



Full wwPDB EM Validation Report ⓘ

Mar 6, 2026 – 11:05 PM UTC

PDB ID : 7S8X / pdb_00007s8x
EMDB ID : EMD-24928
Title : Cryo-EM Structure of dolphin Prestin: Sensor Up (compact) state
Authors : Bavi, N.; Clark, M.D.; Contreras, G.F.; Shen, R.; Reddy, B.G.; Milewski, W.; Perozo, E.
Deposited on : 2021-09-20
Resolution : 3.30 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.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

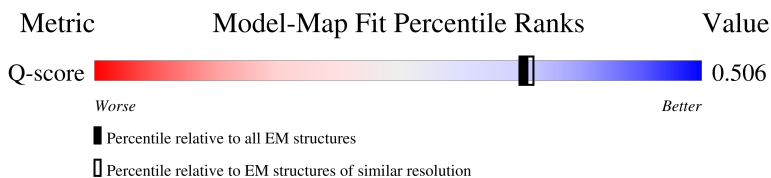
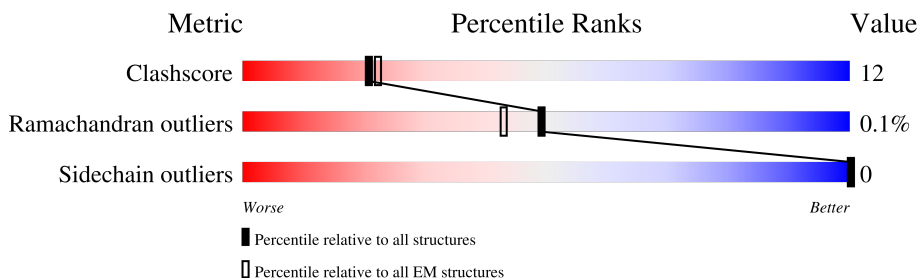
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.30 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	15087 (2.80 - 3.80)

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	741	
1	B	741	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 10426 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.

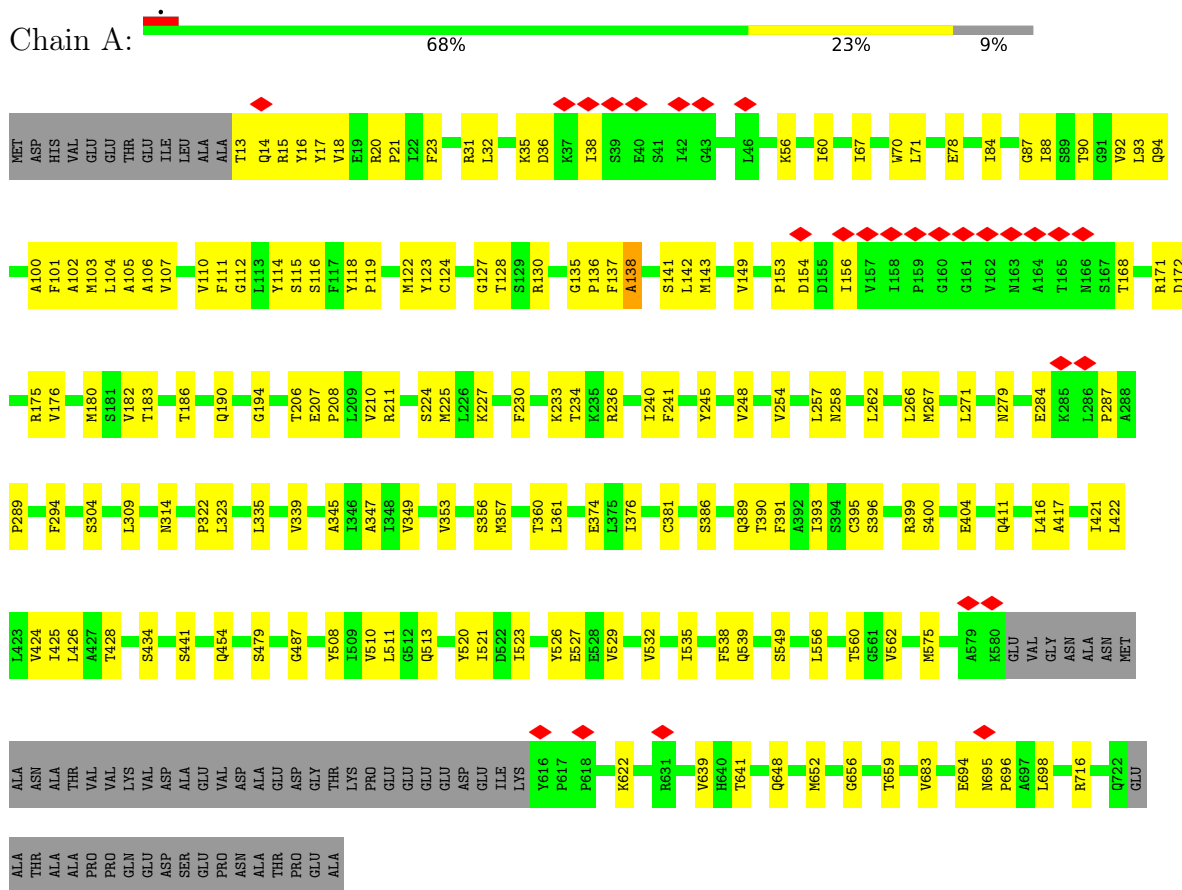
- Molecule 1 is a protein called Prestin.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	675	Total	C	N	O	S	0	0
			5213	3419	838	931	25		
1	B	675	Total	C	N	O	S	0	0
			5213	3419	838	931	25		

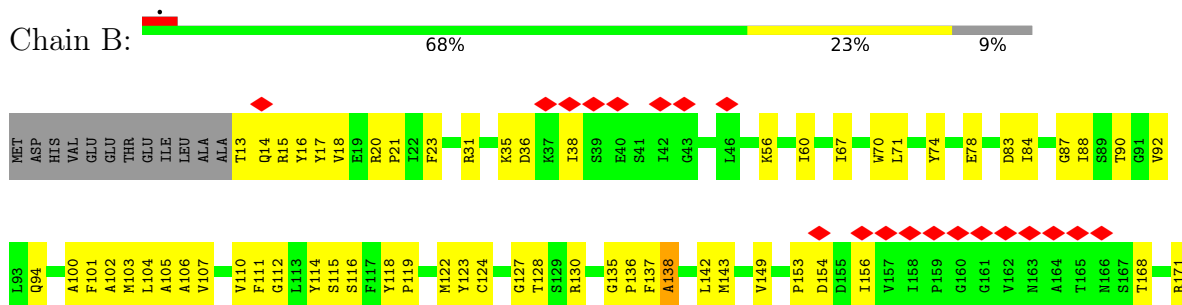
3 Residue-property plots

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: Prestin



• Molecule 1: Prestin



D172	A988	L422	ALA
R175	P289	L423	ASN
V176	F294	V424	ALA
M180	S304	I425	THR
S181	N314	L426	VAL
V182		A427	VAL
T183		T428	LYS
T186	P322	S434	VAL
	L323	Q454	ASP
Q190	L335	S479	ALA
G194	V339	G487	VAL
T206	A345	Y508	ASP
E207	I346	I509	GLY
P208	A347	V510	THR
L209	I348	L511	LYS
V210	V349	G512	PRO
R211	V353	Q513	GLU
S224	S356	Y520	GLU
K227	M357	I521	GLU
F230	T360	D522	ASP
T234	L361	I523	GLU
K235	E374	A525	ILE
R236	I375	Y526	LYS
I240	I376	E527	Y616
F241	C381	V529	P617
Y245	G385	V532	P618
V248	S386	I535	K622
L251	Q389	F538	R631
V254	T390	Q539	P634
L257	F391	S549	P635
N258	A392	L556	V639
L262	I393	T560	H640
L266	S394	G561	T641
M267	S395	V562	Q648
L271	S396	M575	M652
N279	L397	A579	G656
E284	R399	K580	T659
K285	S400	GLU	V683
L286	E404	VAL	E694
P287	Q411	GLY	H695
	L416	ASN	P696
	A417	ALA	A697
	I421	ASN	L698
		MET	H707

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	206000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	1	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.221	Depositor
Minimum map value	-0.126	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.0194	Depositor
Map size ($\text{\AA}$)	272.128, 272.128, 272.128	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.063, 1.063, 1.063	Depositor

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.22	0/5331	0.42	0/7247
1	B	0.22	0/5331	0.42	0/7247
All	All	0.22	0/10662	0.42	0/14494

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

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	5213	0	5374	131	0
1	B	5213	0	5374	132	0
All	All	10426	0	10748	253	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 12.

All (253) 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:B:206:THR:HG22	1:B:208:PRO:HD2	1.61	0.82
1:A:206:THR:HG22	1:A:208:PRO:HD2	1.61	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:527:GLU:HB3	1:B:35:LYS:HG2	1.62	0.82
1:B:104:LEU:HD21	1:B:142:LEU:HG	1.64	0.79
1:A:104:LEU:HD21	1:A:142:LEU:HG	1.64	0.78
1:B:110:VAL:HG21	1:B:322:PRO:HD2	1.69	0.74
1:A:110:VAL:HG21	1:A:322:PRO:HD2	1.69	0.73
1:B:70:TRP:HB3	1:B:411:GLN:HE22	1.60	0.67
1:A:70:TRP:HB3	1:A:411:GLN:HE22	1.60	0.66
1:B:361:LEU:HD22	1:B:404:GLU:HG3	1.79	0.65
1:A:67:ILE:HD12	1:A:70:TRP:HB2	1.80	0.64
1:B:240:ILE:HG22	1:B:241:PHE:HD1	1.62	0.64
1:A:143:MET:HE1	1:A:349:VAL:HG11	1.80	0.64
1:A:240:ILE:HG22	1:A:241:PHE:CD1	2.33	0.64
1:A:361:LEU:HD22	1:A:404:GLU:HG3	1.79	0.64
1:B:67:ILE:HD12	1:B:70:TRP:HB2	1.79	0.64
1:A:641:THR:HB	1:A:716:ARG:HH21	1.63	0.63
1:A:240:ILE:HG22	1:A:241:PHE:HD1	1.62	0.63
1:B:641:THR:HB	1:B:716:ARG:HH21	1.63	0.63
1:B:84:ILE:HD13	1:B:416:LEU:HD11	1.81	0.63
1:B:143:MET:HE1	1:B:349:VAL:HG11	1.80	0.63
1:B:240:ILE:HG22	1:B:241:PHE:CD1	2.33	0.63
1:B:532:VAL:HG23	1:B:535:ILE:HB	1.81	0.62
1:A:696:PRO:HG2	1:A:698:LEU:HD12	1.81	0.62
1:A:119:PRO:HB3	1:A:393:ILE:HD13	1.81	0.62
1:A:532:VAL:HG23	1:A:535:ILE:HB	1.81	0.62
1:B:182:VAL:O	1:B:186:THR:HG23	2.00	0.62
1:B:696:PRO:HG2	1:B:698:LEU:HD12	1.81	0.62
1:A:94:GLN:OE1	1:A:399:ARG:NH1	2.32	0.62
1:A:84:ILE:HD13	1:A:416:LEU:HD11	1.81	0.62
1:B:94:GLN:OE1	1:B:399:ARG:NH1	2.32	0.61
1:B:119:PRO:HB3	1:B:393:ILE:HD13	1.81	0.61
1:A:182:VAL:O	1:A:186:THR:HG23	2.00	0.61
1:A:258:ASN:ND2	1:A:314:ASN:O	2.33	0.61
1:B:258:ASN:ND2	1:B:314:ASN:O	2.33	0.61
1:B:168:THR:HG22	1:B:171:ARG:HH12	1.66	0.61
1:A:35:LYS:HG2	1:B:527:GLU:HB3	1.82	0.60
1:A:168:THR:HG22	1:A:171:ARG:HH12	1.66	0.60
1:A:183:THR:HG23	1:A:386:SER:HB3	1.85	0.59
1:B:137:PHE:HE2	1:B:353:VAL:HG21	1.68	0.59
1:A:137:PHE:HE2	1:A:353:VAL:HG21	1.68	0.58
1:B:183:THR:HG23	1:B:386:SER:HB3	1.85	0.58
1:A:549:SER:HB2	1:A:659:THR:HG21	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:180:MET:SD	1:B:389:GLN:HA	2.44	0.58
1:A:180:MET:SD	1:A:389:GLN:HA	2.44	0.57
1:A:395:CYS:SG	1:A:400:SER:OG	2.61	0.57
1:A:154:ASP:OD1	1:A:175:ARG:NH2	2.37	0.57
1:B:549:SER:HB2	1:B:659:THR:HG21	1.86	0.57
1:A:100:ALA:HA	1:A:103:MET:HE2	1.87	0.56
1:B:511:LEU:HD11	1:B:539:GLN:HG3	1.87	0.56
1:B:154:ASP:OD1	1:B:175:ARG:NH2	2.37	0.56
1:A:101:PHE:CE1	1:A:138:ALA:HB2	2.41	0.56
1:B:119:PRO:HG2	1:B:393:ILE:HG21	1.87	0.56
1:A:119:PRO:HG2	1:A:393:ILE:HG21	1.88	0.55
1:B:100:ALA:HA	1:B:103:MET:HE2	1.87	0.55
1:A:511:LEU:HD11	1:A:539:GLN:HG3	1.87	0.55
1:B:90:THR:HG23	1:B:417:ALA:HB2	1.88	0.55
1:B:101:PHE:CE1	1:B:138:ALA:HB2	2.41	0.55
1:A:694:GLU:C	1:A:696:PRO:HD3	2.32	0.55
1:B:395:CYS:SG	1:B:400:SER:OG	2.61	0.54
1:A:107:VAL:HG13	1:A:176:VAL:HG22	1.90	0.54
1:A:90:THR:HG23	1:A:417:ALA:HB2	1.88	0.54
1:B:694:GLU:C	1:B:696:PRO:HD3	2.32	0.54
1:A:183:THR:HG21	1:A:390:THR:O	2.08	0.54
1:A:115:SER:HA	1:A:390:THR:HG23	1.90	0.54
1:B:67:ILE:HA	1:B:70:TRP:HD1	1.73	0.54
1:A:67:ILE:HA	1:A:70:TRP:HD1	1.73	0.53
1:A:304:SER:OG	1:A:434:SER:O	2.26	0.53
1:B:115:SER:HA	1:B:390:THR:HG23	1.90	0.53
1:A:20:ARG:O	1:B:16:TYR:HB3	2.08	0.53
1:B:78:GLU:OE1	1:B:78:GLU:N	2.42	0.53
1:A:149:VAL:HG22	1:A:175:ARG:HH12	1.73	0.53
1:B:107:VAL:HG13	1:B:176:VAL:HG22	1.90	0.53
1:A:575:MET:HE3	1:A:575:MET:HA	1.91	0.53
1:A:13:THR:HG23	1:B:21:PRO:HD3	1.91	0.53
1:B:183:THR:HG21	1:B:390:THR:O	2.08	0.53
1:B:20:ARG:HD2	1:B:23:PHE:CE2	2.44	0.53
1:A:652:MET:HE2	1:A:683:VAL:HG13	1.90	0.52
1:B:111:PHE:HA	1:B:114:TYR:HD2	1.74	0.52
1:B:304:SER:OG	1:B:434:SER:O	2.26	0.52
1:B:652:MET:HE2	1:B:683:VAL:HG13	1.90	0.52
1:A:111:PHE:HA	1:A:114:TYR:HD2	1.74	0.52
1:B:149:VAL:HG22	1:B:175:ARG:HH12	1.73	0.52
1:B:207:GLU:O	1:B:211:ARG:HG2	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:20:ARG:HD2	1:A:23:PHE:CE2	2.44	0.52
1:B:18:VAL:HG12	1:B:20:ARG:HB3	1.92	0.52
1:B:575:MET:HE3	1:B:575:MET:HA	1.91	0.52
1:B:171:ARG:HE	1:B:175:ARG:HH21	1.58	0.51
1:A:176:VAL:O	1:A:180:MET:HG2	2.11	0.51
1:A:562:VAL:HG21	1:A:639:VAL:HG11	1.93	0.51
1:A:171:ARG:HE	1:A:175:ARG:HH21	1.59	0.51
1:A:479:SER:HA	1:A:487:GLY:HA3	1.93	0.51
1:B:176:VAL:O	1:B:180:MET:HG2	2.11	0.51
1:A:508:TYR:HB3	1:A:538:PHE:CZ	2.46	0.51
1:B:230:PHE:CD1	1:B:262:LEU:HD21	2.46	0.51
1:B:508:TYR:HB3	1:B:538:PHE:CZ	2.46	0.51
1:A:211:ARG:HE	1:A:454:GLN:HG2	1.76	0.51
1:A:207:GLU:O	1:A:211:ARG:HG2	2.10	0.50
1:A:230:PHE:CD1	1:A:262:LEU:HD21	2.46	0.50
1:B:211:ARG:HE	1:B:454:GLN:HG2	1.77	0.50
1:B:641:THR:HB	1:B:716:ARG:NH2	2.26	0.50
1:A:78:GLU:OE1	1:A:78:GLU:N	2.42	0.50
1:A:641:THR:HB	1:A:716:ARG:NH2	2.26	0.50
1:A:357:MET:HA	1:A:360:THR:HG22	1.94	0.49
1:B:479:SER:HA	1:B:487:GLY:HA3	1.93	0.49
1:B:562:VAL:HG21	1:B:639:VAL:HG11	1.93	0.49
1:B:128:THR:OG1	1:B:374:GLU:OE2	2.27	0.49
1:A:94:GLN:NE2	1:A:116:SER:OG	2.46	0.49
1:A:171:ARG:HG2	1:A:175:ARG:HE	1.78	0.49
1:A:56:LYS:O	1:A:60:ILE:HG12	2.13	0.49
1:B:56:LYS:O	1:B:60:ILE:HG12	2.13	0.49
1:B:357:MET:HA	1:B:360:THR:HG22	1.94	0.49
1:B:102:ALA:HB2	1:B:112:GLY:HA3	1.94	0.48
1:A:422:LEU:HA	1:A:425:ILE:HG22	1.94	0.48
1:A:87:GLY:HA2	1:A:90:THR:HG22	1.96	0.48
1:A:102:ALA:HB2	1:A:112:GLY:HA3	1.94	0.48
1:A:227:LYS:HD2	1:A:234:THR:HG22	1.96	0.48
1:B:422:LEU:HA	1:B:425:ILE:HG22	1.94	0.48
1:B:137:PHE:CE2	1:B:353:VAL:HG21	2.48	0.48
1:B:227:LYS:HD2	1:B:234:THR:HG22	1.96	0.48
1:B:345:ALA:O	1:B:349:VAL:HG12	2.14	0.48
1:A:128:THR:OG1	1:A:374:GLU:OE2	2.26	0.48
1:A:210:VAL:HG13	1:A:356:SER:HB2	1.96	0.48
1:A:424:VAL:HA	1:A:428:THR:OG1	2.14	0.48
1:B:87:GLY:HA2	1:B:90:THR:HG22	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:424:VAL:HA	1:B:428:THR:OG1	2.14	0.48
1:A:18:VAL:HG12	1:A:20:ARG:HB3	1.96	0.48
1:A:345:ALA:O	1:A:349:VAL:HG12	2.14	0.48
1:A:123:TYR:O	1:A:127:GLY:N	2.40	0.47
1:B:94:GLN:NE2	1:B:116:SER:OG	2.46	0.47
1:B:14:GLN:HB3	1:B:15:ARG:HD2	1.97	0.47
1:A:137:PHE:CE2	1:A:353:VAL:HG11	2.49	0.47
1:A:14:GLN:HB3	1:A:15:ARG:HD2	1.97	0.47
1:B:396:SER:O	1:B:400:SER:OG	2.33	0.47
1:A:110:VAL:HG12	1:A:114:TYR:CE2	2.50	0.47
1:A:137:PHE:CE2	1:A:353:VAL:HG21	2.48	0.47
1:B:137:PHE:CE2	1:B:353:VAL:HG11	2.49	0.47
1:B:171:ARG:HG2	1:B:175:ARG:HE	1.78	0.47
1:B:110:VAL:CG2	1:B:322:PRO:HD2	2.42	0.47
1:B:153:PRO:HG2	1:B:156:ILE:HG12	1.96	0.47
1:B:210:VAL:HG13	1:B:356:SER:HB2	1.96	0.47
1:A:110:VAL:CG2	1:A:322:PRO:HD2	2.43	0.47
1:B:118:TYR:HB2	1:B:119:PRO:HD3	1.96	0.46
1:B:539:GLN:NE2	1:B:648:GLN:HG3	2.30	0.46
1:A:153:PRO:HG2	1:A:156:ILE:HG12	1.96	0.46
1:B:656:GLY:O	1:B:659:THR:HG22	2.16	0.46
1:A:136:PRO:HB3	1:A:391:PHE:HE1	1.80	0.46
1:A:396:SER:O	1:A:400:SER:OG	2.33	0.46
1:A:539:GLN:NE2	1:A:648:GLN:HG3	2.30	0.46
1:B:88:ILE:O	1:B:92:VAL:HG23	2.16	0.46
1:A:118:TYR:HB2	1:A:119:PRO:HD3	1.96	0.46
1:B:101:PHE:CD1	1:B:138:ALA:HB2	2.51	0.46
1:B:110:VAL:HG12	1:B:114:TYR:CE2	2.50	0.46
1:B:206:THR:HG22	1:B:207:GLU:N	2.31	0.46
1:A:32:LEU:HD13	1:B:526:TYR:CG	2.51	0.46
1:A:88:ILE:O	1:A:92:VAL:HG23	2.16	0.46
1:B:21:PRO:HG3	1:B:31:ARG:HH22	1.81	0.46
1:B:267:MET:O	1:B:271:LEU:HD23	2.16	0.46
1:B:67:ILE:HA	1:B:70:TRP:CD1	2.51	0.45
1:A:17:TYR:HE1	1:B:17:TYR:HE1	1.63	0.45
1:A:67:ILE:HA	1:A:70:TRP:CD1	2.51	0.45
1:A:521:ILE:HG13	1:A:529:VAL:HG11	1.98	0.45
1:B:521:ILE:HG13	1:B:529:VAL:HG11	1.98	0.45
1:A:656:GLY:O	1:A:659:THR:HG22	2.16	0.45
1:B:105:ALA:O	1:B:107:VAL:HG23	2.15	0.45
1:A:105:ALA:O	1:A:107:VAL:HG23	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:527:GLU:HB3	1:B:35:LYS:CG	2.41	0.45
1:A:16:TYR:HE2	1:B:707:HIS:HB3	1.81	0.45
1:A:101:PHE:CD1	1:A:138:ALA:HB2	2.51	0.45
1:A:21:PRO:HG3	1:A:31:ARG:HH22	1.81	0.45
1:A:206:THR:HG22	1:A:207:GLU:N	2.31	0.45
1:B:556:LEU:O	1:B:560:THR:OG1	2.27	0.45
1:B:136:PRO:HB3	1:B:391:PHE:HE1	1.81	0.45
1:B:513:GLN:HB2	1:B:520:TYR:CE2	2.52	0.44
1:B:123:TYR:O	1:B:127:GLY:N	2.40	0.44
1:B:279:ASN:HD21	1:B:289:PRO:HA	1.83	0.44
1:A:267:MET:O	1:A:271:LEU:HD23	2.17	0.44
1:B:70:TRP:HZ3	1:B:130:ARG:NH1	2.16	0.44
1:A:124:CYS:SG	1:A:411:GLN:HG3	2.57	0.44
1:A:279:ASN:HD21	1:A:289:PRO:HA	1.83	0.44
1:A:142:LEU:HD11	1:A:224:SER:OG	2.17	0.44
1:B:135:GLY:HA3	1:B:399:ARG:NH2	2.33	0.44
1:B:142:LEU:HD11	1:B:224:SER:OG	2.17	0.44
1:A:13:THR:OG1	1:A:14:GLN:N	2.51	0.43
1:A:106:ALA:HB2	1:A:236:ARG:NH2	2.33	0.43
1:A:513:GLN:HB2	1:A:520:TYR:CE2	2.52	0.43
1:A:16:TYR:HB3	1:B:20:ARG:O	2.17	0.43
1:B:116:SER:HG	1:B:421:ILE:HG13	1.82	0.43
1:B:124:CYS:SG	1:B:411:GLN:HG3	2.57	0.43
1:B:245:TYR:HA	1:B:248:VAL:HG12	2.01	0.43
1:A:36:ASP:O	1:A:38:ILE:HG13	2.18	0.43
1:B:106:ALA:HB2	1:B:236:ARG:NH2	2.33	0.43
1:B:323:LEU:HD11	1:B:426:LEU:O	2.18	0.43
1:A:622:LYS:HD2	1:A:622:LYS:HA	1.79	0.43
1:B:13:THR:OG1	1:B:14:GLN:N	2.51	0.43
1:A:135:GLY:HA3	1:A:399:ARG:NH2	2.33	0.43
1:B:36:ASP:O	1:B:38:ILE:HG13	2.17	0.43
1:A:70:TRP:HZ3	1:A:130:ARG:NH1	2.16	0.43
1:A:323:LEU:HD11	1:A:426:LEU:O	2.18	0.43
1:B:521:ILE:HD12	1:B:526:TYR:CD2	2.54	0.43
1:B:190:GLN:HE21	1:B:347:ALA:HA	1.84	0.43
1:A:225:MET:O	1:A:441:SER:OG	2.34	0.42
1:A:390:THR:HG22	1:A:391:PHE:O	2.19	0.42
1:A:510:VAL:O	1:A:523:ILE:HG12	2.19	0.42
1:A:245:TYR:HA	1:A:248:VAL:HG12	2.00	0.42
1:B:390:THR:HG22	1:B:391:PHE:O	2.19	0.42
1:A:194:GLY:HA3	1:A:376:ILE:HG13	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:254:VAL:O	1:A:257:LEU:HD23	2.19	0.42
1:A:309:LEU:HD12	1:A:309:LEU:HA	1.90	0.42
1:B:335:LEU:O	1:B:339:VAL:HG22	2.19	0.42
1:B:194:GLY:HA3	1:B:376:ILE:HG13	2.02	0.42
1:B:284:GLU:HB2	1:B:287:PRO:HG2	2.02	0.42
1:B:622:LYS:HA	1:B:622:LYS:HD2	1.79	0.42
1:A:335:LEU:O	1:A:339:VAL:HG22	2.19	0.42
1:A:556:LEU:O	1:A:560:THR:OG1	2.27	0.42
1:B:254:VAL:O	1:B:257:LEU:HD23	2.19	0.42
1:A:35:LYS:HD3	1:B:524:ASP:C	2.45	0.42
1:A:284:GLU:HB2	1:A:287:PRO:HG2	2.02	0.42
1:B:71:LEU:HD23	1:B:71:LEU:HA	1.88	0.42
1:A:71:LEU:HD23	1:A:71:LEU:HA	1.88	0.42
1:A:172:ASP:O	1:A:176:VAL:HG23	2.20	0.42
1:A:190:GLN:HE21	1:A:347:ALA:HA	1.84	0.42
1:A:257:LEU:HD13	1:A:262:LEU:HD12	2.02	0.42
1:A:526:TYR:O	1:A:527:GLU:HG2	2.20	0.42
1:B:251:LEU:HD23	1:B:251:LEU:HA	1.82	0.42
1:B:634:PRO:HA	1:B:635:PRO:HD3	1.88	0.42
1:A:521:ILE:HD12	1:A:526:TYR:CD2	2.54	0.41
1:B:510:VAL:O	1:B:523:ILE:HG12	2.19	0.41
1:B:526:TYR:O	1:B:527:GLU:HG2	2.20	0.41
1:A:122:MET:HB3	1:A:381:CYS:SG	2.61	0.41
1:A:149:VAL:HG21	1:A:236:ARG:HE	1.85	0.41
1:B:92:VAL:HG13	1:B:294:PHE:HB2	2.02	0.41
1:B:122:MET:HB3	1:B:381:CYS:SG	2.61	0.41
1:B:172:ASP:O	1:B:176:VAL:HG23	2.20	0.41
1:B:230:PHE:HD1	1:B:262:LEU:HD21	1.84	0.41
1:B:102:ALA:HB2	1:B:112:GLY:CA	2.51	0.41
1:A:695:ASN:N	1:A:696:PRO:HD3	2.36	0.41
1:B:74:TYR:OH	1:B:83:ASP:OD2	2.30	0.41
1:B:149:VAL:HG21	1:B:236:ARG:HE	1.86	0.41
1:B:257:LEU:HD13	1:B:262:LEU:HD12	2.02	0.41
1:B:262:LEU:HD22	1:B:266:LEU:HD11	2.03	0.41
1:A:284:GLU:HB2	1:A:287:PRO:HD2	2.03	0.41
1:A:116:SER:HG	1:A:421:ILE:HG13	1.86	0.40
1:A:92:VAL:HG13	1:A:294:PHE:HB2	2.02	0.40
1:A:122:MET:HE2	1:A:122:MET:HB2	1.90	0.40
1:A:262:LEU:HD22	1:A:266:LEU:HD11	2.03	0.40
1:B:284:GLU:HB2	1:B:287:PRO:HD2	2.03	0.40
1:B:353:VAL:HG13	1:B:397:LEU:HD21	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:93:LEU:HD12	1:A:93:LEU:O	2.22	0.40
1:A:233:LYS:HE3	1:A:233:LYS:HB3	1.82	0.40
1:B:385:GLY:C	1:B:390:THR:HB	2.46	0.40
1:A:105:ALA:HB2	1:A:141:SER:OG	2.21	0.40
1:B:696:PRO:C	1:B:698:LEU:H	2.30	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	671/741 (91%)	626 (93%)	44 (7%)	1 (0%)	48	75
1	B	671/741 (91%)	626 (93%)	44 (7%)	1 (0%)	48	75
All	All	1342/1482 (91%)	1252 (93%)	88 (7%)	2 (0%)	49	75

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	138	ALA
1	B	138	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	573/625 (92%)	573 (100%)	0	100	100
1	B	573/625 (92%)	573 (100%)	0	100	100
All	All	1146/1250 (92%)	1146 (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 (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	650	ASN
1	A	722	GLN
1	B	373	GLN
1	B	722	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 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.

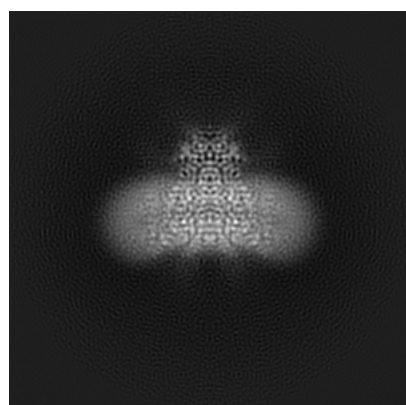
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-24928. These allow visual inspection of the internal detail of the map and identification of artifacts.

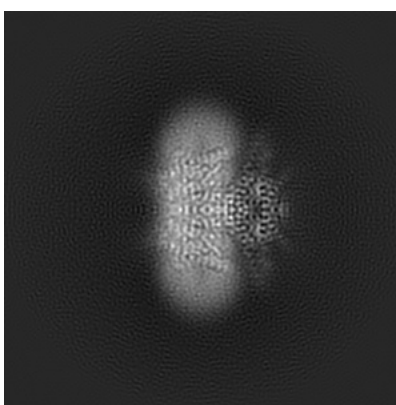
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

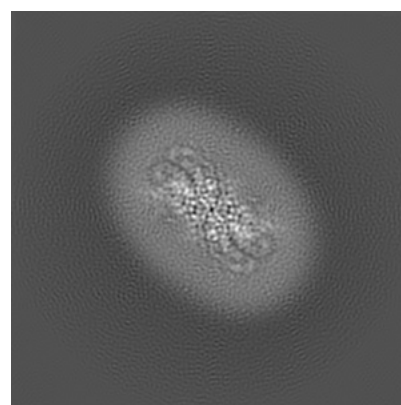
6.1.1 Primary map



X



Y

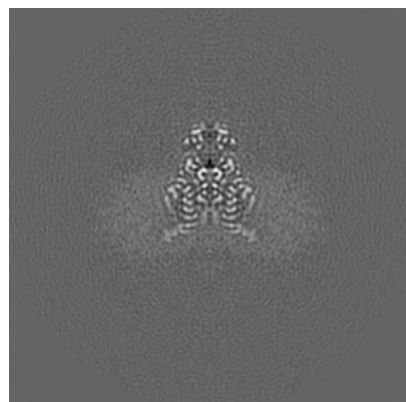


Z

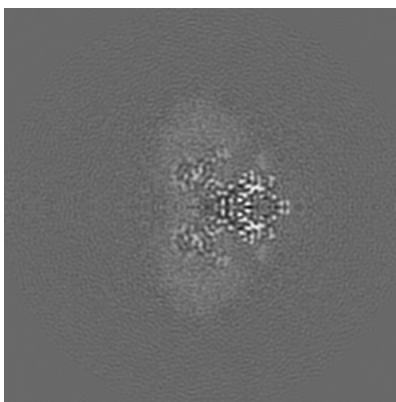
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

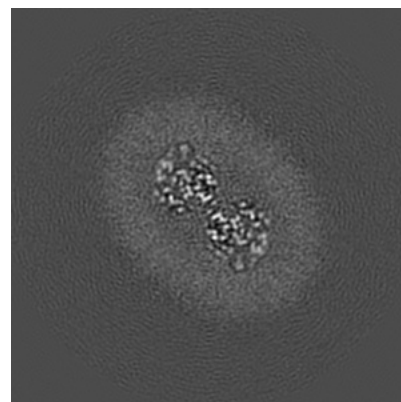
6.2.1 Primary map



X Index: 128



Y Index: 128

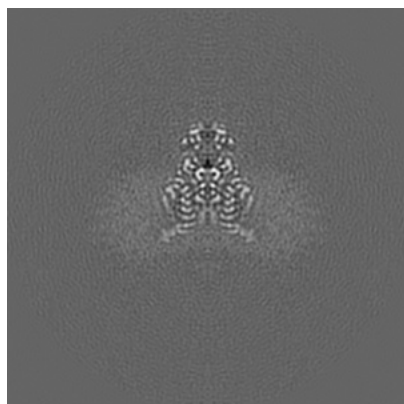


Z Index: 128

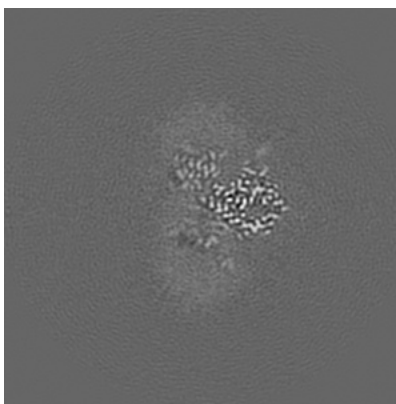
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

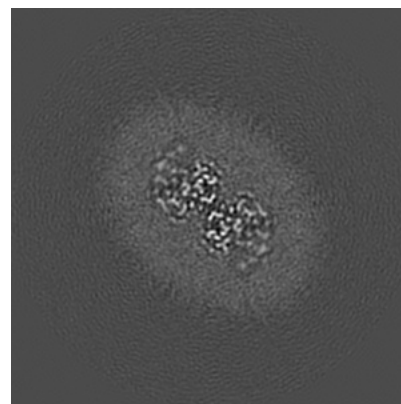
6.3.1 Primary map



X Index: 128



Y Index: 124

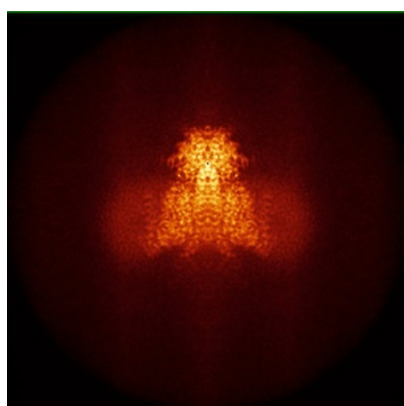


Z Index: 133

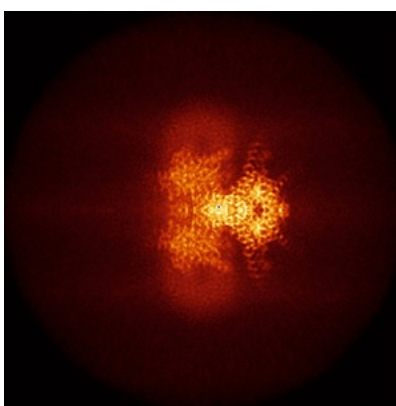
The images above show the largest variance slices of the map in three orthogonal directions.

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

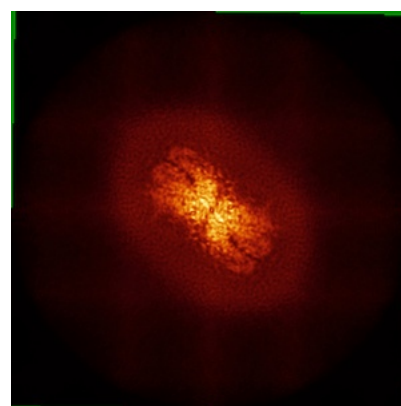
6.4.1 Primary map



X



Y

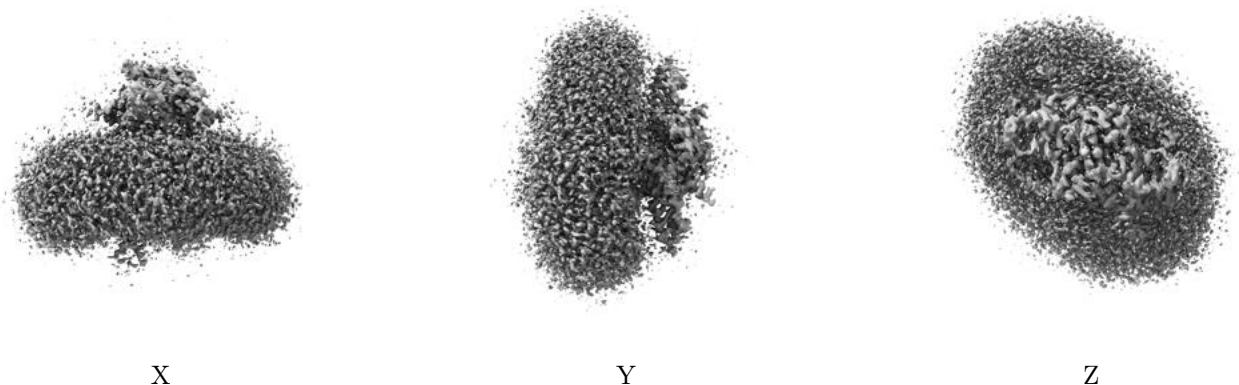


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0194. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

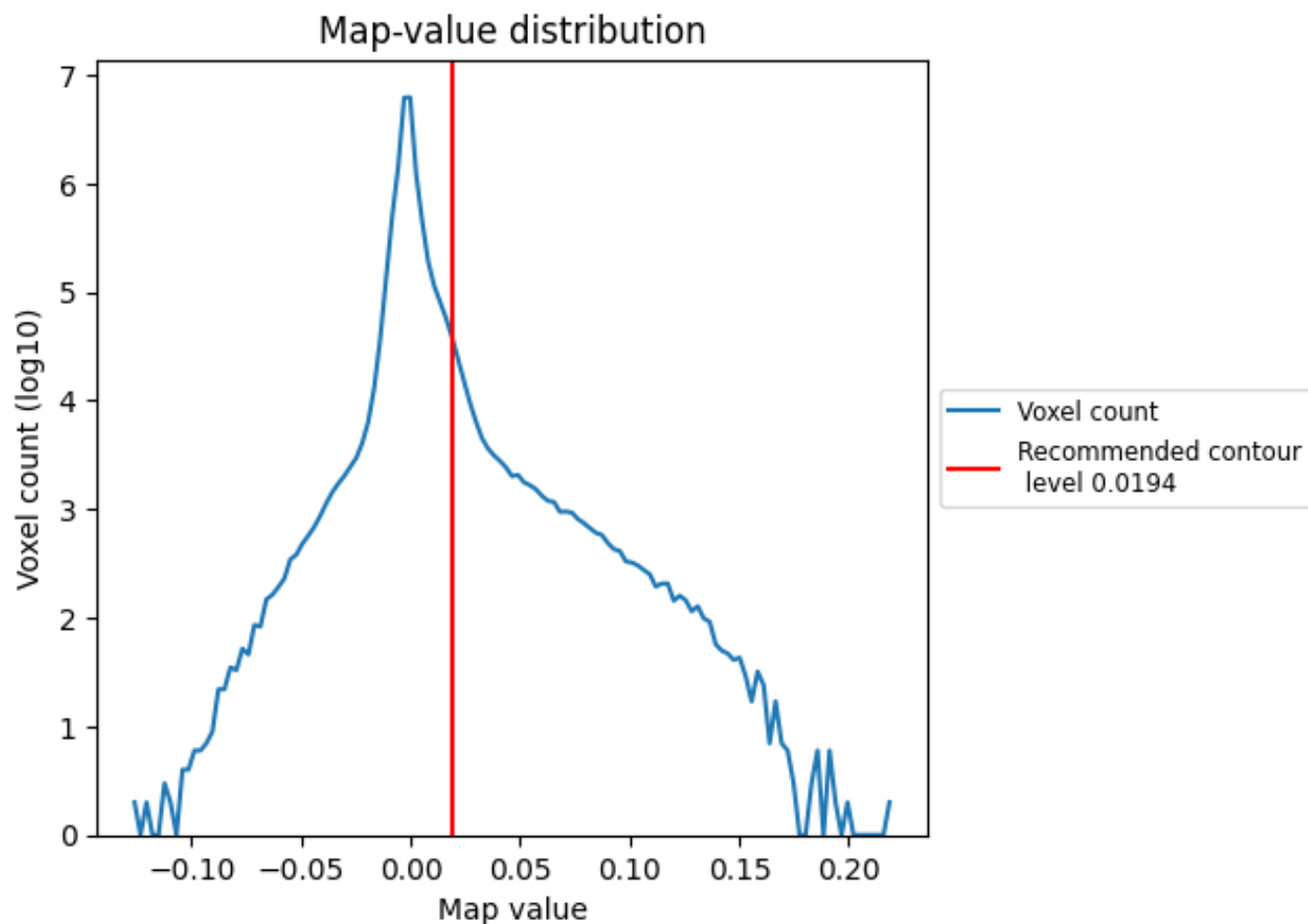
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

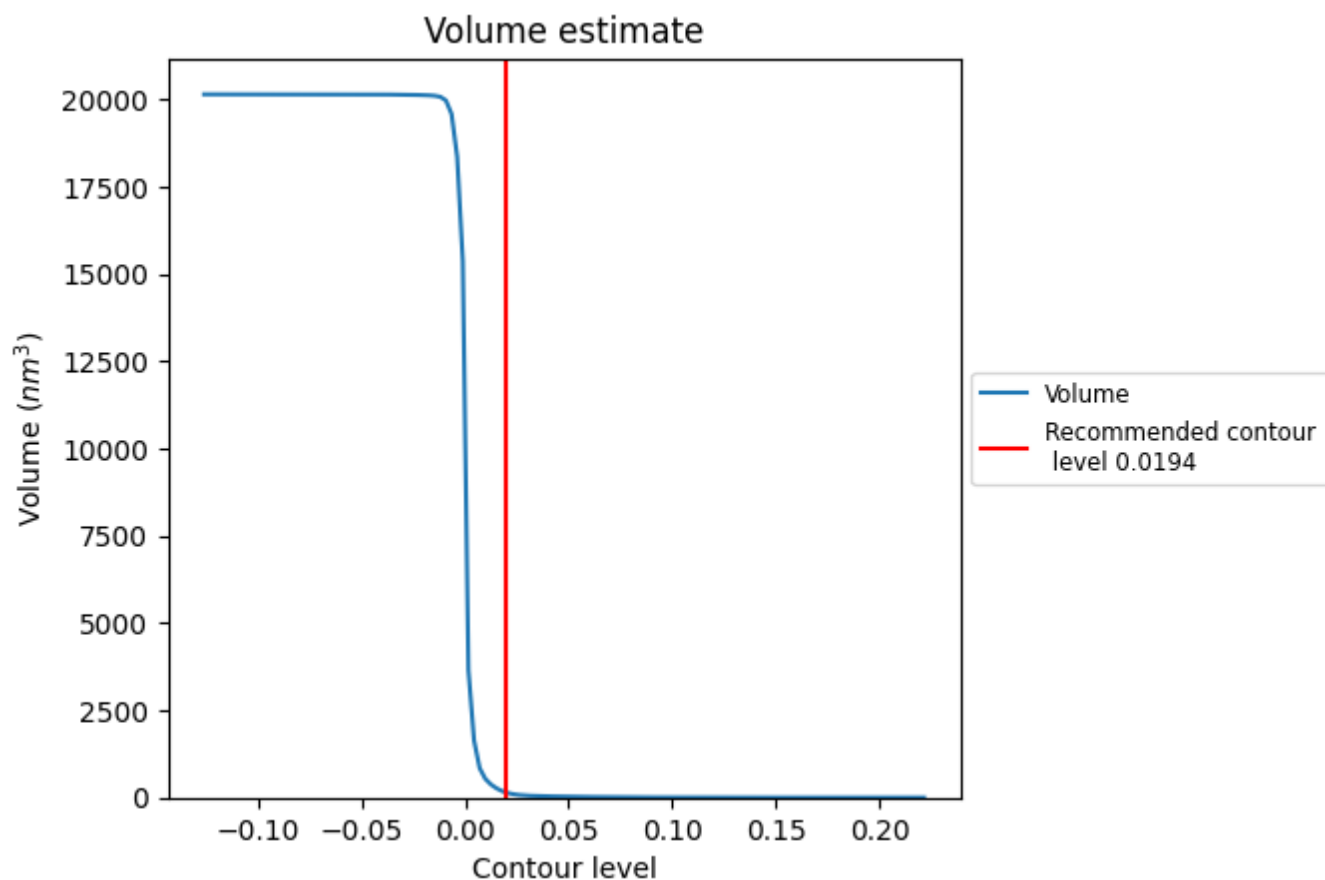
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

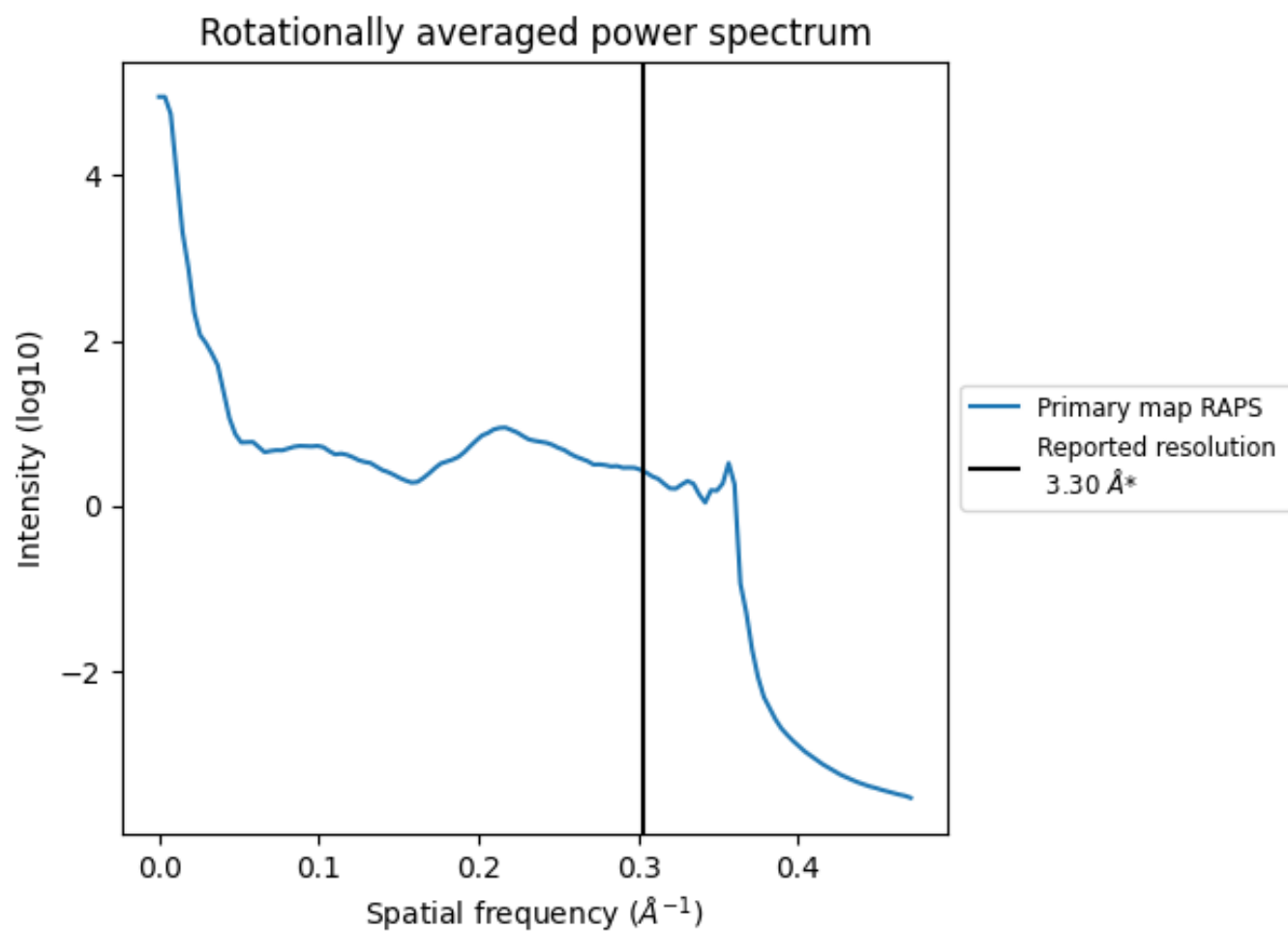
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 155 nm³; this corresponds to an approximate mass of 140 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 ⓘ

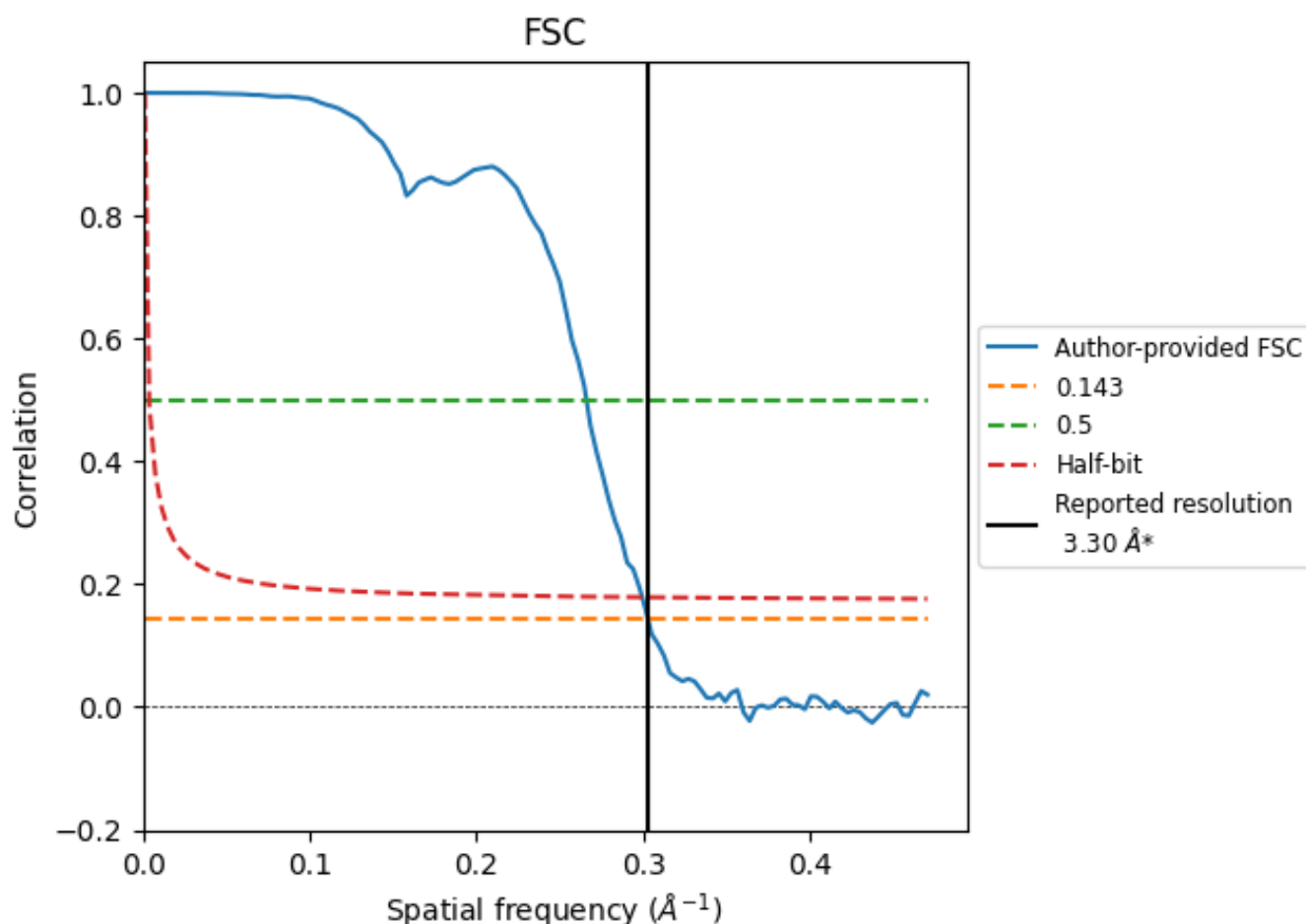


*Reported resolution corresponds to spatial frequency of 0.303 Å⁻¹

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 0.303 Å⁻¹

8.2 Resolution estimates [i](#)

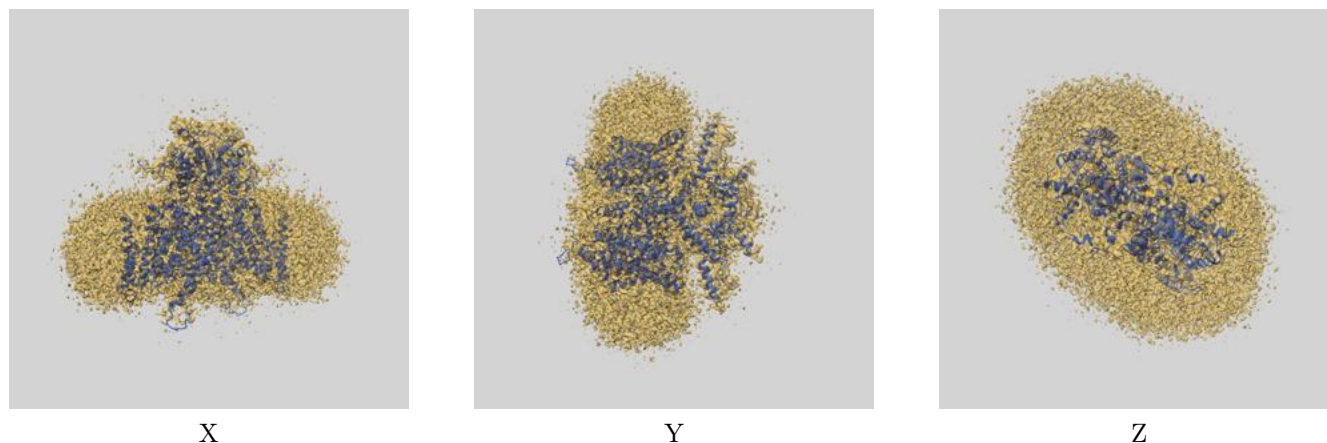
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	3.30	3.76	3.34
Unmasked-calculated*	-	-	-

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

9 Map-model fit [i](#)

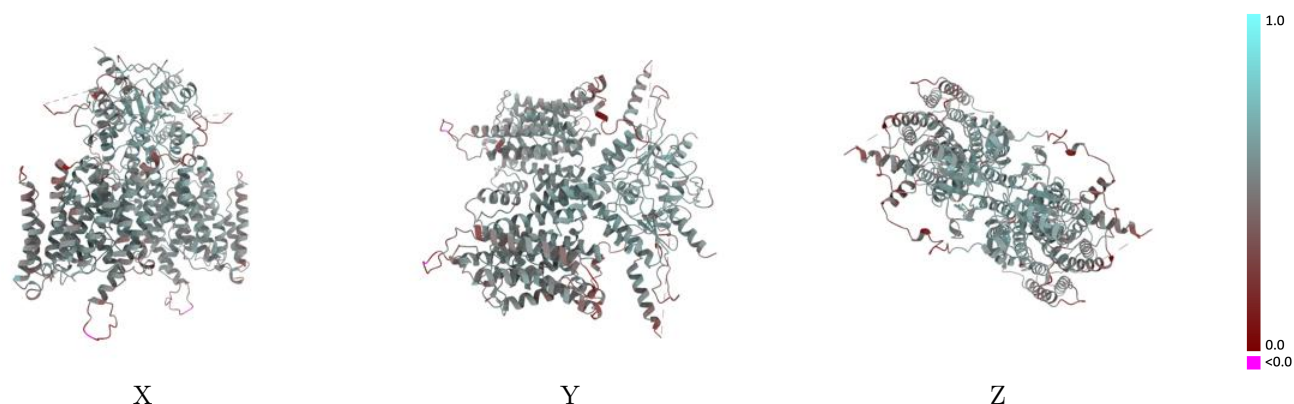
This section contains information regarding the fit between EMDB map EMD-24928 and PDB model 7S8X. Per-residue inclusion information can be found in [section 3](#) on [page 4](#).

9.1 Map-model overlay [i](#)



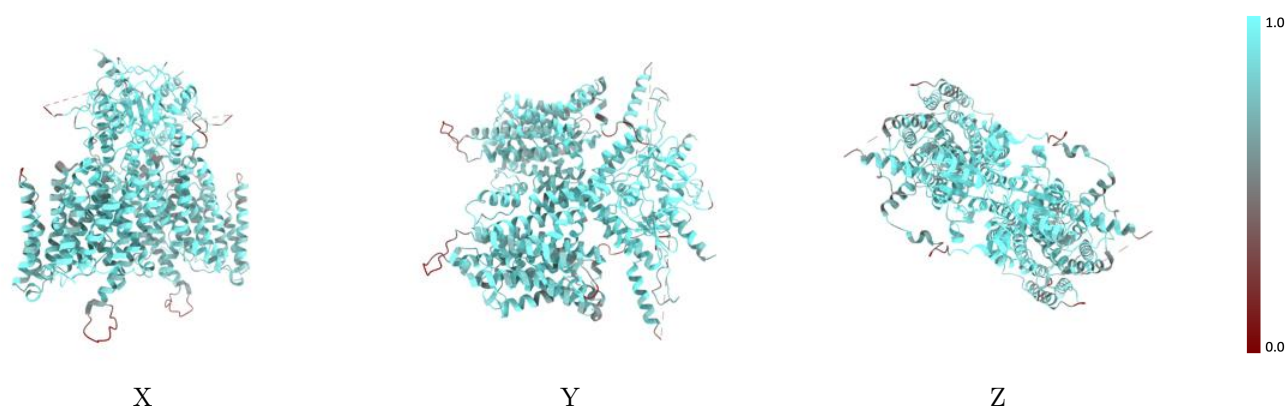
The images above show the 3D surface view of the map at the recommended contour level 0.0194 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



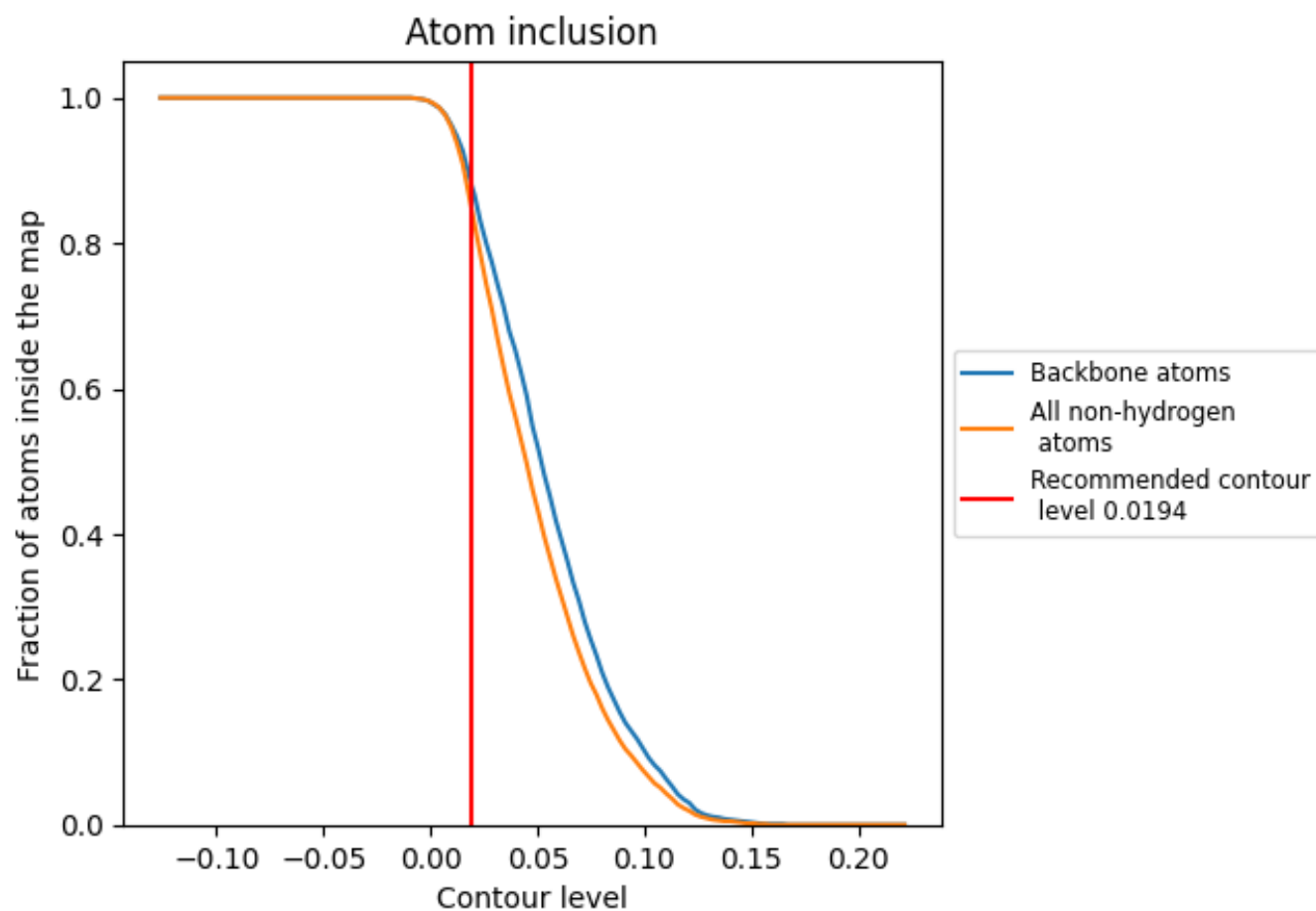
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0194).

9.4 Atom inclusion [i](#)



At the recommended contour level, 88% of all backbone atoms, 84% 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 (0.0194) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8450	0.5060
A	0.8470	0.5050
B	0.8440	0.5060

