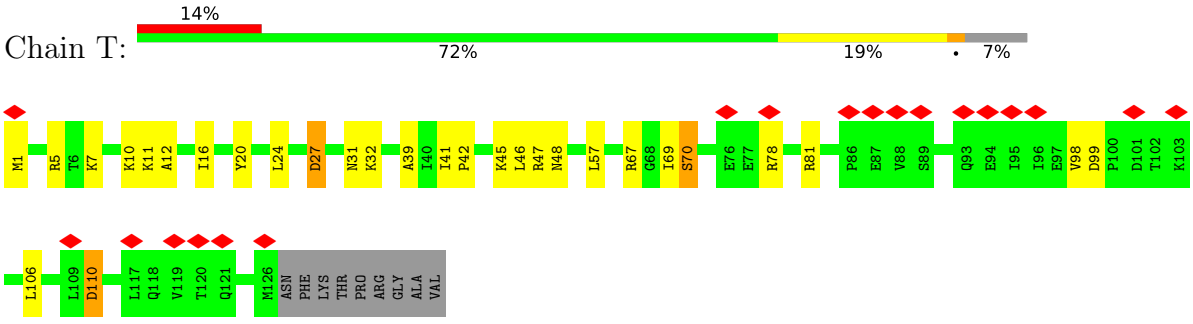
• Molecule 21: 40S ribosomal protein uS9

Chain S:



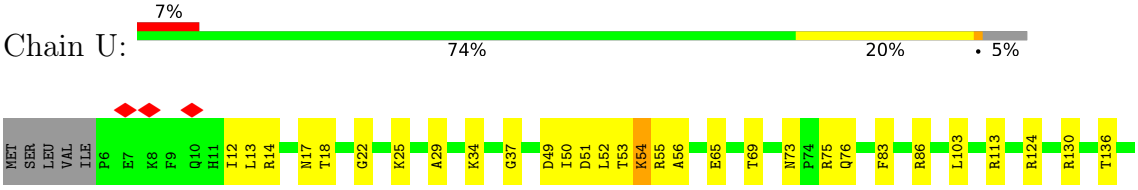
• Molecule 22: 40S ribosomal protein eS17

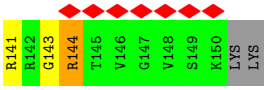
Chain T:



• Molecule 23: 40S ribosomal protein uS13

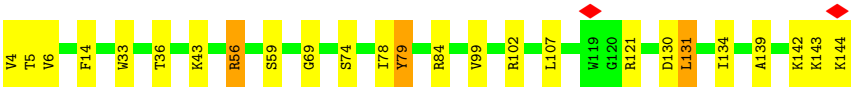
Chain U:





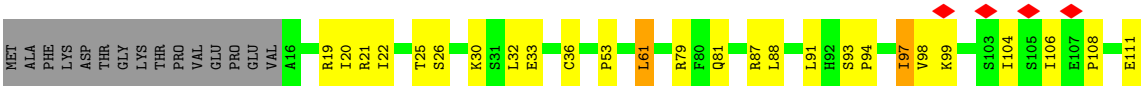
• Molecule 24: 40S ribosomal protein eS19

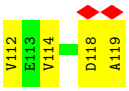
Chain V:



• Molecule 25: 40S ribosomal protein uS10

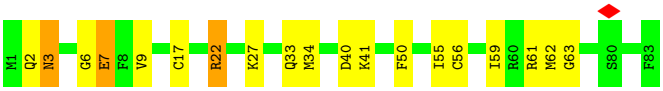
Chain W:





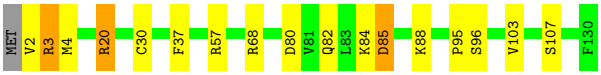
• Molecule 26: 40S ribosomal protein S21

Chain X:



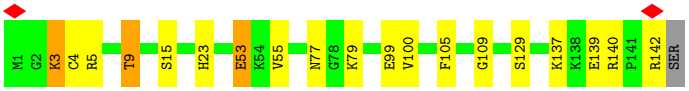
• Molecule 27: Ribosomal protein S15a

Chain Y:



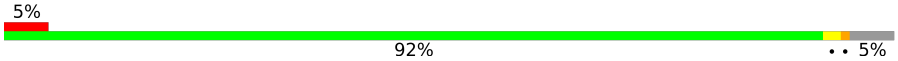
• Molecule 28: 40S ribosomal protein S23

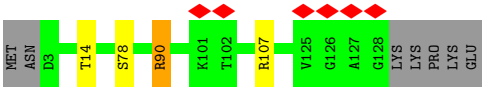
Chain Z:



• Molecule 29: 40S ribosomal protein S24

Chain a:



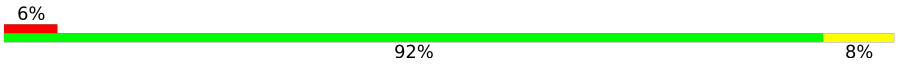


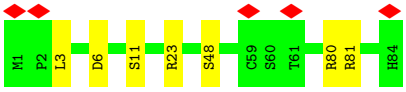
• Molecule 30: 40S ribosomal protein S26

Chain b:

• Molecule 31: 40S ribosomal protein S27

Chain c:





• Molecule 32: 40S ribosomal protein S28

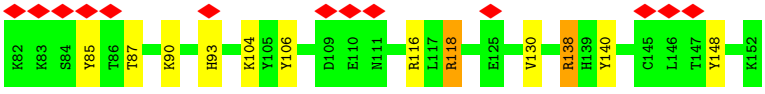
Chain d:

• Molecule 33: 40S ribosomal protein S29

Chain e:

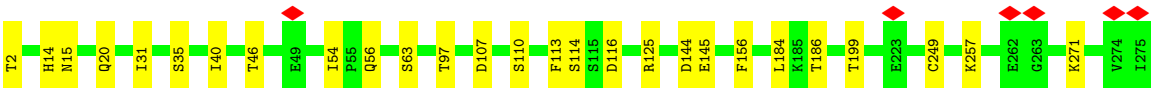
• Molecule 34: ribosomal protein eS31

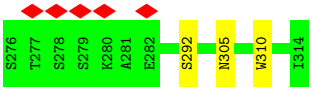
Chain f:



• Molecule 35: Ribosomal protein RACK1

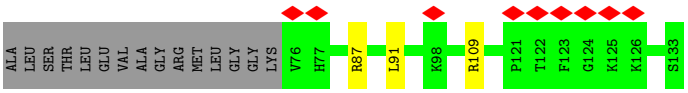
Chain g:





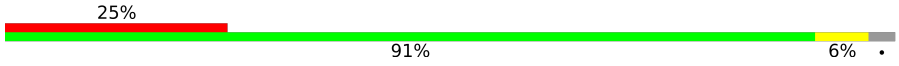
• Molecule 36: 40S ribosomal protein S30

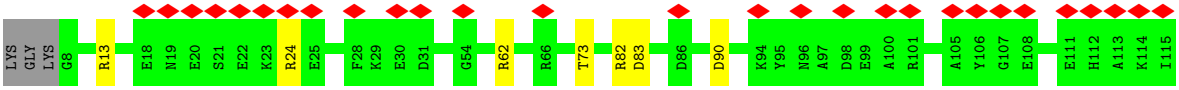
Chain i:



• Molecule 37: Eukaryotic translation initiation factor 4C

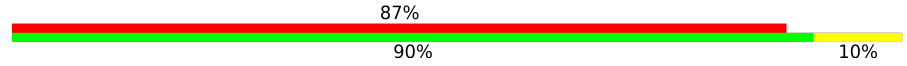
Chain j:

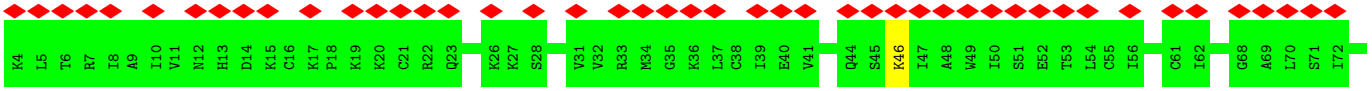


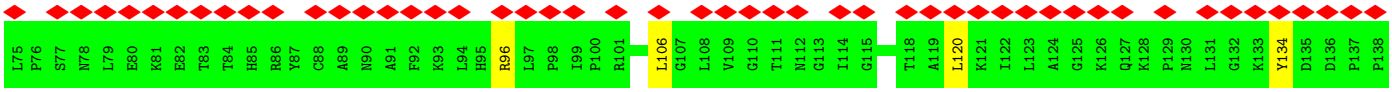


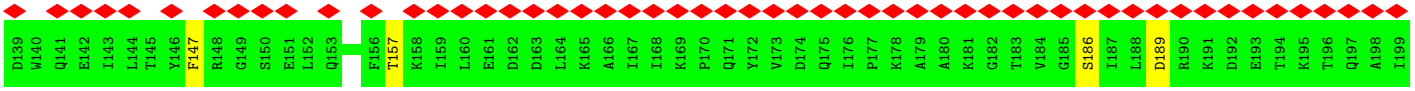
• Molecule 38: ATP binding cassette subfamily E member 1

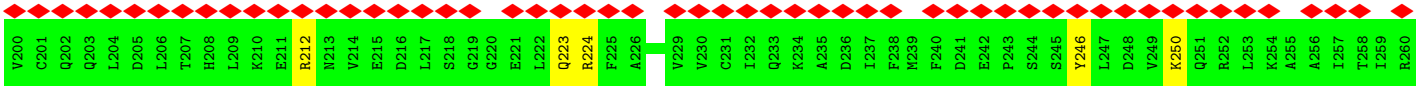
Chain k:

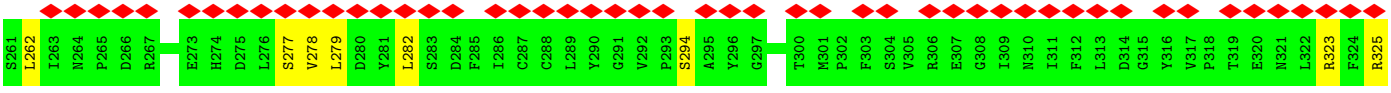


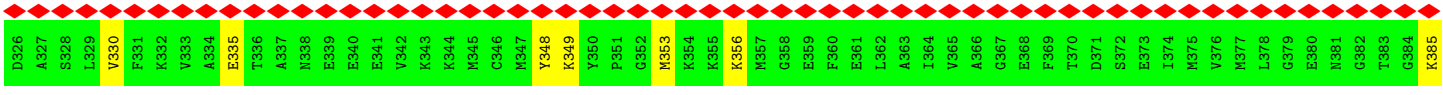


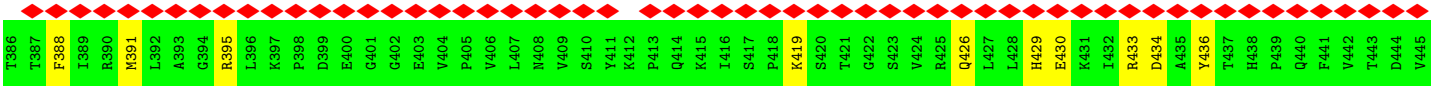


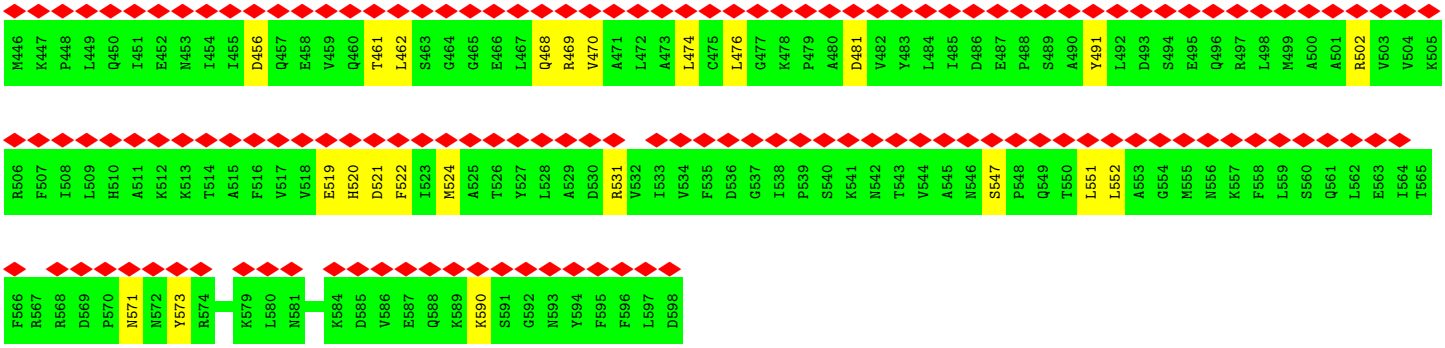




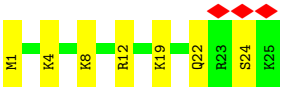




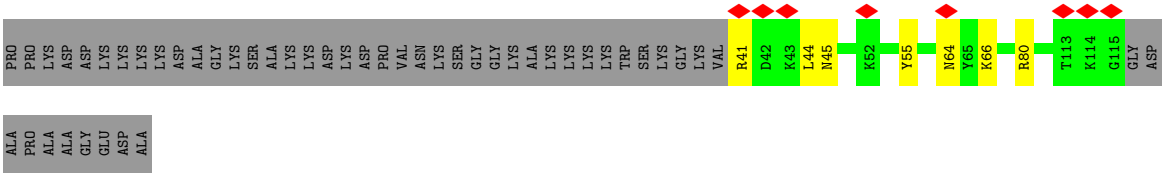




• Molecule 39: 60S ribosomal protein L41



• Molecule 40: 40S ribosomal protein S25



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	74515	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	45	Depositor
Minimum defocus (nm)	300	Depositor
Maximum defocus (nm)	2300	Depositor
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.112	Depositor
Minimum map value	-0.060	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.013	Depositor
Map size (Å)	422.40002, 422.40002, 422.40002	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: T6A, MG, I2T

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	0.95	4/1773 (0.2%)	1.55	28/2763 (1.0%)
2	2	1.27	87/41502 (0.2%)	1.51	913/64679 (1.4%)
3	3	1.48	0/214	2.42	18/331 (5.4%)
4	A	0.37	0/2177	0.63	5/2935 (0.2%)
5	C	0.62	0/1674	0.85	5/2275 (0.2%)
6	D	0.51	0/1769	0.63	0/2367
7	E	0.60	0/1794	0.77	2/2430 (0.1%)
8	F	0.52	0/1792	0.65	2/2412 (0.1%)
9	G	0.53	0/2125	0.70	3/2856 (0.1%)
10	H	0.56	0/1503	0.86	4/2020 (0.2%)
11	I	0.55	0/1946	0.84	9/2588 (0.3%)
12	J	0.49	0/1553	0.81	3/2079 (0.1%)
13	K	0.58	0/1709	0.82	6/2278 (0.3%)
14	L	0.63	0/1567	0.93	6/2092 (0.3%)
15	M	0.55	0/852	0.82	1/1147 (0.1%)
16	N	0.60	0/1319	0.58	0/1761
17	O	0.53	0/968	0.95	2/1296 (0.2%)
18	P	0.55	0/1232	0.72	3/1656 (0.2%)
19	Q	0.55	0/1029	0.81	2/1380 (0.1%)
20	R	0.67	0/1177	1.13	8/1571 (0.5%)
21	S	0.59	0/1142	0.79	3/1528 (0.2%)
22	T	0.58	0/1031	0.84	2/1383 (0.1%)
23	U	0.49	0/1212	0.70	3/1621 (0.2%)
24	V	0.57	0/1133	0.93	6/1517 (0.4%)
25	W	0.48	0/832	0.70	1/1117 (0.1%)
26	X	0.54	0/643	0.68	0/860
27	Y	0.62	0/1051	0.82	1/1406 (0.1%)
28	Z	0.59	0/1124	0.91	2/1500 (0.1%)
29	a	0.61	0/1038	0.93	2/1380 (0.1%)
30	b	0.68	0/802	0.92	6/1076 (0.6%)
31	c	0.53	0/673	0.90	3/902 (0.3%)
32	d	0.52	0/508	0.75	0/680

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	e	0.66	0/454	1.03	6/603 (1.0%)
34	f	0.62	0/594	0.98	5/786 (0.6%)
35	g	0.47	0/2494	0.72	1/3394 (0.0%)
36	i	0.69	0/469	1.08	2/617 (0.3%)
37	j	0.58	0/884	1.01	4/1175 (0.3%)
38	k	0.55	0/4780	0.92	11/6452 (0.2%)
39	l	0.51	0/241	0.46	0/305
40	n	0.39	0/604	0.54	0/810
All	All	0.96	91/91384 (0.1%)	1.23	1078/132028 (0.8%)

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
1	1	0	1
2	2	0	131
3	3	0	1
4	A	0	1
5	C	0	1
7	E	0	1
9	G	0	1
10	H	0	1
11	I	0	3
13	K	0	3
19	Q	0	2
24	V	0	2
27	Y	0	1
29	a	0	1
32	d	0	1
34	f	0	1
38	k	0	4
All	All	0	156

All (91) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	72	U	O3'-P	-15.83	1.42	1.61
2	2	1245	C	O3'-P	-15.31	1.42	1.61
2	2	1708	C	C4-N4	-10.85	1.24	1.33
2	2	1708	C	P-OP1	7.36	1.61	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	2	A	P-OP1	7.32	1.61	1.49
1	1	2	A	P-OP2	7.25	1.61	1.49
2	2	1129	A	C5-C4	-6.39	1.34	1.38
2	2	1655	C	N3-C4	-6.26	1.29	1.33
2	2	1853	A	C5-C4	-6.24	1.34	1.38
2	2	1140	A	C5-C4	-6.19	1.34	1.38
2	2	1614	A	C6-N6	-6.18	1.29	1.33
2	2	511	A	C5-C4	-6.17	1.34	1.38
2	2	1126	G	N9-C4	-6.13	1.33	1.38
2	2	425	A	C5-C4	-6.11	1.34	1.38
2	2	102	A	C5-C4	-6.04	1.34	1.38
2	2	1161	G	C2-N2	-5.97	1.28	1.34
2	2	1139	A	C5-C4	-5.95	1.34	1.38
2	2	2	A	C5-C4	-5.89	1.34	1.38
2	2	39	A	C5-C4	-5.87	1.34	1.38
2	2	1655	C	C4-N4	-5.87	1.28	1.33
2	2	595	A	C5-C4	-5.81	1.34	1.38
2	2	502	A	C5-C4	-5.80	1.34	1.38
2	2	479	A	C5-C4	-5.78	1.34	1.38
2	2	1083	A	C5-C4	-5.77	1.34	1.38
2	2	500	G	C2-N2	-5.71	1.28	1.34
2	2	1860	A	C5-C4	-5.71	1.34	1.38
2	2	1740	A	C5-C4	-5.69	1.34	1.38
2	2	85	A	C5-C4	-5.68	1.34	1.38
2	2	1614	A	C5-C4	-5.66	1.34	1.38
2	2	654	A	C5-C4	-5.61	1.34	1.38
2	2	953	A	C5-C4	-5.58	1.34	1.38
1	1	28	U	O3'-P	5.58	1.67	1.61
2	2	467	G	C2-N2	-5.51	1.29	1.34
2	2	1216	A	C5-C4	-5.48	1.34	1.38
2	2	1784	A	C5-C4	-5.46	1.34	1.38
2	2	13	C	N3-C4	-5.45	1.30	1.33
2	2	1854	A	C5-C4	-5.45	1.34	1.38
2	2	1089	A	C5-C4	-5.43	1.34	1.38
2	2	513	A	C5-C4	-5.42	1.34	1.38
2	2	1161	G	N1-C2	-5.42	1.33	1.37
2	2	1245	C	C4-N4	-5.41	1.29	1.33
2	2	1233	C	C4-N4	-5.38	1.29	1.33
2	2	13	C	C4-N4	-5.38	1.29	1.33
2	2	1236	A	C5-C4	-5.38	1.34	1.38
2	2	483	A	C5-C4	-5.36	1.35	1.38
2	2	1307	C	C4-N4	-5.35	1.29	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1656	A	C5-C4	-5.34	1.35	1.38
2	2	1516	C	C4-N4	-5.33	1.29	1.33
2	2	53	C	C4-N4	-5.33	1.29	1.33
2	2	564	A	C5-C4	-5.31	1.35	1.38
2	2	1332	C	C4-N4	-5.31	1.29	1.33
2	2	1104	G	C2-N2	-5.29	1.29	1.34
2	2	498	A	C5-C4	-5.28	1.35	1.38
2	2	598	C	C4-N4	-5.28	1.29	1.33
2	2	1515	G	C2-N2	-5.28	1.29	1.34
2	2	1556	A	C5-C4	-5.27	1.35	1.38
2	2	824	G	C2-N2	-5.27	1.29	1.34
2	2	843	A	C5-C4	-5.25	1.35	1.38
2	2	675	A	C5-C4	-5.25	1.35	1.38
2	2	918	A	C5-C4	-5.22	1.35	1.38
2	2	626	C	C4-N4	-5.21	1.29	1.33
2	2	1385	C	C4-N4	-5.21	1.29	1.33
2	2	1260	C	C4-N4	-5.21	1.29	1.33
2	2	50	A	C5-C4	-5.20	1.35	1.38
2	2	1380	C	C4-N4	-5.20	1.29	1.33
2	2	437	A	C6-N1	-5.20	1.31	1.35
2	2	1785	A	C5-C4	-5.20	1.35	1.38
2	2	1243	C	C4-N4	-5.19	1.29	1.33
2	2	469	C	C4-N4	-5.18	1.29	1.33
2	2	565	A	C5-C4	-5.17	1.35	1.38
2	2	614	C	C4-N4	-5.16	1.29	1.33
2	2	18	C	C4-N4	-5.16	1.29	1.33
2	2	1263	C	C4-N4	-5.16	1.29	1.33
2	2	1487	G	C2-N2	-5.16	1.29	1.34
2	2	1383	G	C2-N2	-5.15	1.29	1.34
2	2	1250	C	C4-N4	-5.15	1.29	1.33
2	2	589	A	C5-C4	-5.13	1.35	1.38
2	2	860	A	C5-C4	-5.10	1.35	1.38
2	2	436	G	C2-N2	-5.09	1.29	1.34
2	2	1280	A	C5-C4	-5.08	1.35	1.38
2	2	1203	G	C2-N2	-5.07	1.29	1.34
2	2	1214	C	C4-N4	-5.06	1.29	1.33
2	2	799	C	C4-N4	-5.04	1.29	1.33
2	2	540	C	C4-N4	-5.04	1.29	1.33
2	2	4	C	C4-N4	-5.04	1.29	1.33
2	2	388	A	N9-C4	-5.04	1.34	1.37
2	2	823	A	C5-C4	-5.03	1.35	1.38
2	2	1557	C	C4-N4	-5.03	1.29	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	436	G	N1-C2	-5.01	1.33	1.37
2	2	1138	G	C2-N2	-5.01	1.29	1.34
2	2	1351	C	C4-N4	-5.01	1.29	1.33

All (1078) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	72	U	OP2-P-O3'	-38.61	20.26	105.20
2	2	78	C	O4'-C1'-N1	13.35	118.88	108.20
2	2	1245	C	OP2-P-O3'	12.87	133.52	105.20
2	2	1551	A	N1-C6-N6	-12.44	111.14	118.60
1	1	72	U	OP1-P-O3'	12.43	132.53	105.20
2	2	74	G	O4'-C1'-N9	12.29	118.04	108.20
2	2	498	A	N1-C6-N6	-12.09	111.34	118.60
2	2	606	A	N1-C6-N6	-11.87	111.48	118.60
2	2	915	A	O4'-C1'-N9	11.87	117.69	108.20
1	1	28	U	P-O3'-C3'	-11.53	105.87	119.70
2	2	1054	A	O4'-C1'-N9	11.29	117.24	108.20
20	R	42	ARG	NE-CZ-NH2	11.26	125.93	120.30
2	2	573	A	N1-C6-N6	-11.24	111.85	118.60
2	2	1562	G	O4'-C1'-N9	10.85	116.88	108.20
2	2	1480	A	N1-C6-N6	-10.72	112.17	118.60
2	2	1785	A	N1-C6-N6	-10.68	112.19	118.60
2	2	1551	A	C1'-O4'-C4'	-10.61	101.42	109.90
1	1	35	A	N1-C6-N6	-10.34	112.39	118.60
2	2	1635	A	N1-C6-N6	-10.23	112.46	118.60
2	2	150	A	N1-C6-N6	-10.19	112.48	118.60
2	2	1817	A	N1-C6-N6	-10.15	112.51	118.60
2	2	491	C	C2-N1-C1'	10.09	129.90	118.80
3	3	49	A	O4'-C1'-N9	10.04	116.23	108.20
2	2	84	A	N1-C6-N6	-10.01	112.60	118.60
2	2	512	A	N1-C6-N6	-9.97	112.62	118.60
2	2	958	A	N1-C6-N6	-9.91	112.65	118.60
2	2	423	A	N1-C6-N6	-9.85	112.69	118.60
2	2	304	A	N1-C6-N6	-9.84	112.69	118.60
2	2	954	G	O4'-C1'-N9	9.84	116.07	108.20
2	2	909	A	N1-C6-N6	-9.81	112.72	118.60
2	2	1246	A	N1-C6-N6	-9.80	112.72	118.60
2	2	190	A	N1-C6-N6	-9.78	112.73	118.60
2	2	819	U	O4'-C1'-N1	9.74	115.99	108.20
2	2	1190	A	N1-C6-N6	-9.71	112.77	118.60
2	2	1056	A	N1-C6-N6	-9.70	112.78	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1482	A	N1-C6-N6	-9.69	112.78	118.60
2	2	27	A	N1-C6-N6	-9.68	112.79	118.60
2	2	1818	A	N1-C6-N6	-9.68	112.79	118.60
2	2	437	A	N1-C6-N6	-9.66	112.80	118.60
2	2	1139	A	N1-C6-N6	-9.65	112.81	118.60
2	2	1382	A	N1-C6-N6	-9.65	112.81	118.60
2	2	916	A	N1-C6-N6	-9.63	112.82	118.60
2	2	68	A	N1-C6-N6	-9.62	112.83	118.60
2	2	476	A	N1-C6-N6	-9.62	112.83	118.60
2	2	438	A	N1-C6-N6	-9.59	112.85	118.60
2	2	85	A	N1-C6-N6	-9.50	112.90	118.60
2	2	50	A	N1-C6-N6	-9.47	112.92	118.60
2	2	580	A	N1-C6-N6	-9.45	112.93	118.60
2	2	38	A	N1-C6-N6	-9.43	112.94	118.60
2	2	1819	A	N1-C6-N6	-9.42	112.94	118.60
2	2	1105	C	N3-C2-O2	-9.39	115.33	121.90
2	2	429	A	N1-C6-N6	-9.38	112.97	118.60
2	2	474	A	N1-C6-N6	-9.34	113.00	118.60
2	2	175	A	N1-C6-N6	-9.34	113.00	118.60
2	2	518	A	N1-C6-N6	-9.32	113.01	118.60
2	2	619	A	N1-C6-N6	-9.32	113.01	118.60
3	3	47	A	O4'-C1'-N9	9.32	115.66	108.20
2	2	1297	A	N1-C6-N6	-9.32	113.01	118.60
2	2	823	A	N1-C6-N6	-9.26	113.04	118.60
2	2	513	A	N1-C6-N6	-9.23	113.06	118.60
2	2	39	A	N1-C6-N6	-9.18	113.09	118.60
2	2	565	A	N1-C6-N6	-9.18	113.09	118.60
2	2	104	A	N1-C6-N6	-9.16	113.10	118.60
2	2	1185	A	N1-C6-N6	-9.13	113.12	118.60
2	2	1343	U	O4'-C1'-N1	9.11	115.49	108.20
2	2	102	A	N1-C6-N6	-9.10	113.14	118.60
2	2	606	A	C5-C6-N1	9.08	122.24	117.70
3	3	49	A	N1-C6-N6	-9.07	113.16	118.60
2	2	1245	C	OP1-P-O3'	-9.06	85.27	105.20
2	2	42	A	N1-C6-N6	-9.05	113.17	118.60
33	e	19	ARG	NE-CZ-NH2	9.03	124.81	120.30
2	2	1210	A	N1-C6-N6	-9.01	113.19	118.60
2	2	73	C	N3-C2-O2	-9.00	115.60	121.90
2	2	1089	A	N1-C6-N6	-9.00	113.20	118.60
2	2	918	A	N1-C6-N6	-8.99	113.20	118.60
2	2	483	A	N1-C6-N6	-8.98	113.21	118.60
2	2	1280	A	N1-C6-N6	-8.97	113.22	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	171	A	N1-C6-N6	-8.96	113.22	118.60
2	2	595	A	C5-C6-N1	8.95	122.17	117.70
2	2	1574	A	N1-C6-N6	-8.94	113.23	118.60
2	2	1655	C	N3-C2-O2	-8.94	115.64	121.90
2	2	1053	C	N3-C2-O2	-8.93	115.65	121.90
24	V	121	ARG	NE-CZ-NH2	8.93	124.77	120.30
2	2	1564	A	N1-C6-N6	-8.92	113.25	118.60
2	2	595	A	N1-C6-N6	-8.91	113.25	118.60
2	2	1090	C	N3-C2-O2	-8.91	115.66	121.90
2	2	1184	A	N1-C6-N6	-8.90	113.26	118.60
2	2	45	A	N1-C6-N6	-8.88	113.27	118.60
2	2	1547	G	P-O3'-C3'	8.86	130.34	119.70
2	2	1855	G	O4'-C1'-N9	8.85	115.28	108.20
2	2	1614	A	C5-C6-N1	8.81	122.11	117.70
2	2	654	A	N1-C6-N6	-8.78	113.33	118.60
1	1	2	A	P-O5'-C5'	-8.76	106.88	120.90
2	2	2	A	N1-C6-N6	-8.74	113.36	118.60
2	2	1051	A	C5-C6-N1	8.74	122.07	117.70
2	2	1784	A	N1-C6-N6	-8.73	113.36	118.60
2	2	1829	A	C5-C6-N1	8.73	122.07	117.70
2	2	1309	A	N1-C6-N6	-8.69	113.39	118.60
10	H	151	ARG	NE-CZ-NH2	8.65	124.62	120.30
2	2	1083	A	N1-C6-N6	-8.64	113.42	118.60
38	k	323	ARG	NE-CZ-NH2	8.64	124.62	120.30
2	2	42	A	C5-C6-N1	8.64	122.02	117.70
2	2	1826	A	N1-C6-N6	-8.63	113.42	118.60
37	j	24	ARG	NE-CZ-NH2	8.60	124.60	120.30
2	2	79	A	N1-C6-N6	-8.58	113.45	118.60
2	2	83	A	N1-C6-N6	-8.57	113.45	118.60
37	j	82	ARG	NE-CZ-NH2	8.54	124.57	120.30
2	2	1550	U	C1'-O4'-C4'	-8.53	103.07	109.90
2	2	77	A	N1-C6-N6	-8.52	113.49	118.60
2	2	1139	A	C5-C6-N1	8.50	121.95	117.70
2	2	1287	A	N1-C6-N6	-8.50	113.50	118.60
2	2	1236	A	N1-C6-N6	-8.47	113.52	118.60
2	2	564	A	C5-C6-N1	8.46	121.93	117.70
2	2	1297	A	C5-C6-N1	8.46	121.93	117.70
2	2	565	A	C5-C6-N1	8.45	121.93	117.70
20	R	44	ARG	NE-CZ-NH2	8.45	124.53	120.30
2	2	1517	A	N1-C6-N6	-8.44	113.54	118.60
2	2	1472	A	N1-C6-N6	-8.43	113.55	118.60
2	2	474	A	C5-C6-N1	8.41	121.90	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1340	A	N1-C6-N6	-8.37	113.58	118.60
2	2	475	A	N1-C6-N6	-8.36	113.58	118.60
2	2	1247	A	C5-C6-N1	8.35	121.88	117.70
2	2	38	A	O4'-C1'-N9	8.34	114.87	108.20
2	2	953	A	N1-C6-N6	-8.33	113.60	118.60
2	2	1216	A	C5-C6-N1	8.33	121.86	117.70
2	2	909	A	O4'-C1'-N9	8.32	114.86	108.20
2	2	339	A	N1-C6-N6	-8.31	113.61	118.60
2	2	860	A	N1-C6-N6	-8.31	113.61	118.60
2	2	102	A	C5-C6-N1	8.30	121.85	117.70
2	2	618	A	N1-C6-N6	-8.30	113.62	118.60
2	2	483	A	C5-C6-N1	8.29	121.84	117.70
2	2	1340	A	C5-C6-N1	8.27	121.83	117.70
2	2	1126	G	N3-C4-C5	8.25	132.72	128.60
2	2	425	A	C5-C6-N1	8.24	121.82	117.70
2	2	439	A	N1-C6-N6	-8.24	113.66	118.60
2	2	1854	A	N1-C6-N6	-8.24	113.66	118.60
2	2	1247	A	N1-C6-N6	-8.23	113.67	118.60
24	V	79	TYR	CB-CG-CD1	-8.23	116.06	121.00
2	2	580	A	C5-C6-N1	8.22	121.81	117.70
2	2	1424	G	N3-C2-N2	-8.22	114.15	119.90
2	2	524	G	C3'-C2'-C1'	8.19	108.05	101.50
38	k	469	ARG	NE-CZ-NH2	8.19	124.39	120.30
2	2	1483	A	N1-C6-N6	-8.18	113.69	118.60
2	2	1854	A	C5-C6-N1	8.18	121.79	117.70
14	L	80	ARG	NE-CZ-NH2	8.17	124.38	120.30
2	2	38	A	C5-C6-N1	8.15	121.78	117.70
2	2	171	A	C5-C6-N1	8.14	121.77	117.70
2	2	1476	A	N1-C6-N6	-8.14	113.72	118.60
2	2	498	A	C5-C6-N1	8.13	121.76	117.70
2	2	1119	C	N3-C2-O2	-8.12	116.22	121.90
2	2	675	A	N1-C6-N6	-8.11	113.74	118.60
3	3	47	A	N1-C6-N6	-8.10	113.74	118.60
2	2	1186	A	N1-C6-N6	-8.09	113.75	118.60
2	2	1083	A	C5-C6-N1	8.09	121.74	117.70
2	2	1126	G	N3-C4-N9	-8.08	121.15	126.00
2	2	1740	A	N1-C6-N6	-8.08	113.75	118.60
2	2	1237	A	N1-C6-N6	-8.07	113.76	118.60
3	3	52	A	N1-C6-N6	-8.06	113.76	118.60
2	2	190	A	C5-C6-N1	8.06	121.73	117.70
2	2	438	A	C5-C6-N1	8.05	121.73	117.70
2	2	418	U	N3-C2-O2	-8.03	116.58	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	423	A	C5-C6-N1	8.03	121.71	117.70
2	2	170	A	N1-C6-N6	-8.02	113.79	118.60
2	2	1480	A	C5-C6-N1	7.99	121.69	117.70
2	2	1051	A	N1-C6-N6	-7.99	113.81	118.60
2	2	1213	A	N1-C6-N6	-7.98	113.81	118.60
2	2	479	A	C5-C6-N1	7.95	121.68	117.70
2	2	1309	A	C5-C6-N1	7.95	121.68	117.70
2	2	429	A	C5-C6-N1	7.93	121.66	117.70
2	2	1476	A	C5-C6-N1	7.93	121.66	117.70
2	2	1853	A	C5-C6-N1	7.92	121.66	117.70
2	2	103	A	C5-C6-N1	7.92	121.66	117.70
2	2	1482	A	C5-C6-N1	7.91	121.65	117.70
2	2	1818	A	C5-C6-N1	7.91	121.65	117.70
2	2	518	A	C5-C6-N1	7.91	121.65	117.70
13	K	25	ARG	NE-CZ-NH2	7.91	124.25	120.30
2	2	958	A	C5-C6-N1	7.90	121.65	117.70
2	2	338	A	N1-C6-N6	-7.89	113.86	118.60
2	2	1213	A	C5-C6-N1	7.88	121.64	117.70
2	2	1053	C	O4'-C1'-N1	7.88	114.51	108.20
2	2	799	C	N3-C2-O2	-7.88	116.39	121.90
2	2	1829	A	N1-C6-N6	-7.87	113.88	118.60
2	2	1480	A	C4-C5-C6	-7.86	113.07	117.00
2	2	645	A	N1-C6-N6	-7.85	113.89	118.60
2	2	609	A	C5-C6-N1	7.84	121.62	117.70
38	k	323	ARG	NE-CZ-NH1	-7.83	116.38	120.30
2	2	1635	A	C5-C6-N1	7.82	121.61	117.70
2	2	572	U	C5'-C4'-C3'	-7.82	103.48	116.00
2	2	1614	A	N1-C6-N6	-7.81	113.91	118.60
2	2	1104	G	N1-C6-O6	-7.81	115.21	119.90
2	2	1574	A	C5-C6-N1	7.81	121.60	117.70
2	2	1120	C	N3-C2-O2	-7.80	116.44	121.90
2	2	425	A	N1-C6-N6	-7.80	113.92	118.60
2	2	1819	A	C5-C6-N1	7.79	121.59	117.70
2	2	589	A	N1-C6-N6	-7.78	113.93	118.60
2	2	916	A	C5-C6-N1	7.76	121.58	117.70
3	3	47	A	C5-C6-N1	7.75	121.58	117.70
2	2	1190	A	C5-C6-N1	7.75	121.57	117.70
2	2	1089	A	C5-C6-N1	7.74	121.57	117.70
9	G	108	ARG	NE-CZ-NH2	7.73	124.17	120.30
2	2	645	A	C5-C6-N1	7.72	121.56	117.70
2	2	1210	A	C5-C6-N1	7.71	121.56	117.70
2	2	1216	A	N1-C6-N6	-7.71	113.97	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	80	G	O4'-C1'-N9	7.71	114.36	108.20
2	2	491	C	N1-C2-O2	7.70	123.52	118.90
2	2	605	C	N3-C2-O2	-7.70	116.51	121.90
2	2	1140	A	C5-C6-N1	7.69	121.55	117.70
2	2	959	A	C5-C6-N1	7.69	121.55	117.70
2	2	654	A	C5-C6-N1	7.69	121.55	117.70
2	2	1242	A	N1-C6-N6	-7.69	113.99	118.60
2	2	573	A	C5-C6-N1	7.68	121.54	117.70
2	2	437	A	C5-C6-N1	7.67	121.53	117.70
3	3	49	A	C5-C6-N1	7.67	121.53	117.70
2	2	491	C	C6-N1-C1'	-7.66	111.61	120.80
2	2	502	A	C5-C6-N1	7.66	121.53	117.70
14	L	45	ARG	NE-CZ-NH2	7.64	124.12	120.30
2	2	1549	C	N3-C2-O2	-7.64	116.55	121.90
20	R	43	ARG	NE-CZ-NH2	7.64	124.12	120.30
2	2	78	C	N3-C2-O2	-7.63	116.56	121.90
2	2	175	A	C4-C5-C6	-7.63	113.18	117.00
2	2	1246	A	C5-C6-N1	7.63	121.52	117.70
30	b	15	ARG	NE-CZ-NH2	7.62	124.11	120.30
31	c	23	ARG	NE-CZ-NH2	7.62	124.11	120.30
2	2	1144	A	O4'-C1'-N9	7.62	114.29	108.20
2	2	150	A	C5-C6-N1	7.61	121.50	117.70
2	2	1190	A	C4-C5-C6	-7.61	113.19	117.00
2	2	68	A	C4-C5-C6	-7.59	113.20	117.00
2	2	1552	C	N1-C2-O2	7.59	123.46	118.90
2	2	479	A	N1-C6-N6	-7.59	114.05	118.60
2	2	1550	U	C3'-C2'-C1'	-7.59	95.43	101.50
2	2	175	A	C5-C6-N1	7.59	121.50	117.70
2	2	1479	A	O4'-C1'-N9	7.58	114.27	108.20
2	2	1636	A	N1-C6-N6	-7.58	114.05	118.60
2	2	1549	C	C3'-C2'-C1'	7.58	107.56	101.50
2	2	1816	A	C5-C6-N1	7.58	121.49	117.70
2	2	1384	A	C5-C6-N1	7.57	121.49	117.70
18	P	19	ARG	NE-CZ-NH2	7.57	124.08	120.30
2	2	1289	A	C5-C6-N1	7.57	121.48	117.70
2	2	1384	A	N1-C6-N6	-7.56	114.06	118.60
2	2	1564	A	C5-C6-N1	7.55	121.48	117.70
2	2	1056	A	C5-C6-N1	7.55	121.47	117.70
2	2	511	A	C5-C6-N1	7.55	121.47	117.70
2	2	624	A	C5-C6-N1	7.53	121.46	117.70
2	2	1656	A	C5-C6-N1	7.52	121.46	117.70
2	2	1242	A	C5-C6-N1	7.52	121.46	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1272	A	N1-C6-N6	-7.52	114.09	118.60
2	2	559	A	N1-C6-N6	-7.50	114.10	118.60
2	2	83	A	C5-C6-N1	7.50	121.45	117.70
2	2	40	A	N1-C6-N6	-7.49	114.10	118.60
2	2	45	A	C5-C6-N1	7.49	121.44	117.70
2	2	67	C	N3-C2-O2	-7.49	116.66	121.90
2	2	512	A	C5-C6-N1	7.48	121.44	117.70
2	2	39	A	C5-C6-N1	7.48	121.44	117.70
2	2	1551	A	C5-C6-N1	7.47	121.44	117.70
2	2	13	C	N3-C2-O2	-7.46	116.68	121.90
2	2	1424	G	N9-C4-C5	7.46	108.38	105.40
2	2	1862	U	C2-N1-C1'	7.45	126.64	117.70
2	2	960	A	C5-C6-N1	7.45	121.43	117.70
2	2	104	A	C5-C6-N1	7.44	121.42	117.70
5	C	53	ARG	NE-CZ-NH2	7.44	124.02	120.30
2	2	513	A	C5-C6-N1	7.43	121.42	117.70
2	2	1698	C	O4'-C1'-N1	7.43	114.14	108.20
2	2	1129	A	C5-C6-N1	7.42	121.41	117.70
2	2	74	G	N9-C1'-C2'	-7.42	103.84	112.00
2	2	953	A	C5-C6-N1	7.42	121.41	117.70
2	2	589	A	C5-C6-N1	7.41	121.40	117.70
2	2	502	A	N1-C6-N6	-7.40	114.16	118.60
38	k	531	ARG	NE-CZ-NH2	7.39	124.00	120.30
2	2	819	U	N3-C2-O2	-7.39	117.03	122.20
2	2	191	C	N3-C2-O2	-7.39	116.73	121.90
2	2	618	A	C5-C6-N1	7.38	121.39	117.70
2	2	40	A	C5-C6-N1	7.37	121.39	117.70
2	2	1186	A	C5-C6-N1	7.37	121.38	117.70
2	2	1483	A	C5-C6-N1	7.36	121.38	117.70
2	2	596	G	O4'-C1'-N9	7.36	114.08	108.20
2	2	1449	C	C2-N1-C1'	7.35	126.89	118.80
22	T	81	ARG	NE-CZ-NH2	7.35	123.97	120.30
2	2	1784	A	C5-C6-N1	7.34	121.37	117.70
2	2	516	A	C5-C6-N1	7.34	121.37	117.70
2	2	860	A	C5-C6-N1	7.33	121.37	117.70
2	2	471	C	N3-C2-O2	-7.33	116.77	121.90
24	V	143	LYS	O-C-N	-7.32	110.99	122.70
2	2	564	A	N1-C6-N6	-7.32	114.21	118.60
2	2	339	A	C5-C6-N1	7.31	121.36	117.70
2	2	476	A	C5-C6-N1	7.30	121.35	117.70
2	2	1587	C	N3-C2-O2	-7.29	116.79	121.90
2	2	1573	U	N3-C2-O2	-7.29	117.10	122.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1237	A	C5-C6-N1	7.29	121.34	117.70
2	2	1054	A	C5-C6-N1	7.28	121.34	117.70
2	2	151	C	N3-C2-O2	-7.27	116.81	121.90
2	2	517	C	N3-C2-O2	-7.27	116.81	121.90
2	2	958	A	C4-C5-C6	-7.26	113.37	117.00
2	2	622	C	N3-C2-O2	-7.26	116.82	121.90
2	2	609	A	N1-C6-N6	-7.25	114.25	118.60
1	1	41	C	C3'-C2'-C1'	7.25	107.30	101.50
2	2	909	A	C4-C5-C6	-7.25	113.38	117.00
2	2	1853	A	N1-C6-N6	-7.24	114.25	118.60
2	2	73	C	N1-C2-O2	7.24	123.24	118.90
2	2	4	C	N3-C2-O2	-7.23	116.84	121.90
2	2	918	A	C5-C6-N1	7.22	121.31	117.70
2	2	1280	A	C5-C6-N1	7.22	121.31	117.70
2	2	1552	C	N3-C2-O2	-7.22	116.85	121.90
2	2	84	A	C5-C6-N1	7.21	121.30	117.70
2	2	69	C	O4'-C1'-N1	7.21	113.96	108.20
2	2	1140	A	N1-C6-N6	-7.20	114.28	118.60
2	2	559	A	C5-C6-N1	7.18	121.29	117.70
2	2	1551	A	O4'-C1'-N9	7.18	113.95	108.20
2	2	68	A	C5-C6-N1	7.18	121.29	117.70
2	2	823	A	C5-C6-N1	7.17	121.29	117.70
2	2	1382	A	C5-C6-N1	7.17	121.28	117.70
2	2	53	C	N3-C2-O2	-7.15	116.90	121.90
2	2	959	A	N1-C6-N6	-7.14	114.31	118.60
2	2	1530	U	C2-N1-C1'	7.14	126.27	117.70
2	2	103	A	N1-C6-N6	-7.13	114.32	118.60
2	2	50	A	C5-C6-N1	7.11	121.26	117.70
2	2	341	G	N1-C6-O6	-7.11	115.63	119.90
3	3	52	A	C5-C6-N1	7.11	121.26	117.70
2	2	474	A	C4-C5-C6	-7.10	113.45	117.00
7	E	164	ARG	NE-CZ-NH2	7.10	123.85	120.30
2	2	624	A	N1-C6-N6	-7.10	114.34	118.60
2	2	361	A	C5-C6-N1	7.09	121.25	117.70
2	2	85	A	C4-C5-C6	-7.09	113.46	117.00
2	2	511	A	N1-C6-N6	-7.08	114.35	118.60
1	1	41	C	N3-C2-O2	-7.08	116.95	121.90
2	2	2	A	C5-C6-N1	7.07	121.23	117.70
2	2	1816	A	O4'-C1'-N9	7.07	113.86	108.20
2	2	348	C	N3-C2-O2	-7.06	116.96	121.90
2	2	439	A	C5-C6-N1	7.05	121.23	117.70
1	1	35	A	C5-C6-N1	7.05	121.23	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	491	C	N3-C2-O2	-7.05	116.97	121.90
2	2	71	G	P-O3'-C3'	7.04	128.15	119.70
2	2	675	A	C5-C6-N1	7.04	121.22	117.70
2	2	1272	A	C5-C6-N1	7.04	121.22	117.70
2	2	1332	C	N3-C2-O2	-7.03	116.98	121.90
2	2	482	C	O4'-C1'-N1	7.03	113.82	108.20
2	2	843	A	N1-C6-N6	-7.03	114.38	118.60
2	2	1560	C	N3-C2-O2	-7.02	116.98	121.90
2	2	1792	C	N3-C2-O2	-7.02	116.98	121.90
20	R	47	ARG	NE-CZ-NH2	7.02	123.81	120.30
2	2	1120	C	C3'-C2'-C1'	7.01	107.11	101.50
34	f	138	ARG	NE-CZ-NH2	7.01	123.81	120.30
11	I	132	ARG	NE-CZ-NH2	7.01	123.81	120.30
2	2	1556	A	C5-C6-N1	7.01	121.20	117.70
2	2	653	C	N3-C2-O2	-7.00	117.00	121.90
2	2	1517	A	C5-C6-N1	7.00	121.20	117.70
24	V	121	ARG	NE-CZ-NH1	-7.00	116.80	120.30
2	2	524	G	O4'-C1'-N9	6.99	113.79	108.20
2	2	37	C	N3-C2-O2	-6.98	117.02	121.90
11	I	142	ARG	NE-CZ-NH2	6.98	123.79	120.30
29	a	107	ARG	NE-CZ-NH2	6.97	123.79	120.30
2	2	27	A	C5-C6-N1	6.97	121.18	117.70
21	S	146	ARG	NE-CZ-NH2	6.96	123.78	120.30
2	2	606	A	C4-C5-C6	-6.96	113.52	117.00
1	1	38	A	N1-C6-N6	-6.96	114.42	118.60
4	A	54	ARG	NE-CZ-NH2	6.95	123.78	120.30
2	2	970	C	N3-C2-O2	-6.95	117.04	121.90
2	2	142	C	N3-C2-O2	-6.95	117.04	121.90
37	j	62	ARG	NE-CZ-NH2	6.94	123.77	120.30
2	2	1551	A	C4-C5-C6	-6.93	113.53	117.00
2	2	1280	A	C4-C5-C6	-6.92	113.54	117.00
2	2	170	A	C5-C6-N1	6.92	121.16	117.70
2	2	1184	A	C5-C6-N1	6.92	121.16	117.70
2	2	1237	A	C3'-C2'-C1'	6.91	107.03	101.50
2	2	361	A	N1-C6-N6	-6.91	114.45	118.60
2	2	1185	A	C5-C6-N1	6.90	121.15	117.70
2	2	1518	C	N3-C2-O2	-6.88	117.08	121.90
2	2	595	A	C4-C5-C6	-6.88	113.56	117.00
1	1	41	C	O4'-C1'-N1	6.88	113.70	108.20
2	2	1825	A	C5-C6-N1	6.88	121.14	117.70
20	R	18	ARG	NE-CZ-NH2	6.88	123.74	120.30
18	P	20	ARG	NE-CZ-NH2	6.87	123.73	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	598	C	N3-C2-O2	-6.85	117.10	121.90
2	2	516	A	N1-C6-N6	-6.85	114.49	118.60
2	2	909	A	C5-C6-N1	6.85	121.12	117.70
2	2	1305	C	N3-C2-O2	-6.84	117.11	121.90
2	2	1333	C	N3-C2-O2	-6.84	117.11	121.90
2	2	1635	A	C4-C5-C6	-6.84	113.58	117.00
1	1	35	A	C4-C5-C6	-6.83	113.58	117.00
2	2	469	C	N3-C2-O2	-6.81	117.13	121.90
2	2	198	U	O4'-C1'-N1	6.81	113.65	108.20
2	2	423	A	C4-C5-C6	-6.80	113.60	117.00
2	2	618	A	C4-C5-C6	-6.80	113.60	117.00
2	2	1333	C	O4'-C1'-N1	6.80	113.64	108.20
2	2	1708	C	OP1-P-OP2	-6.80	109.40	119.60
2	2	1105	C	N1-C2-O2	6.78	122.97	118.90
1	1	2	A	OP1-P-OP2	-6.78	109.43	119.60
33	e	32	ARG	NE-CZ-NH2	6.78	123.69	120.30
2	2	1556	A	N1-C6-N6	-6.78	114.53	118.60
20	R	10	ARG	NE-CZ-NH2	6.78	123.69	120.30
36	i	109	ARG	NE-CZ-NH2	6.78	123.69	120.30
2	2	987	G	C3'-C2'-C1'	6.78	106.92	101.50
2	2	1516	C	N3-C2-O2	-6.77	117.16	121.90
2	2	960	A	N1-C6-N6	-6.77	114.54	118.60
2	2	369	C	N3-C2-O2	-6.76	117.17	121.90
2	2	1484	C	N3-C2-O2	-6.75	117.17	121.90
11	I	231	ARG	NE-CZ-NH2	6.75	123.68	120.30
35	g	125	ARG	NE-CZ-NH2	6.75	123.67	120.30
2	2	16	G	N1-C6-O6	-6.74	115.86	119.90
2	2	1385	C	N3-C2-O2	-6.74	117.18	121.90
2	2	73	C	P-O3'-C3'	6.73	127.78	119.70
2	2	369	C	O4'-C1'-N1	6.73	113.59	108.20
2	2	42	A	C4-C5-C6	-6.73	113.64	117.00
2	2	565	A	C4-C5-C6	-6.73	113.63	117.00
2	2	429	A	C4-C5-C6	-6.72	113.64	117.00
25	W	79	ARG	NE-CZ-NH2	6.72	123.66	120.30
2	2	67	C	P-O3'-C3'	6.72	127.76	119.70
2	2	493	C	N3-C2-O2	-6.71	117.20	121.90
2	2	619	A	C5-C6-N1	6.70	121.05	117.70
2	2	540	C	C5'-C4'-C3'	-6.68	105.31	116.00
2	2	77	A	C4-C5-C6	-6.68	113.66	117.00
18	P	64	ARG	NE-CZ-NH2	6.68	123.64	120.30
2	2	629	C	N3-C2-O2	-6.67	117.23	121.90
2	2	472	G	N1-C6-O6	-6.66	115.90	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1862	U	N1-C2-O2	6.66	127.46	122.80
2	2	190	A	C4-C5-C6	-6.66	113.67	117.00
2	2	1678	C	N3-C2-O2	-6.64	117.25	121.90
1	1	34	C	N3-C2-O2	-6.63	117.25	121.90
2	2	77	A	C5-C6-N1	6.63	121.02	117.70
2	2	1236	A	C5-C6-N1	6.63	121.02	117.70
2	2	79	A	C5-C6-N1	6.63	121.02	117.70
2	2	1335	U	O4'-C1'-N1	6.62	113.50	108.20
30	b	6	ARG	NE-CZ-NH2	6.62	123.61	120.30
8	F	76	ARG	NE-CZ-NH2	6.62	123.61	120.30
2	2	1588	C	N3-C2-O2	-6.62	117.27	121.90
2	2	76	U	C5'-C4'-O4'	6.61	117.03	109.10
2	2	1550	U	O4'-C1'-N1	6.61	113.49	108.20
1	1	38	A	C5-C6-N1	6.60	121.00	117.70
2	2	106	C	N3-C2-O2	-6.60	117.28	121.90
2	2	377	C	N3-C2-O2	-6.60	117.28	121.90
2	2	1818	A	C4-C5-C6	-6.60	113.70	117.00
2	2	174	C	N3-C2-O2	-6.60	117.28	121.90
2	2	1233	C	N3-C2-O2	-6.60	117.28	121.90
2	2	1054	A	N1-C6-N6	-6.60	114.64	118.60
2	2	596	G	C1'-O4'-C4'	-6.59	104.63	109.90
2	2	85	A	C4'-C3'-C2'	-6.59	96.01	102.60
2	2	69	C	N3-C2-O2	-6.59	117.29	121.90
2	2	306	C	O4'-C1'-N1	6.58	113.46	108.20
2	2	338	A	C4-C5-C6	-6.58	113.71	117.00
10	H	150	ARG	NE-CZ-NH2	6.58	123.59	120.30
2	2	793	C	C2-N1-C1'	-6.57	111.57	118.80
2	2	1247	A	C4-C5-C6	-6.57	113.71	117.00
2	2	1479	A	C5-C6-N1	6.57	120.99	117.70
2	2	48	C	N3-C2-O2	-6.57	117.30	121.90
2	2	1682	C	N3-C2-O2	-6.56	117.31	121.90
2	2	1696	C	N3-C2-O2	-6.56	117.31	121.90
2	2	45	A	C4-C5-C6	-6.55	113.72	117.00
2	2	1819	A	C4-C5-C6	-6.55	113.72	117.00
2	2	480	C	N3-C2-O2	-6.54	117.32	121.90
2	2	1054	A	C3'-C2'-C1'	6.54	106.73	101.50
2	2	1860	A	C5-C6-N1	6.54	120.97	117.70
2	2	1785	A	C5-C6-N1	6.53	120.97	117.70
2	2	1684	C	N3-C2-O2	-6.53	117.33	121.90
2	2	150	A	C4-C5-C6	-6.51	113.74	117.00
2	2	573	A	C4-C5-C6	-6.51	113.74	117.00
2	2	1380	C	N3-C2-O2	-6.50	117.35	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1537	C	O4'-C1'-N1	6.50	113.40	108.20
2	2	193	C	N3-C2-O2	-6.50	117.35	121.90
2	2	1425	G	N1-C6-O6	-6.50	116.00	119.90
2	2	1129	A	N1-C6-N6	-6.49	114.70	118.60
2	2	954	G	C3'-C2'-C1'	6.49	106.69	101.50
2	2	1163	G	N1-C6-O6	-6.49	116.00	119.90
9	G	100	ARG	NE-CZ-NH2	6.49	123.54	120.30
2	2	1051	A	C4-C5-C6	-6.48	113.76	117.00
11	I	170	ARG	NE-CZ-NH2	6.48	123.54	120.30
3	3	50	C	O4'-C1'-N1	6.47	113.38	108.20
2	2	1558	G	N1-C6-O6	-6.47	116.02	119.90
2	2	1614	A	C4-C5-C6	-6.47	113.76	117.00
2	2	338	A	C5-C6-N1	6.46	120.93	117.70
2	2	1817	A	C5-C6-N1	6.46	120.93	117.70
2	2	1825	A	N1-C6-N6	-6.46	114.72	118.60
3	3	49	A	C4-C5-C6	-6.46	113.77	117.00
2	2	17	C	C4'-C3'-C2'	-6.46	96.14	102.60
2	2	85	A	C5-C6-N1	6.46	120.93	117.70
2	2	1740	A	C5-C6-N1	6.46	120.93	117.70
2	2	1636	A	C5-C6-N1	6.45	120.93	117.70
2	2	304	A	C5-C6-N1	6.45	120.92	117.70
2	2	626	C	N3-C2-O2	-6.45	117.39	121.90
2	2	1289	A	N1-C6-N6	-6.44	114.74	118.60
2	2	1829	A	C4-C5-C6	-6.43	113.78	117.00
20	R	13	ARG	NE-CZ-NH2	6.43	123.52	120.30
2	2	475	A	C5-C6-N1	6.43	120.91	117.70
2	2	49	C	N3-C2-O2	-6.42	117.41	121.90
2	2	654	A	C4-C5-C6	-6.42	113.79	117.00
2	2	78	C	C3'-C2'-C1'	-6.40	96.38	101.50
2	2	915	A	N1-C6-N6	-6.40	114.76	118.60
2	2	1515	G	N3-C4-C5	-6.40	125.40	128.60
38	k	96	ARG	NE-CZ-NH2	6.40	123.50	120.30
14	L	133	ARG	NE-CZ-NH2	6.39	123.50	120.30
2	2	1250	C	N3-C2-O2	-6.39	117.42	121.90
2	2	835	C	N1-C2-O2	6.38	122.73	118.90
2	2	1089	A	C4-C5-C6	-6.38	113.81	117.00
14	L	138	ARG	NE-CZ-NH2	6.37	123.49	120.30
2	2	623	C	N3-C2-O2	-6.36	117.44	121.90
2	2	1344	G	N3-C4-C5	6.36	131.78	128.60
2	2	654	A	C4'-C3'-C2'	-6.36	96.25	102.60
1	1	35	A	C5'-C4'-C3'	-6.34	105.85	116.00
13	K	5	ARG	NE-CZ-NH2	6.34	123.47	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
21	S	37	ARG	NE-CZ-NH2	6.34	123.47	120.30
2	2	142	C	N1-C2-O2	6.33	122.70	118.90
2	2	860	A	C4-C5-C6	-6.33	113.83	117.00
2	2	481	C	N3-C2-O2	-6.32	117.48	121.90
2	2	915	A	C3'-C2'-C1'	-6.32	96.44	101.50
2	2	1187	C	N3-C2-O2	-6.32	117.48	121.90
30	b	95	ARG	NE-CZ-NH2	6.31	123.45	120.30
2	2	1309	A	C4-C5-C6	-6.30	113.85	117.00
37	j	24	ARG	NE-CZ-NH1	-6.30	117.15	120.30
2	2	1853	A	C4-C5-C6	-6.30	113.85	117.00
4	A	53	ARG	NE-CZ-NH2	6.29	123.45	120.30
17	O	96	ARG	NE-CZ-NH2	6.29	123.45	120.30
2	2	1331	G	C5-C6-N1	6.29	114.64	111.50
2	2	1230	C	N3-C2-O2	-6.28	117.51	121.90
2	2	1673	A	O4'-C1'-N9	6.28	113.22	108.20
2	2	1557	C	N3-C2-O2	-6.27	117.51	121.90
2	2	1817	A	C4-C5-C6	-6.27	113.86	117.00
2	2	1251	G	N1-C6-O6	-6.27	116.14	119.90
2	2	1287	A	C5-C6-N1	6.26	120.83	117.70
2	2	94	G	O4'-C1'-N9	6.26	113.21	108.20
2	2	1263	C	N3-C2-O2	-6.26	117.52	121.90
2	2	1322	U	N3-C2-O2	-6.26	117.82	122.20
2	2	1559	C	N3-C2-O2	-6.26	117.52	121.90
36	i	87	ARG	NE-CZ-NH2	6.26	123.43	120.30
2	2	73	C	C2'-C3'-O3'	6.25	123.71	113.70
2	2	1209	C	N3-C2-O2	-6.25	117.53	121.90
2	2	1186	A	C4-C5-C6	-6.25	113.88	117.00
2	2	272	C	C2-N1-C1'	6.24	125.67	118.80
34	f	116	ARG	NE-CZ-NH2	6.24	123.42	120.30
2	2	603	C	N3-C2-O2	-6.23	117.54	121.90
2	2	465	C	N3-C2-O2	-6.23	117.54	121.90
2	2	817	G	N1-C6-O6	-6.22	116.17	119.90
2	2	14	C	N3-C2-O2	-6.22	117.55	121.90
2	2	469	C	O4'-C1'-N1	6.21	113.17	108.20
3	3	50	C	N3-C2-O2	-6.21	117.55	121.90
2	2	6	G	N1-C6-O6	-6.21	116.17	119.90
13	K	18	ARG	NE-CZ-NH2	6.21	123.40	120.30
2	2	1482	A	C4-C5-C6	-6.20	113.90	117.00
2	2	746	C	N3-C2-O2	-6.20	117.56	121.90
2	2	1325	U	N3-C2-O2	-6.20	117.86	122.20
1	1	28	U	OP1-P-O3'	6.20	118.83	105.20
2	2	1816	A	N1-C6-N6	-6.19	114.89	118.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1053	C	N1-C2-O2	6.19	122.61	118.90
2	2	598	C	C5'-C4'-C3'	-6.19	106.10	116.00
2	2	915	A	C5-C6-N1	6.18	120.79	117.70
2	2	1382	A	C4-C5-C6	-6.17	113.91	117.00
2	2	624	A	C4-C5-C6	-6.17	113.92	117.00
2	2	1487	G	N1-C6-O6	-6.17	116.20	119.90
23	U	75	ARG	NE-CZ-NH2	6.16	123.38	120.30
2	2	306	C	N3-C2-O2	-6.15	117.59	121.90
2	2	589	A	C4-C5-C6	-6.15	113.92	117.00
2	2	64	A	C5-C6-N1	6.14	120.77	117.70
2	2	835	C	C2-N1-C1'	6.14	125.56	118.80
2	2	1139	A	C4-C5-C6	-6.14	113.93	117.00
2	2	1252	G	C5-C6-N1	6.14	114.57	111.50
1	1	40	C	N3-C2-O2	-6.14	117.60	121.90
2	2	1656	A	N1-C6-N6	-6.14	114.92	118.60
2	2	106	C	C6-N1-C2	-6.13	117.85	120.30
2	2	81	U	O4'-C1'-N1	6.13	113.11	108.20
2	2	1655	C	N3-C4-N4	-6.13	113.71	118.00
2	2	1530	U	N1-C2-O2	6.12	127.08	122.80
2	2	272	C	N1-C2-O2	6.11	122.57	118.90
30	b	10	ARG	NE-CZ-NH1	-6.11	117.24	120.30
2	2	823	A	C4-C5-C6	-6.11	113.94	117.00
2	2	1343	U	C3'-C2'-C1'	6.10	106.38	101.50
2	2	746	C	C4'-C3'-C2'	-6.10	96.50	102.60
2	2	1425	G	C5-C6-O6	6.09	132.25	128.60
38	k	433	ARG	NE-CZ-NH2	6.08	123.34	120.30
2	2	1252	G	N1-C6-O6	-6.08	116.25	119.90
2	2	1126	G	C2-N3-C4	-6.08	108.86	111.90
2	2	27	A	C4-C5-C6	-6.07	113.96	117.00
2	2	1246	A	C4-C5-C6	-6.07	113.96	117.00
2	2	824	G	N1-C6-O6	-6.07	116.26	119.90
2	2	84	A	C4-C5-C6	-6.06	113.97	117.00
2	2	596	G	N1-C6-O6	-6.05	116.27	119.90
38	k	325	ARG	NE-CZ-NH2	6.04	123.32	120.30
2	2	1564	A	O4'-C1'-N9	6.04	113.03	108.20
11	I	72	ARG	NE-CZ-NH2	6.04	123.32	120.30
38	k	134	TYR	CB-CG-CD2	-6.04	117.37	121.00
2	2	1289	A	C4-C5-C6	-6.03	113.98	117.00
2	2	38	A	N9-C1'-C2'	-6.03	105.37	112.00
1	1	39	C	N3-C2-O2	-6.02	117.69	121.90
2	2	1476	A	C4-C5-C6	-6.01	113.99	117.00
2	2	1655	C	N1-C2-O2	6.01	122.51	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	28	U	O4'-C1'-N1	6.01	113.01	108.20
2	2	97	U	N1-C2-N3	6.01	118.50	114.90
14	L	131	ARG	NE-CZ-NH2	6.01	123.30	120.30
2	2	1479	A	N1-C6-N6	-6.00	115.00	118.60
1	1	32	C	O4'-C1'-N1	6.00	113.00	108.20
2	2	1288	C	N3-C2-O2	-6.00	117.70	121.90
2	2	1326	G	N1-C6-O6	-6.00	116.30	119.90
10	H	86	ARG	NE-CZ-NH2	6.00	123.30	120.30
30	b	77	CYS	CA-CB-SG	-5.99	103.21	114.00
2	2	1517	A	C4-C5-C6	-5.99	114.00	117.00
2	2	1121	C	N3-C2-O2	-5.99	117.71	121.90
2	2	1384	A	C4-C5-C6	-5.99	114.01	117.00
2	2	1260	C	N1-C2-O2	5.98	122.49	118.90
2	2	820	C	C4'-C3'-C2'	-5.98	96.62	102.60
2	2	1340	A	C4-C5-C6	-5.97	114.02	117.00
2	2	784	G	N3-C4-C5	-5.96	125.62	128.60
2	2	1231	G	N1-C6-O6	-5.96	116.32	119.90
12	J	98	ARG	NE-CZ-NH2	5.96	123.28	120.30
2	2	438	A	C4-C5-C6	-5.96	114.02	117.00
2	2	171	A	C4-C5-C6	-5.96	114.02	117.00
2	2	835	C	N3-C2-O2	-5.95	117.73	121.90
2	2	1129	A	C4-C5-C6	-5.95	114.03	117.00
2	2	430	G	N1-C6-O6	-5.95	116.33	119.90
2	2	1140	A	C4-C5-C6	-5.94	114.03	117.00
2	2	1207	G	N1-C6-O6	-5.94	116.34	119.90
2	2	39	A	C4-C5-C6	-5.93	114.03	117.00
2	2	1530	U	N3-C2-O2	-5.93	118.05	122.20
2	2	419	C	N3-C2-O2	-5.93	117.75	121.90
2	2	1153	G	N1-C6-O6	-5.92	116.35	119.90
2	2	1305	C	C4'-C3'-C2'	-5.92	96.68	102.60
13	K	31	ARG	NE-CZ-NH2	5.92	123.26	120.30
2	2	1210	A	C4-C5-C6	-5.91	114.05	117.00
2	2	512	A	C4-C5-C6	-5.91	114.05	117.00
4	A	57	ARG	NE-CZ-NH2	5.90	123.25	120.30
2	2	1677	C	N3-C2-O2	-5.90	117.77	121.90
2	2	1188	U	N3-C2-O2	-5.89	118.08	122.20
2	2	614	C	C5'-C4'-C3'	-5.88	106.60	116.00
2	2	492	C	N3-C2-O2	-5.87	117.79	121.90
2	2	1056	A	C4-C5-C6	-5.87	114.06	117.00
3	3	52	A	C5'-C4'-O4'	5.87	116.14	109.10
2	2	1784	A	C4-C5-C6	-5.86	114.07	117.00
38	k	395	ARG	NE-CZ-NH2	5.86	123.23	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	483	A	C4-C5-C6	-5.86	114.07	117.00
2	2	603	C	N3-C4-N4	-5.86	113.90	118.00
34	f	118	ARG	NE-CZ-NH2	5.86	123.23	120.30
2	2	70	G	N3-C2-N2	-5.86	115.80	119.90
2	2	1683	C	N3-C2-O2	-5.85	117.80	121.90
2	2	203	G	N1-C6-O6	-5.85	116.39	119.90
2	2	1236	A	C4-C5-C6	-5.85	114.08	117.00
20	R	140	ARG	NE-CZ-NH2	5.85	123.22	120.30
2	2	1083	A	C4-C5-C6	-5.85	114.08	117.00
22	T	78	ARG	NE-CZ-NH2	5.84	123.22	120.30
38	k	224	ARG	NE-CZ-NH2	5.84	123.22	120.30
23	U	86	ARG	NE-CZ-NH2	5.83	123.22	120.30
2	2	608	C	N3-C2-O2	-5.83	117.82	121.90
2	2	649	G	C4-N9-C1'	5.83	134.07	126.50
2	2	1832	U	O4'-C1'-N1	5.83	112.86	108.20
2	2	560	C	N3-C2-O2	-5.82	117.83	121.90
2	2	1793	G	N1-C6-O6	-5.82	116.41	119.90
2	2	475	A	C3'-C2'-C1'	5.82	106.16	101.50
2	2	1337	C	N3-C2-O2	-5.82	117.83	121.90
2	2	502	A	C4-C5-C6	-5.82	114.09	117.00
2	2	614	C	N3-C2-O2	-5.81	117.83	121.90
2	2	820	C	C3'-C2'-C1'	5.81	106.15	101.50
5	C	191	ARG	NE-CZ-NH2	5.81	123.21	120.30
2	2	1679	C	N3-C2-O2	-5.81	117.83	121.90
2	2	1611	U	N3-C2-O2	-5.81	118.14	122.20
2	2	74	G	C3'-C2'-C1'	5.80	106.14	101.50
2	2	572	U	C5'-C4'-O4'	5.80	116.06	109.10
2	2	1287	A	C4-C5-C6	-5.80	114.10	117.00
2	2	1260	C	N3-C2-O2	-5.80	117.84	121.90
2	2	1483	A	C4-C5-C6	-5.80	114.10	117.00
2	2	199	G	N1-C6-O6	-5.79	116.42	119.90
2	2	339	A	C4-C5-C6	-5.79	114.10	117.00
2	2	425	A	C4-C5-C6	-5.79	114.11	117.00
2	2	1307	C	N3-C2-O2	-5.79	117.85	121.90
2	2	72	C	N3-C2-O2	-5.79	117.85	121.90
2	2	1160	G	N3-C4-C5	-5.79	125.71	128.60
2	2	1549	C	O4'-C1'-N1	5.78	112.82	108.20
2	2	1161	G	C5-C6-N1	5.78	114.39	111.50
2	2	77	A	C1'-O4'-C4'	-5.78	105.28	109.90
2	2	1334	G	N1-C6-O6	-5.77	116.44	119.90
23	U	113	ARG	NE-CZ-NH2	5.77	123.19	120.30
2	2	65	C	N3-C2-O2	-5.77	117.86	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	3	48	C	N3-C2-O2	-5.77	117.86	121.90
2	2	1550	U	O4'-C1'-C2'	-5.76	100.04	105.80
2	2	497	G	N1-C6-O6	-5.76	116.44	119.90
2	2	1826	A	C4-C5-C6	-5.76	114.12	117.00
2	2	915	A	P-O3'-C3'	5.76	126.61	119.70
31	c	81	ARG	NE-CZ-NH2	5.76	123.18	120.30
2	2	1344	G	C2-N3-C4	-5.76	109.02	111.90
2	2	100	U	O4'-C1'-N1	5.75	112.80	108.20
2	2	541	U	C5'-C4'-C3'	-5.75	106.80	116.00
30	b	10	ARG	NE-CZ-NH2	5.75	123.17	120.30
2	2	1325	U	C4'-C3'-C2'	-5.75	96.86	102.60
1	1	29	G	C4'-C3'-C2'	-5.74	96.86	102.60
2	2	1557	C	C3'-C2'-C1'	5.74	106.09	101.50
2	2	1326	G	N3-C4-C5	-5.74	125.73	128.60
2	2	1613	C	N3-C2-O2	-5.74	117.88	121.90
2	2	1311	U	O4'-C1'-N1	5.74	112.79	108.20
2	2	305	U	O4'-C1'-N1	5.73	112.79	108.20
2	2	418	U	N1-C1'-C2'	5.73	121.45	114.00
2	2	843	A	C5-C6-N1	5.73	120.57	117.70
11	I	233	ARG	NE-CZ-NH2	5.73	123.17	120.30
2	2	628	C	N3-C2-O2	-5.73	117.89	121.90
2	2	653	C	O4'-C1'-N1	5.73	112.78	108.20
2	2	76	U	C4'-C3'-C2'	-5.72	96.88	102.60
34	f	148	TYR	CB-CG-CD2	-5.72	117.57	121.00
2	2	341	G	O4'-C1'-N9	5.72	112.78	108.20
2	2	1120	C	N1-C2-O2	5.72	122.33	118.90
2	2	1215	C	N3-C2-O2	-5.72	117.90	121.90
2	2	1310	U	N3-C2-O2	-5.71	118.20	122.20
2	2	83	A	C4-C5-C6	-5.71	114.14	117.00
24	V	56	ARG	NE-CZ-NH2	5.71	123.16	120.30
2	2	307	G	N1-C6-O6	-5.71	116.47	119.90
2	2	104	A	C4-C5-C6	-5.71	114.15	117.00
2	2	1119	C	N1-C2-O2	5.71	122.32	118.90
2	2	1611	U	N1-C2-N3	5.70	118.32	114.90
17	O	33	ARG	NE-CZ-NH2	5.70	123.15	120.30
2	2	230	C	N1-C2-O2	5.70	122.32	118.90
1	1	68	C	C2-N1-C1'	5.70	125.06	118.80
2	2	1546	U	N3-C2-O2	-5.70	118.21	122.20
2	2	1155	G	N1-C6-O6	-5.69	116.48	119.90
2	2	103	A	C4-C5-C6	-5.69	114.16	117.00
2	2	471	C	N1-C2-O2	5.68	122.31	118.90
2	2	625	G	N1-C6-O6	-5.68	116.49	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1536	G	N1-C6-O6	-5.68	116.49	119.90
2	2	1344	G	N3-C4-N9	-5.68	122.59	126.00
2	2	1574	A	C2-N3-C4	5.68	113.44	110.60
2	2	1238	U	N3-C2-O2	-5.66	118.24	122.20
2	2	1240	U	O4'-C1'-N1	5.66	112.73	108.20
2	2	1549	C	N1-C2-O2	5.66	122.30	118.90
2	2	1862	U	N3-C2-O2	-5.66	118.24	122.20
2	2	144	U	O4'-C1'-N1	5.65	112.72	108.20
2	2	1855	G	C1'-O4'-C4'	-5.65	105.38	109.90
2	2	1826	A	C5-C6-N1	5.65	120.52	117.70
2	2	1207	G	C5'-C4'-C3'	-5.64	106.97	116.00
2	2	1569	C	N3-C2-O2	-5.64	117.95	121.90
2	2	746	C	C3'-C2'-C1'	5.63	106.01	101.50
14	L	83	ARG	NE-CZ-NH2	5.63	123.12	120.30
2	2	841	G	N1-C6-O6	-5.62	116.53	119.90
2	2	841	G	C4'-C3'-C2'	-5.62	96.98	102.60
2	2	987	G	C5-C6-N1	5.62	114.31	111.50
2	2	1324	G	N1-C6-O6	-5.61	116.53	119.90
2	2	168	C	N3-C2-O2	-5.61	117.97	121.90
2	2	1549	C	C5'-C4'-C3'	-5.61	107.03	116.00
2	2	1424	G	N3-C4-N9	-5.61	122.64	126.00
12	J	78	ARG	NE-CZ-NH2	5.61	123.10	120.30
2	2	1154	G	N1-C6-O6	-5.61	116.54	119.90
2	2	1186	A	O4'-C1'-N9	5.61	112.68	108.20
2	2	97	U	O4'-C1'-N1	5.59	112.68	108.20
2	2	819	U	N1-C2-N3	5.59	118.26	114.90
2	2	564	A	C4-C5-C6	-5.59	114.20	117.00
2	2	40	A	C4-C5-C6	-5.59	114.20	117.00
2	2	73	C	N3-C4-C5	5.59	124.14	121.90
2	2	1150	U	N3-C2-O2	-5.59	118.29	122.20
3	3	52	A	C4-C5-C6	-5.59	114.20	117.00
5	C	186	ARG	NE-CZ-NH2	5.59	123.10	120.30
2	2	1106	G	C5'-C4'-C3'	-5.59	107.06	116.00
2	2	1259	U	N1-C2-N3	5.58	118.25	114.90
2	2	428	G	O4'-C1'-N9	5.58	112.67	108.20
3	3	51	C	N3-C2-O2	-5.58	117.99	121.90
5	C	180	ARG	NE-CZ-NH2	5.58	123.09	120.30
2	2	3	C	N3-C2-O2	-5.58	117.99	121.90
2	2	570	U	O4'-C1'-N1	5.58	112.66	108.20
2	2	516	A	C4-C5-C6	-5.58	114.21	117.00
2	2	1206	G	N1-C6-O6	-5.57	116.56	119.90
2	2	1570	G	N1-C6-O6	-5.57	116.56	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	I	154	ARG	NE-CZ-NH2	5.57	123.08	120.30
3	3	47	A	C3'-C2'-C1'	5.57	105.95	101.50
33	e	27	ARG	NE-CZ-NH2	5.57	123.08	120.30
2	2	476	A	C4-C5-C6	-5.57	114.22	117.00
2	2	1707	A	OP1-P-O3'	5.56	117.44	105.20
2	2	646	G	N1-C6-O6	-5.56	116.56	119.90
2	2	918	A	C4-C5-C6	-5.56	114.22	117.00
2	2	859	U	O4'-C1'-N1	5.55	112.64	108.20
2	2	375	G	N3-C4-C5	-5.55	125.83	128.60
2	2	1128	C	N3-C2-O2	-5.55	118.02	121.90
2	2	1477	G	C5-C6-N1	5.55	114.27	111.50
2	2	524	G	N9-C1'-C2'	-5.55	105.90	112.00
2	2	1153	G	N3-C4-C5	-5.55	125.83	128.60
2	2	200	U	O4'-C1'-N1	5.54	112.63	108.20
24	V	121	ARG	CD-NE-CZ	5.54	131.36	123.60
2	2	167	G	N1-C6-O6	-5.54	116.58	119.90
2	2	1556	A	C4-C5-C6	-5.53	114.23	117.00
2	2	849	C	N3-C2-O2	-5.53	118.03	121.90
2	2	1351	C	N3-C2-O2	-5.53	118.03	121.90
2	2	1852	G	C5-C6-N1	5.53	114.26	111.50
2	2	580	A	C4-C5-C6	-5.53	114.24	117.00
2	2	1414	C	C2-N1-C1'	5.53	124.88	118.80
2	2	106	C	O4'-C1'-N1	5.52	112.62	108.20
2	2	1449	C	C6-N1-C2	-5.52	118.09	120.30
2	2	1208	G	N1-C6-O6	-5.52	116.59	119.90
2	2	799	C	N1-C2-O2	5.52	122.21	118.90
2	2	2	A	C4-C5-C6	-5.51	114.24	117.00
2	2	1634	G	N1-C6-O6	-5.51	116.59	119.90
2	2	511	A	C4-C5-C6	-5.51	114.25	117.00
2	2	1285	U	O4'-C1'-N1	5.51	112.61	108.20
2	2	1343	U	N1-C1'-C2'	-5.51	105.94	112.00
2	2	1859	C	N3-C2-O2	-5.51	118.04	121.90
2	2	953	A	C4-C5-C6	-5.51	114.25	117.00
15	M	65	ARG	NE-CZ-NH2	5.51	123.05	120.30
2	2	1305	C	N1-C2-O2	5.50	122.20	118.90
2	2	468	G	N1-C6-O6	-5.50	116.60	119.90
19	Q	66	ARG	NE-CZ-NH2	5.50	123.05	120.30
2	2	66	G	N1-C6-O6	-5.49	116.61	119.90
2	2	1237	A	C4-C5-C6	-5.49	114.25	117.00
2	2	76	U	N3-C2-O2	-5.49	118.36	122.20
2	2	1588	C	O4'-C1'-N1	5.49	112.59	108.20
2	2	18	C	N3-C2-O2	-5.49	118.06	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	73	A	C2-N3-C4	5.48	113.34	110.60
2	2	1453	U	O4'-C1'-N1	5.48	112.58	108.20
2	2	96	C	N3-C2-O2	-5.48	118.06	121.90
2	2	1054	A	C1'-O4'-C4'	-5.47	105.52	109.90
2	2	1345	G	N3-C4-N9	5.47	129.28	126.00
2	2	1242	A	C4-C5-C6	-5.47	114.27	117.00
2	2	67	C	O4'-C1'-N1	5.46	112.57	108.20
8	F	9	ARG	NE-CZ-NH2	5.46	123.03	120.30
2	2	1153	G	C5-C6-N1	5.46	114.23	111.50
2	2	422	G	C5-C6-N1	5.46	114.23	111.50
2	2	959	A	C4-C5-C6	-5.45	114.27	117.00
4	A	55	ARG	NE-CZ-NH2	5.45	123.03	120.30
2	2	1562	G	C3'-C2'-C1'	5.44	105.85	101.50
2	2	1241	G	N1-C6-O6	-5.44	116.64	119.90
2	2	47	G	C5-C6-N1	5.44	114.22	111.50
2	2	1299	C	C2-N1-C1'	5.44	124.78	118.80
2	2	430	G	C5-C6-N1	5.44	114.22	111.50
2	2	1120	C	C5'-C4'-C3'	-5.44	107.30	116.00
2	2	600	G	N1-C6-O6	-5.43	116.64	119.90
2	2	1570	G	C4'-C3'-C2'	-5.43	97.17	102.60
2	2	1825	A	C4-C5-C6	-5.43	114.28	117.00
2	2	820	C	N3-C2-O2	-5.43	118.10	121.90
2	2	1550	U	C5'-C4'-O4'	5.43	115.61	109.10
2	2	79	A	C4-C5-C6	-5.43	114.29	117.00
2	2	321	C	N1-C2-O2	5.43	122.16	118.90
2	2	677	C	N3-C4-C5	5.43	124.07	121.90
2	2	1654	U	N1-C2-N3	5.42	118.15	114.90
2	2	1054	A	C4-C5-C6	-5.42	114.29	117.00
2	2	1248	C	O4'-C1'-N1	5.42	112.53	108.20
2	2	1107	U	N1-C2-N3	5.42	118.15	114.90
2	2	1231	G	C4'-C3'-C2'	-5.42	97.19	102.60
29	a	90	ARG	NE-CZ-NH2	5.41	123.01	120.30
2	2	192	U	C5-C6-N1	-5.40	120.00	122.70
2	2	1518	C	O4'-C1'-N1	5.40	112.52	108.20
2	2	44	U	C3'-C2'-C1'	5.40	105.82	101.50
2	2	1488	U	N3-C2-O2	-5.40	118.42	122.20
2	2	1214	C	N3-C2-O2	-5.40	118.12	121.90
2	2	1326	G	O4'-C1'-N9	5.40	112.52	108.20
11	I	232	ARG	NE-CZ-NH2	5.40	123.00	120.30
2	2	499	G	C4'-C3'-C2'	-5.39	97.20	102.60
5	C	85	ARG	NE-CZ-NH2	5.39	123.00	120.30
33	e	32	ARG	NH1-CZ-NH2	-5.39	113.47	119.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1122	G	C5-C6-N1	5.39	114.20	111.50
2	2	492	C	O4'-C1'-N1	5.39	112.51	108.20
2	2	524	G	N1-C6-O6	-5.39	116.67	119.90
2	2	497	G	C5-C6-N1	5.39	114.19	111.50
2	2	561	U	O4'-C1'-N1	5.39	112.51	108.20
2	2	1144	A	C5-N7-C8	-5.38	101.21	103.90
2	2	1251	G	C3'-C2'-C1'	5.38	105.81	101.50
2	2	1684	C	C4'-C3'-C2'	-5.38	97.22	102.60
2	2	1270	G	N1-C6-O6	-5.38	116.67	119.90
2	2	957	G	N1-C6-O6	-5.37	116.68	119.90
2	2	1144	A	C2-N3-C4	-5.37	107.91	110.60
2	2	1824	U	O4'-C1'-N1	5.37	112.50	108.20
2	2	596	G	C5-C6-N1	5.37	114.18	111.50
2	2	597	U	C5'-C4'-O4'	5.37	115.54	109.10
2	2	1862	U	C6-N1-C1'	-5.37	113.68	121.20
27	Y	3	ARG	NE-CZ-NH1	-5.37	117.62	120.30
2	2	68	A	C6-C5-N7	5.36	136.05	132.30
2	2	1559	C	N1-C2-O2	5.36	122.12	118.90
2	2	1683	C	O4'-C1'-N1	5.36	112.49	108.20
19	Q	117	ARG	NE-CZ-NH2	5.36	122.98	120.30
2	2	1342	U	O4'-C1'-N1	5.35	112.48	108.20
2	2	6	G	C5-C6-N1	5.35	114.18	111.50
2	2	916	A	C4-C5-C6	-5.35	114.32	117.00
2	2	1105	C	C2-N3-C4	-5.35	117.22	119.90
2	2	1332	C	N3-C4-C5	5.35	124.04	121.90
2	2	615	G	N1-C6-O6	-5.35	116.69	119.90
2	2	1106	G	N7-C8-N9	5.35	115.77	113.10
2	2	1537	C	N3-C2-O2	-5.35	118.16	121.90
2	2	1105	C	C1'-O4'-C4'	-5.34	105.62	109.90
2	2	1546	U	O4'-C1'-N1	5.34	112.47	108.20
2	2	650	C	N3-C2-O2	-5.34	118.16	121.90
2	2	1344	G	C5-N7-C8	-5.34	101.63	104.30
2	2	1560	C	N3-C4-C5	5.34	124.04	121.90
2	2	1824	U	N3-C2-O2	-5.34	118.46	122.20
2	2	95	G	N1-C6-O6	-5.34	116.70	119.90
31	c	80	ARG	NE-CZ-NH2	5.34	122.97	120.30
2	2	1235	U	N1-C2-N3	5.34	118.10	114.90
2	2	1550	U	N1-C1'-C2'	5.33	120.93	114.00
2	2	67	C	N1-C2-O2	5.33	122.10	118.90
2	2	605	C	N1-C2-O2	5.33	122.10	118.90
2	2	1424	G	C4-C5-N7	-5.32	108.67	110.80
2	2	305	U	C3'-C2'-C1'	5.32	105.76	101.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	498	A	C5'-C4'-C3'	-5.32	107.49	116.00
2	2	94	G	N1-C6-O6	-5.32	116.71	119.90
2	2	1280	A	O4'-C1'-N9	5.32	112.45	108.20
2	2	47	G	N3-C4-C5	-5.31	125.94	128.60
2	2	193	C	N1-C2-O2	5.31	122.09	118.90
2	2	1562	G	N3-C2-N2	-5.31	116.18	119.90
2	2	746	C	O4'-C1'-N1	5.31	112.45	108.20
2	2	175	A	C6-C5-N7	5.31	136.02	132.30
2	2	1656	A	C4-C5-C6	-5.31	114.34	117.00
2	2	78	C	N1-C2-O2	5.31	122.08	118.90
2	2	1634	G	C5-C6-N1	5.31	114.15	111.50
2	2	1383	G	N9-C4-C5	5.30	107.52	105.40
2	2	191	C	O4'-C1'-N1	5.29	112.44	108.20
2	2	1858	U	O4'-C1'-N1	5.29	112.44	108.20
2	2	41	G	C5-C6-N1	5.29	114.15	111.50
2	2	603	C	N3-C4-C5	5.29	124.02	121.90
3	3	55	G	N1-C6-O6	-5.29	116.72	119.90
2	2	563	U	N1-C2-N3	5.29	118.07	114.90
2	2	1560	C	N1-C2-O2	5.29	122.07	118.90
2	2	559	A	C4-C5-C6	-5.29	114.36	117.00
28	Z	142	ARG	NE-CZ-NH1	5.28	122.94	120.30
2	2	428	G	C5'-C4'-C3'	-5.28	107.56	116.00
2	2	906	G	N3-C4-N9	-5.28	122.83	126.00
13	K	25	ARG	NH1-CZ-NH2	-5.28	113.59	119.40
2	2	1056	A	O4'-C1'-C2'	-5.28	100.53	105.80
2	2	1331	G	N1-C6-O6	-5.28	116.73	119.90
2	2	1304	U	C5'-C4'-C3'	-5.27	107.57	116.00
2	2	1601	G	O4'-C1'-N9	5.27	112.41	108.20
10	H	106	ARG	NE-CZ-NH2	5.27	122.93	120.30
1	1	38	A	C4-C5-C6	-5.27	114.37	117.00
2	2	518	A	C4-C5-C6	-5.27	114.37	117.00
2	2	793	C	C6-N1-C1'	5.27	127.12	120.80
2	2	1297	A	C4-C5-C6	-5.27	114.37	117.00
2	2	1380	C	O4'-C1'-N1	5.26	112.41	108.20
2	2	1619	U	C2-N1-C1'	5.26	124.02	117.70
2	2	376	C	N3-C2-O2	-5.26	118.22	121.90
2	2	1162	G	C5-C6-N1	5.26	114.13	111.50
2	2	1855	G	N1-C6-O6	-5.26	116.74	119.90
2	2	373	G	N1-C6-O6	-5.26	116.74	119.90
4	A	88	ARG	NE-CZ-NH2	5.26	122.93	120.30
21	S	146	ARG	NH1-CZ-NH2	-5.26	113.62	119.40
2	2	362	U	N1-C2-N3	5.25	118.05	114.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1557	C	N1-C2-O2	5.25	122.05	118.90
2	2	170	A	C4-C5-C6	-5.25	114.37	117.00
2	2	604	G	N1-C6-O6	-5.25	116.75	119.90
2	2	1185	A	C4-C5-C6	-5.25	114.37	117.00
2	2	1568	G	N1-C6-O6	-5.25	116.75	119.90
2	2	1351	C	N3-C4-N4	-5.25	114.33	118.00
2	2	957	G	C5-C6-N1	5.25	114.12	111.50
2	2	1322	U	N1-C2-N3	5.24	118.05	114.90
2	2	479	A	C4-C5-C6	-5.24	114.38	117.00
2	2	438	A	O4'-C1'-N9	5.23	112.39	108.20
2	2	504	U	O4'-C1'-N1	5.23	112.39	108.20
2	2	649	G	C8-N9-C1'	-5.23	120.20	127.00
2	2	1119	C	N3-C4-C5	5.23	123.99	121.90
2	2	1564	A	C4-C5-C6	-5.23	114.39	117.00
1	1	34	C	C5'-C4'-O4'	5.22	115.37	109.10
2	2	1130	G	C5-C6-N1	5.22	114.11	111.50
2	2	475	A	C4-C5-C6	-5.22	114.39	117.00
2	2	914	U	O4'-C1'-N1	5.22	112.38	108.20
2	2	675	A	C4-C5-C6	-5.22	114.39	117.00
2	2	1515	G	P-O3'-C3'	5.21	125.96	119.70
2	2	1477	G	N1-C6-O6	-5.21	116.77	119.90
2	2	842	G	N1-C6-O6	-5.21	116.77	119.90
2	2	1856	G	N1-C6-O6	-5.21	116.78	119.90
2	2	1264	C	N3-C2-O2	-5.21	118.26	121.90
2	2	987	G	N3-C4-C5	-5.21	126.00	128.60
2	2	504	U	C4'-C3'-C2'	-5.20	97.40	102.60
2	2	38	A	C4-C5-C6	-5.20	114.40	117.00
2	2	200	U	C4'-C3'-C2'	-5.20	97.40	102.60
2	2	580	A	C2-N3-C4	5.20	113.20	110.60
2	2	622	C	C6-N1-C2	-5.20	118.22	120.30
2	2	1345	G	N3-C4-C5	-5.20	126.00	128.60
2	2	1860	A	N1-C6-N6	-5.20	115.48	118.60
2	2	1854	A	O4'-C1'-N9	5.19	112.35	108.20
2	2	47	G	C5'-C4'-O4'	5.19	115.33	109.10
2	2	102	A	C4-C5-C6	-5.19	114.41	117.00
2	2	1380	C	C4'-C3'-C2'	-5.19	97.41	102.60
2	2	1162	G	N1-C6-O6	-5.19	116.79	119.90
2	2	1207	G	C5'-C4'-O4'	5.19	115.32	109.10
2	2	1238	U	O4'-C1'-N1	5.19	112.35	108.20
2	2	74	G	N3-C2-N2	-5.19	116.27	119.90
2	2	987	G	N1-C6-O6	-5.18	116.79	119.90
2	2	1385	C	N3-C4-C5	5.18	123.97	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	145	G	N1-C6-O6	-5.18	116.79	119.90
2	2	1106	G	N3-C4-C5	-5.18	126.01	128.60
2	2	434	G	N1-C6-O6	-5.17	116.80	119.90
33	e	22	ARG	NE-CZ-NH2	5.17	122.89	120.30
7	E	94	ARG	NE-CZ-NH2	5.17	122.88	120.30
2	2	1056	A	C1'-O4'-C4'	-5.17	105.77	109.90
2	2	395	G	N1-C6-O6	-5.16	116.80	119.90
2	2	542	G	N7-C8-N9	5.16	115.68	113.10
2	2	28	U	N1-C2-N3	5.16	118.00	114.90
9	G	1	MET	C-N-CA	5.16	134.59	121.70
2	2	677	C	N3-C2-O2	-5.16	118.29	121.90
2	2	1106	G	C8-N9-C4	-5.16	104.34	106.40
2	2	17	C	N3-C2-O2	-5.15	118.29	121.90
2	2	1308	G	N1-C6-O6	-5.15	116.81	119.90
2	2	784	G	C3'-C2'-C1'	5.15	105.62	101.50
2	2	841	G	C5-C6-N1	5.15	114.08	111.50
2	2	470	G	N1-C6-O6	-5.14	116.81	119.90
2	2	915	A	O4'-C1'-C2'	-5.14	100.66	105.80
2	2	1130	G	N1-C6-O6	-5.14	116.81	119.90
2	2	169	U	N1-C2-N3	5.14	117.98	114.90
2	2	958	A	C6-C5-N7	5.14	135.90	132.30
2	2	1251	G	C5-C6-N1	5.14	114.07	111.50
2	2	1325	U	C5-C6-N1	-5.14	120.13	122.70
2	2	1090	C	O4'-C1'-N1	5.14	112.31	108.20
2	2	1608	G	C5-C6-N1	5.14	114.07	111.50
2	2	1245	C	N3-C2-O2	-5.13	118.31	121.90
2	2	1480	A	C6-C5-N7	5.13	135.89	132.30
2	2	1530	U	C6-N1-C1'	-5.13	114.02	121.20
2	2	629	C	N3-C4-C5	5.13	123.95	121.90
2	2	1492	U	C5-C6-N1	-5.13	120.14	122.70
2	2	76	U	C1'-O4'-C4'	-5.13	105.80	109.90
2	2	1121	C	C6-N1-C2	-5.13	118.25	120.30
1	1	32	C	N3-C2-O2	-5.12	118.31	121.90
1	1	34	C	C5'-C4'-C3'	-5.12	107.80	116.00
2	2	1558	G	N3-C4-C5	-5.12	126.04	128.60
2	2	78	C	C5'-C4'-C3'	-5.12	107.81	116.00
2	2	1121	C	C4'-C3'-C2'	-5.12	97.48	102.60
3	3	47	A	C4-C5-C6	-5.12	114.44	117.00
2	2	1090	C	N1-C2-O2	5.12	121.97	118.90
2	2	987	G	O4'-C4'-C3'	5.12	110.19	106.10
2	2	478	U	C4'-C3'-C2'	-5.11	97.49	102.60
13	K	31	ARG	NE-CZ-NH1	-5.11	117.75	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	2	1162	G	C4'-C3'-C2'	-5.11	97.49	102.60
11	I	74	ARG	NE-CZ-NH2	5.10	122.85	120.30
2	2	784	G	N1-C6-O6	-5.10	116.84	119.90
2	2	1208	G	C4'-C3'-C2'	-5.10	97.50	102.60
2	2	1659	A	O4'-C1'-N9	5.10	112.28	108.20
2	2	517	C	N3-C4-N4	-5.10	114.43	118.00
2	2	1150	U	C5-C6-N1	-5.10	120.15	122.70
2	2	1104	G	C5-C6-N1	5.10	114.05	111.50
2	2	1688	G	N1-C6-O6	-5.10	116.84	119.90
34	f	118	ARG	CD-NE-CZ	5.09	130.73	123.60
2	2	1055	G	N1-C6-O6	-5.09	116.84	119.90
2	2	1565	G	C5-C6-N1	5.09	114.05	111.50
2	2	1479	A	C4-C5-C6	-5.09	114.45	117.00
2	2	191	C	N1-C2-O2	5.09	121.95	118.90
2	2	832	G	N3-C4-C5	-5.09	126.06	128.60
2	2	1211	C	C6-N1-C2	-5.09	118.27	120.30
2	2	1551	A	C6-C5-N7	5.09	135.86	132.30
2	2	498	A	C4-C5-C6	-5.08	114.46	117.00
2	2	503	G	C5-C6-N1	5.08	114.04	111.50
2	2	1557	C	O4'-C1'-N1	5.08	112.27	108.20
2	2	1213	A	C4-C5-C6	-5.08	114.46	117.00
2	2	1509	G	N1-C6-O6	-5.08	116.85	119.90
2	2	954	G	C5'-C4'-C3'	-5.08	107.87	116.00
2	2	52	G	N1-C6-O6	-5.08	116.85	119.90
2	2	1018	U	C2-N1-C1'	5.08	123.79	117.70
2	2	1785	A	C4-C5-C6	-5.08	114.46	117.00
2	2	41	G	N1-C6-O6	-5.07	116.86	119.90
2	2	1243	C	N3-C4-C5	5.07	123.93	121.90
2	2	1551	A	C2-N3-C4	5.07	113.14	110.60
2	2	73	C	C4'-C3'-C2'	-5.07	97.53	102.60
2	2	439	A	C4-C5-C6	-5.07	114.47	117.00
2	2	1408	C	C2-N1-C1'	5.07	124.38	118.80
2	2	1510	G	N1-C6-O6	-5.07	116.86	119.90
38	k	462	LEU	CB-CG-CD1	5.07	119.61	111.00
2	2	1245	C	C3'-C2'-C1'	5.07	105.55	101.50
2	2	491	C	P-O3'-C3'	5.06	125.77	119.70
2	2	1636	A	C4-C5-C6	-5.06	114.47	117.00
2	2	1510	G	C5-C6-N1	5.06	114.03	111.50
33	e	32	ARG	NE-CZ-NH1	5.06	122.83	120.30
2	2	78	C	C4'-C3'-C2'	-5.06	97.54	102.60
2	2	360	G	C5-C6-N1	5.06	114.03	111.50
2	2	1515	G	C5-C6-N1	5.06	114.03	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	30	G	O4'-C1'-N9	5.05	112.24	108.20
2	2	394	G	N1-C6-O6	-5.05	116.87	119.90
2	2	960	A	O4'-C1'-N9	5.05	112.24	108.20
12	J	94	PHE	CB-CG-CD2	-5.05	117.26	120.80
2	2	304	A	C4-C5-C6	-5.05	114.47	117.00
2	2	395	G	O4'-C1'-N9	5.05	112.24	108.20
2	2	645	A	C4-C5-C6	-5.05	114.48	117.00
2	2	956	U	N1-C2-N3	5.05	117.93	114.90
2	2	1106	G	C5-C6-N1	5.05	114.02	111.50
2	2	439	A	O4'-C1'-C2'	-5.04	100.75	105.80
2	2	341	G	C4'-C3'-C2'	-5.04	97.56	102.60
2	2	625	G	C5-C6-N1	5.04	114.02	111.50
2	2	1351	C	O4'-C1'-N1	5.04	112.23	108.20
2	2	1472	A	N9-C4-C5	5.04	107.82	105.80
2	2	1551	A	C5'-C4'-O4'	5.04	115.15	109.10
2	2	375	G	C5-C6-N1	5.03	114.02	111.50
2	2	513	A	C4-C5-C6	-5.03	114.48	117.00
2	2	1161	G	N1-C6-O6	-5.03	116.88	119.90
2	2	570	U	C5-C6-N1	-5.03	120.19	122.70
2	2	1425	G	N3-C4-N9	-5.02	122.99	126.00
2	2	151	C	C6-N1-C2	-5.02	118.29	120.30
2	2	800	U	C4'-C3'-C2'	-5.02	97.58	102.60
2	2	1325	U	O4'-C1'-N1	5.02	112.22	108.20
1	1	29	G	N1-C6-O6	-5.02	116.89	119.90
2	2	1212	C	O4'-C1'-N1	5.01	112.21	108.20
2	2	1550	U	C5-C6-N1	-5.01	120.19	122.70
2	2	1308	G	C5-C6-N1	5.01	114.00	111.50
2	2	1478	C	N3-C2-O2	-5.01	118.39	121.90
28	Z	5	ARG	NE-CZ-NH2	5.01	122.80	120.30
2	2	395	G	C4'-C3'-C2'	-5.01	97.59	102.60
2	2	1082	G	O4'-C1'-N9	5.00	112.20	108.20
2	2	1511	G	C4'-C3'-C2'	-5.00	97.60	102.60
2	2	64	A	C4-C5-C6	-5.00	114.50	117.00
2	2	82	G	N1-C6-O6	-5.00	116.90	119.90
2	2	1161	G	N3-C4-C5	-5.00	126.10	128.60

There are no chirality outliers.

All (156) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	1	32	C	Sidechain
2	2	1012	U	Sidechain

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Mol	Chain	Res	Type	Group
2	2	1052	U	Sidechain
2	2	1090	C	Sidechain
2	2	1104	G	Sidechain
2	2	1105	C	Sidechain
2	2	1154	G	Sidechain
2	2	1160	G	Sidechain
2	2	1161	G	Sidechain
2	2	1206	G	Sidechain
2	2	1212	C	Sidechain
2	2	1231	G	Sidechain
2	2	1236	A	Sidechain
2	2	1247	A	Sidechain
2	2	1253	G	Sidechain
2	2	1260	C	Sidechain
2	2	1280	A	Sidechain
2	2	1286	G	Sidechain
2	2	1289	A	Sidechain
2	2	1304	U	Sidechain
2	2	1322	U	Sidechain
2	2	1334	G	Sidechain
2	2	1339	U	Sidechain
2	2	1381	G	Sidechain
2	2	1382	A	Sidechain
2	2	1383	G	Sidechain
2	2	142	C	Sidechain
2	2	1454	G	Sidechain
2	2	146	G	Sidechain
2	2	1476	A	Sidechain
2	2	1480	A	Sidechain
2	2	1483	A	Sidechain
2	2	1486	G	Sidechain
2	2	1491	G	Sidechain
2	2	150	A	Sidechain
2	2	1510	G	Sidechain
2	2	1536	G	Sidechain
2	2	1548	C	Sidechain
2	2	1551	A	Sidechain
2	2	1552	C	Sidechain
2	2	1557	C	Sidechain
2	2	1558	G	Sidechain
2	2	1560	C	Sidechain
2	2	1561	G	Sidechain

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Mol	Chain	Res	Type	Group
2	2	1564	A	Sidechain
2	2	1566	G	Sidechain
2	2	1573	U	Sidechain
2	2	1574	A	Sidechain
2	2	1611	U	Sidechain
2	2	1612	G	Sidechain
2	2	1635	A	Sidechain
2	2	1655	C	Sidechain
2	2	1656	A	Sidechain
2	2	1697	G	Sidechain
2	2	170	A	Sidechain
2	2	1792	C	Sidechain
2	2	1816	A	Sidechain
2	2	1817	A	Sidechain
2	2	1818	A	Sidechain
2	2	1819	A	Sidechain
2	2	1832	U	Sidechain
2	2	1852	G	Sidechain
2	2	1853	A	Sidechain
2	2	1854	A	Sidechain
2	2	1860	A	Sidechain
2	2	191	C	Sidechain
2	2	193	C	Sidechain
2	2	198	U	Sidechain
2	2	26	U	Sidechain
2	2	306	C	Sidechain
2	2	307	G	Sidechain
2	2	338	A	Sidechain
2	2	339	A	Sidechain
2	2	357	U	Sidechain
2	2	360	G	Sidechain
2	2	370	G	Sidechain
2	2	371	C	Sidechain
2	2	373	G	Sidechain
2	2	377	C	Sidechain
2	2	38	A	Sidechain
2	2	422	G	Sidechain
2	2	428	G	Sidechain
2	2	434	G	Sidechain
2	2	436	G	Sidechain
2	2	44	U	Sidechain
2	2	45	A	Sidechain

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Mol	Chain	Res	Type	Group
2	2	456	G	Sidechain
2	2	470	G	Sidechain
2	2	472	G	Sidechain
2	2	483	A	Sidechain
2	2	493	C	Sidechain
2	2	496	G	Sidechain
2	2	497	G	Sidechain
2	2	512	A	Sidechain
2	2	518	A	Sidechain
2	2	541	U	Sidechain
2	2	561	U	Sidechain
2	2	564	A	Sidechain
2	2	570	U	Sidechain
2	2	572	U	Sidechain
2	2	580	A	Sidechain
2	2	604	G	Sidechain
2	2	605	C	Sidechain
2	2	606	A	Sidechain
2	2	615	G	Sidechain
2	2	625	G	Sidechain
2	2	629	C	Sidechain
2	2	654	A	Sidechain
2	2	67	C	Sidechain
2	2	69	C	Sidechain
2	2	70	G	Sidechain
2	2	71	G	Sidechain
2	2	74	G	Sidechain
2	2	75	G	Sidechain
2	2	76	U	Sidechain
2	2	78	C	Sidechain
2	2	784	G	Sidechain
2	2	785	G	Sidechain
2	2	79	A	Sidechain
2	2	80	G	Sidechain
2	2	800	U	Sidechain
2	2	819	U	Sidechain
2	2	820	C	Sidechain
2	2	841	G	Sidechain
2	2	910	U	Sidechain
2	2	914	U	Sidechain
2	2	916	A	Sidechain
2	2	954	G	Sidechain

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Mol	Chain	Res	Type	Group
2	2	957	G	Sidechain
2	2	959	A	Sidechain
2	2	97	U	Sidechain
2	2	987	G	Sidechain
3	3	49	A	Sidechain
4	A	88	ARG	Sidechain
5	C	41	ARG	Sidechain
7	E	171	HIS	Sidechain
9	G	100	ARG	Sidechain
10	H	86	ARG	Sidechain
11	I	132	ARG	Sidechain
11	I	154	ARG	Sidechain
11	I	170	ARG	Sidechain
13	K	11	ARG	Sidechain
13	K	21	TYR	Sidechain
13	K	5	ARG	Sidechain
19	Q	150	ARG	Mainchain
19	Q	98	ARG	Sidechain
24	V	102	ARG	Sidechain
24	V	79	TYR	Sidechain
27	Y	3	ARG	Sidechain
29	a	90	ARG	Sidechain
32	d	66	ARG	Sidechain
34	f	106	TYR	Sidechain
38	k	212	ARG	Sidechain
38	k	246	TYR	Sidechain
38	k	348	TYR	Sidechain
38	k	491	TYR	Sidechain

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	1617	0	821	0	0
2	2	37147	0	18655	410	0
3	3	192	0	99	0	0
4	A	2146	0	2191	85	0
5	C	1637	0	1641	28	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	D	1741	0	1815	27	0
7	E	1754	0	1834	29	0
8	F	1764	0	1863	49	0
9	G	2083	0	2189	30	0
10	H	1482	0	1534	14	0
11	I	1924	0	2089	24	0
12	J	1530	0	1627	27	0
13	K	1680	0	1762	45	0
14	L	1542	0	1659	18	0
15	M	828	0	854	11	0
16	N	1296	0	1374	20	0
17	O	958	0	993	15	0
18	P	1208	0	1294	25	0
19	Q	1016	0	1039	14	0
20	R	1154	0	1213	12	0
21	S	1124	0	1193	29	0
22	T	1019	0	1075	21	0
23	U	1194	0	1253	14	0
24	V	1113	0	1149	9	0
25	W	822	0	887	15	0
26	X	636	0	637	9	0
27	Y	1034	0	1080	8	0
28	Z	1106	0	1179	8	0
29	a	1021	0	1085	0	0
30	b	789	0	839	0	0
31	c	659	0	683	0	0
32	d	506	0	536	0	0
33	e	444	0	442	0	0
34	f	582	0	599	0	0
35	g	2437	0	2393	0	0
36	i	464	0	511	0	0
37	j	874	0	893	0	0
38	k	4693	0	4826	0	0
39	l	240	0	289	0	0
40	n	598	0	656	0	0
41	2	220	0	0	0	0
41	3	3	0	0	0	0
41	G	2	0	0	0	0
41	I	2	0	0	0	0
41	K	1	0	0	0	0
41	L	1	0	0	0	0
41	Z	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	86284	0	68751	920	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 8.

All (920) 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)
7:E:247:THR:O	7:E:251:VAL:HG23	1.45	1.16
2:2:1417:A:N6	2:2:1423:C:N4	2.13	0.96
2:2:124:U:H3	2:2:330:C:N4	1.63	0.95
6:D:49:VAL:HG11	6:D:62:LEU:HD11	1.47	0.95
2:2:1407:G:N1	2:2:1431:C:N3	2.14	0.95
2:2:1029:G:H1	2:2:1076:A:HO2'	1.16	0.94
2:2:1276:G:H1	2:2:1313:U:H3	1.16	0.93
2:2:318:U:H2'	2:2:319:G:C8	2.03	0.92
2:2:1717:G:H1	2:2:1806:U:H3	1.17	0.91
2:2:1417:A:H61	2:2:1423:C:N4	1.69	0.90
4:A:103:THR:HA	4:A:106:LYS:HE2	1.53	0.88
2:2:1407:G:N2	2:2:1431:C:O2	2.06	0.88
2:2:515:A:N6	2:2:579:G:O6	2.06	0.86
2:2:1417:A:N6	2:2:1423:C:C4	2.45	0.84
2:2:1747:C:N3	2:2:1775:A:N6	2.26	0.84
2:2:1344:G:H1	2:2:1377:G:H22	1.25	0.83
4:A:211:ALA:HB1	4:A:258:ILE:HG13	1.60	0.83
2:2:1374:A:OP2	5:C:102:ARG:NH1	2.11	0.83
2:2:1416:G:N1	2:2:1423:C:N3	2.27	0.82
2:2:832:G:N2	2:2:834:G:OP2	2.13	0.81
4:A:180:ILE:O	4:A:184:LEU:N	2.11	0.81
2:2:1416:G:N2	2:2:1423:C:O2	2.10	0.81
6:D:144:LYS:HB2	6:D:208:HIS:HB3	1.62	0.80
2:2:740:G:O2'	2:2:741:C:OP1	1.99	0.80
25:W:19:ARG:HG2	25:W:119:ALA:HB3	1.65	0.79
7:E:231:ASP:OD1	7:E:231:ASP:N	2.16	0.79
2:2:985:C:OP2	6:D:155:TYR:OH	2.00	0.78
26:X:3:ASN:ND2	26:X:7:GLU:OE1	2.15	0.78
2:2:1407:G:N2	2:2:1431:C:C2	2.51	0.78
4:A:123:LYS:HD2	4:A:125:GLU:HB3	1.64	0.78
12:J:37:LYS:O	12:J:41:ARG:NH2	2.17	0.77
2:2:164:A:H3'	2:2:165:G:H21	1.49	0.76
18:P:32:ASP:OD1	18:P:32:ASP:N	2.18	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:683:G:O6	2:2:732:C:N4	2.19	0.76
2:2:550:A:OP2	14:L:177:ASN:ND2	2.20	0.75
12:J:8:ILE:HA	12:J:15:LYS:HE2	1.66	0.75
8:F:67:ARG:HD2	15:M:93:THR:HG23	1.68	0.75
17:O:78:LYS:NZ	17:O:80:ASP:OD1	2.19	0.75
2:2:1417:A:C6	2:2:1423:C:C4	2.75	0.74
2:2:649:G:HO2'	2:2:652:G:HO2'	1.33	0.74
2:2:1449:C:H42	2:2:1472:A:H61	1.36	0.73
4:A:25:ARG:NH1	4:A:43:GLU:OE1	2.22	0.73
10:H:96:ARG:O	10:H:97:ASN:ND2	2.21	0.72
4:A:29:GLU:HG2	4:A:30:MET:HG3	1.71	0.72
21:S:31:LEU:HD21	21:S:69:ARG:HH22	1.54	0.72
7:E:221:ILE:O	7:E:224:THR:OG1	2.08	0.71
2:2:577:A:OP2	14:L:172:ARG:NH2	2.23	0.71
2:2:966:G:OP1	2:2:966:G:N2	2.23	0.71
4:A:114:HIS:HA	4:A:117:GLU:HG3	1.73	0.71
13:K:110:ARG:NH2	13:K:122:GLY:O	2.22	0.71
16:N:147:LYS:NZ	16:N:149:ALA:O	2.23	0.71
25:W:33:GLU:OE1	25:W:87:ARG:NH2	2.24	0.71
6:D:34:LYS:O	6:D:98:THR:OG1	2.09	0.71
2:2:1408:C:H3'	2:2:1409:G:H8	1.55	0.70
4:A:231:ALA:HB3	4:A:234:ARG:HB2	1.73	0.70
4:A:175:VAL:HG22	4:A:179:ASN:HD21	1.56	0.70
2:2:126:G:O6	11:I:196:LYS:NZ	2.23	0.70
8:F:170:THR:HG22	8:F:187:LYS:HG2	1.73	0.69
2:2:182:C:OP1	2:2:183:G:N2	2.25	0.69
2:2:409:G:O3'	27:Y:88:LYS:NZ	2.25	0.69
4:A:157:VAL:HG11	4:A:180:ILE:HB	1.73	0.69
2:2:899:A:H2'	2:2:900:A:C8	2.27	0.69
2:2:920:G:OP2	18:P:3:ARG:NH2	2.26	0.69
2:2:1413:C:N3	2:2:1415:C:N4	2.41	0.69
4:A:193:ALA:HB3	4:A:236:VAL:HA	1.74	0.69
2:2:740:G:H1'	12:J:109:ARG:HB2	1.74	0.68
4:A:84:ASP:OD1	10:H:213:ARG:NH2	2.26	0.68
2:2:318:U:H2'	2:2:319:G:H8	1.53	0.68
2:2:1731:G:H2'	2:2:1732:G:H8	1.57	0.68
2:2:828:G:O2'	9:G:261:SER:O	2.10	0.68
2:2:902:U:H2'	2:2:903:G:C8	2.27	0.68
18:P:87:ASP:OD1	18:P:87:ASP:N	2.18	0.68
2:2:411:G:O3'	16:N:98:LYS:NZ	2.27	0.67
2:2:829:C:O2'	9:G:263:GLY:OXT	2.11	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:D:105:LEU:HD13	6:D:213:ARG:HA	1.75	0.67
8:F:64:ARG:NH1	15:M:95:ARG:O	2.27	0.67
2:2:526:A:H62	2:2:537:G:H21	1.40	0.67
18:P:142:GLU:O	18:P:146:ALA:N	2.28	0.67
2:2:526:A:H62	2:2:537:G:N2	1.92	0.67
2:2:308:C:H5	11:I:183:ARG:HH12	1.42	0.67
6:D:139:CYS:SG	6:D:140:VAL:N	2.67	0.67
13:K:84:ASN:HD22	13:K:90:LEU:HB2	1.60	0.67
2:2:579:G:N2	2:2:581:U:O2	2.28	0.66
18:P:35:GLU:HG3	18:P:39:LYS:HE3	1.76	0.66
9:G:11:ARG:NH2	9:G:21:ASP:OD1	2.29	0.66
12:J:126:HIS:HD2	12:J:183:LYS:HE2	1.60	0.66
2:2:1643:G:N2	2:2:1670:A:OP2	2.22	0.66
13:K:117:TYR:HD1	13:K:152:ARG:HB3	1.60	0.66
2:2:668:U:OP1	18:P:127:ARG:NH1	2.29	0.66
12:J:50:GLU:HB2	12:J:60:ILE:HG22	1.78	0.66
13:K:57:ALA:HB2	13:K:183:GLY:HA2	1.78	0.66
9:G:168:LYS:NZ	11:I:205:GLU:OE2	2.25	0.66
2:2:124:U:H3	2:2:330:C:H42	0.82	0.65
5:C:42:LYS:HG3	5:C:48:ILE:HD11	1.78	0.65
2:2:1417:A:C6	2:2:1423:C:N3	2.65	0.65
14:L:18:ARG:O	14:L:24:ARG:NH2	2.30	0.65
19:Q:16:SER:OG	19:Q:87:GLU:O	2.15	0.65
4:A:142:TYR:HB3	4:A:147:TYR:HB2	1.78	0.65
5:C:165:ASN:HA	5:C:171:VAL:HG22	1.77	0.65
2:2:1731:G:H2'	2:2:1732:G:C8	2.31	0.65
8:F:50:ILE:HG22	8:F:88:ALA:HA	1.79	0.64
4:A:74:ILE:HG13	4:A:75:ARG:HG3	1.79	0.64
2:2:1751:G:H1	2:2:1769:U:H3	1.45	0.64
2:2:1245:C:C2'	2:2:1246:A:OP1	2.46	0.64
2:2:1668:U:OP2	21:S:17:LYS:NZ	2.30	0.64
2:2:1098:G:H22	2:2:1126:G:N2	1.96	0.64
2:2:1688:G:H21	2:2:1828:A:H8	1.44	0.64
2:2:681:U:H3	2:2:733:G:H1	1.46	0.64
4:A:7:ARG:HA	4:A:40:ASN:HD21	1.62	0.63
7:E:99:THR:O	7:E:122:LYS:NZ	2.31	0.63
2:2:1413:C:H2'	2:2:1415:C:H5	1.64	0.63
2:2:1415:C:O4'	24:V:4:VAL:N	2.31	0.63
2:2:876:G:OP2	2:2:876:G:N2	2.25	0.63
2:2:1450:A:N6	22:T:1:MET:SD	2.71	0.63
4:A:118:VAL:HG23	4:A:119:LEU:HD12	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:533:C:H3'	2:2:534:G:H8	1.65	0.62
17:O:55:ASN:ND2	17:O:57:ASP:O	2.32	0.62
2:2:317:G:H1'	2:2:318:U:C6	2.34	0.62
2:2:1414:C:N4	2:2:1421:G:OP2	2.24	0.62
2:2:740:G:HO2'	2:2:741:C:P	2.20	0.62
4:A:120:GLU:O	4:A:126:GLN:NE2	2.33	0.62
2:2:578:G:H4'	2:2:579:G:H5'	1.82	0.62
2:2:220:C:H2'	2:2:221:A:C8	2.35	0.61
2:2:847:C:O2'	2:2:848:G:N2	2.33	0.61
2:2:1408:C:H42	2:2:1430:C:H42	1.46	0.61
2:2:744:C:H2'	2:2:745:U:C2	2.34	0.61
2:2:1344:G:H22	2:2:1377:G:N2	1.98	0.61
8:F:166:TYR:HD2	8:F:167:TYR:HD2	1.48	0.61
25:W:20:ILE:HD13	25:W:98:VAL:HG21	1.82	0.61
16:N:35:ARG:HH22	16:N:55:TYR:H	1.48	0.61
4:A:151:ASP:O	4:A:155:HIS:ND1	2.33	0.61
4:A:109:TYR:HE1	4:A:113:ARG:HH11	1.48	0.61
9:G:262:SER:OG	9:G:263:GLY:N	2.33	0.61
2:2:545:A:H2'	2:2:546:U:C1'	2.31	0.61
2:2:977:A:H2'	2:2:978:G:C8	2.36	0.61
5:C:33:GLN:NE2	26:X:63:GLY:O	2.33	0.61
26:X:2:GLN:NE2	26:X:6:GLY:O	2.31	0.61
2:2:868:A:O2'	2:2:869:G:O5'	2.19	0.61
4:A:36:LEU:HD12	4:A:42:ILE:HG23	1.83	0.61
4:A:100:ASP:OD1	4:A:101:LYS:N	2.34	0.61
5:C:156:TYR:OH	26:X:61:ARG:NH2	2.34	0.60
2:2:1135:C:H2'	2:2:1136:G:O4'	2.01	0.60
6:D:137:LEU:HG	6:D:215:VAL:HG22	1.83	0.60
8:F:214:LYS:HG3	8:F:215:ASP:H	1.66	0.60
2:2:1029:G:N1	2:2:1076:A:O2'	2.28	0.60
2:2:1167:G:O2'	2:2:1183:G:O6	2.16	0.60
4:A:226:LYS:HB2	4:A:238:THR:HB	1.83	0.60
7:E:35:LYS:HD2	7:E:35:LYS:O	2.02	0.60
2:2:581:U:O2'	2:2:582:C:H3'	2.02	0.60
2:2:1750:C:H2'	2:2:1751:G:H8	1.66	0.60
12:J:5:SER:OG	12:J:6:ALA:N	2.35	0.60
14:L:87:LEU:HD13	14:L:100:LEU:HD11	1.84	0.60
20:R:88:GLU:N	20:R:88:GLU:OE1	2.34	0.60
2:2:275:C:N3	2:2:887:G:O2'	2.33	0.60
2:2:1224:A:H2'	2:2:1225:G:C8	2.37	0.60
13:K:128:LYS:HE2	13:K:128:LYS:H	1.67	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:Q:53:ILE:HG22	19:Q:54:CYS:H	1.66	0.59
27:Y:84:LYS:NZ	27:Y:85:ASP:OD1	2.35	0.59
2:2:1414:C:O2'	2:2:1416:G:OP2	2.12	0.59
16:N:18:GLN:O	16:N:20:LYS:NZ	2.24	0.59
2:2:107:A:H2'	2:2:108:G:C8	2.36	0.59
2:2:544:A:H2'	2:2:545:A:C8	2.38	0.59
2:2:1716:U:H4'	2:2:1717:G:H5"	1.83	0.59
21:S:100:VAL:HG12	21:S:101:ASP:H	1.68	0.59
22:T:57:LEU:HD13	22:T:69:ILE:HD11	1.84	0.59
2:2:744:C:H42	2:2:790:A:H61	1.50	0.59
4:A:130:LEU:HA	4:A:133:ARG:HE	1.68	0.59
2:2:868:A:O2'	2:2:869:G:O4'	2.21	0.58
2:2:1688:G:N2	2:2:1828:A:H8	2.01	0.58
13:K:117:TYR:CD1	13:K:152:ARG:HB3	2.38	0.58
4:A:256:ALA:HA	4:A:259:LYS:HE3	1.84	0.58
2:2:1406:C:C2	2:2:1407:G:N7	2.72	0.58
2:2:486:C:OP1	9:G:49:ARG:NH1	2.36	0.58
23:U:22:GLY:HA2	23:U:56:ALA:HB3	1.84	0.58
22:T:106:LEU:O	22:T:110:ASP:N	2.36	0.58
21:S:25:CYS:HB2	21:S:68:ILE:HG12	1.85	0.58
21:S:29:ASN:N	21:S:29:ASN:OD1	2.35	0.58
2:2:215:U:O2	13:K:184:ARG:NH2	2.33	0.58
2:2:1526:A:OP1	24:V:84:ARG:NH1	2.37	0.57
2:2:1461:A:O3'	22:T:10:LYS:NZ	2.37	0.57
16:N:147:LYS:HG2	16:N:153:LYS:HG3	1.86	0.57
2:2:206:A:H2'	2:2:207:U:O4'	2.04	0.57
15:M:74:GLU:OE1	15:M:74:GLU:N	2.34	0.57
7:E:251:VAL:O	7:E:252:LYS:O	2.21	0.57
22:T:27:ASP:O	22:T:31:ASN:ND2	2.32	0.57
26:X:55:ILE:HG23	26:X:59:ILE:HD11	1.87	0.57
2:2:1277:G:H2'	2:2:1278:A:H8	1.69	0.57
2:2:1535:G:OP2	24:V:43:LYS:NZ	2.36	0.57
4:A:111:ILE:HG22	4:A:112:LEU:HD12	1.87	0.57
2:2:545:A:H2'	2:2:546:U:O4'	2.04	0.57
2:2:740:G:H2'	2:2:741:C:O4'	2.03	0.56
2:2:1412:C:H2'	2:2:1413:C:C6	2.41	0.56
4:A:124:ASP:HA	4:A:127:LEU:HD23	1.86	0.56
2:2:1419:C:H1'	2:2:1420:G:C8	2.40	0.56
7:E:181:ILE:HD12	7:E:192:LEU:HD23	1.86	0.56
2:2:1245:C:O2'	2:2:1246:A:OP1	2.21	0.56
2:2:31:U:OP1	28:Z:137:LYS:NZ	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:F:218:LEU:N	8:F:219:PRO:HD2	2.20	0.56
2:2:832:G:H2'	2:2:833:A:N7	2.21	0.56
14:L:1:MET:SD	14:L:1:MET:N	4.76	0.56
14:L:89:GLU:CD	14:L:89:GLU:H	2.05	0.56
2:2:681:U:H2'	2:2:682:G:C8	2.41	0.56
2:2:1774:G:H2'	2:2:1775:A:C8	2.41	0.56
4:A:175:VAL:HG22	4:A:179:ASN:ND2	2.20	0.56
2:2:1426:C:N4	2:2:1427:G:O6	2.39	0.56
2:2:208:G:H2'	2:2:209:C:C6	2.40	0.56
2:2:868:A:H2'	2:2:869:G:C8	2.40	0.56
2:2:879:U:H2'	2:2:880:C:C6	2.41	0.55
2:2:921:G:H1	2:2:1013:U:H3	1.53	0.55
14:L:89:GLU:OE1	14:L:89:GLU:N	2.38	0.55
23:U:51:ASP:OD1	23:U:52:LEU:N	2.39	0.55
2:2:147:A:O2'	2:2:148:U:OP2	2.22	0.55
6:D:57:ILE:HD12	6:D:60:ASP:H	1.70	0.55
2:2:1411:C:H2'	2:2:1412:C:C6	2.41	0.55
2:2:1418:G:H22	2:2:1420:G:H3'	1.70	0.55
6:D:107:ARG:NH1	19:Q:133:THR:O	2.32	0.55
13:K:48:VAL:HG22	13:K:52:ASN:O	2.07	0.55
6:D:44:ILE:HD12	6:D:69:VAL:HG21	1.89	0.55
21:S:19:ALA:HB2	21:S:75:GLY:HA3	1.87	0.55
2:2:533:C:H3'	2:2:534:G:C8	2.42	0.55
8:F:106:ARG:NH2	8:F:174:HIS:O	2.40	0.55
17:O:58:GLU:HG3	17:O:60:MET:H	1.72	0.55
28:Z:4:CYS:HB2	28:Z:9:THR:HG21	1.88	0.55
2:2:847:C:H5"	2:2:848:G:H5'	1.89	0.55
4:A:69:GLU:OE2	4:A:70:CYS:N	2.36	0.55
20:R:74:GLU:HG2	20:R:75:VAL:H	1.71	0.55
2:2:182:C:N3	2:2:184:G:N1	2.55	0.54
2:2:897:G:H2'	2:2:898:G:C8	2.42	0.54
2:2:1406:C:H2'	2:2:1407:G:C8	2.41	0.54
19:Q:16:SER:OG	19:Q:16:SER:O	2.21	0.54
2:2:217:U:H5'	13:K:177:SER:OG	2.08	0.54
2:2:896:C:H2'	2:2:897:G:H8	1.73	0.54
2:2:897:G:H2'	2:2:898:G:H8	1.72	0.54
2:2:1407:G:C2	2:2:1432:C:C2	2.95	0.54
4:A:200:TYR:HB2	4:A:269:PHE:CZ	2.43	0.54
9:G:18:TRP:HH2	9:G:31:PRO:HD3	1.72	0.54
20:R:74:GLU:OE1	20:R:74:GLU:N	2.25	0.54
2:2:965:U:O2	6:D:20:LYS:NZ	2.40	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:G:220:THR:HG22	9:G:221:ARG:H	1.72	0.54
2:2:1717:G:O6	2:2:1806:U:O4	2.24	0.54
2:2:1774:G:H2'	2:2:1775:A:H8	1.72	0.54
11:I:84:TYR:OH	11:I:91:GLU:OE1	2.25	0.54
2:2:1392:A:O2'	2:2:1394:G:N7	2.38	0.54
2:2:1407:G:C2	2:2:1431:C:O2	2.61	0.54
2:2:155:G:H4'	11:I:15:LEU:HD13	1.89	0.54
4:A:14:PRO:HB3	4:A:39:TYR:CE1	2.42	0.54
21:S:93:VAL:HG21	21:S:109:LYS:HG3	1.90	0.54
11:I:49:VAL:HG12	11:I:115:LYS:HB3	1.90	0.54
2:2:728:U:H5"	2:2:729:C:C5	2.43	0.54
2:2:1701:G:H2'	2:2:1702:U:C6	2.43	0.54
5:C:128:ARG:NH1	5:C:153:PRO:HD3	2.23	0.54
10:H:177:ALA:HB2	10:H:187:CYS:SG	2.48	0.54
25:W:106:ILE:HD12	25:W:108:PRO:HD2	1.90	0.54
13:K:113:TYR:CD2	13:K:121:LEU:HG	2.43	0.54
14:L:181:GLY:HA2	14:L:185:ALA:HB3	1.90	0.54
22:T:47:ARG:HH11	22:T:48:ASN:HD21	1.54	0.54
13:K:84:ASN:HD21	13:K:90:LEU:HD12	1.73	0.53
17:O:61:TYR:O	17:O:65:VAL:HG13	2.08	0.53
2:2:1316:G:H2'	2:2:1317:G:O4'	2.08	0.53
2:2:1427:G:HO2'	2:2:1428:U:P	2.32	0.53
2:2:1805:C:H2'	2:2:1806:U:C6	2.43	0.53
2:2:902:U:H2'	2:2:903:G:H8	1.70	0.53
2:2:1406:C:H2'	2:2:1407:G:H8	1.73	0.53
2:2:127:C:O2'	2:2:212:G:OP2	2.24	0.53
2:2:794:G:N7	12:J:109:ARG:HA	2.23	0.53
2:2:832:G:H3'	2:2:832:G:N3	2.24	0.53
2:2:1223:G:C2	2:2:1224:A:C8	2.97	0.53
5:C:128:ARG:NH1	5:C:151:ASP:O	2.35	0.53
8:F:101:GLN:HG3	8:F:126:ILE:HG21	1.89	0.53
16:N:119:ASP:OD1	16:N:119:ASP:N	2.41	0.53
18:P:54:LEU:HD23	18:P:58:HIS:HD2	1.72	0.53
2:2:906:G:O2'	2:2:907:C:O5'	2.25	0.53
2:2:1407:G:N1	2:2:1432:C:N3	2.56	0.53
21:S:130:LYS:HG2	21:S:131:LYS:N	2.23	0.53
7:E:181:ILE:HD12	7:E:192:LEU:CD2	2.38	0.53
2:2:732:C:H2'	2:2:733:G:C8	2.44	0.53
16:N:120:VAL:HG12	16:N:145:VAL:HG11	1.91	0.53
2:2:1803:A:H2'	2:2:1804:U:C6	2.44	0.53
8:F:210:ILE:HG13	22:T:39:ALA:HB2	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:I:19:ASP:OD1	11:I:19:ASP:N	2.41	0.53
2:2:1110:U:H3	2:2:1115:A:H61	1.57	0.52
2:2:745:U:H2'	2:2:746:C:C6	2.44	0.52
6:D:121:ILE:HD12	6:D:207:LEU:HD11	1.91	0.52
9:G:158:ASP:OD2	9:G:174:LYS:HD2	2.10	0.52
2:2:794:G:H3'	2:2:795:U:H5'	1.91	0.52
2:2:873:C:H2'	2:2:874:G:H5"	1.92	0.52
5:C:32:PHE:HD1	5:C:32:PHE:H	1.56	0.52
21:S:100:VAL:HG12	21:S:101:ASP:OD1	2.09	0.52
2:2:220:C:H2'	2:2:221:A:H8	1.74	0.52
2:2:1766:C:H2'	2:2:1767:C:C6	2.44	0.52
17:O:58:GLU:HG3	17:O:61:TYR:H	1.74	0.52
26:X:59:ILE:HA	26:X:62:MET:HG2	1.91	0.52
2:2:536:G:H2'	2:2:537:G:O4'	2.08	0.52
2:2:903:G:H2'	2:2:904:A:C8	2.44	0.52
2:2:1592:C:H4'	2:2:1598:G:C6	2.45	0.52
2:2:1721:G:H2'	2:2:1722:G:H8	1.75	0.52
6:D:144:LYS:CB	6:D:208:HIS:HB3	2.37	0.52
6:D:193:ILE:O	6:D:197:ILE:HG13	2.09	0.52
8:F:51:LEU:HD13	8:F:89:GLU:HB3	1.91	0.52
8:F:166:TYR:CD2	8:F:167:TYR:HD2	2.27	0.52
23:U:34:LYS:HE3	23:U:103:LEU:HD23	1.90	0.52
2:2:834:G:H5"	2:2:835:C:H5"	1.92	0.52
2:2:874:G:OP1	2:2:874:G:H3'	2.10	0.52
2:2:1098:G:H1	2:2:1126:G:H22	1.58	0.52
6:D:68:GLU:HG2	6:D:83:LYS:HE3	1.92	0.52
8:F:150:MET:HE1	8:F:152:PHE:HZ	1.75	0.52
2:2:1750:C:H2'	2:2:1751:G:C8	2.44	0.52
2:2:1771:G:H2'	2:2:1772:C:C6	2.44	0.52
5:C:38:ILE:HG21	5:C:47:TYR:HD2	1.74	0.52
21:S:15:ARG:HG2	21:S:20:THR:HG23	1.90	0.52
21:S:32:ILE:HG13	21:S:68:ILE:HB	1.92	0.52
2:2:1405:A:H61	2:2:1432:C:H42	1.57	0.52
20:R:61:ARG:C	20:R:63:ALA:H	2.11	0.52
2:2:1282:G:O6	17:O:36:ARG:HB3	2.10	0.52
2:2:1407:G:N1	2:2:1431:C:C2	2.76	0.52
15:M:72:THR:OG1	15:M:73:ASN:N	2.43	0.52
21:S:101:ASP:OD1	21:S:101:ASP:N	2.43	0.52
6:D:110:MET:HA	6:D:113:MET:HE2	1.92	0.51
21:S:97:GLN:HG3	21:S:105:LYS:HD3	1.93	0.51
2:2:313:C:H2'	2:2:315:C:C2	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1417:A:N6	2:2:1423:C:H42	2.03	0.51
2:2:125:C:O2'	11:I:198:ARG:NH1	2.43	0.51
2:2:185:C:H2'	2:2:186:G:C8	2.44	0.51
2:2:649:G:O2'	2:2:652:G:O2'	2.10	0.51
2:2:225:C:H42	2:2:882:A:H2'	1.76	0.51
2:2:1407:G:C2	2:2:1431:C:C2	2.99	0.51
4:A:131:PHE:HE2	4:A:136:TRP:HE1	1.59	0.51
9:G:210:VAL:HG12	9:G:211:LYS:H	1.74	0.51
10:H:74:LYS:HG3	10:H:77:ARG:HH11	1.75	0.51
2:2:313:C:H5"	2:2:315:C:C4	2.46	0.51
2:2:1343:U:H2'	2:2:1344:G:C8	2.45	0.51
2:2:1408:C:H3'	2:2:1409:G:C8	2.40	0.51
4:A:20:VAL:O	4:A:70:CYS:HA	2.11	0.51
8:F:211:VAL:O	22:T:20:TYR:OH	2.18	0.51
4:A:199:CYS:SG	4:A:235:TYR:OH	2.69	0.51
21:S:21:ALA:HB2	21:S:72:VAL:HG13	1.92	0.51
2:2:545:A:H2'	2:2:546:U:H1'	1.92	0.51
2:2:678:U:H3	12:J:102:PRO:HA	1.75	0.51
2:2:1419:C:O2'	2:2:1420:G:H5"	2.11	0.51
2:2:1584:A:N3	2:2:1648:U:O2'	2.36	0.51
4:A:104:LYS:O	4:A:108:VAL:HG13	2.11	0.51
4:A:175:VAL:O	4:A:179:ASN:ND2	2.44	0.51
23:U:65:GLU:O	23:U:69:THR:HG23	2.10	0.51
24:V:5:THR:OG1	24:V:6:VAL:N	2.44	0.51
2:2:744:C:H42	2:2:790:A:N6	2.09	0.51
9:G:195:ILE:O	9:G:196:THR:HG22	2.11	0.51
2:2:1299:C:H2'	2:2:1300:U:C6	2.45	0.51
2:2:1462:G:P	22:T:10:LYS:HZ1	2.34	0.51
4:A:161:SER:O	4:A:165:SER:OG	2.28	0.51
6:D:29:ASP:N	6:D:29:ASP:OD1	2.43	0.51
6:D:107:ARG:NH1	19:Q:133:THR:H	2.09	0.51
21:S:25:CYS:SG	21:S:95:TYR:HB2	2.51	0.51
15:M:12:TYR:CD1	15:M:79:LEU:HD21	2.47	0.50
2:2:1008:A:H2'	2:2:1009:U:O4'	2.10	0.50
4:A:138:PHE:HA	4:A:141:LYS:HE2	1.93	0.50
2:2:524:G:H2'	2:2:525:G:C8	2.46	0.50
2:2:1625:A:H5"	23:U:37:GLY:H	1.76	0.50
5:C:103:PHE:O	5:C:104:THR:OG1	2.24	0.50
10:H:197:LYS:O	10:H:197:LYS:NZ	2.36	0.50
2:2:1031:A:H2'	2:2:1032:A:O4'	2.11	0.50
2:2:1421:G:H2'	2:2:1422:U:C6	2.46	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1732:G:H2'	2:2:1733:C:H6	1.75	0.50
4:A:123:LYS:HD2	4:A:125:GLU:CB	2.38	0.50
6:D:58:ALA:O	6:D:61:GLY:N	2.43	0.50
8:F:34:TYR:OH	8:F:37:VAL:HG22	2.10	0.50
13:K:125:LYS:HB2	13:K:128:LYS:NZ	2.26	0.50
10:H:210:GLU:O	10:H:214:VAL:HG23	2.11	0.50
13:K:88:ASN:O	13:K:91:VAL:HG22	2.12	0.50
2:2:29:G:H4'	28:Z:129:SER:OG	2.12	0.50
5:C:147:LEU:O	5:C:165:ASN:ND2	2.45	0.50
2:2:118:C:H1'	2:2:435:A:C5	2.47	0.50
2:2:465:C:H5"	14:L:1:MET:CE	2.41	0.50
2:2:1773:G:H2'	2:2:1774:G:C8	2.47	0.50
11:I:20:ASP:O	11:I:23:LYS:HG2	2.10	0.50
16:N:131:CYS:SG	16:N:141:ASN:HB2	2.51	0.50
22:T:98:VAL:HG22	22:T:99:ASP:H	1.76	0.50
11:I:49:VAL:HG13	11:I:114:VAL:HG13	1.94	0.50
15:M:86:PRO:O	15:M:89:ILE:HG22	2.12	0.50
25:W:61:LEU:O	25:W:81:GLN:HA	2.12	0.50
2:2:741:C:H2'	2:2:742:C:C6	2.46	0.49
2:2:1277:G:H2'	2:2:1278:A:C8	2.47	0.49
18:P:34:LYS:HE3	18:P:67:THR:HG21	1.94	0.49
2:2:292:A:N3	13:K:73:THR:HG21	2.26	0.49
2:2:737:C:H3'	2:2:738:U:H5"	1.95	0.49
2:2:1615:A:O2'	20:R:40:ARG:NH1	2.45	0.49
8:F:40:ARG:NH2	8:F:49:ILE:HD11	2.26	0.49
8:F:72:VAL:HG13	15:M:20:VAL:HG21	1.93	0.49
16:N:20:LYS:C	16:N:21:LYS:HD2	2.33	0.49
2:2:520:U:H2'	2:2:521:A:H8	1.77	0.49
2:2:907:C:O2'	2:2:908:C:H5'	2.13	0.49
2:2:1653:G:C5	2:2:1654:U:C5	3.00	0.49
4:A:216:LEU:HD13	4:A:240:THR:HB	1.94	0.49
4:A:240:THR:HG22	4:A:250:VAL:HG11	1.93	0.49
17:O:18:LEU:HD11	17:O:79:VAL:HG21	1.94	0.49
2:2:520:U:H2'	2:2:521:A:C8	2.48	0.49
2:2:1749:C:H2'	2:2:1750:C:C6	2.48	0.49
2:2:297:C:H42	13:K:41:ARG:HH11	1.59	0.49
2:2:546:U:C4	2:2:547:U:C2	3.01	0.49
7:E:69:GLU:OE1	7:E:69:GLU:N	2.45	0.49
8:F:214:LYS:CG	8:F:215:ASP:H	2.25	0.49
12:J:185:VAL:O	12:J:186:ASN:ND2	2.46	0.49
17:O:128:PHE:CD1	17:O:132:LYS:HE3	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:445:A:H2'	2:2:446:C:C6	2.48	0.49
2:2:1403:U:H2'	2:2:1404:U:C6	2.47	0.49
2:2:1420:G:HO2'	2:2:1421:G:H8	1.59	0.49
27:Y:37:PHE:CE2	27:Y:103:VAL:HG11	2.47	0.49
2:2:1409:G:C2	2:2:1410:A:C4	3.01	0.49
5:C:120:ARG:HH22	7:E:244:GLN:HB2	1.77	0.49
4:A:92:PRO:O	4:A:96:ILE:HG12	2.13	0.49
8:F:35:SER:O	8:F:35:SER:OG	2.25	0.49
15:M:17:LYS:HB3	15:M:17:LYS:HE3	1.58	0.49
21:S:139:ALA:O	21:S:140:ARG:NE	2.37	0.49
2:2:939:U:C2	2:2:940:A:C8	3.01	0.49
4:A:190:LYS:H	4:A:244:ARG:HD3	1.77	0.49
17:O:52:LEU:HD22	17:O:65:VAL:HG21	1.94	0.49
19:Q:95:ILE:HD11	19:Q:126:ILE:HD12	1.95	0.49
21:S:63:PHE:CZ	21:S:92:LEU:HD22	2.48	0.49
2:2:794:G:H5'	2:2:796:U:OP2	2.13	0.48
4:A:181:ASN:OD1	4:A:182:ARG:HD2	2.13	0.48
23:U:50:ILE:HG22	23:U:51:ASP:O	2.13	0.48
4:A:7:ARG:HA	4:A:40:ASN:ND2	2.26	0.48
5:C:102:ARG:HG2	5:C:102:ARG:HH21	1.78	0.48
8:F:33:GLY:O	8:F:53:THR:HG23	2.13	0.48
8:F:140:GLY:HA3	8:F:182:LEU:HD22	1.95	0.48
2:2:878:U:H2'	2:2:879:U:H6	1.79	0.48
8:F:68:GLU:O	8:F:72:VAL:HG22	2.12	0.48
13:K:60:LEU:HD23	13:K:60:LEU:HA	1.63	0.48
2:2:320:G:N1	2:2:321:C:C4	2.80	0.48
2:2:1078:A:H5'	2:2:1837:G:H4'	1.96	0.48
2:2:1506:G:H2'	2:2:1506:G:N3	2.28	0.48
2:2:554:A:H2'	2:2:555:G:O4'	2.14	0.48
2:2:1741:U:H2'	2:2:1742:C:H6	1.78	0.48
12:J:105:THR:O	12:J:106:ARG:NE	2.47	0.48
15:M:86:PRO:O	15:M:88:GLU:N	2.46	0.48
23:U:52:LEU:HD12	23:U:52:LEU:HA	1.62	0.48
2:2:936:U:H3	2:2:998:U:H3	1.61	0.48
13:K:81:VAL:HG21	13:K:94:LYS:HA	1.95	0.48
2:2:751:C:H2'	2:2:752:C:C6	2.48	0.48
10:H:89:ASN:HD21	10:H:101:LYS:NZ	2.12	0.48
13:K:195:LEU:O	13:K:199:LEU:HG	2.14	0.48
22:T:110:ASP:N	22:T:110:ASP:OD1	2.46	0.48
2:2:486:C:P	9:G:49:ARG:HH12	2.37	0.48
4:A:105:SER:O	4:A:108:VAL:HG22	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:K:85:ALA:HB1	16:N:9:ALA:HB2	1.96	0.48
18:P:5:HIS:HD2	18:P:117:LEU:HB3	1.79	0.48
2:2:182:C:H4'	2:2:183:G:C6	2.49	0.47
2:2:1408:C:H42	2:2:1430:C:N4	2.10	0.47
4:A:178:ASN:O	4:A:182:ARG:HD3	2.14	0.47
2:2:158:A:H2'	2:2:159:A:O4'	2.13	0.47
2:2:310:G:C6	2:2:311:C:C5	3.02	0.47
2:2:833:A:H2'	2:2:834:G:C8	2.48	0.47
5:C:106:GLY:N	5:C:136:GLU:OE2	2.35	0.47
19:Q:54:CYS:SG	19:Q:81:VAL:HG13	2.54	0.47
2:2:900:A:H2'	2:2:901:C:C6	2.49	0.47
4:A:130:LEU:HD23	4:A:133:ARG:HE	1.80	0.47
18:P:92:ILE:O	18:P:96:VAL:HG13	2.14	0.47
21:S:18:THR:O	21:S:18:THR:OG1	2.30	0.47
2:2:526:A:N6	2:2:537:G:H21	2.09	0.47
2:2:1217:G:O2'	2:2:1671:U:O2	2.32	0.47
7:E:160:LYS:HE3	27:Y:95:PRO:HA	1.95	0.47
2:2:1720:U:C2	2:2:1721:G:C8	3.02	0.47
2:2:1741:U:H2'	2:2:1742:C:C6	2.49	0.47
18:P:67:THR:HG22	18:P:68:GLY:H	1.79	0.47
2:2:92:A:H4'	2:2:93:U:OP2	2.15	0.47
2:2:1748:G:C6	2:2:1749:C:N4	2.83	0.47
4:A:199:CYS:HA	4:A:269:PHE:HE2	1.79	0.47
2:2:1401:A:H2'	2:2:1402:G:O4'	2.15	0.47
4:A:65:ILE:HD12	4:A:65:ILE:H	1.79	0.47
4:A:120:GLU:HB3	4:A:126:GLN:NE2	2.30	0.47
7:E:229:THR:HG22	7:E:230:PRO:HD2	1.97	0.47
13:K:67:TRP:HA	13:K:189:VAL:HG12	1.97	0.47
16:N:40:ILE:HD11	16:N:61:PRO:O	2.15	0.47
2:2:1417:A:C8	2:2:1418:G:C8	3.03	0.47
2:2:1688:G:N2	2:2:1828:A:C8	2.80	0.47
4:A:185:THR:OG1	4:A:186:PRO:HD3	2.14	0.47
20:R:11:THR:HG22	20:R:12:PHE:H	1.80	0.47
4:A:102:PHE:O	4:A:106:LYS:HG3	2.15	0.47
8:F:55:THR:HG22	8:F:88:ALA:HB1	1.97	0.47
2:2:72:C:H4'	2:2:73:C:C4	2.50	0.47
2:2:1583:A:H2'	2:2:1584:A:C8	2.50	0.47
2:2:1804:U:H2'	2:2:1805:C:C6	2.50	0.47
12:J:5:SER:O	12:J:28:LEU:HD13	2.15	0.47
12:J:113:LYS:HG3	12:J:114:GLN:H	1.80	0.47
12:J:181:THR:OG1	12:J:182:GLY:N	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:J:184:ASP:OD1	12:J:184:ASP:N	2.48	0.47
2:2:233:A:H2'	2:2:234:C:O4'	2.15	0.46
2:2:897:G:C2	2:2:898:G:C5	3.03	0.46
2:2:1413:C:C2	2:2:1415:C:N4	2.83	0.46
4:A:139:ASP:O	4:A:143:LYS:HB2	2.15	0.46
5:C:34:MET:HE2	5:C:149:ASN:O	2.15	0.46
8:F:79:PHE:CD2	8:F:84:VAL:HG22	2.50	0.46
13:K:84:ASN:ND2	13:K:90:LEU:HD12	2.30	0.46
19:Q:19:PRO:HG2	19:Q:27:VAL:HG21	1.96	0.46
2:2:107:A:H2'	2:2:108:G:H8	1.80	0.46
2:2:543:U:H2'	2:2:544:A:N3	2.31	0.46
2:2:1169:A:H2'	2:2:1170:U:O4'	2.15	0.46
13:K:132:GLU:OE1	13:K:133:GLU:N	2.47	0.46
2:2:145:G:H2'	2:2:146:G:C8	2.50	0.46
2:2:358:U:H4'	2:2:359:C:O5'	2.15	0.46
2:2:839:C:H2'	2:2:840:U:O4'	2.15	0.46
2:2:1531:G:H2'	2:2:1532:A:C8	2.50	0.46
9:G:21:ASP:OD2	9:G:24:THR:OG1	2.29	0.46
25:W:94:PRO:HD2	25:W:97:ILE:HD11	1.98	0.46
2:2:320:G:C6	2:2:321:C:N4	2.84	0.46
2:2:830:C:H2'	2:2:831:C:C6	2.50	0.46
2:2:1407:G:N1	2:2:1432:C:C2	2.83	0.46
2:2:1717:G:N1	2:2:1806:U:N3	2.45	0.46
10:H:165:ALA:O	10:H:169:LEU:HG	2.15	0.46
17:O:52:LEU:HD11	17:O:62:VAL:HG12	1.97	0.46
18:P:132:LYS:HB3	18:P:134:VAL:HG23	1.96	0.46
18:P:147:SER:O	18:P:150:VAL:HG12	2.16	0.46
26:X:17:CYS:SG	26:X:56:CYS:N	2.82	0.46
2:2:1418:G:N2	2:2:1419:C:O2'	2.48	0.46
5:C:31:ASP:OD1	5:C:151:ASP:HA	2.16	0.46
6:D:141:GLY:HA2	6:D:209:ASP:O	2.16	0.46
8:F:124:ARG:O	8:F:128:GLU:HG2	2.16	0.46
9:G:143:ASP:OD1	9:G:143:ASP:N	2.35	0.46
9:G:188:ASN:ND2	9:G:218:PHE:HB2	2.31	0.46
13:K:106:SER:HA	13:K:109:TYR:HD2	1.81	0.46
13:K:157:LYS:HA	13:K:157:LYS:HD2	1.70	0.46
18:P:143:SER:OG	18:P:144:SER:N	2.49	0.46
21:S:29:ASN:N	21:S:67:ASP:OD1	2.48	0.46
23:U:143:GLY:HA2	23:U:144:ARG:NH2	2.31	0.46
28:Z:77:ASN:HB3	28:Z:79:LYS:HG2	1.98	0.46
8:F:172:VAL:HA	8:F:184:ILE:O	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:H:74:LYS:HG3	10:H:77:ARG:NH1	2.31	0.46
23:U:54:LYS:HB3	23:U:54:LYS:HE3	1.68	0.46
2:2:31:U:P	28:Z:137:LYS:HZ2	2.38	0.46
2:2:525:G:H2'	2:2:526:A:H8	1.80	0.46
2:2:1402:G:H2'	2:2:1403:U:C6	2.51	0.46
5:C:132:GLN:HB3	5:C:133:PRO:HD3	1.98	0.46
11:I:215:LYS:C	11:I:215:LYS:HZ2	2.19	0.46
13:K:45:THR:HG22	13:K:55:TYR:HD1	1.81	0.46
13:K:113:TYR:OH	13:K:156:ALA:HB1	2.15	0.46
22:T:16:ILE:HG22	22:T:24:LEU:HD11	1.97	0.46
2:2:547:U:C4	2:2:548:G:N7	2.84	0.46
2:2:553:G:O2'	2:2:554:A:O5'	2.33	0.46
2:2:1531:G:H2'	2:2:1532:A:H8	1.81	0.46
2:2:1709:U:H2'	2:2:1710:A:C8	2.50	0.46
4:A:104:LYS:O	4:A:107:THR:HG22	2.16	0.46
6:D:31:TYR:CD2	6:D:94:LYS:HA	2.51	0.46
13:K:197:PHE:CZ	13:K:201:LYS:HE3	2.51	0.46
14:L:63:LEU:O	14:L:70:ARG:NH2	2.48	0.46
25:W:53:PRO:HA	25:W:88:LEU:O	2.16	0.46
2:2:546:U:H2'	2:2:547:U:O4'	2.16	0.46
7:E:68:SER:HB2	7:E:133:ILE:HG23	1.98	0.46
8:F:208:VAL:HG11	22:T:12:ALA:HB2	1.98	0.46
10:H:139:ASP:OD1	10:H:140:SER:N	2.49	0.46
14:L:74:GLY:O	14:L:78:LEU:HG	2.15	0.46
18:P:38:TYR:O	18:P:42:LYS:HG2	2.16	0.46
21:S:130:LYS:NZ	21:S:134:GLY:O	2.38	0.46
2:2:225:C:O5'	2:2:884:U:H4'	2.16	0.46
2:2:1224:A:H2'	2:2:1225:G:H8	1.81	0.46
2:2:1411:C:N4	2:2:1427:G:H1	2.14	0.46
2:2:1770:G:H2'	2:2:1771:G:H8	1.78	0.46
21:S:101:ASP:OD1	21:S:104:SER:OG	2.26	0.46
4:A:216:LEU:HD22	4:A:225:ILE:HD12	1.97	0.45
7:E:54:SER:OG	7:E:55:LEU:N	2.49	0.45
8:F:221:THR:O	8:F:223:ILE:HG23	2.16	0.45
9:G:162:ILE:HG22	9:G:169:ILE:HG22	1.99	0.45
16:N:33:LEU:HD23	16:N:33:LEU:HA	1.74	0.45
18:P:13:GLN:H	18:P:13:GLN:HG2	1.47	0.45
18:P:114:ARG:O	18:P:118:ILE:HD12	2.16	0.45
2:2:542:G:C5	2:2:543:U:C4	3.04	0.45
2:2:1427:G:O2'	2:2:1428:U:O5'	2.22	0.45
2:2:1772:C:H2'	2:2:1773:G:C8	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:E:123:GLU:OE2	7:E:126:THR:OG1	2.30	0.45
18:P:140:LYS:HD2	18:P:140:LYS:HA	1.76	0.45
2:2:310:G:C2	2:2:322:G:C2	3.03	0.45
2:2:1409:G:C6	2:2:1410:A:C6	3.04	0.45
2:2:1776:G:O5'	2:2:1776:G:H8	1.99	0.45
4:A:181:ASN:HA	4:A:184:LEU:HB3	1.99	0.45
16:N:40:ILE:HD13	16:N:40:ILE:HA	1.76	0.45
2:2:165:G:H1'	11:I:110:ASN:HD22	1.81	0.45
2:2:525:G:H2'	2:2:526:A:C8	2.52	0.45
2:2:883:U:O2'	2:2:884:U:H5"	2.17	0.45
2:2:945:G:H2'	2:2:946:C:C6	2.52	0.45
5:C:131:HIS:O	5:C:135:THR:HG23	2.16	0.45
8:F:62:LYS:O	8:F:64:ARG:NH1	2.48	0.45
9:G:212:ASP:OD1	9:G:213:ALA:N	2.44	0.45
17:O:43:ASP:O	17:O:45:ARG:NH2	2.49	0.45
2:2:1370:C:H2'	2:2:1371:G:O4'	2.15	0.45
2:2:1376:C:H2'	2:2:1377:G:O4'	2.16	0.45
2:2:1767:C:H2'	2:2:1768:C:C6	2.51	0.45
2:2:1799:G:H2'	2:2:1800:A:H8	1.82	0.45
4:A:263:GLU:HA	4:A:269:PHE:CD1	2.51	0.45
22:T:5:ARG:HB2	22:T:10:LYS:HE2	1.98	0.45
2:2:831:C:H2'	2:2:832:G:N2	2.32	0.45
2:2:1705:C:H2'	2:2:1706:U:C6	2.51	0.45
8:F:208:VAL:HG23	22:T:41:ILE:HG13	1.97	0.45
11:I:110:ASN:OD1	11:I:110:ASN:N	2.48	0.45
15:M:72:THR:O	15:M:76:ILE:HG13	2.16	0.45
20:R:31:GLU:CD	20:R:31:GLU:H	2.19	0.45
2:2:1408:C:N4	2:2:1430:C:H42	2.14	0.45
13:K:113:TYR:CE1	13:K:117:TYR:HD2	2.34	0.45
22:T:7:LYS:O	22:T:11:LYS:HG3	2.17	0.45
4:A:172:GLU:O	4:A:176:LEU:HD13	2.17	0.45
12:J:17:ASP:O	12:J:21:SER:OG	2.25	0.45
12:J:29:GLU:HA	12:J:32:MET:HG2	1.98	0.45
12:J:109:ARG:O	12:J:113:LYS:NZ	2.26	0.45
16:N:111:VAL:HG12	16:N:140:PHE:HB2	1.98	0.45
25:W:111:GLU:OE2	25:W:112:VAL:N	2.50	0.45
10:H:155:ASP:N	10:H:155:ASP:OD1	2.36	0.45
12:J:181:THR:OG1	12:J:183:LYS:HG3	2.17	0.45
2:2:684:A:H2'	2:2:685:G:C8	2.52	0.45
11:I:16:ILE:HG12	11:I:17:GLU:H	1.82	0.45
13:K:186:ASP:N	13:K:186:ASP:OD1	2.48	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:P:94:LYS:O	18:P:98:VAL:HG23	2.17	0.45
13:K:165:GLN:NE2	13:K:170:LYS:O	2.50	0.44
2:2:1039:G:H2'	2:2:1040:G:O4'	2.18	0.44
7:E:251:VAL:C	7:E:252:LYS:O	2.55	0.44
9:G:31:PRO:HB3	9:G:43:PRO:HG3	1.98	0.44
14:L:81:LEU:HD23	14:L:81:LEU:HA	1.73	0.44
16:N:147:LYS:HD2	16:N:147:LYS:HA	1.75	0.44
2:2:876:G:H21	2:2:876:G:P	2.37	0.44
4:A:120:GLU:HB3	4:A:126:GLN:HE21	1.82	0.44
12:J:168:HIS:CD2	12:J:168:HIS:H	2.35	0.44
20:R:65:LYS:HB2	20:R:65:LYS:HE3	1.63	0.44
21:S:26:LYS:O	21:S:66:VAL:HA	2.17	0.44
23:U:73:ASN:HB3	23:U:76:GLN:HG2	1.99	0.44
12:J:37:LYS:HG2	12:J:41:ARG:HH12	1.82	0.44
21:S:118:THR:HA	21:S:121:VAL:O	2.17	0.44
2:2:209:C:H2'	2:2:210:G:H8	1.83	0.44
2:2:366:A:N3	13:K:86:SER:HB3	2.33	0.44
4:A:196:GLU:HG2	4:A:234:ARG:HE	1.83	0.44
18:P:98:VAL:HG12	18:P:102:LEU:HD23	1.99	0.44
22:T:41:ILE:HG23	22:T:46:LEU:HD23	2.00	0.44
2:2:1571:G:H2'	2:2:1572:G:H8	1.83	0.44
7:E:191:LEU:HD23	7:E:221:ILE:HD11	2.00	0.44
8:F:118:ALA:O	8:F:122:VAL:HG22	2.18	0.44
11:I:50:VAL:HG12	11:I:113:ILE:HA	2.00	0.44
2:2:319:G:C5	2:2:320:G:C8	3.06	0.44
2:2:445:A:H2'	2:2:446:C:H6	1.83	0.44
2:2:1411:C:H2'	2:2:1412:C:H6	1.82	0.44
2:2:1451:A:C2	2:2:1452:G:C8	3.06	0.44
2:2:1724:U:H2'	2:2:1725:U:C5	2.53	0.44
2:2:1752:G:H2'	2:2:1753:G:C8	2.53	0.44
5:C:118:GLU:OE2	7:E:42:LYS:HG3	2.16	0.44
8:F:217:ILE:O	8:F:217:ILE:HG13	2.18	0.44
18:P:88:LEU:HD12	18:P:88:LEU:HA	1.76	0.44
19:Q:95:ILE:HD12	19:Q:126:ILE:HG23	2.00	0.44
22:T:70:SER:O	22:T:70:SER:OG	2.31	0.44
2:2:552:U:H2'	2:2:553:G:C8	2.53	0.44
2:2:1701:G:H2'	2:2:1702:U:H6	1.83	0.44
2:2:1720:U:N3	2:2:1721:G:N7	2.65	0.44
4:A:22:VAL:HG12	4:A:36:LEU:HD23	2.00	0.44
13:K:190:LEU:HD23	13:K:190:LEU:HA	1.70	0.44
20:R:84:ILE:HD12	20:R:84:ILE:H	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:W:30:LYS:H	25:W:30:LYS:HD2	1.83	0.44
2:2:426:G:OP2	2:2:461:G:O2'	2.34	0.44
6:D:52:THR:HG23	6:D:57:ILE:HA	1.99	0.44
9:G:44:LEU:HD12	9:G:44:LEU:HA	1.66	0.44
12:J:126:HIS:O	12:J:177:TYR:OH	2.36	0.44
24:V:139:ALA:O	24:V:144:LYS:N	2.51	0.44
2:2:1627:G:HO2'	2:2:1628:A:P	2.41	0.43
11:I:50:VAL:HG12	11:I:113:ILE:HG12	1.99	0.43
2:2:811:U:C2	2:2:812:A:C8	3.06	0.43
2:2:864:G:H5"	16:N:156:GLN:NE2	2.34	0.43
2:2:868:A:N6	2:2:911:G:C5	2.86	0.43
2:2:1061:G:OP1	19:Q:149:ARG:HD2	2.17	0.43
2:2:1134:C:P	5:C:155:ARG:HH12	2.41	0.43
4:A:76:VAL:HA	4:A:82:TYR:O	2.18	0.43
7:E:197:ASP:N	7:E:197:ASP:OD1	2.51	0.43
14:L:78:LEU:HD21	14:L:94:LEU:HD23	1.99	0.43
18:P:102:LEU:HD13	18:P:102:LEU:HA	1.80	0.43
2:2:231:C:N4	2:2:891:G:O6	2.51	0.43
2:2:864:G:H5"	16:N:156:GLN:HE22	1.84	0.43
2:2:951:A:C2	2:2:968:A:C5	3.06	0.43
2:2:1374:A:H4'	2:2:1375:A:O5'	2.19	0.43
20:R:61:ARG:O	20:R:62:LYS:HB3	2.18	0.43
23:U:25:LYS:O	23:U:29:ALA:N	2.52	0.43
2:2:96:C:OP1	14:L:1:MET:HA	2.18	0.43
2:2:1799:G:H2'	2:2:1800:A:C8	2.53	0.43
7:E:123:GLU:N	7:E:123:GLU:OE1	2.51	0.43
10:H:216:LYS:HG3	10:H:219:ARG:NH2	2.34	0.43
13:K:198:TYR:O	13:K:202:ILE:HG13	2.17	0.43
17:O:35:ILE:HD13	17:O:61:TYR:HD2	1.83	0.43
2:2:1717:G:H2'	2:2:1718:G:O4'	2.18	0.43
4:A:15:GLU:N	4:A:15:GLU:OE1	2.52	0.43
7:E:90:GLN:HB3	7:E:99:THR:HB	2.01	0.43
17:O:52:LEU:HD12	17:O:53:ALA:H	1.83	0.43
21:S:63:PHE:CE1	21:S:92:LEU:HD22	2.54	0.43
23:U:51:ASP:OD1	23:U:53:THR:N	2.51	0.43
25:W:22:ILE:HG23	25:W:114:VAL:HB	1.99	0.43
2:2:126:G:OP2	11:I:195:LYS:HE3	2.18	0.43
2:2:209:C:H2'	2:2:210:G:C8	2.53	0.43
4:A:100:ASP:O	4:A:104:LYS:HG2	2.19	0.43
9:G:151:ASP:OD2	11:I:216:ARG:NH1	2.48	0.43
11:I:37:ALA:HA	11:I:49:VAL:HG23	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:I:215:LYS:HZ1	11:I:216:ARG:HD3	1.83	0.43
12:J:126:HIS:NE2	12:J:181:THR:HB	2.33	0.43
13:K:73:THR:O	13:K:74:ARG:HD2	2.18	0.43
2:2:320:G:O6	2:2:321:C:N4	2.52	0.43
2:2:1060:C:H5"	19:Q:149:ARG:HG3	1.99	0.43
2:2:1526:A:H4'	2:2:1600:G:H4'	2.01	0.43
9:G:94:LYS:HD2	9:G:94:LYS:HA	1.77	0.43
27:Y:37:PHE:CZ	27:Y:103:VAL:HG11	2.53	0.43
2:2:297:C:O2'	2:2:298:G:H3'	2.18	0.43
2:2:319:G:C6	2:2:320:G:C5	3.07	0.43
2:2:1601:G:HO2'	2:2:1602:A:P	2.42	0.43
5:C:119:PRO:HG2	5:C:142:LEU:HD11	2.01	0.43
26:X:22:ARG:HE	26:X:22:ARG:HB3	1.67	0.43
2:2:1721:G:H2'	2:2:1722:G:C8	2.51	0.43
4:A:115:VAL:HB	4:A:172:GLU:OE1	2.18	0.43
4:A:168:LEU:HD12	4:A:168:LEU:HA	1.88	0.43
7:E:101:PHE:O	7:E:120:CYS:HA	2.18	0.43
24:V:74:SER:O	24:V:78:ILE:HG13	2.19	0.43
2:2:528:U:C2	2:2:536:G:C2	3.07	0.43
2:2:1447:G:OP1	22:T:32:LYS:NZ	2.34	0.43
8:F:154:ASP:OD1	8:F:155:GLY:N	2.52	0.43
9:G:73:ASP:OD1	9:G:73:ASP:N	2.52	0.43
21:S:88:ILE:HG13	21:S:89:SER:N	2.34	0.43
2:2:879:U:H2'	2:2:880:C:H6	1.83	0.42
2:2:1133:U:O2'	2:2:1134:C:H5"	2.19	0.42
6:D:81:PHE:HB3	6:D:106:THR:HG22	2.00	0.42
7:E:48:LYS:HE2	7:E:48:LYS:HB3	4.62	0.42
20:R:58:LYS:O	20:R:61:ARG:HG2	2.18	0.42
2:2:182:C:N3	2:2:184:G:C2	2.86	0.42
2:2:272:C:H2'	2:2:273:G:H8	1.84	0.42
2:2:418:U:H2'	2:2:418:U:O2	2.18	0.42
2:2:664:C:H2'	2:2:665:U:C6	2.54	0.42
2:2:1392:A:O2'	2:2:1394:G:C8	2.72	0.42
4:A:20:VAL:HG11	4:A:36:LEU:HD22	2.02	0.42
4:A:200:TYR:HB2	4:A:269:PHE:HZ	1.81	0.42
6:D:218:LEU:HD12	6:D:218:LEU:HA	1.66	0.42
7:E:97:GLN:HE21	7:E:97:GLN:HB2	1.63	0.42
9:G:165:GLU:OE1	9:G:165:GLU:N	2.51	0.42
13:K:148:LYS:HE3	13:K:149:TYR:CE1	2.54	0.42
2:2:938:G:H2'	2:2:939:U:C6	2.54	0.42
2:2:1404:U:H2'	2:2:1405:A:O4'	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1770:G:H2'	2:2:1771:G:C8	2.53	0.42
5:C:121:LEU:HD12	5:C:121:LEU:HA	1.82	0.42
22:T:45:LYS:HB2	22:T:45:LYS:HE2	1.71	0.42
2:2:163:U:H2'	2:2:164:A:H8	1.85	0.42
2:2:181:A:OP2	2:2:181:A:H3'	2.19	0.42
9:G:166:THR:O	9:G:168:LYS:HG2	2.19	0.42
19:Q:44:VAL:HG11	19:Q:85:CYS:SG	2.60	0.42
2:2:165:G:C8	2:2:166:A:C8	3.08	0.42
2:2:198:U:C5	2:2:199:G:C5	3.07	0.42
2:2:596:G:C3'	2:2:597:U:H5"	2.49	0.42
2:2:934:A:N1	2:2:1001:G:C6	2.87	0.42
2:2:1717:G:N2	2:2:1806:U:O2	2.46	0.42
6:D:197:ILE:HG22	6:D:201:CYS:SG	2.59	0.42
8:F:105:LEU:HD23	8:F:184:ILE:HG21	2.00	0.42
2:2:828:G:H21	9:G:263:GLY:N	2.17	0.42
2:2:1416:G:O6	2:2:1423:C:N4	2.31	0.42
2:2:1417:A:N1	2:2:1423:C:C4	2.88	0.42
2:2:1592:C:H4'	2:2:1598:G:O6	2.19	0.42
2:2:1662:U:H2'	2:2:1663:U:C6	2.54	0.42
4:A:153:PHE:HB3	4:A:180:ILE:HD13	2.01	0.42
4:A:194:ASP:OD1	4:A:234:ARG:NH1	2.49	0.42
9:G:169:ILE:O	9:G:169:ILE:HG13	2.19	0.42
11:I:41:LEU:HD23	11:I:45:TRP:CE3	2.55	0.42
13:K:171:LEU:HD13	13:K:189:VAL:HG21	2.02	0.42
13:K:175:ILE:H	13:K:175:ILE:HG12	1.72	0.42
2:2:793:C:C2'	2:2:794:G:H4'	2.49	0.42
2:2:1273:C:H2'	2:2:1274:A:H8	1.84	0.42
2:2:1393:U:O4	21:S:12:VAL:HG12	2.20	0.42
2:2:1700:C:H2'	2:2:1701:G:C8	2.54	0.42
7:E:83:VAL:HG22	7:E:105:VAL:HG22	2.01	0.42
8:F:47:GLU:HG3	8:F:85:GLU:HB3	2.02	0.42
14:L:114:VAL:HG21	14:L:135:ILE:CD1	2.49	0.42
2:2:546:U:N3	2:2:547:U:C2	2.88	0.42
2:2:940:A:C6	2:2:941:U:C4	3.08	0.42
2:2:961:U:H2'	2:2:962:U:H5'	2.02	0.42
2:2:1410:A:H2'	2:2:1411:C:H6	1.85	0.42
2:2:1778:G:OP2	2:2:1778:G:H3'	2.20	0.42
4:A:248:LEU:H	4:A:248:LEU:HD22	1.85	0.42
13:K:76:THR:HG22	13:K:77:ARG:O	2.20	0.42
13:K:105:ASP:OD1	13:K:106:SER:N	2.53	0.42
2:2:320:G:C6	2:2:321:C:C4	3.08	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1345:G:H2'	2:2:1346:U:C6	2.55	0.42
2:2:1413:C:O2	2:2:1415:C:C5	2.72	0.42
2:2:1748:G:C6	2:2:1749:C:C4	3.08	0.42
4:A:6:CYS:O	4:A:40:ASN:ND2	2.51	0.42
9:G:139:LEU:HA	9:G:139:LEU:HD23	1.83	0.42
14:L:22:LYS:HA	14:L:22:LYS:HD3	1.76	0.42
16:N:128:VAL:HG12	16:N:142:VAL:HA	2.02	0.42
17:O:52:LEU:HD22	17:O:65:VAL:CG2	2.50	0.42
18:P:132:LYS:HD2	18:P:132:LYS:HA	1.90	0.42
2:2:585:U:H2'	2:2:586:U:C6	2.54	0.42
2:2:1098:G:H1	2:2:1126:G:N2	2.18	0.42
2:2:1098:G:N2	2:2:1126:G:N2	2.65	0.42
2:2:1411:C:C2	2:2:1427:G:N2	2.88	0.42
2:2:1732:G:H2'	2:2:1733:C:C6	2.53	0.42
4:A:115:VAL:HG11	4:A:130:LEU:HD13	2.02	0.42
4:A:163:LEU:HD23	4:A:163:LEU:H	1.84	0.42
5:C:137:ALA:HB1	5:C:142:LEU:HB3	2.01	0.42
7:E:143:ARG:O	7:E:158:PRO:HD3	2.19	0.42
17:O:62:VAL:O	17:O:65:VAL:HG22	2.19	0.42
2:2:152:U:C2	2:2:153:G:C8	3.08	0.41
2:2:193:C:H2'	2:2:194:C:C6	2.55	0.41
2:2:847:C:O3'	2:2:848:G:N2	2.52	0.41
2:2:1006:G:H2'	2:2:1007:A:C8	2.55	0.41
2:2:1582:G:O2'	24:V:78:ILE:HA	2.20	0.41
2:2:1641:C:HO2'	2:2:1642:A:P	2.42	0.41
4:A:116:ALA:O	4:A:121:TYR:HB3	2.20	0.41
5:C:14:ASP:OD1	5:C:14:ASP:N	2.52	0.41
8:F:32:ASP:OD2	8:F:65:ARG:NH2	2.41	0.41
12:J:104:PRO:HD3	12:J:116:ARG:HD3	2.02	0.41
16:N:79:LYS:HB2	16:N:79:LYS:HE3	1.86	0.41
2:2:190:A:H3'	2:2:191:C:H5"	2.01	0.41
2:2:738:U:HO2'	2:2:740:G:P	2.43	0.41
2:2:1807:A:H2'	2:2:1808:G:O4'	2.20	0.41
8:F:67:ARG:NH1	15:M:97:SER:OG	2.53	0.41
8:F:187:LYS:HB3	8:F:187:LYS:HE3	1.90	0.41
8:F:195:SER:H	8:F:201:LYS:HG2	1.85	0.41
9:G:31:PRO:HG2	9:G:38:LEU:HG	2.03	0.41
11:I:194:LEU:HD23	11:I:194:LEU:HA	1.86	0.41
23:U:124:ARG:HD2	23:U:124:ARG:HA	1.76	0.41
26:X:27:LYS:HD3	26:X:27:LYS:HA	1.84	0.41
2:2:540:C:H2'	2:2:541:U:C6	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1006:G:H2'	2:2:1007:A:H8	1.85	0.41
5:C:81:ASN:HA	5:C:84:GLN:HG3	2.02	0.41
5:C:151:ASP:OD1	5:C:151:ASP:N	2.49	0.41
7:E:156:THR:OG1	7:E:157:VAL:N	2.53	0.41
9:G:9:LEU:HB2	9:G:30:ARG:HD3	2.02	0.41
28:Z:99:GLU:O	28:Z:100:VAL:HG13	2.21	0.41
2:2:291:U:H2'	2:2:292:A:H8	1.85	0.41
2:2:967:G:H1	6:D:20:LYS:NZ	2.18	0.41
2:2:1255:A:H2'	2:2:1256:A:H5"	2.02	0.41
4:A:93:GLU:O	4:A:97:LYS:HG2	2.20	0.41
5:C:34:MET:HE3	5:C:34:MET:HB3	1.98	0.41
23:U:12:ILE:HD12	23:U:12:ILE:H	1.84	0.41
27:Y:82:GLN:C	27:Y:84:LYS:H	2.23	0.41
2:2:553:G:O2'	2:2:554:A:H8	2.03	0.41
2:2:1456:C:H2'	2:2:1457:G:H5"	2.01	0.41
12:J:109:ARG:HD2	12:J:111:LYS:HE2	2.02	0.41
13:K:119:LEU:HD23	13:K:119:LEU:HA	1.80	0.41
18:P:78:LYS:HD2	18:P:78:LYS:HA	1.81	0.41
28:Z:53:GLU:OE1	28:Z:55:VAL:HG13	2.20	0.41
2:2:125:C:H2'	11:I:198:ARG:NE	2.35	0.41
2:2:141:A:C5	2:2:178:C:H1'	2.55	0.41
2:2:291:U:H2'	2:2:292:A:C8	2.55	0.41
2:2:546:U:C4	2:2:547:U:N3	2.89	0.41
2:2:895:U:H2'	2:2:896:C:C6	2.56	0.41
4:A:36:LEU:HD23	4:A:36:LEU:HA	1.86	0.41
9:G:126:VAL:HG13	9:G:139:LEU:HD21	2.02	0.41
10:H:187:CYS:HA	10:H:190:ASP:OD2	2.20	0.41
13:K:106:SER:HA	13:K:109:TYR:CD2	2.55	0.41
19:Q:125:LYS:HE3	19:Q:125:LYS:HB3	1.88	0.41
28:Z:3:LYS:HB2	28:Z:3:LYS:HE2	1.84	0.41
2:2:160:U:O2'	2:2:162:C:H5'	2.21	0.41
2:2:186:G:H2'	2:2:187:C:C6	2.56	0.41
2:2:740:G:N2	2:2:794:G:H1'	2.35	0.41
2:2:1223:G:N3	2:2:1223:G:H2'	2.35	0.41
2:2:1419:C:O3'	2:2:1420:G:H8	2.02	0.41
8:F:221:THR:O	8:F:223:ILE:N	2.53	0.41
19:Q:84:ARG:HD3	19:Q:84:ARG:HA	1.84	0.41
22:T:41:ILE:HA	22:T:42:PRO:HD3	1.90	0.41
2:2:317:G:H1'	2:2:318:U:C5	2.56	0.41
2:2:810:U:C4	2:2:811:U:C5	3.09	0.41
2:2:1548:C:C6	2:2:1548:C:H5'	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1814:G:H2'	2:2:1815:U:C6	2.56	0.41
4:A:166:LEU:HD13	4:A:166:LEU:HA	1.92	0.41
8:F:105:LEU:HB2	8:F:122:VAL:HG11	2.03	0.41
11:I:39:ASP:OD1	11:I:40:ALA:N	2.54	0.41
2:2:524:G:H2'	2:2:525:G:H8	1.83	0.41
2:2:541:U:H2'	2:2:542:G:C8	2.55	0.41
2:2:924:G:H2'	2:2:925:G:C8	2.55	0.41
2:2:1273:C:H2'	2:2:1274:A:C8	2.56	0.41
2:2:1400:U:OP1	25:W:21:ARG:NH1	2.53	0.41
2:2:1407:G:O6	2:2:1431:C:N4	2.48	0.41
2:2:1416:G:C2	2:2:1417:A:N7	2.89	0.41
2:2:1726:A:H2'	2:2:1727:G:H8	1.85	0.41
4:A:130:LEU:HA	4:A:133:ARG:NE	2.33	0.41
4:A:173:ARG:HA	4:A:176:LEU:HB2	2.02	0.41
8:F:106:ARG:HG3	8:F:175:VAL:HG22	2.02	0.41
12:J:23:ILE:HG13	12:J:87:PHE:CZ	2.56	0.41
12:J:109:ARG:NH2	12:J:113:LYS:HE2	2.36	0.41
18:P:125:LEU:HD12	18:P:125:LEU:HA	1.85	0.41
21:S:12:VAL:HG21	21:S:91:ALA:HA	2.03	0.41
21:S:112:LEU:HA	21:S:112:LEU:HD23	1.79	0.41
24:V:14:PHE:HZ	24:V:131:LEU:HD23	1.86	0.41
2:2:871:A:O5'	2:2:871:A:H8	2.03	0.41
2:2:1329:U:H5'	8:F:147:ALA:HB2	2.03	0.41
2:2:1414:C:N3	2:2:1420:G:H5'	2.35	0.41
5:C:127:PRO:HG3	5:C:146:ALA:HB1	2.02	0.41
12:J:113:LYS:H	12:J:113:LYS:HG2	1.67	0.41
14:L:45:ARG:O	14:L:49:THR:HG23	2.20	0.41
14:L:95:ASP:OD1	14:L:95:ASP:N	2.51	0.41
16:N:147:LYS:HZ2	16:N:152:LYS:HA	1.86	0.41
25:W:21:ARG:NH2	25:W:118:ASP:OD2	2.54	0.41
27:Y:20:ARG:HD2	27:Y:20:ARG:HA	1.82	0.41
2:2:1515:G:N3	2:2:1515:G:H2'	2.36	0.40
2:2:1717:G:O6	2:2:1806:U:C4	2.75	0.40
4:A:102:PHE:CE2	4:A:106:LYS:HD3	2.56	0.40
7:E:144:ARG:HG2	7:E:196:ILE:HG13	2.04	0.40
8:F:64:ARG:NH1	8:F:67:ARG:HE	2.19	0.40
8:F:142:LEU:HD13	8:F:150:MET:SD	2.62	0.40
25:W:36:CYS:SG	25:W:53:PRO:HB3	2.61	0.40
2:2:210:G:C6	2:2:211:U:C4	3.09	0.40
2:2:905:G:C2	2:2:906:G:C5	3.09	0.40
2:2:1436:C:O2'	2:2:1437:U:H5'	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:1575:A:O2'	2:2:1576:C:H5'	2.21	0.40
2:2:1615:A:OP1	20:R:115:TYR:OH	2.35	0.40
4:A:190:LYS:N	4:A:244:ARG:HD3	2.36	0.40
8:F:214:LYS:HA	8:F:214:LYS:HD2	1.76	0.40
8:F:218:LEU:O	8:F:220:THR:OG1	2.32	0.40
13:K:121:LEU:O	13:K:123:ARG:HG2	2.20	0.40
13:K:168:GLN:N	13:K:168:GLN:OE1	2.54	0.40
24:V:107:LEU:HA	24:V:107:LEU:HD23	1.89	0.40
2:2:213:C:C2	2:2:214:A:C8	3.10	0.40
2:2:743:U:H1'	2:2:744:C:C1'	2.51	0.40
4:A:265:LYS:HD2	4:A:265:LYS:HA	1.79	0.40
8:F:94:ARG:HH21	8:F:125:PHE:HZ	1.69	0.40
8:F:218:LEU:HA	8:F:218:LEU:HD12	1.79	0.40
10:H:118:LEU:HA	10:H:118:LEU:HD12	1.80	0.40
21:S:60:LYS:HE3	21:S:60:LYS:HB3	1.86	0.40
25:W:21:ARG:HD2	25:W:118:ASP:OD2	2.21	0.40
2:2:932:G:H2'	2:2:933:C:C6	2.57	0.40
2:2:1125:G:H5"	2:2:1126:G:OP2	2.22	0.40
7:E:233:TRP:CZ2	27:Y:68:ARG:HB3	2.56	0.40
13:K:39:GLY:O	13:K:61:ASP:HB2	2.21	0.40
13:K:197:PHE:CE1	13:K:201:LYS:HG3	2.57	0.40
25:W:26:SER:OG	25:W:32:LEU:HB2	2.22	0.40
2:2:232:A:H2'	2:2:233:A:C8	2.56	0.40
4:A:169:ASN:HD22	4:A:172:GLU:HB2	1.86	0.40
4:A:171:ASP:O	4:A:174:GLU:HB3	2.21	0.40
6:D:66:VAL:HG22	6:D:87:ILE:HG23	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	A	264/284 (93%)	238 (90%)	26 (10%)	0	100	100
5	C	205/207 (99%)	179 (87%)	26 (13%)	0	100	100
6	D	213/215 (99%)	185 (87%)	28 (13%)	0	100	100
7	E	224/270 (83%)	192 (86%)	30 (13%)	2 (1%)	14	44
8	F	225/227 (99%)	200 (89%)	25 (11%)	0	100	100
9	G	261/263 (99%)	232 (89%)	29 (11%)	0	100	100
10	H	183/191 (96%)	162 (88%)	21 (12%)	0	100	100
11	I	235/237 (99%)	211 (90%)	24 (10%)	0	100	100
12	J	188/190 (99%)	163 (87%)	25 (13%)	0	100	100
13	K	204/206 (99%)	178 (87%)	25 (12%)	1 (0%)	25	56
14	L	186/194 (96%)	172 (92%)	14 (8%)	0	100	100
15	M	96/98 (98%)	84 (88%)	11 (12%)	1 (1%)	13	42
16	N	156/158 (99%)	140 (90%)	16 (10%)	0	100	100
17	O	122/132 (92%)	105 (86%)	16 (13%)	1 (1%)	16	46
18	P	148/150 (99%)	137 (93%)	11 (7%)	0	100	100
19	Q	134/151 (89%)	111 (83%)	22 (16%)	1 (1%)	19	50
20	R	138/145 (95%)	125 (91%)	12 (9%)	1 (1%)	19	50
21	S	139/141 (99%)	126 (91%)	13 (9%)	0	100	100
22	T	124/135 (92%)	106 (86%)	18 (14%)	0	100	100
23	U	143/152 (94%)	128 (90%)	15 (10%)	0	100	100
24	V	139/141 (99%)	122 (88%)	16 (12%)	1 (1%)	19	50
25	W	102/119 (86%)	93 (91%)	9 (9%)	0	100	100
26	X	81/83 (98%)	62 (76%)	19 (24%)	0	100	100
27	Y	127/130 (98%)	118 (93%)	9 (7%)	0	100	100
28	Z	140/143 (98%)	128 (91%)	11 (8%)	1 (1%)	19	50
29	a	124/133 (93%)	109 (88%)	15 (12%)	0	100	100
30	b	97/115 (84%)	86 (89%)	11 (11%)	0	100	100
31	c	82/84 (98%)	70 (85%)	12 (15%)	0	100	100
32	d	62/69 (90%)	50 (81%)	12 (19%)	0	100	100
33	e	51/56 (91%)	43 (84%)	8 (16%)	0	100	100
34	f	69/71 (97%)	58 (84%)	11 (16%)	0	100	100
35	g	311/313 (99%)	275 (88%)	36 (12%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
36	i	56/133 (42%)	50 (89%)	6 (11%)	0	100	100
37	j	106/111 (96%)	91 (86%)	15 (14%)	0	100	100
38	k	593/595 (100%)	512 (86%)	81 (14%)	0	100	100
39	l	23/25 (92%)	22 (96%)	1 (4%)	0	100	100
40	n	73/124 (59%)	66 (90%)	7 (10%)	0	100	100
All	All	5824/6191 (94%)	5129 (88%)	686 (12%)	9 (0%)	45	71

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	E	252	LYS
20	R	75	VAL
7	E	251	VAL
15	M	33	PRO
17	O	103	VAL
13	K	31	ARG
19	Q	89	GLY
28	Z	109	GLY
24	V	69	GLY

5.3.2 Protein sidechains (i)

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

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	A	238/255 (93%)	209 (88%)	29 (12%)	4	16
5	C	173/173 (100%)	158 (91%)	15 (9%)	8	29
6	D	196/196 (100%)	182 (93%)	14 (7%)	12	37
7	E	190/214 (89%)	170 (90%)	20 (10%)	5	21
8	F	190/190 (100%)	172 (90%)	18 (10%)	7	25
9	G	225/225 (100%)	211 (94%)	14 (6%)	15	41
10	H	159/161 (99%)	146 (92%)	13 (8%)	9	31

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
11	I	207/207 (100%)	190 (92%)	17 (8%)	9 31
12	J	170/170 (100%)	154 (91%)	16 (9%)	7 25
13	K	177/177 (100%)	163 (92%)	14 (8%)	10 32
14	L	162/168 (96%)	152 (94%)	10 (6%)	15 41
15	M	89/89 (100%)	86 (97%)	3 (3%)	32 59
16	N	142/142 (100%)	126 (89%)	16 (11%)	4 18
17	O	104/108 (96%)	99 (95%)	5 (5%)	21 50
18	P	130/130 (100%)	117 (90%)	13 (10%)	6 23
19	Q	106/119 (89%)	94 (89%)	12 (11%)	4 18
20	R	126/130 (97%)	119 (94%)	7 (6%)	17 45
21	S	117/117 (100%)	102 (87%)	15 (13%)	3 15
22	T	114/121 (94%)	110 (96%)	4 (4%)	31 58
23	U	125/132 (95%)	113 (90%)	12 (10%)	7 25
24	V	113/113 (100%)	104 (92%)	9 (8%)	10 32
25	W	94/107 (88%)	87 (93%)	7 (7%)	11 34
26	X	67/67 (100%)	58 (87%)	9 (13%)	3 14
27	Y	112/113 (99%)	103 (92%)	9 (8%)	10 32
28	Z	114/115 (99%)	106 (93%)	8 (7%)	12 37
29	a	108/115 (94%)	106 (98%)	2 (2%)	52 72
30	b	87/99 (88%)	78 (90%)	9 (10%)	6 22
31	c	76/76 (100%)	72 (95%)	4 (5%)	19 47
32	d	57/62 (92%)	51 (90%)	6 (10%)	5 21
33	e	47/49 (96%)	45 (96%)	2 (4%)	25 53
34	f	64/64 (100%)	55 (86%)	9 (14%)	3 13
35	g	272/272 (100%)	243 (89%)	29 (11%)	5 21
36	i	48/106 (45%)	47 (98%)	1 (2%)	48 70
37	j	91/93 (98%)	87 (96%)	4 (4%)	24 52
38	k	523/523 (100%)	475 (91%)	48 (9%)	7 26
39	l	24/24 (100%)	17 (71%)	7 (29%)	0 1
40	n	66/102 (65%)	59 (89%)	7 (11%)	5 21
All	All	5103/5324 (96%)	4666 (91%)	437 (9%)	11 30

All (437) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	A	11	HIS
4	A	17	GLU
4	A	68	ASN
4	A	84	ASP
4	A	103	THR
4	A	105	SER
4	A	124	ASP
4	A	132	GLN
4	A	141	LYS
4	A	144	ARG
4	A	164	ASP
4	A	170	GLU
4	A	171	ASP
4	A	173	ARG
4	A	175	VAL
4	A	192	ARG
4	A	200	TYR
4	A	202	TYR
4	A	219	SER
4	A	225	ILE
4	A	228	ASN
4	A	237	MET
4	A	240	THR
4	A	245	THR
4	A	246	GLU
4	A	248	LEU
4	A	251	LEU
4	A	259	LYS
4	A	261	LYS
5	C	5	LEU
5	C	13	GLU
5	C	32	PHE
5	C	46	ILE
5	C	53	ARG
5	C	75	SER
5	C	79	SER
5	C	110	ASN
5	C	125	THR
5	C	138	SER
5	C	141	ASN
5	C	155	ARG
5	C	165	ASN

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Mol	Chain	Res	Type
5	C	178	LEU
5	C	205	ARG
6	D	29	ASP
6	D	47	THR
6	D	48	LEU
6	D	77	ASP
6	D	79	VAL
6	D	116	LYS
6	D	126	ASP
6	D	131	ASP
6	D	146	CYS
6	D	154	SER
6	D	192	SER
6	D	218	LEU
6	D	220	LYS
6	D	225	LEU
7	E	72	ASP
7	E	81	ASP
7	E	99	THR
7	E	100	ARG
7	E	107	ILE
7	E	116	LEU
7	E	137	LEU
7	E	138	SER
7	E	160	LYS
7	E	183	SER
7	E	197	ASP
7	E	198	ASP
7	E	224	THR
7	E	225	TYR
7	E	226	SER
7	E	229	THR
7	E	231	ASP
7	E	234	LYS
7	E	237	VAL
7	E	239	THR
8	F	35	SER
8	F	37	VAL
8	F	39	VAL
8	F	44	THR
8	F	64	ARG
8	F	72	VAL

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Mol	Chain	Res	Type
8	F	76	ARG
8	F	83	SER
8	F	97	CYS
8	F	134	CYS
8	F	149	SER
8	F	156	LEU
8	F	179	GLN
8	F	185	LYS
8	F	197	LYS
8	F	220	THR
8	F	221	THR
8	F	223	ILE
9	G	7	LYS
9	G	39	ARG
9	G	46	ILE
9	G	57	THR
9	G	73	ASP
9	G	92	ILE
9	G	139	LEU
9	G	169	ILE
9	G	181	CYS
9	G	188	ASN
9	G	198	ARG
9	G	206	ASP
9	G	247	THR
9	G	254	LYS
10	H	35	PHE
10	H	37	LYS
10	H	96	ARG
10	H	106	ARG
10	H	118	LEU
10	H	137	ARG
10	H	154	VAL
10	H	157	SER
10	H	182	LYS
10	H	190	ASP
10	H	197	LYS
10	H	199	SER
10	H	219	ARG
11	I	15	LEU
11	I	20	ASP
11	I	21	GLU

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Mol	Chain	Res	Type
11	I	46	LYS
11	I	49	VAL
11	I	95	LYS
11	I	107	SER
11	I	110	ASN
11	I	114	VAL
11	I	118	GLU
11	I	120	ASP
11	I	126	ASP
11	I	190	ARG
11	I	200	LYS
11	I	213	LEU
11	I	215	LYS
11	I	234	LEU
12	J	29	GLU
12	J	32	MET
12	J	40	LEU
12	J	50	GLU
12	J	70	LYS
12	J	82	GLU
12	J	85	LYS
12	J	106	ARG
12	J	113	LYS
12	J	118	ARG
12	J	126	HIS
12	J	143	ARG
12	J	171	GLU
12	J	172	THR
12	J	179	LYS
12	J	181	THR
13	K	6	ASP
13	K	36	THR
13	K	53	LYS
13	K	58	LEU
13	K	73	THR
13	K	81	VAL
13	K	100	CYS
13	K	159	SER
13	K	160	SER
13	K	174	CYS
13	K	178	ARG
13	K	181	GLN

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Mol	Chain	Res	Type
13	K	186	ASP
13	K	195	LEU
14	L	10	ARG
14	L	22	LYS
14	L	39	ASN
14	L	67	ASP
14	L	69	ARG
14	L	95	ASP
14	L	103	GLU
14	L	107	GLU
14	L	163	SER
14	L	169	ARG
15	M	17	LYS
15	M	21	MET
15	M	72	THR
16	N	6	THR
16	N	16	ILE
16	N	24	LEU
16	N	28	THR
16	N	31	GLU
16	N	45	LYS
16	N	46	THR
16	N	49	GLU
16	N	54	THR
16	N	67	SER
16	N	74	SER
16	N	76	VAL
16	N	106	HIS
16	N	116	CYS
16	N	119	ASP
16	N	146	THR
17	O	13	ASP
17	O	45	ARG
17	O	54	SER
17	O	62	VAL
17	O	81	ASP
18	P	5	HIS
18	P	11	LEU
18	P	14	SER
18	P	32	ASP
18	P	48	SER
18	P	67	THR

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Mol	Chain	Res	Type
18	P	71	ILE
18	P	84	LEU
18	P	87	ASP
18	P	118	ILE
18	P	131	THR
18	P	142	GLU
18	P	144	SER
19	Q	16	SER
19	Q	43	HIS
19	Q	45	THR
19	Q	51	GLU
19	Q	66	ARG
19	Q	84	ARG
19	Q	106	LYS
19	Q	119	LEU
19	Q	122	SER
19	Q	133	THR
19	Q	137	SER
19	Q	150	ARG
20	R	10	ARG
20	R	24	GLN
20	R	41	GLN
20	R	61	ARG
20	R	75	VAL
20	R	84	ILE
20	R	92	SER
21	S	10	VAL
21	S	12	VAL
21	S	16	LYS
21	S	20	THR
21	S	25	CYS
21	S	34	VAL
21	S	50	LYS
21	S	51	LEU
21	S	53	GLU
21	S	60	LYS
21	S	62	ARG
21	S	88	ILE
21	S	93	VAL
21	S	123	ASP
21	S	142	GLN
22	T	27	ASP

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Mol	Chain	Res	Type
22	T	67	ARG
22	T	70	SER
22	T	110	ASP
23	U	13	LEU
23	U	14	ARG
23	U	17	ASN
23	U	18	THR
23	U	49	ASP
23	U	54	LYS
23	U	55	ARG
23	U	83	PHE
23	U	130	ARG
23	U	136	THR
23	U	141	ARG
23	U	144	ARG
24	V	33	TRP
24	V	36	THR
24	V	56	ARG
24	V	59	SER
24	V	99	VAL
24	V	130	ASP
24	V	131	LEU
24	V	134	ILE
24	V	142	LYS
25	W	25	THR
25	W	61	LEU
25	W	91	LEU
25	W	93	SER
25	W	97	ILE
25	W	99	LYS
25	W	104	ILE
26	X	3	ASN
26	X	7	GLU
26	X	9	VAL
26	X	22	ARG
26	X	33	GLN
26	X	34	MET
26	X	40	ASP
26	X	41	LYS
26	X	50	PHE
27	Y	2	VAL
27	Y	4	MET

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Mol	Chain	Res	Type
27	Y	20	ARG
27	Y	30	CYS
27	Y	57	ARG
27	Y	80	ASP
27	Y	85	ASP
27	Y	96	SER
27	Y	107	SER
28	Z	3	LYS
28	Z	9	THR
28	Z	15	SER
28	Z	23	HIS
28	Z	53	GLU
28	Z	105	PHE
28	Z	139	GLU
28	Z	140	ARG
29	a	14	THR
29	a	78	SER
30	b	2	THR
30	b	19	GLN
30	b	21	ILE
30	b	23	CYS
30	b	29	CYS
30	b	37	LYS
30	b	39	PHE
30	b	57	SER
30	b	74	CYS
31	c	3	LEU
31	c	6	ASP
31	c	11	SER
31	c	48	SER
32	d	5	ARG
32	d	17	VAL
32	d	28	THR
32	d	35	MET
32	d	52	GLU
32	d	67	ARG
33	e	48	LYS
33	e	55	LEU
34	f	85	TYR
34	f	87	THR
34	f	90	LYS
34	f	93	HIS

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Mol	Chain	Res	Type
34	f	104	LYS
34	f	118	ARG
34	f	130	VAL
34	f	138	ARG
34	f	140	TYR
35	g	2	THR
35	g	14	HIS
35	g	15	ASN
35	g	20	GLN
35	g	31	ILE
35	g	35	SER
35	g	40	ILE
35	g	46	THR
35	g	54	ILE
35	g	56	GLN
35	g	63	SER
35	g	97	THR
35	g	107	ASP
35	g	110	SER
35	g	113	PHE
35	g	114	SER
35	g	116	ASP
35	g	144	ASP
35	g	145	GLU
35	g	156	PHE
35	g	184	LEU
35	g	186	THR
35	g	199	THR
35	g	249	CYS
35	g	257	LYS
35	g	271	LYS
35	g	292	SER
35	g	305	ASN
35	g	310	TRP
36	i	91	LEU
37	j	13	ARG
37	j	73	THR
37	j	83	ASP
37	j	90	ASP
38	k	46	LYS
38	k	106	LEU
38	k	120	LEU

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Mol	Chain	Res	Type
38	k	147	PHE
38	k	157	THR
38	k	186	SER
38	k	189	ASP
38	k	223	GLN
38	k	250	LYS
38	k	262	LEU
38	k	277	SER
38	k	278	VAL
38	k	279	LEU
38	k	282	LEU
38	k	294	SER
38	k	330	VAL
38	k	335	GLU
38	k	349	LYS
38	k	353	MET
38	k	356	LYS
38	k	385	LYS
38	k	388	PHE
38	k	391	MET
38	k	419	LYS
38	k	426	GLN
38	k	429	HIS
38	k	430	GLU
38	k	434	ASP
38	k	436	TYR
38	k	456	ASP
38	k	461	THR
38	k	468	GLN
38	k	470	VAL
38	k	474	LEU
38	k	476	LEU
38	k	481	ASP
38	k	502	ARG
38	k	519	GLU
38	k	520	HIS
38	k	521	ASP
38	k	522	PHE
38	k	524	MET
38	k	547	SER
38	k	551	LEU
38	k	552	LEU

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Mol	Chain	Res	Type
38	k	571	ASN
38	k	573	TYR
38	k	590	LYS
39	l	1	MET
39	l	4	LYS
39	l	8	LYS
39	l	12	ARG
39	l	19	LYS
39	l	22	GLN
39	l	24	SER
40	n	41	ARG
40	n	44	LEU
40	n	45	ASN
40	n	55	TYR
40	n	64	ASN
40	n	66	LYS
40	n	80	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (64) such sidechains are listed below:

Mol	Chain	Res	Type
4	A	23	ASN
4	A	40	ASN
4	A	169	ASN
4	A	179	ASN
5	C	24	HIS
5	C	110	ASN
5	C	131	HIS
5	C	132	GLN
5	C	164	ASN
6	D	40	ASN
6	D	43	ASN
6	D	159	GLN
7	E	97	GLN
8	F	207	HIS
9	G	98	ASN
9	G	142	HIS
9	G	157	ASN
9	G	216	ASN
10	H	66	HIS
10	H	89	ASN
10	H	97	ASN

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Mol	Chain	Res	Type
10	H	129	ASN
11	I	186	GLN
12	J	126	HIS
12	J	186	ASN
13	K	35	ASN
13	K	52	ASN
13	K	64	ASN
13	K	84	ASN
13	K	155	ASN
13	K	165	GLN
13	K	181	GLN
15	M	77	GLN
16	N	112	HIS
18	P	58	HIS
18	P	90	HIS
18	P	101	HIS
19	Q	79	GLN
21	S	8	GLN
21	S	11	GLN
21	S	24	HIS
22	T	48	ASN
25	W	81	GLN
27	Y	44	HIS
28	Z	92	ASN
29	a	89	HIS
31	c	19	HIS
31	c	49	HIS
32	d	7	GLN
33	e	28	HIS
35	g	14	HIS
35	g	56	GLN
35	g	76	GLN
35	g	117	ASN
35	g	178	ASN
35	g	196	ASN
35	g	226	HIS
37	j	37	GLN
38	k	23	GLN
38	k	95	HIS
38	k	381	ASN
38	k	556	ASN
39	l	22	GLN

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Mol	Chain	Res	Type
40	n	46	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	74/75 (98%)	16 (21%)	1 (1%)
2	2	1733/1863 (93%)	298 (17%)	24 (1%)
3	3	8/9 (88%)	4 (50%)	0
All	All	1815/1947 (93%)	318 (17%)	25 (1%)

All (318) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	11	G
1	1	13	G
1	1	14	C
1	1	17	C
1	1	18	G
1	1	19	G
1	1	20	A
1	1	21	A
1	1	22	G
1	1	48	C
1	1	49	G
1	1	58	A
1	1	72	U
1	1	73	A
1	1	74	C
1	1	76	A
2	2	4	C
2	2	11	A
2	2	33	G
2	2	37	C
2	2	41	G
2	2	42	A
2	2	46	A
2	2	56	G
2	2	67	C
2	2	68	A
2	2	72	C
2	2	73	C

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Mol	Chain	Res	Type
2	2	74	G
2	2	75	G
2	2	76	U
2	2	77	A
2	2	78	C
2	2	79	A
2	2	80	G
2	2	91	A
2	2	103	A
2	2	113	G
2	2	115	U
2	2	126	G
2	2	127	C
2	2	143	U
2	2	147	A
2	2	148	U
2	2	155	G
2	2	163	U
2	2	181	A
2	2	182	C
2	2	183	G
2	2	191	C
2	2	197	U
2	2	202	U
2	2	223	A
2	2	226	A
2	2	273	G
2	2	277	U
2	2	278	U
2	2	285	U
2	2	286	C
2	2	296	U
2	2	297	C
2	2	299	G
2	2	300	G
2	2	315	C
2	2	316	C
2	2	317	G
2	2	318	U
2	2	322	G
2	2	325	G
2	2	333	A

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Mol	Chain	Res	Type
2	2	337	G
2	2	347	C
2	2	352	C
2	2	354	A
2	2	358	U
2	2	359	C
2	2	367	G
2	2	372	C
2	2	374	U
2	2	375	G
2	2	376	C
2	2	399	C
2	2	407	C
2	2	408	A
2	2	431	C
2	2	438	A
2	2	440	C
2	2	455	A
2	2	462	C
2	2	464	G
2	2	472	G
2	2	477	U
2	2	482	C
2	2	515	A
2	2	516	A
2	2	541	U
2	2	542	G
2	2	543	U
2	2	546	U
2	2	547	U
2	2	548	G
2	2	553	G
2	2	554	A
2	2	555	G
2	2	579	G
2	2	582	C
2	2	583	C
2	2	584	A
2	2	588	G
2	2	590	G
2	2	598	C
2	2	604	G

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Mol	Chain	Res	Type
2	2	618	A
2	2	633	A
2	2	649	G
2	2	650	C
2	2	658	A
2	2	659	A
2	2	661	A
2	2	662	A
2	2	673	G
2	2	678	U
2	2	679	U
2	2	680	G
2	2	681	U
2	2	682	G
2	2	729	C
2	2	734	C
2	2	735	C
2	2	736	C
2	2	737	C
2	2	738	U
2	2	739	U
2	2	740	G
2	2	741	C
2	2	743	U
2	2	744	C
2	2	747	G
2	2	748	G
2	2	749	C
2	2	750	G
2	2	787	C
2	2	789	G
2	2	791	A
2	2	793	C
2	2	794	G
2	2	795	U
2	2	806	A
2	2	807	A
2	2	817	G
2	2	818	U
2	2	819	U
2	2	820	C
2	2	827	G

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Mol	Chain	Res	Type
2	2	829	C
2	2	833	A
2	2	834	G
2	2	835	C
2	2	837	G
2	2	843	A
2	2	866	A
2	2	868	A
2	2	869	G
2	2	870	G
2	2	874	G
2	2	883	U
2	2	884	U
2	2	886	U
2	2	892	U
2	2	900	A
2	2	903	G
2	2	907	C
2	2	909	A
2	2	912	A
2	2	916	A
2	2	929	G
2	2	934	A
2	2	939	U
2	2	951	A
2	2	965	U
2	2	967	G
2	2	981	G
2	2	985	C
2	2	986	A
2	2	987	G
2	2	988	A
2	2	997	A
2	2	1004	A
2	2	1013	U
2	2	1019	A
2	2	1045	A
2	2	1057	U
2	2	1058	A
2	2	1074	C
2	2	1079	A
2	2	1081	C

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Mol	Chain	Res	Type
2	2	1095	G
2	2	1096	A
2	2	1111	U
2	2	1113	C
2	2	1125	G
2	2	1134	C
2	2	1135	C
2	2	1136	G
2	2	1140	A
2	2	1145	A
2	2	1150	U
2	2	1151	U
2	2	1166	A
2	2	1177	A
2	2	1191	A
2	2	1203	G
2	2	1211	C
2	2	1220	G
2	2	1238	U
2	2	1247	A
2	2	1252	G
2	2	1253	G
2	2	1255	A
2	2	1261	A
2	2	1270	G
2	2	1271	G
2	2	1280	A
2	2	1281	G
2	2	1282	G
2	2	1298	G
2	2	1311	U
2	2	1367	U
2	2	1371	G
2	2	1373	U
2	2	1374	A
2	2	1399	C
2	2	1406	C
2	2	1408	C
2	2	1414	C
2	2	1415	C
2	2	1420	G
2	2	1421	G

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Mol	Chain	Res	Type
2	2	1424	G
2	2	1428	U
2	2	1433	C
2	2	1434	A
2	2	1450	A
2	2	1457	G
2	2	1458	U
2	2	1459	U
2	2	1472	A
2	2	1473	U
2	2	1485	A
2	2	1486	G
2	2	1493	G
2	2	1494	A
2	2	1502	A
2	2	1506	G
2	2	1507	U
2	2	1508	C
2	2	1516	C
2	2	1517	A
2	2	1528	A
2	2	1530	U
2	2	1543	G
2	2	1546	U
2	2	1547	G
2	2	1548	C
2	2	1549	C
2	2	1550	U
2	2	1551	A
2	2	1552	C
2	2	1553	C
2	2	1574	A
2	2	1575	A
2	2	1581	U
2	2	1583	A
2	2	1590	U
2	2	1596	A
2	2	1601	G
2	2	1616	U
2	2	1618	A
2	2	1632	A
2	2	1643	G

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Mol	Chain	Res	Type
2	2	1649	G
2	2	1651	G
2	2	1655	C
2	2	1660	G
2	2	1666	G
2	2	1690	A
2	2	1694	A
2	2	1707	A
2	2	1710	A
2	2	1715	U
2	2	1716	U
2	2	1717	G
2	2	1739	G
2	2	1747	C
2	2	1748	G
2	2	1777	C
2	2	1778	G
2	2	1792	C
2	2	1795	A
2	2	1804	U
2	2	1816	A
2	2	1820	G
2	2	1829	A
2	2	1831	G
2	2	1832	U
2	2	1835	C
2	2	1843	G
2	2	1845	A
2	2	1846	C
2	2	1855	G
2	2	1856	G
2	2	1857	A
2	2	1859	C
2	2	1863	A
3	3	48	C
3	3	51	C
3	3	52	A
3	3	55	G

All (25) RNA pucker outliers are listed below:

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Mol	Chain	Res	Type
1	1	72	U
2	2	67	C
2	2	71	G
2	2	73	C
2	2	74	G
2	2	76	U
2	2	102	A
2	2	191	C
2	2	596	G
2	2	597	U
2	2	677	C
2	2	740	G
2	2	1012	U
2	2	1161	G
2	2	1310	U
2	2	1427	G
2	2	1433	C
2	2	1472	A
2	2	1515	G
2	2	1547	G
2	2	1548	C
2	2	1550	U
2	2	1552	C
2	2	1831	G
2	2	1855	G

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

2 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	$\#\|Z\| > 2$
1	T6A	1	37	1	27,34,35	1.02	3 (11%)	29,49,52	2.00	10 (34%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	I2T	2	1244	2	24,29,30	2.77	3 (12%)	29,42,45	1.27	3 (10%)

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
1	T6A	1	37	1	-	4/19/41/42	0/3/3/3
2	I2T	2	1244	2	-	1/16/34/35	0/2/2/2

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1244	I2T	CN1-N1	-9.45	1.27	1.46
2	2	1244	I2T	O2'-C2'	-7.93	1.24	1.43
2	2	1244	I2T	C33-N34	-4.04	1.27	1.48
1	1	37	T6A	ODA-C13	2.58	1.30	1.22
1	1	37	T6A	ODB-C13	-2.37	1.22	1.30
1	1	37	T6A	C8-N7	-2.07	1.31	1.34

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	1	37	T6A	C2-N1-C6	4.36	120.33	116.59
1	1	37	T6A	C14-C12-C13	3.85	116.75	110.19
1	1	37	T6A	ODB-C13-C12	3.61	126.95	114.21
2	2	1244	I2T	O3'-C3'-C4'	-3.60	100.65	111.05
1	1	37	T6A	C12-N11-C10	3.37	127.55	121.94
1	1	37	T6A	N6-C10-N11	3.20	118.23	113.76
1	1	37	T6A	O10-C10-N6	-3.19	118.22	123.62
2	2	1244	I2T	C3'-C2'-C1'	2.72	104.81	101.64
2	2	1244	I2T	O3'-C3'-C2'	2.60	120.24	111.82
1	1	37	T6A	ODA-C13-C12	-2.37	113.55	121.70
1	1	37	T6A	C1'-N9-C4	-2.26	122.67	126.64
1	1	37	T6A	C15-C14-C12	2.13	116.59	112.29
1	1	37	T6A	ODB-C13-ODA	-2.02	119.49	124.09

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	1	37	T6A	N11-C12-C13-ODA
1	1	37	T6A	N11-C12-C13-ODB
1	1	37	T6A	C14-C12-C13-ODA
1	1	37	T6A	C14-C12-C13-ODB
2	2	1244	I2T	N34-C33-C34-O36

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 230 ligands modelled in this entry, 230 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	2	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	2	730:C	O3'	731:C	P	9.63

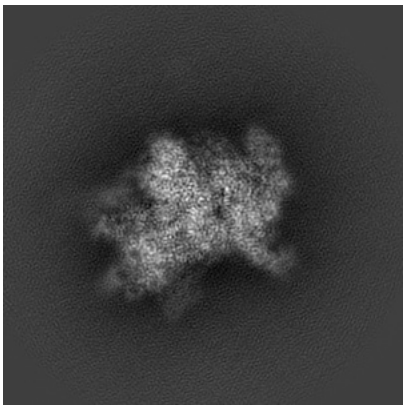
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-17330. These allow visual inspection of the internal detail of the map and identification of artifacts.

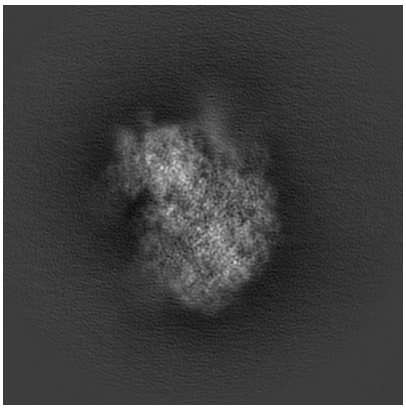
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

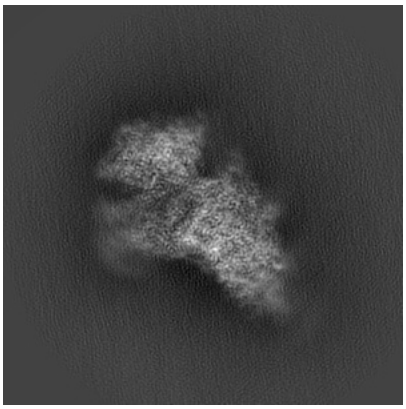
6.1.1 Primary map



X

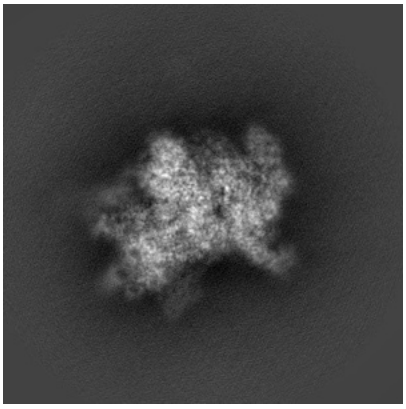


Y

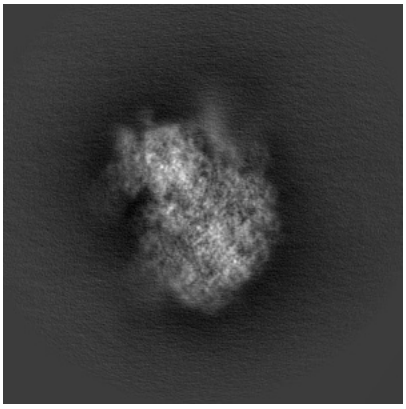


Z

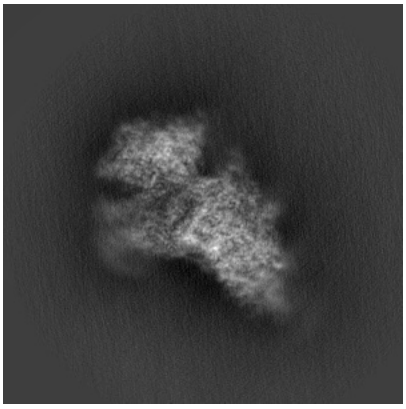
6.1.2 Raw map



X



Y

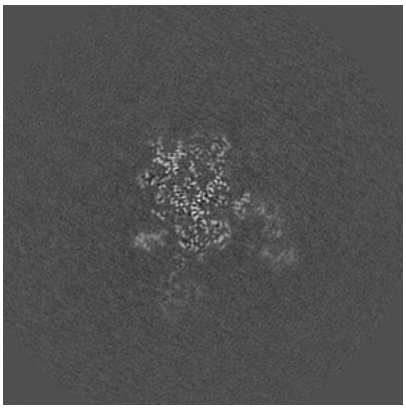


Z

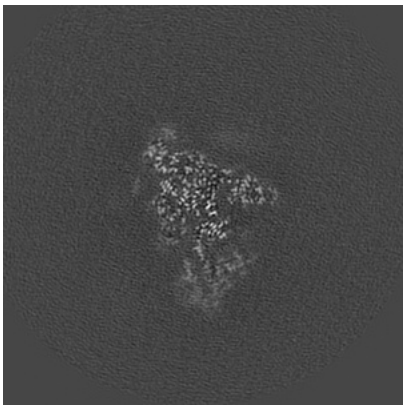
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

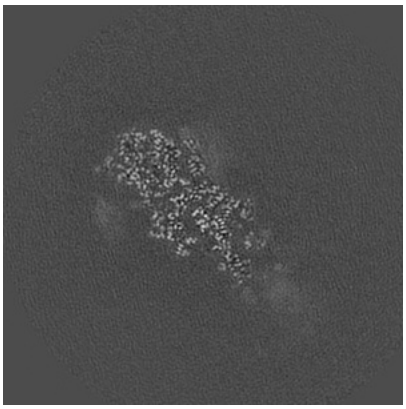
6.2.1 Primary map



X Index: 192

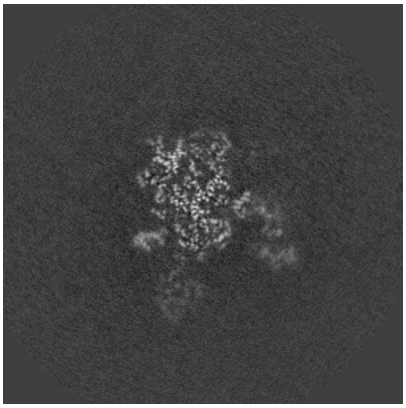


Y Index: 192

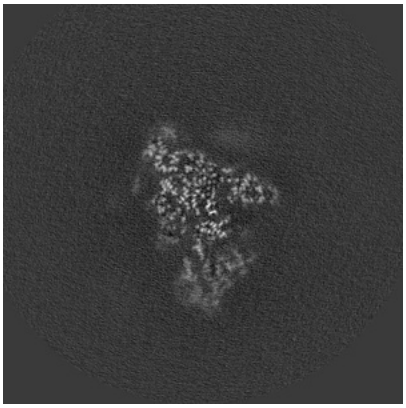


Z Index: 192

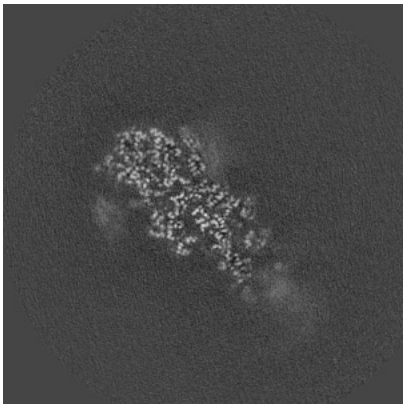
6.2.2 Raw map



X Index: 192



Y Index: 192

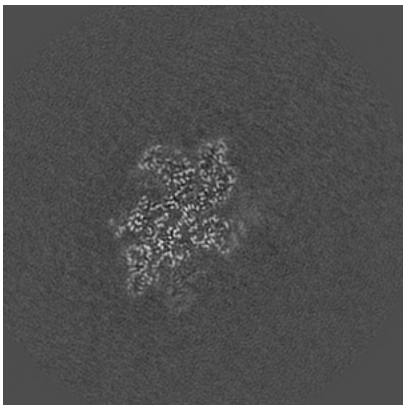


Z Index: 192

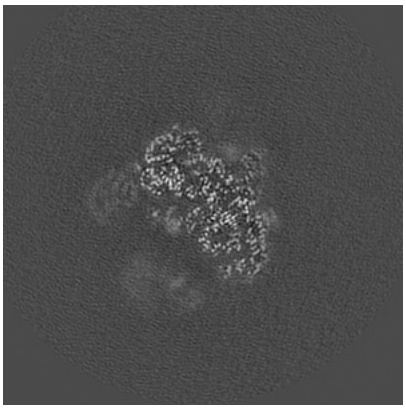
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

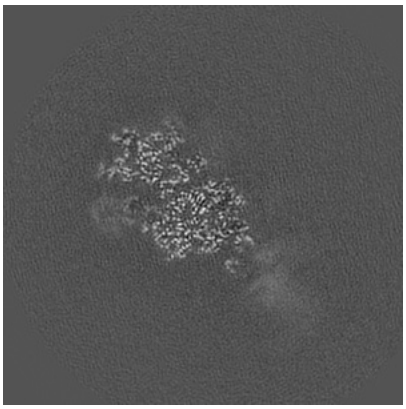
6.3.1 Primary map



X Index: 213

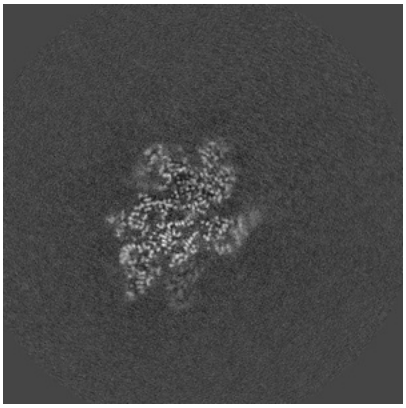


Y Index: 160

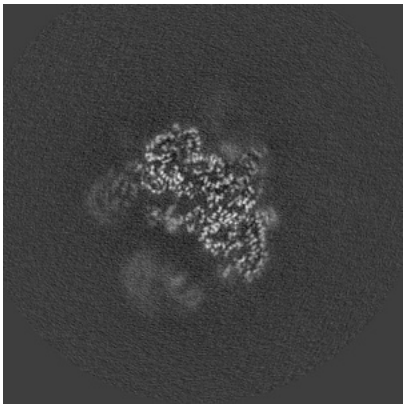


Z Index: 200

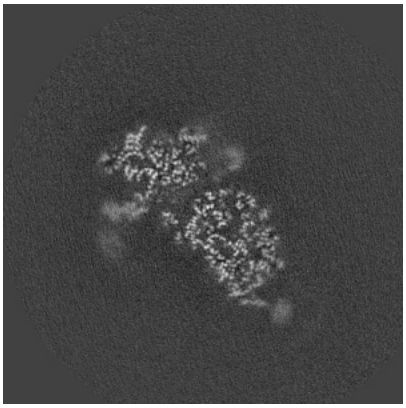
6.3.2 Raw map



X Index: 216



Y Index: 159

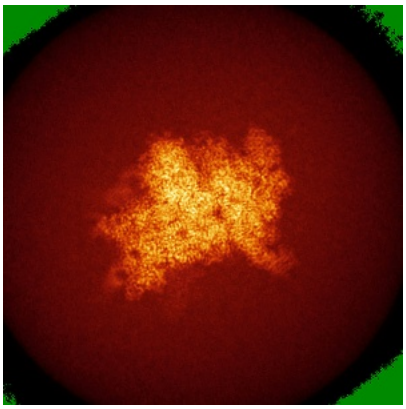


Z Index: 180

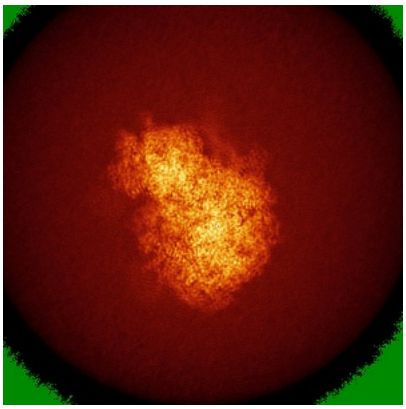
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

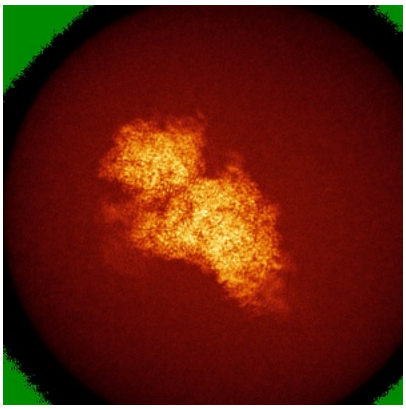
6.4.1 Primary map



X

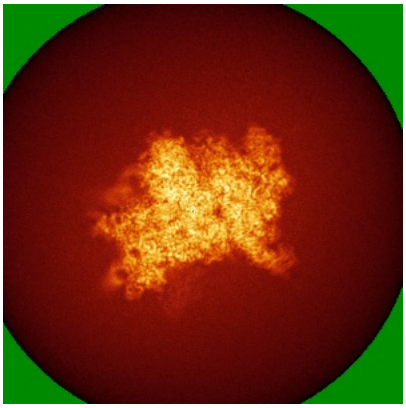


Y

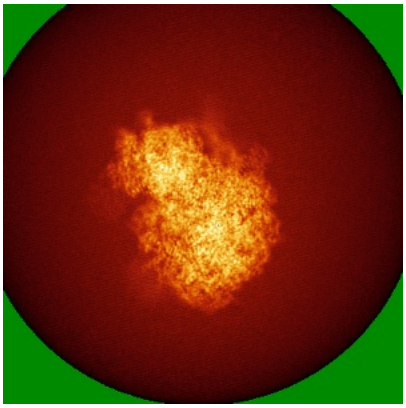


Z

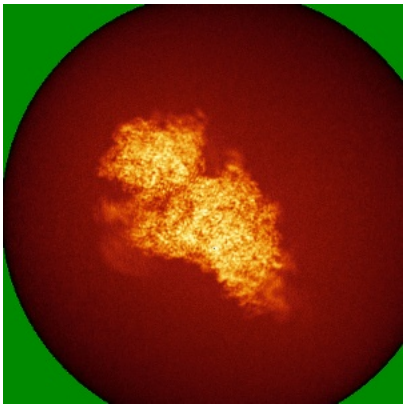
6.4.2 Raw map



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 0.013. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

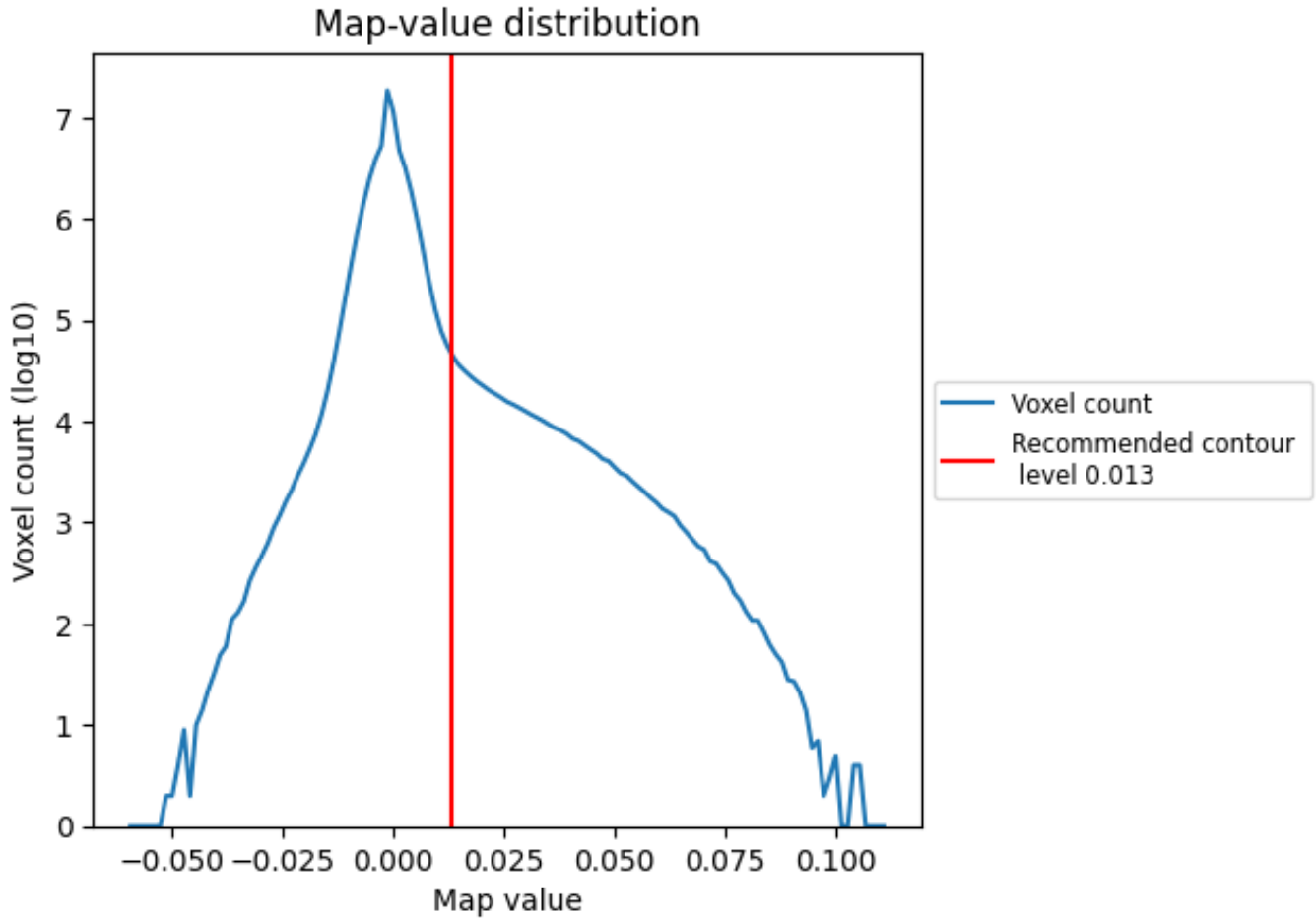
6.6 Mask visualisation (i)

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

7 Map analysis

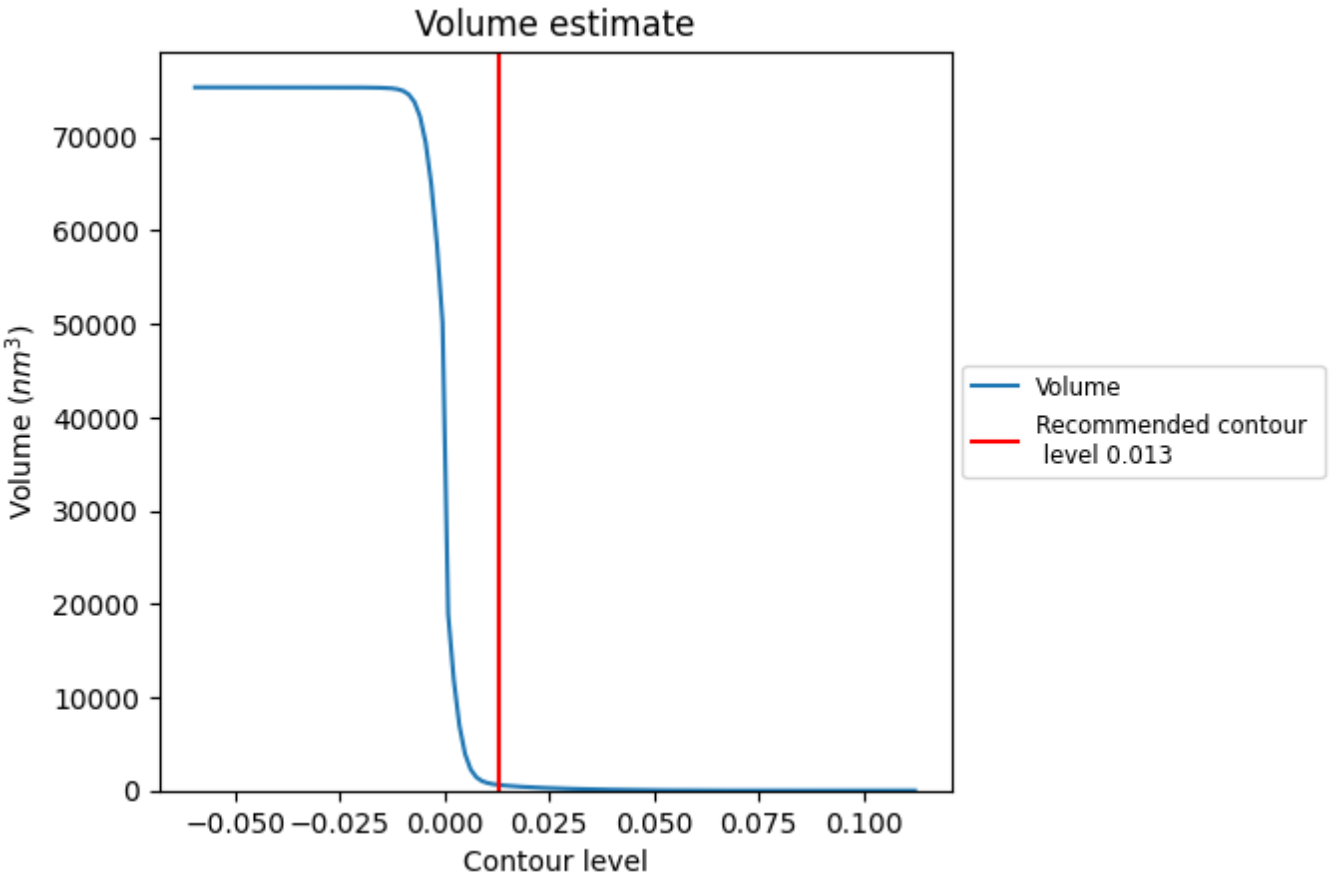
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

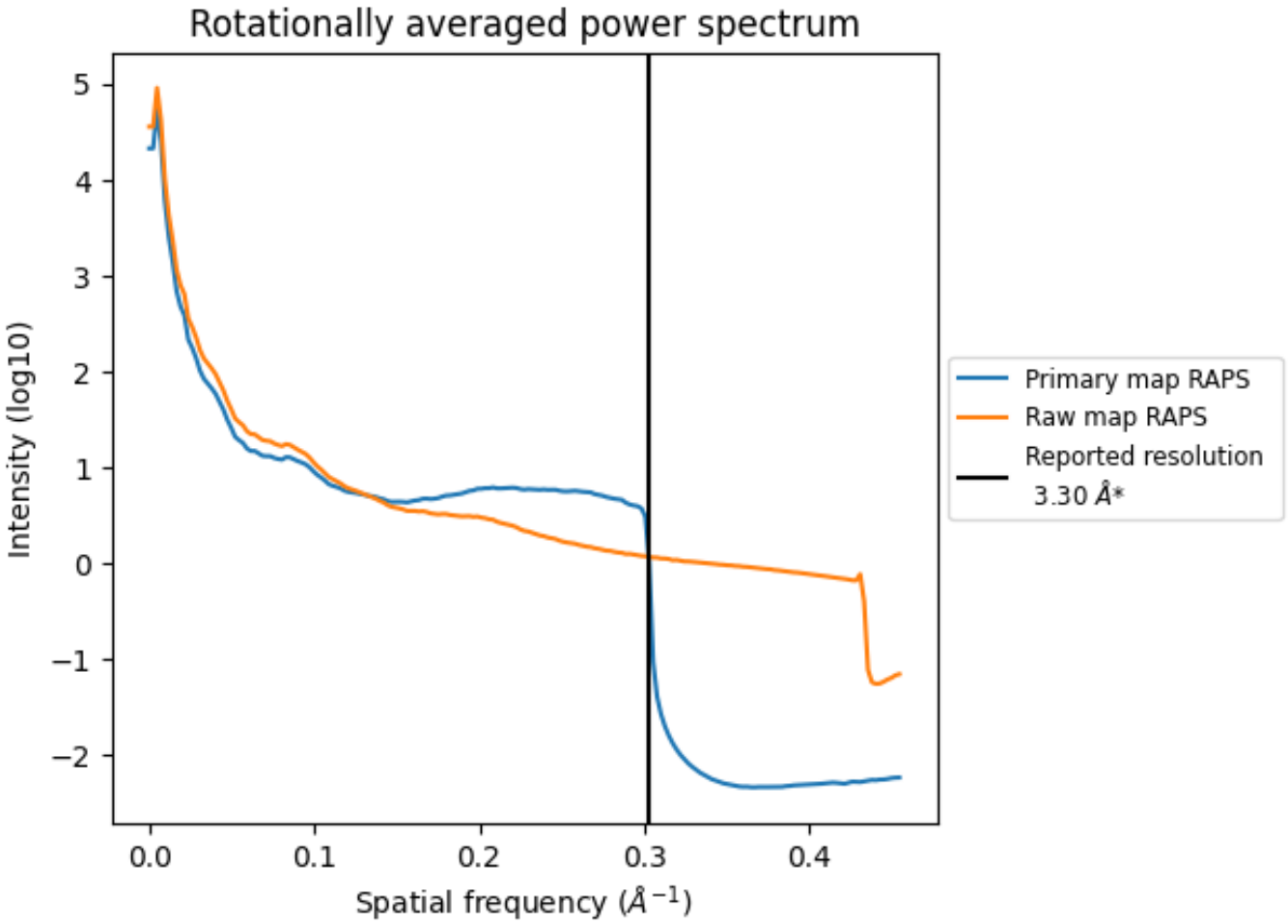
7.2 Volume estimate



The volume at the recommended contour level is 603 nm^3; this corresponds to an approximate mass of 544 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 (i)

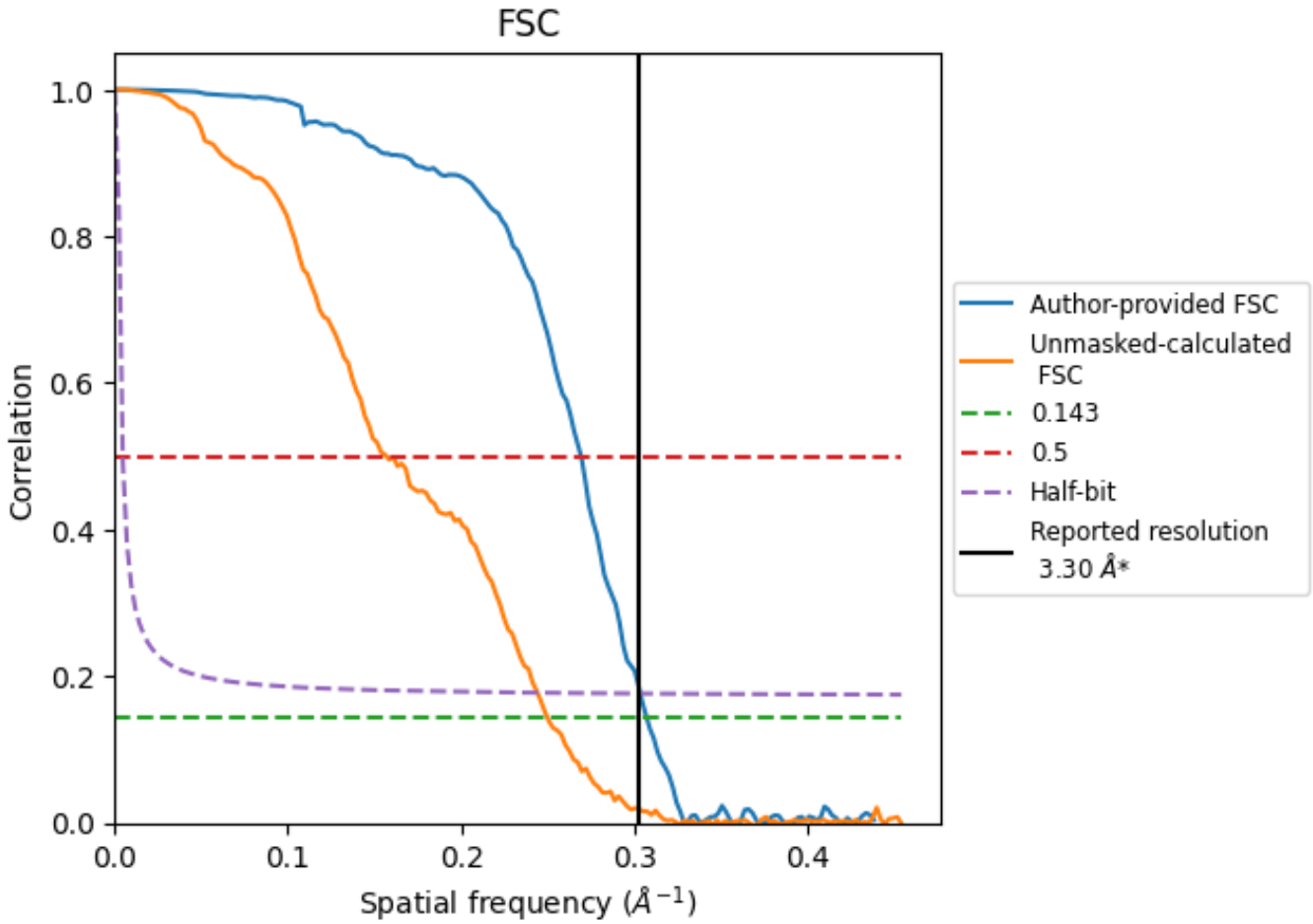


*Reported resolution corresponds to spatial frequency of 0.303 $Å^{-1}$

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.303 Å^{-1}

8.2 Resolution estimates (i)

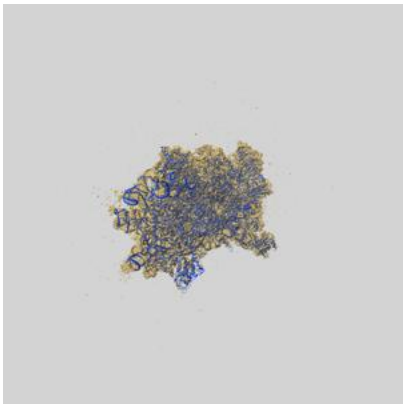
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	3.25	3.71	3.29
Unmasked-calculated*	4.00	6.37	4.09

*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 4.00 differs from the reported value 3.3 by more than 10 %

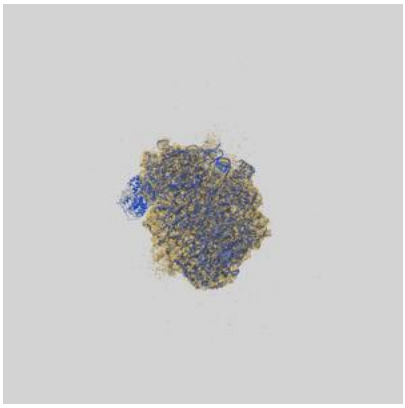
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-17330 and PDB model 8P09. Per-residue inclusion information can be found in section 3 on page 12.

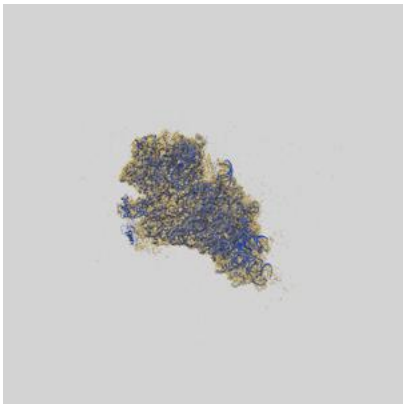
9.1 Map-model overlay



X



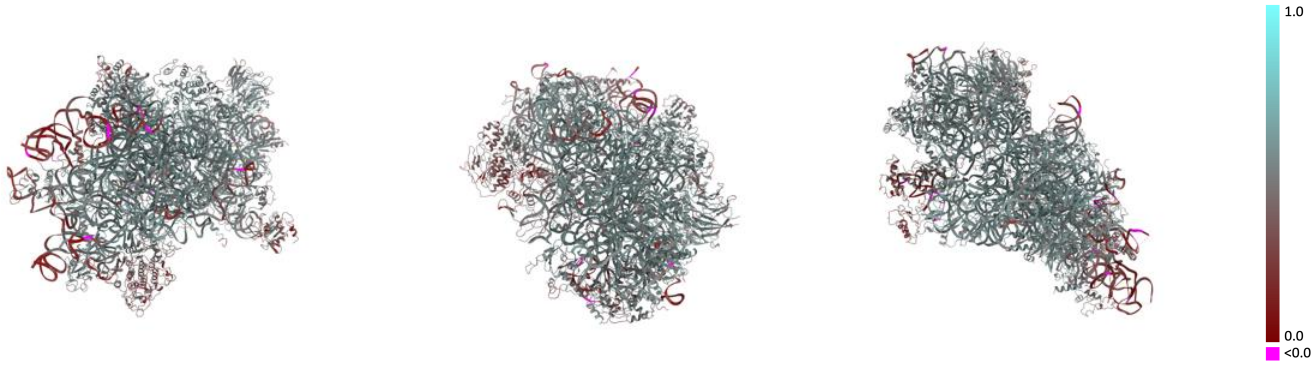
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.013 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

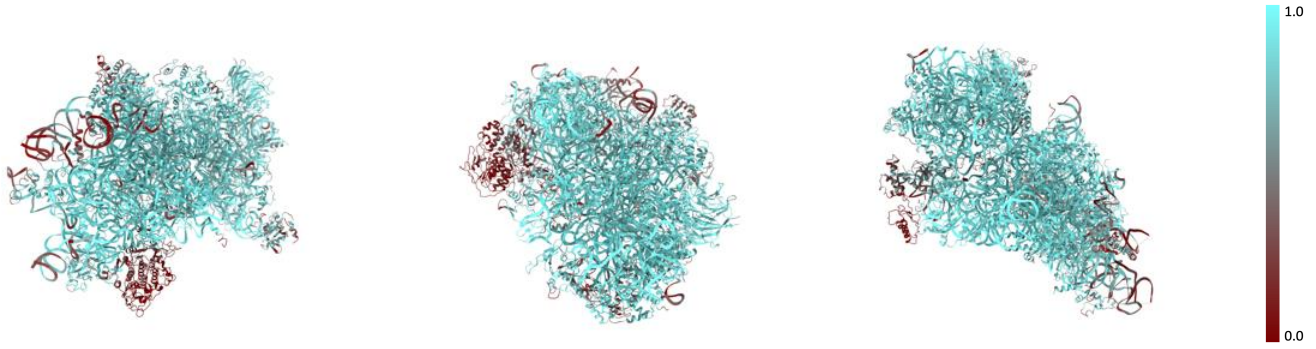
9.2 Q-score mapped to coordinate model



X Y Z

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.

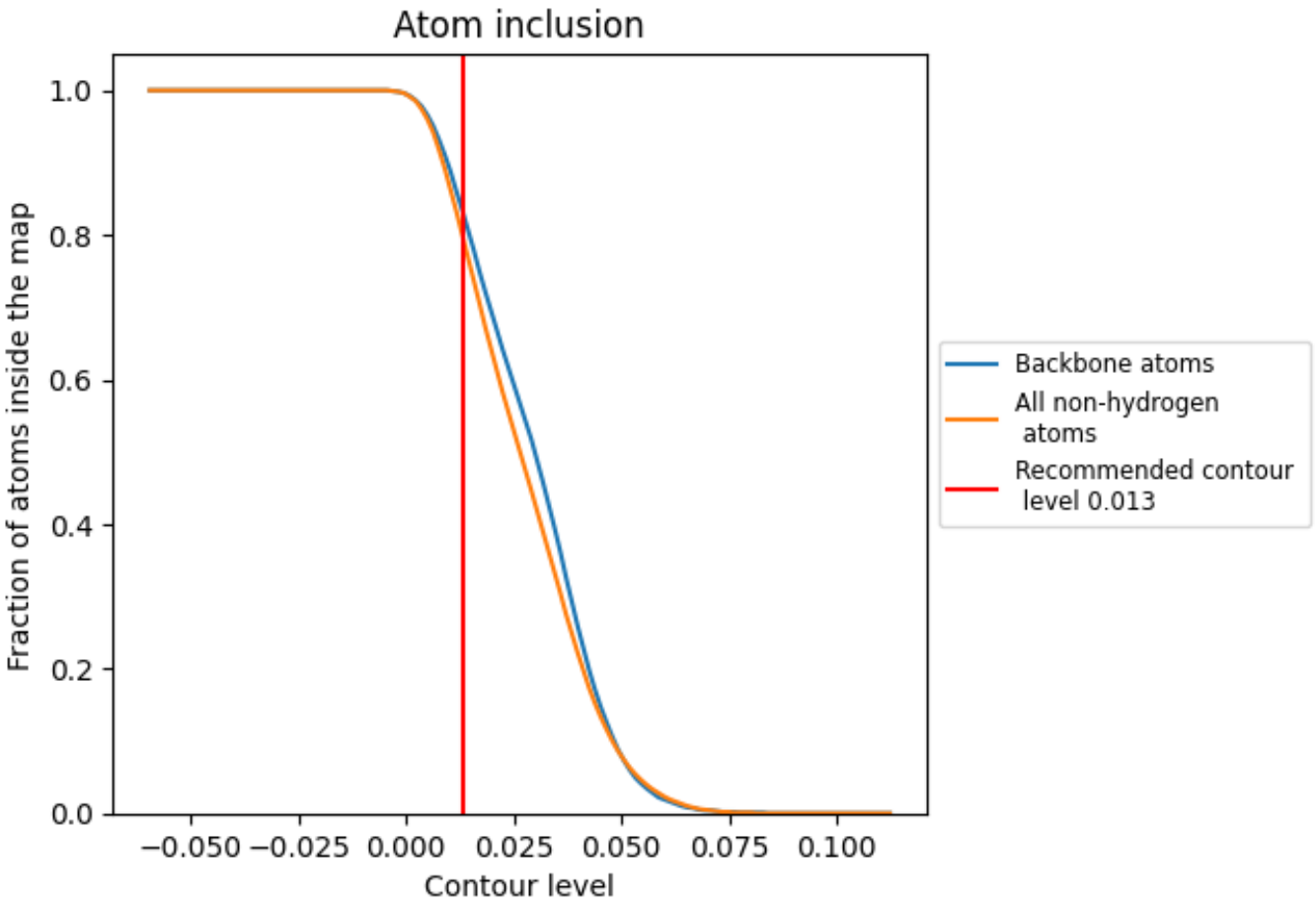
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.013).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 80% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.013) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8010	0.4940
1	0.5970	0.2440
2	0.9010	0.5010
3	0.6260	0.4820
A	0.2940	0.3580
C	0.8810	0.5450
D	0.8800	0.5410
E	0.8680	0.5550
F	0.8340	0.5270
G	0.8870	0.5530
H	0.8610	0.5370
I	0.7990	0.4960
J	0.5520	0.4490
K	0.8280	0.5050
L	0.8820	0.5450
M	0.8330	0.4970
N	0.7810	0.5240
O	0.5090	0.3430
P	0.8750	0.5470
Q	0.8610	0.5390
R	0.7510	0.4870
S	0.9010	0.5570
T	0.7390	0.4960
U	0.8110	0.5090
V	0.8670	0.5310
W	0.7790	0.5130
X	0.8790	0.5490
Y	0.9060	0.5780
Z	0.8810	0.5610
a	0.8670	0.5140
b	0.8960	0.5640
c	0.8130	0.5130
d	0.8090	0.5440
e	0.9080	0.5580
f	0.6630	0.4080

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
g	0.8490	0.5080
i	0.7340	0.4940
j	0.5250	0.4800
k	0.1650	0.3790
l	0.7900	0.5400
n	0.7500	0.4900