



# wwPDB EM Validation Summary Report ⓘ

Jul 10, 2023 – 12:06 PM EDT

PDB ID : 8SEO  
EMDB ID : EMD-40423  
Title : Cryo-EM Structure of RyR1 + ATP-gamma-S  
Authors : Cholak, S.; Saville, J.W.; Zhu, X.; Berezuk, A.M.; Tuttle, K.S.; Haji-Ghassemi, O.; Van Petegem, F.; Subramaniam, S.  
Deposited on : 2023-04-10  
Resolution : 3.92 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.dev50  
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 : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.34

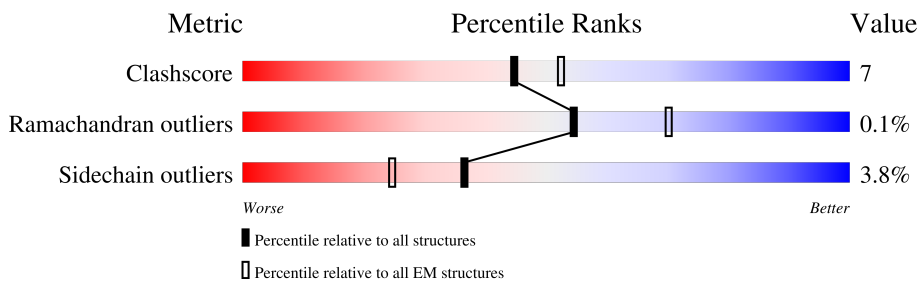
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.92 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  $\geq 3$ , 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	
1	B	5037	
1	C	5037	
1	D	5037	
2	E	350	
2	F	350	
2	G	350	
2	H	350	

## 2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 143016 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
			Total	C	N	O	S		
1	A	4376	34904	22206	6023	6439	236	9	0
1	B	4376	34904	22206	6023	6439	236	9	0
1	C	4376	34904	22206	6023	6439	236	9	0
1	D	4376	34904	22206	6023	6439	236	9	0

- Molecule 2 is a protein called Glutathione S-transferase class-mu 26 kDa isozyme,Peptidyl-prolyl cis-trans isomerase FKBP1B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	107	818	516	144	154	4	0	0
2	F	107	818	516	144	154	4	0	0
2	G	107	818	516	144	154	4	0	0
2	H	107	818	516	144	154	4	0	0

There are 100 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	-242	MET	-	expression tag	UNP P08515
E	-241	LYS	-	expression tag	UNP P08515
E	-240	SER	-	expression tag	UNP P08515
E	-239	SER	-	expression tag	UNP P08515
E	-238	HIS	-	expression tag	UNP P08515
E	-237	HIS	-	expression tag	UNP P08515
E	-236	HIS	-	expression tag	UNP P08515
E	-235	HIS	-	expression tag	UNP P08515

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Chain	Residue	Modelled	Actual	Comment	Reference
E	-234	HIS	-	expression tag	UNP P08515
E	-233	HIS	-	expression tag	UNP P08515
E	-232	GLY	-	expression tag	UNP P08515
E	-231	SER	-	expression tag	UNP P08515
E	-230	SER	-	expression tag	UNP P08515
E	-11	GLY	-	linker	UNP P08515
E	-10	ILE	-	linker	UNP P08515
E	-9	GLU	-	linker	UNP P08515
E	-8	GLU	-	linker	UNP P08515
E	-7	ASN	-	linker	UNP P08515
E	-6	LEU	-	linker	UNP P08515
E	-5	TYR	-	linker	UNP P08515
E	-4	PHE	-	linker	UNP P08515
E	-3	GLN	-	linker	UNP P08515
E	-2	SER	-	linker	UNP P08515
E	-1	ASN	-	linker	UNP P08515
E	0	ALA	-	linker	UNP P08515
F	-242	MET	-	expression tag	UNP P08515
F	-241	LYS	-	expression tag	UNP P08515
F	-240	SER	-	expression tag	UNP P08515
F	-239	SER	-	expression tag	UNP P08515
F	-238	HIS	-	expression tag	UNP P08515
F	-237	HIS	-	expression tag	UNP P08515
F	-236	HIS	-	expression tag	UNP P08515
F	-235	HIS	-	expression tag	UNP P08515
F	-234	HIS	-	expression tag	UNP P08515
F	-233	HIS	-	expression tag	UNP P08515
F	-232	GLY	-	expression tag	UNP P08515
F	-231	SER	-	expression tag	UNP P08515
F	-230	SER	-	expression tag	UNP P08515
F	-11	GLY	-	linker	UNP P08515
F	-10	ILE	-	linker	UNP P08515
F	-9	GLU	-	linker	UNP P08515
F	-8	GLU	-	linker	UNP P08515
F	-7	ASN	-	linker	UNP P08515
F	-6	LEU	-	linker	UNP P08515
F	-5	TYR	-	linker	UNP P08515
F	-4	PHE	-	linker	UNP P08515
F	-3	GLN	-	linker	UNP P08515
F	-2	SER	-	linker	UNP P08515
F	-1	ASN	-	linker	UNP P08515
F	0	ALA	-	linker	UNP P08515

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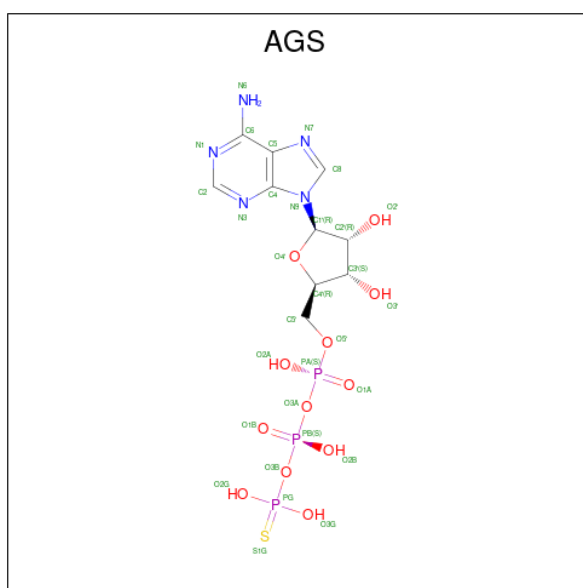
Chain	Residue	Modelled	Actual	Comment	Reference
G	-242	MET	-	expression tag	UNP P08515
G	-241	LYS	-	expression tag	UNP P08515
G	-240	SER	-	expression tag	UNP P08515
G	-239	SER	-	expression tag	UNP P08515
G	-238	HIS	-	expression tag	UNP P08515
G	-237	HIS	-	expression tag	UNP P08515
G	-236	HIS	-	expression tag	UNP P08515
G	-235	HIS	-	expression tag	UNP P08515
G	-234	HIS	-	expression tag	UNP P08515
G	-233	HIS	-	expression tag	UNP P08515
G	-232	GLY	-	expression tag	UNP P08515
G	-231	SER	-	expression tag	UNP P08515
G	-230	SER	-	expression tag	UNP P08515
G	-11	GLY	-	linker	UNP P08515
G	-10	ILE	-	linker	UNP P08515
G	-9	GLU	-	linker	UNP P08515
G	-8	GLU	-	linker	UNP P08515
G	-7	ASN	-	linker	UNP P08515
G	-6	LEU	-	linker	UNP P08515
G	-5	TYR	-	linker	UNP P08515
G	-4	PHE	-	linker	UNP P08515
G	-3	GLN	-	linker	UNP P08515
G	-2	SER	-	linker	UNP P08515
G	-1	ASN	-	linker	UNP P08515
G	0	ALA	-	linker	UNP P08515
H	-242	MET	-	expression tag	UNP P08515
H	-241	LYS	-	expression tag	UNP P08515
H	-240	SER	-	expression tag	UNP P08515
H	-239	SER	-	expression tag	UNP P08515
H	-238	HIS	-	expression tag	UNP P08515
H	-237	HIS	-	expression tag	UNP P08515
H	-236	HIS	-	expression tag	UNP P08515
H	-235	HIS	-	expression tag	UNP P08515
H	-234	HIS	-	expression tag	UNP P08515
H	-233	HIS	-	expression tag	UNP P08515
H	-232	GLY	-	expression tag	UNP P08515
H	-231	SER	-	expression tag	UNP P08515
H	-230	SER	-	expression tag	UNP P08515
H	-11	GLY	-	linker	UNP P08515
H	-10	ILE	-	linker	UNP P08515
H	-9	GLU	-	linker	UNP P08515
H	-8	GLU	-	linker	UNP P08515

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Chain	Residue	Modelled	Actual	Comment	Reference
H	-7	ASN	-	linker	UNP P08515
H	-6	LEU	-	linker	UNP P08515
H	-5	TYR	-	linker	UNP P08515
H	-4	PHE	-	linker	UNP P08515
H	-3	GLN	-	linker	UNP P08515
H	-2	SER	-	linker	UNP P08515
H	-1	ASN	-	linker	UNP P08515
H	0	ALA	-	linker	UNP P08515

- Molecule 3 is PHOSPHOTHIOPHOSPHORIC ACID-ADENYLATE ESTER (three-letter code: AGS) (formula: C<sub>10</sub>H<sub>16</sub>N<sub>5</sub>O<sub>12</sub>P<sub>3</sub>S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
3	A	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	B	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	C	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	
3	D	1	Total	C	N	O	P	S	0
			31	10	5	12	3	1	

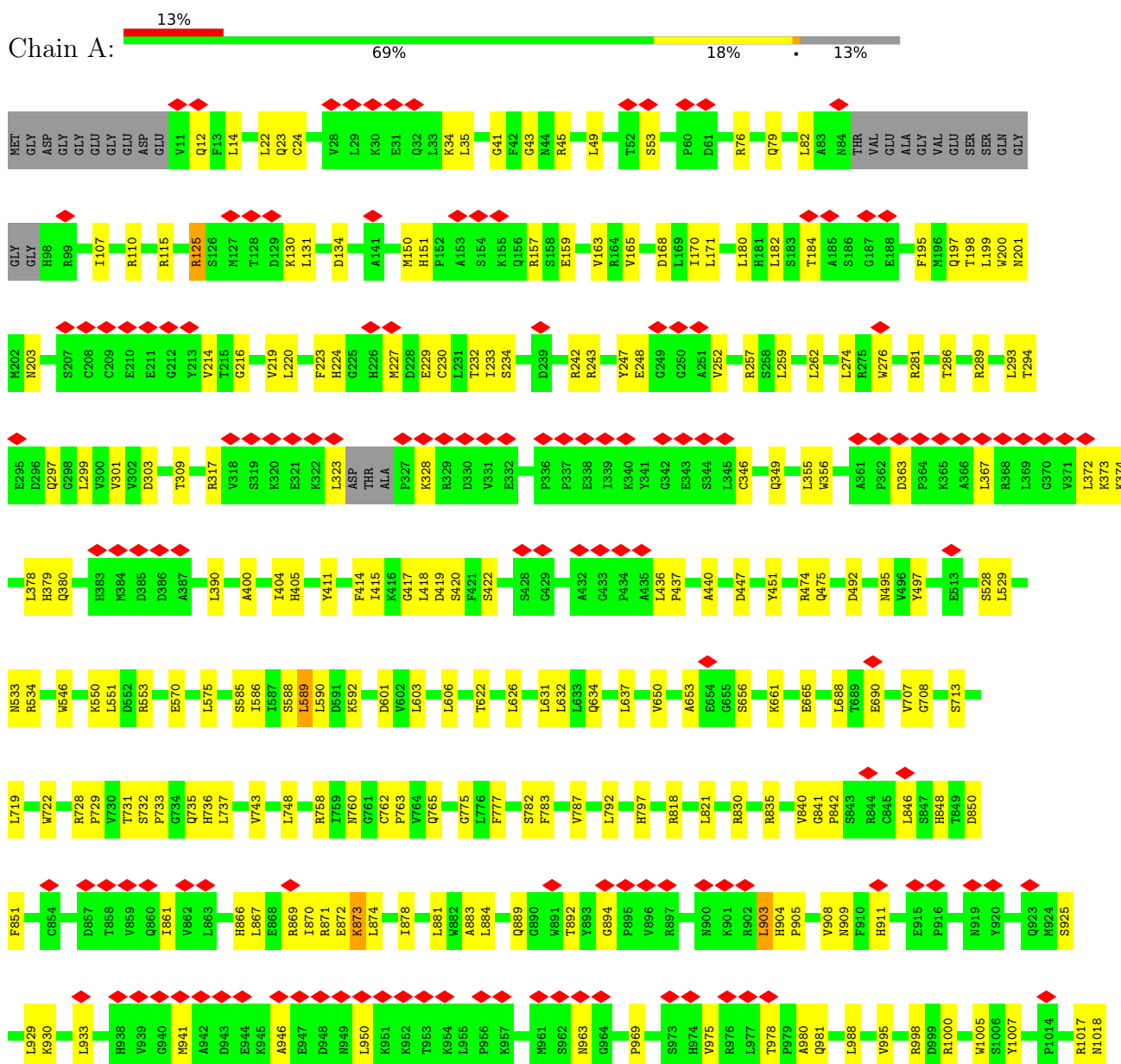
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

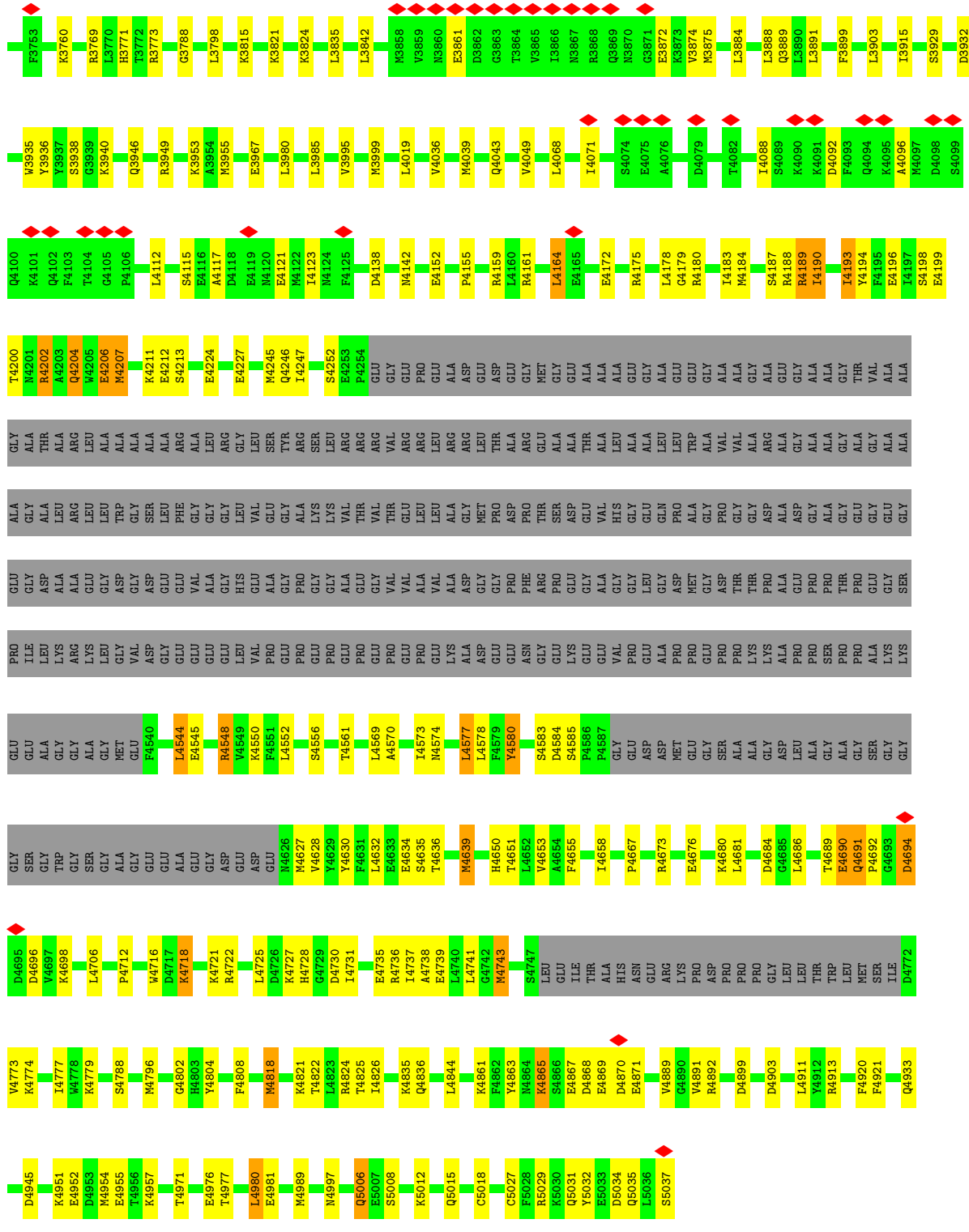
#### • Molecule 1: Ryanodine receptor 1



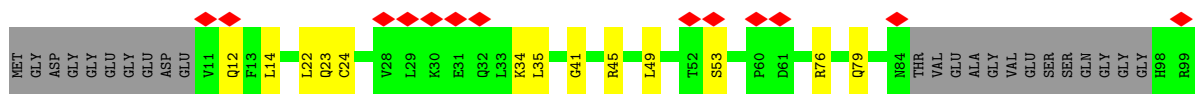




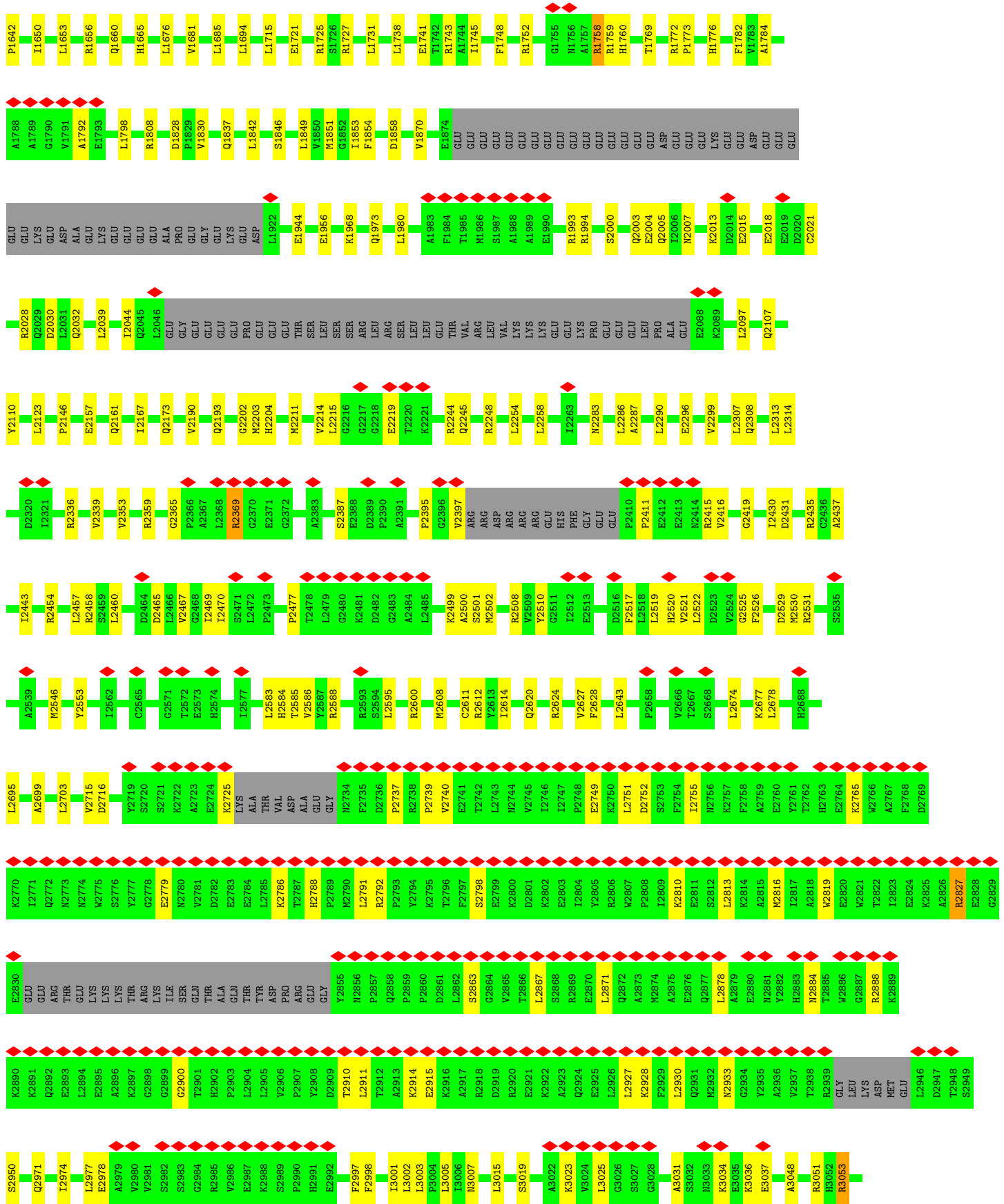
H2520	V2521	L2522	D2523	V2524	G2525	F2526	D2529	M2530	R2531	S2535	L2539	M2546	V2553	L2562	C2565	G2571	T2572	E2573	H2574	L2577	L2583	H2584	T2585	V2586	V2587	R2588	R2593	S2594	L2595	R2600	M2608	C2611	R2612	V2613	L2614	Q2620	R2624	V2627	F2628	L2643																					
P2668	V2666	T2667	S2668	L2674	K2677	M2678	H2688	L2695	A2699	L2703	V2715	D2716	S2721	K2722	A2723	E2724	K2725	LYS	ALA	THR	GLU	VAL	ASP	ALA	GLY	N2794	F2795	D2796	P2737	R2798	P2799	Y2794	V2740	E2741	T2742	L2743	N2744	V2745	L2746	I2747	K2802	P2748	E2749	K2750	L2751	D2752	R2806	P2807	F2754	I2755	N2756	K2757	F2758								
A2759	E2760	Y2761	T2762	H2763	E2764	K2765	W2766	A2767	F2768	D2769	K2770	I2771	Q2772	N2773	M2774	W2775	S2776	Y2777	G2778	E2779	M2780	E2781	D2782	E2783	E2784	L2785	K2786	T2787	H2788	P2789	M2790	L2791	K2792	P2793	P2799	Y2794	P2860	D2861	L2862	S2863	Q2864	V2865	T2866	L2867	S2868	R2869	E2870	L2871	Q2872	A2873	M2874	A2875	E2876	S2877	L2878						
W2819	E2820	W2821	T2822	L2823	E2824	K2825	A2826	R2827	E2828	G2829	E2830	GLU	GLU	ARG	THR	GLU	LYS	LYS	THR	ARG	LYS	ILE	SER	GLN	THR	ALA	GLN	THR	TVR	ASP	PRO	ARG	GLU	GLY	Y2885	N2856	P2857	Q2858	P2859	P2860	D2861	L2862	S2863	Q2864	V2865	T2866	L2867	S2868	R2869	E2870	L2871	Q2872	A2873	M2874	A2875	E2876	Q2877	L2878			
A2879	E2880	N2881	Y2882	H2883	N2884	T2885	W2886	G2887	R2888	K2889	K2890	K2891	Q2892	E2893	L2894	E2895	A2896	K2897	G2898	G2899	G2900	T2901	H2902	P2903	L2904	L2905	S2989	V2906	P2907	Y2908	D2909	T2910	L2911	T2912	A2913	K2914	E2915	K2916	A2917	R2918	D2919	R2920	E2921	K2922	A2923	Q2924	E2925	G3026	S3027	G3028	K2928	F2929	L2930	Q2931	M2932	N2933	G2934	Y2935	A2936	V2937	T2938
R2939	GLY	LYS	ASP	MET	GLU	L2946	D2947	T2948	S2949	S2950	Q2971	L2974	L2977	E2978	A2979	V2980	V2981	S2982	S2983	G2984	V2985	E2987	K2988	S2989	P2990	H2991	E2992	F2997	F2998	L3001	L3002	L3003	F3004	L3005	L3006	N3007	L3015	S3019	A3022	K3023	K3024	V3025	L3025	G3026	S3027	G3028	A3031	S3032	N3033	G2934	Y2935	A2936	V2937	T2938							
K3034	E3035	K3036	E3037	A3048	R3051	H3052	R3053	L3056	F3057	G3058	T3059	P3062	V3065	L3075	D3076	A3077	R3078	V3080	M3081	K3082	V3088	P3202	V3203	L3206	E3104	V3107	L3110	R3111	L3112	G3113	K3114	V3115	S3116	GLN	ALA	ARG	THR	GLN	VAL	K3123	G3124	T3130	Y3131	T3132	T3133	L3136	S3031	S3032	N3033	G2934	Y2935	A2936	V2937	T2938							
H3146	I3147	Q3151	F3152	G3153	D3154	D3155	V3156	I3157	L3158	V3163	S3171	I3172	S3174	L3175	N3180	T3181	Y3182	V3183	E3184	K3185	L3190	H3201	P3202	V3203	L3206	E3104	V3107	L3110	R3111	L3112	G3113	K3114	V3115	S3116	GLN	ALA	ARG	THR	GLN	VAL	K3123	G3124	T3130	Y3131	T3132	T3133	L3136	S3031	S3032	N3033	G2934	Y2935	A2936	V2937	T2938						
S3285	V3286	E3287	K3289	F3244	V3245	L3246	D3247	R3248	T3253	T3264	E3265	T3273	W3284	G3288	F3289	P3292	P3293	P3294	A3295	L3296	P3297	A3298	G3299	A3300	P3301	P3302	P3303	C3304	T3305	A3306	V3324	T3329	D3330	E3331	A3332	V3340	F3341	A3342	L3345	V3346	S3347	L3354	F3358	T3361																	
R3364	E3377	R3380	L3381	E3382	A3383	K3384	A3385	A3386	E3387	E3388	E3389	G3390	E3391	L3392	R3403	Y3409	R3414	Y3415	V3416	R3420	W3423	L3424	I3443	Y3444	W3445	F3451	E3454	N3457	F3458	V3460	Q3461	N3465	N3466	N3467	S3468	F3469	L3470	T3471	A3472	D3473	S3474	K3475	S3476	K3477	M3478																
A3479	LYS	ALA	GLY	ASP	ALA	GLN	SER	GLY	GLY	SFR	ASP	GLN	GLU	ARG	THR	LYS	LYS	R3498	R3499	G3500	D3501	R3502	X3503	S3504	V3505	Q3506	T3507	S3508	L3509	I3510	V3511	K3515	K3516	R3523	M3524	D3531	L3532	L3533	M3534	K3537	T3538	A3541	L3542	K3543	D3544	N3555	N3556	L3557	H3558	L3559	Q3560	G3561									
K3562	V3563	E3564	G3565	S3566	L3569	R3570	L3575	Y3576	R3577	P3580	G3581	R3582	E3583	E3584	D3585	A3586	D3587	D3588	P3589	I3592	R3595	V3596	A3601	Y3604	E3607	E3610	H3611	P3612	Y3613	K3614	S3615	K3616	K3617	A3618	V3619	W3620	H3621	K3622	L3623	L3624	S3625	K3626	Q3627	R3628	R3629	R3630	A3631	V3632	V3633	A3634											
C3635	F3636	R3637	F3640	M3652	A3659	A3660	W3661	L3662	L3663	E3670	D3675	D3676	L3677	E3682	D3683	E3684	E3685	E3686	E3687	E3688	V3689	E3691	E3692	L3698	H3699	Q3700	F3705	T3708	Y3725	K3731	S3732	E3736	GLU	GLY	GLY	GLU	ASN	GLY	GLU	ALA	GLU	GLU	GLU	GLU	GLU	V3749	E3750														



• Molecule 1: Ryanodine receptor 1















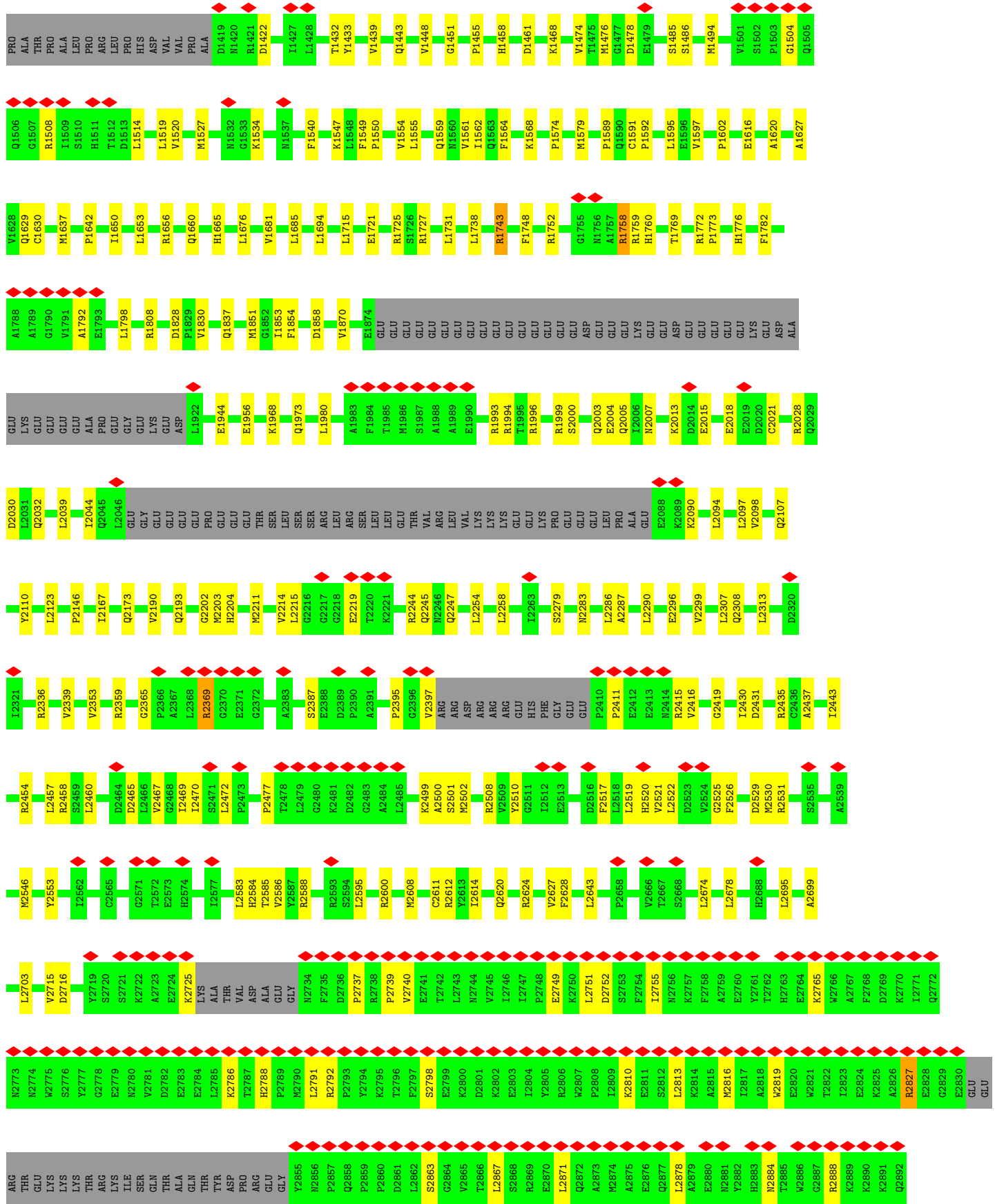
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G2396	V2397	ARG	ASP	ARG	ARG	ARG	GLU	HIS	PHE	GLY	GLU	P2410	P2411	E2412	E2413	N2414	R2415	V2416	G2419	T2430	D2431	R2435	T2443	R2454	L2457	R2458	S2459	L2460	D2464	D2465	L2466	V2467	G2468	ASP	L2470	S2471	L2472	P2473	P2477	T2478	L2479	G2480	K2481	D2482	G2483	A2484	L2485	K2499												
A2500	S2501	M2502	Y2510	G2511	L2512	E2513	D2516	L2517	L2518	L2519	H2520	L2522	D2523	V2524	G2525	F2526	D2529	M2530	R2531	S2535	A2539	M2546	Y2553	L2562	G2565	G2571	T2572	E2573	H2574	T2577	L2583	H2584	T2585	V2586	Y2587	R2588	R2593	S2594	L2595	R2600	C2611	R2612	Y2613																	
I2614	Q2620	R2624	V2627	F2628	P2658	V2666	T2667	S2668	L2674	K2677	L2678	H2688	L2695	A2699	L2703	Y2715	D2716	Y2719	S2720	K2721	S2722	A2723	E2724	K2725	ALA	THR	VAL	ASP	ALA	GLY	N2734	F2735	D2736	P2737	R2738	L2739	P2739	V2740	P2793	E2741	T2742	L2743	N2744	V2745	I2746	I2747														
P2748	E2749	K2750	L2751	D2752	S2753	F2754	I2755	N2756	K2757	F2758	A2759	E2760	Y2761	T2762	H2763	E2764	K2765	W2766	A2767	F2768	D2769	K2770	I2771	Q2772	N2773	N2774	W2775	S2776	Y2777	G2778	E2779	N2780	V2781	D2782	E2783	E2784	L2785	K2786	T2787	H2788	P2789	M2790	L2791	R2792	P2793	P2793	Y2794	K2795	T2796	F2797	S2798	E2799	K2800	D2801	K2802	E2803	I2804	Y2805	R2806	W2807
P2808	T2809	K2810	E2811	S2812	L2813	K2814	A2815	M2816	L2817	A2818	W2819	E2820	Y2821	T2822	L2823	E2824	K2825	A2826	R2827	E2828	G2829	E2830	GLU	ARG	THR	GLU	LYS	LYS	THR	ARG	LYS	ILE	SER	GLN	THR	VAL	ALA	GLN	THR	TYR	ASP	PRO	ARG	GLU	GLY	V2855	N2856	P2857	Q2858	P2859	P2860	D2861	L2862	S2863	G2864	V2865	T2866	L2867		
S2868	R2869	E2870	L2871	Q2872	A2873	M2874	A2875	E2876	Q2877	L2878	A2879	E2880	N2881	Y2882	H2883	N2884	T2885	W2886	G2887	R2888	K2889	K2890	Q2892	E2893	L2894	E2895	A2896	K2897	G2898	G2899	G2900	T2901	H2902	P2903	L2904	L2905	P2906	P2907	Y2908	D2909	T2910	L2911	T2912	A2913	L2914	E2915	K2916	A2917	R2918	R2920	E2921	K2922	A2923	Q2924	E2925	L2926	L2927			
K2928	F2929	L2930	Q2931	M2932	N2933	G2934	Y2935	A2936	V2937	T2938	R2939	GLY	LEU	LYS	ASP	MET	L2946	D2947	T2948	S2950	Q2971	I2974	L2977	E2978	A2979	V2980	V2981	S2982	G2983	G2984	R2985	V2986	E2987	K2988	S2989	P2990	H2991	E2992	F2997	F2998	I3001	L3002	L3003	P3004	L3005	L3006	M3007	L3015	S3019											
A3022	K3023	V3024	L3025	G3026	S3027	G3028	A3031	S3032	N3033	K3034	E3035	K3036	E3037	A3048	R3051	H3052	R3053	L3056	F3057	G3058	T3059	P3062	V3065	L3075	D3076	A3077	R3078	T3079	V3080	K3081	V3088	D3102	I3103	E3104	P3207	P3208	Q3209	L3210	M3214	A3215	G3216	S3217	V3218	T3219	T3220	T3221	K3222	S3223												
VAL	K3123	G3124	T3130	Y3131	T3132	T3133	L3136	H3146	I3147	Q3151	F3152	G3153	D3154	V3156	I3157	L3158	V3163	S3171	I3172	Y3173	S3174	L3175	N3180	T3181	Y3182	V3183	E3184	K3185	L3190	M3201	P3202	V3203	L3206	E3207	P3208	Q3209	L3210	M3214	A3215	G3216	S3217	V3218	T3219	T3220	T3221	K3222	S3223													
P3224	R3225	E3226	R3227	A3228	L3229	L3230	G3231	L3232	P3233	N3234	S3235	V3236	E3237	E3238	M3239	P3244	Y3245	L3246	R3247	R3248	I3253	L3256	S3259	T3264	E3265	T3273	K3274	W3284	G3288	P3289	P3292	P3293	P3294	A3295	L3296	P3297	A3298	G3299	A3300	P3301	P3302	P3303	C3304	T3305	A3306	Y3324	L3329	D3330	E3331											
A3332	V3340	F3341	A3342	I3345	V3346	S3347	L3354	H3357	F3358	T3361	R3364	E3377	R3380	E3382	A3383	K3384	A3385	E3386	A3387	E3388	E3389	G3390	E3391	L3392	R3403	Y3409	R3414	R3420	L3424	P3427	I3443	Y3444	W3445	F3451	E3454	N3457	F3458	V3459	V3460	Q3461																				
R3465	R3466	R3467	S3468	F3469	L3470	T3471	S3472	D3473	S3474	K3475	S3476	K3477	R3478	LYS	ALA	GLY	ASP	ALA	GLN	SER	GLY	SER	ASP	GLN	GLU	ARG	THR	LYS	G3390	E3391	L3392	R3498	R3499	G3500	D3501	R3502	Y3503	S3504	V3505	V3506	T3507	S3508	L3509	I3510	V3511	K3515	K3516	N3523	N3524	D3531	L3532	I3533	R3534							



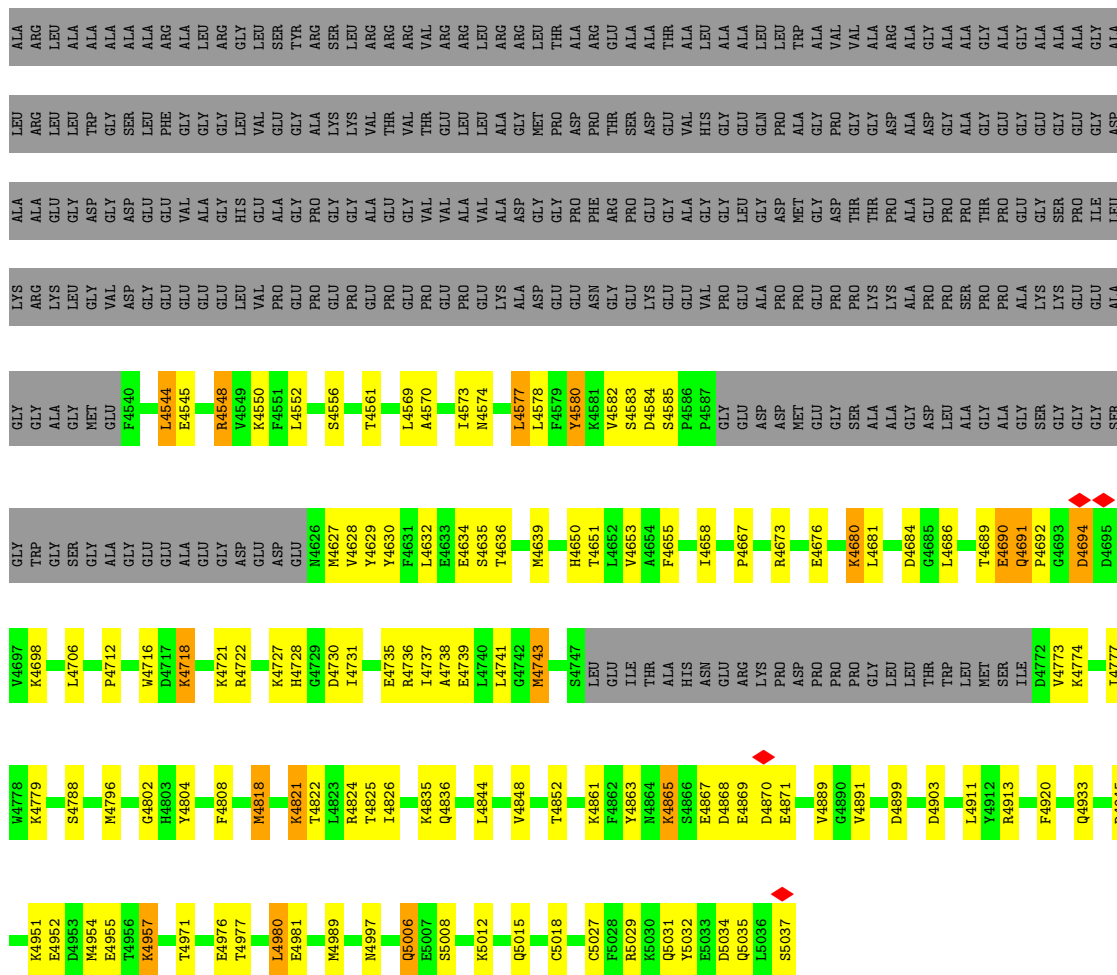
• Molecule 1: Ryanodine receptor 1



MET	GLY	ASP	GLY	GLY	GLY	GLY	GLY	GLY	ASP	GLU	V11	Q12	F13	L14	L22	Q23	C24	V28	L29	K30	E31	Q32	L33	K34	L35	G41	F42	G43	N44	R45	L49	T52	S53	P60	D61	R76	Q79	N84	THR	VAL	GLU	ALA	GLY	VAL	GLU	GLU	SER	SER	GLN	GLY	GLY	GLY	GLY	THR				
H98	R99	I107	R110	R115	R125	S126	M127	T128	D129	L131	D134	A141	E144	M150	A153	S154	K155	Q156	R157	V163	R164	V165	D168	L169	I170	L171	S175	L180	H181	L182	S183	T184	A185	S186	G187	E188	L189	F195	R196	Q197	T198	L199	W200	N201														
K282	M203	S207	C208	C209	E210	E211	G212	Y213	V214	T215	G216	V219	L220	L222	F223	H226	M227	D228	E229	C230	L231	T232	S233	D239	R242	R243	Y247	E248	G249	G250	A251	V252	R257	S258	L259	L262	L274	R275	V276	R281	T286	R289	L293	T294	E295													
D286	Q287	G298	L299	V300	V301	V302	D303	T309	R317	V318	S319	K320	F321	K322	L323	ASP	THR	ALA	P327	K328	R329	D330	V331	E332	P336	P337	L339	K340	Y341	G342	E343	S344	L345	C346	Q349	L355	W356	A361	P362	D363	P364	K365	A366	L367	R368	L369	G370	V371	L372	K373	K374							
L378	H379	Q380	H383	N384	D385	D386	A387	L390	A400	I404	H405	Y411	F414	I415	K416	D418	L419	S420	F421	S422	S428	G429	A432	G433	P434	A435	L436	P437	A440	D447	Y451	R474	Q475	D492	N495	Y496	Y497	E513	S528	L529	M533																	
R534	W546	K550	L551	D552	R553	E570	L575	S585	I586	L589	L590	D591	K592	D601	L603	L606	T622	L626	R629	E630	L631	L632	L633	Q634	L637	V650	G651	R652	A653	E654	G655	S656	K661	E665	L688	T689	E690	V707	G708	S713																		
L719	W722	R728	P729	V730	T731	S732	P733	G734	Q735	H736	L737	V743	L748	I755	R758	I759	W760	G761	C762	P763	W764	Q765	G775	L776	F777	S782	F783	G786	W787	L792	H797	R818	R821	R830	R835	V840	G841	P842	S843	R844	C845	L846																
S847	H848	T849	D850	F851	C854	D857	T858	V859	Q860	V862	L863	H866	L867	R869	I870	R871	E872	K873	L874	I878	L881	W882	A883	L884	W891	G894	P895	V896	R897	N900	K901	R902	L903	H904	P905	V908	N909	F910	H911	E915	P916	N919	Y920	Q923	M924													
S925	H938	Y939	G940	N941	A942	E944	F945	A946	E947	D948	N949	L950	G951	K952	K954	R961	S962	N963	G964	P969	L970	D971	L972	S973	H974	Y975	R976	L977	T978	P979	Q981	L988	V995	R998	W1005	P1006	Y1007	F1014	R1017	M1018	L1021																	
V1022	P1023	Y1024	R1025	L1026	L1027	D1028	E1029	K1032	R1036	L1039	Q1040	Q1041	A1042	V1043	R1044	T1045	L1046	Y1051	M1052	P1055	P1056	D1057	Q1058	E1059	P1060	S1061	Q1062	V1063	E1064	N1065	R1068	W1069	T1074	F1075	R1076	A1077	R1087	Y1089	F1090	E1091	T1097	R1101	R1106	L1109	R1110	P1111												
L1115	G1116	L1120	A1121	R1128	R1131	W1132	W1143	M1152	T1153	D1154	L1155	T1156	I1160	D1172	S1173	S1175	E1176	T1177	A1178	E1181	I1182	E1183	G1197	Q1198	V1199	M1203	L1204	G1205	S1210	L1211	L1219	P1225	I1228	T1236	P1243	H1252	P1253	H1254	Y1255	E1256																		
V1257	A1258	R1259	V1264	C1269	L1270	R1275	A1276	W1277	G1278	N1281	L1291	V1295	C1303	T1304	ALA	GLY	THR	PRO	PRO	LEU	ALA	PRO	ALA	PRO	PRO	ASN	GLY	LEU	GLN	PRO	PRO	ASP	ALA	ARG	ALA	ALA	GLY	GLU	PHE	LEU	ASP	PRO	ASP	ALA	TRP	GLY	ASN	ALA	LEU	ARG	ARG	MET	MET	THR	GLN	GLY	PRO	TRP

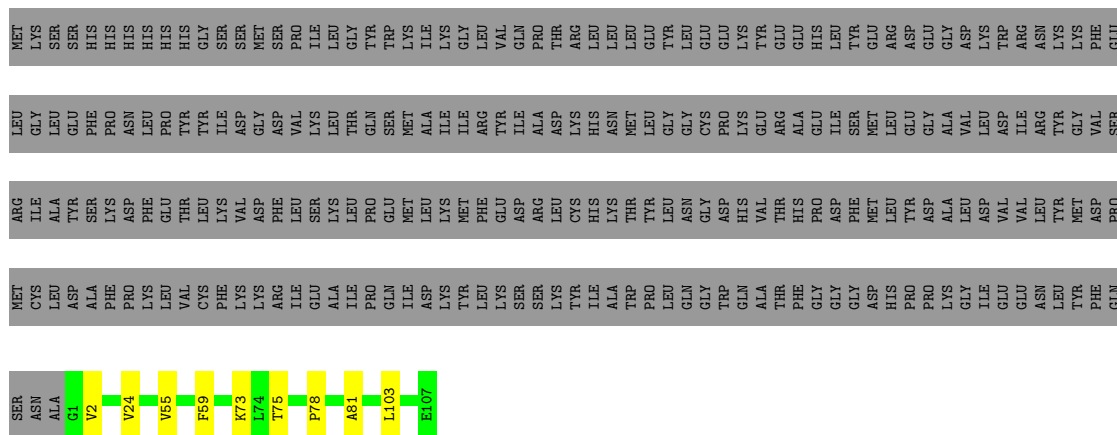






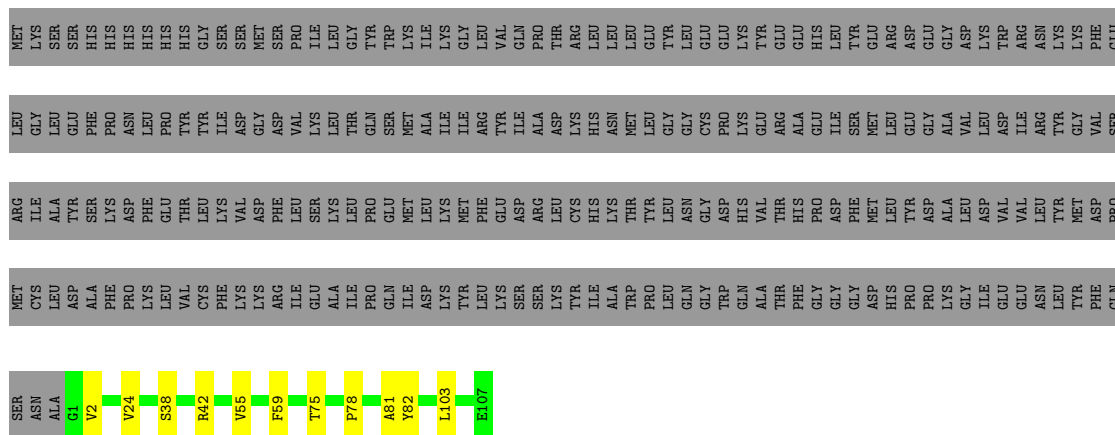
- Molecule 2: Glutathione S-transferase class-mu 26 kDa isozyme,Peptidyl-prolyl cis-trans isomerase FKBP1B

Chain E: 28% 69%

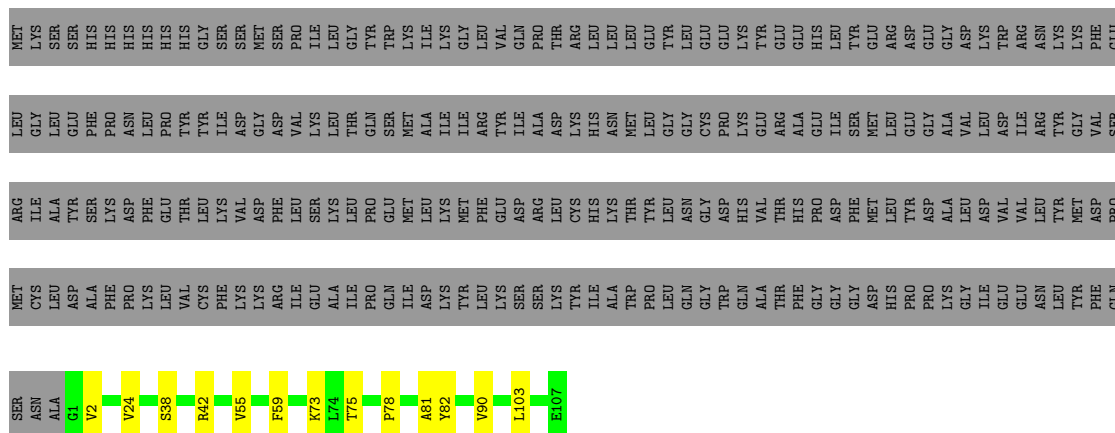


- Molecule 2: Glutathione S-transferase class-mu 26 kDa isozyme,Peptidyl-prolyl cis-trans isomerase FKBP1B

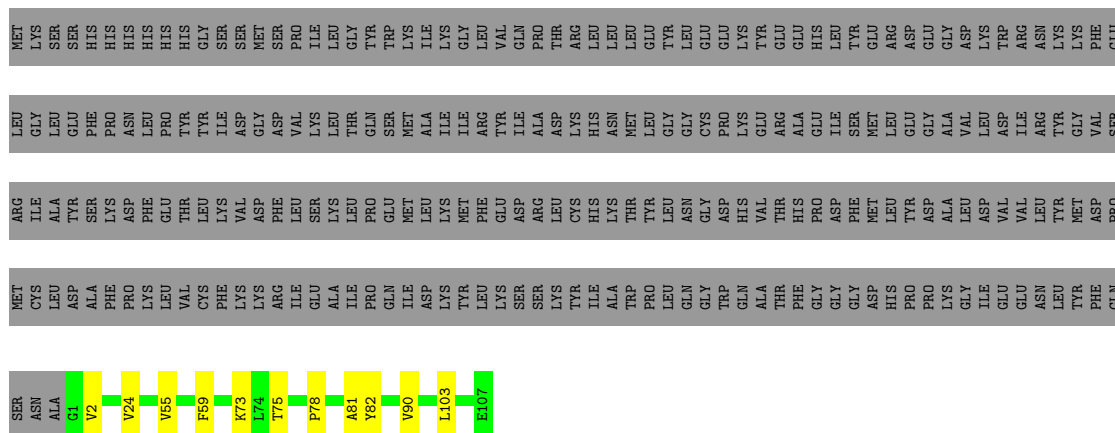
Chain F: 27% 69%



● Molecule 2: Glutathione S-transferase class-mu 26 kDa isozyeme,Peptidyl-prolyl cis-trans isomerase FKBP1B



● Molecule 2: Glutathione S-transferase class-mu 26 kDa isozyeme,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	55892	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 ( $e^-/\text{\AA}^2$ )	40	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	96000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	1.268	Depositor
Minimum map value	-0.637	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	0.064	Depositor
Recommended contour level	0.287	Depositor
Map size (Å)	515.2, 515.2, 515.2	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.288, 1.288, 1.288	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: AGS, 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	1/35721 (0.0%)	0.65	11/48375 (0.0%)
1	B	0.32	1/35721 (0.0%)	0.65	10/48375 (0.0%)
1	C	0.32	1/35721 (0.0%)	0.65	10/48375 (0.0%)
1	D	0.32	1/35721 (0.0%)	0.65	10/48375 (0.0%)
2	E	0.32	0/834	0.64	0/1123
2	F	0.32	0/834	0.64	0/1123
2	G	0.32	0/834	0.64	0/1123
2	H	0.32	0/834	0.64	0/1123
All	All	0.32	4/146220 (0.0%)	0.65	41/197992 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
1	C	0	1
1	D	0	1
All	All	0	4

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	904	HIS	C-N	5.54	1.44	1.34
1	B	904	HIS	C-N	5.54	1.44	1.34
1	C	904	HIS	C-N	5.54	1.44	1.34
1	D	904	HIS	C-N	5.54	1.44	1.34

The worst 5 of 41 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	903	LEU	CA-CB-CG	6.24	129.64	115.30
1	C	903	LEU	CA-CB-CG	6.24	129.64	115.30
1	D	903	LEU	CA-CB-CG	6.24	129.64	115.30
1	A	903	LEU	CA-CB-CG	6.20	129.56	115.30
1	B	4945	ASP	CB-CG-OD1	6.03	123.73	118.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	841	GLY	Mainchain
1	B	841	GLY	Mainchain
1	C	841	GLY	Mainchain
1	D	841	GLY	Mainchain

## 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	34904	0	34524	484	0
1	B	34904	0	34524	480	0
1	C	34904	0	34524	489	0
1	D	34904	0	34524	483	0
2	E	818	0	824	5	0
2	F	818	0	824	7	0
2	G	818	0	824	10	0
2	H	818	0	824	7	0
3	A	31	0	12	0	0
3	B	31	0	12	0	0
3	C	31	0	12	0	0
3	D	31	0	12	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
All	All	143016	0	141440	1931	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including

hydrogen atoms). The all-atom clashscore for this structure is 7.

The worst 5 of 1931 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:C:2283:ASN:HD22	1:C:2286:LEU:HG	1.56	0.71
1:B:2283:ASN:HD22	1:B:2286:LEU:HG	1.56	0.70
1:D:2283:ASN:HD22	1:D:2286:LEU:HG	1.56	0.70
1:B:1561:VAL:HG12	1:B:1562:ILE:HG13	1.74	0.69
1:C:317:ARG:NH2	1:C:349:GLN:OE1	2.25	0.69

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	4353/5037 (86%)	4217 (97%)	131 (3%)	5 (0%)	51	83
1	B	4353/5037 (86%)	4216 (97%)	132 (3%)	5 (0%)	51	83
1	C	4353/5037 (86%)	4216 (97%)	132 (3%)	5 (0%)	51	83
1	D	4353/5037 (86%)	4217 (97%)	131 (3%)	5 (0%)	51	83
2	E	105/350 (30%)	100 (95%)	5 (5%)	0	100	100
2	F	105/350 (30%)	100 (95%)	5 (5%)	0	100	100
2	G	105/350 (30%)	100 (95%)	5 (5%)	0	100	100
2	H	105/350 (30%)	100 (95%)	5 (5%)	0	100	100
All	All	17832/21548 (83%)	17266 (97%)	546 (3%)	20 (0%)	54	83

5 of 20 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	3616	LYS
1	B	3616	LYS

*Continued on next page...*

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Mol	Chain	Res	Type
1	C	3616	LYS
1	D	3616	LYS
1	A	4694	ASP

### 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	3805/4276 (89%)	3655 (96%)	150 (4%)	32	59
1	B	3805/4276 (89%)	3655 (96%)	150 (4%)	32	59
1	C	3805/4276 (89%)	3655 (96%)	150 (4%)	32	59
1	D	3805/4276 (89%)	3655 (96%)	150 (4%)	32	59
2	E	88/304 (29%)	88 (100%)	0	100	100
2	F	88/304 (29%)	88 (100%)	0	100	100
2	G	88/304 (29%)	88 (100%)	0	100	100
2	H	88/304 (29%)	88 (100%)	0	100	100
All	All	15572/18320 (85%)	14972 (96%)	600 (4%)	36	59

5 of 600 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	2369[A]	ARG
1	D	4871	GLU
1	D	3515	LYS
1	D	2203	MET
1	D	4635	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 82 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	4691	GLN
1	D	2283	ASN

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Mol	Chain	Res	Type
1	C	5031	GLN
1	D	533	ASN
1	D	3214	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 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 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
3	AGS	C	5101	-	26,33,33	0.72	1 (3%)	26,52,52	1.29	4 (15%)
3	AGS	D	5101	-	26,33,33	0.72	1 (3%)	26,52,52	1.29	4 (15%)
3	AGS	A	5101	-	26,33,33	0.72	1 (3%)	26,52,52	1.29	4 (15%)
3	AGS	B	5101	-	26,33,33	0.72	1 (3%)	26,52,52	1.29	4 (15%)

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
3	AGS	C	5101	-	-	6/17/38/38	0/3/3/3
3	AGS	D	5101	-	-	6/17/38/38	0/3/3/3
3	AGS	A	5101	-	-	6/17/38/38	0/3/3/3
3	AGS	B	5101	-	-	6/17/38/38	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	5101	AGS	PG-S1G	2.09	1.95	1.90
3	B	5101	AGS	PG-S1G	2.09	1.95	1.90
3	C	5101	AGS	PG-S1G	2.09	1.95	1.90
3	D	5101	AGS	PG-S1G	2.09	1.95	1.90

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	5101	AGS	O5'-C5'-C4'	3.09	119.63	108.99
3	A	5101	AGS	O5'-C5'-C4'	3.09	119.63	108.99
3	D	5101	AGS	O5'-C5'-C4'	3.09	119.63	108.99
3	B	5101	AGS	O5'-C5'-C4'	3.09	119.62	108.99
3	B	5101	AGS	C1'-N9-C4	2.55	131.12	126.64

There are no chirality outliers.

5 of 24 torsion outliers are listed below:

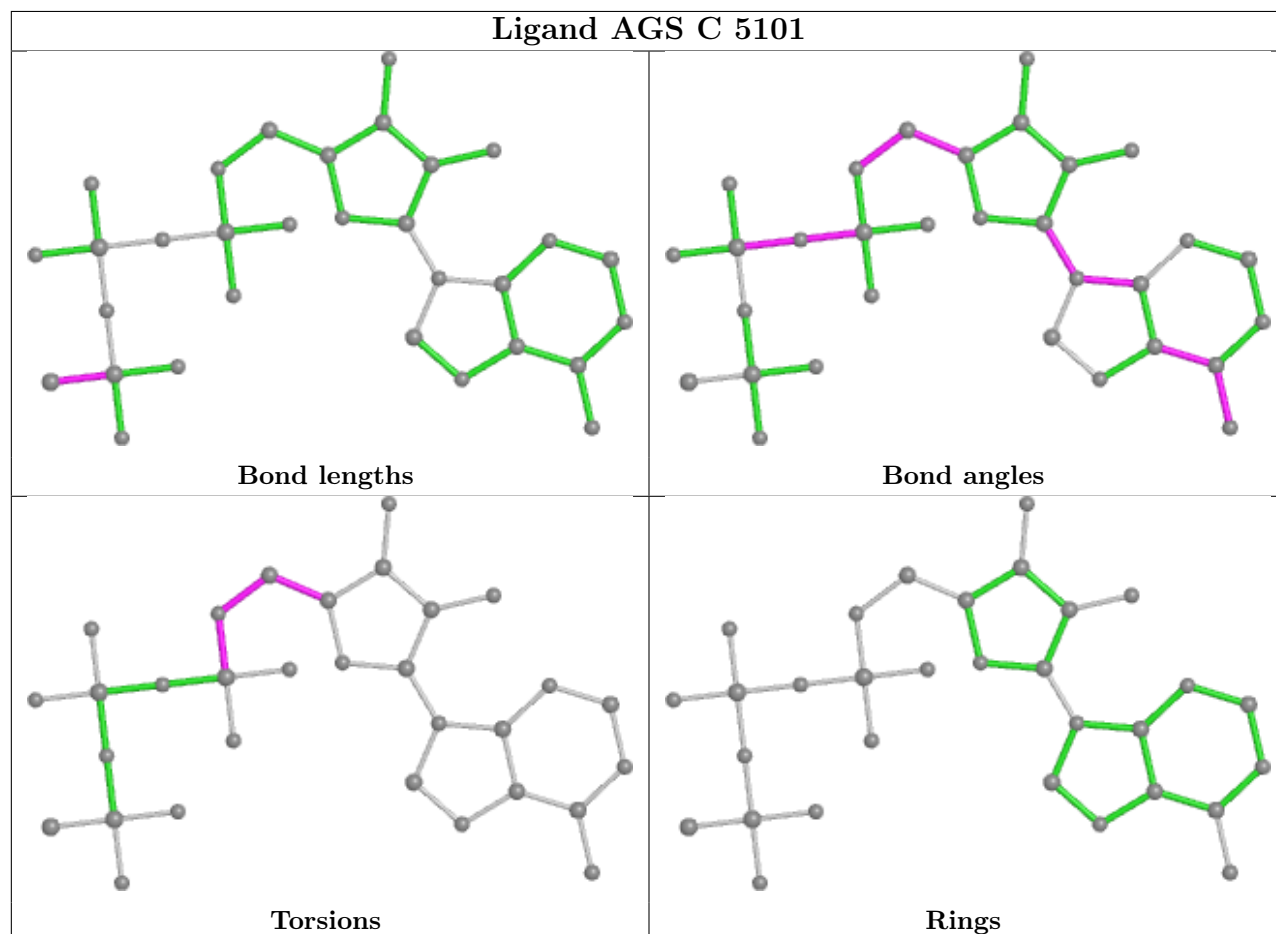
Mol	Chain	Res	Type	Atoms
3	A	5101	AGS	C5'-O5'-PA-O3A
3	A	5101	AGS	C4'-C5'-O5'-PA
3	A	5101	AGS	O4'-C4'-C5'-O5'
3	B	5101	AGS	C5'-O5'-PA-O3A
3	B	5101	AGS	C4'-C5'-O5'-PA

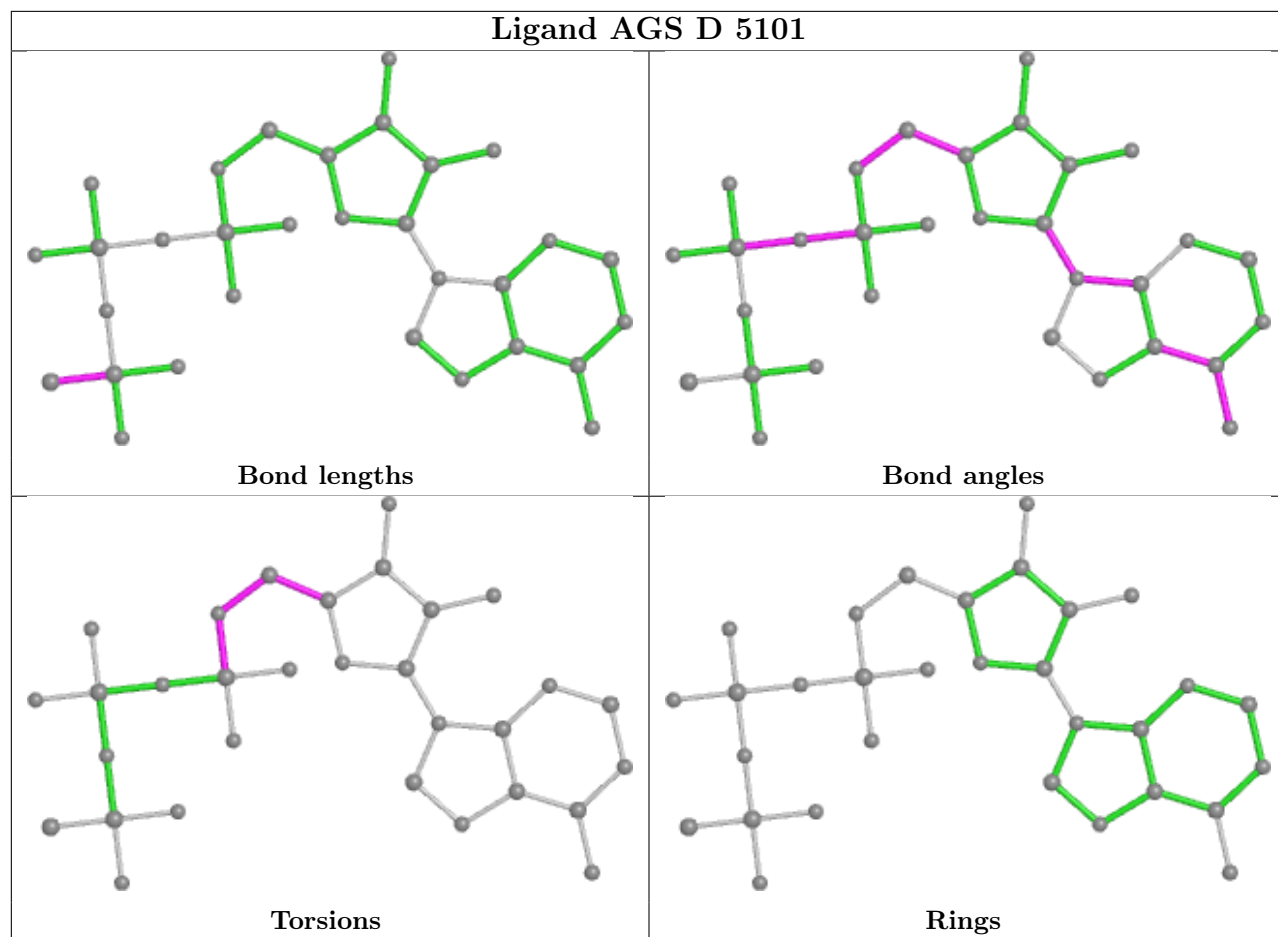
There are no ring outliers.

No monomer is involved in short contacts.

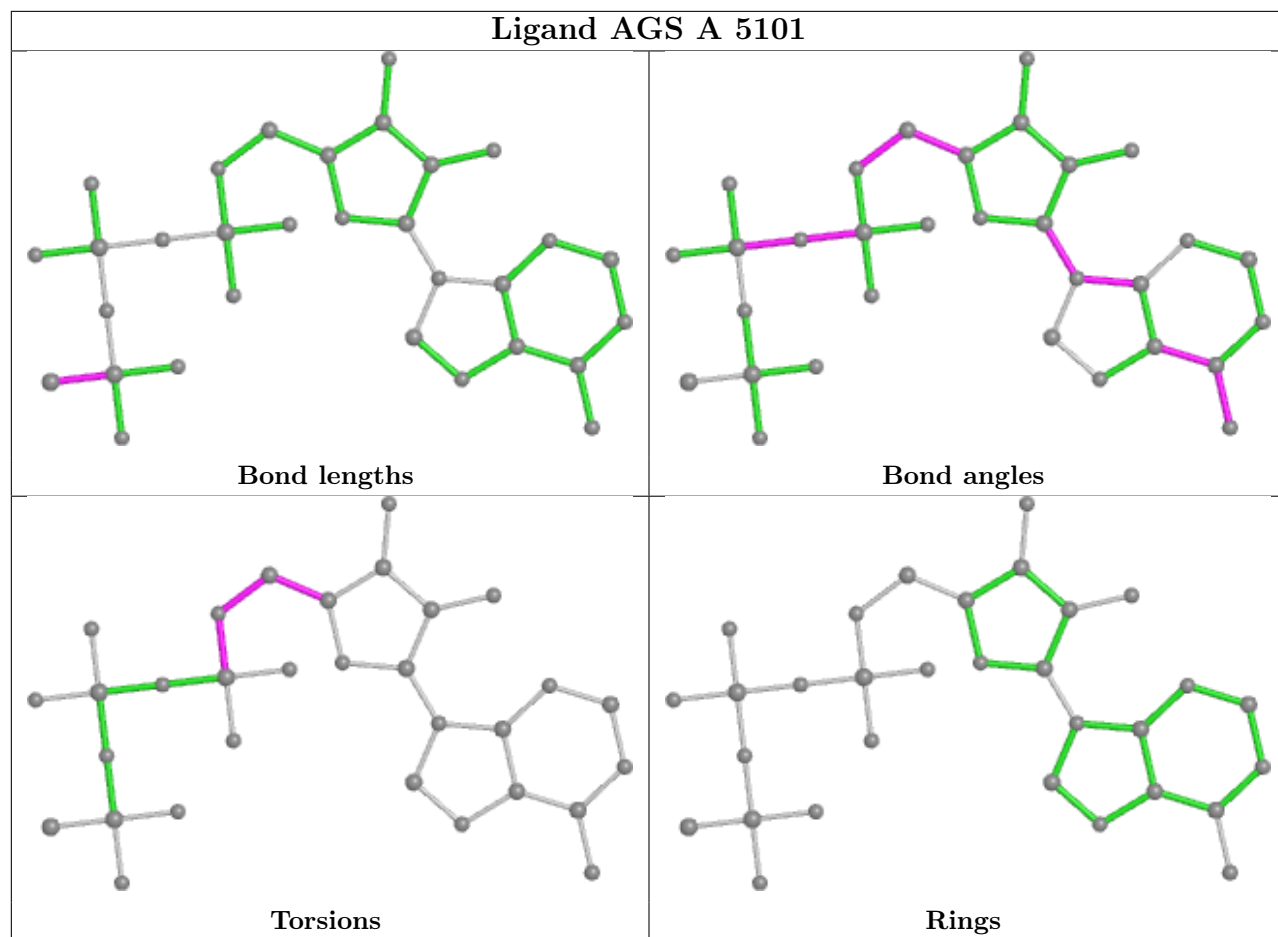
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

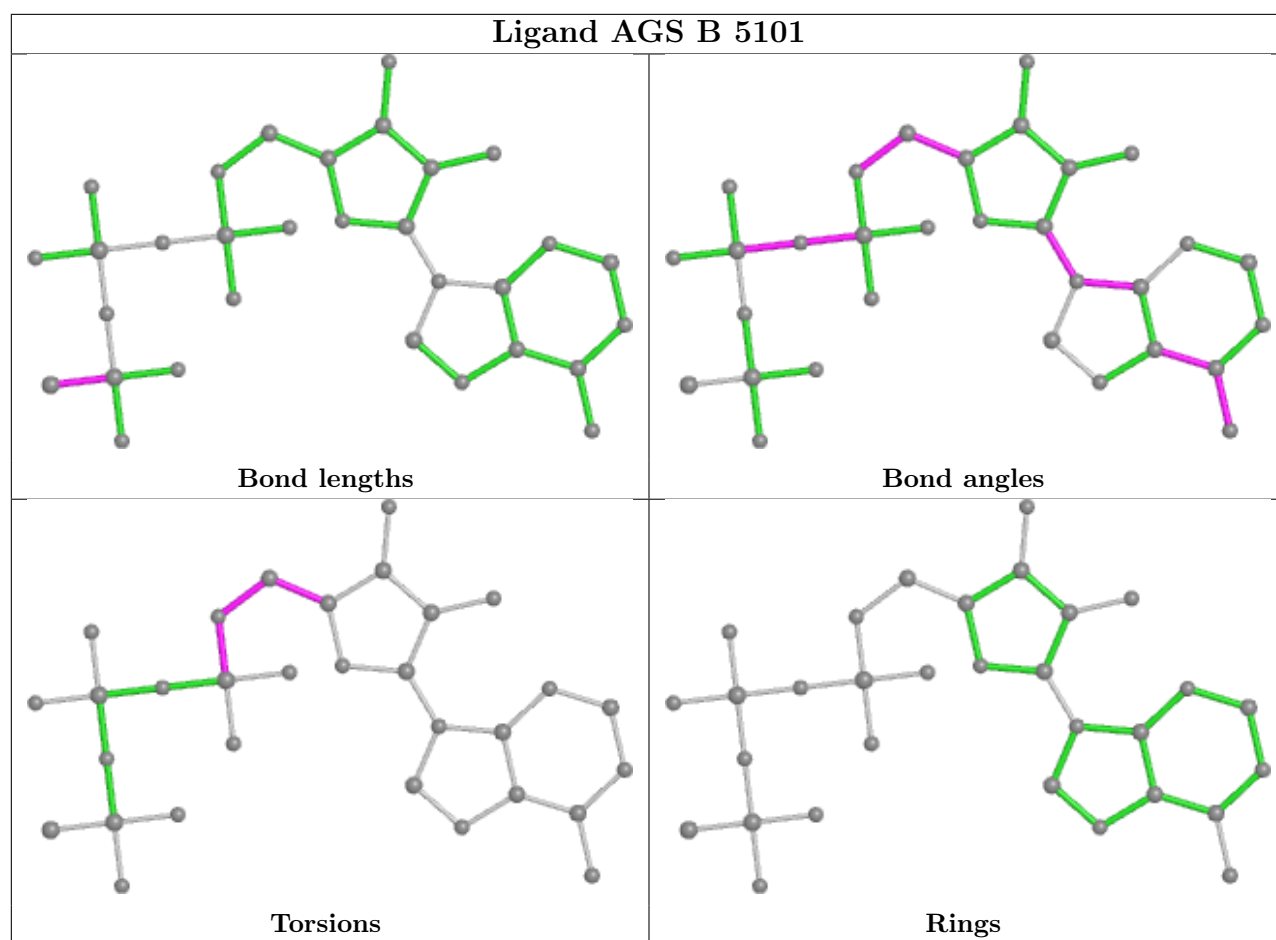
in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers 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.

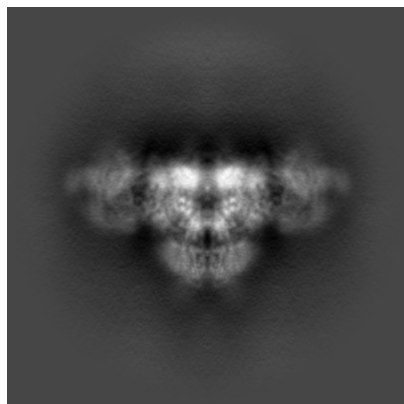
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-40423. These allow visual inspection of the internal detail of the map and identification of artifacts.

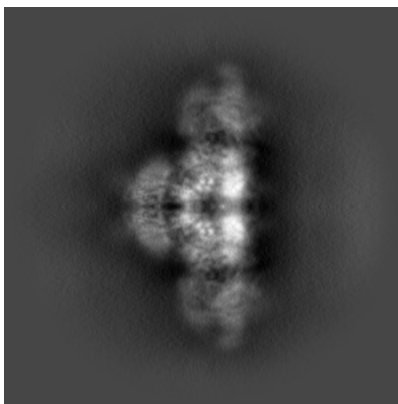
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

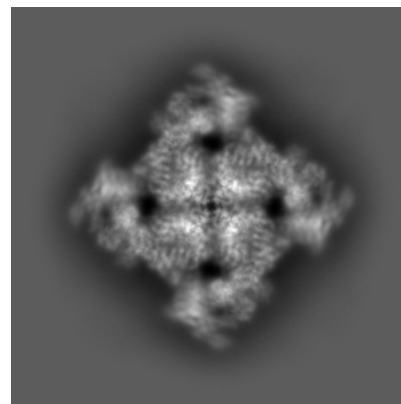
#### 6.1.1 Primary map



X

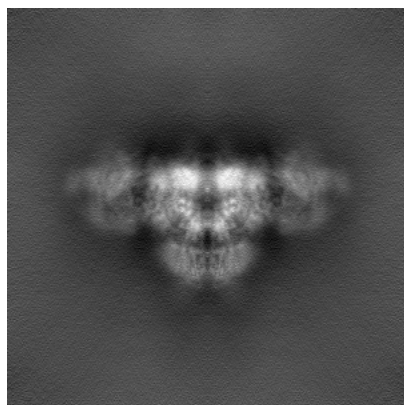


Y

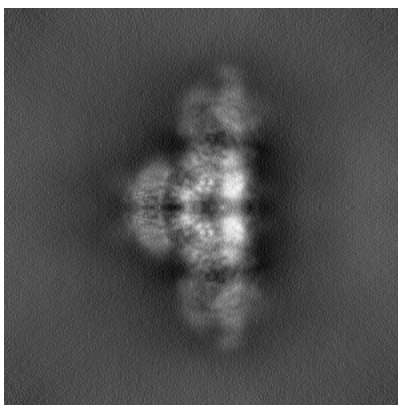


Z

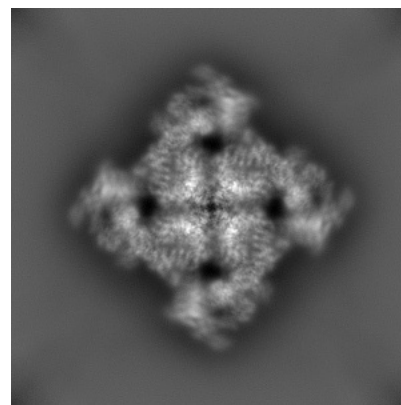
#### 6.1.2 Raw map



X



Y

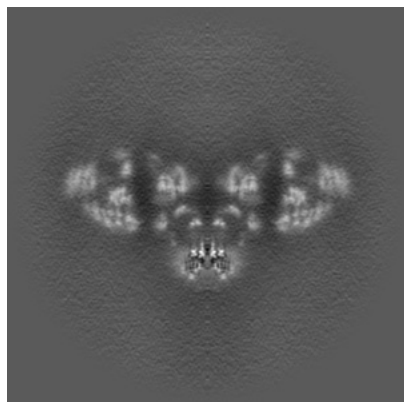


Z

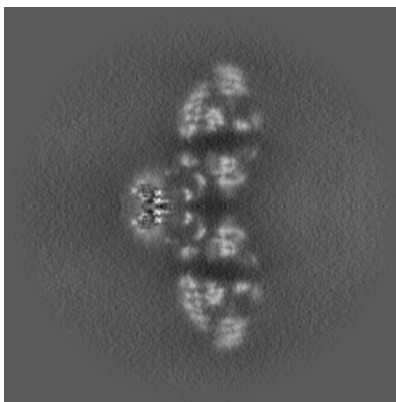
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

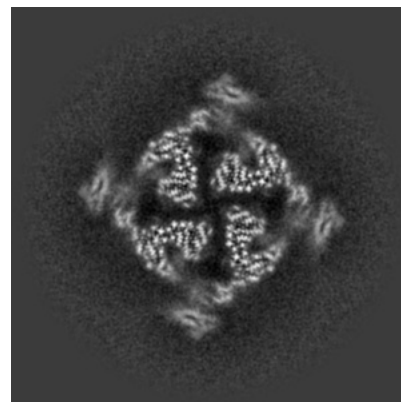
### 6.2.1 Primary map



X Index: 200

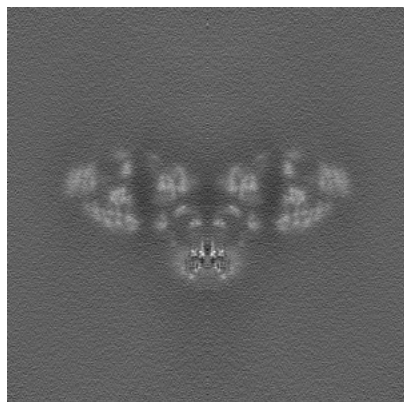


Y Index: 200

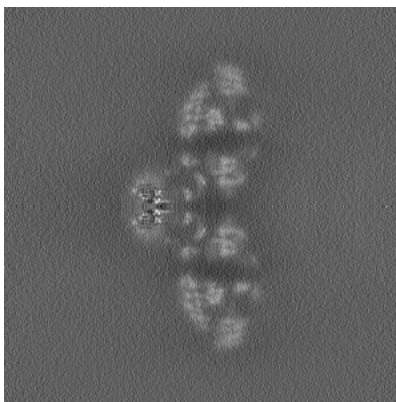


Z Index: 200

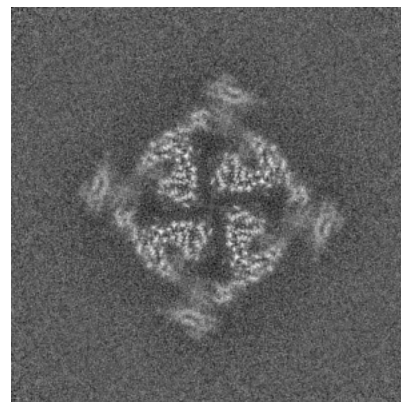
### 6.2.2 Raw map



X Index: 200



Y Index: 200

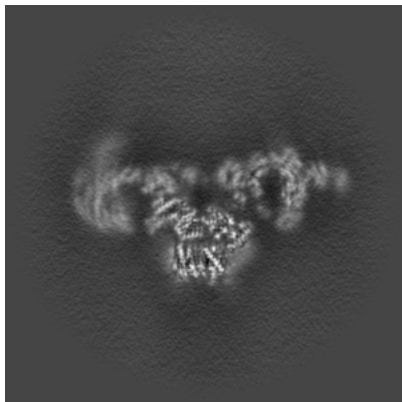


Z Index: 200

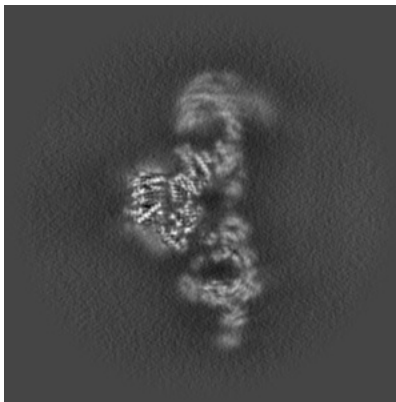
The images above show central slices of the map in three orthogonal directions.

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

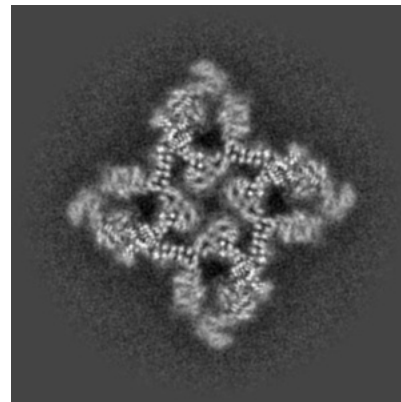
### 6.3.1 Primary map



X Index: 186

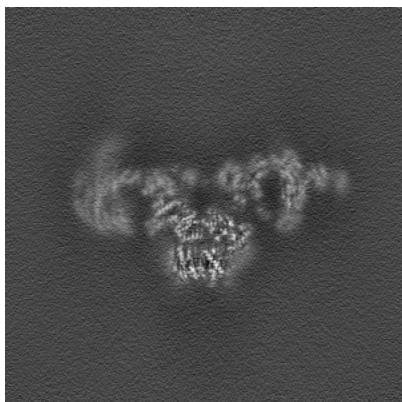


Y Index: 186

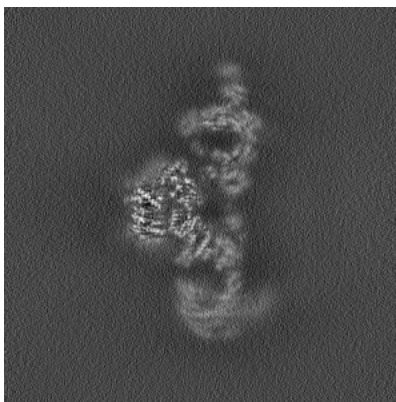


Z Index: 225

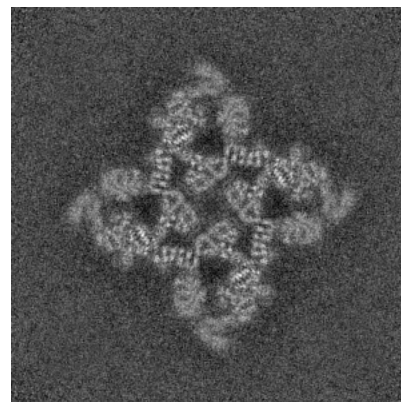
### 6.3.2 Raw map



X Index: 186



Y Index: 214



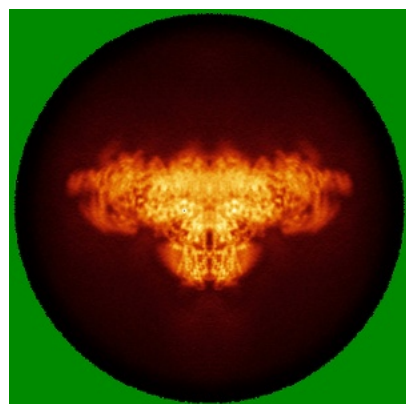
Z Index: 223

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

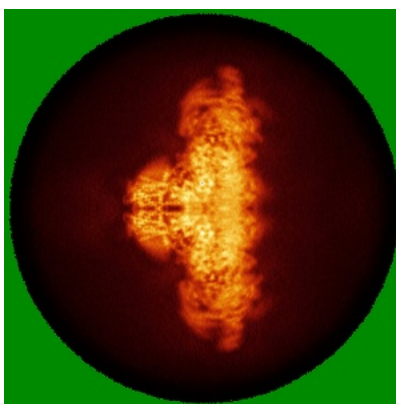


## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

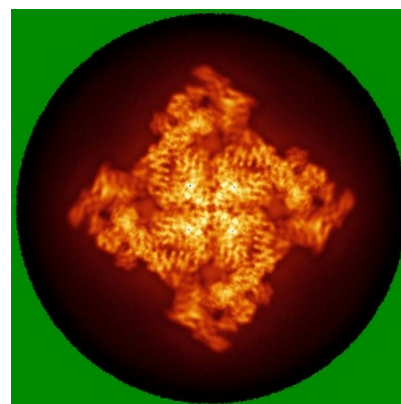
### 6.4.1 Primary map



X

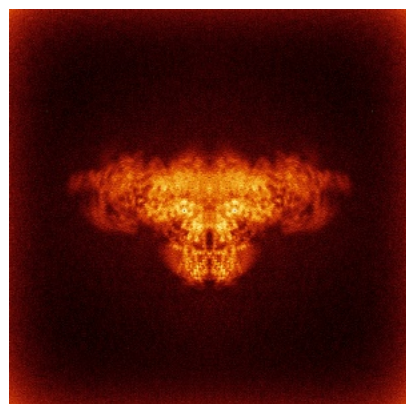


Y

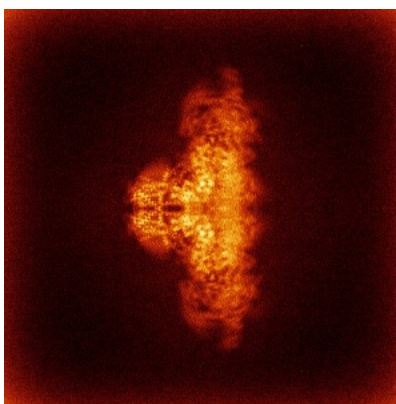


Z

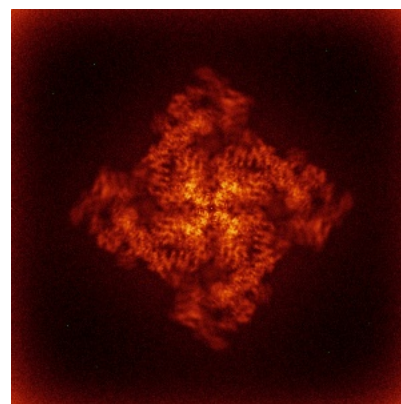
### 6.4.2 Raw map



X



Y

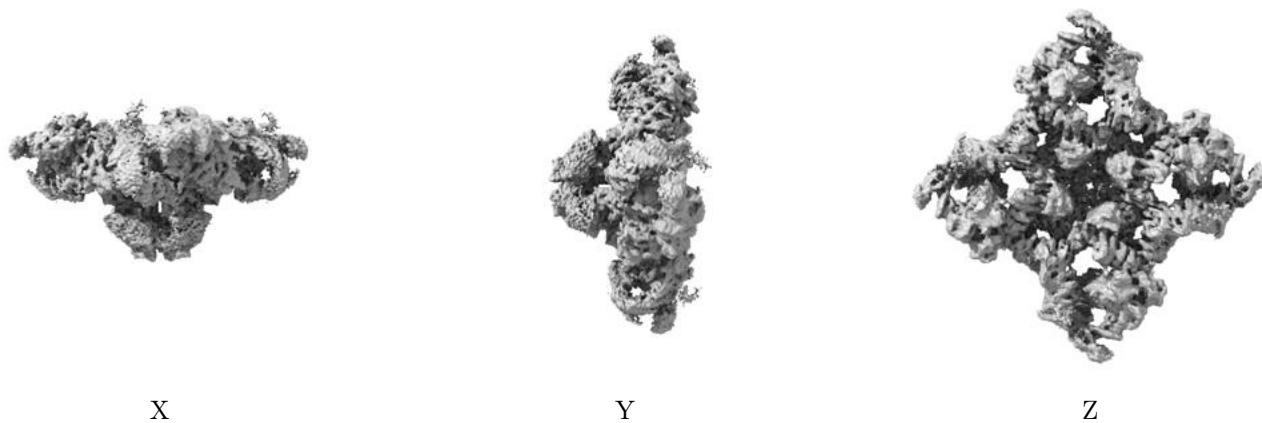


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

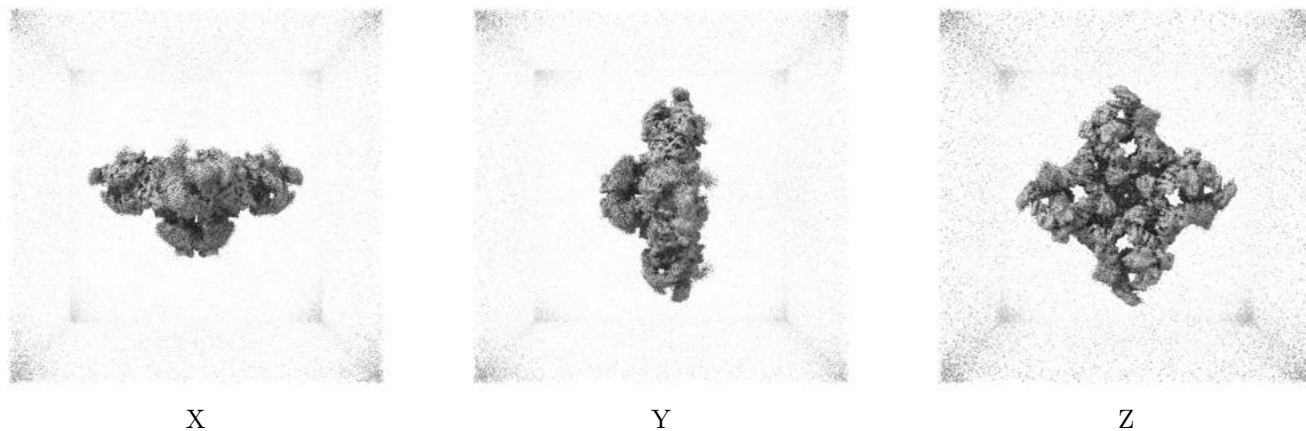
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.287. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

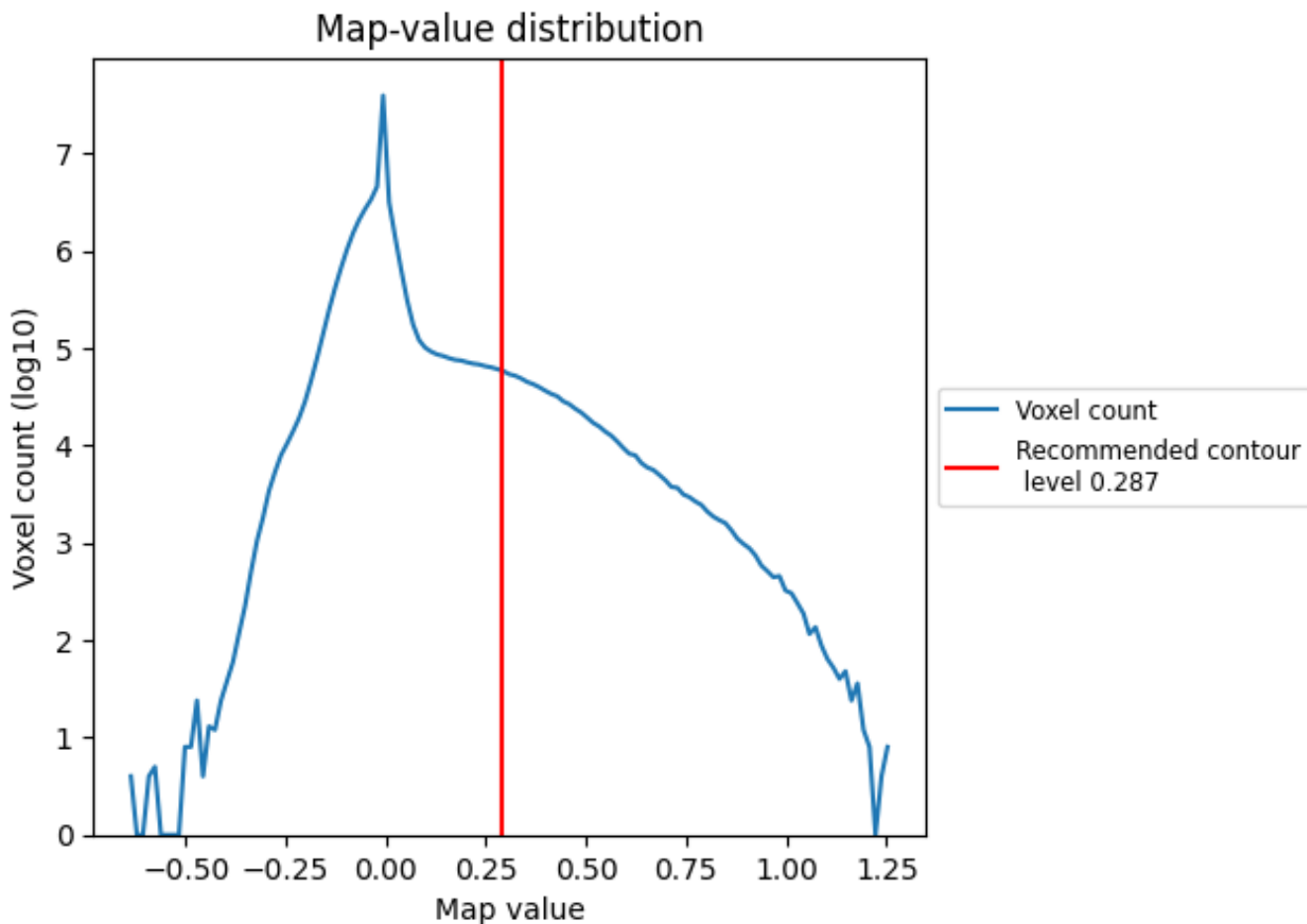
## 6.6 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

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

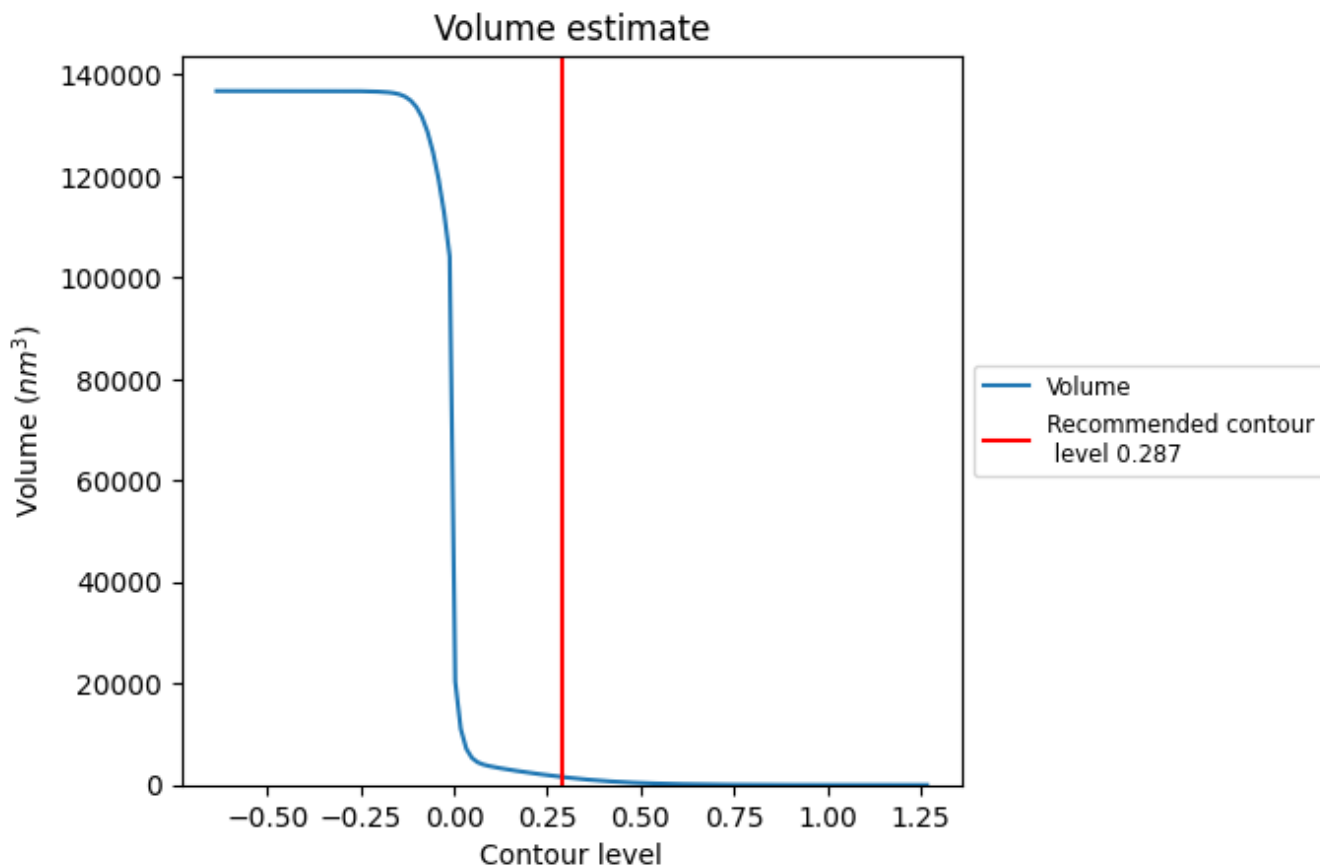
### 7.1 Map-value distribution [i](#)



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



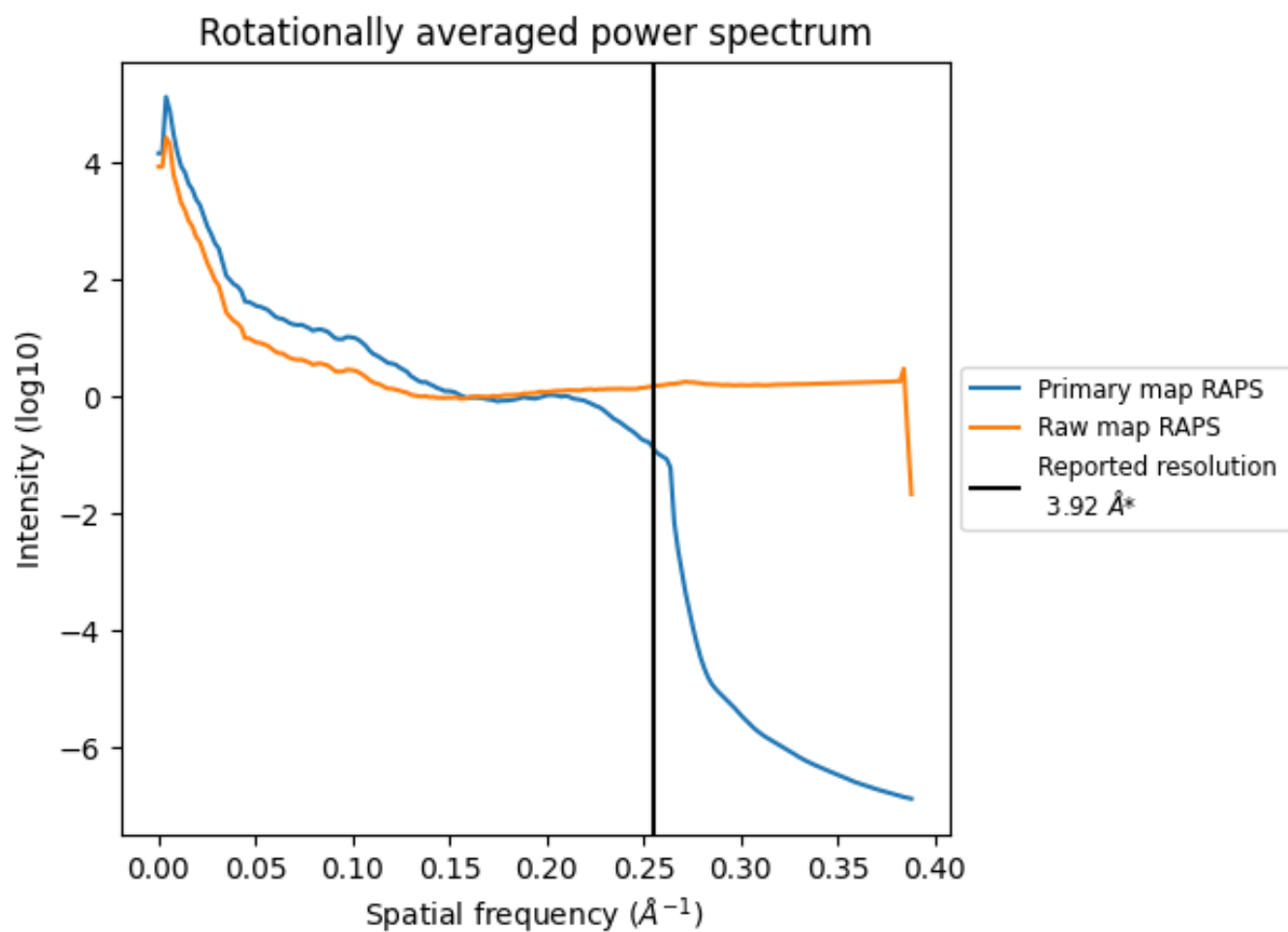
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1594 nm<sup>3</sup>; this corresponds to an approximate mass of 1440 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

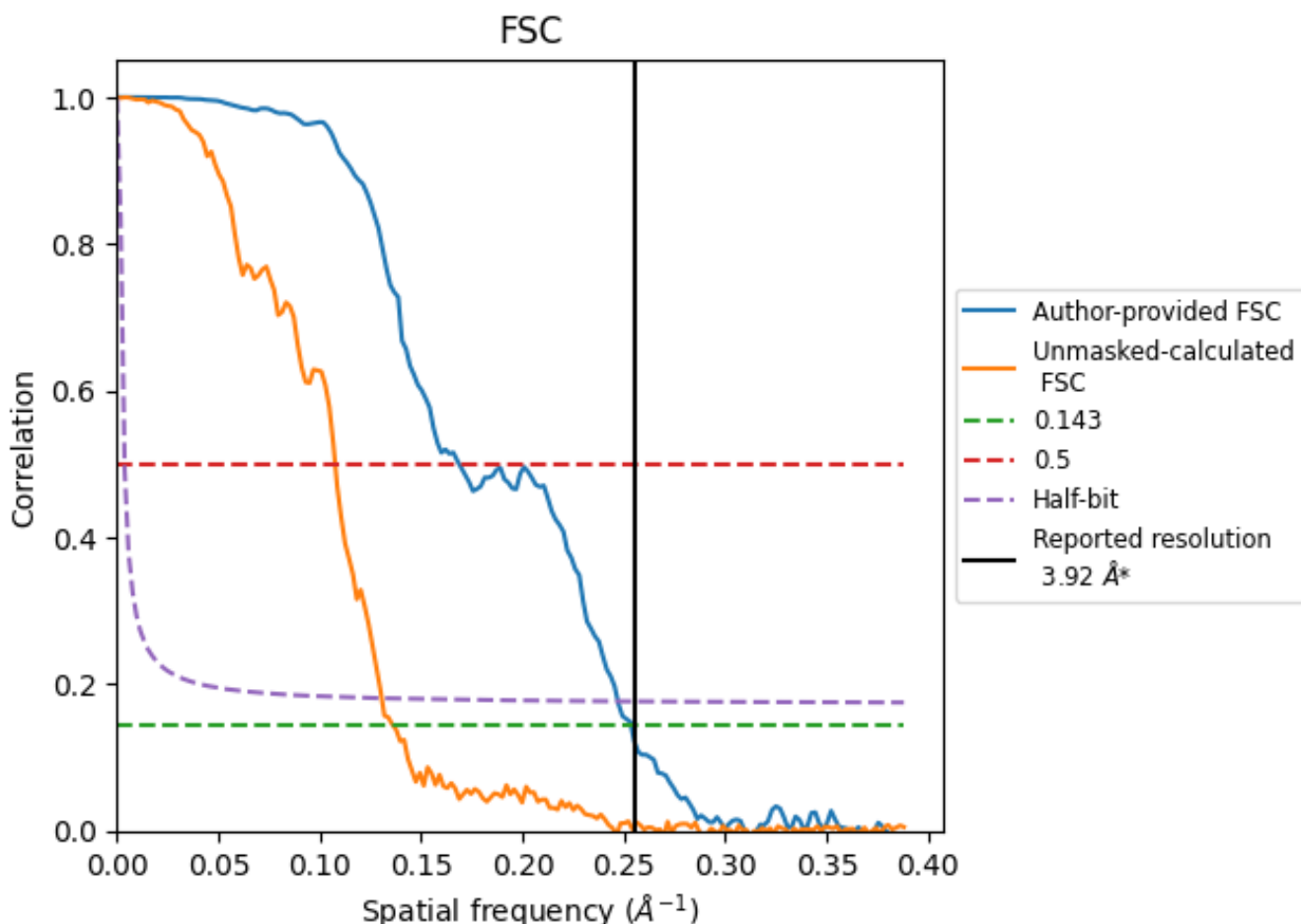


\*Reported resolution corresponds to spatial frequency of 0.255 Å<sup>-1</sup>

## 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 0.255 Å<sup>-1</sup>

## 8.2 Resolution estimates

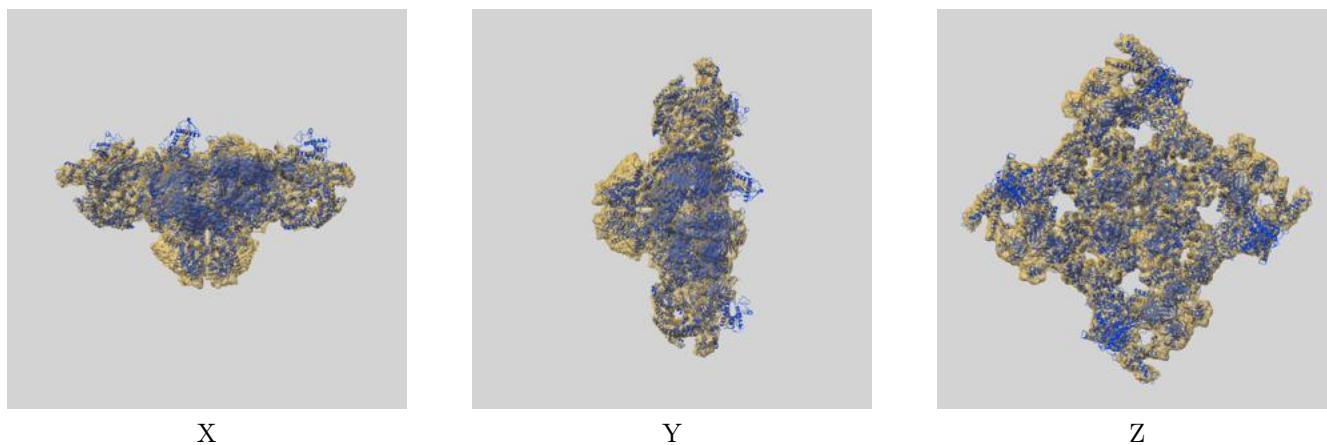
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.92	-	-
Author-provided FSC curve	3.94	5.92	4.05
Unmasked-calculated*	7.34	9.29	7.65

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.34 differs from the reported value 3.92 by more than 10 %

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

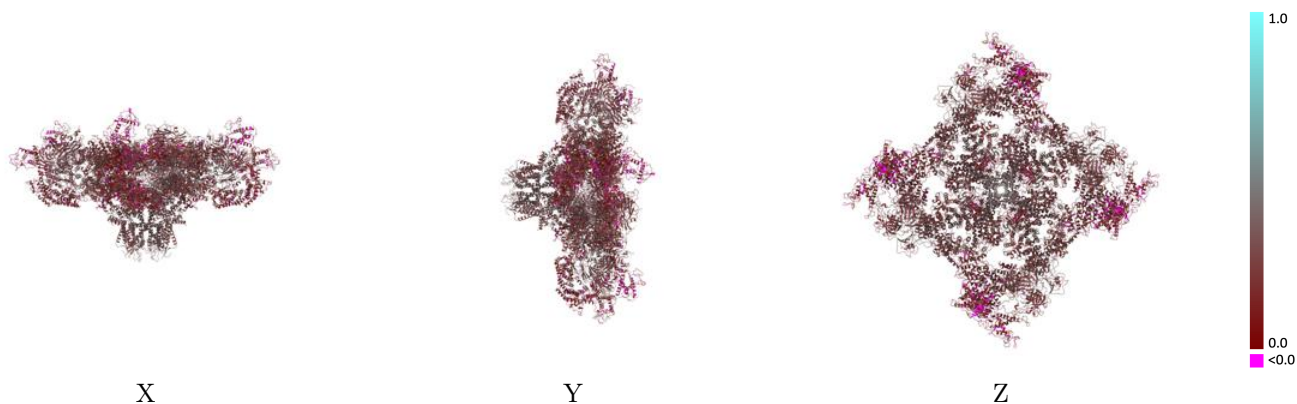
This section contains information regarding the fit between EMDB map EMD-40423 and PDB model 8SEO. Per-residue inclusion information can be found in section 3 on page 8.

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



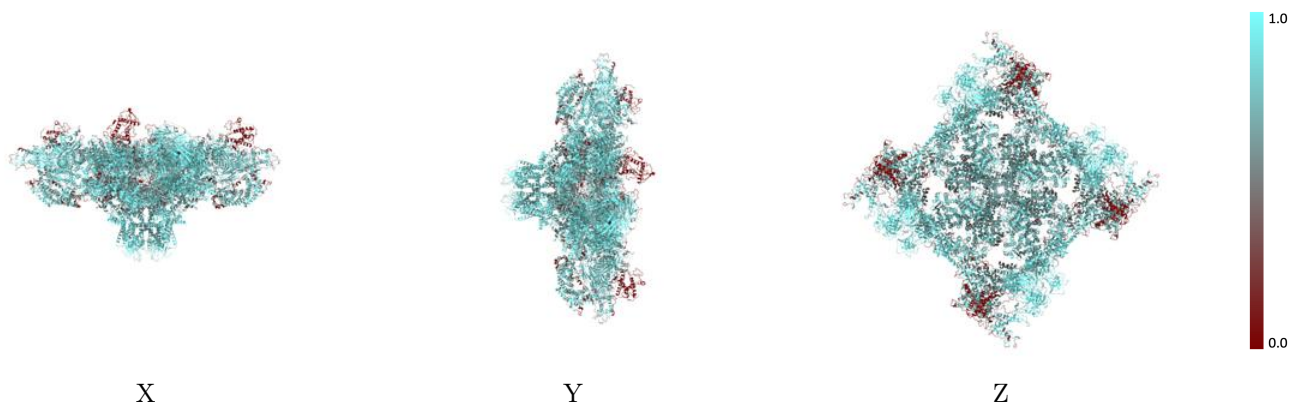
The images above show the 3D surface view of the map at the recommended contour level 0.287 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



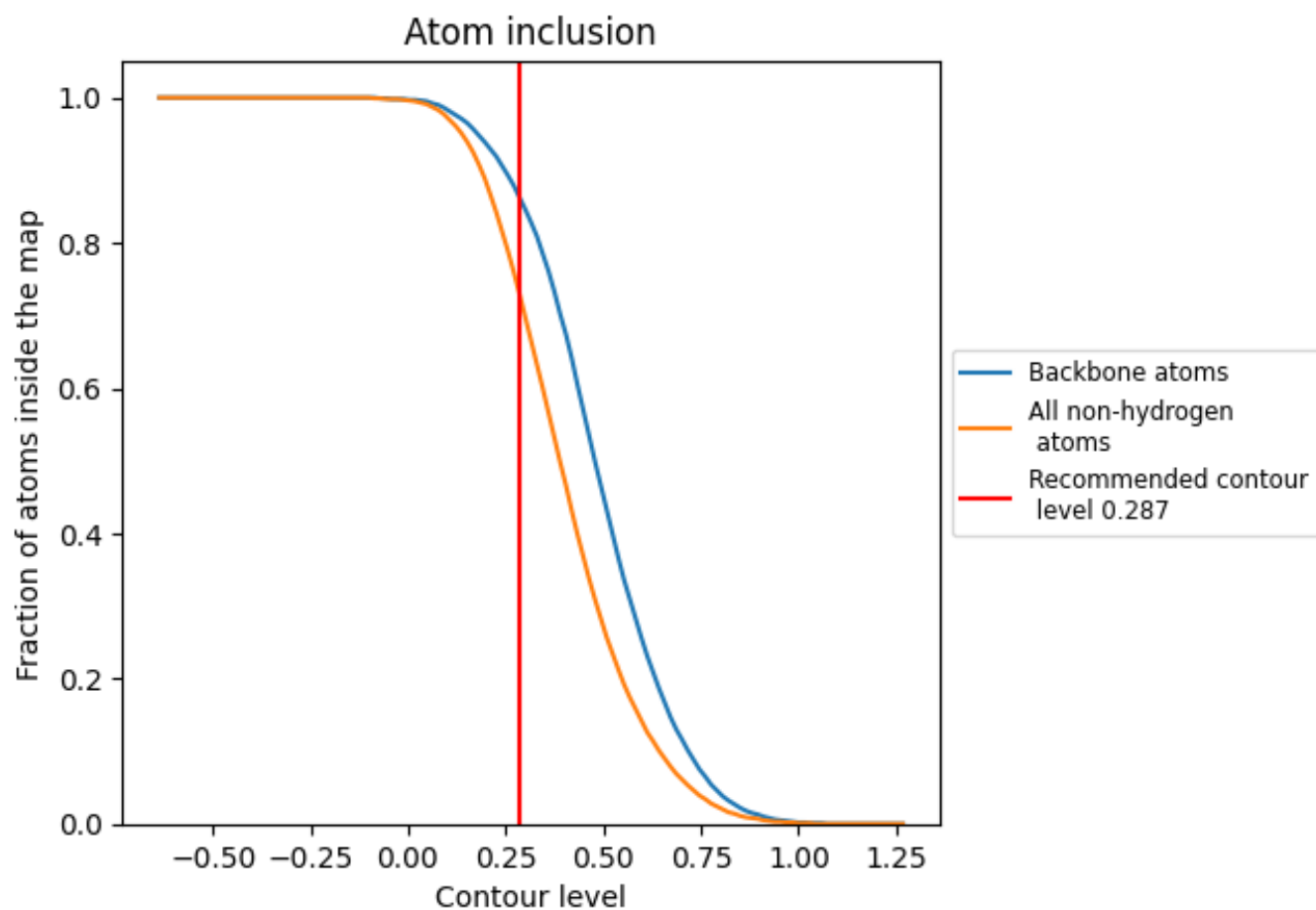
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.287).



















## 9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 73% 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 (0.287) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7270	 0.2530
A	 0.7230	 0.2520
B	 0.7230	 0.2530
C	 0.7230	 0.2520
D	 0.7230	 0.2520
E	 0.8870	 0.3060
F	 0.8870	 0.3060
G	 0.8870	 0.3060
H	 0.8870	 0.3080

