



wwPDB EM Validation Summary Report ⓘ

Mar 9, 2026 – 04:42 AM UTC

PDB ID : 8RJB / pdb_00008rjb
EMDB ID : EMD-19195
Title : Structure of the rabbit 80S ribosome stalled on a 2-TMD rhodopsin intermediate in complex with Sec61-RAMP4
Authors : Lewis, A.J.O.; Hegde, R.S.
Deposited on : 2023-12-20
Resolution : 2.69 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:

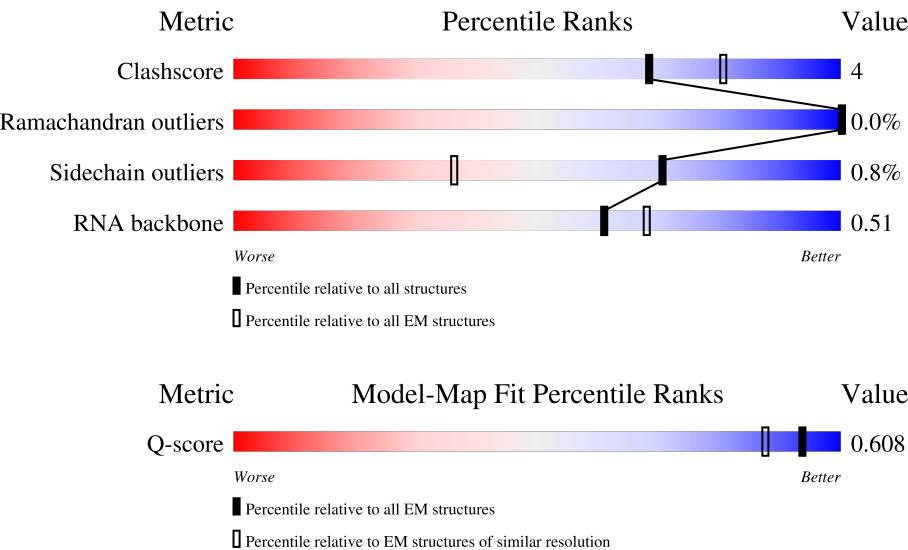
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDb archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 2.69 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	9287 (2.20 - 3.19)

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

Mol	Chain	Length	Quality of chain
1	1	476	38% 78% 19% ..
2	2	96	17% 22% 9% 67% .
3	3	68	24% 71% 25% ..

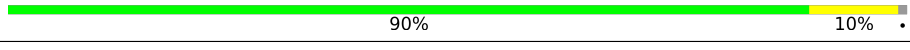
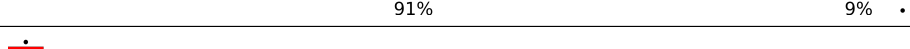
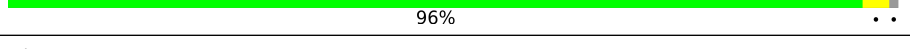
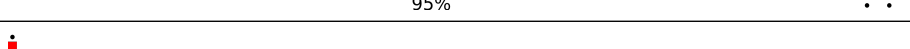
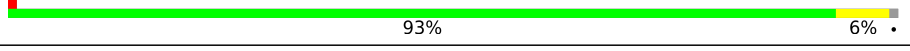
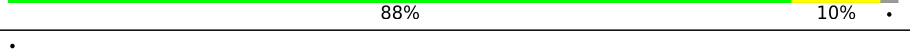
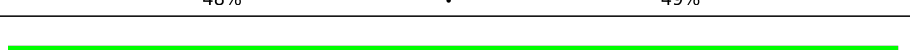
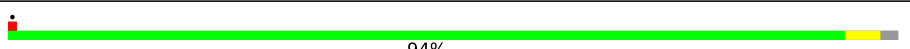
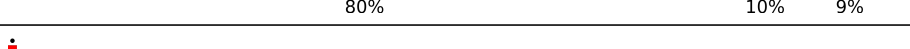
Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	4	66	
5	A	257	
6	B	229	
7	C	425	
8	D	297	
9	E	291	
10	F	247	
11	G	319	
12	H	192	
13	I	214	
14	J	178	
15	K	3543	
16	L	211	
17	M	218	
18	N	204	
19	O	203	
20	P	184	
21	Q	187	
22	R	196	
23	S	176	
24	T	160	
25	U	128	
26	V	140	
27	W	157	
28	X	156	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
29	Y	145	
30	Z	136	
31	a	148	
32	b	226	
33	c	115	
34	d	125	
35	e	135	
36	f	110	
37	g	116	
38	h	123	
39	i	105	
40	j	97	
41	k	70	
42	l	51	
43	m	102	
44	n	25	
45	o	106	
46	p	92	
47	q	76	
48	r	137	
49	u	120	
50	v	156	
51	w	403	

2 Entry composition

There are 53 unique types of molecules in this entry. The entry contains 244402 atoms, of which 103210 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 Protein transport protein Sec61 subunit alpha isoform 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	1	467	Total	C	H	N	O	S	0	0
			7343	2368	3731	582	639	23		

- Molecule 2 is a protein called Protein transport protein Sec61 subunit beta.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	2	32	Total	C	H	N	O	S	0	0
			524	171	273	40	38	2		

- Molecule 3 is a protein called Protein transport protein Sec61 subunit gamma.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	3	66	Total	C	H	N	O	S	0	0
			1105	351	571	92	86	5		

- Molecule 4 is a protein called Stress-associated endoplasmic reticulum protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	4	62	Total	C	H	N	O	S	0	0
			998	305	516	93	80	4		

- Molecule 5 is a protein called Ribosomal protein L8.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	A	248	Total	C	H	N	O	S	0	0
			3892	1189	1994	389	314	6		

- Molecule 6 is a protein called Nascent chain.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	B	27	Total	C	H	N	O	S	0	0
			353	112	172	31	37	1		

- Molecule 7 is a protein called Large ribosomal subunit protein uL4.

Mol	Chain	Residues	Atoms						AltConf	Trace
7	C	362	Total	C	H	N	O	S	0	0
			5937	1812	3054	577	480	14		

- Molecule 8 is a protein called Ribosomal_L18_c domain-containing protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	D	293	Total	C	H	N	O	S	0	0
			4816	1512	2425	438	427	14		

- Molecule 9 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	E	223	Total	C	H	N	O	S	0	0
			3754	1154	1963	341	293	3		

- Molecule 10 is a protein called Ribosomal Protein uL30.

Mol	Chain	Residues	Atoms						AltConf	Trace
10	F	225	Total	C	H	N	O	S	0	0
			3872	1205	1997	358	303	9		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	61	ARG	GLY	conflict	UNP G1TUB1
F	93	ARG	GLY	conflict	UNP G1TUB1
F	131	MET	VAL	conflict	UNP G1TUB1
F	153	ILE	VAL	conflict	UNP G1TUB1

- Molecule 11 is a protein called 60S ribosomal protein L7a.

Mol	Chain	Residues	Atoms						AltConf	Trace
11	G	233	Total	C	H	N	O	S	0	0
			3908	1199	2029	361	315	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	244	GLY	CYS	conflict	UNP G1STW0

- Molecule 12 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms						AltConf	Trace
12	H	190	Total	C	H	N	O	S	0	0
			3114	954	1598	284	272	6		

- Molecule 13 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms						AltConf	Trace
13	I	205	Total	C	H	N	O	S	0	0
			3380	1056	1716	321	274	13		

- Molecule 14 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms						AltConf	Trace
14	J	170	Total	C	H	N	O	S	0	0
			2763	861	1401	254	241	6		

- Molecule 15 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
15	K	3543	Total	C	H	N	O	P	0	0
			114335	33833	38363	13910	24686	3543		

- Molecule 16 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms						AltConf	Trace
16	L	210	Total	C	H	N	O	S	0	0
			3525	1065	1823	354	279	4		

There are 170 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
L	1	MET	ARG	conflict	UNP G1TPV0
L	3	PRO	LEU	conflict	UNP G1TPV0
L	4	SER	ALA	conflict	UNP G1TPV0
L	6	ASN	-	insertion	UNP G1TPV0
L	7	GLY	ALA	conflict	UNP G1TPV0
L	9	ILE	ARG	conflict	UNP G1TPV0
L	10	LEU	ARG	conflict	UNP G1TPV0
L	11	LYS	LEU	conflict	UNP G1TPV0
L	12	PRO	ALA	conflict	UNP G1TPV0
L	13	HIS	LYS	conflict	UNP G1TPV0
L	14	PHE	ALA	conflict	UNP G1TPV0

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
L	15	HIS	LEU	conflict	UNP G1TPV0
L	17	ASP	PHE	conflict	UNP G1TPV0
L	18	TRP	PHE	conflict	UNP G1TPV0
L	19	GLN	SER	conflict	UNP G1TPV0
L	20	ARG	SER	conflict	UNP G1TPV0
L	21	ARG	SER	conflict	UNP G1TPV0
L	23	ALA	ILE	conflict	UNP G1TPV0
L	25	TRP	-	insertion	UNP G1TPV0
L	26	PHE	LEU	conflict	UNP G1TPV0
L	27	ASN	ALA	conflict	UNP G1TPV0
L	28	GLN	PHE	conflict	UNP G1TPV0
L	29	PRO	SER	conflict	UNP G1TPV0
L	30	ALA	PHE	conflict	UNP G1TPV0
L	31	ARG	LEU	conflict	UNP G1TPV0
L	33	ILE	-	insertion	UNP G1TPV0
L	34	ARG	THR	conflict	UNP G1TPV0
L	35	ARG	PHE	conflict	UNP G1TPV0
L	37	LYS	MET	conflict	UNP G1TPV0
L	38	ALA	GLY	conflict	UNP G1TPV0
L	39	ARG	MET	conflict	UNP G1TPV0
L	40	GLN	THR	conflict	UNP G1TPV0
L	41	ALA	GLY	conflict	UNP G1TPV0
L	42	ARG	PRO	conflict	UNP G1TPV0
L	43	ALA	VAL	conflict	UNP G1TPV0
L	44	ARG	SER	conflict	UNP G1TPV0
L	45	ARG	TRP	conflict	UNP G1TPV0
L	46	ILE	VAL	conflict	UNP G1TPV0
L	48	PRO	ASN	conflict	UNP G1TPV0
L	49	ARG	PHE	conflict	UNP G1TPV0
L	50	PRO	SER	conflict	UNP G1TPV0
L	51	ALA	SER	conflict	UNP G1TPV0
L	52	ALA	SER	conflict	UNP G1TPV0
L	53	GLY	ALA	conflict	UNP G1TPV0
L	54	PRO	GLU	conflict	UNP G1TPV0
L	55	ILE	LEU	conflict	UNP G1TPV0
L	56	ARG	SER	conflict	UNP G1TPV0
L	58	ILE	PHE	conflict	UNP G1TPV0
L	59	VAL	LEU	conflict	UNP G1TPV0
L	60	ARG	GLY	conflict	UNP G1TPV0
L	61	CYS	ALA	conflict	UNP G1TPV0
L	62	PRO	GLU	conflict	UNP G1TPV0
L	63	THR	GLY	conflict	UNP G1TPV0

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
L	64	VAL	PHE	conflict	UNP G1TPV0
L	66	TYR	-	insertion	UNP G1TPV0
L	67	HIS	-	insertion	UNP G1TPV0
L	68	THR	GLY	conflict	UNP G1TPV0
L	70	VAL	-	insertion	UNP G1TPV0
L	71	ARG	-	insertion	UNP G1TPV0
L	72	ALA	-	insertion	UNP G1TPV0
L	73	GLY	-	insertion	UNP G1TPV0
L	75	GLY	-	insertion	UNP G1TPV0
L	76	PHE	THR	conflict	UNP G1TPV0
L	80	GLU	-	insertion	UNP G1TPV0
L	81	LEU	-	insertion	UNP G1TPV0
L	83	VAL	TYR	conflict	UNP G1TPV0
L	84	ALA	SER	conflict	UNP G1TPV0
L	85	GLY	PHE	conflict	UNP G1TPV0
L	86	ILE	SER	conflict	UNP G1TPV0
L	87	HIS	ARG	conflict	UNP G1TPV0
L	88	LYS	CYS	conflict	UNP G1TPV0
L	89	LYS	THR	conflict	UNP G1TPV0
L	90	VAL	LEU	conflict	UNP G1TPV0
L	92	ARG	-	insertion	UNP G1TPV0
L	93	THR	-	insertion	UNP G1TPV0
L	94	ILE	CYS	conflict	UNP G1TPV0
L	95	GLY	ARG	conflict	UNP G1TPV0
L	96	ILE	ASP	conflict	UNP G1TPV0
L	100	PRO	LEU	conflict	UNP G1TPV0
L	101	ARG	PHE	conflict	UNP G1TPV0
L	104	ASN	ARG	conflict	UNP G1TPV0
L	105	LYS	GLY	conflict	UNP G1TPV0
L	109	SER	MET	conflict	UNP G1TPV0
L	110	LEU	PRO	conflict	UNP G1TPV0
L	111	GLN	ILE	conflict	UNP G1TPV0
L	112	ALA	VAL	conflict	UNP G1TPV0
L	113	ASN	ARG	conflict	UNP G1TPV0
L	114	VAL	ALA	conflict	UNP G1TPV0
L	115	GLN	THR	conflict	UNP G1TPV0
L	116	ARG	PHE	conflict	UNP G1TPV0
L	?	-	TRP	deletion	UNP G1TPV0
L	?	-	MET	deletion	UNP G1TPV0
L	118	LYS	PRO	conflict	UNP G1TPV0
L	119	GLU	ALA	conflict	UNP G1TPV0
L	120	TYR	THR	conflict	UNP G1TPV0

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
L	123	LYS	SER	conflict	UNP G1TPV0
L	124	LEU	SER	conflict	UNP G1TPV0
L	125	VAL	ARG	conflict	UNP G1TPV0
L	127	PHE	LYS	conflict	UNP G1TPV0
L	130	LYS	PRO	conflict	UNP G1TPV0
L	131	PRO	ALA	conflict	UNP G1TPV0
L	132	SER	ARG	conflict	UNP G1TPV0
L	133	ALA	THR	conflict	UNP G1TPV0
L	134	PRO	PHE	conflict	UNP G1TPV0
L	135	LYS	VAL	conflict	UNP G1TPV0
L	136	LYS	TRP	conflict	UNP G1TPV0
L	137	GLY	TYR	conflict	UNP G1TPV0
L	138	ASP	ARG	conflict	UNP G1TPV0
L	139	SER	THR	conflict	UNP G1TPV0
L	140	SER	VAL	conflict	UNP G1TPV0
L	141	ALA	GLY	conflict	UNP G1TPV0
L	142	GLU	GLN	conflict	UNP G1TPV0
L	143	GLU	ARG	conflict	UNP G1TPV0
L	144	LEU	THR	conflict	UNP G1TPV0
L	145	LYS	MET	conflict	UNP G1TPV0
L	146	LEU	GLY	conflict	UNP G1TPV0
L	147	ALA	ARG	conflict	UNP G1TPV0
L	148	THR	MET	conflict	UNP G1TPV0
L	149	GLN	GLY	conflict	UNP G1TPV0
L	151	THR	ALA	conflict	UNP G1TPV0
L	152	GLY	PRO	conflict	UNP G1TPV0
L	153	PRO	ALA	conflict	UNP G1TPV0
L	154	VAL	ASP	conflict	UNP G1TPV0
L	155	MET	LEU	conflict	UNP G1TPV0
L	156	PRO	ALA	conflict	UNP G1TPV0
L	157	ILE	ARG	conflict	UNP G1TPV0
L	159	ASN	LEU	conflict	UNP G1TPV0
L	161	PHE	GLU	conflict	UNP G1TPV0
L	162	LYS	PRO	conflict	UNP G1TPV0
L	163	LYS	GLY	conflict	UNP G1TPV0
L	164	GLU	GLY	conflict	UNP G1TPV0
L	165	LYS	HIS	conflict	UNP G1TPV0
L	167	ARG	PRO	conflict	UNP G1TPV0
L	168	VAL	LEU	conflict	UNP G1TPV0
L	169	ILE	PRO	conflict	UNP G1TPV0
L	170	THR	VAL	conflict	UNP G1TPV0
L	171	GLU	LEU	conflict	UNP G1TPV0

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
L	172	GLU	VAL	conflict	UNP G1TPV0
L	174	LYS	VAL	conflict	UNP G1TPV0
L	175	ASN	ARG	conflict	UNP G1TPV0
L	176	PHE	LEU	conflict	UNP G1TPV0
L	177	LYS	GLN	conflict	UNP G1TPV0
L	178	ALA	ASP	conflict	UNP G1TPV0
L	179	PHE	HIS	conflict	UNP G1TPV0
L	181	SER	ILE	conflict	UNP G1TPV0
L	182	LEU	PRO	conflict	UNP G1TPV0
L	183	ARG	ALA	conflict	UNP G1TPV0
L	184	MET	GLY	conflict	UNP G1TPV0
L	185	ALA	ARG	conflict	UNP G1TPV0
L	186	ARG	HIS	conflict	UNP G1TPV0
L	187	ALA	GLY	conflict	UNP G1TPV0
L	188	ASN	CYS	conflict	UNP G1TPV0
L	189	ALA	VAL	conflict	UNP G1TPV0
L	190	ARG	LEU	conflict	UNP G1TPV0
L	192	PHE	ARG	conflict	UNP G1TPV0
L	193	GLY	ALA	conflict	UNP G1TPV0
L	194	ILE	ARG	conflict	UNP G1TPV0
L	195	ARG	THR	conflict	UNP G1TPV0
L	196	ALA	GLU	conflict	UNP G1TPV0
L	199	ALA	LYS	conflict	UNP G1TPV0
L	200	LYS	SER	conflict	UNP G1TPV0
L	202	ALA	PRO	conflict	UNP G1TPV0
L	203	ALA	GLN	conflict	UNP G1TPV0
L	204	GLU	HIS	conflict	UNP G1TPV0
L	205	GLN	PHE	conflict	UNP G1TPV0
L	207	VAL	THR	conflict	UNP G1TPV0
L	208	GLU	GLY	conflict	UNP G1TPV0
L	209	LYS	CYS	conflict	UNP G1TPV0
L	210	LYS	ARG	conflict	UNP G1TPV0
L	211	LYS	HIS	conflict	UNP G1TPV0

- Molecule 17 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms						AltConf	Trace
17	M	138	Total	C	H	N	O	S	0	0
			2349	727	1212	221	182	7		

- Molecule 18 is a protein called Ribosomal protein L15.

Mol	Chain	Residues	Atoms						AltConf	Trace
18	N	203	Total	C	H	N	O	S	0	0
			3454	1072	1753	359	266	4		

- Molecule 19 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms						AltConf	Trace
19	O	199	Total	C	H	N	O	S	0	0
			3410	1051	1780	319	255	5		

- Molecule 20 is a protein called uL22.

Mol	Chain	Residues	Atoms						AltConf	Trace
20	P	181	Total	C	H	N	O	S	0	0
			3012	924	1542	282	254	10		

- Molecule 21 is a protein called Ribosomal protein L26.

Mol	Chain	Residues	Atoms						AltConf	Trace
21	Q	187	Total	C	H	N	O	S	0	0
			3152	946	1638	315	249	4		

- Molecule 22 is a protein called Ribosomal protein L19.

Mol	Chain	Residues	Atoms						AltConf	Trace
22	R	155	Total	C	H	N	O	S	0	0
			2730	808	1436	278	199	9		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	38	ARG	CYS	conflict	UNP G1TJR3
R	64	ARG	GLN	conflict	UNP G1TJR3
R	94	THR	LYS	conflict	UNP G1TJR3

- Molecule 23 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms						AltConf	Trace
23	S	176	Total	C	H	N	O	S	0	0
			2972	930	1510	285	236	11		

- Molecule 24 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms						AltConf	Trace
24	T	159	Total	C	H	N	O	S	0	0
			2667	823	1369	252	217	6		

- Molecule 25 is a protein called Ribosomal protein L22.

Mol	Chain	Residues	Atoms						AltConf	Trace
25	U	102	Total	C	H	N	O	S	0	0
			1693	534	859	146	152	2		

There are 11 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
U	18	LEU	VAL	conflict	UNP G1TSG1
U	32	GLY	ARG	conflict	UNP G1TSG1
U	36	ALA	GLU	conflict	UNP G1TSG1
U	39	PHE	SER	conflict	UNP G1TSG1
U	54	GLY	ARG	conflict	UNP G1TSG1
U	60	VAL	ALA	conflict	UNP G1TSG1
U	62	SER	THR	conflict	UNP G1TSG1
U	63	LEU	ILE	conflict	UNP G1TSG1
U	97	ARG	HIS	conflict	UNP G1TSG1
U	106	THR	SER	conflict	UNP G1TSG1
U	126	GLU	ASP	conflict	UNP G1TSG1

- Molecule 26 is a protein called Ribosomal protein L23.

Mol	Chain	Residues	Atoms						AltConf	Trace
26	V	131	Total	C	H	N	O	S	0	0
			2019	618	1040	184	172	5		

- Molecule 27 is a protein called Ribosomal protein L24.

Mol	Chain	Residues	Atoms						AltConf	Trace
27	W	63	Total	C	H	N	O	S	0	0
			1070	337	542	103	85	3		

- Molecule 28 is a protein called Ribosomal_L23eN domain-containing protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
28	X	118	Total	C	H	N	O	S	0	0
			2008	618	1041	181	167	1		

- Molecule 29 is a protein called Ribosomal protein L26.

Mol	Chain	Residues	Atoms						AltConf	Trace
29	Y	134	Total	C	H	N	O	S	0	0
			2321	700	1206	226	186	3		

- Molecule 30 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms						AltConf	Trace
30	Z	135	Total	C	H	N	O	S	0	0
			2292	714	1185	208	182	3		

- Molecule 31 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms						AltConf	Trace
31	a	147	Total	C	H	N	O	S	0	0
			2372	734	1210	239	185	4		

- Molecule 32 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms						AltConf	Trace
32	b	104	Total	C	H	N	O	S	0	0
			1771	527	923	189	129	3		

- Molecule 33 is a protein called Large ribosomal subunit protein eL30.

Mol	Chain	Residues	Atoms						AltConf	Trace
33	c	98	Total	C	H	N	O	S	0	0
			1557	481	796	134	140	6		

- Molecule 34 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms						AltConf	Trace
34	d	107	Total	C	H	N	O	S	0	0
			1820	560	932	171	155	2		

- Molecule 35 is a protein called Ribosomal protein L32.

Mol	Chain	Residues	Atoms						AltConf	Trace
35	e	128	Total	C	H	N	O	S	0	0
			2203	667	1150	216	165	5		

- Molecule 36 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms						AltConf	Trace
36	f	109	Total	C	H	N	O	S	0	0
			1789	555	913	174	143	4		

- Molecule 37 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms						AltConf	Trace
37	g	114	Total	C	H	N	O	S	0	0
			1910	566	1004	187	147	6		

- Molecule 38 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms						AltConf	Trace
38	h	122	Total	C	H	N	O	S	0	0
			2161	640	1148	204	168	1		

- Molecule 39 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms						AltConf	Trace
39	i	102	Total	C	H	N	O	S	0	0
			1747	520	917	176	129	5		

- Molecule 40 is a protein called Ribosomal protein L37.

Mol	Chain	Residues	Atoms						AltConf	Trace
40	j	86	Total	C	H	N	O	S	0	0
			1448	434	743	155	111	5		

- Molecule 41 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms						AltConf	Trace
41	k	69	Total	C	H	N	O	S	0	0
			1206	366	637	103	99	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
k	24	LYS	ASN	conflict	UNP G1U001

- Molecule 42 is a protein called 60S ribosomal protein L39-like.

Mol	Chain	Residues	Atoms						AltConf	Trace
42	l	50	Total	C	H	N	O	S	0	0
			928	286	481	96	64	1		

- Molecule 43 is a protein called eL40.

Mol	Chain	Residues	Atoms						AltConf	Trace
43	m	52	Total	C	H	N	O	S	0	0
			899	266	470	90	67	6		

- Molecule 44 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms						AltConf	Trace
44	n	25	Total	C	H	N	O	S	0	0
			529	145	289	64	28	3		

- Molecule 45 is a protein called 60S ribosomal protein L36a-like.

Mol	Chain	Residues	Atoms						AltConf	Trace
45	o	104	Total	C	H	N	O	S	0	0
			1778	533	927	174	138	6		

- Molecule 46 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms						AltConf	Trace
46	p	91	Total	C	H	N	O	S	0	0
			1470	445	762	136	120	7		

- Molecule 47 is a RNA chain called P-site tRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
47	q	76	Total	C	H	N	O	P	0	0
			2439	723	823	291	527	75		

- Molecule 48 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms						AltConf	Trace
48	r	124	Total	C	H	N	O	S	0	0
			2046	616	1052	205	167	6		

- Molecule 49 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
49	u	120	Total	C	H	N	O	P	0	0
			3854	1141	1296	456	842	119		

- Molecule 50 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
50	v	156	Total	C	H	N	O	P	0	0
			4997	1480	1683	585	1094	155		

- Molecule 51 is a protein called Ribosomal protein L3.

Mol	Chain	Residues	Atoms						AltConf	Trace
51	w	394	Total	C	H	N	O	S	0	0
			6487	2020	3315	597	542	13		

- Molecule 52 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
52	I	1	Total	Mg	0
			1	1	
52	K	202	Total	Mg	0
			202	202	
52	V	1	Total	Mg	0
			1	1	
52	a	1	Total	Mg	0
			1	1	
52	g	1	Total	Mg	0
			1	1	
52	u	7	Total	Mg	0
			7	7	
52	v	5	Total	Mg	0
			5	5	

- Molecule 53 is ZINC ION (CCD ID: ZN) (formula: Zn).

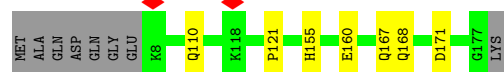
Mol	Chain	Residues	Atoms		AltConf
53	g	1	Total	Zn	0
			1	1	
53	j	1	Total	Zn	0
			1	1	
53	m	1	Total	Zn	0
			1	1	

Continued on next page...

Continued from previous page...

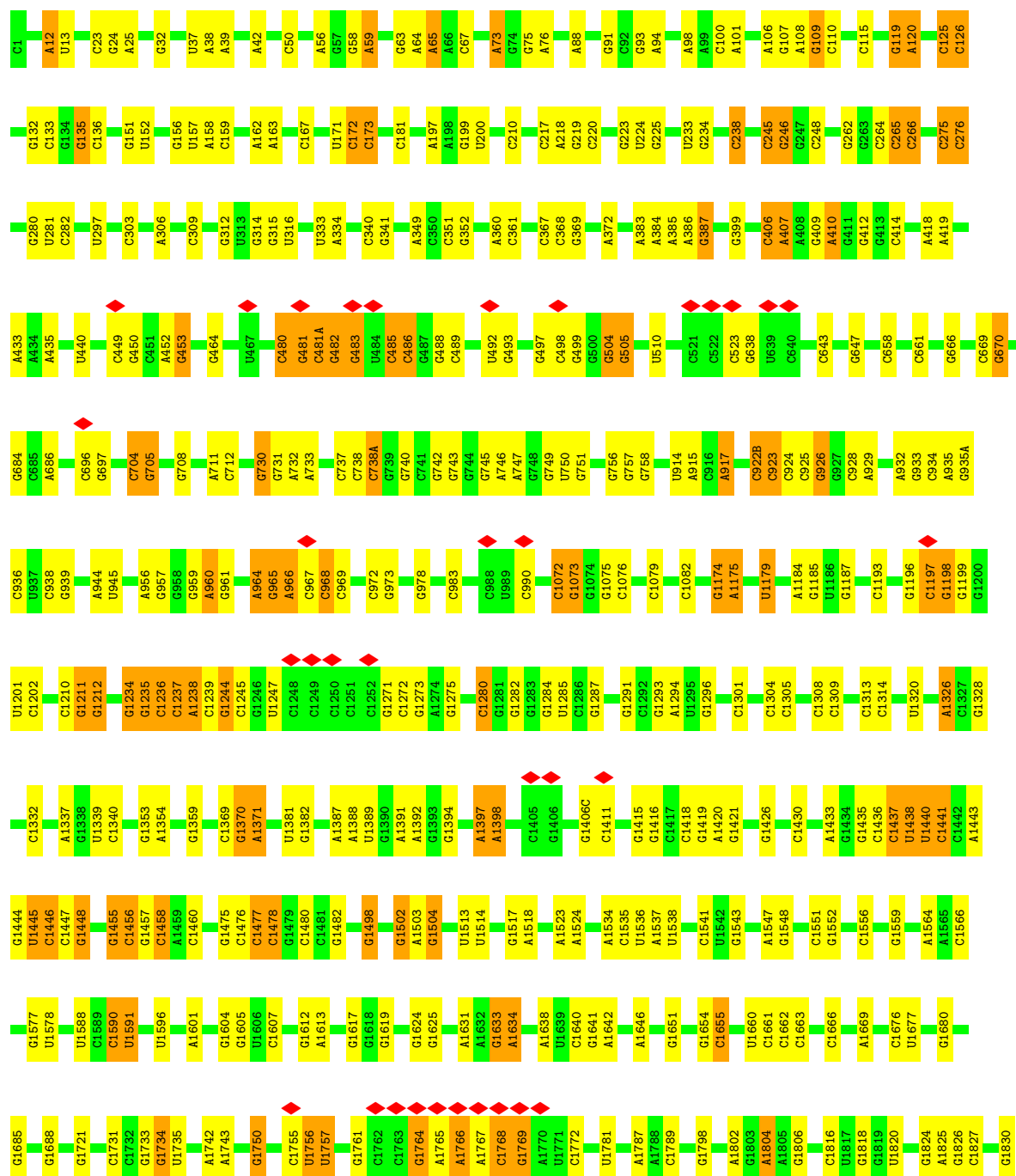
Mol	Chain	Residues	Atoms		AltConf
53	o	1	Total 1	Zn 1	0
53	p	1	Total 1	Zn 1	0

Chain J:  92%

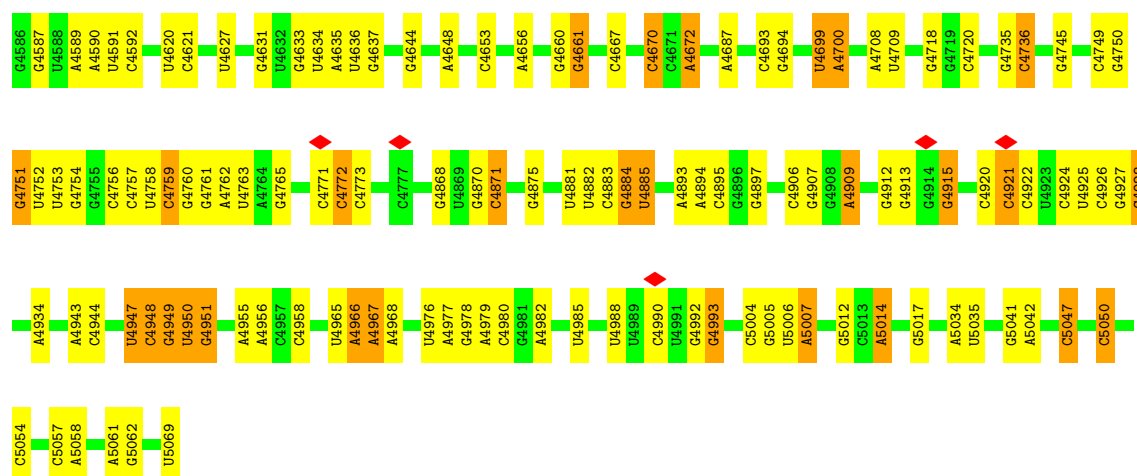


• Molecule 15: 28S rRNA

Chain K:  69% 24% 7%



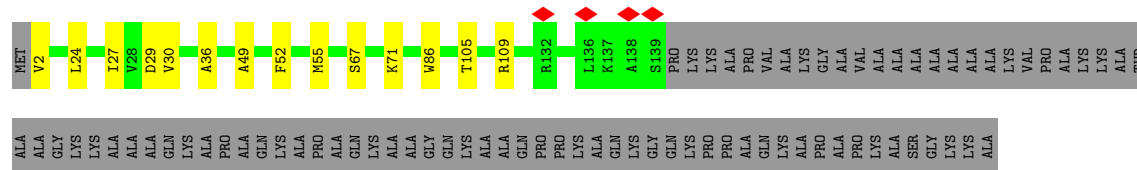




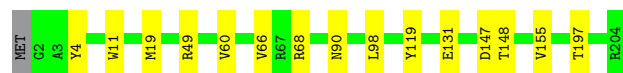
• Molecule 16: 60S ribosomal protein L13



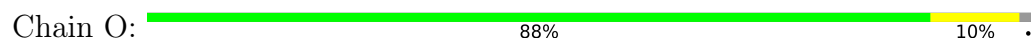
• Molecule 17: 60S ribosomal protein L14



• Molecule 18: Ribosomal protein L15

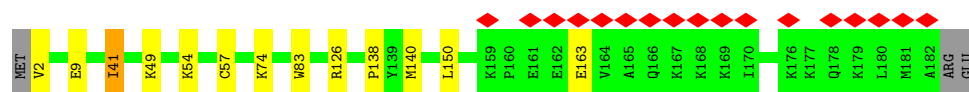


• Molecule 19: 60S ribosomal protein L13



• Molecule 20: uL22





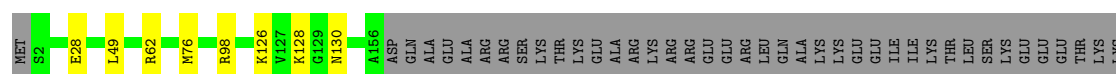
- Molecule 21: Ribosomal protein L26

Chain Q: 94% 6%



- Molecule 22: Ribosomal protein L19

Chain R: 75% 21%



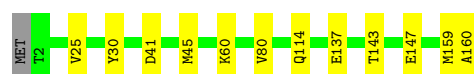
- Molecule 23: 60S ribosomal protein L18a

Chain S: 91% 9%



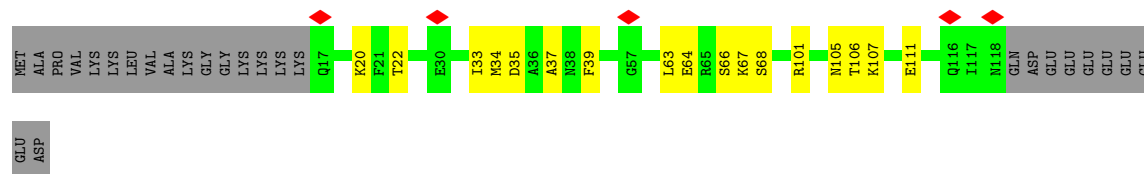
- Molecule 24: 60S ribosomal protein L21

Chain T: 92% 8%



- Molecule 25: Ribosomal protein L22

Chain U: 66% 13% 20%

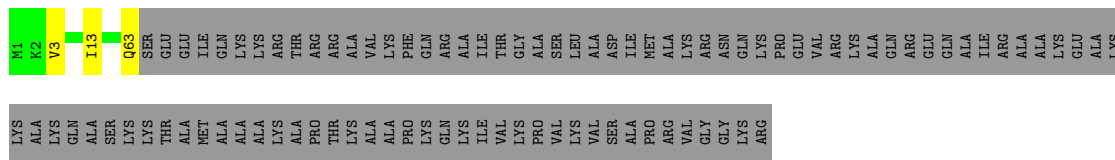


- Molecule 26: Ribosomal protein L23

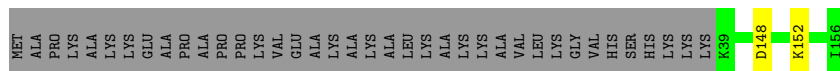
Chain V: 89% 5% 6%



- Molecule 27: Ribosomal protein L24



- Molecule 28: Ribosomal_L23eN domain-containing protein



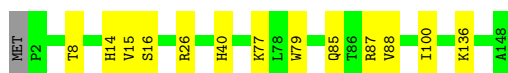
- Molecule 29: Ribosomal protein L26



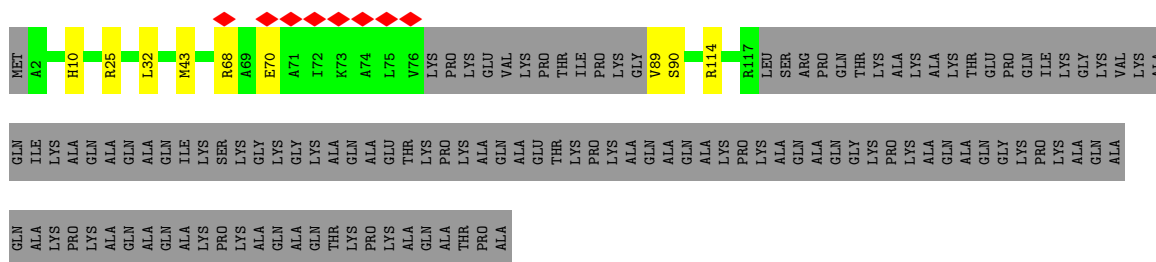
- Molecule 30: 60S ribosomal protein L27



- Molecule 31: 60S ribosomal protein L27a



- Molecule 32: 60S ribosomal protein L29



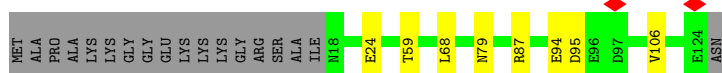
- Molecule 33: Large ribosomal subunit protein eL30

Chain c:  80% 5% 15%



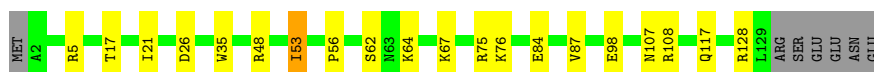
- Molecule 34: 60S ribosomal protein L31

Chain d:  79% 6% 14%

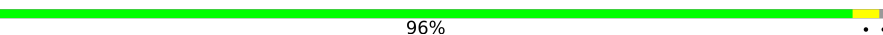


- Molecule 35: Ribosomal protein L32

Chain e:  80% 14% 5%

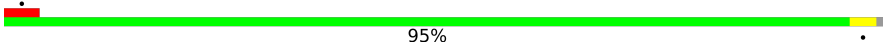


- Molecule 36: 60S ribosomal protein L35a

Chain f:  96% ..

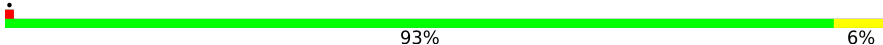


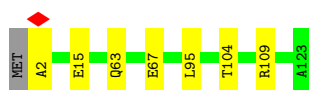
- Molecule 37: 60S ribosomal protein L34

Chain g:  95% ..

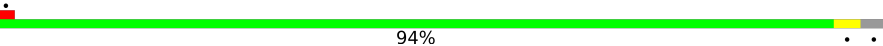


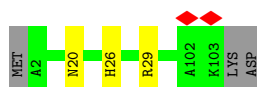
- Molecule 38: 60S ribosomal protein L35

Chain h:  93% 6% ..



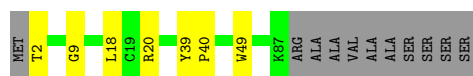
- Molecule 39: 60S ribosomal protein L36

Chain i:  94% ..



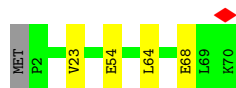
- Molecule 40: Ribosomal protein L37

Chain j:  81% 7% 11%



- Molecule 41: 60S ribosomal protein L38

Chain k:  93% 6%



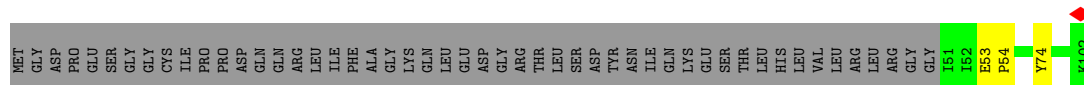
- Molecule 42: 60S ribosomal protein L39-like

Chain l:  88% 10%

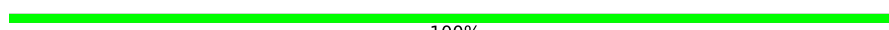


- Molecule 43: eL40

Chain m:  48% 49%



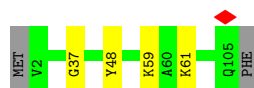
- Molecule 44: 60S ribosomal protein L41

Chain n:  100%

There are no outlier residues recorded for this chain.

- Molecule 45: 60S ribosomal protein L36a-like

Chain o:  94%

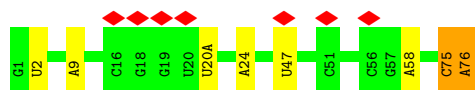
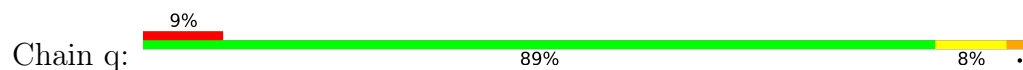


- Molecule 46: 60S ribosomal protein L37a

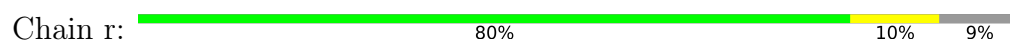
Chain p:  90% 9%



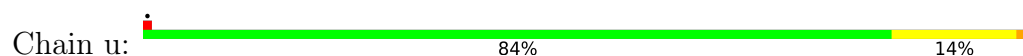
- Molecule 47: P-site tRNA



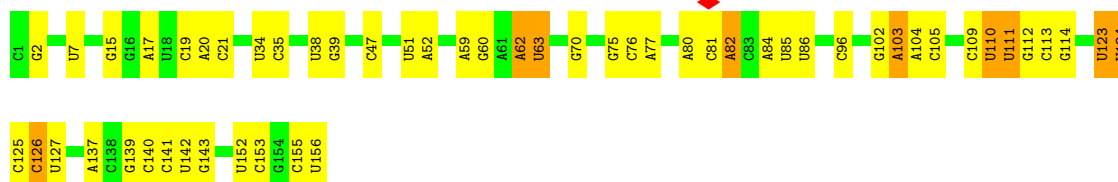
- Molecule 48: 60S ribosomal protein L28



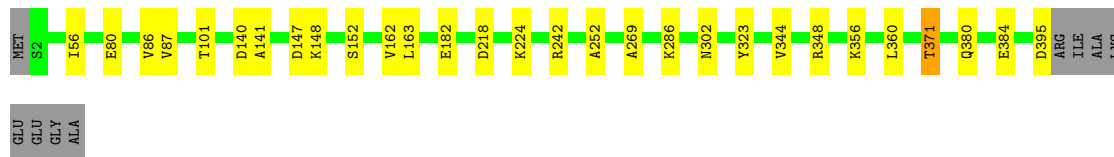
- Molecule 49: 5S rRNA



- Molecule 50: 5.8S rRNA



- Molecule 51: Ribosomal protein L3



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	140190	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	54	Depositor
Minimum defocus (nm)	1900	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.255	Depositor
Minimum map value	-0.081	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.0231	Depositor
Map size ($\text{\AA}$)	562.716, 562.716, 562.716	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.3398, 1.3398, 1.3398	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	1	0.51	4/3691 (0.1%)	0.64	8/5006 (0.2%)
2	2	0.23	0/258	0.36	0/348
3	3	0.17	0/544	0.34	0/728
4	4	0.16	0/487	0.30	0/648
5	A	0.32	0/1936	0.37	1/2596 (0.0%)
6	B	0.23	0/187	0.51	0/254
7	C	0.30	0/2937	0.31	0/3946
8	D	0.26	0/2437	0.29	0/3264
9	E	0.25	0/1825	0.29	0/2445
10	F	0.31	0/1911	0.33	0/2549
11	G	0.26	0/1910	0.30	0/2569
12	H	0.27	0/1535	0.30	0/2063
13	I	0.28	0/1702	0.28	0/2272
14	J	0.35	1/1385 (0.1%)	0.60	4/1852 (0.2%)
15	K	0.35	0/84980	0.35	0/132536
16	L	0.27	0/1733	0.34	1/2316 (0.0%)
17	M	0.29	0/1158	0.37	2/1547 (0.1%)
18	N	0.34	0/1746	0.36	1/2338 (0.0%)
19	O	0.31	0/1662	0.32	0/2222
20	P	0.29	0/1498	0.34	0/2003
21	Q	0.32	0/1538	0.32	0/2054
22	R	0.29	0/1310	0.29	0/1734
23	S	0.31	0/1501	0.31	0/2012
24	T	0.29	0/1326	0.38	1/1770 (0.1%)
25	U	0.20	0/848	0.32	0/1138
26	V	0.29	0/993	0.31	0/1332
27	W	0.29	0/541	0.30	0/720
28	X	0.28	0/984	0.29	0/1323
29	Y	0.28	0/1132	0.31	0/1504
30	Z	0.28	0/1130	0.29	0/1507
31	a	0.31	0/1191	0.35	0/1590
32	b	0.26	0/861	0.30	0/1138

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	c	0.28	0/771	0.29	0/1034
34	d	0.30	0/903	0.33	0/1216
35	e	0.31	0/1071	0.31	0/1429
36	f	0.31	0/895	0.32	0/1198
37	g	0.31	0/916	0.31	0/1220
38	h	0.27	0/1021	0.29	0/1348
39	i	0.25	0/841	0.29	0/1112
40	j	0.35	0/720	0.35	0/952
41	k	0.25	0/575	0.33	0/761
42	l	0.32	0/459	0.33	0/608
43	m	0.29	0/435	0.35	0/575
44	n	0.22	0/241	0.24	0/305
45	o	0.29	0/864	0.30	0/1140
46	p	0.28	0/718	0.42	1/953 (0.1%)
47	q	0.13	0/1805	0.27	0/2809
48	r	0.30	0/1010	0.30	0/1354
49	u	0.35	0/2858	0.30	0/4455
50	v	0.35	0/3701	0.33	0/5766
51	w	0.30	0/3240	0.33	1/4339 (0.0%)
All	All	0.33	5/151921 (0.0%)	0.35	20/223898 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	140	PRO	CB-CG	22.06	2.60	1.49
1	1	140	PRO	CG-CD	-17.52	0.91	1.50
14	J	121	PRO	CG-CD	-9.08	1.19	1.50
1	1	140	PRO	N-CD	5.48	1.55	1.47
1	1	140	PRO	CA-CB	-5.46	1.46	1.53

The worst 5 of 20 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	140	PRO	CB-CG-CD	-31.21	6.23	106.10
14	J	121	PRO	N-CD-CG	-16.57	78.34	103.20
14	J	121	PRO	CA-CB-CG	-13.58	78.70	104.50
1	1	140	PRO	N-CA-CB	-13.08	89.52	103.25
1	1	49	PRO	N-CD-CG	-9.50	88.95	103.20

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	3612	3731	3730	80	0
2	2	251	273	272	9	0
3	3	534	571	571	13	0
4	4	482	516	514	11	0
5	A	1898	1994	1993	14	0
6	B	181	172	171	8	0
7	C	2883	3054	3053	12	0
8	D	2391	2425	2424	16	0
9	E	1791	1963	1956	12	0
10	F	1875	1997	1995	6	0
11	G	1879	2029	2027	8	0
12	H	1516	1598	1597	11	0
13	I	1664	1716	1712	8	0
14	J	1362	1401	1399	4	0
15	K	75972	38363	38386	544	0
16	L	1702	1823	1820	10	0
17	M	1137	1212	1211	9	0
18	N	1701	1753	1749	9	0
19	O	1630	1780	1778	12	0
20	P	1470	1542	1541	9	0
21	Q	1514	1638	1634	8	0
22	R	1294	1436	1434	6	0
23	S	1462	1510	1508	10	0
24	T	1298	1369	1366	7	0
25	U	834	859	858	12	0
26	V	979	1040	1039	5	0
27	W	528	542	541	2	0
28	X	967	1041	1040	2	0
29	Y	1115	1206	1205	7	0
30	Z	1107	1185	1182	10	0
31	a	1162	1210	1209	10	0
32	b	848	923	920	6	0
33	c	761	796	794	3	0
34	d	888	932	930	5	0
35	e	1053	1150	1147	16	0
36	f	876	913	912	2	0
37	g	906	1004	998	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
38	h	1013	1148	1147	6	0
39	i	830	917	916	1	0
40	j	705	743	737	6	0
41	k	569	637	637	4	0
42	l	447	481	480	5	0
43	m	429	470	465	2	0
44	n	240	289	289	0	0
45	o	851	927	920	3	0
46	p	708	762	756	5	0
47	q	1616	823	824	4	0
48	r	994	1052	1051	9	0
49	u	2558	1296	1296	12	0
50	v	3314	1683	1683	34	0
51	w	3172	3315	3310	19	0
52	I	1	0	0	0	0
52	K	202	0	0	0	0
52	V	1	0	0	0	0
52	a	1	0	0	0	0
52	g	1	0	0	0	0
52	u	7	0	0	0	0
52	v	5	0	0	0	0
53	g	1	0	0	0	0
53	j	1	0	0	0	0
53	m	1	0	0	0	0
53	o	1	0	0	0	0
53	p	1	0	0	0	0
All	All	141192	103210	103127	888	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

The worst 5 of 888 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:140:PRO:N	1:1:140:PRO:CG	1.84	1.39
1:1:140:PRO:CD	1:1:140:PRO:HG2	1.68	1.13
1:1:140:PRO:CD	1:1:140:PRO:HG3	1.68	1.12
1:1:140:PRO:CG	1:1:140:PRO:HD3	1.58	1.09
1:1:140:PRO:CG	1:1:140:PRO:HD2	1.58	1.08

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	1	465/476 (98%)	457 (98%)	8 (2%)	0	100	100
2	2	30/96 (31%)	29 (97%)	0	1 (3%)	3	7
3	3	64/68 (94%)	64 (100%)	0	0	100	100
4	4	58/66 (88%)	56 (97%)	2 (3%)	0	100	100
5	A	246/257 (96%)	239 (97%)	7 (3%)	0	100	100
6	B	25/229 (11%)	18 (72%)	7 (28%)	0	100	100
7	C	360/425 (85%)	354 (98%)	6 (2%)	0	100	100
8	D	291/297 (98%)	290 (100%)	1 (0%)	0	100	100
9	E	215/291 (74%)	211 (98%)	4 (2%)	0	100	100
10	F	223/247 (90%)	217 (97%)	6 (3%)	0	100	100
11	G	229/319 (72%)	228 (100%)	1 (0%)	0	100	100
12	H	188/192 (98%)	188 (100%)	0	0	100	100
13	I	201/214 (94%)	198 (98%)	3 (2%)	0	100	100
14	J	168/178 (94%)	165 (98%)	3 (2%)	0	100	100
16	L	208/211 (99%)	202 (97%)	6 (3%)	0	100	100
17	M	136/218 (62%)	132 (97%)	4 (3%)	0	100	100
18	N	201/204 (98%)	195 (97%)	6 (3%)	0	100	100
19	O	197/203 (97%)	195 (99%)	2 (1%)	0	100	100
20	P	179/184 (97%)	176 (98%)	3 (2%)	0	100	100
21	Q	185/187 (99%)	180 (97%)	5 (3%)	0	100	100
22	R	153/196 (78%)	151 (99%)	2 (1%)	0	100	100
23	S	174/176 (99%)	170 (98%)	4 (2%)	0	100	100
24	T	157/160 (98%)	154 (98%)	3 (2%)	0	100	100
25	U	100/128 (78%)	95 (95%)	5 (5%)	0	100	100
26	V	129/140 (92%)	129 (100%)	0	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
27	W	61/157 (39%)	60 (98%)	1 (2%)	0	100	100
28	X	116/156 (74%)	113 (97%)	3 (3%)	0	100	100
29	Y	132/145 (91%)	130 (98%)	2 (2%)	0	100	100
30	Z	133/136 (98%)	128 (96%)	5 (4%)	0	100	100
31	a	145/148 (98%)	136 (94%)	7 (5%)	2 (1%)	9	23
32	b	100/226 (44%)	96 (96%)	4 (4%)	0	100	100
33	c	96/115 (84%)	95 (99%)	1 (1%)	0	100	100
34	d	105/125 (84%)	104 (99%)	1 (1%)	0	100	100
35	e	126/135 (93%)	125 (99%)	1 (1%)	0	100	100
36	f	107/110 (97%)	107 (100%)	0	0	100	100
37	g	112/116 (97%)	108 (96%)	4 (4%)	0	100	100
38	h	120/123 (98%)	118 (98%)	2 (2%)	0	100	100
39	i	100/105 (95%)	99 (99%)	1 (1%)	0	100	100
40	j	84/97 (87%)	81 (96%)	3 (4%)	0	100	100
41	k	67/70 (96%)	66 (98%)	1 (2%)	0	100	100
42	l	48/51 (94%)	48 (100%)	0	0	100	100
43	m	50/102 (49%)	50 (100%)	0	0	100	100
44	n	23/25 (92%)	23 (100%)	0	0	100	100
45	o	102/106 (96%)	99 (97%)	3 (3%)	0	100	100
46	p	89/92 (97%)	85 (96%)	4 (4%)	0	100	100
48	r	122/137 (89%)	118 (97%)	4 (3%)	0	100	100
51	w	392/403 (97%)	383 (98%)	9 (2%)	0	100	100
All	All	7012/8242 (85%)	6865 (98%)	144 (2%)	3 (0%)	100	100

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
31	a	15	VAL
31	a	40	HIS
2	2	70	PRO

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	1	392/398 (98%)	387 (99%)	5 (1%)	61	83
2	2	28/74 (38%)	26 (93%)	2 (7%)	13	33
3	3	59/59 (100%)	57 (97%)	2 (3%)	32	62
4	4	51/55 (93%)	51 (100%)	0	100	100
5	A	190/199 (96%)	189 (100%)	1 (0%)	81	92
6	B	21/172 (12%)	21 (100%)	0	100	100
7	C	302/347 (87%)	299 (99%)	3 (1%)	68	86
8	D	247/250 (99%)	244 (99%)	3 (1%)	63	84
9	E	197/251 (78%)	196 (100%)	1 (0%)	81	92
10	F	196/215 (91%)	196 (100%)	0	100	100
11	G	200/272 (74%)	200 (100%)	0	100	100
12	H	169/171 (99%)	169 (100%)	0	100	100
13	I	175/181 (97%)	174 (99%)	1 (1%)	78	91
14	J	143/149 (96%)	142 (99%)	1 (1%)	76	90
16	L	175/176 (99%)	173 (99%)	2 (1%)	65	85
17	M	117/161 (73%)	116 (99%)	1 (1%)	70	87
18	N	171/172 (99%)	169 (99%)	2 (1%)	63	84
19	O	171/173 (99%)	169 (99%)	2 (1%)	63	84
20	P	160/163 (98%)	158 (99%)	2 (1%)	61	83
21	Q	164/164 (100%)	163 (99%)	1 (1%)	78	91
22	R	138/175 (79%)	138 (100%)	0	100	100
23	S	157/157 (100%)	155 (99%)	2 (1%)	61	83
24	T	139/140 (99%)	136 (98%)	3 (2%)	45	74
25	U	92/114 (81%)	91 (99%)	1 (1%)	65	85
26	V	101/107 (94%)	101 (100%)	0	100	100
27	W	55/126 (44%)	55 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
28	X	106/134 (79%)	106 (100%)	0	100	100
29	Y	124/135 (92%)	122 (98%)	2 (2%)	55	80
30	Z	117/118 (99%)	116 (99%)	1 (1%)	70	87
31	a	119/120 (99%)	119 (100%)	0	100	100
32	b	84/172 (49%)	83 (99%)	1 (1%)	63	84
33	c	84/98 (86%)	83 (99%)	1 (1%)	63	84
34	d	98/110 (89%)	97 (99%)	1 (1%)	68	86
35	e	114/121 (94%)	113 (99%)	1 (1%)	70	87
36	f	88/89 (99%)	88 (100%)	0	100	100
37	g	98/99 (99%)	98 (100%)	0	100	100
38	h	109/110 (99%)	109 (100%)	0	100	100
39	i	86/89 (97%)	85 (99%)	1 (1%)	63	84
40	j	73/80 (91%)	73 (100%)	0	100	100
41	k	64/65 (98%)	64 (100%)	0	100	100
42	l	47/48 (98%)	47 (100%)	0	100	100
43	m	48/90 (53%)	48 (100%)	0	100	100
44	n	24/24 (100%)	24 (100%)	0	100	100
45	o	92/94 (98%)	92 (100%)	0	100	100
46	p	74/75 (99%)	73 (99%)	1 (1%)	59	82
48	r	108/121 (89%)	107 (99%)	1 (1%)	70	87
51	w	342/348 (98%)	340 (99%)	2 (1%)	78	91
All	All	6109/6961 (88%)	6062 (99%)	47 (1%)	70	88

5 of 47 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
21	Q	175	GLU
29	Y	46	SER
23	S	22	CYS
24	T	147	GLU
30	Z	19	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 46 such sidechains are listed below:

Mol	Chain	Res	Type
24	T	131	GLN
31	a	39	HIS
25	U	38	ASN
28	X	125	ASN
34	d	34	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
15	K	3521/3543 (99%)	583 (16%)	52 (1%)
47	q	74/76 (97%)	6 (8%)	0
49	u	119/120 (99%)	7 (5%)	0
50	v	155/156 (99%)	22 (14%)	0
All	All	3869/3895 (99%)	618 (15%)	52 (1%)

5 of 618 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
15	K	12	A
15	K	13	U
15	K	39	A
15	K	42	A
15	K	56	A

5 of 52 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
15	K	1992	U
15	K	2502	A
15	K	4699	U
15	K	2046	G
15	K	2258	C

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 223 ligands modelled in this entry, 223 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 [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
15	K	23
47	q	1

The worst 5 of 24 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	K	2113:G	O3'	2258:C	P	41.43
1	K	1252:C	O3'	1271:G	P	35.70
1	K	1219:G	O3'	1233:G	P	25.00
1	K	4138:C	O3'	4146:G	P	18.91
1	K	4101:C	O3'	4107:G	P	17.83

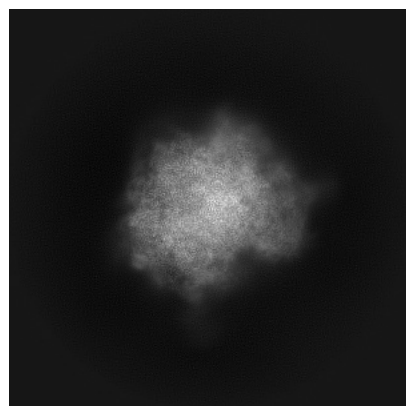
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-19195. These allow visual inspection of the internal detail of the map and identification of artifacts.

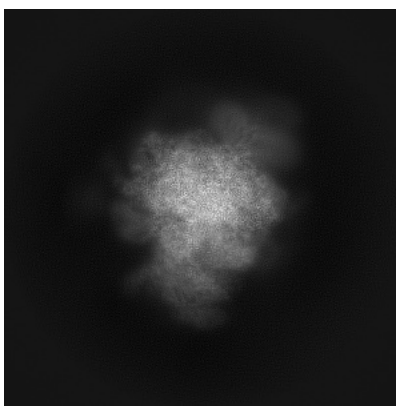
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

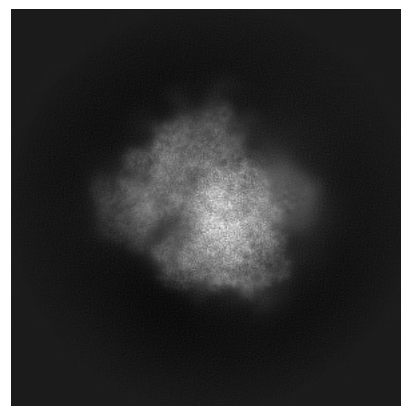
6.1.1 Primary map



X

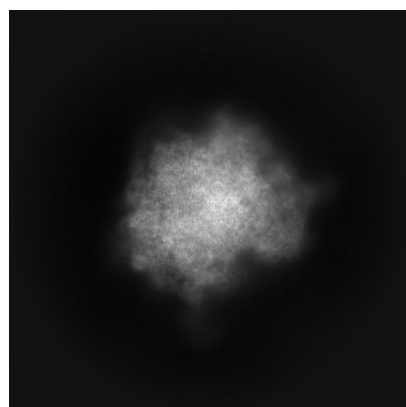


Y

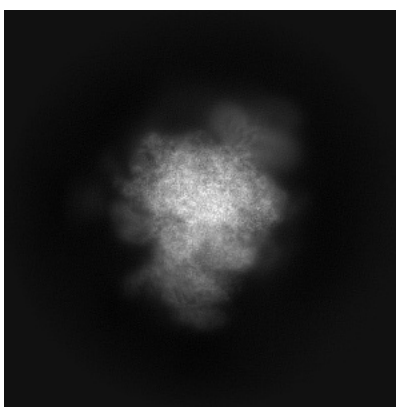


Z

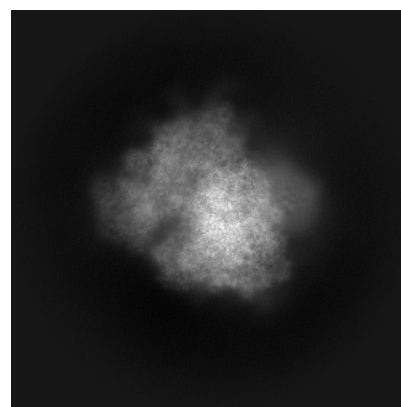
6.1.2 Raw map



X



Y

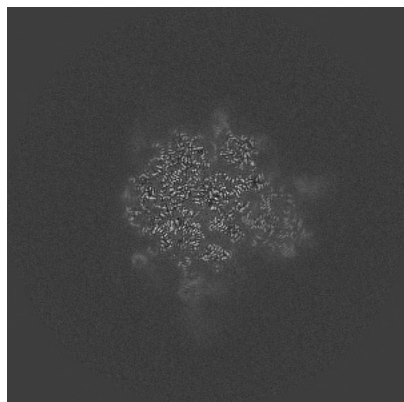


Z

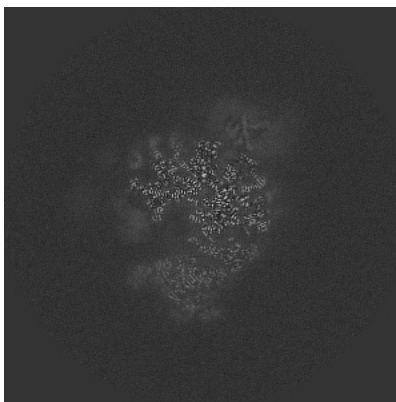
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

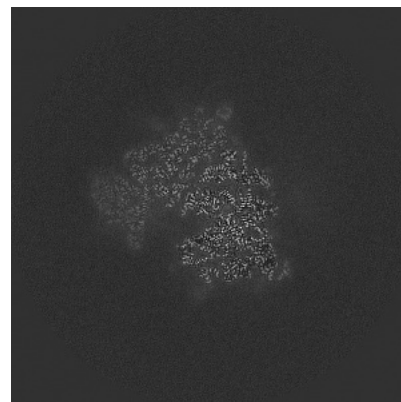
6.2.1 Primary map



X Index: 210

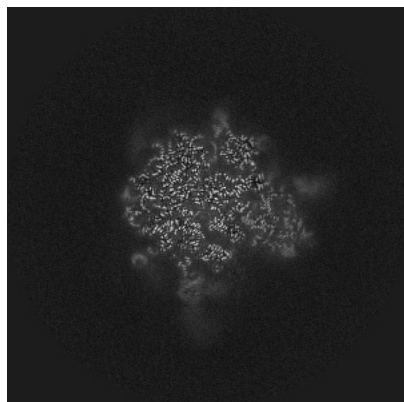


Y Index: 210

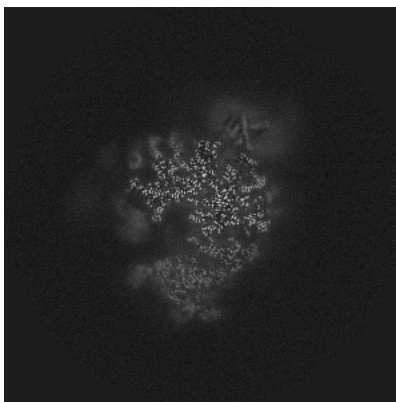


Z Index: 210

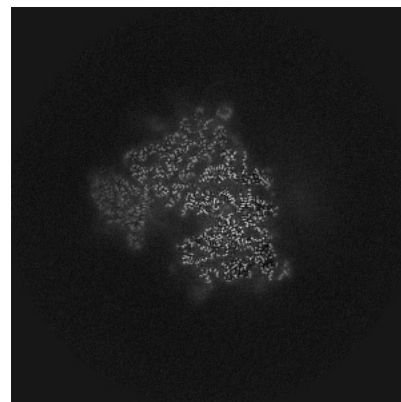
6.2.2 Raw map



X Index: 210



Y Index: 210

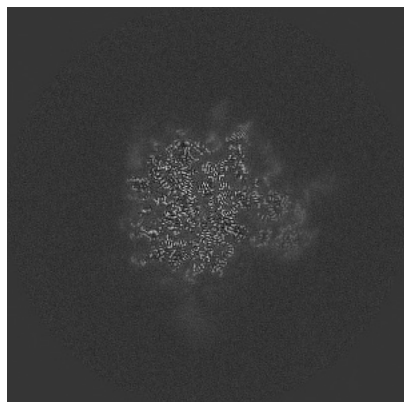


Z Index: 210

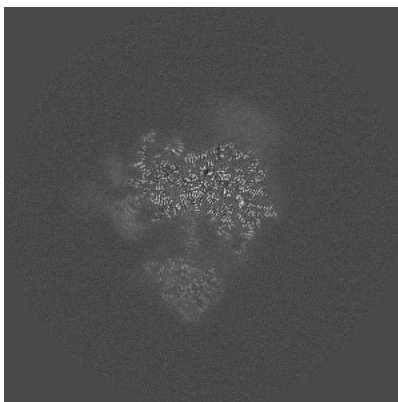
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

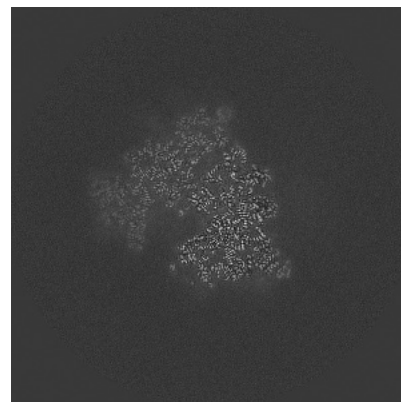
6.3.1 Primary map



X Index: 220

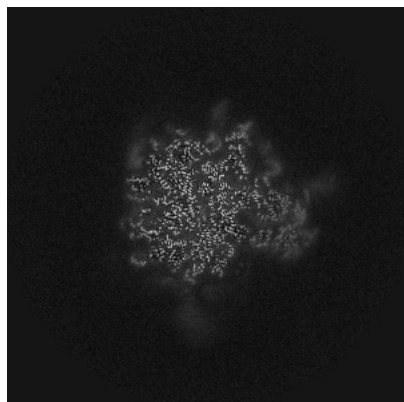


Y Index: 195

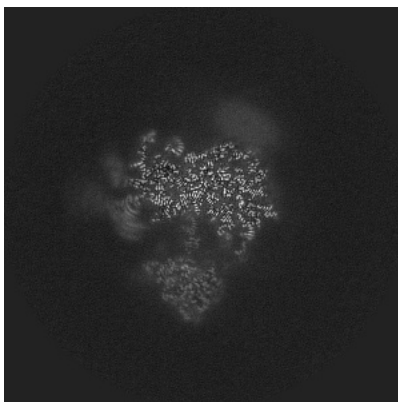


Z Index: 207

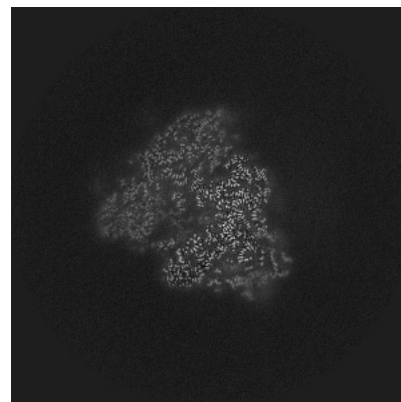
6.3.2 Raw map



X Index: 220



Y Index: 195

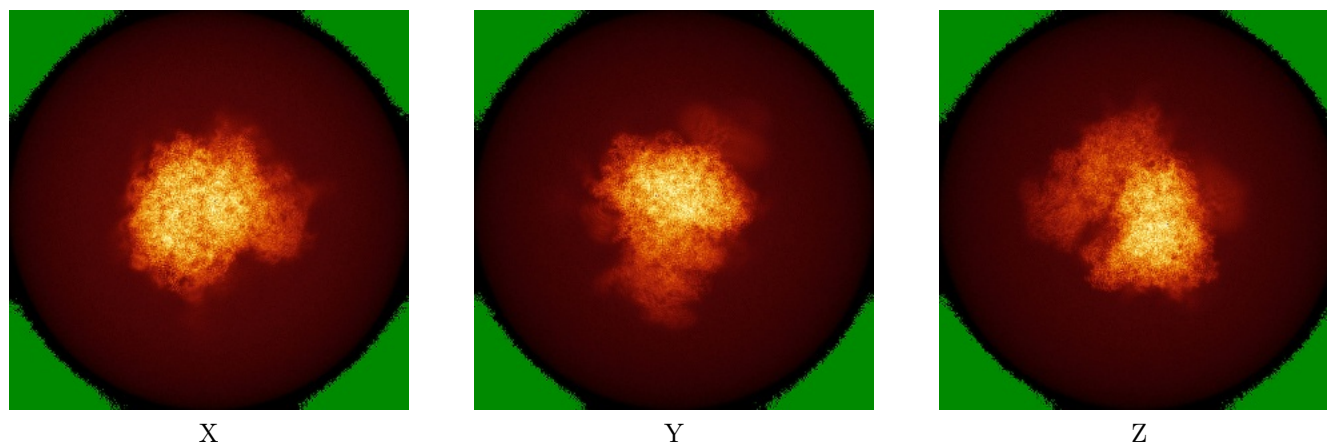


Z Index: 196

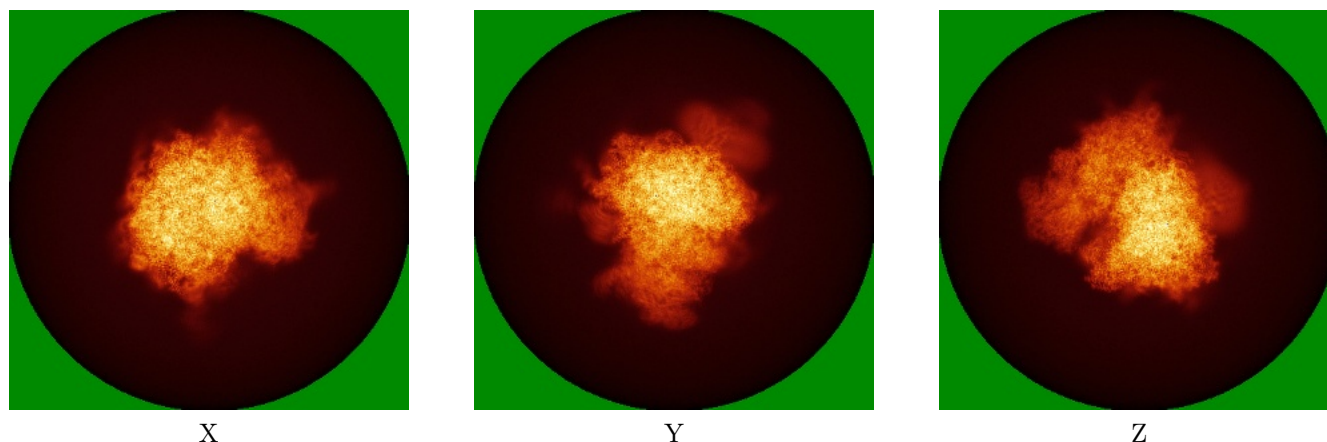
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



6.4.2 Raw map



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](#)

This section was not generated.

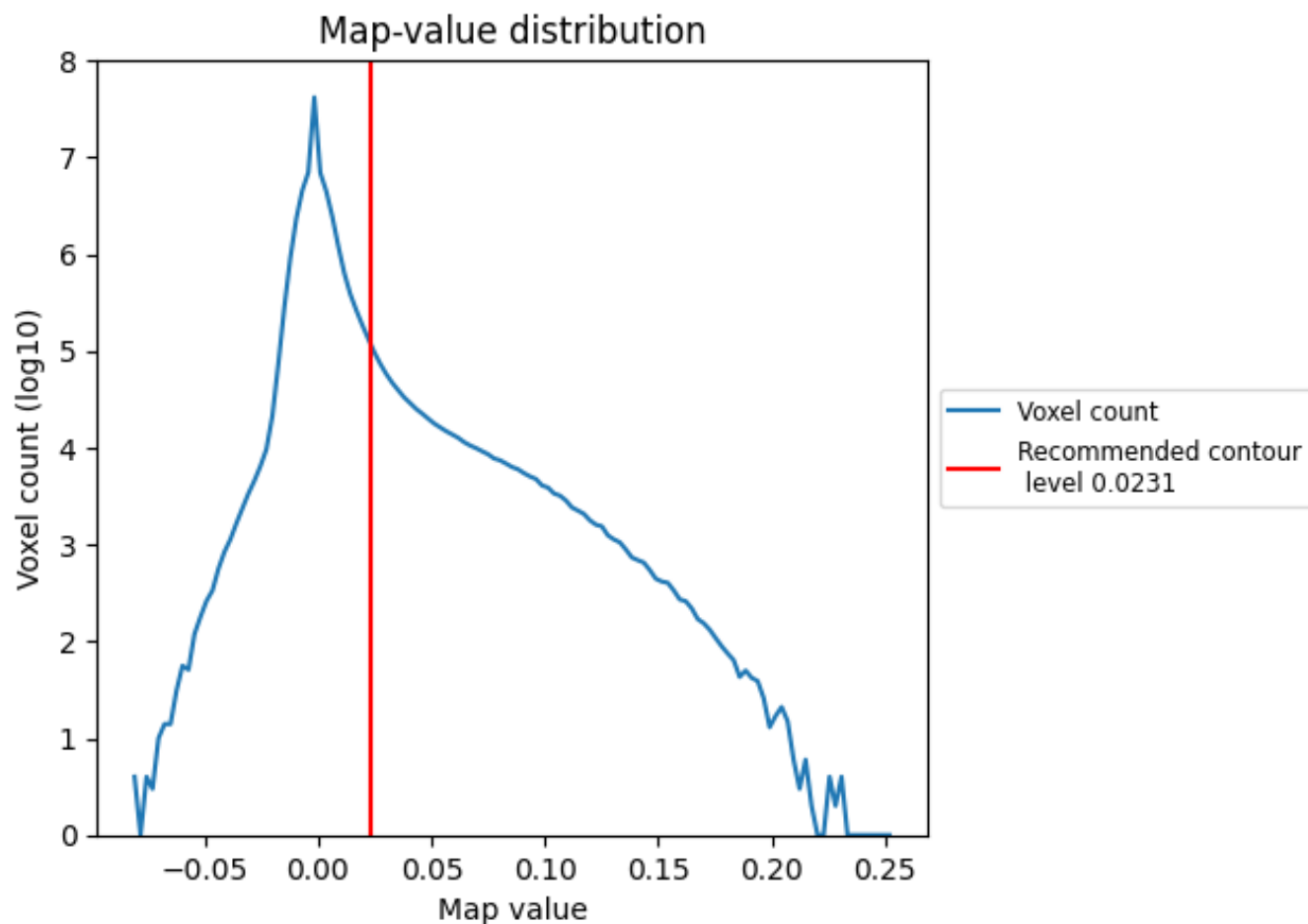
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

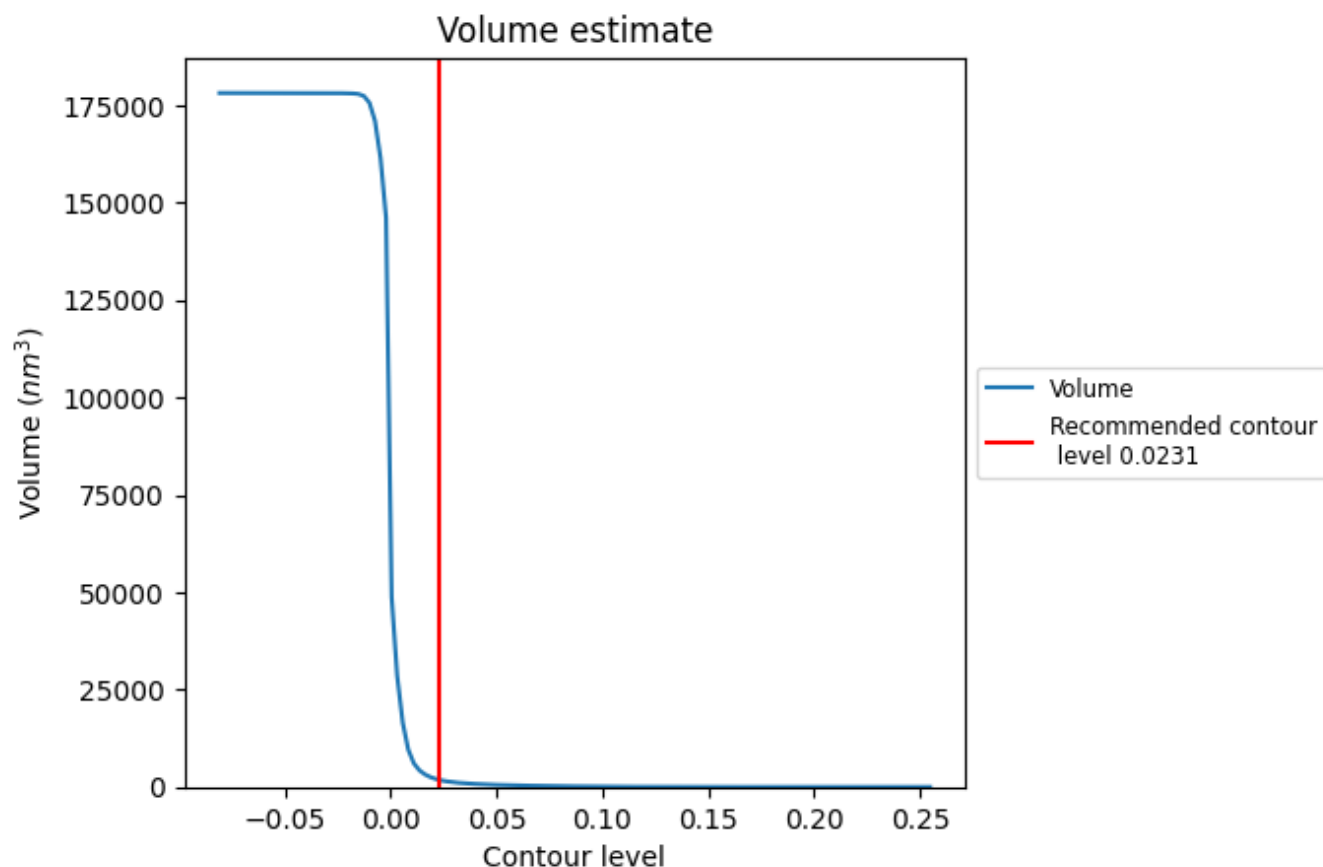
This section contains the results of statistical analysis of the map.

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.

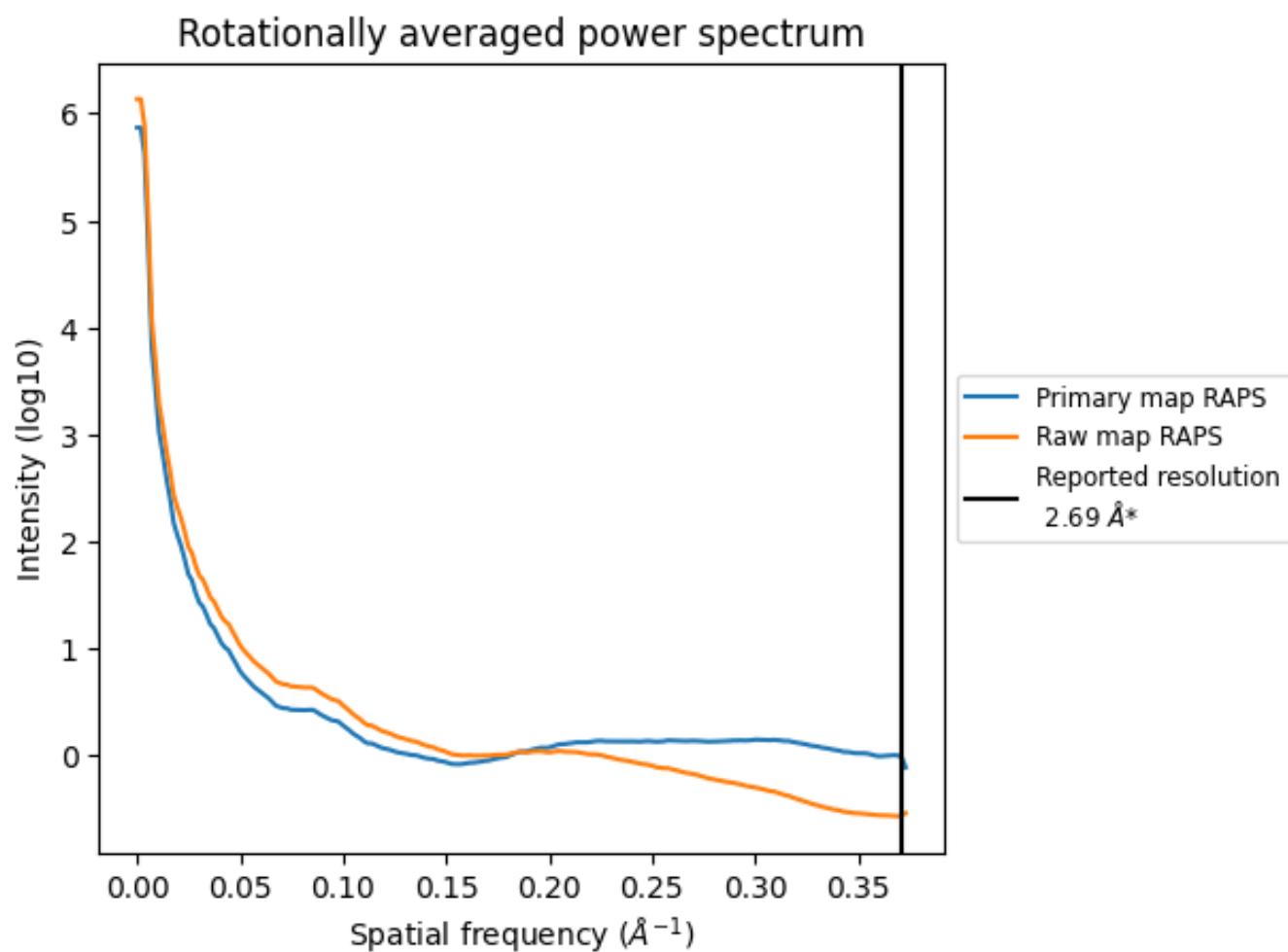
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1793 nm^3 ; this corresponds to an approximate mass of 1619 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

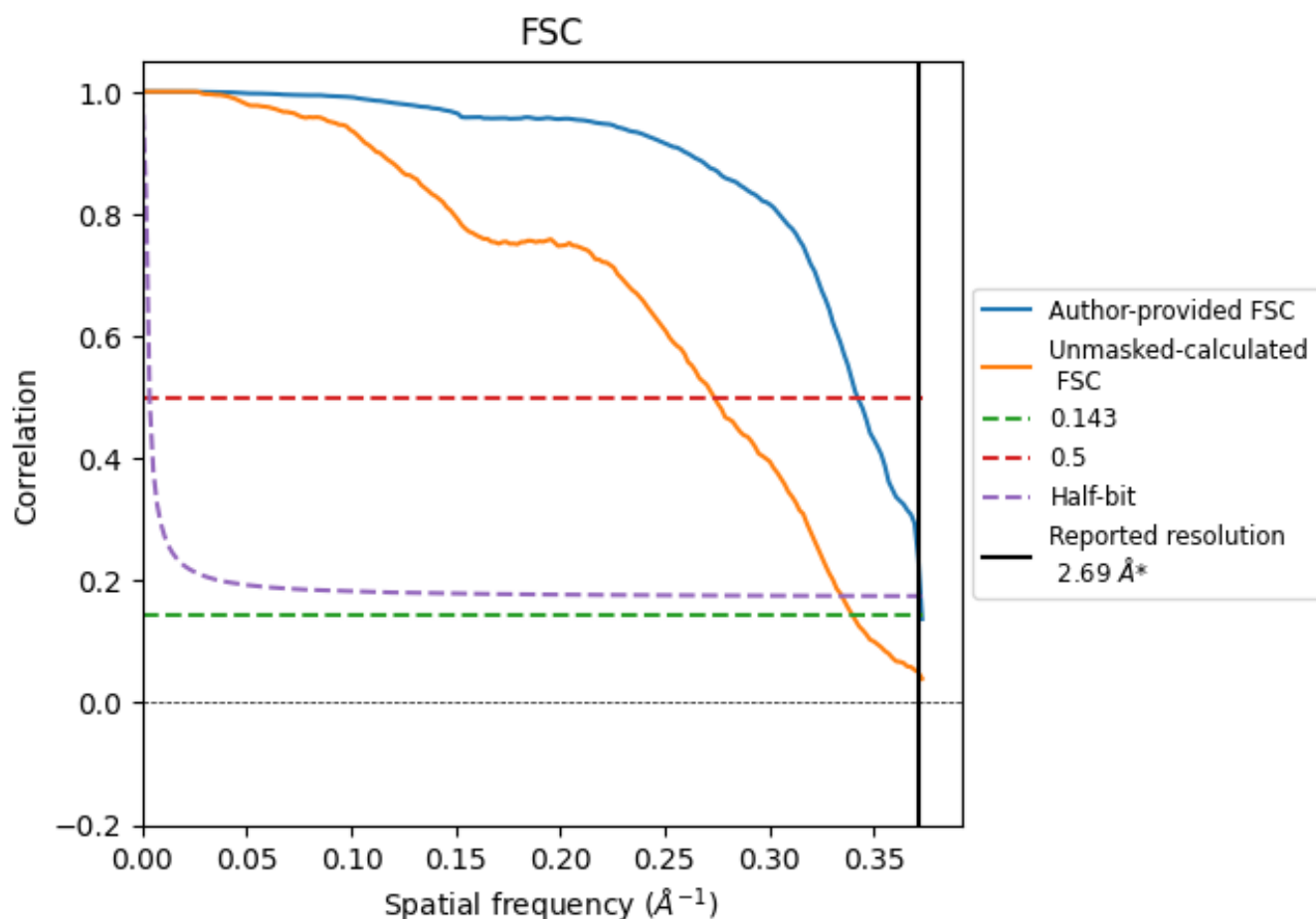


*Reported resolution corresponds to spatial frequency of $0.371 \text{ \AA}^{-1}$

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 $0.371 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

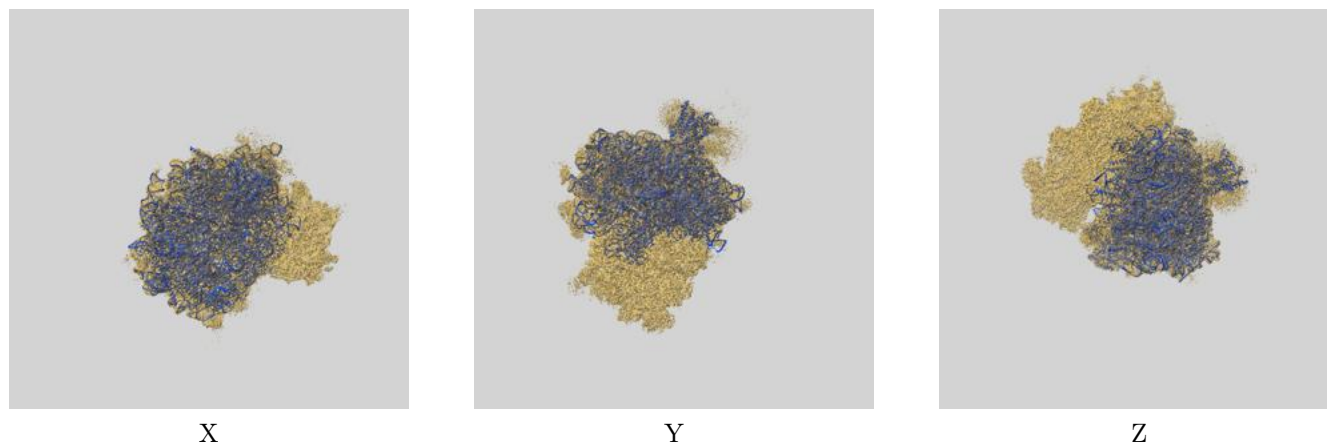
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.69	-	-
Author-provided FSC curve	2.68	2.92	2.68
Unmasked-calculated*	2.94	3.65	2.99

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

9 Map-model fit [i](#)

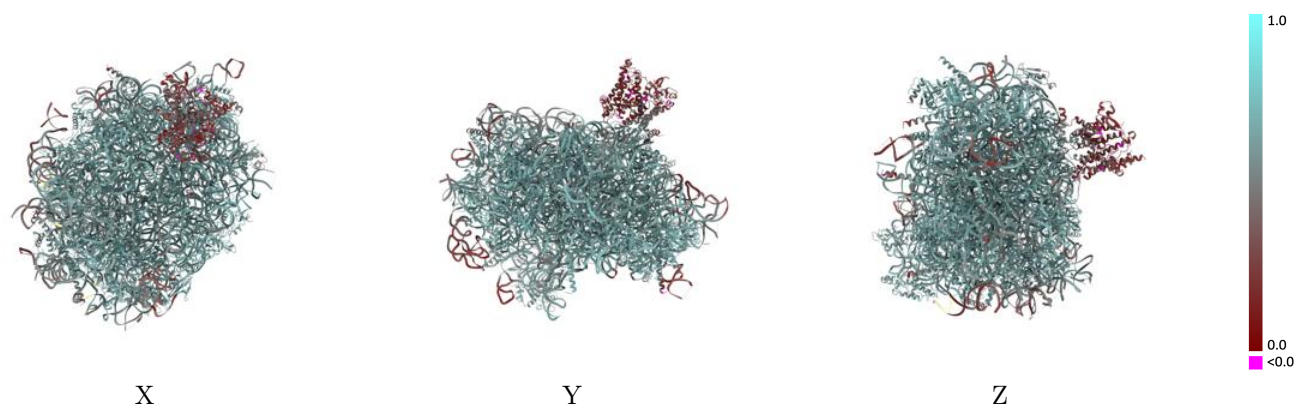
This section contains information regarding the fit between EMDB map EMD-19195 and PDB model 8RJB. Per-residue inclusion information can be found in section [3](#) on page [19](#).

9.1 Map-model overlay [i](#)



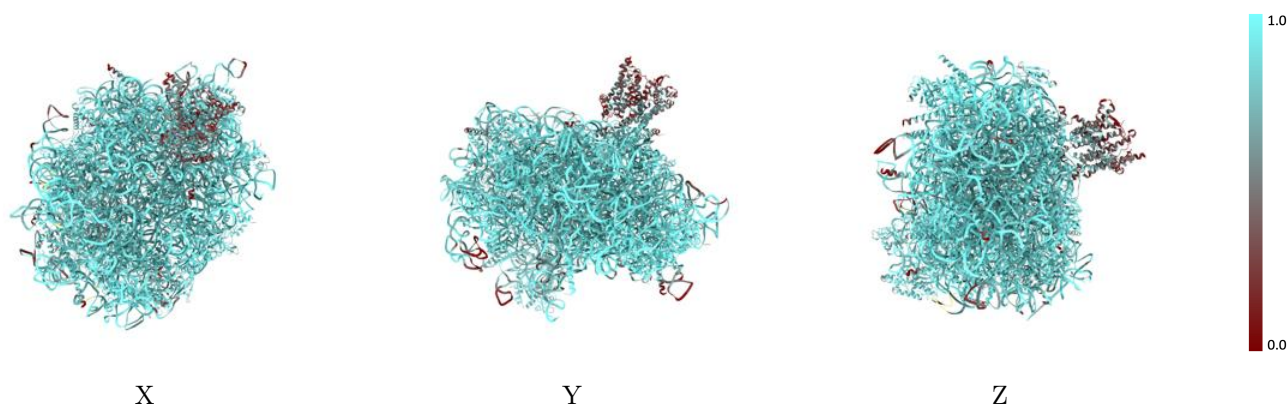
The images above show the 3D surface view of the map at the recommended contour level 0.0231 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



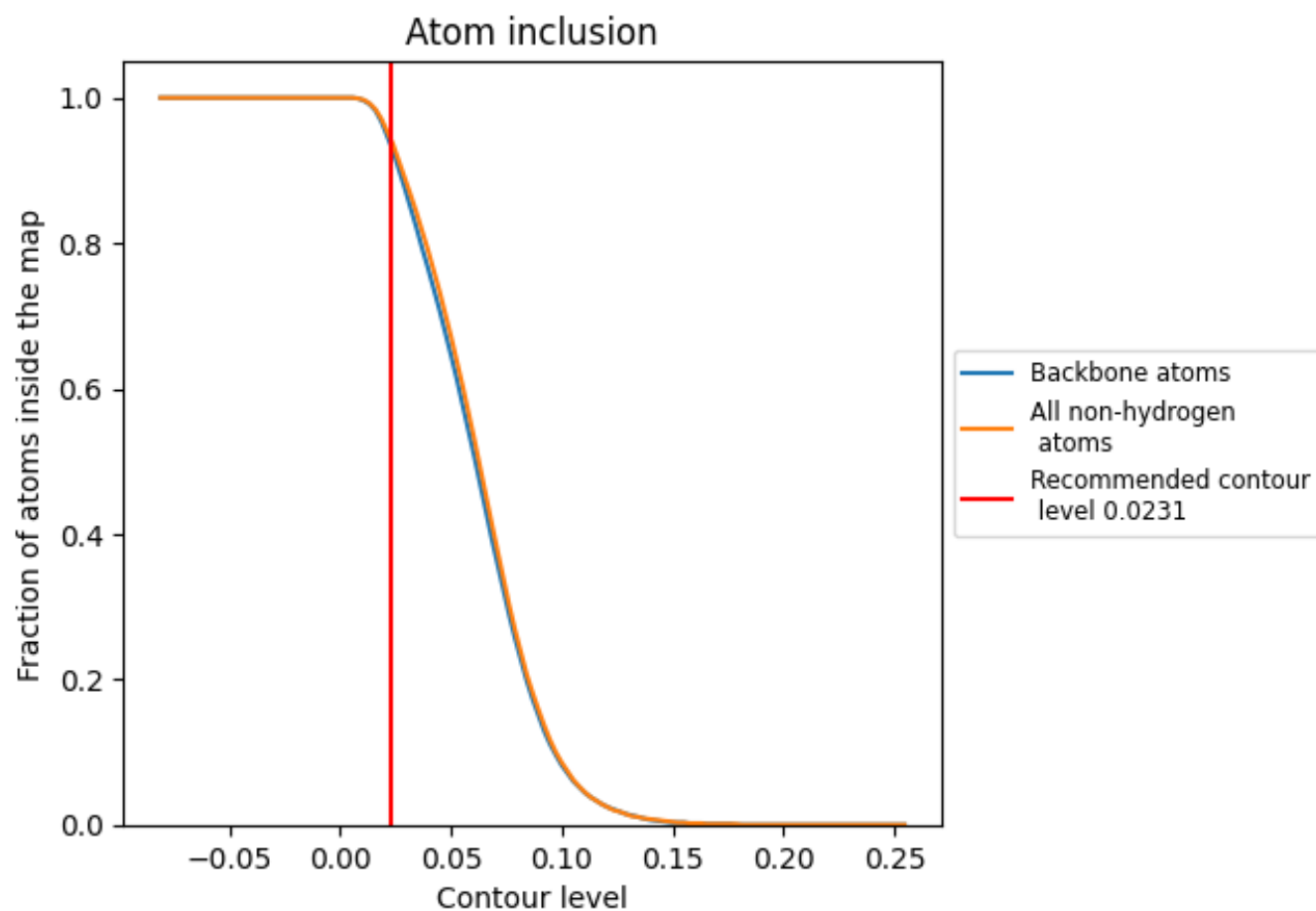
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0231).

9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 94% 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 (0.0231) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9420	 0.6080
1	 0.5010	 0.3170
2	 0.3970	 0.2340
3	 0.6220	 0.3920
4	 0.5050	 0.3860
A	 0.9950	 0.6690
B	 0.7930	 0.3540
C	 0.9740	 0.6550
D	 0.9330	 0.6330
E	 0.9260	 0.6170
F	 0.9810	 0.6560
G	 0.8910	 0.6080
H	 0.9640	 0.6480
I	 0.9700	 0.6520
J	 0.9070	 0.6070
K	 0.9560	 0.6020
L	 0.9250	 0.6350
M	 0.9520	 0.6310
N	 0.9990	 0.6720
O	 0.9770	 0.6620
P	 0.8750	 0.6220
Q	 0.9910	 0.6640
R	 0.9750	 0.6530
S	 0.9820	 0.6560
T	 0.9540	 0.6380
U	 0.8380	 0.5450
V	 0.9810	 0.6580
W	 0.9750	 0.6560
X	 0.9780	 0.6490
Y	 0.9520	 0.6490
Z	 0.9610	 0.6430
a	 0.9860	 0.6680
b	 0.8750	 0.5920
c	 0.9610	 0.6390
d	 0.9590	 0.6340



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
e	 0.9870	 0.6630
f	 0.9920	 0.6720
g	 0.9370	 0.6300
h	 0.9570	 0.6430
i	 0.9510	 0.6310
j	 0.9960	 0.6660
k	 0.8640	 0.6040
l	 0.9910	 0.6470
m	 0.9540	 0.6490
n	 0.9730	 0.6360
o	 0.9610	 0.6500
p	 0.9700	 0.6480
q	 0.6650	 0.5250
r	 0.9800	 0.6540
u	 0.9920	 0.6420
v	 0.9770	 0.6210
w	 0.9730	 0.6580