wwPDB EM Validation Summary Report

Nov 6, 2022 – 05:33 AM EST

PDB ID	:	6B3R
EMDB ID	:	EMD-7042
Title	:	Structure of the mechanosensitive channel Piezo1
Authors	:	Guo, Y.R.; MacKinnon, R.
Deposited on	:	2017-09-22
Resolution	:	3.80 Å(reported)
Based on initial model	:	4RAX

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 (i) 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 (i)) were used in the production of this report:

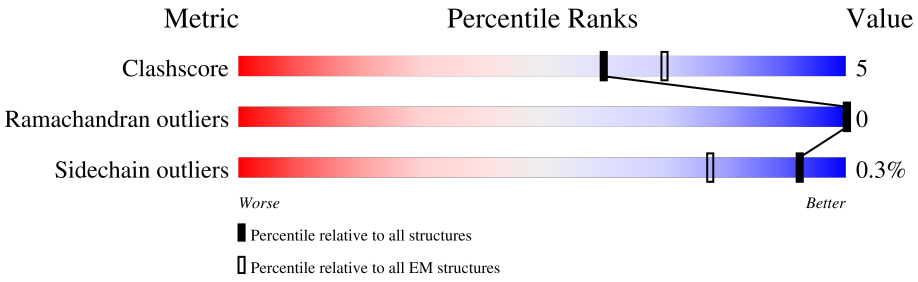
EMDB validation analysis	:	0.0.1.dev43
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.80 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 <=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	2547	17% 51% 8% 41%
1	C	2547	50% 51% 7% 41%
1	E	2547	49% 51% 8% 41%
2	B	16	6% 100%
2	D	16	6% 100%
2	F	16	25% 100%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 35718 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 Piezo-type mechanosensitive ion channel component 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1502	Total	C	N	O	S	0	0
			11826	7739	2004	2013	70		
1	C	1502	Total	C	N	O	S	0	0
			11826	7739	2004	2013	70		
1	E	1502	Total	C	N	O	S	0	0
			11826	7739	2004	2013	70		

- Molecule 2 is a protein called Piezo-type mechanosensitive ion channel component 1, unknown fragment.

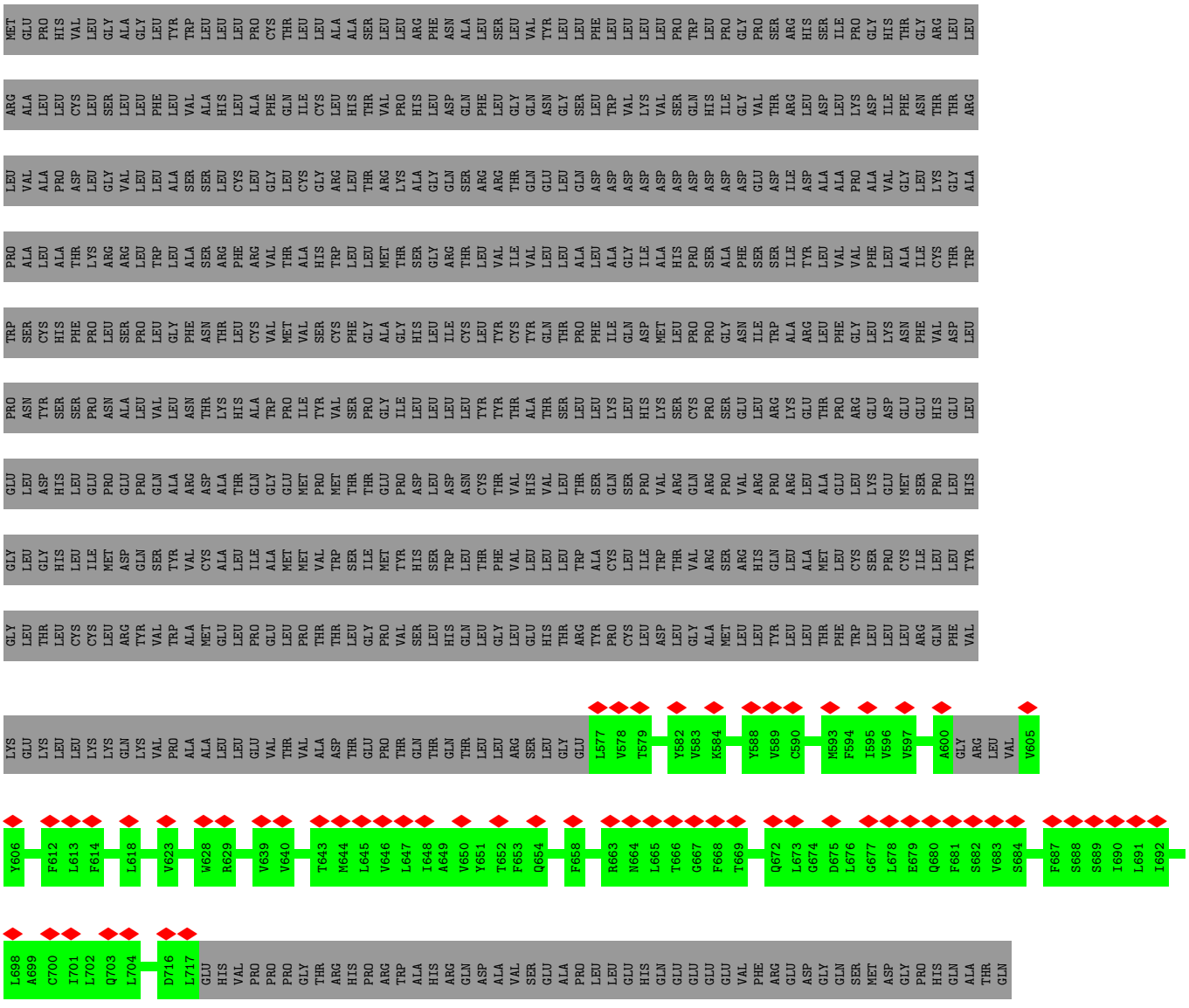
Mol	Chain	Residues	Atoms				AltConf	Trace
2	B	16	Total	C	N	O	0	0
			80	48	16	16		
2	D	16	Total	C	N	O	0	0
			80	48	16	16		
2	F	16	Total	C	N	O	0	0
			80	48	16	16		

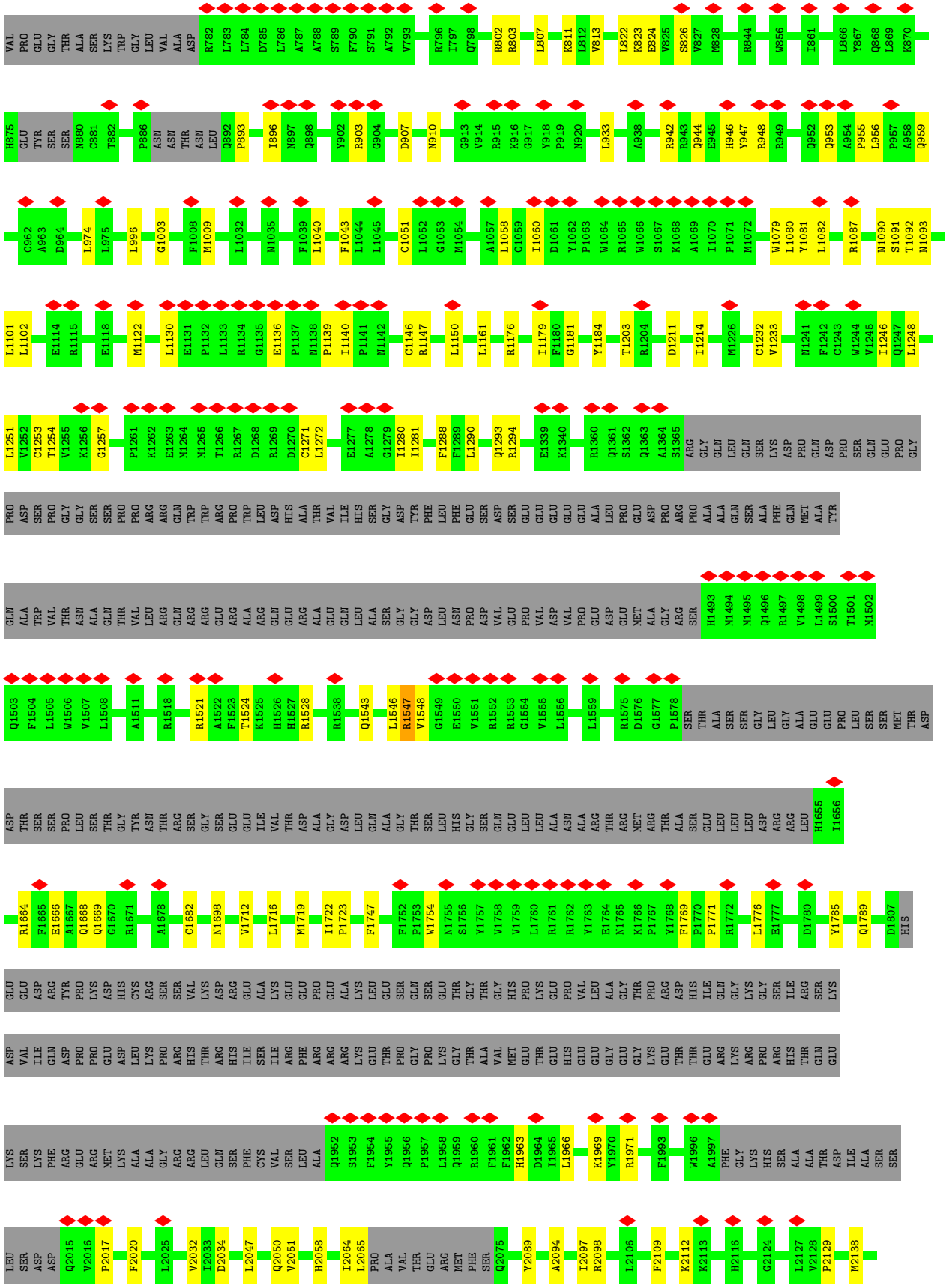
3 Residue-property plots (i)

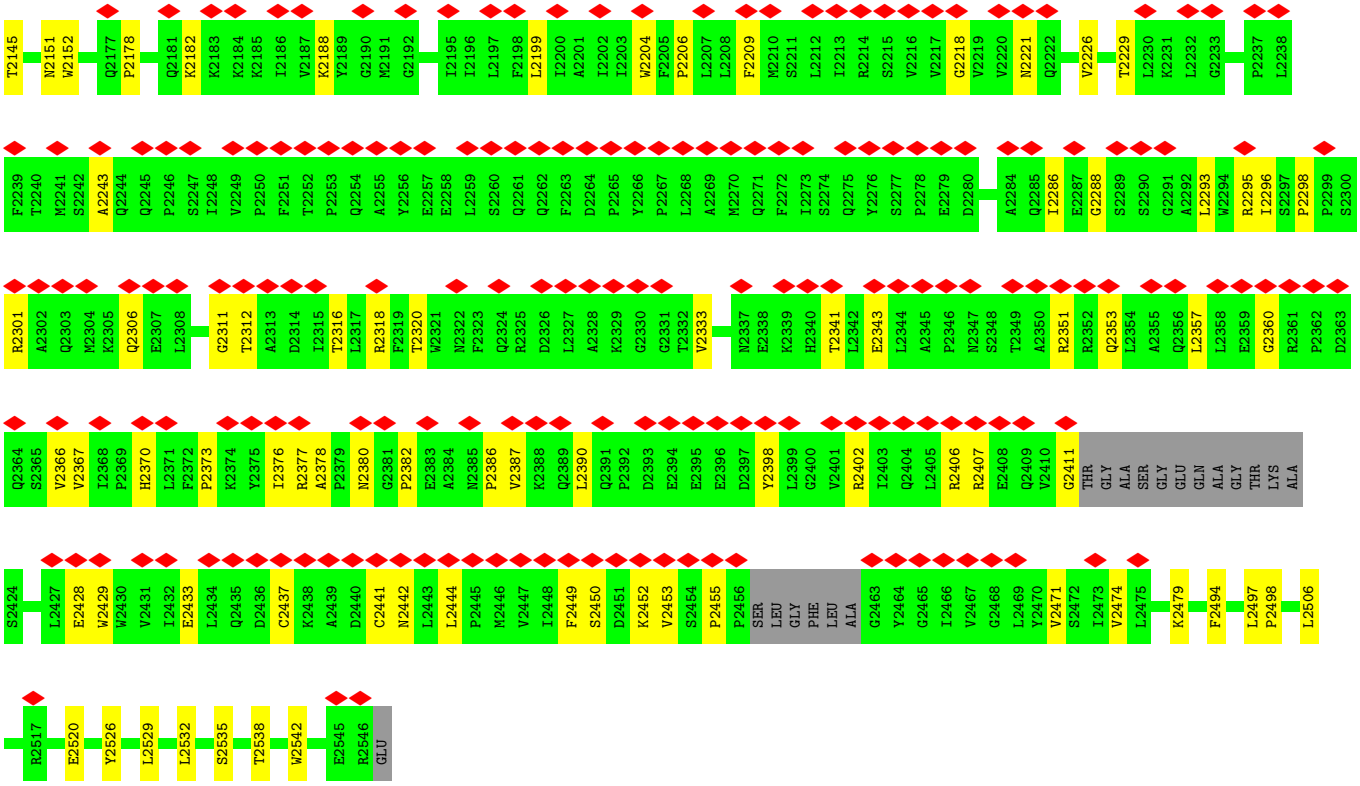
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

- Molecule 1: Piezo-type mechanosensitive ion channel component 1

Chain A:

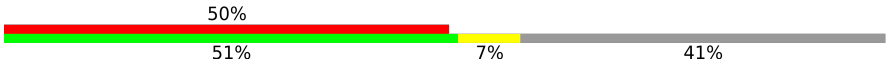


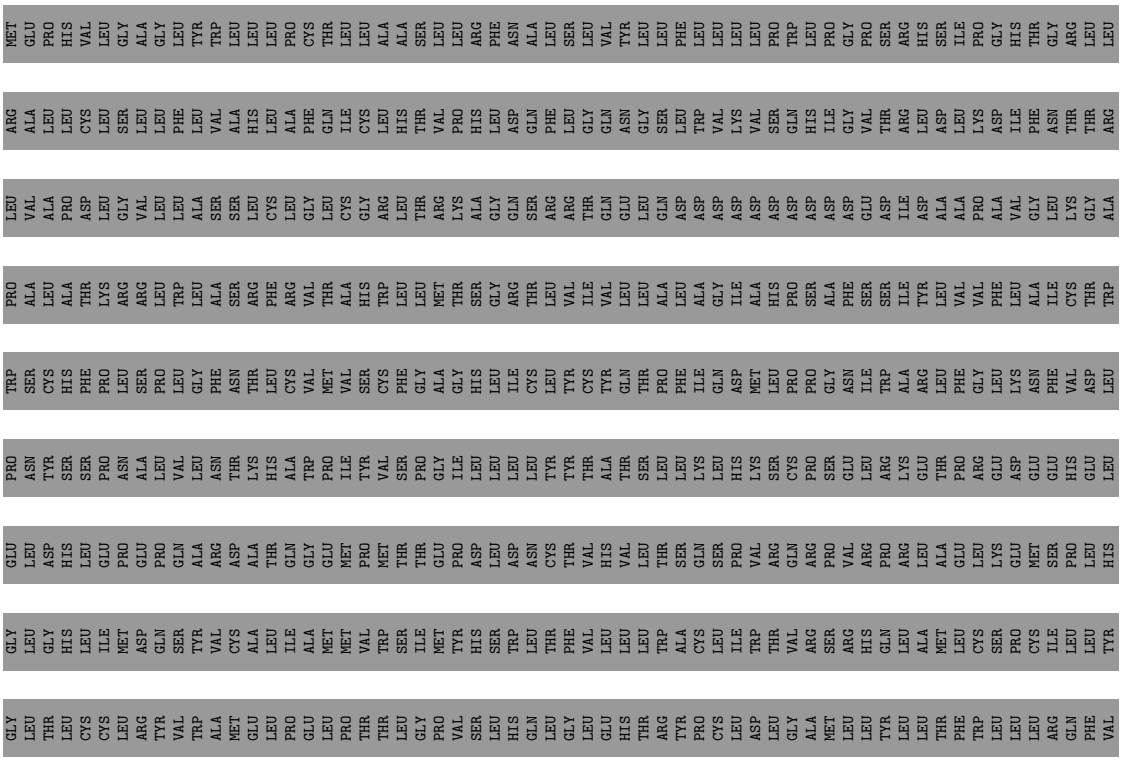


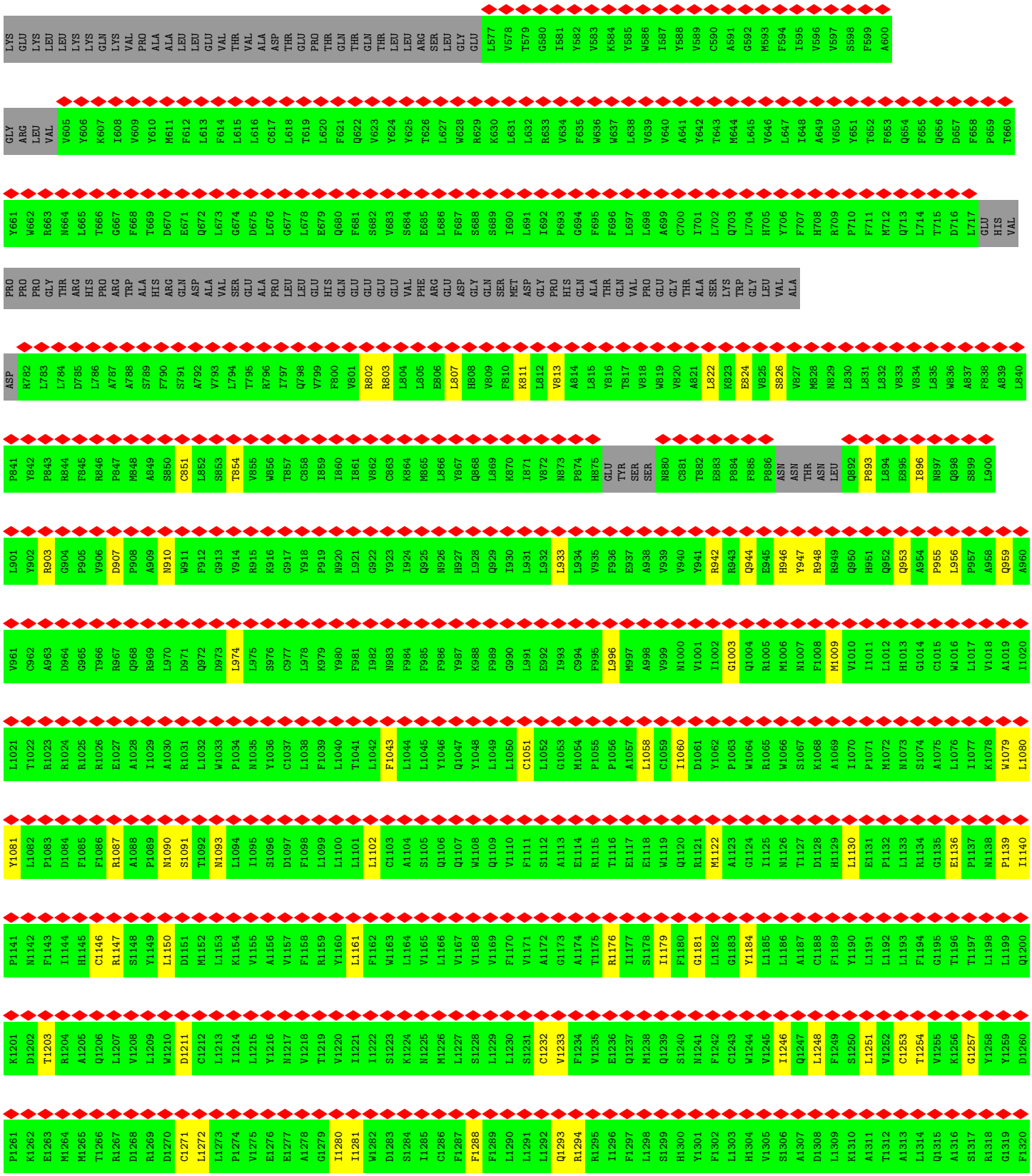


• Molecule 1: Piezo-type mechanosensitive ion channel component 1

Chain C:



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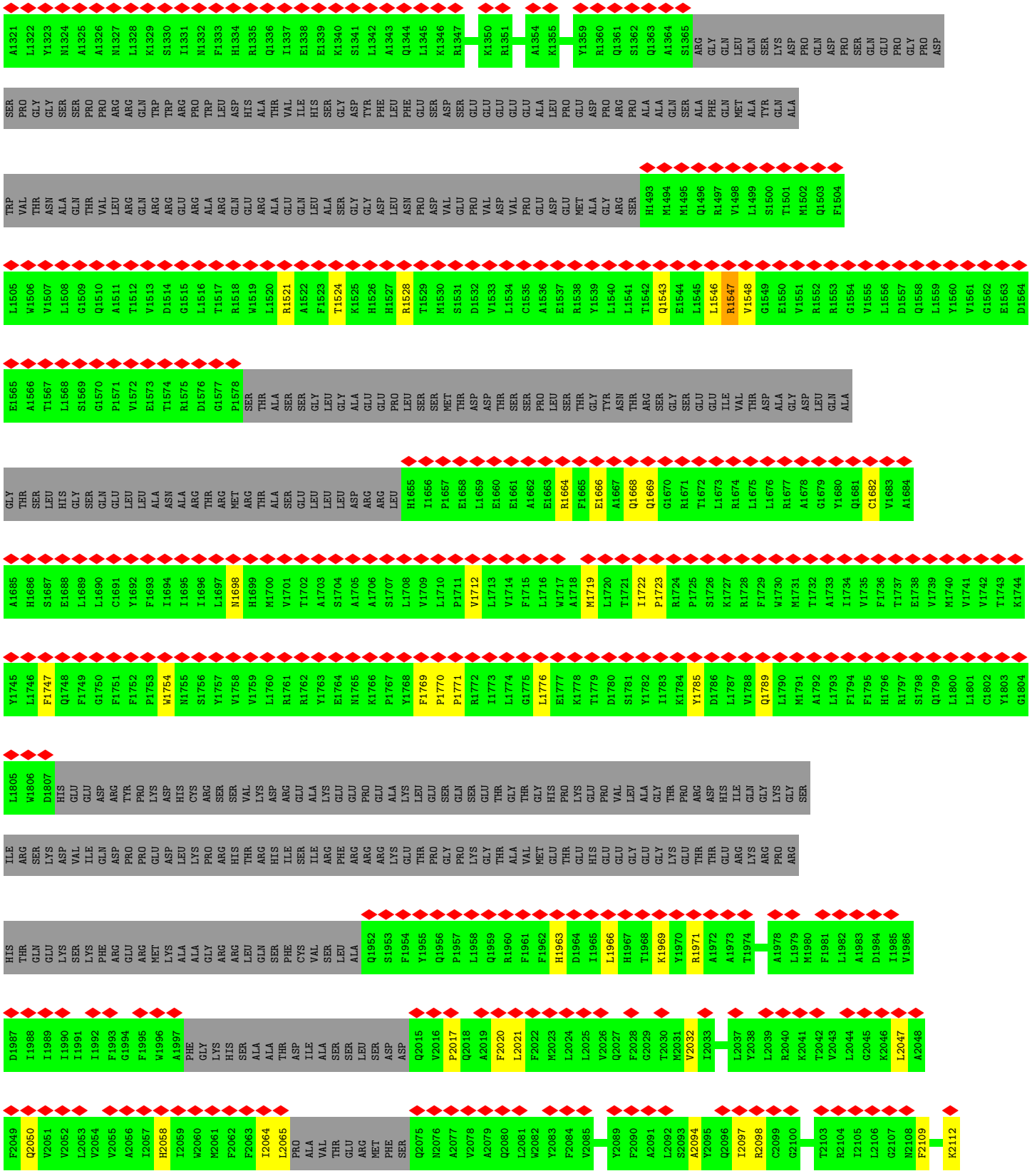
L577 V578 T579 G580 I581 Y582 V583 K584 Y585 W586 I587 Y588 V589 C590 A591 G592 M593 F594 I595 V596 V597 S598 F599 A600
GLY ARG LEU VAL
V605 Y606 K607 I608 V609 Y610 M611 F612 L613 F614 L615 L616 C617 L618 T619 L620 F621 Q622 V623 Y624 Y625 T626 L627 W628 R629 K630 L631 L632 R633 V634 F635 W636 W637 L638 V639 V640 A641 Y642 T643 M644 L645 V646 L647 I648 A649 V650 Y651 T652 F653 Q654 F655 Q656 D657 F658 P659 T660
Y661 W662 R663 N664 L665 T666 G667 F668 T669 D670 E671 Q672 L673 G674 D675 L676 G677 L678 E679 Q680 F681 S682 V683 S684 E685 L686 F687 S688 S689 I690 L691 I692 P693 G694 F695 F696 L697 L698 A699 C700 I701 L702 Q703 L704 H705 Y706 F707 H708 R709 P710 F711 M712 Q713 L714 T715 D716 L717 GLU HIS VAL
PRO PRO PRO GLY THR ARG HIS PRO ARG TRP ALA HIS ARG GLN ASP ALA VAL SER GLU ALA PRO LEU LEU GLU HIS GLN GLU GLU GLU GLU VAL PHE ARG GLU ASP GLY GLN SER MET ASP GLY PRO HIS GLN ALA THR GLN VAL PRO GLU GLY THR ALA SER LYS TRP GLY LEU VAL ALA
ASP R782 L783 L784 D785 L786 A787 A788 S789 F790 S791 A792 V793 L794 T795 R796 I797 Q798 V799 F800 V801 R802 R803 L804 L805 E806 L807 H808 V809 F810 K811 L812 V813 A814 L815 Y816 T817 V818 W819 V820 A821 L822 K823 E824 V825 S826 V827 M828 N829 L830 L831 L832 V833 V834 L835 W836 A837 F838 A839 L840
P841 Y842 P843 R844 F845 R846 P847 M848 A849 S850 C851 L852 S853 T854 Y855 W856 T857 C858 I859 I860 I861 V862 C863 K864 M865 L866 Y867 Q868 L869 K870 I871 V872 N873 P874 H875 GLU TYR SER SER N880 C881 T882 E883 P884 F885 P886 ASN ASN THR ASN LEU Q892 P893 L894 E895 I896 N897 Q898 S899 L900
L901 Y902 R903 G904 P905 V906 D907 P908 A909 N910 W911 F912 G913 V914 R915 K916 G917 Y918 P919 N920 L921 G922 Y923 I924 Q925 N926 H927 L928 Q929 I930 L931 L932 L933 L934 V935 F936 E937 A938 V939 V940 Y941 R942 R943 Q944 E945 H946 Y947 R948 R949 Q950 H951 Q952 Q953 A954 P955 L956 P957 A958 Q959 A960
V961 C962 A963 D964 G965 T966 R967 Q968 R969 L970 D971 Q972 D973 L974 L975 S976 C977 L978 K979 Y980 F981 I982 N983 F984 F985 F986 Y987 K988 F989 G990 L991 E992 I993 C994 F995 L996 M997 A998 V999 N1000 V1001 I1002 G1003 Q1004 R1005 M1006 N1007 F1008 M1009 V1010 I1011 L1012 H1013 G1014 C1015 W1016 L1017 V1018 A1019 I1020
L1021 T1022 R1023 R1024 R1025 R1026 E1027 A1028 I1029 A1030 R1031 L1032 W1033 P1034 N1035 Y1036 C1037 L1038 F1039 L1040 T1041 L1042 F1043 L1044 L1045 Y1046 Q1047 Y1048 L1049 L1050 C1051 L1052 G1053 M1054 P1055 P1056 A1057 L1058 C1059 I1060 D1061 Y1062 P1063 W1064 R1065 W1066 S1067 K1068 A1069 I1070 P1071 M1072 N1073 S1074 A1075 L1076 I1077 K1078 W1079 L1080
Y1081 L1082 P1083 D1084 H1085 F1086 R1087 A1088 P1089 N1090 S1091 T1092 N1093 L1094 I1095 S1096 D1097 F1098 L1099 L1100 L1101 L1102 C1103 A1104 S1105 Q1106 Q1107 W1108 Q1109 V1110 F1111 S1112 A1113 E1114 R1115 T1116 E1117 E1118 W1119 Q1120 R1121 M1122 A1123 G1124 I1125 N1126 T1127 D1128 H1129 L1130 E1131 P1132 L1133 R1134 G1135 E1136 P1137 N1138 P1139 I1140
P1141 N1142 F1143 I1144 H1145 C1146 R1147 S1148 Y1149 L1150 D1151 M1152 L1153 K1154 V1155 A1156 V1157 F1158 R1159 Y1160 L1161 F1162 W1163 L1164 V1165 L1166 V1167 V1168 V1169 F1170 V1171 A1172 G1173 A1174 T1175 R1176 I1177 S1178 I1179 F1180 G1181 L1182 G1183 Y1184 L1185 L1186 A1187 C1188 F1189 Y1190 L1191 L1192 L1193 F1194 G1195 T1196 T1197 L1198 L1199 Q1200
K1201 D1202 T1203 R1204 A1205 Q1206 L1207 V1208 L1209 W1210 D1211 C1212 L1213 I1214 L1215 Y1216 N1217 V1218 T1219 V1220 I1221 I1222 S1223 K1224 N1225 M1226 L1227 S1228 L1229 L1230 S1231 C1232 V1233 F1234 V1235 E1236 Q1237 M1238 Q1239 S1240 N1241 F1242 C1243 W1244 Y1245 I1246 Q1247 L1248 F1249 S1250 L1251 Y1252 C1253 T1254 V1255 K1256 G1257 Y1258 Y1259 D1260
P1261 K1262 E1263 M1264 M1265 T1266 R1267 D1268 R1269 D1270 C1271 L1272 L1273 P1274 V1275 E1276 E1277 A1278 G1279 I1280 I1281 W1282 D1283 S1284 I1285 C1286 F1287 F1288 F1289 L1290 L1291 L1292 Q1293 R1294 R1295 I1296 F1297 L1298 S1299 H1300 Y1301 F1302 L1303 H1304 V1305 S1306 A1307 D1308 L1309 K1310 A1311 T1312 A1313 L1314 Q1315 A1316 S1317 R1318 G1319 F1320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SER PRO GLY GLY SER SER PRO PRO ARG ARG GLN TRP TRP ARG PRO TRP LEU ASP HIS ALA THR VAL ILE HIS SER GLY ASP TYR PHE LEU PHE GLU SER ASP SER GLU GLU GLU GLU ALA LEU PRO GLU ASP PRO ARG PRO ALA ALA GLN SER ALA PHE GLN MET ALA TYR GLN ALA
TRP VAL THR ASN ALA GLN THR VAL LEU ARG GLN ARG ARG GLU ARG ALA ARG GLN GLU ARG ALA GLU GLN LEU ALA SER GLY GLY ASP LEU ASN PRO ASP VAL GLU PRO VAL ASP VAL PRO GLU ASP GLU MET ALA GLY ARG SER H1493 M1494 M1495 Q1496 R1497 V1498 L1499 S1500 T1501 M1502 Q1503 F1504
L1505 W1506 V1507 L1508 G1509 Q1510 A1511 T1512 V1513 D1514 G1515 L1516 T1517 R1518 W1519 L1520 R1521 A1522 F1523 T1524 K1525 H1526 H1527 R1528 T1529 M1530 S1531 D1532 V1533 L1534 C1535 A1536 E1537 R1538 Y1539 L1540 L1541 T1542 Q1543 E1544 L1545 L1546 R1547 V1548 G1549 E1550 V1551 R1552 R1553 G1554 V1555 L1556 D1557 Q1558 L1559 Y1560 V1561 G1562 E1563 D1564
E1565 A1566 T1567 L1568 S1569 G1570 P1571 V1572 E1573 T1574 R1575 D1576 G1577 P1578 SER THR ALA SER SER GLY LEU GLY ALA GLU GLU PRO LEU SER SER MET THR ASP ASP THR SER SER PRO LEU SER THR GLY TYR ASN THR ARG SER GLY SER GLU GLU ILE VAL THR ASP ALA GLY ASP LEU GLN ALA
GLY THR SER LEU HIS GLY SER GLN GLU LEU LEU ALA ASN ALA ARG THR ARG MET ARG THR ALA SER GLU GLU LEU LEU LEU ASP ARG ARG LEU H1655 I1656 P1657 E1658 L1659 E1660 E1661 A1662 E1663 R1664 F1665 E1666 A1667 Q1668 Q1669 G1670 R1671 T1672 L1673 R1674 L1675 L1676 R1677 A1678 G1679 Y1680 Q1681 C1682 V1683 A1684
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L1805 W1806 D1807 HIS GLU GLU ASP ARG TYR PRO LYS ASP HIS CYS ARG SER SER VAL LYS ASP ARG GLU ALA LYS GLU GLU PRO GLU ALA LYS LEU GLU SER GLN SER GLU THR GLY THR GLY HIS PRO LYS GLU PRO VAL LEU ALA GLY THR PRO ARG ASP HIS ILE GLN GLY LYS GLY SER
ILE ARG SER LYS ASP VAL ILE GLN ASP PRO PRO GLU ASP LEU LYS PRO ARG HIS THR ARG HIS ILE SER ILE ARG PHE ARG ARG ARG LYS GLU THR PRO GLY PRO LYS GLY THR ALA VAL MET GLU THR GLU HIS GLU GLU GLY GLU GLY LYS GLU THR THR GLU ARG LYS ARG PRO ARG
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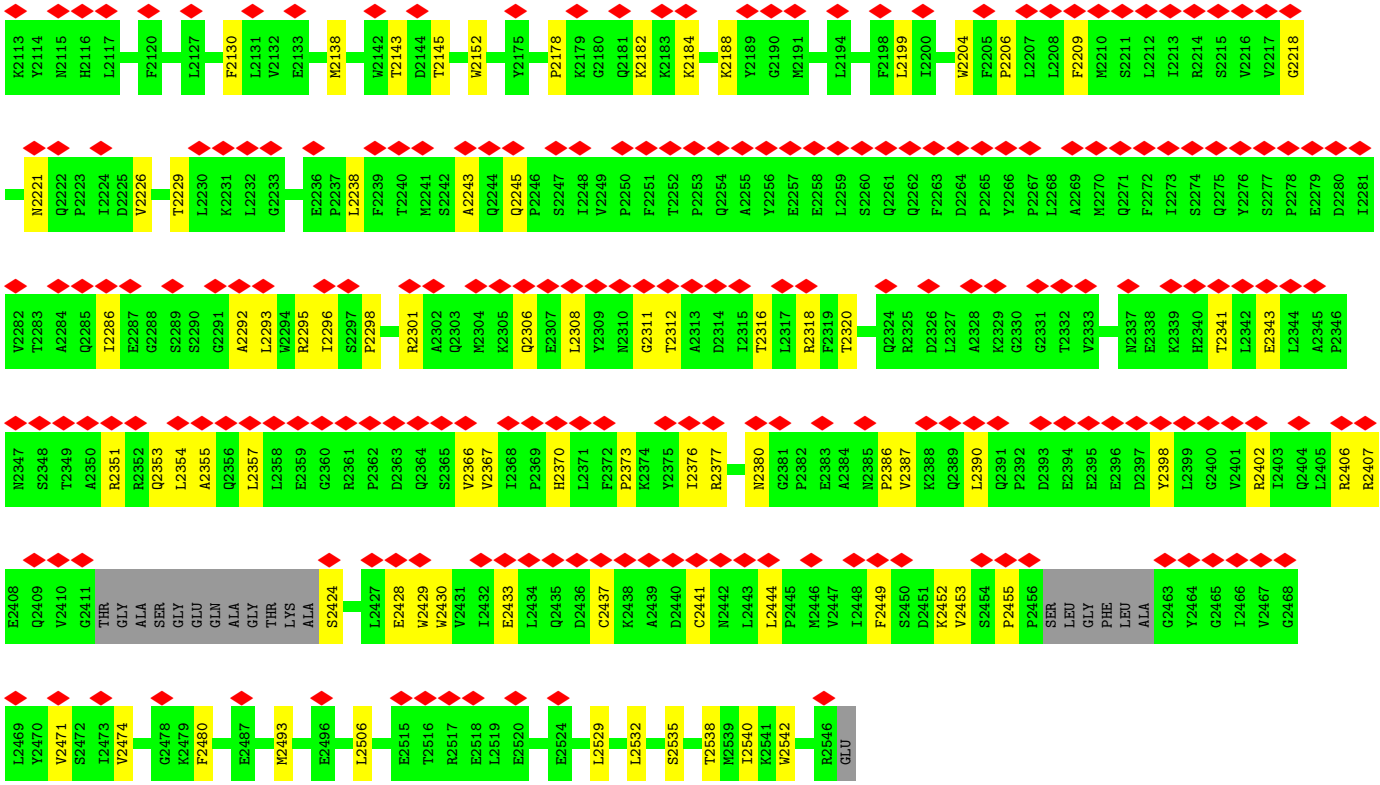
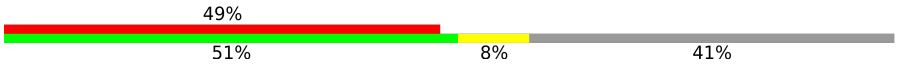
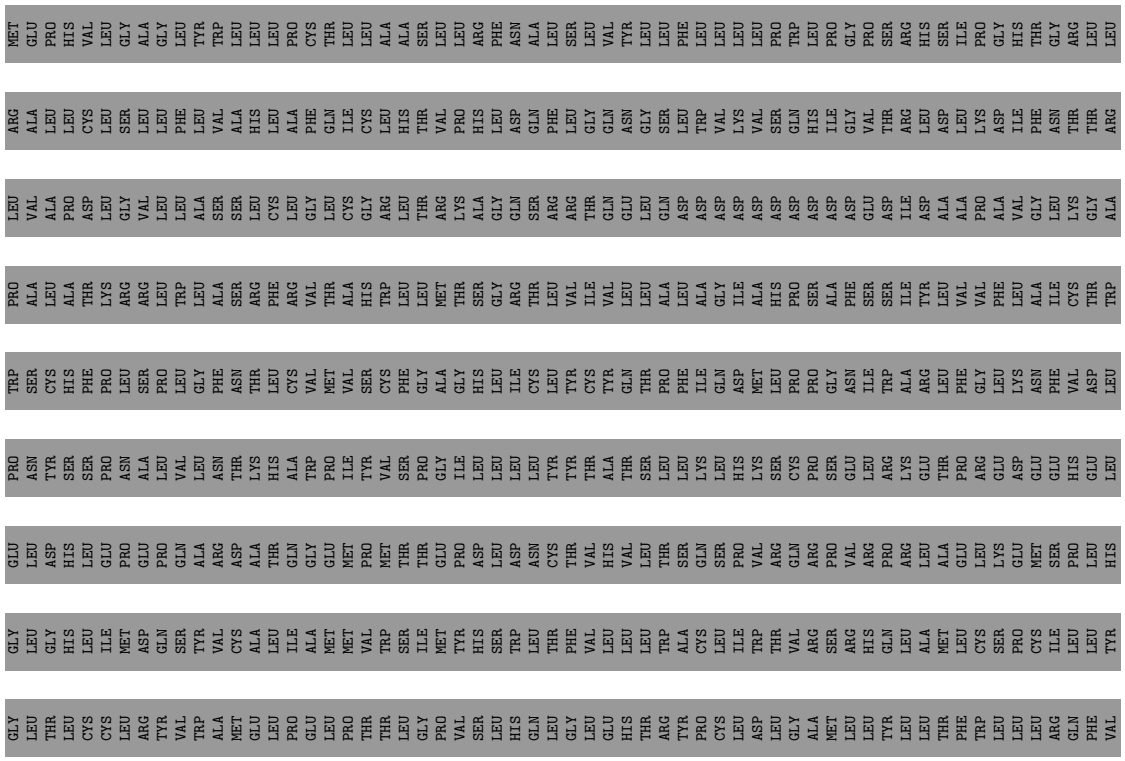
F2049 Q2050 V2051 V2052 L2053 V2054 V2055 A2056 I2057 H2058 I2059 W2060 M2061 F2062 F2063 I2064 L2065 PRO ALA VAL THR GLU ARG MET PHE SER Q2075 N2076 A2077 V2078 A2079 Q2080 L2081 W2082 Y2083 F2084 V2085 Y2089 F2090 A2091 L2092 S2093 A2094 Y2095 Q2096 I2097 R2098 C2099 G2100 T2103 R2104 I2105 L2106 G2107 N2108 F2109 K2112

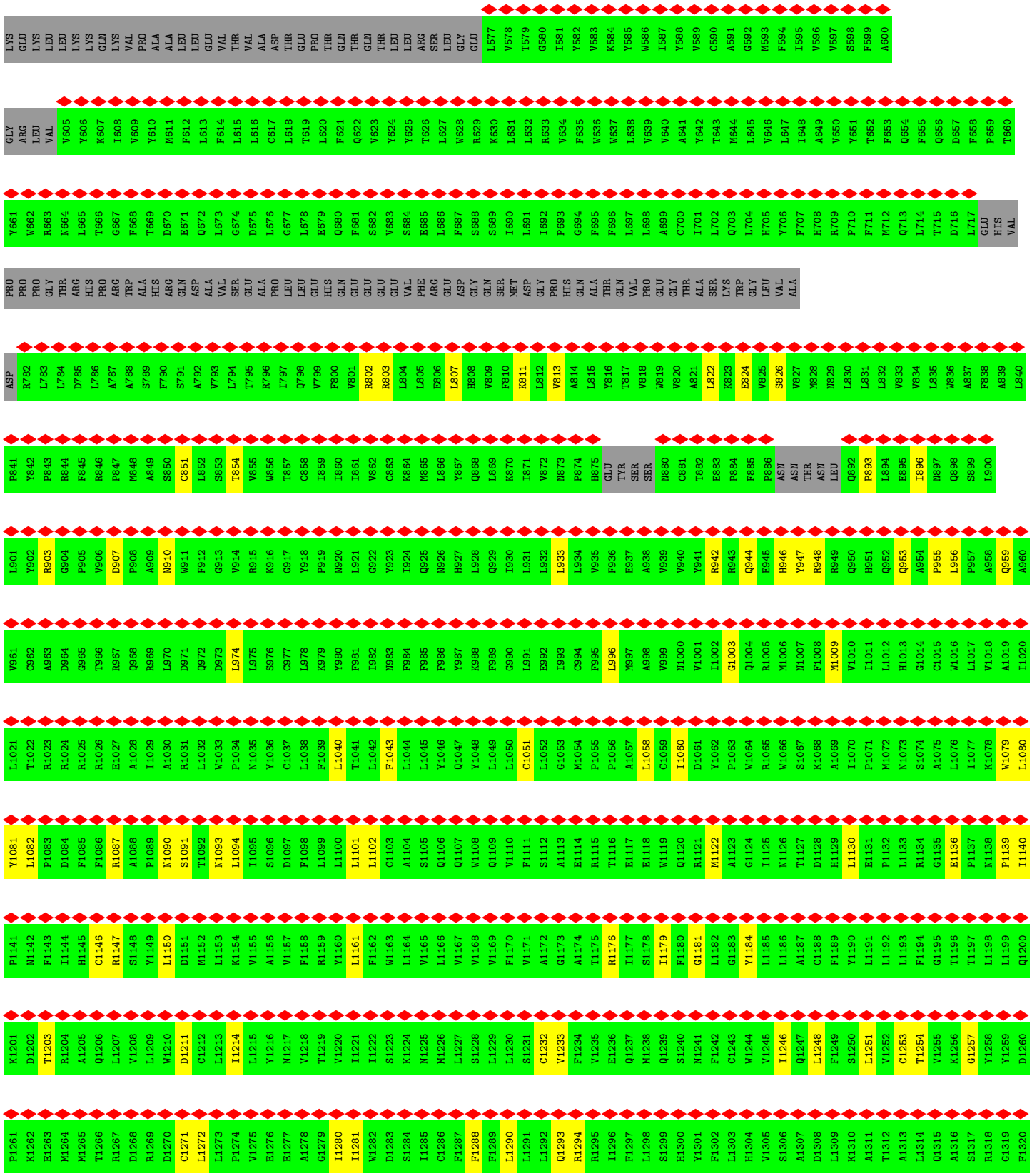


- Molecule 1: Piezo-type mechanosensitive ion channel component 1

Chain E:



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L577 V578 T579 G580 I581 Y582 V583 K584 Y585 W586 I587 Y588 V589 C590 A591 G592 M593 F594 I595 V596 V597 S598 F599 A600
GLY ARG LEU VAL
V605 Y606 K607 I608 V609 Y610 M611 F612 L613 F614 L615 L616 C617 L618 T619 L620 F621 Q622 V623 Y624 Y625 T626 L627 W628 R629 K630 L631 L632 R633 V634 F635 W636 W637 L638 V639 V640 A641 Y642 T643 M644 L645 V646 L647 I648 A649 V650 Y651 T652 F653 Q654 F655 Q656 D657 F658 P659 T660
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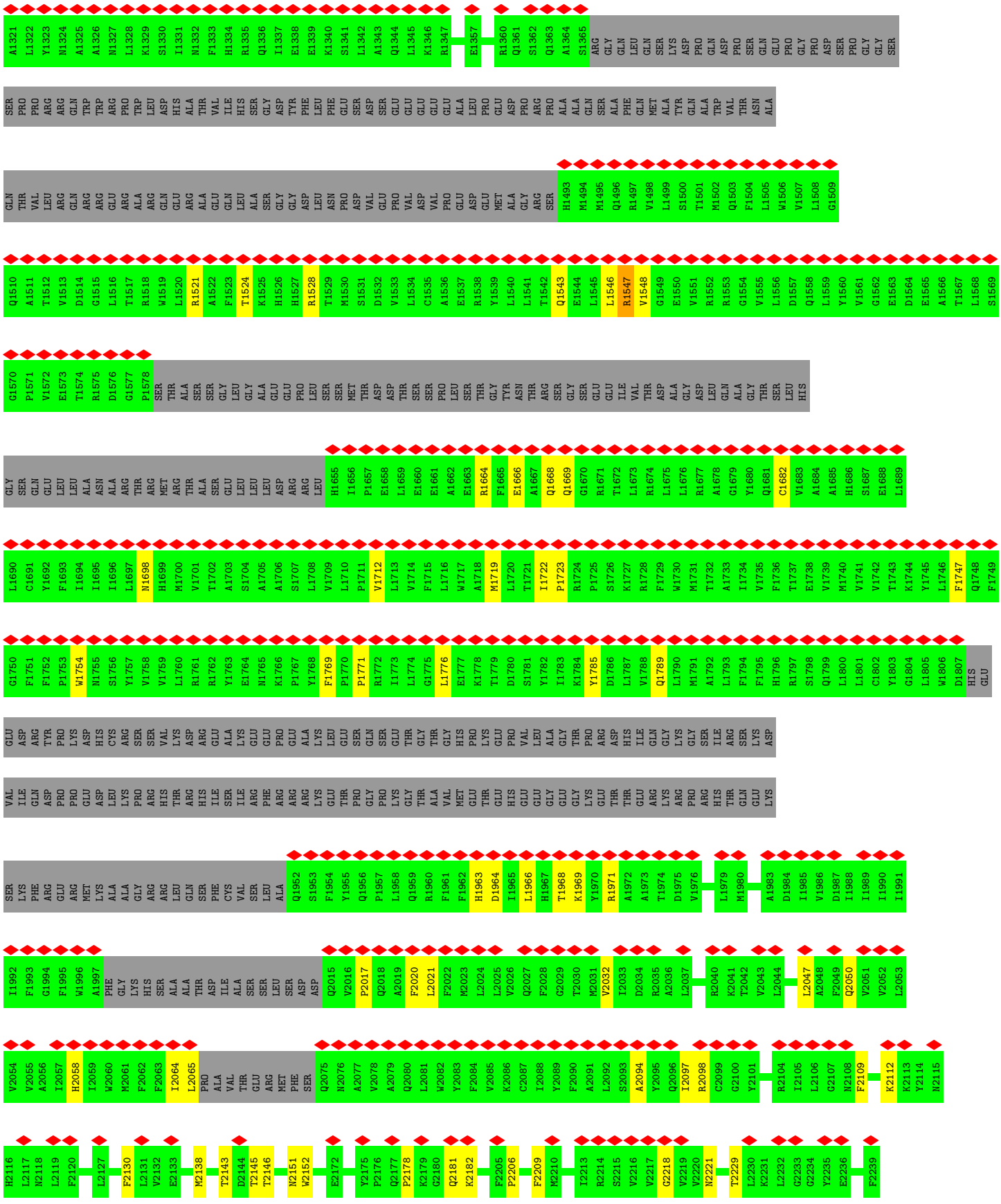
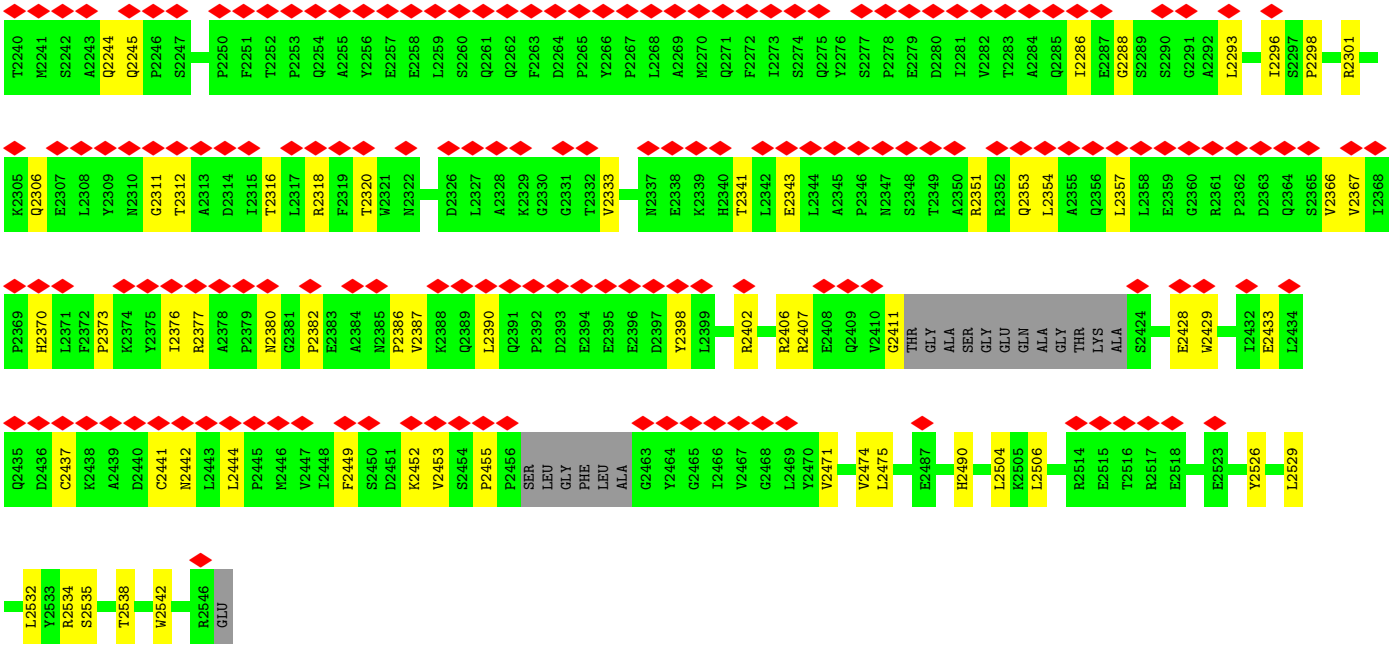
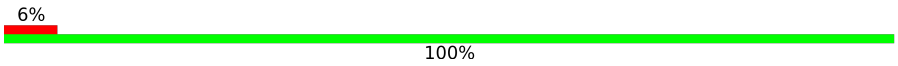
PRO PRO PRO GLY THR ARG HIS PRO ARG TRP ALA HIS ARG GLN ASP ALA VAL SER GLU ALA PRO LEU LEU GLU HIS GLN GLU GLU GLU GLU VAL PHE ARG GLU ASP GLY GLN SER MET ASP GLY PRO HIS GLN ALA THR GLN VAL PRO GLU GLY THR ALA SER LYS TRP GLY LEU VAL ALA
ASP
R782 L783 L784 D785 L786 A787 A788 S789 F790 S791 A792 V793 L794 T795 R796 I797 Q798 V799 F800 V801 R802 R803 L804 L805 E806 L807 H808 V809 F810 K811 L812 V813 A814 L815 Y816 T817 V818 W819 V820 A821 L822 K823 E824 V825 S826 V827 M828 N829 L830 L831 L832 V833 V834 L835 W836 A837 F838 A839 L840
P841 Y842 P843 R844 F845 R846 P847 M848 A849 S850 C851 L852 S853 T854 Y855 W856 T857 C858 I859 I860 I861 V862 C863 K864 M865 L866 Y867 Q868 L869 K870 I871 V872 N873 P874 H875 GLU TYR SER SER N880 C881 T882 E883 P884 F885 P886 ASN ASN THR ASN LEU Q892 P893 L894 E895 I896 N897 Q898 S899 L900
L901 Y902 R903 G904 P905 V906 D907 P908 A909 N910 W911 F912 G913 V914 R915 K916 G917 Y918 P919 N920 L921 G922 Y923 I924 Q925 N926 H927 L928 Q929 I930 L931 L932 L933 L934 V935 F936 E937 A938 V939 V940 Y941 R942 R943 Q944 E945 H946 Y947 R948 R949 Q950 H951 Q952 Q953 A954 P955 L956 P957 A958 Q959 A960
V961 C962 A963 D964 G965 T966 R967 Q968 R969 L970 D971 Q972 D973 L974 L975 S976 C977 L978 K979 Y980 F981 I982 N983 F984 F985 F986 Y987 K988 F989 G990 L991 E992 I993 C994 F995 L996 M997 A998 V999 N1000 V1001 I1002 G1003 Q1004 R1005 M1006 N1007 F1008 M1009 V1010 I1011 L1012 H1013 G1014 C1015 W1016 L1017 V1018 A1019 I1020
L1021 T1022 R1023 R1024 R1025 R1026 E1027 A1028 I1029 A1030 R1031 L1032 W1033 P1034 N1035 Y1036 C1037 L1038 F1039 L1040 T1041 L1042 F1043 L1044 L1045 Y1046 Q1047 Y1048 L1049 L1050 C1051 L1052 G1053 M1054 P1055 P1056 A1057 L1058 C1059 I1060 D1061 Y1062 P1063 W1064 R1065 W1066 S1067 K1068 A1069 I1070 P1071 M1072 N1073 S1074 A1075 L1076 I1077 K1078 W1079 L1080
Y1081 L1082 P1083 D1084 F1085 F1086 R1087 A1088 P1089 N1090 S1091 T1092 N1093 L1094 I1095 S1096 D1097 F1098 L1099 L1100 L1101 L1102 C1103 A1104 S1105 Q1106 Q1107 W1108 Q1109 V1110 F1111 S1112 A1113 E1114 R1115 T1116 E1117 E1118 W1119 Q1120 R1121 M1122 A1123 G1124 I1125 N1126 T1127 D1128 H1129 L1130 E1131 P1132 L1133 R1134 G1135 E1136 P1137 N1138 P1139 I1140
P1141 N1142 F1143 I1144 H1145 C1146 R1147 S1148 Y1149 L1150 D1151 M1152 L1153 K1154 V1155 A1156 V1157 F1158 R1159 Y1160 L1161 F1162 W1163 L1164 V1165 L1166 V1167 V1168 V1169 F1170 V1171 A1172 G1173 A1174 T1175 R1176 I1177 S1178 I1179 F1180 G1181 L1182 G1183 Y1184 L1185 L1186 A1187 C1188 F1189 Y1190 L1191 L1192 L1193 F1194 G1195 T1196 T1197 L1198 L1199 Q1200
K1201 D1202 T1203 R1204 A1205 Q1206 L1207 V1208 L1209 W1210 D1211 C1212 L1213 I1214 L1215 Y1216 N1217 V1218 T1219 V1220 I1221 I1222 S1223 K1224 N1225 M1226 L1227 S1228 L1229 L1230 S1231 C1232 V1233 F1234 V1235 E1236 Q1237 M1238 Q1239 S1240 N1241 F1242 C1243 W1244 Y1245 I1246 Q1247 L1248 F1249 S1250 L1251 Y1252 C1253 T1254 V1255 K1256 G1257 Y1258 Y1259 D1260
P1261 K1262 E1263 M1264 M1265 T1266 R1267 D1268 R1269 D1270 C1271 L1272 L1273 P1274 V1275 E1276 E1277 A1278 G1279 I1280 I1281 W1282 D1283 S1284 I1285 C1286 F1287 F1288 F1289 L1290 L1291 L1292 Q1293 R1294 R1295 I1296 F1297 L1298 S1299 H1300 Y1301 F1302 L1303 H1304 V1305 S1306 A1307 D1308 L1309 K1310 A1311 T1312 A1313 L1314 Q1315 A1316 S1317 R1318 G1319 F1320


A1321 L1322 Y1323 N1324 A1325 A1326 N1327 L1328 K1329 S1330 I1331 N1332 F1333 H1334 R1335 Q1336 I1337 E1338 E1339 K1340 S1341 L1342 A1343 Q1344 L1345 K1346 R1347
E1367
R1360 Q1361 S1362 Q1363 A1364 S1365 ARG GLY GLN LEU GLN SER LYS ASP PRO GLN ASP PRO SER GLN GLU PRO GLY PRO ASP SER PRO GLY GLY SER
SER PRO PRO ARG ARG GLN TRP TRP ARG PRO TRP LEU ASP HIS ALA THR VAL ILE HIS SER GLY ASP TYR PHE LEU PHE GLU SER ASP SER GLU GLU GLU GLU ALA LEU PRO GLU ASP PRO ARG PRO ALA ALA GLN SER ALA PHE GLN MET ALA TYR GLN ALA TRP VAL THR ASN ALA
GLN THR VAL LEU ARG GLN ARG ARG GLU ARG GLN ALA ARG GLN GLU ARG ALA GLU GLN LEU ALA SER GLY GLY ASP LEU ASN PRO ASP VAL GLU PRO VAL ASP VAL PRO GLU ASP GLU MET ALA GLY ARG SER
H1493 M1494 M1495 Q1496 R1497 V1498 L1499 S1500 T1501 M1502 Q1503 F1504 L1505 W1506 V1507 L1508 G1509
Q1510 A1511 T1512 V1513 D1514 G1515 L1516 T1517 R1518 W1519 L1520 R1521 A1522 F1523 T1524 K1525 H1526 H1527 R1528 T1529 M1530 S1531 D1532 V1533 L1534 C1535 A1536 E1537 R1538 Y1539 L1540 L1541 T1542 Q1543 E1544 L1545 L1546 R1547 V1548 G1549 E1550 V1551 R1552 R1553 G1554 V1555 L1556 D1557 Q1558 L1559 Y1560 V1561 G1562 E1563 D1564 E1565 A1566 T1567 L1568 S1569
G1570 P1571 V1572 E1573 T1574 R1575 D1576 G1577 P1578
SER THR ALA SER SER GLY LEU GLY ALA GLU GLU PRO LEU SER SER MET THR ASP ASP THR SER SER PRO LEU SER THR GLY TYR ASN THR ARG SER GLY SER GLU GLU ILE VAL THR ASP ALA GLY ASP LEU GLN ALA GLY THR SER LEU HIS
GLY SER GLN GLU LEU LEU ALA ASN ALA ARG THR ARG MET ARG THR ALA SER GLU LEU LEU LEU ASP ARG ARG LEU
H1655 I1656 P1657 E1658 L1659 E1660 E1661 A1662 E1663 R1664 F1665 E1666 A1667 Q1668 Q1669 G1670 R1671 T1672 L1673 R1674 L1675 L1676 R1677 A1678 G1679 Y1680 Q1681 C1682 V1683 A1684 A1685 H1686 S1687 E1688 L1689
L1690 C1691 Y1692 F1693 I1694 I1695 I1696 L1697 N1698 H1699 M1700 V1701 T1702 A1703 S1704 A1705 A1706 S1707 L1708 V1709 L1710 P1711 V1712 L1713 V1714 F1715 L1716 W1717 A1718 M1719 L1720 T1721 I1722 P1723 R1724 P1725 S1726 K1727 R1728 F1729 W1730 M1731 T1732 A1733 I1734 V1735 F1736 T1737 E1738 V1739 M1740 V1741 V1742 T1743 K1744 Y1745 L1746 F1747 Q1748 F1749
G1750 F1751 F1752 P1753 W1754 N1755 S1756 Y1757 V1758 V1759 L1760 R1761 R1762 Y1763 E1764 N1765 K1766 P1767 Y1768 F1769 P1770 P1771 R1772 I1773 L1774 G1775 L1776 E1777 K1778 T1779 D1780 S1781 Y1782 I1783 K1784 Y1785 D1786 L1787 V1788 Q1789 L1790 M1791 A1792 L1793 F1794 F1795 H1796 R1797 S1798 Q1799 L1800 L1801 C1802 Y1803 G1804 L1805 W1806 D1807 HIS GLU
GLU ASP ARG TYR PRO LYS ASP HIS CYS ARG SER SER VAL LYS ASP ARG GLU ALA LYS GLU GLU PRO GLU ALA LYS LEU GLU SER GLN SER GLU PRO VAL LEU ALA GLY THR PRO ARG ASP HIS ILE GLN GLY LYS GLY SER ILE ARG SER LYS ASP
VAL ILE GLN ASP PRO PRO GLU ASP LEU LYS PRO ARG HIS THR ARG HIS ILE SER ILE ARG PHE ARG ARG ARG LYS GLU GLY THR PRO GLY PRO LYS GLY THR ALA VAL MET GLU THR GLU HIS GLU GLU GLY GLU GLY LYS GLU THR THR GLU ARG LYS GLU THR HIS THR GLN GLU LYS
SER LYS PHE ARG GLU ARG MET LYS ALA GLY GLY ARG LEU GLN SER PHE CYS VAL SER LEU ALA
Q1952 S1953 F1954 Y1955 Q1956 P1957 L1958 Q1959 R1960 F1961 F1962 H1963 D1964 I1965 L1966 H1967 T1968 K1969 Y1970 R1971 A1972 A1973 T1974 D1975 V1976
L1979 M1980
A1983 D1984 I1985 V1986 D1987 I1988 I1989 I1990 I1991
I1992 F1993 G1994 F1995 W1996 A1997 PHE GLY LYS HIS SER ALA ALA THR ASP ILE ALA SER SER LEU SER ASP ASP
Q2015 V2016 P2017 Q2018 A2019 F2020 L2021 P2022 M2023 L2024 L2025 V2026 Q2027 F2028 G2029 T2030 M2031 V2032 I2033 D2034 R2035 A2036 L2037
R2040 K2041 T2042 V2043 L2044
L2047 A2048 F2049 Q2050 V2051 V2052 L2053
V2054 V2055 A2056 I2057 H2058 I2059 W2060 M2061 F2062 F2063 I2064 L2065 PRO ALA VAL THR GLU ARG MET PHE SER
Q2075 N2076 A2077 V2078 A2079 Q2080 L2081 W2082 Y2083 F2084 V2085 K2086 C2087 I2088 Y2089 F2090 A2091 L2092 S2093 A2094 Y2095 Q2096 I2097 R2098 C2099 G2100 Y2101
R2104 I2105 L2106 G2107 N2108 F2109
K2112 K2113 Y2114 N2115
H2116 L2117 N2118 L2119 F2120
L2127
F2130 L2131 V2132 E2133 N2138
T2143 D2144 T2145 T2146
N2151 W2152
E2172
Y2175 P2176 Q2177 P2178 K2179 G2180 Q2181 K2182
F2205 P2206
F2209 M2210
I2213 R2214 S2215 V2216 V2217 G2218 Y2219 V2220 N2221
T2229 L2230 K2231 L2232 G2233 G2234 Y2235 E2236 F2239



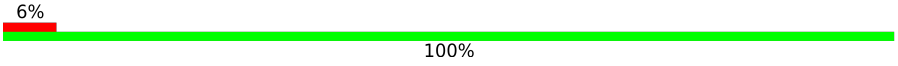
• Molecule 2: Piezo-type mechanosensitive ion channel component 1, unknown fragment

Chain B:



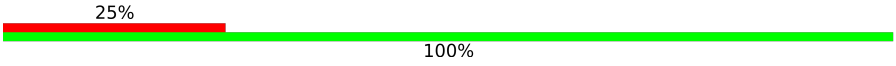
• Molecule 2: Piezo-type mechanosensitive ion channel component 1, unknown fragment

Chain D:



• Molecule 2: Piezo-type mechanosensitive ion channel component 1, unknown fragment

Chain F:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	277548	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 ($e^-/Å^2$)	47	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	0.334	Depositor
Minimum map value	-0.238	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.009	Depositor
Recommended contour level	0.06	Depositor
Map size (Å)	520.0, 520.0, 520.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.3, 1.3, 1.3	Depositor

5 Model quality

5.1 Standard geometry

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	0.35	0/12117	0.59	0/16473
1	C	0.35	0/12117	0.59	0/16473
1	E	0.34	0/12117	0.59	0/16473
All	All	0.35	0/36351	0.59	0/49419

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

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	11826	0	11563	118	0
1	C	11826	0	11563	119	0
1	E	11826	0	11563	122	0
2	B	80	0	19	0	0
2	D	80	0	19	0	0
2	F	80	0	19	0	0
All	All	35718	0	34746	333	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 5.

The worst 5 of 333 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:2050:GLN:HE22	1:C:2094:ALA:HB2	1.57	0.69
1:E:2050:GLN:HE22	1:E:2094:ALA:HB2	1.57	0.69
1:A:2050:GLN:HE22	1:A:2094:ALA:HB2	1.57	0.69
1:A:1161:LEU:O	1:A:1293:GLN:NE2	2.29	0.66
1:E:1161:LEU:O	1:E:1293:GLN:NE2	2.29	0.65

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	1478/2547 (58%)	1358 (92%)	120 (8%)	0	100	100
1	C	1478/2547 (58%)	1359 (92%)	119 (8%)	0	100	100
1	E	1478/2547 (58%)	1360 (92%)	118 (8%)	0	100	100
All	All	4434/7641 (58%)	4077 (92%)	357 (8%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	1198/2246 (53%)	1195 (100%)	3 (0%)	92	96
1	C	1198/2246 (53%)	1195 (100%)	3 (0%)	92	96
1	E	1198/2246 (53%)	1195 (100%)	3 (0%)	92	96

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	3594/6738 (53%)	3585 (100%)	9 (0%)	92 96

5 of 9 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	1547	ARG
1	E	1971	ARG
1	C	903	ARG
1	C	1547	ARG
1	C	1971	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 12 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	1047	GLN
1	C	2050	GLN
1	E	2050	GLN
1	E	944	GLN
1	A	1669	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 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.

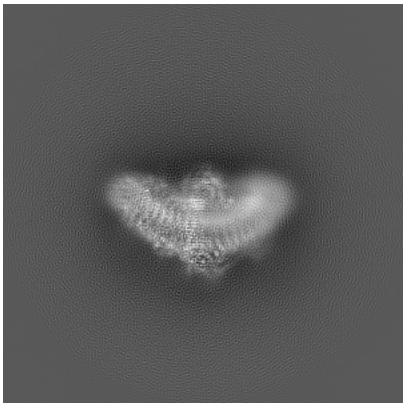
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-7042. These allow visual inspection of the internal detail of the map and identification of artifacts.

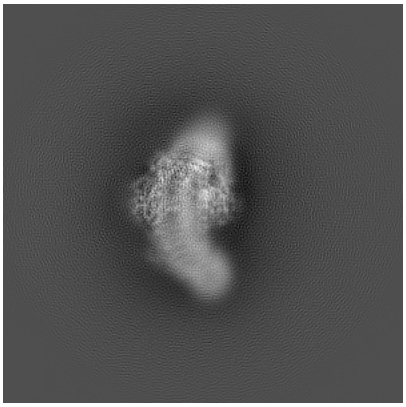
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

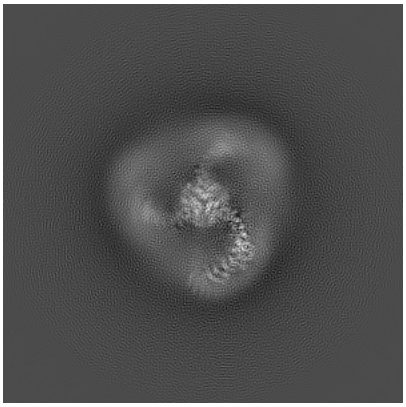
6.1.1 Primary map



X



Y

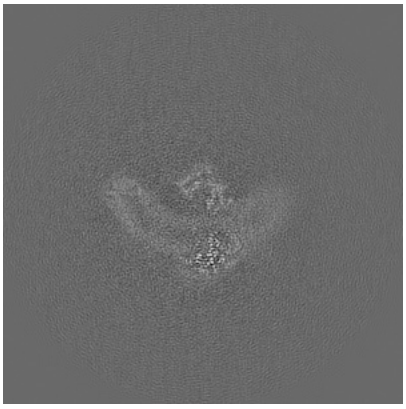


Z

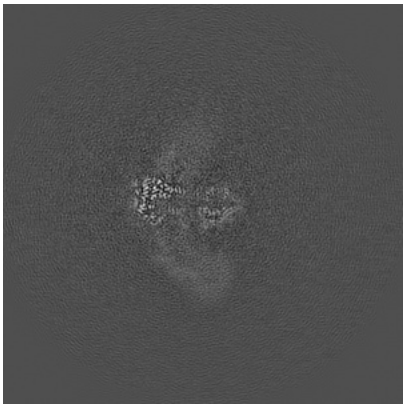
The images above show the map projected in three orthogonal directions.

6.2 Central slices

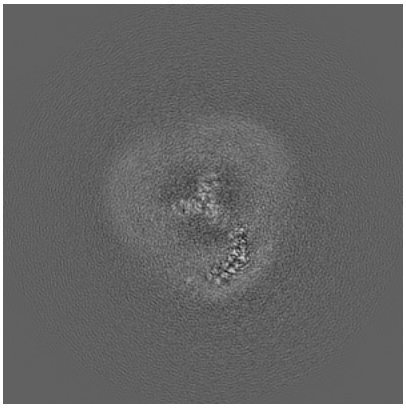
6.2.1 Primary map



X Index: 200



Y Index: 200

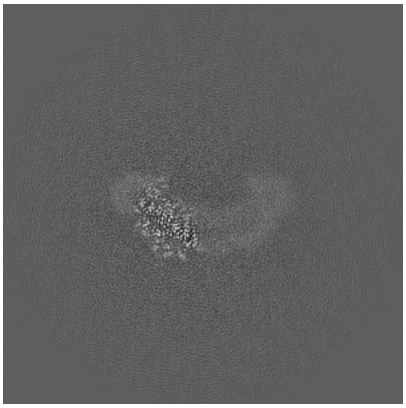


Z Index: 200

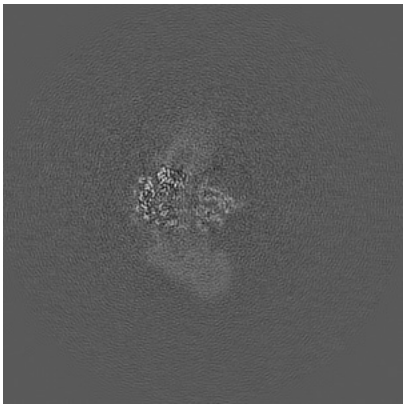
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

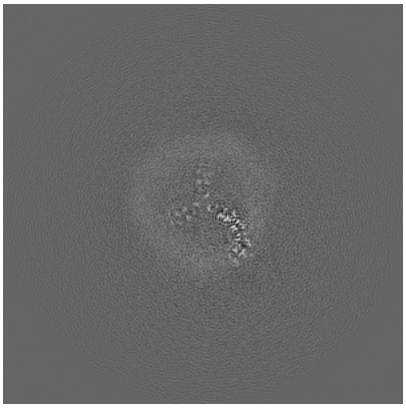
6.3.1 Primary map



X Index: 233



Y Index: 193



Z Index: 170

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 0.06. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

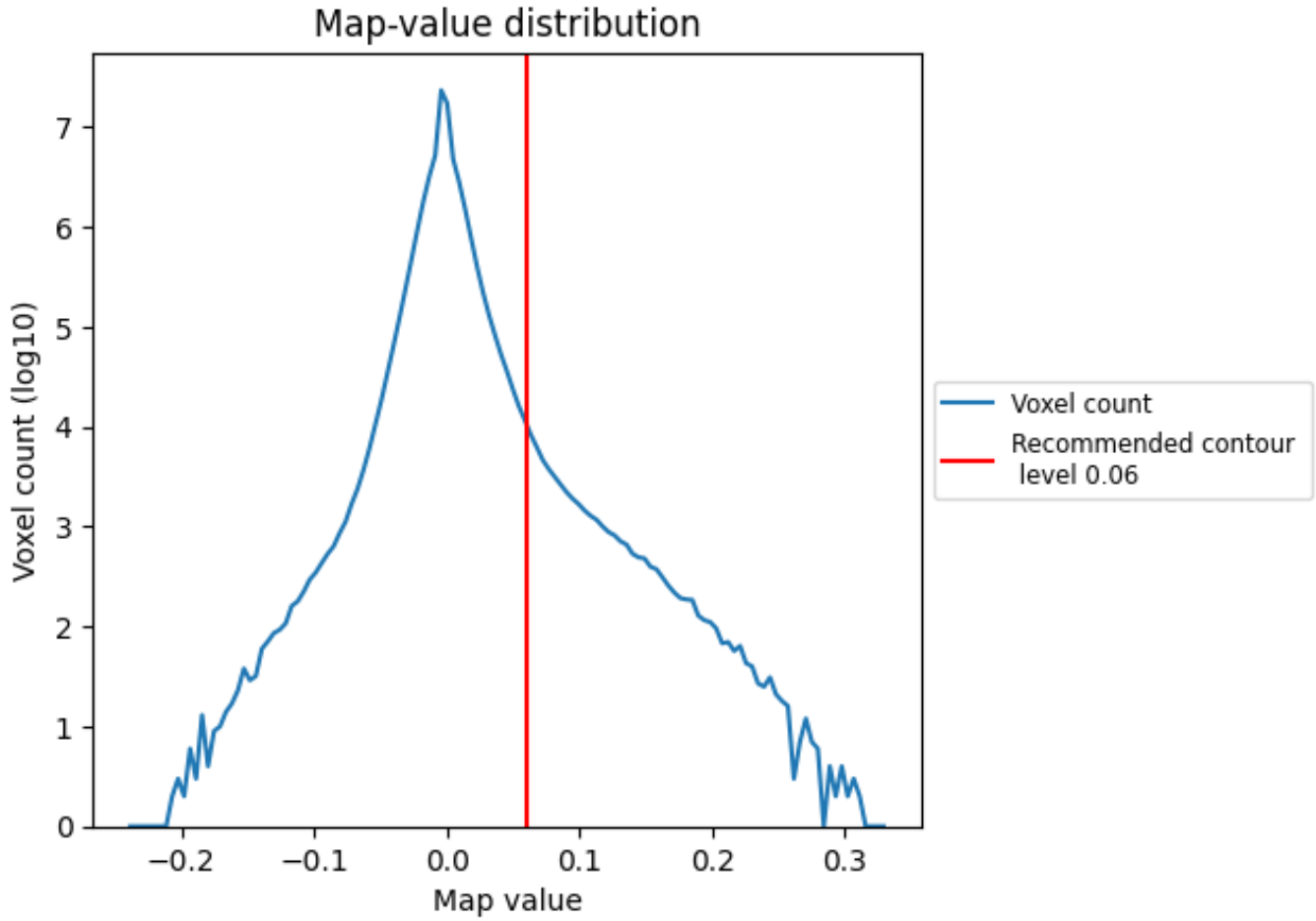
6.5 Mask visualisation (i)

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

7 Map analysis

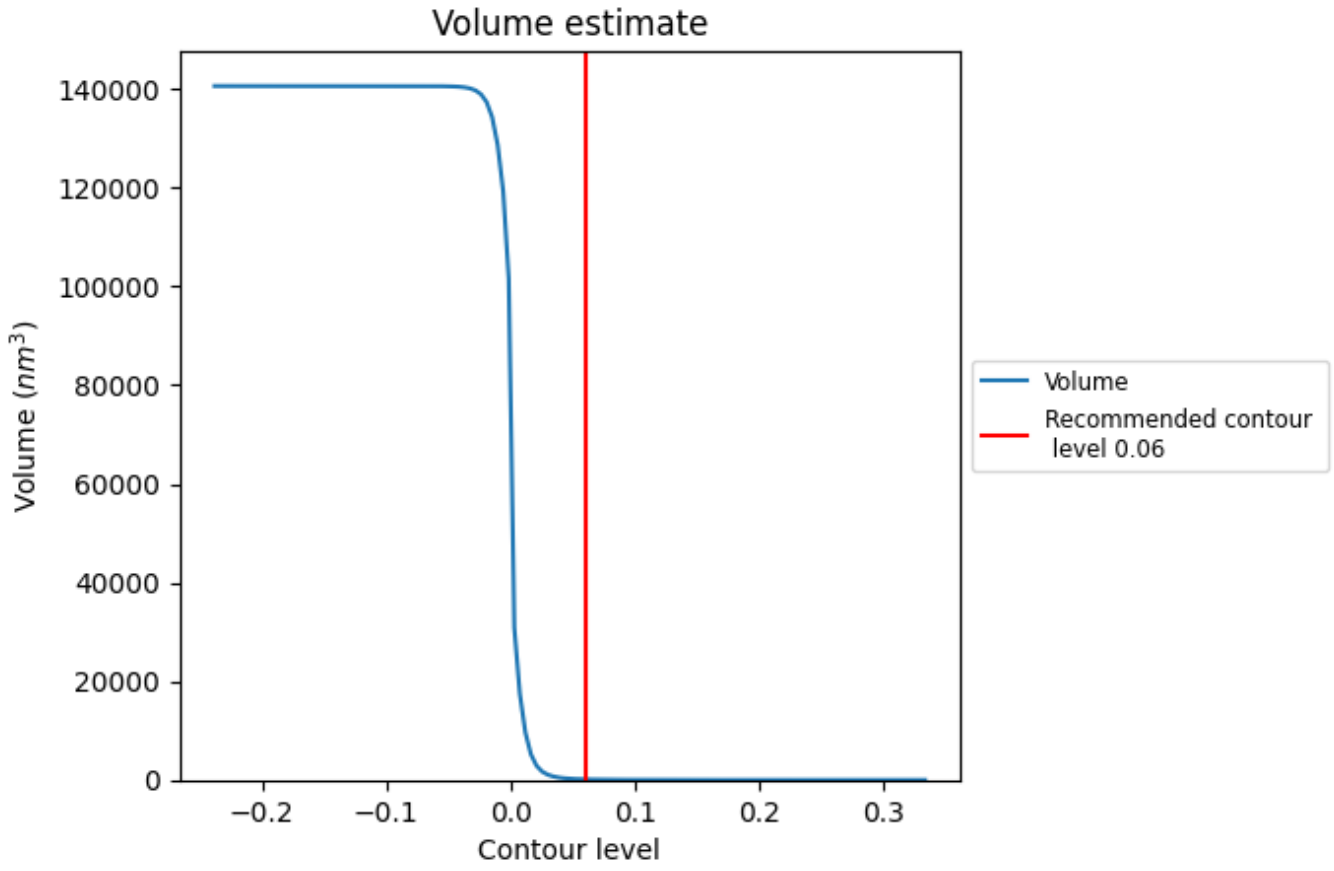
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

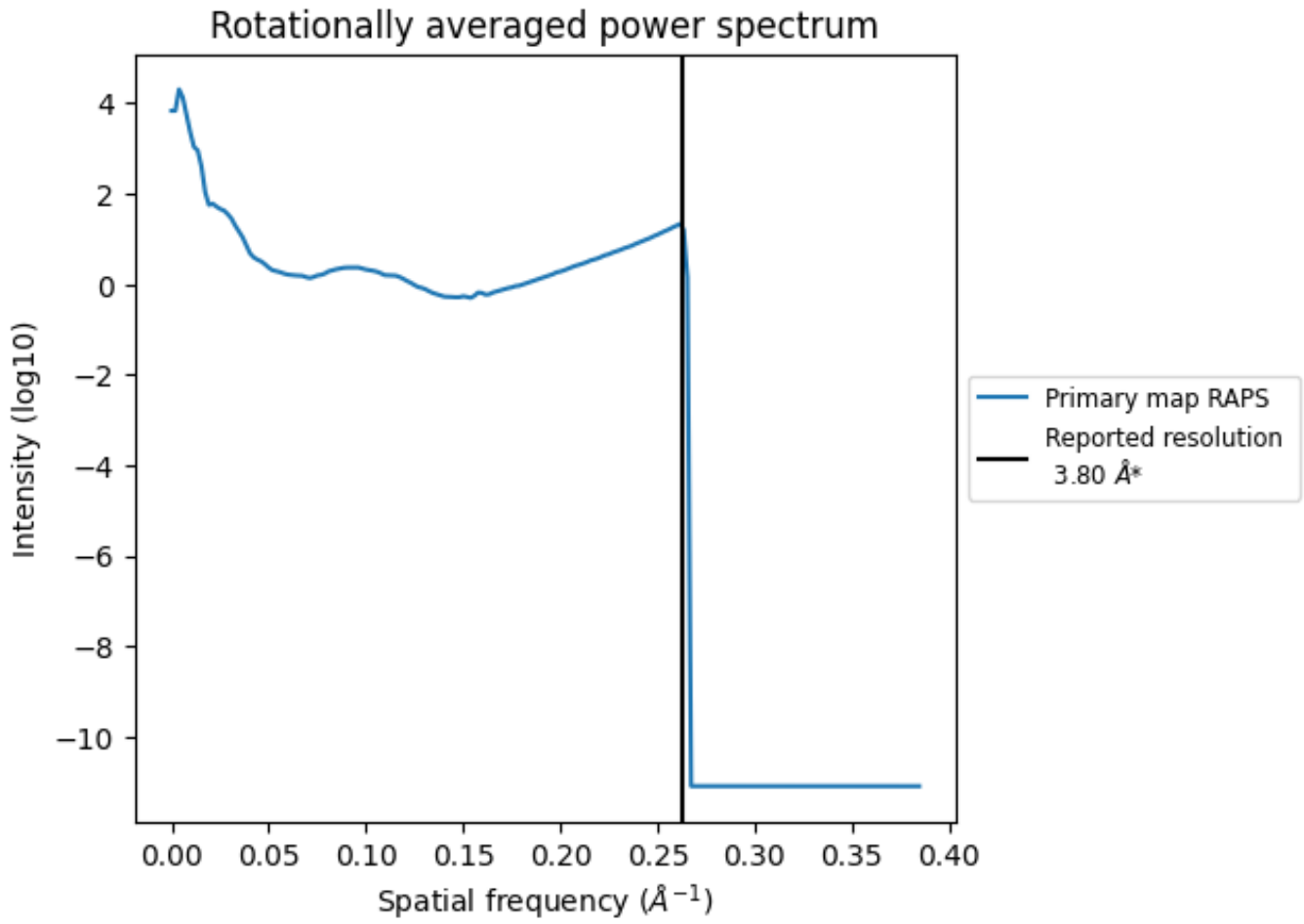
7.2 Volume estimate (i)



The volume at the recommended contour level is 123 nm^3; this corresponds to an approximate mass of 111 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 0.263 Å^{-1}

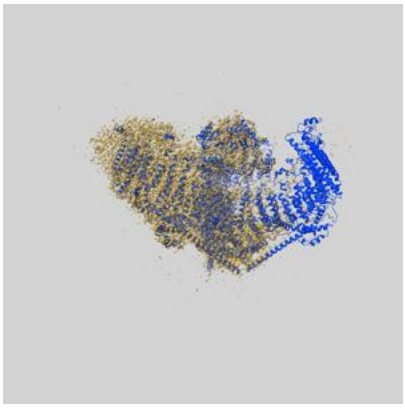
8 Fourier-Shell correlation (i)

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

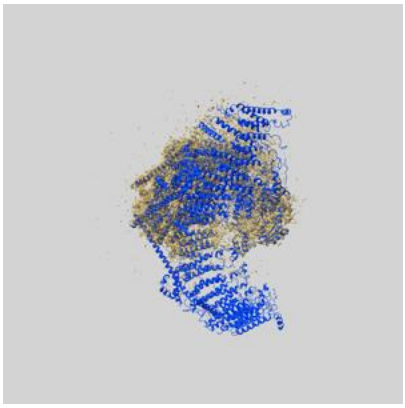
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-7042 and PDB model 6B3R. Per-residue inclusion information can be found in section 3 on page 4.

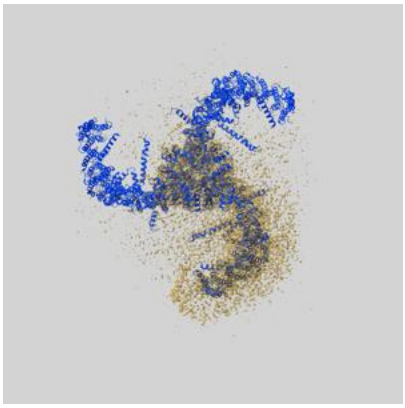
9.1 Map-model overlay



X



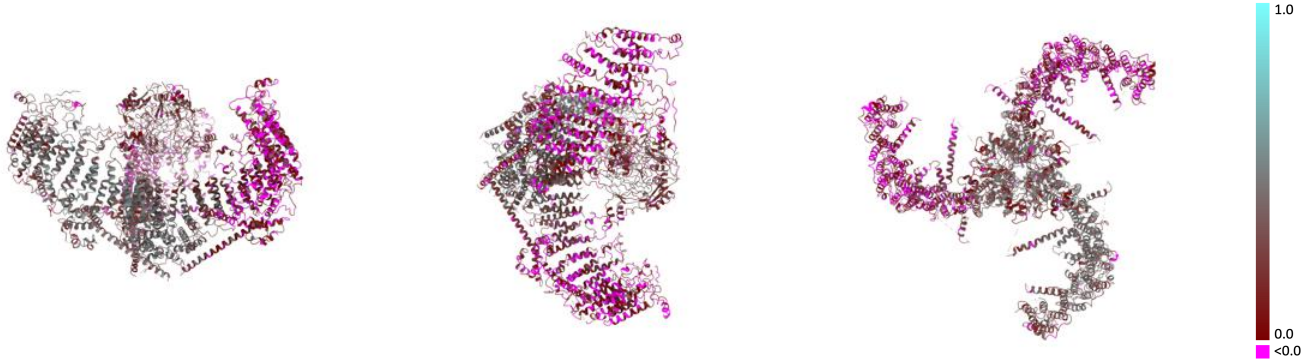
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.06 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.

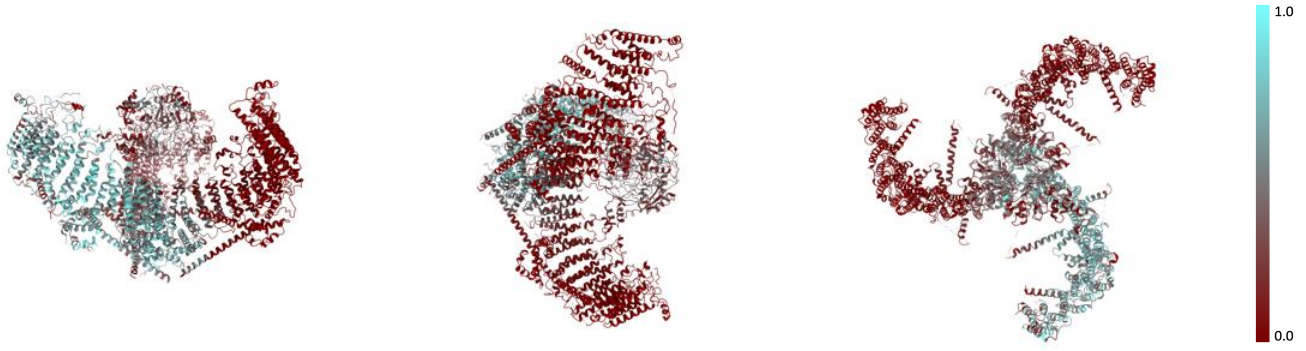
9.2 Q-score mapped to coordinate model (i)



X Y Z

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.

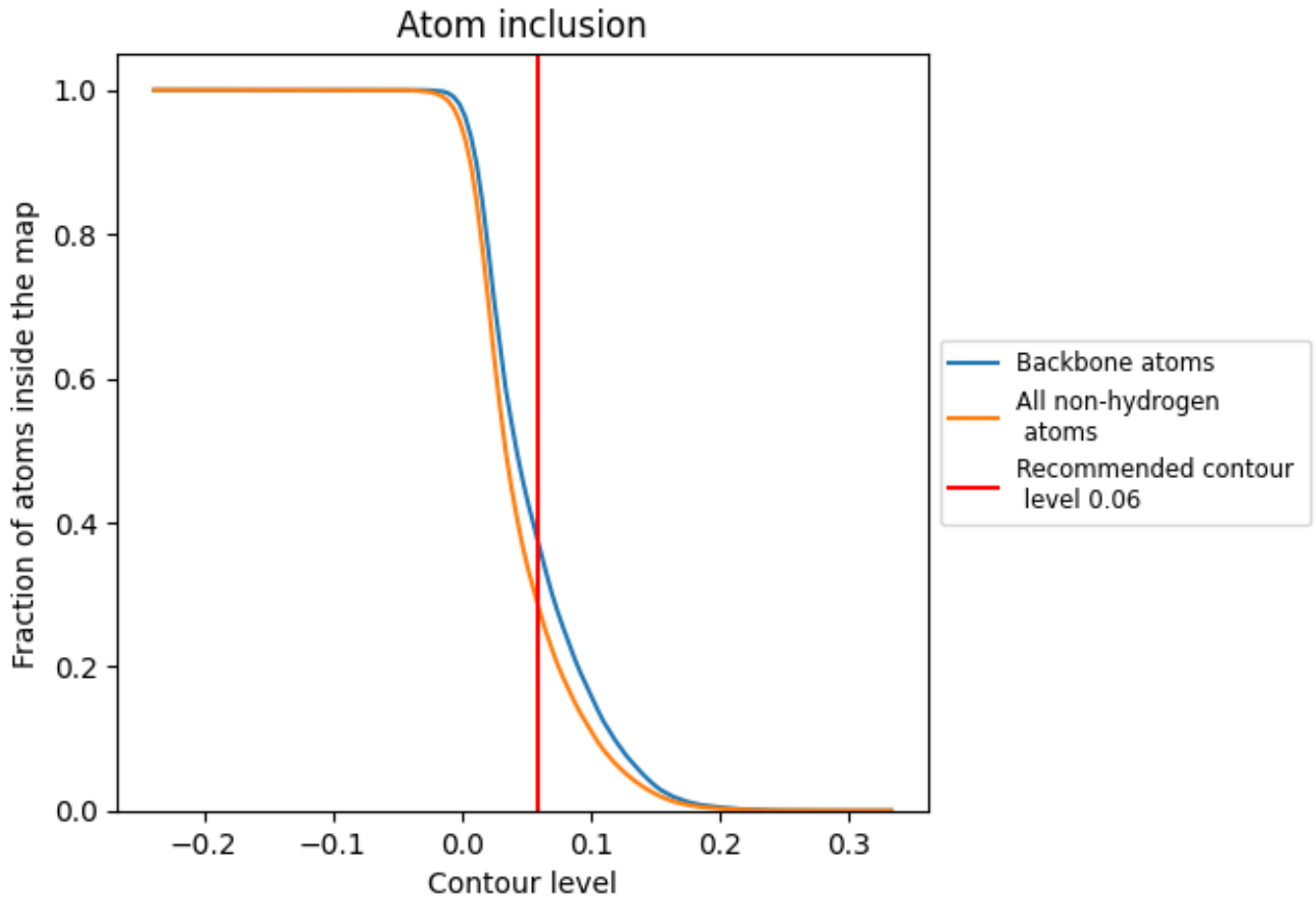
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.06).

9.4 Atom inclusion (i)



At the recommended contour level, 37% of all backbone atoms, 28% 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 (0.06) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.2806	0.2360
A	0.5392	0.3720
B	0.7250	0.4520
C	0.1472	0.1650
D	0.6875	0.4410
E	0.1473	0.1660
F	0.6250	0.4110