



wwPDB EM Validation Summary Report ⓘ

Nov 6, 2022 – 12:51 PM EST

PDB ID : 6MIZ
EMDB ID : EMD-9133
Title : Human TRPM2 ion channel in an ADPR-bound state
Authors : Wang, L.; Fu, T.M.; Xia, S.; Wu, H.
Deposited on : 2018-09-20
Resolution : 6.10 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

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.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.2

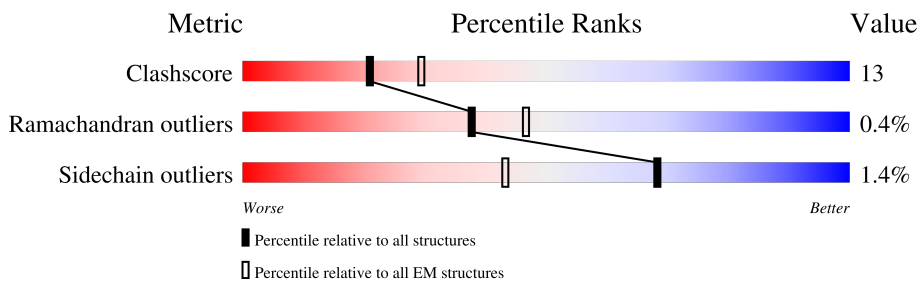
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 6.10 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 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	1503	<p>83% 58% 30% • 11%</p>
1	B	1503	<p>89% 57% 31% • 11%</p>
1	C	1503	<p>89% 58% 30% • 11%</p>
1	D	1503	<p>89% 58% 30% • 11%</p>

2 Entry composition

There is only 1 type of molecule in this entry. The entry contains 43120 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.

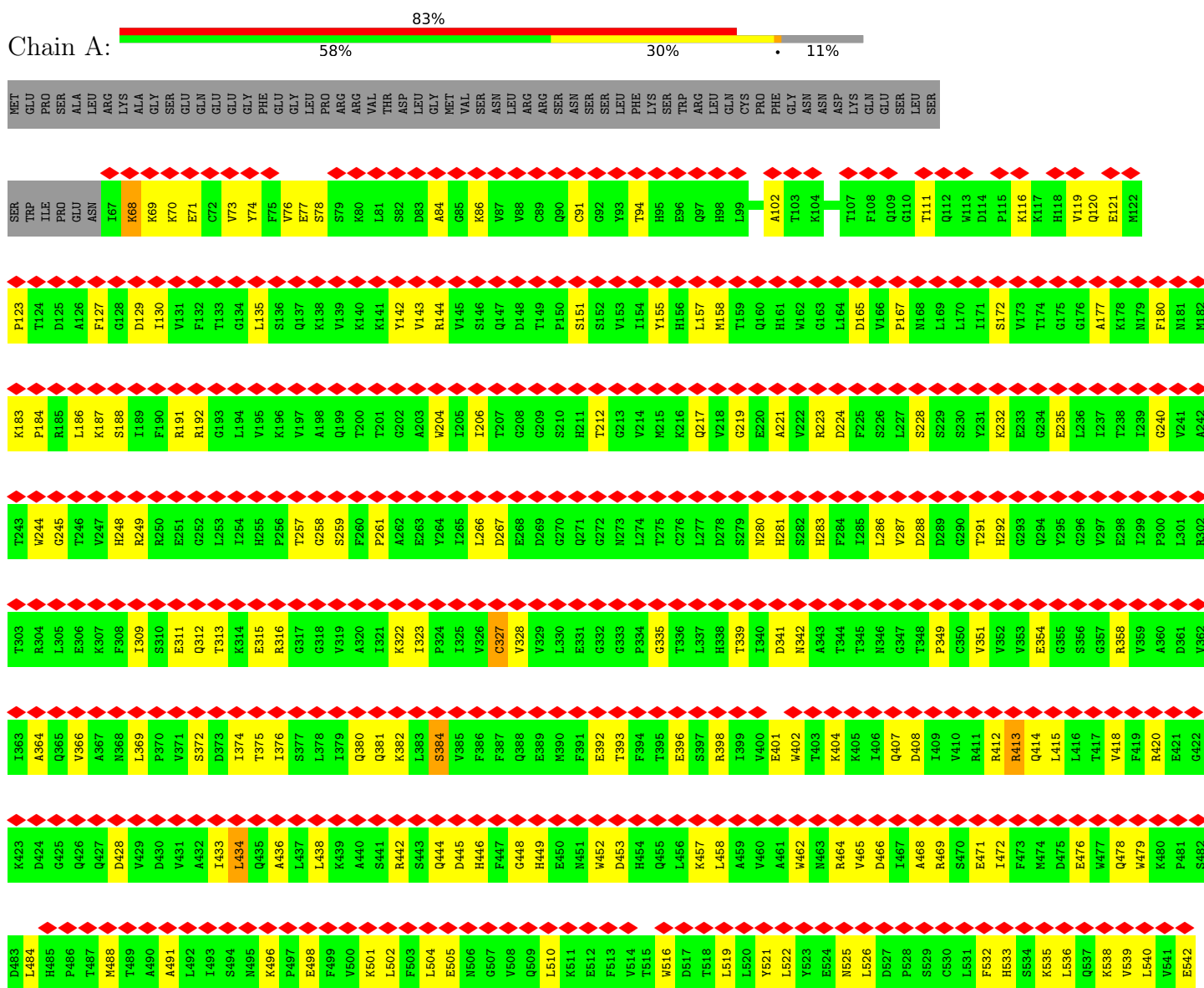
- Molecule 1 is a protein called Transient receptor potential cation channel subfamily M member 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1337	Total 10780	C 6942	N 1865	O 1919	S 54	0	0
1	B	1337	Total 10780	C 6942	N 1865	O 1919	S 54	0	0
1	C	1337	Total 10780	C 6942	N 1865	O 1919	S 54	0	0
1	D	1337	Total 10780	C 6942	N 1865	O 1919	S 54	0	0

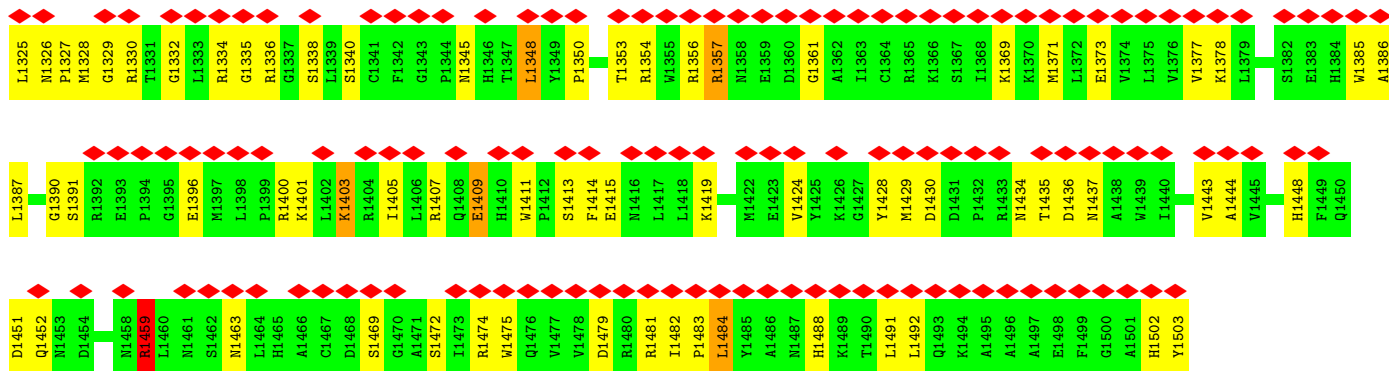
3 Residue-property plots

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.

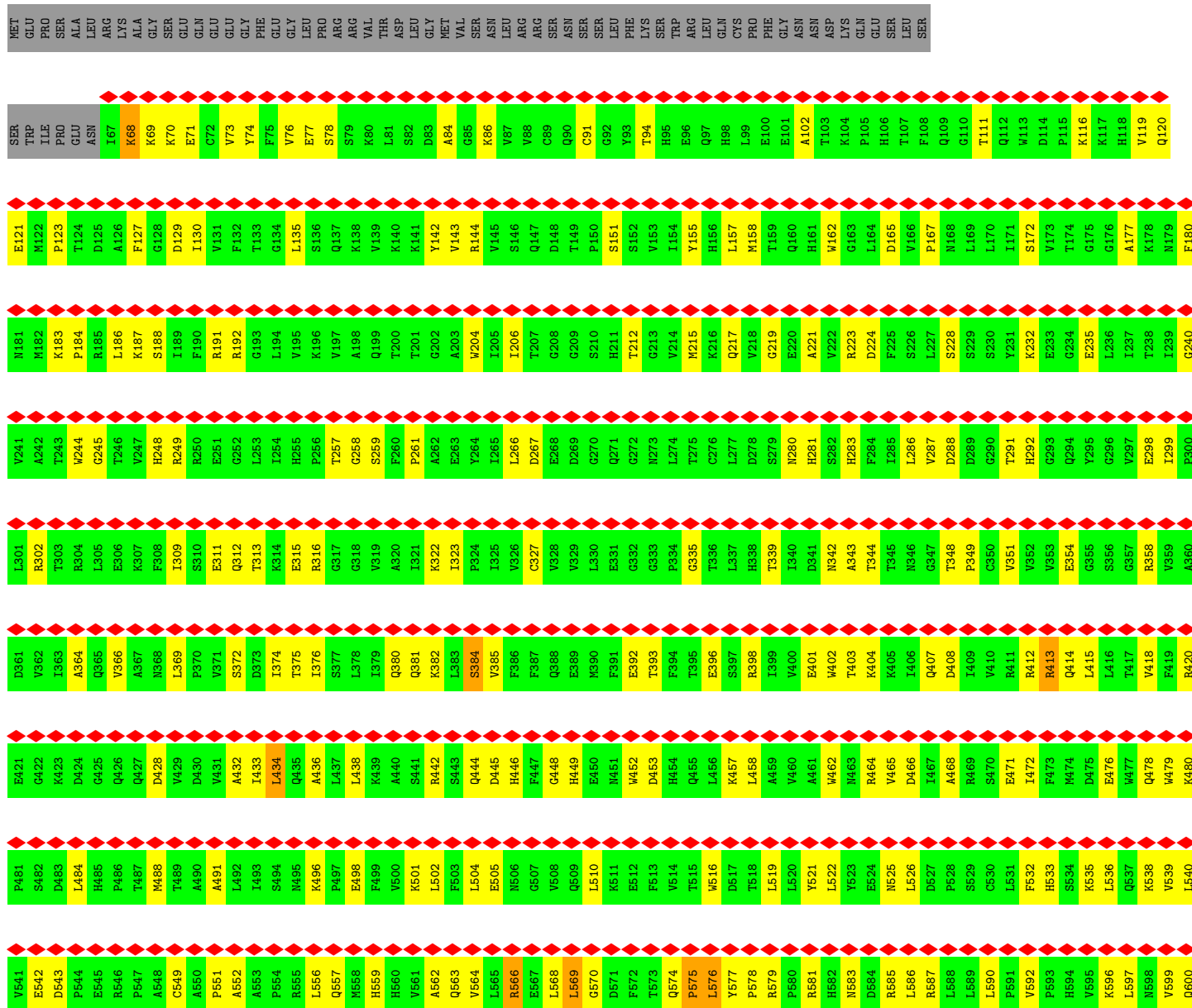
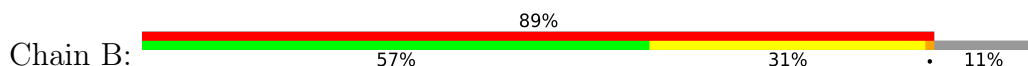
- Molecule 1: Transient receptor potential cation channel subfamily M member 2



E1265	E1266	E1267	F1268	L1269	I1270	Y1271	D1272	P1273	P1274	F1275	I1276	T1277	A1278	E1279	R1280	K1281	D1282	A1283	A1284	A1285	M1286	D1287	P1288	M1289	G1290	D1291	T1292	L1293	E1294	P1295	L1296	S1297	T1298	Q1300	Y1301	M1302	V1303	V1304	D1305	G1306	L1307	R1308	D1309	R1310	R1311	S1312	F1313	H1314	G1315	P1316	Y1317	T1318	Q1320	A1321	G1322	L1323	P1324					
SER	GLU	ALA	ASP	VAL	PRO	THR	LEU	ALA	SER	GLN	LYS	ALA	ALA	GLU	GLU	ASP	GLU	GLY	ARG	LYS	LYS	THR	GLU	GLU	PRO	GLY	SER	MET	GLN	ARG	LEU	SER	LEU	GLU	GLN	VAL	ALA	GLN	THR	ALA	ALA	HIS	TRP	ILE	VAL	ARG	THR	LEU	LEU	ALA	ALA	TRP	ILE	VAL	ARG	THR	LEU	ALA	SER	GLY	PHE	SER
I1085	L1086	L1087	S1088	H1089	L1090	Q1091	L1092	F1093	M1152	I1094	K1095	R1096	V1097	A1157	V1098	L1099	K1100	T1101	P1102	A1103	R1105	H1106	K1107	Q1108	L1109	K1110	N1111	K1112	L1113	E1114	K1115	N1116	E1117	E1118	A1119	A1120	L1121	L1122	S1123	W1124	E1125	I1126	Y1127	L1128	K1129	E1130	N1131	Y1132	L1133	Q1134	N1135	R1136	Q1137	F1138	Q1139	Q1140	K1141	Q1142	R1143	P1144		
E1145	Q1146	K1147	I1148	E1149	D1150	I1151	S1152	M1153	K1154	V1155	D1156	A1157	M1158	V1159	D1160	L1161	L1162	D1163	L1164	D1165	PRO	LYS	LEU	ARG	SER	GLY	SER	MET	GLN	ARG	LEU	SER	LEU	GLU	GLN	VAL	ALA	GLN	THR	ALA	ALA	HIS	TRP	ILE	VAL	ARG	THR	LEU	LEU	ALA	ALA	SER	GLY	PHE	SER							
G1285	L1236	S1237	Y1238	H1239	V1240	M1241	A1242	R1243	H1244	L1245	L1246	Y1247	P1248	M1249	C1250	P1251	V1252	T1253	R1254	F1255	P1256	V1257	M1258	M1259	E1260	K1261	V1262	P1263	W1264																																	
D543	P544	E545	A548	C549	A550	P551	A552	A553	P554	R555	L556	Q557	M558	H559	H560	V561	A562	Q563	V564	L565	R566	E567	L568	L569	G570	D571	F572	T573	Q574	P575	L576	Y577	P578	R579	P580	R581	H582	M583	D584	R585	L586	R587	L588	L589	L590	P591	V592	P593	H594	V595	K596	L597	M598	V599	Q600	G601	V602	S603				
L604	R605	S606	L607	R610	S611	S612	G613	H614	V615	T616	F617	T618	M619	D620	R621	I622	R623	D624	L625	L626	I627	W628	A629	I630	V631	Q632	M633	R634	R635	E636	L637	A638	G639	I640	I641	W642	A643	Q644	S645	Q646	D647	C648	L649	A650	A651	A652	L653	A654	C655	S656	K657	I658	L659	K660	E661	S663	K664					
E665	E666	E667	D668	T669	D670	S671	S672	E673	E674	M675	L676	A677	L678	A679	E680	E681	I682	R683	H684	R685	A686	I687	G688	V689	I690	V691	T691	E692	C693	Y694	R695	K696	D697	L698	R700	A701	Q702	R703	L704	L705	T706	R707	V708	E709	A710	A711	W712	G713	R714	C655	T715	T716	C717	L718	Q719	L720	A721	L722	E723	A724		
K725	D726	M727	K728	F729	V730	S731	H732	G733	G734	I735	Q736	F737	F738	L739	T740	K741	V742	W743	W744	G745	G746	L747	S748	V749	D750	M751	G752	L753	W754	R755	K696	V756	L757	L758	C759	M760	L761	A762	F763	P764	L765	L766	L767	T768	G769	L770	I771	S772	F773	R774	E775	K776	R777	L778	Q779	D780	V781	L782	T783	P784		
A785	A786	R787	A788	R789	A790	F791	F792	T793	A794	P795	V796	V797	K958	K959	A860	L861	Y862	F863	L804	S805	D866	F867	W868	A808	F809	L810	C811	L812	F813	A814	Y815	V816	L817	M818	V819	D820	F821	Q822	P823	V824	R825	S826	W827	C828	E829	A831	I832	Y833	L834	W835	L836	F837	L838	L839	V840	C841	D842	E843	M844			
R845	Q846	L847	F848	R849	D850	P851	D852	E853	C854	G855	L856	M857	K958	K959	A860	L861	Y862	F863	L804	S805	D866	F867	W868	A808	F809	L810	C811	L812	F813	A814	Y815	V816	L817	M818	V819	D820	F821	Q822	P823	V824	R825	S826	W827	C828	E829	A831	I832	Y833	L834	W835	L836	F837	L838	L839	V840	C841	D842	E843	M844			
L905	F906	C907	L908	R909	L910	M911	H912	I913	F914	T915	I916	S917	K918	T919	L920	G921	P922	K923	I924	I925	I926	V927	K928	R929	M930	M931	K932	D933	V934	F935	F936	L937	L938	F939	L940	L941	A942	A943	W944	V945	V946	S947	F948	G949	V950	A951	K952	Q953	A954	I955	L956	I957	H958	N959	E960	L961	D962	V963	D964			
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T1025	V1026	L1027	L1028	L1029	C1030	L1031	Y1032	L1033	L1034	F1035	T1036	M1037	I1038	L1039	L1040	L1041	M1042	L1043	I1044	I1045	A1046	M1047	F1048	M1049	Y1050	T1051	F1052	Q1053	Q1054	V1055	Q1056	E1057	H1058	T1059	D1060	Q1061	L1062	M1063	K1064	F1065	Q1066	R1067	H1068	D1069	L1070	I1071	E1072	E1073	Y1074	H1075	G1076	R1077	A1078	A1080	P1081	P1082	P1083	F1084				
I1085	L1086	L1087	S1088	H1089	L1090	Q1091	L1092	F1093	M1152	I1094	K1095	R1096	V1097	A1157	V1098	L1099	K1100	T1101	P1102	A1103	R1105	H1106	K1107	Q1108	L1109	K1110	N1111	K1112	L1113	E1114	K1115	N1116	E1117	E1118	A1119	A1120	L1121	L1122	S1123	W1124	E1125	I1126	Y1127	L1128	K1129	E1130	N1131	Y1132	L1133	Q1134	N1135	R1136	Q1137	F1138	Q1139	Q1140	K1141	Q1142	R1143	P1144		
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G1285	L1236	S1237	Y1238	H1239	V1240	M1241	A1242	R1243	H1244	L1245	L1246	Y1247	P1248	M1249	C1250	P1251	V1252	T1253	R1254	F1255	P1256	V1257	M1258	M1259	E1260	K1261	V1262	P1263	W1264																																	



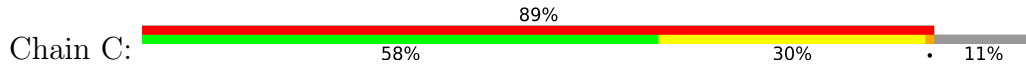
● Molecule 1: Transient receptor potential cation channel subfamily M member 2



G601	G602	S603	L604	R605	S606	L607	Y608	K609	R610	S611	S612	G613	V615	T616	F617	T618	M619	D620	P621	I622	R623	D624	L625	L626	I627	W628	A629	I630	V631	Q632	N633	R634	R635	E636	L637	G638	G639	I640	I641	W642	A643	Q644	S645	Q646	D647	C648	I649	I650	A651	A652	L653	A654	C655	S656	K657	I658	L659	K660			
E661	L662	S663	K664	E665	E666	E667	D668	T669	D670	S671	S672	E673	E674	M675	L676	A677	L678	A679	E680	E681	E682	E683	H684	R685	A686	I687	G688	R689	F690	I691	E692	C693	G694	Y695	R696	K697	D697	L698	G699	R700	A701	Q702	K703	L704	L705	T706	R707	V708	S709	I649	A650	A651	A652	L653	A654	C655	S656	K657	I658	L659	K660
A721	L722	E723	A724	K725	D726	M727	K728	F729	V730	S731	H732	G733	G734	I735	Q736	F737	L738	L739	T740	K741	V742	E743	W744	G745	A886	L747	S748	V749	D750	N751	G752	L753	A754	R755	V756	L757	L758	C759	M760	L761	A762	F763	P764	L765	L766	L767	T768	G769	L770	I771	S772	F773	K774	E775	K776	L777	L778	Q779	D780		
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K1141	Q1142	R1143	P1144	E1145	Q1146	I1148	E1149	D1150	I1151	S1152	M1153	K1154	V1155	D1156	A1157	M1158	V1159	D1160	L1161	D1163	L1164	D1165	PRO	LEU	LYS	ARG	SER	GLY	SER	GLU	GLN	ARG	LEU	LEU	GLY	GLU	GLN	GLN	VAL	ALA	GLN	THR	ALA	ALA	HIS	TRP	ILE	VAL	ARG	THR	LEU	ARG	ALA								
SER	GLY	PHE	SER	SER	GLU	ALA	ASP	VAL	PRO	THR	LEU	ALA	SER	GLN	LYS	ALA	ALA	GLU	GLU	GLU	PRO	ASP	ALA	ALA	GLU	PRO	GLY	GLY	ARG	LYS	LYS	THR	GLU	GLU	PRO	G1235	D1236	S1237	Y1238	H1239	V1240	N1241	A1242	R1243	H1244	L1245	L1246	Y1247	P1248	N1249	C1250	P1251	V1252	T1253	R1254	F1255	P1256	V1257	P1258	M1259	E1260
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A1321	G1322	L1323	P1324	L1325	N1326	P1327	M1328	G1329	R1330	T1331	G1332	L1333	R1334	G1335	R1336	G1337	S1338	L1339	S1340	C1341	F1342	G1343	P1344	N1345	M1346	T1347	L1348	Y1349	P1350	M1351	V1352	T1353	R1354	W1355	R1356	R1357	N1358	E1359	D1360	G1361	I1362	I1363	C1364	R1365	K1366	S1367	I1368	K1369	L1370	M1371	L1372	A1373	V1374	L1375	V1376	V1377	K1378	L1379	P1380		

L1381	L1382	E1383	H1384	M1385	A1386	L1387	P1388	G1389	S1391	R1392	E1393	P1394	G1395	E1396	M1397	L1398	P1399	R1400	K1401	L1402	K1403	R1404	L1405	L1406	R1407	Q1408	E1409	H1410	W1411	P1412	S1413	F1414	E1415	M1416	L1417	L1418	K1419	C1420	G1421	M1422	E1423	V1424	Y1425	K1426	G1427	Y1428	M1429	D1430	D1431	P1432	R1433	M1434	T1435	D1436	M1437	A1438	W1439	T1440	
E1441	T1442	V1443	A1444	V1445	S1446	V1447	H1448	F1449	G1450	D1451	Q1452	N1453	D1454	V1455	E1456	L1457	R1458	R1459	N1460	N1461	S1462	N1463	L1464	H1465	A1466	C1467	D1468	S1469	G1470	A1471	S1472	L1473	R1474	W1475	Q1476	V1477	L1478	D1479	R1480	R1481	I1482	P1483	L1484	Y1485	A1486	N1487	H1488	K1489	T1490	L1491	L1492	Q1493	K1494	A1495	A1496	A1497	E1498	F1499	G1500
A1501	H1502	Y1503																																																									

• Molecule 1: Transient receptor potential cation channel subfamily M member 2



MET	GLU	PRO	ILE	ALA	LEU	ARG	LYS	GLY	SER	GLU	GLN	GLU	GLY	PHE	GLU	LEU	PRO	ARG	VAL	THR	ASP	LEU	GLY	MET	VAL	SER	ASN	LEU	ARG	ARG	SER	ASN	SER	SER	SER	PHE	LYS	SER	TRP	ARG	LEU	GLN	CYS	PRO	PHE	GLY	ASN	ASN	ASP	LYS	GLN	GLU	SER	LEU	SER					
SER	TRP	PRO	PRO	GLN	ASN	I67	K68	K69	K70	E71	C72	V73	Y74	F75	V76	E77	S78	S79	K80	L81	S82	D83	A84	G85	K86	V87	V88	C89	Q90	C91	G92	Y93	T94	H95	E96	Q97	H98	L99	E100	E101	A102	T103	K104	P105	H106	T107	F108	Q109	G110	T111	Q112	W113	D114	P115	K116	K117	H118	V119	Q120	
E121	M122	P123	T124	A125	A126	F127	G128	D129	I130	V131	F132	T133	G134	L135	S136	K137	Q138	V139	K140	T201	K141	Y142	V143	R144	V145	S146	Q147	D148	T149	P150	S151	S152	V153	I154	Y155	H156	L157	M158	T159	E220	H161	W162	G163	L164	D165	V166	P167	M168	L169	L170	I171	S172	V173	T174	G175	G176	A177	K178	M179	F180
M181	K183	P184	R185	K187	S188	F189	R191	R192	G193	L194	V195	K196	V197	A198	Q199	T200	T201	G202	A203	W204	I205	I206	T207	G208	G209	S210	H211	T212	G213	V214	M215	K216	Q217	V218	G219	E220	A221	R222	R223	D224	F225	S226	L227	S228	S229	G230	Y231	K232	E233	G234	E235	L236	I237	T238	I239	G240				
V241	A242	T243	V244	G245	T246	H248	R249	R250	E251	G252	L253	I254	H255	P256	G257	S259	F260	P261	A262	E263	Y264	I265	L266	D267	E268	D269	G270	Q271	G272	N273	L274	T275	C276	L277	D278	S279	N280	H281	S282	H283	F284	L285	L286	V287	D288	D289	G290	T291	H292	G293	Q294	Y295	G296	V297	E298	I299	P300			
L301	R302	T303	R304	L305	E306	F308	I309	S310	E311	Q312	T313	K314	E315	R316	G317	G318	V319	A320	I321	K322	I323	P324	I325	V326	C327	V328	V329	L330	E331	G332	G333	P334	G335	T336	H337	H338	T339	I340	D341	N342	A343	T344	T345	R346	G347	T348	P349	V350	V351	V352	V353	E354	G355	S356	G357	V358	V359	A360		
D361	V362	I363	A364	V365	A366	N368	L369	P370	V371	S372	D373	I374	T375	I376	S377	L378	I379	Q380	Q381	K382	L383	S384	V385	F386	F387	Q388	E389	M390	F391	E392	T393	F394	T395	E396	S397	R398	I399	V400	E401	W402	T403	K404	K405	I406	Q407	D408	I409	V410	R411	R412	R413	Q414	L415	L416	T417	V418	F419	R420		
E421	G422	K423	D424	G425	Q426	D428	V429	D430	V431	A432	I433	L434	Q435	A436	L437	L438	K439	A440	S441	R442	S443	Q444	D445	H446	F447	G448	H449	E450	M451	W452	D453	H454	Q455	L456	K457	L458	A459	V460	A461	M463	R464	V465	D466	I467	A468	R469	S470	E471	I472	F473	M474	D475	E476	W477	Q478	W479	K480			
P481	S482	D483	L484	H485	P486	T487	M488	T489	A490	A491	L492	I493	S494	M495	K496	F497	E498	F499	V500	K501	F503	L504	L505	E506	N507	G508	V509	Q510	L511	E512	F513	V514	T515	N516	D517	T518	L519	L520	Y521	W522	Y523	E524	N525	L526	L527	P528	S529	C530	L531	F532	H533	S534	K535	L536	E537	K538	V539	L540		
V541	E542	D543	P544	E545	R546	P547	A548	C549	A550	P551	A552	A553	P554	R555	L556	Q557	M558	H559	H560	V561	A562	Q563	V564	L565	R566	E567	L568	L569	G570	D571	F572	T573	Q574	P575	L576	Y577	P578	R579	L580	R581	H582	N583	D584	R585	L586	R587	L588	L589	L590	P591	V592	P593	H594	V595	K596	L597	N598	V599	Q600	

A1321	G1322	L1323	P1324	L1325	N1326	P1327	M1328	G1329	R1330	T1331	G1332	L1333	R1334	G1335	R1336	G1337	S1338	L1339	S1340	C1341	F1342	G1343	P1344	N1345	H1346	T1347	L1348	Y1349	P1350	M1351	V1352	T1353	R1354	W1355	R1356	R1357	N1358	E1359	D1360	G1361	A1362	I1363	C1364	R1365	K1366	S1367	I1368	K1369	L1370	M1371	L1372	E1373	V1374	L1375	V1376	V1377	K1378	L1379	P1380		
K1261	V1262	P1263	W1264	E1265	T1266	E1267	F1268	L1269	I1270	Y1271	D1272	P1273	P1274	F1275	Y1276	T1277	A1278	E1279	R1280	K1281	D1282	A1283	A1284	M1285	D1287	P1288	G1289	M1290	D1291	T1292	L1293	E1294	P1295	L1296	S1297	T1298	I1299	Q1300	Y1301	M1302	V1303	V1304	D1305	K1306	L1307	R1308	D1309	R1310	R1311	S1312	F1313	G1314	G1315	P1316	T1317	T1318	V1319	Q1320			
SER	GLY	PHE	SER	SER	GLU	ALA	ASP	VAL	PRO	THR	LEU	ALA	SER	GLN	LYS	ALA	GLU	GLU	PRO	ASP	ALA	GLU	PRO	GLY	ARG	LYS	THR	GLU	PRO	G1235	D1236	S1237	Y1238	H1239	V1240	N1241	A1242	R1243	H1244	L1245	L1246	Y1247	P1248	N1249	C1250	P1251	V1252	T1253	R1254	F1255	P1256	V1257	P1258	M1259	E1260						
R961	R962	V963	D964	W965	L966	F967	R968	G969	A970	V971	Y972	H973	S974	Y975	L976	T977	I978	F979	G980	Q981	I982	P983	G984	Y985	I986	D987	G988	VAL	ASN	PHE	ASN	PRO	GLU	HIS	CYS	SER	PRO	ASN	GLY	THR	ASP	PRO	TYR	LYS	PRO	LYS	CYS	PRO	GLU	GLU	V946	S947	F948	G949	GLN	ARG	PRO	ALA	F1020		
L901	D902	F903	I904	L905	F906	C907	L908	R909	L910	M911	H912	I913	F914	T915	I916	S917	K918	T919	L920	G921	P922	K923	I924	I925	I926	V927	K928	R929	M930	M931	K932	D933	V934	F935	F936	F937	L938	L939	F939	L940	L941	A942	G943	V944	V945	V946	S947	F948	G949	GLN	ARG	PRO	ALA	Q953	A954	I955	L956	I957	H958	N959	E960
C841	E842	E843	M844	R845	Q846	L847	F848	Y849	D850	P851	D852	E853	C854	G855	L856	M857	K858	K859	A860	A861	N862	Y863	F864	S865	D866	F867	W868	N869	K870	L871	D872	V873	G874	A875	I876	L877	L878	F879	V880	A881	G882	L883	T884	C885	R886	L887	I888	F889	G890	A891	L892	P893	E894	G895	R896	V897	I898	L899	S900		
L781	G782	T783	P784	A785	R786	R787	A788	R789	A790	F791	T792	T793	A794	F795	V796	V797	V798	F799	H800	L801	N802	I803	L804	S805	S806	F807	A808	F809	L810	C811	L812	L813	A814	Y815	V816	L817	M818	V819	D820	F821	Q822	P823	V824	P825	S826	W827	C828	E829	C830	A831	I832	R833	L834	W835	L836	F837	R838	L839	V840		
A721	L722	E723	A724	K725	D726	M727	K728	F729	V730	S731	H732	G733	A734	I735	Q736	A737	L738	T740	K741	V742	E743	M744	G745	A746	L747	S748	V749	D750	N751	G752	L753	A754	R755	K756	V757	L758	C759	M760	L761	A762	Q763	F764	L765	L766	L767	T768	G769	L770	I771	S772	F773	A774	E775	K776	L777	L778	Q779	D780			
E661	L662	S663	K664	E665	E666	E667	D668	T669	D670	S671	S672	E673	E674	M675	L676	A677	L678	A679	E680	E681	E682	E683	H684	R685	A686	I687	G688	V689	F690	I691	E692	C693	G694	Y695	R696	K697	D697	L698	E699	R700	A701	Q702	W642	K703	L704	L705	T706	R707	V708	S709	L710	A711	W712	G713	K714	T715	T716	C717	L718	Q719	L720

A1321	G1322	L1323	P1324	L1325	N1326	P1327	M1328	G1329	R1330	T1331	G1332	L1333	R1334	G1335	R1336	G1337	S1338	L1339	S1340	C1341	F1342	G1343	P1344	N1345	H1346	T1347	L1348	Y1349	P1350	M1351	V1352	T1353	R1354	W1355	R1356	R1357	N1358	E1359	D1360	G1361	I1362	I1363	C1364	R1365	K1366	S1367	I1368	K1369	L1370	M1371	L1372	E1373	V1374	L1375	V1376	V1377	K1378	L1379	P1380	
K1261	V1262	P1263	W1264	E1265	T1266	E1267	F1268	L1269	I1270	Y1271	D1272	P1273	P1274	F1275	Y1276	T1277	A1278	E1279	R1280	K1281	D1282	A1283	A1284	A1285	M1286	D1287	P1288	M1289	G1290	D1291	T1292	L1293	E1294	P1295	L1296	S1297	T1298	I1299	Q1300	Y1301	M1302	V1303	V1304	D1305	K1306	L1307	R1308	D1309	R1310	R1311	S1312	F1313	H1314	G1315	P1316	T1317	L1318	V1319	Q1320	
SER	GLY	PHE	SER	SER	GLU	ALA	ASP	VAL	PRO	THR	LEU	ALA	SER	GLN	LYS	ALA	GLU	GLU	PRO	ASP	ALA	ALA	GLU	PRO	PRO	LEU	LYS	ARG	SER	GLY	SER	GLU	GLN	GLN	ARG	LEU	LEU	GLY	GLU	GLN	VAL	ALA	GLN	THR	ILE	VAL	ARG	THR	LEU	ARG	ALA	E1260								
G601	V602	S603	L604	R605	S606	L607	Y608	K609	R610	S611	S612	G613	V615	T616	F617	T618	M619	D620	P621	I622	R623	D624	L625	L626	I627	W628	A629	I630	V631	Q632	N633	R634	R635	E636	L637	A638	G639	I640	I641	W642	A643	Q644	S645	Q646	D647	C648	I649	A650	A651	A652	L653	C655	S656	K657	I658	L659	K660			
E661	L662	S663	K664	E665	E666	E667	D668	T669	D670	S671	S672	E673	E674	M675	L676	A677	L678	A679	D680	E681	Y682	E683	H684	R685	A686	I687	G688	V689	F690	T691	E692	C693	G694	Y695	R696	K696	D697	A698	G699	R700	A701	Q702	K703	L704	L705	T706	R707	V708	S709	E710	A711	W712	G713	K714	T715	T716	C717	L718	Q719	L720
A721	L722	E723	A724	K725	D726	M727	K728	F729	V730	S731	H732	G733	G734	I735	Q736	A737	L738	L739	T740	K741	W742	W743	W744	G745	A746	L747	S748	V749	D750	N751	G752	L753	W754	R755	V756	W757	L758	C759	M760	L761	A762	F763	P764	L765	L766	L767	T768	G769	L770	I771	S772	F773	K774	E775	K776	L777	L778	Q779	D780	
V781	G782	T783	P784	A785	A786	R787	A788	R789	A790	F791	F792	T793	A794	P795	V796	W797	V798	F799	H800	E801	N802	I803	L804	S805	S806	F807	A808	F809	L810	C811	L812	L813	A814	Y815	V816	L817	M818	V819	D820	F821	Q822	P823	V824	P825	S826	W827	C828	E829	C830	A831	I832	R833	L834	W835	L836	F837	R838	L839	V840	
C841	E842	E843	M844	R845	Q846	L847	F848	Y849	D850	P851	D852	E853	C854	G855	L856	M857	K858	K859	A860	A861	N862	Y863	F864	S865	D866	F867	W868	N869	K870	L871	D872	V873	G874	A875	I876	L877	L878	F879	V880	A881	Q882	L883	T884	C885	R886	L887	I888	P889	G890	A891	L892	R893	E894	G895	R896	V897	I898	L899	S900	
L901	D902	F903	I904	L905	F906	C907	L908	R909	L910	M911	H912	I913	F914	T915	I916	S917	K918	T919	L920	G921	P922	K923	I924	I925	I926	K928	R929	M930	M931	K932	D933	V934	F935	F936	F937	L938	F939	L940	T941	L942	Q943	L944	V945	V946	S947	F948	G949	V950	A951	K952	Q953	A954	I955	L956	I957	H958	N959	E960		
R961	R962	V963	D964	W965	L966	F967	R968	G969	A970	V971	Y972	H973	S974	Y975	L976	T977	I978	F979	G980	Q981	I982	P983	G984	Y985	I986	D987	G988	VAL	ASN	PHE	ASN	PRO	GLU	HIS	CYS	SER	PRO	ASN	GLY	THR	ASP	PRO	TYR	LYS	PRO	LYS	CYS	PRO	GLU	SER	ASP	ALA	THR	GLN	ARG	PRO	ALA	F1020		
P1021	E1022	W1023	L1024	T1025	W1026	L1027	L1028	L1029	C1030	L1031	Y1032	L1033	L1034	F1035	T1036	M1037	I1038	L1039	L1040	L1041	N1042	L1043	L1044	I1045	M1046	M1047	F1048	M1049	Y1050	T1051	F1052	Q1053	Q1054	V1055	Q1056	E1057	L1058	T1059	D1060	Q1061	I1062	Q1063	W1063	K1064	F1065	Q1066	R1067	H1068	D1069	L1070	I1071	E1072	E1073	Y1074	H1075	G1076	R1077	P1078	A1079	A1080
P1081	P1082	P1083	F1084	I1085	L1086	L1087	S1088	H1089	L1090	Q1091	L1092	F1093	I1094	K1095	R1096	V1097	V1098	L1099	K1100	T1101	P1102	A1103	K1104	R1105	K1107	Q1108	L1109	K1110	M1111	K1112	L1113	E1114	K1115	N1116	E1117	E1118	A1119	A1120	L1121	L1122	S1123	M1124	I1125	E1126	Y1127	H1128	K1129	E1130	M1131	Y1132	L1133	Q1134	M1135	R1136	Q1137	F1138	Q1139	Q1140		
K1141	Q1142	R1143	P1144	E1145	Q1146	K1147	I1148	E1149	D1150	I1151	S1152	M1153	K1154	V1155	D1156	A1157	M1158	V1159	D1160	L1161	D1162	D1163	L1164	D1165	PRO	LEU	LYS	ARG	SER	GLY	SER	GLU	GLN	ARG	LEU	LEU	GLY	GLN	VAL	ALA	GLN	THR	ALA	LEU	HIS	TRP	ILE	VAL	ARG	THR	LEU	ARG	ALA	E1260						
G1235	D1236	S1237	Y1238	H1239	V1240	N1241	A1242	R1243	H1244	L1245	L1246	Y1247	P1248	N1249	C1250	P1251	V1252	T1253	R1254	F1255	P1256	V1257	P1258	M1259	E1260																																			

L1381	E1441	A1501
S1382	T1442	H1502
E1383	V1443	Y1503
H1384	A1444	
W1385	V1445	
A1386	S1446	
L1387	V1447	
P1388	H1448	
G1389	F1449	
G1390	Q1450	
S1391	D1451	
R1392	Q1452	
E1393	N1453	
P1394	D1454	
G1395	V1455	
E1396	E1456	
M1397	L1457	
L1398	N1458	
P1399	R1459	
R1400	L1460	
K1401	N1461	
L1402	S1462	
K1403	N1463	
R1404	L1464	
I1405	H1465	
L1406	A1466	
R1407	C1467	
Q1408	D1468	
E1409	S1469	
H1410	G1470	
W1411	A1471	
P1412	S1472	
S1413	I1473	
F1414	R1474	
E1415	W1475	
N1416	Q1476	
L1417	V1477	
L1418	V1478	
K1419	D1479	
C1420	R1480	
G1421	R1481	
M1422	I1482	
E1423	P1483	
V1424	L1484	
Y1425	Y1485	
K1426	A1486	
G1427	N1487	
Y1428	H1488	
M1429	K1489	
D1430	T1490	
D1431	L1491	
P1432	L1492	
R1433	Q1493	
N1434	K1494	
T1435	A1495	
D1436	A1496	
N1437	A1497	
A1438	E1498	
W1439	F1499	
I1440	G1500	

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	49383	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	70.072	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	31.379	Depositor
Minimum map value	-14.438	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	1.000	Depositor
Recommended contour level	3.6	Depositor
Map size (\AA)	321.00003, 321.00003, 321.00003	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.07, 1.07, 1.07	Depositor

5 Model quality i

5.1 Standard geometry i

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	0.30	0/11050	0.65	12/14990 (0.1%)
1	B	0.30	0/11050	0.65	12/14990 (0.1%)
1	C	0.30	0/11050	0.65	12/14990 (0.1%)
1	D	0.30	0/11050	0.65	12/14990 (0.1%)
All	All	0.30	0/44200	0.65	48/59960 (0.1%)

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	10
1	B	0	10
1	C	0	10
1	D	0	10
All	All	0	40

There are no bond length outliers.

The worst 5 of 48 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	1459	ARG	NE-CZ-NH1	9.20	124.90	120.30
1	D	1459	ARG	NE-CZ-NH1	9.16	124.88	120.30
1	A	1459	ARG	NE-CZ-NH1	9.15	124.88	120.30
1	B	1459	ARG	NE-CZ-NH1	9.14	124.87	120.30
1	A	929	ARG	CD-NE-CZ	6.60	132.84	123.60

There are no chirality outliers.

5 of 40 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	375	THR	Peptide
1	A	452	TRP	Peptide
1	A	479	TRP	Peptide
1	A	616	THR	Peptide
1	A	618	THR	Peptide

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	10780	0	10822	285	0
1	B	10780	0	10822	300	0
1	C	10780	0	10822	291	0
1	D	10780	0	10822	291	0
All	All	43120	0	43288	1148	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 13.

The worst 5 of 1148 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:559:HIS:H	1:A:585:ARG:HB2	1.54	0.73
1:B:559:HIS:H	1:B:585:ARG:HB2	1.54	0.73
1:D:559:HIS:H	1:D:585:ARG:HB2	1.54	0.73
1:C:559:HIS:H	1:C:585:ARG:HB2	1.54	0.72
1:B:471:GLU:HG3	1:B:472:ILE:HG12	1.72	0.70

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	1331/1503 (89%)	1115 (84%)	211 (16%)	5 (0%)	34	72
1	B	1331/1503 (89%)	1115 (84%)	211 (16%)	5 (0%)	34	72
1	C	1331/1503 (89%)	1114 (84%)	212 (16%)	5 (0%)	34	72
1	D	1331/1503 (89%)	1115 (84%)	211 (16%)	5 (0%)	34	72
All	All	5324/6012 (89%)	4459 (84%)	845 (16%)	20 (0%)	38	72

5 of 20 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	576	LEU
1	B	576	LEU
1	C	576	LEU
1	D	576	LEU
1	A	575	PRO

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	1176/1318 (89%)	1159 (99%)	17 (1%)	67	80
1	B	1176/1318 (89%)	1159 (99%)	17 (1%)	67	80
1	C	1176/1318 (89%)	1159 (99%)	17 (1%)	67	80
1	D	1176/1318 (89%)	1159 (99%)	17 (1%)	67	80
All	All	4704/5272 (89%)	4636 (99%)	68 (1%)	68	80

5 of 68 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	596	LYS
1	D	668	ASP
1	D	1311	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	619	MET
1	B	596	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 86 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	822	GLN
1	D	525	ASN
1	C	1116	ASN
1	D	168	ASN
1	D	614	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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-9133. These allow visual inspection of the internal detail of the map and identification of artifacts.

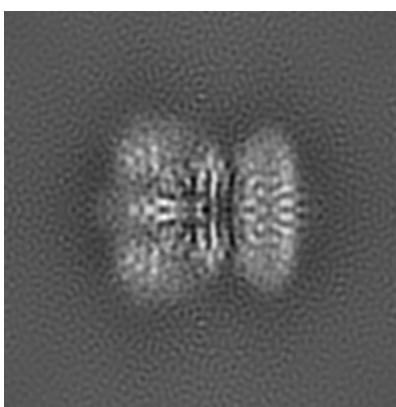
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

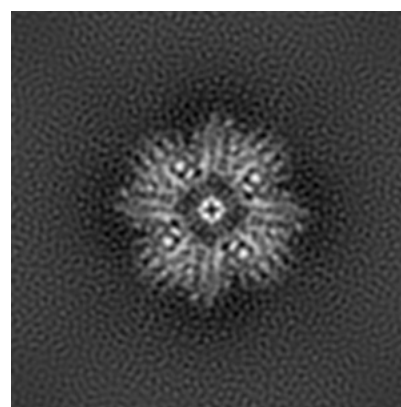
6.1.1 Primary map



X



Y

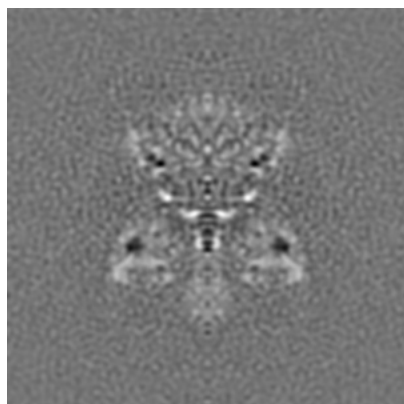


Z

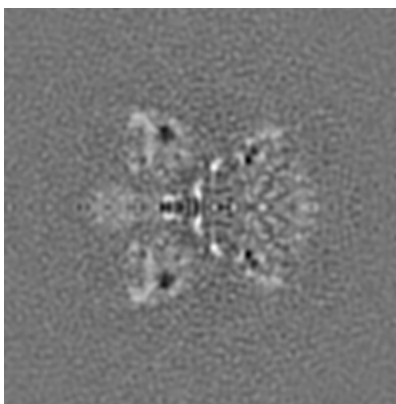
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

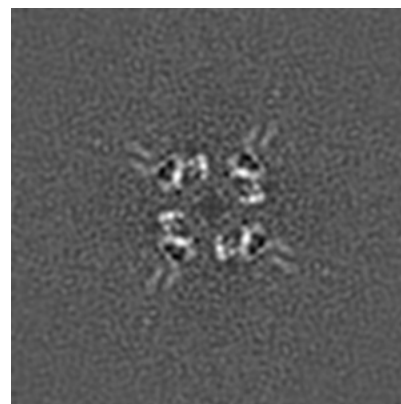
6.2.1 Primary map



X Index: 150



Y Index: 150

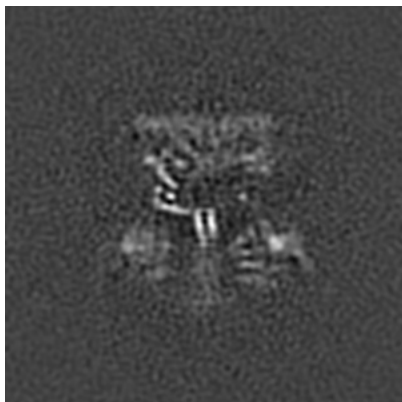


Z Index: 150

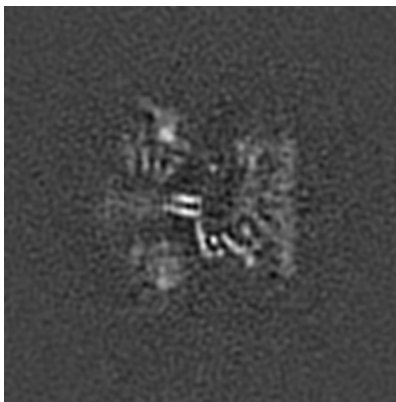
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

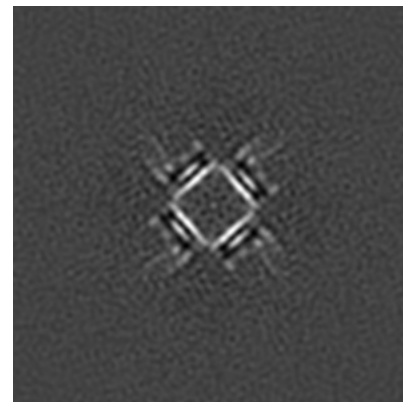
6.3.1 Primary map



X Index: 155



Y Index: 145

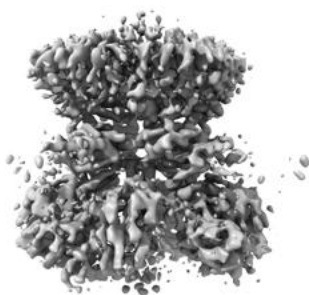


Z Index: 157

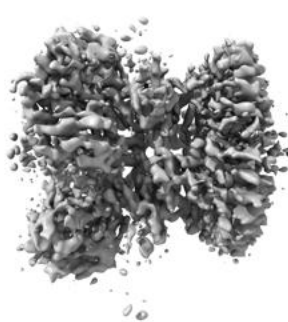
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

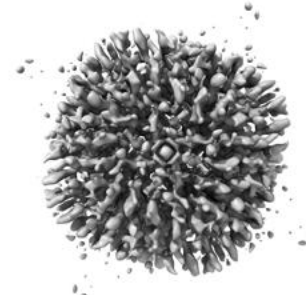
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 3.6. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

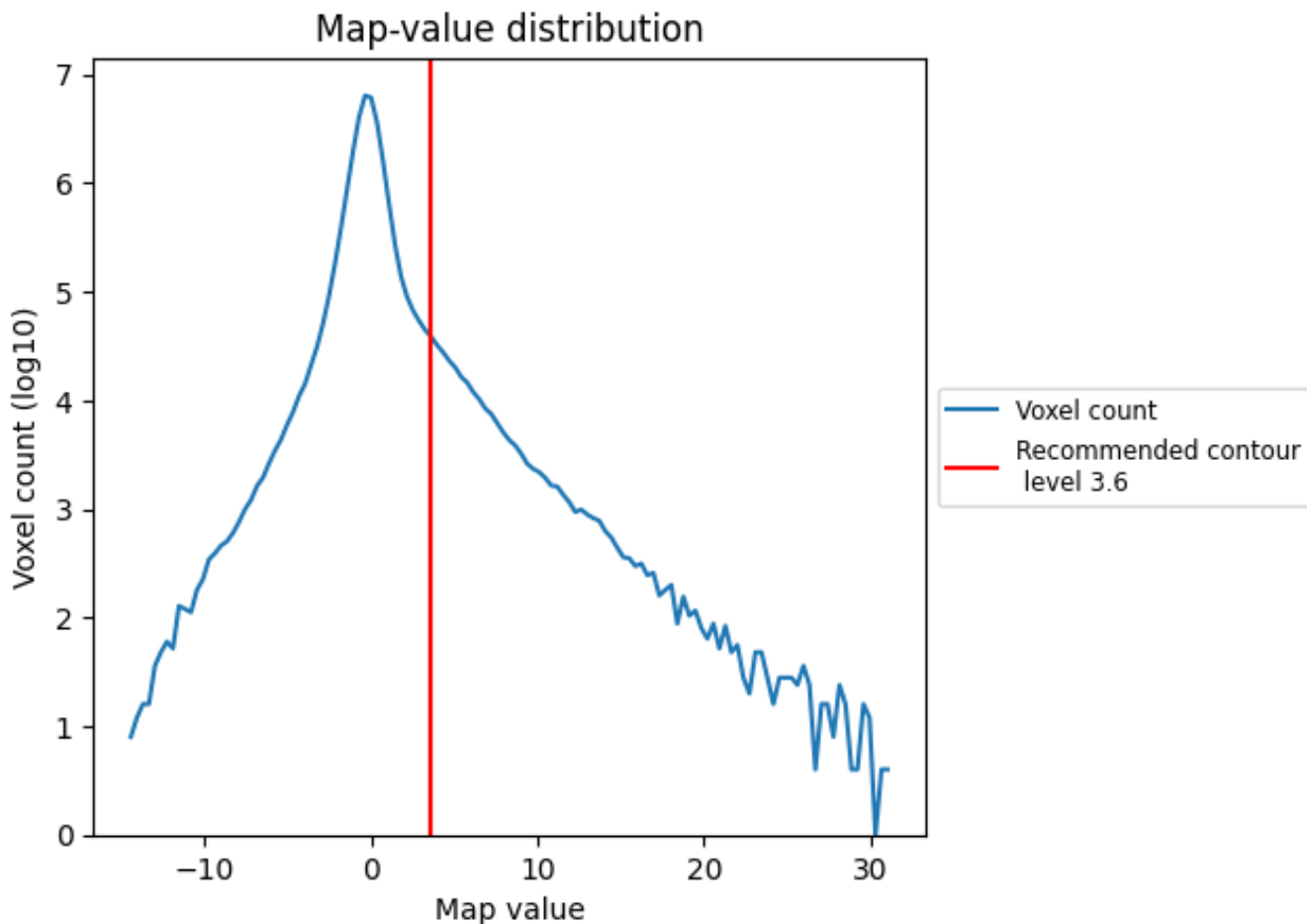
6.5 Mask visualisation

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

7 Map analysis [i](#)

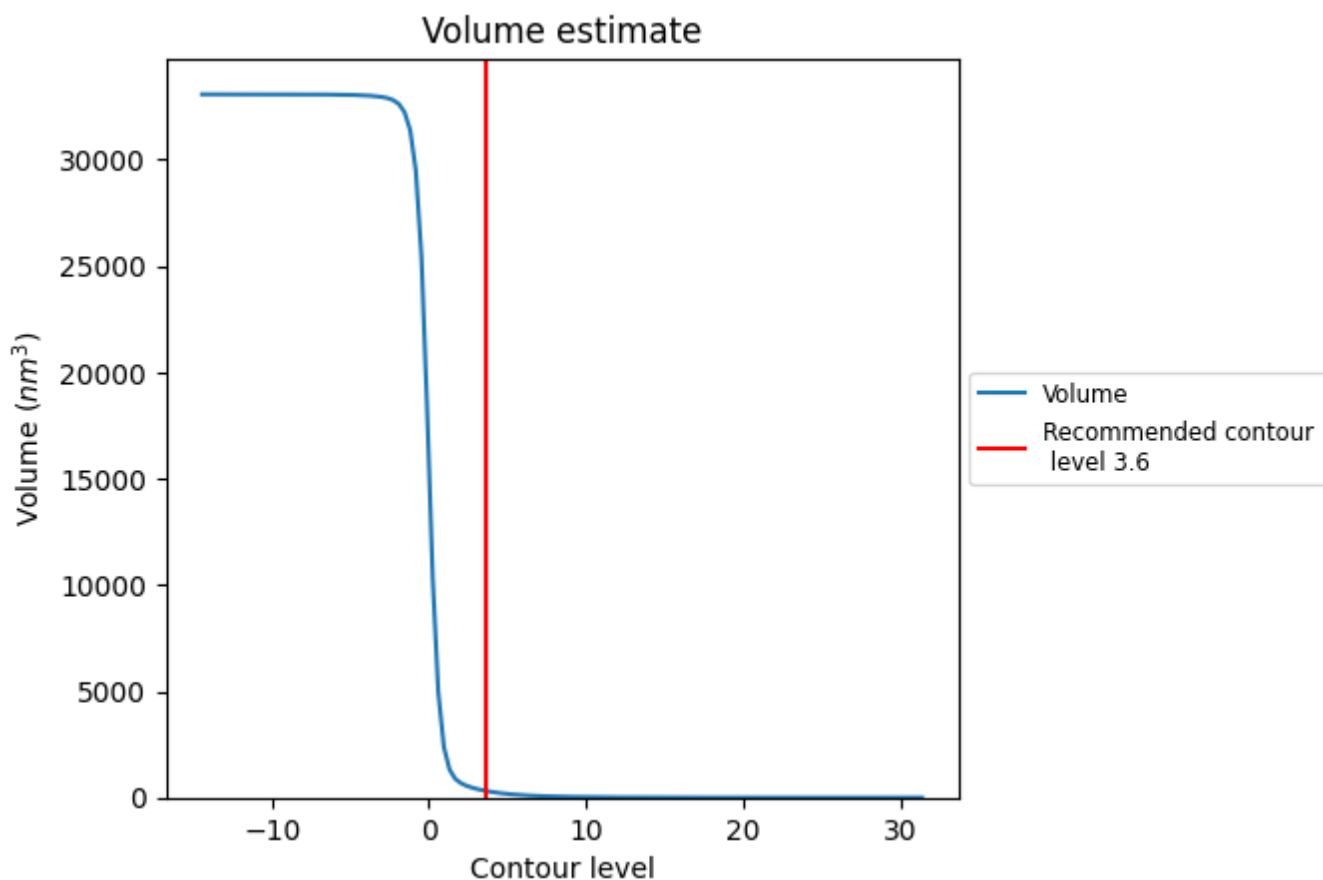
This section contains the results of statistical analysis of the map.

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.

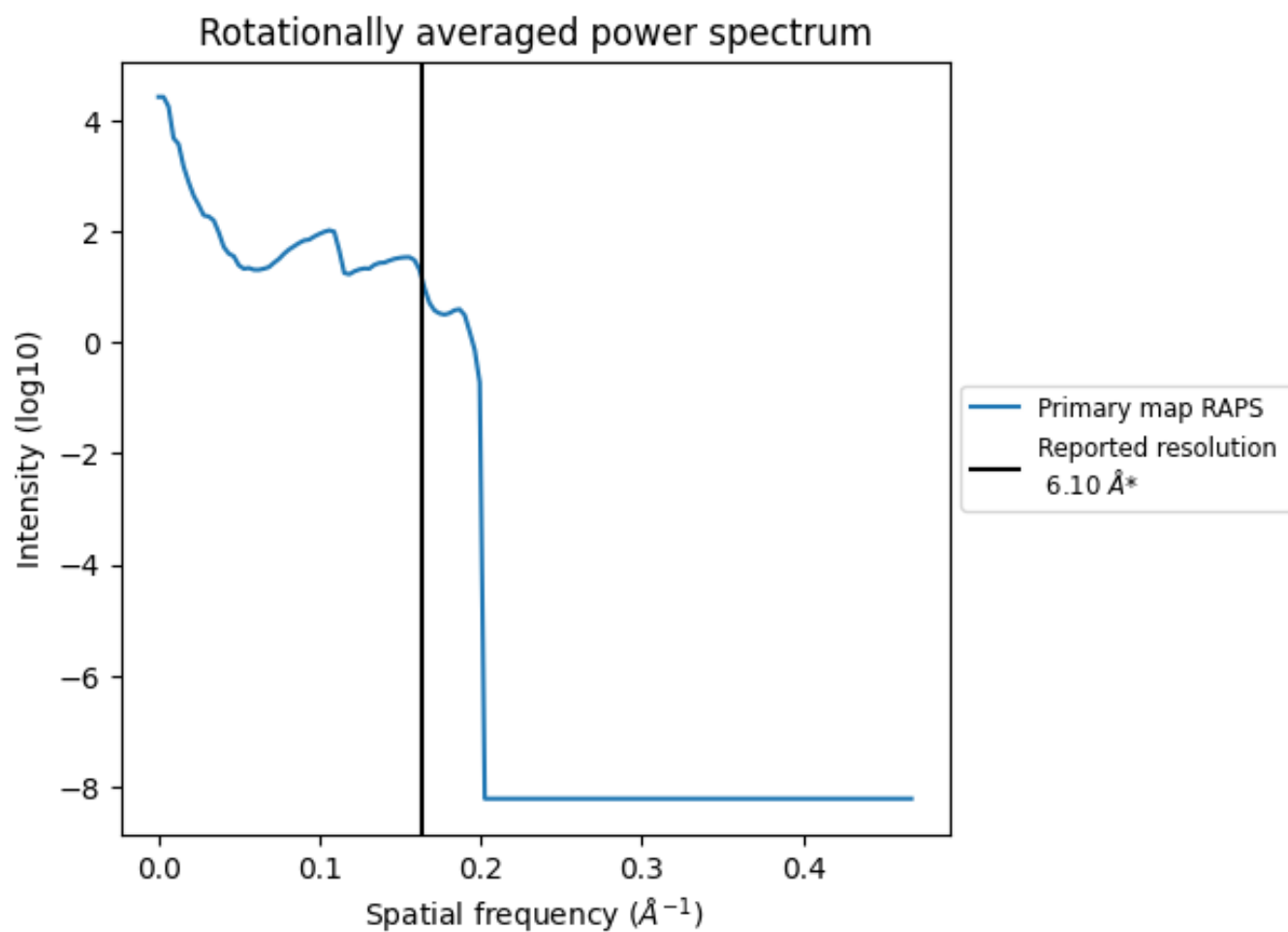
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 317 nm^3 ; this corresponds to an approximate mass of 286 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 0.164 Å⁻¹

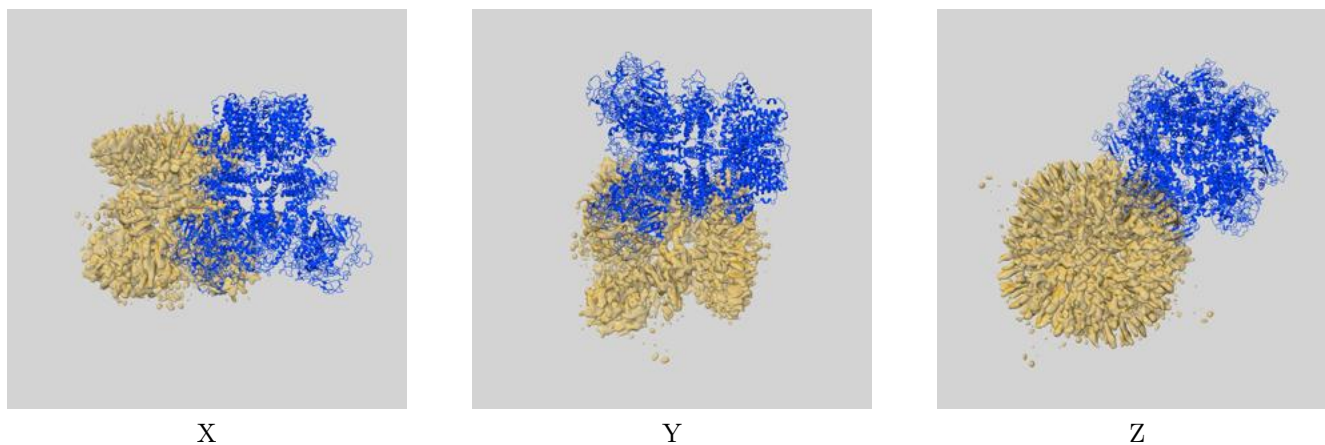
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

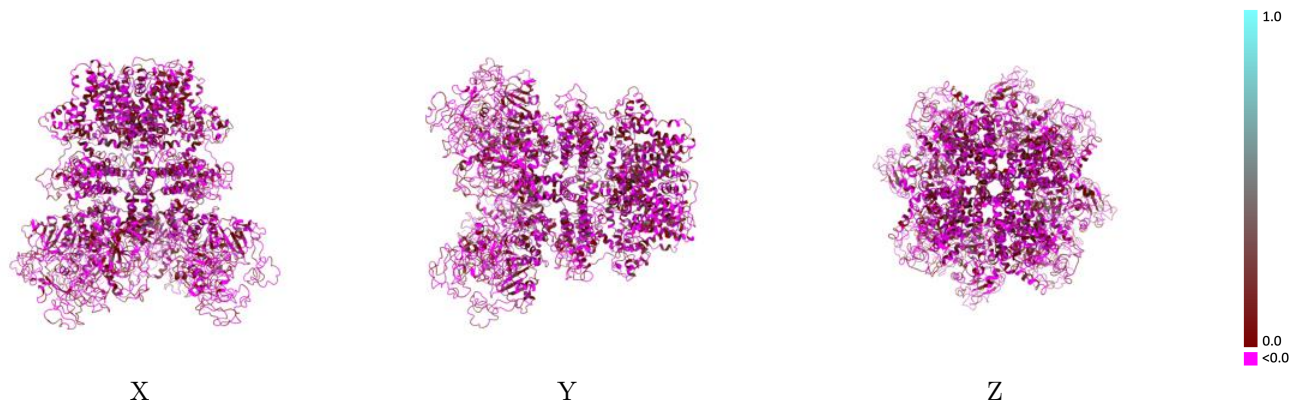
This section contains information regarding the fit between EMDB map EMD-9133 and PDB model 6MIZ. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



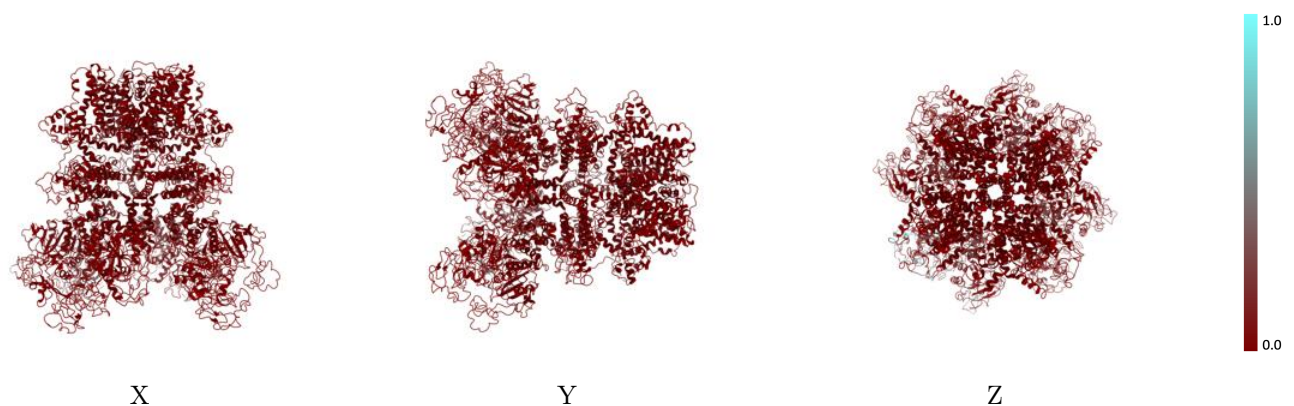
The images above show the 3D surface view of the map at the recommended contour level 3.6 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



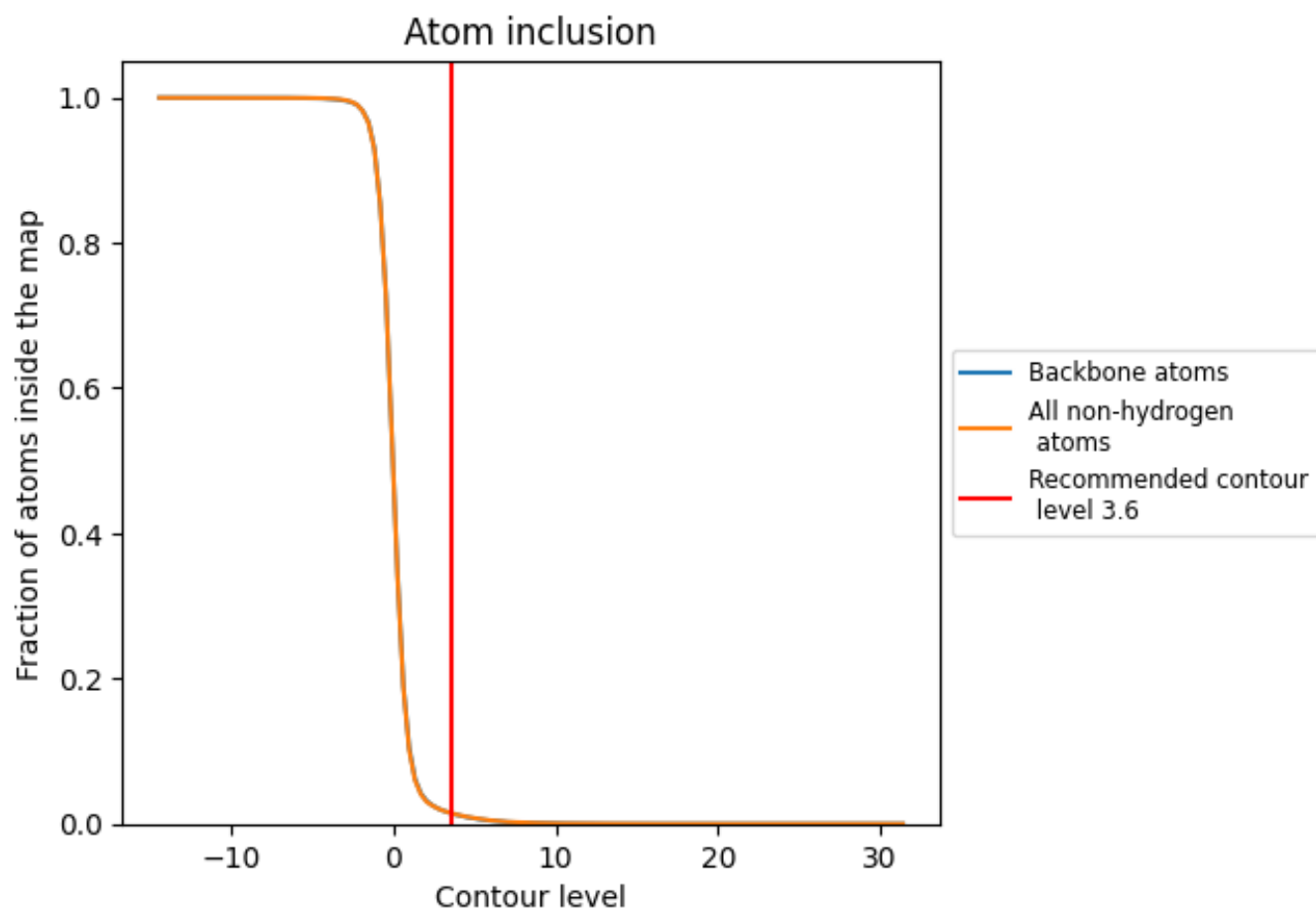
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (3.6).











9.4 Atom inclusion [i](#)



At the recommended contour level, 1% of all backbone atoms, 1% 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 (3.6) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.0143	 -0.0020
A	 0.0571	 -0.0020
B	 0.0000	 0.0020
C	 0.0000	 -0.0030
D	 0.0003	 -0.0030

