Full wwPDB EM Validation Report ⓘ

Nov 16, 2026 – 10:42 AM EST

PDB ID	:	9Z4L / pdb_00009z4l
EMDB ID	:	EMD-73807
Title	:	80S ribosome bound to SW394766 inhibitor
Authors	:	Cruz, V.E.; Morgenstern, C.C.; Ready, J.M.; Erzberger, J.P.
Deposited on	:	2025-11-10
Resolution	:	2.20 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

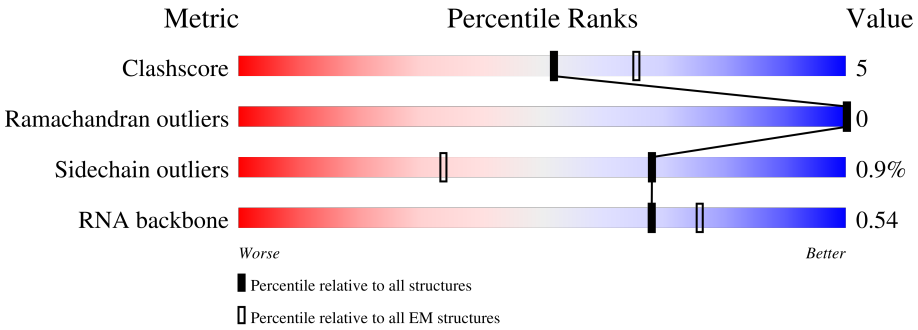
EMDB validation analysis	:	0.0.1.dev133
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.2
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.51

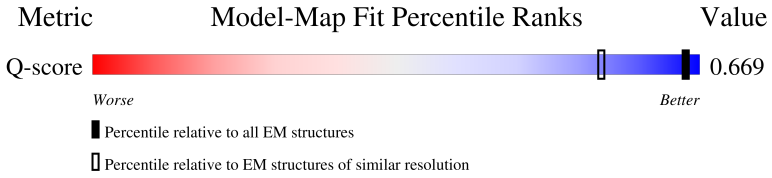
1 Overall quality at a glance

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

The reported resolution of this entry is 2.20 Å.

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





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	3184 (1.71 - 2.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	S1	264	18% 70% 14% 16%
2	S2	1141	12% 61% 34% 5%
3	SA	295	15% 64% 11% 25%

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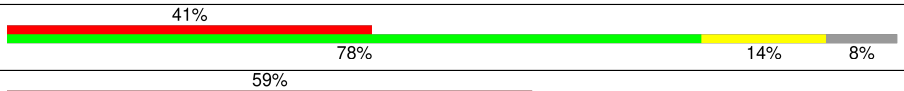
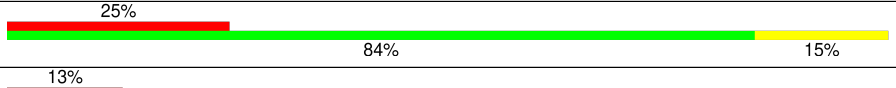
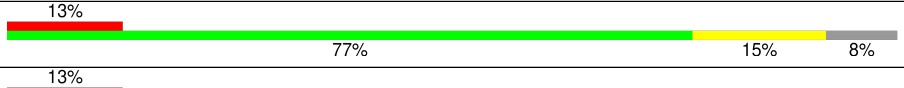
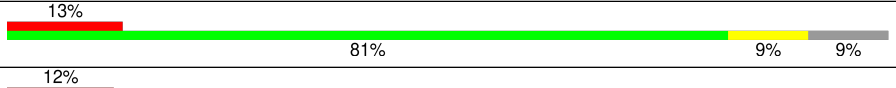
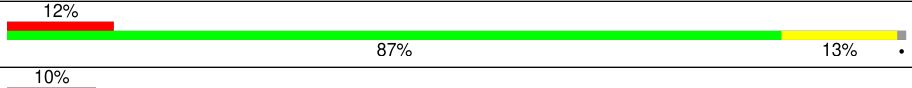
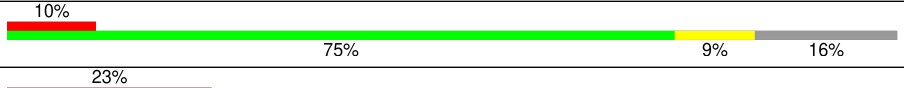
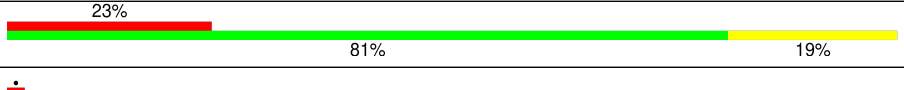
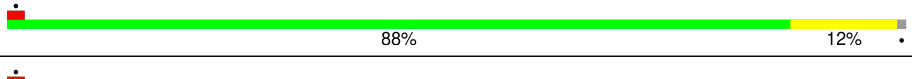
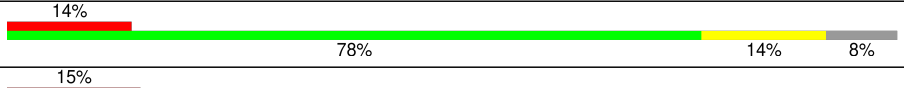
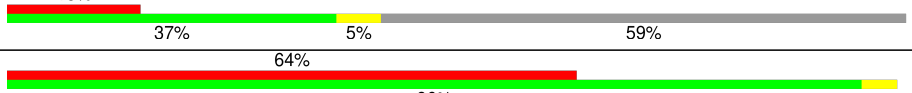
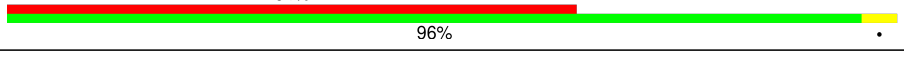
Mol	Chain	Length	Quality of chain
4	SC	293	
5	SE	263	
6	SG	249	
7	SH	194	
8	SI	208	
9	SJ	194	
10	SL	158	
11	SN	151	
12	SO	151	
13	SV	83	
14	SW	130	
15	SX	143	
16	SY	132	
17	Sa	115	
18	Sb	84	
19	Se	133	
20	So	25	

2 Entry composition (i)

There are 25 unique types of molecules in this entry. The entry contains 48746 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Small ribosomal subunit protein eS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	S1	221	Total	C	N	O	S	0	0
			1790	1135	323	318	14		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	S2	1141	Total	C	N	O	P	0	0
			24425	10927	4416	7942	1140		

- Molecule 3 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	SA	220	Total	C	N	O	S	0	0
			1731	1099	303	321	8		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
SA	1	ACE	-	acetylation	UNP P08865

- Molecule 4 is a protein called Small ribosomal subunit protein uS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	SC	219	Total	C	N	O	S	0	0
			1700	1100	292	298	10		

- Molecule 5 is a protein called Small ribosomal subunit protein eS4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	SE	262	Total	C	N	O	S	0	0
			2075	1324	386	357	8		

- Molecule 6 is a protein called Small ribosomal subunit protein eS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	SG	229	Total	C	N	O	S	0	0
			1853	1158	369	319	7		

- Molecule 7 is a protein called Small ribosomal subunit protein eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	SH	187	Total	C	N	O	S	0	0
			1509	963	277	268	1		

- Molecule 8 is a protein called Small ribosomal subunit protein eS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	SI	207	Total	C	N	O	S	0	0
			1695	1064	334	292	5		

- Molecule 9 is a protein called Small ribosomal subunit protein uS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	SJ	179	Total	C	N	O	S	0	0
			1495	953	299	241	2		

- Molecule 10 is a protein called Small ribosomal subunit protein uS17.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	SL	143	Total	C	N	O	S	0	0
			1180	754	223	197	6		

- Molecule 11 is a protein called Small ribosomal subunit protein uS15.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	SN	150	Total	C	N	O	S	0	0
			1207	773	229	204	1		

- Molecule 12 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	SO	127	Total	C	N	O	S	0	0
			956	585	189	176	6		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
SO	138	IAS	ASP	conflict	UNP P62263

- Molecule 13 is a protein called Small ribosomal subunit protein eS21.

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

- Molecule 14 is a protein called Small ribosomal subunit protein uS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	SW	129	Total	C	N	O	S	0	0
			1033	659	193	175	6		

- Molecule 15 is a protein called Small ribosomal subunit protein uS12.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	SX	140	Total	C	N	O	S	0	0
			1088	687	215	183	3		

- Molecule 16 is a protein called Isoform 3 of Small ribosomal subunit protein eS24.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	SY	122	Total	C	N	O	S	0	0
			1002	635	196	166	5		

- Molecule 17 is a protein called Small ribosomal subunit protein eS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Sa	99	Total	C	N	O	S	0	0
			792	492	165	130	5		

- Molecule 18 is a protein called Small ribosomal subunit protein eS27.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Sb	83	Total	C	N	O	S	0	0
			650	408	121	114	7		

- Molecule 19 is a protein called FAU ubiquitin-like and ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Se	55	Total	C	N	O	S	0	0
			437	271	95	70	1		

- Molecule 20 is a protein called Small ribosomal subunit protein eS32.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	So	25	Total	C	N	O	S	0	0
			239	145	64	27	3		

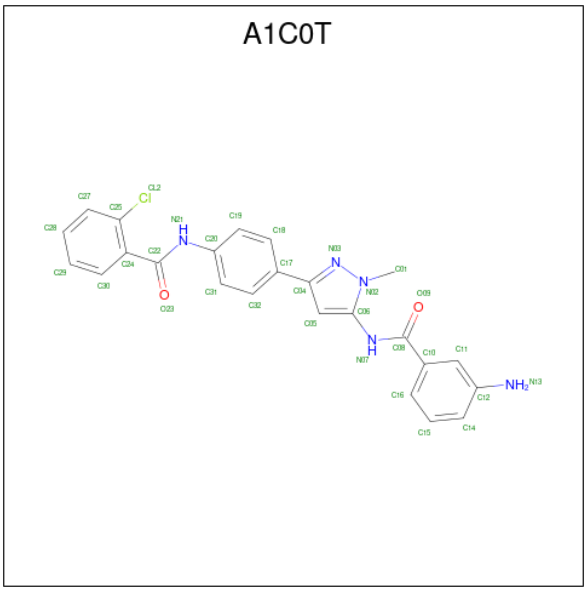
- Molecule 21 is POTASSIUM ION (CCD ID: K) (formula: K).

Mol	Chain	Residues	Atoms		AltConf
21	S2	21	Total	K	0
			21	21	
21	SE	1	Total	K	0
			1	1	
21	SL	1	Total	K	0
			1	1	
21	SO	1	Total	K	0
			1	1	

- Molecule 22 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
22	S2	49	Total	Mg	0
			49	49	
22	SG	1	Total	Mg	0
			1	1	

- Molecule 23 is N-{4-[5-(3-aminobenzamido)-1-methyl-1H-pyrazol-3-yl]phenyl}-2-chlorobenzamide (CCD ID: A1C0T) (formula: $C_{24}H_{20}ClN_5O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
23	SX	1	Total	C	Cl	N	O	0
			32	24	1	5	2	

- Molecule 24 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
24	Sa	1	Total	Zn	0
			1	1	
24	Sb	1	Total	Zn	0
			1	1	

- Molecule 25 is water.

Mol	Chain	Residues	Atoms		AltConf
25	S1	13	Total	O	0
			13	13	
25	S2	896	Total	O	0
			896	896	
25	SA	7	Total	O	0
			7	7	
25	SC	14	Total	O	0
			14	14	
25	SE	16	Total	O	0
			16	16	
25	SG	6	Total	O	0
			6	6	

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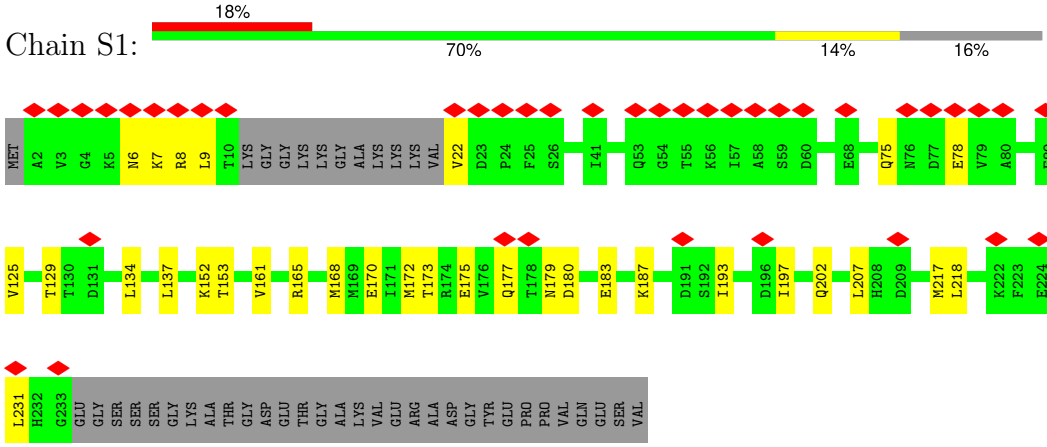
Mol	Chain	Residues	Atoms	AltConf
25	SH	5	Total O 5 5	0
25	SI	20	Total O 20 20	0
25	SJ	16	Total O 16 16	0
25	SL	29	Total O 29 29	0
25	SN	16	Total O 16 16	0
25	SO	20	Total O 20 20	0
25	SV	4	Total O 4 4	0
25	SW	18	Total O 18 18	0
25	SX	25	Total O 25 25	0
25	SY	4	Total O 4 4	0
25	Sa	23	Total O 23 23	0
25	Sb	7	Total O 7 7	0
25	Se	3	Total O 3 3	0
25	So	3	Total O 3 3	0

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.

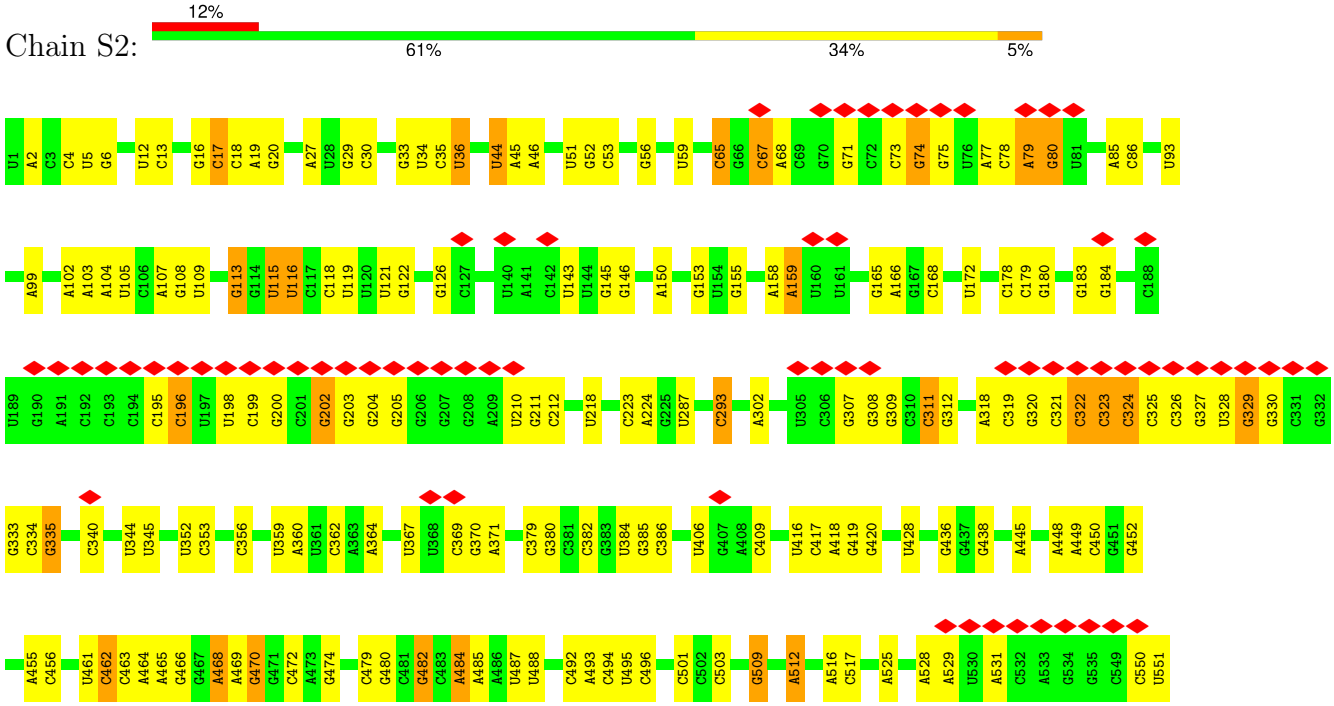
• Molecule 1: Small ribosomal subunit protein eS1

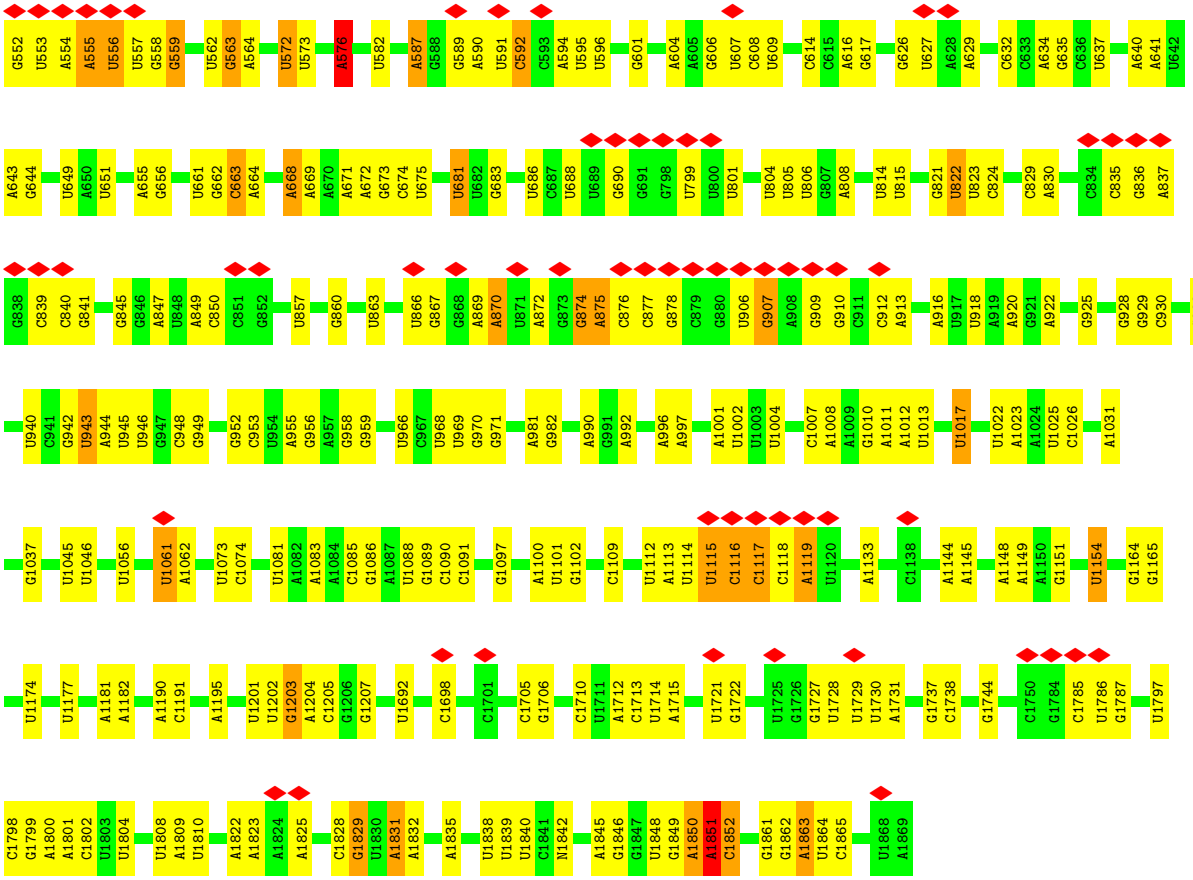
Chain S1:



• Molecule 2: 18S rRNA

Chain S2:

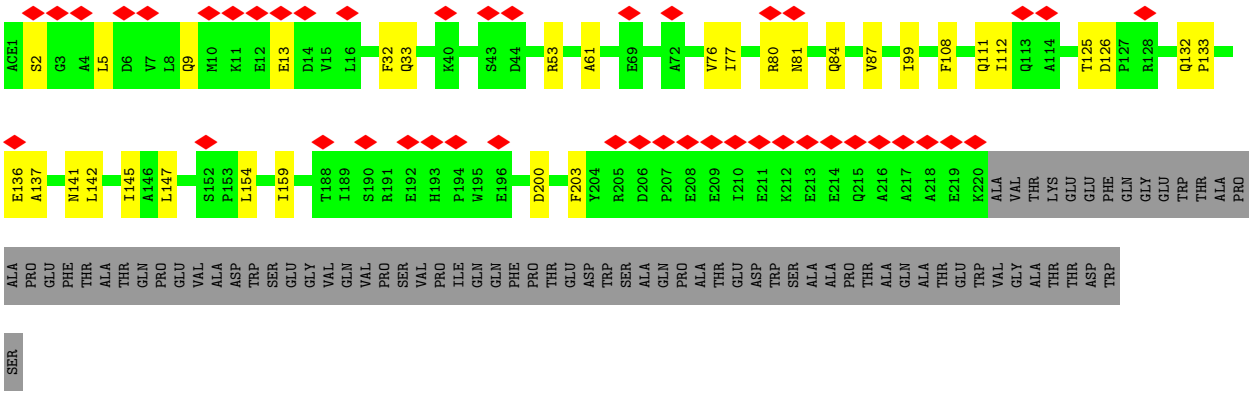




• Molecule 3: Small ribosomal subunit protein uS2

Chain SA:

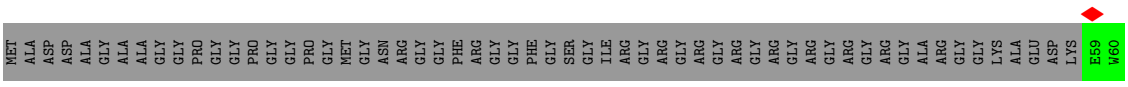


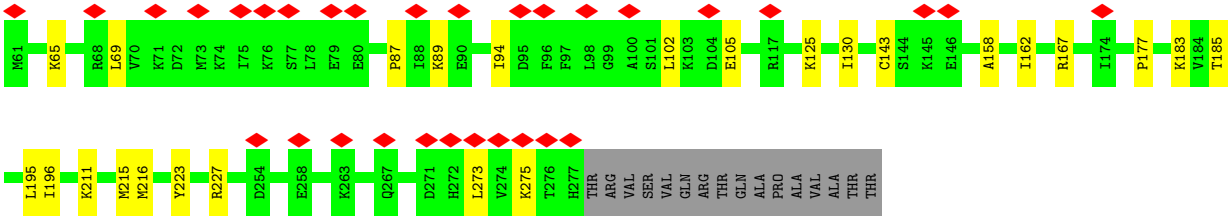


• Molecule 4: Small ribosomal subunit protein uS5

Chain SC:



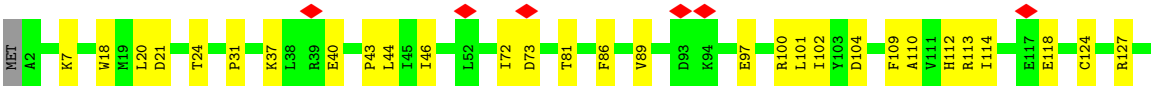




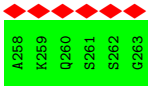
• Molecule 5: Small ribosomal subunit protein eS4, X isoform

Chain SE:





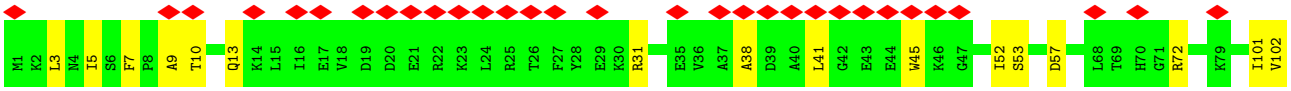


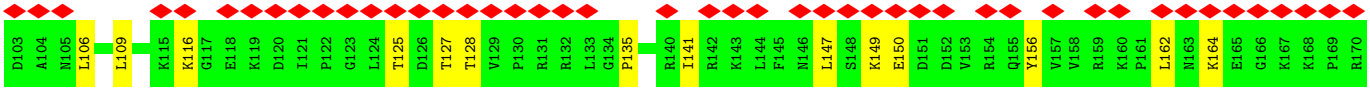


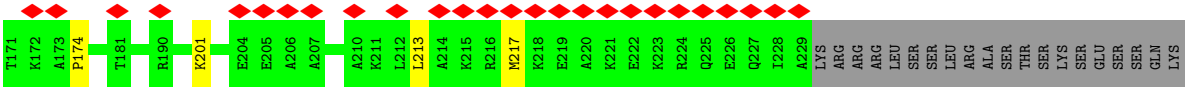
• Molecule 6: Small ribosomal subunit protein eS6

Chain SG:





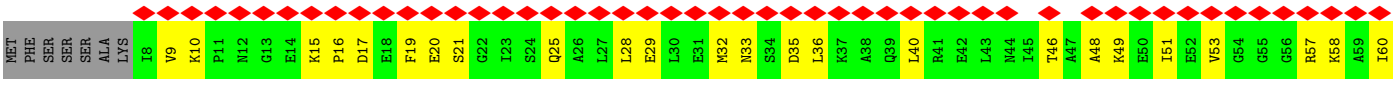


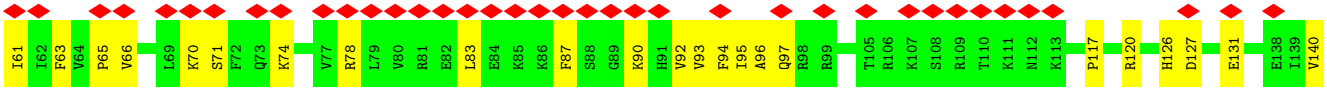


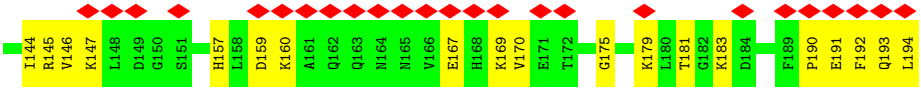
• Molecule 7: Small ribosomal subunit protein eS7

Chain SH:





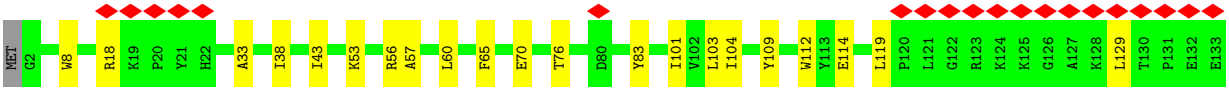


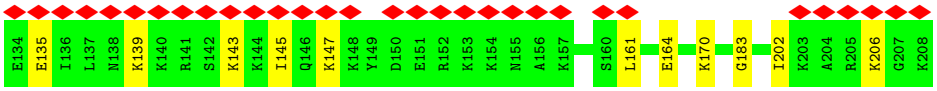


• Molecule 8: Small ribosomal subunit protein eS8

Chain SI:



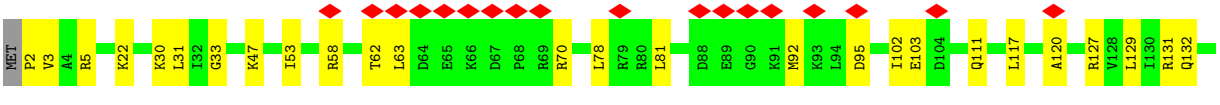


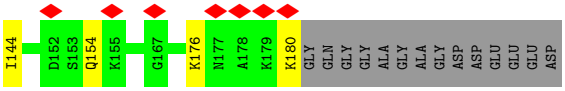


• Molecule 9: Small ribosomal subunit protein uS4

Chain SJ:



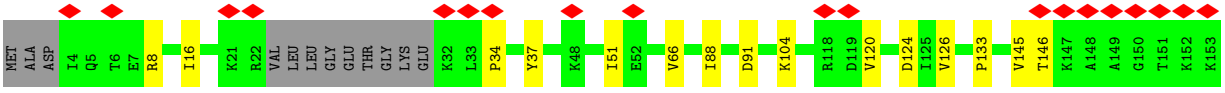


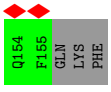


• Molecule 10: Small ribosomal subunit protein uS17

Chain SL:



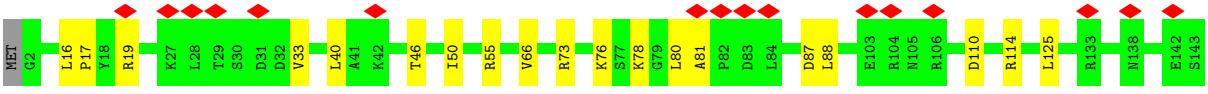




• Molecule 11: Small ribosomal subunit protein uS15

Chain SN:

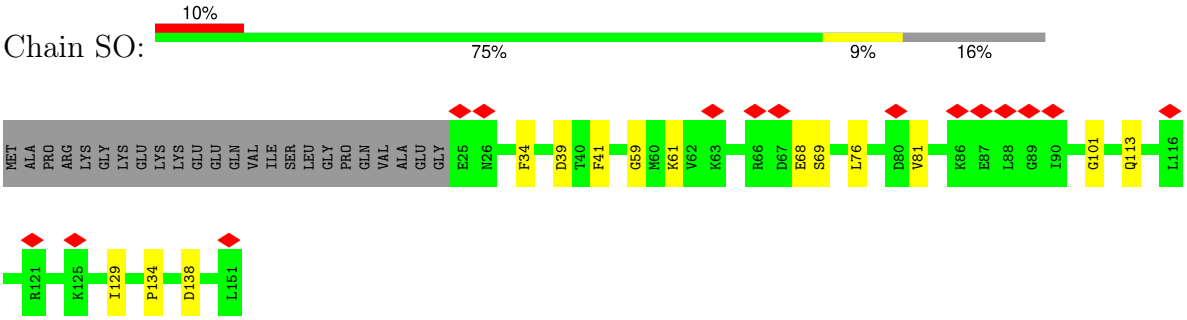






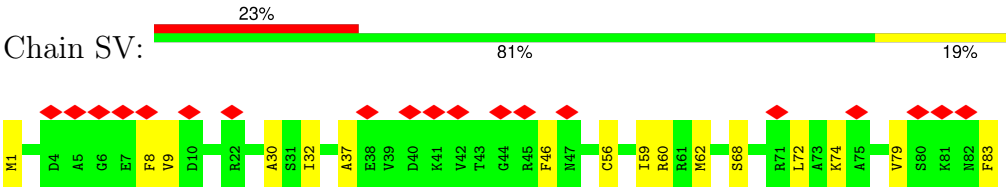
• Molecule 12: Small ribosomal subunit protein uS11

Chain SO:



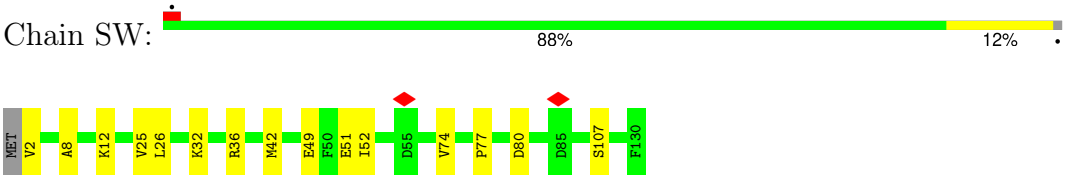
• Molecule 13: Small ribosomal subunit protein eS21

Chain SV:



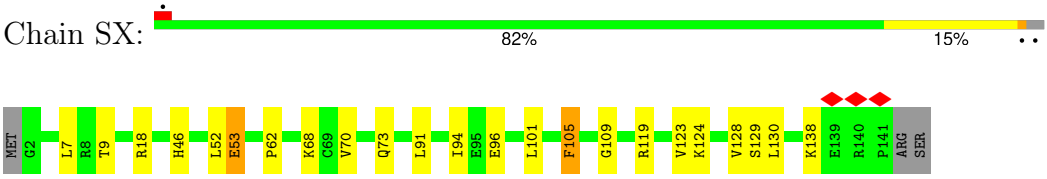
• Molecule 14: Small ribosomal subunit protein uS8

Chain SW:



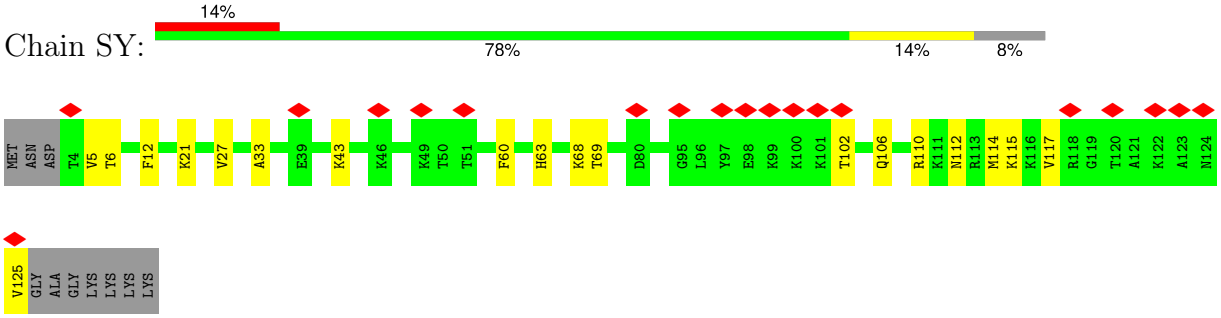
• Molecule 15: Small ribosomal subunit protein uS12

Chain SX:



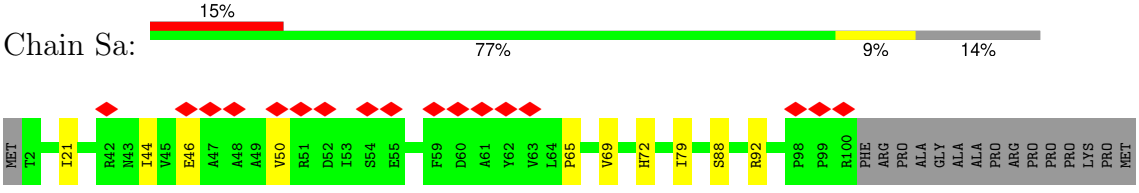
• Molecule 16: Isoform 3 of Small ribosomal subunit protein eS24

Chain SY:



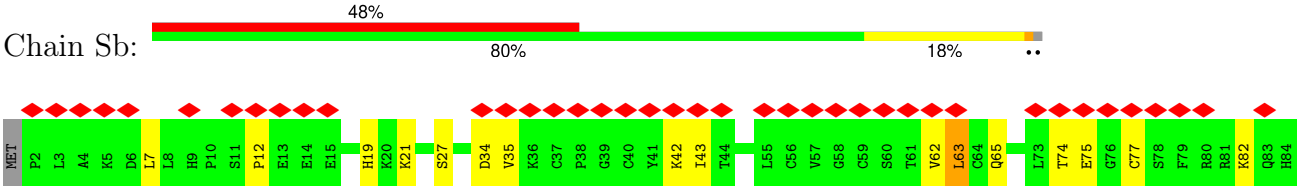
• Molecule 17: Small ribosomal subunit protein eS26

Chain Sa:



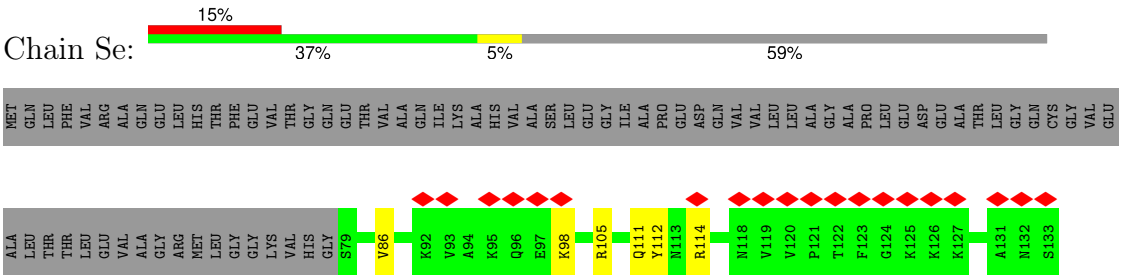
• Molecule 18: Small ribosomal subunit protein eS27

Chain Sb:



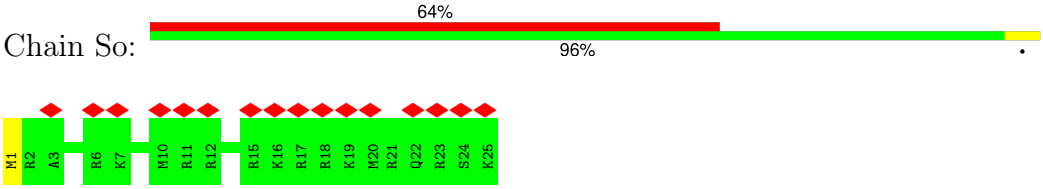
• Molecule 19: FAU ubiquitin-like and ribosomal protein S30

Chain Se:



• Molecule 20: Small ribosomal subunit protein eS32

Chain So:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	235000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	20.34	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	1900	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.171	Depositor
Minimum map value	-0.075	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.025	Depositor
Map size (Å)	351.91998, 351.91998, 351.91998	wwPDB
Map dimensions	424, 424, 424	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.83, 0.83, 0.83	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ACE, OMU, HY3, K, ZN, MG, OMC, OMG, PSU, MA6, A2M, 4AC, A1C0T, 6MZ, IAS

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	S1	0.17	0/1816	0.33	0/2427
2	S2	0.53	2/25785 (0.0%)	0.82	4/40188 (0.0%)
3	SA	0.20	0/1766	0.34	0/2399
4	SC	0.20	0/1737	0.35	0/2347
5	SE	0.19	0/2117	0.36	0/2849
6	SG	0.17	0/1876	0.35	0/2499
7	SH	0.17	0/1532	0.36	0/2053
8	SI	0.20	0/1724	0.35	0/2298
9	SJ	0.19	0/1520	0.34	0/2030
10	SL	0.22	0/1201	0.36	0/1604
11	SN	0.18	0/1231	0.32	0/1656
12	SO	0.20	0/959	0.34	0/1284
13	SV	0.18	0/643	0.32	0/860
14	SW	0.21	0/1050	0.36	0/1406
15	SX	0.19	0/1096	0.35	0/1461
16	SY	0.19	0/1019	0.34	0/1354
17	Sa	0.20	0/805	0.36	0/1079
18	Sb	0.19	0/664	0.35	0/891
19	Se	0.16	0/442	0.34	0/582
20	So	0.17	0/240	0.28	0/305
All	All	0.41	2/49223 (0.0%)	0.65	4/71572 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	S2	576	A2M	O3'-P	5.02	1.61	1.56
2	S2	627	OMU	O3'-P	5.02	1.61	1.56

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	1022	U	C2-N1-C1'	5.89	124.77	117.70
2	S2	870	A	O5'-C5'-C4'	5.46	113.77	109.40
2	S2	1117	C	O4'-C1'-N1	5.25	112.18	108.50
2	S2	356	C	O5'-C5'-C4'	5.14	113.51	109.40

There are no chirality outliers.

There are no planarity outliers.

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	S1	1790	0	1873	21	0
2	S2	24425	0	12372	193	0
3	SA	1731	0	1734	20	0
4	SC	1700	0	1784	19	0
5	SE	2075	0	2177	29	0
6	SG	1853	0	2005	27	0
7	SH	1509	0	1604	54	0
8	SI	1695	0	1785	20	0
9	SJ	1495	0	1615	20	0
10	SL	1180	0	1253	12	0
11	SN	1207	0	1293	13	0
12	SO	956	0	981	9	0
13	SV	636	0	637	11	0
14	SW	1033	0	1080	11	0
15	SX	1088	0	1149	15	0
16	SY	1002	0	1075	11	0
17	Sa	792	0	841	6	0
18	Sb	650	0	668	12	0
19	Se	437	0	484	6	0
20	So	239	0	289	3	0
21	S2	21	0	0	0	0
21	SE	1	0	0	0	0
21	SL	1	0	0	0	0
21	SO	1	0	0	0	0
22	S2	49	0	0	0	0
22	SG	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
23	SX	32	0	0	1	0
24	Sa	1	0	0	0	0
24	Sb	1	0	0	0	0
25	S1	13	0	0	0	0
25	S2	896	0	0	1	0
25	SA	7	0	0	0	0
25	SC	14	0	0	0	0
25	SE	16	0	0	1	0
25	SG	6	0	0	0	0
25	SH	5	0	0	0	0
25	SI	20	0	0	1	0
25	SJ	16	0	0	0	0
25	SL	29	0	0	0	0
25	SN	16	0	0	0	0
25	SO	20	0	0	1	0
25	SV	4	0	0	0	0
25	SW	18	0	0	0	0
25	SX	25	0	0	0	0
25	SY	4	0	0	0	0
25	Sa	23	0	0	0	0
25	Sb	7	0	0	0	0
25	Se	3	0	0	0	0
25	So	3	0	0	0	0
All	All	48746	0	36699	456	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 5.

All (456) 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)
10:SL:91:ASP:HB3	10:SL:104:LYS:NZ	1.65	1.12
7:SH:10:LYS:HE2	7:SH:20:GLU:CB	1.86	1.05
10:SL:91:ASP:HB3	10:SL:104:LYS:HZ2	1.13	1.02
2:S2:531:A:N6	2:S2:552:G:H1	1.58	1.00
7:SH:10:LYS:HE2	7:SH:20:GLU:HB3	1.49	0.91
2:S2:928:G:H1	2:S2:1013:U:H3	1.19	0.89
7:SH:10:LYS:HE2	7:SH:20:GLU:HB2	1.61	0.82
2:S2:531:A:H61	2:S2:552:G:H1	0.84	0.81
2:S2:67:C:H41	6:SG:164:LYS:H	1.29	0.78
2:S2:925:G:H1	2:S2:1017:U:H3	1.32	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:SH:63:PHE:HB3	7:SH:97:GLN:HG2	1.67	0.77
7:SH:9:VAL:HG12	7:SH:9:VAL:O	1.83	0.76
2:S2:531:A:N1	2:S2:552:G:N2	2.33	0.76
9:SJ:63:LEU:HD22	9:SJ:70:ARG:HB2	1.69	0.75
4:SC:65:LYS:HE3	4:SC:273:LEU:HD13	1.69	0.75
2:S2:462:OMC:HM22	2:S2:463:C:H5'	1.71	0.72
2:S2:640:A:H2'	2:S2:641:A:C8	2.25	0.72
7:SH:10:LYS:CE	7:SH:20:GLU:HB3	2.20	0.72
10:SL:91:ASP:CB	10:SL:104:LYS:HZ2	1.98	0.71
4:SC:167:ARG:HB3	4:SC:177:PRO:HB2	1.71	0.71
7:SH:159:ASP:HA	7:SH:193:GLN:HE22	1.56	0.70
5:SE:137:PRO:HB2	5:SE:150:PRO:HD2	1.73	0.70
1:S1:175:GLU:HG2	1:S1:193:ILE:HG12	1.75	0.69
9:SJ:176:LYS:HG2	9:SJ:180:LYS:HE3	1.75	0.69
2:S2:874:G:H2'	2:S2:875:A:H8	1.58	0.68
9:SJ:30:LYS:HD2	19:Se:112:TYR:HE1	1.59	0.68
2:S2:981:A:H2'	2:S2:982:G:C8	2.29	0.67
5:SE:100:ARG:HH21	5:SE:118:GLU:HG2	1.59	0.67
2:S2:153:G:H21	6:SG:13:GLN:HE22	1.44	0.66
2:S2:1712:A:H2'	2:S2:1713:C:C6	2.30	0.66
2:S2:528:A:H2'	2:S2:529:A:H8	1.61	0.65
18:Sb:19:HIS:HD2	18:Sb:21:LYS:H	1.45	0.65
1:S1:202:GLN:HE22	1:S1:207:LEU:H	1.45	0.65
7:SH:10:LYS:NZ	7:SH:16:PRO:HB3	2.12	0.65
1:S1:173:THR:O	1:S1:177:GLN:HB2	1.97	0.64
2:S2:59:U:H5"	2:S2:503:C:N4	2.13	0.64
5:SE:104:ASP:HB3	5:SE:110:ALA:HB2	1.79	0.64
7:SH:60:ILE:HB	7:SH:92:VAL:HG22	1.79	0.64
3:SA:108:PHE:HB2	3:SA:136:GLU:HG2	1.78	0.64
2:S2:604:A:H4'	9:SJ:22:LYS:HD3	1.80	0.63
8:SI:8:TRP:HA	8:SI:18:ARG:CD	2.29	0.62
2:S2:877:C:H2'	2:S2:878:G:C8	2.34	0.62
2:S2:1154:U:O4	4:SC:227:ARG:HD2	2.00	0.62
2:S2:528:A:H2'	2:S2:529:A:C8	2.33	0.62
3:SA:145:ILE:HG12	3:SA:159:ILE:HB	1.81	0.61
7:SH:35:ASP:HB3	7:SH:78:ARG:HH22	1.66	0.61
3:SA:76:VAL:HG23	3:SA:87:VAL:HG13	1.82	0.60
7:SH:140:VAL:HG12	11:SN:19:ARG:HD2	1.82	0.60
6:SG:213:LEU:HG	6:SG:217:MET:HE2	1.83	0.60
2:S2:656:G:H5'	2:S2:662:G:N2	2.17	0.60
7:SH:53:VAL:HG23	7:SH:57:ARG:HG3	1.82	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:S1:125:VAL:HG22	1:S1:172:MET:HE3	1.84	0.60
2:S2:107:A:H2'	2:S2:108:G:C8	2.36	0.60
7:SH:36:LEU:HB3	7:SH:40:LEU:HD13	1.83	0.60
7:SH:10:LYS:HZ1	7:SH:16:PRO:HB3	1.66	0.60
2:S2:67:C:C5	6:SG:162:LEU:HB3	2.37	0.59
12:SO:61:LYS:HD2	12:SO:76:LEU:HB3	1.85	0.59
1:S1:175:GLU:HG3	1:S1:187:LYS:HD3	1.85	0.59
18:Sb:19:HIS:CD2	18:Sb:21:LYS:H	2.21	0.59
2:S2:455:A:H2'	2:S2:456:C:C6	2.38	0.59
10:SL:91:ASP:HB3	10:SL:104:LYS:CE	2.33	0.58
3:SA:77:ILE:HG12	3:SA:99:ILE:HB	1.84	0.58
2:S2:67:C:C5	6:SG:164:LYS:HB2	2.39	0.58
4:SC:102:LEU:HB3	4:SC:130:ILE:HD11	1.84	0.58
9:SJ:95:ASP:OD1	9:SJ:95:ASP:O	2.22	0.58
2:S2:59:U:H5'	2:S2:501:C:H4'	1.85	0.58
7:SH:46:THR:HG23	7:SH:65:PRO:HD3	1.84	0.58
1:S1:179:ASN:HB3	1:S1:183:GLU:HB2	1.86	0.58
1:S1:121:ILE:HG12	1:S1:161:VAL:HG13	1.86	0.58
4:SC:105:GLU:HB3	4:SC:216:MET:HE1	1.86	0.57
2:S2:367:U:H4'	2:S2:371:A:C8	2.40	0.57
2:S2:29:G:H2'	2:S2:30:C:C6	2.40	0.57
2:S2:118:C:H1'	2:S2:445:A:C5	2.40	0.57
7:SH:9:VAL:HG23	7:SH:28:LEU:HD13	1.87	0.57
2:S2:461:U:H2'	2:S2:462:OMC:C6	2.41	0.56
2:S2:952:G:H2'	2:S2:953:C:C6	2.40	0.56
2:S2:12:U:H2'	2:S2:13:C:C6	2.41	0.56
7:SH:9:VAL:O	7:SH:9:VAL:CG1	2.52	0.56
11:SN:16:LEU:HD12	11:SN:17:PRO:HD2	1.88	0.56
2:S2:311:C:H5"	2:S2:312:G:H5"	1.88	0.56
7:SH:51:ILE:HG21	7:SH:179:LYS:HD2	1.88	0.56
2:S2:165:G:H4'	6:SG:53:SER:HB3	1.87	0.56
2:S2:1115:U:H4'	2:S2:1116:C:OP1	2.06	0.56
6:SG:125:THR:O	6:SG:125:THR:HG22	2.06	0.55
2:S2:1091:C:HO2'	14:SW:2:VAL:N	2.05	0.55
5:SE:20:LEU:HD21	5:SE:46:ILE:HD12	1.89	0.55
2:S2:906:U:H2'	2:S2:907:G:H8	1.71	0.55
3:SA:141:ASN:ND2	4:SC:87:PRO:HD3	2.22	0.55
2:S2:874:G:H2'	2:S2:875:A:C8	2.40	0.55
2:S2:1705:C:H2'	2:S2:1706:G:C8	2.42	0.55
15:SX:70:VAL:HG11	15:SX:94:ILE:HG21	1.87	0.55
11:SN:110:ASP:O	11:SN:114:ARG:HG2	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S2:352:U:H2'	2:S2:353:C:C6	2.42	0.55
2:S2:1007:C:H2'	2:S2:1008:A:C8	2.42	0.54
2:S2:469:A:H2'	2:S2:470:G:H5'	1.90	0.54
2:S2:1797:U:H2'	2:S2:1798:C:C6	2.43	0.54
1:S1:6:ASN:HB3	1:S1:9:LEU:HD11	1.88	0.54
2:S2:916:A:C5	11:SN:73:ARG:HD3	2.42	0.54
7:SH:53:VAL:HG12	7:SH:175:GLY:HA3	1.88	0.54
8:SI:8:TRP:C	8:SI:18:ARG:HD2	2.32	0.54
10:SL:16:ILE:HG23	10:SL:34:PRO:HG2	1.90	0.54
2:S2:1809:A:H2'	2:S2:1810:U:C6	2.43	0.54
2:S2:996:A:H2'	2:S2:997:A:C8	2.43	0.53
7:SH:71:SER:HA	7:SH:74:LYS:HD2	1.91	0.53
7:SH:15:LYS:HG2	7:SH:16:PRO:HD2	1.90	0.53
5:SE:18:TRP:HH2	5:SE:31:PRO:HD3	1.74	0.53
2:S2:1037:G:H4'	2:S2:1845:A:H4'	1.90	0.53
2:S2:587:A:H5'	2:S2:592:C:H41	1.74	0.53
2:S2:5:U:H2'	2:S2:6:G:H8	1.74	0.52
2:S2:1712:A:H2'	2:S2:1713:C:H6	1.71	0.52
2:S2:202:G:H2'	2:S2:203:G:O4'	2.09	0.52
2:S2:824:C:H1'	9:SJ:144:ILE:HG21	1.90	0.52
3:SA:76:VAL:CG2	3:SA:87:VAL:HG13	2.39	0.52
6:SG:10:THR:HB	6:SG:128:THR:HA	1.92	0.52
2:S2:804:U:H2'	2:S2:805:U:C6	2.44	0.52
7:SH:144:ILE:HB	14:SW:52:ILE:HB	1.92	0.52
8:SI:135:GLU:O	8:SI:139:LYS:HB3	2.10	0.52
2:S2:344:U:H2'	2:S2:345:U:C6	2.45	0.52
2:S2:455:A:H2'	2:S2:456:C:H6	1.75	0.52
2:S2:1798:C:H2'	2:S2:1799:G:O4'	2.09	0.52
9:SJ:117:LEU:HD21	9:SJ:154:GLN:NE2	2.25	0.52
2:S2:942:G:H2'	2:S2:943:U:C6	2.44	0.52
2:S2:223:C:H2'	2:S2:224:A:C8	2.44	0.51
10:SL:88:ILE:HG21	10:SL:126:VAL:HG21	1.91	0.51
1:S1:129:THR:HB	1:S1:180:ASP:HA	1.92	0.51
2:S2:102:A:H4'	2:S2:104:A:C8	2.45	0.51
6:SG:52:ILE:HG23	6:SG:109:LEU:HD11	1.93	0.51
7:SH:61:ILE:HG23	7:SH:93:VAL:HG23	1.91	0.51
8:SI:161:LEU:O	8:SI:164:GLU:HG3	2.11	0.51
1:S1:117:TRP:CE2	1:S1:152:LYS:HE2	2.45	0.51
15:SX:119:ARG:HD2	23:SX:201:A1C0T:C31	2.40	0.51
3:SA:81:ASN:HA	3:SA:84:GLN:HG3	1.93	0.51
2:S2:1101:U:H2'	2:S2:1102:G:C8	2.46	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S2:944:A:H5”	12:SO:134:PRO:HB3	1.92	0.50
5:SE:73:ASP:HA	5:SE:164:LEU:HD13	1.93	0.50
11:SN:76:LYS:HD2	11:SN:81:ALA:HB3	1.92	0.50
5:SE:188:ASN:HD22	5:SE:191:ARG:HH11	1.58	0.50
16:SY:27:VAL:HB	16:SY:69:THR:HG23	1.92	0.50
2:S2:67:C:N4	6:SG:164:LYS:H	2.03	0.50
6:SG:5:ILE:HD13	6:SG:45:TRP:CH2	2.47	0.50
1:S1:117:TRP:HB3	1:S1:153:THR:HG22	1.92	0.50
2:S2:495:U:H2’	2:S2:496:C:O4’	2.11	0.50
12:SO:129:ILE:O	17:Sa:65:PRO:HG3	2.11	0.50
15:SX:123:VAL:HG12	15:SX:124:LYS:HG3	1.94	0.50
2:S2:51:U:H2’	2:S2:52:G:C8	2.47	0.50
10:SL:91:ASP:HB3	10:SL:104:LYS:HZ1	1.72	0.50
4:SC:94:ILE:HG21	4:SC:162:ILE:HD12	1.93	0.50
7:SH:19:PHE:HE2	7:SH:60:ILE:HD12	1.77	0.50
2:S2:1785:C:H2’	2:S2:1786:U:O4’	2.12	0.50
2:S2:1863:A:H1’	17:Sa:79:ILE:HD13	1.94	0.50
4:SC:183:LYS:HA	4:SC:195:LEU:O	2.10	0.50
1:S1:123:ALA:HB2	1:S1:165:ARG:HG3	1.93	0.49
2:S2:1845:A:H2’	2:S2:1846:G:C8	2.48	0.49
2:S2:494:C:N4	2:S2:509:OMG:HN22	2.09	0.49
5:SE:212:ASP:OD2	5:SE:216:ASN:HB2	2.12	0.49
15:SX:128:VAL:HG13	15:SX:138:LYS:HD2	1.93	0.49
7:SH:194:LEU:HD23	18:Sb:27:SER:HB2	1.93	0.49
14:SW:26:LEU:HB2	18:Sb:7:LEU:HD23	1.94	0.49
2:S2:562:U:H2’	2:S2:563:G:C8	2.47	0.49
3:SA:76:VAL:HG23	3:SA:87:VAL:CG1	2.42	0.49
7:SH:117:PRO:HG2	7:SH:120:ARG:HD3	1.95	0.49
7:SH:157:HIS:HB3	7:SH:190:PRO:HG3	1.94	0.49
18:Sb:62:VAL:HG11	18:Sb:65:GLN:HE21	1.77	0.49
2:S2:551:U:H3’	2:S2:552:G:C8	2.48	0.48
2:S2:1112:U:H2’	2:S2:1113:A:C8	2.48	0.48
2:S2:1714:U:H2’	2:S2:1715:A:C8	2.48	0.48
2:S2:44:U:O2	2:S2:482:G:H1’	2.13	0.48
8:SI:145:ILE:HD12	8:SI:145:ILE:H	1.78	0.48
12:SO:59:GLY:HA2	12:SO:68:GLU:HG2	1.95	0.48
1:S1:75:GLN:HB2	1:S1:78:GLU:HB2	1.95	0.48
2:S2:461:U:H2’	2:S2:462:OMC:H6	1.76	0.48
2:S2:1113:A:H2’	2:S2:1114:U:C6	2.48	0.48
2:S2:1164:G:O2’	2:S2:1165:G:H5’	2.13	0.48
4:SC:167:ARG:O	13:SV:1:MET:HE1	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S2:1201:U:H2'	2:S2:1202:U:C6	2.49	0.48
7:SH:83:LEU:HD12	7:SH:87:PHE:HE2	1.78	0.48
18:Sb:62:VAL:HG11	18:Sb:65:GLN:NE2	2.29	0.48
3:SA:141:ASN:HD21	4:SC:87:PRO:HD3	1.79	0.48
5:SE:175:PHE:HE2	5:SE:198:ARG:HD2	1.78	0.48
10:SL:37:TYR:CE1	10:SL:51:ILE:HG23	2.48	0.48
11:SN:87:ASP:OD1	11:SN:88:LEU:N	2.46	0.48
18:Sb:74:THR:HG22	18:Sb:75:GLU:N	2.28	0.48
2:S2:849:A:H2'	2:S2:850:C:H6	1.77	0.48
2:S2:1119:A:OP2	2:S2:1119:A:H8	1.96	0.48
3:SA:53:ARG:HD3	13:SV:83:PHE:CE2	2.49	0.48
2:S2:320:G:H2'	2:S2:321:C:C6	2.48	0.48
2:S2:380:G:P	8:SI:56:ARG:HH22	2.37	0.48
3:SA:61:ALA:HB1	3:SA:145:ILE:HD13	1.96	0.48
7:SH:147:LYS:HA	14:SW:49:GLU:HG2	1.96	0.48
2:S2:556:U:H2'	2:S2:557:U:C6	2.48	0.48
5:SE:151:ASP:HB3	5:SE:154:ILE:HG13	1.94	0.48
7:SH:17:ASP:HB2	7:SH:20:GLU:HG2	1.96	0.48
2:S2:195:C:H2'	2:S2:196:C:C6	2.49	0.48
2:S2:329:G:H2'	2:S2:330:G:C8	2.48	0.48
2:S2:1017:U:H5'	11:SN:55:ARG:HD3	1.95	0.48
2:S2:1204:A:H2'	2:S2:1205:C:C6	2.49	0.47
6:SG:116:LYS:HE3	6:SG:125:THR:HG21	1.95	0.47
10:SL:120:VAL:HG22	10:SL:145:VAL:HG11	1.96	0.47
2:S2:940:U:H3	2:S2:1002:U:H3	1.62	0.47
5:SE:44:LEU:HD21	5:SE:72:ILE:HD11	1.96	0.47
9:SJ:3:VAL:HG11	9:SJ:5:ARG:CZ	2.44	0.47
2:S2:115:U:H2'	2:S2:116:OMU:C6	2.44	0.47
2:S2:329:G:H2'	2:S2:330:G:H8	1.77	0.47
2:S2:379:C:H5'	8:SI:33:ALA:HA	1.95	0.47
2:S2:1010:G:H2'	2:S2:1011:A:C8	2.49	0.47
6:SG:3:LEU:HD23	6:SG:109:LEU:HB3	1.96	0.47
8:SI:70:GLU:HB3	8:SI:112:TRP:CH2	2.50	0.47
9:SJ:127:ARG:HD3	19:Se:105:ARG:HD3	1.95	0.47
13:SV:37:ALA:HB1	13:SV:46:PHE:CD1	2.49	0.47
2:S2:1073:U:H2'	2:S2:1074:C:H6	1.79	0.47
5:SE:37:LYS:HB2	5:SE:40:GLU:HG2	1.95	0.47
14:SW:32:LYS:O	14:SW:36:ARG:HG2	2.14	0.47
18:Sb:42:LYS:HG2	18:Sb:43:ILE:H	1.78	0.47
2:S2:74:G:H1'	2:S2:75:G:C5	2.49	0.47
2:S2:637:U:OP2	19:Se:98:LYS:HE2	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S2:1025:U:H2'	2:S2:1026:C:O4'	2.14	0.47
2:S2:1705:C:H4'	20:So:1:MET:N	2.28	0.47
8:SI:76:THR:HG21	8:SI:104:ILE:HD12	1.96	0.47
2:S2:945:U:H2'	2:S2:946:U:C6	2.49	0.47
2:S2:1203:G:H2'	2:S2:1204:A:C8	2.49	0.47
8:SI:8:TRP:O	8:SI:18:ARG:HD2	2.14	0.47
8:SI:38:ILE:HA	8:SI:60:LEU:O	2.15	0.47
16:SY:102:THR:HB	16:SY:106:GLN:OE1	2.15	0.47
2:S2:5:U:H2'	2:S2:6:G:C8	2.49	0.47
2:S2:558:G:H2'	2:S2:559:G:C8	2.49	0.47
2:S2:572:PSU:H5"	16:SY:60:PHE:O	2.15	0.47
2:S2:674:C:H2'	2:S2:675:U:C6	2.50	0.47
7:SH:58:LYS:HB3	7:SH:90:LYS:HG2	1.97	0.47
7:SH:63:PHE:HA	7:SH:95:ILE:O	2.15	0.47
7:SH:66:VAL:HG22	7:SH:96:ALA:HB1	1.97	0.47
19:Se:111:GLN:HG2	19:Se:114:ARG:HH22	1.80	0.47
3:SA:33:GLN:HB3	3:SA:154:LEU:HD12	1.96	0.47
12:SO:34:PHE:HB3	12:SO:41:PHE:HB2	1.96	0.47
16:SY:5:VAL:HB	16:SY:43:LYS:NZ	2.30	0.47
2:S2:562:U:H4'	9:SJ:132:GLN:HB3	1.97	0.47
7:SH:32:MET:SD	7:SH:33:ASN:HB2	2.55	0.47
9:SJ:111:GLN:NE2	9:SJ:127:ARG:HB2	2.30	0.47
2:S2:928:G:H2'	2:S2:929:G:C8	2.50	0.47
13:SV:56:CYS:SG	13:SV:59:ILE:HG12	2.55	0.47
2:S2:829:C:OP1	5:SE:21:ASP:HB2	2.15	0.46
16:SY:12:PHE:HZ	16:SY:21:LYS:HD3	1.80	0.46
5:SE:101:LEU:HD13	5:SE:101:LEU:HA	1.77	0.46
15:SX:68:LYS:HB3	15:SX:91:LEU:HD22	1.96	0.46
3:SA:5:LEU:O	3:SA:9:GLN:HG2	2.15	0.46
17:Sa:44:ILE:HD12	17:Sa:65:PRO:HG2	1.98	0.46
2:S2:179:C:H2'	2:S2:180:G:O4'	2.15	0.46
8:SI:143:LYS:O	8:SI:147:LYS:HG3	2.15	0.46
2:S2:153:G:H21	6:SG:13:GLN:NE2	2.12	0.46
2:S2:906:U:H2'	2:S2:907:G:C8	2.50	0.46
6:SG:149:LYS:HG3	6:SG:150:GLU:N	2.30	0.46
2:S2:65:C:C6	6:SG:174:PRO:HB3	2.51	0.46
3:SA:111:GLN:OE1	4:SC:89:LYS:HD3	2.16	0.46
9:SJ:33:GLY:HA3	19:Se:112:TYR:CG	2.51	0.46
4:SC:125:LYS:HG2	4:SC:143:CYS:HB2	1.97	0.46
5:SE:7:LYS:HE3	25:SE:404:HOH:O	2.15	0.46
6:SG:38:ALA:HB1	6:SG:41:LEU:HD22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:SX:46:HIS:HB3	15:SX:101:LEU:HD11	1.98	0.46
12:SO:101:GLY:HA3	12:SO:134:PRO:HD2	1.97	0.46
12:SO:113:GLN:HG2	25:SO:306:HOH:O	2.16	0.46
18:Sb:34:ASP:OD2	18:Sb:82:LYS:HD2	2.16	0.46
2:S2:416:U:H2'	2:S2:417:C:O4'	2.16	0.46
2:S2:29:G:H4'	15:SX:129:SER:HB2	1.98	0.45
2:S2:1737:G:H2'	2:S2:1738:C:H6	1.81	0.45
7:SH:146:VAL:HG12	14:SW:42:MET:HE1	1.98	0.45
2:S2:323:C:H2'	2:S2:327:G:H22	1.81	0.45
4:SC:196:ILE:HB	4:SC:223:TYR:HB2	1.97	0.45
18:Sb:74:THR:HB	18:Sb:77:CYS:SG	2.56	0.45
2:S2:29:G:H2'	2:S2:30:C:H6	1.81	0.45
5:SE:127:ARG:HG3	5:SE:142:HIS:HA	1.99	0.45
13:SV:8:PHE:CD1	13:SV:8:PHE:N	2.84	0.45
2:S2:321:C:H2'	2:S2:322:C:C6	2.52	0.45
2:S2:1801:A:H2'	2:S2:1802:C:C6	2.52	0.45
6:SG:57:ASP:OD2	6:SG:72:ARG:HD3	2.17	0.45
2:S2:681:PSU:H4'	15:SX:9:THR:HG22	1.98	0.45
2:S2:929:G:H2'	2:S2:930:C:O4'	2.17	0.45
2:S2:1831:A:H1'	2:S2:1852:C:H5'	1.99	0.45
2:S2:1850:MA6:H92	2:S2:1851:MA6:N6	2.31	0.45
8:SI:83:TYR:HB3	8:SI:101:ILE:HB	1.99	0.45
2:S2:17:C:H2'	2:S2:18:C:C6	2.52	0.45
2:S2:656:G:N2	2:S2:663:C:H5"	2.32	0.45
2:S2:79:A:H2'	2:S2:80:G:O4'	2.15	0.45
13:SV:30:ALA:O	13:SV:60:ARG:HD3	2.17	0.45
17:Sa:46:GLU:O	17:Sa:50:VAL:HG23	2.16	0.45
2:S2:35:C:H2'	2:S2:36:PSU:C6	2.52	0.45
2:S2:1828:C:H2'	2:S2:1829:G:O4'	2.16	0.45
6:SG:31:ARG:HA	6:SG:101:ILE:HA	1.97	0.45
13:SV:74:LYS:HG2	13:SV:79:VAL:HB	1.97	0.45
6:SG:10:THR:HG22	6:SG:128:THR:HG22	1.99	0.44
2:S2:958:G:H2'	2:S2:959:G:C8	2.53	0.44
5:SE:43:PRO:HG2	5:SE:46:ILE:HG12	2.00	0.44
7:SH:51:ILE:HD13	7:SH:61:ILE:HD11	2.00	0.44
9:SJ:47:LYS:HG3	9:SJ:102:ILE:HD12	1.99	0.44
11:SN:46:THR:O	11:SN:50:ILE:HG13	2.17	0.44
15:SX:53:GLU:HA	15:SX:96:GLU:HG2	2.00	0.44
2:S2:16:G:H2'	2:S2:17:C:C6	2.52	0.44
2:S2:906:U:O2'	2:S2:907:G:H5'	2.18	0.44
2:S2:1786:U:H2'	2:S2:1787:G:C8	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S2:67:C:C4	6:SG:164:LYS:HB2	2.53	0.44
2:S2:909:G:H2'	2:S2:910:G:C8	2.52	0.44
5:SE:173:ILE:HG22	5:SE:179:ASN:ND2	2.33	0.44
7:SH:19:PHE:CE2	7:SH:60:ILE:HD12	2.53	0.44
13:SV:1:MET:HE3	13:SV:9:VAL:HG23	1.99	0.44
15:SX:52:LEU:HD11	15:SX:73:GLN:HB2	1.99	0.44
2:S2:563:G:O2'	2:S2:564:A:H5"	2.18	0.44
2:S2:806:U:H3	2:S2:857:U:H3	1.65	0.44
2:S2:1089:G:H2'	2:S2:1090:C:C6	2.52	0.44
2:S2:1839:U:H2'	2:S2:1840:U:C6	2.53	0.44
2:S2:35:C:H2'	2:S2:36:PSU:H6	1.82	0.44
2:S2:85:A:H2'	2:S2:86:C:H6	1.83	0.44
7:SH:160:LYS:HD2	7:SH:191:GLU:HA	2.00	0.44
7:SH:167:GLU:O	7:SH:170:VAL:HG22	2.17	0.44
5:SE:124:CYS:HB3	5:SE:141:THR:HB	1.98	0.44
25:SI:318:HOH:O	10:SL:8:ARG:HD3	2.17	0.44
1:S1:8:ARG:HH22	2:S2:968:U:H5"	1.83	0.43
1:S1:124:HIS:HA	1:S1:137:LEU:O	2.18	0.43
2:S2:420:G:H1'	2:S2:661:U:O2	2.18	0.43
2:S2:860:G:H21	14:SW:107:SER:HB3	1.83	0.43
2:S2:969:U:H5"	2:S2:971:G:O4'	2.19	0.43
4:SC:130:ILE:HG22	4:SC:158:ALA:HB1	2.00	0.43
4:SC:275:LYS:HB3	4:SC:275:LYS:HE3	1.77	0.43
5:SE:86:PHE:CE1	5:SE:102:ILE:HG22	2.53	0.43
7:SH:35:ASP:HB3	7:SH:78:ARG:NH2	2.31	0.43
11:SN:76:LYS:HB3	11:SN:76:LYS:HE3	1.82	0.43
16:SY:27:VAL:HB	16:SY:69:THR:CG2	2.47	0.43
3:SA:137:ALA:HB1	3:SA:142:LEU:HB3	2.00	0.43
8:SI:103:LEU:HD22	8:SI:170:LYS:HB3	1.99	0.43
9:SJ:120:ALA:HB2	9:SJ:129:LEU:HD12	2.00	0.43
7:SH:48:ALA:HA	7:SH:61:ILE:O	2.17	0.43
16:SY:63:HIS:HE1	16:SY:68:LYS:HE3	1.82	0.43
2:S2:616:A:N3	19:Se:86:VAL:HG21	2.33	0.43
7:SH:25:GLN:O	7:SH:29:GLU:HG3	2.19	0.43
7:SH:94:PHE:C	7:SH:95:ILE:HD12	2.44	0.43
12:SO:39:ASP:N	12:SO:69:SER:HB3	2.34	0.43
16:SY:112:ASN:HA	16:SY:115:LYS:HE2	2.01	0.43
1:S1:168:MET:HG2	1:S1:197:ILE:HG21	2.01	0.43
2:S2:359:U:OP2	15:SX:18:ARG:HD2	2.18	0.43
2:S2:1144:A:H2'	2:S2:1145:A:C8	2.54	0.43
2:S2:159:A2M:HM'3	2:S2:159:A2M:H1'	1.61	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S2:1822:A:H2'	2:S2:1823:A:C8	2.53	0.43
6:SG:135:PRO:HG2	6:SG:141:ILE:HG12	2.00	0.43
6:SG:147:LEU:HD11	6:SG:156:TYR:CE2	2.54	0.43
13:SV:32:ILE:HG12	13:SV:60:ARG:HD2	2.01	0.43
2:S2:53:C:P	16:SY:112:ASN:HD22	2.41	0.43
2:S2:334:C:H2'	2:S2:335:G:O4'	2.19	0.43
2:S2:287:U:O2	5:SE:131:VAL:HG11	2.18	0.43
2:S2:1737:G:H2'	2:S2:1738:C:C6	2.54	0.43
2:S2:1808:U:H2'	2:S2:1809:A:H8	1.83	0.43
6:SG:7:PHE:CE2	6:SG:9:ALA:HB3	2.53	0.43
9:SJ:78:LEU:HD13	9:SJ:92:MET:O	2.19	0.43
15:SX:105:PHE:HB2	15:SX:119:ARG:C	2.44	0.43
17:Sa:21:ILE:HD13	17:Sa:72:HIS:CB	2.49	0.43
2:S2:1706:G:H5'	20:So:1:MET:HB2	2.00	0.43
5:SE:102:ILE:HD11	5:SE:112:HIS:ND1	2.34	0.43
7:SH:127:ASP:O	7:SH:131:GLU:HG2	2.19	0.43
9:SJ:31:LEU:HD21	9:SJ:103:GLU:OE2	2.18	0.43
1:S1:7:LYS:HB2	1:S1:7:LYS:HE2	1.81	0.43
2:S2:551:U:H3'	2:S2:552:G:H8	1.84	0.43
2:S2:948:C:H2'	2:S2:949:G:H8	1.84	0.43
2:S2:1786:U:H2'	2:S2:1787:G:H8	1.83	0.43
2:S2:77:A:H2'	2:S2:78:C:C6	2.54	0.42
5:SE:188:ASN:HB3	5:SE:191:ARG:HD3	2.00	0.42
7:SH:9:VAL:CG2	7:SH:28:LEU:HD13	2.49	0.42
1:S1:134:LEU:HG	1:S1:218:LEU:HD12	2.00	0.42
2:S2:495:U:H4'	5:SE:24:THR:HG22	2.01	0.42
2:S2:1089:G:H2'	2:S2:1090:C:H6	1.84	0.42
2:S2:634:A:H2'	2:S2:635:G:C8	2.54	0.42
3:SA:125:THR:HA	3:SA:147:LEU:HD12	2.01	0.42
5:SE:101:LEU:HD12	5:SE:109:PHE:HB3	2.02	0.42
12:SO:59:GLY:CA	12:SO:68:GLU:HG2	2.49	0.42
13:SV:59:ILE:HD13	13:SV:62:MET:HE3	2.02	0.42
13:SV:68:SER:O	13:SV:72:LEU:HG	2.20	0.42
2:S2:1073:U:H2'	2:S2:1074:C:C6	2.55	0.42
6:SG:102:VAL:HG13	6:SG:106:LEU:HD12	2.01	0.42
14:SW:8:ALA:HA	14:SW:74:VAL:HG11	2.01	0.42
1:S1:217:MET:HE2	1:S1:217:MET:HB2	1.85	0.42
2:S2:555:A:H2'	2:S2:555:A:N3	2.33	0.42
2:S2:804:U:H2'	2:S2:805:U:H6	1.82	0.42
5:SE:31:PRO:HA	5:SE:81:THR:HB	2.00	0.42
8:SI:53:LYS:HA	8:SI:53:LYS:HD3	1.88	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:SW:77:PRO:HB2	15:SX:7:LEU:HG	2.00	0.42
15:SX:109:GLY:O	15:SX:119:ARG:HD3	2.20	0.42
2:S2:85:A:H2'	2:S2:86:C:C6	2.55	0.42
2:S2:344:U:H2'	2:S2:345:U:H6	1.85	0.42
2:S2:1112:U:H2'	2:S2:1113:A:H8	1.84	0.42
5:SE:173:ILE:HG12	5:SE:235:TRP:CH2	2.55	0.42
7:SH:49:LYS:HB3	7:SH:49:LYS:HE2	1.89	0.42
7:SH:83:LEU:HD12	7:SH:87:PHE:CE2	2.55	0.42
11:SN:40:LEU:HD12	11:SN:50:ILE:HG23	2.02	0.42
2:S2:323:C:H4'	2:S2:324:C:H5	1.85	0.42
2:S2:468:A2M:H2'	2:S2:469:A:O4'	2.20	0.42
2:S2:1097:G:H4'	3:SA:32:PHE:CD1	2.54	0.42
5:SE:97:GLU:CD	5:SE:113:ARG:HH21	2.28	0.42
9:SJ:53:ILE:HD13	9:SJ:81:LEU:HD21	2.02	0.42
11:SN:33:VAL:HG21	11:SN:66:VAL:HG11	2.01	0.42
18:Sb:35:VAL:HG11	18:Sb:63:LEU:HG	2.01	0.42
2:S2:1148:A:H4'	2:S2:1149:A:O4'	2.20	0.42
2:S2:1181:A:H2'	2:S2:1182:A:C8	2.54	0.42
8:SI:202:ILE:HG22	8:SI:206:LYS:HE3	2.02	0.42
2:S2:1086:G:HO2'	2:S2:1088:U:H6	1.67	0.42
7:SH:145:ARG:HD3	14:SW:51:GLU:OE1	2.20	0.42
9:SJ:58:ARG:O	9:SJ:62:THR:HG23	2.21	0.41
6:SG:201:LYS:HB3	6:SG:201:LYS:HE3	1.74	0.41
14:SW:12:LYS:HB2	14:SW:12:LYS:HE2	1.80	0.41
2:S2:19:A:H2'	2:S2:20:G:O4'	2.20	0.41
2:S2:1730:U:H2'	2:S2:1731:A:O4'	2.21	0.41
4:SC:69:LEU:HG	4:SC:273:LEU:HD21	2.01	0.41
10:SL:124:ASP:HB2	10:SL:146:THR:O	2.20	0.41
2:S2:158:A:H2'	2:S2:159:A2M:O4'	2.20	0.41
2:S2:573:U:O2	2:S2:576:A2M:H8	2.20	0.41
2:S2:1852:C:OP2	20:So:1:MET:HG3	2.20	0.41
17:Sa:88:SER:O	17:Sa:92:ARG:HG3	2.20	0.41
2:S2:479:C:H2'	2:S2:480:G:O4'	2.20	0.41
7:SH:36:LEU:HD11	7:SH:78:ARG:HD3	2.03	0.41
8:SI:114:GLU:HG2	8:SI:119:LEU:O	2.20	0.41
15:SX:130:LEU:HD12	15:SX:130:LEU:HA	1.89	0.41
2:S2:463:C:H2'	2:S2:465:A:N7	2.35	0.41
5:SE:89:VAL:HG13	5:SE:114:ILE:HD11	2.03	0.41
9:SJ:131:ARG:HD2	9:SJ:131:ARG:HA	1.88	0.41
2:S2:875:A:H2'	2:S2:876:C:C6	2.55	0.41
6:SG:31:ARG:H	6:SG:31:ARG:HG2	1.75	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:S2:563:G:O2'	2:S2:564:A:H8	2.04	0.41
2:S2:1012:A:H2'	2:S2:1013:U:O4'	2.21	0.41
2:S2:1061:U:O2	2:S2:1848:U:H4'	2.20	0.41
2:S2:1728:U:H2'	2:S2:1729:U:O4'	2.20	0.41
7:SH:70:LYS:O	7:SH:74:LYS:HG3	2.21	0.41
7:SH:192:PHE:CG	18:Sb:12:PRO:HB3	2.55	0.41
2:S2:71:G:C2	2:S2:79:A:C8	3.09	0.41
2:S2:145:G:H2'	2:S2:146:G:C8	2.56	0.41
2:S2:418:A:H2'	2:S2:419:G:C8	2.56	0.41
2:S2:595:U:H2'	2:S2:596:U:C6	2.56	0.41
3:SA:200:ASP:HA	3:SA:203:PHE:CD2	2.56	0.41
16:SY:110:ARG:O	16:SY:114:MET:HG3	2.21	0.41
2:S2:113:G:N2	2:S2:293:C:H5'	2.36	0.41
2:S2:1808:U:H2'	2:S2:1809:A:C8	2.56	0.41
7:SH:21:SER:O	7:SH:25:GLN:HG3	2.21	0.41
11:SN:78:LYS:HG3	11:SN:80:LEU:HG	2.03	0.41
2:S2:1190:A:H2'	2:S2:1191:C:O4'	2.20	0.40
4:SC:158:ALA:O	4:SC:162:ILE:HG13	2.21	0.40
4:SC:211:LYS:O	4:SC:215:MET:HG3	2.21	0.40
8:SI:43:ILE:HG12	8:SI:57:ALA:HA	2.02	0.40
8:SI:57:ALA:HB2	8:SI:183:GLY:HA2	2.03	0.40
1:S1:179:ASN:HD22	1:S1:183:GLU:HB3	1.86	0.40
2:S2:582:U:H1'	16:SY:33:ALA:HB2	2.03	0.40
4:SC:125:LYS:HB3	4:SC:125:LYS:HE2	1.91	0.40
1:S1:231:LEU:HD23	1:S1:231:LEU:HA	1.95	0.40
2:S2:323:C:H4'	2:S2:324:C:C5	2.56	0.40
2:S2:875:A:H2'	2:S2:876:C:H6	1.87	0.40
3:SA:132:GLN:HB3	3:SA:133:PRO:HD3	2.04	0.40
11:SN:87:ASP:OD1	11:SN:125:LEU:HD21	2.22	0.40
25:S2:2380:HOH:O	9:SJ:2:PRO:HD2	2.21	0.40
3:SA:80:ARG:HH21	3:SA:126:ASP:HB2	1.87	0.40
7:SH:126:HIS:HD2	7:SH:183:LYS:NZ	2.19	0.40
8:SI:65:PHE:HB2	8:SI:109:TYR:OH	2.22	0.40
2:S2:384:U:H5'	10:SL:133:PRO:O	2.22	0.40
2:S2:484:A2M:HM'2	2:S2:485:A:C4	2.56	0.40
7:SH:29:GLU:O	7:SH:32:MET:HG3	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	S1	217/264 (82%)	212 (98%)	5 (2%)	0	100	100
3	SA	218/295 (74%)	213 (98%)	5 (2%)	0	100	100
4	SC	217/293 (74%)	213 (98%)	4 (2%)	0	100	100
5	SE	260/263 (99%)	255 (98%)	5 (2%)	0	100	100
6	SG	227/249 (91%)	220 (97%)	7 (3%)	0	100	100
7	SH	185/194 (95%)	180 (97%)	5 (3%)	0	100	100
8	SI	205/208 (99%)	202 (98%)	3 (2%)	0	100	100
9	SJ	177/194 (91%)	172 (97%)	5 (3%)	0	100	100
10	SL	139/158 (88%)	135 (97%)	4 (3%)	0	100	100
11	SN	148/151 (98%)	146 (99%)	2 (1%)	0	100	100
12	SO	123/151 (82%)	119 (97%)	4 (3%)	0	100	100
13	SV	81/83 (98%)	80 (99%)	1 (1%)	0	100	100
14	SW	127/130 (98%)	125 (98%)	2 (2%)	0	100	100
15	SX	137/143 (96%)	135 (98%)	2 (2%)	0	100	100
16	SY	120/132 (91%)	119 (99%)	1 (1%)	0	100	100
17	Sa	97/115 (84%)	96 (99%)	1 (1%)	0	100	100
18	Sb	81/84 (96%)	78 (96%)	3 (4%)	0	100	100
19	Se	53/133 (40%)	53 (100%)	0	0	100	100
20	So	23/25 (92%)	23 (100%)	0	0	100	100
All	All	2835/3265 (87%)	2776 (98%)	59 (2%)	0	100	100

There are no Ramachandran outliers to report.

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
1	S1	200/231 (87%)	198 (99%)	2 (1%)	68 81
3	SA	182/242 (75%)	179 (98%)	3 (2%)	55 71
4	SC	185/225 (82%)	184 (100%)	1 (0%)	81 90
5	SE	224/225 (100%)	222 (99%)	2 (1%)	70 84
6	SG	199/218 (91%)	198 (100%)	1 (0%)	81 90
7	SH	168/174 (97%)	166 (99%)	2 (1%)	63 78
8	SI	179/180 (99%)	178 (99%)	1 (1%)	78 89
9	SJ	160/168 (95%)	160 (100%)	0	100 100
10	SL	130/142 (92%)	129 (99%)	1 (1%)	73 85
11	SN	130/131 (99%)	130 (100%)	0	100 100
12	SO	99/118 (84%)	98 (99%)	1 (1%)	68 81
13	SV	67/67 (100%)	67 (100%)	0	100 100
14	SW	112/113 (99%)	110 (98%)	2 (2%)	51 68
15	SX	111/114 (97%)	109 (98%)	2 (2%)	51 68
16	SY	107/114 (94%)	104 (97%)	3 (3%)	38 52
17	Sa	86/98 (88%)	85 (99%)	1 (1%)	63 78
18	Sb	75/76 (99%)	74 (99%)	1 (1%)	61 76
19	Se	45/104 (43%)	45 (100%)	0	100 100
20	So	24/24 (100%)	24 (100%)	0	100 100
All	All	2483/2764 (90%)	2460 (99%)	23 (1%)	68 84

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	S1	22	VAL
1	S1	170	GLU
3	SA	2	SER
3	SA	13	GLU

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Mol	Chain	Res	Type
3	SA	112	ILE
4	SC	185	THR
5	SE	131	VAL
5	SE	236	ILE
6	SG	127	THR
7	SH	169	LYS
7	SH	181	THR
8	SI	129	LEU
10	SL	66	VAL
12	SO	81	VAL
14	SW	25	VAL
14	SW	80	ASP
15	SX	53	GLU
15	SX	105	PHE
16	SY	6	THR
16	SY	117	VAL
16	SY	125	VAL
17	Sa	69	VAL
18	Sb	63	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (41) such sidechains are listed below:

Mol	Chain	Res	Type
1	S1	101	HIS
1	S1	147	ASN
1	S1	158	HIS
1	S1	179	ASN
1	S1	202	GLN
3	SA	9	GLN
4	SC	115	GLN
4	SC	136	HIS
4	SC	178	HIS
4	SC	235	ASN
4	SC	267	GLN
5	SE	188	ASN
5	SE	201	HIS
5	SE	209	HIS
6	SG	13	GLN
6	SG	225	GLN
7	SH	25	GLN
7	SH	126	HIS
7	SH	157	HIS

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Mol	Chain	Res	Type
7	SH	162	GLN
7	SH	186	ASN
7	SH	193	GLN
8	SI	35	ASN
8	SI	52	ASN
8	SI	168	GLN
9	SJ	75	ASN
9	SJ	154	GLN
9	SJ	156	HIS
10	SL	94	HIS
11	SN	105	ASN
13	SV	21	ASN
13	SV	35	ASN
14	SW	82	GLN
14	SW	90	GLN
15	SX	61	GLN
16	SY	63	HIS
18	Sb	9	HIS
18	Sb	19	HIS
18	Sb	65	GLN
19	Se	118	ASN
20	So	22	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	S2	1133/1141 (99%)	179 (15%)	3 (0%)

All (179) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	S2	2	A
2	S2	4	C
2	S2	17	C
2	S2	33	G
2	S2	44	U
2	S2	45	A
2	S2	46	A
2	S2	56	G
2	S2	65	C
2	S2	67	C

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Mol	Chain	Res	Type
2	S2	68	A
2	S2	73	C
2	S2	74	G
2	S2	79	A
2	S2	80	G
2	S2	103	A
2	S2	113	G
2	S2	115	U
2	S2	122	G
2	S2	126	G
2	S2	143	U
2	S2	150	A
2	S2	155	G
2	S2	168	C
2	S2	178	C
2	S2	183	G
2	S2	184	G
2	S2	196	C
2	S2	198	U
2	S2	199	C
2	S2	200	G
2	S2	202	G
2	S2	204	G
2	S2	205	G
2	S2	211	G
2	S2	212	C
2	S2	293	C
2	S2	302	A
2	S2	307	G
2	S2	308	G
2	S2	309	G
2	S2	311	C
2	S2	318	A
2	S2	319	C
2	S2	322	C
2	S2	323	C
2	S2	324	C
2	S2	325	C
2	S2	326	C
2	S2	328	U
2	S2	329	G
2	S2	333	G

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Mol	Chain	Res	Type
2	S2	335	G
2	S2	340	C
2	S2	360	A
2	S2	362	C
2	S2	364	A
2	S2	369	C
2	S2	370	G
2	S2	382	C
2	S2	385	G
2	S2	386	C
2	S2	409	C
2	S2	438	G
2	S2	448	A
2	S2	449	A
2	S2	450	C
2	S2	452	G
2	S2	464	A
2	S2	466	G
2	S2	470	G
2	S2	472	C
2	S2	474	G
2	S2	482	G
2	S2	487	U
2	S2	488	U
2	S2	492	C
2	S2	493	A
2	S2	512	A2M
2	S2	516	A
2	S2	525	A
2	S2	550	C
2	S2	553	U
2	S2	554	A
2	S2	555	A
2	S2	556	U
2	S2	559	G
2	S2	563	G
2	S2	576	A2M
2	S2	587	A
2	S2	589	G
2	S2	591	U
2	S2	592	C
2	S2	594	A

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Mol	Chain	Res	Type
2	S2	606	G
2	S2	607	U
2	S2	608	C
2	S2	614	C
2	S2	617	G
2	S2	626	G
2	S2	629	A
2	S2	632	C
2	S2	643	A
2	S2	655	A
2	S2	663	C
2	S2	664	A
2	S2	668	A2M
2	S2	669	A
2	S2	671	A
2	S2	672	A
2	S2	673	G
2	S2	688	U
2	S2	690	G
2	S2	808	A
2	S2	821	G
2	S2	822	PSU
2	S2	830	A
2	S2	835	C
2	S2	836	G
2	S2	837	A
2	S2	839	C
2	S2	840	C
2	S2	841	G
2	S2	845	G
2	S2	847	A
2	S2	869	A
2	S2	870	A
2	S2	872	A
2	S2	875	A
2	S2	907	G
2	S2	913	A
2	S2	920	A
2	S2	922	A
2	S2	933	G
2	S2	934	G
2	S2	943	U

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Mol	Chain	Res	Type
2	S2	955	A
2	S2	956	G
2	S2	970	G
2	S2	990	A
2	S2	992	A
2	S2	1001	A
2	S2	1017	U
2	S2	1023	A
2	S2	1061	U
2	S2	1062	A
2	S2	1083	A
2	S2	1085	C
2	S2	1100	A
2	S2	1109	C
2	S2	1116	C
2	S2	1117	C
2	S2	1118	C
2	S2	1119	A
2	S2	1133	A
2	S2	1151	G
2	S2	1154	U
2	S2	1195	A
2	S2	1203	G
2	S2	1207	G
2	S2	1698	C
2	S2	1721	U
2	S2	1722	G
2	S2	1727	G
2	S2	1744	G
2	S2	1800	A
2	S2	1825	A
2	S2	1829	G
2	S2	1831	A
2	S2	1835	A
2	S2	1838	U
2	S2	1849	G
2	S2	1851	MA6
2	S2	1852	C
2	S2	1861	G
2	S2	1862	G
2	S2	1863	A
2	S2	1864	U

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Mol	Chain	Res	Type
2	S2	1865	C

All (3) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	S2	874	G
2	S2	912	C
2	S2	1115	U

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

67 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	$\#\|Z\| > 2$
2	OMG	S2	683	2	23,26,27	1.18	3 (13%)	32,38,41	2.02	6 (18%)
2	OMC	S2	1710	2	19,22,23	0.79	0	25,31,34	0.94	1 (4%)
2	A2M	S2	468	2	22,25,26	1.26	1 (4%)	30,36,39	1.07	1 (3%)
2	OMU	S2	627	2	19,22,23	1.11	1 (5%)	25,31,34	1.93	5 (20%)
2	PSU	S2	1046	2	18,21,22	1.43	3 (16%)	21,30,33	2.02	4 (19%)
2	OMG	S2	436	2	23,26,27	1.23	3 (13%)	32,38,41	2.01	6 (18%)
2	PSU	S2	1004	2	18,21,22	1.47	3 (16%)	21,30,33	1.92	3 (14%)
2	6MZ	S2	1832	22,21,2	22,25,26	1.51	4 (18%)	29,36,39	2.21	9 (31%)
2	A2M	S2	484	2	22,25,26	1.31	3 (13%)	30,36,39	0.91	1 (3%)
2	OMU	S2	172	2	19,22,23	1.22	2 (10%)	25,31,34	1.88	5 (20%)
2	PSU	S2	1045	2	18,21,22	1.36	4 (22%)	21,30,33	2.08	4 (19%)
2	MA6	S2	1850	2	23,26,27	1.49	4 (17%)	33,38,41	2.32	13 (39%)
2	PSU	S2	609	2	18,21,22	1.42	3 (16%)	21,30,33	2.01	3 (14%)
2	PSU	S2	105	2	18,21,22	1.33	3 (16%)	21,30,33	2.08	4 (19%)
2	PSU	S2	649	2	18,21,22	1.37	3 (16%)	21,30,33	2.04	4 (19%)
2	PSU	S2	119	2	18,21,22	1.42	3 (16%)	21,30,33	2.05	4 (19%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	A2M	S2	27	22,2	22,25,26	1.25	1 (4%)	30,36,39	1.03	2 (6%)
2	PSU	S2	686	2	18,21,22	1.44	3 (16%)	21,30,33	2.04	5 (23%)
2	OMC	S2	517	2	19,22,23	0.78	0	25,31,34	0.88	1 (4%)
2	A2M	S2	159	2	22,25,26	1.35	2 (9%)	30,36,39	0.98	2 (6%)
2	OMC	S2	174	2	19,22,23	0.78	0	25,31,34	0.88	0
2	A2M	S2	512	2	22,25,26	1.35	2 (9%)	30,36,39	1.06	2 (6%)
2	A2M	S2	99	22,2	22,25,26	1.24	2 (9%)	30,36,39	1.01	2 (6%)
2	PSU	S2	681	2	18,21,22	1.43	3 (16%)	21,30,33	2.00	4 (19%)
2	OMU	S2	1804	2	19,22,23	1.24	3 (15%)	25,31,34	1.85	4 (16%)
2	A2M	S2	590	2	22,25,26	1.40	2 (9%)	30,36,39	1.04	3 (10%)
2	OMG	S2	644	2	23,26,27	1.23	4 (17%)	32,38,41	2.00	5 (15%)
2	OMU	S2	428	2	19,22,23	1.27	3 (15%)	25,31,34	1.78	5 (20%)
2	PSU	S2	815	2	18,21,22	1.39	3 (16%)	21,30,33	2.17	4 (19%)
2	PSU	S2	218	2	18,21,22	1.35	3 (16%)	21,30,33	2.12	3 (14%)
2	OMG	S2	867	2	23,26,27	1.18	3 (13%)	32,38,41	1.93	6 (18%)
2	PSU	S2	93	2	18,21,22	1.44	3 (16%)	21,30,33	2.05	4 (19%)
2	PSU	S2	823	2	18,21,22	1.40	3 (16%)	21,30,33	2.00	4 (19%)
2	PSU	S2	572	2	18,21,22	1.42	4 (22%)	21,30,33	1.98	3 (14%)
2	PSU	S2	866	2	18,21,22	1.40	3 (16%)	21,30,33	2.01	4 (19%)
2	OMG	S2	509	22,2	23,26,27	1.20	3 (13%)	32,38,41	2.05	7 (21%)
2	PSU	S2	1081	2	18,21,22	1.38	4 (22%)	21,30,33	2.19	5 (23%)
2	OMU	S2	799	2	19,22,23	1.18	3 (15%)	25,31,34	1.94	5 (20%)
2	PSU	S2	109	2	18,21,22	1.43	2 (11%)	21,30,33	2.01	3 (14%)
2	PSU	S2	814	2	18,21,22	1.39	3 (16%)	21,30,33	2.11	3 (14%)
12	IAS	SO	138	12	6,7,8	1.11	0	3,8,10	2.02	1 (33%)
2	PSU	S2	36	2	18,21,22	1.40	4 (22%)	21,30,33	2.09	4 (19%)
15	HY3	SX	62	15	7,8,9	0.97	0	7,10,12	1.23	1 (14%)
2	OMC	S2	462	2	19,22,23	0.81	0	25,31,34	0.85	1 (4%)
2	4AC	S2	1842	21,2	21,24,25	3.10	10 (47%)	28,34,37	0.90	1 (3%)
2	PSU	S2	801	2	18,21,22	1.43	3 (16%)	21,30,33	2.00	4 (19%)
2	OMC	S2	1703	2	19,22,23	0.76	0	25,31,34	0.81	0
2	A2M	S2	1031	2	22,25,26	1.21	1 (4%)	30,36,39	0.94	1 (3%)
2	OMG	S2	601	2	23,26,27	1.19	3 (13%)	32,38,41	2.01	6 (18%)
2	A2M	S2	576	2	22,25,26	1.23	1 (4%)	30,36,39	1.13	3 (10%)
2	MA6	S2	1851	2	23,26,27	1.48	5 (21%)	33,38,41	2.42	14 (42%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	PSU	S2	651	2	18,21,22	1.35	3 (16%)	21,30,33	2.14	3 (14%)
2	A2M	S2	668	22,2	22,25,26	1.39	2 (9%)	30,36,39	0.94	1 (3%)
2	PSU	S2	1174	21,2	18,21,22	1.42	3 (16%)	21,30,33	2.07	4 (19%)
2	PSU	S2	1692	2	18,21,22	1.41	4 (22%)	21,30,33	2.07	3 (14%)
2	A2M	S2	166	2	22,25,26	1.30	1 (4%)	30,36,39	1.13	3 (10%)
2	PSU	S2	34	2	18,21,22	1.37	3 (16%)	21,30,33	2.08	4 (19%)
2	PSU	S2	966	2	18,21,22	1.40	3 (16%)	21,30,33	2.08	5 (23%)
2	OMU	S2	116	2	19,22,23	1.22	3 (15%)	25,31,34	1.79	5 (20%)
2	PSU	S2	1177	2	18,21,22	1.36	2 (11%)	21,30,33	2.07	3 (14%)
2	PSU	S2	822	2	18,21,22	1.42	3 (16%)	21,30,33	2.09	4 (19%)
2	PSU	S2	1056	2	18,21,22	1.41	3 (16%)	21,30,33	1.94	4 (19%)
2	PSU	S2	918	2	18,21,22	1.44	4 (22%)	21,30,33	2.17	4 (19%)
2	PSU	S2	210	2	18,21,22	1.32	2 (11%)	21,30,33	2.05	4 (19%)
2	OMU	S2	121	2	19,22,23	1.23	3 (15%)	25,31,34	1.64	5 (20%)
2	PSU	S2	406	2	18,21,22	1.37	3 (16%)	21,30,33	2.08	4 (19%)
2	PSU	S2	863	2	18,21,22	1.42	3 (16%)	21,30,33	2.06	4 (19%)

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
2	OMG	S2	683	2	-	2/9/27/28	0/3/3/3
2	OMC	S2	1710	2	-	0/9/27/28	0/2/2/2
2	A2M	S2	468	2	-	0/9/27/28	0/3/3/3
2	OMU	S2	627	2	-	6/9/27/28	0/2/2/2
2	PSU	S2	1046	2	-	0/7/25/26	0/2/2/2
2	OMG	S2	436	2	-	0/9/27/28	0/3/3/3
2	PSU	S2	1004	2	-	0/7/25/26	0/2/2/2
2	6MZ	S2	1832	22,21,2	-	2/9/27/28	0/3/3/3
2	A2M	S2	484	2	-	0/9/27/28	0/3/3/3
2	OMU	S2	172	2	-	0/9/27/28	0/2/2/2
2	PSU	S2	1045	2	-	0/7/25/26	0/2/2/2
2	MA6	S2	1850	2	-	1/11/29/30	0/3/3/3
2	PSU	S2	609	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	105	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	649	2	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PSU	S2	119	2	-	0/7/25/26	0/2/2/2
2	A2M	S2	27	22,2	-	0/9/27/28	0/3/3/3
2	PSU	S2	686	2	-	0/7/25/26	0/2/2/2
2	OMC	S2	517	2	-	1/9/27/28	0/2/2/2
2	A2M	S2	159	2	-	1/9/27/28	0/3/3/3
2	OMC	S2	174	2	-	0/9/27/28	0/2/2/2
2	A2M	S2	512	2	-	0/9/27/28	0/3/3/3
2	A2M	S2	99	22,2	-	1/9/27/28	0/3/3/3
2	PSU	S2	681	2	-	0/7/25/26	0/2/2/2
2	OMU	S2	1804	2	-	0/9/27/28	0/2/2/2
2	A2M	S2	590	2	-	1/9/27/28	0/3/3/3
2	OMG	S2	644	2	-	1/9/27/28	0/3/3/3
2	OMU	S2	428	2	-	6/9/27/28	0/2/2/2
2	PSU	S2	815	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	218	2	-	0/7/25/26	0/2/2/2
2	OMG	S2	867	2	-	0/9/27/28	0/3/3/3
2	PSU	S2	93	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	823	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	572	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	866	2	-	0/7/25/26	0/2/2/2
2	OMG	S2	509	22,2	-	0/9/27/28	0/3/3/3
2	PSU	S2	1081	2	-	1/7/25/26	0/2/2/2
2	OMU	S2	799	2	-	0/9/27/28	0/2/2/2
2	PSU	S2	109	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	814	2	-	0/7/25/26	0/2/2/2
12	IAS	SO	138	12	-	1/7/7/8	-
2	PSU	S2	36	2	-	0/7/25/26	0/2/2/2
15	HY3	SX	62	15	-	1/1/12/14	0/1/1/1
2	OMC	S2	462	2	-	1/9/27/28	0/2/2/2
2	4AC	S2	1842	21,2	-	0/11/29/30	0/2/2/2
2	PSU	S2	801	2	-	0/7/25/26	0/2/2/2
2	OMC	S2	1703	2	-	0/9/27/28	0/2/2/2
2	A2M	S2	1031	2	-	0/9/27/28	0/3/3/3
2	OMG	S2	601	2	-	0/9/27/28	0/3/3/3
2	A2M	S2	576	2	-	2/9/27/28	0/3/3/3
2	MA6	S2	1851	2	-	2/11/29/30	0/3/3/3
2	PSU	S2	651	2	-	0/7/25/26	0/2/2/2
2	A2M	S2	668	22,2	-	3/9/27/28	0/3/3/3
2	PSU	S2	1174	21,2	-	0/7/25/26	0/2/2/2
2	PSU	S2	1692	2	-	0/7/25/26	0/2/2/2
2	A2M	S2	166	2	-	0/9/27/28	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	PSU	S2	34	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	966	2	-	0/7/25/26	0/2/2/2
2	OMU	S2	116	2	-	0/9/27/28	0/2/2/2
2	PSU	S2	1177	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	822	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	1056	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	918	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	210	2	-	0/7/25/26	0/2/2/2
2	OMU	S2	121	2	-	0/9/27/28	0/2/2/2
2	PSU	S2	406	2	-	0/7/25/26	0/2/2/2
2	PSU	S2	863	2	-	0/7/25/26	0/2/2/2

All (177) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	S2	1842	4AC	C4-N3	6.84	1.44	1.32
2	S2	1842	4AC	C6-C5	6.23	1.49	1.35
2	S2	1842	4AC	C2-N3	5.99	1.48	1.36
2	S2	1832	6MZ	C5-C4	4.59	1.47	1.39
2	S2	1850	MA6	C5-C4	4.57	1.47	1.39
2	S2	512	A2M	O5'-C5'	-4.42	1.31	1.44
2	S2	1851	MA6	C5-C4	4.40	1.46	1.39
2	S2	668	A2M	O5'-C5'	-4.16	1.32	1.44
2	S2	1842	4AC	O2-C2	-3.91	1.16	1.23
2	S2	27	A2M	O5'-C5'	-3.86	1.32	1.44
2	S2	166	A2M	O5'-C5'	-3.85	1.33	1.44
2	S2	1031	A2M	O5'-C5'	-3.85	1.33	1.44
2	S2	1842	4AC	C2-N1	3.84	1.48	1.40
2	S2	590	A2M	O5'-C5'	-3.79	1.33	1.44
2	S2	468	A2M	O5'-C5'	-3.76	1.33	1.44
2	S2	484	A2M	O5'-C5'	-3.76	1.33	1.44
2	S2	576	A2M	O5'-C5'	-3.68	1.33	1.44
2	S2	1842	4AC	C5-C4	3.68	1.49	1.41
2	S2	159	A2M	O5'-C5'	-3.63	1.33	1.44
2	S2	99	A2M	O5'-C5'	-3.58	1.33	1.44
2	S2	109	PSU	C6-C5	3.51	1.39	1.35
2	S2	681	PSU	C6-C5	3.50	1.39	1.35
2	S2	93	PSU	C6-C5	3.35	1.39	1.35
2	S2	866	PSU	C6-C5	3.26	1.38	1.35
2	S2	1004	PSU	C6-C5	3.26	1.38	1.35
2	S2	1692	PSU	C6-C5	3.26	1.38	1.35
2	S2	801	PSU	C6-C5	3.23	1.38	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	S2	609	PSU	C6-C5	3.22	1.38	1.35
2	S2	1046	PSU	C6-C5	3.21	1.38	1.35
2	S2	210	PSU	C6-C5	3.19	1.38	1.35
2	S2	1056	PSU	C6-C5	3.19	1.38	1.35
2	S2	1842	4AC	C7-N4	3.19	1.43	1.37
2	S2	815	PSU	C6-C5	3.15	1.38	1.35
2	S2	1177	PSU	C6-C5	3.13	1.38	1.35
2	S2	572	PSU	C6-C5	3.11	1.38	1.35
2	S2	1174	PSU	C6-C5	3.11	1.38	1.35
2	S2	686	PSU	C4-N3	-3.10	1.33	1.38
2	S2	863	PSU	C6-C5	3.09	1.38	1.35
2	S2	406	PSU	C6-C5	3.09	1.38	1.35
2	S2	823	PSU	C6-C5	3.07	1.38	1.35
2	S2	686	PSU	C6-C5	3.07	1.38	1.35
2	S2	822	PSU	C6-C5	3.06	1.38	1.35
2	S2	918	PSU	C6-C5	3.06	1.38	1.35
2	S2	601	OMG	C5-C4	3.04	1.47	1.38
2	S2	918	PSU	C4-N3	-3.04	1.33	1.38
2	S2	119	PSU	C4-N3	-3.04	1.33	1.38
2	S2	1174	PSU	C4-N3	-3.03	1.33	1.38
2	S2	105	PSU	C6-C5	3.02	1.38	1.35
2	S2	649	PSU	C6-C5	3.01	1.38	1.35
2	S2	966	PSU	C6-C5	3.01	1.38	1.35
2	S2	1851	MA6	C5-C6	3.00	1.49	1.41
2	S2	34	PSU	C6-C5	2.99	1.38	1.35
2	S2	119	PSU	C6-C5	2.99	1.38	1.35
2	S2	867	OMG	C5-C4	2.99	1.46	1.38
2	S2	1004	PSU	C4-N3	-2.99	1.33	1.38
2	S2	863	PSU	C4-N3	-2.98	1.33	1.38
2	S2	966	PSU	C4-N3	-2.97	1.33	1.38
2	S2	406	PSU	C4-N3	-2.97	1.33	1.38
2	S2	436	OMG	C5-C4	2.96	1.46	1.38
2	S2	1842	4AC	C6-N1	2.96	1.45	1.38
2	S2	814	PSU	C4-N3	-2.96	1.33	1.38
2	S2	1046	PSU	C4-N3	-2.94	1.33	1.38
2	S2	814	PSU	C6-C5	2.93	1.38	1.35
2	S2	93	PSU	C4-N3	-2.92	1.33	1.38
2	S2	609	PSU	C4-N3	-2.92	1.33	1.38
2	S2	218	PSU	C6-C5	2.92	1.38	1.35
2	S2	644	OMG	C5-C4	2.91	1.46	1.38
2	S2	36	PSU	C6-C5	2.91	1.38	1.35
2	S2	801	PSU	C4-N3	-2.90	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	S2	651	PSU	C6-C5	2.87	1.38	1.35
2	S2	116	OMU	C4-N3	-2.86	1.33	1.38
2	S2	1081	PSU	C4-N3	-2.85	1.33	1.38
2	S2	509	OMG	C5-C4	2.85	1.46	1.38
2	S2	172	OMU	C4-N3	-2.84	1.33	1.38
2	S2	644	OMG	C6-N1	-2.84	1.33	1.38
2	S2	649	PSU	C4-N3	-2.84	1.33	1.38
2	S2	815	PSU	C4-N3	-2.84	1.33	1.38
2	S2	822	PSU	C4-N3	-2.84	1.33	1.38
2	S2	1045	PSU	C4-N3	-2.83	1.33	1.38
2	S2	683	OMG	C5-C4	2.83	1.46	1.38
2	S2	1177	PSU	C4-N3	-2.83	1.33	1.38
2	S2	121	OMU	C4-N3	-2.82	1.33	1.38
2	S2	109	PSU	C4-N3	-2.82	1.33	1.38
2	S2	36	PSU	C4-N3	-2.82	1.33	1.38
2	S2	1804	OMU	C4-N3	-2.81	1.33	1.38
2	S2	1045	PSU	C6-C5	2.81	1.38	1.35
2	S2	509	OMG	C6-N1	-2.79	1.33	1.38
2	S2	823	PSU	C4-N3	-2.78	1.33	1.38
2	S2	428	OMU	C4-N3	-2.78	1.33	1.38
2	S2	866	PSU	C4-N3	-2.78	1.33	1.38
2	S2	218	PSU	C4-N3	-2.78	1.33	1.38
2	S2	1056	PSU	C4-N3	-2.77	1.33	1.38
2	S2	1832	6MZ	C5-C6	2.75	1.48	1.41
2	S2	681	PSU	C4-N3	-2.74	1.33	1.38
2	S2	436	OMG	C6-N1	-2.71	1.33	1.38
2	S2	1692	PSU	C4-N3	-2.70	1.33	1.38
2	S2	572	PSU	C4-N3	-2.70	1.33	1.38
2	S2	34	PSU	C4-N3	-2.69	1.33	1.38
2	S2	1850	MA6	C5-C6	2.68	1.48	1.41
2	S2	105	PSU	C4-N3	-2.68	1.33	1.38
2	S2	651	PSU	C4-N3	-2.66	1.33	1.38
2	S2	601	OMG	C6-N1	-2.64	1.33	1.38
2	S2	683	OMG	C6-N1	-2.63	1.33	1.38
2	S2	668	A2M	O4'-C4'	-2.59	1.39	1.45
2	S2	1832	6MZ	C5-N7	-2.56	1.34	1.39
2	S2	210	PSU	C4-N3	-2.55	1.34	1.38
2	S2	428	OMU	C2-N3	-2.55	1.33	1.38
2	S2	1081	PSU	C6-C5	2.51	1.38	1.35
2	S2	1842	4AC	C4-N4	2.50	1.43	1.39
2	S2	1842	4AC	O7-C7	-2.50	1.17	1.23
2	S2	436	OMG	C5-N7	-2.47	1.34	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	S2	644	OMG	C5-N7	-2.47	1.34	1.39
2	S2	484	A2M	C2'-C1'	2.45	1.59	1.53
2	S2	121	OMU	C2-N3	-2.45	1.33	1.38
2	S2	799	OMU	C4-N3	-2.44	1.34	1.38
2	S2	683	OMG	C5-N7	-2.41	1.34	1.39
2	S2	627	OMU	C4-N3	-2.39	1.34	1.38
2	S2	1851	MA6	C5-N7	-2.37	1.34	1.39
2	S2	1056	PSU	C2-N3	-2.37	1.33	1.37
2	S2	867	OMG	C6-N1	-2.36	1.34	1.38
2	S2	572	PSU	C2-N3	-2.36	1.33	1.37
2	S2	99	A2M	O3'-C3'	-2.34	1.37	1.43
2	S2	1850	MA6	C5-N7	-2.33	1.34	1.39
2	S2	601	OMG	C5-N7	-2.31	1.34	1.39
2	S2	966	PSU	C2-N3	-2.30	1.33	1.37
2	S2	119	PSU	C2-N3	-2.28	1.33	1.37
2	S2	509	OMG	C5-N7	-2.27	1.34	1.39
2	S2	590	A2M	C2'-C1'	2.27	1.58	1.53
2	S2	686	PSU	C2-N3	-2.25	1.33	1.37
2	S2	609	PSU	C2-N3	-2.24	1.33	1.37
2	S2	116	OMU	C2-N3	-2.24	1.34	1.38
2	S2	1850	MA6	C4-N9	-2.24	1.33	1.37
2	S2	681	PSU	C2-N3	-2.23	1.33	1.37
2	S2	428	OMU	C5-C4	-2.23	1.38	1.43
2	S2	918	PSU	O4'-C1'	-2.23	1.40	1.43
2	S2	93	PSU	C2-N3	-2.23	1.33	1.37
2	S2	866	PSU	C2-N3	-2.22	1.33	1.37
2	S2	649	PSU	C2-N3	-2.22	1.33	1.37
2	S2	801	PSU	C2-N3	-2.21	1.33	1.37
2	S2	863	PSU	C2-N3	-2.21	1.33	1.37
2	S2	1804	OMU	C2-N3	-2.20	1.34	1.38
2	S2	1046	PSU	C2-N3	-2.20	1.33	1.37
2	S2	814	PSU	C2-N3	-2.19	1.33	1.37
2	S2	1004	PSU	C2-N3	-2.19	1.33	1.37
2	S2	822	PSU	O4'-C1'	-2.18	1.40	1.43
2	S2	34	PSU	C2-N3	-2.18	1.33	1.37
2	S2	867	OMG	C5-N7	-2.16	1.34	1.39
2	S2	36	PSU	C2-N1	-2.15	1.33	1.36
2	S2	799	OMU	C5-C4	-2.15	1.39	1.43
2	S2	918	PSU	C2-N3	-2.15	1.33	1.37
2	S2	36	PSU	C2-N3	-2.15	1.33	1.37
2	S2	121	OMU	C5-C4	-2.14	1.39	1.43
2	S2	1174	PSU	C2-N3	-2.14	1.33	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	S2	1851	MA6	C8-N7	2.13	1.35	1.31
2	S2	1851	MA6	C4-N9	-2.13	1.33	1.37
2	S2	799	OMU	C2-N3	-2.13	1.34	1.38
2	S2	1081	PSU	C2-N3	-2.12	1.34	1.37
2	S2	512	A2M	C5-C4	2.10	1.42	1.39
2	S2	815	PSU	C2-N3	-2.10	1.34	1.37
2	S2	1081	PSU	O4'-C1'	-2.08	1.41	1.43
2	S2	1692	PSU	C2-N3	-2.08	1.34	1.37
2	S2	105	PSU	C2-N3	-2.08	1.34	1.37
2	S2	823	PSU	C2-N3	-2.07	1.34	1.37
2	S2	1692	PSU	C2-N1	-2.07	1.34	1.36
2	S2	172	OMU	C2-N3	-2.07	1.34	1.38
2	S2	116	OMU	C5-C4	-2.06	1.39	1.43
2	S2	159	A2M	C2'-C1'	2.06	1.58	1.53
2	S2	484	A2M	C5-C4	2.06	1.42	1.39
2	S2	1804	OMU	C5-C4	-2.04	1.39	1.43
2	S2	572	PSU	C2-N1	-2.02	1.34	1.36
2	S2	644	OMG	C4-N9	-2.02	1.32	1.38
2	S2	1045	PSU	C2-N3	-2.01	1.34	1.37
2	S2	1045	PSU	C2-N1	-2.01	1.34	1.36
2	S2	1832	6MZ	C4-N9	-2.01	1.33	1.37
2	S2	406	PSU	C2-N3	-2.01	1.34	1.37
2	S2	651	PSU	C2-N1	-2.01	1.34	1.36
2	S2	218	PSU	C2-N3	-2.00	1.34	1.37

All (255) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	814	PSU	N1-C2-N3	6.71	122.25	115.17
2	S2	815	PSU	N1-C2-N3	6.68	122.21	115.17
2	S2	918	PSU	N1-C2-N3	6.66	122.19	115.17
2	S2	1081	PSU	N1-C2-N3	6.54	122.07	115.17
2	S2	93	PSU	N1-C2-N3	6.52	122.04	115.17
2	S2	822	PSU	N1-C2-N3	6.51	122.03	115.17
2	S2	218	PSU	N1-C2-N3	6.49	122.02	115.17
2	S2	609	PSU	N1-C2-N3	6.49	122.02	115.17
2	S2	34	PSU	N1-C2-N3	6.49	122.01	115.17
2	S2	1174	PSU	N1-C2-N3	6.47	121.99	115.17
2	S2	651	PSU	N1-C2-N3	6.45	121.97	115.17
2	S2	406	PSU	N1-C2-N3	6.42	121.94	115.17
2	S2	966	PSU	N1-C2-N3	6.42	121.94	115.17
2	S2	1692	PSU	N1-C2-N3	6.41	121.93	115.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	119	PSU	N1-C2-N3	6.41	121.92	115.17
2	S2	1046	PSU	N1-C2-N3	6.40	121.92	115.17
2	S2	601	OMG	C5-C4-N3	-6.37	118.25	128.39
2	S2	36	PSU	N1-C2-N3	6.36	121.88	115.17
2	S2	686	PSU	N1-C2-N3	6.35	121.86	115.17
2	S2	823	PSU	N1-C2-N3	6.35	121.86	115.17
2	S2	801	PSU	N1-C2-N3	6.34	121.85	115.17
2	S2	863	PSU	N1-C2-N3	6.33	121.85	115.17
2	S2	105	PSU	N1-C2-N3	6.33	121.84	115.17
2	S2	109	PSU	N1-C2-N3	6.32	121.83	115.17
2	S2	210	PSU	N1-C2-N3	6.28	121.80	115.17
2	S2	509	OMG	C5-C4-N3	-6.28	118.39	128.39
2	S2	1045	PSU	N1-C2-N3	6.27	121.78	115.17
2	S2	1177	PSU	N1-C2-N3	6.27	121.78	115.17
2	S2	681	PSU	N1-C2-N3	6.24	121.75	115.17
2	S2	1004	PSU	N1-C2-N3	6.17	121.68	115.17
2	S2	644	OMG	C5-C4-N3	-6.17	118.58	128.39
2	S2	1056	PSU	N1-C2-N3	6.14	121.64	115.17
2	S2	683	OMG	C5-C4-N3	-6.13	118.63	128.39
2	S2	649	PSU	N1-C2-N3	6.13	121.63	115.17
2	S2	866	PSU	N1-C2-N3	6.12	121.63	115.17
2	S2	436	OMG	C5-C4-N3	-6.09	118.69	128.39
2	S2	572	PSU	N1-C2-N3	6.02	121.52	115.17
2	S2	1832	6MZ	C5-C4-N3	-5.84	118.68	126.72
2	S2	1851	MA6	C5-C4-N3	-5.78	118.76	126.72
2	S2	867	OMG	C5-C4-N3	-5.72	119.28	128.39
2	S2	1850	MA6	C5-C4-N3	-5.48	119.17	126.72
2	S2	509	OMG	C2-N3-C4	5.30	121.44	112.30
2	S2	799	OMU	C4-N3-C2	-5.21	120.14	126.61
2	S2	627	OMU	C4-N3-C2	-5.21	120.15	126.61
2	S2	683	OMG	C2-N3-C4	5.17	121.21	112.30
2	S2	601	OMG	C2-N3-C4	5.11	121.10	112.30
2	S2	436	OMG	C2-N3-C4	5.08	121.05	112.30
2	S2	644	OMG	C2-N3-C4	5.07	121.03	112.30
2	S2	867	OMG	C2-N3-C4	5.00	120.91	112.30
2	S2	172	OMU	C4-N3-C2	-4.83	120.61	126.61
2	S2	1804	OMU	C4-N3-C2	-4.82	120.62	126.61
2	S2	601	OMG	N9-C4-N3	4.64	135.23	125.95
2	S2	1081	PSU	C4-N3-C2	-4.64	119.98	126.37
2	S2	428	OMU	C4-N3-C2	-4.62	120.88	126.61
2	S2	683	OMG	N9-C4-N3	4.58	135.11	125.95
2	S2	116	OMU	C4-N3-C2	-4.57	120.94	126.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	1851	MA6	C10-N6-C6	-4.56	108.92	120.52
2	S2	436	OMG	N9-C4-N3	4.55	135.06	125.95
2	S2	815	PSU	C4-N3-C2	-4.50	120.17	126.37
2	S2	172	OMU	N3-C2-N1	4.49	120.74	114.89
2	S2	1804	OMU	N3-C2-N1	4.48	120.73	114.89
2	S2	651	PSU	C4-N3-C2	-4.48	120.20	126.37
2	S2	1850	MA6	N3-C4-N9	4.46	134.75	127.17
2	S2	105	PSU	C4-N3-C2	-4.46	120.23	126.37
2	S2	627	OMU	N3-C2-N1	4.43	120.66	114.89
2	S2	966	PSU	C4-N3-C2	-4.36	120.37	126.37
2	S2	1850	MA6	C10-N6-C6	-4.35	109.46	120.52
2	S2	1850	MA6	C2-N1-C6	4.34	122.43	111.83
2	S2	116	OMU	N3-C2-N1	4.34	120.54	114.89
2	S2	644	OMG	N9-C4-N3	4.33	134.61	125.95
2	S2	1832	6MZ	N3-C4-N9	4.33	134.53	127.17
2	S2	406	PSU	C4-N3-C2	-4.30	120.44	126.37
2	S2	218	PSU	C4-N3-C2	-4.30	120.45	126.37
2	S2	509	OMG	N9-C4-N3	4.30	134.55	125.95
2	S2	1177	PSU	C4-N3-C2	-4.29	120.47	126.37
2	S2	1851	MA6	N3-C4-N9	4.29	134.46	127.17
2	S2	34	PSU	C4-N3-C2	-4.28	120.47	126.37
2	S2	119	PSU	C4-N3-C2	-4.28	120.47	126.37
2	S2	799	OMU	C5-C4-N3	4.27	120.78	114.80
2	S2	1045	PSU	C4-N3-C2	-4.27	120.49	126.37
2	S2	686	PSU	C4-N3-C2	-4.25	120.51	126.37
2	S2	210	PSU	C4-N3-C2	-4.25	120.52	126.37
2	S2	428	OMU	N3-C2-N1	4.23	120.40	114.89
2	S2	1174	PSU	C4-N3-C2	-4.20	120.58	126.37
2	S2	1692	PSU	C4-N3-C2	-4.19	120.60	126.37
2	S2	867	OMG	N9-C4-N3	4.19	134.33	125.95
2	S2	36	PSU	C4-N3-C2	-4.17	120.62	126.37
2	S2	814	PSU	C4-N3-C2	-4.17	120.62	126.37
2	S2	649	PSU	C4-N3-C2	-4.17	120.62	126.37
2	S2	1832	6MZ	C4-C5-N7	-4.15	105.84	110.58
2	S2	1832	6MZ	C6-C5-N7	4.14	136.95	132.43
2	S2	863	PSU	C4-N3-C2	-4.14	120.66	126.37
2	S2	799	OMU	N3-C2-N1	4.11	120.24	114.89
2	S2	1081	PSU	O2-C2-N1	-4.09	118.57	122.79
2	S2	93	PSU	C4-N3-C2	-4.09	120.73	126.37
2	S2	651	PSU	O2-C2-N1	-4.09	118.57	122.79
2	S2	121	OMU	C4-N3-C2	-4.08	121.55	126.61
2	S2	36	PSU	O2-C2-N1	-4.07	118.59	122.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	866	PSU	C4-N3-C2	-4.07	120.77	126.37
2	S2	1851	MA6	C2-N1-C6	4.06	121.75	111.83
2	S2	815	PSU	O2-C2-N1	-4.06	118.60	122.79
2	S2	572	PSU	C4-N3-C2	-4.05	120.80	126.37
2	S2	121	OMU	N3-C2-N1	4.03	120.14	114.89
2	S2	218	PSU	O2-C2-N1	-4.03	118.64	122.79
2	S2	681	PSU	C4-N3-C2	-4.02	120.83	126.37
2	S2	1046	PSU	C4-N3-C2	-4.02	120.84	126.37
2	S2	1045	PSU	O2-C2-N1	-3.97	118.69	122.79
2	S2	1851	MA6	C4-C5-N7	-3.97	106.05	110.58
2	S2	1851	MA6	C9-N6-C6	-3.96	110.45	120.52
2	S2	918	PSU	C4-N3-C2	-3.95	120.93	126.37
2	S2	823	PSU	C4-N3-C2	-3.91	120.98	126.37
2	S2	822	PSU	C4-N3-C2	-3.91	120.98	126.37
2	S2	109	PSU	C4-N3-C2	-3.90	121.00	126.37
2	S2	801	PSU	C4-N3-C2	-3.90	121.00	126.37
2	S2	822	PSU	O2-C2-N1	-3.88	118.79	122.79
2	S2	1851	MA6	C2-N3-C4	3.87	121.28	111.83
2	S2	1056	PSU	C4-N3-C2	-3.82	121.11	126.37
2	S2	1832	6MZ	C2-N3-C4	3.79	121.09	111.83
2	S2	609	PSU	C4-N3-C2	-3.76	121.19	126.37
2	S2	116	OMU	C5-C4-N3	3.73	120.03	114.80
2	S2	799	OMU	O4-C4-C5	-3.73	118.73	125.16
2	S2	1804	OMU	C5-C4-N3	3.72	120.01	114.80
2	S2	627	OMU	C5-C4-N3	3.70	119.99	114.80
2	S2	428	OMU	C5-C4-N3	3.70	119.98	114.80
2	S2	649	PSU	O2-C2-N1	-3.69	118.98	122.79
2	S2	814	PSU	O2-C2-N1	-3.65	119.03	122.79
2	S2	509	OMG	C6-C5-N7	3.64	136.91	130.29
2	S2	210	PSU	O2-C2-N1	-3.63	119.04	122.79
2	S2	172	OMU	C5-C4-N3	3.63	119.89	114.80
2	S2	34	PSU	O2-C2-N1	-3.62	119.06	122.79
2	S2	863	PSU	O2-C2-N1	-3.61	119.07	122.79
2	S2	121	OMU	C5-C4-N3	3.60	119.84	114.80
2	S2	1832	6MZ	N1-C2-N3	-3.59	123.15	128.58
2	S2	1692	PSU	O2-C2-N1	-3.57	119.10	122.79
2	S2	1177	PSU	O2-C2-N1	-3.57	119.11	122.79
2	S2	109	PSU	O2-C2-N1	-3.56	119.11	122.79
2	S2	1850	MA6	C2-N3-C4	3.54	120.47	111.83
2	S2	918	PSU	O2-C2-N1	-3.54	119.14	122.79
2	S2	1850	MA6	N1-C6-N6	3.52	121.15	116.86
2	S2	1046	PSU	O2-C2-N1	-3.50	119.18	122.79

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	1850	MA6	C4-C5-N7	-3.48	106.60	110.58
2	S2	823	PSU	O2-C2-N1	-3.46	119.22	122.79
2	S2	866	PSU	O2-C2-N1	-3.45	119.23	122.79
2	S2	1004	PSU	C4-N3-C2	-3.45	121.61	126.37
2	S2	867	OMG	C6-C5-N7	3.45	136.56	130.29
2	S2	406	PSU	O2-C2-N1	-3.43	119.25	122.79
2	S2	1174	PSU	O2-C2-N1	-3.39	119.30	122.79
12	SO	138	IAS	OD1-CG-CB	-3.38	115.53	125.38
2	S2	627	OMU	O4-C4-C5	-3.35	119.38	125.16
2	S2	801	PSU	O2-C2-N1	-3.35	119.33	122.79
2	S2	105	PSU	O2-C2-N1	-3.34	119.34	122.79
2	S2	644	OMG	C6-C5-N7	3.33	136.35	130.29
2	S2	627	OMU	O2-C2-N1	-3.33	118.47	122.80
2	S2	576	A2M	C2'-C1'-N9	-3.32	108.29	113.75
2	S2	966	PSU	O2-C2-N1	-3.30	119.38	122.79
2	S2	1004	PSU	O2-C2-N1	-3.26	119.42	122.79
2	S2	1850	MA6	N1-C2-N3	-3.26	123.64	128.58
2	S2	436	OMG	C6-C5-N7	3.26	136.22	130.29
2	S2	609	PSU	O2-C2-N1	-3.26	119.43	122.79
2	S2	1851	MA6	N1-C2-N3	-3.24	123.68	128.58
2	S2	572	PSU	O2-C2-N1	-3.19	119.50	122.79
2	S2	93	PSU	O2-C2-N1	-3.14	119.55	122.79
2	S2	686	PSU	O2-C2-N1	-3.12	119.57	122.79
2	S2	683	OMG	C6-C5-N7	3.11	135.96	130.29
2	S2	119	PSU	O2-C2-N1	-3.11	119.58	122.79
2	S2	601	OMG	C6-C5-N7	3.10	135.94	130.29
2	S2	1851	MA6	C10-N6-C9	-3.06	106.34	116.18
2	S2	681	PSU	O2-C2-N1	-3.03	119.66	122.79
2	S2	428	OMU	O4-C4-C5	-2.99	120.01	125.16
2	S2	116	OMU	O4-C4-C5	-2.98	120.02	125.16
2	S2	1056	PSU	O2-C2-N1	-2.97	119.72	122.79
2	S2	172	OMU	O4-C4-C5	-2.89	120.17	125.16
2	S2	1850	MA6	C9-N6-C6	-2.87	113.21	120.52
2	S2	1832	6MZ	C5-N7-C8	2.87	107.97	103.45
2	S2	1804	OMU	O4-C4-C5	-2.87	120.22	125.16
2	S2	509	OMG	C4-C5-N7	-2.85	106.15	110.67
2	S2	918	PSU	O4'-C1'-C2'	2.82	109.05	105.15
2	S2	1850	MA6	C4-N9-C8	2.81	108.69	105.74
2	S2	1851	MA6	C5-N7-C8	2.80	107.84	103.45
2	S2	644	OMG	C4-C5-N7	-2.74	106.33	110.67
2	S2	121	OMU	O4-C4-C5	-2.69	120.52	125.16
2	S2	601	OMG	C4-C5-N7	-2.68	106.42	110.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	1851	MA6	C4-N9-C8	2.58	108.44	105.74
2	S2	166	A2M	C2'-C1'-N9	-2.56	109.54	113.75
2	S2	966	PSU	C5-C6-N1	-2.53	118.63	122.14
2	S2	172	OMU	O2-C2-N1	-2.52	119.51	122.80
2	S2	799	OMU	O2-C2-N1	-2.49	119.56	122.80
2	S2	436	OMG	C4-C5-N7	-2.48	106.74	110.67
2	S2	867	OMG	C4-C5-N7	-2.48	106.75	110.67
2	S2	683	OMG	O6-C6-C5	-2.43	120.13	126.53
2	S2	1850	MA6	C5-N7-C8	2.42	107.25	103.45
2	S2	683	OMG	C4-C5-N7	-2.41	106.85	110.67
2	S2	512	A2M	C2'-C1'-N9	-2.41	109.79	113.75
2	S2	590	A2M	N3-C4-N9	2.40	131.26	127.17
2	S2	1851	MA6	N1-C6-N6	2.38	119.75	116.86
2	S2	1842	4AC	C6-C5-C4	2.34	119.83	117.00
2	S2	822	PSU	O4'-C1'-C2'	2.34	108.39	105.15
2	S2	436	OMG	O6-C6-C5	-2.34	120.36	126.53
2	S2	166	A2M	N3-C4-N9	2.34	131.14	127.17
2	S2	1710	OMC	O2-C2-N3	-2.34	118.65	122.33
2	S2	815	PSU	C5-C6-N1	-2.33	118.91	122.14
2	S2	1832	6MZ	C4-N9-C8	2.32	108.17	105.74
2	S2	105	PSU	C5-C6-N1	-2.32	118.92	122.14
2	S2	1851	MA6	C6-C5-N7	2.29	137.09	133.43
2	S2	27	A2M	C2'-C1'-N9	-2.28	109.99	113.75
2	S2	1832	6MZ	C2-N1-C6	2.28	122.78	115.24
2	S2	166	A2M	C2-N1-C6	-2.25	115.03	118.73
2	S2	517	OMC	O2-C2-N3	-2.24	118.80	122.33
2	S2	34	PSU	C5-C6-N1	-2.24	119.03	122.14
2	S2	686	PSU	C5-C6-N1	-2.24	119.04	122.14
2	S2	668	A2M	O4'-C1'-N9	-2.24	103.79	108.09
2	S2	863	PSU	C5-C6-N1	-2.24	119.04	122.14
2	S2	159	A2M	N3-C4-N9	2.23	130.97	127.17
2	S2	649	PSU	C5-C6-N1	-2.23	119.05	122.14
2	S2	159	A2M	C2-N1-C6	-2.22	115.09	118.73
2	S2	866	PSU	C5-C6-N1	-2.22	119.06	122.14
2	S2	601	OMG	O6-C6-C5	-2.21	120.71	126.53
2	S2	428	OMU	O2-C2-N1	-2.20	119.93	122.80
2	S2	99	A2M	C3'-C2'-C1'	-2.20	98.59	102.81
2	S2	1850	MA6	C5-C6-N6	-2.20	121.86	125.33
2	S2	1081	PSU	C5-C6-N1	-2.18	119.11	122.14
2	S2	121	OMU	O2-C2-N1	-2.18	119.97	122.80
2	S2	406	PSU	C5-C6-N1	-2.17	119.12	122.14
2	S2	1851	MA6	N9-C8-N7	-2.15	110.88	113.94

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	S2	1850	MA6	C10-N6-C9	-2.15	109.29	116.18
2	S2	590	A2M	C2-N1-C6	-2.13	115.23	118.73
2	S2	867	OMG	O6-C6-C5	-2.12	120.92	126.53
2	S2	462	OMC	O2-C2-N3	-2.12	118.99	122.33
2	S2	1174	PSU	C5-C6-N1	-2.11	119.21	122.14
2	S2	801	PSU	C5-C6-N1	-2.11	119.22	122.14
2	S2	512	A2M	N3-C4-N9	2.10	130.75	127.17
2	S2	99	A2M	N3-C4-N9	2.09	130.72	127.17
15	SX	62	HY3	O-C-CA	-2.08	119.36	124.86
2	S2	686	PSU	O4'-C1'-C2'	2.07	108.02	105.15
2	S2	468	A2M	C2'-C1'-N9	-2.07	110.34	113.75
2	S2	119	PSU	C5-C6-N1	-2.07	119.27	122.14
2	S2	484	A2M	N3-C4-N9	2.07	130.68	127.17
2	S2	1081	PSU	O4'-C1'-C2'	2.07	108.01	105.15
2	S2	509	OMG	C5-C6-N1	2.06	118.50	113.25
2	S2	1046	PSU	C5-C6-N1	-2.06	119.28	122.14
2	S2	210	PSU	C5-C6-N1	-2.06	119.29	122.14
2	S2	576	A2M	N3-C4-N9	2.05	130.65	127.17
2	S2	576	A2M	C2-N1-C6	-2.04	115.37	118.73
2	S2	681	PSU	C5-C6-N1	-2.04	119.31	122.14
2	S2	823	PSU	O4'-C1'-C2'	2.04	107.97	105.15
2	S2	509	OMG	O6-C6-C5	-2.03	121.17	126.53
2	S2	966	PSU	O4'-C1'-C2'	2.03	107.95	105.15
2	S2	1056	PSU	C5-C6-N1	-2.02	119.33	122.14
2	S2	27	A2M	N3-C4-N9	2.02	130.60	127.17
2	S2	1045	PSU	C5-C6-N1	-2.02	119.34	122.14
2	S2	116	OMU	O2-C2-N1	-2.01	120.18	122.80
2	S2	93	PSU	C5-C6-N1	-2.01	119.35	122.14
2	S2	590	A2M	C5-C4-N3	-2.00	123.96	126.72
2	S2	36	PSU	C5-C6-N1	-2.00	119.36	122.14
2	S2	1031	A2M	N3-C4-N9	2.00	130.57	127.17

There are no chirality outliers.

All (33) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
15	SX	62	HY3	O-C-CA-C3
2	S2	159	A2M	C1'-C2'-O2'-CM'
2	S2	1832	6MZ	N1-C6-N6-C9
2	S2	576	A2M	C3'-C4'-C5'-O5'
2	S2	683	OMG	O4'-C4'-C5'-O5'
2	S2	668	A2M	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
2	S2	428	OMU	C2'-C1'-N1-C6
2	S2	668	A2M	C3'-C4'-C5'-O5'
2	S2	428	OMU	C2'-C1'-N1-C2
2	S2	99	A2M	O4'-C4'-C5'-O5'
2	S2	576	A2M	O4'-C4'-C5'-O5'
2	S2	683	OMG	C3'-C4'-C5'-O5'
2	S2	627	OMU	C2'-C1'-N1-C6
2	S2	1850	MA6	C5-C6-N6-C9
2	S2	627	OMU	O4'-C4'-C5'-O5'
2	S2	1832	6MZ	C5-C6-N6-C9
12	SO	138	IAS	CA-CB-CG-OD1
2	S2	627	OMU	O4'-C1'-N1-C6
2	S2	428	OMU	O4'-C1'-N1-C2
2	S2	428	OMU	O4'-C1'-N1-C6
2	S2	1851	MA6	C5-C6-N6-C9
2	S2	1851	MA6	C4'-C5'-O5'-P
2	S2	428	OMU	O4'-C4'-C5'-O5'
2	S2	1081	PSU	C4'-C5'-O5'-P
2	S2	627	OMU	C3'-C4'-C5'-O5'
2	S2	644	OMG	C4'-C5'-O5'-P
2	S2	462	OMC	C3'-C2'-O2'-CM2
2	S2	517	OMC	C3'-C2'-O2'-CM2
2	S2	627	OMU	O4'-C1'-N1-C2
2	S2	428	OMU	C3'-C4'-C5'-O5'
2	S2	627	OMU	C2'-C1'-N1-C2
2	S2	668	A2M	C2'-C1'-N9-C8
2	S2	590	A2M	C3'-C4'-C5'-O5'

There are no ring outliers.

12 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	S2	468	A2M	1	0
2	S2	484	A2M	1	0
2	S2	1850	MA6	1	0
2	S2	159	A2M	2	0
2	S2	681	PSU	1	0
2	S2	572	PSU	1	0
2	S2	509	OMG	1	0
2	S2	36	PSU	2	0
2	S2	462	OMC	3	0
2	S2	576	A2M	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	S2	1851	MA6	1	0
2	S2	116	OMU	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 77 ligands modelled in this entry, 76 are monoatomic - leaving 1 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
23	A1C0T	SX	201	-	34,35,35	0.77	1 (2%)	47,49,49	2.71	21 (44%)

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
23	A1C0T	SX	201	-	-	1/20/20/20	0/4/4/4

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
23	SX	201	A1C0T	C04-N03	2.25	1.37	1.34

All (21) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
23	SX	201	A1C0T	C05-C06-N02	-8.08	103.92	107.50
23	SX	201	A1C0T	C04-C05-C06	7.18	109.72	104.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
23	SX	201	A1C0T	C32-C17-C18	-4.89	112.34	118.57
23	SX	201	A1C0T	C10-C08-N07	4.47	122.69	116.25
23	SX	201	A1C0T	C31-C20-C19	-4.16	113.53	119.04
23	SX	201	A1C0T	C32-C17-C04	3.77	125.09	120.87
23	SX	201	A1C0T	C17-C04-N03	3.54	125.15	120.49
23	SX	201	A1C0T	C31-C32-C17	3.49	124.53	120.80
23	SX	201	A1C0T	C24-C22-N21	3.43	123.14	116.03
23	SX	201	A1C0T	C05-C04-N03	-3.28	107.50	111.11
23	SX	201	A1C0T	C19-C18-C17	3.26	124.28	120.80
23	SX	201	A1C0T	C04-N03-N02	3.13	107.07	105.11
23	SX	201	A1C0T	C30-C24-C25	-2.98	114.31	117.79
23	SX	201	A1C0T	C27-C25-CL2	-2.91	112.69	118.42
23	SX	201	A1C0T	O09-C08-N07	-2.88	118.07	122.27
23	SX	201	A1C0T	C32-C31-C20	2.50	123.18	120.30
23	SX	201	A1C0T	C01-N02-C06	-2.30	125.74	128.98
23	SX	201	A1C0T	C20-N21-C22	2.25	132.53	126.61
23	SX	201	A1C0T	C01-N02-N03	2.13	122.47	119.29
23	SX	201	A1C0T	C27-C25-C24	2.12	123.71	121.36
23	SX	201	A1C0T	O23-C22-C24	-2.00	117.37	121.03

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
23	SX	201	A1C0T	N02-C06-N07-C08

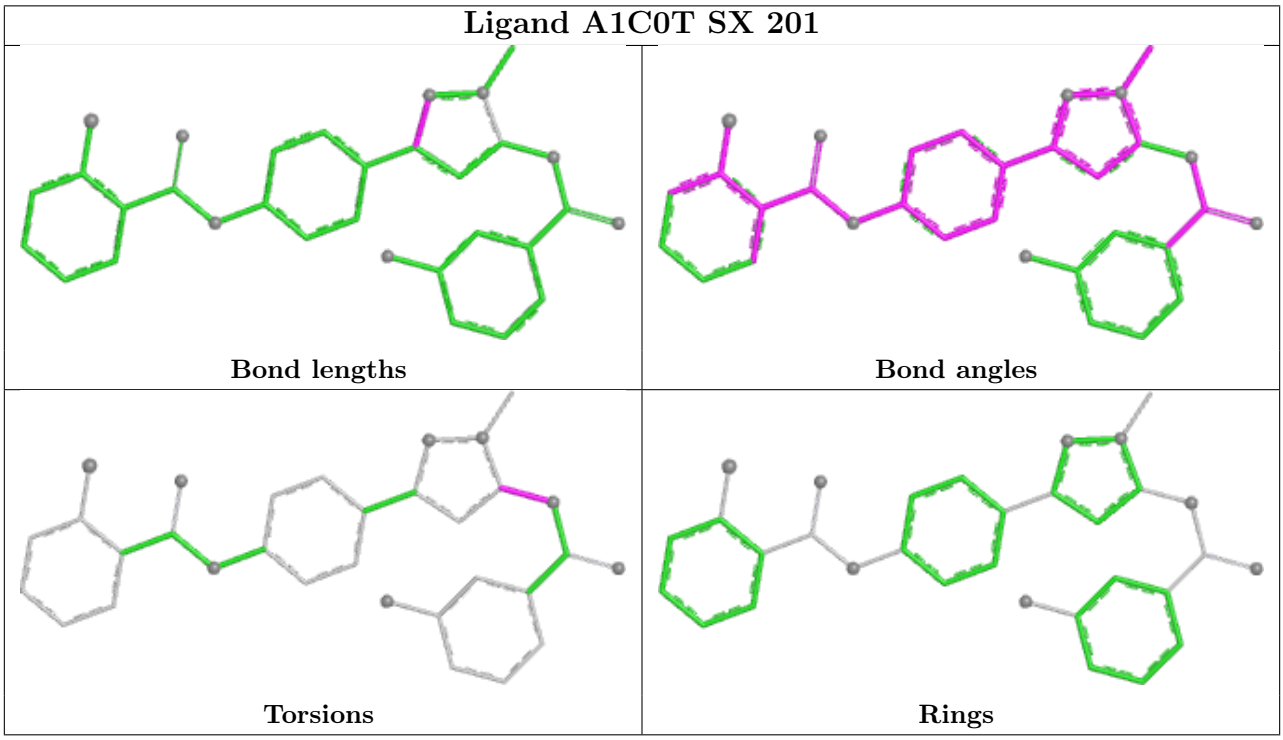
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
23	SX	201	A1C0T	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier.

The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	S2	7

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	S2	691:G	O3'	798:G	P	37.66
1	S2	130:G	O3'	140:U	P	17.04
1	S2	1750:C	O3'	1784:G	P	16.95
1	S2	880:G	O3'	906:U	P	16.60
1	S2	1209:A	O3'	1691:U	P	15.35
1	S2	535:G	O3'	549:C	P	15.30
1	S2	225:G	O3'	287:U	P	7.49

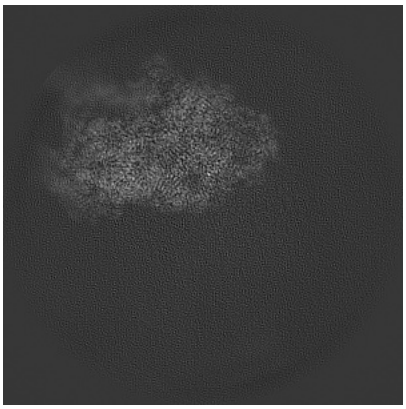
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-73807. 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



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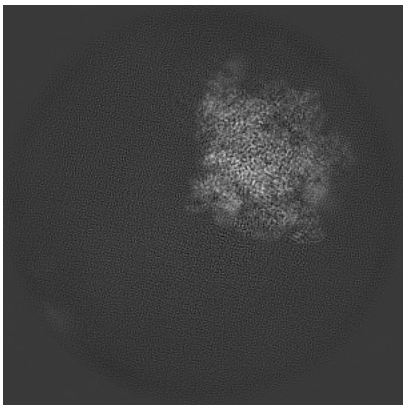
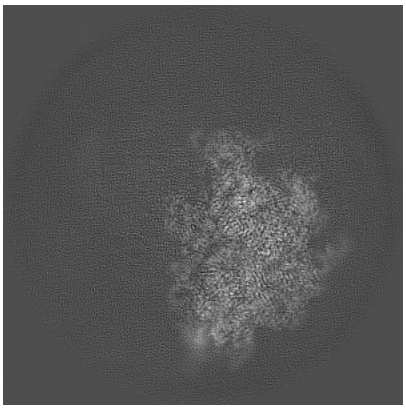
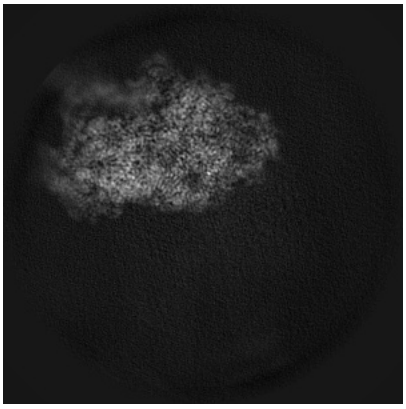


Y

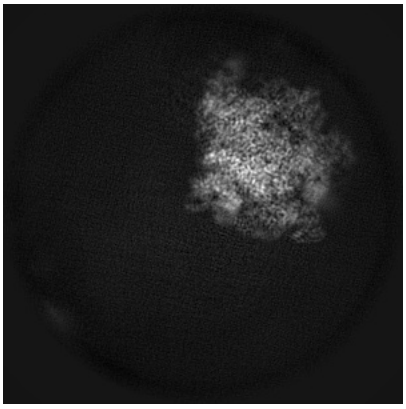


Z

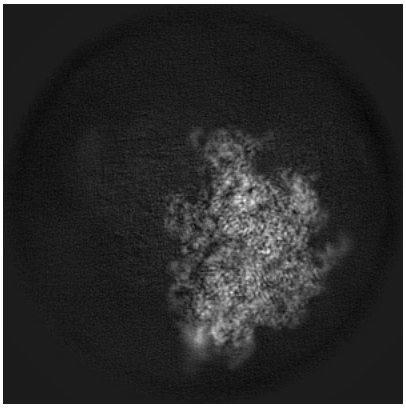
6.1.2 Raw map



X



Y

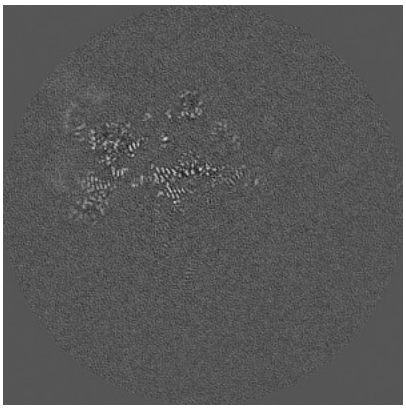


Z

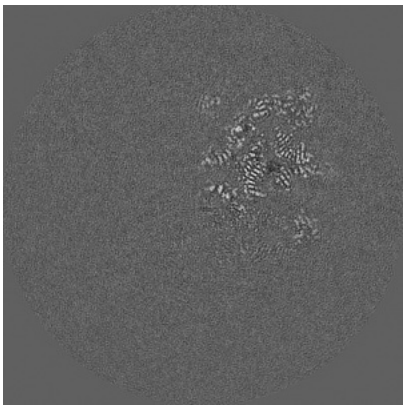
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

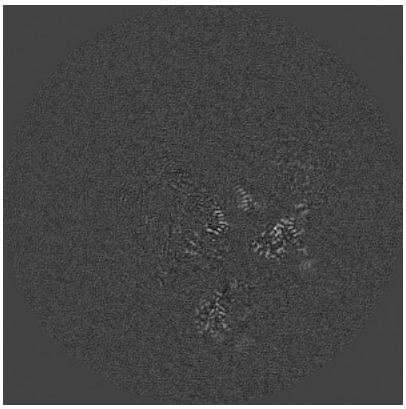
6.2.1 Primary map



X Index: 212

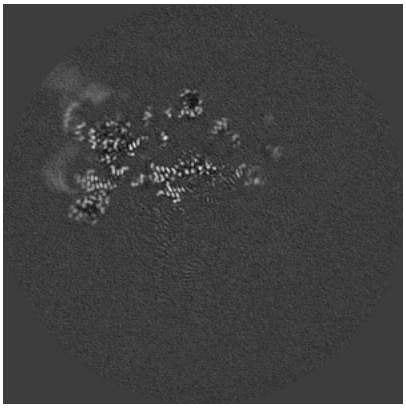


Y Index: 212



Z Index: 212

6.2.2 Raw map



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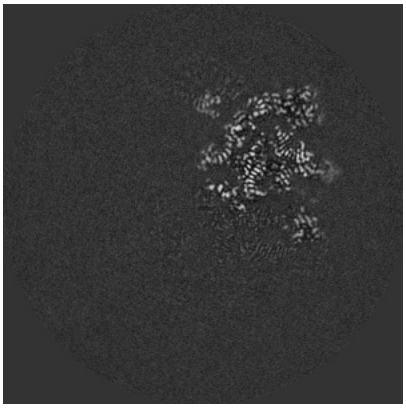
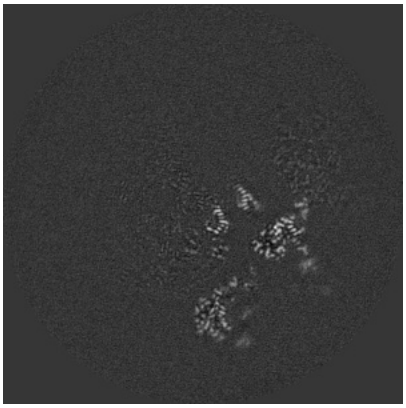


Y Index: 212

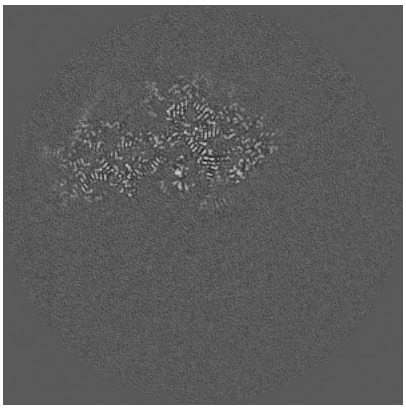


Z Index: 212

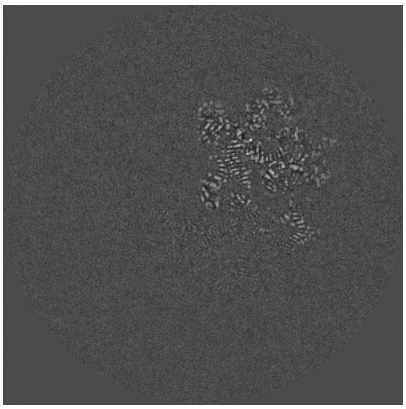
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

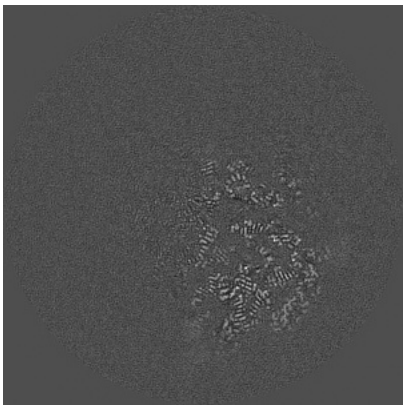
6.3.1 Primary map



X Index: 249

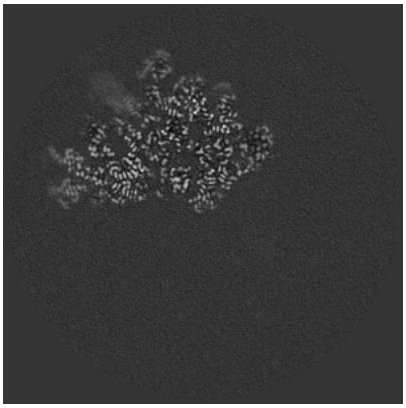


Y Index: 186

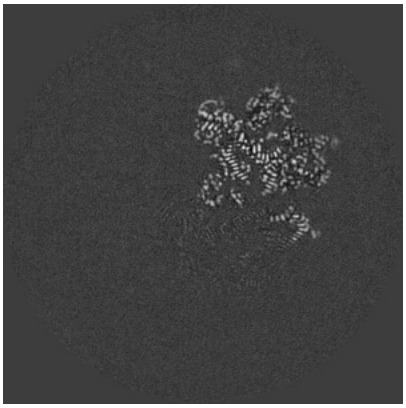


Z Index: 242

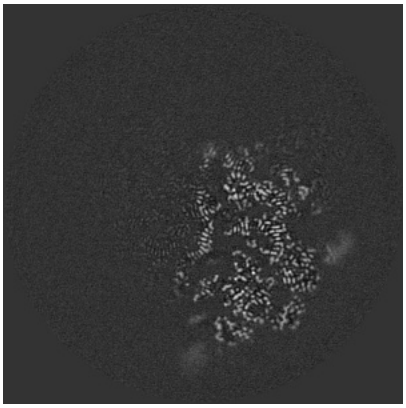
6.3.2 Raw map



X Index: 259



Y Index: 184

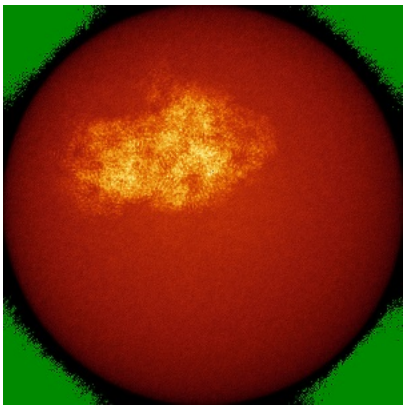


Z Index: 248

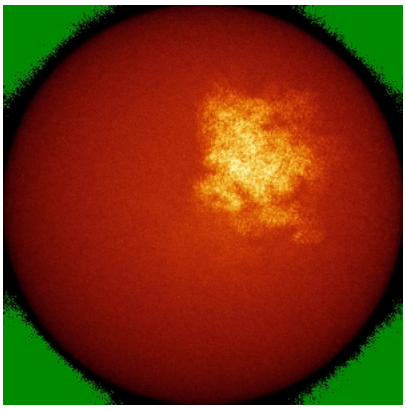
The images above show the largest variance slices of the map in three orthogonal directions.

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

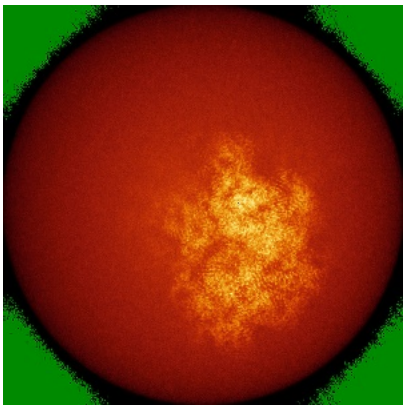
6.4.1 Primary map



X

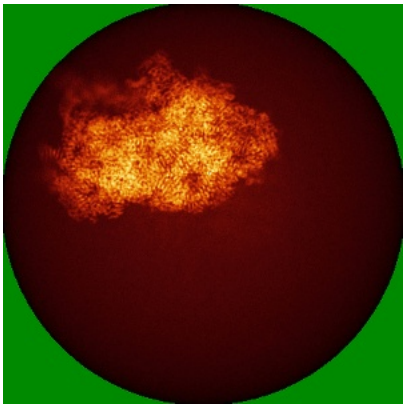


Y

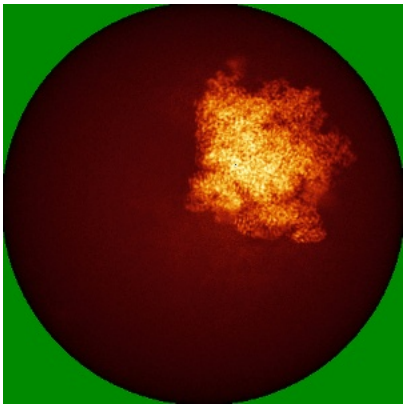


Z

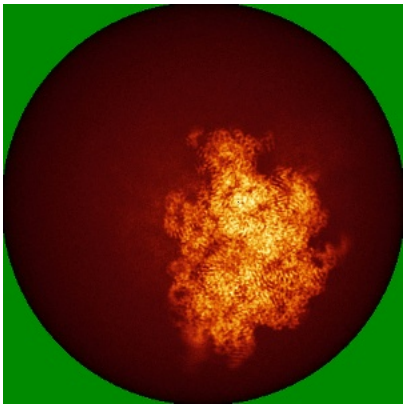
6.4.2 Raw map



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)

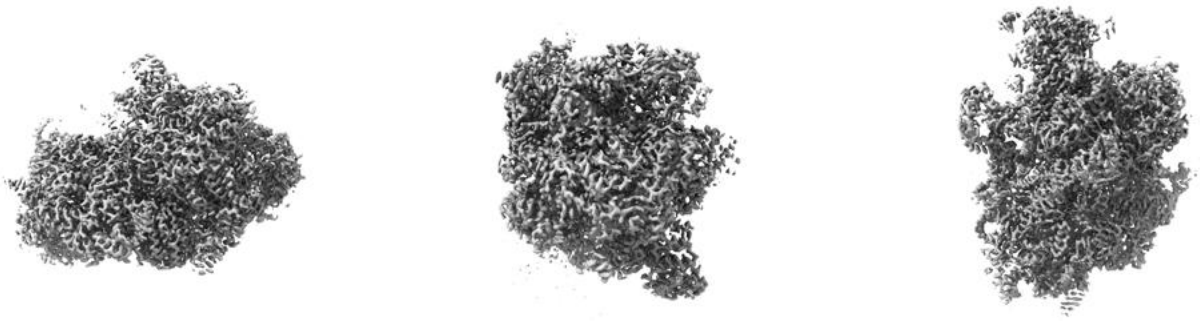
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.025. 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.

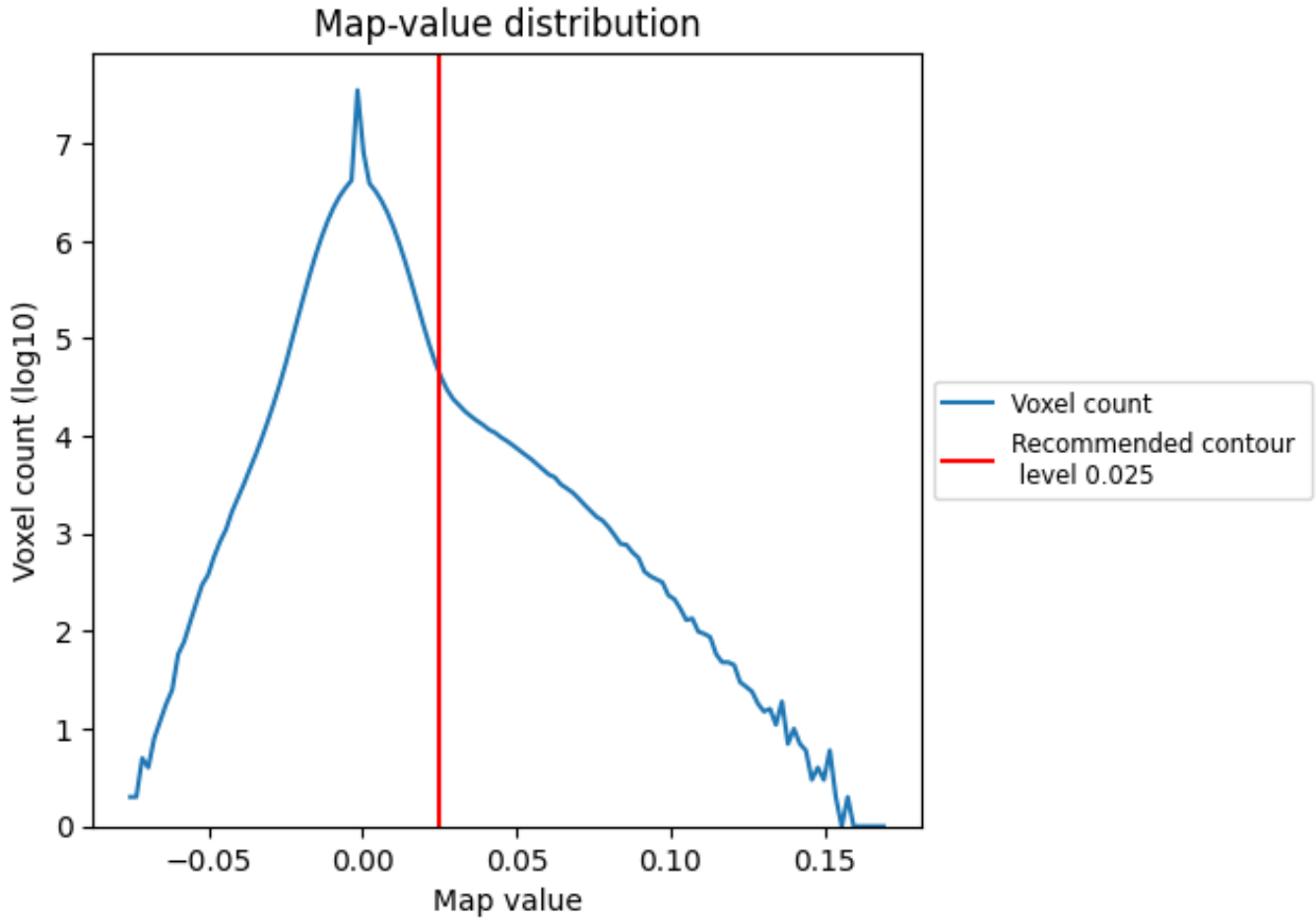
6.6 Mask visualisation (i)

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

7 Map analysis

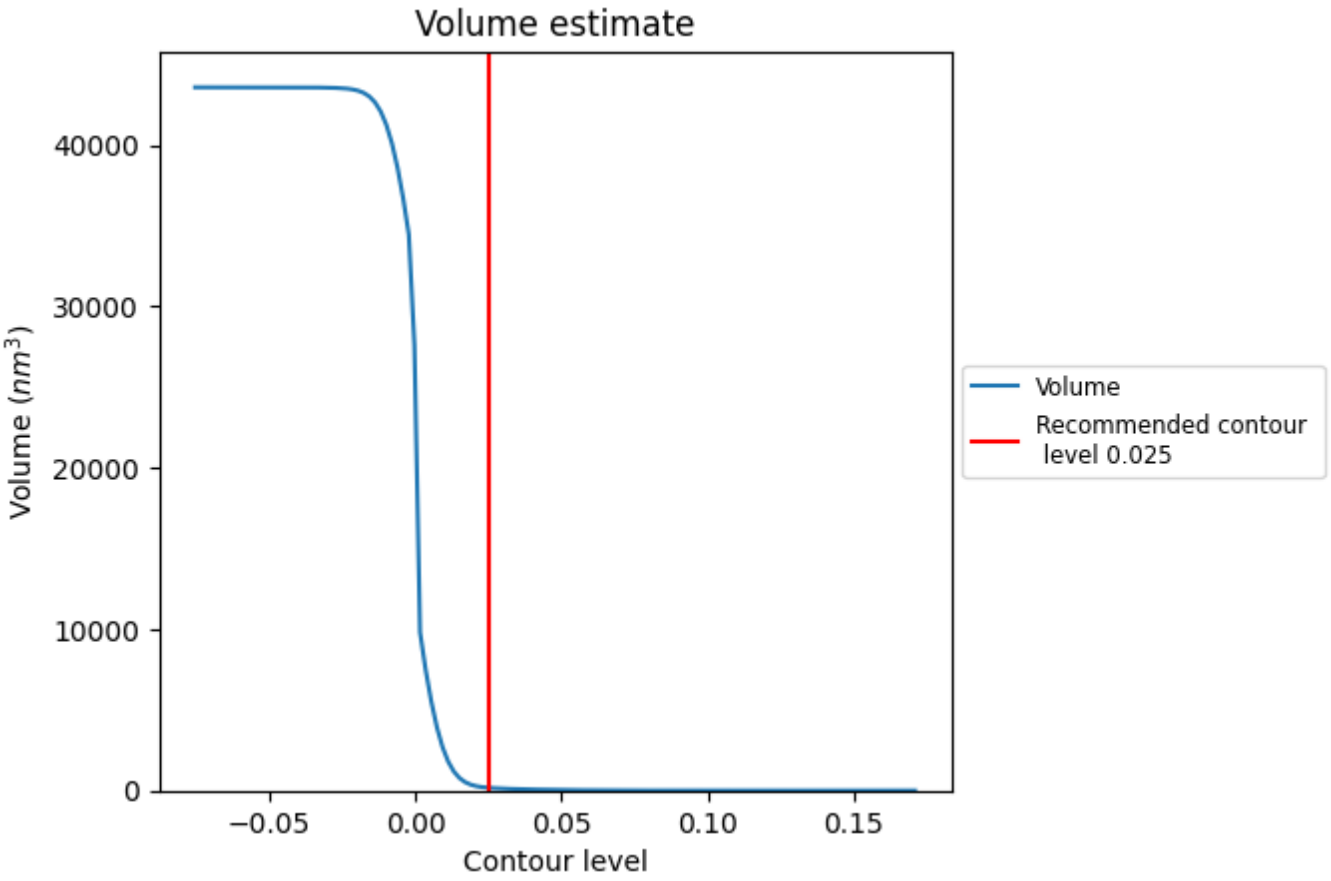
This section contains the results of statistical analysis of the map.

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.

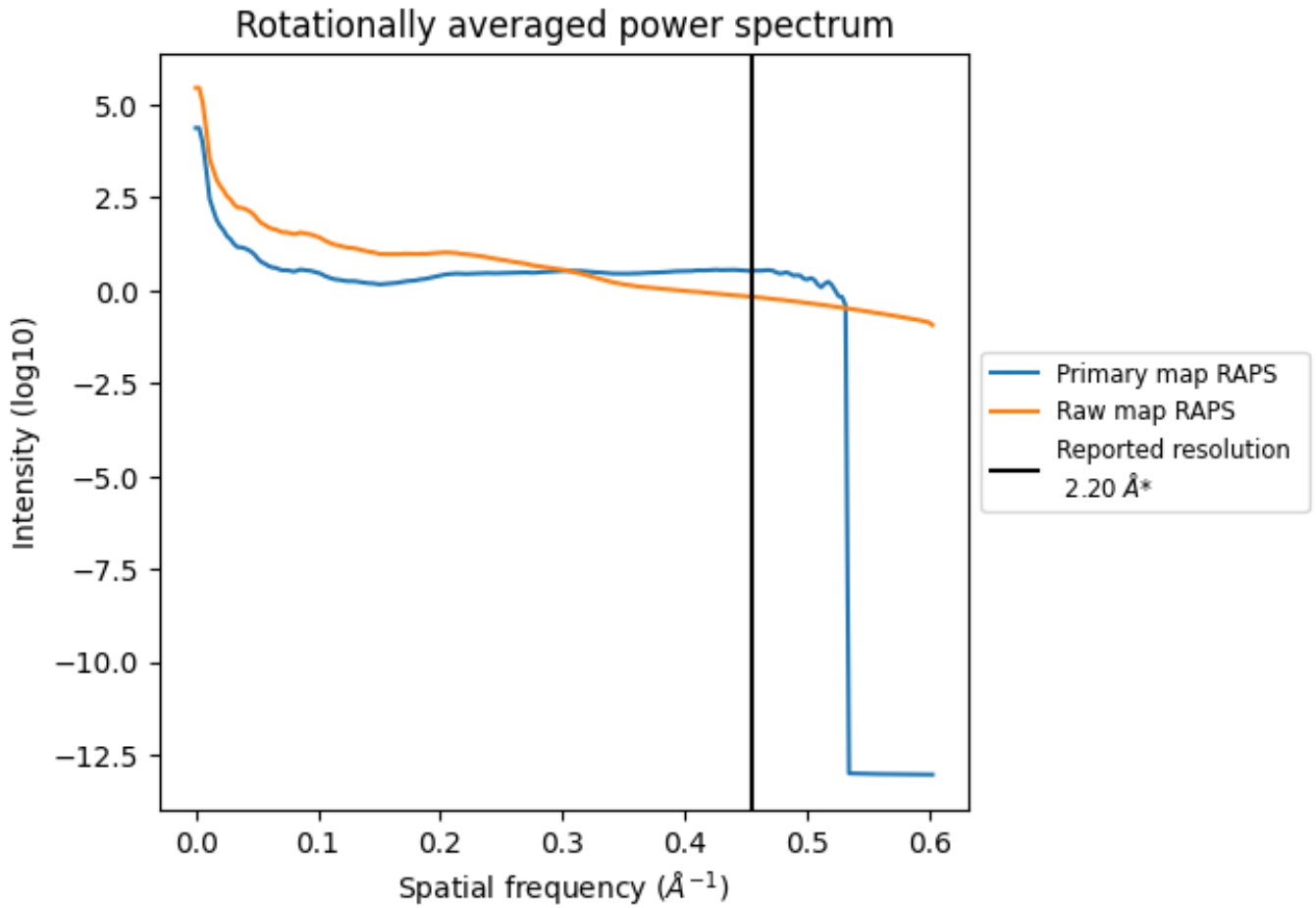
7.2 Volume estimate



The volume at the recommended contour level is 172 nm^3; this corresponds to an approximate mass of 155 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)

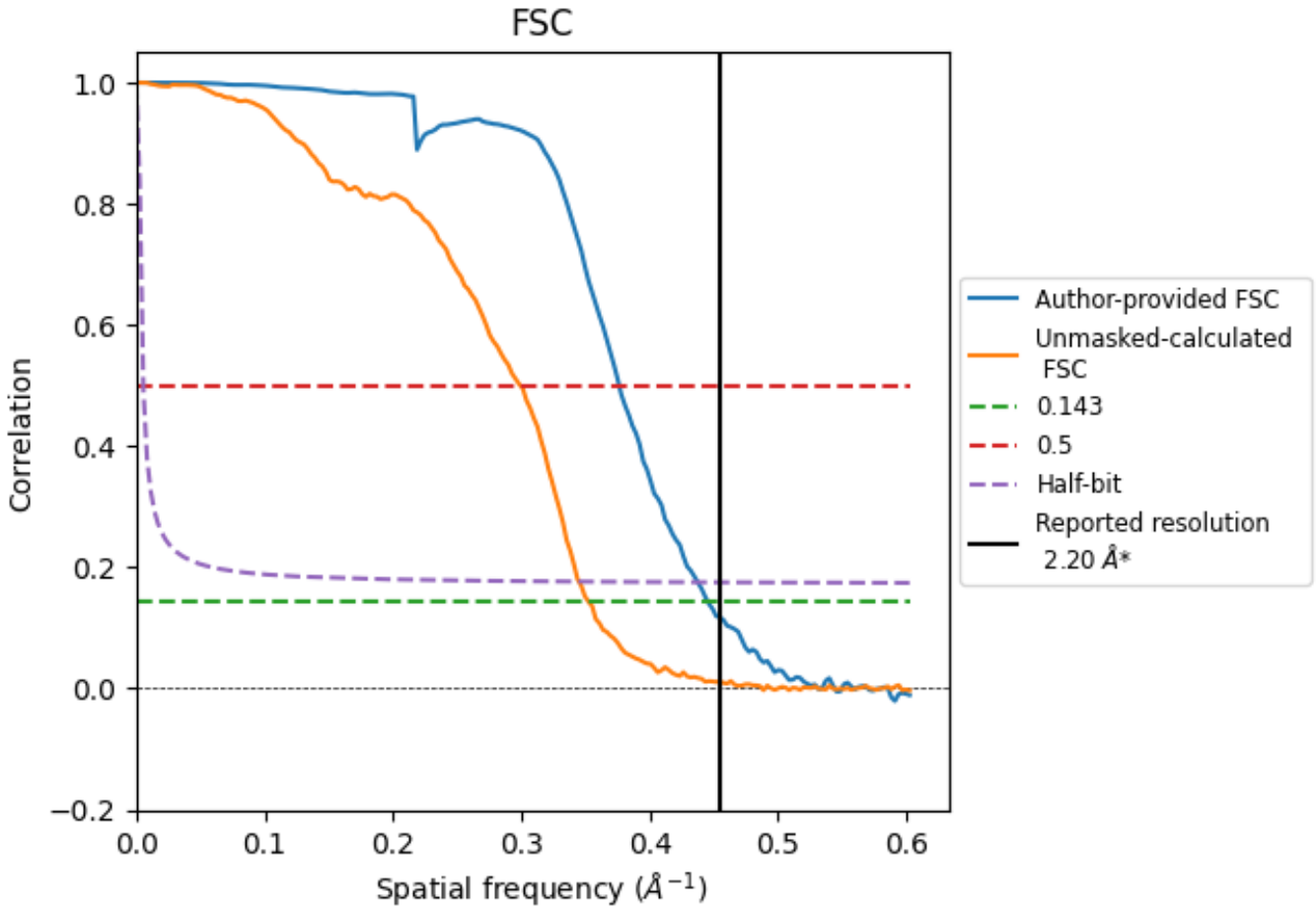


*Reported resolution corresponds to spatial frequency of 0.455 $Å^{-1}$

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 0.455 $Å^{-1}$

8.2 Resolution estimates (i)

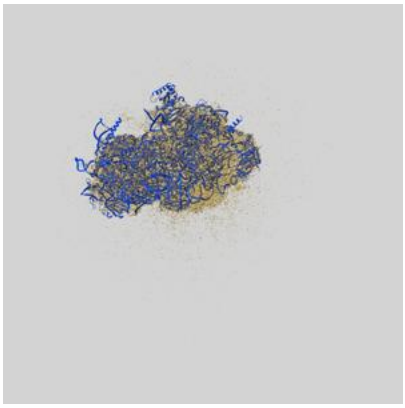
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.20	-	-
Author-provided FSC curve	2.25	2.66	2.29
Unmasked-calculated*	2.84	3.34	2.90

*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 2.84 differs from the reported value 2.2 by more than 10 %

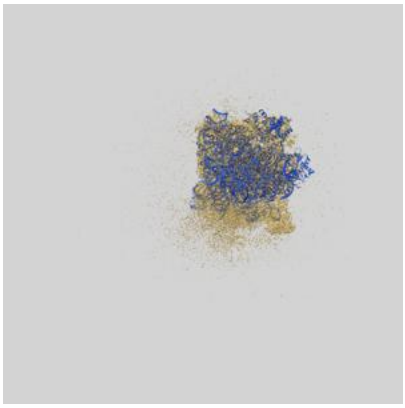
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-73807 and PDB model 9Z4L. Per-residue inclusion information can be found in section 3 on page 10.

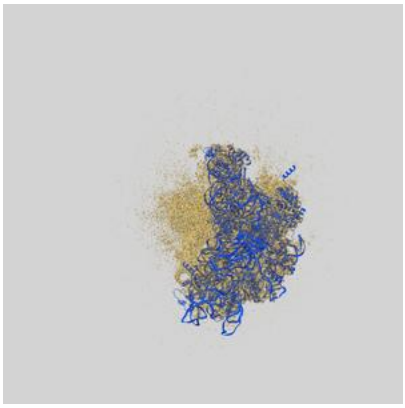
9.1 Map-model overlay



X



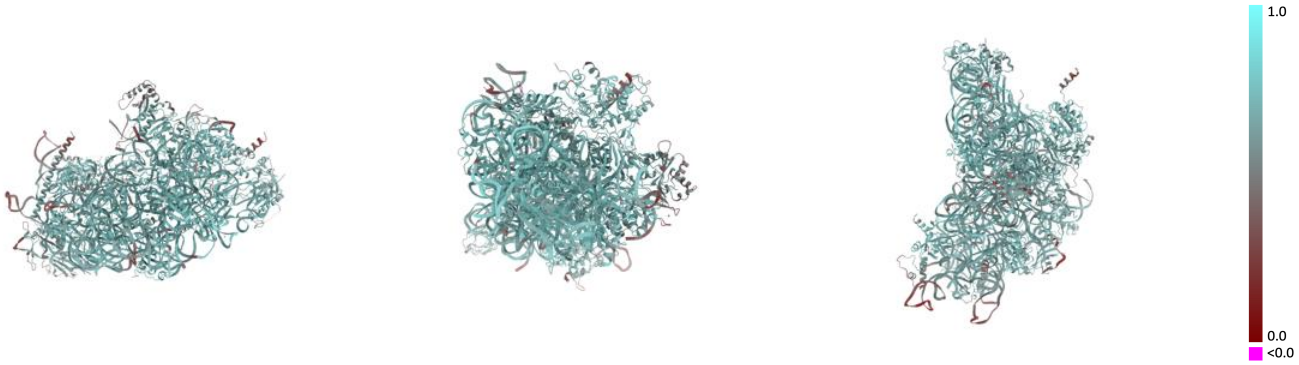
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.025 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

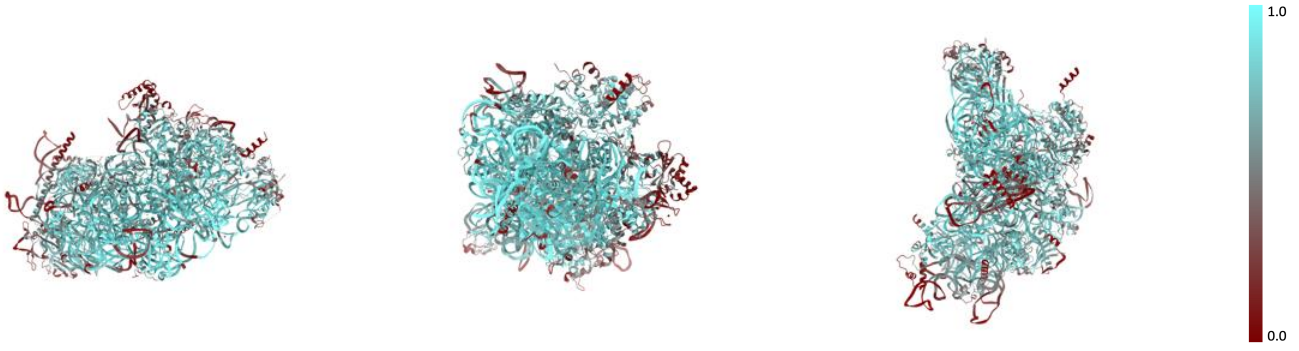
9.2 Q-score mapped to coordinate model (i)



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.

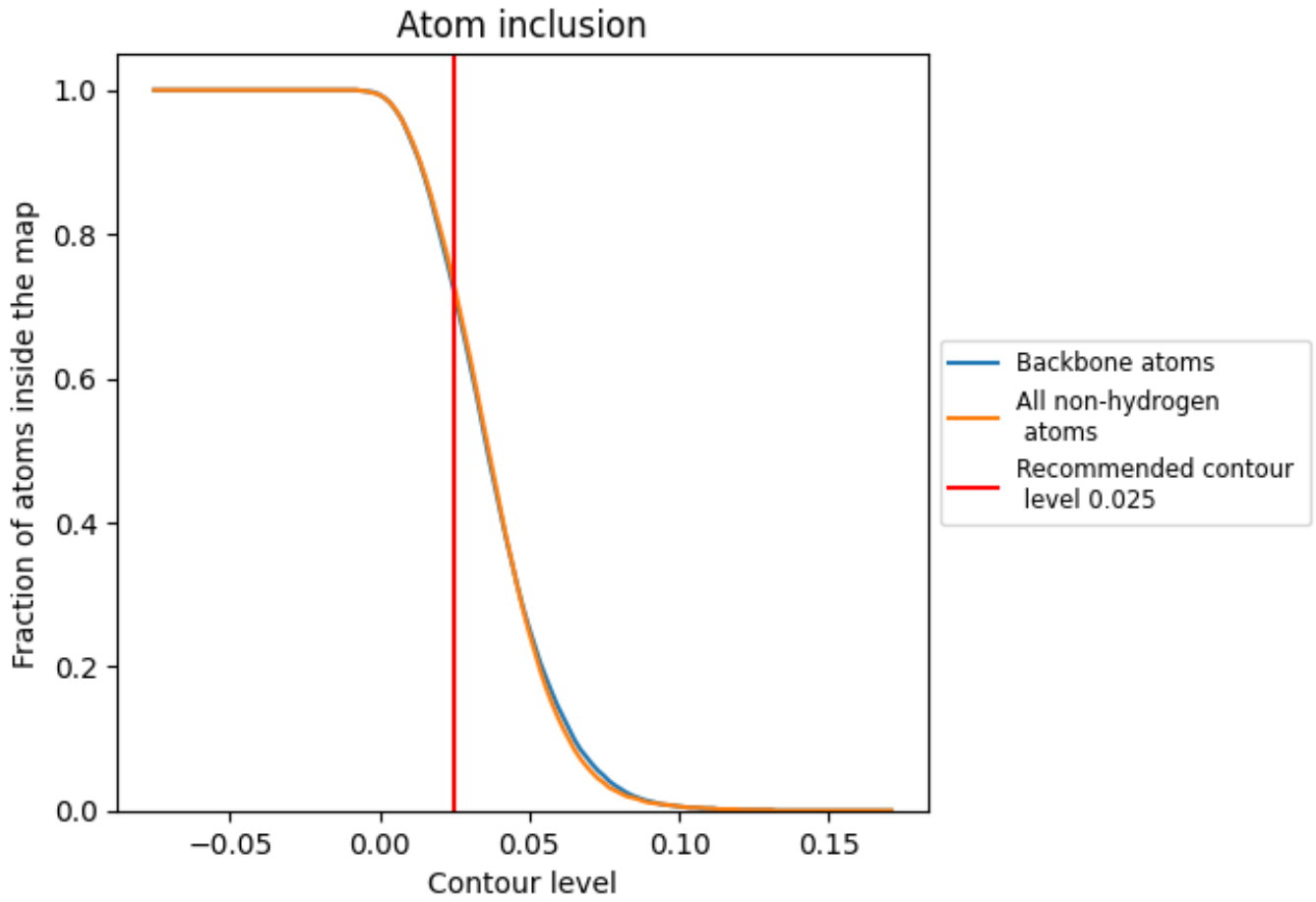
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.025).

9.4 Atom inclusion (i)



At the recommended contour level, 72% of all backbone atoms, 73% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7260	0.6690
S1	0.6340	0.6650
S2	0.8050	0.6740
SA	0.6280	0.6540
SC	0.7070	0.6850
SE	0.6960	0.6870
SG	0.4400	0.5950
SH	0.3440	0.5630
SI	0.6390	0.6570
SJ	0.7390	0.6820
SL	0.7550	0.6960
SN	0.7470	0.6970
SO	0.7270	0.6880
SV	0.6110	0.6620
SW	0.8360	0.7200
SX	0.8420	0.7250
SY	0.6380	0.6600
Sa	0.7060	0.6870
Sb	0.4730	0.6000
Se	0.5400	0.6140
So	0.3810	0.6380

