



Full wwPDB EM Validation Report ⓘ

Dec 16, 2021 – 10:06 am GMT

PDB ID : 7PXF
EMDB ID : EMD-13701
Title : Ca²⁺ free Drosophila Slo channel
Authors : Raisch, T.; Brockmann, A.; Ebbinghaus-Kintscher, U.; Freigang, J.; Gutbrod, O.; Kubicek, J.; Maertens, B.; Hofnagel, O.; Raunser, S.
Deposited on : 2021-10-08
Resolution : 2.68 Å(reported)
Based on initial model : 5TJ6

This is a Full wwPDB EM Validation 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

EMDB validation analysis : 0.0.0.dev97
MolProbity : **FAILED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.24

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 2.68 Å.

There are no overall percentile quality scores available for this entry.

MolProbity failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 28099 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 Isoform J of Calcium-activated potassium channel slowpoke.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	885	7023	4548	1148	1279	48	0	0
1	B	885	7023	4548	1148	1279	48	0	0
1	C	885	7023	4548	1148	1279	48	0	0
1	D	885	7023	4548	1148	1279	48	0	0

There are 52 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	281	ASP	ASN	conflict	UNP Q03720
A	328	ILE	MET	conflict	UNP Q03720
A	332	CYS	SER	conflict	UNP Q03720
A	338	ASP	GLU	conflict	UNP Q03720
A	340	ILE	VAL	conflict	UNP Q03720
A	342	THR	SER	conflict	UNP Q03720
A	343	ARG	GLY	conflict	UNP Q03720
A	344	ALA	ASN	conflict	UNP Q03720
A	349	THR	GLU	conflict	UNP Q03720
A	352	ASN	ARG	conflict	UNP Q03720
A	354	LYS	HIS	conflict	UNP Q03720
A	356	ARG	LYS	conflict	UNP Q03720
A	974	GLY	SER	conflict	UNP Q03720
B	281	ASP	ASN	conflict	UNP Q03720
B	328	ILE	MET	conflict	UNP Q03720
B	332	CYS	SER	conflict	UNP Q03720
B	338	ASP	GLU	conflict	UNP Q03720
B	340	ILE	VAL	conflict	UNP Q03720
B	342	THR	SER	conflict	UNP Q03720
B	343	ARG	GLY	conflict	UNP Q03720
B	344	ALA	ASN	conflict	UNP Q03720
B	349	THR	GLU	conflict	UNP Q03720

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Chain	Residue	Modelled	Actual	Comment	Reference
B	352	ASN	ARG	conflict	UNP Q03720
B	354	LYS	HIS	conflict	UNP Q03720
B	356	ARG	LYS	conflict	UNP Q03720
B	974	GLY	SER	conflict	UNP Q03720
C	281	ASP	ASN	conflict	UNP Q03720
C	328	ILE	MET	conflict	UNP Q03720
C	332	CYS	SER	conflict	UNP Q03720
C	338	ASP	GLU	conflict	UNP Q03720
C	340	ILE	VAL	conflict	UNP Q03720
C	342	THR	SER	conflict	UNP Q03720
C	343	ARG	GLY	conflict	UNP Q03720
C	344	ALA	ASN	conflict	UNP Q03720
C	349	THR	GLU	conflict	UNP Q03720
C	352	ASN	ARG	conflict	UNP Q03720
C	354	LYS	HIS	conflict	UNP Q03720
C	356	ARG	LYS	conflict	UNP Q03720
C	974	GLY	SER	conflict	UNP Q03720
D	281	ASP	ASN	conflict	UNP Q03720
D	328	ILE	MET	conflict	UNP Q03720
D	332	CYS	SER	conflict	UNP Q03720
D	338	ASP	GLU	conflict	UNP Q03720
D	340	ILE	VAL	conflict	UNP Q03720
D	342	THR	SER	conflict	UNP Q03720
D	343	ARG	GLY	conflict	UNP Q03720
D	344	ALA	ASN	conflict	UNP Q03720
D	349	THR	GLU	conflict	UNP Q03720
D	352	ASN	ARG	conflict	UNP Q03720
D	354	LYS	HIS	conflict	UNP Q03720
D	356	ARG	LYS	conflict	UNP Q03720
D	974	GLY	SER	conflict	UNP Q03720

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
2	A	1	Total Mg 1 1	0
2	B	1	Total Mg 1 1	0
2	C	1	Total Mg 1 1	0
2	D	1	Total Mg 1 1	0

- Molecule 3 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	AltConf
3	A	3	Total K 3 3	0

MolProbity failed to run properly - this section is therefore empty.

3 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C4	Depositor
Number of particles used	90897	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 ($e^-/\text{\AA}^2$)	79.8	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	1.007	Depositor
Minimum map value	-0.533	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.025	Depositor
Recommended contour level	0.09	Depositor
Map size (Å)	313.6, 313.6, 313.6	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.7, 0.7, 0.7	Depositor

4 Model quality [i](#)

4.1 Standard geometry [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles [i](#)

4.3.1 Protein backbone [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

4.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

4.6 Ligand geometry [i](#)

Of 7 ligands modelled in this entry, 7 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

4.7 Other polymers

There are no such residues in this entry.

4.8 Polymer linkage issues

There are no chain breaks in this entry.

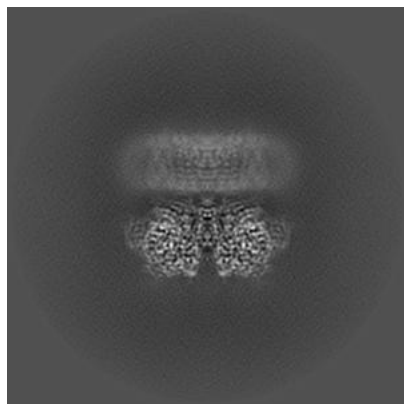
5 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-13701. These allow visual inspection of the internal detail of the map and identification of artifacts.

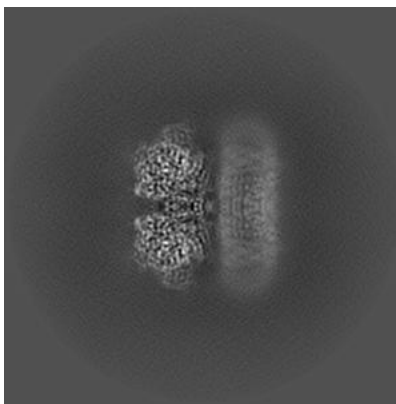
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

5.1 Orthogonal projections [i](#)

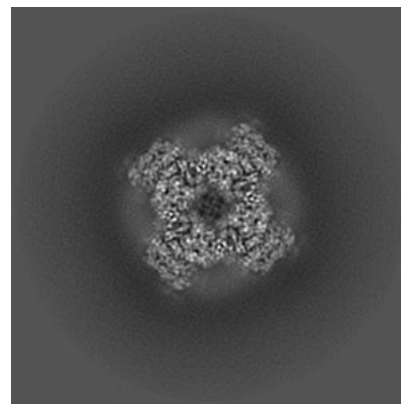
5.1.1 Primary map



X

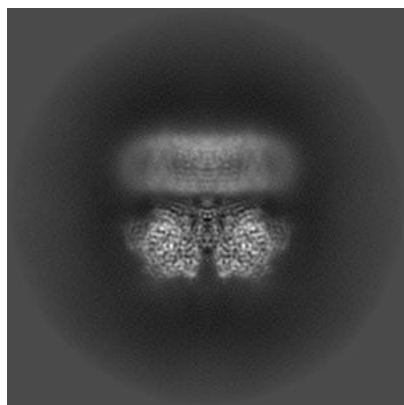


Y

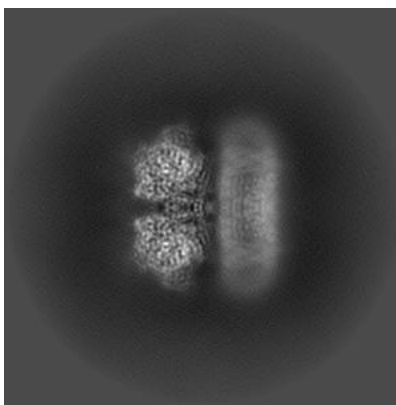


Z

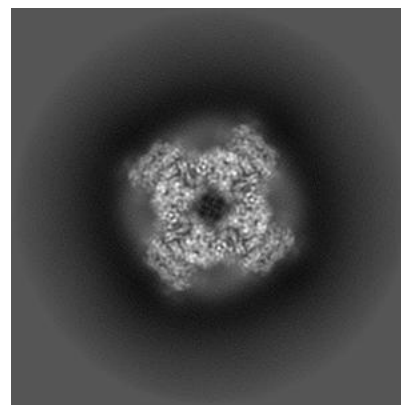
5.1.2 Raw map



X



Y

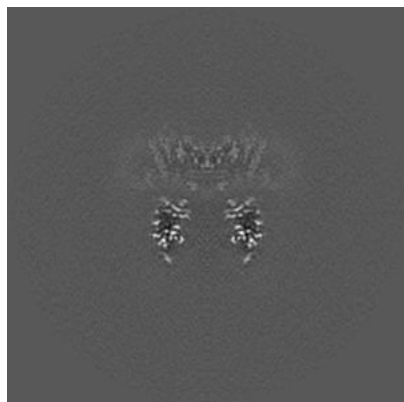


Z

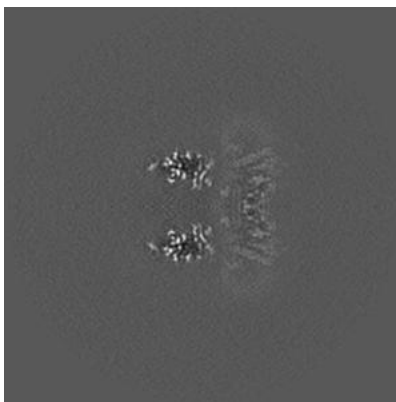
The images above show the map projected in three orthogonal directions.

5.2 Central slices [i](#)

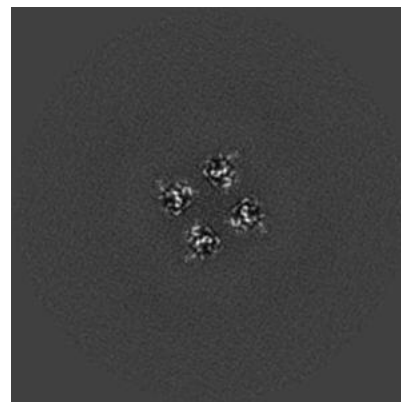
5.2.1 Primary map



X Index: 224

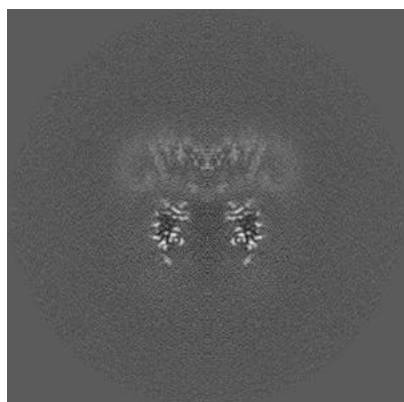


Y Index: 224

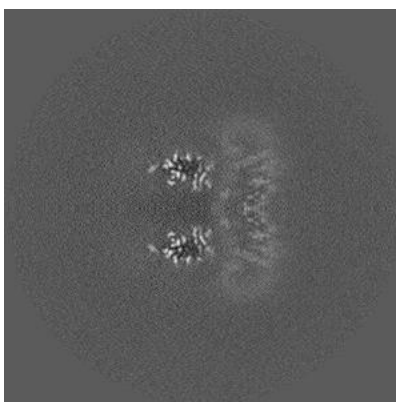


Z Index: 224

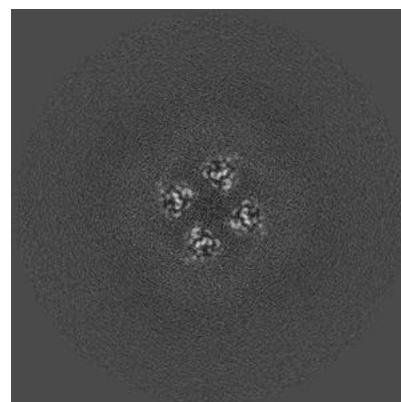
5.2.2 Raw map



X Index: 224



Y Index: 224

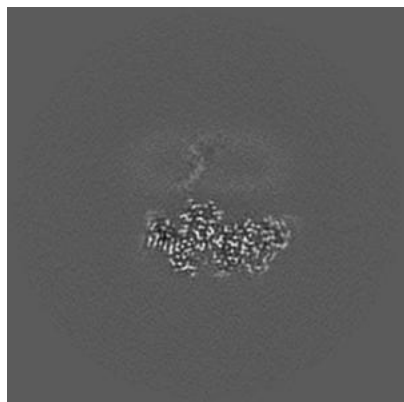


Z Index: 224

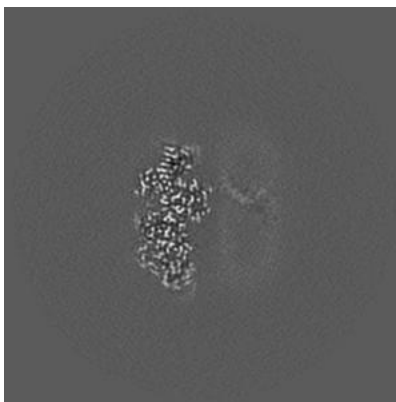
The images above show central slices of the map in three orthogonal directions.

5.3 Largest variance slices [i](#)

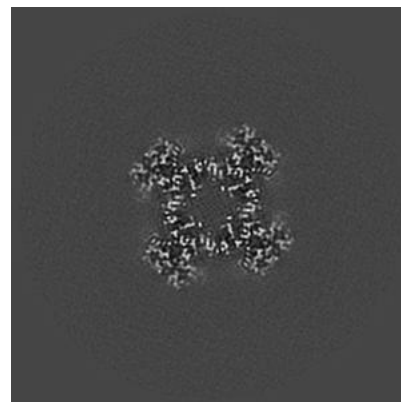
5.3.1 Primary map



X Index: 264

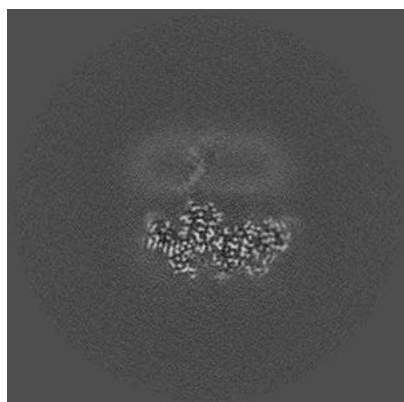


Y Index: 264

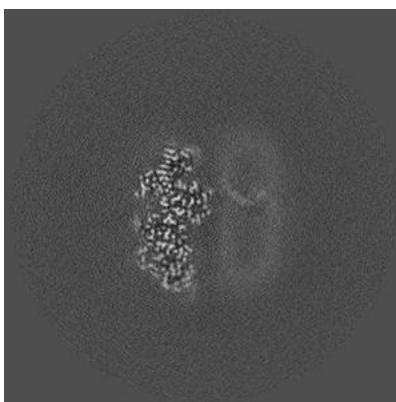


Z Index: 181

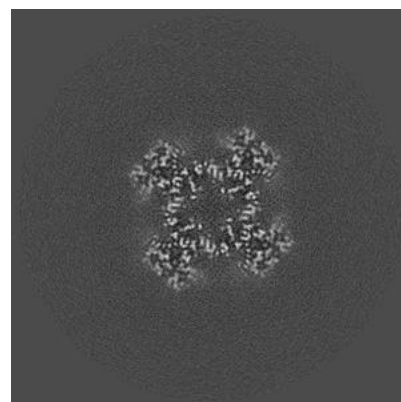
5.3.2 Raw map



X Index: 264



Y Index: 264

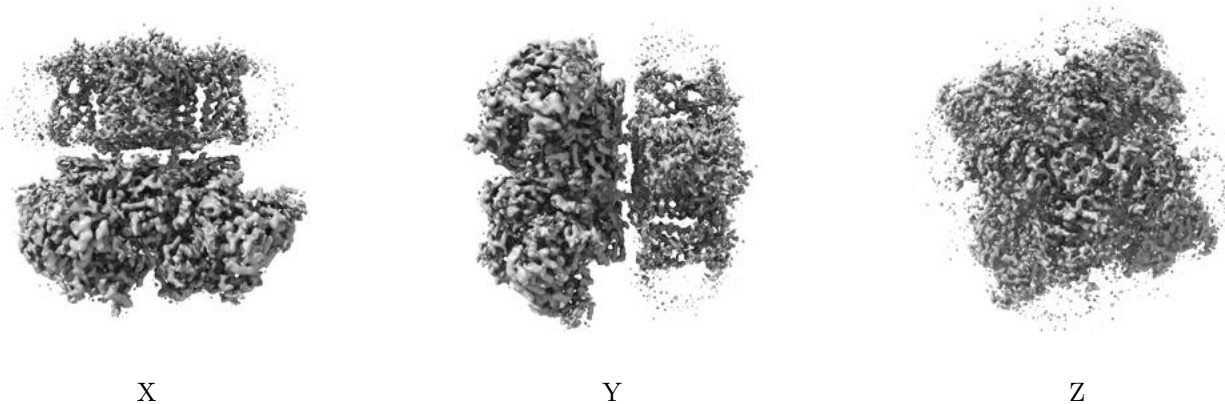


Z Index: 181

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

5.4 Orthogonal surface views [i](#)

5.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.09. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

5.4.2 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.

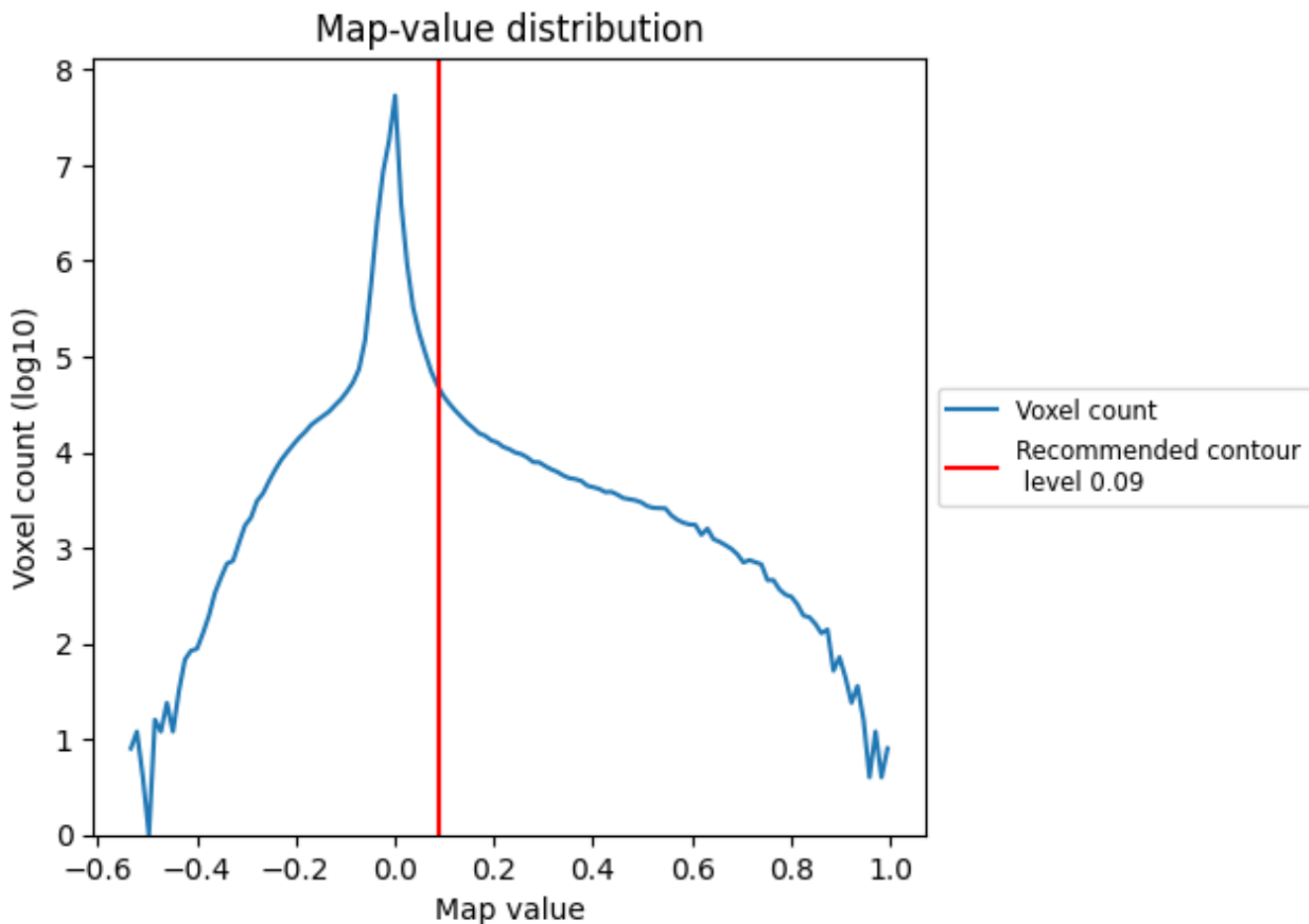
5.5 Mask visualisation [i](#)

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

6 Map analysis [i](#)

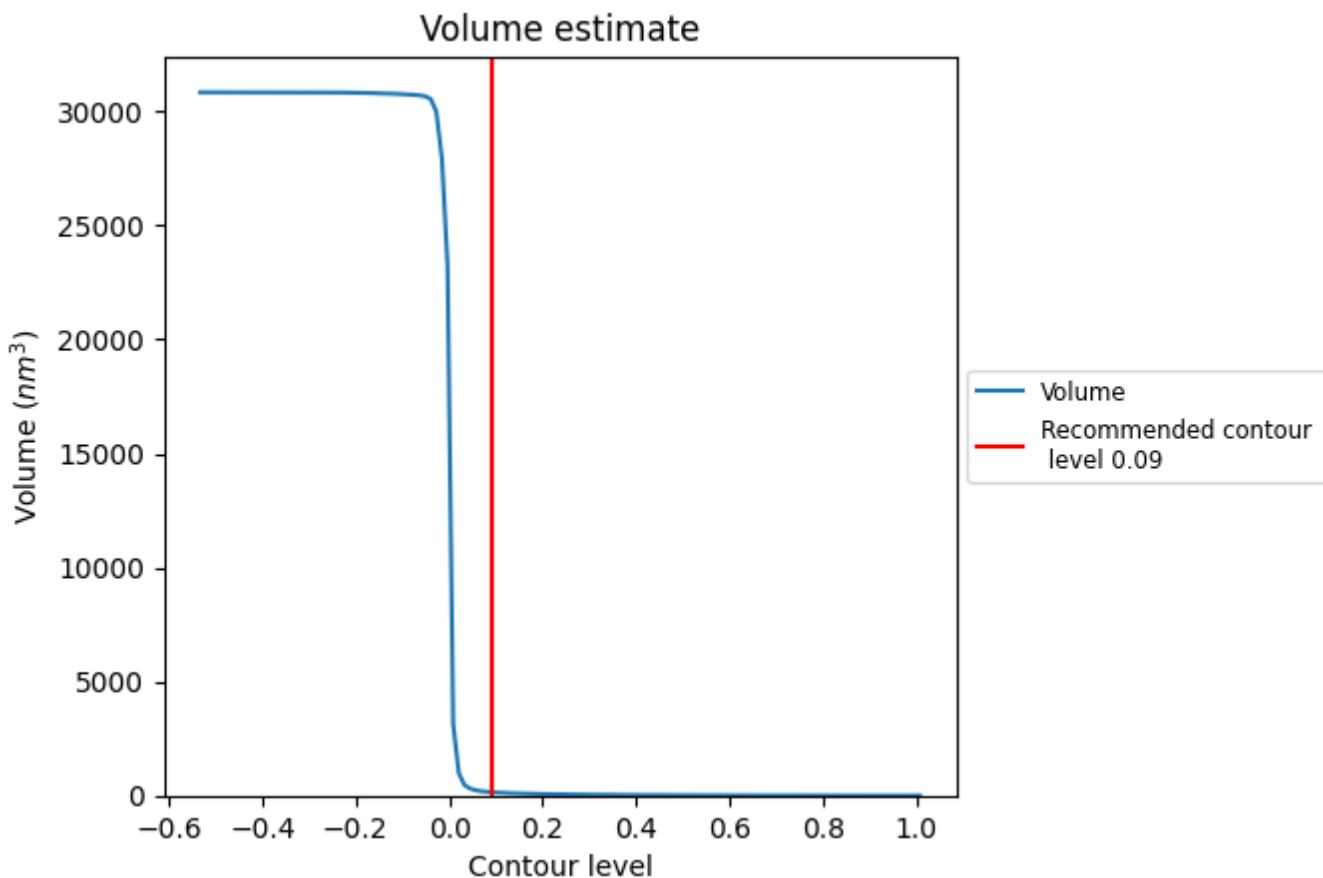
This section contains the results of statistical analysis of the map.

6.1 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.

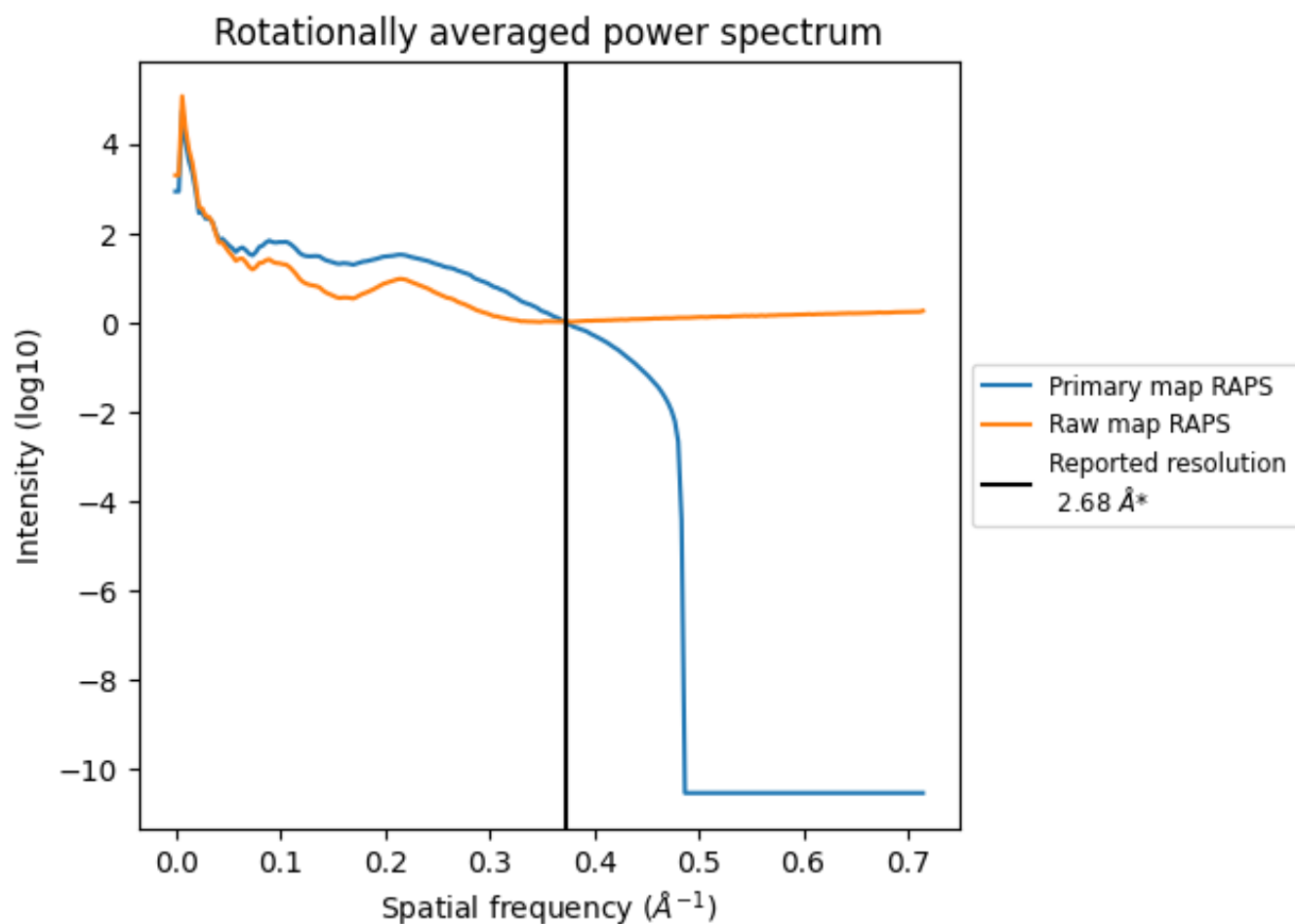
6.2 Volume estimate [i](#)



The volume at the recommended contour level is 147 nm³; this corresponds to an approximate mass of 133 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.

6.3 Rotationally averaged power spectrum i

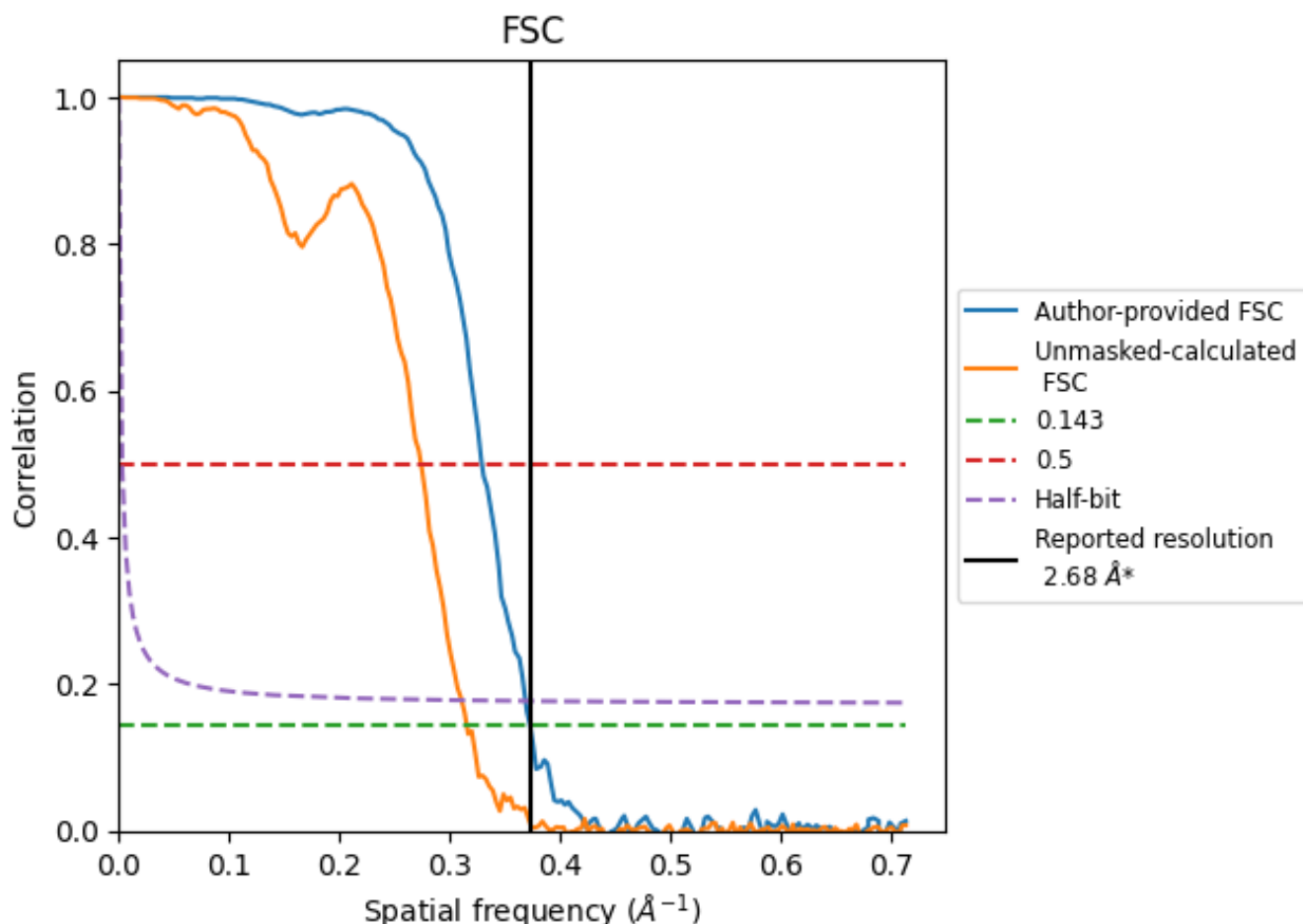


*Reported resolution corresponds to spatial frequency of 0.373 Å⁻¹

7 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.

7.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.373 Å⁻¹

7.2 Resolution estimates [i](#)

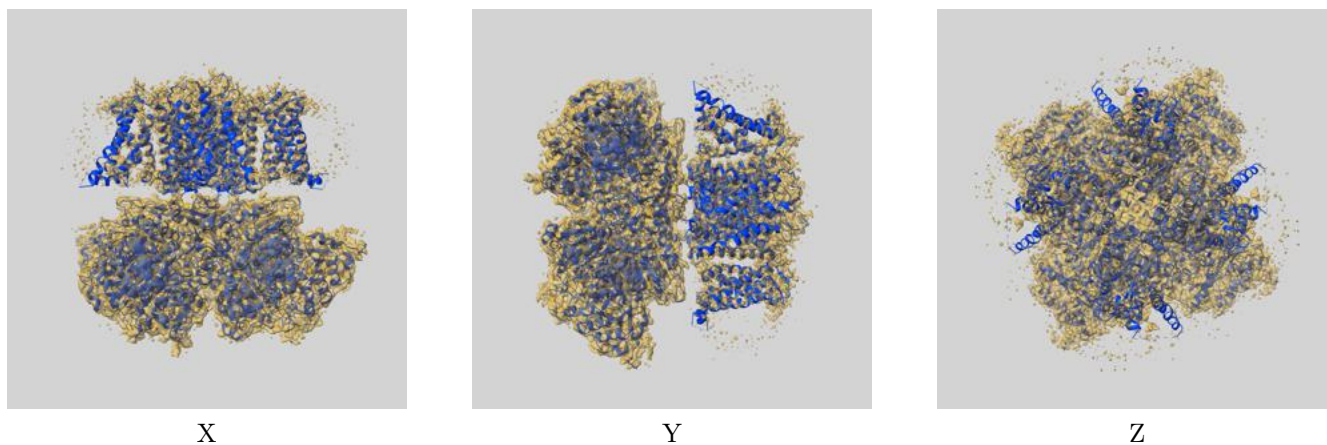
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.68	-	-
Author-provided FSC curve	2.68	3.03	2.71
Unmasked-calculated*	3.17	3.65	3.21

*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 3.17 differs from the reported value 2.68 by more than 10 %

8 Map-model fit [i](#)

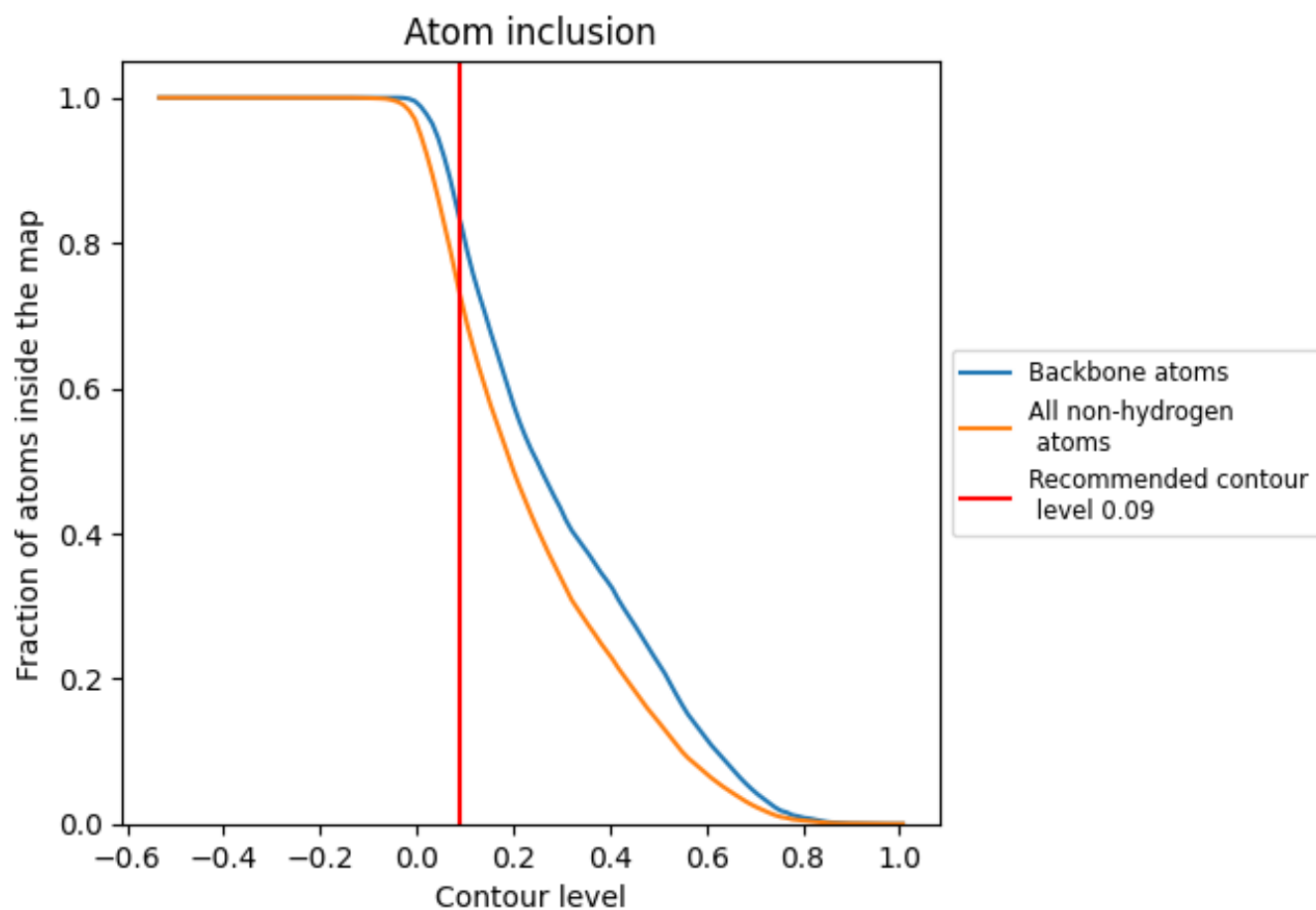
This section contains information regarding the fit between EMDB map EMD-13701 and PDB model 7PXF. Per-residue inclusion information can be found in section ?? on page ??.

8.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.09 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.

8.2 Atom inclusion [i](#)



At the recommended contour level, 83% of all backbone atoms, 73% of all non-hydrogen atoms, are inside the map.