wwPDB EM Validation Summary Report (i)

Oct 12, 2026 – 04:14 PM JST

PDB ID	:	22TA / pdb_000022ta
EMDB ID	:	EMD-68650
Title	:	5HT2AR-miniGq heterotrimer in complex with a novel agonist IHCH-8152
Authors	:	Tang, L.; Cao, M.; Li, H.; Meng, B.; Liu, Z.; Cheng, J.; Wang, S.
Deposited on	:	2026-01-22
Resolution	:	3.20 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 (i) 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 (i)) were used in the production of this report:

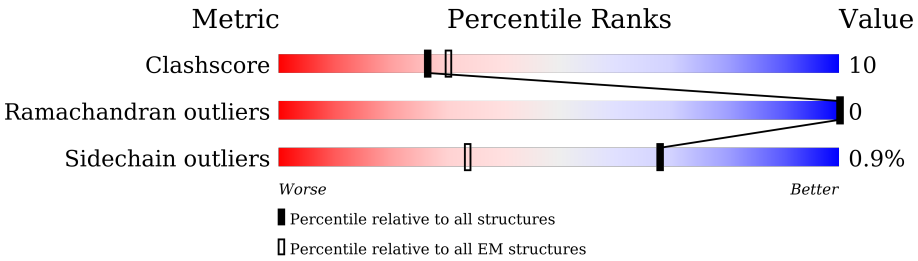
EMDB validation analysis	:	0.0.1.dev133
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.2
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using 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)	:	2.51

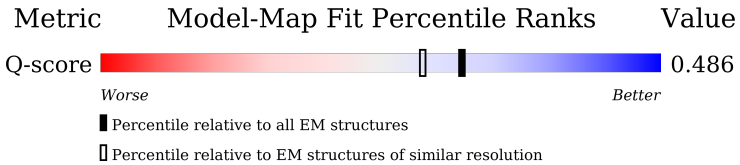
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.20 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	15020 (2.70 - 3.70)

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	336	60% 18% • 21%
2	B	326	71% 16% 13%
3	C	340	75% 23% ••
4	D	258	74% 17% 9%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 8221 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 5-hydroxytryptamine receptor 2A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	264	1839	1219	298	313	9	0	0

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	59	GLY	-	expression tag	UNP P28223
A	60	PRO	-	expression tag	UNP P28223
A	61	GLY	-	expression tag	UNP P28223
A	62	SER	-	expression tag	UNP P28223
A	63	GLY	-	expression tag	UNP P28223
A	64	SER	-	expression tag	UNP P28223
A	65	GLY	-	expression tag	UNP P28223

- Molecule 2 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2,Guanine nucleotide-binding protein G(s) subunit alpha isoforms XLas.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	283	2112	1357	378	370	7	0	0

There are 109 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	72	GLY	-	linker	UNP P59768
B	73	SER	-	linker	UNP P59768
B	74	ALA	-	linker	UNP P59768
B	75	GLY	-	linker	UNP P59768
B	76	SER	-	linker	UNP P59768
B	77	ALA	-	linker	UNP P59768
B	78	GLY	-	linker	UNP P59768
B	79	SER	-	linker	UNP P59768
B	80	ALA	-	linker	UNP P59768

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Chain	Residue	Modelled	Actual	Comment	Reference
B	81	MET	-	linker	UNP P59768
B	82	GLY	-	linker	UNP P59768
B	83	CYS	-	linker	UNP P59768
B	84	THR	-	linker	UNP P59768
B	85	VAL	-	linker	UNP P59768
B	86	SER	-	linker	UNP P59768
B	87	ALA	-	linker	UNP P59768
B	88	GLU	-	linker	UNP P59768
B	89	ASP	-	linker	UNP P59768
B	90	LYS	-	linker	UNP P59768
B	91	ALA	-	linker	UNP P59768
B	92	ALA	-	linker	UNP P59768
B	93	ALA	-	linker	UNP P59768
B	94	GLU	-	linker	UNP P59768
B	95	ARG	-	linker	UNP P59768
B	96	SER	-	linker	UNP P59768
B	97	LYS	-	linker	UNP P59768
B	98	MET	-	linker	UNP P59768
B	99	ILE	-	linker	UNP P59768
B	100	ASP	-	linker	UNP P59768
B	101	LYS	-	linker	UNP P59768
B	102	ASN	-	linker	UNP P59768
B	103	LEU	-	linker	UNP P59768
B	104	ARG	-	linker	UNP P59768
B	105	GLU	-	linker	UNP P59768
B	106	ASP	-	linker	UNP P59768
B	107	GLY	-	linker	UNP P59768
B	108	GLU	-	linker	UNP P59768
B	109	LYS	-	linker	UNP P59768
B	110	ALA	-	linker	UNP P59768
B	111	ARG	-	linker	UNP P59768
B	112	ARG	-	linker	UNP P59768
B	113	THR	-	linker	UNP P59768
B	114	LEU	-	linker	UNP P59768
B	115	ARG	-	linker	UNP P59768
B	116	LEU	-	linker	UNP P59768
B	117	LEU	-	linker	UNP P59768
B	118	LEU	-	linker	UNP P59768
B	119	LEU	-	linker	UNP P59768
B	120	GLY	-	linker	UNP P59768
B	121	ALA	-	linker	UNP P59768
B	122	ASP	-	linker	UNP P59768

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Chain	Residue	Modelled	Actual	Comment	Reference
B	123	ASN	-	linker	UNP P59768
B	124	SER	-	linker	UNP P59768
B	125	GLY	-	linker	UNP P59768
B	126	LYS	-	linker	UNP P59768
B	127	SER	-	linker	UNP P59768
B	128	THR	-	linker	UNP P59768
B	129	ILE	-	linker	UNP P59768
B	130	VAL	-	linker	UNP P59768
B	131	LYS	-	linker	UNP P59768
B	132	GLN	-	linker	UNP P59768
B	133	MET	-	linker	UNP P59768
B	134	ARG	-	linker	UNP P59768
B	135	ILE	-	linker	UNP P59768
B	136	LEU	-	linker	UNP P59768
B	137	HIS	-	linker	UNP P59768
B	138	GLY	-	linker	UNP P59768
B	139	GLY	-	linker	UNP P59768
B	140	SER	-	linker	UNP P59768
B	141	GLY	-	linker	UNP P59768
B	142	GLY	-	linker	UNP P59768
B	143	SER	-	linker	UNP P59768
B	144	GLY	-	linker	UNP P59768
B	145	GLY	-	linker	UNP P59768
B	191	ASP	ALA	conflict	UNP Q5JWF2
B	194	ASP	SER	conflict	UNP Q5JWF2
B	?	-	ASN	deletion	UNP Q5JWF2
B	?	-	MET	deletion	UNP Q5JWF2
B	?	-	VAL	deletion	UNP Q5JWF2
B	?	-	ILE	deletion	UNP Q5JWF2
B	?	-	ARG	deletion	UNP Q5JWF2
B	?	-	GLU	deletion	UNP Q5JWF2
B	?	-	ASP	deletion	UNP Q5JWF2
B	?	-	ASN	deletion	UNP Q5JWF2
B	?	-	GLN	deletion	UNP Q5JWF2
B	?	-	THR	deletion	UNP Q5JWF2
B	304	ALA	-	expression tag	UNP Q5JWF2
B	305	ARG	-	expression tag	UNP Q5JWF2
B	306	ARG	-	expression tag	UNP Q5JWF2
B	307	ILE	-	expression tag	UNP Q5JWF2
B	308	PHE	-	expression tag	UNP Q5JWF2
B	309	ALA	-	expression tag	UNP Q5JWF2
B	310	ALA	-	expression tag	UNP Q5JWF2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	311	VAL	-	expression tag	UNP Q5JWF2
B	312	LYS	-	expression tag	UNP Q5JWF2
B	313	ASP	-	expression tag	UNP Q5JWF2
B	314	THR	-	expression tag	UNP Q5JWF2
B	315	ILE	-	expression tag	UNP Q5JWF2
B	316	LEU	-	expression tag	UNP Q5JWF2
B	317	GLN	-	expression tag	UNP Q5JWF2
B	318	LEU	-	expression tag	UNP Q5JWF2
B	319	ASN	-	expression tag	UNP Q5JWF2
B	320	LEU	-	expression tag	UNP Q5JWF2
B	321	ARG	-	expression tag	UNP Q5JWF2
B	322	GLU	-	expression tag	UNP Q5JWF2
B	323	TYR	-	expression tag	UNP Q5JWF2
B	324	ASN	-	expression tag	UNP Q5JWF2
B	325	LEU	-	expression tag	UNP Q5JWF2
B	326	VAL	-	expression tag	UNP Q5JWF2

- Molecule 3 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	335	2506	1556	449	482	19	0	0

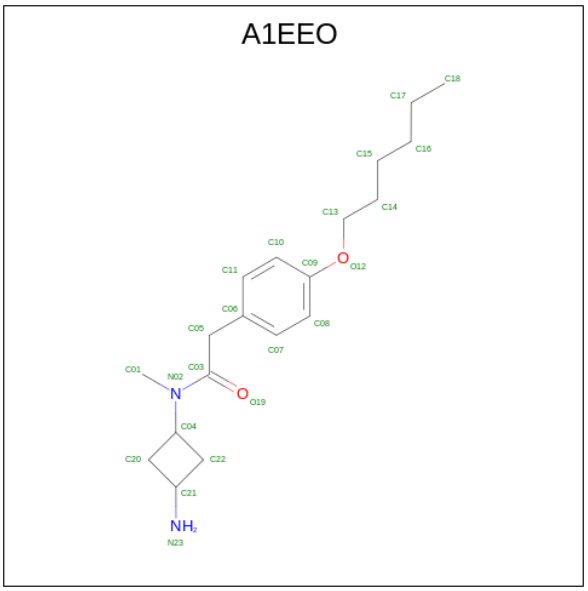
There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	1	GLY	-	expression tag	UNP P62873

- Molecule 4 is a protein called single-chain variable fragment 16 (scFv16).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	235	1741	1111	292	328	10	0	0

- Molecule 5 is {N}-(3-azanylcyclobutyl)-2-(4-hexoxyphenyl)- {N}-methyl-ethanamide (CCD ID: A1EEO) (formula: $C_{19}H_{30}N_2O_2$) (labeled as "Ligand of Interest" by depositor).



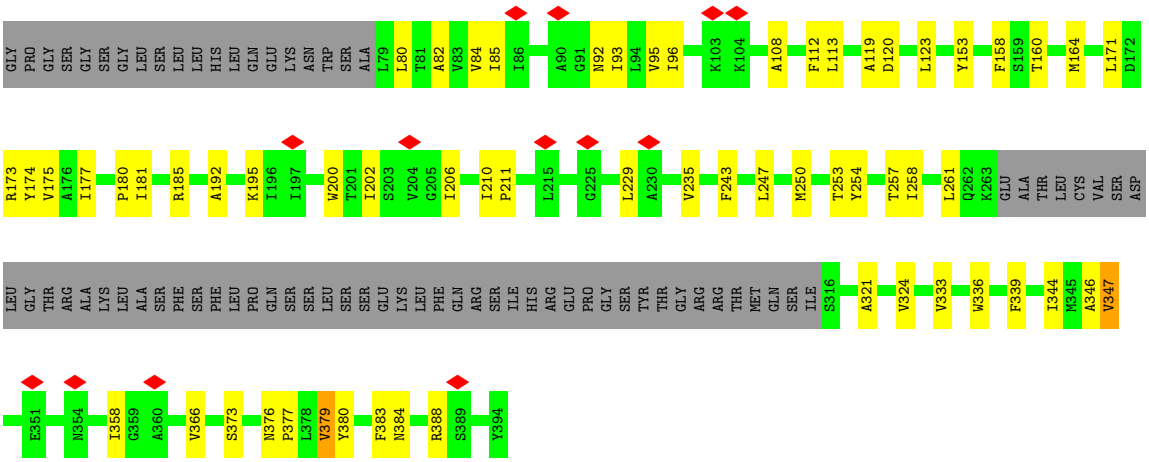
Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
5	A	1	23	19	2	2	0

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.

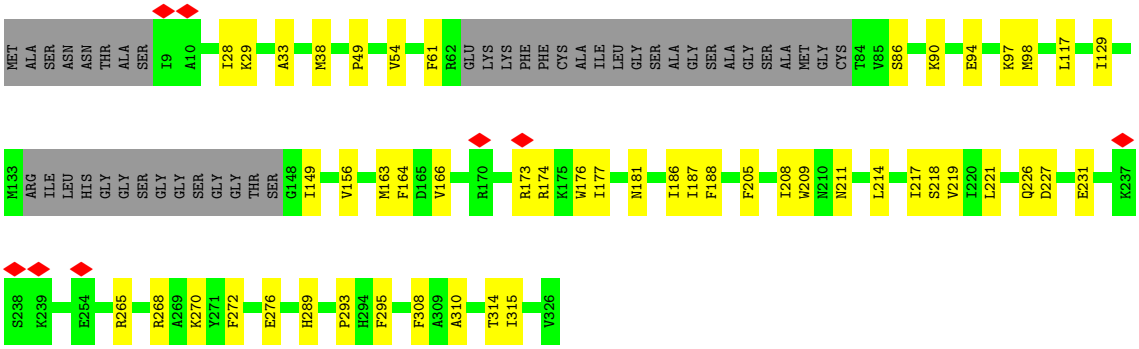
• Molecule 1: 5-hydroxytryptamine receptor 2A

Chain A:



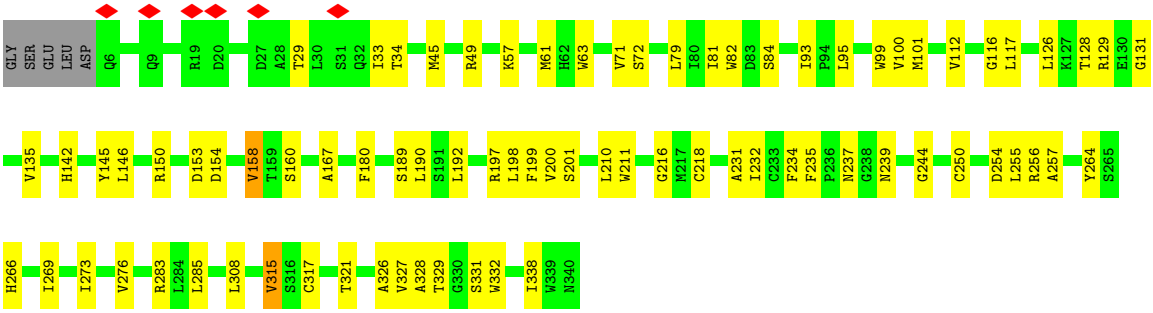
• Molecule 2: Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2,Guanine nucleotide-binding protein G(s) subunit alpha isoforms XLas

Chain B:



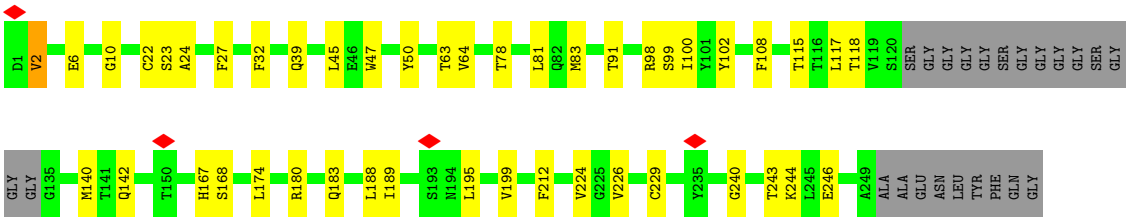
• Molecule 3: Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1

Chain C:



- Molecule 4: single-chain variable fragment 16 (scFv16)

Chain D:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	791492	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	3.168	Depositor
Minimum map value	-1.872	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.054	Depositor
Recommended contour level	0.23	Depositor
Map size (Å)	266.24, 266.24, 266.24	wwPDB
Map dimensions	200, 200, 200	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.3312, 1.3312, 1.3312	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: A1EEO

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	0.17	0/1881	0.39	0/2585
2	B	0.16	0/2150	0.33	0/2915
3	C	0.17	0/2553	0.32	0/3470
4	D	0.15	0/1785	0.35	0/2427
All	All	0.17	0/8369	0.35	0/11397

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	A	1839	0	1637	40	0
2	B	2112	0	2004	38	0
3	C	2506	0	2375	50	0
4	D	1741	0	1636	36	0
5	A	23	0	0	0	0
All	All	8221	0	7652	158	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 10.

The worst 5 of 158 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:D:27:PHE:CG	4:D:98:ARG:NH1	2.38	0.90
3:C:95:LEU:HD13	3:C:100:VAL:HG21	1.61	0.82
4:D:167:HIS:HD2	4:D:168:SER:H	1.34	0.75
3:C:160:SER:HB3	3:C:190:LEU:HD13	1.68	0.73
3:C:189:SER:HB3	3:C:232:ILE:HG22	1.71	0.73

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	260/336 (77%)	254 (98%)	6 (2%)	0	100	100
2	B	277/326 (85%)	265 (96%)	12 (4%)	0	100	100
3	C	333/340 (98%)	319 (96%)	14 (4%)	0	100	100
4	D	231/258 (90%)	225 (97%)	6 (3%)	0	100	100
All	All	1101/1260 (87%)	1063 (96%)	38 (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	A	150/297 (50%)	148 (99%)	2 (1%)	61	78
2	B	190/272 (70%)	190 (100%)	0	100	100
3	C	258/282 (92%)	255 (99%)	3 (1%)	63	79
4	D	178/207 (86%)	176 (99%)	2 (1%)	65	79
All	All	776/1058 (73%)	769 (99%)	7 (1%)	68	81

5 of 7 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	C	158	VAL
3	C	315	VAL
4	D	199	VAL
4	D	2	VAL
3	C	135	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
3	C	155	ASN
3	C	239	ASN
4	D	186	GLN
4	D	167	HIS
3	C	110	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)

1 ligand is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
5	A1EEO	A	401	-	24,24,24	2.75	5 (20%)	28,31,31	1.75	6 (21%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	A1EEO	A	401	-	-	3/15/27/27	0/2/2/2

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	401	A1EEO	C03-N02	10.95	1.52	1.35
5	A	401	A1EEO	C05-C03	5.33	1.58	1.52
5	A	401	A1EEO	C05-C06	3.34	1.57	1.51
5	A	401	A1EEO	O12-C09	2.03	1.42	1.37
5	A	401	A1EEO	C04-N02	2.01	1.51	1.48

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	A	401	A1EEO	C01-N02-C03	-4.12	112.50	122.01
5	A	401	A1EEO	C20-C21-N23	-3.98	110.42	119.96
5	A	401	A1EEO	C22-C21-N23	-3.97	110.45	119.96
5	A	401	A1EEO	C04-N02-C03	3.50	127.66	119.59
5	A	401	A1EEO	C05-C03-N02	2.73	121.91	118.38

There are no chirality outliers.

All (3) torsion outliers are listed below:

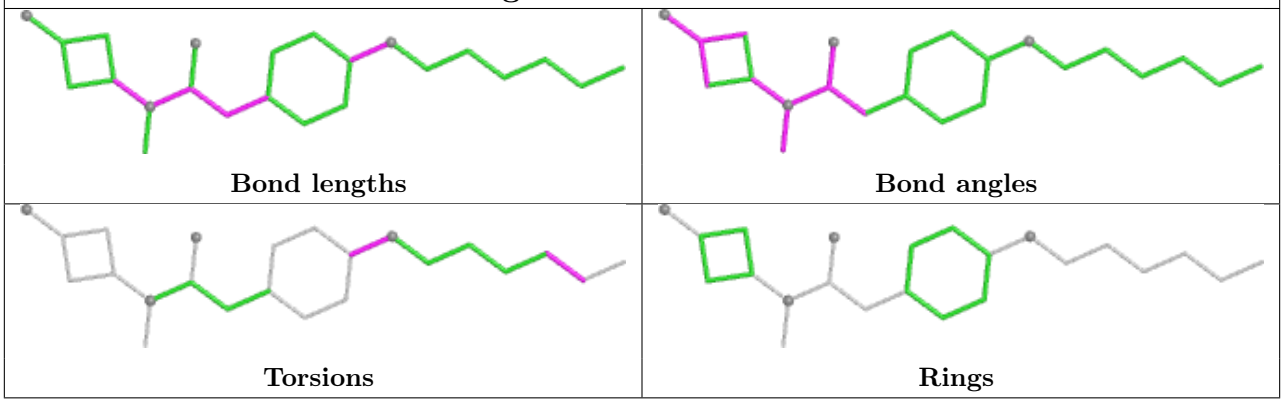
Mol	Chain	Res	Type	Atoms
5	A	401	A1EEO	C15-C16-C17-C18
5	A	401	A1EEO	C10-C09-O12-C13
5	A	401	A1EEO	C08-C09-O12-C13

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand A1EEO A 401



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.

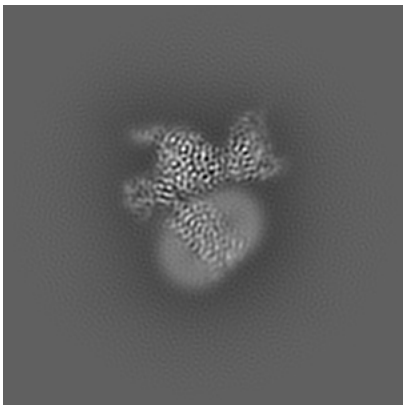
6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-68650. These allow visual inspection of the internal detail of the map and identification of artifacts.

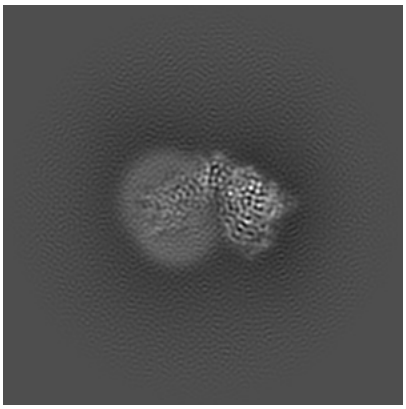
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections (i)

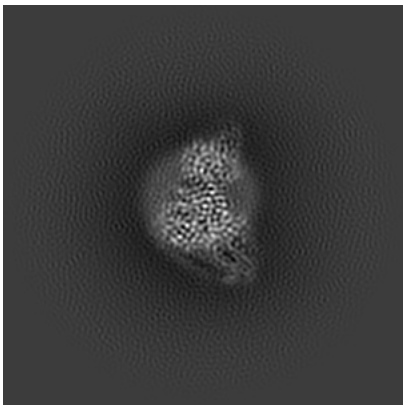
6.1.1 Primary map



X

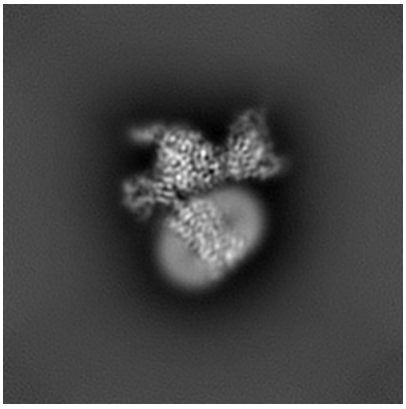


Y

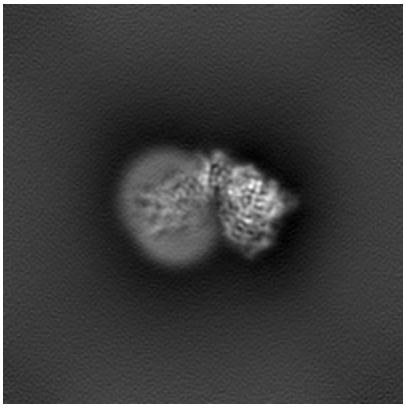


Z

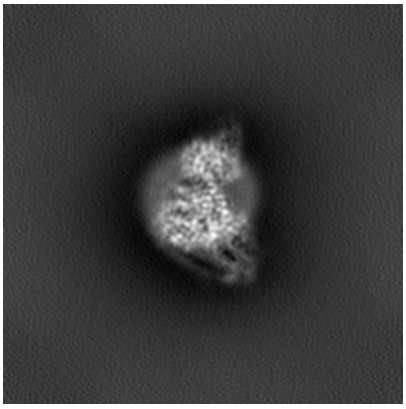
6.1.2 Raw map



X



Y

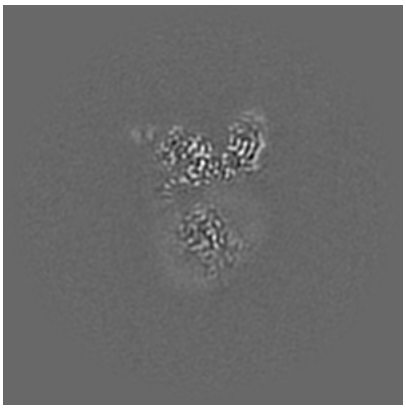


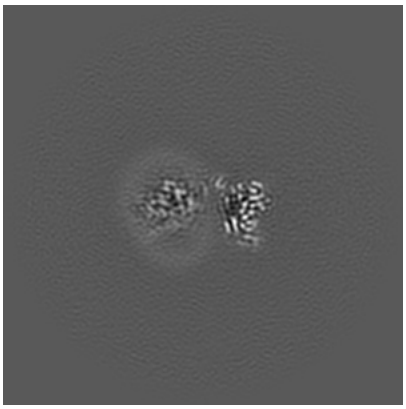
Z

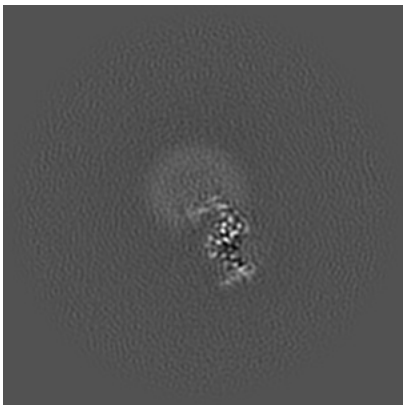
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

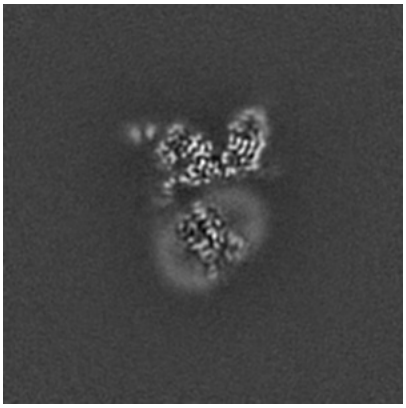
6.2.1 Primary map

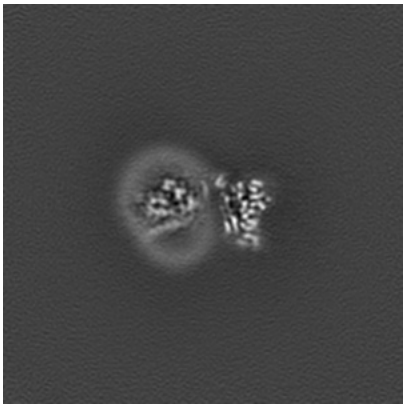

X Index: 100


Y Index: 100


Z Index: 100

6.2.2 Raw map


X Index: 100

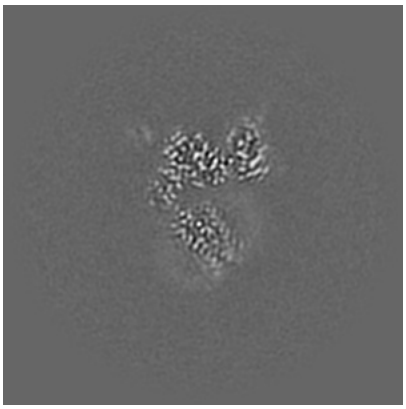

Y Index: 100

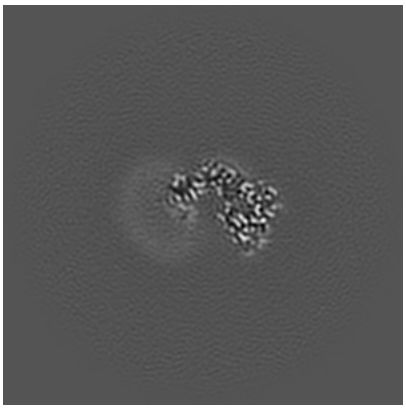
Z Index: 100

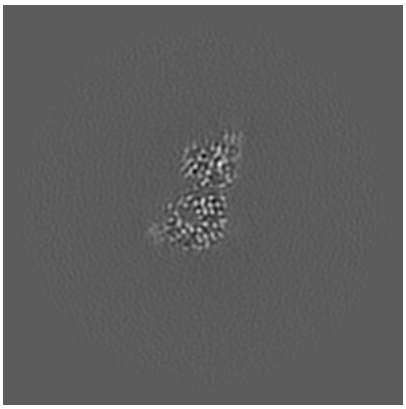
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

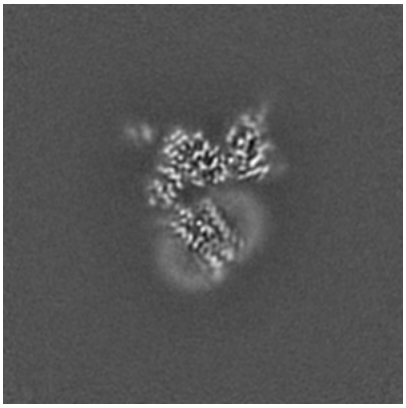
6.3.1 Primary map

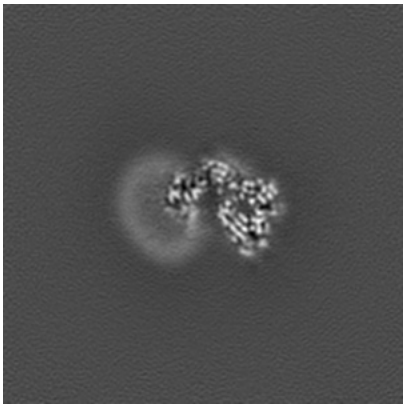

X Index: 104

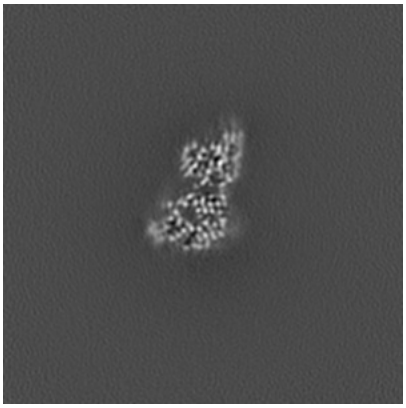

Y Index: 89


Z Index: 124

6.3.2 Raw map


X Index: 104

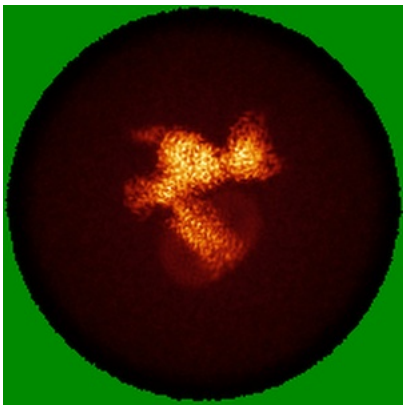

Y Index: 90

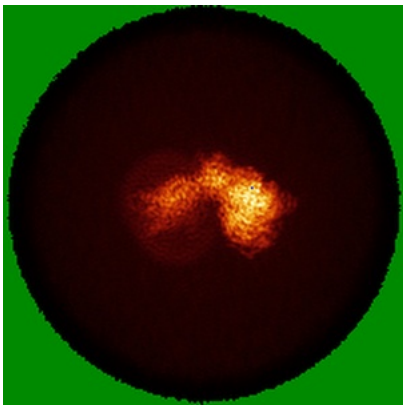

Z Index: 124

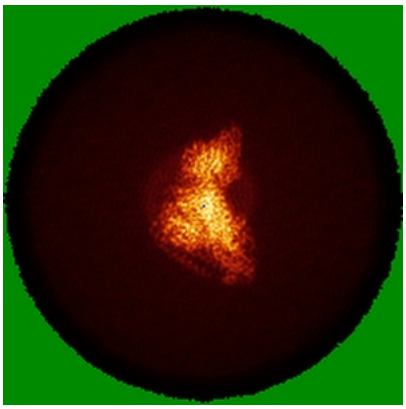
The images above show the largest variance slices of the map in three orthogonal directions.

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

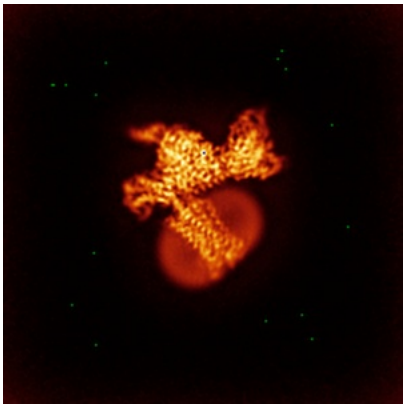
6.4.1 Primary map

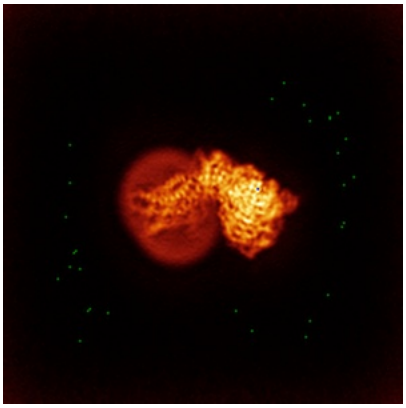

X

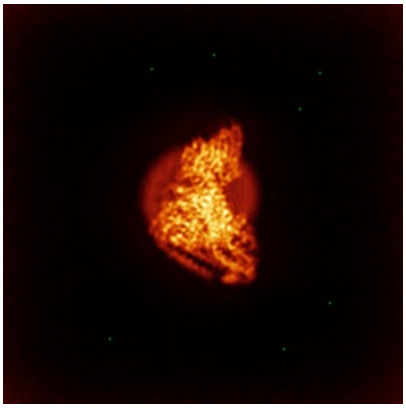

Y


Z

6.4.2 Raw map


X

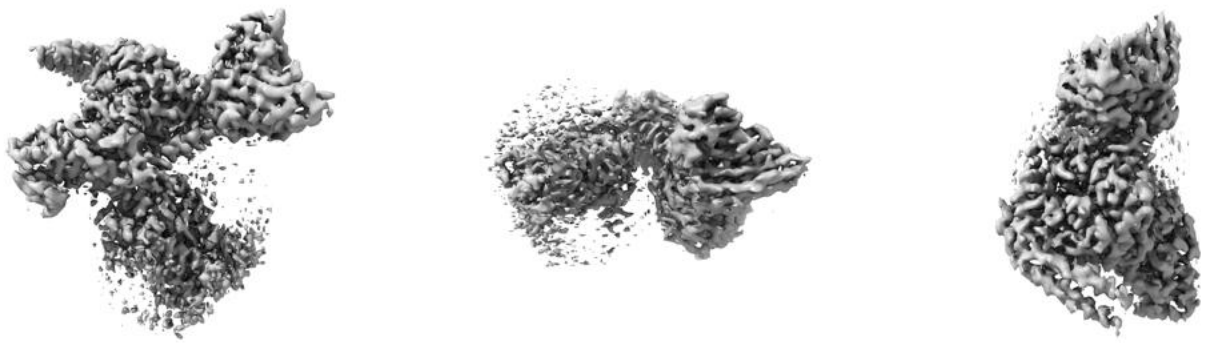

Y


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 0.23. 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.

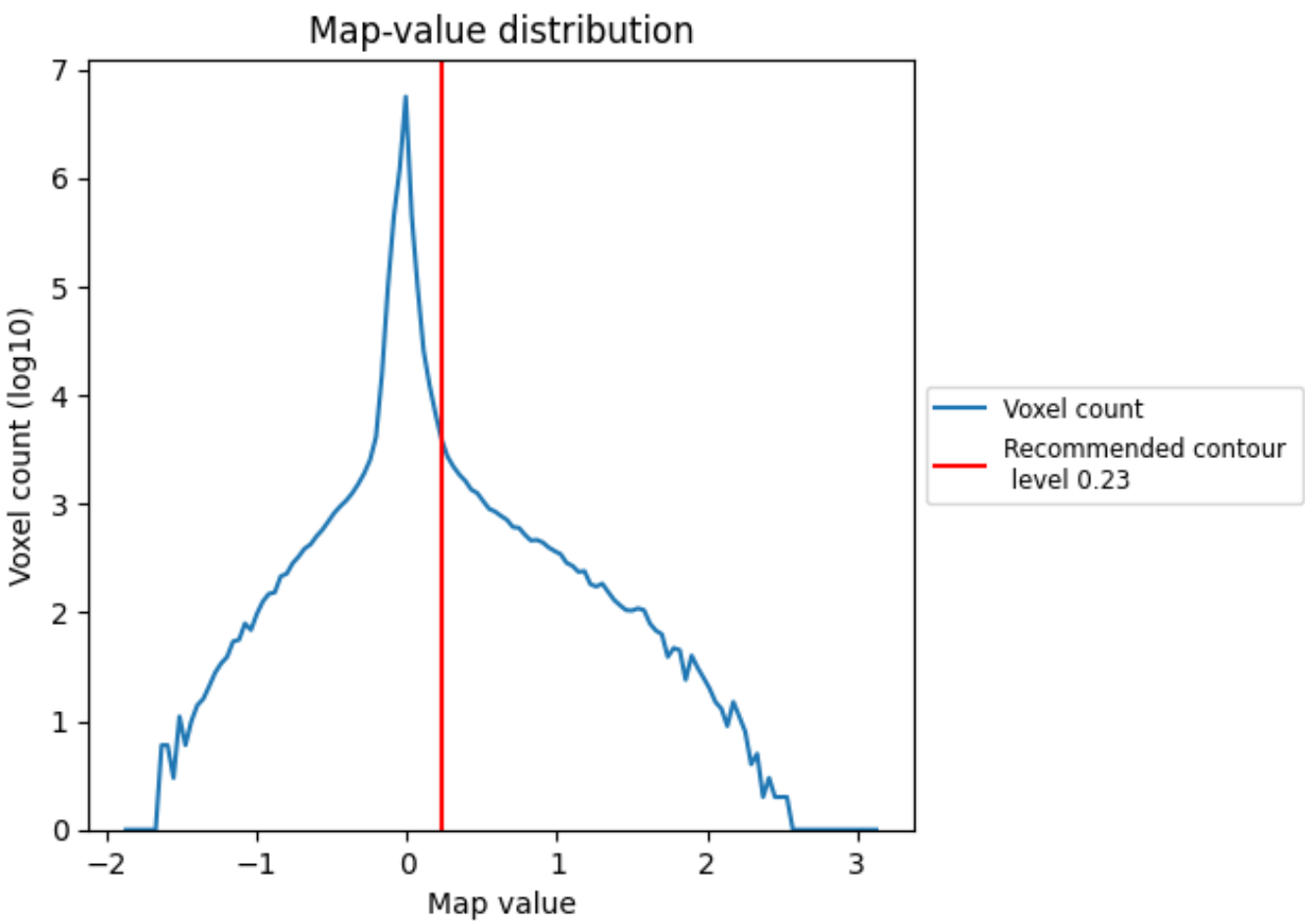
6.6 Mask visualisation (i)

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

7 Map analysis (i)

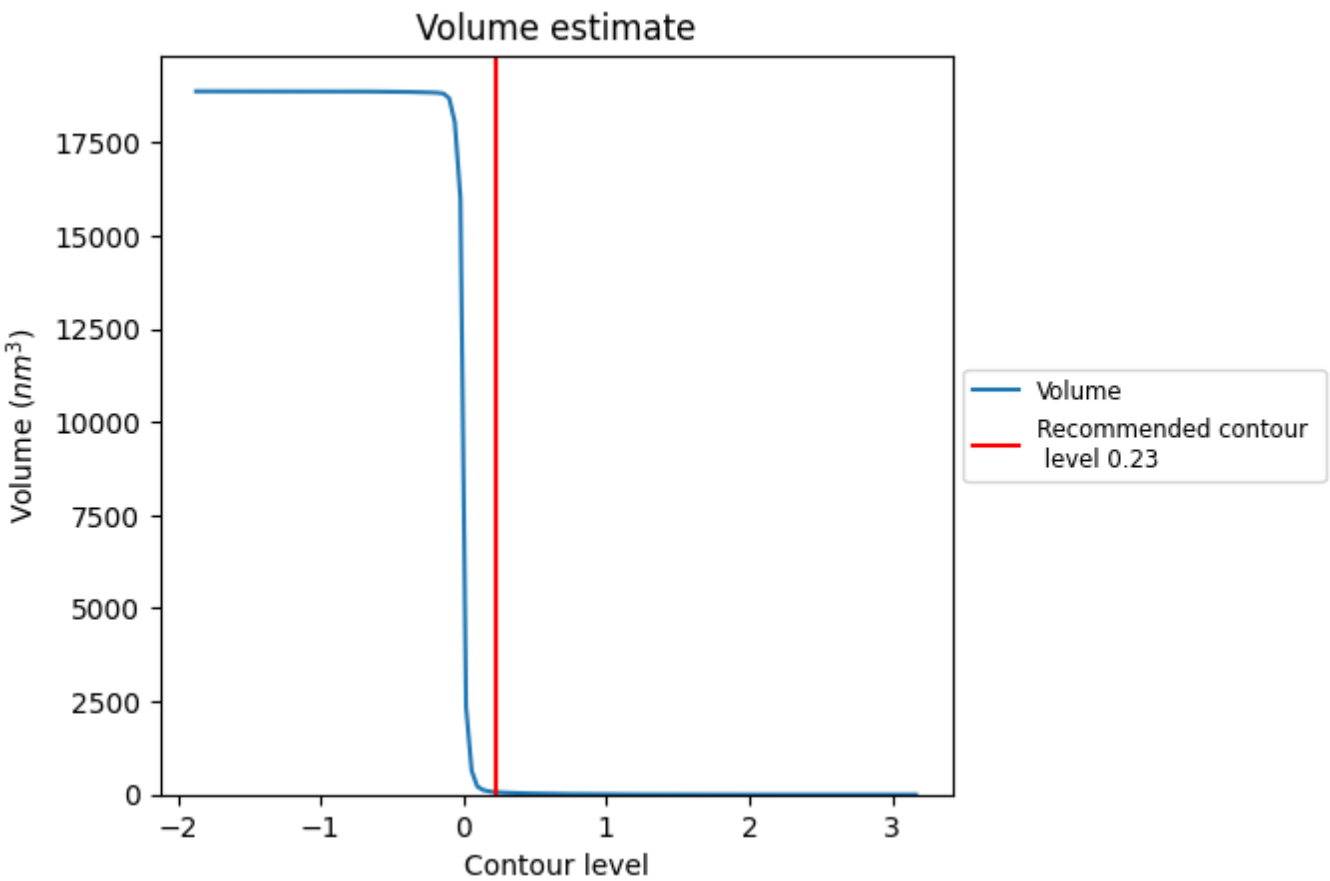
This section contains the results of statistical analysis of the map.

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.

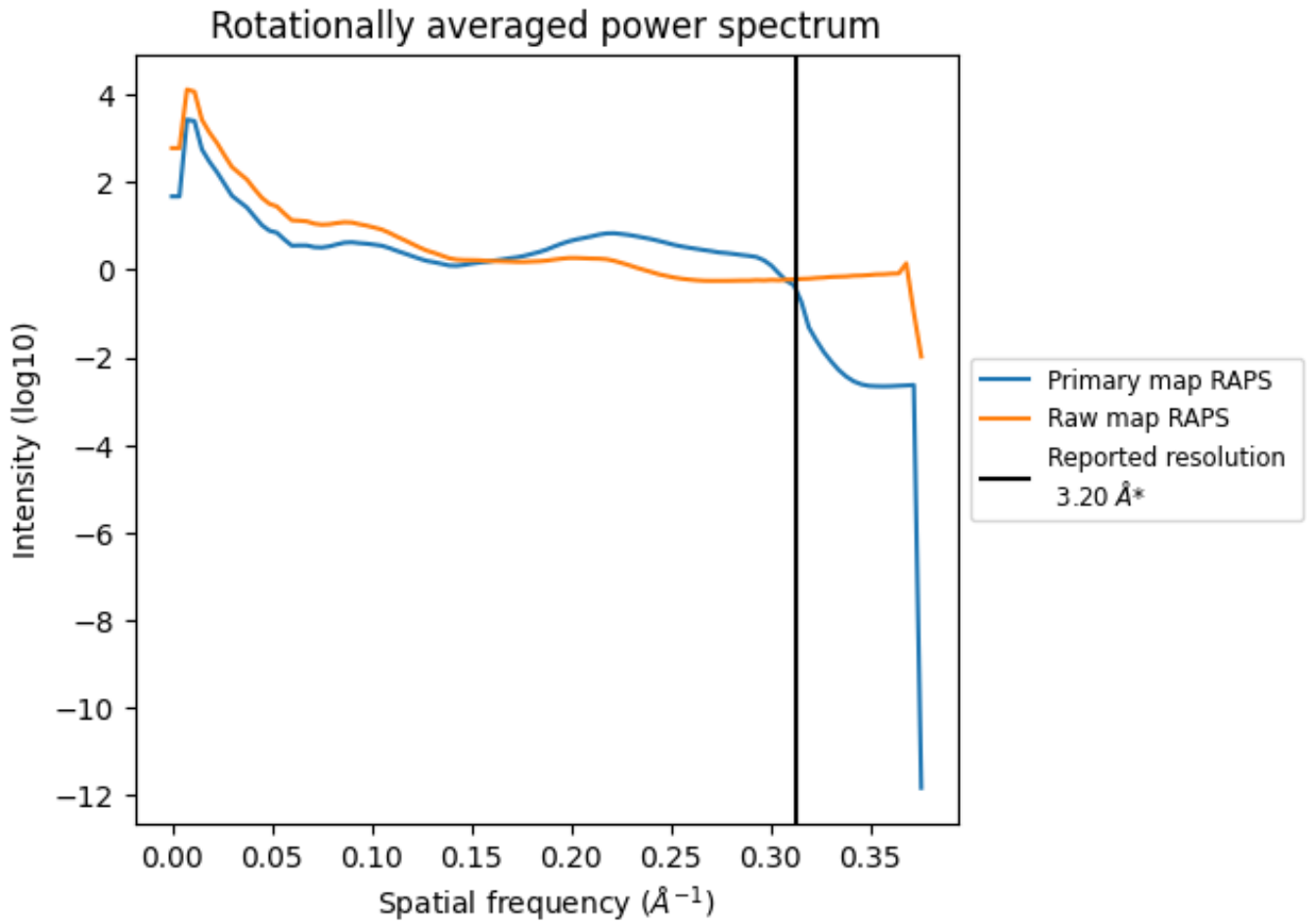
7.2 Volume estimate (i)



The volume at the recommended contour level is 63 nm^3; this corresponds to an approximate mass of 57 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)

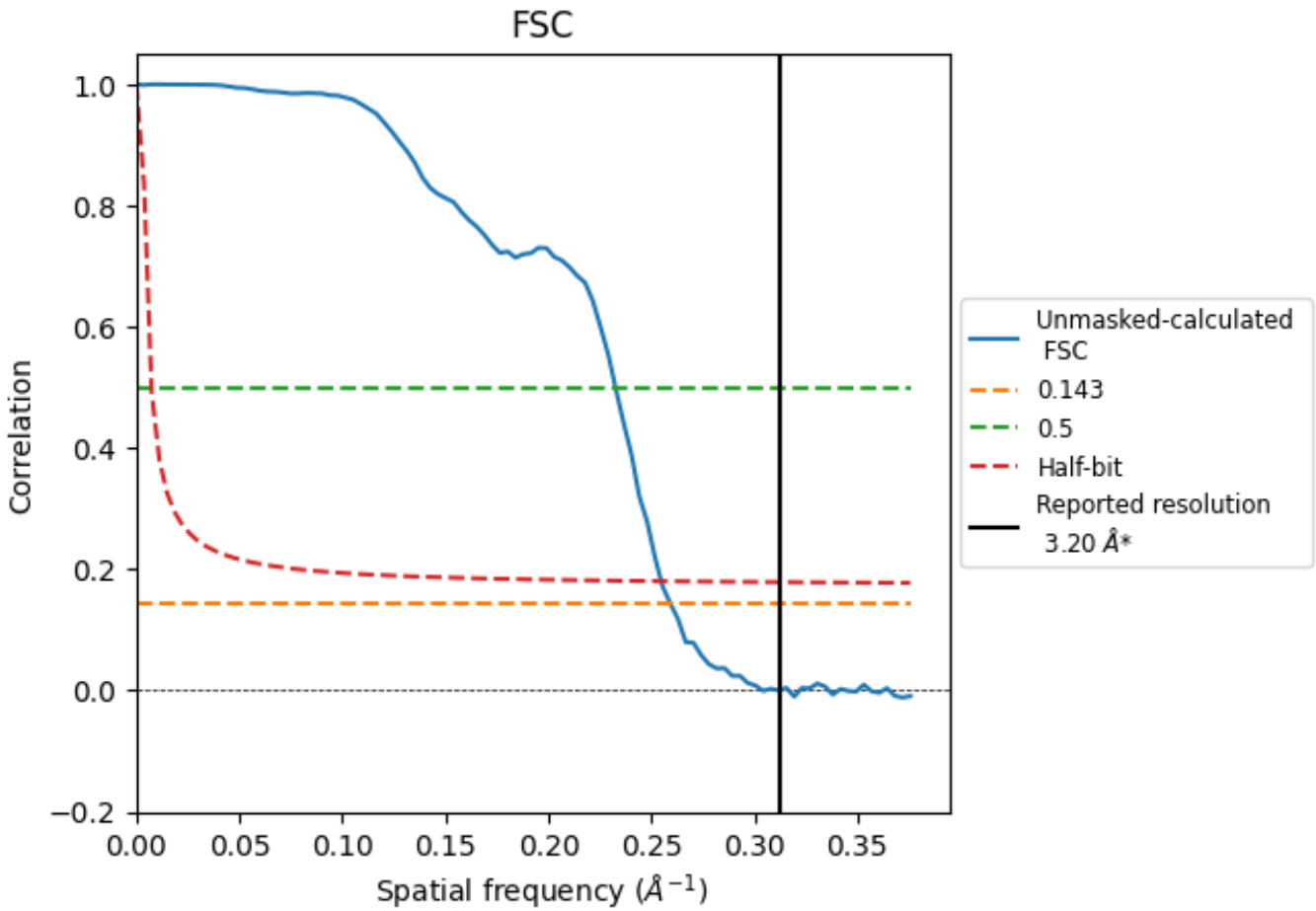


*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

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 0.312 Å^{-1}

8.2 Resolution estimates (i)

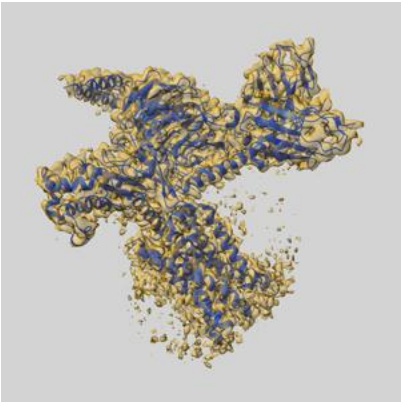
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.86	4.30	3.92

*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 3.86 differs from the reported value 3.2 by more than 10 %

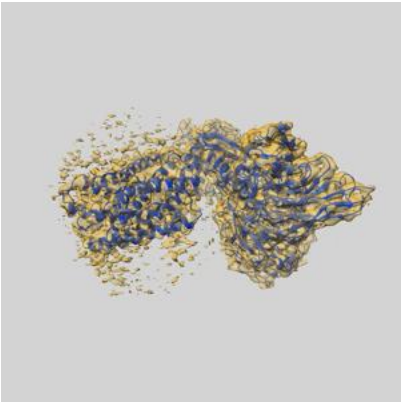
9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-68650 and PDB model 22TA. Per-residue inclusion information can be found in section 3 on page 8.

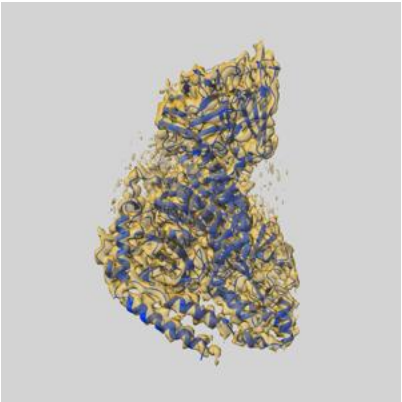
9.1 Map-model overlay (i)



X



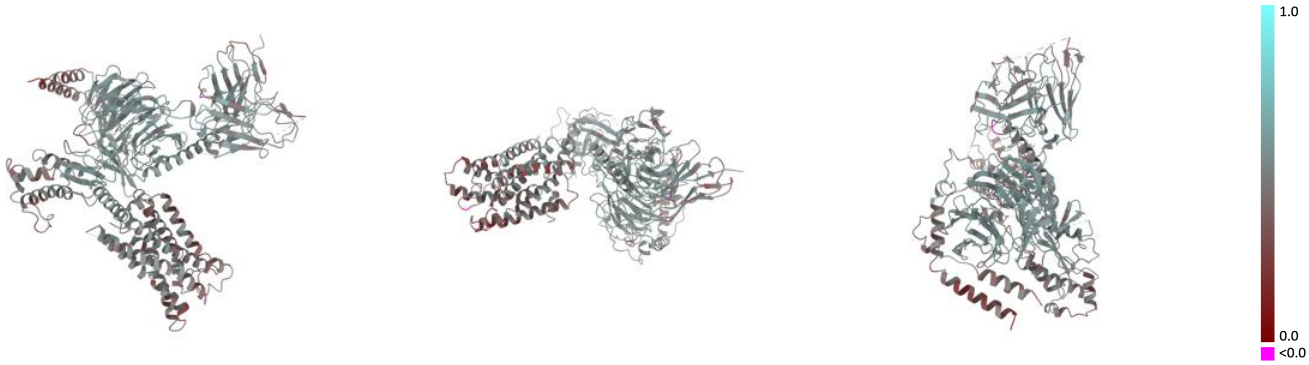
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.23 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.

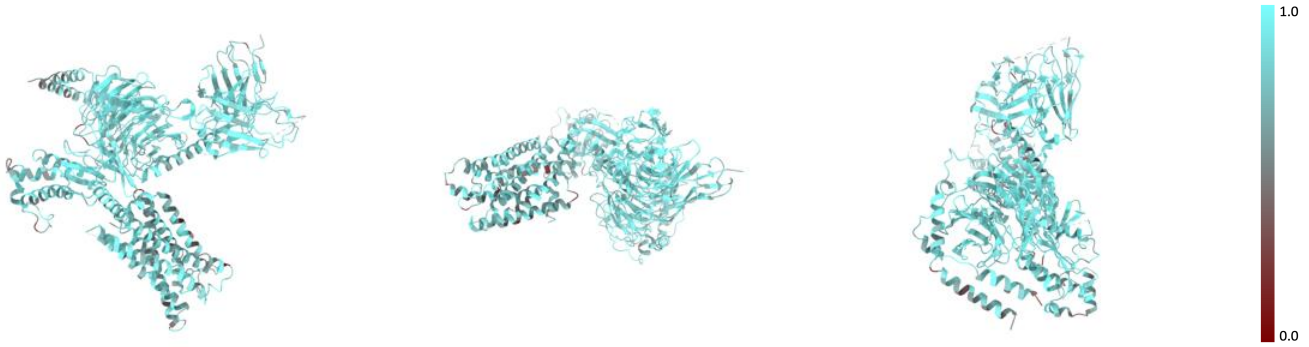
9.2 Q-score mapped to coordinate model (i)



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.

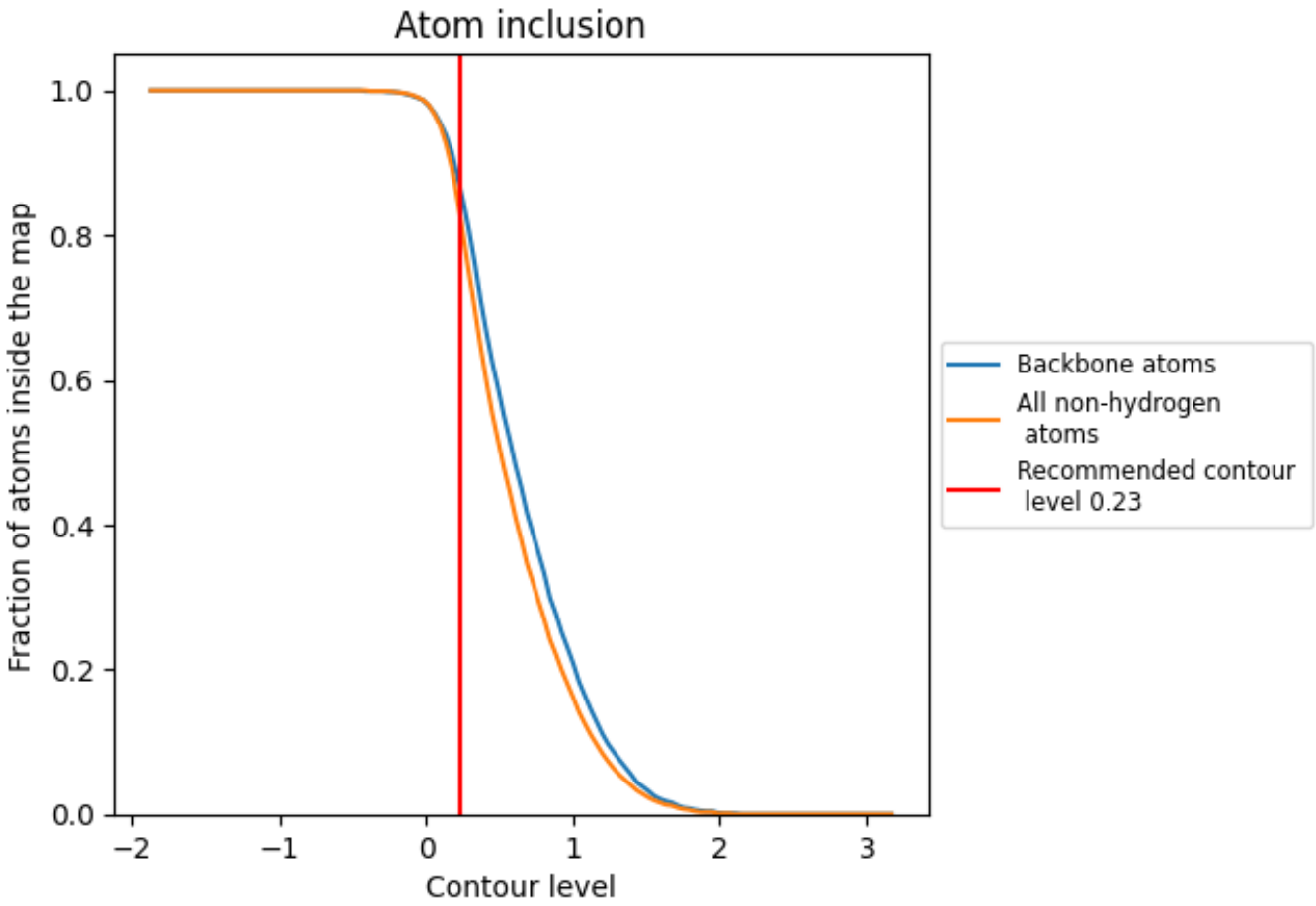
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.23).

9.4 Atom inclusion (i)



At the recommended contour level, 87% of all backbone atoms, 83% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.23) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8310	0.4860
A	0.7670	0.4260
B	0.8220	0.4830
C	0.8720	0.5220
D	0.8530	0.5000