



wwPDB EM Validation Summary Report ⓘ

Dec 12, 2022 – 04:21 am GMT

PDB ID : 6XTY
EMDB ID : EMD-10621
Title : CryoEM structure of human CMG bound to AND-1 (CMGA)
Authors : Rzechorzek, N.J.; Pellegrini, L.; Chirgadze, D.Y.; Hardwick, S.W.
Deposited on : 2020-01-16
Resolution : 6.77 Å(reported)

This is a wwPDB EM Validation Summary 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.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

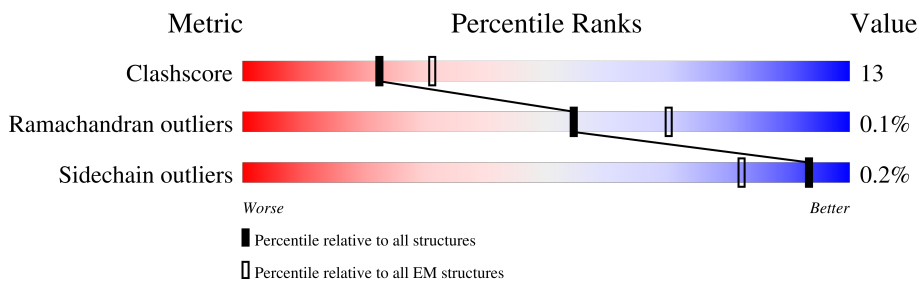
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 6.77 Å.

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









Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	2	904	
2	3	853	
3	4	863	
4	5	734	
5	6	821	
6	7	719	
7	A	196	
8	B	185	

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Mol	Chain	Length	Quality of chain
9	C	216	
10	D	223	
11	E	566	
12	F	1171	
12	G	1171	
12	H	1171	

2 Entry composition [i](#)

There are 13 unique types of molecules in this entry. The entry contains 48821 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 DNA replication licensing factor MCM2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	2	611	4832	3040	863	899	30	0	0

- Molecule 2 is a protein called DNA replication licensing factor MCM3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	3	608	4782	2997	844	916	25	0	0

- Molecule 3 is a protein called DNA replication licensing factor MCM4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	4	598	4784	3016	850	892	26	0	0

- Molecule 4 is a protein called DNA replication licensing factor MCM5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	5	577	4524	2841	805	843	35	0	0

- Molecule 5 is a protein called DNA replication licensing factor MCM6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	6	609	4873	3068	862	917	26	0	0

- Molecule 6 is a protein called DNA replication licensing factor MCM7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	7	598	4727	2960	837	901	29	0	0

- Molecule 7 is a protein called DNA replication complex GINS protein PSF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	A	196	1613	1016	290	295	12	0	0

- Molecule 8 is a protein called DNA replication complex GINS protein PSF2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	B	176	1431	916	242	264	9	0	0

- Molecule 9 is a protein called DNA replication complex GINS protein PSF3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	C	194	1552	985	268	293	6	0	0

- Molecule 10 is a protein called DNA replication complex GINS protein SLD5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	D	203	1679	1065	290	314	10	0	0

- Molecule 11 is a protein called Cell division control protein 45 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	E	538	4380	2785	751	813	31	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	346	GLN	GLU	variant	UNP O75419

- Molecule 12 is a protein called WD repeat and HMG-box DNA-binding protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	F	403	3213	2038	559	595	21	3	0
12	G	403	3213	2038	559	595	21	3	0
12	H	403	3213	2038	559	595	21	3	0

There are 126 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	-41	MET	-	initiating methionine	UNP O75717
F	-40	SER	-	expression tag	UNP O75717
F	-39	ALA	-	expression tag	UNP O75717
F	-38	TRP	-	expression tag	UNP O75717
F	-37	SER	-	expression tag	UNP O75717
F	-36	HIS	-	expression tag	UNP O75717
F	-35	PRO	-	expression tag	UNP O75717
F	-34	GLN	-	expression tag	UNP O75717
F	-33	PHE	-	expression tag	UNP O75717
F	-32	GLU	-	expression tag	UNP O75717
F	-31	LYS	-	expression tag	UNP O75717
F	-30	GLY	-	expression tag	UNP O75717
F	-29	GLY	-	expression tag	UNP O75717
F	-28	GLY	-	expression tag	UNP O75717
F	-27	SER	-	expression tag	UNP O75717
F	-26	GLY	-	expression tag	UNP O75717
F	-25	GLY	-	expression tag	UNP O75717
F	-24	GLY	-	expression tag	UNP O75717
F	-23	SER	-	expression tag	UNP O75717
F	-22	GLY	-	expression tag	UNP O75717
F	-21	GLY	-	expression tag	UNP O75717
F	-20	SER	-	expression tag	UNP O75717
F	-19	ALA	-	expression tag	UNP O75717
F	-18	TRP	-	expression tag	UNP O75717
F	-17	SER	-	expression tag	UNP O75717
F	-16	HIS	-	expression tag	UNP O75717
F	-15	PRO	-	expression tag	UNP O75717
F	-14	GLN	-	expression tag	UNP O75717
F	-13	PHE	-	expression tag	UNP O75717
F	-12	GLU	-	expression tag	UNP O75717
F	-11	LYS	-	expression tag	UNP O75717
F	-10	GLU	-	expression tag	UNP O75717
F	-9	ASN	-	expression tag	UNP O75717
F	-8	LEU	-	expression tag	UNP O75717
F	-7	TYR	-	expression tag	UNP O75717
F	-6	PHE	-	expression tag	UNP O75717
F	-5	GLN	-	expression tag	UNP O75717
F	-4	GLY	-	expression tag	UNP O75717
F	-3	SER	-	expression tag	UNP O75717
F	-2	SER	-	expression tag	UNP O75717
F	-1	ALA	-	expression tag	UNP O75717
F	0	THR	-	expression tag	UNP O75717

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-41	MET	-	initiating methionine	UNP O75717
G	-40	SER	-	expression tag	UNP O75717
G	-39	ALA	-	expression tag	UNP O75717
G	-38	TRP	-	expression tag	UNP O75717
G	-37	SER	-	expression tag	UNP O75717
G	-36	HIS	-	expression tag	UNP O75717
G	-35	PRO	-	expression tag	UNP O75717
G	-34	GLN	-	expression tag	UNP O75717
G	-33	PHE	-	expression tag	UNP O75717
G	-32	GLU	-	expression tag	UNP O75717
G	-31	LYS	-	expression tag	UNP O75717
G	-30	GLY	-	expression tag	UNP O75717
G	-29	GLY	-	expression tag	UNP O75717
G	-28	GLY	-	expression tag	UNP O75717
G	-27	SER	-	expression tag	UNP O75717
G	-26	GLY	-	expression tag	UNP O75717
G	-25	GLY	-	expression tag	UNP O75717
G	-24	GLY	-	expression tag	UNP O75717
G	-23	SER	-	expression tag	UNP O75717
G	-22	GLY	-	expression tag	UNP O75717
G	-21	GLY	-	expression tag	UNP O75717
G	-20	SER	-	expression tag	UNP O75717
G	-19	ALA	-	expression tag	UNP O75717
G	-18	TRP	-	expression tag	UNP O75717
G	-17	SER	-	expression tag	UNP O75717
G	-16	HIS	-	expression tag	UNP O75717
G	-15	PRO	-	expression tag	UNP O75717
G	-14	GLN	-	expression tag	UNP O75717
G	-13	PHE	-	expression tag	UNP O75717
G	-12	GLU	-	expression tag	UNP O75717
G	-11	LYS	-	expression tag	UNP O75717
G	-10	GLU	-	expression tag	UNP O75717
G	-9	ASN	-	expression tag	UNP O75717
G	-8	LEU	-	expression tag	UNP O75717
G	-7	TYR	-	expression tag	UNP O75717
G	-6	PHE	-	expression tag	UNP O75717
G	-5	GLN	-	expression tag	UNP O75717
G	-4	GLY	-	expression tag	UNP O75717
G	-3	SER	-	expression tag	UNP O75717
G	-2	SER	-	expression tag	UNP O75717
G	-1	ALA	-	expression tag	UNP O75717
G	0	THR	-	expression tag	UNP O75717

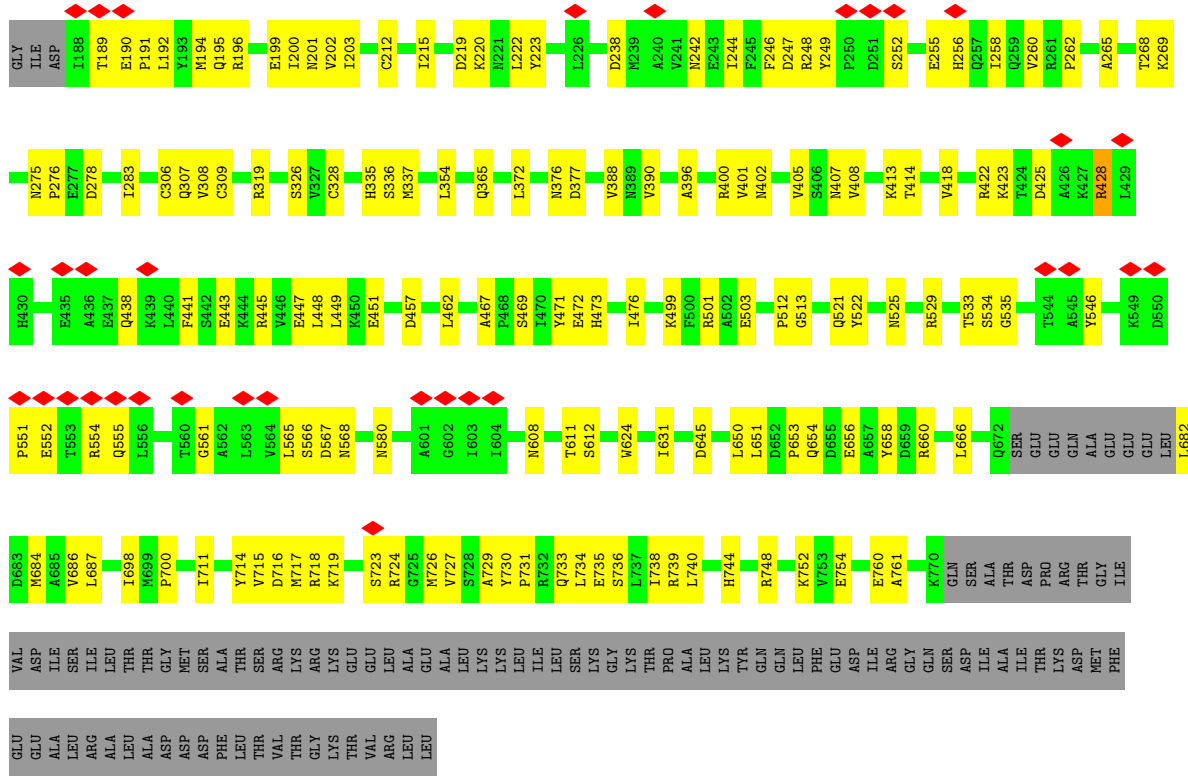
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Chain	Residue	Modelled	Actual	Comment	Reference
H	-41	MET	-	initiating methionine	UNP O75717
H	-40	SER	-	expression tag	UNP O75717
H	-39	ALA	-	expression tag	UNP O75717
H	-38	TRP	-	expression tag	UNP O75717
H	-37	SER	-	expression tag	UNP O75717
H	-36	HIS	-	expression tag	UNP O75717
H	-35	PRO	-	expression tag	UNP O75717
H	-34	GLN	-	expression tag	UNP O75717
H	-33	PHE	-	expression tag	UNP O75717
H	-32	GLU	-	expression tag	UNP O75717
H	-31	LYS	-	expression tag	UNP O75717
H	-30	GLY	-	expression tag	UNP O75717
H	-29	GLY	-	expression tag	UNP O75717
H	-28	GLY	-	expression tag	UNP O75717
H	-27	SER	-	expression tag	UNP O75717
H	-26	GLY	-	expression tag	UNP O75717
H	-25	GLY	-	expression tag	UNP O75717
H	-24	GLY	-	expression tag	UNP O75717
H	-23	SER	-	expression tag	UNP O75717
H	-22	GLY	-	expression tag	UNP O75717
H	-21	GLY	-	expression tag	UNP O75717
H	-20	SER	-	expression tag	UNP O75717
H	-19	ALA	-	expression tag	UNP O75717
H	-18	TRP	-	expression tag	UNP O75717
H	-17	SER	-	expression tag	UNP O75717
H	-16	HIS	-	expression tag	UNP O75717
H	-15	PRO	-	expression tag	UNP O75717
H	-14	GLN	-	expression tag	UNP O75717
H	-13	PHE	-	expression tag	UNP O75717
H	-12	GLU	-	expression tag	UNP O75717
H	-11	LYS	-	expression tag	UNP O75717
H	-10	GLU	-	expression tag	UNP O75717
H	-9	ASN	-	expression tag	UNP O75717
H	-8	LEU	-	expression tag	UNP O75717
H	-7	TYR	-	expression tag	UNP O75717
H	-6	PHE	-	expression tag	UNP O75717
H	-5	GLN	-	expression tag	UNP O75717
H	-4	GLY	-	expression tag	UNP O75717
H	-3	SER	-	expression tag	UNP O75717
H	-2	SER	-	expression tag	UNP O75717
H	-1	ALA	-	expression tag	UNP O75717
H	0	THR	-	expression tag	UNP O75717

- Molecule 13 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
13	2	1	Total 1	Zn 1	0
13	4	1	Total 1	Zn 1	0
13	5	1	Total 1	Zn 1	0
13	6	1	Total 1	Zn 1	0
13	7	1	Total 1	Zn 1	0



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	15393	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	54.3	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON III (4k x 4k)	Depositor
Maximum map value	1.639	Depositor
Minimum map value	-0.543	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.070	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	455.8, 455.8, 455.8	wwPDB
Map dimensions	430, 430, 430	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	2	0.39	0/4923	0.47	0/6648
2	3	0.44	0/4859	0.50	0/6563
3	4	0.49	0/4870	0.52	0/6579
4	5	0.45	0/4590	0.50	0/6171
5	6	0.48	0/4955	0.51	0/6685
6	7	0.46	0/4801	0.50	0/6482
7	A	0.43	0/1645	0.46	0/2210
8	B	0.46	0/1462	0.49	0/1981
9	C	0.46	0/1587	0.49	0/2143
10	D	0.47	0/1711	0.48	0/2305
11	E	0.46	0/4472	0.48	0/6037
12	F	0.24	0/3293	0.42	0/4462
12	G	0.24	0/3293	0.42	0/4462
12	H	0.24	0/3293	0.42	0/4462
All	All	0.42	0/49754	0.48	0/67190

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 [i](#)

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	2	4832	0	4839	242	0
2	3	4782	0	4826	152	0
3	4	4784	0	4825	137	0
4	5	4524	0	4608	209	0
5	6	4873	0	4901	149	0
6	7	4727	0	4758	119	0
7	A	1613	0	1606	82	0
8	B	1431	0	1456	100	0
9	C	1552	0	1504	43	0
10	D	1679	0	1700	30	0
11	E	4380	0	4331	234	0
12	F	3213	0	3168	29	0
12	G	3213	0	3168	93	0
12	H	3213	0	3168	31	0
13	2	1	0	0	0	0
13	4	1	0	0	0	0
13	5	1	0	0	0	0
13	6	1	0	0	0	0
13	7	1	0	0	0	0
All	All	48821	0	48858	1228	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 13.

The worst 5 of 1228 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)
1:2:562:ARG:HH21	5:6:440:HIS:CD2	1.19	1.58
1:2:377:ARG:CG	1:2:565:VAL:HG22	1.33	1.57
8:B:59:ARG:CZ	12:G:703:ARG:HD2	1.20	1.57
1:2:377:ARG:CD	1:2:565:VAL:HG22	1.33	1.56
2:3:416:ARG:CG	4:5:456:VAL:HG11	1.31	1.55

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	2	603/904 (67%)	523 (87%)	80 (13%)	0	100	100
2	3	602/853 (71%)	532 (88%)	70 (12%)	0	100	100
3	4	592/863 (69%)	507 (86%)	84 (14%)	1 (0%)	47	81
4	5	563/734 (77%)	503 (89%)	59 (10%)	1 (0%)	47	81
5	6	603/821 (73%)	538 (89%)	62 (10%)	3 (0%)	29	69
6	7	592/719 (82%)	528 (89%)	63 (11%)	1 (0%)	47	81
7	A	194/196 (99%)	170 (88%)	24 (12%)	0	100	100
8	B	174/185 (94%)	161 (92%)	13 (8%)	0	100	100
9	C	190/216 (88%)	173 (91%)	17 (9%)	0	100	100
10	D	201/223 (90%)	186 (92%)	15 (8%)	0	100	100
11	E	534/566 (94%)	480 (90%)	54 (10%)	0	100	100
12	F	404/1171 (34%)	396 (98%)	8 (2%)	0	100	100
12	G	404/1171 (34%)	396 (98%)	8 (2%)	0	100	100
12	H	404/1171 (34%)	396 (98%)	8 (2%)	0	100	100
All	All	6060/9793 (62%)	5489 (91%)	565 (9%)	6 (0%)	54	86

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	6	540	CYS
3	4	653	PRO
4	5	115	PRO
5	6	559	ILE
5	6	563	ILE

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	2	535/781 (68%)	535 (100%)	0	100	100
2	3	527/742 (71%)	527 (100%)	0	100	100
3	4	530/753 (70%)	529 (100%)	1 (0%)	93	96
4	5	494/625 (79%)	494 (100%)	0	100	100
5	6	545/724 (75%)	543 (100%)	2 (0%)	91	94
6	7	514/619 (83%)	507 (99%)	7 (1%)	67	80
7	A	174/174 (100%)	174 (100%)	0	100	100
8	B	160/169 (95%)	160 (100%)	0	100	100
9	C	167/186 (90%)	167 (100%)	0	100	100
10	D	188/205 (92%)	188 (100%)	0	100	100
11	E	491/517 (95%)	489 (100%)	2 (0%)	91	94
12	F	350/1017 (34%)	350 (100%)	0	100	100
12	G	350/1017 (34%)	350 (100%)	0	100	100
12	H	350/1017 (34%)	350 (100%)	0	100	100
All	All	5375/8546 (63%)	5363 (100%)	12 (0%)	93	96

5 of 12 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	7	527	ARG
6	7	528	ASP
11	E	284	TRP
6	7	529	ASN
6	7	311	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 72 such sidechains are listed below:

Mol	Chain	Res	Type
11	E	15	GLN
12	H	717	GLN
11	E	248	HIS
12	F	717	GLN
3	4	521	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 5 ligands modelled in this entry, 5 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 [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

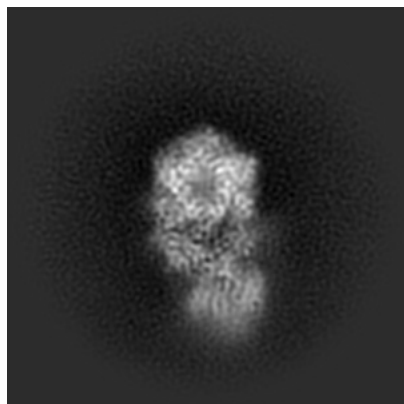
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10621. These allow visual inspection of the internal detail of the map and identification of artifacts.

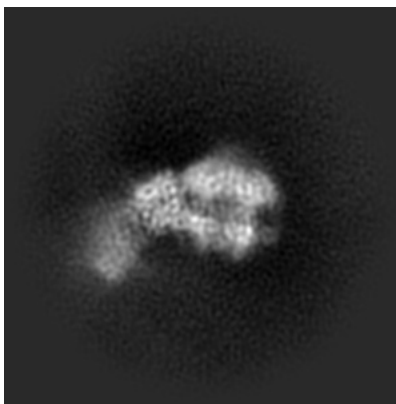
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

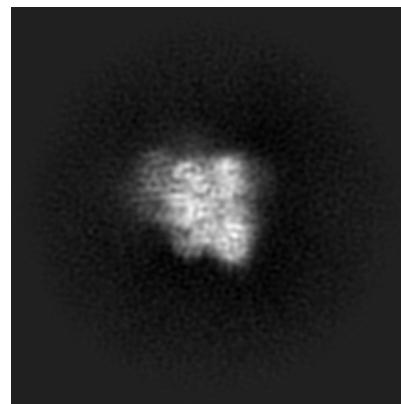
6.1.1 Primary map



X

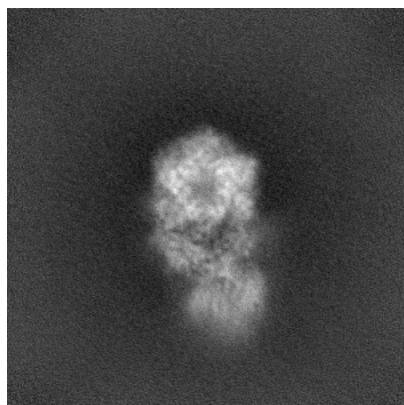


Y

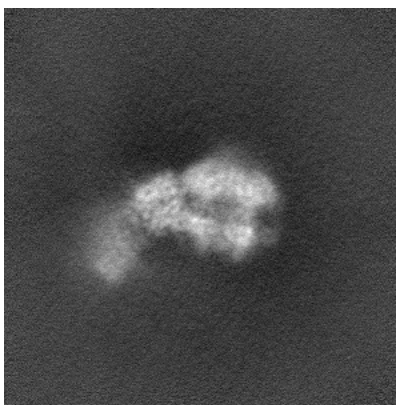


Z

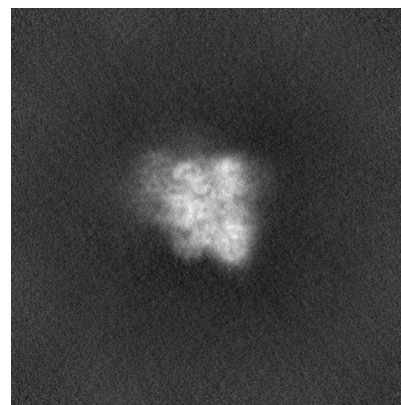
6.1.2 Raw map



X



Y

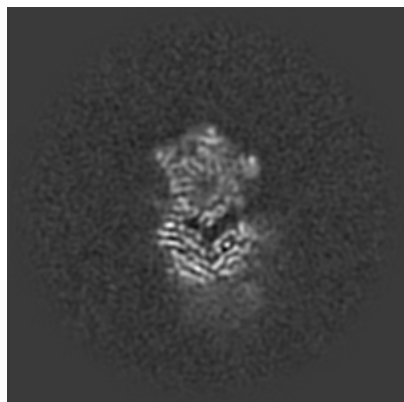


Z

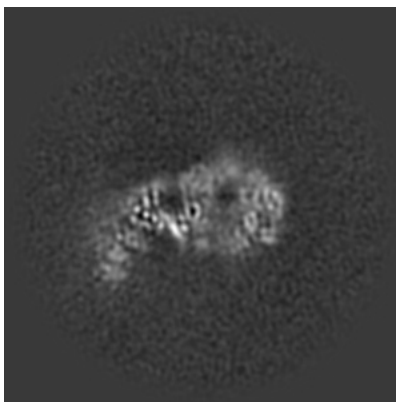
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

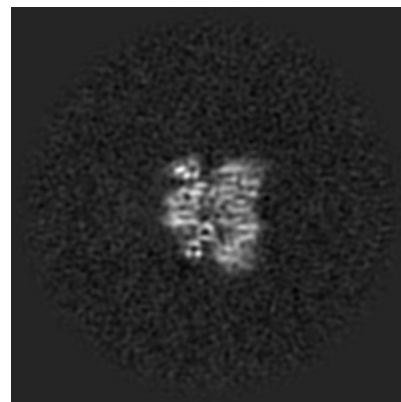
6.2.1 Primary map



X Index: 215

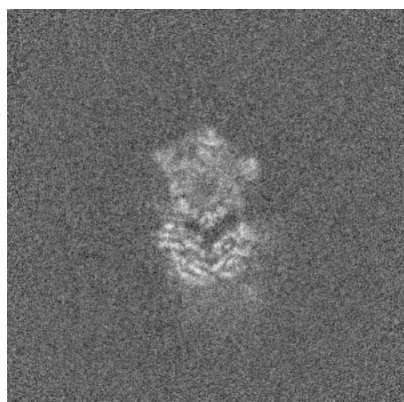


Y Index: 215

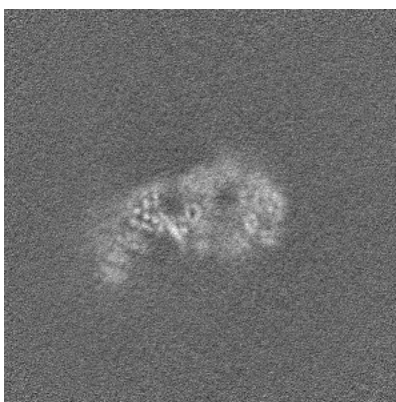


Z Index: 215

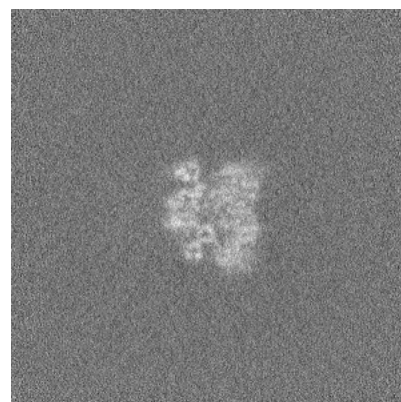
6.2.2 Raw map



X Index: 215



Y Index: 215

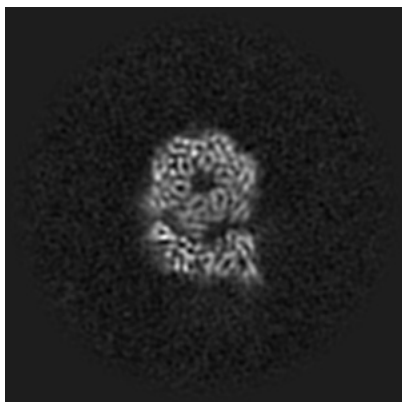


Z Index: 215

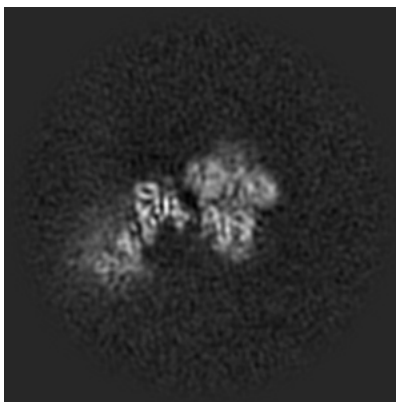
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

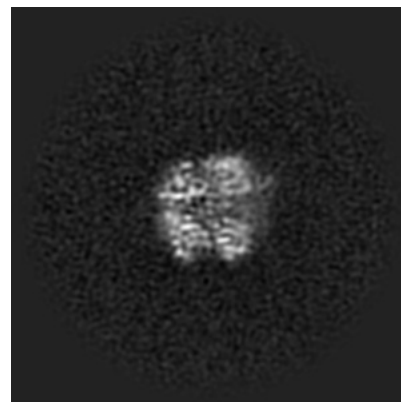
6.3.1 Primary map



X Index: 233

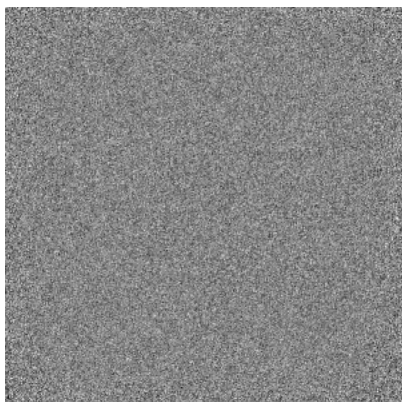


Y Index: 236

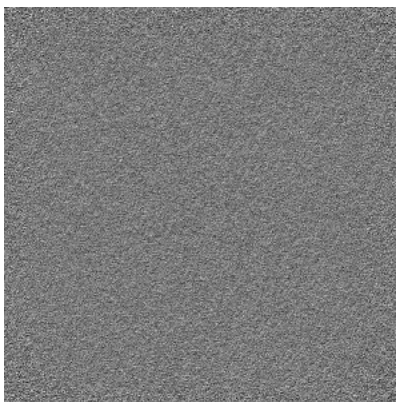


Z Index: 254

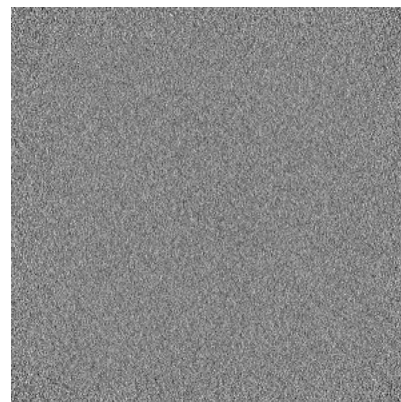
6.3.2 Raw map



X Index: 0



Y Index: 0

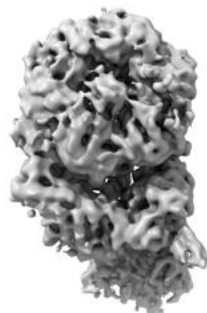


Z Index: 0

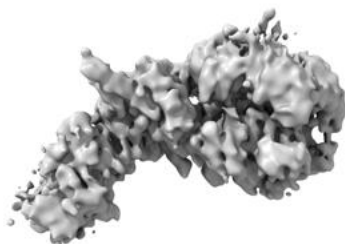
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

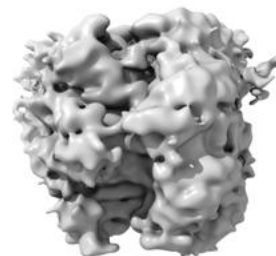
6.4.1 Primary map



X



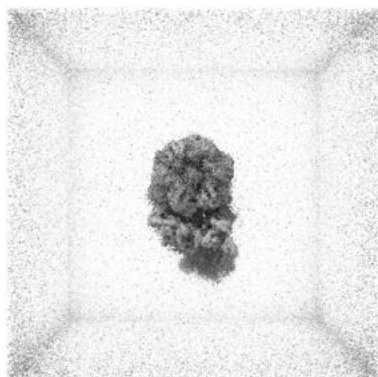
Y



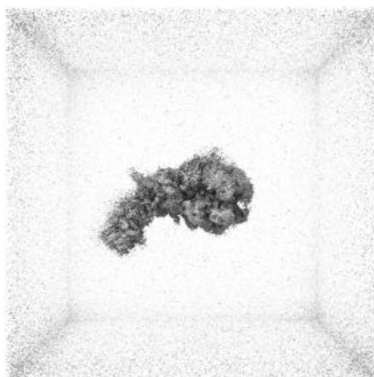
Z

The images above show the 3D surface view of the map at the recommended contour level 0.4. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

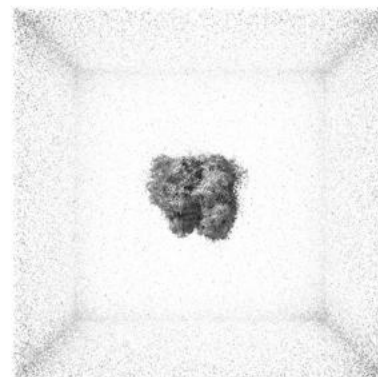
6.4.2 Raw map



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.

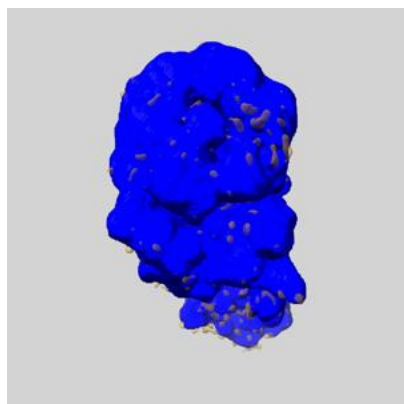
6.5 Mask visualisation [i](#)

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

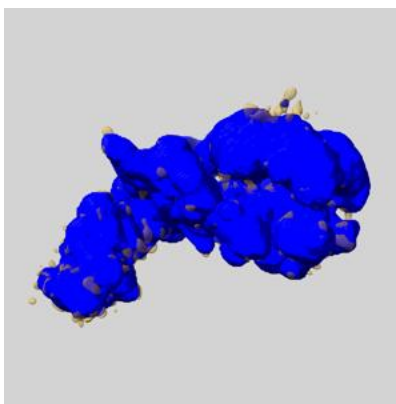
A mask typically either:

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

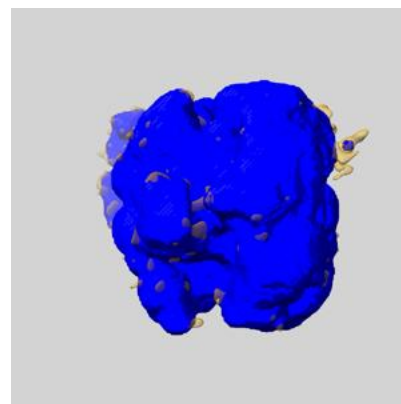
6.5.1 emd_10621_msk_1.map [i](#)



X



Y

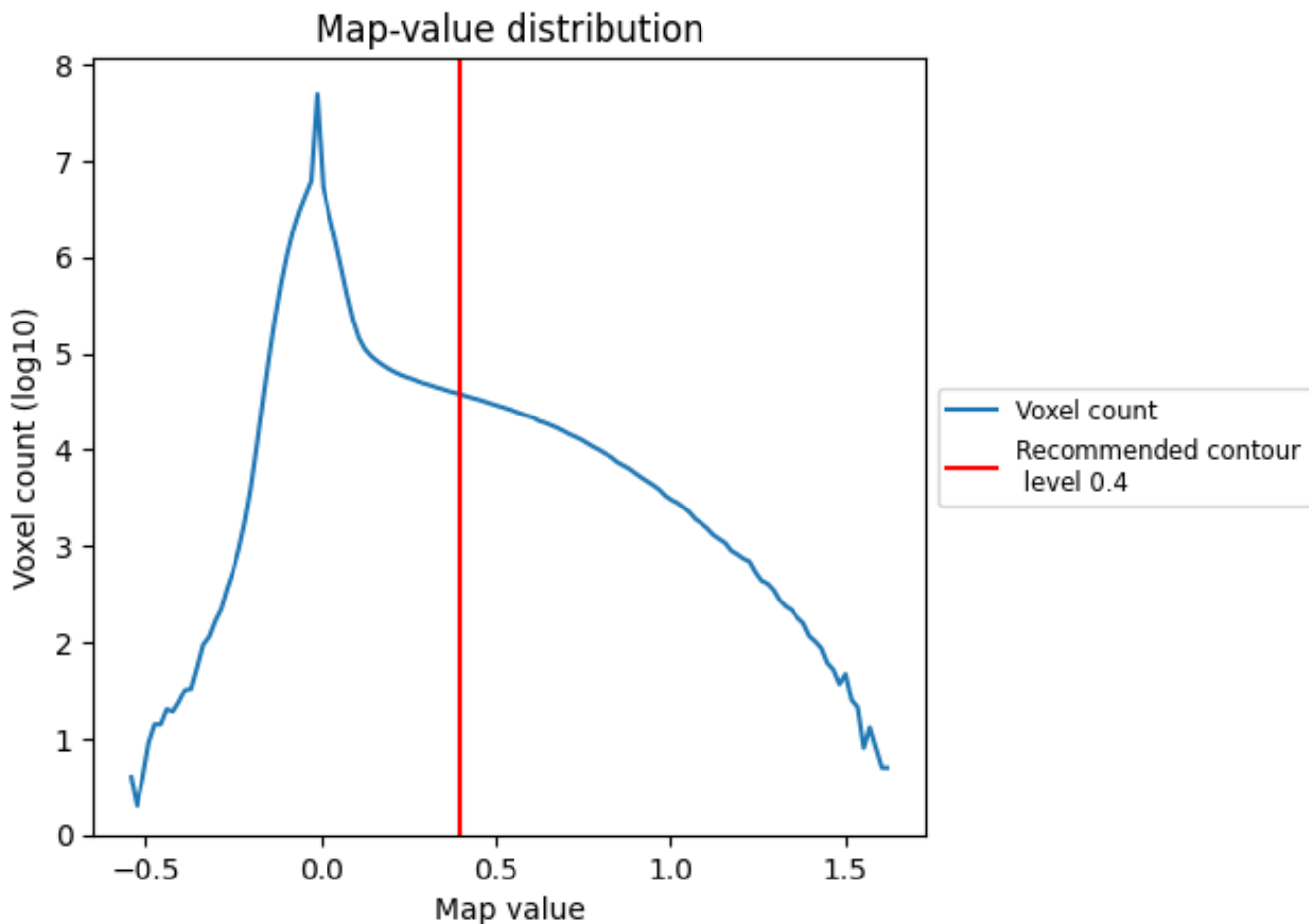


Z

7 Map analysis [i](#)

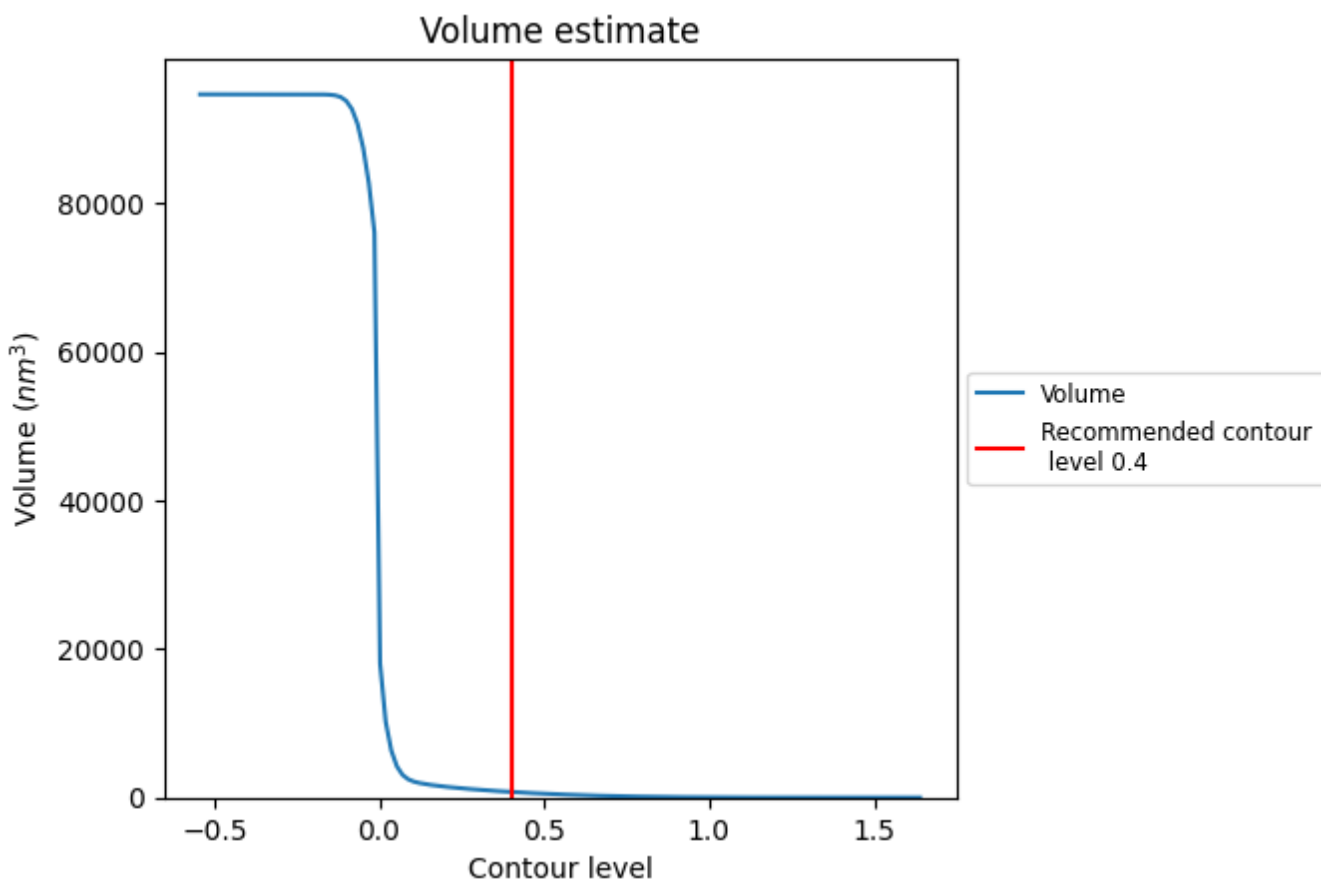
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

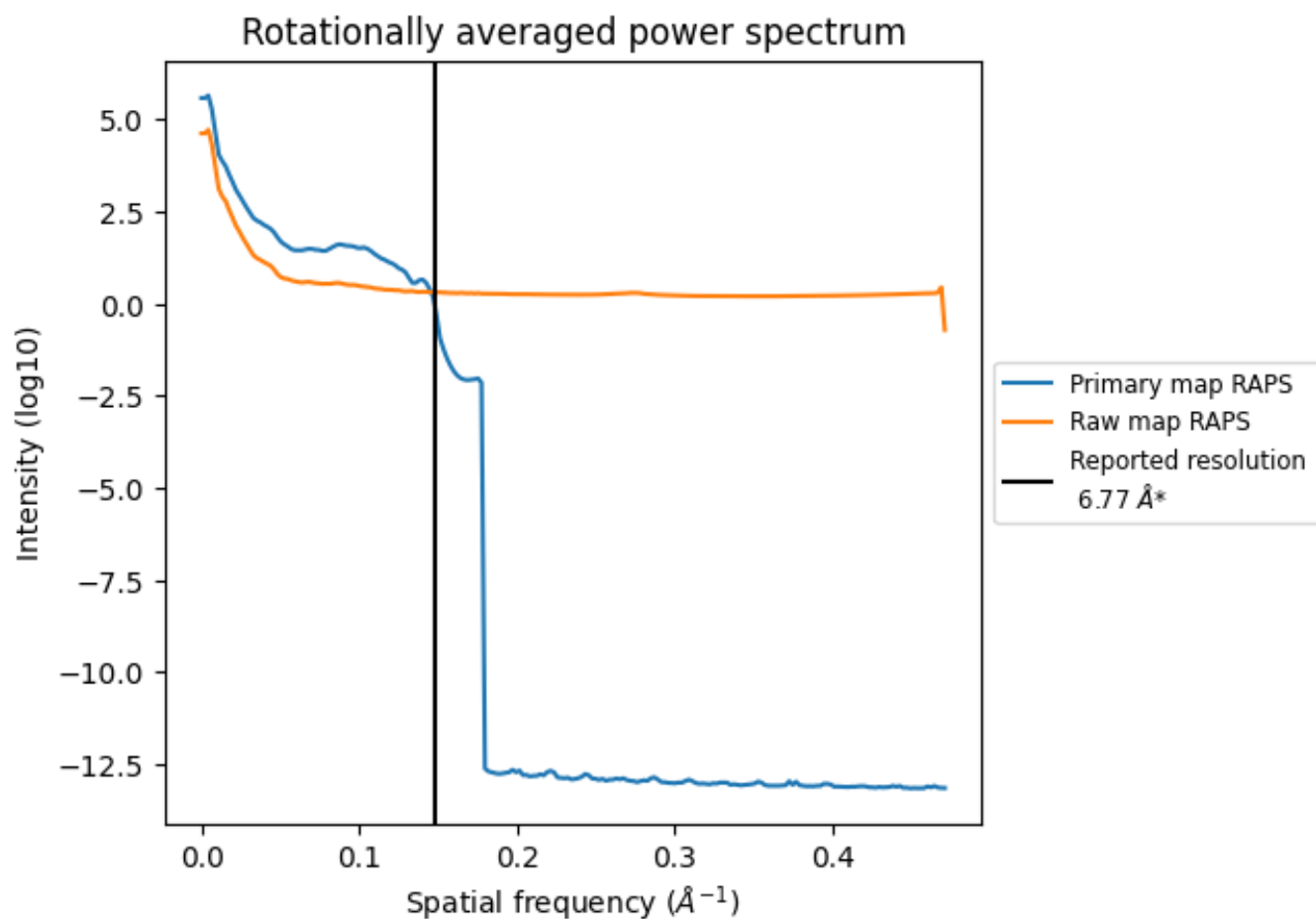
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 757 nm³; this corresponds to an approximate mass of 683 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](#)

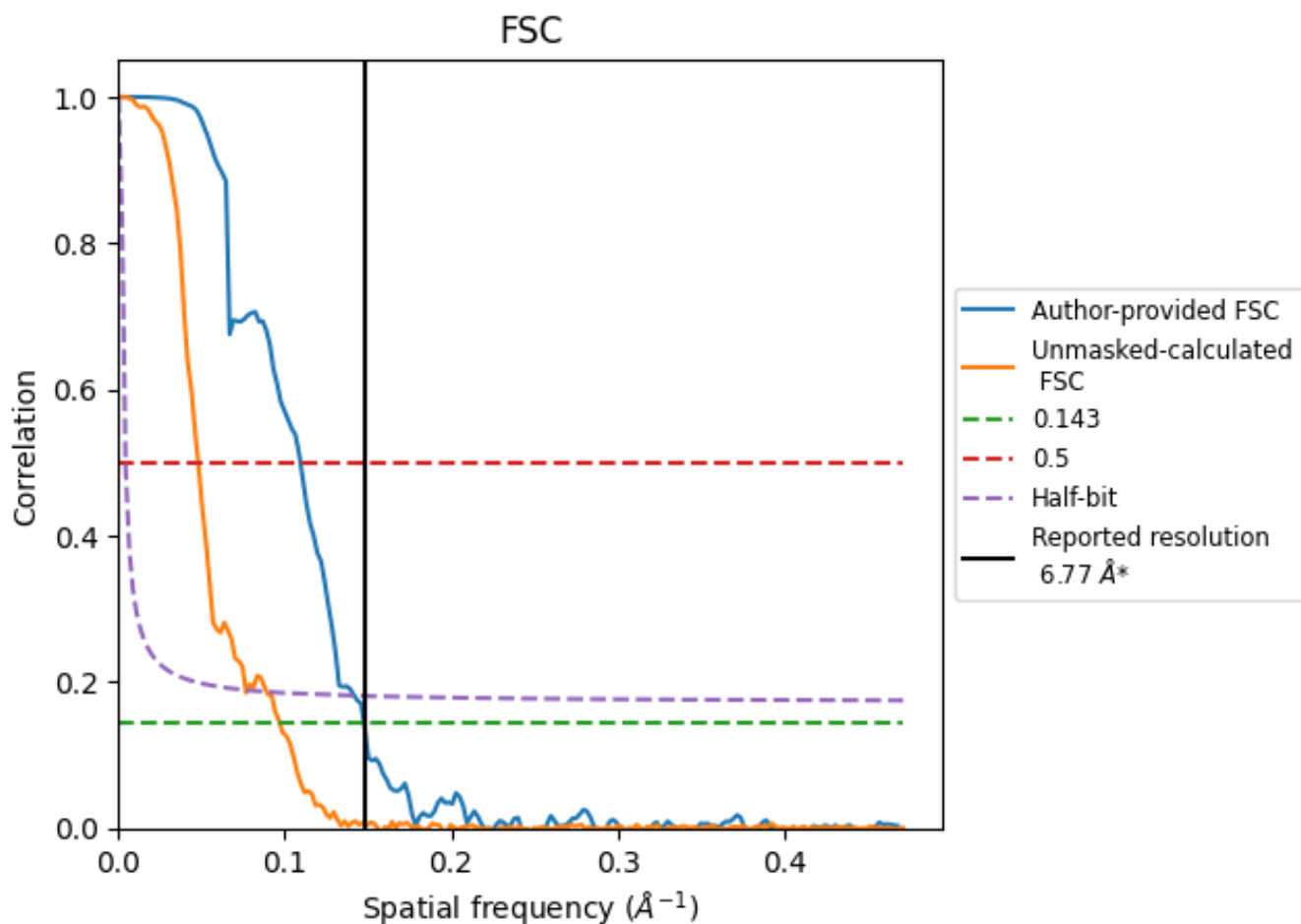


*Reported resolution corresponds to spatial frequency of 0.148 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.148 Å⁻¹

8.2 Resolution estimates [i](#)

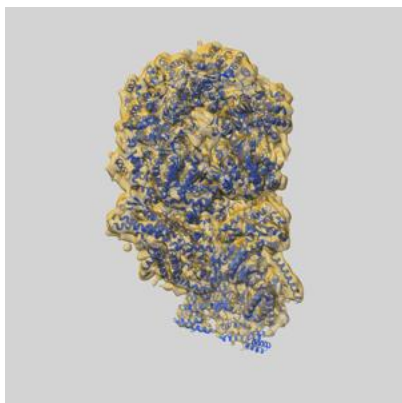
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	6.77	-	-
Author-provided FSC curve	6.78	9.14	7.05
Unmasked-calculated*	10.31	20.88	13.05

*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 10.31 differs from the reported value 6.77 by more than 10 %

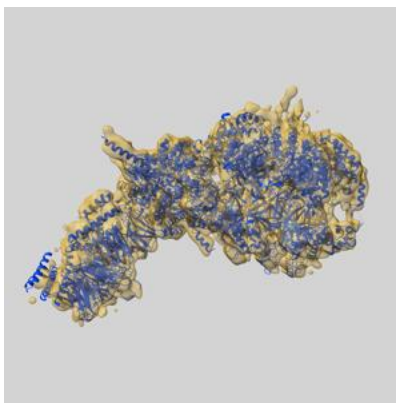
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-10621 and PDB model 6XTY. Per-residue inclusion information can be found in section 3 on page 10.

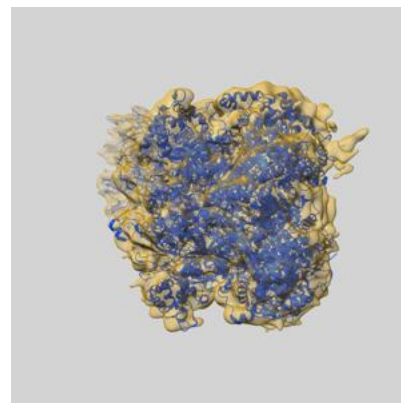
9.1 Map-model overlay [i](#)



X



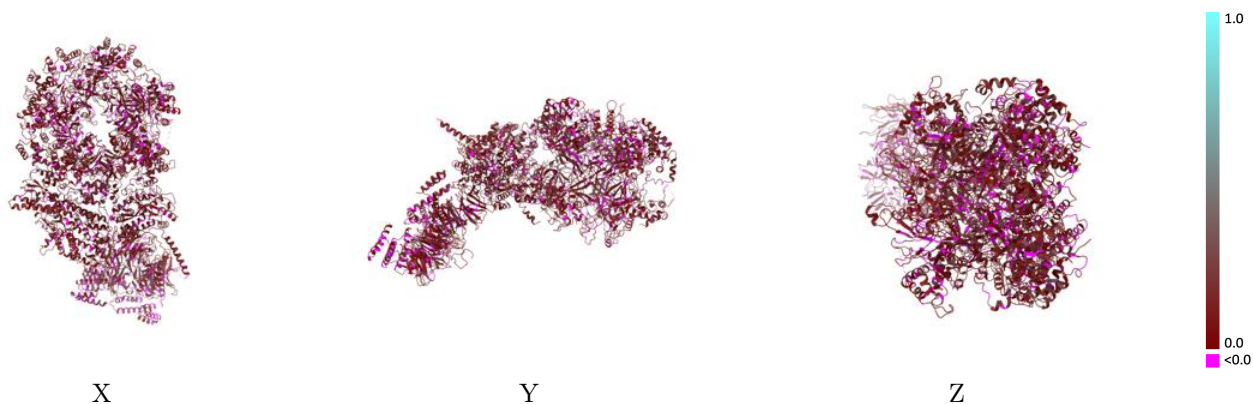
Y



Z

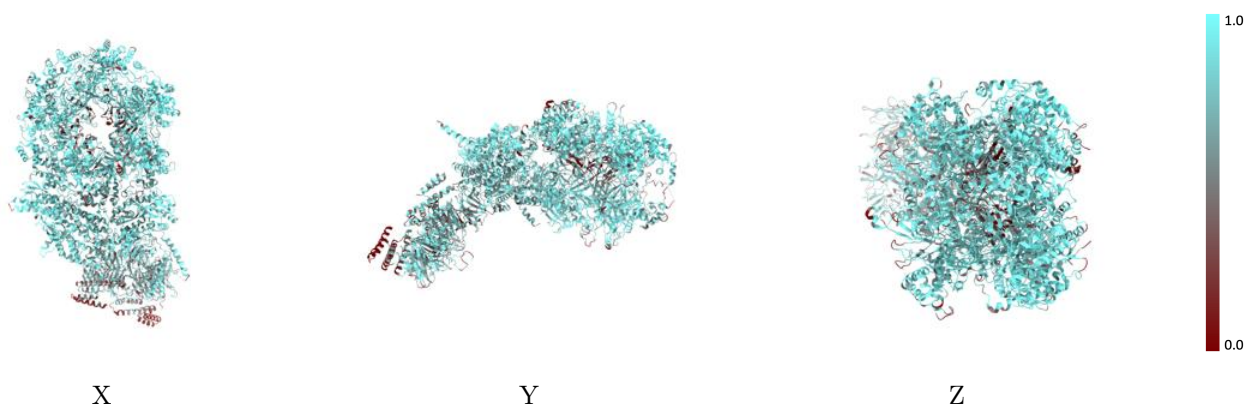
The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



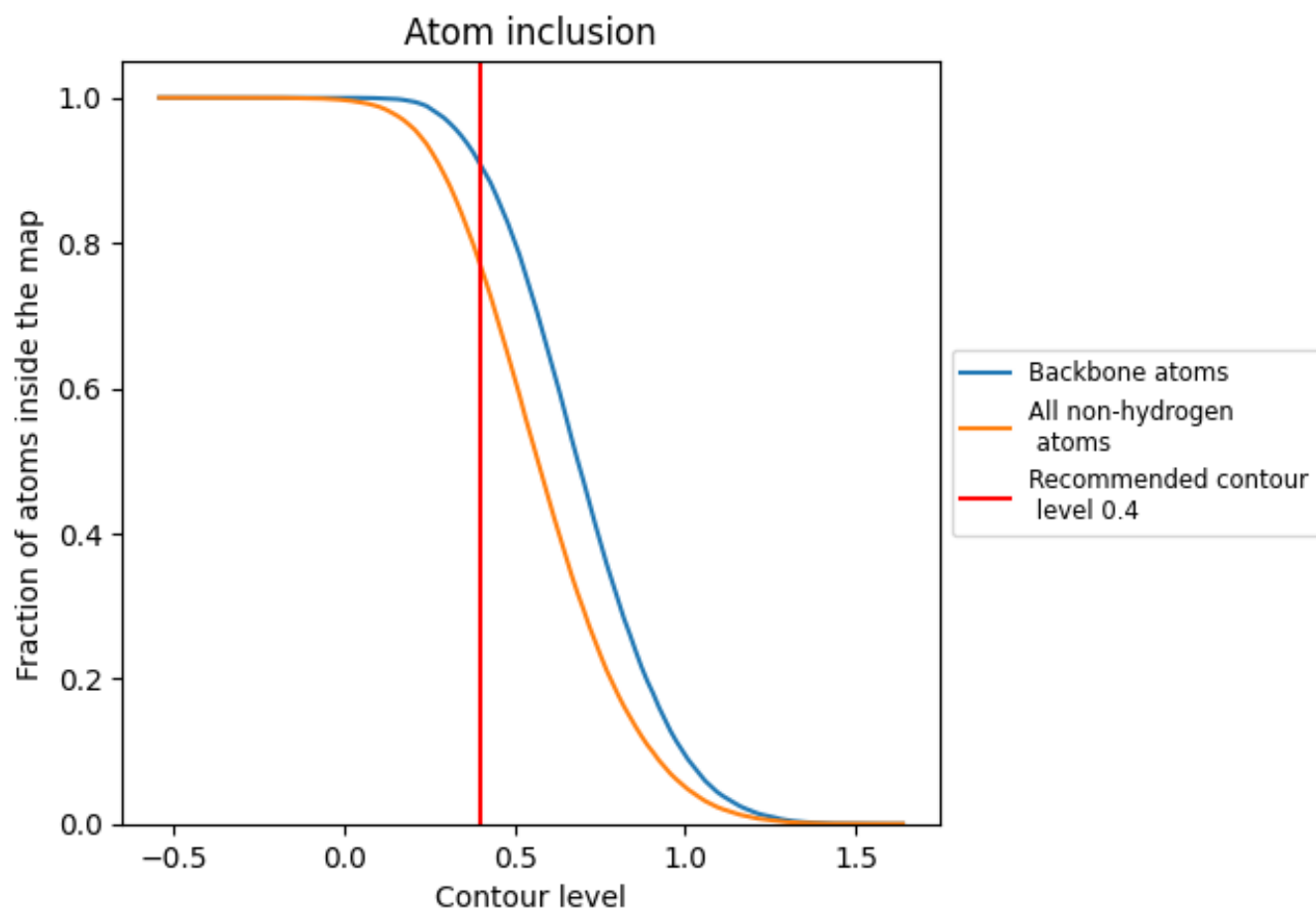
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.4).































9.4 Atom inclusion [i](#)



At the recommended contour level, 91% 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 (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7679	 0.1270
2	 0.8099	 0.1330
3	 0.8100	 0.1200
4	 0.8168	 0.1280
5	 0.7611	 0.1260
6	 0.8175	 0.1210
7	 0.8258	 0.1250
A	 0.8327	 0.1430
B	 0.8009	 0.1520
C	 0.8154	 0.1420
D	 0.8354	 0.1380
E	 0.7983	 0.1410
F	 0.6676	 0.1200
G	 0.5649	 0.1270
H	 0.5745	 0.0990

