



wwPDB EM Validation Summary Report ⓘ

Nov 10, 2024 – 02:21 PM EST

PDB ID : 8UPH
EMDB ID : EMD-42448
Title : Prf state of Stigmatella aurantiaca bacteriophytochrome 2
Authors : Malla, T.N.; Schmidt, M.; Stojkovic, E.A.
Deposited on : 2023-10-22
Resolution : 4.13 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.dev113
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

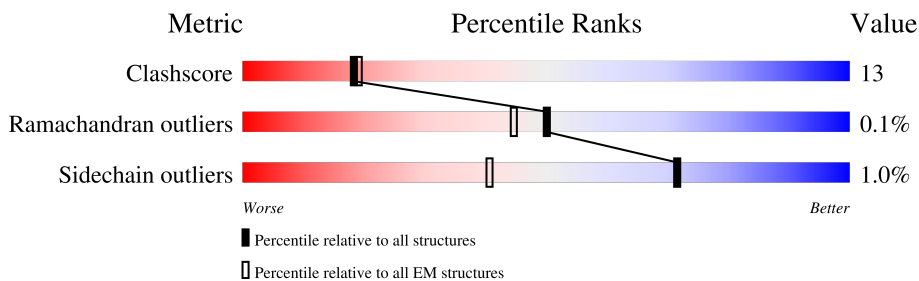
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.13 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	747	
1	B	747	

2 Entry composition [i](#)

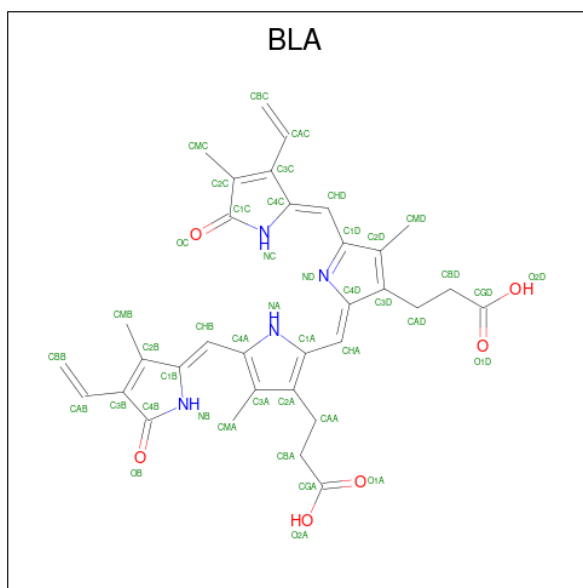
There are 2 unique types of molecules in this entry. The entry contains 8121 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Bacteriophytochrome (Light-regulated signal transduction histidine kinase).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	538	4101	2591	746	754	10	0	0
1	B	516	3934	2483	719	723	9	1	0

- Molecule 2 is BILIVERDINE IX ALPHA (three-letter code: BLA) (formula: $C_{33}H_{34}N_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
2	A	1	43	33	4	6	0
2	B	1	43	33	4	6	0

R288	ASP	GLN	ASP	H519	ASP	LEU	TYR	LYS
A289	LEU	GLN	LEU	D524	ALA	TYR	ALA	ALA
C290	TRP	GLY	GLU	LEU	TRP	GLY	GLY	TYR
E291	LYS	GLY	PRO	LEU	ARG	GLY	GLY	GLY
T294	GLU	VAL	ARG	GLU	THR	THR	THR	THR
Q295	PRO	ASN	TRP	PRO	TRP	GLY	GLY	GLY
L299	LEU	ASN	MET	LEU	VAL	VAL	VAL	VAL
Q300	ARG	GLN	GLN	ARG	GLU	GLY	GLY	GLY
L301	GLY	ALA	ALA	GLY	ALA	ALA	ALA	LEU
S302	ILE	VAL	ALA	ILE	GLY	ALA	ALA	ALA
R306	GLN	VAL	VAL	GLN	PHE	PHE	PHE	ILE
E309	TYR	ASP	HIS	TYR	ASP	HIS	ALA	ALA
R316	ALA	GLU	PRO	ALA	VAL	ARG	ARG	ARG
A317	GLY	LEU	GLY	LEU	LEU	GLY	GLY	LEU
A318	PHE	ALA	GLY	VAL	ALA	ALA	ALA	GLN
L319	VAL	THR	ALA	THR	THR	GLN	ALA	ALA
P322	MET	LEU	ASP	LEU	ALA	ALA	ARG	TYR
G331	ASP	GLU	TYR	GLY	TYR	THR	THR	GLY
T332	TYR	THR	HIS	ALA	ALA	ALA	ALA	ALA
L333	HIS	ARG	PHE	ALA	ALA	ALA	ALA	ALA
E334	GLY	THR	ALA	ALA	ALA	ALA	ALA	ALA
G352	GLU	THR	ALA	ALA	ALA	ALA	ALA	ALA
L355	ARG	VAL	TYR	ALA	ALA	ALA	ALA	ALA
L356	GLY	ARG	VAL	ALA	ALA	ALA	ALA	ALA
L357	GLY	MET	TYR	ALA	ALA	ALA	ALA	ALA
L363	GLU	ARG	ARG	ALA	ALA	ALA	ALA	ALA
R366	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
T367	MET	MET	MET	ALA	ALA	ALA	ALA	ALA
M370	TRP	TRP	TRP	ALA	ALA	ALA	ALA	ALA
V373	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
W379	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
L380	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
F385	ASP	ASP	ASP	ALA	ALA	ALA	ALA	ALA
Q386	MET	MET	MET	ALA	ALA	ALA	ALA	ALA
T387	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
Y398	ASP	ASP	ASP	ALA	ALA	ALA	ALA	ALA
L401	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
L411	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
V414	PHE	PHE	PHE	ALA	ALA	ALA	ALA	ALA
R415	GLU	GLU	GLU	ALA	ALA	ALA	ALA	ALA
F517	ASN	ASN	ASN	ALA	ALA	ALA	ALA	ALA
G518	TYR	TYR	TYR	ALA	ALA	ALA	ALA	ALA
L514	SER	SER	SER	ALA	ALA	ALA	ALA	ALA
D515	ARG	ARG	ARG	ALA	ALA	ALA	ALA	ALA
A516	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
G518	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
F517	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
R502	ARG	ARG	ARG	ALA	ALA	ALA	ALA	ALA
L503	SER	SER	SER	ALA	ALA	ALA	ALA	ALA
S504	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
E505	ASP	ASP	ASP	ALA	ALA	ALA	ALA	ALA
A506	MET	MET	MET	ALA	ALA	ALA	ALA	ALA
L507	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
S508	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
R509	ASP	ASP	ASP	ALA	ALA	ALA	ALA	ALA
S510	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
N511	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
A512	PHE	PHE	PHE	ALA	ALA	ALA	ALA	ALA
E513	GLU	GLU	GLU	ALA	ALA	ALA	ALA	ALA
L514	ASN	ASN	ASN	ALA	ALA	ALA	ALA	ALA
D515	SER	SER	SER	ALA	ALA	ALA	ALA	ALA
A516	ARG	ARG	ARG	ALA	ALA	ALA	ALA	ALA
F517	LEU	LEU	LEU	ALA	ALA	ALA	ALA	ALA
G518	HIS	HIS	HIS	ALA	ALA	ALA	ALA	ALA
A516	SER	SER	SER	ALA	ALA	ALA	ALA	ALA
F517	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA
G518	LYS	LYS	LYS	ALA	ALA	ALA	ALA	ALA
A516	VAL	VAL	VAL	ALA	ALA	ALA	ALA	ALA
F517	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
R502	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
L503	PRO	PRO	PRO	ALA	ALA	ALA	ALA	ALA
S504	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
E505	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
A506	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
L507	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
S508	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
R509	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
S510	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
N511	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
A512	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
E513	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
L514	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
D515	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
A516	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
F517	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA
G518	GLY	GLY	GLY	ALA	ALA	ALA	ALA	ALA

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	377549	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	56.39	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.353	Depositor
Minimum map value	-0.146	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.03	Depositor
Map size (\AA)	337.6, 337.6, 337.6	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.84400004, 0.84400004, 0.84400004	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.25	0/4191	0.54	0/5706
1	B	0.25	0/4020	0.55	0/5476
All	All	0.25	0/8211	0.54	0/11182

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 [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	4101	0	4125	109	0
1	B	3934	0	3962	105	0
2	A	43	0	30	7	0
2	B	43	0	31	9	0
All	All	8121	0	8148	210	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 13.

The worst 5 of 210 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:126:ARG:HD3	1:B:288:ARG:HH21	1.49	0.78
1:B:83:ALA:HB1	1:B:94:ARG:HH22	1.52	0.74
1:B:309:GLU:HB2	1:B:476:ARG:HH21	1.56	0.70
1:A:516:ALA:HA	1:A:519:HIS:CE1	2.26	0.70
1:A:112:GLU:HG3	1:A:114:GLN:H	1.55	0.70

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	536/747 (72%)	523 (98%)	12 (2%)	1 (0%)	44	77
1	B	515/747 (69%)	503 (98%)	12 (2%)	0	100	100
All	All	1051/1494 (70%)	1026 (98%)	24 (2%)	1 (0%)	50	82

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	420	SER

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	415/574 (72%)	411 (99%)	4 (1%)	73	81

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	399/574 (70%)	395 (99%)	4 (1%)	73	81
All	All	814/1148 (71%)	806 (99%)	8 (1%)	71	81

5 of 8 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	502	ARG
1	B	453	ARG
1	B	13	CYS
1	A	475	LYS
1	B	53	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	245	HIS

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	BLA	B	801	1	42,46,46	1.30	5 (11%)	54,67,67	1.34	6 (11%)
2	BLA	A	801	1	42,46,46	1.42	5 (11%)	54,67,67	1.47	6 (11%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	BLA	B	801	1	-	17/26/74/74	0/4/4/4
2	BLA	A	801	1	-	19/26/74/74	0/4/4/4

The worst 5 of 10 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	801	BLA	C3C-C4C	-4.22	1.37	1.45
2	A	801	BLA	CAC-C3C	-4.08	1.36	1.47
2	B	801	BLA	C3C-C4C	-3.49	1.39	1.45
2	B	801	BLA	CAB-C3B	-3.36	1.38	1.47
2	A	801	BLA	CAB-C3B	-3.36	1.38	1.47

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	801	BLA	CHA-C4D-ND	-4.40	122.78	128.76
2	A	801	BLA	CMC-C2C-C1C	4.34	130.29	121.21
2	A	801	BLA	C1A-CHA-C4D	-4.00	123.38	128.73
2	B	801	BLA	CMC-C2C-C1C	3.80	129.15	121.21
2	B	801	BLA	CHA-C4D-ND	-3.68	123.77	128.76

There are no chirality outliers.

5 of 36 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	801	BLA	ND-C4D-CHA-C1A
2	A	801	BLA	C3D-C4D-CHA-C1A
2	A	801	BLA	NA-C4A-CHB-C1B
2	A	801	BLA	C3A-C4A-CHB-C1B

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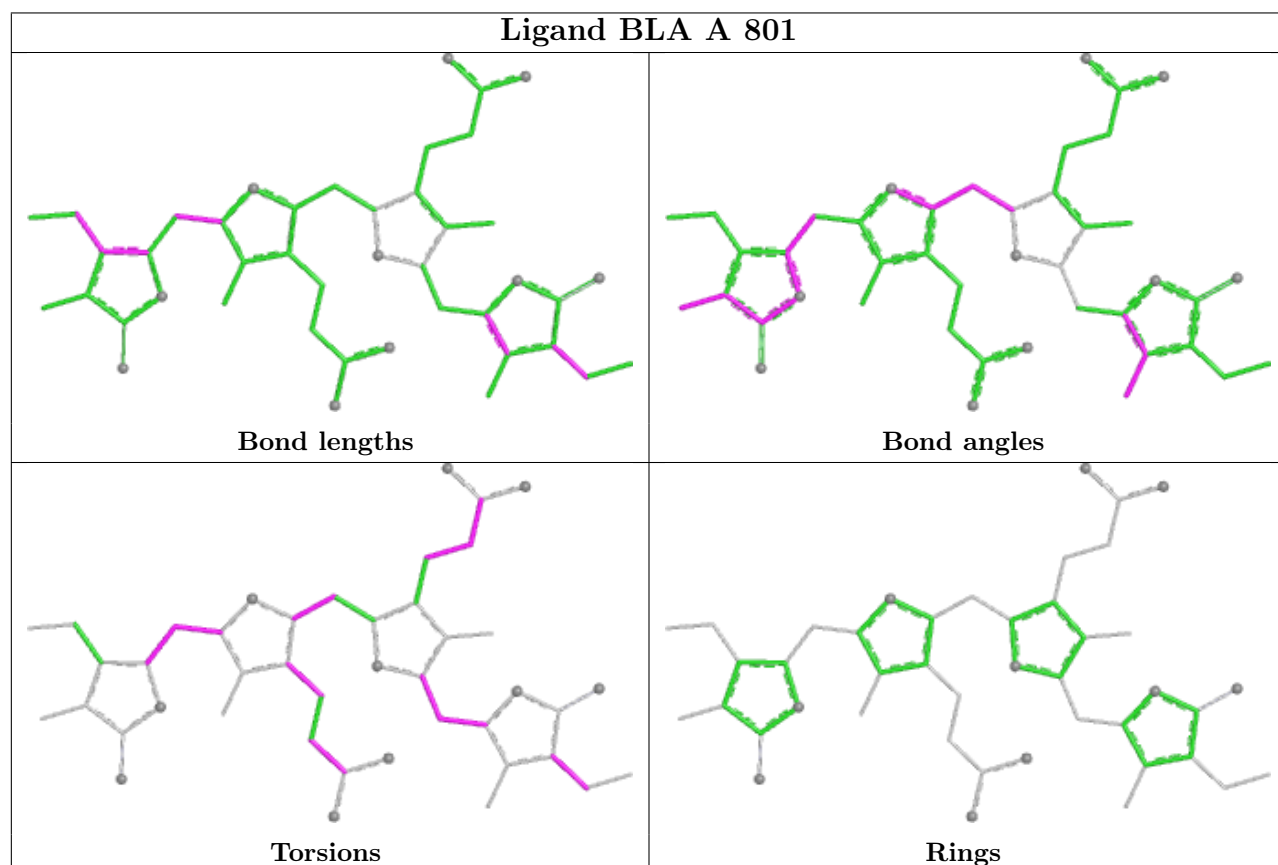
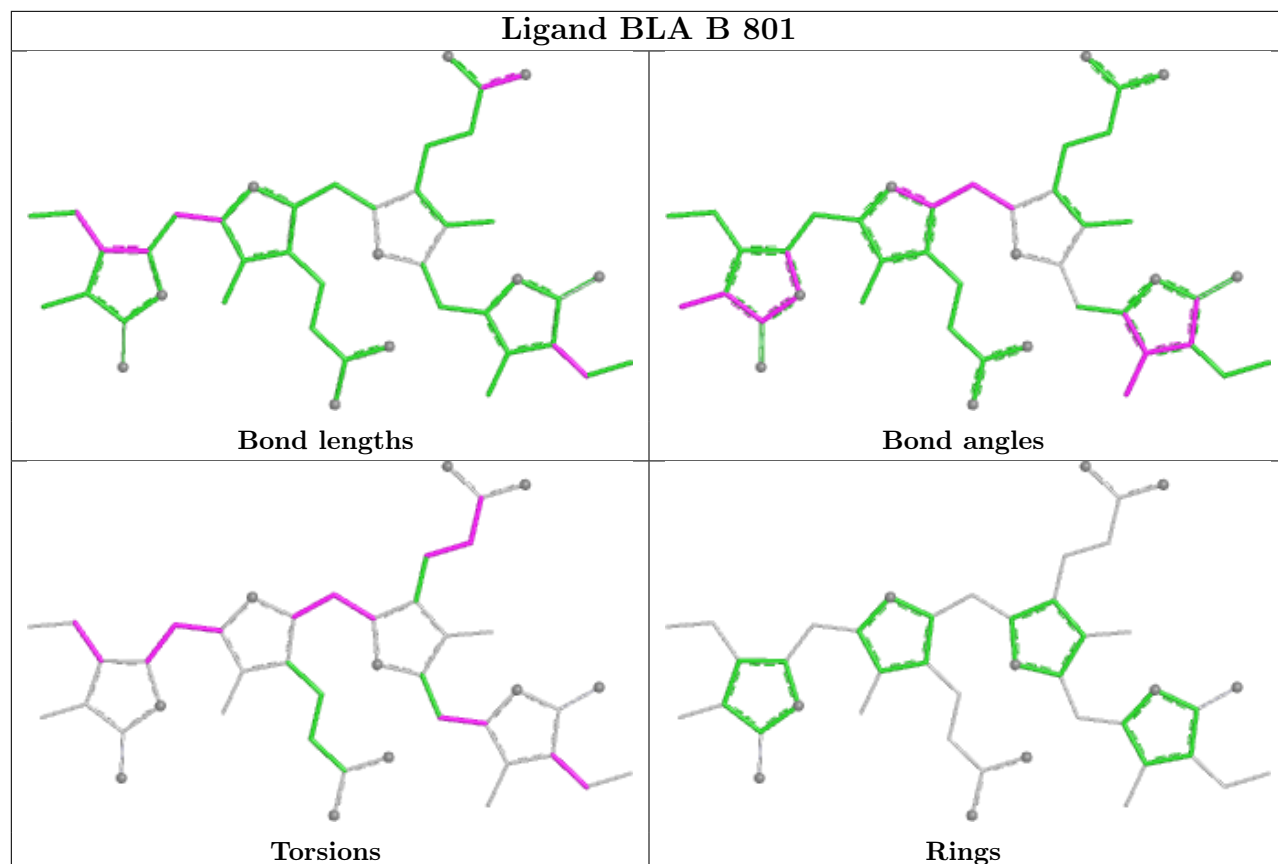
Mol	Chain	Res	Type	Atoms
2	A	801	BLA	NB-C1B-CHB-C4A

There are no ring outliers.

2 monomers are involved in 16 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	801	BLA	9	0
2	A	801	BLA	7	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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.

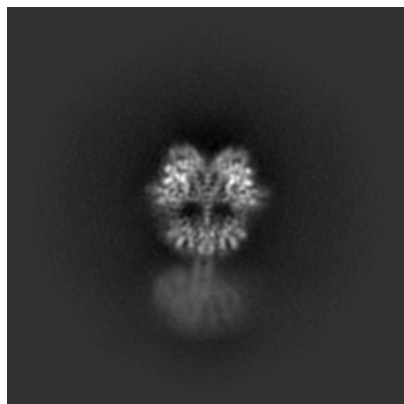
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-42448. These allow visual inspection of the internal detail of the map and identification of artifacts.

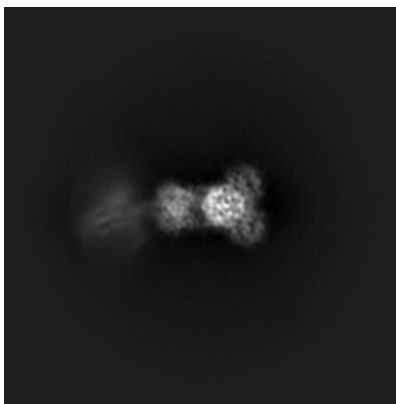
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

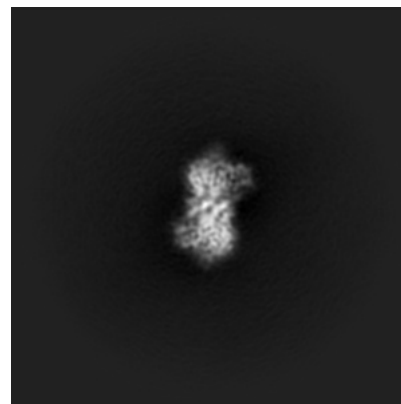
6.1.1 Primary map



X

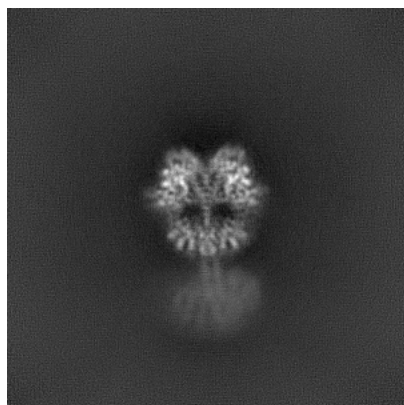


Y

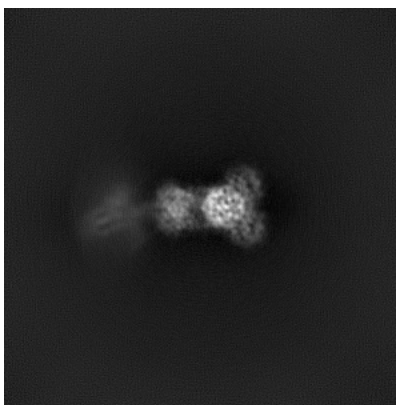


Z

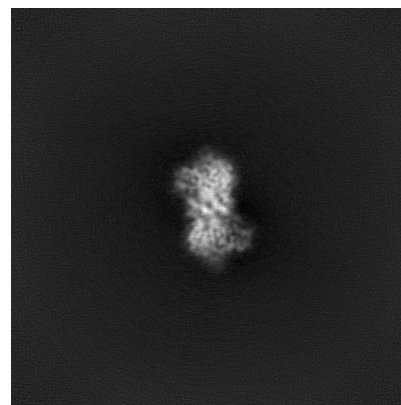
6.1.2 Raw map



X



Y

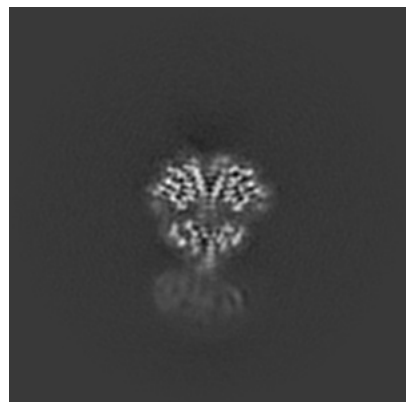


Z

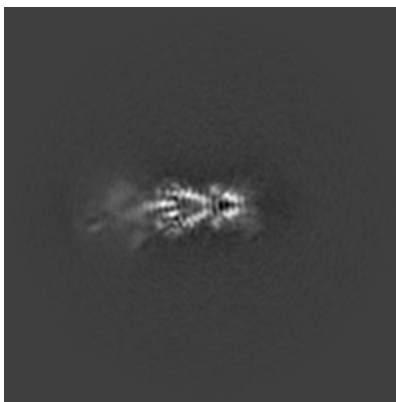
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

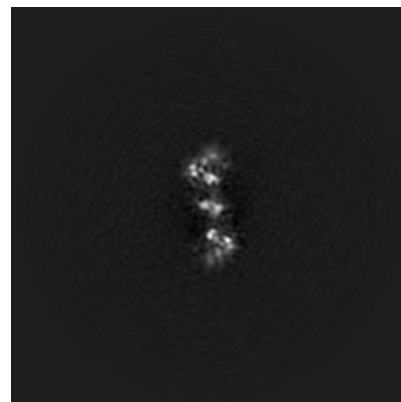
6.2.1 Primary map



X Index: 200

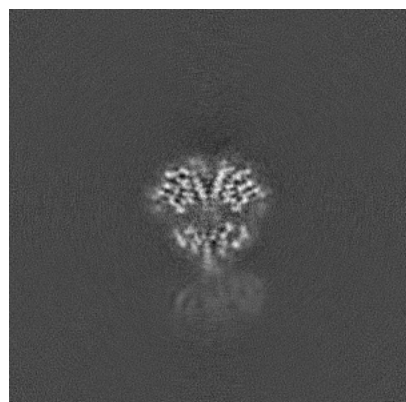


Y Index: 200

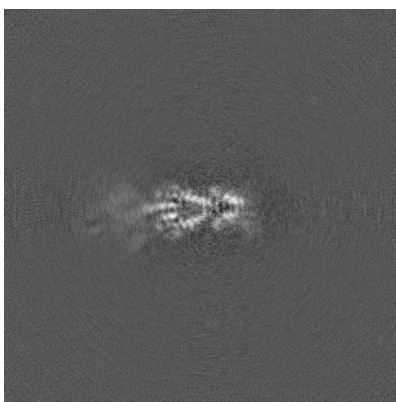


Z Index: 200

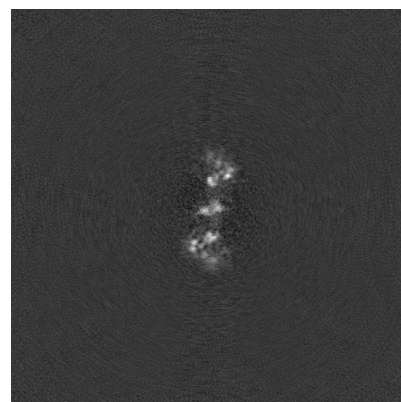
6.2.2 Raw map



X Index: 200



Y Index: 200

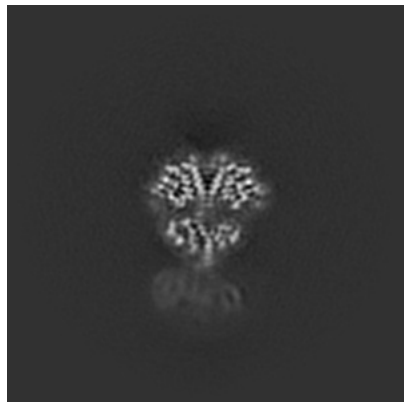


Z Index: 200

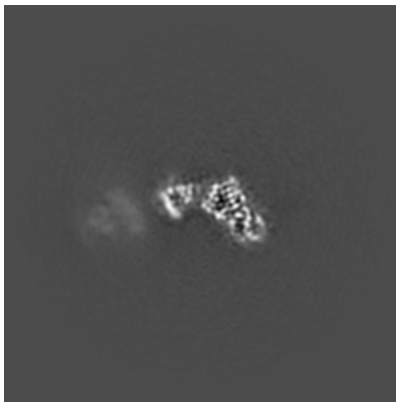
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

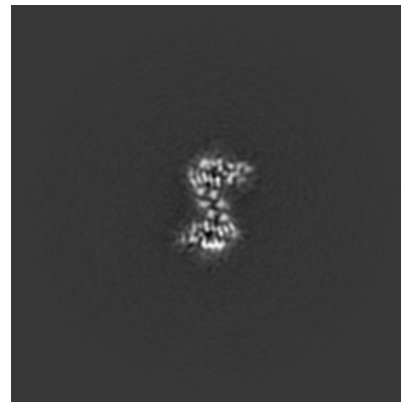
6.3.1 Primary map



X Index: 201

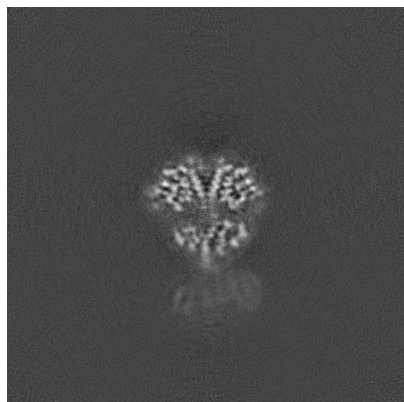


Y Index: 173

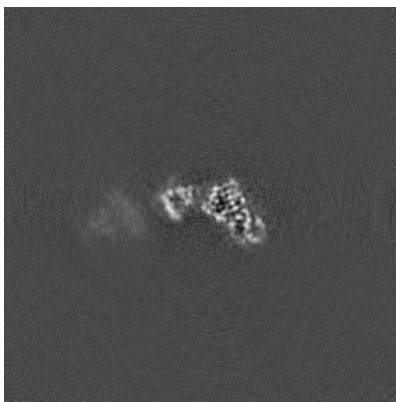


Z Index: 225

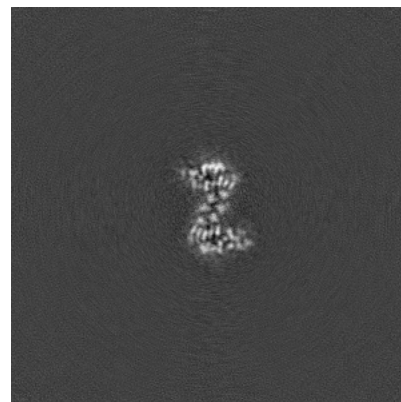
6.3.2 Raw map



X Index: 201



Y Index: 226



Z Index: 225

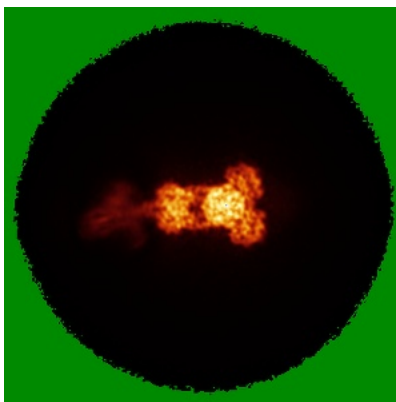
The images above show the largest variance slices of the map in three orthogonal directions.

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

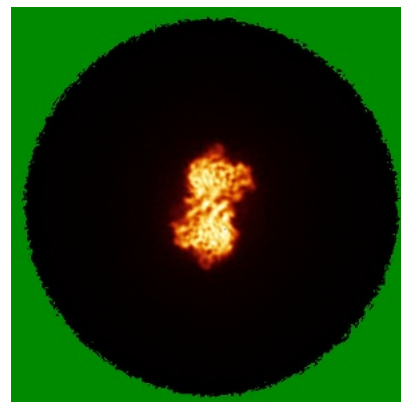
6.4.1 Primary map



X



Y

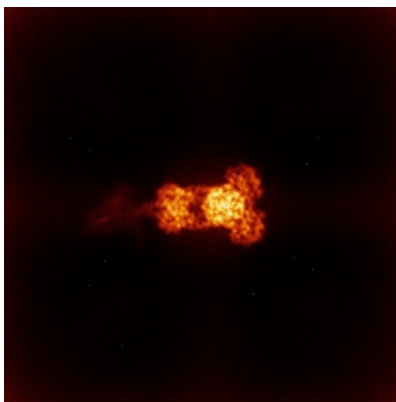


Z

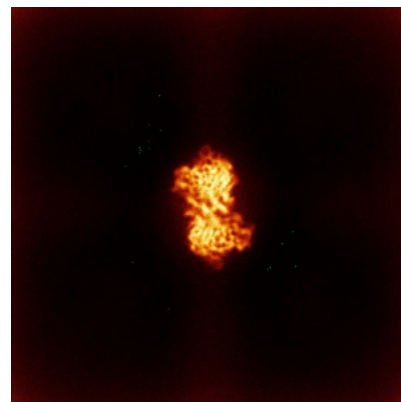
6.4.2 Raw map



X



Y

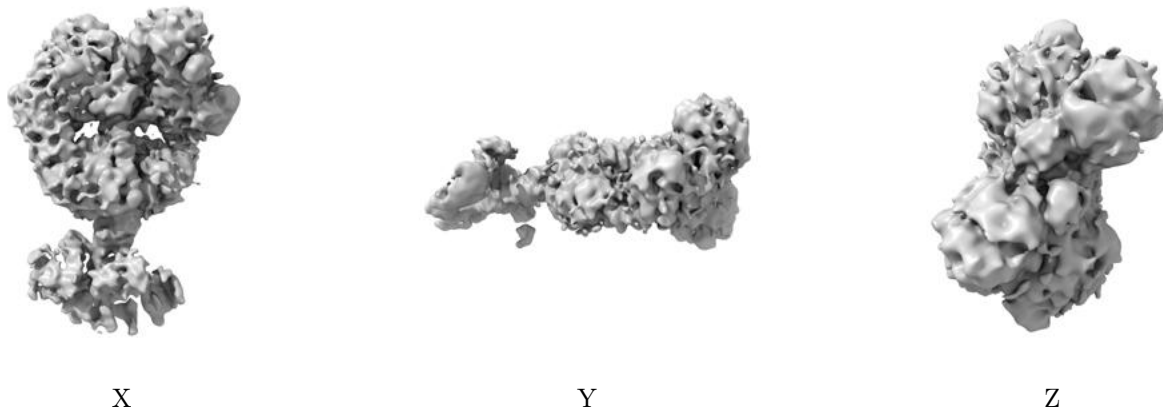


Z

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.

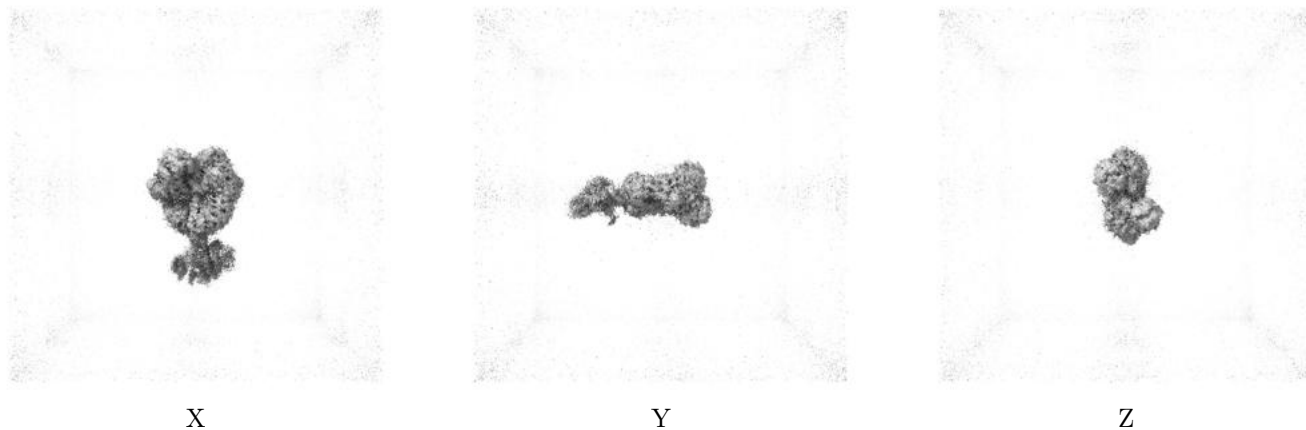
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.03. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 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.

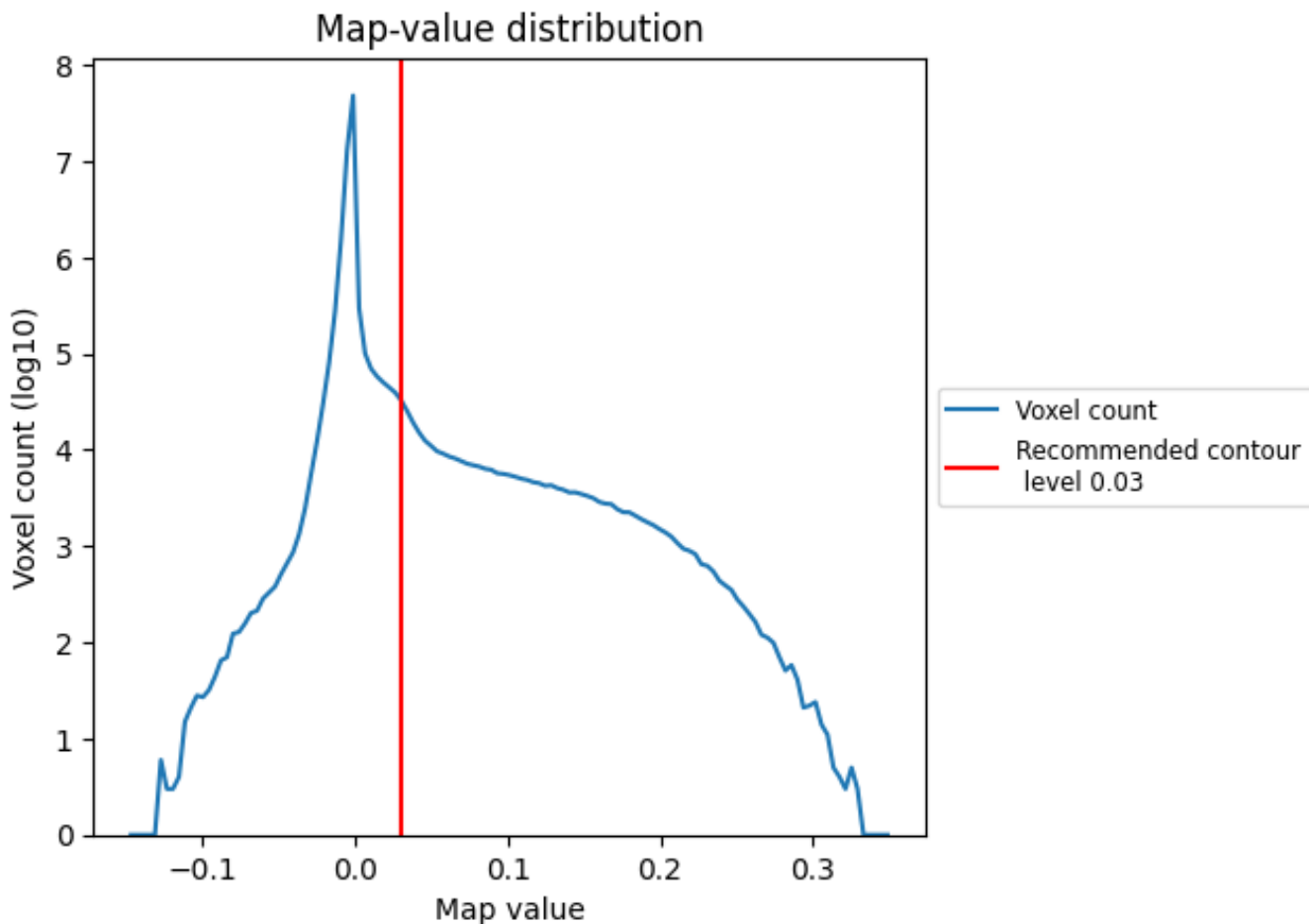
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

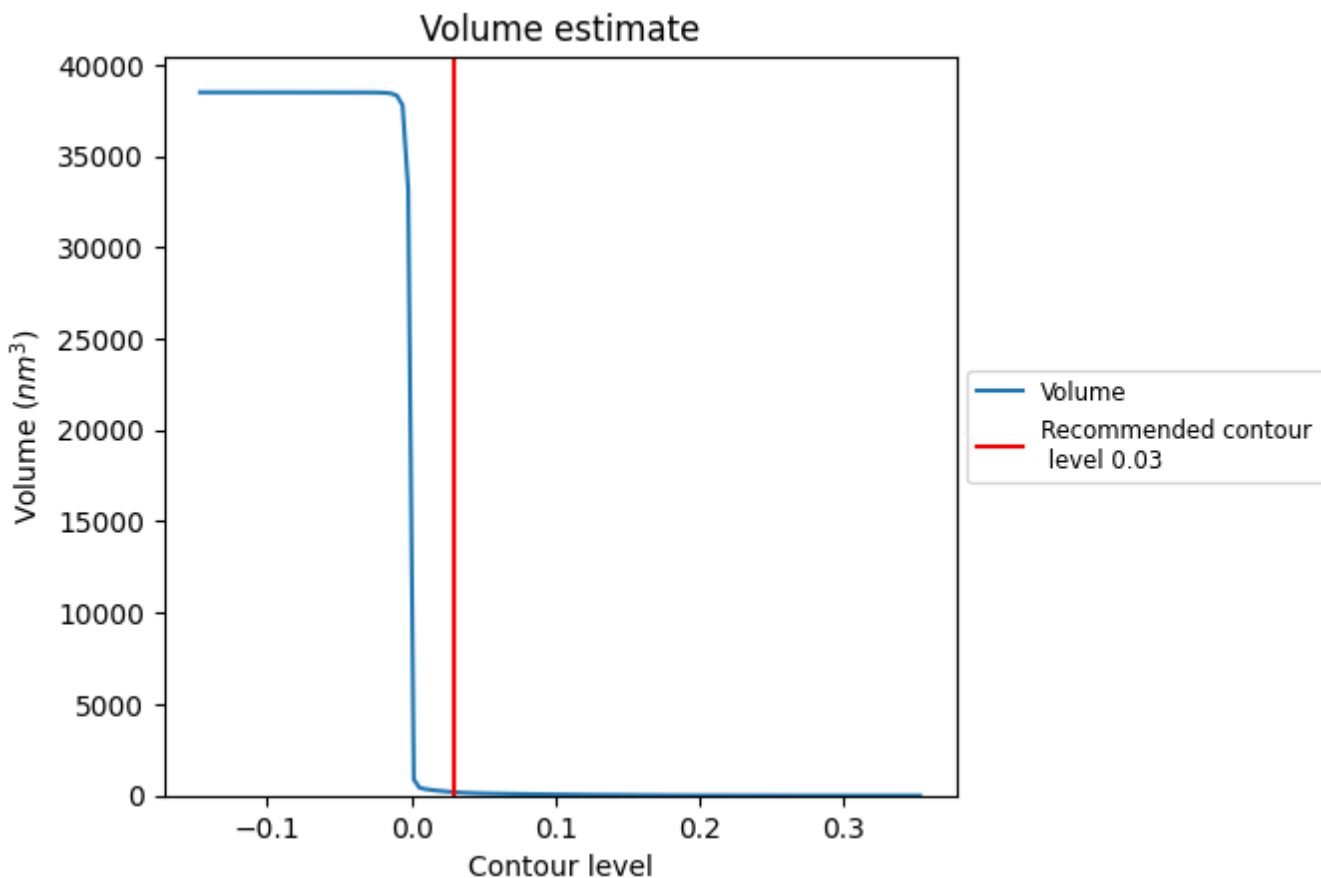
This section contains the results of statistical analysis of the map.

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.

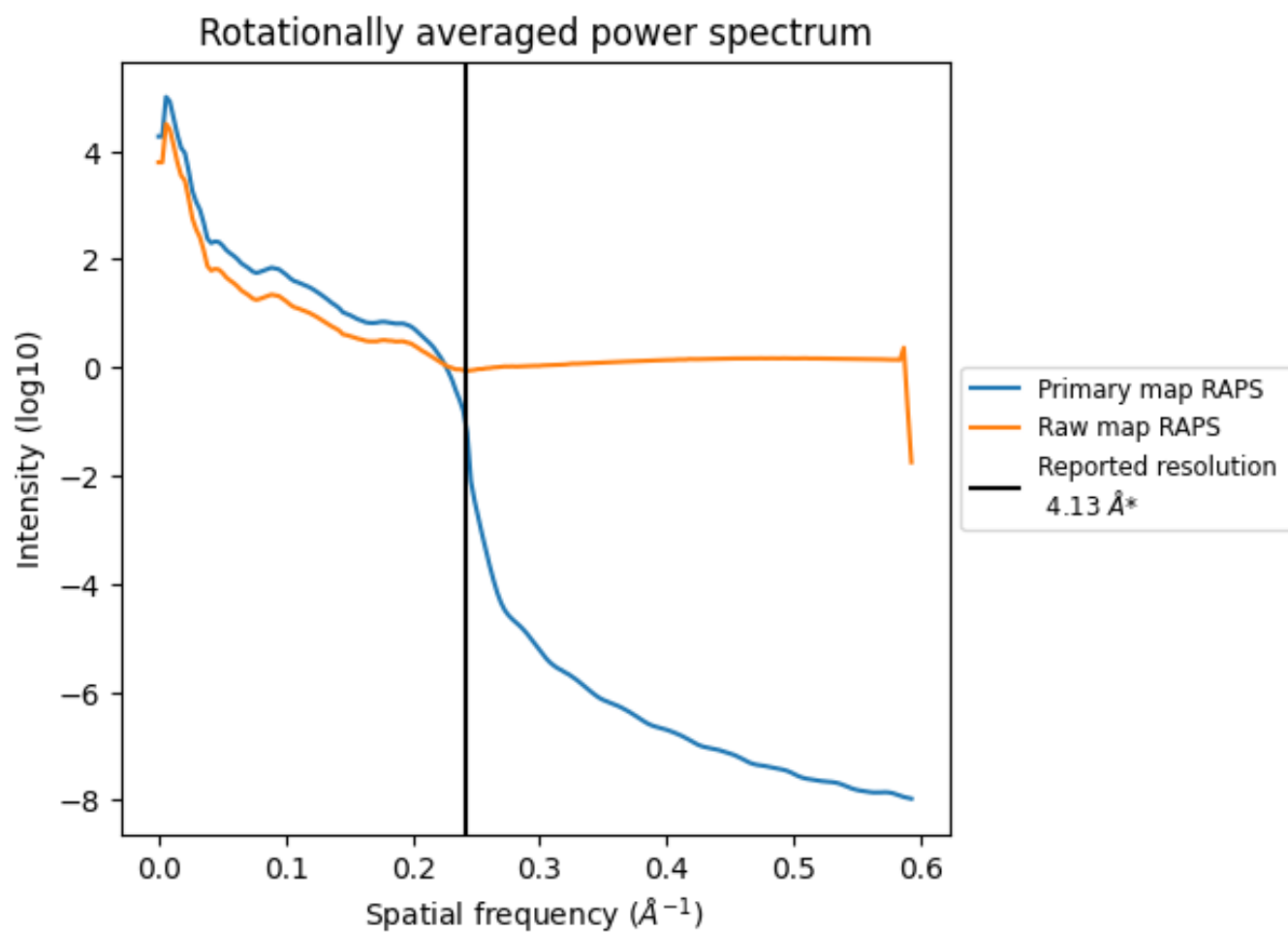
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 185 nm³; this corresponds to an approximate mass of 167 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

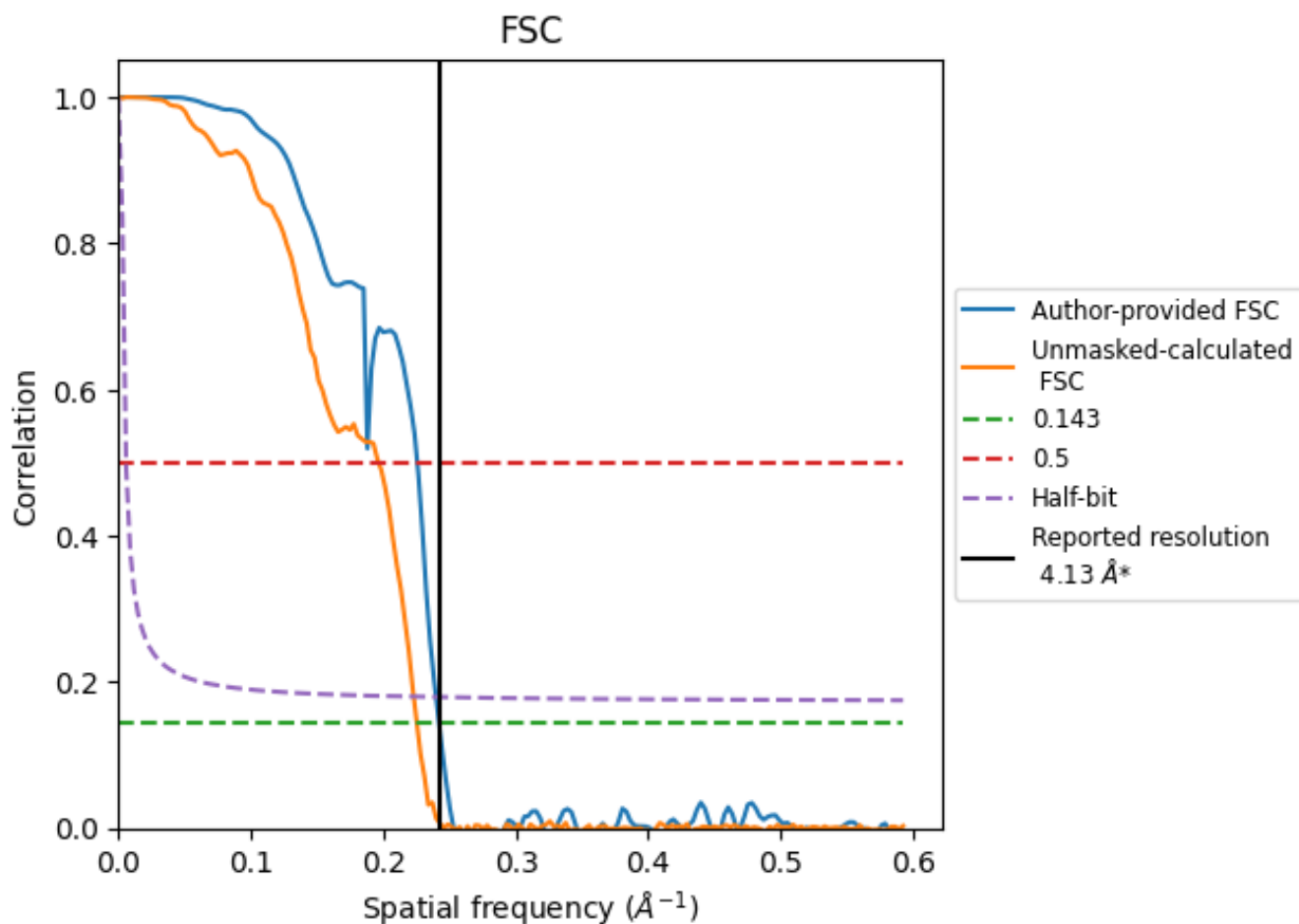


*Reported resolution corresponds to spatial frequency of 0.242 Å⁻¹

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 0.242 Å⁻¹

8.2 Resolution estimates [i](#)

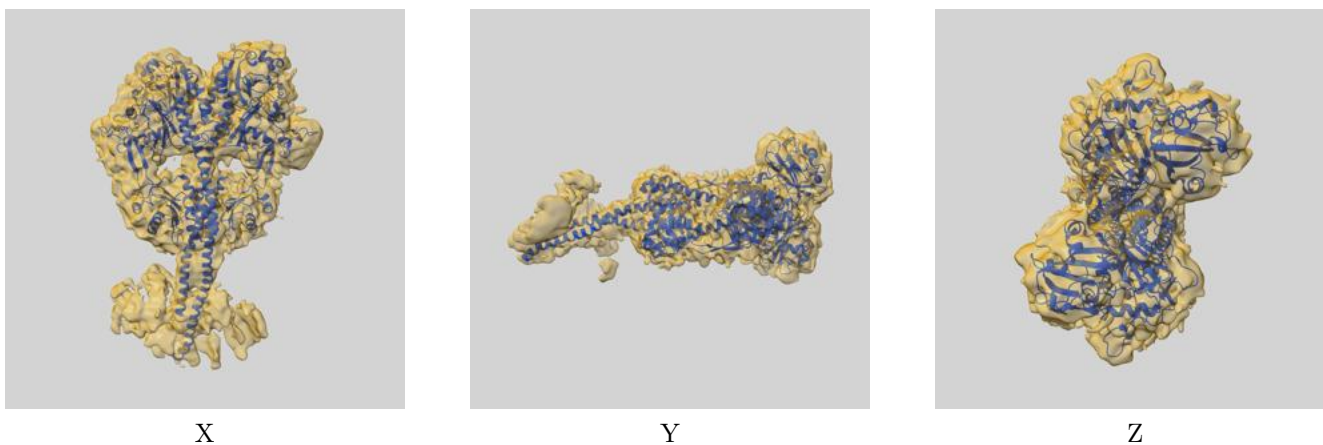
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.13	-	-
Author-provided FSC curve	4.13	4.43	4.17
Unmasked-calculated*	4.44	5.09	4.49

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

9 Map-model fit [i](#)

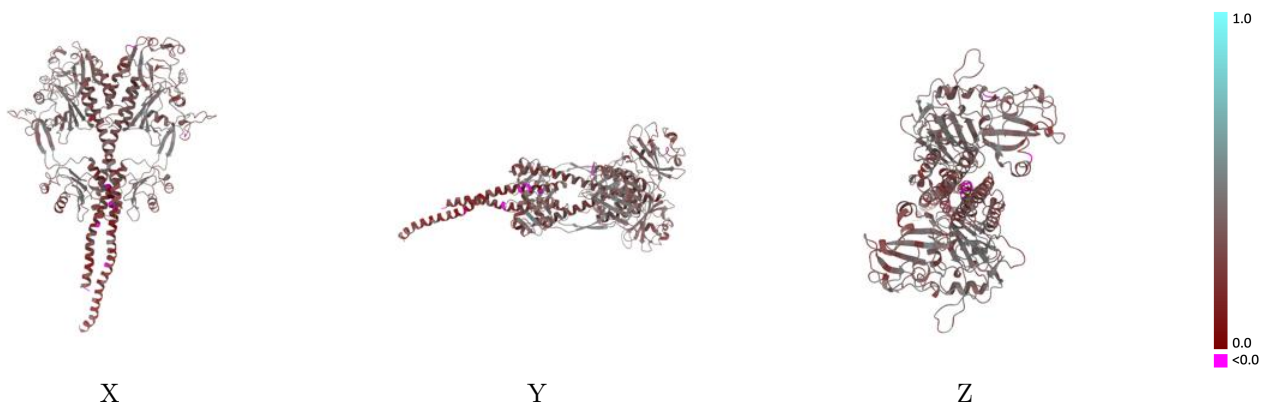
This section contains information regarding the fit between EMDB map EMD-42448 and PDB model 8UPH. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



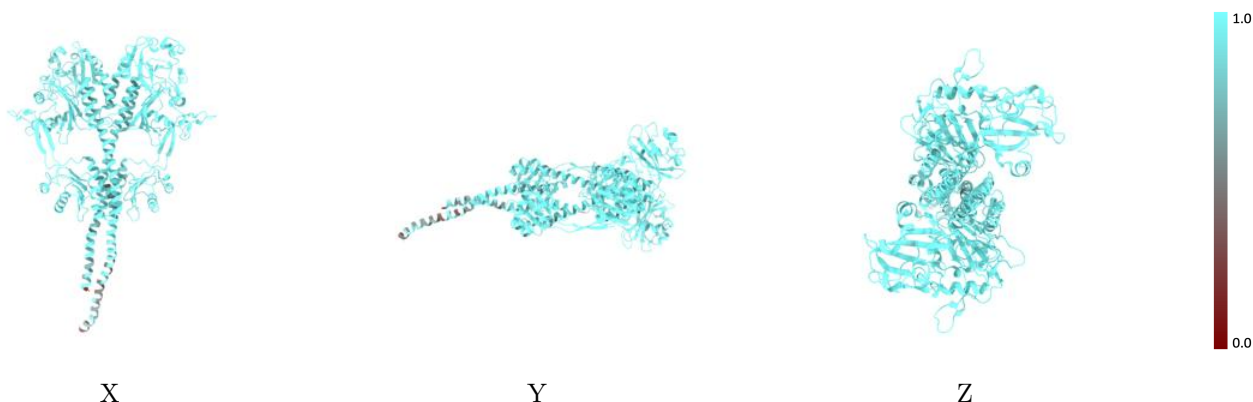
The images above show the 3D surface view of the map at the recommended contour level 0.03 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



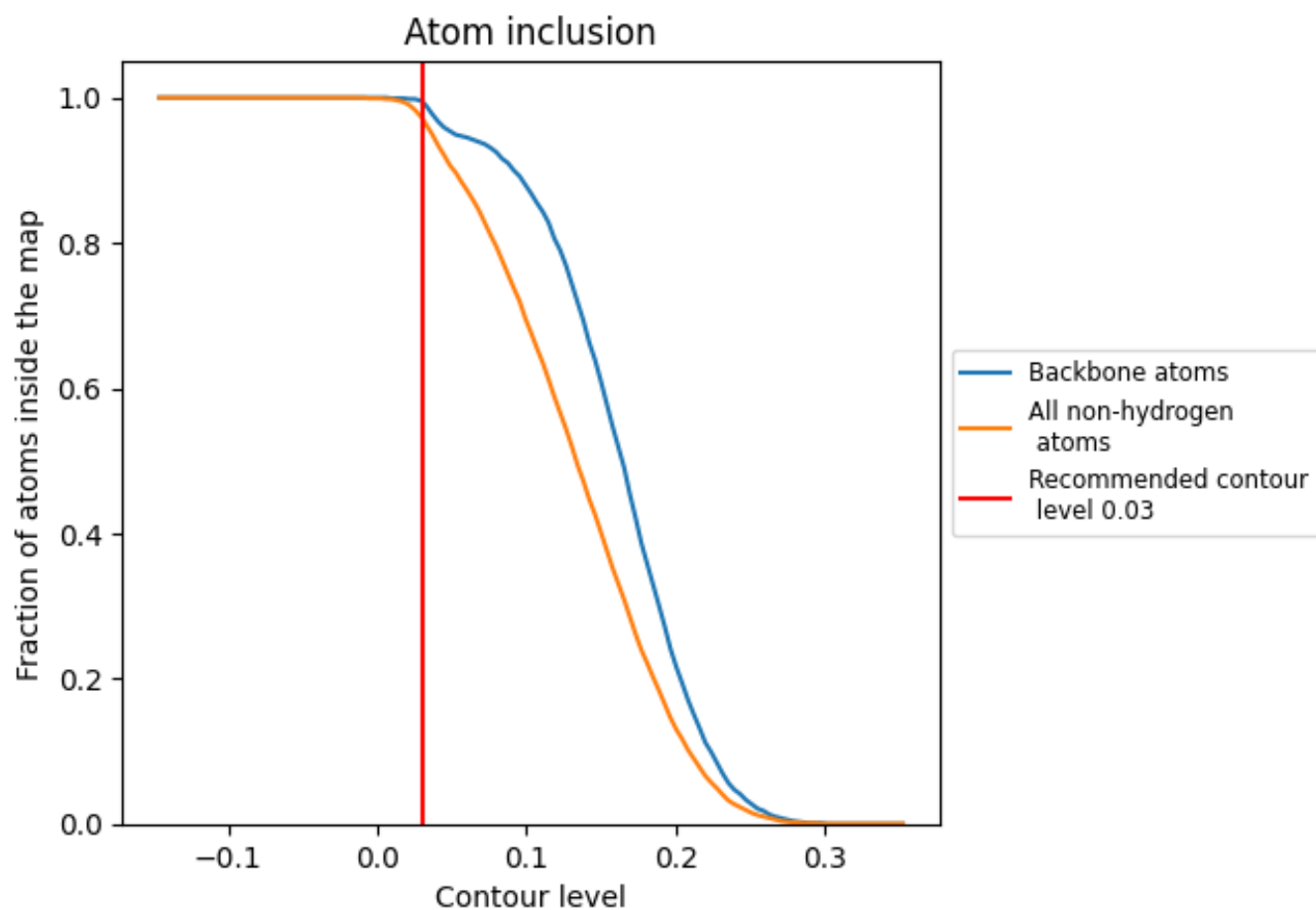
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.03).



9.4 Atom inclusion [i](#)



At the recommended contour level, 100% of all backbone atoms, 97% 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 (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9720	 0.3530
A	 0.9660	 0.3480
B	 0.9780	 0.3580

