



Full wwPDB EM Validation Report ⓘ

Oct 13, 2024 – 11:11 PM EDT

PDB ID : 7TDD
EMDB ID : EMD-25825
Title : AtTPC1 D454N-EDTA state II
Authors : Dickinson, M.S.; Stroud, R.M.
Deposited on : 2021-12-30
Resolution : 3.50 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.dev113
MolProbity : 4.02b-467
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

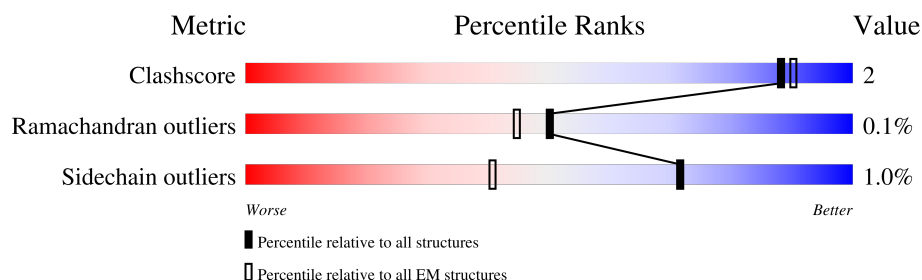
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.50 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	675	
1	B	675	

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 20031 atoms, of which 10025 are hydrogens and 0 are deuteriums.

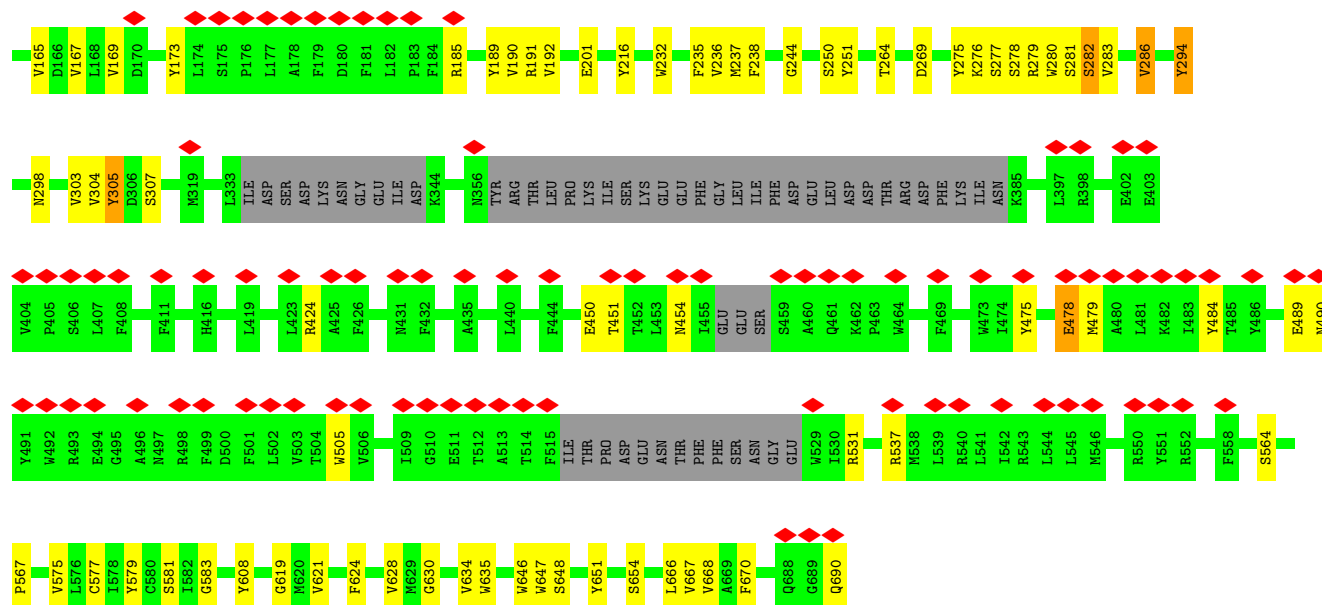
In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Two pore calcium channel protein 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	605	Total	C	H	N	O	S	0	0
			10006	3342	5007	774	860	23		
1	B	606	Total	C	H	N	O	S	0	0
			10025	3348	5018	775	861	23		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	454	ASN	ASP	engineered mutation	UNP Q94KI8
B	454	ASN	ASP	engineered mutation	UNP Q94KI8



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	68456	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	66	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	2.175	Depositor
Minimum map value	-0.068	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.016	Depositor
Recommended contour level	0.104	Depositor
Map size (Å)	360.72, 360.72, 360.72	wwPDB
Map dimensions	432, 432, 432	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.835, 0.835, 0.835	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	1.31	70/5136 (1.4%)	1.16	31/6984 (0.4%)
1	B	1.37	79/5144 (1.5%)	1.20	26/6995 (0.4%)
All	All	1.34	149/10280 (1.4%)	1.18	57/13979 (0.4%)

All (149) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	191	ARG	CZ-NH1	-8.01	1.22	1.33
1	A	191	ARG	CZ-NH1	-7.99	1.22	1.33
1	B	279	ARG	CZ-NH1	-7.98	1.22	1.33
1	B	264	THR	CB-OG1	-7.93	1.27	1.43
1	A	279	ARG	CZ-NH1	-7.89	1.22	1.33
1	B	191	ARG	CZ-NH2	-7.58	1.23	1.33
1	A	191	ARG	CZ-NH2	-7.57	1.23	1.33
1	A	531	ARG	CZ-NH1	-7.52	1.23	1.33
1	A	279	ARG	CZ-NH2	-7.48	1.23	1.33
1	B	279	ARG	CZ-NH2	-7.45	1.23	1.33
1	A	531	ARG	CZ-NH2	-7.00	1.24	1.33
1	B	189	TYR	CD2-CE2	-6.52	1.29	1.39
1	A	256	TYR	CD2-CE2	-6.50	1.29	1.39
1	A	651	TYR	CD2-CE2	-6.46	1.29	1.39
1	A	275	TYR	CD2-CE2	-6.40	1.29	1.39
1	B	651	TYR	CD2-CE2	-6.40	1.29	1.39
1	B	305	TYR	CD2-CE2	-6.40	1.29	1.39
1	A	189	TYR	CD2-CE2	-6.38	1.29	1.39
1	A	256	TYR	CD1-CE1	-6.36	1.29	1.39
1	B	651	TYR	CD1-CE1	-6.34	1.29	1.39
1	B	216	TYR	CD2-CE2	-6.31	1.29	1.39
1	B	275	TYR	CD2-CE2	-6.30	1.29	1.39
1	A	651	TYR	CD1-CE1	-6.27	1.29	1.39
1	B	251	TYR	CD1-CE1	-6.23	1.30	1.39
1	B	275	TYR	CD1-CE1	-6.21	1.30	1.39
1	B	608	TYR	CD2-CE2	-6.21	1.30	1.39

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	286	VAL	CB-CG1	-6.16	1.40	1.52
1	A	275	TYR	CD1-CE1	-6.13	1.30	1.39
1	A	656	TYR	CD1-CE1	-6.01	1.30	1.39
1	A	579	TYR	CD1-CE1	-6.00	1.30	1.39
1	B	294	TYR	CD2-CE2	-5.96	1.30	1.39
1	B	305	TYR	CD1-CE1	-5.95	1.30	1.39
1	B	608	TYR	CD1-CE1	-5.91	1.30	1.39
1	A	579	TYR	CD2-CE2	-5.88	1.30	1.39
1	B	579	TYR	CD1-CE1	-5.86	1.30	1.39
1	B	110	GLY	N-CA	-5.83	1.37	1.46
1	A	656	TYR	CD2-CE2	-5.83	1.30	1.39
1	A	190	VAL	CB-CG1	-5.81	1.40	1.52
1	B	236	VAL	CB-CG2	-5.81	1.40	1.52
1	A	294	TYR	CD2-CE2	-5.81	1.30	1.39
1	B	579	TYR	CD2-CE2	-5.80	1.30	1.39
1	B	216	TYR	CD1-CE1	-5.76	1.30	1.39
1	B	251	TYR	CD2-CE2	-5.74	1.30	1.39
1	B	628	VAL	CB-CG2	-5.72	1.40	1.52
1	A	294	TYR	CD1-CE1	-5.71	1.30	1.39
1	A	551	TYR	CD1-CE1	-5.69	1.30	1.39
1	A	271	TRP	CD1-NE1	-5.69	1.28	1.38
1	B	190	VAL	CB-CG2	-5.68	1.41	1.52
1	A	189	TYR	CD1-CE1	-5.67	1.30	1.39
1	B	628	VAL	CB-CG1	-5.67	1.41	1.52
1	A	575	VAL	CB-CG2	-5.67	1.41	1.52
1	B	294	TYR	CD1-CE1	-5.67	1.30	1.39
1	B	189	TYR	CD1-CE1	-5.63	1.30	1.39
1	B	621	VAL	CB-CG2	-5.62	1.41	1.52
1	B	575	VAL	CB-CG2	-5.60	1.41	1.52
1	B	281	SER	CB-OG	-5.60	1.34	1.42
1	B	278	SER	CB-OG	-5.59	1.34	1.42
1	B	173	TYR	CD2-CE2	-5.59	1.30	1.39
1	B	635	TRP	CD1-NE1	-5.59	1.28	1.38
1	A	281	SER	CB-OG	-5.58	1.34	1.42
1	A	619	GLY	N-CA	-5.58	1.37	1.46
1	B	621	VAL	CB-CG1	-5.56	1.41	1.52
1	A	621	VAL	CB-CG2	-5.56	1.41	1.52
1	A	123	TYR	CD1-CE1	-5.55	1.31	1.39
1	A	190	VAL	CB-CG2	-5.55	1.41	1.52
1	A	621	VAL	CB-CG1	-5.52	1.41	1.52
1	B	304	VAL	CB-CG1	-5.52	1.41	1.52
1	A	632	TRP	CD1-NE1	-5.52	1.28	1.38

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	190	VAL	CB-CG1	-5.52	1.41	1.52
1	B	619	GLY	N-CA	-5.51	1.37	1.46
1	A	634	VAL	CB-CG2	-5.50	1.41	1.52
1	B	192	VAL	CB-CG1	-5.48	1.41	1.52
1	B	165	VAL	CB-CG2	-5.47	1.41	1.52
1	B	167	VAL	CB-CG2	-5.47	1.41	1.52
1	A	167	VAL	CB-CG2	-5.47	1.41	1.52
1	A	293	VAL	CB-CG1	-5.47	1.41	1.52
1	B	232	TRP	CD1-NE1	-5.46	1.28	1.38
1	A	165	VAL	CB-CG2	-5.46	1.41	1.52
1	A	192	VAL	CB-CG2	-5.45	1.41	1.52
1	B	630	GLY	N-CA	-5.45	1.37	1.46
1	B	173	TYR	CD1-CE1	-5.44	1.31	1.39
1	B	276	LYS	CE-NZ	-5.44	1.35	1.49
1	A	668	VAL	CB-CG2	-5.42	1.41	1.52
1	B	634	VAL	CB-CG2	-5.42	1.41	1.52
1	A	123	TYR	CD2-CE2	-5.41	1.31	1.39
1	A	647	TRP	CD1-NE1	-5.40	1.28	1.38
1	B	123	TYR	CD2-CE2	-5.39	1.31	1.39
1	B	668	VAL	CB-CG2	-5.39	1.41	1.52
1	B	286	VAL	CB-CG2	-5.39	1.41	1.52
1	B	283	VAL	CB-CG1	-5.38	1.41	1.52
1	A	657	VAL	CB-CG2	-5.37	1.41	1.52
1	B	123	TYR	CD1-CE1	-5.37	1.31	1.39
1	B	648	SER	CB-OG	-5.36	1.35	1.42
1	B	654	SER	CB-OG	-5.36	1.35	1.42
1	A	657	VAL	CB-CG1	-5.36	1.41	1.52
1	A	551	TYR	CD2-CE2	-5.36	1.31	1.39
1	A	265	SER	CB-OG	-5.35	1.35	1.42
1	A	648	SER	CB-OG	-5.34	1.35	1.42
1	A	169	VAL	CB-CG2	-5.33	1.41	1.52
1	B	303	VAL	CB-CG1	-5.33	1.41	1.52
1	A	280	TRP	CD1-NE1	-5.32	1.28	1.38
1	A	646	TRP	CD1-NE1	-5.32	1.28	1.38
1	B	646	TRP	CD1-NE1	-5.32	1.28	1.38
1	B	647	TRP	CD1-NE1	-5.32	1.28	1.38
1	A	671	VAL	CB-CG2	-5.32	1.41	1.52
1	B	192	VAL	CB-CG2	-5.31	1.41	1.52
1	B	244	GLY	N-CA	-5.31	1.38	1.46
1	A	634	VAL	CB-CG1	-5.30	1.41	1.52
1	B	280	TRP	CD1-NE1	-5.30	1.28	1.38
1	B	169	VAL	CB-CG2	-5.29	1.41	1.52

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	192	VAL	CB-CG1	-5.29	1.41	1.52
1	B	583	GLY	N-CA	-5.28	1.38	1.46
1	A	289	VAL	CB-CG2	-5.28	1.41	1.52
1	B	634	VAL	CB-CG1	-5.25	1.41	1.52
1	A	293	VAL	CB-CG2	-5.24	1.41	1.52
1	A	653	VAL	CB-CG2	-5.23	1.41	1.52
1	A	581	SER	CB-OG	-5.23	1.35	1.42
1	B	165	VAL	CB-CG1	-5.23	1.41	1.52
1	B	304	VAL	CB-CG2	-5.22	1.41	1.52
1	B	303	VAL	CB-CG2	-5.22	1.41	1.52
1	A	583	GLY	N-CA	-5.22	1.38	1.46
1	A	671	VAL	CB-CG1	-5.21	1.42	1.52
1	B	667	VAL	CB-CG2	-5.21	1.42	1.52
1	B	277	SER	CB-OG	-5.20	1.35	1.42
1	A	282	SER	CB-OG	-5.20	1.35	1.42
1	B	250	SER	CB-OG	-5.20	1.35	1.42
1	B	307	SER	CB-OG	-5.20	1.35	1.42
1	A	667	VAL	CB-CG2	-5.19	1.42	1.52
1	B	236	VAL	CB-CG1	-5.19	1.42	1.52
1	A	270	VAL	CB-CG2	-5.18	1.42	1.52
1	B	581	SER	CB-OG	-5.18	1.35	1.42
1	A	169	VAL	CB-CG1	-5.18	1.42	1.52
1	A	175	SER	CB-OG	-5.18	1.35	1.42
1	B	282	SER	CB-OG	-5.17	1.35	1.42
1	A	165	VAL	CB-CG1	-5.17	1.42	1.52
1	A	120	SER	CB-OG	-5.16	1.35	1.42
1	B	120	SER	CB-OG	-5.13	1.35	1.42
1	A	653	VAL	CB-CG1	-5.12	1.42	1.52
1	A	271	TRP	CE3-CZ3	-5.09	1.29	1.38
1	A	667	VAL	CB-CG1	-5.08	1.42	1.52
1	B	283	VAL	CB-CG2	-5.07	1.42	1.52
1	B	169	VAL	CB-CG1	-5.07	1.42	1.52
1	A	640	LYS	CE-NZ	-5.05	1.36	1.49
1	B	167	VAL	CB-CG1	-5.04	1.42	1.52
1	A	167	VAL	CB-CG1	-5.04	1.42	1.52
1	A	575	VAL	CB-CG1	-5.03	1.42	1.52
1	A	580	CYS	CB-SG	-5.02	1.73	1.81
1	B	575	VAL	CB-CG1	-5.01	1.42	1.52
1	B	667	VAL	CB-CG1	-5.00	1.42	1.52

All (57) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	551	TYR	CB-CG-CD2	8.84	126.30	121.00
1	A	185	ARG	NE-CZ-NH1	8.79	124.69	120.30
1	B	185	ARG	NE-CZ-NH1	8.71	124.66	120.30
1	B	608	TYR	CB-CG-CD2	8.08	125.85	121.00
1	B	305	TYR	CB-CG-CD2	7.20	125.32	121.00
1	B	275	TYR	CB-CG-CD2	6.94	125.16	121.00
1	B	279	ARG	CD-NE-CZ	6.68	132.95	123.60
1	A	554	PHE	CB-CG-CD2	6.56	125.39	120.80
1	A	279	ARG	CD-NE-CZ	6.51	132.72	123.60
1	A	531	ARG	CD-NE-CZ	6.43	132.60	123.60
1	A	191	ARG	CD-NE-CZ	6.41	132.57	123.60
1	B	237	MET	CA-CB-CG	6.39	124.17	113.30
1	B	191	ARG	CD-NE-CZ	6.30	132.42	123.60
1	B	251	TYR	CB-CG-CD2	6.24	124.74	121.00
1	A	275	TYR	CB-CG-CD2	6.18	124.71	121.00
1	B	83	PHE	CB-CG-CD2	6.16	125.11	120.80
1	A	104	ARG	NE-CZ-NH1	6.14	123.37	120.30
1	A	636	MET	CA-CB-CG	6.00	123.50	113.30
1	A	608	TYR	CB-CG-CD2	-5.99	117.41	121.00
1	A	185	ARG	NE-CZ-NH2	-5.96	117.32	120.30
1	B	235	PHE	CB-CG-CD2	5.86	124.90	120.80
1	A	538	MET	CA-CB-CG	5.85	123.25	113.30
1	A	83	PHE	CB-CG-CD2	5.84	124.89	120.80
1	A	256	TYR	CB-CG-CD2	5.84	124.50	121.00
1	A	656	TYR	CB-CG-CD2	5.75	124.45	121.00
1	A	79	PHE	CB-CG-CD2	5.69	124.78	120.80
1	B	191	ARG	CG-CD-NE	5.69	123.74	111.80
1	B	104	ARG	NE-CZ-NH1	5.65	123.12	120.30
1	B	666	LEU	CA-CB-CG	5.58	128.14	115.30
1	B	305	TYR	CA-CB-CG	5.56	123.97	113.40
1	A	294	TYR	CB-CG-CD2	5.50	124.30	121.00
1	A	191	ARG	CG-CD-NE	5.45	123.25	111.80
1	A	558	PHE	CB-CG-CD2	5.41	124.58	120.80
1	B	238	PHE	CB-CG-CD2	5.40	124.58	120.80
1	A	171	PHE	CB-CG-CD2	5.34	124.54	120.80
1	B	294	TYR	CB-CG-CD2	5.33	124.20	121.00
1	A	651	TYR	CA-CB-CG	5.33	123.53	113.40
1	A	275	TYR	CA-CB-CG	5.33	123.53	113.40
1	B	651	TYR	CA-CB-CG	5.33	123.52	113.40
1	A	573	PHE	CB-CG-CD2	5.26	124.48	120.80
1	A	259	PHE	CB-CG-CD2	5.26	124.48	120.80
1	B	189	TYR	CB-CG-CD1	5.20	124.12	121.00
1	B	123	TYR	CD1-CG-CD2	-5.15	112.24	117.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	651	TYR	CB-CG-CD2	5.14	124.08	121.00
1	A	285	PHE	CB-CG-CD2	5.14	124.40	120.80
1	B	123	TYR	CB-CG-CD2	5.13	124.08	121.00
1	A	675	PHE	CB-CG-CD2	5.12	124.39	120.80
1	B	275	TYR	CA-CB-CG	5.11	123.11	113.40
1	B	191	ARG	CA-CB-CG	5.07	124.54	113.40
1	A	579	TYR	CB-CG-CD2	5.06	124.03	121.00
1	A	123	TYR	CD1-CG-CD2	-5.04	112.35	117.90
1	A	577	CYS	CA-CB-SG	5.03	123.05	114.00
1	B	577	CYS	CA-CB-SG	5.02	123.04	114.00
1	B	279	ARG	CG-CD-NE	5.02	122.34	111.80
1	B	216	TYR	CB-CG-CD2	5.02	124.01	121.00
1	A	279	ARG	CG-CD-NE	5.01	122.32	111.80
1	A	551	TYR	CD1-CG-CD2	-5.01	112.39	117.90

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	4999	5007	5011	22	0
1	B	5007	5018	5022	17	0
All	All	10006	10025	10033	36	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 2.

All (36) 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:454:ASN:O	1:A:454:ASN:ND2	2.19	0.76
1:B:424:ARG:NE	1:B:484:TYR:O	2.24	0.69
1:A:454:ASN:C	1:A:454:ASN:HD22	1.96	0.69
1:A:91:LEU:HD12	1:A:91:LEU:H	1.67	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:17:ASP:OD1	1:B:18:ARG:N	2.34	0.57
1:A:240:ASP:OD2	1:B:531:ARG:NH2	2.39	0.55
1:B:450:GLU:OE1	1:B:537:ARG:NH1	2.40	0.54
1:B:450:GLU:O	1:B:454:ASN:ND2	2.41	0.54
1:A:17:ASP:OD1	1:A:18:ARG:N	2.40	0.53
1:A:454:ASN:ND2	1:A:454:ASN:C	2.58	0.52
1:B:450:GLU:HG2	1:B:454:ASN:ND2	2.27	0.50
1:A:530:ILE:HG23	1:A:531:ARG:H	1.76	0.50
1:B:564:SER:HG	1:B:670:PHE:HZ	1.61	0.48
1:A:503:VAL:HA	1:A:506:VAL:HG12	1.95	0.48
1:A:481:LEU:O	1:A:485:THR:HG23	2.15	0.47
1:A:146:ILE:HD12	1:A:146:ILE:N	2.31	0.46
1:A:282:SER:O	1:A:286:VAL:HG12	2.15	0.45
1:B:690:GLN:O	1:B:690:GLN:NE2	2.50	0.45
1:B:201:GLU:HG2	1:B:567:PRO:HB3	1.98	0.45
1:B:282:SER:O	1:B:286:VAL:HG12	2.16	0.44
1:A:351:PHE:O	1:A:355:THR:HG23	2.17	0.44
1:B:294:TYR:O	1:B:298:ASN:ND2	2.51	0.43
1:A:564:SER:HG	1:A:670:PHE:HZ	1.66	0.43
1:A:286:VAL:HG23	1:B:624:PHE:CE1	2.54	0.43
1:A:548:VAL:O	1:A:552:ARG:HB2	2.19	0.43
1:B:146:ILE:HD12	1:B:146:ILE:H	1.85	0.42
1:A:529:TRP:O	1:A:531:ARG:N	2.53	0.42
1:B:489:GLU:HG2	1:B:490:ASN:N	2.35	0.42
1:A:232:TRP:HZ2	1:B:451:THR:HG21	1.85	0.41
1:A:283:VAL:HA	1:A:286:VAL:HG12	2.02	0.41
1:A:286:VAL:HG13	1:A:287:LEU:N	2.35	0.41
1:B:475:TYR:O	1:B:478:GLU:HG3	2.21	0.41
1:A:546:MET:HA	1:A:555:ILE:HD13	2.01	0.41
1:B:479:MET:HE2	1:B:505:TRP:CZ2	2.56	0.41
1:A:229:PHE:CE2	1:A:233:ILE:HD11	2.56	0.40
1:A:157:VAL:HA	1:A:160:VAL:HG12	2.02	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	593/675 (88%)	583 (98%)	9 (2%)	1 (0%)	44	75
1	B	594/675 (88%)	585 (98%)	9 (2%)	0	100	100
All	All	1187/1350 (88%)	1168 (98%)	18 (2%)	1 (0%)	50	79

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	530	ILE

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	541/606 (89%)	534 (99%)	7 (1%)	65	81
1	B	542/606 (89%)	538 (99%)	4 (1%)	81	89
All	All	1083/1212 (89%)	1072 (99%)	11 (1%)	71	84

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	85	ASN
1	A	269	ASP
1	A	305	TYR
1	A	454	ASN
1	A	469	PHE
1	A	491	TYR
1	A	690	GLN
1	B	160	VAL
1	B	269	ASP
1	B	305	TYR
1	B	478	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	134	HIS
1	A	454	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.

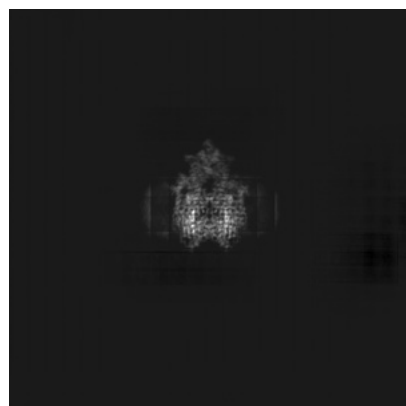
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-25825. These allow visual inspection of the internal detail of the map and identification of artifacts.

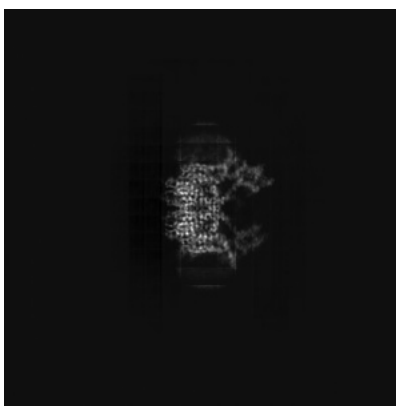
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

6.1.1 Primary map



X

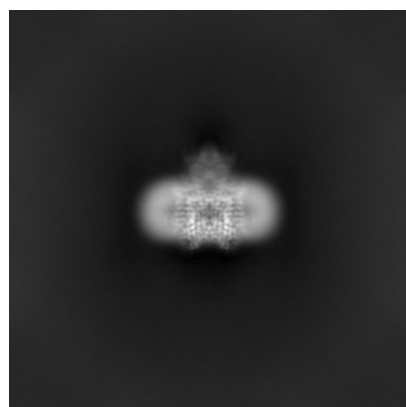


Y

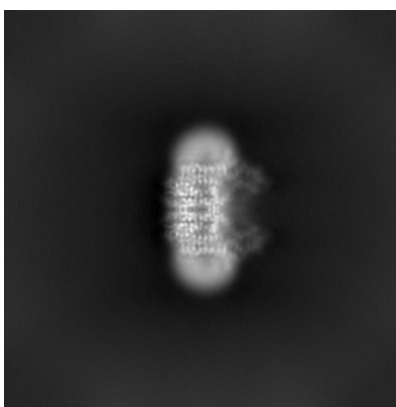


Z

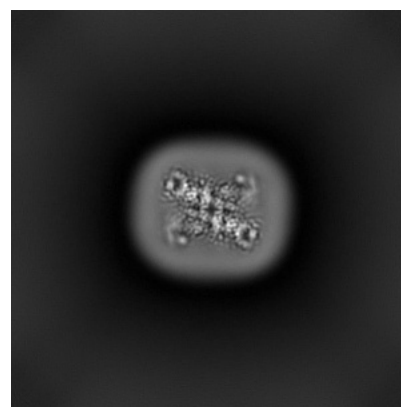
6.1.2 Raw map



X



Y



Z

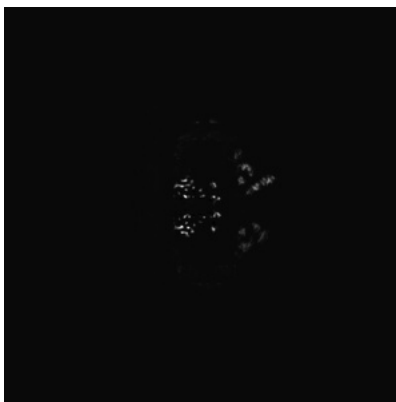
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 216

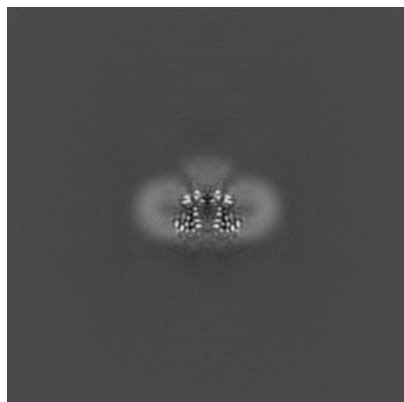


Y Index: 216

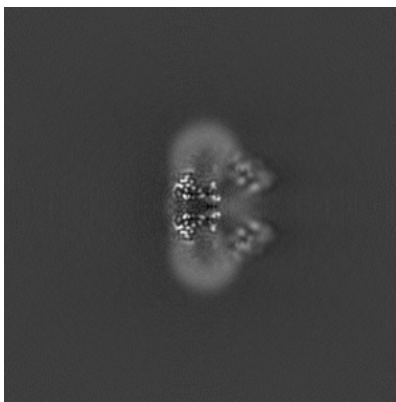


Z Index: 216

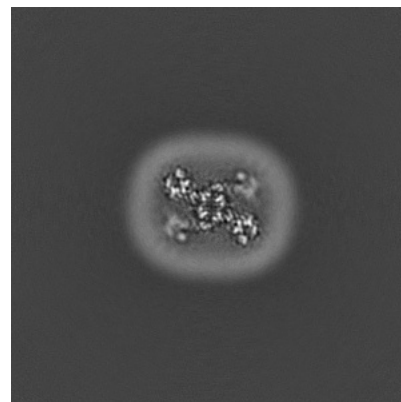
6.2.2 Raw map



X Index: 216



Y Index: 216



Z Index: 216

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: 206

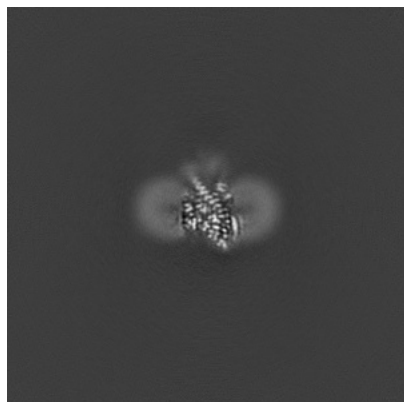


Y Index: 199

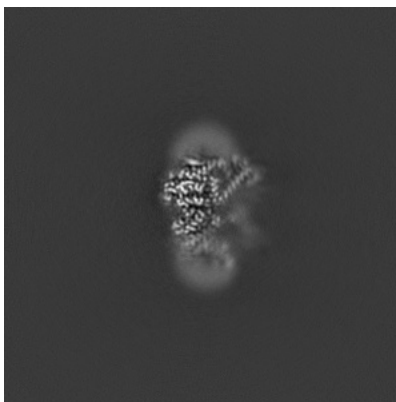


Z Index: 197

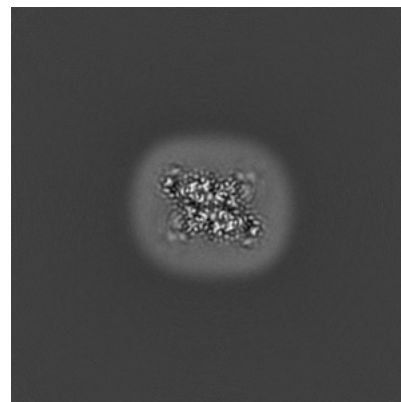
6.3.2 Raw map



X Index: 206



Y Index: 199

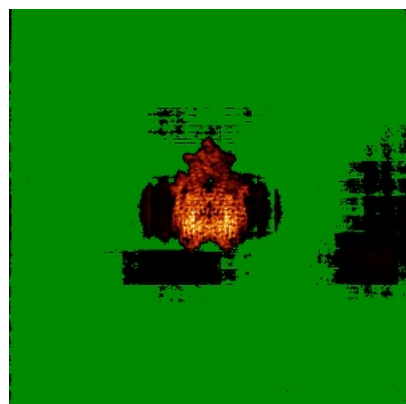


Z Index: 201

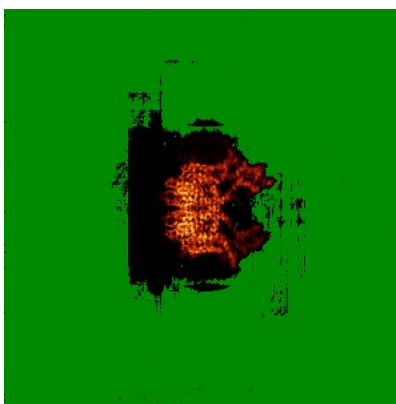
The images above show the largest variance slices of the map in three orthogonal directions.

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

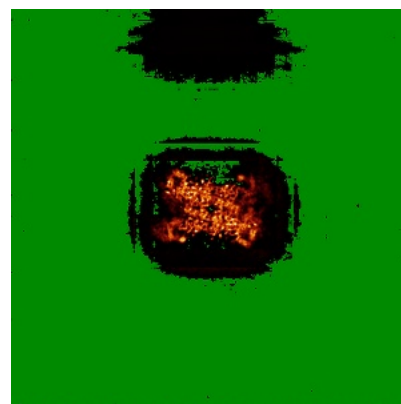
6.4.1 Primary map



X

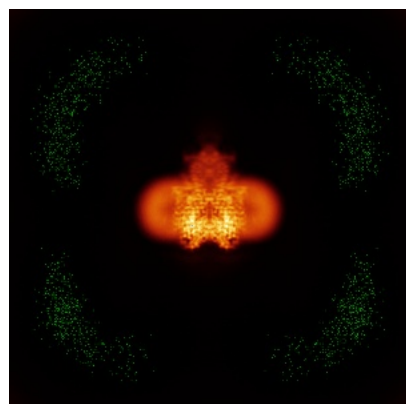


Y

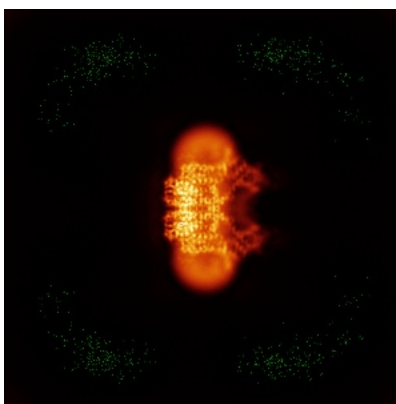


Z

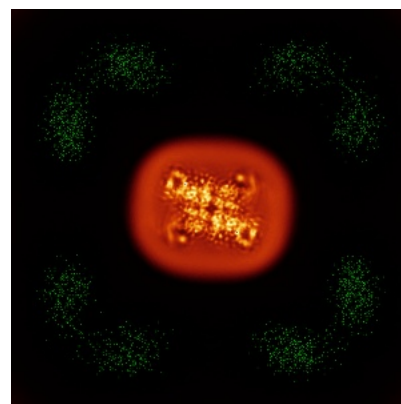
6.4.2 Raw map



X



Y

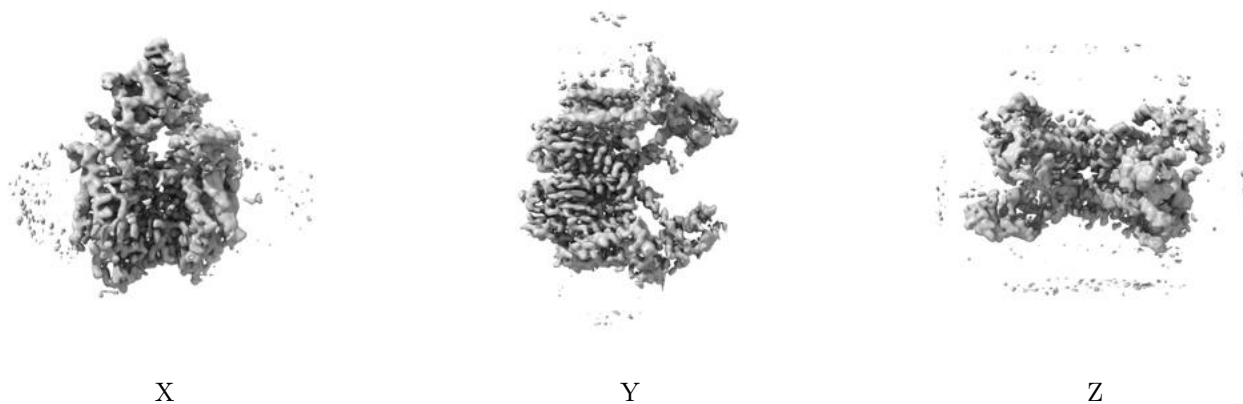


Z

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.

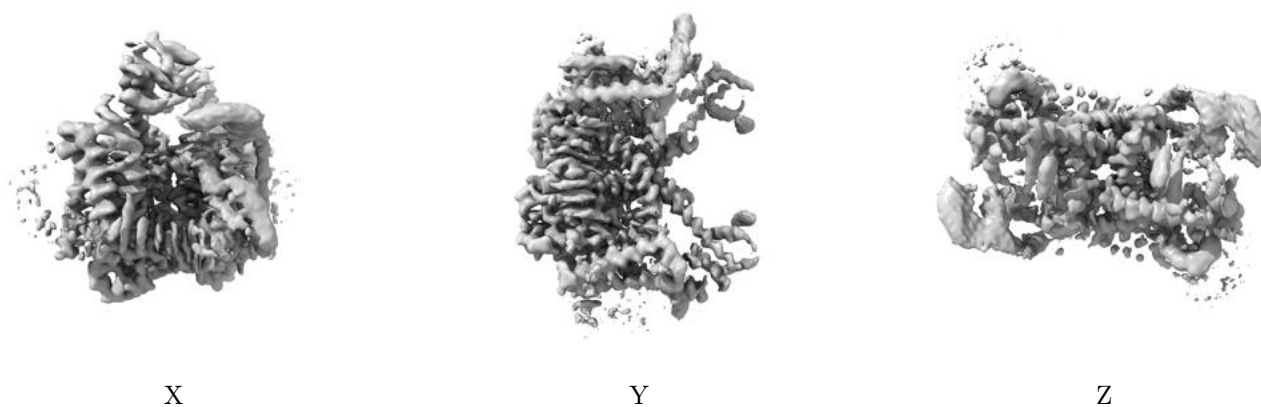
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.104. 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.

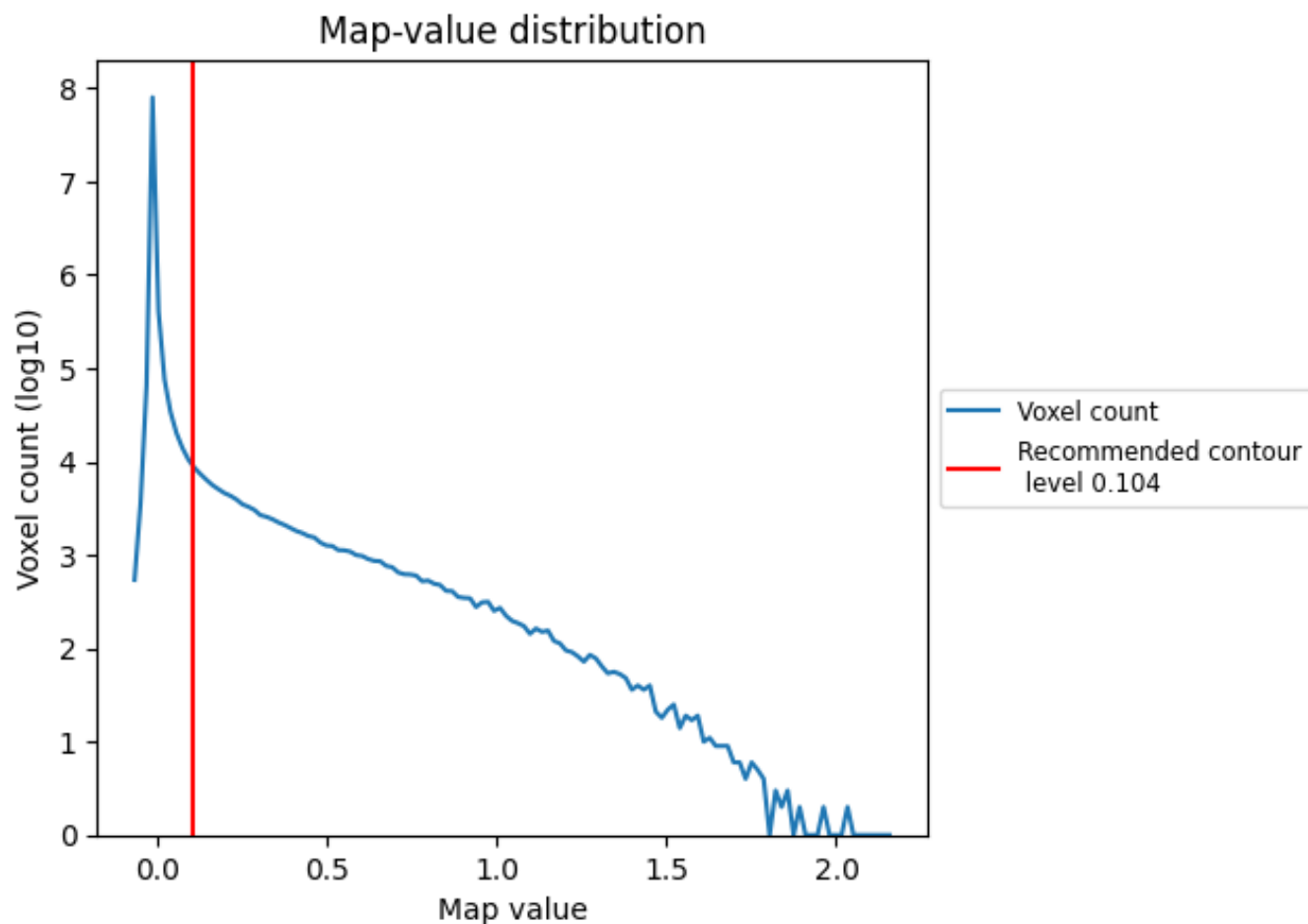
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

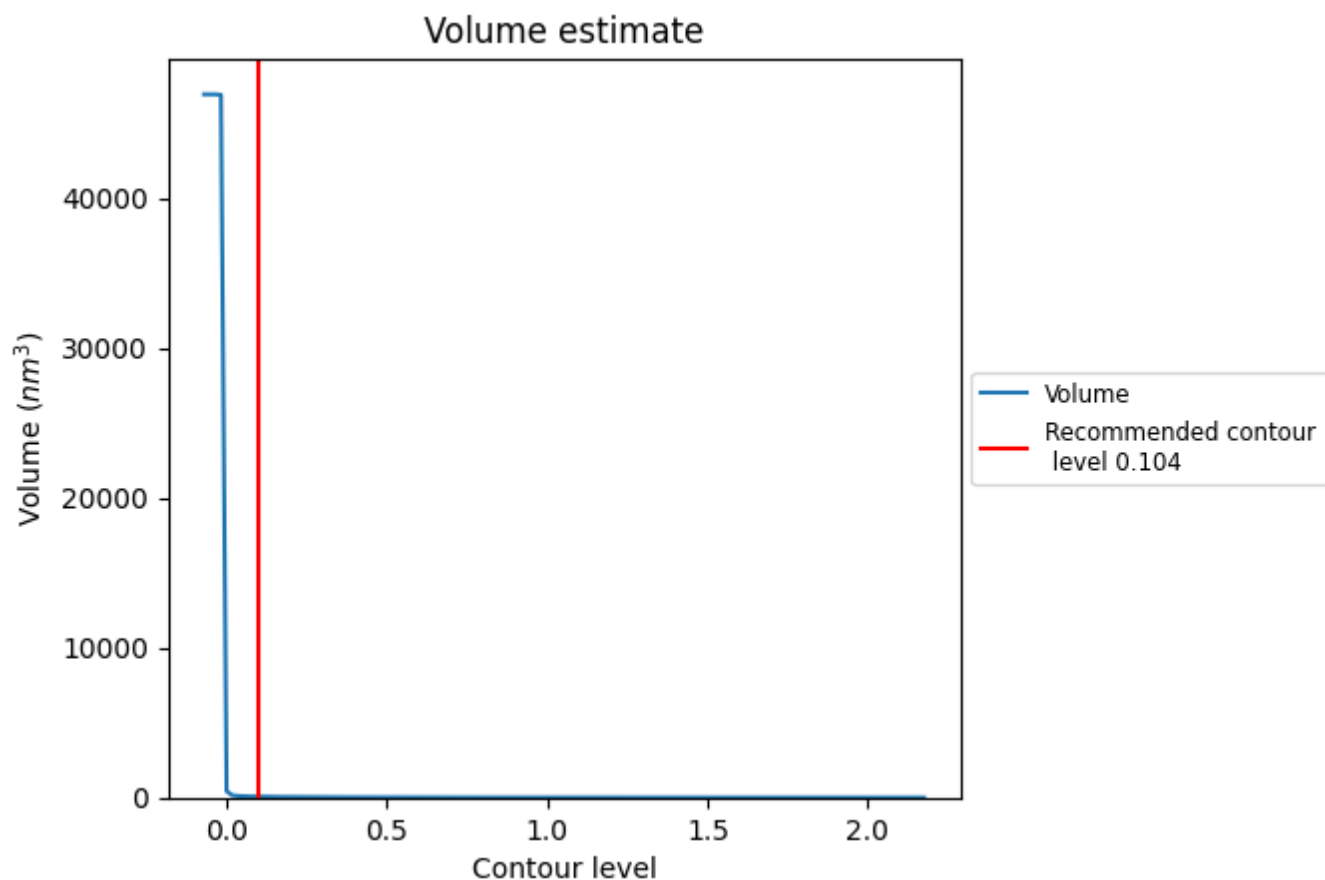
This section contains the results of statistical analysis of the map.

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.

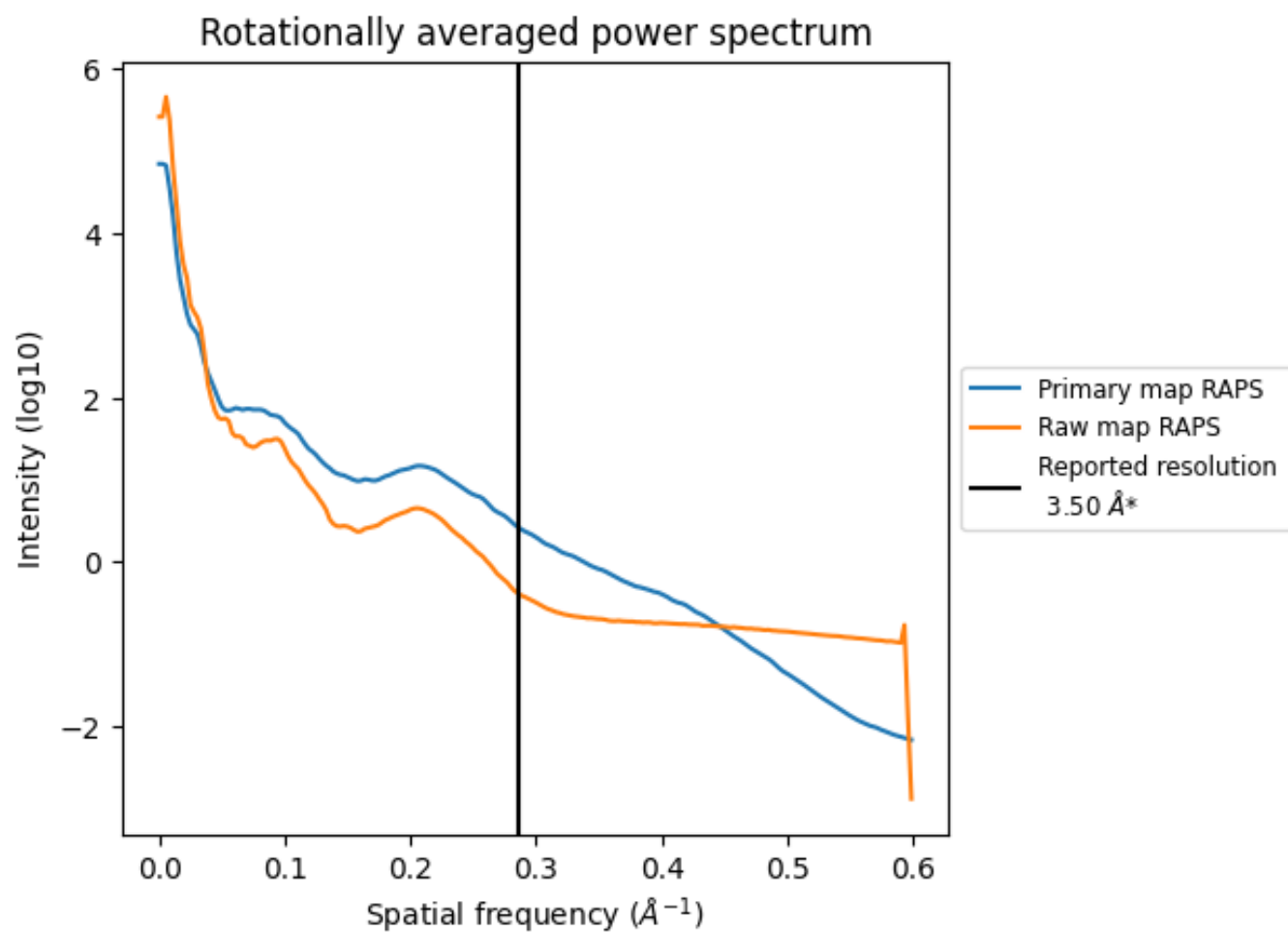
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 60 nm^3 ; this corresponds to an approximate mass of 54 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 ⓘ

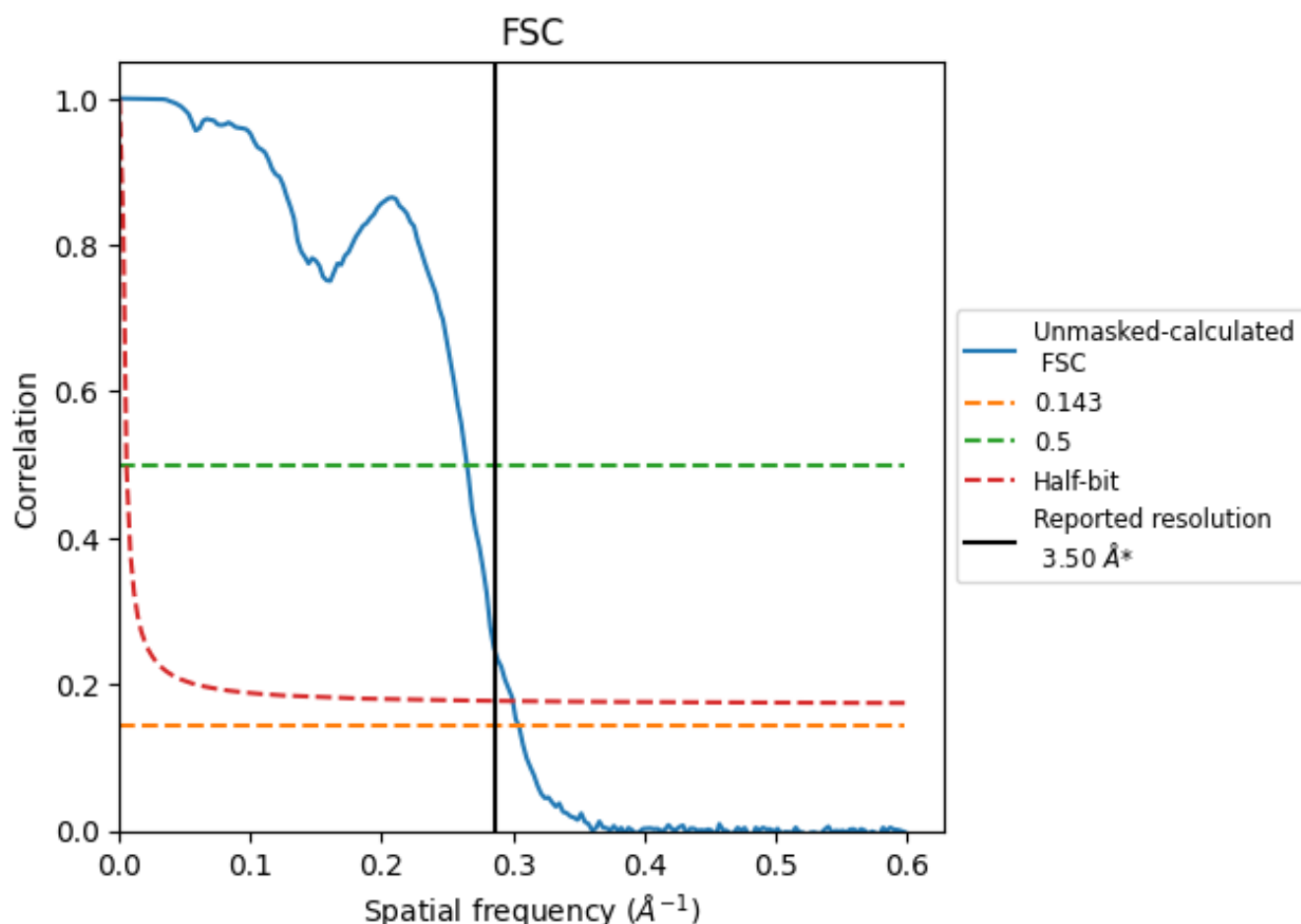


*Reported resolution corresponds to spatial frequency of 0.286 Å⁻¹

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 0.286 \AA^{-1}

8.2 Resolution estimates [i](#)

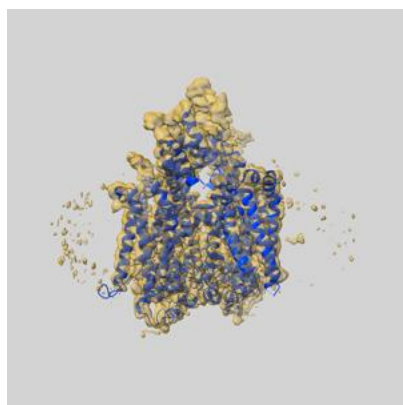
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.29	3.78	3.33

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

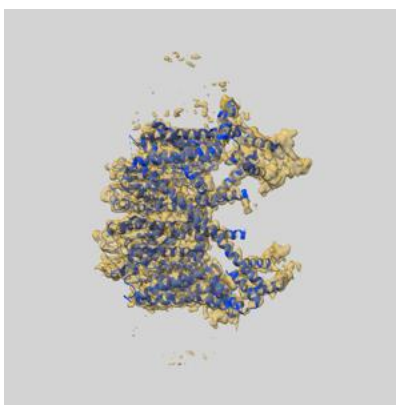
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-25825 and PDB model 7TDD. Per-residue inclusion information can be found in [section 3](#) on [page 4](#).

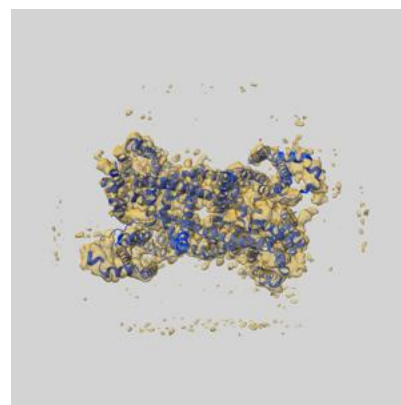
9.1 Map-model overlay [i](#)



X



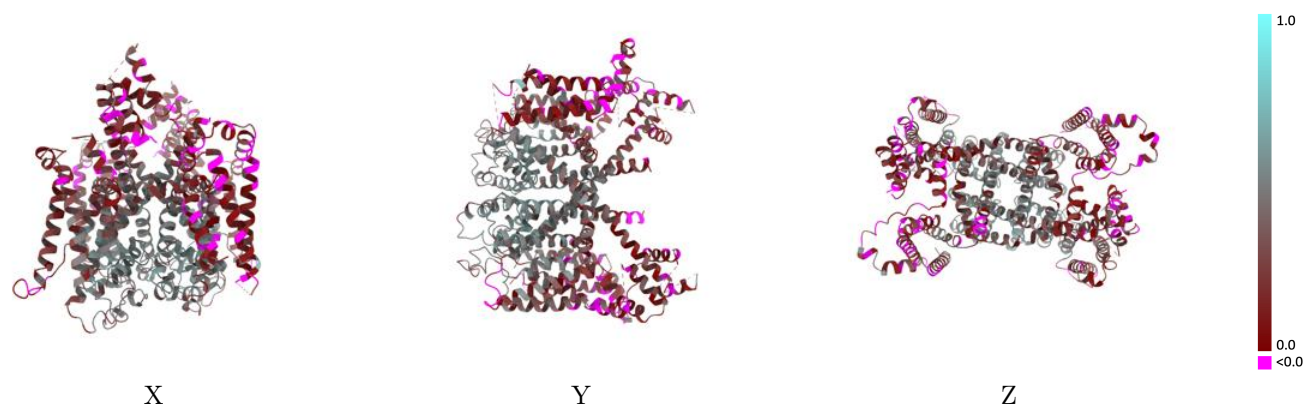
Y



Z

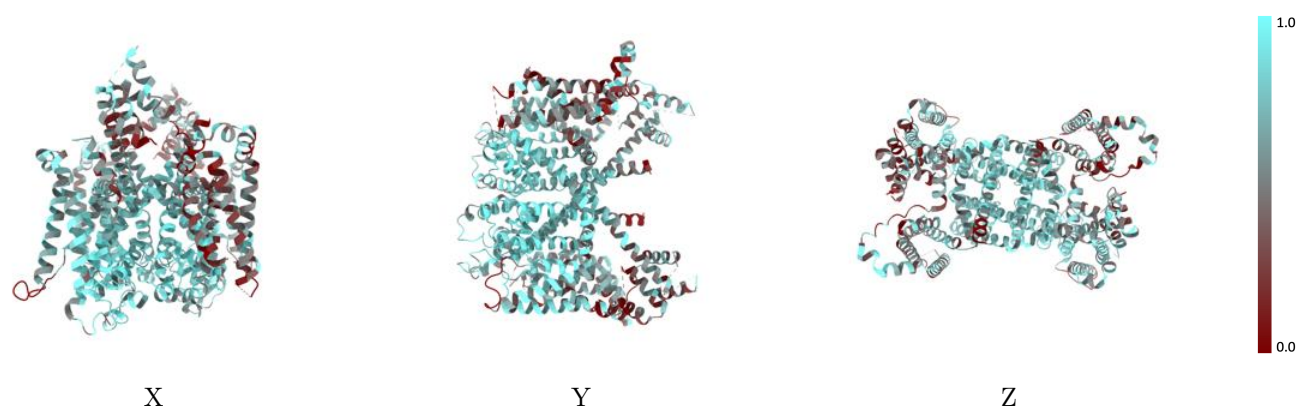
The images above show the 3D surface view of the map at the recommended contour level 0.104 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



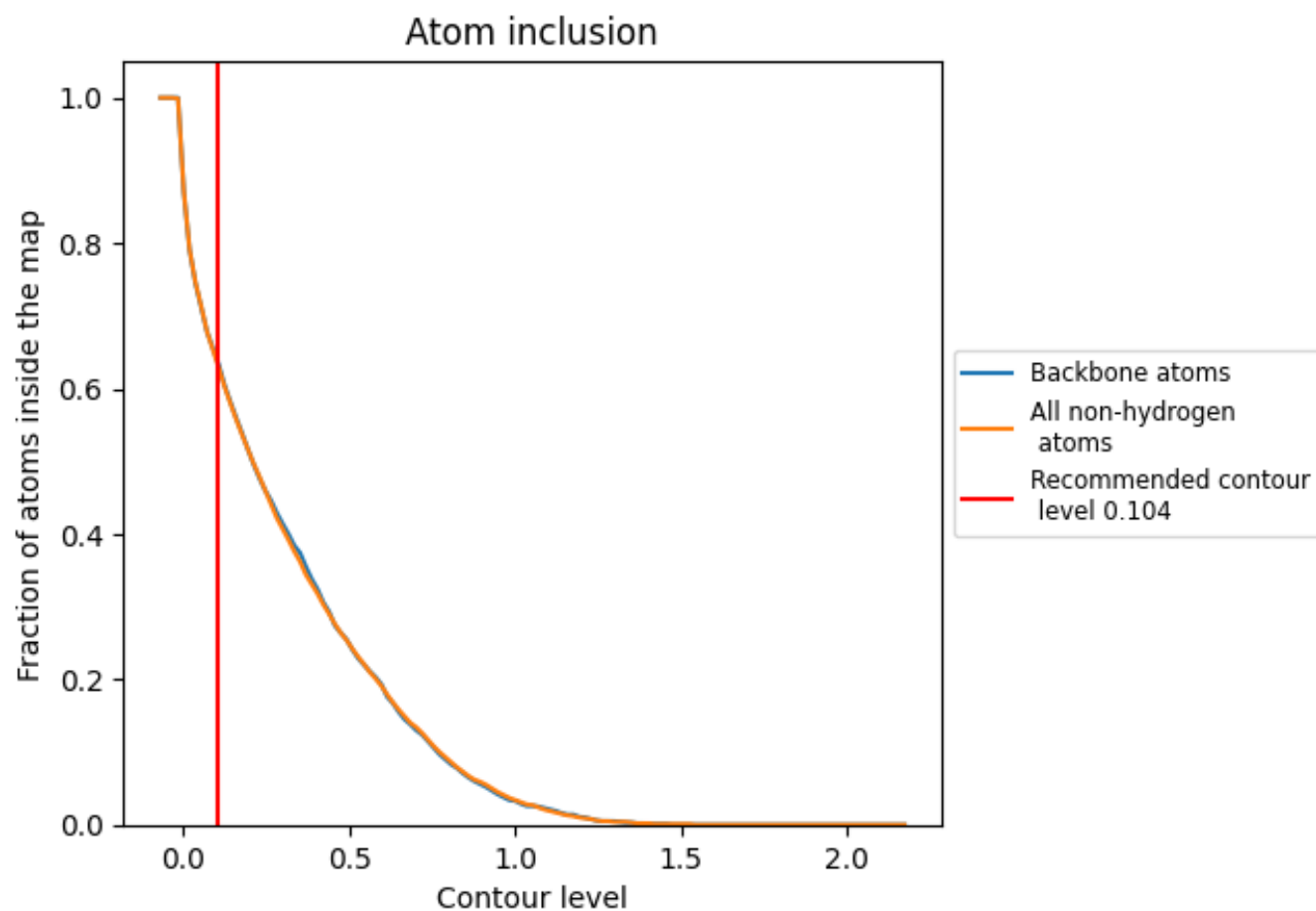
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.104).

9.4 Atom inclusion [i](#)



At the recommended contour level, 64% of all backbone atoms, 63% 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 (0.104) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.6340	<div></div> 0.2930
A	<div></div> 0.6430	<div></div> 0.2910
B	<div></div> 0.6520	<div></div> 0.2940

