Full wwPDB EM Validation Report ⓘ

Nov 4, 2024 – 01:07 am GMT

PDB ID	:	7QDO
EMDB ID	:	EMD-13922
Title	:	Cryo-EM structure of human monomeric IgM-Fc
Authors	:	Chen, Q.; Rosenthal, P.; Tolar, P.
Deposited on	:	2021-11-27
Resolution	:	3.60 Å(reported)

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

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

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

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

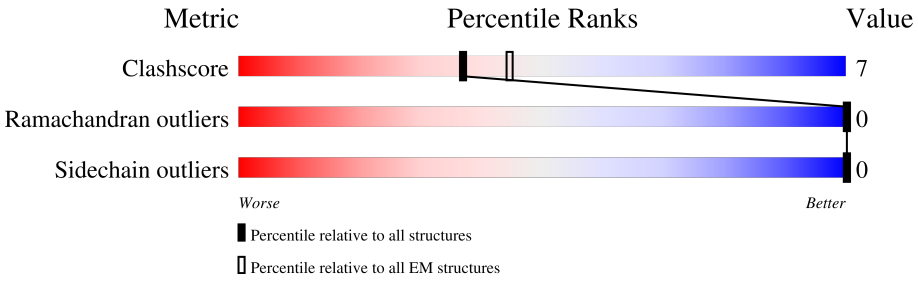
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	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 3.60 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	440	5% 40% 9% 52%
1	B	440	5% 40% 8% 52%

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 3304 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 Isoform 2 of Immunoglobulin heavy constant mu.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	212	Total	C	N	O	S	0	0
			1652	1040	282	324	6		
1	A	212	Total	C	N	O	S	0	0
			1652	1040	282	324	6		

There are 200 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	197	MET	-	initiating methionine	UNP P01871-2
B	198	GLY	-	expression tag	UNP P01871-2
B	199	ILE	-	expression tag	UNP P01871-2
B	200	LEU	-	expression tag	UNP P01871-2
B	201	PRO	-	expression tag	UNP P01871-2
B	202	SER	-	expression tag	UNP P01871-2
B	203	PRO	-	expression tag	UNP P01871-2
B	204	GLY	-	expression tag	UNP P01871-2
B	205	MET	-	expression tag	UNP P01871-2
B	206	PRO	-	expression tag	UNP P01871-2
B	207	ALA	-	expression tag	UNP P01871-2
B	208	LEU	-	expression tag	UNP P01871-2
B	209	LEU	-	expression tag	UNP P01871-2
B	210	SER	-	expression tag	UNP P01871-2
B	211	LEU	-	expression tag	UNP P01871-2
B	212	VAL	-	expression tag	UNP P01871-2
B	213	SER	-	expression tag	UNP P01871-2
B	214	LEU	-	expression tag	UNP P01871-2
B	215	LEU	-	expression tag	UNP P01871-2
B	216	SER	-	expression tag	UNP P01871-2
B	217	VAL	-	expression tag	UNP P01871-2
B	218	LEU	-	expression tag	UNP P01871-2
B	219	LEU	-	expression tag	UNP P01871-2
B	220	MET	-	expression tag	UNP P01871-2
B	221	GLY	-	expression tag	UNP P01871-2
B	222	CYS	-	expression tag	UNP P01871-2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	223	VAL	-	expression tag	UNP P01871-2
B	224	ALA	-	expression tag	UNP P01871-2
B	225	GLU	-	expression tag	UNP P01871-2
B	226	THR	-	expression tag	UNP P01871-2
B	227	GLY	-	expression tag	UNP P01871-2
B	314	SER	GLY	conflict	UNP P01871-2
B	414	SER	CYS	conflict	UNP P01871-2
B	570	GLU	-	expression tag	UNP P01871-2
B	571	ILE	-	expression tag	UNP P01871-2
B	572	ALA	-	expression tag	UNP P01871-2
B	573	GLN	-	expression tag	UNP P01871-2
B	574	LEU	-	expression tag	UNP P01871-2
B	575	GLU	-	expression tag	UNP P01871-2
B	576	TYR	-	expression tag	UNP P01871-2
B	577	GLU	-	expression tag	UNP P01871-2
B	578	ILE	-	expression tag	UNP P01871-2
B	579	SER	-	expression tag	UNP P01871-2
B	580	GLN	-	expression tag	UNP P01871-2
B	581	LEU	-	expression tag	UNP P01871-2
B	582	GLU	-	expression tag	UNP P01871-2
B	583	GLN	-	expression tag	UNP P01871-2
B	584	GLU	-	expression tag	UNP P01871-2
B	585	ILE	-	expression tag	UNP P01871-2
B	586	GLN	-	expression tag	UNP P01871-2
B	587	ALA	-	expression tag	UNP P01871-2
B	588	LEU	-	expression tag	UNP P01871-2
B	589	GLU	-	expression tag	UNP P01871-2
B	590	SER	-	expression tag	UNP P01871-2
B	591	GLY	-	expression tag	UNP P01871-2
B	592	GLY	-	expression tag	UNP P01871-2
B	593	GLY	-	expression tag	UNP P01871-2
B	594	SER	-	expression tag	UNP P01871-2
B	595	GLY	-	expression tag	UNP P01871-2
B	596	GLY	-	expression tag	UNP P01871-2
B	597	GLY	-	expression tag	UNP P01871-2
B	598	SER	-	expression tag	UNP P01871-2
B	599	GLU	-	expression tag	UNP P01871-2
B	600	ASN	-	expression tag	UNP P01871-2
B	601	LEU	-	expression tag	UNP P01871-2
B	602	TYR	-	expression tag	UNP P01871-2
B	603	PHE	-	expression tag	UNP P01871-2
B	604	GLN	-	expression tag	UNP P01871-2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	605	GLY	-	expression tag	UNP P01871-2
B	606	GLY	-	expression tag	UNP P01871-2
B	607	GLY	-	expression tag	UNP P01871-2
B	608	SER	-	expression tag	UNP P01871-2
B	609	TRP	-	expression tag	UNP P01871-2
B	610	SER	-	expression tag	UNP P01871-2
B	611	HIS	-	expression tag	UNP P01871-2
B	612	PRO	-	expression tag	UNP P01871-2
B	613	GLN	-	expression tag	UNP P01871-2
B	614	PHE	-	expression tag	UNP P01871-2
B	615	GLU	-	expression tag	UNP P01871-2
B	616	LYS	-	expression tag	UNP P01871-2
B	617	GLY	-	expression tag	UNP P01871-2
B	618	GLY	-	expression tag	UNP P01871-2
B	619	GLY	-	expression tag	UNP P01871-2
B	620	SER	-	expression tag	UNP P01871-2
B	621	GLY	-	expression tag	UNP P01871-2
B	622	GLY	-	expression tag	UNP P01871-2
B	623	GLY	-	expression tag	UNP P01871-2
B	624	SER	-	expression tag	UNP P01871-2
B	625	GLY	-	expression tag	UNP P01871-2
B	626	GLY	-	expression tag	UNP P01871-2
B	627	SER	-	expression tag	UNP P01871-2
B	628	ALA	-	expression tag	UNP P01871-2
B	629	TRP	-	expression tag	UNP P01871-2
B	630	SER	-	expression tag	UNP P01871-2
B	631	HIS	-	expression tag	UNP P01871-2
B	632	PRO	-	expression tag	UNP P01871-2
B	633	GLN	-	expression tag	UNP P01871-2
B	634	PHE	-	expression tag	UNP P01871-2
B	635	GLU	-	expression tag	UNP P01871-2
B	636	LYS	-	expression tag	UNP P01871-2
A	197	MET	-	initiating methionine	UNP P01871-2
A	198	GLY	-	expression tag	UNP P01871-2
A	199	ILE	-	expression tag	UNP P01871-2
A	200	LEU	-	expression tag	UNP P01871-2
A	201	PRO	-	expression tag	UNP P01871-2
A	202	SER	-	expression tag	UNP P01871-2
A	203	PRO	-	expression tag	UNP P01871-2
A	204	GLY	-	expression tag	UNP P01871-2
A	205	MET	-	expression tag	UNP P01871-2
A	206	PRO	-	expression tag	UNP P01871-2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	207	ALA	-	expression tag	UNP P01871-2
A	208	LEU	-	expression tag	UNP P01871-2
A	209	LEU	-	expression tag	UNP P01871-2
A	210	SER	-	expression tag	UNP P01871-2
A	211	LEU	-	expression tag	UNP P01871-2
A	212	VAL	-	expression tag	UNP P01871-2
A	213	SER	-	expression tag	UNP P01871-2
A	214	LEU	-	expression tag	UNP P01871-2
A	215	LEU	-	expression tag	UNP P01871-2
A	216	SER	-	expression tag	UNP P01871-2
A	217	VAL	-	expression tag	UNP P01871-2
A	218	LEU	-	expression tag	UNP P01871-2
A	219	LEU	-	expression tag	UNP P01871-2
A	220	MET	-	expression tag	UNP P01871-2
A	221	GLY	-	expression tag	UNP P01871-2
A	222	CYS	-	expression tag	UNP P01871-2
A	223	VAL	-	expression tag	UNP P01871-2
A	224	ALA	-	expression tag	UNP P01871-2
A	225	GLU	-	expression tag	UNP P01871-2
A	226	THR	-	expression tag	UNP P01871-2
A	227	GLY	-	expression tag	UNP P01871-2
A	314	SER	GLY	conflict	UNP P01871-2
A	414	SER	CYS	conflict	UNP P01871-2
A	570	GLU	-	expression tag	UNP P01871-2
A	571	ILE	-	expression tag	UNP P01871-2
A	572	ALA	-	expression tag	UNP P01871-2
A	573	GLN	-	expression tag	UNP P01871-2
A	574	LEU	-	expression tag	UNP P01871-2
A	575	GLU	-	expression tag	UNP P01871-2
A	576	TYR	-	expression tag	UNP P01871-2
A	577	GLU	-	expression tag	UNP P01871-2
A	578	ILE	-	expression tag	UNP P01871-2
A	579	SER	-	expression tag	UNP P01871-2
A	580	GLN	-	expression tag	UNP P01871-2
A	581	LEU	-	expression tag	UNP P01871-2
A	582	GLU	-	expression tag	UNP P01871-2
A	583	GLN	-	expression tag	UNP P01871-2
A	584	GLU	-	expression tag	UNP P01871-2
A	585	ILE	-	expression tag	UNP P01871-2
A	586	GLN	-	expression tag	UNP P01871-2
A	587	ALA	-	expression tag	UNP P01871-2
A	588	LEU	-	expression tag	UNP P01871-2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	589	GLU	-	expression tag	UNP P01871-2
A	590	SER	-	expression tag	UNP P01871-2
A	591	GLY	-	expression tag	UNP P01871-2
A	592	GLY	-	expression tag	UNP P01871-2
A	593	GLY	-	expression tag	UNP P01871-2
A	594	SER	-	expression tag	UNP P01871-2
A	595	GLY	-	expression tag	UNP P01871-2
A	596	GLY	-	expression tag	UNP P01871-2
A	597	GLY	-	expression tag	UNP P01871-2
A	598	SER	-	expression tag	UNP P01871-2
A	599	GLU	-	expression tag	UNP P01871-2
A	600	ASN	-	expression tag	UNP P01871-2
A	601	LEU	-	expression tag	UNP P01871-2
A	602	TYR	-	expression tag	UNP P01871-2
A	603	PHE	-	expression tag	UNP P01871-2
A	604	GLN	-	expression tag	UNP P01871-2
A	605	GLY	-	expression tag	UNP P01871-2
A	606	GLY	-	expression tag	UNP P01871-2
A	607	GLY	-	expression tag	UNP P01871-2
A	608	SER	-	expression tag	UNP P01871-2
A	609	TRP	-	expression tag	UNP P01871-2
A	610	SER	-	expression tag	UNP P01871-2
A	611	HIS	-	expression tag	UNP P01871-2
A	612	PRO	-	expression tag	UNP P01871-2
A	613	GLN	-	expression tag	UNP P01871-2
A	614	PHE	-	expression tag	UNP P01871-2
A	615	GLU	-	expression tag	UNP P01871-2
A	616	LYS	-	expression tag	UNP P01871-2
A	617	GLY	-	expression tag	UNP P01871-2
A	618	GLY	-	expression tag	UNP P01871-2
A	619	GLY	-	expression tag	UNP P01871-2
A	620	SER	-	expression tag	UNP P01871-2
A	621	GLY	-	expression tag	UNP P01871-2
A	622	GLY	-	expression tag	UNP P01871-2
A	623	GLY	-	expression tag	UNP P01871-2
A	624	SER	-	expression tag	UNP P01871-2
A	625	GLY	-	expression tag	UNP P01871-2
A	626	GLY	-	expression tag	UNP P01871-2
A	627	SER	-	expression tag	UNP P01871-2
A	628	ALA	-	expression tag	UNP P01871-2
A	629	TRP	-	expression tag	UNP P01871-2
A	630	SER	-	expression tag	UNP P01871-2

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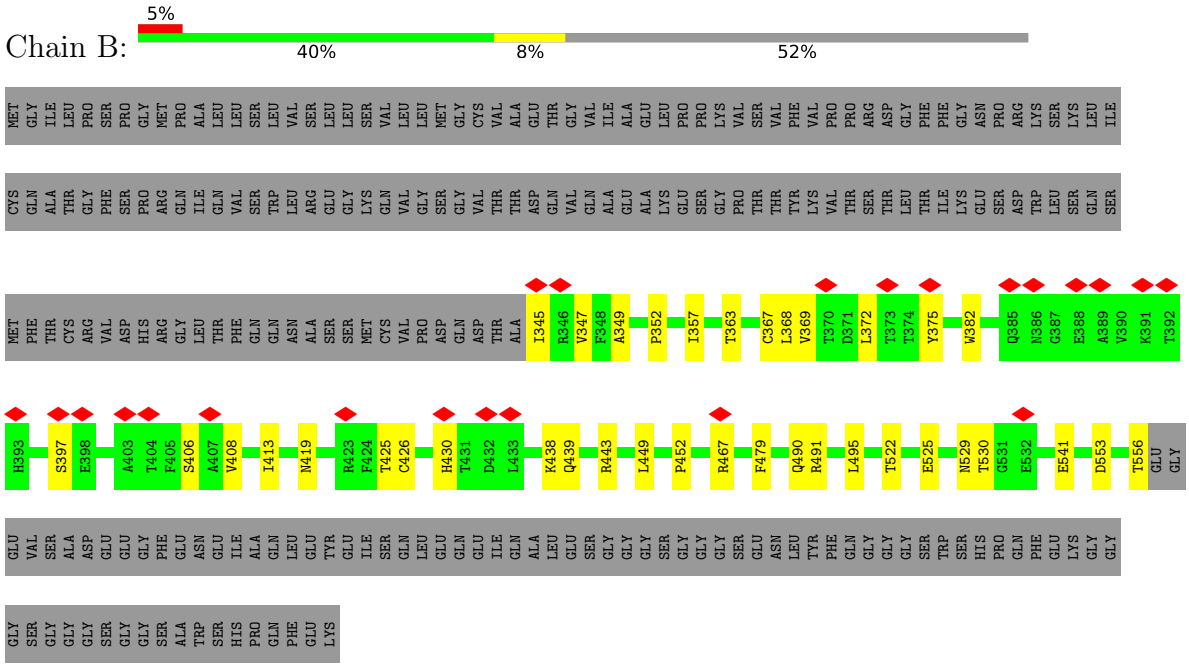
Chain	Residue	Modelled	Actual	Comment	Reference
A	631	HIS	-	expression tag	UNP P01871-2
A	632	PRO	-	expression tag	UNP P01871-2
A	633	GLN	-	expression tag	UNP P01871-2
A	634	PHE	-	expression tag	UNP P01871-2
A	635	GLU	-	expression tag	UNP P01871-2
A	636	LYS	-	expression tag	UNP P01871-2

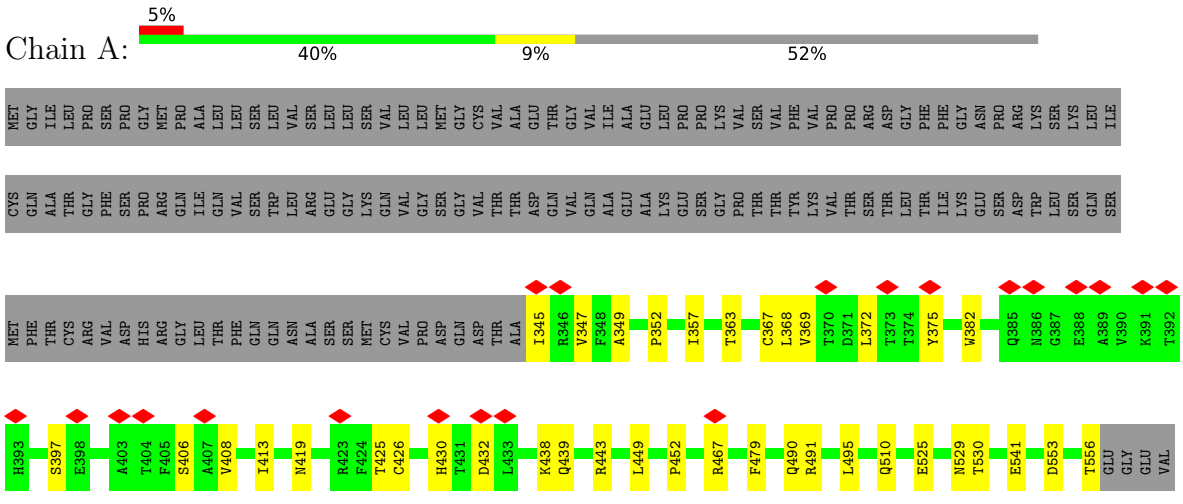
3 Residue-property plots (i)

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: Isoform 2 of Immunoglobulin heavy constant mu



• Molecule 1: Isoform 2 of Immunoglobulin heavy constant mu



SER ALA ASP GLU GLU GLY PHE GLU ASN GLU ILE ALA GLN LEU GLU TYR GLU ILE SER GLN LEU GLU GLN GLU ILE GLN ALA LEU GLU SER GLY GLY GLY SER GLY GLY GLY SER GLU ASN LEU TYR PHE GLN GLY GLY GLY SER TRP SER HIS PRO GLN PHE GLU LYS GLY GLY GLY SER

GLY GLY GLY SER GLY GLY SER ALA TRP SER HIS PRO GLN PHE GLU LYS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	961072	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 ($e^-/Å^2$)	66	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	4000	Depositor
Magnification	59595	Depositor
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	6.066	Depositor
Minimum map value	-4.538	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.096	Depositor
Recommended contour level	0.7	Depositor
Map size (Å)	214.784, 214.784, 214.784	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.839, 0.839, 0.839	Depositor

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.32	0/1695	0.54	0/2322
1	B	0.31	0/1695	0.54	0/2322
All	All	0.32	0/3390	0.54	0/4644

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	1652	0	1610	25	0
1	B	1652	0	1610	24	0
All	All	3304	0	3220	48	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 7.

All (48) 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:A:419:ASN:HA	1:A:443:ARG:NH2	2.11	0.66
1:B:419:ASN:HA	1:B:443:ARG:NH2	2.11	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:452:PRO:HB3	1:A:479:PHE:HB3	1.81	0.62
1:B:452:PRO:HB3	1:B:479:PHE:HB3	1.81	0.62
1:B:490:GLN:OE1	1:B:495:LEU:HD21	2.00	0.61
1:A:490:GLN:OE1	1:A:495:LEU:HD21	2.00	0.61
1:B:375:TYR:HB2	1:B:430:HIS:HE1	1.71	0.56
1:A:525:GLU:HG2	1:A:529:ASN:ND2	2.22	0.55
1:A:375:TYR:HB2	1:A:430:HIS:HE1	1.71	0.55
1:B:525:GLU:HG2	1:B:529:ASN:ND2	2.22	0.54
1:A:425:THR:HG23	1:A:439:GLN:H	1.73	0.54
1:B:425:THR:HG23	1:B:439:GLN:H	1.73	0.53
1:A:363:THR:OG1	1:A:413:ILE:O	2.27	0.52
1:B:363:THR:OG1	1:B:413:ILE:O	2.27	0.52
1:B:349:ALA:HA	1:B:367:CYS:HA	1.92	0.52
1:A:349:ALA:HA	1:A:367:CYS:HA	1.92	0.51
1:B:553:ASP:OD1	1:B:556:THR:OG1	2.22	0.51
1:A:397:SER:HB3	1:A:408:VAL:HG12	1.92	0.51
1:B:397:SER:HB3	1:B:408:VAL:HG12	1.92	0.50
1:A:347:VAL:HG22	1:A:369:VAL:HG13	1.93	0.50
1:B:347:VAL:HG22	1:B:369:VAL:HG13	1.93	0.49
1:B:345:ILE:HG23	1:B:372:LEU:HD21	1.96	0.48
1:A:345:ILE:HG23	1:A:372:LEU:HD21	1.96	0.48
1:A:382:TRP:CE3	1:A:426:CYS:HB3	2.49	0.48
1:A:368:LEU:HD12	1:A:406:SER:HB2	1.96	0.47
1:B:382:TRP:CE3	1:B:426:CYS:HB3	2.49	0.47
1:A:553:ASP:OD1	1:A:556:THR:OG1	2.22	0.47
1:B:368:LEU:HD12	1:B:406:SER:HB2	1.96	0.47
1:A:347:VAL:O	1:A:439:GLN:HG2	2.15	0.46
1:B:347:VAL:O	1:B:439:GLN:HG2	2.15	0.46
1:B:425:THR:HG21	1:B:438:LYS:HB3	1.98	0.46
1:A:425:THR:HG21	1:A:438:LYS:HB3	1.98	0.45
1:B:529:ASN:OD1	1:B:530:THR:N	2.49	0.45
1:B:522:THR:HG21	1:A:510:GLN:NE2	2.32	0.45
1:A:529:ASN:OD1	1:A:530:THR:N	2.49	0.44
1:B:352:PRO:HB2	1:B:357:ILE:HD11	2.00	0.44
1:A:352:PRO:HB2	1:A:357:ILE:HD11	2.00	0.44
1:A:490:GLN:HG2	1:A:491:ARG:HG2	1.99	0.43
1:B:467:ARG:HA	1:B:525:GLU:OE2	2.18	0.43
1:B:467:ARG:HD3	1:B:525:GLU:OE2	2.19	0.43
1:B:490:GLN:HG2	1:B:491:ARG:HG2	1.99	0.43
1:A:467:ARG:HA	1:A:525:GLU:OE2	2.18	0.43
1:A:467:ARG:HD3	1:A:525:GLU:OE2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:357:ILE:HD12	1:A:363:THR:HA	2.00	0.42
1:B:357:ILE:HD12	1:B:363:THR:HA	2.00	0.42
1:B:449:LEU:HD11	1:B:541:GLU:HG3	2.02	0.42
1:A:449:LEU:HD11	1:A:541:GLU:HG3	2.02	0.41
1:A:432:ASP:N	1:A:432:ASP:OD1	2.53	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	210/440 (48%)	189 (90%)	21 (10%)	0	100	100
1	B	210/440 (48%)	189 (90%)	21 (10%)	0	100	100
All	All	420/880 (48%)	378 (90%)	42 (10%)	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	189/374 (50%)	189 (100%)	0	100	100
1	B	189/374 (50%)	189 (100%)	0	100	100
All	All	378/748 (50%)	378 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	430	HIS
1	B	450	HIS
1	A	430	HIS
1	A	450	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Map visualisation

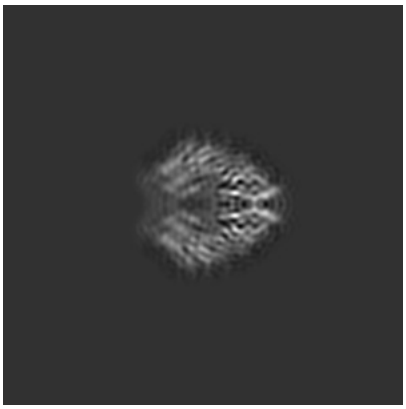
This section contains visualisations of the EMDB entry EMD-13922. These allow visual inspection of the internal detail of the map and identification of artifacts.

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.

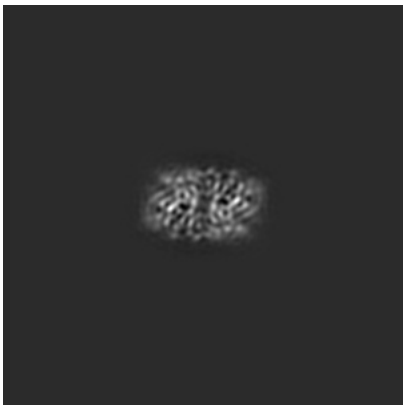
6.1 Orthogonal projections

6.1.1 Primary map

X

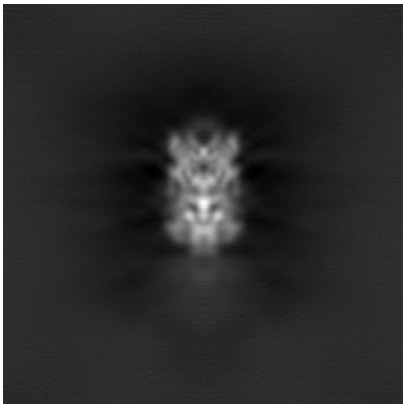


Y

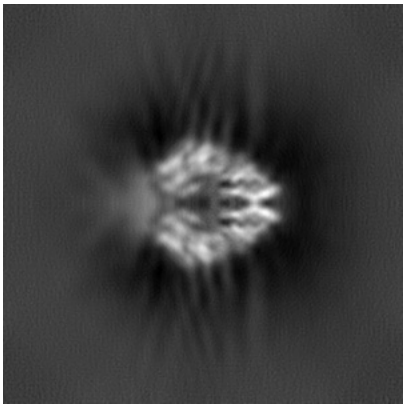


Z

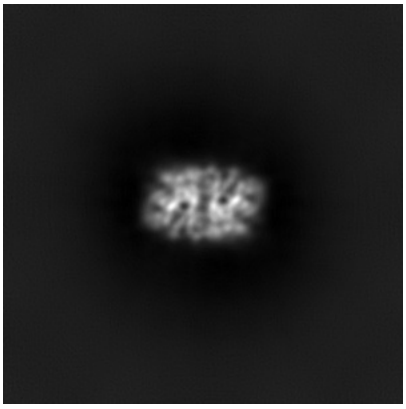
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices (i)

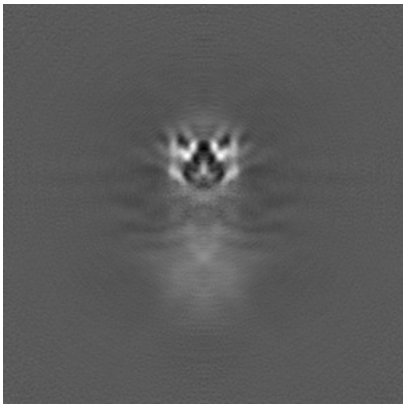
6.2.1 Primary map

X Index: 128

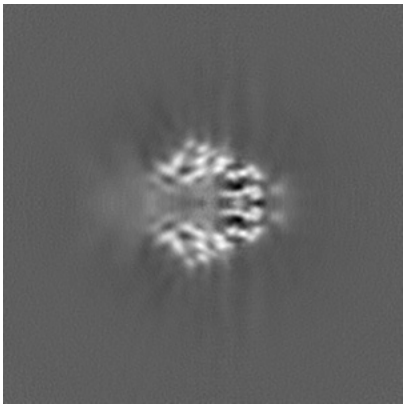
Y Index: 128

Z Index: 128

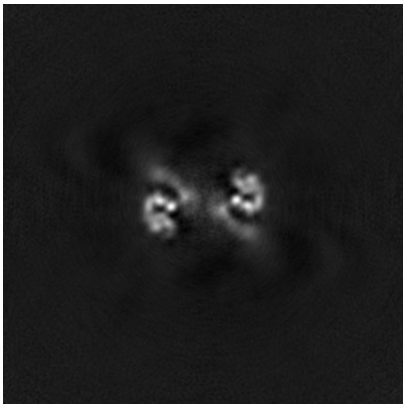
6.2.2 Raw map



X Index: 128



Y Index: 128



Z Index: 128

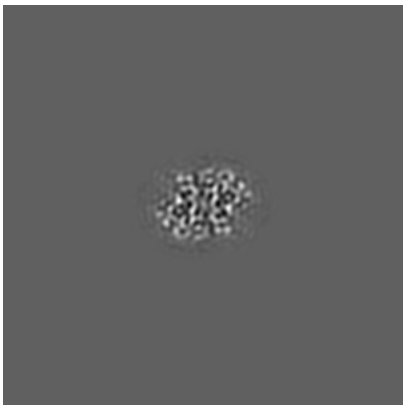
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

6.3.1 Primary map

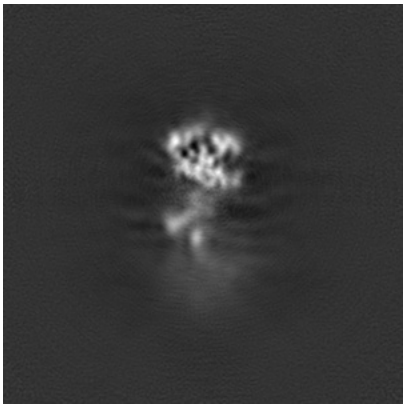
X Index: 120

Y Index: 130

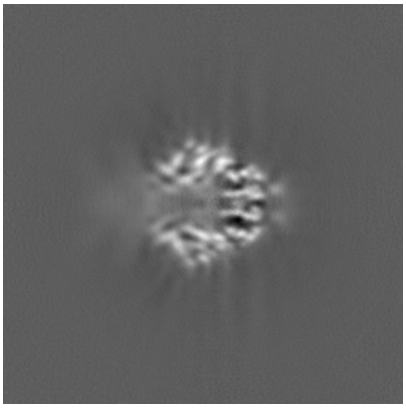


Z Index: 148

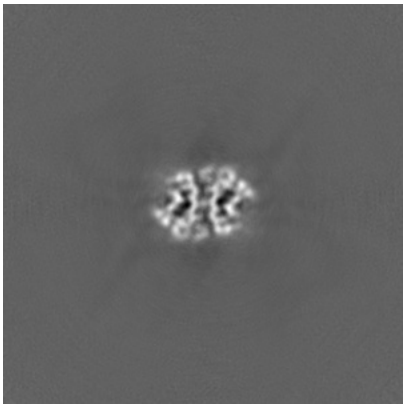
6.3.2 Raw map



X Index: 135



Y Index: 127

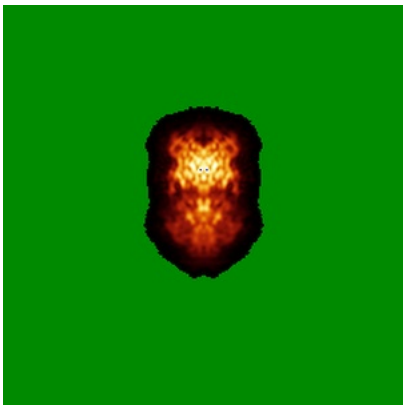


Z Index: 149

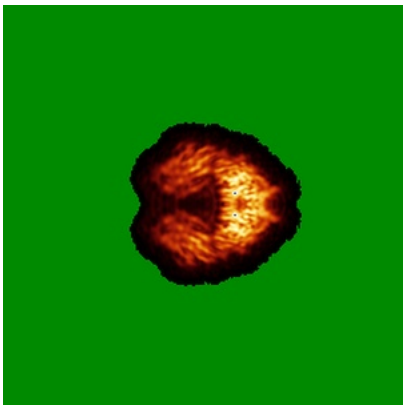
The images above show the largest variance slices of the map in three orthogonal directions.

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

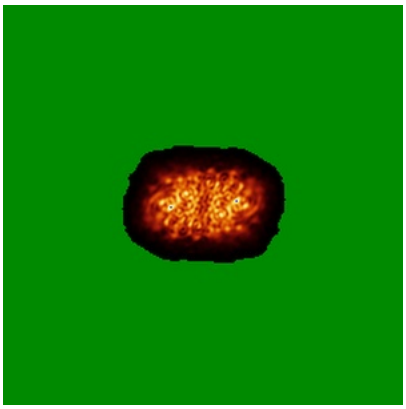
6.4.1 Primary map



X

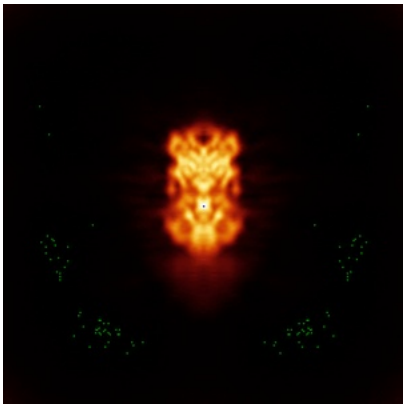


Y

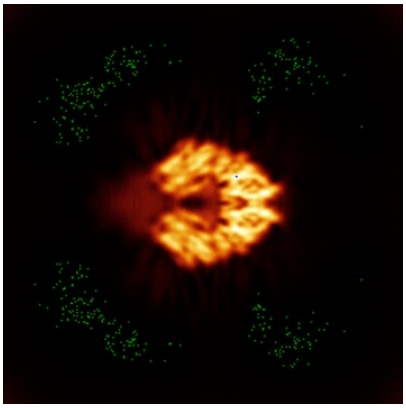


Z

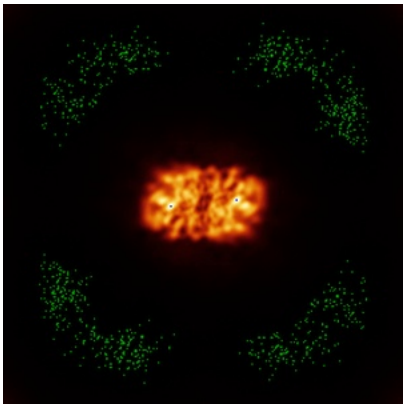
6.4.2 Raw map



X



Y

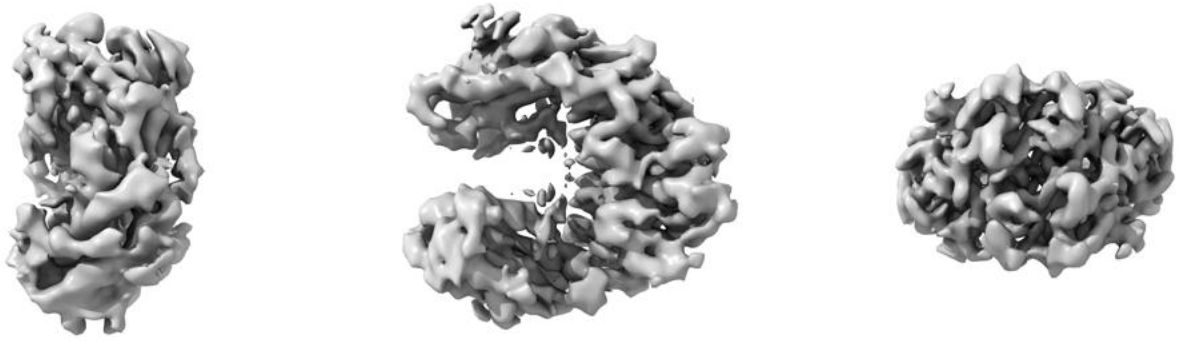


Z

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)

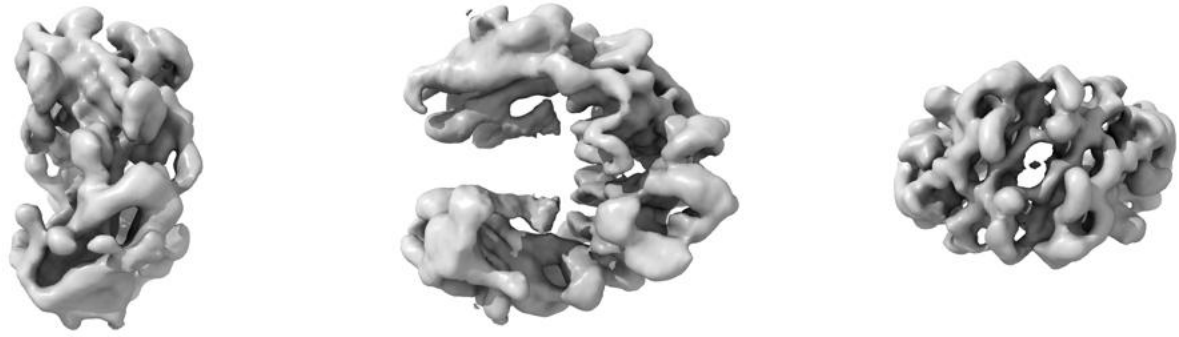
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.7. 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.

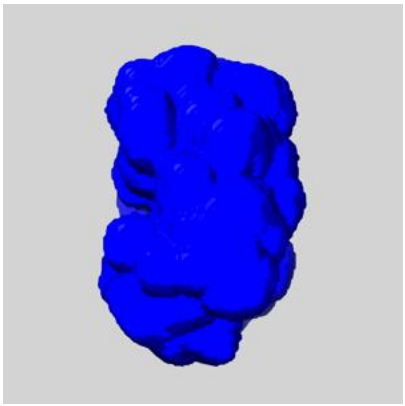
6.6 Mask visualisation (i)

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

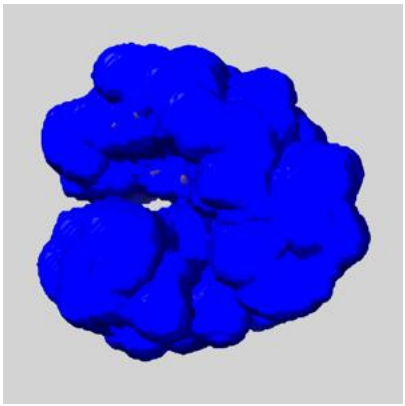
A mask typically either:

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

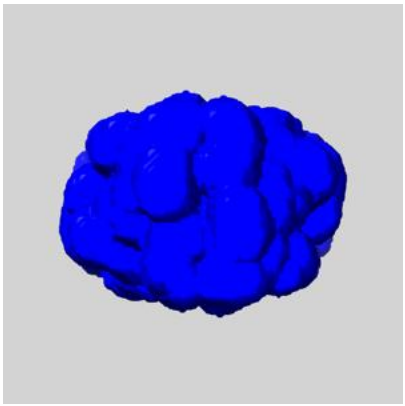
6.6.1 emd_13922_msk_1.map (i)



X



Y

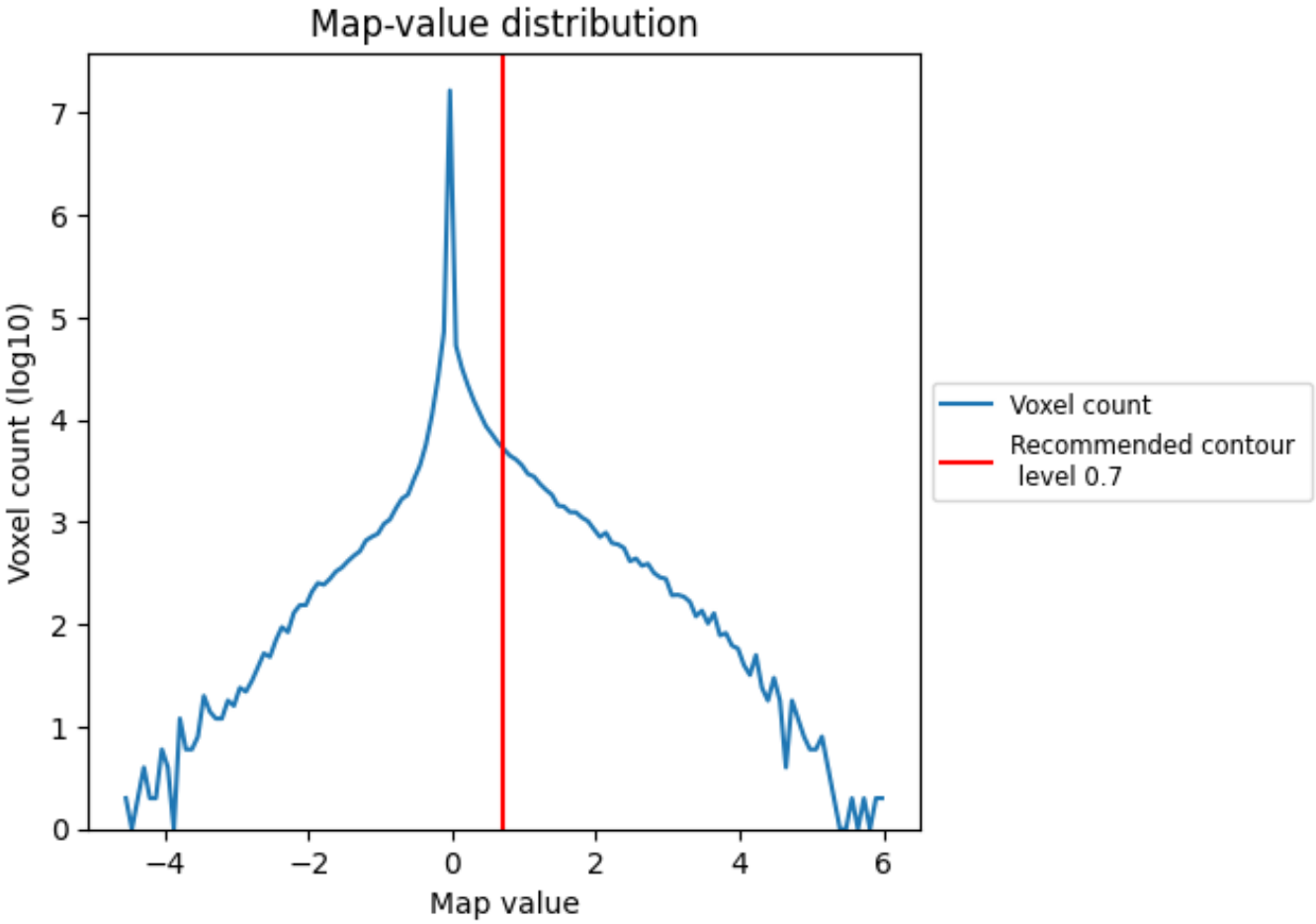


Z

7 Map analysis

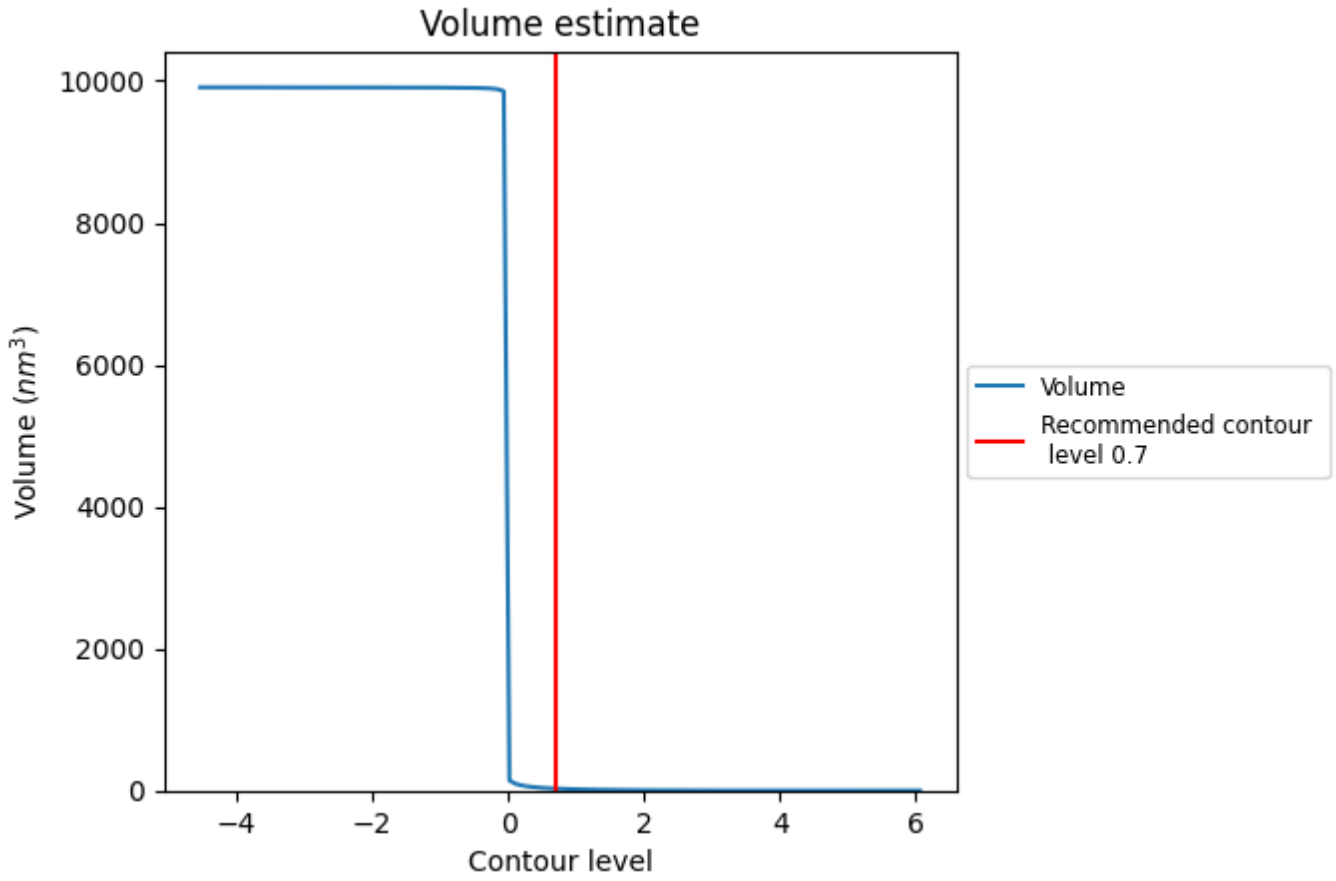
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

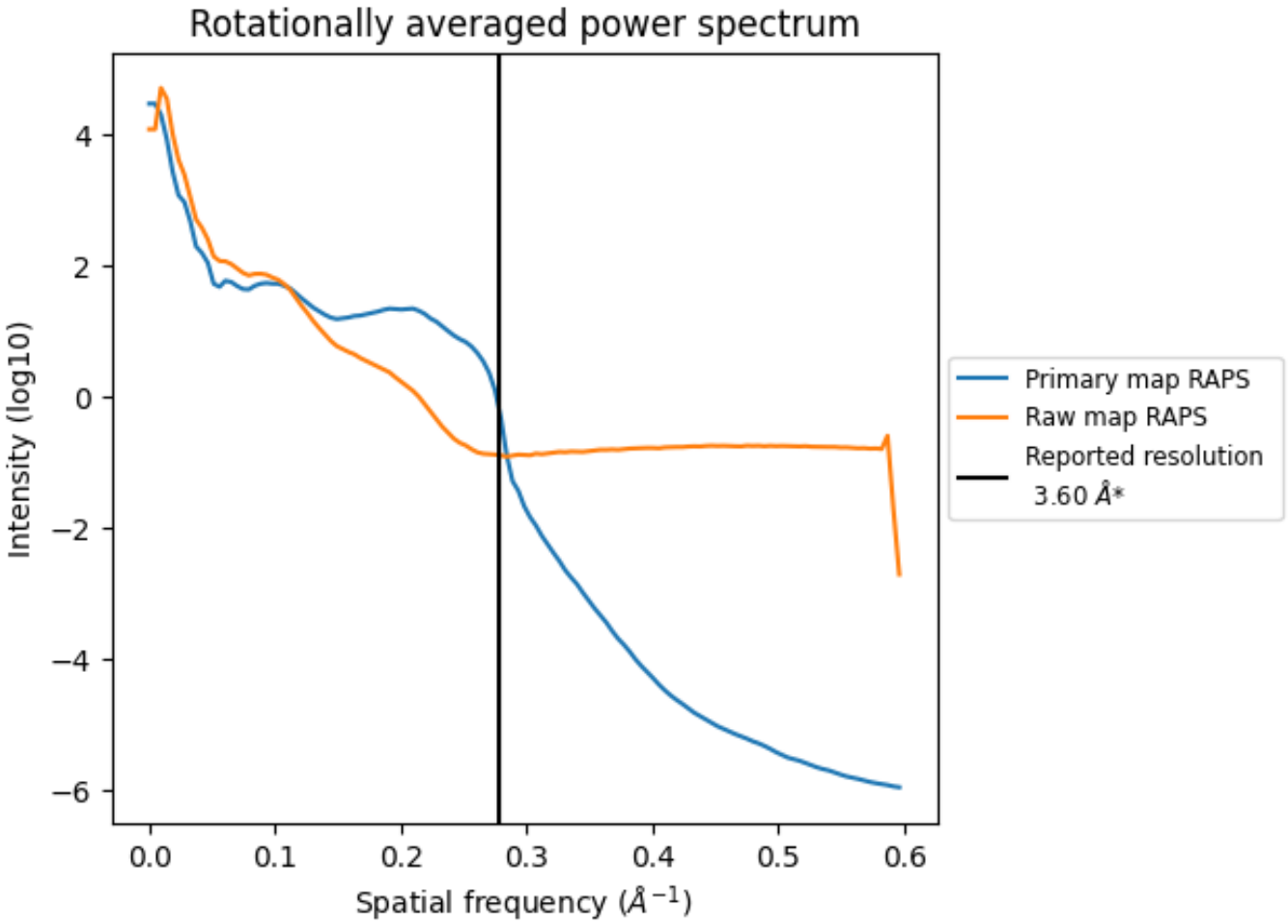
7.2 Volume estimate



The volume at the recommended contour level is 28 nm^3; this corresponds to an approximate mass of 25 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)

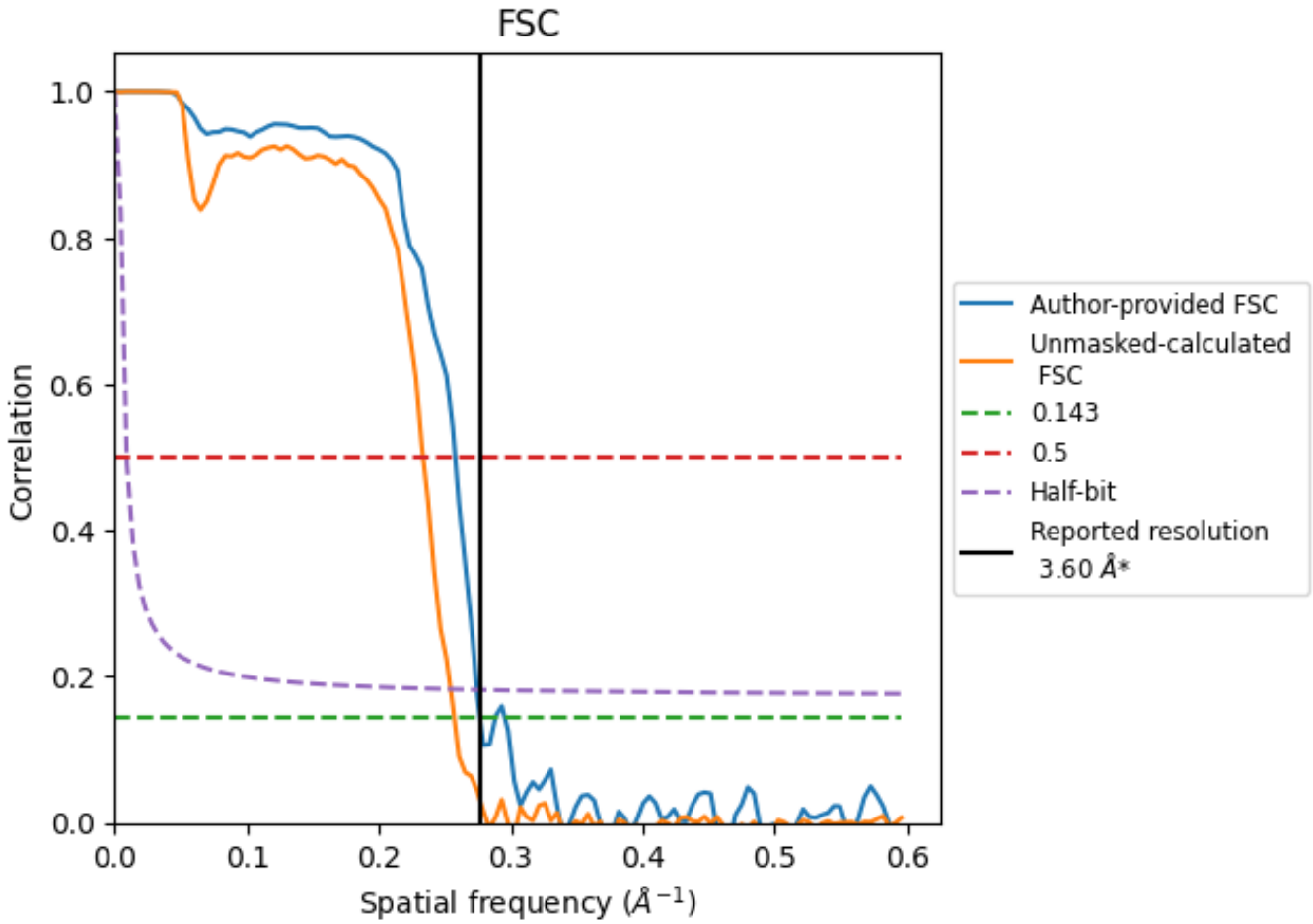


*Reported resolution corresponds to spatial frequency of 0.278 Å^{-1}

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 0.278 Å^{-1}

8.2 Resolution estimates (i)

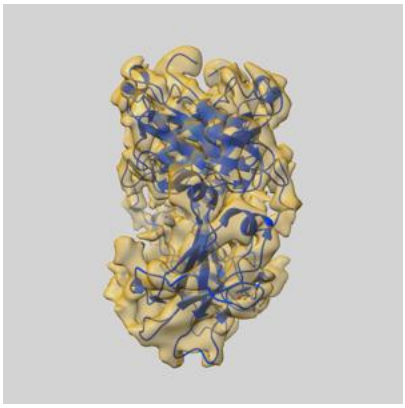
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.60	-	-
Author-provided FSC curve	3.61	3.88	3.65
Unmasked-calculated*	3.89	4.28	3.93

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

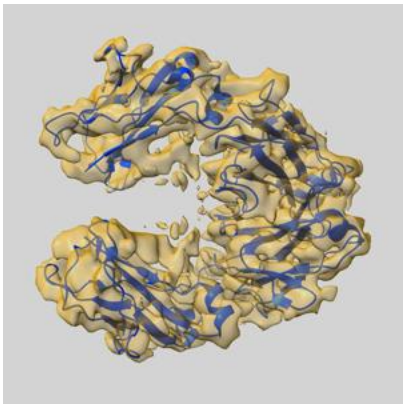
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-13922 and PDB model 7QDO. Per-residue inclusion information can be found in section 3 on page 9.

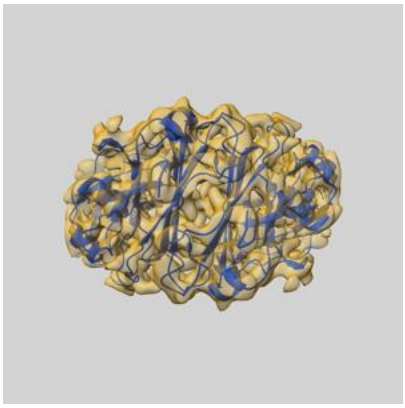
9.1 Map-model overlay



X



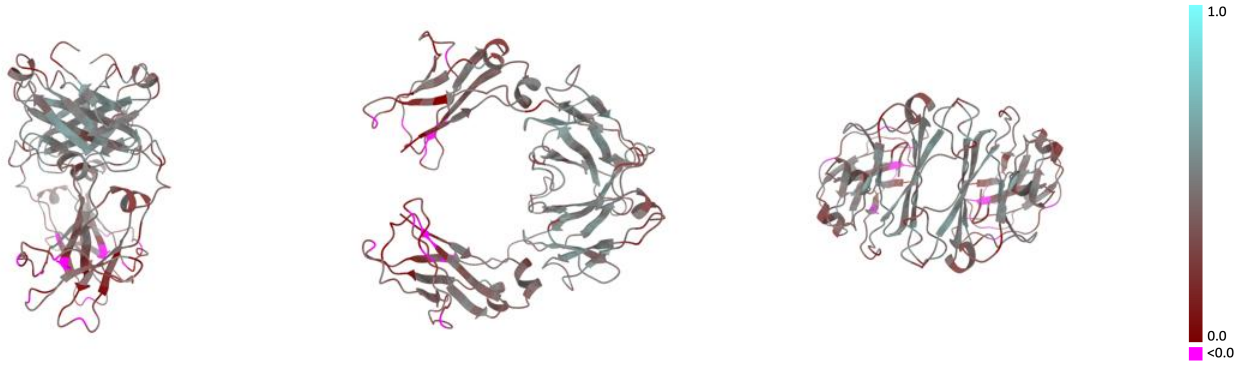
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.7 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.

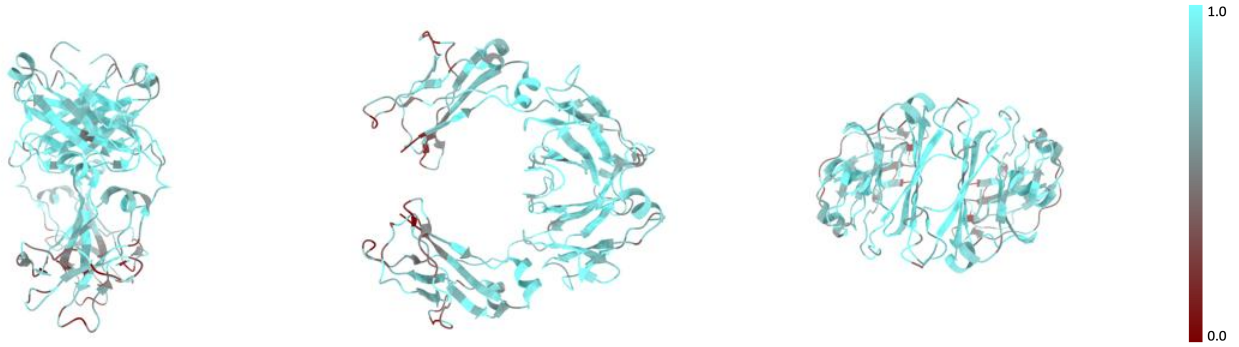
9.2 Q-score mapped to coordinate model (i)



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.

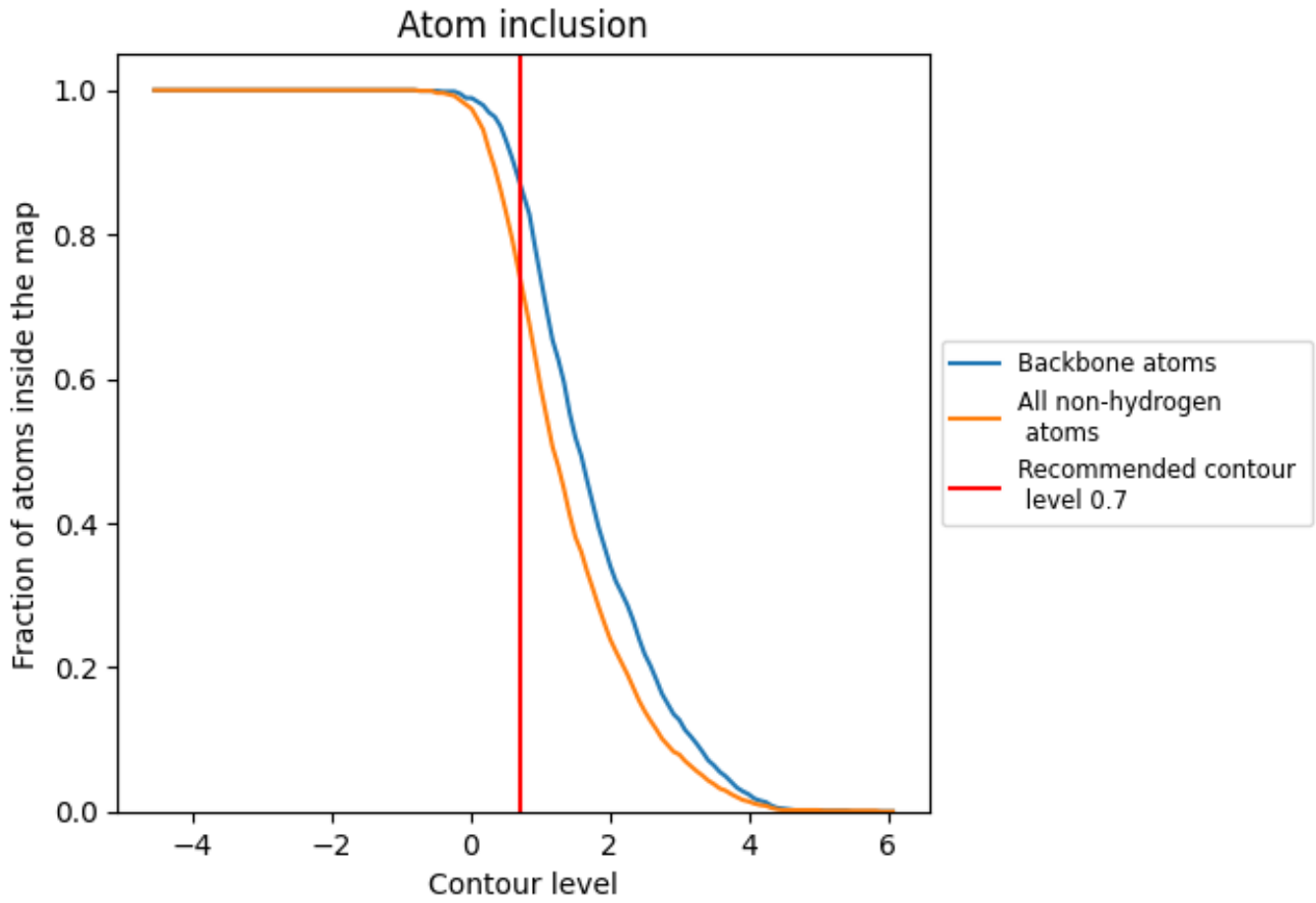
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.7).

9.4 Atom inclusion (i)



At the recommended contour level, 87% of all backbone atoms, 74% 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 (0.7) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7450	0.3640
A	0.7460	0.3620
B	0.7450	0.3660