Full wwPDB EM Validation Report ⓘ

Jan 27, 2025 – 12:49 PM JST

PDB ID : 8I7J
EMDB ID : EMD-35216
Title : Yeast 40S-eIF4B - partially open conformation of the 40S head
Authors : Datey, A.; Khaja, F.T.; Hussain, T.
Deposited on : 2023-01-31
Resolution : 4.60 Å(reported)

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

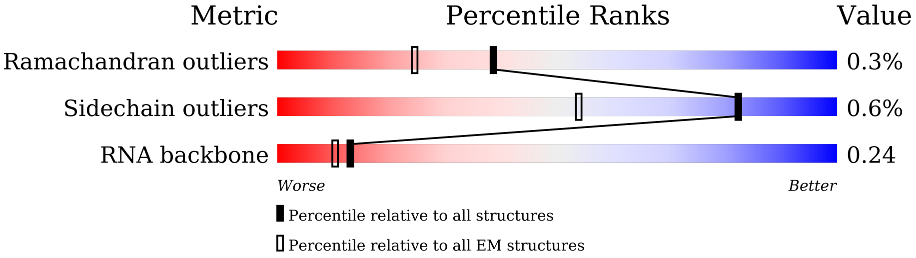
EMDB validation analysis : 0.0.1.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) :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

1 Overall quality at a glance ⓘ

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

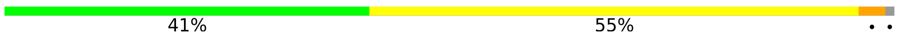
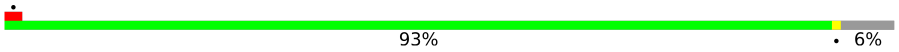
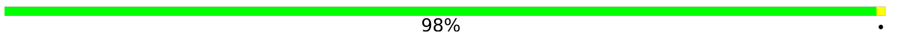
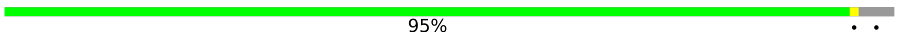
The reported resolution of this entry is 4.60 Å.

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)
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	1799	
2	A	254	
3	B	255	
4	C	259	
5	D	237	
6	E	261	
7	F	227	
8	G	236	

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Mol	Chain	Length	Quality of chain
9	H	190	93% • •
10	I	201	93% 6%
11	J	188	94% • •
12	K	106	90% • 9%
13	L	156	97% ••
14	M	134	13% 90% • 9%
15	N	151	99% •
16	O	137	93% 7%
17	P	142	7% 87% 13%
18	Q	143	97% ••
19	R	136	88% • • 8%
20	S	146	21% 99% ••
21	T	144	99% •
22	U	117	• 91% 9%
23	V	87	100%
24	W	130	98% ••
25	X	145	97% •••
26	Y	135	98% ••
27	Z	108	15% 65% 35%
28	a	119	82% 18%
29	b	82	99% •
30	c	67	93% • 6%
31	d	56	93% • 5%
32	e	63	84% 16%
33	f	150	6% 46% 54%

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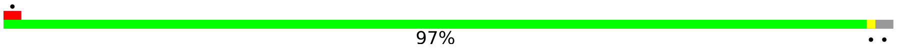
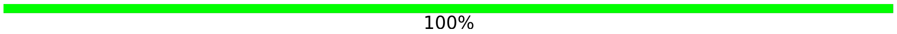
Mol	Chain	Length	Quality of chain
34	g	326	
35	h	25	

2 Entry composition ⓘ

There are 37 unique types of molecules in this entry. The entry contains 76299 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called RNA (1780-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	2	1780	37797	16892	6658	12467	1780	0	0

- Molecule 2 is a protein called 40S ribosomal protein S0.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	208	1626	1040	286	298	2	0	0

- Molecule 3 is a protein called 40S ribosomal protein S1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	223	1774	1120	325	326	3	0	0

- Molecule 4 is a protein called KLLA0F09812p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	217	1629	1041	287	297	4	0	0

- Molecule 5 is a protein called KLLA0D08305p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	223	1744	1108	313	318	5	0	0

- Molecule 6 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	E	260	2078	1322	393	359	4	0	0

- Molecule 7 is a protein called KLLA0D10659p.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	F	206	Total	C	N	O	S	0	0
			1609	1008	298	300	3		

- Molecule 8 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	226	Total	C	N	O	S	0	0
			1812	1134	348	326	4		

- Molecule 9 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	H	184	Total	C	N	O	0	0
			1483	950	270	263		

- Molecule 10 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	I	188	Total	C	N	O	S	0	0
			1489	923	300	265	1		

- Molecule 11 is a protein called KLLA0E23673p.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	182	Total	C	N	O	S	0	0
			1471	929	287	254	1		

- Molecule 12 is a protein called KLLA0B08173p.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	96	Total	C	N	O	S	0	0
			809	533	129	146	1		

- Molecule 13 is a protein called KLLA0A10483p.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	155	Total	C	N	O	S	0	0
			1248	798	237	210	3		

- Molecule 14 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	M	122	Total 922	C 575	N 167	O 180	0	0

- Molecule 15 is a protein called KLLA0F18040p.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	150	Total 1187	C 756	N 223	O 206	S 2	0	0

- Molecule 16 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	127	Total 942	C 578	N 188	O 173	S 3	0	0

- Molecule 17 is a protein called KLLA0F07843p.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	123	Total 980	C 628	N 179	O 168	S 5	0	0

- Molecule 18 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	Q	141	Total 1105	C 709	N 204	O 192	0	0

- Molecule 19 is a protein called KLLA0B01474p.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	125	Total 991	C 619	N 182	O 187	S 3	0	0

- Molecule 20 is a protein called KLLA0B01562p.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	145	Total 1193	C 741	N 240	O 210	S 2	0	0

- Molecule 21 is a protein called KLLA0A07194p.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
21	T	143	1110	693	210	207	0	0

- Molecule 22 is a protein called KLLA0F25542p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	U	106	845	540	152	152	1	0	0

- Molecule 23 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	V	87	687	424	126	135	2	0	0

- Molecule 24 is a protein called KLLA0B07931p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	W	129	1021	651	187	180	3	0	0

- Molecule 25 is a protein called KLLA0B11231p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	X	144	1119	708	218	191	2	0	0

- Molecule 26 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
26	Y	134	1061	665	207	189	0	0

- Molecule 27 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	Z	70	558	355	104	98	1	0	0

- Molecule 28 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	a	98	779	480	165	129	5	0	0

- Molecule 29 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	b	81	609	379	112	113	5	0	0

- Molecule 30 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	c	63	494	305	98	90	1	0	0

- Molecule 31 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	d	53	446	280	89	76	1	0	0

- Molecule 32 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	e	53	428	268	87	72	1	0	0

- Molecule 33 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	f	69	549	352	102	91	4	0	0

- Molecule 34 is a protein called KLLA0E12277p.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	g	318	2466	1561	430	470	5	0	0

- Molecule 35 is a protein called 60S ribosomal protein L41-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	h	25	233	142	63	27	1	0	0

- Molecule 36 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
36	2	2	2	2	0

- Molecule 37 is ZINC ION (three-letter code: ZN) (formula: Zn).

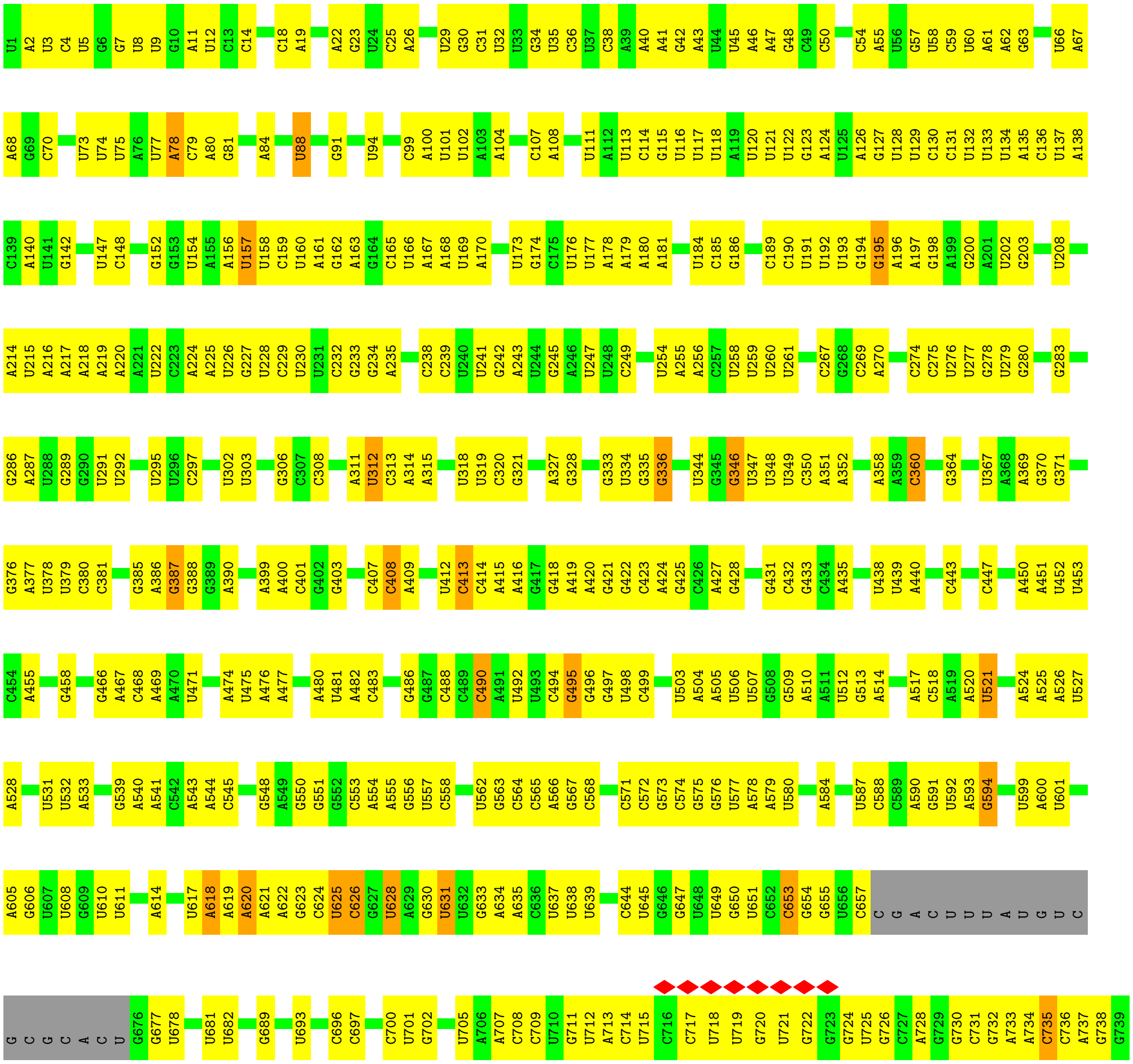
Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
37	a	1	1	1	0
37	b	1	1	1	0
37	f	1	1	1	0

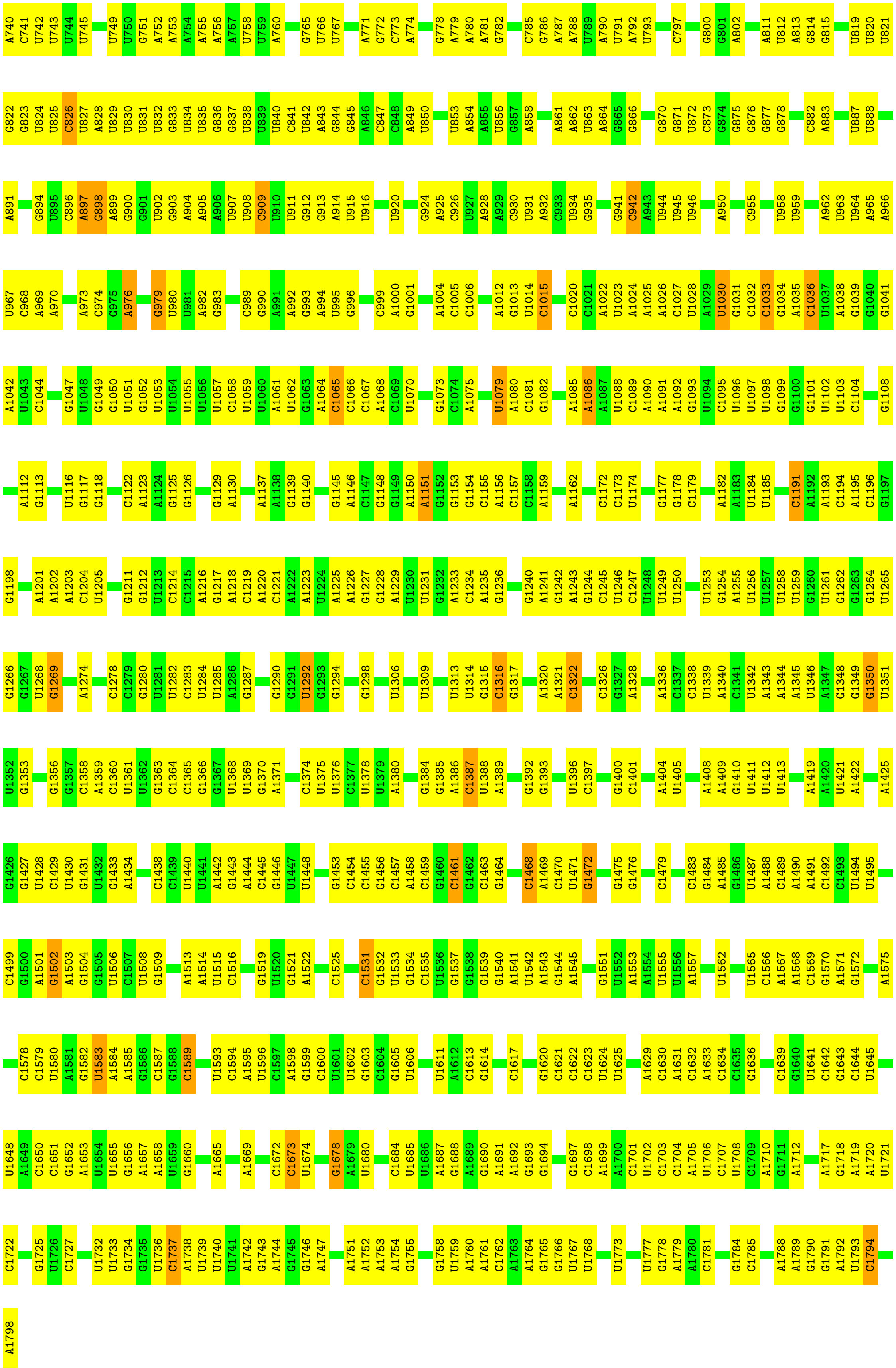
3 Residue-property plots ⓘ

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

- Molecule 1: RNA (1780-MER)

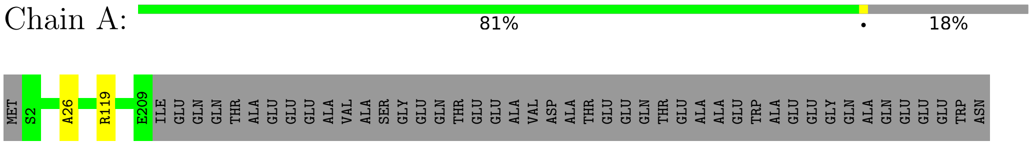
Chain 2:





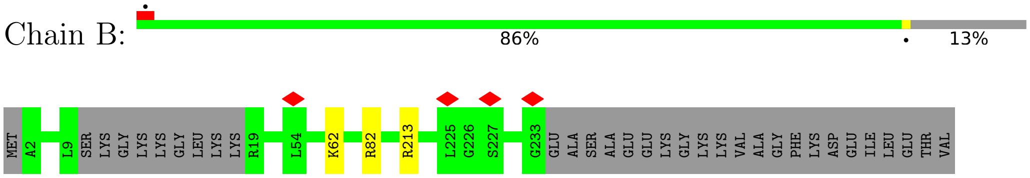
- Molecule 2: 40S ribosomal protein S0

Chain A:



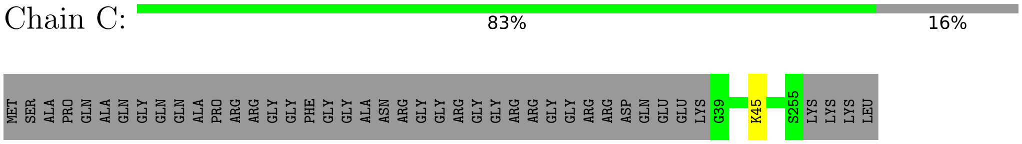
- Molecule 3: 40S ribosomal protein S1

Chain B:



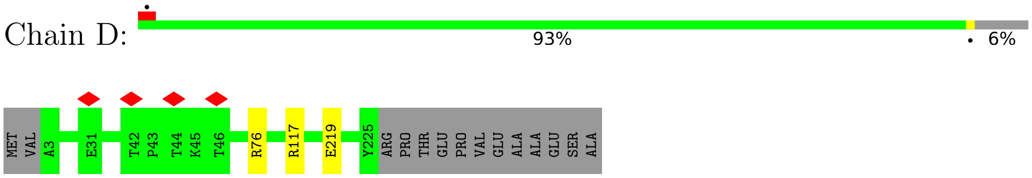
- Molecule 4: KLLA0F09812p

Chain C:



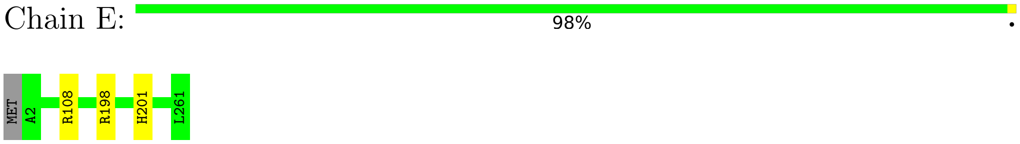
- Molecule 5: KLLA0D08305p

Chain D:



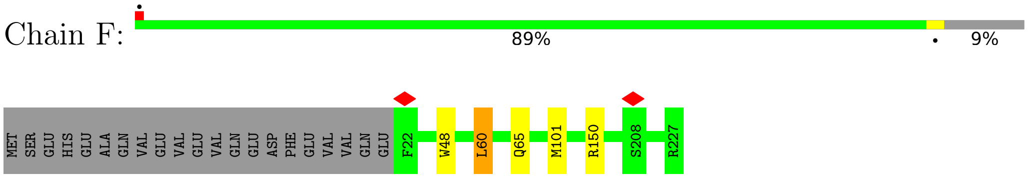
- Molecule 6: 40S ribosomal protein S4

Chain E:



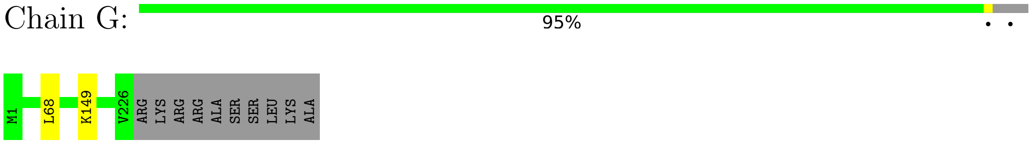
- Molecule 7: KLLA0D10659p

Chain F:



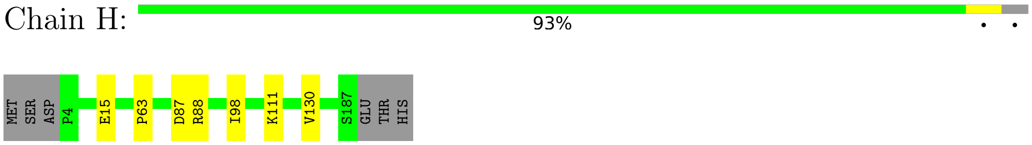
- Molecule 8: 40S ribosomal protein S6

Chain G:



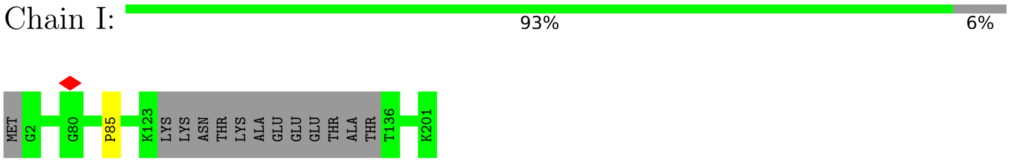
- Molecule 9: 40S ribosomal protein S7

Chain H:



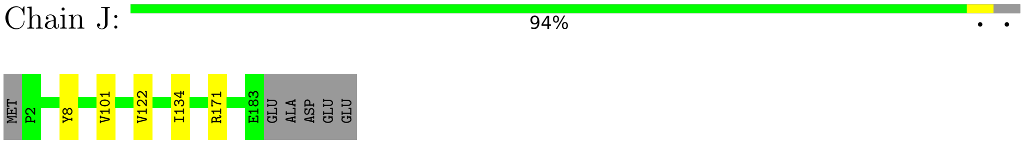
- Molecule 10: 40S ribosomal protein S8

Chain I:



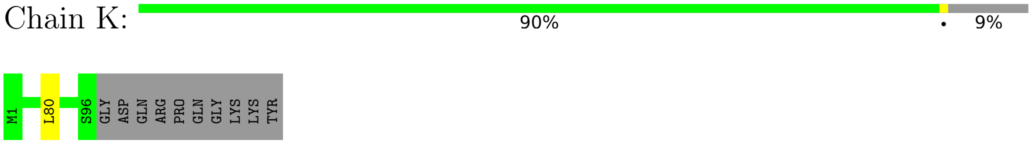
- Molecule 11: KLLA0E23673p

Chain J:



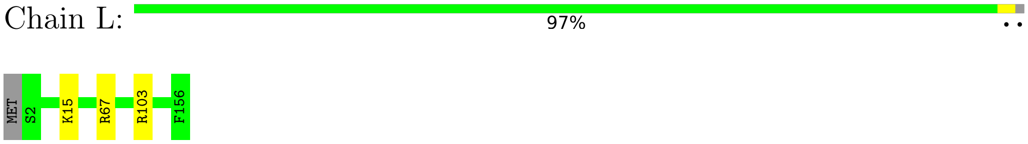
- Molecule 12: KLLA0B08173p

Chain K:



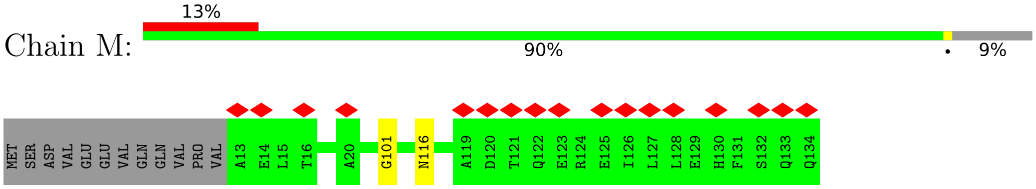
- Molecule 13: KLLA0A10483p

Chain L:



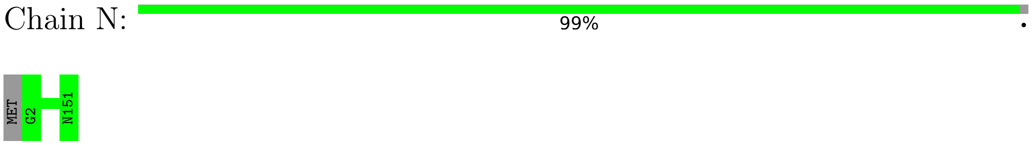
- Molecule 14: 40S ribosomal protein S12

Chain M:

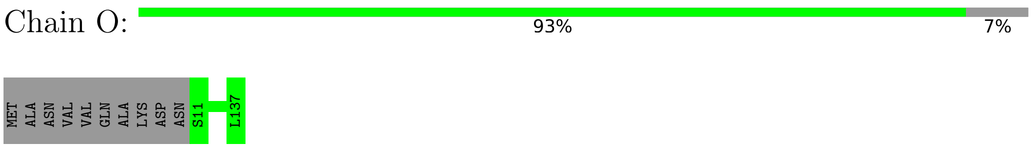


- Molecule 15: KLLA0F18040p

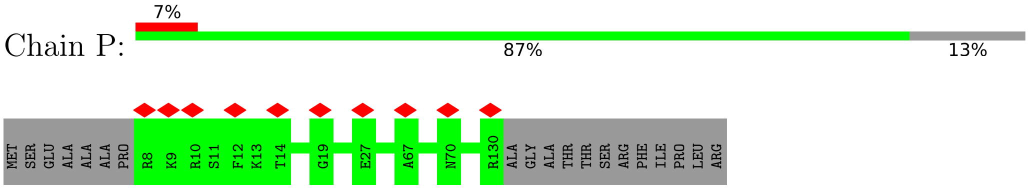
Chain N:



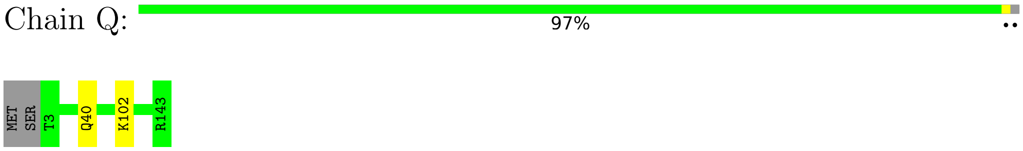
- Molecule 16: 40S ribosomal protein S14



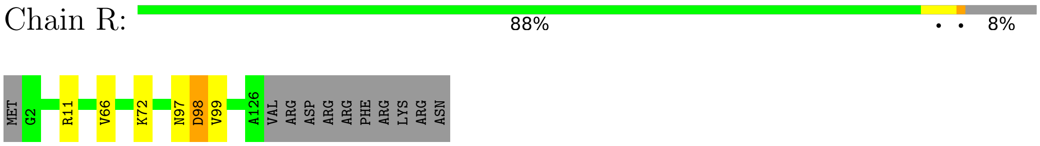
- Molecule 17: KLLA0F07843p



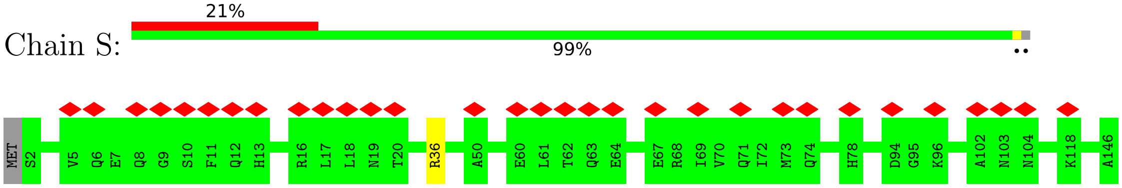
- Molecule 18: 40S ribosomal protein S16



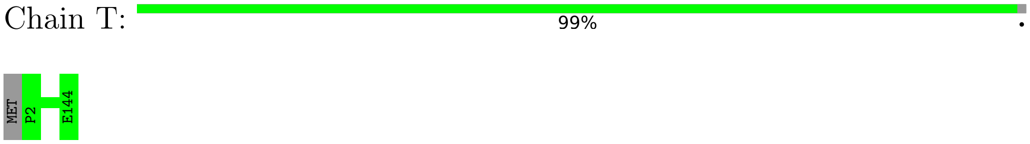
- Molecule 19: KLLA0B01474p



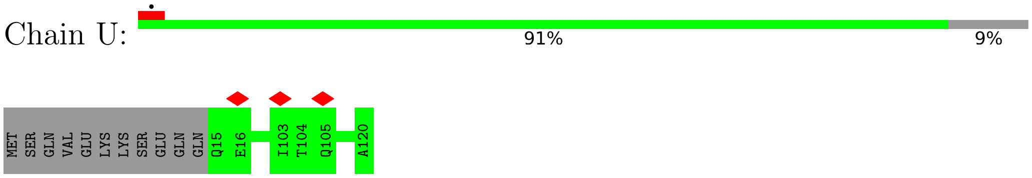
- Molecule 20: KLLA0B01562p



- Molecule 21: KLLA0A07194p

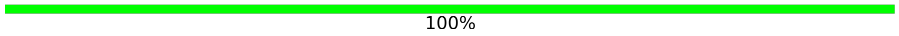


- Molecule 22: KLLA0F25542p



- Molecule 23: 40S ribosomal protein S21

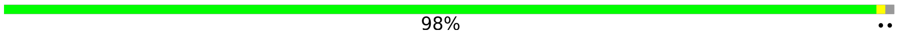
Chain V:

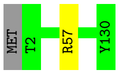


There are no outlier residues recorded for this chain.

- Molecule 24: KLLA0B07931p

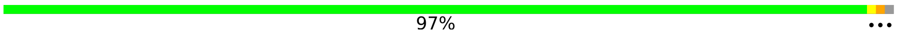
Chain W:

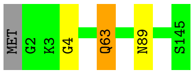




- Molecule 25: KLLA0B11231p

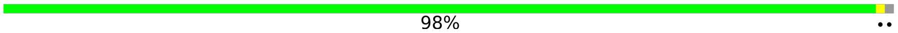
Chain X:

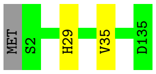




- Molecule 26: 40S ribosomal protein S24

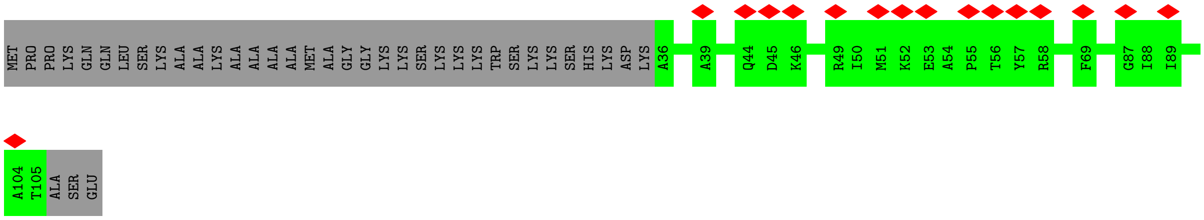
Chain Y:





- Molecule 27: 40S ribosomal protein S25

Chain Z:

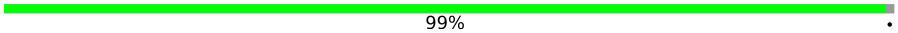


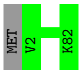
- Molecule 28: 40S ribosomal protein S26

Chain a:

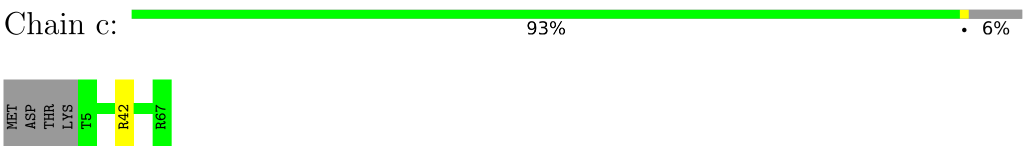
- Molecule 29: 40S ribosomal protein S27

Chain b:

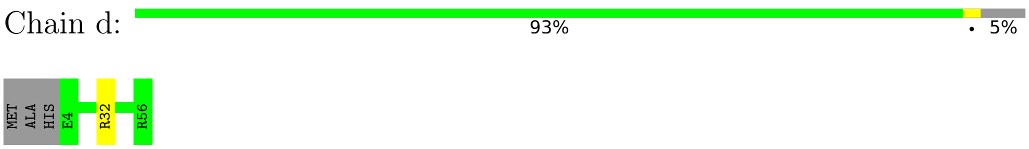




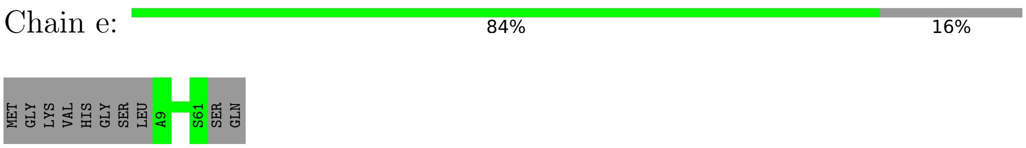
- Molecule 30: 40S ribosomal protein S28



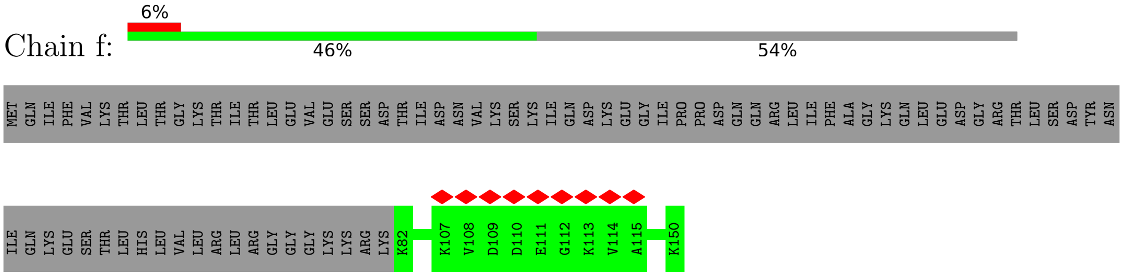
- Molecule 31: 40S ribosomal protein S29



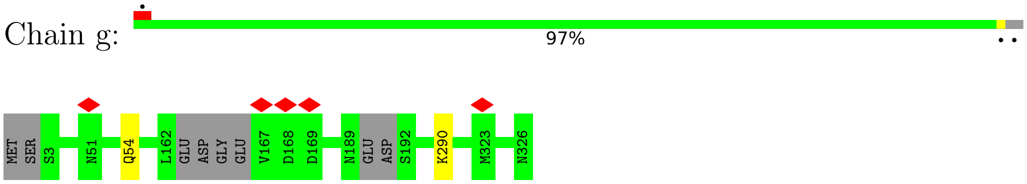
- Molecule 32: 40S ribosomal protein S30



- Molecule 33: Ubiquitin-40S ribosomal protein S27a



- Molecule 34: KLLA0E12277p



- Molecule 35: 60S ribosomal protein L41-A

There are no outlier residues recorded for this chain.

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	108616	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose $(e^-/\text{Å}^2)$	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	42000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.075	Depositor
Minimum map value	-0.023	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.006	Depositor
Map size (Å)	421.19998, 421.19998, 421.19998	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.17, 1.17, 1.17	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

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	0.73	4/42269 (0.0%)	1.16	166/65862 (0.3%)
2	A	0.39	0/1666	0.56	0/2279
3	B	0.37	0/1798	0.59	0/2421
4	C	0.40	0/1659	0.59	0/2252
5	D	0.32	0/1769	0.55	0/2378
6	E	0.41	0/2122	0.60	0/2861
7	F	0.31	0/1628	0.53	0/2198
8	G	0.35	0/1835	0.54	0/2451
9	H	0.38	0/1507	0.59	2/2028 (0.1%)
10	I	0.37	0/1515	0.56	0/2029
11	J	0.37	0/1495	0.61	0/2001
12	K	0.36	0/831	0.59	1/1123 (0.1%)
13	L	0.44	0/1276	0.57	0/1718
14	M	0.26	0/929	0.54	0/1255
15	N	0.36	0/1210	0.55	0/1628
16	O	0.34	0/953	0.59	0/1279
17	P	0.31	0/1000	0.53	0/1343
18	Q	0.31	0/1125	0.52	0/1510
19	R	0.35	0/1002	0.63	0/1346
20	S	0.26	0/1212	0.51	0/1629
21	T	0.32	0/1129	0.51	0/1520
22	U	0.32	0/857	0.56	0/1158
23	V	0.38	0/696	0.58	0/938
24	W	0.46	0/1039	0.64	0/1399
25	X	0.40	0/1137	0.59	0/1516
26	Y	0.38	0/1075	0.54	0/1433
27	Z	0.27	0/567	0.51	0/762
28	a	0.41	0/791	0.59	0/1059
29	b	0.36	0/619	0.61	0/837
30	c	0.30	0/496	0.56	0/666
31	d	0.37	0/457	0.53	0/607
32	e	0.39	0/435	0.60	0/579

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
33	f	0.29	0/562	0.56	0/751
34	g	0.32	0/2521	0.52	0/3431
35	h	0.27	0/234	0.62	0/300
All	All	0.58	4/81416 (0.0%)	0.94	169/118547 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	A	0	1
3	B	0	1
5	D	0	1
7	F	0	2
8	G	0	1
9	H	0	1
11	J	0	2
13	L	0	1
14	M	0	1
18	Q	0	1
19	R	0	3
25	X	0	2
26	Y	0	1
34	g	0	1
All	All	0	19

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	2	1151	A	O3'-P	5.51	1.67	1.61
1	2	1453	G	N9-C4	-5.46	1.33	1.38
1	2	100	A	N7-C5	-5.11	1.36	1.39
1	2	618	A	N9-C4	-5.05	1.34	1.37

All (169) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	2	1531	C	N1-C2-O2	10.33	125.10	118.90
1	2	1630	C	N3-C2-O2	-9.55	115.21	121.90
1	2	1630	C	C2-N1-C1'	8.89	128.58	118.80
1	2	1630	C	N1-C2-O2	8.82	124.19	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	2	1079	U	C2-N1-C1'	8.76	128.21	117.70
1	2	1531	C	N3-C2-O2	-8.70	115.81	121.90
1	2	1387	C	C2-N1-C1'	8.62	128.28	118.80
1	2	1620	G	N1-C6-O6	-8.45	114.83	119.90
1	2	826	C	C2-N1-C1'	-8.37	109.59	118.80
1	2	1502	G	O4'-C1'-N9	8.26	114.81	108.20
1	2	1453	G	N3-C4-N9	-8.21	121.07	126.00
1	2	847	C	N1-C2-O2	7.82	123.59	118.90
1	2	826	C	C6-N1-C1'	7.80	130.16	120.80
1	2	626	C	C2-N1-C1'	7.58	127.14	118.80
1	2	31	C	N3-C2-O2	-7.53	116.63	121.90
1	2	1292	U	N3-C2-O2	-7.48	116.97	122.20
1	2	1338	C	N3-C2-O2	-7.38	116.73	121.90
1	2	408	C	N3-C2-O2	-7.31	116.78	121.90
1	2	1453	G	N3-C4-C5	7.27	132.23	128.60
1	2	1292	U	N1-C2-O2	7.22	127.86	122.80
1	2	1525	C	N1-C2-O2	7.18	123.21	118.90
1	2	1531	C	N3-C4-N4	-7.11	113.03	118.00
1	2	1794	C	C2-N1-C1'	7.08	126.59	118.80
1	2	1617	C	C2-N1-C1'	6.95	126.45	118.80
1	2	1079	U	N1-C2-O2	6.88	127.62	122.80
1	2	1617	C	C5-C6-N1	6.84	124.42	121.00
1	2	1584	A	N7-C8-N9	6.76	117.18	113.80
1	2	1620	G	O4'-C1'-N9	6.72	113.58	108.20
1	2	620	A	N1-C6-N6	-6.72	114.57	118.60
1	2	1033	C	C2-N1-C1'	6.70	126.17	118.80
1	2	509	G	N3-C4-N9	-6.63	122.02	126.00
1	2	1737	C	N3-C2-O2	-6.58	117.29	121.90
1	2	1472	G	N3-C2-N2	6.56	124.50	119.90
1	2	964	U	C4-C5-C6	6.56	123.64	119.70
1	2	1316	C	N1-C2-O2	6.55	122.83	118.90
1	2	847	C	N3-C2-O2	-6.51	117.34	121.90
1	2	1079	U	N3-C2-O2	-6.43	117.69	122.20
1	2	844	G	C5-C6-O6	6.43	132.46	128.60
1	2	1525	C	N3-C2-O2	-6.42	117.40	121.90
1	2	31	C	N1-C2-O2	6.42	122.75	118.90
1	2	1673	C	N3-C2-O2	-6.41	117.41	121.90
1	2	1322	C	N3-C2-O2	-6.41	117.41	121.90
1	2	1365	C	C5-C6-N1	6.41	124.21	121.00
1	2	1387	C	C6-N1-C1'	-6.37	113.15	120.80
1	2	1583	U	C2-N1-C1'	6.37	125.34	117.70
1	2	979	G	N3-C4-N9	6.31	129.79	126.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	2	1454	C	C2-N1-C1'	6.31	125.75	118.80
1	2	935	G	C8-N9-C1'	-6.26	118.87	127.00
1	2	1630	C	C6-N1-C1'	-6.24	113.31	120.80
1	2	1794	C	N1-C2-O2	6.21	122.62	118.90
1	2	571	C	N3-C2-O2	-6.17	117.58	121.90
1	2	1322	C	N1-C2-O2	6.16	122.60	118.90
12	K	80	LEU	CB-CG-CD2	-6.16	100.54	111.00
1	2	1030	U	N3-C4-O4	-6.15	115.09	119.40
1	2	1387	C	C5-C6-N1	6.11	124.06	121.00
1	2	79	C	C2-N1-C1'	6.08	125.49	118.80
1	2	914	A	N7-C8-N9	6.06	116.83	113.80
1	2	631	U	C2-N3-C4	-6.06	123.36	127.00
1	2	1589	C	C2-N1-C1'	6.06	125.46	118.80
1	2	495	G	N3-C4-N9	-5.99	122.41	126.00
1	2	1620	G	C2-N3-C4	5.98	114.89	111.90
1	2	1472	G	C5-C6-O6	5.96	132.18	128.60
1	2	1620	G	C5-C6-N1	5.95	114.47	111.50
9	H	98	ILE	C-N-CA	-5.94	106.84	121.70
1	2	1621	C	C6-N1-C2	-5.94	117.92	120.30
1	2	1033	C	C6-N1-C1'	-5.93	113.68	120.80
1	2	1454	C	N1-C2-O2	5.93	122.46	118.90
1	2	897	A	C2-N3-C4	-5.92	107.64	110.60
1	2	909	C	N3-C2-O2	-5.88	117.79	121.90
1	2	1472	G	N1-C6-O6	-5.85	116.39	119.90
1	2	935	G	N3-C4-N9	5.83	129.50	126.00
1	2	1468	C	C2-N1-C1'	5.81	125.19	118.80
1	2	1292	U	C2-N1-C1'	5.77	124.62	117.70
1	2	935	G	C4-N9-C1'	5.77	134.00	126.50
1	2	1079	U	C6-N1-C1'	-5.76	113.14	121.20
1	2	1594	C	C2-N1-C1'	5.74	125.11	118.80
1	2	1086	A	C6-N1-C2	-5.71	115.17	118.60
1	2	1630	C	C6-N1-C2	-5.69	118.02	120.30
1	2	591	G	C8-N9-C4	-5.67	104.13	106.40
1	2	898	G	N3-C4-N9	-5.63	122.62	126.00
1	2	1015	C	C2-N1-C1'	5.63	124.99	118.80
1	2	1118	G	C8-N9-C4	-5.62	104.15	106.40
1	2	346	G	C4-N9-C1'	5.62	133.81	126.50
1	2	976	A	N1-C2-N3	5.62	132.11	129.30
1	2	1191	C	N1-C2-O2	5.61	122.27	118.90
1	2	1453	G	N3-C2-N2	-5.59	115.99	119.90
1	2	121	U	C2-N3-C4	-5.59	123.65	127.00
1	2	1030	U	C5-C4-O4	5.59	129.25	125.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	2	1453	G	C4-N9-C1'	-5.58	119.25	126.50
1	2	1316	C	N3-C2-O2	-5.58	118.00	121.90
1	2	625	U	C2-N1-C1'	5.57	124.38	117.70
1	2	336	G	C8-N9-C4	5.56	108.62	106.40
1	2	346	G	C8-N9-C1'	-5.54	119.80	127.00
1	2	521	U	C2-N1-C1'	5.53	124.34	117.70
1	2	1338	C	C6-N1-C2	-5.53	118.09	120.30
1	2	1594	C	C6-N1-C2	-5.52	118.09	120.30
1	2	826	C	N3-C4-N4	-5.52	114.14	118.00
1	2	628	U	N3-C2-O2	-5.50	118.35	122.20
1	2	1438	C	N1-C2-O2	5.50	122.20	118.90
1	2	1172	C	N3-C2-O2	-5.49	118.06	121.90
1	2	413	C	N3-C2-O2	-5.49	118.06	121.90
1	2	626	C	C6-N1-C1'	-5.48	114.22	120.80
1	2	898	G	C4-N9-C1'	-5.47	119.39	126.50
1	2	964	U	C2-N3-C4	-5.47	123.72	127.00
1	2	735	C	N1-C2-O2	5.47	122.18	118.90
1	2	388	G	C8-N9-C4	-5.45	104.22	106.40
1	2	1583	U	N1-C2-O2	5.43	126.60	122.80
1	2	408	C	N1-C2-N3	5.42	122.99	119.20
1	2	942	C	C5-C6-N1	-5.41	118.30	121.00
1	2	100	A	C4-C5-C6	5.40	119.70	117.00
1	2	1453	G	C2-N3-C4	-5.40	109.20	111.90
1	2	964	U	N1-C2-N3	5.39	118.14	114.90
1	2	900	G	O4'-C1'-N9	-5.39	103.89	108.20
1	2	1672	C	N1-C2-O2	5.39	122.13	118.90
1	2	157	U	OP1-P-O3'	5.38	117.05	105.20
1	2	1033	C	N1-C2-O2	5.38	122.13	118.90
1	2	1461	C	N1-C2-O2	5.38	122.13	118.90
1	2	79	C	C6-N1-C2	-5.36	118.16	120.30
1	2	1253	U	C2-N1-C1'	5.35	124.12	117.70
1	2	1620	G	C6-N1-C2	-5.32	121.91	125.10
1	2	408	C	C6-N1-C2	-5.32	118.17	120.30
1	2	1617	C	C6-N1-C1'	-5.31	114.43	120.80
1	2	974	C	N3-C2-O2	-5.30	118.19	121.90
1	2	966	A	C8-N9-C4	-5.29	103.68	105.80
1	2	979	G	N3-C4-C5	-5.29	125.95	128.60
1	2	509	G	N3-C4-C5	5.29	131.24	128.60
1	2	1617	C	N1-C2-O2	5.28	122.07	118.90
1	2	1015	C	N1-C2-O2	5.28	122.07	118.90
1	2	844	G	N1-C6-O6	-5.28	116.73	119.90
1	2	1531	C	C5-C4-N4	5.27	123.89	120.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	2	871	G	N3-C4-C5	-5.26	125.97	128.60
1	2	631	U	C5-C6-N1	-5.26	120.07	122.70
1	2	306	G	C6-C5-N7	-5.25	127.25	130.40
1	2	1472	G	N1-C2-N2	-5.25	111.47	116.20
1	2	873	C	C2-N1-C1'	5.24	124.57	118.80
1	2	620	A	C5-C6-N6	5.24	127.89	123.70
1	2	1594	C	N1-C2-O2	5.20	122.02	118.90
1	2	1221	C	N1-C2-O2	5.19	122.02	118.90
1	2	1594	C	N3-C2-O2	-5.17	118.28	121.90
1	2	1326	C	N3-C2-O2	-5.17	118.28	121.90
1	2	107	C	C2-N1-C1'	5.16	124.48	118.80
1	2	360	C	C2-N1-C1'	5.16	124.47	118.80
1	2	91	G	C4-N9-C1'	5.15	133.20	126.50
1	2	1794	C	N3-C2-O2	-5.15	118.29	121.90
1	2	826	C	C5-C4-N4	5.14	123.80	120.20
1	2	1794	C	C6-N1-C2	-5.14	118.24	120.30
1	2	1461	C	N3-C2-O2	-5.14	118.30	121.90
1	2	490	C	C2-N3-C4	-5.13	117.33	119.90
1	2	312	U	C5-C6-N1	-5.13	120.14	122.70
1	2	1678	G	O4'-C1'-N9	5.13	112.30	108.20
9	H	87	ASP	CB-CG-OD1	5.11	122.89	118.30
1	2	900	G	C4-N9-C1'	5.10	133.13	126.50
1	2	653	C	C2-N1-C1'	5.09	124.40	118.80
1	2	387	G	C4-C5-N7	5.08	112.83	110.80
1	2	1159	A	C6-N1-C2	-5.08	115.55	118.60
1	2	88	U	C6-N1-C1'	-5.08	114.08	121.20
1	2	594	G	N1-C2-N2	-5.05	111.65	116.20
1	2	1350	G	N9-C4-C5	-5.05	103.38	105.40
1	2	1036	C	C2-N1-C1'	5.03	124.33	118.80
1	2	1737	C	N1-C2-O2	5.03	121.92	118.90
1	2	1269	G	N3-C4-N9	5.03	129.02	126.00
1	2	898	G	C8-N9-C1'	5.03	133.54	127.00
1	2	926	C	N3-C2-O2	-5.03	118.38	121.90
1	2	1126	G	C8-N9-C4	-5.03	104.39	106.40
1	2	195	G	O4'-C1'-N9	5.02	112.22	108.20
1	2	78	A	N1-C2-N3	5.02	131.81	129.30
1	2	624	C	C6-N1-C2	-5.02	118.29	120.30
1	2	1583	U	N3-C2-O2	-5.01	118.69	122.20
1	2	1065	C	N3-C2-O2	-5.00	118.40	121.90

There are no chirality outliers.

All (19) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	A	26	ALA	Peptide
3	B	213	ARG	Peptide
5	D	219	GLU	Peptide
7	F	101	MET	Peptide
7	F	60	LEU	Peptide
8	G	68	LEU	Peptide
9	H	130	VAL	Peptide
11	J	134	ILE	Peptide
11	J	8	TYR	Peptide
13	L	103	ARG	Peptide
14	M	101	GLY	Peptide
18	Q	40	GLN	Peptide
19	R	66	VAL	Peptide
19	R	97	ASN	Peptide
19	R	98	ASP	Peptide
25	X	63	GLN	Peptide
25	X	89	ASN	Peptide
26	Y	29	HIS	Peptide
34	g	290	LYS	Peptide

5.2 Too-close contacts (i)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	
2	A	206/254 (81%)	164 (80%)	42 (20%)	0	100	100
3	B	219/255 (86%)	183 (84%)	36 (16%)	0	100	100
4	C	215/259 (83%)	181 (84%)	33 (15%)	1 (0%)	25	64
5	D	221/237 (93%)	188 (85%)	33 (15%)	0	100	100
6	E	258/261 (99%)	195 (76%)	62 (24%)	1 (0%)	30	68

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	F	204/227 (90%)	164 (80%)	39 (19%)	1 (0%)	25	64
8	G	224/236 (95%)	186 (83%)	37 (16%)	1 (0%)	30	68
9	H	182/190 (96%)	144 (79%)	36 (20%)	2 (1%)	12	46
10	I	184/201 (92%)	147 (80%)	36 (20%)	1 (0%)	25	64
11	J	180/188 (96%)	135 (75%)	43 (24%)	2 (1%)	12	46
12	K	94/106 (89%)	78 (83%)	16 (17%)	0	100	100
13	L	153/156 (98%)	117 (76%)	36 (24%)	0	100	100
14	M	120/134 (90%)	97 (81%)	23 (19%)	0	100	100
15	N	148/151 (98%)	126 (85%)	22 (15%)	0	100	100
16	O	125/137 (91%)	95 (76%)	30 (24%)	0	100	100
17	P	121/142 (85%)	102 (84%)	19 (16%)	0	100	100
18	Q	139/143 (97%)	120 (86%)	19 (14%)	0	100	100
19	R	123/136 (90%)	91 (74%)	29 (24%)	3 (2%)	5	28
20	S	143/146 (98%)	116 (81%)	27 (19%)	0	100	100
21	T	141/144 (98%)	124 (88%)	17 (12%)	0	100	100
22	U	104/117 (89%)	90 (86%)	14 (14%)	0	100	100
23	V	85/87 (98%)	65 (76%)	20 (24%)	0	100	100
24	W	127/130 (98%)	101 (80%)	26 (20%)	0	100	100
25	X	142/145 (98%)	97 (68%)	43 (30%)	2 (1%)	9	40
26	Y	132/135 (98%)	109 (83%)	22 (17%)	1 (1%)	16	54
27	Z	68/108 (63%)	53 (78%)	15 (22%)	0	100	100
28	a	96/119 (81%)	67 (70%)	29 (30%)	0	100	100
29	b	79/82 (96%)	57 (72%)	22 (28%)	0	100	100
30	c	61/67 (91%)	50 (82%)	11 (18%)	0	100	100
31	d	51/56 (91%)	39 (76%)	12 (24%)	0	100	100
32	e	51/63 (81%)	41 (80%)	10 (20%)	0	100	100
33	f	67/150 (45%)	46 (69%)	21 (31%)	0	100	100
34	g	312/326 (96%)	267 (86%)	45 (14%)	0	100	100
35	h	23/25 (92%)	23 (100%)	0	0	100	100
All	All	4798/5313 (90%)	3858 (80%)	925 (19%)	15 (0%)	38	72

All (15) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
19	R	98	ASP
4	C	45	LYS
19	R	72	LYS
25	X	4	GLY
26	Y	35	VAL
7	F	60	LEU
8	G	149	LYS
9	H	15	GLU
9	H	63	PRO
11	J	122	VAL
6	E	201	HIS
19	R	99	VAL
11	J	101	VAL
25	X	63	GLN
10	I	85	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	A	174/211 (82%)	173 (99%)	1 (1%)	84	88
3	B	198/228 (87%)	196 (99%)	2 (1%)	73	81
4	C	176/203 (87%)	176 (100%)	0	100	100
5	D	185/196 (94%)	183 (99%)	2 (1%)	70	80
6	E	223/224 (100%)	221 (99%)	2 (1%)	75	83
7	F	174/194 (90%)	171 (98%)	3 (2%)	56	72
8	G	192/200 (96%)	192 (100%)	0	100	100
9	H	164/170 (96%)	162 (99%)	2 (1%)	67	79
10	I	147/159 (92%)	147 (100%)	0	100	100
11	J	153/158 (97%)	152 (99%)	1 (1%)	81	87
12	K	88/96 (92%)	88 (100%)	0	100	100
13	L	136/137 (99%)	134 (98%)	2 (2%)	60	75
14	M	97/109 (89%)	96 (99%)	1 (1%)	73	81

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	N	127/128 (99%)	127 (100%)	0	100	100
16	O	96/104 (92%)	96 (100%)	0	100	100
17	P	105/119 (88%)	105 (100%)	0	100	100
18	Q	117/119 (98%)	116 (99%)	1 (1%)	75	83
19	R	112/124 (90%)	111 (99%)	1 (1%)	75	83
20	S	128/129 (99%)	127 (99%)	1 (1%)	79	84
21	T	117/118 (99%)	117 (100%)	0	100	100
22	U	96/107 (90%)	96 (100%)	0	100	100
23	V	73/73 (100%)	73 (100%)	0	100	100
24	W	110/111 (99%)	109 (99%)	1 (1%)	75	83
25	X	119/120 (99%)	119 (100%)	0	100	100
26	Y	108/109 (99%)	108 (100%)	0	100	100
27	Z	60/88 (68%)	60 (100%)	0	100	100
28	a	83/100 (83%)	83 (100%)	0	100	100
29	b	71/72 (99%)	71 (100%)	0	100	100
30	c	55/59 (93%)	54 (98%)	1 (2%)	54	71
31	d	46/48 (96%)	45 (98%)	1 (2%)	47	65
32	e	47/55 (86%)	47 (100%)	0	100	100
33	f	58/133 (44%)	58 (100%)	0	100	100
34	g	265/272 (97%)	264 (100%)	1 (0%)	89	90
35	h	23/23 (100%)	23 (100%)	0	100	100
All	All	4123/4496 (92%)	4100 (99%)	23 (1%)	82	88

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

Mol	Chain	Res	Type
2	A	119	ARG
3	B	62	LYS
3	B	82	ARG
5	D	76	ARG
5	D	117	ARG
6	E	108	ARG
6	E	198	ARG
7	F	48	TRP
7	F	65	GLN

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Mol	Chain	Res	Type
7	F	150	ARG
9	H	88	ARG
9	H	111	LYS
11	J	171	ARG
13	L	15	LYS
13	L	67	ARG
14	M	116	ASN
18	Q	102	LYS
19	R	11	ARG
20	S	36	ARG
24	W	57	ARG
30	c	42	ARG
31	d	32	ARG
34	g	54	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
2	A	30	GLN
2	A	33	GLN
2	A	109	ASN
3	B	178	ASN
3	B	183	GLN
6	E	224	ASN
7	F	36	GLN
7	F	39	GLN
8	G	10	ASN
8	G	81	HIS
10	I	116	HIS
11	J	38	ASN
12	K	14	HIS
12	K	47	GLN
16	O	24	ASN
19	R	48	ASN
20	S	44	ASN
21	T	43	ASN
21	T	101	ASN
29	b	49	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1778/1799 (98%)	979 (55%)	57 (3%)

All (979) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	2	A
1	2	3	U
1	2	4	C
1	2	5	U
1	2	7	G
1	2	8	U
1	2	9	U
1	2	11	A
1	2	12	U
1	2	14	C
1	2	18	C
1	2	19	A
1	2	22	A
1	2	23	G
1	2	25	C
1	2	26	A
1	2	29	U
1	2	30	G
1	2	32	U
1	2	34	G
1	2	35	U
1	2	36	C
1	2	38	C
1	2	40	A
1	2	41	A
1	2	42	G
1	2	43	A
1	2	45	U
1	2	46	A
1	2	47	A
1	2	48	G
1	2	50	C
1	2	54	C
1	2	55	A
1	2	57	G
1	2	58	U
1	2	59	C
1	2	60	U

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Mol	Chain	Res	Type
1	2	61	A
1	2	62	A
1	2	63	G
1	2	66	U
1	2	67	A
1	2	68	A
1	2	70	C
1	2	73	U
1	2	74	U
1	2	75	U
1	2	77	U
1	2	78	A
1	2	80	A
1	2	81	G
1	2	84	A
1	2	88	U
1	2	94	U
1	2	99	C
1	2	101	U
1	2	102	U
1	2	104	A
1	2	108	A
1	2	111	U
1	2	113	U
1	2	114	C
1	2	115	G
1	2	116	U
1	2	117	U
1	2	118	U
1	2	120	U
1	2	122	U
1	2	123	G
1	2	124	A
1	2	126	A
1	2	127	G
1	2	128	U
1	2	129	U
1	2	130	C
1	2	131	C
1	2	132	U
1	2	133	U
1	2	134	U

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Mol	Chain	Res	Type
1	2	135	A
1	2	136	C
1	2	137	U
1	2	138	A
1	2	140	A
1	2	142	G
1	2	147	U
1	2	148	C
1	2	152	G
1	2	154	U
1	2	156	A
1	2	158	U
1	2	159	C
1	2	160	U
1	2	161	A
1	2	162	G
1	2	163	A
1	2	165	C
1	2	166	U
1	2	167	A
1	2	168	A
1	2	169	U
1	2	170	A
1	2	173	U
1	2	174	G
1	2	176	U
1	2	177	U
1	2	178	A
1	2	179	A
1	2	180	A
1	2	181	A
1	2	184	U
1	2	185	C
1	2	186	G
1	2	189	C
1	2	190	C
1	2	191	U
1	2	192	U
1	2	193	U
1	2	194	G
1	2	195	G
1	2	196	A

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Mol	Chain	Res	Type
1	2	197	A
1	2	198	G
1	2	200	G
1	2	203	G
1	2	208	U
1	2	215	U
1	2	216	A
1	2	217	A
1	2	218	A
1	2	219	A
1	2	220	A
1	2	222	U
1	2	224	A
1	2	225	A
1	2	226	U
1	2	227	G
1	2	228	U
1	2	229	C
1	2	230	U
1	2	232	C
1	2	233	G
1	2	234	G
1	2	235	A
1	2	238	C
1	2	239	C
1	2	241	U
1	2	242	G
1	2	243	A
1	2	245	G
1	2	247	U
1	2	249	C
1	2	254	U
1	2	255	A
1	2	256	A
1	2	258	U
1	2	259	U
1	2	260	U
1	2	261	U
1	2	267	C
1	2	270	A
1	2	274	C
1	2	275	C

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Mol	Chain	Res	Type
1	2	276	U
1	2	277	U
1	2	278	G
1	2	279	U
1	2	280	G
1	2	283	G
1	2	286	G
1	2	287	A
1	2	289	G
1	2	291	U
1	2	292	U
1	2	295	U
1	2	297	C
1	2	302	U
1	2	303	U
1	2	308	C
1	2	311	A
1	2	312	U
1	2	313	C
1	2	314	A
1	2	315	A
1	2	318	U
1	2	319	U
1	2	320	C
1	2	321	G
1	2	327	A
1	2	328	G
1	2	333	G
1	2	335	G
1	2	336	G
1	2	344	U
1	2	346	G
1	2	348	U
1	2	349	U
1	2	350	C
1	2	351	A
1	2	352	A
1	2	358	A
1	2	360	C
1	2	364	G
1	2	367	U
1	2	369	A

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Mol	Chain	Res	Type
1	2	370	G
1	2	371	G
1	2	376	G
1	2	377	A
1	2	378	U
1	2	379	U
1	2	380	C
1	2	381	C
1	2	385	G
1	2	386	A
1	2	387	G
1	2	390	A
1	2	399	A
1	2	400	A
1	2	401	C
1	2	403	G
1	2	407	C
1	2	408	C
1	2	409	A
1	2	412	U
1	2	413	C
1	2	414	C
1	2	415	A
1	2	416	A
1	2	418	G
1	2	419	A
1	2	420	A
1	2	421	G
1	2	422	G
1	2	423	C
1	2	424	A
1	2	425	G
1	2	427	A
1	2	428	G
1	2	431	G
1	2	432	C
1	2	433	G
1	2	435	A
1	2	438	U
1	2	439	U
1	2	440	A
1	2	443	C

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Mol	Chain	Res	Type
1	2	447	C
1	2	450	A
1	2	451	A
1	2	452	U
1	2	453	U
1	2	455	A
1	2	458	G
1	2	466	G
1	2	467	A
1	2	468	C
1	2	469	A
1	2	471	U
1	2	474	A
1	2	475	U
1	2	476	A
1	2	477	A
1	2	480	A
1	2	481	U
1	2	482	A
1	2	483	C
1	2	486	G
1	2	488	C
1	2	490	C
1	2	492	U
1	2	494	C
1	2	495	G
1	2	496	G
1	2	497	G
1	2	498	U
1	2	499	C
1	2	503	U
1	2	504	A
1	2	505	A
1	2	506	U
1	2	507	U
1	2	510	A
1	2	512	U
1	2	513	G
1	2	514	A
1	2	517	A
1	2	518	C
1	2	520	A

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Mol	Chain	Res	Type
1	2	521	U
1	2	524	A
1	2	525	A
1	2	526	A
1	2	527	U
1	2	528	A
1	2	531	U
1	2	532	U
1	2	533	A
1	2	539	G
1	2	540	A
1	2	541	A
1	2	543	A
1	2	544	A
1	2	545	C
1	2	548	G
1	2	550	G
1	2	551	G
1	2	553	C
1	2	554	A
1	2	555	A
1	2	556	G
1	2	557	U
1	2	558	C
1	2	563	G
1	2	565	C
1	2	566	A
1	2	567	G
1	2	568	C
1	2	572	C
1	2	573	G
1	2	574	C
1	2	575	G
1	2	576	G
1	2	577	U
1	2	578	A
1	2	579	A
1	2	580	U
1	2	584	A
1	2	587	U
1	2	588	C
1	2	590	A

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Mol	Chain	Res	Type
1	2	592	U
1	2	593	A
1	2	594	G
1	2	599	U
1	2	600	A
1	2	601	U
1	2	605	A
1	2	606	G
1	2	608	U
1	2	610	U
1	2	611	U
1	2	614	A
1	2	617	U
1	2	618	A
1	2	619	A
1	2	620	A
1	2	621	A
1	2	622	A
1	2	623	G
1	2	625	U
1	2	626	C
1	2	628	U
1	2	630	G
1	2	631	U
1	2	633	G
1	2	634	A
1	2	635	A
1	2	637	U
1	2	638	U
1	2	639	U
1	2	644	C
1	2	645	U
1	2	647	G
1	2	649	U
1	2	650	G
1	2	651	U
1	2	653	C
1	2	654	G
1	2	655	G
1	2	657	C
1	2	677	G
1	2	678	U

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Mol	Chain	Res	Type
1	2	681	U
1	2	682	U
1	2	689	G
1	2	693	U
1	2	696	C
1	2	697	C
1	2	700	C
1	2	701	U
1	2	702	G
1	2	705	U
1	2	707	A
1	2	708	C
1	2	709	C
1	2	711	G
1	2	712	U
1	2	713	A
1	2	714	C
1	2	715	U
1	2	717	C
1	2	718	U
1	2	719	U
1	2	720	G
1	2	721	U
1	2	722	G
1	2	724	G
1	2	725	U
1	2	726	G
1	2	728	A
1	2	730	G
1	2	731	C
1	2	732	G
1	2	733	A
1	2	734	A
1	2	736	C
1	2	737	A
1	2	738	G
1	2	740	A
1	2	741	C
1	2	742	U
1	2	743	U
1	2	745	U
1	2	749	U

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Mol	Chain	Res	Type
1	2	752	A
1	2	753	A
1	2	755	A
1	2	756	A
1	2	758	U
1	2	760	A
1	2	765	G
1	2	766	U
1	2	767	U
1	2	771	A
1	2	772	G
1	2	773	C
1	2	774	A
1	2	778	G
1	2	779	A
1	2	780	A
1	2	781	A
1	2	782	G
1	2	785	C
1	2	786	G
1	2	787	A
1	2	788	A
1	2	790	A
1	2	791	U
1	2	792	A
1	2	793	U
1	2	797	C
1	2	800	G
1	2	802	A
1	2	811	A
1	2	812	U
1	2	813	A
1	2	814	G
1	2	815	G
1	2	819	U
1	2	820	U
1	2	822	G
1	2	823	G
1	2	824	U
1	2	825	U
1	2	826	C
1	2	827	U

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Mol	Chain	Res	Type
1	2	828	A
1	2	829	U
1	2	830	U
1	2	831	U
1	2	832	U
1	2	833	G
1	2	834	U
1	2	835	U
1	2	836	G
1	2	837	G
1	2	838	U
1	2	840	U
1	2	841	C
1	2	842	U
1	2	843	A
1	2	845	G
1	2	849	A
1	2	850	U
1	2	853	U
1	2	854	A
1	2	856	U
1	2	858	A
1	2	861	A
1	2	862	A
1	2	863	U
1	2	864	A
1	2	866	G
1	2	870	G
1	2	872	U
1	2	875	G
1	2	876	G
1	2	877	G
1	2	878	G
1	2	882	C
1	2	883	A
1	2	887	U
1	2	888	U
1	2	891	A
1	2	894	G
1	2	896	C
1	2	897	A
1	2	898	G

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Mol	Chain	Res	Type
1	2	899	A
1	2	902	U
1	2	903	G
1	2	904	A
1	2	905	A
1	2	907	U
1	2	908	U
1	2	909	C
1	2	911	U
1	2	912	G
1	2	913	G
1	2	915	U
1	2	916	U
1	2	920	U
1	2	924	G
1	2	925	A
1	2	928	A
1	2	930	C
1	2	931	U
1	2	932	A
1	2	934	U
1	2	941	G
1	2	942	C
1	2	944	U
1	2	945	U
1	2	946	U
1	2	950	A
1	2	955	C
1	2	958	U
1	2	959	U
1	2	962	A
1	2	963	U
1	2	965	A
1	2	967	U
1	2	968	C
1	2	969	A
1	2	970	A
1	2	973	A
1	2	976	A
1	2	979	G
1	2	980	U
1	2	982	A

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Mol	Chain	Res	Type
1	2	983	G
1	2	989	C
1	2	990	G
1	2	992	A
1	2	993	G
1	2	994	A
1	2	995	U
1	2	996	G
1	2	999	C
1	2	1000	A
1	2	1001	G
1	2	1004	A
1	2	1005	C
1	2	1006	C
1	2	1012	A
1	2	1014	U
1	2	1015	C
1	2	1020	C
1	2	1022	A
1	2	1023	U
1	2	1024	A
1	2	1026	A
1	2	1027	C
1	2	1028	U
1	2	1030	U
1	2	1031	G
1	2	1033	C
1	2	1034	G
1	2	1035	A
1	2	1036	C
1	2	1038	A
1	2	1039	G
1	2	1041	G
1	2	1042	A
1	2	1044	C
1	2	1047	G
1	2	1049	G
1	2	1050	G
1	2	1051	U
1	2	1052	G
1	2	1053	U
1	2	1055	U

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Mol	Chain	Res	Type
1	2	1057	U
1	2	1058	C
1	2	1059	U
1	2	1061	A
1	2	1062	U
1	2	1064	A
1	2	1065	C
1	2	1066	C
1	2	1068	A
1	2	1070	U
1	2	1073	G
1	2	1075	A
1	2	1079	U
1	2	1080	A
1	2	1081	C
1	2	1082	G
1	2	1085	A
1	2	1086	A
1	2	1088	U
1	2	1089	C
1	2	1090	A
1	2	1091	A
1	2	1092	A
1	2	1093	G
1	2	1095	C
1	2	1096	U
1	2	1097	U
1	2	1098	U
1	2	1099	G
1	2	1101	G
1	2	1102	U
1	2	1103	U
1	2	1104	C
1	2	1108	G
1	2	1112	A
1	2	1113	G
1	2	1116	U
1	2	1117	G
1	2	1122	C
1	2	1123	A
1	2	1125	G
1	2	1129	G

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Mol	Chain	Res	Type
1	2	1130	A
1	2	1137	A
1	2	1139	G
1	2	1140	G
1	2	1145	G
1	2	1146	A
1	2	1148	G
1	2	1151	A
1	2	1153	G
1	2	1154	G
1	2	1155	C
1	2	1156	A
1	2	1157	C
1	2	1162	A
1	2	1173	C
1	2	1174	U
1	2	1177	G
1	2	1178	G
1	2	1179	C
1	2	1182	A
1	2	1184	U
1	2	1185	U
1	2	1191	C
1	2	1193	A
1	2	1194	C
1	2	1195	A
1	2	1196	C
1	2	1198	G
1	2	1201	A
1	2	1202	A
1	2	1203	A
1	2	1204	C
1	2	1205	U
1	2	1211	G
1	2	1212	G
1	2	1214	C
1	2	1216	A
1	2	1217	G
1	2	1218	A
1	2	1219	C
1	2	1220	A
1	2	1223	A

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Mol	Chain	Res	Type
1	2	1225	A
1	2	1226	A
1	2	1227	G
1	2	1228	G
1	2	1229	A
1	2	1231	U
1	2	1233	A
1	2	1234	C
1	2	1235	A
1	2	1236	G
1	2	1240	G
1	2	1241	A
1	2	1242	G
1	2	1243	A
1	2	1244	G
1	2	1245	C
1	2	1246	U
1	2	1247	C
1	2	1249	U
1	2	1250	U
1	2	1254	G
1	2	1255	A
1	2	1256	U
1	2	1258	U
1	2	1259	U
1	2	1261	U
1	2	1262	G
1	2	1264	G
1	2	1265	U
1	2	1266	G
1	2	1268	U
1	2	1269	G
1	2	1274	A
1	2	1278	C
1	2	1280	G
1	2	1282	U
1	2	1283	C
1	2	1284	U
1	2	1285	U
1	2	1287	G
1	2	1290	G
1	2	1292	U

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Mol	Chain	Res	Type
1	2	1294	G
1	2	1298	G
1	2	1306	U
1	2	1309	U
1	2	1313	U
1	2	1314	U
1	2	1316	C
1	2	1317	G
1	2	1320	A
1	2	1321	A
1	2	1322	C
1	2	1328	A
1	2	1336	A
1	2	1339	U
1	2	1340	A
1	2	1342	U
1	2	1343	A
1	2	1344	A
1	2	1345	A
1	2	1346	U
1	2	1348	G
1	2	1349	G
1	2	1350	G
1	2	1351	U
1	2	1353	G
1	2	1356	G
1	2	1358	C
1	2	1359	A
1	2	1361	U
1	2	1363	G
1	2	1364	C
1	2	1366	G
1	2	1368	U
1	2	1369	U
1	2	1370	G
1	2	1371	A
1	2	1374	C
1	2	1375	U
1	2	1376	U
1	2	1378	U
1	2	1380	A
1	2	1384	G

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Mol	Chain	Res	Type
1	2	1385	G
1	2	1386	A
1	2	1387	C
1	2	1388	U
1	2	1389	A
1	2	1392	G
1	2	1393	G
1	2	1396	U
1	2	1397	C
1	2	1400	G
1	2	1401	C
1	2	1404	A
1	2	1405	U
1	2	1408	A
1	2	1409	A
1	2	1410	G
1	2	1411	U
1	2	1412	U
1	2	1413	U
1	2	1419	A
1	2	1421	U
1	2	1422	A
1	2	1425	A
1	2	1427	G
1	2	1428	U
1	2	1429	C
1	2	1430	U
1	2	1431	G
1	2	1433	G
1	2	1434	A
1	2	1440	U
1	2	1442	A
1	2	1443	G
1	2	1444	A
1	2	1445	C
1	2	1446	G
1	2	1448	U
1	2	1455	C
1	2	1456	G
1	2	1457	C
1	2	1458	A
1	2	1459	C

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Mol	Chain	Res	Type
1	2	1461	C
1	2	1463	C
1	2	1464	G
1	2	1468	C
1	2	1469	A
1	2	1470	C
1	2	1471	U
1	2	1472	G
1	2	1475	G
1	2	1476	G
1	2	1479	C
1	2	1483	C
1	2	1484	G
1	2	1485	A
1	2	1487	U
1	2	1488	A
1	2	1489	C
1	2	1490	A
1	2	1492	C
1	2	1494	U
1	2	1495	U
1	2	1499	C
1	2	1502	G
1	2	1503	A
1	2	1504	G
1	2	1506	U
1	2	1508	U
1	2	1509	G
1	2	1513	A
1	2	1514	A
1	2	1515	U
1	2	1516	C
1	2	1519	G
1	2	1521	G
1	2	1522	A
1	2	1531	C
1	2	1532	G
1	2	1533	U
1	2	1534	G
1	2	1535	C
1	2	1537	G
1	2	1539	G

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Mol	Chain	Res	Type
1	2	1540	G
1	2	1541	A
1	2	1542	U
1	2	1543	A
1	2	1544	G
1	2	1545	A
1	2	1551	G
1	2	1553	A
1	2	1555	U
1	2	1557	A
1	2	1562	U
1	2	1565	U
1	2	1566	C
1	2	1567	A
1	2	1568	A
1	2	1569	C
1	2	1570	G
1	2	1571	A
1	2	1572	G
1	2	1575	A
1	2	1578	C
1	2	1580	U
1	2	1582	G
1	2	1583	U
1	2	1585	A
1	2	1587	C
1	2	1589	C
1	2	1593	U
1	2	1595	A
1	2	1596	U
1	2	1598	A
1	2	1599	G
1	2	1600	C
1	2	1602	U
1	2	1603	G
1	2	1605	G
1	2	1606	U
1	2	1611	U
1	2	1614	G
1	2	1622	C
1	2	1623	C
1	2	1624	U

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Mol	Chain	Res	Type
1	2	1625	U
1	2	1629	A
1	2	1631	A
1	2	1632	C
1	2	1633	A
1	2	1634	C
1	2	1636	G
1	2	1639	C
1	2	1641	U
1	2	1642	C
1	2	1643	G
1	2	1644	C
1	2	1645	U
1	2	1648	U
1	2	1650	C
1	2	1651	C
1	2	1652	G
1	2	1653	A
1	2	1655	U
1	2	1656	G
1	2	1657	A
1	2	1658	A
1	2	1660	G
1	2	1665	A
1	2	1669	A
1	2	1673	C
1	2	1674	U
1	2	1678	G
1	2	1680	U
1	2	1684	C
1	2	1685	U
1	2	1687	A
1	2	1688	G
1	2	1690	G
1	2	1691	A
1	2	1692	A
1	2	1693	G
1	2	1694	G
1	2	1697	G
1	2	1698	C
1	2	1699	A
1	2	1701	C

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Mol	Chain	Res	Type
1	2	1702	U
1	2	1703	C
1	2	1704	C
1	2	1705	A
1	2	1706	U
1	2	1707	C
1	2	1708	U
1	2	1710	A
1	2	1712	A
1	2	1717	A
1	2	1718	G
1	2	1719	A
1	2	1720	A
1	2	1721	U
1	2	1722	C
1	2	1725	G
1	2	1727	C
1	2	1732	U
1	2	1733	U
1	2	1734	G
1	2	1736	U
1	2	1737	C
1	2	1738	A
1	2	1739	U
1	2	1740	U
1	2	1742	A
1	2	1743	G
1	2	1744	A
1	2	1746	G
1	2	1747	A
1	2	1751	A
1	2	1752	A
1	2	1753	A
1	2	1754	A
1	2	1755	G
1	2	1758	G
1	2	1759	U
1	2	1760	A
1	2	1761	A
1	2	1762	C
1	2	1764	A
1	2	1765	G

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Mol	Chain	Res	Type
1	2	1766	G
1	2	1767	U
1	2	1768	U
1	2	1773	U
1	2	1777	U
1	2	1778	G
1	2	1779	A
1	2	1781	C
1	2	1784	G
1	2	1785	C
1	2	1789	A
1	2	1790	G
1	2	1791	G
1	2	1792	A
1	2	1793	U
1	2	1794	C
1	2	1798	A

All (57) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	57	G
1	2	157	U
1	2	158	U
1	2	161	A
1	2	184	U
1	2	202	U
1	2	214	A
1	2	217	A
1	2	234	G
1	2	269	C
1	2	291	U
1	2	334	U
1	2	347	U
1	2	378	U
1	2	413	C
1	2	418	G
1	2	480	A
1	2	498	U
1	2	544	A
1	2	562	U
1	2	564	C

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Mol	Chain	Res	Type
1	2	573	G
1	2	599	U
1	2	610	U
1	2	735	C
1	2	751	G
1	2	790	A
1	2	821	U
1	2	898	G
1	2	903	G
1	2	941	G
1	2	994	A
1	2	1013	G
1	2	1025	A
1	2	1032	C
1	2	1067	C
1	2	1139	G
1	2	1150	A
1	2	1195	A
1	2	1243	A
1	2	1254	G
1	2	1315	G
1	2	1343	A
1	2	1344	A
1	2	1360	C
1	2	1427	G
1	2	1470	C
1	2	1491	A
1	2	1501	A
1	2	1566	C
1	2	1579	C
1	2	1613	C
1	2	1624	U
1	2	1720	A
1	2	1765	G
1	2	1788	A
1	2	1791	G

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 5 ligands modelled in this entry, 5 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

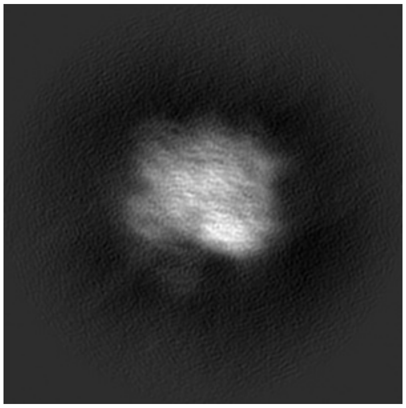
6 Map visualisation ⓘ

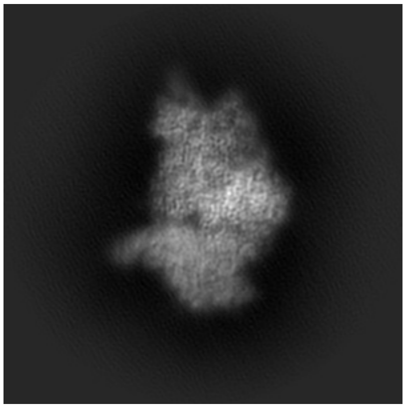
This section contains visualisations of the EMDB entry EMD-35216. These allow visual inspection of the internal detail of the map and identification of artifacts.

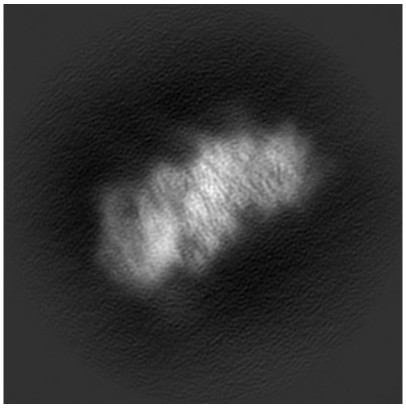
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections ⓘ

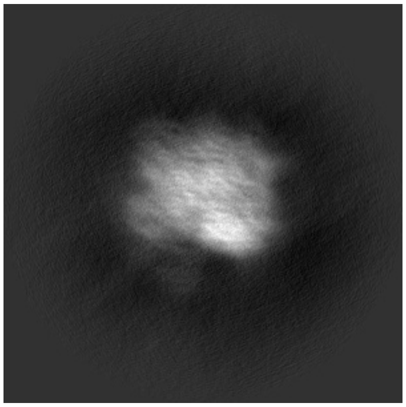
6.1.1 Primary map

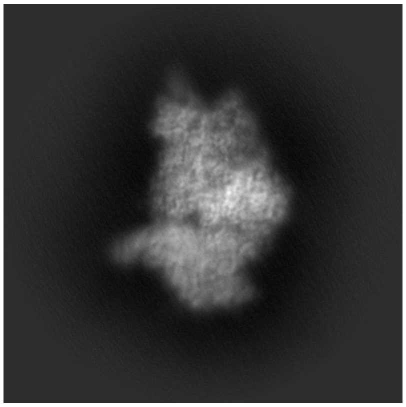

X

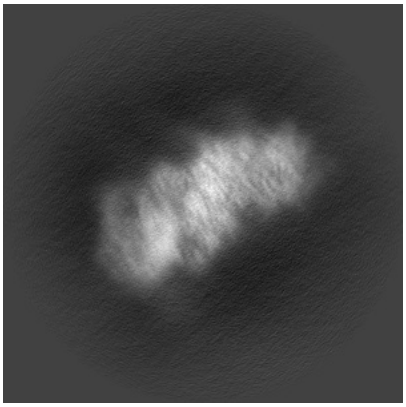

Y


Z

6.1.2 Raw map


X

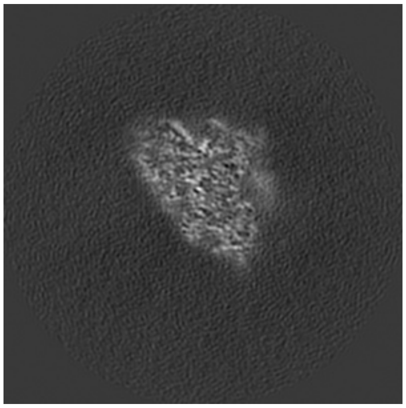

Y


Z

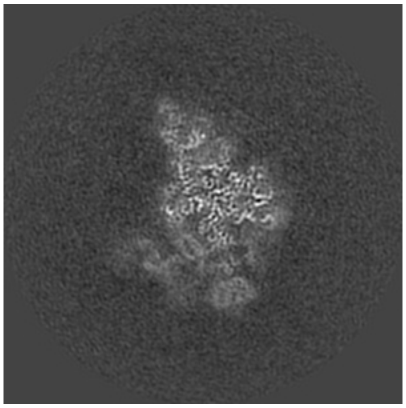
The images above show the map projected in three orthogonal directions.

6.2 Central slices

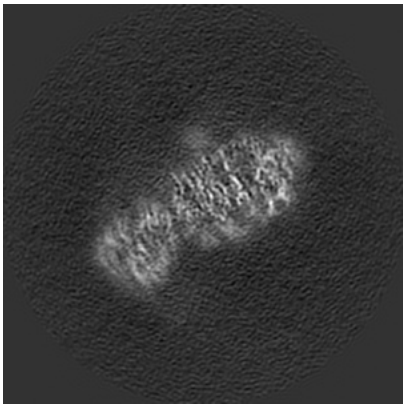
6.2.1 Primary map



X Index: 180

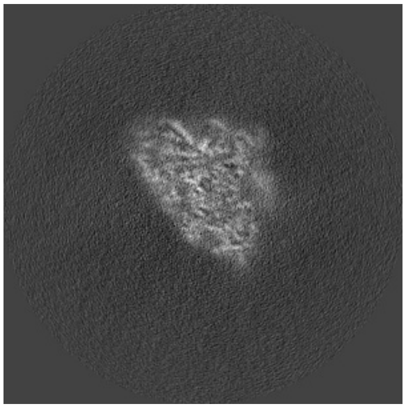


Y Index: 180

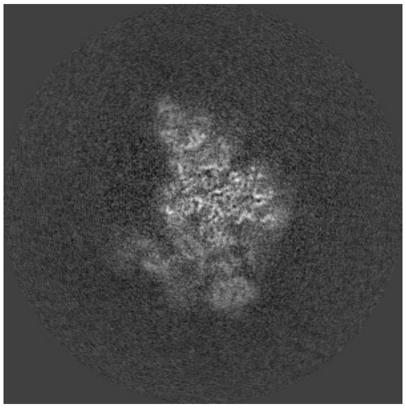


Z Index: 180

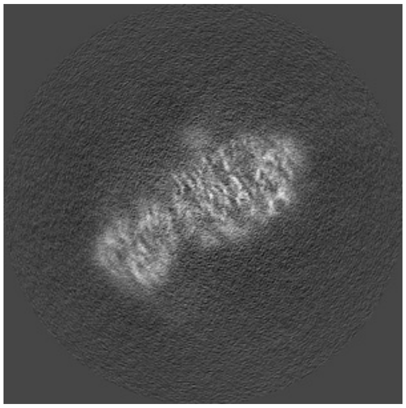
6.2.2 Raw map



X Index: 180



Y Index: 180

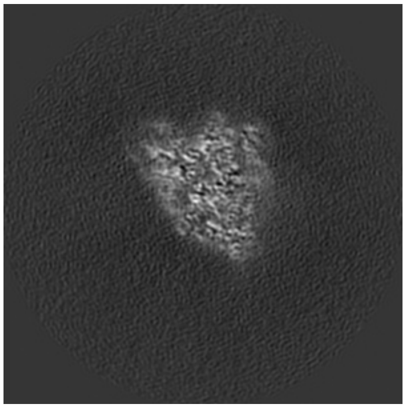


Z Index: 180

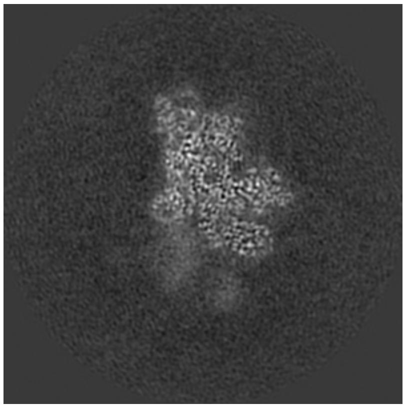
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

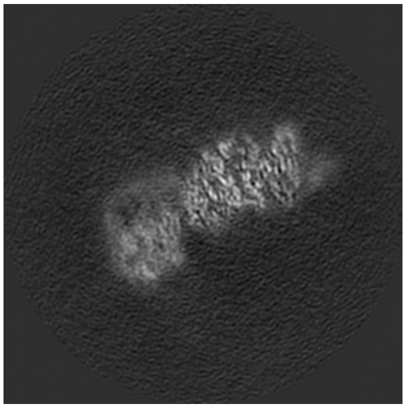
6.3.1 Primary map



X Index: 187

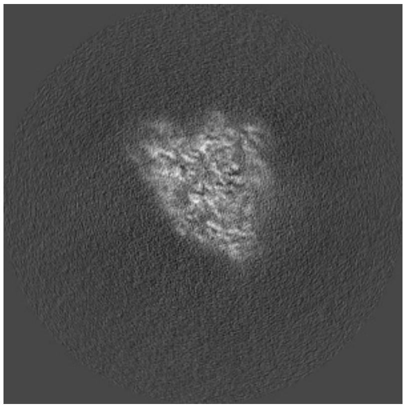


Y Index: 195

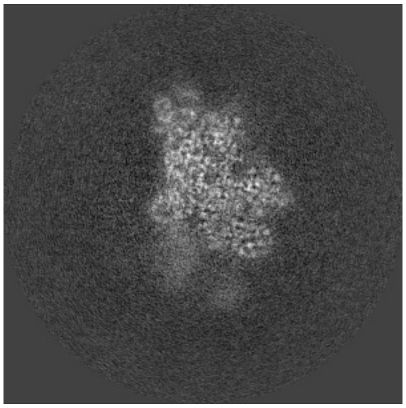


Z Index: 160

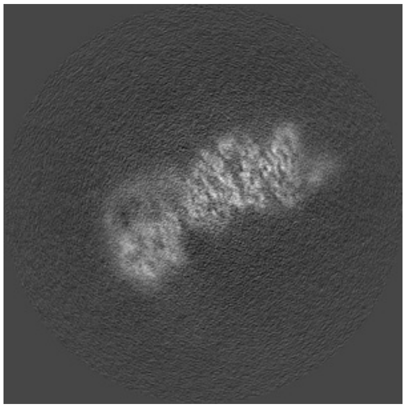
6.3.2 Raw map



X Index: 187



Y Index: 196

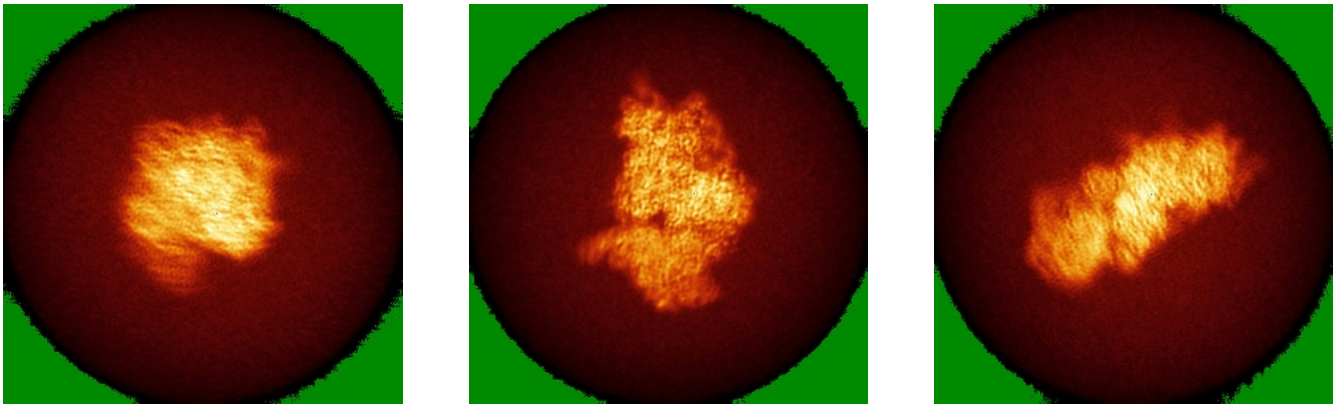


Z Index: 159

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

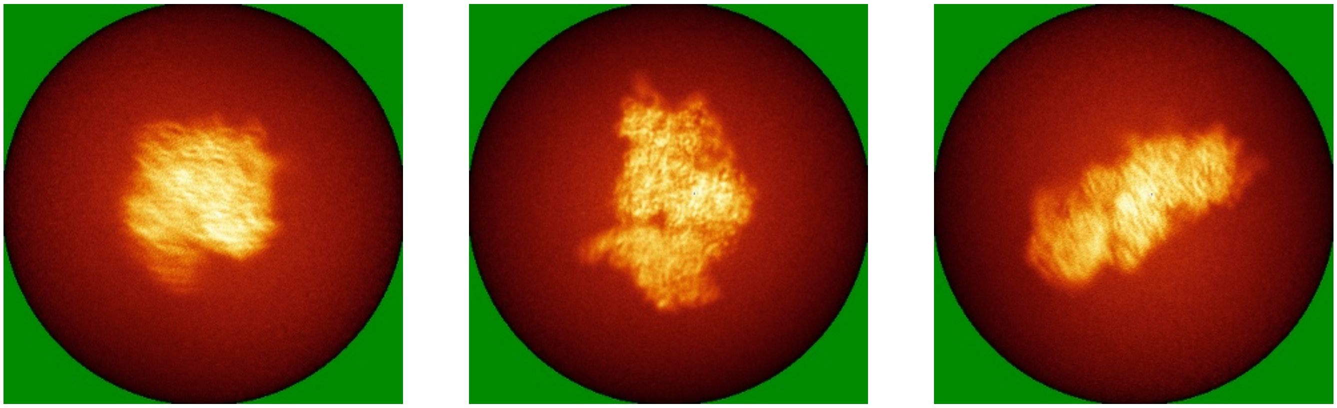
6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map



X Y Z

6.4.2 Raw map

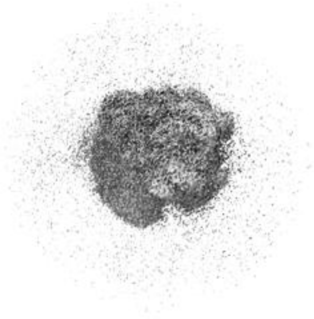


X Y Z

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.

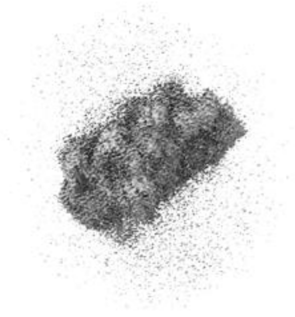
6.5 Orthogonal surface views ⓘ

6.5.1 Primary map



X

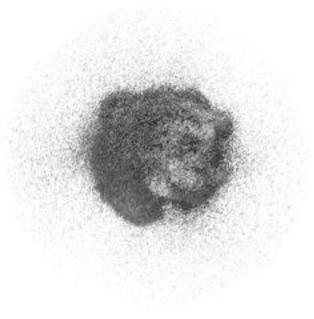
Y



Z

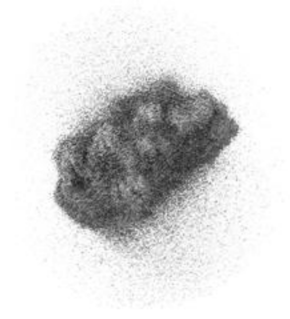
The images above show the 3D surface view of the map at the recommended contour level 0.006. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

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.

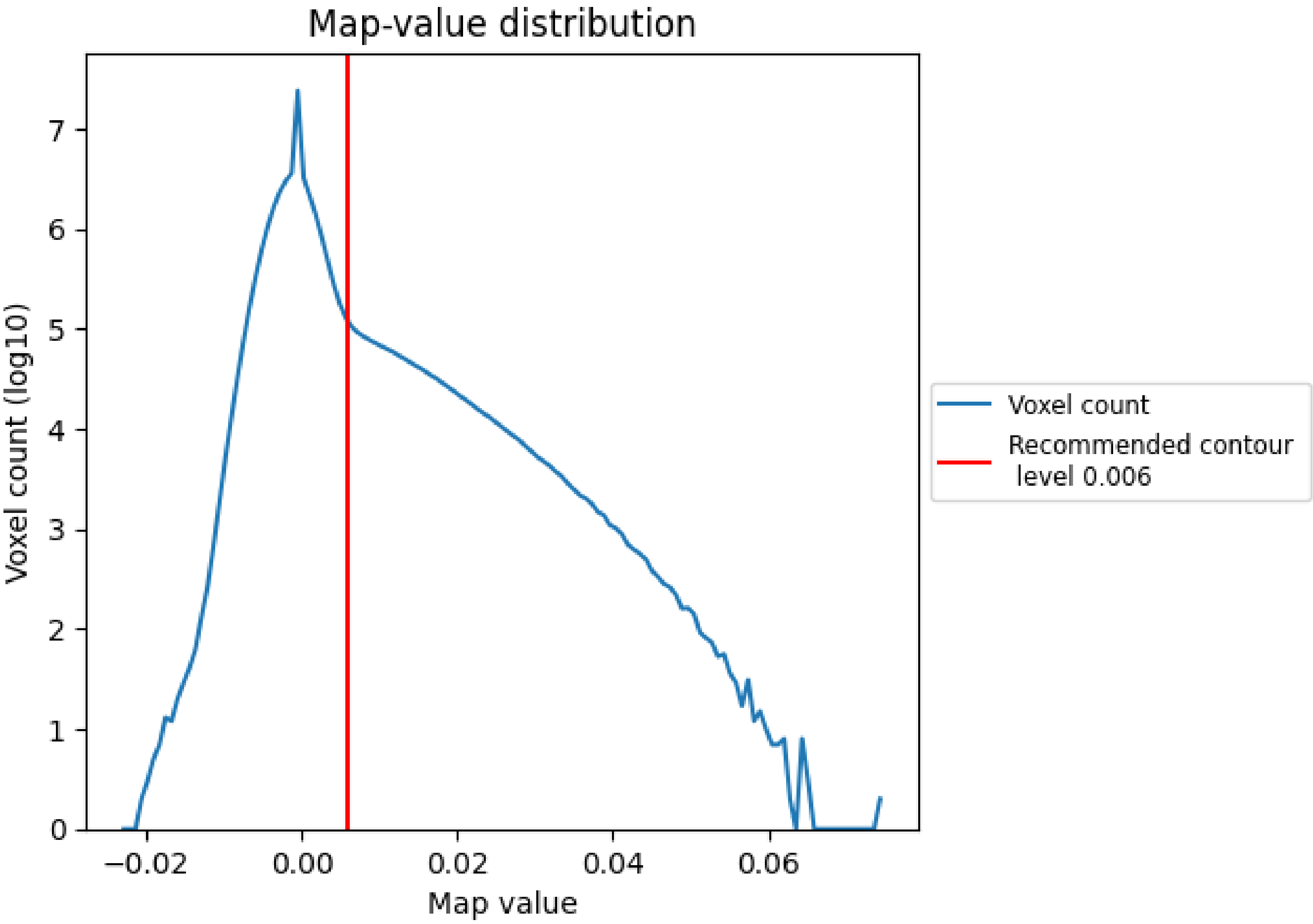
6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

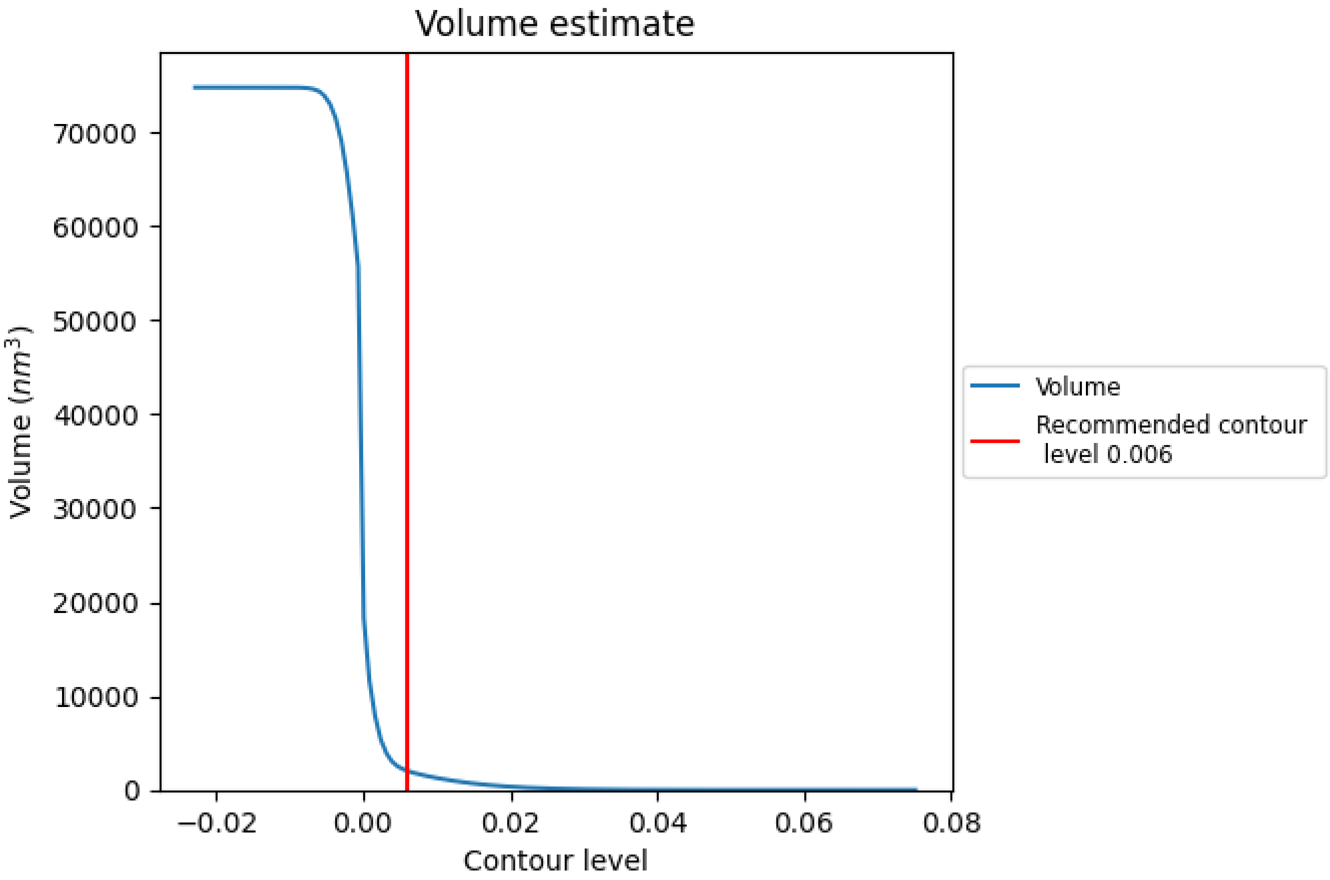
This section contains the results of statistical analysis of the map.

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.

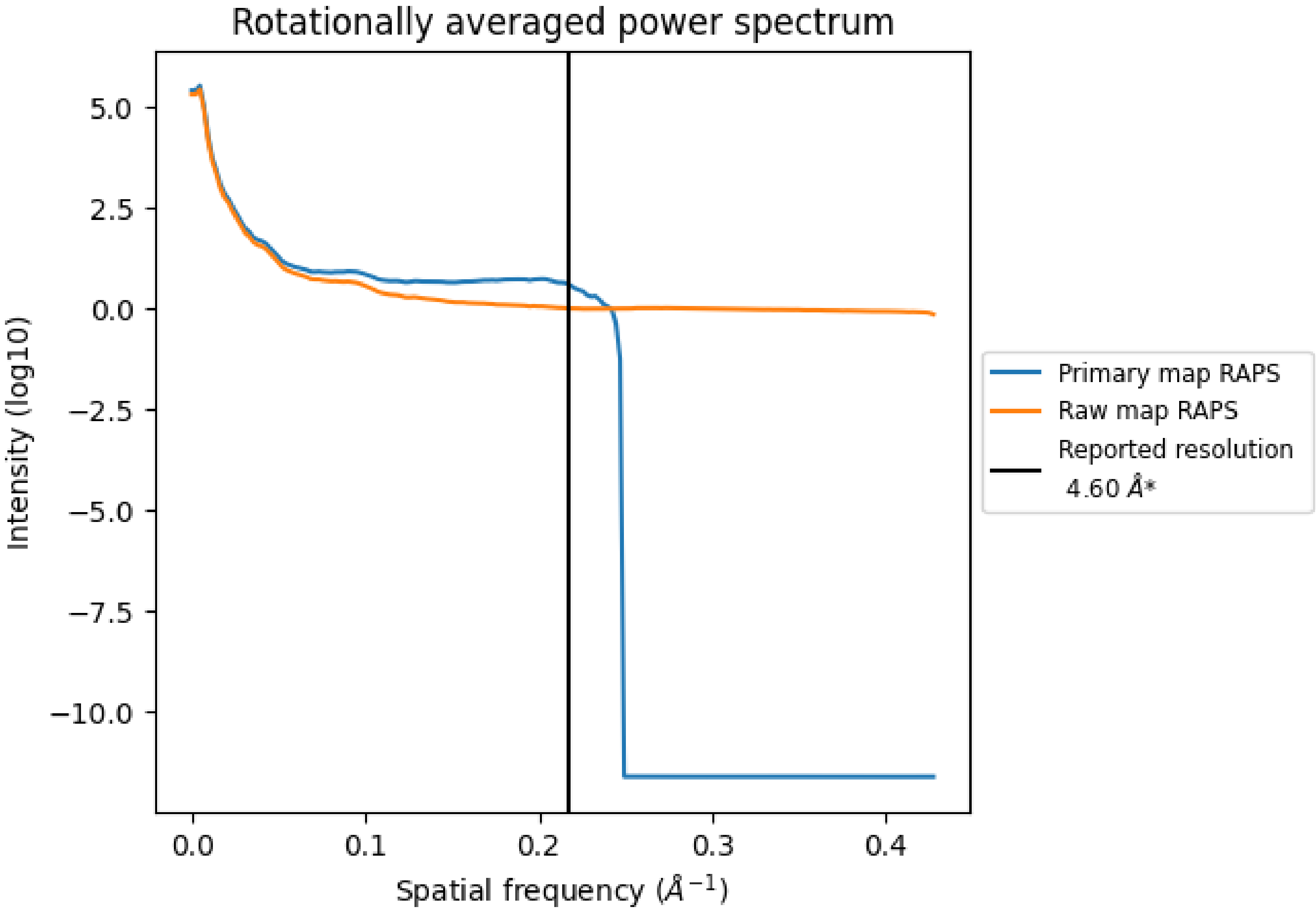
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 2040 nm^3; this corresponds to an approximate mass of 1843 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

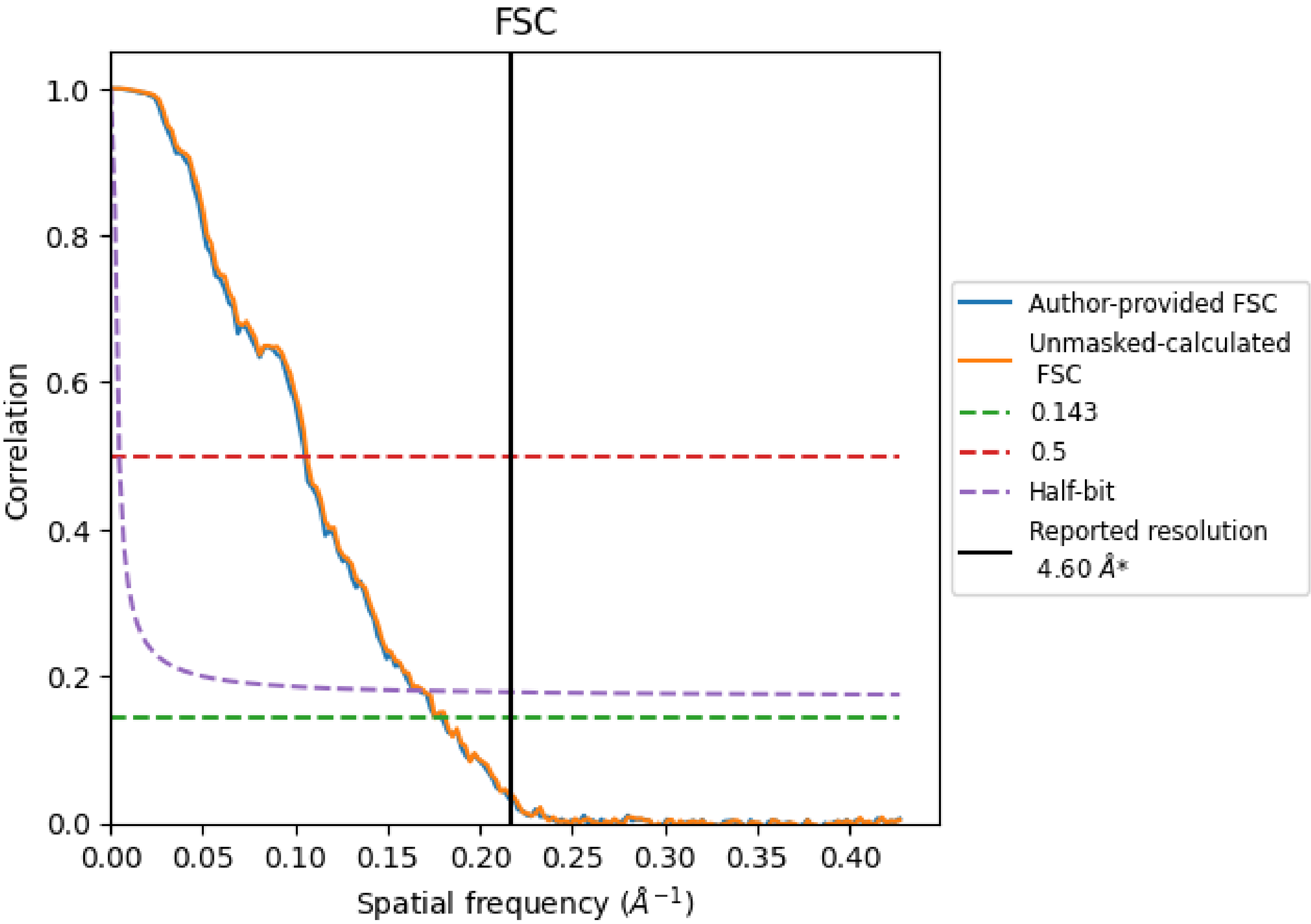


*Reported resolution corresponds to spatial frequency of 0.217 $Å^{-1}$

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 0.217 $Å^{-1}$

8.2 Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.60	-	-
Author-provided FSC curve	5.57	9.51	5.97
Unmasked-calculated*	5.51	9.41	5.89

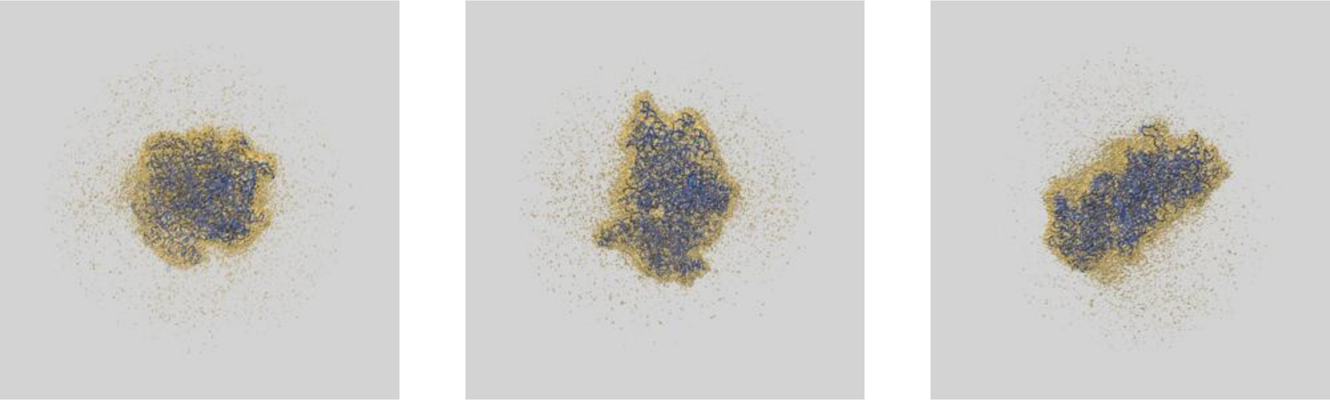
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 5.57 differs from the reported value 4.6 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 5.51 differs from the reported value 4.6 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-35216 and PDB model 8I7J. Per-residue inclusion information can be found in section 3 on page 11.

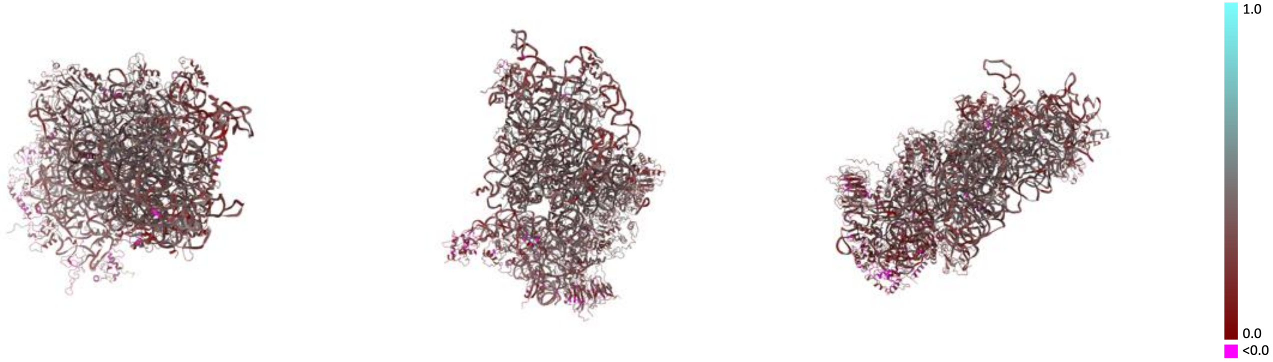
9.1 Map-model overlay ⓘ



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.006 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

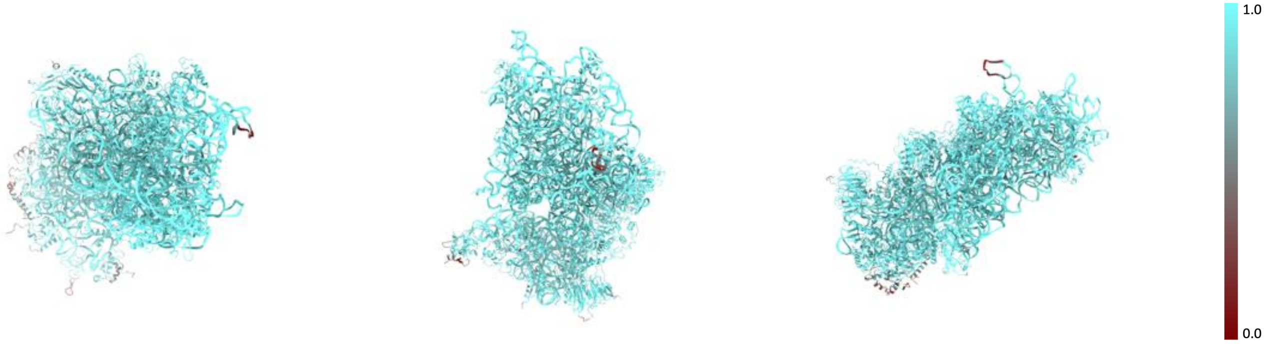
9.2 Q-score mapped to coordinate model ⓘ



X Y Z

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

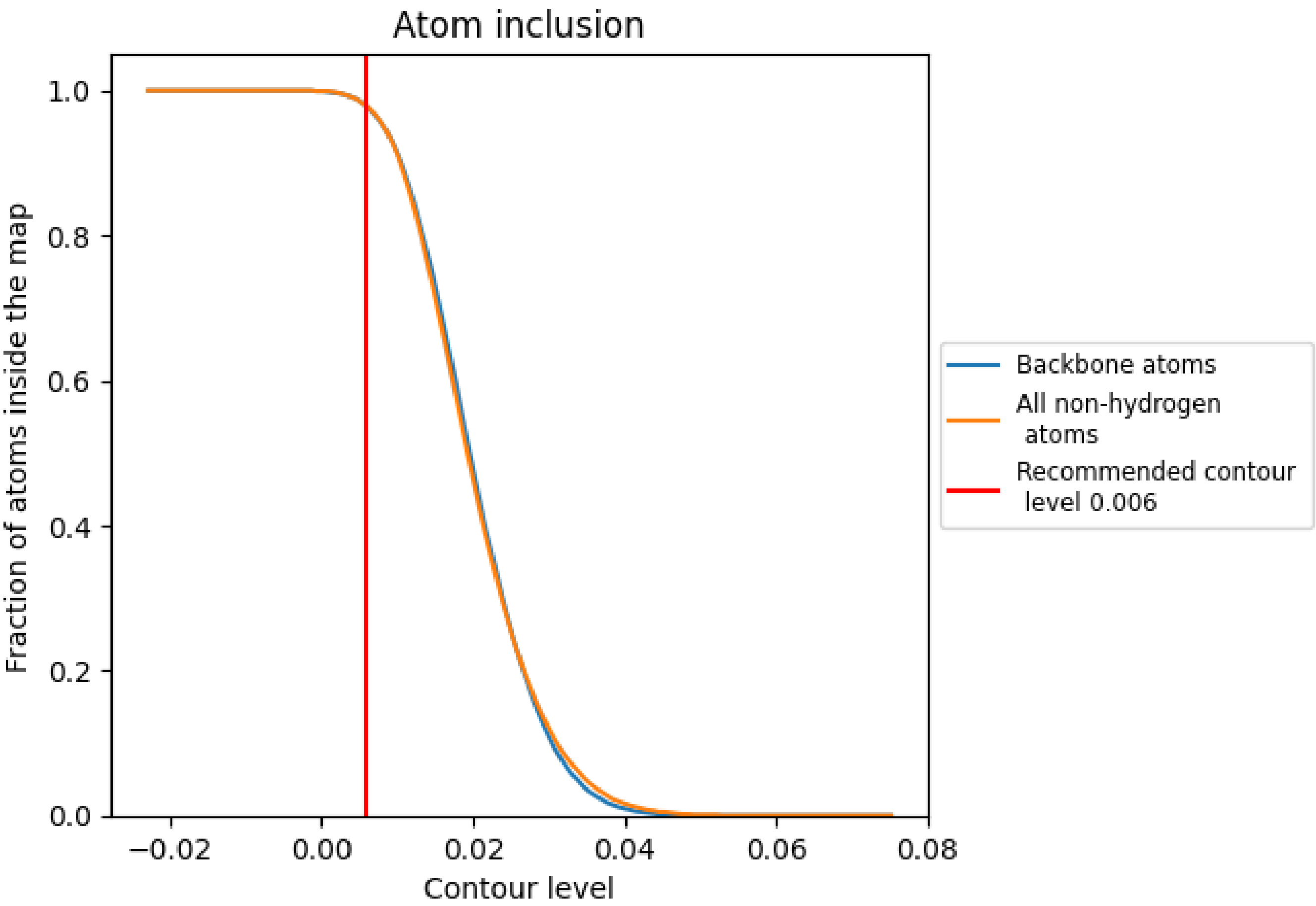
9.3 Atom inclusion mapped to coordinate model ⓘ



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.006).

9.4 Atom inclusion ⓘ



At the recommended contour level, 98% of all backbone atoms, 98% 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 (0.006) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9780	0.3160
2	0.9950	0.3290
A	0.9870	0.3510
B	0.9700	0.3220
C	0.9930	0.3530
D	0.9460	0.2720
E	0.9970	0.3640
F	0.9770	0.2430
G	0.9940	0.3160
H	0.9830	0.3310
I	0.9920	0.3490
J	0.9950	0.3530
K	0.9790	0.2530
L	0.9840	0.3780
M	0.8200	0.1930
N	0.9890	0.3600
O	0.9910	0.3180
P	0.8770	0.2160
Q	1.0000	0.2870
R	0.9790	0.3240
S	0.7490	0.1600
T	0.9970	0.2510
U	0.9140	0.2590
V	0.9930	0.3530
W	0.9910	0.3810
X	0.9910	0.3920
Y	0.9990	0.3400
Z	0.6630	0.1020
a	0.9960	0.3620
b	0.9970	0.3760
c	0.9680	0.2080
d	1.0000	0.2730
e	1.0000	0.3180
f	0.8200	0.1190
g	0.9640	0.2700
h	0.9430	0.1670