



wwPDB EM Validation Summary Report ⓘ

Nov 5, 2024 – 08:27 AM EST

PDB ID : 9E1G
EMDB ID : EMD-47393
Title : Structure of RyR1 in the primed state in the presence of oxypurinol
Authors : Miotto, M.C.; Marks, A.R.
Deposited on : 2024-10-21
Resolution : 3.17 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.dev113
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

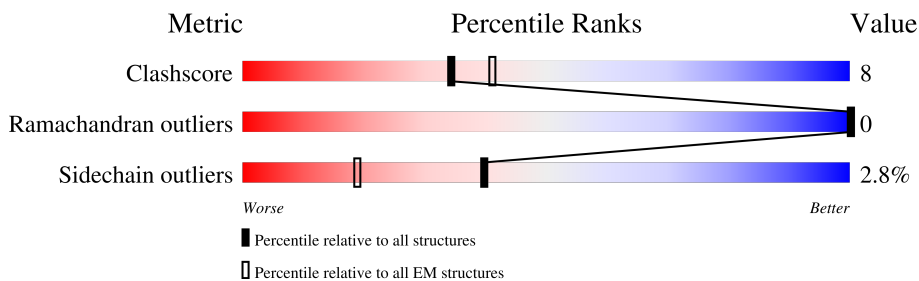
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.17 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	B	5037	
1	C	5037	
1	D	5037	
2	E	108	
2	F	108	
2	G	108	
2	H	108	

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 144104 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	4404	Total 35150	C 22365	N 6063	O 6485	S 237	9	0
1	B	4404	Total 35150	C 22365	N 6063	O 6485	S 237	9	0
1	D	4404	Total 35150	C 22365	N 6063	O 6485	S 237	9	0
1	C	4404	Total 35150	C 22365	N 6063	O 6485	S 237	9	0

- Molecule 2 is a protein called Peptidyl-prolyl cis-trans isomerase FKBP1A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	E	107	Total 831	C 527	N 146	O 154	S 4	0	0
2	H	107	Total 831	C 527	N 146	O 154	S 4	0	0
2	G	107	Total 831	C 527	N 146	O 154	S 4	0	0
2	F	107	Total 831	C 527	N 146	O 154	S 4	0	0

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).



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

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

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

- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn).

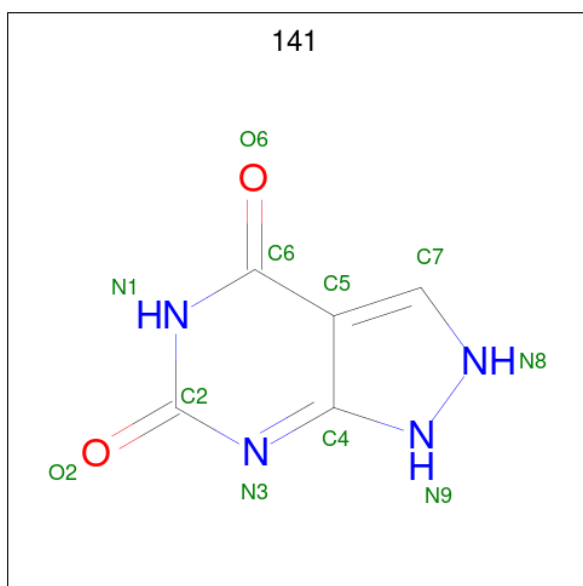
Mol	Chain	Residues	Atoms		AltConf
5	A	1	Total	Zn	0
			1	1	

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

- Molecule 6 is Oxypurinol (three-letter code: 141) (formula: $C_5H_4N_4O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
6	A	1	Total	C	N	O	0
			11	5	4	2	
6	B	1	Total	C	N	O	0
			11	5	4	2	
6	D	1	Total	C	N	O	0
			11	5	4	2	
6	C	1	Total	C	N	O	0
			11	5	4	2	

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		AltConf
7	A	1	Total	O	0
			1	1	
7	B	1	Total	O	0
			1	1	

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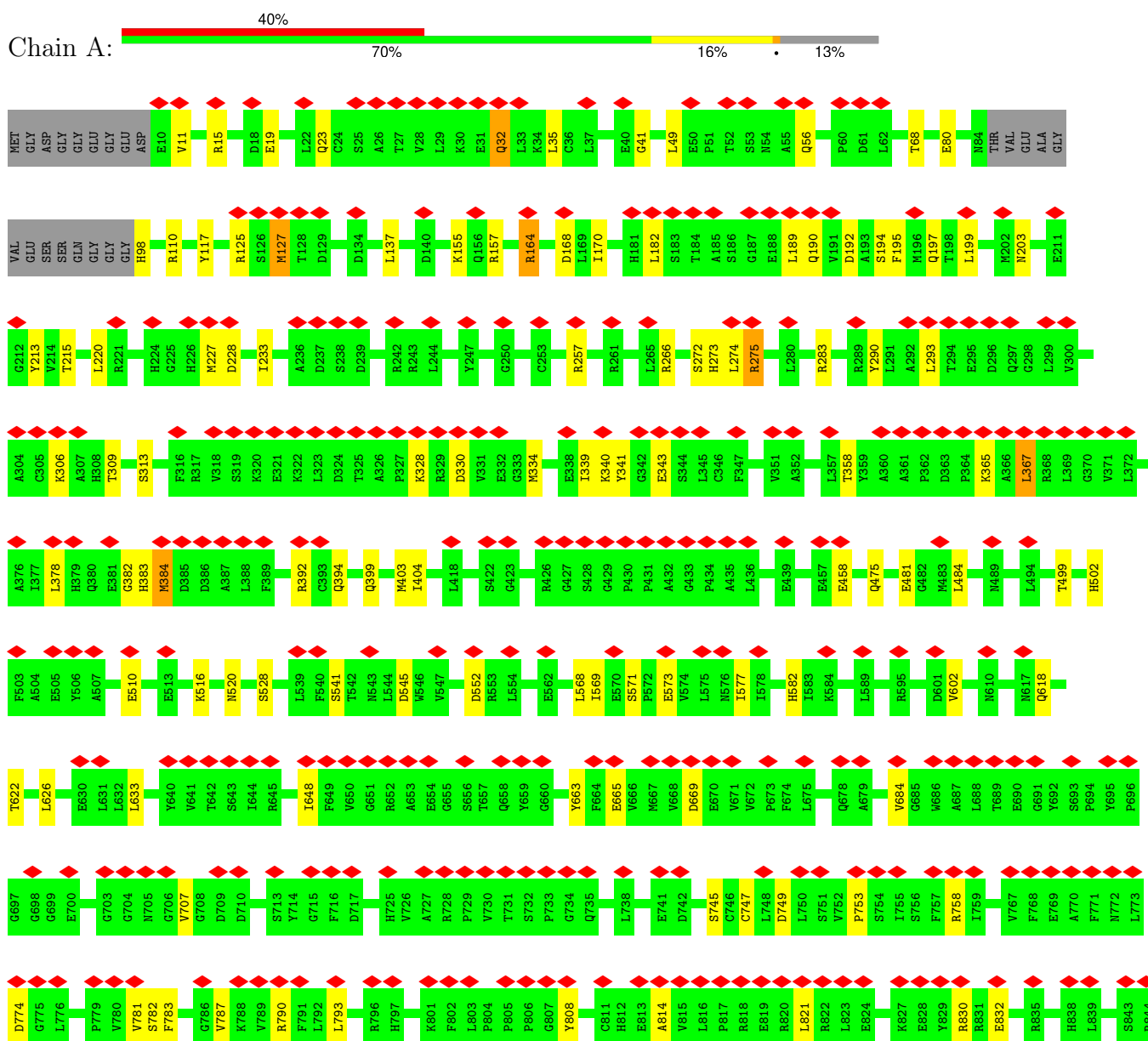
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Mol	Chain	Residues	Atoms	AltConf
7	D	1	Total O 1 1	0
7	C	1	Total O 1 1	0

3 Residue-property plots [i](#)

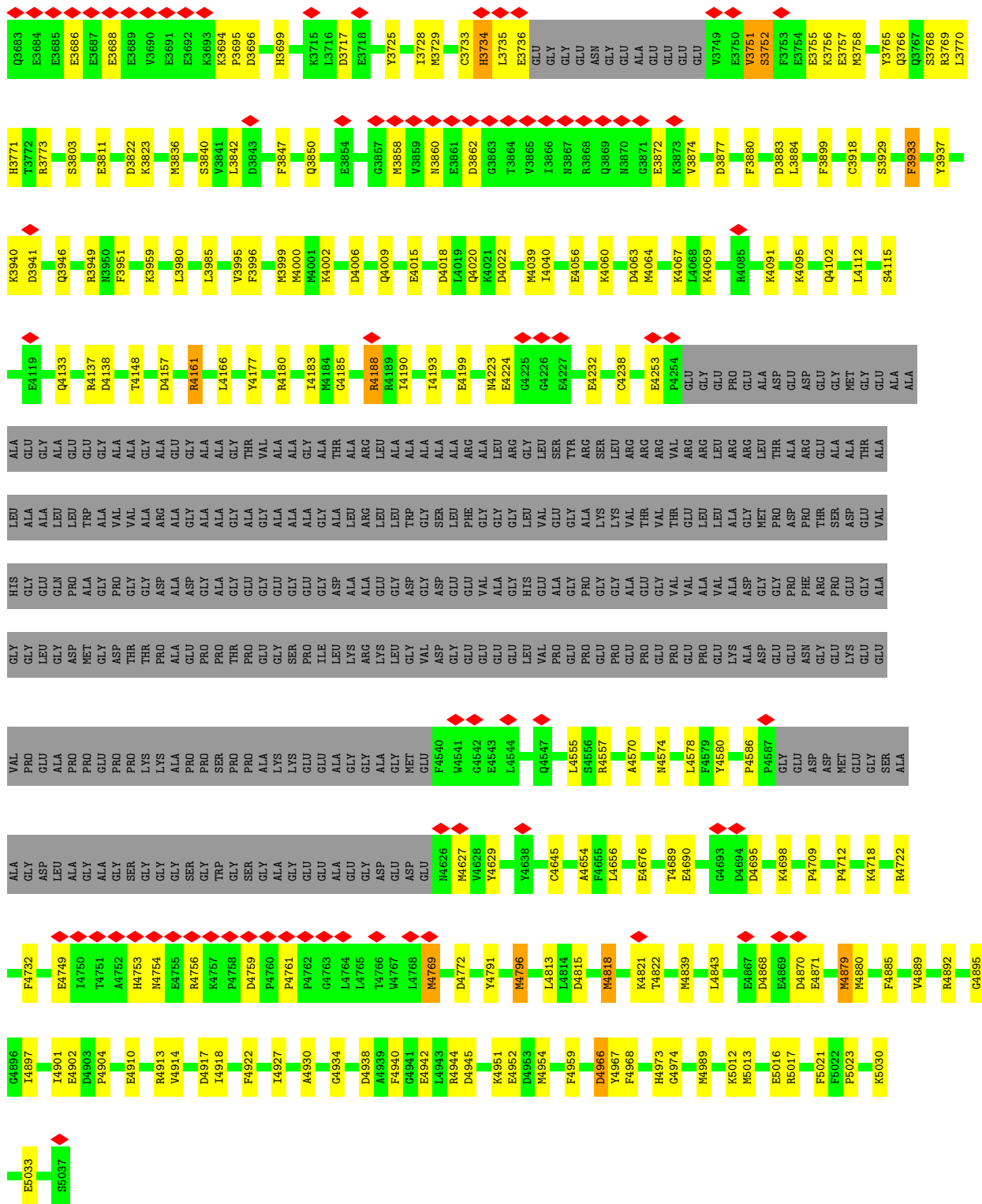
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: Ryanodine receptor 1

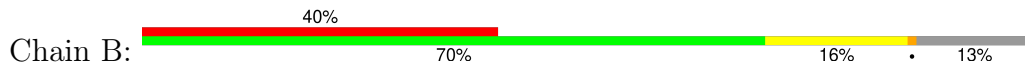


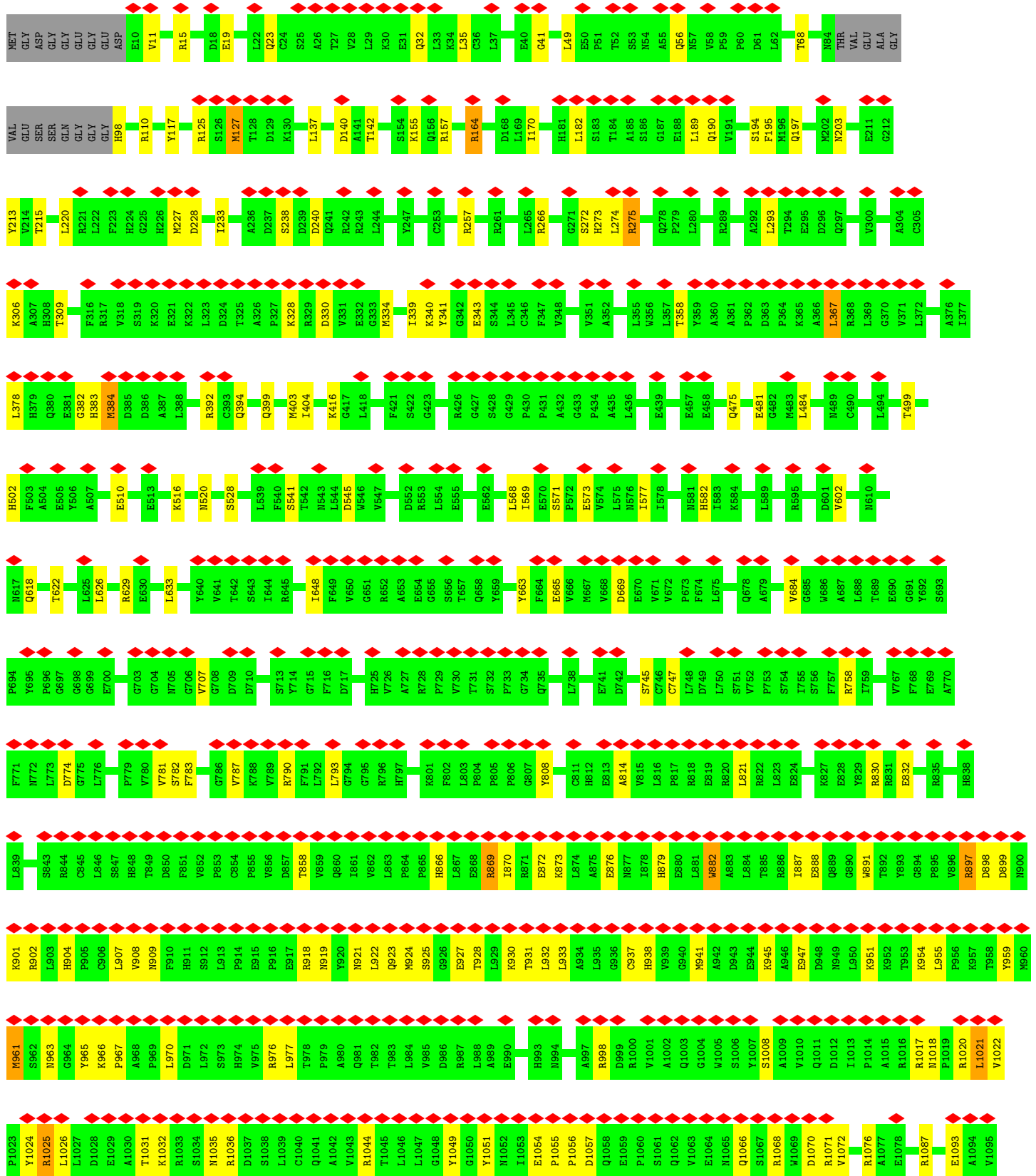
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G1533	K1534	E1535	S1536	N1537	T1538	F1539	F1540	Q1541	P1544	M1545	T1546	K1547	L1548	S1485	S1486	P1550	A1551	V1552	F1553	V1554	L1555	Q1559	M1560	V1561	I1562	Q1563	F1564	E1565	L1566	G1567	K1568	Q1569	K1570	N1571	I1572	M1573	L1574	P1575	M1579	F1580	R1584	K1585	M1586	P1587	P1588	Q1589	E1596	M1599	S1604	N1610												
Q1614	V1615	E1616	T1617	R1618	R1619	A1620	G1621	E1622	R1623	L1624	G1625	V1626	A1627	V1628	Q1629	C1630	Q1631	D1632	M1636	L1639	P1642	E1643	E1644	N1645	I1650	L1653	S1654	E1655	R1656	L1657	D1658	L1659	Q1660	R1661	R1668	R1671	L1676	G1677	N1678	M1679	R1680	A1684	D1690	Q1693	H1696	A1697	L1698															
R1470	A1471	V1472	T1473	V1474	T1475	D1478	A1479	Q1480	G1481	M1482	V1483	H1484	S1485	S1486	L1487	K1488	C1489	S1490	M1491	C1492	M1493	M1494	V1495	G1497	Q1498	D1499	F1500	V1501	S1502	P1503	G1504	Q1505	Q1506	G1507	R1508	I1509	S1510	H1511	T1512	D1513	L1514	V1515	I1516	C1517	L1518	L1519	V1520	L1522	G1525	L1526	M1527	T1530	A1531	N1532								
THR	PRO	ALA	LEU	PRO	ARG	LEU	PRO	HIS	ASP	VAL	VAL	ALA	D1419	N1420	R1421	D1422	D1423	P1424	E1425	I1426	I1427	L1428	N1429	T1430	T1431	T1432	Y1433	Y1434	Y1435	S1436	V1437	R1438	V1439	F1440	A1441	G1442	Q1443	E1444	C1447	V1448	G1451	D1456	Y1457	H1458	Q1459	H1460	M1461	M1462	N1463	F1464	D1465	L1466	S1467	K1468	V1469							
ALA	GLU	GLY	LYS	GLU	GLY	THR	ALA	LYS	GLU	VAL	THR	PRO	GLY	THR	PRO	GLN	PRO	GLY	ALA	PRO	VAL	ARG	THR	ALA	PRO	LEU	ALA	PRO	GLY	ASP	GLU	ALA	GLN	THR	THR	GLU	LYS	ASN	GLY	LYS	ARG	ALA	LEU	ALA	LYS	PRO	ASP	ASP	TYR	ALA	ASN	GLU	LEU	ARG	THR	GLY	GLY	TRP	GLY	GLU		
L1283	V1284	E1285	M1286	L1287	F1288	L1289	L1293	V1294	L1295	Q1296	F1297	H1298	Q1299	H1300	F1301	R1302	C1303	T1304	ALA	GLY	VAL	ALA	THR	PRO	LEU	ALA	PRO	GLY	ASP	GLU	ALA	GLN	ALA	LEU	GLN	THR	PRO	GLU	LYS	ASN	GLY	LYS	ARG	ALA	LEU	ALA	LYS	PRO	ASP	ASP	TYR	ALA	ASN	GLU	LEU	ARG	THR	GLY	GLY			
V1191	C1192	S1193	G1200	H1201	Q1206	D1207	V1208	L1211	R1212	F1213	I1216	C1217	G1218	L1219	Q1220	E1221	G1222	F1223	I1228	N1229	M1230	Q1231	R1232	V1248	E1251	H1252	P1253	H1254	Y1255	E1256	R1259	M1260	D1261	G1262	T1263	V1264	D1265	L1270	R1271	L1272	A1273	H1274	R1275	T1276	M1277	G1278	S1279	Q1280	N1281	S1282												
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L1027	D1028	E1029	A1030	T1031	K1032	H1033	S1034	N1035	R1036	D1037	S1038	L1039	C1040	Q1041	A1042	V1043	R1044	T1045	L1046	G1048	Y1049	G1050	Y1051	N1052	I1053	E1054	P1055	P1056	D1057	Q1058	E1059	P1060	S1061	A1062	Q1062	V1063	E1064	M1065	Q1066	S1067	R1068	A1069	V1010	Q1011	D1070	R1071	D1012	I1013	P1014	A1015	R1016	R1017	K954	N1018	F1019	R1020	L1021	V1022	P1023	Y1024	R1025	L1026
P905	L907	V908	N909	F910	S912	L913	P914	E915	P916	E917	R918	N919	Y920	N921	Q922	Q923	M924	S925	G926	E927	T928	L929	K930	T931	L932	L933	A934	L935	G936	C937	H938	V939	G940	M941	A942	D943	E944	K945	A946	E947	D948	N949	D1012	I1013	P1014	K951	K952	T953	L955	P956	K957	D958	Y959	M960	N961	N963	G964					
C845	L846	S847	H848	T849	D850	F851	V852	P853	C854	P855	V856	D857	T858	V859	Q860	I861	V862	L863	P864	P865	H866	L867	E868	R869	I870	R871	E872	K873	L874	A875	E876	N877	I878	H879	E880	L881	W882	A883	L884	T885	R886	L887	E888	Q889	G890	W891	T892	Y893	G894	P895	V896	R897	D898	D899	N900	K901	K902	L903	H904			

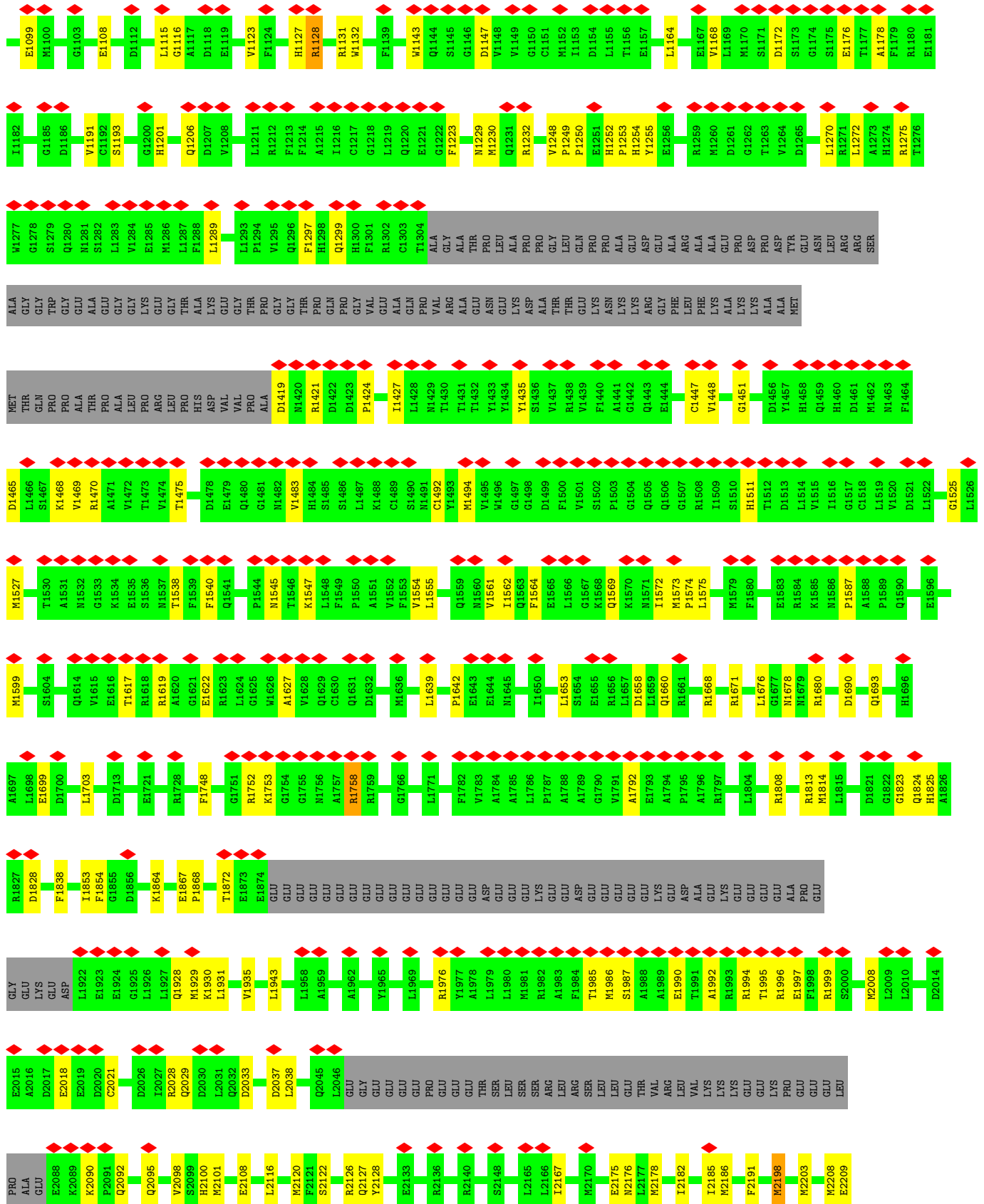
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L3603	GLY	K3000	D3060	K3000	E2880
V3604	LEU	I3001	A3061	I3001	R2881
H3605	LVS	L3002	P3062	L3002	Y2882
L3606	ASP	L3003	A3063	L3003	H2883
E3607	MEI	L3004	V3065	L3004	N2884
Q3608	GLU	L3005	N3066	L3005	T2885
T3609	L2946	I3006	D2947	I3006	T2886
E3610	T2947	N3007	C3067	N3007	K2887
H3611	T2948	Q3008	L3068	Q3008	R2888
R3612	S2949	S3009	H3069	S3009	R2889
F3613	S2950	F3010	I3070	F3010	K2890
K3614	I2951	T3011	L3071	T3011	K2891
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K3616	K2953	H3013	R3073	H3013	E2893
K3617	R2954	C3014	S3074	C3014	L2894
A3618	F2955	L3015	L3075	L3015	E2895
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V3620	G2958	L3018	R3078	L3018	G2898
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K3622	L2960	T3020	V3080	T3020	G2900
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L3624	Q2962	A3022	K3082	A3022	H2902
S3625	L2963	K3023	S3083	K3023	F2903
K3626	L2964	V3024	G3084	V3024	L2904
R3627	R2965	L3025	G3085	L3025	L2905
R3628	W2966	G3026	E3086	G3026	V2906
R3629	M2967	S3027	I3087	S3027	F2907
R3629	D2968	G3028	V3088	G3028	V2908
R3630	I2969	G3029	K3089	G3029	D2909
A3631	S2970	H3030	A3090	H3030	T2910
V3632	Q2971	A3031	G3091	A3031	L2911
V3633	E2972	S3032	L3092	S3032	T2912
A3634	F2973	N3033	D3154	N3033	A2913
C3635	T2974	K3034	D3155	K3034	K2914
F3636	A2975	E3035	F3095	E3035	E2915
R3637	H2976	K3036	F3096	K3036	K2916
M3638	L2977	E3037	E3097	E3037	A2917
T3639	E2978	M3038	S3098	M3038	R2918
F3640	A2979	I3039	A3099	I3039	D2919
L3641	V2980	T3040	S3100	T3040	D2920
N3643	V2981	L3042	E3101	L3042	E2921
L3644	S2982	F3043	D3102	F3043	K2922
F3645	S2983	G3044	I3103	G3044	Q2923
R3648	G2984	K3045	K3105	K3045	E2925
K3652	R2985	L3046	M3106	L3046	L2926
K3652	V2986	A3047	V3107	A3047	L2927
E3665	E2987	L3048	E3108	L3048	K2928
D3666	K2988	A3049	N3109	A3049	L2928
K3673	S2989	L3049	S3171	L3049	F2929
D3676	H2991	V3051	I3172	V3051	L2930
A3680	E2992	H3052	Y3173	H3052	Q2931
G3681	Q2993	R3053	G3113	R3053	H2933
E3682	R2994	V3054	K3114	V3054	G2934
		V3055	V3115	V3055	Y2935
		L3056	SS116	L3056	A2936
		F3057	GLN	F3057	V2937
		G3058	ALA	G3058	T2938



● Molecule 1: Ryanodine receptor 1

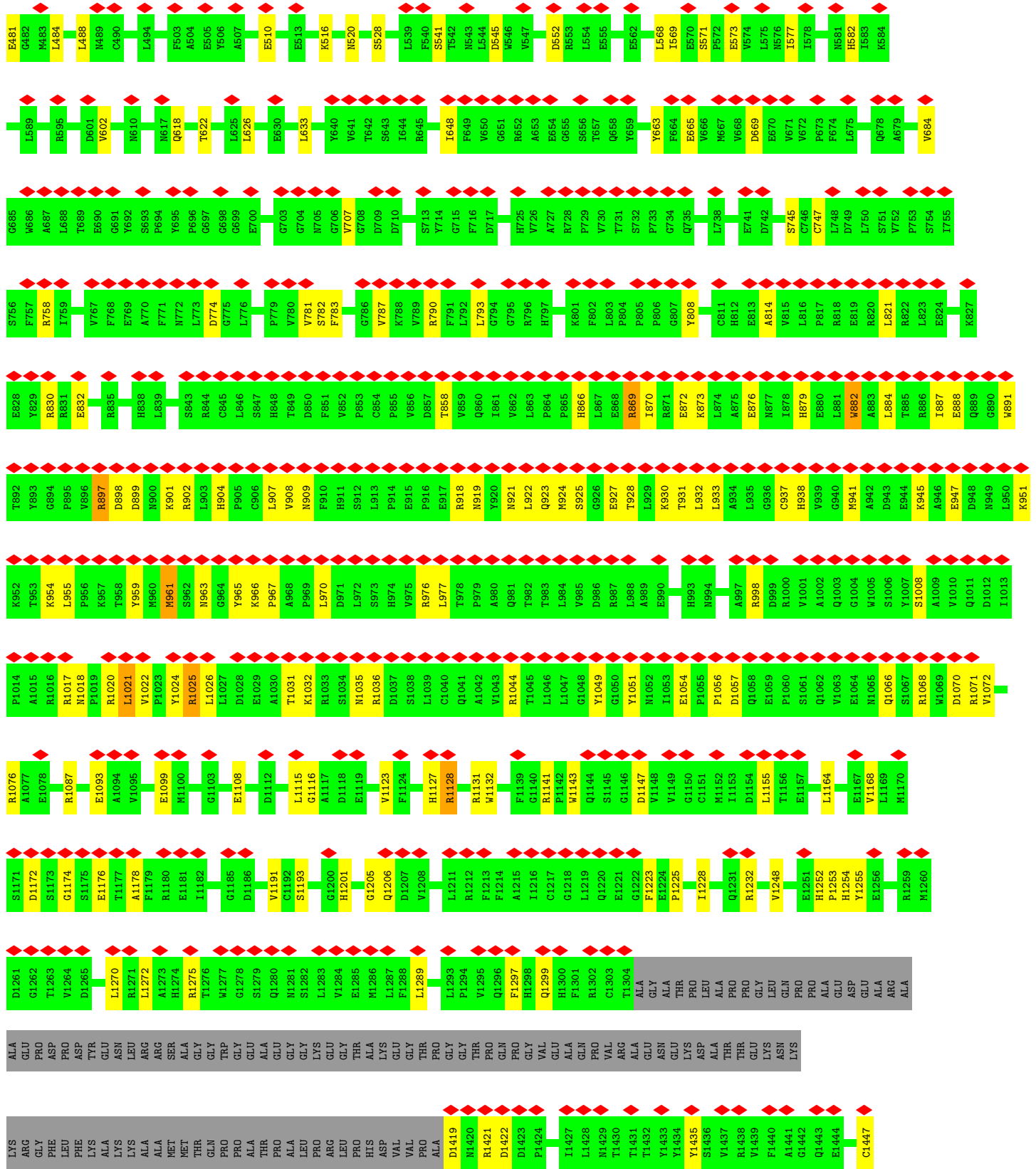


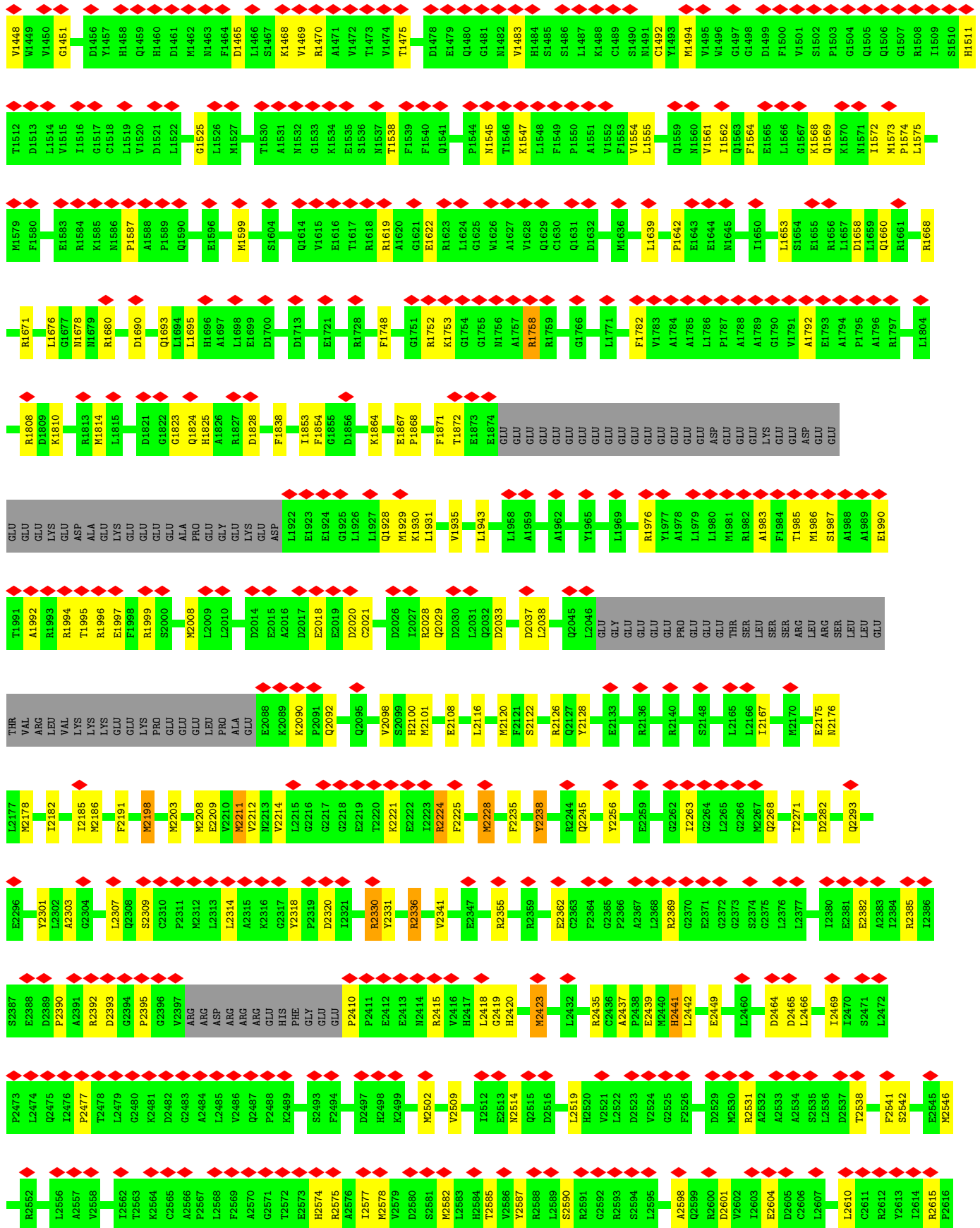




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E2992	Q2993	E2994	L2995	K2996	F2997	F2998	A2999	K3000	I3001	L3002	L3003	P3004	L3005	I3006	N3007	Q3008	Y3009	F3010	L3011	N3012	H3013	C3014	L3015	Y3016	F3017	L3018	S3019	T3020	P3021	A3022	K3023	V3024	L3025	G3026	S3027	G3028	G3029	H3030	A3031	S3032	N3033	K3034	E3035	K3036	E3037	M3038	A3039	S3040	S3041	L3042	F3043	C3044	K3045	L3046	A3047	A3048	L3049	V3050	R3051																																																											
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F3951	E3687	E3687	H3605	H3605	T3545	ALA	L3424	R3364	P3244	P3244	E3184	VAL
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F3996	K3683	K3683	P3612	P3612	R3550	THR	N3430	K3371	M3250	M3250	L3190	T3130
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K4021	D3717	D3717	H3558	H3558	V3438	D3501	V3438	R3379	N3318	N3318	L3197	L3137
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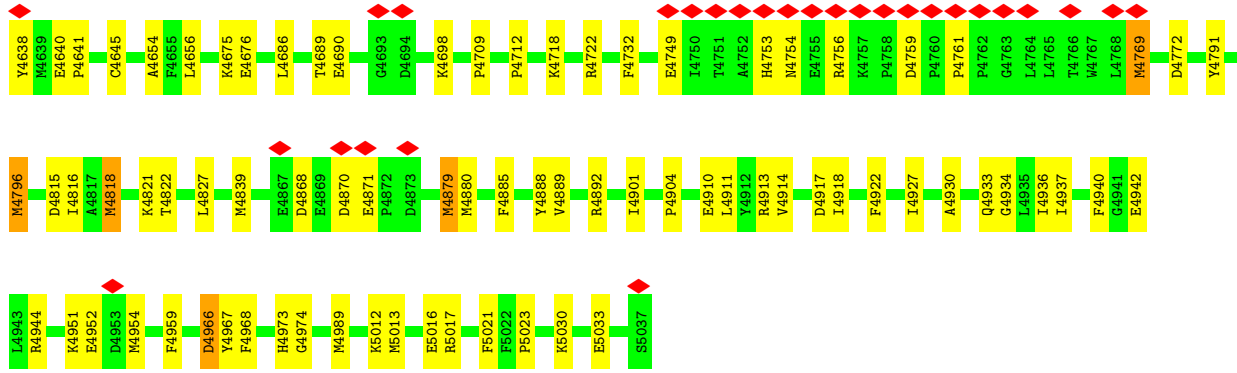




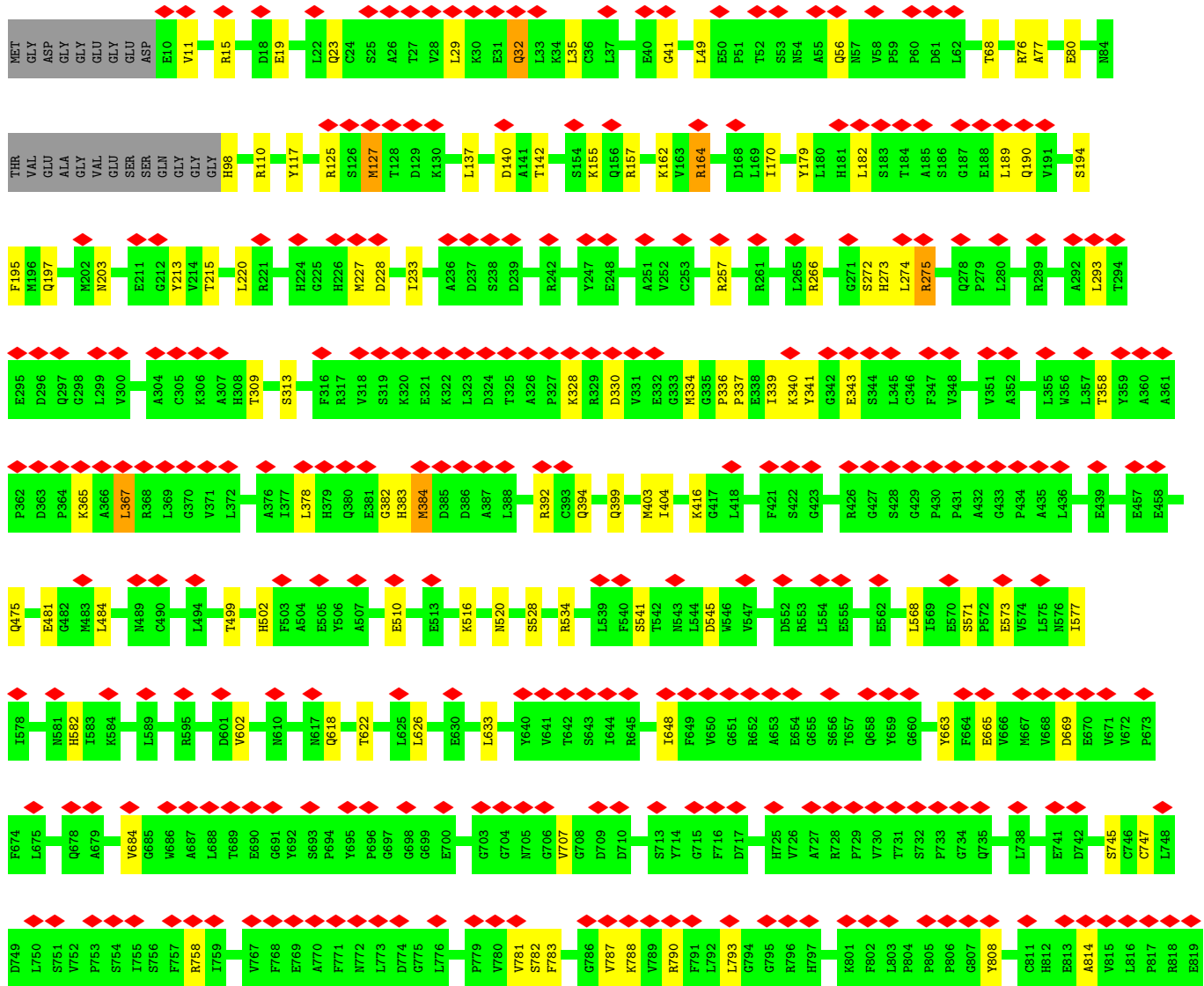
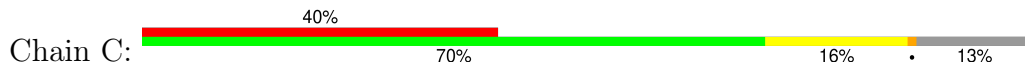
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V4546	Q4547	L4555	S4556	R4557	A4570	M4574	L4578	F4579	Y4580	P4586	P4587	GLY	ASP	ASP	ASN	GLY	VAL	LEU	F4540	M4626	M4627	Y4628	Y4629																										
VAL	PRO	GLY	PRO	GLY	THR	THR	GLY	GLY	GLY	ALA	ASP	GLY	GLY	GLY	VAL	GLY	THR	VAL	LYS	GLY	GLY	GLY	GLY																										
Q3869	N3870	G3871	E3872	K3873	Y3874	D3877	F3880	D3883	L3884	F3889	C3918	S3929	F3933	Y3934	V3935	Y3937	Q3946	R3949	N3950	F3951	M3955	K3959	L3980	L3985	V3995	F3996	M3999	M4000	D4006	Q4009	E4015	D4018	L4019	Q4020	K4021	D4022	M4039	I4040											
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	GLY	GLY	GLY	GLY	GLY	GLY	GLY							
E4056	K4060	D4063	M4064	F4065	L4066	K4067	K4069	R4085	K4090	K4091	D4092	K4095	Q4102	L4112	S4115	E4119	Q4133	R4137	D4138	D4157	R4161	L4166	Y4177	I4183	M4184	G4185	A4186	S4187	R4188	R4189	I4190	L4193	E4199	M4223	G4225	G4226	F4227												
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E4232	C4238	E4239	D4240	E4253	P4254	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	GLY	GLY						
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GLY	LEU	TYR	ARG	LEU	ARG	ARG	ARG	ARG	ARG	ARG	TRP	ARG	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			
LEU	VAL	GLY	ALA	LYS	VAL	THR	THR	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		
HIS	GLY	ALA	PRO	GLY	ALA	GLY	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		
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LEU	VAL	GLY	GLY	GLY	VAL	THR	THR	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





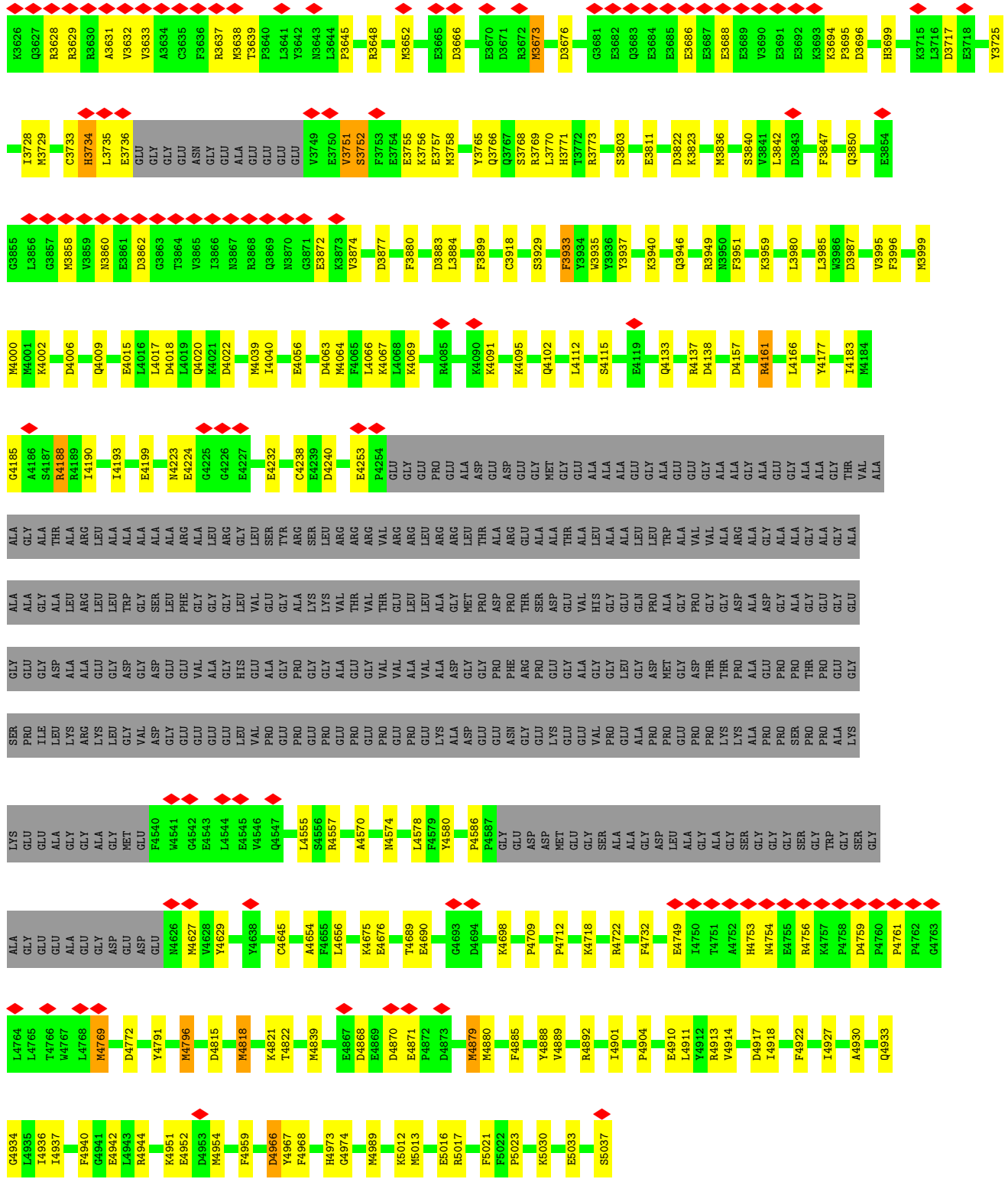
• Molecule 1: Ryanodine receptor 1



R820	L821	R822	L823	E824	K827	E828	Y829	R830	R831	E832	R835	H838	L839	S843	R844	C845	L846	S847	H848	T849	R850	F851	V852	P853	C854	P855	V856	R857	T858	V859	Q860	I861	V862	L863	P864	P865	H866	L867	E868	R869	I870	R871	E872	K873	L874	A875	E876	N877	H878	R879	E880	M881	A882	L884	T885	R886	I887	E888	Q889	W891	T892	G893	G894	P895	V896	R897	D898	D899	N900	K901	R902	L903	H904	P905	C906	L907	V908	N909	F910	H911	S912	C913	P914	E915	P916	E917	R918	N919	Y920	N921	L922	Q923	M924	S925	G926	E927	T928	L929	K930	T931	L932	L933	A934	L935	G936	C937	H938	V939	G940	L881	A941	M882	L884	K945	A946	E947	D948	N949	I950	K951	K952	T953	K954	L955	P956	K957	T958	Y959	M960	M961	S962	N963	G964	Y965	K966	P967	A968	P969	L970	D971	L972	S973	H974	Y975	R976	L977	T978	P979	A980	Q981	T982	T983	L984	Y985	D986	R987	L988	A989	E990	H993	N994	A997	R998	D999	R1000	V1001	A1002	Q1003	G1004	V1005	S1006	Y1007	S1008	A1009	V1010	Q1011	D1012	I1013	P1014	A1015	R1016	R1017	M1018	P1019	R1020	L1021	V1022	P1023	Y1024	R1025	L1026	D1027	E1028	A1029	A1030	T1031	K1032	S1033	M1035	L1036	D1037	S1038	L1039	C1040	Q1041	A1042	V1043	R1044	T1045	L1046	L1047	G1048	Y1049	G1050	Y1051	M1052	I1053	E1054	P1055	M1056	D1057	Q1058	E1059	P1060	S1061	Q1062	V1063	E1064	M1065	Q1066	S1067	R1068	W1069	D1070	V1071	V1072	R1076	A1077	E1078	R1087	E1093	A1094	V1095	E1099	M1100	G1103	E1108	D1112	L1115	G1116	D1118	E1119	V1123	F1124	H1127	R1128	R1131	W1132	F1139	G1140	R1141	P1142	W1143	Q1144	S1145	G1146	D1147	V1148	V1149	G1150	C1151	M1152	I1153	L1155	T1156	E1157	L1164	E1167	V1168	L1169	M1170	S1171	D1172	S1173	G1174	S1175	E1176	T1177	A1178	F1179	R1180	E1181	I1182	G1185	D1186	V1191	C1192	S1193	G1200	H1201	G1205	Q1206	D1207	V1208	L1211	R1212	F1213	F1214	A1215	I1216	C1217	G1218	L1219	Q1220	E1221	G1222	F1223	E1224	P1225	I1228	M1229	M1230	Q1231	R1232	V1248	E1251	H1252	P1253	H1254	Y1255	E1256	R1259	M1260	D1261	G1262	T1263	V1264	D1265	L1270	R1271	L1272	A1273	H1274	R1275	T1276	W1277	G1278	S1279	Q1280	N1281	S1282	L1283	V1284	E1285	M1286	L1287	F1288	L1289	D1293	P1294	V1295	Q1296	F1297	H1298	Q1299	H1300	F1301	R1302	C1303	T1304	ALA	GLY	ASN	GLU	ALA	THR	PRO	LEU	ALA	PRO	PRO	PRO	GLY	LEU	GLN	LYS	PRO	ALA	GLU	GLY	THR	PRO	GLY	THR	PRO	ALA	D1419	N1420	R1421	D1422	D1423	P1424	L1427	L1428	N1429	T1430	T1431	T1432	Y1433	Y1434	Y1435	S1436	V1437	R1438	Y1439	F1440	A1441	E1444	C1447	Y1448	W1449	V1450	G1451	D1456	Y1457	H1458	Q1459	H1460	D1461	M1462	M1463	F1464	D1465	L1466	S1467	K1468	V1469	R1470	A1471	T1472	V1473	V1474	T1475	D1478	A1479	Q1480	G1481	N1482	V1483	H1484	S1485	S1486	L1487	K1488	C1489	S1490	M1491	C1492	Y1493	M1494	V1495	W1496	G1497	G1498	D1499	F1500	V1501	S1502	P1503	G1504	Q1505	G1506	G1507	Q1569	K1570	M1571	I1572	M1573	P1574	L1575	M1579	F1580	E1583	R1584	K1585	M1586	P1587	A1588	P1589	Q1590	E1596	M1599	S1604	Q1614	V1615	E1616	T1617	R1618	R1619	A1620	G1621	E1622	R1623	L1624	G1625	V1626	A1627	V1628	Q1629	C1630	Q1631	D1632	P1633	L1634	T1635	M1636	L1639	P1642	E1643	E1644	N1645	I1650	L1653	S1654	D1658	L1659	Q1660	R1661	R1668	R1671	L1676	G1677	M1678	N1679	R1680	D1680	Q1693	L1694	L1695	H1696	A1697	L1698	E1699	D1700	D1713	E1721	R1728	F1748	G1751	R1752	K1753	G1754	G1755	N1756	A1757	R1758	R1759	G1766	L1771	F1782	V1783	A1784	A1785	L1786	P1787	A1788	A1789	G1790	V1791
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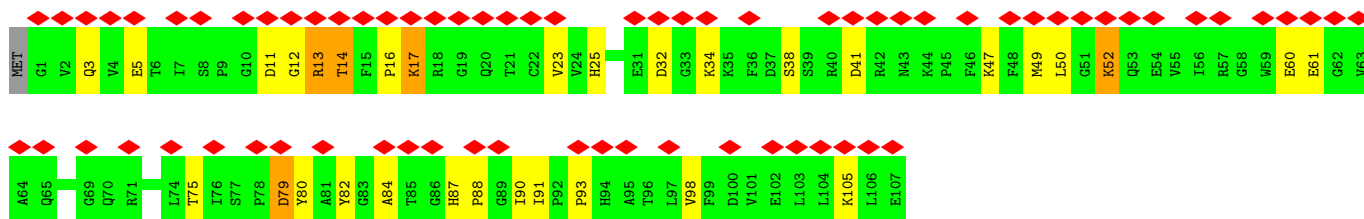
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E2724	K2725	L2726	ALA	THR	VAL	ASP	ALA	GLU	GLY	N2734	D2735	F2736	P2737	R2738	P2739	V2740	E2741	T2742	L2743	N2744	V2745	I2746	L2747	P2748	E2749	K2750	L2751	D2752	S2753	F2754	L2755	N2756	K2757	F2758	A2759	E2760	Y2761	T2762	H2763	E2764	K2765	W2766	A2767	F2768	D2769	K2770	L2771	Q2772	N2773	N2774	W2775	S2776	Y2777	K2778	E2779	N2780	L2781	D2782	E2783																																																														
L2165	L2166	L2167	M2170	E2175	M2176	M2177	M2178	L2182	I2185	M2186	F2191	M2198	M2203	M2208	E2209	V2210	M2211	V2212	N2213	V2214	L2215	G2216	G2217	G2218	E2219	T2220	K2221	E2222	R2224	I2223	F2225	M2228	V2229	T2230	F2235	Y2238	R2244	Q2245	Y2256	E2259	G2262	L2263	G2264	L2265	G2266	M2267	E2268	E2269	E2270	E2271	E2272	E2273	E2274	E2275	E2276	E2277	E2278	E2279	E2280	E2281	E2282	E2283	E2284	E2285	E2286	E2287	E2288	E2289	E2290	E2291	E2292	E2293	E2294	E2295	E2296	E2297	E2298	E2299	E2300	E2301	E2302	E2303	E2304	E2305	E2306	E2307	E2308	E2309	E2310	E2311	E2312	E2313	E2314	E2315	E2316	E2317	E2318	E2319	D2320	I2321	R2330	Y2331	R2336	V2341	E2347	R2355	L2358	R2359	E2362	C2363	F2364	G2365	P2366	A2367	L2368	L2369	Q2370	E2371	G2372	G2373	S2374
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R2452	L2460	D2464	D2465	L2466	I2469	L2470	S2471	L2472	P2473	L2474	Q2475	I2476	P2477	T2478	L2479	G2480	K2481	D2482	G2483	A2484	L2485	V2486	Q2487	P2488	K2489	S2493	F2494	D2497	H2498	K2499	M2502	V2509	L2512	E2513	N2514	Q2515	V2516	F2517	L2518	H2520	A2521	V2522	D2523	V2524	G2525	L2527	F2528	D2529																																																																									
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D2601	V2602	I2603	E2604	D2605	C2606	L2607	L2610	C2611	R2612	Y2613	I2614	R2615	S2617	M2618	L2619	Q2620	H2621	L2622	L2623	R2624	L2625	L2626	L2627	L2628	S2629	L2630	P2631	I2632	L2633	M2634	E2635	F2636	A2637	K2638	M2639	P2640	L2641	K2642	L2643	L2644	T2645	M2646	H2647	Y2648	E2649	R2650	C2651	Y2655	C2656	L2657	P2658	T2659	G2660	W2661	A2662	M2663																																																																	
F2664	G2665	V2666	T2667	S2668	E2669	E2670	E2671	L2672	H2673	L2674	T2675	R2676	K2677	L2678	F2679	W2680	G2681	L2682	F2683	D2684	S2685	L2686	E2687	H2688	K2689	K2690	Y2691	Q2692	Q2693	E2694	L2695	Y2696	R2697	M2698	A2699	W2700	P2701	C2702	L2703	C2704	A2705	L2706	A2707	K2708	A2709	L2710	P2711	P2712	D2713	Y2714	V2715	D2716	A2717	S2718	Y2719	S2721	K2722	A2723																																																															
E2724	K2725	ALA	THR	VAL	ASP	ALA	GLU	GLY	N2734	D2735	F2736	P2737	R2738	P2739	V2740	E2741	T2742	L2743	N2744	V2745	I2746	L2747	P2748	E2749	K2750	L2751	D2752	S2753	F2754	L2755	N2756	K2757	F2758	A2759	E2760	Y2761	T2762	H2763	E2764	K2765	W2766	A2767	F2768	D2769	K2770	L2771	Q2772	N2773	N2774	W2775	S2776	Y2777	K2778	E2779	N2780	L2781	D2782	E2783																																																															

Gln	Thr	Ala	Gln	Thr	Tyr	Asp	Pro	Arg	Glu	Gly	V2855	V2856	V2857	V2858	V2859	V2860	V2861	V2862	V2863	V2864	V2865	V2866	V2867	V2868	V2869	V2870	V2871	V2872	V2873	V2874	V2875	V2876	V2877	V2878	V2879	V2880	V2881	V2882	V2883	V2884	V2885	V2886	V2887	V2888	V2889	V2890	V2891	V2892	V2893	V2894	V2895	V2896	V2897	V2898	V2899	V2900	V2901	V2902	V2903						
L2904	L2905	L2906	L2907	L2908	L2909	L2910	L2911	L2912	L2913	L2914	L2915	L2916	L2917	L2918	L2919	L2920	L2921	L2922	L2923	L2924	L2925	L2926	L2927	L2928	L2929	L2930	L2931	L2932	L2933	L2934	L2935	L2936	L2937	L2938	L2939	L2940	L2941	L2942	L2943	L2944	L2945	L2946	L2947	L2948	L2949	L2950	L2951	L2952	L2953	L2954	L2955	L2956	L2957	L2958	L2959	L2960	L2961	L2962	L2963						
L2964	R2965	W2966	M2967	D2968	L2969	S2970	Q2971	E2972	F2973	I2974	A2975	H2976	L2977	E2978	A2979	V2980	S2981	S2982	S2983	G2984	V2985	V2986	E2987	K2988	P2989	H2990	H2991	E2992	E2993	E2994	L2995	K2996	F2997	F2998	A2999	K3000	I3001	L3002	L3003	P3004	L3005	I3006	N3007	T2948	N3008	I3009	F3010	T3011	N3012	H3013	C3014	F2995	A2996	F2957	G2958	F2959	S3019	T3020	P3021	A3022	K3023				
V3024	L3025	G3026	S3027	G3028	G3029	A3031	S3032	N3033	K3034	E3035	K3036	E3037	M3038	I3039	T3040	S3041	L3042	F3043	C3044	K3045	L3046	A3047	L3048	L3049	V3050	R3051	H3052	R3053	V3054	S3055	L3056	F3057	G3058	T3059	D3060	A3061	P3062	A3063	V3064	V3065	N3066	C3067	L3068	S2949	H3069	I3070	L3071	N3012	R3073	S3074	L3075	D3076	A3077	R3078	T3079	V3080	H3081	K3082	S3083						
G3084	P3085	E3086	I3087	V3088	K3089	A3090	G3091	L3092	R3093	S3094	F3095	F3096	S3097	S3098	A3099	S3100	D3102	I3103	E3104	K3105	M3106	V3107	E3108	N3109	L3110	R3111	L3112	G3113	K3114	V3115	S3116	Gln	Ala	Arg	Thr	Gln	Val	K3123	G3124	V3125	G3126	N3127	N3128	L3129	T3130	F3131	T3132	T3133	V3134	A3135	L3136	L3137	P3138	V3139	L3140	T3141	T3142	L3143							
F3144	Q3145	H3146	I3147	Q3148	Q3149	H3150	Q3151	F3152	G3153	D3154	Q3155	V3156	I3157	L3158	Q3159	D3160	V3161	Q3162	S3164	C3165	V3166	R3167	L3168	L3169	I3172	V3173	S3174	L3175	G3176	T3177	T3178	K3179	N3180	T3181	V3182	V3183	E3184	K3185	L3186	R3187	D3247	F3188	A3189	L3190	Q3191	E3192	C3193	L3194	A3195	L3196	R3197	A3198	E3258	S3259	A3260	M3261	P3262	V3263	A3264						
F3206	L3206	E3207	P3208	Q3209	L3210	N3211	E3212	N3213	Y3214	R3215	A3216	S3217	Q3218	Y3219	T3220	K3221	K3222	S3223	P3224	R3225	E3226	R3227	A3228	I3229	G3231	L3232	P3233	N3234	S3235	V3236	E3237	E3238	M3239	A3300	P3241	D3242	I3243	P3244	V3245	L3246	D3247	T3308	S3309	D3310	H3311	L3312	N3313	S3314	L3315	L3316	G3317	N3318	L3320	R3321	L3322	V3324									
E3265	M3266	P3267	H3268	V3269	I3270	E3271	I3272	T3273	L3274	P3275	M3276	L3277	C3278	S3279	Y3280	L3281	P3282	R3283	W3284	W3285	E3286	R3287	C3288	F3289	E3290	A3291	P3292	P3293	P3294	A3295	L3296	P3297	A3298	G3299	A3300	P3301	P3302	P3303	C3304	T3305	A3306	V3307	T3308	S3309	D3310	H3311	L3312	N3313	S3314	L3315	L3316	G3317	N3318	L3320	R3321	L3322	V3324								
N3325	N3326	L3327	G3328	L3329	D3330	E3331	A3332	T3333	W3334	M3335	K3336	R3337	L3338	A3339	V3340	L3401	F3342	Q3343	P3344	L3405	V3346	S3347	R3348	A3349	R3350	P3351	E3352	L3353	L3354	H3355	S3356	H3357	F3358	I3359	P3360	I3361	I3362	G3363	R3364	L3365	R3366	K3367	P3368	A3369	G3370	K3371	V3372	V3373	A3374	E3375	E3376	E3377	Q3378	L3379	R3380	L3381	E3382	A3383	K3384	F3445	G3500	D3501	S3502	Y3503	S3504
A3385	E3386	A3387	E3388	E3389	G3390	E3391	L3392	L3393	V3394	R3395	D3396	E3397	F3398	S3399	V3400	L3401	C3402	R3403	D3404	L3405	Y3406	A3407	L3408	F3409	P3410	L3411	L3412	I3413	R3414	Y3415	V3416	D3417	N3418	N3419	R3420	A3421	H3422	W3423	L3424	T3425	E3426	P3427	N3428	A3429	N3430	A3431	E3432	E3433	L3434	F3435	R3436	G3500	M3437	F3438	G3439	E3440	F3441	F3442	T3443	Y3444					
W3445	S3446	K3447	S3448	H3449	N3450	F3451	K3452	R3453	E3454	E3455	Q3456	N3457	F3458	V3459	V3460	Q3461	N3462	E3463	I3464	N3465	N3466	N3467	S3468	F3469	L3470	T3471	A3472	D3473	S3474	K3475	S3476	K3477	M3478	A3479	Lys	Ala	Gly	Asp	Ala	Gln	Ser	Gly	Gly	Ser	Ser	Asp	Gln	Glu	Arg	Thr	Lys	Lys	Lys	R3498	R3499	G3500	D3501	S3502	Y3503	S3504					
V3505	Q3506	T3507	S3508	L3509	I3510	V3511	A3512	L3513	L3514	K3515	K3516	M3517	L3518	P3519	I3520	G3521	L3522	N3523	M3524	D3525	A3526	P3527	T3528	D3529	Q3530	D3531	L3532	L3533	M3534	L3535	A3536	K3537	T3538	R3539	V3540	L3541	L3542	K3543	D3544	T3545	D3546	E3547	E3548	V3549	R3550	E3551	F3552	L3553	Q3554	N3555	N3556	L3557	H3558	L3559	Q3560	G3561	K3562	L3563	L3564	E3564					
G3565	S3566	F3567	S3568	L3569	R3570	K3571	K3572	K3573	A3574	L3575	Y3576	R3577	G3578	L3579	F3580	G3581	R3582	E3583	E3584	D3585	A3586	D3587	D3588	P3589	E3590	K3591	L3592	V3593	K3594	R3595	V3596	K3597	E3598	V3599	V3602	L3603	Y3604	H3605	L3606	E3607	Q3608	T3609	E3610	H3611	F3612	Y3613	K3614	S3615	K3616	K3617	A3618	W3620	H3621	K3622	L3623	L3624	S3625								

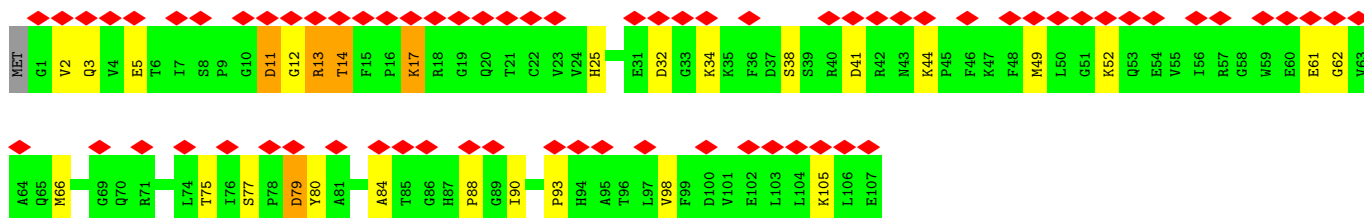


● Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A

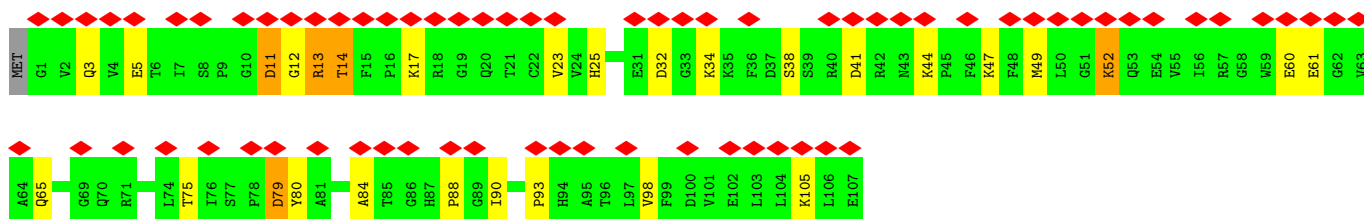




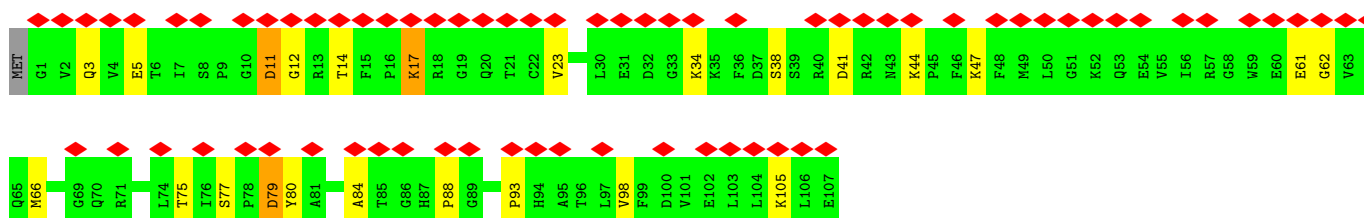
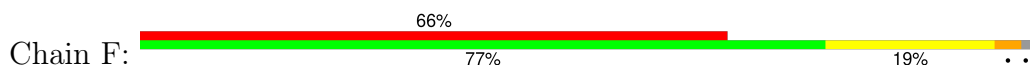
• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



• Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	17393	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 ($e^-/\text{\AA}^2$)	58	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.436	Depositor
Minimum map value	-0.223	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.018	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	428.288, 428.288, 428.288	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8365, 0.8365, 0.8365	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: 141, CA, ZN, ATP

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	0.38	0/35977	0.52	3/48726 (0.0%)
1	B	0.38	0/35977	0.52	3/48726 (0.0%)
1	C	0.38	0/35977	0.52	3/48726 (0.0%)
1	D	0.38	0/35977	0.52	3/48726 (0.0%)
2	E	0.40	0/850	0.59	0/1146
2	F	0.38	0/850	0.58	0/1146
2	G	0.39	0/850	0.58	0/1146
2	H	0.39	0/850	0.58	0/1146
All	All	0.38	0/147308	0.52	12/199488 (0.0%)

There are no bond length outliers.

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	3239	MET	CB-CG-SD	7.11	133.72	112.40
1	A	3239	MET	CB-CG-SD	7.10	133.71	112.40
1	C	3239	MET	CB-CG-SD	7.10	133.69	112.40
1	B	3239	MET	CB-CG-SD	7.09	133.67	112.40
1	B	4796	MET	CG-SD-CE	-5.35	91.64	100.20

There are no chirality outliers.

There are no planarity outliers.

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	35150	0	34797	562	0
1	B	35150	0	34797	560	0
1	C	35150	0	34797	583	0
1	D	35150	0	34797	583	0
2	E	831	0	831	23	0
2	F	831	0	831	16	0
2	G	831	0	831	21	0
2	H	831	0	831	19	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
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	0	0
6	A	11	0	4	0	0
6	B	11	0	4	0	0
6	C	11	0	4	0	0
6	D	11	0	4	0	0
7	A	1	0	0	0	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
7	D	1	0	0	0	0
All	All	144104	0	142576	2274	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 8.

The worst 5 of 2274 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:4942:GLU:OE1	1:D:4944:ARG:NH1	2.00	0.93
1:A:1066:GLN:HB2	1:A:1071:ARG:HH22	1.39	0.88
1:D:1066:GLN:HB2	1:D:1071:ARG:HH22	1.39	0.88
1:C:1066:GLN:HB2	1:C:1071:ARG:HH22	1.39	0.88
1:B:1066:GLN:HB2	1:B:1071:ARG:HH22	1.39	0.86

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	4385/5037 (87%)	4246 (97%)	139 (3%)	0	100	100
1	B	4385/5037 (87%)	4245 (97%)	140 (3%)	0	100	100
1	C	4385/5037 (87%)	4247 (97%)	138 (3%)	0	100	100
1	D	4385/5037 (87%)	4246 (97%)	139 (3%)	0	100	100
2	E	105/108 (97%)	102 (97%)	3 (3%)	0	100	100
2	F	105/108 (97%)	103 (98%)	2 (2%)	0	100	100
2	G	105/108 (97%)	102 (97%)	3 (3%)	0	100	100
2	H	105/108 (97%)	101 (96%)	4 (4%)	0	100	100
All	All	17960/20580 (87%)	17392 (97%)	568 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	3836/4276 (90%)	3730 (97%)	106 (3%)	38	66
1	B	3836/4276 (90%)	3730 (97%)	106 (3%)	38	66
1	C	3836/4276 (90%)	3730 (97%)	106 (3%)	38	66
1	D	3836/4276 (90%)	3730 (97%)	106 (3%)	38	66

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	E	89/90 (99%)	81 (91%)	8 (9%)	8	28
2	F	89/90 (99%)	84 (94%)	5 (6%)	17	47
2	G	89/90 (99%)	81 (91%)	8 (9%)	8	28
2	H	89/90 (99%)	81 (91%)	8 (9%)	8	28
All	All	15700/17464 (90%)	15247 (97%)	453 (3%)	40	65

5 of 453 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	4769	MET
1	C	4769	MET
1	D	2268[B]	GLN
1	C	4188	ARG
1	C	2636	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	1220	GLN
1	D	3180	ASN
1	C	3180	ASN
1	C	1220	GLN
1	B	3180	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 oligosaccharides in this entry.

5.6 Ligand geometry

Of 16 ligands modelled in this entry, 8 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
6	141	B	5304	-	11,12,12	1.76	3 (27%)	11,17,17	0.97	0
6	141	D	5304	-	11,12,12	1.77	3 (27%)	11,17,17	0.97	0
3	ATP	A	5301	-	28,33,33	0.74	0	34,52,52	0.92	2 (5%)
6	141	A	5304	-	11,12,12	1.76	3 (27%)	11,17,17	0.97	0
6	141	C	5304	-	11,12,12	1.76	3 (27%)	11,17,17	0.98	0
3	ATP	C	5301	-	28,33,33	0.74	0	34,52,52	0.93	2 (5%)
3	ATP	D	5301	-	28,33,33	0.75	0	34,52,52	0.92	2 (5%)
3	ATP	B	5301	-	28,33,33	0.74	0	34,52,52	0.92	2 (5%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	141	B	5304	-	-	-	0/2/2/2
6	141	D	5304	-	-	-	0/2/2/2
3	ATP	A	5301	-	-	6/18/38/38	0/3/3/3
6	141	A	5304	-	-	-	0/2/2/2
6	141	C	5304	-	-	-	0/2/2/2
3	ATP	C	5301	-	-	6/18/38/38	0/3/3/3
3	ATP	D	5301	-	-	6/18/38/38	0/3/3/3
3	ATP	B	5301	-	-	6/18/38/38	0/3/3/3

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	C	5304	141	C5-C4	-4.04	1.38	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	5304	141	C5-C4	-4.01	1.38	1.45
6	B	5304	141	C5-C4	-3.99	1.38	1.45
6	D	5304	141	C5-C4	-3.99	1.38	1.45
6	B	5304	141	C7-N8	2.49	1.35	1.33

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	5301	ATP	C4'-O4'-C1'	-4.10	106.17	109.92
3	A	5301	ATP	C4'-O4'-C1'	-4.09	106.18	109.92
3	B	5301	ATP	C4'-O4'-C1'	-4.08	106.19	109.92
3	C	5301	ATP	C4'-O4'-C1'	-4.08	106.19	109.92
3	C	5301	ATP	C5-C6-N6	2.35	123.89	120.31

There are no chirality outliers.

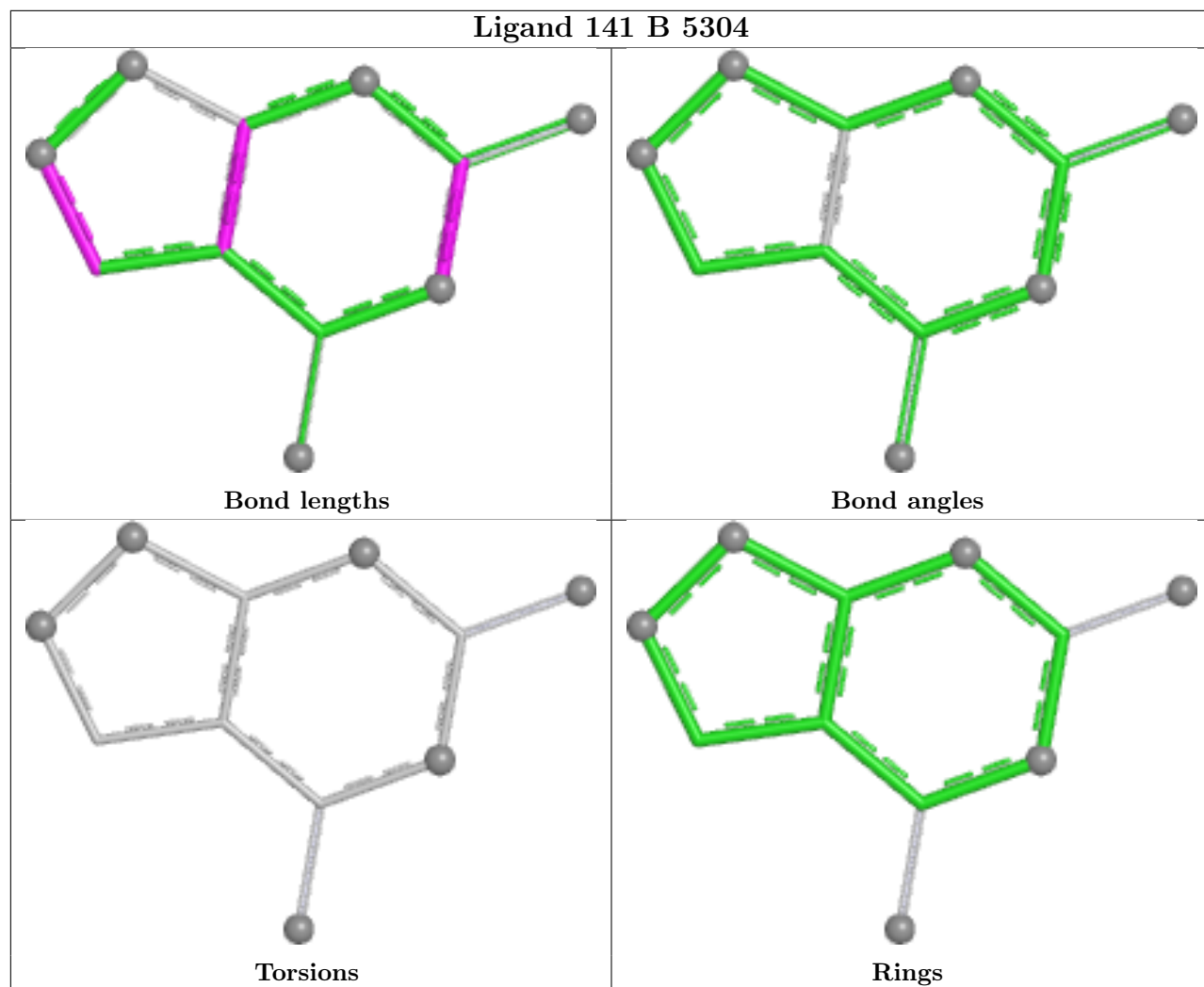
5 of 24 torsion outliers are listed below:

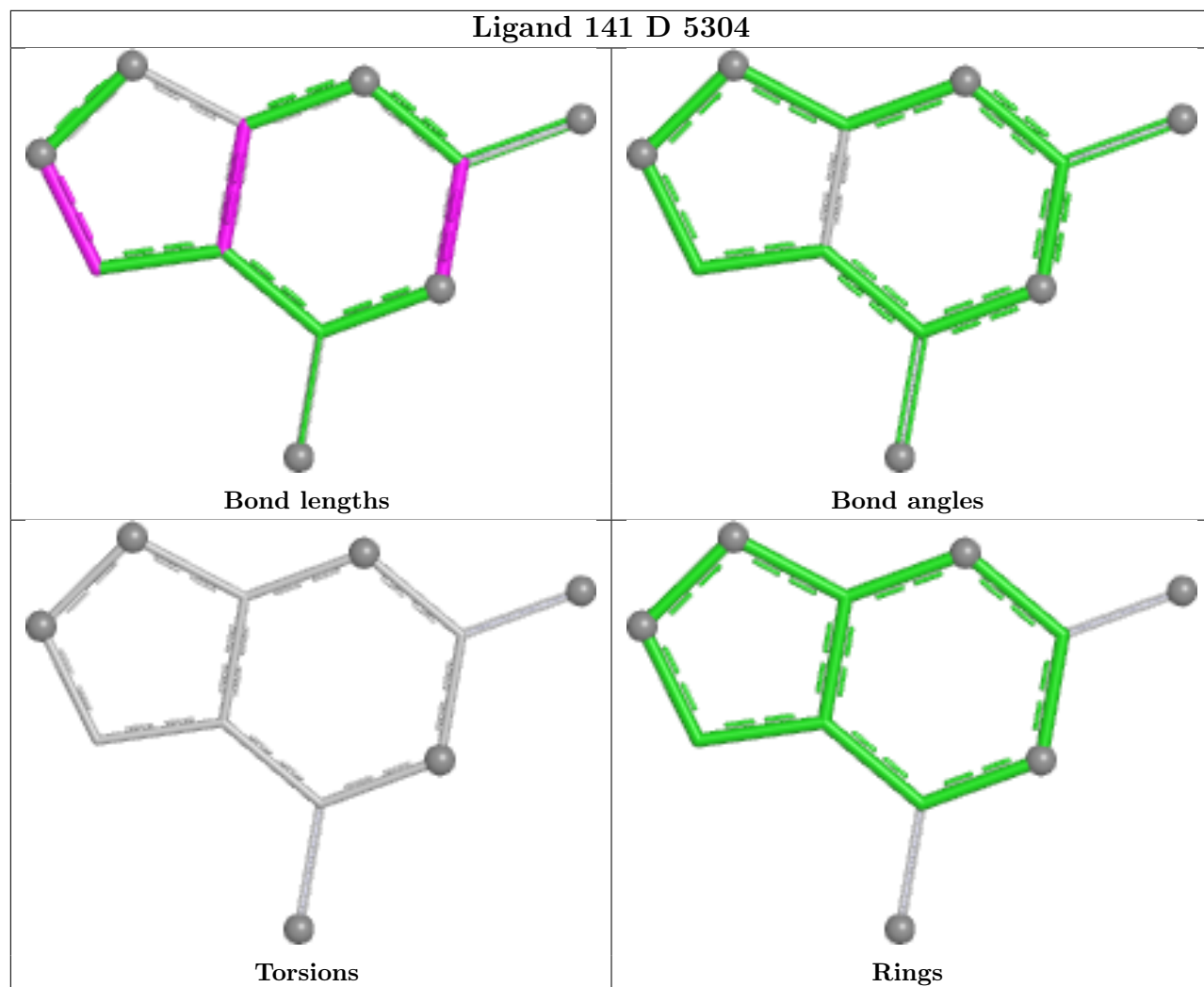
Mol	Chain	Res	Type	Atoms
3	A	5301	ATP	PB-O3B-PG-O2G
3	B	5301	ATP	PB-O3B-PG-O2G
3	D	5301	ATP	PB-O3B-PG-O2G
3	C	5301	ATP	PB-O3B-PG-O2G
3	A	5301	ATP	O4'-C4'-C5'-O5'

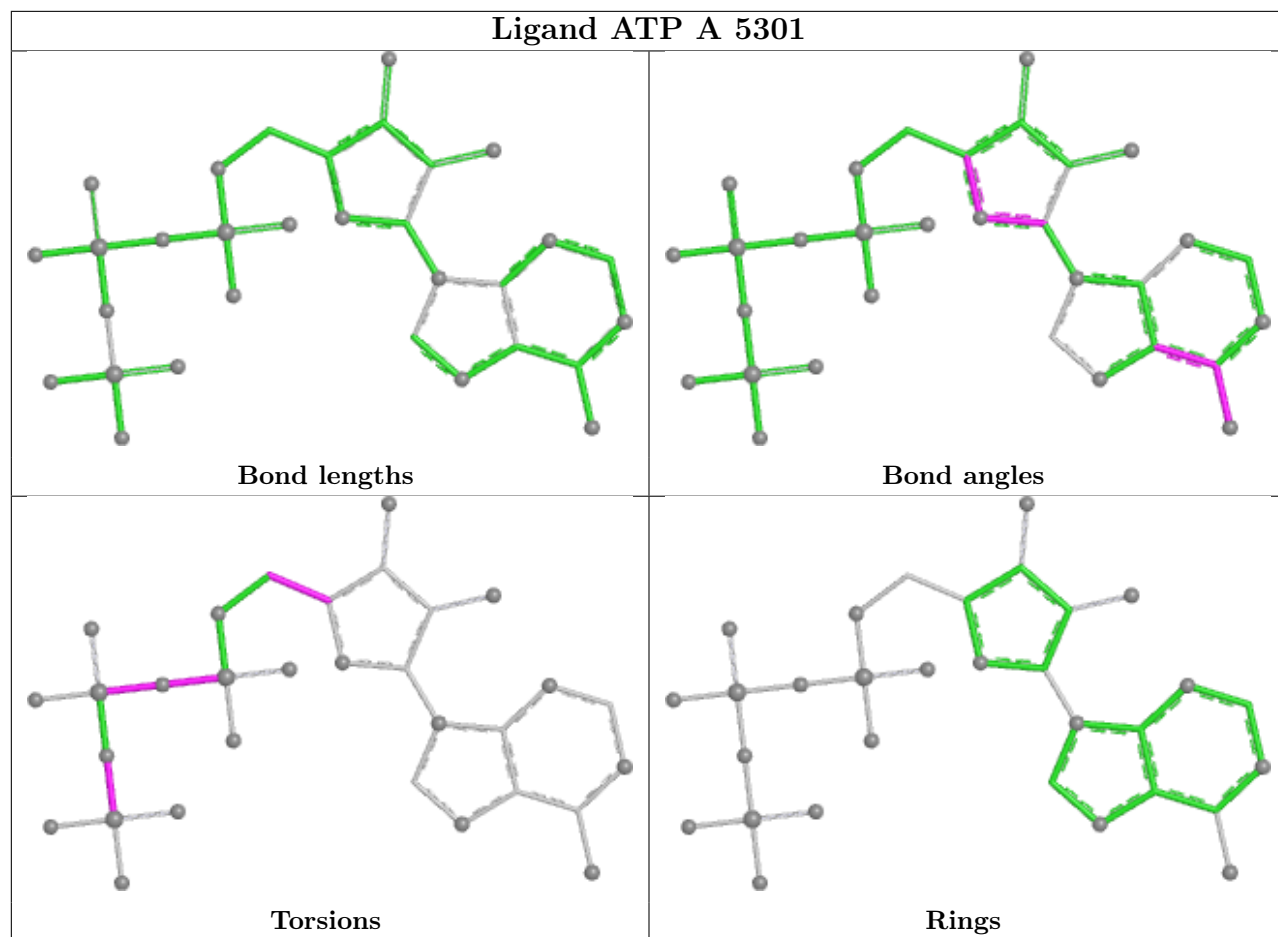
There are no ring outliers.

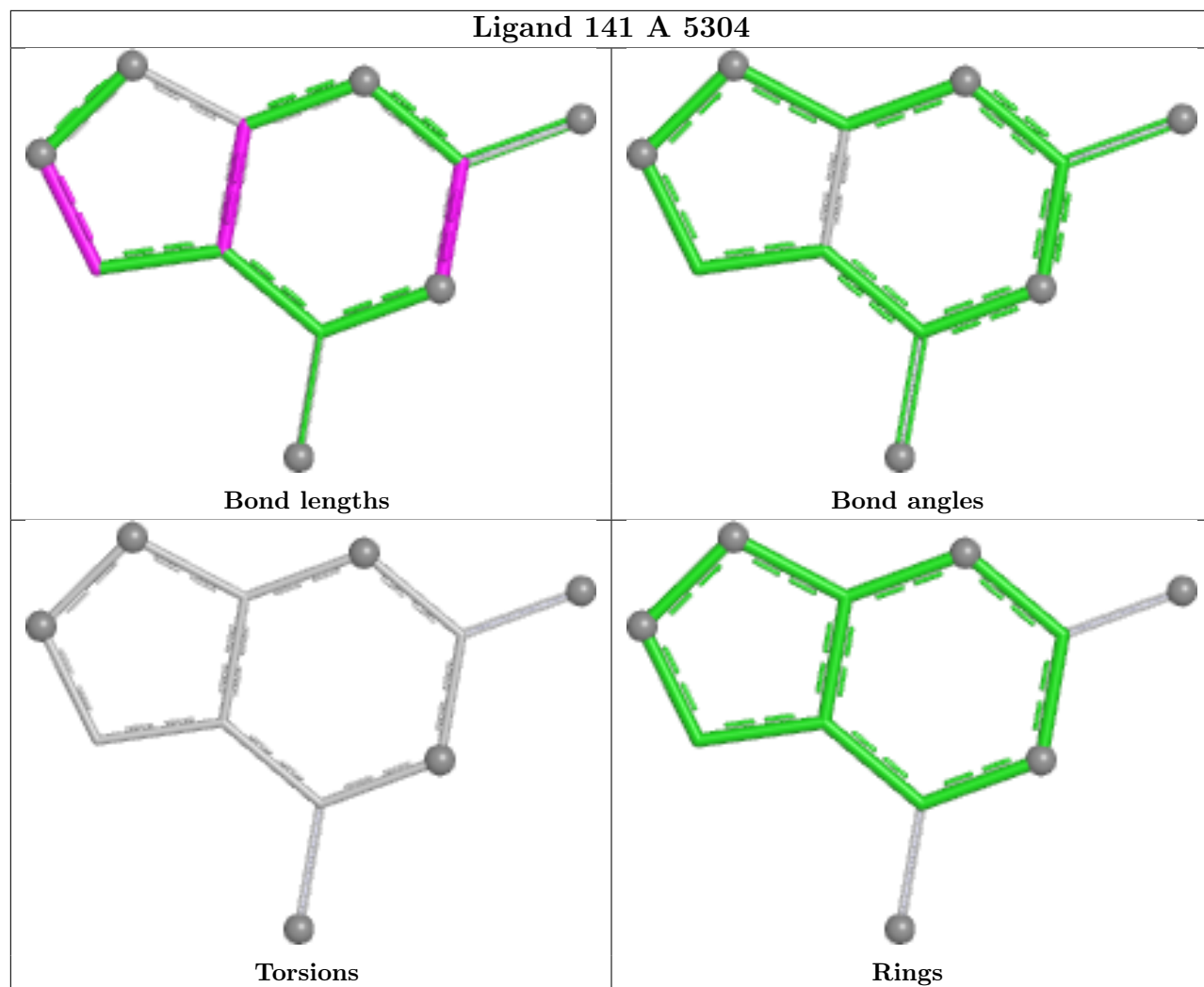
No monomer is involved in short contacts.

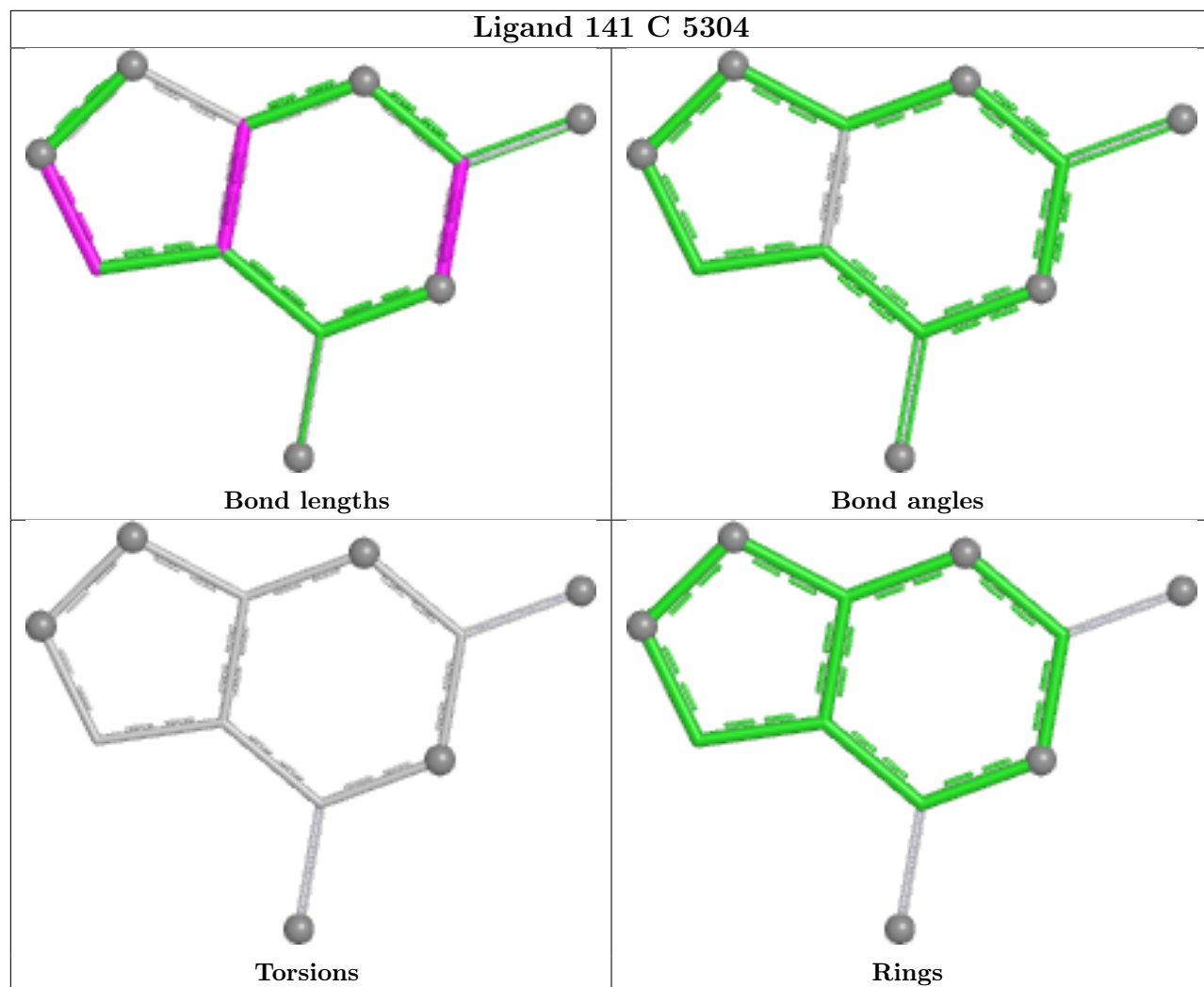
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

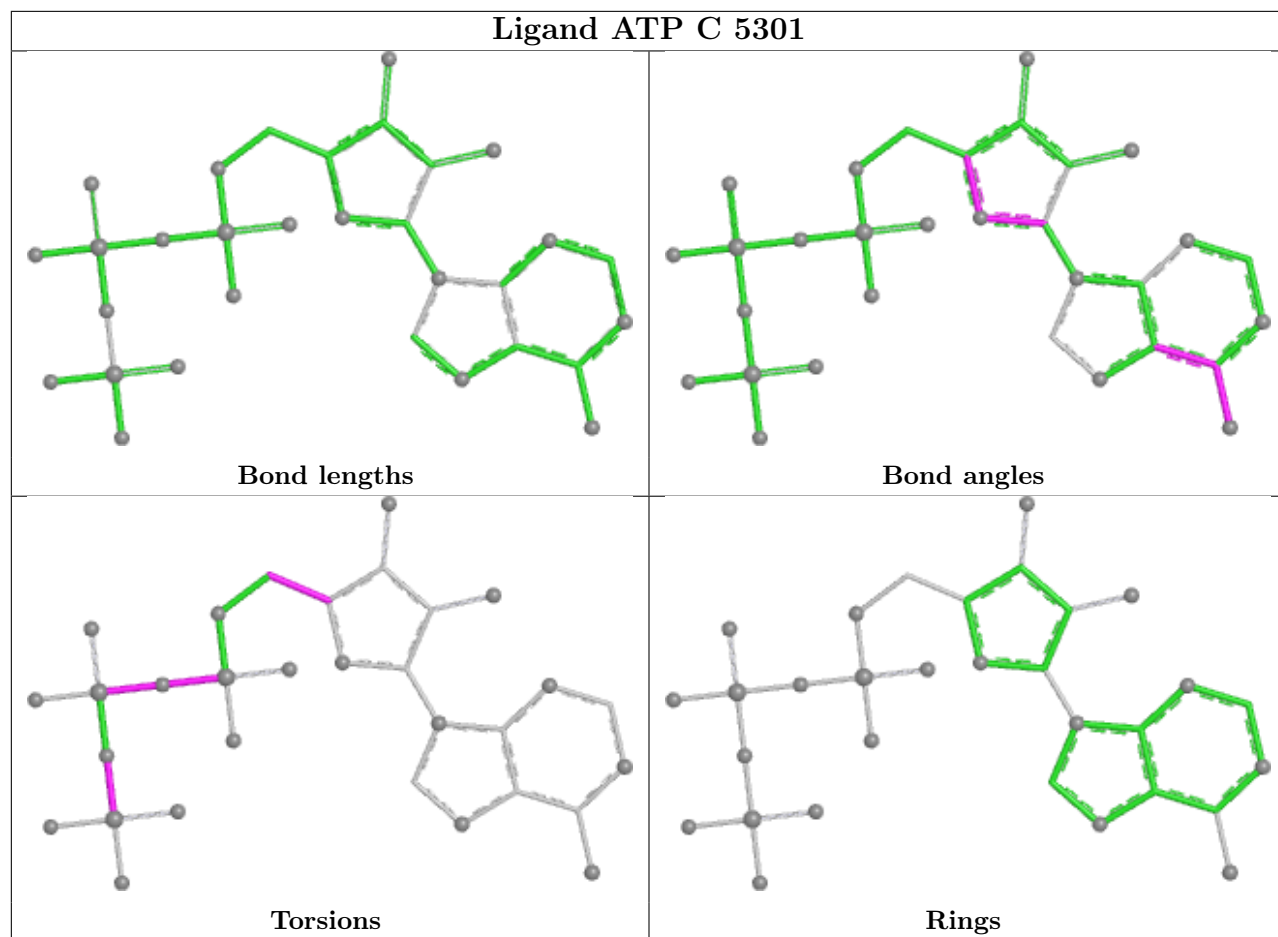


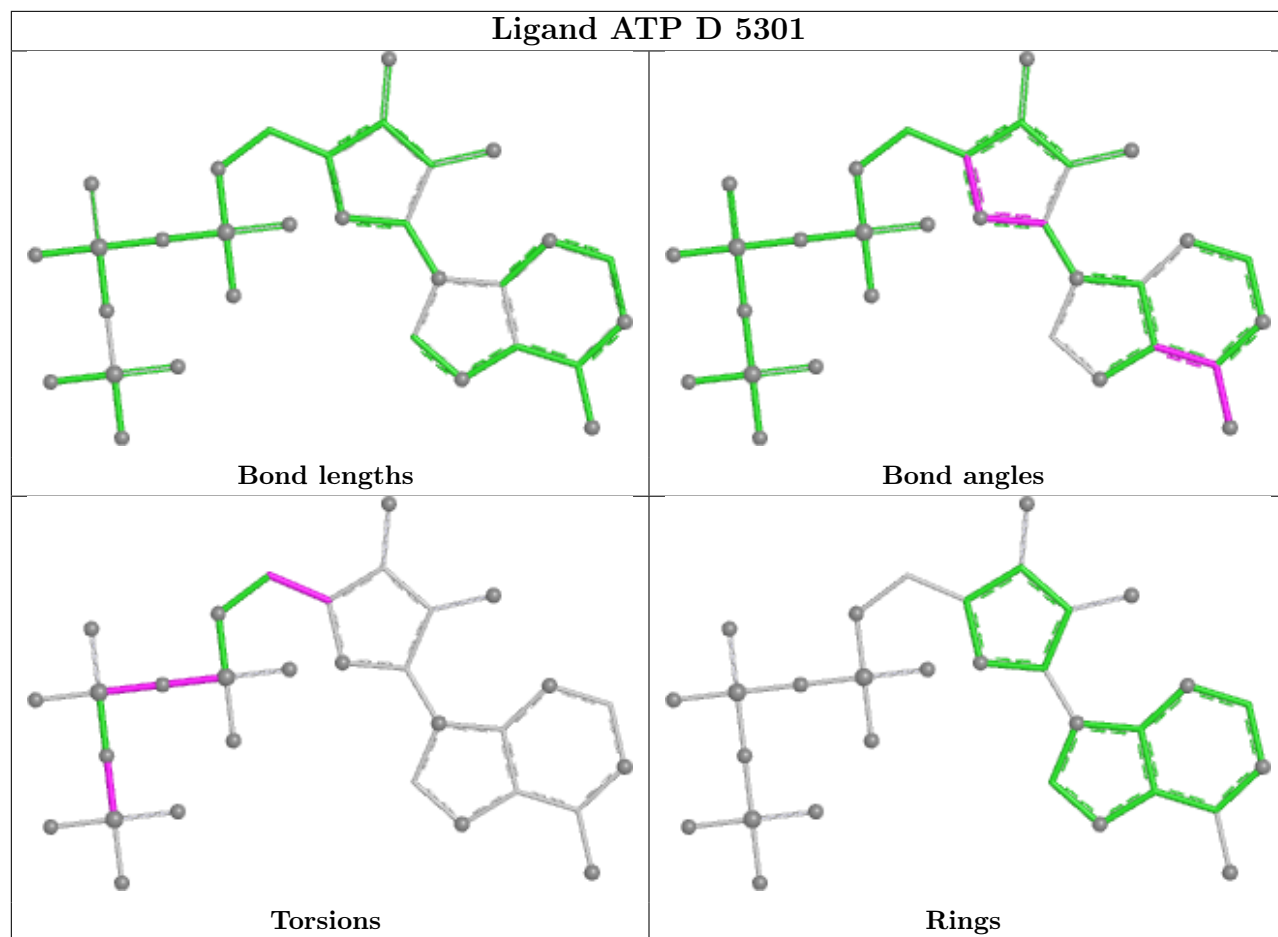


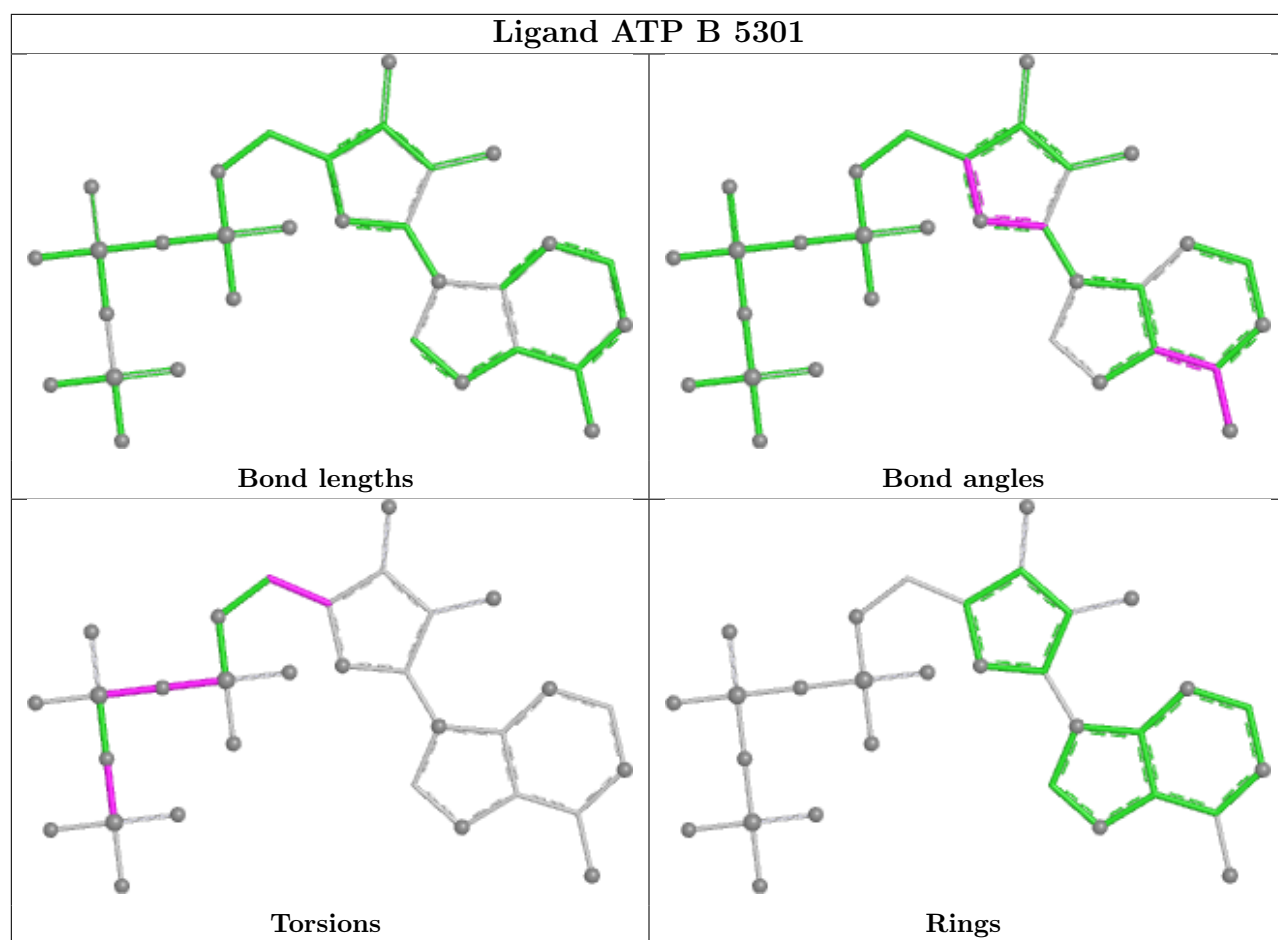












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

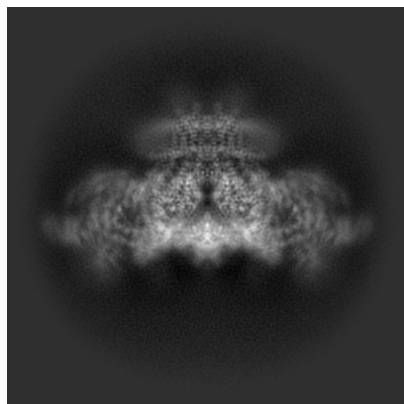
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-47393. These allow visual inspection of the internal detail of the map and identification of artifacts.

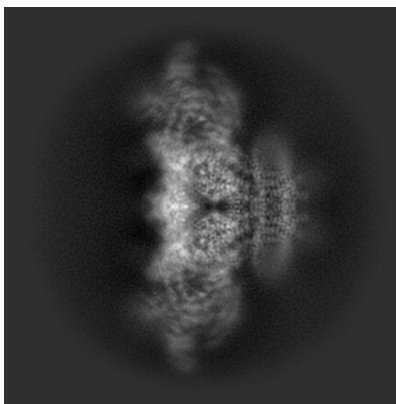
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

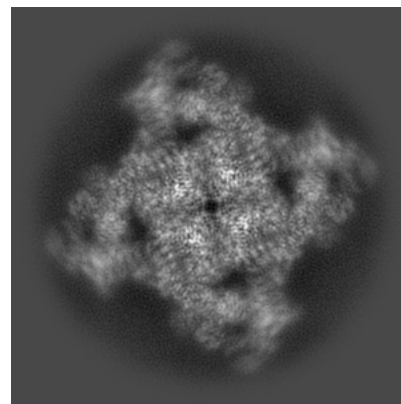
6.1.1 Primary map



X

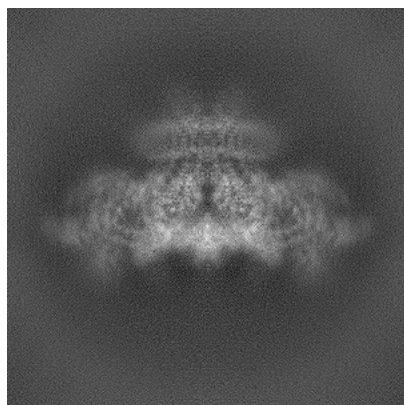


Y

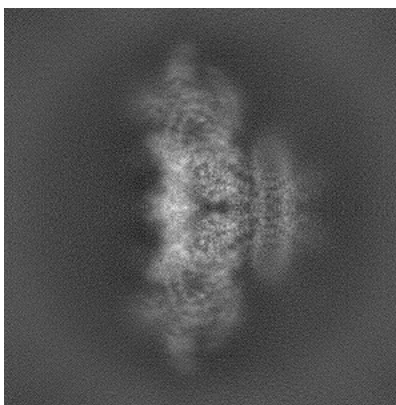


Z

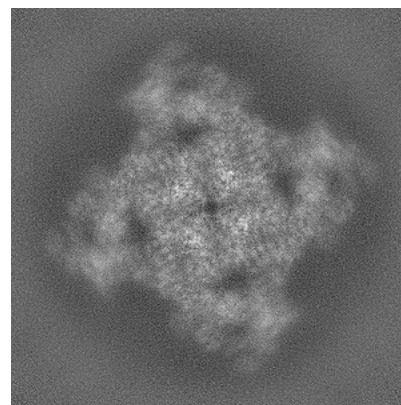
6.1.2 Raw map



X



Y

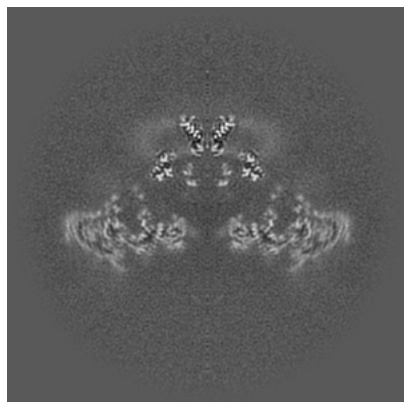


Z

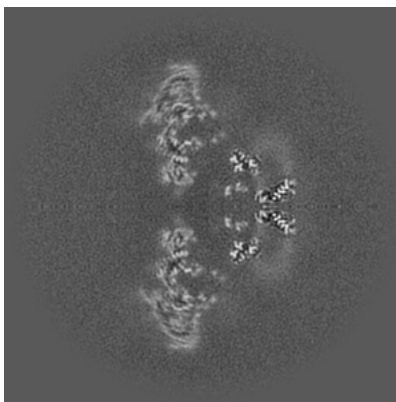
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

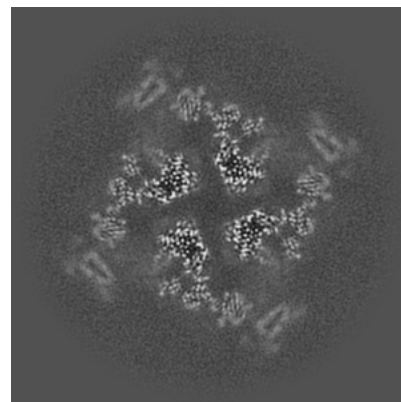
6.2.1 Primary map



X Index: 256

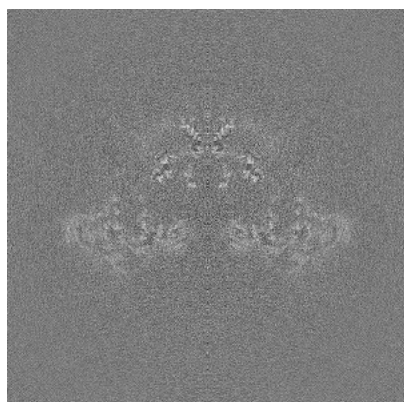


Y Index: 256

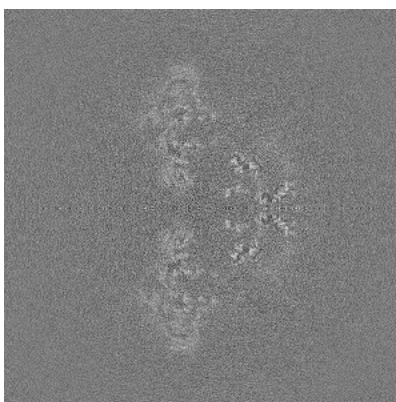


Z Index: 256

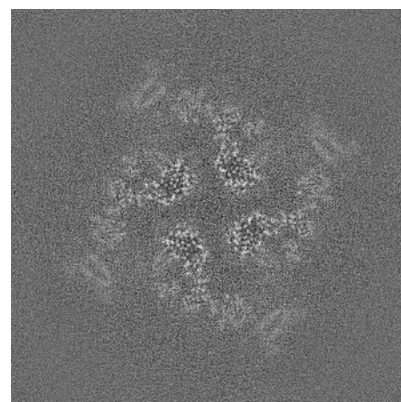
6.2.2 Raw map



X Index: 256



Y Index: 256

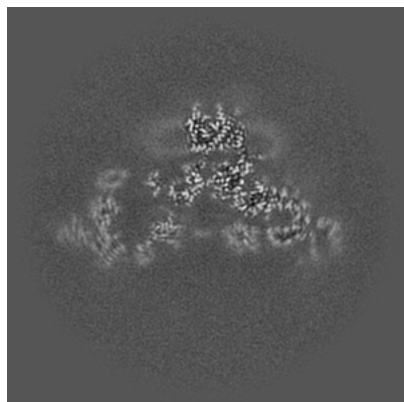


Z Index: 256

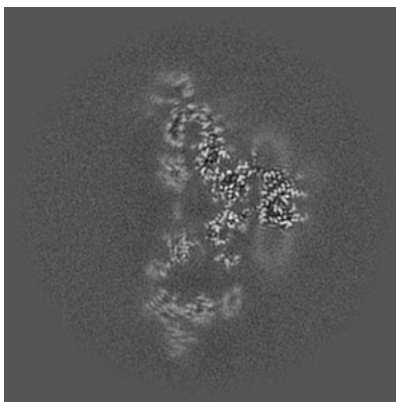
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

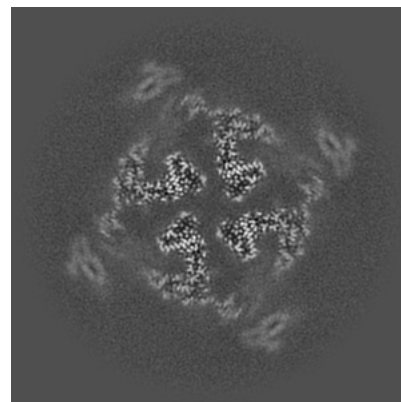
6.3.1 Primary map



X Index: 273

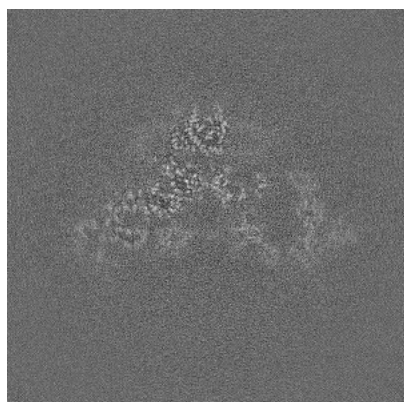


Y Index: 239

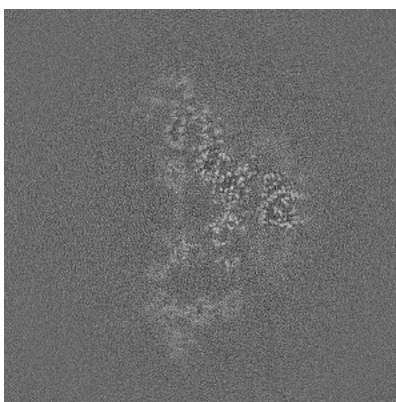


Z Index: 265

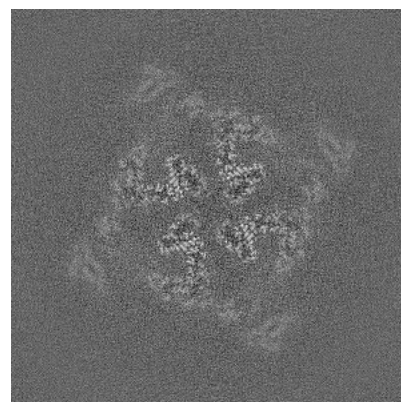
6.3.2 Raw map



X Index: 239



Y Index: 239

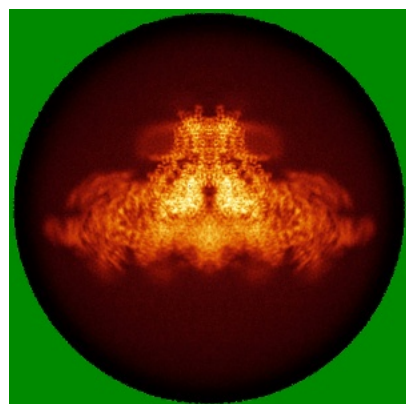


Z Index: 266

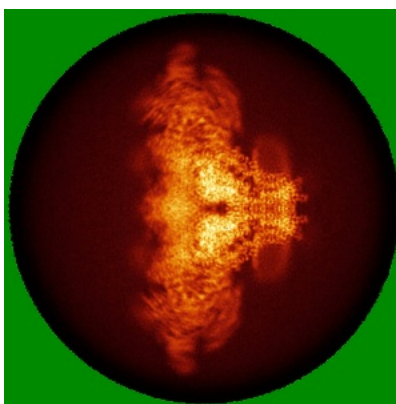
The images above show the largest variance slices of the map in three orthogonal directions.

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

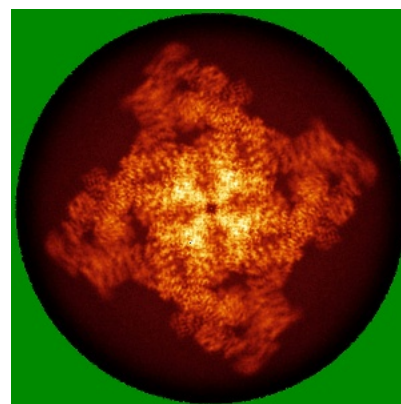
6.4.1 Primary map



X

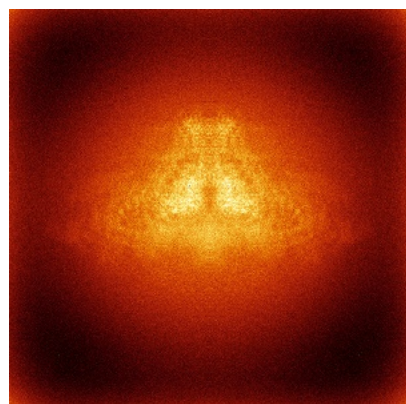


Y

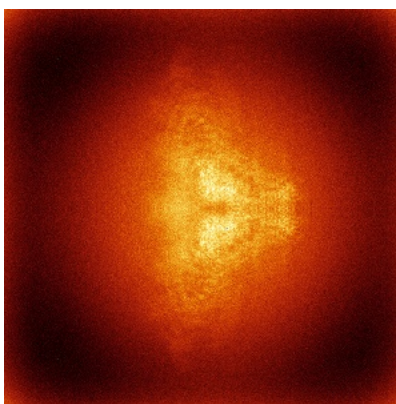


Z

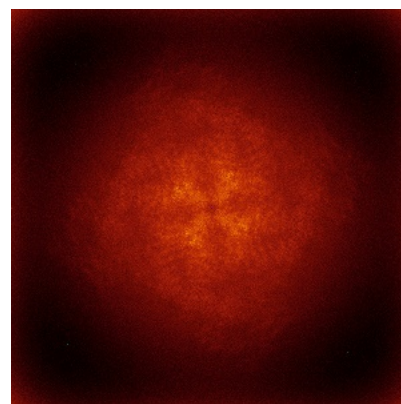
6.4.2 Raw map



X



Y

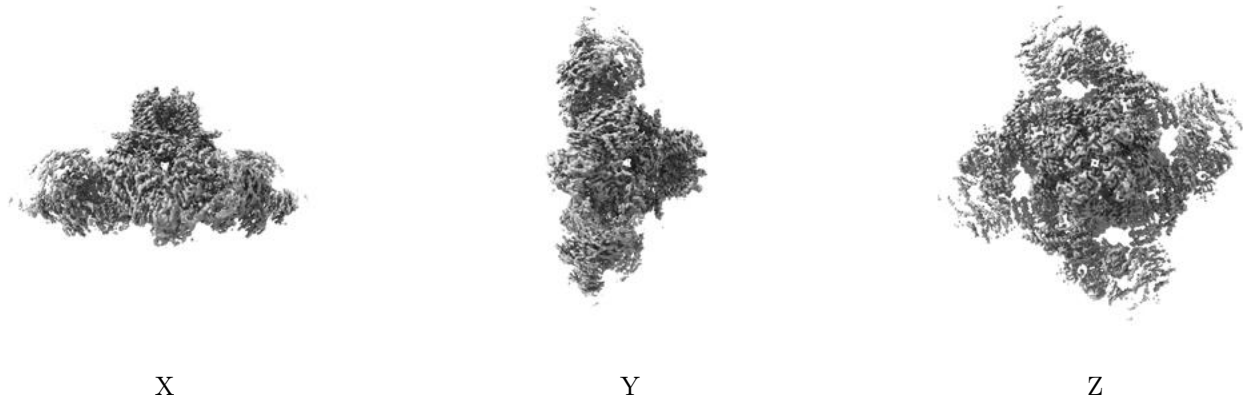


Z

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.

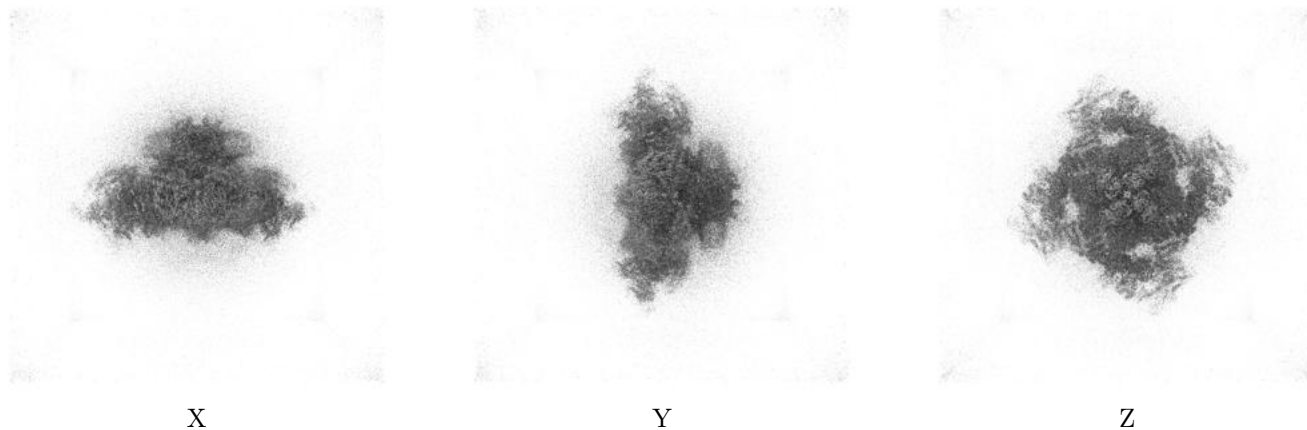
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.1. 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.

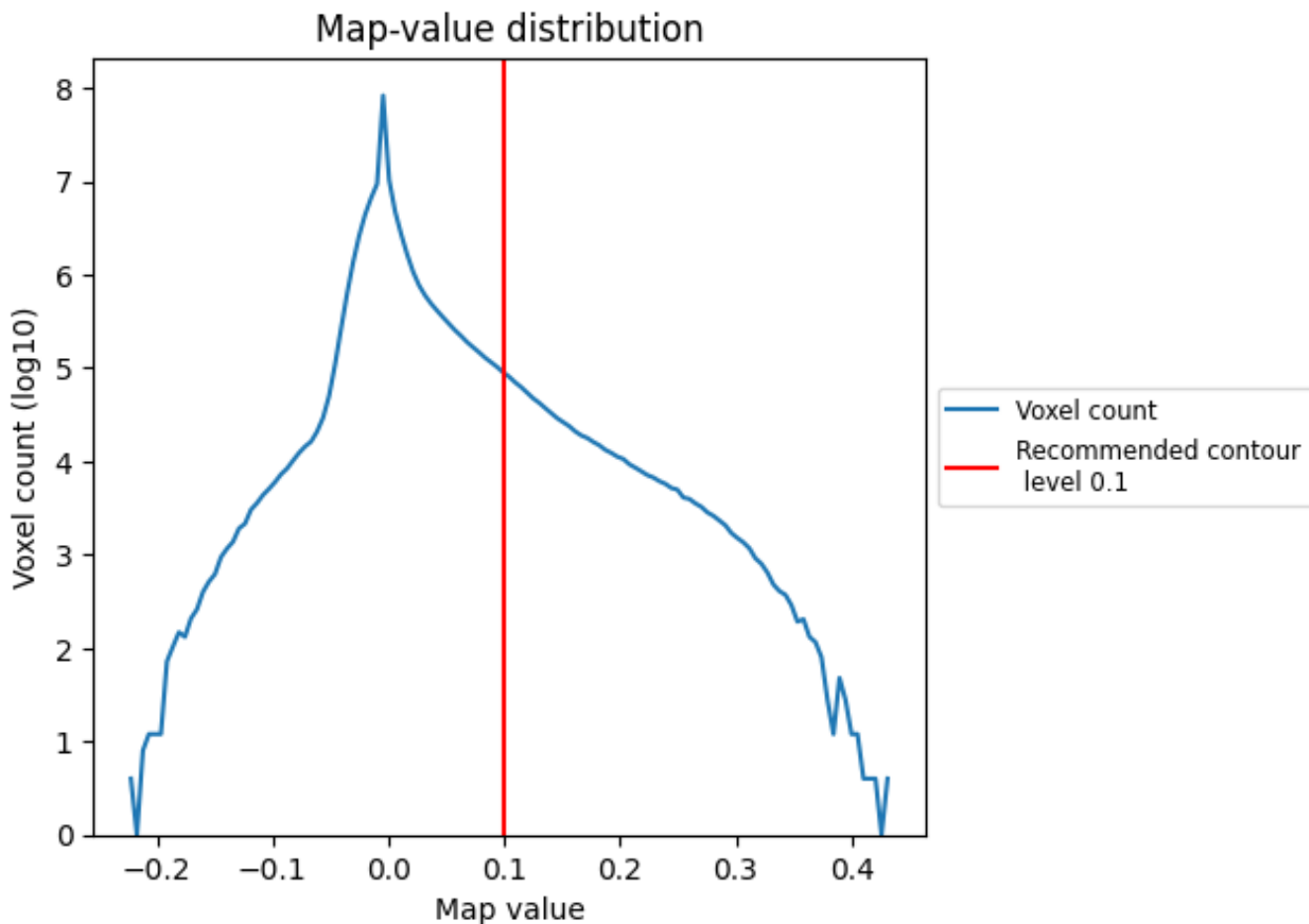
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

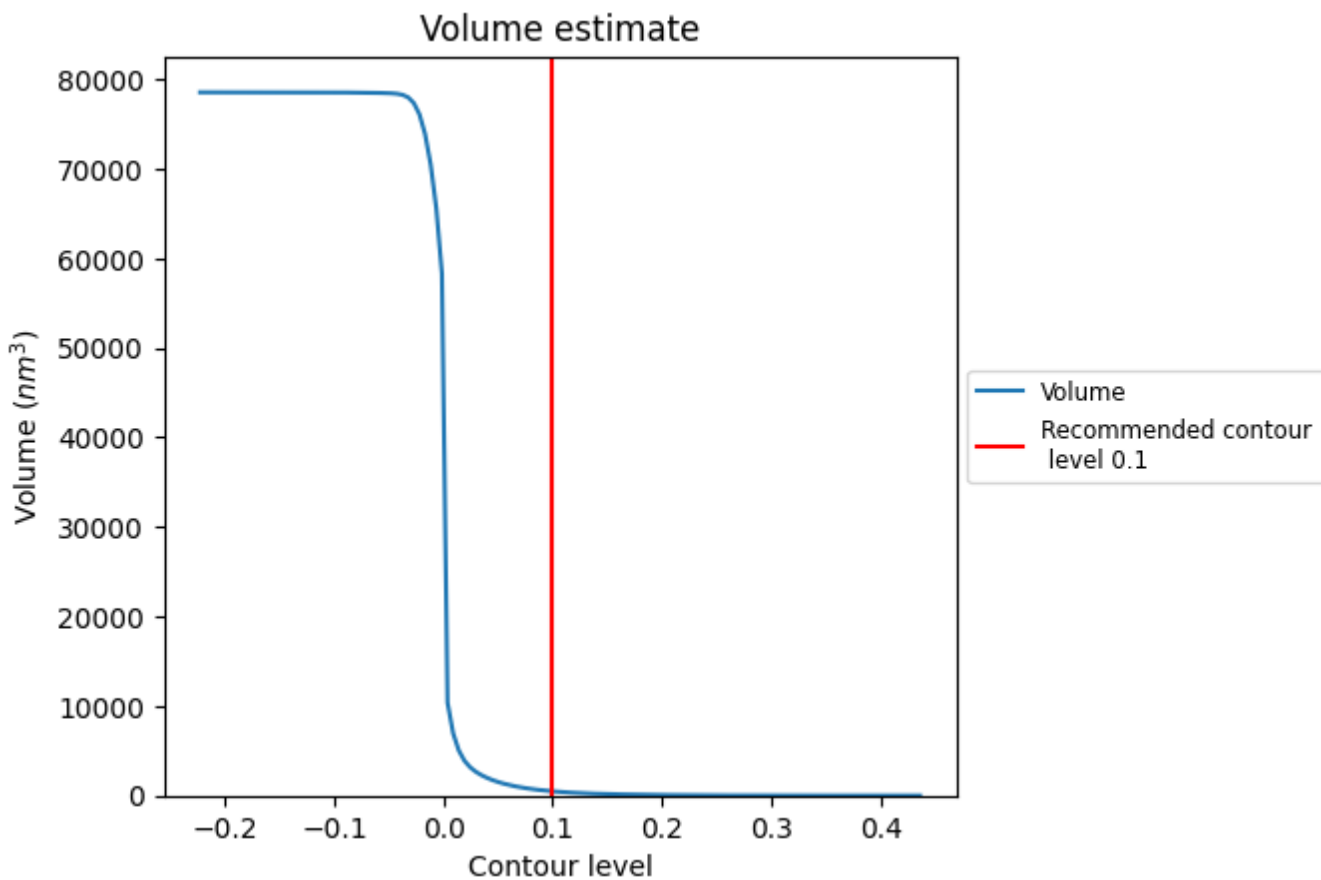
This section contains the results of statistical analysis of the map.

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.

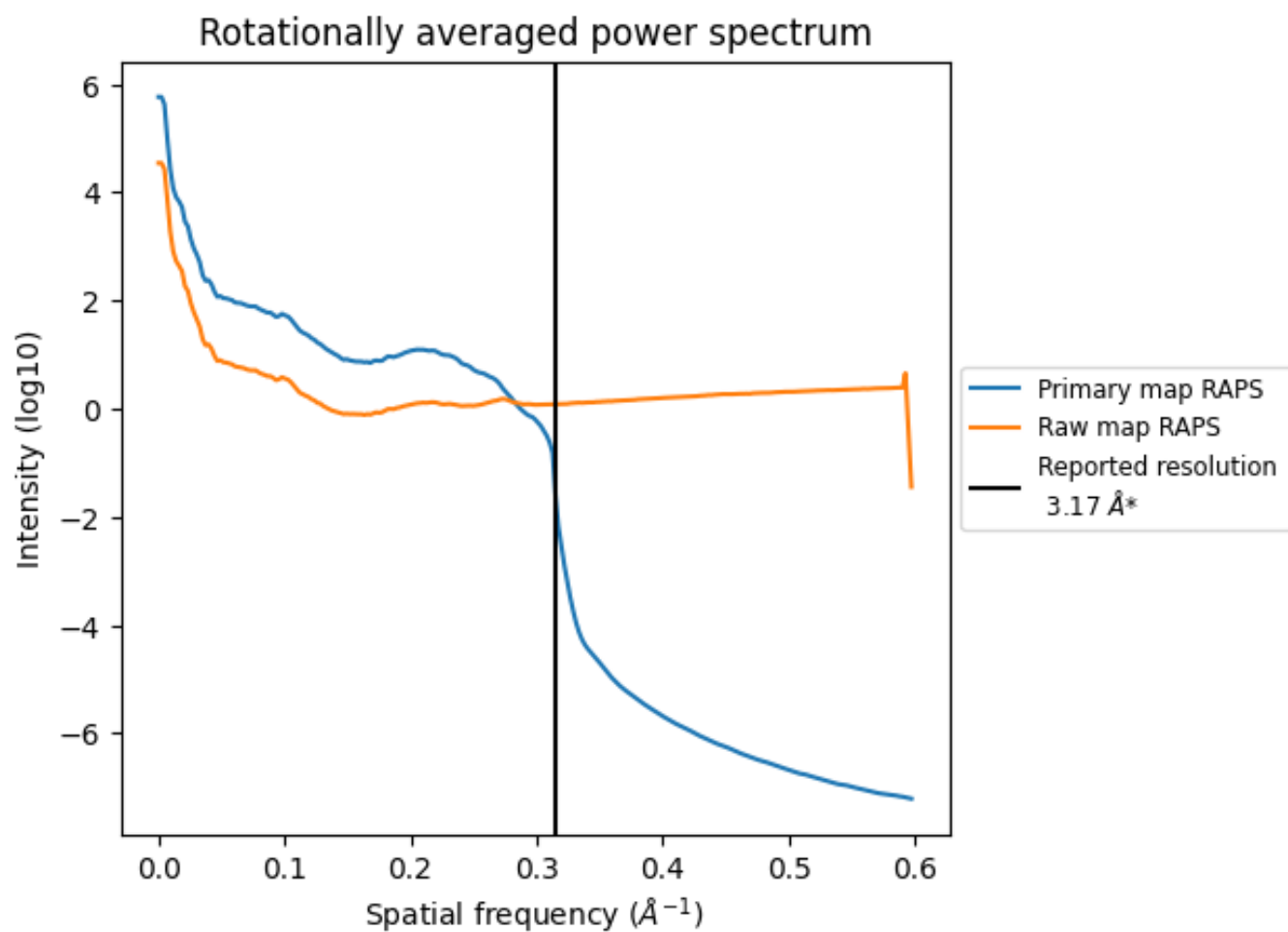
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 477 nm³; this corresponds to an approximate mass of 431 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](#)

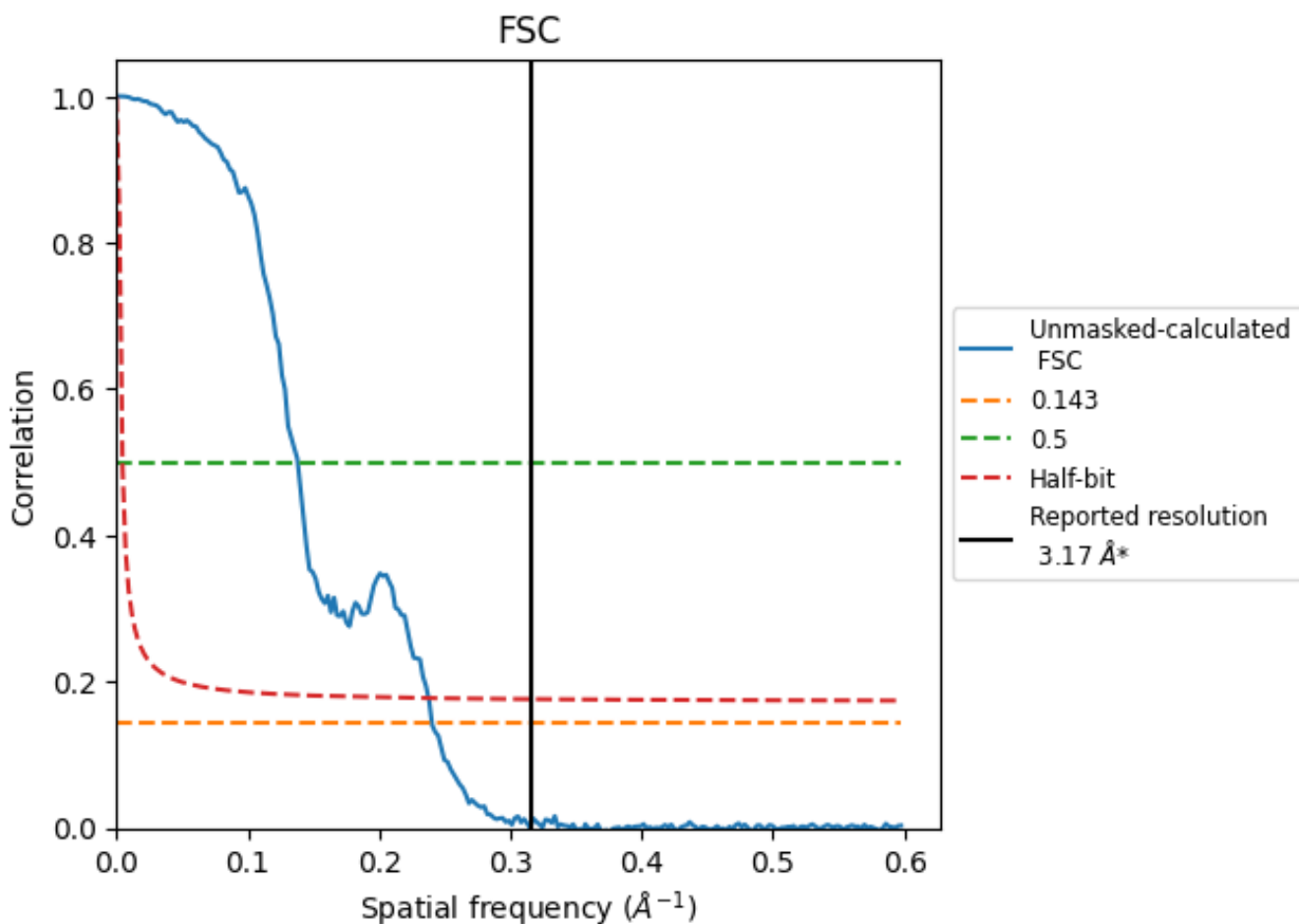


*Reported resolution corresponds to spatial frequency of 0.315 Å⁻¹

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 0.315 Å⁻¹

8.2 Resolution estimates [i](#)

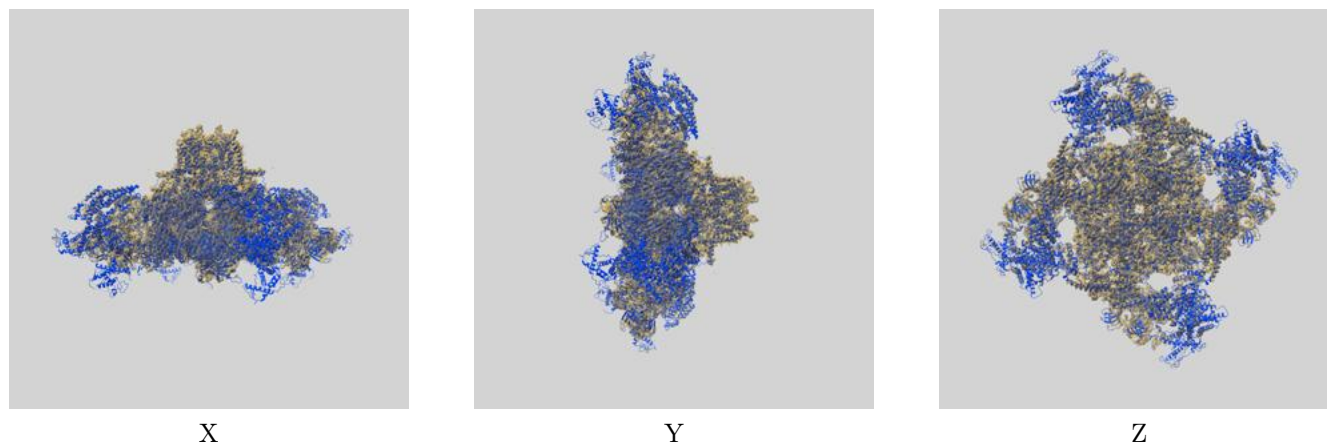
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.17	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.16	7.24	4.21

*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 4.16 differs from the reported value 3.17 by more than 10 %

9 Map-model fit [i](#)

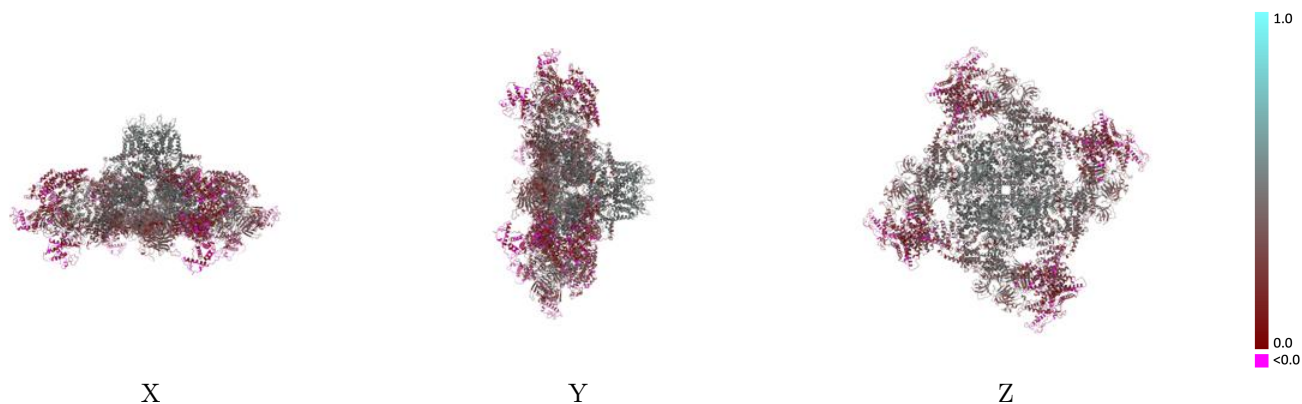
This section contains information regarding the fit between EMDB map EMD-47393 and PDB model 9E1G. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



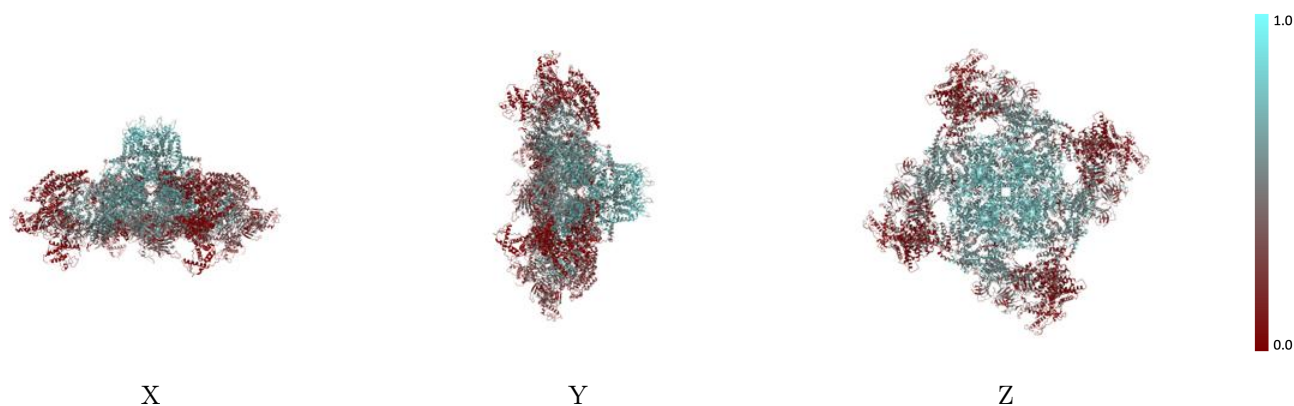
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



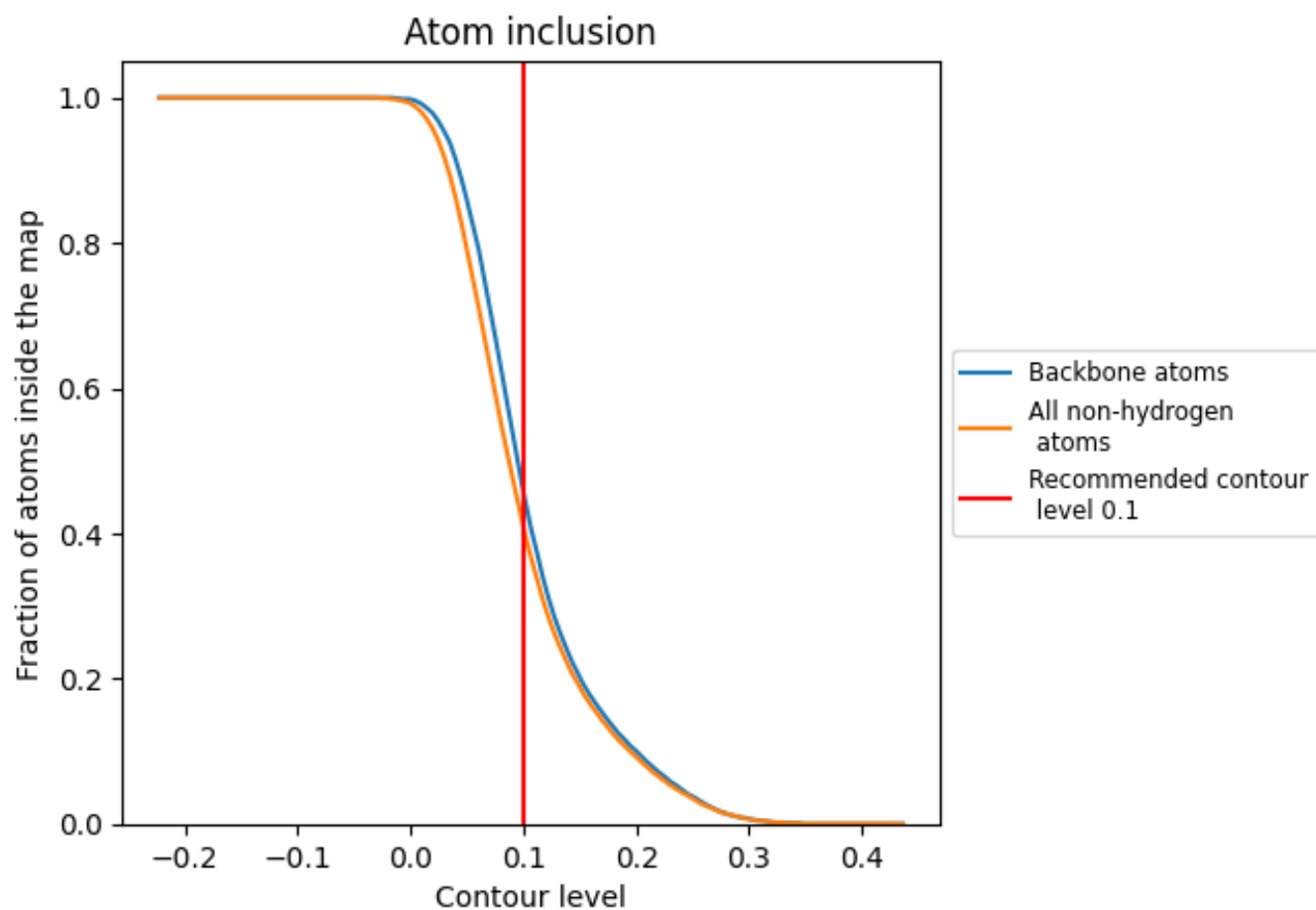
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.1).

9.4 Atom inclusion [i](#)



At the recommended contour level, 46% of all backbone atoms, 41% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.4080	0.3230
A	0.4200	0.3260
B	0.4200	0.3210
C	0.4200	0.3210
D	0.4200	0.3210
E	0.2860	0.3640
F	0.2850	0.3620
G	0.2850	0.3570
H	0.2860	0.3640

