



wwPDB EM Validation Summary Report ⓘ

Mar 19, 2024 – 10:15 PM JST

PDB ID : 6JIU
EMDB ID : EMD-9836
Title : Structure of RyR2 (F/A/C/L-Ca²⁺/Ca²⁺CaM dataset)
Authors : Gong, D.S.; Chi, X.M.; Zhou, G.W.; Huang, G.X.Y.; Lei, J.L.; Yan, N.
Deposited on : 2019-02-23
Resolution : 4.20 Å (reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ 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
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
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

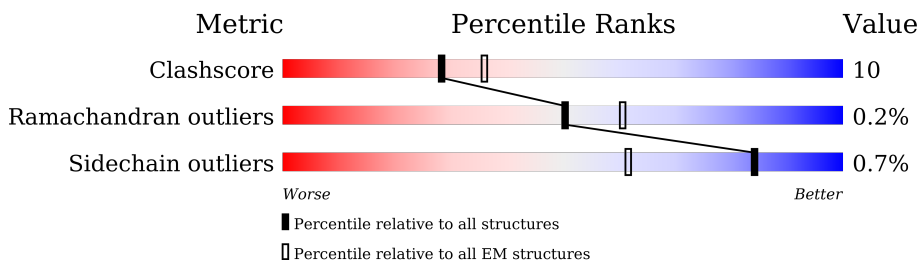
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.20 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)
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	4968	
1	D	4968	
1	G	4968	
1	J	4968	
2	B	108	
2	E	108	
2	H	108	
2	K	108	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	C	149	
3	F	149	
3	I	149	
3	L	149	

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 112212 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 RyR2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	3496	26661	16986	4571	4947	157	0	0
1	D	3496	26661	16986	4571	4947	157	0	0
1	G	3496	26661	16986	4571	4947	157	0	0
1	J	3496	26661	16986	4571	4947	157	0	0

- Molecule 2 is a protein called Peptidyl-prolyl cis-trans isomerase FKBP1B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	107	819	516	144	155	4	0	0
2	E	107	819	516	144	155	4	0	0
2	H	107	819	516	144	155	4	0	0
2	K	107	819	516	144	155	4	0	0

- Molecule 3 is a protein called Calmodulin-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	68	524	326	83	110	5	0	0
3	F	68	524	326	83	110	5	0	0
3	I	68	524	326	83	110	5	0	0
3	L	68	524	326	83	110	5	0	0

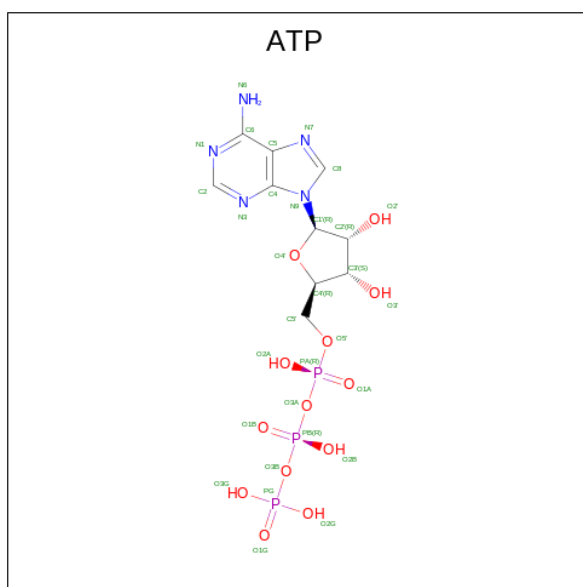
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
4	A	1	Total 1	Zn 1	0
4	D	1	Total 1	Zn 1	0
4	G	1	Total 1	Zn 1	0
4	J	1	Total 1	Zn 1	0

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

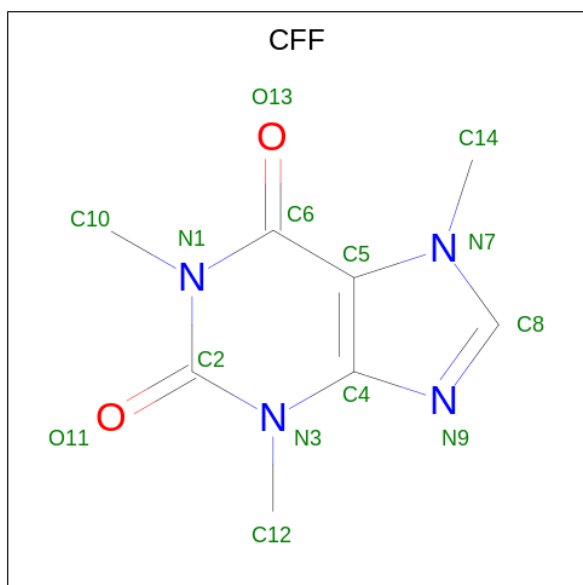
Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total 1	Ca 1	0
5	C	2	Total 2	Ca 2	0
5	D	1	Total 1	Ca 1	0
5	F	2	Total 2	Ca 2	0
5	G	1	Total 1	Ca 1	0
5	I	2	Total 2	Ca 2	0
5	J	1	Total 1	Ca 1	0
5	L	2	Total 2	Ca 2	0

- Molecule 6 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
6	A	1	Total	C	N	O	P	0
			31	10	5	13	3	
6	D	1	Total	C	N	O	P	0
			31	10	5	13	3	
6	G	1	Total	C	N	O	P	0
			31	10	5	13	3	
6	J	1	Total	C	N	O	P	0
			31	10	5	13	3	

- Molecule 7 is CAFFEINE (three-letter code: CFF) (formula: C₈H₁₀N₄O₂).

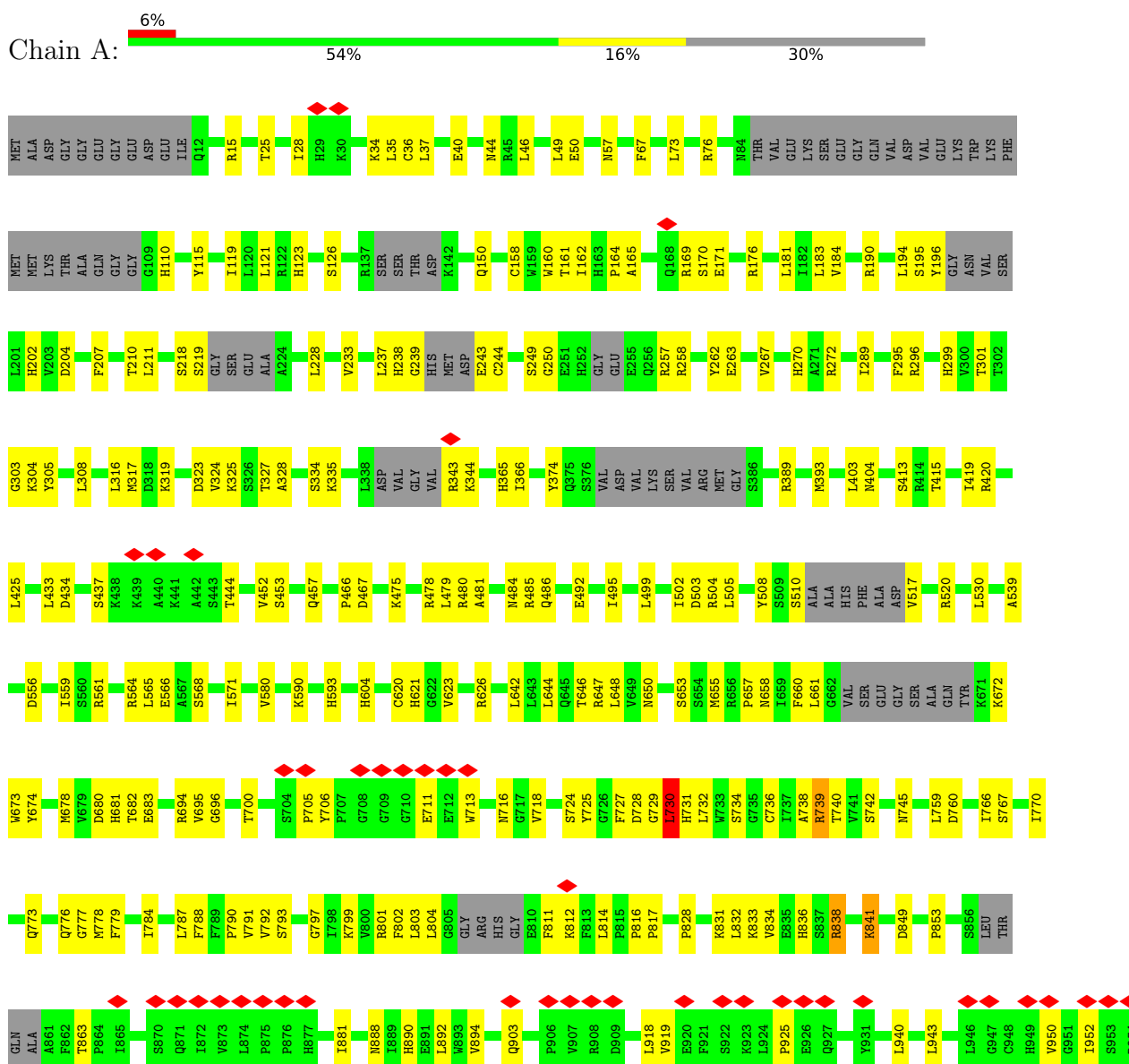


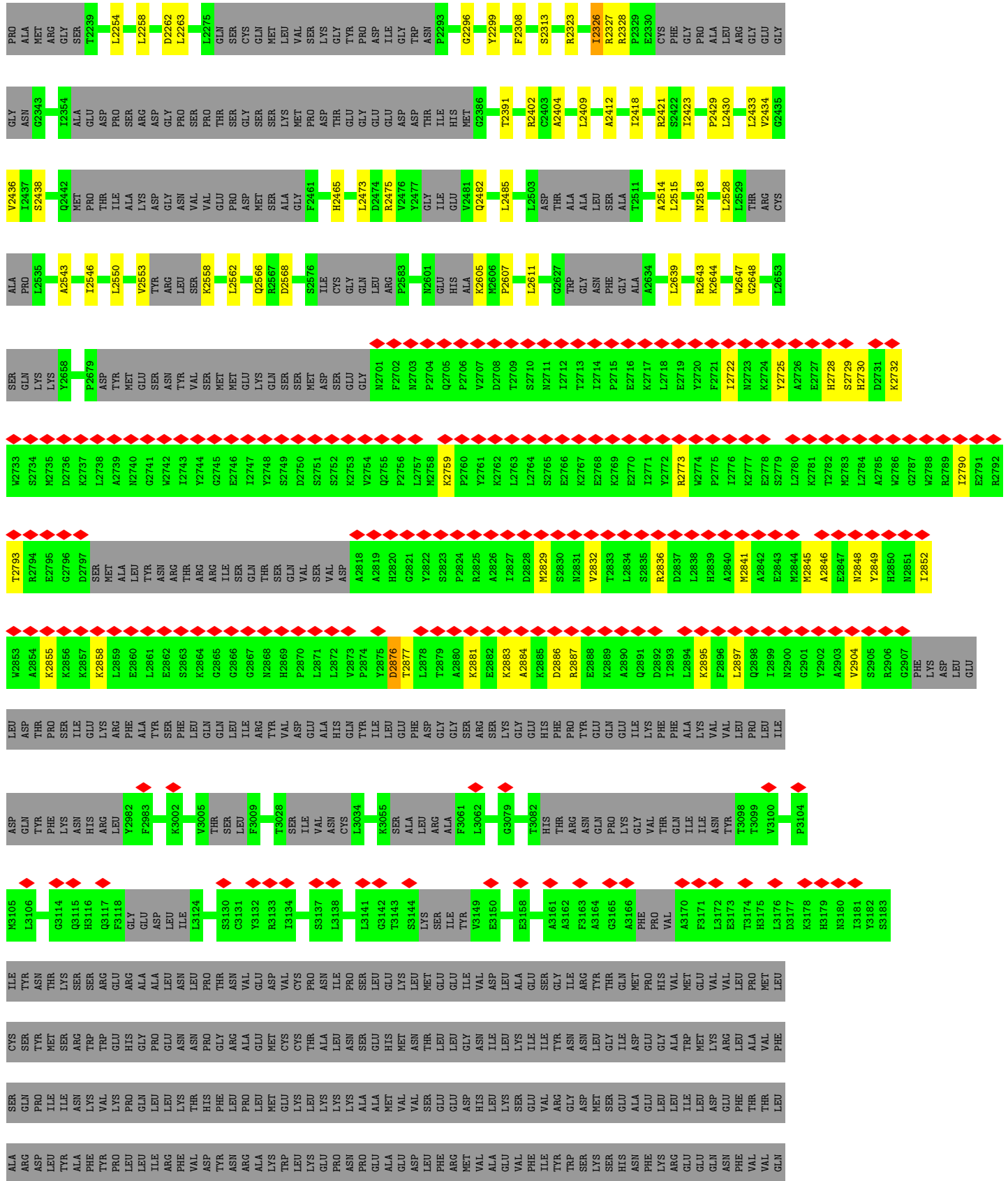
Mol	Chain	Residues	Atoms				AltConf
7	A	1	Total 14	C 8	N 4	O 2	0
7	D	1	Total 14	C 8	N 4	O 2	0
7	G	1	Total 14	C 8	N 4	O 2	0
7	J	1	Total 14	C 8	N 4	O 2	0

3 Residue-property plots i

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: RyR2



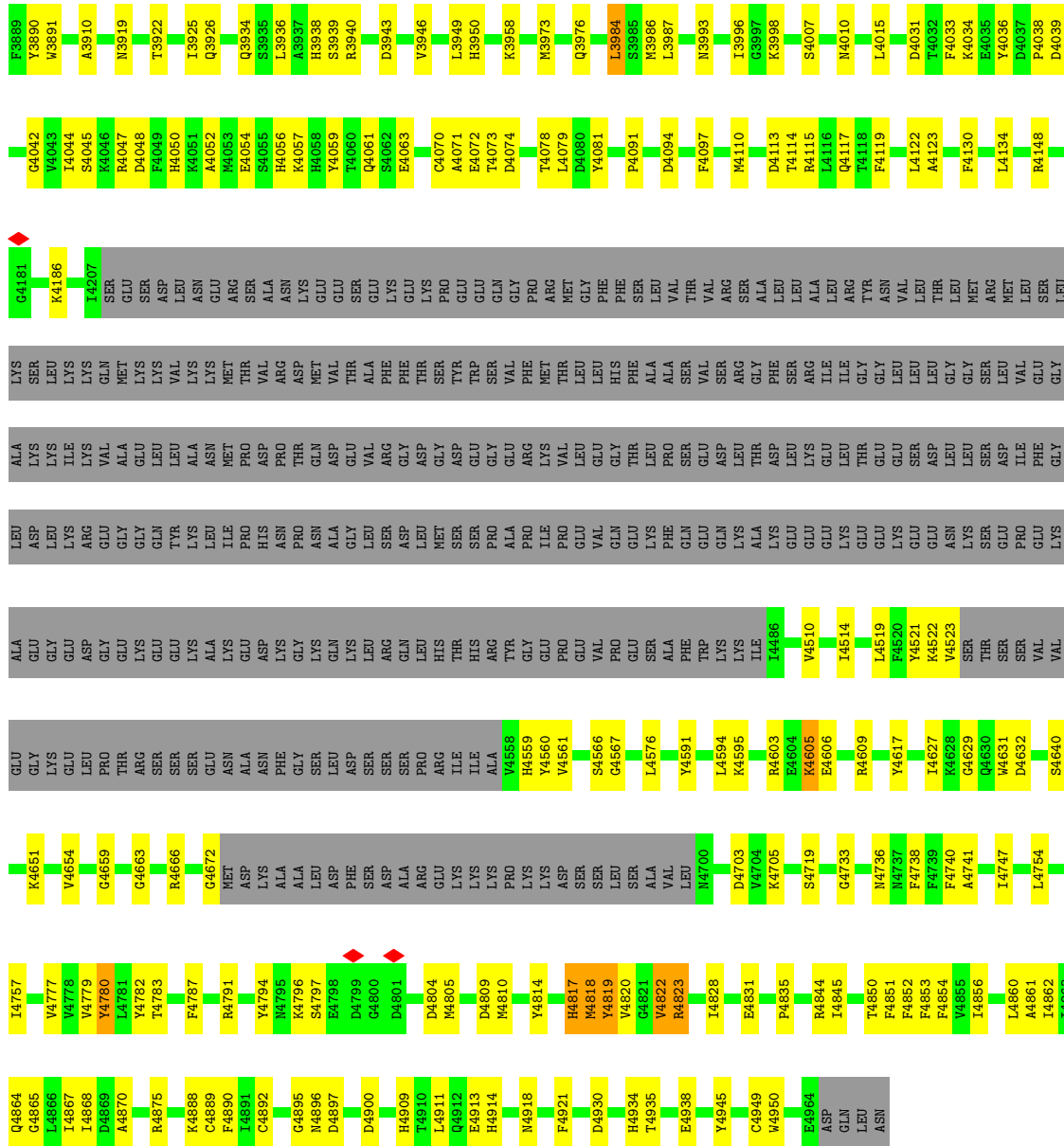


K4888	K4889	F4890	F4891	C4892	G4895	N4896	D4897	D4900	H4909	E4913	H4914	N4918	F4921	D4930	H4934	T4935	E4938	Y4945	C4949	W4950	E4964	GLN	LEU	ASN	
K4796	S4797	E4798	D4799	G4800	MET	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	
G4663	R4666	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	G4672	
L4860	A4861	I4862	I4863	O4864	G4865	L4866	I4867	I4868	D4869	A4870	R4871	R4872	R4873	R4874	R4875	R4876	R4877	R4878	R4879	R4880	R4881	R4882	R4883	R4884	
L4839	T4850	F4851	F4852	F4853	F4854	F4855	F4856	L4860	A4861	I4862	I4863	O4864	G4865	L4866	I4867	I4868	D4869	A4870	R4871	R4872	R4873	R4874	R4875	R4876	
P4835	R4844	T4849	T4850	F4851	F4852	F4853	F4854	F4855	F4856	L4860	A4861	I4862	I4863	O4864	G4865	L4866	I4867	I4868	D4869	A4870	R4871	R4872	R4873	R4874	
D4700	D4703	G4733	N4736	F4737	F4738	F4739	F4740	L4754	L4757	F4777	F4778	F4779	F4780	F4781	F4782	F4783	F4787	F4791	F4800	F4803	F4804	F4805	F4806	F4809	
H4558	H4559	H4560	H4561	S4566	G4567	L4576	L4594	K4595	R4603	E4604	K4605	E4606	R4609	Y4617	I4627	K4629	G4630	W4631	D4632	S4640	V4654	C4659	G4663	R4666	
L4514	M4515	L4519	F4520	K4521	K4522	V4523	T4524	T4525	L4526	L4527	L4528	L4529	L4530	L4531	L4532	L4533	L4534	L4535	L4536	L4537	L4538	L4539	L4540	L4541	
L4510	I4511	I4512	I4513	I4514	I4515	I4516	I4517	I4518	I4519	I4520	I4521	I4522	I4523	I4524	I4525	I4526	I4527	I4528	I4529	I4530	I4531	I4532	I4533	I4534	
L4486	L4487	L4488	L4489	L4490	L4491	L4492	L4493	L4494	L4495	L4496	L4497	L4498	L4499	L4500	L4501	L4502	L4503	L4504	L4505	L4506	L4507	L4508	L4509	L4510	
L4404	S4045	R4046	R4047	D4048	F4049	H4050	R4051	A4052	H4053	E4054	H4055	H4056	K4057	H4058	Y4059	Q4060	S4061	E4062	E4063	C4070	L4071	D4072	T4073	D4074	
D3900	A3910	I3911	N3919	T3922	I3925	R3926	Q3934	S3935	L3936	A3937	H3938	S3939	R3940	D3943	V3946	L3949	H3950	K3958	M3973	Q3976	L3984	M3985	L3987	N3993	I3996
D3800	C3801	L3804	F3809	S3810	R3811	Q3812	E3819	R3811	Q3812	MET	VAL	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR
R3616	F3621	L3622	Q3623	G3624	Y3625	E3626	K3627	E3638	E3643	E3644	L3645	P3648	ALA	ALA	VAL	PRO	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN	GLN
ASP	PRO	GLY	GLY	THR	VAL	ARG	VAL	ASP	ALA	ASN	VAL	VAL	GLY	ASP	HIS	ASP	THR	GLY	ALA	ALA	ALA	ALA	ALA	ALA	ALA
ASP	PRO	GLY	GLY	THR	VAL	ARG	VAL	ASP	ALA	ASN	VAL	VAL	GLY	ASP	HIS	ASP	THR	GLY	ALA	ALA	ALA	ALA	ALA	ALA	ALA
L3591	L3592	S3593	K3594	Q3595	R3596	R3605	Y3610	N3611	L3612	HIS	ASP	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	
L3591	L3592	S3593	K3594	Q3595	R3596	R3605	Y3610	N3611	L3612	HIS	ASP	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	
L3591	L3592	S3593	K3594	Q3595	R3596	R3605	Y3610	N3611	L3612	HIS	ASP	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	
L3591	L3592	S3593	K3594	Q3595	R3596	R3605	Y3610	N3611	L3612	HIS	ASP	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	

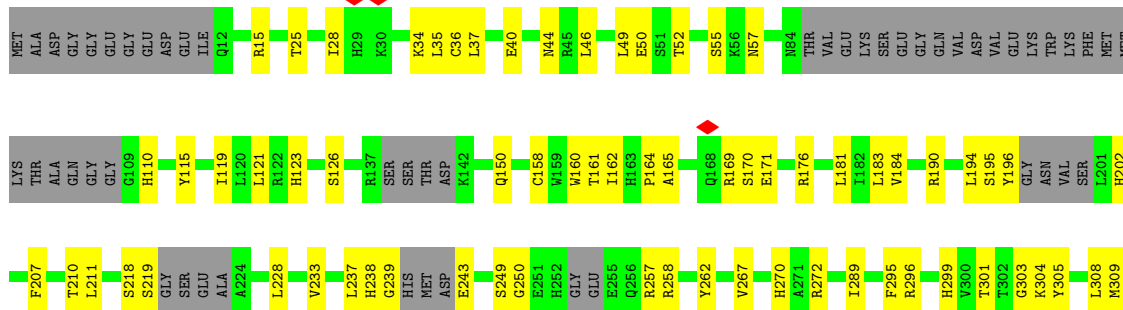
● Molecule 1: RyR2

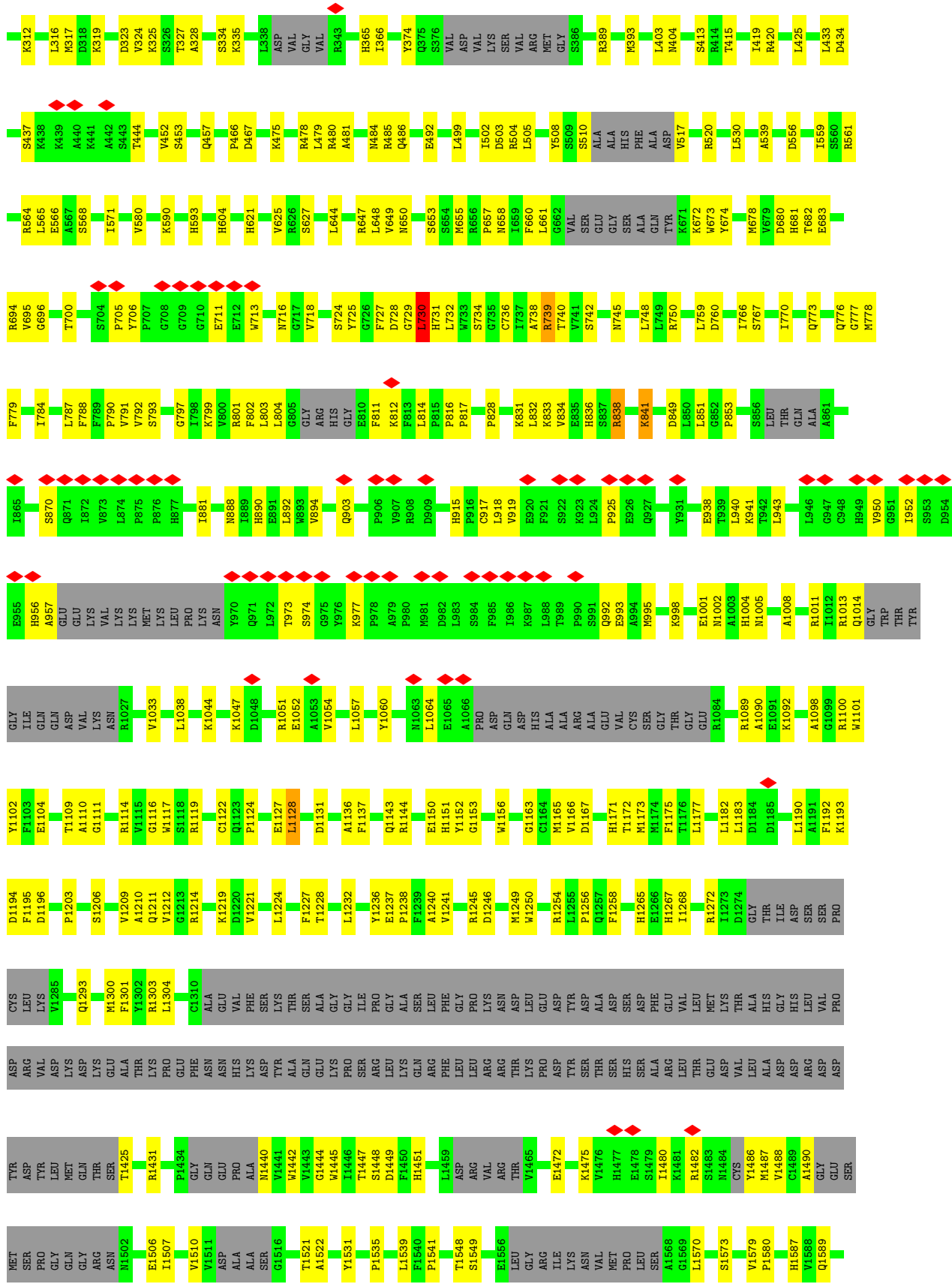


MET	ALA	ASP	GLY	GLY	GLY	GLY	GLY	ASP	GLU	GLU	ILE	Q12	R15	T25	I28	H29	K30	K34	L35	C36	L37	E40	M44	R45	L46	L49	E50	S51	T52	S55	K56	M57	L73	R76	H84	THR	VAL	GLU	LYS	SER	GLU	GLY	VAL	VAL	ASP	ASN	VAL	GLU	LYS	TRP	
LYS	PHE	MET	MET	LYS	THR	ALA	GLN	GLY	GLY	G109	H110	Y115	I119	H123	S126	R137	SER	SER	THR	THR	ASP	K142	Q150	C158	W159	W160	T161	I162	H163	P164	Q168	R169	S170	E171	R176	L181	L182	L183	V184	R190	L194	S195	Y196	GLY	ASN	VAL	VAL	SER	L201		
H202	V203	D204	F207	T210	S218	S219	V324	GLY	SER	GLU	ALA	A224	L228	V233	L237	H238	G239	HIS	MET	ASP	E243	S249	G250	F261	H262	GLY	ASP	VAL	GLY	E255	Q256	R257	R258	Y262	V267	H270	A271	R272	S273	L274	L289	F295	R296	H300	V301	T302	G303	K304			
L308	L316	D317	K318	K319	D323	K325	S326	T327	A328	S334	K335	L338	ASP	VAL	GLY	VAL	R343	H365	I366	Y374	S375	Q376	H377	VAL	ASP	VAL	VAL	LYS	SER	VAL	Y508	S509	S510	ALA	ALA	HIS	PHE	ALA	ASP	V517	R520	L530	A539	R420	L425	L433					
S437	K438	K439	A440	K441	D442	S443	T444	V452	S453	Q457	P466	D467	K475	R478	R480	A481	M484	R485	Q486	Y374	Q375	E492	L499	I502	D503	R504	L505	L505	Y508	S509	S510	ALA	ALA	HIS	PHE	ALA	ASP	V517	R520	L530	A539	R420	L425	L433							
R564	L565	E566	A567	S568	I571	V580	K590	H593	H604	L611	H621	V625	R626	L479	S627	L642	L643	L644	Q645	T646	R647	L648	V649	M650	S653	S654	M655	R656	P657	M658	F660	L661	G662	VAL	SER	GLU	GLY	SER	ALA	GLN	TYR	K671	K672	V673	V674	M678	V679	S680	R681	D680	
H681	T682	E683	R694	V695	G696	T700	S704	P705	Y706	K799	V800	R801	F802	L803	L804	G805	GLY	ARG	HIS	GLY	F811	K812	L814	R815	P816	D728	G729	L730	H731	L732	W733	G734	C735	G736	L737	A738	R739	T740	S742	M745	L759	D760	L766	S767	Q773	Q776	G777	M778	F779		
I784	L787	F788	F789	V790	W791	V792	S793	A796	G797	I798	K799	V800	R801	F802	L803	L804	G805	GLY	ARG	HIS	GLY	F811	K812	L814	R815	P816	D728	G729	L730	H731	L732	W733	G734	C735	G736	L737	A738	R739	T740	S742	M745	L759	D760	L766	S767	Q773	Q776	G777	M778	F779	
S870	Q871	I872	W873	L874	P875	P876	H877	I881	M888	I889	H890	E891	L892	W893	V894	Q903	P906	V907	R908	D909	L918	V919	E920	F921	S922	K923	L924	P925	E926	Q927	Y931	L940	L943	L946	G947	C948	H949	V950	G951	I952	S953	D954	E955	H956	A957	GLU	GLU	LYS	VAL		
LYS	LYS	MET	LEU	PRO	LYS	ASN	Y970	Q971	L972	T973	S974	G975	Y976	K977	P978	A979	P980	H981	D982	L983	S984	F985	I986	K987	T989	P990	Q992	E993	A994	H995	K998	E1001	H1004	M1005	A1008	R1011	H1012	R1013	Q1014	GLY	THR	THR	TYR	GLY	ILE	GLN	GLN	ASP	VAL	LYS	ASN
R1027	V1033	L1038	K1044	K1047	D1048	R1051	A1052	A1053	V1054	L1057	Y1060	G1061	Y1062	N1063	L1064	E1065	A1066	PRO	ASP	GLN	ASP	HIS	ALA	ALA	ARG	ALA	GLU	VAL	CYS	SER	THR	GLY	R1084	R1089	A1090	E1091	K1092	R1100	W1101	Y1102	F1103	E1104	T1109	A1110	G1111	R1114					
V1115	G1116	R1119	C1122	G1123	F1124	E1127	L1128	D1131	E1132	A1136	F1137	A1142	Q1143	R1144	W1145	H1146	E1150	H1151	Y1152	G1153	W1156	G1163	C1164	M1165	V1166	Q1257	D1167	H1171	T1172	M1173	L1177	L1182	L1183	D1184	D1185	L1190	A1191	F1192	K1193	D1194	F1195	D1196	P1203	S1206							
V1209	A1210	Q1211	V1212	G1213	R1214	K1219	D1220	V1221	L1224	F1227	T1228	L1232	Y1236	E1237	P1238	F1239	A1240	V1241	R1245	D1246	M1249	V1250	R1254	L1255	P1256	Q1257	F1258	H1265	E1266	H1267	R1272	I1273	D1274	GLY	THR	ILE	ASP	SER	SER	PRO	CYS	LEU	LYS	V1285	Q1289	M1300	F1301				

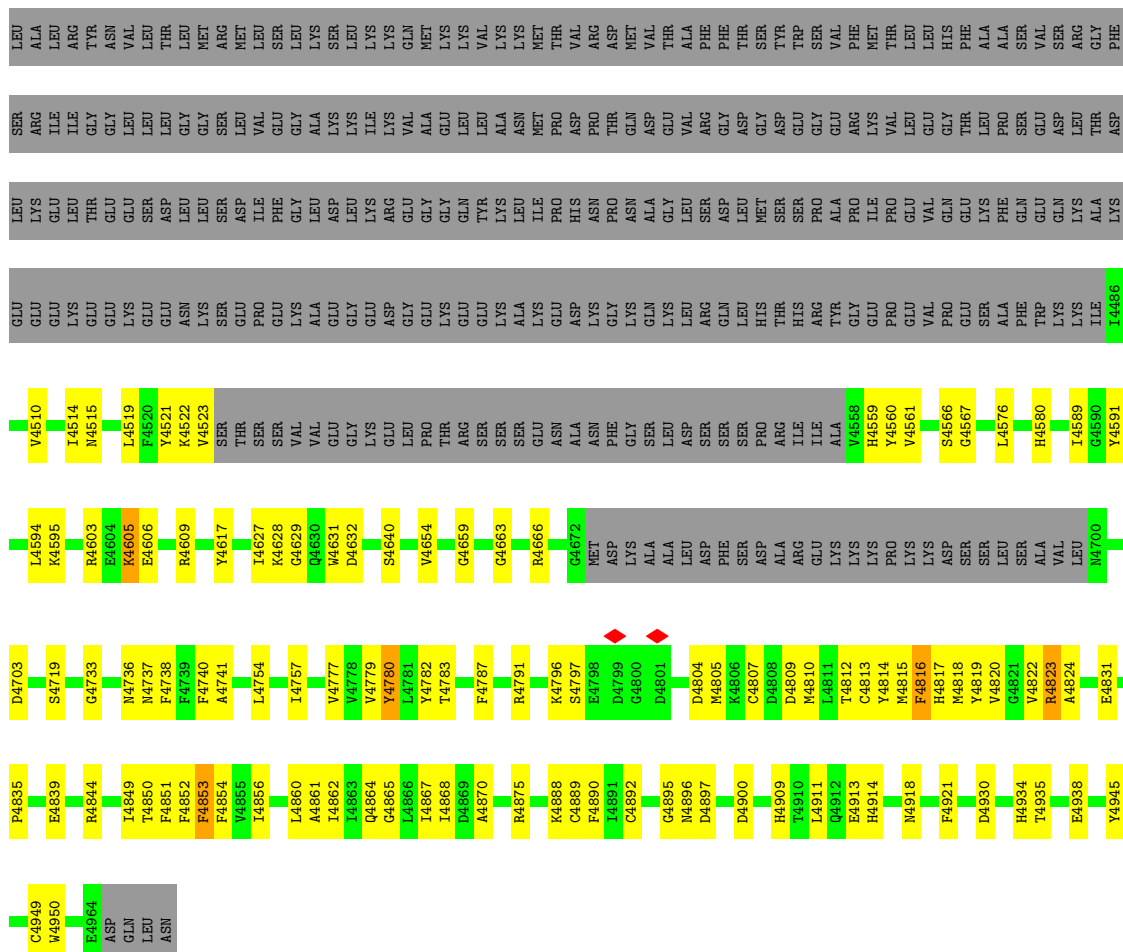


• Molecule 1: RyR2

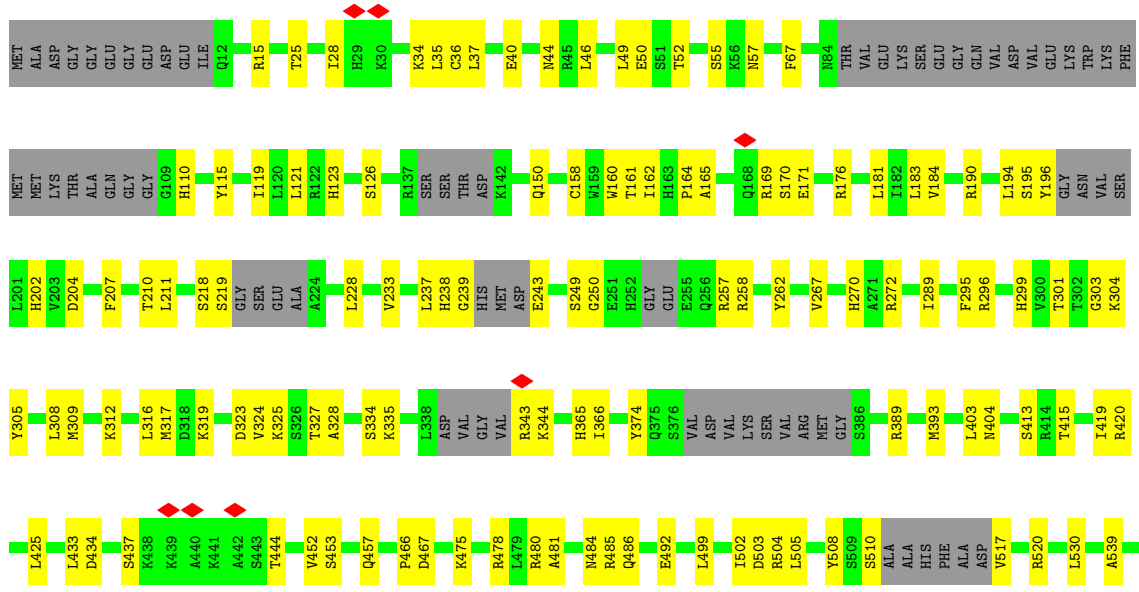




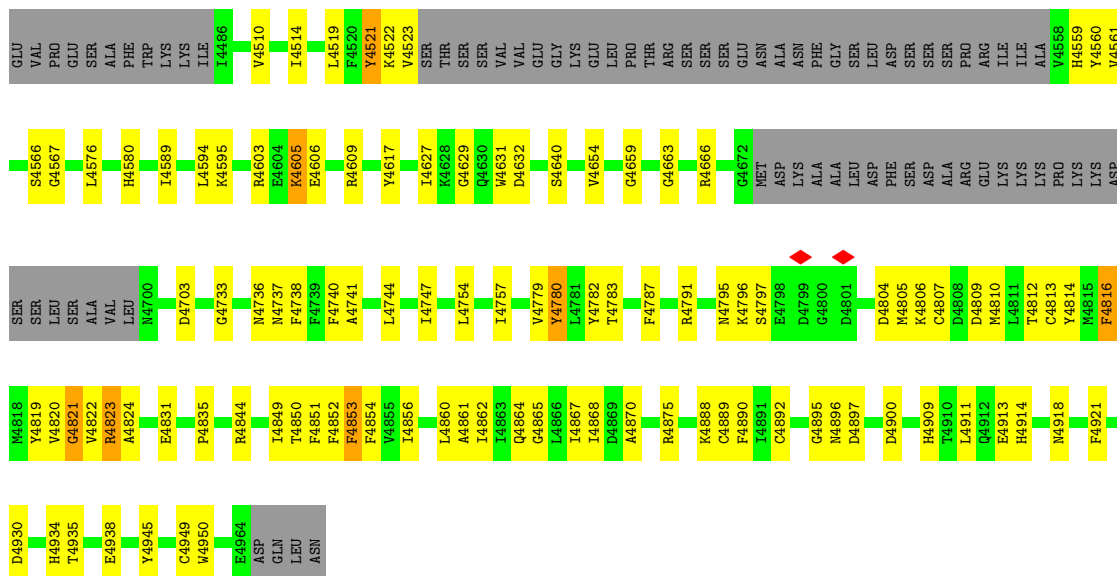
A2846	E2847	N2848	Y2849	H2850	N2851	I2852	W2853	A2854	K2855	K2856	K2857	K2858	L2859	E2860	L2861	E2862	S2863	K2864	G2865	G2866	G2867	N2868	H2869	P2870	L2871	L2872	V2873	P2874	Y2875	T2876	T2877	L2878	T2879	A2880	K2881	E2882	K2883	A2884	K2885	D2886	R2887	E2888	K2889	A2890	Q2891	D2892	I2893	L2894	K2895	F2896	L2897	Q2898	I2899	N2900	G2901	Y2902	A2903	V2904	S2905
A2726	E2727	H2728	S2729	H2730	D2731	K2732	W2733	S2734	M2735	D2736	K2737	L2738	A2739	N2740	G2741	W2742	I2743	Y2744	G2745	E2746	Y2747	Y2748	S2749	D2750	S2751	S2752	K2753	Y2754	Q2755	P2756	L2757	M2758	K2759	P2760	Y2761	L2762	L2763	L2764	S2765	E2766	K2767	E2768	K2769	E2770	I2771	Y2772	R2773	W2774	P2775	I2776	K2777	E2778	S2779	L2780	K2781	T2782	M2783	L2784	A2785
W2786	G2787	W2788	R2789	I2790	E2791	R2792	T2793	R2794	E2795	G2796	D2797	SER	MET	ALA	LEU	TYR	ASN	VAL	ARG	THR	ARG	ARG	ILE	SER	GLN	THR	SER	GLN	VAL	SER	VAL	ASP	A2818	A2819	H2820	G2821	S2822	S2823	P2824	R2825	A2826	L2827	D2828	N2829	S2830	N2831	W2832	L2833	S2835	R2836	D2837	L2838	H2839	A2840	W2841	A2842	E2843	M2844	W2845
R2643	K2644	G2648	L2653	SER	GLN	LYS	LYS	Y2658	F2679	ASP	TYR	MET	GLU	SER	ASN	VAL	MET	MET	GLU	LYS	GLN	SER	SER	MET	ASP	SER	GLU	W2701	F2702	M2703	P2704	Q2705	P2706	V2707	D2708	T2709	S2710	M2711	T2712	T2713	P2714	P2715	E2716	K2717	L2718	E2719	Y2720	F2721	M2722	N2723	K2724	Y2725							
R2421	S2422	I2423	P2429	L2433	V2434	W2436	L2437	S2438	Q2442	MET	THR	ILE	ALA	LYS	ASP	ASN	VAL	GLU	PRO	ASP	MET	SER	ALA	F2461	D2464	H2465	R2475	V2476	Y2477	GLY	ILE	GLU	V2481	Q2482	L2485	L2503	ASP	THR	ALA	ALA	LEU	ASN	PHE	GLY	T2511	A2514	L2515												
M2518	L2528	L2529	THR	ARG	CYS	ALA	PRO	L2535	A2543	I2546	L2550	W2553	TYR	ARG	LEU	SER	K2558	L2562	Q2566	R2567	D2568	S2576	ILE	CYS	GLY	GLN	LEU	ARG	F2583	M2601	HIS	ALA	K2605	P2607	L2611	G2627	TRP	GLY	ASN	PHE	GLY	ALA	A2634	L2639															
R2643	K2644	G2648	L2653	SER	GLN	LYS	LYS	Y2658	F2679	ASP	TYR	MET	GLU	SER	ASN	VAL	MET	MET	GLU	LYS	GLN	SER	SER	MET	ASP	SER	GLU	W2701	F2702	M2703	P2704	Q2705	P2706	V2707	D2708	T2709	S2710	M2711	T2712	T2713	P2714	P2715	E2716	K2717	L2718	E2719	Y2720	F2721	M2722	N2723	K2724	Y2725							



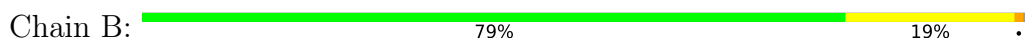
• Molecule 1: RyR2



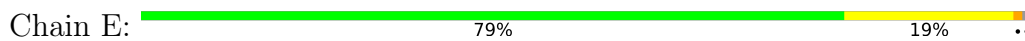
HIS	THR	ARG	ASN	PRO	GLN	GLY	THR	ASN	TYR	T3098	T3099	V3100	P3104	H3105	L3106	G3114	Q3115	H3116	Q3117	F3118	GLY	GLU	ASP	LEU	I3124	S3130	C3131	Y3132	R3133	I3134	S3137	L3138	L3141	G3142	T3143	S3144	LYS	SER	ILE	TYR	V3149	E3150	E3158	A3161	A3162	F3163								
A3164	G3165	A3166	PHE	PRO	VAL	A3170	F3171	L3172	E3173	T3174	H3175	L3176	D3177	K3178	H3179	N3180	I3181	Y3182	S3183	ILE	TYR	ASN	ASN	TRP	THR	LYS	LYS	SER	GLY	ARG	GLU	ASP	LEU	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA			
GLU	SER	GLY	ILE	ARG	TRP	TYR	THR	MET	GLN	VAL	VAL	VAL	VAL	PRO	MET	LEU	CYS	PRO	TYR	ILE	MET	SER	ARG	GLU	GLU	ASP	ALA	LEU	ALA	GLU	LEU	ARG	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA			
ILE	ILE	TYR	ASN	ASN	TRP	ASP	ASP	ASP	GLY	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU				
GLU	VAL	ARG	GLY	ASP	MET	SER	GLY	GLY	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA	ALA			
PHE	ILE	TRP	TRP	GLN	LYS	VAL	SER	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL			
THR	SER	LEU	ILE	VAL	ALA	ALA	LEU	LEU	LYS	ASN	ASN	THR	THR	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP		
ALA	ILE	TRP	GLN	MET	ALA	ALA	LEU	TYR	LYS	ASN	THR	THR	THR	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	ASP	
LYS	ALA	VAL	TRP	VAL	GLN	VAL	GLY	L3591	L3592	S3593	K3594	Q3595	R3596	R3605	Y3610	N3611	L3612	R3616	F3621	L3622	Q3623	G3624	Y3625	E3626	K3627	E3633	E3634	H3635	E3638	E3643	D3644	L3645	P3648	GLY	ALA	VAL	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO		
L3668	I3669	R3674	L3677	K3682	L3683	Y3692	I3695	C3700	HIS	ASP	GLU	GLU	ASP	ASP	ASP	GLY	GLU	GLU	GLU	GLU	GLU	VAL	S3714	K3724	A3730	R3731	L3732	H3733	R3735	G3736	A3737	S3748	K3777	Y3781	K3785	K3786	D3787	F3790	S3900	C3801	L3804	F3809	E3810											
R3811	Q3812	G3819	MET	THR	GLU	G3825	K3829	D3834	L3844	L3879	L3880	R3881	S3882	S3885	D3888	F3889	W3891	D3900	A3910	N3919	T3922	I3925	Q3926	Q3934	L3936	S3935	H3938	R3940	D3943	V3946	L3949	H3950	C3958	M3973	Q3976																			
K3977	S3984	S3985	M3986	L3987	N3993	I3996	S4007	M4010	L4015	D4031	T4032	F4033	K4034	Y4036	D4039	G4042	V4043	L4044	S4045	K4046	R4047	D4048	F4049	H4050	K4051	A4052	M4053	E4054	H4056	K4057	H4058	Y4059	T4060	Q4061	E4063	C4070	A4071	E4072	D4073	T4074	T4078	L4079	D4080	Y4081										
P4091	D4094	F4097	M4110	D4113	T4114	R4115	L4116	Q4117	T4118	F4119	L4122	A4123	F4130	L4134	R4148	S4154	E4155	G4181	K4186	I4207	SER	GLU	GLY	ALA	SER	ASP	ASN	ASN	GLU	ARG	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO		
GLY	PHE	PHE	SER	LEU	VAL	THR	VAL	VAL	ARG	SER	TYR	ASN	VAL	LEU	THR	LEU	THR	LEU	LEU	LYS	MET	THR	ARG	MET	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU		
LEU	LEU	HIS	PHE	ALA	ALA	SER	VAL	VAL	ARG	SER	ILE	GLY	GLY	LEU	LEU	VAL	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY		
LEU	GLU	GLY	THR	LEU	PRO	SER	GLU	ASP	THR	THR	THR	THR	THR	ASP	ASN	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU	LEU
GLU	VAL	GLN	GLY	THR	PHE	GLN	GLY	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU



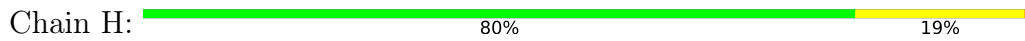
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B



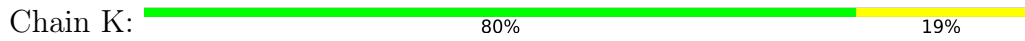
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B



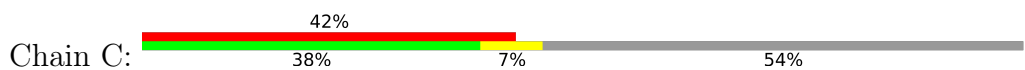
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B

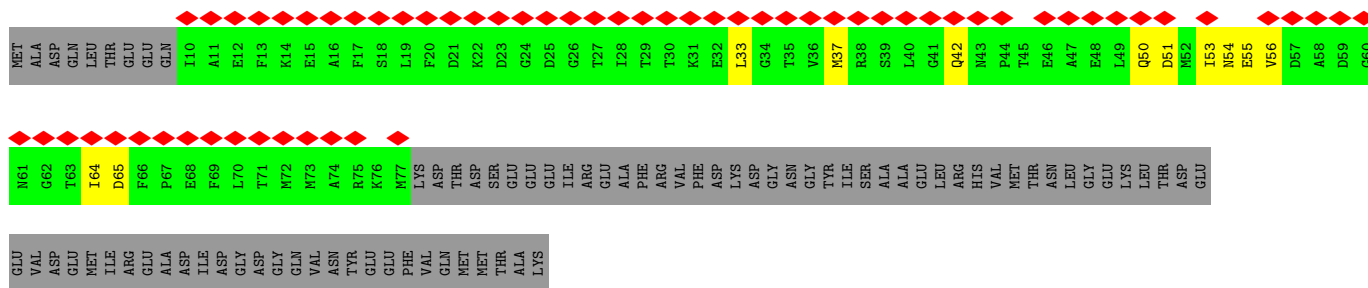


• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B

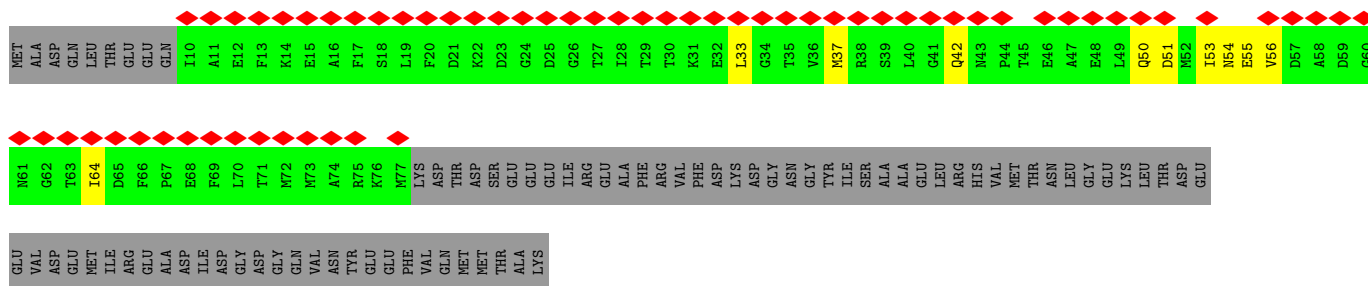
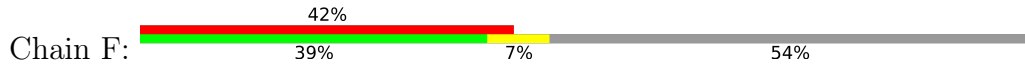


• Molecule 3: Calmodulin-1

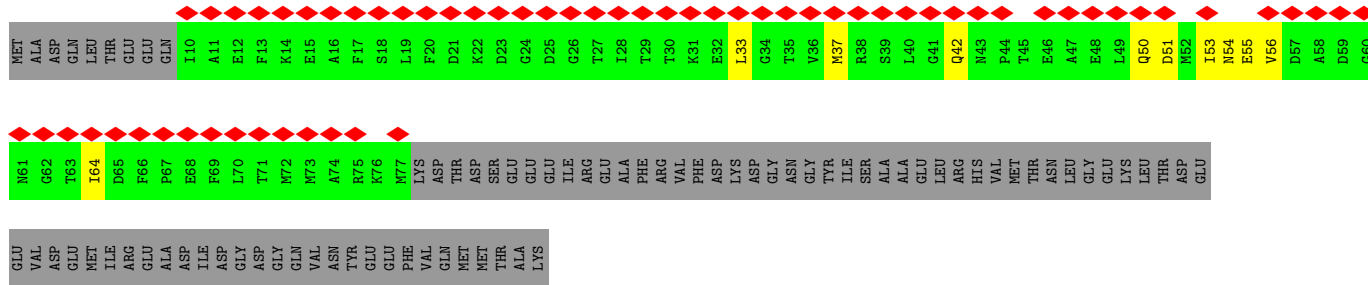
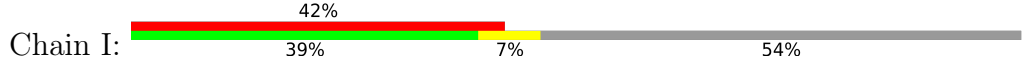




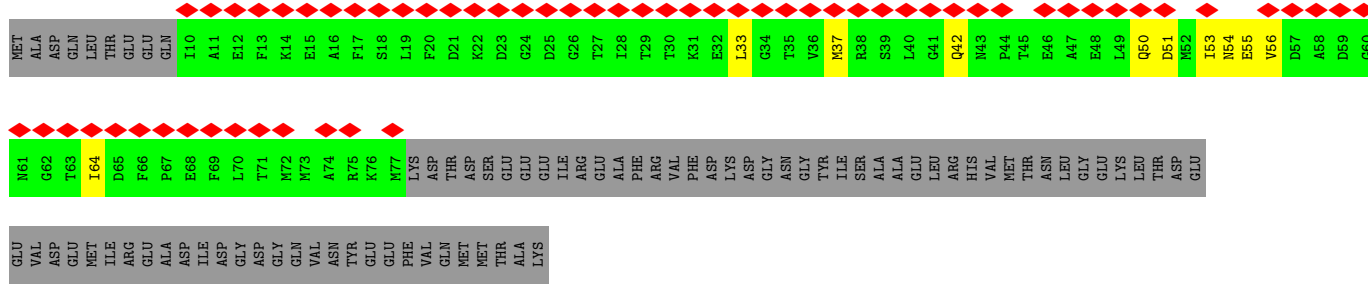
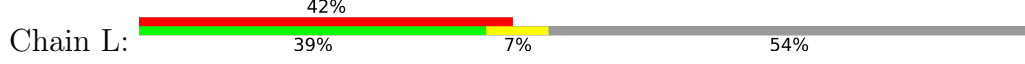
• Molecule 3: Calmodulin-1



• Molecule 3: Calmodulin-1



• Molecule 3: Calmodulin-1



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C4	Depositor
Number of particles used	77092	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 ($e^-/\text{\AA}^2$)	45.6	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	0.121	Depositor
Minimum map value	-0.046	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.023	Depositor
Map size (Å)	535.2, 535.2, 535.2	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.338, 1.338, 1.338	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: ZN, ATP, CA, CFF

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	0.35	2/27161 (0.0%)	0.55	7/36737 (0.0%)
1	D	0.34	0/27161	0.55	9/36737 (0.0%)
1	G	0.34	0/27161	0.55	5/36737 (0.0%)
1	J	0.34	0/27161	0.55	6/36737 (0.0%)
2	B	0.33	0/835	0.53	0/1123
2	E	0.33	0/835	0.53	0/1123
2	H	0.33	0/835	0.53	0/1123
2	K	0.33	0/835	0.53	0/1123
3	C	0.29	0/530	0.49	0/711
3	F	0.29	0/530	0.49	0/711
3	I	0.29	0/530	0.49	0/711
3	L	0.29	0/530	0.49	0/711
All	All	0.34	2/114104 (0.0%)	0.55	27/154284 (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	23
1	D	0	23
1	G	0	23
1	J	0	23
All	All	0	92

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	4521	TYR	N-CA	7.55	1.61	1.46
1	A	4522	LYS	CA-C	-6.22	1.36	1.52

The worst 5 of 27 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	4823	ARG	N-CA-C	10.38	139.02	111.00
1	D	4823	ARG	CB-CA-C	-7.98	94.43	110.40
1	A	730	LEU	CA-CB-CG	6.89	131.16	115.30
1	D	730	LEU	CA-CB-CG	6.89	131.16	115.30
1	G	730	LEU	CA-CB-CG	6.89	131.16	115.30

There are no chirality outliers.

5 of 92 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	295	PHE	Peptide
1	A	728	ASP	Peptide
1	A	729	GLY	Peptide
1	A	739	ARG	Peptide
1	A	816	PRO	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	26661	0	25136	600	0
1	D	26661	0	25136	589	0
1	G	26661	0	25136	605	0
1	J	26661	0	25136	598	0
2	B	819	0	824	15	0
2	E	819	0	824	15	0
2	H	819	0	824	14	0
2	K	819	0	824	14	0
3	C	524	0	504	8	0
3	F	524	0	504	7	0
3	I	524	0	504	7	0
3	L	524	0	504	7	0
4	A	1	0	0	0	0
4	D	1	0	0	0	0
4	G	1	0	0	0	0
4	J	1	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	1	0	0	0	0
5	C	2	0	0	0	0
5	D	1	0	0	0	0
5	F	2	0	0	0	0
5	G	1	0	0	0	0
5	I	2	0	0	0	0
5	J	1	0	0	0	0
5	L	2	0	0	0	0
6	A	31	0	12	0	0
6	D	31	0	12	0	0
6	G	31	0	12	0	0
6	J	31	0	12	0	0
7	A	14	0	10	1	0
7	D	14	0	10	1	0
7	G	14	0	10	1	0
7	J	14	0	10	1	0
All	All	112212	0	105944	2282	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 10.

The worst 5 of 2282 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:4852:PHE:CZ	1:D:4823:ARG:HA	1.59	1.37
1:G:4861:ALA:CB	1:J:4864:GLN:HE21	1.53	1.22
1:D:4861:ALA:CB	1:G:4864:GLN:HE21	1.52	1.22
1:A:4861:ALA:CB	1:D:4864:GLN:HE21	1.52	1.21
1:A:4782:TYR:CD2	1:A:4851:PHE:CD1	2.30	1.20

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	3374/4968 (68%)	3009 (89%)	357 (11%)	8 (0%)	47	80
1	D	3374/4968 (68%)	3012 (89%)	355 (10%)	7 (0%)	47	80
1	G	3374/4968 (68%)	3012 (89%)	354 (10%)	8 (0%)	47	80
1	J	3374/4968 (68%)	3010 (89%)	355 (10%)	9 (0%)	41	76
2	B	105/108 (97%)	99 (94%)	6 (6%)	0	100	100
2	E	105/108 (97%)	99 (94%)	6 (6%)	0	100	100
2	H	105/108 (97%)	99 (94%)	6 (6%)	0	100	100
2	K	105/108 (97%)	99 (94%)	6 (6%)	0	100	100
3	C	66/149 (44%)	64 (97%)	2 (3%)	0	100	100
3	F	66/149 (44%)	64 (97%)	2 (3%)	0	100	100
3	I	66/149 (44%)	63 (96%)	3 (4%)	0	100	100
3	L	66/149 (44%)	64 (97%)	2 (3%)	0	100	100
All	All	14180/20900 (68%)	12694 (90%)	1454 (10%)	32 (0%)	50	80

5 of 32 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	4823	ARG
1	J	4823	ARG
1	G	4823	ARG
1	A	730	LEU
1	A	853	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	2672/4355 (61%)	2653 (99%)	19 (1%)	84	90
1	D	2671/4355 (61%)	2650 (99%)	21 (1%)	81	89

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	G	2671/4355 (61%)	2651 (99%)	20 (1%)	84	90
1	J	2671/4355 (61%)	2653 (99%)	18 (1%)	84	90
2	B	88/89 (99%)	87 (99%)	1 (1%)	73	84
2	E	88/89 (99%)	87 (99%)	1 (1%)	73	84
2	H	88/89 (99%)	87 (99%)	1 (1%)	73	84
2	K	88/89 (99%)	87 (99%)	1 (1%)	73	84
3	C	57/127 (45%)	57 (100%)	0	100	100
3	F	57/127 (45%)	57 (100%)	0	100	100
3	I	57/127 (45%)	57 (100%)	0	100	100
3	L	57/127 (45%)	57 (100%)	0	100	100
All	All	11265/18284 (62%)	11183 (99%)	82 (1%)	84	90

5 of 82 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	G	4780	TYR
1	J	1683	PRO
1	G	4818	MET
1	J	841	LYS
1	J	2836	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 162 such sidechains are listed below:

Mol	Chain	Res	Type
1	G	3993	ASN
1	J	2196	ASN
1	G	4864	GLN
1	J	604	HIS
1	J	3852	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 24 ligands modelled in this entry, 16 are monoatomic - leaving 8 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
7	CFF	J	6003	-	8,15,15	2.60	4 (50%)	8,23,23	1.30	1 (12%)
6	ATP	G	6002	-	26,33,33	0.90	1 (3%)	31,52,52	1.46	5 (16%)
7	CFF	A	6003	-	8,15,15	2.60	4 (50%)	8,23,23	1.30	1 (12%)
7	CFF	D	6003	-	8,15,15	2.60	4 (50%)	8,23,23	1.30	1 (12%)
7	CFF	G	6003	-	8,15,15	2.61	4 (50%)	8,23,23	1.31	1 (12%)
6	ATP	J	6002	-	26,33,33	0.90	1 (3%)	31,52,52	1.46	5 (16%)
6	ATP	D	6002	-	26,33,33	0.90	1 (3%)	31,52,52	1.46	5 (16%)
6	ATP	A	6002	-	26,33,33	0.90	1 (3%)	31,52,52	1.46	5 (16%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	CFF	J	6003	-	-	-	0/2/2/2
6	ATP	G	6002	-	-	7/18/38/38	0/3/3/3
7	CFF	A	6003	-	-	-	0/2/2/2
7	CFF	D	6003	-	-	-	0/2/2/2
7	CFF	G	6003	-	-	-	0/2/2/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	ATP	J	6002	-	-	7/18/38/38	0/3/3/3
6	ATP	D	6002	-	-	7/18/38/38	0/3/3/3
6	ATP	A	6002	-	-	7/18/38/38	0/3/3/3

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	6003	CFF	C5-C4	-4.65	1.33	1.39
7	D	6003	CFF	C5-C4	-4.63	1.33	1.39
7	A	6003	CFF	C5-C4	-4.61	1.33	1.39
7	J	6003	CFF	C5-C4	-4.61	1.33	1.39
7	A	6003	CFF	C6-N1	-4.27	1.32	1.38

The worst 5 of 24 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	6002	ATP	C3'-C2'-C1'	3.17	105.75	100.98
6	D	6002	ATP	C3'-C2'-C1'	3.17	105.75	100.98
6	G	6002	ATP	C3'-C2'-C1'	3.17	105.75	100.98
6	J	6002	ATP	C3'-C2'-C1'	3.17	105.75	100.98
6	A	6002	ATP	PB-O3B-PG	-3.15	122.02	132.83

There are no chirality outliers.

5 of 28 torsion outliers are listed below:

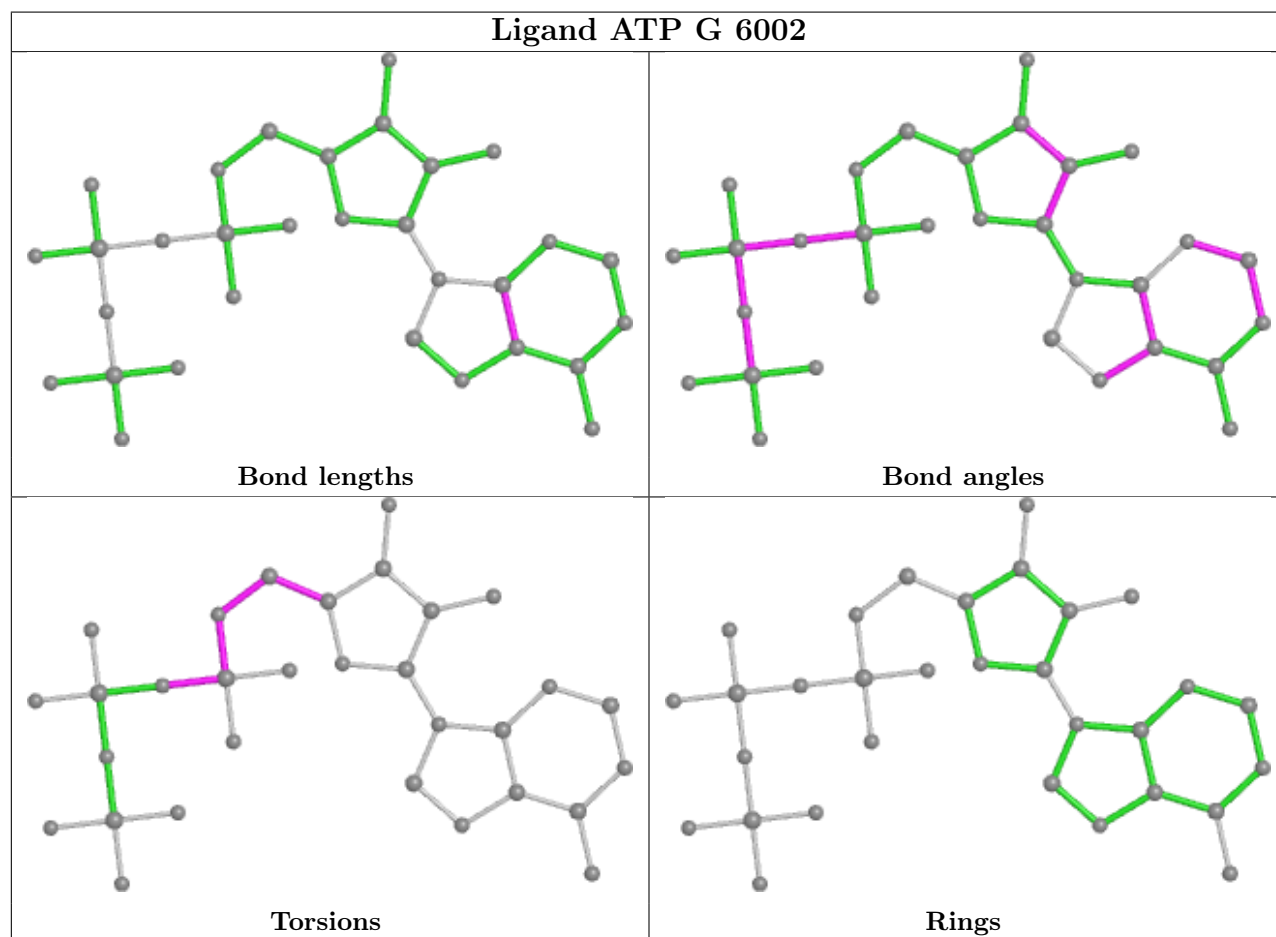
Mol	Chain	Res	Type	Atoms
6	A	6002	ATP	C5'-O5'-PA-O2A
6	A	6002	ATP	C5'-O5'-PA-O3A
6	D	6002	ATP	C5'-O5'-PA-O2A
6	D	6002	ATP	C5'-O5'-PA-O3A
6	G	6002	ATP	C5'-O5'-PA-O2A

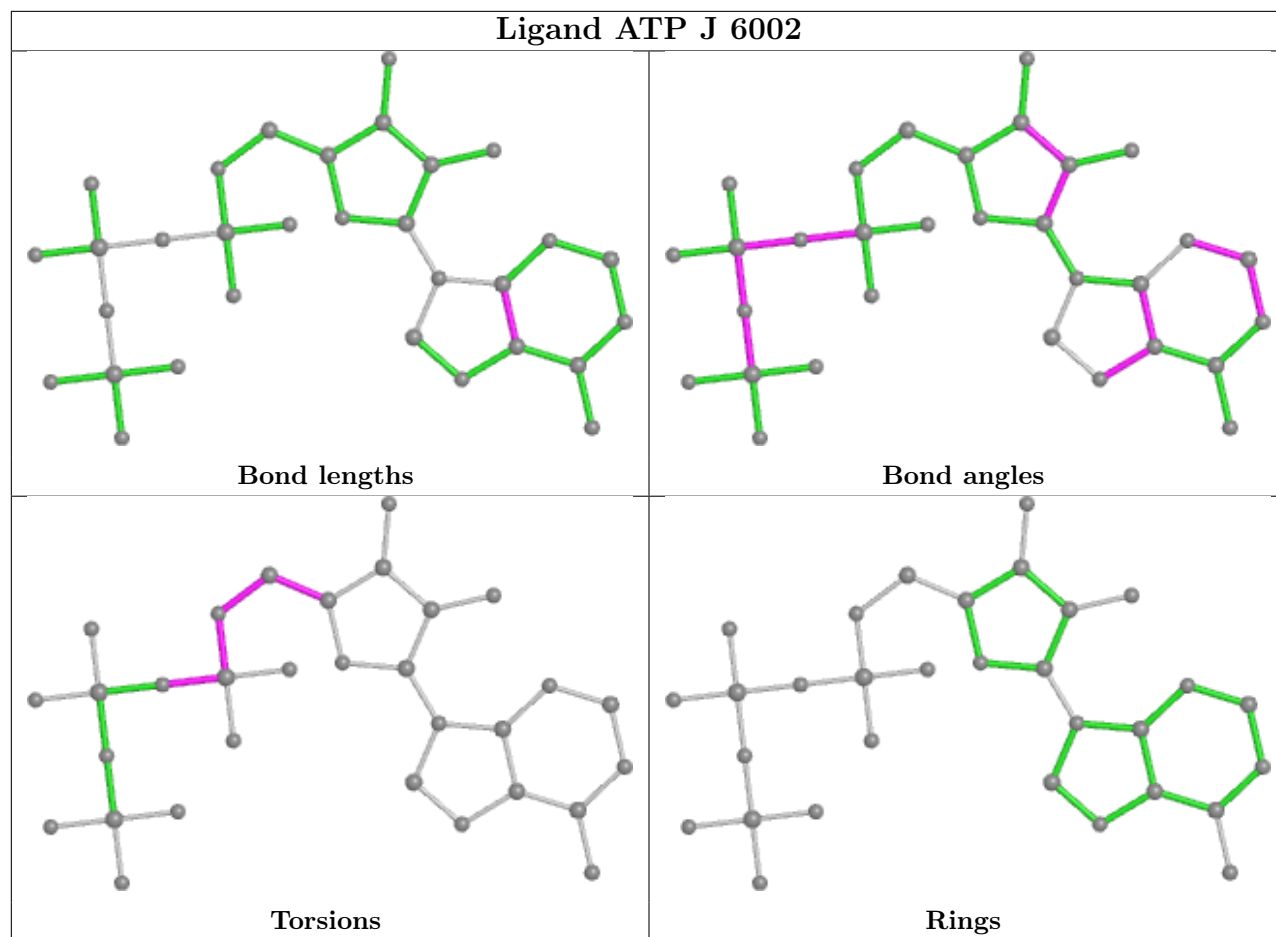
There are no ring outliers.

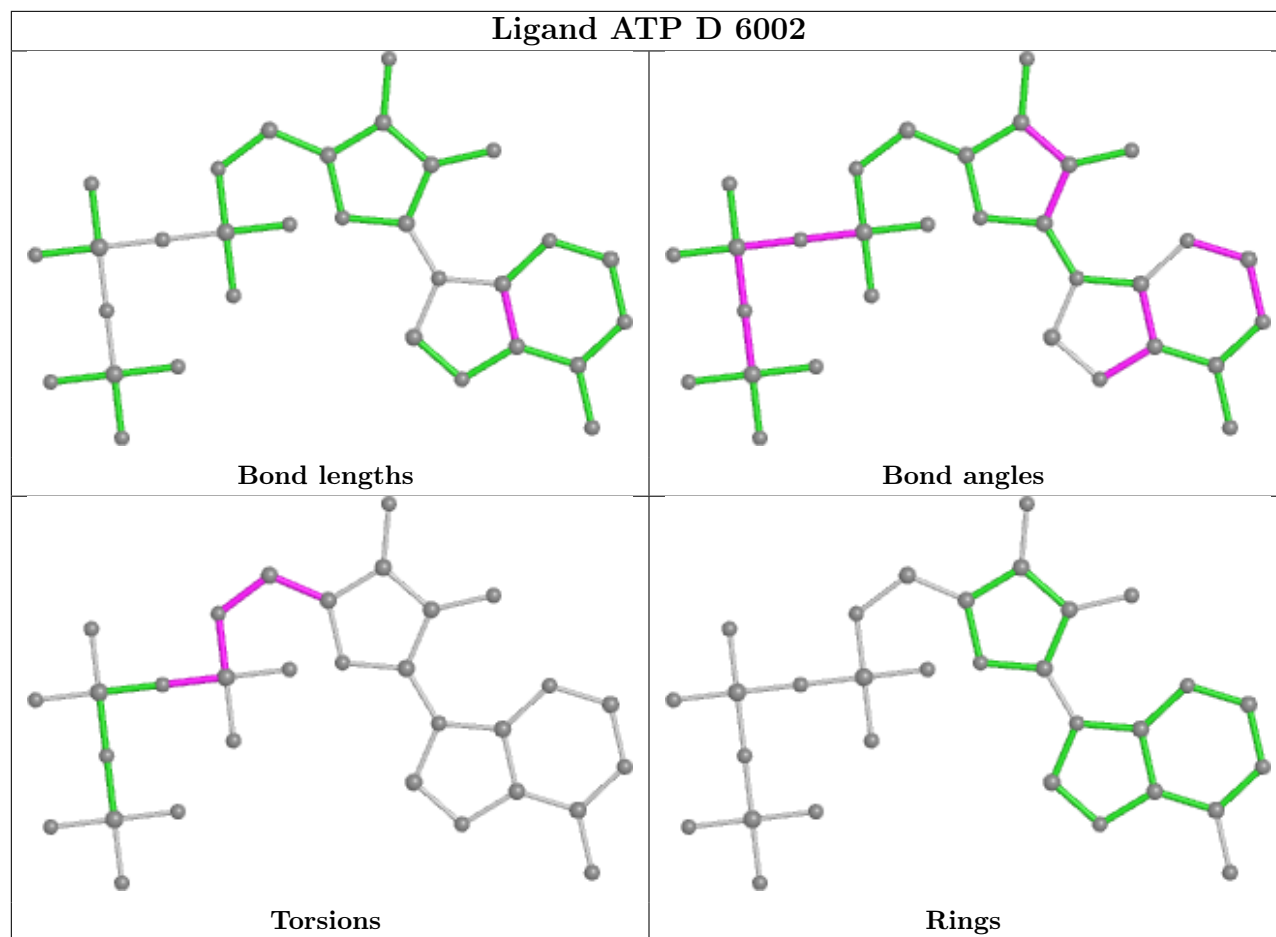
4 monomers are involved in 4 short contacts:

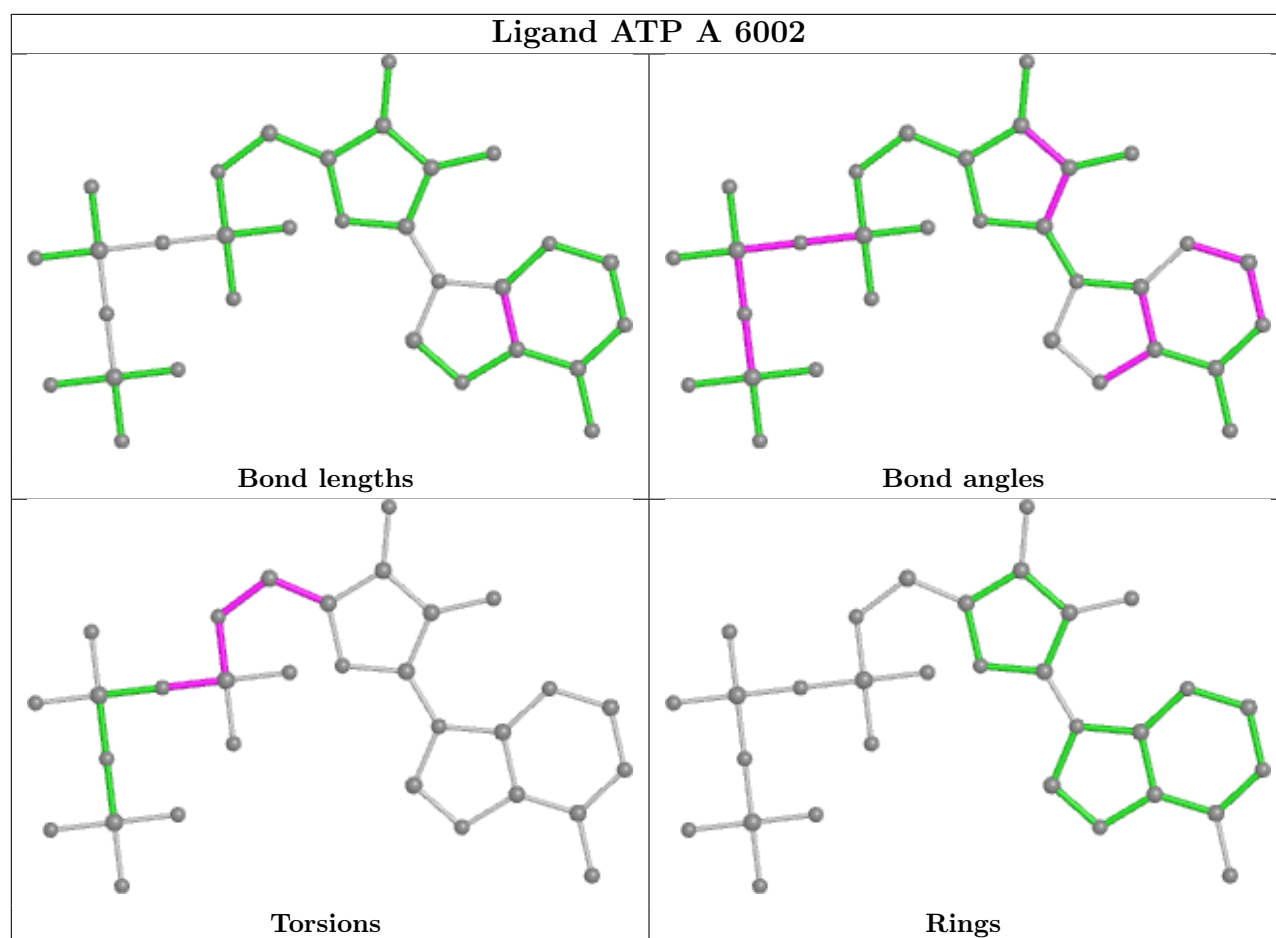
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	J	6003	CFF	1	0
7	A	6003	CFF	1	0
7	D	6003	CFF	1	0
7	G	6003	CFF	1	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

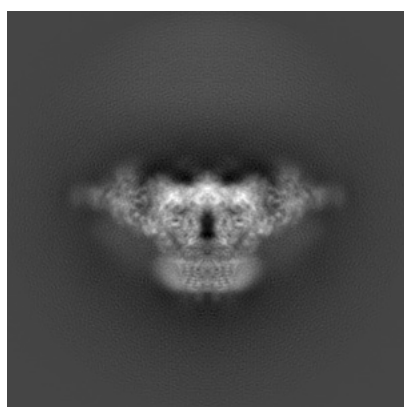
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-9836. These allow visual inspection of the internal detail of the map and identification of artifacts.

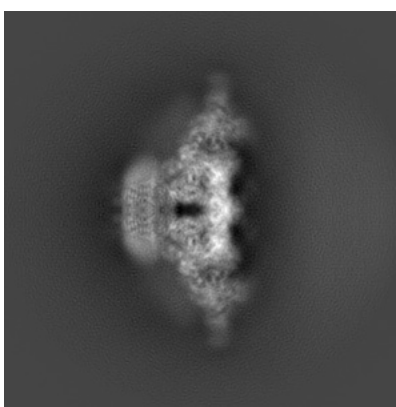
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

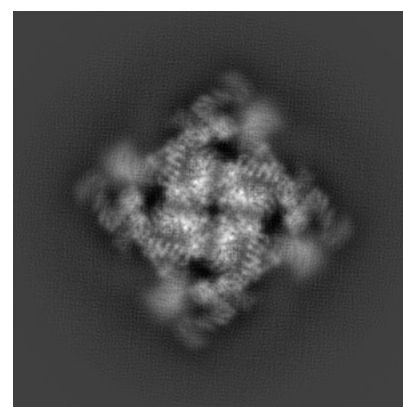
6.1.1 Primary map



X



Y

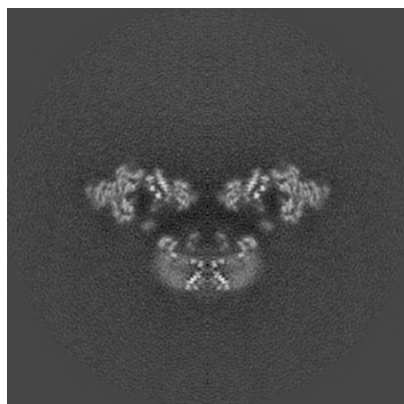


Z

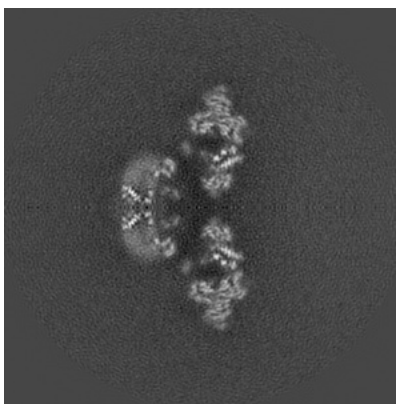
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

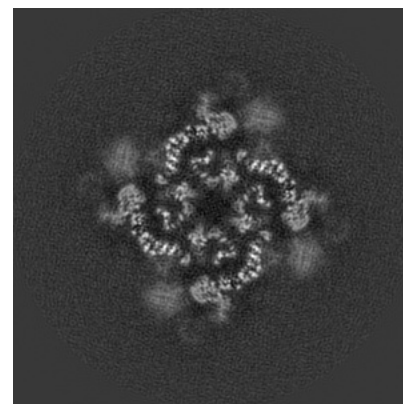
6.2.1 Primary map



X Index: 200



Y Index: 200

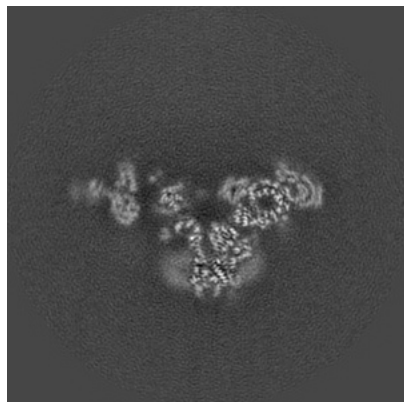


Z Index: 200

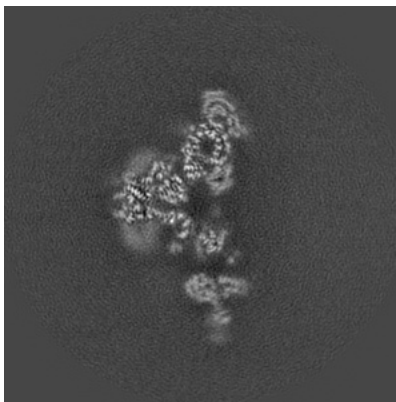
The images above show central slices of the map in three orthogonal directions.

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

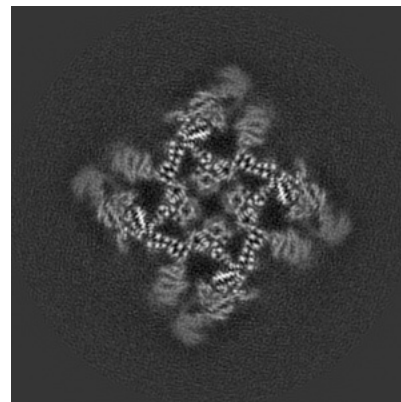
6.3.1 Primary map



X Index: 190



Y Index: 210

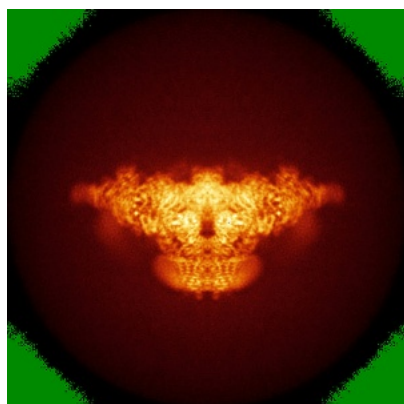


Z Index: 209

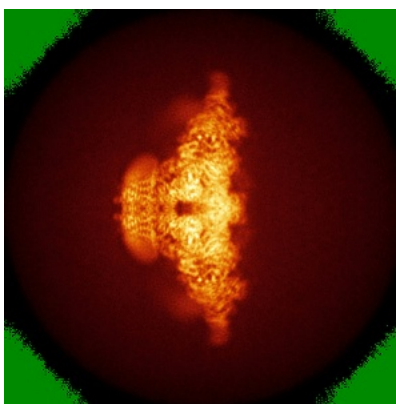
The images above show the largest variance slices of the map in three orthogonal directions.

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

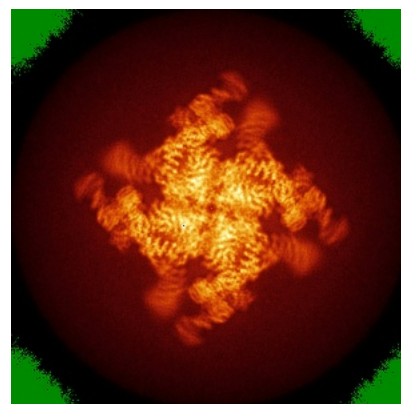
6.4.1 Primary map



X



Y

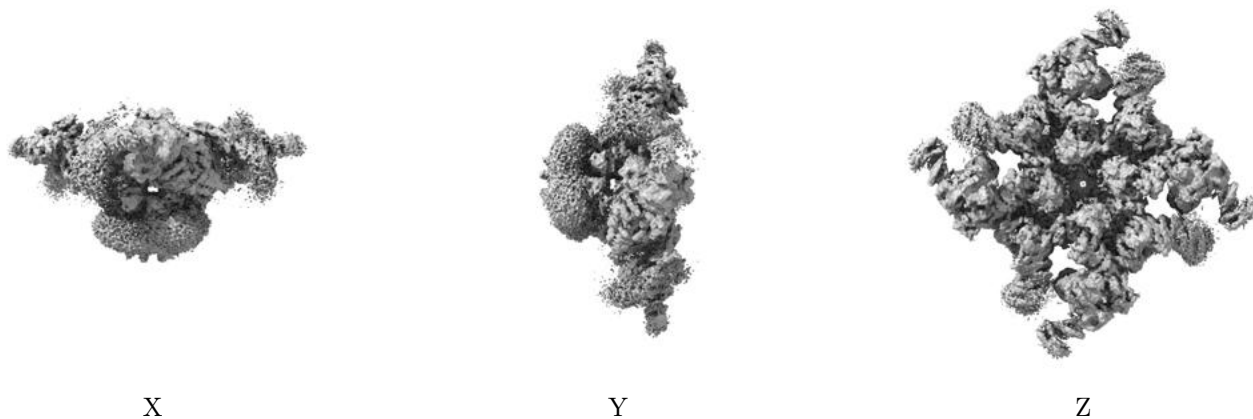


Z

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

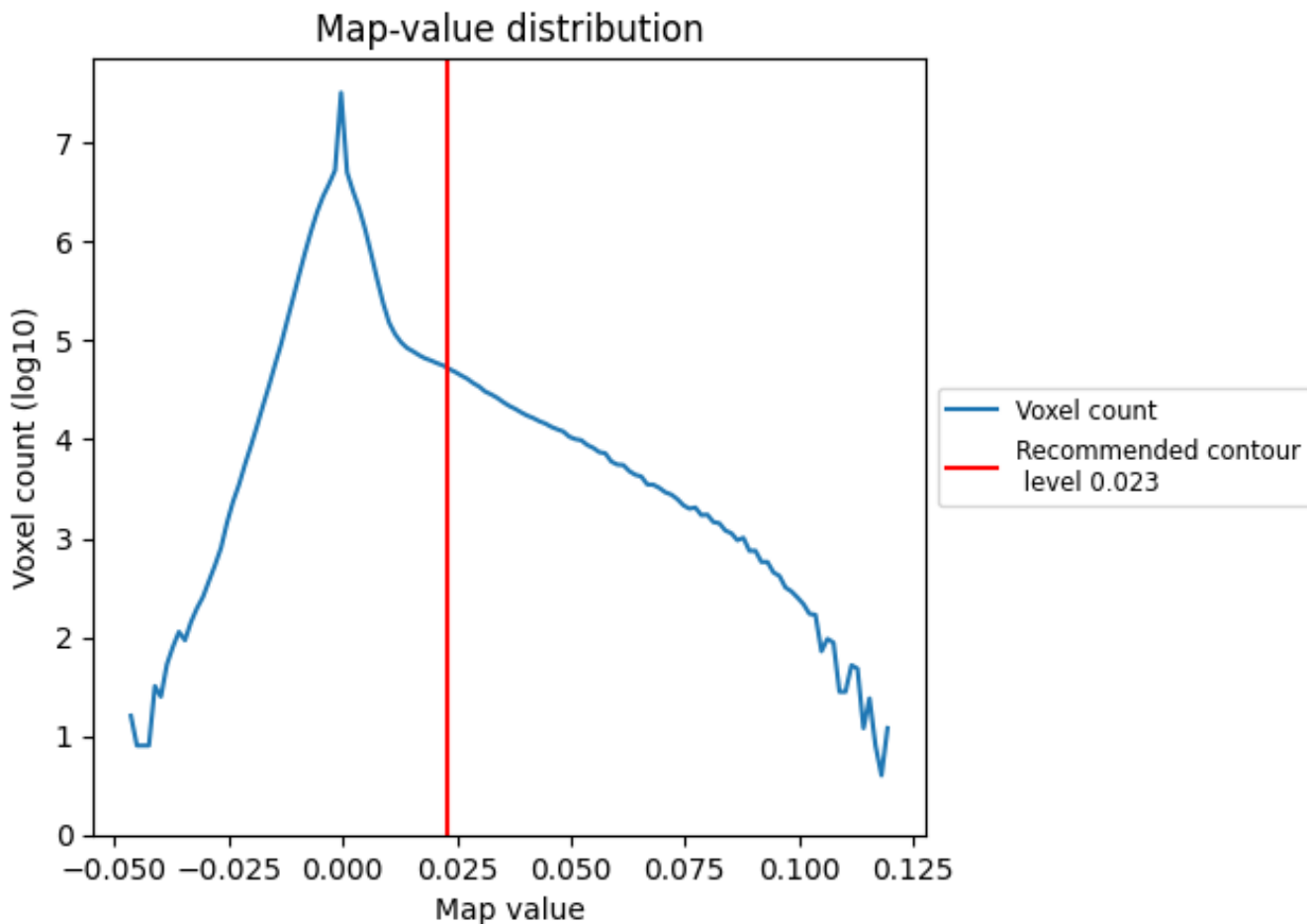
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

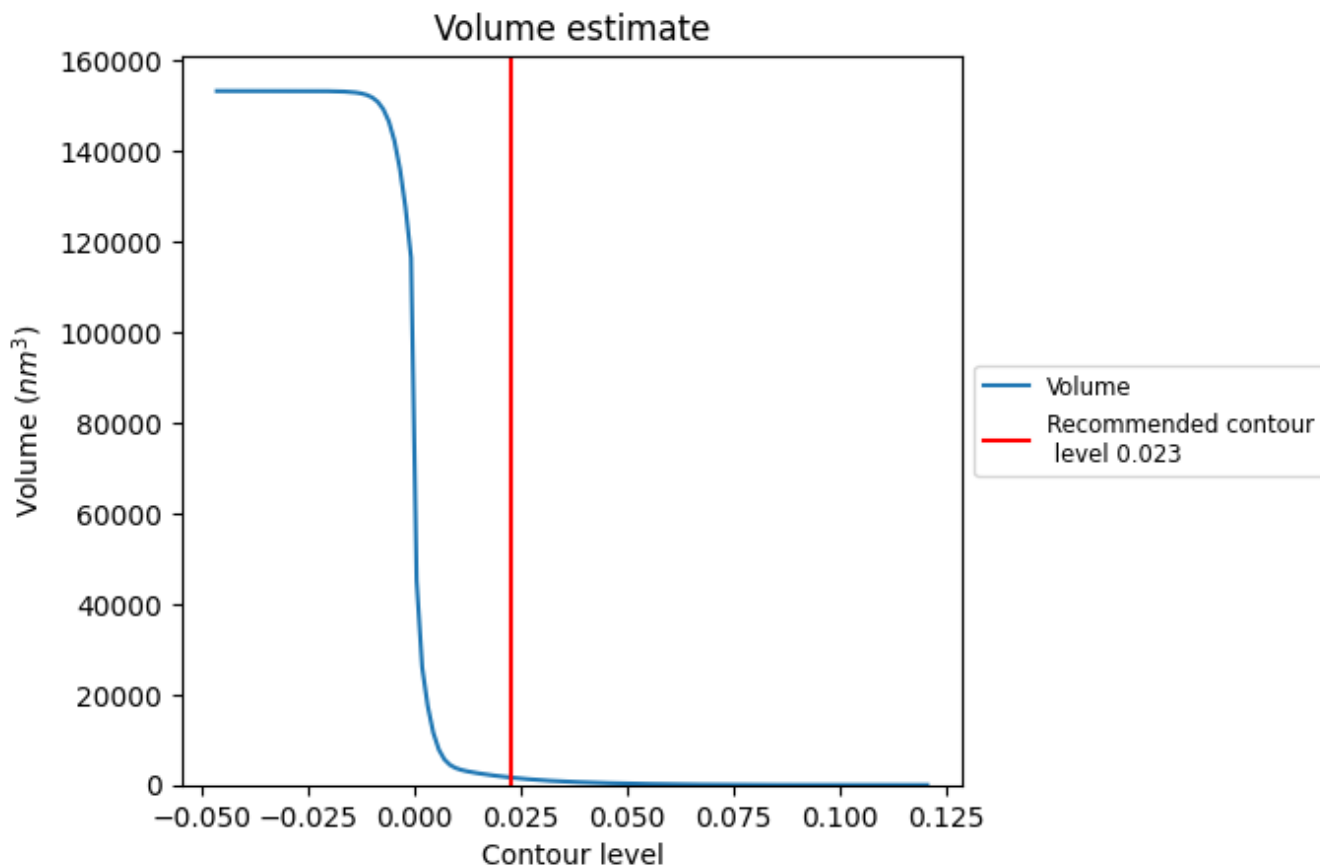
This section contains the results of statistical analysis of the map.

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.

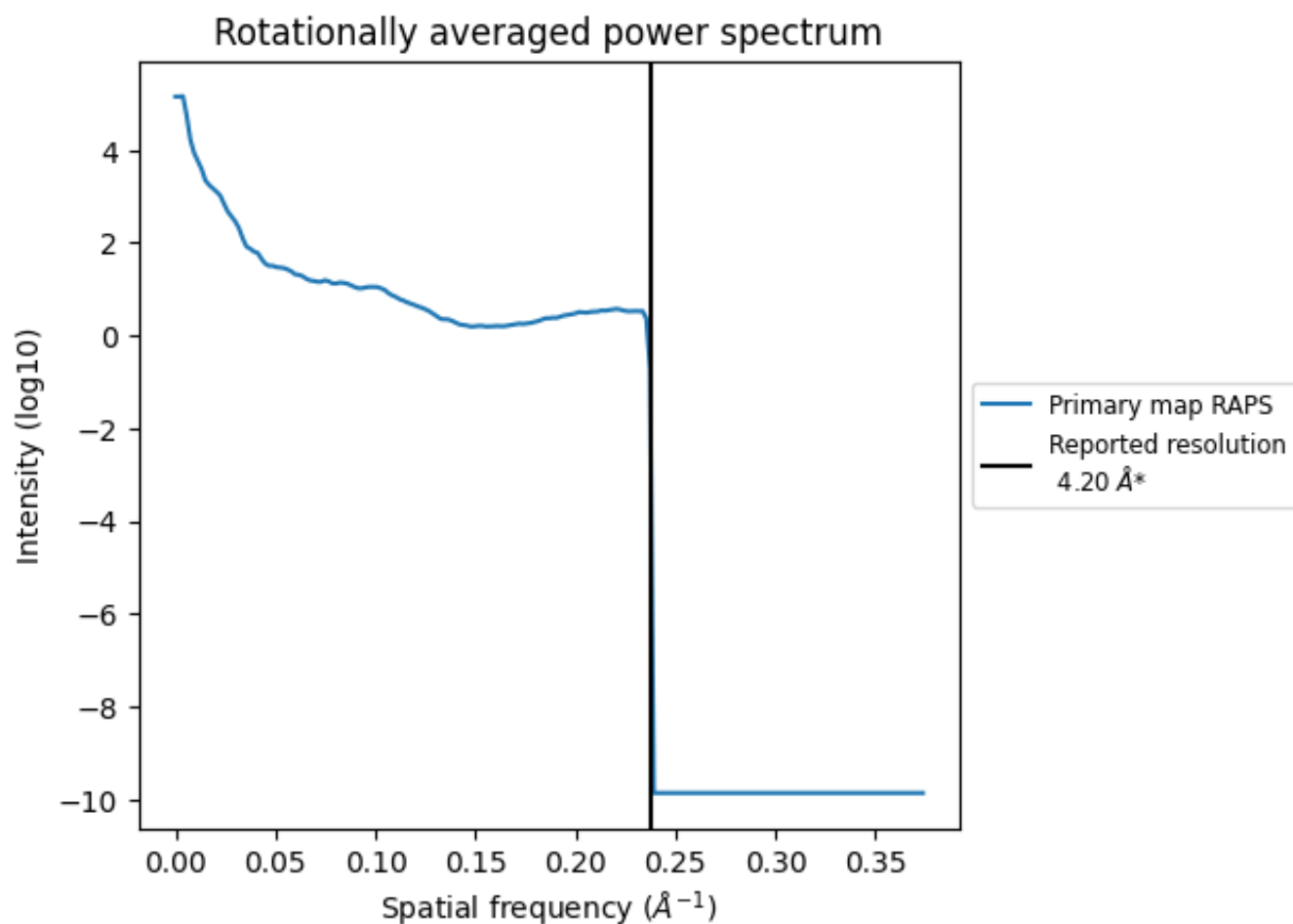
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1619 nm^3 ; this corresponds to an approximate mass of 1462 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 [\(i\)](#)

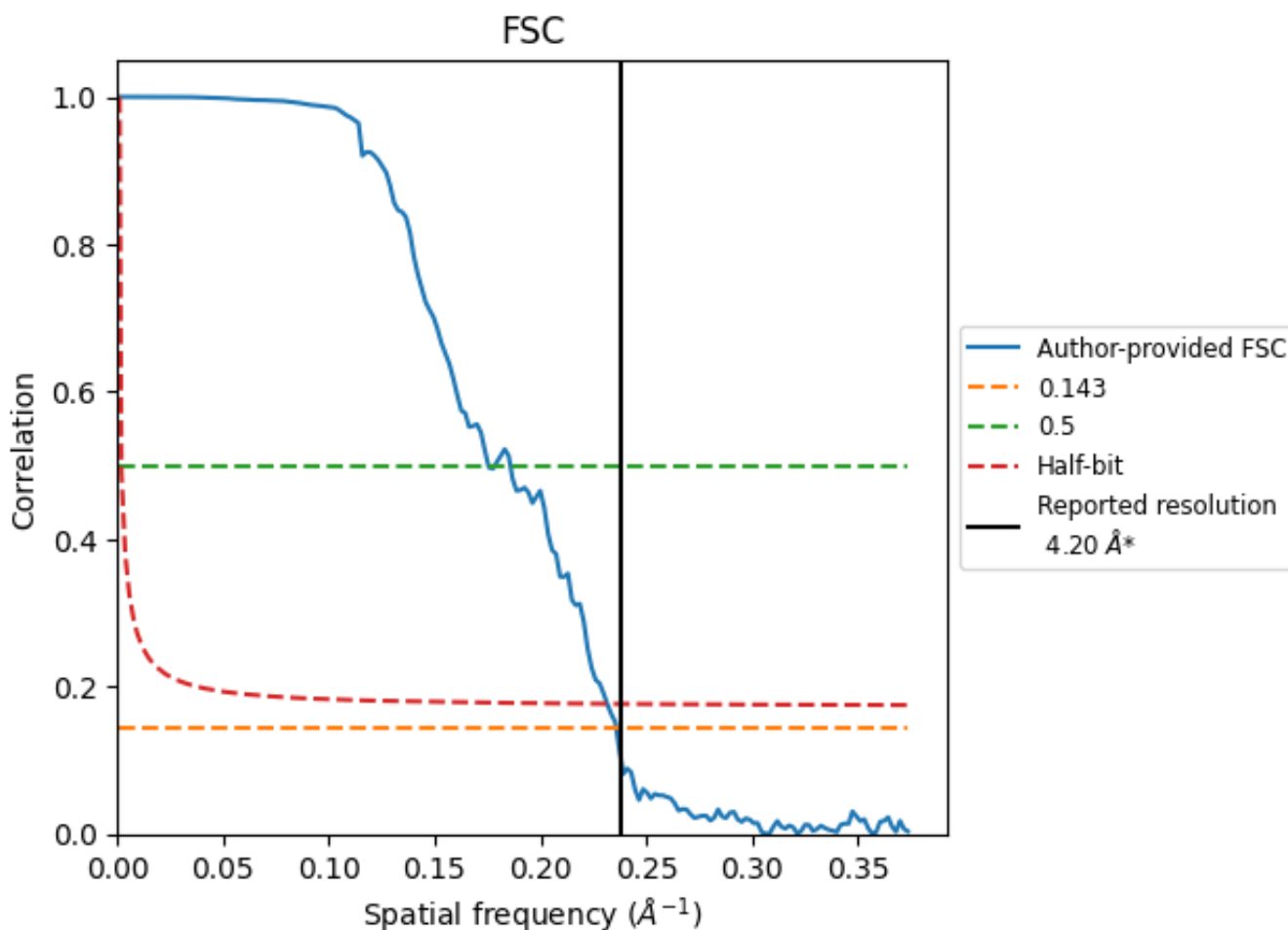


*Reported resolution corresponds to spatial frequency of 0.238 Å⁻¹

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 0.238 Å⁻¹

8.2 Resolution estimates [i](#)

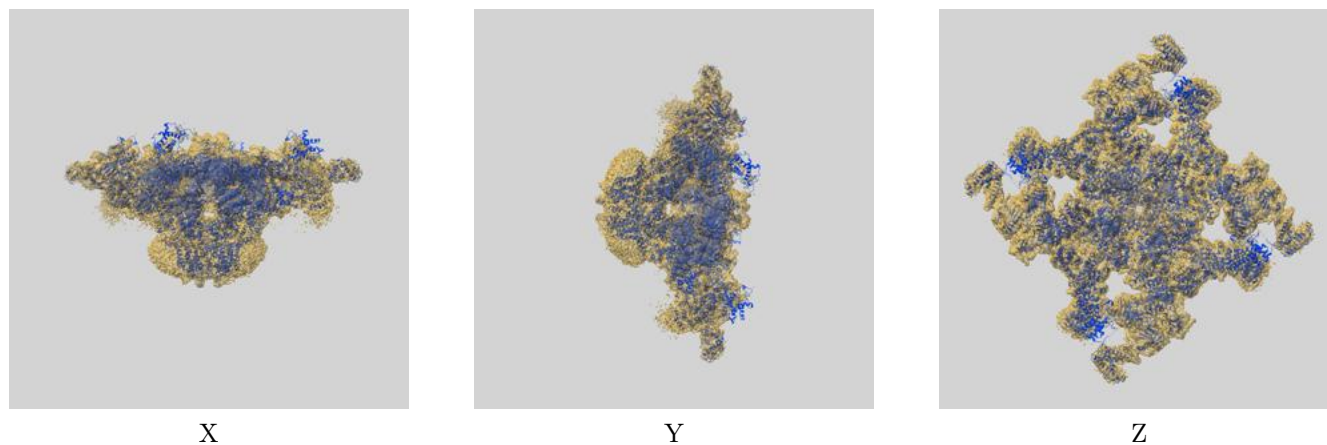
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.20	-	-
Author-provided FSC curve	4.24	5.70	4.32
Unmasked-calculated*	-	-	-

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

9 Map-model fit [i](#)

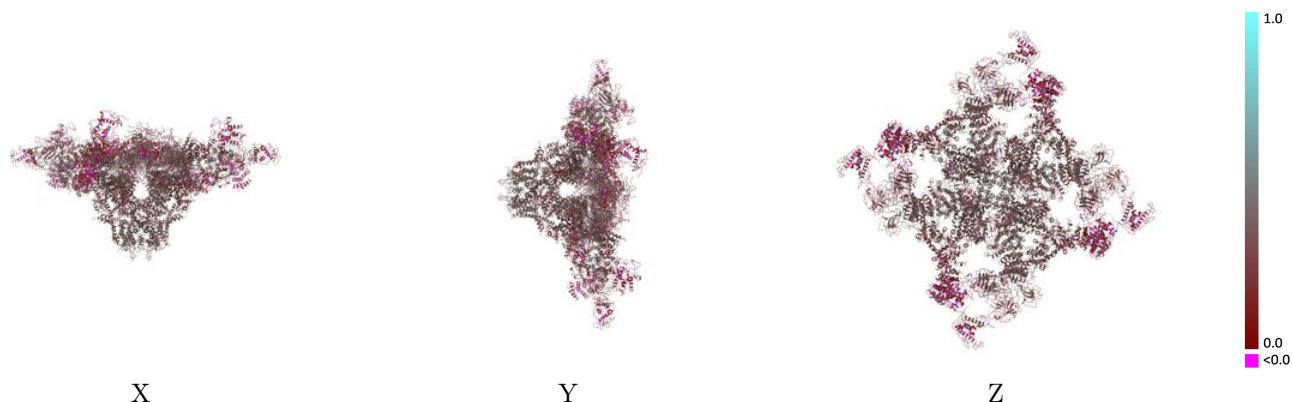
This section contains information regarding the fit between EMDB map EMD-9836 and PDB model 6JIU. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



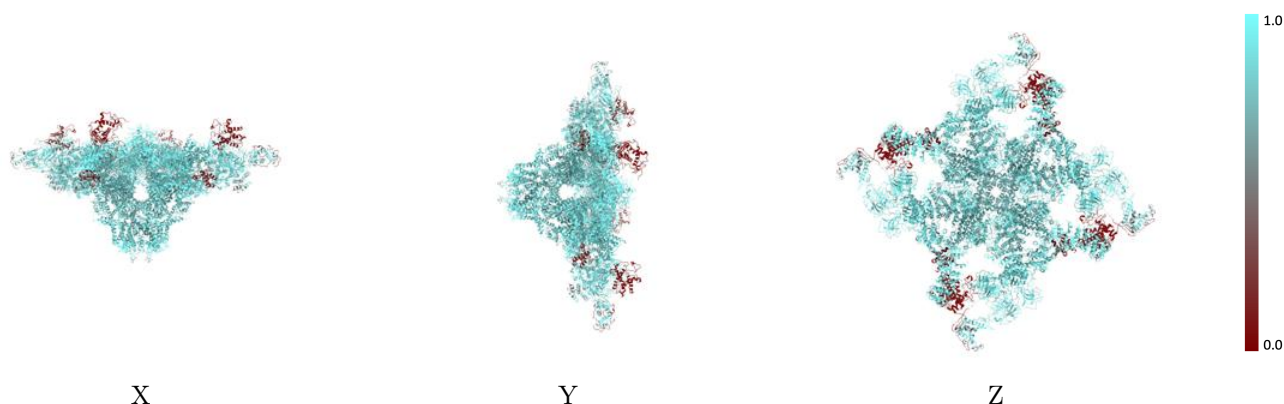
The images above show the 3D surface view of the map at the recommended contour level 0.023 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



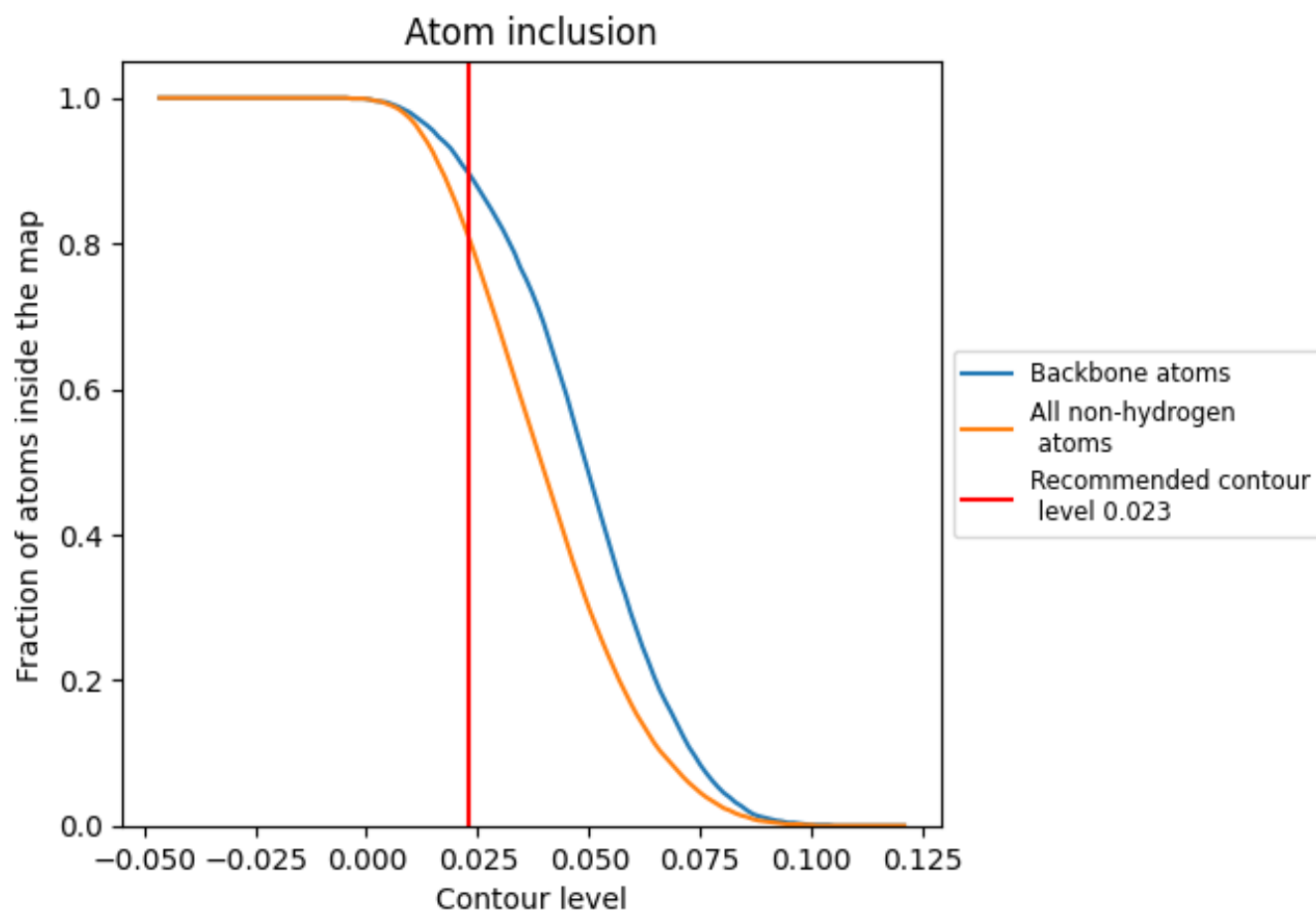
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.023).



























9.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 81% 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 (0.023) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8080	 0.3030
A	 0.8200	 0.3050
B	 0.8710	 0.3450
C	 0.1110	 0.1780
D	 0.8200	 0.3050
E	 0.8700	 0.3430
F	 0.1110	 0.1750
G	 0.8200	 0.3040
H	 0.8720	 0.3420
I	 0.1110	 0.1790
J	 0.8210	 0.3040
K	 0.8720	 0.3420
L	 0.1110	 0.1800

