



wwPDB EM Validation Summary Report ⓘ

Apr 23, 2024 – 12:30 pm BST

PDB ID : 7AQD
EMDB ID : EMD-11864
Title : Structure of the bacterial RQC complex (Translocating State)
Authors : Filbeck, S.; Pfeffer, S.
Deposited on : 2020-10-21
Resolution : 3.10 Å (reported)
Based on initial models : 5H3X, 5H3W, 3J9W

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

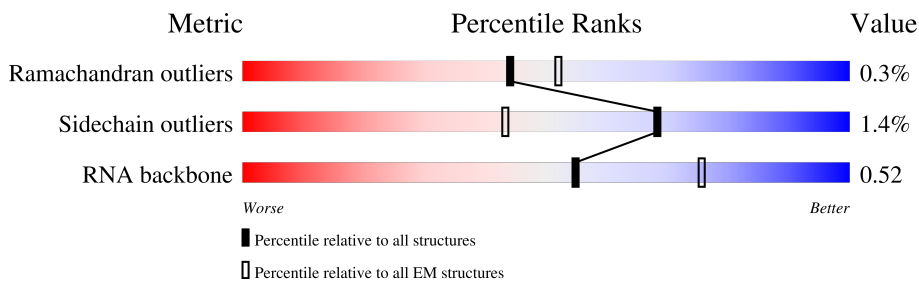
EMDB validation analysis : 0.0.1.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

1 Overall quality at a glance

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 ≥ 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	R	570	
2	A	2918	
3	B	112	
4	C	277	
5	D	209	
6	E	207	
7	F	179	
8	G	179	

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Mol	Chain	Length	Quality of chain
9	I	141	63% 94% 6%
10	J	145	97%
11	K	122	100%
12	L	146	99%
13	M	144	94%
14	N	120	98%
15	O	120	100%
16	Q	119	97%
17	S	113	96%
18	T	76	34% 39% 22%
19	U	103	97%
20	V	94	87% 13%
21	W	7	100%
22	X	62	90% 6%
23	Z	59	98%
24	a	115	99%
25	b	59	92% 8%
26	c	49	98%
27	d	44	98%
28	e	66	97%
29	f	37	97%
30	g	102	99%
31	h	95	98%
32	i	66	97%

2 Entry composition

There are 32 unique types of molecules in this entry. The entry contains 94357 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Rqc2 homolog RqcH.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	R	433	3519	2239	612	658	10	0	0

- Molecule 2 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	A	2918	62663	27955	11572	20218	2918	0	0

- Molecule 3 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	B	112	2395	1068	435	780	112	0	0

- Molecule 4 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	275	2111	1312	416	377	6	0	0

- Molecule 5 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	207	1575	988	290	292	5	0	0

- Molecule 6 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	E	205	1561	980	289	290	2	0	0

- Molecule 7 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	F	178	1404	893	245	259	7	0	0

- Molecule 8 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	G	175	1342	835	248	257	2	0	0

- Molecule 9 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	133	981	617	173	185	6	0	0

- Molecule 10 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	142	1123	710	206	202	5	0	0

- Molecule 11 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	122	920	571	173	172	4	0	0

- Molecule 12 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	146	1081	671	207	201	2	0	0

- Molecule 13 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	M	138	1097	703	208	181	5	0	0

- Molecule 14 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	119	Total	C	N	O	S	0	0
			953	583	186	180	4		

- Molecule 15 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	120	Total	C	N	O	S	0	0
			912	564	176	171	1		

- Molecule 16 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Q	117	Total	C	N	O	S	0	0
			940	591	189	156	4		

- Molecule 17 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	S	109	Total	C	N	O	S	0	0
			842	525	164	150	3		

- Molecule 18 is a RNA chain called Ala-tRNA (A/P-site).

Mol	Chain	Residues	Atoms					AltConf	Trace
18	T	76	Total	C	N	O	P	0	0
			1622	722	290	534	76		

- Molecule 19 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	U	100	Total	C	N	O	S	0	0
			754	473	141	137	3		

- Molecule 20 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	V	82	Total	C	N	O	0	0
			630	390	123	117		

- Molecule 21 is a protein called nascent polyalanine.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	W	7	Total	C	N	O	0	0
			35	21	7	7		

- Molecule 22 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	X	58	Total	C	N	O	S	0	0
			444	275	92	75	2		

- Molecule 23 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	Z	58	Total	C	N	O	S	0	0
			455	281	89	84	1		

- Molecule 24 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	a	114	Total	C	N	O	0	0
			936	595	184	157		

- Molecule 25 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	b	54	Total	C	N	O	S	0	0
			426	262	86	71	7		

- Molecule 26 is a protein called 50S ribosomal protein L33 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	c	48	Total	C	N	O	S	0	0
			401	244	80	73	4		

- Molecule 27 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	d	44	Total	C	N	O	S	0	0
			367	222	89	54	2		

- Molecule 28 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	e	64	Total	C	N	O	S	0	0
			512	321	107	82	2		

- Molecule 29 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	f	36	Total	C	N	O	S	0	0
			288	181	59	44	4		

- Molecule 30 is a protein called 50S ribosomal protein L21.

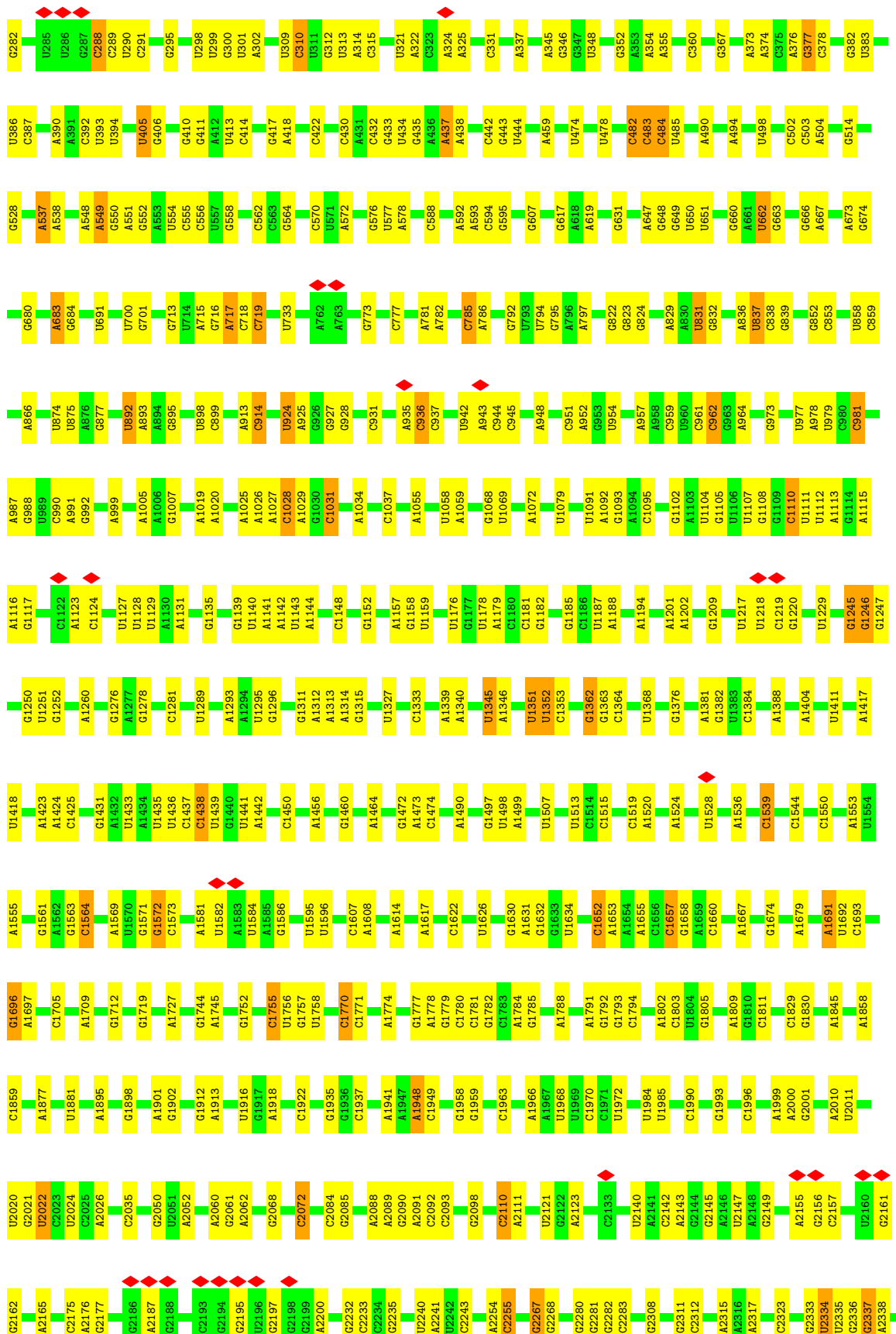
Mol	Chain	Residues	Atoms				AltConf	Trace
30	g	101	Total	C	N	O	0	0
			786	501	139	146		

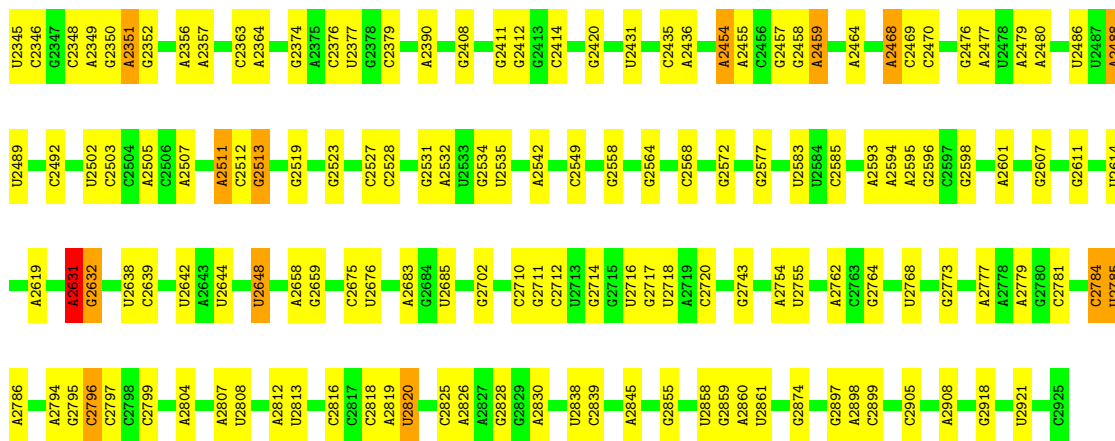
- Molecule 31 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	h	93	Total	C	N	O	S	0	0
			752	472	137	139	4		

- Molecule 32 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	i	65	Total	C	N	O	S	0	0
			530	328	102	98	2		





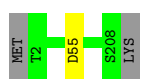
• Molecule 3: 5S ribosomal RNA



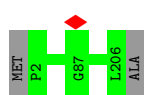
• Molecule 4: 50S ribosomal protein L2



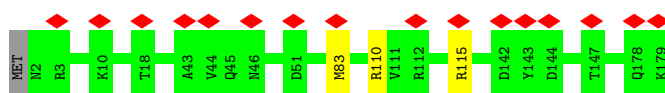
• Molecule 5: 50S ribosomal protein L3



• Molecule 6: 50S ribosomal protein L4

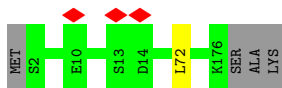


• Molecule 7: 50S ribosomal protein L5

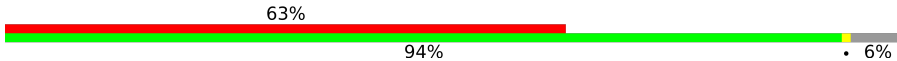


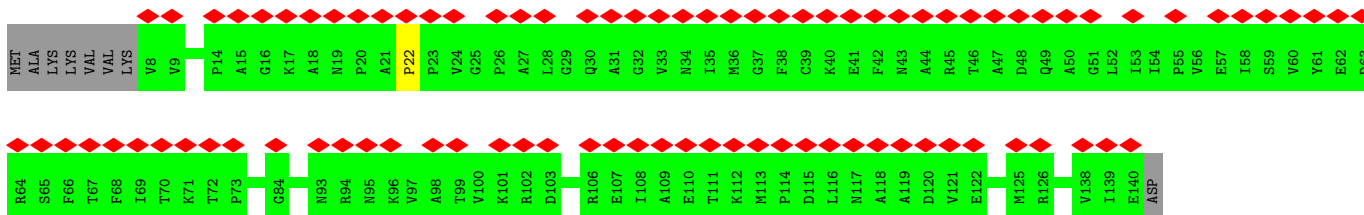
• Molecule 8: 50S ribosomal protein L6

Chain G:  97%



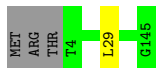
- Molecule 9: 50S ribosomal protein L11

Chain I:  94% 6%



- Molecule 10: 50S ribosomal protein L13

Chain J:  97%



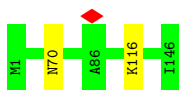
- Molecule 11: 50S ribosomal protein L14

Chain K:  100%

There are no outlier residues recorded for this chain.

- Molecule 12: 50S ribosomal protein L15

Chain L:  99%



- Molecule 13: 50S ribosomal protein L16

Chain M:  94%



- Molecule 14: 50S ribosomal protein L17

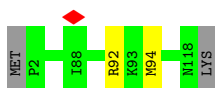
Chain N:  98%



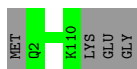
- Molecule 15: 50S ribosomal protein L18



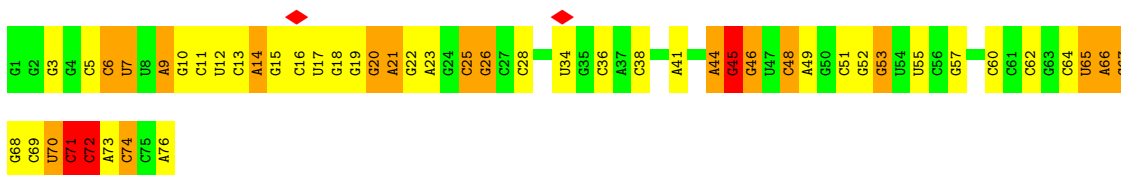
- Molecule 16: 50S ribosomal protein L20



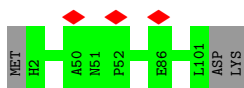
- Molecule 17: 50S ribosomal protein L22



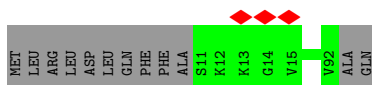
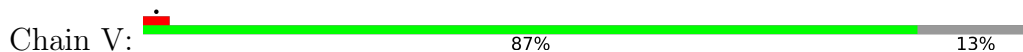
- Molecule 18: Ala-tRNA (A/P-site)



- Molecule 19: 50S ribosomal protein L24



- Molecule 20: 50S ribosomal protein L27



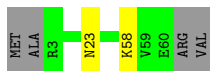
- Molecule 21: nascent polyalanine

Chain W:  100%

There are no outlier residues recorded for this chain.

- Molecule 22: 50S ribosomal protein L28

Chain X:  90% 6%



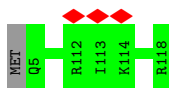
- Molecule 23: 50S ribosomal protein L30

Chain Z:  98%



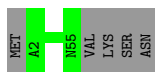
- Molecule 24: 50S ribosomal protein L19

Chain a:  99%



- Molecule 25: 50S ribosomal protein L32

Chain b:  92% 8%



- Molecule 26: 50S ribosomal protein L33 1

Chain c:  98%



- Molecule 27: 50S ribosomal protein L34

Chain d:  98%



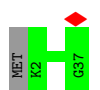
- Molecule 28: 50S ribosomal protein L35

Chain e:  97%



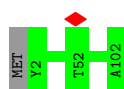
- Molecule 29: 50S ribosomal protein L36

Chain f:  97%



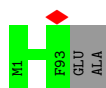
- Molecule 30: 50S ribosomal protein L21

Chain g:  99%



- Molecule 31: 50S ribosomal protein L23

Chain h:  98%



- Molecule 32: 50S ribosomal protein L29

Chain i:  97%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	24348	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 ($e^-/\text{\AA}^2$)	45	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.177	Depositor
Minimum map value	-0.071	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.0085	Depositor
Map size (Å)	410.88, 410.88, 410.88	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.07, 1.07, 1.07	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	R	0.84	18/3590 (0.5%)	3.03	68/4835 (1.4%)
2	A	0.34	1/70190 (0.0%)	1.05	279/109503 (0.3%)
3	B	0.32	0/2678	1.10	19/4174 (0.5%)
4	C	0.27	0/2148	0.54	0/2881
5	D	0.28	0/1597	0.55	1/2140 (0.0%)
6	E	0.28	0/1580	0.56	0/2132
7	F	0.30	0/1423	0.65	1/1910 (0.1%)
8	G	0.29	0/1360	0.56	1/1832 (0.1%)
9	I	0.29	0/995	0.59	0/1346
10	J	0.30	0/1146	0.60	1/1542 (0.1%)
11	K	0.28	0/927	0.58	0/1245
12	L	0.29	0/1093	0.52	0/1457
13	M	0.34	0/1120	0.63	3/1496 (0.2%)
14	N	0.26	0/960	0.51	1/1284 (0.1%)
15	O	0.27	0/921	0.58	0/1236
16	Q	0.28	0/952	0.54	1/1266 (0.1%)
17	S	0.27	0/851	0.57	0/1146
18	T	1.13	1/1811 (0.1%)	1.90	74/2822 (2.6%)
19	U	0.27	0/764	0.53	0/1022
20	V	0.32	0/638	0.59	0/847
21	W	0.31	0/34	0.86	0/46
22	X	0.28	0/448	0.68	1/596 (0.2%)
23	Z	0.28	0/457	0.54	0/613
24	a	0.25	0/949	0.51	0/1269
25	b	0.29	0/433	0.61	0/574
26	c	0.27	0/406	0.53	0/540
27	d	0.24	0/370	0.45	0/483
28	e	0.28	0/519	0.55	0/680
29	f	0.24	0/291	0.44	0/383
30	g	0.30	0/797	0.66	0/1070
31	h	0.26	0/759	0.49	0/1011
32	i	0.28	0/531	0.65	1/707 (0.1%)
All	All	0.38	20/102738 (0.0%)	1.11	451/154088 (0.3%)

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
1	R	0	15
2	A	0	7
4	C	0	1
9	I	0	1
18	T	0	14
All	All	0	38

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	R	430	LYS	CA-CB	14.59	1.86	1.53
1	R	429	GLY	C-N	13.71	1.65	1.34
1	R	3	PHE	CB-CG	11.71	1.71	1.51
1	R	3	PHE	CG-CD1	9.22	1.52	1.38
18	T	72	C	C4-N4	-8.93	1.25	1.33

The worst 5 of 451 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	R	431	TYR	CD1-CG-CD2	-78.07	32.02	117.90
1	R	431	TYR	CG-CD2-CE2	-71.48	64.12	121.30
1	R	3	PHE	CD1-CE1-CZ	-71.22	34.63	120.10
1	R	431	TYR	CG-CD1-CE1	-71.09	64.43	121.30
1	R	3	PHE	CB-CG-CD1	58.90	162.03	120.80

There are no chirality outliers.

5 of 38 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	R	2	SER	Mainchain,Peptide
1	R	279	PHE	Peptide
1	R	281	LYS	Peptide
1	R	3	PHE	Sidechain
1	R	412	SER	Mainchain

5.2 Too-close contacts [i](#)

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

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	R	431/570 (76%)	397 (92%)	22 (5%)	12 (3%)	5	25
4	C	273/277 (99%)	261 (96%)	12 (4%)	0	100	100
5	D	205/209 (98%)	197 (96%)	8 (4%)	0	100	100
6	E	203/207 (98%)	189 (93%)	14 (7%)	0	100	100
7	F	176/179 (98%)	163 (93%)	13 (7%)	0	100	100
8	G	173/179 (97%)	166 (96%)	7 (4%)	0	100	100
9	I	131/141 (93%)	126 (96%)	5 (4%)	0	100	100
10	J	140/145 (97%)	133 (95%)	7 (5%)	0	100	100
11	K	120/122 (98%)	112 (93%)	8 (7%)	0	100	100
12	L	144/146 (99%)	140 (97%)	4 (3%)	0	100	100
13	M	136/144 (94%)	133 (98%)	3 (2%)	0	100	100
14	N	117/120 (98%)	113 (97%)	4 (3%)	0	100	100
15	O	118/120 (98%)	113 (96%)	5 (4%)	0	100	100
16	Q	115/119 (97%)	110 (96%)	5 (4%)	0	100	100
17	S	107/113 (95%)	94 (88%)	13 (12%)	0	100	100
19	U	98/103 (95%)	87 (89%)	11 (11%)	0	100	100
20	V	80/94 (85%)	80 (100%)	0	0	100	100
21	W	5/7 (71%)	5 (100%)	0	0	100	100
22	X	56/62 (90%)	51 (91%)	5 (9%)	0	100	100
23	Z	56/59 (95%)	55 (98%)	1 (2%)	0	100	100
24	a	112/115 (97%)	107 (96%)	5 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
25	b	52/59 (88%)	48 (92%)	4 (8%)	0	100	100
26	c	46/49 (94%)	46 (100%)	0	0	100	100
27	d	42/44 (96%)	42 (100%)	0	0	100	100
28	e	62/66 (94%)	59 (95%)	3 (5%)	0	100	100
29	f	34/37 (92%)	33 (97%)	1 (3%)	0	100	100
30	g	99/102 (97%)	86 (87%)	13 (13%)	0	100	100
31	h	91/95 (96%)	87 (96%)	4 (4%)	0	100	100
32	i	63/66 (96%)	59 (94%)	4 (6%)	0	100	100
All	All	3485/3749 (93%)	3292 (94%)	181 (5%)	12 (0%)	44	73

5 of 12 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	R	414	ALA
1	R	431	TYR
1	R	432	LEU
1	R	433	ARG
1	R	223	LEU

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	R	383/505 (76%)	348 (91%)	35 (9%)	9	33
4	C	223/225 (99%)	223 (100%)	0	100	100
5	D	168/170 (99%)	168 (100%)	0	100	100
6	E	169/170 (99%)	169 (100%)	0	100	100
7	F	153/154 (99%)	151 (99%)	2 (1%)	69	87
8	G	148/151 (98%)	148 (100%)	0	100	100
9	I	103/110 (94%)	103 (100%)	0	100	100
10	J	120/123 (98%)	120 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	K	101/101 (100%)	101 (100%)	0	100	100
12	L	110/110 (100%)	108 (98%)	2 (2%)	59	82
13	M	111/116 (96%)	111 (100%)	0	100	100
14	N	99/100 (99%)	99 (100%)	0	100	100
15	O	93/93 (100%)	93 (100%)	0	100	100
16	Q	96/98 (98%)	95 (99%)	1 (1%)	76	90
17	S	90/93 (97%)	90 (100%)	0	100	100
19	U	84/87 (97%)	84 (100%)	0	100	100
20	V	64/74 (86%)	64 (100%)	0	100	100
22	X	47/50 (94%)	46 (98%)	1 (2%)	53	79
23	Z	52/53 (98%)	52 (100%)	0	100	100
24	a	99/100 (99%)	99 (100%)	0	100	100
25	b	48/53 (91%)	48 (100%)	0	100	100
26	c	46/47 (98%)	46 (100%)	0	100	100
27	d	39/39 (100%)	38 (97%)	1 (3%)	46	74
28	e	54/56 (96%)	54 (100%)	0	100	100
29	f	34/35 (97%)	34 (100%)	0	100	100
30	g	83/84 (99%)	83 (100%)	0	100	100
31	h	84/85 (99%)	84 (100%)	0	100	100
32	i	56/57 (98%)	56 (100%)	0	100	100
All	All	2957/3139 (94%)	2915 (99%)	42 (1%)	68	86

5 of 42 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	R	420	SER
7	F	110	ARG
1	R	421	GLU
1	R	431	TYR
12	L	70	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	R	335	ASN
1	R	366	ASN
1	R	372	ASN
1	R	381	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
18	T	75/76 (98%)	23 (30%)	6 (8%)
2	A	2916/2918 (99%)	643 (22%)	44 (1%)
3	B	111/112 (99%)	30 (27%)	2 (1%)
All	All	3102/3106 (99%)	696 (22%)	52 (1%)

5 of 696 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
2	A	13	A
2	A	15	G
2	A	31	C
2	A	33	U
2	A	34	U

5 of 52 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	A	1652	C
2	A	2351	A
18	T	70	U
2	A	1755	C
2	A	1948	A

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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	A	1
1	R	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	1941:A	O3'	1947:A	P	13.89
1	R	429:GLY	C	430:LYS	N	1.65

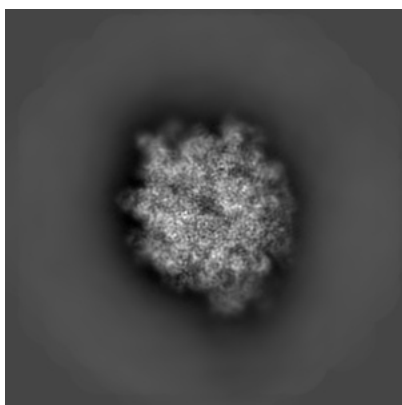
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11864. These allow visual inspection of the internal detail of the map and identification of artifacts.

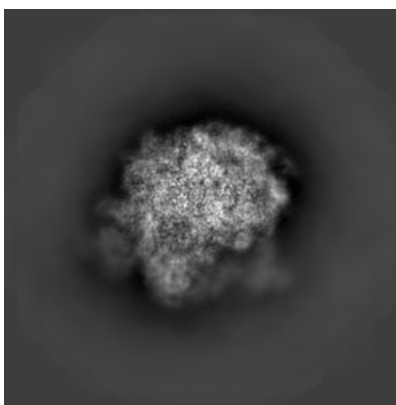
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

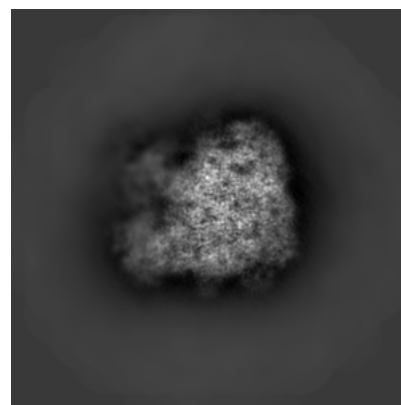
6.1.1 Primary map



X



Y

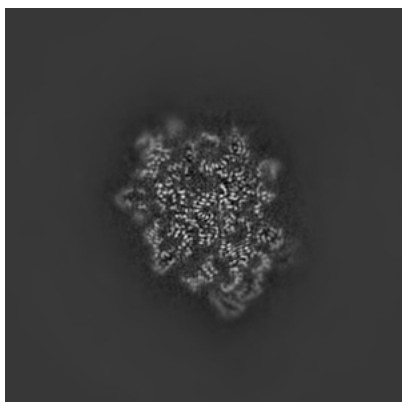


Z

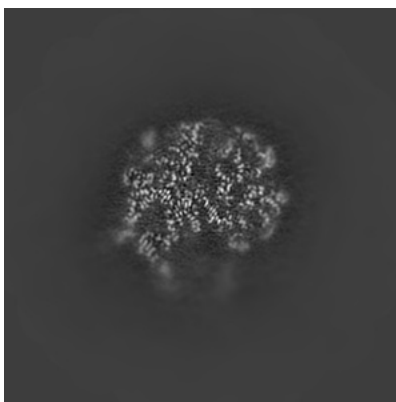
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

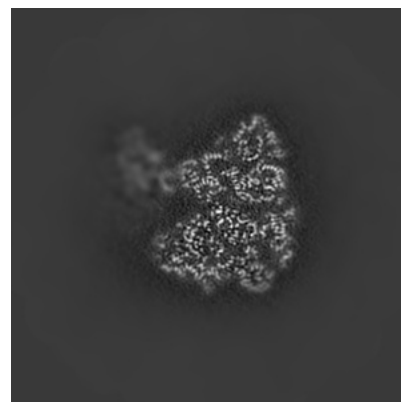
6.2.1 Primary map



X Index: 192



Y Index: 192

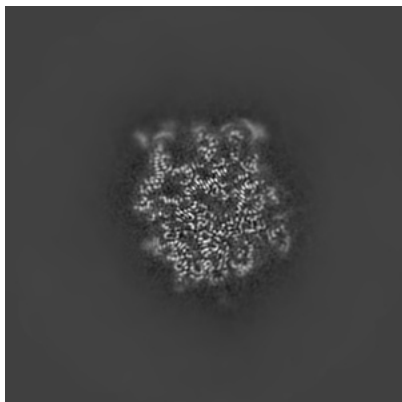


Z Index: 192

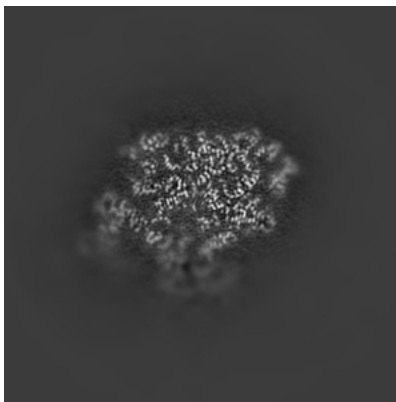
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

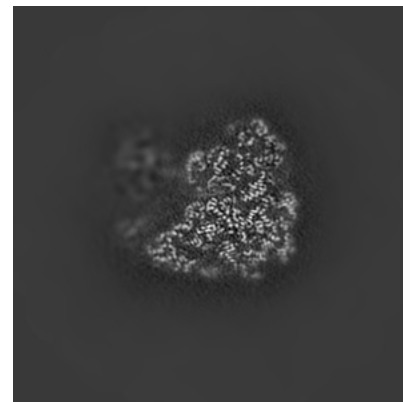
6.3.1 Primary map



X Index: 207



Y Index: 211

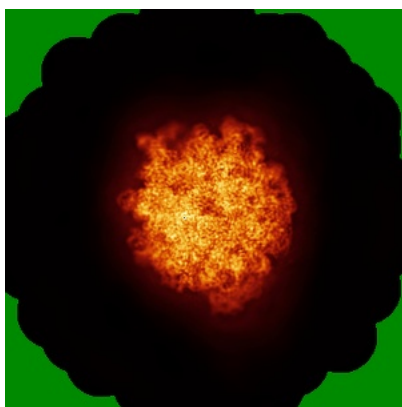


Z Index: 183

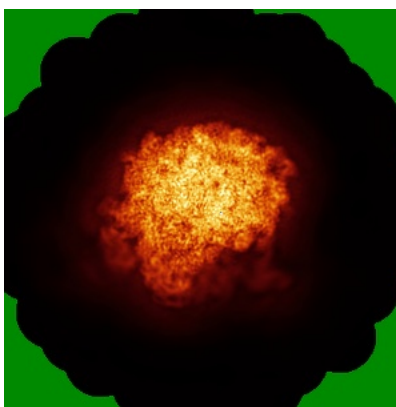
The images above show the largest variance slices of the map in three orthogonal directions.

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

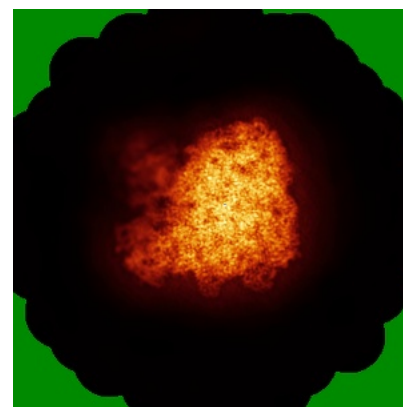
6.4.1 Primary map



X



Y

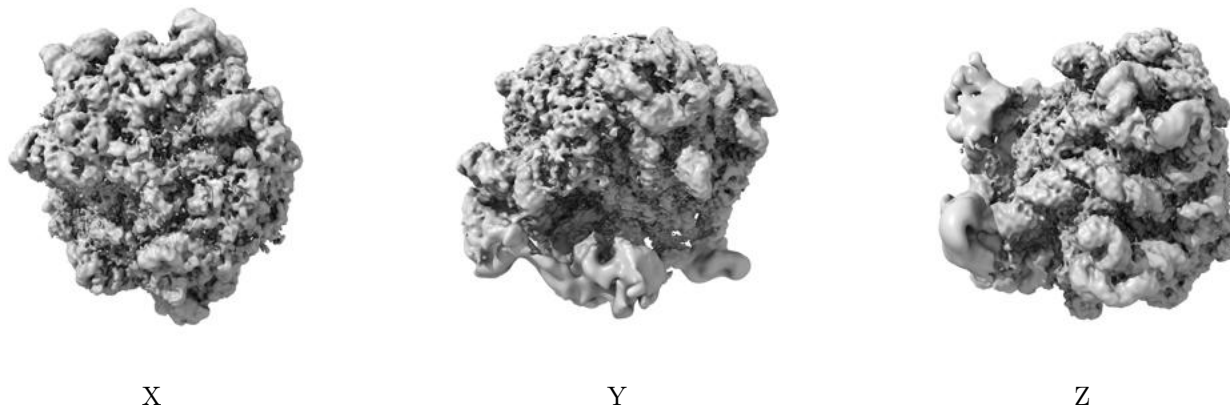


Z

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 0.0085. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

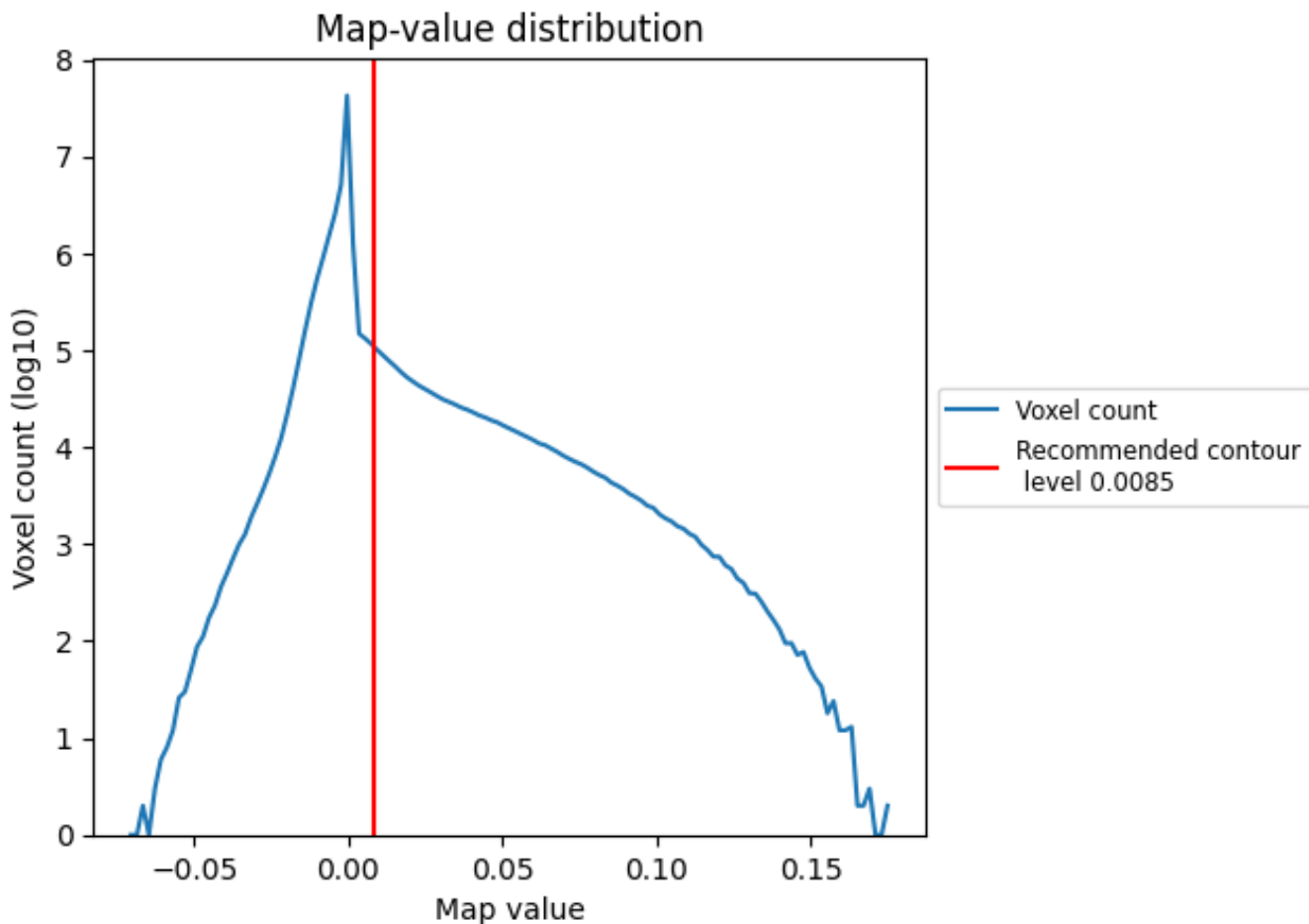
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

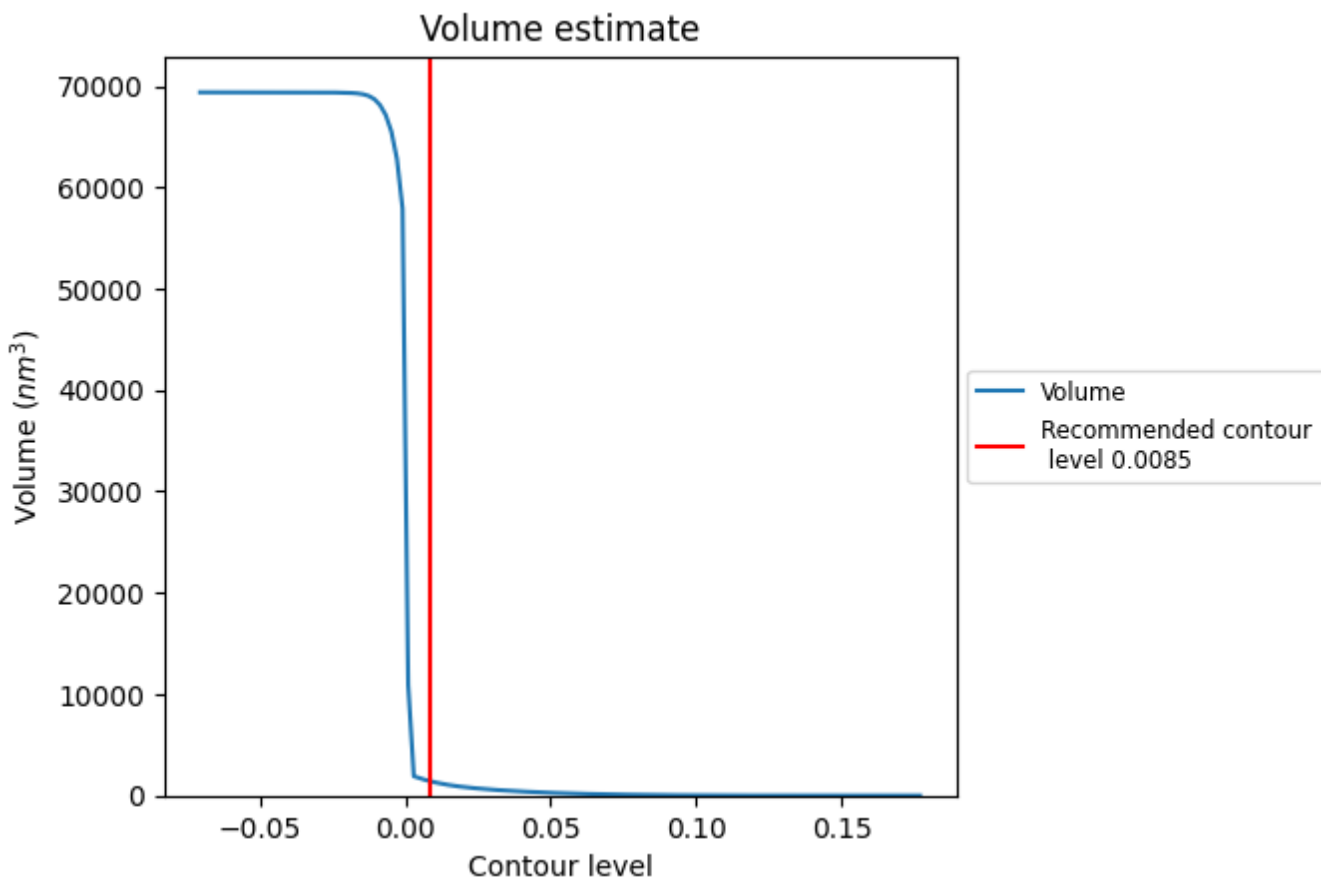
This section contains the results of statistical analysis of the map.

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.

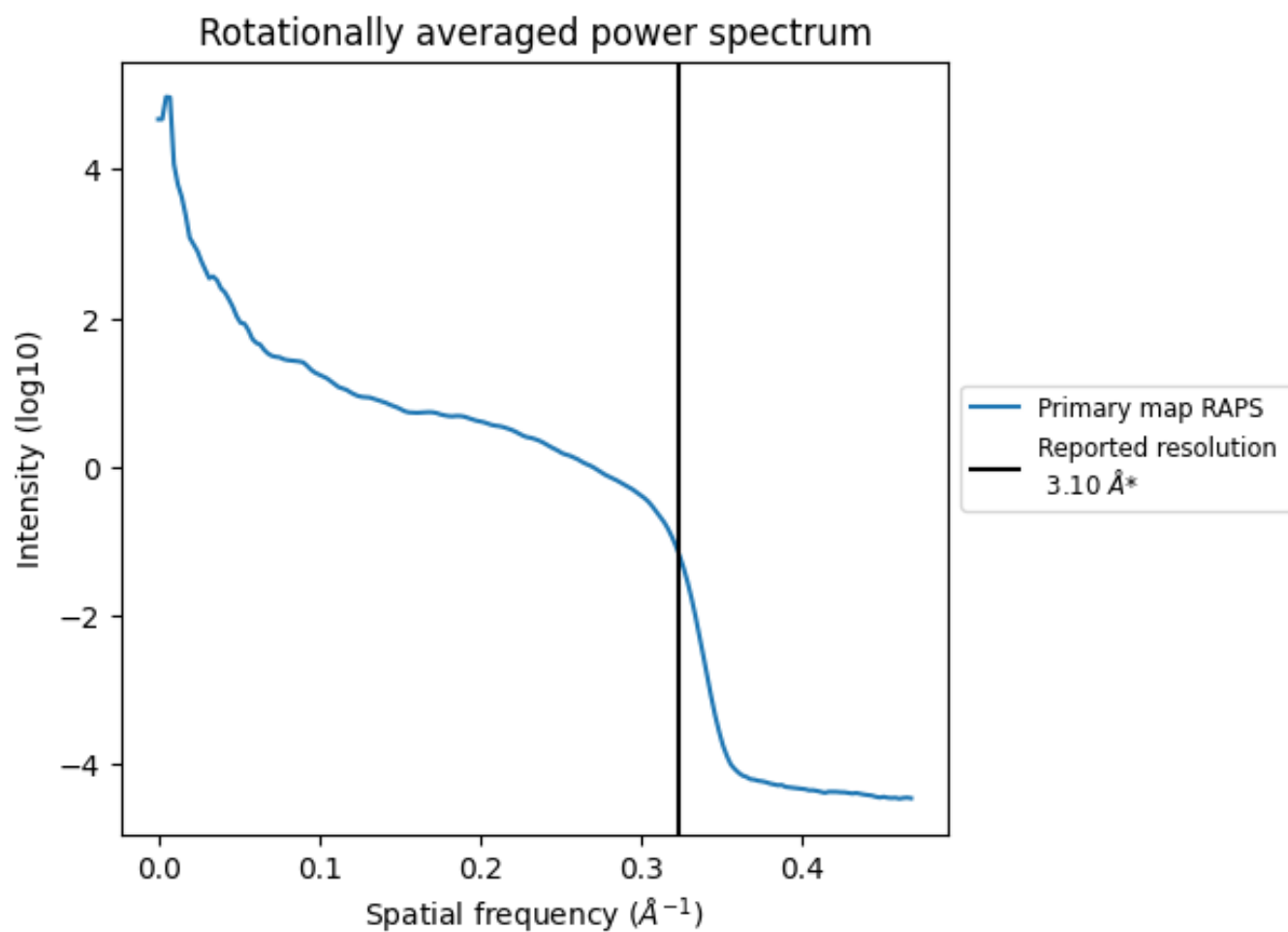
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1417 nm^3 ; this corresponds to an approximate mass of 1280 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\AA^{-1}

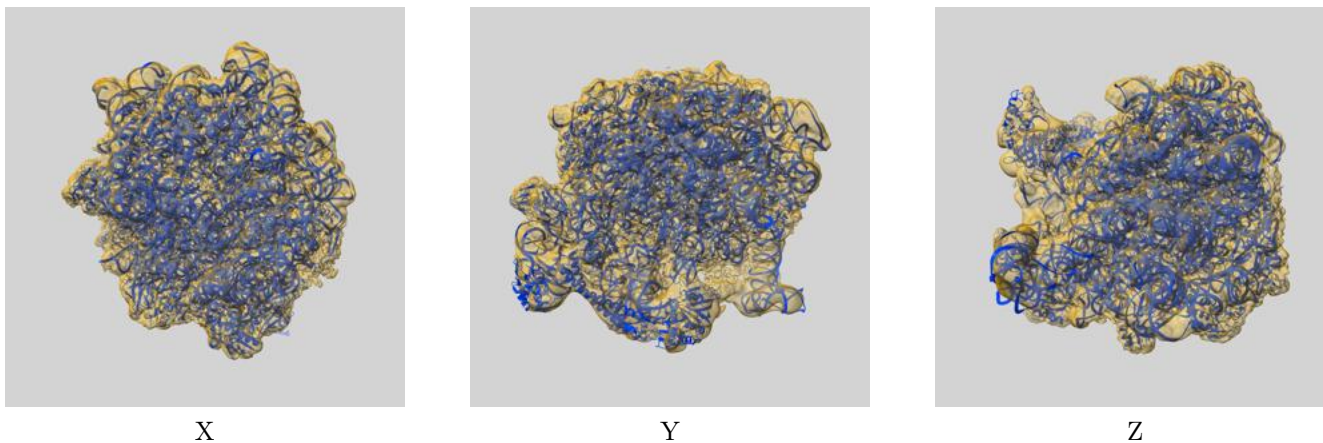
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

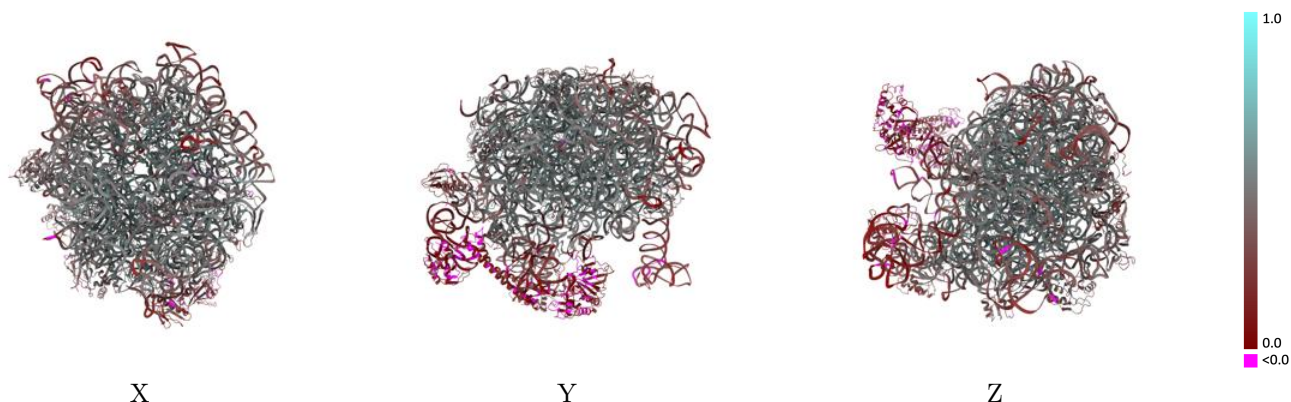
This section contains information regarding the fit between EMDB map EMD-11864 and PDB model 7AQD. Per-residue inclusion information can be found in section [3](#) on page [9](#).

9.1 Map-model overlay [i](#)



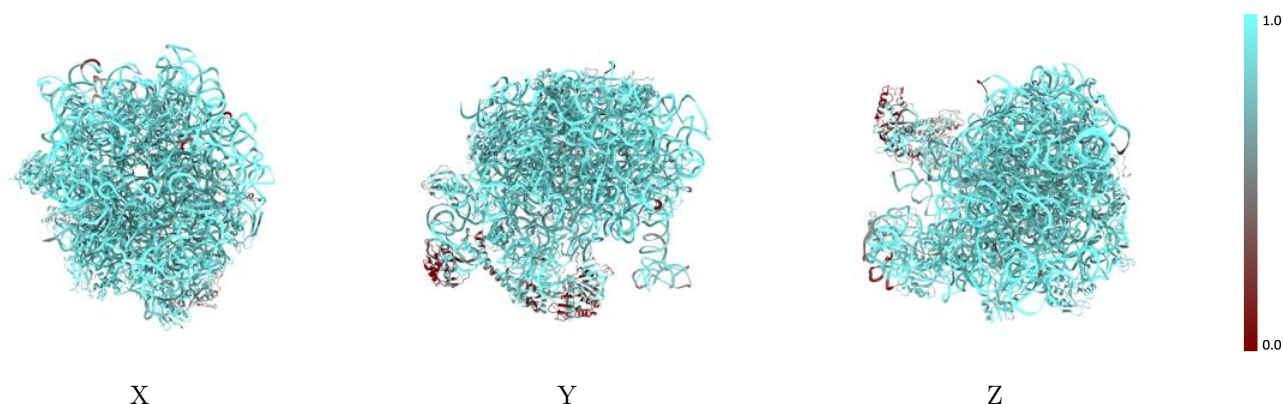
The images above show the 3D surface view of the map at the recommended contour level 0.0085 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



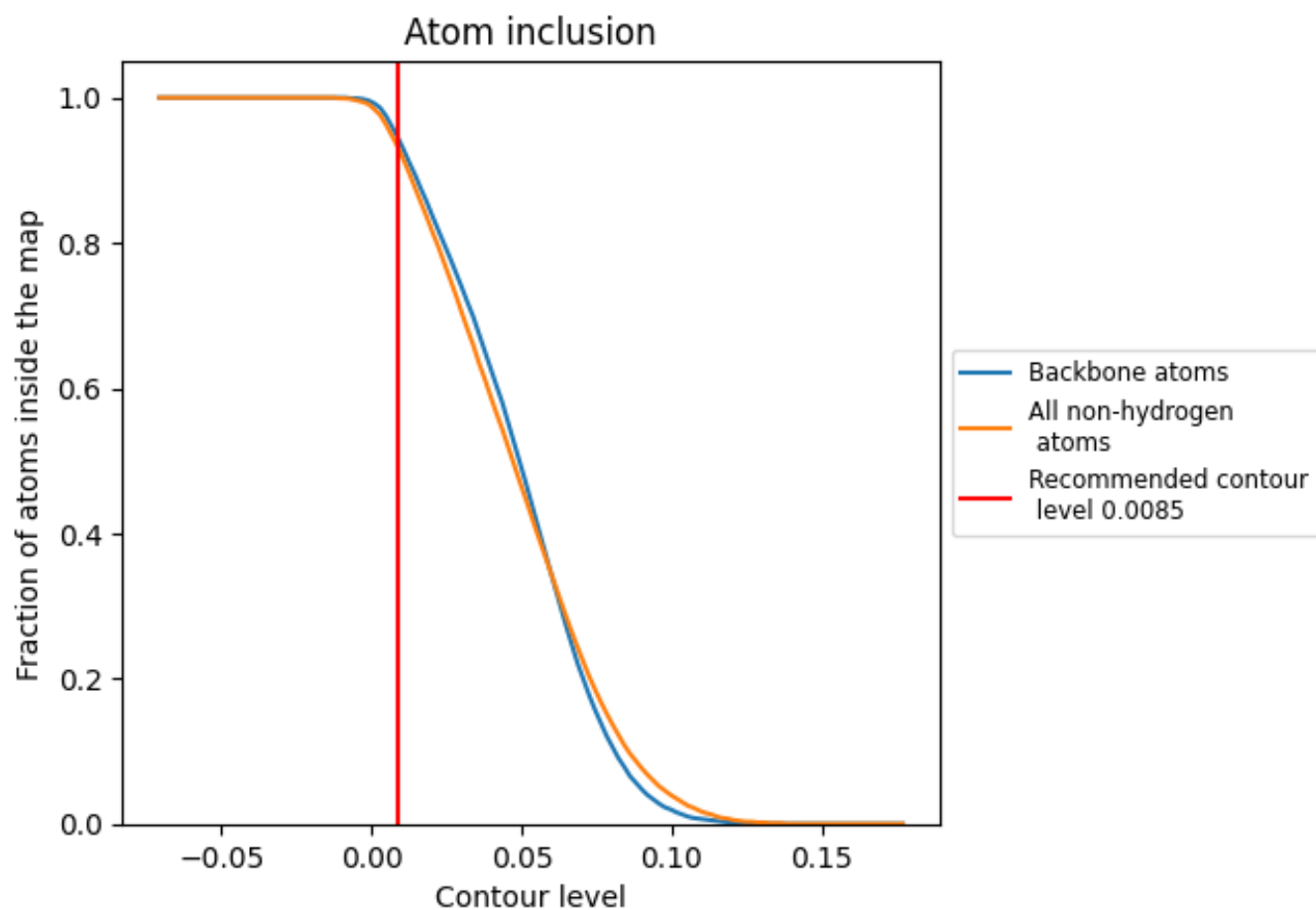
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0085).



































































9.4 Atom inclusion [i](#)



At the recommended contour level, 95% 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 (0.0085) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9350	 0.4100
A	 0.9770	 0.4440
B	 0.9910	 0.3430
C	 0.9460	 0.4690
D	 0.9260	 0.4670
E	 0.9180	 0.4290
F	 0.7530	 0.1490
G	 0.8670	 0.2700
I	 0.2700	 0.0450
J	 0.9320	 0.4600
K	 0.9240	 0.4510
L	 0.9140	 0.4340
M	 0.9080	 0.4340
N	 0.9190	 0.4590
O	 0.8580	 0.2800
Q	 0.9330	 0.4580
R	 0.5430	 0.0770
S	 0.9430	 0.4780
T	 0.9010	 0.1850
U	 0.8960	 0.3700
V	 0.8870	 0.4450
W	 0.9430	 0.3940
X	 0.9190	 0.4060
Z	 0.9120	 0.4400
a	 0.8900	 0.4200
b	 0.9470	 0.4660
c	 0.9280	 0.4190
d	 0.9650	 0.5350
e	 0.9500	 0.4980
f	 0.9110	 0.4320
g	 0.8920	 0.4090
h	 0.8910	 0.4040
i	 0.8770	 0.3100

