



wwPDB EM Validation Summary Report ⓘ

Oct 12, 2024 – 11:14 PM EDT

PDB ID : 6DRA
EMDB ID : EMD-7991
Title : Low IP3 Ca²⁺ human type 3 1,4,5-inositol trisphosphate receptor
Authors : Hite, R.K.; Paknejad, N.
Deposited on : 2018-06-11
Resolution : 3.96 Å (reported)

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

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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
MolProbity : 4.02b-467
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

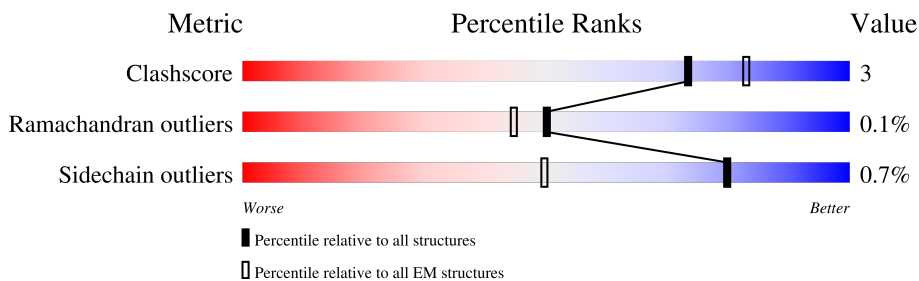
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.96 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	2671	
1	B	2671	
1	C	2671	
1	D	2671	

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 139084 atoms, of which 69544 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 Inositol 1,4,5-trisphosphate receptor type 3.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	H	N	O			S
1	A	2191	34768	11084	17386	2990	3202	106	0	0
1	B	2191	34768	11084	17386	2990	3202	106	0	0
1	C	2191	34768	11084	17386	2990	3202	106	0	0
1	D	2191	34768	11084	17386	2990	3202	106	0	0

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

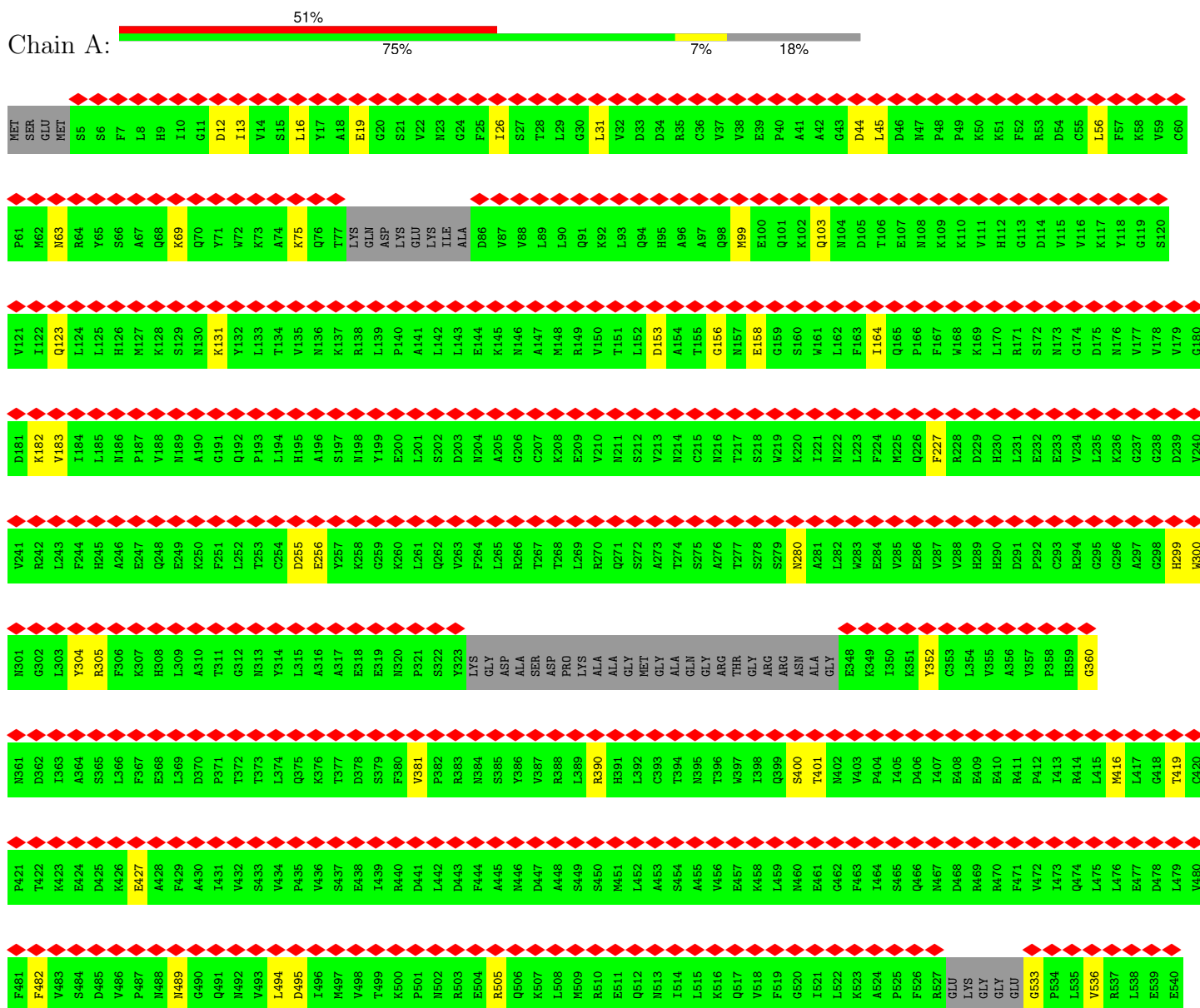
- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
			Total	Ca	
3	A	2	2	2	0
3	B	2	2	2	0
3	C	2	2	2	0
3	D	2	2	2	0

3 Residue-property plots

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

- Molecule 1: Inositol 1,4,5-trisphosphate receptor type 3



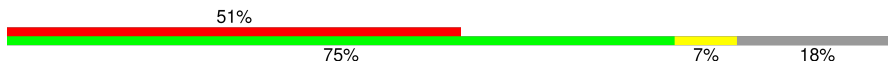
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Q1230	F1231	L1232	Q1233	K1234	F1235	C1236	A1237	G1238	M1239	P1240	G1241	G1242	Q1243	A1244	K1248	H1249	L1250	H1251	L1252	F1253	L1254	L1255	P1256	G1257	L1258	L1259	E1260	A1261	E1262	T1263	M1264	Q1265	H1266	I1267	M1270	N1271	Y1272	Q1273	L1274	C1275	S1276	E1277	I1278	S1279	E1280	P1281	V1282	L1283	Q1284	H1285	F1286	V1287	H1288	L1289	L1290	A1291	T1292	
M1106	I1110	K1111	S1112	E1113	D1114	R1115	R1116	T1119	M1120	V1121	K1122	K1123	S1124	L1125	E1126	M1127	D1128	V1129	K1130	L1131	G1132	S1133	G1134	K1135	G1136	L1137	G1138	L1139	L1140	L1141	L1142	L1143	L1144	L1145	L1146	L1147	D1148	D1149	E1150	G1151	R1152	F1153	M1154	F1155	H1156	L1157	L1158	L1159	L1160	L1161	L1162	L1163	L1164	L1165	L1166	L1167	N1168	
Y1169	Q1170	I1171	V1172	K1173	G1174	I1175	L1176	E1177	R1178	L1179	M1180	K1181	M1182	C1183	G1184	V1185	G1186	E1187	Q1188	M1189	R1190	K1191	K1192	Q1193	Q1194	R1195	L1196	L1197	K1198	M1199	M1200	D1201	A1202	H1203	K1204	V1205	M1206	L1207	D1208	L1209	L1210	Q1211	I1212	P1213	Y1214	D1215	K1216	G1217	A1219	K1220	M1221	M1222	E1223	R1226	Y1227	T1228	H1229	
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L541	S542	D543	Q544	K545	N546	A547	P548	Q550	H551	M552	F553	R554	L555	C556	Y557	R558	V559	L560	R561	H562	S563	Q564	E565	D566	Y567	R568	K569	M570	Q571	E572	H573	I574	A575	K576	Q577	F578	G579	M580	M581	Q582	S583	Q584	I585	G586	Y587	D588	L589	M590	L591	D592	C593	T594	I595	T596	A597	L598	L599	H600
N601	R602	K603	L604	L605	E606	K608	H609	I610	T611	K612	T613	E614	V615	E616	T617	F618	V619	S620	L621	H622	R623	K624	N625	D626	E627	P628	R629	F630	L631	D632	Y633	I634	S635	D636	L637	C638	V639	S640	N641	H642	I643	A644	I645	G646	V647	T648	Q649	E650	L651	I652	C653	K654	C655	I656	L657	D658	P659	K660
M661	S662	D663	I664	L665	I666	T668	E669	L670	R671	P672	V673	K674	GLU	MET	ALA	GLN	HIS	GLU	TYR	LEU	SER	ILE	TYR	SER	E690	E691	V692	W693	L694	T695	T697	D698	K699	N700	N701	E702	H703	H704	E705	K706	S707	V708	R709	Q710	L711	A712	Q713	E714	A715	R716	A717	G718	N719	A720				
H721	D722	E723	N724	L725	V726	S727	Y728	R729	Y730	Y731	Q732	L733	K734	L735	F736	A737	R738	M739	C740	L741	D742	R743	Q744	Y745	L746	A747	I748	D749	E750	I751	S752	Q753	Q754	L755	G756	V757	D758	L759	I760	F761	L762	C763	M764	A765	D766	E767	M768	L769	P770	E771	D772	L773	R774	A775	S776	F777	C778	L780
M781	L782	H783	V784	H785	V786	D787	R788	D789	P790	Q791	E792	L793	F799	A800	R801	L802	W803	T804	E805	I806	P807	T808	A809	I810	T811	I812	D814	Y815	D816	S817	N818	L819	N820	A821	S822	R823	D824	D825	K826	K827	N828	K829	F830	A831	N832	T833	M834	E835	F836	V837	E838	D839	Y840	L841	N842	N843	V844	
V846	S846	E847	A848	V849	P850	A852	N853	E854	E855	K856	N857	K858	L859	T860	F861	V864	H868	N869	L870	I871	Y872	F873	G874	F875	Y876	S877	F878	S879	E880	R883	R886	T887	L888	L889	G890	D893	C894	VAL	GLN	GLY	PRO	PRO	ALA	MET	LEU	GLN	ALA	TYR	GLU	ASP	PRO	GLY	GLY					
LYS	ASN	VAL	ARG	SER	ILE	GLN	VAL	HIS	MET	THR	MET	VAL	LEU	SER	ARG	ALA	PRO	SER	LEU	LEU	SER	GLN	VAL	PHE	SER	ALA	ALA	ALA	PRO	GLY	ASP	ARG	SER	LYS	PHE	GLU	ASN	GLU	D961	L962	V963	V964	N965	E966	T967	L971	L972											
E973	I974	L975	Q976	L979	L983	D984	Y985	R986	I987	S988	Y989	L990	L991	S992	V993	F994	K995	K996	E997	F998	Y999	E1000	V1001	F1002	P1003	M1004	GLN	ASP	GLY	ALA	LEU	ALA	ASP	GLY	THR	ALA	PRO	M1022	M1023	N1024	L1025	D1026	R1027	I1028	G1029	E1030	Q1031	A1032	E1033	A1034	M1035							
F1036	G1037	V1038	G1039	LYS	S1043	M1044	L1045	E1046	V1047	D1048	D1049	E1050	G1051	R1052	M1053	M1054	F1055	H1061	M1064	H1065	D1066	Y1067	P1068	V1069	L1070	V1071	S1072	Q1076	F1079	K1080	H1081	F1082	S1083	Q1084	R1085	Q1086	H1090	T1091	F1092	K1093	Q1094	V1095	Q1096	L1097	L1098	L1099	S1100	A1101	Q1102	D1103	V1104	E1105						

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V1414	N1415	F1416	V1417	N1418	H1419	C1420	Y1421	V1422	D1423	THR	GLU	VAL	GLU	MET	LYS	GLU	ILE	TVR	THR	ASN	ASN	HIS	THR	PHE	GLU	ASN	THR	THR	LEU	ASP	MET	ALA	ARG	VAL	CYS	SER	LYS	ARG	GLU	LYS	ARG	VAL	A1434	D1435	P1436	T1437	L1438	E1439	C1474	T1475	Y1441	V1442	L1443	S1444	V1445	D1446	L1447		
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E2036	E2037	E2038	ARG	GLU	ASN	SER	GLU	V2044	R2047	H2051	R2062	H2069	V2074	LYS	ARG	ILE	GLN	GLU	GLU	ALA	ALA	GLU	GLY	ILE	SER	SER	MET	LEU	SER	LEU	ASN	ASN	LYS	GLN	LEU	SER	LEU	GLN	GLU	GLU	E2111	D2112	E2199																
F2222	Y2225	MET	GLU	GLY	ALA	SER	THR	GLY	VAL	LEU	ASP	PRO	L2231	L2232	S2233	L2234	F2236	W2237	L2238	S2243	L2244	A2245	A2246	L2247	F2248	T2249	K2250	R2251	Y2252	S2260	L2261	R2262	P2263	L2264	L2265	L2268	R2271	Y2274	M2283	K2312	W2316	T2329	C2333	D2347															
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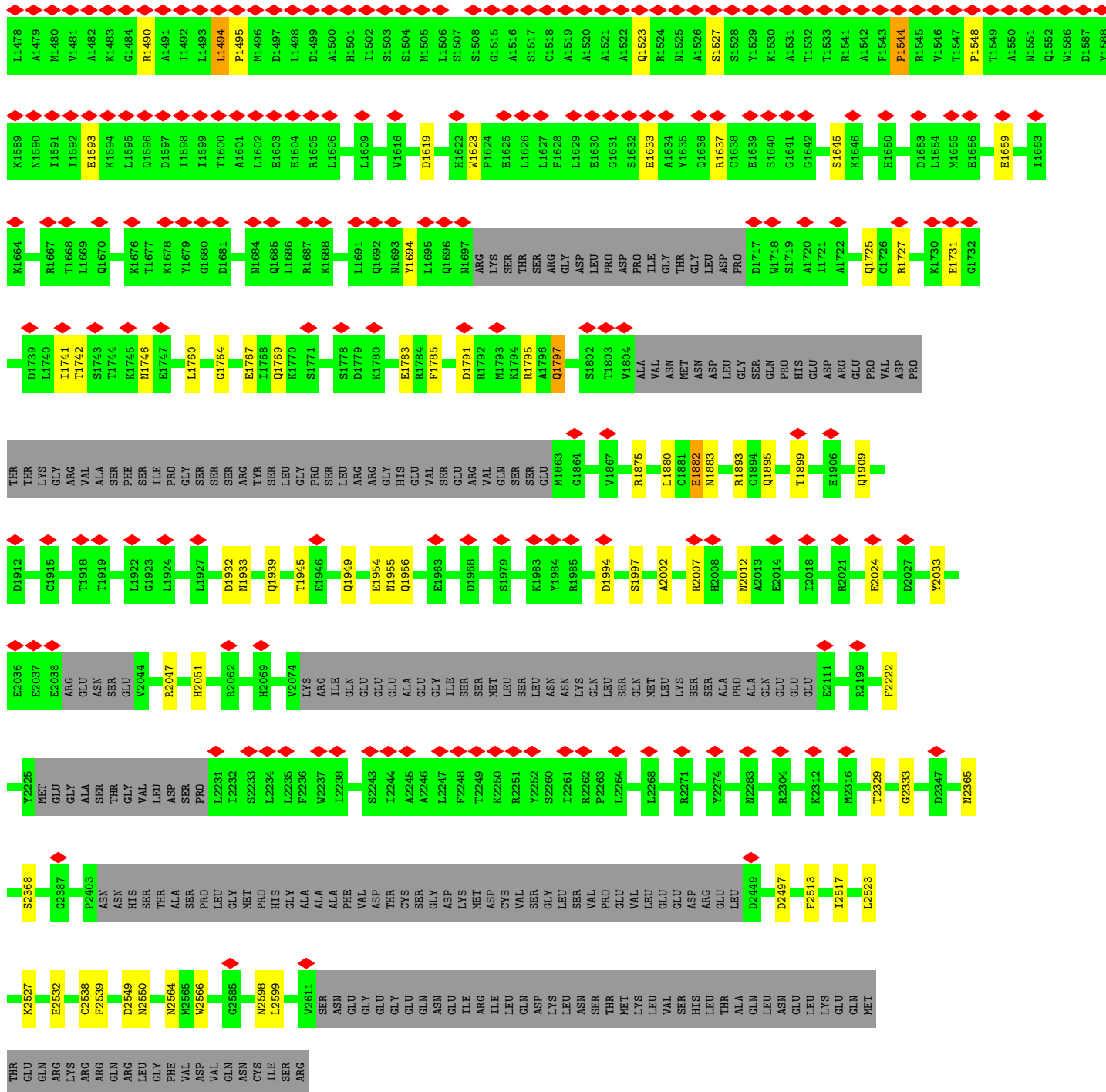
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● Molecule 1: Inositol 1,4,5-trisphosphate receptor type 3

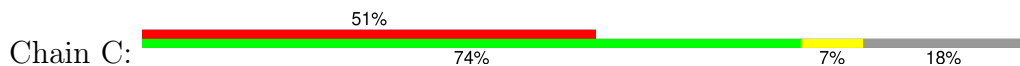
Chain B:



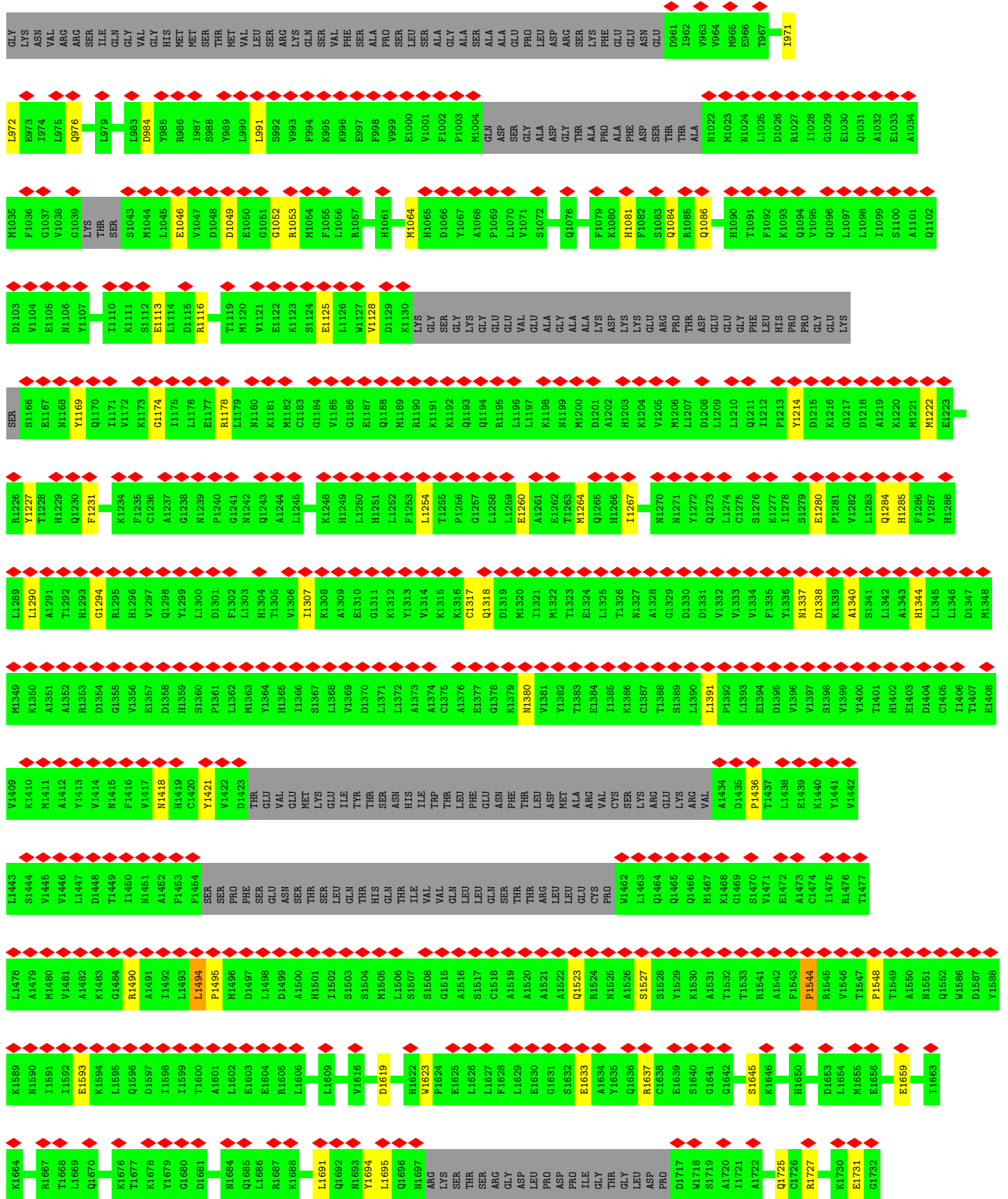
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P61	M62	N63	R64	Y65	S66	A67	K68	R69	Q70	Y71	W72	K73	A74	K75	Q76	T77	LYS	GLN	ASP	LYS	GLU	LYS	LYS	ALA	D86	V87	V88	L89	L90	Q91	K92	L93	Q94	H95	A96	C97	Q98	M99	E100	Q101	K102	Q103	M104	D105	T106	E107	M108	K109	K110	V111	H112	G113	D114	V115	V116	K117	Y118	G119	S120
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D181	K182	V183	I184	L185	M186	P187	V188	M189	A190	G191	Q192	P193	L194	H195	A196	S197	M198	Y199	E200	L201	S202	D203	M204	A205	G206	C207	K208	E209	V210	M211	S212	V213	M214	C215	M216	T217	S218	W219	K220	I221	M222	L223	F224	M225	Q226	F227	R228	D229	H230	L231	E232	E233	V234	L235	K236	G237	G238	D239	V240
V241	R242	L243	F244	H245	A246	E247	Q248	E249	K250	F251	L252	T253	C254	D255	E256	Y257	K258	G259	K260	L261	Q262	V263	F264	R265	R266	T267	T268	L269	R270	Q271	S272	A273	T274	S275	A276	T277	S278	S279	N280	A281	W282	E283	E284	V285	E286	V287	V288	H289	H290	D291	P292	C293	R294	G295	G296	A297	G298	H299	W300
N301	G302	L303	Y304	R305	F306	K307	H308	L309	A310	T311	G312	N313	Y314	L315	A316	A317	E318	E319	N320	P321	S322	Y323	LYS	GLY	ASP	ALA	SER	ASP	PRO	LYS	ALA	ALA	GLY	GLY	GLN	ARG	THR	GLY	ARG	ARG	ASN	ALA	E348	K349	I350	K351	Y352	C353	L354	V355	A356	V357	P358	H359	G360				
N361	D362	I363	A364	S365	L366	F367	E368	L369	D370	P371	T372	T373	L374	Q375	K376	T377	D378	S379	F380	V381	P382	R383	N384	S385	Y386	V387	R388	L389	R390	H391	L392	C393	T394	N395	T396	W397	I398	Q399	S400	T401	N402	V403	P404	I405	D406	I407	E408	E409	E410	R411	P412	I413	R414	L415	M416	L417	G418	T419	C420
P421	T422	K423	E424	S425	K426	E427	A428	F429	A430	I431	V432	S433	V434	P435	V436	S437	E438	I439	R440	D441	L442	D443	F444	A445	N446	D447	A448	S449	S450	M451	L452	A453	S454	A455	V456	E457	K458	L459	N460	E461	G462	F463	I464	S465	D466	M467	D468	R469	R470	F471	V472	I473	Q474	L475	L476	E477	D478	L479	V480
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L541	S542	D543	Q544	K545	N546	A547	P548	Y549	Q550	H551	M552	F553	R554	L555	C556	Y557	R558	V559	L560	R561	E562	S563	Q564	E565	D566	Y567	R568	K569	N570	Q571	E572	H573	I574	A575	K576	Q577	F578	G579	M580	M581	Q582	S583	Q584	I585	G586	Y587	D588	I589	L590	G591	E592	D593	T594	I595	T596	A597	L598	L599	H600
M601	N602	R603	K604	L605	L606	E607	K608	H609	I610	T611	K612	T613	E614	V615	E616	T617	F618	V619	S620	L621	V622	R623	K624	M625	R626	E627	P628	R629	F630	L631	E632	Y633	L634	S635	D636	L637	C638	V639	S640	M641	H642	I643	A644	I645	P646	G647	T648	Q649	E650	L651	I652	C653	K654	C655	V656	L657	D658	P659	K660
N661	S662	D663	I664	L665	I666	R667	T668	E669	L670	R671	P672	V673	K674	GLU	MET	ALA	SER	HIS	GLU	TRP	LEU	SER	ILE	GLU	TVR	SER	E690	E691	V692	M693	L694	T695	M696	T697	D698	K699	N700	N701	E702	H703	E705	K706	S707	V708	R709	Q710	L711	A712	Q713	E714	R715	L716	A717	G718	N719	A720			

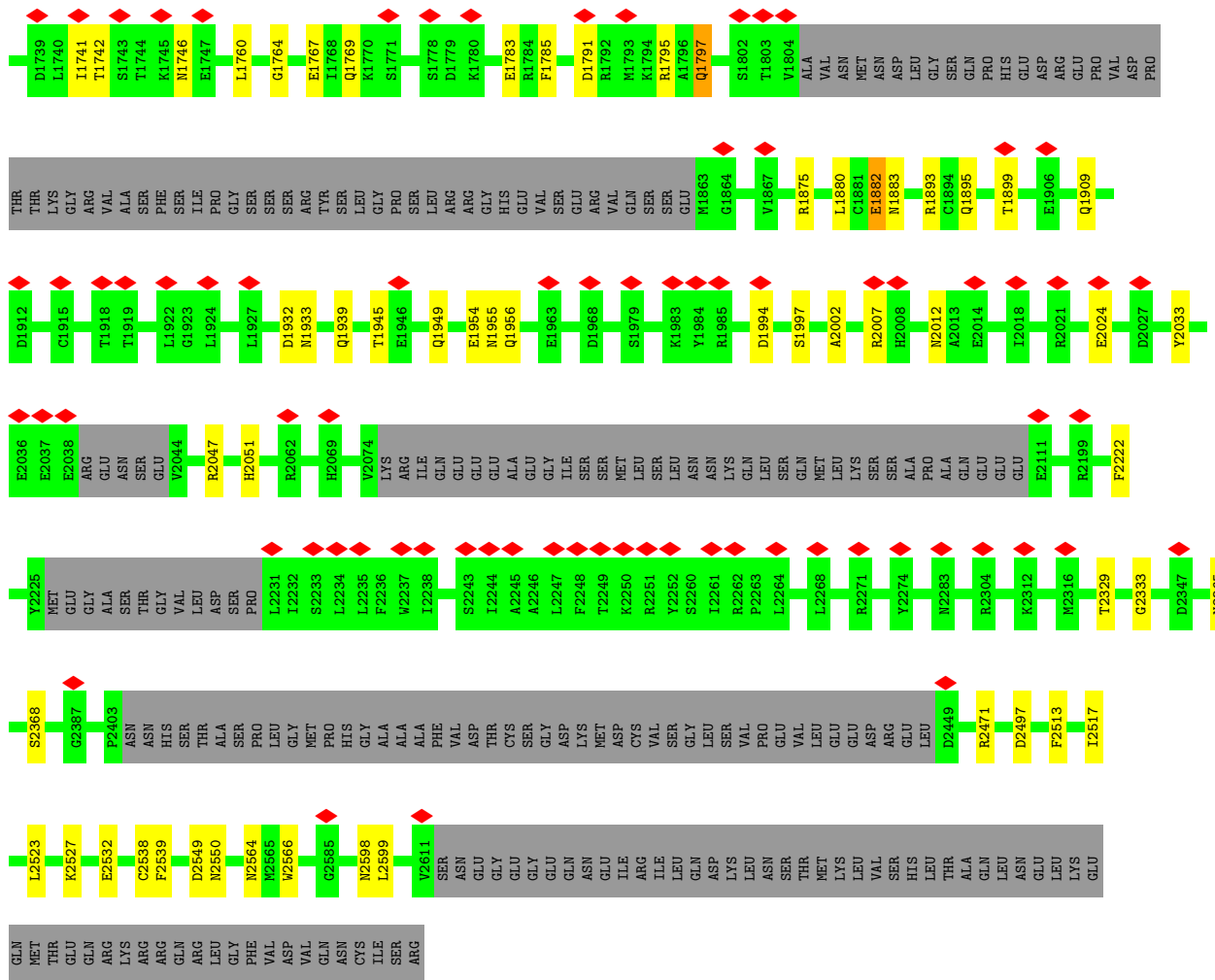


● Molecule 1: Inositol 1,4,5-trisphosphate receptor type 3

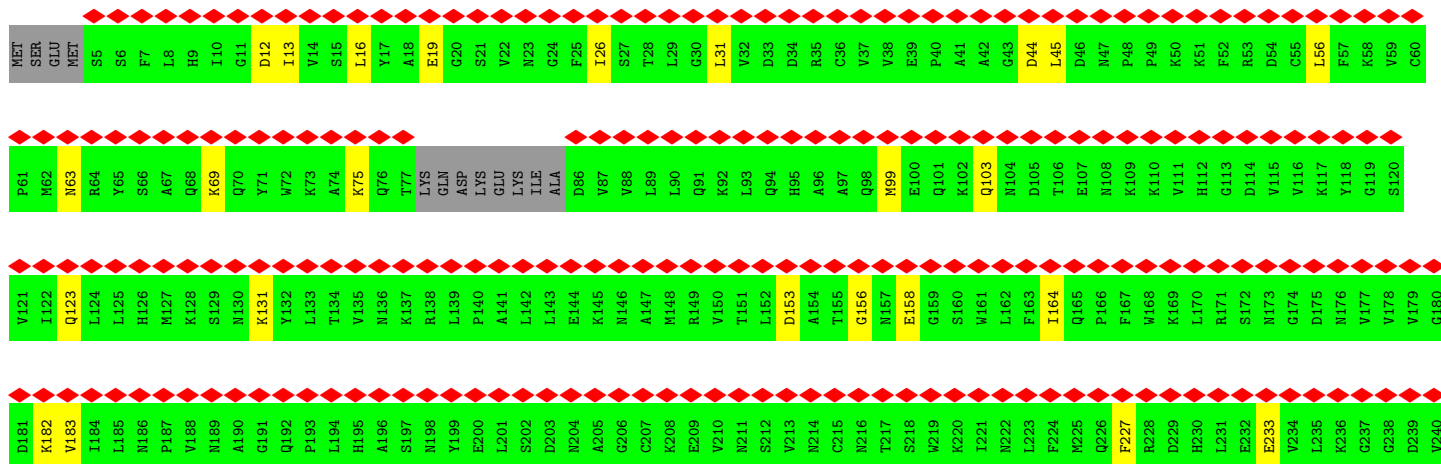
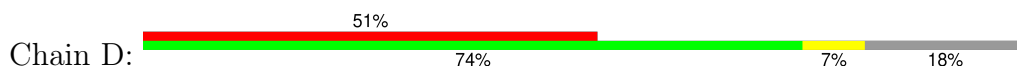


V845	V846	E847	A848	V849	P850	F851	A852	N853	E854	E855	K856	N857	K858	L859	T860	F861	V864	H868	N869	L870	I871	Y872	F873	I874	F875	Y876	Y877	S878	Y879	E880	E883	R886	T887	L888	L889	G890	I891	I892	D893	C894	VAL	GLN	GLY	PRO	PRO	PRO	ALA	MET	LEU	GLN	ALA	TYR	TYR	GLU	ASP	PRO	PRO	GLY	H845	D721	D722	E723	N724	V725	L726	S727	V728	F729	R730	Y731	Q732	L733	K734	L735	F736	A737	R738	M739	C740	L741	D742	R743	Q744	Y745	L746	A747	I748	D749	E750	I751	S752	Q753	Q754	L755	G756	V757	D758	L759	I760	K826	K827	N828	K829	F830	A831	N832	L833	M834	E835	F770	E714	F771	D772	L773	R774	A775	S776	F777	C778	H779	L780	N661	N602	R603	K604	L605	E607	K608	H609	L610	T611	K612	T613	E614	V615	E616	T617	R618	V619	S620	L621	H622	R623	K624	N625	E626	E627	P628	R629	F630	L631	D632	H633	L634	S635	D636	L637	C638	V639	S640	N641	H642	L643	A644	L645	P646	V647	D648	L649	E650	L651	L652	C653	E654	T655	L656	V656	L657	D658	P659	K660	N661	S662	D663	I664	L665	L666	R667	T668	E669	L670	R671	P672	V673	K674	GLU	MET	ALA	ALA	GLN	SER	HIS	GLU	TYR	LEU	SER	ILE	GLU	TYR	SER	E690	E691	V692	W693	L694	T695	W696	T697	D698	K699	N700	N701	E702	H703	H704	E705	K706	S707	V708	R709	Q710	L711	A712	Q713	E714	A715	A716	C653	F534	L535	V536	R537	L538	E539	E540	F482	V483	S484	D485	V486	P487	N488	N489	G490	Q491	N492	V493	L494	D495	I496	M497	V498	T499	K500	P501	R502	R503	E504	R505	Q506	K507	L508	M509	R510	E511	Q512	N513	L514	L515	K516	Q517	V518	F519	G520	L521	K523	A524	P525	F526	R527	GLU	GLY	GLY	GLU	E533	F534	L535	V536	R537	L538	E539	E540	F422	K423	E424	D425	E427	A428	F429	A430	I431	V432	S433	V434	P435	V436	S437	E438	I439	R440	D441	D442	D443	F444	A445	N446	D447	A448	S449	S450	M451	L452	A453	S454	A455	V456	E457	K458	L459	N460	N461	G462	F463	A464	S465	I466	Q466	N467	D468	R469	E470	R471	V472	I473	R474	A475	L476	E477	D478	L479	V480	M362	I363	A364	S365	L366	F367	E368	L369	D370	P371	T372	T373	L374	Q375	K376	T377	D378	S379	F380	V381	R383	N384	S385	V386	V387	R388	L389	R390	H391	L392	C393	G394	N395	T396	W397	I398	Q399	S400	T401	N402	V403	P404	I405	I406	I407	E408	A409	E410	A356	R411	P412	I413	R414	L415	N416	L417	G418	T419	C420	D342	L243	F244	H245	A246	Q248	E249	K250	F251	L252	T253	C254	D255	E256	Y257	K258	G259	K260	L261	Q262	V263	F264	L265	R266	C267	K268	E269	L270	R271	S272	A273	T274	S275	A276	T277	S278	S279	N280	A281	N222	L223	F224	M225	V226	E227	V228	H229	H230	D231	P232	C233	V234	L235	K236	G237	H238	W300	N301	G302	L303	Y304	R305	F306	K307	H308	L309	A310	T311	G312	N313	Y314	L315	A316	E317	E318	E319	N320	F321	S322	Y323	L324	GLY	ASP	ALA	SER	PRO	L325	ALA	ALA	GLY	MET	GLY	GLN	GLN	ARG	THR	GLY	ARG	ARG	ASN	ALA	GLY	E348	K349	I350	K351	Y352	C353	L354	V355	E356	V357	P358	H359	C360	D362	I363	A364	S365	L366	F367	E368	L369	D370	P371	T372	T373	L374	Q375	K376	T377	D378	S379	F380	V381	R383	N384	S385	V386	V387	R388	L389	R390	H391	L392	C393	G394	N395	T396	W397	I398	Q399	S400	T401	N402	V403	P404	I405	I406	I407	E408	A409	E410	A356	R411	P412	I413	R414	L415	N416	L417	G418	T419	C420	V242	L243	F244	H245	A246	Q248	E249	K250	F251	L252	T253	C254	D255	E256	Y257	K258	G259	K260	L261	Q262	V263	F264	L265	R266	C267	K268	E269	L270	R271	S272	A273	T274	S275	A276	T277	S278	S279	N280	A281	N222	L223	F224	M225	V226	E227	V228	H229	H230	D231	P232	C233	V234	L235	K236	G237	H238	W300	D181	K182	V183	I184	L185	N186	P187	V188	N189	A190	Q191	G192	P193	L194	H195	A196	S197	N198	Y199	E200	L201	S202	D203	N204	A205	G206	C207	K208	E209	R210	N211	S212	V213	N214	C215	N216	T217	S218	W219	K220	L221	L222	F223	F224	M225	V226	E227	V228	H229	H230	D231	P232	C233	V234	L235	K236	G237	H238	W300	V121	I122	Q123	L124	L125	H126	K128	S129	N130	K131	Y132	L133	T134	V135	N136	K137	R138	L139	P140	A141	L142	L143	E144	K145	M146	A147	M148	R149	Q150	K152	L151	D153	A154	T155	G156	M157	E158	G159	S160	W161	F162	F163	I164	Q165	E167	P166	F167	V168	K169	L170	H171	R172	S173	N174	G175	D176	N177	V178	V179	G180	P61	M62	N63	R64	Y65	S66	A67	Q68	K69	Q70	Y71	W72	K73	A74	K75	T76	T77	L78	GLN	ASP	L79	L80	L81	L82	L83	L84	L85	L86	L87	L88	L89	L90	L91	L92	L93	L94	L95	L96	L97	L98	L99	L100	L101	L102	L103	L104	D105	T106	E107	N108	K109	L110	V111	H112	G113	D114	V115	L116	K117	Y118	G119	S120
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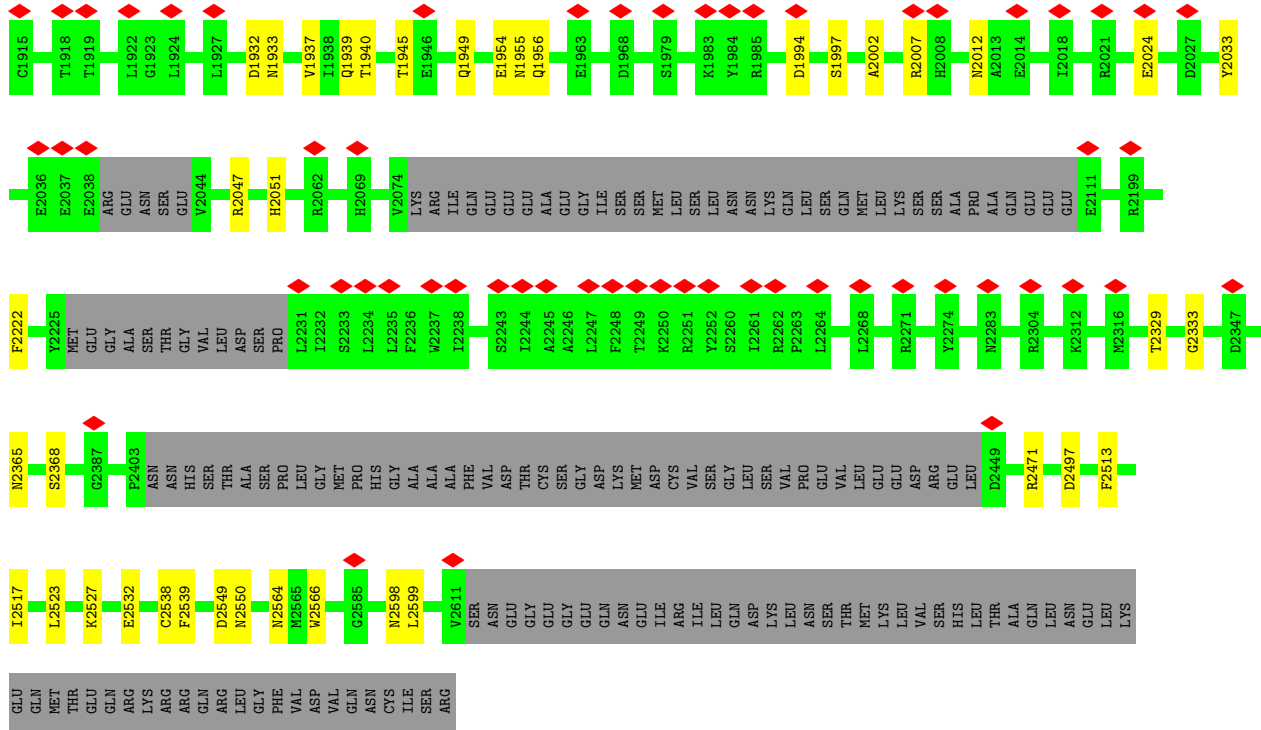


● Molecule 1: Inositol 1,4,5-trisphosphate receptor type 3



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N301	G302	L303	Y304	R305	F306	K307	H308	L309	A310	T311	G312	N313	Y314	L315	A316	A317	E318	E319	N320	P321	S322	Y323	LYS	GLY	ASP	ALA	SER	PRO	PRO	LYS	ALA	ALA	GLY	MET	GLY	ALA	GLN	GLY	ARG	THR	GLY	ARG	ARG	ASN	ALA	GLY	E348	K349	I350	K351	Y352	C353	L354	V355	A356	V357	P358	H359	C360			
N361	D362	I363	A364	S365	L366	F367	E368	L369	D370	P371	T372	L373	L374	Q375	K376	F377	D378	S379	F380	V381	R382	R383	N384	S385	M446	V387	R388	L389	R390	H391	L392	C393	T394	N395	T396	W397	I398	Q399	S400	T401	N402	V403	P404	I405	I406	I407	E408	E409	E410	R411	P412	I413	R414	L415	M416	L417	G418	T419	C420			
P421	T422	K423	E424	D425	K426	E427	A428	F429	A430	I431	V432	S433	V434	P435	V436	S437	E438	I439	R440	D441	L442	D443	F444	A445	M446	D447	A448	S449	S450	M451	L452	C393	A453	A454	A455	V456	E457	K458	L459	M460	E461	G462	F463	I464	S465	I466	M467	D468	R469	R470	F471	V472	I473	Q474	L475	L476	D477	L479	V480			
F481	F482	V483	S484	D485	V486	P487	M488	M489	G490	Q491	M492	V493	L494	D495	I496	M497	V498	T499	K500	P501	N502	R503	E504	R505	Q506	K507	L508	M509	R510	E511	Q512	N513	I514	L515	K516	Q517	V518	F519	G520	I521	I522	K523	A524	P525	F526	R527	GLU	GLY	GLY	GLU	G533	P534	I535	V536	R537	L538	E539	E540				
L541	S542	D543	Q544	K545	N546	A547	P548	Y549	Q550	H551	M552	F553	R554	L555	C556	Y557	R558	V559	L560	R561	H562	S563	Q564	E565	D566	Y567	R568	K569	N570	Q571	E572	H573	I574	A575	K576	Q577	F578	G579	M580	M581	Q582	S583	Q584	I585	I586	R587	D588	L589	L590	A591	E592	D593	T594	I595	T596	A597	L598	L599	H600			
N601	N602	R603	K604	L605	L606	E607	K608	H609	L610	T611	K612	T613	E614	V615	E616	T617	F618	V619	S620	L621	V622	R623	K624	N625	R626	E627	P628	R629	F630	L631	D632	Y633	L634	S635	D636	L637	C638	C639	S640	M641	H642	I643	A644	I645	P646	V647	T648	Q649	E650	L651	L652	C653	K654	C655	V656	L657	D658	P659	K660			
N661	S662	D663	L664	L665	L666	R667	T668	E669	L670	R671	P672	V673	GLU	ALA	GLN	SER	HIS	GLY	TYR	LEU	SER	ILE	GLU	TYR	SER	E690	E691	V692	M693	L694	T695	M696	T697	D698	K699	N700	N701	E702	H703	H704	E705	S706	S707	V708	R709	Q710	L711	A712	Q713	E714	A715	R716	A717	G718	N719	A720						
H721	D722	E723	N724	V725	L726	S727	Y728	Y729	R730	Y731	Q732	L733	K734	L735	F736	A737	R738	M739	C740	L741	D742	R743	Q744	Y745	L746	A747	I748	D749	E750	I751	S752	Q753	Q754	L755	G756	V757	D758	L759	I760	F761	L762	C763	M764	A765	D766	E767	M768	L769	P770	F771	D772	L773	R774	A775	S776	F777	C778	L780				
M781	L782	H783	V784	H785	V786	D787	K788	D789	F790	Q791	E792	L793	F799	A800	R801	L802	M803	T804	E805	I806	H868	M869	L870	I871	V872	F873	G874	S877	F878	S879	E880	R883	R886	T887	L888	L889	G890	I891	I892	D893	C894	VAL	GLN	GLY	PRO	PRO	PRO	ALA	ALA	LEU	LEU	ALA	ALA	TYR	E838	D839	Y840	L841	N842	N843	V844	
W845	S846	E847	A848	H849	P850	F851	A852	N853	E854	E855	I856	N857	K858	L859	T860	F861	V864	H868	M869	L870	I871	V872	F873	G874	S877	F878	S879	E880	R883	R886	T887	L888	L889	G890	I891	I892	D893	C894	VAL	GLN	GLY	PRO	PRO	PRO	ALA	ALA	LEU	LEU	ALA	ALA	TYR	E838	D839	Y840	L841	N842	N843	V844				
GLY	LYS	ASN	VAL	ARG	ARG	SER	ILE	GLN	VAL	GLY	HIS	MET	MET	THR	MET	VAL	LEU	SER	ARG	LYS	GLN	SER	VAL	PHE	SER	PRO	ALA	ALA	ALA	GLY	ALA	ALA	LEU	LEU	ASP	ARG	ASN	GLU	D961	I962	V963	V964	H965	E966	T967	I971	N1022	M1023	N1024	L1025	D1026	R1027	I1028	G1029	E1030	Q1031	A1032	E1033	A1034			
L972	E973	I974	L975	Q976	L979	L983	D984	Y985	R986	I987	S988	Y989	L990	L991	S992	V993	F994	K995	K996	E997	F998	V999	E1000	V1001	F1002	P1003	M1004	GLN	ASP	GLY	ALA	ALA	ASP	THR	ALA	ALA	PRO	PHE	GLU	ASN	GLU	D961	I962	V963	V964	H965	E966	T967	I971	N1022	M1023	N1024	L1025	D1026	R1027	I1028	G1029	E1030	Q1031	A1032	E1033	A1034

LYS	D1739	K1664	K1889	L1478	L1443	V1409	M1349	L1289	R1226	SER	H1035
GLY	L1740	R1667	M1590	A1479	S1444	K1410	K1350	L1290	Y1227	S1166	F1036
VAL	L1741	T1668	I1591	M1480	V1445	M1411	A1351	A1291	T1228	E1167	G1037
ALA	T1742	T1669	I1592	V1481	V1446	M1412	A1352	T1292	H1229	M1168	V1038
SER	S1743	Q1670	E1593	A1482	L1447	Y1413	R1353	H1293	Q1230	Y1169	G1039
THR	T1744	K1676	K1594	K1483	D1448	V1414	D1354	G1294	F1231	Q1170	LYS
ILE	K1745	T1677	L1595	G1484	T1449	M1415	G1355	R1295	K1234	I1171	THR
PRO	N1746	T1678	L1596	R1490	T1450	F1416	V1356	H1296	F1235	I1172	SER
GLY	E1747	K1679	D1597	A1491	M1451	V1417	E1357	Q1298	C1236	K1173	M1043
SER	L1760	Y1678	I1598	I1492	M1452	M1418	E1358	Q1299	A1237	L1114	M1044
SER	E1767	G1680	I1599	L1493	F1453	H1419	H1359	Y1299	G1238	D1115	L1045
ARG	T1768	D1681	T1600	L1494	F1454	C1420	S1360	L1300	L1176	R1116	E1046
TYR	E1768	M1684	A1601	P1495	SER	Y1421	S1361	D1301	E1177	D1048	V1047
SER	Q1769	N1684	L1602	M1496	SER	V1422	L1362	F1302	R1178	D1049	D1048
LEU	K1770	Q1685	L1603	D1497	PRO	D1423	M1363	F1303	L1179	E1050	E1050
GLY	S1771	L1686	E1604	L1498	PHE	THR	Y1364	L1303	M1180	G1051	G1051
PRO		R1687	L1605	D1499	SER	GLU	H1365	H1304	M1181	V1121	M1044
SER		K1688	L1606	A1500	ASN	VAL	I1366	T1305	M1182	E1122	M1044
ARG		L1691	L1609	H1501	SER	GLU	S1367	V1306	C1183	K1123	G1052
ARG		Q1692	L1609	I1502	THR	LYS	L1368	I1307	K1184	S1124	R1053
GLY		L1693	L1610	S1503	SER	GLU	L1368	K1308	G1184	E1125	M1054
VAL		Y1694	V1616	I1504	LEU	ILE	V1369	A1309	V1185	L1126	F1055
SER		L1695	D1619	M1505	GLN	THR	I1370	E1310	G1186	W1127	L1056
ARG		Q1696	H1622	H1506	HIS	THR	L1371	G1311	Q1188	D1128	H1057
GLY		N1697	W1623	S1507	THR	SER	L1372	K1312	Q1188	V1129	H1061
VAL		ARG	P1624	S1508	ILE	ASN	A1373	Y1313	M1189	K1130	
GLN		LYS	L1625	G1515	VAL	ILE	I1374	V1314	R1190	M1064	
SER		THR	E1625	G1515	VAL	TRP	A1374	K1315	K1191	H1065	
SER		SER	L1626	A1516	VAL	THR	C1375	K1316	K1192	D1066	
GLU		THR	L1627	S1517	GLU	LEU	A1376	C1317	Q1193	Y1067	
GLY		ARG	F1628	C1518	LEU	PHE	E1377	Q1318	Q1194	L1068	
ASP		LEU	L1629	A1519	GLN	ASN	G1378	D1319	R1195	F1069	
LEU		PRO	E1630	A1520	SER	PHE	K1379	M1320	L1196	L1070	
PRO		PRO	G1631	A1521	THR	THR	M1380	I1321	L1197	V1071	
VAL		PRO	S1632	A1522	ARG	LEU	I1381	I1322	K1198	S1072	
ILE		ILE	E1633	Q1523	LEU	ASP	Y1382	M1322	M1199	Q1076	
GLY		GLY	A1634	R1524	LEU	ALA	T1383	T1323	M1200	F1079	
GLY		THR	Y1635	R1525	GLU	ARG	E1384	E1324	D1201	H1080	
GLY		ASP	Q1636	A1526	CYS	VAL	I1385	L1325	A1202	F1082	
ASP		PRO	R1637	S1527	PRO	SER	K1386	T1326	H1203	S1083	
LEU		PRO	C1638	S1528	W1462	LYS	C1387	M1327	K1204	Q1084	
LEU		PRO	E1639	Y1529	L1463	LYS	L1388	A1328	V1205	R1085	
GLY		PRO	S1640	K1530	Q1464	ARG	S1389	G1329	M1206	Q1086	
GLN		PRO	G1641	A1531	Q1466	GLU	L1390	D1330	L1207	H1086	
PRO		PRO	G1642	H1467	H1468	LYS	L1391	D1331	D1208	H1090	
VAL		PRO	S1645	S1470	K1469	VAL	L1392	V1332	L1209	T1091	
ASP		PRO	K1646	V1471	G1469	D1435	L1393	V1333	L1210	T1092	
PRO		PRO	H1650	E1472	L1438	T1437	D1395	F1335	L1211	F1093	
THR		THR	H1650	A1473	C1474	L1438	V1396	Y1336	I1212	K1093	
THR		THR	H1650	P1544	L1475	K1440	V1397	S1279	P1213	F1094	
THR		THR	D1653	L1475	I1475	Y1441	S1398	E1280	Y1214	Q1096	
THR		THR	L1654	R1476	K1476	V1442	V1399	F1281	D1215	L1097	
THR		THR	V1546	A1476	A1476	V1442	V1400	P1281	K1216	L1098	
THR		THR	V1547	A1476	A1476	V1442	V1401	L1283	G1217	L1099	
THR		THR	P1548	A1476	A1476	V1442	T1401	Q1284	D1218	S1100	
THR		THR	T1549	A1550	A1550	V1442	H1402	H1286	G1217	A1101	
THR		THR	A1550	Q1551	Q1551	V1442	E1403	H1286	M1221	Q1102	
THR		THR	Q1552	Q1552	Q1552	V1442	D1404	F1286	M1222		
THR		THR	Q1552	Q1552	Q1552	V1442	C1405	V1287	E1223		
THR		THR	D1587	D1587	D1587	V1442	T1407	H1288			
THR		THR	Y1588	Y1588	Y1588	V1442	M1348	M1348			



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	49087	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	61	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	Not provided	
Magnification	22500	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	22.614	Depositor
Minimum map value	-17.513	Depositor
Average map value	-0.008	Depositor
Map value standard deviation	0.623	Depositor
Recommended contour level	2.8	Depositor
Map size (Å)	417.79202, 417.79202, 417.79202	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.088, 1.088, 1.088	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.25	0/17689	0.45	4/23903 (0.0%)
1	B	0.25	0/17689	0.45	4/23903 (0.0%)
1	C	0.25	0/17689	0.45	4/23903 (0.0%)
1	D	0.25	0/17689	0.45	4/23903 (0.0%)
All	All	0.25	0/70756	0.45	16/95612 (0.0%)

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(°)
1	A	1544	PRO	N-CA-CB	5.80	110.26	103.30
1	B	1544	PRO	N-CA-CB	5.80	110.26	103.30
1	D	1544	PRO	N-CA-CB	5.80	110.26	103.30
1	C	1544	PRO	N-CA-CB	5.77	110.22	103.30
1	B	1495	PRO	N-CA-CB	5.70	110.14	103.30

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	17382	17386	17215	105	0
1	B	17382	17386	17215	106	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	17382	17386	17215	109	0
1	D	17382	17386	17215	107	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
All	All	69540	69544	68860	424	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 3.

The worst 5 of 424 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:1214:TYR:OH	1:A:1222:MET:SD	2.46	0.74
1:D:1214:TYR:OH	1:D:1222:MET:SD	2.46	0.74
1:A:75:LYS:NZ	1:A:489:ASN:O	2.21	0.74
1:B:1893:ARG:NH1	1:B:1955:ASN:OD1	2.21	0.74
1:A:1893:ARG:NH1	1:A:1955:ASN:OD1	2.21	0.73

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	2147/2671 (80%)	2079 (97%)	66 (3%)	2 (0%)	48 81
1	B	2147/2671 (80%)	2078 (97%)	67 (3%)	2 (0%)	48 81

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	2147/2671 (80%)	2080 (97%)	65 (3%)	2 (0%)	48	81
1	D	2147/2671 (80%)	2080 (97%)	65 (3%)	2 (0%)	48	81
All	All	8588/10684 (80%)	8317 (97%)	263 (3%)	8 (0%)	50	81

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1544	PRO
1	B	1544	PRO
1	C	1544	PRO
1	D	1544	PRO
1	A	1494	LEU

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	1883/2385 (79%)	1870 (99%)	13 (1%)	81	86
1	B	1883/2385 (79%)	1870 (99%)	13 (1%)	81	86
1	C	1883/2385 (79%)	1870 (99%)	13 (1%)	81	86
1	D	1883/2385 (79%)	1870 (99%)	13 (1%)	81	86
All	All	7532/9540 (79%)	7480 (99%)	52 (1%)	80	86

5 of 52 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	550	GLN
1	C	1882	GLU
1	D	2051	HIS
1	C	556	CYS
1	C	1418	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	94	GLN
1	B	94	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 12 ligands modelled in this entry, 12 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	5
1	B	5

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Mol	Chain	Number of breaks
1	C	5
1	D	5

The worst 5 of 20 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	1552:GLN	C	1586:TRP	N	55.42
1	B	1552:GLN	C	1586:TRP	N	55.42
1	C	1552:GLN	C	1586:TRP	N	55.42
1	D	1552:GLN	C	1586:TRP	N	55.42
1	A	1533:THR	C	1541:ARG	N	16.01

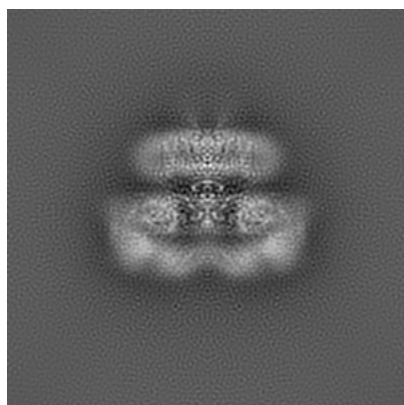
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-7991. These allow visual inspection of the internal detail of the map and identification of artifacts.

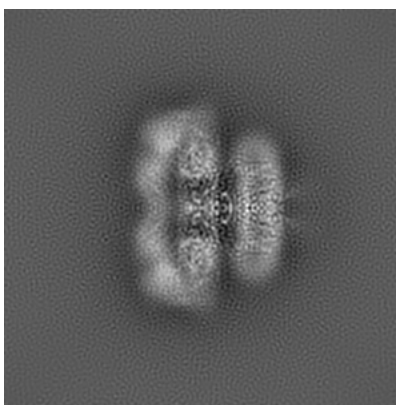
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

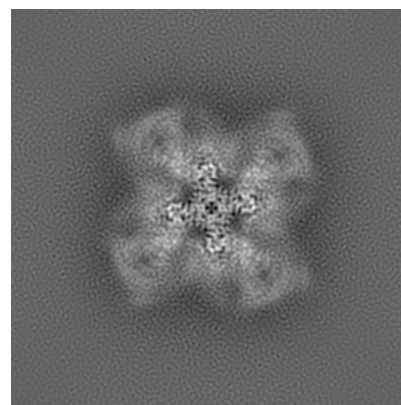
6.1.1 Primary map



X



Y

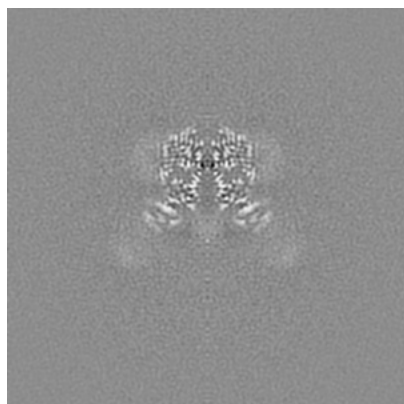


Z

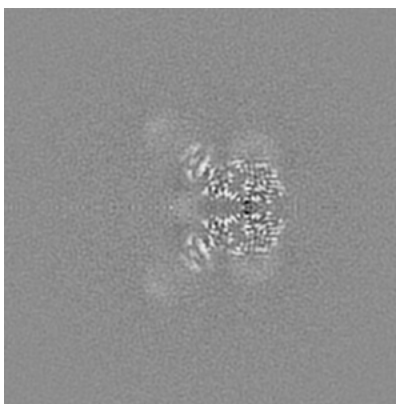
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

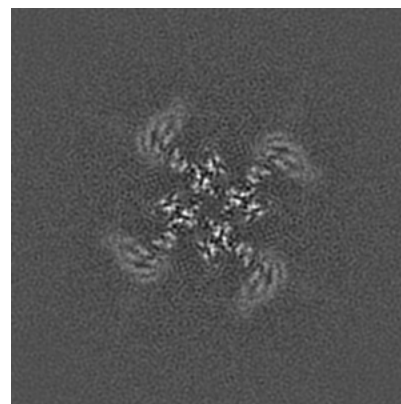
6.2.1 Primary map



X Index: 192



Y Index: 192

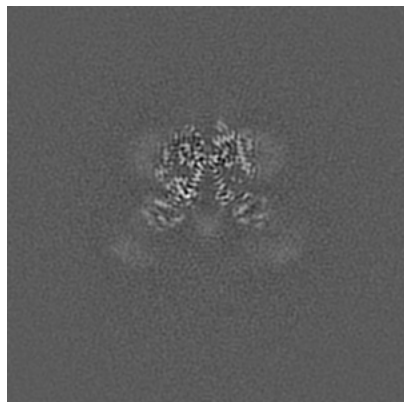


Z Index: 192

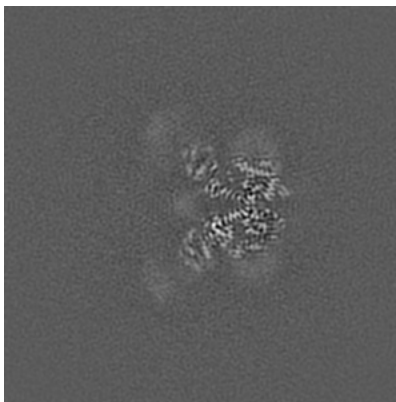
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

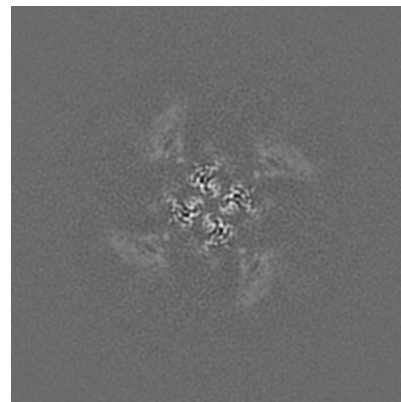
6.3.1 Primary map



X Index: 194



Y Index: 190

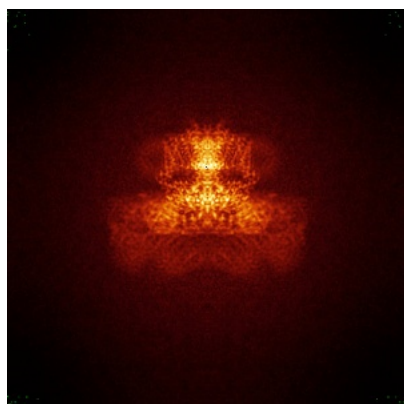


Z Index: 200

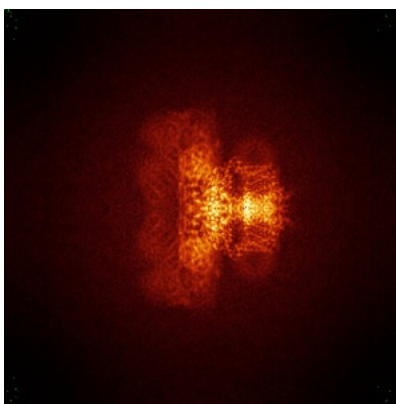
The images above show the largest variance slices of the map in three orthogonal directions.

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

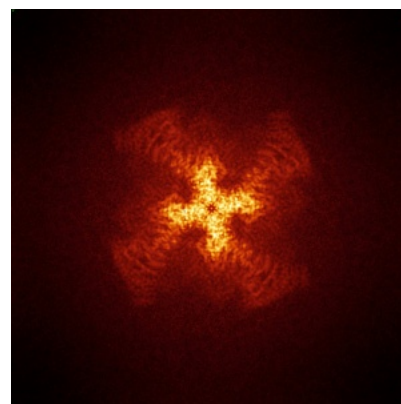
6.4.1 Primary map



X



Y



Z

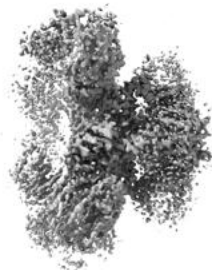
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 2.8. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

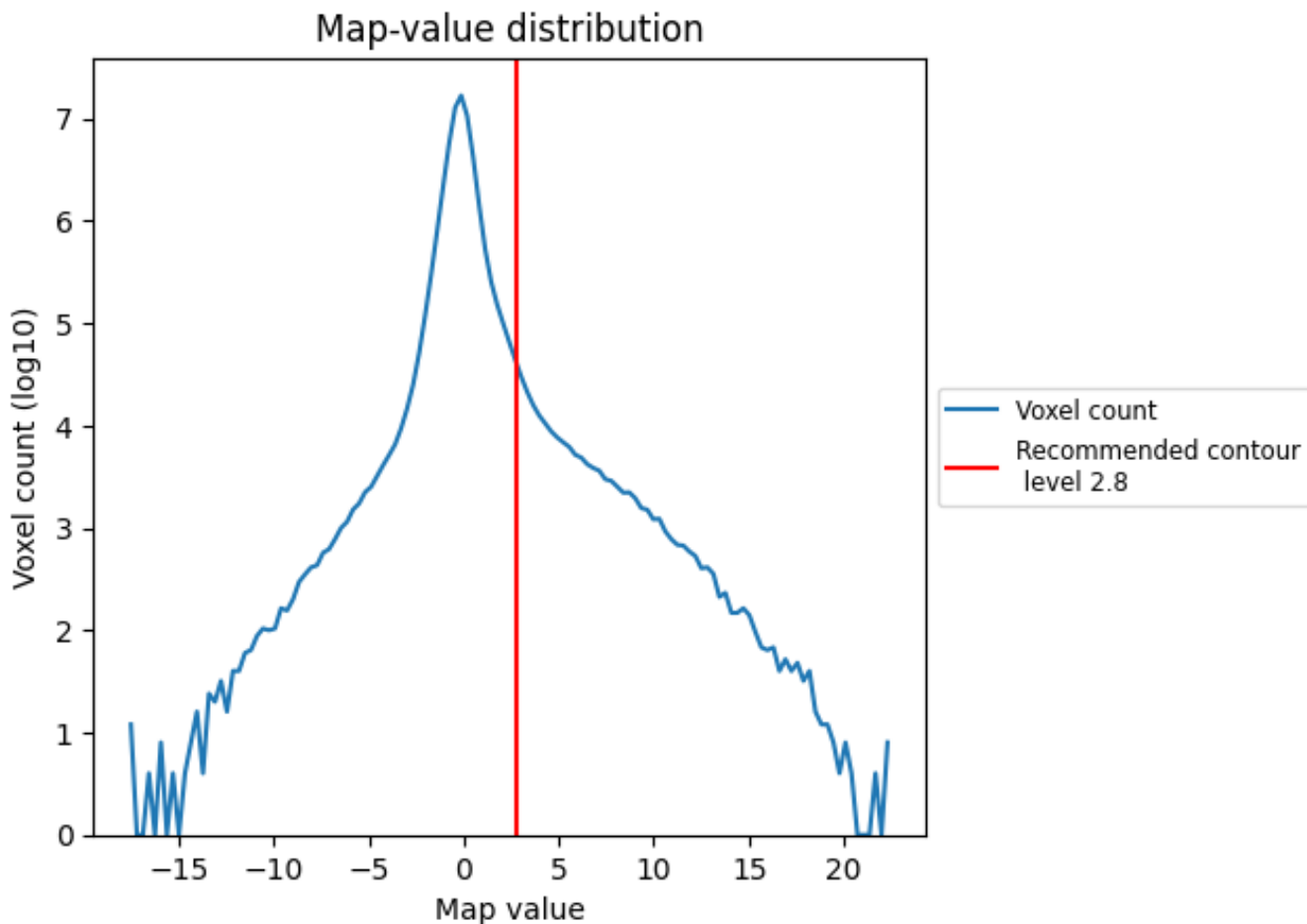
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

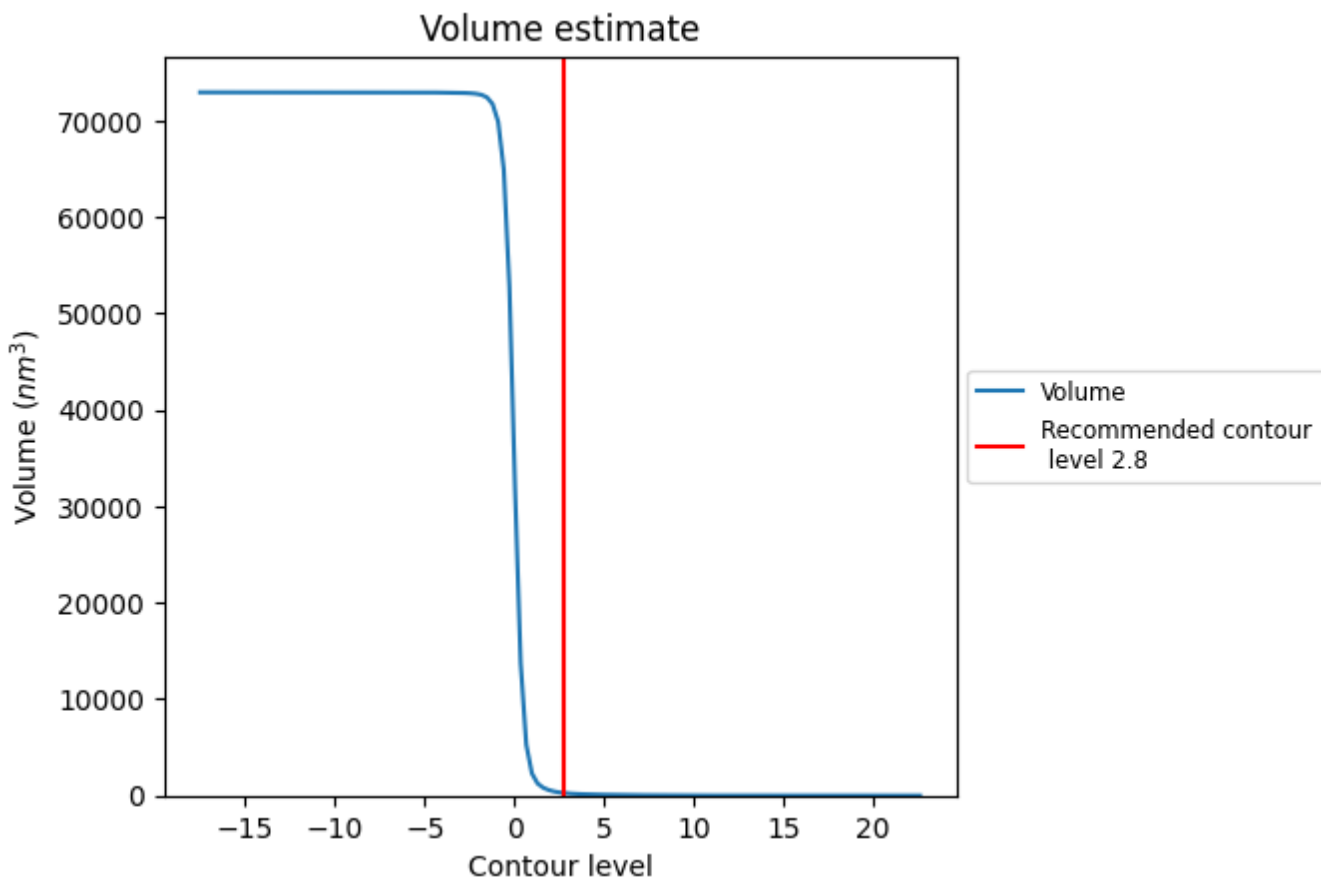
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

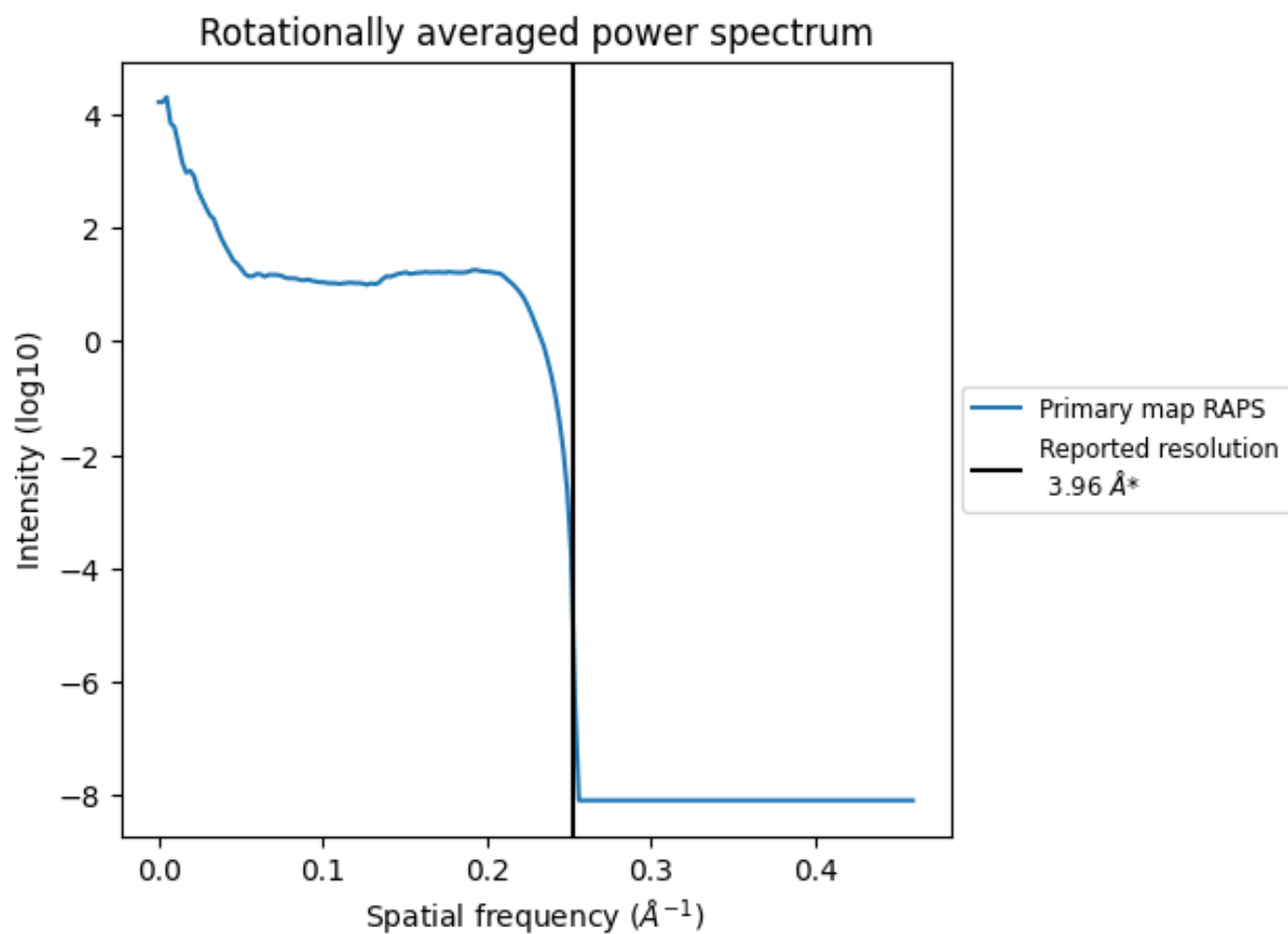
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 258 nm³; this corresponds to an approximate mass of 233 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 0.253 Å⁻¹

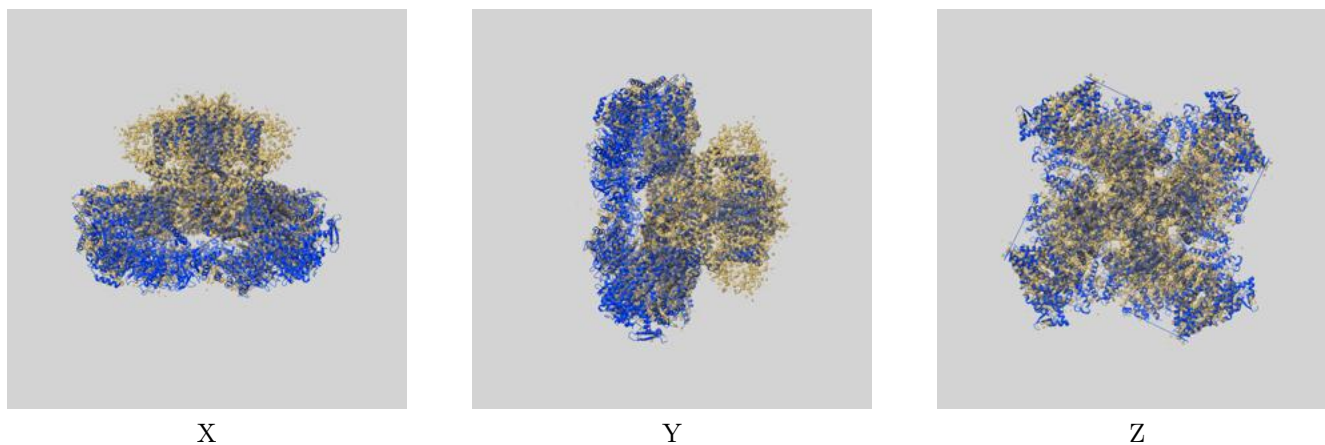
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

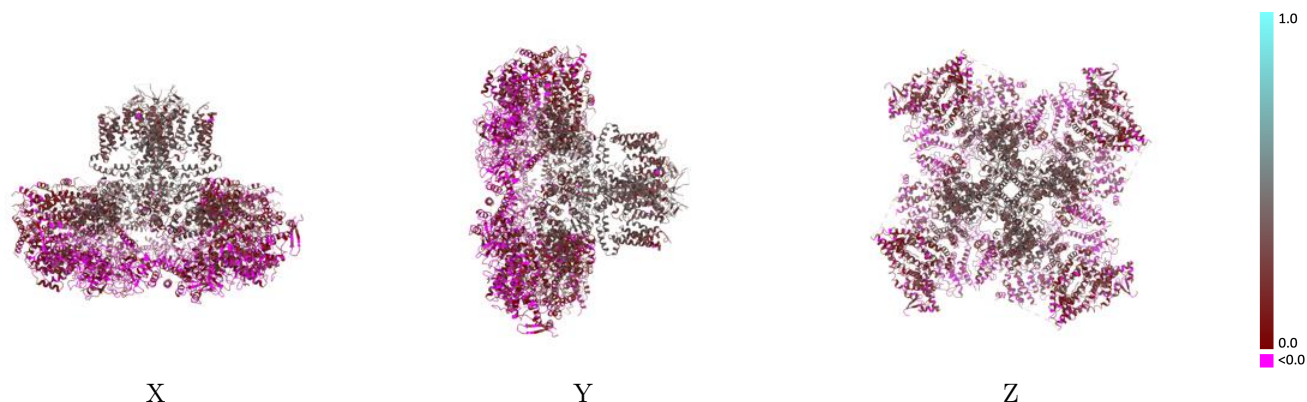
This section contains information regarding the fit between EMDB map EMD-7991 and PDB model 6DRA. Per-residue inclusion information can be found in section [3](#) on page [4](#).

9.1 Map-model overlay [i](#)



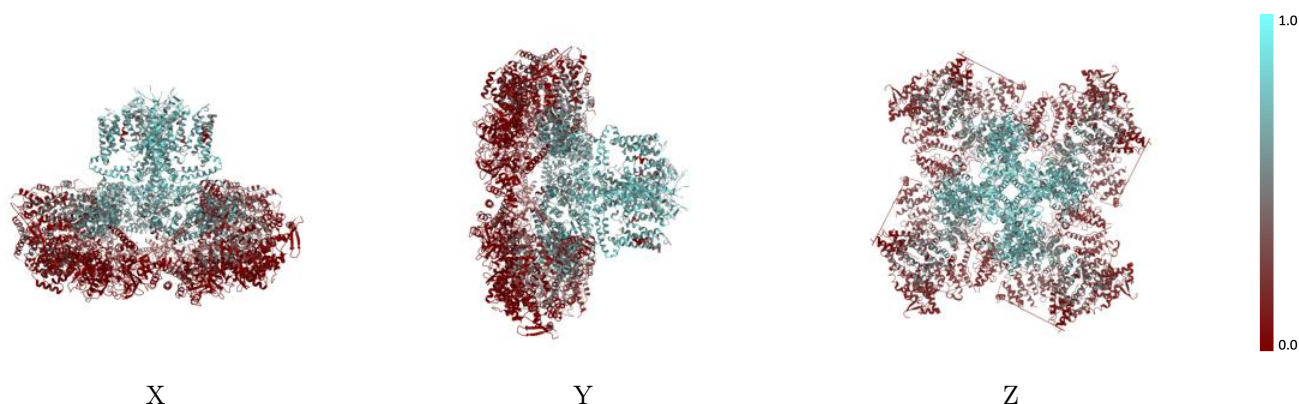
The images above show the 3D surface view of the map at the recommended contour level 2.8 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



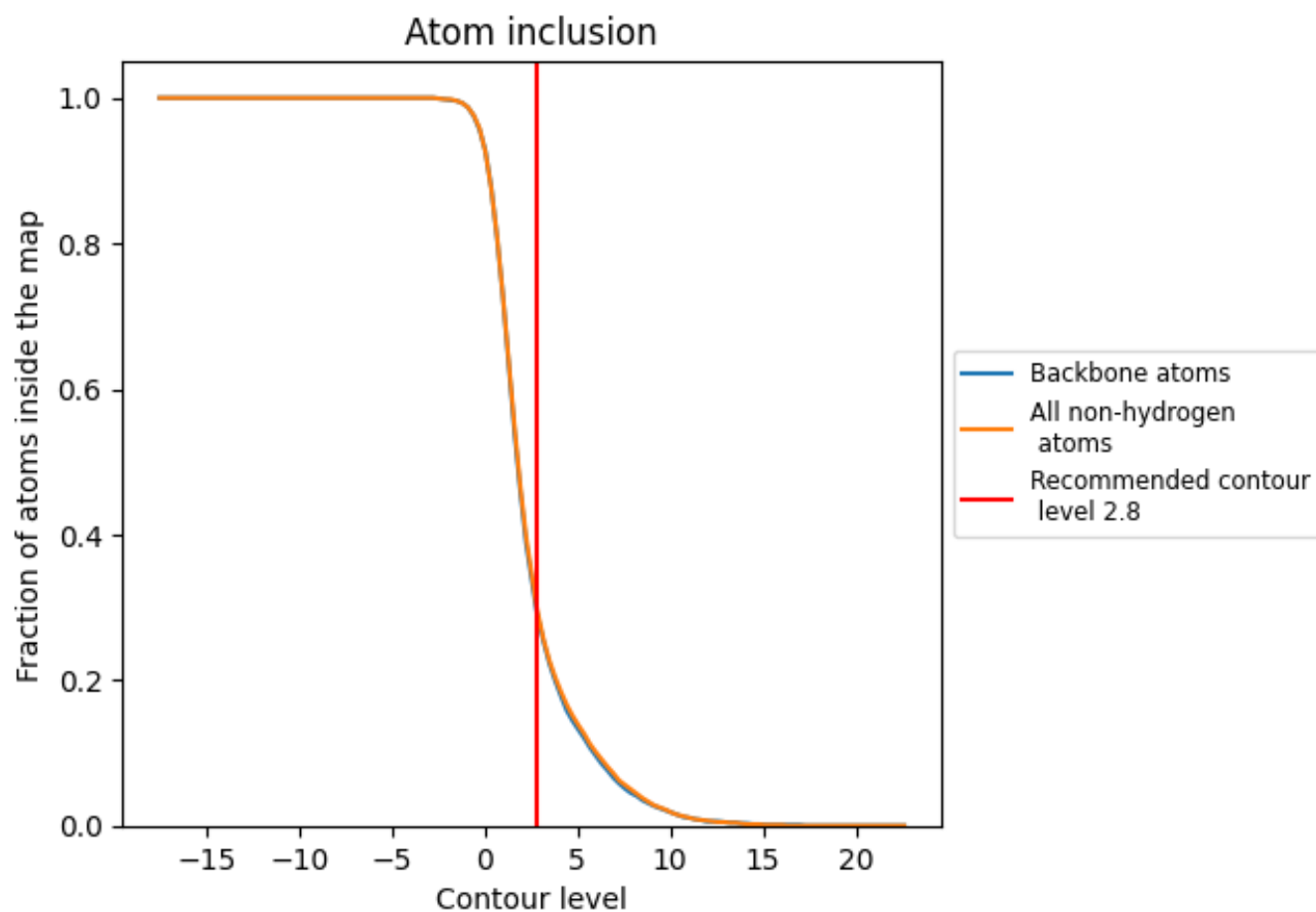
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2.8).











9.4 Atom inclusion [i](#)



At the recommended contour level, 30% of all backbone atoms, 30% 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 (2.8) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.3010	 0.1690
A	 0.3100	 0.1680
B	 0.3100	 0.1690
C	 0.3100	 0.1690
D	 0.3100	 0.1680

