Full wwPDB EM Validation Report

Feb 12, 2026 – 04:23 PM JST

PDB ID	:	9L9O / pdb_00009l9o
EMDB ID	:	EMD-62911
Title	:	Cryo-EM structure of apo GPR50 with BRIL fusion, anti-BRIL Fab, and anti-Fab Nb complex
Authors	:	Shin, J.; Cho, Y.
Deposited on	:	2024-12-30
Resolution	:	2.98 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:

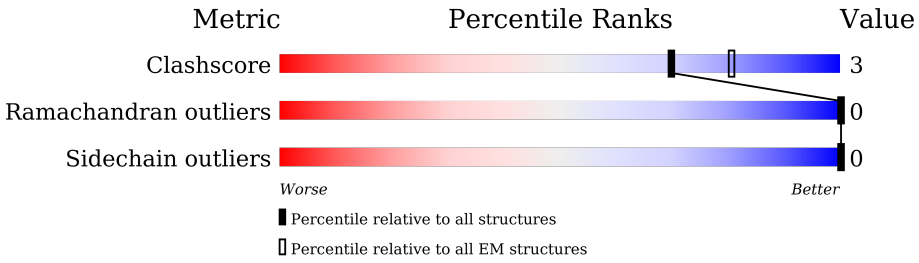
EMDB validation analysis	:	0.0.1.dev131
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.48

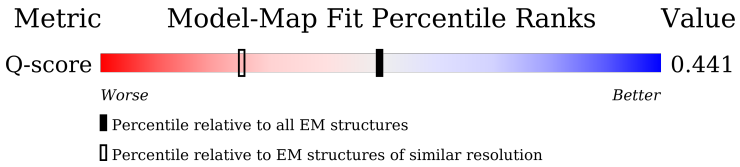
1 Overall quality at a glance

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

The reported resolution of this entry is 2.98 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	13236 (2.48 - 3.48)

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	D	162	67% 7% 26%
2	C	237	84% 6% 11%
3	B	289	68% 8% 25%
4	A	533	5% 66% 7% 26%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 7350 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 anti-Fab Nb.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	D	120	Total	C	N	O	S	0	0
			921	571	162	184	4		

- Molecule 2 is a protein called anti-BRIL Fab Light Chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	212	Total	C	N	O	S	0	0
			1632	1025	272	330	5		

- Molecule 3 is a protein called anti-BRIL Fab Heavy Chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	B	218	Total	C	N	O	S	0	0
			1642	1048	272	317	5		

- Molecule 4 is a protein called Melatonin-related receptor,Soluble cytochrome b562.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	A	396	Total	C	N	O	S	0	0
			3155	2063	517	551	24		

There are 82 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-24	MET	-	initiating methionine	UNP Q13585
A	-23	ARG	-	expression tag	UNP Q13585
A	-22	LEU	-	expression tag	UNP Q13585
A	-21	LEU	-	expression tag	UNP Q13585
A	-20	THR	-	expression tag	UNP Q13585
A	-19	ALA	-	expression tag	UNP Q13585
A	-18	LEU	-	expression tag	UNP Q13585
A	-17	PHE	-	expression tag	UNP Q13585
A	-16	ALA	-	expression tag	UNP Q13585

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-15	TYR	-	expression tag	UNP Q13585
A	-14	PHE	-	expression tag	UNP Q13585
A	-13	ILE	-	expression tag	UNP Q13585
A	-12	VAL	-	expression tag	UNP Q13585
A	-11	ALA	-	expression tag	UNP Q13585
A	-10	LEU	-	expression tag	UNP Q13585
A	-9	ILE	-	expression tag	UNP Q13585
A	-8	LEU	-	expression tag	UNP Q13585
A	-7	ALA	-	expression tag	UNP Q13585
A	-6	PHE	-	expression tag	UNP Q13585
A	-5	SER	-	expression tag	UNP Q13585
A	-4	VAL	-	expression tag	UNP Q13585
A	-3	SER	-	expression tag	UNP Q13585
A	-2	ALA	-	expression tag	UNP Q13585
A	-1	LYS	-	expression tag	UNP Q13585
A	0	SER	-	expression tag	UNP Q13585
A	1001	ARG	-	linker	UNP Q13585
A	1002	GLN	-	linker	UNP Q13585
A	1003	LEU	-	linker	UNP Q13585
A	1010	TRP	MET	engineered mutation	UNP P0ABE7
A	1105	ILE	HIS	engineered mutation	UNP P0ABE7
A	1109	LEU	ARG	engineered mutation	UNP P0ABE7
A	1110	GLU	-	linker	UNP P0ABE7
A	1111	ARG	-	linker	UNP P0ABE7
A	1112	ALA	-	linker	UNP P0ABE7
A	1113	ARG	-	linker	UNP P0ABE7
A	1114	SER	-	linker	UNP P0ABE7
A	1115	THR	-	linker	UNP P0ABE7
A	1116	LEU	-	linker	UNP P0ABE7
A	356	ARG	-	expression tag	UNP Q13585
A	357	GLY	-	expression tag	UNP Q13585
A	358	ARG	-	expression tag	UNP Q13585
A	359	GLY	-	expression tag	UNP Q13585
A	360	GLY	-	expression tag	UNP Q13585
A	361	SER	-	expression tag	UNP Q13585
A	362	LEU	-	expression tag	UNP Q13585
A	363	GLU	-	expression tag	UNP Q13585
A	364	VAL	-	expression tag	UNP Q13585
A	365	LEU	-	expression tag	UNP Q13585
A	366	PHE	-	expression tag	UNP Q13585
A	367	GLN	-	expression tag	UNP Q13585
A	368	GLY	-	expression tag	UNP Q13585

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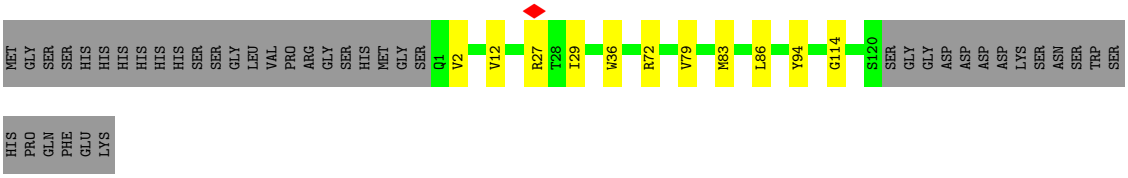
Chain	Residue	Modelled	Actual	Comment	Reference
A	369	PRO	-	expression tag	UNP Q13585
A	370	GLY	-	expression tag	UNP Q13585
A	371	SER	-	expression tag	UNP Q13585
A	372	TRP	-	expression tag	UNP Q13585
A	373	SER	-	expression tag	UNP Q13585
A	374	HIS	-	expression tag	UNP Q13585
A	375	PRO	-	expression tag	UNP Q13585
A	376	GLN	-	expression tag	UNP Q13585
A	377	PHE	-	expression tag	UNP Q13585
A	378	GLU	-	expression tag	UNP Q13585
A	379	LYS	-	expression tag	UNP Q13585
A	380	GLY	-	expression tag	UNP Q13585
A	381	GLY	-	expression tag	UNP Q13585
A	382	GLY	-	expression tag	UNP Q13585
A	383	SER	-	expression tag	UNP Q13585
A	384	GLY	-	expression tag	UNP Q13585
A	385	GLY	-	expression tag	UNP Q13585
A	386	GLY	-	expression tag	UNP Q13585
A	387	SER	-	expression tag	UNP Q13585
A	388	GLY	-	expression tag	UNP Q13585
A	389	GLY	-	expression tag	UNP Q13585
A	390	SER	-	expression tag	UNP Q13585
A	391	ALA	-	expression tag	UNP Q13585
A	392	TRP	-	expression tag	UNP Q13585
A	393	SER	-	expression tag	UNP Q13585
A	394	HIS	-	expression tag	UNP Q13585
A	395	PRO	-	expression tag	UNP Q13585
A	396	GLN	-	expression tag	UNP Q13585
A	397	PHE	-	expression tag	UNP Q13585
A	398	GLU	-	expression tag	UNP Q13585
A	399	LYS	-	expression tag	UNP Q13585

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: anti-Fab Nb

Chain D:

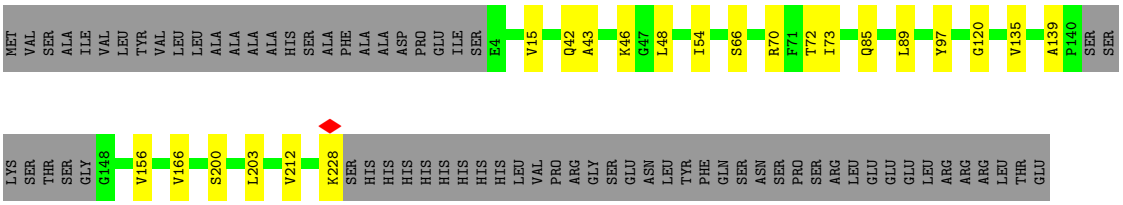


- Molecule 2: anti-BRIL Fab Light Chain

Chain C:

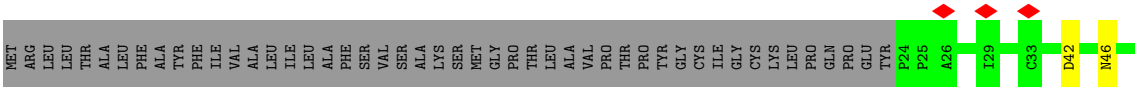
- Molecule 3: anti-BRIL Fab Heavy Chain

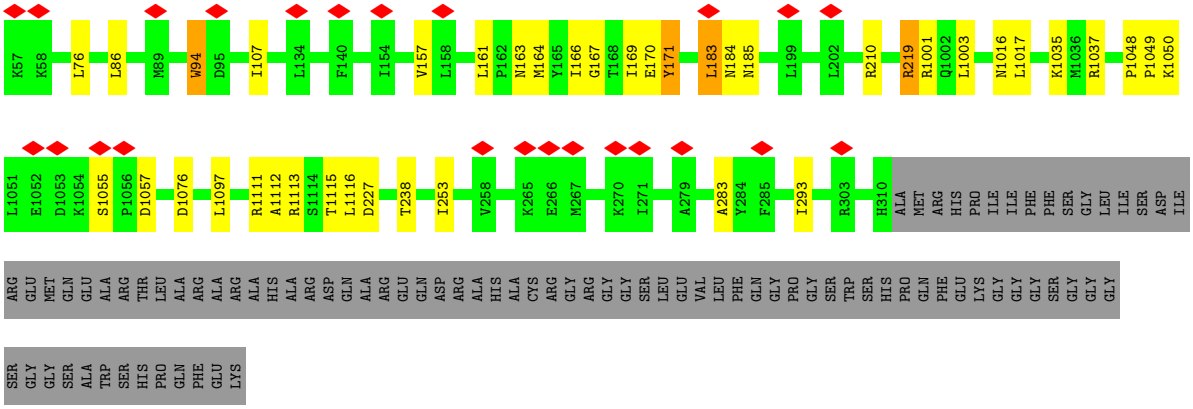
Chain B:



- Molecule 4: Melatonin-related receptor,Soluble cytochrome b562

Chain A:




K57 K58 L76 L86 M89 W94 D95 I107 L134 F140 I154 V157 L158 L161 P162 N163 M164 Y165 I166 G167 T168 I169 E170 Y171 L183 N184 N185 L199 L202 R210 R219 R1001 Q1002 L1003 N1016 L1017 K1035 M1036 R1037 P1048 P1049 K1050
L1051 E1052 D1053 K1054 S1055 P1056 D1057 D1076 L1097 R1111 A1112 R1113 S1114 T1115 L1116 D227 T238 I253 V258 K265 E266 M267 K270 I271 A279 A283 Y284 F285 I293 R303 H310 ALA MET ARG HIS PRO ILE ILE PHE PHE SER GLY LEU ILE SER ASP ILE
ARG GLU MET GLN GLU ALA ARG THR LEU ALA ARG ALA ARG ALA HIS ALA ARG ASP GLN ALA ARG GLU GLN ASP ARG ALA HIS ALA CYS ARG GLY ARG GLY GLY SER LEU GLU VAL LEU PHE GLN GLY PRO GLY SER TRP SER HIS PRO GLN PHE GLU LYS GLY GLY GLY SER GLY GLY GLY
SER GLY GLY SER ALA TRP SER HIS PRO GLN PHE GLU LYS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	608641	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	65	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	6.728	Depositor
Minimum map value	-4.800	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.068	Depositor
Recommended contour level	0.22	Depositor
Map size (Å)	340.4952, 340.4952, 340.4952	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.851238, 0.851238, 0.851238	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	D	0.11	0/940	0.30	0/1272
2	C	0.11	0/1667	0.31	0/2264
3	B	0.13	0/1689	0.33	0/2308
4	A	0.35	2/3224 (0.1%)	0.59	9/4386 (0.2%)
All	All	0.25	2/7520 (0.0%)	0.45	9/10230 (0.1%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	94	TRP	CA-CB	-7.57	1.41	1.52
4	A	171	TYR	CZ-OH	-6.16	1.25	1.38

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	170	GLU	N-CA-C	15.06	127.92	107.73
4	A	170	GLU	CB-CA-C	-7.48	96.58	112.82
4	A	183	LEU	CA-C-N	6.47	133.90	121.54
4	A	183	LEU	C-N-CA	6.47	133.90	121.54
4	A	170	GLU	CA-C-N	6.00	132.99	121.54
4	A	170	GLU	C-N-CA	6.00	132.99	121.54
4	A	171	TYR	OH-CZ-CE2	-5.97	101.97	119.90
4	A	169	ILE	N-CA-C	5.44	116.59	111.48
4	A	219	ARG	N-CA-C	5.31	118.55	111.75

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	D	921	0	862	7	0
2	C	1632	0	1595	7	0
3	B	1642	0	1586	11	0
4	A	3155	0	3232	25	0
All	All	7350	0	7275	50	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 3.

All (50) 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)
4:A:94:TRP:HB2	4:A:171:TYR:OH	1.87	0.75
4:A:184:ASN:OD1	4:A:185:ASN:ND2	2.17	0.74
3:B:97:TYR:O	3:B:120:GLY:HA2	1.93	0.67
2:C:122:PRO:HD3	2:C:134:VAL:HG22	1.82	0.61
1:D:29:ILE:O	1:D:72:ARG:NH2	2.33	0.60
4:A:42:ASP:OD1	4:A:46:ASN:ND2	2.35	0.60
3:B:135:VAL:HG22	3:B:156:VAL:HG12	1.84	0.60
2:C:110:ARG:NH1	2:C:111:THR:OG1	2.34	0.59
4:A:166:ILE:HG13	4:A:167:GLY:N	2.18	0.58
4:A:1003:LEU:HD22	4:A:1116:LEU:HD13	1.86	0.57
3:B:166:VAL:HG22	3:B:212:VAL:HG22	1.86	0.56
2:C:64:SER:OG	2:C:75:THR:OG1	2.23	0.56
4:A:1049:PRO:HD2	4:A:1112:ALA:HB1	1.86	0.56
3:B:139:ALA:HB3	3:B:228:LYS:HE2	1.89	0.54
2:C:66:SER:OG	2:C:73:THR:OG1	2.26	0.54
4:A:1017:LEU:HD21	4:A:1097:LEU:HD12	1.90	0.53
4:A:1037:ARG:NH1	4:A:1076:ASP:OD1	2.41	0.52
1:D:83:MET:HB3	1:D:86:LEU:HD21	1.91	0.52
4:A:1055:SER:OG	4:A:1057:ASP:OD1	2.24	0.50
2:C:5:MET:HE3	2:C:91:GLN:HB3	1.94	0.49
3:B:200:SER:HA	3:B:203:LEU:HD13	1.95	0.49
3:B:42:GLN:HB2	3:B:48:LEU:HD23	1.94	0.49
3:B:43:ALA:HB3	3:B:46:LYS:HB2	1.94	0.48
1:D:12:VAL:HG11	1:D:86:LEU:HD12	1.96	0.47
3:B:72:THR:HG22	3:B:85:GLN:HB3	1.97	0.46
4:A:1050:LYS:HA	4:A:1115:THR:HG21	1.97	0.46
3:B:54:ILE:HD12	3:B:73:ILE:HG23	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1016:ASN:HD21	4:A:1035:LYS:HB2	1.79	0.45
4:A:238:THR:HG23	4:A:293:ILE:HG22	1.97	0.45
4:A:76:LEU:HG	4:A:107:ILE:HG23	1.99	0.45
2:C:94:TYR:HB3	2:C:97:LEU:HD13	1.98	0.44
4:A:1113:ARG:O	4:A:227:ASP:N	2.51	0.44
4:A:166:ILE:HG13	4:A:167:GLY:H	1.81	0.44
1:D:27:ARG:HA	1:D:27:ARG:HD2	1.73	0.43
4:A:157:VAL:O	4:A:161:LEU:HD23	2.19	0.43
4:A:1050:LYS:HD3	4:A:1111:ARG:HB3	2.00	0.43
4:A:86:LEU:HD23	4:A:86:LEU:HA	1.90	0.42
3:B:66:SER:O	3:B:70:ARG:NH1	2.52	0.42
4:A:219:ARG:C	4:A:1001:ARG:N	2.78	0.41
4:A:1048:PRO:HA	4:A:1049:PRO:HD3	1.98	0.41
1:D:2:VAL:HG11	1:D:27:ARG:HB2	2.02	0.41
4:A:210:ARG:HD3	4:A:210:ARG:HA	1.91	0.41
1:D:94:TYR:O	1:D:114:GLY:HA2	2.21	0.41
4:A:183:LEU:HG	4:A:184:ASN:H	1.86	0.41
1:D:36:TRP:HE1	1:D:79:VAL:HG12	1.86	0.40
3:B:15:VAL:HG21	3:B:89:LEU:HD13	2.02	0.40
2:C:127:LEU:HB3	2:C:185:LYS:HE3	2.03	0.40
4:A:163:ASN:O	4:A:164:MET:HG3	2.21	0.40
4:A:253:ILE:HG13	4:A:283:ALA:HB2	2.03	0.40
4:A:1116:LEU:C	4:A:227:ASP:N	2.80	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	D	118/162 (73%)	116 (98%)	2 (2%)	0	100	100
2	C	210/237 (89%)	201 (96%)	9 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	B	214/289 (74%)	208 (97%)	6 (3%)	0	100	100
4	A	390/533 (73%)	366 (94%)	24 (6%)	0	100	100
All	All	932/1221 (76%)	891 (96%)	41 (4%)	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	D	95/132 (72%)	95 (100%)	0	100	100
2	C	188/204 (92%)	188 (100%)	0	100	100
3	B	180/241 (75%)	180 (100%)	0	100	100
4	A	345/449 (77%)	345 (100%)	0	100	100
All	All	808/1026 (79%)	808 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	113	GLN
3	B	87	ASN
4	A	56	ASN
4	A	87	HIS
4	A	1002	GLN
4	A	1106	GLN
4	A	254	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
4	A	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	1116:LEU	C	227:ASP	N	2.80
1	A	219:ARG	C	1001:ARG	N	2.78

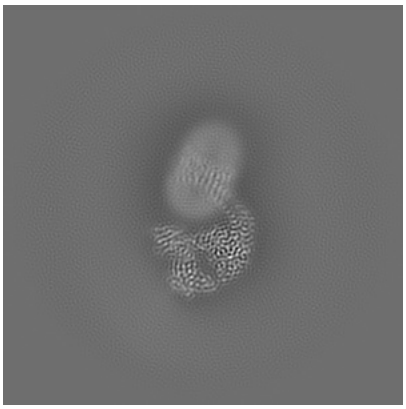
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-62911. These allow visual inspection of the internal detail of the map and identification of artifacts.

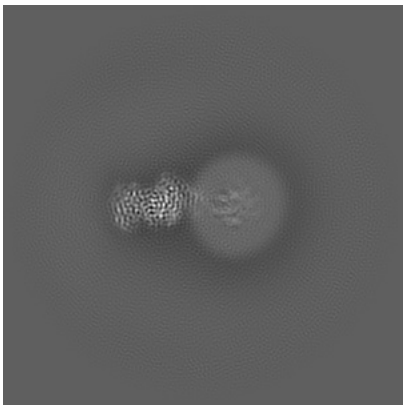
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

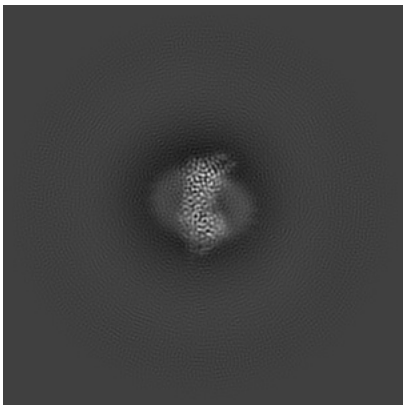
6.1.1 Primary map



X

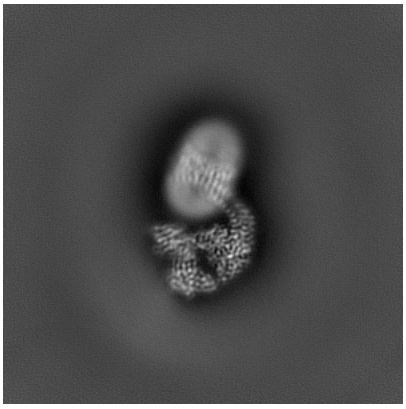


Y

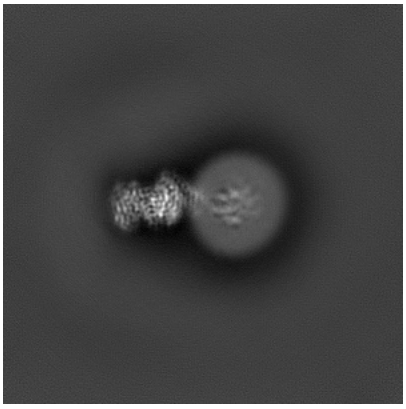


Z

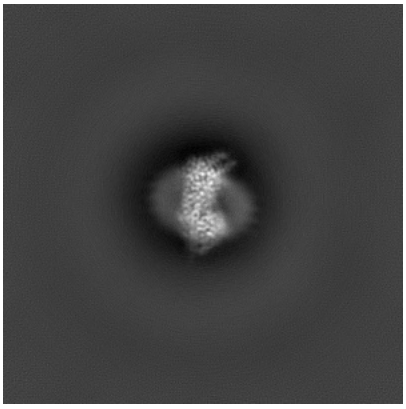
6.1.2 Raw map



X



Y

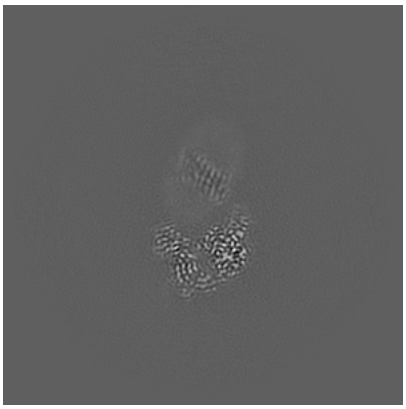


Z

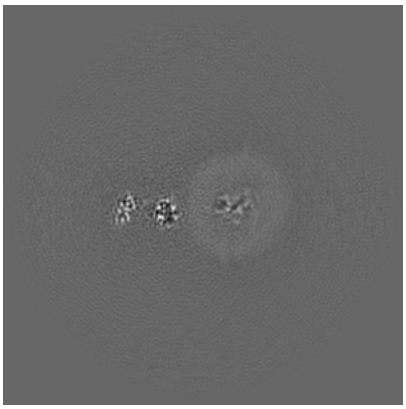
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

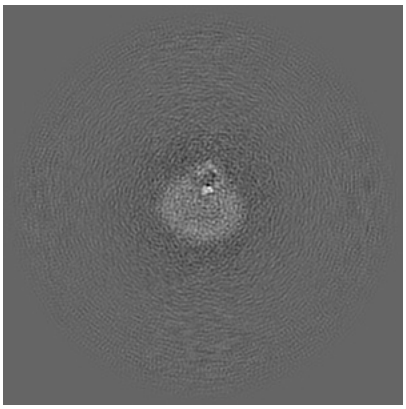
6.2.1 Primary map



X Index: 200

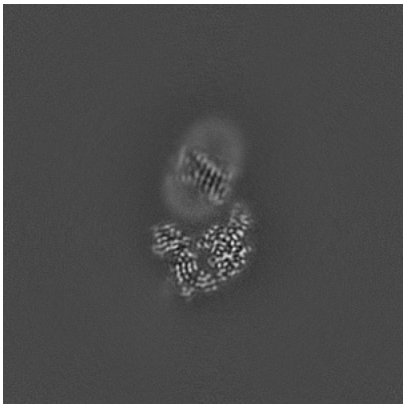


Y Index: 200

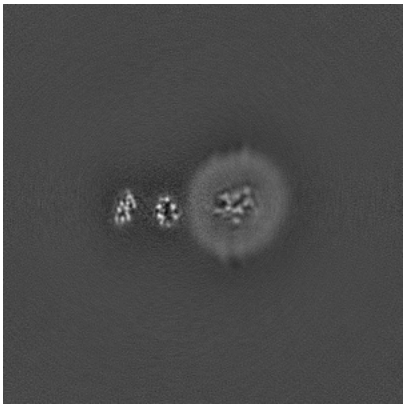


Z Index: 200

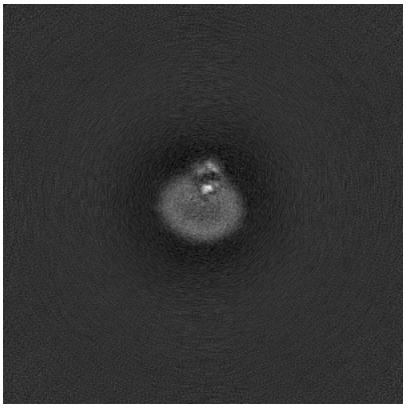
6.2.2 Raw map



X Index: 200



Y Index: 200

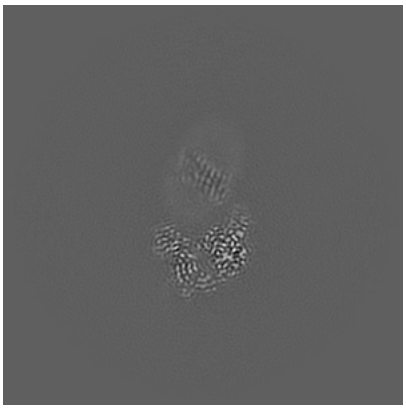


Z Index: 200

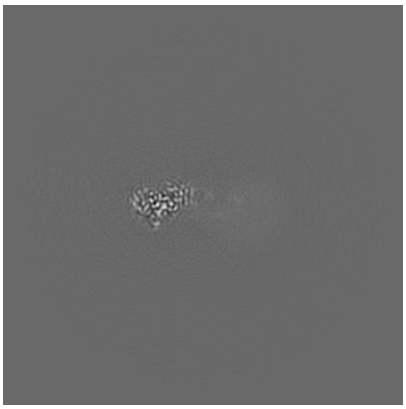
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

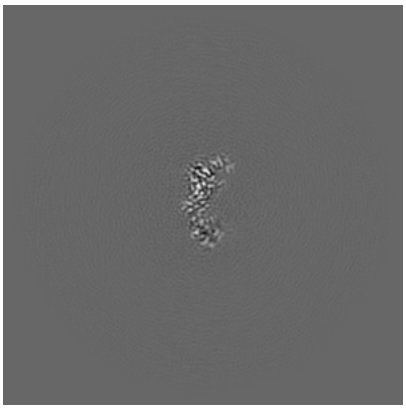
6.3.1 Primary map



X Index: 200

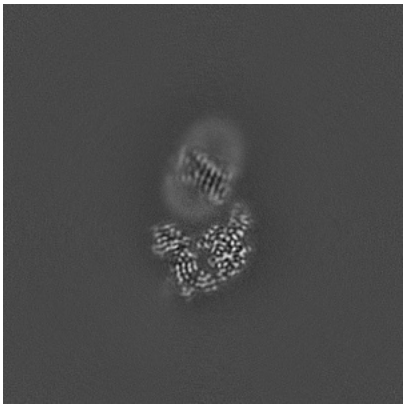


Y Index: 230

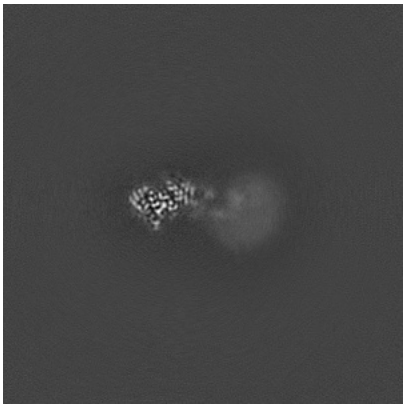


Z Index: 159

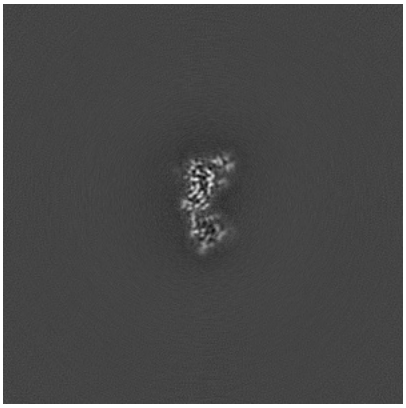
6.3.2 Raw map



X Index: 200



Y Index: 230

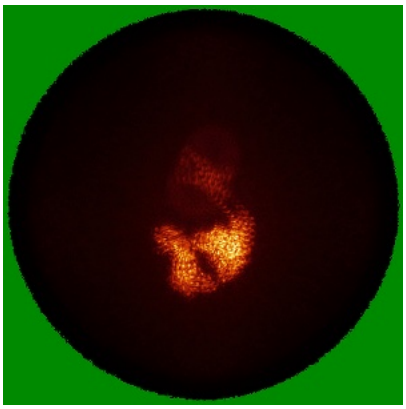


Z Index: 158

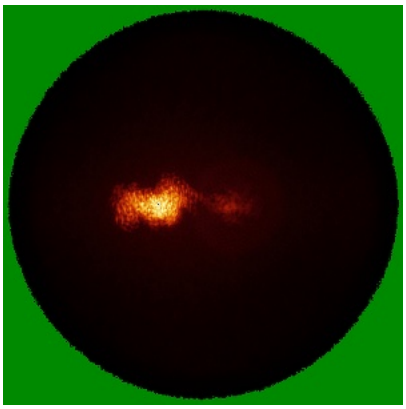
The images above show the largest variance slices of the map in three orthogonal directions.

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

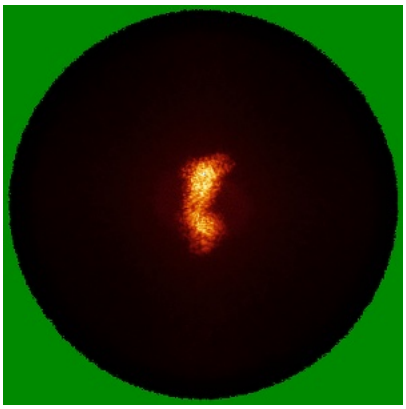
6.4.1 Primary map



X

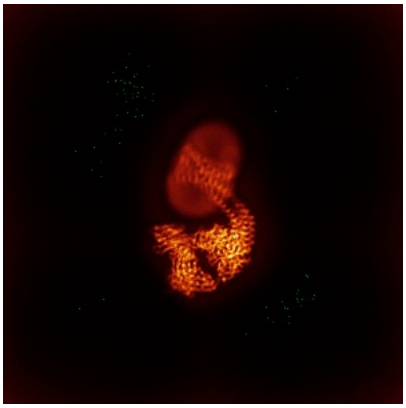


Y

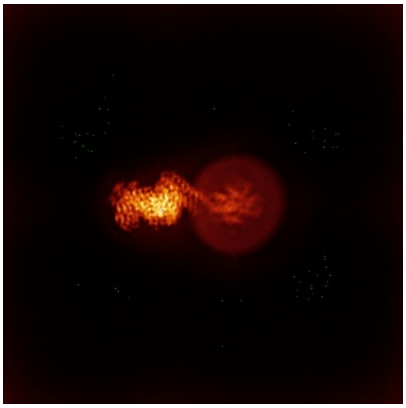


Z

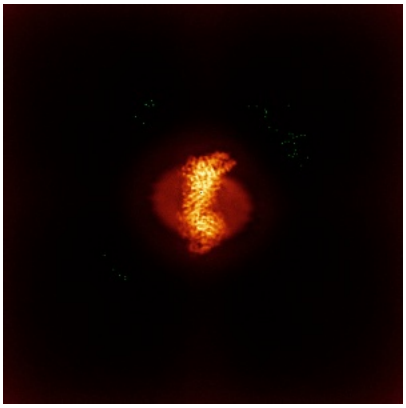
6.4.2 Raw map



X



Y

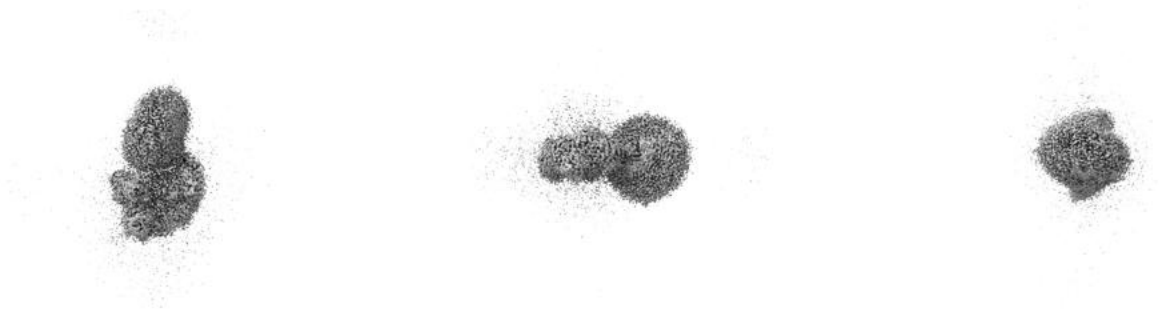


Z

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 0.22. 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.

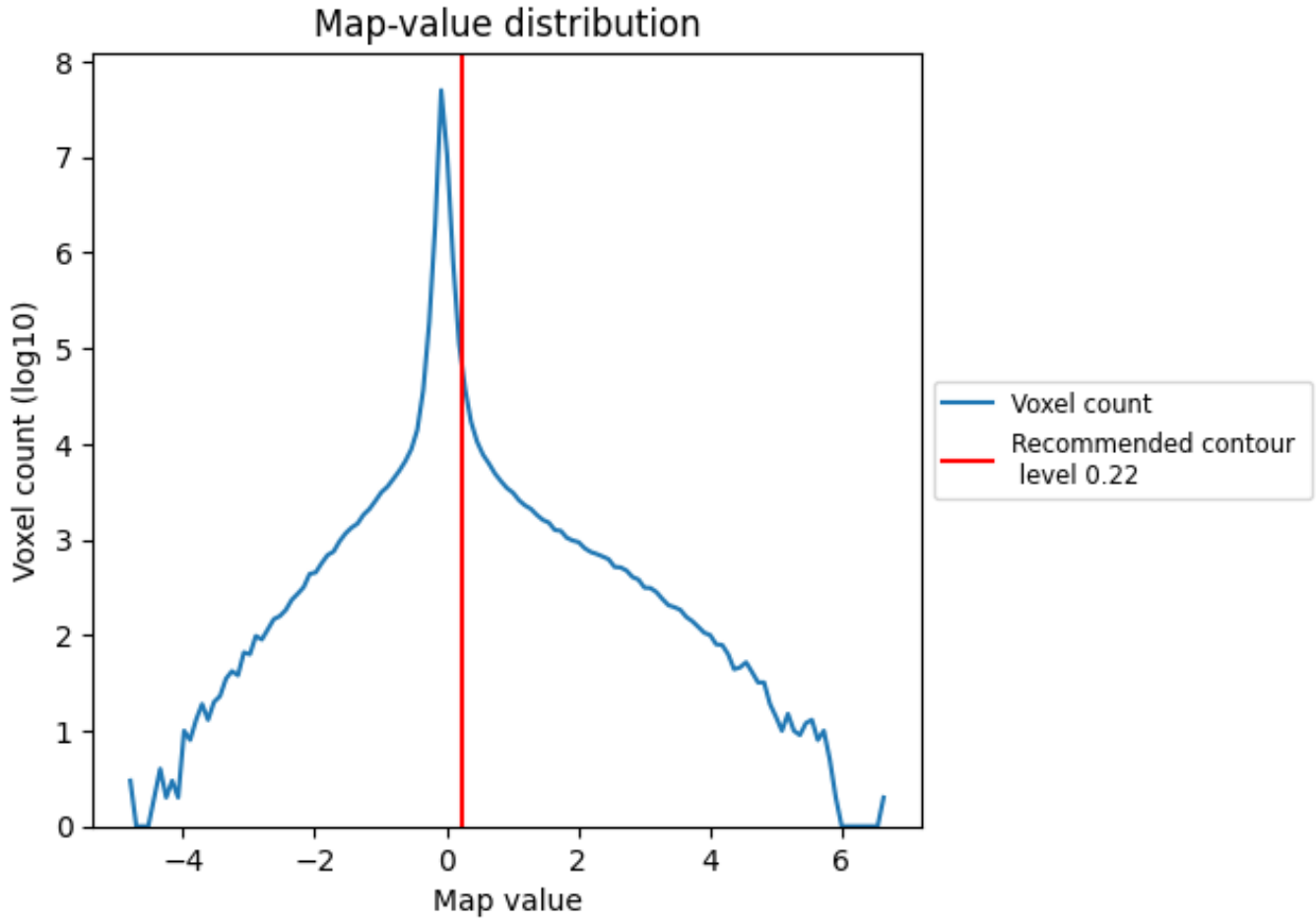
6.6 Mask visualisation (i)

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

7 Map analysis

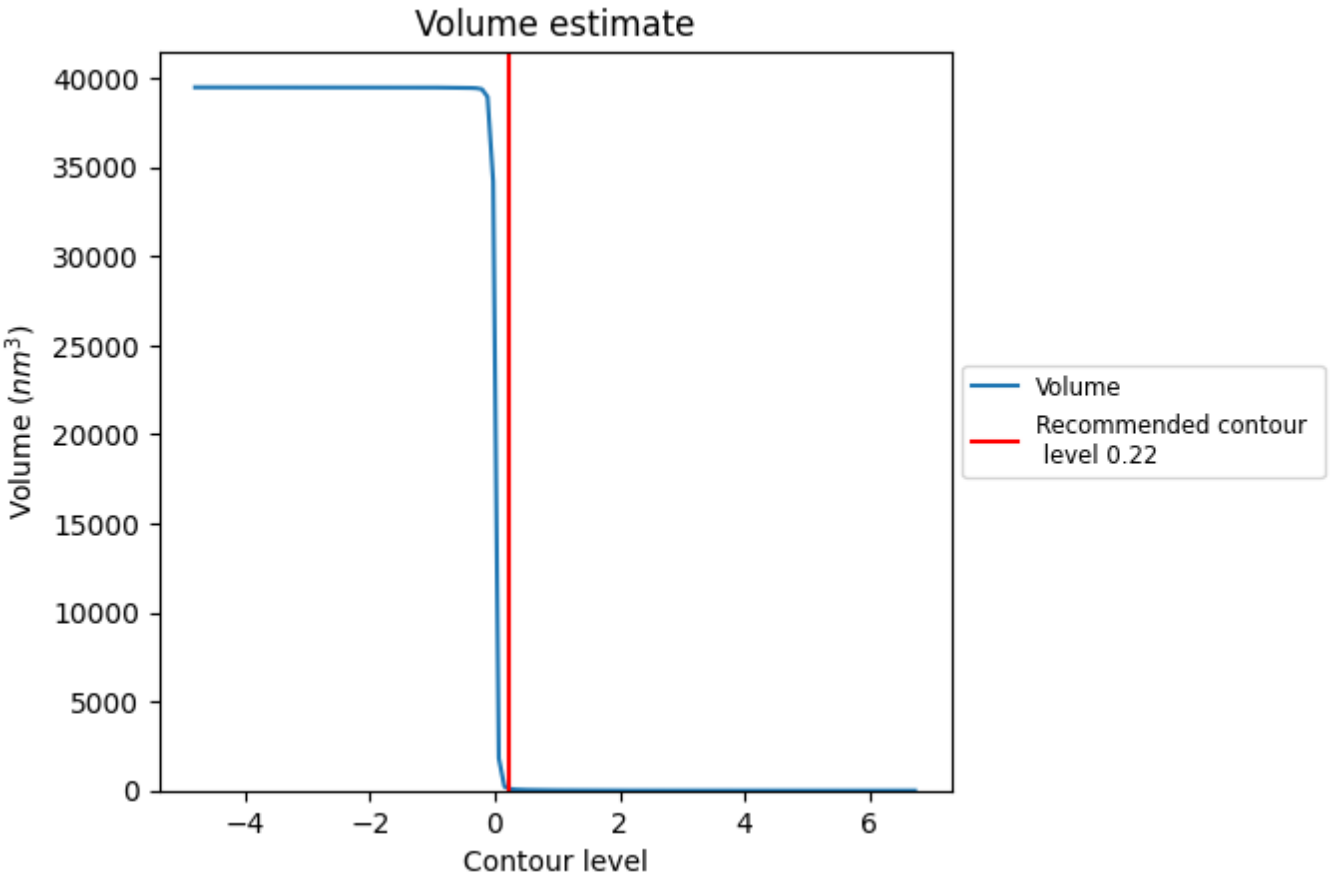
This section contains the results of statistical analysis of the map.

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.

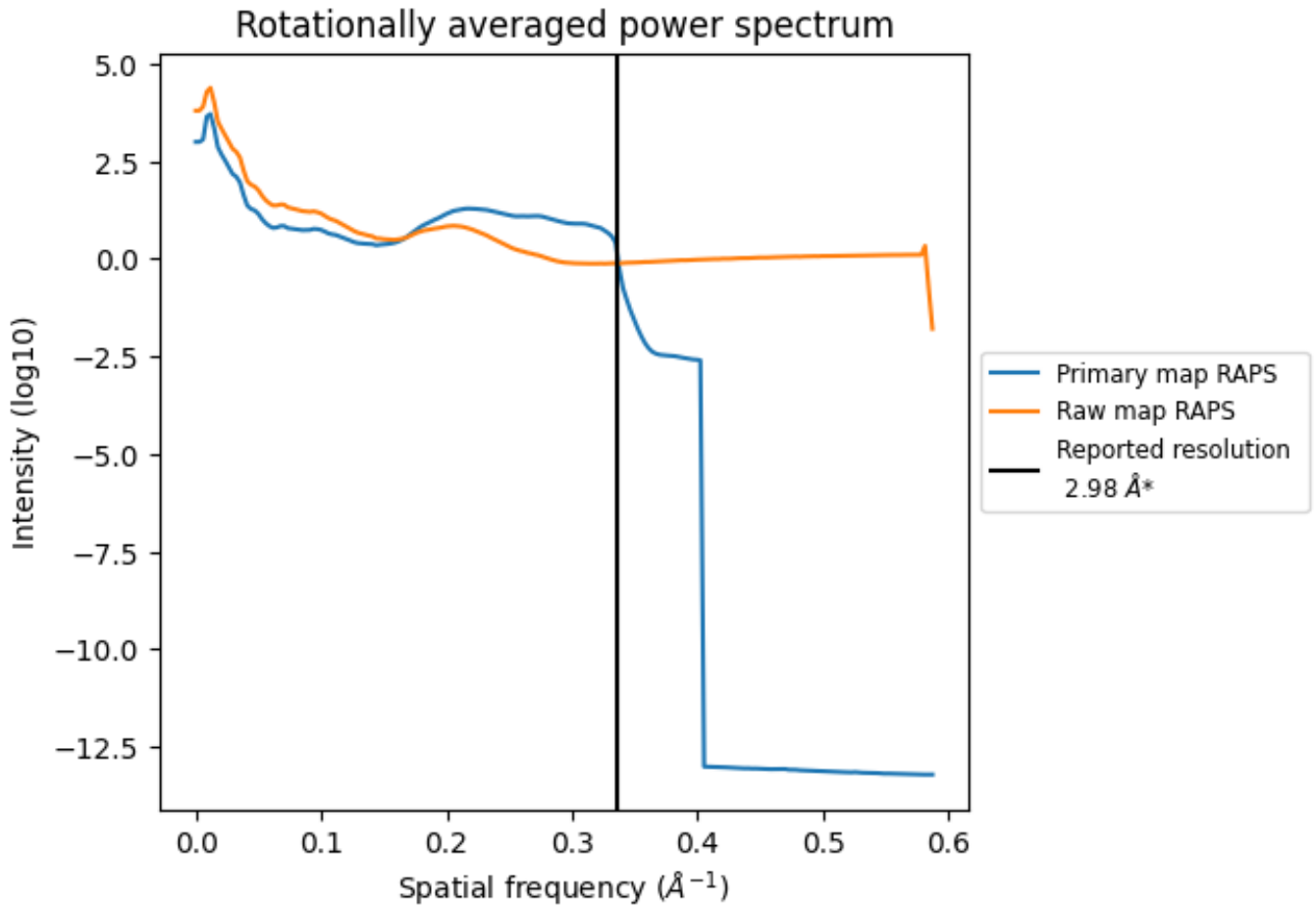
7.2 Volume estimate



The volume at the recommended contour level is 129 nm^3; this corresponds to an approximate mass of 116 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)

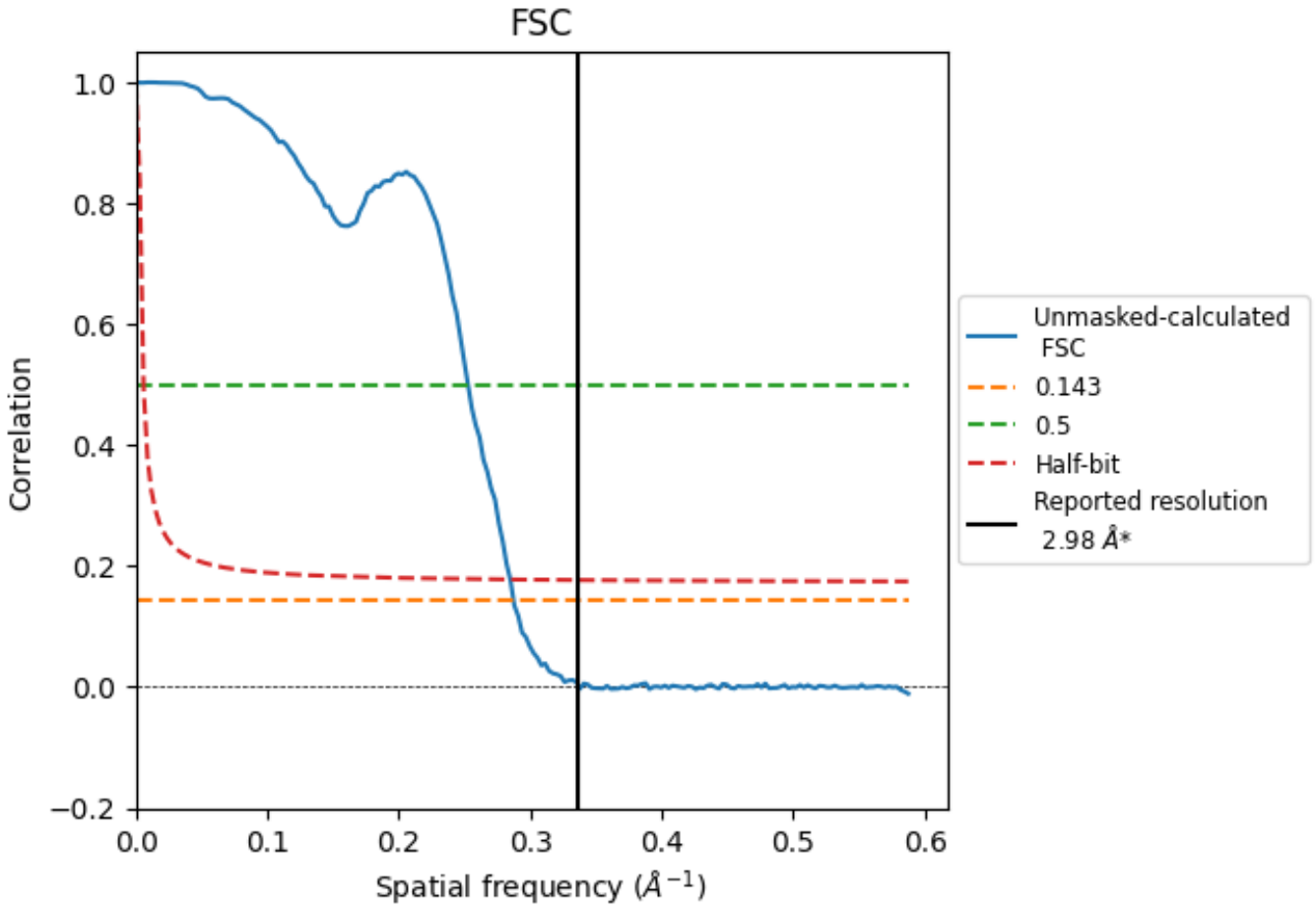


*Reported resolution corresponds to spatial frequency of 0.336 $Å^{-1}$

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 0.336 Å^{-1}

8.2 Resolution estimates (i)

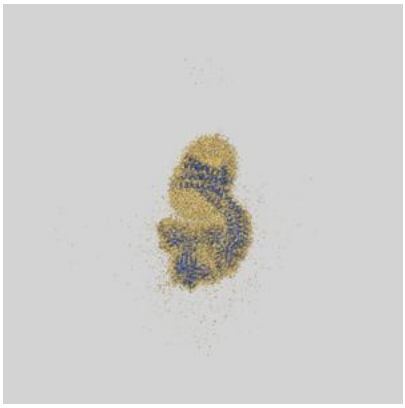
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.98	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.48	3.96	3.51

*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 3.48 differs from the reported value 2.98 by more than 10 %

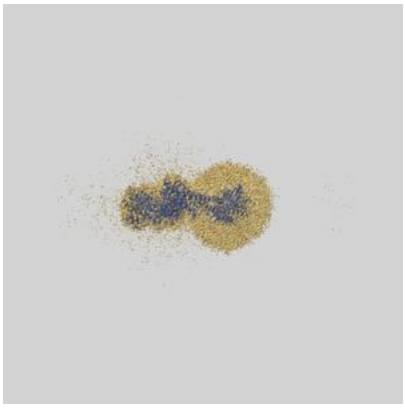
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-62911 and PDB model 9L9O. Per-residue inclusion information can be found in section 3 on page 6.

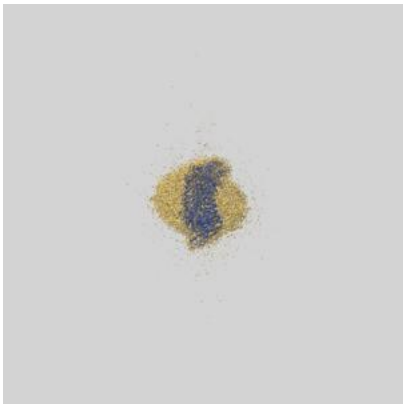
9.1 Map-model overlay



X



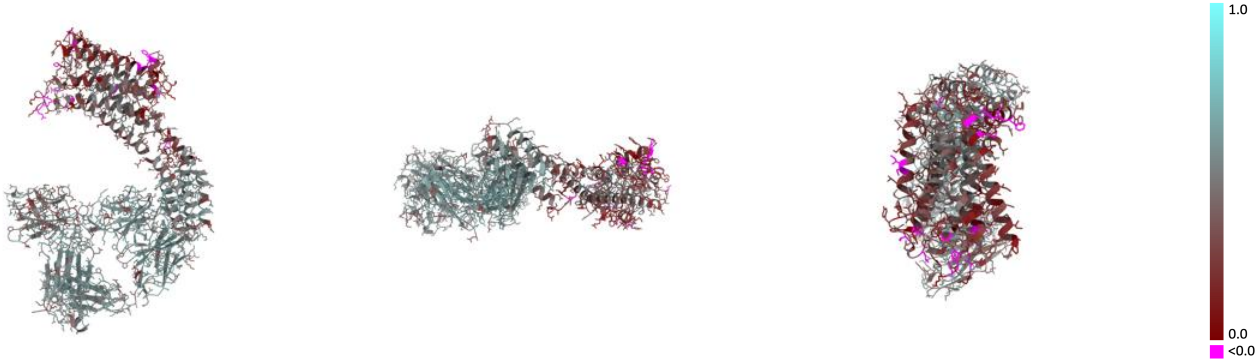
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.22 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.

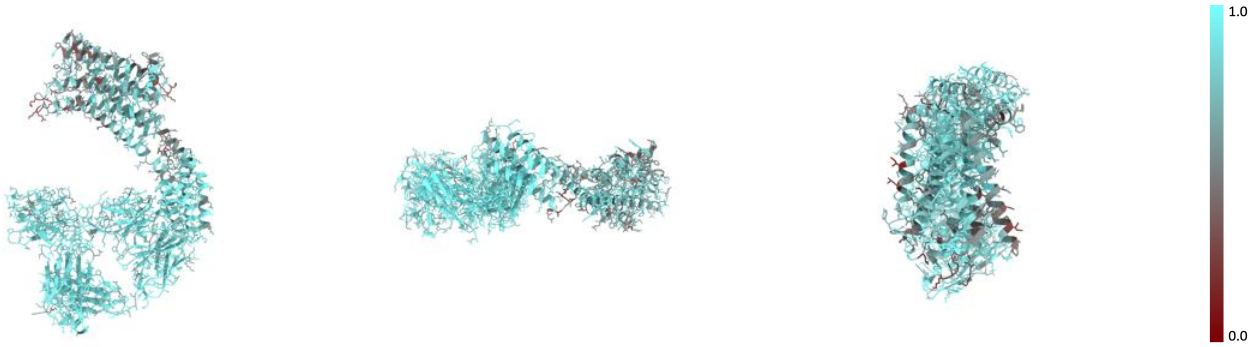
9.2 Q-score mapped to coordinate model (i)



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.

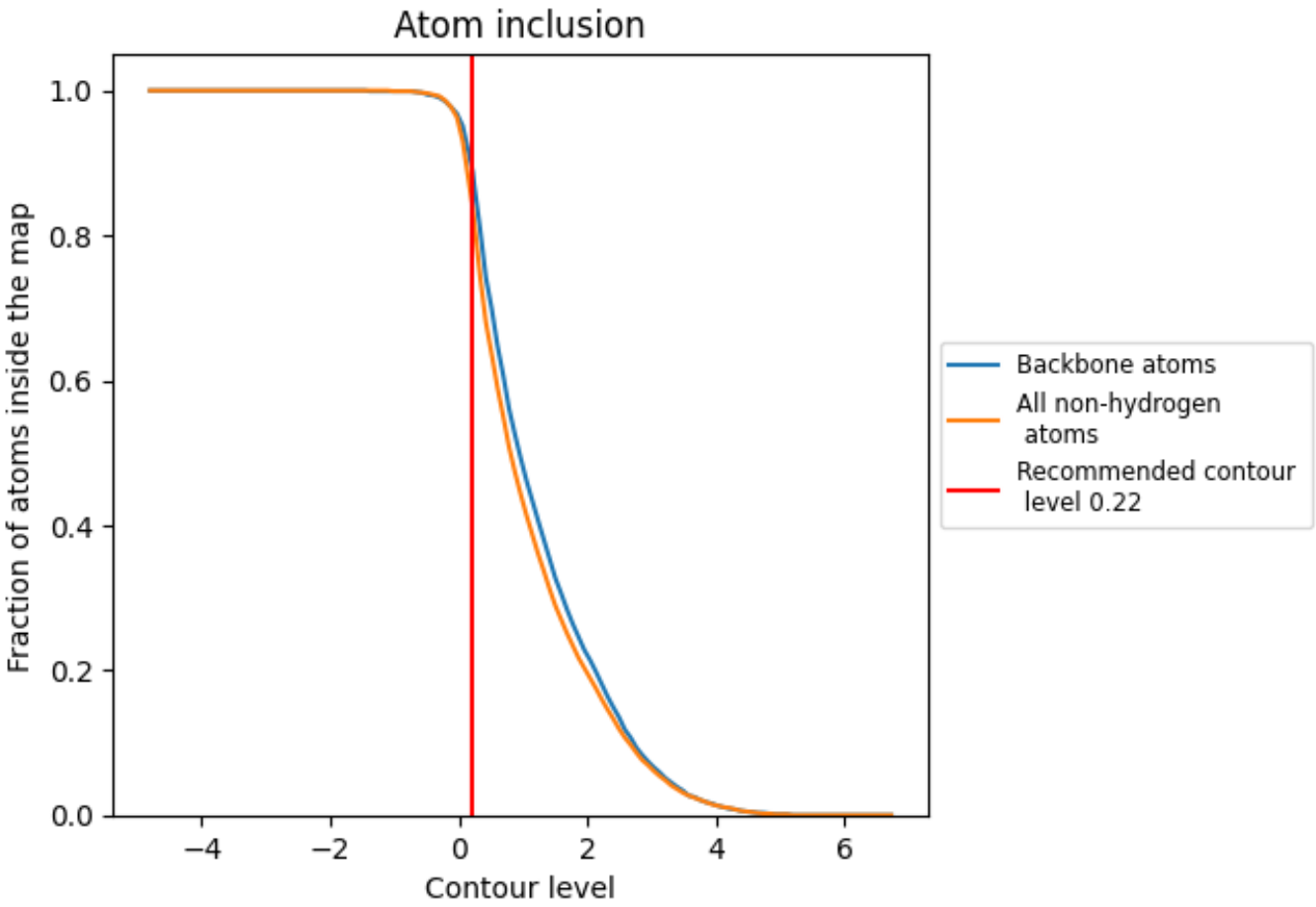
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.22).

9.4 Atom inclusion (i)



At the recommended contour level, 89% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.22) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8370	0.4410
A	0.7370	0.3250
B	0.9190	0.5370
C	0.9260	0.5560
D	0.8710	0.4660