



wwPDB EM Validation Summary Report ⓘ

Dec 1, 2021 – 01:04 am GMT

PDB ID : 7OHV
EMDB ID : EMD-12910
Title : Nog1-TAP associated immature ribosomal particles from *S. cerevisiae* after rpL2 expression shut down, population C
Authors : Milkereit, P.; Poell, G.
Deposited on : 2021-05-11
Resolution : 3.90 Å (reported)
Based on initial model : 6ELZ

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

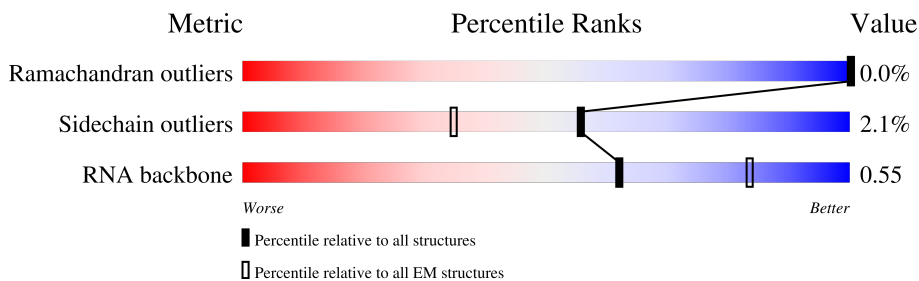
EMDB validation analysis : 0.0.0.dev97
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.23.2

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 3.90 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.






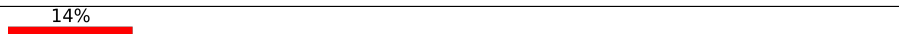
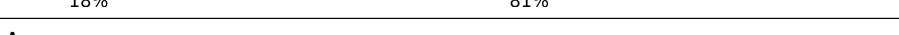
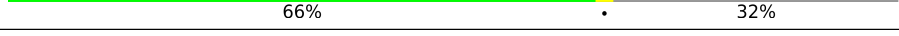

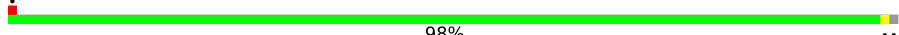

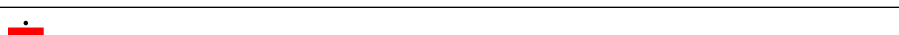
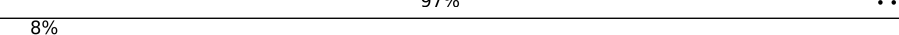




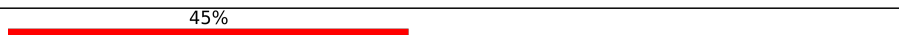


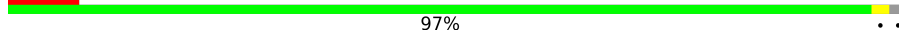



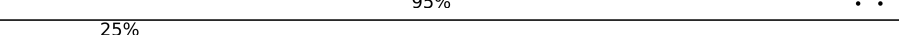


Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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	1	3396	
2	2	158	
3	6	232	
4	A	291	
5	B	387	
6	C	362	
7	D	505	
8	E	176	

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Mol	Chain	Length	Quality of chain
9	F	244	 90% 9%
10	G	256	 70% 28% 5%
11	H	191	 95% 5% 7%
12	J	427	 81% 18% 14%
13	K	376	 66% 32%
14	L	199	 58% 41%
15	M	138	 98%
16	N	204	 91% 9% 7%
17	O	199	 97%
18	P	184	 88% 11% 8%
19	Q	186	 69% 28%
20	R	189	 47% 53% 31%
21	S	172	 95%
22	U	121	 78% 22% 45%
23	V	137	 88% 9% 14%
24	W	236	 97%
25	X	142	 89% 11% 27%
26	Y	127	 97%
27	Z	136	 95% 5% 48%
28	a	149	 48% 51% 25%
29	b	647	 64% 35% 10%
30	d	113	 88% 12% 22%
31	e	130	 93% 5% 6%
32	f	107	 97%
33	h	120	 98%

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Mol	Chain	Length	Quality of chain
34	i	100	
35	j	88	
36	k	78	
37	m	807	
38	n	605	
39	o	220	
40	p	460	
41	r	261	
42	t	322	
43	u	199	
44	v	231	
45	w	841	
46	y	245	

2 Entry composition [i](#)

There are 47 unique types of molecules in this entry. The entry contains 205079 atoms, of which 91259 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 25S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	P		
1	1	2141	68875	20469	23027	8298	14940	2141	0	0

- Molecule 2 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	P		
2	2	155	4955	1472	1664	577	1087	155	0	0

- Molecule 3 is a RNA chain called ITS2.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	P		
3	6	65	2061	614	691	228	463	65	0	0

- Molecule 4 is a protein called Ribosome biogenesis protein BRX1.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
4	A	198	3250	1043	1627	284	290	6	0	0

- Molecule 5 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
5	B	341	5483	1715	2781	501	480	6	0	0

- Molecule 6 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
6	C	359	5584	1720	2853	518	490	3	0	0

- Molecule 7 is a protein called ATP-dependent RNA helicase HAS1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
7	D	437	7106	2247	3620	600	627	12	0	0

- Molecule 8 is a protein called 60S ribosomal protein L6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
8	E	156	2567	800	1328	222	216	1	0	0

- Molecule 9 is a protein called 60S ribosomal protein L7-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
9	F	222	3647	1151	1863	324	308	1	0	0

- Molecule 10 is a protein called 60S ribosomal protein L8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
10	G	184	2960	930	1522	249	257	2	0	0

- Molecule 11 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
11	H	190	3086	957	1576	273	276	4	0	0

- Molecule 12 is a protein called rRNA-processing protein EBP2.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
12	J	79	1318	420	656	116	124	2	0	0

- Molecule 13 is a protein called Proteasome-interacting protein CIC1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
13	K	257	4230	1337	2157	341	392	3	0	0

- Molecule 14 is a protein called 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	H	N	O		
14	L	117	1962	601	1004	202	155	0	0

- Molecule 15 is a protein called 60S ribosomal protein L14-A.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
15	M	136	2203	675	1150	199	177	2	0	0

- Molecule 16 is a protein called 60S ribosomal protein L15-A.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
16	N	186	3224	994	1637	333	259	1	0	0

- Molecule 17 is a protein called 60S ribosomal protein L16-A.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
17	O	197	3215	1003	1660	289	262	1	0	0

- Molecule 18 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	H	N	O		
18	P	163	2608	799	1321	255	233	0	0

- Molecule 19 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
19	Q	134	2151	659	1116	196	179	1	0	0

- Molecule 20 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	H	N	O		
20	R	89	1521	460	796	147	118	0	0

- Molecule 21 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
21	S	170	Total	C	H	N	O	S	0	0
			2903	922	1471	265	242	3		

- Molecule 22 is a protein called 60S ribosomal protein L22-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
22	U	94	Total	C	H	N	O	S	0	0
			1519	489	767	123	140			

- Molecule 23 is a protein called 60S ribosomal protein L23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
23	V	124	Total	C	H	N	O	S	0	0
			1897	584	974	171	161	7		

- Molecule 24 is a protein called Ribosome assembly factor MRT4.

Mol	Chain	Residues	Atoms					AltConf	Trace	
24	W	232	Total	C	H	N	O	S	0	0
			3773	1184	1903	321	360	5		

- Molecule 25 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace	
25	X	127	Total	C	H	N	O	S	0	0
			2076	645	1075	175	179	2		

- Molecule 26 is a protein called 60S ribosomal protein L26-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
26	Y	126	Total	C	H	N	O	S	0	0
			2075	625	1082	192	176			

- Molecule 27 is a protein called 60S ribosomal protein L27-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
27	Z	130	Total	C	H	N	O	S	0	0
			2154	680	1105	195	174			

- Molecule 28 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	H	N	O		
28	a	73	1188	375	618	98	97	0	0

- Molecule 29 is a protein called Nucleolar GTP-binding protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
29	b	421	6876	2180	3466	585	627	18	0	0

- Molecule 30 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
30	d	100	1687	521	871	157	137	1	0	0

- Molecule 31 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
31	e	124	2071	635	1070	202	163	1	0	0

- Molecule 32 is a protein called 60S ribosomal protein L33-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
32	f	106	1731	540	881	165	144	1	0	0

- Molecule 33 is a protein called 60S ribosomal protein L35-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
33	h	118	2038	612	1074	185	166	1	0	0

- Molecule 34 is a protein called 60S ribosomal protein L36-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
34	i	83	1371	408	713	135	113	2	0	0

- Molecule 35 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace	
35	j	73	Total	C	H	N	O	S	0	0
			1169	353	589	126	96	5		

- Molecule 36 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	k	63	Total	C	H	N	O	0	0
			1123	340	600	99	84		

- Molecule 37 is a protein called Ribosome biogenesis protein ERB1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
37	m	583	Total	C	H	N	O	S	0	0
			9518	3033	4766	834	870	15		

- Molecule 38 is a protein called Pescadillo homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace	
38	n	411	Total	C	H	N	O	S	0	0
			6868	2179	3499	585	592	13		

- Molecule 39 is a protein called Ribosome biogenesis protein 15.

Mol	Chain	Residues	Atoms					AltConf	Trace	
39	o	133	Total	C	H	N	O	S	0	0
			2267	716	1160	198	189	4		

- Molecule 40 is a protein called Ribosome biogenesis protein YTM1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
40	p	257	Total	C	H	N	O	S	0	0
			3984	1247	1990	353	388	6		

- Molecule 41 is a protein called Ribosome biogenesis protein NSA2.

Mol	Chain	Residues	Atoms					AltConf	Trace	
41	r	73	Total	C	H	N	O	S	0	0
			1288	388	660	133	106	1		

- Molecule 42 is a protein called Ribosome biogenesis protein RLP7.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
42	t	286	4752	1455	2455	426	413	3	0	0

- Molecule 43 is a protein called Ribosome biogenesis protein RLP24.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
43	u	116	1987	612	1011	200	155	9	0	0

- Molecule 44 is a protein called Nucleolar protein 16.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
44	v	130	2223	678	1136	211	195	3	0	0

- Molecule 45 is a protein called 27S pre-rRNA (guanosine(2922)-2'-O)-methyltransferase.

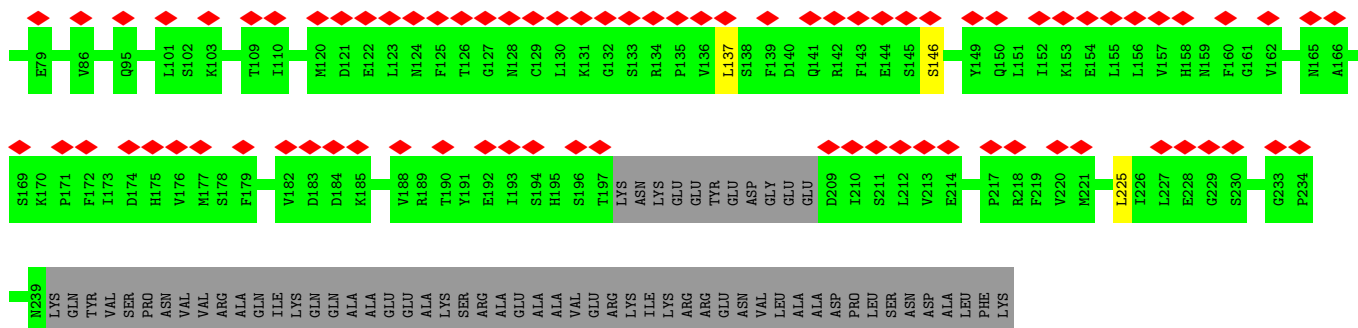
Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
45	w	69	1136	351	577	105	100	3	0	0

- Molecule 46 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
46	y	225	3398	1056	1697	295	343	7	0	0

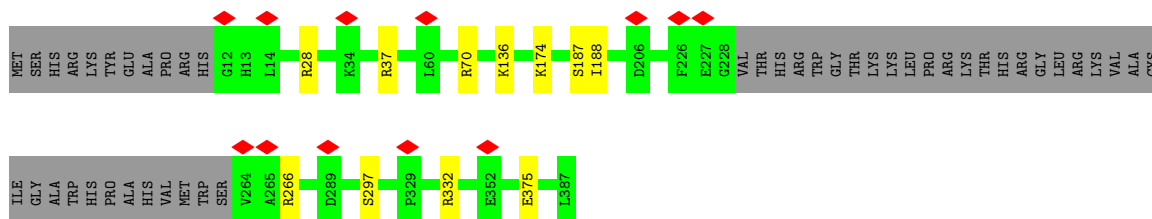
- Molecule 47 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
47	j	1	1	1	0



• Molecule 5: 60S ribosomal protein L3

Chain B: 85% 12%



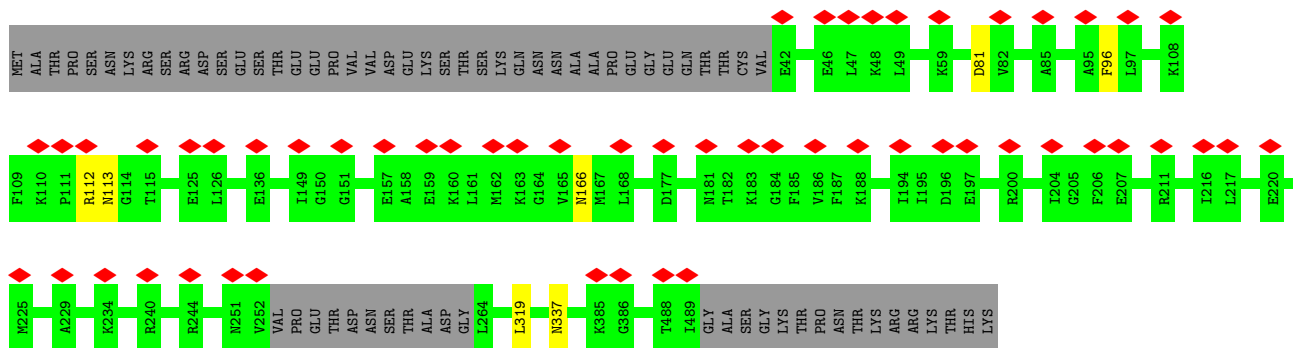
• Molecule 6: 60S ribosomal protein L4-A

Chain C: 98% 6%



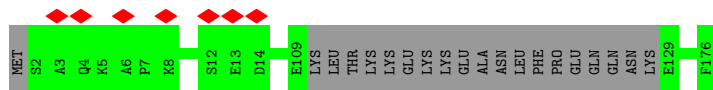
• Molecule 7: ATP-dependent RNA helicase HAS1

Chain D: 85% 11% 13%

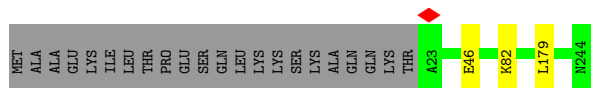


• Molecule 8: 60S ribosomal protein L6-A

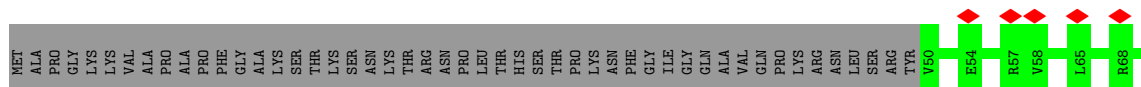
Chain E: 89% 11%



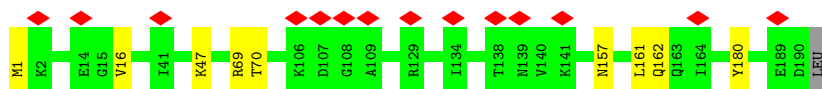
• Molecule 9: 60S ribosomal protein L7-A



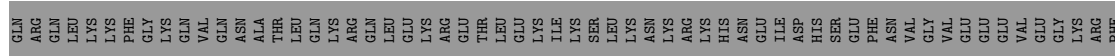
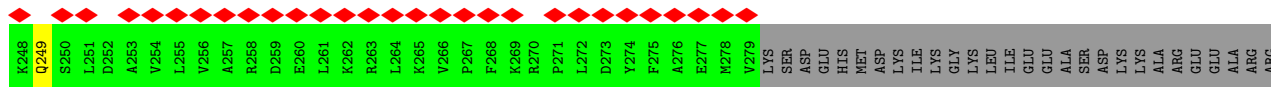
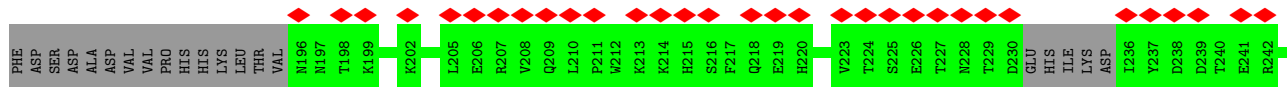
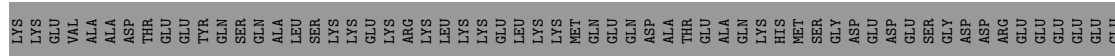
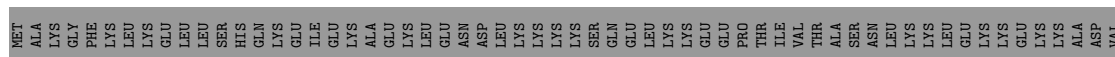
• Molecule 10: 60S ribosomal protein L8-A

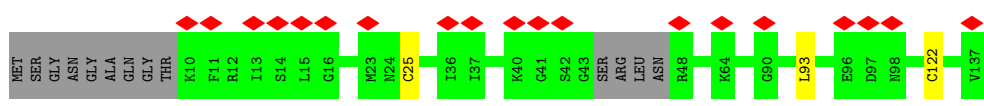
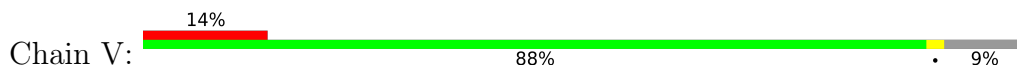


• Molecule 11: 60S ribosomal protein L9-A

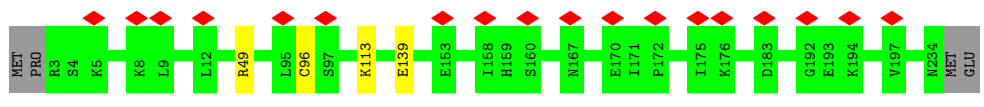


• Molecule 12: rRNA-processing protein EBP2

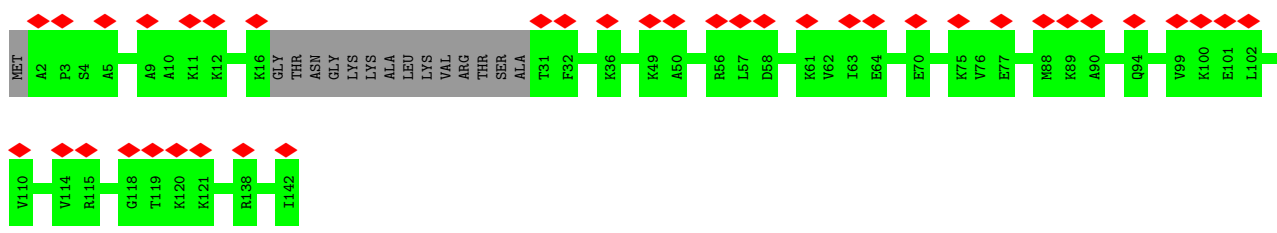
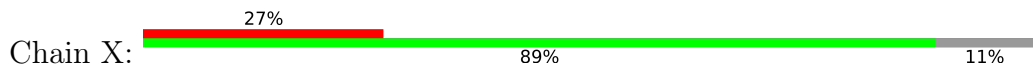




• Molecule 24: Ribosome assembly factor MRT4



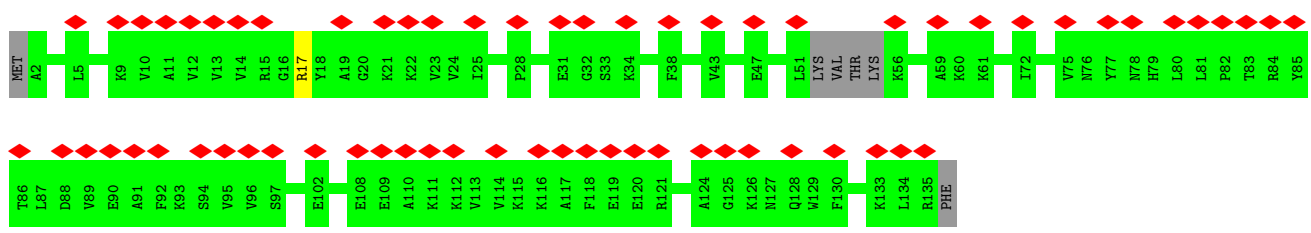
• Molecule 25: 60S ribosomal protein L25



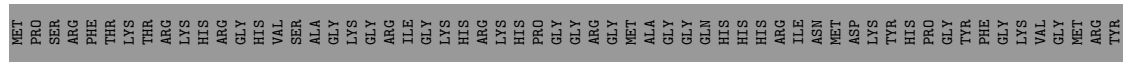
• Molecule 26: 60S ribosomal protein L26-A

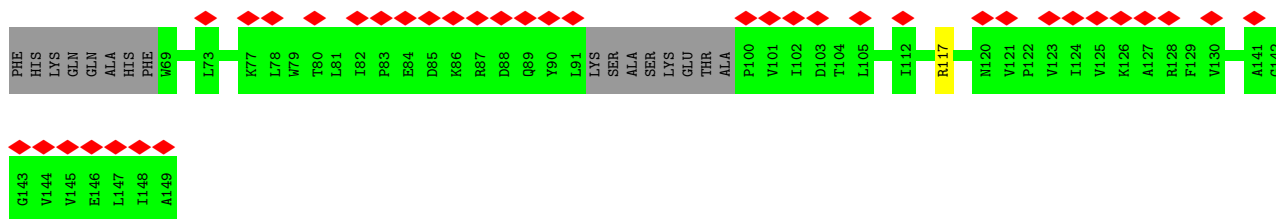


• Molecule 27: 60S ribosomal protein L27-A

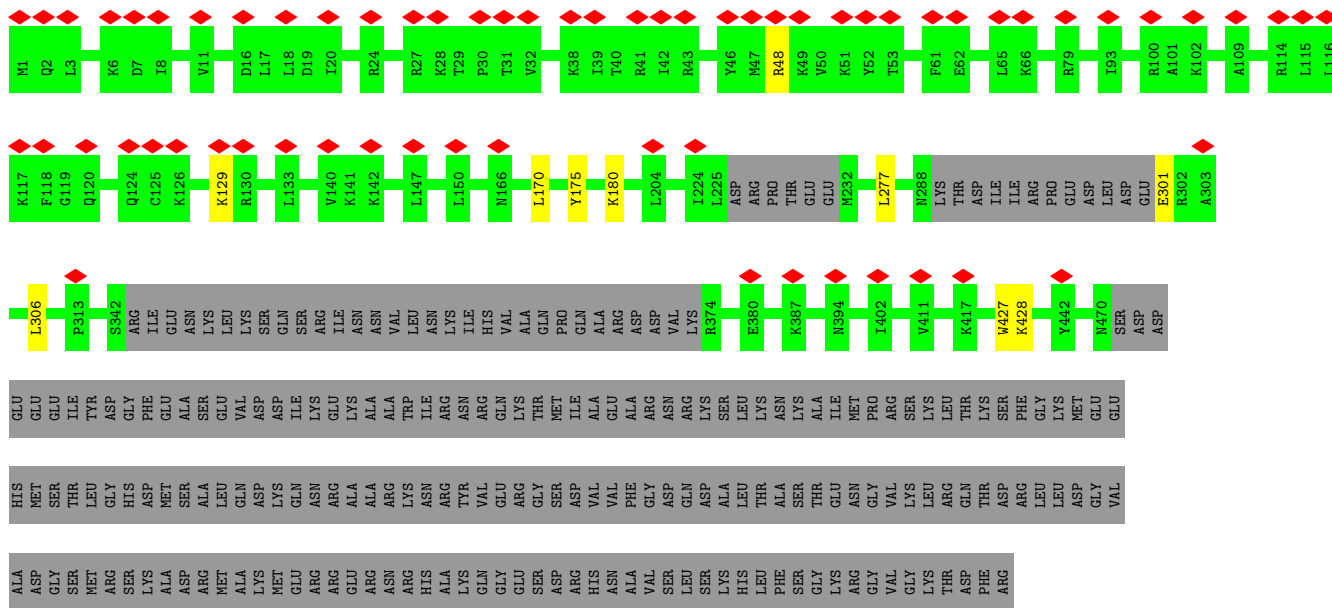


• Molecule 28: 60S ribosomal protein L28

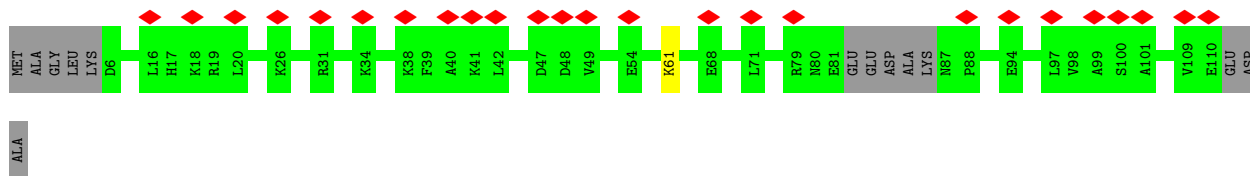
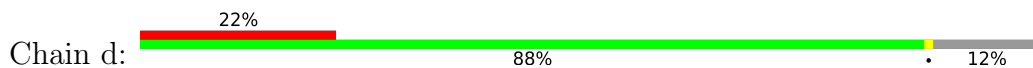




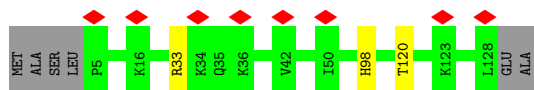
• Molecule 29: Nucleolar GTP-binding protein 1



• Molecule 30: 60S ribosomal protein L31-A

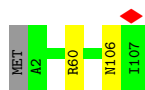


• Molecule 31: 60S ribosomal protein L32

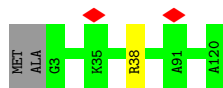


• Molecule 32: 60S ribosomal protein L33-A

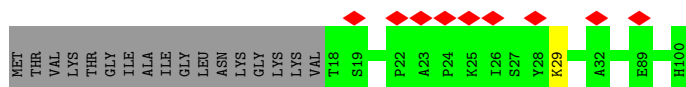
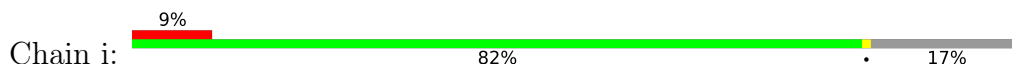




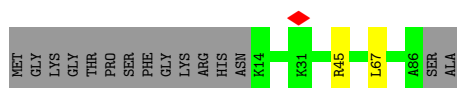
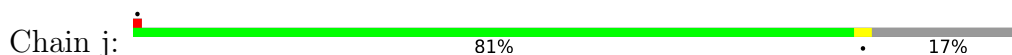
- Molecule 33: 60S ribosomal protein L35-A



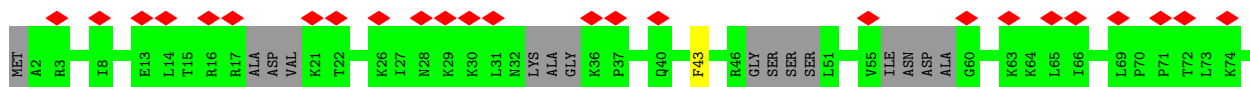
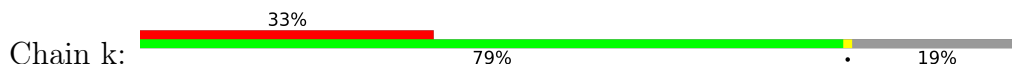
- Molecule 34: 60S ribosomal protein L36-A



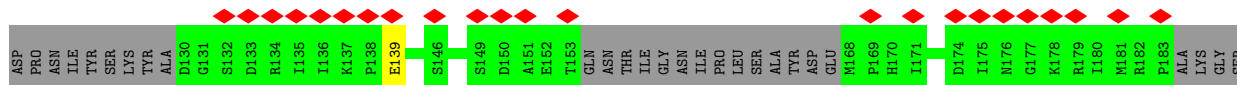
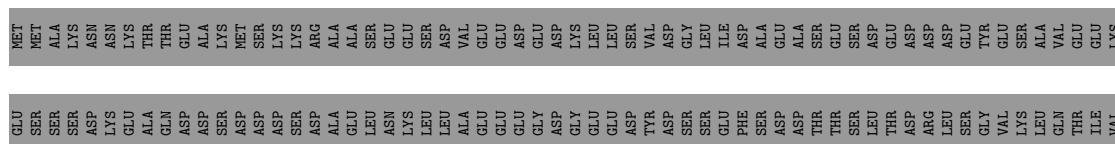
- Molecule 35: 60S ribosomal protein L37-A

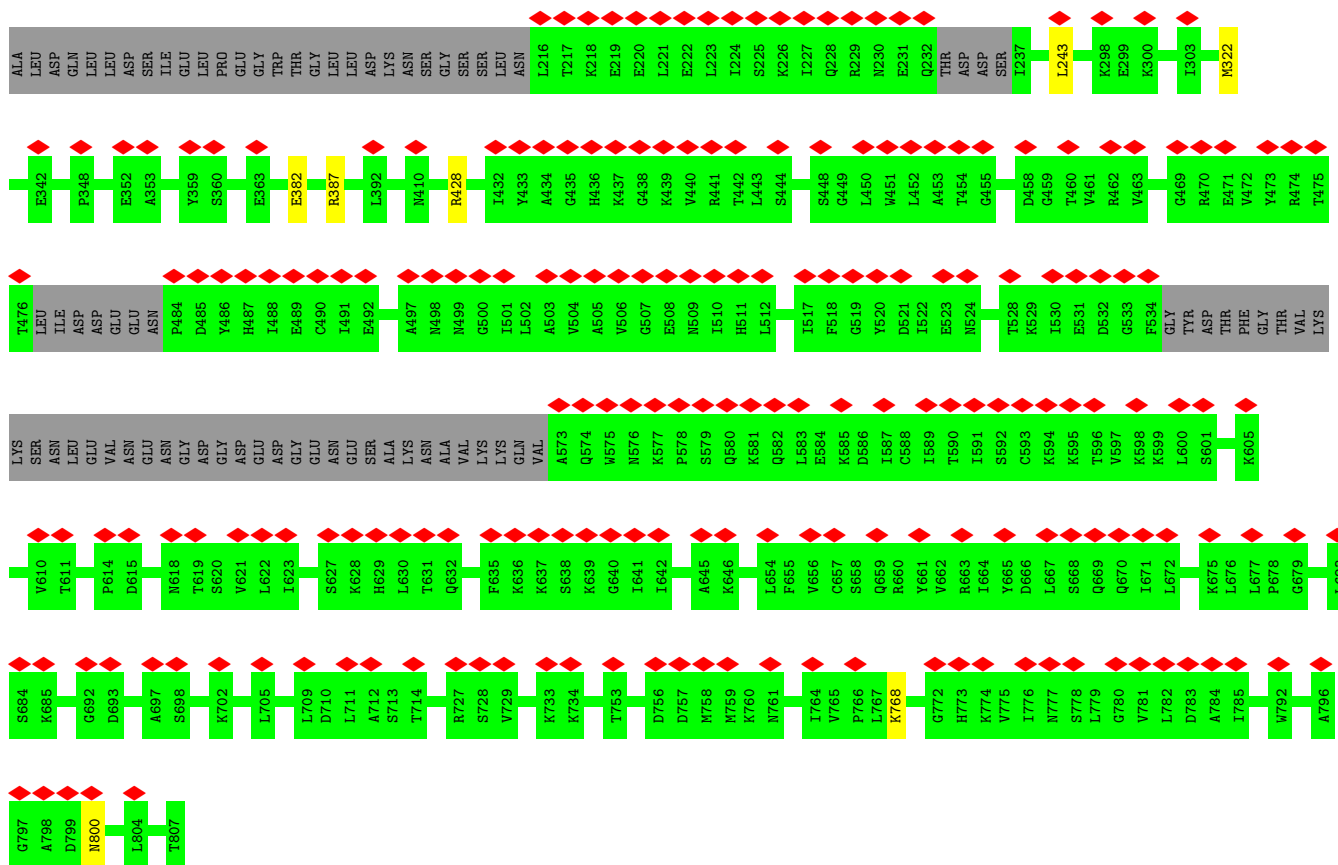


- Molecule 36: 60S ribosomal protein L38

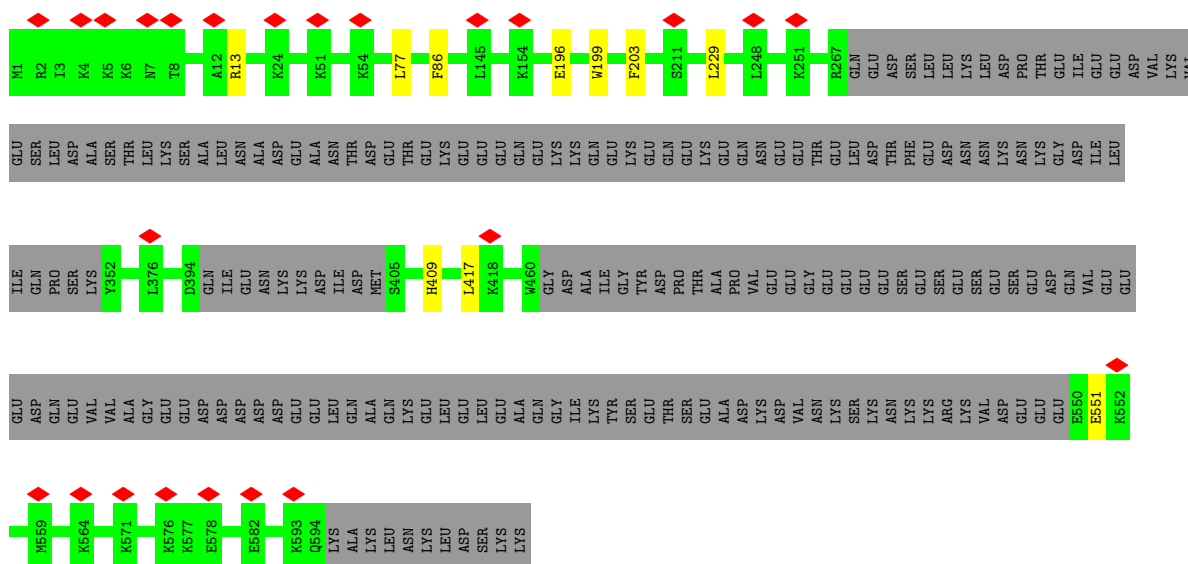


- Molecule 37: Ribosome biogenesis protein ERB1



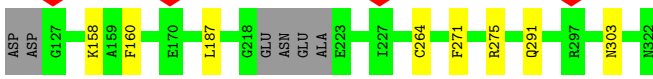
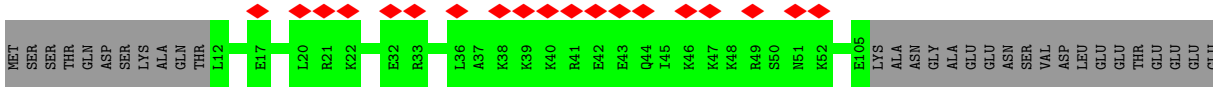


• Molecule 38: Pescadillo homolog

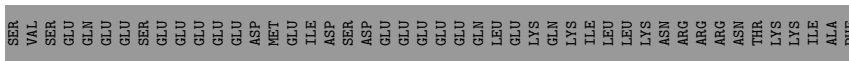
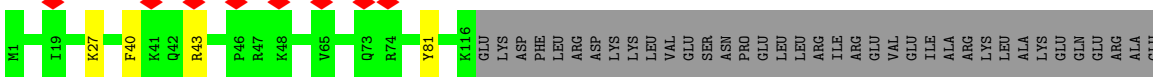


• Molecule 39: Ribosome biogenesis protein 15

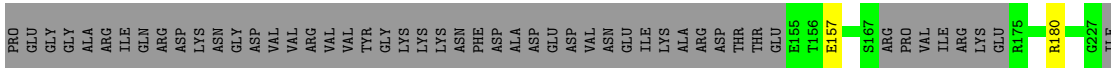
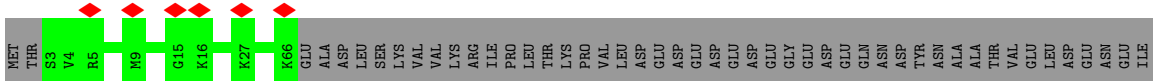




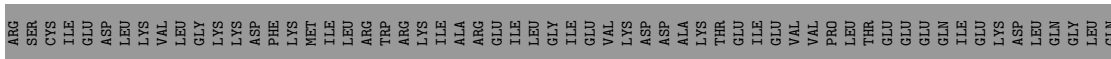
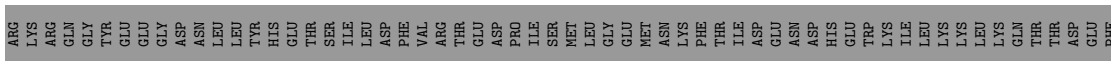
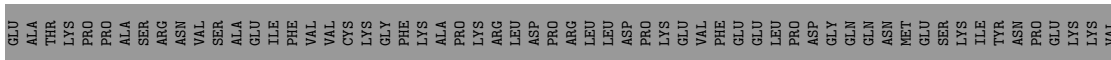
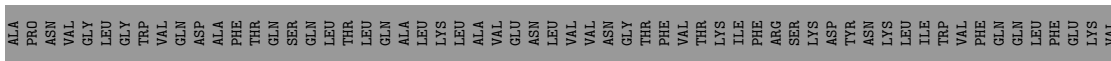
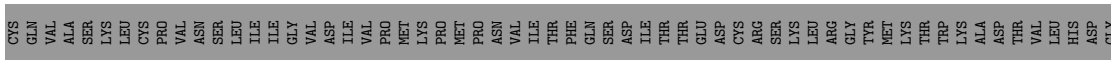
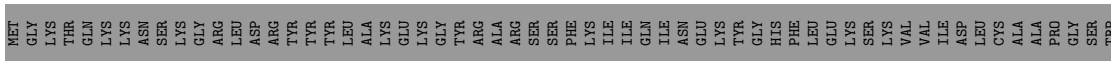
• Molecule 43: Ribosome biogenesis protein RLP24

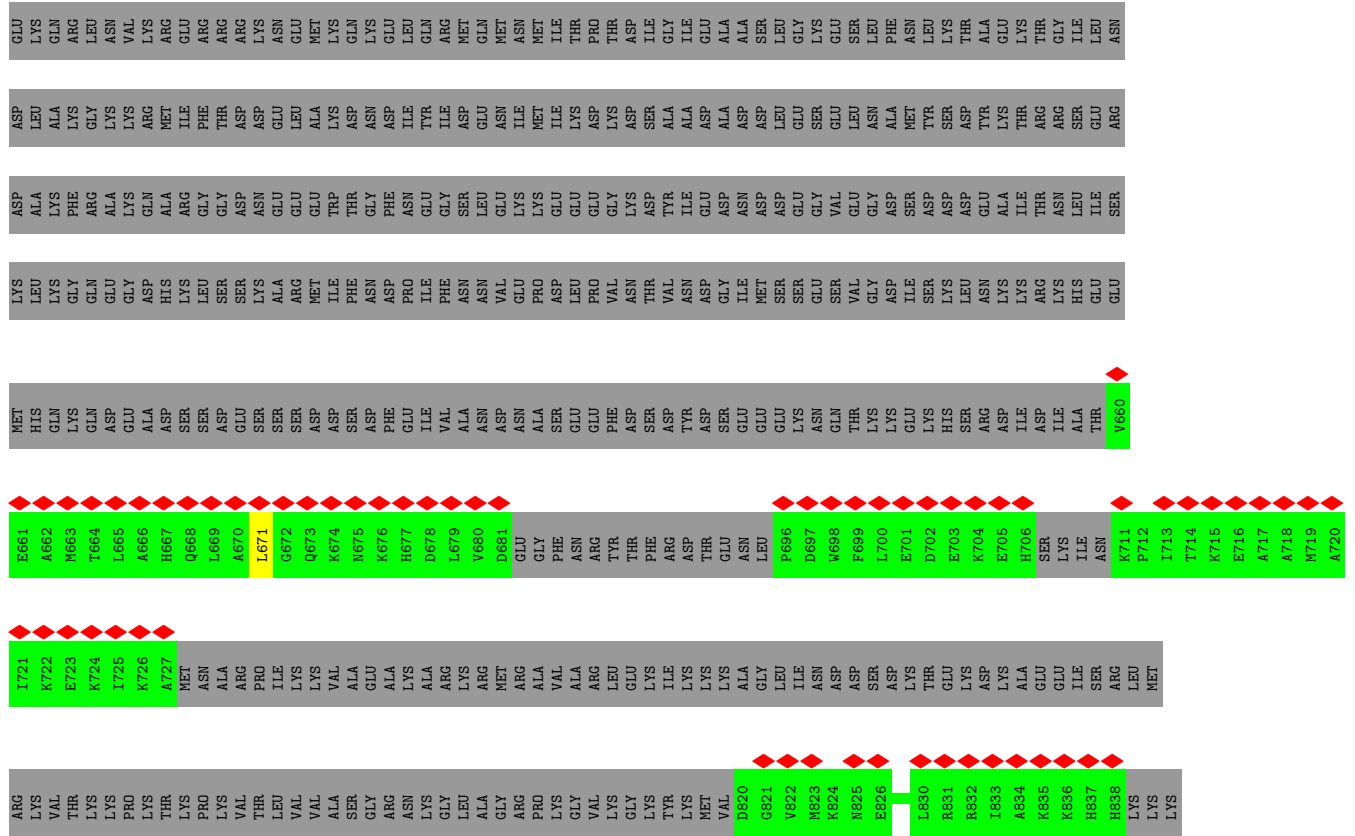


• Molecule 44: Nucleolar protein 16

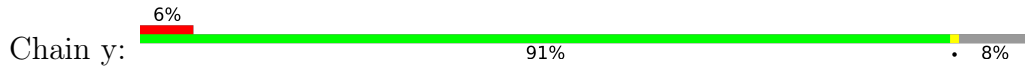


• Molecule 45: 27S pre-rRNA (guanosine(2922)-2'-O)-methyltransferase





• Molecule 46: Eukaryotic translation initiation factor 6



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	19178	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 ($e^-/\text{\AA}^2$)	86.45	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	0.118	Depositor
Minimum map value	-0.038	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.021	Depositor
Map size (Å)	425.40002, 425.40002, 425.40002	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0635, 1.0635, 1.0635	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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	1	0.15	0/51295	0.74	47/79910 (0.1%)
2	2	0.15	0/3676	0.74	3/5721 (0.1%)
3	6	0.17	0/1527	0.79	3/2371 (0.1%)
4	A	0.24	0/1663	0.40	0/2248
5	B	0.24	0/2756	0.41	0/3702
6	C	0.23	0/2782	0.41	0/3766
7	D	0.24	0/3552	0.39	0/4789
8	E	0.24	0/1260	0.40	0/1694
9	F	0.25	0/1821	0.40	0/2451
10	G	0.25	0/1463	0.39	0/1978
11	H	0.23	0/1531	0.42	0/2062
12	J	0.24	0/675	0.39	0/908
13	K	0.24	0/2107	0.40	0/2845
14	L	0.23	0/976	0.38	0/1311
15	M	0.24	0/1068	0.39	0/1438
16	N	0.23	0/1619	0.39	0/2166
17	O	0.24	0/1585	0.38	0/2128
18	P	0.23	0/1306	0.40	0/1752
19	Q	0.24	0/1050	0.40	0/1419
20	R	0.23	0/733	0.36	0/980
21	S	0.24	0/1468	0.41	0/1973
22	U	0.25	0/767	0.41	0/1038
23	V	0.25	0/937	0.43	0/1259
24	W	0.24	0/1902	0.42	0/2564
25	X	0.24	0/1016	0.39	0/1369
26	Y	0.24	0/1004	0.40	0/1341
27	Z	0.25	0/1073	0.41	0/1436
28	a	0.24	0/580	0.40	0/784
29	b	0.24	0/3474	0.39	0/4683
30	d	0.24	0/829	0.40	0/1112
31	e	0.23	0/1022	0.40	0/1367
32	f	0.24	0/868	0.41	0/1168

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	h	0.24	0/973	0.38	0/1294
34	i	0.23	0/665	0.37	0/884
35	j	0.24	0/592	0.40	0/785
36	k	0.24	0/525	0.39	0/694
37	m	0.23	0/4874	0.41	0/6600
38	n	0.24	0/3441	0.37	0/4625
39	o	0.24	0/1129	0.38	0/1502
40	p	0.23	0/2027	0.43	0/2744
41	r	0.23	0/638	0.36	0/837
42	t	0.23	0/2323	0.39	0/3113
43	u	0.24	0/996	0.39	0/1324
44	v	0.23	0/1100	0.36	0/1456
45	w	0.22	0/565	0.32	0/748
46	y	0.23	0/1722	0.43	0/2343
All	All	0.20	0/120955	0.60	53/174682 (0.0%)

There are no bond length outliers.

The worst 5 of 53 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	1254	C	N3-C2-O2	-7.36	116.75	121.90
1	1	1718	G	OP1-P-OP2	-6.89	109.27	119.60
1	1	1	G	OP1-P-OP2	-6.82	109.37	119.60
1	1	2419	A	OP1-P-OP2	-6.81	109.38	119.60
1	1	1560	G	OP1-P-OP2	-6.80	109.40	119.60

There are no chirality outliers.

There are no planarity outliers.

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	
4	A	192/291 (66%)	185 (96%)	7 (4%)	0	100	100
5	B	337/387 (87%)	326 (97%)	10 (3%)	1 (0%)	41	75
6	C	357/362 (99%)	344 (96%)	13 (4%)	0	100	100
7	D	433/505 (86%)	419 (97%)	14 (3%)	0	100	100
8	E	152/176 (86%)	145 (95%)	7 (5%)	0	100	100
9	F	220/244 (90%)	212 (96%)	8 (4%)	0	100	100
10	G	180/256 (70%)	172 (96%)	8 (4%)	0	100	100
11	H	188/191 (98%)	182 (97%)	6 (3%)	0	100	100
12	J	75/427 (18%)	75 (100%)	0	0	100	100
13	K	253/376 (67%)	245 (97%)	8 (3%)	0	100	100
14	L	115/199 (58%)	106 (92%)	9 (8%)	0	100	100
15	M	134/138 (97%)	133 (99%)	1 (1%)	0	100	100
16	N	182/204 (89%)	176 (97%)	6 (3%)	0	100	100
17	O	195/199 (98%)	191 (98%)	4 (2%)	0	100	100
18	P	157/184 (85%)	152 (97%)	5 (3%)	0	100	100
19	Q	132/186 (71%)	129 (98%)	3 (2%)	0	100	100
20	R	85/189 (45%)	85 (100%)	0	0	100	100
21	S	168/172 (98%)	159 (95%)	9 (5%)	0	100	100
22	U	90/121 (74%)	87 (97%)	3 (3%)	0	100	100
23	V	120/137 (88%)	116 (97%)	4 (3%)	0	100	100
24	W	230/236 (98%)	226 (98%)	4 (2%)	0	100	100
25	X	123/142 (87%)	119 (97%)	4 (3%)	0	100	100
26	Y	124/127 (98%)	123 (99%)	1 (1%)	0	100	100
27	Z	126/136 (93%)	122 (97%)	4 (3%)	0	100	100
28	a	69/149 (46%)	68 (99%)	1 (1%)	0	100	100
29	b	413/647 (64%)	401 (97%)	12 (3%)	0	100	100
30	d	96/113 (85%)	96 (100%)	0	0	100	100
31	e	122/130 (94%)	120 (98%)	2 (2%)	0	100	100
32	f	104/107 (97%)	100 (96%)	4 (4%)	0	100	100
33	h	116/120 (97%)	109 (94%)	7 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
34	i	81/100 (81%)	74 (91%)	7 (9%)	0	100	100
35	j	71/88 (81%)	70 (99%)	1 (1%)	0	100	100
36	k	53/78 (68%)	53 (100%)	0	0	100	100
37	m	571/807 (71%)	558 (98%)	13 (2%)	0	100	100
38	n	403/605 (67%)	394 (98%)	9 (2%)	0	100	100
39	o	131/220 (60%)	126 (96%)	5 (4%)	0	100	100
40	p	243/460 (53%)	234 (96%)	9 (4%)	0	100	100
41	r	71/261 (27%)	66 (93%)	5 (7%)	0	100	100
42	t	280/322 (87%)	265 (95%)	15 (5%)	0	100	100
43	u	114/199 (57%)	110 (96%)	4 (4%)	0	100	100
44	v	124/231 (54%)	120 (97%)	4 (3%)	0	100	100
45	w	61/841 (7%)	61 (100%)	0	0	100	100
46	y	223/245 (91%)	217 (97%)	6 (3%)	0	100	100
All	All	7714/11308 (68%)	7471 (97%)	242 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	B	188	ILE

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	A	185/263 (70%)	182 (98%)	3 (2%)	62	79
5	B	284/323 (88%)	274 (96%)	10 (4%)	36	62
6	C	286/289 (99%)	280 (98%)	6 (2%)	53	73
7	D	381/440 (87%)	374 (98%)	7 (2%)	59	77
8	E	134/153 (88%)	134 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	F	186/205 (91%)	183 (98%)	3 (2%)	62	79
10	G	150/208 (72%)	145 (97%)	5 (3%)	38	63
11	H	170/171 (99%)	161 (95%)	9 (5%)	22	52
12	J	73/383 (19%)	72 (99%)	1 (1%)	67	81
13	K	238/346 (69%)	231 (97%)	7 (3%)	42	65
14	L	96/159 (60%)	95 (99%)	1 (1%)	76	86
15	M	107/109 (98%)	106 (99%)	1 (1%)	78	87
16	N	161/176 (92%)	161 (100%)	0	100	100
17	O	160/162 (99%)	156 (98%)	4 (2%)	47	69
18	P	131/146 (90%)	130 (99%)	1 (1%)	81	89
19	Q	110/151 (73%)	105 (96%)	5 (4%)	27	56
20	R	76/154 (49%)	75 (99%)	1 (1%)	69	82
21	S	155/156 (99%)	149 (96%)	6 (4%)	32	59
22	U	83/107 (78%)	83 (100%)	0	100	100
23	V	96/105 (91%)	93 (97%)	3 (3%)	40	64
24	W	209/213 (98%)	205 (98%)	4 (2%)	57	75
25	X	107/118 (91%)	107 (100%)	0	100	100
26	Y	109/110 (99%)	106 (97%)	3 (3%)	43	66
27	Z	110/116 (95%)	109 (99%)	1 (1%)	78	87
28	a	60/119 (50%)	59 (98%)	1 (2%)	60	78
29	b	377/573 (66%)	367 (97%)	10 (3%)	44	67
30	d	88/97 (91%)	87 (99%)	1 (1%)	73	84
31	e	107/111 (96%)	104 (97%)	3 (3%)	43	66
32	f	90/91 (99%)	88 (98%)	2 (2%)	52	71
33	h	104/105 (99%)	103 (99%)	1 (1%)	76	86
34	i	69/82 (84%)	68 (99%)	1 (1%)	67	81
35	j	60/71 (84%)	58 (97%)	2 (3%)	38	63
36	k	59/69 (86%)	58 (98%)	1 (2%)	60	78
37	m	529/723 (73%)	521 (98%)	8 (2%)	65	80
38	n	371/548 (68%)	361 (97%)	10 (3%)	44	67
39	o	118/199 (59%)	117 (99%)	1 (1%)	81	89

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
40	p	229/413 (55%)	226 (99%)	3 (1%)	69	82
41	r	65/229 (28%)	64 (98%)	1 (2%)	65	80
42	t	256/287 (89%)	248 (97%)	8 (3%)	40	64
43	u	101/180 (56%)	97 (96%)	4 (4%)	31	58
44	v	116/205 (57%)	114 (98%)	2 (2%)	60	78
45	w	58/745 (8%)	57 (98%)	1 (2%)	60	78
46	y	193/211 (92%)	190 (98%)	3 (2%)	62	79
All	All	6847/9821 (70%)	6703 (98%)	144 (2%)	56	73

5 of 144 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
38	n	199	TRP
46	y	215	LEU
38	n	417	LEU
42	t	271	PHE
13	K	253	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 29 such sidechains are listed below:

Mol	Chain	Res	Type
22	U	87	ASN
46	y	33	ASN
27	Z	40	HIS
37	m	307	GLN
26	Y	4	GLN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2115/3396 (62%)	372 (17%)	42 (1%)
2	2	153/158 (96%)	27 (17%)	2 (1%)
3	6	64/232 (27%)	20 (31%)	4 (6%)
All	All	2332/3786 (61%)	419 (17%)	48 (2%)

5 of 419 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	2	U
1	1	7	C
1	1	14	U
1	1	16	A
1	1	26	A

5 of 48 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	1765	U
1	1	3079	U
1	1	1807	G
1	1	2887	A
1	1	3228	C

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 1 ligands modelled in this entry, 1 is 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.

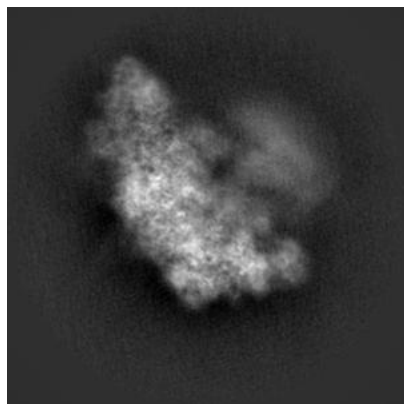
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-12910. These allow visual inspection of the internal detail of the map and identification of artifacts.

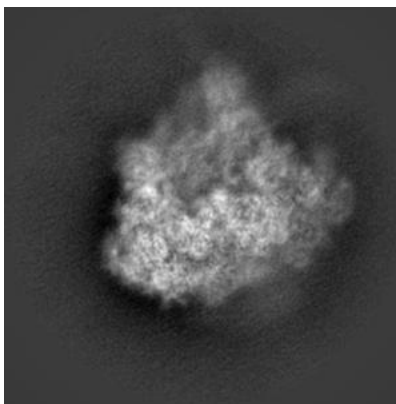
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

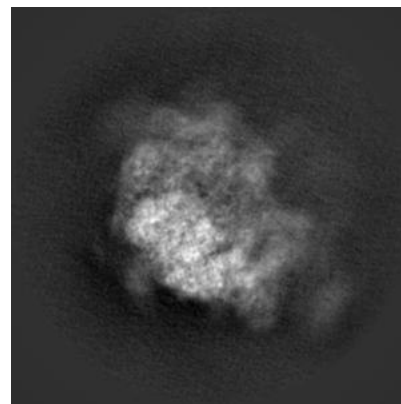
6.1.1 Primary map



X

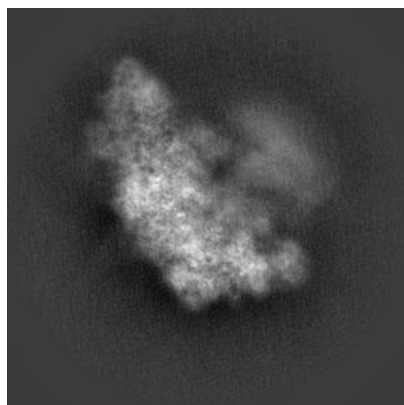


Y

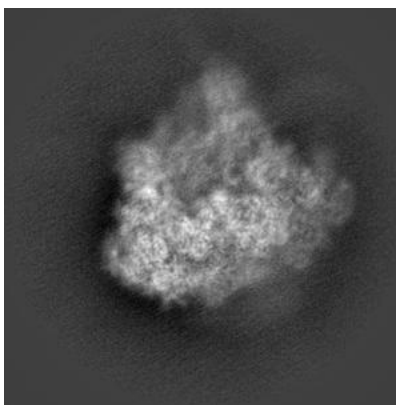


Z

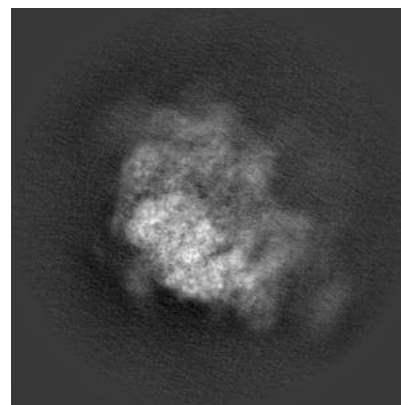
6.1.2 Raw map



X



Y

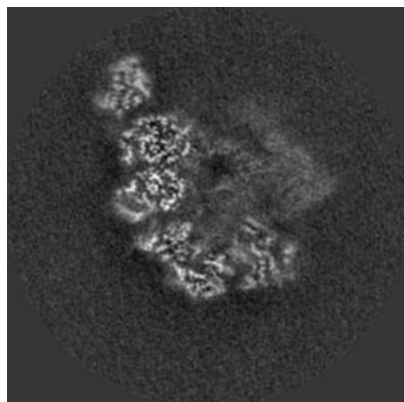


Z

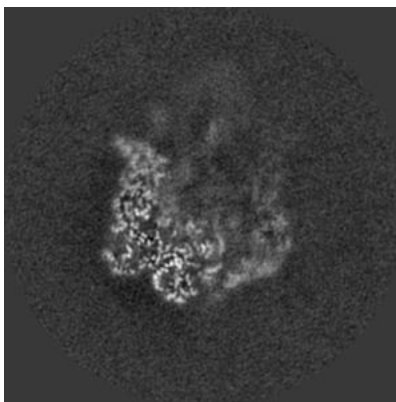
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

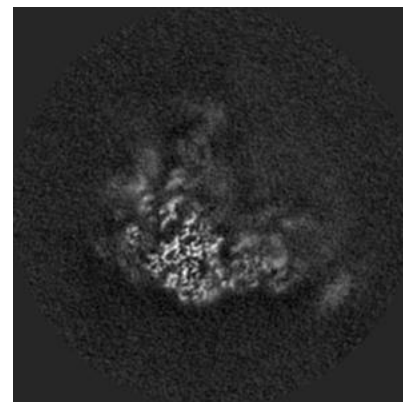
6.2.1 Primary map



X Index: 200

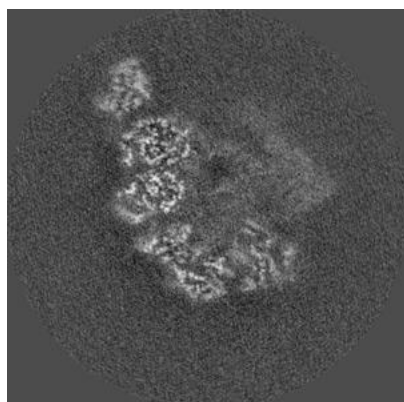


Y Index: 200

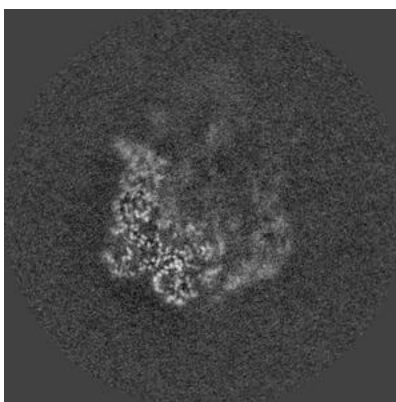


Z Index: 200

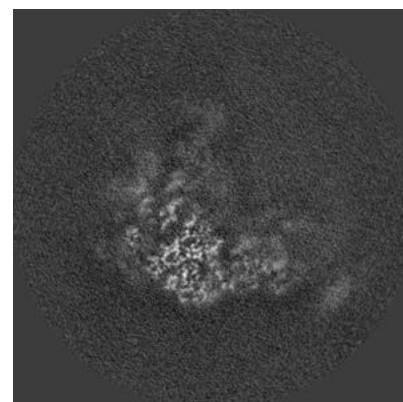
6.2.2 Raw map



X Index: 200



Y Index: 200

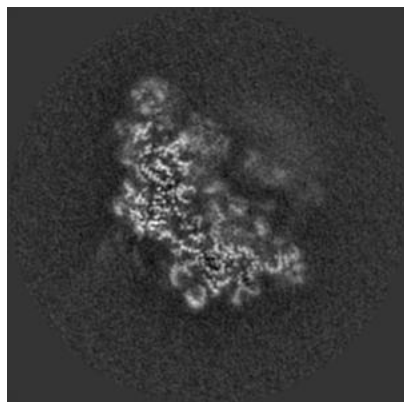


Z Index: 200

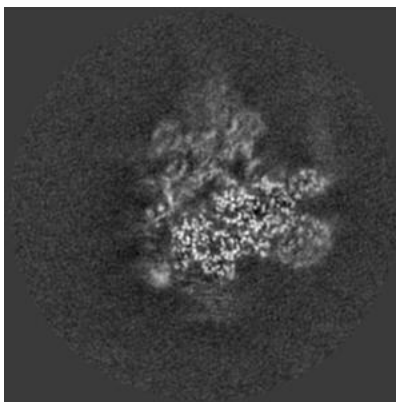
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

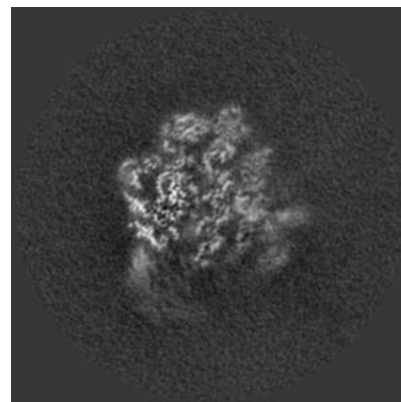
6.3.1 Primary map



X Index: 167

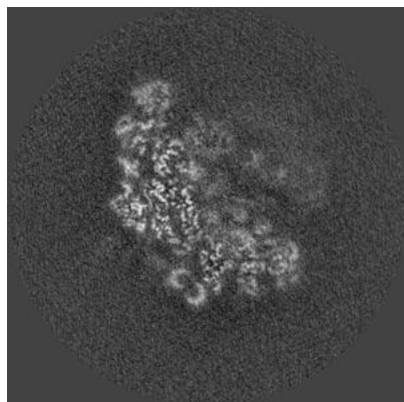


Y Index: 150

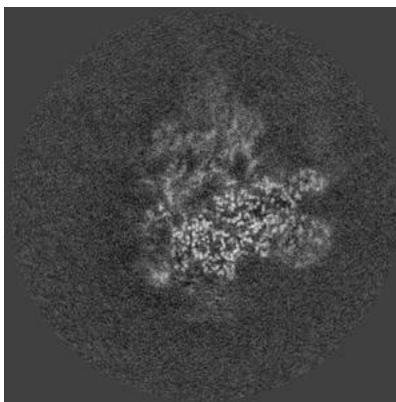


Z Index: 151

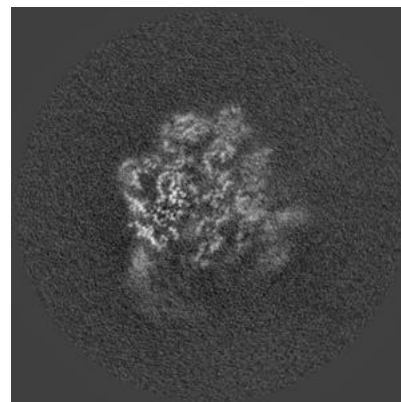
6.3.2 Raw map



X Index: 172



Y Index: 151

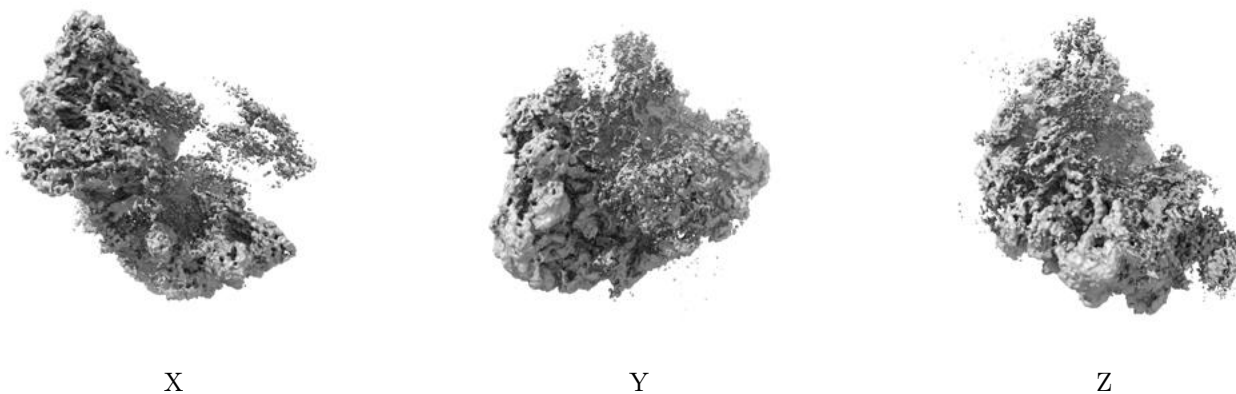


Z Index: 151

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

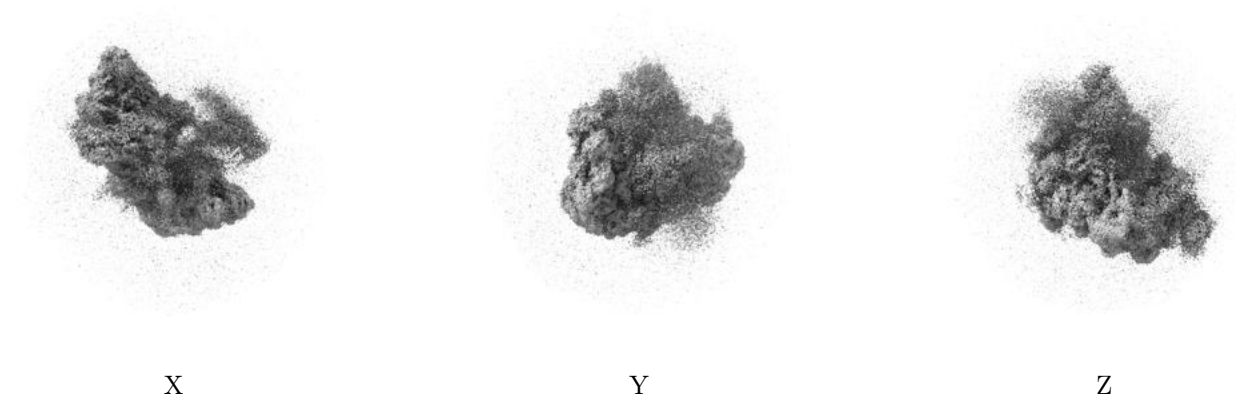
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.021. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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.

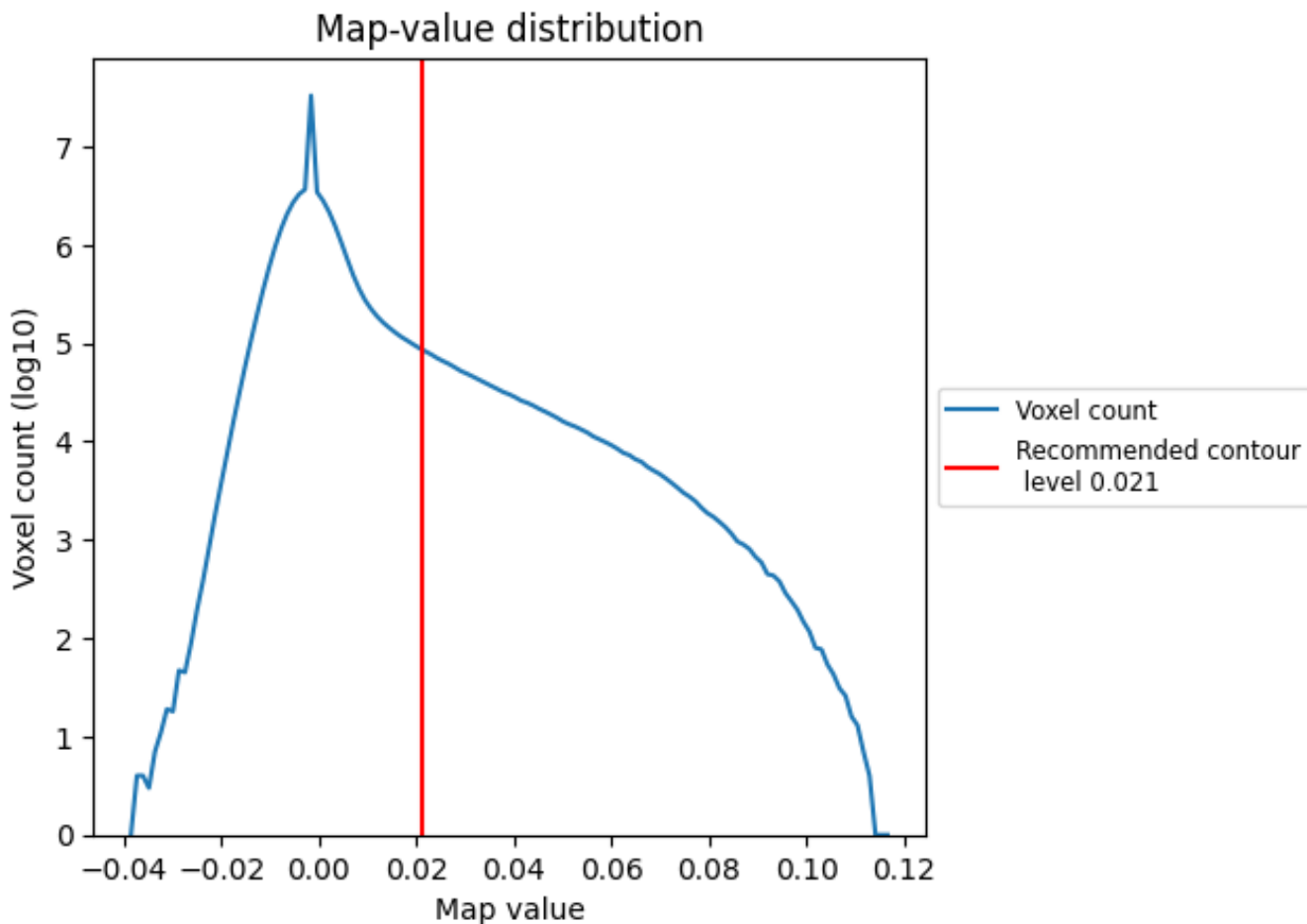
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

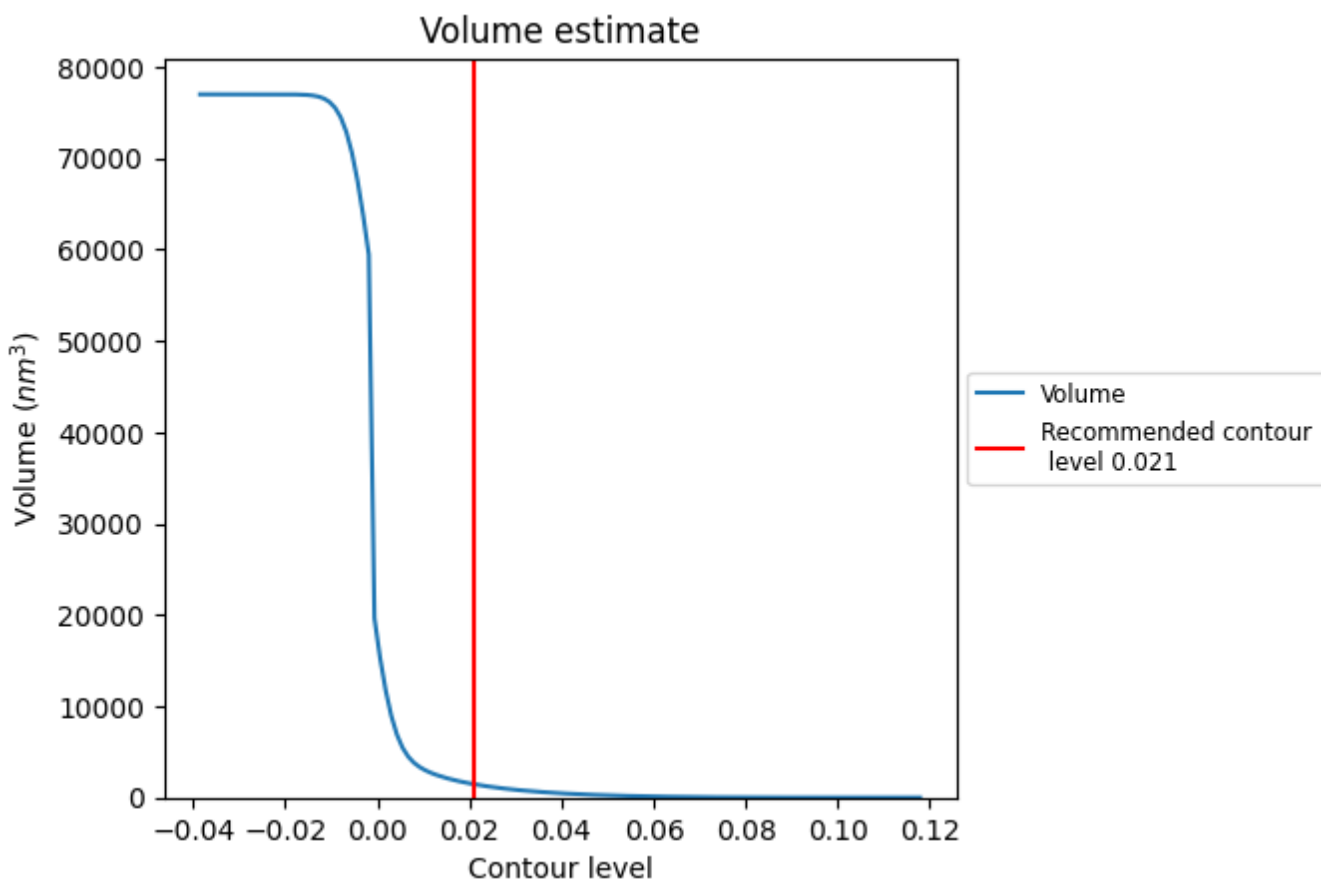
This section contains the results of statistical analysis of the map.

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.

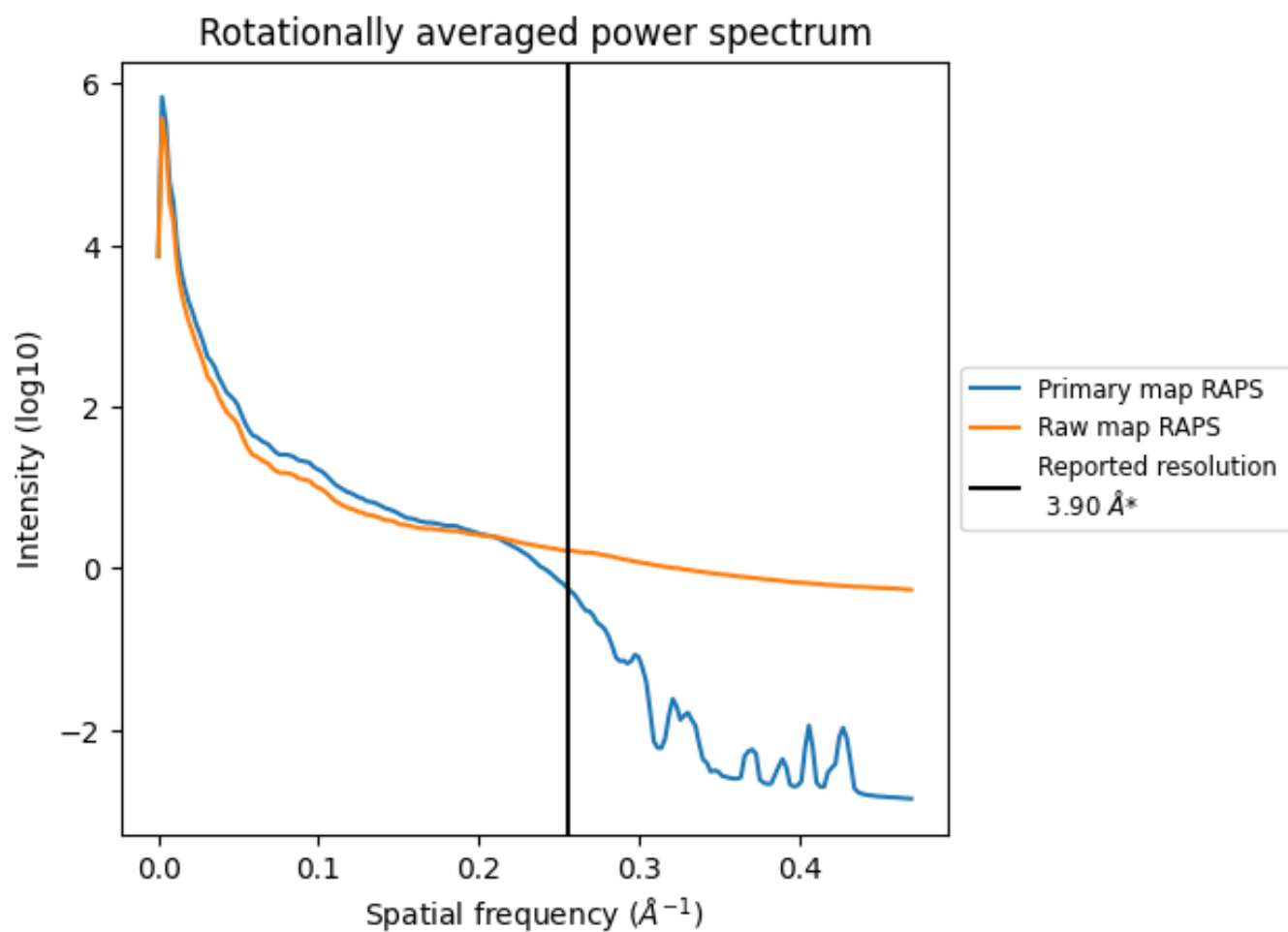
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1465 nm³; this corresponds to an approximate mass of 1324 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

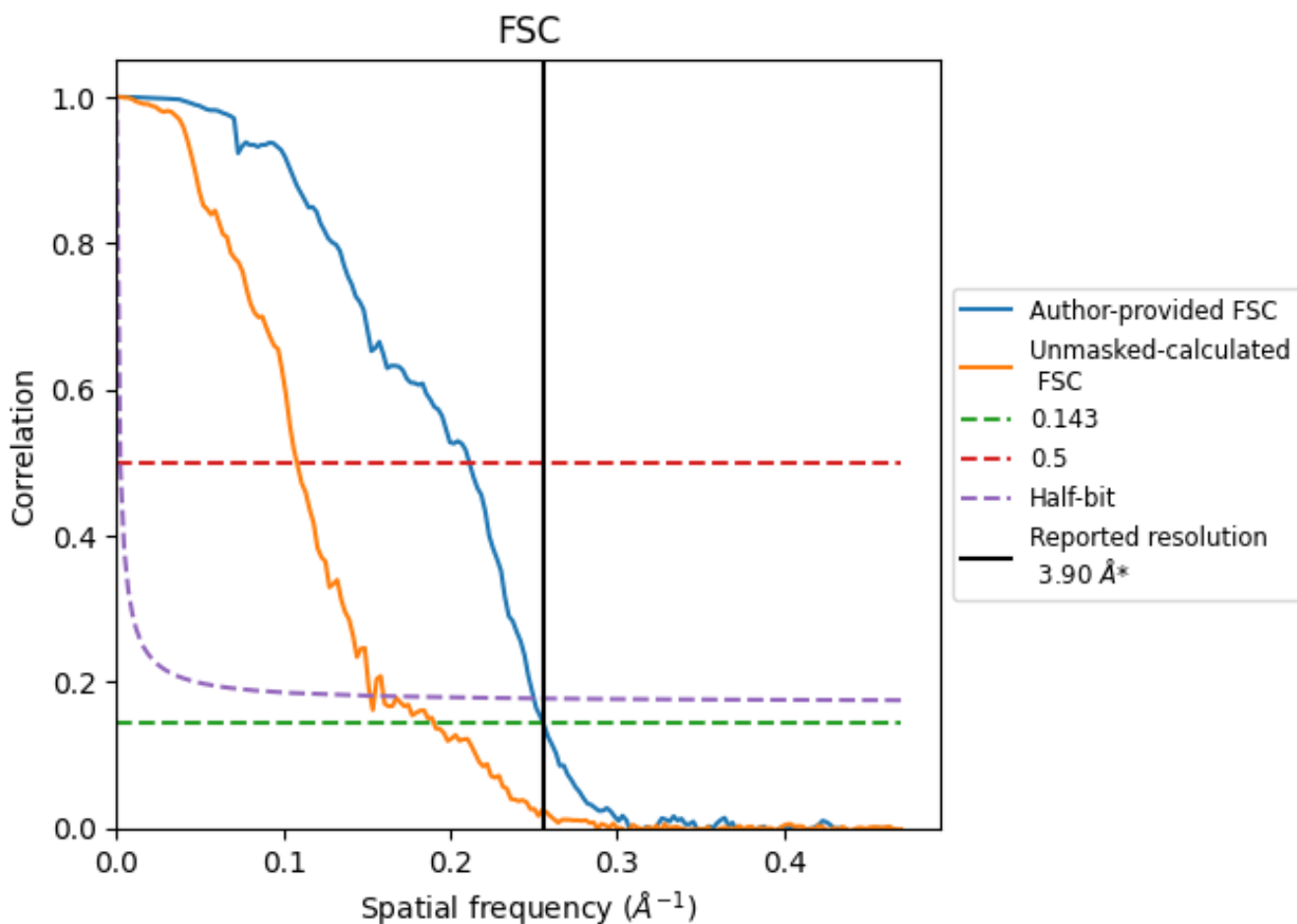


*Reported resolution corresponds to spatial frequency of 0.256 Å⁻¹

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 0.256 Å⁻¹

8.2 Resolution estimates [i](#)

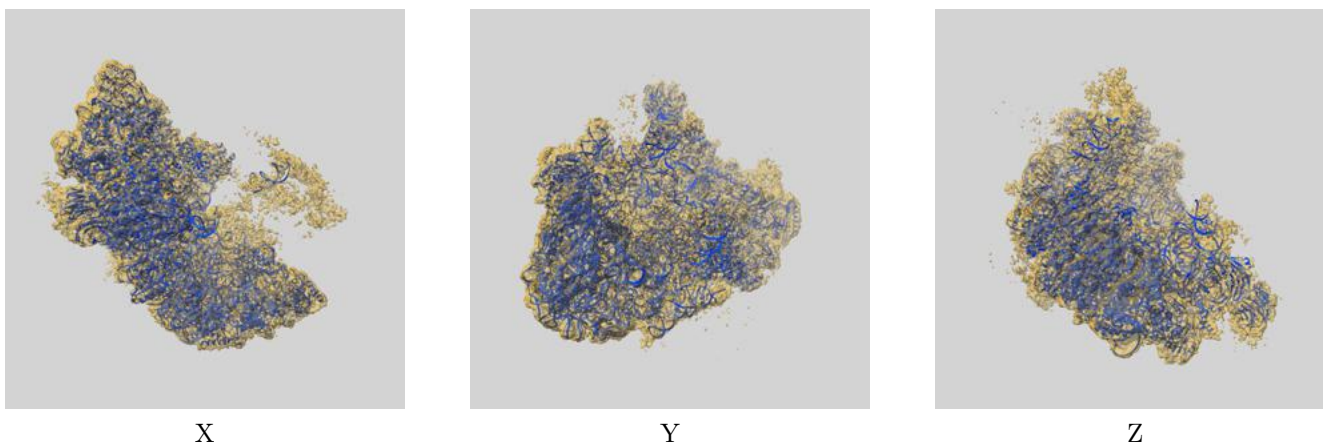
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.90	-	-
Author-provided FSC curve	3.91	4.73	4.00
Unmasked-calculated*	5.26	9.25	6.58

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 5.26 differs from the reported value 3.9 by more than 10 %

9 Map-model fit [i](#)

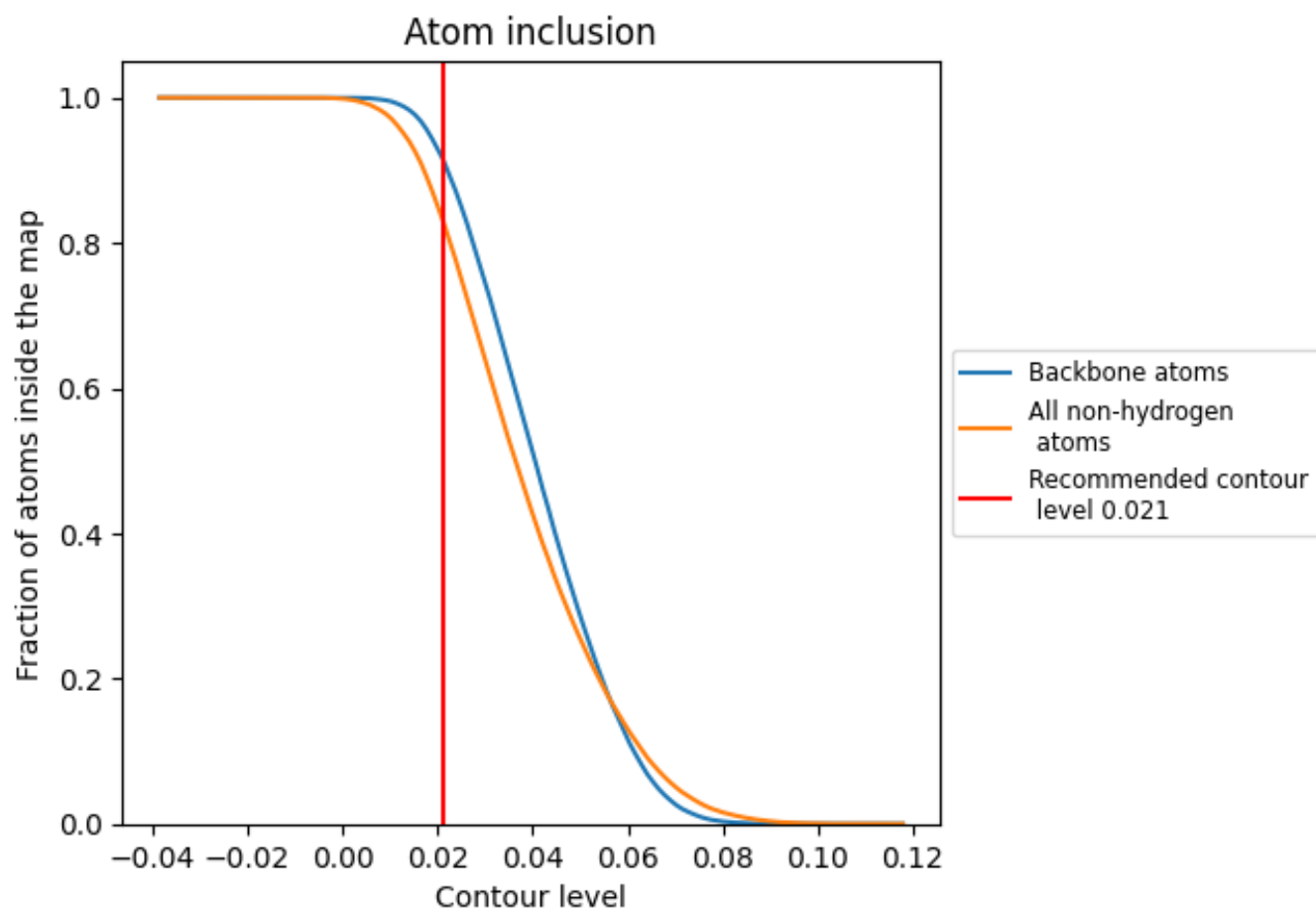
This section contains information regarding the fit between EMDB map EMD-12910 and PDB model 7OHV. Per-residue inclusion information can be found in section [3](#) on page [12](#).

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.021 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 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.