



wwPDB EM Validation Summary Report ⓘ

Mar 2, 2024 – 11:47 AM EST

PDB ID : 5T9M
EMDB ID : EMD-8372
Title : Structure of rabbit RyR1 (Ca²⁺-only dataset, class 1)
Authors : Clarke, O.B.; des Georges, A.; Zalk, R.; Marks, A.R.; Hendrickson, W.A.;
Frank, J.
Deposited on : 2016-09-09
Resolution : 4.00 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.dev70
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

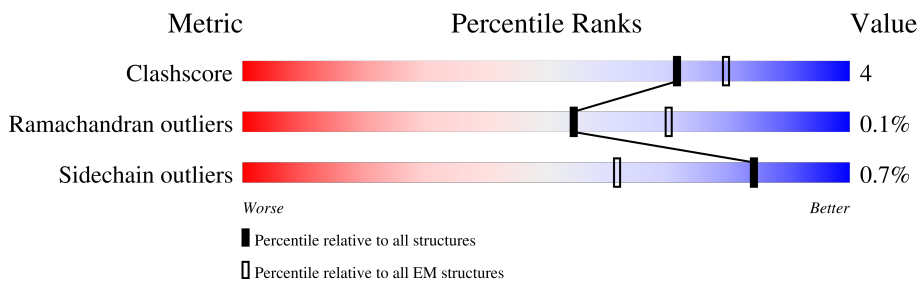
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.00 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	108	13% (red), 88% (green), 11% (yellow), 0% (orange), 0% (grey)
1	F	108	14% (red), 87% (green), 12% (yellow), 0% (orange), 0% (grey)
1	H	108	14% (red), 87% (green), 12% (yellow), 0% (orange), 0% (grey)
1	J	108	13% (red), 88% (green), 11% (yellow), 0% (orange), 0% (grey)
2	B	4676	19% (red), 81% (green), 8% (yellow), 11% (grey)
2	E	4676	19% (red), 81% (green), 8% (yellow), 11% (grey)
2	G	4676	19% (red), 81% (green), 8% (yellow), 11% (grey)
2	I	4676	19% (red), 81% (green), 8% (yellow), 11% (grey)

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 120756 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 Peptidyl-prolyl cis-trans isomerase FKBP1B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	F	107	818	516	144	154	4	0	0
1	A	107	818	516	144	154	4	0	0
1	H	107	818	516	144	154	4	0	0
1	J	107	818	516	144	154	4	0	0

- Molecule 2 is a protein called Ryanodine receptor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	4168	29369	18608	5202	5402	157	0	0
2	E	4168	29369	18608	5202	5402	157	0	0
2	I	4168	29369	18608	5202	5402	157	0	0
2	G	4168	29369	18608	5202	5402	157	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
3	B	1	Total	Zn	0
			1	1	
3	E	1	Total	Zn	0
			1	1	
3	I	1	Total	Zn	0
			1	1	
3	G	1	Total	Zn	0
			1	1	

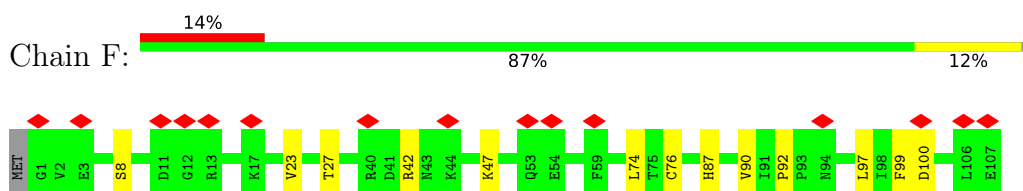
- Molecule 4 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
4	B	1	Total 1	Ca 1	0
4	E	1	Total 1	Ca 1	0
4	I	1	Total 1	Ca 1	0
4	G	1	Total 1	Ca 1	0

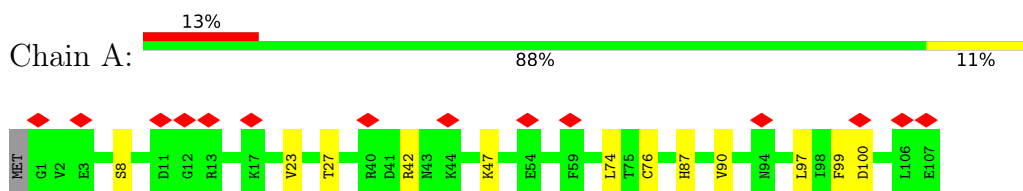
3 Residue-property plots [i](#)

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.

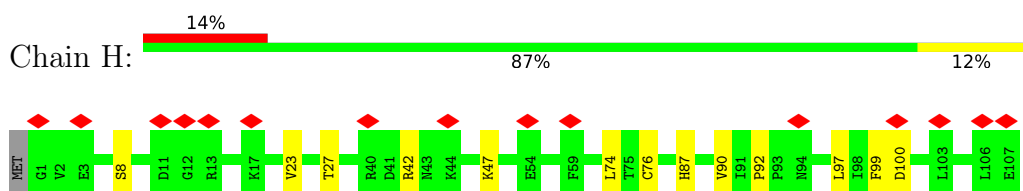
- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B



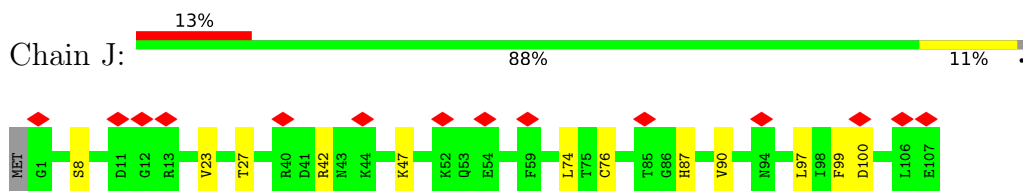
- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B



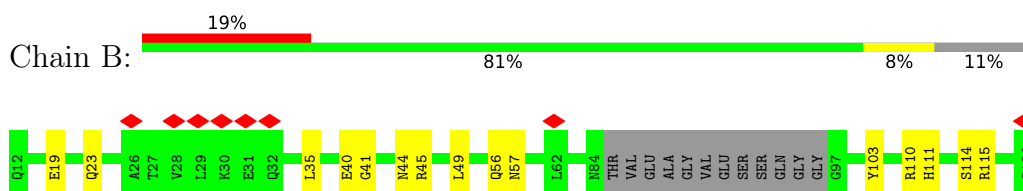
- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B



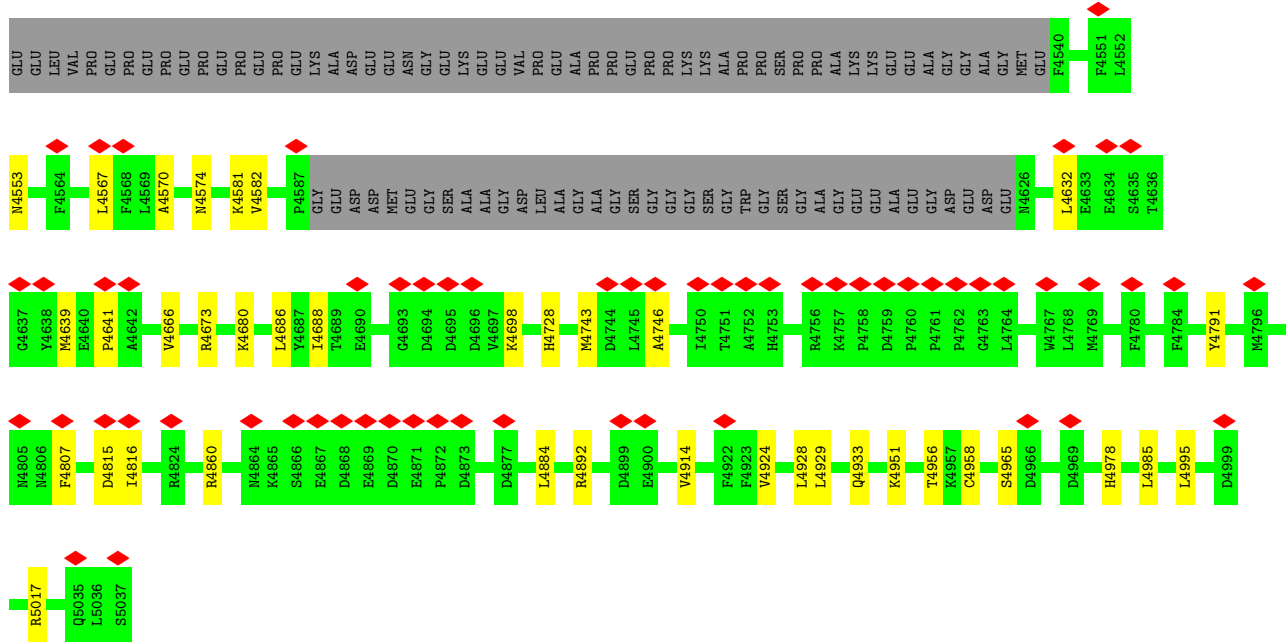
- Molecule 1: Peptidyl-prolyl cis-trans isomerase FKBP1B



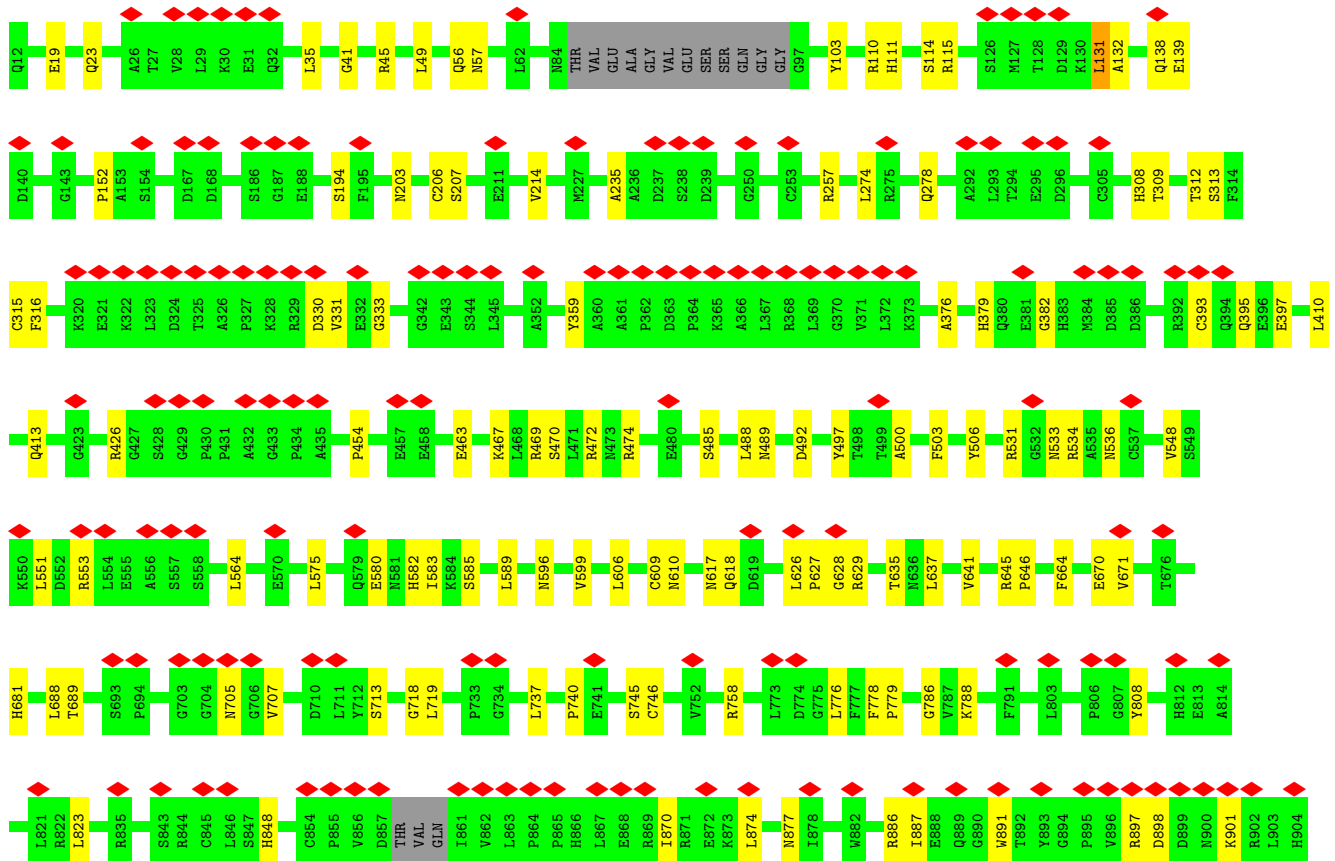
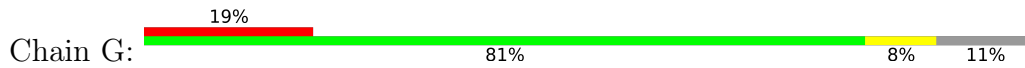
- Molecule 2: Ryanodine receptor 1



I4071	L3856	E3689	X3533	X3291	L2927	L2867	W2807	I2747	L2472	R2330	M2187
E4075	G3857	V3690	X3534	X3313	K2928	S2868	P2808	P2749	P2473	R2199	R2199
Y4080	M3858	E3691	X3539	X3316	F2929	R2869	I2809	E2749	L2474	R2199	R2199
V4081	M3859	E3692	X3547	X3317	L2930	E2870	K2810	K2750	Q2475	G2216	G2216
N3860	N3860	K3693	X3548	X3318	Q2931	L2871	E2811	L2751	V2341	G2217	G2217
E3861	D3862	E3712	X3549	X3319	M2932	Q2872	S2812	D2752	E2344	E2218	E2218
D4083	D3863	S3714	X3550	X3319	N2933	Q2873	S2813	S2753	E2344	E2219	E2219
F4084	D3864	S3715	X3551	X3319	G2934	M2874	K2814	F2754	E2344	T2220	T2220
L4087	V3865	L3716	X3551	X3319	A2936	E2875	A2815	I2755	S2345	K2221	K2221
L4088	V3866	D3717	X3551	X3338	V2937	Q2877	M2816	N2756	E2346	E2222	E2222
D4092	N3867	E3736	X3560	X3319	T2938	L2878	A2818	F2758	X2493	I2223	I2223
A4096	R3868	E3737	X3561	X3195	R2939	L2879	W2819	A2759	X2513	P2226	P2226
H4097	Q3869	G3738	X3564	X3196	X2942	E2880	E2820	E2760	X2562	R2227	R2227
D4098	N3870	G3739	X3565	X3197	X2943	N2881	W2821	Y2761	X2563	M2228	M2228
G3871	G3871	E3740	X3566	X3208	X2944	Y2882	T2822	T2762	G2370	Y2229	Y2229
E3872	E3872	N3741	X3567	X3211	X2945	H2883	I2823	H2763	G2372	T2230	T2230
K3873	D3873	GLY	X3568	X3214	X2946	N2884	E2824	E2764	G2373	S2231	S2231
D3878	D3878	ALA	X3580	X3215	X2947	T2885	K2825	K2765	X2581	C2232	C2232
Q3889	Q3889	GLU	X3581	X3216	X2948	W2886	A2826	W2766	X2582	C2233	C2233
L3890	L3890	GLU	X3582	X3217	X2948	G2887	R2827	F2768	X2584	R2234	R2234
L3891	L3891	GLU	X3583	X3218	X2951	R2888	E2828	A2769	X2585	N2246	N2246
N3896	N3896	E3747	X3584	X3218	X2964	K2889	G2829	F2769	X2597	Q2247	Q2247
F3899	F3899	E3748	X3585	X3219	X2965	K2890	E2830	D2770	X2625	G2262	G2262
Q3927	Q3927	V3749	X3586	X3220	X2966	L2891	GLU	I2771	X2626	A2263	A2263
E3928	E3928	E3750	X3586	X3221	X2967	Q2892	GLU	Q2772	X2626	ASP	ASP
S3929	S3929	E3751	X3587	X3222	X2968	E2893	THR	M2773	X2627	ARG	ARG
Y3937	Y3937	N3754	X3587	X3222	X2971	L2894	GLU	N2774	X2628	ARG	ARG
D3941	D3941	N3758	X3600	X3225	X2974	E2895	LYS	W2775	X2674	GLU	GLU
Q3946	Q3946	R3773	X3609	X3234	X2975	A2896	LYS	S2776	X2675	HIS	HIS
N3950	N3950	L3780	X3610	X3234	X2976	K2897	THR	Y2777	X2676	GLY	GLY
M3955	M3955	Q3781	X3611	X3234	X2976	G2898	ARG	G2778	X2686	GLU	GLU
Q3960	Q3960	S3784	X3612	X3235	X2995	G2899	LYS	E2779	X2686	PRO	PRO
G3971	G3971	E3787	X3613	X3242	X2996	C2900	ILE	N2780	X2691	PRO	PRO
A3988	A3988	K3787	N3643	X3245	X3023	T2901	GLN	V2781	X2691	GLU	GLU
K4002	K4002	L3804	K3658	X3246	X3027	H2902	THR	D2782	X2696	ALA	ALA
L4019	L4019	L3805	W3661	X3261	X3041	L2904	ALA	E2783	X2697	GLN	GLN
M4034	M4034	N3809	I3662	X3262	X3042	L2905	GLN	E2784	X2699	TYR	TYR
V4049	V4049	V3812	W3661	X3267	X3043	L2906	ASP	L2785	X2700	H2441	H2441
D4063	D4063	M3816	I3662	X3268	X3044	V2907	ARG	L2786	X2701	G2446	G2446
PRO	PRO	L3817	E3665	X3268	X3044	Y2908	ARG	L2789	X2701	G2447	G2447
GLU	GLU	L3817	D3666	X3270	X3045	Y2908	GLU	H2789	X2703	E2449	E2449
		D3822	H3667	X3271	X3046	D2909	GLY	P2787	X2703	G2304	G2304
		E3625	S3668	X3272	X3047	D2909	Y2855	H2788	X2703	L2307	L2307
		L3842	A3680	X3273	X3048	D2909	P2857	P2789	X2703	R2452	R2452
		D3843	G3681	X3274	X3048	D2909	Q2858	M2790	X2703	I2453	I2453
		Q3850	E3682	X3275	X3057	D2909	P2859	L2791	X2703	L2460	L2460
			E3683	X3278	X3061	D2909	P2860	Y2794	X2703	L2460	L2460
			E3684	X3279	X3062	D2909	D2861	K2795	X2703	D2464	D2464
			E3685	X3282	X3063	D2909	L2862	K2795	X2703	D2464	D2464
			E3686	X3282	X3134	D2909	S2863	F2797	X2703	D2464	D2464
			E3687	X3282	X3135	D2909	G2864	S2798	X2703	D2464	D2464
			E3688	X3282	X3135	D2909	V2865	E2799	X2703	D2464	D2464
							T2866	K2800	X2703	D2464	D2464
								D2801	X2703	D2464	D2464
								K2802	X2703	D2464	D2464
								E2803	X2703	D2464	D2464
								I2804	X2703	D2464	D2464
								Y2805	X2703	D2464	D2464
								R2806	X2703	D2464	D2464



• Molecule 2: Ryanodine receptor 1



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	55564	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.175	Depositor
Minimum map value	-0.083	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.04	Depositor
Map size (Å)	502.0, 502.0, 502.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.255, 1.255, 1.255	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: CA, ZN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.31	0/834	0.52	0/1123
1	F	0.31	0/834	0.52	0/1123
1	H	0.31	0/834	0.52	0/1123
1	J	0.31	0/834	0.52	0/1123
2	B	0.30	0/25428	0.55	8/34534 (0.0%)
2	E	0.30	0/25428	0.55	8/34534 (0.0%)
2	G	0.30	0/25428	0.55	8/34534 (0.0%)
2	I	0.30	0/25428	0.55	8/34534 (0.0%)
All	All	0.30	0/105048	0.55	32/142628 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	F	0	1
1	H	0	1
1	J	0	1
2	B	0	14
2	E	0	14
2	G	0	14
2	I	0	14
All	All	0	60

There are no bond length outliers.

The worst 5 of 32 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	131	LEU	CA-CB-CG	8.47	134.78	115.30
2	B	131	LEU	CA-CB-CG	8.46	134.76	115.30
2	E	131	LEU	CA-CB-CG	8.46	134.76	115.30
2	I	131	LEU	CA-CB-CG	8.46	134.75	115.30
2	B	1600	LEU	CA-CB-CG	7.43	132.39	115.30

There are no chirality outliers.

5 of 60 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	8	SER	Peptide
2	B	139	GLU	Peptide
1	F	8	SER	Peptide
1	H	8	SER	Peptide
1	J	8	SER	Peptide

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	818	0	824	6	0
1	F	818	0	824	7	0
1	H	818	0	824	7	0
1	J	818	0	824	6	0
2	B	29369	0	24721	194	0
2	E	29369	0	24721	194	0
2	G	29369	0	24721	197	0
2	I	29369	0	24721	192	0
3	B	1	0	0	0	0
3	E	1	0	0	0	0
3	G	1	0	0	0	0
3	I	1	0	0	0	0
4	B	1	0	0	0	0
4	E	1	0	0	0	0
4	G	1	0	0	0	0
4	I	1	0	0	0	0
All	All	120756	0	102180	783	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 4.

The worst 5 of 783 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:E:4958:CYS:SG	2:E:4978:HIS:CD2	2.72	0.83
2:G:4958:CYS:SG	2:G:4978:HIS:CD2	2.72	0.83
2:I:4958:CYS:SG	2:I:4978:HIS:CD2	2.72	0.82
2:B:4958:CYS:SG	2:B:4978:HIS:CD2	2.72	0.82
1:J:42:ARG:HG2	2:I:1691:GLN:HG2	1.72	0.70

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	105/108 (97%)	97 (92%)	8 (8%)	0	100	100
1	F	105/108 (97%)	98 (93%)	7 (7%)	0	100	100
1	H	105/108 (97%)	98 (93%)	7 (7%)	0	100	100
1	J	105/108 (97%)	97 (92%)	8 (8%)	0	100	100
2	B	3235/4676 (69%)	2881 (89%)	349 (11%)	5 (0%)	47	79
2	E	3235/4676 (69%)	2883 (89%)	347 (11%)	5 (0%)	47	79
2	G	3235/4676 (69%)	2879 (89%)	351 (11%)	5 (0%)	47	79
2	I	3235/4676 (69%)	2880 (89%)	350 (11%)	5 (0%)	47	79
All	All	13360/19136 (70%)	11913 (89%)	1427 (11%)	20 (0%)	54	84

5 of 20 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	1708	ARG

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Mol	Chain	Res	Type
2	E	1708	ARG
2	I	1708	ARG
2	G	1708	ARG
2	B	1932	PRO

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	88/89 (99%)	88 (100%)	0	100	100
1	F	88/89 (99%)	88 (100%)	0	100	100
1	H	88/89 (99%)	88 (100%)	0	100	100
1	J	88/89 (99%)	88 (100%)	0	100	100
2	B	2493/3202 (78%)	2476 (99%)	17 (1%)	84	90
2	E	2493/3202 (78%)	2476 (99%)	17 (1%)	84	90
2	G	2493/3202 (78%)	2476 (99%)	17 (1%)	84	90
2	I	2493/3202 (78%)	2476 (99%)	17 (1%)	84	90
All	All	10324/13164 (78%)	10256 (99%)	68 (1%)	84	90

5 of 68 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	G	1600	LEU
2	G	1964	ARG
2	G	4120	ASN
2	E	1676	LEU
2	E	1600	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 133 such sidechains are listed below:

Mol	Chain	Res	Type
2	G	1693	GLN

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Continued from previous page...

Mol	Chain	Res	Type
2	G	2005	GLN
2	G	4156	HIS
2	E	1688	HIS
2	E	1598	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 8 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
2	I	12
2	B	12
2	G	12
2	E	12

The worst 5 of 48 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	I	3613:UNK	C	3639:THR	N	42.97
1	B	3613:UNK	C	3639:THR	N	42.95
1	G	3613:UNK	C	3639:THR	N	42.95
1	E	3613:UNK	C	3639:THR	N	42.94
1	B	3163:UNK	C	3170:UNK	N	16.52

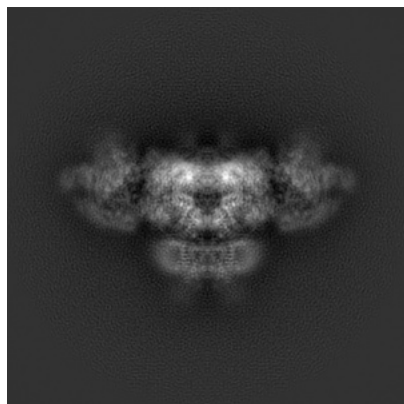
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-8372. These allow visual inspection of the internal detail of the map and identification of artifacts.

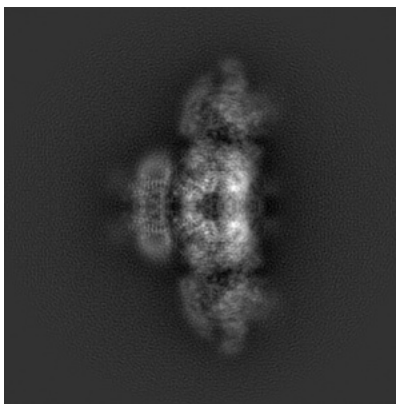
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

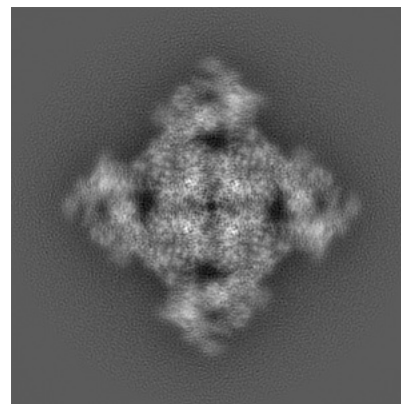
6.1.1 Primary map



X

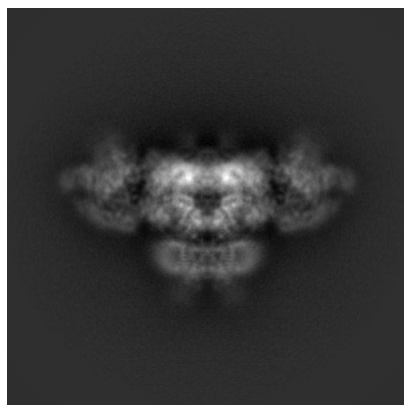


Y

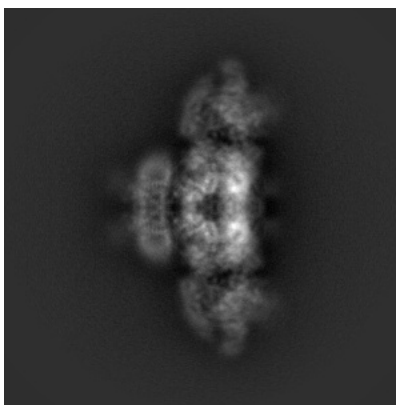


Z

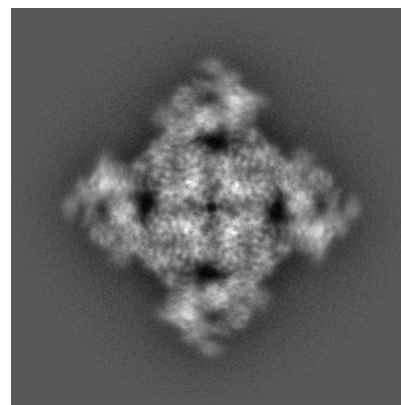
6.1.2 Raw map



X



Y

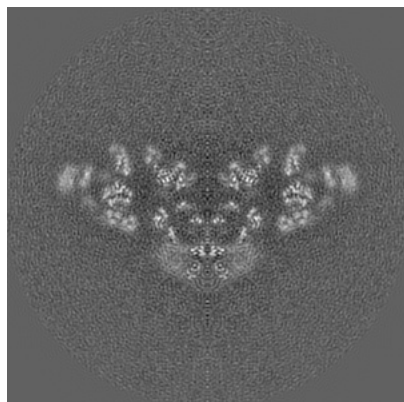


Z

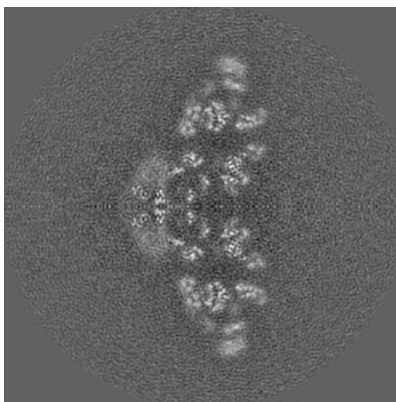
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

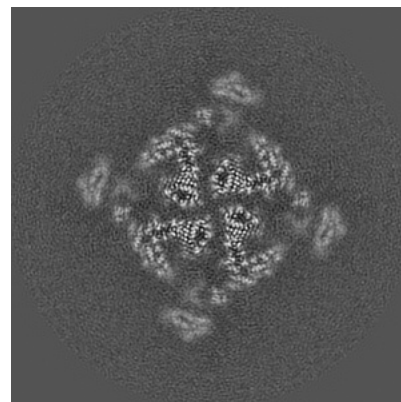
6.2.1 Primary map



X Index: 200

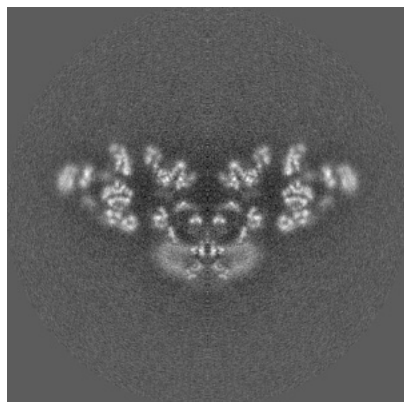


Y Index: 200

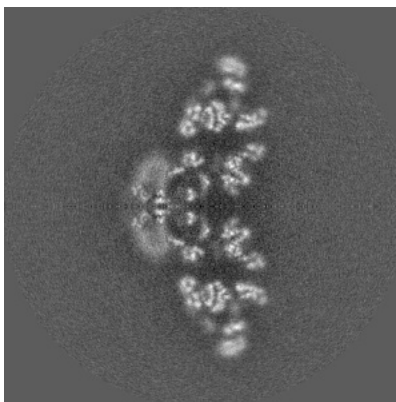


Z Index: 200

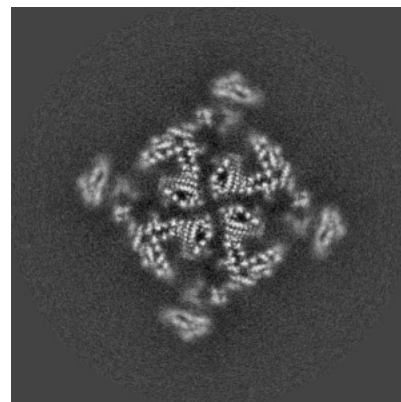
6.2.2 Raw map



X Index: 200



Y Index: 200

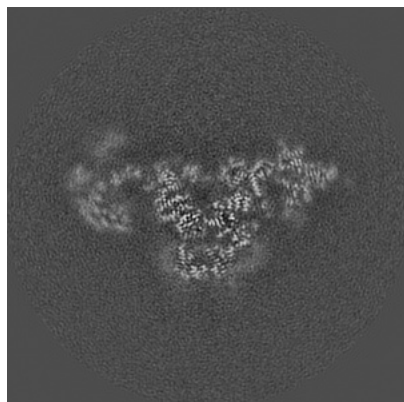


Z Index: 200

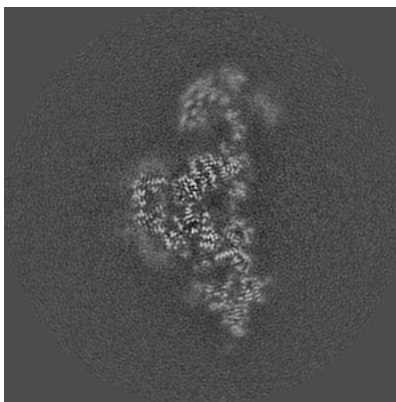
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

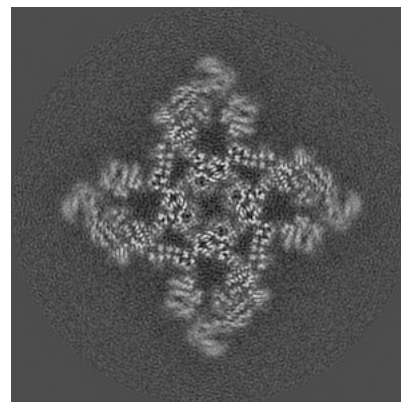
6.3.1 Primary map



X Index: 184

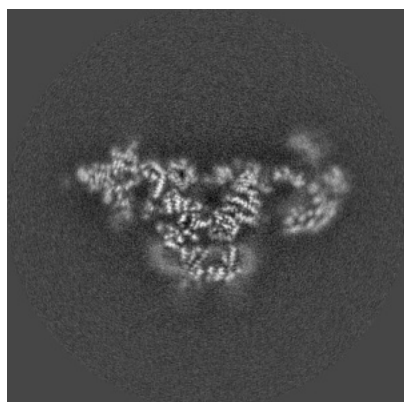


Y Index: 184

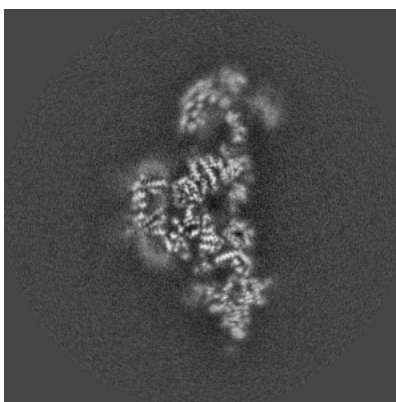


Z Index: 227

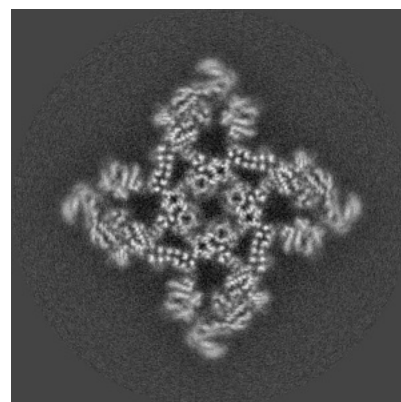
6.3.2 Raw map



X Index: 216



Y Index: 184

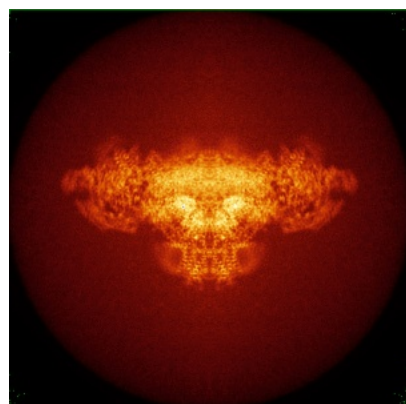


Z Index: 227

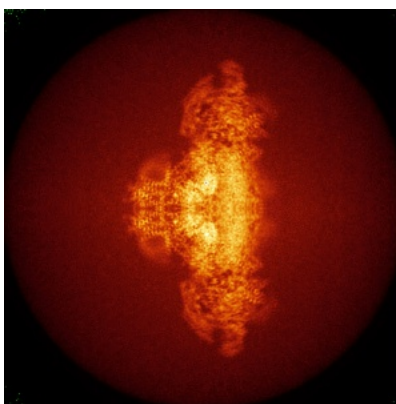
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

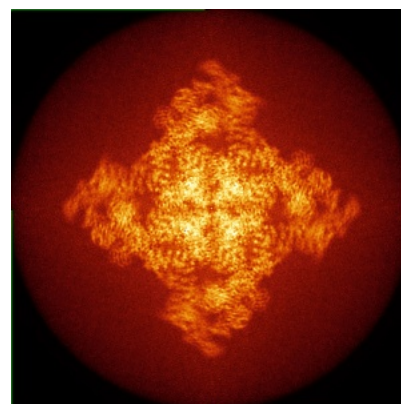
6.4.1 Primary map



X

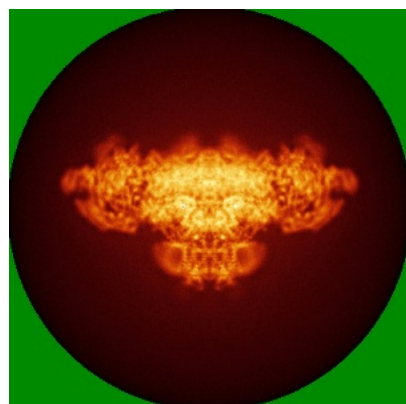


Y

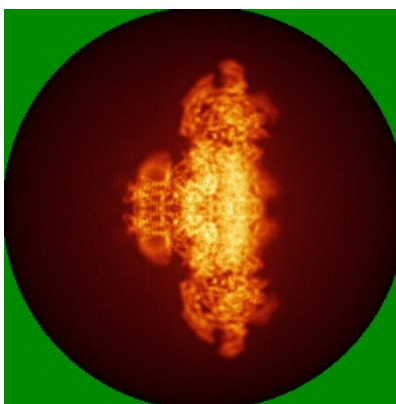


Z

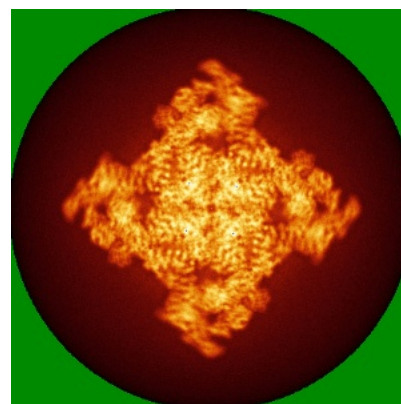
6.4.2 Raw map



X



Y

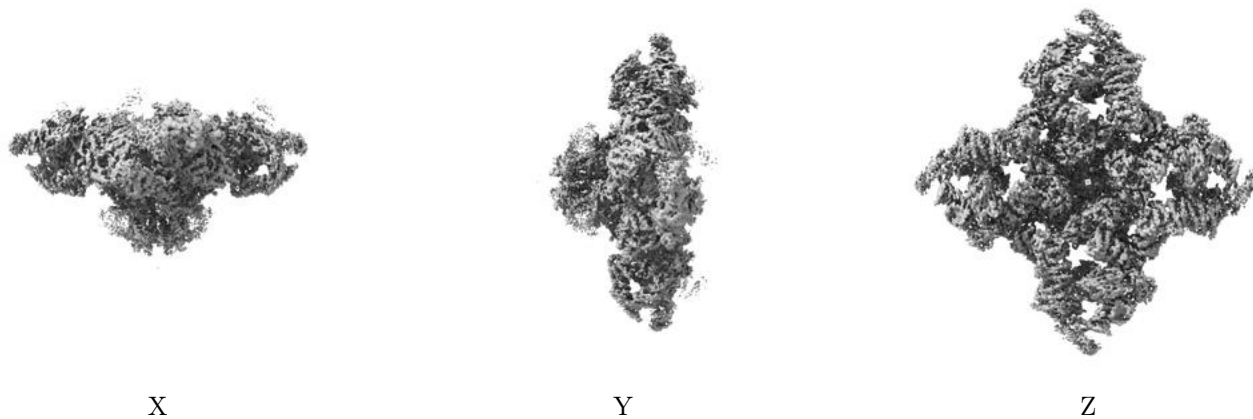


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.04. 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



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.

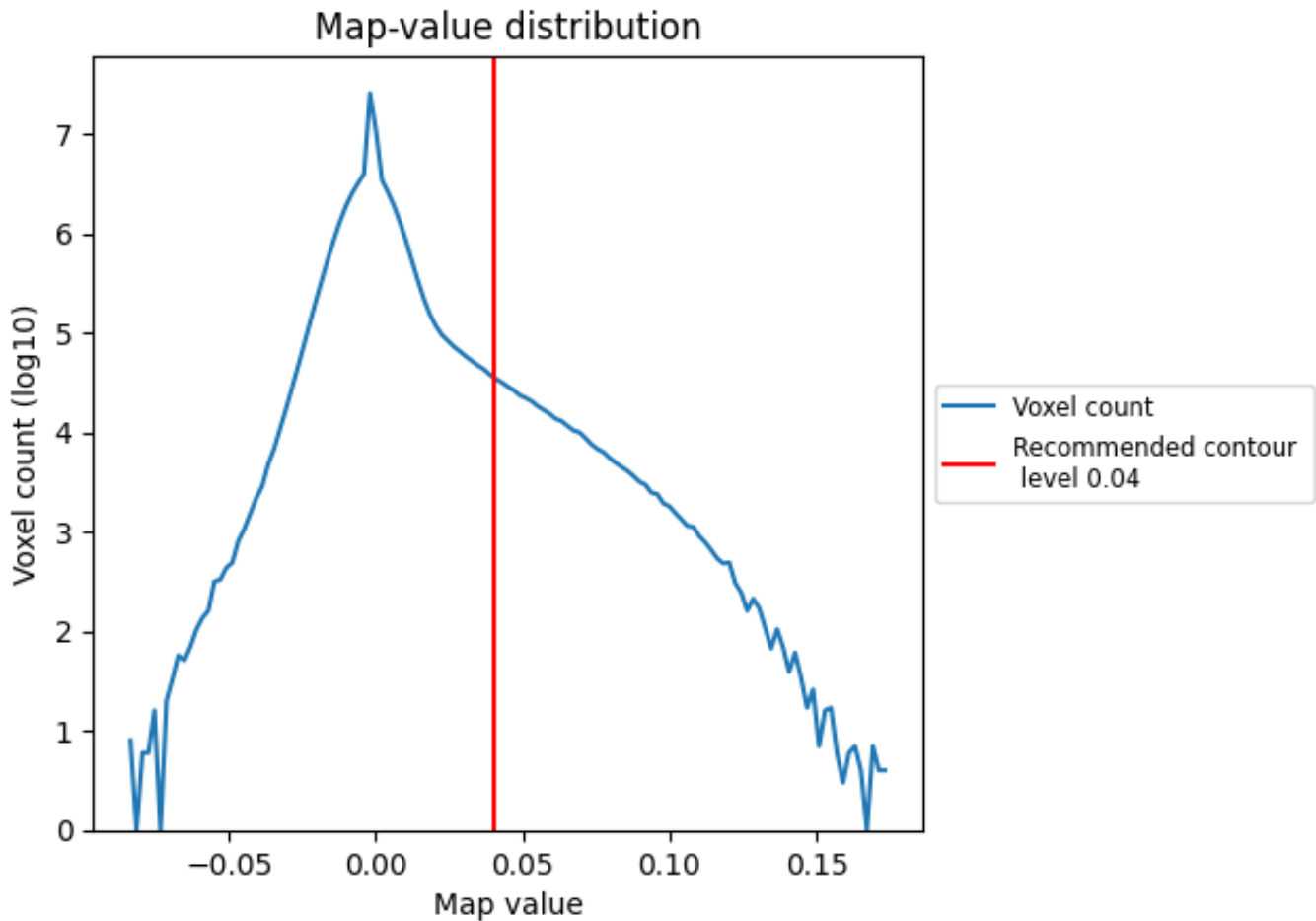
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

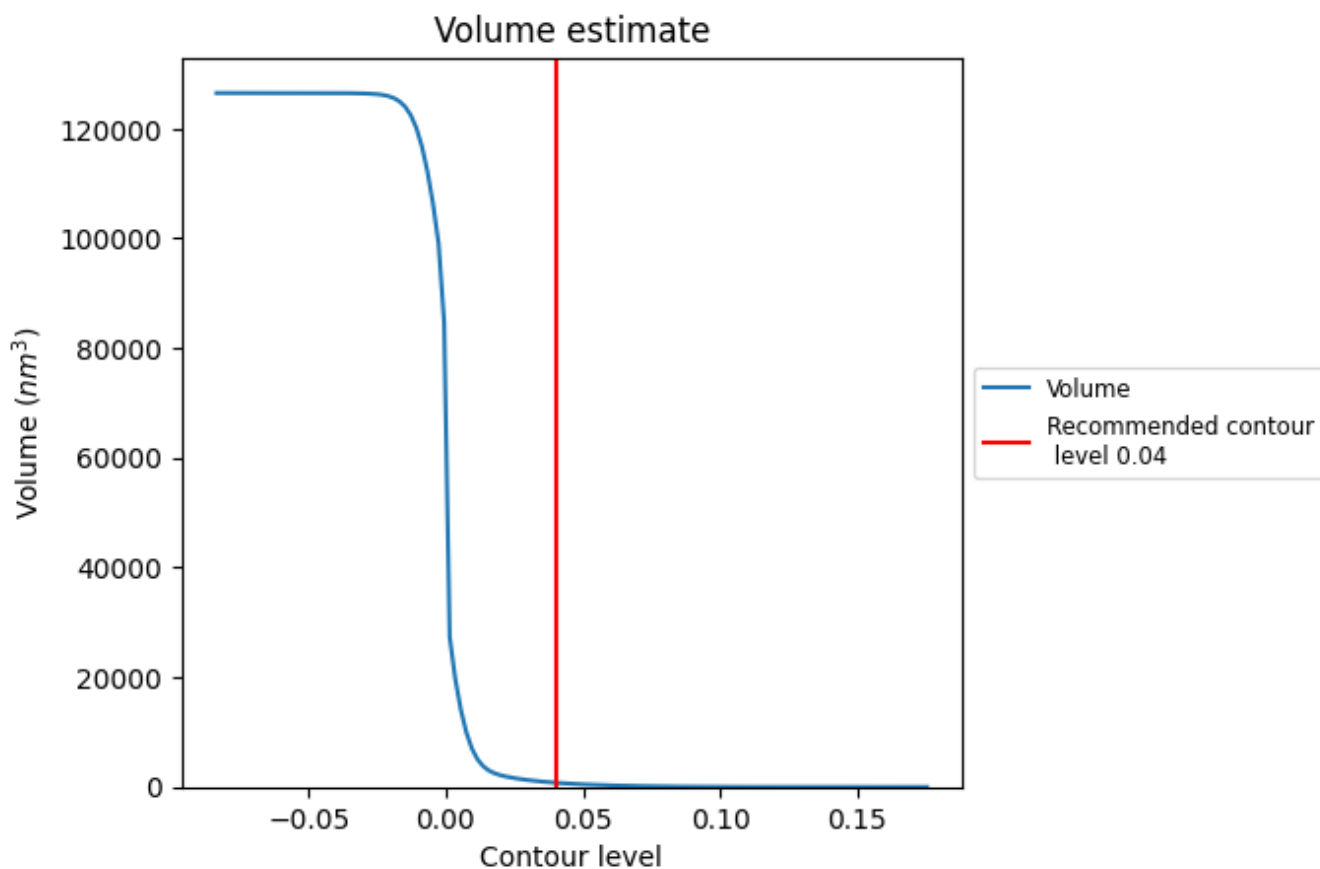
This section contains the results of statistical analysis of the map.

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.

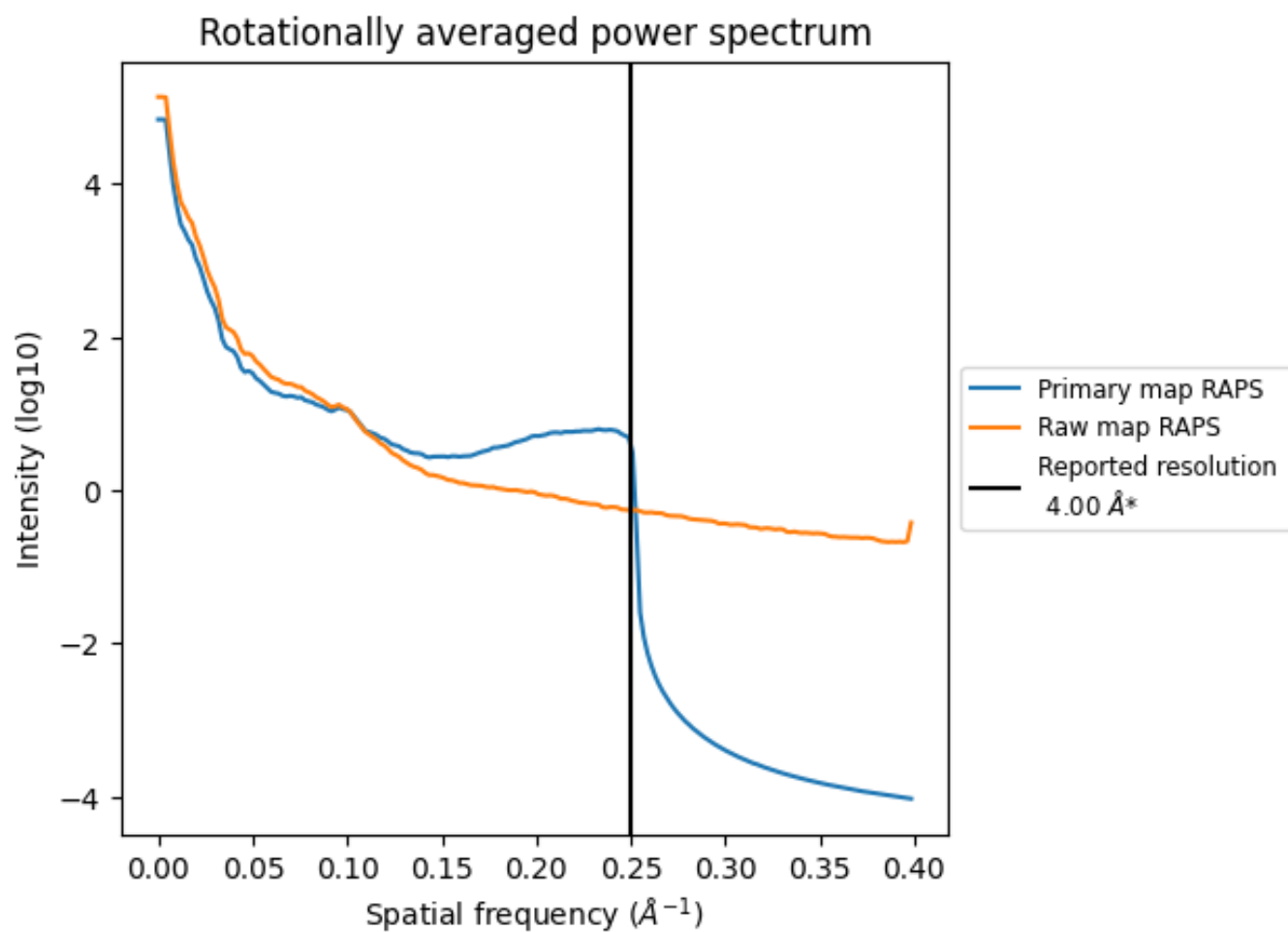
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 771 nm^3 ; this corresponds to an approximate mass of 696 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](#)

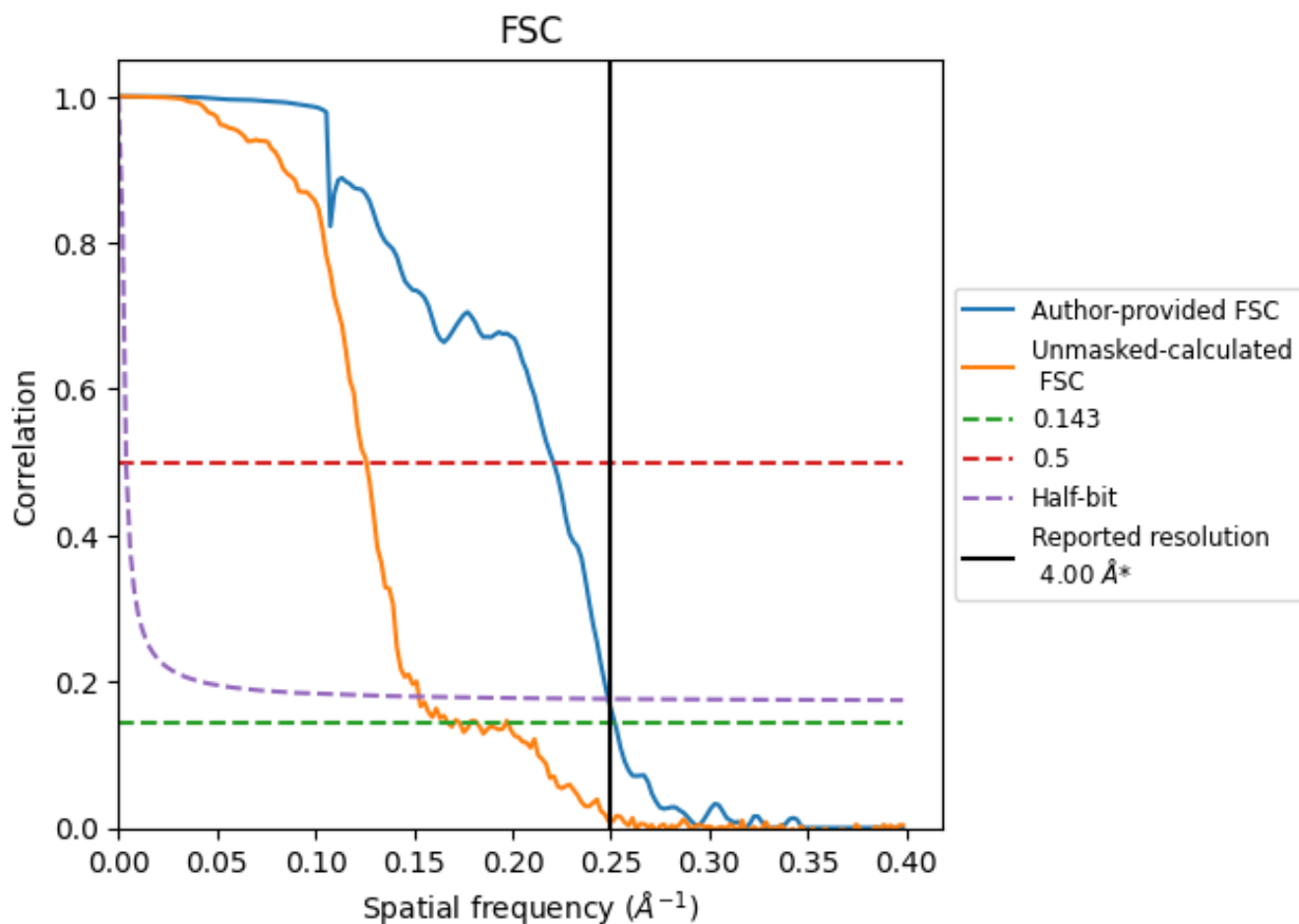


*Reported resolution corresponds to spatial frequency of 0.250 Å⁻¹

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 0.250 Å⁻¹

8.2 Resolution estimates

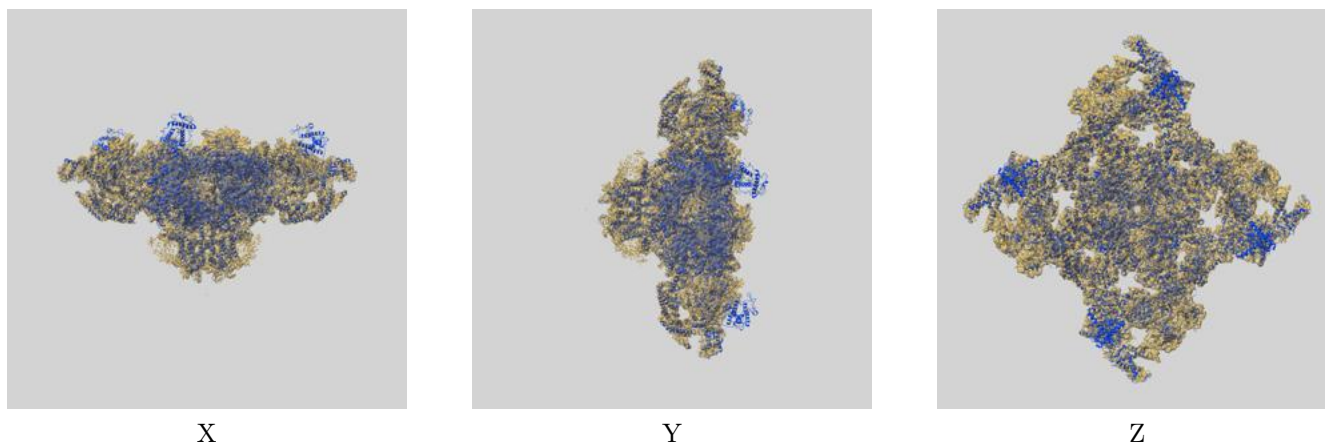
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.00	-	-
Author-provided FSC curve	3.97	4.53	4.02
Unmasked-calculated*	5.97	7.95	6.55

*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 5.97 differs from the reported value 4.0 by more than 10 %

9 Map-model fit [i](#)

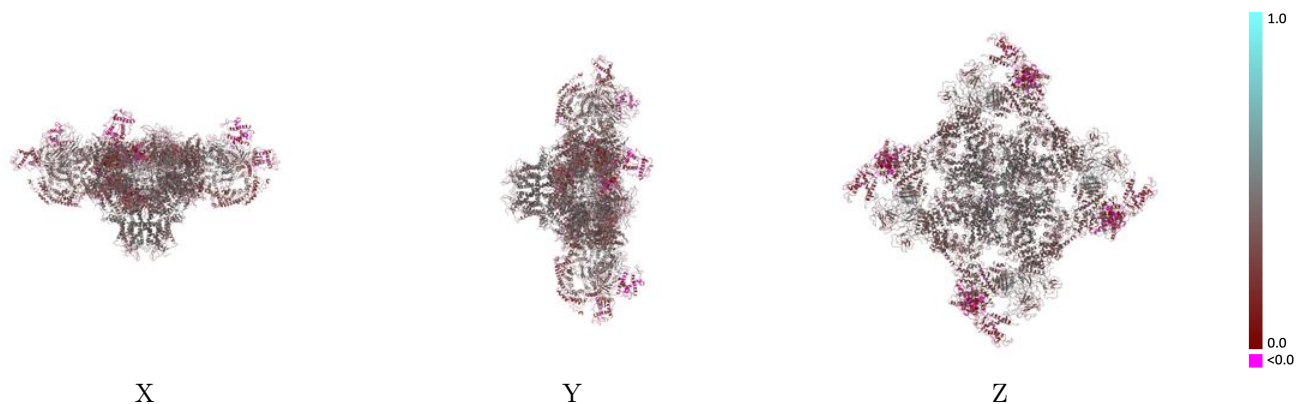
This section contains information regarding the fit between EMDB map EMD-8372 and PDB model 5T9M. Per-residue inclusion information can be found in section 3 on page 5.

9.1 Map-model overlay [i](#)



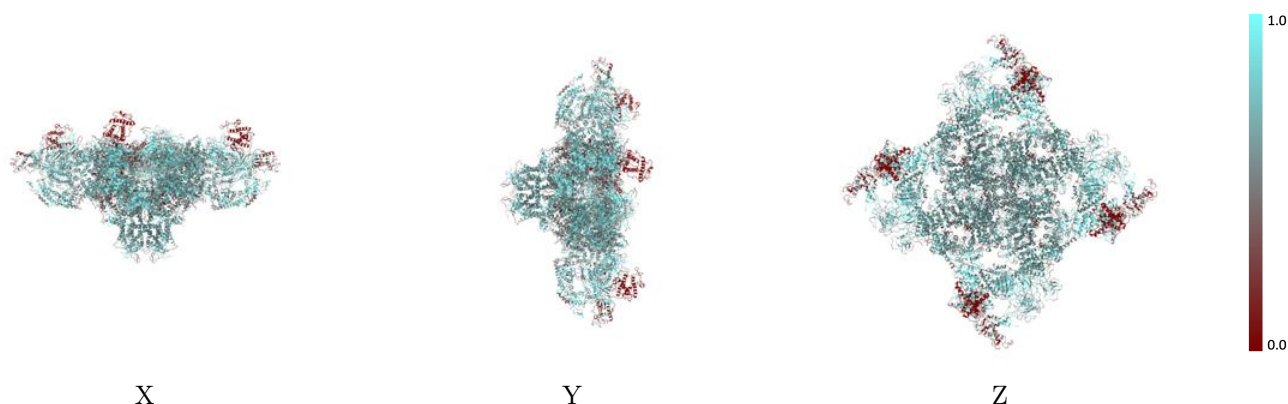
The images above show the 3D surface view of the map at the recommended contour level 0.04 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



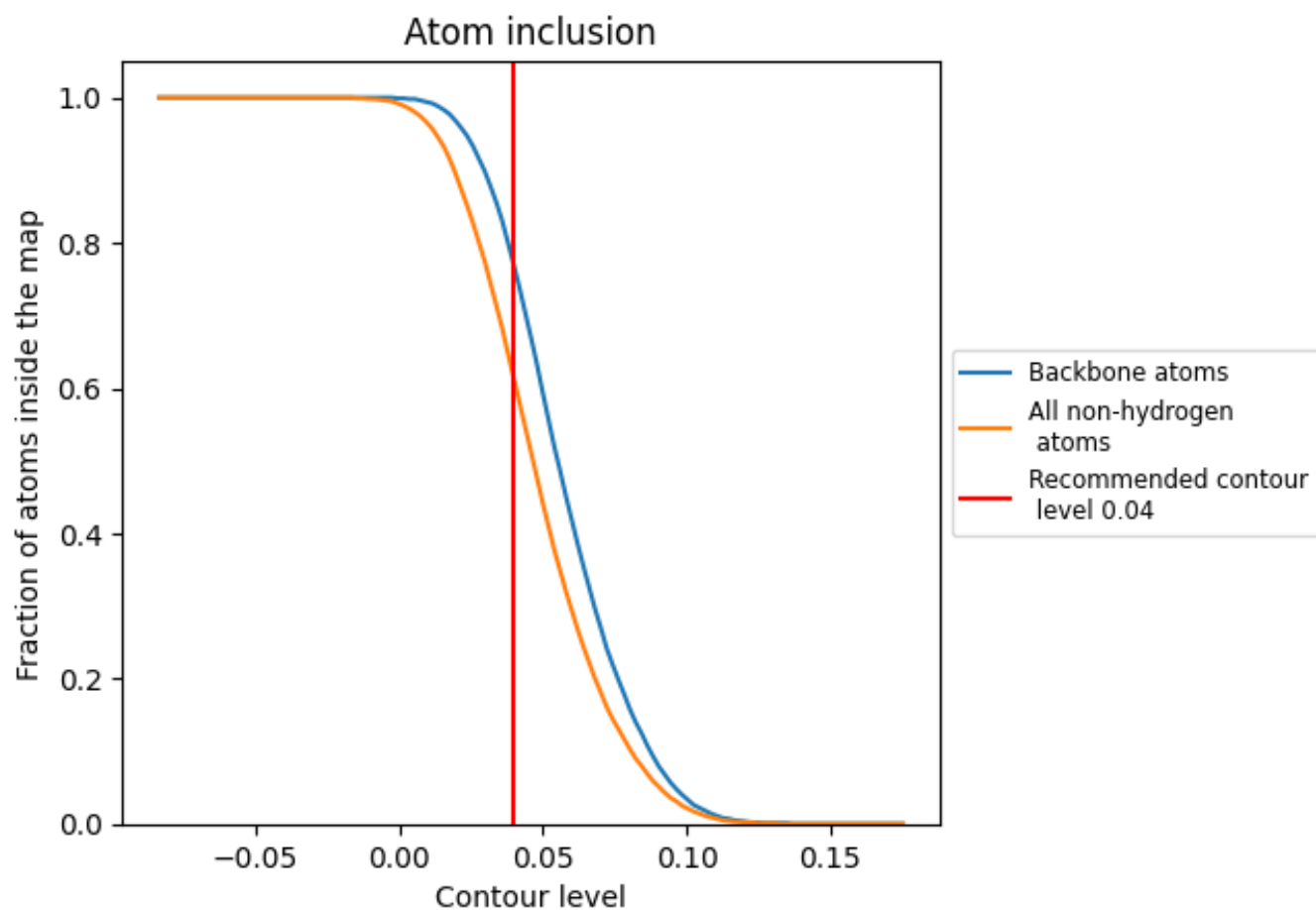
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.04).



















9.4 Atom inclusion [i](#)



At the recommended contour level, 77% of all backbone atoms, 61% 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 (0.04) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6120	 0.3470
A	 0.6190	 0.3590
B	 0.6120	 0.3470
E	 0.6120	 0.3470
F	 0.6120	 0.3630
G	 0.6120	 0.3470
H	 0.6100	 0.3650
I	 0.6120	 0.3470
J	 0.6130	 0.3660

