wwPDB EM Validation Summary Report

Nov 6, 2024 – 02:17 PM JST

PDB ID	:	7XY6
EMDB ID	:	EMD-33512
Title	:	Adenosine receptor bound to an agonist in complex with G protein obtained by cryo-EM
Authors	:	Zhang, J.Y.; Chen, Y.; Hua, T.; Song, G.J.
Deposited on	:	2022-05-31
Resolution	:	2.99 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:

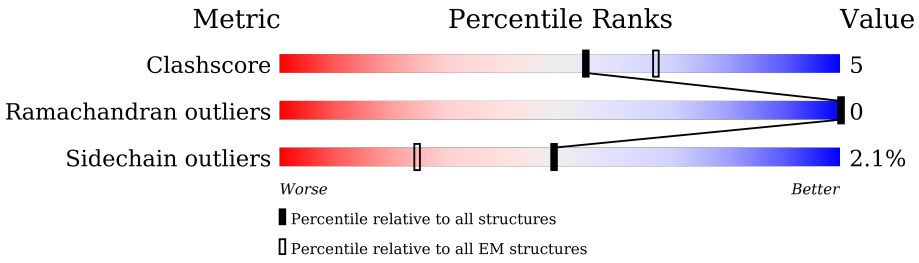
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 2.99 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	243	5%, 81%, 10%, 7%
2	B	366	77%, 14%, 9%
3	G	73	63%, 7%, 30%
4	R	628	40%, 6%, 54%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 7044 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 Guanine nucleotide-binding protein G(s) subunit alpha isoforms short.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	225	1851	1170	330	344	7	0	0

There are 42 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	4	THR	-	expression tag	UNP P63092
A	5	VAL	-	expression tag	UNP P63092
A	6	SER	-	expression tag	UNP P63092
A	7	ALA	-	expression tag	UNP P63092
A	8	GLU	-	expression tag	UNP P63092
A	9	ASP	-	expression tag	UNP P63092
A	10	LYS	-	expression tag	UNP P63092
A	11	ALA	-	expression tag	UNP P63092
A	12	ALA	-	expression tag	UNP P63092
A	13	ALA	-	expression tag	UNP P63092
A	14	GLU	-	expression tag	UNP P63092
A	15	ARG	-	expression tag	UNP P63092
A	16	SER	-	expression tag	UNP P63092
A	17	LYS	-	expression tag	UNP P63092
A	18	MET	-	expression tag	UNP P63092
A	42	ASP	GLY	engineered mutation	UNP P63092
A	43	ASN	GLU	engineered mutation	UNP P63092
A	187	TYR	-	linker	UNP P63092
A	188	HIS	-	linker	UNP P63092
A	189	GLY	-	linker	UNP P63092
A	190	GLY	-	linker	UNP P63092
A	191	SER	-	linker	UNP P63092
A	192	GLY	-	linker	UNP P63092
A	193	GLY	-	linker	UNP P63092
A	194	SER	-	linker	UNP P63092
A	195	GLY	-	linker	UNP P63092
A	196	GLY	-	linker	UNP P63092

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Chain	Residue	Modelled	Actual	Comment	Reference
A	242	ASP	ALA	engineered mutation	UNP P63092
A	245	ASP	SER	engineered mutation	UNP P63092
A	?	-	ASN	deletion	UNP P63092
A	?	-	MET	deletion	UNP P63092
A	?	-	VAL	deletion	UNP P63092
A	?	-	ILE	deletion	UNP P63092
A	?	-	ARG	deletion	UNP P63092
A	?	-	GLU	deletion	UNP P63092
A	?	-	ASP	deletion	UNP P63092
A	?	-	ASN	deletion	UNP P63092
A	?	-	GLN	deletion	UNP P63092
A	?	-	THR	deletion	UNP P63092
A	255	ASP	LEU	engineered mutation	UNP P63092
A	355	ALA	ILE	engineered mutation	UNP P63092
A	358	ILE	VAL	engineered mutation	UNP P63092

- Molecule 2 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		
2	B	333	2558	1578	461	498	21	0	0

There are 26 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	341	GLY	-	expression tag	UNP P62873
B	342	SER	-	expression tag	UNP P62873
B	343	SER	-	expression tag	UNP P62873
B	344	GLY	-	expression tag	UNP P62873
B	345	GLY	-	expression tag	UNP P62873
B	346	GLY	-	expression tag	UNP P62873
B	347	GLY	-	expression tag	UNP P62873
B	348	SER	-	expression tag	UNP P62873
B	349	GLY	-	expression tag	UNP P62873
B	350	GLY	-	expression tag	UNP P62873
B	351	GLY	-	expression tag	UNP P62873
B	352	GLY	-	expression tag	UNP P62873
B	353	SER	-	expression tag	UNP P62873
B	354	SER	-	expression tag	UNP P62873
B	355	GLY	-	expression tag	UNP P62873
B	356	VAL	-	expression tag	UNP P62873

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Chain	Residue	Modelled	Actual	Comment	Reference
B	357	SER	-	expression tag	UNP P62873
B	358	GLY	-	expression tag	UNP P62873
B	359	TRP	-	expression tag	UNP P62873
B	360	ARG	-	expression tag	UNP P62873
B	361	LEU	-	expression tag	UNP P62873
B	362	PHE	-	expression tag	UNP P62873
B	363	LYS	-	expression tag	UNP P62873
B	364	LYS	-	expression tag	UNP P62873
B	365	ILE	-	expression tag	UNP P62873
B	366	SER	-	expression tag	UNP P62873

- Molecule 3 is a protein called Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	G	51	Total	C	N	O	S	0	0
			396	249	70	74	3		

- Molecule 4 is a protein called Soluble cytochrome b562,Adenosine receptor A2b,LgBiT.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	R	286	Total	C	N	O	S	0	0
			2212	1465	363	368	16		

There are 31 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	-132	ASP	-	expression tag	UNP P0ABE7
R	-131	TYR	-	expression tag	UNP P0ABE7
R	-130	LYS	-	expression tag	UNP P0ABE7
R	-129	ASP	-	expression tag	UNP P0ABE7
R	-128	ASP	-	expression tag	UNP P0ABE7
R	-127	ASP	-	expression tag	UNP P0ABE7
R	-126	ASP	-	expression tag	UNP P0ABE7
R	-125	ALA	-	expression tag	UNP P0ABE7
R	-124	GLY	-	expression tag	UNP P0ABE7
R	-123	ARG	-	expression tag	UNP P0ABE7
R	-122	ALA	-	expression tag	UNP P0ABE7
R	-121	HIS	-	expression tag	UNP P0ABE7
R	-120	HIS	-	expression tag	UNP P0ABE7
R	-119	HIS	-	expression tag	UNP P0ABE7
R	-118	HIS	-	expression tag	UNP P0ABE7

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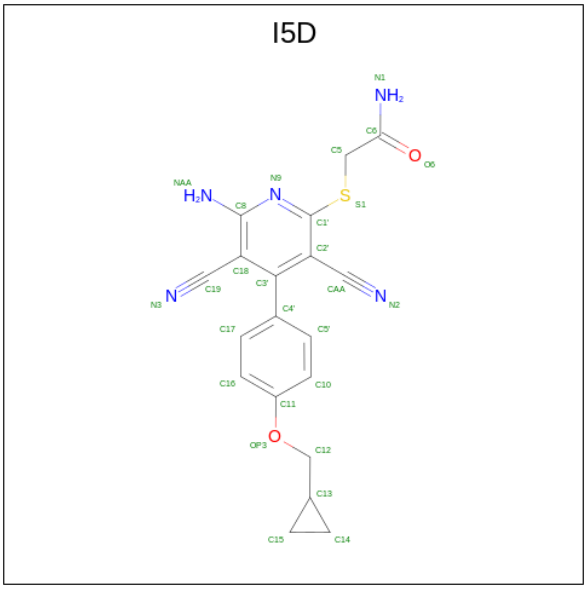
Chain	Residue	Modelled	Actual	Comment	Reference
R	-117	HIS	-	expression tag	UNP P0ABE7
R	-116	HIS	-	expression tag	UNP P0ABE7
R	-115	HIS	-	expression tag	UNP P0ABE7
R	-114	HIS	-	expression tag	UNP P0ABE7
R	-113	HIS	-	expression tag	UNP P0ABE7
R	-112	HIS	-	expression tag	UNP P0ABE7
R	-105	TRP	MET	engineered mutation	UNP P0ABE7
R	-10	ILE	HIS	engineered mutation	UNP P0ABE7
R	-6	LEU	-	linker	UNP P0ABE7
R	-5	GLU	-	linker	UNP P0ABE7
R	-4	ASN	-	linker	UNP P0ABE7
R	-3	LEU	-	linker	UNP P0ABE7
R	-2	TYR	-	linker	UNP P0ABE7
R	-1	PHE	-	linker	UNP P0ABE7
R	0	GLN	-	linker	UNP P0ABE7
R	1	SER	-	linker	UNP P0ABE7

- Molecule 5 is 2-[6-azanyl-3,5-dicyano-4-[4-(cyclopropylmethoxy)phenyl]pyridin-2-yl]sulfanylethanamide (three-letter code: I5D) (formula: $C_{19}H_{17}N_5O_2S$) (labeled as "Ligand of Interest" by depositor).



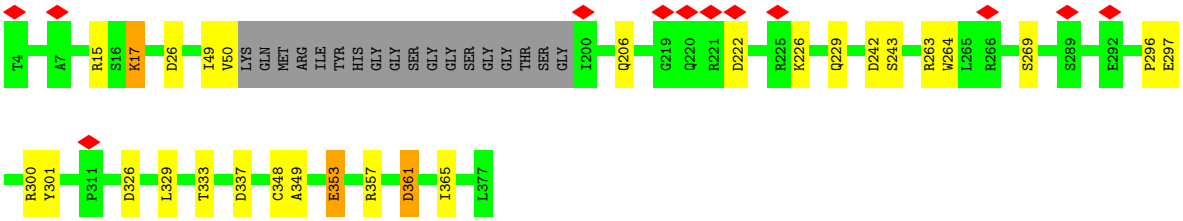
Mol	Chain	Residues	Atoms					AltConf
5	R	1	Total	C	N	O	S	0
			27	19	5	2	1	

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.

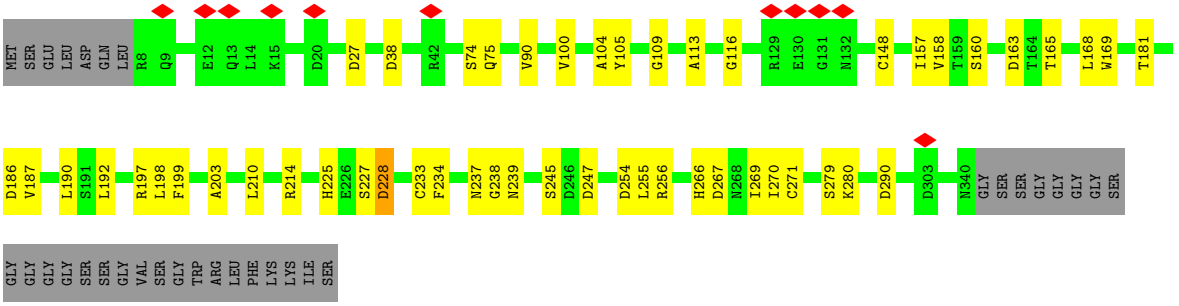
• Molecule 1: Guanine nucleotide-binding protein G(s) subunit alpha isoforms short

Chain A:



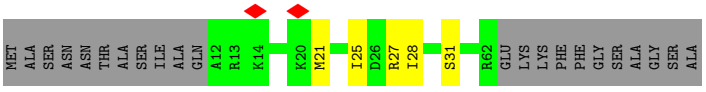
• Molecule 2: Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1

Chain B:



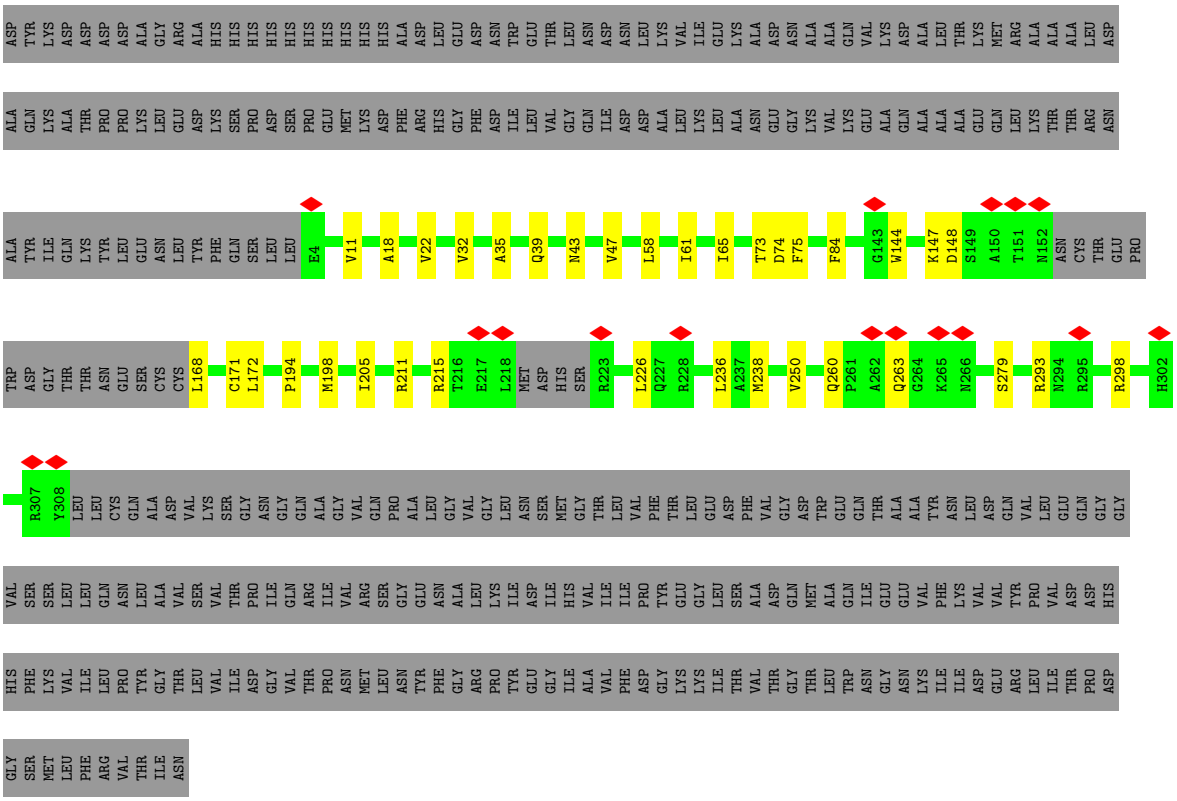
• Molecule 3: Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-2

Chain G:



• Molecule 4: Soluble cytochrome b562,Adenosine receptor A2b,LgBiT

Chain R:


ASP TYR LYS ASP ASP ASP ASP ALA GLY ARG ALA HIS HIS HIS HIS HIS HIS HIS HIS HIS HIS ALA ASP LEU GLU ASP ASN TRP GLU THR LEU ASN ASP ASN LEU LYS VAL ILE GLU LYS ALA ASP ASN ALA ALA GLN VAL LYS ASP ALA LEU THR LYS MET ARG ALA ALA ALA LEU ASP
ALA GLN LYS ALA THR PRO PRO LYS LEU GLU GLU ASP LYS SER PRO ASP SER PRO GLU MET LYS ASP PHE ARG HIS GLY PHE ASP ILE LEU VAL GLY GLN ILE ASP ASP ALA LEU LYS LEU ALA ASN GLU GLY LYS VAL LYS GLU ALA GLN ALA ALA ALA GLU GLN LEU LYS THR THR ARG ASN
ALA TYR ILE GLN LYS TYR LEU GLU ASN LEU TYR PHE GLN SER LEU LEU E4 V11 A18 V22 V32 A35 Q39 N43 V47 L58 I61 I65 T73 D74 F75 F84 G143 W144 K147 D148 S149 A150 T151 N152 ASN CYS THR GLU PRO
TRP ASP GLY THR THR ASN GLU SER CYS CYS L168 C171 L172 P194 M198 I205 R211 R215 T216 E217 L218 MET ASP HIS SER R223 L226 Q227 R228 L236 A237 M238 V250 Q260 P261 A262 Q263 G264 K265 N266 S279 R293 N294 R295 R298 H302
R307 Y308 LEU LEU CYS GLN ALA ASP VAL LYS SER GLY ASN GLY GLN ALA GLY VAL GLN PRO ALA LEU GLY VAL GLY LEU ASN SER MET GLY THR LEU VAL PHE THR LEU GLU ASP PHE VAL GLY ASP TRP GLU GLN THR ALA ALA TYR ASN LEU ASP GLN VAL LEU GLU GLN GLY GLY
VAL SER SER LEU LEU GLN ASN LEU ALA VAL SER VAL THR PRO ILE GLN ARG ILE VAL ARG SER GLY GLU ASN ALA LEU LYS ILE ASP ILE HIS VAL ILE ILE PRO TYR GLU GLY LEU SER ALA ASP GLN MET ALA GLN ILE GLU GLU VAL PHE LYS ASN LEU ASP GLN VAL LEU GLU GLU VAL TYR PRO VAL ASP ASP HIS
HIS PHE LYS VAL ILE LEU PRO TYR GLY THR LEU VAL ILE ASP GLY VAL THR PRO ASN MET LEU ASN TYR PHE GLY ARG PRO TYR GLU GLY ILE ALA VAL PHE ASP GLY LYS LYS ILE THR VAL THR GLY THR LEU TRP ASN GLY ASN LYS ILE ILE ASP GLU ARG LEU ILE THR PRO ASP
GLY SER MET LEU PHE ARG VAL THR ILE ASN

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	190323	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 ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.780	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.025	Depositor
Recommended contour level	0.12	Depositor
Map size (Å)	245.76, 245.76, 245.76	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.96, 0.96, 0.96	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: I5D

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	0.25	0/1888	0.49	0/2544
2	B	0.24	0/2605	0.55	0/3532
3	G	0.25	0/402	0.49	0/542
4	R	0.27	0/2263	0.45	0/3087
All	All	0.26	0/7158	0.50	0/9705

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1851	0	1815	18	0
2	B	2558	0	2465	31	0
3	G	396	0	407	5	0
4	R	2212	0	2289	17	0
5	R	27	0	0	2	0
All	All	7044	0	6976	69	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 5.

The worst 5 of 69 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:254:ASP:OD1	2:B:255:LEU:N	2.25	0.70
3:G:25:ILE:O	3:G:27:ARG:NH1	2.28	0.67
2:B:233:CYS:SG	2:B:234:PHE:N	2.68	0.67
2:B:165:THR:HG22	2:B:181:THR:HG22	1.81	0.63
2:B:271:CYS:HB2	2:B:290:ASP:HB3	1.80	0.62

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	221/243 (91%)	216 (98%)	5 (2%)	0	100	100
2	B	331/366 (90%)	319 (96%)	12 (4%)	0	100	100
3	G	49/73 (67%)	48 (98%)	1 (2%)	0	100	100
4	R	280/628 (45%)	276 (99%)	4 (1%)	0	100	100
All	All	881/1310 (67%)	859 (98%)	22 (2%)	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	199/212 (94%)	193 (97%)	6 (3%)	36 69
2	B	276/298 (93%)	271 (98%)	5 (2%)	54 80
3	G	42/57 (74%)	42 (100%)	0	100 100
4	R	236/529 (45%)	231 (98%)	5 (2%)	48 77
All	All	753/1096 (69%)	737 (98%)	16 (2%)	49 77

5 of 16 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	R	168	LEU
4	R	148	ASP
2	B	214	ARG
4	R	144	TRP
2	B	186	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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	I5D	R	501	-	28,29,29	3.58	16 (57%)	37,40,40	2.06	5 (13%)

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	I5D	R	501	-	-	6/16/20/20	0/3/3/3

The worst 5 of 16 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	R	501	I5D	C16-C17	7.79	1.52	1.38
5	R	501	I5D	C10-C11	6.93	1.52	1.38
5	R	501	I5D	C5'-C4'	6.56	1.53	1.39
5	R	501	I5D	C2'-CAA	5.21	1.53	1.44
5	R	501	I5D	C8-NAA	4.73	1.46	1.34

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	R	501	I5D	C5-S1-C1'	10.52	110.21	101.20
5	R	501	I5D	C2'-C1'-N9	-3.47	120.49	123.12
5	R	501	I5D	NAA-C8-N9	2.69	120.83	117.03
5	R	501	I5D	C18-C8-NAA	-2.45	118.80	121.62
5	R	501	I5D	C1'-C2'-CAA	-2.09	117.47	119.79

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

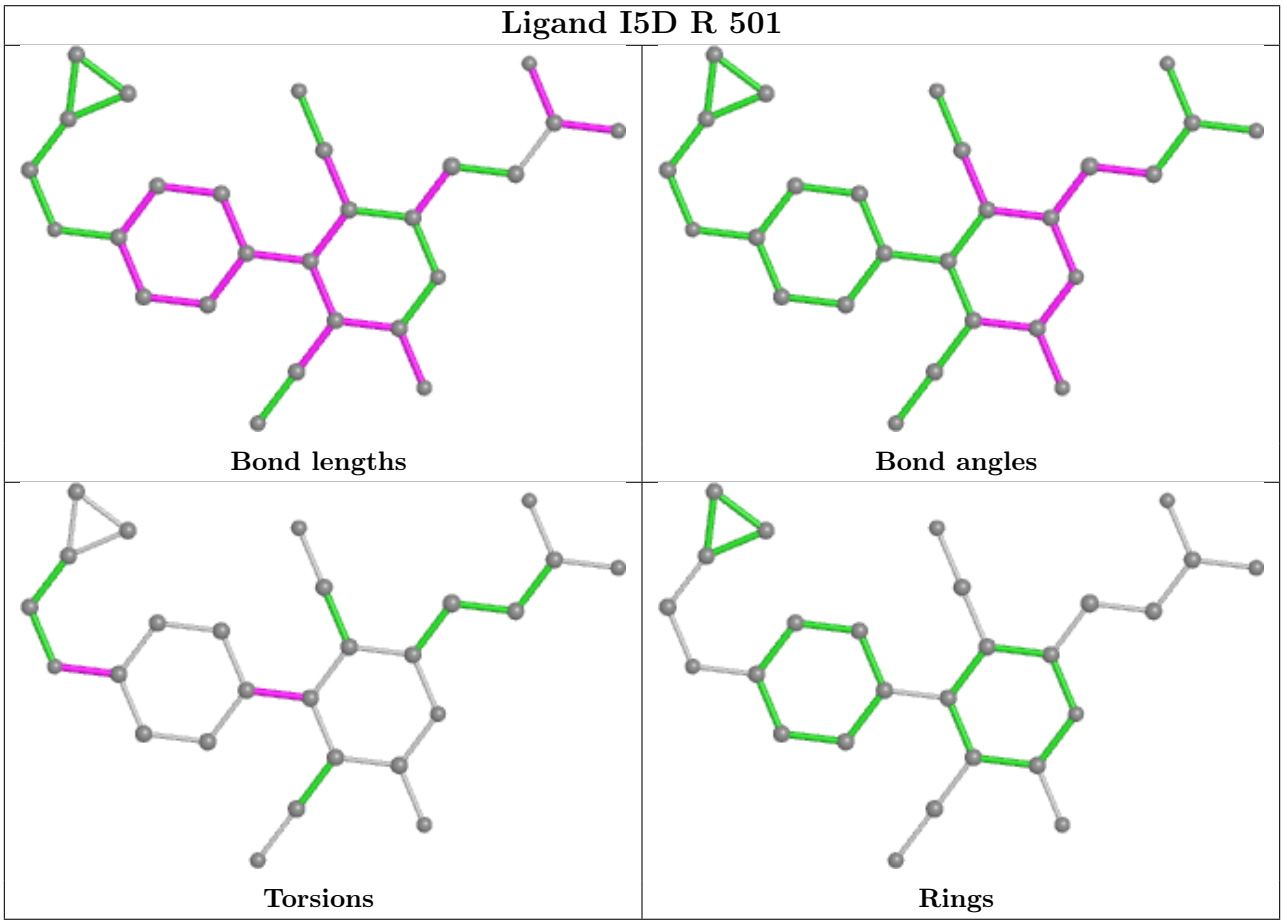
Mol	Chain	Res	Type	Atoms
5	R	501	I5D	C16-C11-OP3-C12
5	R	501	I5D	C10-C11-OP3-C12
5	R	501	I5D	C2'-C3'-C4'-C5'
5	R	501	I5D	C2'-C3'-C4'-C17
5	R	501	I5D	C18-C3'-C4'-C5'

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	R	501	I5D	2	0

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.



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

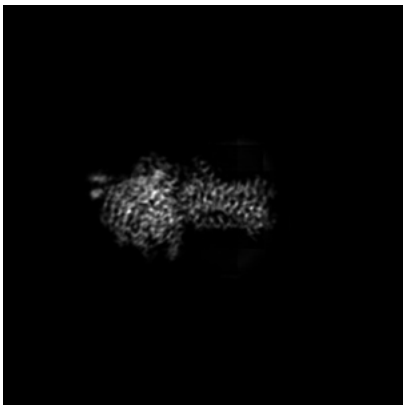
This section contains visualisations of the EMDB entry EMD-33512. These allow visual inspection of the internal detail of the map and identification of artifacts.

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.

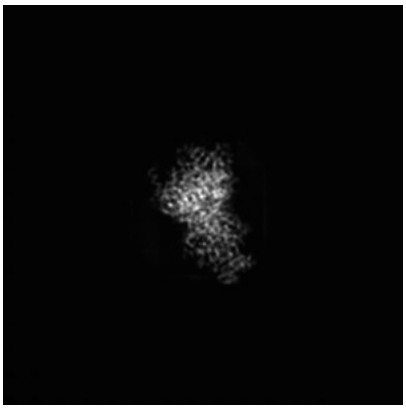
6.1 Orthogonal projections

6.1.1 Primary map

X

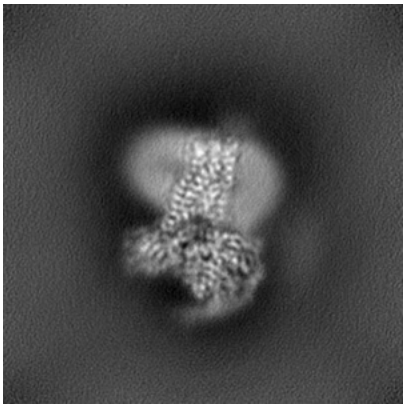


Y

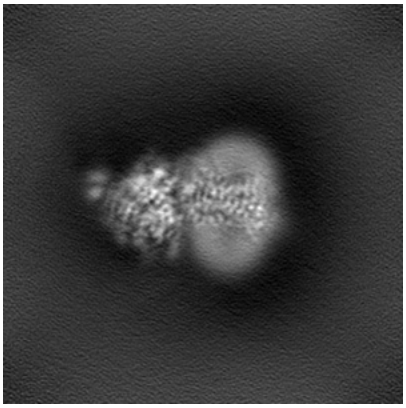


Z

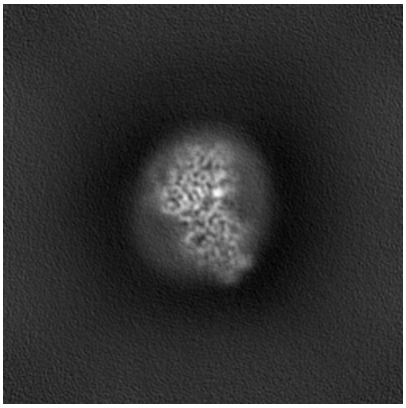
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices (i)

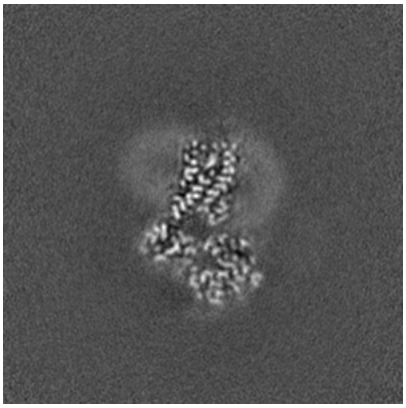
6.2.1 Primary map

X Index: 128

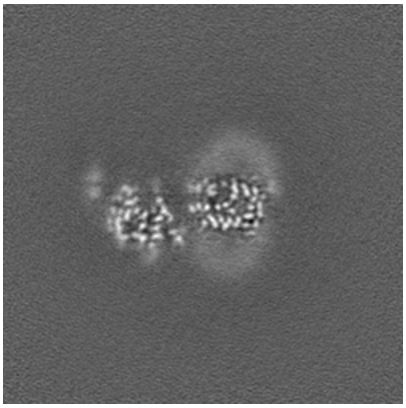
Y Index: 128

Z Index: 128

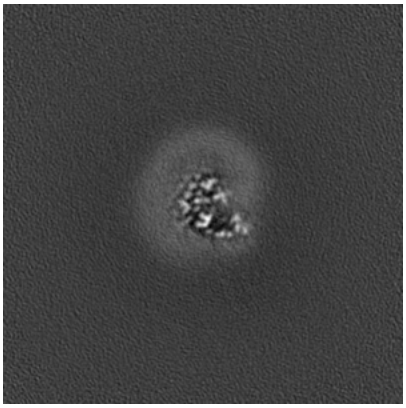
6.2.2 Raw map



X Index: 128



Y Index: 128



Z Index: 128

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

6.3 Largest variance slices (i)

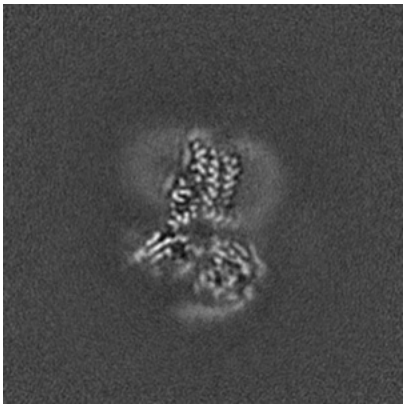
6.3.1 Primary map

X Index: 135

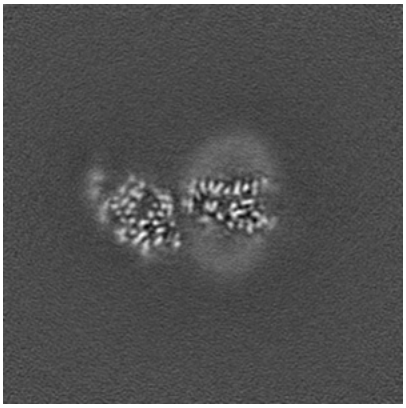
Y Index: 133

Z Index: 97

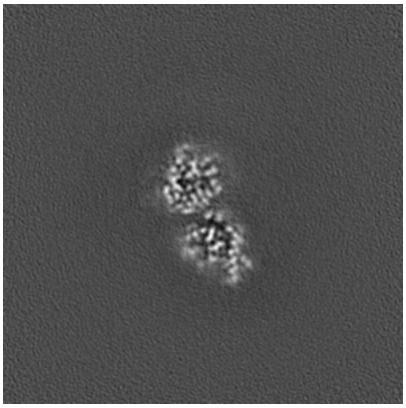
6.3.2 Raw map



X Index: 136



Y Index: 133



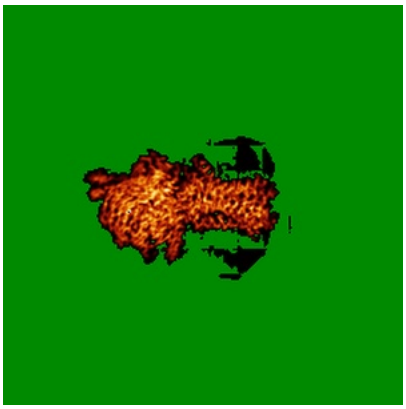
Z Index: 101

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

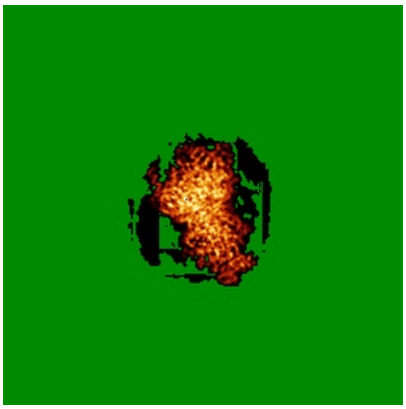
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map

X

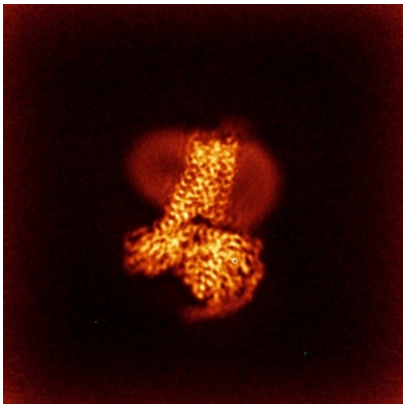


Y

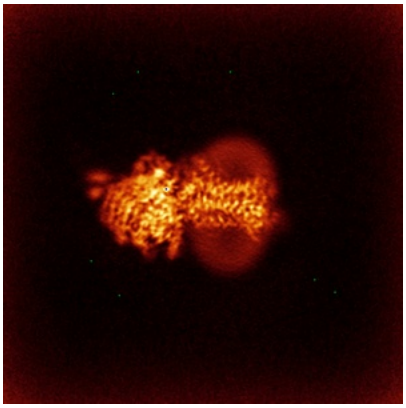


Z

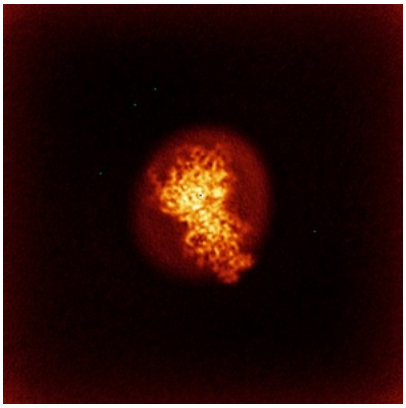
6.4.2 Raw map



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 0.12. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

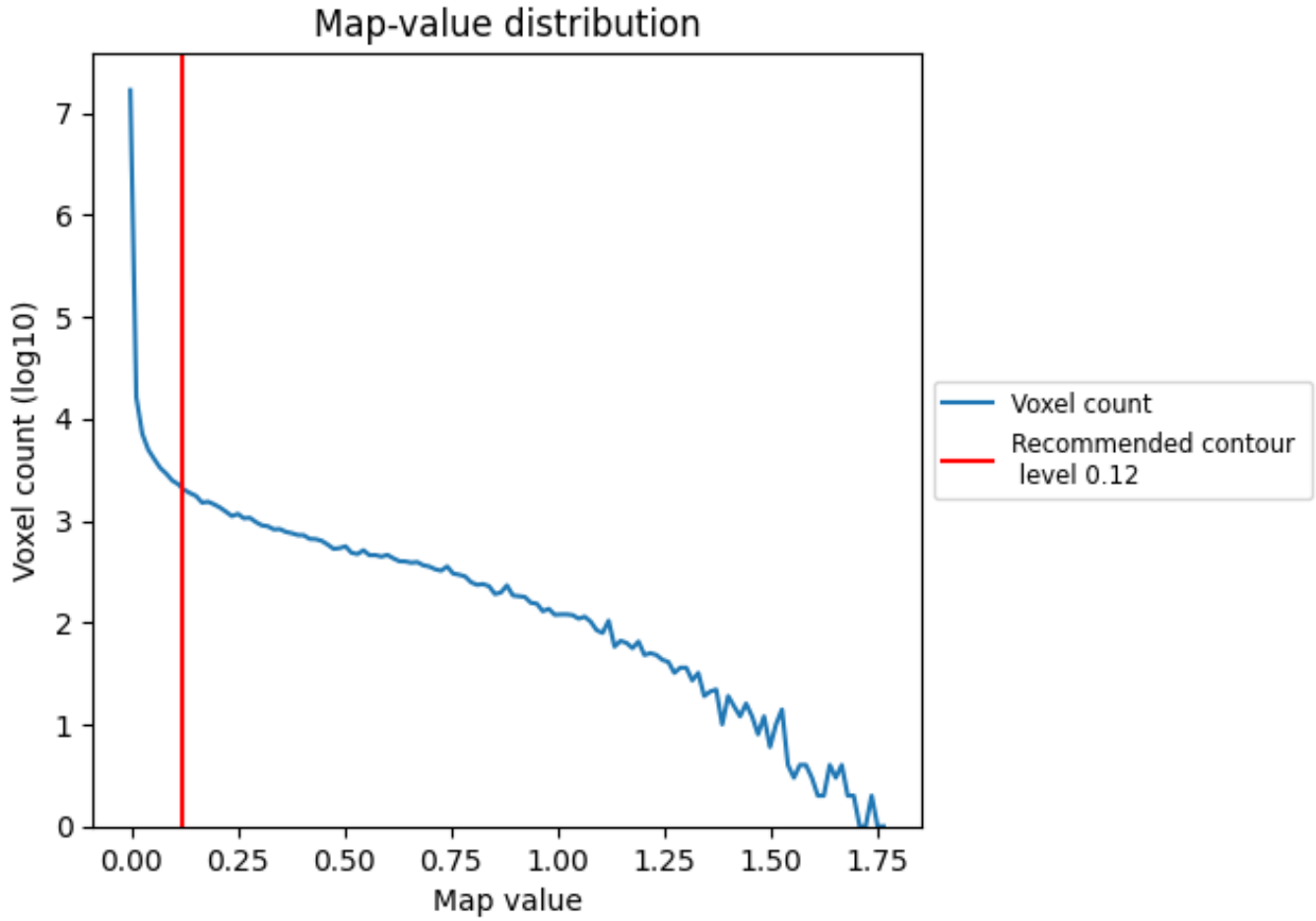
6.6 Mask visualisation (i)

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

7 Map analysis

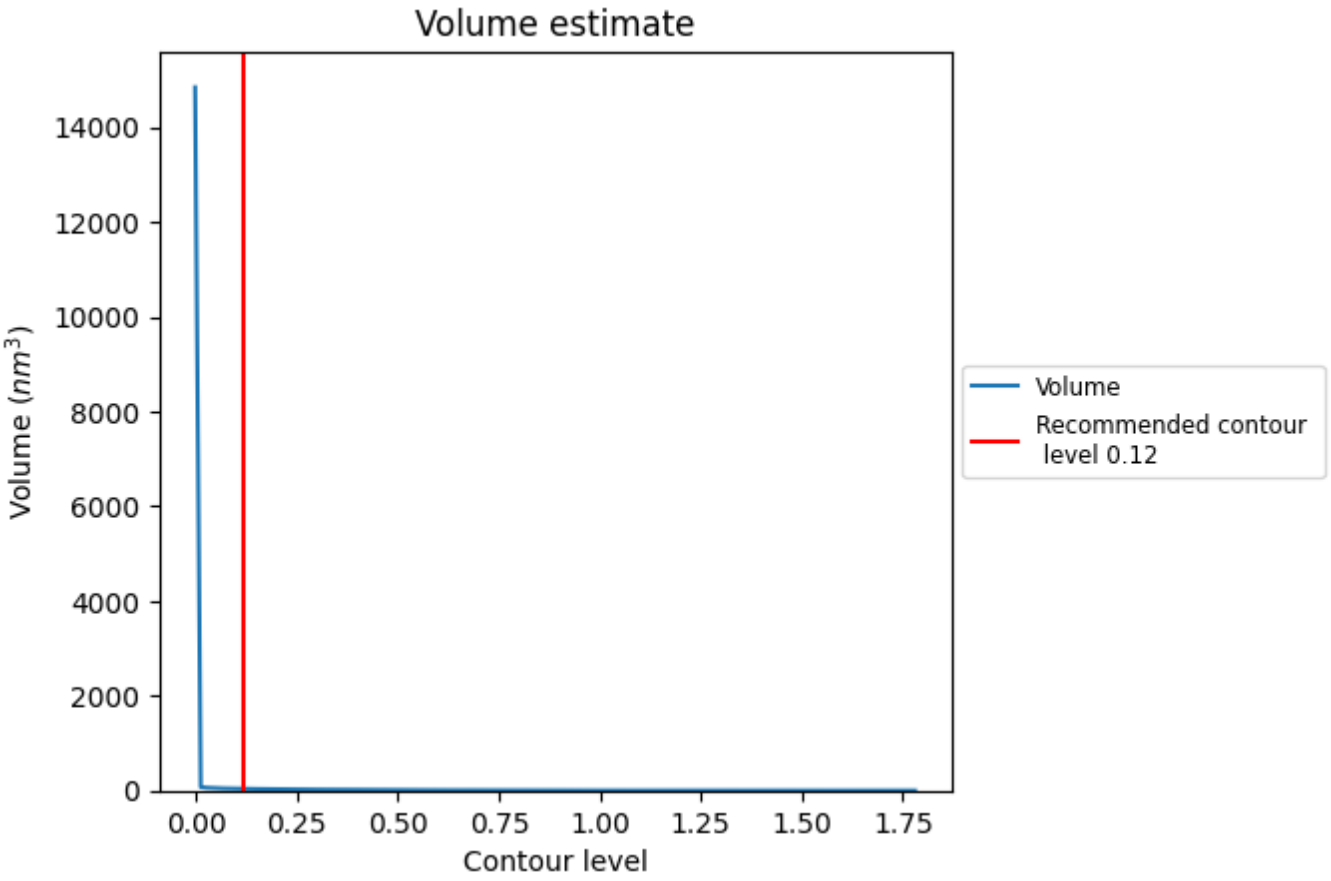
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

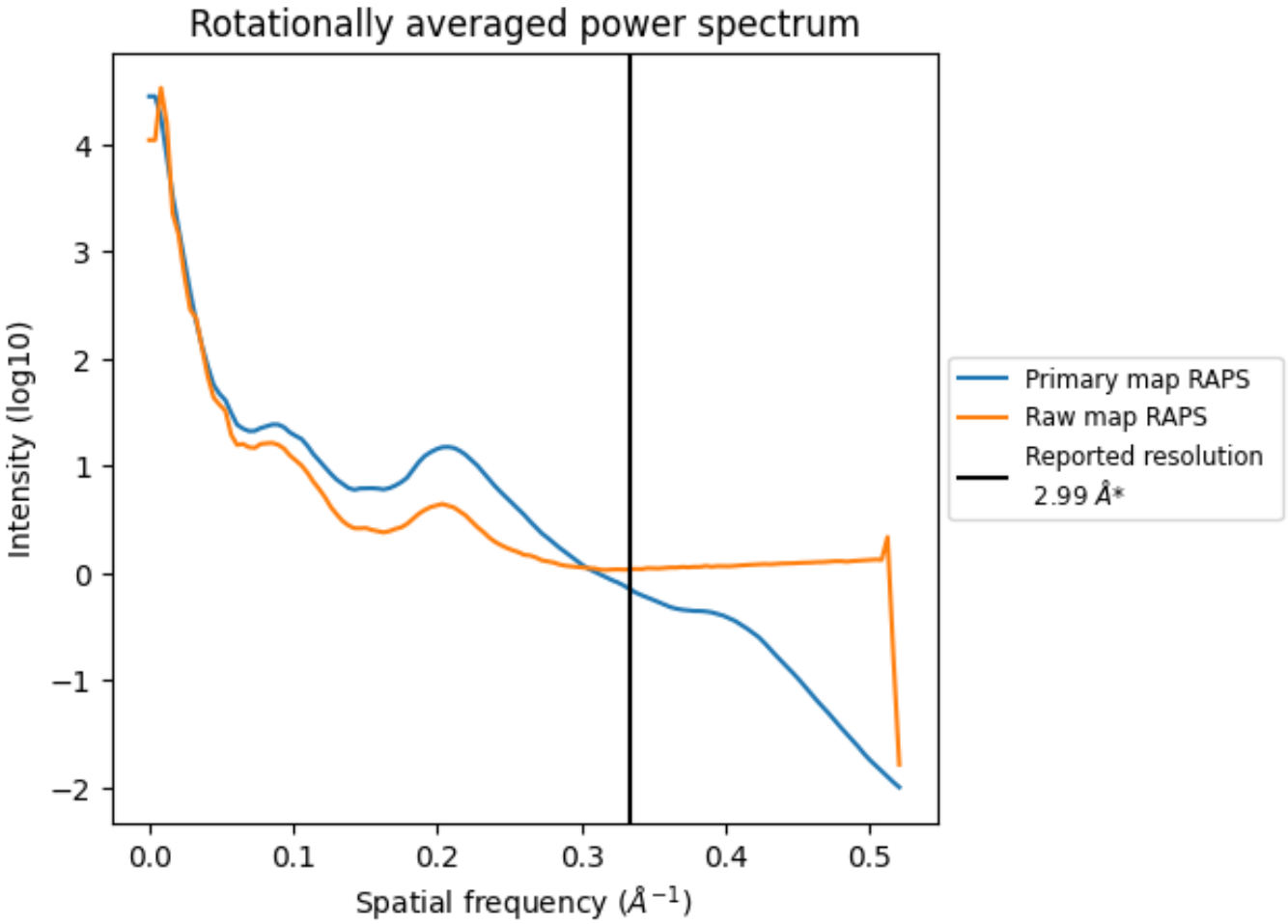
7.2 Volume estimate (i)



The volume at the recommended contour level is 37 nm^3; this corresponds to an approximate mass of 33 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)

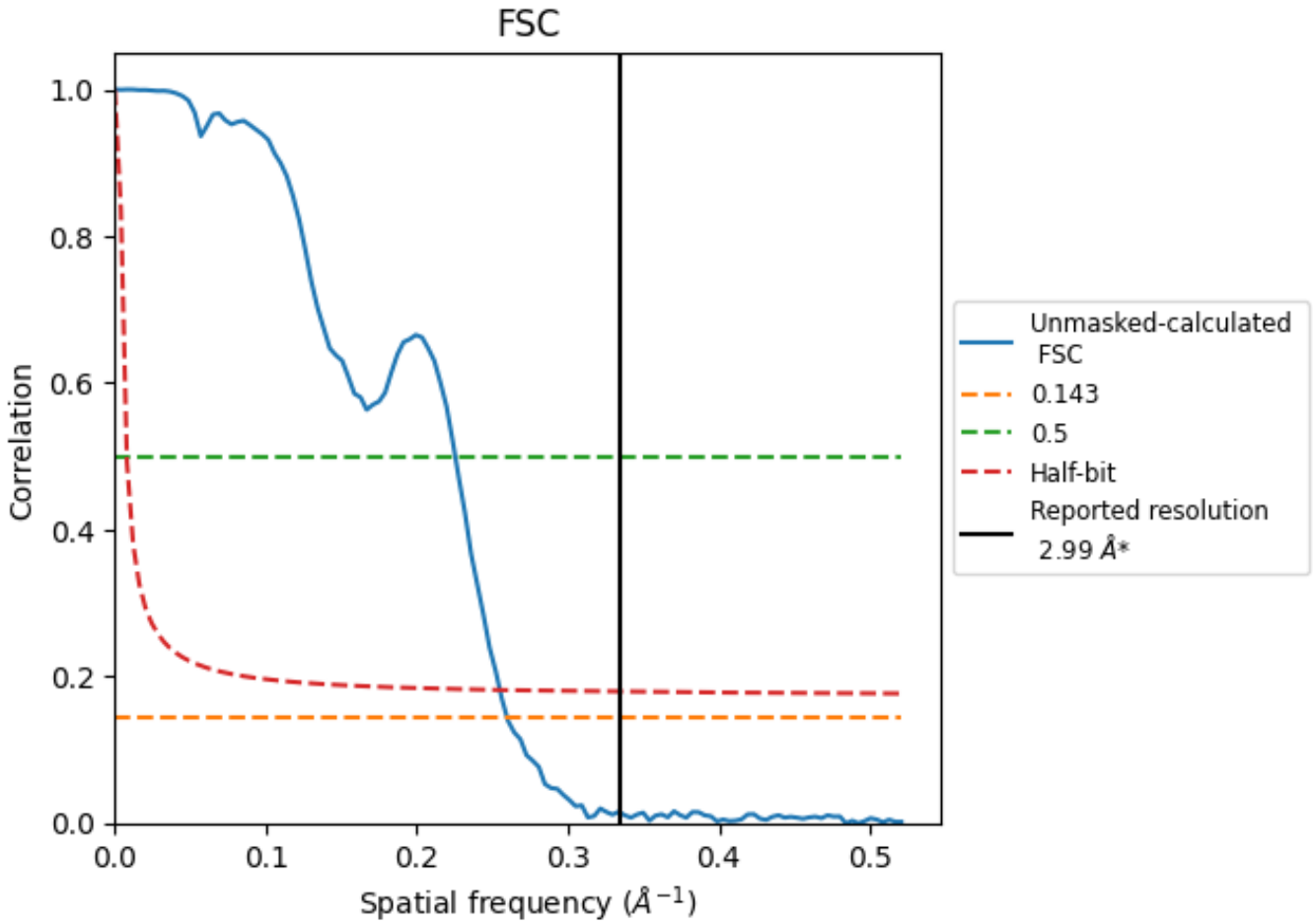


*Reported resolution corresponds to spatial frequency of 0.334 Å^{-1}

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 0.334 Å^{-1}

8.2 Resolution estimates (i)

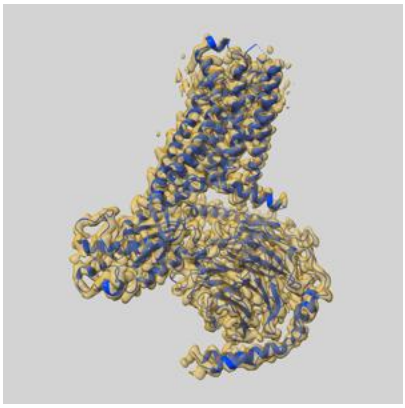
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.99	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.85	4.44	3.92

*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 3.85 differs from the reported value 2.99 by more than 10 %

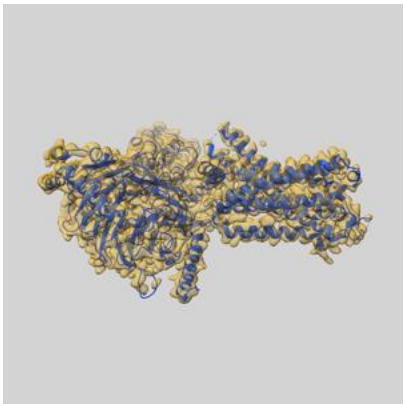
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-33512 and PDB model 7XY6. Per-residue inclusion information can be found in section 3 on page 7.

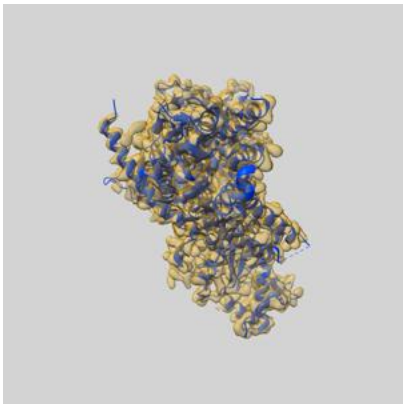
9.1 Map-model overlay



X



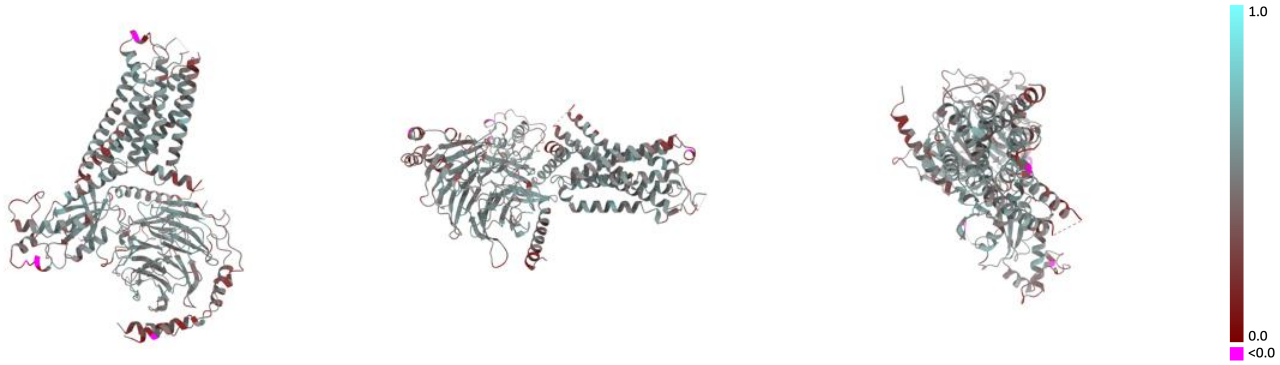
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.12 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

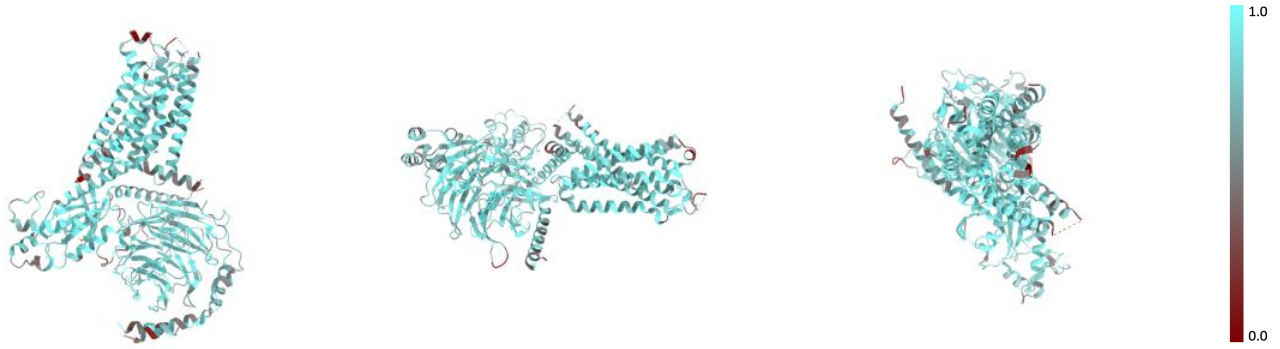
9.2 Q-score mapped to coordinate model



X Y Z

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

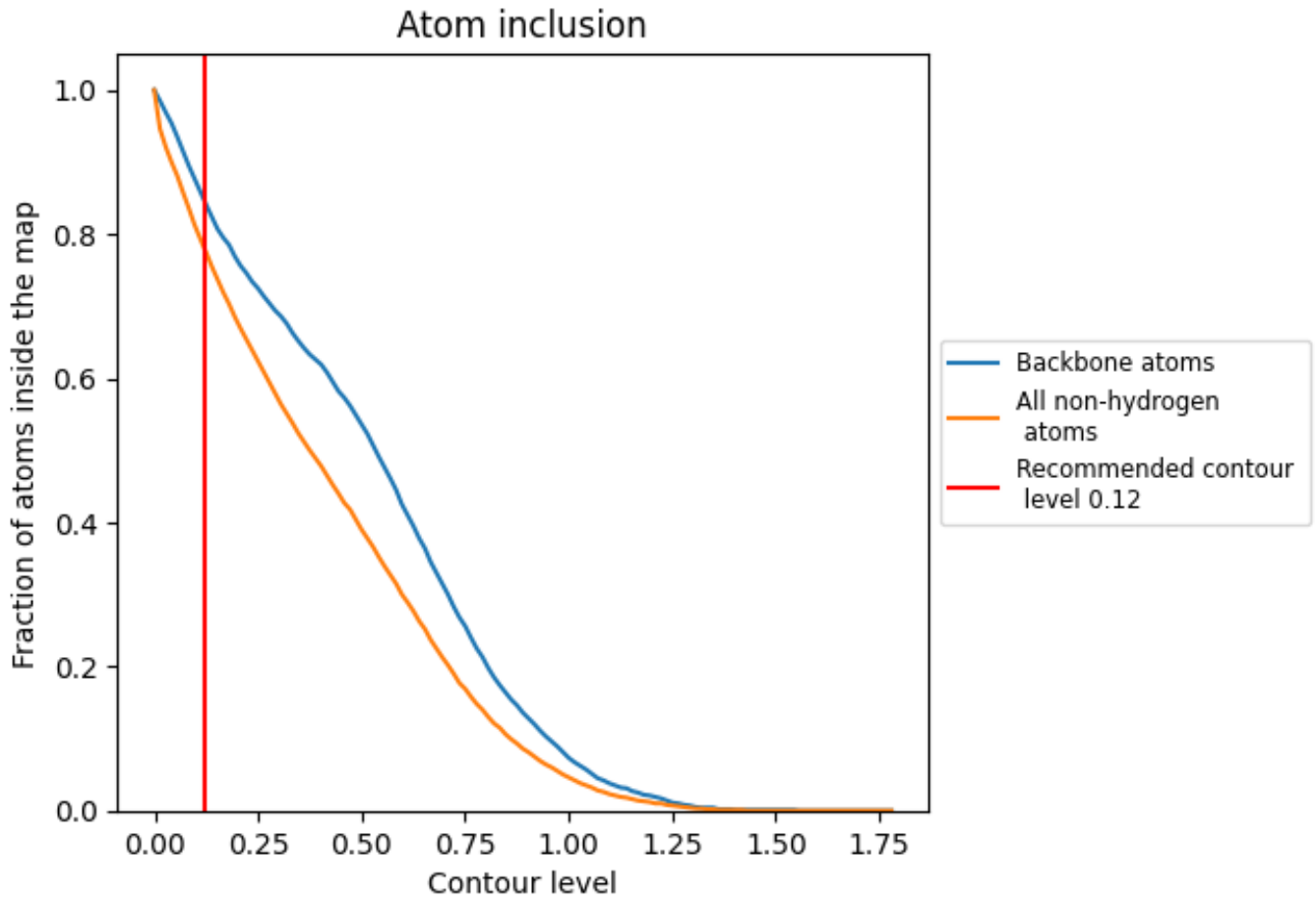
9.3 Atom inclusion mapped to coordinate model



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.12).

9.4 Atom inclusion (i)



At the recommended contour level, 84% of all backbone atoms, 78% 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 (0.12) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7790	0.4680
A	0.7670	0.4540
B	0.7960	0.4830
G	0.6940	0.4020
R	0.7850	0.4750