Full wwPDB EM Validation Report ⓘ

Mar 20, 2026 – 12:16 AM UTC

PDB ID	:	9P96 / pdb_00009p96
EMDB ID	:	EMD-71400
Title	:	CryoEM structure of the apo integrin alpha4beta7
Authors	:	Hollis, J.A.; Campbell, M.G.
Deposited on	:	2025-06-24
Resolution	:	3.10 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references ⓘ) were used in the production of this report:

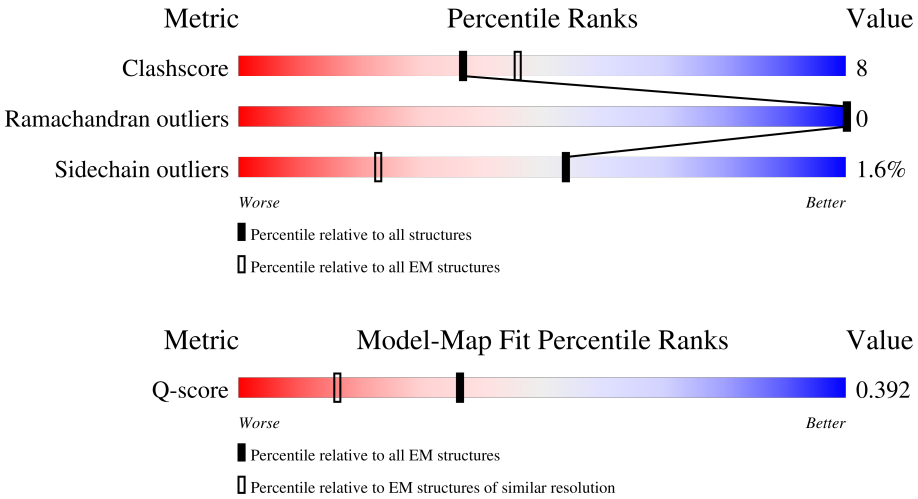
EMDB validation analysis	:	0.0.1.dev132
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance

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

The reported resolution of this entry is 3.10 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14724 (2.60 - 3.60)

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	1023	5% 47% 10% 43%
2	B	373	8% 84% 15%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 14703 atoms, of which 7257 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 Integrin alpha-4.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
1	A	587	8964	2864	4421	786	871	22	0	0

There are 53 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	938	GLY	-	expression tag	UNP P13612
A	939	THR	-	expression tag	UNP P13612
A	940	GLY	-	expression tag	UNP P13612
A	941	GLY	-	expression tag	UNP P13612
A	942	LEU	-	expression tag	UNP P13612
A	943	GLU	-	expression tag	UNP P13612
A	944	VAL	-	expression tag	UNP P13612
A	945	LEU	-	expression tag	UNP P13612
A	946	PHE	-	expression tag	UNP P13612
A	947	GLN	-	expression tag	UNP P13612
A	948	GLY	-	expression tag	UNP P13612
A	949	PRO	-	expression tag	UNP P13612
A	950	GLY	-	expression tag	UNP P13612
A	951	GLU	-	expression tag	UNP P13612
A	952	ASN	-	expression tag	UNP P13612
A	953	ALA	-	expression tag	UNP P13612
A	954	GLN	-	expression tag	UNP P13612
A	955	CYS	-	expression tag	UNP P13612
A	956	GLU	-	expression tag	UNP P13612
A	957	LYS	-	expression tag	UNP P13612
A	958	GLU	-	expression tag	UNP P13612
A	959	LEU	-	expression tag	UNP P13612
A	960	GLN	-	expression tag	UNP P13612
A	961	ALA	-	expression tag	UNP P13612
A	962	LEU	-	expression tag	UNP P13612
A	963	GLU	-	expression tag	UNP P13612
A	964	LYS	-	expression tag	UNP P13612
A	965	GLU	-	expression tag	UNP P13612

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Chain	Residue	Modelled	Actual	Comment	Reference
A	966	ASN	-	expression tag	UNP P13612
A	967	ALA	-	expression tag	UNP P13612
A	968	GLN	-	expression tag	UNP P13612
A	969	LEU	-	expression tag	UNP P13612
A	970	GLU	-	expression tag	UNP P13612
A	971	TRP	-	expression tag	UNP P13612
A	972	GLU	-	expression tag	UNP P13612
A	973	LEU	-	expression tag	UNP P13612
A	974	GLN	-	expression tag	UNP P13612
A	975	ALA	-	expression tag	UNP P13612
A	976	LEU	-	expression tag	UNP P13612
A	977	GLU	-	expression tag	UNP P13612
A	978	LYS	-	expression tag	UNP P13612
A	979	GLU	-	expression tag	UNP P13612
A	980	LEU	-	expression tag	UNP P13612
A	981	ALA	-	expression tag	UNP P13612
A	982	GLN	-	expression tag	UNP P13612
A	983	TRP	-	expression tag	UNP P13612
A	984	SER	-	expression tag	UNP P13612
A	985	HIS	-	expression tag	UNP P13612
A	986	PRO	-	expression tag	UNP P13612
A	987	GLN	-	expression tag	UNP P13612
A	988	PHE	-	expression tag	UNP P13612
A	989	GLU	-	expression tag	UNP P13612
A	990	LYS	-	expression tag	UNP P13612

- Molecule 2 is a protein called Integrin beta-7.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	B	373	Total	C	H	N	O	S	0	0
			5733	1814	2836	515	557	11		

- Molecule 3 is CALCIUM ION (CCD ID: CA) (formula: Ca).

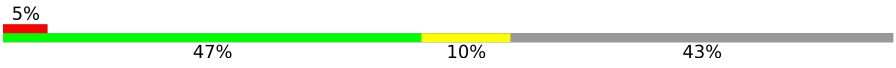
Mol	Chain	Residues	Atoms		AltConf
3	A	3	Total	Ca	0
			3	3	
3	B	3	Total	Ca	0
			3	3	

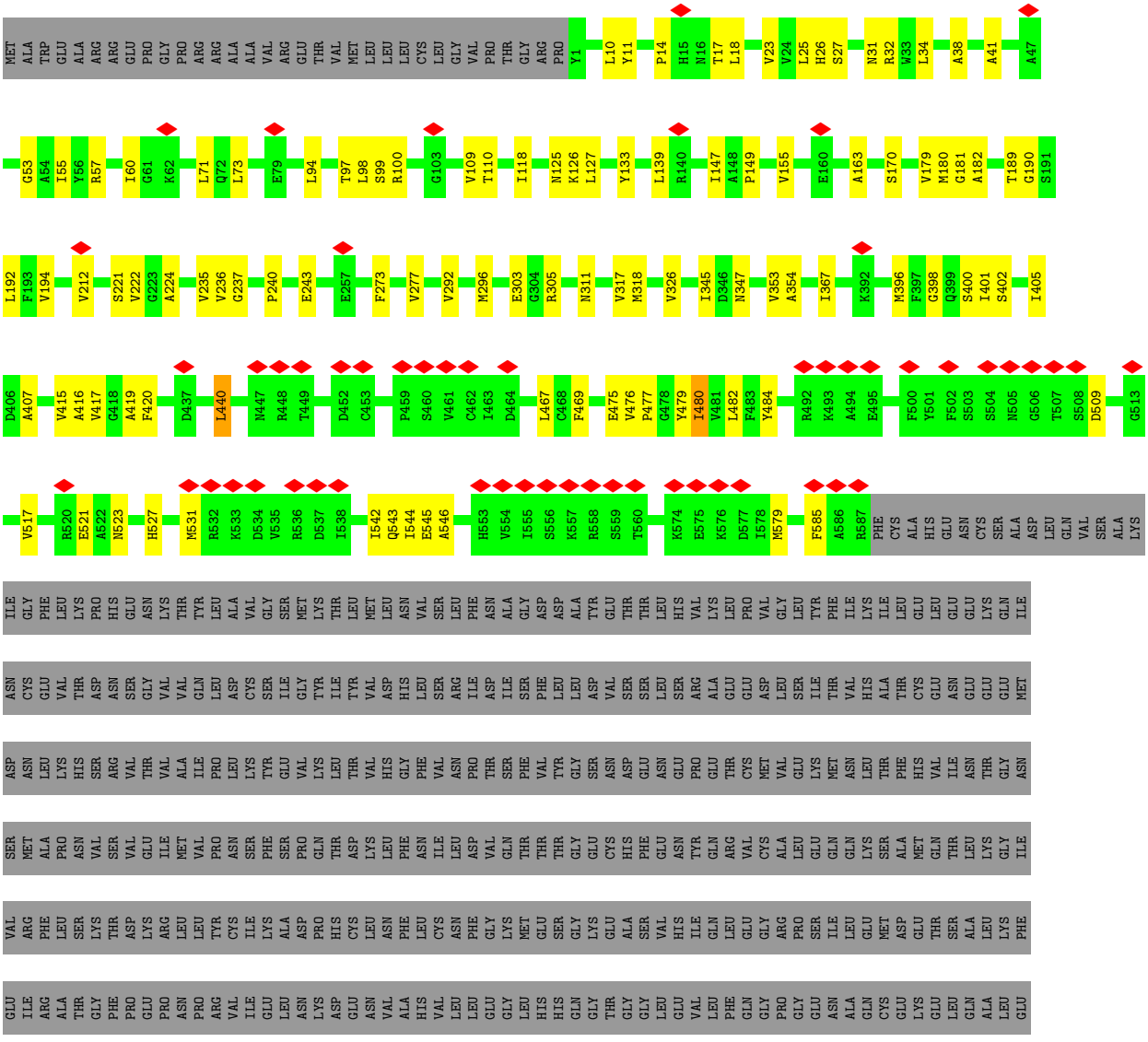
3 Residue-property plots (i)

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: Integrin alpha-4

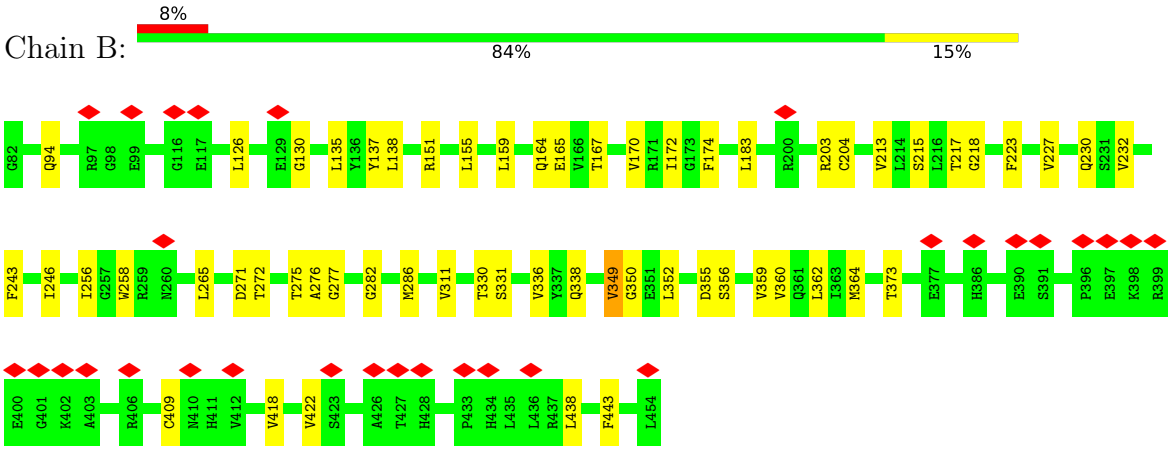
Chain A:





• Molecule 2: Integrin beta-7

Chain B:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	202130	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.880	Depositor
Minimum map value	-0.048	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.013	Depositor
Recommended contour level	0.07	Depositor
Map size (Å)	368.016, 368.016, 368.016	wwPDB
Map dimensions	328, 328, 328	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.122, 1.122, 1.122	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CA

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	0/4644	0.32	0/6289
2	B	0.15	0/2959	0.31	0/4018
All	All	0.15	0/7603	0.32	0/10307

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4543	4421	4423	79	0
2	B	2897	2836	2834	36	0
3	A	3	0	0	0	0
3	B	3	0	0	0	0
All	All	7446	7257	7257	112	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 8.

All (112) 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:B:364:MET:HA	2:B:364:MET:HE2	1.68	0.76
1:A:367:ILE:HD13	1:A:417:VAL:HG21	1.73	0.71
2:B:215:SER:O	2:B:217:THR:HG23	1.91	0.69
2:B:223:PHE:CE1	2:B:227:VAL:HG21	2.37	0.60
1:A:73:LEU:HD12	1:A:94:LEU:HD21	1.82	0.59
1:A:318:MET:HA	1:A:318:MET:HE3	1.84	0.59
1:A:23:VAL:HG21	1:A:416:ALA:O	2.02	0.59
1:A:60:ILE:HG21	1:A:407:ALA:HB1	1.85	0.57
1:A:147:ILE:HG22	1:A:180:MET:HE1	1.87	0.56
1:A:476:VAL:HG22	1:A:477:PRO:HD2	1.88	0.56
1:A:55:ILE:HG22	1:A:98:LEU:HD11	1.88	0.55
1:A:367:ILE:HG22	1:A:398:GLY:HA2	1.88	0.55
2:B:137:TYR:OH	2:B:359:VAL:HG21	2.06	0.55
1:A:517:VAL:HG22	1:A:523:ASN:HD21	1.71	0.55
2:B:243:PHE:HE2	2:B:311:VAL:HG22	1.70	0.55
1:A:155:VAL:HG12	1:A:163:ALA:HB2	1.88	0.55
1:A:467:LEU:HD23	1:A:469:PHE:CZ	2.42	0.54
2:B:94:GLN:NE2	2:B:126:LEU:HD21	2.23	0.54
1:A:179:VAL:HG21	1:A:224:ALA:HB2	1.90	0.54
1:A:34:LEU:HD11	1:A:416:ALA:HB2	1.89	0.54
1:A:440:LEU:HD12	1:A:467:LEU:HG	1.90	0.53
1:A:482:LEU:HD12	1:A:517:VAL:HG21	1.91	0.53
1:A:367:ILE:CD1	1:A:417:VAL:HG21	2.38	0.53
1:A:71:LEU:HD12	1:A:71:LEU:N	2.24	0.53
1:A:305:ARG:CD	1:A:326:VAL:HG12	2.39	0.52
2:B:174:PHE:CG	2:B:227:VAL:HG22	2.45	0.52
1:A:544:ILE:HD12	1:A:544:ILE:N	2.24	0.52
1:A:170:SER:OG	1:A:222:VAL:HG22	2.10	0.52
1:A:192:LEU:HD21	1:A:236:VAL:C	2.34	0.52
1:A:401:ILE:HG22	1:A:402:SER:N	2.24	0.51
1:A:440:LEU:HD13	1:A:579:MET:SD	2.51	0.51
2:B:203:ARG:O	2:B:232:VAL:HG22	2.10	0.51
1:A:14:PRO:HB2	1:A:17:THR:HG21	1.92	0.51
1:A:18:LEU:HD22	1:A:420:PHE:HD2	1.76	0.50
2:B:272:THR:OG1	2:B:336:VAL:HG21	2.12	0.50
2:B:165:GLU:HA	2:B:165:GLU:OE1	2.11	0.50
1:A:543:GLN:C	1:A:544:ILE:HD12	2.36	0.50
1:A:189:THR:HG23	1:A:212:VAL:HG12	1.94	0.50
1:A:34:LEU:HD11	1:A:416:ALA:CB	2.42	0.49
1:A:155:VAL:CG1	1:A:163:ALA:HB2	2.42	0.49
1:A:221:SER:OG	1:A:277:VAL:HG22	2.12	0.49
2:B:130:GLY:HA2	2:B:167:THR:HA	1.93	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:542:ILE:HG22	1:A:544:ILE:HD11	1.95	0.48
1:A:243:GLU:OE1	1:A:243:GLU:HA	2.13	0.48
1:A:303:GLU:N	1:A:303:GLU:OE2	2.46	0.48
1:A:477:PRO:HG2	1:A:480:ILE:HD11	1.95	0.48
1:A:127:LEU:HD23	1:A:163:ALA:HB1	1.96	0.48
1:A:17:THR:HG22	1:A:41:ALA:HA	1.95	0.47
1:A:18:LEU:HD22	1:A:420:PHE:CD2	2.49	0.47
1:A:273:PHE:CE2	1:A:292:VAL:HG11	2.49	0.47
1:A:149:PRO:HG3	1:A:180:MET:HE3	1.96	0.47
2:B:204:CYS:HA	2:B:232:VAL:O	2.15	0.47
2:B:330:THR:HG22	2:B:331:SER:N	2.30	0.47
2:B:135:LEU:HD21	2:B:159:LEU:HD21	1.96	0.47
1:A:25:LEU:HD23	1:A:34:LEU:HD12	1.97	0.46
1:A:194:VAL:CG2	1:A:235:VAL:HG11	2.45	0.46
1:A:396:MET:HE2	2:B:286:MET:HE1	1.96	0.46
1:A:27:SER:CB	1:A:405:ILE:HD12	2.45	0.46
1:A:521:GLU:N	1:A:521:GLU:OE1	2.49	0.46
2:B:350:GLY:HA3	2:B:362:LEU:HD11	1.98	0.46
1:A:10:LEU:HD23	1:A:11:TYR:N	2.31	0.46
1:A:192:LEU:HD21	1:A:237:GLY:N	2.30	0.46
2:B:138:LEU:HD22	2:B:265:LEU:HD11	1.98	0.46
1:A:296:MET:HE3	2:B:277:GLY:CA	2.45	0.45
1:A:311:ASN:N	1:A:318:MET:HE1	2.31	0.45
2:B:183:LEU:O	2:B:282:GLY:HA2	2.17	0.45
1:A:57:ARG:HD3	1:A:71:LEU:HD11	1.98	0.45
2:B:349:VAL:HG12	2:B:350:GLY:H	1.82	0.44
2:B:256:ILE:HG21	2:B:258:TRP:NE1	2.32	0.44
1:A:182:ALA:O	1:A:190:GLY:HA2	2.18	0.44
1:A:353:VAL:HG22	1:A:354:ALA:N	2.33	0.44
2:B:422:VAL:HG11	2:B:438:LEU:HD11	1.99	0.44
2:B:352:LEU:HD11	2:B:356:SER:OG	2.18	0.43
1:A:542:ILE:HD11	1:A:585:PHE:CZ	2.52	0.43
1:A:73:LEU:HD11	1:A:110:THR:HG21	2.01	0.43
2:B:164:GLN:HA	2:B:167:THR:O	2.18	0.43
1:A:475:GLU:CD	1:A:475:GLU:O	2.62	0.43
1:A:544:ILE:HG22	1:A:545:GLU:N	2.33	0.43
2:B:138:LEU:HD23	2:B:246:ILE:HD13	2.01	0.43
1:A:38:ALA:O	1:A:53:GLY:HA2	2.19	0.43
2:B:172:ILE:HD12	2:B:223:PHE:CD2	2.54	0.42
2:B:135:LEU:CD2	2:B:159:LEU:HD21	2.49	0.42
1:A:127:LEU:HD12	1:A:127:LEU:H	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:151:ARG:HG3	2:B:355:ASP:O	2.19	0.42
1:A:31:ASN:O	1:A:32:ARG:HD3	2.20	0.42
1:A:100:ARG:NH1	1:A:405:ILE:HD11	2.34	0.42
1:A:479:TYR:O	1:A:480:ILE:HD13	2.20	0.42
1:A:118:ILE:HG22	1:A:126:LYS:HD2	2.01	0.42
1:A:546:ALA:HB3	1:A:579:MET:HG3	2.02	0.42
1:A:475:GLU:O	1:A:475:GLU:CG	2.68	0.41
2:B:373:THR:HG23	2:B:409:CYS:O	2.20	0.41
1:A:97:THR:HG21	1:A:170:SER:HA	2.02	0.41
1:A:55:ILE:CG2	1:A:98:LEU:HD11	2.49	0.41
1:A:396:MET:O	1:A:419:ALA:HA	2.20	0.41
1:A:317:VAL:O	1:A:317:VAL:HG13	2.20	0.41
1:A:345:ILE:HD11	1:A:415:VAL:HG23	2.02	0.41
2:B:230:GLN:HA	2:B:230:GLN:OE1	2.21	0.41
2:B:94:GLN:CD	2:B:94:GLN:N	2.78	0.41
1:A:26:HIS:CD2	1:A:139:LEU:HD21	2.56	0.41
1:A:55:ILE:HD11	1:A:73:LEU:HD21	2.03	0.41
1:A:73:LEU:CD1	1:A:110:THR:HG21	2.50	0.41
1:A:109:VAL:HA	1:A:133:TYR:O	2.21	0.41
2:B:275:THR:CG2	2:B:276:ALA:N	2.83	0.41
1:A:240:PRO:HA	1:A:273:PHE:O	2.21	0.41
1:A:484:TYR:HE2	1:A:527:HIS:HE2	1.67	0.41
1:A:296:MET:HE3	2:B:277:GLY:HA2	2.03	0.40
1:A:192:LEU:HD12	1:A:192:LEU:N	2.36	0.40
2:B:155:LEU:HD13	2:B:360:VAL:HG23	2.03	0.40
2:B:338:GLN:HG2	2:B:349:VAL:HG11	2.03	0.40
1:A:181:GLY:N	1:A:222:VAL:HG21	2.37	0.40
1:A:345:ILE:HD11	1:A:415:VAL:CG2	2.51	0.40
2:B:170:VAL:O	2:B:218:GLY:CA	2.70	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	585/1023 (57%)	556 (95%)	29 (5%)	0	100	100
2	B	371/373 (100%)	341 (92%)	30 (8%)	0	100	100
All	All	956/1396 (68%)	897 (94%)	59 (6%)	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	493/879 (56%)	485 (98%)	8 (2%)	55	75
2	B	322/322 (100%)	317 (98%)	5 (2%)	55	75
All	All	815/1201 (68%)	802 (98%)	13 (2%)	54	75

All (13) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	99	SER
1	A	125	ASN
1	A	347	ASN
1	A	400	SER
1	A	440	LEU
1	A	480	ILE
1	A	509	ASP
1	A	531	MET
2	B	213	VAL
2	B	271	ASP
2	B	349	VAL
2	B	418	VAL
2	B	443	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	101	GLN
1	A	226	HIS
2	B	90	GLN
2	B	94	GLN
2	B	195	HIS
2	B	368	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

Of 6 ligands modelled in this entry, 6 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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.

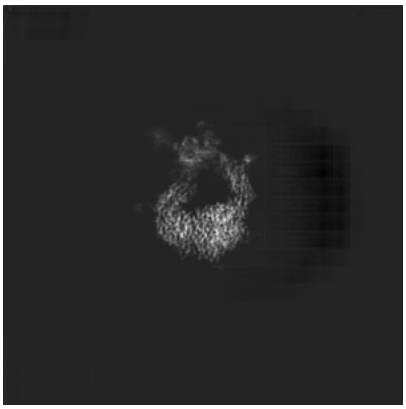
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-71400. These allow visual inspection of the internal detail of the map and identification of artifacts.

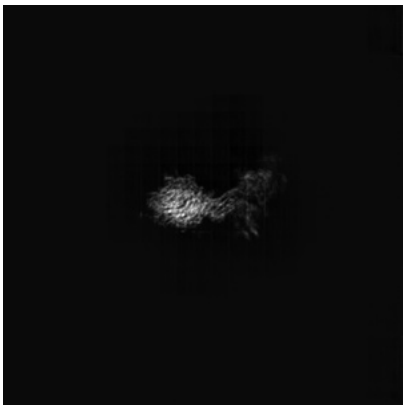
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

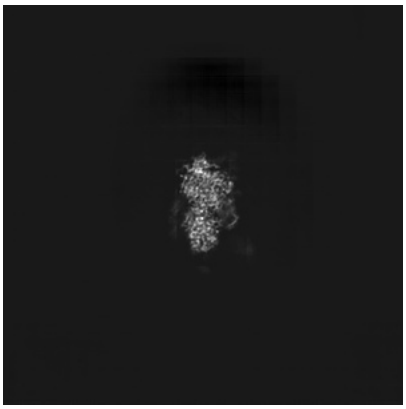
6.1.1 Primary map



X

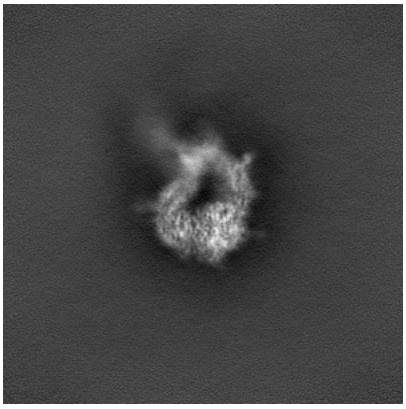


Y

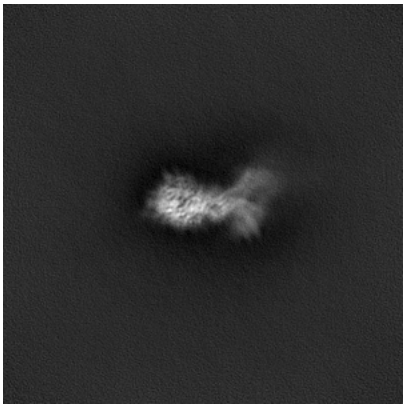


Z

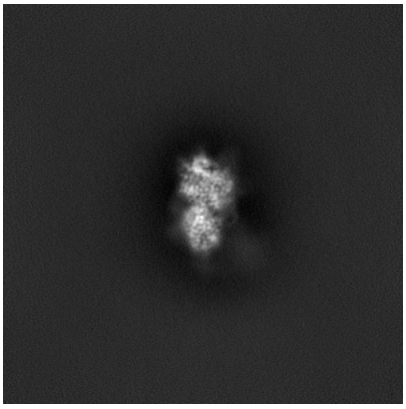
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices (i)

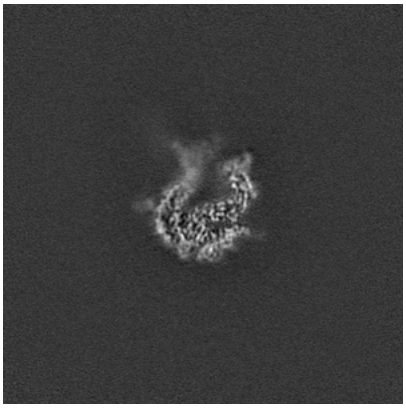
6.2.1 Primary map

X Index: 164

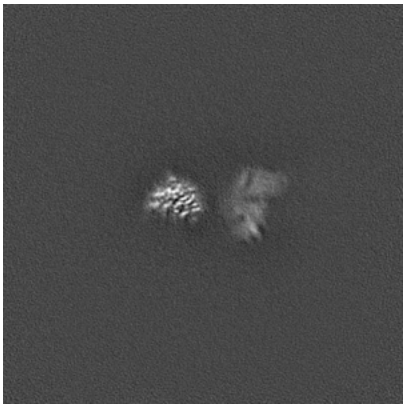
Y Index: 164

Z Index: 164

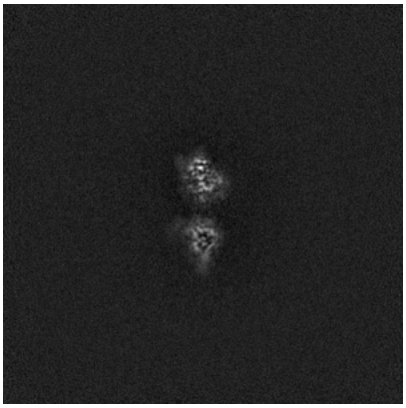
6.2.2 Raw map



X Index: 164



Y Index: 164



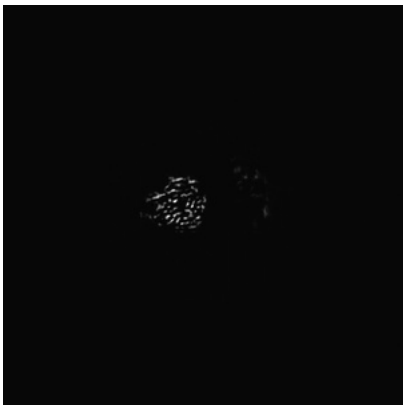
Z Index: 164

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

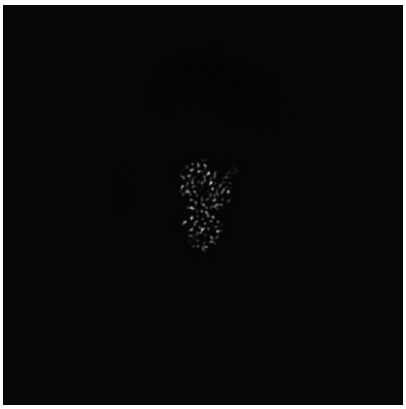
6.3 Largest variance slices (i)

6.3.1 Primary map

X Index: 162

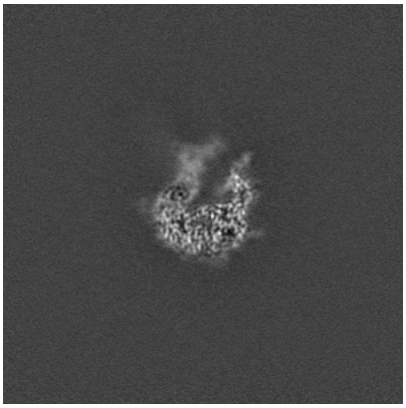


Y Index: 175

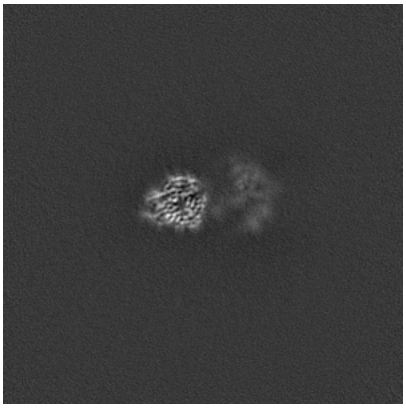


Z Index: 143

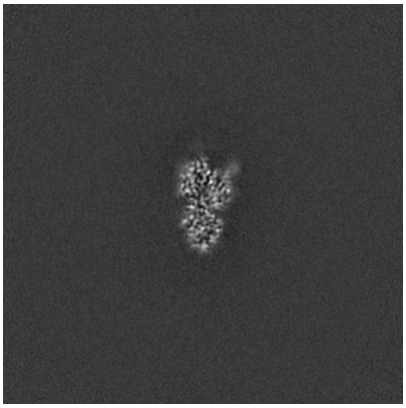
6.3.2 Raw map



X Index: 159



Y Index: 175

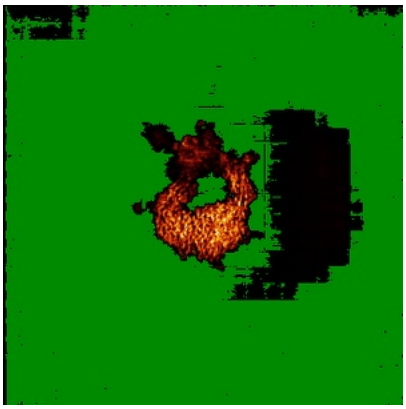


Z Index: 143

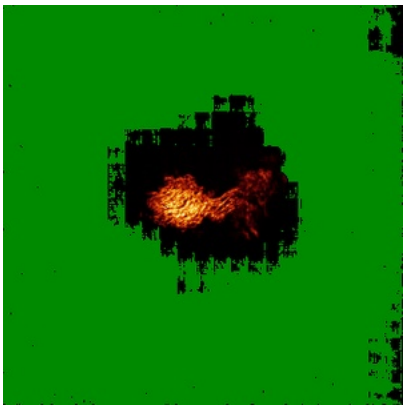
The images above show the largest variance slices of the map in three orthogonal directions.

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

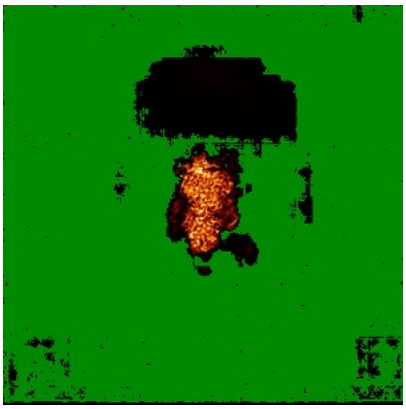
6.4.1 Primary map



X

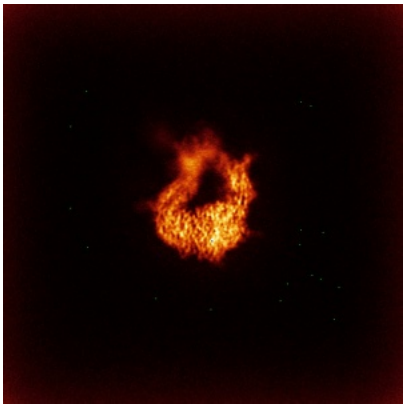


Y

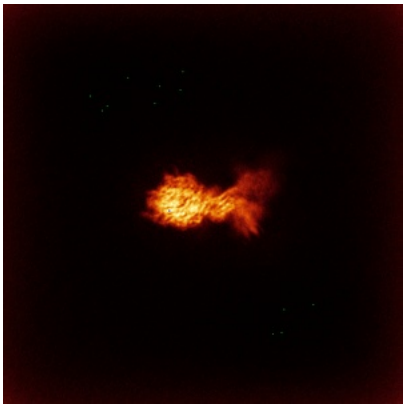


Z

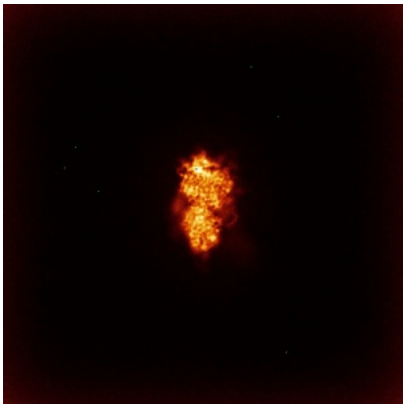
6.4.2 Raw map



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)

This section was not generated.

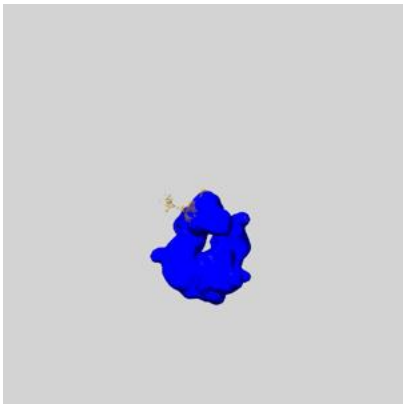
6.6 Mask visualisation (i)

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

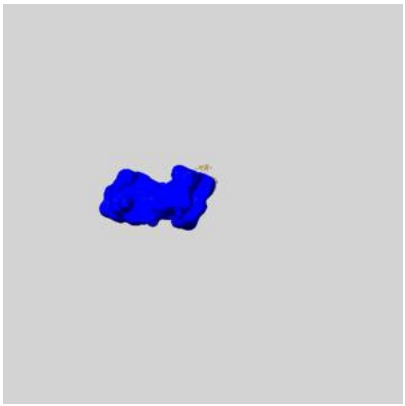
A mask typically either:

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

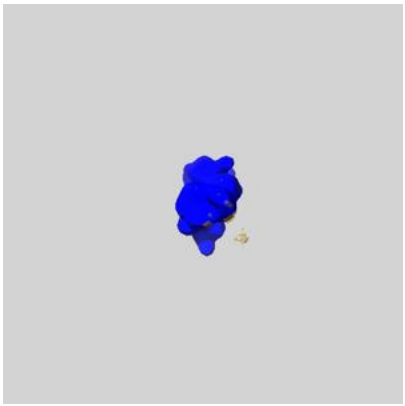
6.6.1 emd_71400_msk_1.map (i)



X



Y

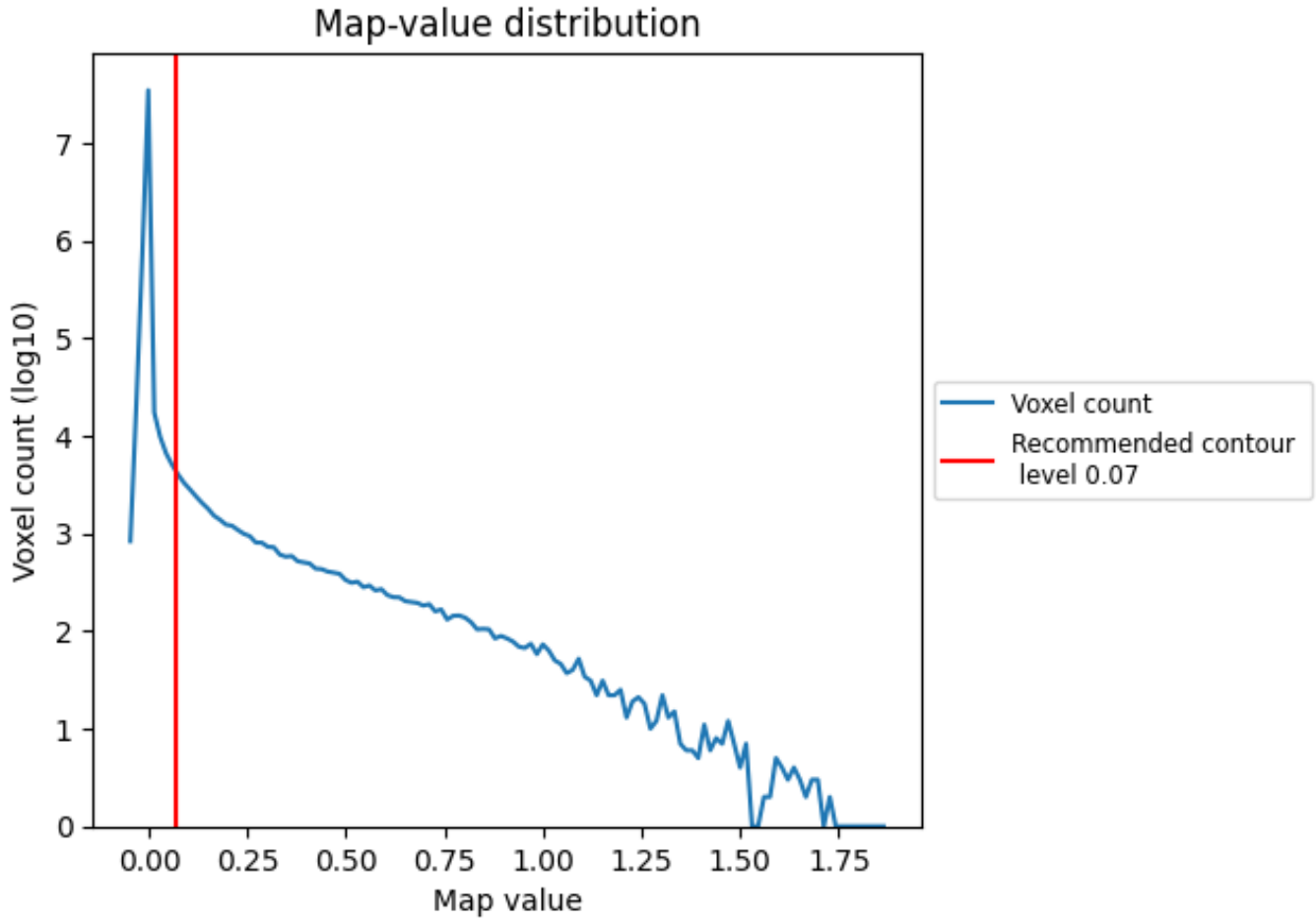


Z

7 Map analysis

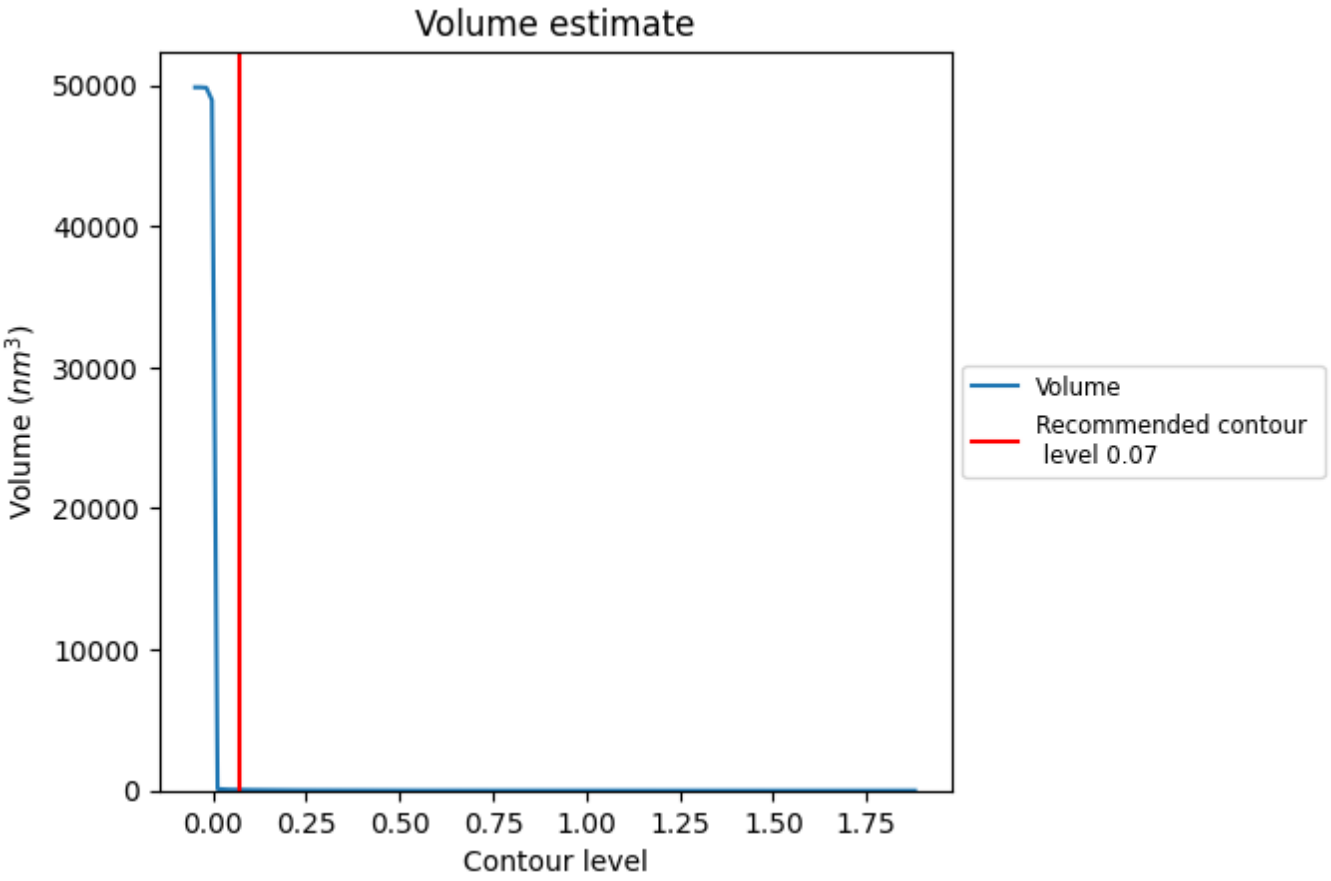
This section contains the results of statistical analysis of the map.

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.

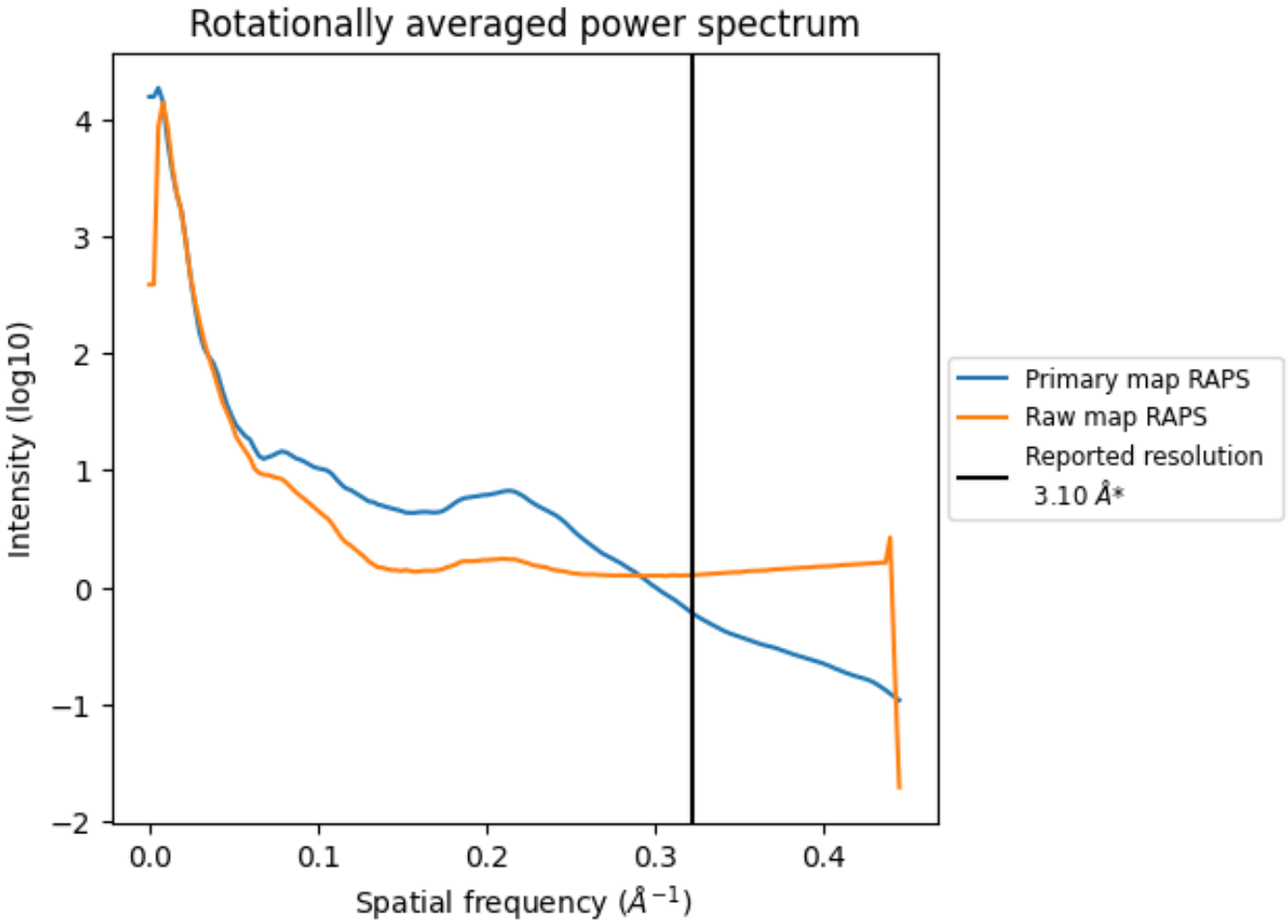
7.2 Volume estimate



The volume at the recommended contour level is 57 nm^3; this corresponds to an approximate mass of 52 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)

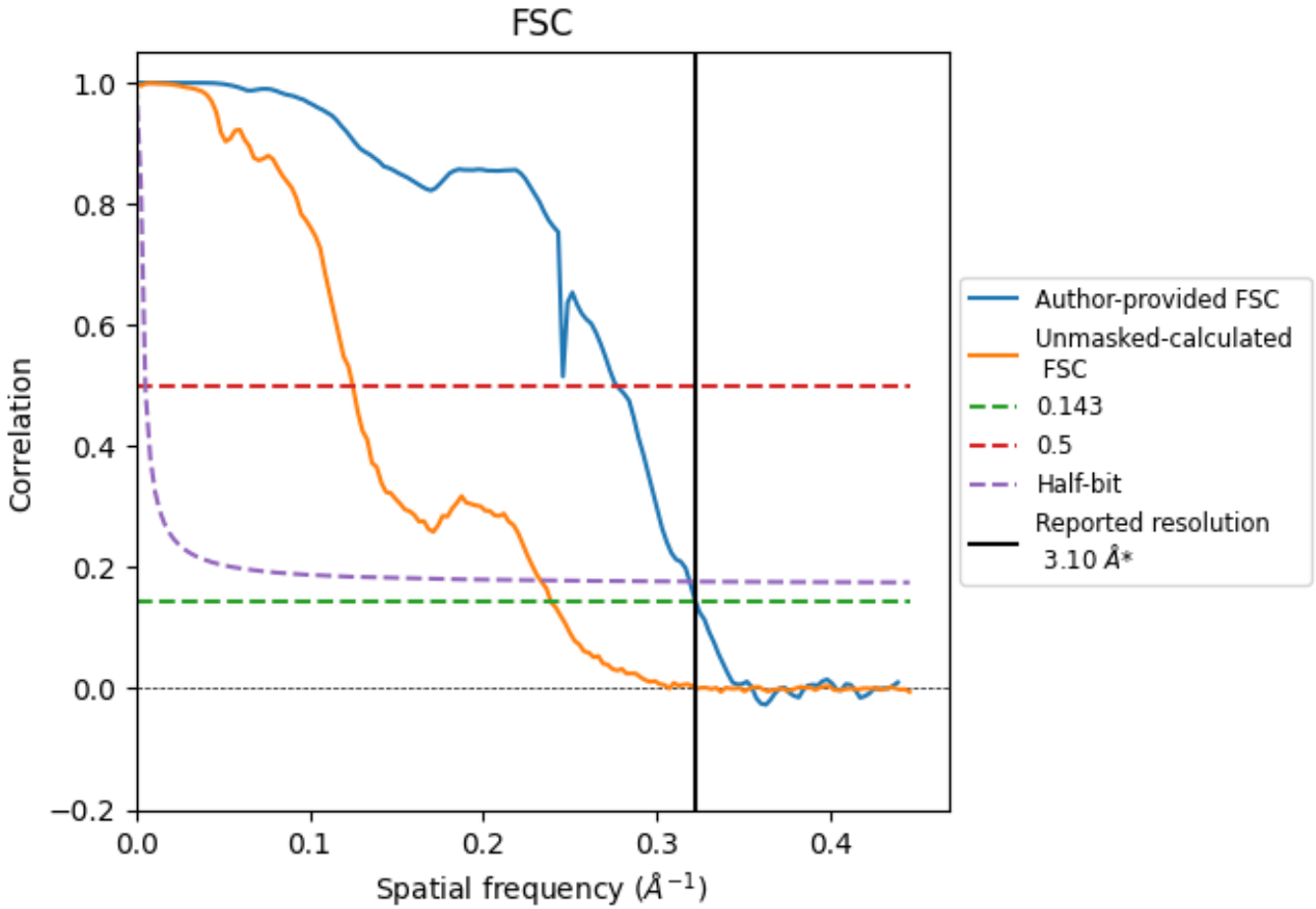


*Reported resolution corresponds to spatial frequency of 0.323 $Å^{-1}$

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 0.323 Å^{-1}

8.2 Resolution estimates (i)

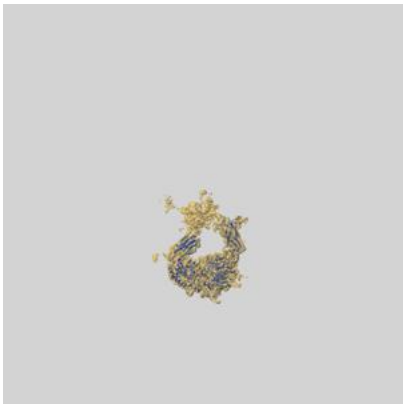
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.10	3.61	3.14
Unmasked-calculated*	4.18	8.01	4.29

*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 4.18 differs from the reported value 3.1 by more than 10 %

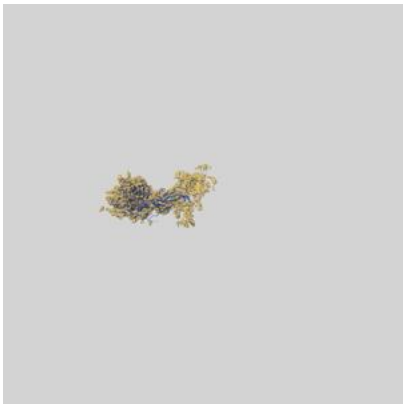
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-71400 and PDB model 9P96. Per-residue inclusion information can be found in section 3 on page 5.

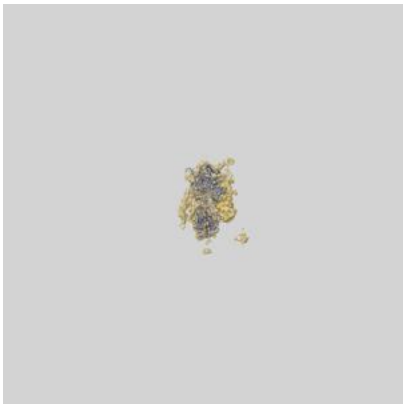
9.1 Map-model overlay



X



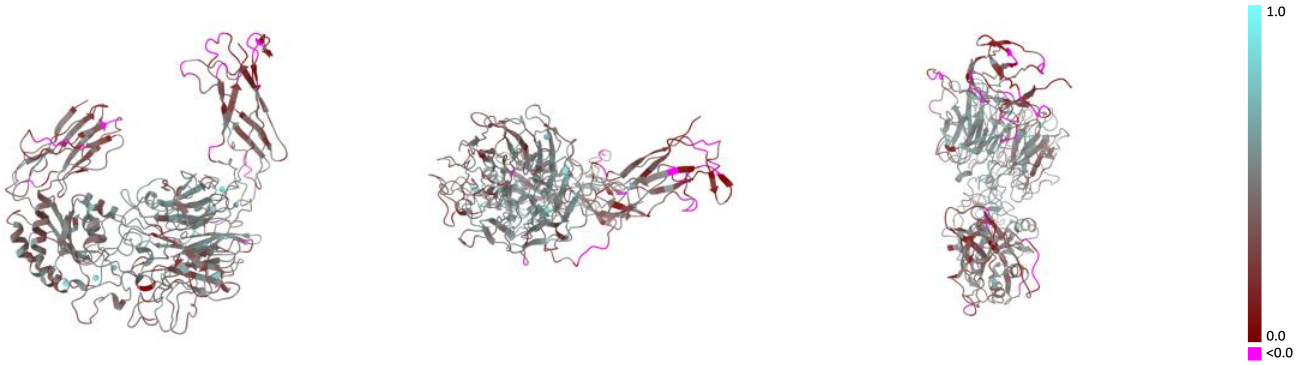
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.07 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)



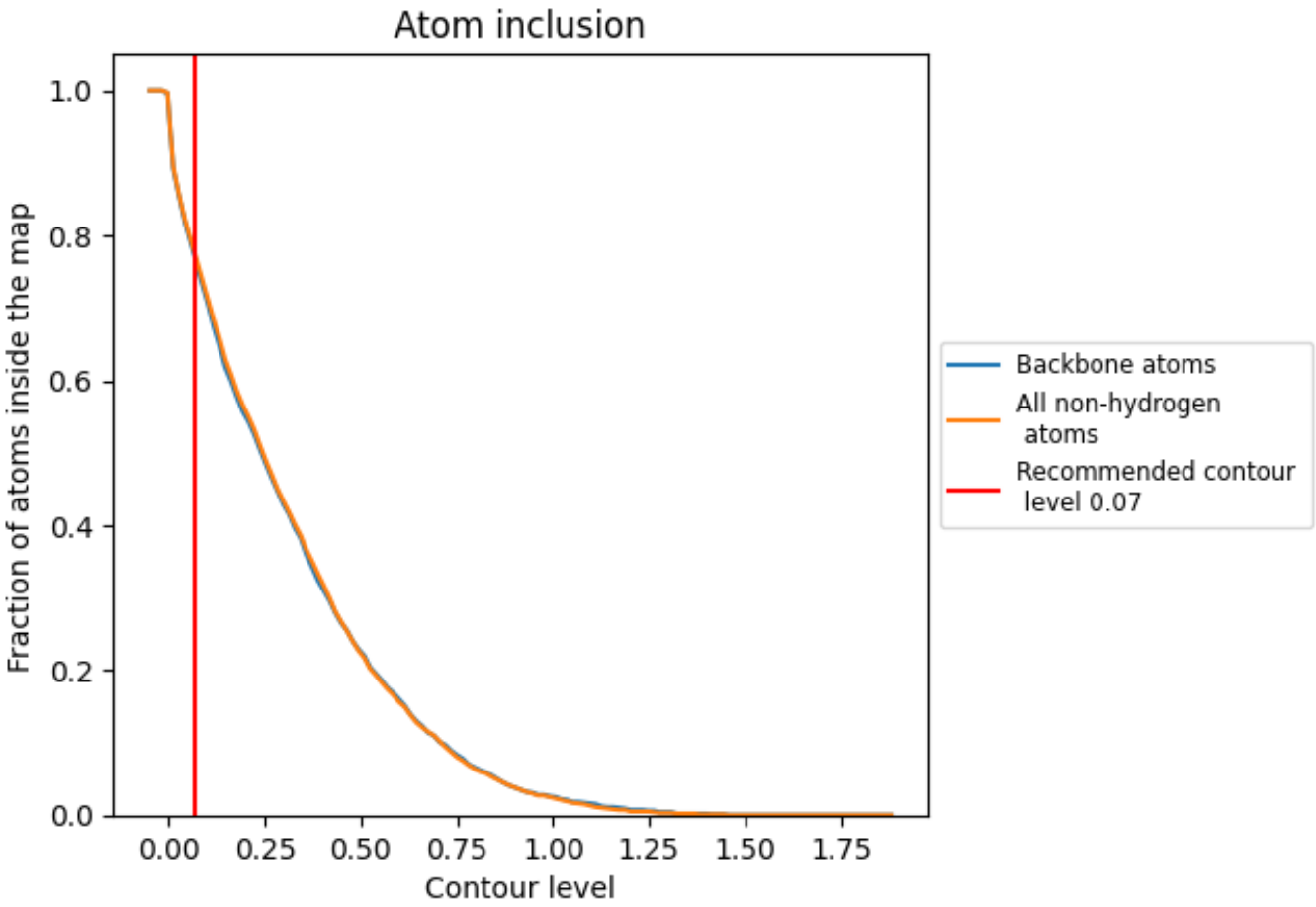
X Y Z

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 (i)

This section was not generated.

9.4 Atom inclusion (i)



At the recommended contour level, 77% of all backbone atoms, 77% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7720	0.3920
A	0.7770	0.3970
B	0.7780	0.3860