



wwPDB EM Validation Summary Report ⓘ

Apr 16, 2024 – 09:49 am BST

PDB ID : 7R4X
EMDB ID : EMD-14317
Title : Cryo-EM reconstruction of the human 40S ribosomal subunit - Full map
Authors : Pellegrino, S.; Dent, K.C.; Spikes, T.; Warren, A.J.
Deposited on : 2022-02-09
Resolution : 2.15 Å (reported)

This is a wwPDB EM Validation Summary 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:

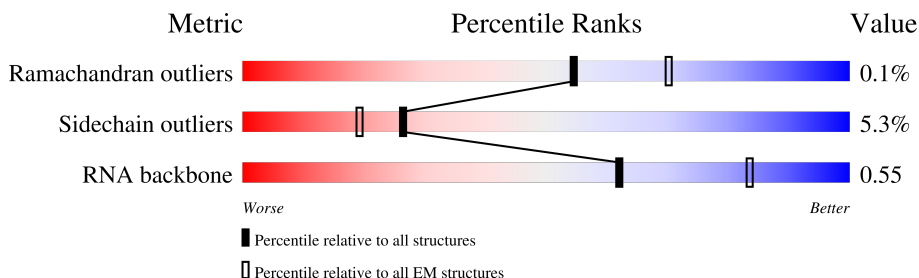
EMDB validation analysis : 0.0.1.dev92
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.15 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	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	n	25	
2	2	1868	
3	B	264	
4	D	243	
5	E	263	
6	F	204	
7	H	194	
8	I	208	

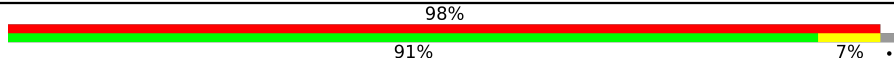

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Mol	Chain	Length	Quality of chain
9	K	165	59% 55% 41%
10	L	158	5% 87% 11%
11	P	145	85% 79% 6% 15%
12	Q	146	93% 92% 5%
13	R	135	67% 87% 10%
14	S	152	94% 90% 6%
15	T	145	99% 98%
16	U	119	76% 84% 13%
17	V	83	96%
18	X	143	95%
19	a	115	6% 83% 14%
20	c	69	84% 74% 12% 14%
21	d	56	84% 96%
22	C	293	72% 25%
23	G	249	27% 87% 9%
24	J	194	5% 91% 5%
25	M	132	79% 73% 6% 21%
26	N	151	8% 97%
27	O	151	77% 7% 16%
28	W	130	98%
29	Y	133	87% 5% 8%
30	Z	125	58% 55% 42%
31	b	84	14% 94%
32	e	59	17% 85% 8% 7%
33	f	156	41% 38% 59%

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Mol	Chain	Length	Quality of chain
34	g	317	 <p>98% 91% 7%</p>
35	A	295	 <p>67% 30%</p>

2 Entry composition

There are 39 unique types of molecules in this entry. The entry contains 77936 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 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	n	20	193	119	51	20	3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	2	1646	35347	15805	6355	11535	1652	7	0

- Molecule 3 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	210	1711	1086	306	305	14	0	0

- Molecule 4 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	224	1745	1112	314	312	7	0	0

- Molecule 5 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	257	2041	1305	379	349	8	0	0

- Molecule 6 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	182	1445	906	271	261	7	0	0

- Molecule 7 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	H	184	1477	942	271	263	1	0	0

- Molecule 8 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	I	205	1682	1056	331	290	5	0	0

- Molecule 9 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	K	97	816	533	144	133	6	0	0

- Molecule 10 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	L	141	1157	737	217	197	6	0	0

- Molecule 11 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	P	123	1005	638	188	172	7	0	0

- Molecule 12 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	Q	139	1105	704	207	191	3	0	0

- Molecule 13 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	R	131	1064	668	198	194	4	0	0

- Molecule 14 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	S	143	1192	751	240	200	1	1	0

- Molecule 15 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	T	143	1112	697	214	198	3	0	0

- Molecule 16 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	U	104	821	514	155	148	4	0	0

- Molecule 17 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	V	83	639	395	117	122	5	0	0

- Molecule 18 is a protein called 40S ribosomal protein S23.

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

- Molecule 19 is a protein called 40S ribosomal protein S26.

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

- Molecule 20 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	c	59	464	281	93	88	2	0	0

- Molecule 21 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	d	55	Total	C	N	O	S	0	0
			459	286	94	74	5		

- Molecule 22 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	C	219	Total	C	N	O	S	1	0
			1708	1105	295	298	10		

- Molecule 23 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	G	227	Total	C	N	O	S	0	0
			1840	1149	367	317	7		

- Molecule 24 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	J	185	Total	C	N	O	S	0	0
			1525	969	306	248	2		

- Molecule 25 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	M	104	Total	C	N	O	S	0	0
			790	494	138	151	7		

- Molecule 26 is a protein called 40S ribosomal protein S13.

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

- Molecule 27 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	O	127	Total	C	N	O	S	0	0
			957	585	189	177	6		

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 28 is a protein called 40S ribosomal protein S15a.

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

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

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

- Molecule 30 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	Z	72	570	366	104	99	1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	b	82	640	402	118	113	7	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	55	438	271	95	71	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	64	522	329	99	87	7	0	0

- Molecule 34 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	g	312	2429	1531	423	463	12	0	0

- Molecule 35 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	A	206	1628	1042	287	291	8	1	0

- Molecule 36 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		AltConf
36	2	76	Total 76	K 76	0
36	E	1	Total 1	K 1	0
36	L	1	Total 1	K 1	0
36	S	1	Total 1	K 1	0
36	U	1	Total 1	K 1	0
36	d	1	Total 1	K 1	0
36	O	1	Total 1	K 1	0

- Molecule 37 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
37	2	88	Total 88	Mg 88	0

- Molecule 38 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
38	a	1	Total 1	Zn 1	0
38	d	1	Total 1	Zn 1	0
38	f	1	Total 1	Zn 1	0

- Molecule 39 is water.

Mol	Chain	Residues	Atoms		AltConf
39	n	10	Total 10	O 10	0
39	2	3102	Total 3102	O 3102	0
39	B	30	Total 30	O 30	0
39	D	24	Total 24	O 24	0
39	E	79	Total 79	O 79	0
39	F	34	Total 34	O 34	0
39	H	8	Total 8	O 8	0
39	I	45	Total 45	O 45	0
39	K	20	Total 20	O 20	0
39	L	62	Total 62	O 62	0
39	P	32	Total 32	O 32	0
39	Q	46	Total 46	O 46	0
39	R	13	Total 13	O 13	0
39	S	30	Total 30	O 30	0
39	T	51	Total 51	O 51	0
39	U	25	Total 25	O 25	0
39	V	19	Total 19	O 19	0
39	X	47	Total 47	O 47	0
39	a	30	Total 30	O 30	0
39	c	6	Total 6	O 6	0
39	d	26	Total 26	O 26	0

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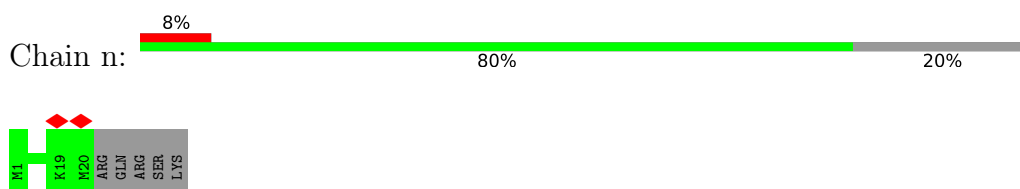
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Mol	Chain	Residues	Atoms		AltConf
39	C	56	Total 56	O 56	0
39	G	18	Total 18	O 18	0
39	J	85	Total 85	O 85	0
39	N	30	Total 30	O 30	0
39	O	28	Total 28	O 28	0
39	W	63	Total 63	O 63	0
39	Y	25	Total 25	O 25	0
39	Z	2	Total 2	O 2	0
39	b	12	Total 12	O 12	0
39	e	13	Total 13	O 13	0
39	g	16	Total 16	O 16	0
39	A	30	Total 30	O 30	0

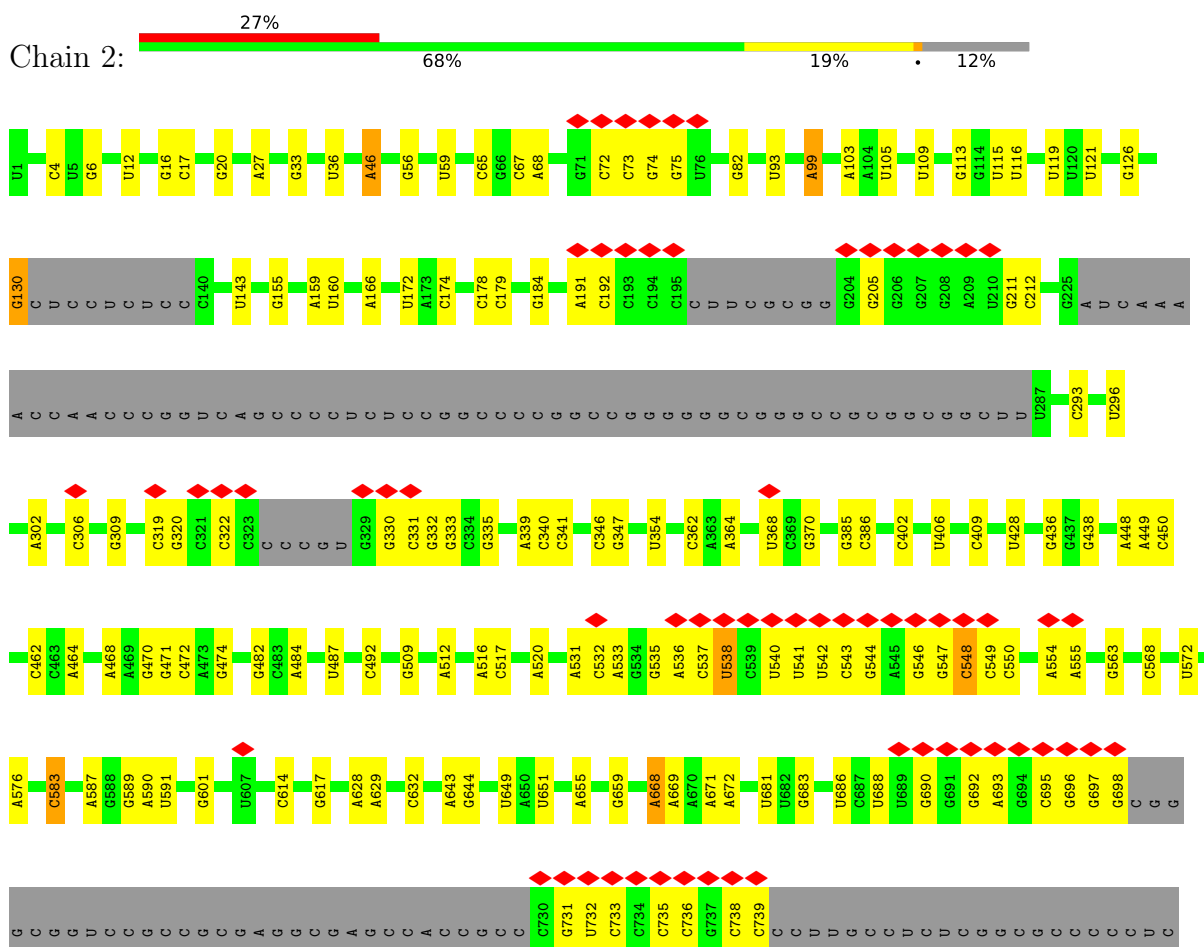
3 Residue-property plots

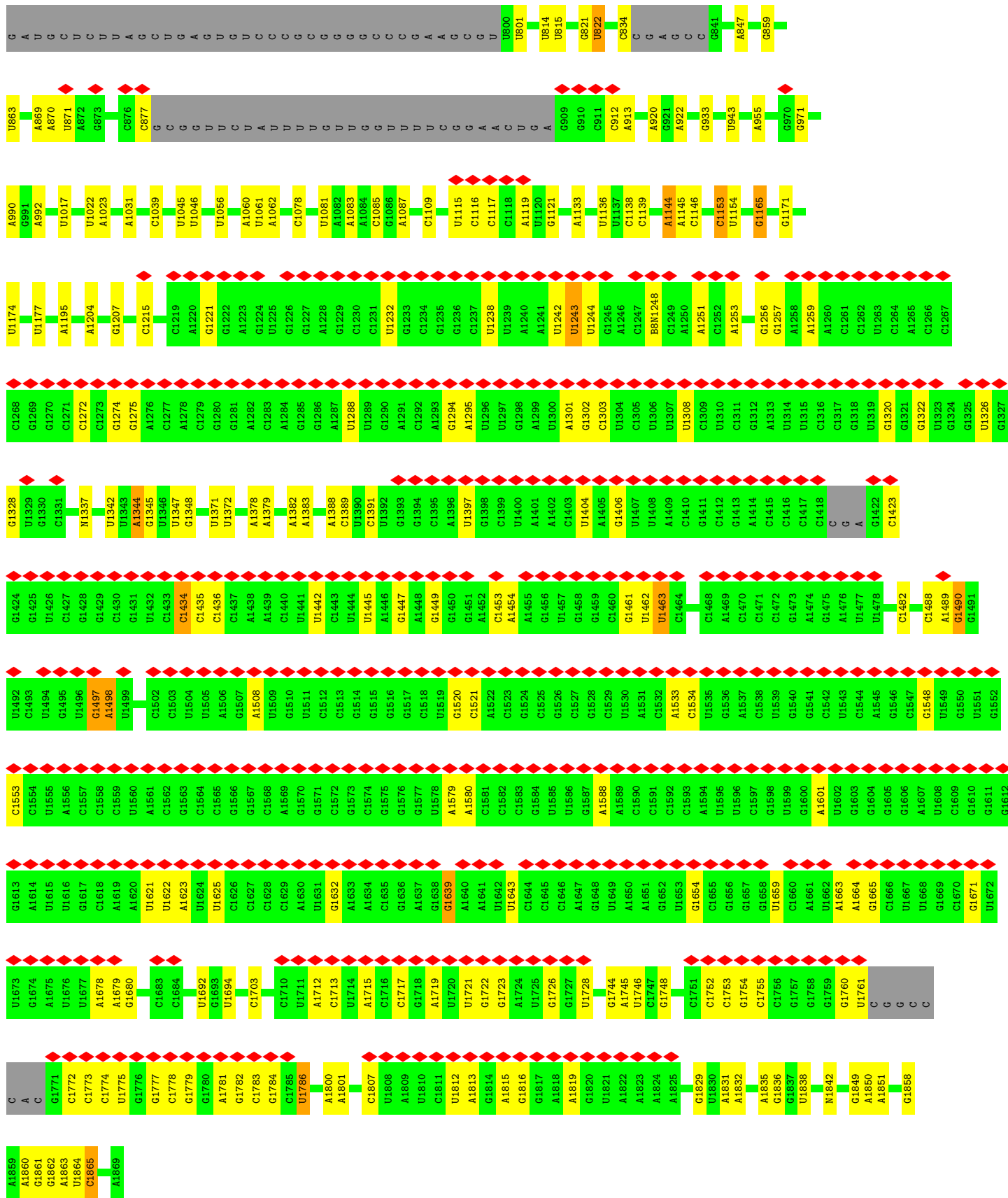
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: 60S ribosomal protein L41

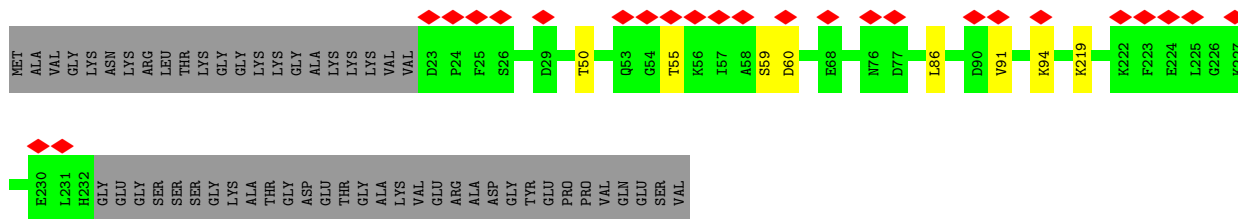
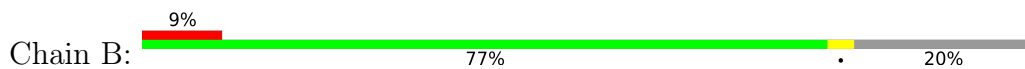


- Molecule 2: 18S ribosomal RNA

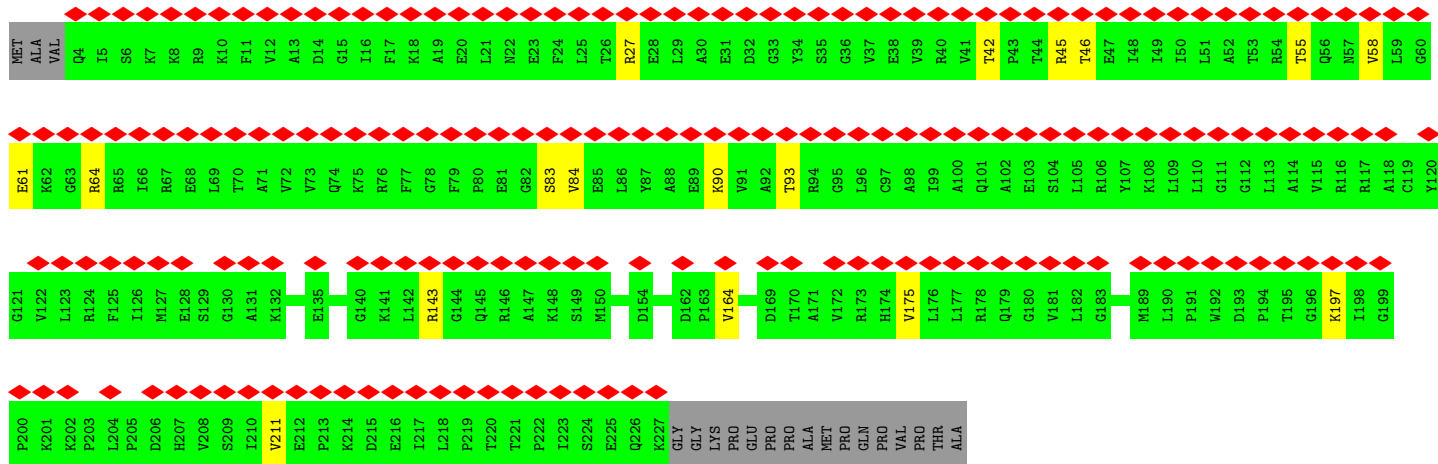
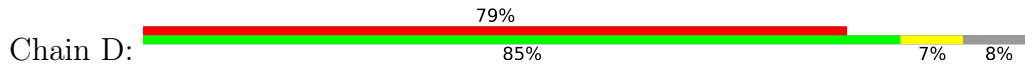




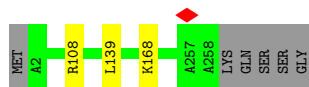
• Molecule 3: 40S ribosomal protein S3a



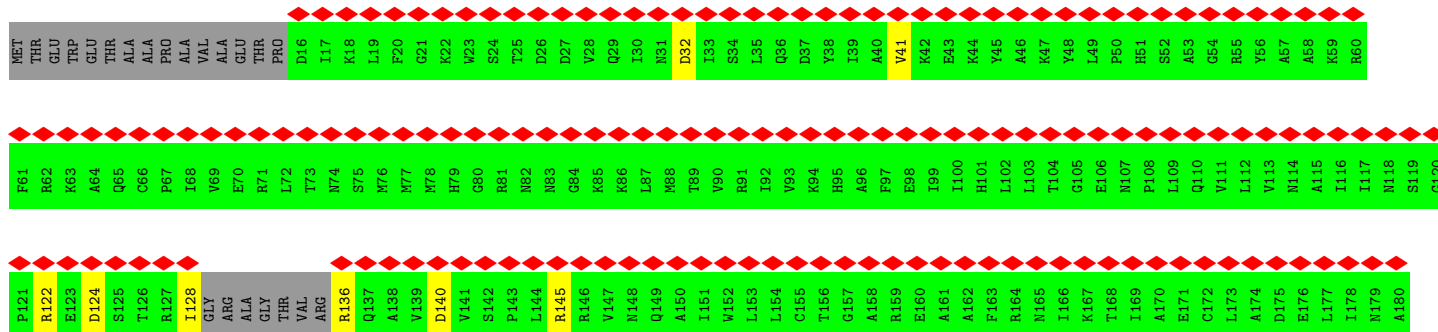
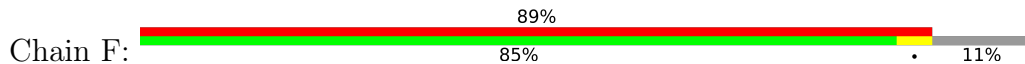
• Molecule 4: 40S ribosomal protein S3

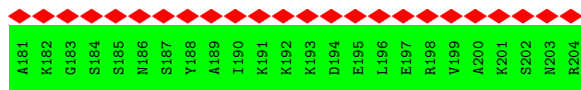


• Molecule 5: 40S ribosomal protein S4, X isoform

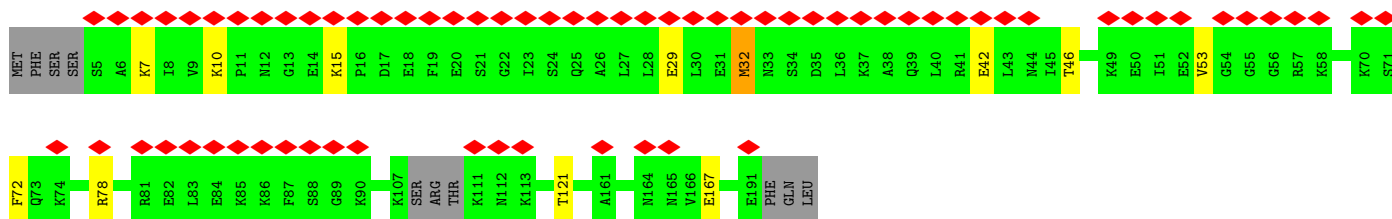
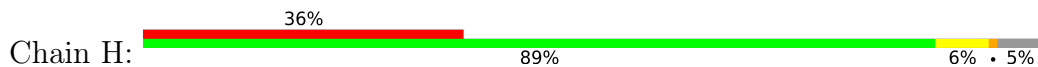


• Molecule 6: 40S ribosomal protein S5

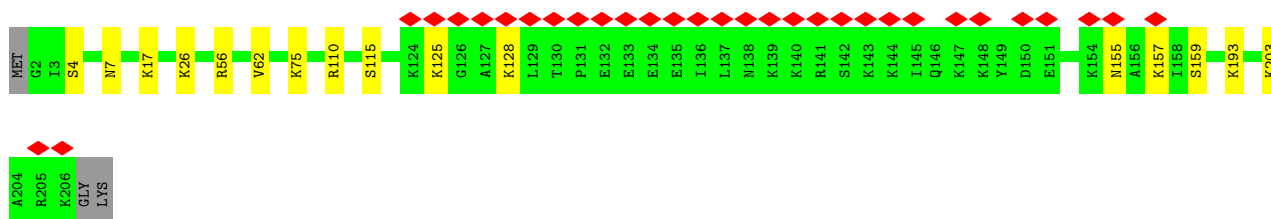
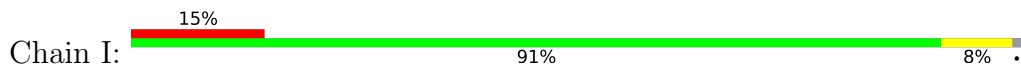




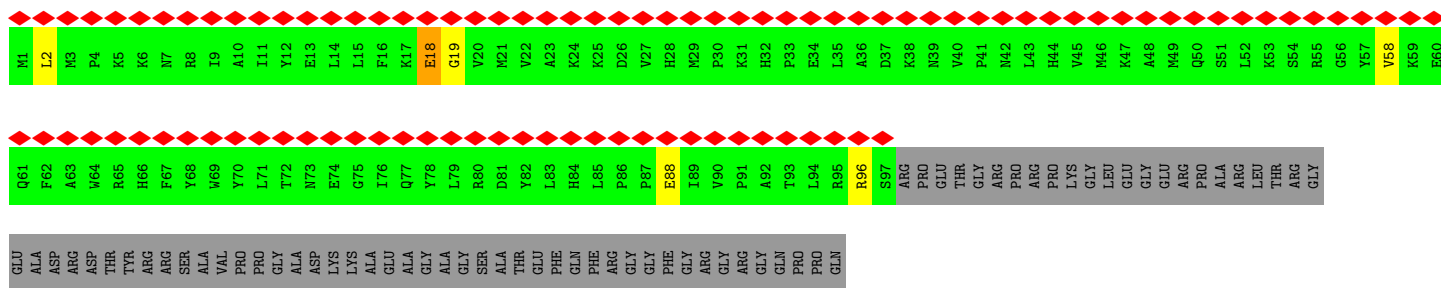
• Molecule 7: 40S ribosomal protein S7



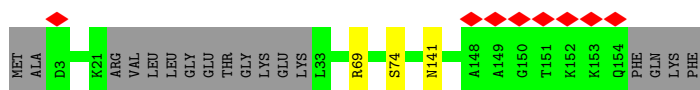
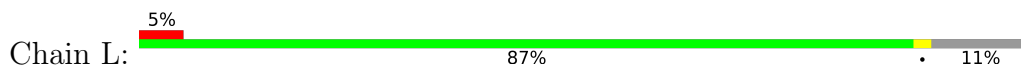
• Molecule 8: 40S ribosomal protein S8



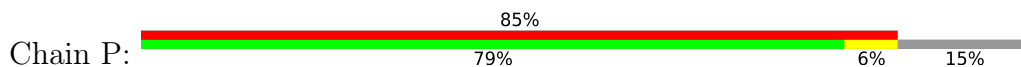
• Molecule 9: 40S ribosomal protein S10



• Molecule 10: 40S ribosomal protein S11

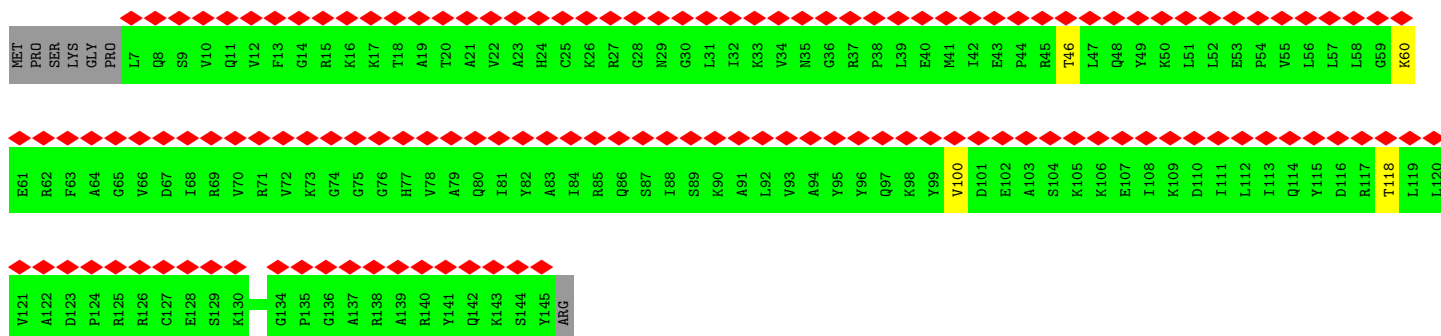
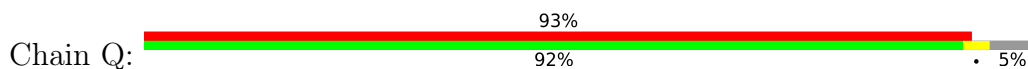


• Molecule 11: 40S ribosomal protein S15

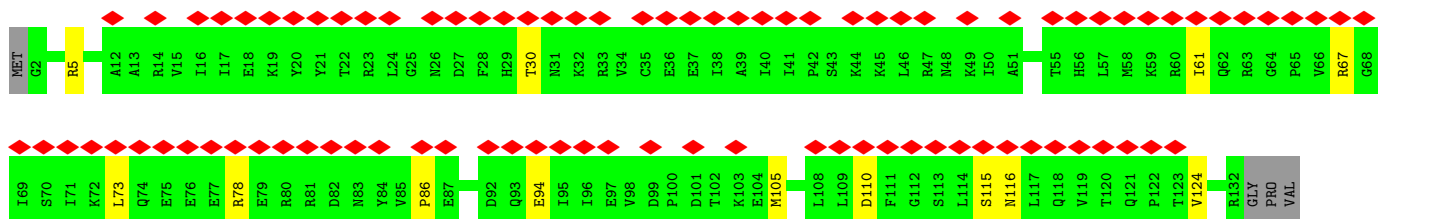
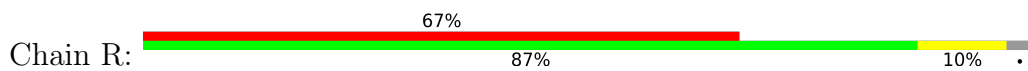




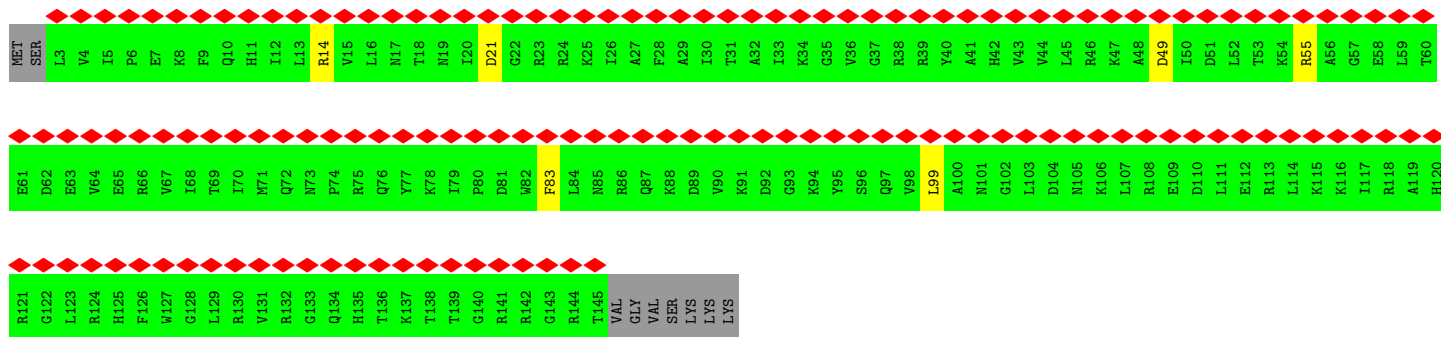
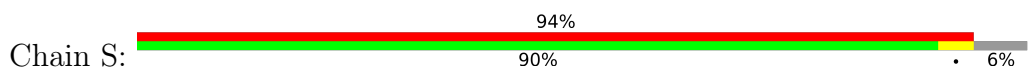
• Molecule 12: 40S ribosomal protein S16



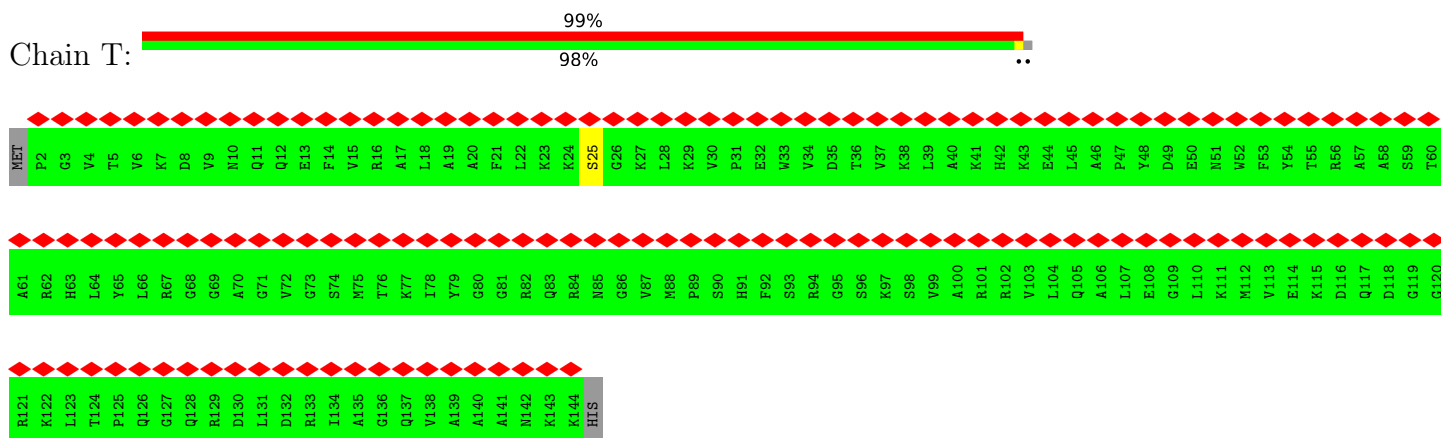
• Molecule 13: 40S ribosomal protein S17



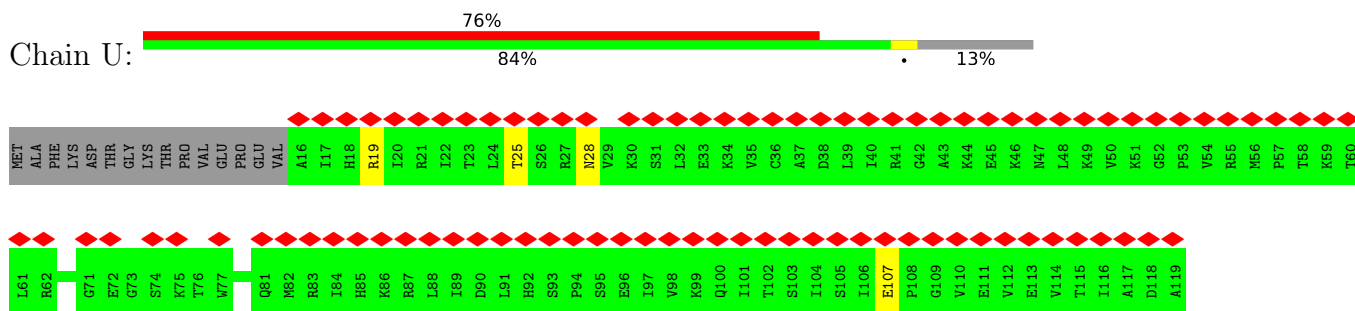
• Molecule 14: 40S ribosomal protein S18



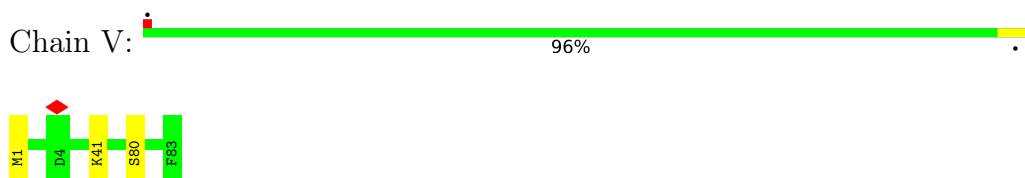
• Molecule 15: 40S ribosomal protein S19



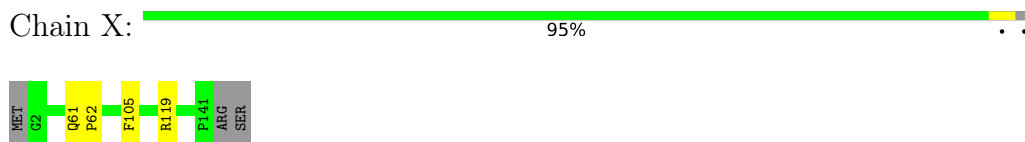
• Molecule 16: 40S ribosomal protein S20



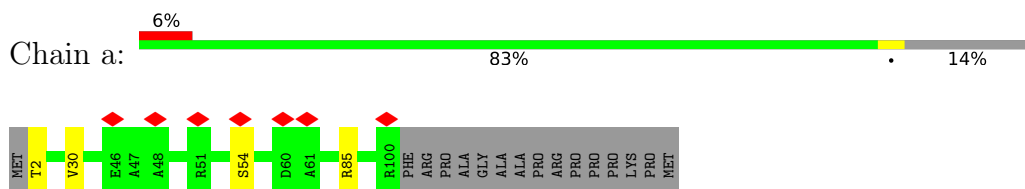
• Molecule 17: 40S ribosomal protein S21



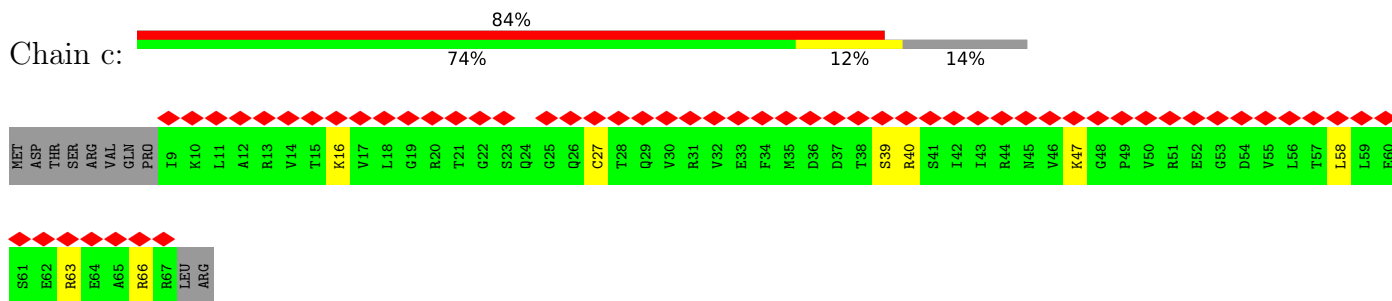
• Molecule 18: 40S ribosomal protein S23



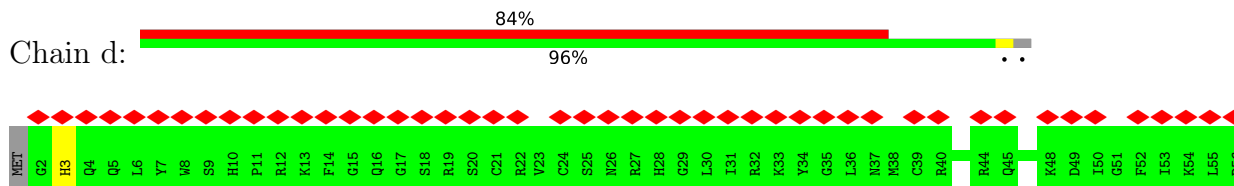
• Molecule 19: 40S ribosomal protein S26



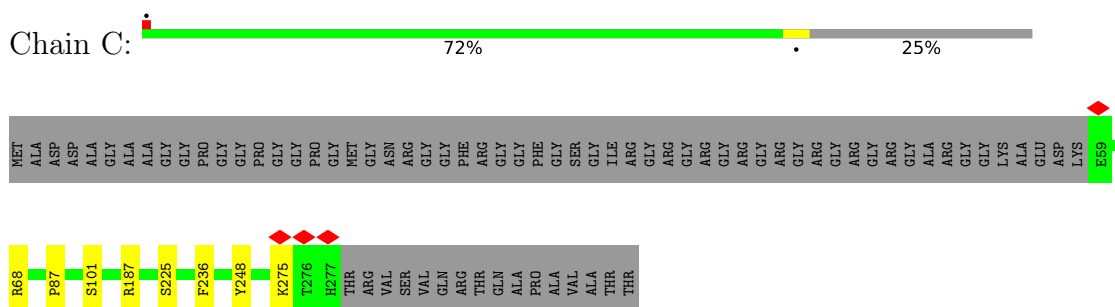
• Molecule 20: 40S ribosomal protein S28



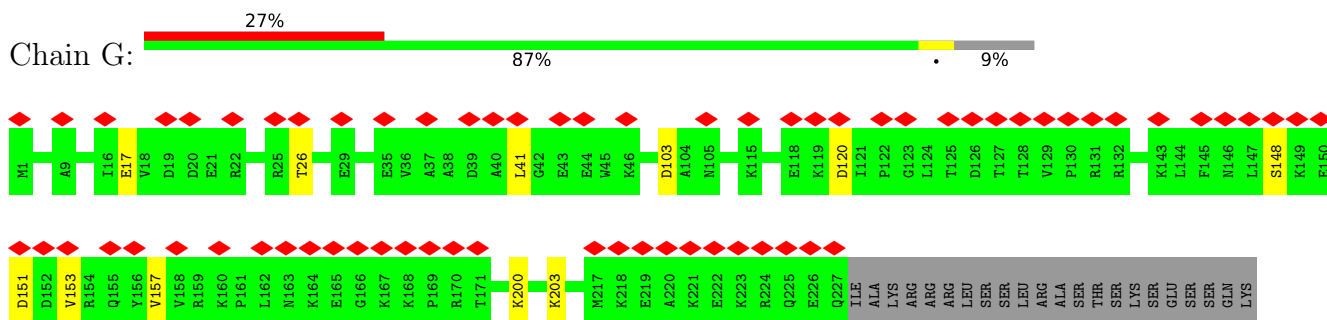
• Molecule 21: 40S ribosomal protein S29



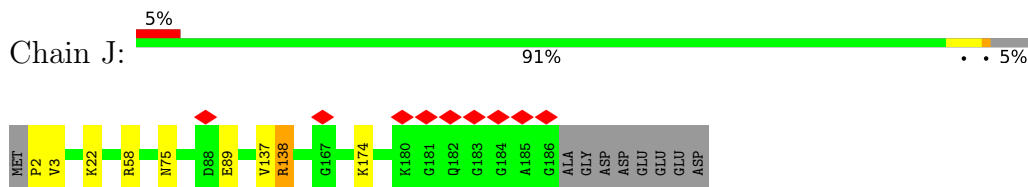
• Molecule 22: 40S ribosomal protein S2



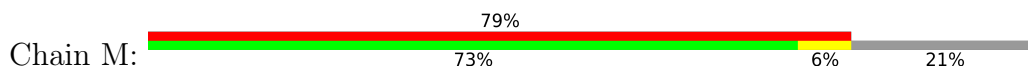
• Molecule 23: 40S ribosomal protein S6

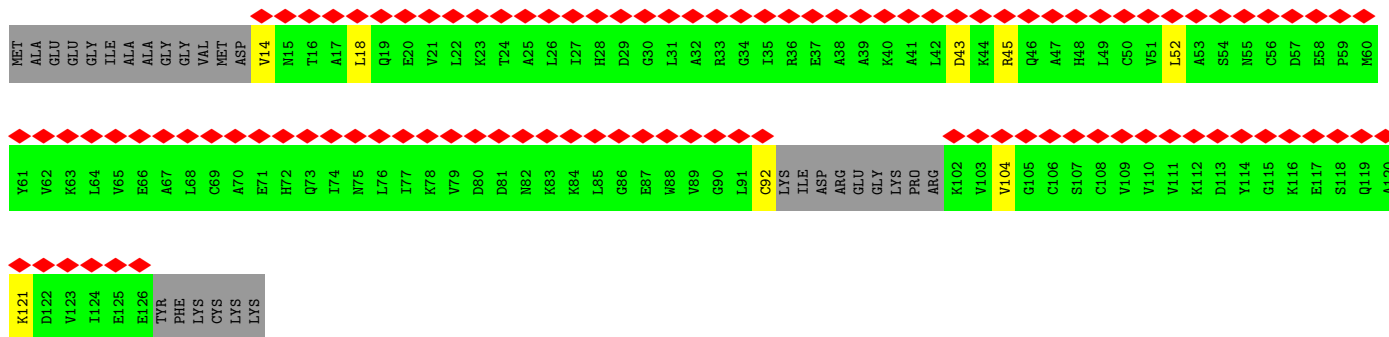


• Molecule 24: 40S ribosomal protein S9

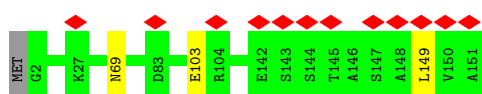


• Molecule 25: 40S ribosomal protein S12

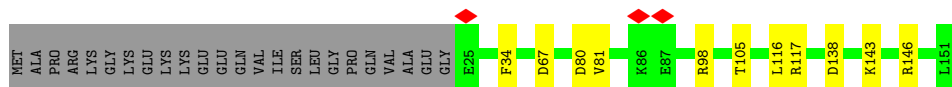
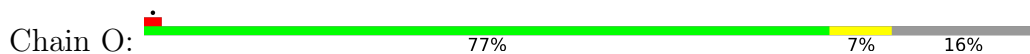




• Molecule 26: 40S ribosomal protein S13



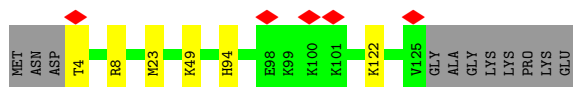
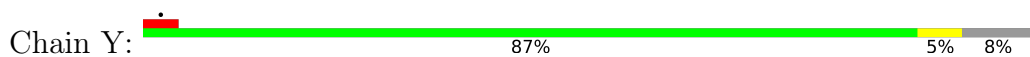
• Molecule 27: 40S ribosomal protein S14



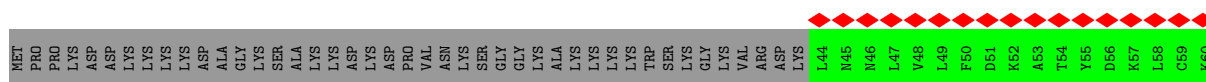
• Molecule 28: 40S ribosomal protein S15a

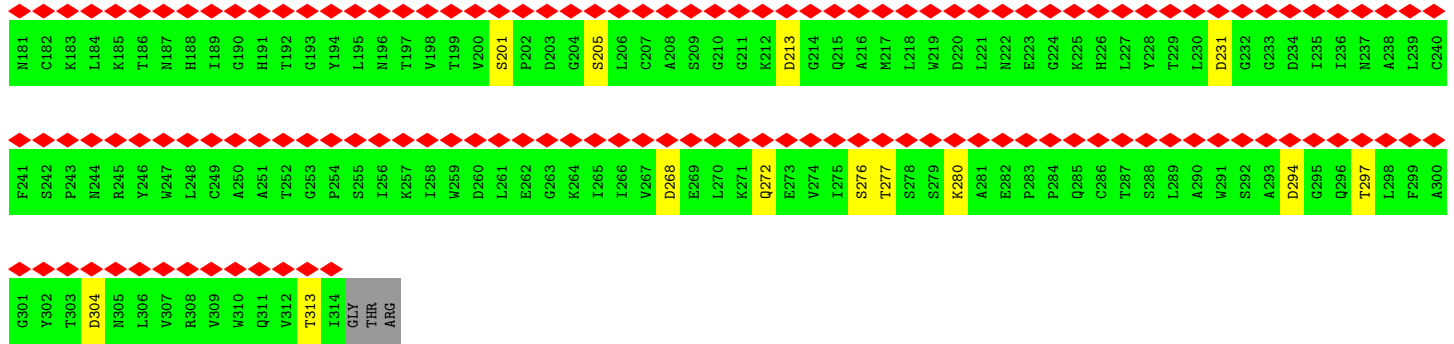


• Molecule 29: 40S ribosomal protein S24

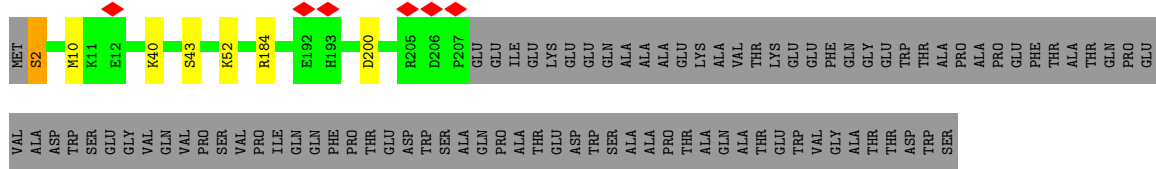


• Molecule 30: 40S ribosomal protein S25





• Molecule 35: 40S ribosomal protein SA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	474276	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40.56	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.283	Depositor
Minimum map value	-0.102	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.025	Depositor
Map size (Å)	423.2704, 423.2704, 423.2704	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8267, 0.8267, 0.8267	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, IAS, HY3, 7MG, PSU, B8N, OMU, OMC, AME, SAC, A2M, 4AC, K, MG, 6MZ, MA6, OMG

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	n	0.47	0/194	0.61	0/246
2	2	1.06	18/37770 (0.0%)	1.06	72/58857 (0.1%)
3	B	0.41	0/1738	0.53	0/2325
4	D	0.48	0/1773	0.58	0/2387
5	E	0.45	0/2083	0.58	1/2805 (0.0%)
6	F	0.44	0/1465	0.55	0/1969
7	H	0.35	0/1498	0.56	1/2005 (0.0%)
8	I	0.44	0/1711	0.60	0/2282
9	K	0.48	0/840	0.58	1/1133 (0.1%)
10	L	0.48	0/1177	0.58	0/1574
11	P	0.40	0/1024	0.53	0/1369
12	Q	0.44	0/1122	0.56	0/1503
13	R	0.45	0/1078	0.62	2/1447 (0.1%)
14	S	0.39	0/1214	0.55	0/1626
15	T	0.41	0/1131	0.54	0/1515
16	U	0.41	0/831	0.57	0/1115
17	V	0.47	0/635	0.58	0/850
18	X	0.48	0/1096	0.61	0/1461
19	a	0.57	0/805	0.62	0/1079
20	c	0.47	0/465	0.62	0/621
21	d	0.43	0/470	0.57	0/623
22	C	0.53	0/1748	0.60	0/2361
23	G	0.39	0/1863	0.56	0/2481
24	J	0.47	0/1550	0.57	0/2069
25	M	0.34	0/796	0.51	0/1072
26	N	0.41	0/1232	0.53	0/1656
27	O	0.53	1/960 (0.1%)	0.68	0/1284
28	W	0.50	0/1051	0.58	0/1406
29	Y	0.46	0/1019	0.54	0/1354
30	Z	0.33	0/576	0.59	0/774
31	b	0.42	0/653	0.52	0/876

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	e	0.43	0/443	0.54	0/582
33	f	0.43	0/533	0.59	0/706
34	g	0.41	0/2486	0.59	0/3384
35	A	0.50	0/1659	0.56	0/2254
All	All	0.81	19/76689 (0.0%)	0.86	77/111051 (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
7	H	0	2
14	S	0	1
16	U	0	1
24	J	0	1
35	A	0	1
All	All	0	6

The worst 5 of 19 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	2	1622	U	O3'-P	-16.84	1.41	1.61
2	2	1145	A	N9-C4	-7.04	1.33	1.37
2	2	1345	G	N7-C5	-6.10	1.35	1.39
2	2	1498	A	N9-C4	-6.07	1.34	1.37
2	2	1860	A	N7-C5	-5.68	1.35	1.39

The worst 5 of 77 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	293	C	N1-C2-O2	9.81	124.78	118.90
2	2	1865	C	C4-C5-C6	9.72	122.26	117.40
2	2	1622	U	P-O3'-C3'	9.08	130.59	119.70
2	2	293	C	N3-C2-O2	-8.72	115.80	121.90
2	2	1453	C	N1-C2-O2	8.69	124.12	118.90

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	H	15	LYS	Peptide
7	H	42	GLU	Peptide
24	J	137	VAL	Peptide
14	S	99	LEU	Peptide
16	U	107	GLU	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	
1	n	18/25 (72%)	17 (94%)	1 (6%)	0	100	100
3	B	208/264 (79%)	202 (97%)	6 (3%)	0	100	100
4	D	222/243 (91%)	218 (98%)	4 (2%)	0	100	100
5	E	255/263 (97%)	251 (98%)	4 (2%)	0	100	100
6	F	178/204 (87%)	171 (96%)	7 (4%)	0	100	100
7	H	180/194 (93%)	156 (87%)	24 (13%)	0	100	100
8	I	203/208 (98%)	199 (98%)	4 (2%)	0	100	100
9	K	95/165 (58%)	86 (90%)	8 (8%)	1 (1%)	14	8
10	L	137/158 (87%)	131 (96%)	6 (4%)	0	100	100
11	P	121/145 (83%)	118 (98%)	2 (2%)	1 (1%)	19	12
12	Q	137/146 (94%)	131 (96%)	6 (4%)	0	100	100
13	R	129/135 (96%)	121 (94%)	8 (6%)	0	100	100
14	S	142/152 (93%)	138 (97%)	4 (3%)	0	100	100
15	T	141/145 (97%)	139 (99%)	2 (1%)	0	100	100
16	U	102/119 (86%)	98 (96%)	4 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	V	81/83 (98%)	80 (99%)	1 (1%)	0	100	100
18	X	137/143 (96%)	135 (98%)	2 (2%)	0	100	100
19	a	97/115 (84%)	95 (98%)	2 (2%)	0	100	100
20	c	57/69 (83%)	53 (93%)	4 (7%)	0	100	100
21	d	53/56 (95%)	52 (98%)	1 (2%)	0	100	100
22	C	218/293 (74%)	212 (97%)	6 (3%)	0	100	100
23	G	225/249 (90%)	221 (98%)	4 (2%)	0	100	100
24	J	183/194 (94%)	177 (97%)	5 (3%)	1 (0%)	29	22
25	M	100/132 (76%)	92 (92%)	8 (8%)	0	100	100
26	N	148/151 (98%)	144 (97%)	4 (3%)	0	100	100
27	O	123/151 (82%)	120 (98%)	3 (2%)	0	100	100
28	W	127/130 (98%)	125 (98%)	2 (2%)	0	100	100
29	Y	120/133 (90%)	118 (98%)	2 (2%)	0	100	100
30	Z	70/125 (56%)	68 (97%)	2 (3%)	0	100	100
31	b	80/84 (95%)	77 (96%)	3 (4%)	0	100	100
32	e	53/59 (90%)	48 (91%)	5 (9%)	0	100	100
33	f	62/156 (40%)	56 (90%)	6 (10%)	0	100	100
34	g	310/317 (98%)	286 (92%)	24 (8%)	0	100	100
35	A	205/295 (70%)	200 (98%)	5 (2%)	0	100	100
All	All	4717/5501 (86%)	4535 (96%)	179 (4%)	3 (0%)	54	53

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
9	K	19	GLY
24	J	138	ARG
11	P	18	ARG

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	n	19/24 (79%)	19 (100%)	0	100	100
3	B	192/231 (83%)	184 (96%)	8 (4%)	30	28
4	D	188/202 (93%)	171 (91%)	17 (9%)	9	5
5	E	220/225 (98%)	218 (99%)	2 (1%)	78	83
6	F	155/170 (91%)	147 (95%)	8 (5%)	23	19
7	H	164/174 (94%)	154 (94%)	10 (6%)	18	14
8	I	178/180 (99%)	162 (91%)	16 (9%)	9	5
9	K	88/136 (65%)	83 (94%)	5 (6%)	20	16
10	L	128/142 (90%)	125 (98%)	3 (2%)	50	53
11	P	109/130 (84%)	102 (94%)	7 (6%)	17	12
12	Q	115/121 (95%)	111 (96%)	4 (4%)	36	34
13	R	119/122 (98%)	107 (90%)	12 (10%)	7	4
14	S	125/132 (95%)	120 (96%)	5 (4%)	31	29
15	T	113/115 (98%)	112 (99%)	1 (1%)	78	83
16	U	94/107 (88%)	91 (97%)	3 (3%)	39	38
17	V	66/66 (100%)	64 (97%)	2 (3%)	41	40
18	X	111/114 (97%)	108 (97%)	3 (3%)	44	46
19	a	86/98 (88%)	82 (95%)	4 (5%)	26	23
20	c	52/62 (84%)	44 (85%)	8 (15%)	2	1
21	d	48/49 (98%)	47 (98%)	1 (2%)	53	57
22	C	186/225 (83%)	178 (96%)	8 (4%)	29	27
23	G	198/218 (91%)	187 (94%)	11 (6%)	21	16
24	J	161/168 (96%)	153 (95%)	8 (5%)	24	21
25	M	86/108 (80%)	78 (91%)	8 (9%)	9	5
26	N	130/131 (99%)	127 (98%)	3 (2%)	50	53
27	O	99/118 (84%)	90 (91%)	9 (9%)	9	5
28	W	112/113 (99%)	110 (98%)	2 (2%)	59	63
29	Y	107/115 (93%)	101 (94%)	6 (6%)	21	16
30	Z	63/103 (61%)	60 (95%)	3 (5%)	25	22
31	b	74/76 (97%)	71 (96%)	3 (4%)	30	29
32	e	45/48 (94%)	40 (89%)	5 (11%)	6	2
33	f	57/140 (41%)	52 (91%)	5 (9%)	10	5

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
34	g	271/275 (98%)	249 (92%)	22 (8%)	11	7
35	A	172/242 (71%)	166 (96%)	6 (4%)	36	34
All	All	4131/4680 (88%)	3913 (95%)	218 (5%)	26	19

5 of 218 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
20	c	58	LEU
24	J	89	GLU
34	g	201	SER
22	C	68	ARG
23	G	103	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
16	U	92	HIS
18	X	26	GLN
21	d	10	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
2	2	1622/1868 (86%)	261 (16%)	7 (0%)

5 of 261 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	2	4	C
2	2	17	C
2	2	33	G
2	2	46	A
2	2	56	G

5 of 7 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	2	1165	G
2	2	1434	C

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Mol	Chain	Res	Type
2	2	1679	A
2	2	1520	G
2	2	912	C

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	A2M	2	99	37,2	18,25,26	3.59	7 (38%)	18,36,39	3.41	4 (22%)
2	OMU	2	1442	37,2	19,22,23	2.87	8 (42%)	26,31,34	1.81	5 (19%)
2	OMG	2	1447	2	18,26,27	2.33	8 (44%)	19,38,41	1.57	4 (21%)
27	IAS	O	138	27	6,7,8	0.99	0	6,8,10	1.97	3 (50%)
2	PSU	2	109	2,36	18,21,22	4.06	7 (38%)	22,30,33	1.82	4 (18%)
2	OMU	2	354	2	19,22,23	2.88	8 (42%)	26,31,34	1.91	6 (23%)
2	A2M	2	468	2	18,25,26	3.67	8 (44%)	18,36,39	3.85	4 (22%)
2	OMC	2	517	2	19,22,23	2.68	8 (42%)	26,31,34	0.79	0
2	OMU	2	172	2	19,22,23	2.86	7 (36%)	26,31,34	1.85	6 (23%)
2	OMC	2	1272	2	19,22,23	2.71	8 (42%)	26,31,34	0.68	0
2	PSU	2	1136	2	18,21,22	3.86	8 (44%)	22,30,33	1.96	4 (18%)
2	PSU	2	1046	2,36	18,21,22	4.00	7 (38%)	22,30,33	1.78	3 (13%)
2	A2M	2	1678	2	18,25,26	0.95	1 (5%)	18,36,39	1.21	2 (11%)
2	OMG	2	644	2	18,26,27	2.30	8 (44%)	19,38,41	1.60	5 (26%)
2	OMG	2	601	2	18,26,27	2.27	8 (44%)	19,38,41	1.70	5 (26%)
17	AME	V	1	17	9,10,11	1.36	1 (11%)	9,11,13	2.01	2 (22%)
2	A2M	2	512	2	18,25,26	3.72	9 (50%)	18,36,39	3.38	5 (27%)
2	PSU	2	1692	2,36	18,21,22	3.74	7 (38%)	22,30,33	1.79	4 (18%)
2	OMC	2	1391	2	19,22,23	2.70	8 (42%)	26,31,34	0.91	0
2	PSU	2	93	2	18,21,22	4.01	7 (38%)	22,30,33	1.66	4 (18%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	PSU	2	572	2,36	18,21,22	4.06	7 (38%)	22,30,33	1.88	4 (18%)
2	6MZ	2	1832	37,2,36	18,25,26	2.61	5 (27%)	16,36,39	2.49	4 (25%)
2	A2M	2	590	2	18,25,26	3.63	7 (38%)	18,36,39	3.47	5 (27%)
2	PSU	2	1244	2	18,21,22	3.98	7 (38%)	22,30,33	2.12	5 (22%)
2	PSU	2	1643	37,2	18,21,22	1.48	4 (22%)	22,30,33	1.89	4 (18%)
2	A2M	2	576	2,36	18,25,26	3.76	8 (44%)	18,36,39	3.60	5 (27%)
2	PSU	2	119	2	18,21,22	3.99	7 (38%)	22,30,33	1.80	5 (22%)
2	PSU	2	686	2	18,21,22	4.08	7 (38%)	22,30,33	1.98	5 (22%)
2	PSU	2	814	2	18,21,22	3.86	7 (38%)	22,30,33	1.66	3 (13%)
2	PSU	2	822	2	18,21,22	3.94	8 (44%)	22,30,33	1.77	4 (18%)
18	HY3	X	62	18,36	6,8,9	8.45	4 (66%)	5,10,12	1.18	0
2	A2M	2	484	2	18,25,26	0.93	1 (5%)	18,36,39	1.36	3 (16%)
2	PSU	2	105	2,36	18,21,22	3.91	7 (38%)	22,30,33	2.12	5 (22%)
2	PSU	2	1177	2	18,21,22	1.36	4 (22%)	22,30,33	1.89	4 (18%)
2	OMG	2	509	37,2	18,26,27	2.26	8 (44%)	19,38,41	1.58	4 (21%)
2	PSU	2	1625	2	18,21,22	3.95	7 (38%)	22,30,33	1.92	5 (22%)
2	B8N	2	1248	2	24,29,30	2.86	7 (29%)	29,42,45	1.91	7 (24%)
2	PSU	2	863	2	18,21,22	3.72	7 (38%)	22,30,33	2.05	5 (22%)
2	PSU	2	406	2	18,21,22	3.94	7 (38%)	22,30,33	1.78	4 (18%)
2	OMG	2	1490	37,2	18,26,27	0.97	1 (5%)	19,38,41	1.10	2 (10%)
2	PSU	2	1238	2	18,21,22	3.92	7 (38%)	22,30,33	1.79	4 (18%)
2	OMC	2	462	2	19,22,23	2.73	8 (42%)	26,31,34	0.77	0
2	PSU	2	1174	2,36	18,21,22	1.41	3 (16%)	22,30,33	1.83	3 (13%)
2	PSU	2	815	2	18,21,22	4.01	7 (38%)	22,30,33	1.85	4 (18%)
2	A2M	2	166	2	18,25,26	3.68	8 (44%)	18,36,39	3.63	5 (27%)
2	A2M	2	27	37,2	18,25,26	0.99	1 (5%)	18,36,39	1.35	3 (16%)
2	PSU	2	1347	2	18,21,22	1.44	3 (16%)	22,30,33	1.90	4 (18%)
35	SAC	A	2	35	7,8,9	1.57	2 (28%)	8,9,11	1.45	2 (25%)
2	PSU	2	1232	2	18,21,22	3.98	7 (38%)	22,30,33	1.74	4 (18%)
2	OMU	2	116	2	19,22,23	2.78	7 (36%)	26,31,34	1.56	5 (19%)
2	OMG	2	683	2	18,26,27	2.39	8 (44%)	19,38,41	1.70	6 (31%)
2	OMC	2	1703	2	19,22,23	2.67	8 (42%)	26,31,34	0.86	0
2	OMC	2	174	37,2	19,22,23	2.75	8 (42%)	26,31,34	0.93	0
2	4AC	2	1842	2	21,24,25	3.02	10 (47%)	29,34,37	1.51	4 (13%)
2	PSU	2	651	2	18,21,22	3.93	8 (44%)	22,30,33	2.29	5 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	OMU	2	428	37,2	19,22,23	2.86	8 (42%)	26,31,34	1.59	5 (19%)
2	4AC	2	1337	2	21,24,25	3.37	10 (47%)	29,34,37	1.63	6 (20%)
2	OMU	2	1288	2	19,22,23	2.86	7 (36%)	26,31,34	1.75	4 (15%)
2	OMG	2	1328	2,36	18,26,27	2.42	8 (44%)	19,38,41	1.80	5 (26%)
2	PSU	2	1045	2	18,21,22	4.14	7 (38%)	22,30,33	1.94	5 (22%)
2	PSU	2	1445	2	18,21,22	3.99	7 (38%)	22,30,33	1.78	4 (18%)
2	PSU	2	1056	2	18,21,22	3.82	7 (38%)	22,30,33	2.08	5 (22%)
2	PSU	2	36	2	18,21,22	1.45	4 (22%)	22,30,33	1.80	4 (18%)
2	A2M	2	159	2	18,25,26	3.61	7 (38%)	18,36,39	3.73	4 (22%)
2	MA6	2	1851	2	18,26,27	0.99	1 (5%)	19,38,41	1.86	5 (26%)
2	PSU	2	296	2	18,21,22	3.97	7 (38%)	22,30,33	1.81	5 (22%)
2	PSU	2	1081	2	18,21,22	3.99	8 (44%)	22,30,33	1.87	6 (27%)
2	A2M	2	1383	2	18,25,26	3.83	9 (50%)	18,36,39	3.55	6 (33%)
2	A2M	2	668	37,2	18,25,26	0.92	1 (5%)	18,36,39	1.57	4 (22%)
2	OMU	2	1326	37,2	19,22,23	2.86	8 (42%)	26,31,34	2.02	5 (19%)
2	OMU	2	121	2	19,22,23	2.73	8 (42%)	26,31,34	1.75	5 (19%)
2	PSU	2	681	2	18,21,22	3.93	8 (44%)	22,30,33	1.83	4 (18%)
2	MA6	2	1850	2	18,26,27	1.21	2 (11%)	19,38,41	2.00	5 (26%)
2	OMG	2	436	2	18,26,27	2.37	8 (44%)	19,38,41	1.51	5 (26%)
2	A2M	2	1031	2	18,25,26	3.66	8 (44%)	18,36,39	3.77	4 (22%)
2	7MG	2	1639	2	22,26,27	1.38	3 (13%)	29,39,42	2.53	7 (24%)
2	PSU	2	649	2	18,21,22	4.06	7 (38%)	22,30,33	1.93	5 (22%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	A2M	2	99	37,2	-	2/5/27/28	0/3/3/3
2	OMU	2	1442	37,2	-	0/9/27/28	0/2/2/2
2	OMG	2	1447	2	-	2/5/27/28	0/3/3/3
27	IAS	O	138	27	-	2/7/7/8	-
2	PSU	2	109	2,36	-	0/7/25/26	0/2/2/2
2	OMU	2	354	2	-	0/9/27/28	0/2/2/2
2	A2M	2	468	2	-	1/5/27/28	0/3/3/3
2	OMC	2	517	2	-	0/9/27/28	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	OMU	2	172	2	-	1/9/27/28	0/2/2/2
2	OMC	2	1272	2	-	0/9/27/28	0/2/2/2
2	PSU	2	1136	2	-	0/7/25/26	0/2/2/2
2	PSU	2	1046	2,36	-	0/7/25/26	0/2/2/2
2	A2M	2	1678	2	-	1/5/27/28	0/3/3/3
2	OMG	2	644	2	-	1/5/27/28	0/3/3/3
2	OMG	2	601	2	-	0/5/27/28	0/3/3/3
17	AME	V	1	17	-	3/9/10/12	-
2	A2M	2	512	2	-	0/5/27/28	0/3/3/3
2	PSU	2	1692	2,36	-	0/7/25/26	0/2/2/2
2	OMC	2	1391	2	-	0/9/27/28	0/2/2/2
2	PSU	2	93	2	-	0/7/25/26	0/2/2/2
2	PSU	2	572	2,36	-	0/7/25/26	0/2/2/2
2	6MZ	2	1832	37,2,36	-	0/5/27/28	0/3/3/3
2	A2M	2	590	2	-	0/5/27/28	0/3/3/3
2	PSU	2	1244	2	-	0/7/25/26	0/2/2/2
2	PSU	2	1643	37,2	-	0/7/25/26	0/2/2/2
2	A2M	2	576	2,36	-	2/5/27/28	0/3/3/3
2	PSU	2	119	2	-	0/7/25/26	0/2/2/2
2	PSU	2	686	2	-	0/7/25/26	0/2/2/2
2	PSU	2	814	2	-	0/7/25/26	0/2/2/2
2	PSU	2	822	2	-	0/7/25/26	0/2/2/2
18	HY3	X	62	18,36	-	1/1/12/14	0/1/1/1
2	A2M	2	484	2	-	1/5/27/28	0/3/3/3
2	PSU	2	105	2,36	-	0/7/25/26	0/2/2/2
2	PSU	2	1177	2	-	0/7/25/26	0/2/2/2
2	OMG	2	509	37,2	-	0/5/27/28	0/3/3/3
2	PSU	2	1625	2	-	0/7/25/26	0/2/2/2
2	B8N	2	1248	2	-	2/16/34/35	0/2/2/2
2	PSU	2	863	2	-	0/7/25/26	0/2/2/2
2	PSU	2	406	2	-	0/7/25/26	0/2/2/2
2	OMG	2	1490	37,2	-	1/5/27/28	0/3/3/3
2	PSU	2	1238	2	-	0/7/25/26	0/2/2/2
2	OMC	2	462	2	-	0/9/27/28	0/2/2/2
2	PSU	2	1174	2,36	-	0/7/25/26	0/2/2/2
2	PSU	2	815	2	-	0/7/25/26	0/2/2/2
2	A2M	2	166	2	-	0/5/27/28	0/3/3/3
2	A2M	2	27	37,2	-	1/5/27/28	0/3/3/3
2	PSU	2	1347	2	-	1/7/25/26	0/2/2/2
35	SAC	A	2	35	-	0/7/8/10	-
2	PSU	2	1232	2	-	0/7/25/26	0/2/2/2
2	OMU	2	116	2	-	1/9/27/28	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	OMG	2	683	2	-	0/5/27/28	0/3/3/3
2	OMC	2	1703	2	-	0/9/27/28	0/2/2/2
2	OMC	2	174	37,2	-	1/9/27/28	0/2/2/2
2	4AC	2	1842	2	-	2/11/29/30	0/2/2/2
2	PSU	2	651	2	-	0/7/25/26	0/2/2/2
2	OMU	2	428	37,2	-	4/9/27/28	0/2/2/2
2	4AC	2	1337	2	-	2/11/29/30	0/2/2/2
2	OMU	2	1288	2	-	0/9/27/28	0/2/2/2
2	OMG	2	1328	2,36	-	0/5/27/28	0/3/3/3
2	PSU	2	1045	2	-	0/7/25/26	0/2/2/2
2	PSU	2	1445	2	-	0/7/25/26	0/2/2/2
2	PSU	2	1056	2	-	0/7/25/26	0/2/2/2
2	PSU	2	36	2	-	0/7/25/26	0/2/2/2
2	A2M	2	159	2	-	0/5/27/28	0/3/3/3
2	MA6	2	1851	2	-	6/7/29/30	0/3/3/3
2	PSU	2	296	2	-	0/7/25/26	0/2/2/2
2	PSU	2	1081	2	-	1/7/25/26	0/2/2/2
2	A2M	2	1383	2	-	0/5/27/28	0/3/3/3
2	A2M	2	668	37,2	-	2/5/27/28	0/3/3/3
2	OMU	2	1326	37,2	-	0/9/27/28	0/2/2/2
2	OMU	2	121	2	-	0/9/27/28	0/2/2/2
2	PSU	2	681	2	-	0/7/25/26	0/2/2/2
2	MA6	2	1850	2	-	2/7/29/30	0/3/3/3
2	OMG	2	436	2	-	0/5/27/28	0/3/3/3
2	A2M	2	1031	2	-	0/5/27/28	0/3/3/3
2	7MG	2	1639	2	-	0/7/37/38	0/3/3/3
2	PSU	2	649	2	-	0/7/25/26	0/2/2/2

The worst 5 of 491 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	X	62	HY3	C3-CA	-19.76	1.35	1.55
2	2	686	PSU	C6-C5	10.90	1.48	1.35
2	2	93	PSU	C6-C5	10.88	1.48	1.35
2	2	815	PSU	C6-C5	10.84	1.47	1.35
2	2	1232	PSU	C6-C5	10.77	1.47	1.35

The worst 5 of 310 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	468	A2M	C5-C6-N6	10.92	136.94	120.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	2	159	A2M	C5-C6-N6	10.76	136.71	120.35
2	2	1031	A2M	C5-C6-N6	10.22	135.89	120.35
2	2	576	A2M	C5-C6-N6	10.17	135.80	120.35
2	2	590	A2M	C5-C6-N6	10.08	135.67	120.35

There are no chirality outliers.

5 of 43 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
18	X	62	HY3	O-C-CA-C3
2	2	27	A2M	C1'-C2'-O2'-CM'
2	2	116	OMU	C1'-C2'-O2'-CM2
2	2	174	OMC	C1'-C2'-O2'-CM2
2	2	468	A2M	C1'-C2'-O2'-CM'

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 173 ligands modelled in this entry, 173 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

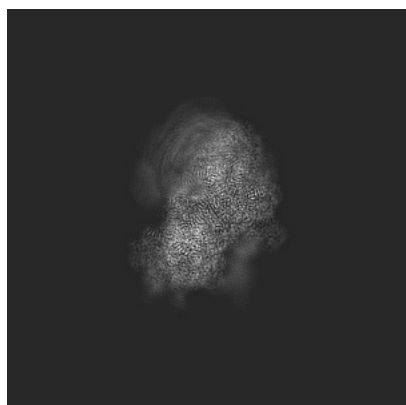
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14317. These allow visual inspection of the internal detail of the map and identification of artifacts.

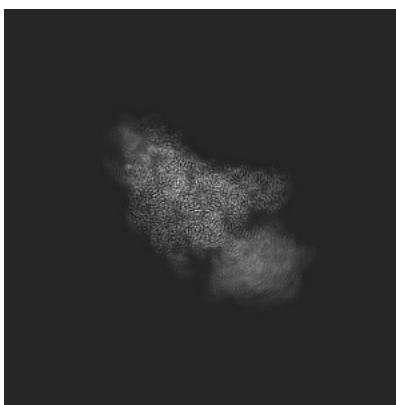
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

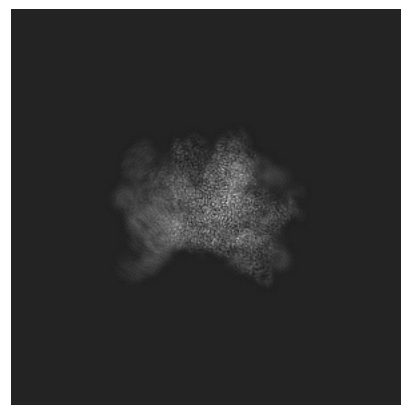
6.1.1 Primary map



X



Y

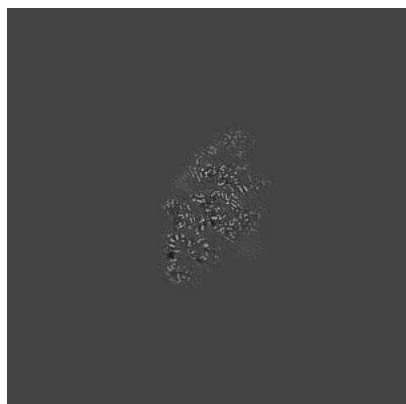


Z

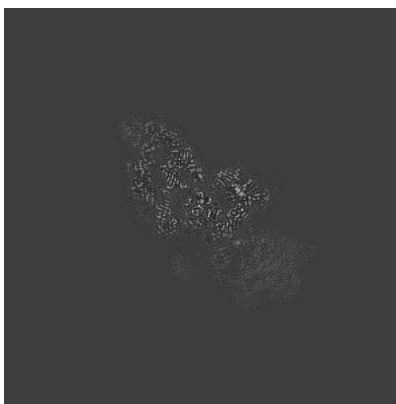
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

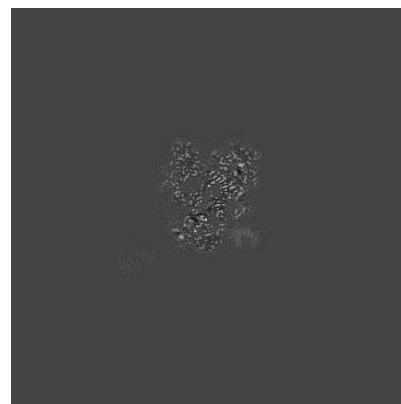
6.2.1 Primary map



X Index: 256



Y Index: 256



Z Index: 256

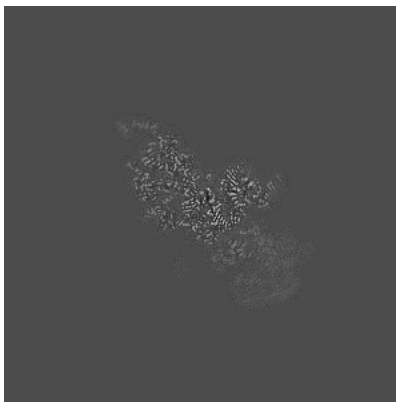
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

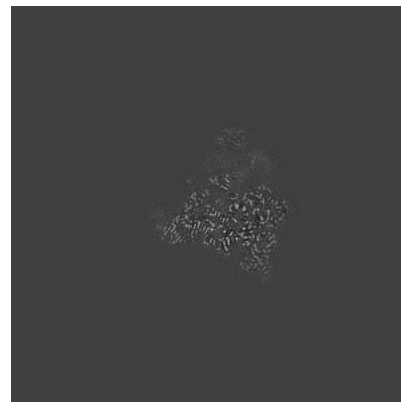
6.3.1 Primary map



X Index: 279



Y Index: 264

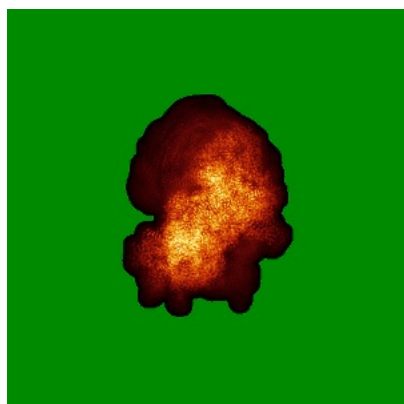


Z Index: 213

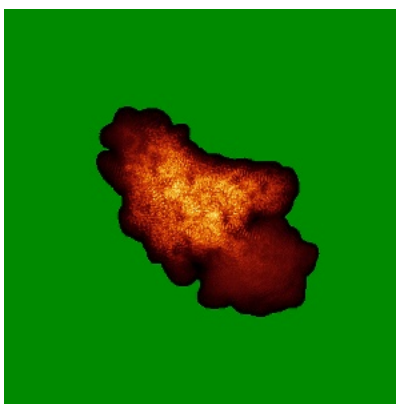
The images above show the largest variance slices of the map in three orthogonal directions.

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

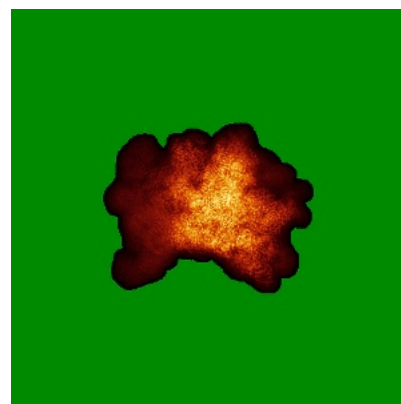
6.4.1 Primary map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

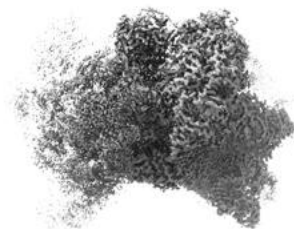
6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.025. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

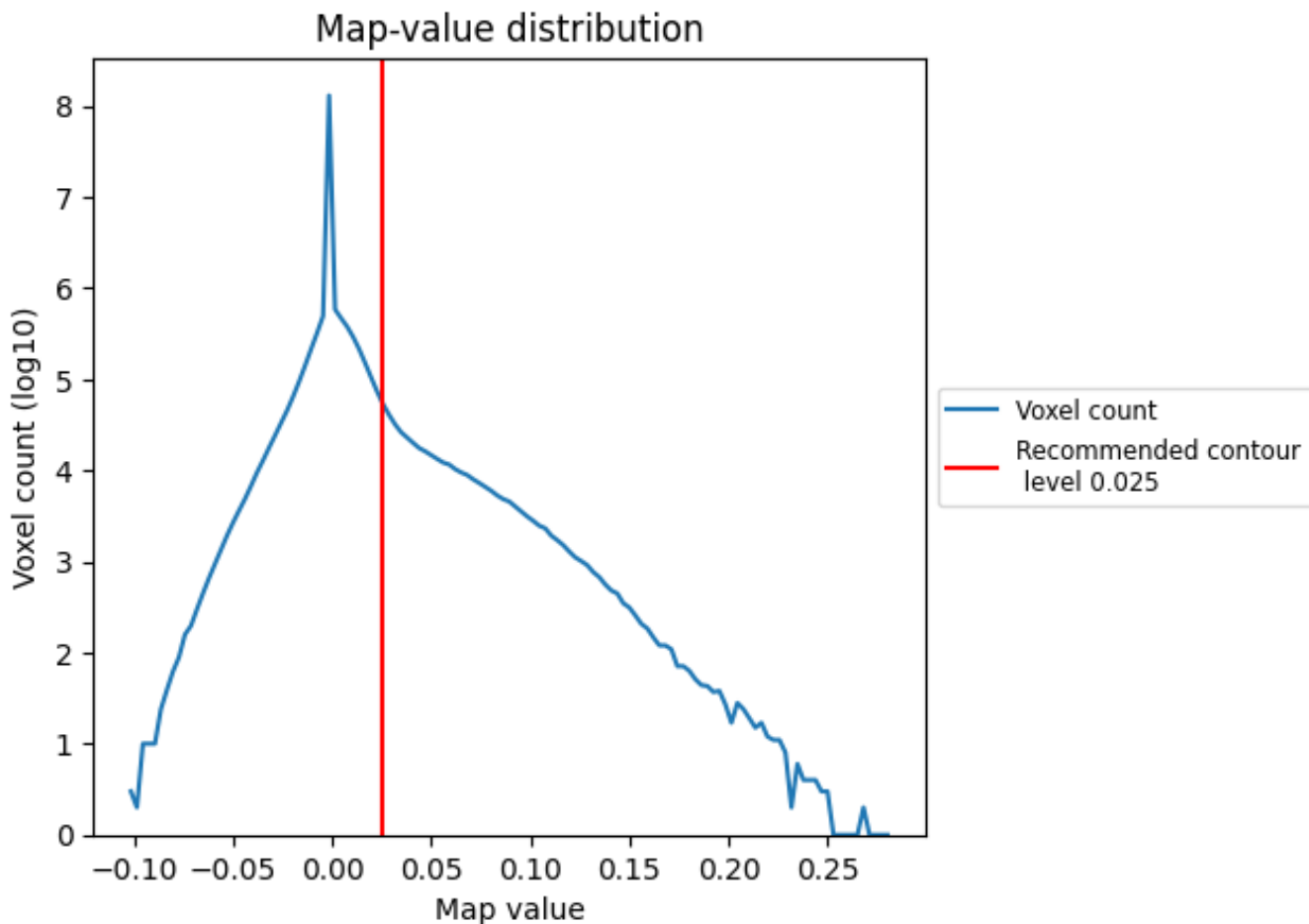
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

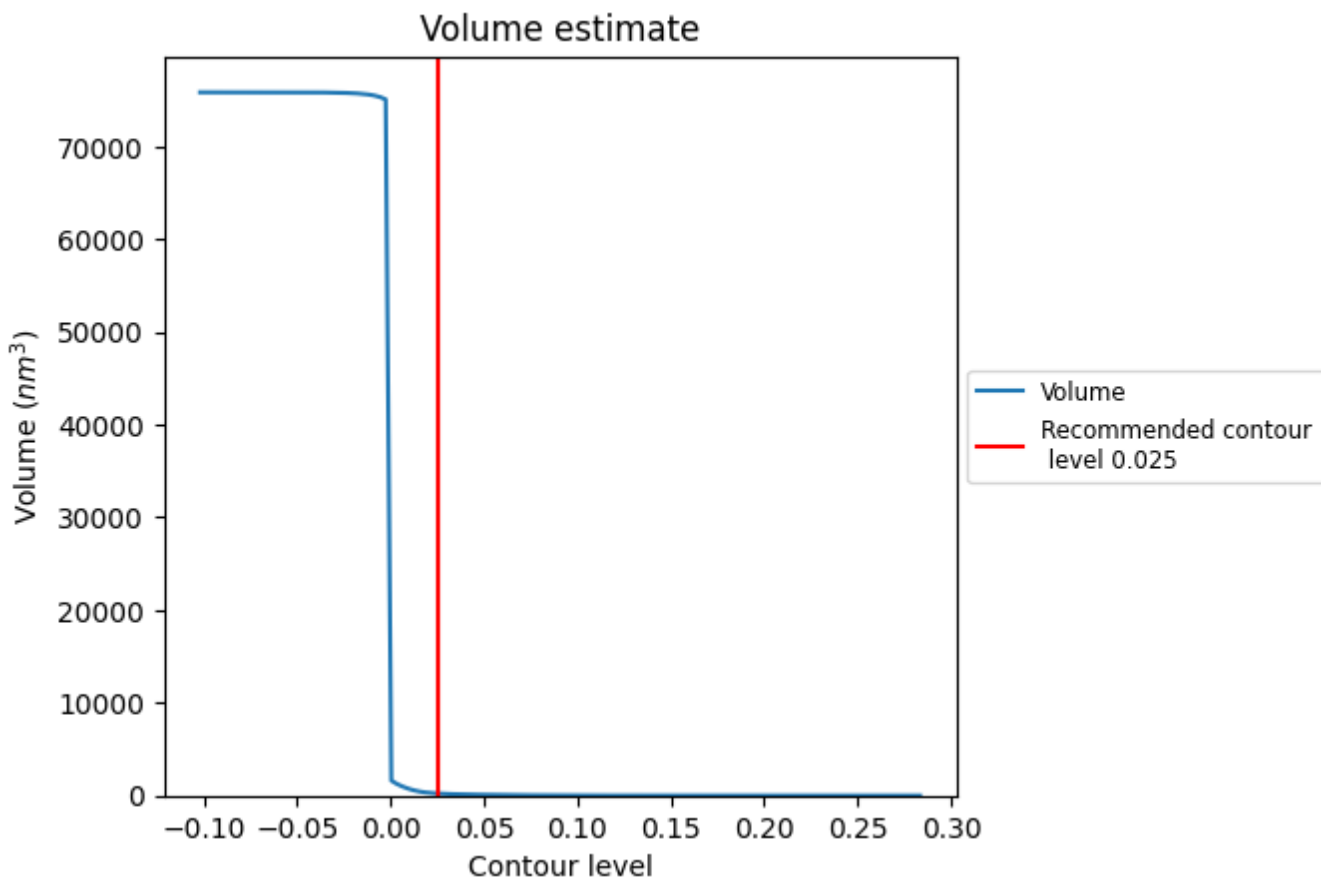
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

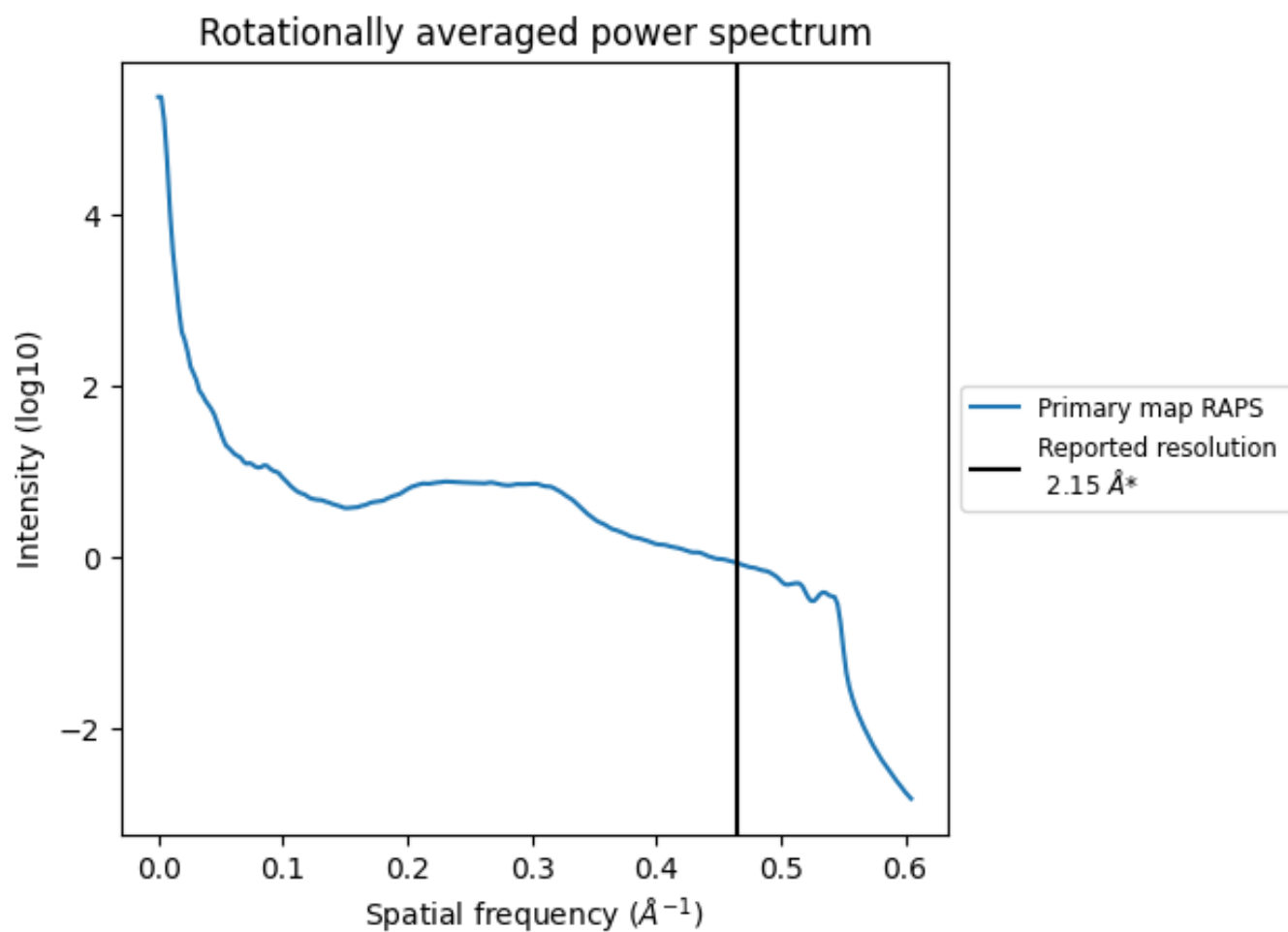
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 225 nm³; this corresponds to an approximate mass of 203 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](#)

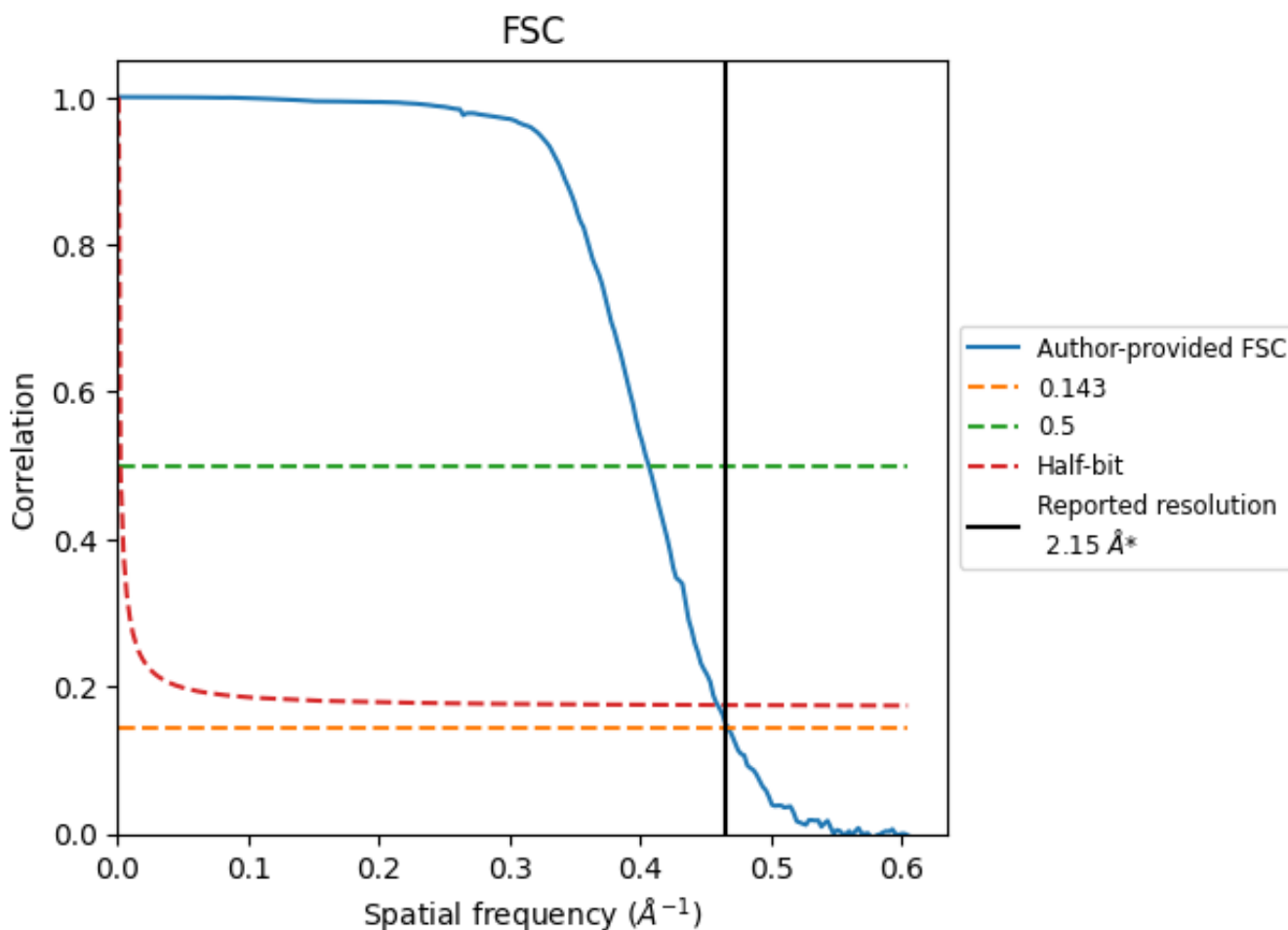


*Reported resolution corresponds to spatial frequency of 0.465 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.465 Å⁻¹

8.2 Resolution estimates [i](#)

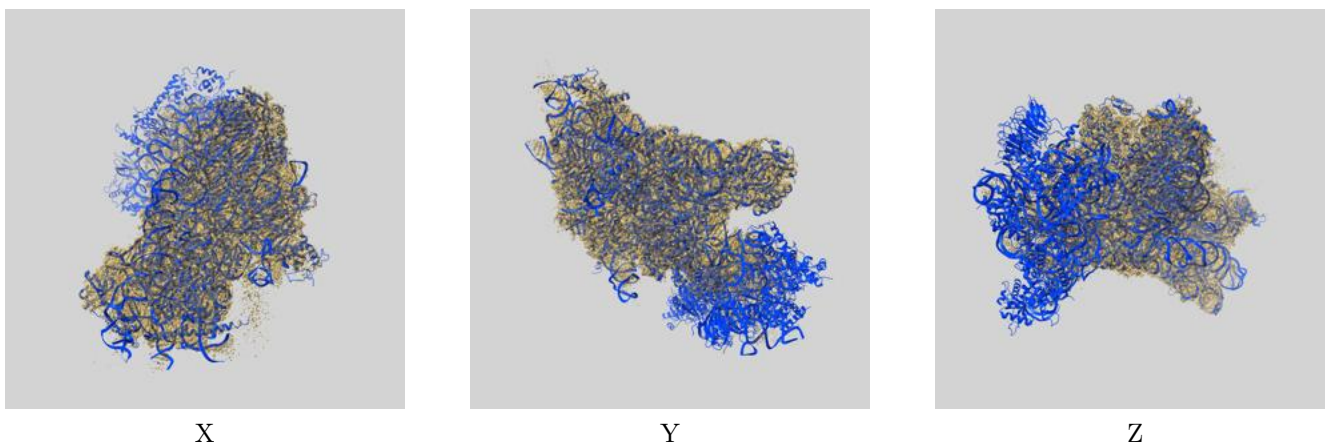
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.15	-	-
Author-provided FSC curve	2.14	2.46	2.18
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit [i](#)

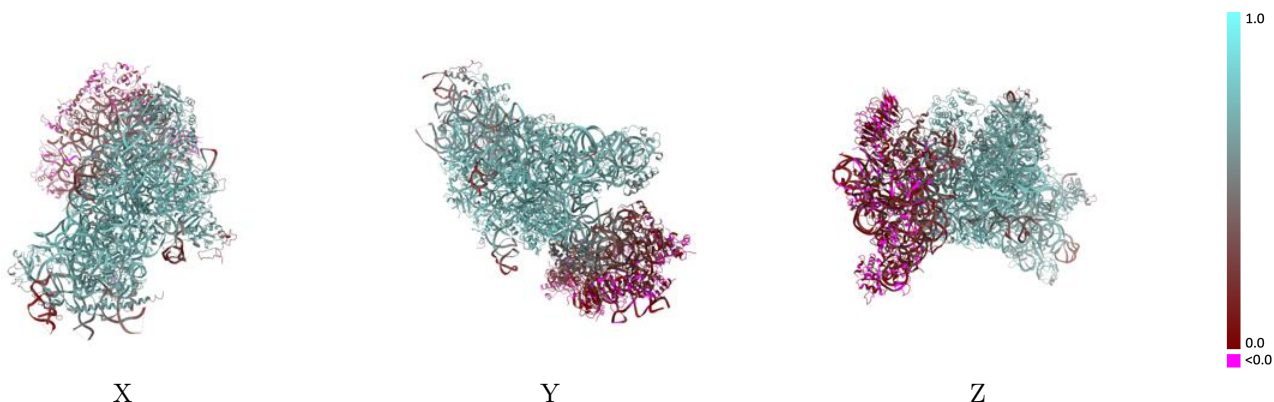
This section contains information regarding the fit between EMDB map EMD-14317 and PDB model 7R4X. Per-residue inclusion information can be found in section 3 on page 13.

9.1 Map-model overlay [i](#)



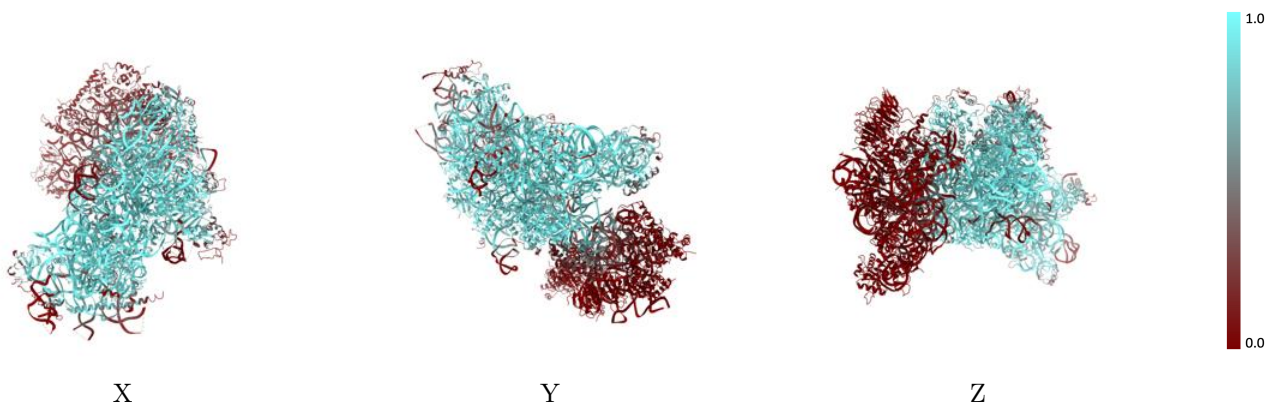
The images above show the 3D surface view of the map at the recommended contour level 0.025 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



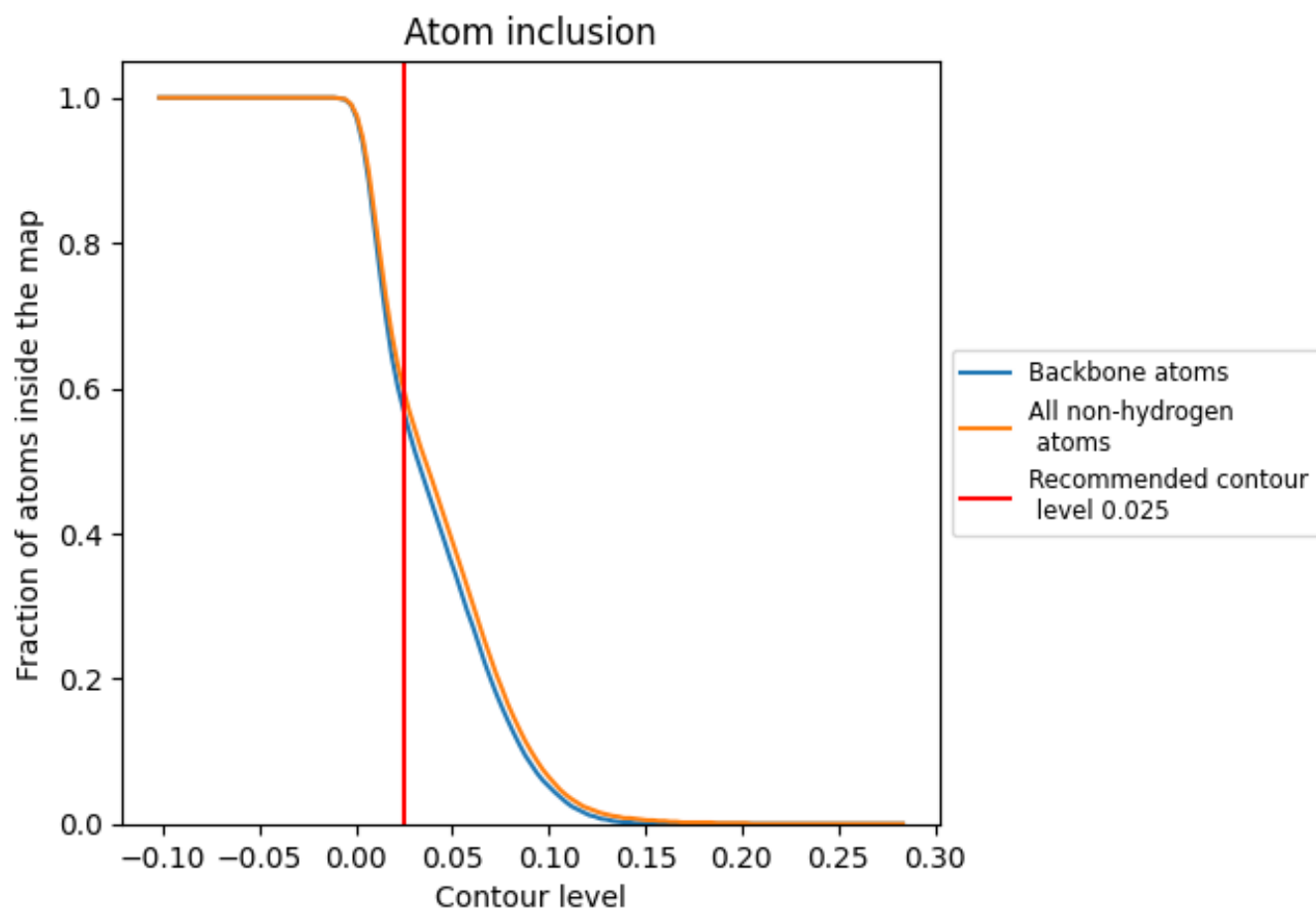
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.025).









































































9.4 Atom inclusion [i](#)



At the recommended contour level, 57% of all backbone atoms, 60% 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 (0.025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5950	 0.5210
2	 0.6770	 0.5580
A	 0.9030	 0.7170
B	 0.7650	 0.6480
C	 0.9130	 0.7440
D	 0.1730	 0.3590
E	 0.9420	 0.7390
F	 0.0210	 0.1930
G	 0.6250	 0.6060
H	 0.5390	 0.5700
I	 0.7720	 0.6420
J	 0.8950	 0.7330
K	 0.0290	 0.1770
L	 0.8970	 0.7170
M	 0.0010	 0.0580
N	 0.8610	 0.6950
O	 0.8390	 0.6690
P	 0.0060	 0.1180
Q	 0.0500	 0.1560
R	 0.2950	 0.4730
S	 0.0050	 0.0860
T	 0.0050	 0.1020
U	 0.1150	 0.2440
V	 0.8940	 0.7250
W	 0.9680	 0.7720
X	 0.9490	 0.7620
Y	 0.8870	 0.7050
Z	 0.0000	 0.0570
a	 0.8450	 0.6970
b	 0.7610	 0.6650
c	 0.0490	 0.2810
d	 0.2170	 0.3440
e	 0.7350	 0.6540
f	 0.0000	 0.0280
g	 0.0070	 0.1120
n	 0.8010	 0.6940

