



wwPDB EM Validation Summary Report ⓘ

Jun 16, 2025 – 02:31 PM EDT

PDB ID : 9E1B / pdb_00009e1b
EMDB ID : EMD-47388
Title : Structure of RyR1 in the open state in the presence of dyphylline
Authors : Miotto, M.C.; Marks, A.R.
Deposited on : 2024-10-21
Resolution : 4.49 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.dev118
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0rc1
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) : 2.44

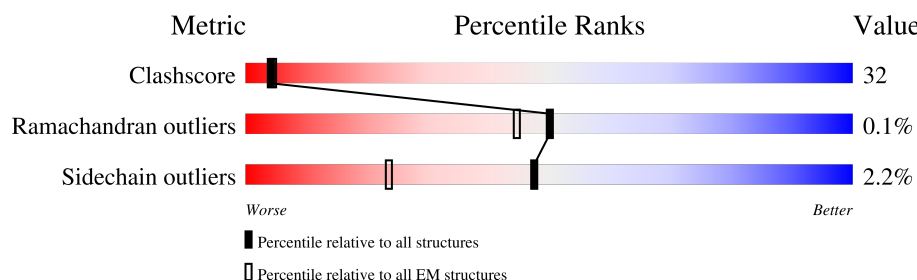
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.49 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	<div> <div>57%</div> <div>39% 47% 13%</div> </div>
1	B	5037	<div> <div>57%</div> <div>39% 47% 13%</div> </div>
1	C	5037	<div> <div>57%</div> <div>39% 47% 13%</div> </div>
1	D	5037	<div> <div>57%</div> <div>39% 47% 13%</div> </div>
2	E	108	<div> <div>97%</div> <div>33% 64% ..</div> </div>
2	F	108	<div> <div>97%</div> <div>38% 60% ..</div> </div>
2	G	108	<div> <div>96%</div> <div>40% 57% ..</div> </div>
2	H	108	<div> <div>96%</div> <div>39% 56% ..</div> </div>

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 144128 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Ryanodine receptor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	4404	Total	C	N	O	S	9	0
			35150	22365	6063	6485	237		
1	B	4404	Total	C	N	O	S	9	0
			35150	22365	6063	6485	237		
1	D	4404	Total	C	N	O	S	9	0
			35150	22365	6063	6485	237		
1	C	4404	Total	C	N	O	S	9	0
			35150	22365	6063	6485	237		

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

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

- Molecule 3 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃).



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

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

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

- Molecule 5 is ZINC ION (CCD ID: ZN) (formula: Zn).

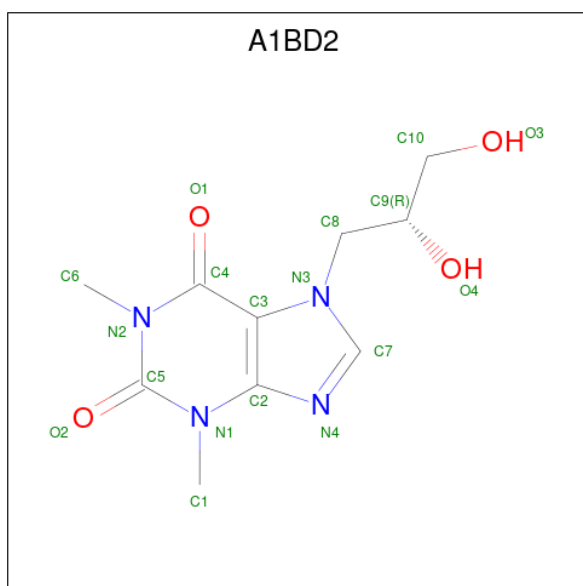
Mol	Chain	Residues	Atoms	AltConf
5	A	1	Total Zn 1 1	0

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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 dyphylline (CCD ID: A1BD2) (formula: $C_{10}H_{14}N_4O_4$) (labeled as "Ligand of Interest" by depositor).

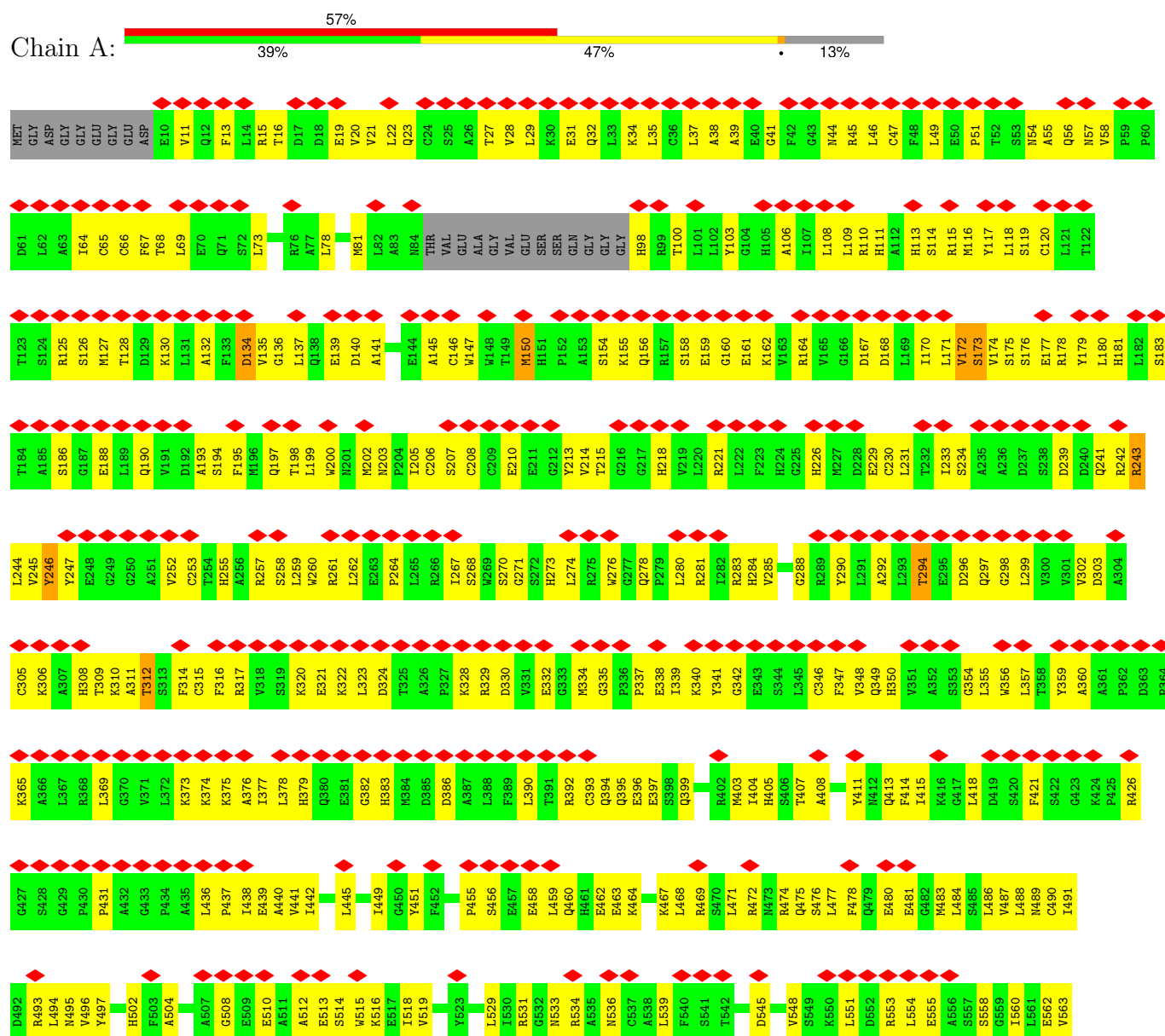


Mol	Chain	Residues	Atoms				AltConf
6	A	1	Total	C	N	O	0
			18	10	4	4	
6	B	1	Total	C	N	O	0
			18	10	4	4	
6	D	1	Total	C	N	O	0
			18	10	4	4	
6	C	1	Total	C	N	O	0
			18	10	4	4	

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



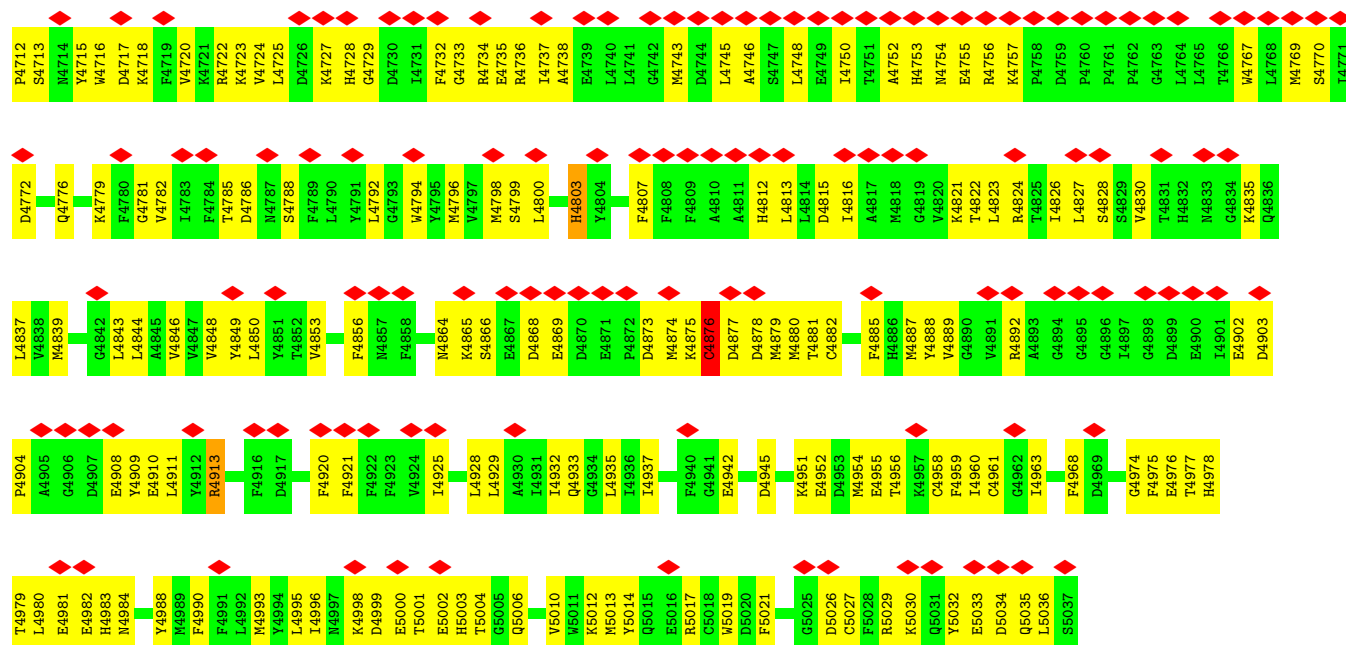


E2175	N2176	N2177	N2178	N2179	Q2180	S2181	T2182	T2185	T2186	N2187	N2188	N2189	V2190	V2191	V2192	Q2193	Q2194	P2195	N2196	L2197	N2198	R2199	A2200	L2201	G2202	N2203	H2204	N2208	V2212	N2213	V2214	G2215	G2216	G2217	G2218	E2219	T2220	R2221	E2222	T2223	R2224	P2225	P2226	K2227	N2228	V2229	T2230	S2231	C2232	C2233	R2234	N2235	L2236	Y2238	F2239				
R2104	H2041	C2042	G2043	I2044	Q2045	L2046	GLU	GLY	GLU	GLU	GLU	PRO	GLU	GLU	GLU	THR	SER	SER	ARG	ARG	ARG	SER	LEU	LEU	GLU	THR	VAL	ARG	LEU	VAL	LYS	LYS	LYS	GLU	GLU	GLU	GLU	GLU	GLU	LEU	PRO	ALA	E2088	K2089	K2090	P2091	Q2092	S2093	L2094	Q2095	E2096	L2097	V2098						
S1975	R1976	Y1977	A1978	L1979	L1980	M1981	L1982	A1983	F1984	T1985	M1986	S1987	A1988	A1989	E1990	T1991	A1992	R1993	R1994	T1995	R1996	E1997	R1998	R1999	S2000	Q2003	E2004	Q2005	I2006	N2007	M2008	L2009	L2010	H2011	F2012	K2013	D2014	E2015	A2016	D2017	E2018	E2019	D2020	C2021	P2022	L2023	P2024	E2025	D2026	I2027	R2028	Q2029	D2030	L2031	Q2032	Q2036			
A2040	H2041	C2042	G2043	I2044	Q2045	L2046	GLU	GLY	GLU	GLU	GLU	PRO	GLU	GLU	GLU	THR	SER	SER	ARG	ARG	ARG	SER	LEU	LEU	GLU	THR	VAL	ARG	LEU	VAL	LYS	LYS	LYS	GLU	GLU	GLU	GLU	GLU	GLU	LEU	PRO	ALA	E2088	K2089	K2090	P2091	Q2092	S2093	L2094	Q2095	E2096	L2097	V2098						
R2104	W2105	A2106	Q2107	E2108	D2109	D2110	V2111	Q2112	S2113	L2116	V2117	M2120	F2121	S2122	L2123	L2124	H2125	R2126	Q2127	Y2128	D2129	G2130	L2131	G2132	E2133	L2134	L2135	R2136	L2137	L2138	P2139	R2140	A2141	Y2142	T2143	D2151	L2155	E2157	C2158	L2159	Q2161	L2162	R2163	S2164	L2165	L2166	L2167	V2168	Q2169	M2170	G2171	E2174							
PRO	HIS	ASP	VAL	VAL	PRO	PRO	ALA	D1419	N1420	N1421	D1422	D1423	P1424	E1425	I1426	I1427	L1428	N1429	T1430	T1431	T1432	Y1433	Y1434	Y1435	S1436	V1437	R1438	Y1439	F1440	A1441	G1442	Q1443	E1444	P1445	S1446	C1447	V1448	N1449	V1450	G1451	W1452	V1453	P1455	D1456	Y1457	H1458	Q1459	H1460	N1461	M1462	N1463	F1464	L1465	L1466	S1467	K1468	V1469	R1470	A1471
V1472	T1476	M1476	G1477	D1478	E1479	Q1480	G1481	N1482	V1483	H1484	S1485	S1486	K1487	K1488	C1489	S1490	N1491	C1492	Y1493	M1494	V1495	V1496	G1497	G1498	D1499	F1500	V1501	S1502	P1503	G1504	Q1505	Q1506	G1507	R1508	I1509	S1510	H1511	T1512	D1513	L1514	V1515	L1516	G1517	S1518	L1519	V1520	D1521	L1522	A1523	T1524	G1525	L1526	M1527	T1528	F1529	T1530	A1531	N1532	
G1533	K1534	E1535	S1536	V1537	T1538	F1539	F1540	Q1541	V1542	E1543	P1544	M1545	T1546	K1547	L1548	F1549	P1550	A1551	V1552	F1553	V1554	L1555	P1556	T1557	Q1558	M1559	V1560	V1561	I1562	Q1563	F1564	E1565	L1566	G1567	K1568	Q1569	K1570	M1571	I1572	M1573	P1574	L1575	S1576	A1577	A1578	M1579	F1580	L1581	S1582	E1583	R1584	K1585	N1586	P1587	A1588	P1589	Q1590	C1591	P1592
P1593	R1594	L1595	E1596	V1597	M1598	L1600	M1601	V1603	S1604	S1606	R1607	M1608	M1609	N1610	H1611	F1612	L1613	Q1614	V1615	E1616	T1617	R1618	R1619	A1620	G1621	E1622	R1623	G1624	G1625	V1626	A1627	E1628	Q1629	C1630	Q1631	D1632	P1633	L1634	M1635	M1637	A1638	L1639	H1640	E1643	E1644	M1645	R1646	C1647	M1648	D1649	E1652	L1653	S1654						
E1655	R1656	L1657	D1658	Q1659	Q1660	R1661	F1662	H1663	H1664	H1665	L1666	R1668	L1669	Y1670	A1672	V1673	C1674	A1675	L1676	G1677	N1678	M1679	R1680	V1681	A1682	H1683	A1684	L1685	H1688	V1689	D1690	Q1691	A1692	Q1693	L1694	L1695	H1696	A1697	L1698	E1699	D1700	A1701	H1702	G1705	P1706	L1707	R1708	A1709	G1710	Y1711	Y1712	D1713	L1714	L1715	I1716				
S1717	I1718	H1719	L1720	E1721	C1724	R1725	S1726	R1727	R1728	S1729	M1730	L1731	S1732	E1733	L1738	T1739	T1742	R1743	A1744	I1745	T1746	L1747	F1748	P1749	G1750	G1751	R1752	K1753	G1754	G1755	N1756	A1757	R1758	R1759	H1760	G1761	L1762	P1763	G1764	V1765	G1766	V1767	T1768	L1771	R1772	P1773	P1774	H1775	H1776	F1777	S1778	G1781	F1782	V1783					
A1784	A1785	L1786	P1787	A1788	A1789	G1790	V1791	A1792	E1793	A1794	P1795	A1796	R1797	L1798	A1801	I1802	P1803	L1804	E1805	A1806	L1807	R1808	D1809	K1810	A1811	L1812	R1813	M1814	L1815	G1816	E1817	A1818	V1819	R1820	D1821	G1822	G1823	Q1824	A1826	R1827	D1828	P1829	V1830	G1831	G1832	S1833	F1836	Q1837	F1838	V1839	R1840	V1841	L1842	K1843	V1844	V1845			
S1846	T1847	L1848	M1851	G1852	I1853	F1854	G1855	D1856	E1857	D1858	V1859	K1860	Q1861	T1862	P1868	E1869	F1871	E1873	E1874	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU	GLU				
GLU	GLU	GLU	ALA	PRO	GLY	GLY	LYS	GLU	ASP	L1922	E1923	E1924	L1927	Q1928	M1929	K1930	L1931	P1932	V1935	K1936	L1937	Q1938	M1939	C1940	N1941	L1942	L1943	E1944	Y1945	F1946	C1947	D1948	Q1949	L1950	L1951	Q1952	H1953	R1954	V1955	E1956	S1957	L1958	A1959	A1960	F1961	R1964	Y1965	V1966	D1967	L1968	L1969	N1972	Q1973	R1974					
S1975	R1976	Y1977	A1978	L1979	L1980	M1981	L1982	A1983	F1984	T1985	M1986	S1987	A1988	A1989	E1990	T1991	A1992	R1993	R1994	T1995	R1996	E1997	R1998	R1999	S2000	Q2003	E2004	Q2005	I2006	N2007	M2008	L2009	L2010	H2011	F2012	K2013	D2014	E2015	A2016	D2017	E2018	E2019	D2020	C2021	P2022	L2023	P2024	E2025	D2026	I2027	R2028	Q2029	D2030	L2031	Q2032	Q2036			
A2040	H2041	C2042	G2043	I2044	Q2045	L2046	GLU	GLY	GLU	GLU	GLU	PRO	GLU	GLU	GLU	THR	SER	SER	ARG	ARG	ARG	SER	LEU	LEU	GLU	THR	VAL	ARG	LEU	VAL	LYS	LYS	LYS	GLU	GLU	GLU	GLU	GLU	GLU	GLU	LEU	PRO	ALA	E2088	K2089	K2090	P2091	Q2092	S2093	L2094	Q2095	E2096	L2097	V2098					
R2104	W2105	A2106	Q2107	E2108	D2109	D2110	V2111	Q2112	S2113	L2116	V2117	M2120	F2121	S2122	L2123	L2124	H2125	R2126	Q2127	Y2128	D2129	G2130	L2131	G2132	E2133	L2134	L2135	R2136	L2137	L2138	P2139	R2140	A2141	Y2142	T2143	D2151	L2155	E2157	C2158	L2159	Q2161	L2162	R2163	S2164	L2165	L2166	L2167	V2168	Q2169	M2170	G2171	E2174							
E2175	E2176	N2177	N2178	N2179	Q2180	S2181	T2182	T2185	T2186	N2187	N2188	N2189	V2190	V2191	V2192	Q2193	Q2194	P2195	N2196	L2197	N2198	R2199	A2200	L2201	G2202	N2203	H2204	N2208	V2212	N2213	V2214	G2215	G2216	G2217	G2218	E2219	T2220	R2221	E2222	T2223	R2224	P2225	P2226	K2227	N2228	V2229	T2230	S2231	C2232	C2233	R2234	N2235	L2236	Y2238	F2239				

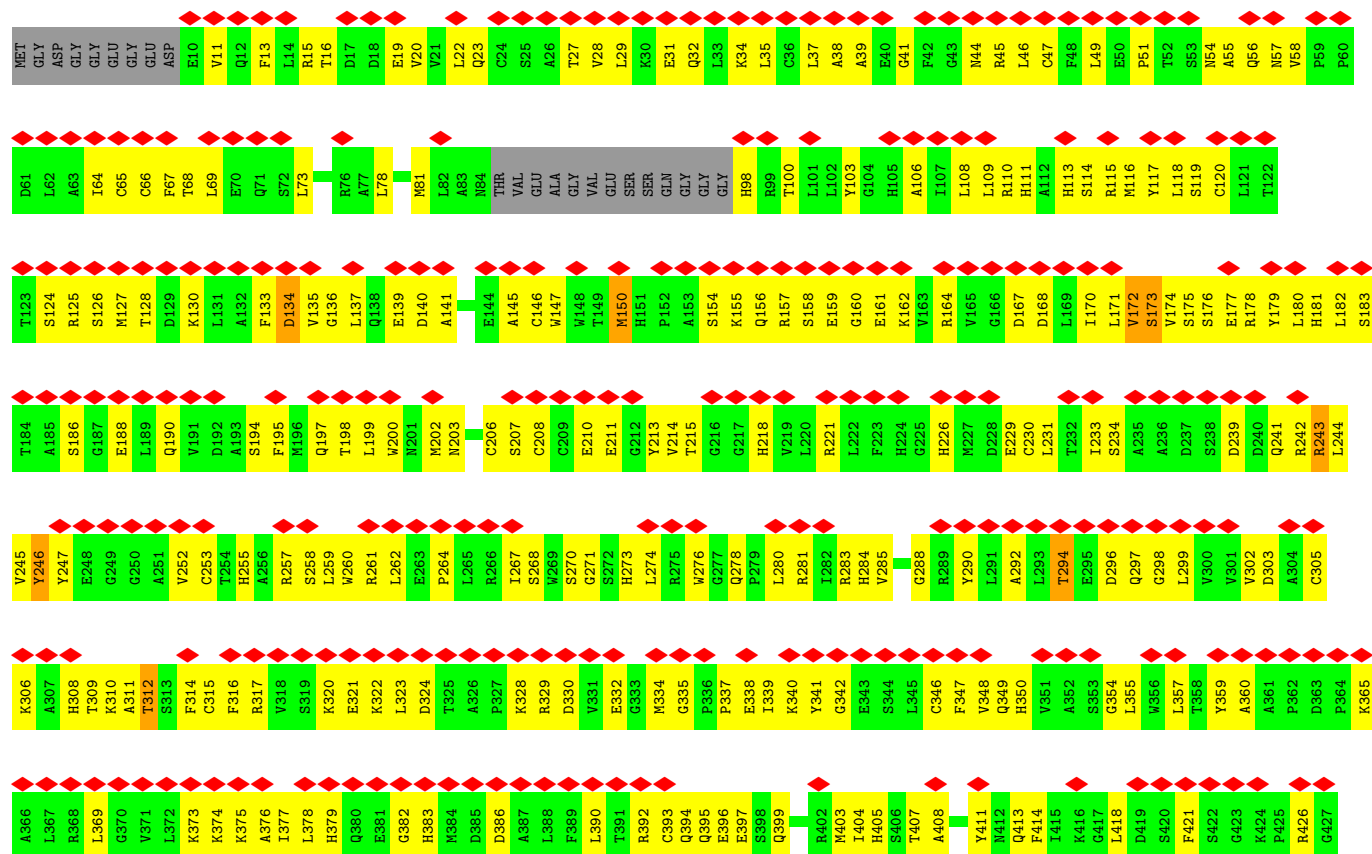
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L2905	V2906	P2907	Y2908	D2909	T2910	L2911	T2912	A2913	K2914	E2915	K2916	A2917	R2918	D2919	R2920	K2921	E2922	A2923	Q2924	E2925	V2926	L2927	K2928	F2929	L2930	Q2931	M2932	N2933	G2934	Y2935	A2936	V2937	T2938	R2939	GLY	LEU	L3000	L3001	L3002	L3003	P3004	L3005	L3006	R3007	Q3008	Q3009	F3010	T3011	R3012	H3013	C3014	L3015	F3016	F3017	L3018	S3019	T3020	P3021	A3022	K3023															
L2786	K2786	T2787	H2788	P2789	M2790	L2791	R2792	F2793	Y2794	K2795	T2796	F2797	S2798	E2799	K2800	D2801	K2802	E2803	L2804	Y2805	R2806	W2807	P2808	L2809	K2810	E2811	S2812	L2813	K2814	A2815	L2816	L2817	A2818	W2819	E2820	W2821	T2822	L2823	E2824	K2825	A2826	R2827	E2828	E2829	E2830	GLU	GLU	ARG	THR	L3000	L3001	L3002	L3003	L3004	L3005	L3006	R3007	L3008	L3009	K2891	Q2892	E2893	L2894	E2895	A2896	K2897	L2898	G2899	F3007	L3018	S3019	T3020	P3021	A3022	K3023
K2725	LYS	ALA	THR	VAL	ASP	ALA	GLU	GLY	W2734	F2735	D2736	P2737	R2738	P2739	W2740	E2741	T2742	L2743	W2744	V2745	I2746	I2747	F2748	E2749	K2750	L2751	D2752	S2753	F2754	L2755	W2756	K2757	F2758	A2759	E2760	Y2761	T2762	H2763	E2764	K2765	W2766	A2767	F2768	D2769	K2770	L2771	Q2772	W2773	W2774	W2775	S2776	Y2777	G2778	E2779	N2780	V2781	D2782	E2783	E2784																
L2786	K2786	T2787	H2788	P2789	M2790	L2791	R2792	F2793	Y2794	K2795	T2796	F2797	S2798	E2799	K2800	D2801	K2802	E2803	L2804	Y2805	R2806	W2807	P2808	L2809	K2810	E2811	S2812	L2813	K2814	A2815	L2816	L2817	A2818	W2819	E2820	W2821	T2822	L2823	E2824	K2825	A2826	R2827	E2828	E2829	E2830	GLU	GLU	ARG	THR	L3000	L3001	L3002	L3003	L3004	L3005	L3006	R3007	L3008	L3009	K2891	Q2892	E2893	L2894	E2895	A2896	K2897	L2898	G2899	F3007	L3018	S3019	T3020	P3021	A3022	K3023
THR	ALA	GLN	THR	TYR	ASP	PRO	ARG	GLU	GLY	Y2855	N2856	P2857	Q2858	P2859	R2860	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	K2891	Q2892	E2893	L2894	E2895	A2896	K2897	L2898	G2899	F3007	L3018	S3019	T3020	P3021	A3022	K3023														
L2905	V2906	P2907	Y2908	D2909	T2910	L2911	T2912	A2913	K2914	E2915	K2916	A2917	R2918	D2919	R2920	K2921	K2922	A2923	Q2924	E2925	V2926	L2927	K2928	F2929	L2930	Q2931	M2932	N2933	G2934	Y2935	A2936	V2937	T2938	R2939	GLY	LEU	L3000	L3001	L3002	L3003	P3004	L3005	L3006	R3007	Q3008	Q3009	F3010	T3011	R3012	H3013	C3014	L3015	F3016	F3017	L3018	S3019	T3020	P3021	A3022	K3023															
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		E3685	V3619	H3558	M3437	E3377	G3317	A3257	L3197	V3139	A3078
		E3686	W3620	R3558	V3438	Q3378	N3318	E3258	A3198	T3140	T3079
		E3687	L3559	L3559	G3439	L3379	I3319	S3259	A3199	L3141	V3080
			Q3560	Q3560	E3440	R3380	I3320	G3260	A3199	T3142	K3081
			G3561	G3561	I3441	L3381	R3321	A3261	A3199	T3143	K3082
			K3562	K3562	F3442	E3382	I3322	K3262	A3199	F3144	S3083
			V3563	V3563	I3443	A3383	I3323	Y3263	A3204		G3084
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• Molecule 1: Ryanodine receptor 1



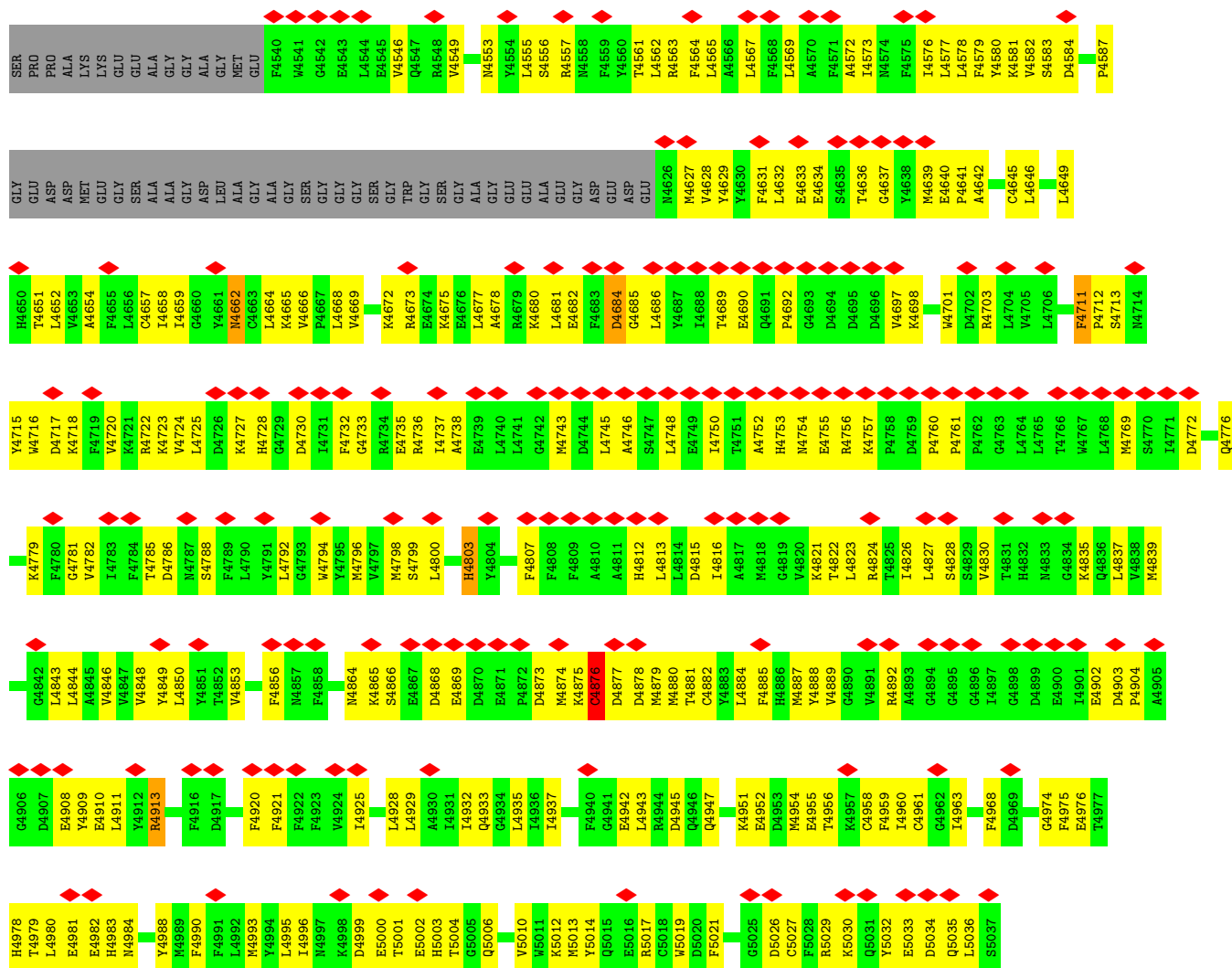
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D749	L750	S751	V752	P753	S754	I755	S756	F757	R758	I759	N760	G761	C762	P763	V764	Q765	G766	F767	F768	E769	A770	G771	W772	L773	D774	G775	L776	F777	F778	P779	V780	L781	S782	F783	S784	A785	G786	V787	K788	W789	R790	F791	L792	L793	G794	G795	R796	H797	G798	E799	F800	K801	F802	L803	P804	P805	P806	G807	Y808			
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THR	VAL	ASP	ALA	GLU	GLY	N2734	F2735	D2736	P2737	R2738	P2739	V2740	E2741	T2742	L2743	N2744	V2745	I2746	I2747	P2748	E2749	K2750	L2751	D2752	S2753	F2754	L2755	N2756	K2757	F2758	A2759	E2760	Y2761	T2762	H2763	E2764	K2765	W2766	A2767	F2768	D2769	K2770	I2771	Q2772	N2773	K2774	W2775	S2776	Y2777	G2778	E2779	N2780	V2781	D2782	E2783	E2784	L2785	K2786	T2787	
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THR	VAL	ASP	ALA	GLU	GLY	N2734	F2735	D2736	P2737	R2738	P2739	V2740	E2741	T2742	L2743	N2744	V2745	I2746	I2747	P2748	E2749	K2750	L2751	D2752	S2753	F2754	L2755	N2756	K2757	F2758	A2759	E2760	Y2761	T2762	H2763	E2764	K2765	W2766	A2767	F2768	D2769	K2770	I2771	Q2772	N2773	K2774	W2775	S2776	Y2777	G2778	E2779	N2780	V2781	D2782	E2783	E2784	L2785	K2786	T2787	
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R3570	N3450	G3390	D3330	E3270	L3210	H3150	K3090	H3030	S2970	ASP
W3571	F3451	E3391	E3331	E3271	N3211	Q3151	G3091	A3031	Q2971	PRO
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A3601	ALA	R3420	T3361	P3301	P3241	T3181	GLN	D3060	K3000	N2881
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L3603	ASP	H3422	I3362	G3302	I3243	V3183	G3124	P3062	L3002	LYS
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L3606	GLY	T3425	L3365	T3305	V3245	K3185	G3127	V3065	P3004	T2885
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● Molecule 1: Ryanodine receptor 1



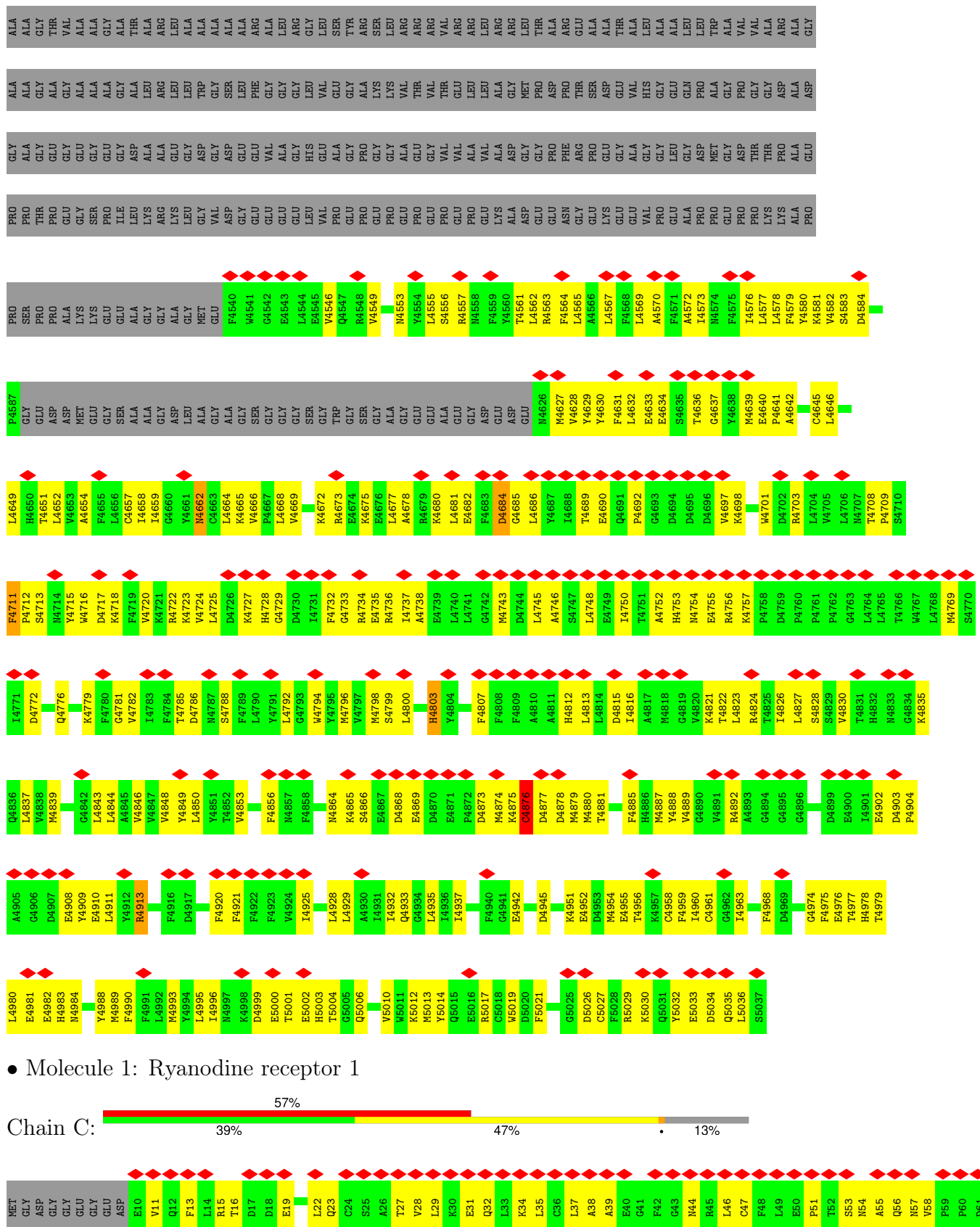
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A1789	L1720	L1659	V1597	N1537	G1477	VAL	GLY	V1295	P1233	S1173	I1053
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P1795	A1728	T1666	S1604	V1543	V1483	D1423	PRO	S1241	H1302	A1118	E1059
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				A1531	A1531	V1472			N1229	M1170	P1107
				N1532	N1532				M1230	S1171	E1108
				G1533	G1533				Q1231		L1109
				K1534	K1534						R1110
				E1535	E1535						P1111



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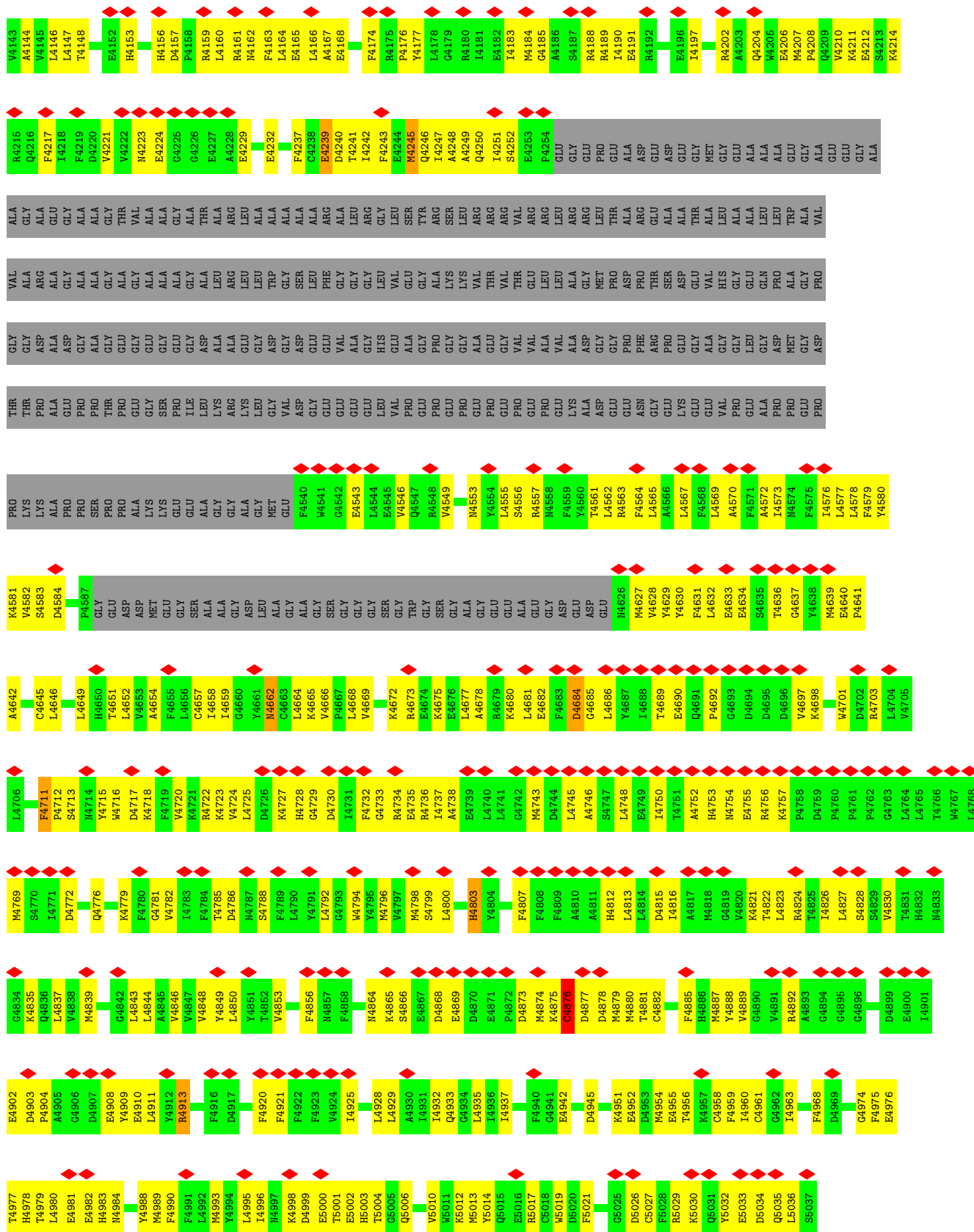
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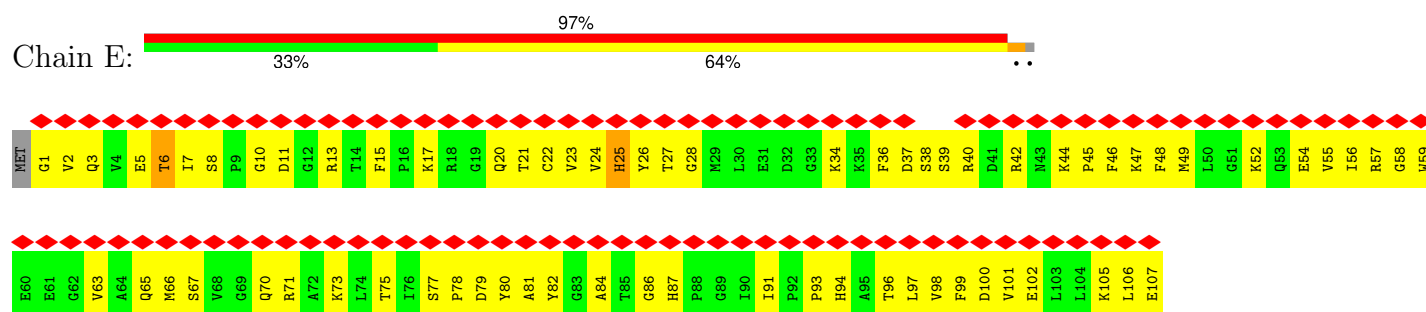


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N3313	C3193	C3193	V3134	R3073	H3013	R2955	E2895	THR	W2775	L2714	Y2655	L2596
S3314	G3254	L3194	A3135	S3074	C3014	F2955	A2896	GLU	S2776	V2715	C2656	A2598
L3315	G3255	A3195	L3136	L3075	L3015	A2956	K2897	LYS	Y2777	D2716	C2657	Q2599
L3316	L3256	R3196	L3137	D3076	Y3016	F2957	G2898	LYS	G2778	L2717	L2657	R2600
G3317	A3257	L3197	P3138	A3077	F3017	N3017	G2899	THR	E2779	A2717	P2658	D2601
N3318	E3258	K3198	V3139	R3078	L3018	G2958	G2900	ARG	N2780	S2718	T2659	V2602
I3319	S3259	A3199	T3141	T3079	S3019	F2959	T2901	LYS	E2781	Y2719	G2660	L2603
R3320	L3320	A3200	T3142	V3080	T3020	Q2961	H2902	ILE	D2782	S2720	A2661	
R3321	A3261	M3201	T3143	M3081	P3021	Q2962	P2903	SER	E2783	K2722		
I3322	R3262	P3202	L3143	K3082	A3022	L2963						
S3323	Y3263	V3203	K3023	S3083	K3023							

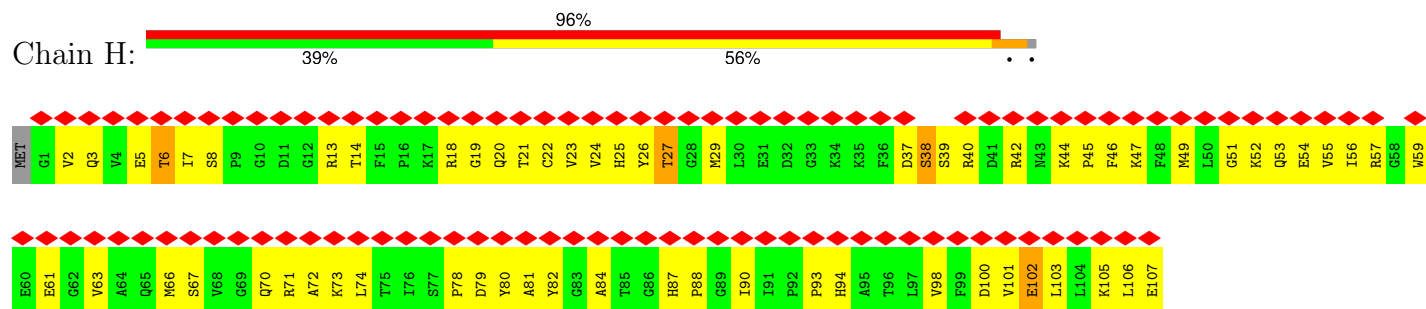
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L4012	E4015	L4016	L4017	D4018	L4019	M4023	V4024	V4025	M4026	L4027	L4028	S4029	L4030	L4031	E4032	V4036	M4037	G4038	M4039	I4040	A4041	R4042	Q4043	M4044	V4045	D4046	M4047	L4048	V4049	E4050	S4053	E4056	L4059	K4060	F4061	F4062	D4063	M4064	F4065	L4066	K4067	L4068	M4069	D4070	I4071	V4072	G4073	S4074	E4075	A4076	F4077	Q4078	D4079								
Q3946	G3947	K3948	R3949	N3950	F3951	K3952	K3953	A3954	M3955	V3956	K3957	K3958	K3959	L3965	T3966	E3967	V3968	T3969	Q3970	G3971	C3972	N3976	Q3977	L3980	A3981	H3982	S3983	R3984	L3985	V3986	A3987	A3988	V3989	G3990	G3991	L3992	H3993	H3994	V3995	F3996	A3997	H3998	M3999	M4000	M4001	K4002	L4003	A4004	Q4005	D4006	S4007	S4008	Q4009	I4010	E4011						
T3881	Q3882	F3885	F3886	F3887	L3888	Q3889	L3890	K3894	L3891	C3892	E3893	G3894	H3895	H3896	H3897	D3898	F3899	Q3900	N3901	Y3902	L3903	R3904	T3905	Q3906	T3910	T3911	T3912	N3913	N3914	L3915	L3916	T3917	T3918	V3919	D3920	Y3921	L3922	L3923	L3924	L3925	Q3927	E3928	S3929	D3932	F3933	Y3934	K3935	Y3936	Y3937	Y3938	G3939	K3940	D3941	Y3942	L3943						
Q3946	G3947	K3948	R3949	N3950	F3951	K3952	K3953	A3954	M3955	V3956	K3957	K3958	K3959	L3965	T3966	E3967	V3968	T3969	Q3970	G3971	C3972	N3976	Q3977	L3980	A3981	H3982	S3983	R3984	L3985	V3986	A3987	A3988	V3989	G3990	G3991	L3992	H3993	H3994	V3995	F3996	A3997	H3998	M3999	M4000	M4001	K4002	L4003	A4004	Q4005	D4006	S4007	S4008	Q4009	I4010	E4011						
L4012	E4015	L4016	L4017	D4018	L4019	M4023	V4024	V4025	M4026	L4027	L4028	S4029	L4030	L4031	E4032	V4036	M4037	G4038	M4039	I4040	A4041	R4042	Q4043	M4044	V4045	D4046	M4047	L4048	V4049	E4050	S4053	E4056	L4059	K4060	F4061	F4062	D4063	M4064	F4065	L4066	K4067	L4068	M4069	D4070	I4071	V4072	G4073	S4074	E4075	A4076	F4077	Q4078	D4079								
K3384	A3385	E3386	A3387	E3388	E3389	G3390	E3391	L3392	L3393	V3394	R3395	D3396	E3397	F3398	S3399	V3400	L3401	C3402	R3403	D3404	L3405	Y3406	A3407	L3408	Y3409	P3410	L3411	L3412	I3413	R3414	Y3415	V3416	D3417	N3418	N3419	R3420	A3421	H3422	M3423	L3424	T3425	E3426	F3427	N3428	A3429	N3430	A3431	E3432	E3433	L3434	F3435	R3436	M3437	V3438	G3439	E3440	I3441	F3442	I3443		
Y3444	K3445	S3446	K3447	S3448	H3449	N3450	F3451	K3452	R3453	E3454	E3455	K3456	N3457	F3458	V3459	V3460	Q3461	N3462	E3463	I3464	N3465	N3466	M3467	S3468	F3469	L3470	L3471	A3472	D3473	S3474	K3475	K3476	K3477	M3478	A3479	LYS	ALA	GLY	ASP	ALA	GLN	SER	GLY	GLY	SER	ASP	GLN	GLU	A3429	THR	N3430	A3431	LYS	E3432	E3433	L3434	F3435	R3436	M3437	R3502	Y3503
S3504	V3505	Q3506	T3507	S3508	L3509	T3510	V3511	Q3512	T3513	L3514	K3515	K3516	M3517	L3518	P3519	L3520	G3521	L3522	N3523	M3524	A3525	A3526	P3527	T3528	D3529	Q3530	D3531	L3532	L3533	M3534	L3535	A3536	K3537	T3538	R3539	Y3540	A3541	L3542	K3543	D3544	T3545	D3546	E3547	E3548	V3549	R3550	E3551	F3552	L3553	Q3554	N3555	N3556	L3557	H3558	L3559	Q3560	K3562	V3563			
E3564	G3565	S3566	P3567	S3568	L3569	R3570	K3571	Q3572	M3573	A3574	L3575	Y3576	R3577	G3578	L3579	P3580	Q3581	R3582	E3583	E3584	D3585	A3586	D3587	S3588	P3589	K3590	K3591	I3592	R3593	R3594	R3595	V3596	Q3597	E3598	V3599	S3600	A3601	V3602	L3603	Y3604	H3605	L3606	E3607	Q3608	T3609	E3610	H3611	P3612	Y3613	K3614	K3615	K3616	K3617	A3618	V3619	V3620	H3621	K3622	L3623		
L3624	S3625	K3626	Q3627	R3628	R3629	K3630	A3631	V3632	V3633	A3634	C3635	F3636	R3637	M3638	T3639	P3640	L3641	Y3642	N3643	L3644	H3647	K3648	K3649	K3650	N3651	K3652	F3653	L3654	E3655	K3658	M3661	T3662	L3663	T3664	E3665	D3666	H3667	S3668	F3669	E3670	D3671	K3672	K3673	T3674	D3675	L3676	K3679	V3680	C3681	E3682	Q3683	E3684	E3685	E3686	E3687						
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F3753	E3754	E3755	K3756	E3757	M3758	E3759	K3760	Q3761	R3762	L3763	Q3766	S3767	R3768	L3769	L3770	H3771	T3772	R3773	G3774	A3775	A3776	E3777	M3778	V3779	L3780	K3781	S3782	L3783	S3784	A3785	C3786	K3787	G3788	E3789	T3790	M3793	S3796	T3797	L3798	K3799	L3800	G3801	L3802	L3803	L3804	L3805	N3806	G3807	G3808	E3811	V3812	Q3813	Q3814	K3815	M3816						
Y3819	L3820	K3821	D3822	D3823	K3824	E3825	V3826	G3827	F3828	F3829	Q3830	S3831	L3832	Q3833	A3834	L3835	K3836	Q3837	T3838	C3839	S3840	V3841	L3842	D3843	L3844	F3847	N3848	R3849	Q3850	E3854	G3855	L3856	G3857	M3858	V3859	N3860	E3861	D3862	G3863	T3864	V3865	L3866	N3867	R3868	Q3869	N3870	G3871	E3872	K3873	V3874	M3875	A3876	D3877	E3878	E3879	F3880					
T3881	Q3882	F3885	F3886	F3887	L3888	Q3889	L3890	K3894	L3891	C3892	E3893	G3894	H3895	H3896	H3897	D3898	F3899	Q3900	N3901	Y3902	L3903	R3904	T3905	Q3906	T3910	T3911	T3912	N3913	N3914	L3915	L3916	T3917	T3918	V3919	D3920	Y3921	L3922	L3923	L3924	L3925	Q3927	E3928	S3929	D3932	F3933	Y3934	K3935	Y3936	Y3937	Y3938	G3939	K3940	D3941	Y3942	L3943						
Q3946	G3947	K3948	R3949	N3950	F3951	K3952	K3953	A3954	M3955	V3956	K3957	K3958	K3959	L3965	T3966	E3967	V3968	T3969	Q3970	G3971	C3972	N3976	Q3977	L3980	A3981	H3982	S3983	R3984	L3985	V3986	A3987	A3988	V3989	G3990	G3991	L3992	H3993	H3994	V3995	F3996	A3997	H3998	M3999	M4000	M4001	K4002	L4003	A4004	Q4005	D4006	S4007	S4008	Q4009	I4010	E4011						
L4012	E4015	L4016	L4017	D4018	L4019	M4023	V4024	V4025	M4026	L4027	L4028	S4029	L4030	L4031	E4032	V4036	M4037	G4038	M4039	I4040	A4041	R4042	Q4043	M4044	V4045	D4046	M4047	L4048	V4049	E4050	S4053	E4056	L4059	K4060	F4061	F4062	D4063	M4064	F4065	L4066	K4067	L4068	M4069	D4070	I4071	V4072	G4073	S4074	E4075	A4076	F4077	Q4078	D4079								



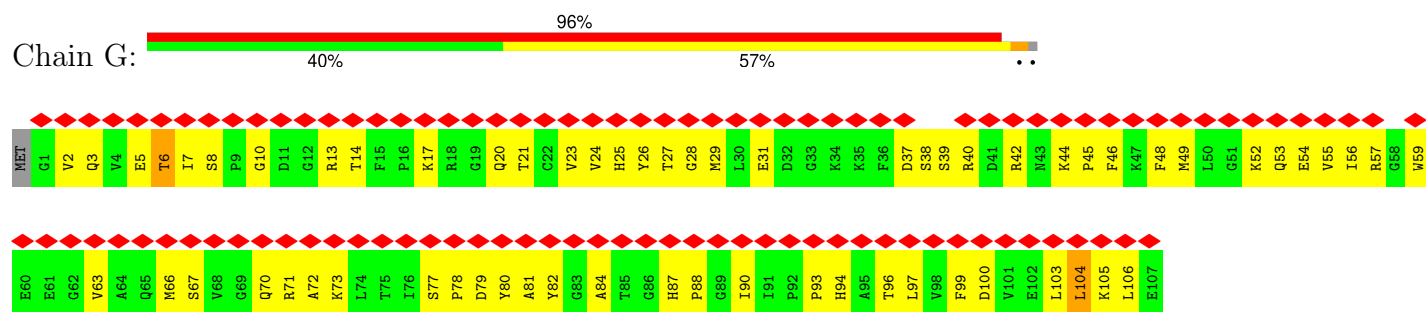
- Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



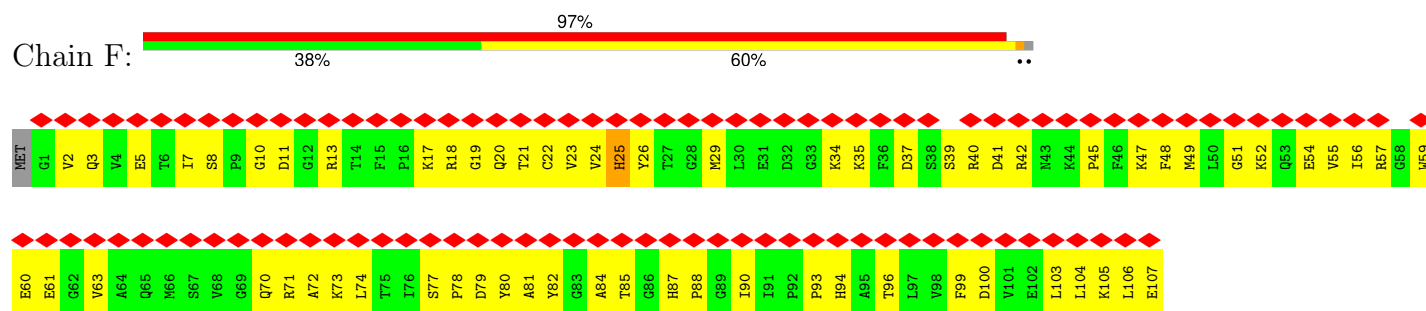
- Molecule 2: Peptidyl-prolyl cis-trans isomerase FKBP1A



- 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	17284	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	0.224	Depositor
Minimum map value	-0.085	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.015	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	427.008, 427.008, 427.008	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.834, 0.834, 0.834	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CA, ZN, ATP, A1BD2

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	0.19	0/35977	0.51	6/48726 (0.0%)
1	B	0.20	0/35977	0.51	6/48726 (0.0%)
1	C	0.20	0/35977	0.51	6/48726 (0.0%)
1	D	0.20	0/35977	0.51	6/48726 (0.0%)
2	E	0.21	0/850	0.60	0/1146
2	F	0.20	0/850	0.57	0/1146
2	G	0.18	0/850	0.51	0/1146
2	H	0.19	0/850	0.59	0/1146
All	All	0.20	0/147308	0.51	24/199488 (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	2
1	B	0	2
1	C	0	2
1	D	0	2
All	All	0	8

There are no bond length outliers.

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	4876	CYS	CA-CB-SG	7.38	131.37	114.40
1	A	4876	CYS	CA-CB-SG	7.37	131.34	114.40
1	B	4876	CYS	CA-CB-SG	7.35	131.31	114.40
1	D	4876	CYS	CA-CB-SG	7.35	131.30	114.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	2481	LYS	CA-C-N	7.10	135.10	121.54

There are no chirality outliers.

5 of 8 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1671	ARG	Sidechain
1	A	4876	CYS	Peptide
1	B	1671	ARG	Sidechain
1	B	4876	CYS	Peptide
1	D	1671	ARG	Sidechain

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	35150	0	34793	2264	0
1	B	35150	0	34793	2262	0
1	C	35150	0	34793	2299	0
1	D	35150	0	34793	2289	0
2	E	831	0	831	73	0
2	F	831	0	830	68	0
2	G	831	0	831	76	0
2	H	831	0	831	81	0
3	A	31	0	12	1	0
3	B	31	0	12	2	0
3	C	31	0	12	2	0
3	D	31	0	12	2	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	18	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	18	0	0	1	0
6	C	18	0	0	1	0
6	D	18	0	0	1	0
All	All	144128	0	142543	9179	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 32.

The worst 5 of 9179 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)
2:F:40:ARG:NH2	1:B:674:PHE:CE2	1.90	1.19
1:D:1220:GLN:HB3	1:C:3522:LEU:HD13	1.12	1.12
1:A:3522:LEU:HD13	1:B:1220:GLN:HB3	1.09	1.07
1:B:3522:LEU:HD13	1:C:1220:GLN:HB3	1.11	1.07
1:A:1220:GLN:HB3	1:D:3522:LEU:HD13	1.06	1.06

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%)	4250 (97%)	129 (3%)	6 (0%)	48	83
1	B	4385/5037 (87%)	4250 (97%)	129 (3%)	6 (0%)	48	83
1	C	4385/5037 (87%)	4249 (97%)	130 (3%)	6 (0%)	48	83
1	D	4385/5037 (87%)	4250 (97%)	129 (3%)	6 (0%)	48	83
2	E	105/108 (97%)	97 (92%)	8 (8%)	0	100	100
2	F	105/108 (97%)	102 (97%)	3 (3%)	0	100	100
2	G	105/108 (97%)	103 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	H	105/108 (97%)	103 (98%)	2 (2%)	0	100	100
All	All	17960/20580 (87%)	17404 (97%)	532 (3%)	24 (0%)	50	83

5 of 24 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	908	VAL
1	A	3300	ALA
1	A	4711	PHE
1	B	908	VAL
1	B	3300	ALA

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	3836/4276 (90%)	3747 (98%)	89 (2%)	45	64
1	B	3836/4276 (90%)	3748 (98%)	88 (2%)	45	64
1	C	3836/4276 (90%)	3750 (98%)	86 (2%)	47	65
1	D	3836/4276 (90%)	3748 (98%)	88 (2%)	45	64
2	E	89/90 (99%)	87 (98%)	2 (2%)	47	65
2	F	89/90 (99%)	85 (96%)	4 (4%)	23	46
2	G	89/90 (99%)	85 (96%)	4 (4%)	23	46
2	H	89/90 (99%)	83 (93%)	6 (7%)	13	34
All	All	15700/17464 (90%)	15333 (98%)	367 (2%)	47	64

5 of 367 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	2268[A]	GLN
1	C	243	ARG
1	D	2461	VAL
1	D	3232	LEU

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Mol	Chain	Res	Type
1	C	1231[B]	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 275 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	1837	GLN
1	C	2180	GLN
1	C	3734	HIS
1	B	1837	GLN
1	B	1631	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 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	A1BD2	C	5304	-	16,19,19	0.81	0	15,28,28	1.19	2 (13%)
3	ATP	B	5301	-	28,33,33	0.68	0	34,52,52	0.87	2 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	ATP	C	5301	-	28,33,33	0.68	0	34,52,52	0.87	2 (5%)
6	A1BD2	A	5304	-	16,19,19	0.82	0	15,28,28	1.21	2 (13%)
6	A1BD2	B	5304	-	16,19,19	0.82	0	15,28,28	1.22	2 (13%)
3	ATP	A	5301	-	28,33,33	0.68	0	34,52,52	0.87	2 (5%)
3	ATP	D	5301	-	28,33,33	0.68	0	34,52,52	0.87	2 (5%)
6	A1BD2	D	5304	-	16,19,19	0.82	0	15,28,28	1.21	2 (13%)

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
6	A1BD2	C	5304	-	-	0/4/6/6	0/2/2/2
3	ATP	B	5301	-	-	5/18/38/38	0/3/3/3
3	ATP	C	5301	-	-	5/18/38/38	0/3/3/3
6	A1BD2	A	5304	-	-	0/4/6/6	0/2/2/2
6	A1BD2	B	5304	-	-	0/4/6/6	0/2/2/2
3	ATP	A	5301	-	-	5/18/38/38	0/3/3/3
3	ATP	D	5301	-	-	5/18/38/38	0/3/3/3
6	A1BD2	D	5304	-	-	0/4/6/6	0/2/2/2

There are no bond length outliers.

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	5301	ATP	C4'-O4'-C1'	-3.65	106.58	109.92
3	A	5301	ATP	C4'-O4'-C1'	-3.64	106.59	109.92
3	B	5301	ATP	C4'-O4'-C1'	-3.64	106.59	109.92
3	C	5301	ATP	C4'-O4'-C1'	-3.62	106.61	109.92
6	A	5304	A1BD2	C2-N1-C5	-2.92	119.52	122.22

There are no chirality outliers.

5 of 20 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	D	5301	ATP	O4'-C4'-C5'-O5'
3	A	5301	ATP	O4'-C4'-C5'-O5'
3	B	5301	ATP	O4'-C4'-C5'-O5'

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
3	C	5301	ATP	O4'-C4'-C5'-O5'
3	A	5301	ATP	PG-O3B-PB-O3A

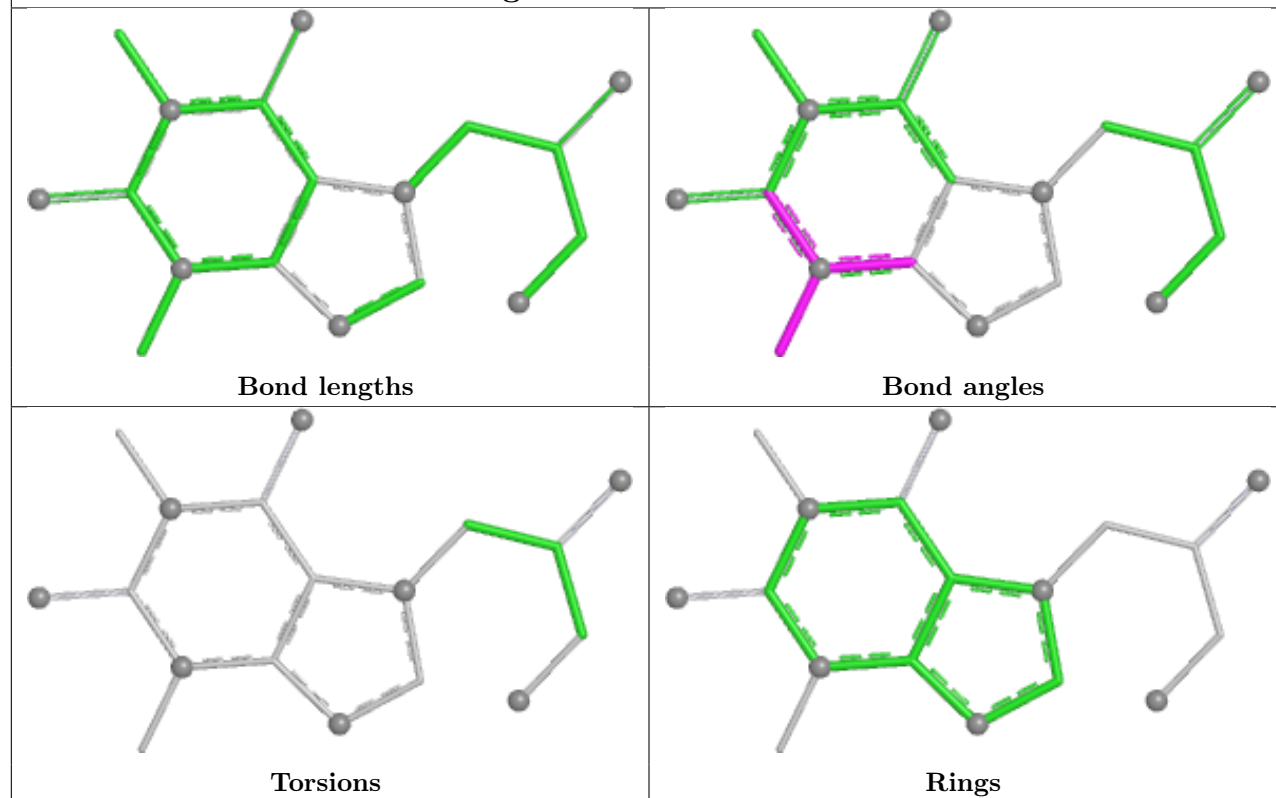
There are no ring outliers.

8 monomers are involved in 11 short contacts:

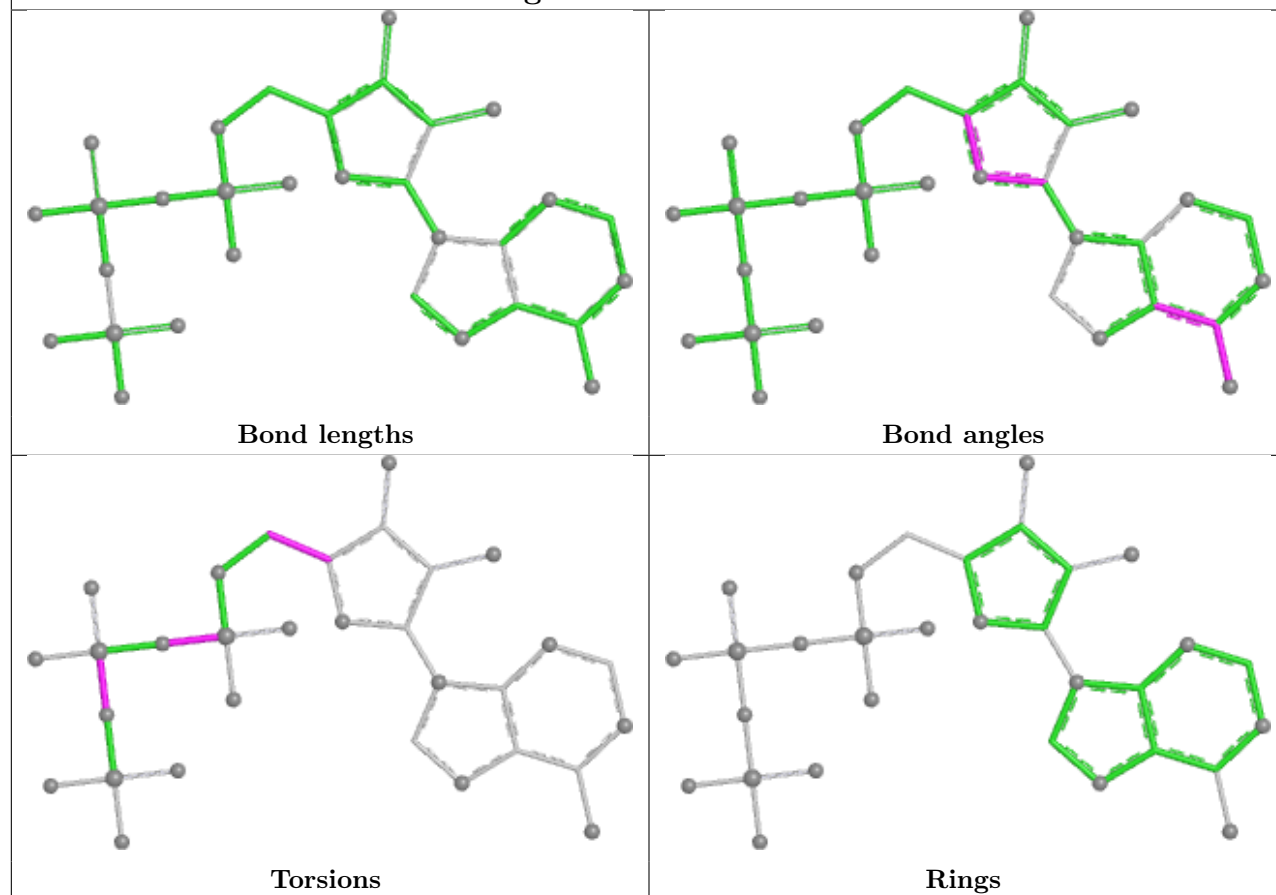
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	C	5304	A1BD2	1	0
3	B	5301	ATP	2	0
3	C	5301	ATP	2	0
6	A	5304	A1BD2	1	0
6	B	5304	A1BD2	1	0
3	A	5301	ATP	1	0
3	D	5301	ATP	2	0
6	D	5304	A1BD2	1	0

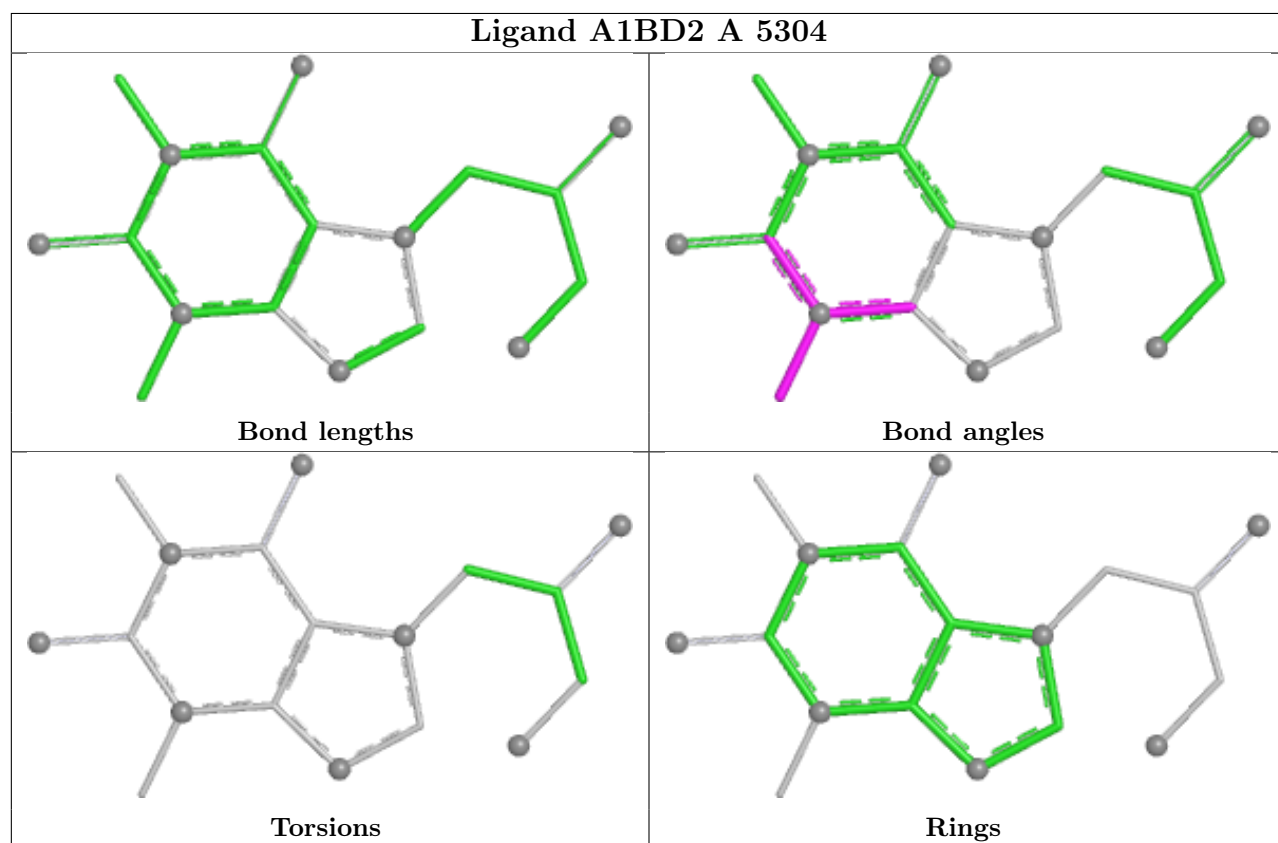
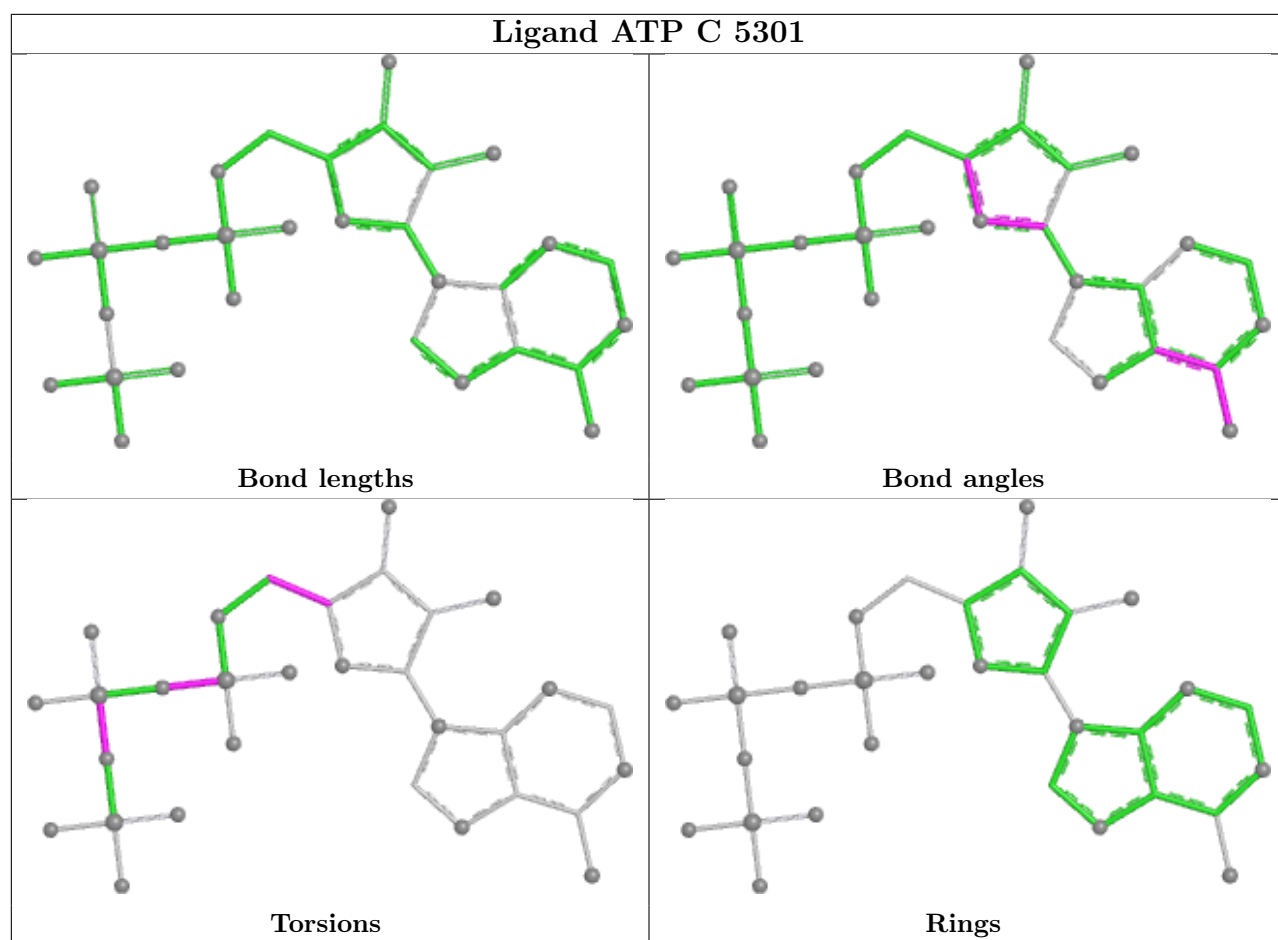
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

Ligand A1BD2 C 5304

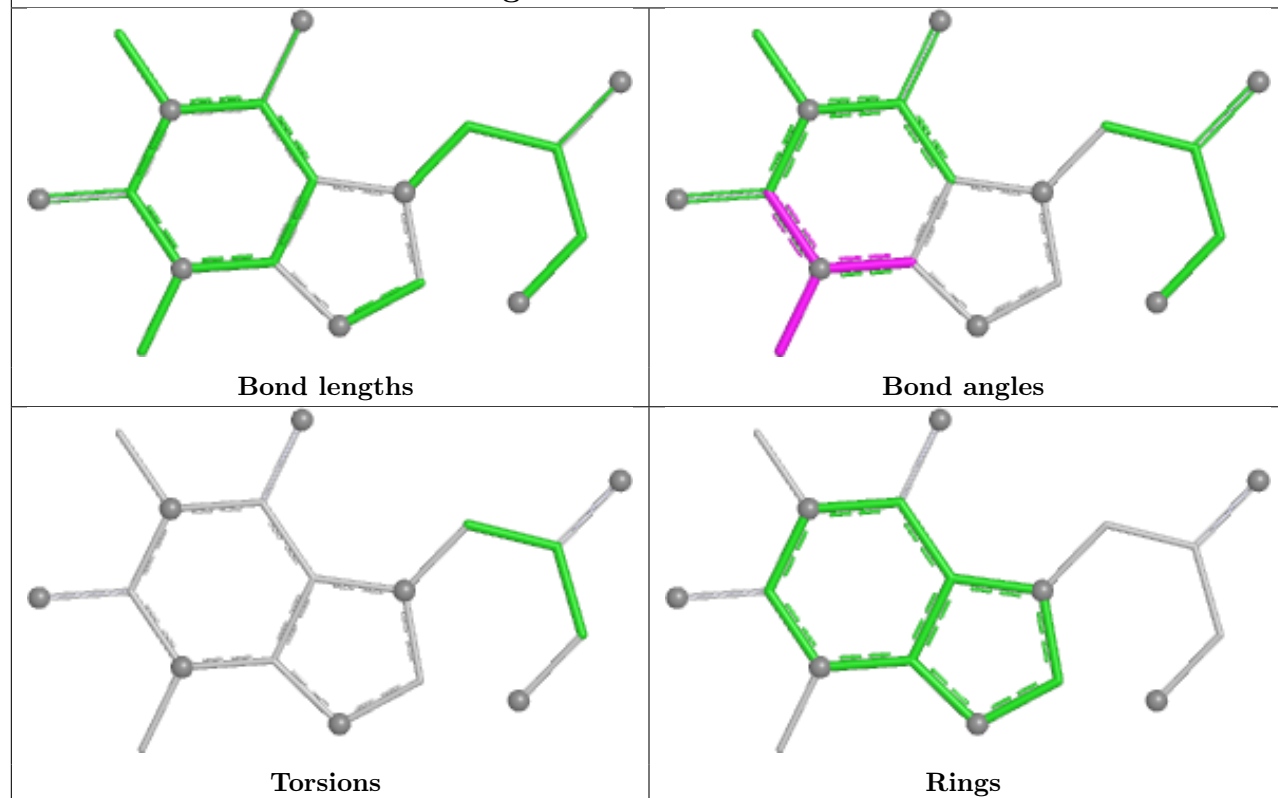


Ligand ATP B 5301

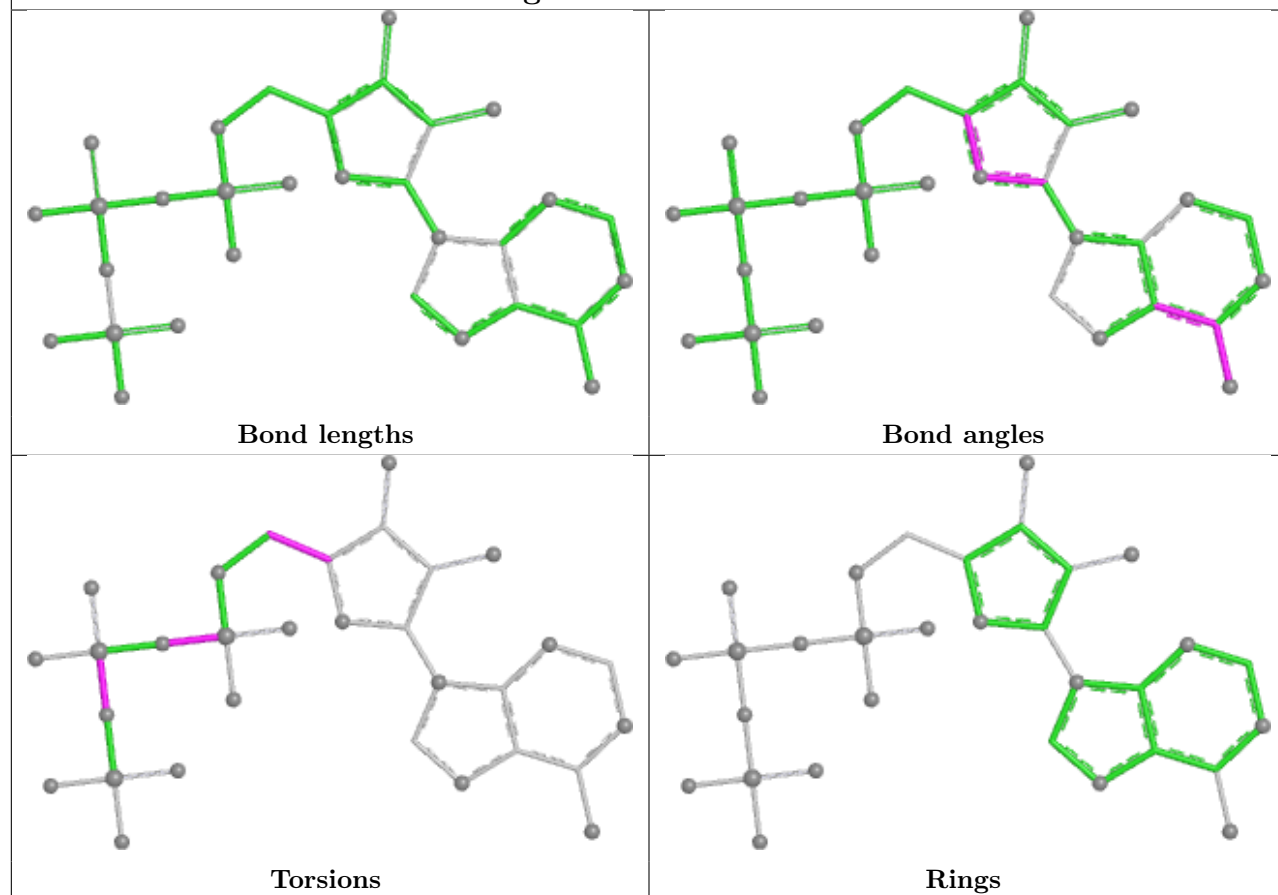


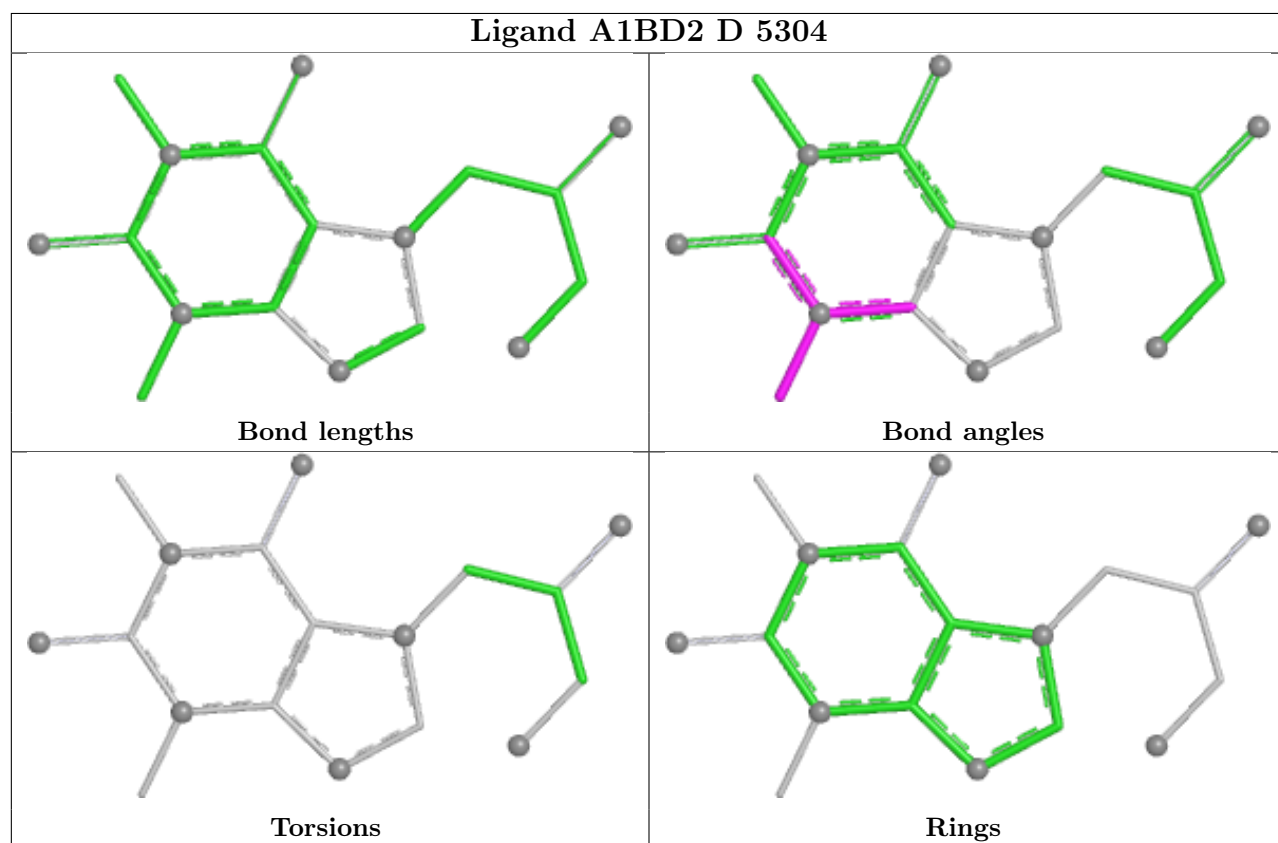
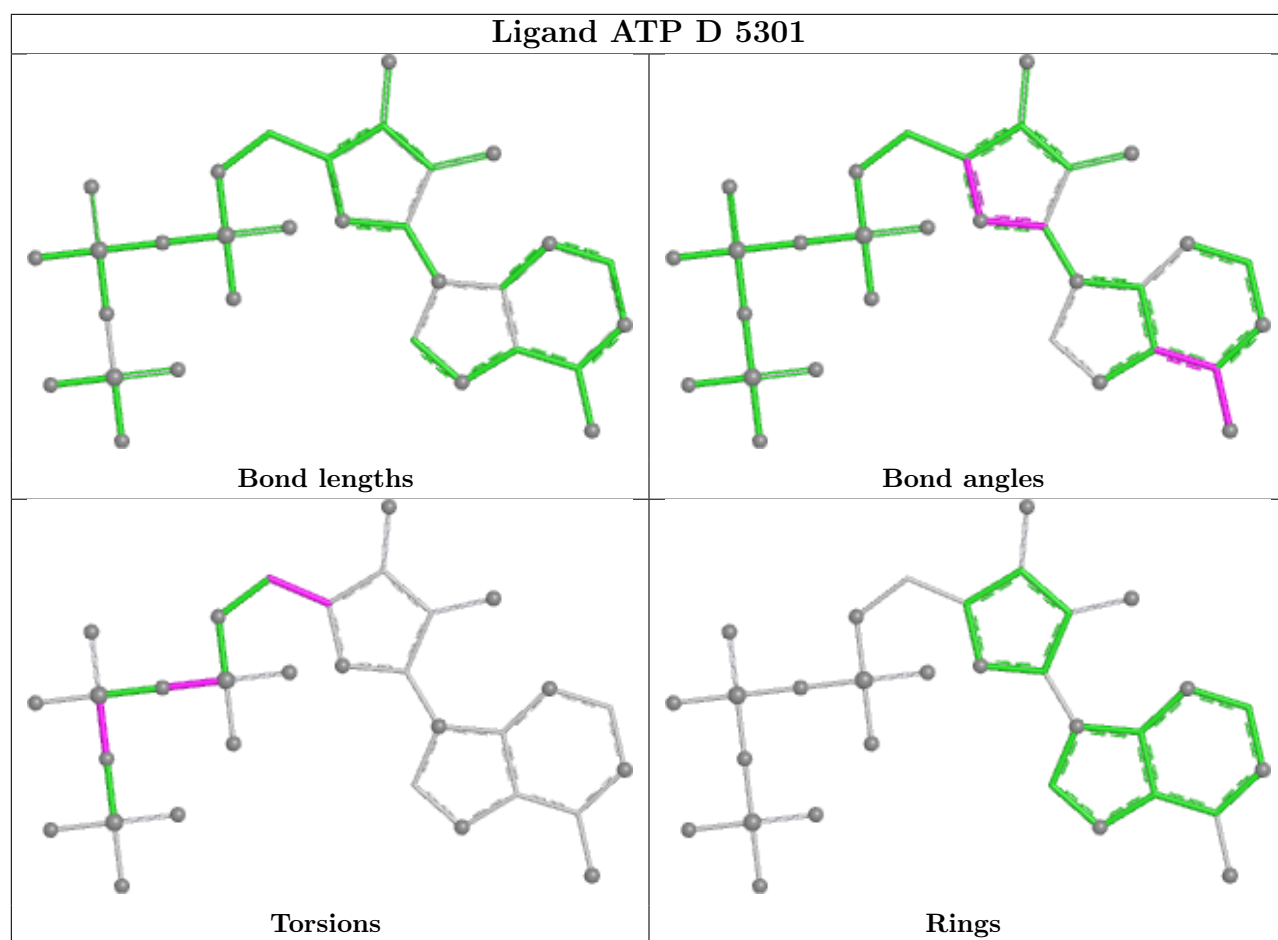


Ligand A1BD2 B 5304



Ligand ATP A 5301





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.

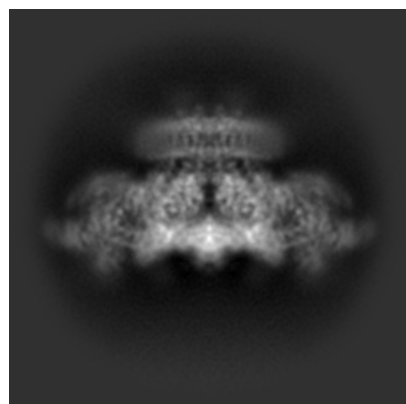
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-47388. These allow visual inspection of the internal detail of the map and identification of artifacts.

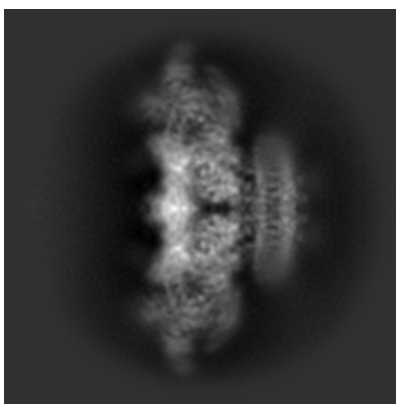
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

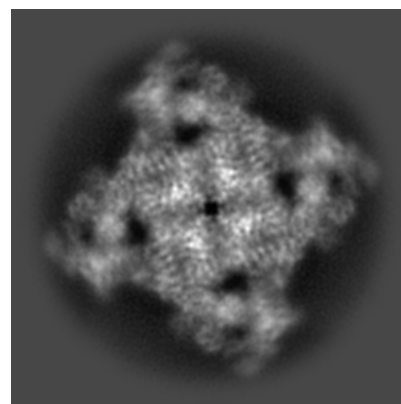
6.1.1 Primary map



X

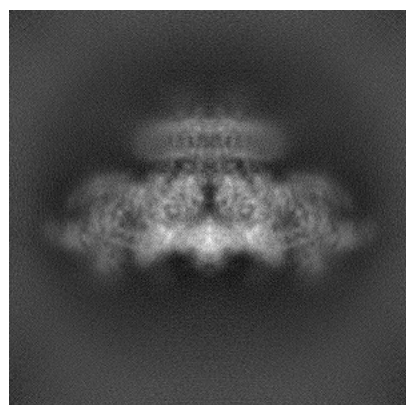


Y

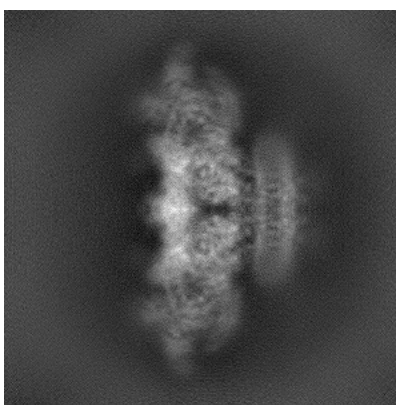


Z

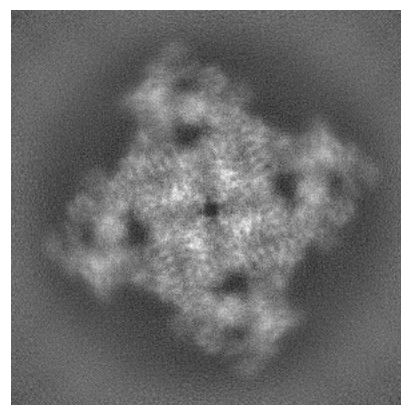
6.1.2 Raw map



X



Y

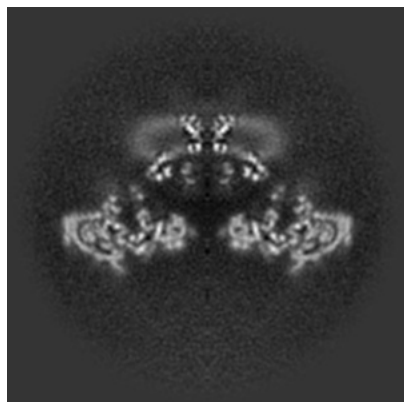


Z

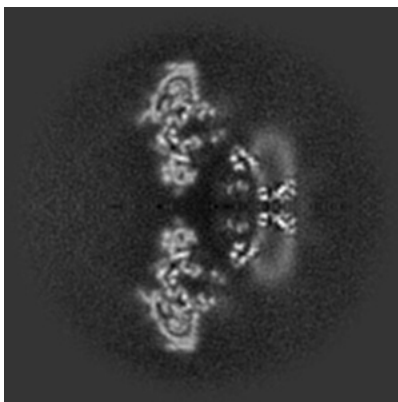
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

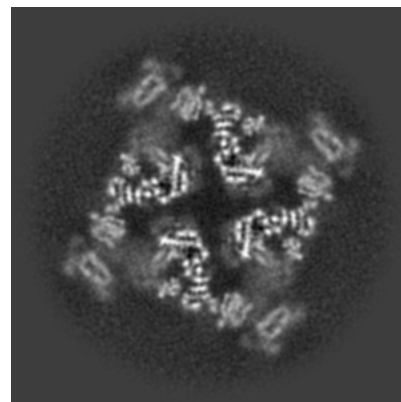
6.2.1 Primary map



X Index: 256

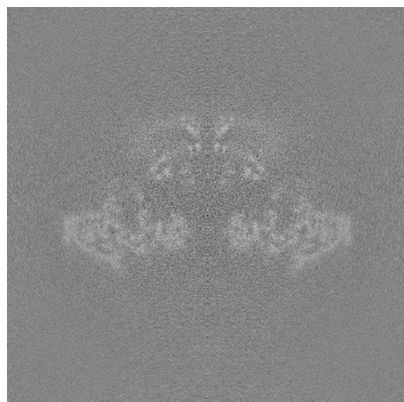


Y Index: 256

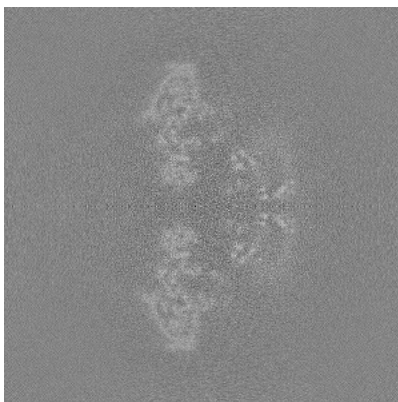


Z Index: 256

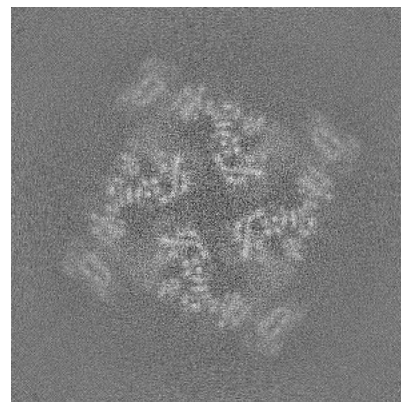
6.2.2 Raw map



X Index: 256



Y Index: 256

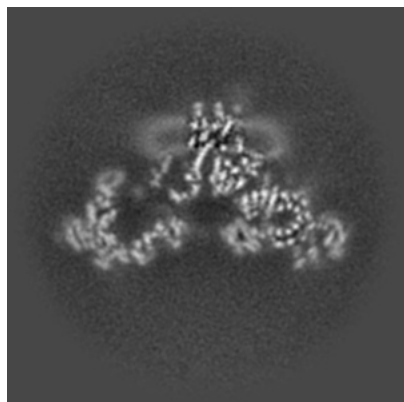


Z Index: 256

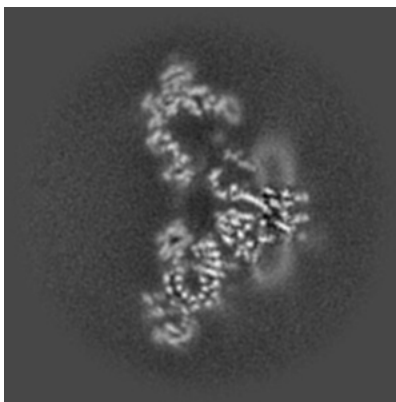
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

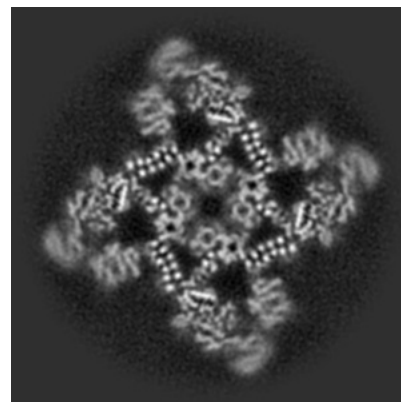
6.3.1 Primary map



X Index: 269

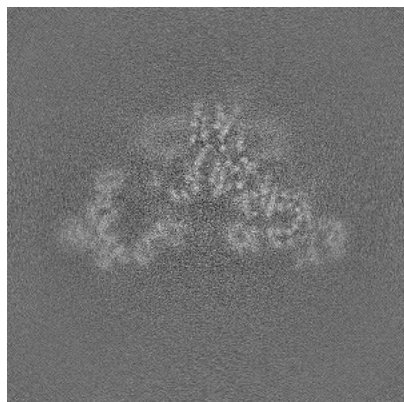


Y Index: 269

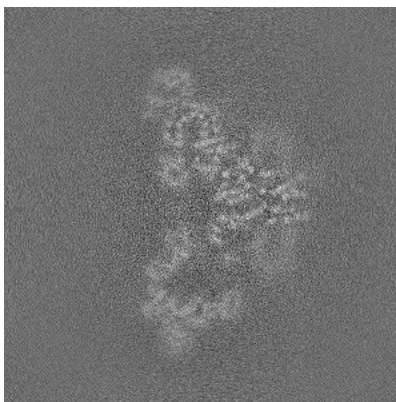


Z Index: 229

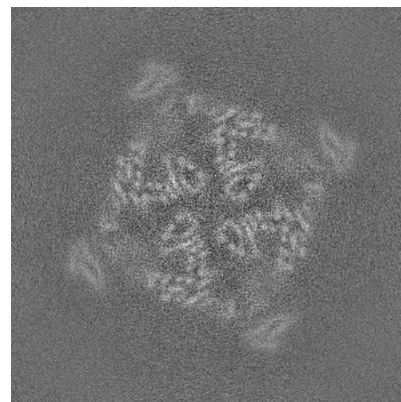
6.3.2 Raw map



X Index: 271



Y Index: 241

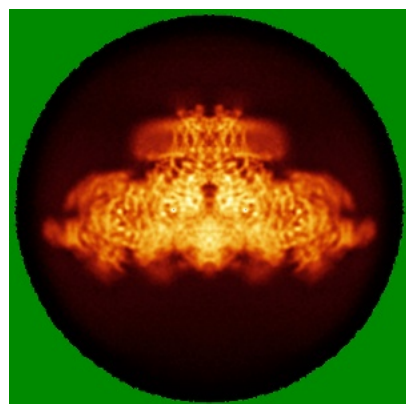


Z Index: 268

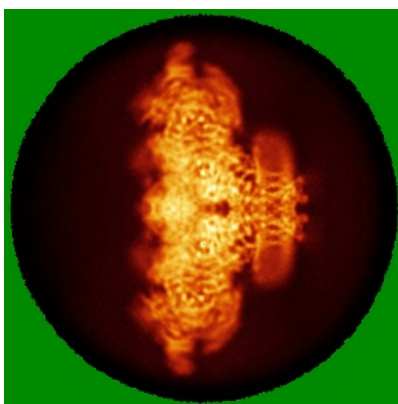
The images above show the largest variance slices of the map in three orthogonal directions.

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

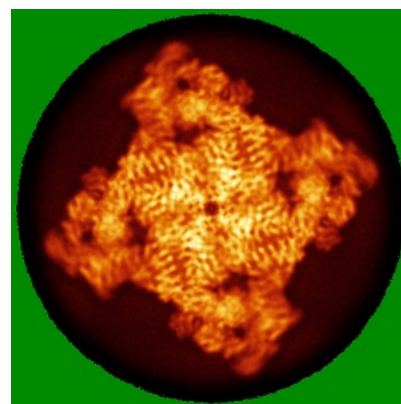
6.4.1 Primary map



X

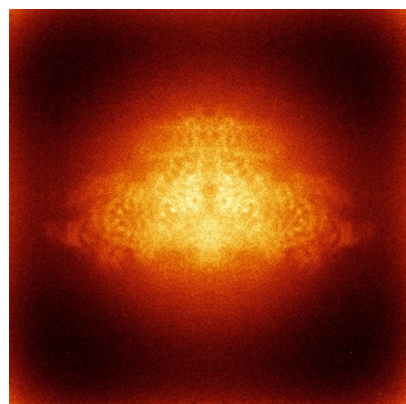


Y

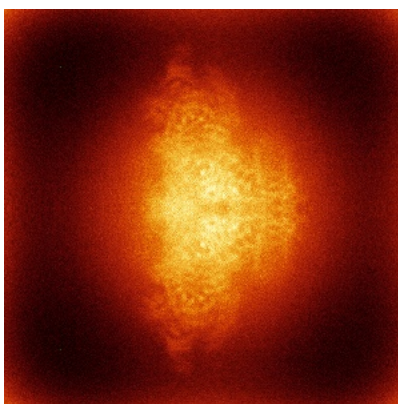


Z

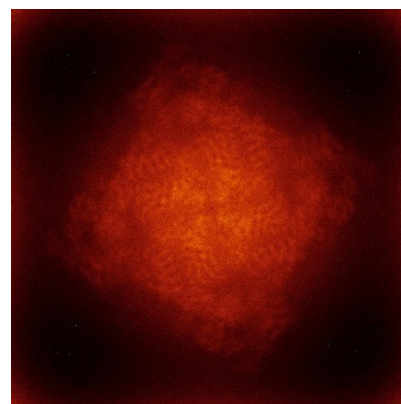
6.4.2 Raw map



X



Y

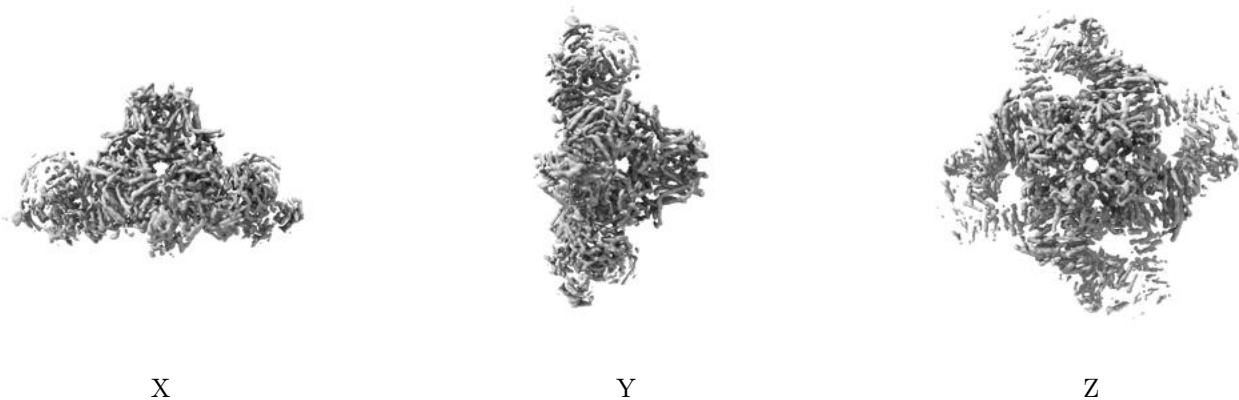


Z

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.

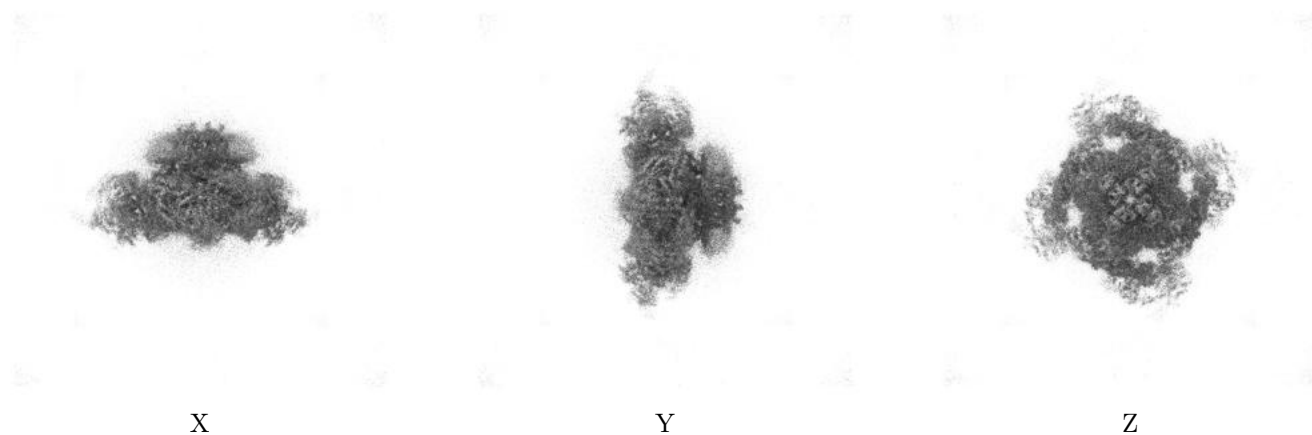
6.5 Orthogonal surface views [i](#)

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.

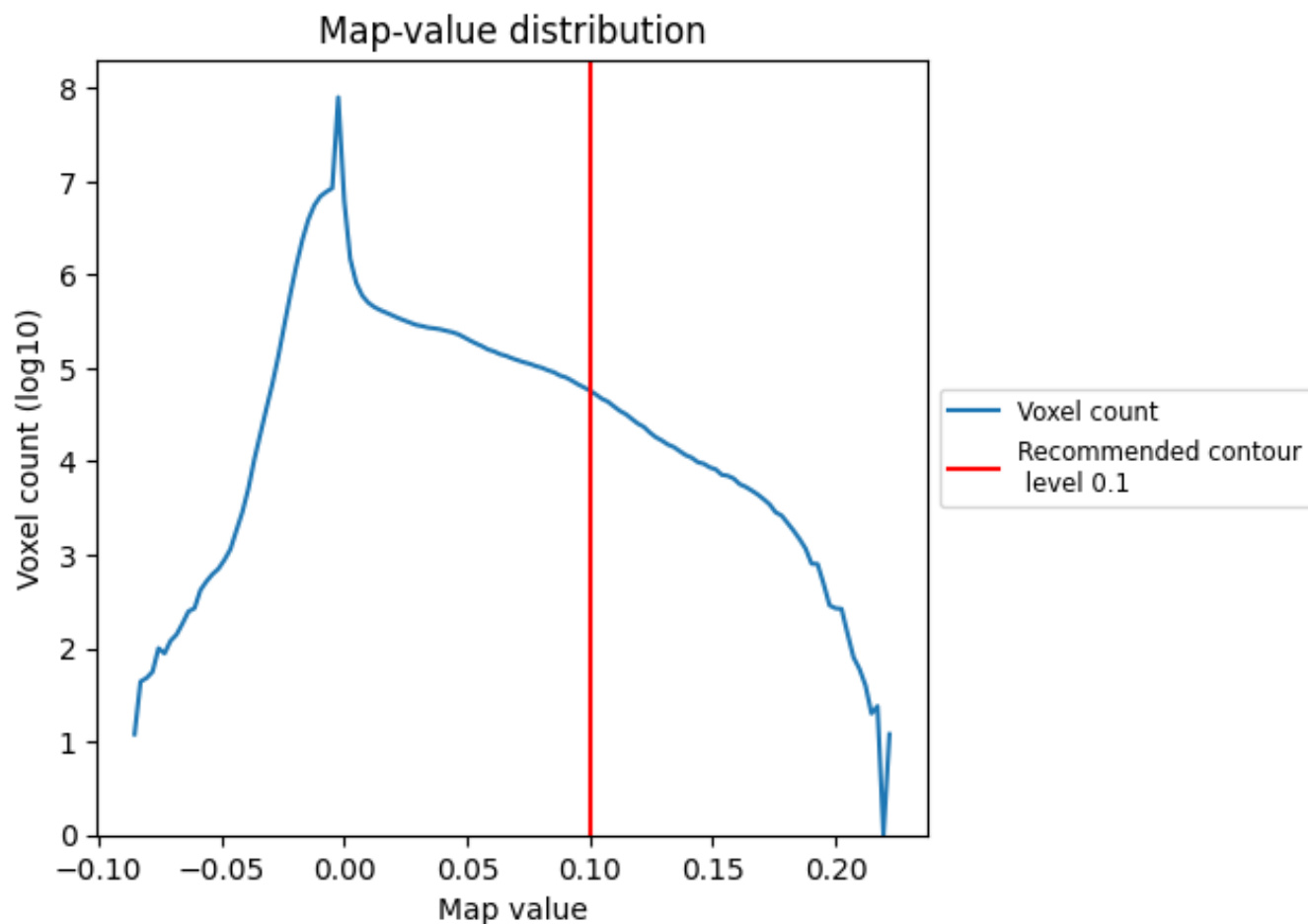
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

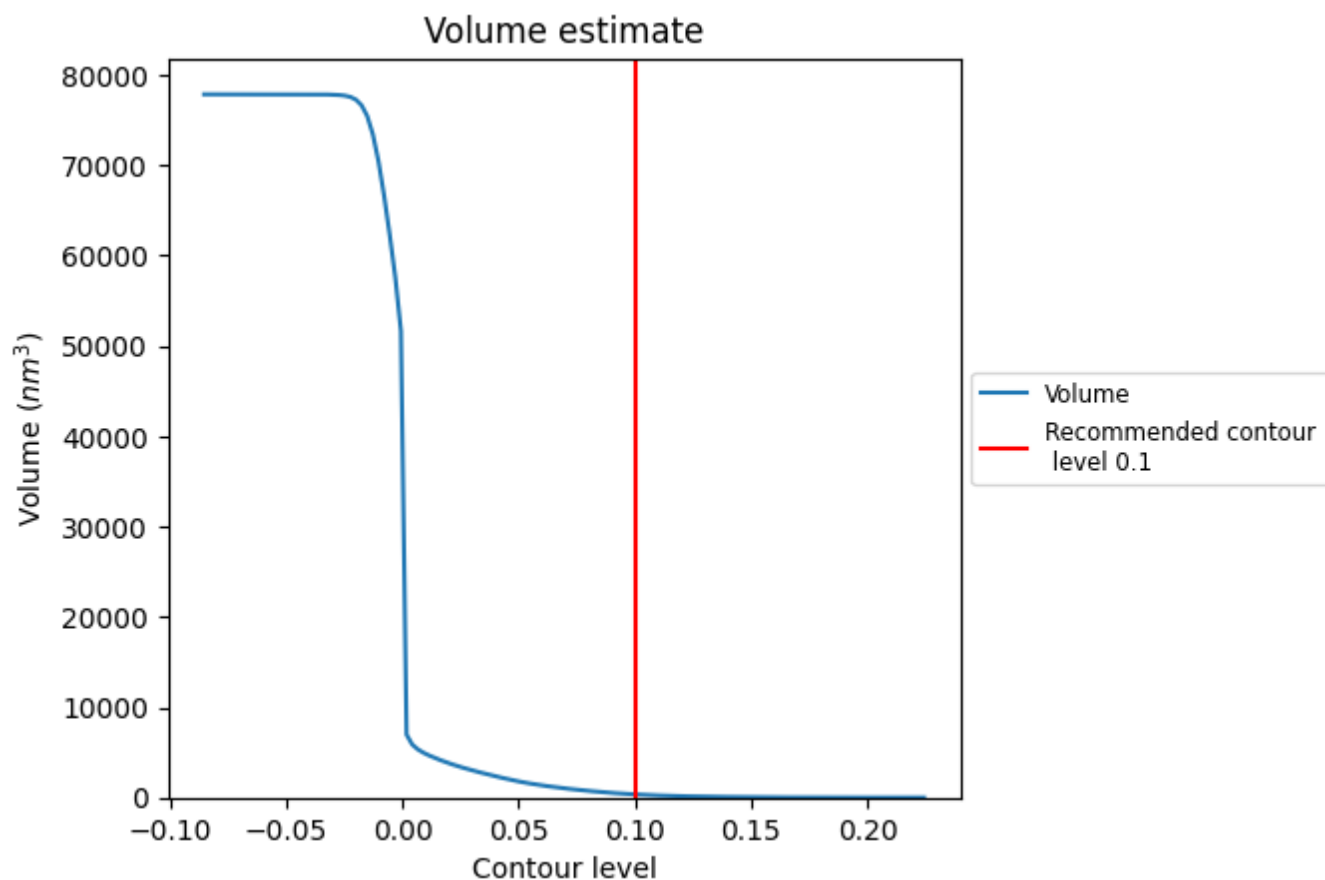
This section contains the results of statistical analysis of the map.

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.

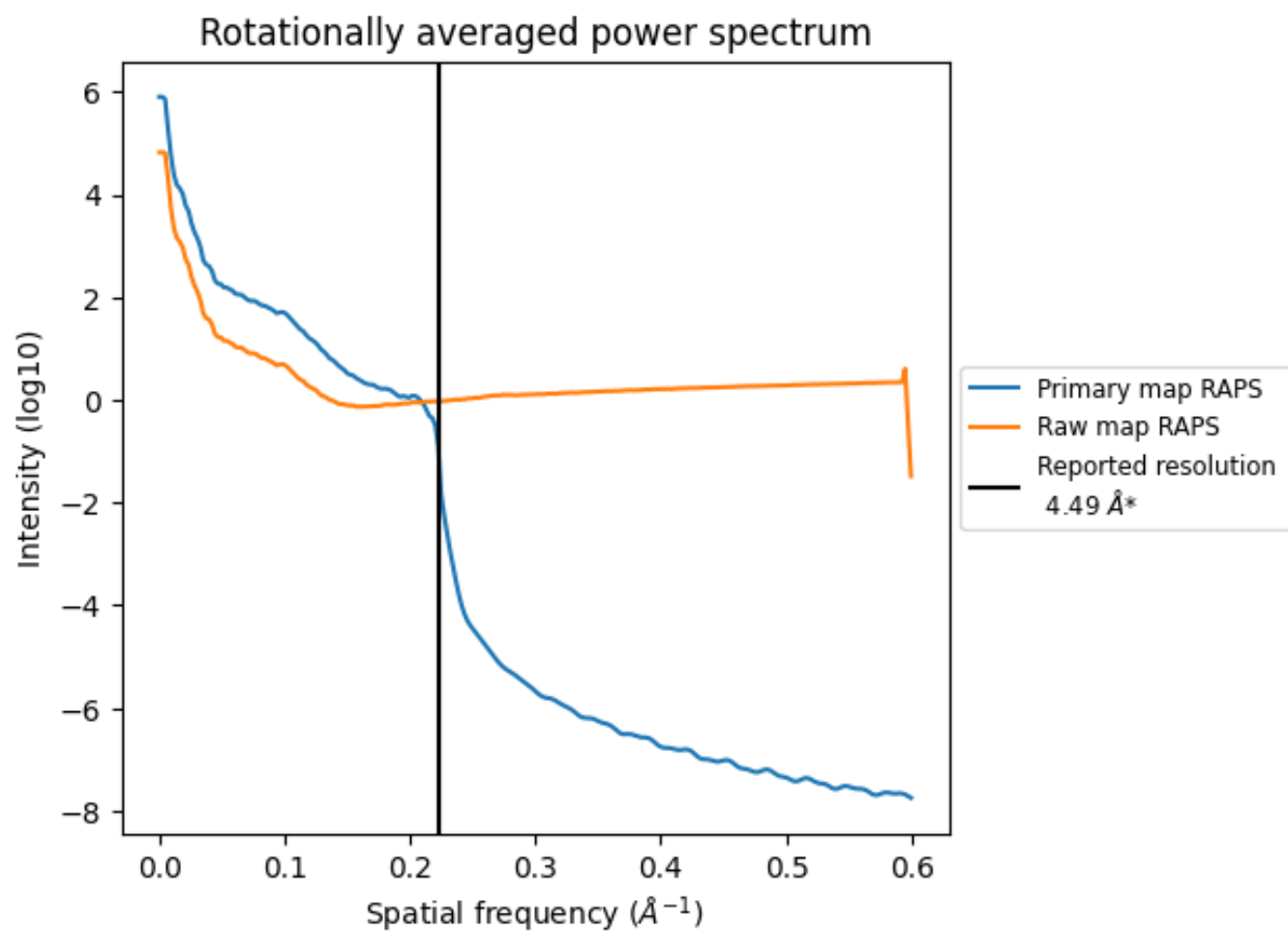
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 352 nm³; this corresponds to an approximate mass of 318 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum ⓘ

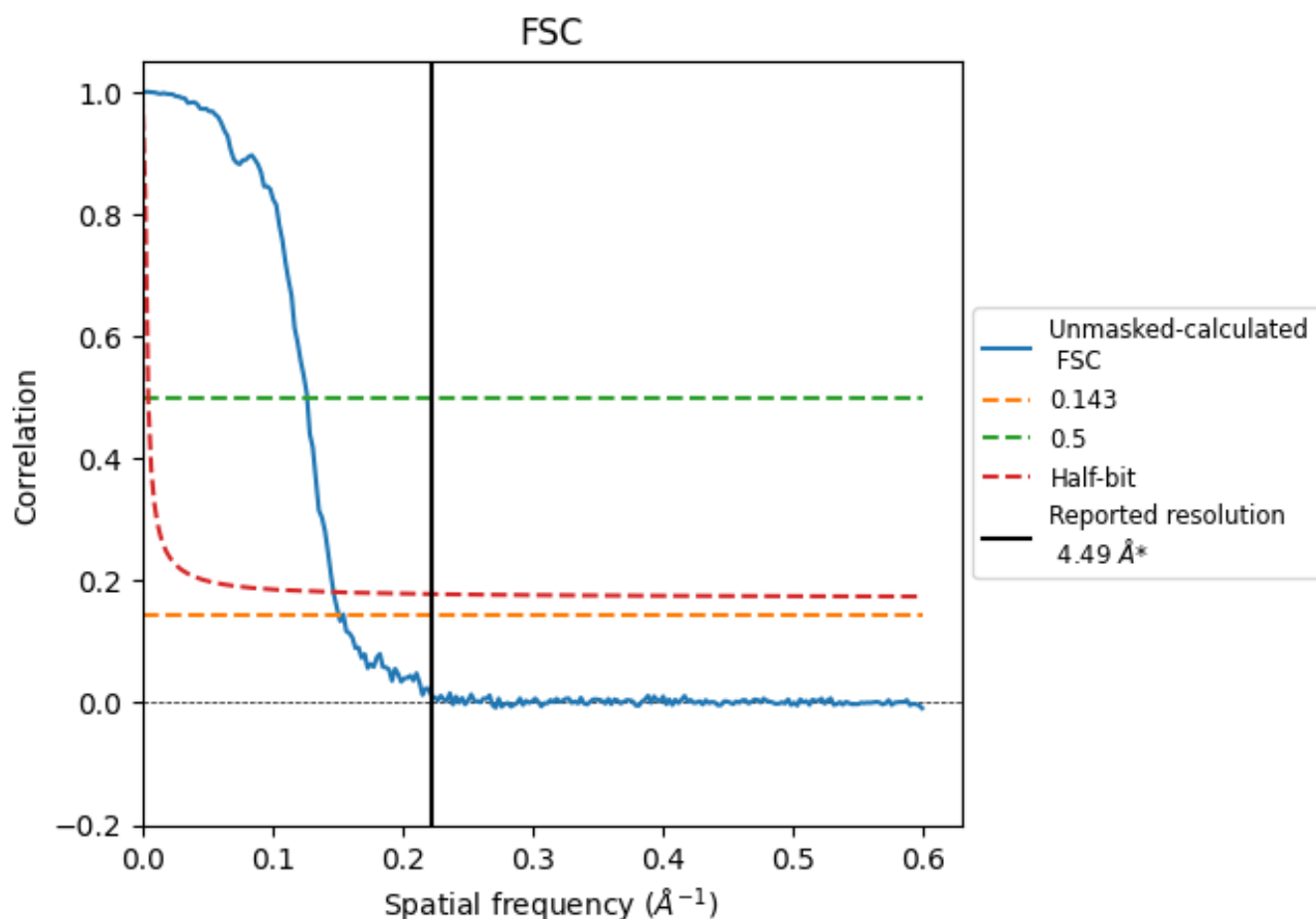


*Reported resolution corresponds to spatial frequency of 0.223 \AA^{-1}

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 0.223 Å⁻¹

8.2 Resolution estimates [i](#)

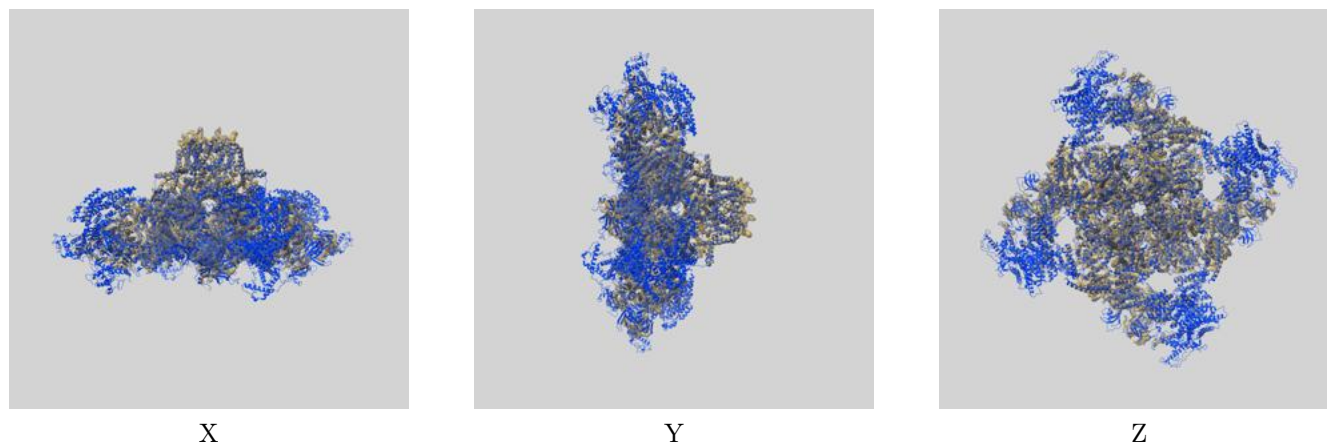
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.49	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	6.62	7.89	6.80

*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 6.62 differs from the reported value 4.49 by more than 10 %

9 Map-model fit [i](#)

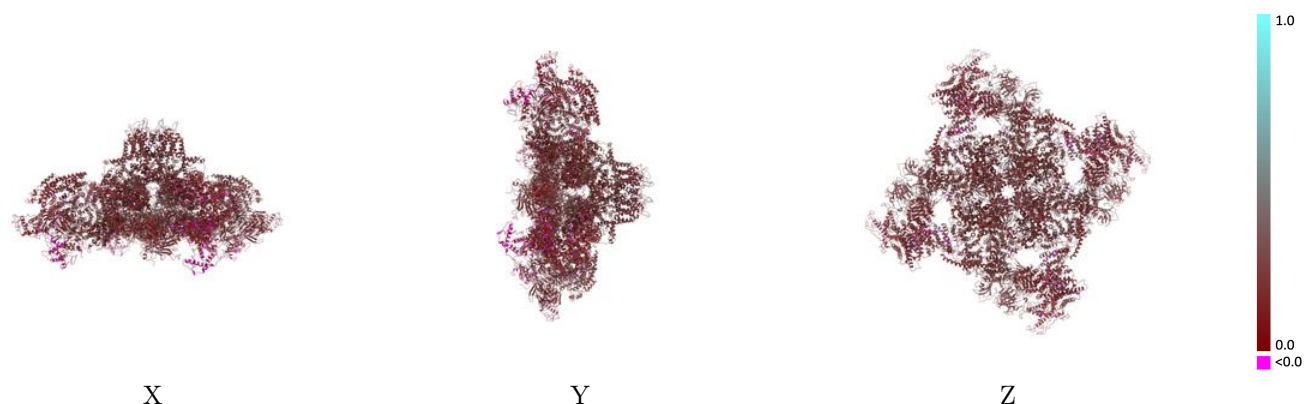
This section contains information regarding the fit between EMDB map EMD-47388 and PDB model 9E1B. Per-residue inclusion information can be found in section [3](#) on page [6](#).

9.1 Map-model overlay [i](#)



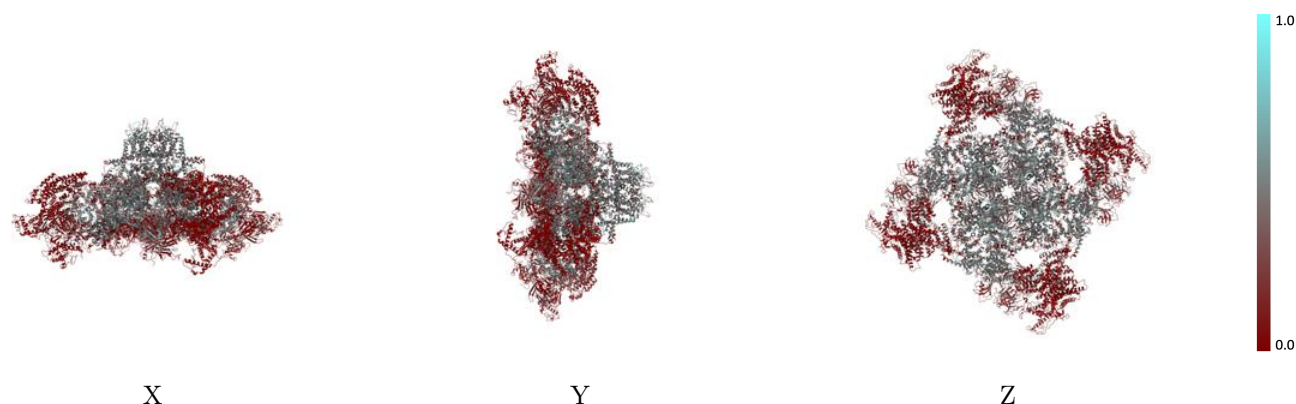
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



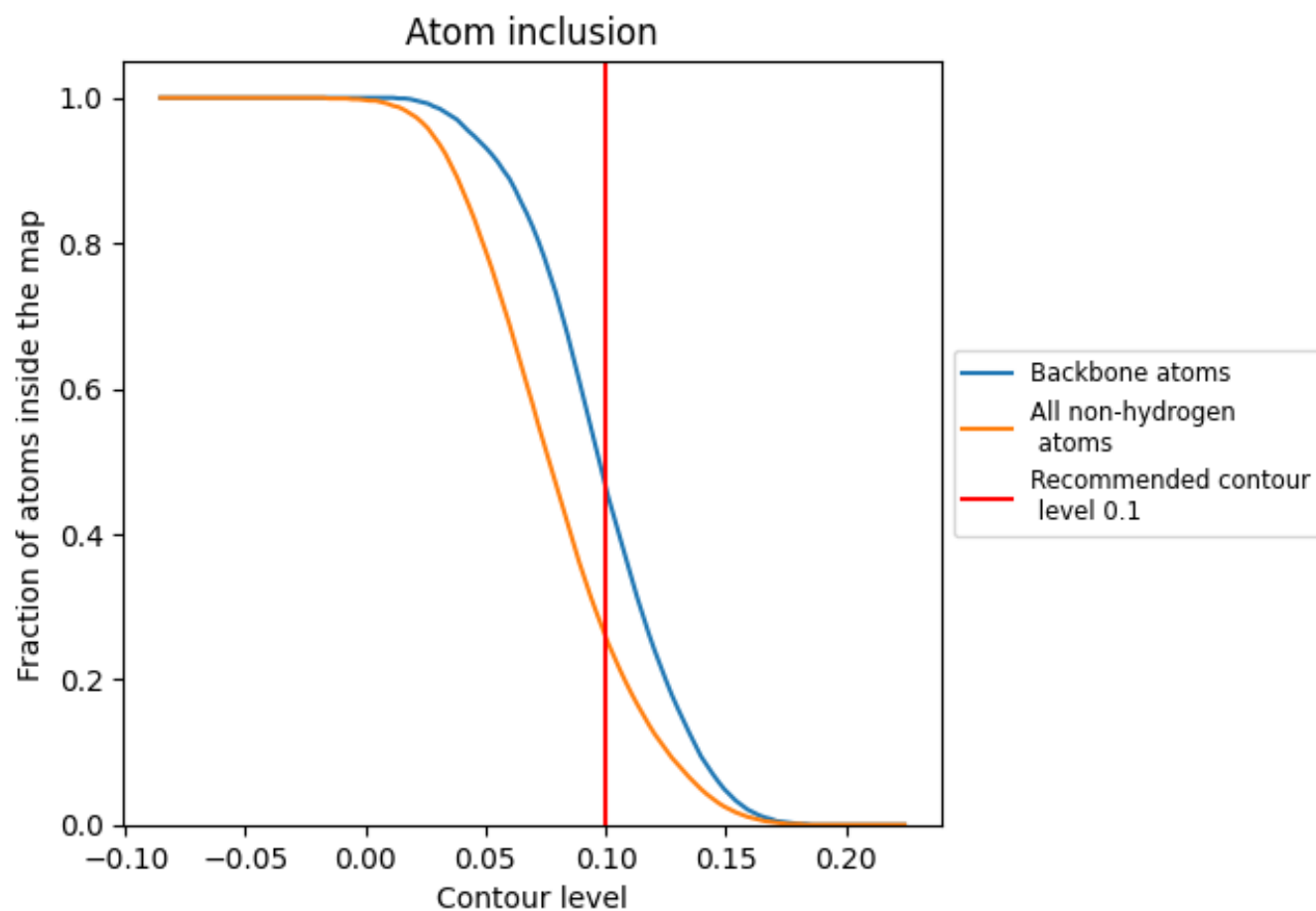
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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, 47% of all backbone atoms, 26% 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 (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	<div></div> 0.2590	<div></div> 0.2100
A	<div></div> 0.2640	<div></div> 0.2100
B	<div></div> 0.2640	<div></div> 0.2090
C	<div></div> 0.2640	<div></div> 0.2090
D	<div></div> 0.2640	<div></div> 0.2090
E	<div></div> 0.0360	<div></div> 0.2600
F	<div></div> 0.0310	<div></div> 0.2560
G	<div></div> 0.0320	<div></div> 0.2630
H	<div></div> 0.0360	<div></div> 0.2580

1.0

0.0

<0.0