



wwPDB EM Validation Summary Report ⓘ

Dec 11, 2022 – 01:21 am GMT

PDB ID : 6RAO
EMDB ID : EMD-4782
Title : Cryo-EM structure of the anti-feeding prophage (AFP) baseplate, 6-fold symmetrised
Authors : Desfosses, A.
Deposited on : 2019-04-06
Resolution : 3.10 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.dev43
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) : 2.31.3

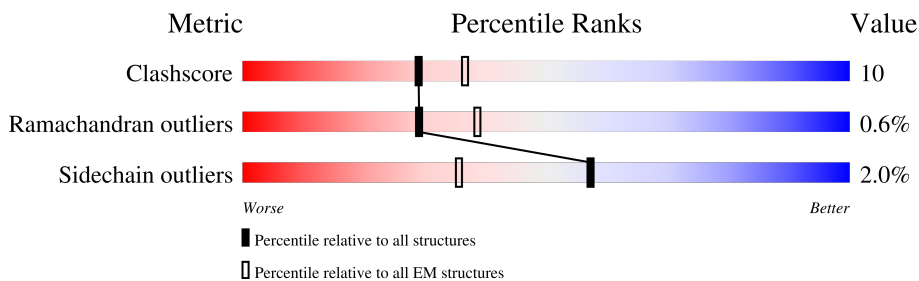
1 Overall quality at a glance

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.



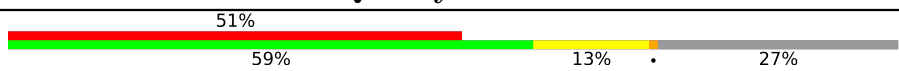
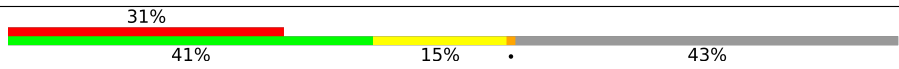
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	A	149	
1	B	149	
2	C	354	
3	D	451	
4	F	149	
5	H	140	
6	E	417	
7	G	229	

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Mol	Chain	Length	Quality of chain
8	I	607	
9	J	963	

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 22409 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 Afp1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	148	Total	C	N	O	S	0	0
			1148	729	187	228	4		
1	B	148	Total	C	N	O	S	0	0
			1148	729	187	228	4		

- Molecule 2 is a protein called Afp2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	351	Total	C	N	O	S	0	0
			2718	1740	450	522	6		

- Molecule 3 is a protein called Afp3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	358	Total	C	N	O	S	0	0
			2747	1753	462	525	7		

- Molecule 4 is a protein called Afp5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	F	149	Total	C	N	O	S	0	0
			1196	757	218	215	6		

- Molecule 5 is a protein called Afp9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	H	125	Total	C	N	O	S	0	0
			994	628	177	184	5		

- Molecule 6 is a protein called Afp4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	E	386	3005	1920	512	561	12	0	0

- Molecule 7 is a protein called Afp7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	224	1737	1096	292	343	6	0	0

- Molecule 8 is a protein called Afp11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	I	443	3441	2189	592	648	12	0	0

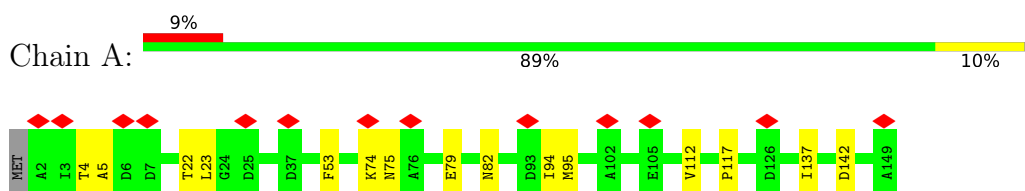
- Molecule 9 is a protein called Afp12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	J	548	4275	2711	737	819	8	0	0

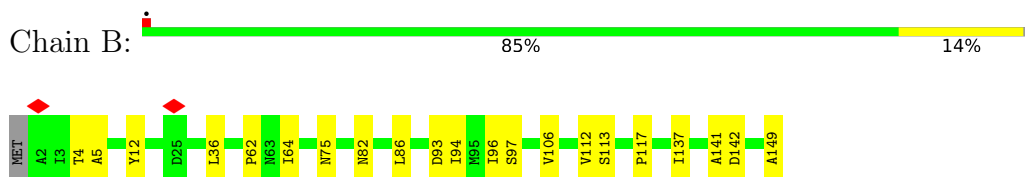
3 Residue-property plots

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.

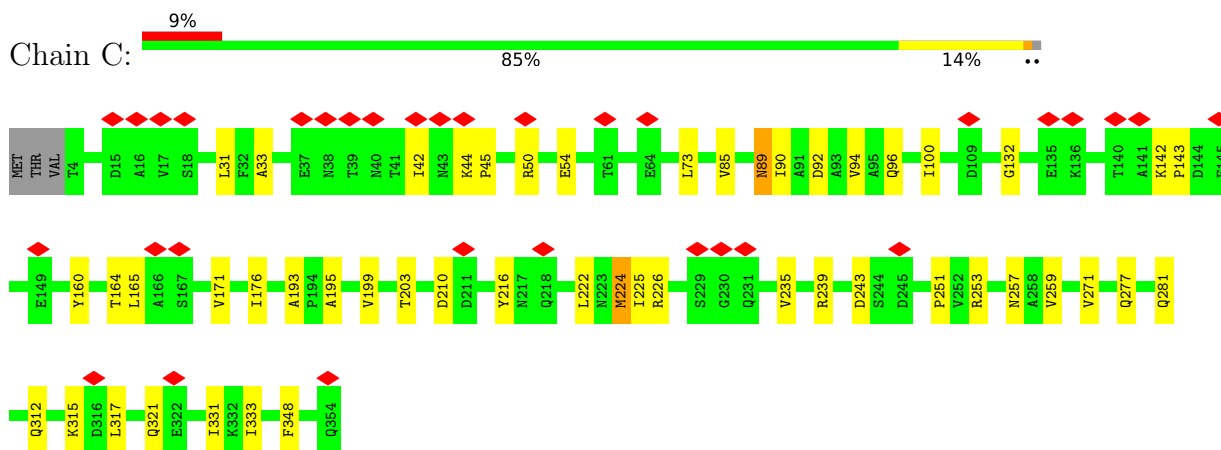
- Molecule 1: Afp1



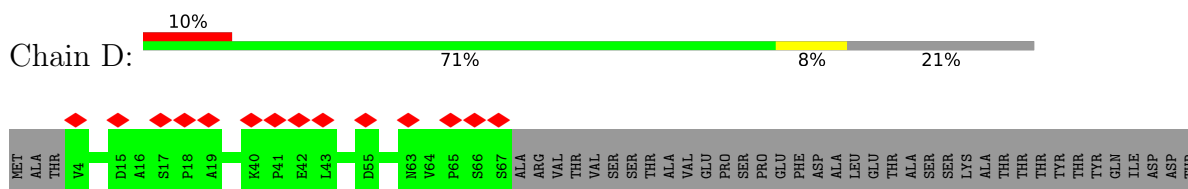
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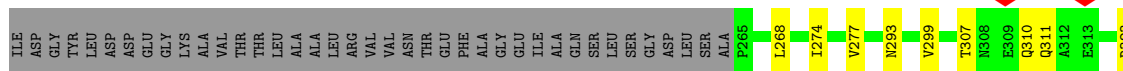
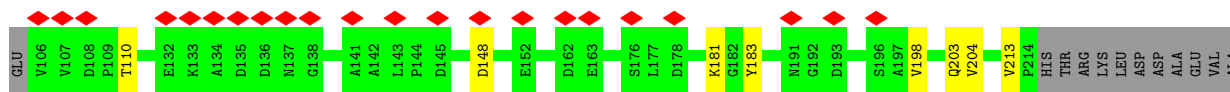


- Molecule 2: Afp2

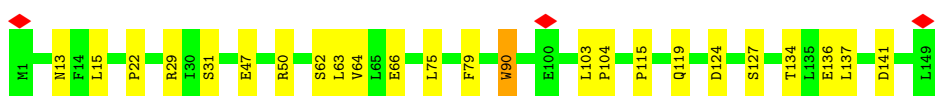
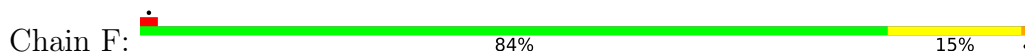


- Molecule 3: Afp3

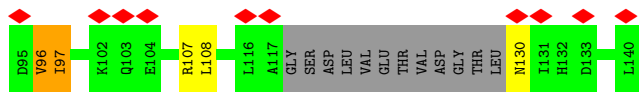
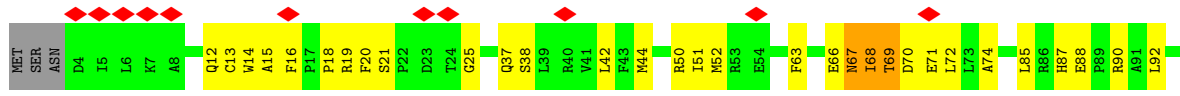




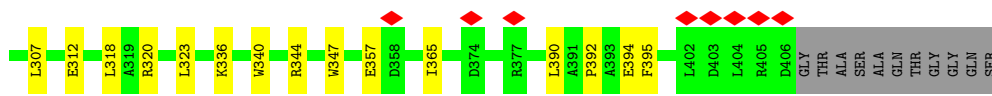
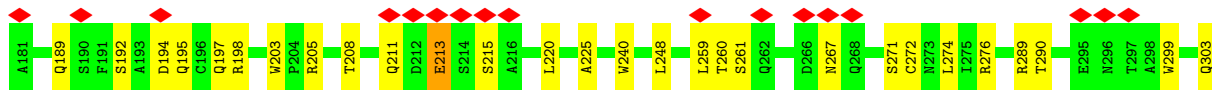
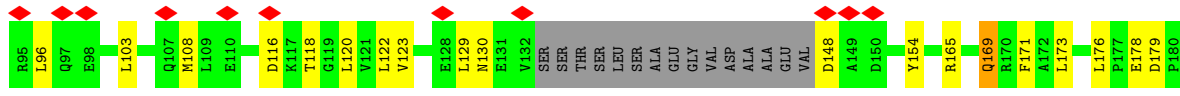
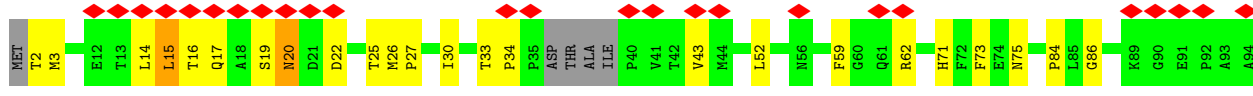
• Molecule 4: Afp5



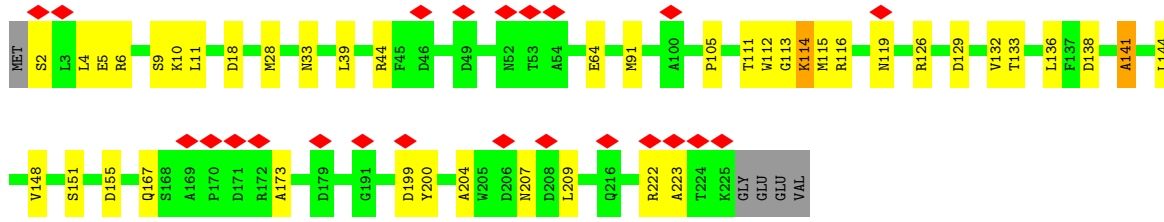
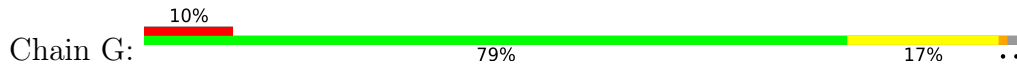
• Molecule 5: Afp9



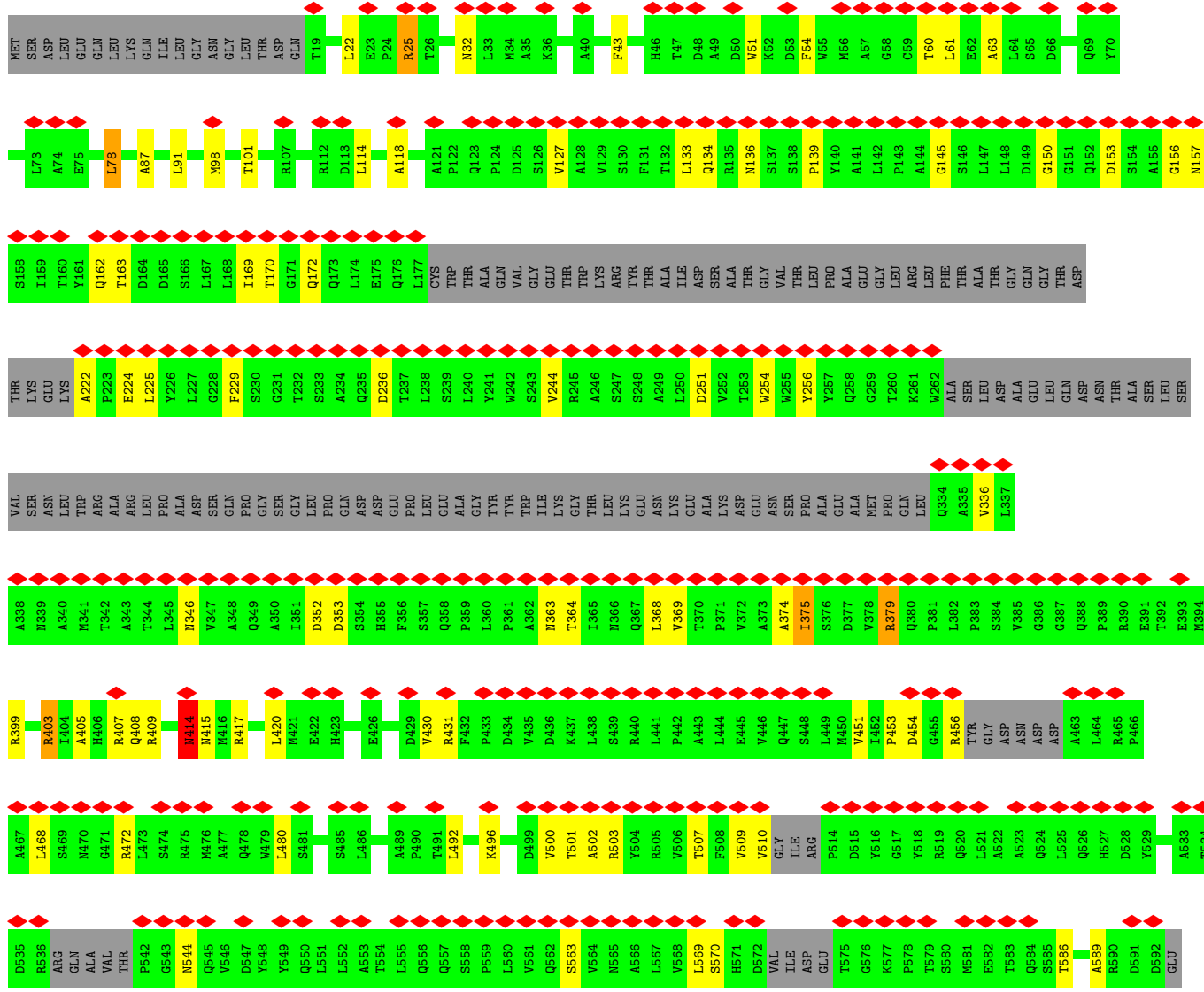
• Molecule 6: Afp4



• Molecule 7: Afp7



• Molecule 8: Afp11



• Molecule 9: Afp12



NET	GLY	T218	Q283	L345	Q404	D506	RE76	GLN	TRP	PRO	GLN	LEU	ILE
SER	GLU	F219	T284	L346	T405	K507	IS77	ALA	ALA	ALA	TRP	ASP	GLY
LYS	VAL	S220	A285	W347	L406	Q508	A578	GLY	SER	GLY	ALA	ASP	ASP
E4	ASN	P221	P286	G348	Y407	P509	A579	VAL	HIS	LEU	SER	THR	GLY
N5	GLU	R222	S287	A349	I408	V510	R580	GLN	ASN	PHE	GLN	THR	SER
F8	LEU	M223	Q288	P350	Q412	G512	I581	LYS	ARG	TYR	ALA	THR	GLN
A103	LYS	M224	I289	P351	C417	N513	G582	VAL	TRP	MET	VAL	ASP	ASN
L104	LEU	I225	I290	L352	Y418	E517	L583	VAL	GLM	GLY	GLN	THR	THR
K12	ARG	E226	S291	S353	A419	D518	D584	VAL	ASN	ALA	ASN	THR	ALA
D13	ARG	A228	G292	L354	L420	L421	I586	GLN	ASN	ASN	VAL	ASP	ASN
F17	LEU	D229	G293	L355	Q422	Q423	F520	LEU	SER	THR	GLN	ARG	ARG
A24	S110	M230	Y294	A356	Q424	D424	A589	LEU	ALA	ALA	ALA	PHE	LEU
K27	ASP	ILE	V295	G357	D424	I427	D590	ILE	ILE	LEU	VAL	VAL	THR
V28	GLY	GLY	M297	D358	I427	D428	N591	GLU	TYR	ALA	GLY	VAL	SER
T29	ASP	ASP	L298	D359	D428	D429	P592	GLY	ARG	ALA	ALA	ALA	ALA
A30	ALA	ALA	G299	S360	D429	Q430	D593	GLY	ARG	ASP	ASP	VAL	VAL
L31	LEU	LEU	P300	P361	Q430	V434	L594	LEU	SER	TRP	TRP	LEU	LEU
D38	THR	THR	L301	T363	V434	L439	G595	ARG	ALA	GLN	ASN	GLY	VAL
H42	GLN	GLU	V302	L364	L439	D447	G596	HIS	ALA	ALA	ALA	ALA	ALA
D43	ASN	ASN	N303	L365	SER	G448	L535	VAL	VAL	VAL	VAL	VAL	VAL
P44	PHE	PHE	L304	V365	LYS	G448	P536	VAL	LYS	VAL	VAL	VAL	VAL
T47	LEU	LEU	L305	GLY	GLY	T457	L537	LEU	LEU	VAL	VAL	VAL	VAL
Q50	LEU	LEU	L306	ILE	ILE	A460	T538	LEU	LEU	VAL	VAL	VAL	VAL
D126	LEU	LEU	A307	R371	N372	A466	L539	LEU	LEU	VAL	VAL	VAL	VAL
W54	LEU	LEU	I308	N372	T373	A467	D540	GLU	GLU	VAL	VAL	VAL	VAL
L59	LEU	LEU	G310	L374	L374	I468	L541	GLU	ALA	VAL	VAL	VAL	VAL
Q131	LEU	LEU	V311	G313	E375	I468	P542	GLY	GLN	GLY	GLY	GLY	GLY
L65	LEU	LEU	A312	S313	S376	A467	F544	ASP	LEU	LEU	LEU	LEU	LEU
S66	LEU	LEU	S315	S315	E377	R472	F544	SER	LEU	LEU	LEU	LEU	LEU
D69	LEU	LEU	T316	T316	A378	M477	L545	THR	GLN	THR	THR	THR	THR
H73	LEU	LEU	S318	S318	M378	A478	Q548	THR	ASP	PRO	PRO	PRO	PRO
Q74	LEU	LEU	A254	A254	A380	A478	R549	THR	SER	ALA	ALA	ALA	ALA
S66	LEU	LEU	V319	V319	G381	A483	L552	THR	THR	GLY	GLY	GLY	GLY
D69	LEU	LEU	D320	D320	Y382	A483	Q555	THR	PHE	THR	THR	THR	THR
H73	LEU	LEU	K321	K321	L383	Q486	P556	THR	ASP	ALA	ALA	ALA	ALA
Q76	LEU	LEU	V322	V322	T384	K490	A557	THR	SER	GLN	GLN	GLN	GLN
D75	LEU	LEU	D323	D323	Q385	T491	L558	THR	THR	THR	THR	THR	THR
Q76	LEU	LEU	G324	G324	A386	L492	G559	THR	THR	THR	THR	THR	THR
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Q76	LEU	LEU	T327	T327	I389	A494	R562	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	A328	A328	V390	Q498	I563	THR	THR	THR	THR	THR	THR
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H73	LEU	LEU	M203	M203	R401	R401	D403	THR	THR	THR	THR	THR	THR
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H73	LEU	LEU	E206	E206	R401	R401	D403	THR	THR	THR	THR	THR	THR
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H73	LEU	LEU	H201	H201	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	R202	R202	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	M203	M203	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	ALA	ALA	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	L204	L204	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	G205	G205	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	E206	E206	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	A200	A200	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	H201	H201	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	R202	R202	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	M203	M203	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU	LEU	ALA	ALA	R401	R401	D403	THR	THR	THR	THR	THR	THR
H73	LEU												

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C6	Depositor
Number of particles used	46991	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 ($e^-/\text{\AA}^2$)	20	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	0.524	Depositor
Minimum map value	-0.368	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.016	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	486.0, 486.0, 486.0	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.35, 1.35, 1.35	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.34	0/1172	0.60	1/1601 (0.1%)
1	B	0.42	0/1172	0.65	2/1601 (0.1%)
2	C	0.40	0/2789	0.62	1/3812 (0.0%)
3	D	0.32	0/2809	0.56	0/3833
4	F	0.45	0/1220	0.66	1/1658 (0.1%)
5	H	0.36	0/1011	0.69	0/1366
6	E	0.38	0/3073	0.66	4/4195 (0.1%)
7	G	0.40	0/1770	0.75	4/2410 (0.2%)
8	I	0.41	0/3524	0.68	6/4815 (0.1%)
9	J	0.44	0/4370	0.71	5/5974 (0.1%)
All	All	0.40	0/22910	0.66	24/31265 (0.1%)

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
7	G	0	1
8	I	0	5
9	J	0	6
All	All	0	12

There are no bond length outliers.

The worst 5 of 24 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	J	423	PRO	CA-N-CD	-8.46	99.65	111.50
7	G	144	LEU	CA-CB-CG	8.25	134.27	115.30
1	B	86	LEU	CA-CB-CG	7.08	131.58	115.30
4	F	75	LEU	CA-CB-CG	6.62	130.51	115.30
8	I	133	LEU	CA-CB-CG	6.36	129.92	115.30

There are no chirality outliers.

5 of 12 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	G	141	ALA	Peptide
8	I	254	TRP	Peptide
8	I	353	ASP	Peptide
8	I	368	LEU	Peptide
8	I	375	ILE	Peptide

5.2 Too-close contacts [i](#)

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	1148	0	1123	7	0
1	B	1148	0	1123	12	0
2	C	2718	0	2630	35	0
3	D	2747	0	2721	21	0
4	F	1196	0	1206	12	0
5	H	994	0	998	76	0
6	E	3005	0	3004	83	0
7	G	1737	0	1720	26	0
8	I	3441	0	3352	59	0
9	J	4275	0	4189	231	0
All	All	22409	0	22066	459	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 10.

The worst 5 of 459 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)
5:H:21:SER:CA	8:I:43:PHE:HZ	1.00	1.58
5:H:50:ARG:HH22	9:J:47:THR:CG2	1.14	1.55
5:H:21:SER:CA	8:I:43:PHE:CZ	1.88	1.54
9:J:298:LEU:CB	9:J:304:LEU:HD12	1.04	1.50
5:H:21:SER:HA	8:I:43:PHE:CZ	1.44	1.48

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	
1	A	146/149 (98%)	136 (93%)	8 (6%)	2 (1%)	11	40
1	B	146/149 (98%)	133 (91%)	11 (8%)	2 (1%)	11	40
2	C	349/354 (99%)	314 (90%)	34 (10%)	1 (0%)	41	73
3	D	352/451 (78%)	328 (93%)	24 (7%)	0	100	100
4	F	147/149 (99%)	132 (90%)	15 (10%)	0	100	100
5	H	121/140 (86%)	109 (90%)	8 (7%)	4 (3%)	4	21
6	E	380/417 (91%)	338 (89%)	41 (11%)	1 (0%)	41	73
7	G	222/229 (97%)	187 (84%)	33 (15%)	2 (1%)	17	52
8	I	429/607 (71%)	365 (85%)	63 (15%)	1 (0%)	47	79
9	J	538/963 (56%)	438 (81%)	97 (18%)	3 (1%)	25	59
All	All	2830/3608 (78%)	2480 (88%)	334 (12%)	16 (1%)	29	59

5 of 16 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	H	68	ILE
5	H	69	THR
9	J	296	LEU
9	J	395	VAL
1	A	5	ALA

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	A	127/128 (99%)	125 (98%)	2 (2%)	62	84
1	B	127/128 (99%)	125 (98%)	2 (2%)	62	84
2	C	284/287 (99%)	281 (99%)	3 (1%)	73	89
3	D	293/368 (80%)	292 (100%)	1 (0%)	92	96
4	F	134/134 (100%)	132 (98%)	2 (2%)	65	85
5	H	108/121 (89%)	104 (96%)	4 (4%)	34	66
6	E	324/345 (94%)	316 (98%)	8 (2%)	47	75
7	G	191/195 (98%)	187 (98%)	4 (2%)	53	79
8	I	364/509 (72%)	356 (98%)	8 (2%)	52	78
9	J	455/807 (56%)	442 (97%)	13 (3%)	42	72
All	All	2407/3022 (80%)	2360 (98%)	47 (2%)	57	80

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

Mol	Chain	Res	Type
8	I	256	TYR
9	J	250	ARG
8	I	363	ASN
8	I	414	ASN
9	J	294	TYR

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

Mol	Chain	Res	Type
8	I	414	ASN
9	J	385	GLN
9	J	25	HIS
9	J	180	GLN
9	J	414	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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.

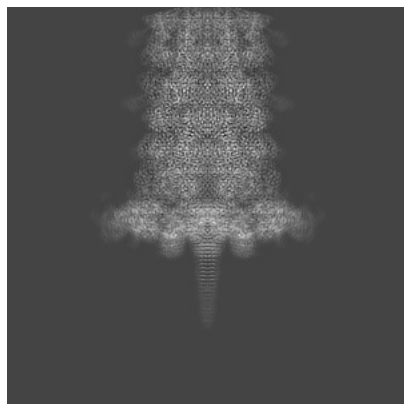
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4782. These allow visual inspection of the internal detail of the map and identification of artifacts.

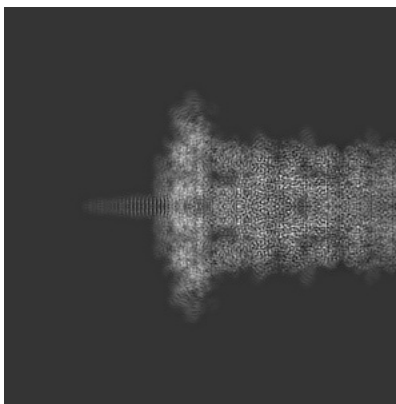
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

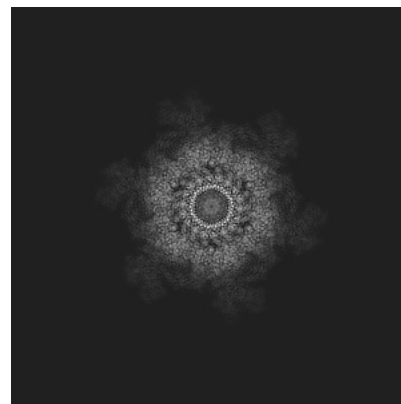
6.1.1 Primary map



X

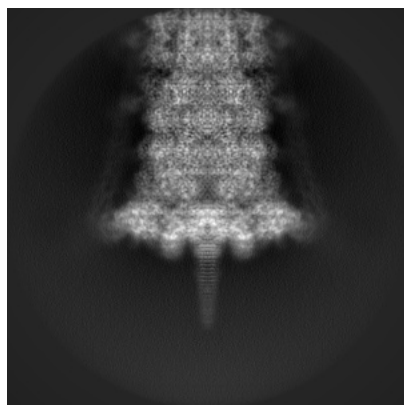


Y

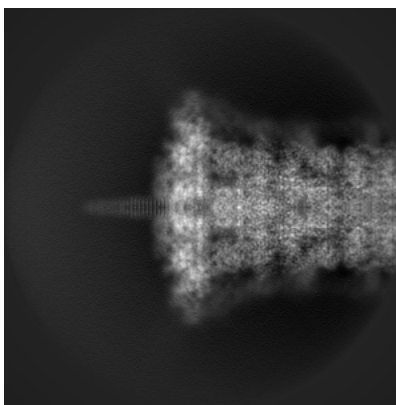


Z

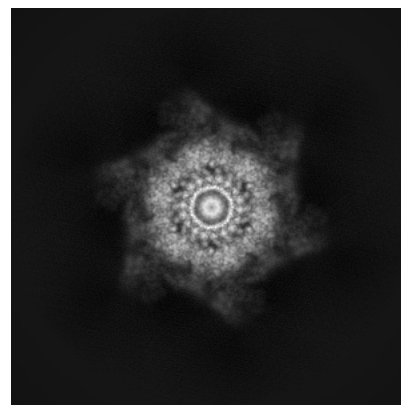
6.1.2 Raw map



X



Y

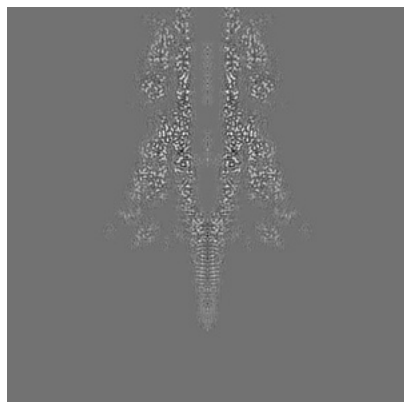


Z

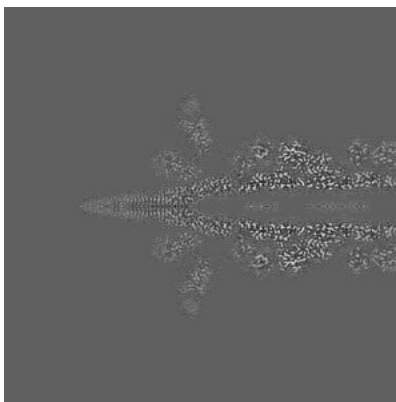
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

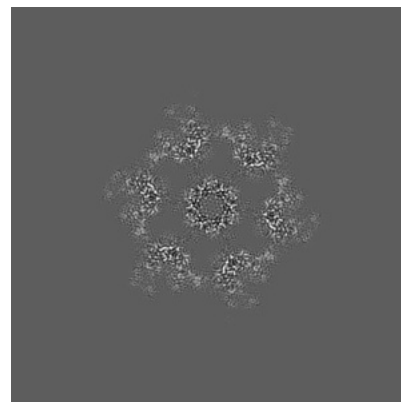
6.2.1 Primary map



X Index: 180

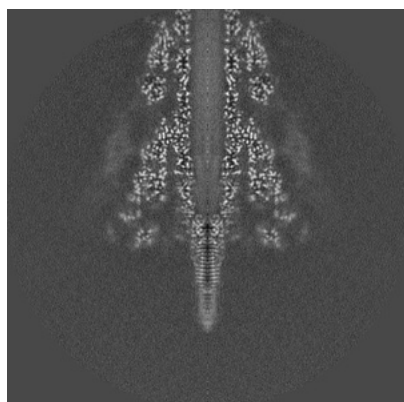


Y Index: 180

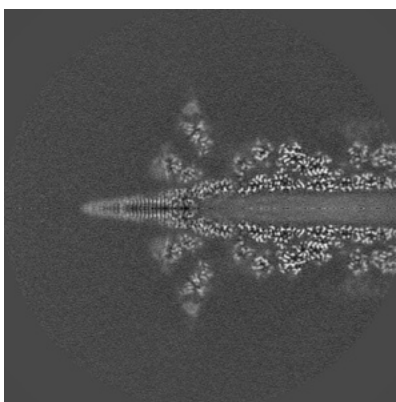


Z Index: 180

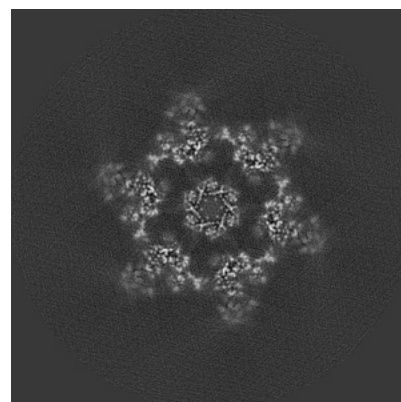
6.2.2 Raw map



X Index: 180



Y Index: 180

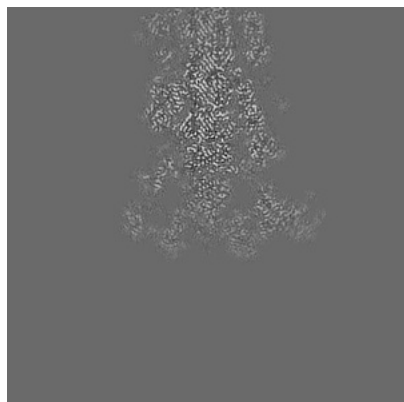


Z Index: 180

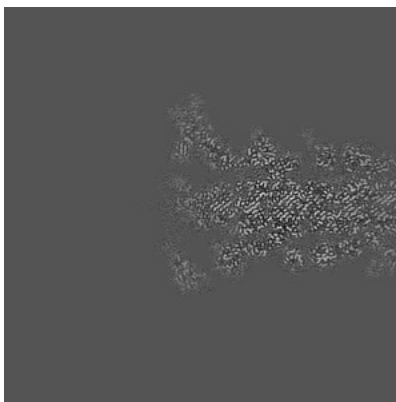
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

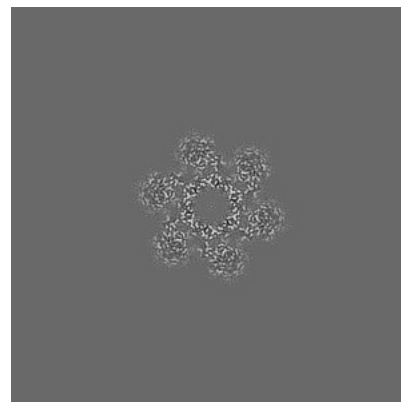
6.3.1 Primary map



X Index: 162

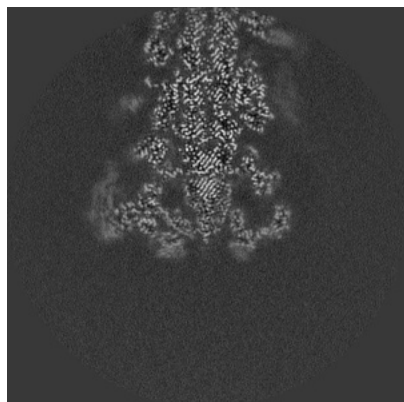


Y Index: 163

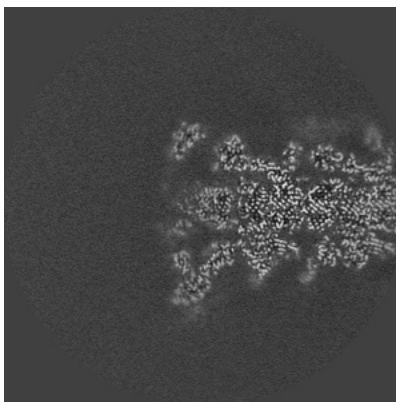


Z Index: 232

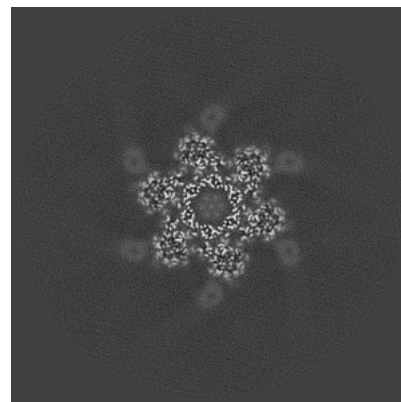
6.3.2 Raw map



X Index: 196



Y Index: 199

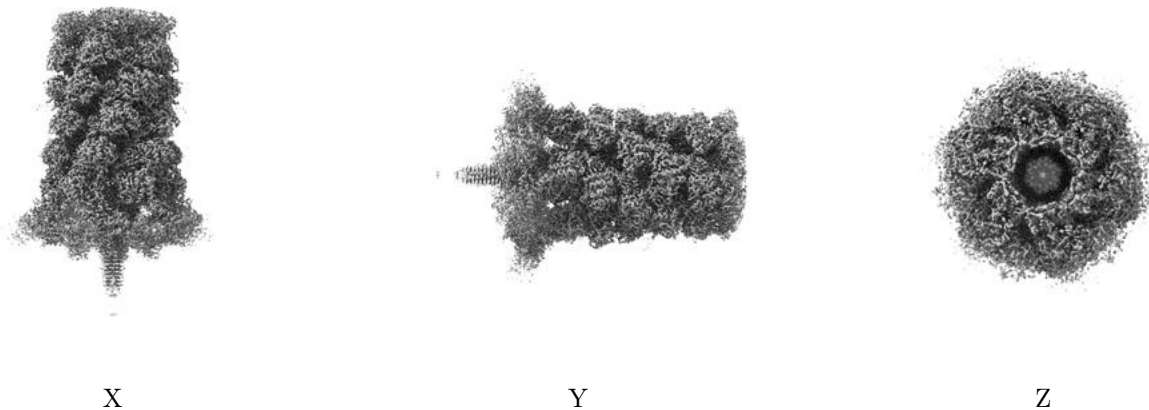


Z Index: 232

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

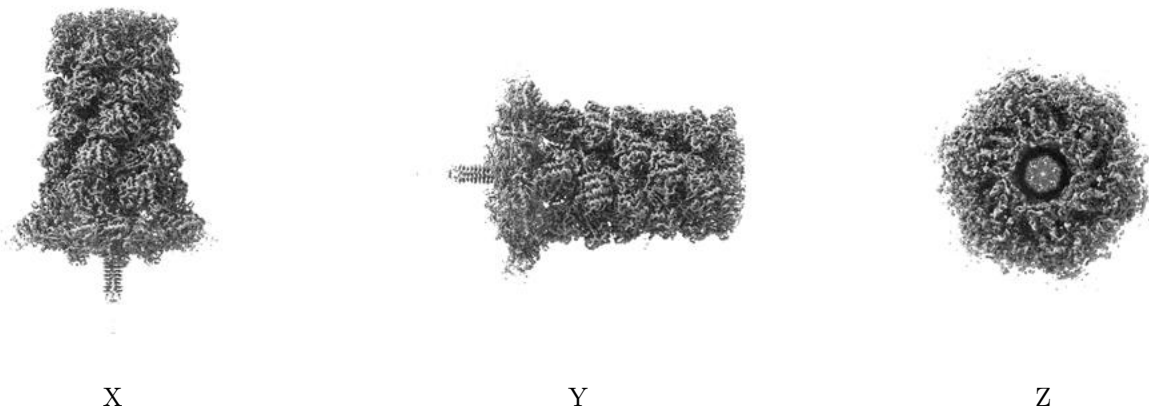
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.1. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

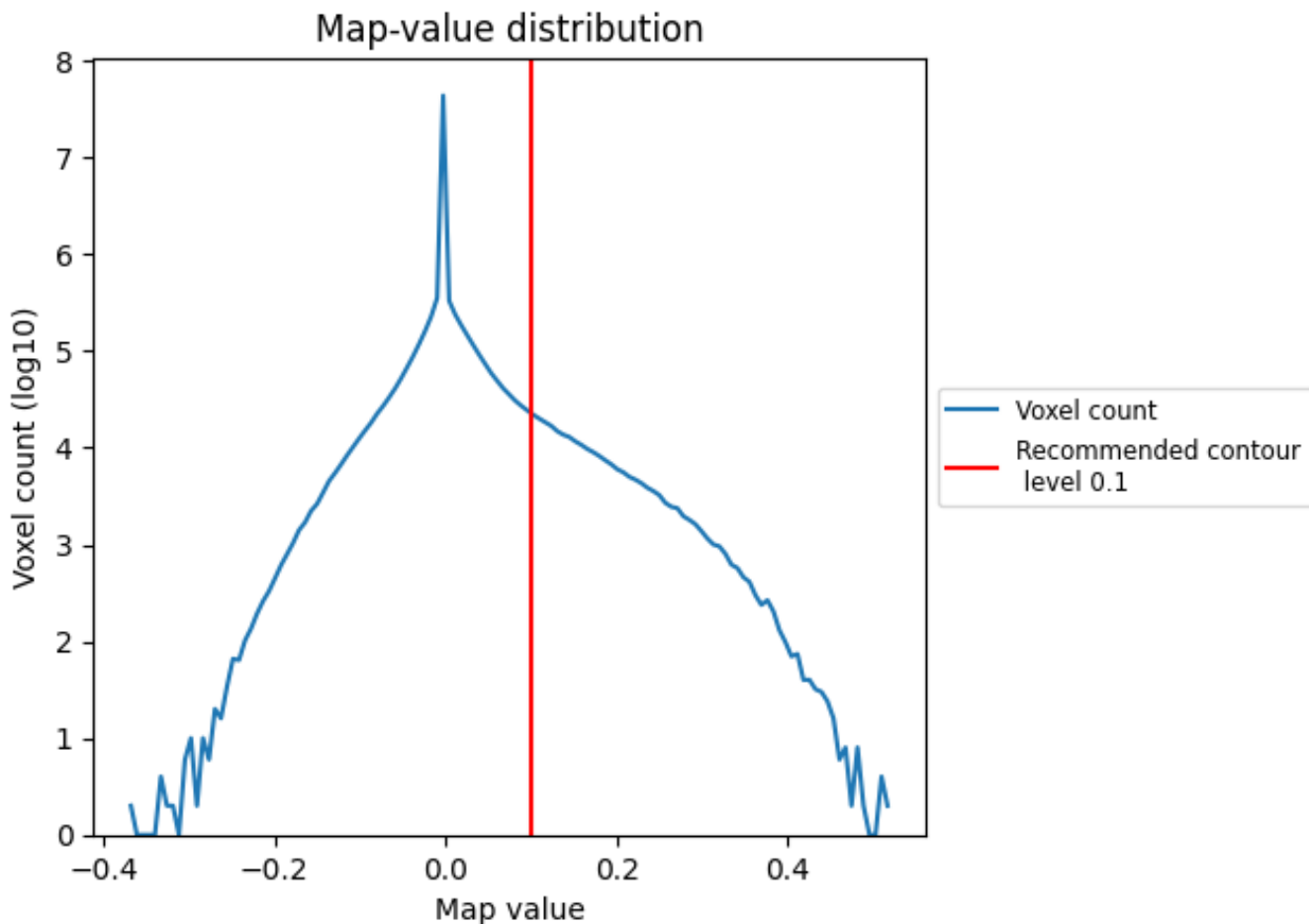
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

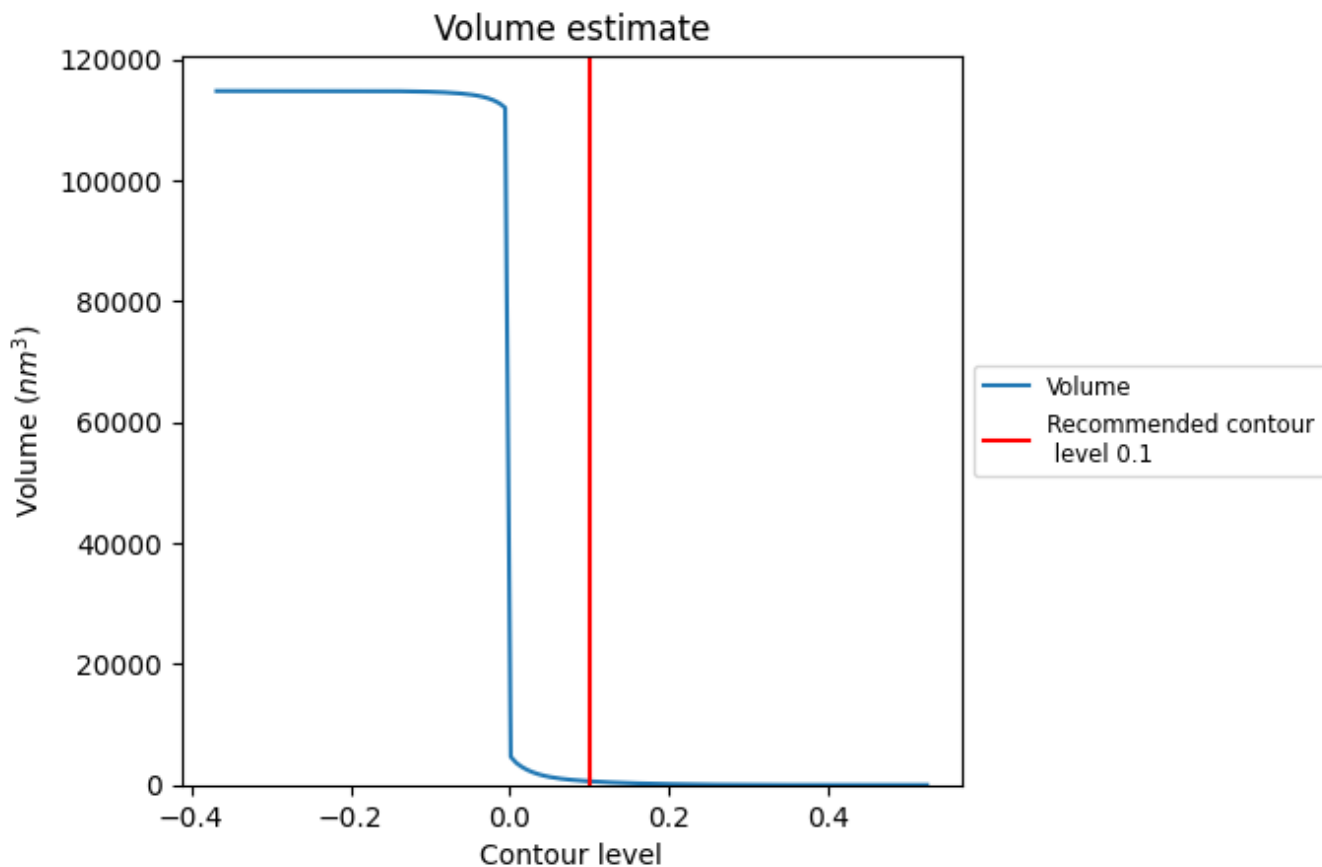
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

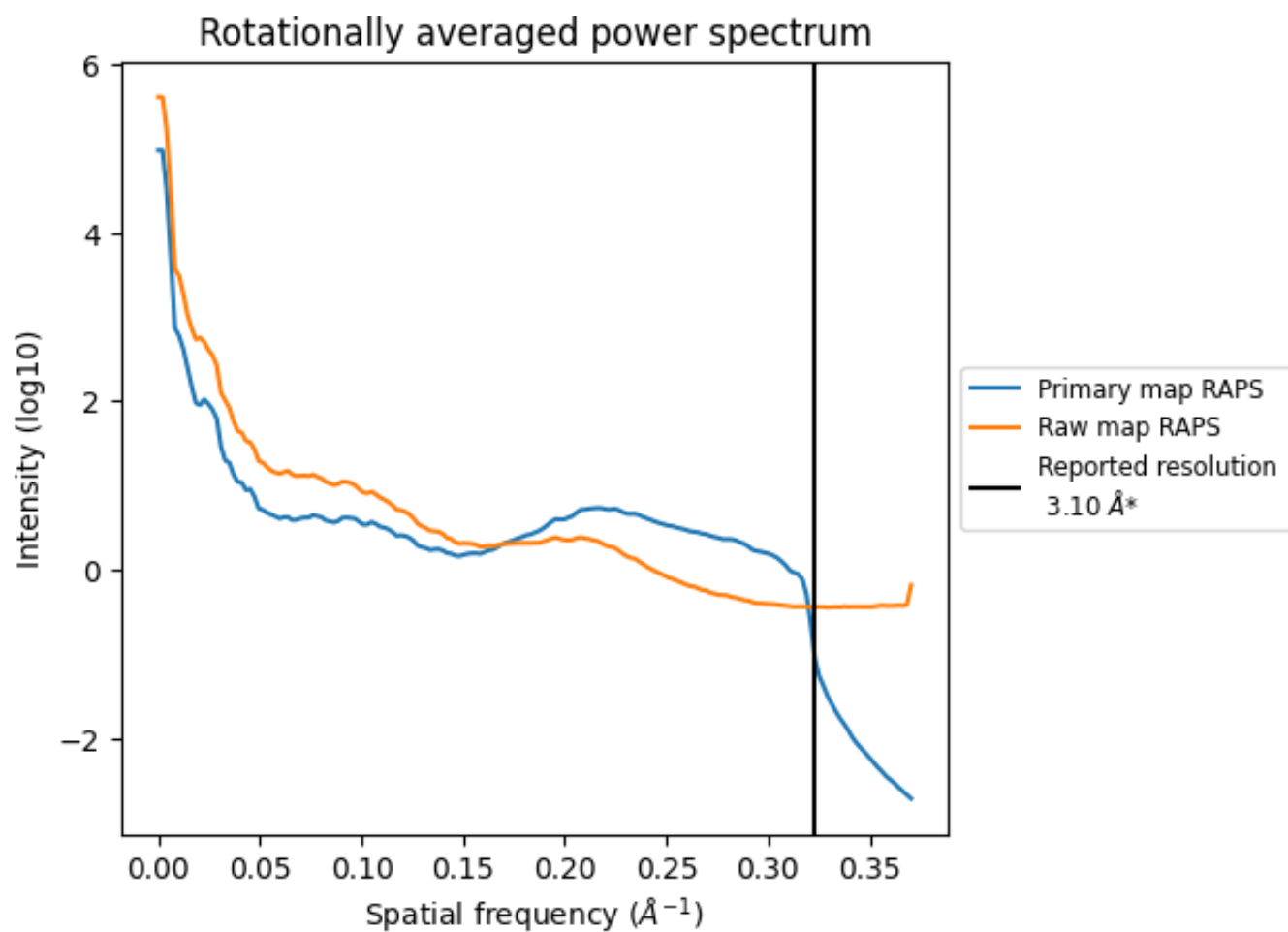
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 613 nm³; this corresponds to an approximate mass of 554 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

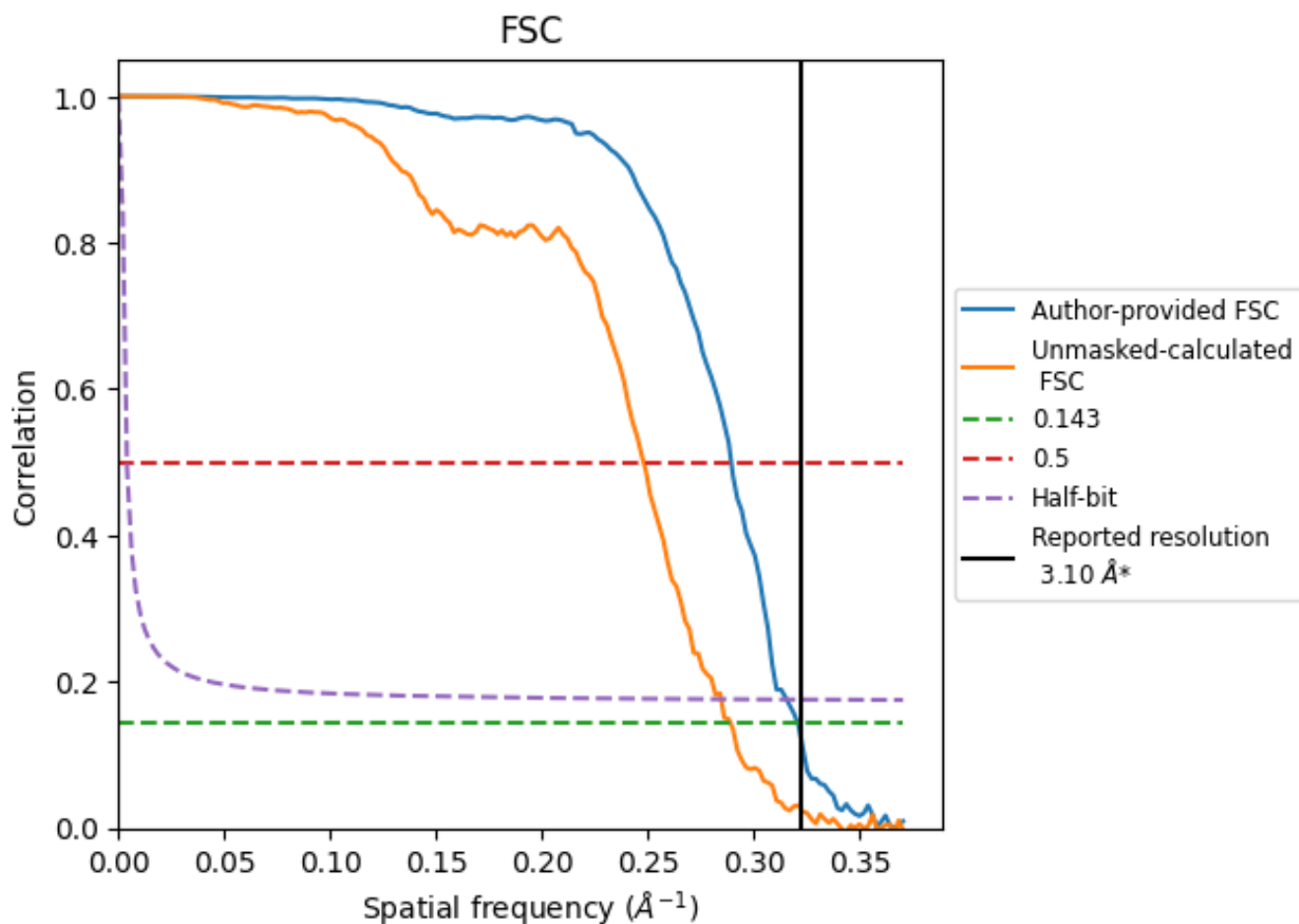


*Reported resolution corresponds to spatial frequency of 0.323 \AA^{-1}

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.323 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.12	3.46	3.17
Unmasked-calculated*	3.46	4.03	3.51

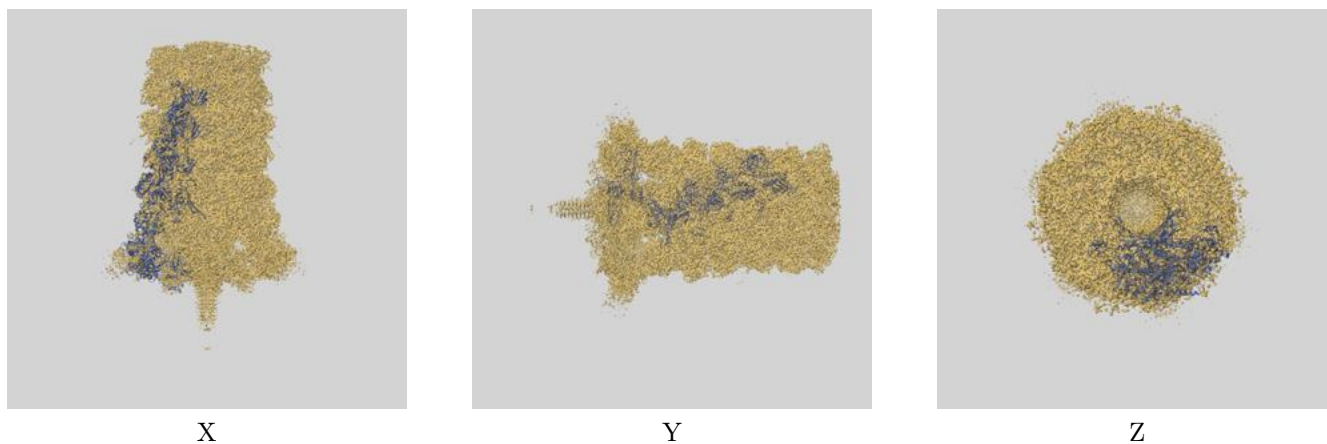
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.46 differs from the reported value 3.1 by more than 10 %

9 Map-model fit [i](#)

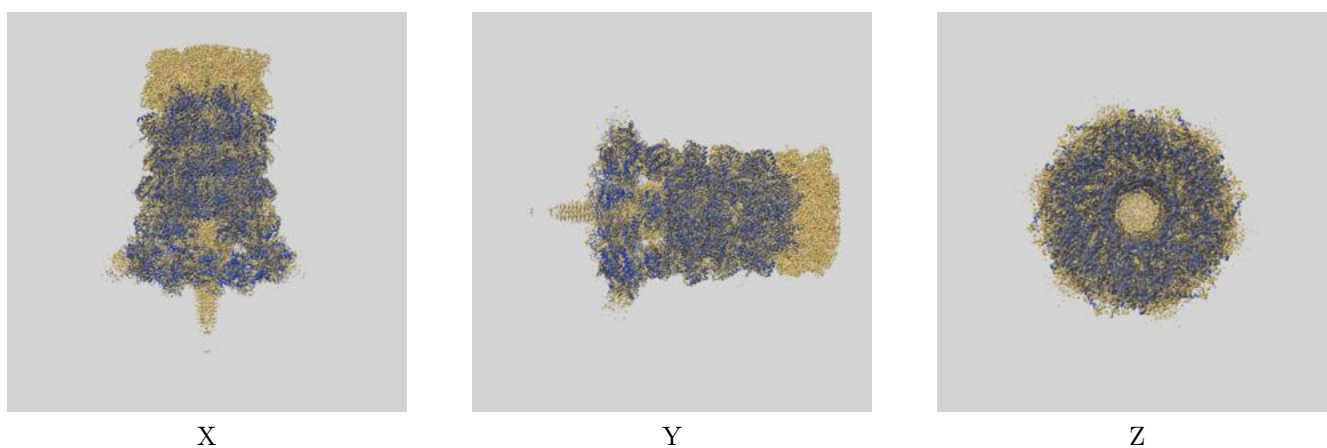
This section contains information regarding the fit between EMDB map EMD-4782 and PDB model 6RAO. Per-residue inclusion information can be found in section 3 on page 6.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)

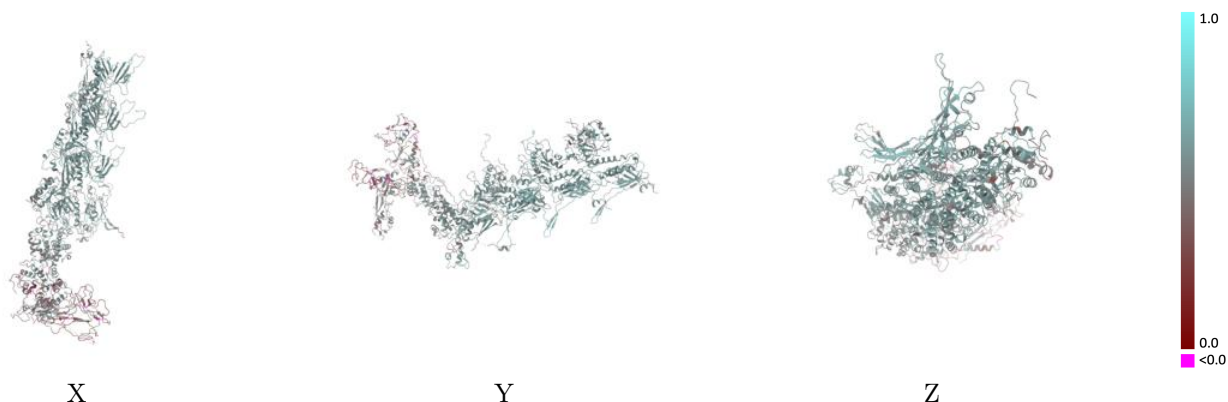


9.1.2 Map-model assembly overlay [i](#)



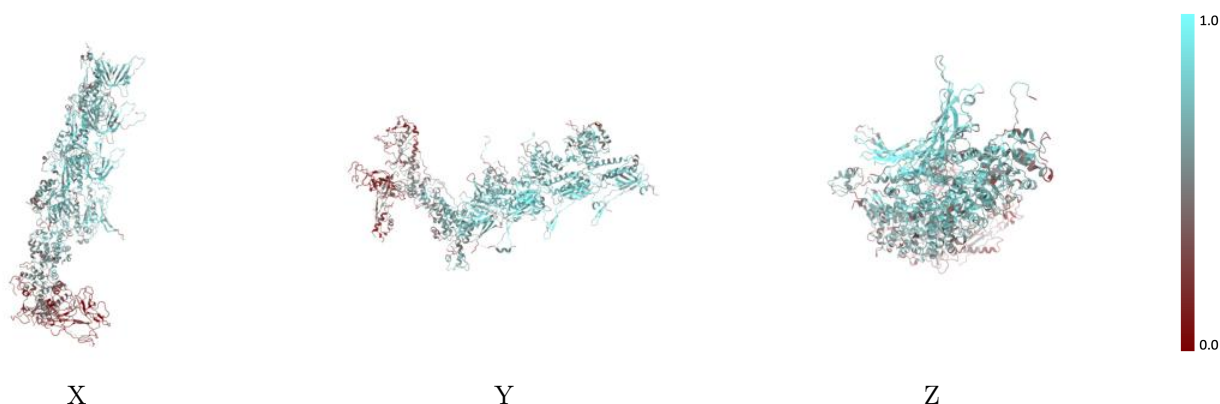
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



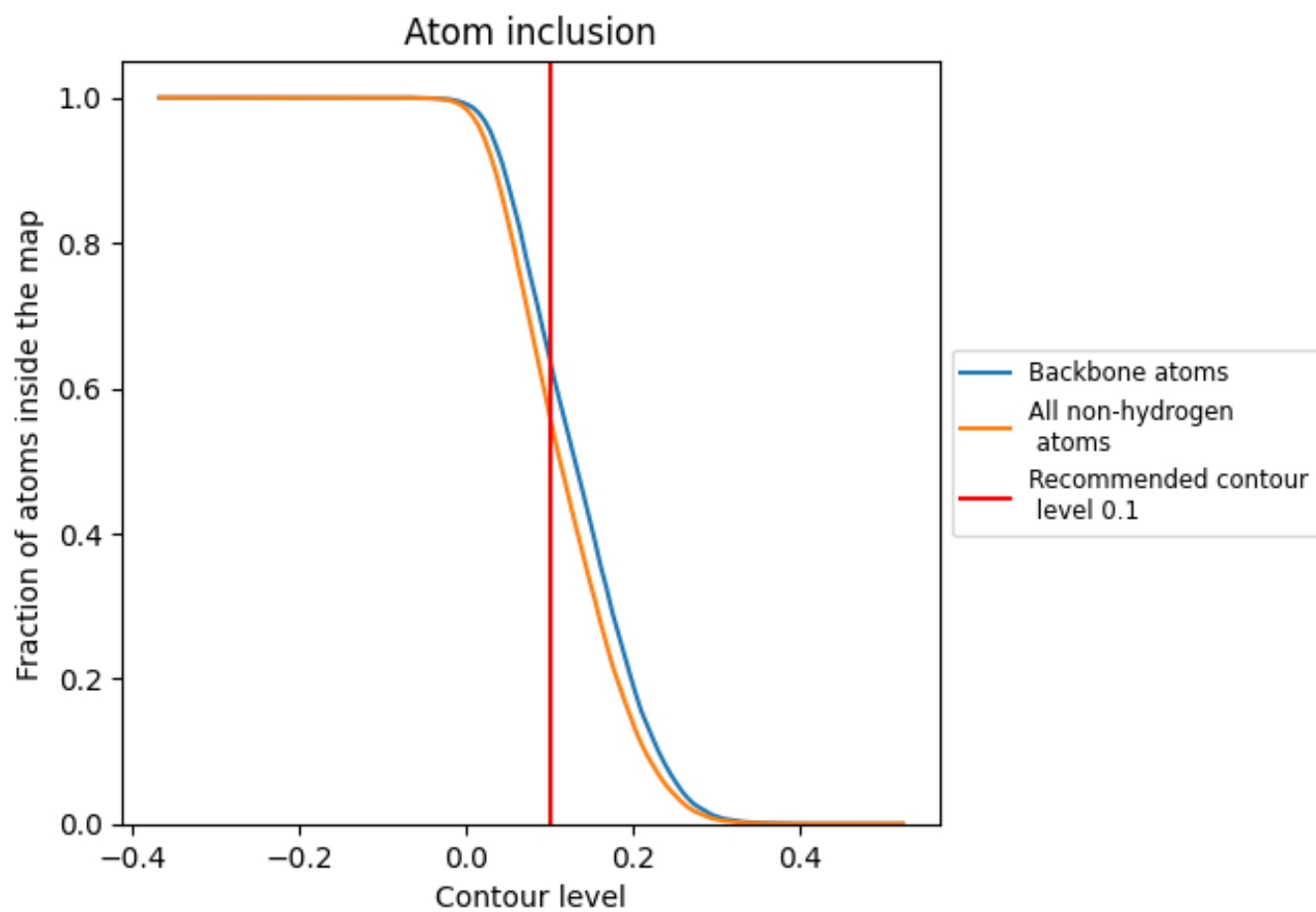
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.1).

9.4 Atom inclusion [i](#)



At the recommended contour level, 64% of all backbone atoms, 56% 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 (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5641	0.5100
A	0.6858	0.5610
B	0.7449	0.5830
C	0.6919	0.5710
D	0.6386	0.5360
E	0.6475	0.5550
F	0.7858	0.5880
G	0.6692	0.5290
H	0.6262	0.5420
I	0.2974	0.4120
J	0.3896	0.4300

