



Full wwPDB EM Validation Report ⓘ

Nov 10, 2024 – 04:38 am GMT

PDB ID : 8Q0G
EMDB ID : EMD-18053
Title : Release Complex: BAM bound EspP and Compact SurA
Authors : Fenn, K.L.; Ranson, N.A.
Deposited on : 2023-07-28
Resolution : 4.30 Å(reported)
Based on initial models : 7TTC, 3SLT, 8PZ1

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.dev113
MolProbity : 4.02b-467
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

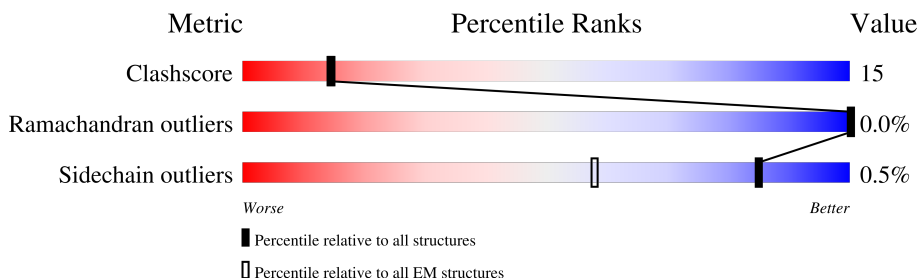
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.30 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	790	
2	B	373	
3	C	320	
4	D	226	
5	E	104	
6	F	450	
7	P	364	

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 15819 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 Outer membrane protein assembly factor BamA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	766	6041	3812	1023	1190	16	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	425	CYS	SER	engineered mutation	UNP P0A940

- Molecule 2 is a protein called Outer membrane protein assembly factor BamB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	370	2784	1748	474	556	6	0	0

- Molecule 3 is a protein called Outer membrane protein assembly factor BamC.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	174	1090	672	196	218	4	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	32	SER	LYS	conflict	UNP P0A903

- Molecule 4 is a protein called Outer membrane protein assembly factor BamD.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	218	1761	1109	309	336	7	0	0

- Molecule 5 is a protein called Outer membrane protein assembly factor BamE.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	90	703	441	123	137	2	0	0

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	114	GLY	-	expression tag	UNP P0A937
E	115	GLY	-	expression tag	UNP P0A937
E	116	HIS	-	expression tag	UNP P0A937
E	117	HIS	-	expression tag	UNP P0A937
E	118	HIS	-	expression tag	UNP P0A937
E	119	HIS	-	expression tag	UNP P0A937
E	120	HIS	-	expression tag	UNP P0A937
E	121	HIS	-	expression tag	UNP P0A937
E	122	HIS	-	expression tag	UNP P0A937
E	123	HIS	-	expression tag	UNP P0A937

- Molecule 6 is a protein called Chaperone SurA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	251	1920	1189	355	366	10	0	0

There are 43 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	-21	GLY	-	expression tag	UNP P0ABZ6
F	-20	SER	-	expression tag	UNP P0ABZ6
F	-19	SER	-	expression tag	UNP P0ABZ6
F	-18	ALA	-	expression tag	UNP P0ABZ6
F	-17	TRP	-	expression tag	UNP P0ABZ6
F	-16	SER	-	expression tag	UNP P0ABZ6
F	-15	HIS	-	expression tag	UNP P0ABZ6
F	-14	PRO	-	expression tag	UNP P0ABZ6
F	-13	GLN	-	expression tag	UNP P0ABZ6
F	-12	PHE	-	expression tag	UNP P0ABZ6
F	-11	GLU	-	expression tag	UNP P0ABZ6
F	-10	LYS	-	expression tag	UNP P0ABZ6
F	-9	GLY	-	expression tag	UNP P0ABZ6
F	-8	GLY	-	expression tag	UNP P0ABZ6
F	-7	GLY	-	expression tag	UNP P0ABZ6
F	-6	SER	-	expression tag	UNP P0ABZ6
F	-5	GLY	-	expression tag	UNP P0ABZ6

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Chain	Residue	Modelled	Actual	Comment	Reference
F	-4	GLY	-	expression tag	UNP P0ABZ6
F	-3	GLY	-	expression tag	UNP P0ABZ6
F	-2	SER	-	expression tag	UNP P0ABZ6
F	-1	GLY	-	expression tag	UNP P0ABZ6
F	0	GLY	-	expression tag	UNP P0ABZ6
F	1	SER	-	expression tag	UNP P0ABZ6
F	2	ALA	-	expression tag	UNP P0ABZ6
F	3	TRP	-	expression tag	UNP P0ABZ6
F	4	SER	-	expression tag	UNP P0ABZ6
F	5	HIS	-	expression tag	UNP P0ABZ6
F	6	PRO	-	expression tag	UNP P0ABZ6
F	7	GLN	-	expression tag	UNP P0ABZ6
F	8	PHE	-	expression tag	UNP P0ABZ6
F	9	GLU	-	expression tag	UNP P0ABZ6
F	10	LYS	-	expression tag	UNP P0ABZ6
F	11	SER	-	expression tag	UNP P0ABZ6
F	12	SER	-	expression tag	UNP P0ABZ6
F	13	GLY	-	expression tag	UNP P0ABZ6
F	14	GLU	-	expression tag	UNP P0ABZ6
F	15	ASN	-	expression tag	UNP P0ABZ6
F	16	LEU	-	expression tag	UNP P0ABZ6
F	17	TYR	-	expression tag	UNP P0ABZ6
F	18	PHE	-	expression tag	UNP P0ABZ6
F	19	GLN	-	expression tag	UNP P0ABZ6
F	20	GLY	-	expression tag	UNP P0ABZ6
F	27	CYS	LYS	engineered mutation	UNP P0ABZ6

- Molecule 7 is a protein called Serine protease EspP.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
7	P	299	1520	900	310	309	1	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
P	937	GLY	-	expression tag	UNP Q7BSW5
P	938	GLY	-	expression tag	UNP Q7BSW5
P	976	GLY	-	insertion	UNP Q7BSW5
P	977	GLU	-	insertion	UNP Q7BSW5
P	978	ASN	-	insertion	UNP Q7BSW5
P	979	LEU	-	insertion	UNP Q7BSW5

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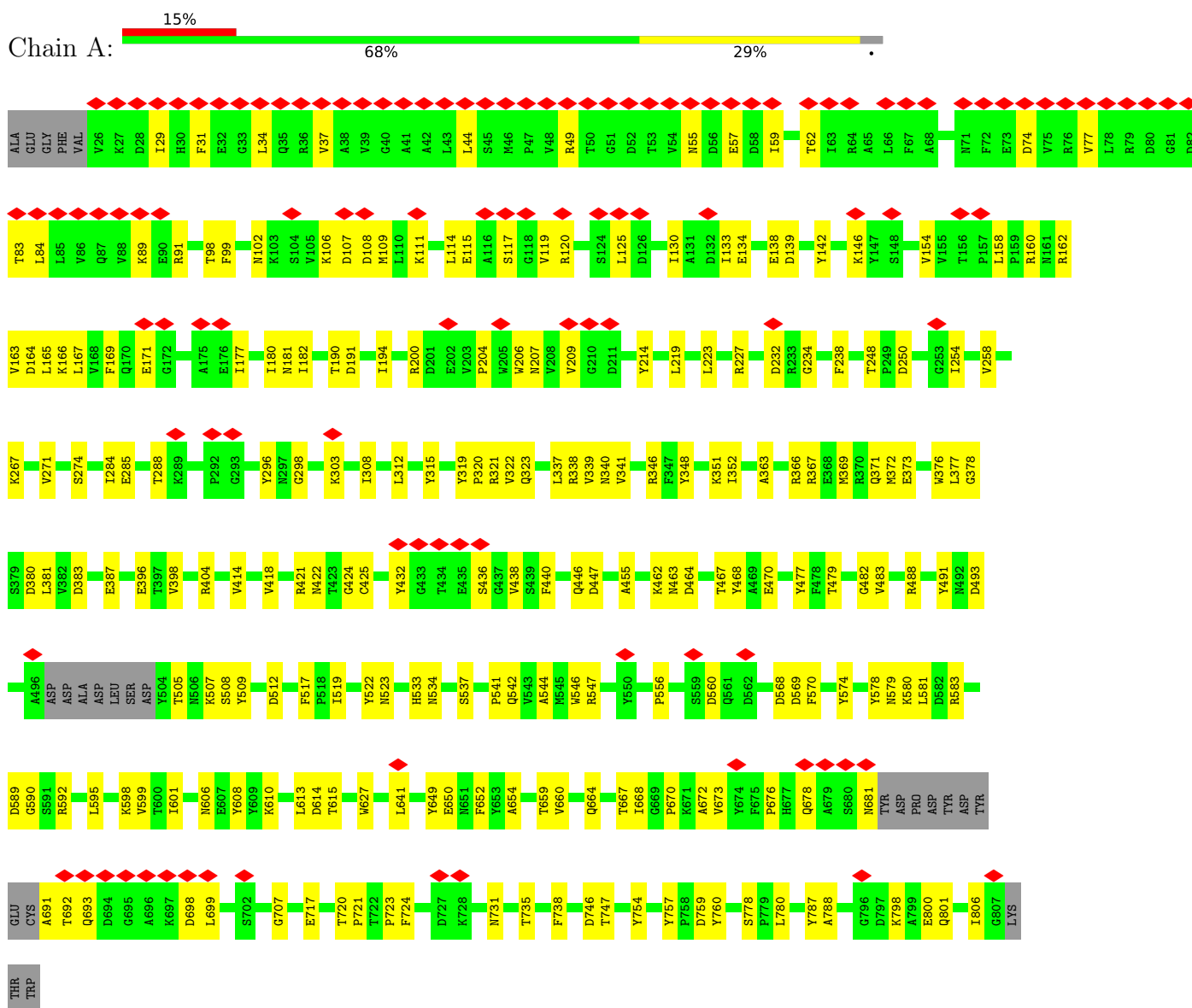
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Chain	Residue	Modelled	Actual	Comment	Reference
P	980	TYR	-	insertion	UNP Q7BSW5
P	981	PHE	-	insertion	UNP Q7BSW5
P	982	GLN	-	insertion	UNP Q7BSW5
P	983	GLY	-	insertion	UNP Q7BSW5
P	984	GLY	-	insertion	UNP Q7BSW5
P	1299	CYS	SER	engineered mutation	UNP Q7BSW5

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: Outer membrane protein assembly factor BamA



- Molecule 2: Outer membrane protein assembly factor BamB

THR	VAL	ALA	ASN	LYS	E1002	A1003	T1004	R1005	M1006	A1007	A1008	A1009	L1010	F1011	S1012	V1013	D1014	Y1015	K1016	A1017	F1018	L1019	N1020	E1021	V1022	M1023	N1024	L1025	N1026	K1027	R1028	M1029	G1030	D1031	L1032	R1033	D1034	I1035	N1036	G1037	E1038	A1039	G1040	A1041	M1042	A1043	R1044	I1045	M1046	T1049	G1050	S1051	A1052	S1053	G1054	G1055	F1056	S1057	D1058	N1059	Y1060	T1061	H1062	V1063	Q1064	V1065	G1066	V1067	D1068	K1069	K1070	H1071	E1072	L1073	D1074	G1075	L1076	D1077	L1078	F1079	T1080	G1081	F1082	T1083	V1084	T1085	S1089	S1090	A1091	S1092	A1093	D1094	V1095	F1096	S1097	G1098	K1099	T1100	V1103	G1104	M1105	G1106	L1107	Y1108	A1109	S1110	A1111	M1112	F1113	D1114	S1115	G1116	A1117	D1120	L1121	I1122	G1123	K1124	Y1125	V1126	H1127	H1128	D1129	M1130	E1131	Y1132	T1133	A1134	T1135	F1136	A1137	G1138	L1139	G1140	T1141	R1142	D1143	Y1144	S1145	T1146	H1147	S1148	M1149	Y1150	A1151	G1152	A1153	E1154	A1155	G1156	Y1157	R1158	Y1159	H1160	V1161	T1162	E1163	D1164	A1165	W1166	I1167	E1168	P1169	Q1170	A1171	E1172	L1173	V1174	Y1175	G1176	S1177	V1178	S1179	G1180	K1181	Q1182	F1183	A1184	M1185	K1186	D1187	Q1188	G1189	M1190	H1191	L1192	S1193	M1194	K1195	D1196	K1197	D1198	Y1199	M1200	P1201	L1202	I1203	G1204	R1205	T1206	G1207	V1208	D1209	V1210	G1211	K1212	S1213	F1214	S1215	G1216	K1217	D1218	M1219	K1220	V1221	T1222	A1223	R1224	A1225	G1226	L1227	G1228	F1231	D1232	L1233	L1234	A1235	M1236	G1237	E1238	T1239	V1240	L1241	R1242	D1243	A1244	S1245	G1246	E1247	K1248	R1249	I1250	K1251	G1252	E1253	K1254	D1255	S1256	R1257	M1258	L1259	M1260	S1261	V1262	G1263	L1264	M1265	A1266	E1267	D1270	M1271	V1272	R1273	F1274	G1275	L1276	E1277	F1278	E1279	K1280	S1281	A1282	F1283	G1284	K1285	Y1286	N1287	V1288	D1289	M1290	A1291	V1292	N1293	F1296	R1297	Y1298	C1299	F1300
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4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	179199	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	37.4	Depositor
Minimum defocus (nm)	900	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	165000	Depositor
Image detector	FEI FALCON IV (4k x 4k)	Depositor
Maximum map value	0.019	Depositor
Minimum map value	-0.009	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.00387	Depositor
Map size (Å)	222.0, 222.0, 222.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.74, 0.74, 0.74	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	0.35	0/6177	0.54	0/8375
2	B	0.29	0/2835	0.56	0/3867
3	C	0.32	0/1102	0.54	0/1512
4	D	0.39	0/1801	0.56	0/2447
5	E	0.37	0/718	0.57	1/979 (0.1%)
6	F	0.30	0/1938	0.55	0/2611
7	P	0.26	0/1523	0.52	0/2100
All	All	0.33	0/16094	0.55	1/21891 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	E	105	ASP	CB-CG-OD2	5.15	122.94	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6041	0	5784	162	0
2	B	2784	0	2725	113	0
3	C	1090	0	896	35	0
4	D	1761	0	1699	54	0
5	E	703	0	680	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	F	1920	0	1923	71	0
7	P	1520	0	800	21	0
All	All	15819	0	14507	458	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 15.

All (458) 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:541:PRO:HA	1:A:546:TRP:HE1	1.34	0.89
2:B:299:VAL:HG21	2:B:327:LEU:HD12	1.58	0.86
1:A:422:ASN:ND2	7:P:1299:CYS:SG	2.49	0.85
6:F:183:LEU:HD12	6:F:264:GLY:HA2	1.59	0.84
1:A:440:PHE:HB3	1:A:462:LYS:HB3	1.61	0.82
1:A:154:VAL:HB	1:A:166:LYS:HB3	1.63	0.79
6:F:239:LEU:HD13	6:F:243:PHE:HB2	1.63	0.79
3:C:141:LEU:HA	3:C:165:VAL:HA	1.66	0.78
2:B:294:ASN:OD1	2:B:295:ARG:NH1	2.16	0.77
1:A:227:ARG:HA	1:A:238:PHE:HE2	1.49	0.77
1:A:493:ASP:HB3	1:A:507:LYS:HG3	1.65	0.76
6:F:173:GLU:HB3	6:F:233:TRP:HB3	1.68	0.75
6:F:175:ASN:HB2	6:F:272:ASP:HB2	1.68	0.75
3:C:86:ALA:HB1	3:C:200:GLU:HG2	1.70	0.74
3:C:181:LEU:HD12	3:C:188:VAL:HG21	1.68	0.74
6:F:80:ILE:HG23	6:F:138:ILE:HD11	1.71	0.73
2:B:285:SER:HB2	2:B:300:ASP:HA	1.70	0.72
1:A:204:PRO:HG2	1:A:207:ASN:HB3	1.72	0.72
2:B:322:LEU:HD11	2:B:327:LEU:HD11	1.72	0.71
5:E:29:ARG:NH2	5:E:82:GLY:O	2.22	0.71
7:P:1274:PHE:CD1	7:P:1296:PHE:HB3	2.26	0.71
3:C:135:ASP:HA	3:C:142:THR:HA	1.71	0.71
1:A:160:ARG:HH21	4:D:31:PRO:HD3	1.56	0.71
1:A:664:GLN:NE2	1:A:798:LYS:O	2.23	0.71
2:B:215:ARG:HG2	2:B:231:ARG:HD3	1.73	0.70
1:A:285:GLU:HA	1:A:288:THR:HG22	1.72	0.70
2:B:271:ASP:HB2	2:B:275:GLY:HA3	1.73	0.69
2:B:98:ALA:HA	2:B:109:ALA:HB2	1.74	0.69
2:B:33:SER:O	2:B:325:ARG:NH1	2.25	0.69
1:A:396:GLU:HG3	1:A:421:ARG:HB3	1.75	0.68
7:P:1281:SER:HA	7:P:1289:ASP:HA	1.74	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:595:LEU:HD12	1:A:613:LEU:HD12	1.73	0.68
5:E:38:LEU:HD21	5:E:75:TYR:HB3	1.74	0.68
4:D:141:ARG:HG2	4:D:174:LEU:HD21	1.76	0.67
4:D:27:VAL:O	4:D:61:ARG:NH2	2.26	0.67
2:B:240:GLU:HA	2:B:243:ARG:HE	1.60	0.67
1:A:610:LYS:HD2	1:A:652:PHE:HE1	1.59	0.66
1:A:754:TYR:HB3	1:A:757:TYR:HB2	1.77	0.66
1:A:191:ASP:HA	1:A:194:ILE:HG22	1.78	0.66
1:A:654:ALA:HB3	1:A:668:ILE:HB	1.76	0.66
1:A:125:LEU:HD22	1:A:163:VAL:HG21	1.78	0.66
1:A:678:GLN:HA	1:A:693:GLN:HB3	1.76	0.66
1:A:74:ASP:HB3	1:A:89:LYS:HD3	1.77	0.66
1:A:91:ARG:NH2	1:A:125:LEU:O	2.27	0.65
1:A:177:ILE:HD11	1:A:214:TYR:HB2	1.79	0.65
3:C:32:SER:O	4:D:77:TYR:OH	2.15	0.64
6:F:29:ALA:N	6:F:37:VAL:O	2.26	0.64
1:A:44:LEU:HG	1:A:49:ARG:HH22	1.63	0.64
2:B:240:GLU:OE1	2:B:243:ARG:NH2	2.31	0.64
6:F:84:GLY:HA3	6:F:141:VAL:HG21	1.80	0.64
1:A:102:ASN:ND2	1:A:107:ASP:OD1	2.22	0.63
7:P:1179:SER:HA	7:P:1198:ASP:HA	1.78	0.63
1:A:432:TYR:OH	7:P:1277:GLU:O	2.17	0.63
1:A:130:ILE:HA	1:A:133:ILE:HD12	1.81	0.62
2:B:200:PRO:HB3	2:B:209:VAL:HB	1.80	0.62
1:A:363:ALA:O	1:A:367:ARG:HG3	1.99	0.61
1:A:610:LYS:HD2	1:A:652:PHE:CE1	2.35	0.61
3:C:113:GLY:HA3	3:C:173:ALA:HB3	1.82	0.61
1:A:505:THR:HB	1:A:537:SER:O	2.00	0.61
3:C:33:ARG:NH1	3:C:153:GLU:O	2.34	0.61
5:E:92:THR:OG1	5:E:105:ASP:HB2	2.00	0.61
5:E:95:PHE:HD1	5:E:101:LEU:HA	1.65	0.61
1:A:664:GLN:HB2	1:A:667:THR:HG21	1.82	0.61
7:P:1238:GLU:HA	7:P:1251:LYS:HA	1.83	0.61
1:A:232:ASP:HA	1:A:298:GLY:H	1.65	0.60
5:E:96:ASN:OD1	5:E:100:VAL:N	2.31	0.60
6:F:183:LEU:O	6:F:415:GLN:NE2	2.35	0.60
7:P:1017:ALA:O	7:P:1021:GLU:N	2.34	0.60
2:B:368:GLN:HB3	2:B:383:LYS:HB3	1.84	0.60
2:B:123:TYR:OH	2:B:176:GLU:OE2	2.20	0.60
4:D:27:VAL:HG23	4:D:61:ARG:NH2	2.17	0.60
1:A:664:GLN:HE22	1:A:798:LYS:C	2.05	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:191:TRP:HA	4:D:194:VAL:HG12	1.83	0.59
6:F:29:ALA:HB3	6:F:37:VAL:HG12	1.83	0.59
1:A:533:HIS:ND1	1:A:568:ASP:OD1	2.30	0.59
2:B:84:LEU:HD22	2:B:91:GLU:HA	1.84	0.59
1:A:134:GLU:O	1:A:138:GLU:HG2	2.02	0.59
1:A:432:TYR:HA	1:A:438:VAL:HA	1.84	0.59
1:A:234:GLY:HA2	1:A:296:TYR:HD2	1.67	0.59
3:C:89:LEU:HD21	4:D:67:TYR:CE1	2.38	0.59
3:C:136:ASP:N	3:C:141:LEU:O	2.35	0.59
1:A:160:ARG:NH2	4:D:31:PRO:HD3	2.18	0.58
7:P:1016:LYS:O	7:P:1020:ASN:N	2.33	0.58
1:A:488:ARG:HG3	1:A:512:ASP:OD1	2.03	0.58
2:B:172:GLN:NE2	2:B:173:ALA:O	2.35	0.58
2:B:353:ASP:OD1	6:F:260:ARG:NH1	2.36	0.58
1:A:447:ASP:HA	1:A:455:ALA:HA	1.84	0.58
1:A:542:GLN:O	1:A:546:TRP:HD1	1.87	0.58
2:B:182:LYS:HG3	2:B:183:TRP:HD1	1.69	0.58
1:A:468:TYR:OH	1:A:470:GLU:OE1	2.21	0.58
6:F:37:VAL:HG13	6:F:74:LEU:HD23	1.86	0.58
1:A:55:ASN:ND2	1:A:57:GLU:OE2	2.38	0.57
1:A:267:LYS:HA	1:A:296:TYR:H	1.69	0.57
1:A:271:VAL:HG22	1:A:337:LEU:HD11	1.87	0.57
1:A:579:ASN:HB2	1:A:581:LEU:HD22	1.87	0.57
2:B:118:SER:HB2	2:B:157:VAL:HG11	1.86	0.57
1:A:369:MET:HE3	1:A:369:MET:HA	1.87	0.57
3:C:105:SER:HA	3:C:176:VAL:HA	1.86	0.57
1:A:541:PRO:HA	1:A:546:TRP:NE1	2.14	0.56
3:C:158:ARG:HA	3:C:184:ALA:HA	1.87	0.56
4:D:48:TRP:O	4:D:52:ILE:HG12	2.04	0.56
1:A:614:ASP:OD1	1:A:615:THR:N	2.38	0.56
2:B:171:LEU:HD11	2:B:209:VAL:HG11	1.86	0.56
3:C:31:TYR:N	3:C:34:GLN:HE22	2.04	0.56
1:A:194:ILE:O	1:A:200:ARG:NH2	2.39	0.56
2:B:352:GLU:HA	6:F:260:ARG:HH22	1.70	0.56
7:P:1272:VAL:HG12	7:P:1298:TYR:HA	1.87	0.56
3:C:107:LEU:O	3:C:109:GLU:N	2.39	0.56
6:F:187:PRO:HA	6:F:191:GLN:HE22	1.71	0.56
1:A:542:GLN:H	1:A:546:TRP:HE1	1.54	0.55
1:A:664:GLN:OE1	1:A:800:GLU:N	2.39	0.55
1:A:546:TRP:HE3	1:A:556:PRO:HG2	1.70	0.55
6:F:181:ILE:HD13	6:F:265:PHE:HB2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:82:LYS:HB3	2:B:84:LEU:HD21	1.87	0.55
2:B:322:LEU:HB2	2:B:325:ARG:HG3	1.87	0.55
6:F:42:VAL:O	6:F:46:MET:HG3	2.06	0.55
6:F:223:GLN:CD	6:F:223:GLN:H	2.10	0.55
1:A:670:PRO:HB3	1:A:760:TYR:HB3	1.89	0.55
4:D:67:TYR:HB3	4:D:71:VAL:HG23	1.88	0.55
6:F:142:ARG:HH12	6:F:223:GLN:NE2	2.05	0.55
7:P:1049:THR:H	7:P:1291:ALA:HB3	1.70	0.55
1:A:29:ILE:HG22	1:A:84:LEU:HD23	1.89	0.55
2:B:56:ILE:N	2:B:383:LYS:O	2.39	0.55
4:D:38:THR:HA	4:D:41:GLN:HG3	1.88	0.55
3:C:34:GLN:HG3	3:C:78:LYS:HE3	1.89	0.55
2:B:113:GLY:N	2:B:125:GLY:O	2.37	0.54
2:B:261:LEU:HD21	2:B:285:SER:HB3	1.88	0.54
6:F:207:ARG:HH21	6:F:255:ILE:H	1.53	0.54
5:E:101:LEU:HD21	5:E:104:ILE:HD11	1.89	0.54
1:A:164:ASP:OD1	1:A:165:LEU:N	2.41	0.54
1:A:181:ASN:ND2	2:B:150:GLU:OE2	2.41	0.54
1:A:491:TYR:HD1	1:A:509:TYR:HB3	1.72	0.54
2:B:97:LEU:HD21	2:B:132:TYR:HD2	1.73	0.54
6:F:198:GLN:O	6:F:202:ILE:HG12	2.07	0.54
2:B:247:VAL:HG23	2:B:261:LEU:O	2.08	0.54
3:C:86:ALA:CB	3:C:200:GLU:HG2	2.36	0.54
3:C:53:PRO:HG2	4:D:237:ILE:HD13	1.88	0.54
3:C:166:LYS:HA	3:C:175:THR:HA	1.89	0.54
7:P:1106:GLY:HA3	7:P:1123:GLY:O	2.08	0.54
3:C:50:LEU:HD12	4:D:241:ASN:HD22	1.73	0.54
6:F:37:VAL:HG21	6:F:75:ILE:HG12	1.89	0.54
2:B:297:TYR:HB3	2:B:337:LEU:HD11	1.90	0.54
1:A:34:LEU:HD22	1:A:37:VAL:HB	1.89	0.53
1:A:522:TYR:O	1:A:578:TYR:HA	2.08	0.53
1:A:746:ASP:OD1	1:A:747:THR:N	2.41	0.53
7:P:1265:ASN:HA	7:P:1275:GLY:HA2	1.90	0.53
6:F:187:PRO:HA	6:F:191:GLN:NE2	2.23	0.53
1:A:99:PHE:HB3	1:A:169:PHE:HE2	1.74	0.53
1:A:227:ARG:HA	1:A:238:PHE:CE2	2.38	0.53
3:C:31:TYR:H	3:C:34:GLN:HE22	1.55	0.53
4:D:216:PRO:O	4:D:219:GLU:HG3	2.07	0.53
6:F:64:ALA:O	6:F:67:ARG:NE	2.35	0.53
1:A:380:ASP:OD1	1:A:381:LEU:N	2.42	0.53
2:B:215:ARG:HH12	2:B:229:GLN:HB3	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:32:PRO:HA	4:D:35:ILE:HG22	1.90	0.53
2:B:104:PHE:N	2:B:107:GLU:OE2	2.29	0.53
3:C:67:ILE:HG12	4:D:167:LEU:CD2	2.39	0.53
4:D:117:MET:HE2	4:D:166:ARG:HD3	1.90	0.53
1:A:274:SER:HB2	1:A:338:ARG:NH2	2.24	0.52
4:D:39:ALA:HA	4:D:54:GLN:NE2	2.23	0.52
1:A:182:ILE:HG13	1:A:258:VAL:HG23	1.90	0.52
2:B:321:ASP:N	2:B:321:ASP:OD1	2.42	0.52
1:A:652:PHE:O	1:A:707:GLY:HA3	2.09	0.52
2:B:215:ARG:HD2	2:B:231:ARG:HH11	1.75	0.52
3:C:119:GLN:O	3:C:122:SER:OG	2.18	0.52
2:B:85:ASN:ND2	2:B:88:ASP:OD1	2.41	0.52
6:F:174:LEU:HD22	6:F:273:LEU:O	2.10	0.52
1:A:271:VAL:HG11	1:A:288:THR:OG1	2.10	0.52
5:E:36:ASN:HD21	5:E:63:LEU:H	1.58	0.52
1:A:546:TRP:HZ3	1:A:556:PRO:HB2	1.75	0.52
1:A:139:ASP:O	1:A:142:TYR:HB2	2.10	0.52
2:B:299:VAL:HG12	2:B:330:PRO:HD3	1.91	0.52
4:D:92:ILE:HD11	4:D:108:VAL:O	2.09	0.52
2:B:172:GLN:NE2	2:B:181:VAL:HG13	2.25	0.52
6:F:405:LYS:HA	6:F:408:GLU:OE2	2.09	0.52
1:A:352:ILE:HG22	1:A:414:VAL:HB	1.92	0.51
2:B:351:VAL:HG13	2:B:352:GLU:HG2	1.92	0.51
6:F:255:ILE:HA	6:F:269:LYS:HZ3	1.76	0.51
2:B:234:GLN:HG2	2:B:235:ALA:H	1.75	0.51
6:F:245:GLN:N	6:F:245:GLN:OE1	2.40	0.51
1:A:681:ASN:HB2	1:A:692:THR:HB	1.92	0.51
2:B:232:ILE:HG23	2:B:266:ASN:HB2	1.92	0.51
4:D:31:PRO:HD2	4:D:34:GLU:OE2	2.10	0.51
1:A:517:PHE:HB2	5:E:27:VAL:HG12	1.93	0.51
2:B:212:ASP:HA	2:B:246:ASP:HB2	1.93	0.51
1:A:371:GLN:NE2	1:A:378:GLY:H	2.09	0.51
5:E:88:GLN:HB3	5:E:110:LEU:HG	1.93	0.51
2:B:38:VAL:HG23	2:B:39:GLU:H	1.75	0.51
4:D:106:ASP:HB3	4:D:154:TYR:CD2	2.46	0.51
2:B:99:GLU:HB2	2:B:107:GLU:HB2	1.91	0.51
5:E:96:ASN:HD21	5:E:98:SER:HB2	1.75	0.51
1:A:738:PHE:CZ	1:A:788:ALA:HB2	2.45	0.50
6:F:396:ARG:HA	6:F:399:ARG:NH1	2.26	0.50
1:A:467:THR:HB	1:A:493:ASP:OD1	2.10	0.50
1:A:542:GLN:HA	1:A:673:VAL:O	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:315:TYR:O	1:A:346:ARG:NH1	2.45	0.50
4:D:194:VAL:O	4:D:198:VAL:HG12	2.12	0.50
6:F:396:ARG:O	6:F:400:MET:HG2	2.11	0.50
1:A:477:TYR:CD1	1:A:482:GLY:HA2	2.47	0.50
6:F:27:CYS:SG	6:F:28:VAL:N	2.85	0.50
2:B:183:TRP:CE3	2:B:224:GLY:HA2	2.47	0.50
2:B:215:ARG:HE	2:B:231:ARG:HB2	1.77	0.50
1:A:146:LYS:HE3	1:A:171:GLU:HB3	1.94	0.50
1:A:322:VAL:HG22	1:A:341:VAL:HG12	1.94	0.49
2:B:175:ASN:ND2	2:B:178:ASP:OD1	2.45	0.49
4:D:137:PRO:HB3	4:D:173:ARG:HH12	1.77	0.49
6:F:134:LYS:HA	6:F:137:ILE:HG22	1.94	0.49
2:B:236:THR:OG1	2:B:243:ARG:NH2	2.45	0.49
5:E:84:GLU:OE1	5:E:84:GLU:N	2.45	0.49
6:F:76:MET:HA	6:F:79:ILE:HG22	1.93	0.49
6:F:395:ASP:OD1	6:F:399:ARG:NH2	2.45	0.49
1:A:383:ASP:O	1:A:387:GLU:HG2	2.11	0.49
2:B:319:GLN:NE2	2:B:321:ASP:OD2	2.45	0.49
3:C:53:PRO:HG2	4:D:237:ILE:HA	1.95	0.49
1:A:546:TRP:CE3	1:A:556:PRO:HG2	2.47	0.49
1:A:659:THR:HG22	1:A:660:VAL:HG23	1.94	0.49
2:B:290:ILE:HD11	2:B:330:PRO:O	2.13	0.49
1:A:608:TYR:HA	1:A:641:LEU:N	2.28	0.49
2:B:118:SER:HB3	2:B:123:TYR:HE1	1.77	0.49
2:B:345:TYR:CE1	2:B:361:LYS:HE2	2.48	0.49
6:F:175:ASN:H	6:F:272:ASP:HB3	1.77	0.49
2:B:258:VAL:O	2:B:269:ALA:HA	2.12	0.49
1:A:422:ASN:ND2	1:A:425:CYS:SG	2.86	0.49
6:F:62:ASP:H	6:F:214:LYS:NZ	2.11	0.49
2:B:305:VAL:HG23	2:B:319:GLN:HB3	1.95	0.48
7:P:1203:ILE:HA	7:P:1233:LEU:H	1.78	0.48
3:C:33:ARG:HB3	3:C:83:ARG:HD3	1.95	0.48
6:F:142:ARG:HH22	6:F:223:GLN:NE2	2.11	0.48
2:B:352:GLU:HB3	6:F:260:ARG:HH12	1.78	0.48
1:A:583:ARG:NH2	1:A:731:ASN:OD1	2.47	0.48
2:B:67:LEU:HD11	2:B:377:LYS:HE2	1.95	0.48
4:D:157:SER:OG	4:D:158:GLN:N	2.46	0.48
1:A:787:TYR:CE1	1:A:801:GLN:HB3	2.48	0.48
2:B:262:ALA:HB3	2:B:265:GLY:HA2	1.95	0.48
5:E:88:GLN:CD	5:E:110:LEU:HD21	2.34	0.48
4:D:220:ASN:O	4:D:224:GLN:HG2	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:161:LEU:HD21	2:B:183:TRP:HE1	1.79	0.47
2:B:230:GLN:OE1	2:B:276:GLN:NE2	2.37	0.47
7:P:1049:THR:N	7:P:1291:ALA:HB3	2.28	0.47
1:A:424:GLY:HA3	1:A:446:GLN:HB2	1.95	0.47
2:B:38:VAL:HG23	2:B:39:GLU:N	2.29	0.47
2:B:289:PHE:HB3	2:B:298:LEU:HB3	1.96	0.47
5:E:51:THR:HG22	5:E:54:GLN:HG3	1.97	0.47
6:F:424:LYS:HD3	6:F:425:ILE:N	2.30	0.47
1:A:574:TYR:HE1	1:A:599:VAL:HG23	1.80	0.47
4:D:51:ALA:O	4:D:55:LEU:HD23	2.14	0.47
4:D:233:LYS:O	4:D:237:ILE:HG12	2.15	0.47
1:A:606:ASN:ND2	1:A:649:TYR:OH	2.48	0.47
2:B:64:HIS:O	2:B:115:VAL:HG22	2.15	0.47
2:B:266:ASN:HA	2:B:281:ARG:O	2.15	0.47
6:F:32:VAL:HG13	6:F:32:VAL:O	2.15	0.47
6:F:192:VAL:HA	6:F:195:ALA:HB3	1.97	0.47
5:E:29:ARG:HG3	5:E:83:HIS:HE1	1.78	0.47
2:B:341:ASP:OD1	2:B:342:SER:N	2.48	0.47
6:F:174:LEU:CD2	6:F:273:LEU:HB3	2.44	0.47
1:A:206:TRP:CE3	1:A:207:ASN:HB2	2.50	0.46
1:A:542:GLN:O	1:A:546:TRP:CD1	2.66	0.46
5:E:104:ILE:O	5:E:105:ASP:OD1	2.33	0.46
4:D:92:ILE:HG13	4:D:108:VAL:HG22	1.97	0.46
6:F:81:LEU:O	6:F:85:GLN:HB3	2.14	0.46
1:A:108:ASP:OD1	1:A:109:MET:N	2.49	0.46
1:A:542:GLN:HG2	1:A:672:ALA:HB1	1.98	0.46
2:B:130:GLN:HB3	2:B:132:TYR:HE1	1.81	0.46
2:B:308:LEU:HG	2:B:315:THR:HA	1.98	0.46
4:D:89:GLN:O	4:D:92:ILE:HG22	2.16	0.46
4:D:191:TRP:CE2	4:D:224:GLN:HG3	2.50	0.46
6:F:96:LEU:HD21	6:F:132:ILE:HG22	1.97	0.46
1:A:83:THR:OG1	1:A:84:LEU:N	2.48	0.46
1:A:248:THR:C	1:A:250:ASP:H	2.19	0.46
1:A:31:PHE:HB2	1:A:34:LEU:HD11	1.97	0.46
4:D:106:ASP:N	4:D:106:ASP:OD1	2.48	0.46
1:A:180:ILE:HB	1:A:194:ILE:HD12	1.98	0.46
3:C:147:GLN:O	3:C:159:GLY:HA2	2.16	0.46
1:A:464:ASP:N	1:A:464:ASP:OD1	2.49	0.46
4:D:89:GLN:HA	4:D:92:ILE:HG22	1.96	0.46
5:E:60:GLY:O	5:E:75:TYR:OH	2.21	0.46
6:F:220:SER:OG	6:F:221:ALA:N	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:37:THR:O	2:B:359:GLN:NE2	2.48	0.46
3:C:183:GLN:HG2	3:C:187:PRO:O	2.16	0.46
1:A:778:SER:C	1:A:780:LEU:H	2.19	0.46
3:C:47:LEU:HD11	4:D:168:VAL:HG13	1.98	0.46
1:A:119:VAL:HG12	1:A:119:VAL:O	2.15	0.46
1:A:560:ASP:N	1:A:560:ASP:OD1	2.49	0.46
2:B:93:TRP:CH2	2:B:139:GLY:HA2	2.51	0.46
1:A:654:ALA:HA	1:A:659:THR:HG21	1.98	0.45
1:A:676:PRO:HA	1:A:691:ALA:HB1	1.98	0.45
4:D:137:PRO:HG3	4:D:177:TYR:CD2	2.51	0.45
1:A:177:ILE:HD13	1:A:254:ILE:HB	1.97	0.45
1:A:351:LYS:HA	1:A:373:GLU:HG3	1.98	0.45
3:C:134:ARG:H	3:C:143:THR:HG1	1.58	0.45
1:A:106:LYS:NZ	1:A:109:MET:HB2	2.31	0.45
2:B:166:THR:HG23	2:B:168:ASN:H	1.81	0.45
2:B:267:LEU:HB3	2:B:279:TRP:HZ3	1.80	0.45
6:F:174:LEU:HD23	6:F:273:LEU:HB3	1.98	0.45
1:A:323:GLN:HB2	1:A:340:ASN:HD21	1.81	0.45
2:B:220:LEU:HB2	2:B:227:ILE:HD11	1.98	0.45
2:B:227:ILE:HG22	2:B:228:TRP:HD1	1.81	0.45
2:B:292:ASP:OD1	2:B:292:ASP:N	2.48	0.45
2:B:302:ASN:O	2:B:323:LEU:HD12	2.16	0.45
1:A:284:ILE:HD11	1:A:308:ILE:HG12	1.98	0.45
1:A:723:PRO:HG2	1:A:724:PHE:CE2	2.51	0.45
2:B:92:ILE:HG22	2:B:93:TRP:HD1	1.82	0.45
2:B:174:LEU:HA	2:B:180:ALA:O	2.16	0.45
4:D:149:LYS:HE2	4:D:149:LYS:HB2	1.80	0.45
1:A:219:LEU:O	1:A:223:LEU:HD23	2.17	0.45
4:D:234:VAL:O	4:D:238:ILE:HG13	2.17	0.45
1:A:371:GLN:HE22	1:A:377:LEU:HA	1.81	0.45
2:B:59:PHE:HD2	2:B:77:ARG:NE	2.14	0.45
2:B:345:TYR:HE1	2:B:361:LYS:HE2	1.82	0.45
4:D:42:LYS:HA	4:D:42:LYS:HD2	1.88	0.45
6:F:244:ALA:O	6:F:247:LEU:HG	2.17	0.45
1:A:348:TYR:HD1	1:A:376:TRP:HA	1.81	0.45
6:F:270:VAL:HG12	6:F:272:ASP:O	2.17	0.45
1:A:425:CYS:SG	7:P:1300:PHE:N	2.90	0.44
1:A:738:PHE:HZ	1:A:788:ALA:HB2	1.83	0.44
2:B:152:LEU:HB3	2:B:197:GLU:HG2	1.98	0.44
6:F:154:PRO:O	6:F:157:VAL:HG22	2.17	0.44
6:F:175:ASN:HA	6:F:232:GLY:O	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:424:LYS:HD3	6:F:425:ILE:H	1.82	0.44
2:B:135:ASN:HB2	2:B:140:THR:OG1	2.17	0.44
5:E:103:ASN:OD1	5:E:104:ILE:N	2.50	0.44
1:A:284:ILE:HD11	1:A:308:ILE:HG23	1.99	0.44
1:A:436:SER:HB3	1:A:463:ASN:OD1	2.18	0.44
2:B:192:LEU:HD23	2:B:192:LEU:O	2.18	0.44
3:C:164:SER:HA	3:C:176:VAL:O	2.17	0.44
5:E:72:THR:HG23	5:E:94:THR:HG22	1.98	0.44
1:A:479:THR:OG1	1:A:483:VAL:HG22	2.18	0.44
2:B:115:VAL:HG12	2:B:124:ILE:HD13	1.99	0.44
4:D:106:ASP:HB3	4:D:154:TYR:HD2	1.82	0.44
4:D:228:ASN:O	4:D:231:ALA:N	2.51	0.44
6:F:404:ARG:O	6:F:407:SER:OG	2.15	0.44
1:A:544:ALA:HA	1:A:547:ARG:HG2	2.00	0.44
1:A:676:PRO:HD3	1:A:699:LEU:HA	2.00	0.44
2:B:84:LEU:HD22	2:B:91:GLU:HG3	1.99	0.44
3:C:159:GLY:N	3:C:182:GLU:OE2	2.51	0.44
5:E:74:PHE:HD1	5:E:92:THR:HG22	1.83	0.44
6:F:75:ILE:HG21	6:F:423:VAL:HG11	2.00	0.44
1:A:99:PHE:HA	1:A:167:LEU:HB2	2.00	0.43
1:A:207:ASN:OD1	1:A:209:VAL:HG13	2.18	0.43
1:A:182:ILE:HG22	1:A:190:THR:HG23	1.99	0.43
1:A:720:THR:O	1:A:735:THR:OG1	2.36	0.43
3:C:182:GLU:OE1	3:C:184:ALA:HB2	2.19	0.43
2:B:35:LEU:HD22	2:B:345:TYR:HE2	1.83	0.43
2:B:198:SER:HB3	2:B:248:ASP:HA	1.99	0.43
6:F:100:ILE:HA	6:F:103:ILE:HG22	1.99	0.43
6:F:142:ARG:O	6:F:146:VAL:HG12	2.17	0.43
2:B:66:ALA:HB2	2:B:115:VAL:HG23	2.00	0.43
6:F:81:LEU:O	6:F:85:GLN:CB	2.66	0.43
6:F:193:ASN:O	6:F:196:GLU:HG2	2.17	0.43
1:A:366:ARG:HD2	4:D:184:TYR:CD2	2.54	0.43
2:B:47:ALA:HB3	2:B:389:SER:HB3	2.01	0.43
4:D:42:LYS:HB3	4:D:50:GLN:HE22	1.83	0.43
5:E:94:THR:OG1	5:E:103:ASN:HB3	2.19	0.43
1:A:398:VAL:HG22	1:A:418:VAL:HG12	2.01	0.43
6:F:191:GLN:HE21	6:F:191:GLN:HB2	1.61	0.43
1:A:348:TYR:CD1	1:A:376:TRP:HA	2.54	0.43
2:B:52:VAL:H	2:B:386:THR:HB	1.83	0.43
6:F:243:PHE:HE1	6:F:259:ILE:HG21	1.84	0.43
1:A:569:ASP:OD2	1:A:606:ASN:HB2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:40:GLN:O	4:D:44:GLN:HG2	2.19	0.43
6:F:76:MET:O	6:F:80:ILE:HG22	2.19	0.43
1:A:580:LYS:HE2	1:A:580:LYS:HB3	1.86	0.43
1:A:589:ASP:OD1	1:A:590:GLY:N	2.52	0.43
2:B:52:VAL:HG23	2:B:82:LYS:HG3	2.00	0.43
7:P:1152:GLY:HA2	7:P:1174:VAL:HA	2.01	0.43
1:A:598:LYS:HB2	1:A:598:LYS:HE3	1.81	0.42
1:A:787:TYR:HE1	1:A:801:GLN:HB3	1.83	0.42
2:B:336:ASN:HB2	2:B:349:ILE:O	2.19	0.42
3:C:80:LEU:HD23	3:C:81:ASP:N	2.34	0.42
7:P:1173:LEU:HA	7:P:1204:GLY:HA2	2.01	0.42
1:A:194:ILE:HG12	1:A:200:ARG:HH21	1.84	0.42
2:B:216:VAL:HG13	2:B:232:ILE:HD13	2.00	0.42
2:B:244:LEU:O	2:B:263:TYR:HD2	2.02	0.42
4:D:117:MET:HE1	4:D:166:ARG:HH11	1.84	0.42
4:D:175:ALA:HB1	4:D:210:ALA:HB3	2.02	0.42
6:F:31:VAL:HG23	6:F:426:LEU:HD21	2.01	0.42
1:A:320:PRO:O	1:A:321:ARG:NH1	2.48	0.42
2:B:45:THR:H	2:B:391:THR:HG22	1.84	0.42
4:D:105:ILE:O	4:D:108:VAL:HG12	2.19	0.42
1:A:319:TYR:CE2	1:A:404:ARG:HD2	2.54	0.42
1:A:664:GLN:NE2	1:A:798:LYS:HB2	2.34	0.42
2:B:345:TYR:CE1	2:B:361:LYS:HB2	2.54	0.42
1:A:376:TRP:CH2	5:E:33:ASN:HB3	2.55	0.42
1:A:627:TRP:CD1	1:A:721:PRO:HD2	2.54	0.42
1:A:158:LEU:HB2	1:A:162:ARG:HB2	2.02	0.42
1:A:425:CYS:HB3	7:P:1299:CYS:HA	2.00	0.42
1:A:676:PRO:HG3	1:A:698:ASP:O	2.19	0.42
2:B:111:LEU:HD12	2:B:124:ILE:HG13	2.00	0.42
2:B:124:ILE:HG22	2:B:132:TYR:HB2	2.02	0.42
2:B:348:TRP:CE3	2:B:358:ALA:HB3	2.54	0.42
1:A:570:PHE:HB3	1:A:601:ILE:HD11	2.01	0.42
4:D:41:GLN:HE22	4:D:42:LYS:HD3	1.85	0.42
5:E:48:VAL:HG23	5:E:101:LEU:HG	2.01	0.42
2:B:76:ASP:HB3	2:B:80:LEU:HG	2.01	0.42
2:B:348:TRP:HZ3	2:B:360:GLN:HB2	1.83	0.42
6:F:73:ARG:NH1	6:F:77:ASP:HB2	2.34	0.42
1:A:519:ILE:O	1:A:523:ASN:HB2	2.20	0.42
1:A:338:ARG:NH1	1:A:339:VAL:O	2.53	0.42
1:A:608:TYR:HA	1:A:641:LEU:H	1.85	0.42
2:B:231:ARG:HD2	2:B:232:ILE:N	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:353:ASP:H	6:F:260:ARG:NH2	2.18	0.42
3:C:200:GLU:OE2	3:C:200:GLU:HA	2.19	0.42
5:E:47:ARG:H	5:E:50:MET:HE3	1.84	0.42
6:F:73:ARG:O	6:F:76:MET:HG3	2.20	0.42
2:B:240:GLU:HA	2:B:243:ARG:NE	2.33	0.41
1:A:111:LYS:HB2	1:A:111:LYS:HE3	1.84	0.41
2:B:67:LEU:HD13	2:B:374:ALA:HB3	2.01	0.41
2:B:91:GLU:N	2:B:91:GLU:OE1	2.53	0.41
3:C:35:VAL:HG21	4:D:166:ARG:NH2	2.35	0.41
4:D:125:GLN:HB3	4:D:130:VAL:HG13	2.02	0.41
2:B:172:GLN:HE22	2:B:181:VAL:HG13	1.85	0.41
5:E:96:ASN:ND2	5:E:98:SER:HB2	2.35	0.41
6:F:61:PRO:HG2	6:F:217:ILE:HG21	2.03	0.41
6:F:67:ARG:H	6:F:67:ARG:HG2	1.66	0.41
6:F:96:LEU:HD11	6:F:132:ILE:HG22	2.02	0.41
6:F:143:ASN:HB3	6:F:147:ARG:HH22	1.85	0.41
1:A:59:ILE:HA	1:A:62:THR:HG22	2.03	0.41
1:A:522:TYR:CD2	1:A:580:LYS:HD2	2.55	0.41
2:B:278:MET:HG3	6:F:153:LEU:HD12	2.02	0.41
7:P:1082:PHE:HA	7:P:1107:LEU:HA	2.01	0.41
1:A:717:GLU:N	1:A:717:GLU:OE1	2.54	0.41
2:B:56:ILE:HG22	2:B:77:ARG:HG3	2.03	0.41
4:D:105:ILE:HG23	4:D:154:TYR:HE2	1.85	0.41
1:A:248:THR:O	1:A:250:ASP:N	2.49	0.41
2:B:348:TRP:CZ3	2:B:360:GLN:HB2	2.55	0.41
3:C:106:LEU:HD23	3:C:106:LEU:H	1.86	0.41
5:E:41:ASN:O	5:E:45:LYS:HG2	2.21	0.41
1:A:115:GLU:OE2	1:A:120:ARG:HD3	2.21	0.41
3:C:187:PRO:O	3:C:188:VAL:HG23	2.21	0.41
1:A:59:ILE:HG12	1:A:77:VAL:HG21	2.03	0.41
1:A:98:THR:HG23	1:A:166:LYS:HD3	2.03	0.41
1:A:508:SER:HB2	1:A:534:ASN:OD1	2.21	0.41
2:B:227:ILE:HG22	2:B:228:TRP:CD1	2.56	0.41
4:D:32:PRO:HB2	4:D:67:TYR:CE2	2.55	0.41
6:F:138:ILE:HD12	6:F:138:ILE:HA	1.87	0.41
1:A:114:LEU:HD12	1:A:119:VAL:HG11	2.02	0.41
1:A:759:ASP:OD1	1:A:760:TYR:N	2.54	0.41
4:D:117:MET:SD	4:D:170:LEU:HD21	2.61	0.41
4:D:213:ASP:O	4:D:216:PRO:HD2	2.21	0.41
4:D:230:GLN:HA	4:D:233:LYS:HD2	2.03	0.41
1:A:312:LEU:HD23	1:A:312:LEU:HA	1.94	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:512:ASP:OD1	1:A:512:ASP:N	2.54	0.40
2:B:35:LEU:HD22	2:B:345:TYR:CE2	2.56	0.40
6:F:78:GLN:O	6:F:82:GLN:HG2	2.20	0.40
2:B:52:VAL:O	2:B:52:VAL:HG13	2.21	0.40
2:B:182:LYS:CG	2:B:183:TRP:HD1	2.34	0.40
6:F:179:ILE:O	6:F:266:HIS:HA	2.21	0.40
6:F:396:ARG:O	6:F:399:ARG:HG2	2.21	0.40
1:A:371:GLN:OE1	1:A:372:MET:N	2.54	0.40
1:A:493:ASP:OD1	1:A:493:ASP:N	2.54	0.40
2:B:112:SER:HB3	2:B:127:GLU:HG3	2.03	0.40
7:P:1202:LEU:O	7:P:1233:LEU:N	2.55	0.40
2:B:285:SER:OG	2:B:286:VAL:N	2.54	0.40
7:P:1077:ASP:N	7:P:1112:MET:O	2.46	0.40
1:A:106:LYS:HZ1	1:A:109:MET:HB2	1.85	0.40
1:A:117:SER:O	1:A:117:SER:OG	2.39	0.40
1:A:608:TYR:OH	1:A:650:GLU:OE2	2.32	0.40
2:B:124:ILE:CG2	2:B:132:TYR:HB2	2.52	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	760/790 (96%)	701 (92%)	59 (8%)	0	100	100
2	B	368/373 (99%)	328 (89%)	40 (11%)	0	100	100
3	C	168/320 (52%)	144 (86%)	24 (14%)	0	100	100
4	D	216/226 (96%)	199 (92%)	17 (8%)	0	100	100
5	E	88/104 (85%)	83 (94%)	5 (6%)	0	100	100
6	F	243/450 (54%)	224 (92%)	18 (7%)	1 (0%)	30	67
7	P	298/364 (82%)	279 (94%)	19 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	2141/2627 (82%)	1958 (92%)	182 (8%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
6	F	187	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	650/672 (97%)	647 (100%)	3 (0%)	86	90
2	B	301/304 (99%)	301 (100%)	0	100	100
3	C	78/258 (30%)	78 (100%)	0	100	100
4	D	183/190 (96%)	182 (100%)	1 (0%)	86	90
5	E	78/90 (87%)	78 (100%)	0	100	100
6	F	201/367 (55%)	198 (98%)	3 (2%)	60	75
7	P	15/289 (5%)	15 (100%)	0	100	100
All	All	1506/2170 (69%)	1499 (100%)	7 (0%)	85	90

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	303	LYS
1	A	592	ARG
1	A	806	ILE
4	D	116	ASN
6	F	148	ARG
6	F	191	GLN
6	F	396	ARG

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	606	ASN
2	B	144	GLN
2	B	359	GLN
4	D	41	GLN
4	D	54	GLN
6	F	186	ASN
6	F	223	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

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.

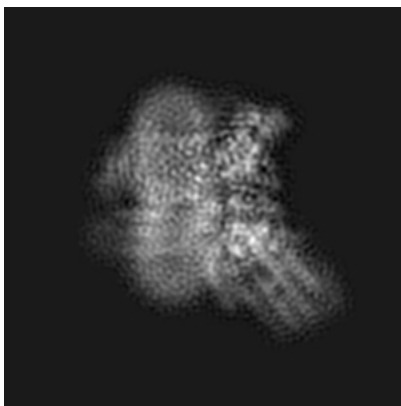
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-18053. These allow visual inspection of the internal detail of the map and identification of artifacts.

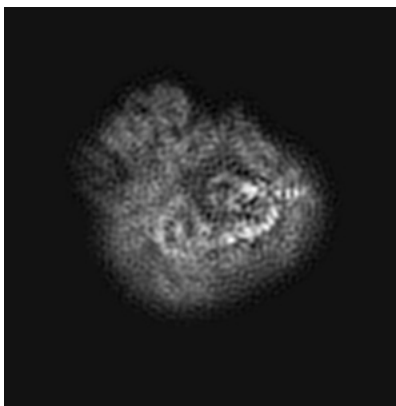
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

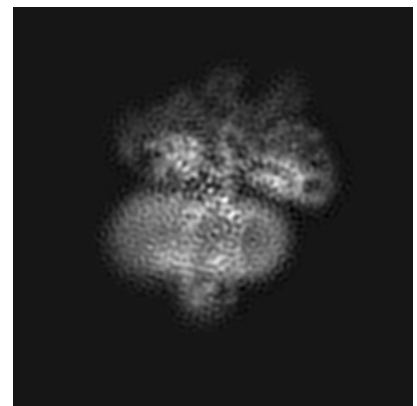
6.1.1 Primary map



X

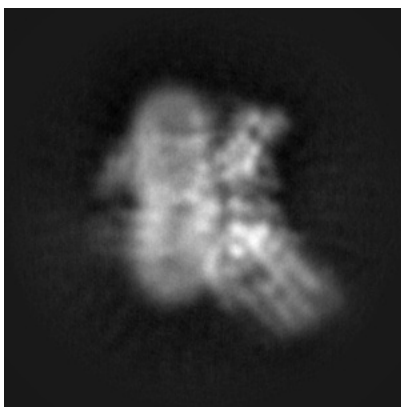


Y

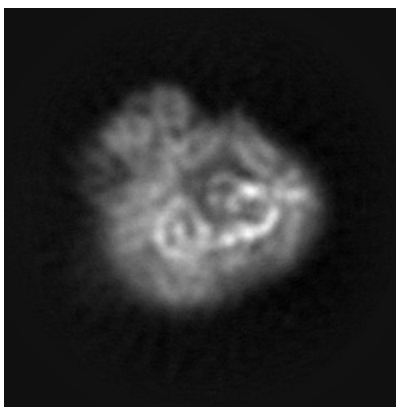


Z

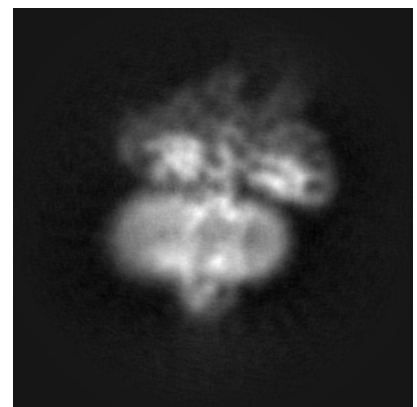
6.1.2 Raw map



X



Y

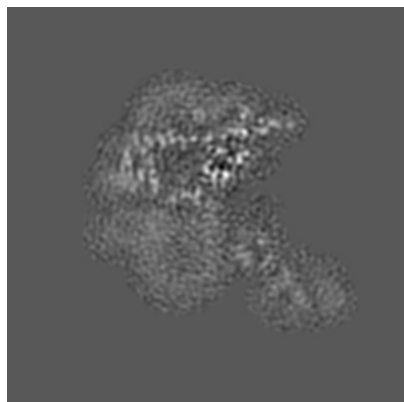


Z

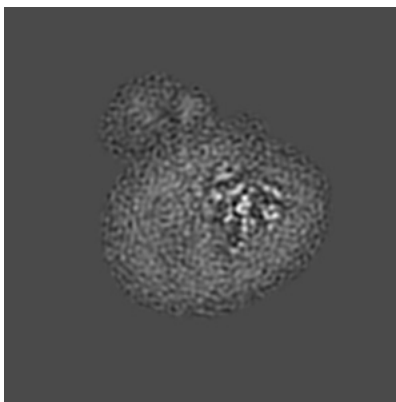
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

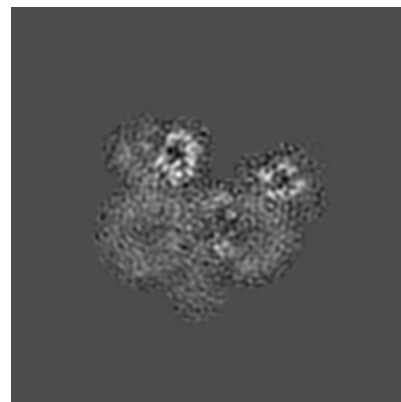
6.2.1 Primary map



X Index: 150

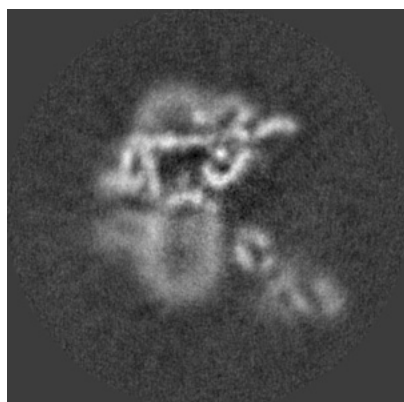


Y Index: 150

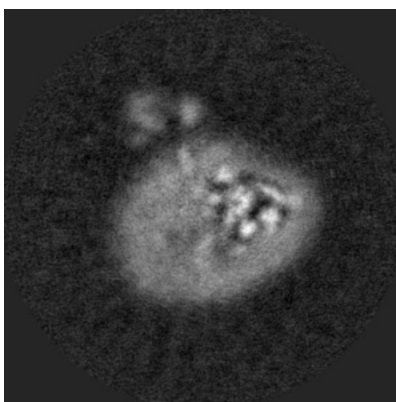


Z Index: 150

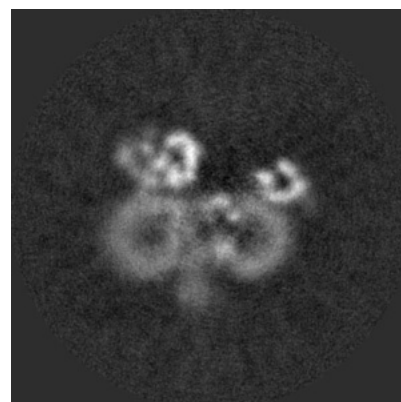
6.2.2 Raw map



X Index: 150



Y Index: 150

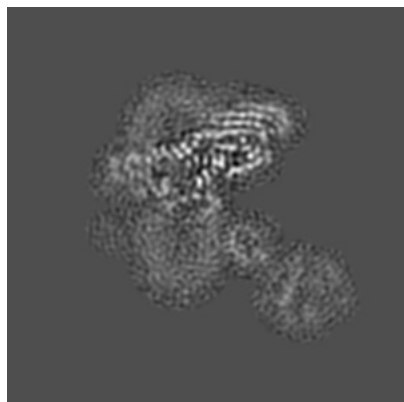


Z Index: 150

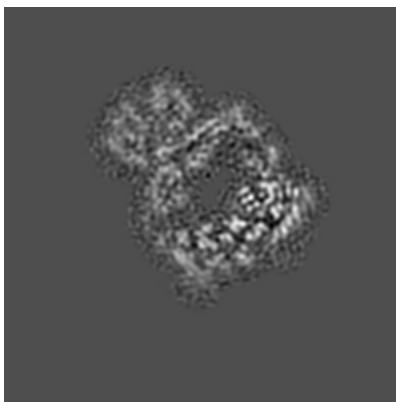
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

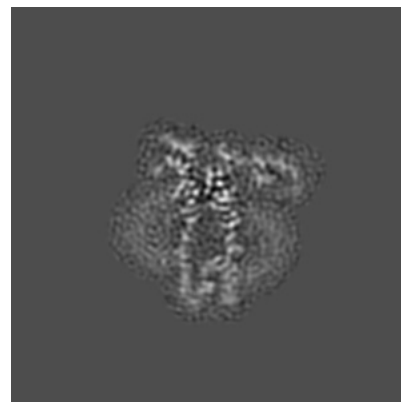
6.3.1 Primary map



X Index: 160

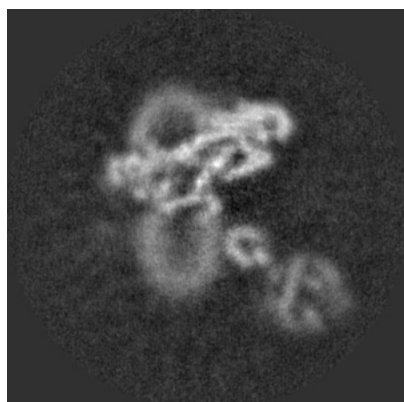


Y Index: 176

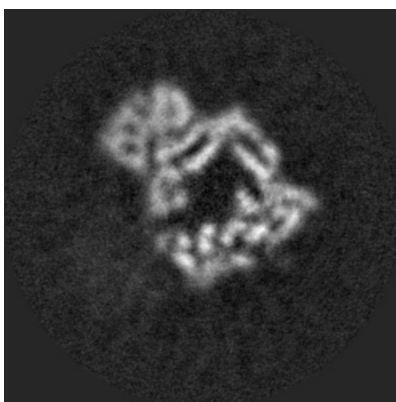


Z Index: 183

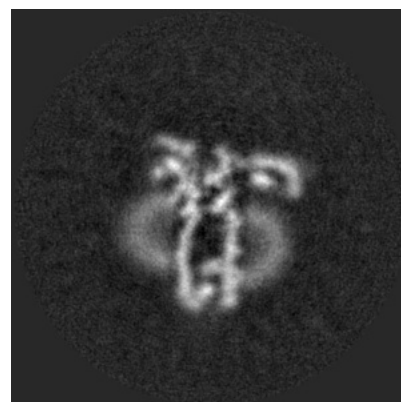
6.3.2 Raw map



X Index: 160



Y Index: 174

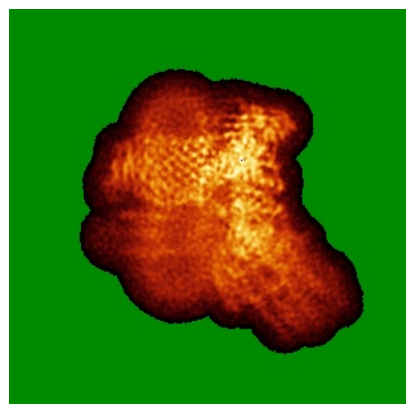


Z Index: 182

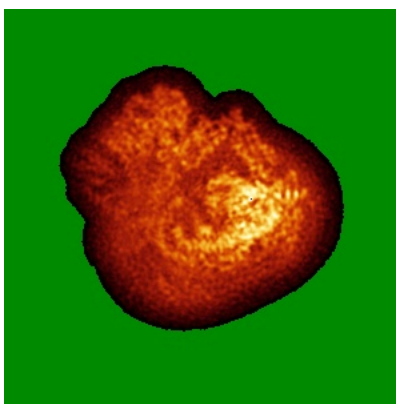
The images above show the largest variance slices of the map in three orthogonal directions.

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

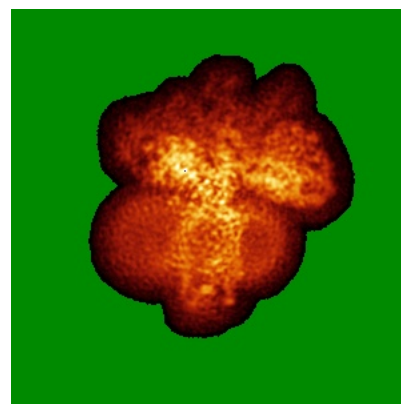
6.4.1 Primary map



X

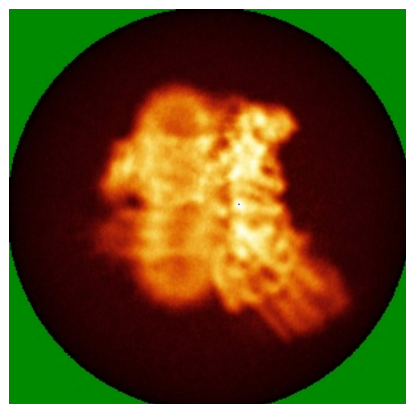


Y

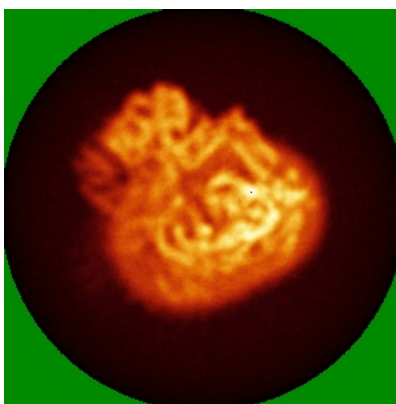


Z

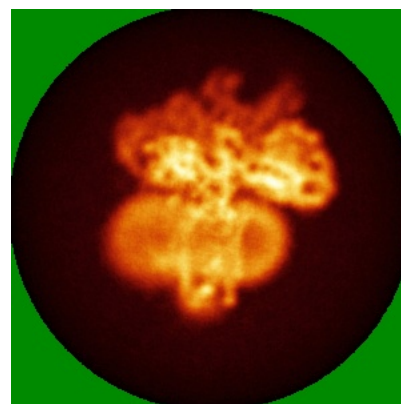
6.4.2 Raw map



X



Y

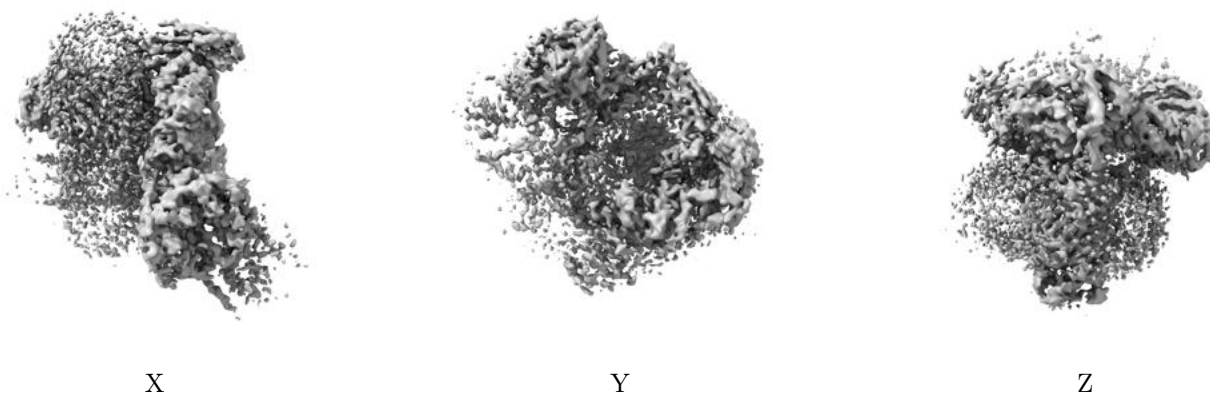


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.00387. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

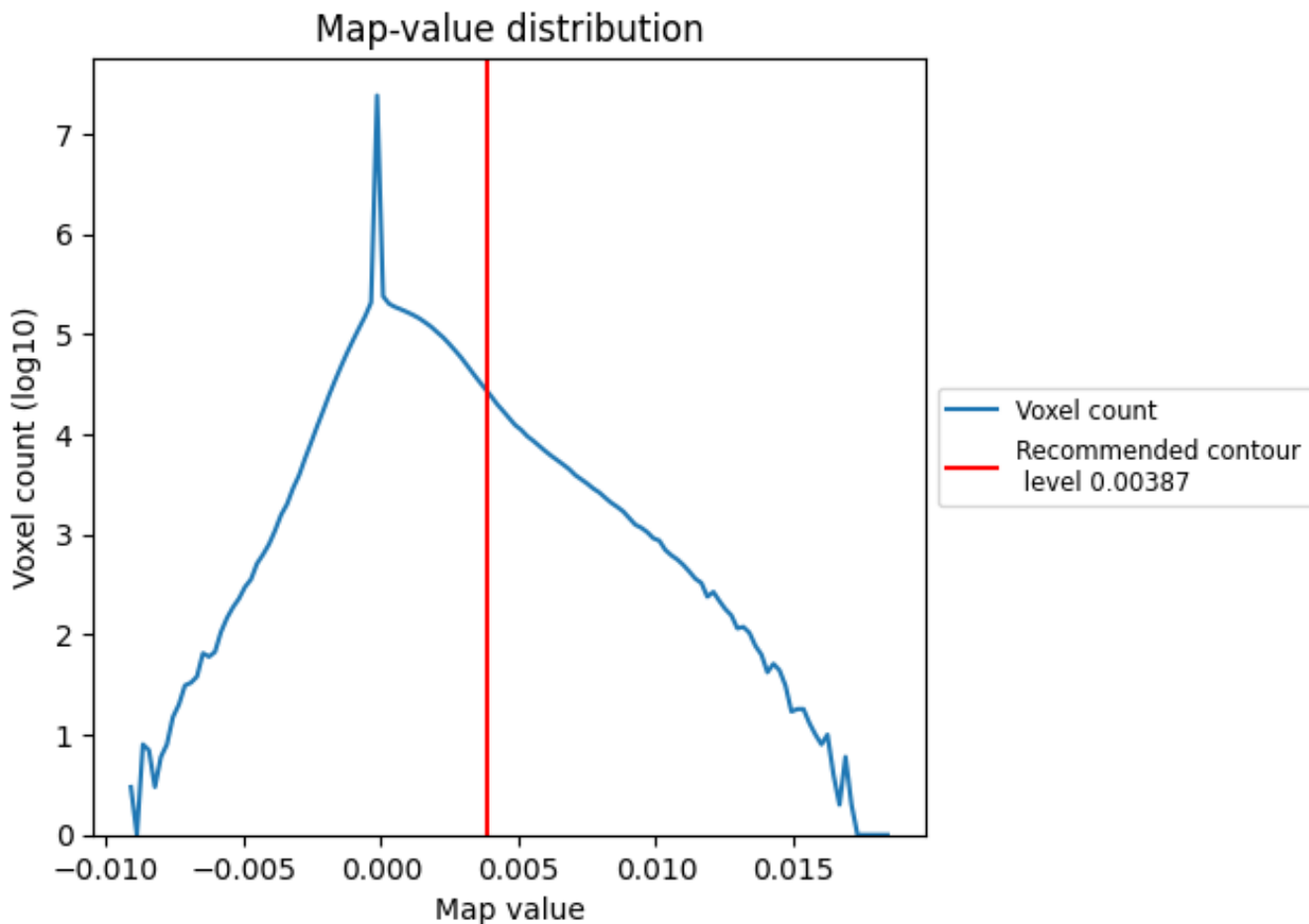
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

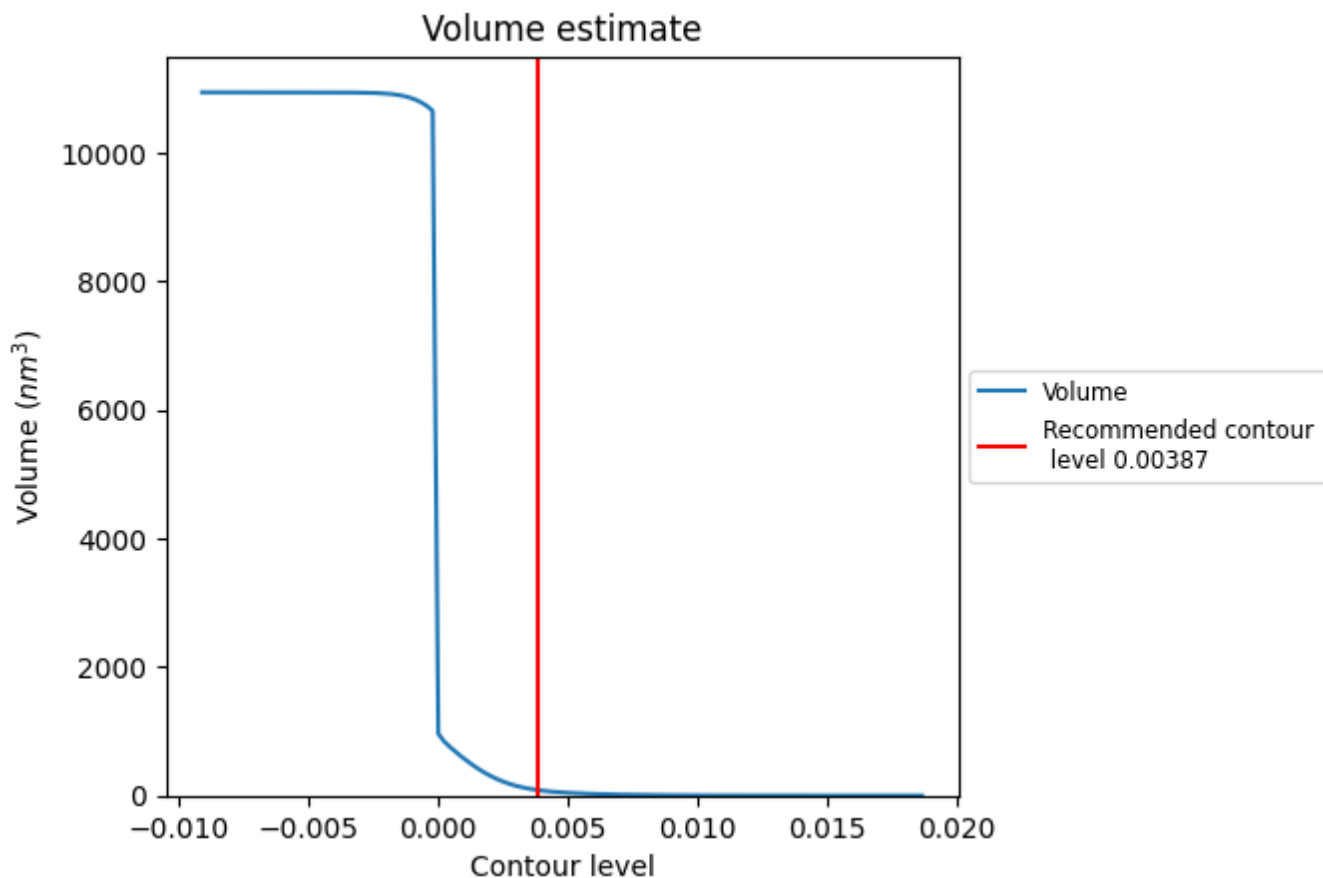
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

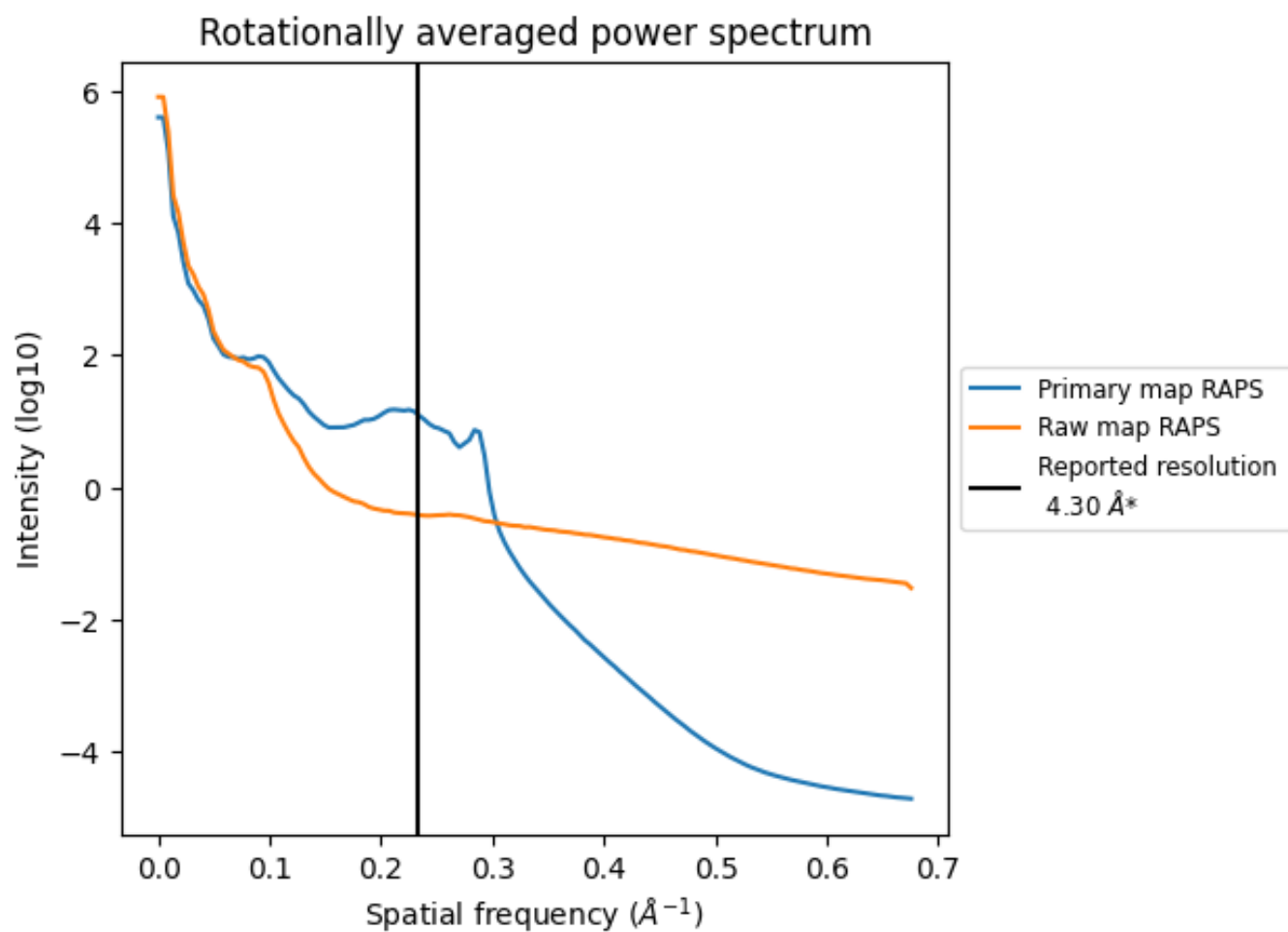
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 84 nm^3 ; this corresponds to an approximate mass of 76 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](#)

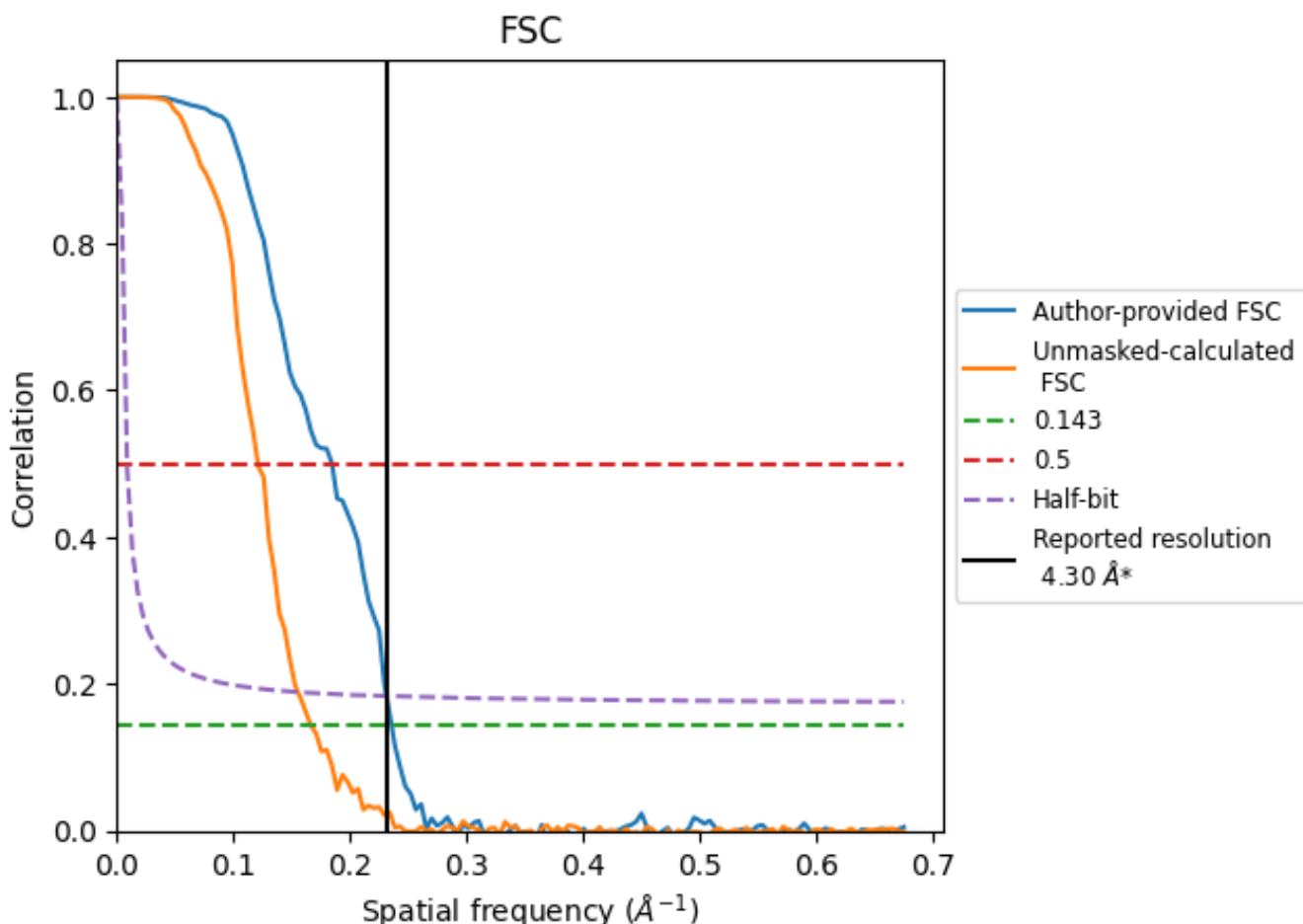


*Reported resolution corresponds to spatial frequency of 0.233 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.233 Å⁻¹

8.2 Resolution estimates [i](#)

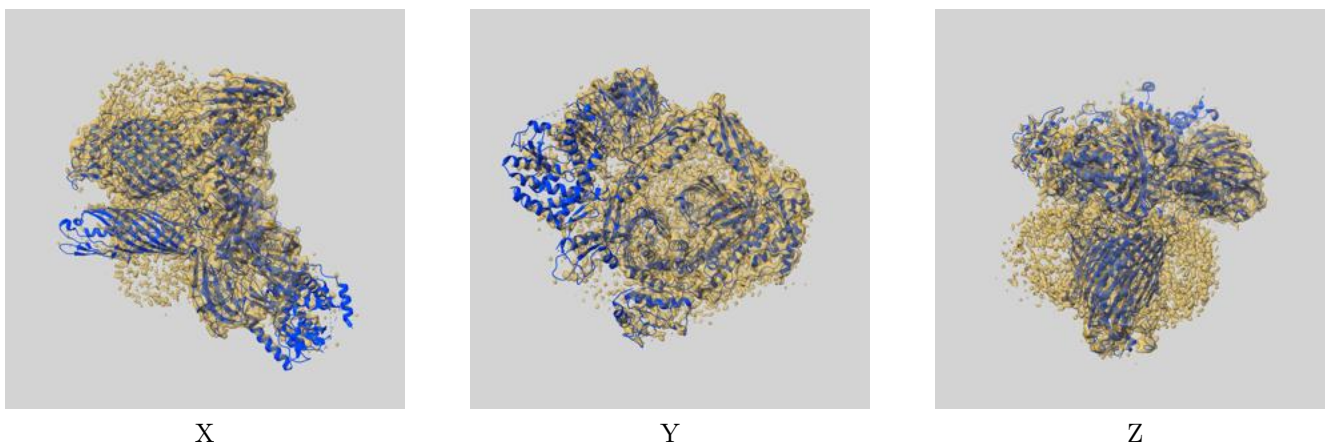
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.30	-	-
Author-provided FSC curve	4.24	5.41	4.32
Unmasked-calculated*	6.00	8.25	6.43

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.00 differs from the reported value 4.3 by more than 10 %

9 Map-model fit [i](#)

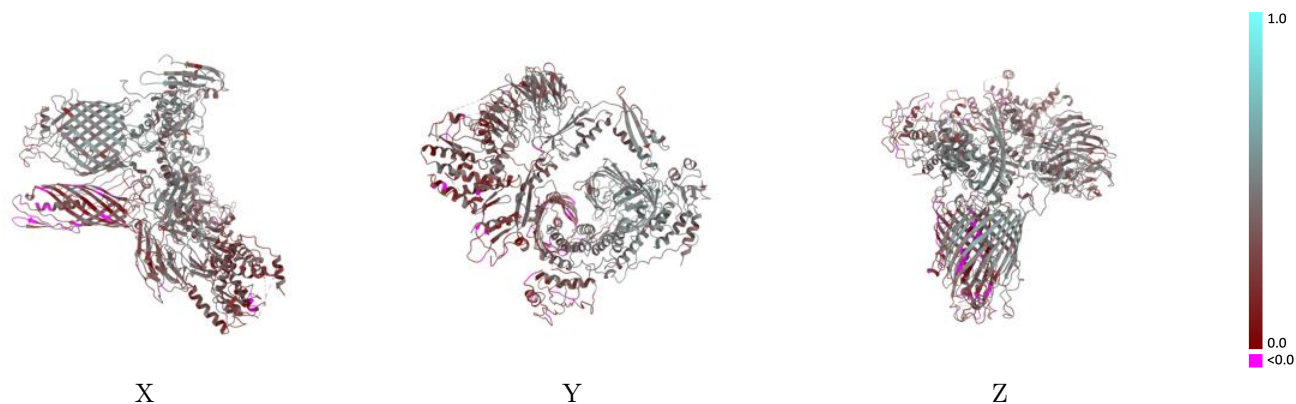
This section contains information regarding the fit between EMDB map EMD-18053 and PDB model 8Q0G. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlay [i](#)



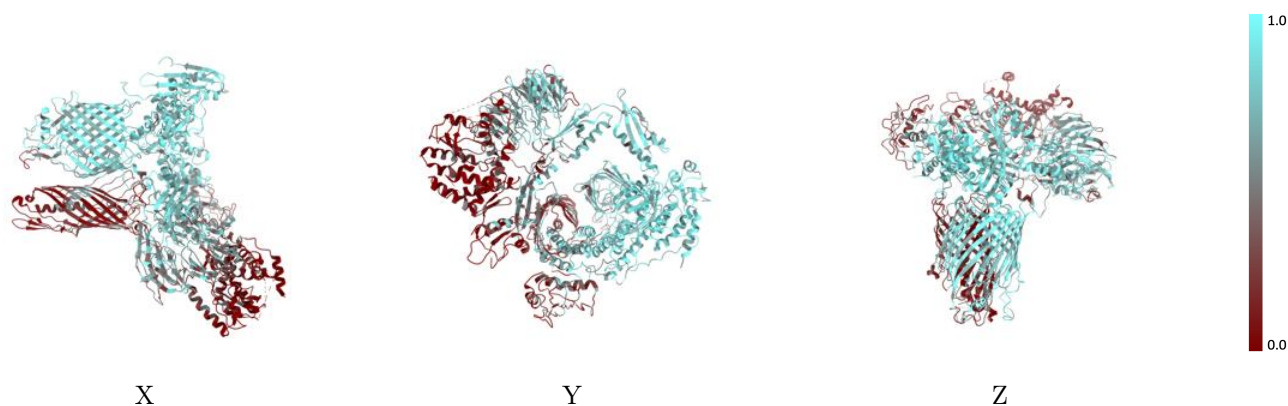
The images above show the 3D surface view of the map at the recommended contour level 0.00387 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



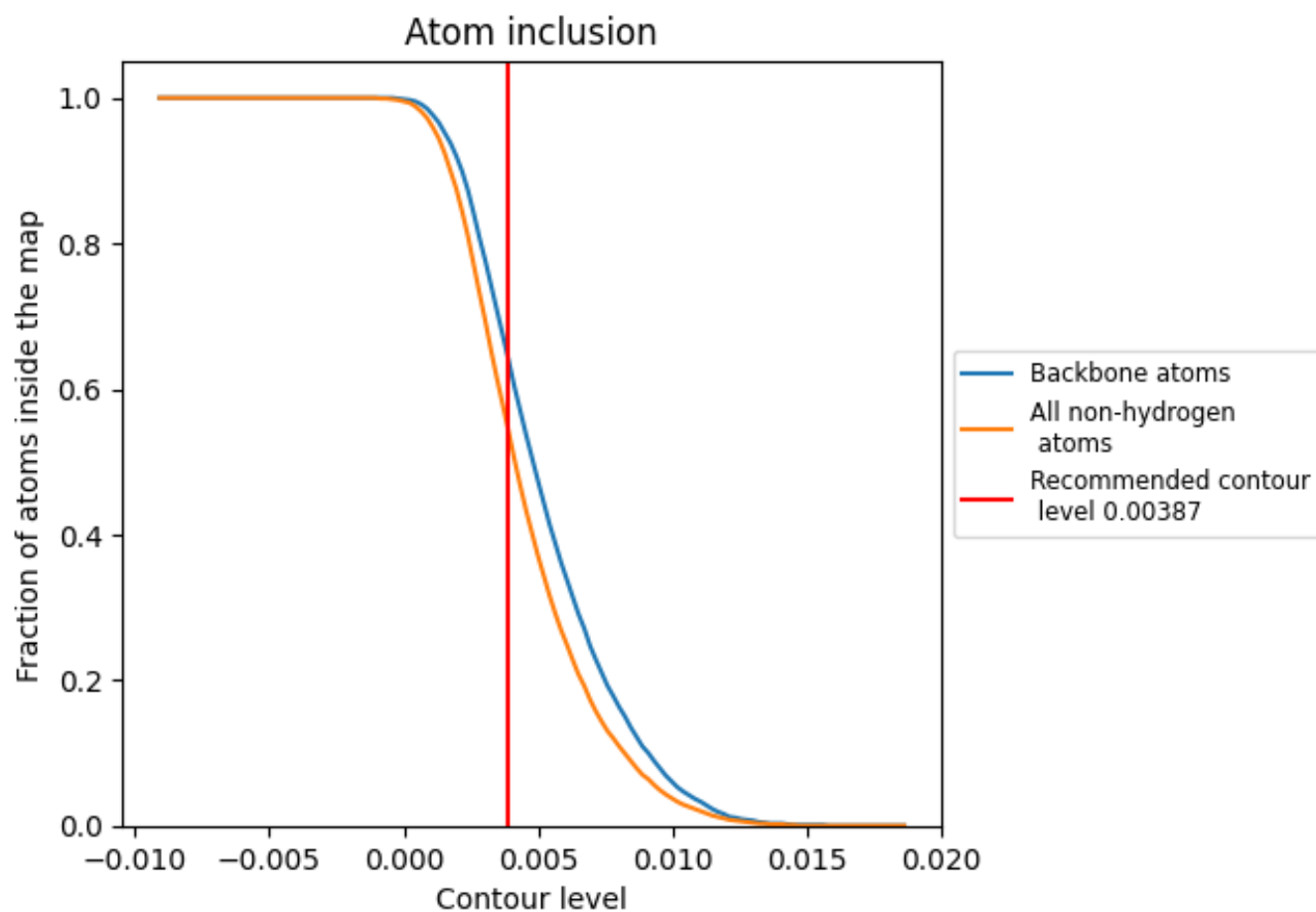
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00387).

















9.4 Atom inclusion [i](#)



At the recommended contour level, 65% of all backbone atoms, 55% 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 (0.00387) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5480	 0.3790
A	 0.6760	 0.4240
B	 0.5810	 0.3860
C	 0.4260	 0.3330
D	 0.8050	 0.4610
E	 0.8000	 0.4550
F	 0.1260	 0.2880
P	 0.1970	 0.2080

