



wwPDB EM Validation Summary Report ⓘ

Jan 21, 2026 – 04:34 PM EST

PDB ID : 9OL4 / pdb_00009ol4
EMDB ID : EMD-70589
Title : Cryo-EM Structure of Ryanodine Receptor 1: Drug Bound Open Conformation
Authors : Molinarolo, S.M.; Van Petegem, F.
Deposited on : 2025-05-12
Resolution : 3.37 Å(reported)
Based on initial model : 7TZC

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:

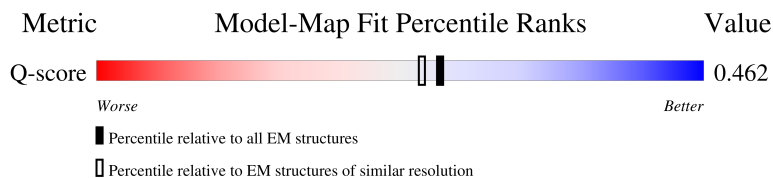
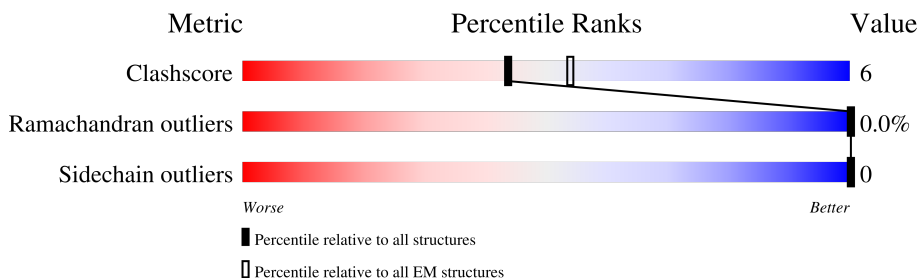
EMDB validation analysis : 0.0.1.dev129
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive 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) : 2.47

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 3.37 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	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	14287 (2.87 - 3.87)

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	5037	
1	G	5037	
1	M	5037	
1	S	5037	

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Mol	Chain	Length	Quality of chain
2	B	111	 86% 11% •
2	H	111	 86% 11% •
2	N	111	 86% 11% •
2	T	111	 86% 11% •

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 131292 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	4064	Total	C	N	O	S	0	0
			31873	20385	5494	5773	221		
1	G	4064	Total	C	N	O	S	0	0
			31873	20385	5494	5773	221		
1	M	4064	Total	C	N	O	S	0	0
			31873	20385	5494	5773	221		
1	S	4064	Total	C	N	O	S	0	0
			31873	20385	5494	5773	221		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	107	Total	C	N	O	S	0	0
			811	510	143	154	4		
2	H	107	Total	C	N	O	S	0	0
			811	510	143	154	4		
2	N	107	Total	C	N	O	S	0	0
			811	510	143	154	4		
2	T	107	Total	C	N	O	S	0	0
			811	510	143	154	4		

There are 12 discrepancies between the modelled and reference sequences:

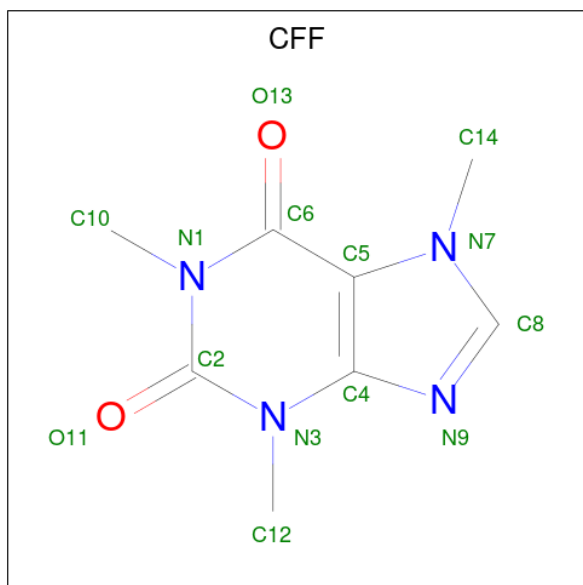
Chain	Residue	Modelled	Actual	Comment	Reference
B	-2	SER	-	expression tag	UNP P68106
B	-1	ASN	-	expression tag	UNP P68106
B	0	ALA	-	expression tag	UNP P68106
H	-2	SER	-	expression tag	UNP P68106
H	-1	ASN	-	expression tag	UNP P68106
H	0	ALA	-	expression tag	UNP P68106
N	-2	SER	-	expression tag	UNP P68106
N	-1	ASN	-	expression tag	UNP P68106
N	0	ALA	-	expression tag	UNP P68106

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Chain	Residue	Modelled	Actual	Comment	Reference
T	-2	SER	-	expression tag	UNP P68106
T	-1	ASN	-	expression tag	UNP P68106
T	0	ALA	-	expression tag	UNP P68106

- Molecule 3 is CAFFEINE (CCD ID: CFF) (formula: $C_8H_{10}N_4O_2$).

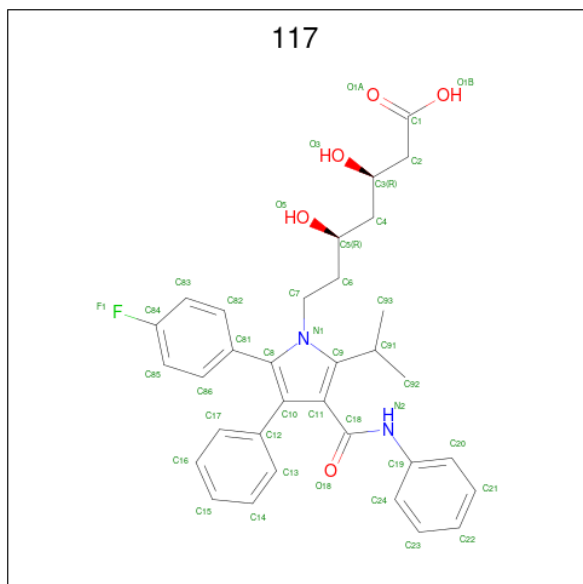


Mol	Chain	Residues	Atoms				AltConf
3	A	1	Total	C	N	O	0
			14	8	4	2	
3	G	1	Total	C	N	O	0
			14	8	4	2	
3	M	1	Total	C	N	O	0
			14	8	4	2	
3	S	1	Total	C	N	O	0
			14	8	4	2	

- Molecule 4 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
4	A	1	Total	Ca	0
			1	1	
4	G	1	Total	Ca	0
			1	1	
4	M	1	Total	Ca	0
			1	1	
4	S	1	Total	Ca	0
			1	1	

- Molecule 5 is 7-[2-(4-FLUORO-PHENYL)-5-ISOPROPYL-3-PHENYL-4-PHENYLCARBAMOYL-PYRROL-1-YL]-3,5-DIHYDROXY-HEPTANOIC ACID (CCD ID: 117) (formula: $C_{33}H_{35}FN_2O_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
5	A	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	A	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	A	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	G	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	G	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	G	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	M	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	M	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	M	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	S	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	S	1	Total	C	F	N	O	0
			41	33	1	2	5	
5	S	1	Total	C	F	N	O	0
			41	33	1	2	5	

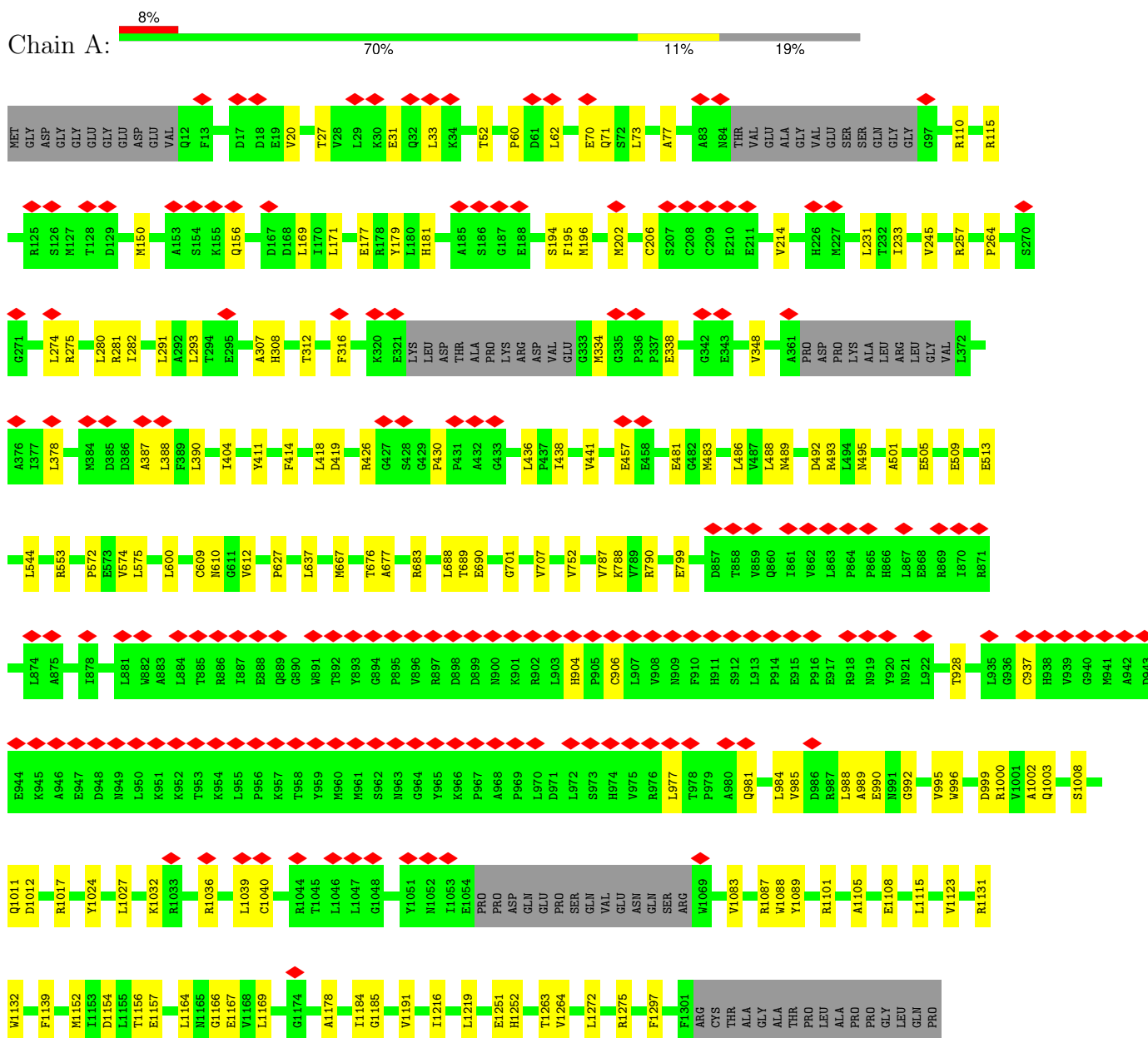
- Molecule 6 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
6	A	1	Total 1	Zn 1	0
6	G	1	Total 1	Zn 1	0
6	M	1	Total 1	Zn 1	0
6	S	1	Total 1	Zn 1	0

3 Residue-property plots

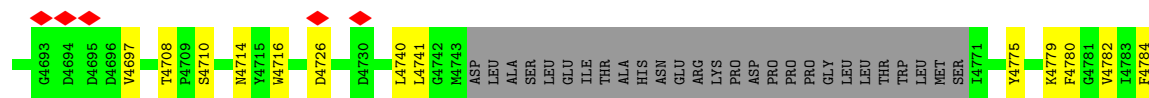
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

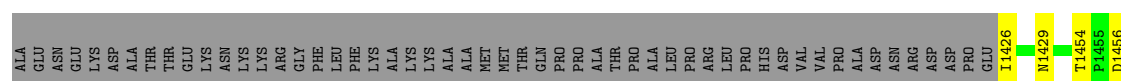
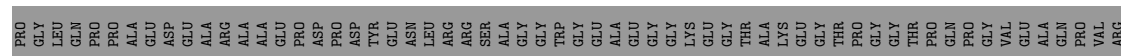
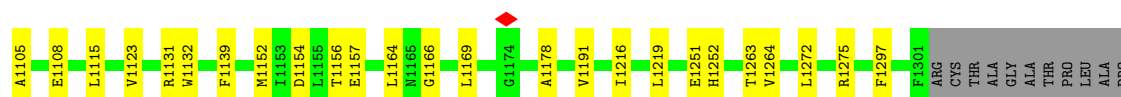
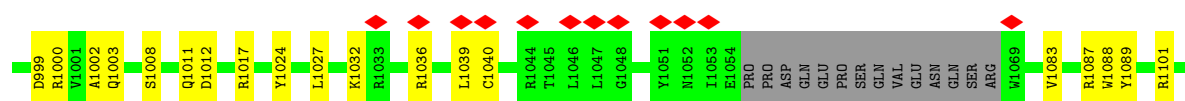
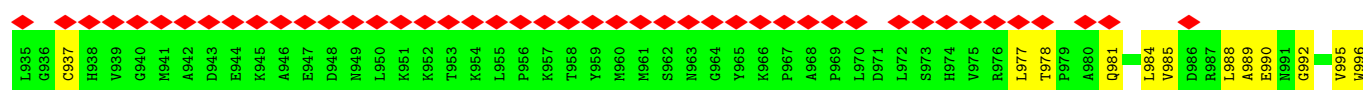
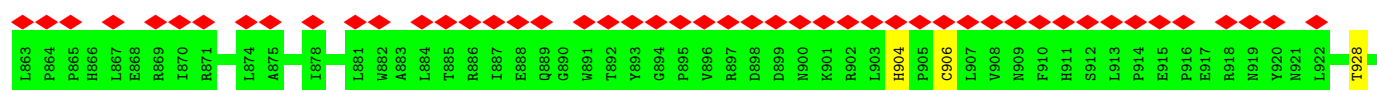
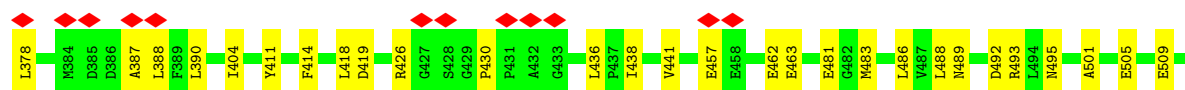
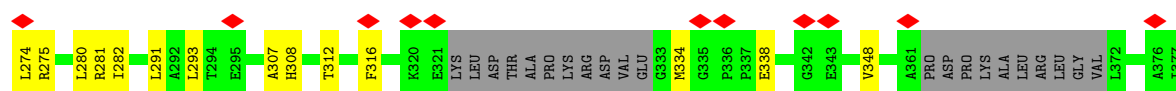
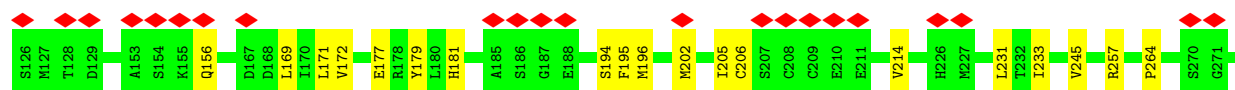
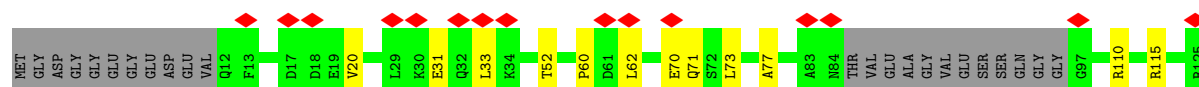


F2929	R2869	I2809	E2749	R2624	ASP	Y2266	W2101	ALA	GLU	P1773	N1482	ASP	PRO
L2930	E2870	K2810	K2750	R2625	ARG	L2257	D2109	ASP	LYS	L1786	V1501	ALA	GLU
Q2931	L2871	E2811	L2751	L2626	ARG	L2258	S2113	ASP	GLU	PRO	SER	THR	THR
M2932	Q2872	S2812	D2752	F2627	GLU	G2262	L2116	C2021	ALA	ALA	GLY	LYS	ALA
M2933	A2873	K2813	S2753	D2628	HIS	I2262	W2117	P2022	LYS	ALA	GLN	ASN	ALA
A2934	M2874	L2814	F2754	D2629	PHE	GLY	L2120	L2023	GLU	GLY	GLY	LYS	ALA
M2935	A2875	A2815	L2755	V2630	GLY	GLY	M2120	L2044	VAL	ALA	GLY	ARG	ALA
A2936	E2876	M2816	K2756	P2631	GLU	GLY	W2120	L2044	GLU	GLU	GLY	PRO	PRO
V2937	L2877	L2817	K2757	E2635	PRO	GLN	S2122	L2044	ALA	ALA	GLY	ASP	ASP
T2938	Q2877	A2818	F2758	M2639	GLU	G2269	L2123	L2044	PRO	PRO	GLY	THR	THR
K2939	A2879	W2819	A2759	P2640	GLU	S2270	L2124	L2044	GLY	GLY	HIS	LEU	ASP
GLY	E2880	W2820	E2760	L2643	GLU	T2271	H2125	L2044	GLY	GLY	THR	LEU	TYR
LEU	M2881	W2821	T2761	L2644	E2449	D2274	R2126	L2044	GLY	GLY	D1513	ALA	TYR
LYS	Y2882	T2822	T2762	R2650	R2452	V2275	Y2128	L2044	LYS	LYS	V1542	LYS	ASN
ASP	H2883	I2823	H2763	C2651	GLY	A2276	D2151	L2044	GLU	GLU	E1543	ALA	ARG
MET	N2884	E2824	E2764	E2670	LYS	L2286	W2153	L2044	GLU	GLU	P1544	ALA	ARG
GLU	T2885	K2825	K2765	L2678	ASP	E2292	L2159	L2044	THR	THR	T1557	ALA	ARG
ASP	W2886	A2826	W2766	L2678	GLY	Q2293	Q2161	L2044	LEU	LEU	V1561	GLY	GLY
THR	G2887	R2827	A2767	R2697	ALA	D2294	R2163	L2044	SER	SER	L1927	TRP	GLY
S2950	K2888	E2828	F2768	R2697	GLY	E2296	S2164	L2044	ARG	ARG	I1562	GLY	GLY
L2960	K2889	G2829	D2769	D2716	LYS	V2298	L2165	L2044	ARG	PRO	R1623	ALA	GLU
LEU	K2890	E2830	I2771	D2716	ASP	V2299	P2172	L2044	SER	GLU	Q1629	GLY	GLY
LYS	K2891	GLU	Q2772	ALA	THR	W2299	E2175	L2044	LEU	GLU	A1638	LEU	GLY
Q2892	Q2892	GLU	N2773	SER	SER	N2324	E2176	L2044	LEU	GLU	C1647	PRO	LYS
E2893	E2893	THR	M2774	SER	LYS	P2325	L2177	L2044	THR	GLU	L1669	ARG	GLY
L2894	L2894	GLY	W2775	ALA	ALA	C2326	W2178	L2044	VAL	GLU	L1694	HIS	ALA
E2895	E2895	LYS	S2776	GLU	GLY	R2330	K2189	L2044	ARG	GLU	L1698	LYS	LYS
A2896	A2896	LYS	T2777	LYS	LYS	D2333	W2196	L2044	LEU	GLU	L1698	GLY	GLU
F2973	K2897	ARG	G2778	ASP	ASP	F2334	R2199	L2044	ARG	GLU	R1727	VAL	GLY
L2974	G2898	LYS	E2779	THR	THR	L2527	W2203	L2044	ALA	GLU	L1731	ASN	THR
E2978	G2899	LYS	M2780	ALA	ALA	W2348	L2212	L2044	ALA	GLU	V1736	ASP	PRO
ALA	G2900	SER	W2781	VAL	VAL	A2350	V2212	L2044	PRO	GLU	P1740	ASP	GLN
VAL	H2901	GLN	D2782	ASP	ASP	N2351	G2216	L2044	THR	GLU	R1743	PRO	PRO
SER	T2902	THR	E2783	ALA	ALA	V2352	GLY	L2044	GLY	GLU	F1749	GLY	GLY
P2903	P2903	GLN	E2784	GLY	GLY	V2353	GLY	L2044	ALA	ASP	N1426	VAL	VAL
L2904	L2904	THR	E2785	ASN	ASN	R2355	GLY	L2044	ARG	GLU	N1429	GLU	ALA
L2905	L2905	TYR	L2786	PHE	PHE	L2368	GLY	L2044	ARG	GLU	T1454	GLN	GLN
V2906	V2906	ASP	K2786	ASP	ASP	D2389	GLY	L2044	GLY	GLU	P1455	PRO	PRO
P2907	P2907	PRO	T2787	R2737	R2737	P2395	L2223	L2044	LYS	GLU	D1456	VAL	VAL
LYS	Y2908	ARG	H2788	R2738	R2738	GLY	T2223	L2044	LYS	GLU	F1464	ALA	ALA
D2909	D2909	GLY	P2789	P2739	P2739	L2395	L2223	L2044	LYS	GLU	D1465	GLU	GLU
T2910	T2910	GLY	M2790	V2740	V2740	ARG	W2228	L2044	ASP	GLU	R1758	ASN	ASN
T2912	T2912	LYS	L2791	E2741	E2741	P2395	L2223	L2044	LYS	GLU	F1464	ALA	ALA
A2913	A2913	LYS	R2792	L2742	L2742	GLY	L2223	L2044	LYS	GLU	D1465	GLU	GLU
K2914	K2914	LYS	P2793	L2743	L2743	VAL	W2228	L2044	LYS	GLU	F1464	ALA	ALA
E2915	E2915	LYS	Y2794	N2744	N2744	ARG	L2228	L2044	LYS	GLU	D1465	GLU	GLU
E2916	E2916	LYS	K2795	L2745	L2745	ARG	W2228	L2044	LYS	GLU	F1464	ALA	ALA
A2917	A2917	LYS	T2796	L2746	L2746	ARG	L2228	L2044	LYS	GLU	D1465	GLU	GLU
R2918	R2918	LYS	F2797	I2747	I2747	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
D2919	D2919	LYS	S2798	P2748	P2748	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
R2920	R2920	LYS	E2799	P2748	P2748	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
E2921	E2921	LYS	K2800	D2801	D2801	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
K2922	K2922	LYS	D2801	L2802	L2802	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
A2923	A2923	LYS	E2803	L2804	L2804	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
Q2924	Q2924	LYS	I2804	L2805	L2805	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
E2925	E2925	LYS	I2805	L2806	L2806	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
L2926	L2926	LYS	R2806	L2807	L2807	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
L2927	L2927	LYS	W2807	P2808	P2808	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA
K2928	K2928	LYS	P2808	P2808	P2808	ARG	L2228	L2044	LYS	GLU	F1464	ALA	ALA





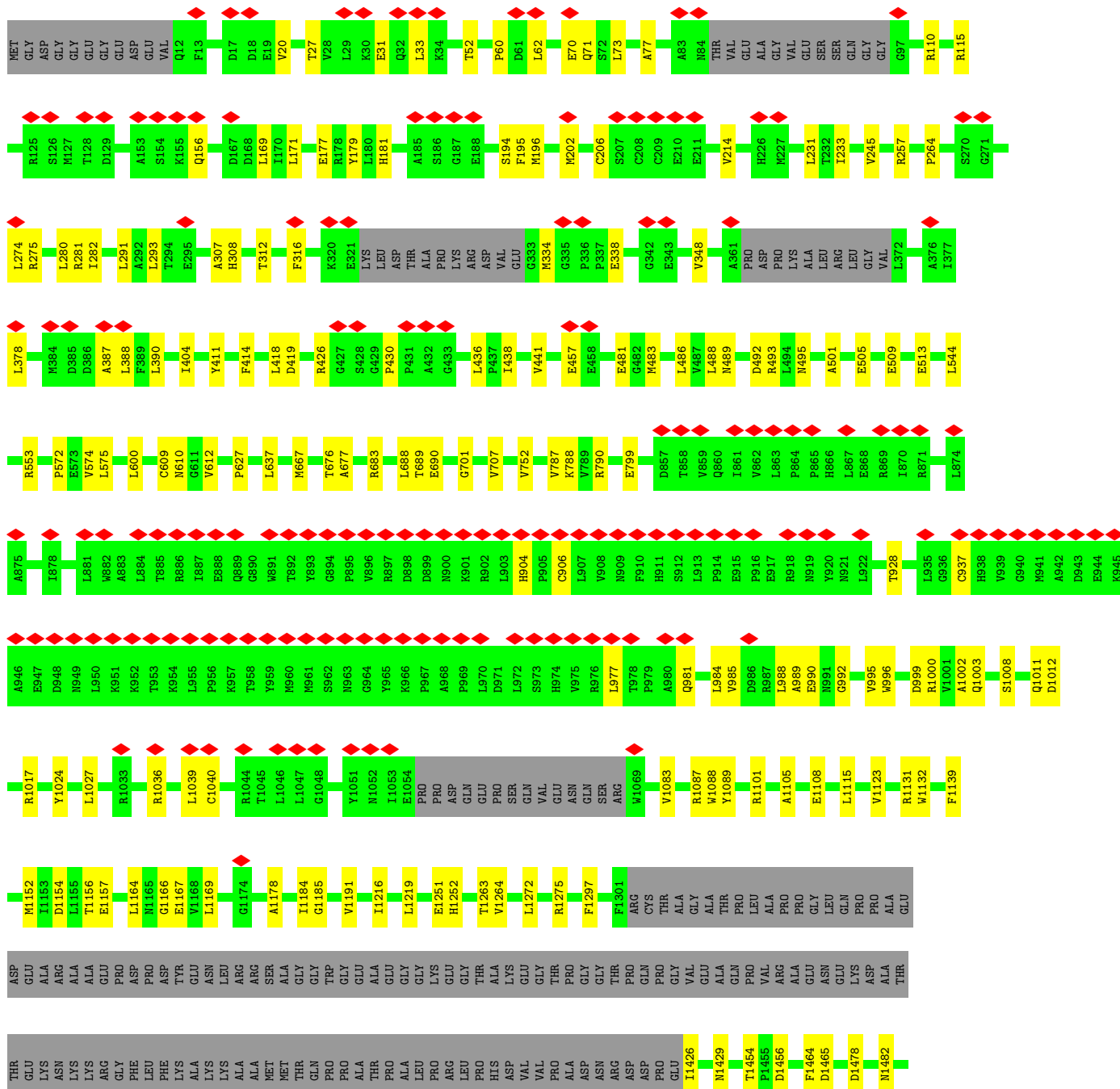
• Molecule 1: Ryanodine receptor 1



P3004	D2919	P2859	E2799	P2739	R2575	D2389	THR	GLU	Q2003	LYS	GLY	F1464
L3005	R2920	P2860	K2800	V2740	A2598	P2395	LYS	GLU	Q2003	GLU	GLY	D1465
N3007	E2921	D2861	D2801	E2741	Q2599	P2395	GLU	LYS	L2009	ASP	ALA	R1768
F3010	K2922	L2862	K2802	T2742	V2602	VAL	M2228	ASP	K2013	GLU	GLU	D1478
T3011	A2923	G2863	E2803	L2743	I2603	ARG	F2251	ALA	K2013	GLU	GLU	H1482
F3017	Q2924	G2864	T2804	N2744	12603	ASP	Y2256	ALA	V1765	GLU	GLU	V1501
E2925	E2925	V2865	Y2805	V2745	Q2620	ARG	L2257	GLU	P1773	LYS	GLU	SER
T3020	L2926	T2866	K2806	I2746	Q2620	ARG	L2258	GLU	P1773	ASP	GLY	GLN
P3021	L2927	L2867	W2807	I2747	R2624	ARG	G2262	ASP	L1766	ALA	GLN	GLN
K3036	K2928	S2868	P2808	P2748	R2625	GLU	G2262	ASP	C2021	GLU	GLN	THR
E3037	F2929	R2869	T2809	E2749	L2626	HIS	ILE	GLU	P2022	LYS	ALA	GLY
M3038	L2930	E2870	K2810	K2750	V2627	PHE	GLY	GLU	L2023	GLU	ALA	ARG
L3046	Q2931	L2871	E2811	L2751	F2628	GLU	GLY	GLU	L2023	GLU	GLY	ILE
V3050	M2932	Q2872	S2812	D2752	V2630	GLU	GLY	GLU	T2044	GLU	VAL	SER
R3051	M2932	A2873	L2813	S2753	P2631	PRO	MET	GLU	T2044	GLU	ALA	HIS
H3052	A2936	A2875	K2814	F2754	E2635	PRO	GLN	GLU	T2044	GLU	GLU	THR
F3057	V2937	A2876	A2815	T2755	M2639	GLU	G2269	GLU	T2044	GLU	GLU	V1542
D3060	T2938	Q2877	L2817	K2757	P2640	GLU	S2270	GLU	T2044	GLU	GLU	E1543
A3061	R2939	L2878	A2818	K2757	L2643	GLU	T2271	GLU	T2044	GLU	GLU	P1544
P3062	GLY	A2879	W2819	F2758	L2644	PRO	D2274	GLU	T2044	GLU	GLU	T1557
N3066	LEU	E2880	W2820	E2759	L2644	PRO	V2275	GLU	T2044	GLU	GLU	V1561
A3077	LYS	N2881	W2821	E2760	C2651	GLU	A2276	GLU	T2044	GLU	GLU	I1562
R3078	ASP	Y2882	T2822	Y2761	R2650	GLU	V2280	GLU	T2044	GLU	GLU	R1623
T3079	THR	H2883	L2823	K2762	E2670	GLU	L2286	GLU	T2044	GLU	GLU	Q1629
V3080	SER	T2884	E2824	K2765	L2678	GLU	E2292	GLU	T2044	GLU	GLU	V1638
G3084	SER	T2885	K2825	W2766	R2697	GLU	D2294	GLU	T2044	GLU	GLU	C1647
P3085	SER	W2886	A2826	W2767	R2697	GLU	L2295	GLU	T2044	GLU	GLU	L1669
V3088	SER	R2887	R2827	A2767	D2716	GLU	E2296	GLU	T2044	GLU	GLU	L1694
N3106	GLU	R2888	E2828	E2768	A2716	GLU	K2297	GLU	T2044	GLU	GLU	L1698
N3109	GLU	K2889	Q2829	D2769	ALA	GLU	V2298	GLU	T2044	GLU	GLU	R1727
L3110	ARG	K2890	E2830	K2770	ALA	GLU	V2299	GLU	T2044	GLU	GLU	L1731
R3111	THR	K2891	GLU	L2771	TYR	GLU	N2324	GLU	T2044	GLU	GLU	V1736
LEU	THR	Q2892	ARG	Q2772	SER	GLU	P2325	GLU	T2044	GLU	GLU	P1740
GLY	THR	E2893	ARG	N2773	LYS	GLU	C2326	GLU	T2044	GLU	GLU	R1743
GLY	THR	L2894	GLU	N2774	ALA	GLU	R2330	GLU	T2044	GLU	GLU	P1749
LYS	THR	E2895	LYS	W2775	LYS	GLU	D2333	GLU	T2044	GLU	GLU	PRO
LYS	THR	A2896	LYS	W2776	LYS	GLU	F2334	GLU	T2044	GLU	GLU	GLY
VAL	THR	K2897	THR	Y2777	ALA	GLU	N2196	GLU	T2044	GLU	GLU	ARG
SER	THR	G2898	ARG	G2778	VAL	GLU	R2199	GLU	T2044	GLU	GLU	ARG
GLN	THR	G2899	LYS	E2779	ASP	GLU	E2348	GLU	T2044	GLU	GLU	GLY
ALA	THR	G2900	ILE	N2780	ALA	GLU	N2349	GLU	T2044	GLU	GLU	GLY
THR	THR	T2901	SER	V2781	GLU	GLY	N2350	GLU	T2044	GLU	GLU	GLY
GLN	THR	H2902	THR	V2782	GLY	GLY	N2351	GLU	T2044	GLU	GLU	GLY
VAL	THR	P2903	ALA	D2783	ASN	GLY	V2352	GLU	T2044	GLU	GLU	GLY
VAL	THR	L2904	GLN	E2784	PHE	GLY	V2353	GLU	T2044	GLU	GLU	GLY
GLY	THR	L2905	THR	E2785	ASP	GLY	V2354	GLU	T2044	GLU	GLU	GLY
VAL	THR	L2906	THR	L2786	ASP	GLY	V2355	GLU	T2044	GLU	GLU	GLY
VAL	THR	P2907	ASP	K2786	P2737	GLY	L2368	GLU	T2044	GLU	GLU	GLY
GLY	THR	Y2908	ARG	T2787	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
LYS	THR	D2909	ARG	H2788	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
L3003	GLY	T2910	GLY	P2789	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		T2911	GLY	M2790	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		Y2912	GLY	L2791	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		A2913	GLY	R2792	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		K2914	GLY	P2793	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		E2915	GLY	Y2794	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		K2916	GLY	K2795	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		A2917	GLY	T2796	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
		R2918	GLY	F2797	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY
				S2798	R2738	GLY	L2368	GLU	T2044	GLU	GLU	GLY



- Molecule 1: Ryanodine receptor 1

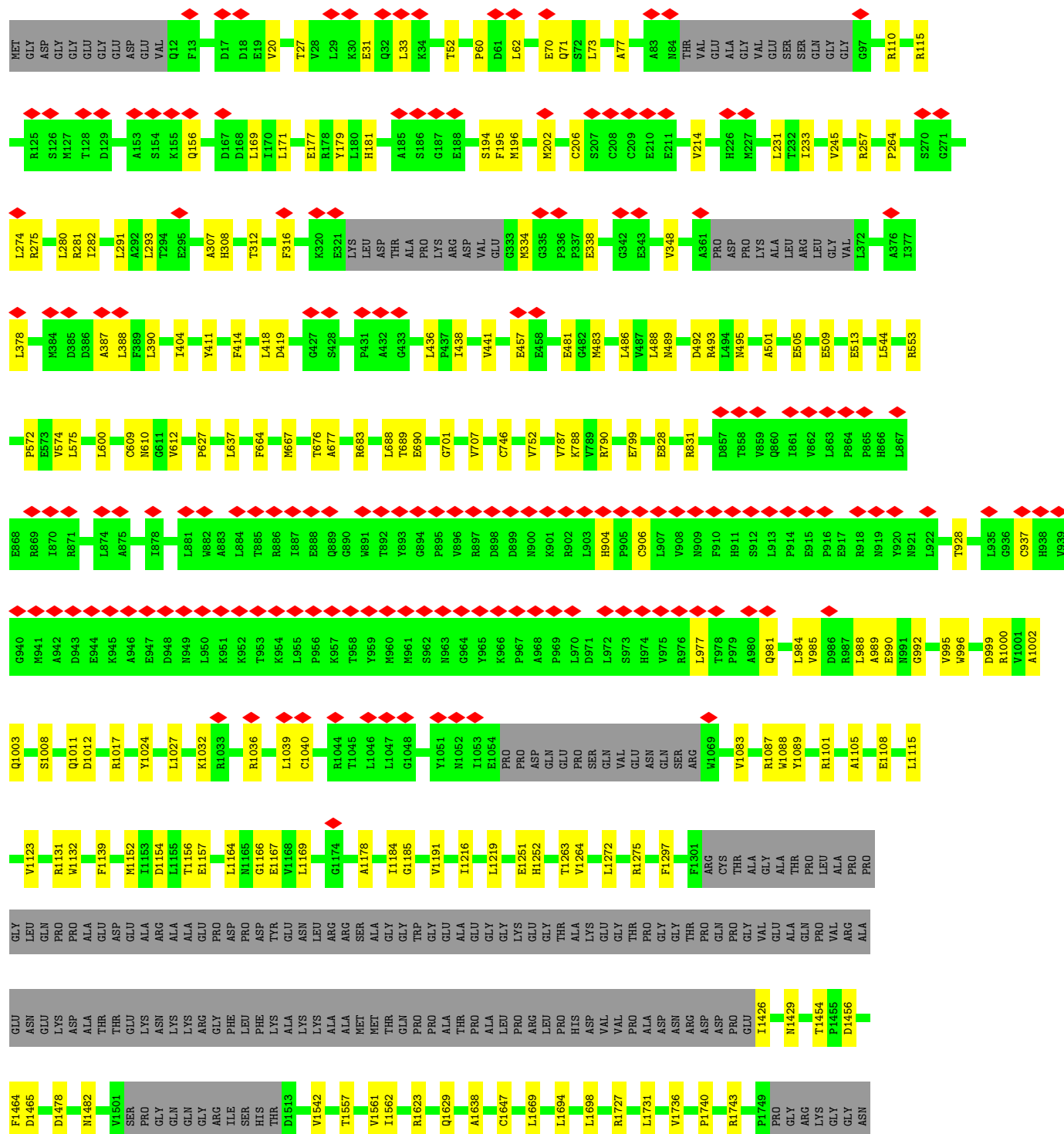


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GLN	GLY	L1786	ALA	GLU	ASP	ARG	Y2256	R2624	I2746	R2806	T2866	L2926	F3017
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ILE	ARG	ALA	ALA	ASP	GLU	GLU	S2113	V2627	K2750	L2809	R2869	F2929	K3036
SER	ILE	VAL	GLY	ALA	C2021	HIS	G2262	D2629	L2751	E2811	L2871	L2930	M3038
HIS	SER	ALA	VAL	GLY	L2023	PHE	I2116	V2630	D2752	S2812	Q2872	Q2931	L3046
THR	THR	GLU	ALA	GLU	L2044	GLY	V2117	P2631	L2753	L2813	A2873	M2932	L3046
D1513	D1513	ALA	ALA	GLU	GLN	PRO	M2120	E2635	F2754	K2814	M2874	G2934	L3046
V1542	V1542	P1795	P1795	GLU	LEU	PRO	GLY	K2638	I2755	A2815	A2875	A2935	V3050
E1543	E1543	E1805	E1805	ALA	GLU	PRO	G2269	M2639	L2756	M2816	E2876	R3051	R3051
P1544	P1544	R1808	R1808	GLY	GLY	GLU	S2270	P2640	K2757	L2817	Q2877	A2936	H3052
T1567	T1567	L1815	L1815	GLU	GLU	GLU	T2271	L2643	F2758	A2818	L2878	V2937	F3057
V1561	V1561	V1819	V1819	LYS	GLU	GLU	D2274	L2644	F2759	M2819	A2879	T2938	F3057
I1562	I1562	V1819	V1819	ASP	GLU	GLU	A2276	R2650	E2760	E2820	E2880	R2939	D3060
R1623	R1623	V1841	V1841	LEU	GLU	GLU	V2280	C2651	Y2761	M2821	N2881	GLY	A3061
Q1629	Q1629	V1845	V1845	GLU	THR	GLY	L2286	E2670	H2763	T2822	Y2882	LEU	P3062
A1638	A1638	S1846	S1846	LEU	SER	GLY	E2292	L2678	E2764	L2823	H2883	ASP	N3066
C1647	C1647	V1850	V1850	SER	SER	GLY	Q2283	L2678	K2765	E2824	N2884	GLU	C3067
L1669	L1669	E1867	E1867	ARG	ARG	ALA	D2294	R2697	K2766	A2826	T2885	LEU	L3068
L1694	L1694	T1872	T1872	LEU	LEU	L2485	E2296	M2698	A2767	R2827	Q2887	THR	A3077
L1698	L1698	L1943	L1943	GLU	ARG	K2499	K2297	D2716	F2768	E2828	R2888	SER	R3078
R1727	R1727	L1969	L1969	GLU	SER	V2503	V2298	ALA	K2770	Q2829	K2889	GLY	T3079
L1731	L1731	GLU	GLU	GLU	THR	Q2515	N3324	SER	I2771	GLU	K2890	L2960	V3080
V1736	V1736	GLU	GLU	GLU	VAL	L2519	P3395	TYR	Q2772	ARG	K2891	R2965	G3084
P1740	P1740	GLU	GLU	GLU	VAL	H2520	C3326	SER	M2773	THR	K2892	W2966	P3085
R1743	R1743	GLU	GLU	GLU	VAL	D2523	R2330	ALA	M2774	GLU	E2893	M2967	V3088
P1749	P1749	GLU	GLU	GLU	THR	V2524	F2334	GLY	W2775	LYS	L2894	D2968	M3106
PRO	PRO	GLU	GLU	GLU	THR	L2627	E2348	ASP	Y2776	LYS	E2895	S2970	N3109
ARG	ARG	GLU	GLU	GLU	THR	M2196	N2349	VAL	Q2777	THR	A2896	Q2972	L3110
LYS	LYS	ASP	ASP	GLU	GLU	R2199	A2350	ALA	G2778	ARG	G2898	F2973	R3111
GLY	GLY	GLU	GLU	GLU	GLU	R2199	V2352	GLY	E2779	LYS	G2899	I2974	LEU
LYS	LYS	GLU	GLU	GLU	GLU	R2199	V2353	ASP	M2780	ILE	G2899	E2978	GLY
ASP	ASP	GLU	GLU	GLU	GLU	R2199	R2355	VAL	N2781	SER	G2900	ALA	VAL
GLY	GLY	GLU	GLU	GLU	GLU	R2199	L2368	GLY	D2782	GLN	G2901	VAL	VAL
LYS	LYS	GLU	GLU	GLU	GLU	R2199	D2389	ASP	E2784	THR	H2902	SER	ALA
ALA	ALA	GLU	GLU	GLU	GLU	R2199	P2395	GLY	L2785	GLN	P2903	ARG	ARG
R1758	R1758	GLU	GLU	GLU	GLU	R2199	L2368	ASP	K2786	TYR	L2904	VAL	VAL
L1762	L1762	GLU	GLU	GLU	GLU	R2199	D2389	ASP	Y2787	PRO	V2906	GLY	GLY
GLU	GLU	GLU	GLU	GLU	GLU	R2199	P2395	ASP	H2788	ARG	P2907	LYS	LYS
ASP	ASP	GLU	GLU	GLU	GLU	R2199	L2368	ASP	T2789	GLY	Y2908	GLY	GLY
GLU	GLU	GLU	GLU	GLU	GLU	R2199	D2389	ASP	M2790	GLY	D2909	L3003	L3003
GLU	GLU	GLU	GLU	GLU	GLU	R2199	P2395	ASP	L2791	GLY	T2910	P3004	P3004
GLU	GLU	GLU	GLU	GLU	GLU	R2199	D2389	ASP	L2792	GLY	T2912	L3006	L3006
GLU	GLU	GLU	GLU	GLU	GLU	R2199	P2395	ASP	L2793	GLY	T2912	N3007	N3007
GLU	GLU	GLU	GLU	GLU	GLU	R2199	D2389	ASP	L2794	GLY	T2912	N3007	N3007
GLU	GLU	GLU	GLU	GLU	GLU	R2199	D2389	ASP	L2795	GLY	T2912	N3007	N3007
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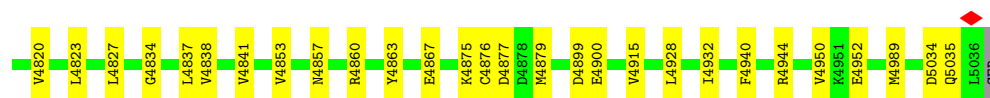


• Molecule 1: Ryanodine receptor 1

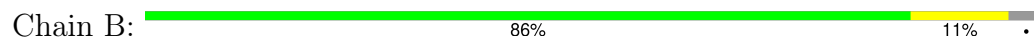




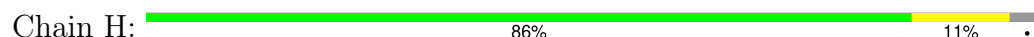




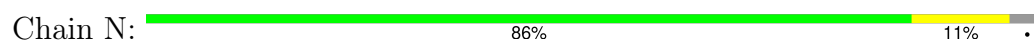
- Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B



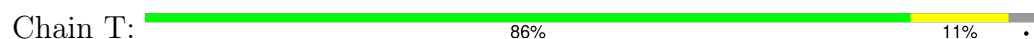
- Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1B



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



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



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	694588	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.866	Depositor
Minimum map value	0.000	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.123	Depositor
Map size (Å)	491.52, 491.52, 491.52	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.96, 0.96, 0.96	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: 117, CA, ZN, 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	0.37	2/32589 (0.0%)	0.55	7/44174 (0.0%)
1	G	0.37	2/32589 (0.0%)	0.55	7/44174 (0.0%)
1	M	0.37	2/32589 (0.0%)	0.55	7/44174 (0.0%)
1	S	0.37	2/32589 (0.0%)	0.55	7/44174 (0.0%)
2	B	0.18	0/827	0.38	0/1111
2	H	0.18	0/827	0.38	0/1111
2	N	0.18	0/827	0.38	0/1111
2	T	0.18	0/827	0.38	0/1111
All	All	0.36	8/133664 (0.0%)	0.54	28/181140 (0.0%)

The worst 5 of 8 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	4915	VAL	C-O	-5.97	1.17	1.24
1	G	4915	VAL	C-O	-5.97	1.17	1.24
1	M	4915	VAL	C-O	-5.97	1.17	1.24
1	S	4915	VAL	C-O	-5.97	1.17	1.24
1	A	4640	GLU	N-CA	5.53	1.50	1.46

The worst 5 of 28 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	4697	VAL	N-CA-C	-7.50	104.00	113.22
1	G	4697	VAL	N-CA-C	-7.50	104.00	113.22
1	M	4697	VAL	N-CA-C	-7.50	104.00	113.22
1	S	4697	VAL	N-CA-C	-7.50	104.00	113.22
1	A	4164	LEU	N-CA-C	-5.56	105.23	112.23

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	31873	0	31185	400	0
1	G	31873	0	31185	408	0
1	M	31873	0	31185	403	0
1	S	31873	0	31185	406	0
2	B	811	0	806	8	0
2	H	811	0	806	8	0
2	N	811	0	806	8	0
2	T	811	0	806	8	0
3	A	14	0	10	1	0
3	G	14	0	10	1	0
3	M	14	0	10	1	0
3	S	14	0	10	1	0
4	A	1	0	0	0	0
4	G	1	0	0	0	0
4	M	1	0	0	0	0
4	S	1	0	0	0	0
5	A	123	0	102	8	0
5	G	123	0	102	10	0
5	M	123	0	102	10	0
5	S	123	0	102	9	0
6	A	1	0	0	0	0
6	G	1	0	0	0	0
6	M	1	0	0	0	0
6	S	1	0	0	0	0
All	All	131292	0	128412	1642	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 6.

The worst 5 of 1642 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:4629:TYR:OH	1:S:4860:ARG:NH1	1.94	1.00
1:M:4860:ARG:NH1	1:S:4629:TYR:OH	1.94	0.99
1:G:4860:ARG:NH1	1:M:4629:TYR:OH	1.94	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:4860:ARG:NH1	1:G:4629:TYR:OH	1.94	0.98
1:A:2626:LEU:HD22	1:A:2640:PRO:HB3	1.47	0.96

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	3992/5037 (79%)	3897 (98%)	94 (2%)	1 (0%)	100	100
1	G	3992/5037 (79%)	3897 (98%)	94 (2%)	1 (0%)	100	100
1	M	3992/5037 (79%)	3897 (98%)	94 (2%)	1 (0%)	100	100
1	S	3992/5037 (79%)	3897 (98%)	94 (2%)	1 (0%)	100	100
2	B	105/111 (95%)	100 (95%)	5 (5%)	0	100	100
2	H	105/111 (95%)	100 (95%)	5 (5%)	0	100	100
2	N	105/111 (95%)	100 (95%)	5 (5%)	0	100	100
2	T	105/111 (95%)	100 (95%)	5 (5%)	0	100	100
All	All	16388/20592 (80%)	15988 (98%)	396 (2%)	4 (0%)	100	100

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	3971	GLY
1	G	3971	GLY
1	M	3971	GLY
1	S	3971	GLY

5.3.2 Protein sidechains ⓘ

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	3379/4276 (79%)	3379 (100%)	0	100	100
1	G	3379/4276 (79%)	3379 (100%)	0	100	100
1	M	3379/4276 (79%)	3379 (100%)	0	100	100
1	S	3379/4276 (79%)	3379 (100%)	0	100	100
2	B	86/91 (94%)	86 (100%)	0	100	100
2	H	86/91 (94%)	86 (100%)	0	100	100
2	N	86/91 (94%)	86 (100%)	0	100	100
2	T	86/91 (94%)	86 (100%)	0	100	100
All	All	13860/17468 (79%)	13860 (100%)	0	100	100

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

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 152 such sidechains are listed below:

Mol	Chain	Res	Type
1	S	465	GLN
1	S	3667	HIS
1	S	1429	ASN
1	S	2441	HIS
1	S	4812	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 24 ligands modelled in this entry, 8 are monoatomic - leaving 16 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
5	117	A	5104	-	38,44,44	0.93	1 (2%)	44,61,61	0.75	1 (2%)
5	117	S	5103	-	38,44,44	0.99	2 (5%)	44,61,61	1.06	4 (9%)
3	CFF	A	5101	-	8,15,15	0.95	0	8,23,23	0.95	0
5	117	S	5104	-	38,44,44	0.93	1 (2%)	44,61,61	0.75	1 (2%)
3	CFF	M	5101	-	8,15,15	0.95	0	8,23,23	0.95	0
5	117	S	5105	-	38,44,44	1.02	2 (5%)	44,61,61	0.83	2 (4%)
5	117	G	5105	-	38,44,44	1.02	2 (5%)	44,61,61	0.83	2 (4%)
5	117	M	5103	-	38,44,44	0.99	2 (5%)	44,61,61	1.06	4 (9%)
5	117	G	5103	-	38,44,44	0.99	2 (5%)	44,61,61	1.06	4 (9%)
5	117	M	5105	-	38,44,44	1.02	2 (5%)	44,61,61	0.83	2 (4%)
5	117	G	5104	-	38,44,44	0.93	1 (2%)	44,61,61	0.75	1 (2%)
3	CFF	S	5101	-	8,15,15	0.95	0	8,23,23	0.95	0
3	CFF	G	5101	-	8,15,15	0.95	0	8,23,23	0.95	0
5	117	A	5105	-	38,44,44	1.02	2 (5%)	44,61,61	0.83	2 (4%)
5	117	M	5104	-	38,44,44	0.93	1 (2%)	44,61,61	0.75	1 (2%)
5	117	A	5103	-	38,44,44	0.99	2 (5%)	44,61,61	1.06	4 (9%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	117	A	5104	-	-	0/21/33/33	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	117	S	5103	-	-	2/21/33/33	0/4/4/4
3	CFF	A	5101	-	-	-	0/2/2/2
5	117	S	5104	-	-	0/21/33/33	0/4/4/4
3	CFF	M	5101	-	-	-	0/2/2/2
5	117	S	5105	-	-	6/21/33/33	0/4/4/4
5	117	G	5105	-	-	6/21/33/33	0/4/4/4
5	117	M	5103	-	-	2/21/33/33	0/4/4/4
5	117	G	5103	-	-	2/21/33/33	0/4/4/4
5	117	M	5105	-	-	6/21/33/33	0/4/4/4
5	117	G	5104	-	-	0/21/33/33	0/4/4/4
3	CFF	S	5101	-	-	-	0/2/2/2
3	CFF	G	5101	-	-	-	0/2/2/2
5	117	A	5105	-	-	6/21/33/33	0/4/4/4
5	117	M	5104	-	-	0/21/33/33	0/4/4/4
5	117	A	5103	-	-	2/21/33/33	0/4/4/4

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	5105	117	C10-C8	-2.90	1.39	1.42
5	G	5105	117	C10-C8	-2.90	1.39	1.42
5	M	5105	117	C10-C8	-2.90	1.39	1.42
5	S	5105	117	C10-C8	-2.90	1.39	1.42
5	A	5103	117	C10-C8	-2.86	1.39	1.42

The worst 5 of 28 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	5103	117	C19-N2-C18	-3.76	116.69	126.61
5	G	5103	117	C19-N2-C18	-3.76	116.69	126.61
5	M	5103	117	C19-N2-C18	-3.76	116.69	126.61
5	S	5103	117	C19-N2-C18	-3.76	116.69	126.61
5	A	5105	117	C6-C7-N1	2.72	117.93	111.83

There are no chirality outliers.

5 of 32 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	5105	117	O5-C5-C6-C7
5	A	5105	117	C6-C7-N1-C8

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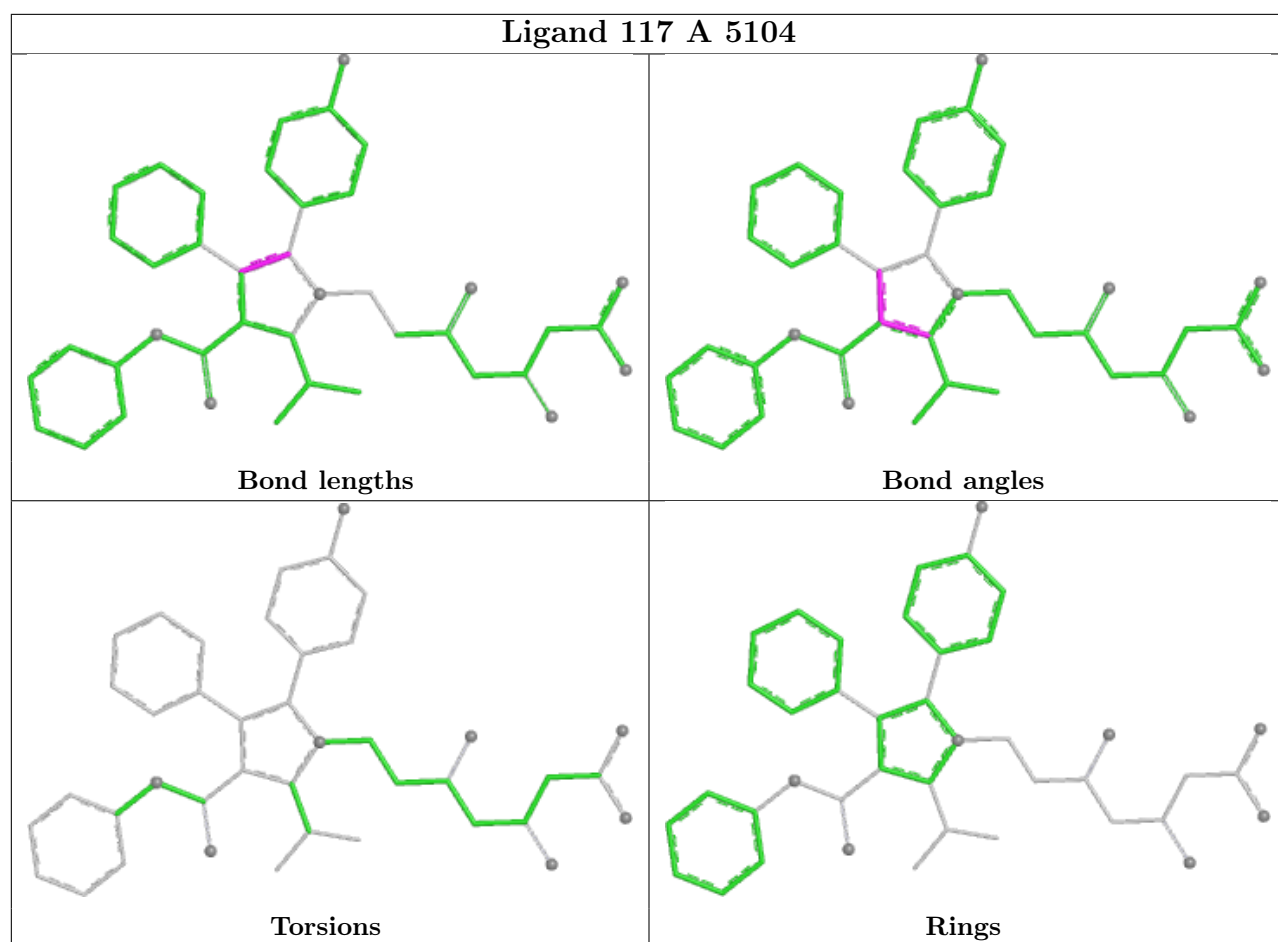
Mol	Chain	Res	Type	Atoms
5	G	5105	117	O5-C5-C6-C7
5	G	5105	117	C6-C7-N1-C8
5	M	5105	117	O5-C5-C6-C7

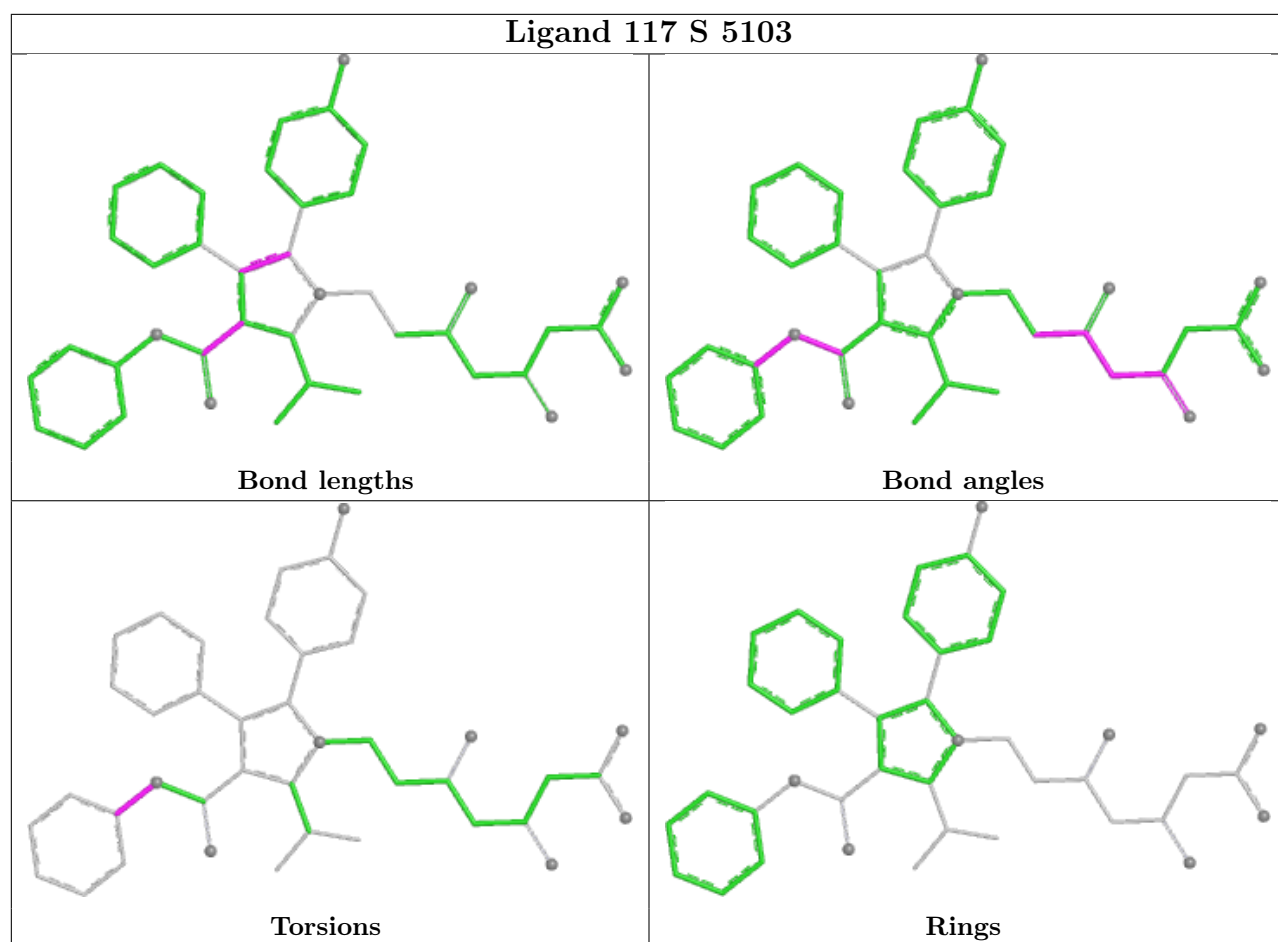
There are no ring outliers.

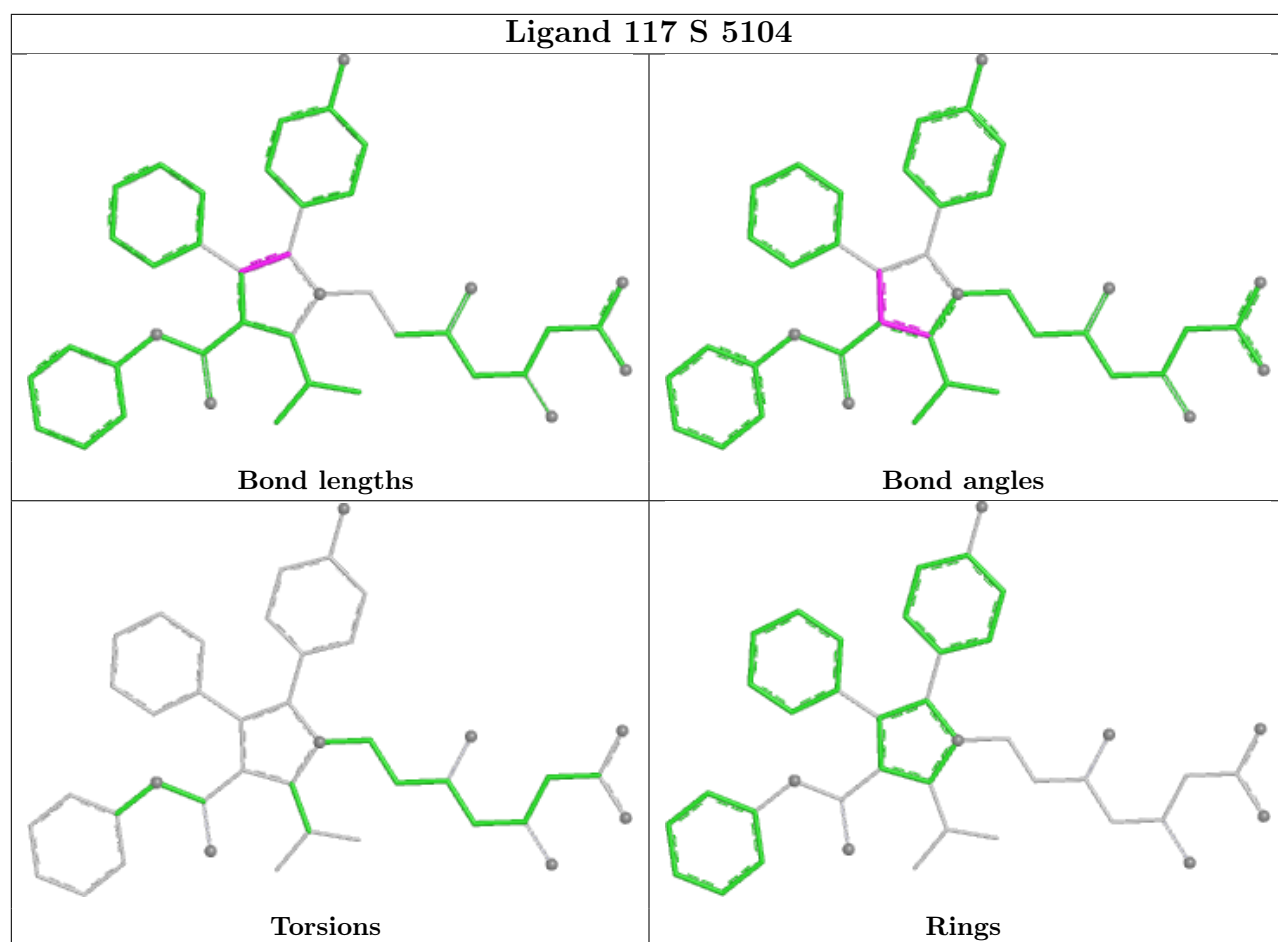
16 monomers are involved in 41 short contacts:

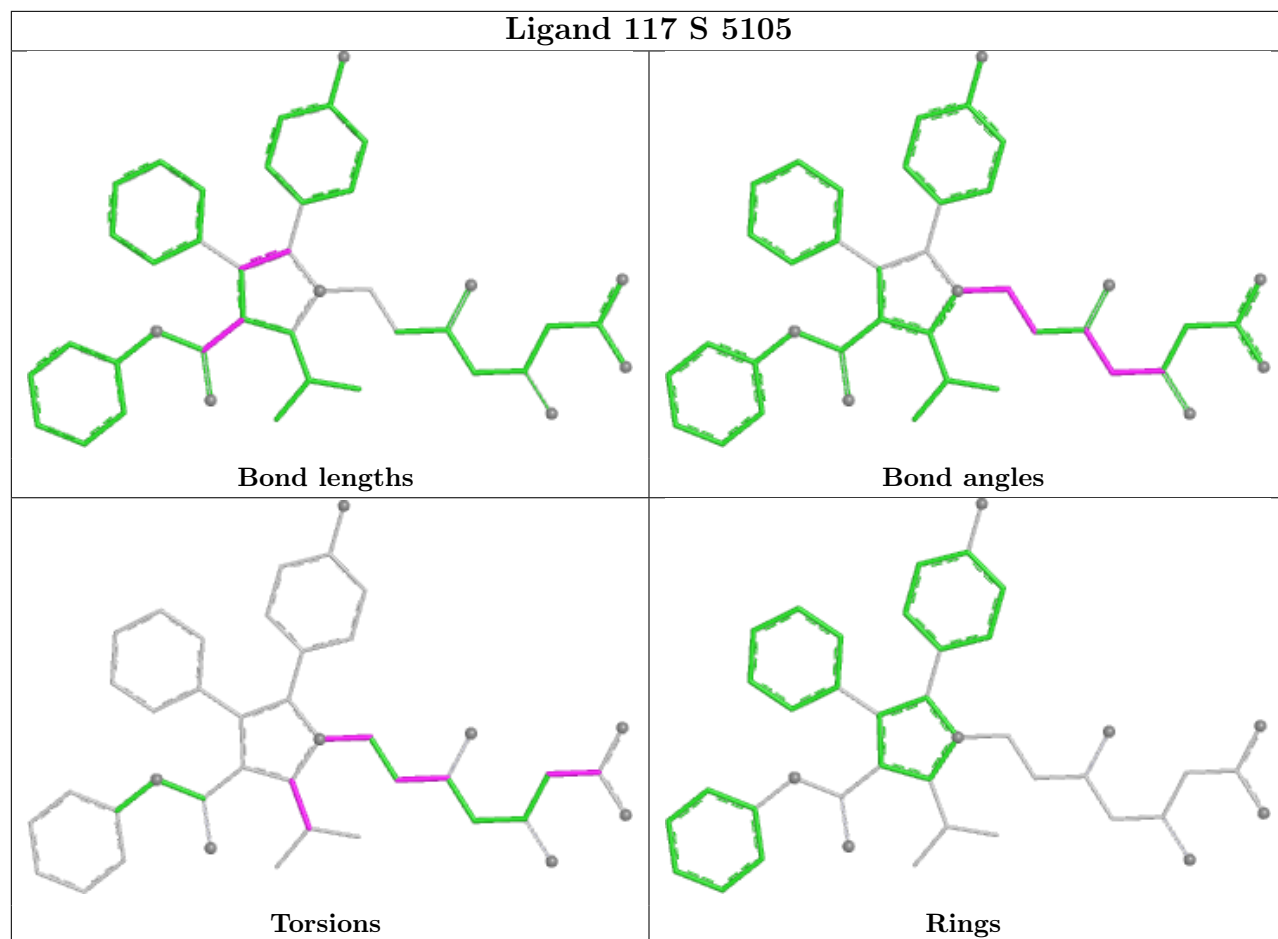
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	5104	117	3	0
5	S	5103	117	4	0
3	A	5101	CFF	1	0
5	S	5104	117	3	0
3	M	5101	CFF	1	0
5	S	5105	117	4	0
5	G	5105	117	5	0
5	M	5103	117	4	0
5	G	5103	117	4	0
5	M	5105	117	5	0
5	G	5104	117	3	0
3	S	5101	CFF	1	0
3	G	5101	CFF	1	0
5	A	5105	117	3	0
5	M	5104	117	3	0
5	A	5103	117	4	0

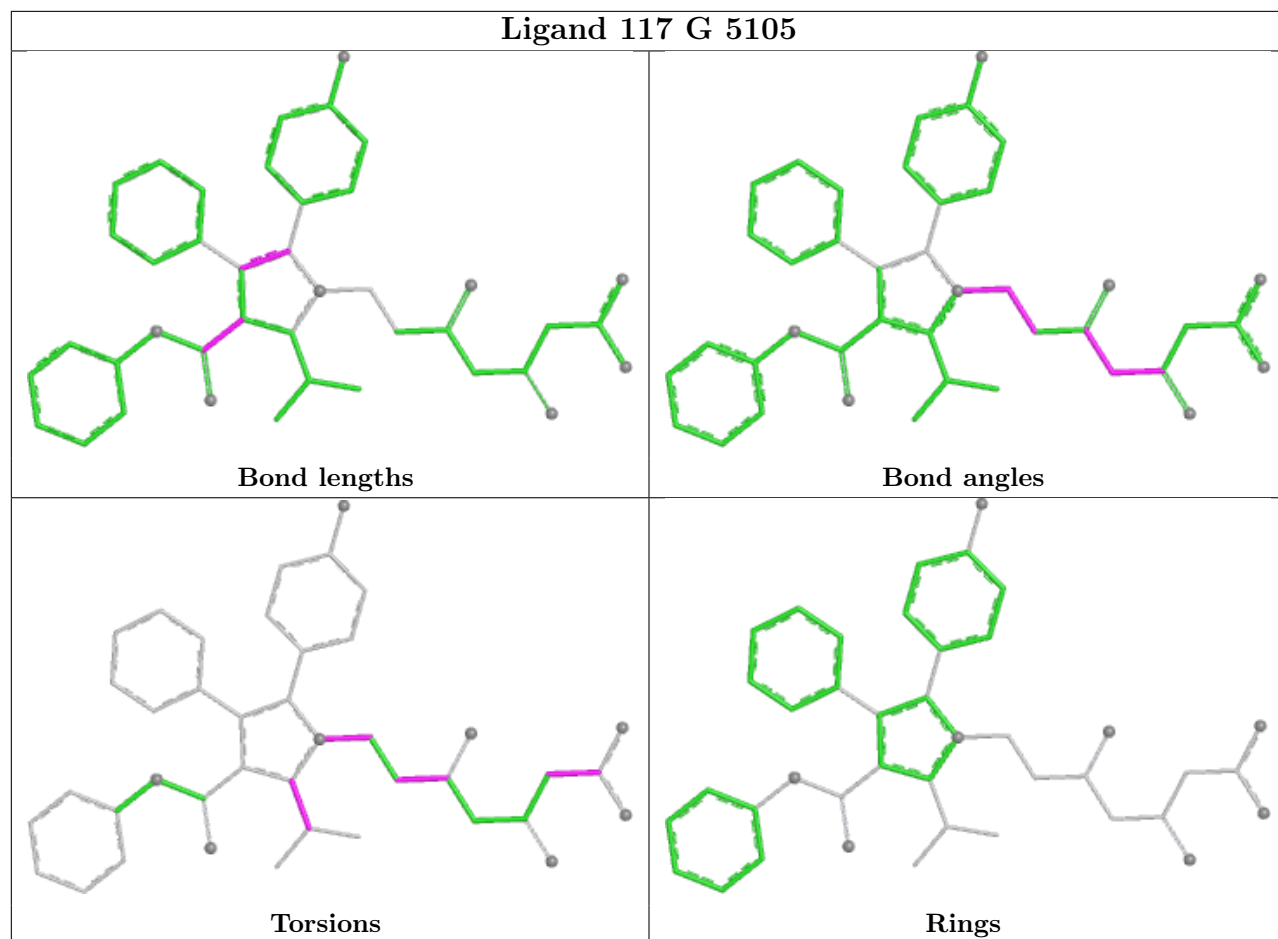
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

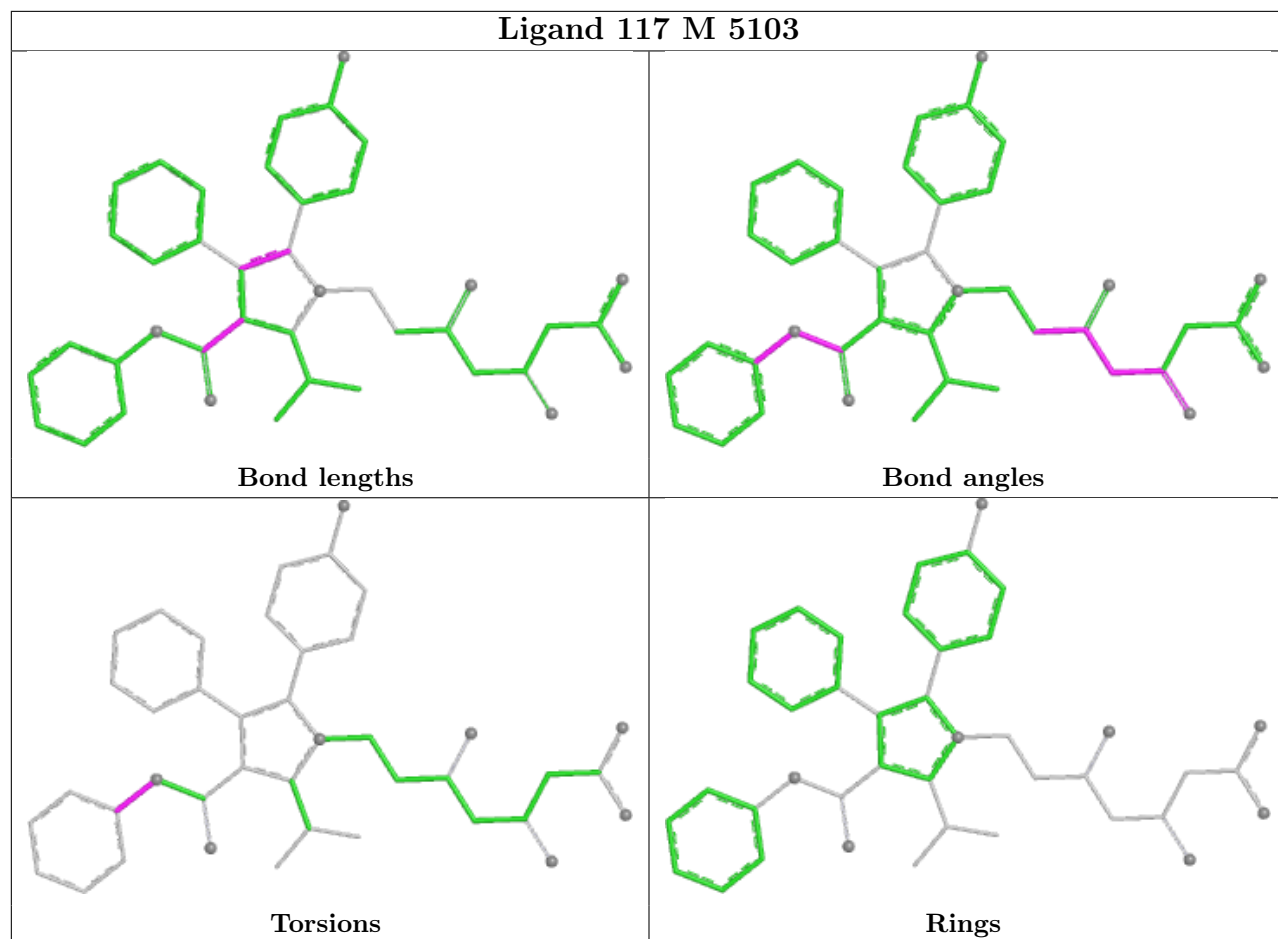


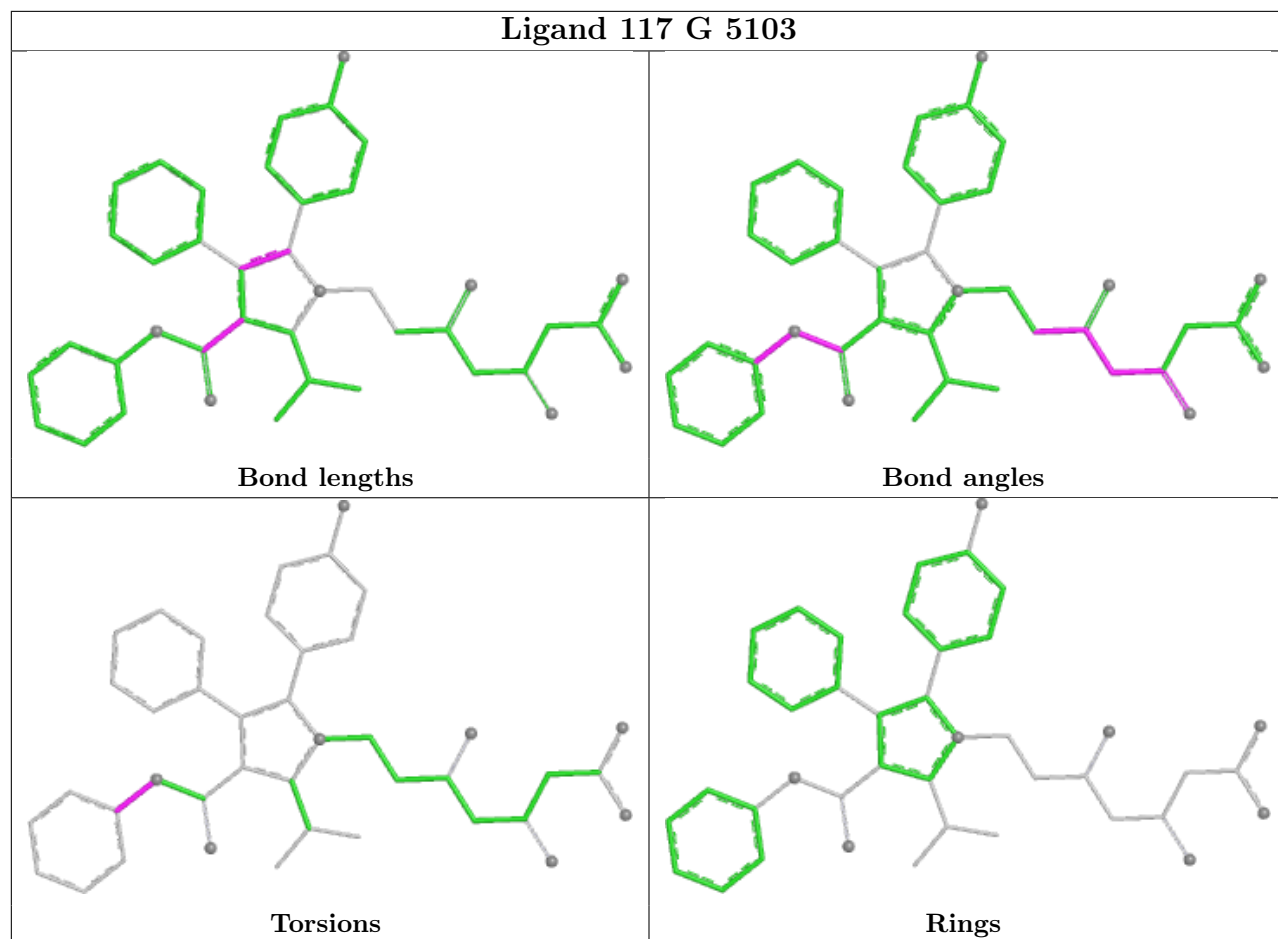


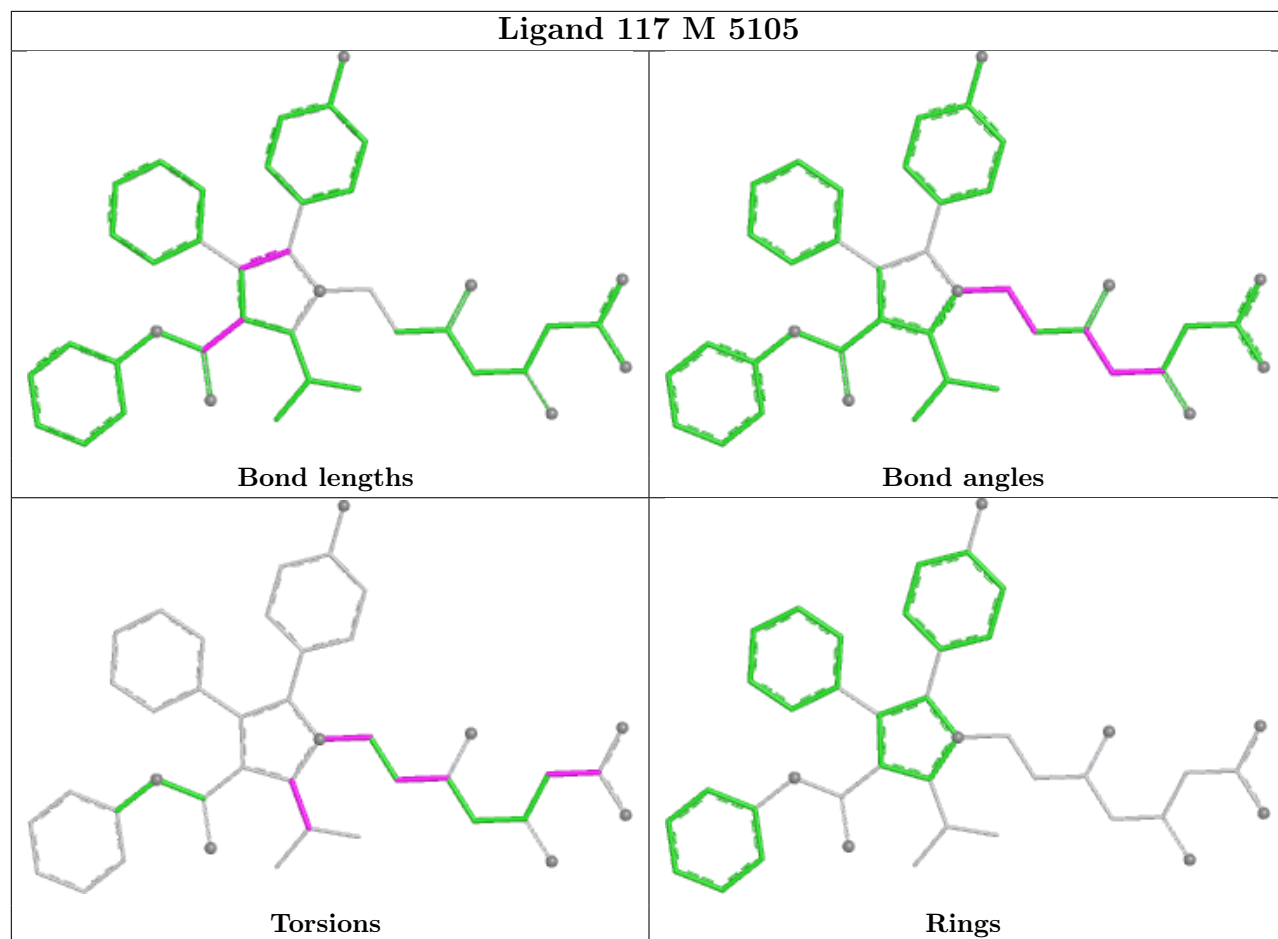


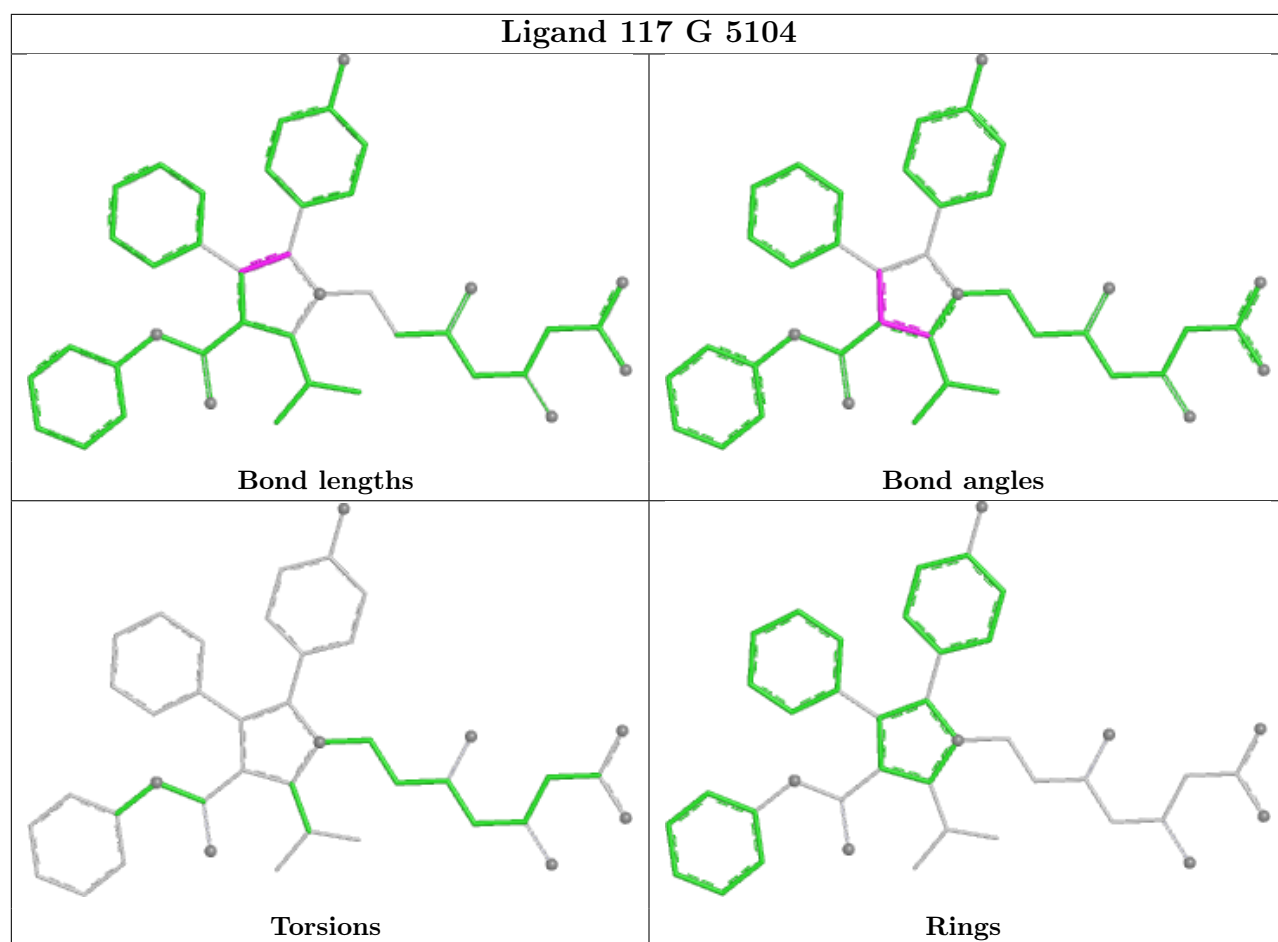




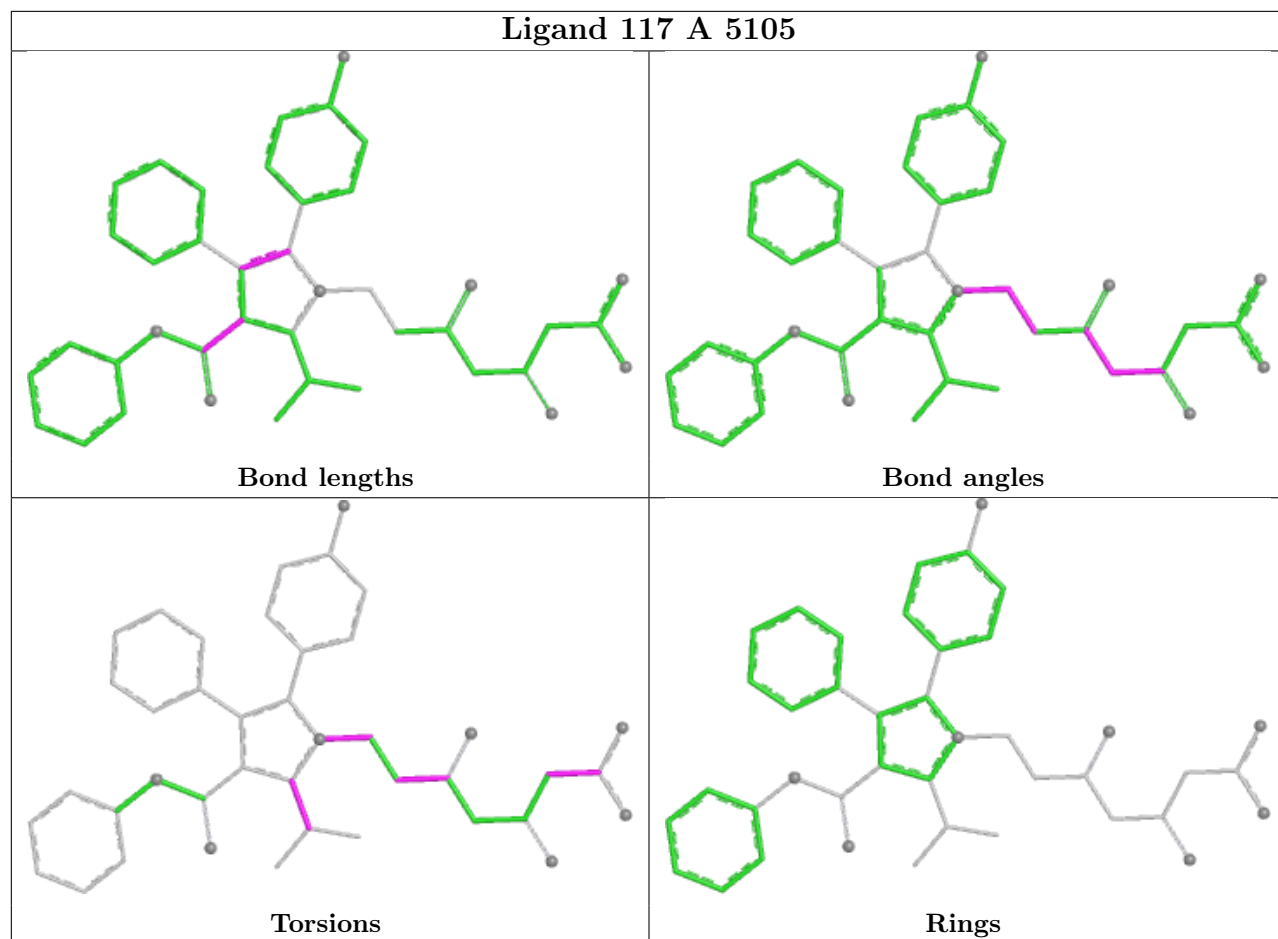


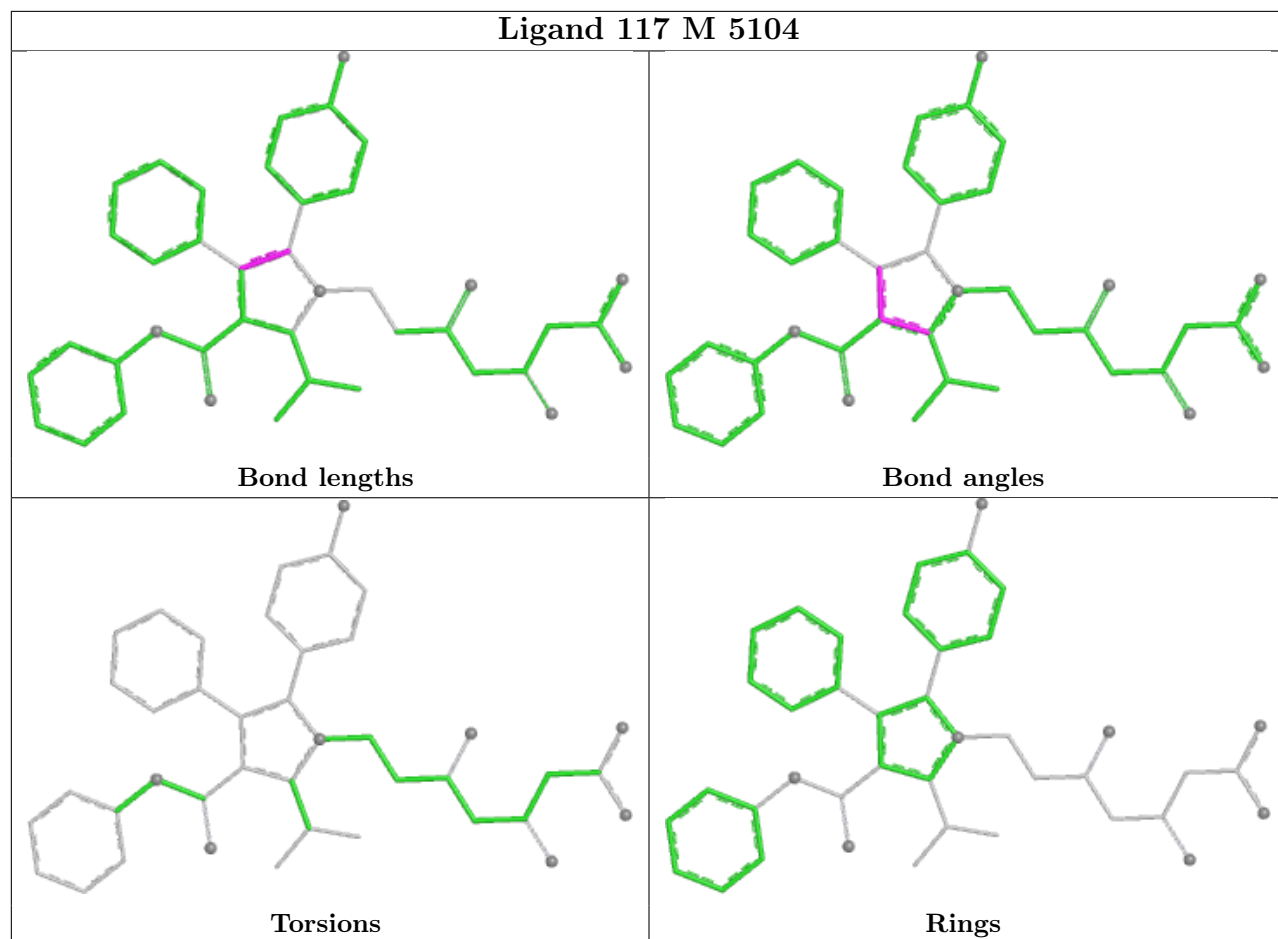


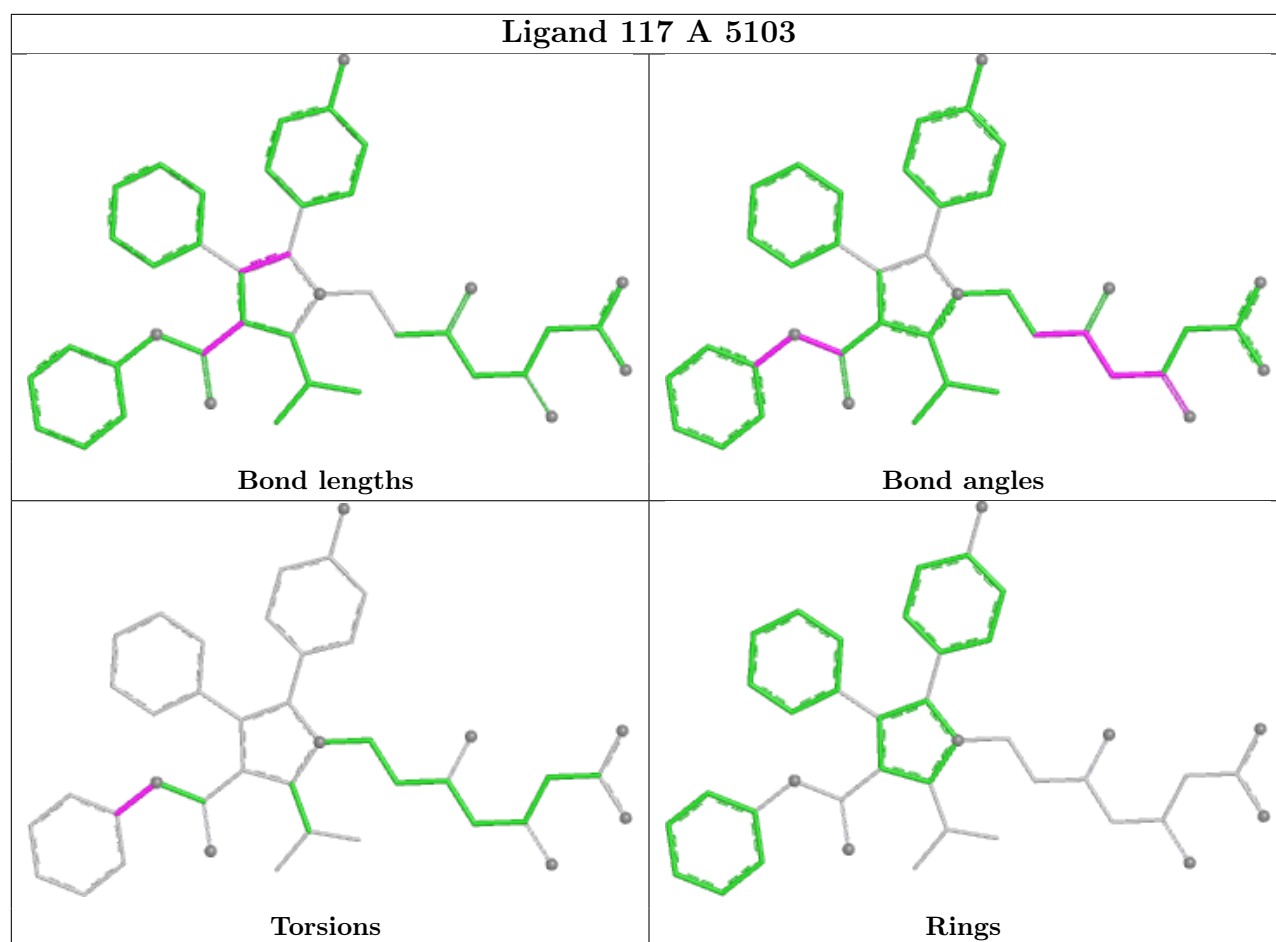




Ligand 117 A 5105







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.

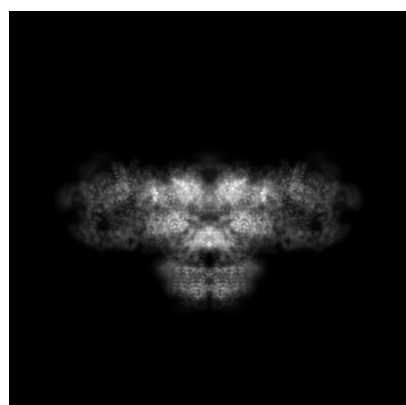
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-70589. These allow visual inspection of the internal detail of the map and identification of artifacts.

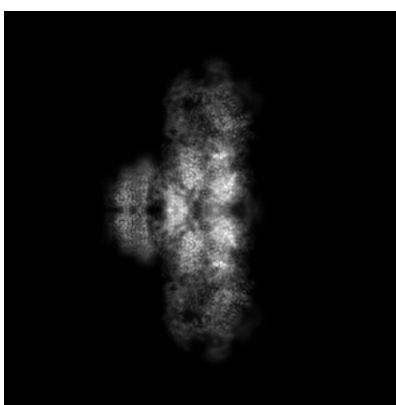
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

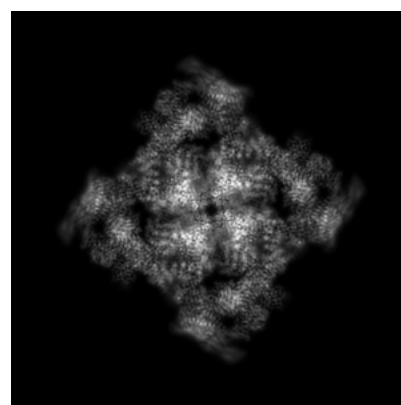
6.1.1 Primary map



X



Y



Z

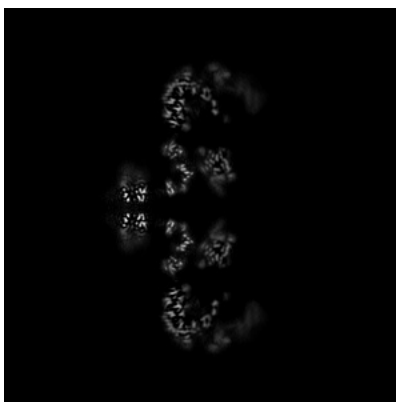
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

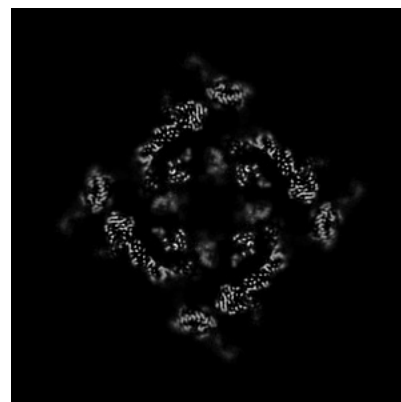
6.2.1 Primary map



X Index: 256



Y Index: 256



Z Index: 256

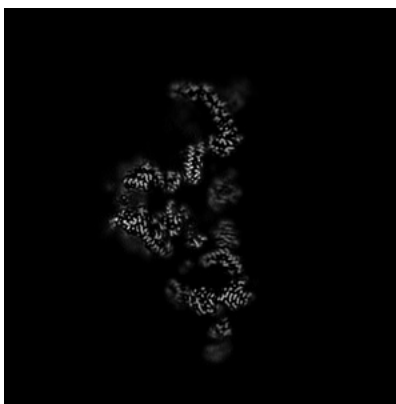
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

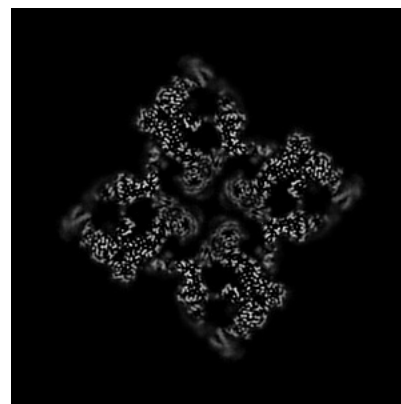
6.3.1 Primary map



X Index: 227



Y Index: 227

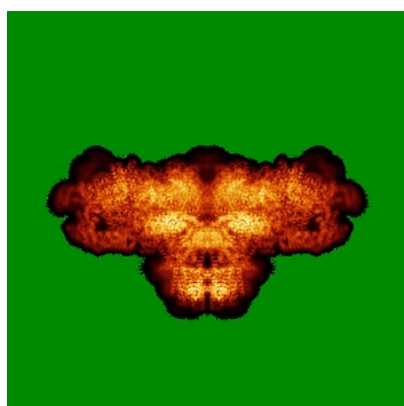


Z Index: 282

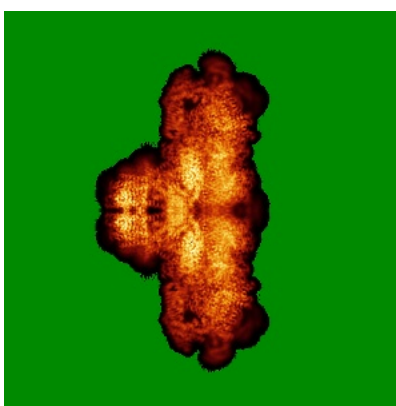
The images above show the largest variance slices of the map in three orthogonal directions.

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

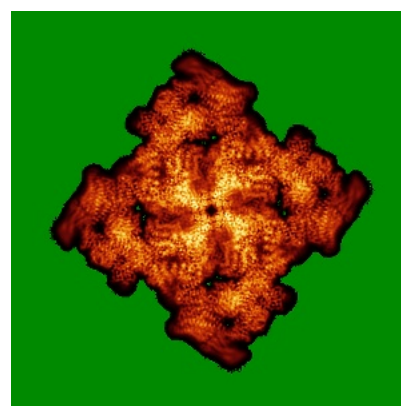
6.4.1 Primary map



X



Y

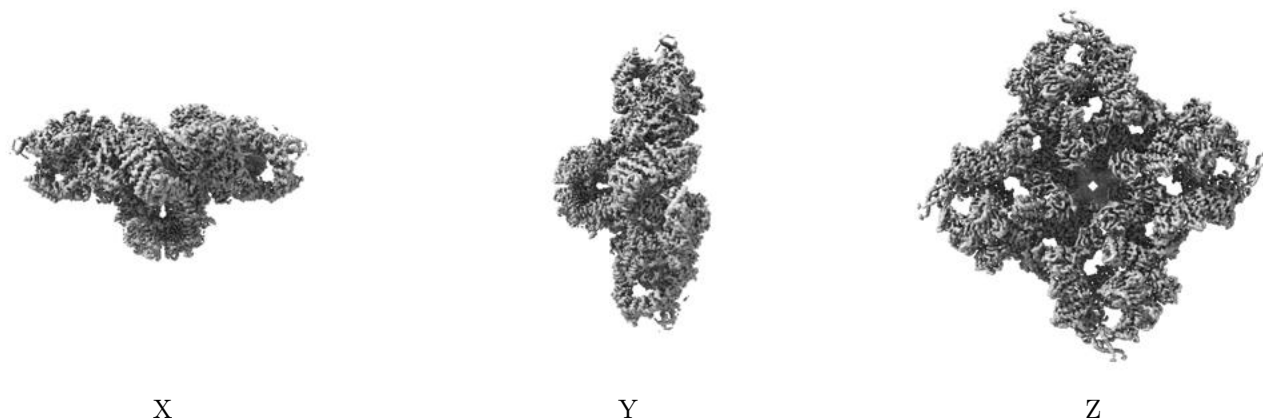


Z

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

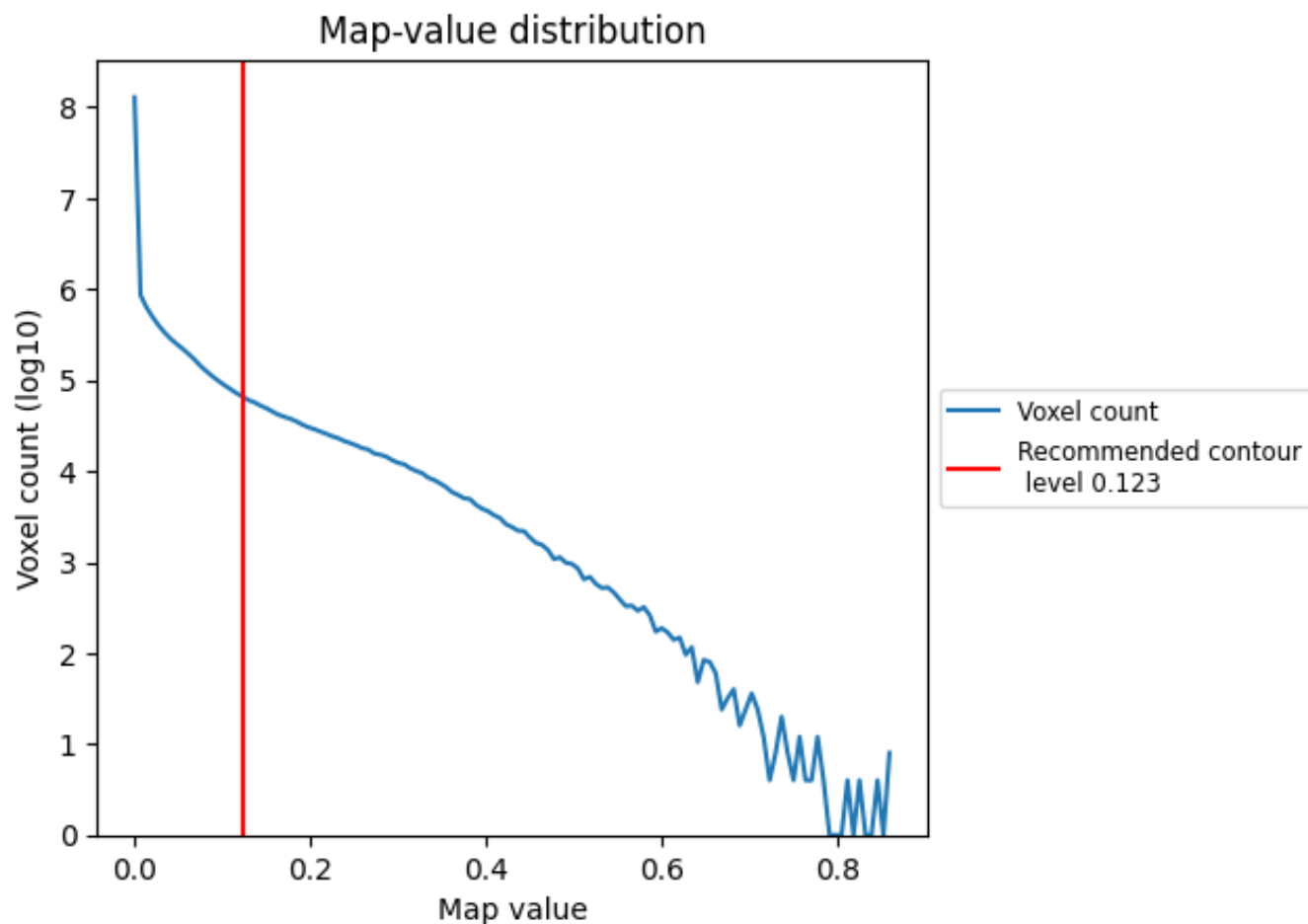
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

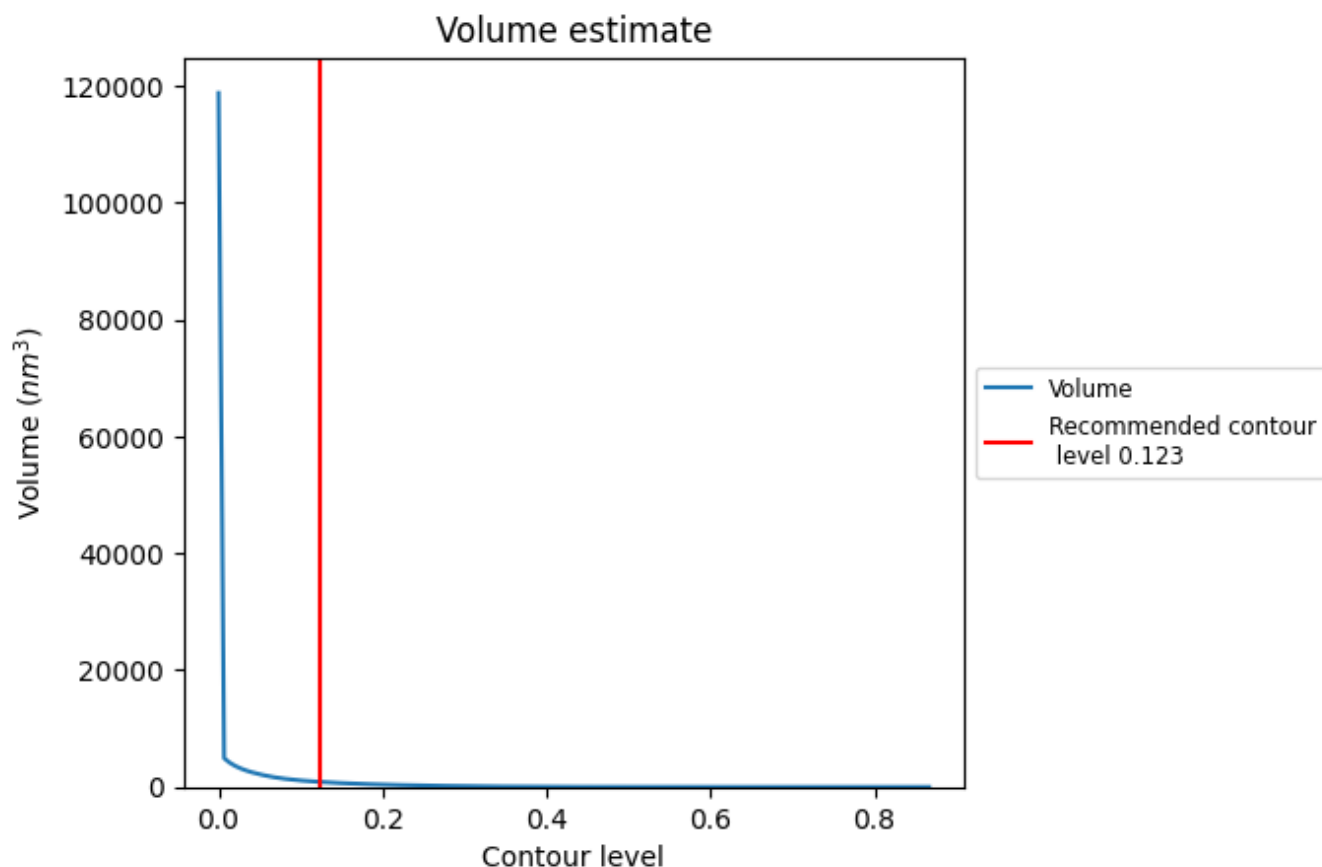
This section contains the results of statistical analysis of the map.

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.

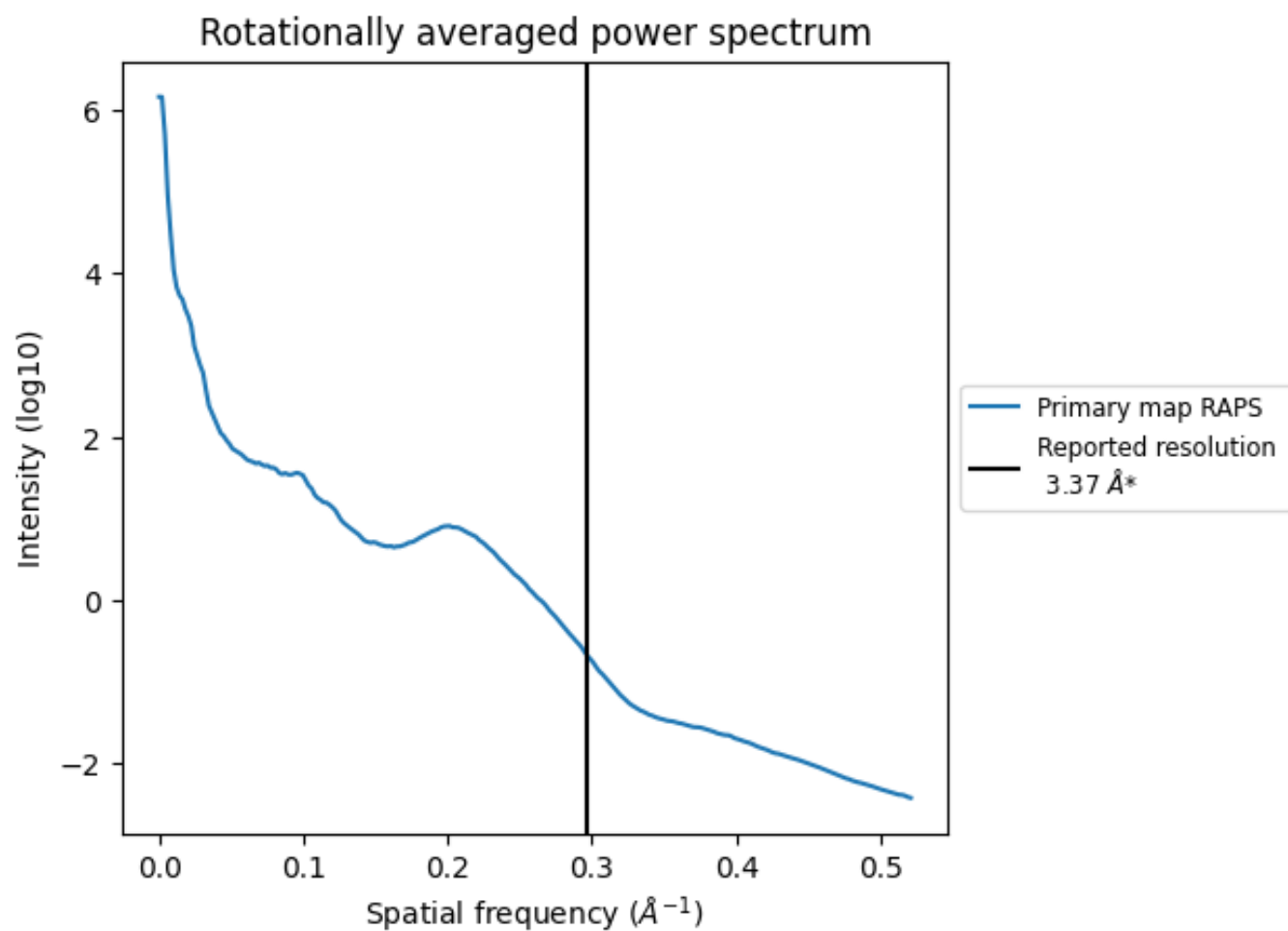
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 869 nm³; this corresponds to an approximate mass of 785 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 0.297 Å⁻¹

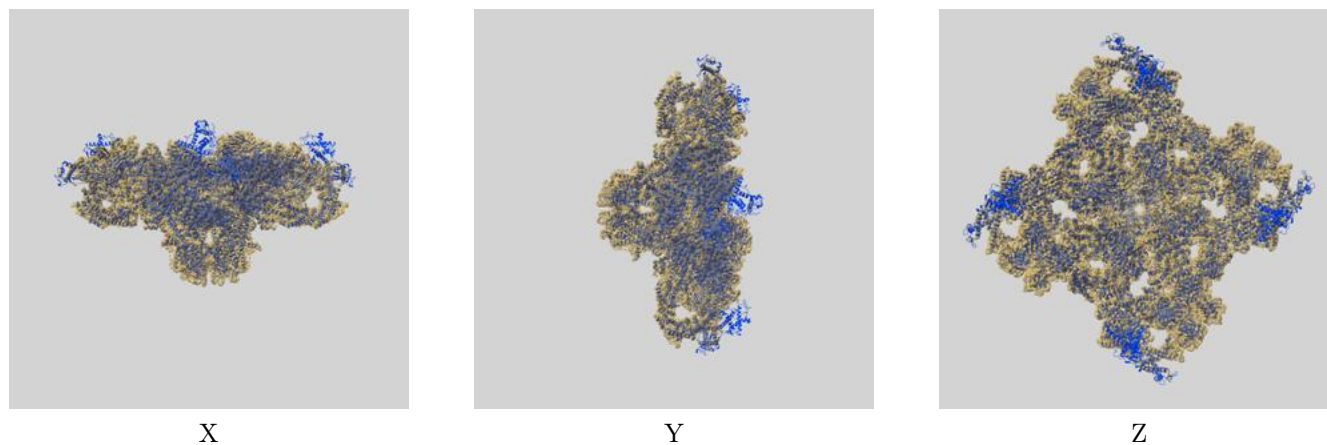
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

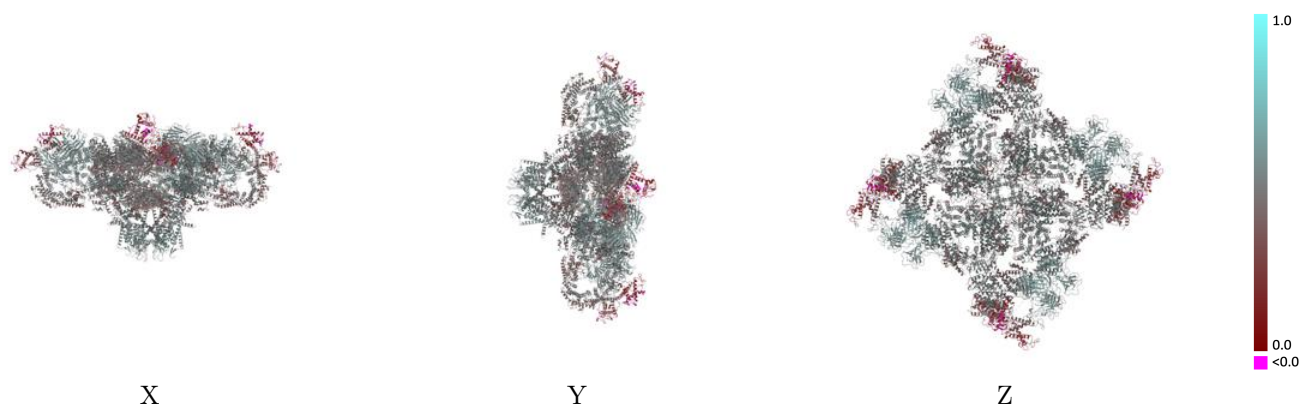
This section contains information regarding the fit between EMDB map EMD-70589 and PDB model 9OL4. Per-residue inclusion information can be found in section [3](#) on page [8](#).

9.1 Map-model overlay [i](#)



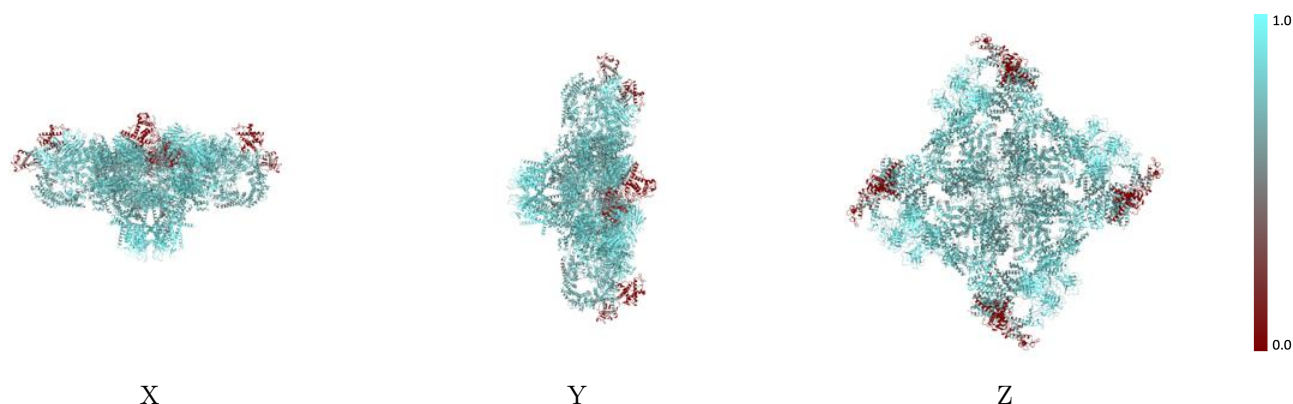
The images above show the 3D surface view of the map at the recommended contour level 0.123 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



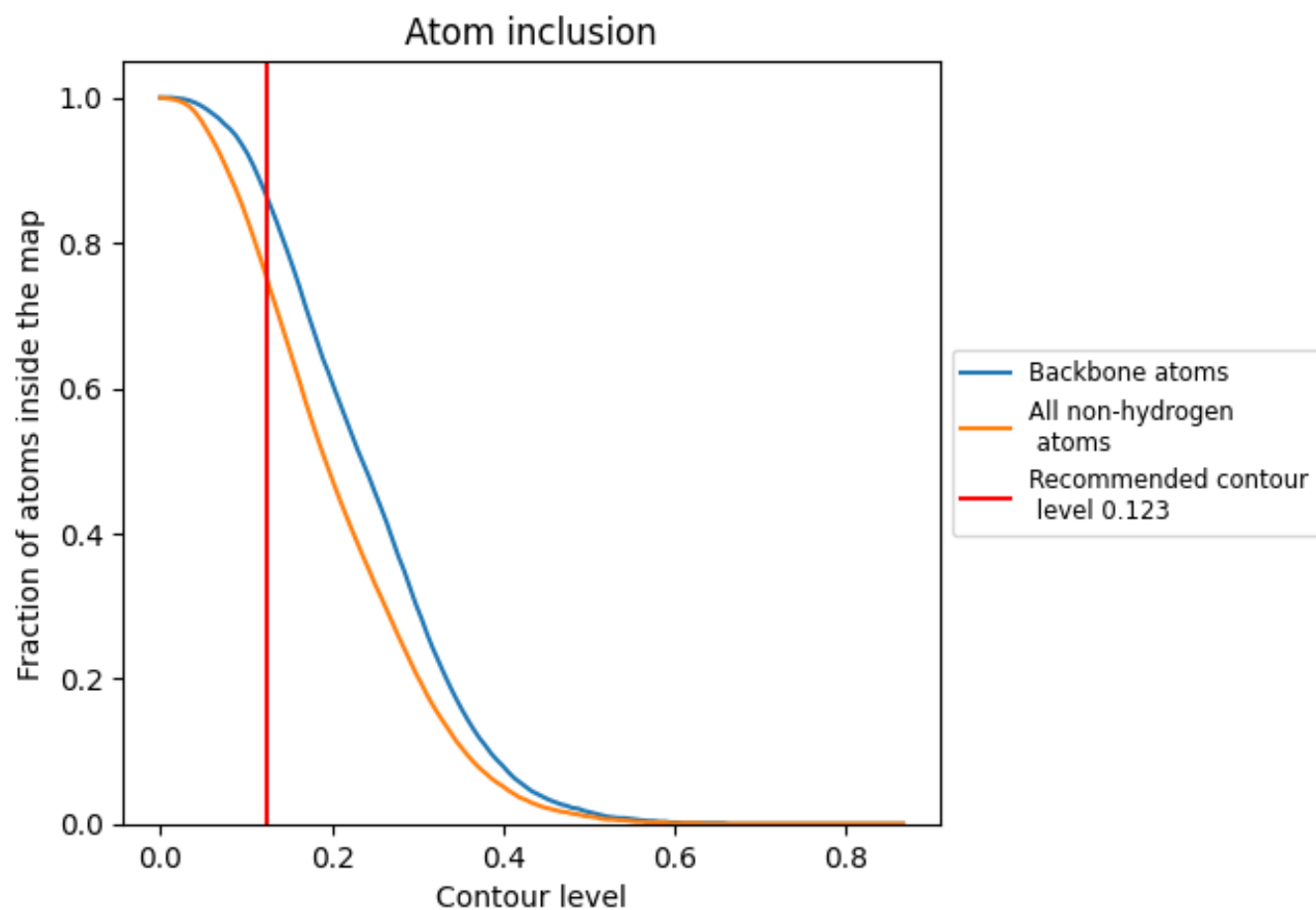
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.123).

9.4 Atom inclusion [i](#)



At the recommended contour level, 87% of all backbone atoms, 76% 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 (0.123) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7560	0.4620
A	0.7530	0.4600
B	0.8570	0.5390
G	0.7530	0.4600
H	0.8570	0.5390
M	0.7530	0.4600
N	0.8570	0.5410
S	0.7530	0.4610
T	0.8570	0.5400

