Full wwPDB EM Validation Report ⓘ

Sep 30, 2025 – 01:14 pm BST

PDB ID	:	9GW9 / pdb_00009gw9
EMDB ID	:	EMD-51644
Title	:	Cryo-EM structure of Gephyrin E domain filament interface
Authors	:	Macha, A.; Gunkel, M.; Schwarz, G.; Behrmann, E.; Burdina, N.
Deposited on	:	2024-09-26
Resolution	:	3.60 Å(reported)
Based on initial model	:	2FU3

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:

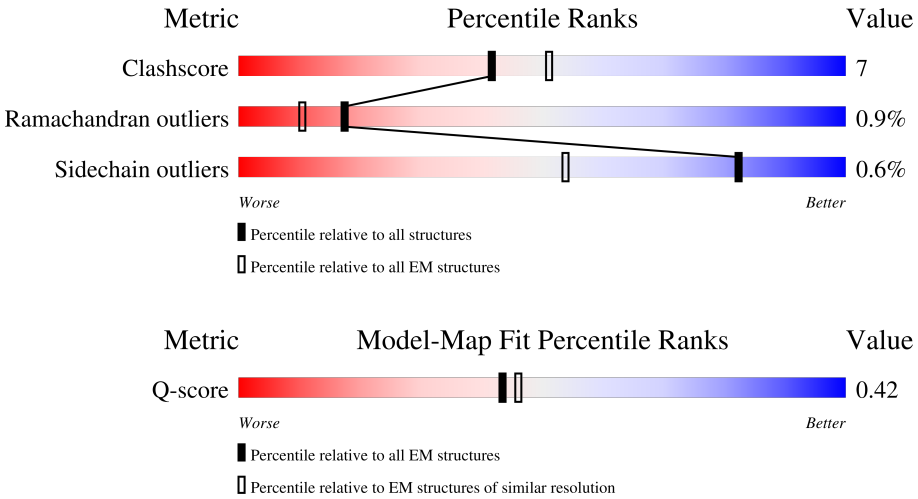
EMDB validation analysis	:	0.0.1.dev129
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

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 3.60 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	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	12797 (3.10 - 4.10)

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	428	10% 78% 17%
1	B	428	5% 65% 10% 25%
1	C	428	8% 16% 80%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 6105 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 Gephyrin.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	410	Total	C	N	O	S	0	0
			3058	1926	538	576	18		
1	B	322	Total	C	N	O	S	0	0
			2455	1560	427	453	15		
1	C	87	Total	C	N	O	S	0	0
			592	360	107	122	3		

There are 54 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	309	MET	-	initiating methionine	UNP Q03555
A	310	ARG	-	expression tag	UNP Q03555
A	311	GLY	-	expression tag	UNP Q03555
A	312	SER	-	expression tag	UNP Q03555
A	313	HIS	-	expression tag	UNP Q03555
A	314	HIS	-	expression tag	UNP Q03555
A	315	HIS	-	expression tag	UNP Q03555
A	316	HIS	-	expression tag	UNP Q03555
A	317	HIS	-	expression tag	UNP Q03555
A	318	HIS	-	expression tag	UNP Q03555
A	319	GLY	-	expression tag	UNP Q03555
A	320	SER	-	expression tag	UNP Q03555
A	321	ALA	-	expression tag	UNP Q03555
A	322	CYS	-	expression tag	UNP Q03555
A	323	GLU	-	expression tag	UNP Q03555
A	324	LEU	-	expression tag	UNP Q03555
A	325	GLY	-	expression tag	UNP Q03555
A	326	THR	-	expression tag	UNP Q03555
B	309	MET	-	initiating methionine	UNP Q03555
B	310	ARG	-	expression tag	UNP Q03555
B	311	GLY	-	expression tag	UNP Q03555
B	312	SER	-	expression tag	UNP Q03555
B	313	HIS	-	expression tag	UNP Q03555
B	314	HIS	-	expression tag	UNP Q03555

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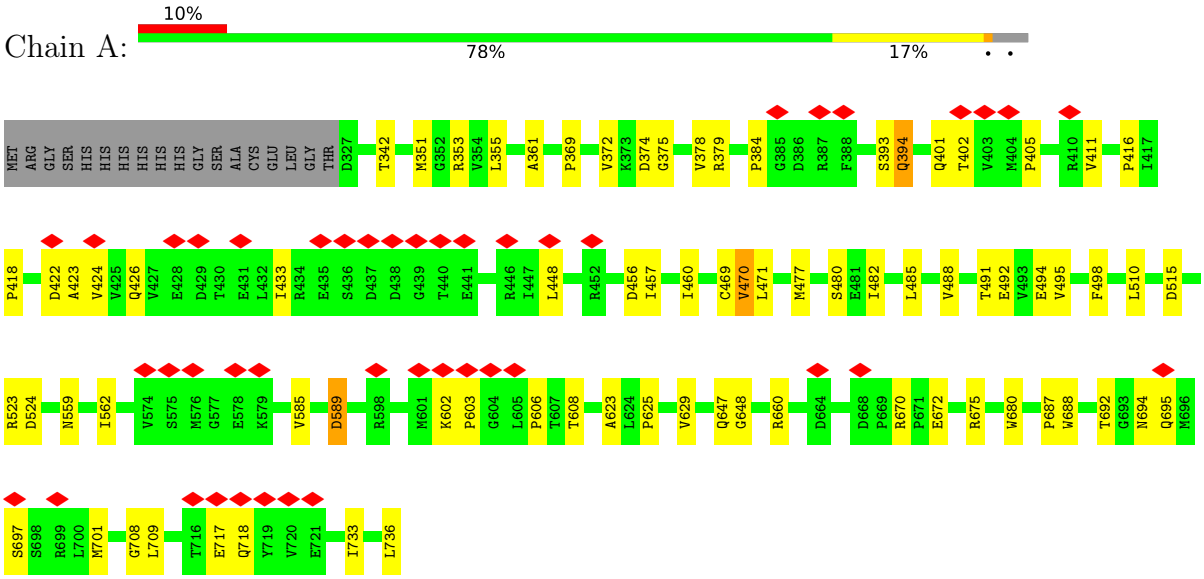
Chain	Residue	Modelled	Actual	Comment	Reference
B	315	HIS	-	expression tag	UNP Q03555
B	316	HIS	-	expression tag	UNP Q03555
B	317	HIS	-	expression tag	UNP Q03555
B	318	HIS	-	expression tag	UNP Q03555
B	319	GLY	-	expression tag	UNP Q03555
B	320	SER	-	expression tag	UNP Q03555
B	321	ALA	-	expression tag	UNP Q03555
B	322	CYS	-	expression tag	UNP Q03555
B	323	GLU	-	expression tag	UNP Q03555
B	324	LEU	-	expression tag	UNP Q03555
B	325	GLY	-	expression tag	UNP Q03555
B	326	THR	-	expression tag	UNP Q03555
C	309	MET	-	initiating methionine	UNP Q03555
C	310	ARG	-	expression tag	UNP Q03555
C	311	GLY	-	expression tag	UNP Q03555
C	312	SER	-	expression tag	UNP Q03555
C	313	HIS	-	expression tag	UNP Q03555
C	314	HIS	-	expression tag	UNP Q03555
C	315	HIS	-	expression tag	UNP Q03555
C	316	HIS	-	expression tag	UNP Q03555
C	317	HIS	-	expression tag	UNP Q03555
C	318	HIS	-	expression tag	UNP Q03555
C	319	GLY	-	expression tag	UNP Q03555
C	320	SER	-	expression tag	UNP Q03555
C	321	ALA	-	expression tag	UNP Q03555
C	322	CYS	-	expression tag	UNP Q03555
C	323	GLU	-	expression tag	UNP Q03555
C	324	LEU	-	expression tag	UNP Q03555
C	325	GLY	-	expression tag	UNP Q03555
C	326	THR	-	expression tag	UNP Q03555

3 Residue-property plots (i)

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.

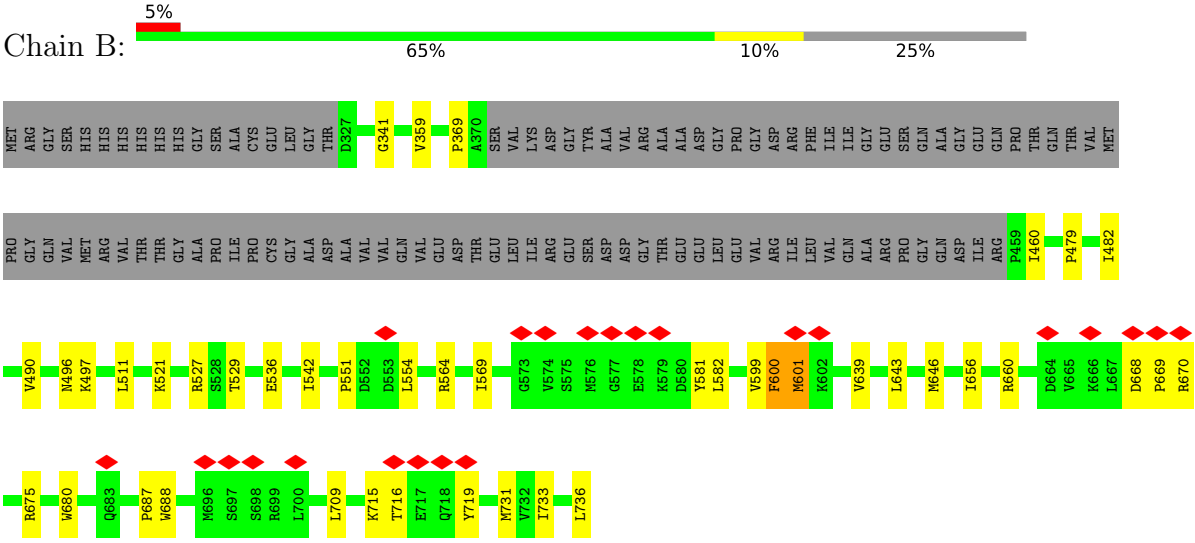
• Molecule 1: Gephyrin

Chain A:



• Molecule 1: Gephyrin

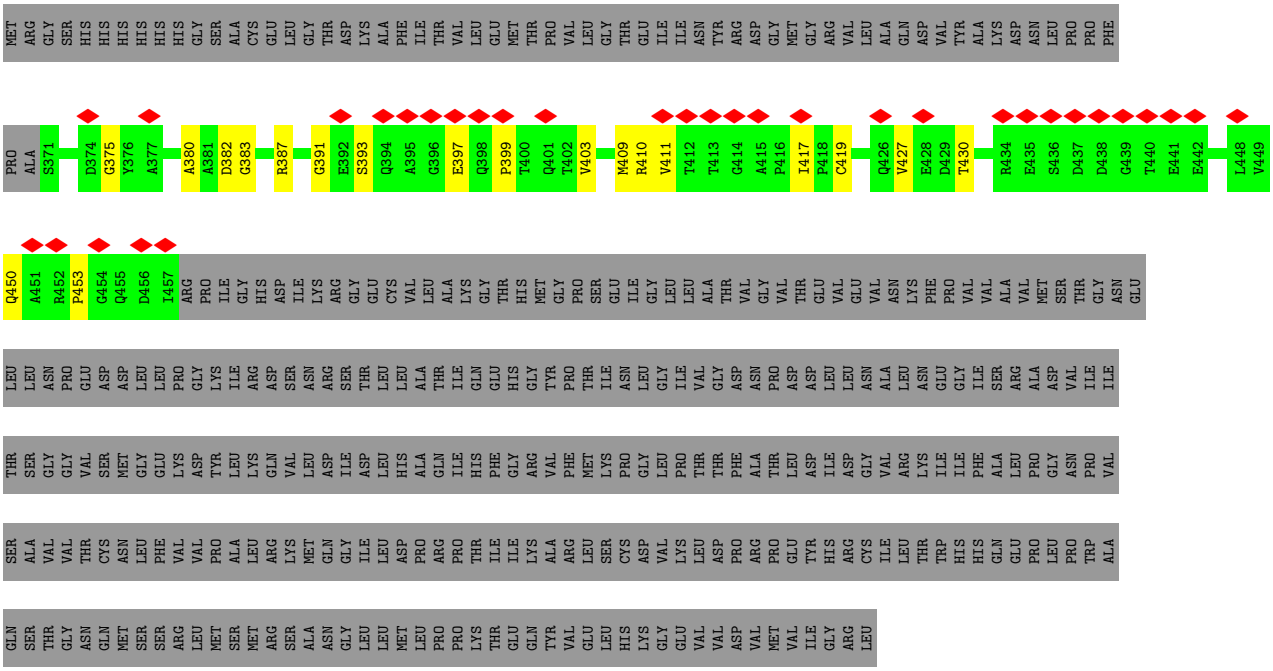
Chain B:



• Molecule 1: Gephyrin

Chain C:


8%
16%
80%


MET ARG GLY SER HIS HIS HIS HIS HIS HIS GLY SER ALA CYS GLU LEU GLY THR ASP LYS ALA PHE ILE THR VAL LEU GLU MET THR PRO VAL LEU GLY THR GLU ILE ILE ASN TYR ARG ASP GLY MET GLY ARG VAL LEU ALA GLN ASP VAL TYR ALA LYS ASP ASN LEU PRO PRO PHE
PRO ALA S371 D374 G375 V376 A377 A380 A381 D382 G383 R387 G391 E392 S393 Q394 A395 G396 E397 Q398 P399 T400 Q401 T402 V403 M409 R410 V411 T412 T413 G414 A415 P416 I417 P418 C419 Q426 V427 E428 D429 T430 R434 E435 S436 D437 D438 G439 T440 E441 E442 L448 V449
Q450 A451 R452 P453 G454 Q455 D456 I457 ARG PRO ILE GLY HIS ASP ILE LYS ARG GLY GLU CYS VAL LEU ALA LYS GLY THR HIS MET GLY PRO SER GLU ILE GLY LEU LEU ALA THR VAL GLY VAL THR GLU VAL GLU VAL ASN LYS PHE PRO VAL VAL ALA VAL MET SER THR GLY ASN GLU
LEU LEU ASN PRO GLU ASP LEU LEU PRO GLY LYS ILE ARG ASP SER ASN ARG SER THR LEU LEU ALA THR ILE GLN GLU HIS GLY TYR PRO THR ILE ASN LEU GLY ILE VAL GLY ASP ASN PRO ASP ASP LEU LEU ASN ALA LEU ASN GLU GLY GLY ILE SER ARG ALA ASP VAL ILE ILE
THR SER GLY GLY VAL SER MET GLY GLU LYS ASP TYR LEU LYS GLN VAL LEU ASP ILE ASP LEU HIS ALA GLN ILE HIS PHE GLY ARG VAL PHE MET LYS PRO GLY LEU PRO THR THR PHE ALA THR LEU ASP ILE ASP GLY VAL ARG LYS ILE ILE PHE ALA LEU PRO GLY ASN PRO VAL
SER ALA VAL VAL THR CYS ASN LEU PHE VAL VAL PRO ALA LEU ARG LYS MET GLN GLY ILE LEU ASP PRO ARG PRO THR ILE ILE LYS ALA ARG LEU SER CYS ASP VAL LYS LEU ASP PRO ARG PRO GLU TYR HIS ARG CYS ILE LEU THR TRP HIS HIS GLN GLU PRO LEU PRO TRP ALA
GLN SER THR GLY ASN GLN MET SER SER ARG LEU MET SER MET ARG SER ALA ASN GLY LEU LEU MET PRO PRO LYS THR GLU GLN TYR VAL GLU LEU HIS LYS GLY GLU VAL VAL ASP VAL MET VAL ILE GLY ARG LEU

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	120264	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 ($e^-/Å^2$)	30	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	96000	Depositor
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	4.464	Depositor
Minimum map value	-3.028	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.085	Depositor
Recommended contour level	0.5	Depositor
Map size (Å)	258.6, 258.6, 258.6	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.86200005, 0.86200005, 0.86200005	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	0.21	0/3116	0.44	0/4245
1	B	0.29	0/2504	0.44	2/3406 (0.1%)
1	C	0.15	0/599	0.42	0/818
All	All	0.24	0/6219	0.44	2/8469 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	497	LYS	CA-C-N	5.95	129.73	120.68
1	B	497	LYS	C-N-CA	5.95	129.73	120.68

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	3058	0	3039	50	0
1	B	2455	0	2493	22	0
1	C	592	0	532	11	0
All	All	6105	0	6064	80	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 7.

All (80) 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:716:THR:OG1	1:B:719:TYR:HB2	1.86	0.75
1:A:423:ALA:HB2	1:A:457:ILE:HG13	1.73	0.71
1:A:717:GLU:HG3	1:A:718:GLN:H	1.60	0.65
1:A:369:PRO:HD3	1:A:460:ILE:HD11	1.77	0.65
1:B:542:ILE:HD13	1:B:564:ARG:HH21	1.62	0.65
1:A:424:VAL:HG12	1:A:426:GLN:H	1.62	0.65
1:A:629:VAL:HG11	1:A:695:GLN:HA	1.80	0.64
1:A:470:VAL:HG23	1:A:471:LEU:H	1.62	0.64
1:B:554:LEU:HD21	1:B:582:LEU:HD23	1.78	0.63
1:C:382:ASP:HB3	1:C:387:ARG:HH21	1.65	0.61
1:A:355:LEU:HA	1:A:495:VAL:HG12	1.82	0.61
1:B:680:TRP:HE1	1:B:736:LEU:HD21	1.66	0.61
1:A:491:THR:HG23	1:A:492:GLU:HG3	1.82	0.60
1:A:401:GLN:NE2	1:A:402:THR:O	2.35	0.59
1:A:680:TRP:CD1	1:A:687:PRO:HB3	2.38	0.58
1:A:375:GLY:HA3	1:A:424:VAL:HG13	1.86	0.58
1:A:480:SER:OG	1:B:675:ARG:NH1	2.36	0.58
1:A:469:CYS:O	1:A:471:LEU:N	2.36	0.58
1:A:672:GLU:OE1	1:A:694:ASN:ND2	2.35	0.58
1:A:351:MET:HE1	1:B:536:GLU:HB2	1.86	0.58
1:B:569:ILE:HD11	1:B:639:VAL:HG11	1.84	0.57
1:A:675:ARG:O	1:A:692:THR:OG1	2.23	0.56
1:A:384:PRO:HB3	1:A:448:LEU:HA	1.87	0.56
1:A:736:LEU:HD21	1:B:736:LEU:HB3	1.90	0.54
1:A:608:THR:HB	1:A:623:ALA:HB3	1.90	0.54
1:A:647:GLN:HG3	1:A:648:GLY:H	1.72	0.54
1:B:643:LEU:HA	1:B:646:MET:HE3	1.90	0.54
1:B:656:ILE:HG12	1:B:731:MET:HG2	1.90	0.54
1:A:372:VAL:HG22	1:A:456:ASP:HB3	1.91	0.53
1:A:602:LYS:HB2	1:A:603:PRO:HD2	1.90	0.53
1:A:378:VAL:O	1:A:422:ASP:HB2	2.10	0.52
1:A:660:ARG:HB2	1:A:688:TRP:HD1	1.75	0.51
1:A:695:GLN:O	1:A:697:SER:N	2.44	0.50
1:A:393:SER:O	1:A:394:GLN:HB2	2.13	0.49
1:A:680:TRP:NE1	1:A:687:PRO:HB3	2.28	0.49
1:C:375:GLY:N	1:C:411:VAL:O	2.45	0.49
1:C:391:GLY:HA3	1:C:409:MET:SD	2.53	0.48
1:A:515:ASP:O	1:A:523:ARG:NH1	2.46	0.48
1:A:585:VAL:O	1:A:589:ASP:HB2	2.13	0.47
1:B:369:PRO:HG3	1:B:460:ILE:HD11	1.96	0.47
1:A:510:LEU:HD22	1:A:524:ASP:HB3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:660:ARG:HB2	1:B:688:TRP:HB3	1.97	0.46
1:A:355:LEU:HD23	1:A:355:LEU:H	1.80	0.46
1:A:602:LYS:HD3	1:A:672:GLU:HG2	1.97	0.46
1:B:479:PRO:O	1:B:482:ILE:HG22	2.16	0.46
1:B:359:VAL:HG13	1:B:490:VAL:HG21	1.97	0.46
1:B:709:LEU:HG	1:B:733:ILE:HD13	1.98	0.45
1:C:403:VAL:HB	1:C:409:MET:HE2	1.98	0.45
1:A:374:ASP:OD1	1:A:374:ASP:N	2.49	0.45
1:A:708:GLY:HA2	1:A:733:ILE:HG23	1.99	0.45
1:B:511:LEU:HD11	1:B:521:LYS:HD3	1.99	0.44
1:C:383:GLY:HA2	1:C:450:GLN:OE1	2.18	0.44
1:A:701:MET:SD	1:A:701:MET:N	2.91	0.44
1:B:668:ASP:O	1:B:669:PRO:C	2.61	0.43
1:A:361:ALA:HA	1:A:488:VAL:HG13	1.99	0.43
1:A:660:ARG:HB2	1:A:688:TRP:CD1	2.52	0.43
1:A:717:GLU:HG3	1:A:718:GLN:N	2.30	0.43
1:C:397:GLU:HG2	1:C:399:PRO:HD2	2.01	0.43
1:A:379:ARG:NH1	1:A:405:PRO:HA	2.35	0.42
1:C:393:SER:OG	1:C:410:ARG:O	2.31	0.42
1:B:341:GLY:O	1:B:496:ASN:ND2	2.49	0.42
1:A:369:PRO:O	1:A:416:PRO:HA	2.19	0.42
1:A:675:ARG:HA	1:A:709:LEU:HD13	2.02	0.42
1:C:380:ALA:HB1	1:C:453:PRO:HG3	2.01	0.42
1:A:606:PRO:HB2	1:A:625:PRO:HA	2.02	0.41
1:A:717:GLU:HG3	1:A:718:GLN:HG2	2.01	0.41
1:C:417:ILE:HG22	1:C:419:CYS:H	1.85	0.41
1:A:353:ARG:HG2	1:A:498:PHE:CZ	2.56	0.41
1:A:485:LEU:HD23	1:A:485:LEU:HA	1.85	0.41
1:B:527:ARG:C	1:B:529:THR:H	2.29	0.41
1:B:680:TRP:CH2	1:B:687:PRO:HD3	2.55	0.41
1:A:559:ASN:O	1:A:562:ILE:HG22	2.21	0.41
1:A:602:LYS:HB3	1:A:670:ARG:HB2	2.03	0.41
1:B:551:PRO:HG3	1:B:581:TYR:CE2	2.56	0.41
1:A:393:SER:OG	1:A:411:VAL:HA	2.21	0.41
1:C:382:ASP:HB3	1:C:387:ARG:NH2	2.33	0.40
1:A:477:MET:HE1	1:A:482:ILE:HG12	2.03	0.40
1:A:342:THR:OG1	1:A:494:GLU:HG2	2.21	0.40
1:B:669:PRO:HA	1:B:715:LYS:HB3	2.03	0.40
1:C:427:VAL:O	1:C:430:THR:OG1	2.36	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	408/428 (95%)	341 (84%)	62 (15%)	5 (1%)	11 43
1	B	318/428 (74%)	288 (91%)	28 (9%)	2 (1%)	22 55
1	C	85/428 (20%)	72 (85%)	13 (15%)	0	100 100
All	All	811/1284 (63%)	701 (86%)	103 (13%)	7 (1%)	17 48

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	394	GLN
1	A	433	ILE
1	A	470	VAL
1	A	589	ASP
1	B	600	PHE
1	B	601	MET
1	A	418	PRO

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	326/361 (90%)	326 (100%)	0	100 100
1	B	271/361 (75%)	267 (98%)	4 (2%)	60 78
1	C	54/361 (15%)	54 (100%)	0	100 100
All	All	651/1083 (60%)	647 (99%)	4 (1%)	82 92

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	599	VAL
1	B	600	PHE
1	B	601	MET
1	B	670	ARG

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	407	GLN
1	A	462	HIS
1	A	636	ASN
1	B	496	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.

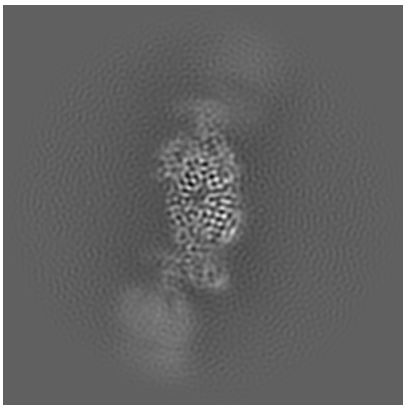
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-51644. These allow visual inspection of the internal detail of the map and identification of artifacts.

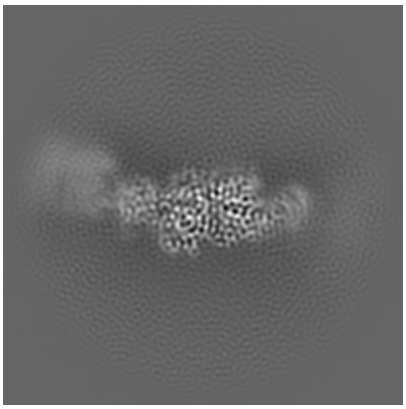
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

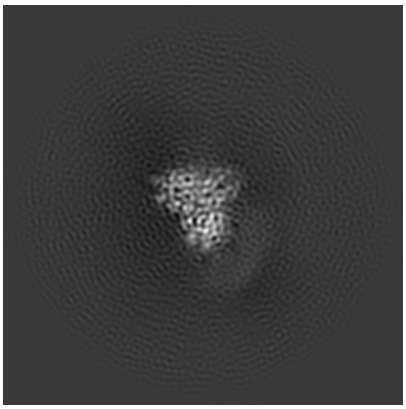
6.1.1 Primary map



X

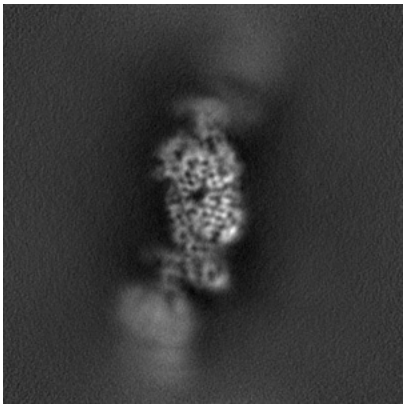


Y

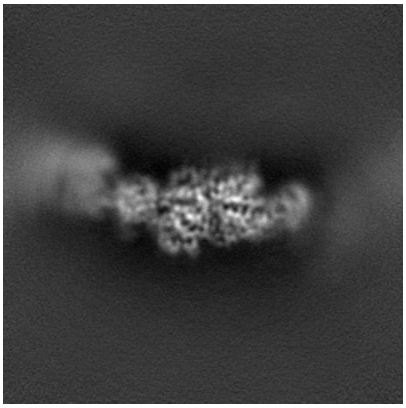


Z

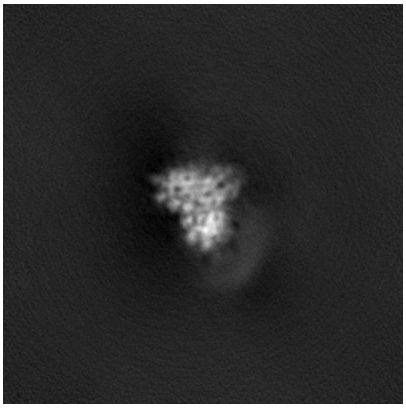
6.1.2 Raw map



X



Y

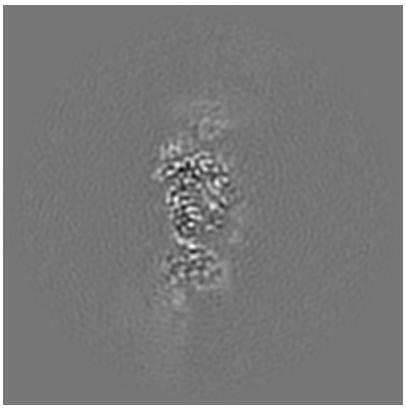


Z

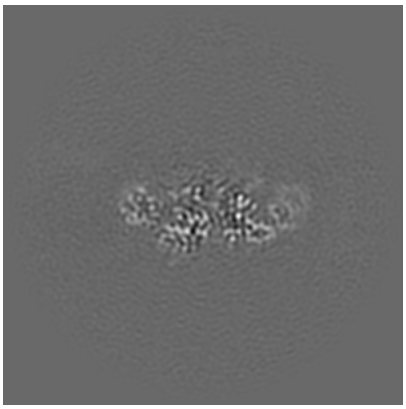
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

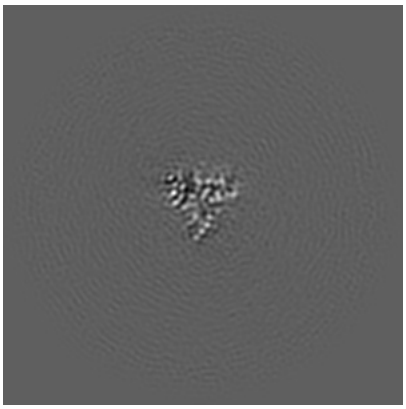
6.2.1 Primary map



X Index: 150

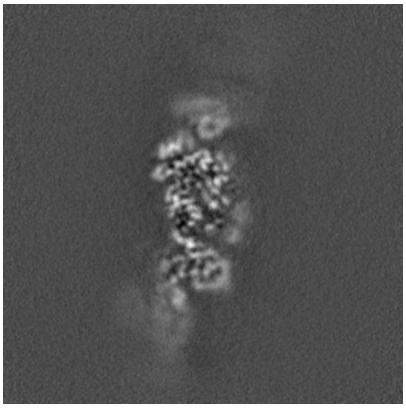


Y Index: 150

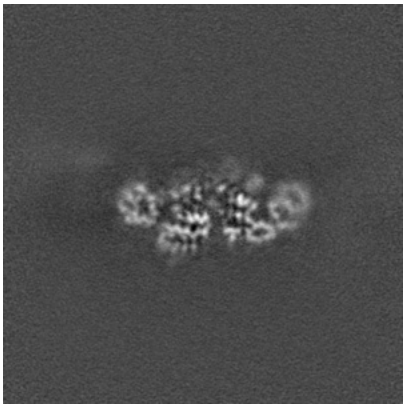


Z Index: 150

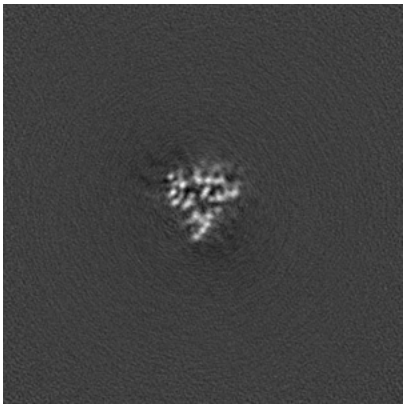
6.2.2 Raw map



X Index: 150



Y Index: 150

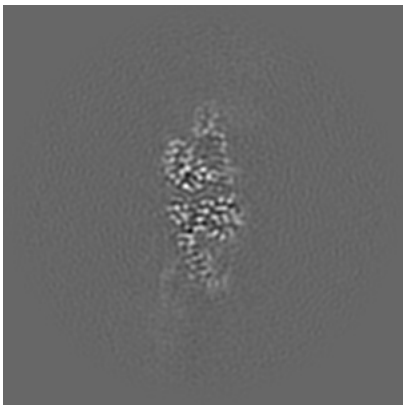


Z Index: 150

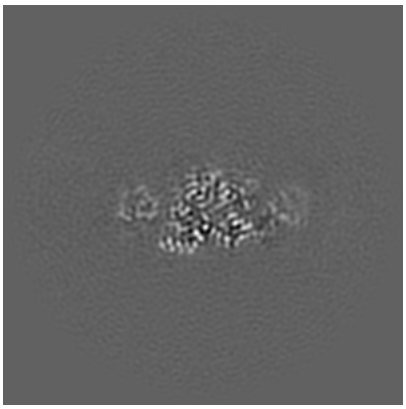
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

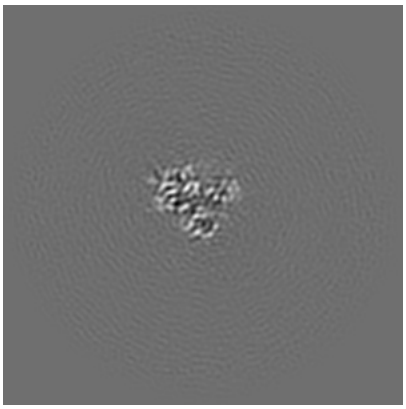
6.3.1 Primary map



X Index: 141

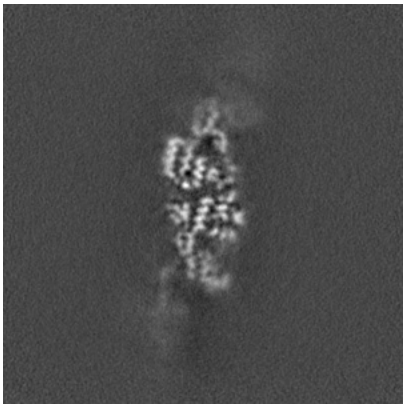


Y Index: 155

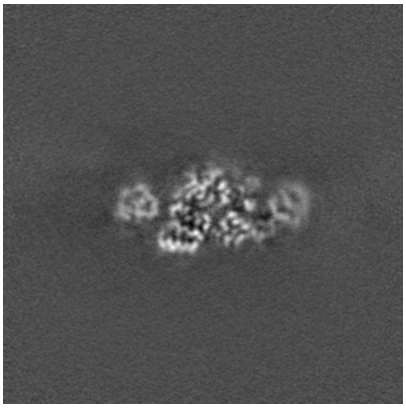


Z Index: 142

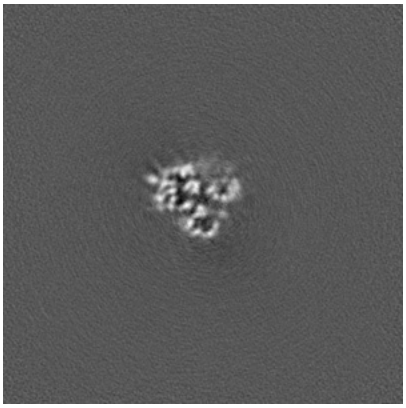
6.3.2 Raw map



X Index: 140



Y Index: 154

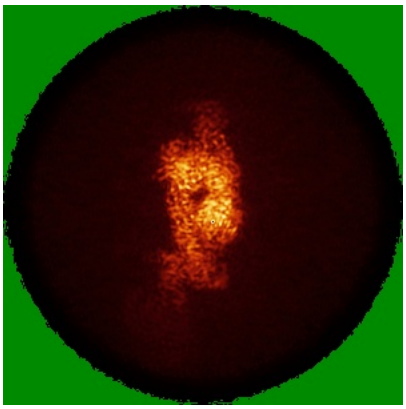


Z Index: 142

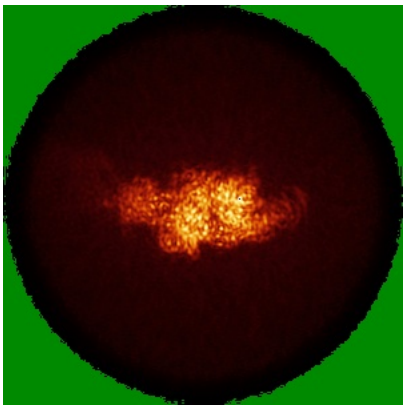
The images above show the largest variance slices of the map in three orthogonal directions.

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

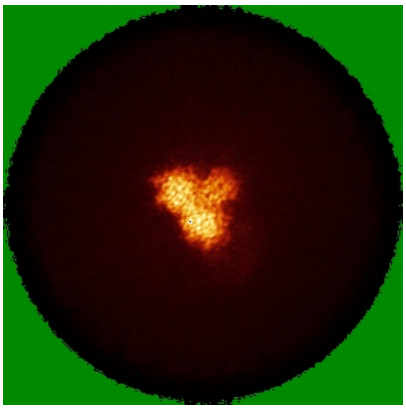
6.4.1 Primary map



X

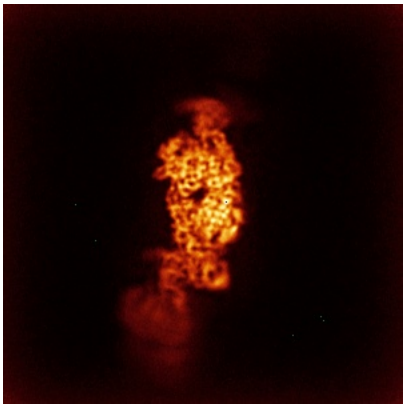


Y

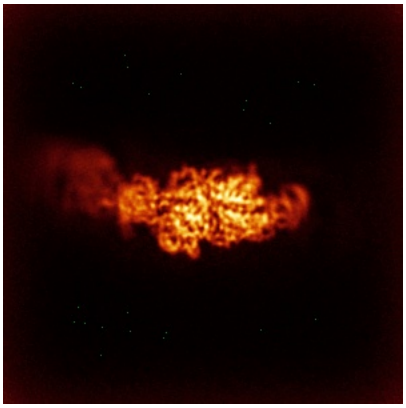


Z

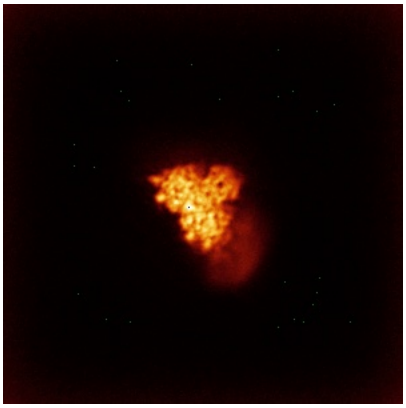
6.4.2 Raw map



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.

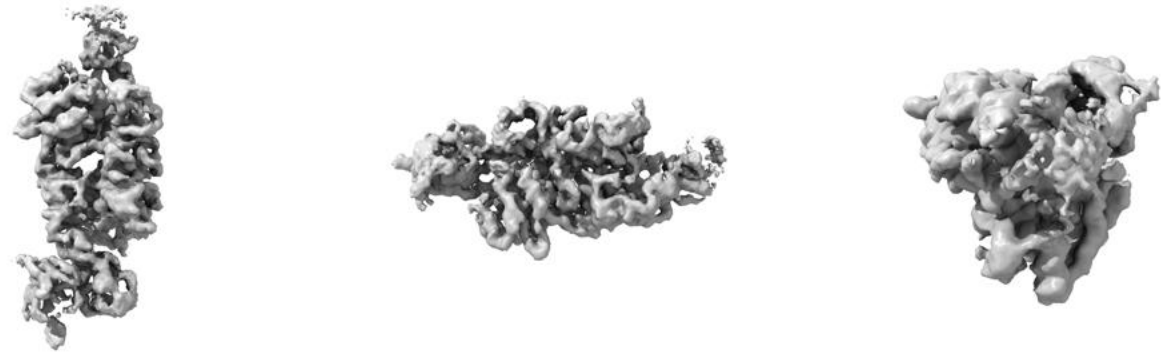
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.5. 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.

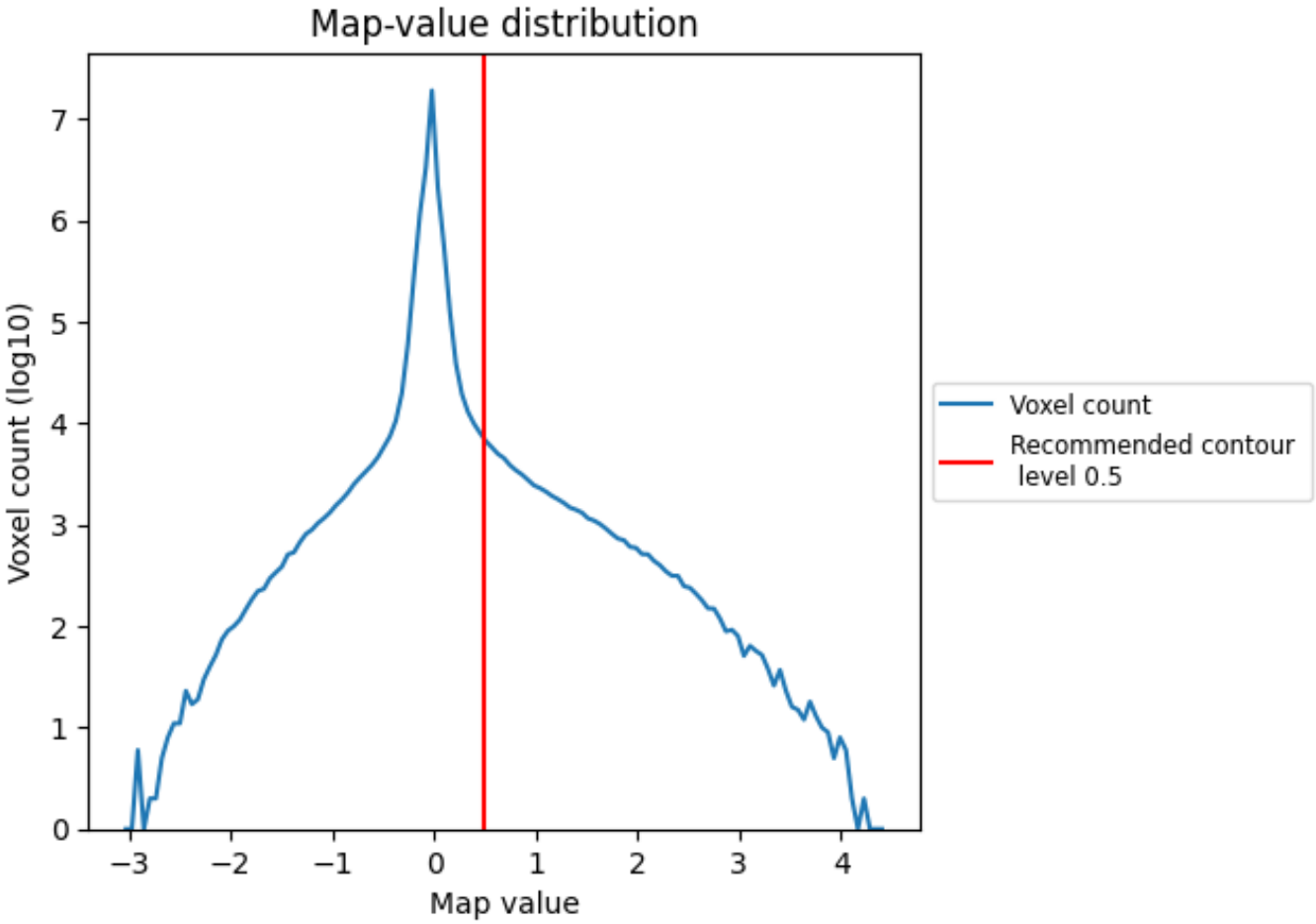
6.6 Mask visualisation (i)

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

7 Map analysis

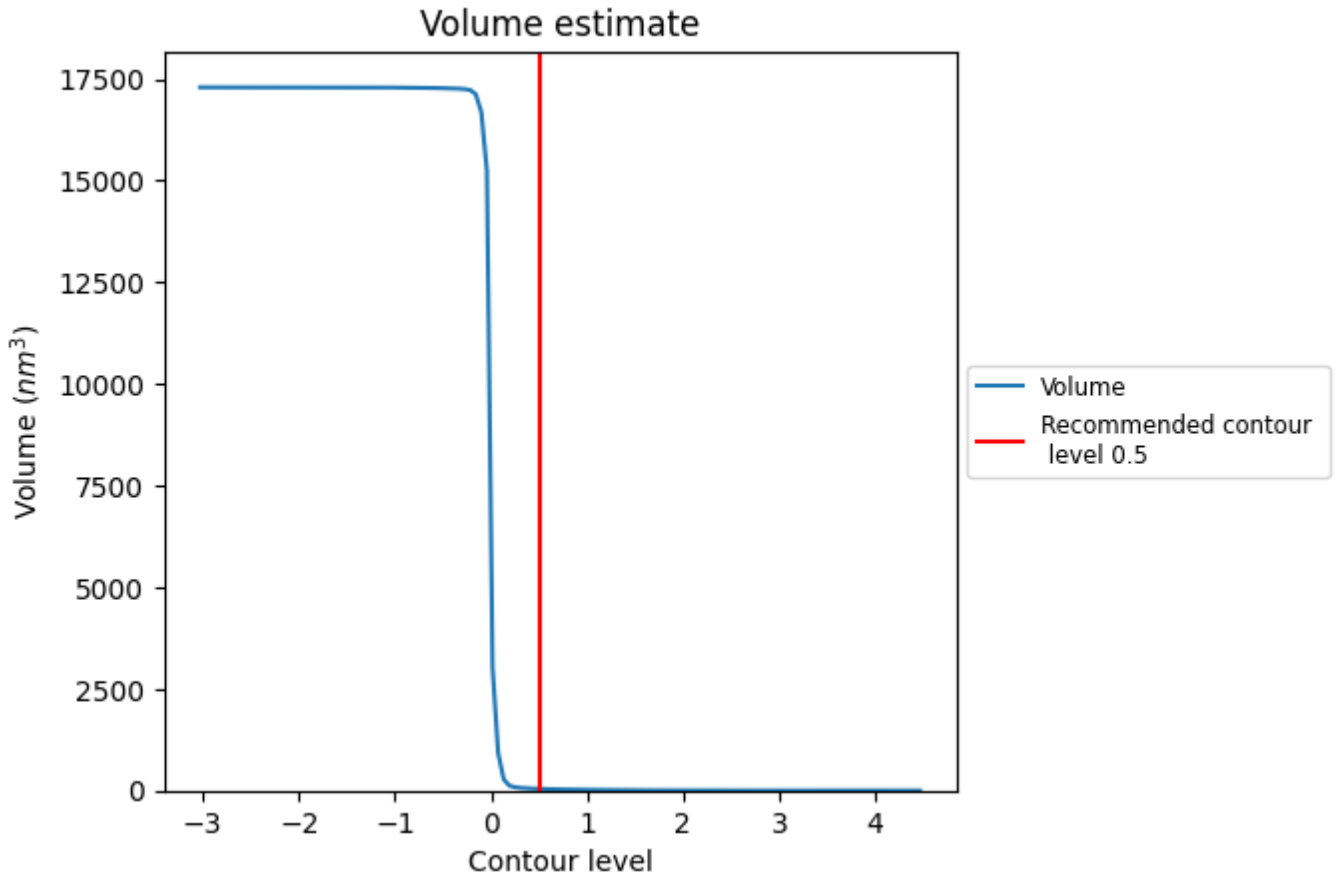
This section contains the results of statistical analysis of the map.

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.

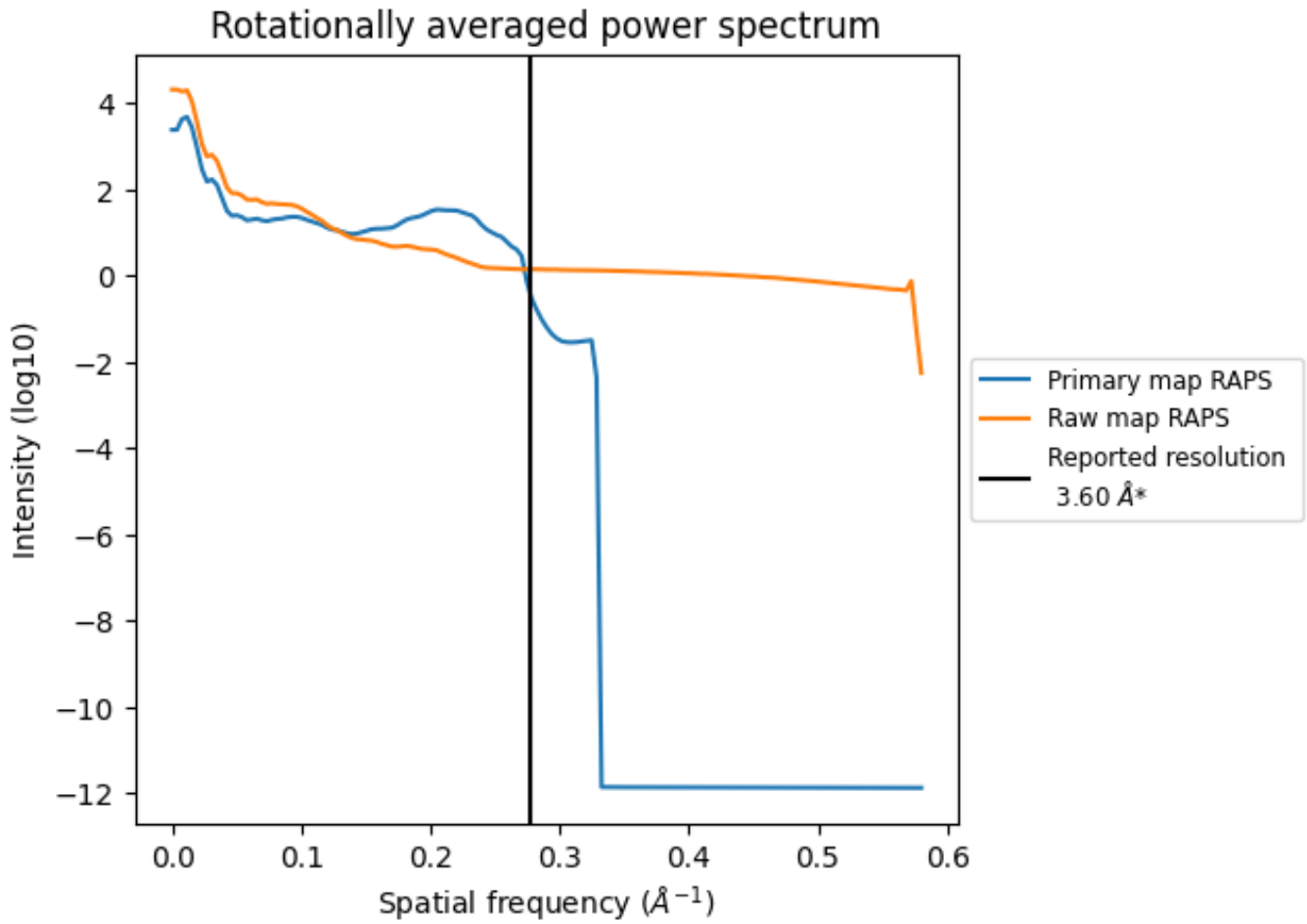
7.2 Volume estimate (i)



The volume at the recommended contour level is 42 nm^3; this corresponds to an approximate mass of 38 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)

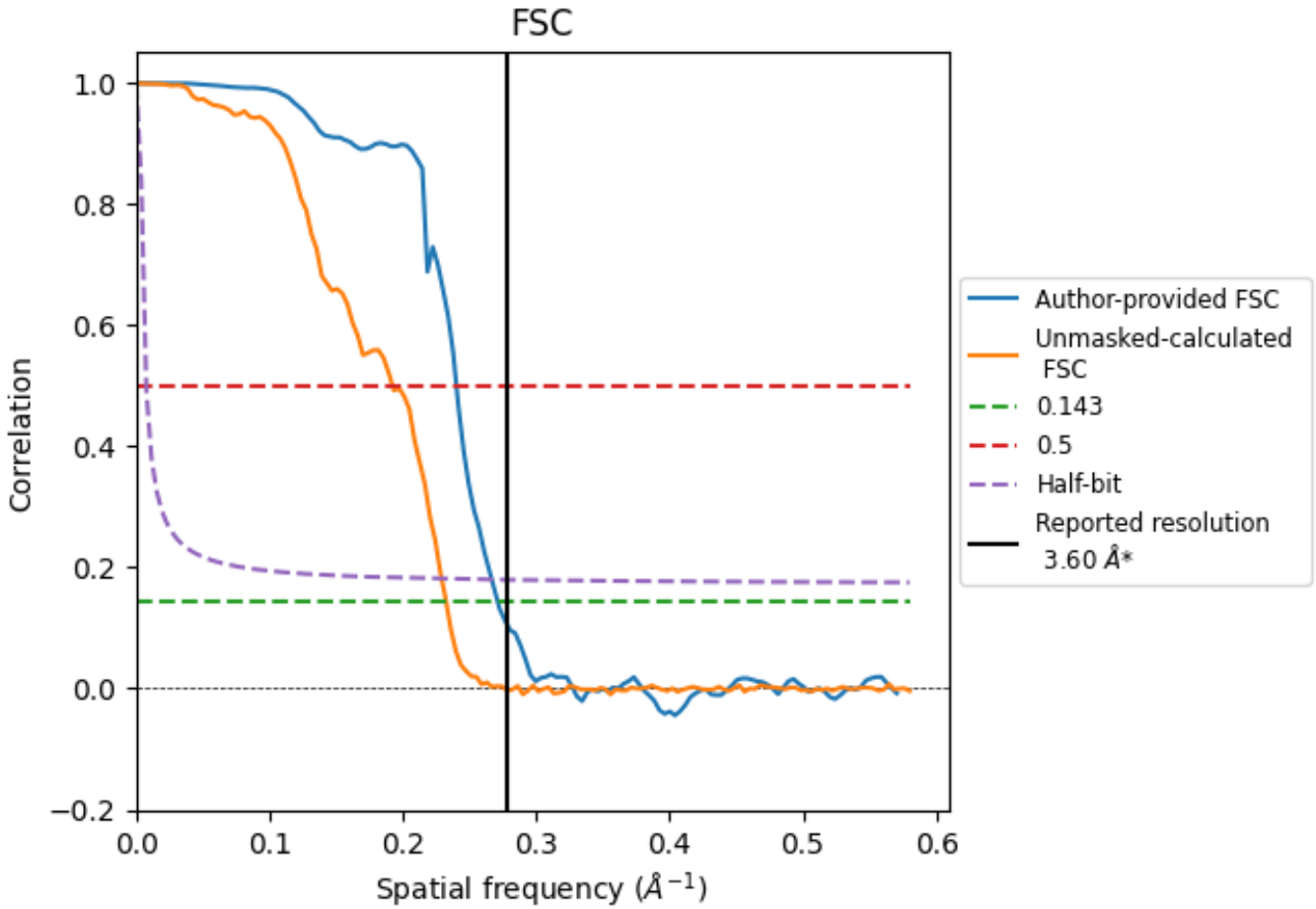


*Reported resolution corresponds to spatial frequency of 0.278 Å^{-1}

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 0.278 $Å^{-1}$

8.2 Resolution estimates (i)

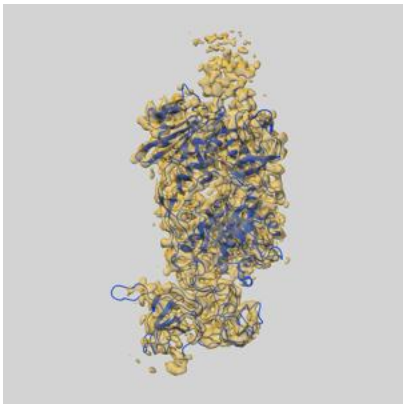
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.60	-	-
Author-provided FSC curve	3.69	4.16	3.75
Unmasked-calculated*	4.30	5.20	4.37

*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 4.30 differs from the reported value 3.6 by more than 10 %

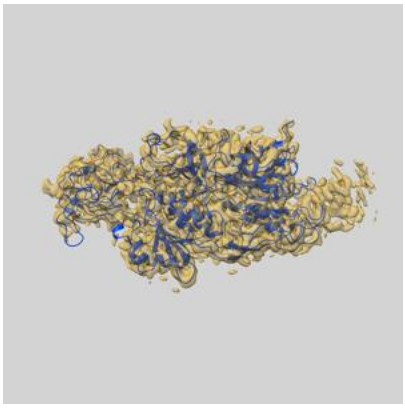
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-51644 and PDB model 9GW9. Per-residue inclusion information can be found in section 3 on page 5.

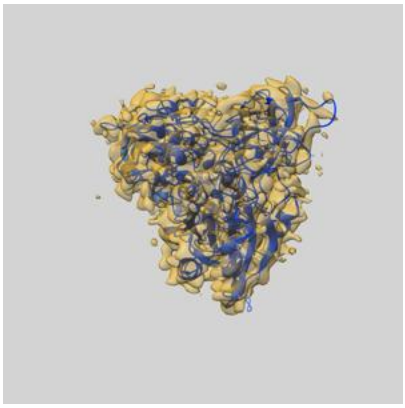
9.1 Map-model overlay



X



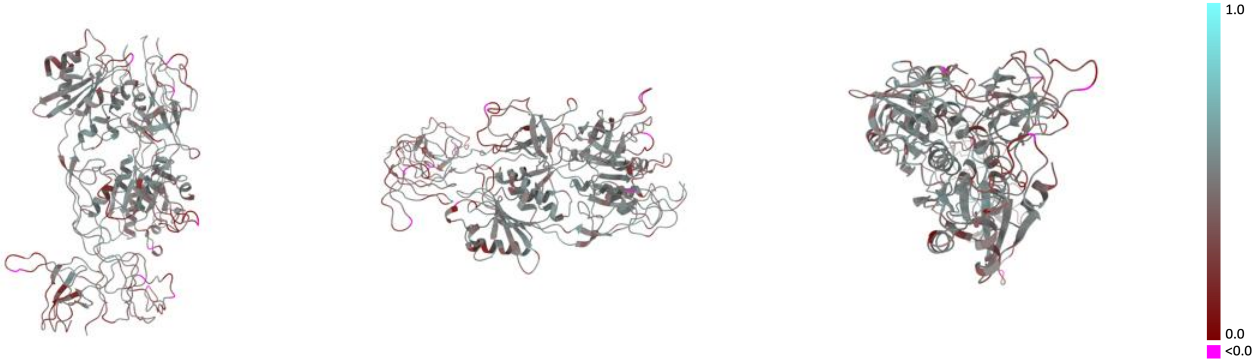
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.5 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.

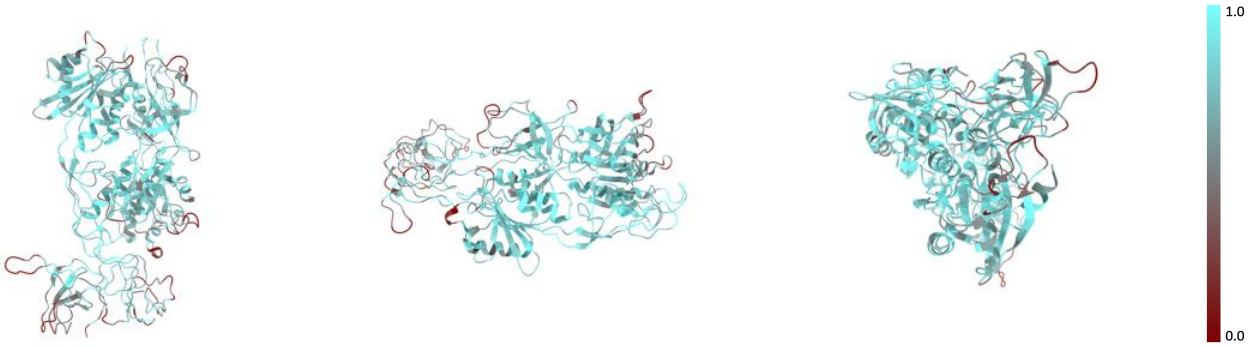
9.2 Q-score mapped to coordinate model



X Y Z

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.

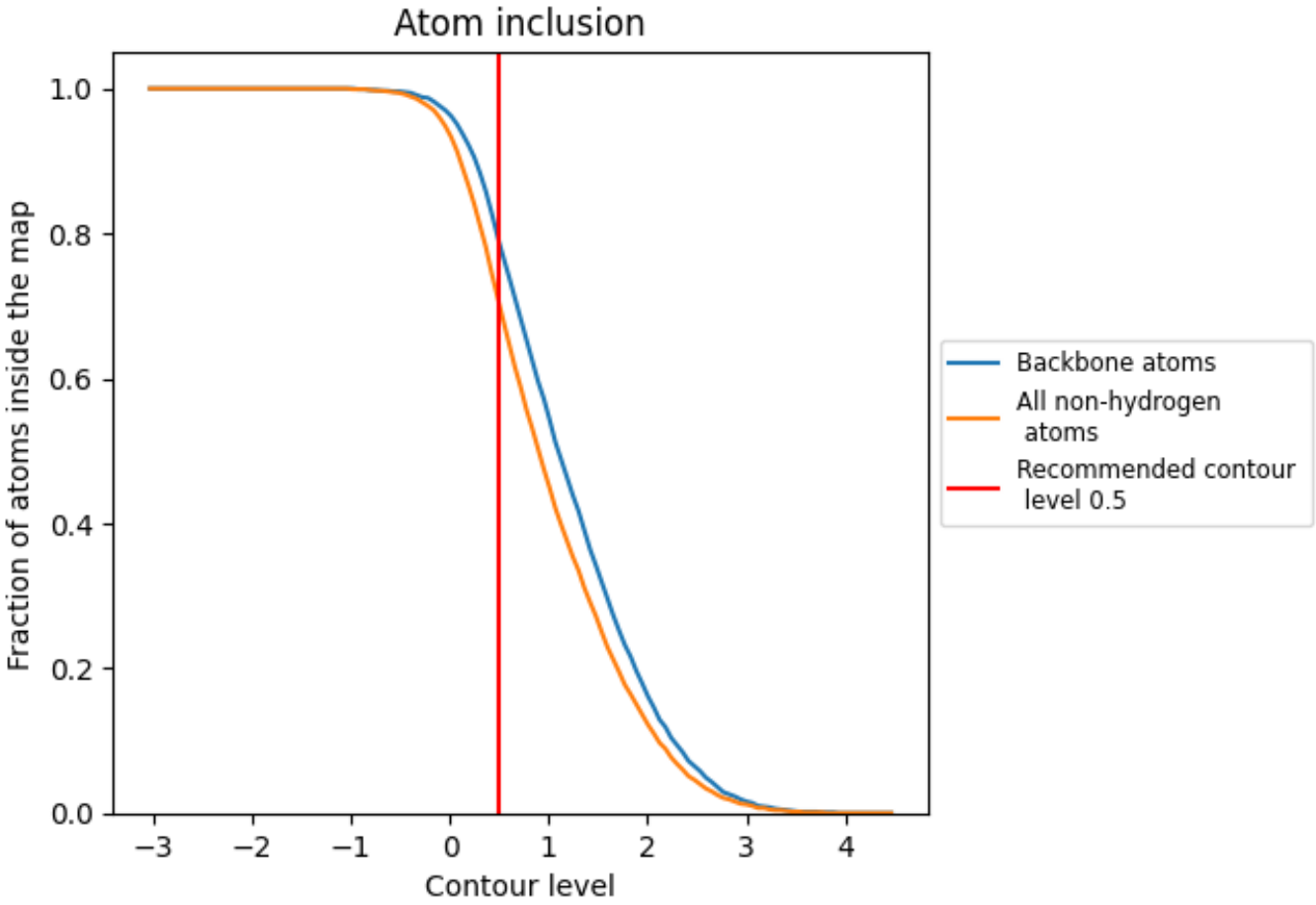
9.3 Atom inclusion mapped to coordinate model



X Y Z

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 (0.5).

9.4 Atom inclusion (i)



At the recommended contour level, 79% of all backbone atoms, 70% 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 (0.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7030	0.4200
A	0.7150	0.4260
B	0.7380	0.4290
C	0.4960	0.3480