Full wwPDB EM Validation Report

Jan 22, 2025 – 12:32 am GMT

PDB ID	:	9HA4
EMDB ID	:	EMD-51976
Title	:	Pooled 50S subunit C-CP_(L22)- precursor states supplemented with Api137
Authors	:	Lauer, S.; Nikolay, R.; Spahn, C.M.T.
Deposited on	:	2024-11-01
Resolution	:	4.26 Å(reported)

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

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

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

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

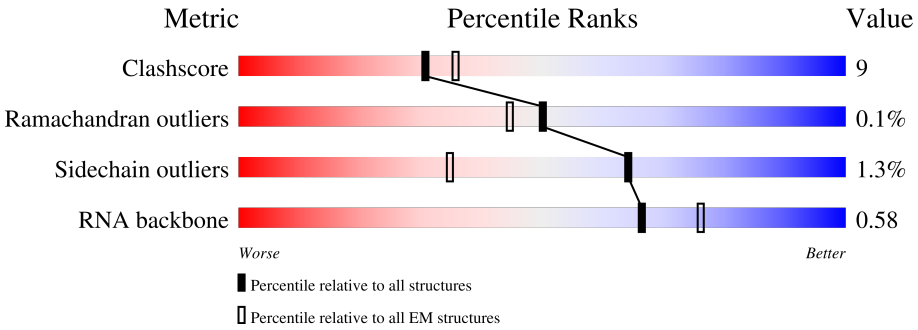
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 4.26 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	2	46	9% 65% 20% 13%
2	B	120	51% 44%
3	D	209	52% 44%
4	F	177	35% 76% 23%
5	J	142	85% 15%
6	K	122	34% 80% 20%
7	N	120	68% 24% 8%

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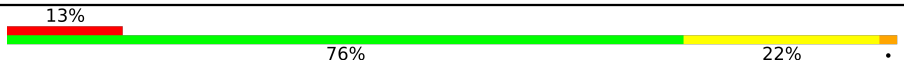
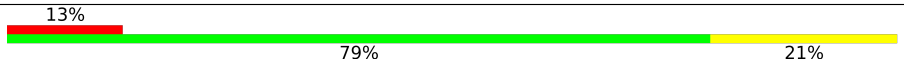
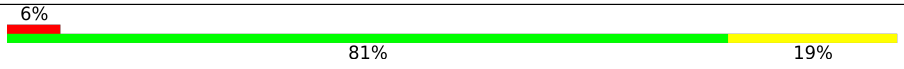
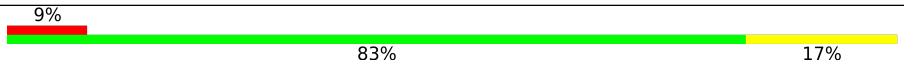
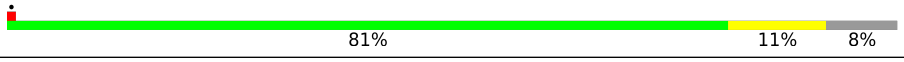
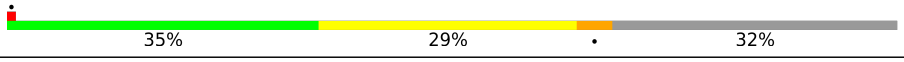
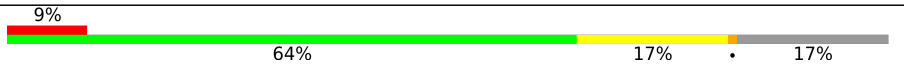
Mol	Chain	Length	Quality of chain
8	O	116	
9	P	114	
10	Q	117	
11	R	103	
12	T	93	
13	U	102	
14	V	94	
15	W	75	
16	Y	63	
17	Z	58	
18	y	17	
19	A	2903	
20	E	201	
21	L	143	

2 Entry composition (i)

There are 21 unique types of molecules in this entry. The entry contains 60234 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Large ribosomal subunit protein bL34.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	2	40	Total	C	N	O	S	0	0
			322	193	79	49	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	119	Total	C	N	O	P	0	0
			2549	1135	466	829	119		

- Molecule 3 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	118	Total	C	N	O	S	0	0
			887	560	156	169	2		

- Molecule 4 is a protein called Large ribosomal subunit protein uL5.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	F	177	Total	C	N	O	S	0	0
			1411	899	249	257	6		

- Molecule 5 is a protein called Large ribosomal subunit protein uL13.

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

- Molecule 6 is a protein called Large ribosomal subunit protein uL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	K	122	Total	C	N	O	S	0	0
			939	587	180	166	6		

- Molecule 7 is a protein called Large ribosomal subunit protein bL17.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	N	111	Total	C	N	O	S	0	0
			882	548	174	156	4		

- Molecule 8 is a protein called Large ribosomal subunit protein uL18.

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

- Molecule 9 is a protein called Large ribosomal subunit protein bL19.

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

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

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

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

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

- Molecule 12 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	T	93	Total	C	N	O	S	0	0
			739	466	139	132	2		

- Molecule 13 is a protein called Large ribosomal subunit protein uL24.

Mol	Chain	Residues	Atoms				AltConf	Trace
13	U	102	Total	C	N	O	0	0
			780	492	146	142		

- Molecule 14 is a protein called Large ribosomal subunit protein bL25.

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

- Molecule 15 is a protein called Large ribosomal subunit protein bL27.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	W	69	Total	C	N	O	S	0	0
			522	328	103	90	1		

- Molecule 16 is a protein called Large ribosomal subunit protein uL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Y	61	Total	C	N	O	S	0	0
			499	308	97	92	2		

- Molecule 17 is a protein called Large ribosomal subunit protein uL30.

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

- Molecule 18 is a protein called Apidaecins type 22.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	y	17	Total	C	N	O	0	0
			148	94	33	21		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
y	10	ARG	GLN	conflict	UNP P35581

- Molecule 19 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	A	1977	Total	C	N	O	P	0	0
			42496	18957	7879	13683	1977		

- Molecule 20 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	E	168	Total	C	N	O	S	0	0
			1307	824	231	247	5		

- Molecule 21 is a protein called Large ribosomal subunit protein uL15.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	L	118	Total	C	N	O	0	0
			850	530	163	157		

3 Residue-property plots (i)

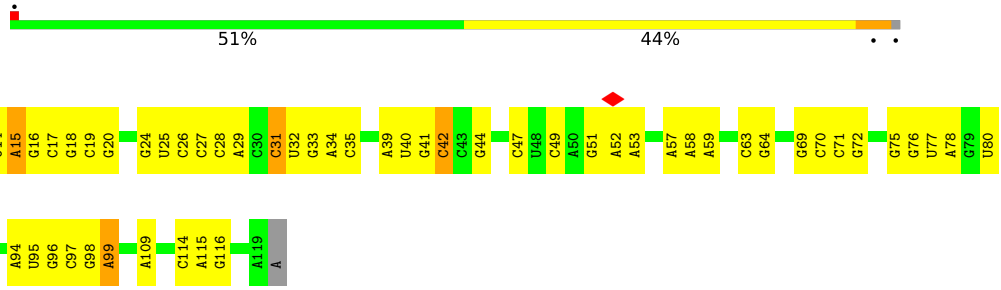
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Large ribosomal subunit protein bL34

Chain 2:

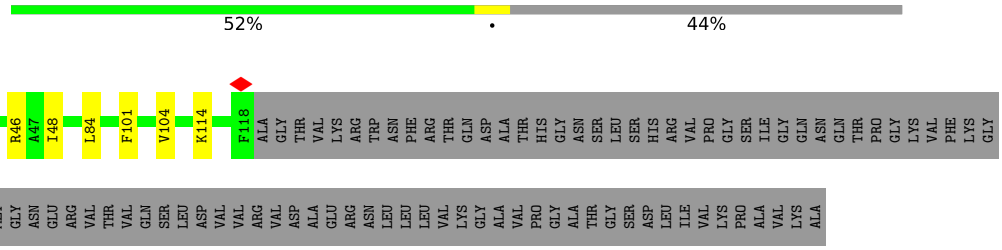
• Molecule 2: 5S ribosomal RNA

Chain B:



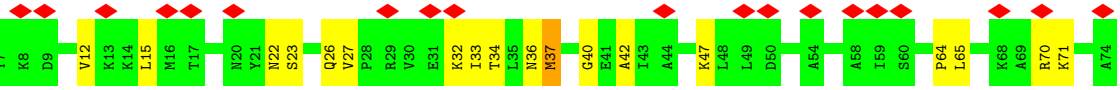
• Molecule 3: 50S ribosomal protein L3

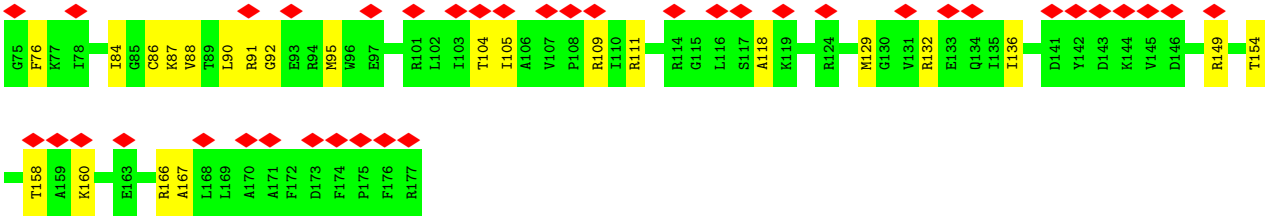
Chain D:



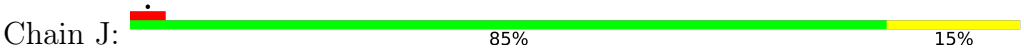
• Molecule 4: Large ribosomal subunit protein uL5

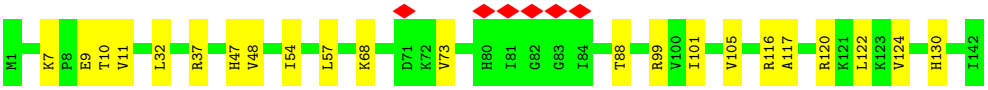
Chain F:



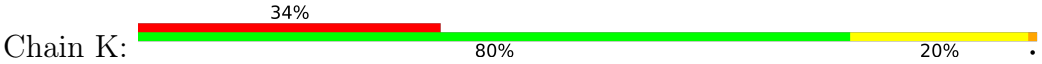


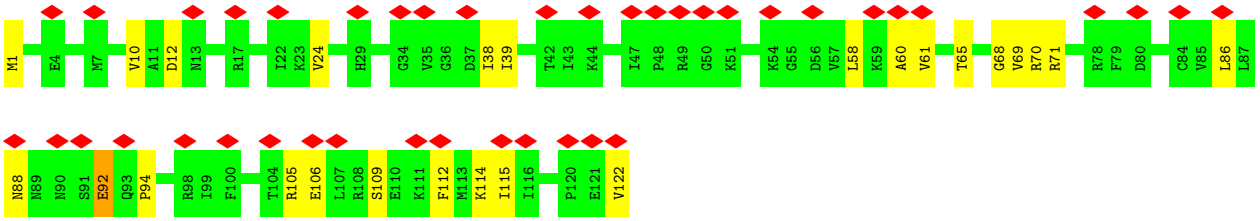
• Molecule 5: Large ribosomal subunit protein uL13



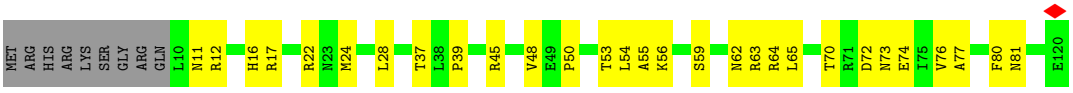


• Molecule 6: Large ribosomal subunit protein uL14

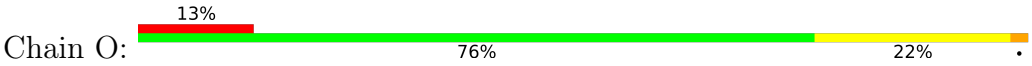


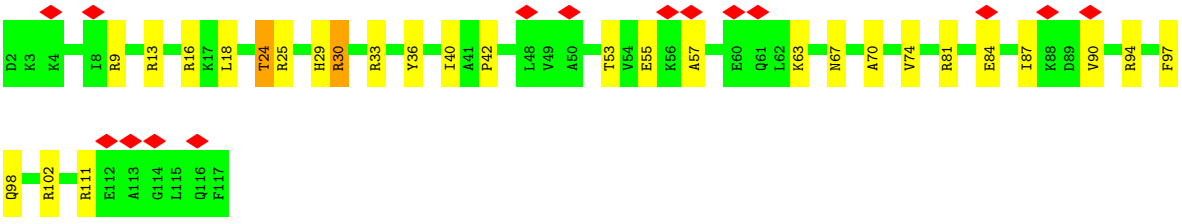


• Molecule 7: Large ribosomal subunit protein bL17

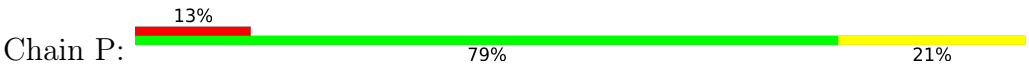


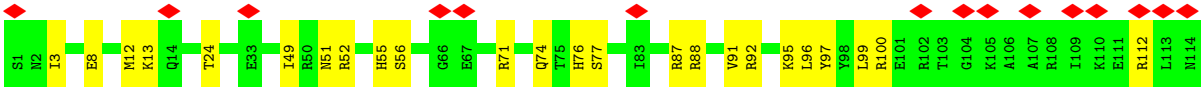
• Molecule 8: Large ribosomal subunit protein uL18



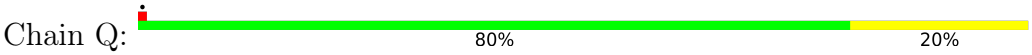


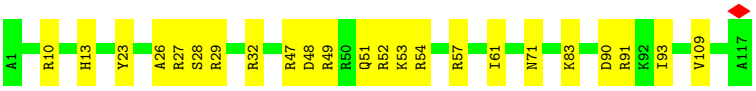
• Molecule 9: Large ribosomal subunit protein bL19



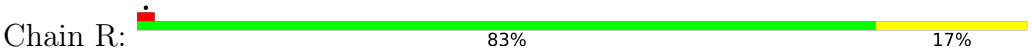


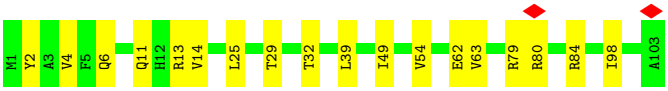
• Molecule 10: Large ribosomal subunit protein bL20



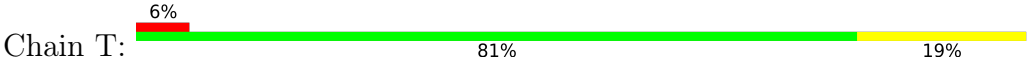


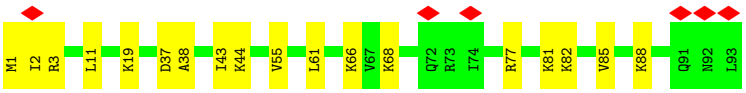
• Molecule 11: Large ribosomal subunit protein bL21



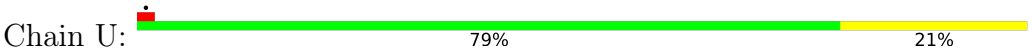


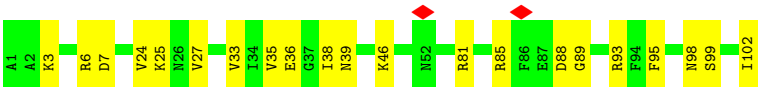
• Molecule 12: Large ribosomal subunit protein uL23



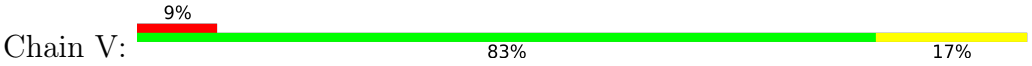


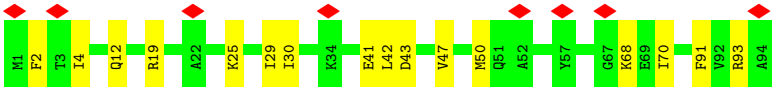
• Molecule 13: Large ribosomal subunit protein uL24



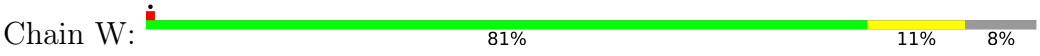


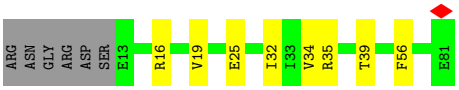
• Molecule 14: Large ribosomal subunit protein bL25





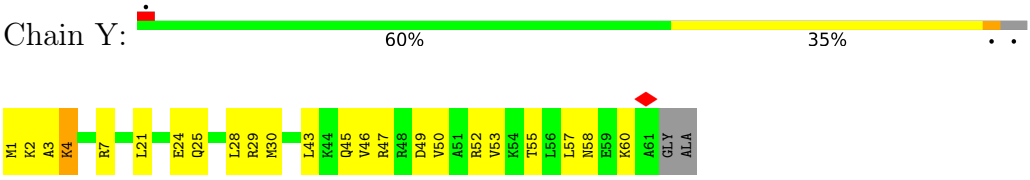
• Molecule 15: Large ribosomal subunit protein bL27





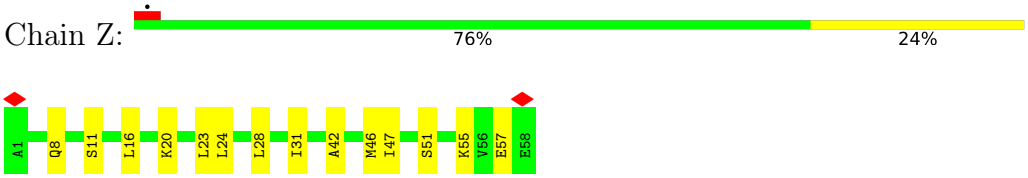
• Molecule 16: Large ribosomal subunit protein uL29

Chain Y:



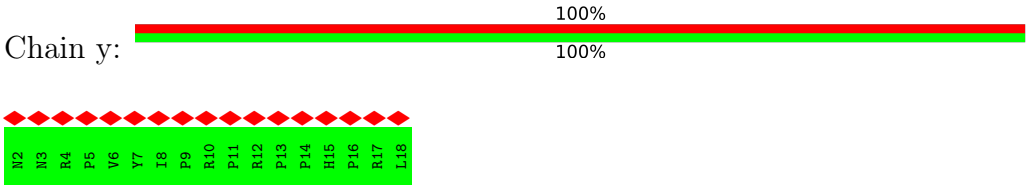
• Molecule 17: Large ribosomal subunit protein uL30

Chain Z:



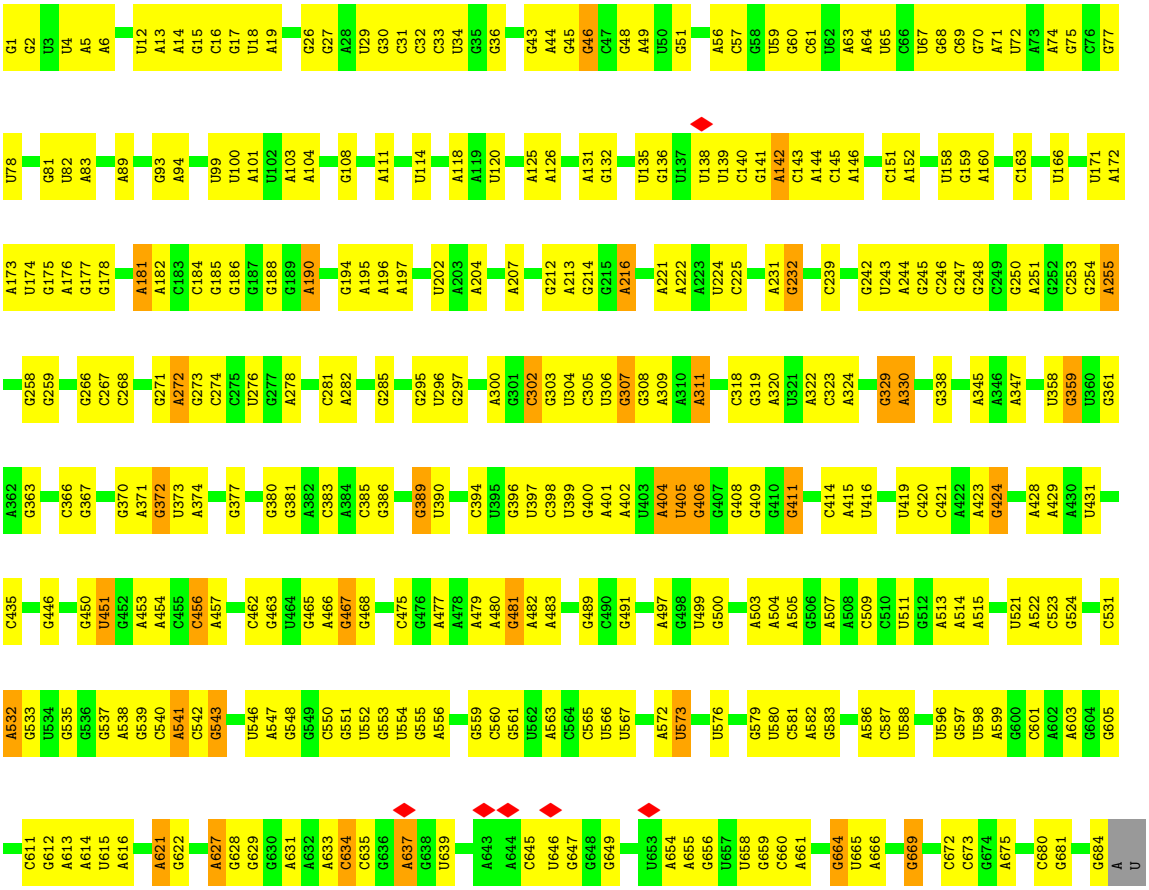
• Molecule 18: Apidaecins type 22

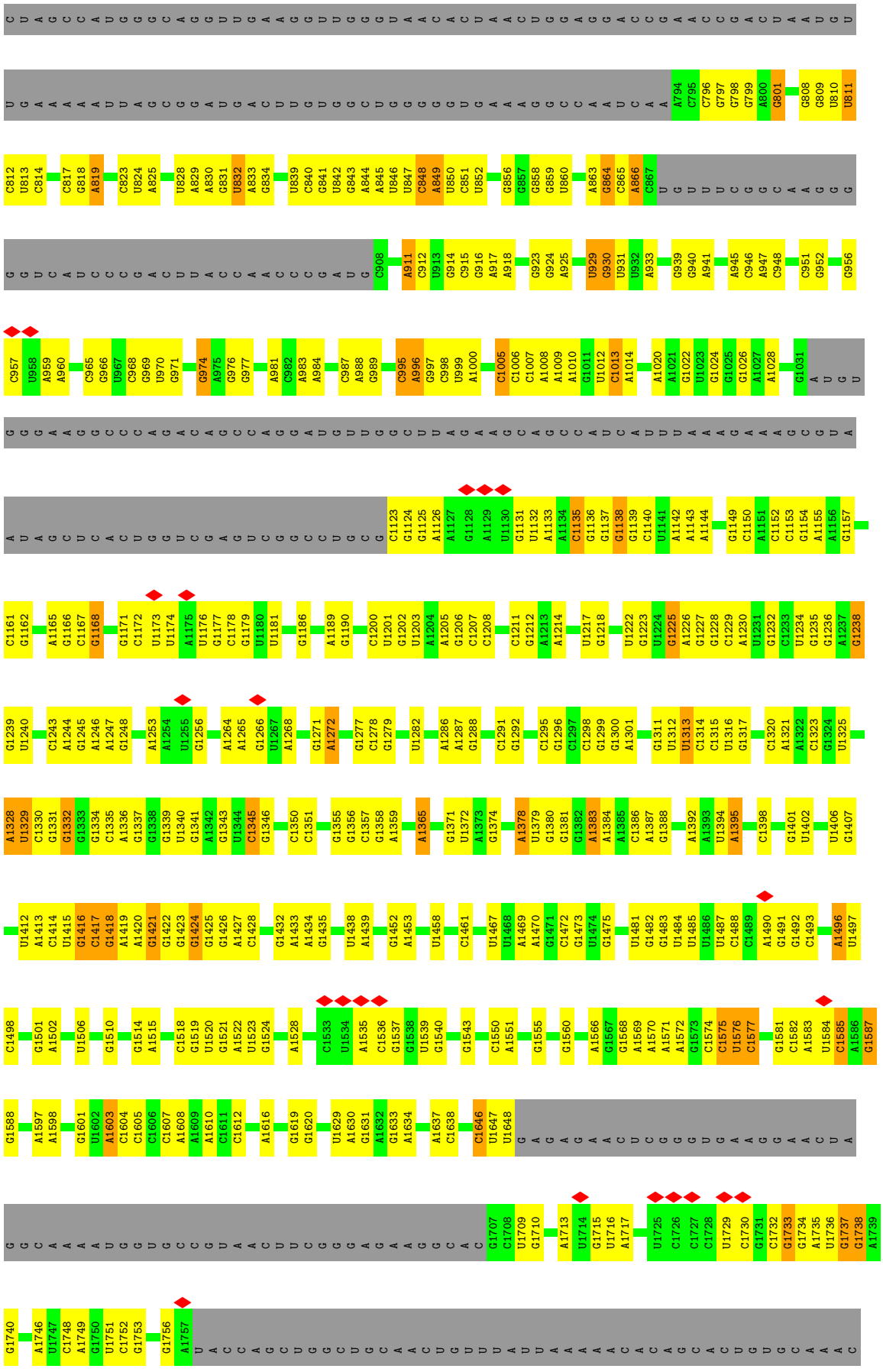
Chain y:

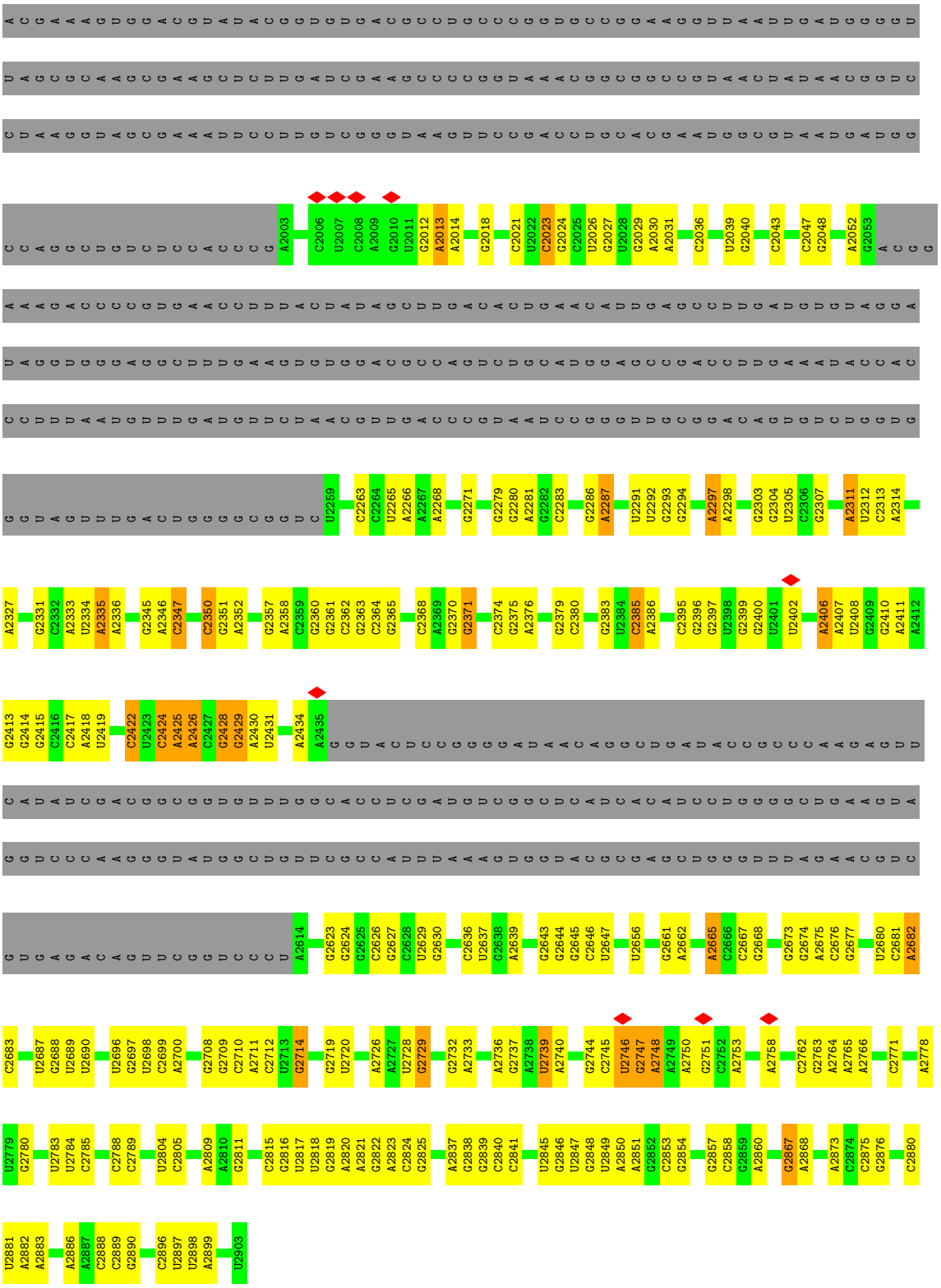


• Molecule 19: 23S ribosomal RNA

Chain A:

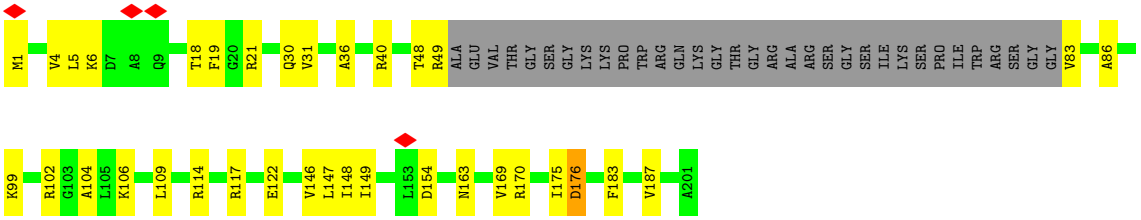






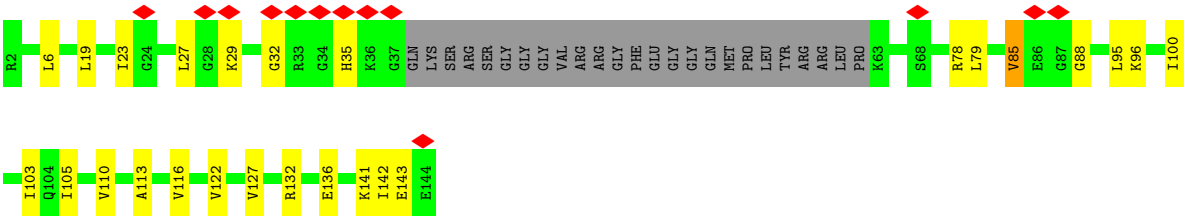
• Molecule 20: Large ribosomal subunit protein uL4

Chain E:



• Molecule 21: Large ribosomal subunit protein uL15

Chain L:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	31417	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 ($e^-/Å^2$)	46.2	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.406	Depositor
Minimum map value	-0.124	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	0.023	Depositor
Recommended contour level	0.068	Depositor
Map size (Å)	399.6, 399.6, 399.6	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.332, 1.332, 1.332	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	2	0.23	0/324	0.62	0/424
2	B	0.15	0/2850	0.73	0/4444
3	D	0.24	0/898	0.49	0/1207
4	F	0.24	0/1435	0.50	0/1926
5	J	0.23	0/1152	0.48	0/1551
6	K	0.24	0/948	0.53	0/1268
7	N	0.24	0/894	0.54	0/1198
8	O	0.24	0/902	0.54	0/1209
9	P	0.23	0/929	0.53	0/1242
10	Q	0.24	0/960	0.49	0/1278
11	R	0.24	0/829	0.52	0/1107
12	T	0.23	0/745	0.51	0/994
13	U	0.25	0/788	0.51	0/1051
14	V	0.23	0/766	0.48	0/1025
15	W	0.25	0/529	0.50	0/699
16	Y	0.23	0/500	0.51	0/665
17	Z	0.23	0/453	0.52	0/605
18	y	0.26	0/155	0.63	0/212
19	A	0.16	0/47606	0.73	22/74262 (0.0%)
20	E	0.23	0/1319	0.46	0/1775
21	L	0.24	0/854	0.60	0/1137
All	All	0.18	0/65836	0.69	22/99279 (0.0%)

There are no bond length outliers.

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
19	A	1575	C	N3-C2-O2	-9.50	115.25	121.90
19	A	2417	C	N3-C2-O2	-7.42	116.71	121.90
19	A	2771	C	N3-C2-O2	-7.29	116.80	121.90
19	A	394	C	N3-C2-O2	-7.15	116.89	121.90
19	A	635	C	N3-C2-O2	-7.07	116.95	121.90
19	A	1612	C	N3-C2-O2	-7.02	116.99	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
19	A	1575	C	N1-C2-O2	7.00	123.10	118.90
19	A	1577	C	N3-C2-O2	-6.65	117.25	121.90
19	A	363	G	N1-C2-N2	-6.34	110.49	116.20
19	A	1313	U	C2-N1-C1'	6.34	125.31	117.70
19	A	274	C	N1-C2-O2	6.22	122.63	118.90
19	A	1424	G	N1-C2-N2	-6.21	110.62	116.20
19	A	634	C	N3-C2-O2	-5.68	117.92	121.90
19	A	1313	U	N1-C2-O2	5.61	126.73	122.80
19	A	363	G	N3-C2-N2	5.53	123.77	119.90
19	A	2417	C	N1-C2-O2	5.49	122.19	118.90
19	A	274	C	N3-C2-O2	-5.45	118.08	121.90
19	A	1612	C	N1-C2-O2	5.38	122.13	118.90
19	A	1577	C	N1-C2-O2	5.23	122.03	118.90
19	A	1313	U	N3-C2-O2	-5.21	118.55	122.20
19	A	635	C	N1-C2-O2	5.18	122.01	118.90
19	A	394	C	N1-C2-O2	5.13	121.98	118.90

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	2	322	0	357	7	0
2	B	2549	0	1291	44	0
3	D	887	0	912	6	0
4	F	1411	0	1447	29	0
5	J	1129	0	1162	13	0
6	K	939	0	1012	16	0
7	N	882	0	913	18	0
8	O	892	0	923	23	0
9	P	917	0	965	18	0
10	Q	947	0	1022	21	0
11	R	816	0	839	10	0
12	T	739	0	807	15	0
13	U	780	0	834	16	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	V	753	0	780	10	0
15	W	522	0	543	6	0
16	Y	499	0	535	14	0
17	Z	449	0	491	8	0
18	y	148	0	152	0	0
19	A	42496	0	21375	594	0
20	E	1307	0	1365	24	0
21	L	850	0	916	18	0
All	All	60234	0	38641	827	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 9.

All (827) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:377:G:H1	19:A:397:U:H3	1.14	0.96
19:A:2747:G:H21	19:A:2758:A:H62	1.15	0.90
19:A:2728:U:HO2'	19:A:2729:G:H8	1.27	0.82
19:A:1323:C:O2	19:A:1331:G:N2	2.12	0.81
19:A:1282:U:H3	19:A:1286:A:H62	1.25	0.81
19:A:1350:C:N3	19:A:1381:G:N1	2.29	0.80
19:A:2747:G:N2	19:A:2758:A:H62	1.80	0.78
2:B:32:U:H2'	2:B:33:G:C8	2.19	0.77
2:B:78:A:H62	2:B:98:G:H21	1.34	0.76
19:A:539:G:H1	19:A:554:U:H3	1.35	0.75
7:N:22:ARG:HG3	7:N:70:THR:HA	1.69	0.74
19:A:2287:A:N6	19:A:2346:A:N7	2.36	0.74
19:A:1323:C:N3	19:A:1331:G:N1	2.36	0.73
2:B:94:A:H5"	14:V:19:ARG:HH21	1.52	0.73
19:A:1423:G:H2'	19:A:1424:G:C8	2.23	0.72
19:A:177:G:OP2	19:A:177:G:N2	2.21	0.72
19:A:320:A:N3	20:E:163:ASN:ND2	2.37	0.72
19:A:1433:A:H61	19:A:1560:G:H1	1.38	0.72
2:B:57:A:N7	2:B:59:A:N6	2.38	0.71
19:A:2345:G:O6	19:A:2371:G:O6	2.09	0.71
9:P:96:LEU:HB3	9:P:99:LEU:HD23	1.74	0.70
19:A:475:C:O2	19:A:479:A:N6	2.22	0.70
19:A:1528:A:N6	19:A:1543:G:O2'	2.25	0.70
19:A:605:G:OP1	20:E:99:LYS:NZ	2.25	0.70
19:A:463:G:N2	19:A:466:A:OP2	2.25	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:212:G:H2'	19:A:213:A:C8	2.28	0.69
19:A:213:A:H2'	19:A:214:G:C8	2.27	0.69
2:B:77:U:O2	2:B:99:A:N7	2.26	0.69
19:A:987:C:O2'	19:A:1000:A:N3	2.25	0.69
2:B:78:A:H62	2:B:98:G:N2	1.91	0.68
19:A:308:G:N2	19:A:477:A:N7	2.41	0.68
19:A:99:U:H5"	19:A:100:U:H5'	1.76	0.68
19:A:659:G:N3	20:E:30:GLN:NE2	2.42	0.67
19:A:966:G:H4'	19:A:2271:G:H22	1.59	0.67
19:A:1329:U:OP2	19:A:1330:C:N4	2.25	0.67
4:F:132:ARG:NH2	19:A:2304:G:O2'	2.28	0.67
19:A:968:C:H2'	19:A:969:G:H8	1.59	0.67
19:A:404:A:N6	19:A:421:C:O2'	2.27	0.66
19:A:2397:G:H1	19:A:2419:U:H3	1.41	0.66
7:N:64:ARG:NH1	19:A:2851:A:O2'	2.29	0.66
8:O:30:ARG:HD2	8:O:102:ARG:HB2	1.76	0.65
19:A:2739:U:O2	19:A:2764:A:N7	2.29	0.65
19:A:453:A:N3	19:A:457:A:O2'	2.29	0.65
9:P:24:THR:HB	9:P:87:ARG:HB3	1.77	0.65
19:A:1597:A:H5"	19:A:1598:A:H5'	1.78	0.65
19:A:302:C:H2'	19:A:303:G:H8	1.62	0.65
20:E:4:VAL:HG22	20:E:6:LYS:H	1.62	0.65
10:Q:54:ARG:HD3	19:A:1155:A:H5"	1.79	0.65
8:O:94:ARG:NH1	8:O:97:PHE:O	2.30	0.65
14:V:30:ILE:HG22	14:V:91:PHE:HB2	1.78	0.64
19:A:2853:C:N4	19:A:2854:G:O6	2.30	0.64
19:A:669:G:N2	19:A:672:C:OP1	2.30	0.64
19:A:1168:G:O6	19:A:1181:U:O2	2.15	0.64
10:Q:83:LYS:NZ	19:A:1152:C:OP1	2.28	0.64
19:A:373:U:H2'	19:A:374:A:H8	1.62	0.64
19:A:523:C:H2'	19:A:524:G:C8	2.33	0.64
12:T:61:LEU:HB3	19:A:1341:G:H5'	1.79	0.64
19:A:78:U:H3	19:A:108:G:H1	1.45	0.64
19:A:2740:A:OP2	19:A:2763:G:N1	2.30	0.64
19:A:1007:C:OP2	19:A:1008:A:O2'	2.14	0.64
4:F:37:MET:HB2	4:F:149:ARG:HH22	1.63	0.64
19:A:1350:C:O2	19:A:1381:G:N2	2.19	0.64
7:N:12:ARG:O	7:N:17:ARG:NH1	2.31	0.63
19:A:1265:A:N6	19:A:2014:A:OP2	2.31	0.63
7:N:63:ARG:HH21	7:N:76:VAL:HG12	1.64	0.63
16:Y:52:ARG:NH1	19:A:77:G:OP1	2.31	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:194:G:N1	19:A:202:U:N3	2.46	0.63
19:A:489:G:N2	19:A:1320:C:OP1	2.30	0.63
2:B:52:A:N7	8:O:33:ARG:NH2	2.47	0.63
12:T:37:ASP:O	12:T:81:LYS:NZ	2.32	0.63
10:Q:51:GLN:OE1	19:A:559:G:N2	2.32	0.63
21:L:79:LEU:HD13	21:L:116:VAL:HB	1.81	0.63
19:A:26:G:N2	19:A:514:A:N7	2.47	0.62
19:A:2352:A:N6	19:A:2365:G:O2'	2.32	0.62
9:P:13:LYS:HE2	9:P:76:HIS:HA	1.80	0.62
19:A:1395:A:H2'	19:A:1398:C:H41	1.63	0.62
2:B:14:U:OP2	2:B:70:C:O2'	2.17	0.62
19:A:834:G:H1'	19:A:2358:A:H1'	1.81	0.62
19:A:2645:G:OP2	19:A:2645:G:N2	2.29	0.62
19:A:521:U:H2'	19:A:522:A:H8	1.65	0.62
4:F:70:ARG:HG2	4:F:71:LYS:HG3	1.82	0.62
19:A:2747:G:H21	19:A:2758:A:N6	1.93	0.62
19:A:239:C:HO2'	19:A:622:G:HO2'	1.45	0.62
19:A:1315:C:O2'	19:A:1392:A:N3	2.28	0.62
19:A:1433:A:N6	19:A:1560:G:H1	1.98	0.62
8:O:13:ARG:NH1	19:A:2335:A:OP1	2.33	0.62
19:A:1378:A:O2'	19:A:1380:G:OP2	2.17	0.62
19:A:808:G:H2'	19:A:809:G:H8	1.64	0.61
4:F:23:SER:HB3	4:F:26:GLN:HB2	1.82	0.61
15:W:39:THR:OG1	19:A:2331:G:O2'	2.19	0.61
19:A:175:G:H2'	19:A:176:A:C8	2.35	0.61
15:W:16:ARG:NH2	19:A:2357:G:OP1	2.33	0.61
19:A:2857:G:N2	19:A:2860:A:OP2	2.30	0.61
19:A:523:C:H2'	19:A:524:G:H8	1.64	0.61
2:B:51:G:O2'	2:B:52:A:O4'	2.15	0.61
13:U:3:LYS:O	13:U:93:ARG:NH1	2.34	0.61
19:A:567:U:OP1	21:L:35:HIS:ND1	2.33	0.61
19:A:2875:C:H2'	19:A:2876:G:C8	2.36	0.60
19:A:923:G:H2'	19:A:924:G:H8	1.65	0.60
19:A:1350:C:N4	19:A:1381:G:O6	2.33	0.60
2:B:78:A:N6	2:B:98:G:H21	1.98	0.60
19:A:311:A:N6	19:A:329:G:OP1	2.34	0.60
19:A:2898:U:H2'	19:A:2899:A:C8	2.37	0.60
3:D:46:ARG:HB3	3:D:84:LEU:HD12	1.83	0.60
8:O:111:ARG:NH2	19:A:2376:A:N3	2.49	0.60
19:A:1229:C:H2'	19:A:1230:A:C8	2.37	0.60
19:A:224:U:O4	19:A:232:G:N2	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:2815:C:H2'	19:A:2816:G:H8	1.67	0.60
13:U:6:ARG:NH1	13:U:25:LYS:O	2.33	0.60
13:U:81:ARG:NH2	19:A:300:A:O5'	2.35	0.60
19:A:31:C:O2'	19:A:1238:G:OP1	2.19	0.60
19:A:1222:U:H3	19:A:1227:G:H1	1.49	0.60
19:A:1358:G:N1	19:A:1372:U:OP2	2.34	0.60
20:E:21:ARG:O	20:E:114:ARG:NH1	2.33	0.60
19:A:808:G:H2'	19:A:809:G:C8	2.36	0.60
19:A:1028:A:OP2	19:A:1126:A:N6	2.35	0.60
19:A:1282:U:O4	19:A:1286:A:N7	2.35	0.60
19:A:1709:U:H2'	19:A:1710:G:H8	1.66	0.60
7:N:37:THR:HG22	7:N:39:PRO:HD2	1.83	0.59
8:O:87:ILE:HB	8:O:90:VAL:HG13	1.84	0.59
10:Q:48:ASP:HA	10:Q:51:GLN:HB2	1.84	0.59
17:Z:55:LYS:NZ	17:Z:57:GLU:OE2	2.35	0.59
19:A:197:A:N6	19:A:2431:U:C2	2.70	0.59
19:A:601:C:O2'	20:E:99:LYS:NZ	2.36	0.59
19:A:2399:G:H2'	19:A:2400:G:C8	2.36	0.59
19:A:860:U:O2	19:A:917:A:N7	2.36	0.59
19:A:2345:G:H5'	19:A:2347:C:H5"	1.82	0.59
1:2:19:ARG:NH1	19:A:125:A:OP2	2.35	0.59
4:F:40:GLY:HA2	4:F:84:ILE:HD11	1.84	0.59
19:A:81:G:O2'	19:A:295:G:O2'	2.20	0.59
19:A:974:G:O2'	19:A:989:G:N2	2.36	0.59
19:A:482:A:O2'	19:A:497:A:N1	2.36	0.58
19:A:1386:C:H2'	19:A:1387:A:H8	1.68	0.58
19:A:2875:C:H2'	19:A:2876:G:H8	1.68	0.58
10:Q:57:ARG:NH1	19:A:1154:G:OP2	2.37	0.58
19:A:65:U:O2'	19:A:456:C:N3	2.32	0.58
19:A:1223:G:N2	19:A:1226:A:OP2	2.36	0.58
19:A:83:A:O2'	19:A:103:A:N6	2.36	0.58
5:J:32:LEU:HD22	5:J:54:ILE:HG21	1.86	0.58
2:B:32:U:H2'	2:B:33:G:H8	1.65	0.58
19:A:541:A:N6	19:A:553:G:O6	2.36	0.58
19:A:573:U:O4	19:A:2029:G:O2'	2.21	0.58
19:A:956:G:N2	19:A:960:A:OP2	2.37	0.58
19:A:566:U:O2'	19:A:808:G:OP1	2.16	0.58
19:A:948:C:O2	19:A:984:A:O2'	2.20	0.57
19:A:2385:C:H2'	19:A:2386:A:H8	1.69	0.57
19:A:26:G:H1'	19:A:515:A:H61	1.68	0.57
19:A:1206:G:O6	19:A:1240:U:O2	2.23	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:Y:57:LEU:HD23	16:Y:60:LYS:HD3	1.86	0.57
19:A:524:G:O2'	19:A:556:A:OP1	2.22	0.57
19:A:1229:C:H2'	19:A:1230:A:H8	1.67	0.57
19:A:1137:G:H2'	19:A:1138:G:C8	2.39	0.57
10:Q:53:LYS:HG2	19:A:995:C:H5"	1.87	0.57
5:J:68:LYS:NZ	19:A:1140:C:OP2	2.36	0.57
19:A:48:G:N2	19:A:177:G:OP1	2.32	0.57
19:A:143:C:H2'	19:A:144:A:H8	1.70	0.57
19:A:207:A:O2'	19:A:798:G:O2'	2.22	0.57
19:A:1288:G:OP2	19:A:1288:G:N2	2.37	0.57
4:F:15:LEU:HD22	4:F:167:ALA:HB1	1.86	0.57
19:A:302:C:H2'	19:A:303:G:C8	2.40	0.57
19:A:2748:A:N7	19:A:2753:A:N6	2.53	0.57
4:F:129:MET:SD	19:A:2303:G:O2'	2.61	0.57
12:T:19:LYS:NZ	19:A:1340:U:OP1	2.38	0.57
19:A:2307:G:N2	19:A:2311:A:OP2	2.38	0.57
20:E:148:ILE:HB	20:E:169:VAL:HG22	1.87	0.57
1:2:12:ARG:NH2	1:2:43:THR:O	2.38	0.56
19:A:2279:G:H2'	19:A:2280:G:H8	1.69	0.56
19:A:2385:C:H2'	19:A:2386:A:C8	2.40	0.56
19:A:2643:G:H2'	19:A:2644:G:C8	2.39	0.56
2:B:75:G:H1'	14:V:29:ILE:HD13	1.88	0.56
20:E:176:ASP:N	20:E:176:ASP:OD1	2.34	0.56
6:K:58:LEU:HD11	6:K:86:LEU:HB3	1.87	0.56
19:A:207:A:HO2'	19:A:798:G:HO2'	1.51	0.56
19:A:2291:U:O2'	19:A:2374:C:O2	2.21	0.56
8:O:9:ARG:HE	19:A:2334:U:H5'	1.70	0.56
9:P:52:ARG:HH21	19:A:2720:U:H5"	1.71	0.56
19:A:2728:U:O2'	19:A:2729:G:H8	1.89	0.56
10:Q:52:ARG:HH21	19:A:535:G:H4'	1.70	0.56
19:A:970:U:H2'	19:A:971:G:C8	2.40	0.56
14:V:2:PHE:HE2	14:V:50:MET:HE3	1.71	0.56
19:A:951:C:N4	19:A:952:G:O6	2.39	0.55
19:A:1359:A:OP2	19:A:1371:G:N2	2.39	0.55
20:E:5:LEU:HD23	20:E:122:GLU:HG3	1.88	0.55
19:A:658:U:H2'	19:A:659:G:H8	1.70	0.55
19:A:931:U:O2	19:A:1167:C:O2'	2.24	0.55
19:A:1013:C:H2'	19:A:1014:A:H8	1.71	0.55
19:A:1629:U:O4	19:A:1630:A:N6	2.39	0.55
19:A:981:A:O2'	19:A:2036:C:O2'	2.24	0.55
19:A:1418:G:N2	19:A:1581:G:O6	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:1709:U:H2'	19:A:1710:G:C8	2.41	0.55
19:A:2047:C:O2'	19:A:2823:A:N1	2.37	0.55
4:F:64:PRO:HB3	4:F:88:VAL:HG22	1.89	0.55
19:A:324:A:N6	19:A:338:G:O2'	2.40	0.55
13:U:24:VAL:HG12	13:U:35:VAL:HG22	1.89	0.55
16:Y:24:GLU:HG2	16:Y:28:LEU:HD23	1.89	0.55
19:A:145:C:H2'	19:A:146:A:H8	1.70	0.55
19:A:627:A:H3'	21:L:78:ARG:HH12	1.72	0.55
19:A:645:C:N4	19:A:2368:C:O2'	2.31	0.55
19:A:946:C:H2'	19:A:947:A:C8	2.42	0.55
2:B:39:A:O2'	2:B:40:U:O4'	2.20	0.55
19:A:45:G:H5"	19:A:46:G:H5'	1.89	0.55
19:A:629:G:N2	19:A:639:U:O2'	2.30	0.55
19:A:1386:C:H2'	19:A:1387:A:C8	2.41	0.55
19:A:1475:G:O2'	19:A:1514:G:O6	2.23	0.55
4:F:32:LYS:HD3	4:F:91:ARG:HH21	1.70	0.55
19:A:1432:G:H2'	19:A:1433:A:C8	2.42	0.55
4:F:36:ASN:OD1	4:F:37:MET:N	2.40	0.55
19:A:2023:C:H2'	19:A:2024:G:H8	1.72	0.55
19:A:2818:U:H2'	19:A:2819:G:C8	2.42	0.55
19:A:1227:G:H2'	19:A:1228:G:H8	1.72	0.54
4:F:70:ARG:H	19:A:2312:U:H5"	1.72	0.54
19:A:411:G:OP2	19:A:2406:A:O2'	2.23	0.54
19:A:1736:U:O4	19:A:1737:G:N2	2.41	0.54
9:P:52:ARG:HG2	19:A:2845:U:H4'	1.89	0.54
19:A:1438:U:H2'	19:A:1439:A:H8	1.72	0.54
8:O:98:GLN:NE2	19:A:2294:G:OP1	2.40	0.54
19:A:1152:C:H2'	19:A:1153:C:H6	1.73	0.54
2:B:28:C:H2'	2:B:29:A:C8	2.43	0.54
19:A:358:U:O4	19:A:359:G:O6	2.26	0.54
19:A:1472:C:N4	19:A:1473:G:O6	2.40	0.54
19:A:2374:C:N4	19:A:2375:G:O6	2.40	0.54
19:A:2676:C:H2'	19:A:2677:G:C8	2.43	0.54
13:U:88:ASP:OD1	13:U:89:GLY:N	2.40	0.54
13:U:93:ARG:HB2	13:U:102:ILE:HD12	1.89	0.54
19:A:665:U:H2'	19:A:666:A:H8	1.73	0.54
19:A:194:G:C6	19:A:202:U:N3	2.75	0.54
19:A:370:G:O2'	19:A:424:G:OP1	2.26	0.54
19:A:801:G:N1	20:E:48:THR:OG1	2.41	0.54
19:A:2680:U:O2	19:A:2682:A:N6	2.40	0.54
19:A:532:A:OP1	19:A:561:G:N2	2.39	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:R:14:VAL:HG21	11:R:98:ILE:HD13	1.89	0.53
16:Y:3:ALA:O	16:Y:7:ARG:HG2	2.08	0.53
7:N:28:LEU:HD23	7:N:48:VAL:HG21	1.90	0.53
9:P:52:ARG:NH2	19:A:2720:U:OP1	2.41	0.53
19:A:135:U:H2'	19:A:136:G:C8	2.43	0.53
19:A:216:A:N7	19:A:431:U:O2	2.40	0.53
19:A:1483:G:H1	19:A:1506:U:H3	1.55	0.53
2:B:114:C:H2'	2:B:115:A:H8	1.73	0.53
19:A:1335:C:H2'	19:A:1336:A:H8	1.73	0.53
19:A:1752:C:H2'	19:A:1753:G:C8	2.43	0.53
20:E:170:ARG:NH1	20:E:176:ASP:OD1	2.42	0.53
19:A:194:G:N1	19:A:202:U:C2	2.77	0.53
19:A:296:U:H2'	19:A:297:G:H8	1.74	0.53
19:A:1243:C:O2'	21:L:6:LEU:O	2.26	0.53
19:A:2357:G:N2	19:A:2360:G:OP2	2.38	0.53
10:Q:47:ARG:NH2	19:A:560:C:O2	2.41	0.53
13:U:38:ILE:HG13	13:U:39:ASN:H	1.73	0.53
16:Y:1:MET:HA	16:Y:4:LYS:HE3	1.91	0.53
19:A:194:G:C2	19:A:202:U:C2	2.96	0.53
19:A:2265:U:OP2	19:A:2266:A:O2'	2.23	0.53
19:A:1550:C:H2'	19:A:1551:A:H8	1.74	0.53
11:R:32:THR:HG22	11:R:62:GLU:HG3	1.91	0.53
19:A:145:C:H2'	19:A:146:A:C8	2.44	0.53
19:A:307:G:H21	19:A:330:A:H61	1.57	0.53
19:A:665:U:H2'	19:A:666:A:C8	2.44	0.53
19:A:2292:U:H2'	19:A:2293:G:H8	1.73	0.53
9:P:88:ARG:HB3	9:P:112:ARG:HD3	1.91	0.53
19:A:929:U:O2'	19:A:930:G:OP1	2.21	0.53
19:A:194:G:C2	19:A:202:U:O2	2.62	0.52
19:A:196:A:H61	19:A:831:G:H4'	1.75	0.52
19:A:523:C:H1'	19:A:554:U:H1'	1.90	0.52
19:A:1264:A:N6	19:A:2014:A:OP2	2.41	0.52
16:Y:2:LYS:NZ	19:A:78:U:OP1	2.33	0.52
2:B:29:A:O2'	2:B:58:A:N6	2.40	0.52
8:O:18:LEU:HD22	8:O:25:ARG:HD3	1.91	0.52
19:A:36:G:N3	19:A:450:G:O2'	2.41	0.52
19:A:2898:U:H2'	19:A:2899:A:H8	1.73	0.52
16:Y:55:THR:OG1	19:A:72:U:O2	2.24	0.52
19:A:930:G:H2'	19:A:933:A:H8	1.74	0.52
19:A:2656:U:O2	19:A:2665:A:N7	2.43	0.52
21:L:95:LEU:HD22	21:L:100:ILE:HD12	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:83:G:O6	2:B:94:A:N6	2.43	0.52
19:A:160:A:N7	19:A:166:U:O4	2.42	0.52
12:T:44:LYS:NZ	12:T:55:VAL:O	2.43	0.52
19:A:408:G:H2'	19:A:409:G:H8	1.75	0.52
19:A:2816:G:N3	19:A:2883:A:O2'	2.40	0.52
7:N:54:LEU:HD11	7:N:65:LEU:HD23	1.92	0.52
19:A:968:C:H2'	19:A:969:G:C8	2.43	0.52
19:A:1123:C:H2'	19:A:1124:G:H8	1.74	0.52
4:F:84:ILE:HG21	19:A:2312:U:H4'	1.91	0.52
12:T:38:ALA:HB1	12:T:43:ILE:HD11	1.92	0.52
19:A:1387:A:H2'	19:A:1388:G:C8	2.45	0.52
2:B:13:G:N2	2:B:69:G:O2'	2.44	0.51
2:B:28:C:H2'	2:B:29:A:H8	1.75	0.51
4:F:12:VAL:HG13	4:F:27:VAL:HG11	1.92	0.51
19:A:513:A:H2'	19:A:514:A:C8	2.45	0.51
19:A:1574:C:H2'	19:A:1575:C:C6	2.46	0.51
14:V:68:LYS:HE3	14:V:70:ILE:HD11	1.93	0.51
4:F:76:PHE:CG	19:A:2311:A:H5"	2.45	0.51
10:Q:23:TYR:H	10:Q:28:SER:HB3	1.75	0.51
19:A:372:G:N2	19:A:401:A:OP2	2.38	0.51
19:A:1428:C:N4	19:A:1570:A:OP2	2.44	0.51
19:A:93:G:H2'	19:A:94:A:H8	1.75	0.51
12:T:1:MET:SD	19:A:142:A:O2'	2.65	0.51
19:A:1417:C:OP1	19:A:1587:G:N2	2.41	0.51
19:A:2292:U:H2'	19:A:2293:G:C8	2.45	0.51
19:A:2848:G:H1'	19:A:2868:A:H61	1.75	0.51
6:K:71:ARG:NE	6:K:106:GLU:OE2	2.44	0.51
8:O:111:ARG:HH12	19:A:2376:A:H1'	1.74	0.51
19:A:184:C:N4	19:A:185:G:O6	2.43	0.51
19:A:296:U:H2'	19:A:297:G:C8	2.46	0.51
19:A:373:U:H2'	19:A:374:A:C8	2.44	0.51
19:A:514:A:N3	19:A:581:C:O2'	2.43	0.51
19:A:581:C:H2'	19:A:582:A:H8	1.75	0.51
19:A:1245:G:H2'	19:A:1246:A:C8	2.46	0.51
19:A:1291:C:H2'	19:A:1292:G:H8	1.74	0.51
19:A:1335:C:H2'	19:A:1336:A:C8	2.46	0.51
19:A:538:A:H62	19:A:555:G:H21	1.59	0.51
19:A:1539:U:H2'	19:A:1540:G:H8	1.76	0.51
19:A:521:U:H2'	19:A:522:A:C8	2.46	0.51
19:A:1751:U:H2'	19:A:1752:C:C6	2.46	0.51
21:L:132:ARG:HG3	21:L:142:ILE:HD12	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:158:THR:O	4:F:160:LYS:NZ	2.41	0.50
8:O:24:THR:HB	8:O:42:PRO:HD3	1.93	0.50
11:R:79:ARG:HH21	19:A:572:A:H5'	1.76	0.50
15:W:32:ILE:HA	15:W:56:PHE:HA	1.93	0.50
19:A:848:C:O2'	19:A:849:A:OP1	2.29	0.50
19:A:1140:C:O2	19:A:1143:A:O2'	2.28	0.50
19:A:2699:C:H2'	19:A:2700:A:C8	2.47	0.50
1:2:9:VAL:O	1:2:13:ASN:ND2	2.35	0.50
19:A:171:U:H2'	19:A:172:A:C8	2.46	0.50
19:A:380:G:H2'	19:A:381:G:C8	2.46	0.50
19:A:2291:U:O2	19:A:2374:C:O2'	2.29	0.50
21:L:141:LYS:NZ	21:L:143:GLU:OE1	2.43	0.50
17:Z:23:LEU:HD22	17:Z:28:LEU:HD12	1.93	0.50
19:A:1190:G:OP1	21:L:32:GLY:N	2.42	0.50
19:A:1346:G:N1	19:A:1601:G:O6	2.45	0.50
21:L:27:LEU:HD23	21:L:27:LEU:H	1.76	0.50
16:Y:58:ASN:ND2	19:A:111:A:O2'	2.43	0.50
19:A:1733:G:H2'	19:A:1734:G:H8	1.77	0.50
19:A:2818:U:H4'	19:A:2837:A:H4'	1.94	0.50
8:O:29:HIS:HB3	8:O:36:TYR:HB2	1.94	0.50
19:A:462:C:N4	19:A:463:G:O6	2.44	0.50
19:A:823:C:H2'	19:A:824:U:C6	2.47	0.50
19:A:1137:G:H2'	19:A:1138:G:H8	1.77	0.50
7:N:74:GLU:OE2	19:A:1453:A:N6	2.45	0.50
13:U:27:VAL:HG12	13:U:33:VAL:HG22	1.92	0.50
19:A:1217:U:O2	19:A:1232:G:O6	2.30	0.50
19:A:1287:A:H2'	19:A:1288:G:C2	2.46	0.50
19:A:2395:C:H2'	19:A:2396:G:H8	1.75	0.50
4:F:36:ASN:ND2	4:F:87:LYS:HB3	2.27	0.50
10:Q:57:ARG:O	10:Q:61:ILE:HG12	2.12	0.50
19:A:60:G:O6	19:A:89:A:N6	2.45	0.50
19:A:1539:U:H2'	19:A:1540:G:C8	2.47	0.50
19:A:660:C:H2'	19:A:661:A:H8	1.75	0.49
19:A:1387:A:H2'	19:A:1388:G:H8	1.77	0.49
19:A:1469:A:OP2	19:A:1522:A:N6	2.42	0.49
19:A:2746:U:C4	19:A:2747:G:H1'	2.48	0.49
11:R:6:GLN:HB3	11:R:11:GLN:HB3	1.93	0.49
7:N:24:MET:SD	19:A:1277:G:O2'	2.70	0.49
19:A:946:C:H2'	19:A:947:A:H8	1.75	0.49
19:A:1487:U:H2'	19:A:1488:C:C6	2.47	0.49
19:A:2026:U:H2'	19:A:2027:G:H8	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:2280:G:H2'	19:A:2281:A:H8	1.78	0.49
5:J:117:ALA:HA	5:J:120:ARG:HE	1.77	0.49
6:K:94:PRO:HG2	6:K:114:LYS:HD3	1.94	0.49
19:A:59:U:H3	19:A:68:G:H1	1.59	0.49
19:A:1135:C:N4	19:A:1138:G:OP2	2.46	0.49
7:N:72:ASP:OD1	7:N:73:ASN:N	2.45	0.49
19:A:402:A:N3	19:A:406:G:O2'	2.43	0.49
19:A:1311:G:N2	19:A:1603:A:H62	2.11	0.49
1:2:34:ARG:NH2	1:2:41:ARG:O	2.46	0.49
19:A:408:G:H1	19:A:419:U:H3	1.59	0.49
19:A:1426:G:O2'	19:A:1572:A:N6	2.46	0.49
19:A:1566:A:O2'	19:A:1568:G:N2	2.46	0.49
19:A:2676:C:H2'	19:A:2677:G:H8	1.77	0.49
13:U:25:LYS:HE3	13:U:36:GLU:HB3	1.94	0.49
19:A:239:C:H1'	19:A:621:A:H2	1.77	0.49
9:P:92:ARG:NH2	19:A:2849:U:OP2	2.45	0.49
10:Q:83:LYS:NZ	19:A:998:C:OP1	2.45	0.49
19:A:627:A:N6	19:A:637:A:O4'	2.45	0.49
19:A:2667:C:H2'	19:A:2668:G:H8	1.77	0.49
19:A:2818:U:H2'	19:A:2819:G:H8	1.77	0.49
19:A:1518:C:H2'	19:A:1519:G:C8	2.48	0.48
6:K:112:PHE:HB3	6:K:115:ILE:HD11	1.94	0.48
7:N:77:ALA:O	7:N:81:ASN:ND2	2.46	0.48
19:A:318:C:H2'	19:A:319:G:H8	1.78	0.48
19:A:628:G:H2'	19:A:629:G:C8	2.48	0.48
19:A:1492:G:N1	19:A:1496:A:N7	2.61	0.48
19:A:2710:C:H2'	19:A:2711:A:C8	2.48	0.48
19:A:2822:G:O2'	19:A:2825:G:N1	2.46	0.48
19:A:1218:G:N1	19:A:1232:G:N7	2.62	0.48
2:B:26:C:HO2'	2:B:116:G:HO2'	1.60	0.48
19:A:177:G:H5"	19:A:178:G:C8	2.48	0.48
19:A:673:C:OP1	20:E:49:ARG:NH1	2.46	0.48
19:A:825:A:H1'	19:A:2358:A:N7	2.28	0.48
19:A:1243:C:H2'	19:A:1244:A:C8	2.48	0.48
19:A:1424:G:H2'	19:A:1425:G:C8	2.48	0.48
2:B:63:C:H2'	2:B:64:G:H8	1.77	0.48
10:Q:10:ARG:NH2	19:A:29:U:O2'	2.42	0.48
10:Q:90:ASP:HB3	10:Q:93:ILE:HG12	1.94	0.48
19:A:2279:G:H2'	19:A:2280:G:C8	2.48	0.48
19:A:2847:U:H2'	19:A:2848:G:O4'	2.13	0.48
20:E:99:LYS:HG2	20:E:102:ARG:HH21	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:250:G:O2'	19:A:251:A:O4'	2.21	0.48
2:B:44:G:N3	2:B:47:C:N4	2.50	0.48
6:K:58:LEU:HD21	6:K:86:LEU:HD23	1.94	0.48
6:K:70:ARG:HH22	19:A:2683:C:H2'	1.78	0.48
11:R:84:ARG:HH22	21:L:23:ILE:HD13	1.77	0.48
9:P:51:ASN:HA	9:P:56:SER:HA	1.94	0.48
19:A:151:C:H2'	19:A:152:A:C8	2.49	0.48
19:A:1313:U:H4'	19:A:1332:G:H4'	1.95	0.48
13:U:35:VAL:HB	13:U:38:ILE:HD11	1.96	0.48
19:A:1316:U:H2'	19:A:1317:G:H8	1.79	0.48
19:A:2026:U:H2'	19:A:2027:G:C8	2.48	0.48
2:B:98:G:O2'	19:A:917:A:O2'	2.32	0.48
6:K:65:THR:HG23	6:K:68:GLY:H	1.79	0.48
19:A:1165:A:H2'	19:A:1166:G:H8	1.78	0.48
19:A:2824:C:OP2	19:A:2825:G:N2	2.47	0.48
2:B:31:C:H2'	2:B:32:U:C5	2.49	0.47
2:B:63:C:H2'	2:B:64:G:C8	2.49	0.47
12:T:11:LEU:O	16:Y:29:ARG:NH2	2.47	0.47
14:V:42:LEU:HB3	14:V:47:VAL:HG21	1.95	0.47
19:A:1401:G:O2'	19:A:1522:A:OP2	2.32	0.47
19:A:2719:G:H4'	19:A:2846:G:H4'	1.96	0.47
20:E:146:VAL:HG21	20:E:187:VAL:HG23	1.96	0.47
2:B:11:C:H2'	2:B:15:A:H62	1.79	0.47
20:E:18:THR:HG23	20:E:106:LYS:HG2	1.96	0.47
19:A:389:G:C6	19:A:2413:G:H4'	2.49	0.47
19:A:824:U:H2'	19:A:825:A:C8	2.49	0.47
1:2:43:THR:H	19:A:126:A:H61	1.61	0.47
19:A:177:G:H5"	19:A:178:G:N7	2.29	0.47
19:A:2047:C:H2'	19:A:2048:G:H8	1.79	0.47
19:A:2784:U:H2'	19:A:2785:C:H6	1.80	0.47
19:A:1434:A:H2'	19:A:1435:G:C8	2.50	0.47
19:A:1550:C:H2'	19:A:1551:A:C8	2.49	0.47
19:A:2425:A:H4'	19:A:2426:A:O5'	2.14	0.47
19:A:2643:G:C6	19:A:2644:G:O6	2.67	0.47
19:A:2848:G:H1'	19:A:2868:A:N6	2.30	0.47
15:W:25:GLU:HG2	19:A:923:G:H1'	1.95	0.47
19:A:131:A:H2'	19:A:132:G:H8	1.80	0.47
19:A:408:G:H2'	19:A:409:G:C8	2.49	0.47
19:A:1619:G:H2'	19:A:1620:G:C8	2.49	0.47
19:A:2687:U:H2'	19:A:2688:G:O4'	2.15	0.47
20:E:149:ILE:HG21	20:E:175:ILE:HD11	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:Z:11:SER:HA	17:Z:31:ILE:HD11	1.96	0.47
19:A:43:G:H2'	19:A:44:A:O4'	2.15	0.47
19:A:849:A:H2'	19:A:850:U:H6	1.78	0.47
19:A:1161:C:H2'	19:A:1162:G:C8	2.49	0.47
19:A:1178:C:H2'	19:A:1179:G:C8	2.49	0.47
19:A:1265:A:H61	19:A:2013:A:H3'	1.80	0.47
19:A:1402:U:O2'	19:A:1521:G:O2'	2.30	0.47
19:A:1427:A:N6	19:A:1571:A:OP2	2.41	0.47
19:A:2345:G:H4'	19:A:2346:A:H3'	1.96	0.47
6:K:1:MET:SD	6:K:1:MET:N	2.81	0.47
12:T:68:LYS:HG3	12:T:77:ARG:HE	1.80	0.47
19:A:247:G:O2'	19:A:250:G:O6	2.24	0.47
10:Q:49:ARG:O	10:Q:53:LYS:NZ	2.46	0.47
19:A:660:C:H2'	19:A:661:A:C8	2.50	0.47
19:A:1434:A:H2'	19:A:1435:G:H8	1.80	0.47
19:A:929:U:H2'	19:A:930:G:C8	2.50	0.46
20:E:154:ASP:OD1	20:E:154:ASP:N	2.46	0.46
21:L:96:LYS:HB3	21:L:103:ILE:HD13	1.97	0.46
4:F:2:LYS:H	4:F:2:LYS:HD3	1.80	0.46
8:O:25:ARG:O	8:O:40:ILE:N	2.48	0.46
13:U:38:ILE:HG13	13:U:39:ASN:N	2.31	0.46
17:Z:8:GLN:HB2	17:Z:28:LEU:HD13	1.97	0.46
19:A:1414:C:H2'	19:A:1415:U:O4'	2.15	0.46
19:A:1492:G:H1	19:A:1498:C:H42	1.64	0.46
19:A:2039:U:H2'	19:A:2040:G:C8	2.50	0.46
19:A:2636:C:H2'	19:A:2637:U:H6	1.79	0.46
19:A:2710:C:H2'	19:A:2711:A:H8	1.80	0.46
19:A:1402:U:O2'	19:A:1470:A:N1	2.48	0.46
19:A:1637:A:H2'	19:A:1638:C:C6	2.50	0.46
2:B:24:G:N3	2:B:27:C:N4	2.63	0.46
8:O:94:ARG:HE	19:A:2376:A:H61	1.64	0.46
19:A:1207:C:H2'	19:A:1208:C:C6	2.51	0.46
6:K:24:VAL:HA	6:K:39:ILE:HG22	1.98	0.46
6:K:39:ILE:O	6:K:60:ALA:N	2.49	0.46
9:P:97:TYR:HB3	9:P:100:ARG:HH12	1.79	0.46
12:T:19:LYS:NZ	19:A:1394:U:O2	2.45	0.46
19:A:970:U:H2'	19:A:971:G:H8	1.79	0.46
19:A:929:U:HO2'	19:A:930:G:P	2.37	0.46
19:A:2422:C:O2'	19:A:2424:C:OP1	2.33	0.46
20:E:19:PHE:HE1	20:E:109:LEU:HD13	1.80	0.46
21:L:78:ARG:HG3	21:L:113:ALA:HB3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:L:85:VAL:HB	21:L:88:GLY:HA2	1.97	0.46
3:D:13:ARG:HH21	9:P:55:HIS:HA	1.79	0.46
2:B:70:C:H2'	2:B:71:C:H6	1.80	0.46
19:A:307:G:H21	19:A:330:A:N6	2.14	0.46
19:A:511:U:H4'	19:A:1235:G:H4'	1.98	0.46
19:A:596:U:H2'	19:A:597:G:H8	1.79	0.46
19:A:999:U:H2'	19:A:1000:A:H8	1.81	0.46
19:A:2428:G:H4'	19:A:2429:G:C5	2.51	0.46
14:V:25:LYS:HG2	14:V:43:ASP:HA	1.98	0.46
19:A:1630:A:H2'	19:A:1631:G:O4'	2.16	0.46
19:A:2788:C:O2'	19:A:2809:A:N3	2.40	0.46
12:T:82:LYS:NZ	19:A:1340:U:OP2	2.43	0.45
19:A:499:U:H2'	19:A:500:G:O4'	2.16	0.45
2:B:97:C:O2	19:A:918:A:H4'	2.17	0.45
6:K:105:ARG:HH21	6:K:122:VAL:HA	1.81	0.45
17:Z:16:LEU:O	17:Z:20:LYS:HG2	2.16	0.45
19:A:580:U:H2'	19:A:581:C:C6	2.50	0.45
19:A:832:U:H2'	19:A:833:A:C8	2.51	0.45
20:E:83:VAL:HB	20:E:86:ALA:HB2	1.98	0.45
21:L:96:LYS:NZ	21:L:105:ILE:O	2.46	0.45
9:P:91:VAL:HG21	9:P:96:LEU:HD11	1.98	0.45
11:R:49:ILE:HG22	11:R:54:VAL:HG13	1.98	0.45
17:Z:47:ILE:O	17:Z:51:SER:HB3	2.17	0.45
19:A:143:C:H2'	19:A:144:A:C8	2.50	0.45
19:A:158:U:H2'	19:A:159:G:O4'	2.16	0.45
19:A:2708:G:H2'	19:A:2709:G:H8	1.80	0.45
13:U:7:ASP:HA	13:U:24:VAL:HG23	1.98	0.45
16:Y:49:ASP:HA	16:Y:52:ARG:HD2	1.98	0.45
19:A:171:U:H2'	19:A:172:A:H8	1.81	0.45
19:A:173:A:H2'	19:A:174:U:C6	2.51	0.45
19:A:370:G:P	19:A:423:A:H62	2.39	0.45
19:A:64:A:H2'	19:A:65:U:H6	1.80	0.45
19:A:305:C:H2'	19:A:306:U:C6	2.52	0.45
19:A:345:A:N3	19:A:347:A:N6	2.64	0.45
19:A:404:A:H4'	19:A:405:U:O5'	2.17	0.45
19:A:500:G:N1	19:A:503:A:OP2	2.34	0.45
19:A:537:G:N2	19:A:555:G:O2'	2.38	0.45
19:A:848:C:H2'	19:A:849:A:H8	1.82	0.45
19:A:1239:G:H2'	19:A:1240:U:O4'	2.17	0.45
19:A:2280:G:H2'	19:A:2281:A:C8	2.51	0.45
2:B:95:U:H2'	2:B:96:G:H8	1.82	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:114:LYS:NZ	19:A:2681:C:OP1	2.37	0.45
19:A:1:G:H2'	19:A:2:G:H8	1.81	0.45
19:A:2698:U:H2'	19:A:2699:C:C6	2.52	0.45
19:A:2788:C:H2'	19:A:2789:C:C6	2.51	0.45
4:F:37:MET:SD	4:F:86:CYS:N	2.85	0.45
11:R:29:THR:HA	11:R:63:VAL:HB	1.99	0.45
12:T:2:ILE:HA	12:T:3:ARG:C	2.36	0.45
16:Y:43:LEU:HD12	19:A:61:C:H5"	1.98	0.45
19:A:817:C:H2'	19:A:818:G:O4'	2.16	0.45
19:A:923:G:H2'	19:A:924:G:C8	2.48	0.45
19:A:1321:A:N6	19:A:1334:G:O4'	2.50	0.45
19:A:1345:C:H2'	19:A:1346:G:C8	2.52	0.45
4:F:118:ALA:O	4:F:166:ARG:NE	2.44	0.45
19:A:864:G:H21	19:A:866:A:N6	2.15	0.45
19:A:1357:C:H2'	19:A:1358:G:O4'	2.17	0.45
11:R:4:VAL:HB	11:R:39:LEU:HB2	1.97	0.45
19:A:672:C:H2'	19:A:673:C:C6	2.52	0.45
19:A:823:C:H2'	19:A:824:U:H6	1.81	0.45
19:A:996:A:H2'	19:A:997:G:C8	2.51	0.45
19:A:1161:C:H2'	19:A:1162:G:H8	1.81	0.45
2:B:24:G:H21	2:B:26:C:H42	1.64	0.45
4:F:36:ASN:ND2	19:A:2313:C:H4'	2.32	0.45
19:A:366:C:H2'	19:A:367:G:C8	2.52	0.45
19:A:598:U:H2'	19:A:599:A:C8	2.52	0.45
19:A:680:C:N4	19:A:681:G:O6	2.49	0.45
19:A:796:C:H2'	19:A:797:G:C8	2.52	0.45
19:A:1415:U:H1'	19:A:1588:G:N2	2.32	0.45
19:A:1421:G:H2'	19:A:1422:G:C8	2.52	0.45
9:P:74:GLN:HB2	9:P:77:SER:HB2	1.99	0.44
19:A:224:U:H2'	19:A:225:C:O4'	2.16	0.44
19:A:655:A:H1'	19:A:656:G:C8	2.52	0.44
19:A:1415:U:O2'	19:A:1416:G:H5'	2.16	0.44
19:A:2362:C:H2'	19:A:2363:G:H8	1.82	0.44
19:A:2626:C:H2'	19:A:2627:G:C8	2.52	0.44
19:A:2821:A:H2'	19:A:2822:G:C8	2.52	0.44
19:A:2838:G:H2'	19:A:2839:G:H8	1.82	0.44
19:A:2896:C:H2'	19:A:2897:U:C6	2.52	0.44
2:B:29:A:N3	2:B:57:A:N6	2.64	0.44
2:B:80:U:O2'	19:A:918:A:N3	2.47	0.44
5:J:116:ARG:O	5:J:120:ARG:HG3	2.18	0.44
19:A:67:U:H2'	19:A:68:G:H8	1.82	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:965:C:N4	19:A:966:G:O6	2.51	0.44
19:A:1355:G:H2'	19:A:1356:G:H8	1.82	0.44
19:A:2313:C:H2'	19:A:2314:A:C8	2.52	0.44
19:A:1278:C:H2'	19:A:1279:G:H8	1.81	0.44
10:Q:90:ASP:OD1	10:Q:91:ARG:N	2.51	0.44
13:U:95:PHE:O	13:U:99:SER:HA	2.18	0.44
19:A:82:U:H3	19:A:104:A:H61	1.65	0.44
19:A:428:A:N3	19:A:428:A:H2'	2.33	0.44
19:A:451:U:C4	19:A:453:A:C8	3.06	0.44
19:A:1005:C:H2'	19:A:1006:C:C6	2.52	0.44
19:A:1200:C:H2'	19:A:1201:U:C6	2.53	0.44
19:A:2364:C:H2'	19:A:2365:G:O4'	2.17	0.44
19:A:2674:G:H2'	19:A:2675:A:H8	1.83	0.44
2:B:49:C:OP1	8:O:102:ARG:NE	2.51	0.44
5:J:101:ILE:HG21	5:J:124:VAL:HG21	2.00	0.44
6:K:109:SER:HB2	6:K:112:PHE:HD1	1.81	0.44
19:A:849:A:H2'	19:A:850:U:C6	2.52	0.44
19:A:2762:C:H3'	19:A:2763:G:H8	1.82	0.44
16:Y:50:VAL:HA	16:Y:53:VAL:HG12	2.00	0.44
19:A:30:G:O2'	19:A:1214:A:N3	2.39	0.44
19:A:1272:A:O5'	19:A:1646:C:N4	2.50	0.44
19:A:1498:C:H1'	19:A:1576:U:O2	2.17	0.44
1:2:30:VAL:HG22	1:2:33:ARG:HH22	1.83	0.44
9:P:8:GLU:O	9:P:12:MET:HG2	2.18	0.44
10:Q:71:ASN:HD22	10:Q:109:VAL:HG21	1.83	0.44
19:A:253:C:H2'	19:A:254:G:O4'	2.17	0.44
19:A:1336:A:H2'	19:A:1337:G:C8	2.52	0.44
19:A:2291:U:H1'	19:A:2374:C:H1'	2.00	0.44
20:E:147:LEU:HB2	20:E:183:PHE:CG	2.53	0.44
19:A:2736:A:H2'	19:A:2737:G:C8	2.53	0.44
20:E:117:ARG:NH2	20:E:183:PHE:O	2.48	0.44
2:B:70:C:H2'	2:B:71:C:C6	2.53	0.43
5:J:73:VAL:HA	5:J:88:THR:HA	1.99	0.43
19:A:553:G:H2'	19:A:554:U:H6	1.83	0.43
3:D:2:ILE:HG21	3:D:48:ILE:HD11	1.99	0.43
7:N:53:THR:HA	7:N:56:LYS:HG2	2.00	0.43
10:Q:23:TYR:O	10:Q:27:ARG:HB2	2.16	0.43
19:A:810:U:H5"	19:A:811:U:H5'	2.00	0.43
19:A:1234:U:H2'	19:A:1235:G:O4'	2.18	0.43
19:A:2636:C:H2'	19:A:2637:U:C6	2.53	0.43
19:A:2840:C:H2'	19:A:2841:C:H6	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:33:G:H2'	2:B:34:A:O4'	2.18	0.43
3:D:101:PHE:HD1	3:D:104:VAL:HG21	1.83	0.43
19:A:18:U:H2'	19:A:19:A:C8	2.52	0.43
19:A:397:U:H2'	19:A:398:C:C6	2.52	0.43
19:A:813:U:H2'	19:A:814:C:H6	1.82	0.43
19:A:1339:G:N2	19:A:1603:A:H1'	2.34	0.43
19:A:32:C:H2'	19:A:33:C:C6	2.53	0.43
19:A:258:G:H2'	19:A:259:G:H8	1.83	0.43
19:A:840:C:H2'	19:A:841:G:C8	2.53	0.43
19:A:1277:G:H2'	19:A:1278:C:H6	1.84	0.43
4:F:104:THR:HG22	4:F:105:ILE:HG23	2.00	0.43
5:J:105:VAL:HG11	5:J:122:LEU:HD22	2.00	0.43
19:A:242:G:N2	19:A:255:A:OP2	2.51	0.43
19:A:1223:G:H21	19:A:1225:G:H8	1.66	0.43
10:Q:26:ALA:HA	10:Q:29:ARG:HG2	2.01	0.43
19:A:1416:G:N2	19:A:1582:C:H42	2.17	0.43
19:A:1753:G:N2	19:A:1756:G:OP2	2.51	0.43
19:A:2413:G:C2	19:A:2414:G:C8	3.06	0.43
2:B:71:C:H2'	2:B:72:G:O4'	2.18	0.43
19:A:225:C:N3	19:A:231:A:N6	2.64	0.43
19:A:839:U:H2'	19:A:840:C:C6	2.53	0.43
19:A:1278:C:H2'	19:A:1279:G:C8	2.53	0.43
19:A:1328:A:O2'	19:A:1329:U:H2'	2.18	0.43
19:A:1487:U:H2'	19:A:1488:C:H6	1.83	0.43
2:B:76:G:OP2	14:V:12:GLN:NE2	2.46	0.43
8:O:55:GLU:HG3	8:O:57:ALA:H	1.84	0.43
19:A:131:A:H2'	19:A:132:G:C8	2.54	0.43
19:A:2410:G:H2'	19:A:2411:A:O4'	2.19	0.43
2:B:95:U:H2'	2:B:96:G:C8	2.54	0.43
8:O:94:ARG:HE	19:A:2376:A:N6	2.16	0.43
9:P:49:ILE:O	9:P:95:LYS:NZ	2.39	0.43
19:A:1413:A:H2'	19:A:1414:C:C6	2.53	0.43
17:Z:42:ALA:O	17:Z:46:MET:HG2	2.18	0.43
19:A:197:A:N3	19:A:197:A:H2'	2.34	0.43
19:A:551:G:H2'	19:A:552:U:C6	2.54	0.43
19:A:554:U:H2'	19:A:555:G:O4'	2.18	0.43
19:A:929:U:H2'	19:A:930:G:H8	1.83	0.43
19:A:243:U:H2'	19:A:244:A:C8	2.53	0.42
19:A:851:C:H2'	19:A:852:U:C6	2.54	0.42
19:A:924:G:H2'	19:A:925:A:H8	1.84	0.42
6:K:71:ARG:HH12	9:P:71:ARG:NH1	2.17	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:W:16:ARG:HB3	15:W:35:ARG:NH2	2.34	0.42
16:Y:45:GLN:O	16:Y:47:ARG:N	2.52	0.42
19:A:1604:C:O2'	19:A:1610:A:N1	2.47	0.42
14:V:4:ILE:HG23	14:V:50:MET:HE1	2.01	0.42
19:A:4:U:H2'	19:A:5:A:C8	2.54	0.42
19:A:481:G:N1	19:A:507:A:H1'	2.34	0.42
19:A:915:C:H3'	19:A:916:G:H8	1.84	0.42
19:A:1351:C:O2'	19:A:1571:A:O2'	2.34	0.42
19:A:1481:U:O2	19:A:1510:G:O6	2.36	0.42
19:A:2647:U:O2	19:A:2673:G:O6	2.37	0.42
19:A:2696:U:H2'	19:A:2697:G:H8	1.84	0.42
7:N:50:PRO:HA	7:N:53:THR:HG22	2.01	0.42
8:O:67:ASN:OD1	8:O:70:ALA:N	2.45	0.42
15:W:19:VAL:HG13	15:W:34:VAL:HB	2.01	0.42
19:A:523:C:H5"	19:A:540:C:O2'	2.19	0.42
19:A:976:G:H2'	19:A:977:G:H8	1.85	0.42
19:A:1139:G:H2'	19:A:1140:C:C6	2.54	0.42
19:A:1734:G:H2'	19:A:1735:A:C8	2.54	0.42
19:A:2840:C:H2'	19:A:2841:C:C6	2.54	0.42
2:B:42:C:H5	4:F:65:LEU:HD13	1.84	0.42
7:N:12:ARG:HE	7:N:16:HIS:CE1	2.38	0.42
12:T:66:LYS:NZ	19:A:1339:G:O6	2.41	0.42
19:A:194:G:H2'	19:A:195:A:C8	2.54	0.42
19:A:987:C:H2'	19:A:988:A:O4'	2.20	0.42
19:A:1716:U:H2'	19:A:1717:A:H8	1.84	0.42
19:A:2712:C:OP1	19:A:2714:G:O2'	2.31	0.42
2:B:17:C:H2'	2:B:18:G:H8	1.83	0.42
5:J:9:GLU:HG2	5:J:10:THR:HG23	2.01	0.42
13:U:46:LYS:NZ	19:A:483:A:OP1	2.52	0.42
19:A:5:A:H2'	19:A:6:A:C8	2.55	0.42
19:A:579:G:H4'	19:A:2018:G:H5"	2.02	0.42
19:A:633:A:H3'	19:A:634:C:H6	1.85	0.42
19:A:281:C:H2'	19:A:282:A:C8	2.55	0.42
19:A:2888:C:H2'	19:A:2889:C:C6	2.53	0.42
1:2:39:ARG:NH2	19:A:468:G:N7	2.62	0.42
4:F:33:ILE:HB	4:F:90:LEU:HB2	2.02	0.42
4:F:92:GLY:O	4:F:95:MET:HG2	2.19	0.42
4:F:105:ILE:O	4:F:109:ARG:HG2	2.20	0.42
5:J:57:LEU:HD11	5:J:130:HIS:HD2	1.84	0.42
8:O:24:THR:HG23	8:O:90:VAL:HG12	2.00	0.42
19:A:185:G:H2'	19:A:186:G:C8	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
19:A:197:A:C6	19:A:2431:U:N3	2.88	0.42
19:A:664:G:O2'	19:A:940:G:OP1	2.27	0.42
19:A:1295:C:H2'	19:A:1296:G:H8	1.84	0.42
19:A:2039:U:H2'	19:A:2040:G:H8	1.85	0.42
20:E:31:VAL:HG21	20:E:104:ALA:HB2	2.01	0.42
21:L:110:VAL:HG21	21:L:122:VAL:HG11	2.01	0.42
3:D:9:VAL:HG21	9:P:3:ILE:HD11	2.02	0.42
19:A:272:A:H2'	19:A:273:G:C8	2.54	0.42
19:A:415:A:H2'	19:A:416:U:C6	2.55	0.42
19:A:565:C:H42	19:A:576:U:H3	1.66	0.42
19:A:842:U:H2'	19:A:843:G:C8	2.55	0.42
19:A:924:G:H2'	19:A:925:A:C8	2.54	0.42
19:A:976:G:O2'	19:A:1155:A:O2'	2.34	0.42
19:A:1298:C:H2'	19:A:1299:G:O4'	2.19	0.42
19:A:1737:G:H2'	19:A:1738:G:C4	2.55	0.42
19:A:2297:A:H2'	19:A:2298:A:H8	1.83	0.42
12:T:88:LYS:HE3	12:T:88:LYS:HB3	1.86	0.42
19:A:1149:G:H2'	19:A:1150:C:C6	2.55	0.42
19:A:1277:G:H2'	19:A:1278:C:C6	2.55	0.42
19:A:1406:U:H2'	19:A:1407:G:C8	2.55	0.42
19:A:1416:G:H22	19:A:1582:C:H42	1.66	0.42
19:A:1520:U:H2'	19:A:1521:G:O4'	2.20	0.42
19:A:1576:U:H2'	19:A:1577:C:C6	2.55	0.42
19:A:2674:G:H2'	19:A:2675:A:C8	2.55	0.42
21:L:127:VAL:HG21	21:L:142:ILE:HD13	2.01	0.42
6:K:88:ASN:H	6:K:92:GLU:HA	1.86	0.41
7:N:45:ARG:HA	7:N:48:VAL:HG12	2.01	0.41
12:T:55:VAL:HG13	12:T:85:VAL:HG13	2.02	0.41
19:A:320:A:H4'	19:A:322:A:N7	2.34	0.41
19:A:911:A:O4'	19:A:2263:C:O2'	2.37	0.41
9:P:51:ASN:O	19:A:2845:U:H5"	2.20	0.41
10:Q:13:HIS:ND1	19:A:582:A:OP1	2.47	0.41
16:Y:21:LEU:HD12	16:Y:25:GLN:HG3	2.02	0.41
19:A:1383:A:O2'	19:A:1384:A:O4'	2.27	0.41
20:E:36:ALA:O	20:E:40:ARG:HG3	2.21	0.41
4:F:42:ALA:HB3	4:F:84:ILE:HD12	2.01	0.41
19:A:69:C:H2'	19:A:70:G:C8	2.55	0.41
19:A:475:C:N3	19:A:479:A:N7	2.67	0.41
19:A:2817:U:O2'	19:A:2837:A:H1'	2.20	0.41
20:E:21:ARG:HH11	20:E:106:LYS:HE3	1.84	0.41
5:J:99:ARG:HD2	5:J:99:ARG:HA	1.95	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:Q:32:ARG:NH1	19:A:580:U:OP1	2.54	0.41
11:R:80:ARG:HH21	19:A:572:A:H4'	1.84	0.41
12:T:44:LYS:HG3	12:T:55:VAL:HB	2.02	0.41
19:A:152:A:N6	19:A:175:G:O6	2.54	0.41
19:A:244:A:H2'	19:A:245:G:O4'	2.21	0.41
19:A:414:C:H2'	19:A:415:A:C8	2.54	0.41
19:A:587:C:C4	21:L:19:LEU:HD11	2.55	0.41
19:A:1291:C:H2'	19:A:1292:G:C8	2.54	0.41
19:A:1710:G:H4'	19:A:2858:C:N3	2.35	0.41
7:N:55:ALA:HA	7:N:80:PHE:CE2	2.56	0.41
19:A:181:A:H2'	19:A:182:A:C8	2.55	0.41
19:A:188:G:O2'	19:A:1365:A:N6	2.53	0.41
19:A:304:U:H2'	19:A:305:C:C6	2.56	0.41
19:A:397:U:H2'	19:A:398:C:H6	1.85	0.41
19:A:819:A:N6	19:A:1189:A:H1'	2.36	0.41
19:A:1316:U:H2'	19:A:1317:G:C8	2.56	0.41
19:A:2661:G:H2'	19:A:2662:A:H8	1.86	0.41
19:A:2804:U:H2'	19:A:2805:C:C6	2.56	0.41
13:U:6:ARG:HG3	13:U:7:ASP:H	1.85	0.41
19:A:582:A:H2'	19:A:583:G:C8	2.56	0.41
19:A:843:G:H2'	19:A:844:A:C8	2.56	0.41
19:A:2623:G:H2'	19:A:2624:G:C8	2.55	0.41
19:A:2888:C:H2'	19:A:2889:C:H6	1.85	0.41
10:Q:23:TYR:HB2	10:Q:28:SER:HB3	2.02	0.41
19:A:13:A:O2'	19:A:15:G:N7	2.54	0.41
19:A:49:A:N1	19:A:177:G:N2	2.68	0.41
19:A:246:C:H2'	19:A:247:G:O4'	2.21	0.41
19:A:1010:A:N3	19:A:1153:C:H1'	2.35	0.41
19:A:1582:C:O2'	19:A:1585:C:N3	2.50	0.41
19:A:1748:C:H2'	19:A:1749:A:H8	1.86	0.41
21:L:29:LYS:HE3	21:L:35:HIS:HE1	1.85	0.41
5:J:37:ARG:NH1	19:A:1007:C:H5"	2.35	0.41
6:K:38:ILE:HD13	6:K:61:VAL:HB	2.01	0.41
19:A:538:A:H62	19:A:555:G:N2	2.18	0.41
19:A:1123:C:H2'	19:A:1124:G:C8	2.54	0.41
19:A:1202:G:H2'	19:A:1203:U:O4'	2.20	0.41
19:A:1207:C:H2'	19:A:1208:C:H6	1.85	0.41
19:A:2736:A:H2'	19:A:2737:G:H8	1.86	0.41
2:B:19:C:H2'	2:B:20:G:H8	1.86	0.41
4:F:109:ARG:NH1	4:F:136:ILE:O	2.53	0.41
7:N:11:ASN:OD1	7:N:11:ASN:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:N:59:SER:OG	7:N:62:ASN:OD1	2.32	0.41
8:O:9:ARG:HD2	8:O:9:ARG:HA	1.86	0.41
8:O:53:THR:HG22	8:O:74:VAL:HG21	2.03	0.41
14:V:25:LYS:HD2	14:V:41:GLU:OE2	2.21	0.41
19:A:56:A:H2'	19:A:57:C:C6	2.56	0.41
19:A:323:C:O2'	19:A:1205:A:N6	2.54	0.41
19:A:467:G:H4'	19:A:796:C:O2'	2.21	0.41
19:A:833:A:H2'	19:A:834:G:O4'	2.20	0.41
19:A:1268:A:H62	19:A:2012:G:H21	1.68	0.41
19:A:1336:A:H2'	19:A:1337:G:H8	1.86	0.41
19:A:1550:C:H5'	19:A:1740:G:H22	1.86	0.41
19:A:2379:G:H2'	19:A:2380:C:C6	2.56	0.41
19:A:2688:G:N1	19:A:2720:U:OP2	2.40	0.41
19:A:2881:U:H2'	19:A:2882:A:C8	2.56	0.41
2:B:77:U:C2	2:B:99:A:N7	2.89	0.41
8:O:24:THR:N	8:O:42:PRO:HG3	2.36	0.41
19:A:243:U:H2'	19:A:244:A:H8	1.86	0.41
19:A:399:U:H2'	19:A:400:G:O4'	2.21	0.41
19:A:851:C:H2'	19:A:852:U:H6	1.86	0.41
19:A:1024:G:N2	19:A:1144:A:O4'	2.50	0.41
19:A:1125:G:OP2	19:A:1126:A:O2'	2.23	0.41
19:A:1501:G:H2'	19:A:1502:A:C8	2.56	0.41
19:A:2350:C:H2'	19:A:2351:G:O4'	2.21	0.41
11:R:2:TYR:HB2	11:R:13:ARG:HD3	2.03	0.40
19:A:282:A:N1	19:A:359:G:C6	2.89	0.40
19:A:419:U:H2'	19:A:420:C:C6	2.56	0.40
19:A:450:G:N1	19:A:454:A:OP2	2.54	0.40
19:A:611:C:H2'	19:A:612:G:O4'	2.20	0.40
19:A:1378:A:C4	19:A:1380:G:C8	3.09	0.40
19:A:2811:G:N2	19:A:2890:G:H1'	2.36	0.40
19:A:2848:G:O2'	19:A:2867:G:N2	2.54	0.40
4:F:22:ASN:OD1	4:F:23:SER:N	2.54	0.40
13:U:85:ARG:HH22	13:U:99:SER:HB3	1.87	0.40
19:A:267:C:H2'	19:A:268:C:C6	2.56	0.40
19:A:307:G:N1	19:A:309:A:O5'	2.54	0.40
19:A:373:U:H1'	19:A:423:A:C2	2.57	0.40
19:A:383:C:H5"	19:A:385:C:OP2	2.21	0.40
19:A:581:C:H2'	19:A:582:A:C8	2.53	0.40
19:A:1484:U:H2'	19:A:1485:U:C6	2.57	0.40
19:A:2399:G:O6	19:A:2418:A:N6	2.54	0.40
19:A:2783:U:H2'	19:A:2784:U:C6	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:47:HIS:ND1	5:J:48:VAL:HG13	2.36	0.40
17:Z:11:SER:OG	19:A:989:G:OP2	2.28	0.40
19:A:16:C:H2'	19:A:17:G:H8	1.86	0.40
19:A:258:G:H2'	19:A:259:G:C8	2.56	0.40
19:A:540:C:N4	19:A:541:A:H62	2.20	0.40
19:A:839:U:H3	19:A:939:G:H1	1.70	0.40
19:A:917:A:H3'	19:A:2268:A:H61	1.87	0.40
19:A:2414:G:C2	19:A:2415:G:C8	3.09	0.40
4:F:34:THR:OG1	4:F:154:THR:HB	2.22	0.40
19:A:4:U:H2'	19:A:5:A:H8	1.85	0.40
19:A:542:C:H2'	19:A:543:G:C8	2.56	0.40
19:A:553:G:H2'	19:A:554:U:C6	2.57	0.40
19:A:1604:C:H2'	19:A:1605:C:C6	2.56	0.40
2:B:57:A:H2'	2:B:58:A:H8	1.87	0.40
5:J:7:LYS:O	5:J:11:VAL:HG23	2.21	0.40
6:K:10:VAL:HG12	6:K:12:ASP:H	1.85	0.40
8:O:81:ARG:HA	8:O:84:GLU:HG2	2.04	0.40
19:A:100:U:O2	19:A:101:A:N6	2.55	0.40
19:A:190:A:H2	19:A:799:G:H21	1.68	0.40
19:A:1412:U:H2'	19:A:1413:A:C8	2.56	0.40
19:A:1713:A:N6	19:A:1746:A:N1	2.69	0.40
19:A:2407:A:H2'	19:A:2408:U:C6	2.56	0.40
19:A:2643:G:C6	19:A:2644:G:C6	3.10	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	2	38/46 (83%)	35 (92%)	3 (8%)	0	100	100
3	D	116/209 (56%)	112 (97%)	4 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	F	175/177 (99%)	164 (94%)	11 (6%)	0	100	100
5	J	140/142 (99%)	138 (99%)	2 (1%)	0	100	100
6	K	120/122 (98%)	109 (91%)	11 (9%)	0	100	100
7	N	109/120 (91%)	104 (95%)	5 (5%)	0	100	100
8	O	114/116 (98%)	108 (95%)	6 (5%)	0	100	100
9	P	112/114 (98%)	109 (97%)	3 (3%)	0	100	100
10	Q	115/117 (98%)	112 (97%)	3 (3%)	0	100	100
11	R	101/103 (98%)	97 (96%)	4 (4%)	0	100	100
12	T	91/93 (98%)	83 (91%)	8 (9%)	0	100	100
13	U	100/102 (98%)	88 (88%)	12 (12%)	0	100	100
14	V	92/94 (98%)	91 (99%)	1 (1%)	0	100	100
15	W	67/75 (89%)	67 (100%)	0	0	100	100
16	Y	59/63 (94%)	53 (90%)	5 (8%)	1 (2%)	7	36
17	Z	56/58 (97%)	55 (98%)	1 (2%)	0	100	100
18	y	15/17 (88%)	12 (80%)	3 (20%)	0	100	100
20	E	164/201 (82%)	159 (97%)	5 (3%)	0	100	100
21	L	114/143 (80%)	104 (91%)	10 (9%)	0	100	100
All	All	1898/2112 (90%)	1800 (95%)	97 (5%)	1 (0%)	50	83

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
16	Y	46	VAL

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	2	32/38 (84%)	31 (97%)	1 (3%)	35	56

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
3	D	92/164 (56%)	92 (100%)	0	100 100
4	F	148/148 (100%)	144 (97%)	4 (3%)	40 60
5	J	116/116 (100%)	116 (100%)	0	100 100
6	K	103/103 (100%)	101 (98%)	2 (2%)	52 70
7	N	92/100 (92%)	92 (100%)	0	100 100
8	O	86/86 (100%)	82 (95%)	4 (5%)	22 45
9	P	99/99 (100%)	99 (100%)	0	100 100
10	Q	89/89 (100%)	89 (100%)	0	100 100
11	R	84/84 (100%)	83 (99%)	1 (1%)	67 79
12	T	80/80 (100%)	80 (100%)	0	100 100
13	U	83/83 (100%)	82 (99%)	1 (1%)	67 79
14	V	78/78 (100%)	77 (99%)	1 (1%)	65 77
15	W	51/57 (90%)	51 (100%)	0	100 100
16	Y	55/55 (100%)	53 (96%)	2 (4%)	30 52
17	Z	48/48 (100%)	47 (98%)	1 (2%)	48 67
18	y	17/17 (100%)	17 (100%)	0	100 100
20	E	141/165 (86%)	139 (99%)	2 (1%)	62 76
21	L	83/102 (81%)	81 (98%)	2 (2%)	44 64
All	All	1577/1712 (92%)	1556 (99%)	21 (1%)	64 77

All (21) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	2	12	ARG
4	F	2	LYS
4	F	37	MET
4	F	47	LYS
4	F	111	ARG
6	K	69	VAL
6	K	92	GLU
8	O	16	ARG
8	O	24	THR
8	O	30	ARG
8	O	63	LYS
11	R	25	LEU
13	U	98	ASN

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Mol	Chain	Res	Type
14	V	93	ARG
16	Y	4	LYS
16	Y	30	MET
17	Z	24	LEU
20	E	1	MET
20	E	176	ASP
21	L	85	VAL
21	L	136	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	2	29	GLN
4	F	62	GLN
5	J	130	HIS
10	Q	71	ASN
11	R	12	HIS
11	R	91	GLN
13	U	44	HIS
13	U	98	ASN
14	V	75	GLN
16	Y	41	HIS
18	y	3	ASN
20	E	115	GLN

5.3.3 RNA

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
19	A	1969/2903 (67%)	285 (14%)	7 (0%)
2	B	118/120 (98%)	14 (11%)	0
All	All	2087/3023 (69%)	299 (14%)	7 (0%)

All (299) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	B	2	G
2	B	13	G
2	B	15	A
2	B	16	G
2	B	25	U

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Mol	Chain	Res	Type
2	B	31	C
2	B	35	C
2	B	41	G
2	B	42	C
2	B	53	A
2	B	87	U
2	B	90	C
2	B	99	A
2	B	109	A
19	A	12	U
19	A	14	A
19	A	27	G
19	A	34	U
19	A	46	G
19	A	51	G
19	A	63	A
19	A	71	A
19	A	74	A
19	A	75	G
19	A	114	U
19	A	118	A
19	A	120	U
19	A	138	U
19	A	139	U
19	A	140	C
19	A	141	G
19	A	142	A
19	A	163	C
19	A	181	A
19	A	190	A
19	A	204	A
19	A	216	A
19	A	221	A
19	A	222	A
19	A	232	G
19	A	248	G
19	A	255	A
19	A	266	G
19	A	271	G
19	A	272	A
19	A	276	U
19	A	278	A

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Mol	Chain	Res	Type
19	A	285	G
19	A	302	C
19	A	307	G
19	A	311	A
19	A	329	G
19	A	330	A
19	A	359	G
19	A	361	G
19	A	371	A
19	A	372	G
19	A	386	G
19	A	389	G
19	A	390	U
19	A	396	G
19	A	405	U
19	A	406	G
19	A	411	G
19	A	424	G
19	A	429	A
19	A	435	C
19	A	446	G
19	A	451	U
19	A	456	C
19	A	465	G
19	A	467	G
19	A	480	A
19	A	481	G
19	A	491	G
19	A	504	A
19	A	505	A
19	A	509	C
19	A	531	C
19	A	532	A
19	A	533	G
19	A	541	A
19	A	543	G
19	A	546	U
19	A	547	A
19	A	548	G
19	A	550	C
19	A	563	A
19	A	573	U

Continued on next page...

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Mol	Chain	Res	Type
19	A	586	A
19	A	588	U
19	A	603	A
19	A	613	A
19	A	614	A
19	A	615	U
19	A	616	A
19	A	621	A
19	A	627	A
19	A	631	A
19	A	637	A
19	A	646	U
19	A	647	G
19	A	649	G
19	A	654	A
19	A	664	G
19	A	669	G
19	A	675	A
19	A	684	G
19	A	801	G
19	A	811	U
19	A	812	C
19	A	819	A
19	A	828	U
19	A	829	A
19	A	830	A
19	A	832	U
19	A	845	A
19	A	846	U
19	A	847	U
19	A	849	A
19	A	856	G
19	A	858	G
19	A	859	G
19	A	863	A
19	A	864	G
19	A	865	C
19	A	866	A
19	A	911	A
19	A	912	C
19	A	914	G
19	A	930	G

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Mol	Chain	Res	Type
19	A	941	A
19	A	945	A
19	A	957	C
19	A	959	A
19	A	974	G
19	A	983	A
19	A	995	C
19	A	996	A
19	A	1005	C
19	A	1009	A
19	A	1012	U
19	A	1013	C
19	A	1020	A
19	A	1022	G
19	A	1026	G
19	A	1131	G
19	A	1132	U
19	A	1133	A
19	A	1135	C
19	A	1136	G
19	A	1138	G
19	A	1142	A
19	A	1157	G
19	A	1168	G
19	A	1171	G
19	A	1172	C
19	A	1173	U
19	A	1174	U
19	A	1176	U
19	A	1177	G
19	A	1186	G
19	A	1211	C
19	A	1212	G
19	A	1225	G
19	A	1236	G
19	A	1238	G
19	A	1247	A
19	A	1248	G
19	A	1253	A
19	A	1256	G
19	A	1266	G
19	A	1271	G

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Mol	Chain	Res	Type
19	A	1272	A
19	A	1300	G
19	A	1301	A
19	A	1312	U
19	A	1314	C
19	A	1325	U
19	A	1329	U
19	A	1332	G
19	A	1343	G
19	A	1345	C
19	A	1365	A
19	A	1374	G
19	A	1378	A
19	A	1379	U
19	A	1383	A
19	A	1395	A
19	A	1416	G
19	A	1417	C
19	A	1418	G
19	A	1419	A
19	A	1420	A
19	A	1421	G
19	A	1452	G
19	A	1458	U
19	A	1461	C
19	A	1467	U
19	A	1482	G
19	A	1490	A
19	A	1491	G
19	A	1493	C
19	A	1496	A
19	A	1497	U
19	A	1515	A
19	A	1523	U
19	A	1524	G
19	A	1535	A
19	A	1536	C
19	A	1537	G
19	A	1555	G
19	A	1569	A
19	A	1576	U
19	A	1583	A

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Mol	Chain	Res	Type
19	A	1584	U
19	A	1585	C
19	A	1587	G
19	A	1603	A
19	A	1607	C
19	A	1608	A
19	A	1616	A
19	A	1633	G
19	A	1634	A
19	A	1646	C
19	A	1647	U
19	A	1648	U
19	A	1715	G
19	A	1729	U
19	A	1730	C
19	A	1732	C
19	A	1733	G
19	A	1737	G
19	A	1738	G
19	A	2013	A
19	A	2021	C
19	A	2023	C
19	A	2030	A
19	A	2031	A
19	A	2043	C
19	A	2052	A
19	A	2283	C
19	A	2286	G
19	A	2287	A
19	A	2297	A
19	A	2305	U
19	A	2311	A
19	A	2327	A
19	A	2333	A
19	A	2335	A
19	A	2336	A
19	A	2347	C
19	A	2350	C
19	A	2361	G
19	A	2370	G
19	A	2371	G
19	A	2383	G

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Mol	Chain	Res	Type
19	A	2385	C
19	A	2402	U
19	A	2406	A
19	A	2422	C
19	A	2424	C
19	A	2425	A
19	A	2426	A
19	A	2428	G
19	A	2429	G
19	A	2430	A
19	A	2434	A
19	A	2629	U
19	A	2630	G
19	A	2639	A
19	A	2646	C
19	A	2665	A
19	A	2682	A
19	A	2689	U
19	A	2690	U
19	A	2714	G
19	A	2726	A
19	A	2729	G
19	A	2732	G
19	A	2733	A
19	A	2739	U
19	A	2744	G
19	A	2745	C
19	A	2746	U
19	A	2747	G
19	A	2748	A
19	A	2750	A
19	A	2751	G
19	A	2765	A
19	A	2766	A
19	A	2778	A
19	A	2780	G
19	A	2820	A
19	A	2850	A
19	A	2867	G
19	A	2873	A
19	A	2880	C
19	A	2886	A

All (7) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
19	A	271	G
19	A	404	A
19	A	828	U
19	A	848	C
19	A	929	U
19	A	1328	A
19	A	2425	A

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

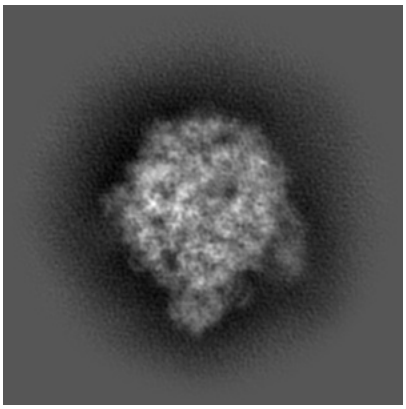
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-51976. These allow visual inspection of the internal detail of the map and identification of artifacts.

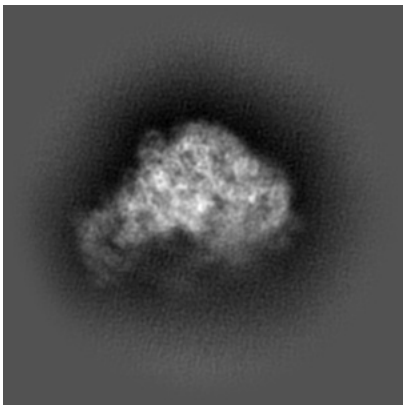
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

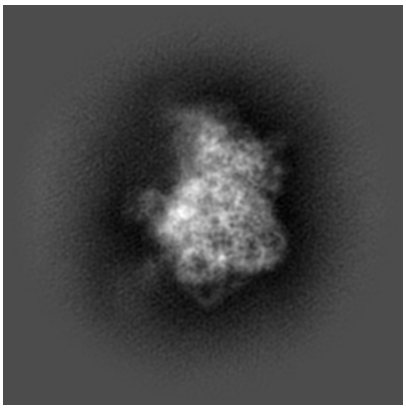
6.1.1 Primary map



X

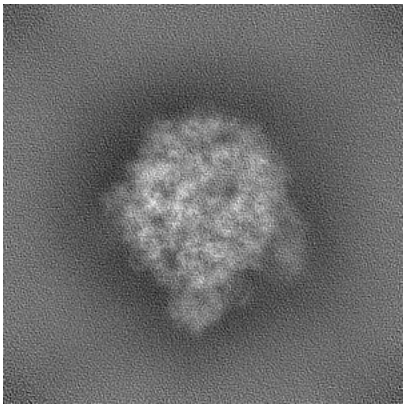


Y

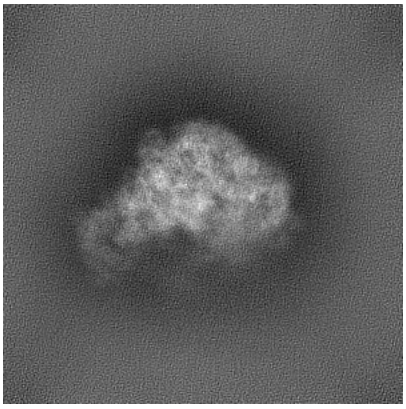


Z

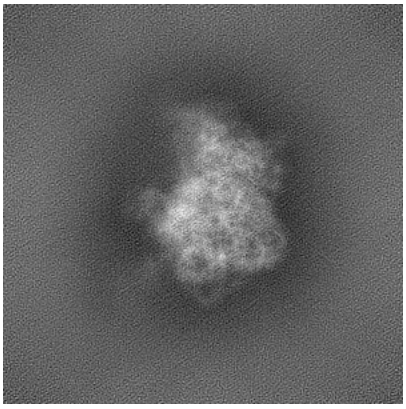
6.1.2 Raw map



X



Y

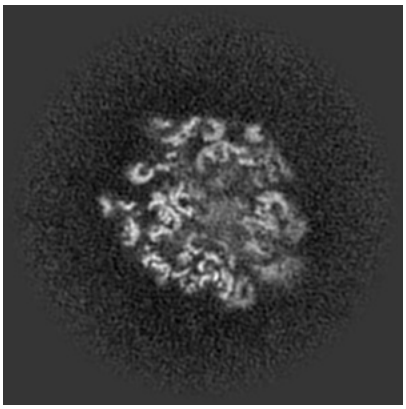


Z

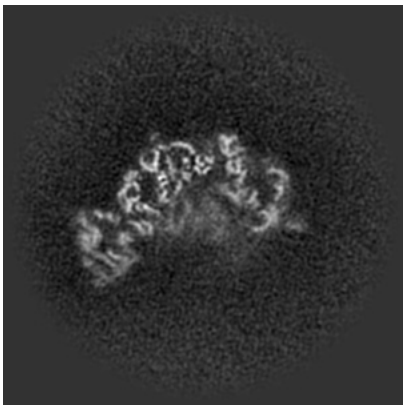
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

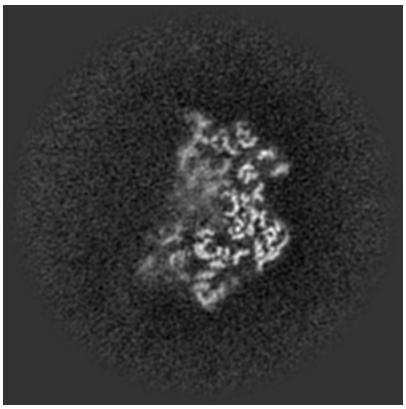
6.2.1 Primary map



X Index: 150

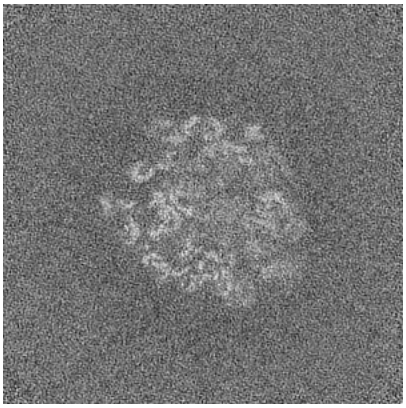


Y Index: 150

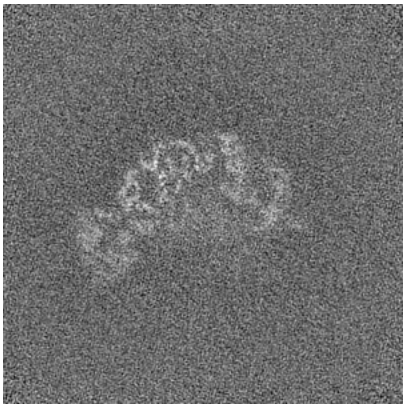


Z Index: 150

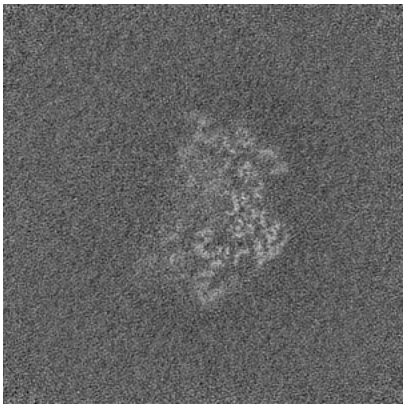
6.2.2 Raw map



X Index: 150



Y Index: 150

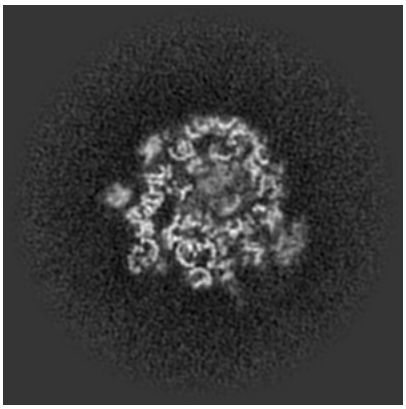


Z Index: 150

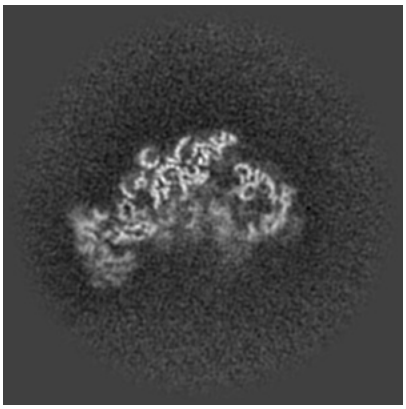
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

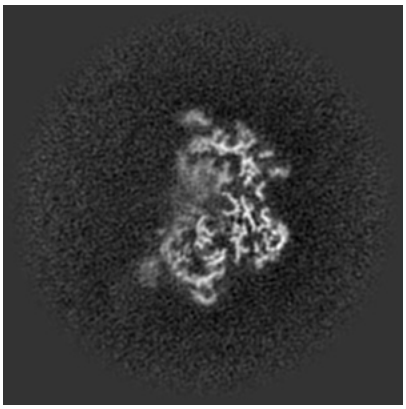
6.3.1 Primary map



X Index: 163

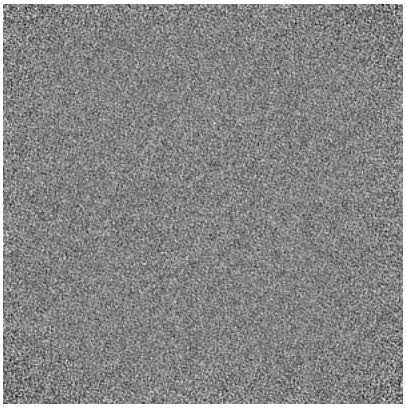


Y Index: 143

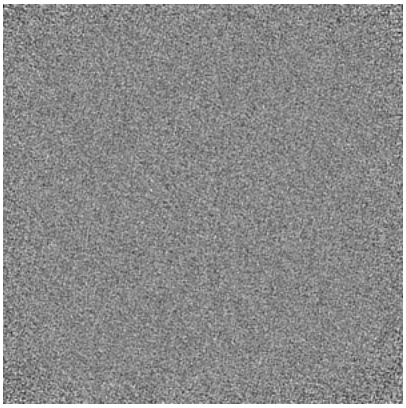


Z Index: 147

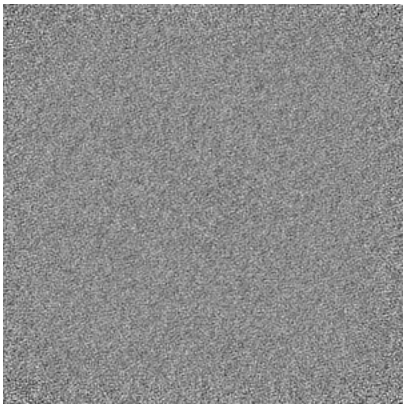
6.3.2 Raw map



X Index: 0



Y Index: 0

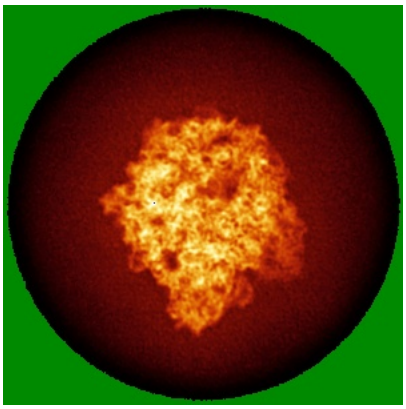


Z Index: 0

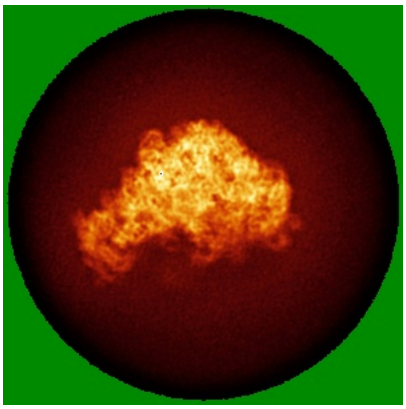
The images above show the largest variance slices of the map in three orthogonal directions.

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

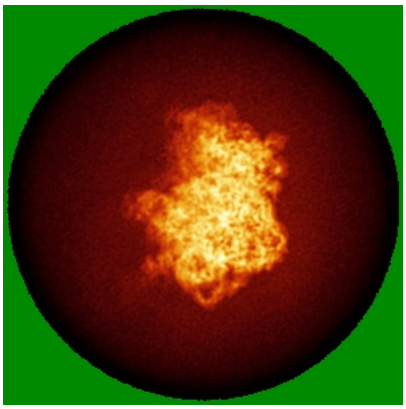
6.4.1 Primary map



X

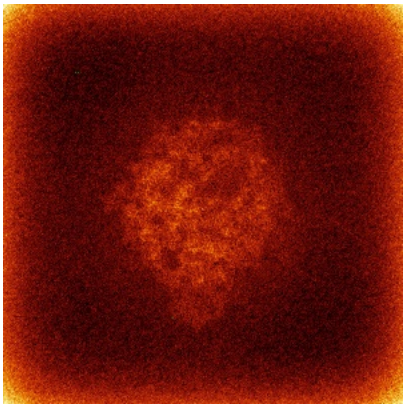


Y

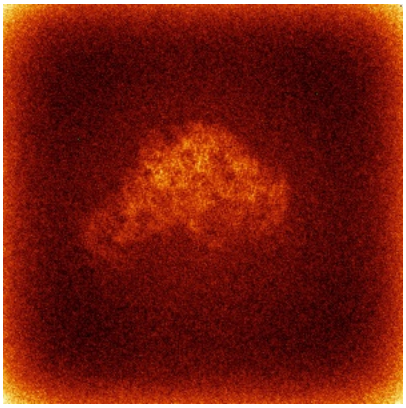


Z

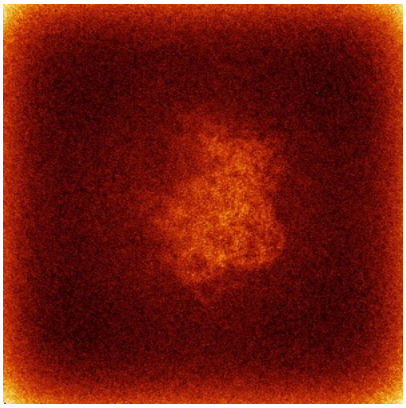
6.4.2 Raw map



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.

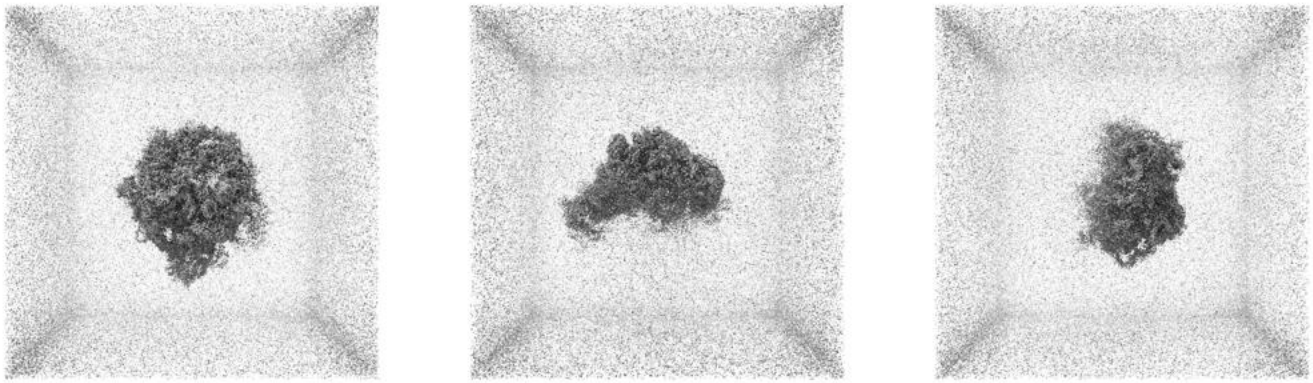
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.068. 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.

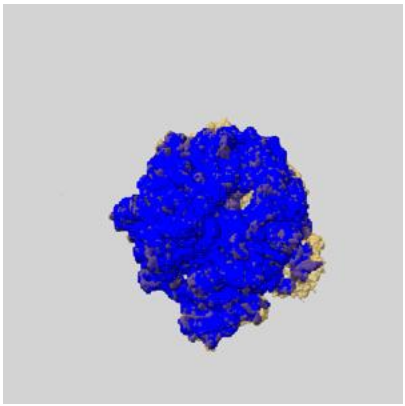
6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

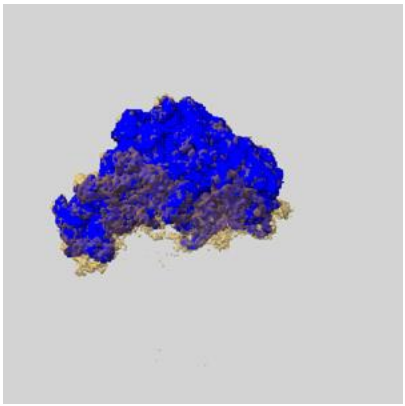
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

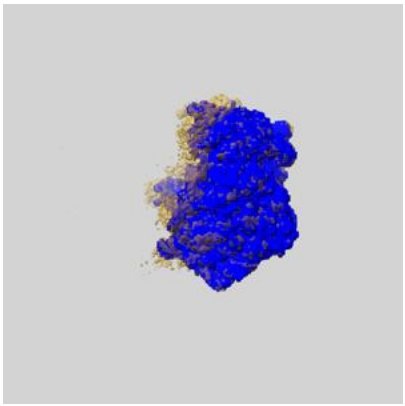
6.6.1 emd_51976_msk_1.map (i)



X



Y

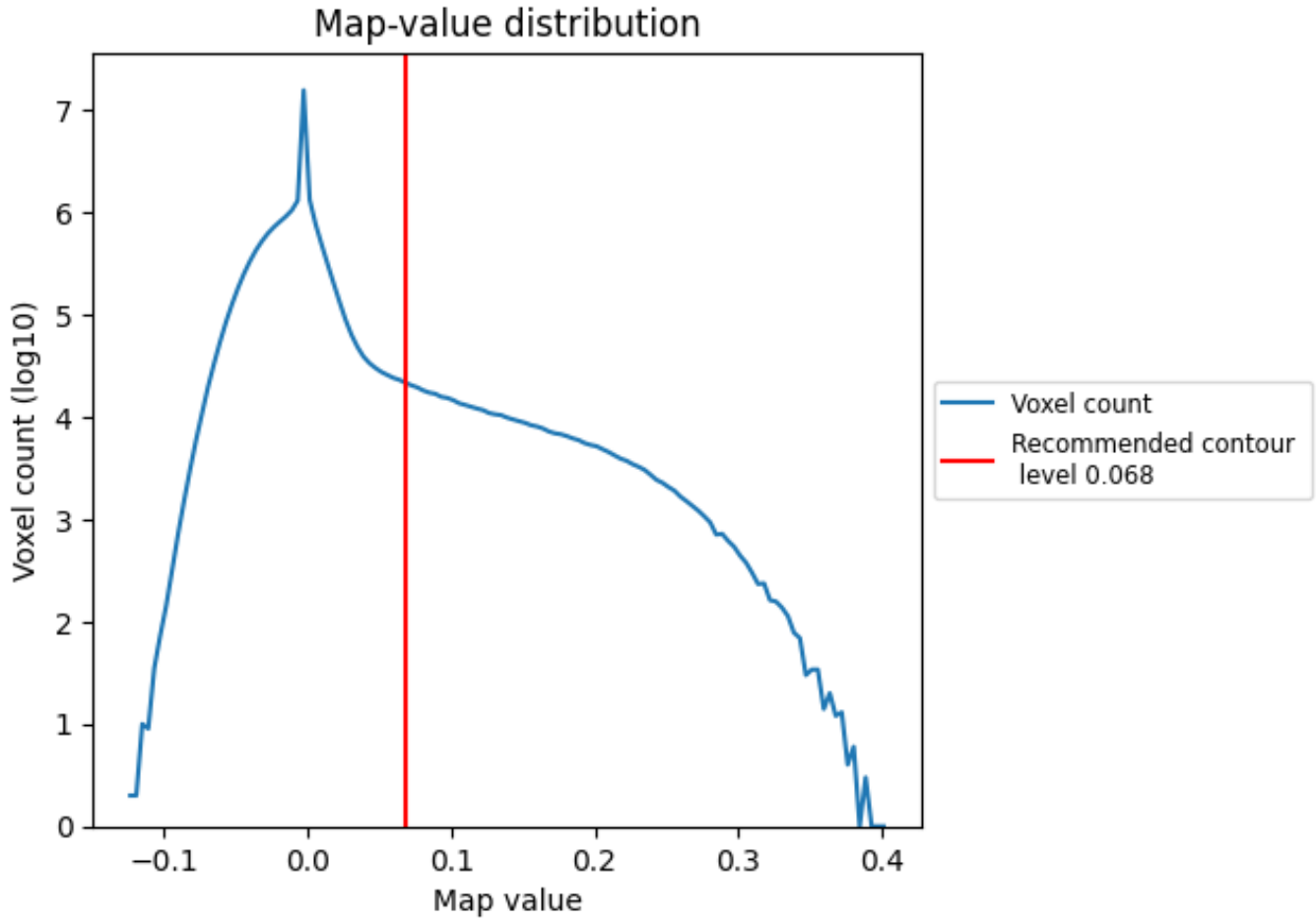


Z

7 Map analysis

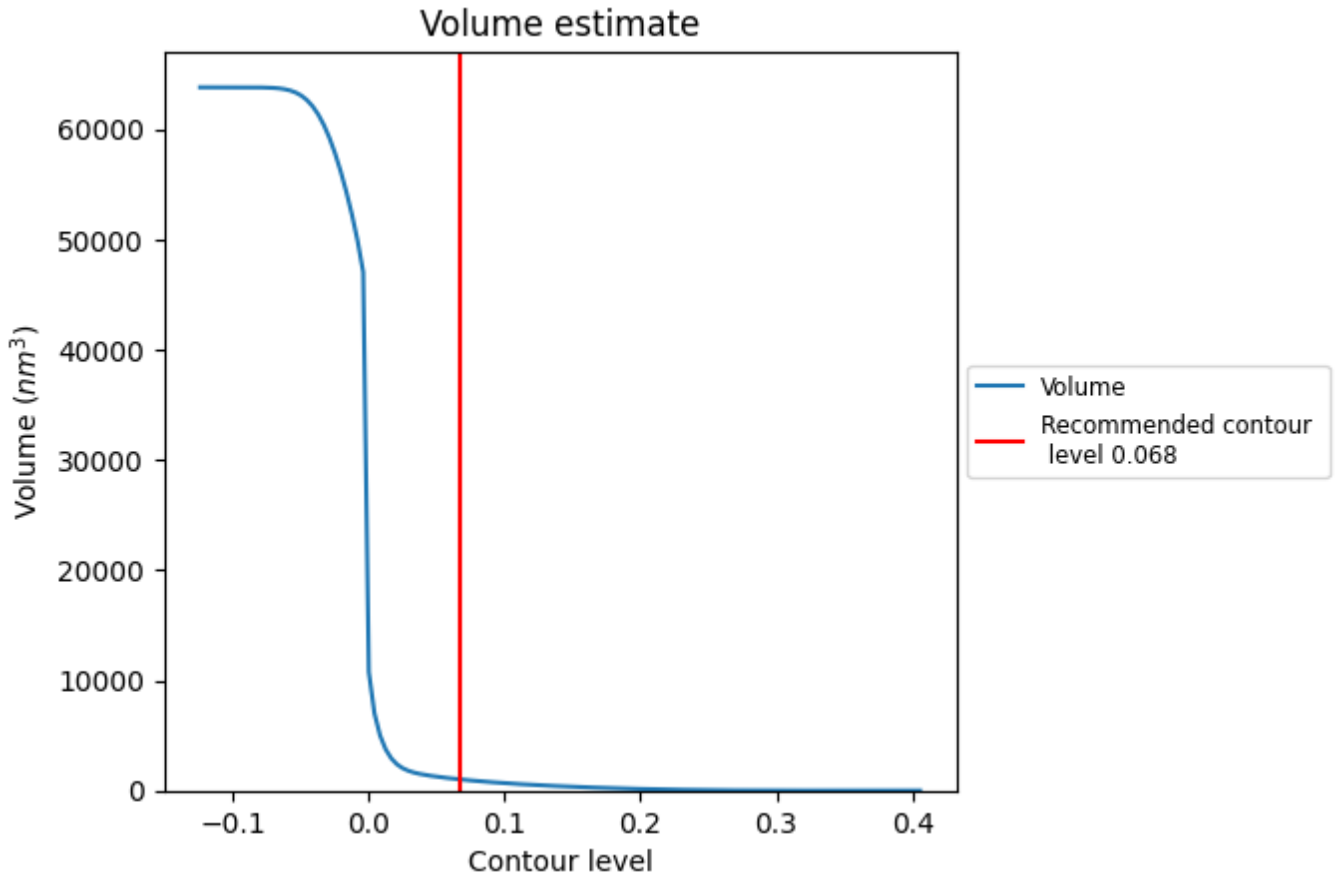
This section contains the results of statistical analysis of the map.

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.

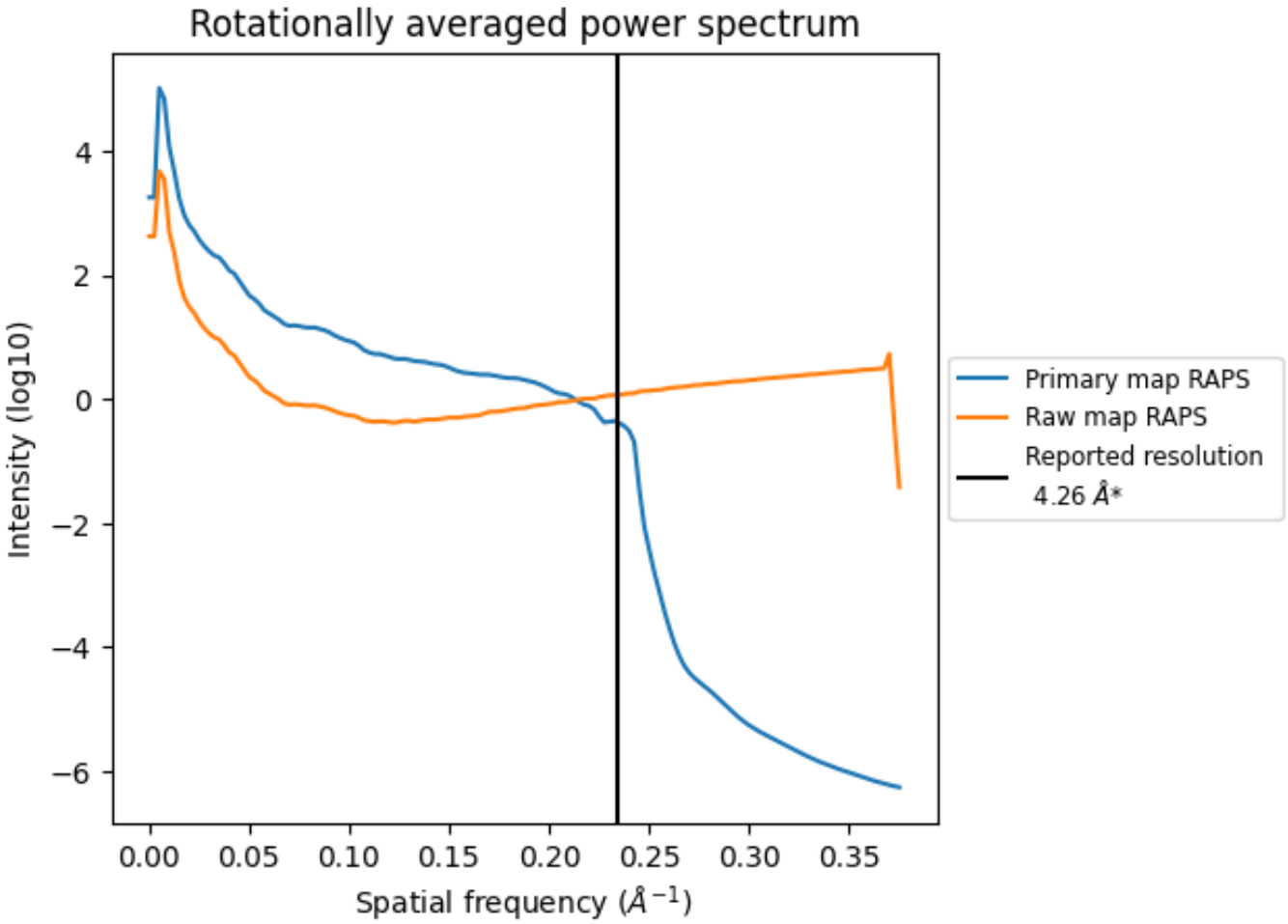
7.2 Volume estimate



The volume at the recommended contour level is 1007 nm^3; this corresponds to an approximate mass of 909 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)

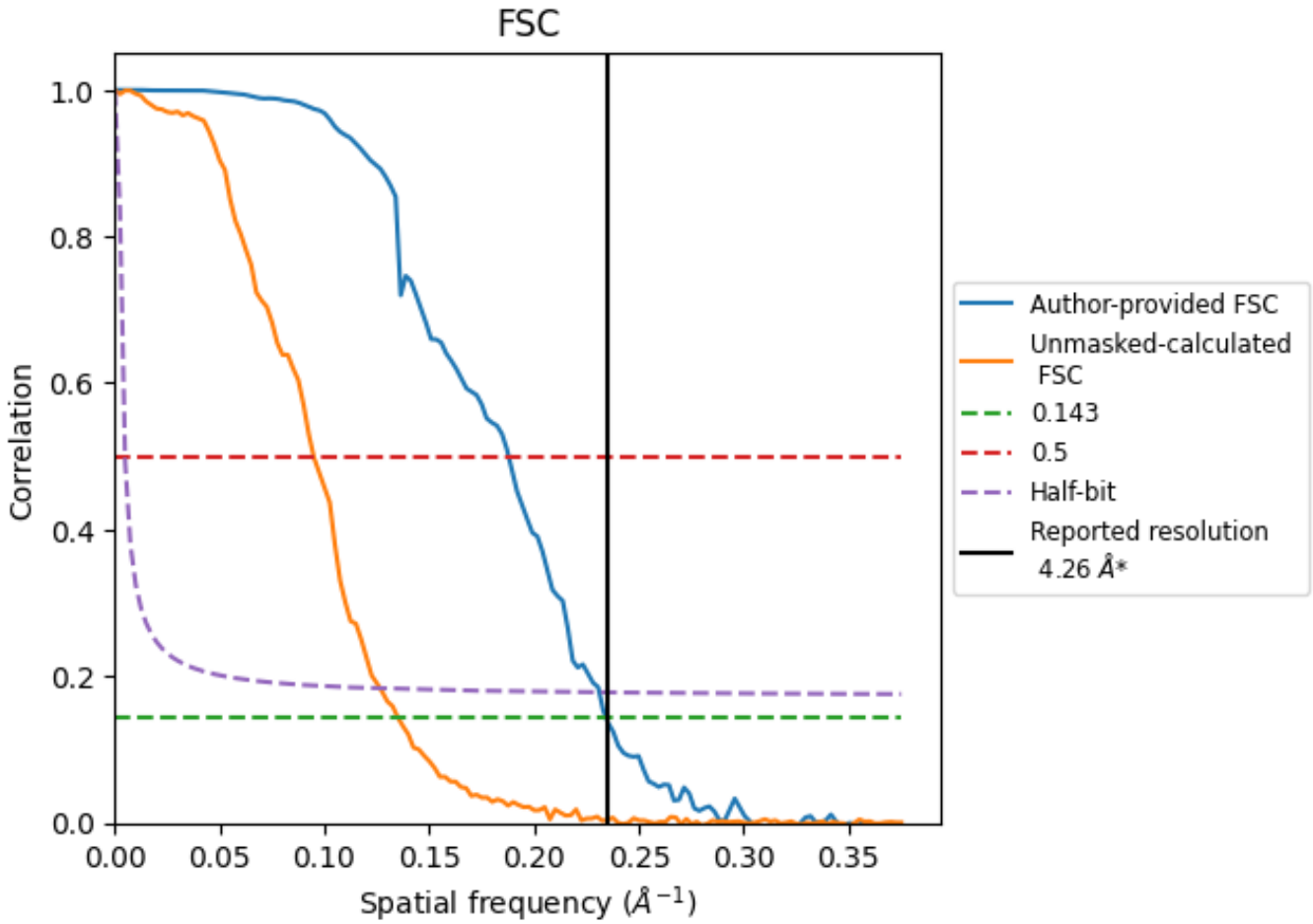


*Reported resolution corresponds to spatial frequency of 0.235 Å^{-1}

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 0.235 Å^{-1}

8.2 Resolution estimates (i)

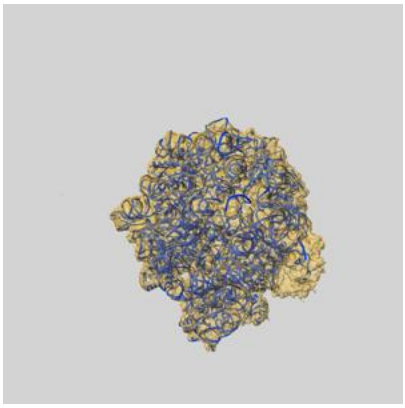
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.26	-	-
Author-provided FSC curve	4.26	5.32	4.33
Unmasked-calculated*	7.39	10.54	7.89

*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 7.39 differs from the reported value 4.26 by more than 10 %

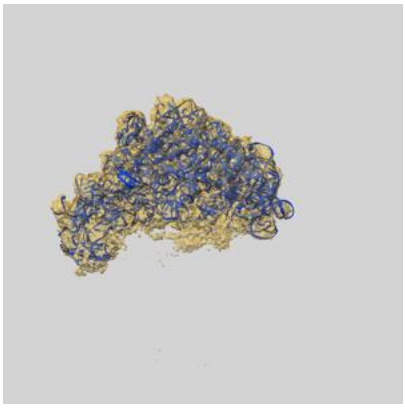
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-51976 and PDB model 9HA4. Per-residue inclusion information can be found in section 3 on page 8.

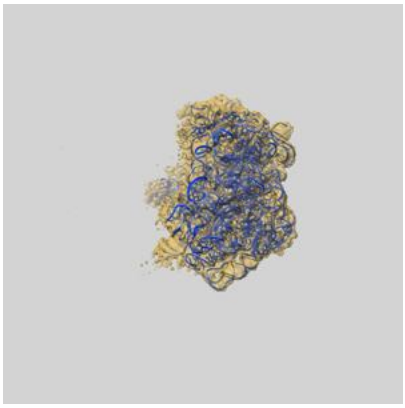
9.1 Map-model overlay



X



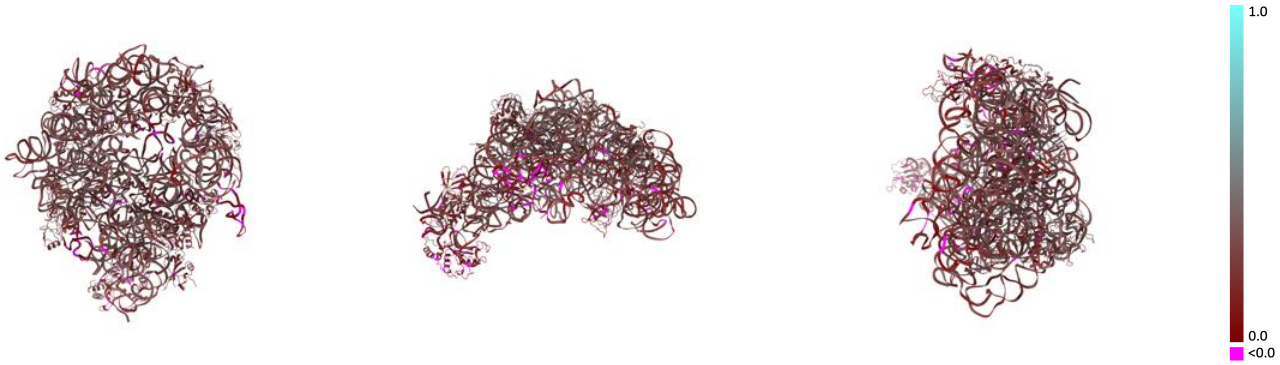
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.068 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.

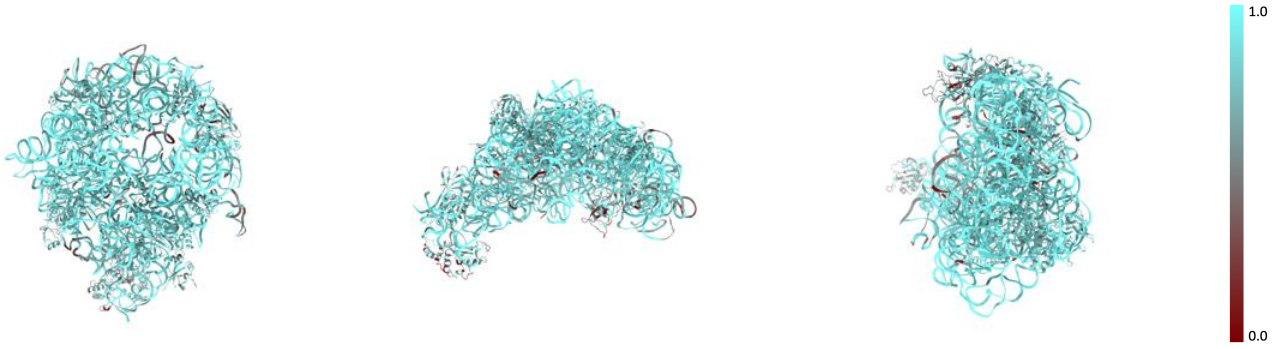
9.2 Q-score mapped to coordinate model (i)



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.

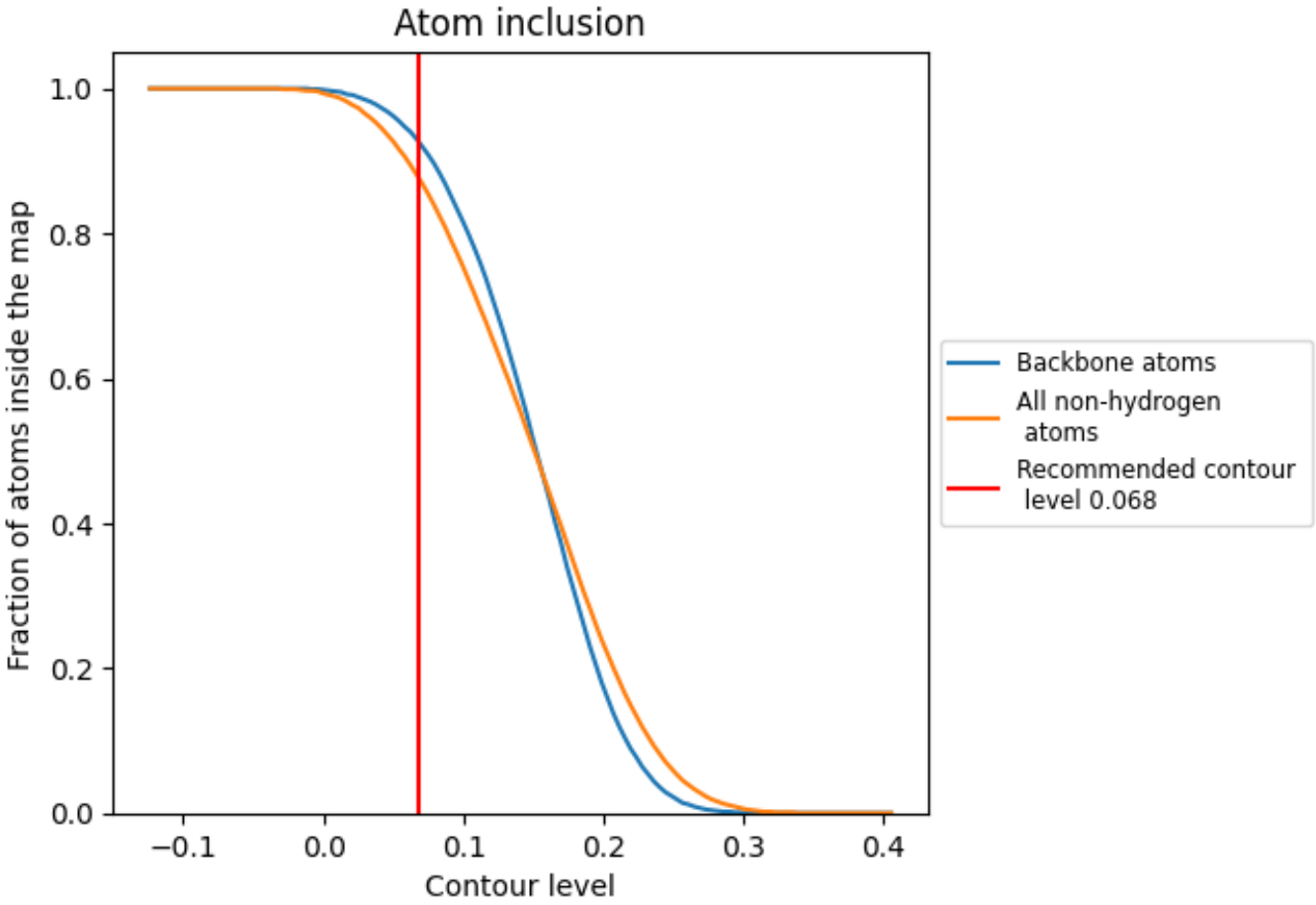
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.068).

9.4 Atom inclusion (i)



At the recommended contour level, 93% of all backbone atoms, 88% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.068) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8770	0.2460
2	0.7220	0.2150
A	0.9270	0.2560
B	0.9340	0.2180
D	0.8350	0.2810
E	0.7720	0.2660
F	0.5400	0.0790
J	0.7870	0.2590
K	0.5420	0.1750
L	0.7090	0.2160
N	0.8170	0.2360
O	0.7030	0.1250
P	0.6590	0.2030
Q	0.8280	0.2630
R	0.7750	0.2850
T	0.7400	0.2720
U	0.8160	0.2890
V	0.7290	0.1860
W	0.8040	0.2740
Y	0.7700	0.2040
Z	0.8350	0.2950
y	0.0220	0.0420