wwPDB EM Validation Summary Report

Oct 31, 2023 – 03:41 pm GMT

PDB ID	:	8BH7
EMDB ID	:	EMD-16049
Title	:	The complex of immature 30S ribosomal subunit with Ribosome maturation factor P (RimP) from Staphylococcus aureus
Authors	:	Garaeva, N.; Fatkhullin, B.; Jenner, L.; Soufari, H.; Yusupov, M.; Usachev, K.
Deposited on	:	2022-10-30
Resolution	:	4.23 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:

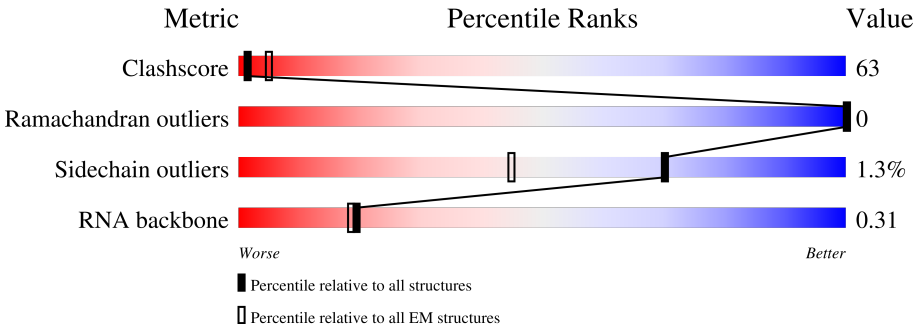
EMDB validation analysis	:	0.0.1.dev70
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 4.23 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)
Clashscore	158937	4297
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 <=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	a	1547	58% 41%
2	A	156	33% 66%
3	b	255	6% 85% 15%
4	d	200	96%
5	c	217	95%
6	e	166	95% 5%
7	f	98	98%

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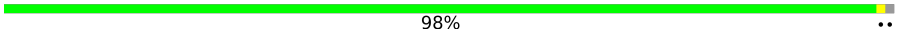
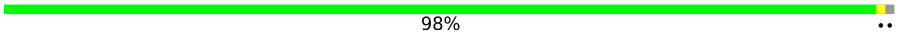
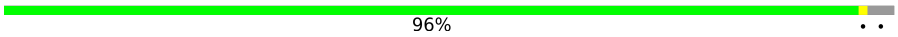
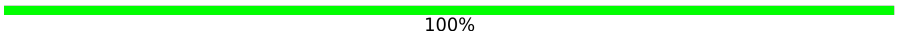
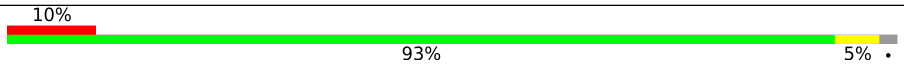
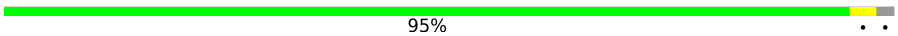
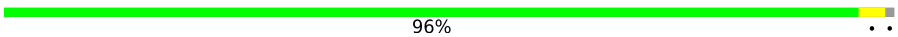
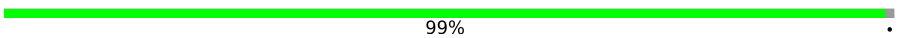
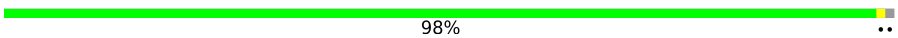
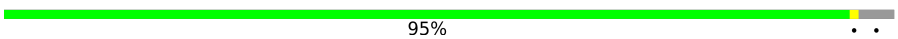
Mol	Chain	Length	Quality of chain
8	g	156	
9	h	132	
10	k	129	
11	l	137	
12	i	132	
13	j	102	
14	m	121	
15	n	61	
16	s	92	
17	o	89	
18	p	91	
19	q	87	
20	r	80	
21	t	83	

2 Entry composition (i)

There are 21 unique types of molecules in this entry. The entry contains 52615 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 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	a	1541	Total	C	N	O	P	0	0
			33006	14736	6021	10708	1541		

- Molecule 2 is a protein called Ribosome maturation factor RimP.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	156	Total	C	N	O	S	0	0
			1242	789	204	243	6		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	initiating methionine	UNP Q2G2D3
A	2	ALA	-	expression tag	UNP Q2G2D3

- Molecule 3 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	b	216	Total	C	N	O	S	0	0
			1725	1098	297	324	6		

- Molecule 4 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	d	192	Total	C	N	O	S	0	0
			1570	992	294	282	2		

- Molecule 5 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	c	208	Total	C	N	O	S	0	0
			1638	1032	306	298	2		

- Molecule 6 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	e	158	Total	C	N	O	S	0	0
			1178	741	216	219	2		

- Molecule 7 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	f	96	Total	C	N	O	S	0	0
			798	503	139	153	3		

- Molecule 8 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	g	147	Total	C	N	O	S	0	0
			1189	744	227	214	4		

- Molecule 9 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	h	131	Total	C	N	O	S	0	0
			1032	652	183	193	4		

- Molecule 10 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	k	117	Total	C	N	O	S	0	0
			869	537	165	164	3		

- Molecule 11 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	l	135	Total	C	N	O	S	0	0
			1062	658	218	184	2		

- Molecule 12 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	i	128	Total	C	N	O	S	0	0
			1017	629	203	184	1		

- Molecule 13 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	j	102	Total	C	N	O	S	0	0
			813	512	148	150	3		

- Molecule 14 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	m	119	Total	C	N	O	S	0	0
			945	581	188	175	1		

- Molecule 15 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	n	60	Total	C	N	O	S	0	0
			502	317	100	80	5		

- Molecule 16 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	s	84	Total	C	N	O	S	0	0
			677	434	120	121	2		

- Molecule 17 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	o	88	Total	C	N	O	S	0	0
			738	454	153	130	1		

- Molecule 18 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	p	90	Total	C	N	O	S	0	0
			712	448	132	131	1		

- Molecule 19 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	q	86	Total	C	N	O	S	0	0
			707	447	126	133	1		

- Molecule 20 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	r	71	Total	C	N	O	S	0	0
			589	372	115	99	3		

- Molecule 21 is a protein called 30S ribosomal protein S20.

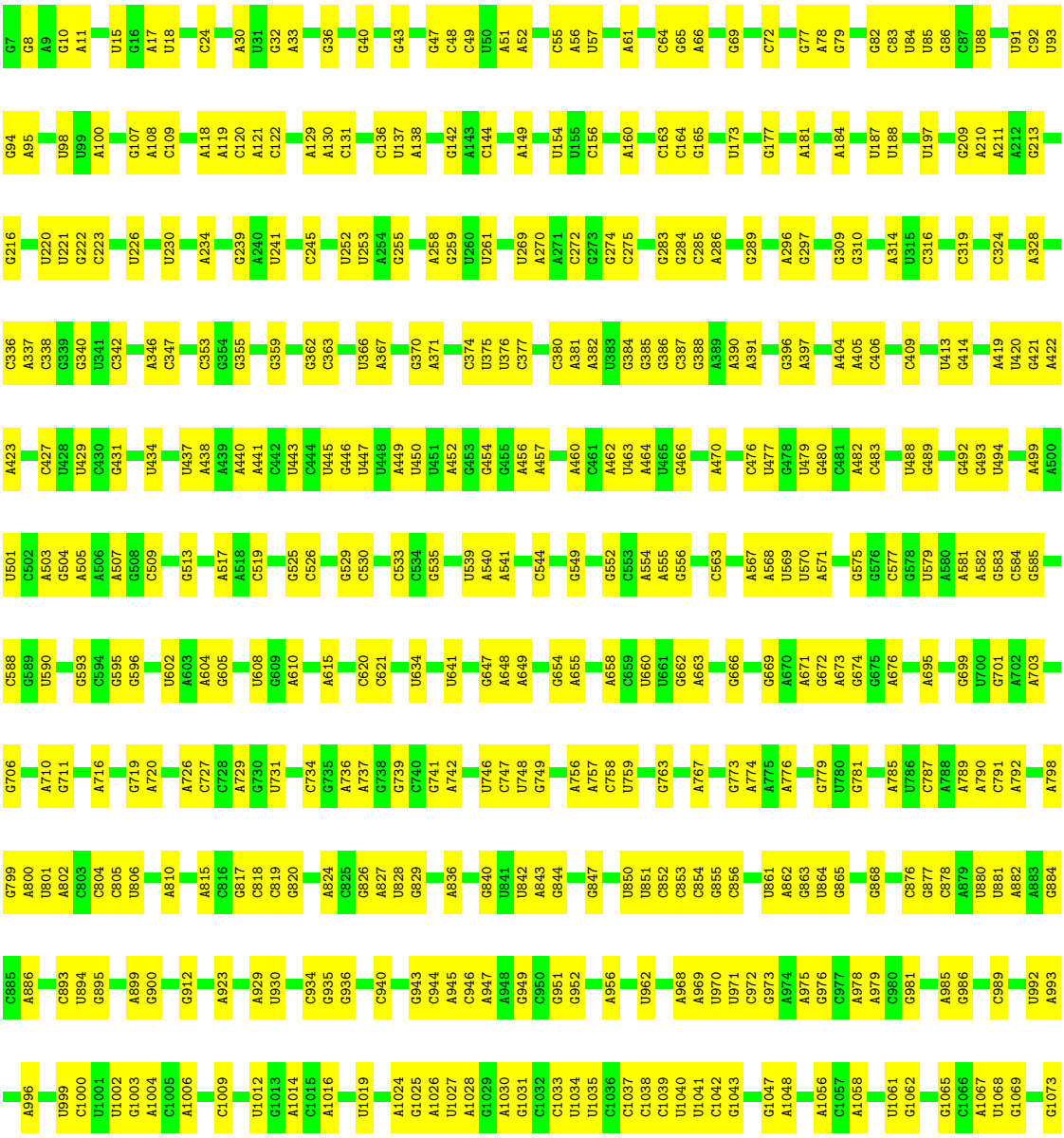
Mol	Chain	Residues	Atoms					AltConf	Trace
21	t	80	Total	C	N	O	S	0	0
			606	367	119	118	2		

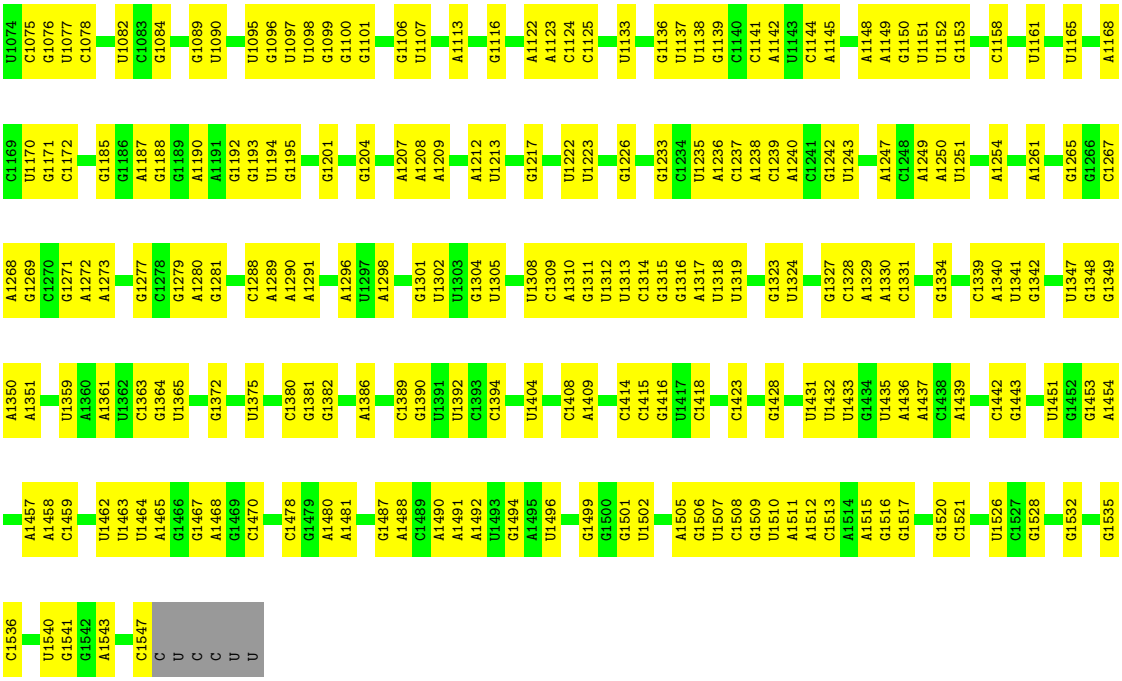
3 Residue-property plots (i)

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

- Molecule 1: 16S ribosomal RNA

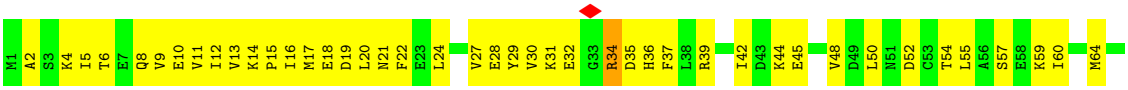
Chain a:

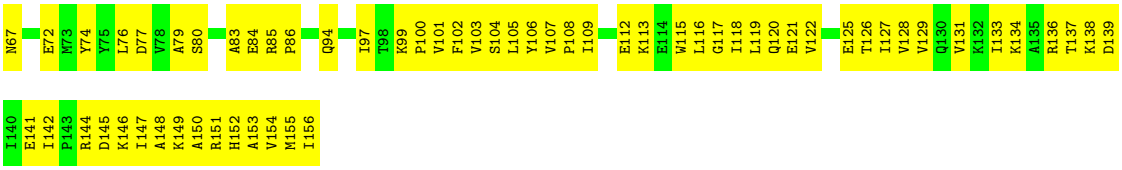




• Molecule 2: Ribosome maturation factor RimP

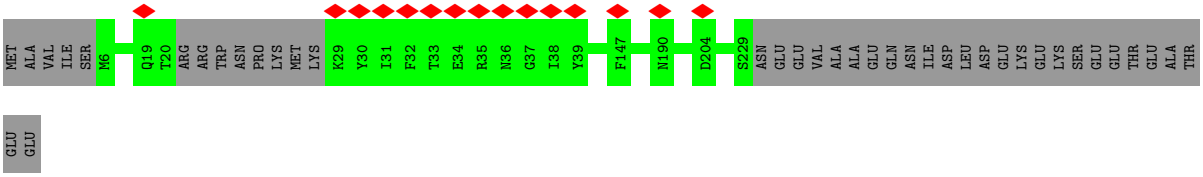
Chain A:





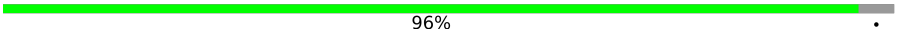
• Molecule 3: 30S ribosomal protein S2

Chain b:



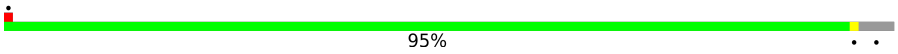
• Molecule 4: 30S ribosomal protein S4

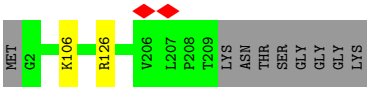
Chain d:



• Molecule 5: 30S ribosomal protein S3

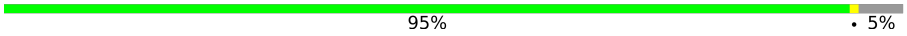
Chain c:





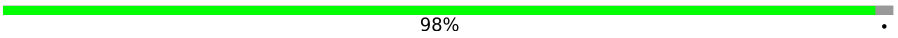
• Molecule 6: 30S ribosomal protein S5

Chain e:



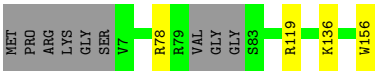
• Molecule 7: 30S ribosomal protein S6

Chain f:



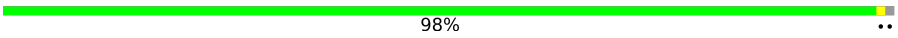
• Molecule 8: 30S ribosomal protein S7

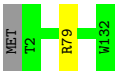
Chain g:



• Molecule 9: 30S ribosomal protein S8

Chain h:



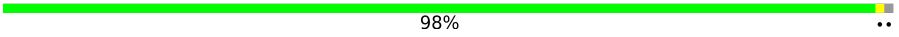


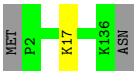
• Molecule 10: 30S ribosomal protein S11

Chain k:

• Molecule 11: 30S ribosomal protein S12

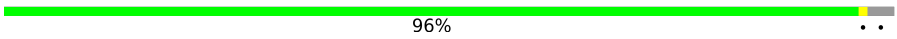
Chain l:

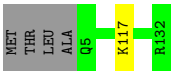




• Molecule 12: 30S ribosomal protein S9

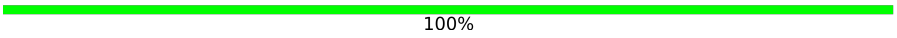
Chain i:





• Molecule 13: 30S ribosomal protein S10

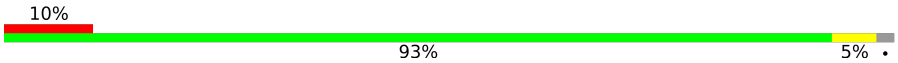
Chain j:

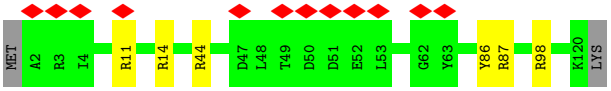


There are no outlier residues recorded for this chain.

• Molecule 14: 30S ribosomal protein S13

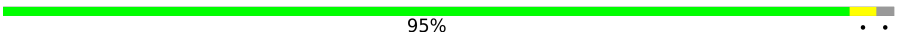
Chain m:





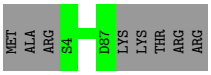
• Molecule 15: 30S ribosomal protein S14 type Z

Chain n:



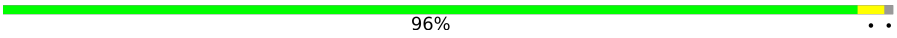
• Molecule 16: 30S ribosomal protein S19

Chain s:



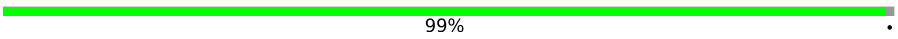
• Molecule 17: 30S ribosomal protein S15

Chain o:



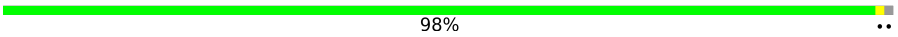
• Molecule 18: 30S ribosomal protein S16

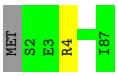
Chain p:



• Molecule 19: 30S ribosomal protein S17

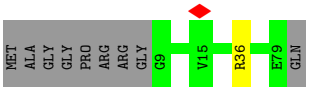
Chain q:





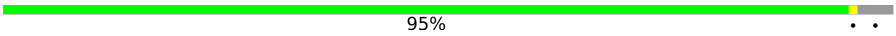
• Molecule 20: 30S ribosomal protein S18

Chain r:



• Molecule 21: 30S ribosomal protein S20

Chain t:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	57677	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	3.7	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	21.928	Depositor
Minimum map value	-5.257	Depositor
Average map value	0.020	Depositor
Map value standard deviation	1.022	Depositor
Recommended contour level	2.74	Depositor
Map size (Å)	460.80002, 460.80002, 460.80002	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.2, 1.2, 1.2	Depositor

5 Model quality

5.1 Standard geometry

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	a	0.41	0/36954	0.85	0/57629
2	A	0.27	0/1261	0.51	0/1703
3	b	0.28	0/1748	0.52	0/2345
4	d	0.31	0/1599	0.56	0/2146
5	c	0.28	0/1661	0.55	0/2233
6	e	0.29	0/1192	0.55	0/1606
7	f	0.32	0/809	0.61	0/1085
8	g	0.27	0/1207	0.59	0/1625
9	h	0.28	0/1044	0.56	0/1401
10	k	0.31	0/884	0.61	0/1193
11	l	0.28	0/1079	0.59	0/1445
12	i	0.27	0/1033	0.61	0/1386
13	j	0.29	0/825	0.62	0/1110
14	m	0.27	0/952	0.63	0/1275
15	n	0.29	0/512	0.60	0/678
16	s	0.34	0/695	0.59	0/934
17	o	0.28	0/747	0.59	0/996
18	p	0.30	0/723	0.58	0/971
19	q	0.29	0/715	0.55	0/955
20	r	0.27	0/598	0.69	0/797
21	t	0.27	0/606	0.45	0/810
All	All	0.37	0/56844	0.77	0/84323

There are no bond length outliers.

There are no bond angle outliers.

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	a	33006	0	16616	0	0
2	A	1242	0	1264	141	0
3	b	1725	0	1776	0	0
4	d	1570	0	1597	0	0
5	c	1638	0	1702	0	0
6	e	1178	0	1242	0	0
7	f	798	0	794	0	0
8	g	1189	0	1218	0	0
9	h	1032	0	1082	0	0
10	k	869	0	886	0	0
11	l	1062	0	1130	0	0
12	i	1017	0	1039	0	0
13	j	813	0	859	0	0
14	m	945	0	1001	0	0
15	n	502	0	527	0	0
16	s	677	0	672	0	0
17	o	738	0	769	0	0
18	p	712	0	744	0	0
19	q	707	0	749	0	0
20	r	589	0	628	0	0
21	t	606	0	650	0	0
All	All	52615	0	36945	141	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 63.

The worst 5 of 141 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)
2:A:17:MET:HA	2:A:21:ASN:HA	1.37	1.05
2:A:35:ASP:HB3	2:A:74:TYR:HA	1.34	1.05
2:A:125:GLU:HG3	2:A:144:ARG:H	1.28	0.98
2:A:17:MET:HA	2:A:21:ASN:CA	2.07	0.83
2:A:97:ILE:HG21	2:A:122:VAL:HB	1.64	0.80

There are no symmetry-related clashes.

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	154/156 (99%)	141 (92%)	13 (8%)	0	100	100
3	b	212/255 (83%)	200 (94%)	12 (6%)	0	100	100
4	d	188/200 (94%)	175 (93%)	13 (7%)	0	100	100
5	c	206/217 (95%)	198 (96%)	8 (4%)	0	100	100
6	e	156/166 (94%)	147 (94%)	9 (6%)	0	100	100
7	f	94/98 (96%)	87 (93%)	7 (7%)	0	100	100
8	g	143/156 (92%)	132 (92%)	11 (8%)	0	100	100
9	h	129/132 (98%)	124 (96%)	5 (4%)	0	100	100
10	k	115/129 (89%)	106 (92%)	9 (8%)	0	100	100
11	l	133/137 (97%)	113 (85%)	20 (15%)	0	100	100
12	i	126/132 (96%)	118 (94%)	8 (6%)	0	100	100
13	j	100/102 (98%)	92 (92%)	8 (8%)	0	100	100
14	m	117/121 (97%)	104 (89%)	13 (11%)	0	100	100
15	n	58/61 (95%)	55 (95%)	3 (5%)	0	100	100
16	s	82/92 (89%)	69 (84%)	13 (16%)	0	100	100
17	o	86/89 (97%)	83 (96%)	3 (4%)	0	100	100
18	p	88/91 (97%)	79 (90%)	9 (10%)	0	100	100
19	q	84/87 (97%)	74 (88%)	10 (12%)	0	100	100
20	r	69/80 (86%)	59 (86%)	10 (14%)	0	100	100
21	t	78/83 (94%)	73 (94%)	5 (6%)	0	100	100
All	All	2418/2584 (94%)	2229 (92%)	189 (8%)	0	100	100

There are no Ramachandran outliers to report.

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	139/139 (100%)	137 (99%)	2 (1%)	67 80
3	b	186/221 (84%)	186 (100%)	0	100 100
4	d	169/175 (97%)	169 (100%)	0	100 100
5	c	169/175 (97%)	167 (99%)	2 (1%)	71 84
6	e	124/131 (95%)	123 (99%)	1 (1%)	81 89
7	f	84/86 (98%)	84 (100%)	0	100 100
8	g	126/132 (96%)	122 (97%)	4 (3%)	39 62
9	h	112/113 (99%)	111 (99%)	1 (1%)	78 88
10	k	93/104 (89%)	91 (98%)	2 (2%)	52 71
11	l	117/119 (98%)	116 (99%)	1 (1%)	78 88
12	i	106/109 (97%)	105 (99%)	1 (1%)	78 88
13	j	91/91 (100%)	91 (100%)	0	100 100
14	m	102/104 (98%)	96 (94%)	6 (6%)	19 47
15	n	52/53 (98%)	50 (96%)	2 (4%)	33 58
16	s	73/80 (91%)	73 (100%)	0	100 100
17	o	80/81 (99%)	77 (96%)	3 (4%)	33 58
18	p	76/77 (99%)	76 (100%)	0	100 100
19	q	81/82 (99%)	80 (99%)	1 (1%)	71 84
20	r	63/68 (93%)	62 (98%)	1 (2%)	62 79
21	t	67/69 (97%)	66 (98%)	1 (2%)	65 80
All	All	2110/2209 (96%)	2082 (99%)	28 (1%)	70 82

5 of 28 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
14	m	11	ARG
21	t	67	HIS
14	m	86	TYR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
17	o	89	ARG
14	m	44	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 27 such sidechains are listed below:

Mol	Chain	Res	Type
12	i	16	ASN
14	m	105	ASN
21	t	41	ASN
14	m	76	ASN
16	s	22	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	a	1540/1547 (99%)	638 (41%)	0

5 of 638 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	a	8	G
1	a	10	G
1	a	11	A
1	a	15	U
1	a	17	A

There are no RNA pucker outliers to report.

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)

There are no ligands in this entry.

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.

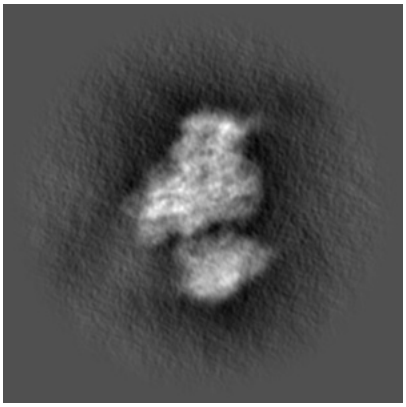
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-16049. These allow visual inspection of the internal detail of the map and identification of artifacts.

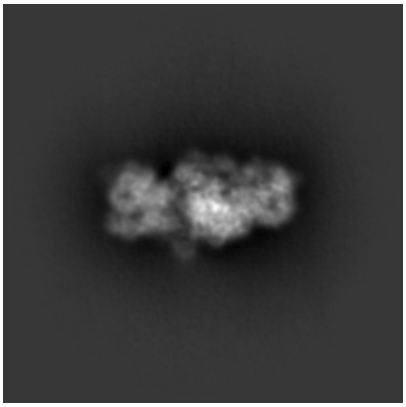
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

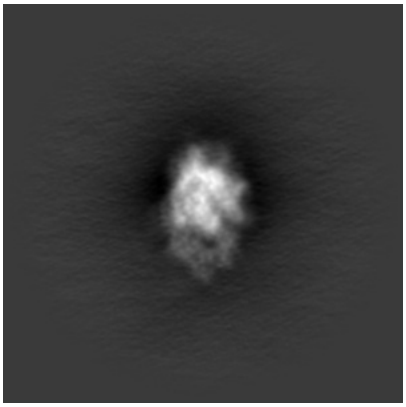
6.1.1 Primary map



X



Y

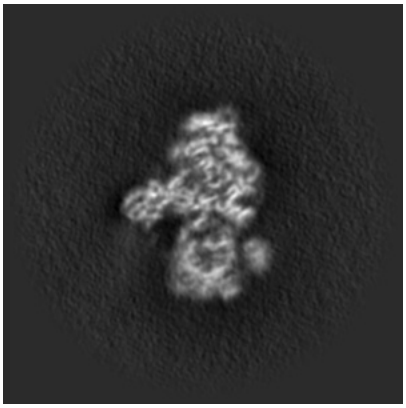


Z

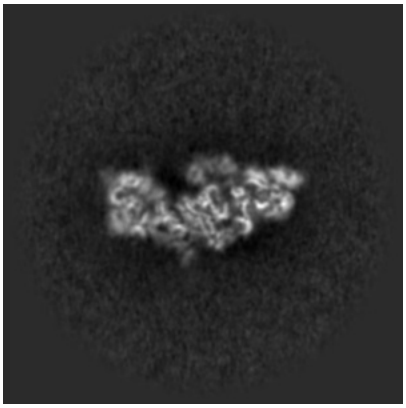
The images above show the map projected in three orthogonal directions.

6.2 Central slices

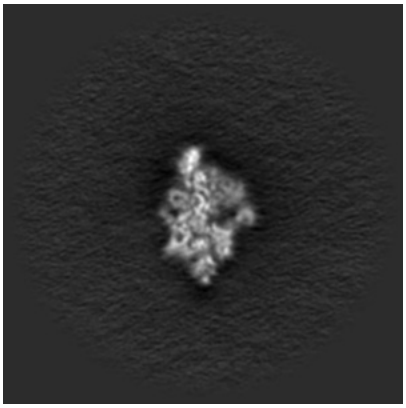
6.2.1 Primary map



X Index: 192



Y Index: 192

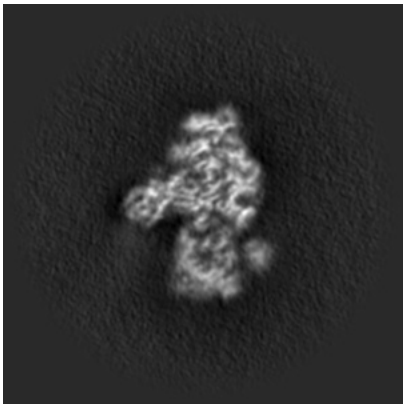


Z Index: 192

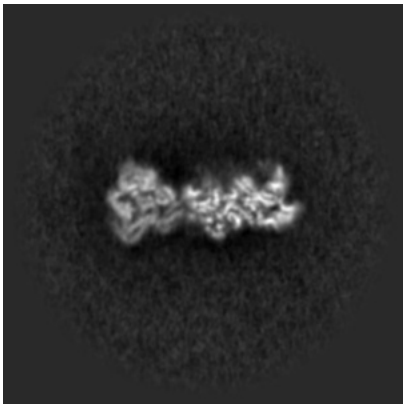
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

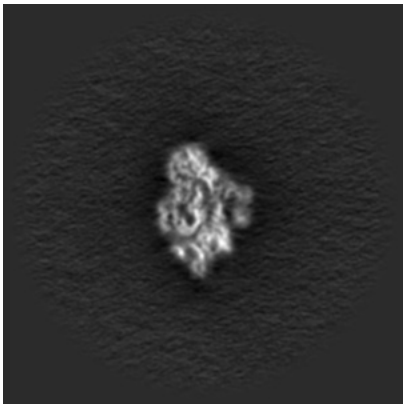
6.3.1 Primary map



X Index: 190



Y Index: 217

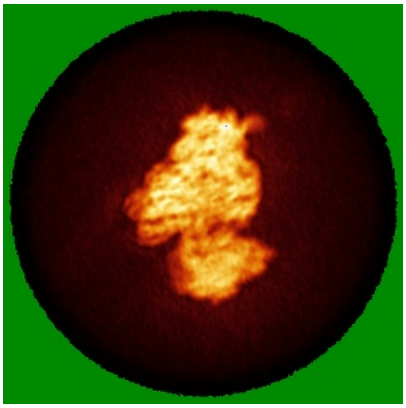


Z Index: 203

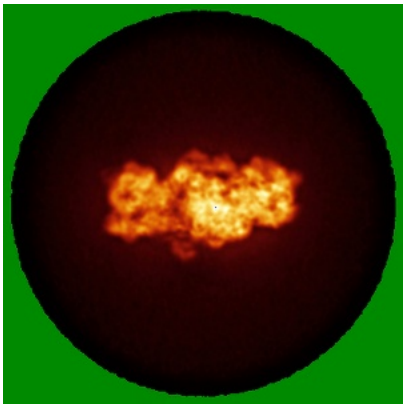
The images above show the largest variance slices of the map in three orthogonal directions.

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

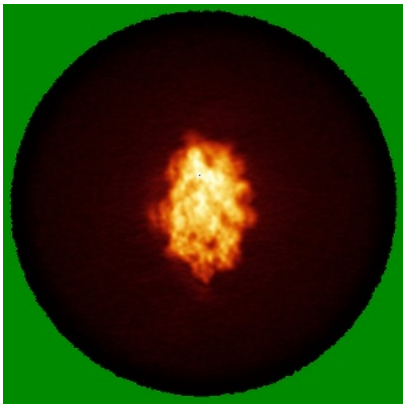
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 2.74. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

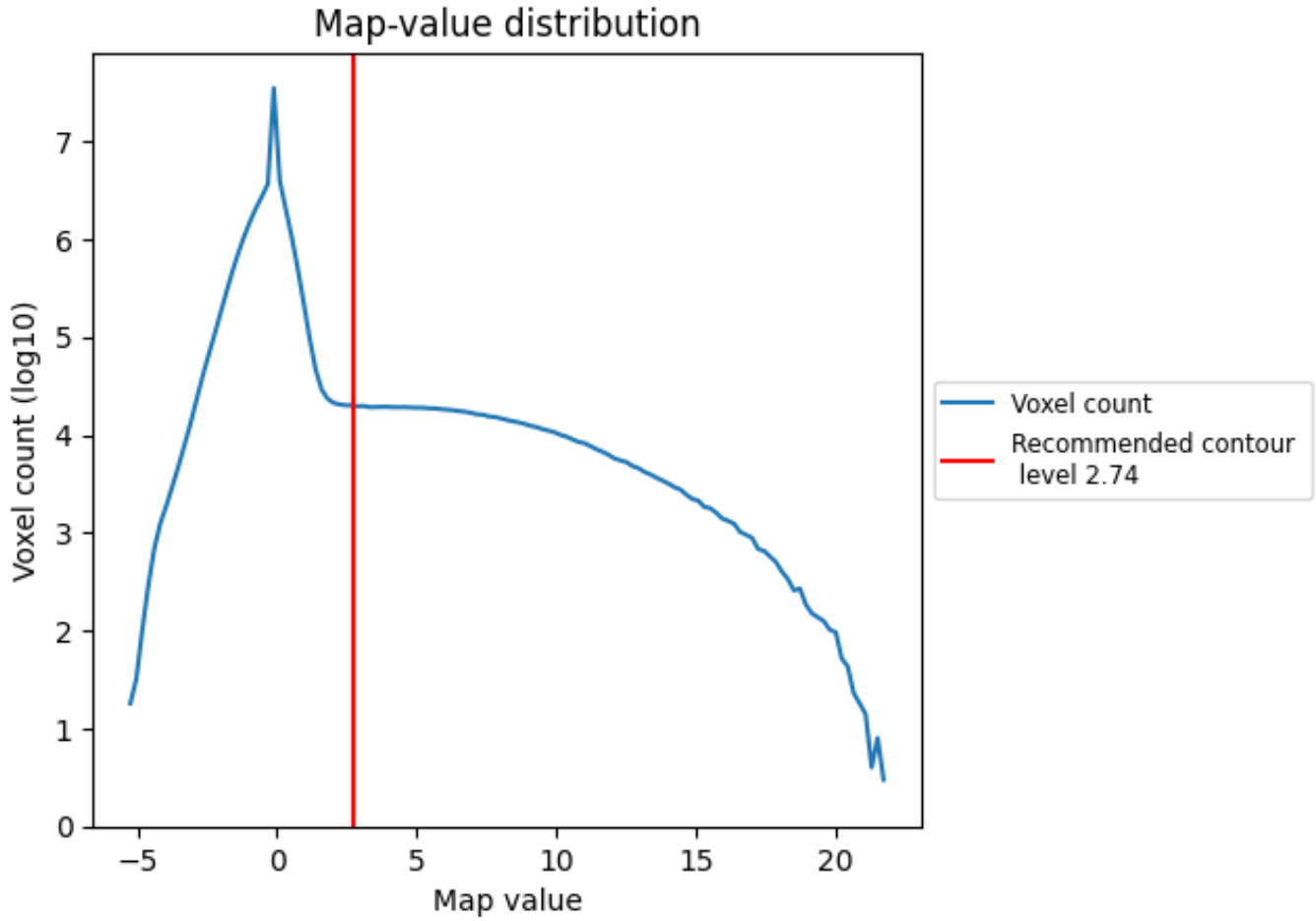
6.6 Mask visualisation (i)

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

7 Map analysis

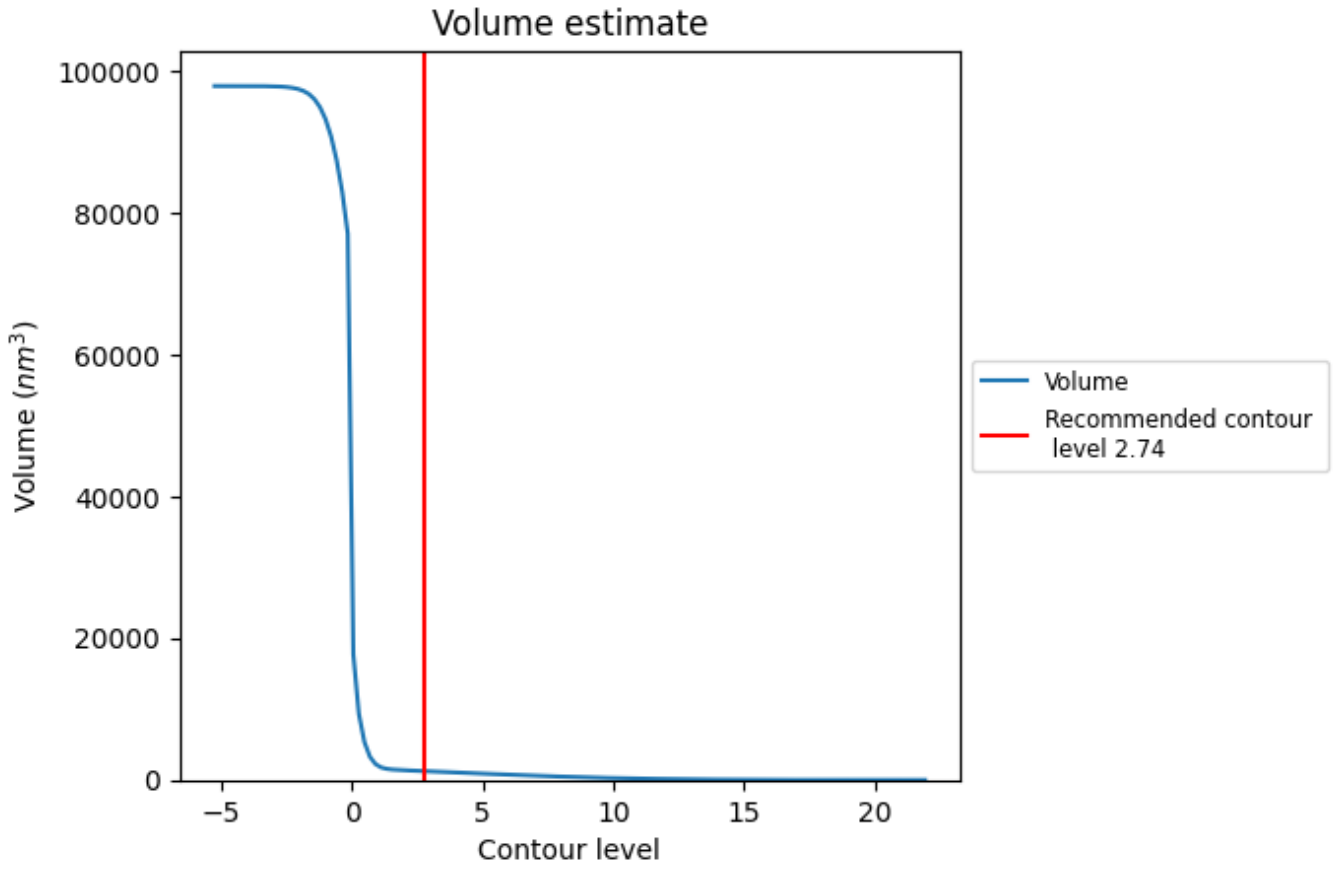
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

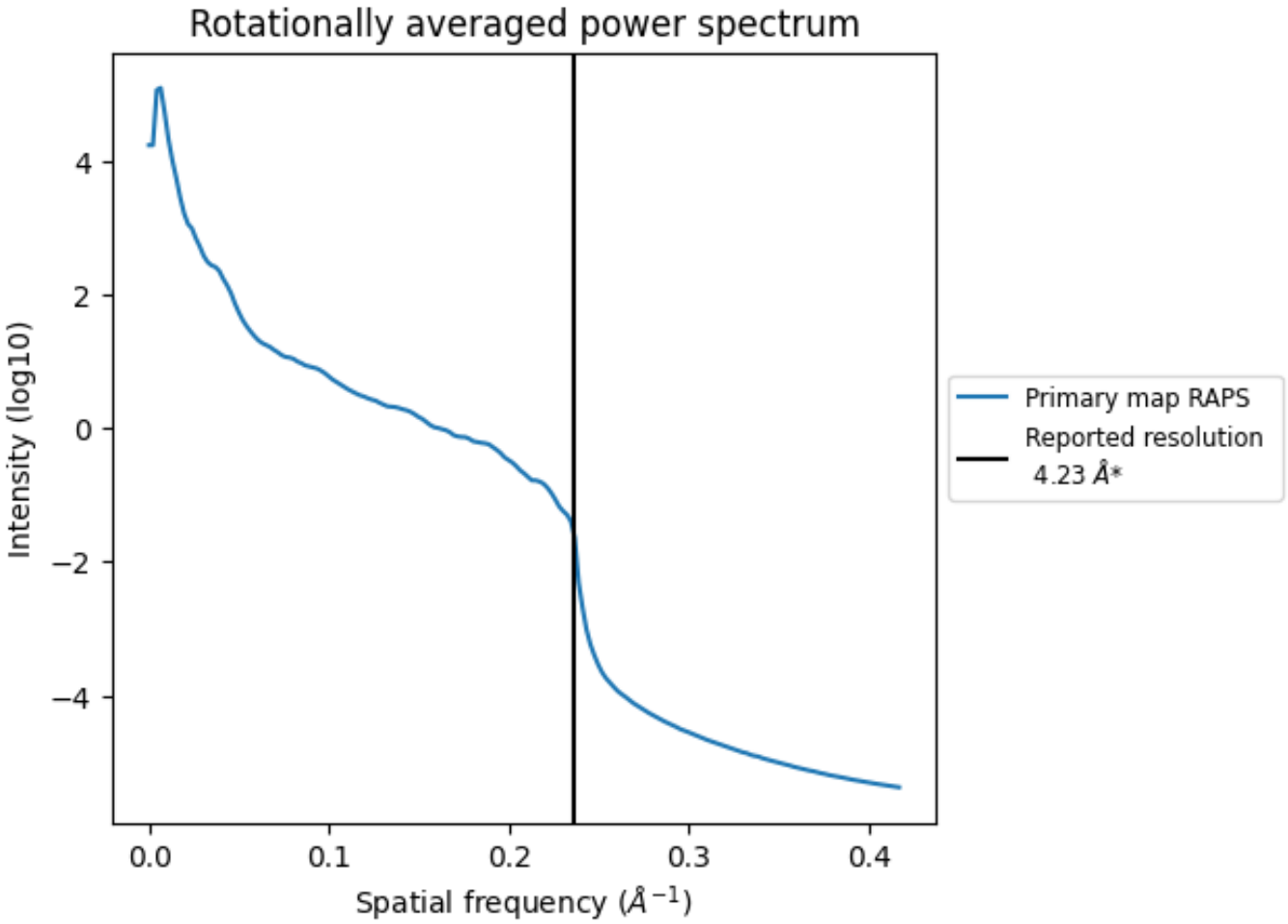
7.2 Volume estimate (i)



The volume at the recommended contour level is 1248 nm^3; this corresponds to an approximate mass of 1127 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 0.236 Å^{-1}

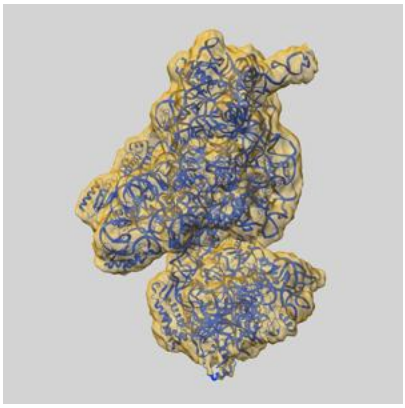
8 Fourier-Shell correlation

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

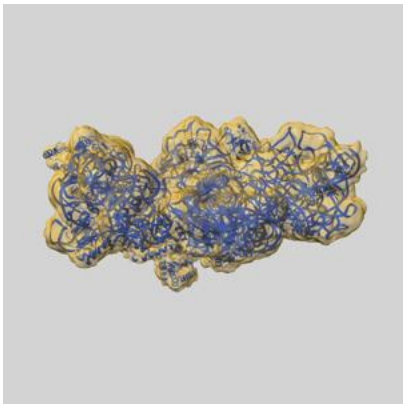
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-16049 and PDB model 8BH7. Per-residue inclusion information can be found in section 3 on page 8.

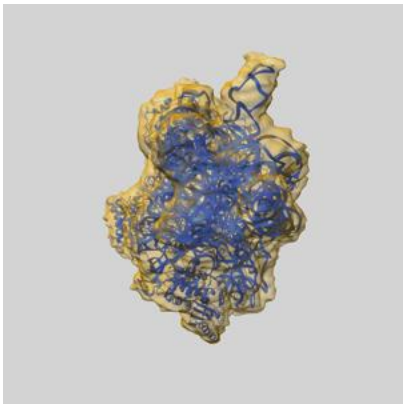
9.1 Map-model overlay



X



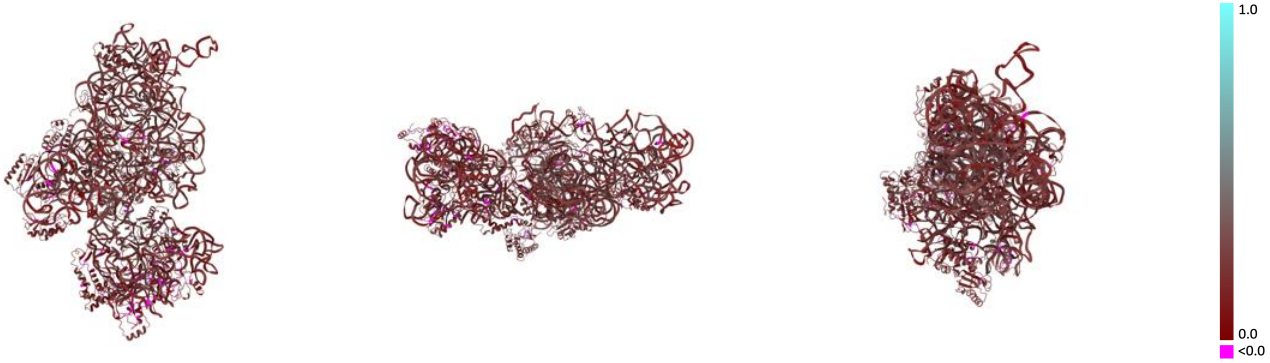
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 2.74 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

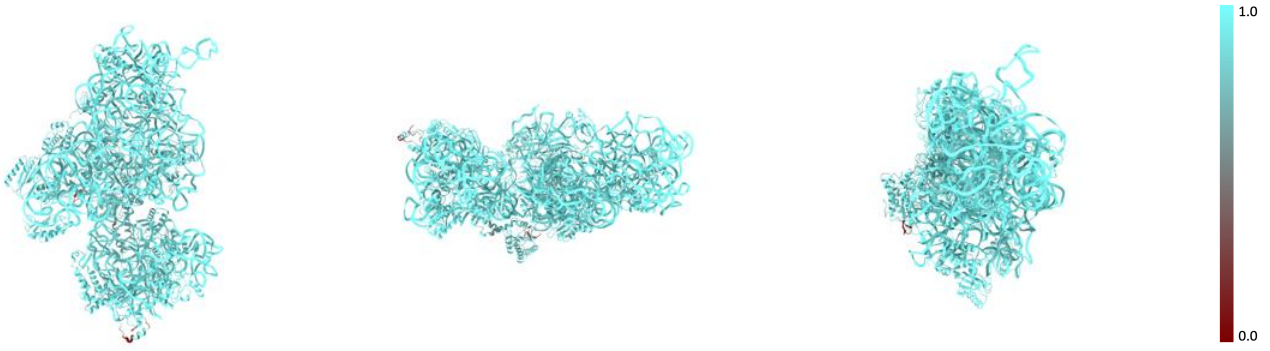
9.2 Q-score mapped to coordinate model



X Y Z

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

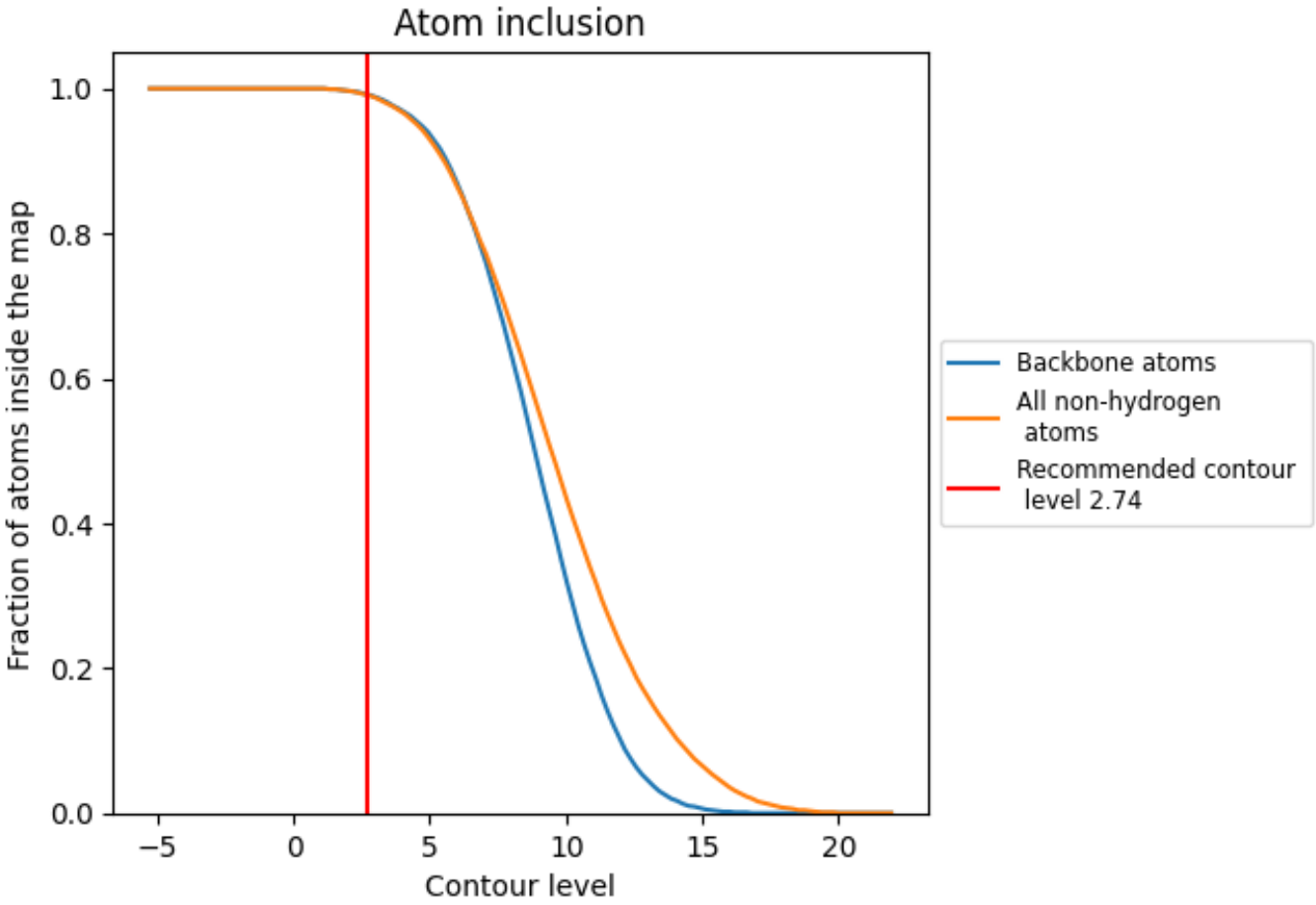
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (2.74).

9.4 Atom inclusion (i)



At the recommended contour level, 99% of all backbone atoms, 99% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (2.74) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9910	0.2030
A	0.9820	0.1690
a	1.0000	0.2170
b	0.8410	0.1810
c	0.9880	0.2010
d	1.0000	0.2100
e	0.9950	0.2330
f	0.9950	0.1930
g	0.9970	0.1500
h	0.9980	0.1930
i	1.0000	0.1510
j	0.9990	0.1890
k	0.9970	0.1690
l	0.9900	0.1730
m	0.8690	0.0740
n	1.0000	0.1940
o	1.0000	0.1840
p	1.0000	0.2000
q	1.0000	0.2150
r	0.9630	0.1510
s	1.0000	0.1200
t	0.9980	0.2060