WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

Oct 25, 2025 – 07:47 am BST

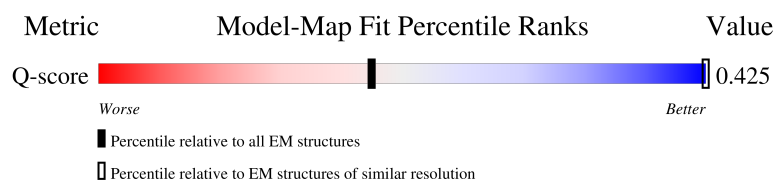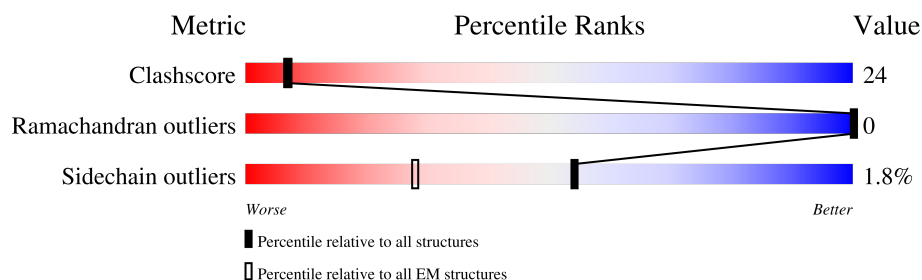|		
PDB ID	:	9QGO / pdb_00009qgo
EMDB ID	:	EMD-53140
Title	:	Interaction between PlPVC1 baseplate and fiber in extended state
Authors	:	Marin-Arraiza, L.; Taylor, N.M.I.
Deposited on	:	2025-03-14
Resolution	:	6.00 Å(reported)

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
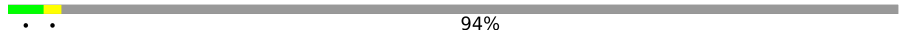*ELECTRON MICROSCOPY*

The reported resolution of this entry is 6.00 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.
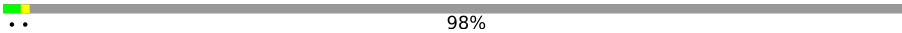
Metric	Percentile Ranks	Value
Clashscore		24
Ramachandran outliers		0
Sidechain outliers		1.8%

Worse   *Better*

▮ Percentile relative to all structures

▯ Percentile relative to all EM structures

Metric	Model-Map Fit Percentile Ranks	Value
Q-score		0.425

Worse   *Better*

▮ Percentile relative to all EM structures

▯ Percentile relative to EM structures of similar resolution

Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	525 (5.50 - 6.50)

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 <=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	434	94%
1	B	434	94%
1	C	434	94%
2	a	966	98%

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Mol	Chain	Length	Quality of chain
2	b	966	98%
2	c	966	93%

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 1505 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 Tail fiber protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	A	27	Total	C	N	O	0	0
			209	131	33	45		
1	B	27	Total	C	N	O	0	0
			209	131	33	45		
1	C	27	Total	C	N	O	0	0
			209	131	33	45		

- Molecule 2 is a protein called Baseplate protein J-like domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	a	20	Total	C	N	O		0	0
			160	101	29	30			
2	b	23	Total	C	N	O		0	0
			179	108	33	38			
2	c	69	Total	C	N	O	S	0	0
			539	341	96	101	1		

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
a	?	-	GLN	deletion	UNP A0A6L9JN06
a	?	-	GLU	deletion	UNP A0A6L9JN06
b	?	-	GLN	deletion	UNP A0A6L9JN06
b	?	-	GLU	deletion	UNP A0A6L9JN06
c	?	-	GLN	deletion	UNP A0A6L9JN06
c	?	-	GLU	deletion	UNP A0A6L9JN06

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: Tail fiber protein

Chain A:

• Molecule 1: Tail fiber protein

Chain B:

GLY ILE THR VAL ASP SER SER GLY VAL SER ILE ASP PRO LYS THR VAL LEU PRO LYS GLY MET ILE VAL MET PHE SER GLY SER ALA PRO THR GLY TRP ALA PHE CYS ASP ASN HIS GLY THR PRO ASP LEU ARG SER ARG PHE VAL MET CYS SER GLU THR ILE SER GLU THR

GLY LYS SER ASN LYS SER ALA SER GLY GLY ASN LYS ASN SER ARG ASN THR THR SER THR VAL SER VAL VAL SER VAL VAL LYS ASN THR THR LEU GLU THR GLU GLN ILE PRO TYR HIS TYR ILE GLY GLY MET TYR TRP ASN LYS GLY MET LYS TYR

GLY THR GLU TYR TYR SER GLU TYR ALA SER TYR ILE ARG ASN ASP ASP SER MET GLN ALA ASN SER ALA GLY ALA TYR ALA TYR THR THR SER PRO GLY GLY GLN GLY HIS ASN PRO ALA THR ALA SER SER PRO SER ASP HIS VAL ASN ILE PRO PRO

TYR TYR LEU LEU ALA PHE ILE MET LYS LEU

• Molecule 1: Tail fiber protein

Chain C: 94%

MET GLU LYS HIS ASN PRO TYR ASN SER GLU THR ASN LEU GLU ASN LEU ASN THR ASN ILE LYS SER THR GLY PRO S29 A30 D31 D32 L33 K34 S35 R36 E39 G40 S41 I42 D47 Y48 A49 D50 L51 I52 D53 I54 A55 ASP ILE GLY ARG ARG ALA VAL GLY LYS

ALA PRO ASP GLN THR ASN ASN PRO ASN SER ALA LEU LEU ASP ASN SER GLY LEU LYS ILE LYS ASN SER THR GLY LEU LYS ILE ALA ASP ASP GLY LEU SER VAL LYS LEU LYS ASP LYS SER LEU ALA ASP PRO GLY LEU ALA VAL GLU ALA GLY ARG GLY

VAL LYS ILE ASN ASP ASN PRO GLN LEU GLU ASP GLY VAL HIS GLY GLU ILE GLU VAL ASN GLU GLY VAL LYS VAL VAL LYS ALA ASN SER ASP VAL SER VAL LYS ALA GLY ASN GLY TRP SER GLY VAL SER GLY LEU SER VAL SER GLY LYS VAL ASP LYS

GLY SER ILE SER VAL ASP SER ASP GLY ILE ILE ALA VAL LYS TYR HIS GLY ASP GLY ILE VAL ALA THR ASP ASN SER GLY LEU TYR LEU LYS LEU GLU GLY GLY ASN THR ASN ASN GLY TRP SER GLY VAL SER GLY LEU SER LEU SER LYS ASN GLY VAL LYS VAL VAL ALA GLY ASN

GLY ILE THR VAL ASP SER SER GLY VAL SER ILE ASP PRO LYS THR VAL LEU PRO LYS GLY MET ILE VAL MET PHE SER GLY SER ALA PRO THR GLY TRP ALA PHE CYS ASP GLY ASN HIS GLY THR PRO ASP LEU ARG SER ARG PHE VAL MET CYS SER GLU THR ILE SER GLU THR

GLY LYS SER ASN LYS SER ALA SER GLY GLY ASN LYS ASN SER ARG ASN THR THR SER THR VAL SER VAL VAL SER VAL VAL LYS ASN THR THR LEU GLU THR GLU GLN ILE PRO TYR HIS TYR ILE GLY GLY MET TYR TRP ASN LYS GLY MET LYS TYR

GLY THR GLU TYR TYR SER GLU TYR ALA SER TYR ILE ARG ASN ASP ASP SER MET GLN ALA ASN SER ALA GLY ALA TYR ALA TYR THR THR SER PRO GLY GLY GLN GLY HIS ASN PRO ALA THR ALA SER SER PRO SER ASP HIS VAL ASN ILE PRO PRO

TYR TYR LEU LEU ALA PHE ILE MET LYS LEU

• Molecule 2: Baseplate protein J-like domain-containing protein

Chain a: 98%

MET ASN ASN GLN ASP ALA LEU PHE PRO ILE VAL LYS ASP ASP ILE ALA PHE GLU THR LEU LEU THR GLN ALA LYS THR VAL ILE GLU GLN GLN GLN SER GLY GLN LEU TRP SER ASN THR GLU GLU ASN ASP PRO GLY ILE THR LEU GLU LEU GLU ALA CYS CYS TYR GLY ALA SER ASP LEU ALA

TYR ARG HIS SER LEU PRO LEU ARG ASP LEU LEU THR PRO GLU GLY LYS GLN GLU GLN THR GLU GLY ASP THR GLU PHE GLY ASP PRO GLN GLN GLN MET LEU THR CYS GLY PRO ILE THR ALA GLU ASP TYR ARG ARG ALA LEU LEU ASP HIS SER SER ASP THR ASP ASN GLU

THR SER GLU ASP TYR PHE PHE ASN ASP VAL ARG LEU LEU CYS GLU GLU PRO GLU SER GLU ARG TYR LYS TRP TYR ASN LYS GLU SER ARG GLU GLU TYR SER PHE ILE GLU GLN GLN GLN GLN GLN GLU GLN LEU LEU LEU THR LEU ARG GLY ASN TYR TRP LEU TYR LEU LEU PRO

ASN ARG GLU THR GLU ASP LYS THR LEU THR SER PRO LEU ARG TYR LYS ASP ASN ARG ASN LEU GLY GLY SER VAL SER LYS ILE ILE TRP GLN LEU PRO VAL ASP LEU LEU GLN LEU GLU ASP ILE GLU LEU ASP ASP VAL SER LEU ALA ASP ASP VAL SER LEU ALA GLY ASN TYR TRP LEU TYR LEU LEU PRO

GLN VAL TYR MET THR THR GLU GLN MET LEU THR SER PRO LEU ARG TYR ILE GLU GLN GLY SER ASN GLU ILE PHE GLU GLY PRO TYR LEU HIS HIS GLY TRP ILE PRO ILE SER GLU ALA ALA LYS TYR THR THR PRO THR GLU LEU LYS LEU ALA ILE PHE ALA

The highlighted residues in the sequence include: D622, K625, I626, K627, S628, V629, P630, N631, S632, K633, N634, Q635, I638, I639, T640, Q641

• Molecule 2: Baseplate protein J-like domain-containing protein

Chain b: 98%

Highlighted residues: I686　T689　R690　L695　A696　R697　S698　L699　I700　D708 GLY

• Molecule 2: Baseplate protein J-like domain-containing protein

Chain c:　　　　　　　　　　　　　　　93%

LEU ASP PHE LEU SER THR GLN ARG GLY TYR LEU ALA GLN GLN PRO GLU LEU THR TYR GLN ARG ASN ASN ILE ILE ARG ILE ASP LYS VAL SER ALA LEU GLN LYS ARG ILE ALA ALA ARG LEU GLY LEU GLY GLY LYS CYS PHE GLU GLU THR SER LYS LEU ASP GLU LEU PRO PHE TYR LEU

ILE GLU HIS ARG GLN LEU LEU PRO VAL LYS LYS PRO ASP THR LYS PHE ASP LYS GLU GLN LYS PRO ASP LYS LEU LYS ILE ILE LYS SER VAL PRO ASN SER LYS ASN SER LYS ASN GLN GLN LEU ILE ILE THR GLN ASN GLY GLN THR GLY LEU LEU TYR GLY GLN VAL ILE ASN LEU ILE ILE LYS GLU

LYS GLU ASN GLN ASP ILE ARG VAL LYS PHE ILE LEU LEU ARG GLY GLN GLN MET ILE THR ASP ILE THR GLY GLU SER PHE ILE LEU ASP THR ARG ASN SER THR ALA LEU ALA ARG SER LEU ILE ASP VAL GLN ASN ALA TYR ASN GLY ASN LEU TYR TRP CYS ASN SER PRO VAL TRP MET

GLU ASP MET ASP TYR GLN LEU VAL TYR ALA SER GLU ILE ILE TYR GLN THR GLY THR GLY ASP ASN GLU ASN ARG TRP ILE THR SER PRO GLN GLN SER PRO PHE PRO ALA MET ILE GLU GLU ASN ASP ILE THR LEU LYS TYR VAL ILE THR PRO GLY PRO LYS LYS SER ASP HIS GLU LEU

LYS ALA ASN VAL ILE LYS PHE ASP ARG ILE GLN GLY LYS LEU ILE LEU LYS LEU THR GLN ASP SER GLN ASP PHE PRO LEU ALA ALA ASP ALA TRP ARG TYR TRP TYR PHE SER SER GLU GLU LYS TYR ALA LEU ALA LEU ALA ASP ARG PHE SER PHE VAL VAL SER MET VAL ILE ASN SER

GLN LEU VAL LYS ASN ASP ASP VAL ASP PRO TYR LYS LEU GLU SER TRP ALA LYS THR GLU ILE LEU LEU ALA GLU PHE PRO ALA HIS LEU SER MET ILE ILE HIS TRP LEU SER PRO GLU ASP PHE **K882 D883 F884 V885 S886** **R890 W891** **N894 G895** A896 P897 **L898** G899 D900 **E901 A902 Y903**

H904 **T908** **G920** **R925 I926 A927** **Q931** R932 I933 G934 V935 **V936** GLY GLU SER GLY LYS GLU **W943 N944 T945 E946 V947 I948 I949** **Q952 L953 V954 Y955 V956** PRO TYR THR GLY GLU ASN LEU LEU ASN LYS ARG

4   Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	71148	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE; Patch CTF Estimation in cryoSPARC, fit local CTF to micrograph, including tilted, bent, deformed samples	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/Å^2)$	41	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	2.115	Depositor
Minimum map value	-1.163	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.044	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	840.0, 840.0, 840.0	wwPDB
Map dimensions	560, 560, 560	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.5, 1.5, 1.5	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	0.16	0/211	0.37	0/284
1	B	0.22	0/211	0.57	1/284 (0.4%)
1	C	0.16	0/211	0.47	0/284
2	a	0.21	0/160	0.59	0/213
2	b	0.14	0/179	0.37	0/243
2	c	0.18	0/548	0.48	0/746
All	All	0.18	0/1520	0.48	1/2054 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	38	LYS	CA-CB-CG	5.10	124.30	114.10

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	209	0	203	8	0
1	B	209	0	203	18	0
1	C	209	0	203	15	0
2	a	160	0	179	12	0
2	b	179	0	175	5	0
2	c	539	0	534	30	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	1505	0	1497	72	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 24.

All (72) 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)
2:a:632:SER:OG	2:a:634:ASN:OD1	2.04	0.75
1:B:38:LYS:HD2	1:B:39:GLU:N	2.04	0.73
1:A:52:ILE:HD13	1:B:33:LEU:HB3	1.79	0.65
2:a:627:LYS:HZ1	2:a:630:PRO:HD3	1.61	0.65
2:b:690:ARG:NH1	2:c:894:ASN:OD1	2.31	0.64
2:c:946:GLU:OE2	2:c:946:GLU:N	2.31	0.63
2:c:935:VAL:HA	2:c:944:ASN:HB2	1.81	0.62
1:A:48:TYR:O	1:A:52:ILE:HG13	2.00	0.61
1:C:40:GLY:HA2	2:c:920:GLY:HA3	1.84	0.60
2:c:900:ASP:N	2:c:900:ASP:OD1	2.33	0.60
1:C:36:ARG:NH1	1:C:47:ASP:OD1	2.35	0.59
1:A:51:LEU:HD23	1:B:51:LEU:HD21	1.85	0.59
2:a:625:LYS:H	2:a:638:ILE:HG22	1.69	0.58
1:C:48:TYR:O	1:C:52:ILE:HG12	2.05	0.57
1:C:31:ASP:HA	1:C:34:LYS:HZ2	1.70	0.57
1:B:36:ARG:NE	1:B:47:ASP:OD1	2.36	0.57
2:a:627:LYS:HD2	2:a:628:SER:N	2.20	0.56
2:c:884:PHE:HD2	2:c:908:THR:HG21	1.70	0.56
1:B:48:TYR:O	1:B:52:ILE:HG12	2.06	0.55
2:c:927:ALA:HB2	2:c:953:LEU:HD22	1.88	0.55
1:A:45:GLN:N	1:A:45:GLN:OE1	2.41	0.54
2:b:695:LEU:HD12	2:b:695:LEU:H	1.73	0.54
1:C:42:ILE:HB	2:b:697:ARG:HH12	1.74	0.53
1:B:45:GLN:NE2	2:c:886:SER:OG	2.41	0.52
2:a:622:ASP:N	2:a:640:THR:O	2.43	0.52
2:b:699:LEU:HD12	2:b:700:ILE:HD13	1.92	0.52
2:a:635:GLN:O	2:b:689:THR:HG22	2.09	0.51
1:B:52:ILE:HD12	1:C:33:LEU:HG	1.93	0.50
2:c:931:GLN:O	2:c:935:VAL:HG12	2.12	0.50
2:c:935:VAL:C	2:c:944:ASN:HD22	2.20	0.50
1:C:29:SER:OG	1:C:30:ALA:N	2.45	0.49
2:c:925:ARG:NH1	2:c:952:GLN:OE1	2.46	0.49
1:A:30:ALA:O	1:A:34:LYS:HG2	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:a:622:ASP:N	2:a:622:ASP:OD1	2.44	0.49
2:c:890:ARG:HB2	2:c:890:ARG:NH1	2.27	0.49
2:c:896:ALA:N	2:c:897:PRO:HD3	2.28	0.49
2:c:935:VAL:O	2:c:944:ASN:N	2.41	0.49
1:B:29:SER:OG	1:B:30:ALA:N	2.46	0.48
1:B:38:LYS:HD2	1:B:38:LYS:C	2.39	0.48
1:C:31:ASP:HA	1:C:34:LYS:NZ	2.27	0.48
1:A:42:ILE:HG23	2:c:932:ARG:HG2	1.96	0.48
1:C:36:ARG:CZ	2:a:633:LYS:HZ1	2.27	0.48
2:a:627:LYS:NZ	2:a:630:PRO:HD3	2.28	0.47
1:C:39:GLU:OE2	2:c:904:HIS:ND1	2.48	0.47
1:C:50:ASP:O	1:C:54:ILE:HG22	2.15	0.46
2:a:634:ASN:OD1	2:a:634:ASN:N	2.46	0.46
2:a:627:LYS:HZ1	2:a:629:VAL:HA	1.80	0.46
1:B:55:ALA:HB1	1:C:54:ILE:HG13	1.98	0.45
1:B:36:ARG:O	1:B:41:SER:OG	2.23	0.45
1:C:51:LEU:HD12	1:C:51:LEU:HA	1.70	0.45
2:a:627:LYS:HD2	2:a:627:LYS:C	2.42	0.45
2:c:933:ILE:HD12	2:c:933:ILE:HA	1.82	0.45
2:c:935:VAL:O	2:c:944:ASN:ND2	2.40	0.44
2:c:948:ILE:HD13	2:c:953:LEU:HD12	2.00	0.44
1:A:40:GLY:O	2:c:943:TRP:NE1	2.51	0.43
1:B:45:GLN:OE1	1:C:39:GLU:N	2.52	0.43
2:c:948:ILE:HD13	2:c:948:ILE:HA	1.86	0.42
2:c:891:TRP:NE1	2:c:897:PRO:O	2.39	0.42
2:c:899:GLY:H	2:c:902:ALA:HB3	1.84	0.42
1:B:31:ASP:OD1	1:B:32:ASP:N	2.52	0.42
1:A:32:ASP:O	1:A:36:ARG:HG2	2.20	0.42
2:c:890:ARG:O	2:c:894:ASN:ND2	2.49	0.41
2:c:946:GLU:O	2:c:949:ILE:HG12	2.21	0.41
1:B:39:GLU:OE1	2:c:926:ILE:HG22	2.21	0.41
1:B:52:ILE:HD13	1:C:51:LEU:HD11	2.03	0.41
2:c:884:PHE:CD1	2:c:884:PHE:C	2.99	0.41
2:c:944:ASN:HB3	2:c:946:GLU:OE1	2.21	0.41
1:B:30:ALA:O	1:B:34:LYS:HG2	2.20	0.41
1:B:35:SER:O	1:B:38:LYS:HB3	2.21	0.41
2:c:934:GLY:O	2:c:944:ASN:ND2	2.54	0.41
2:c:948:ILE:HG21	2:c:955:TYR:HD2	1.86	0.41
1:B:29:SER:N	1:B:32:ASP:OD2	2.54	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	25/434 (6%)	24 (96%)	1 (4%)	0	100	100
1	B	25/434 (6%)	24 (96%)	1 (4%)	0	100	100
1	C	25/434 (6%)	24 (96%)	1 (4%)	0	100	100
2	a	18/966 (2%)	18 (100%)	0	0	100	100
2	b	21/966 (2%)	20 (95%)	1 (5%)	0	100	100
2	c	65/966 (7%)	64 (98%)	1 (2%)	0	100	100
All	All	179/4200 (4%)	174 (97%)	5 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	23/354 (6%)	22 (96%)	1 (4%)	25	46
1	B	23/354 (6%)	23 (100%)	0	100	100
1	C	23/354 (6%)	23 (100%)	0	100	100
2	a	20/864 (2%)	20 (100%)	0	100	100
2	b	20/864 (2%)	20 (100%)	0	100	100
2	c	57/864 (7%)	55 (96%)	2 (4%)	31	51
All	All	166/3654 (4%)	163 (98%)	3 (2%)	54	71

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	42	ILE
2	c	885	VAL
2	c	947	VAL

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

Mol	Chain	Res	Type
2	b	707	ASN
2	c	944	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-53140. 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
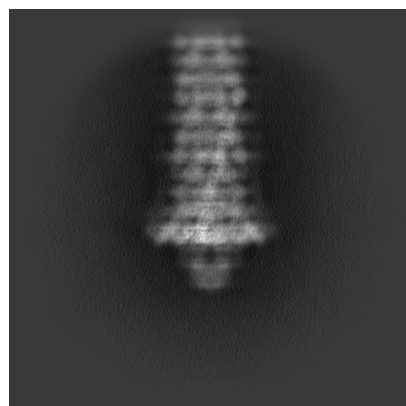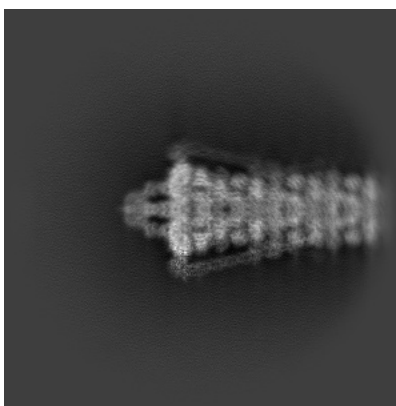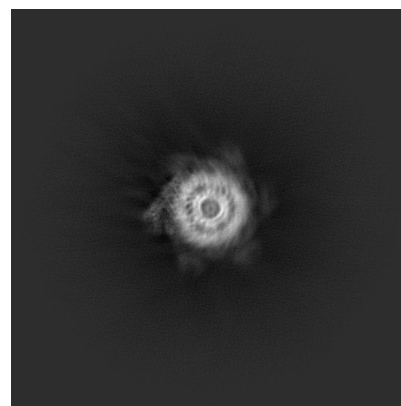
X Y Z

6.1.2 Raw map

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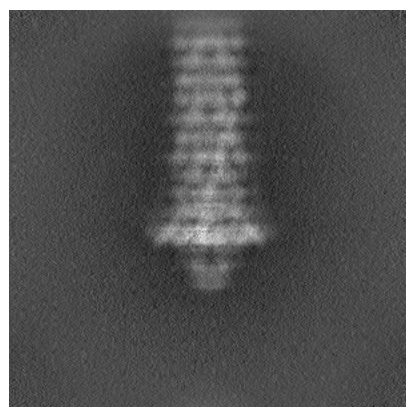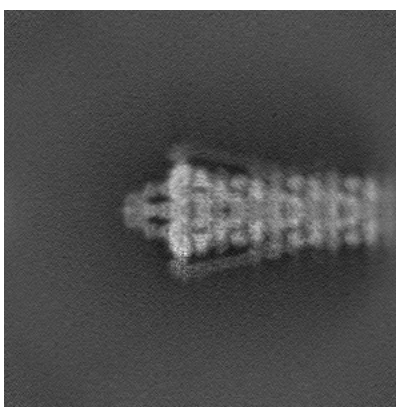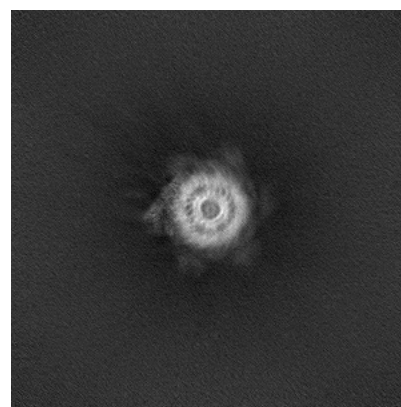
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
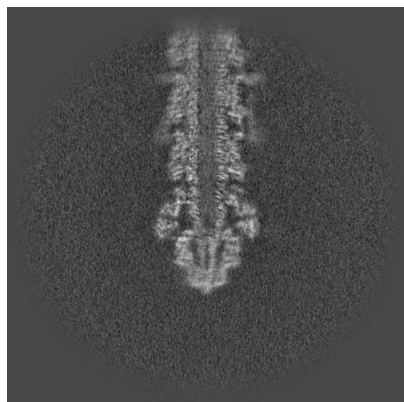
6.2.1 Primary map

X Index: 280

Y Index: 280
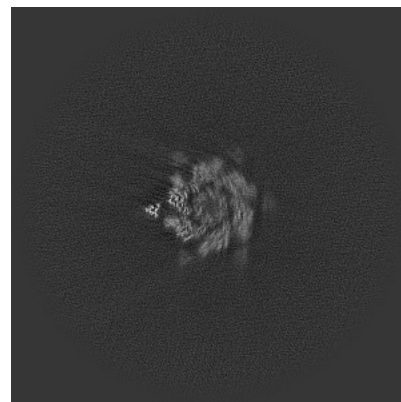
Z Index: 280

6.2.2 Raw map
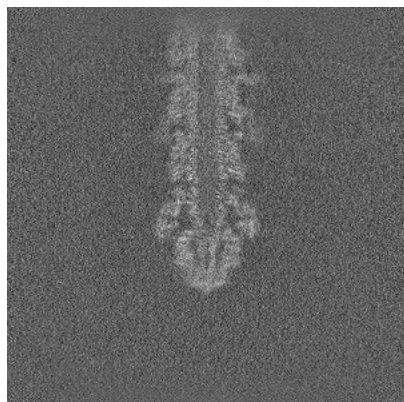
X Index: 280

Y Index: 280
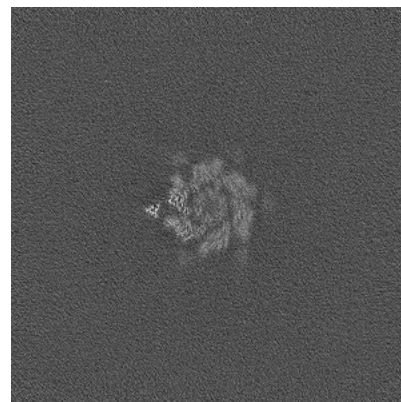
Z Index: 280

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

6.3 Largest variance slices (i)

6.3.1 Primary map
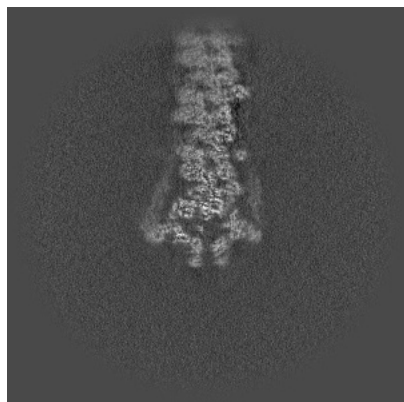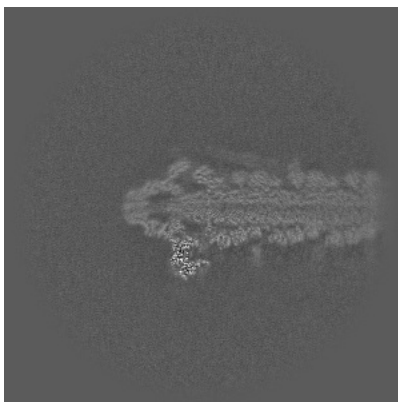
X Index: 243	Y Index: 267	Z Index: 246
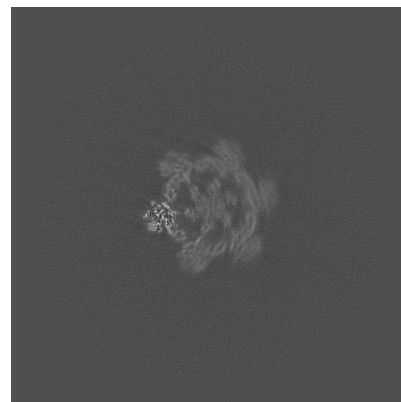
6.3.2 Raw map
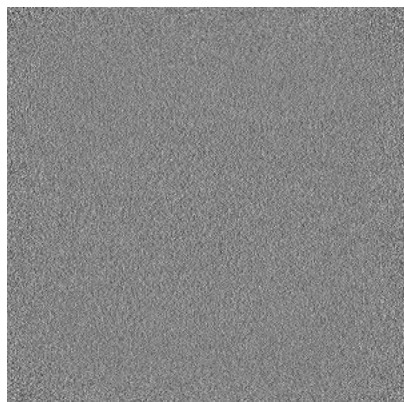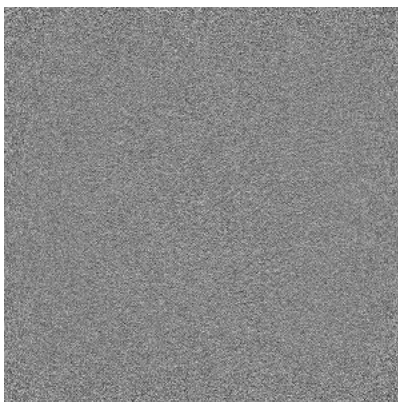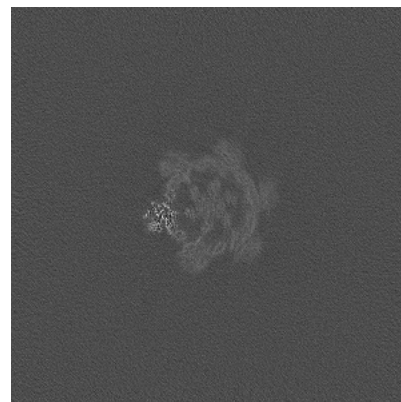
X Index: 0	Y Index: 0	Z Index: 246

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

6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map
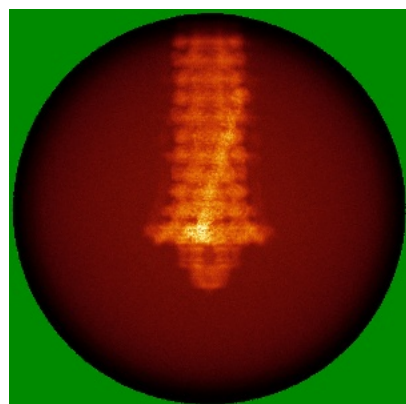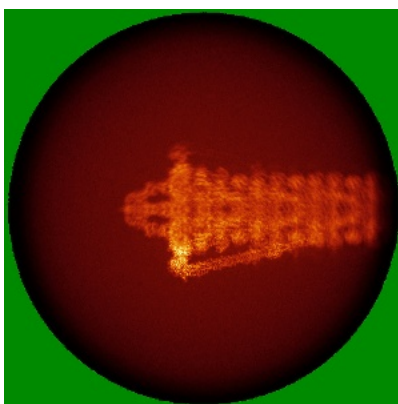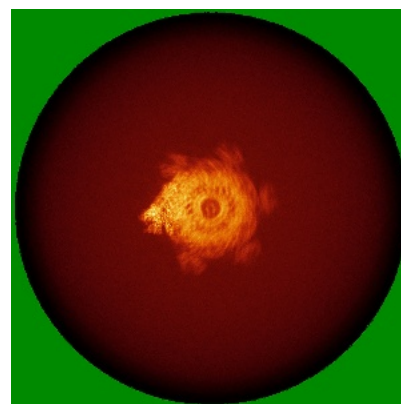
| X | Y | Z |

6.4.2 Raw map

| X | Y | Z |
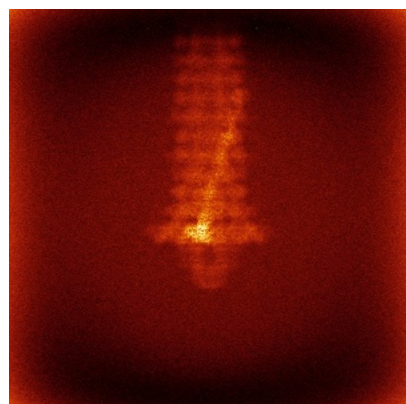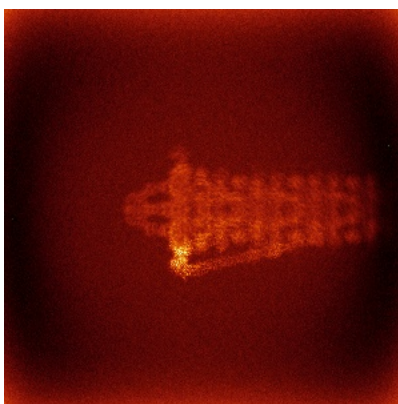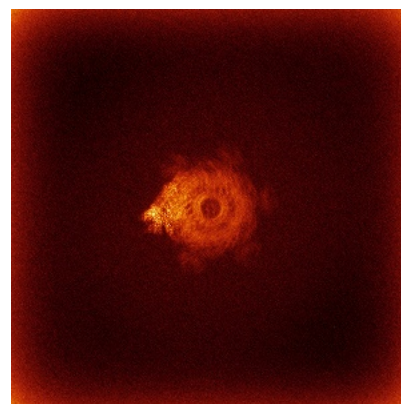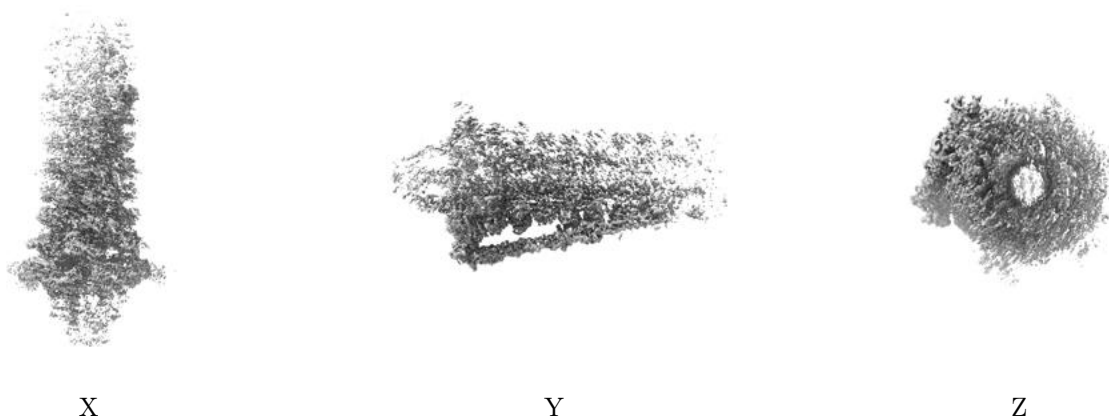
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.
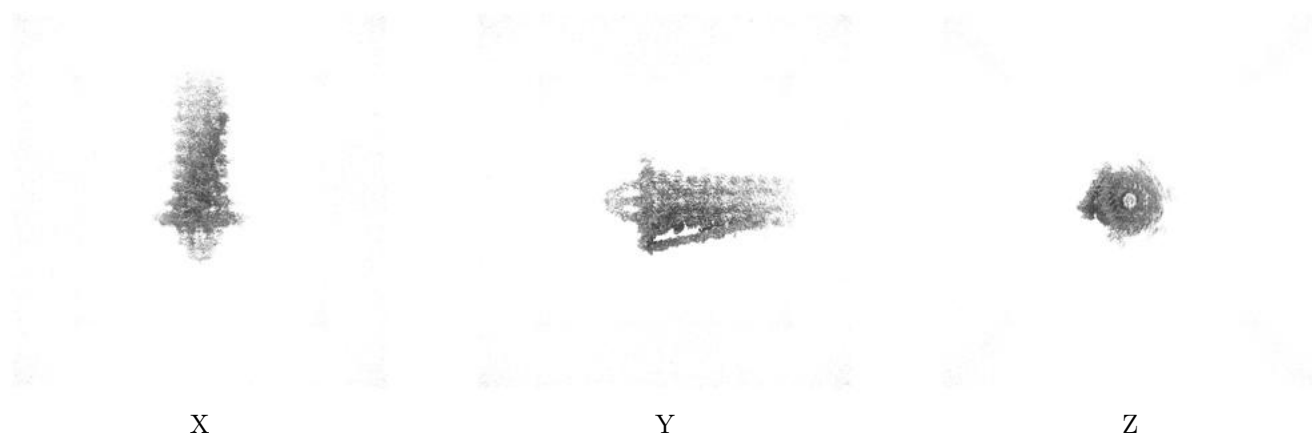
6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X   Y   Z

The images above show the 3D surface view of the map at the recommended contour level 0.4. 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

X   Y   Z

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 ⓘ

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

A mask typically either:

- Encompasses the whole structure

- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

6.6.1 emd_53140_msk_1.map ⓘ

X　　　　　　　　　　　　Y　　　　　　　　　　　　Z
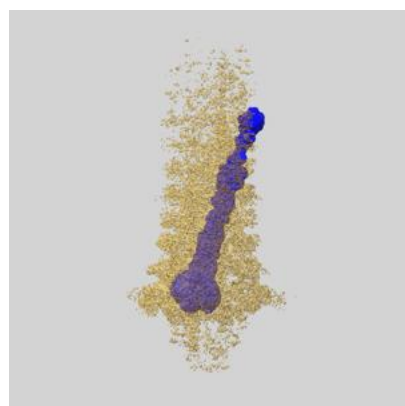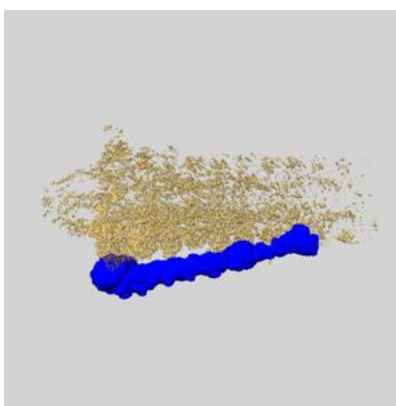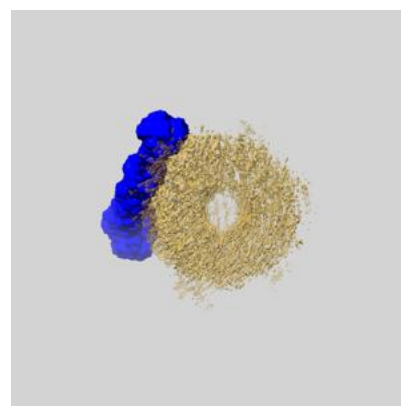
7 Map analysis ⓘ

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

7.1 Map-value distribution ⓘ

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 ⓘ
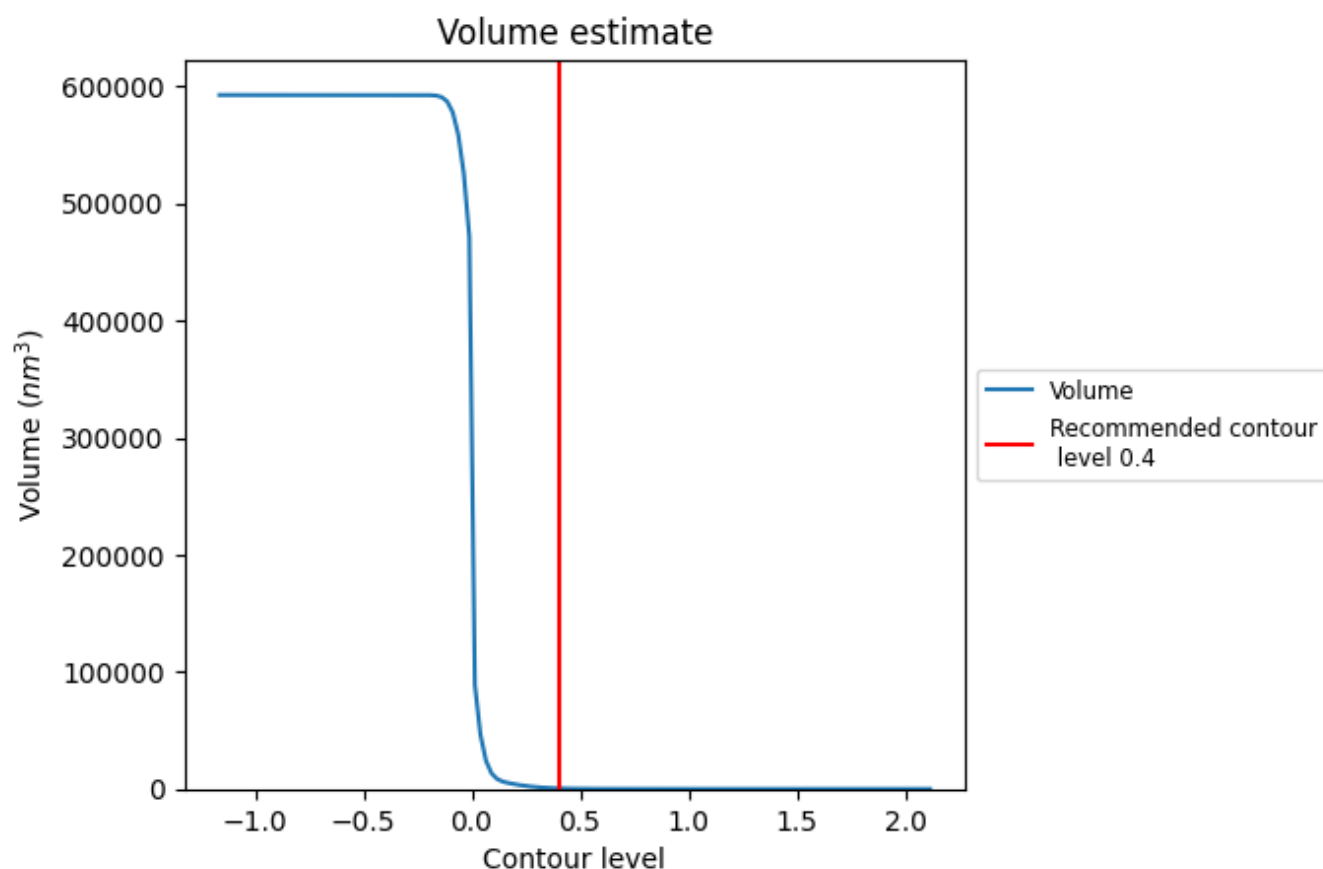
The volume at the recommended contour level is 501 nm^3; this corresponds to an approximate mass of 452 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)
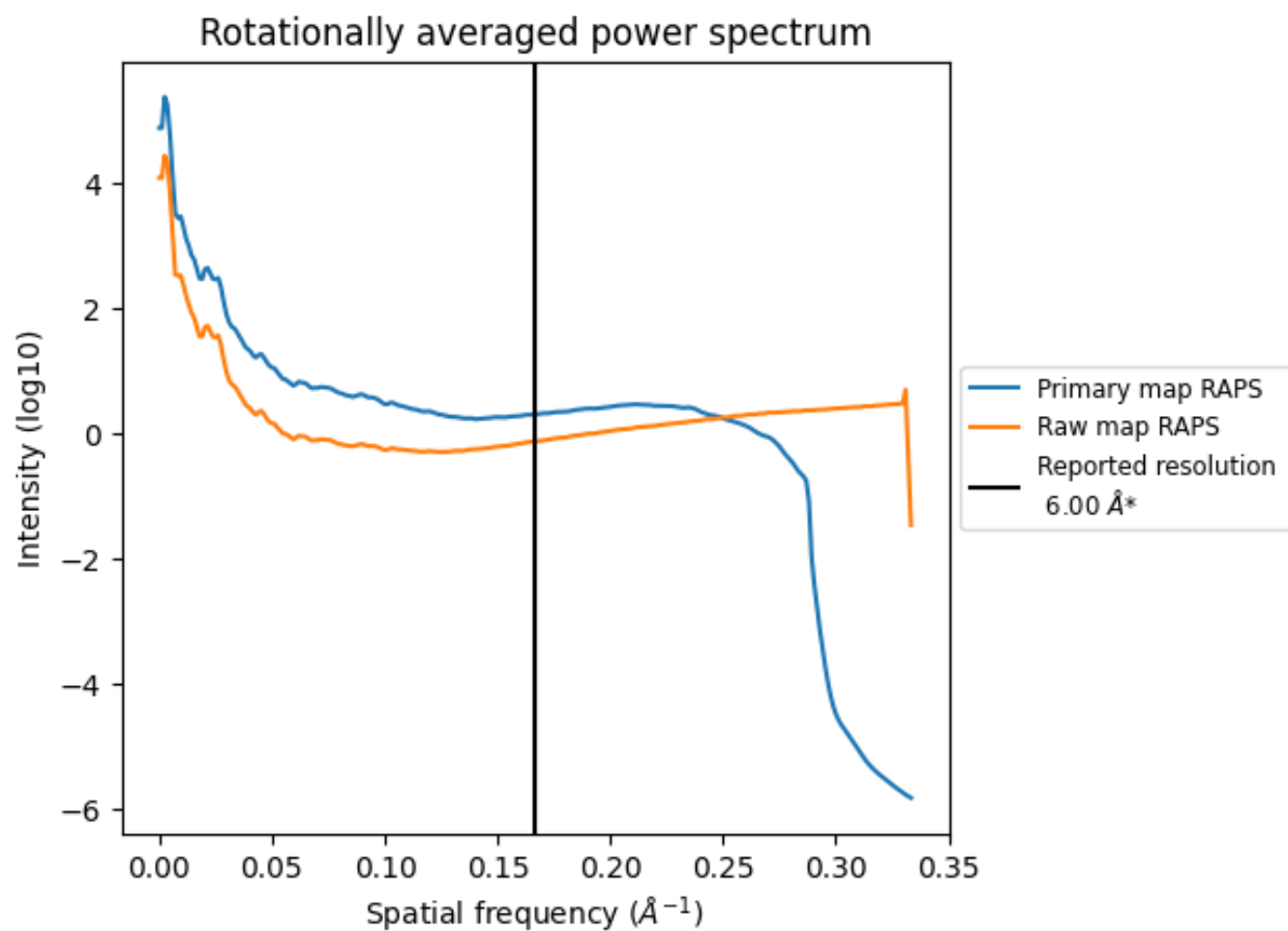
*Reported resolution corresponds to spatial frequency of 0.167 Å^{-1}

8 Fourier-Shell correlation ⓘ

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 ⓘ
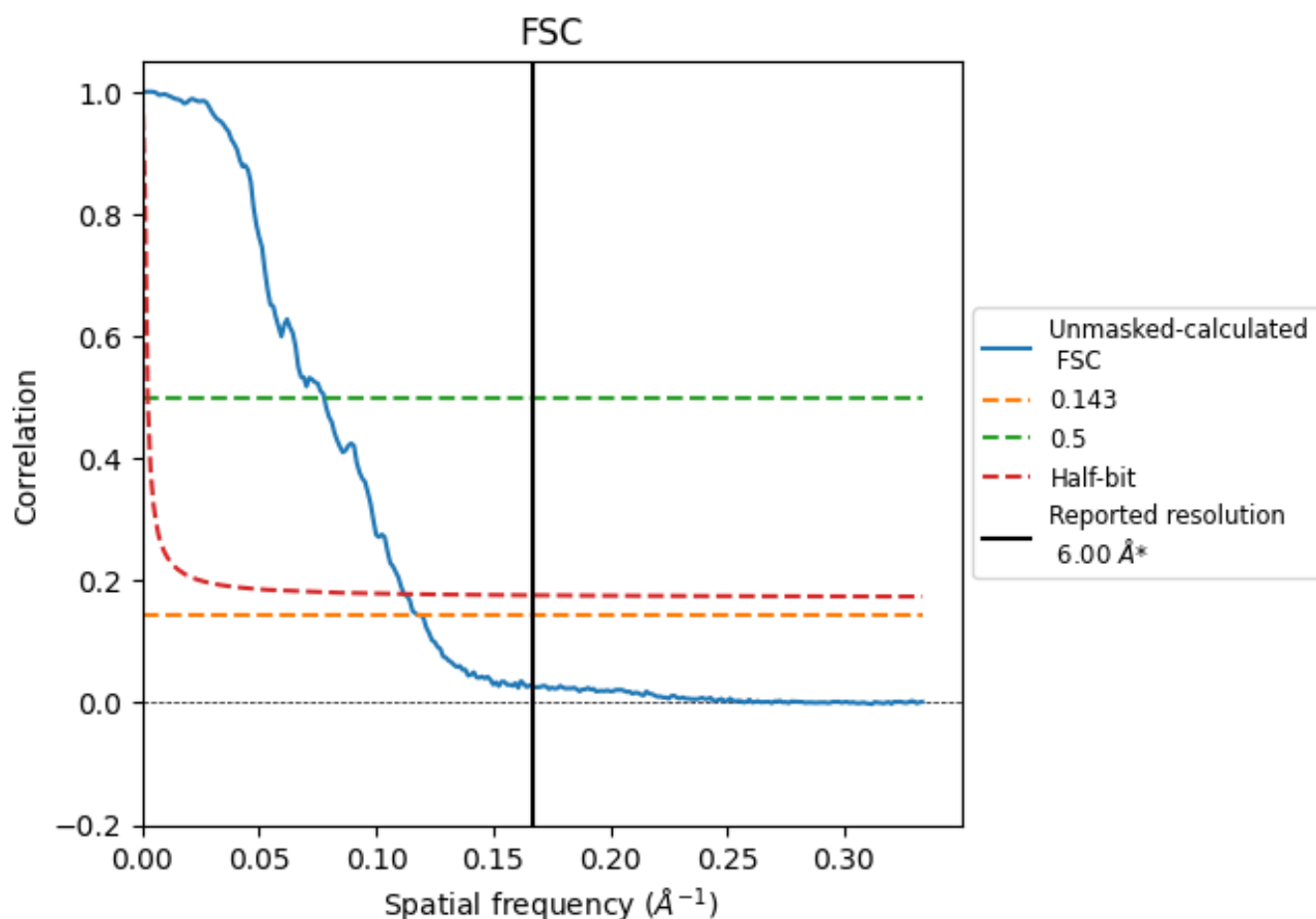
*Reported resolution corresponds to spatial frequency of 0.167 Å^{-1}

8.2   Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.00	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	8.49	12.87	8.94

*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 8.49 differs from the reported value 6.0 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-53140 and PDB model 9QGO. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay ⓘ

X	Y	Z

The images above show the 3D surface view of the map at the recommended contour level 0.4 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)
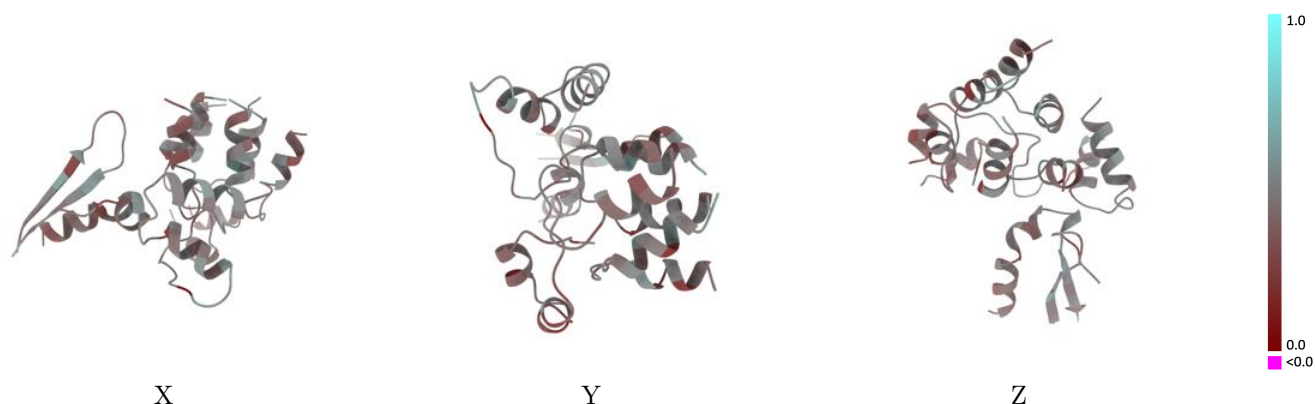

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.4).

9.4 Atom inclusion (i)
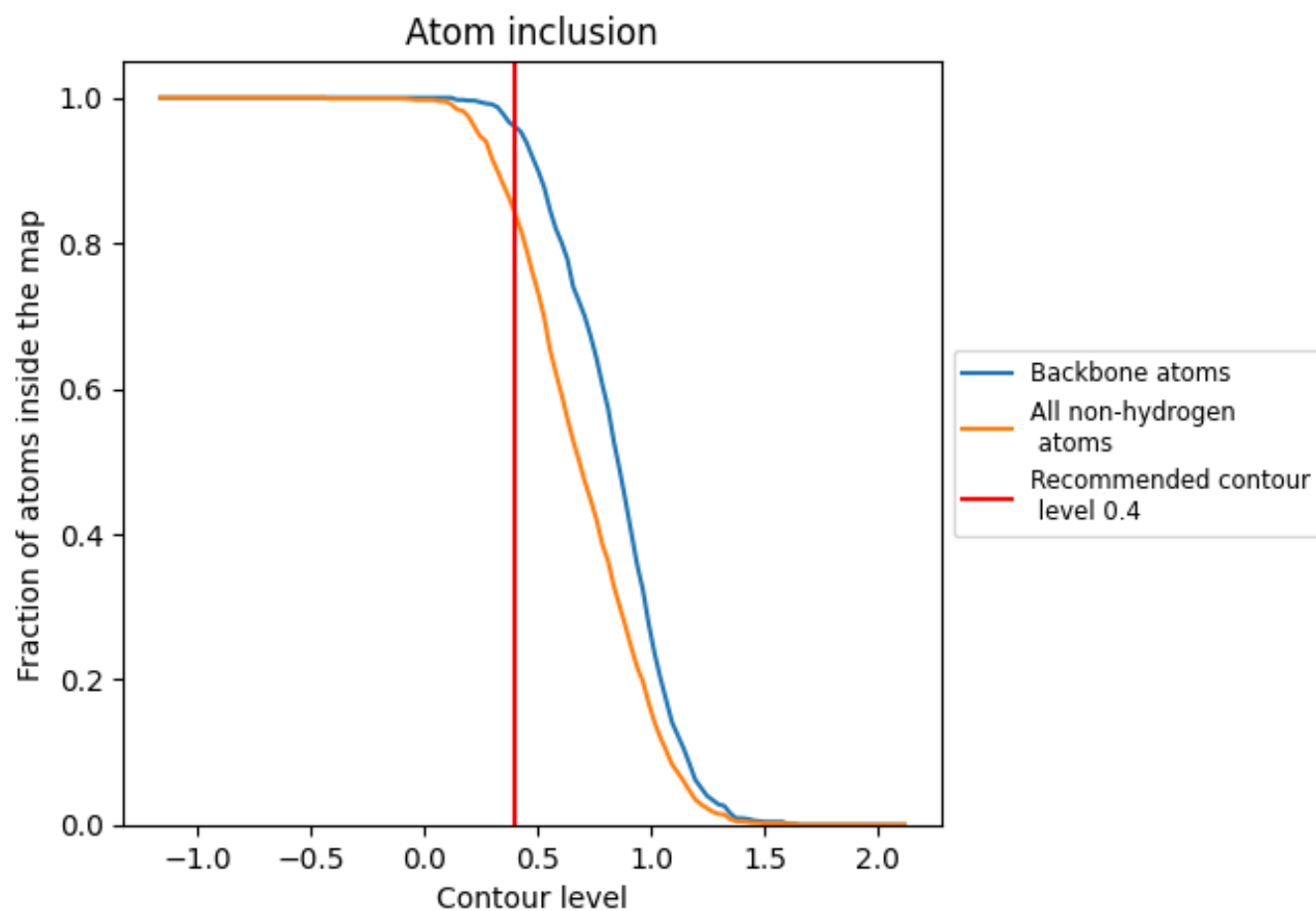
At the recommended contour level, 96% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8400	0.4250
A	0.8500	0.4360
B	0.8690	0.4450
C	0.8110	0.4230
a	0.7810	0.4520
b	0.7930	0.3960
c	0.8690	0.4160

1.0

0.0
<0.0