Full wwPDB EM Validation Report ⓘ

Dec 2, 2024 – 02:11 PM JST

PDB ID	:	8JQG
EMDB ID	:	EMD-36571
Title	:	Cryo EM map of full length PLC gamma 2
Authors	:	Shin, Y.-C.; Liao, M.
Deposited on	:	2023-06-14
Resolution	:	3.72 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:

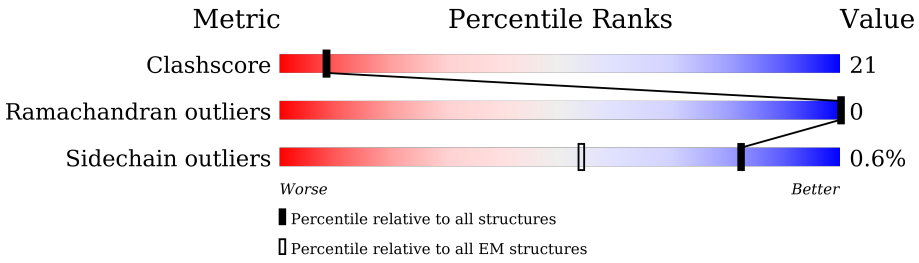
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.72 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	1265	50% 34% 16%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 8708 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 1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase gamma-2.

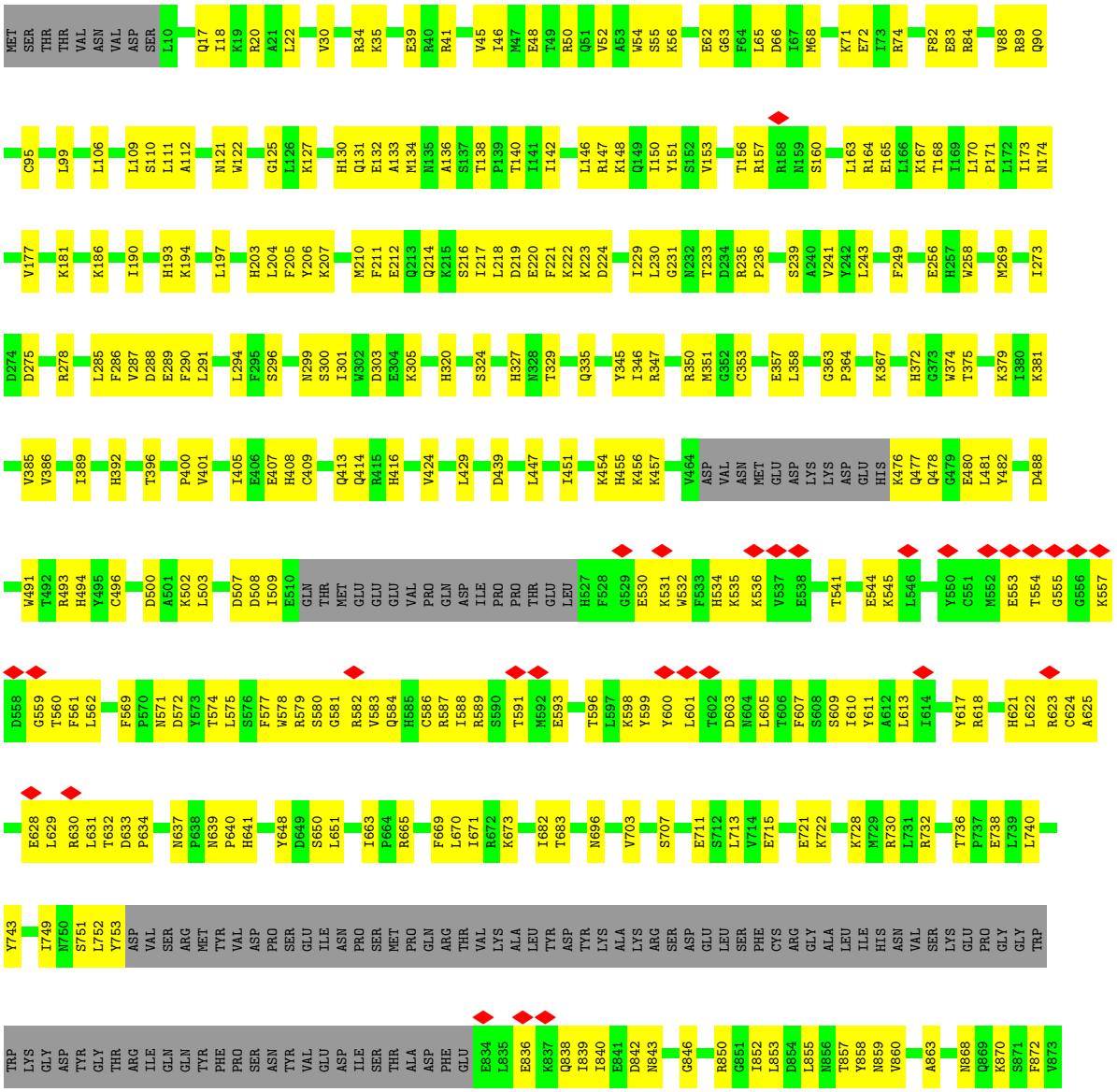
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1061	8708	5548	1494	1622	44	0	0

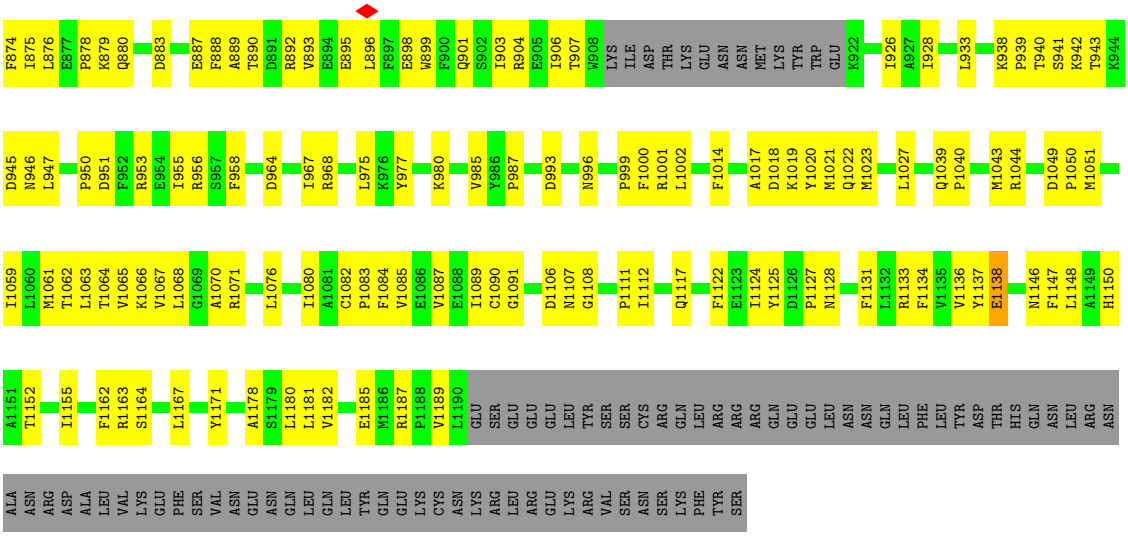
3 Residue-property plots (i)

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: 1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase gamma-2

Chain A:




F874 I875 L876 E877 P878 K879 Q880 D883 E887 F888 A889 T890 D891 R892 V893 E894 E895 L896 F897 E898 W899 F900 Q901 S902 I903 R904 E905 I906 T907 W908 LYS ILE ASP THR LYS GLU ASN ASN MET LYS TYR TRP GLU K922 I926 A927 I928 L933 K938 P939 T940 S941 K942 T943 K944
D945 N946 L947 P950 D951 F952 R953 E954 I955 R956 S957 F958 D964 I967 R968 L975 K976 Y977 K980 V985 Y986 P987 D993 N996 P999 F1000 R1001 L1002 F1014 A1017 D1018 K1019 Y1020 M1021 Q1022 M1023 L1027 Q1039 P1040 M1043 R1044 D1049 P1050 M1051
I1059 L1060 M1061 T1062 L1063 T1064 V1065 K1066 V1067 L1068 G1069 A1070 R1071 L1076 I1080 A1081 C1082 P1083 F1084 V1085 E1086 V1087 E1088 I1089 C1090 G1091 D1106 N1107 G1108 P1111 I1112 Q1117 F1122 E1123 I1124 Y1125 D1126 P1127 N1128 F1131 L1132 R1133 F1134 V1135 V1136 Y1137 E1138 N1146 F1147 L1148 A1149 H1150
A1151 T1152 I1155 F1162 R1163 S1164 L1167 Y1171 A1178 S1179 L1180 L1181 V1182 E1185 M1186 R1187 P1188 V1189 L1190 GLU SER GLU GLU GLU GLU LEU TYR SER SER CYS ARG GLN LEU ARG ARG ARG GLN GLU GLU LEU ASN ASN GLN LEU PHE LEU TYR ASP THR HIS GLN ASN LEU ARG ASN
ALA ASN ARG ASP ALA LEU VAL LYS GLU PHE SER VAL ASN GLU ASN GLN LEU GLN LEU TYR GLN GLU LYS CYS ASN LYS ARG LEU ARG GLU GLU LYS ARG VAL SER ASN SER LYS PHE TYR SER

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	189652	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	53.0932	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.982	Depositor
Minimum map value	-1.785	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.075	Depositor
Recommended contour level	0.3	Depositor
Map size (Å)	237.6, 237.6, 237.6	wwPDB
Map dimensions	216, 216, 216	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	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	0.28	0/8910	0.55	0/12025

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	8708	0	8605	368	0
All	All	8708	0	8605	368	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 21.

All (368) 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:578:TRP:HE1	1:A:581:GLY:H	1.13	0.92
1:A:491:TRP:HZ2	1:A:868:ASN:HB2	1.40	0.85
1:A:491:TRP:CZ2	1:A:868:ASN:HB2	2.10	0.85
1:A:623:ARG:HG2	1:A:628:GLU:HG2	1.62	0.81
1:A:939:PRO:HA	1:A:955:ILE:HG22	1.63	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:221:PHE:HE1	1:A:249:PHE:CE1	1.97	0.81
1:A:106:LEU:HD11	1:A:347:ARG:HE	1.46	0.81
1:A:22:LEU:HD21	1:A:122:TRP:HA	1.64	0.79
1:A:530:GLU:HG2	1:A:532:TRP:CE2	2.17	0.79
1:A:153:VAL:HG21	1:A:165:GLU:HB3	1.63	0.78
1:A:621:HIS:NE2	1:A:630:ARG:HG2	2.01	0.76
1:A:216:SER:HB3	1:A:1112:ILE:HD11	1.68	0.76
1:A:587:ARG:HE	1:A:589:ARG:HD3	1.52	0.74
1:A:621:HIS:HD2	1:A:630:ARG:N	1.86	0.74
1:A:482:TYR:HB2	1:A:889:ALA:HB3	1.70	0.73
1:A:899:TRP:O	1:A:903:ILE:HD12	1.90	0.72
1:A:996:ASN:HD22	1:A:1021:MET:HB2	1.55	0.72
1:A:74:ARG:NH1	1:A:346:ILE:HD13	2.04	0.72
1:A:838:GLN:NE2	1:A:842:ASP:OD2	2.24	0.71
1:A:72:GLU:HG2	1:A:350:ARG:HD3	1.71	0.70
1:A:457:LYS:HD2	1:A:938:LYS:HB2	1.73	0.70
1:A:534:HIS:CE1	1:A:562:LEU:HG	2.26	0.70
1:A:574:THR:HA	1:A:588:ILE:H	1.56	0.70
1:A:219:ASP:O	1:A:222:LYS:HB3	1.92	0.69
1:A:233:THR:HA	1:A:235:ARG:HH12	1.56	0.69
1:A:481:LEU:HD22	1:A:890:THR:HG22	1.75	0.69
1:A:599:TYR:HE1	1:A:613:LEU:HB2	1.57	0.69
1:A:599:TYR:CE1	1:A:613:LEU:HB2	2.29	0.68
1:A:530:GLU:HB2	1:A:611:TYR:OH	1.92	0.68
1:A:22:LEU:HD11	1:A:125:GLY:HA3	1.75	0.68
1:A:600:TYR:CD2	1:A:603:ASP:HA	2.29	0.68
1:A:593:GLU:HB3	1:A:598:LYS:HG3	1.76	0.68
1:A:409:CYS:O	1:A:414:GLN:NE2	2.28	0.67
1:A:858:TYR:HA	1:A:878:PRO:HA	1.77	0.67
1:A:68:MET:HG2	1:A:133:ALA:HB1	1.75	0.66
1:A:578:TRP:CE3	1:A:583:VAL:HG22	2.30	0.66
1:A:903:ILE:HA	1:A:906:ILE:HD12	1.76	0.66
1:A:99:LEU:HB3	1:A:106:LEU:HD23	1.77	0.66
1:A:218:LEU:HD12	1:A:230:LEU:HD11	1.78	0.65
1:A:637:ASN:O	1:A:640:PRO:HD3	1.96	0.65
1:A:39:GLU:HG3	1:A:41:ARG:HH11	1.62	0.65
1:A:1027:LEU:HB2	1:A:1131:PHE:HZ	1.60	0.64
1:A:621:HIS:CD2	1:A:630:ARG:HB3	2.32	0.64
1:A:579:ARG:N	1:A:582:ARG:O	2.25	0.64
1:A:74:ARG:HH12	1:A:346:ILE:CD1	2.11	0.64
1:A:901:GLN:HA	1:A:904:ARG:HD3	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:74:ARG:NH1	1:A:346:ILE:CD1	2.60	0.63
1:A:243:LEU:HA	1:A:269:MET:HE1	1.81	0.63
1:A:407:GLU:O	1:A:408:HIS:ND1	2.32	0.63
1:A:1167:LEU:HD21	1:A:1180:LEU:HD13	1.81	0.63
1:A:1040:PRO:HG2	1:A:1128:ASN:HB2	1.81	0.63
1:A:223:LYS:HG2	1:A:224:ASP:H	1.64	0.63
1:A:221:PHE:CE1	1:A:249:PHE:CE1	2.84	0.62
1:A:999:PRO:HD3	1:A:1020:TYR:HB3	1.82	0.62
1:A:1027:LEU:HB2	1:A:1131:PHE:CZ	2.35	0.62
1:A:68:MET:CG	1:A:133:ALA:HB1	2.30	0.62
1:A:170:LEU:HD23	1:A:177:VAL:HG22	1.81	0.62
1:A:599:TYR:CZ	1:A:607:PHE:HB2	2.33	0.62
1:A:45:VAL:HG22	1:A:52:VAL:HG22	1.81	0.62
1:A:82:PHE:HE1	1:A:110:SER:HB3	1.65	0.61
1:A:588:ILE:HA	1:A:601:LEU:HD21	1.83	0.61
1:A:130:HIS:O	1:A:134:MET:HG2	2.00	0.61
1:A:221:PHE:CE1	1:A:249:PHE:CD1	2.89	0.61
1:A:493:ARG:HD2	1:A:509:ILE:HG21	1.82	0.61
1:A:596:THR:OG1	1:A:598:LYS:NZ	2.34	0.61
1:A:190:ILE:HG23	1:A:204:LEU:HD22	1.84	0.60
1:A:857:THR:HA	1:A:879:LYS:HD2	1.83	0.60
1:A:150:ILE:O	1:A:153:VAL:HG12	2.01	0.60
1:A:621:HIS:CD2	1:A:630:ARG:HG2	2.36	0.60
1:A:303:ASP:OD2	1:A:305:LYS:NZ	2.35	0.60
1:A:1089:ILE:HG21	1:A:1124:ILE:HD11	1.83	0.60
1:A:859:ASN:OD1	1:A:879:LYS:NZ	2.35	0.60
1:A:1023:MET:HE3	1:A:1131:PHE:HE2	1.66	0.59
1:A:1022:GLN:OE1	1:A:1133:ARG:NH1	2.31	0.59
1:A:1090:CYS:HB2	1:A:1131:PHE:HB2	1.84	0.59
1:A:286:PHE:O	1:A:290:PHE:N	2.34	0.59
1:A:621:HIS:CD2	1:A:630:ARG:N	2.70	0.59
1:A:707:SER:HB2	1:A:1080:ILE:HB	1.84	0.59
1:A:18:ILE:HD12	1:A:121:ASN:CG	2.23	0.59
1:A:385:VAL:O	1:A:389:ILE:HG13	2.03	0.59
1:A:329:THR:HB	1:A:345:TYR:CE1	2.37	0.59
1:A:329:THR:HB	1:A:345:TYR:HE1	1.68	0.59
1:A:578:TRP:HA	1:A:583:VAL:HA	1.85	0.58
1:A:71:LYS:HB3	1:A:72:GLU:OE1	2.03	0.58
1:A:72:GLU:HG2	1:A:350:ARG:CD	2.33	0.58
1:A:221:PHE:HE1	1:A:249:PHE:CD1	2.21	0.58
1:A:530:GLU:HG3	1:A:531:LYS:N	2.19	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:641:HIS:CD2	1:A:713:LEU:HD12	2.38	0.58
1:A:211:PHE:HE2	1:A:236:PRO:HA	1.68	0.58
1:A:589:ARG:HB2	1:A:600:TYR:CE2	2.39	0.58
1:A:648:TYR:HE2	1:A:670:LEU:HD22	1.67	0.58
1:A:876:LEU:HD23	1:A:887:GLU:H	1.68	0.57
1:A:975:LEU:HD12	1:A:1050:PRO:HG3	1.86	0.57
1:A:363:GLY:H	1:A:413:GLN:HE22	1.52	0.57
1:A:170:LEU:HD12	1:A:173:ILE:HD11	1.86	0.57
1:A:186:LYS:O	1:A:190:ILE:HG12	2.03	0.57
1:A:872:PHE:HB3	1:A:896:LEU:HD22	1.87	0.57
1:A:206:TYR:HE1	1:A:210:MET:HE2	1.69	0.57
1:A:456:LYS:HA	1:A:939:PRO:HG2	1.86	0.57
1:A:477:GLN:NE2	1:A:898:GLU:OE2	2.35	0.57
1:A:480:GLU:HB2	1:A:493:ARG:HH11	1.70	0.56
1:A:222:LYS:HE2	1:A:231:GLY:O	2.04	0.56
1:A:350:ARG:HA	1:A:396:THR:HG21	1.87	0.56
1:A:351:MET:SD	1:A:1014:PHE:CD2	2.99	0.56
1:A:496:CYS:HB3	1:A:503:LEU:HD21	1.87	0.56
1:A:530:GLU:HG2	1:A:532:TRP:NE1	2.20	0.56
1:A:749:ILE:O	1:A:753:TYR:OH	2.24	0.56
1:A:488:ASP:OD2	1:A:665:ARG:NH2	2.39	0.56
1:A:1066:LYS:NZ	1:A:1117:GLN:O	2.34	0.56
1:A:1067:VAL:HA	1:A:1182:VAL:HG12	1.87	0.56
1:A:1150:HIS:HD1	1:A:1152:THR:HG23	1.71	0.56
1:A:648:TYR:HB3	1:A:651:LEU:HG	1.88	0.56
1:A:671:ILE:HD12	1:A:682:ILE:HB	1.87	0.56
1:A:1112:ILE:HG23	1:A:1112:ILE:O	2.06	0.55
1:A:530:GLU:CG	1:A:531:LYS:N	2.70	0.55
1:A:50:ARG:HH22	1:A:140:THR:HG22	1.71	0.55
1:A:580:SER:O	1:A:580:SER:OG	2.23	0.55
1:A:591:THR:HG23	1:A:600:TYR:OH	2.07	0.55
1:A:55:SER:HB2	1:A:62:GLU:H	1.71	0.55
1:A:71:LYS:CB	1:A:72:GLU:OE1	2.55	0.55
1:A:401:VAL:HG12	1:A:451:ILE:HG12	1.88	0.55
1:A:561:PHE:HB3	1:A:631:LEU:HD22	1.89	0.55
1:A:575:LEU:HD13	1:A:601:LEU:HD11	1.89	0.55
1:A:579:ARG:HD2	1:A:584:GLN:HB2	1.89	0.55
1:A:1063:LEU:HD22	1:A:1065:VAL:HG23	1.89	0.55
1:A:221:PHE:CE2	1:A:290:PHE:HE2	2.25	0.55
1:A:429:LEU:HD21	1:A:933:LEU:HD11	1.87	0.55
1:A:621:HIS:CD2	1:A:630:ARG:CB	2.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:530:GLU:CG	1:A:531:LYS:H	2.20	0.54
1:A:1001:ARG:NH2	1:A:1051:MET:SD	2.81	0.54
1:A:296:SER:O	1:A:1164:SER:OG	2.24	0.54
1:A:648:TYR:CE2	1:A:670:LEU:HD22	2.42	0.54
1:A:858:TYR:HD2	1:A:876:LEU:HB3	1.72	0.54
1:A:951:ASP:OD2	1:A:953:ARG:NH1	2.41	0.54
1:A:233:THR:HA	1:A:235:ARG:NH1	2.22	0.54
1:A:347:ARG:O	1:A:351:MET:HB2	2.08	0.54
1:A:940:THR:O	1:A:956:ARG:NH1	2.40	0.54
1:A:90:GLN:HG2	1:A:112:ALA:HB1	1.90	0.54
1:A:839:ILE:O	1:A:843:ASN:ND2	2.41	0.54
1:A:30:VAL:HG22	1:A:111:LEU:HD22	1.90	0.54
1:A:34:ARG:HG2	1:A:35:LYS:HG2	1.90	0.54
1:A:374:TRP:O	1:A:478:GLN:NE2	2.36	0.54
1:A:993:ASP:OD1	1:A:993:ASP:N	2.39	0.53
1:A:632:THR:OG1	1:A:633:ASP:OD2	2.22	0.53
1:A:299:ASN:ND2	1:A:1162:PHE:O	2.38	0.53
1:A:571:ASN:O	1:A:571:ASN:ND2	2.41	0.53
1:A:572:ASP:OD2	1:A:587:ARG:NH1	2.42	0.53
1:A:82:PHE:CE1	1:A:110:SER:HB3	2.42	0.53
1:A:216:SER:HB3	1:A:1112:ILE:CD1	2.37	0.53
1:A:74:ARG:HD3	1:A:392:HIS:NE2	2.24	0.53
1:A:291:LEU:HD23	1:A:1071:ARG:HH21	1.75	0.53
1:A:863:ALA:H	1:A:874:PHE:HA	1.74	0.53
1:A:502:LYS:HE2	1:A:852:ILE:HD11	1.90	0.52
1:A:534:HIS:HE1	1:A:562:LEU:HG	1.72	0.52
1:A:1167:LEU:HB2	1:A:1178:ALA:HB1	1.92	0.52
1:A:214:GLN:HB2	1:A:217:ILE:HD11	1.92	0.52
1:A:938:LYS:O	1:A:955:ILE:N	2.41	0.52
1:A:1023:MET:HE3	1:A:1131:PHE:CE2	2.43	0.52
1:A:146:LEU:HD11	1:A:206:TYR:HD2	1.73	0.52
1:A:605:LEU:HB2	1:A:617:TYR:OH	2.10	0.52
1:A:738:GLU:OE1	1:A:738:GLU:N	2.30	0.52
1:A:532:TRP:HB3	1:A:634:PRO:HB3	1.92	0.52
1:A:273:ILE:HG21	1:A:278:ARG:HD2	1.92	0.51
1:A:164:ARG:HD2	1:A:554:THR:OG1	2.10	0.51
1:A:892:ARG:HH12	1:A:893:VAL:HG12	1.76	0.51
1:A:863:ALA:HB2	1:A:875:ILE:HG13	1.92	0.51
1:A:351:MET:SD	1:A:1014:PHE:HD2	2.34	0.51
1:A:500:ASP:O	1:A:502:LYS:HG3	2.11	0.51
1:A:860:VAL:HG11	1:A:903:ILE:HB	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:190:ILE:HG13	1:A:205:PHE:HB2	1.93	0.51
1:A:221:PHE:CE2	1:A:290:PHE:CE2	2.99	0.51
1:A:18:ILE:HD12	1:A:121:ASN:OD1	2.12	0.50
1:A:218:LEU:HD23	1:A:291:LEU:HD12	1.93	0.50
1:A:381:LYS:O	1:A:385:VAL:HG23	2.12	0.50
1:A:400:PRO:HG3	1:A:447:LEU:HB3	1.93	0.50
1:A:534:HIS:HB3	1:A:637:ASN:HD21	1.76	0.50
1:A:218:LEU:CD2	1:A:291:LEU:HD12	2.42	0.50
1:A:624:CYS:SG	1:A:625:ALA:N	2.83	0.50
1:A:530:GLU:CD	1:A:531:LYS:H	2.15	0.50
1:A:350:ARG:HE	1:A:392:HIS:HD2	1.60	0.50
1:A:22:LEU:CD1	1:A:125:GLY:HA3	2.42	0.49
1:A:985:VAL:HG11	1:A:1002:LEU:HD21	1.94	0.49
1:A:943:THR:HG22	1:A:946:ASN:HB3	1.94	0.49
1:A:872:PHE:CE1	1:A:893:VAL:HB	2.47	0.49
1:A:880:GLN:OE1	1:A:883:ASP:N	2.45	0.49
1:A:151:TYR:CZ	1:A:157:ARG:HB2	2.48	0.49
1:A:221:PHE:CZ	1:A:229:ILE:HG21	2.48	0.49
1:A:711:GLU:N	1:A:715:GLU:OE1	2.45	0.49
1:A:210:MET:O	1:A:214:GLN:HG2	2.13	0.49
1:A:751:SER:OG	1:A:752:LEU:N	2.42	0.48
1:A:214:GLN:HB2	1:A:217:ILE:CD1	2.43	0.48
1:A:621:HIS:NE2	1:A:630:ARG:CG	2.75	0.48
1:A:65:LEU:HD13	1:A:109:LEU:HD23	1.96	0.48
1:A:372:HIS:O	1:A:375:THR:OG1	2.31	0.48
1:A:947:LEU:HD12	1:A:977:TYR:CG	2.48	0.48
1:A:1050:PRO:HB2	1:A:1051:MET:HE2	1.94	0.48
1:A:1084:PHE:CE1	1:A:1137:TYR:HB2	2.48	0.48
1:A:617:TYR:CD2	1:A:622:LEU:HB3	2.49	0.48
1:A:203:HIS:ND1	1:A:207:LYS:HE3	2.28	0.48
1:A:613:LEU:HG	1:A:617:TYR:CE1	2.48	0.48
1:A:876:LEU:HD21	1:A:888:PHE:CE2	2.49	0.48
1:A:300:SER:HA	1:A:1164:SER:O	2.14	0.48
1:A:142:ILE:HG23	1:A:206:TYR:HE2	1.79	0.48
1:A:363:GLY:H	1:A:413:GLN:NE2	2.11	0.48
1:A:71:LYS:O	1:A:72:GLU:CG	2.62	0.47
1:A:507:ASP:OD1	1:A:508:ASP:N	2.38	0.47
1:A:577:PHE:HE1	1:A:586:CYS:HB2	1.79	0.47
1:A:855:LEU:HD23	1:A:906:ILE:HD13	1.96	0.47
1:A:892:ARG:HB2	1:A:895:GLU:HB2	1.96	0.47
1:A:1061:MET:HE2	1:A:1127:PRO:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:214:GLN:HG3	1:A:291:LEU:HD11	1.97	0.47
1:A:324:SER:OG	1:A:353:CYS:HA	2.15	0.47
1:A:164:ARG:O	1:A:168:THR:HG23	2.14	0.47
1:A:544:GLU:OE2	1:A:545:LYS:NZ	2.47	0.47
1:A:1063:LEU:HD12	1:A:1155:ILE:HD11	1.95	0.47
1:A:66:ASP:OD1	1:A:148:LYS:NZ	2.41	0.47
1:A:358:LEU:HB2	1:A:405:ILE:HD13	1.95	0.47
1:A:663:ILE:HG22	1:A:743:TYR:CG	2.50	0.47
1:A:39:GLU:HB2	1:A:41:ARG:HD3	1.97	0.47
1:A:541:THR:HA	1:A:544:GLU:HG2	1.97	0.47
1:A:876:LEU:HD11	1:A:888:PHE:HE2	1.80	0.46
1:A:127:LYS:O	1:A:131:GLN:HG2	2.15	0.46
1:A:553:GLU:OE2	1:A:554:THR:HG22	2.16	0.46
1:A:559:GLY:HA2	1:A:578:TRP:O	2.15	0.46
1:A:46:ILE:O	1:A:50:ARG:N	2.48	0.46
1:A:1039:GLN:NE2	1:A:1043:MET:SD	2.86	0.46
1:A:17:GLN:HG3	1:A:20:ARG:HH12	1.81	0.46
1:A:351:MET:SD	1:A:1014:PHE:CE2	3.08	0.46
1:A:588:ILE:HA	1:A:601:LEU:CD2	2.44	0.46
1:A:836:GLU:HA	1:A:839:ILE:HD12	1.98	0.46
1:A:1085:VAL:HG22	1:A:1136:VAL:HG12	1.97	0.46
1:A:18:ILE:CD1	1:A:121:ASN:OD1	2.64	0.46
1:A:530:GLU:CG	1:A:532:TRP:CE2	2.96	0.46
1:A:1019:LYS:HG3	1:A:1133:ARG:CZ	2.46	0.46
1:A:1014:PHE:HA	1:A:1021:MET:CE	2.45	0.46
1:A:164:ARG:NH2	1:A:165:GLU:OE2	2.48	0.46
1:A:958:PHE:HB2	1:A:985:VAL:HG22	1.97	0.46
1:A:728:LYS:HB2	1:A:728:LYS:HE2	1.66	0.46
1:A:18:ILE:CD1	1:A:121:ASN:CG	2.85	0.45
1:A:71:LYS:O	1:A:72:GLU:HG3	2.16	0.45
1:A:74:ARG:HH12	1:A:346:ILE:HD12	1.81	0.45
1:A:1059:ILE:HG22	1:A:1125:TYR:HE1	1.82	0.45
1:A:1076:LEU:HD21	1:A:1148:LEU:HD23	1.97	0.45
1:A:364:PRO:HG3	1:A:379:LYS:NZ	2.32	0.45
1:A:1070:ALA:HB3	1:A:1111:PRO:HG2	1.98	0.45
1:A:146:LEU:HD11	1:A:206:TYR:CD2	2.51	0.45
1:A:903:ILE:O	1:A:907:THR:HG23	2.17	0.45
1:A:1082:CYS:SG	1:A:1106:ASP:N	2.84	0.45
1:A:560:THR:O	1:A:578:TRP:N	2.50	0.45
1:A:456:LYS:HD2	1:A:926:ILE:HD11	1.98	0.45
1:A:840:ILE:HG23	1:A:846:GLY:C	2.37	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1000:PHE:CE2	1:A:1091:GLY:HA2	2.51	0.45
1:A:71:LYS:O	1:A:72:GLU:CD	2.54	0.45
1:A:561:PHE:CD1	1:A:631:LEU:HB3	2.51	0.45
1:A:621:HIS:CD2	1:A:630:ARG:CG	3.00	0.45
1:A:569:PHE:CD1	1:A:587:ARG:NH1	2.85	0.45
1:A:855:LEU:HD12	1:A:855:LEU:HA	1.83	0.45
1:A:1107:ASN:O	1:A:1111:PRO:HB3	2.17	0.45
1:A:599:TYR:OH	1:A:607:PHE:HB2	2.17	0.44
1:A:622:LEU:O	1:A:628:GLU:HA	2.16	0.44
1:A:301:ILE:HA	1:A:1163:ARG:HD2	1.99	0.44
1:A:589:ARG:HB2	1:A:600:TYR:CD2	2.51	0.44
1:A:1068:LEU:HD23	1:A:1068:LEU:HA	1.82	0.44
1:A:52:VAL:HB	1:A:65:LEU:HD22	1.98	0.44
1:A:630:ARG:NH1	1:A:631:LEU:O	2.51	0.44
1:A:367:LYS:HG3	1:A:416:HIS:NE2	2.32	0.44
1:A:941:SER:H	1:A:942:LYS:NZ	2.14	0.44
1:A:241:VAL:N	1:A:285:LEU:O	2.44	0.44
1:A:88:VAL:HG13	1:A:89:ARG:HD2	2.00	0.44
1:A:132:GLU:O	1:A:136:ALA:N	2.50	0.44
1:A:219:ASP:O	1:A:222:LYS:N	2.45	0.44
1:A:544:GLU:HB2	1:A:583:VAL:HG11	1.99	0.44
1:A:83:GLU:HB2	1:A:84:ARG:HH12	1.83	0.44
1:A:1162:PHE:HB3	1:A:1181:LEU:HD11	2.00	0.44
1:A:530:GLU:HG3	1:A:531:LYS:H	1.80	0.44
1:A:1022:GLN:HG2	1:A:1150:HIS:CE1	2.52	0.44
1:A:174:ASN:OD1	1:A:1108:GLY:HA3	2.18	0.44
1:A:320:HIS:HB3	1:A:1044:ARG:HD3	1.99	0.43
1:A:345:TYR:OH	1:A:357:GLU:O	2.25	0.43
1:A:1136:VAL:O	1:A:1148:LEU:HB2	2.18	0.43
1:A:386:VAL:HG13	1:A:424:VAL:HG21	2.00	0.43
1:A:454:LYS:HE2	1:A:955:ILE:HG21	2.01	0.43
1:A:532:TRP:HZ2	1:A:611:TYR:CE2	2.36	0.43
1:A:1059:ILE:HG13	1:A:1189:VAL:HG21	1.98	0.43
1:A:721:GLU:OE1	1:A:722:LYS:HG2	2.18	0.43
1:A:1018:ASP:OD1	1:A:1019:LYS:N	2.46	0.43
1:A:1138:GLU:HB3	1:A:1148:LEU:HD11	2.00	0.43
1:A:181:LYS:HE3	1:A:181:LYS:HB2	1.74	0.43
1:A:532:TRP:CH2	1:A:610:ILE:HB	2.53	0.43
1:A:71:LYS:C	1:A:72:GLU:OE1	2.55	0.43
1:A:455:HIS:HE1	1:A:926:ILE:HG23	1.83	0.43
1:A:447:LEU:HA	1:A:447:LEU:HD23	1.81	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:587:ARG:NE	1:A:589:ARG:HD3	2.27	0.43
1:A:599:TYR:OH	1:A:609:SER:O	2.31	0.43
1:A:163:LEU:HD11	1:A:167:LYS:HE3	2.00	0.43
1:A:545:LYS:HA	1:A:545:LYS:HD3	1.90	0.43
1:A:1023:MET:SD	1:A:1090:CYS:HB3	2.59	0.43
1:A:153:VAL:CG2	1:A:165:GLU:HB3	2.40	0.43
1:A:156:THR:O	1:A:157:ARG:HG2	2.19	0.43
1:A:221:PHE:CZ	1:A:249:PHE:CD1	3.07	0.43
1:A:941:SER:O	1:A:941:SER:OG	2.36	0.43
1:A:507:ASP:HB2	1:A:850:ARG:HG3	2.01	0.43
1:A:673:LYS:C	1:A:673:LYS:HD3	2.39	0.43
1:A:476:LYS:HE2	1:A:476:LYS:HB2	1.86	0.43
1:A:530:GLU:HG2	1:A:532:TRP:CZ2	2.54	0.43
1:A:532:TRP:HZ2	1:A:611:TYR:CE1	2.36	0.43
1:A:639:ASN:HB3	1:A:641:HIS:CE1	2.54	0.43
1:A:736:THR:O	1:A:740:LEU:N	2.47	0.43
1:A:220:GLU:C	1:A:222:LYS:N	2.72	0.42
1:A:275:ASP:HB3	1:A:278:ARG:HG3	2.01	0.42
1:A:696:ASN:HB2	1:A:703:VAL:HG12	1.99	0.42
1:A:669:PHE:HA	1:A:683:THR:O	2.19	0.42
1:A:707:SER:OG	1:A:1080:ILE:N	2.50	0.42
1:A:928:ILE:HD12	1:A:928:ILE:H	1.84	0.42
1:A:481:LEU:HD11	1:A:899:TRP:CH2	2.54	0.42
1:A:968:ARG:HA	1:A:968:ARG:HD3	1.82	0.42
1:A:1049:ASP:OD1	1:A:1049:ASP:N	2.53	0.42
1:A:621:HIS:HD2	1:A:629:LEU:C	2.23	0.42
1:A:980:LYS:HA	1:A:980:LYS:HD3	1.82	0.42
1:A:239:SER:O	1:A:287:VAL:N	2.50	0.42
1:A:618:ARG:HG2	1:A:631:LEU:O	2.18	0.42
1:A:1019:LYS:HG3	1:A:1133:ARG:NE	2.34	0.42
1:A:218:LEU:HD12	1:A:230:LEU:CD1	2.47	0.42
1:A:286:PHE:HB2	1:A:289:GLU:CD	2.40	0.42
1:A:650:SER:O	1:A:651:LEU:HD23	2.19	0.42
1:A:1064:THR:OG1	1:A:1185:GLU:HB3	2.19	0.42
1:A:48:GLU:HB3	1:A:147:ARG:HG2	2.02	0.42
1:A:950:PRO:HB3	1:A:977:TYR:CD1	2.55	0.42
1:A:193:HIS:ND1	1:A:194:LYS:N	2.68	0.41
1:A:964:ASP:O	1:A:967:ILE:HG22	2.20	0.41
1:A:138:THR:OG1	1:A:296:SER:HB2	2.21	0.41
1:A:229:ILE:HG21	1:A:249:PHE:HB2	2.01	0.41
1:A:1062:THR:HG23	1:A:1187:ARG:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:221:PHE:CZ	1:A:290:PHE:HZ	2.38	0.41
1:A:327:HIS:CG	1:A:987:PRO:HD2	2.54	0.41
1:A:898:GLU:HA	1:A:901:GLN:OE1	2.20	0.41
1:A:1083:PRO:HA	1:A:1137:TYR:O	2.20	0.41
1:A:1089:ILE:HD11	1:A:1122:PHE:CD2	2.55	0.41
1:A:212:GLU:OE2	1:A:236:PRO:HB3	2.20	0.41
1:A:217:ILE:C	1:A:219:ASP:N	2.72	0.41
1:A:1017:ALA:HB2	1:A:1171:TYR:CD1	2.55	0.41
1:A:456:LYS:O	1:A:926:ILE:HD13	2.20	0.41
1:A:730:ARG:HD2	1:A:732:ARG:NH2	2.35	0.41
1:A:1087:VAL:HG22	1:A:1134:PHE:HD1	1.86	0.41
1:A:1138:GLU:OE1	1:A:1146:ASN:HB3	2.21	0.41
1:A:54:TRP:CE2	1:A:63:GLY:HA3	2.56	0.41
1:A:193:HIS:ND1	1:A:194:LYS:HG3	2.36	0.41
1:A:218:LEU:HD21	1:A:291:LEU:HB2	2.02	0.41
1:A:477:GLN:OE1	1:A:478:GLN:N	2.54	0.41
1:A:870:LYS:HD3	1:A:870:LYS:HA	1.86	0.41
1:A:256:GLU:OE1	1:A:258:TRP:NE1	2.51	0.41
1:A:335:GLN:HB3	1:A:372:HIS:CE1	2.56	0.41
1:A:535:LYS:HB3	1:A:536:LYS:H	1.65	0.41
1:A:610:ILE:H	1:A:610:ILE:HG12	1.72	0.41
1:A:876:LEU:HD13	1:A:876:LEU:HA	1.91	0.41
1:A:82:PHE:CZ	1:A:95:CYS:HB3	2.56	0.40
1:A:294:LEU:O	1:A:1164:SER:HB3	2.20	0.40
1:A:555:GLY:O	1:A:557:LYS:HG2	2.22	0.40
1:A:569:PHE:CG	1:A:587:ARG:HD3	2.56	0.40
1:A:160:SER:HA	1:A:197:LEU:O	2.21	0.40
1:A:1124:ILE:HD13	1:A:1124:ILE:HA	1.93	0.40
1:A:1137:TYR:HD1	1:A:1146:ASN:O	2.04	0.40
1:A:1137:TYR:CD1	1:A:1147:PHE:HA	2.55	0.40
1:A:171:PRO:HB3	1:A:1080:ILE:HD11	2.04	0.40
1:A:574:THR:HA	1:A:587:ARG:HA	2.03	0.40
1:A:663:ILE:HG22	1:A:743:TYR:CD1	2.57	0.40
1:A:212:GLU:HA	1:A:212:GLU:OE1	2.21	0.40
1:A:56:LYS:HA	1:A:56:LYS:HE2	2.04	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	1051/1265 (83%)	997 (95%)	54 (5%)	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	965/1158 (83%)	959 (99%)	6 (1%)	84 90

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	288	ASP
1	A	439	ASP
1	A	494	HIS
1	A	853	LEU
1	A	945	ASP
1	A	1138	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	621	HIS
1	A	637	ASN

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Mol	Chain	Res	Type
1	A	1025	HIS
1	A	1031	ASN

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.

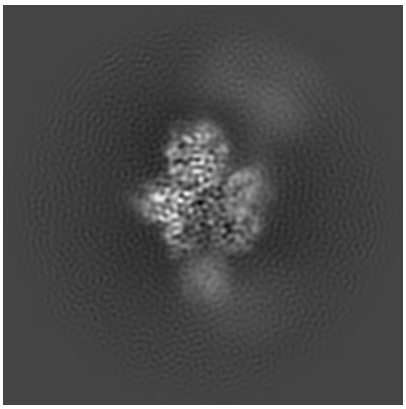
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-36571. These allow visual inspection of the internal detail of the map and identification of artifacts.

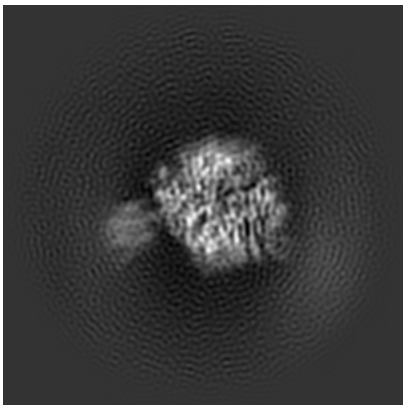
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

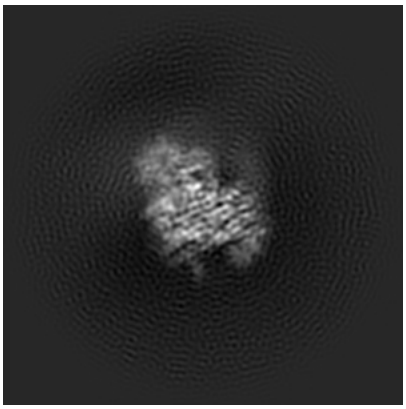
6.1.1 Primary map



X

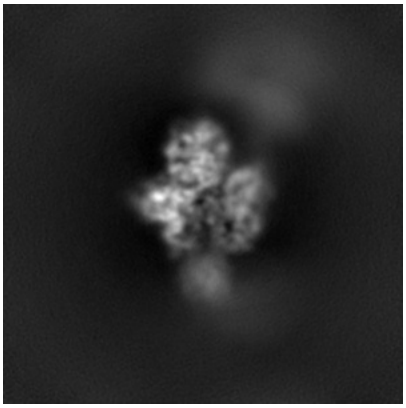


Y

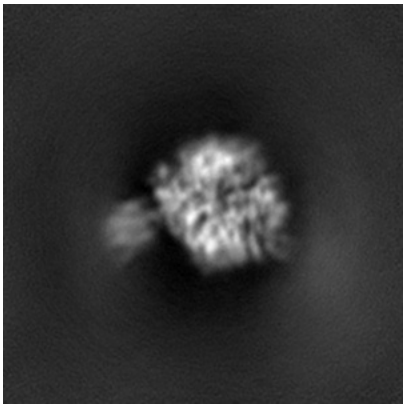


Z

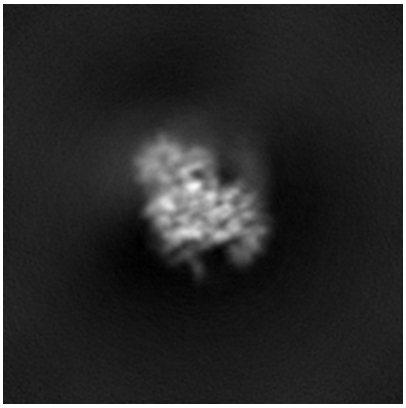
6.1.2 Raw map



X



Y

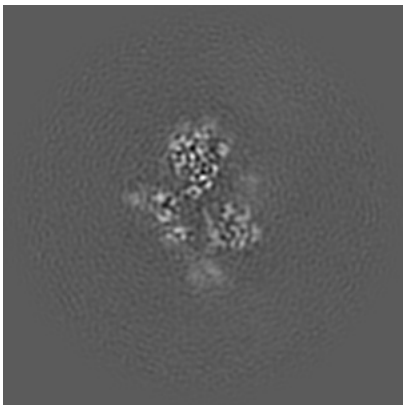


Z

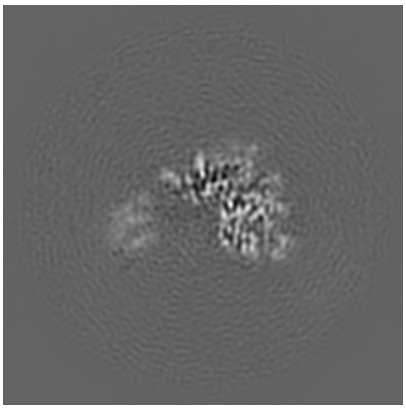
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

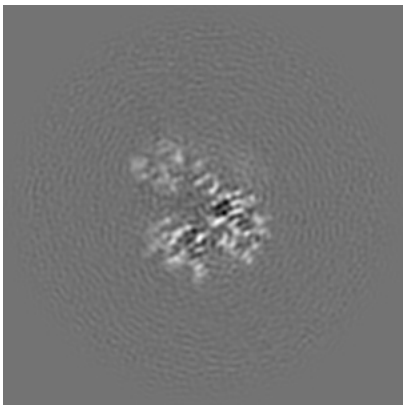
6.2.1 Primary map



X Index: 108

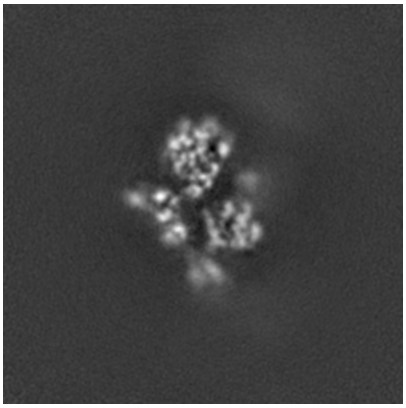


Y Index: 108

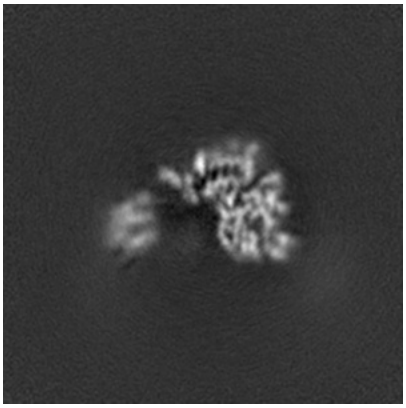


Z Index: 108

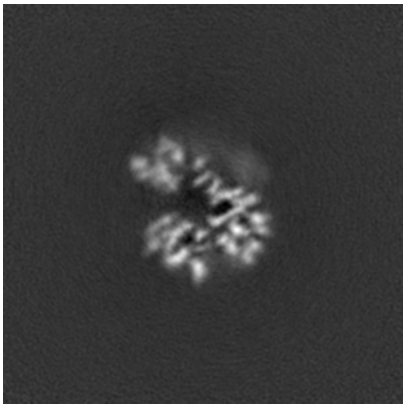
6.2.2 Raw map



X Index: 108



Y Index: 108

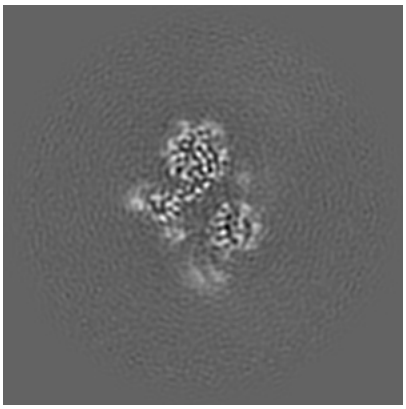


Z Index: 108

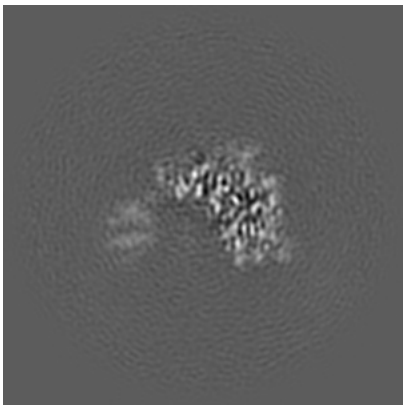
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

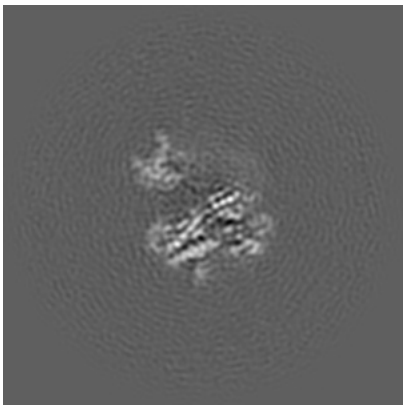
6.3.1 Primary map



X Index: 105

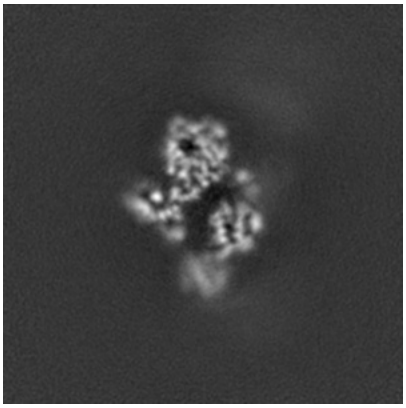


Y Index: 105

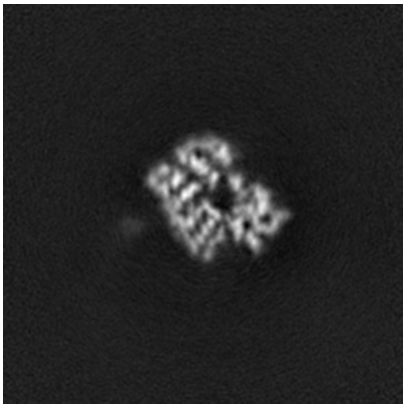


Z Index: 111

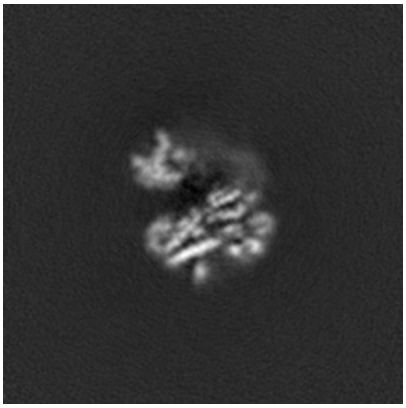
6.3.2 Raw map



X Index: 103



Y Index: 92

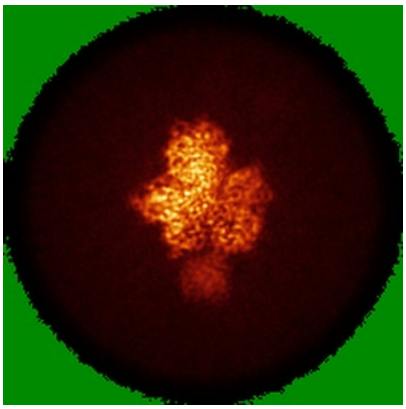


Z Index: 111

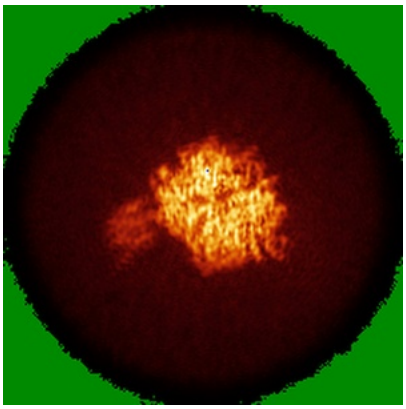
The images above show the largest variance slices of the map in three orthogonal directions.

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

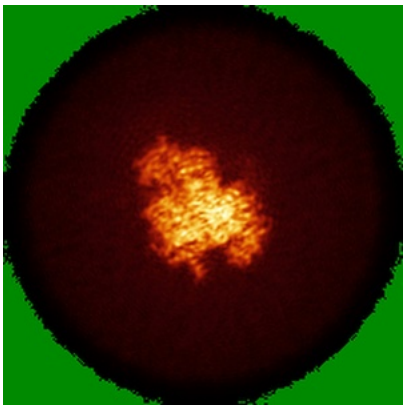
6.4.1 Primary map



X

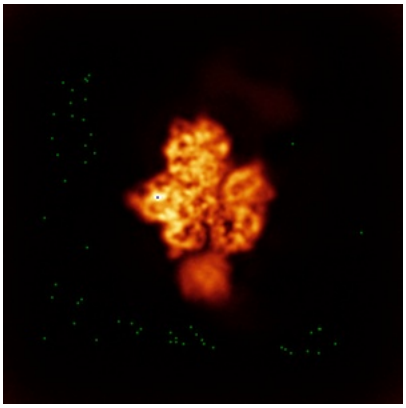


Y

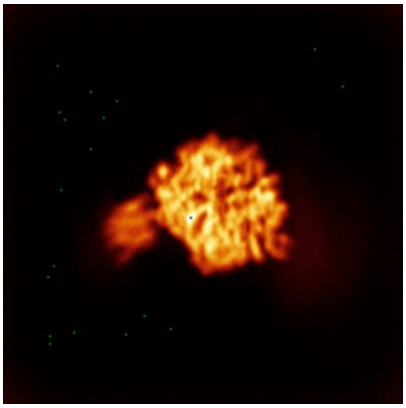


Z

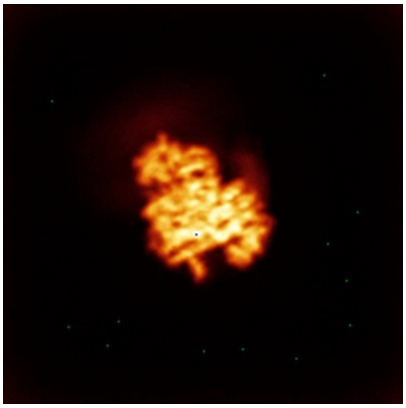
6.4.2 Raw map



X



Y



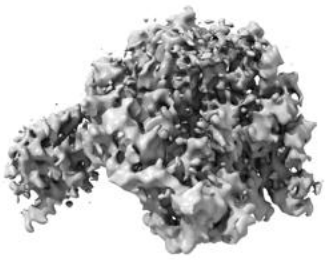
Z

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.

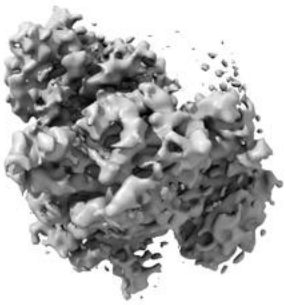
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X



Y

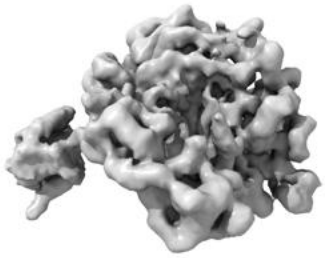


Z

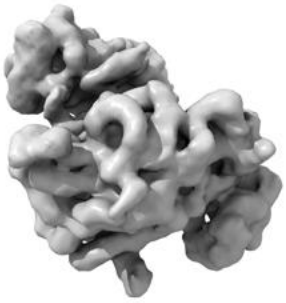
The images above show the 3D surface view of the map at the recommended contour level 0.3. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X



Y



Z

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.

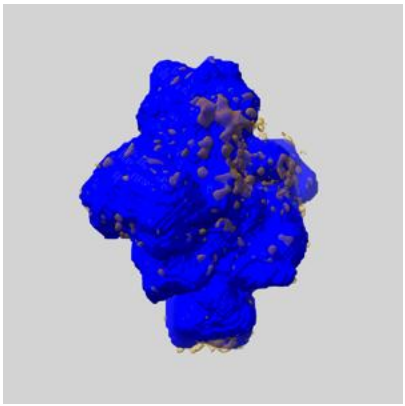
6.6 Mask visualisation (i)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

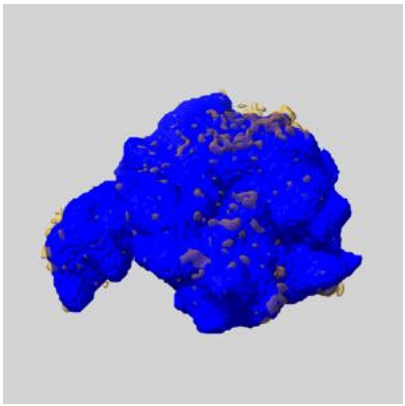
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

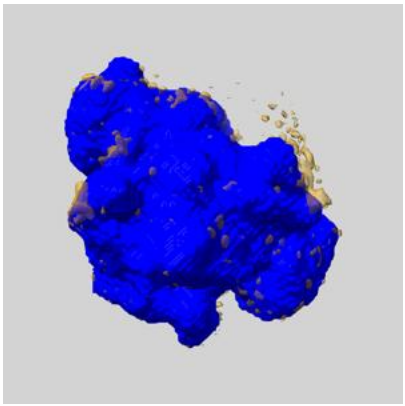
6.6.1 emd_36571_msk_1.map (i)



X



Y

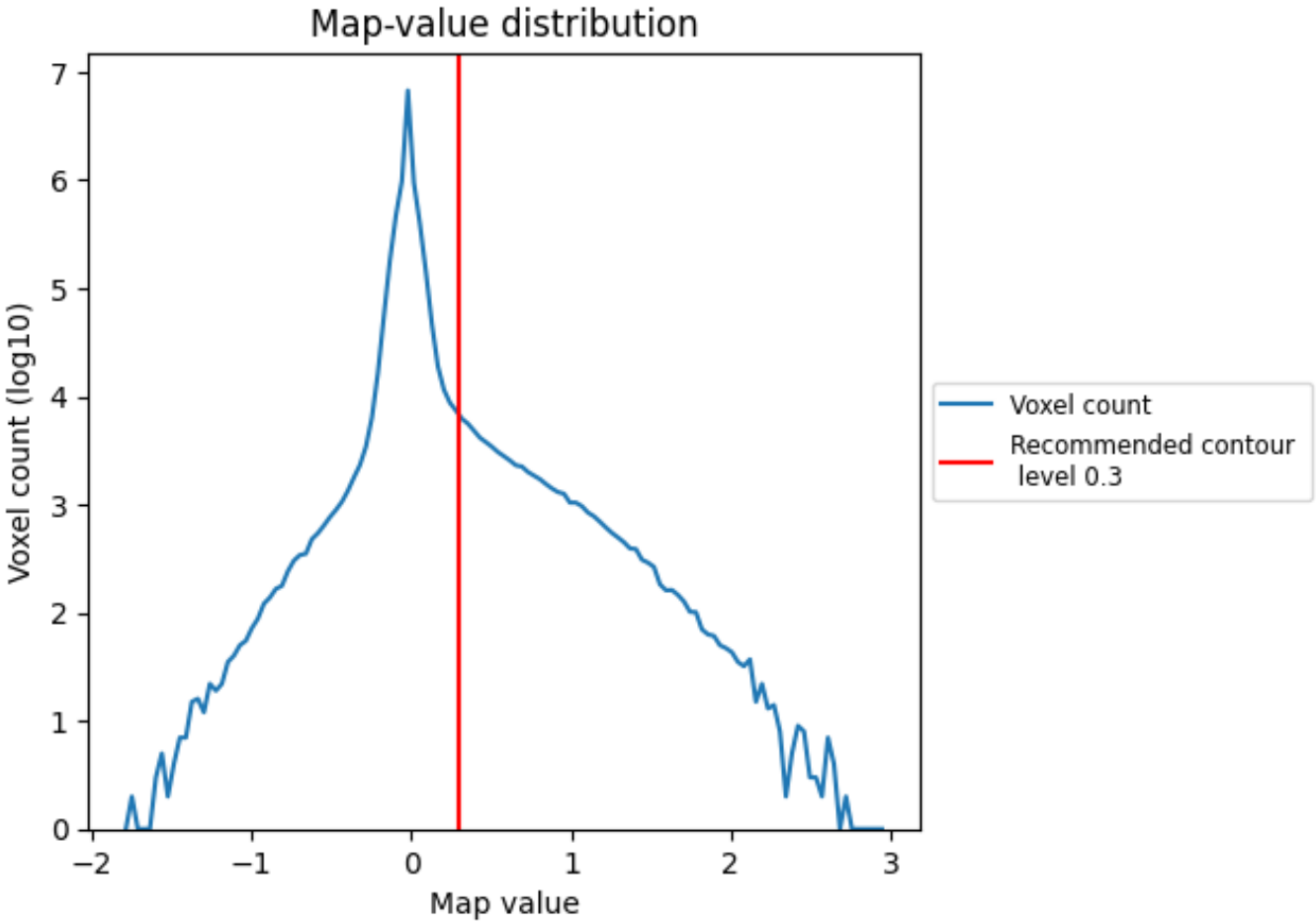


Z

7 Map analysis

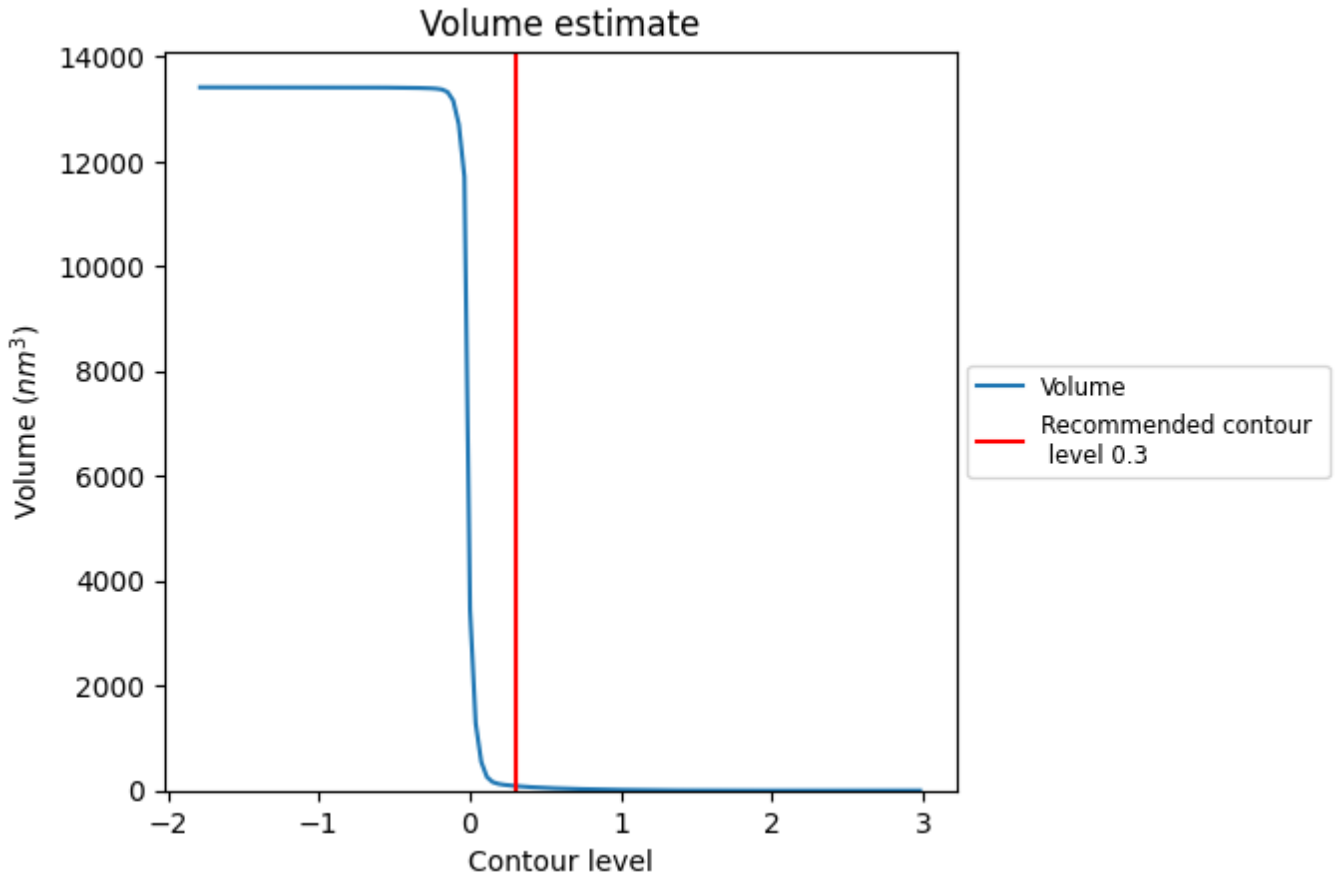
This section contains the results of statistical analysis of the map.

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.

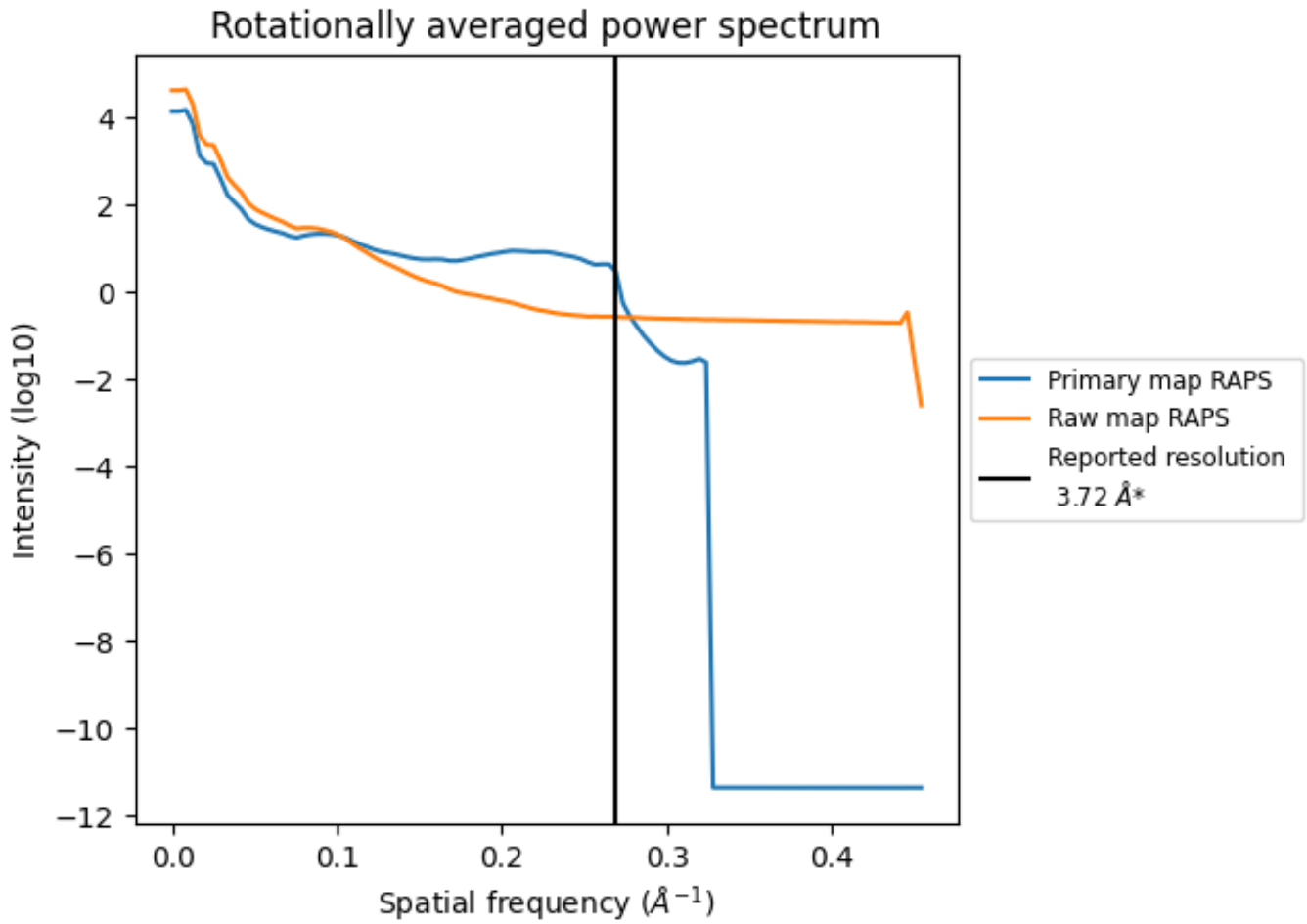
7.2 Volume estimate



The volume at the recommended contour level is 88 nm^3; this corresponds to an approximate mass of 79 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)

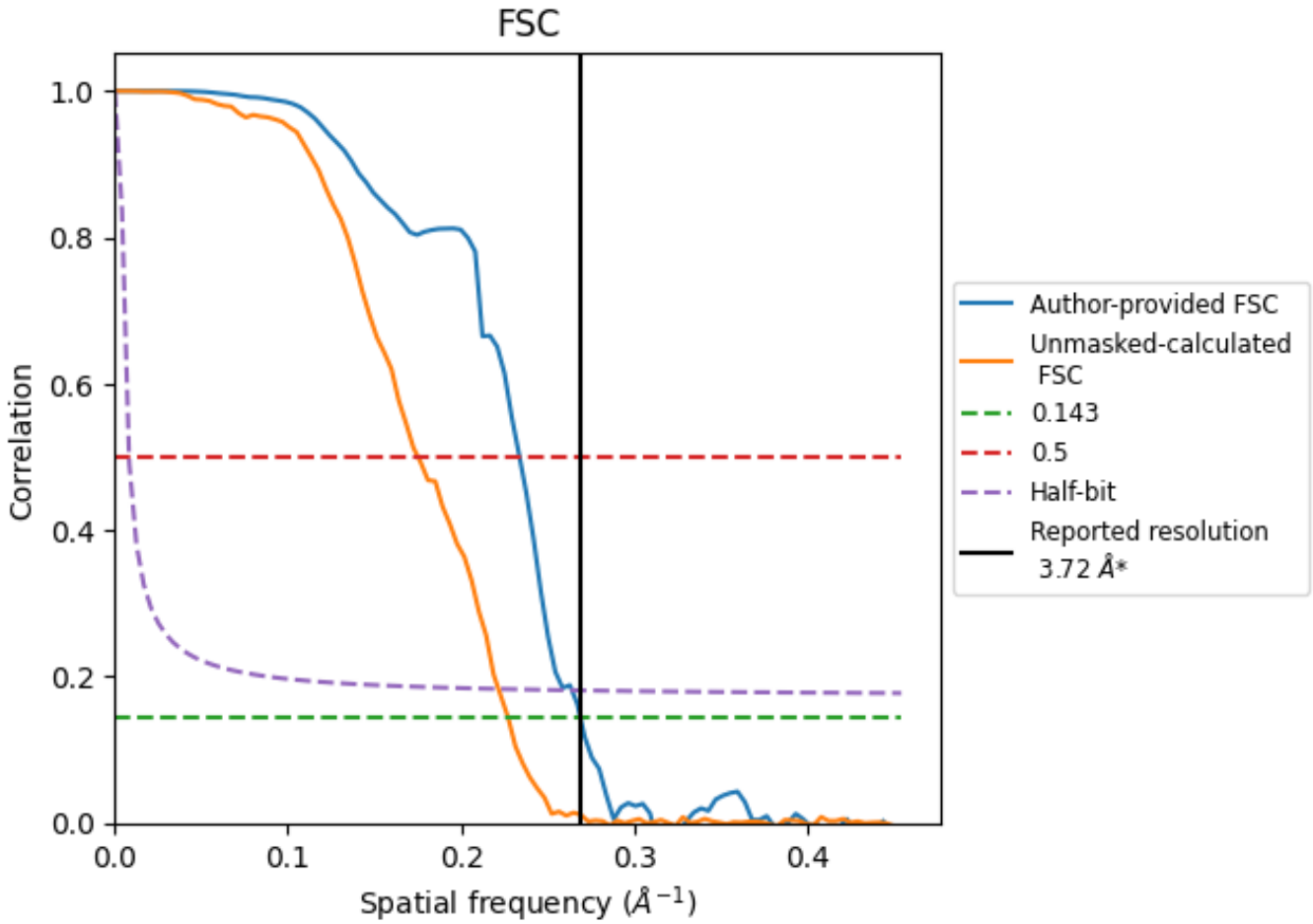


*Reported resolution corresponds to spatial frequency of 0.269 Å^{-1}

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.269 Å^{-1}

8.2 Resolution estimates (i)

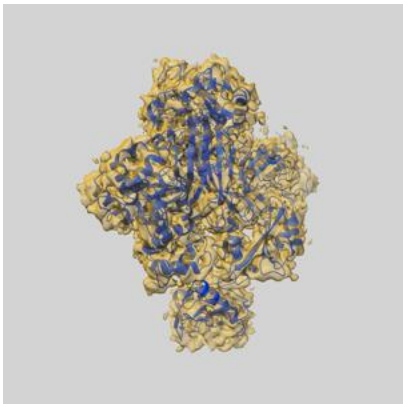
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.72	-	-
Author-provided FSC curve	3.72	4.28	3.79
Unmasked-calculated*	4.40	5.71	4.51

*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 4.40 differs from the reported value 3.72 by more than 10 %

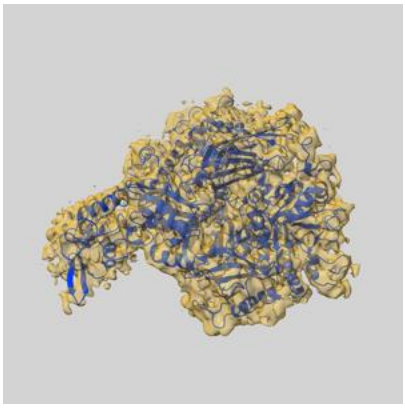
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-36571 and PDB model 8JQG. Per-residue inclusion information can be found in section 3 on page 4.

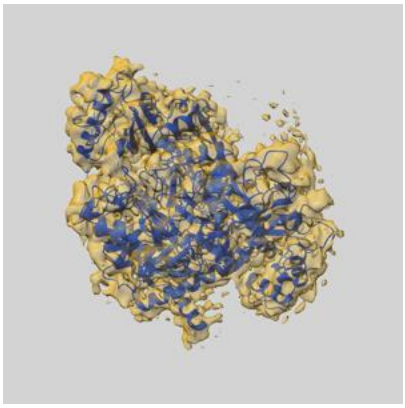
9.1 Map-model overlay



X



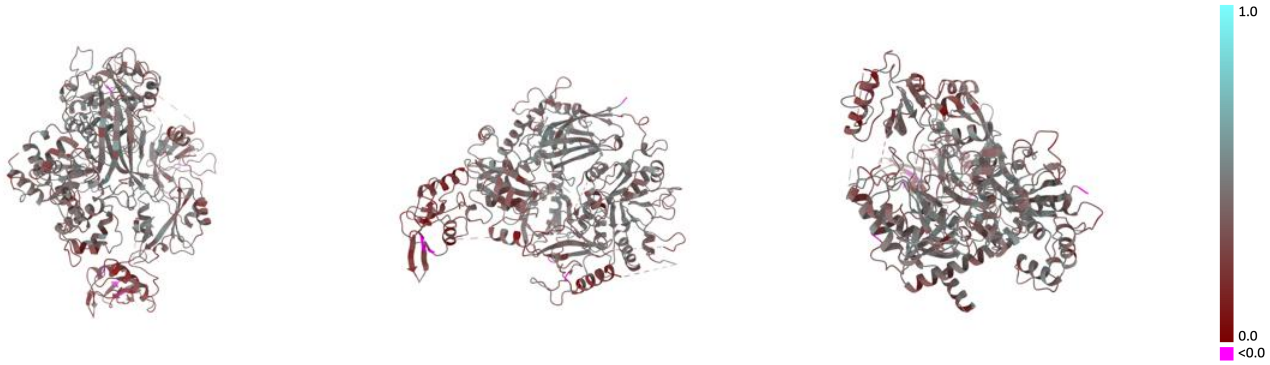
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.3 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.

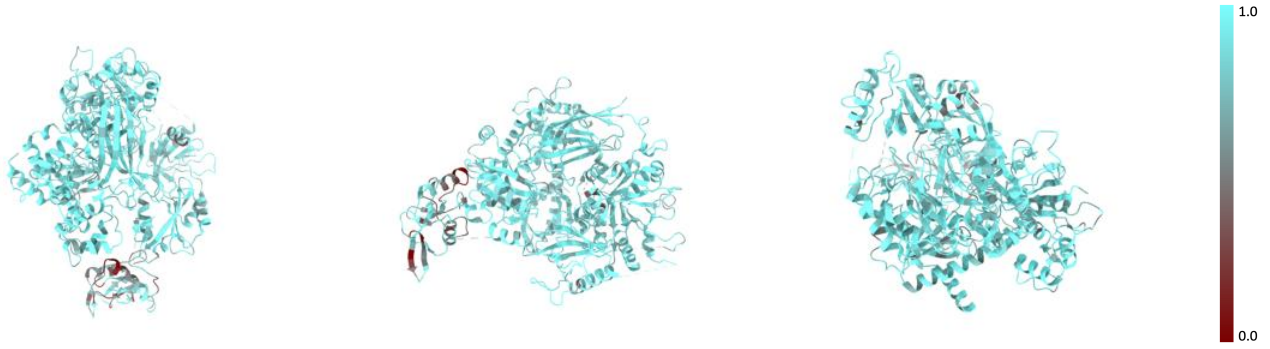
9.2 Q-score mapped to coordinate model (i)



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.

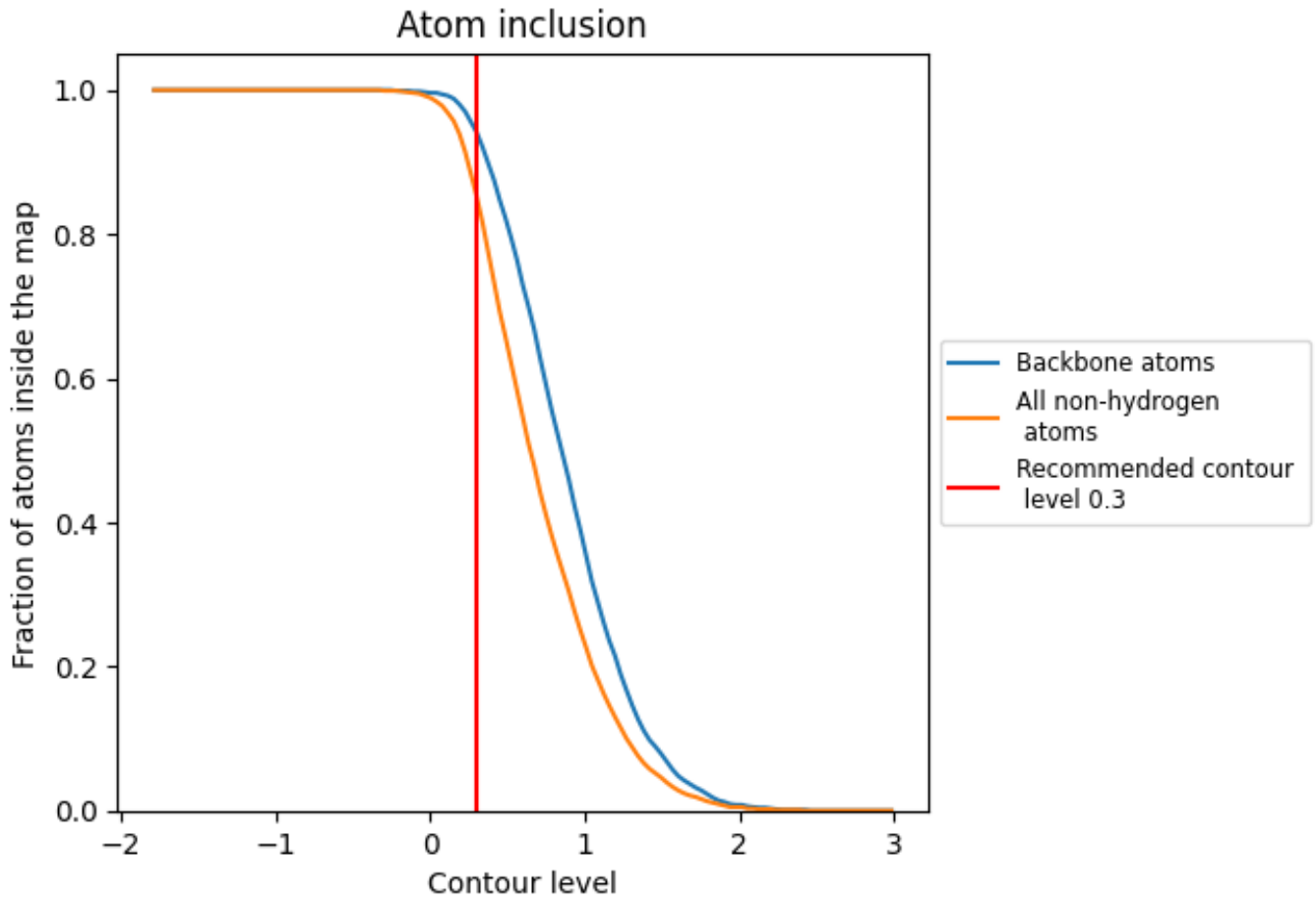
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.3).

9.4 Atom inclusion (i)



At the recommended contour level, 94% of all backbone atoms, 85% 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 (0.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8520	0.3840
A	0.8520	0.3840