Full wwPDB EM Validation Report ⓘ

Sep 25, 2024 – 06:54 am BST

PDB ID	:	8QR1
EMDB ID	:	EMD-18611
Title	:	Cryo-EM structure of the human Tip60 complex
Authors	:	Li, C.; Smirnova, E.; Schnitzler, C.; Crucifix, C.; Concordet, J.P.; Brion, A.; Poterszman, A.; Schultz, P.; Papai, G.; Ben-Shem, A.
Deposited on	:	2023-10-06
Resolution	:	2.40 Å(reported)

This is a Full wwPDB EM Validation 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:

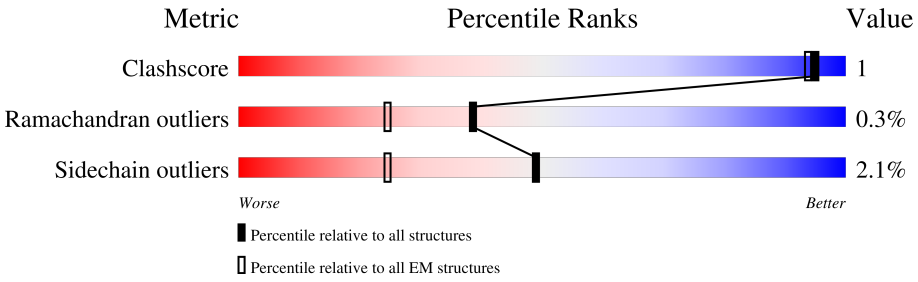
EMDB validation analysis	:	0.0.1.dev112
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.38.2

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 2.40 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 <=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	3159	8% 26% 72%
2	C	836	9% 90%
3	F	467	42% 54%
4	S	364	26% 70%
5	B	375	9% 95% 5%
5	G	375	93% 6%
6	K	429	93% 5%
7	E	456	92%

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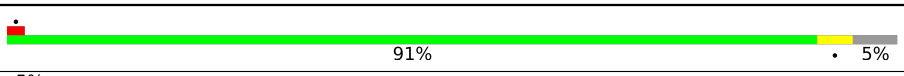
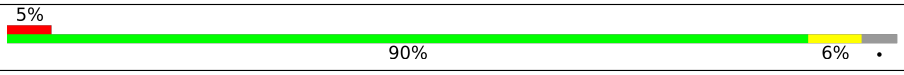
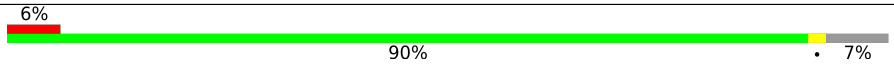
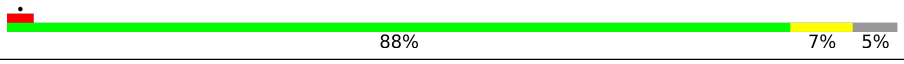
Mol	Chain	Length	Quality of chain
7	I	456	
7	L	456	
8	D	463	
8	H	463	
8	J	463	

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 39353 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 E1A-binding protein p400.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	875	Total	C	N	O	S	0	0
			7059	4501	1270	1258	30		

- Molecule 2 is a protein called Enhancer of polycomb homolog 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	85	Total	C	N	O	S	0	0
			687	432	134	118	3		

- Molecule 3 is a protein called DNA methyltransferase 1-associated protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	F	213	Total	C	N	O	S	0	0
			1781	1138	322	317	4		

- Molecule 4 is a protein called Vacuolar protein sorting-associated protein 72 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	S	108	Total	C	N	O	S	0	0
			823	534	142	145	2		

- Molecule 5 is a protein called Actin, cytoplasmic 1, N-terminally processed.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	B	375	Total	C	N	O	S	0	0
			2925	1850	491	561	23		
5	G	354	Total	C	N	O	S	0	0
			2764	1755	459	530	20		

- Molecule 6 is a protein called Actin-like protein 6A.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	K	406	Total	C	N	O	S	0	0
			3164	2001	538	601	24		

- Molecule 7 is a protein called RuvB-like 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	L	439	Total	C	N	O	S	0	0
			3374	2124	579	654	17		
7	I	434	Total	C	N	O	S	0	0
			3329	2096	573	644	16		
7	E	440	Total	C	N	O	S	0	0
			3383	2129	581	656	17		

- Molecule 8 is a protein called RuvB-like 2.

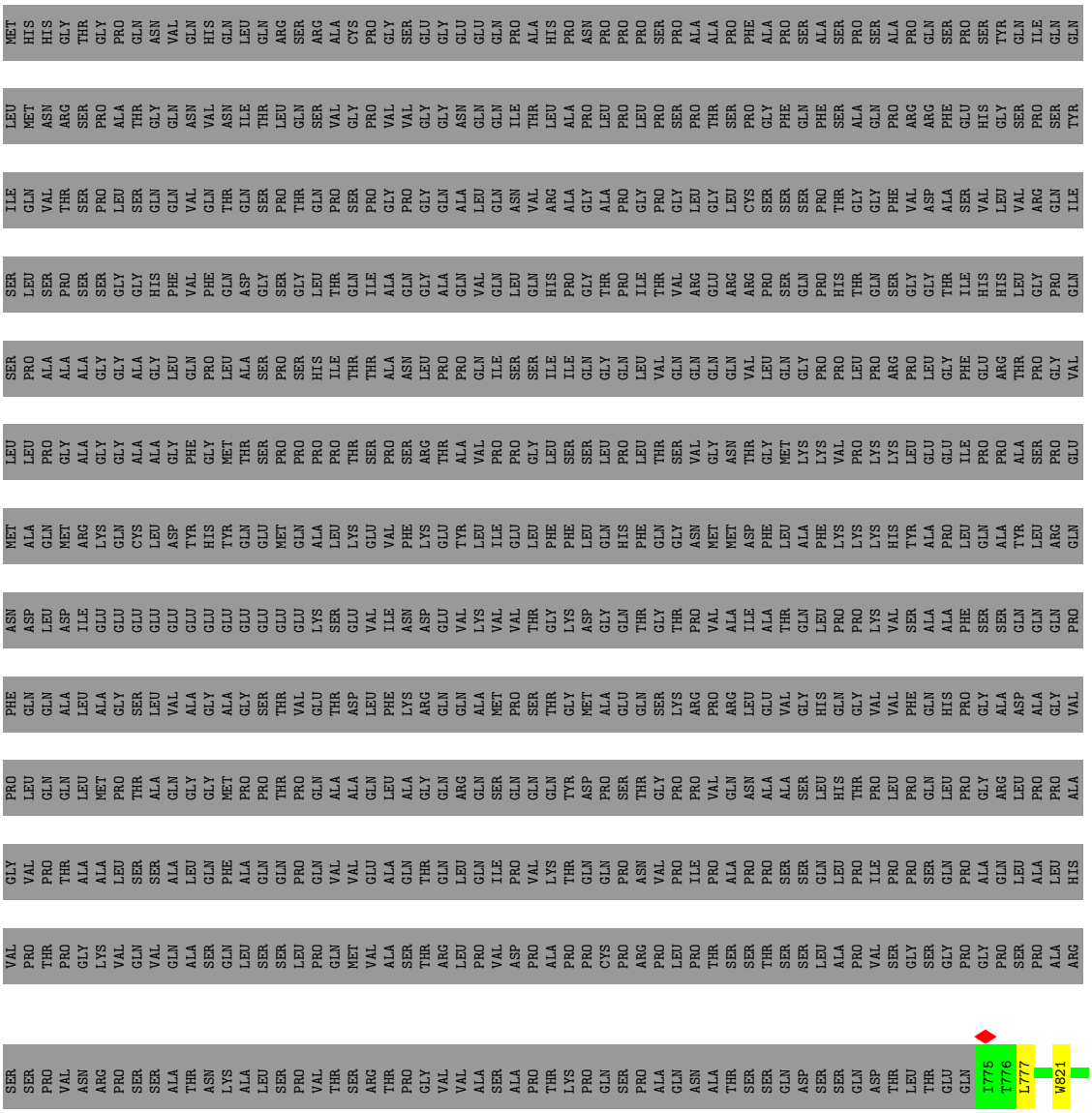
Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	429	Total	C	N	O	S	0	0
			3299	2065	575	644	15		
8	D	434	Total	C	N	O	S	0	0
			3362	2102	590	655	15		
8	J	439	Total	C	N	O	S	0	0
			3403	2125	597	665	16		

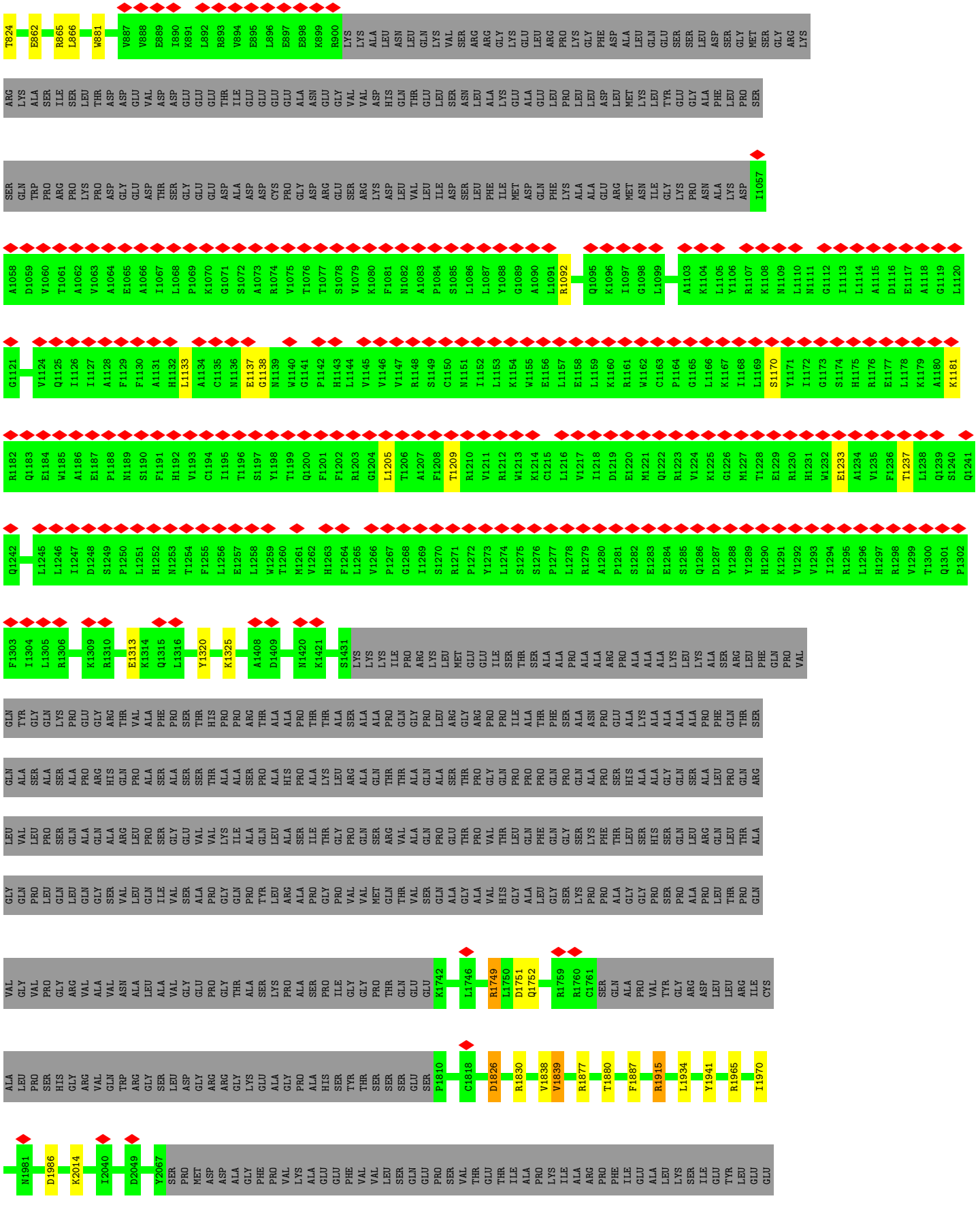
3 Residue-property plots (i)

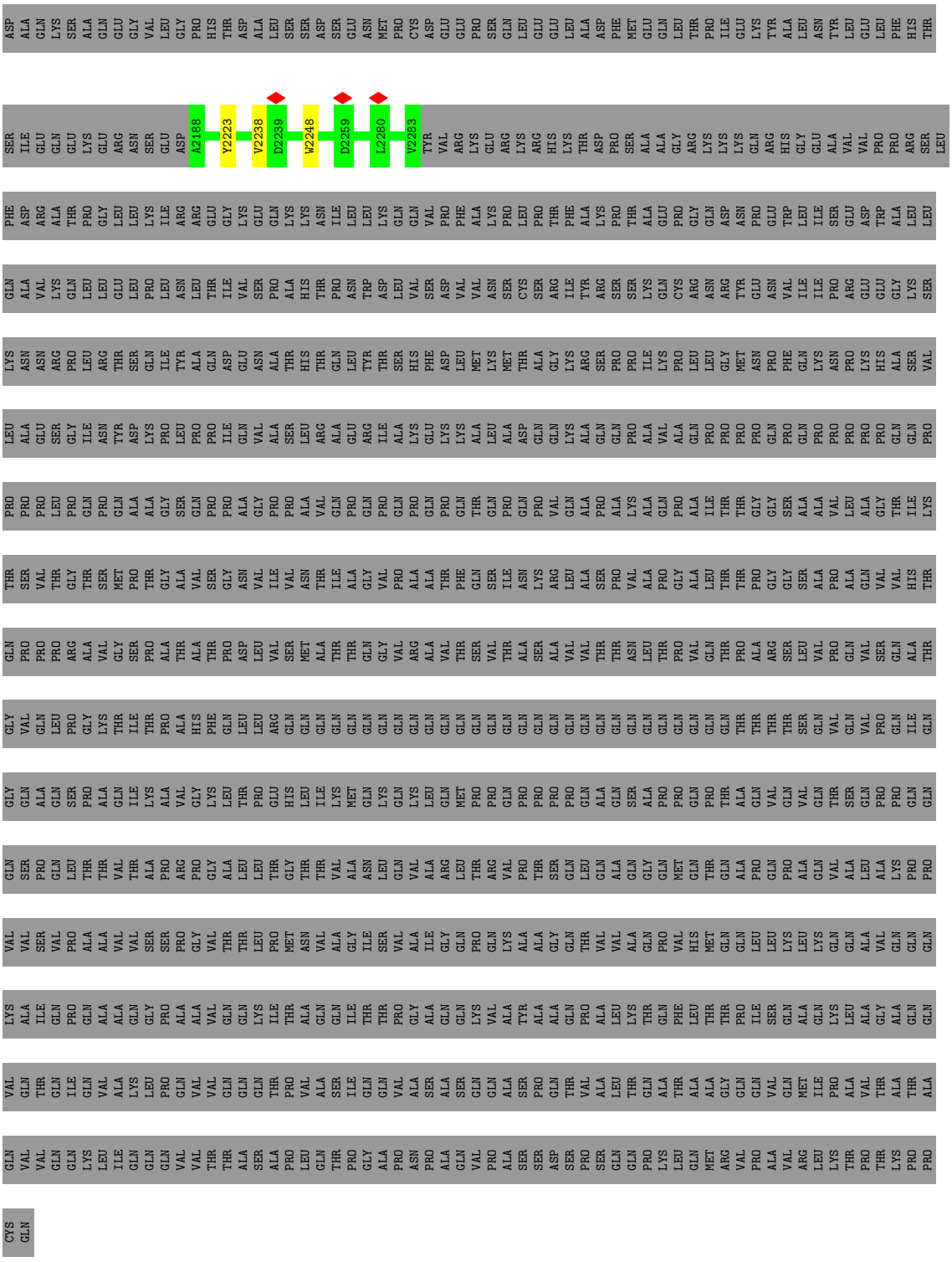
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: E1A-binding protein p400

Chain A:

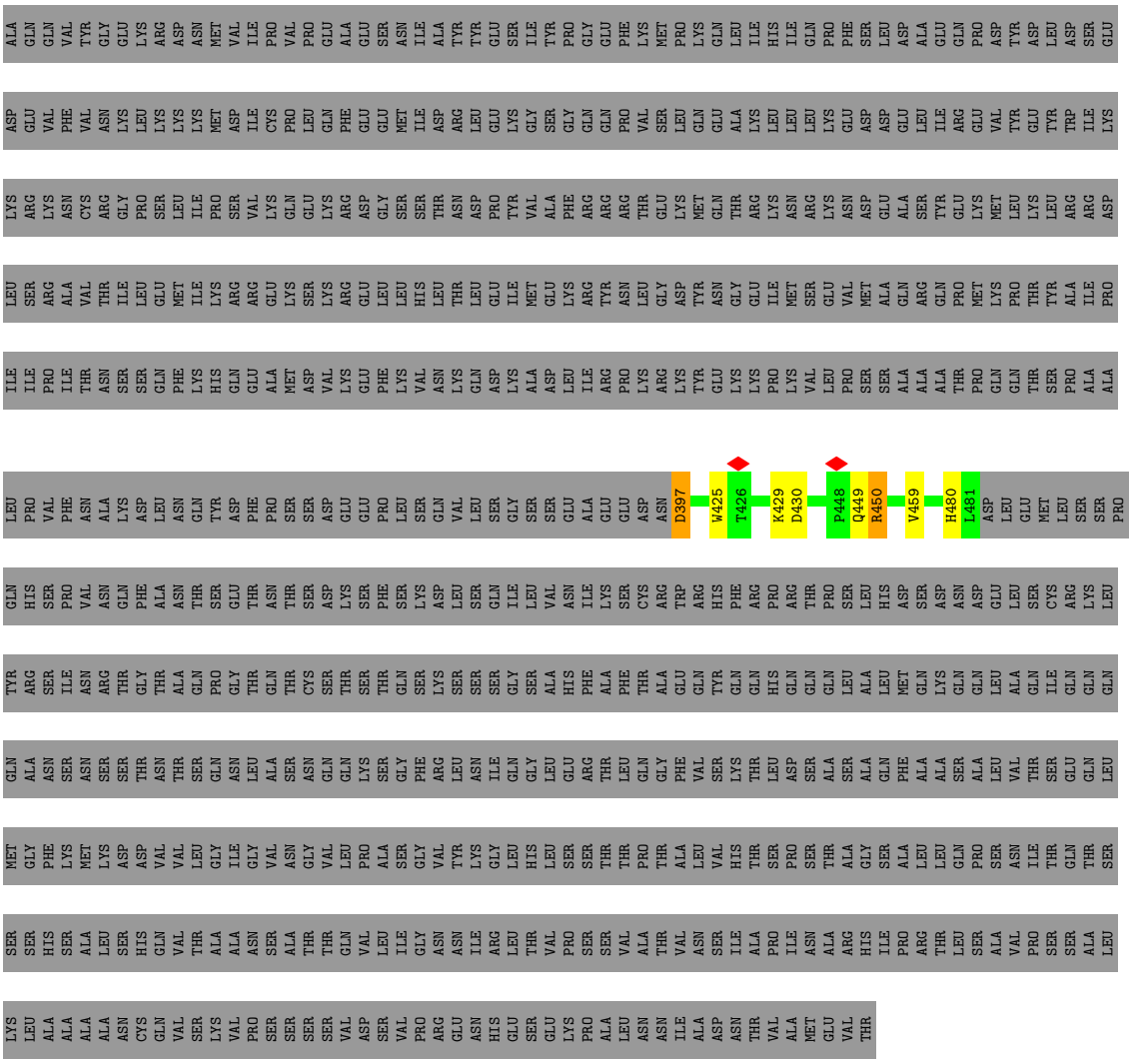



T824 E862 R865 L866 W881 V887 V888 E889 I890 K891 L892 R893 V894 E895 L896 E897 E898 K899 R900
I1057
A1058 D1059 V1060 T1061 A1062 V1063 A1064 E1065 A1066 I1067 L1068 P1069 K1070 G1071 S1072 A1073 R1074 V1075 T1076 T1077 S1078 V1079 K1080 F1081 N1082 A1083 P1084 S1085 L1086 L1087 Y1088 G1089 A1090 L1091 R1092 Q1095 K1096 I1097 G1098 L1099 A1103 K1104 L1105 Y1106 R1107 K1108 N1109 L1110 N1111 G1112 I1113 L1114 A1115 D1116 E1117 A1118 G1119 L1120
G1121 V1124 Q1125 I1126 I1127 A1128 F1129 F1130 A1131 H1132 L1133 A1134 C1135 N1136 E1137 G1138 N1139 W1140 G1141 P1142 H1143 L1144 V1145 V1146 V1147 R1148 S1149 C1150 N1151 I1152 L1153 K1154 W1155 E1156 L1157 E1158 L1159 K1160 R1161 W1162 C1163 P1164 G1165 L1166 K1167 I1168 L1169 S1170 Y1171 I1172 G1173 S1174 H1175 R1176 E1177 L1178 K1179 A1180 K1181
R1182 Q1183 E1184 W1185 A1186 E1187 P1188 N1189 S1190 F1191 H1192 V1193 C1194 I1195 T1196 S1197 Y1198 T1199 Q1200 F1201 F1202 R1203 G1204 L1205 T1206 A1207 F1208 T1209 R1210 V1211 R1212 W1213 K1214 C1215 L1216 V1217 I1218 D1219 E1220 M1221 Q1222 R1223 V1224 K1225 G1226 M1227 T1228 E1229 R1230 H1231 W1232 E1233 A1234 V1235 F1236 T1237 L1238 Q1239 S1240 Q1241
Q1242 L1245 L1246 T1247 D1248 S1249 P1250 L1251 H1252 N1253 T1254 F1255 L1256 E1257 L1258 W1259 T1260 M1261 V1262 H1263 F1264 L1265 V1266 P1267 G1268 I1269 S1270 R1271 P1272 Y1273 L1274 S1275 S1276 P1277 L1278 R1279 A1280 P1281 S1282 E1283 E1284 S1285 Q1286 D1287 Y1288 Y1289 H1290 K1291 V1292 V1293 I1294 R1295 L1296 H1297 R1298 V1299 T1300 Q1301 P1302
F1303 I1304 L1305 R1306 K1309 R1310 E1313 K1314 Q1315 L1316 Y1320 K1325 A1408 D1409 N1420 K1421 S1431
K1742 L1746 R1749 L1750 D1751 Q1752 R1759 R1760 C1761
P1810 C1818 D1826 R1830 V1838 V1839 R1877 T1880 F1887 R1915 L1934 Y1941 R1965 I1970
N1981 D1986 K2014 I2040 D2049 Y2067



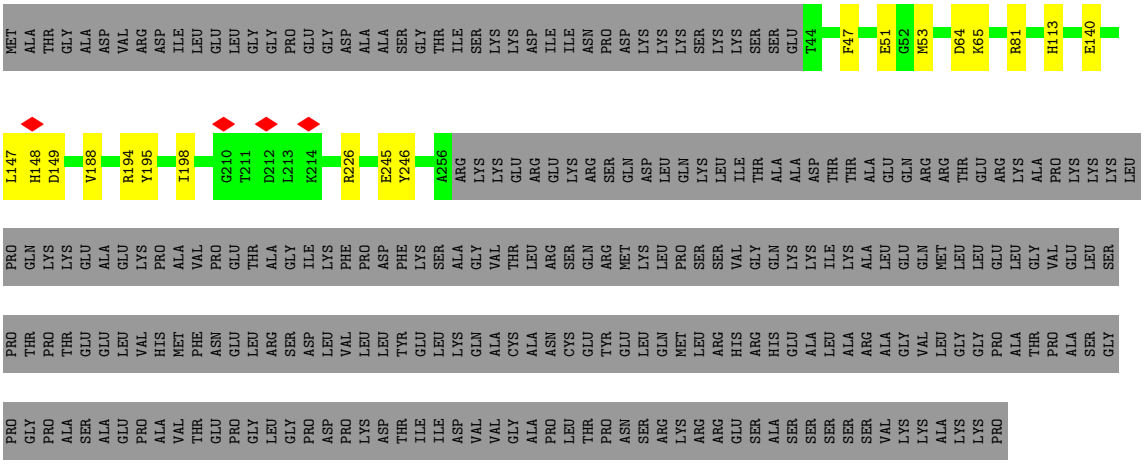
• Molecule 2: Enhancer of polycomb homolog 1

Chain C: 9% 90%



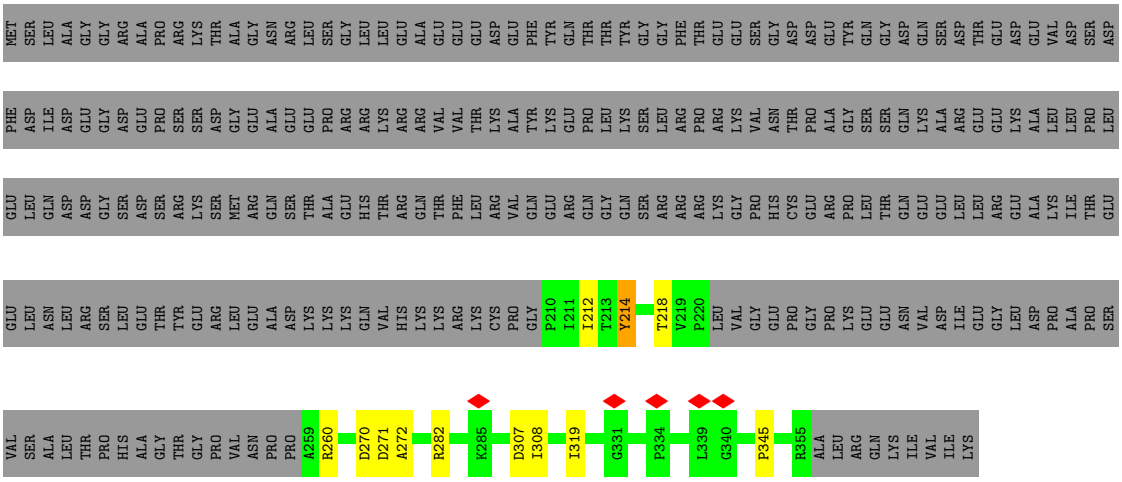
• Molecule 3: DNA methyltransferase 1-associated protein 1

Chain F:



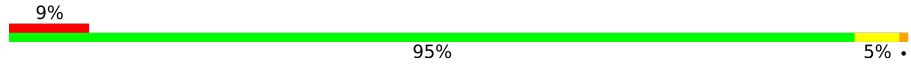
• Molecule 4: Vacuolar protein sorting-associated protein 72 homolog

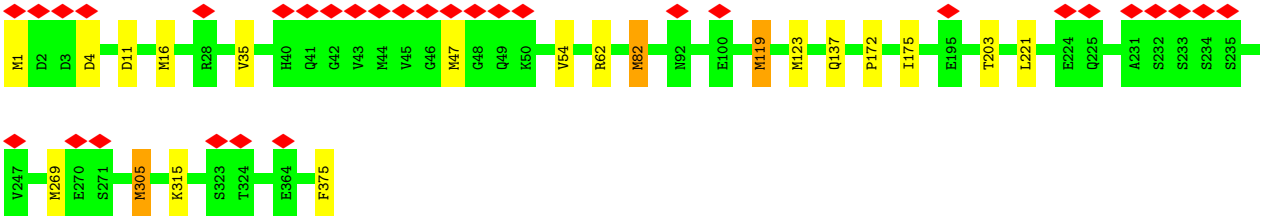
Chain S:



• Molecule 5: Actin, cytoplasmic 1, N-terminally processed

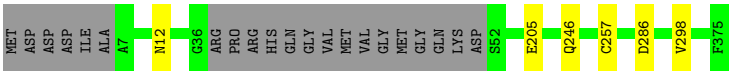
Chain B:





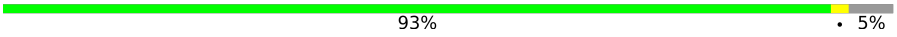
• Molecule 5: Actin, cytoplasmic 1, N-terminally processed

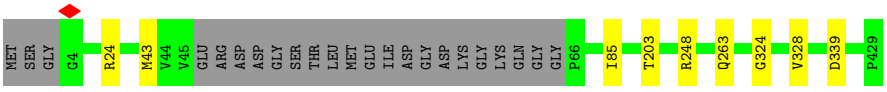
Chain G:



• Molecule 6: Actin-like protein 6A

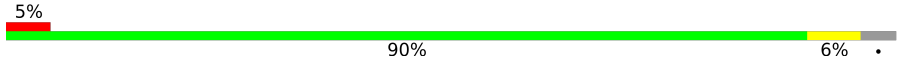
Chain K:

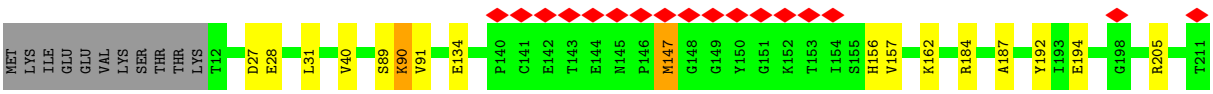


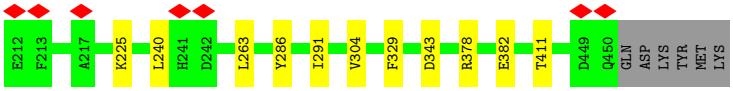


• Molecule 7: RuvB-like 1

Chain L:

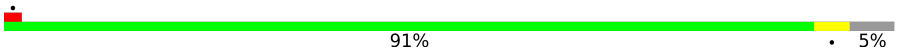


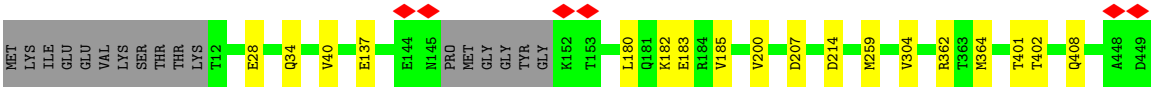


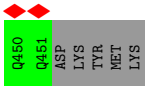


• Molecule 7: RuvB-like 1

Chain I:

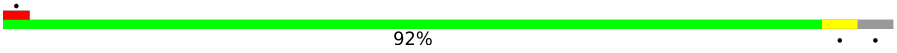


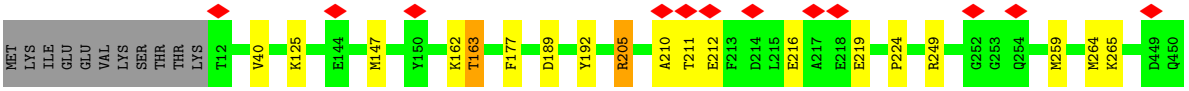


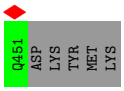


• Molecule 7: RuvB-like 1

Chain E:

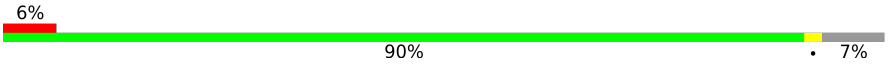


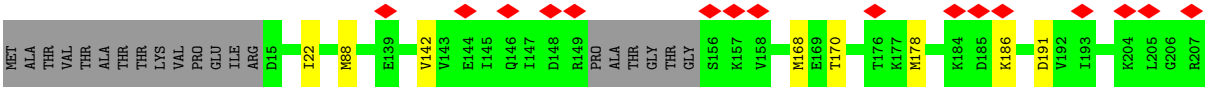


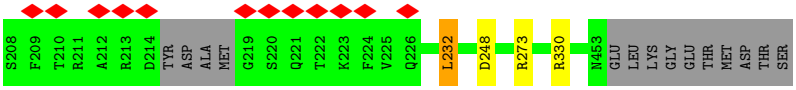


• Molecule 8: RuvB-like 2

Chain H:

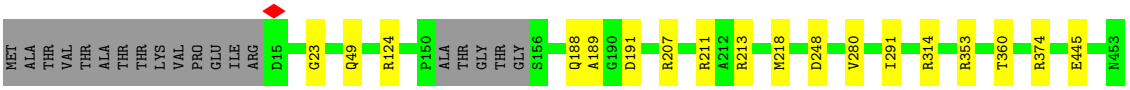






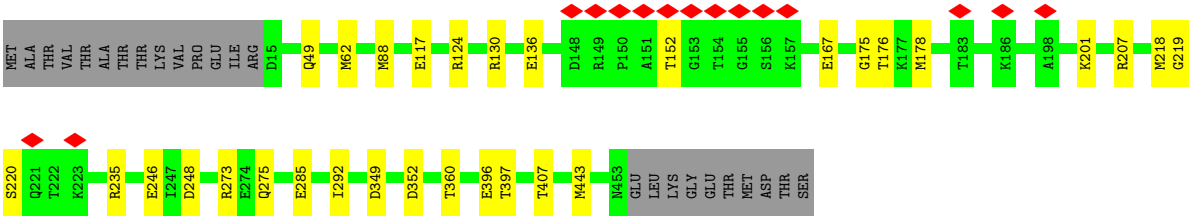
• Molecule 8: RuvB-like 2

Chain D:



• Molecule 8: RuvB-like 2

Chain J:


MET ALA THR VAL THR ALA THR THR LYS VAL PRO GLU ILE ARG D15 Q49 M62 M88 E117 R124 R130 E136 D148 R149 P150 A151 T152 G153 T154 G155 S156 K157 E167 G175 T176 K177 M178 T183 K186 A198 K201 R207 M218 G219

S220 Q221 T222 K223 R235 E246 I247 D248 R273 E274 Q275 E285 I292 D349 D352 T360 E396 T397 T407 M443 N453 GLU LEU LYS GLY GLU THR MET ASP THR SER

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	180397	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 ($e^-/Å^2$)	40, 52	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2800	Depositor
Magnification	Not provided	
Image detector	FEI FALCON IV (4k x 4k), GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	74.696	Depositor
Minimum map value	-28.889	Depositor
Average map value	-0.003	Depositor
Map value standard deviation	1.069	Depositor
Recommended contour level	6	Depositor
Map size (Å)	500.78, 500.78, 500.78	wwPDB
Map dimensions	686, 686, 686	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.73, 0.73, 0.73	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	0.29	0/7210	0.65	1/9766 (0.0%)
2	C	0.35	0/709	0.78	0/961
3	F	0.37	0/1830	0.74	0/2472
4	S	0.35	0/855	0.73	0/1177
5	B	0.29	0/2988	0.61	1/4045 (0.0%)
5	G	0.33	0/2824	0.60	0/3825
6	K	0.35	0/3236	0.61	0/4387
7	E	0.33	0/3428	0.67	1/4622 (0.0%)
7	I	0.32	0/3371	0.64	0/4545
7	L	0.31	0/3419	0.65	0/4610
8	D	0.31	0/3401	0.68	0/4580
8	H	0.29	0/3335	0.67	1/4492 (0.0%)
8	J	0.33	0/3443	0.73	1/4636 (0.0%)
All	All	0.32	0/40049	0.66	5/54118 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	C	0	1
4	S	0	1
All	All	0	2

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	1826	ASP	CB-CG-OD1	8.31	125.78	118.30
5	B	119	MET	CA-CB-CG	6.77	124.80	113.30
8	J	352	ASP	CB-CG-OD2	5.82	123.54	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	E	212	GLU	CA-CB-CG	5.16	124.75	113.40
8	H	168	MET	CA-CB-CG	5.16	122.07	113.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	449	GLN	Peptide
4	S	307	ASP	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	7059	0	7067	22	0
2	C	687	0	654	3	0
3	F	1781	0	1727	6	0
4	S	823	0	798	4	0
5	B	2925	0	2891	8	0
5	G	2764	0	2732	0	0
6	K	3164	0	3105	4	0
7	E	3383	0	3482	3	0
7	I	3329	0	3418	9	0
7	L	3374	0	3474	8	0
8	D	3362	0	3414	11	0
8	H	3299	0	3337	3	0
8	J	3403	0	3472	12	0
All	All	39353	0	39571	81	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 1.

All (81) 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)
5:B:62:ARG:O	5:B:203:THR:OG1	2.11	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:J:167:GLU:N	8:J:167:GLU:OE1	2.28	0.66
7:L:147:MET:SD	7:L:147:MET:N	2.71	0.63
5:B:305:MET:SD	5:B:305:MET:N	2.73	0.61
1:A:1205:LEU:O	1:A:1209:THR:OG1	2.18	0.61
7:I:362:ARG:NH2	7:I:364:MET:SD	2.75	0.60
7:E:189:ASP:OD1	7:E:205:ARG:NH1	2.34	0.60
5:B:11:ASP:OD1	5:B:137:GLN:NE2	2.34	0.60
1:A:1752:GLN:OE1	8:J:201:LYS:NZ	2.26	0.59
8:D:211:ARG:NH1	8:D:218:MET:O	2.36	0.59
8:H:170:THR:HG23	8:H:232:LEU:HD22	1.83	0.58
8:J:124:ARG:NE	8:J:248:ASP:OD2	2.36	0.58
5:B:221:LEU:O	5:B:315:LYS:NZ	2.27	0.57
8:D:280:VAL:CG1	8:D:291:ILE:HD11	2.36	0.56
1:A:1170:SER:O	1:A:1181:LYS:NZ	2.36	0.55
7:I:183:GLU:HB2	7:I:185:VAL:HG23	1.91	0.53
3:F:51:GLU:N	3:F:51:GLU:OE2	2.41	0.53
8:J:218:MET:SD	8:J:219:GLY:N	2.82	0.52
1:A:824:THR:HG21	1:A:2248:TRP:CH2	2.45	0.51
7:I:180:LEU:HD23	7:I:200:VAL:HG11	1.92	0.51
6:K:203:THR:OG1	6:K:263:GLN:NE2	2.44	0.51
8:D:124:ARG:NE	8:D:248:ASP:OD2	2.39	0.51
7:L:187:ALA:O	7:L:205:ARG:NH1	2.43	0.50
1:A:1233:GLU:O	1:A:1237:THR:OG1	2.28	0.50
1:A:1877:ARG:O	7:I:182:LYS:NZ	2.42	0.50
7:I:401:THR:O	7:I:402:THR:OG1	2.27	0.50
1:A:1092:ARG:NH1	1:A:1313:GLU:OE2	2.45	0.49
8:D:280:VAL:HG11	8:D:291:ILE:HD11	1.95	0.49
3:F:226:ARG:NH2	6:K:339:ASP:OD1	2.45	0.49
5:B:35:VAL:HG22	5:B:54:VAL:HG22	1.95	0.48
7:L:90:LYS:HD2	7:L:91:VAL:HG23	1.95	0.48
8:J:130:ARG:HG3	8:J:292:ILE:HD11	1.96	0.48
3:F:64:ASP:OD1	3:F:65:LYS:N	2.47	0.48
1:A:1838:VAL:O	1:A:1839:VAL:HG12	2.14	0.47
8:J:218:MET:SD	8:J:220:SER:N	2.87	0.47
7:L:286:TYR:CD2	7:L:291:ILE:HD11	2.50	0.47
1:A:1915:ARG:NE	1:A:1986:ASP:OD2	2.48	0.46
8:D:49:GLN:NE2	8:D:360:THR:O	2.48	0.46
4:S:214:TYR:OH	8:D:188:GLN:OE1	2.34	0.46
4:S:270:ASP:O	4:S:272:ALA:N	2.47	0.46
8:J:49:GLN:NE2	8:J:360:THR:O	2.47	0.46
7:L:382:GLU:OE1	7:L:411:THR:OG1	2.33	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1877:ARG:HA	1:A:1880:THR:HG22	1.97	0.46
1:A:1934:LEU:CD1	1:A:1970:ILE:HD11	2.46	0.46
3:F:147:LEU:HD13	3:F:148:HIS:N	2.30	0.45
7:L:134:GLU:N	7:L:162:LYS:O	2.48	0.45
1:A:1749:ARG:NH2	8:J:246:GLU:OE2	2.50	0.45
1:A:1934:LEU:HD12	1:A:1970:ILE:HD11	1.99	0.45
7:L:27:ASP:OD1	7:L:31:LEU:N	2.50	0.45
8:D:191:ASP:OD1	8:D:207:ARG:NE	2.46	0.45
7:E:210:ALA:O	7:E:211:THR:OG1	2.31	0.44
8:J:117:GLU:OE2	8:J:273:ARG:NH2	2.50	0.44
1:A:1133:LEU:O	1:A:1137:GLU:N	2.50	0.44
1:A:1941:TYR:OH	7:I:207:ASP:OD1	2.21	0.44
7:E:163:THR:OG1	7:E:224:PRO:O	2.35	0.44
7:L:304:VAL:HG21	7:L:329:PHE:CD1	2.53	0.43
1:A:862:GLU:OE1	1:A:865:ARG:NH2	2.50	0.43
8:D:189:ALA:O	8:D:207:ARG:NH2	2.50	0.43
7:I:408:GLN:NE2	8:D:353:ARG:O	2.49	0.43
1:A:1965:ARG:NH1	7:I:214:ASP:OD1	2.49	0.43
5:B:82:MET:SD	5:B:82:MET:N	2.91	0.43
5:B:172:PRO:HA	5:B:175:ILE:HD12	2.01	0.43
8:J:136:GLU:OE2	8:J:235:ARG:NH2	2.51	0.43
6:K:43:MET:HE2	6:K:85:ILE:HD13	2.00	0.43
1:A:866:LEU:HD13	5:B:375:PHE:CE1	2.54	0.42
3:F:147:LEU:HD13	3:F:148:HIS:H	1.83	0.42
2:C:397:ASP:OD2	2:C:397:ASP:N	2.51	0.42
2:C:430:ASP:N	2:C:430:ASP:OD2	2.53	0.42
8:H:248:ASP:OD2	8:H:273:ARG:NH1	2.51	0.42
4:S:308:ILE:HD11	4:S:319:ILE:HD12	2.01	0.42
8:J:396:GLU:HG3	8:J:397:THR:HG23	2.01	0.41
1:A:1133:LEU:O	1:A:1138:GLY:N	2.51	0.41
4:S:218:THR:CG2	8:D:189:ALA:HB1	2.50	0.41
8:D:23:GLY:O	8:D:374:ARG:NH2	2.47	0.41
6:K:324:GLY:O	6:K:328:VAL:HG23	2.21	0.41
8:J:175:GLY:O	8:J:176:THR:OG1	2.37	0.41
1:A:821:TRP:NE1	2:C:459:VAL:O	2.54	0.41
1:A:1880:THR:HG21	7:I:259:MET:HG2	2.03	0.41
8:H:142:VAL:N	8:H:191:ASP:O	2.47	0.40
3:F:195:TYR:HA	3:F:198:ILE:HG22	2.02	0.40
1:A:1826:ASP:OD1	1:A:1830:ARG:NH1	2.51	0.40

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	865/3159 (27%)	821 (95%)	40 (5%)	4 (0%)	25 38
2	C	83/836 (10%)	75 (90%)	7 (8%)	1 (1%)	11 16
3	F	211/467 (45%)	192 (91%)	18 (8%)	1 (0%)	25 38
4	S	104/364 (29%)	84 (81%)	17 (16%)	3 (3%)	3 3
5	B	373/375 (100%)	367 (98%)	6 (2%)	0	100 100
5	G	350/375 (93%)	342 (98%)	8 (2%)	0	100 100
6	K	402/429 (94%)	397 (99%)	5 (1%)	0	100 100
7	E	438/456 (96%)	418 (95%)	19 (4%)	1 (0%)	44 59
7	I	430/456 (94%)	423 (98%)	7 (2%)	0	100 100
7	L	437/456 (96%)	423 (97%)	13 (3%)	1 (0%)	44 59
8	D	430/463 (93%)	418 (97%)	12 (3%)	0	100 100
8	H	423/463 (91%)	407 (96%)	14 (3%)	2 (0%)	25 38
8	J	437/463 (94%)	421 (96%)	15 (3%)	1 (0%)	44 59
All	All	4983/8762 (57%)	4788 (96%)	181 (4%)	14 (0%)	38 51

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
8	H	330	ARG
1	A	1839	VAL
1	A	1751	ASP
4	S	271	ASP
8	H	232	LEU
7	E	219	GLU
1	A	2238	VAL
8	J	152	THR
2	C	450	ARG
3	F	188	VAL

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Mol	Chain	Res	Type
4	S	212	ILE
7	L	157	VAL
4	S	345	PRO
1	A	1887	PHE

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	749/2663 (28%)	741 (99%)	8 (1%)	70	84
2	C	70/738 (10%)	65 (93%)	5 (7%)	12	20
3	F	182/400 (46%)	173 (95%)	9 (5%)	21	36
4	S	86/312 (28%)	83 (96%)	3 (4%)	31	51
5	B	318/318 (100%)	309 (97%)	9 (3%)	38	59
5	G	301/318 (95%)	295 (98%)	6 (2%)	50	70
6	K	347/364 (95%)	345 (99%)	2 (1%)	84	92
7	E	371/387 (96%)	358 (96%)	13 (4%)	31	51
7	I	363/387 (94%)	358 (99%)	5 (1%)	62	79
7	L	370/387 (96%)	356 (96%)	14 (4%)	28	47
8	D	362/390 (93%)	359 (99%)	3 (1%)	79	90
8	H	353/390 (90%)	349 (99%)	4 (1%)	70	84
8	J	369/390 (95%)	360 (98%)	9 (2%)	44	64
All	All	4241/7444 (57%)	4151 (98%)	90 (2%)	49	69

All (90) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	777	LEU
1	A	881	TRP
1	A	1320	TYR
1	A	1325	LYS

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Mol	Chain	Res	Type
1	A	1749	ARG
1	A	1915	ARG
1	A	2014	LYS
1	A	2223	TYR
2	C	397	ASP
2	C	425	TRP
2	C	429	LYS
2	C	450	ARG
2	C	480	HIS
3	F	47	PHE
3	F	53	MET
3	F	81	ARG
3	F	113	HIS
3	F	140	GLU
3	F	149	ASP
3	F	194	ARG
3	F	245	GLU
3	F	246	TYR
4	S	214	TYR
4	S	260	ARG
4	S	282	ARG
5	B	1	MET
5	B	4	ASP
5	B	16	MET
5	B	47	MET
5	B	82	MET
5	B	119	MET
5	B	123	MET
5	B	269	MET
5	B	305	MET
5	G	12	ASN
5	G	205	GLU
5	G	246	GLN
5	G	257	CYS
5	G	286	ASP
5	G	298	VAL
6	K	24	ARG
6	K	248	ARG
7	L	28	GLU
7	L	40	VAL
7	L	89	SER
7	L	90	LYS

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Mol	Chain	Res	Type
7	L	147	MET
7	L	156	HIS
7	L	184	ARG
7	L	192	TYR
7	L	194	GLU
7	L	225	LYS
7	L	240	LEU
7	L	263	LEU
7	L	343	ASP
7	L	378	ARG
8	H	22	ILE
8	H	88	MET
8	H	178	MET
8	H	186	LYS
7	I	28	GLU
7	I	34	GLN
7	I	40	VAL
7	I	137	GLU
7	I	304	VAL
8	D	213	ARG
8	D	314	ARG
8	D	445	GLU
7	E	40	VAL
7	E	125	LYS
7	E	147	MET
7	E	162	LYS
7	E	163	THR
7	E	177	PHE
7	E	192	TYR
7	E	205	ARG
7	E	216	GLU
7	E	249	ARG
7	E	259	MET
7	E	264	MET
7	E	265	LYS
8	J	62	MET
8	J	88	MET
8	J	178	MET
8	J	207	ARG
8	J	275	GLN
8	J	285	GLU
8	J	349	ASP

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Mol	Chain	Res	Type
8	J	407	THR
8	J	443	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	811	HIS
5	G	92	ASN
5	G	314	GLN
6	K	263	GLN
8	D	313	ASN
7	E	420	ASN
7	E	429	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 oligosaccharides 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.

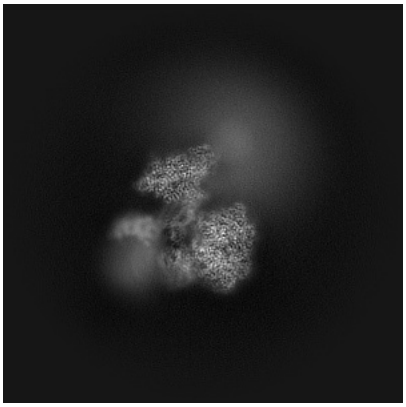
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-18611. These allow visual inspection of the internal detail of the map and identification of artifacts.

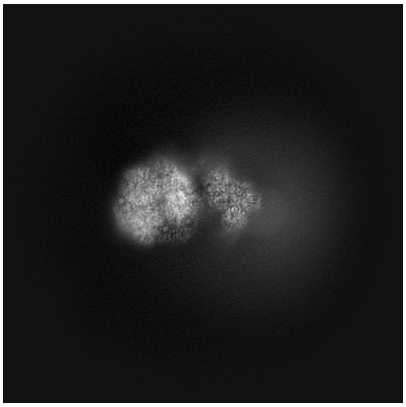
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

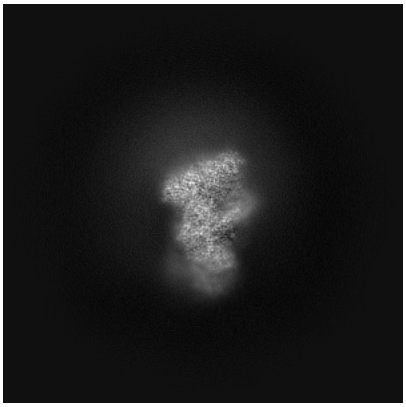
6.1.1 Primary map



X



Y

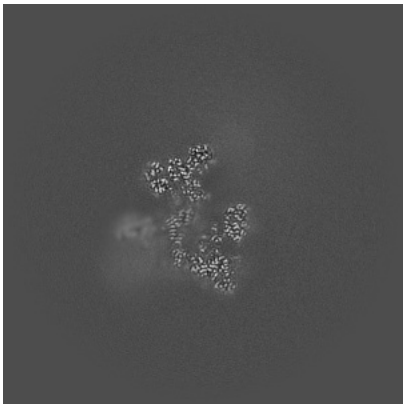


Z

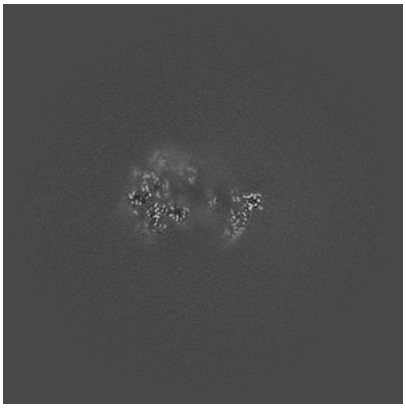
The images above show the map projected in three orthogonal directions.

6.2 Central slices

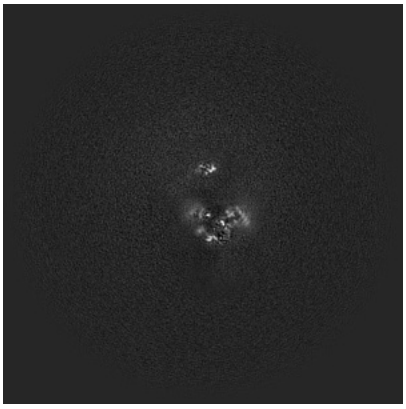
6.2.1 Primary map



X Index: 343



Y Index: 343

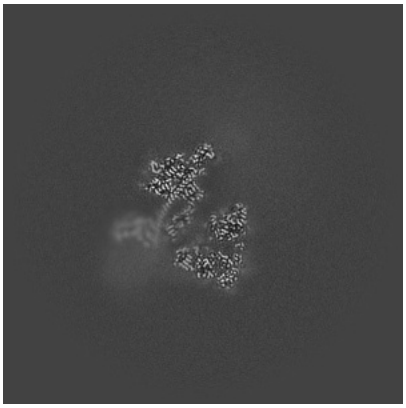


Z Index: 343

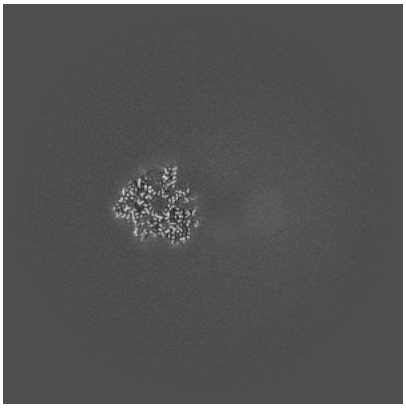
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

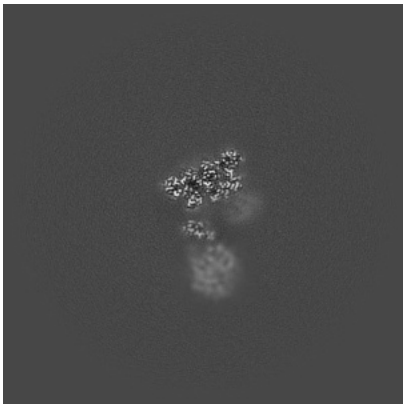
6.3.1 Primary map



X Index: 352



Y Index: 377

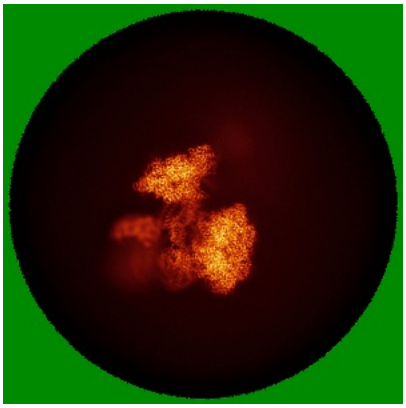


Z Index: 292

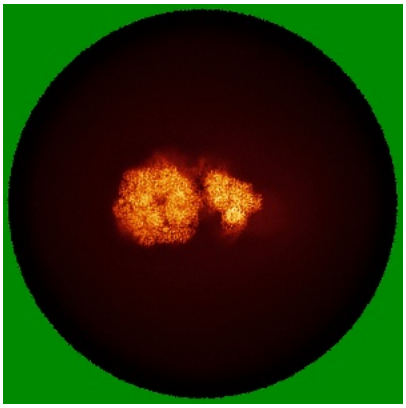
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

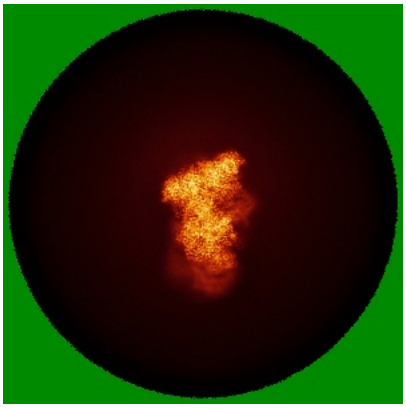
6.4.1 Primary map



X



Y

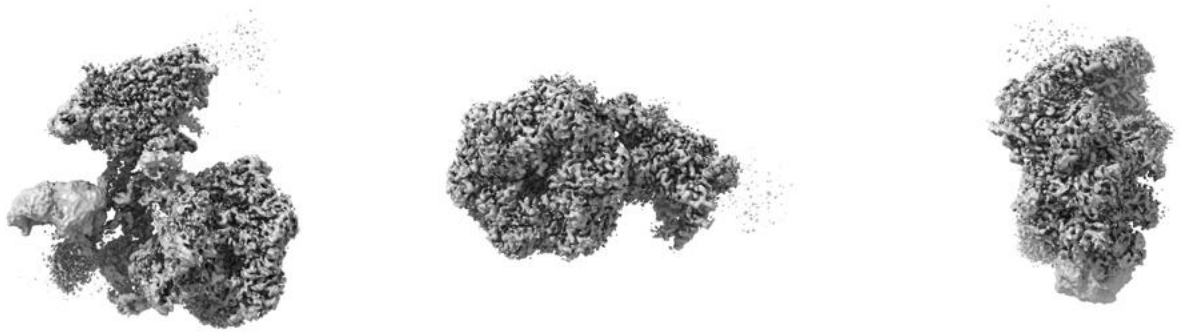


Z

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

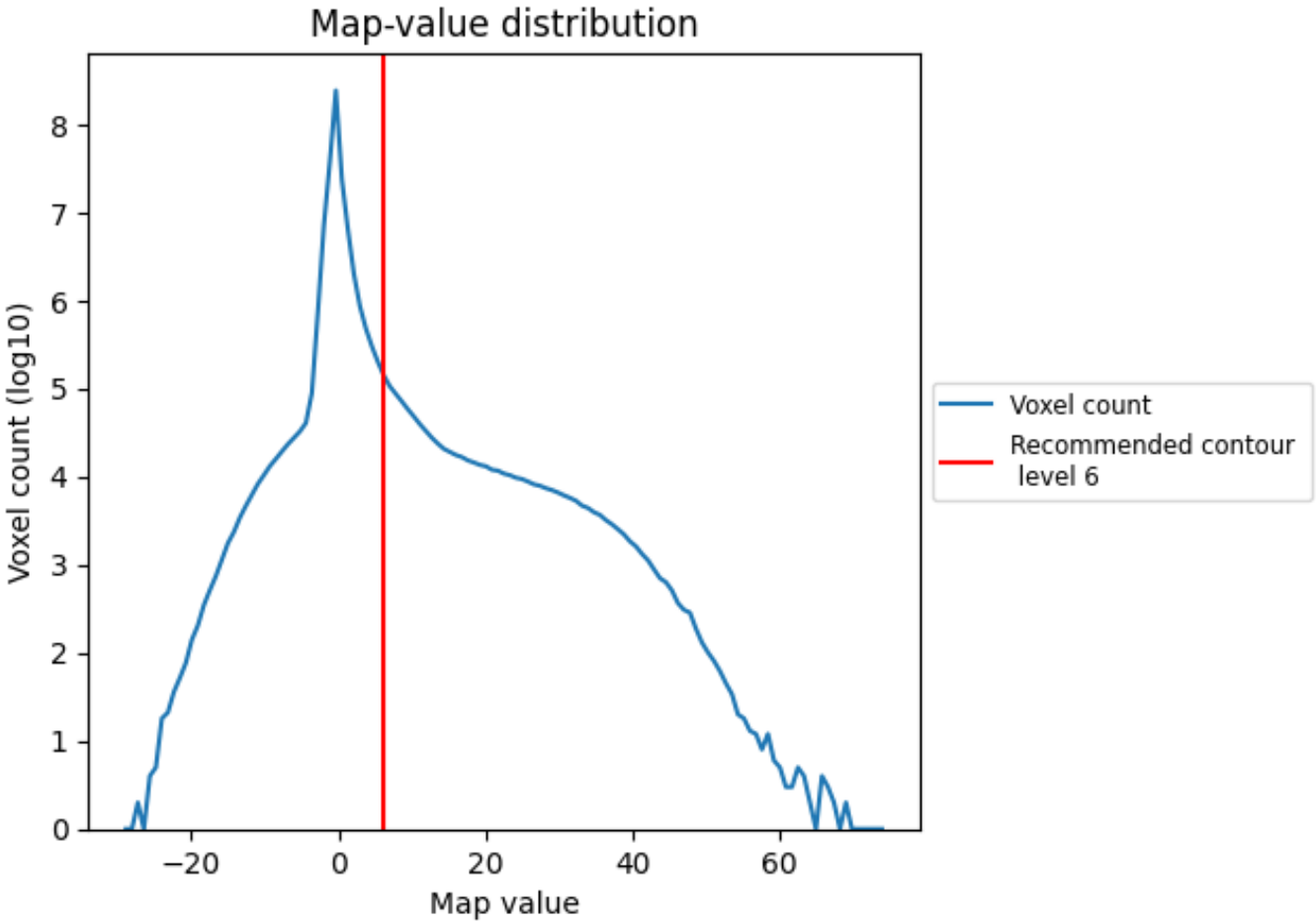
6.6 Mask visualisation (i)

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

7 Map analysis

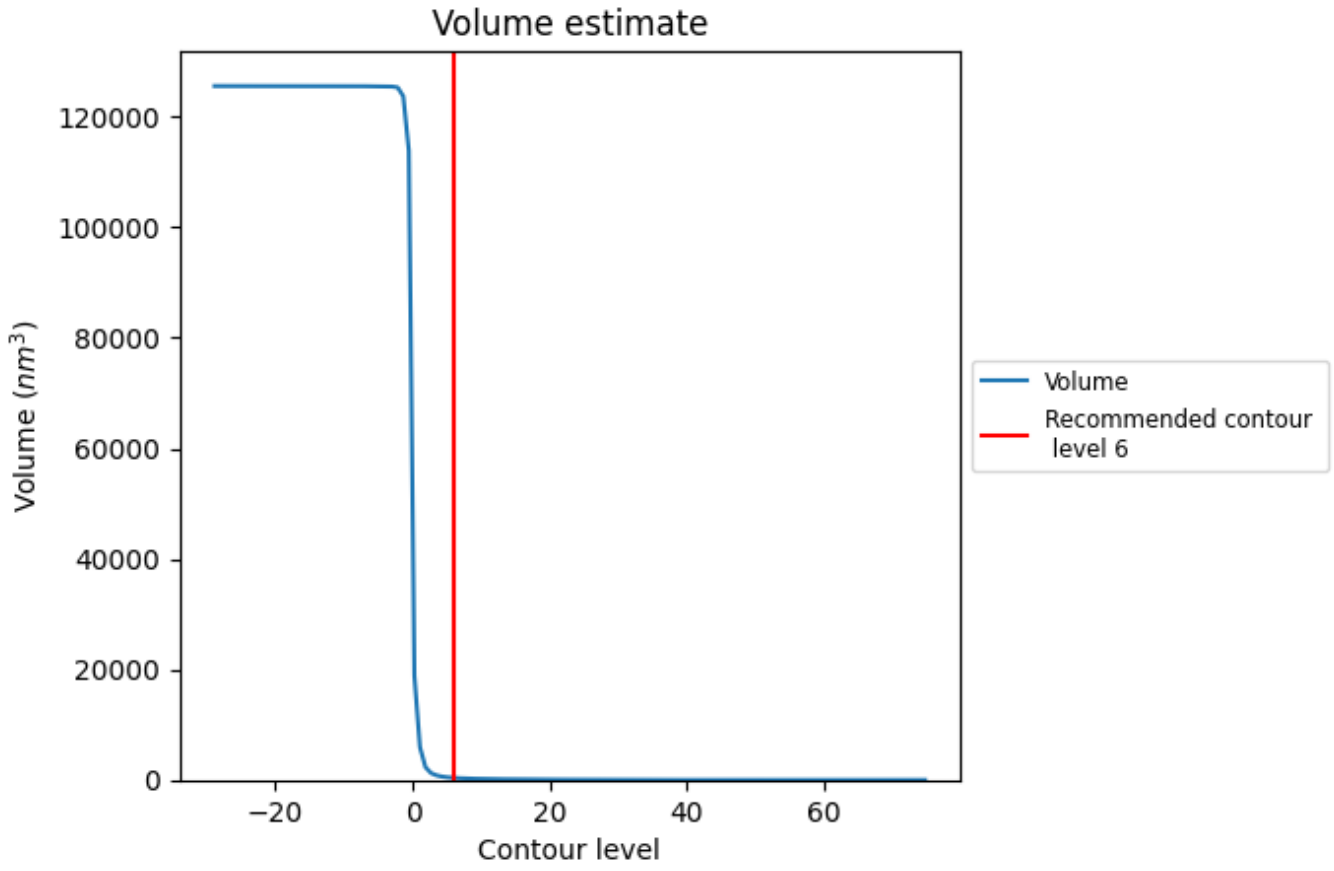
This section contains the results of statistical analysis of the map.

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.

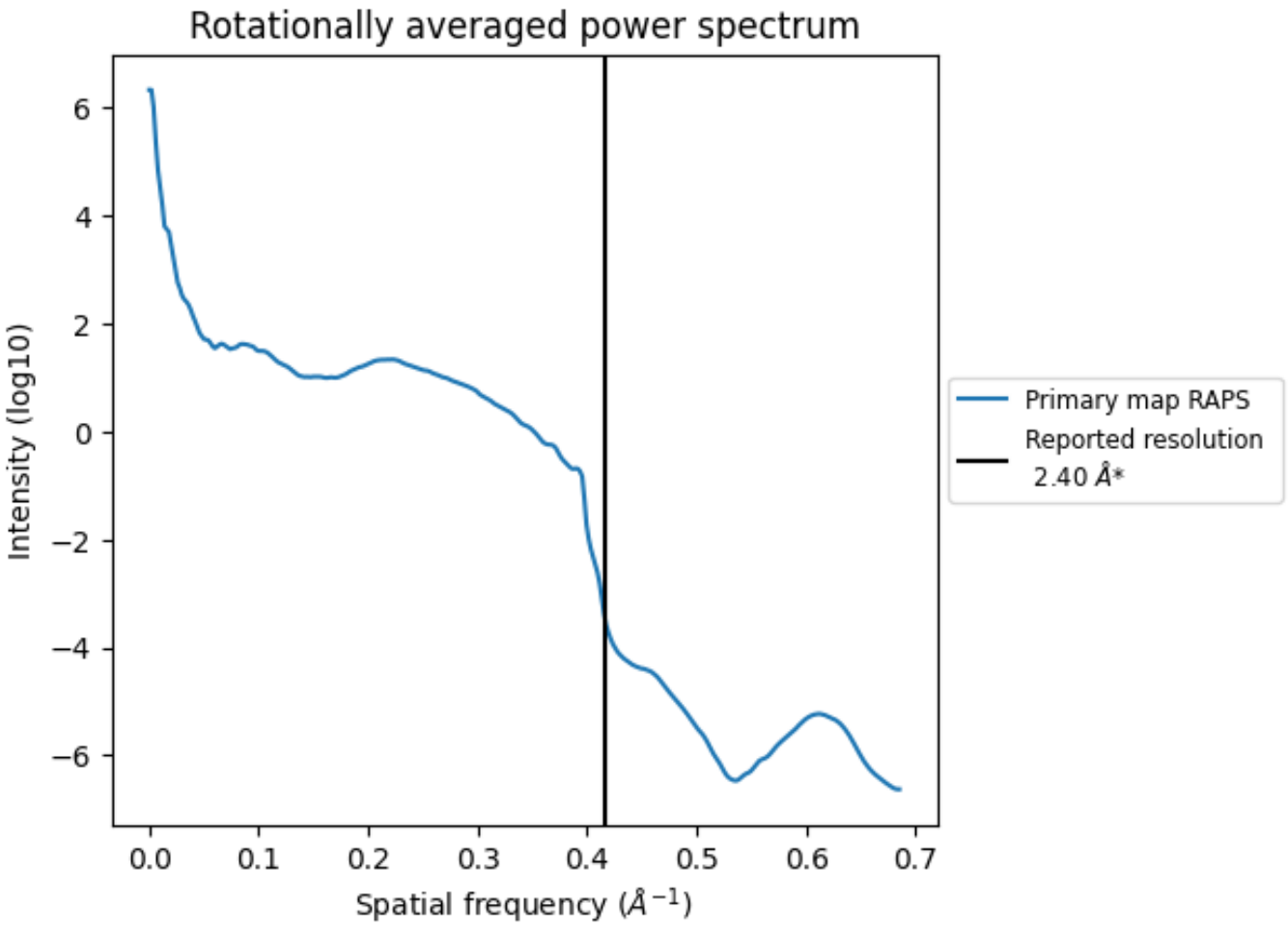
7.2 Volume estimate



The volume at the recommended contour level is 377 nm^3; this corresponds to an approximate mass of 341 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 0.417 Å^{-1}

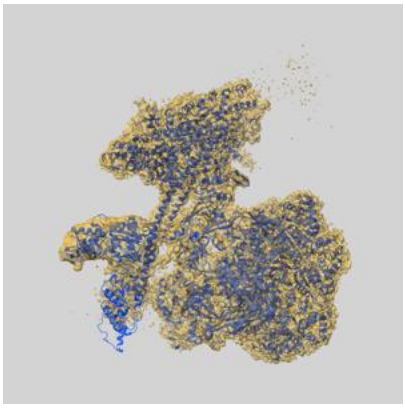
8 Fourier-Shell correlation (i)

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

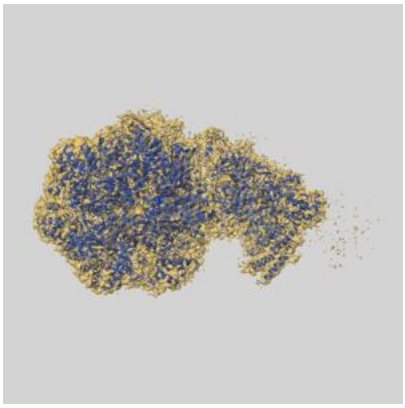
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-18611 and PDB model 8QR1. Per-residue inclusion information can be found in section 3 on page 6.

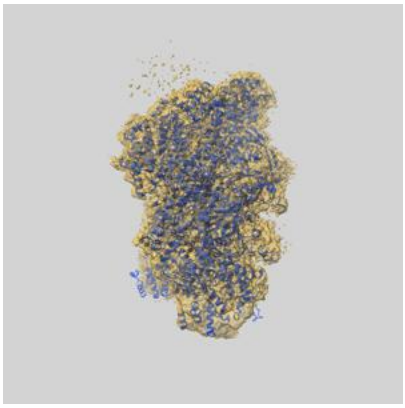
9.1 Map-model overlay



X



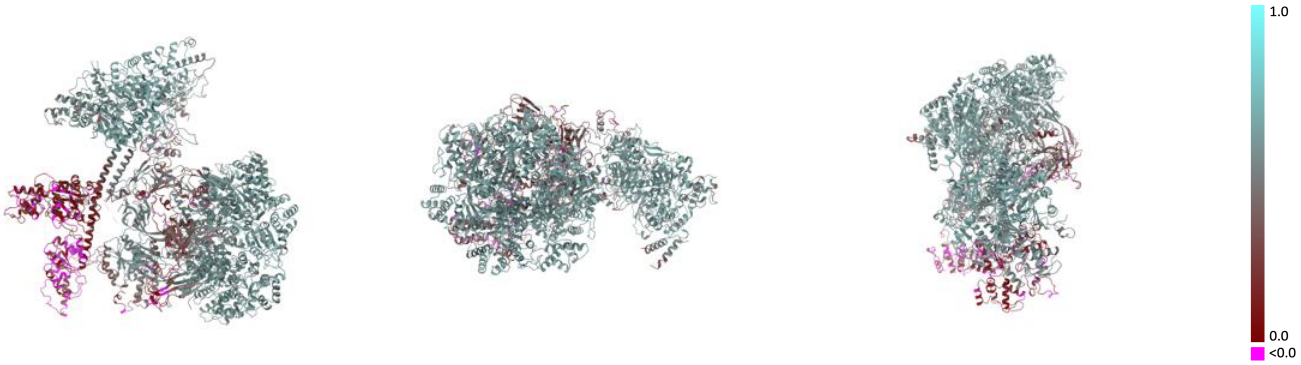
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 6.0 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.

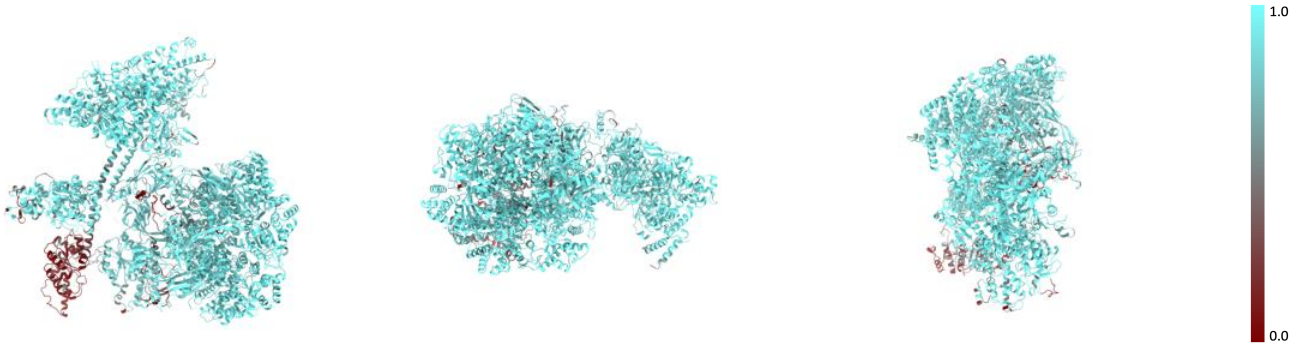
9.2 Q-score mapped to coordinate model (i)



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.

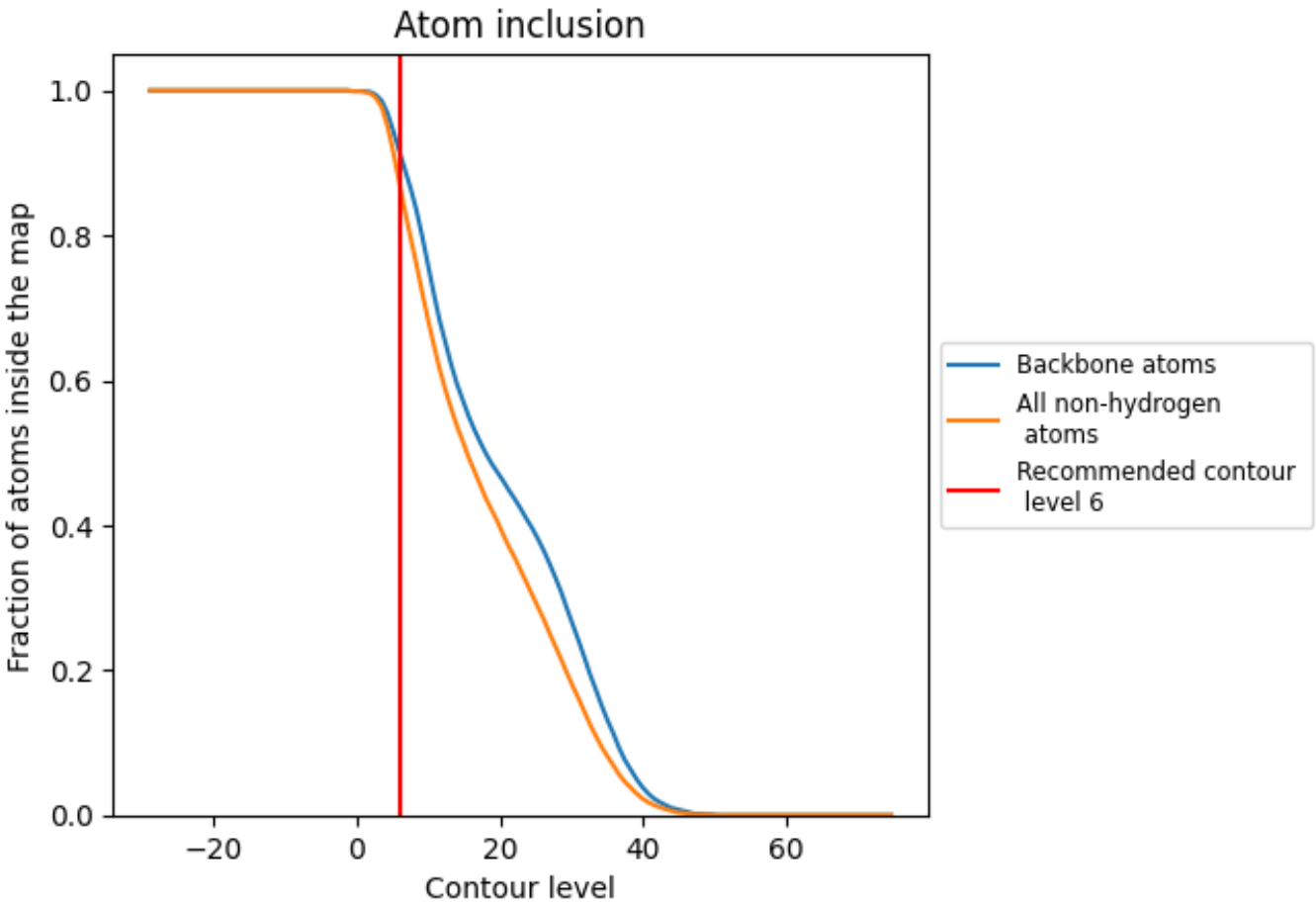
9.3 Atom inclusion mapped to coordinate model (i)



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 (6).

9.4 Atom inclusion (i)



At the recommended contour level, 92% of all backbone atoms, 87% 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 (6) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8700	0.4840
A	0.6420	0.3310
B	0.8420	0.1250
C	0.9330	0.5740
D	0.9580	0.5950
E	0.9090	0.5570
F	0.9230	0.5560
G	0.9680	0.5910
H	0.8920	0.5180
I	0.9540	0.5860
J	0.8970	0.5290
K	0.9760	0.6090
L	0.8940	0.5070
S	0.8430	0.4020