



## wwPDB EM Validation Summary Report ⓘ

Apr 23, 2024 – 08:43 am BST

PDB ID : 6ZUO  
EMDB ID : EMD-11440  
Title : Human RIO1(kd)-StHA late pre-40S particle, structural state A (pre 18S rRNA cleavage)  
Authors : Plassart, L.; Shayan, R.; Plisson-Chastang, C.  
Deposited on : 2020-07-23  
Resolution : 3.10 Å(reported)  
Based on initial model : 6G51

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

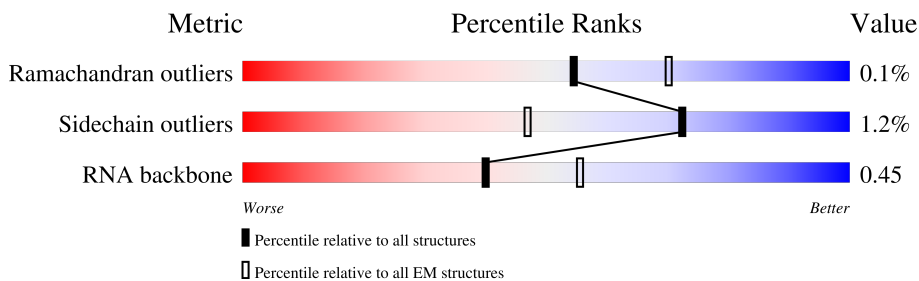
EMDB validation analysis : 0.0.1.dev92  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36.2

# 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 3.10 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  $\geq 3$ , 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	2	1870	
2	A	295	
3	B	264	
4	C	293	
5	D	243	
6	E	263	
7	F	204	
8	G	249	



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Mol	Chain	Length	Quality of chain
9	H	194	53% 95% ..
10	I	208	97% ..
11	J	194	91% 7%
12	K	165	58% 42%
13	L	158	9% 91% ..
14	M	132	42% 90% 7%
15	N	151	99% .
16	O	151	5% 88% 11%
17	P	145	82% 17%
18	Q	146	5% 95% 5%
19	R	135	24% 89% 10%
20	S	152	93% 6%
21	T	145	98% ..
22	U	119	9% 83% 15%
23	V	83	98% ..
24	W	130	99% .
25	X	143	96% ..
26	Y	133	91% 7%
27	Z	125	57% 42%
28	b	84	7% 95% ..
29	c	69	13% 86% 12%
30	d	56	5% 93% 5%
31	e	59	12% 93% 5%
32	f	156	13% 40% 60%
33	g	317	5% 98% ..

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Mol	Chain	Length	Quality of chain
34	x	252	
35	y	412	

## 2 Entry composition [i](#)

There are 36 unique types of molecules in this entry. The entry contains 77098 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called pre-18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	2	1665	35550	15868	6384	11633	1665	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	216	1705	1083	299	315	8	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	213	1729	1098	309	308	14	0	0

- Molecule 4 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	218	1690	1094	289	297	10	0	0

- Molecule 5 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	225	1752	1117	315	313	7	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	E	262	2076	1324	386	358	8	0	0

- Molecule 7 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	F	189	1495	934	284	270	7	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	G	230	1862	1164	371	320	7	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	H	186	1501	957	276	267	1	0	0

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

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

- Molecule 11 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	J	180	1499	955	300	242	2	0	0

- Molecule 12 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	K	95	800	522	142	131	5	0	0

- Molecule 13 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	L	151	1229	782	230	211	6	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	123	Total	C	N	O	S	0	0
			953	598	169	177	9		

- Molecule 15 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	135	Total	C	N	O	S	0	0
			1009	618	198	187	6		

- Molecule 17 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	120	Total	C	N	O	S	0	0
			984	625	184	168	7		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	139	Total	C	N	O	S	0	0
			1109	704	210	192	3		

- Molecule 19 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	122	Total	C	N	O	S	0	0
			990	621	184	182	3		

- Molecule 20 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	S	143	Total	C	N	O	S	0	0
			1184	743	240	200	1		

- Molecule 21 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	144	Total	C	N	O	S	0	0
			1122	703	217	199	3		

- Molecule 22 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	U	101	Total	C	N	O	S	0	0
			803	504	153	142	4		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
23	V	82	Total	C	N	O	S	0	0
			625	384	116	120	5		

- Molecule 24 is a protein called 40S ribosomal protein S15a.

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

- Molecule 25 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	X	141	Total	C	N	O	S	0	0
			1098	693	219	183	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Y	124	Total	C	N	O	S	0	0
			1014	641	198	170	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Z	72	Total	C	N	O	S	0	0
			574	368	104	101	1		

- Molecule 28 is a protein called 40S ribosomal protein S27.



Mol	Chain	Residues	Atoms					AltConf	Trace
28	b	82	Total	C	N	O	S	0	0
			640	402	118	113	7		

- Molecule 29 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	c	61	Total	C	N	O	S	0	0
			479	292	95	90	2		

- Molecule 30 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	d	55	Total	C	N	O	S	0	0
			458	286	94	73	5		

- Molecule 31 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	e	56	Total	C	N	O	S	0	0
			442	273	96	72	1		

- Molecule 32 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	f	63	Total	C	N	O	S	0	0
			510	320	97	86	7		

- Molecule 33 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	g	314	Total	C	N	O	S	0	0
			2440	1537	425	466	12		

- Molecule 34 is a protein called RNA-binding protein PNO1.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	x	175	Total	C	N	O	S	0	0
			1365	878	249	234	4		

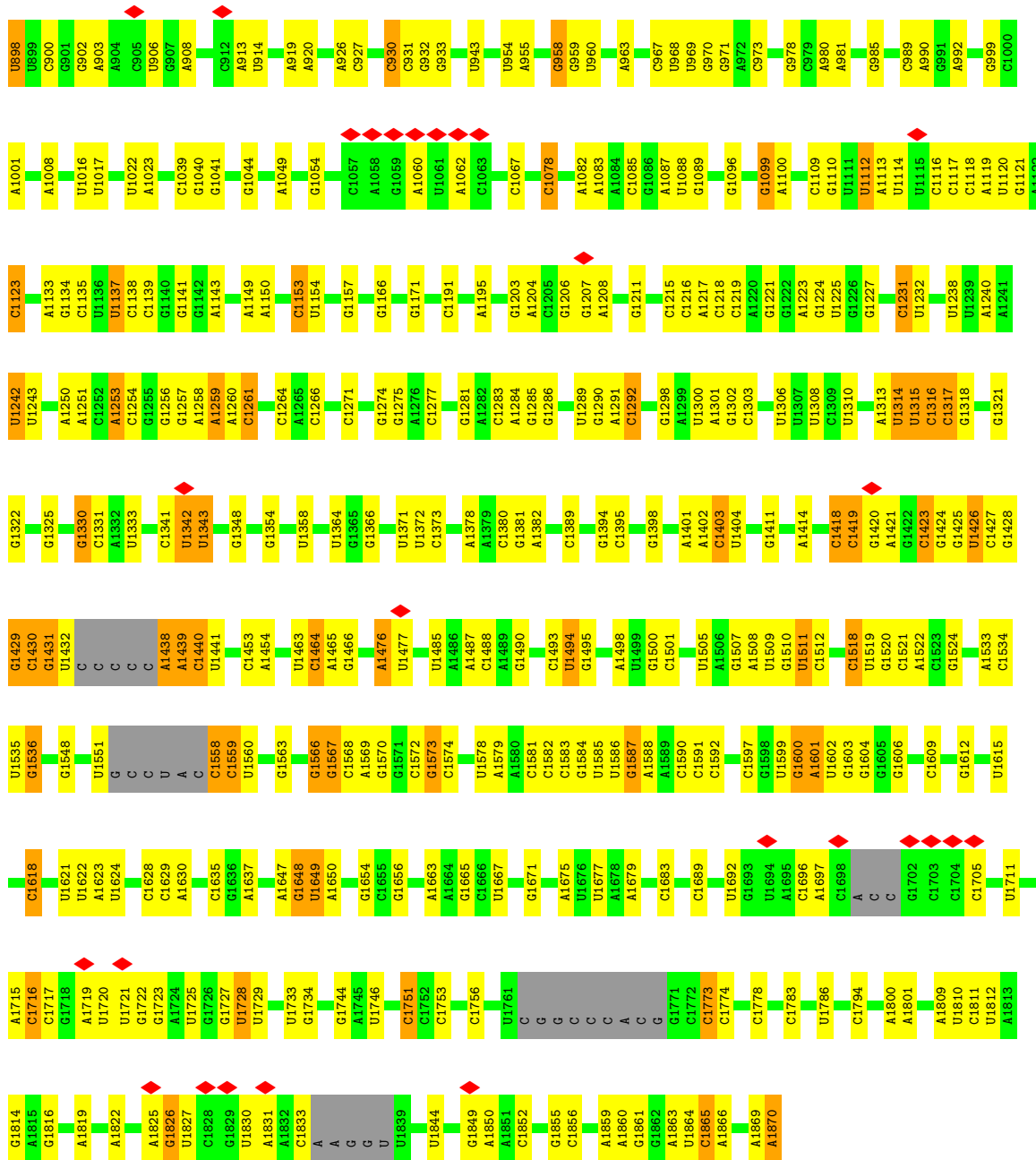
- Molecule 35 is a protein called RNA-binding protein NOB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	y	317	2490	1576	456	448	10	0	0

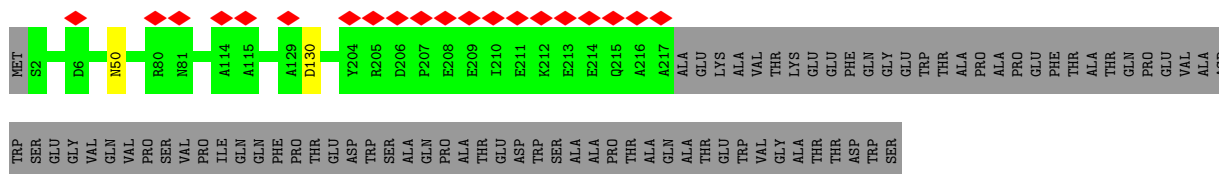
- Molecule 36 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
36	d	1	Total 1	Zn 1	0
36	f	1	Total 1	Zn 1	0
36	y	1	Total 1	Zn 1	0



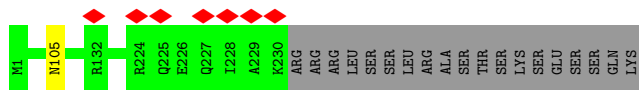


- Molecule 2: 40S ribosomal protein SA



- Molecule 3: 40S ribosomal protein S3a

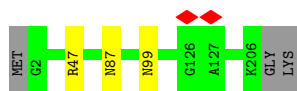




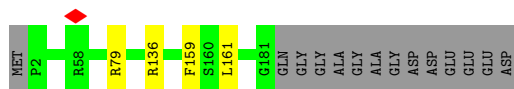
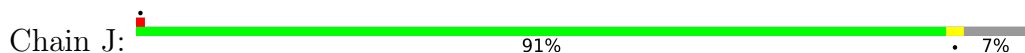
• Molecule 9: 40S ribosomal protein S7



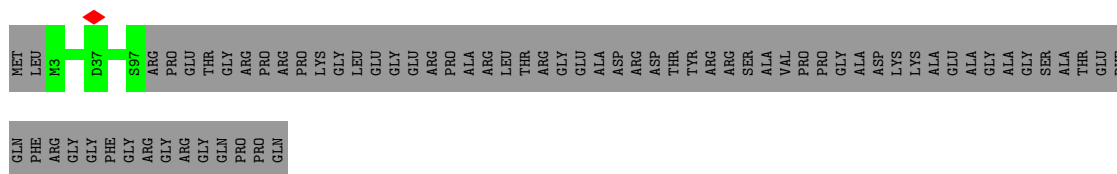
• Molecule 10: 40S ribosomal protein S8



• Molecule 11: 40S ribosomal protein S9



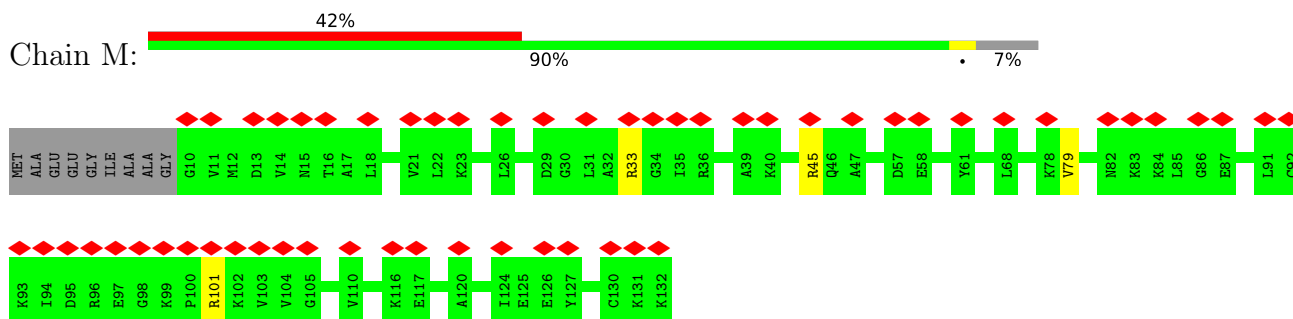
• Molecule 12: 40S ribosomal protein S10



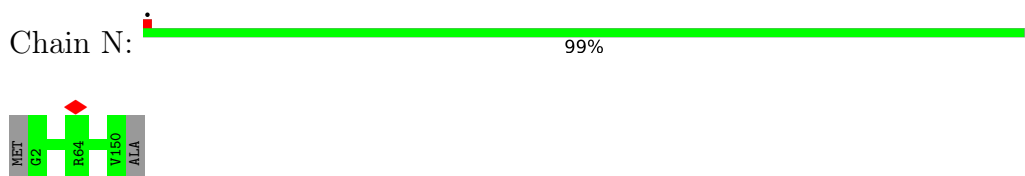
• Molecule 13: 40S ribosomal protein S11



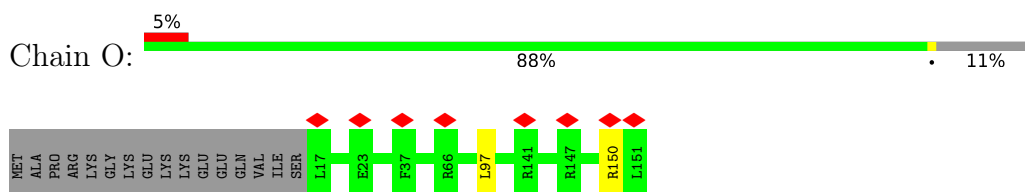
- Molecule 14: 40S ribosomal protein S12



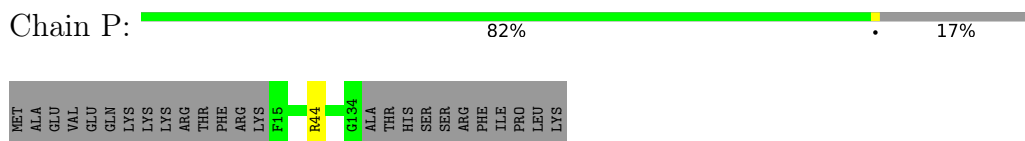
- Molecule 15: 40S ribosomal protein S13



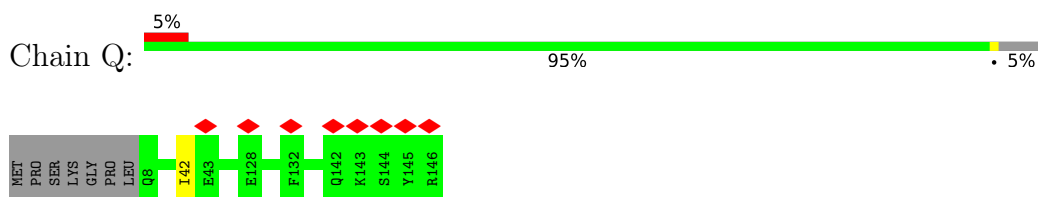
- Molecule 16: 40S ribosomal protein S14



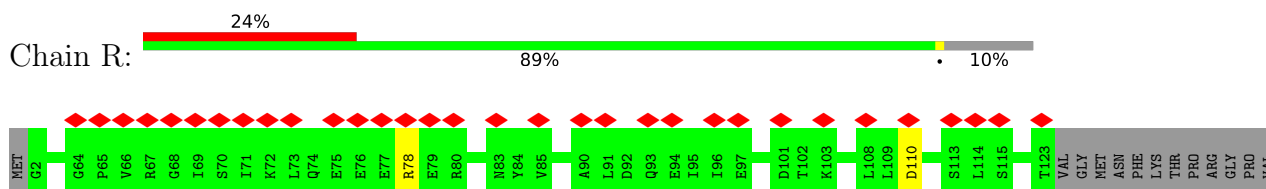
- Molecule 17: 40S ribosomal protein S15



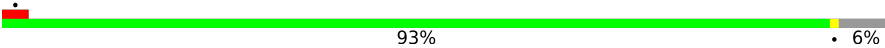
- Molecule 18: 40S ribosomal protein S16

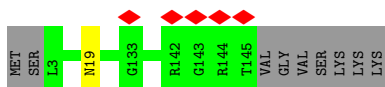


- Molecule 19: 40S ribosomal protein S17



- Molecule 20: 40S ribosomal protein S18

Chain S:  93% • 6%




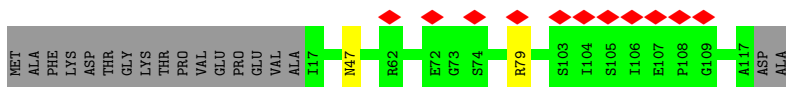
- Molecule 21: 40S ribosomal protein S19

Chain T:  98% ..



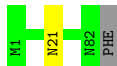
- Molecule 22: 40S ribosomal protein S20

Chain U:  9% 83% • 15%

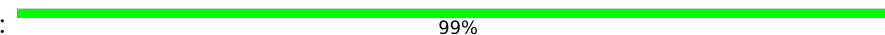


- Molecule 23: 40S ribosomal protein S21

Chain V:  98% ..



- Molecule 24: 40S ribosomal protein S15a

Chain W:  99% ..



- Molecule 25: 40S ribosomal protein S23

Chain X:  96% ..



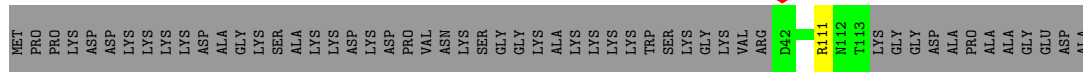
- Molecule 26: 40S ribosomal protein S24

Chain Y:  91% • 7%

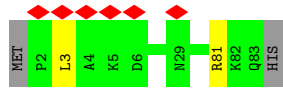


- Molecule 27: 40S ribosomal protein S25

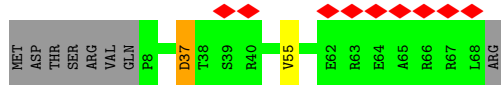
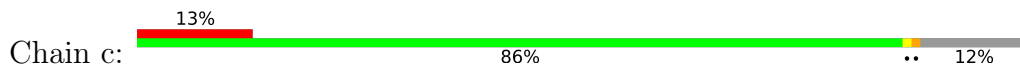




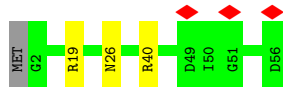
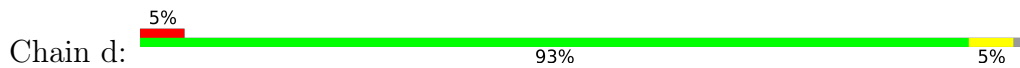
- Molecule 28: 40S ribosomal protein S27



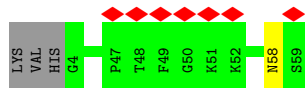
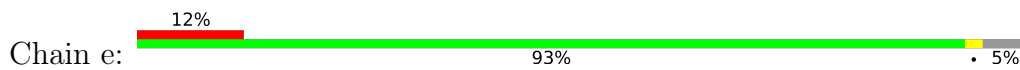
- Molecule 29: 40S ribosomal protein S28



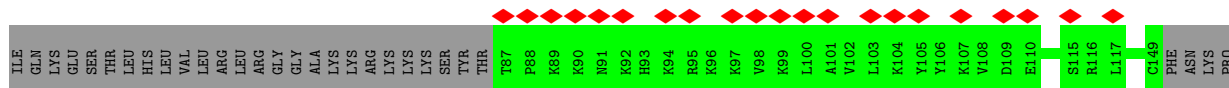
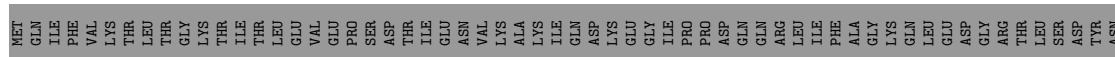
- Molecule 30: 40S ribosomal protein S29



- Molecule 31: 40S ribosomal protein S30



- Molecule 32: Ubiquitin-40S ribosomal protein S27a



- Molecule 33: Receptor of activated protein C kinase 1



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	104844	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 ( $e^-/\text{\AA}^2$ )	29.4	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.059	Depositor
Minimum map value	-0.030	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0045	Depositor
Map size (Å)	399.36, 399.36, 399.36	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	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	2	0.88	1/39751 (0.0%)	1.26	423/61945 (0.7%)
2	A	0.40	0/1742	0.60	0/2367
3	B	0.43	0/1756	0.62	1/2350 (0.0%)
4	C	0.48	0/1726	0.64	1/2332 (0.0%)
5	D	0.35	0/1780	0.58	0/2397
6	E	0.50	0/2118	0.63	0/2849
7	F	0.43	0/1516	0.59	0/2037
8	G	0.45	0/1885	0.58	0/2510
9	H	0.28	0/1524	0.53	0/2042
10	I	0.48	0/1711	0.60	0/2282
11	J	0.50	0/1524	0.63	0/2035
12	K	0.44	0/824	0.58	0/1112
13	L	0.51	0/1250	0.58	0/1673
14	M	0.27	0/963	0.61	0/1291
15	N	0.40	0/1226	0.54	0/1649
16	O	0.43	0/1022	0.67	1/1372 (0.1%)
17	P	0.47	0/1003	0.57	0/1341
18	Q	0.47	0/1126	0.65	0/1506
19	R	0.32	0/1002	0.56	1/1345 (0.1%)
20	S	0.44	0/1202	0.64	0/1610
21	T	0.46	0/1142	0.61	0/1530
22	U	0.34	0/813	0.55	0/1092
23	V	0.38	0/631	0.56	0/844
24	W	0.47	0/1051	0.61	0/1406
25	X	0.54	0/1116	0.63	0/1490
26	Y	0.49	0/1031	0.61	0/1370
27	Z	0.41	0/580	0.62	0/780
28	b	0.35	0/653	0.61	1/876 (0.1%)
29	c	0.42	0/481	0.68	1/643 (0.2%)
30	d	0.45	0/469	0.66	0/623
31	e	0.44	0/447	0.56	0/587
32	f	0.31	0/520	0.55	0/690

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
33	g	0.38	0/2497	0.63	0/3399
34	x	0.42	0/1387	0.63	0/1871
35	y	0.32	0/2539	0.59	0/3430
All	All	0.69	1/82008 (0.0%)	1.00	429/118676 (0.4%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
3	B	0	1
5	D	0	2
7	F	0	2
9	H	0	1
14	M	0	1
18	Q	0	1
25	X	0	2
35	y	0	2
All	All	0	12

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	2	619	A	N9-C4	-5.01	1.34	1.37

The worst 5 of 429 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	2	501	C	C2-N1-C1'	14.62	134.88	118.80
1	2	501	C	N1-C2-O2	13.92	127.25	118.90
1	2	356	C	N1-C2-O2	13.51	127.00	118.90
1	2	293	C	N1-C2-O2	13.02	126.71	118.90
1	2	356	C	C2-N1-C1'	12.83	132.91	118.80

There are no chirality outliers.

5 of 12 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	B	75	GLN	Peptide
5	D	194	PRO	Peptide

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Mol	Chain	Res	Type	Group
5	D	195	THR	Peptide
7	F	40	ALA	Peptide
7	F	82	ASN	Peptide

## 5.2 Too-close contacts [i](#)

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

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	A	214/295 (72%)	201 (94%)	13 (6%)	0	100	100
3	B	211/264 (80%)	197 (93%)	14 (7%)	0	100	100
4	C	216/293 (74%)	203 (94%)	13 (6%)	0	100	100
5	D	223/243 (92%)	207 (93%)	16 (7%)	0	100	100
6	E	260/263 (99%)	250 (96%)	10 (4%)	0	100	100
7	F	187/204 (92%)	175 (94%)	11 (6%)	1 (0%)	29	64
8	G	228/249 (92%)	222 (97%)	6 (3%)	0	100	100
9	H	184/194 (95%)	176 (96%)	8 (4%)	0	100	100
10	I	203/208 (98%)	196 (97%)	7 (3%)	0	100	100
11	J	178/194 (92%)	165 (93%)	12 (7%)	1 (1%)	25	59
12	K	93/165 (56%)	91 (98%)	2 (2%)	0	100	100
13	L	149/158 (94%)	142 (95%)	7 (5%)	0	100	100
14	M	121/132 (92%)	112 (93%)	9 (7%)	0	100	100
15	N	147/151 (97%)	140 (95%)	7 (5%)	0	100	100
16	O	133/151 (88%)	123 (92%)	10 (8%)	0	100	100
17	P	118/145 (81%)	111 (94%)	7 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	Q	137/146 (94%)	131 (96%)	6 (4%)	0	100	100
19	R	120/135 (89%)	111 (92%)	9 (8%)	0	100	100
20	S	141/152 (93%)	133 (94%)	8 (6%)	0	100	100
21	T	142/145 (98%)	135 (95%)	7 (5%)	0	100	100
22	U	99/119 (83%)	92 (93%)	7 (7%)	0	100	100
23	V	80/83 (96%)	74 (92%)	6 (8%)	0	100	100
24	W	127/130 (98%)	122 (96%)	5 (4%)	0	100	100
25	X	139/143 (97%)	134 (96%)	4 (3%)	1 (1%)	22	57
26	Y	122/133 (92%)	116 (95%)	6 (5%)	0	100	100
27	Z	70/125 (56%)	68 (97%)	2 (3%)	0	100	100
28	b	80/84 (95%)	72 (90%)	8 (10%)	0	100	100
29	c	59/69 (86%)	53 (90%)	5 (8%)	1 (2%)	9	36
30	d	53/56 (95%)	51 (96%)	2 (4%)	0	100	100
31	e	54/59 (92%)	52 (96%)	2 (4%)	0	100	100
32	f	61/156 (39%)	56 (92%)	5 (8%)	0	100	100
33	g	312/317 (98%)	288 (92%)	24 (8%)	0	100	100
34	x	173/252 (69%)	168 (97%)	5 (3%)	0	100	100
35	y	311/412 (76%)	279 (90%)	32 (10%)	0	100	100
All	All	5145/6025 (85%)	4846 (94%)	295 (6%)	4 (0%)	54	83

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	J	161	LEU
7	F	41	VAL
29	c	37	ASP
25	X	86	PRO

### 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	
2	A	180/243 (74%)	178 (99%)	2 (1%)	73	89
3	B	194/231 (84%)	192 (99%)	2 (1%)	76	90
4	C	184/225 (82%)	183 (100%)	1 (0%)	88	94
5	D	189/202 (94%)	188 (100%)	1 (0%)	88	94
6	E	224/225 (100%)	222 (99%)	2 (1%)	78	91
7	F	159/170 (94%)	157 (99%)	2 (1%)	69	87
8	G	200/218 (92%)	199 (100%)	1 (0%)	88	94
9	H	167/174 (96%)	167 (100%)	0	100	100
10	I	178/180 (99%)	175 (98%)	3 (2%)	60	83
11	J	160/168 (95%)	157 (98%)	3 (2%)	57	81
12	K	86/136 (63%)	86 (100%)	0	100	100
13	L	135/142 (95%)	128 (95%)	7 (5%)	23	55
14	M	104/108 (96%)	101 (97%)	3 (3%)	42	72
15	N	130/131 (99%)	130 (100%)	0	100	100
16	O	105/119 (88%)	104 (99%)	1 (1%)	76	90
17	P	107/130 (82%)	106 (99%)	1 (1%)	78	91
18	Q	115/121 (95%)	115 (100%)	0	100	100
19	R	110/122 (90%)	109 (99%)	1 (1%)	78	91
20	S	124/132 (94%)	123 (99%)	1 (1%)	81	92
21	T	114/115 (99%)	112 (98%)	2 (2%)	59	82
22	U	93/107 (87%)	91 (98%)	2 (2%)	52	78
23	V	66/67 (98%)	65 (98%)	1 (2%)	65	85
24	W	112/113 (99%)	112 (100%)	0	100	100
25	X	113/115 (98%)	112 (99%)	1 (1%)	78	91
26	Y	108/115 (94%)	105 (97%)	3 (3%)	43	73
27	Z	64/103 (62%)	63 (98%)	1 (2%)	62	84
28	b	74/76 (97%)	73 (99%)	1 (1%)	67	86
29	c	54/62 (87%)	53 (98%)	1 (2%)	57	81
30	d	48/49 (98%)	45 (94%)	3 (6%)	18	48
31	e	45/48 (94%)	44 (98%)	1 (2%)	52	78
32	f	56/140 (40%)	56 (100%)	0	100	100
33	g	272/275 (99%)	269 (99%)	3 (1%)	73	89

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
34	x	146/208 (70%)	143 (98%)	3 (2%)	53	79
35	y	275/367 (75%)	274 (100%)	1 (0%)	91	96
All	All	4491/5137 (87%)	4437 (99%)	54 (1%)	72	88

5 of 54 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
17	P	44	ARG
23	V	21	ASN
33	g	241	PHE
19	R	78	ARG
21	T	134	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 43 such sidechains are listed below:

Mol	Chain	Res	Type
22	U	47	ASN
31	e	58	ASN
22	U	85	HIS
27	Z	46	ASN
33	g	159	ASN

### 5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	2	1655/1870 (88%)	509 (30%)	46 (2%)

5 of 509 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	2	3	C
1	2	16	G
1	2	17	C
1	2	26	U
1	2	29	G

5 of 46 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	2	1423	C
1	2	1476	A
1	2	1425	G
1	2	1438	A
1	2	1511	U

#### 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 3 ligands modelled in this entry, 3 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](#)

There are no chain breaks in this entry.

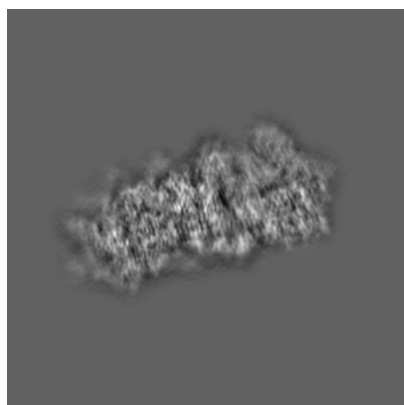
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11440. These allow visual inspection of the internal detail of the map and identification of artifacts.

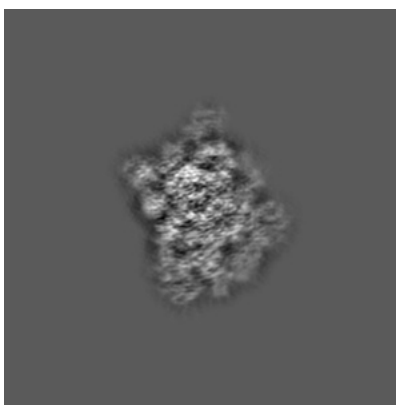
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

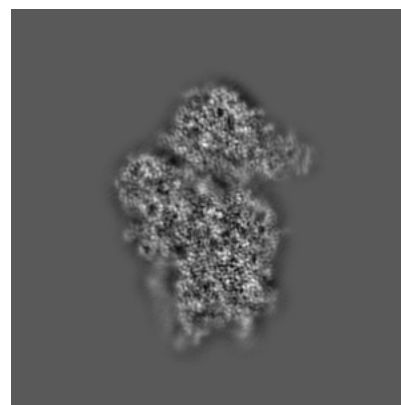
#### 6.1.1 Primary map



X



Y

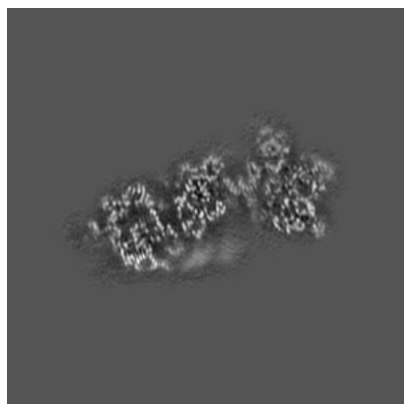


Z

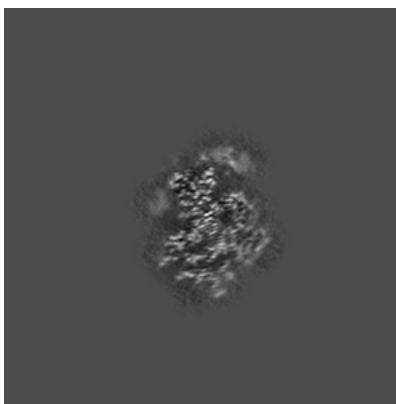
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

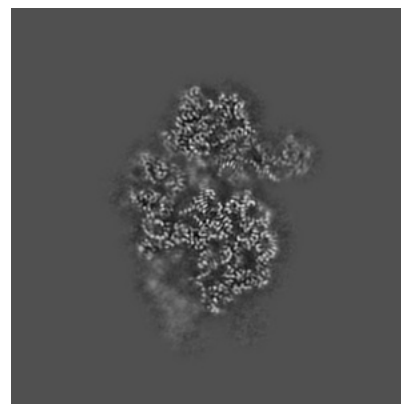
#### 6.2.1 Primary map



X Index: 192



Y Index: 192

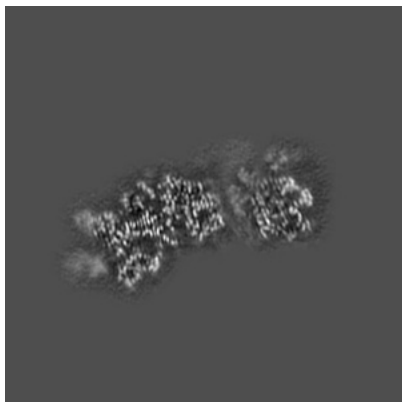


Z Index: 192

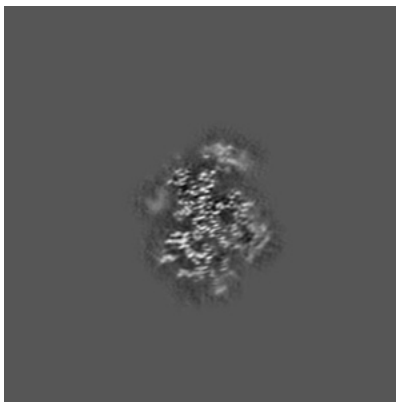
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [\(i\)](#)

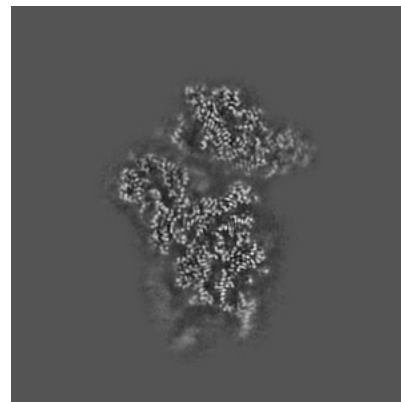
### 6.3.1 Primary map



X Index: 223



Y Index: 190

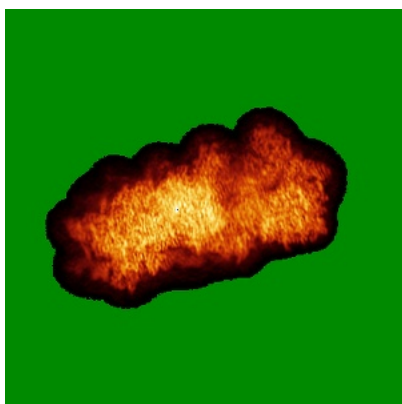


Z Index: 181

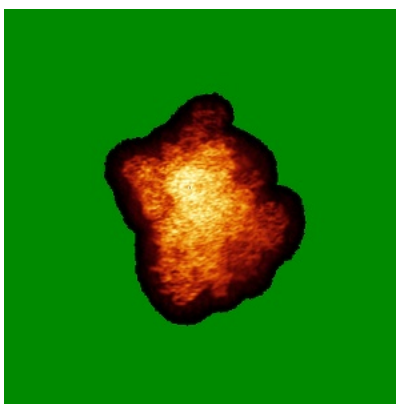
The images above show the largest variance slices of the map in three orthogonal directions.

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

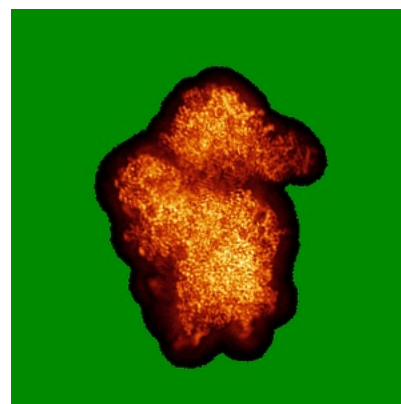
### 6.4.1 Primary map



X



Y



Z

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

## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0045. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

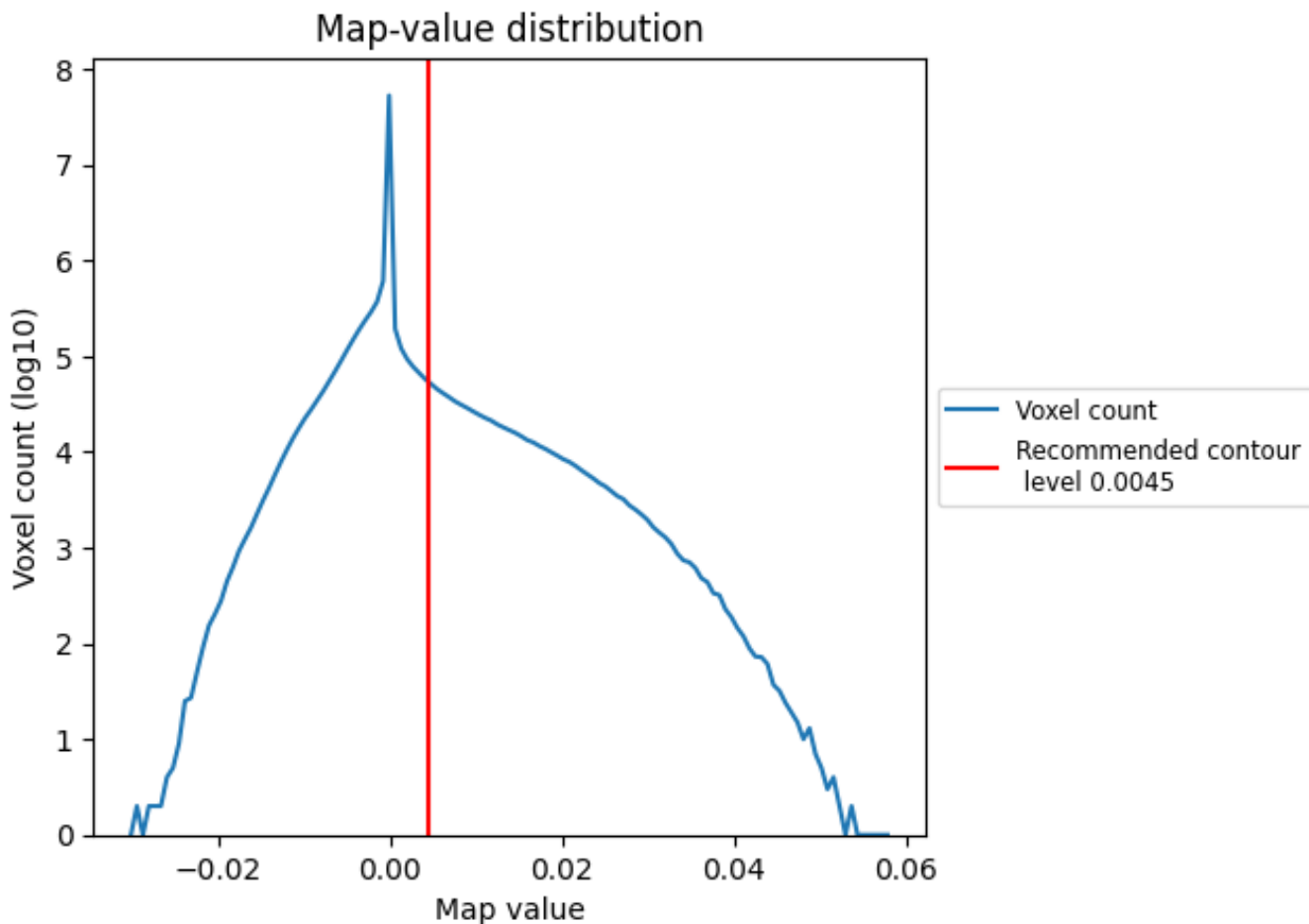
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

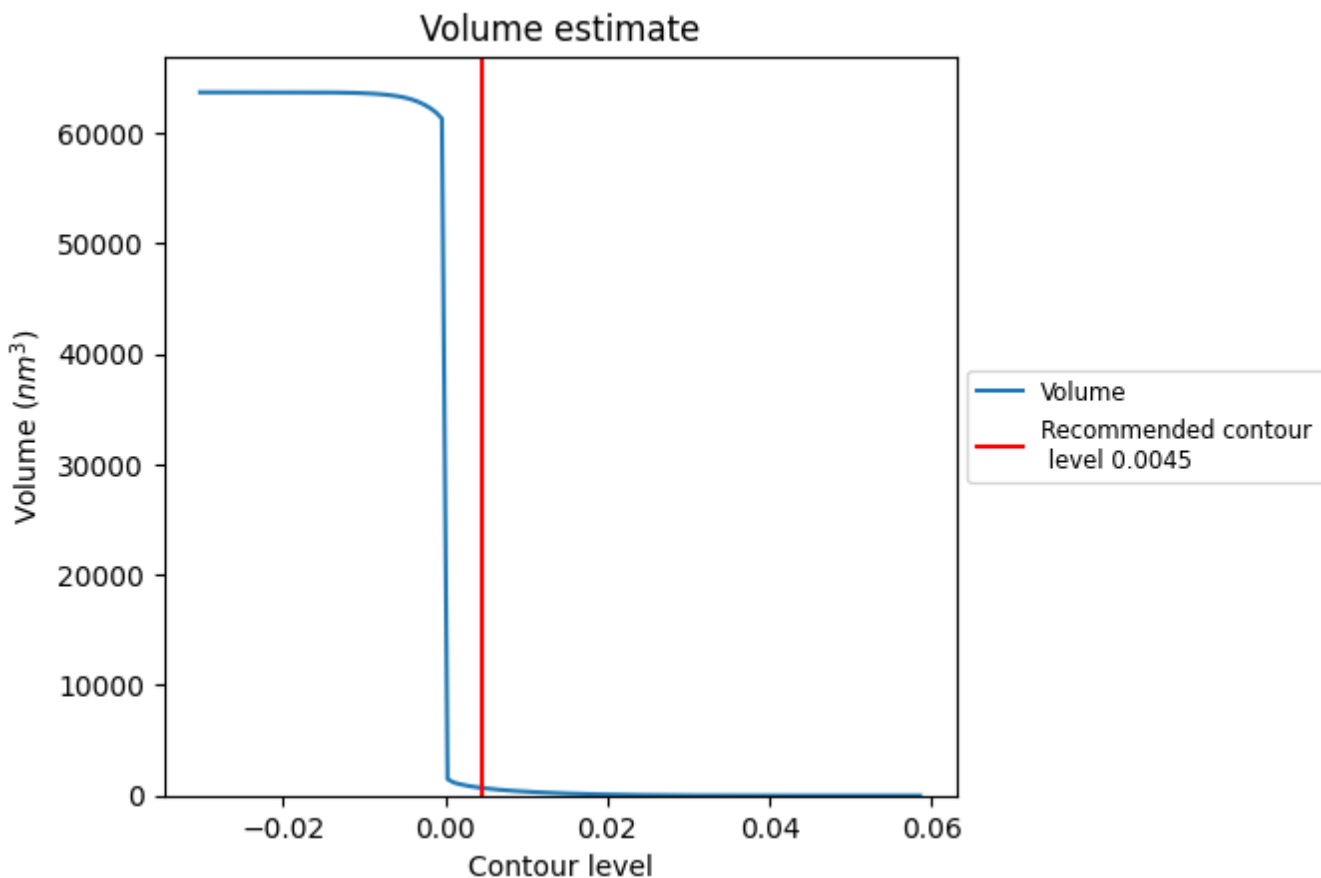
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



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

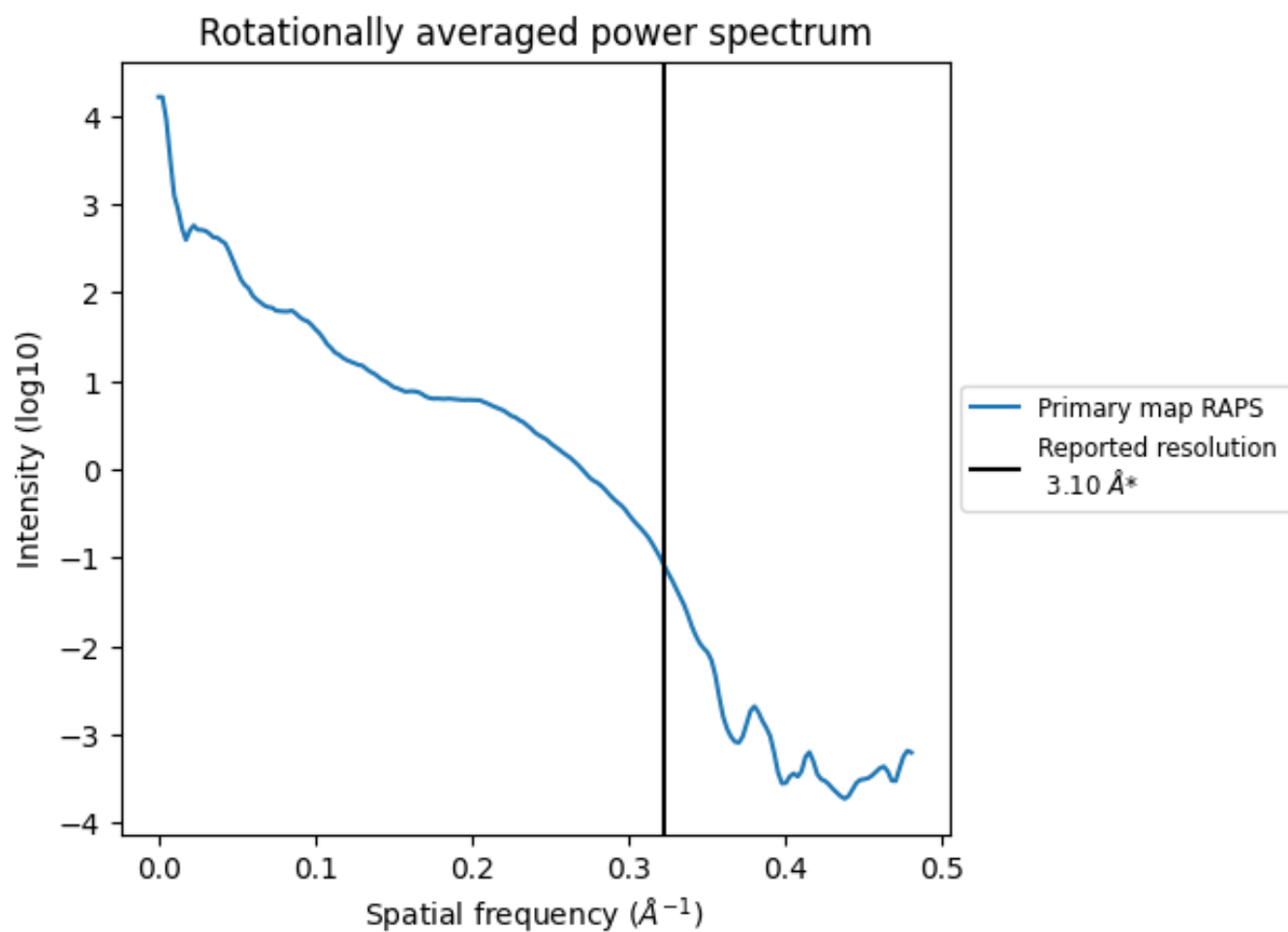
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 693  $\text{nm}^3$ ; this corresponds to an approximate mass of 626 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  $0.323 \text{ \AA}^{-1}$



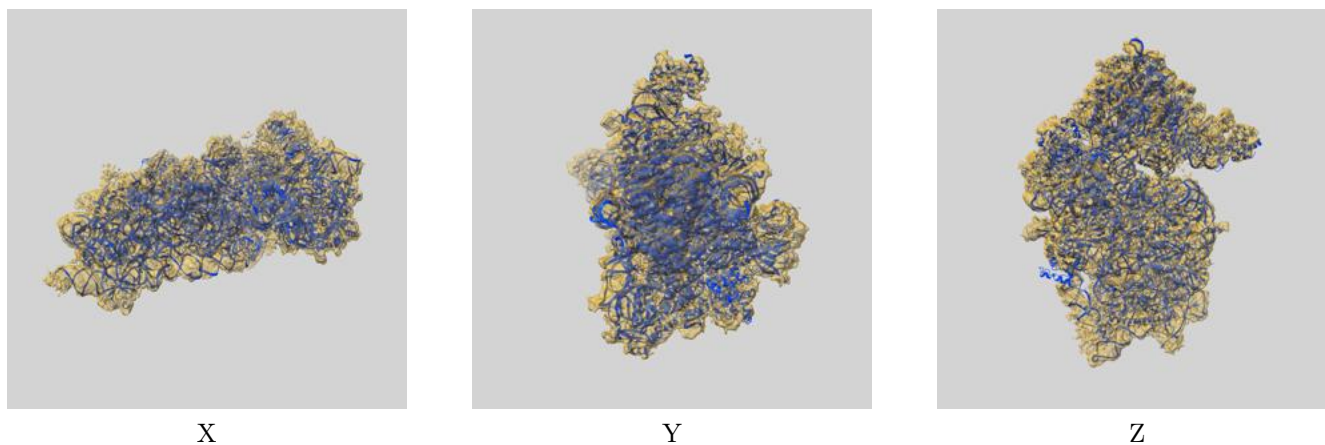
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

## 9 Map-model fit [i](#)

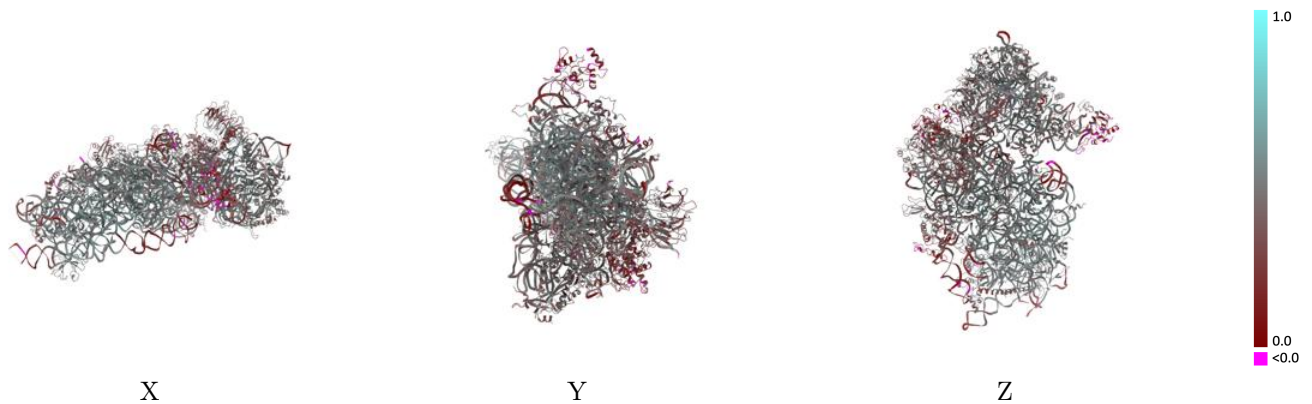
This section contains information regarding the fit between EMDB map EMD-11440 and PDB model 6ZUO. Per-residue inclusion information can be found in section 3 on page 11.

### 9.1 Map-model overlay [i](#)



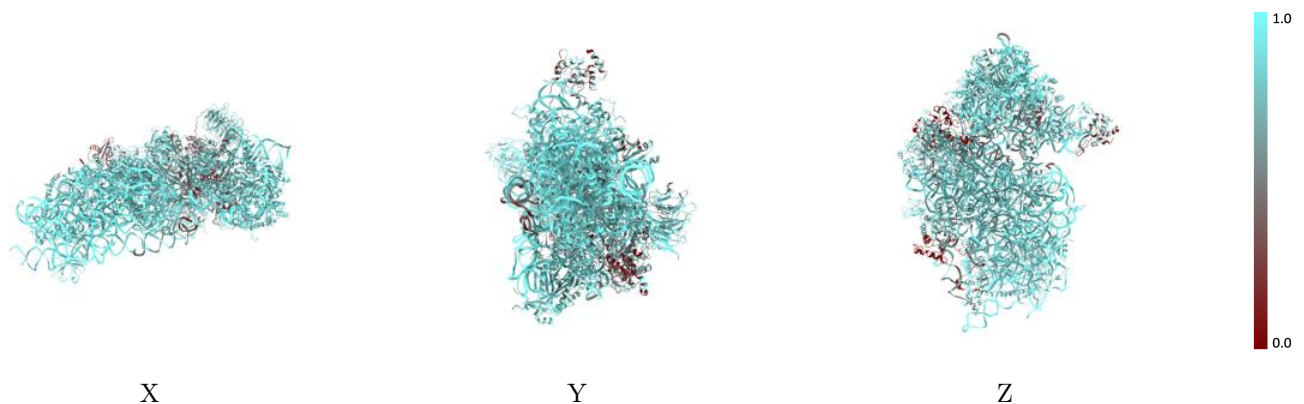
The images above show the 3D surface view of the map at the recommended contour level 0.0045 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



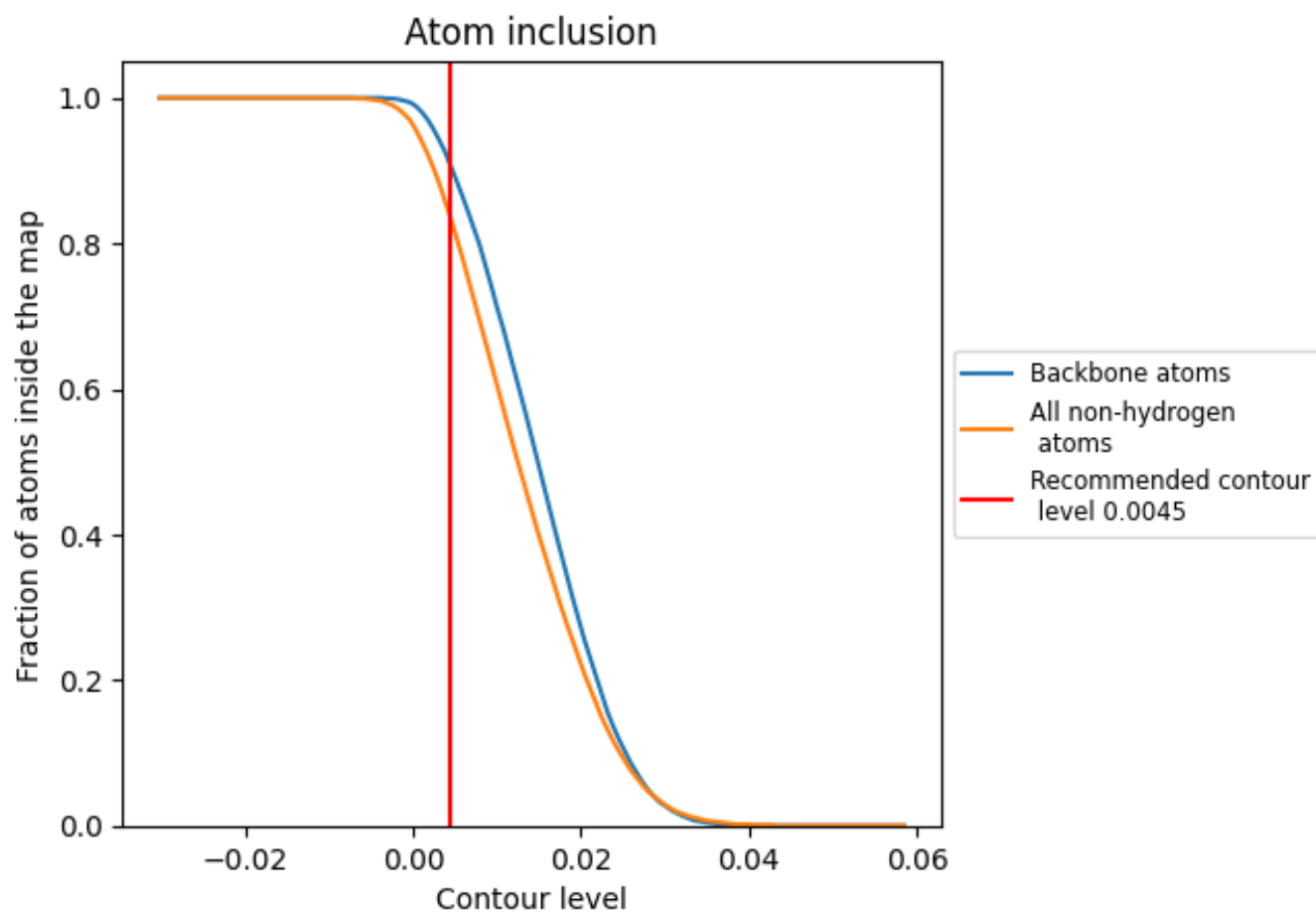
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0045).









































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 83% 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 (0.0045) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8340	 0.4330
2	 0.9230	 0.4530
A	 0.7330	 0.3740
B	 0.8130	 0.4190
C	 0.8320	 0.4610
D	 0.6520	 0.3940
E	 0.8730	 0.5060
F	 0.8230	 0.4590
G	 0.8620	 0.4500
H	 0.3630	 0.2770
I	 0.8520	 0.4580
J	 0.8790	 0.4980
K	 0.8080	 0.4150
L	 0.8100	 0.4840
M	 0.4480	 0.1480
N	 0.8080	 0.4210
O	 0.7880	 0.4170
P	 0.8610	 0.4730
Q	 0.7690	 0.4640
R	 0.5860	 0.3450
S	 0.8020	 0.4420
T	 0.8510	 0.4640
U	 0.6790	 0.4110
V	 0.8020	 0.4000
W	 0.8090	 0.4890
X	 0.8640	 0.5100
Y	 0.8870	 0.4800
Z	 0.8090	 0.4300
b	 0.7740	 0.4240
c	 0.7270	 0.3910
d	 0.7370	 0.4790
e	 0.7450	 0.4380
f	 0.5550	 0.2530
g	 0.7890	 0.3720
x	 0.7880	 0.4250
y	 0.4910	 0.2900

