



Full wwPDB EM Validation Report ⓘ

Jun 25, 2025 – 02:58 pm BST

PDB ID : 7ZJD / pdb_00007zjd
EMDB ID : EMD-14745
Title : Transient receptor potential cation channel subfamily V member 2, Enhanced green fluorescent protein
Authors : Zhang, L.; Gourdon, P.; Zygmunt, P.M.
Deposited on : 2022-04-10
Resolution : 2.94 Å (reported)

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 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.dev118
MolProbity : 4-5-2 with Phenix2.0rc1
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) : 2.44

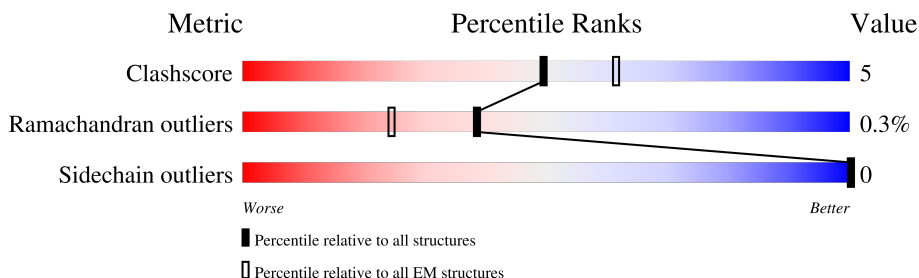
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.94 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	1026	
1	B	1026	
1	C	1026	
1	D	1026	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 19360 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 Transient receptor potential cation channel subfamily V member 2, Enhanced green fluorescent protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	597	Total	C	N	O	S	0	0
			4840	3178	808	826	28		
1	C	597	Total	C	N	O	S	0	0
			4840	3178	808	826	28		
1	B	597	Total	C	N	O	S	0	0
			4840	3178	808	826	28		
1	D	597	Total	C	N	O	S	0	0
			4840	3178	808	826	28		

There are 104 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	571	SER	ASN	conflict	UNP A0A0G2JSH6
A	572	SER	ASN	conflict	UNP A0A0G2JSH6
A	713	ALA	VAL	conflict	UNP A0A0G2JSH6
A	762	ALA	-	linker	UNP A0A0G2JSH6
A	763	ALA	-	linker	UNP A0A0G2JSH6
A	764	ALA	-	linker	UNP A0A0G2JSH6
A	765	GLY	-	linker	UNP A0A0G2JSH6
A	766	LEU	-	linker	UNP A0A0G2JSH6
A	767	VAL	-	linker	UNP A0A0G2JSH6
A	768	PRO	-	linker	UNP A0A0G2JSH6
A	769	ARG	-	linker	UNP A0A0G2JSH6
A	770	GLY	-	linker	UNP A0A0G2JSH6
A	771	SER	-	linker	UNP A0A0G2JSH6
A	772	VAL	-	linker	UNP A0A0G2JSH6
A	773	ALA	-	linker	UNP A0A0G2JSH6
A	774	ALA	-	linker	UNP A0A0G2JSH6
A	775	ALA	-	linker	UNP A0A0G2JSH6
A	981	LYS	ALA	conflict	UNP A0A7G8ZY66
A	1019	HIS	-	expression tag	UNP A0A7G8ZY66
A	1020	HIS	-	expression tag	UNP A0A7G8ZY66
A	1021	HIS	-	expression tag	UNP A0A7G8ZY66

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1022	HIS	-	expression tag	UNP A0A7G8ZY66
A	1023	HIS	-	expression tag	UNP A0A7G8ZY66
A	1024	HIS	-	expression tag	UNP A0A7G8ZY66
A	1025	HIS	-	expression tag	UNP A0A7G8ZY66
A	1026	HIS	-	expression tag	UNP A0A7G8ZY66
C	571	SER	ASN	conflict	UNP A0A0G2JSH6
C	572	SER	ASN	conflict	UNP A0A0G2JSH6
C	713	ALA	VAL	conflict	UNP A0A0G2JSH6
C	762	ALA	-	linker	UNP A0A0G2JSH6
C	763	ALA	-	linker	UNP A0A0G2JSH6
C	764	ALA	-	linker	UNP A0A0G2JSH6
C	765	GLY	-	linker	UNP A0A0G2JSH6
C	766	LEU	-	linker	UNP A0A0G2JSH6
C	767	VAL	-	linker	UNP A0A0G2JSH6
C	768	PRO	-	linker	UNP A0A0G2JSH6
C	769	ARG	-	linker	UNP A0A0G2JSH6
C	770	GLY	-	linker	UNP A0A0G2JSH6
C	771	SER	-	linker	UNP A0A0G2JSH6
C	772	VAL	-	linker	UNP A0A0G2JSH6
C	773	ALA	-	linker	UNP A0A0G2JSH6
C	774	ALA	-	linker	UNP A0A0G2JSH6
C	775	ALA	-	linker	UNP A0A0G2JSH6
C	981	LYS	ALA	conflict	UNP A0A7G8ZY66
C	1019	HIS	-	expression tag	UNP A0A7G8ZY66
C	1020	HIS	-	expression tag	UNP A0A7G8ZY66
C	1021	HIS	-	expression tag	UNP A0A7G8ZY66
C	1022	HIS	-	expression tag	UNP A0A7G8ZY66
C	1023	HIS	-	expression tag	UNP A0A7G8ZY66
C	1024	HIS	-	expression tag	UNP A0A7G8ZY66
C	1025	HIS	-	expression tag	UNP A0A7G8ZY66
C	1026	HIS	-	expression tag	UNP A0A7G8ZY66
B	571	SER	ASN	conflict	UNP A0A0G2JSH6
B	572	SER	ASN	conflict	UNP A0A0G2JSH6
B	713	ALA	VAL	conflict	UNP A0A0G2JSH6
B	762	ALA	-	linker	UNP A0A0G2JSH6
B	763	ALA	-	linker	UNP A0A0G2JSH6
B	764	ALA	-	linker	UNP A0A0G2JSH6
B	765	GLY	-	linker	UNP A0A0G2JSH6
B	766	LEU	-	linker	UNP A0A0G2JSH6
B	767	VAL	-	linker	UNP A0A0G2JSH6
B	768	PRO	-	linker	UNP A0A0G2JSH6
B	769	ARG	-	linker	UNP A0A0G2JSH6

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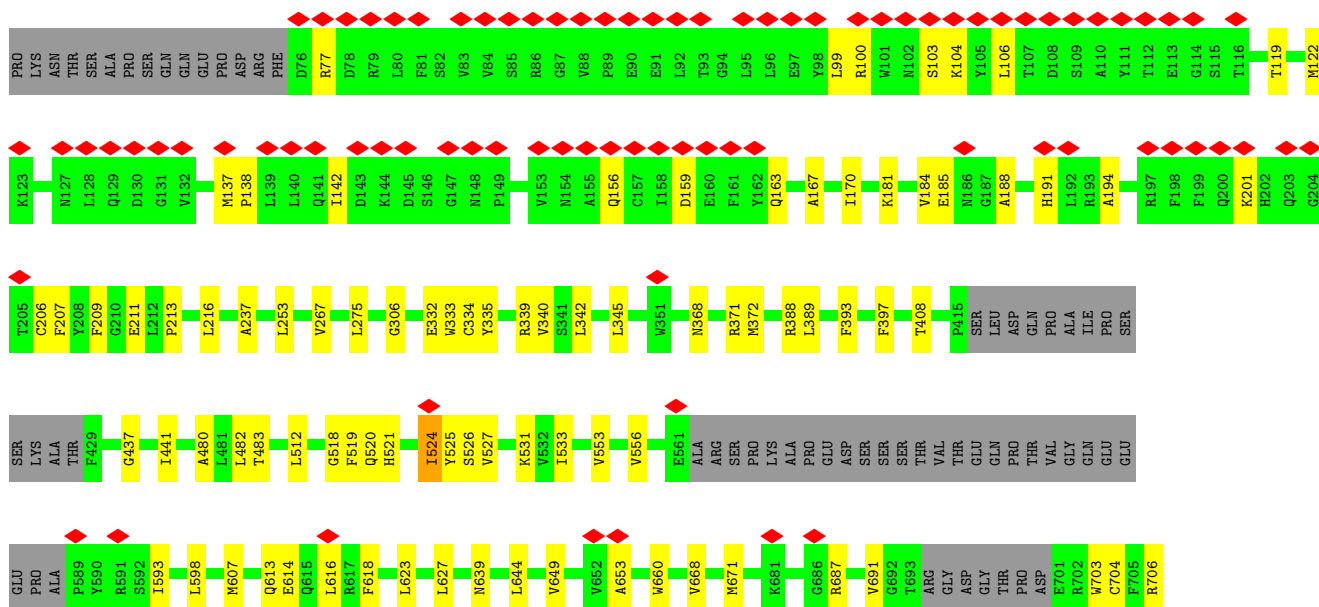
Chain	Residue	Modelled	Actual	Comment	Reference
B	770	GLY	-	linker	UNP A0A0G2JSH6
B	771	SER	-	linker	UNP A0A0G2JSH6
B	772	VAL	-	linker	UNP A0A0G2JSH6
B	773	ALA	-	linker	UNP A0A0G2JSH6
B	774	ALA	-	linker	UNP A0A0G2JSH6
B	775	ALA	-	linker	UNP A0A0G2JSH6
B	981	LYS	ALA	conflict	UNP A0A7G8ZY66
B	1019	HIS	-	expression tag	UNP A0A7G8ZY66
B	1020	HIS	-	expression tag	UNP A0A7G8ZY66
B	1021	HIS	-	expression tag	UNP A0A7G8ZY66
B	1022	HIS	-	expression tag	UNP A0A7G8ZY66
B	1023	HIS	-	expression tag	UNP A0A7G8ZY66
B	1024	HIS	-	expression tag	UNP A0A7G8ZY66
B	1025	HIS	-	expression tag	UNP A0A7G8ZY66
B	1026	HIS	-	expression tag	UNP A0A7G8ZY66
D	571	SER	ASN	conflict	UNP A0A0G2JSH6
D	572	SER	ASN	conflict	UNP A0A0G2JSH6
D	713	ALA	VAL	conflict	UNP A0A0G2JSH6
D	762	ALA	-	linker	UNP A0A0G2JSH6
D	763	ALA	-	linker	UNP A0A0G2JSH6
D	764	ALA	-	linker	UNP A0A0G2JSH6
D	765	GLY	-	linker	UNP A0A0G2JSH6
D	766	LEU	-	linker	UNP A0A0G2JSH6
D	767	VAL	-	linker	UNP A0A0G2JSH6
D	768	PRO	-	linker	UNP A0A0G2JSH6
D	769	ARG	-	linker	UNP A0A0G2JSH6
D	770	GLY	-	linker	UNP A0A0G2JSH6
D	771	SER	-	linker	UNP A0A0G2JSH6
D	772	VAL	-	linker	UNP A0A0G2JSH6
D	773	ALA	-	linker	UNP A0A0G2JSH6
D	774	ALA	-	linker	UNP A0A0G2JSH6
D	775	ALA	-	linker	UNP A0A0G2JSH6
D	981	LYS	ALA	conflict	UNP A0A7G8ZY66
D	1019	HIS	-	expression tag	UNP A0A7G8ZY66
D	1020	HIS	-	expression tag	UNP A0A7G8ZY66
D	1021	HIS	-	expression tag	UNP A0A7G8ZY66
D	1022	HIS	-	expression tag	UNP A0A7G8ZY66
D	1023	HIS	-	expression tag	UNP A0A7G8ZY66
D	1024	HIS	-	expression tag	UNP A0A7G8ZY66
D	1025	HIS	-	expression tag	UNP A0A7G8ZY66
D	1026	HIS	-	expression tag	UNP A0A7G8ZY66

[illegible]

- Molecule 1: Transient receptor potential cation channel subfamily V member 2, Enhanced green fluorescent protein



MET	THR	THR	SER	ALA	ALA	ALA	ALA	ALA	ARG	LEU	GLU	THR	SER	GLY	ASP	GLU	GLU	GLY	ASN	ASN	LYS	LYS	GLN	GLU	PRO	PRO	PRO	PRO	MET	GLU	SER	PRO	PHE	GLN	GLN	ARG	GLU	ASP	GLU	GLN	ILE	LYS	VAL	ASN	ASN	LEU	ASN	PHE	LYS	ILE	ARG	PRO
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V707	E708	K717	T718	L719	THR	LEU	LEU	SER	GLU	ASP	PRO	SER	SER	GLY	PRO	GLY	ILE	THR	GLY	ASN	LYS	LYS	ASN	PRO	PRO	THR	SER	SER	LYS	PRO	GLY	GLY	ASN	ASN	SER	SER	ALA	SER	GLU	GLU	GLU	ASP	HIS	LEU	PRO	LEU	PRO	GLN	VAL	LEU	GLN	SER	SER	PRO	ALA	ALA	ALA	GLY	LEU	VAL	PRO	PRO	ARG	GLY	SER	VAL
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ALA	ALA	VAL	SER	LYS	GLY	GLU	GLU	LEU	LEU	PHE	THR	GLY	VAL	VAL	PRO	ASP	GLY	VAL	ASN	GLY	HIS	PHE	LYS	SER	VAL	SER	GLY	GLU	GLY	GLY	GLY	ALA	ALA	THR	THR	LYS	PHE	LYS	THR	THR	GLY	LYS	PRO	VAL	PRO	TRP	PRO
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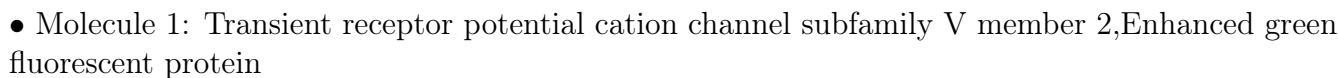
THR	LEU	VAL	THR	THR	LEU	THR	TYR	GLY	VAL	GLN	CYS	PHE	SER	ARG	TYR	PRO	ASP	HIS	MET	LYS	GLN	HIS	ASP	PHE	PHE	LYS	SER	ALA	MET	PRO	GLU	GLY	TYR	VAL	GLN	GLU	ARG	THR	THR	ILE	PHE	PHE	LYS	ASP	ASN	GLY	ASP	GLN	VAL	THR	ASP	GLY	PHE	LYS	GLU	THR
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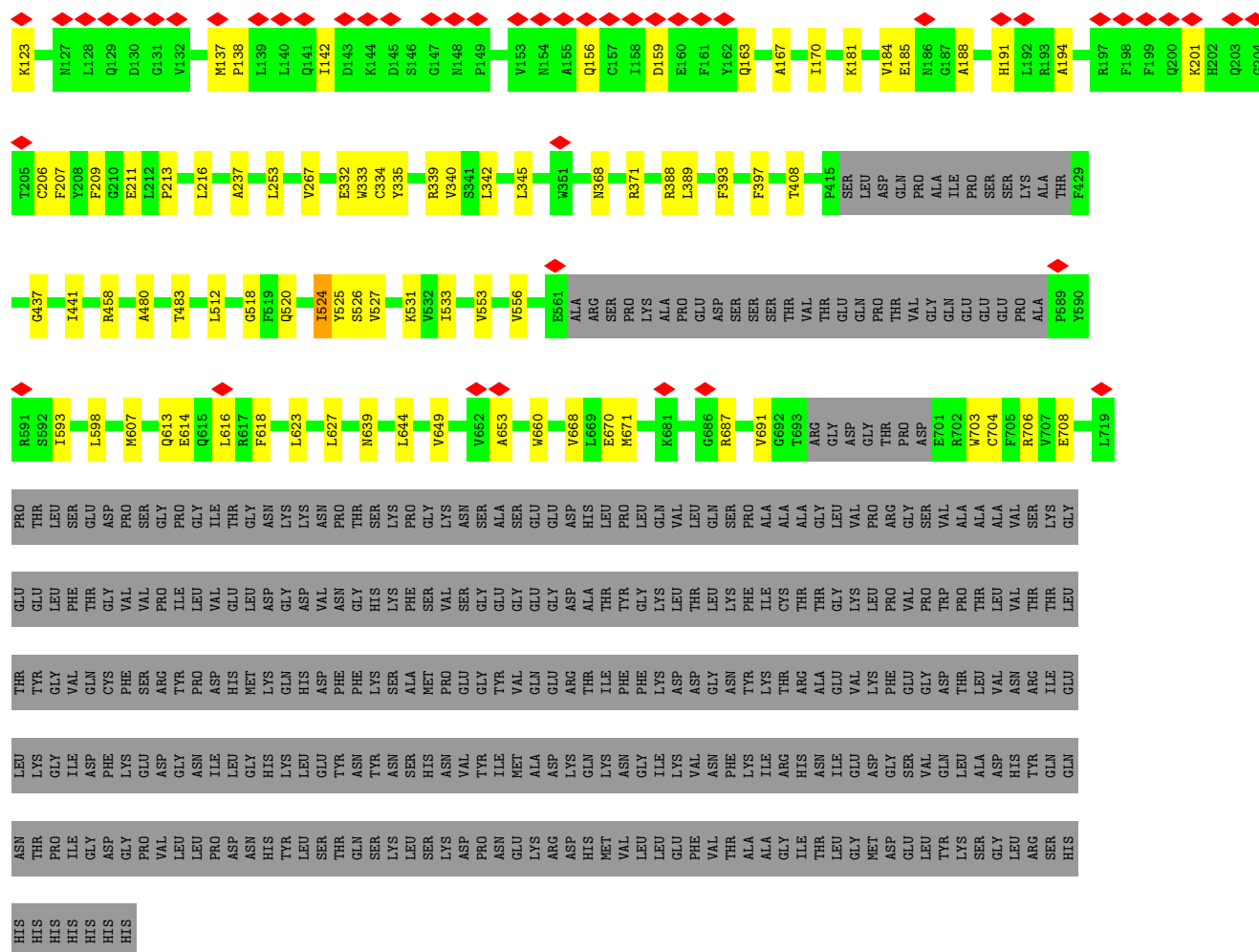
LEU VAL ASN ASN ARG ARG GLU LEU LYS GLY ILE ILE ASP PHE LYS GLU ASP ASN GLN ILE LEU LEU GLY HIS LYS LEU GLU TYR TYR TYR SER SER HIS ASN VAL TYR ILE ILE MET MET ALA ASP LYS GLN LYS LYS ASN GLY ILE LYS VAL VAL PHE PHE LYS ILE ILE ARG HIS ASN ILE LEU GLU ASP GLY SER SER VAL VAL GLN LEU

ALA	ASP	HIS	TYR	GLN	ASN	THR	PRO	ILE	GLY	ASP	GLY	PRO	VAL	LEU	LEU	LEU	PRO	ASP	ASN	HIS	TYR	SER	GLN	LYS	SER	LYS	ASP	PRO	ASN	GLU	LYS	ARG	ASP	HIS	ASP	VAL	THR	ALA	ALA	GLY	ILE	THR	THR	LEU	GLY	MET	ASP	GLU	LEU	LEU	TYR	YS
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SER
GLY
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- Molecule 1: Transient receptor potential cation channel subfamily V member 2, Enhanced green fluorescent protein





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	204000	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 ($e^-/\text{\AA}^2$)	48.4	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.763	Depositor
Minimum map value	-1.644	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.070	Depositor
Recommended contour level	0.3	Depositor
Map size ($\text{\AA}$)	304.704, 304.704, 304.704	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.8464, 0.8464, 0.8464	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	0.12	0/4961	0.31	0/6730
1	B	0.12	0/4961	0.31	0/6730
1	C	0.12	0/4961	0.31	0/6730
1	D	0.12	0/4961	0.31	0/6730
All	All	0.12	0/19844	0.31	0/26920

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	4840	0	4897	59	0
1	B	4840	0	4897	58	0
1	C	4840	0	4897	60	0
1	D	4840	0	4897	57	0
All	All	19360	0	19588	214	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 5.

All (214) 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:C:527:VAL:HG22	1:D:639:ASN:HD21	1.45	0.81
1:A:639:ASN:HD21	1:D:527:VAL:HG22	1.46	0.80
1:C:639:ASN:HD21	1:B:527:VAL:HG22	1.46	0.78
1:A:527:VAL:HG22	1:B:639:ASN:HD21	1.46	0.78
1:C:103:SER:HB2	1:C:106:LEU:HB2	1.66	0.77
1:D:103:SER:HB2	1:D:106:LEU:HB2	1.66	0.77
1:C:333:TRP:HZ3	1:C:335:TYR:HB2	1.51	0.76
1:B:333:TRP:HZ3	1:B:335:TYR:HB2	1.51	0.76
1:A:103:SER:HB2	1:A:106:LEU:HB2	1.66	0.76
1:D:333:TRP:HZ3	1:D:335:TYR:HB2	1.51	0.75
1:A:333:TRP:HZ3	1:A:335:TYR:HB2	1.51	0.75
1:B:103:SER:HB2	1:B:106:LEU:HB2	1.66	0.75
1:B:119:THR:HG22	1:B:122:MET:HG3	1.79	0.65
1:D:119:THR:HG22	1:D:122:MET:HG3	1.79	0.65
1:C:119:THR:HG22	1:C:122:MET:HG3	1.79	0.65
1:A:119:THR:HG22	1:A:122:MET:HG3	1.79	0.64
1:D:340:VAL:HG22	1:D:708:GLU:HG2	1.81	0.63
1:C:340:VAL:HG22	1:C:708:GLU:HG2	1.81	0.63
1:B:340:VAL:HG22	1:B:708:GLU:HG2	1.80	0.62
1:A:340:VAL:HG22	1:A:708:GLU:HG2	1.80	0.61
1:C:368:ASN:OD1	1:C:371:ARG:NH2	2.34	0.60
1:C:194:ALA:HB3	1:C:211:GLU:HB2	1.85	0.59
1:D:194:ALA:HB3	1:D:211:GLU:HB2	1.85	0.59
1:B:194:ALA:HB3	1:B:211:GLU:HB2	1.85	0.58
1:A:194:ALA:HB3	1:A:211:GLU:HB2	1.85	0.58
1:B:368:ASN:OD1	1:B:371:ARG:NH2	2.34	0.58
1:D:181:LYS:O	1:D:185:GLU:HG2	2.05	0.57
1:A:368:ASN:OD1	1:A:371:ARG:NH2	2.34	0.57
1:B:181:LYS:O	1:B:185:GLU:HG2	2.05	0.56
1:C:181:LYS:O	1:C:185:GLU:HG2	2.05	0.56
1:D:368:ASN:OD1	1:D:371:ARG:NH2	2.34	0.56
1:A:181:LYS:O	1:A:185:GLU:HG2	2.05	0.56
1:A:389:LEU:HD12	1:A:668:VAL:HG23	1.88	0.56
1:C:389:LEU:HD12	1:C:668:VAL:HG23	1.88	0.56
1:D:389:LEU:HD12	1:D:668:VAL:HG23	1.88	0.56
1:B:389:LEU:HD12	1:B:668:VAL:HG23	1.88	0.55
1:B:332:GLU:OE2	1:B:706:ARG:NH1	2.41	0.54
1:A:332:GLU:OE2	1:A:706:ARG:NH1	2.41	0.54
1:D:437:GLY:O	1:D:441:ILE:HG12	2.08	0.53
1:A:206:CYS:SG	1:A:207:PHE:N	2.82	0.53
1:C:332:GLU:OE2	1:C:706:ARG:NH1	2.41	0.53
1:D:332:GLU:OE2	1:D:706:ARG:NH1	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:437:GLY:O	1:B:441:ILE:HG12	2.08	0.53
1:A:437:GLY:O	1:A:441:ILE:HG12	2.08	0.52
1:C:206:CYS:SG	1:C:207:PHE:N	2.82	0.52
1:C:437:GLY:O	1:C:441:ILE:HG12	2.08	0.52
1:C:342:LEU:HD21	1:C:691:VAL:HG21	1.92	0.52
1:C:623:LEU:O	1:C:627:LEU:HG	2.10	0.52
1:B:342:LEU:HD21	1:B:691:VAL:HG21	1.92	0.52
1:A:342:LEU:HD21	1:A:691:VAL:HG21	1.92	0.52
1:B:206:CYS:SG	1:B:207:PHE:N	2.82	0.52
1:D:342:LEU:HD21	1:D:691:VAL:HG21	1.92	0.52
1:A:159:ASP:HA	1:A:163:GLN:HG3	1.92	0.51
1:B:159:ASP:HA	1:B:163:GLN:HG3	1.92	0.51
1:B:623:LEU:O	1:B:627:LEU:HG	2.10	0.51
1:D:623:LEU:O	1:D:627:LEU:HG	2.10	0.51
1:C:616:LEU:O	1:C:618:PHE:N	2.44	0.51
1:D:524:ILE:HG22	1:D:526:SER:H	1.76	0.51
1:B:616:LEU:O	1:B:618:PHE:N	2.44	0.51
1:A:524:ILE:HG22	1:A:526:SER:H	1.76	0.51
1:A:616:LEU:O	1:A:618:PHE:N	2.44	0.51
1:C:159:ASP:HA	1:C:163:GLN:HG3	1.92	0.51
1:C:524:ILE:HG22	1:C:526:SER:H	1.76	0.51
1:A:623:LEU:O	1:A:627:LEU:HG	2.10	0.50
1:D:616:LEU:O	1:D:618:PHE:N	2.44	0.50
1:B:184:VAL:HA	1:B:188:ALA:HB3	1.94	0.50
1:A:253:LEU:HD12	1:A:267:VAL:HG23	1.94	0.50
1:C:184:VAL:HA	1:C:188:ALA:HB3	1.94	0.50
1:D:206:CYS:SG	1:D:207:PHE:N	2.82	0.50
1:C:598:LEU:HD11	1:D:623:LEU:HD21	1.93	0.50
1:B:524:ILE:HG22	1:B:526:SER:H	1.76	0.49
1:D:253:LEU:HD12	1:D:267:VAL:HG23	1.94	0.49
1:D:159:ASP:HA	1:D:163:GLN:HG3	1.92	0.49
1:A:598:LEU:HD11	1:B:623:LEU:HD21	1.94	0.49
1:A:184:VAL:HA	1:A:188:ALA:HB3	1.94	0.49
1:B:253:LEU:HD12	1:B:267:VAL:HG23	1.94	0.49
1:C:253:LEU:HD12	1:C:267:VAL:HG23	1.94	0.49
1:D:184:VAL:HA	1:D:188:ALA:HB3	1.94	0.49
1:C:623:LEU:HD21	1:B:598:LEU:HD11	1.94	0.49
1:A:613:GLN:HE21	1:D:607:MET:HE2	1.79	0.48
1:C:613:GLN:HE21	1:B:607:MET:HE2	1.79	0.48
1:D:388:ARG:HH12	1:D:687:ARG:HH12	1.61	0.48
1:A:623:LEU:HD21	1:D:598:LEU:HD11	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:345:LEU:HD12	1:B:703:TRP:HB3	1.96	0.47
1:C:607:MET:HE2	1:D:613:GLN:HE21	1.78	0.47
1:C:342:LEU:HG	1:C:704:CYS:HB3	1.97	0.47
1:A:388:ARG:HH12	1:A:687:ARG:HH12	1.61	0.47
1:C:345:LEU:HD12	1:C:703:TRP:HB3	1.96	0.47
1:A:159:ASP:OD1	1:A:163:GLN:NE2	2.31	0.47
1:C:388:ARG:HH12	1:C:687:ARG:HH12	1.61	0.46
1:B:520:GLN:HA	1:B:660:TRP:CZ2	2.51	0.46
1:D:345:LEU:HD12	1:D:703:TRP:HB3	1.96	0.46
1:D:520:GLN:HA	1:D:660:TRP:CZ2	2.51	0.46
1:C:520:GLN:HA	1:C:660:TRP:CZ2	2.51	0.46
1:A:345:LEU:HD12	1:A:703:TRP:HB3	1.96	0.46
1:A:607:MET:HE2	1:B:613:GLN:HE21	1.80	0.46
1:B:342:LEU:HG	1:B:704:CYS:HB3	1.97	0.46
1:B:388:ARG:HH12	1:B:687:ARG:HH12	1.61	0.46
1:A:342:LEU:HG	1:A:704:CYS:HB3	1.97	0.45
1:D:342:LEU:HG	1:D:704:CYS:HB3	1.97	0.45
1:A:520:GLN:HA	1:A:660:TRP:CZ2	2.51	0.45
1:C:649:VAL:HG21	1:B:649:VAL:HG12	1.99	0.45
1:B:533:ILE:HG13	1:B:644:LEU:HD12	1.99	0.45
1:D:533:ILE:HG13	1:D:644:LEU:HD12	1.99	0.45
1:A:533:ILE:HG13	1:A:644:LEU:HD12	1.99	0.45
1:C:533:ILE:HG13	1:C:644:LEU:HD12	1.99	0.45
1:A:137:MET:SD	1:A:138:PRO:HD3	2.58	0.44
1:A:649:VAL:HG12	1:B:649:VAL:HG21	1.99	0.44
1:B:137:MET:SD	1:B:138:PRO:HD3	2.58	0.44
1:D:137:MET:SD	1:D:138:PRO:HD3	2.58	0.44
1:A:122:MET:HE1	1:A:156:GLN:HE22	1.82	0.44
1:C:480:ALA:O	1:C:483:THR:HG22	2.18	0.44
1:B:191:HIS:CE1	1:B:237:ALA:HB1	2.54	0.43
1:D:122:MET:HE1	1:D:156:GLN:HE22	1.83	0.43
1:A:470:SER:O	1:A:470:SER:OG	2.36	0.43
1:B:480:ALA:O	1:B:483:THR:HG22	2.18	0.43
1:B:122:MET:HE1	1:B:156:GLN:HE22	1.83	0.43
1:B:159:ASP:OD1	1:B:163:GLN:NE2	2.31	0.43
1:D:191:HIS:CE1	1:D:237:ALA:HB1	2.54	0.43
1:A:480:ALA:O	1:A:483:THR:HG22	2.18	0.43
1:C:397:PHE:HE1	1:C:512:LEU:HD22	1.84	0.43
1:C:137:MET:SD	1:C:138:PRO:HD3	2.58	0.43
1:C:191:HIS:CE1	1:C:237:ALA:HB1	2.54	0.43
1:D:480:ALA:O	1:D:483:THR:HG22	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:138:PRO:O	1:A:142:ILE:HG13	2.19	0.43
1:A:649:VAL:HG21	1:D:649:VAL:HG12	1.99	0.43
1:B:138:PRO:O	1:B:142:ILE:HG13	2.19	0.43
1:D:138:PRO:O	1:D:142:ILE:HG13	2.19	0.43
1:A:191:HIS:CE1	1:A:237:ALA:HB1	2.54	0.43
1:A:668:VAL:HA	1:A:671:MET:HG2	2.01	0.43
1:C:122:MET:HE1	1:C:156:GLN:HE22	1.82	0.42
1:C:524:ILE:HB	1:C:527:VAL:HG23	2.01	0.42
1:D:159:ASP:OD1	1:D:163:GLN:NE2	2.31	0.42
1:D:397:PHE:HE1	1:D:512:LEU:HD22	1.84	0.42
1:D:668:VAL:HA	1:D:671:MET:HG2	2.01	0.42
1:B:397:PHE:HE1	1:B:512:LEU:HD22	1.84	0.42
1:A:527:VAL:HG12	1:A:531:LYS:HE2	2.02	0.42
1:A:167:ALA:HA	1:A:170:ILE:HD13	2.02	0.42
1:C:614:GLU:O	1:C:616:LEU:HD23	2.20	0.42
1:D:123:LYS:HA	1:D:123:LYS:HD2	1.91	0.42
1:D:167:ALA:HA	1:D:170:ILE:HD13	2.02	0.42
1:B:556:VAL:HG21	1:B:593:ILE:HD13	2.01	0.42
1:D:524:ILE:HB	1:D:527:VAL:HG23	2.01	0.42
1:C:553:VAL:HG11	1:B:408:THR:HG23	2.02	0.42
1:C:649:VAL:HG12	1:D:649:VAL:HG21	2.00	0.42
1:B:163:GLN:OE1	1:B:163:GLN:N	2.53	0.42
1:D:527:VAL:HG12	1:D:531:LYS:HE2	2.02	0.42
1:D:458:ARG:NH2	1:D:670:GLU:OE2	2.40	0.42
1:A:191:HIS:HD2	1:A:213:PRO:HG2	1.85	0.42
1:C:138:PRO:O	1:C:142:ILE:HG13	2.19	0.42
1:C:393:PHE:CE2	1:C:518:GLY:HA3	2.55	0.42
1:A:397:PHE:HE1	1:A:512:LEU:HD22	1.84	0.42
1:A:524:ILE:HB	1:A:527:VAL:HG23	2.01	0.42
1:C:77:ARG:NH2	1:C:100:ARG:HH22	2.18	0.42
1:C:408:THR:HG23	1:D:553:VAL:HG11	2.02	0.42
1:B:191:HIS:HD2	1:B:213:PRO:HG2	1.85	0.42
1:D:163:GLN:N	1:D:163:GLN:OE1	2.53	0.42
1:A:389:LEU:HD13	1:A:671:MET:HG3	2.02	0.41
1:C:482:LEU:HD23	1:C:482:LEU:HA	1.91	0.41
1:C:556:VAL:HG21	1:C:593:ILE:HD13	2.01	0.41
1:C:717:LYS:HD2	1:C:717:LYS:HA	1.88	0.41
1:B:614:GLU:O	1:B:616:LEU:HD23	2.20	0.41
1:A:163:GLN:OE1	1:A:163:GLN:N	2.53	0.41
1:A:393:PHE:CE2	1:A:518:GLY:HA3	2.55	0.41
1:C:191:HIS:HD2	1:C:213:PRO:HG2	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:167:ALA:HA	1:B:170:ILE:HD13	2.02	0.41
1:B:389:LEU:HD13	1:B:671:MET:HG3	2.02	0.41
1:B:527:VAL:HG12	1:B:531:LYS:HE2	2.02	0.41
1:D:77:ARG:NH2	1:D:100:ARG:HH22	2.18	0.41
1:A:209:PHE:CD1	1:A:216:LEU:HB2	2.56	0.41
1:C:167:ALA:HA	1:C:170:ILE:HD13	2.02	0.41
1:C:668:VAL:HA	1:C:671:MET:HG2	2.01	0.41
1:D:393:PHE:CE2	1:D:518:GLY:HA3	2.55	0.41
1:A:77:ARG:NH2	1:A:100:ARG:HH22	2.18	0.41
1:A:553:VAL:HG11	1:D:408:THR:HG23	2.02	0.41
1:B:393:PHE:CE2	1:B:518:GLY:HA3	2.55	0.41
1:B:668:VAL:HA	1:B:671:MET:HG2	2.01	0.41
1:D:209:PHE:CD1	1:D:216:LEU:HB2	2.56	0.41
1:A:408:THR:HG23	1:B:553:VAL:HG11	2.02	0.41
1:D:556:VAL:HG21	1:D:593:ILE:HD13	2.01	0.41
1:A:306:GLY:HA2	1:A:372:MET:HE1	2.03	0.41
1:C:527:VAL:HG12	1:C:531:LYS:HE2	2.02	0.41
1:B:306:GLY:HA2	1:B:372:MET:HE1	2.03	0.41
1:D:191:HIS:HD2	1:D:213:PRO:HG2	1.85	0.41
1:D:614:GLU:O	1:D:616:LEU:HD23	2.20	0.41
1:A:556:VAL:HG21	1:A:593:ILE:HD13	2.01	0.41
1:C:122:MET:HG2	1:C:167:ALA:HB2	2.03	0.41
1:C:163:GLN:OE1	1:C:163:GLN:N	2.53	0.41
1:D:525:TYR:CZ	1:D:653:ALA:HB3	2.56	0.41
1:A:614:GLU:O	1:A:616:LEU:HD23	2.20	0.41
1:C:275:LEU:HD12	1:C:275:LEU:HA	1.91	0.41
1:B:470:SER:O	1:B:470:SER:OG	2.36	0.41
1:B:519:PHE:HE2	1:B:521:HIS:CE1	2.39	0.41
1:D:122:MET:HG2	1:D:167:ALA:HB2	2.03	0.41
1:C:334:CYS:HB3	1:C:339:ARG:HG2	2.02	0.41
1:C:389:LEU:HD13	1:C:671:MET:HG3	2.02	0.41
1:B:77:ARG:NH2	1:B:100:ARG:HH22	2.18	0.41
1:C:525:TYR:CZ	1:C:653:ALA:HB3	2.56	0.41
1:B:334:CYS:HB3	1:B:339:ARG:HG2	2.02	0.41
1:A:122:MET:HG2	1:A:167:ALA:HB2	2.03	0.40
1:A:334:CYS:HB3	1:A:339:ARG:HG2	2.02	0.40
1:D:334:CYS:HB3	1:D:339:ARG:HG2	2.02	0.40
1:C:209:PHE:CD1	1:C:216:LEU:HB2	2.56	0.40
1:B:458:ARG:NH2	1:B:670:GLU:OE2	2.40	0.40
1:B:524:ILE:HB	1:B:527:VAL:HG23	2.02	0.40
1:A:519:PHE:HE2	1:A:521:HIS:CE1	2.39	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:99:LEU:HD22	1:C:104:LYS:HG2	2.04	0.40
1:C:519:PHE:HE2	1:C:521:HIS:CE1	2.39	0.40
1:B:209:PHE:CD1	1:B:216:LEU:HB2	2.56	0.40
1:D:389:LEU:HD13	1:D:671:MET:HG3	2.02	0.40
1:A:123:LYS:HA	1:A:123:LYS:HD2	1.90	0.40
1:A:525:TYR:CZ	1:A:653:ALA:HB3	2.56	0.40
1:C:306:GLY:HA2	1:C:372:MET:HE1	2.03	0.40
1:B:525:TYR:CZ	1:B:653:ALA:HB3	2.56	0.40

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	589/1026 (57%)	548 (93%)	39 (7%)	2 (0%)	37	60
1	B	589/1026 (57%)	549 (93%)	38 (6%)	2 (0%)	37	60
1	C	589/1026 (57%)	548 (93%)	39 (7%)	2 (0%)	37	60
1	D	589/1026 (57%)	548 (93%)	39 (7%)	2 (0%)	37	60
All	All	2356/4104 (57%)	2193 (93%)	155 (7%)	8 (0%)	38	60

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	524	ILE
1	C	524	ILE
1	B	524	ILE
1	D	524	ILE
1	A	201	LYS
1	C	201	LYS
1	B	201	LYS

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Mol	Chain	Res	Type
1	D	201	LYS

5.3.2 Protein sidechains ⓘ

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	522/903 (58%)	522 (100%)	0	100	100
1	B	522/903 (58%)	522 (100%)	0	100	100
1	C	522/903 (58%)	522 (100%)	0	100	100
1	D	522/903 (58%)	522 (100%)	0	100	100
All	All	2088/3612 (58%)	2088 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (32) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	203	GLN
1	A	234	HIS
1	A	438	HIS
1	A	487	GLN
1	A	613	GLN
1	A	639	ASN
1	A	651	HIS
1	A	711	ASN
1	C	234	HIS
1	C	293	HIS
1	C	438	HIS
1	C	487	GLN
1	C	613	GLN
1	C	639	ASN
1	C	651	HIS
1	C	711	ASN
1	B	234	HIS

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Mol	Chain	Res	Type
1	B	293	HIS
1	B	438	HIS
1	B	487	GLN
1	B	613	GLN
1	B	639	ASN
1	B	651	HIS
1	B	711	ASN
1	D	165	HIS
1	D	234	HIS
1	D	438	HIS
1	D	487	GLN
1	D	613	GLN
1	D	639	ASN
1	D	651	HIS
1	D	711	ASN

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](#)

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.

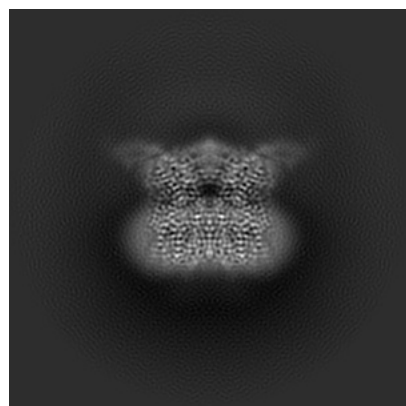
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14745. These allow visual inspection of the internal detail of the map and identification of artifacts.

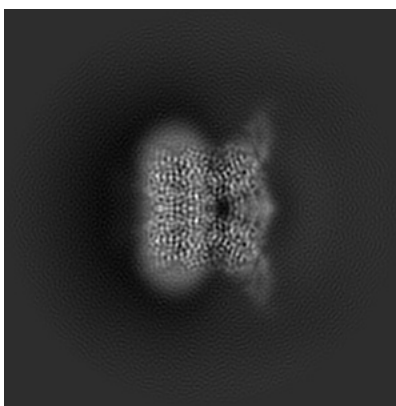
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

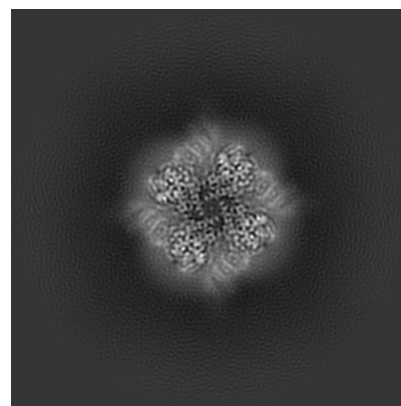
6.1.1 Primary map



X

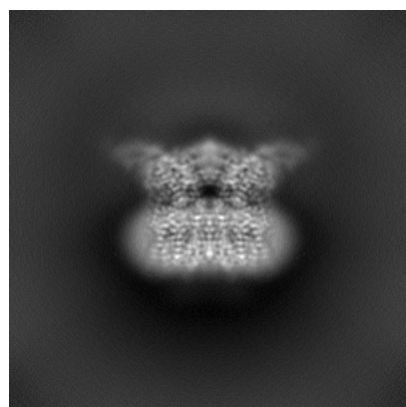


Y

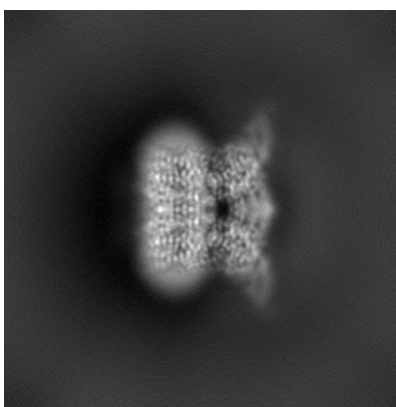


Z

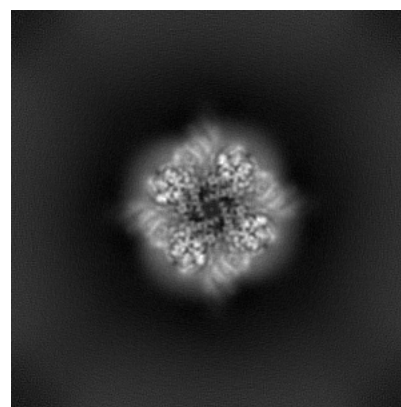
6.1.2 Raw map



X



Y

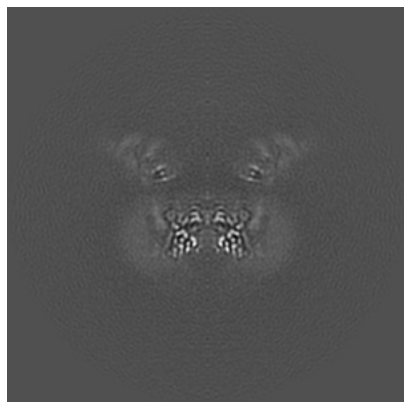


Z

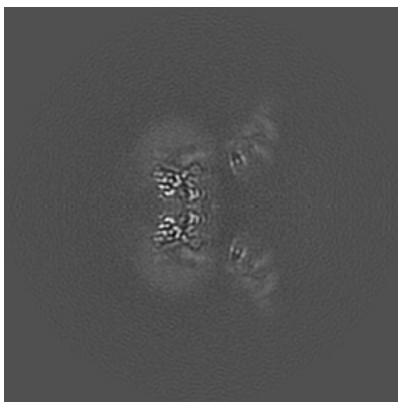
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

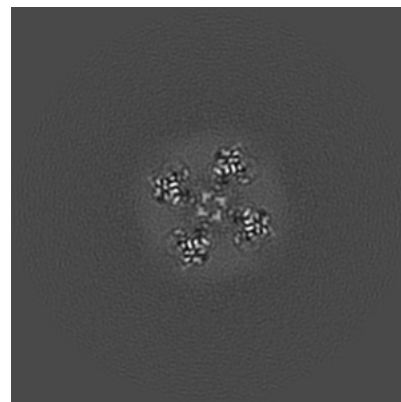
6.2.1 Primary map



X Index: 180

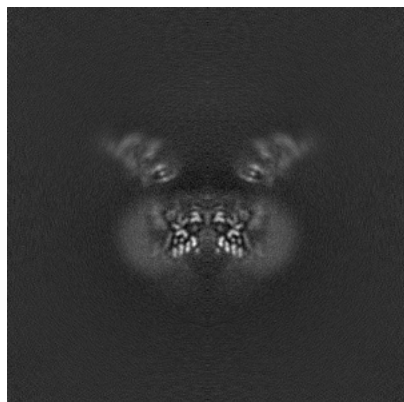


Y Index: 180

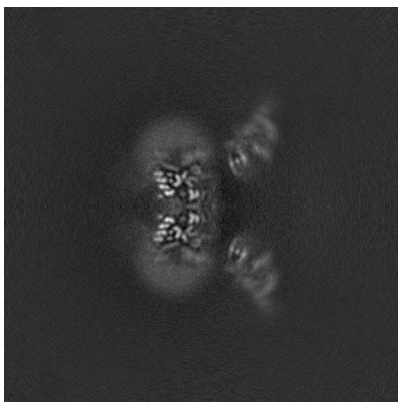


Z Index: 180

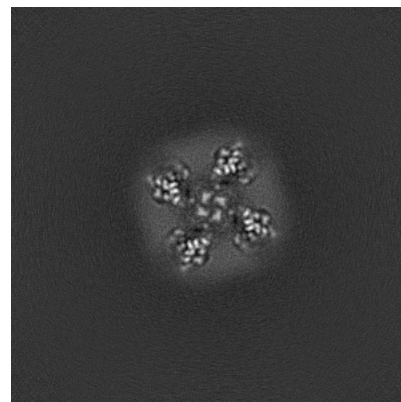
6.2.2 Raw map



X Index: 180



Y Index: 180

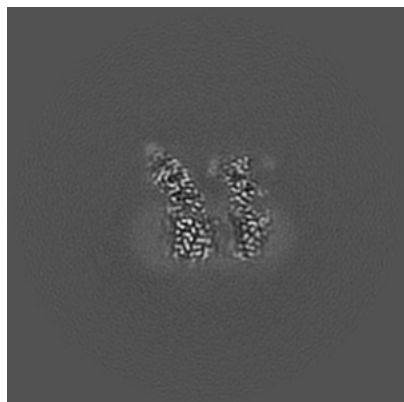


Z Index: 180

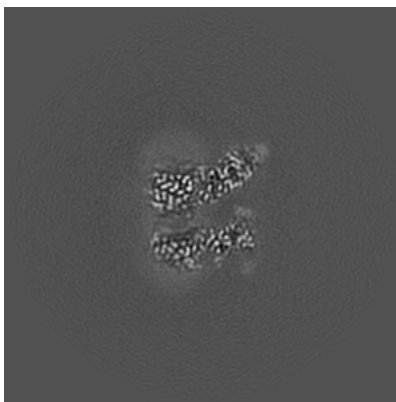
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

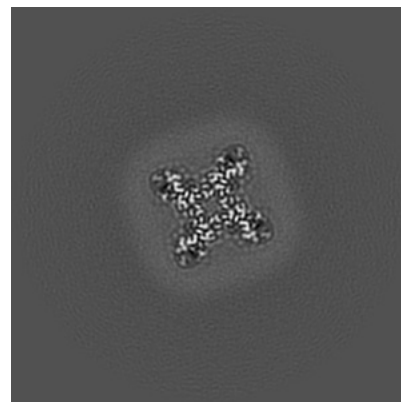
6.3.1 Primary map



X Index: 209

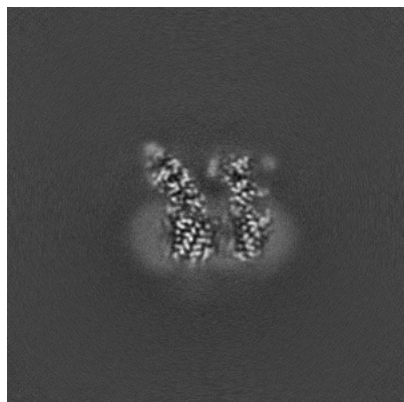


Y Index: 209

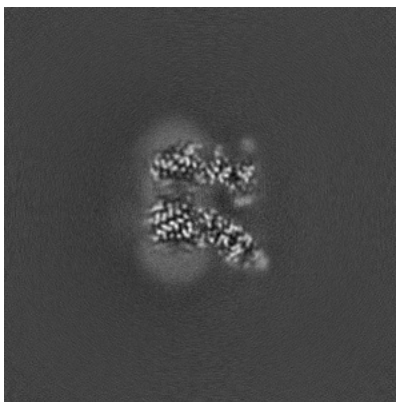


Z Index: 150

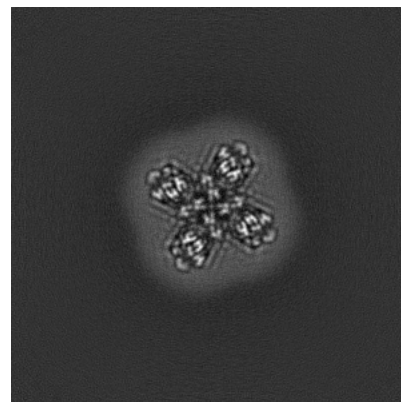
6.3.2 Raw map



X Index: 209



Y Index: 151

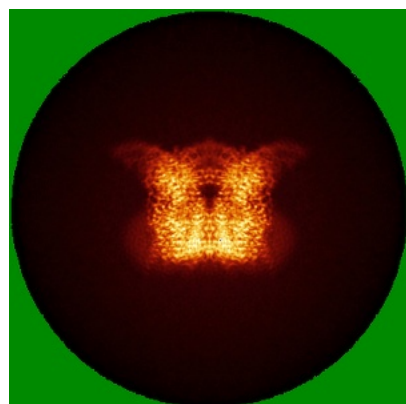


Z Index: 167

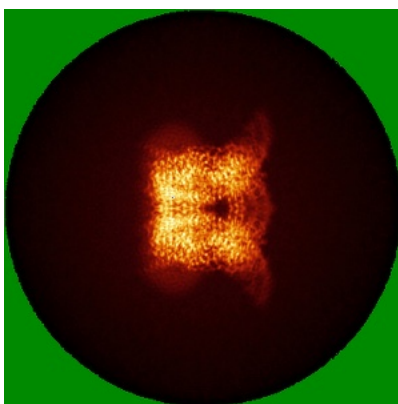
The images above show the largest variance slices of the map in three orthogonal directions.

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

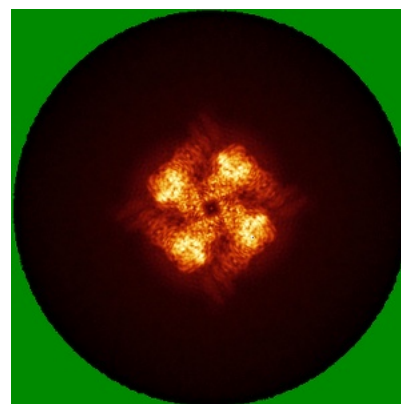
6.4.1 Primary map



X

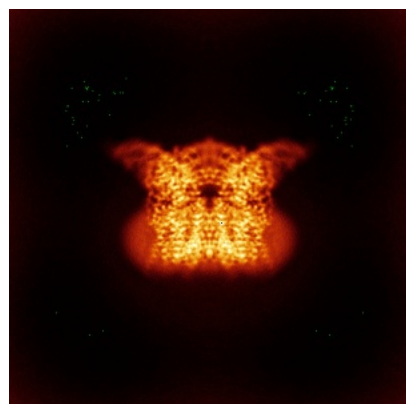


Y

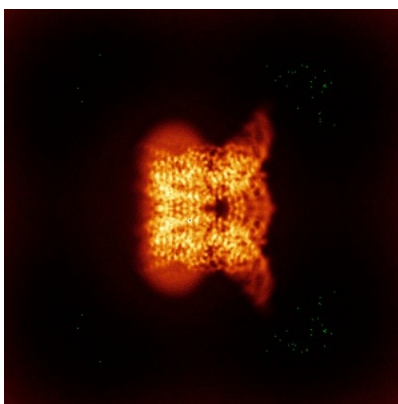


Z

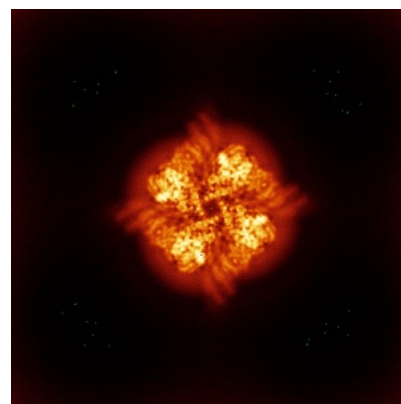
6.4.2 Raw map



X



Y

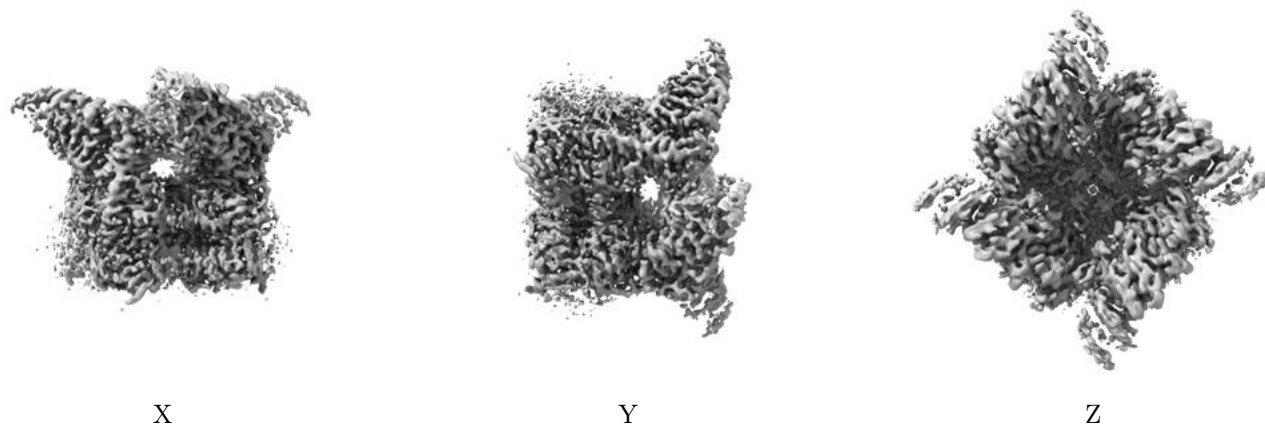


Z

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.

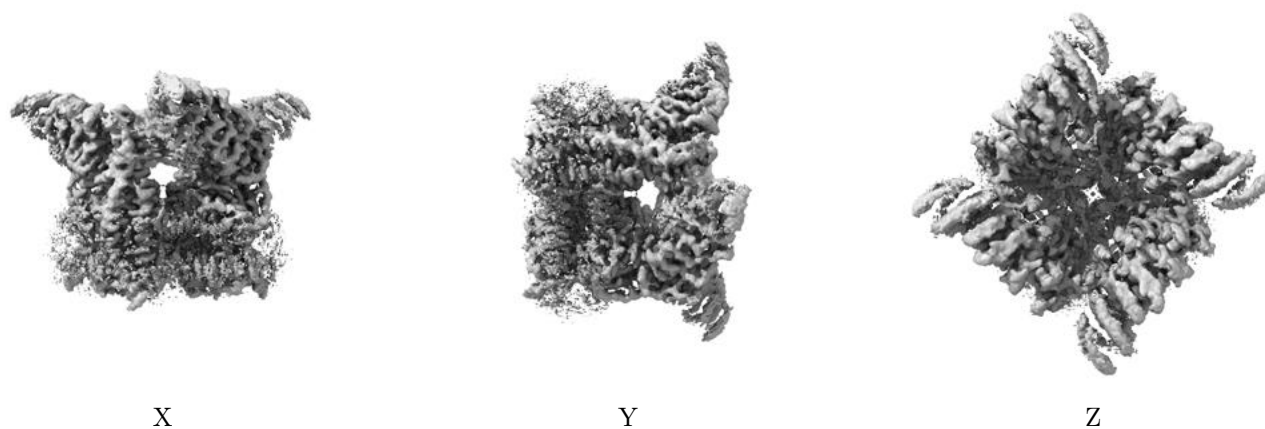
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.3. 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.

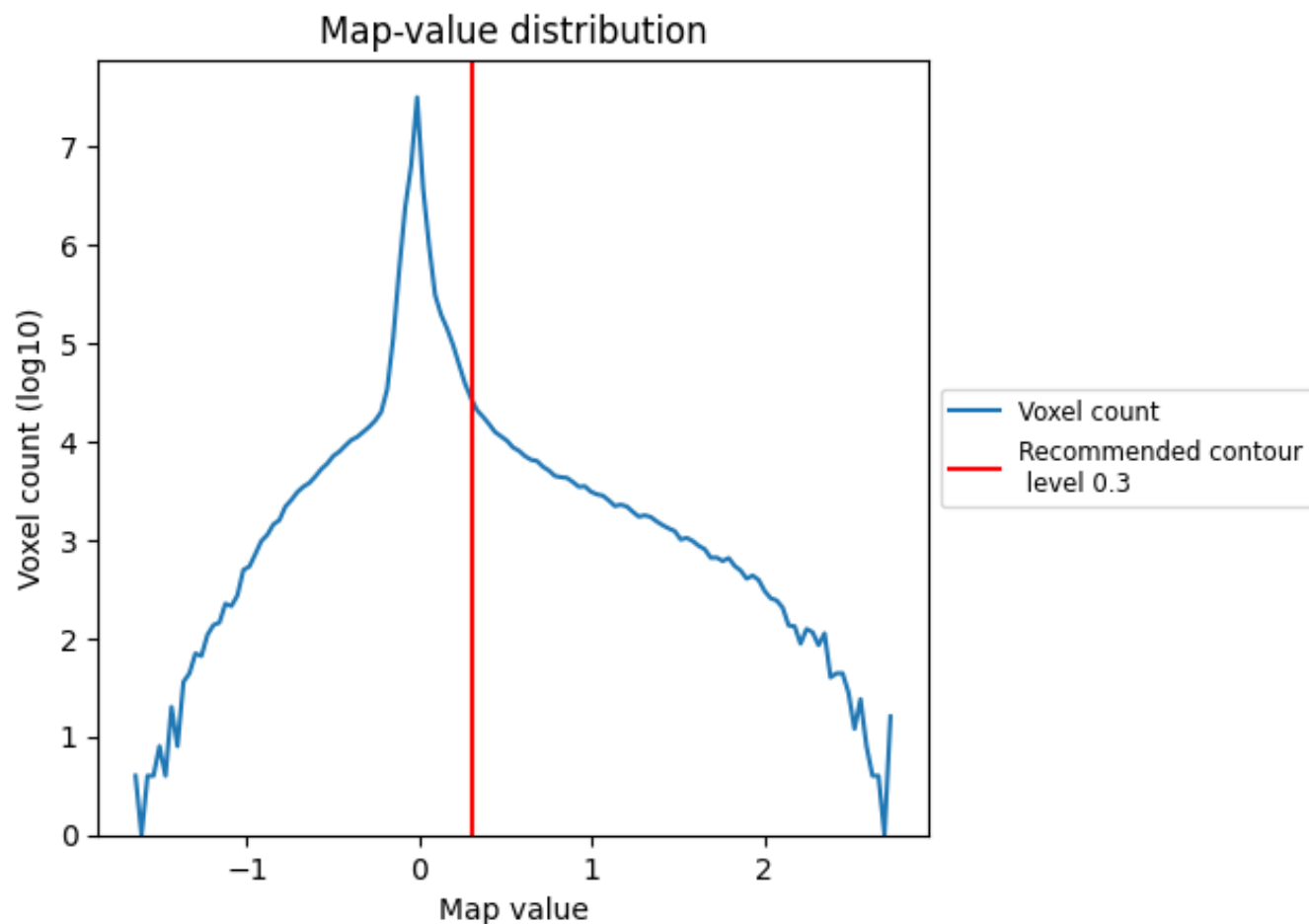
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

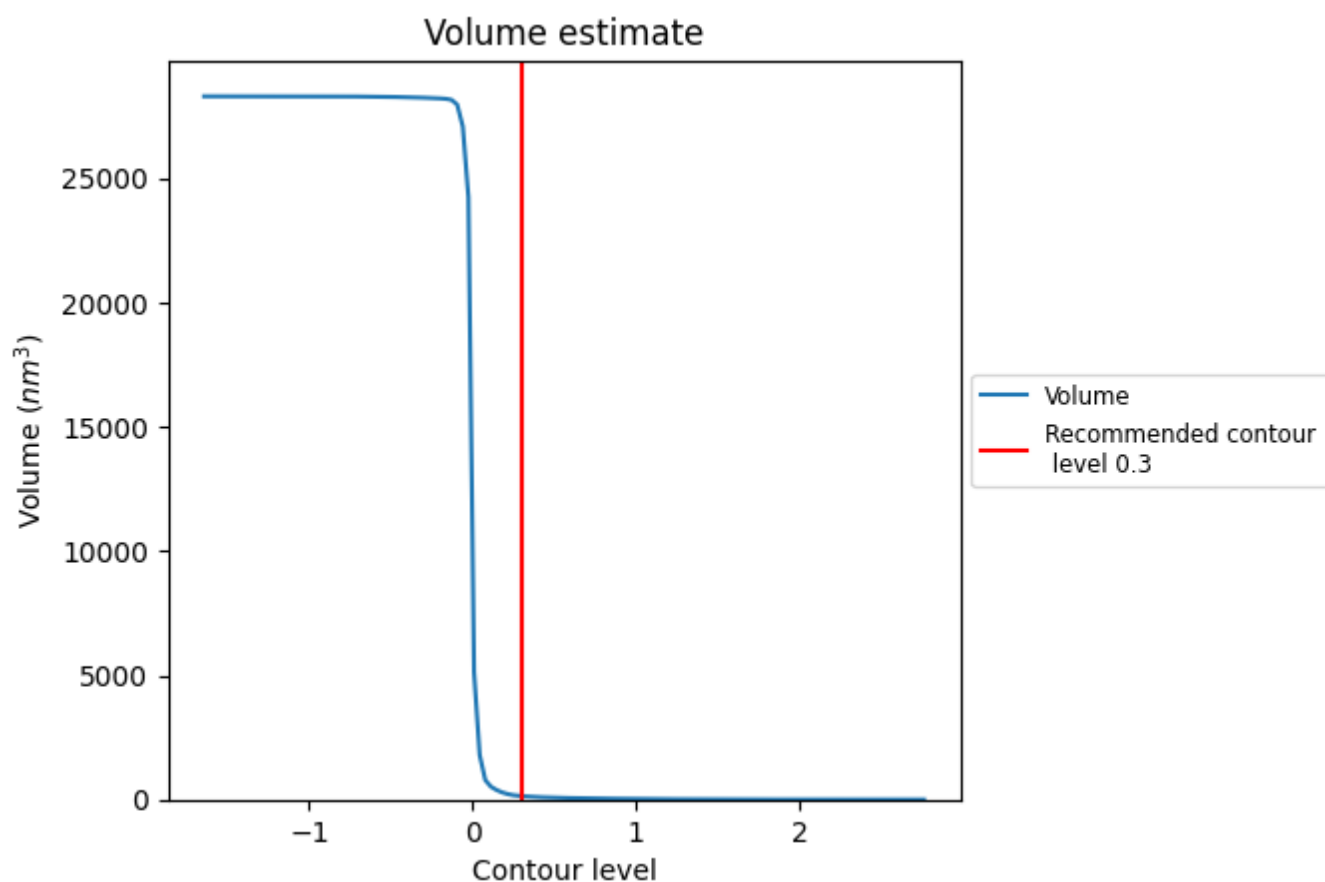
This section contains the results of statistical analysis of the map.

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.

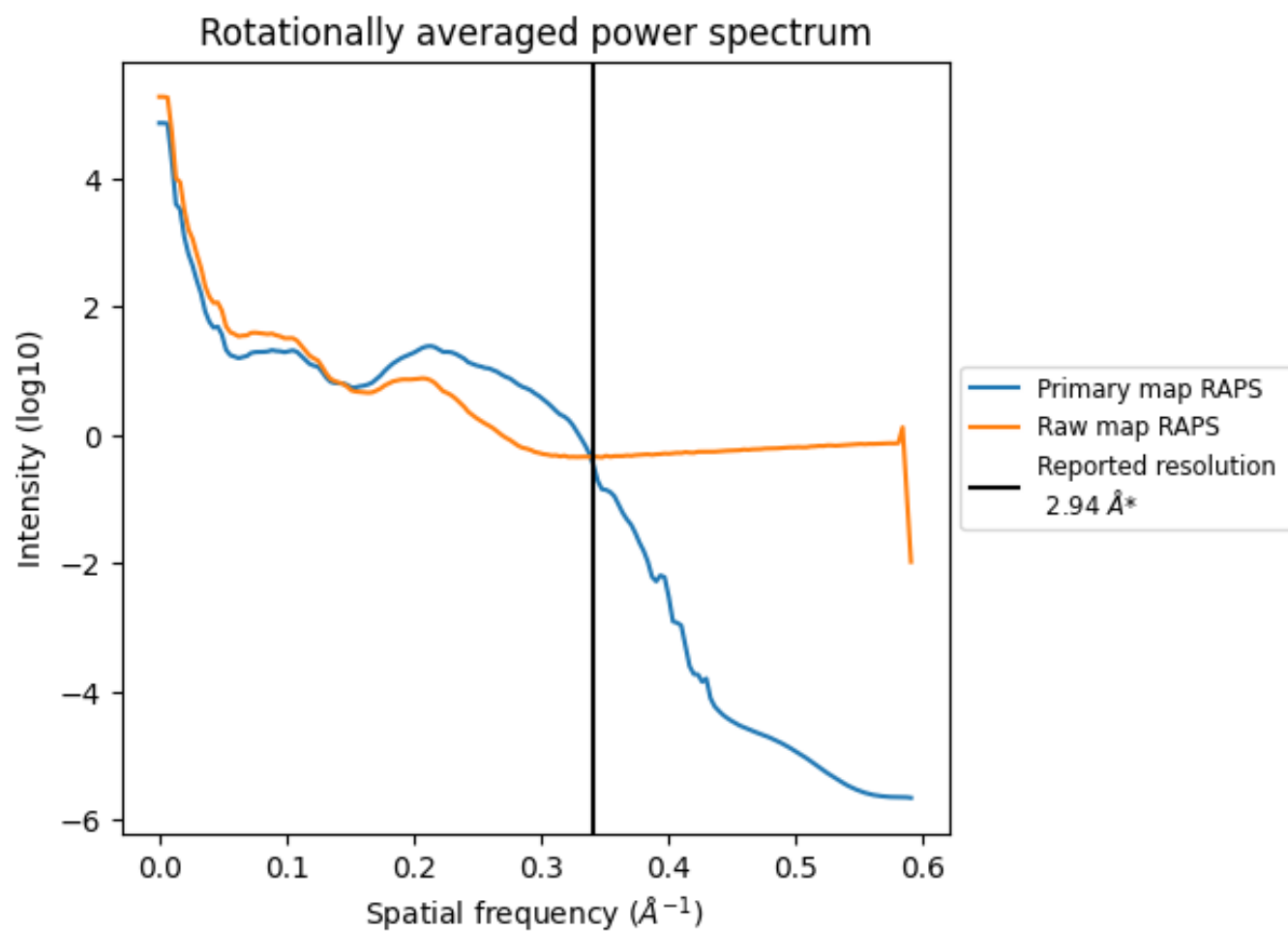
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 139 nm³; this corresponds to an approximate mass of 125 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 ⓘ

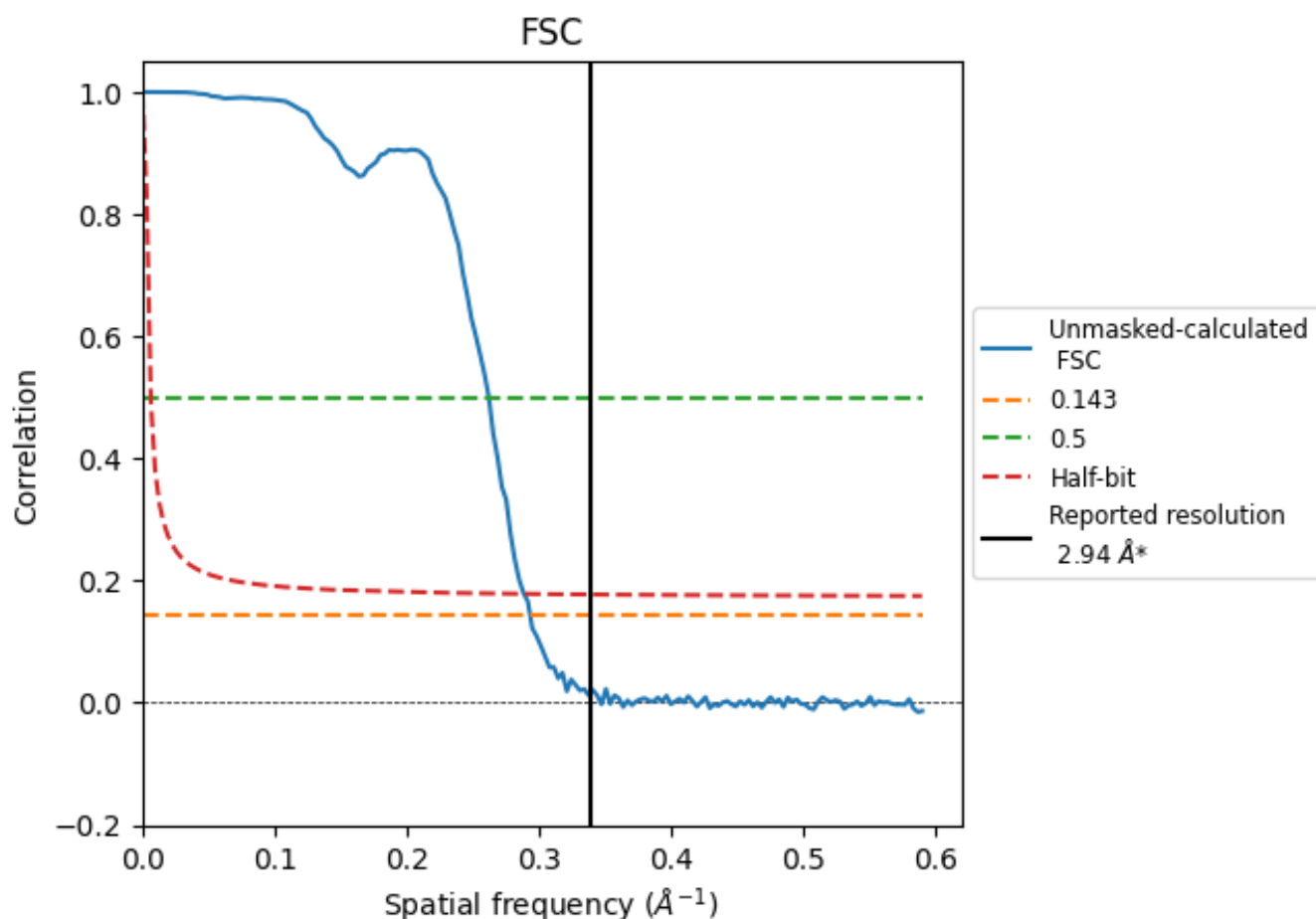


*Reported resolution corresponds to spatial frequency of 0.340 Å⁻¹

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 $0.340 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

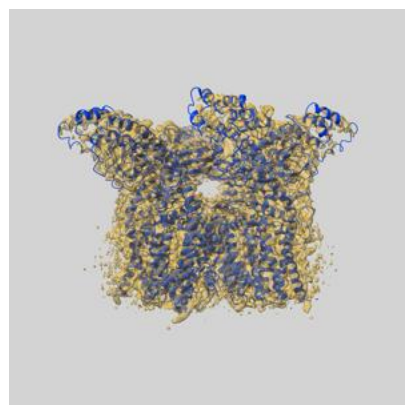
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.94	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.40	3.81	3.46

*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 3.40 differs from the reported value 2.94 by more than 10 %

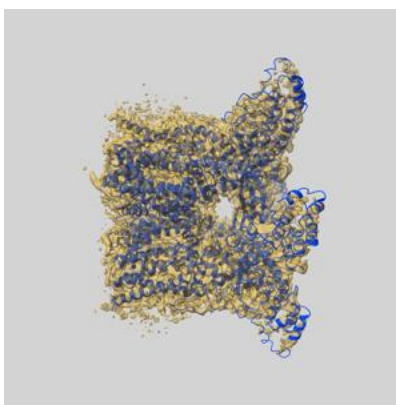
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-14745 and PDB model 7ZJD. Per-residue inclusion information can be found in section [3](#) on page [6](#).

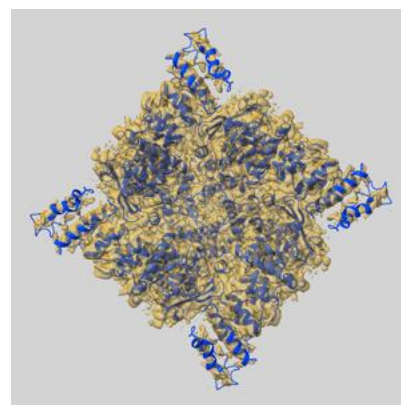
9.1 Map-model overlay [i](#)



X



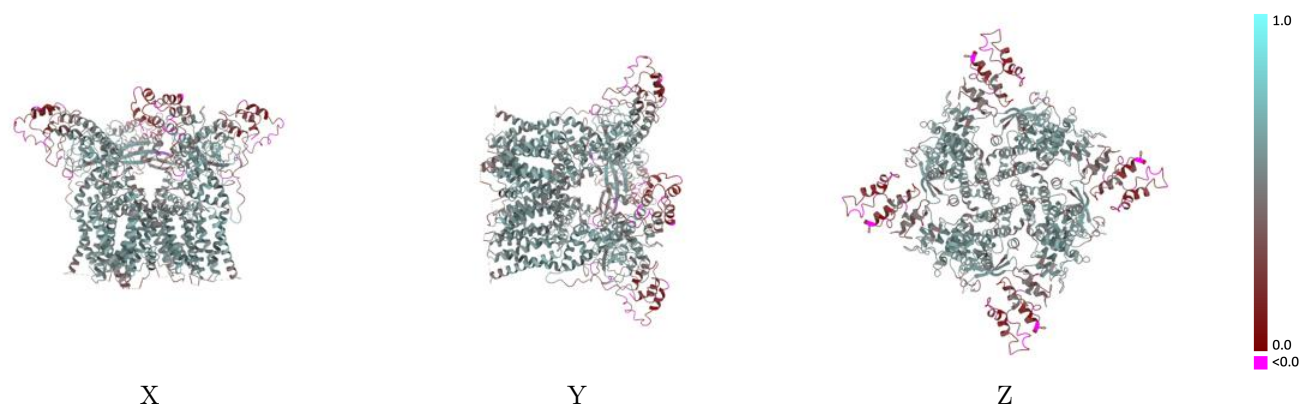
Y



Z

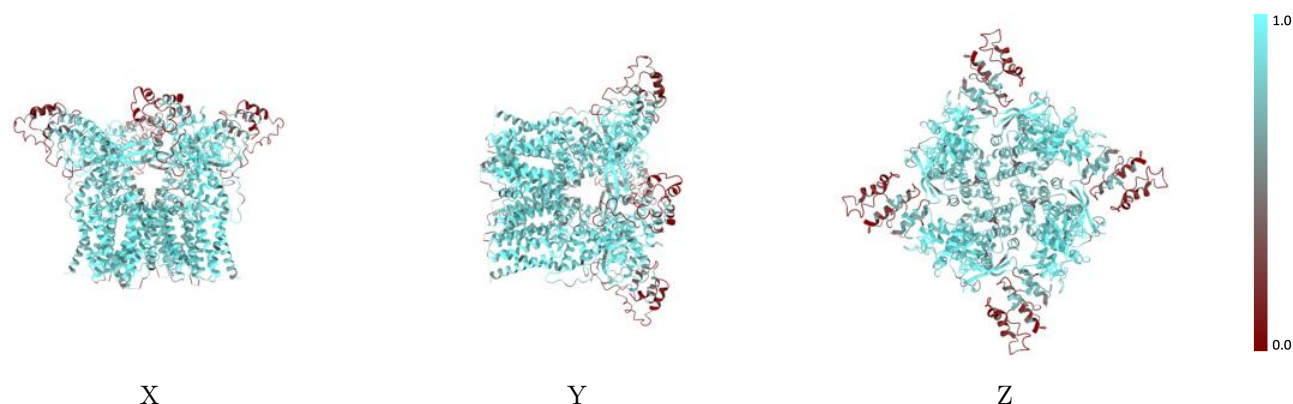
The images above show the 3D surface view of the map at the recommended contour level 0.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



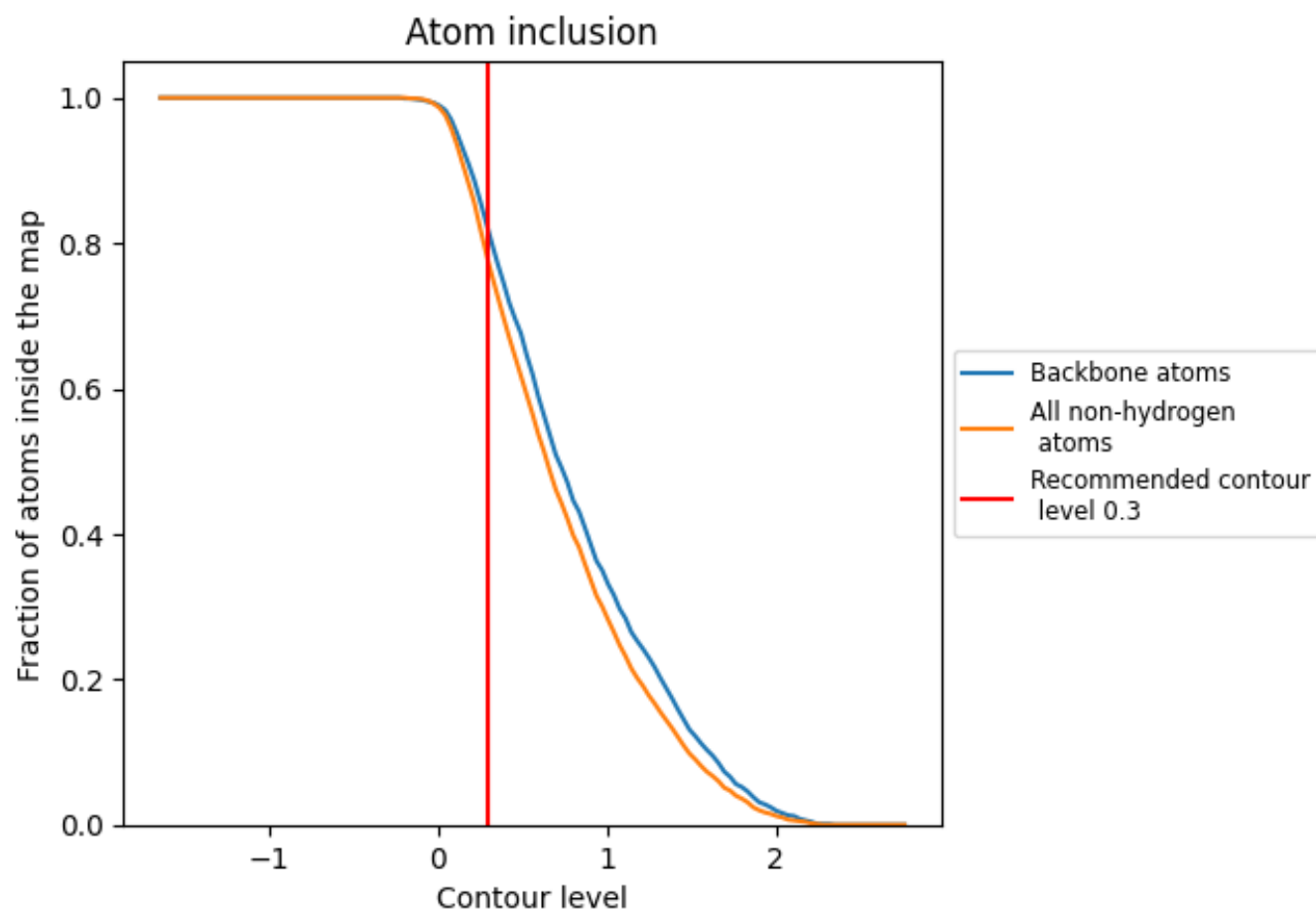
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.3).

9.4 Atom inclusion [i](#)



At the recommended contour level, 82% of all backbone atoms, 77% 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 (0.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7720	0.4850
A	0.7720	0.4850
B	0.7730	0.4850
C	0.7730	0.4850
D	0.7720	0.4850

