



## wwPDB EM Validation Summary Report ⓘ

Mar 9, 2026 – 05:53 AM UTC

PDB ID : 6FOO / pdb\_00006foo  
EMDB ID : EMD-4295  
Title : Structure of Ryanodine Receptor 1 in nanodiscs in the presence of calcium and ATP  
Authors : Willegems, K.; Efremov, R.G.  
Deposited on : 2018-02-08  
Resolution : 8.20 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev132  
MolProbity : 4-5-2 with Phenix2.0  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

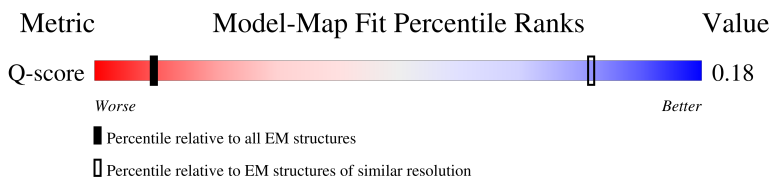
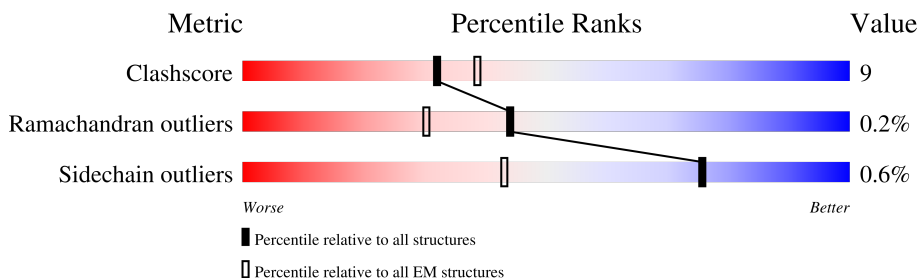
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 8.20 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	337 ( 7.70 - 8.70 )

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	5037	<div> <div>11%</div> <div>67%</div> <div>16%</div> <div>17%</div> </div>
1	B	5037	<div> <div>11%</div> <div>67%</div> <div>16%</div> <div>17%</div> </div>
1	C	5037	<div> <div>11%</div> <div>67%</div> <div>16%</div> <div>17%</div> </div>
1	D	5037	<div> <div>11%</div> <div>67%</div> <div>16%</div> <div>17%</div> </div>

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 117476 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 Ryanodine receptor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	4168	Total 29368	C 18607	N 5202	O 5402	S 157	0	0
1	B	4168	Total 29368	C 18607	N 5202	O 5402	S 157	0	0
1	C	4168	Total 29368	C 18607	N 5202	O 5402	S 157	0	0
1	D	4168	Total 29368	C 18607	N 5202	O 5402	S 157	0	0

- Molecule 2 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
2	A	1	Total 1	Zn 1	0
2	B	1	Total 1	Zn 1	0
2	C	1	Total 1	Zn 1	0
2	D	1	Total 1	Zn 1	0

### 3 Residue-property plots [i](#)

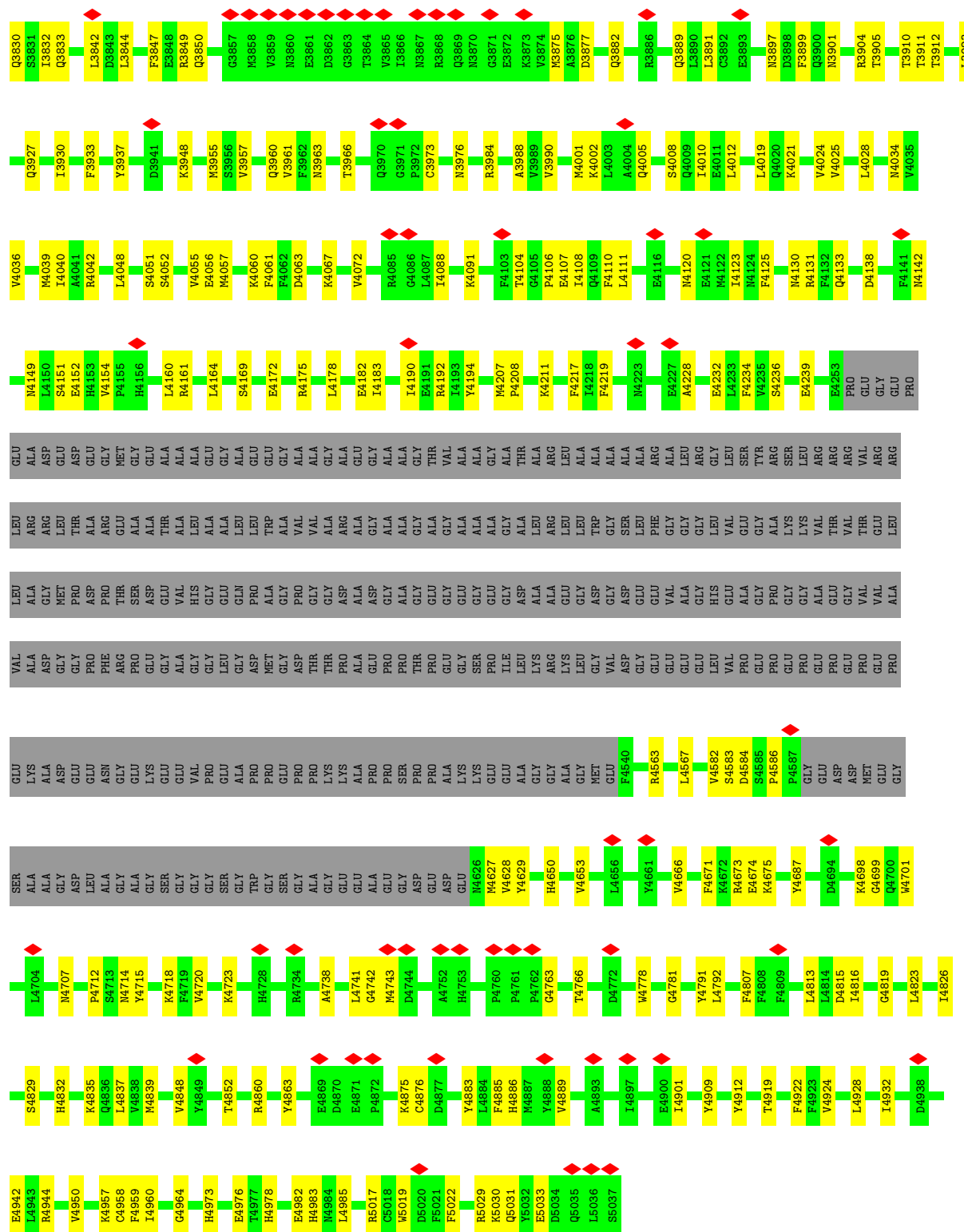
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Ryanodine receptor 1





C3733	X3579	X3118	T2938	E2870	K2810	I2746	UNK	UNK	ARG	Q2107
E3737	X3582	X3121	R2939	L2871	E2811	I2747	UNK	UNK	ARG	F2121
G3738	X3585	X3124	UNK	Q2872	S2812	P2748	UNK	UNK	ARG	L2265
G3739	X3586	UNK	UNK	A2873	L2813	E2749	UNK	UNK	ARG	G2266
E3740	UNK	UNK	UNK	M2874	K2814	K2750	UNK	UNK	ARG	L2123
X3741	UNK	UNK	UNK	Q2877	A2815	L2751	UNK	UNK	GLU	L2124
GLY	UNK	UNK	UNK	UNK	K2816	D2752	UNK	UNK	HIS	R2125
GLU	UNK	UNK	UNK	N2881	L2817	F2753	UNK	UNK	PHE	R2126
ALA	UNK	UNK	UNK	Y2882	A2818	S2754	UNK	UNK	GLY	Q2127
GLU	UNK	UNK	UNK	H2883	K2819	F2755	UNK	UNK	GLU	L2273
GLU	UNK	UNK	UNK	N2884	E2820	UNK	UNK	UNK	PRO	L2131
E3747	UNK	UNK	UNK	UNK	E2821	F2758	UNK	UNK	UNK	S2279
E3748	UNK	UNK	UNK	R2886	T2822	T2762	UNK	UNK	GLU	P2146
V3749	UNK	UNK	UNK	K2889	L2823	K2765	UNK	UNK	GLU	T2152
E3750	UNK	UNK	UNK	K2890	E2824	V2766	UNK	UNK	GLU	L2286
V3751	UNK	UNK	UNK	K2891	K2825	A2767	UNK	UNK	GLU	L2287
Q3761	UNK	UNK	UNK	Q2892	A2826	F2768	UNK	UNK	UNK	L2288
R3762	UNK	UNK	UNK	E2893	R2827	D2769	UNK	UNK	UNK	L2289
Y3765	UNK	UNK	UNK	L2894	E2828	K2770	UNK	UNK	UNK	L2290
Q3766	UNK	UNK	UNK	E2895	G2829	I2771	UNK	UNK	UNK	L2295
Q3767	UNK	UNK	UNK	A2896	E2830	K2772	UNK	UNK	UNK	L2165
E3777	UNK	UNK	UNK	K2897	GLU	N2773	UNK	UNK	UNK	V2168
I3662	UNK	UNK	UNK	G2898	GLU	N2774	UNK	UNK	UNK	I2182
L3663	UNK	UNK	UNK	G2900	THR	N2775	UNK	UNK	UNK	I2185
D3676	UNK	UNK	UNK	T2901	LYS	S2776	UNK	UNK	UNK	K2189
L3677	UNK	UNK	UNK	H2902	LYS	E2777	UNK	UNK	UNK	Y2192
A3680	UNK	UNK	UNK	P2903	THR	T2778	UNK	UNK	UNK	H2204
G3681	UNK	UNK	UNK	L2904	ARG	E2779	UNK	UNK	UNK	V2207
E3682	UNK	UNK	UNK	L2905	LYS	T2780	UNK	UNK	UNK	M2208
Q3683	UNK	UNK	UNK	V2906	ILE	N2781	UNK	UNK	UNK	G2217
E3684	UNK	UNK	UNK	P2907	SER	D2782	UNK	UNK	UNK	G2218
E3685	UNK	UNK	UNK	Y2908	GLN	E2783	UNK	UNK	UNK	E2219
E3686	UNK	UNK	UNK	A2913	ALA	L2785	UNK	UNK	UNK	T2220
E3687	UNK	UNK	UNK	K2914	GLN	K2786	UNK	UNK	UNK	V2221
E3688	UNK	UNK	UNK	E2915	THR	T2787	UNK	UNK	UNK	L2236
E3689	UNK	UNK	UNK	Q2916	ASP	H2788	UNK	UNK	UNK	C2237
V3690	UNK	UNK	UNK	A2917	PRO	P2789	UNK	UNK	UNK	V2238
E3691	UNK	UNK	UNK	D2919	ARG	M2790	UNK	UNK	UNK	L2242
E3692	UNK	UNK	UNK	R2920	GLY	L2791	UNK	UNK	UNK	S2243
P3695	UNK	UNK	UNK	E2921	V2856	T2792	UNK	UNK	UNK	R2244
D3696	UNK	UNK	UNK	K2922	N2856	P2793	UNK	UNK	UNK	Q2245
F3697	UNK	UNK	UNK	A2923	P2857	Y2794	UNK	UNK	UNK	N2246
L3698	UNK	UNK	UNK	Q2924	Q2858	K2795	UNK	UNK	UNK	F2251
H3699	UNK	UNK	UNK	L2926	P2859	T2796	UNK	UNK	UNK	H2252
Q3700	UNK	UNK	UNK	N2927	D2861	F2797	UNK	UNK	UNK	L2254
L3703	UNK	UNK	UNK	K2928	L2862	S2798	UNK	UNK	UNK	
F3714	UNK	UNK	UNK	F2929	S2863	E2799	UNK	UNK	UNK	
K3715	UNK	UNK	UNK	L2930	G2864	K2800	UNK	UNK	UNK	
Y3725	UNK	UNK	UNK	Q2931	V2866	D2801	UNK	UNK	UNK	
	UNK	UNK	UNK	M2932	L2867	K2802	UNK	UNK	UNK	
	UNK	UNK	UNK	N2933	R2868	E2803	UNK	UNK	UNK	
	UNK	UNK	UNK	G2934	R2869	I2804	UNK	UNK	UNK	
	UNK	UNK	UNK	Y2935		Y2805	UNK	UNK	UNK	
	UNK	UNK	UNK	A2936		R2806	UNK	UNK	UNK	
	UNK	UNK	UNK	V2937		P2807	UNK	UNK	UNK	
	UNK	UNK	UNK			I2809	UNK	UNK	UNK	



• Molecule 1: Ryanodine receptor 1









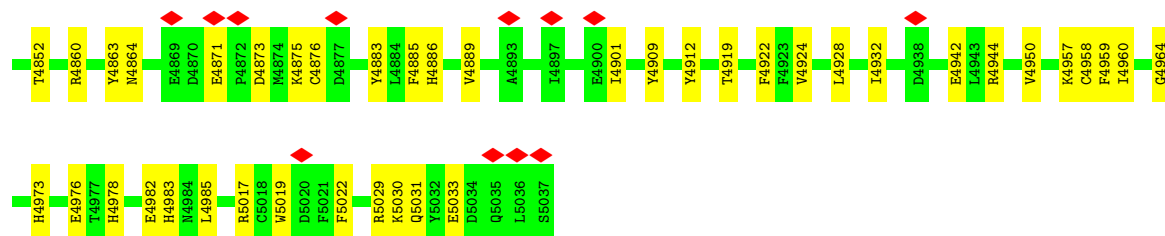




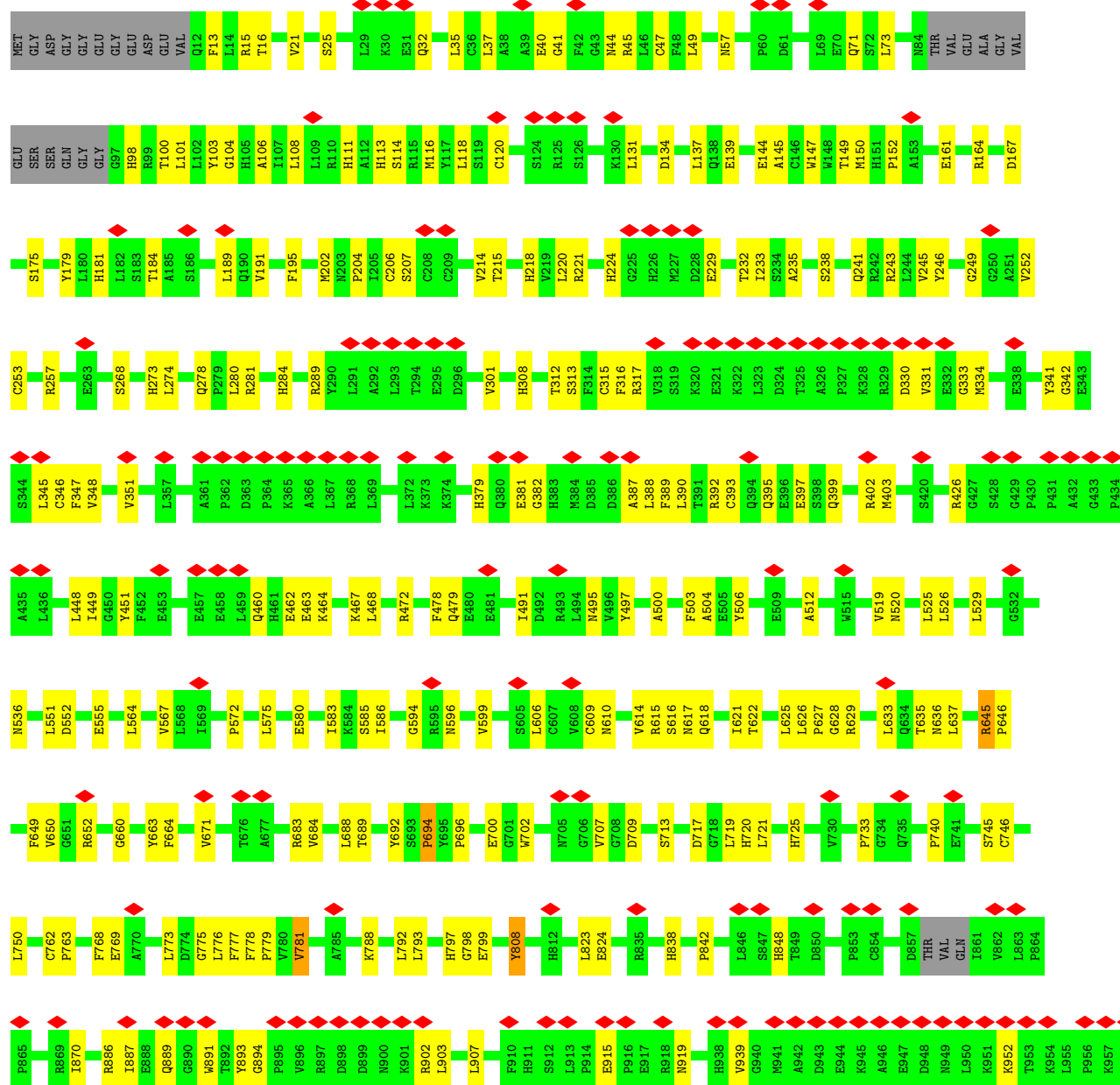
S428	G429	P430	P431	A432	A433	P434	A435	L436	L445	L448	I449	G450	Y451	F452	E453	E457	E458	L459	H461	E462	E463	K464	K467	L468	R472	F478	Q479	E480	E481	I491	D492	R493	L494	M495	V496	Y497	A500	F503	A504	E505	Y506	E509	A512	W515	V519								
N520	L521	L522	L525	L526	L529	G532	N536	L551	D552	E555	L564	V567	L568	I569	P572	L575	E580	I583	K584	S585	I586	G594	H595	N596	V599	S605	L606	C607	V608	C609	N610	V614	R615	S616	N617	Q618	D619	L620	I621	L625	L626	P627											
G628	R629	L633	Q634	N636	L637	R645	P646	F649	G651	R652	G660	Y663	F664	V671	L676	T676	A677	R683	V684	L688	T689	Y692	S693	P694	Y695	P696	E700	G701	W702	N705	G706	G708	D709	S713	D717	G718	L719	H720	L721	H725	V730												
P733	G734	Q735	P740	E741	S745	C746	L750	P763	F768	E769	A770	L773	D774	G775	L776	F777	F778	P779	V780	V781	A785	K788	L792	L793	H797	G798	E799	Y808	H812	E824	R835	H838	P842	L846	S847	T849	D850	P853	C854														
D857	THR	VAL	GLN	I861	V862	L863	P864	P865	R869	I870	R886	I887	E888	Q889	G890	W891	T892	Y893	G894	P895	V896	R897	D898	D899	N900	K901	R902	L903	L907	F910	H911	S912	L913	P914	E915	P916	E917	R918	N919	H938	Y939	G940	M941	A942	D943	E944	K945	A946	E947	D948	N949	L950	K951
K952	T953	K954	K957	T958	Y959	M960	M961	S962	N963	G964	A968	D971	L972	S973	H974	R975	R976	L977	T978	P979	A980	A1009	VAL	GLN	ASP	ILE	PRO	ALA	ARG	ASN	R1020	R1044	T1045	G1048	Y1049	G1050	Y1051	N1052	I1053	E1054	PRO	ASP	GLN	GLU	PRO	SER	GLN	VAL	GLU	ASN			
GLN	SER	ARG	TRP	D1070	R1071	V1072	R1073	R1076	A1077	E1078	K1079	S1080	Y1081	Q1084	F1092	E1093	A1094	V1095	T1096	E1099	M1100	R1101	W1104	A1105	R1106	P1107	E1108	L1109	R1110	P1111	D1112	L1115	L1120	A1121	Y1122	V1123	F1124	H1127	R1128	R1131	W1132	H1133	L1134	D1147	V1148	V1149	M1152	T1153					
D1154	E1157	N1158	T1163	L1164	N1165	V1168	L1169	M1170	S1171	D1172	S1175	E1176	G1187	F1188	L1189	P1190	V1191	C1192	S1193	L1194	G1195	Q1198	L1199	G1200	H1201	N1203	S1210	L1211	R1212	C1217	G1218	F1223	F1226	F1238	S1239	K1240	S1241	L1242	F1245	E1246	P1247	M1260	T1263	V1264									
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X1527	X1528	X1529	X1534	X1543	X1554	X1555	X1556	A1577	X1585	N1586	P1587	Q1590	R1594	V1597	Q1598	M1599	L1600	W1605	S1606	V1615	GLU	THR	ARG	ALA	GLY	E1622	C1630	L1634	M1637	A1638	L1639	H1640	R1646	C1647	M1648	D1649	L1650	L1651	E1652	L1653	D1658	L1659	Q1660										
R1661	F1662	H1663	L1667	R1671	A1672	V1673	C1674	A1675	L1676	M1679	L1685	H1688	E1699	L1707	R1708	A1709	G1710	Y1711	Y1712	D1713	L1714	L1715	I1716	I1718	H1719	L1720	E1721	R1725	R1728	I1735	L1738	T1739	T1742	R1743	T1746	G1751	R1752	K1753	G1754	P1763	G1764	V1767											
L1771	S1778	C1781	F1782	V1783	A1784	A1785	L1786	P1787	A1788	ALA	GLY	VAL	ALA	E1793	A1794	P1795	L1798	S1799	I1802	L1807	R1808	L1812	R1813	M1814	L1815	V1830	S1833	F1836	Q1837	F1838	V1839	P1840	V1841	L1842	V1845	L1849	I1853	F1854	V1859	K1860	Q1861	I1862	K1864	M1865									





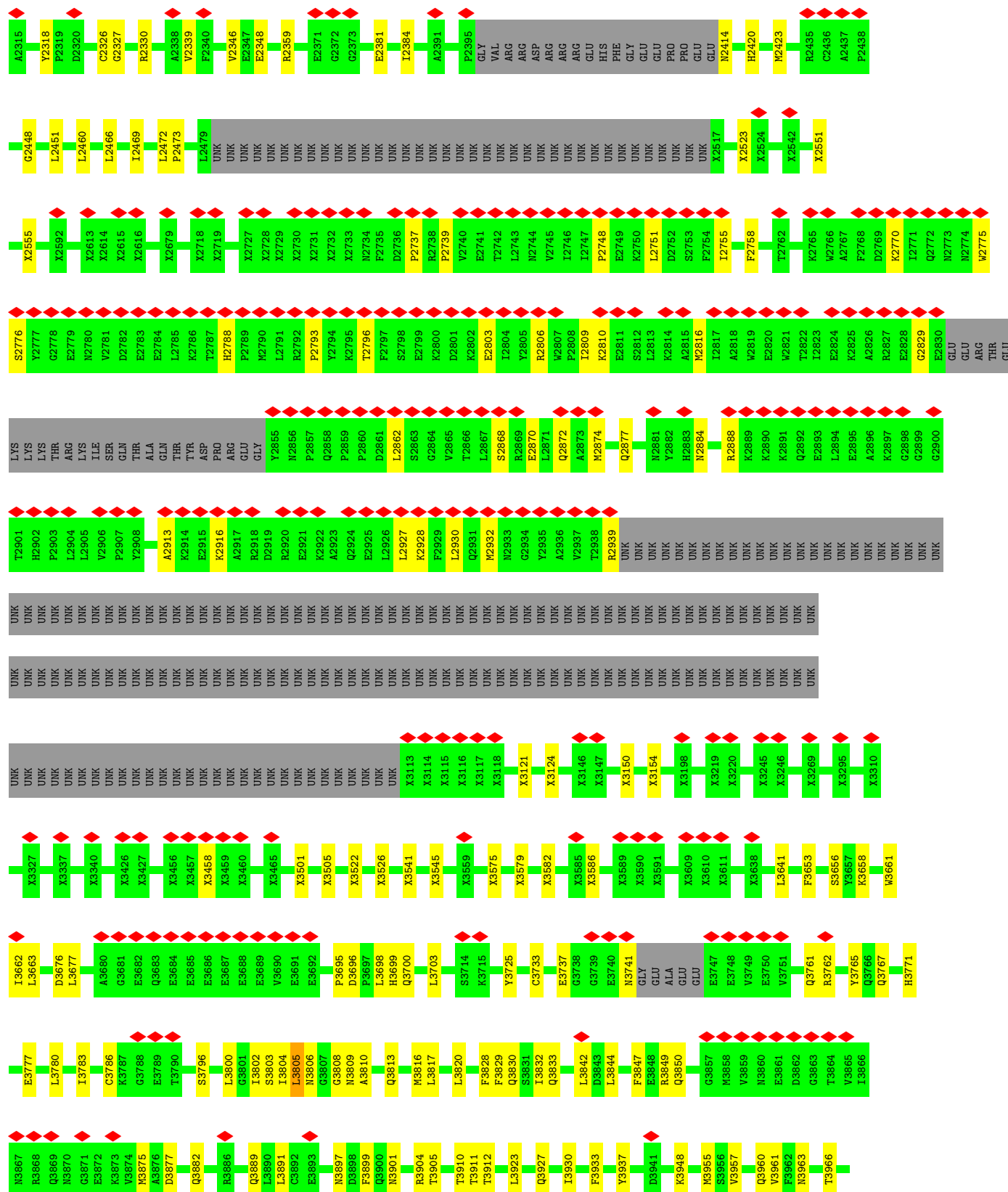


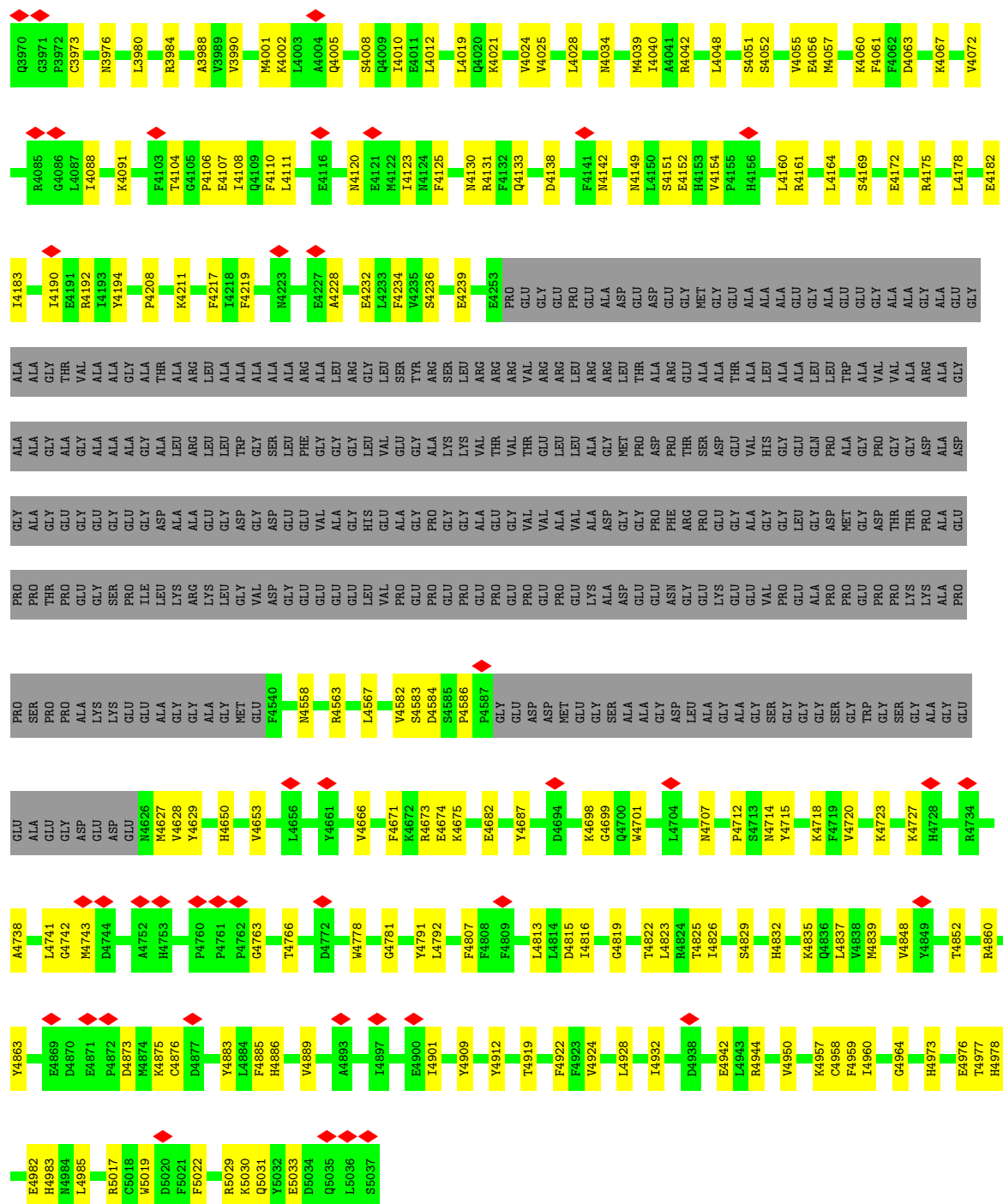
• Molecule 1: Ryanodine receptor 1











## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C4	Depositor
Number of particles used	42500	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	1.7	Depositor
Minimum defocus (nm)	2000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	92000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.281	Depositor
Minimum map value	-0.153	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.013	Depositor
Recommended contour level	0.08	Depositor
Map size (Å)	592.2, 592.2, 592.2	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.645, 1.645, 1.645	Depositor

## 5 Model quality

### 5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z  > 5$	RMSZ	$\# Z  > 5$
1	A	0.32	1/25537 (0.0%)	0.70	5/34686 (0.0%)
1	B	0.32	0/25537	0.70	5/34686 (0.0%)
1	C	0.32	0/25537	0.70	5/34686 (0.0%)
1	D	0.32	0/25537	0.70	5/34686 (0.0%)
All	All	0.32	1/102148 (0.0%)	0.70	20/138744 (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	16
1	B	0	16
1	C	0	16
1	D	0	16
All	All	0	64

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	802	PHE	C-N	-5.02	1.25	1.33

The worst 5 of 20 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	1294	PRO	N-CA-CB	9.42	110.84	103.30
1	A	1294	PRO	N-CA-CB	9.35	110.78	103.30
1	B	1294	PRO	N-CA-CB	9.35	110.78	103.30
1	C	1294	PRO	N-CA-CB	9.31	110.75	103.30

*Continued on next page...*

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	1838	PHE	CA-C-N	5.73	132.73	122.13

There are no chirality outliers.

5 of 64 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	139	GLU	Peptide
1	A	478	PHE	Peptide
1	A	552	ASP	Peptide
1	A	645	ARG	Peptide
1	A	692	TYR	Peptide

## 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	29368	0	24703	469	0
1	B	29368	0	24703	474	0
1	C	29368	0	24703	470	0
1	D	29368	0	24704	467	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
All	All	117476	0	98813	1863	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 9.

The worst 5 of 1863 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:491:ILE:O	1:A:495:ASN:HB2	1.74	0.88
1:C:491:ILE:O	1:C:495:ASN:HB2	1.74	0.87
1:D:491:ILE:O	1:D:495:ASN:HB2	1.74	0.87

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:491:ILE:O	1:B:495:ASN:HB2	1.74	0.87
1:B:3802:ILE:O	1:B:3806:ASN:HB2	1.75	0.87

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	3256/5037 (65%)	2890 (89%)	361 (11%)	5 (0%)	43	78
1	B	3256/5037 (65%)	2891 (89%)	360 (11%)	5 (0%)	43	78
1	C	3256/5037 (65%)	2890 (89%)	361 (11%)	5 (0%)	43	78
1	D	3256/5037 (65%)	2892 (89%)	359 (11%)	5 (0%)	43	78
All	All	13024/20148 (65%)	11563 (89%)	1441 (11%)	20 (0%)	44	78

5 of 20 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1708	ARG
1	B	1708	ARG
1	C	1708	ARG
1	D	1708	ARG
1	A	1293	LEU

### 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	2493/3230 (77%)	2478 (99%)	15 (1%)	78	83
1	B	2493/3230 (77%)	2478 (99%)	15 (1%)	78	83
1	C	2493/3230 (77%)	2478 (99%)	15 (1%)	78	83
1	D	2493/3230 (77%)	2479 (99%)	14 (1%)	78	83
All	All	9972/12920 (77%)	9913 (99%)	59 (1%)	76	83

5 of 59 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	4813	LEU
1	D	4154	VAL
1	C	1839	VAL
1	D	3805	LEU
1	D	978	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 191 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	1719	HIS
1	C	4983	HIS
1	C	1949	GLN
1	C	3960	GLN
1	D	379	HIS

### 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](#)

Of 4 ligands modelled in this entry, 4 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
1	A	9
1	B	9
1	C	9
1	D	9

The worst 5 of 36 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	3638:UNK	C	3639:THR	N	46.30
1	B	3638:UNK	C	3639:THR	N	46.30
1	C	3638:UNK	C	3639:THR	N	46.30
1	D	3638:UNK	C	3639:THR	N	46.30
1	A	2733:UNK	C	2734:ASN	N	16.65



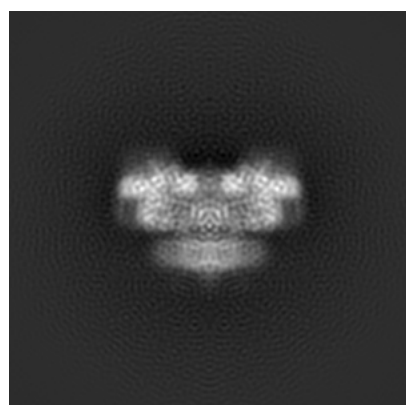
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4295. These allow visual inspection of the internal detail of the map and identification of artifacts.

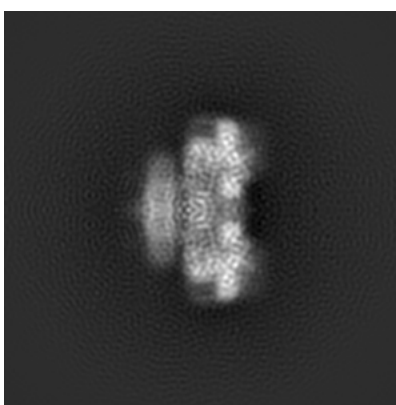
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

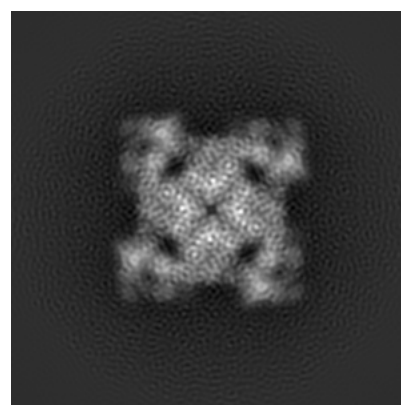
#### 6.1.1 Primary map



X



Y

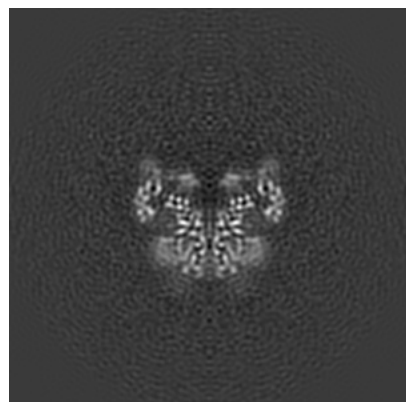


Z

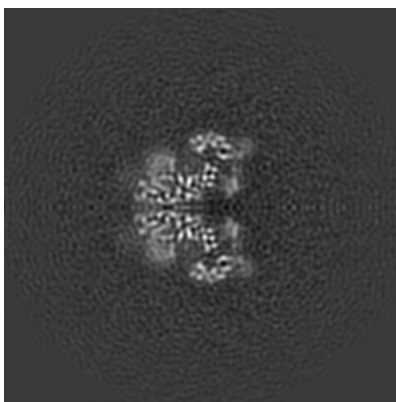
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

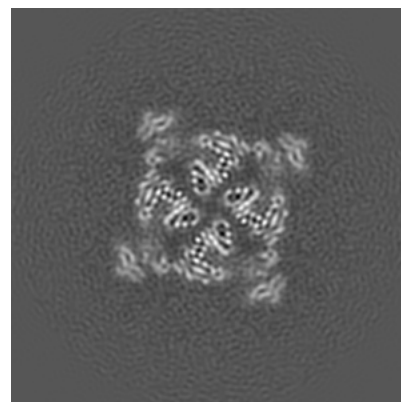
#### 6.2.1 Primary map



X Index: 180



Y Index: 180

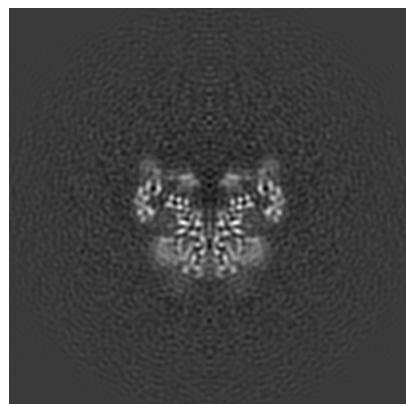


Z Index: 180

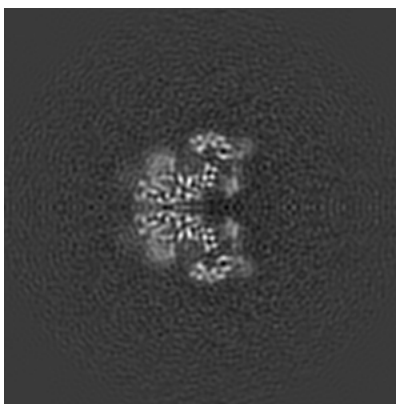
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

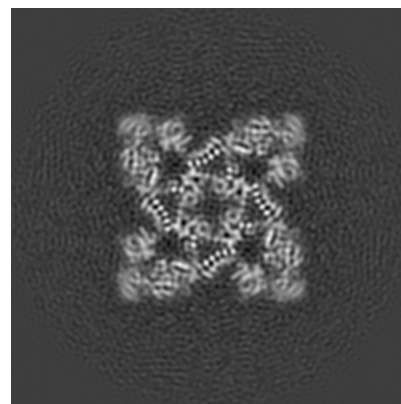
### 6.3.1 Primary map



X Index: 180



Y Index: 180

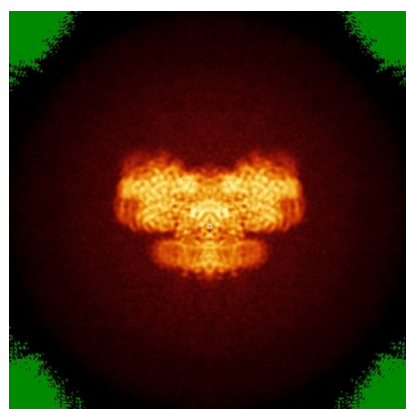


Z Index: 198

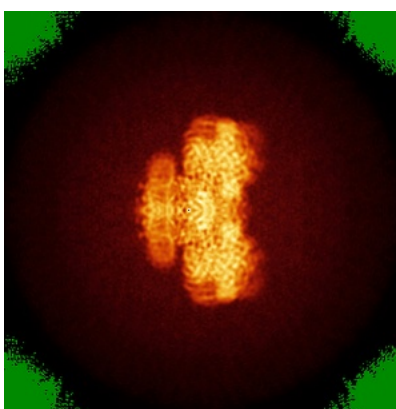
The images above show the largest variance slices of the map in three orthogonal directions.

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

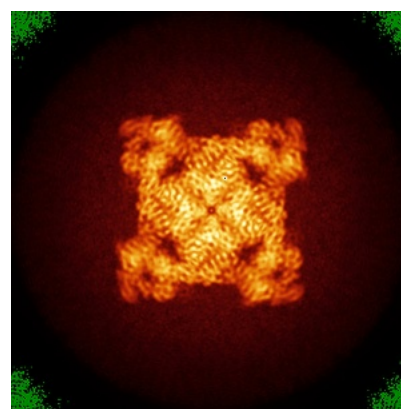
### 6.4.1 Primary map



X



Y

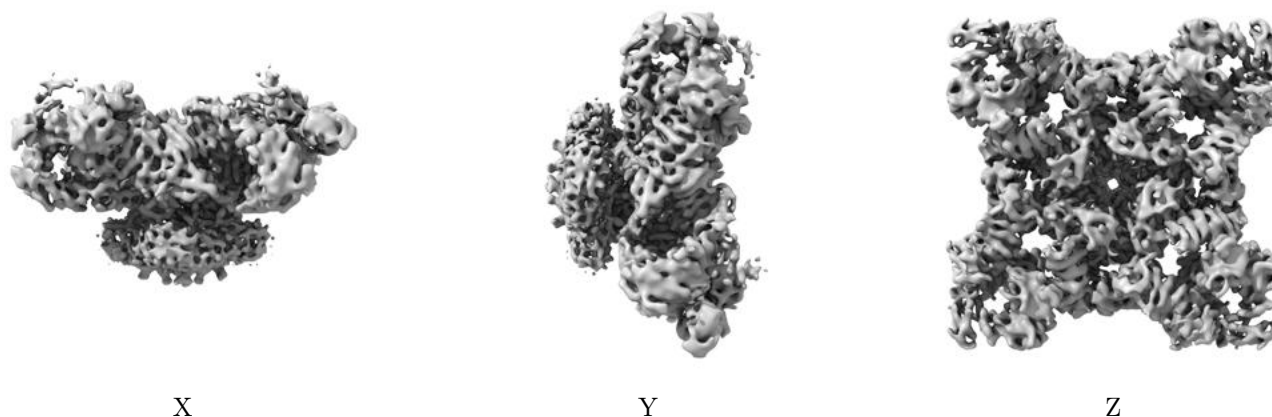


Z

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

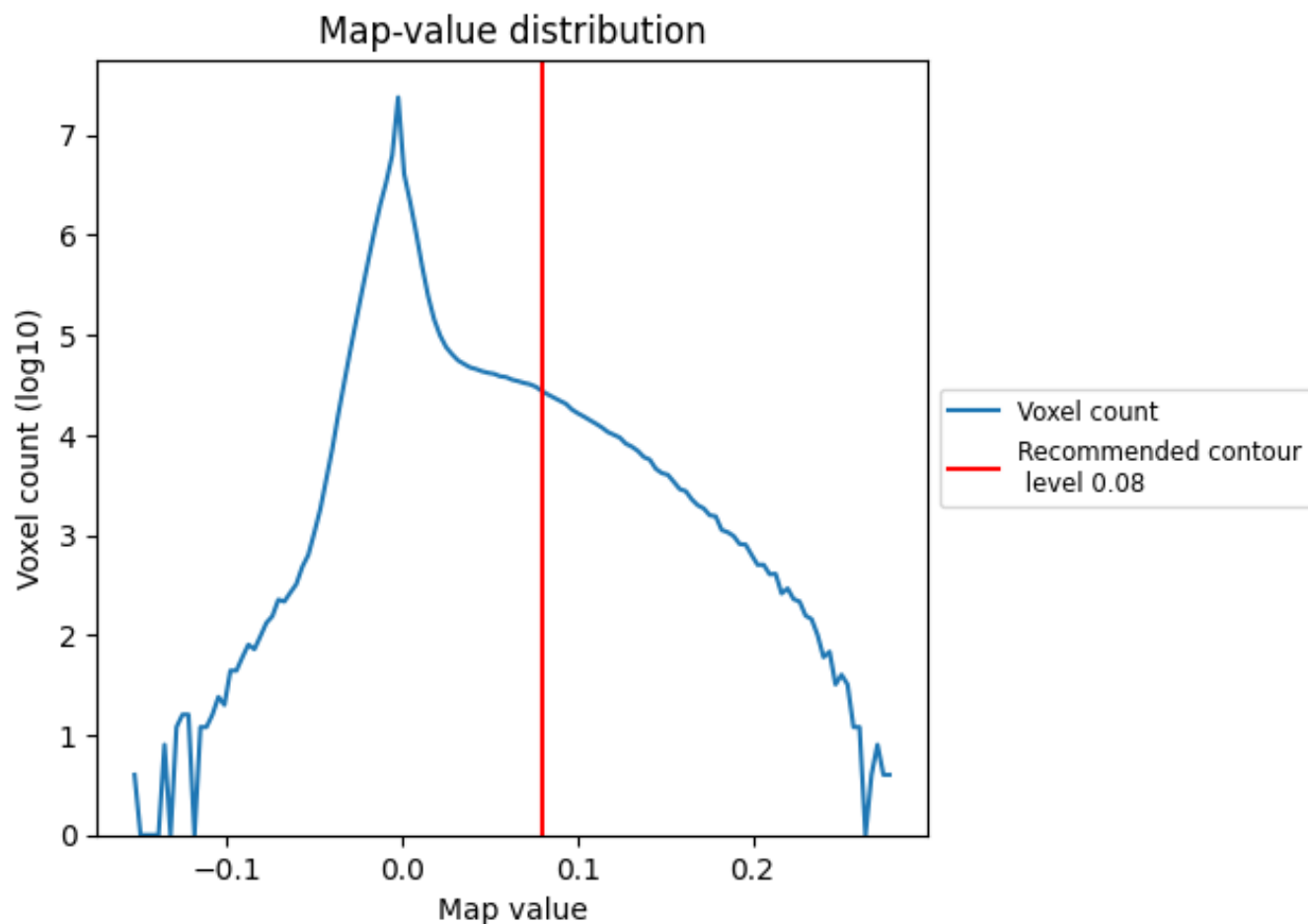
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

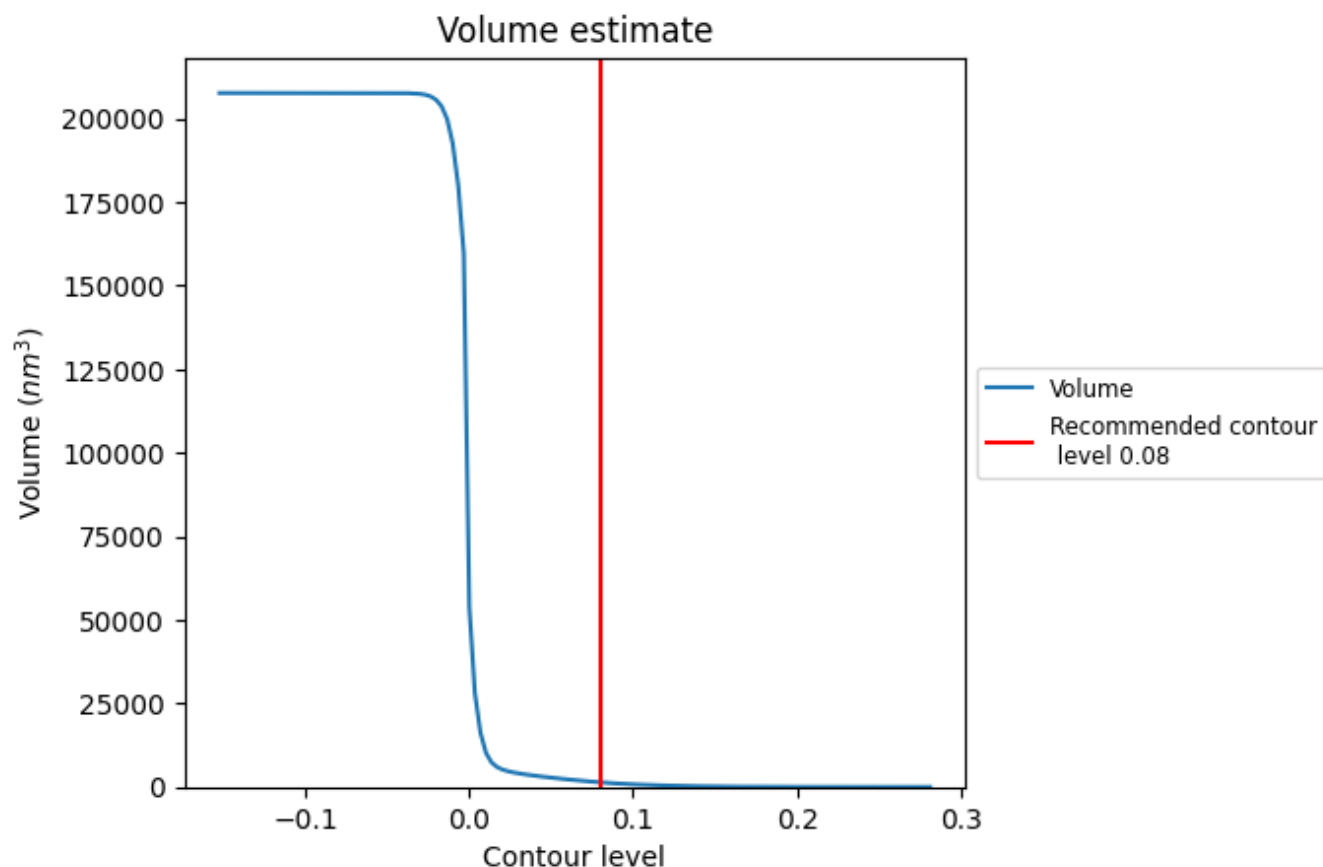
This section contains the results of statistical analysis of the map.

### 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.

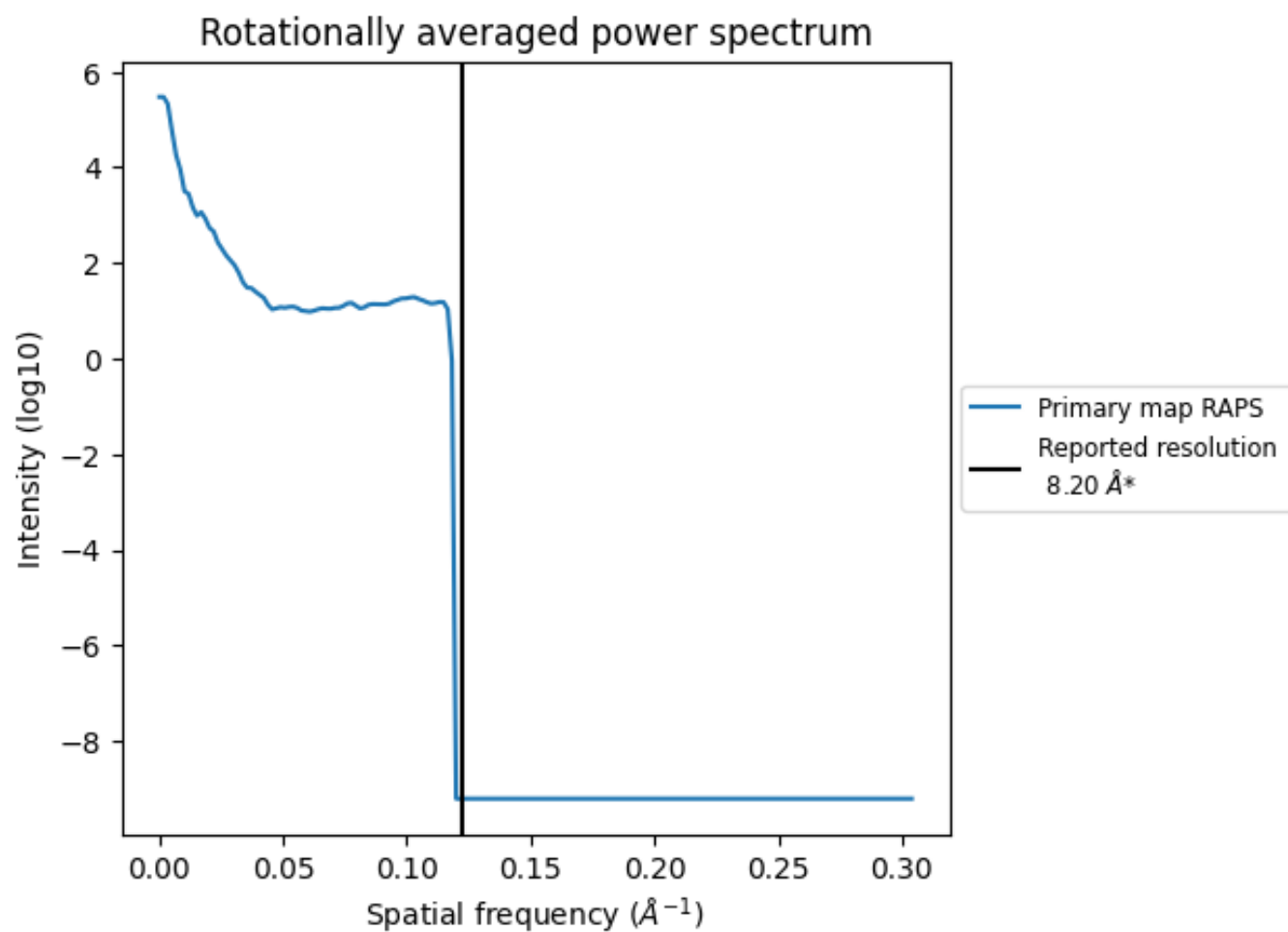
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1382 nm<sup>3</sup>; this corresponds to an approximate mass of 1248 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 ⓘ

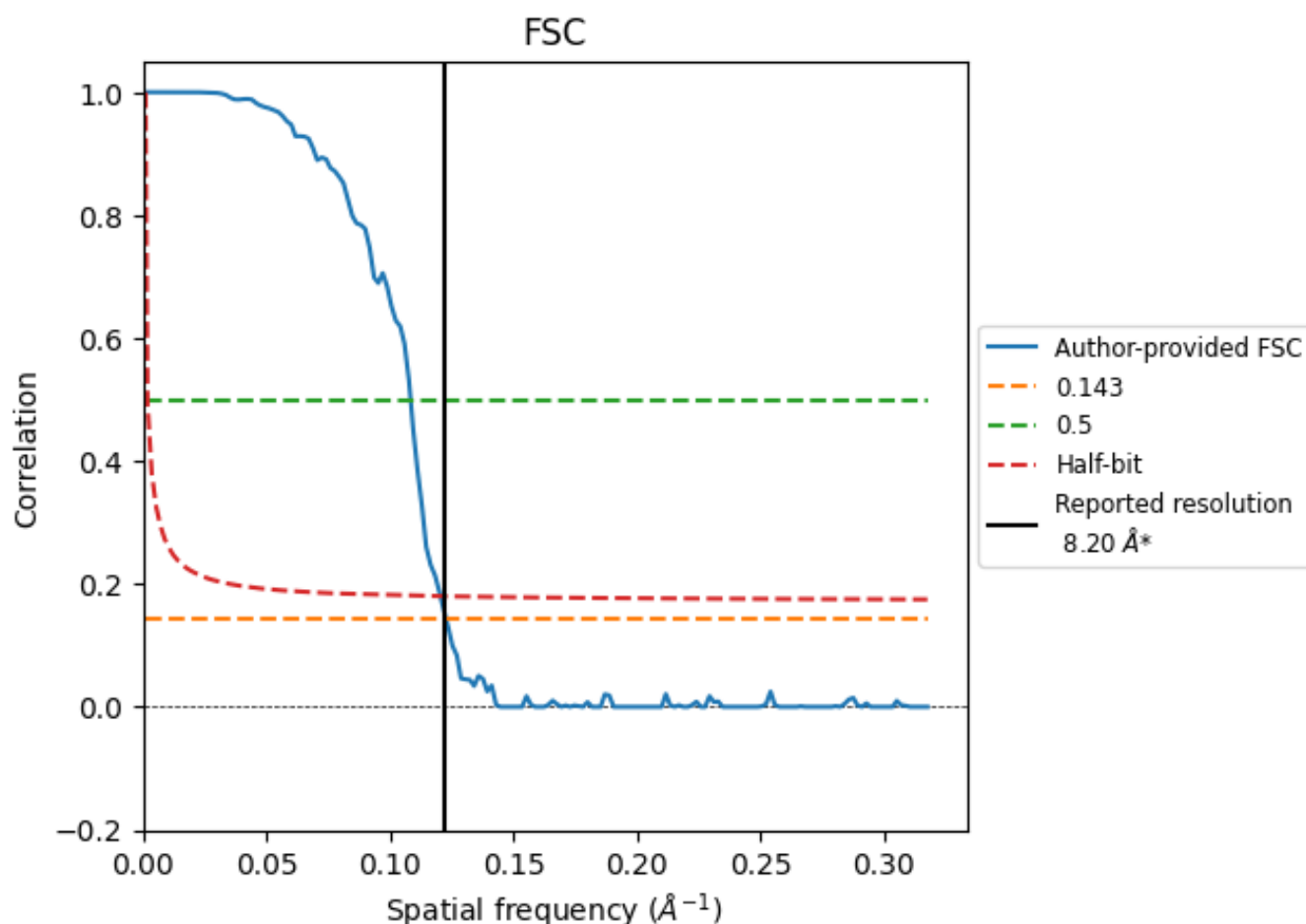


\*Reported resolution corresponds to spatial frequency of 0.122 Å<sup>-1</sup>

## 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 0.122 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	8.20	-	-
Author-provided FSC curve	8.16	9.23	8.31
Unmasked-calculated*	-	-	-

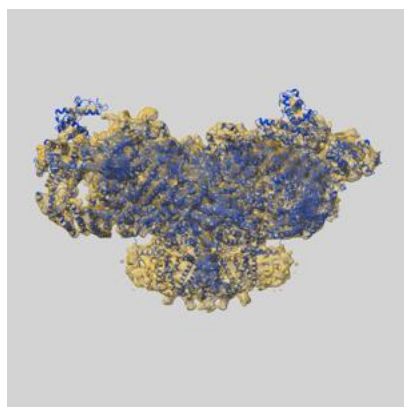
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.



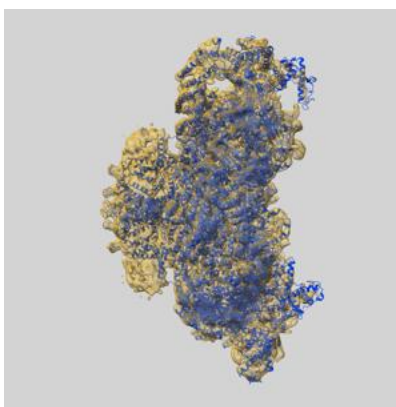
## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-4295 and PDB model 6FOO. Per-residue inclusion information can be found in [section 3](#) on [page 4](#).

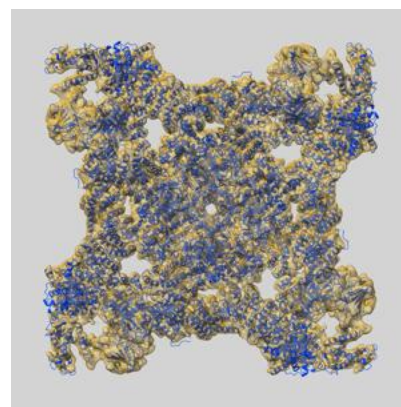
### 9.1 Map-model overlay [i](#)



X



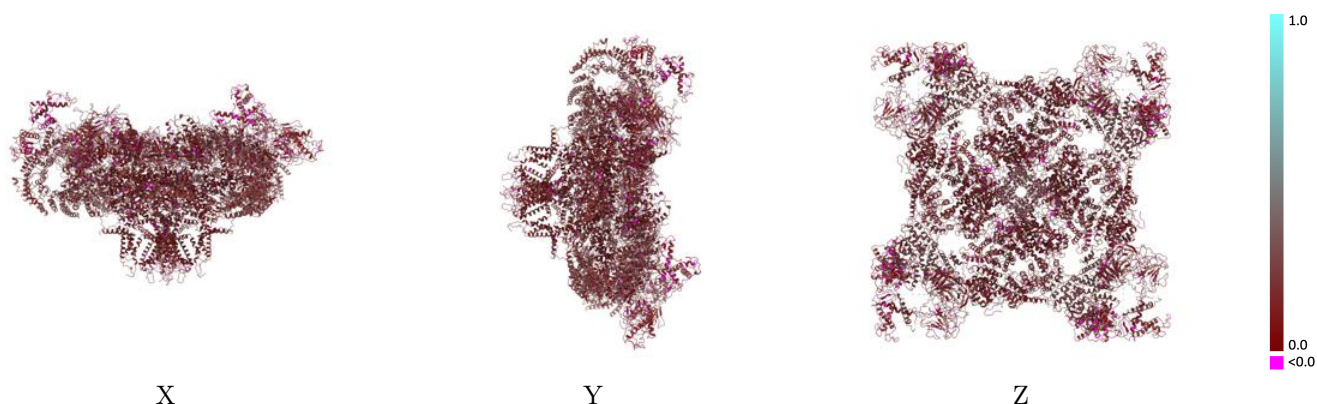
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.08 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](#)

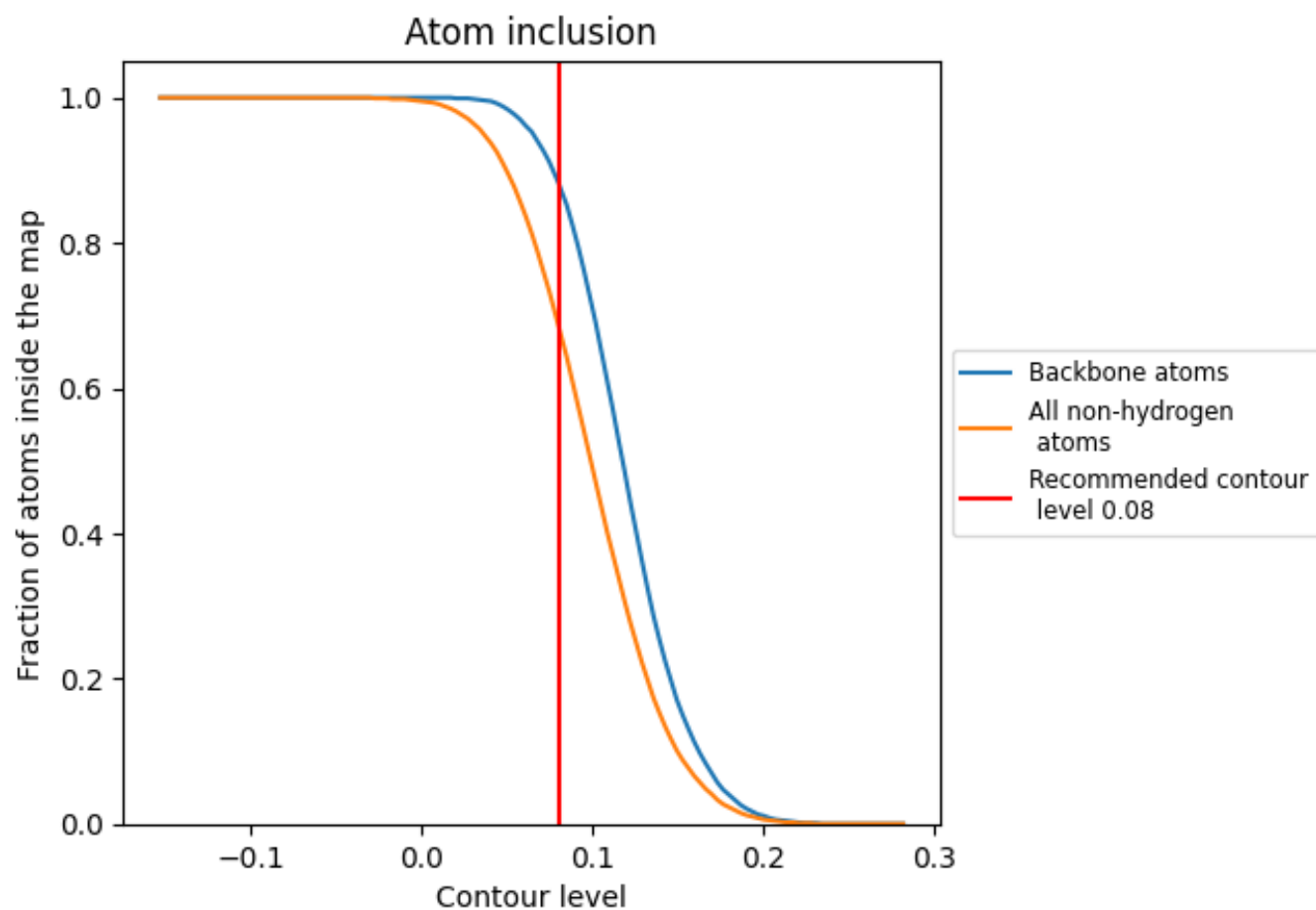


The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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](#)

This section was not generated.

## 9.4 Atom inclusion [i](#)



At the recommended contour level, 88% of all backbone atoms, 69% 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 (0.08) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.6860	<div></div> 0.1800
A	<div></div> 0.6860	<div></div> 0.1800
B	<div></div> 0.6860	<div></div> 0.1800
C	<div></div> 0.6870	<div></div> 0.1800
D	<div></div> 0.6870	<div></div> 0.1800

