Full wwPDB EM Validation Report ⓘ

Nov 4, 2024 – 01:20 am GMT

PDB ID	:	8PEE
EMDB ID	:	EMD-17630
Title	:	ABCB1 L335C mutant (mABCB1) in the inward facing state bound to AAC
Authors	:	Parey, K.; Januliene, D.; Gewering, T.; Moeller, A.
Deposited on	:	2023-06-13
Resolution	:	3.80 Å(reported)
Based on initial model	:	6C0V

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:

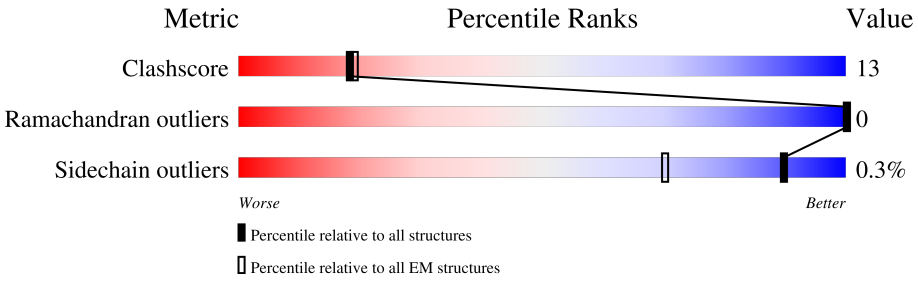
EMDB validation analysis	:	0.0.1.dev113
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	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 3.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	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	1328	12% 63% 24% 13%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 9217 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 ATP-dependent translocase ABCB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1157	8967	5763	1527	1647	30	0	0

There are 65 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	83	GLN	ASN	engineered mutation	UNP P21447
A	87	GLN	ASN	engineered mutation	UNP P21447
A	90	GLN	ASN	engineered mutation	UNP P21447
A	133	ALA	CYS	engineered mutation	UNP P21447
A	335	CYS	LEU	engineered mutation	UNP P21447
A	427	GLY	CYS	engineered mutation	UNP P21447
A	638	GLY	CYS	engineered mutation	UNP P21447
A	669	THR	CYS	engineered mutation	UNP P21447
A	713	ALA	CYS	engineered mutation	UNP P21447
A	952	ALA	CYS	engineered mutation	UNP P21447
A	1070	GLY	CYS	engineered mutation	UNP P21447
A	1121	ARG	CYS	engineered mutation	UNP P21447
A	1223	VAL	CYS	engineered mutation	UNP P21447
A	1277	LEU	-	expression tag	UNP P21447
A	1278	GLU	-	expression tag	UNP P21447
A	1279	GLU	-	expression tag	UNP P21447
A	1280	ASN	-	expression tag	UNP P21447
A	1281	LEU	-	expression tag	UNP P21447
A	1282	TYR	-	expression tag	UNP P21447
A	1283	PHE	-	expression tag	UNP P21447
A	1284	GLN	-	expression tag	UNP P21447
A	1285	GLY	-	expression tag	UNP P21447
A	1286	GLY	-	expression tag	UNP P21447
A	1287	GLY	-	expression tag	UNP P21447
A	1288	ALA	-	expression tag	UNP P21447
A	1289	SER	-	expression tag	UNP P21447
A	1290	GLY	-	expression tag	UNP P21447
A	1291	GLY	-	expression tag	UNP P21447

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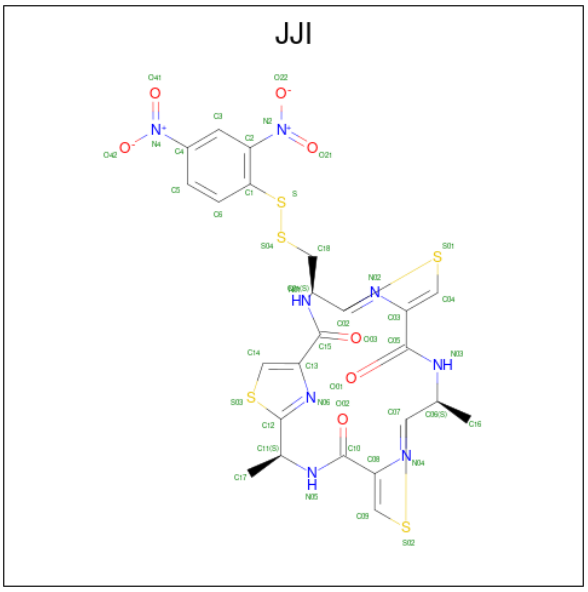
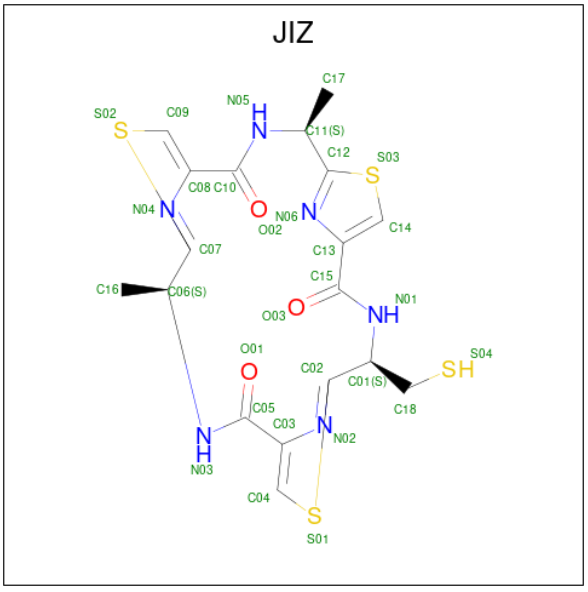
Chain	Residue	Modelled	Actual	Comment	Reference
A	1292	SER	-	expression tag	UNP P21447
A	1293	TRP	-	expression tag	UNP P21447
A	1294	SER	-	expression tag	UNP P21447
A	1295	HIS	-	expression tag	UNP P21447
A	1296	PRO	-	expression tag	UNP P21447
A	1297	GLN	-	expression tag	UNP P21447
A	1298	PHE	-	expression tag	UNP P21447
A	1299	GLU	-	expression tag	UNP P21447
A	1300	LYS	-	expression tag	UNP P21447
A	1301	ALA	-	expression tag	UNP P21447
A	1302	ALA	-	expression tag	UNP P21447
A	1303	ALA	-	expression tag	UNP P21447
A	1304	GLY	-	expression tag	UNP P21447
A	1305	GLY	-	expression tag	UNP P21447
A	1306	GLY	-	expression tag	UNP P21447
A	1307	SER	-	expression tag	UNP P21447
A	1308	GLY	-	expression tag	UNP P21447
A	1309	GLY	-	expression tag	UNP P21447
A	1310	GLY	-	expression tag	UNP P21447
A	1311	SER	-	expression tag	UNP P21447
A	1312	TRP	-	expression tag	UNP P21447
A	1313	SER	-	expression tag	UNP P21447
A	1314	HIS	-	expression tag	UNP P21447
A	1315	PRO	-	expression tag	UNP P21447
A	1316	GLN	-	expression tag	UNP P21447
A	1317	PHE	-	expression tag	UNP P21447
A	1318	GLU	-	expression tag	UNP P21447
A	1319	LYS	-	expression tag	UNP P21447
A	1320	GLY	-	expression tag	UNP P21447
A	1321	SER	-	expression tag	UNP P21447
A	1322	GLY	-	expression tag	UNP P21447
A	1323	HIS	-	expression tag	UNP P21447
A	1324	HIS	-	expression tag	UNP P21447
A	1325	HIS	-	expression tag	UNP P21447
A	1326	HIS	-	expression tag	UNP P21447
A	1327	HIS	-	expression tag	UNP P21447
A	1328	HIS	-	expression tag	UNP P21447

- Molecule 2 is (4S,11S,18S)-4-[[(2,4-dinitrophenyl)disulfanyl]methyl]-11,18-dimethyl-6,13,20-trithia-3,10,17,22,23,24-hexazatetracyclo[17.2.1.1^{5,8}.1^{12,15}]tetracosa-1(21),5(24),7,12(23),14,19(22)-hexaene-2,9,16-trione (three-letter code: JJI) (formula: $C_{24}H_{20}N_8O_7S_5$) (labeled as "Ligand of Interest" by depositor).



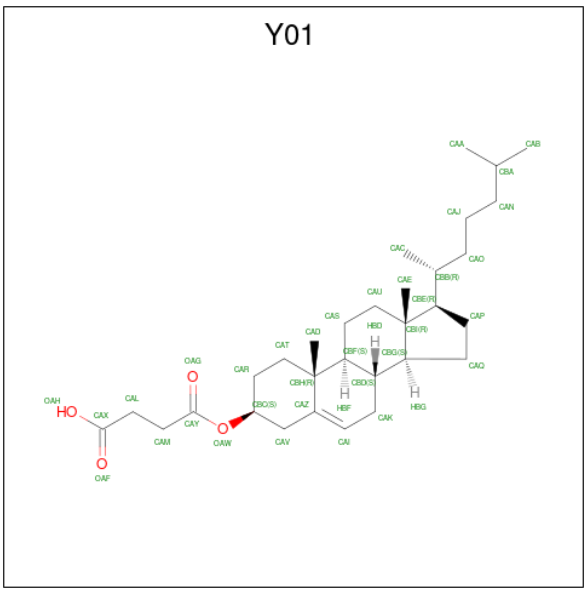
Mol	Chain	Residues	Atoms					AltConf
2	A	1	Total	C	N	O	S	0
			44	24	8	7	5	

- Molecule 3 is (4 {S},11 {S},18 {S})-4,11-dimethyl-18-(sulfanylmethyl)-6,13,20-trithia-3,10,17,22,23,24-hexazatetracyclo[17.2.1.1^{5,8}.1^{12,15}]tetracosa-1(21),5(24),7,12(23),14,19(22)-hexaene-2,9,16-trione (three-letter code: JIZ) (formula: $C_{18}H_{18}N_6O_3S_4$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
3	A	1	Total	C	N	O	S	0
			31	18	6	3	4	

- Molecule 4 is CHOLESTEROL HEMISUCCINATE (three-letter code: Y01) (formula: $C_{31}H_{50}O_4$).



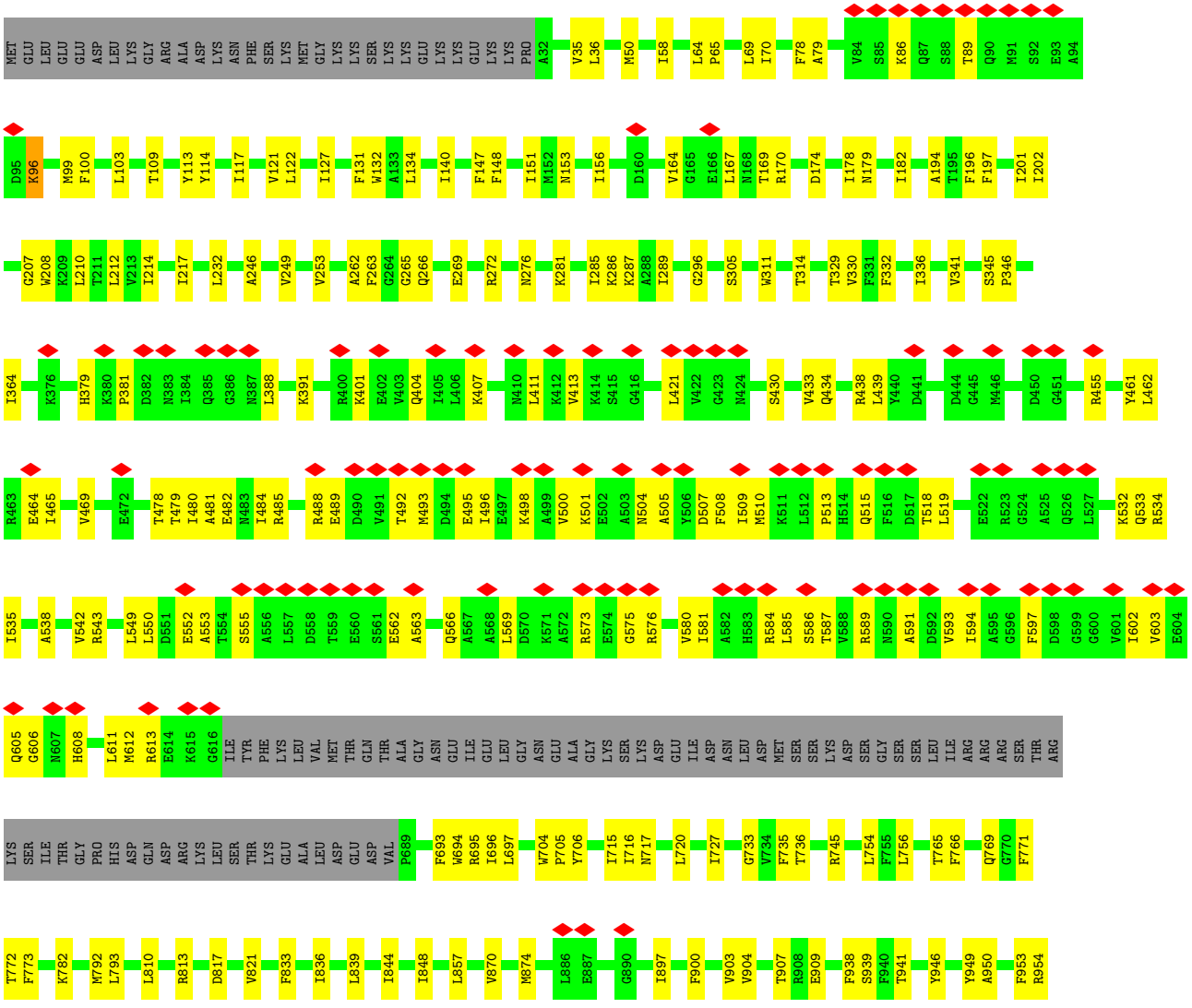
Mol	Chain	Residues	Atoms	AltConf
4	A	1	Total C O 35 31 4	0
4	A	1	Total C O 35 31 4	0
4	A	1	Total C O 35 31 4	0
4	A	1	Total C O 35 31 4	0
4	A	1	Total C O 35 31 4	0

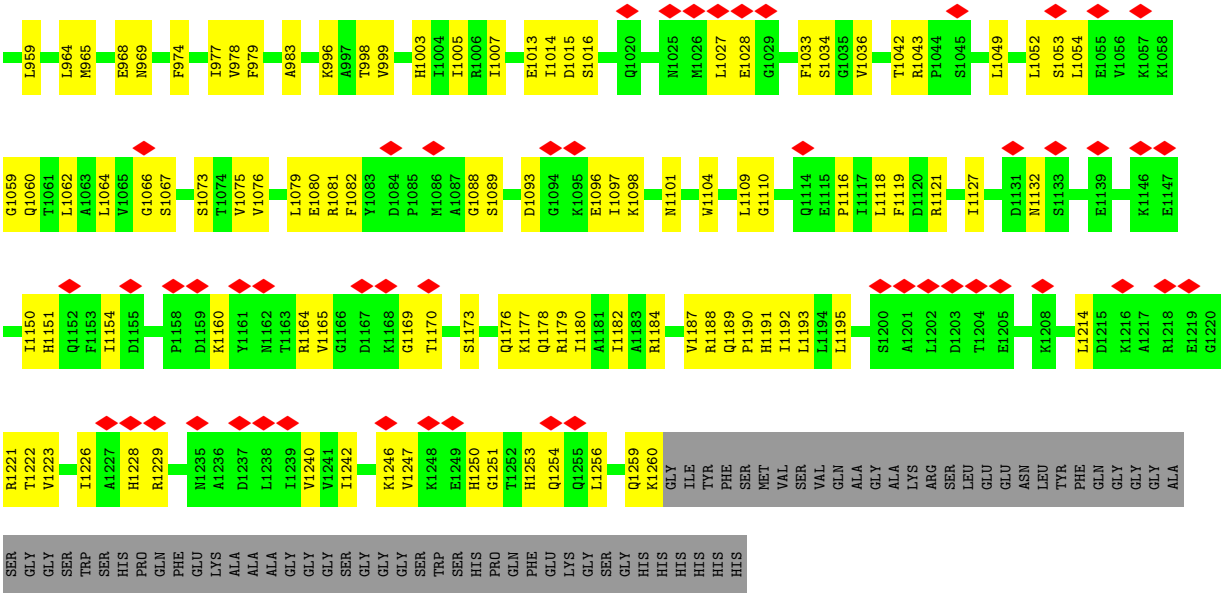
3 Residue-property plots (i)

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: ATP-dependent translocase ABCB1

Chain A:




L959 L964 M965 E968 N969 F974 I977 V978 F979 A983 K996 A997 T998 V999 H1003 I1004 I1005 R1006 I1007 E1013 I1014 D1015 S1016 Q1020 N1025 M1026 L1027 E1028 G1029 F1033 S1034 G1035 V1036 T1042 R1043 P1044 S1045 L1049 L1052 S1053 L1054 E1055 V1056 K1057 K1058
G1059 Q1060 T1061 L1062 A1063 L1064 V1065 G1066 S1067 S1073 T1074 V1075 V1076 L1079 E1080 R1081 F1082 Y1083 D1084 P1085 M1086 A1087 G1088 S1089 D1093 G1094 K1095 E1096 I1097 K1098 N1101 W1104 L1109 G1110 Q1114 E1115 P1116 I1117 L1118 F1119 D1120 R1121 I1127 D1131 N1132 S1133 E1139 K1146 E1147
I1150 H1151 Q1152 F1153 I1154 D1155 P1158 D1159 K1160 Y1161 N1162 T1163 R1164 V1165 G1166 D1167 K1168 G1169 T1170 S1173 Q1176 K1177 Q1178 R1179 I1180 A1181 I1182 A1183 R1184 V1187 R1188 Q1189 P1190 H1191 I1192 S1193 L1194 L1195 S1200 A1201 L1202 D1203 T1204 E1205 K1208 L1214 D1215 K1216 A1217 R1218 E1219 G1220
R1221 T1222 V1223 I1226 A1227 H1228 R1229 N1235 A1236 D1237 L1238 I1239 V1240 V1241 I1242 K1246 V1247 K1248 E1249 H1250 G1251 T1252 H1253 Q1254 Q1255 L1256 Q1259 K1260 GLY ILE TYR PHE SER MET VAL SER VAL GLN ALA GLY ALA LYS ARG SER LEU GLU GLU ASN LEU TYR PHE GLN GLY GLY GLY ALA
SER GLY GLY SER TRP SER HIS PRO GLN PHE GLU LYS ALA ALA ALA GLY GLY GLY SER GLY GLY GLY SER TRP SER HIS PRO GLN PHE GLU LYS GLY SER GLY HIS HIS HIS HIS HIS HIS

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	218872	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 ($e^-/Å^2$)	75	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	2.763	Depositor
Minimum map value	-1.961	Depositor
Average map value	0.006	Depositor
Map value standard deviation	0.060	Depositor
Recommended contour level	0.3	Depositor
Map size (Å)	234.36, 234.36, 234.36	wwPDB
Map dimensions	280, 280, 280	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.837, 0.837, 0.837	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: Y01, JJI, JIZ

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	0.32	0/9131	0.52	0/12342

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	8967	0	9148	222	0
2	A	44	0	0	3	0
3	A	31	0	0	5	0
4	A	175	0	239	20	0
All	All	9217	0	9387	239	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 13.

All (239) 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)
4:A:1407:Y01:CAP	4:A:1407:Y01:CAQ	1.80	1.59
4:A:1407:Y01:CBI	4:A:1407:Y01:CBE	1.74	1.59
2:A:1401:JJI:N02	2:A:1401:JJI:C03	1.78	1.26
2:A:1401:JJI:N04	2:A:1401:JJI:C08	1.77	1.22
2:A:1401:JJI:N06	2:A:1401:JJI:C13	1.77	1.16
1:A:481:ALA:O	1:A:485:ARG:HG3	1.81	0.81
1:A:1064:LEU:HB2	1:A:1226:ILE:HG12	1.60	0.81
1:A:552:GLU:HB3	1:A:555:SER:HB2	1.64	0.78
1:A:1250:HIS:HB2	1:A:1253:HIS:ND1	1.98	0.78
4:A:1407:Y01:CBE	4:A:1407:Y01:CAU	2.60	0.76
1:A:265:GLY:HA3	1:A:1132:ASN:HD22	1.50	0.76
4:A:1407:Y01:CBE	4:A:1407:Y01:CAE	2.66	0.73
1:A:1118:LEU:HD21	1:A:1165:VAL:HG21	1.69	0.73
4:A:1407:Y01:CBE	4:A:1407:Y01:CBG	2.67	0.72
1:A:1036:VAL:HA	1:A:1088:GLY:HA3	1.72	0.72
1:A:266:GLN:HB3	1:A:793:LEU:HD23	1.73	0.70
1:A:1256:LEU:HD12	1:A:1259:GLN:HB2	1.72	0.69
1:A:263:PHE:HD1	1:A:1188:ARG:HH22	1.40	0.68
1:A:983:ALA:HB2	3:A:1402:JIZ:S02	2.34	0.68
4:A:1407:Y01:CAP	4:A:1407:Y01:CBI	2.66	0.66
1:A:1240:VAL:HG23	1:A:1242:ILE:CD1	2.25	0.66
1:A:498:LYS:HA	1:A:501:LYS:HD3	1.78	0.65
1:A:1240:VAL:HG23	1:A:1242:ILE:HD11	1.80	0.64
1:A:608:HIS:HA	1:A:611:LEU:HD12	1.80	0.64
4:A:1407:Y01:CBI	4:A:1407:Y01:CBB	2.69	0.63
1:A:693:PHE:HE2	1:A:695:ARG:HE	1.47	0.63
1:A:550:LEU:HD11	1:A:569:LEU:HD22	1.81	0.62
4:A:1407:Y01:CAP	4:A:1407:Y01:CBG	2.78	0.62
1:A:484:ILE:HG23	1:A:542:VAL:HG21	1.82	0.61
1:A:1066:GLY:HA3	1:A:1073:SER:HB2	1.81	0.61
1:A:717:ASN:HB2	1:A:765:THR:HG21	1.82	0.61
1:A:821:VAL:HG21	1:A:1005:ILE:HD11	1.82	0.61
1:A:909:GLU:HA	1:A:909:GLU:OE1	2.00	0.61
1:A:253:VAL:HG11	1:A:269:GLU:HG2	1.83	0.61
1:A:900:PHE:HA	1:A:903:VAL:HG12	1.83	0.60
1:A:1067:SER:HA	1:A:1228:HIS:HE1	1.67	0.60
1:A:1154:ILE:HD12	1:A:1160:LYS:HD2	1.82	0.60
1:A:727:ILE:HD13	1:A:754:LEU:HB3	1.82	0.60
1:A:1013:GLU:HG3	1:A:1016:SER:HB3	1.83	0.59
1:A:507:ASP:OD1	1:A:508:PHE:N	2.36	0.59
1:A:1240:VAL:O	1:A:1242:ILE:HD12	2.03	0.59
1:A:121:VAL:HG21	1:A:946:TYR:HE2	1.66	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:573:ARG:HH22	1:A:591:ALA:HA	1.68	0.58
1:A:1033:PHE:HB3	1:A:1054:LEU:HB2	1.84	0.58
1:A:1193:LEU:HB2	1:A:1223:VAL:HG22	1.85	0.58
1:A:1195:LEU:HD13	1:A:1214:LEU:HD13	1.85	0.58
1:A:704:TRP:CG	1:A:705:PRO:HD3	2.39	0.58
1:A:974:PHE:O	1:A:978:VAL:HG22	2.03	0.57
1:A:217:ILE:HD11	4:A:1404:Y01:HAB3	1.85	0.57
1:A:1054:LEU:HD12	1:A:1062:LEU:HD21	1.87	0.57
1:A:844:ILE:O	1:A:848:ILE:HG13	2.04	0.57
1:A:178:ILE:O	1:A:182:ILE:HG12	2.05	0.57
1:A:870:VAL:O	1:A:874:MET:HG2	2.05	0.57
1:A:1228:HIS:HB2	1:A:1229:ARG:HH12	1.70	0.57
1:A:153:ASN:O	1:A:153:ASN:OD1	2.23	0.56
1:A:904:VAL:HA	1:A:909:GLU:OE2	2.05	0.56
1:A:35:VAL:HG12	1:A:36:LEU:HD23	1.86	0.56
1:A:996:LYS:C	1:A:998:THR:H	2.09	0.56
1:A:122:LEU:HD12	1:A:939:SER:HB3	1.88	0.56
1:A:262:ALA:HB2	1:A:1082:PHE:HZ	1.69	0.56
1:A:401:LYS:O	1:A:404:GLN:NE2	2.37	0.55
1:A:1062:LEU:HD13	1:A:1240:VAL:HG22	1.87	0.55
1:A:1246:LYS:HG3	1:A:1247:VAL:HG23	1.89	0.55
1:A:510:MET:HG2	1:A:515:GLN:HG2	1.88	0.55
1:A:519:LEU:HG	1:A:519:LEU:O	2.07	0.55
1:A:1118:LEU:HD13	1:A:1177:LYS:HZ1	1.71	0.55
1:A:232:LEU:HD11	1:A:287:LYS:HE2	1.89	0.54
1:A:1173:SER:HB3	1:A:1176:GLN:HE22	1.72	0.54
1:A:584:ARG:HE	1:A:585:LEU:H	1.55	0.54
1:A:464:GLU:HA	1:A:543:ARG:HH22	1.72	0.54
1:A:538:ALA:O	1:A:542:VAL:HG23	2.08	0.54
1:A:513:PRO:HB3	1:A:518:THR:OG1	2.07	0.53
1:A:314:THR:HG22	1:A:735:PHE:CE2	2.43	0.53
1:A:96:LYS:HG2	1:A:99:MET:SD	2.48	0.53
1:A:1062:LEU:HD13	1:A:1240:VAL:CG2	2.38	0.53
1:A:533:GLN:NE2	1:A:553:ALA:O	2.41	0.53
1:A:1178:GLN:O	1:A:1182:ILE:HD12	2.08	0.53
1:A:1151:HIS:HA	1:A:1154:ILE:HG12	1.91	0.53
1:A:246:ALA:HB2	1:A:276:ASN:HB3	1.90	0.52
1:A:1190:PRO:O	1:A:1221:ARG:NH1	2.41	0.52
1:A:597:PHE:HB3	1:A:603:VAL:HB	1.92	0.52
1:A:1240:VAL:HG23	1:A:1240:VAL:O	2.09	0.52
1:A:1116:PRO:HG2	1:A:1177:LYS:HG3	1.91	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1127:ILE:O	1:A:1187:VAL:HG11	2.10	0.51
1:A:1150:ILE:HA	1:A:1179:ARG:HH21	1.75	0.51
1:A:1075:VAL:O	1:A:1079:LEU:HG	2.09	0.51
1:A:611:LEU:O	1:A:613:ARG:HG3	2.11	0.51
1:A:733:GLY:HA3	1:A:968:GLU:HG2	1.93	0.50
1:A:509:ILE:HA	1:A:513:PRO:HG2	1.94	0.50
1:A:210:LEU:O	1:A:214:ILE:HG13	2.11	0.50
1:A:612:MET:SD	1:A:612:MET:N	2.84	0.50
1:A:694:TRP:HA	1:A:697:LEU:HD13	1.92	0.50
1:A:1228:HIS:HB2	1:A:1229:ARG:NH1	2.26	0.50
1:A:70:ILE:HD13	1:A:113:TYR:HB3	1.93	0.50
1:A:1028:GLU:N	1:A:1093:ASP:OD2	2.43	0.50
1:A:1089:SER:OG	1:A:1096:GLU:OE2	2.30	0.50
1:A:1189:GLN:HG2	1:A:1221:ARG:HH22	1.77	0.49
1:A:706:TYR:O	1:A:772:THR:OG1	2.29	0.49
1:A:716:ILE:O	1:A:720:LEU:HG	2.13	0.49
1:A:996:LYS:C	1:A:998:THR:N	2.66	0.48
1:A:131:PHE:HE1	4:A:1405:Y01:HAS2	1.77	0.48
1:A:769:GLN:HG2	1:A:773:PHE:HD2	1.77	0.48
1:A:207:GLY:HA3	1:A:330:VAL:HG21	1.94	0.48
1:A:479:THR:HA	1:A:519:LEU:H	1.77	0.48
1:A:482:GLU:HA	1:A:485:ARG:HB2	1.95	0.48
1:A:285:ILE:O	1:A:289:ILE:HG12	2.13	0.48
1:A:496:ILE:O	1:A:500:VAL:HG23	2.14	0.48
1:A:488:ARG:HG3	1:A:489:GLU:N	2.28	0.48
1:A:792:MET:SD	1:A:810:LEU:HD21	2.54	0.48
1:A:1164:ARG:O	1:A:1170:THR:OG1	2.25	0.47
1:A:148:PHE:HA	1:A:151:ILE:HG22	1.96	0.47
1:A:391:LYS:HE3	1:A:391:LYS:HB2	1.72	0.47
1:A:1251:GLY:HA2	1:A:1254:GLN:NE2	2.29	0.47
1:A:421:LEU:HB3	1:A:581:ILE:HG13	1.96	0.47
1:A:332:PHE:CE1	3:A:1402:JIZ:S03	3.08	0.47
1:A:404:GLN:HB3	1:A:407:LYS:HE3	1.96	0.47
1:A:589:ARG:HA	1:A:589:ARG:HH11	1.80	0.47
1:A:954:ARG:HG2	4:A:1406:Y01:HAV2	1.97	0.47
1:A:1014:ILE:HG22	1:A:1015:ASP:OD1	2.15	0.47
4:A:1405:Y01:HAP1	4:A:1405:Y01:HBA	1.96	0.47
1:A:64:LEU:HD22	1:A:336:ILE:HG12	1.96	0.47
1:A:140:ILE:HG13	1:A:179:ASN:HB2	1.96	0.47
1:A:696:ILE:HG23	1:A:697:LEU:HD12	1.96	0.47
1:A:1109:LEU:HD23	1:A:1192:ILE:HG23	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:411:LEU:HD12	1:A:602:ILE:HD11	1.97	0.47
1:A:156:ILE:HD13	1:A:439:LEU:HG	1.96	0.46
1:A:96:LYS:HD3	1:A:100:PHE:HE1	1.80	0.46
1:A:1034:SER:HA	1:A:1053:SER:HA	1.98	0.46
1:A:1054:LEU:HD11	1:A:1064:LEU:HD21	1.96	0.46
1:A:69:LEU:HA	1:A:329:THR:OG1	2.15	0.46
1:A:482:GLU:HG2	1:A:485:ARG:HD2	1.96	0.46
1:A:504:ASN:HB3	1:A:534:ARG:HG3	1.98	0.46
1:A:332:PHE:CZ	3:A:1402:JIZ:S03	3.09	0.46
1:A:69:LEU:HD12	1:A:202:ILE:HD12	1.98	0.46
1:A:197:PHE:O	1:A:201:ILE:HG12	2.16	0.46
1:A:379:HIS:CD2	1:A:381:PRO:HD3	2.51	0.46
1:A:594:ILE:H	1:A:606:GLY:H	1.64	0.46
1:A:949:TYR:CE1	1:A:953:PHE:HE2	2.33	0.46
4:A:1404:Y01:HAM1	4:A:1404:Y01:HBC	1.29	0.46
1:A:381:PRO:HD2	1:A:461:TYR:HE2	1.81	0.46
1:A:959:LEU:HD22	1:A:964:LEU:HD22	1.98	0.46
1:A:1150:ILE:HG22	1:A:1179:ARG:NE	2.31	0.46
4:A:1405:Y01:HAP1	4:A:1405:Y01:HAO2	1.42	0.46
1:A:58:ILE:HD13	1:A:194:ALA:HB2	1.98	0.46
1:A:1081:ARG:NH2	1:A:1097:ILE:O	2.49	0.46
1:A:78:PHE:HE1	1:A:103:LEU:HD21	1.81	0.45
1:A:208:TRP:O	1:A:212:LEU:HD23	2.16	0.45
1:A:1076:VAL:HG13	1:A:1226:ILE:HD12	1.98	0.45
1:A:433:VAL:HG13	1:A:549:LEU:HD23	1.98	0.45
1:A:1118:LEU:HD13	1:A:1177:LYS:NZ	2.31	0.45
1:A:575:GLY:C	1:A:576:ARG:HD3	2.37	0.45
1:A:833:PHE:HA	1:A:836:ILE:HG22	1.98	0.45
4:A:1407:Y01:CAQ	4:A:1407:Y01:CBE	2.74	0.45
1:A:210:LEU:HG	1:A:214:ILE:HD11	1.98	0.45
1:A:900:PHE:O	1:A:904:VAL:HG12	2.17	0.45
1:A:979:PHE:HB3	3:A:1402:JIZ:C10	2.47	0.45
4:A:1403:Y01:HAP1	4:A:1403:Y01:HAO1	1.61	0.45
1:A:86:LYS:HG3	1:A:89:THR:H	1.82	0.45
1:A:580:VAL:HG21	1:A:587:THR:HG21	1.98	0.45
1:A:1169:GLY:O	1:A:1170:THR:C	2.55	0.45
1:A:1178:GLN:HA	1:A:1178:GLN:OE1	2.17	0.44
1:A:1173:SER:HB3	1:A:1176:GLN:NE2	2.31	0.44
1:A:114:TYR:HB3	1:A:950:ALA:HB2	1.98	0.44
1:A:430:SER:O	1:A:434:GLN:HG2	2.18	0.44
1:A:839:LEU:HD12	1:A:839:LEU:HA	1.86	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:959:LEU:HD23	1:A:959:LEU:HA	1.82	0.44
1:A:1150:ILE:HG22	1:A:1179:ARG:HE	1.82	0.44
1:A:121:VAL:HG21	1:A:946:TYR:CE2	2.50	0.44
1:A:170:ARG:HG3	1:A:174:ASP:OD2	2.18	0.44
1:A:938:PHE:O	1:A:941:THR:HG22	2.18	0.44
1:A:438:ARG:NH1	1:A:455:ARG:HA	2.33	0.44
1:A:562:GLU:HG2	1:A:566:GLN:NE2	2.33	0.43
4:A:1403:Y01:HAM1	4:A:1403:Y01:HBC	1.68	0.43
1:A:469:VAL:HG21	1:A:550:LEU:HD13	1.99	0.43
1:A:704:TRP:CD2	1:A:705:PRO:HD3	2.53	0.43
1:A:1049:LEU:HD12	1:A:1052:LEU:HD11	2.00	0.43
1:A:1059:GLY:N	1:A:1222:THR:OG1	2.42	0.43
1:A:1067:SER:HA	1:A:1228:HIS:CE1	2.51	0.43
1:A:114:TYR:O	1:A:117:ILE:HG22	2.17	0.43
1:A:196:PHE:CD1	1:A:341:VAL:HB	2.53	0.43
1:A:493:MET:HA	1:A:496:ILE:HG12	1.99	0.43
1:A:1184:ARG:O	1:A:1187:VAL:HG12	2.17	0.43
1:A:480:ILE:HG12	1:A:518:THR:HB	1.99	0.43
1:A:715:ILE:HD11	1:A:833:PHE:HD1	1.83	0.43
1:A:505:ALA:HB2	1:A:534:ARG:NH2	2.34	0.43
1:A:1110:GLY:HA3	1:A:1193:LEU:HD22	2.01	0.43
1:A:109:THR:O	1:A:113:TYR:HD1	2.00	0.43
1:A:1242:ILE:HG13	1:A:1247:VAL:O	2.19	0.43
1:A:164:VAL:HG13	1:A:897:ILE:HG22	2.01	0.42
1:A:754:LEU:HD23	1:A:754:LEU:HA	1.87	0.42
1:A:563:ALA:N	1:A:566:GLN:OE1	2.44	0.42
1:A:281:LYS:HD3	1:A:782:LYS:HD2	2.01	0.42
1:A:314:THR:HG22	1:A:735:PHE:CZ	2.54	0.42
1:A:839:LEU:HD23	4:A:1403:Y01:HAK1	2.01	0.42
1:A:1118:LEU:HD22	1:A:1177:LYS:HZ3	1.85	0.42
1:A:593:VAL:HG13	1:A:605:GLN:HB2	2.02	0.42
1:A:1080:GLU:OE1	1:A:1080:GLU:N	2.50	0.42
1:A:1259:GLN:O	1:A:1260:LYS:C	2.57	0.42
1:A:388:LEU:O	1:A:413:VAL:HG22	2.20	0.42
1:A:1042:THR:HG23	1:A:1043:ARG:HG2	2.01	0.42
1:A:532:LYS:HA	1:A:535:ILE:HG22	2.02	0.42
1:A:1081:ARG:HH12	1:A:1098:LYS:HD3	1.85	0.42
1:A:296:GLY:HA2	1:A:766:PHE:HD2	1.84	0.41
1:A:1101:ASN:OD1	1:A:1104:TRP:N	2.41	0.41
1:A:79:ALA:HB2	1:A:736:THR:HG22	2.02	0.41
1:A:605:GLN:OE1	1:A:605:GLN:N	2.48	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:147:PHE:HE1	1:A:364:ILE:HG21	1.85	0.41
1:A:289:ILE:CD1	1:A:771:PHE:HA	2.51	0.41
1:A:584:ARG:HG3	1:A:586:SER:H	1.85	0.41
1:A:733:GLY:HA2	1:A:736:THR:OG1	2.20	0.41
1:A:1003:HIS:O	1:A:1007:ILE:HG13	2.20	0.41
1:A:813:ARG:O	1:A:817:ASP:HB2	2.20	0.41
1:A:151:ILE:HD11	1:A:167:LEU:HD21	2.03	0.41
1:A:286:LYS:HA	1:A:286:LYS:HD3	1.83	0.41
1:A:857:LEU:HB3	1:A:977:ILE:HG21	2.01	0.41
1:A:217:ILE:HD13	1:A:305:SER:HA	2.02	0.41
1:A:478:THR:HG22	1:A:479:THR:H	1.86	0.41
1:A:272:ARG:HD2	1:A:1121:ARG:HH21	1.86	0.41
1:A:345:SER:OG	1:A:346:PRO:HD3	2.20	0.41
1:A:462:LEU:HA	1:A:465:ILE:HG12	2.03	0.41
1:A:1177:LYS:HD2	1:A:1180:ILE:HD11	2.02	0.41
1:A:249:VAL:O	1:A:253:VAL:HG22	2.21	0.41
1:A:543:ARG:HH21	1:A:907:THR:HG22	1.86	0.41
1:A:1060:GLN:HG3	1:A:1062:LEU:H	1.85	0.41
1:A:594:ILE:O	1:A:605:GLN:HA	2.21	0.41
1:A:756:LEU:HD22	4:A:1404:Y01:HAU2	2.02	0.40
1:A:1118:LEU:HB2	1:A:1177:LYS:HE2	2.02	0.40
1:A:50:MET:HG2	1:A:132:TRP:CZ3	2.56	0.40
1:A:64:LEU:HB3	1:A:65:PRO:HD3	2.02	0.40
1:A:127:ILE:HD11	4:A:1405:Y01:HBB	2.02	0.40
1:A:311:TRP:HE1	1:A:745:ARG:HH22	1.69	0.40
1:A:134:LEU:HD23	1:A:134:LEU:HA	1.91	0.40
1:A:492:THR:HB	1:A:495:GLU:HB2	2.02	0.40
1:A:979:PHE:CZ	3:A:1402:JIZ:S03	3.14	0.40
1:A:1027:LEU:HD23	1:A:1191:HIS:CG	2.56	0.40
1:A:156:ILE:H	1:A:156:ILE:HD12	1.87	0.40
1:A:381:PRO:HD2	1:A:461:TYR:CE2	2.57	0.40
1:A:965:MET:HB2	1:A:969:ASN:HB2	2.04	0.40
1:A:1118:LEU:HD12	1:A:1119:PHE:H	1.86	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	1153/1328 (87%)	1086 (94%)	67 (6%)	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	947/1086 (87%)	944 (100%)	3 (0%)	91 92

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	96	LYS
1	A	169	THR
1	A	999	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	749	ASN
1	A	1060	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)

7 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	JJI	A	1401	-	36,48,48	4.46	17 (47%)	37,69,69	2.59	14 (37%)
4	Y01	A	1407	-	38,38,38	8.04	25 (65%)	57,57,57	1.95	18 (31%)
4	Y01	A	1406	-	38,38,38	0.48	0	57,57,57	0.78	2 (3%)
4	Y01	A	1405	-	38,38,38	0.45	0	57,57,57	0.53	0
3	JIZ	A	1402	1	25,34,34	4.87	15 (60%)	24,49,49	1.84	5 (20%)
4	Y01	A	1404	-	38,38,38	0.47	0	57,57,57	0.56	0
4	Y01	A	1403	-	38,38,38	0.45	0	57,57,57	0.77	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	JJI	A	1401	-	-	5/22/50/50	0/4/5/5
4	Y01	A	1407	-	-	8/19/77/77	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	Y01	A	1406	-	-	10/19/77/77	0/4/4/4
4	Y01	A	1405	-	-	12/19/77/77	0/4/4/4
3	JIZ	A	1402	1	-	4/14/38/38	0/3/4/4
4	Y01	A	1404	-	-	8/19/77/77	0/4/4/4
4	Y01	A	1403	-	-	10/19/77/77	0/4/4/4

All (57) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1407	Y01	CBD-CBG	-26.64	1.02	1.53
4	A	1407	Y01	CAU-CAS	-17.95	1.15	1.53
4	A	1407	Y01	CAU-CBI	-16.16	1.25	1.54
4	A	1407	Y01	CAK-CBD	-13.52	1.30	1.53
2	A	1401	JJI	C03-N02	13.26	1.78	1.37
2	A	1401	JJI	C08-N04	12.83	1.77	1.37
2	A	1401	JJI	C13-N06	12.81	1.77	1.37
4	A	1407	Y01	CBH-CAZ	-12.77	1.27	1.52
4	A	1407	Y01	CBI-CBE	10.34	1.74	1.55
4	A	1407	Y01	CBH-CBF	9.57	1.72	1.56
4	A	1407	Y01	CAQ-CAP	9.47	1.80	1.54
4	A	1407	Y01	CBB-CBE	-8.91	1.38	1.54
4	A	1407	Y01	CAQ-CBG	8.88	1.72	1.54
3	A	1402	JIZ	C09-S02	-8.77	1.56	1.70
3	A	1402	JIZ	C14-S03	-8.70	1.56	1.70
3	A	1402	JIZ	C03-N02	8.59	1.64	1.37
4	A	1407	Y01	CBD-CBF	-8.33	1.37	1.53
3	A	1402	JIZ	C04-S01	-8.10	1.57	1.70
3	A	1402	JIZ	C08-N04	7.90	1.62	1.37
4	A	1407	Y01	CAK-CAI	7.71	1.66	1.50
3	A	1402	JIZ	C13-N06	7.66	1.61	1.37
4	A	1407	Y01	CAT-CBH	7.04	1.67	1.54
3	A	1402	JIZ	C02-S01	-6.11	1.54	1.73
4	A	1407	Y01	CBI-CBG	5.97	1.66	1.55
2	A	1401	JJI	C10-N05	5.75	1.46	1.34
2	A	1401	JJI	C05-N03	5.38	1.45	1.34
3	A	1402	JIZ	C15-N01	5.11	1.45	1.34
3	A	1402	JIZ	C05-N03	5.08	1.45	1.34
2	A	1401	JJI	C15-N01	5.01	1.45	1.34
3	A	1402	JIZ	C10-N05	5.00	1.45	1.34
4	A	1407	Y01	CAR-CBC	-4.81	1.38	1.51
3	A	1402	JIZ	C07-S02	-4.71	1.59	1.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1402	JIZ	C12-S03	-4.70	1.59	1.73
4	A	1407	Y01	CAP-CBE	4.68	1.64	1.54
4	A	1407	Y01	CAO-CBB	4.49	1.66	1.54
4	A	1407	Y01	CAV-CAZ	4.18	1.60	1.51
2	A	1401	JJI	C04-S01	-3.95	1.64	1.70
4	A	1407	Y01	CAE-CBI	3.71	1.60	1.54
2	A	1401	JJI	C09-S02	-3.65	1.64	1.70
2	A	1401	JJI	C14-S03	-3.57	1.65	1.70
4	A	1407	Y01	CAI-CAZ	3.54	1.40	1.33
2	A	1401	JJI	C12-S03	-3.51	1.62	1.73
2	A	1401	JJI	C02-S01	-3.49	1.62	1.73
2	A	1401	JJI	C07-S02	-3.47	1.62	1.73
2	A	1401	JJI	O41-N4	-3.09	1.17	1.22
2	A	1401	JJI	O21-N2	-3.05	1.17	1.22
4	A	1407	Y01	OAW-CAY	2.83	1.42	1.34
4	A	1407	Y01	CAV-CBC	2.74	1.58	1.52
4	A	1407	Y01	CAS-CBF	2.58	1.58	1.53
2	A	1401	JJI	O02-C10	-2.51	1.18	1.23
3	A	1402	JIZ	O02-C10	-2.33	1.18	1.23
2	A	1401	JJI	O03-C15	-2.29	1.18	1.23
2	A	1401	JJI	O01-C05	-2.21	1.18	1.23
3	A	1402	JIZ	O01-C05	-2.19	1.18	1.23
3	A	1402	JIZ	O03-C15	-2.18	1.18	1.23
4	A	1407	Y01	CAC-CBB	2.13	1.58	1.53
4	A	1407	Y01	CAL-CAM	2.01	1.58	1.52

All (39) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1401	JJI	C06-N03-C05	-6.38	108.71	122.56
2	A	1401	JJI	C01-N01-C15	-5.38	115.40	122.34
2	A	1401	JJI	C13-C15-N01	-5.19	105.57	115.20
3	A	1402	JIZ	C01-C18-S04	-4.97	108.61	114.19
2	A	1401	JJI	C17-C11-C12	-4.89	105.30	110.95
3	A	1402	JIZ	C03-C04-S01	-4.56	106.19	111.79
4	A	1407	Y01	CAS-CAU-CBI	4.39	120.31	112.78
2	A	1401	JJI	C13-C14-S03	-4.18	106.66	111.79
4	A	1407	Y01	CAK-CBD-CBG	4.07	116.80	110.91
2	A	1401	JJI	C11-N05-C10	-3.90	114.09	122.56
4	A	1407	Y01	CAC-CBB-CAO	-3.73	104.51	110.36
4	A	1407	Y01	CBF-CBD-CBG	3.69	114.03	109.09
4	A	1407	Y01	OAW-CAY-CAM	3.67	119.41	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	1407	Y01	CAE-CBI-CBE	-3.57	105.06	111.71
2	A	1401	JJI	C08-C09-S02	-3.47	107.53	111.79
3	A	1402	JIZ	C08-C09-S02	-3.43	107.58	111.79
4	A	1407	Y01	CAT-CAR-CBC	3.39	116.10	110.33
3	A	1402	JIZ	C13-C14-S03	-3.36	107.67	111.79
2	A	1401	JJI	C3-C2-C1	-3.30	119.54	122.96
2	A	1401	JJI	C03-C04-S01	-3.22	107.83	111.79
2	A	1401	JJI	C08-C10-N05	-3.14	109.37	115.20
4	A	1407	Y01	CAR-CBC-CAV	3.14	115.66	110.99
4	A	1407	Y01	CBG-CBI-CBE	2.84	103.44	100.07
2	A	1401	JJI	O03-C15-N01	2.74	127.49	122.45
4	A	1407	Y01	CBD-CAK-CAI	2.70	116.61	112.73
2	A	1401	JJI	O03-C15-C13	2.68	126.93	121.08
2	A	1401	JJI	C2-C1-S	-2.56	119.36	121.92
4	A	1407	Y01	CBH-CAZ-CAI	-2.50	119.07	122.90
4	A	1407	Y01	CAU-CBI-CBG	2.47	111.11	107.27
4	A	1407	Y01	CAJ-CAO-CBB	-2.41	108.10	115.03
4	A	1407	Y01	CAQ-CBG-CBD	2.40	123.03	119.08
4	A	1407	Y01	CAU-CAS-CBF	2.39	117.26	113.11
4	A	1407	Y01	CAK-CAI-CAZ	-2.39	120.66	125.06
4	A	1406	Y01	CAT-CAR-CBC	2.27	114.20	110.33
4	A	1407	Y01	CAS-CBF-CBH	-2.24	110.13	113.08
2	A	1401	JJI	C17-C11-N05	-2.21	105.16	109.05
4	A	1406	Y01	OAW-CBC-CAR	2.14	113.48	108.33
4	A	1407	Y01	CAU-CBI-CBE	2.05	119.64	116.57
3	A	1402	JIZ	C18-C01-N01	-2.01	108.42	111.28

There are no chirality outliers.

All (57) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1402	JIZ	C02-C01-C18-S04
3	A	1402	JIZ	N01-C01-C18-S04
4	A	1403	Y01	OAG-CAY-OAW-CBC
4	A	1403	Y01	CAM-CAY-OAW-CBC
4	A	1404	Y01	OAG-CAY-OAW-CBC
4	A	1404	Y01	CAM-CAY-OAW-CBC
4	A	1406	Y01	CAR-CBC-OAW-CAY
4	A	1407	Y01	CAM-CAY-OAW-CBC
4	A	1403	Y01	CAC-CBB-CBE-CAP
4	A	1403	Y01	CAC-CBB-CBE-CBI
4	A	1407	Y01	OAG-CAY-OAW-CBC

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Mol	Chain	Res	Type	Atoms
4	A	1403	Y01	CAO-CBB-CBE-CBI
4	A	1405	Y01	CAJ-CAO-CBB-CAC
4	A	1405	Y01	CAC-CBB-CBE-CAP
4	A	1403	Y01	CAO-CBB-CBE-CAP
4	A	1405	Y01	CAO-CBB-CBE-CBI
4	A	1405	Y01	CAC-CBB-CBE-CBI
4	A	1405	Y01	CAO-CBB-CBE-CAP
4	A	1405	Y01	CAJ-CAO-CBB-CBE
2	A	1401	JJI	C3-C2-N2-O21
3	A	1402	JIZ	C07-C06-N03-C05
4	A	1406	Y01	CAM-CAY-OAW-CBC
4	A	1406	Y01	OAG-CAY-OAW-CBC
4	A	1407	Y01	CAJ-CAN-CBA-CAB
4	A	1407	Y01	CAJ-CAN-CBA-CAA
4	A	1406	Y01	CAO-CBB-CBE-CBI
4	A	1405	Y01	CAL-CAM-CAY-OAW
4	A	1406	Y01	CAC-CBB-CBE-CAP
4	A	1406	Y01	CAC-CBB-CBE-CBI
4	A	1406	Y01	CAO-CBB-CBE-CAP
4	A	1403	Y01	CAN-CAJ-CAO-CBB
3	A	1402	JIZ	C16-C06-N03-C05
4	A	1407	Y01	CAJ-CAO-CBB-CBE
4	A	1404	Y01	CAC-CBB-CBE-CBI
4	A	1404	Y01	CAO-CBB-CBE-CBI
2	A	1401	JJI	C1-C2-N2-O21
4	A	1407	Y01	CAJ-CAO-CBB-CAC
4	A	1407	Y01	CAM-CAL-CAX-OAH
2	A	1401	JJI	C01-C18-S04-S
4	A	1405	Y01	CAM-CAL-CAX-OAF
4	A	1404	Y01	CAM-CAL-CAX-OAF
4	A	1406	Y01	CAM-CAL-CAX-OAH
4	A	1406	Y01	CAM-CAL-CAX-OAF
4	A	1405	Y01	CAL-CAM-CAY-OAG
4	A	1405	Y01	OAG-CAY-OAW-CBC
4	A	1404	Y01	CAM-CAL-CAX-OAH
4	A	1407	Y01	CAM-CAL-CAX-OAF
4	A	1405	Y01	CAM-CAL-CAX-OAH
4	A	1404	Y01	CAO-CBB-CBE-CAP
4	A	1403	Y01	CAM-CAL-CAX-OAH
4	A	1403	Y01	CAM-CAL-CAX-OAF
4	A	1405	Y01	CAM-CAY-OAW-CBC
2	A	1401	JJI	C3-C4-N4-O41

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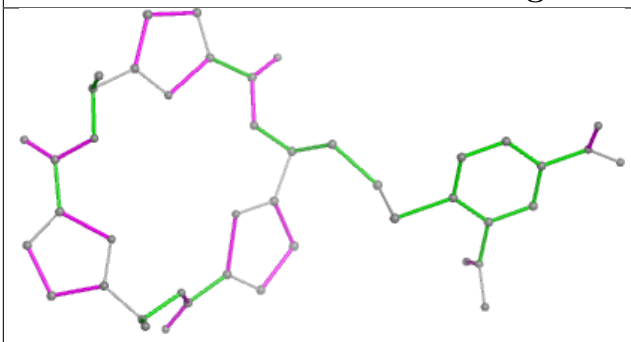
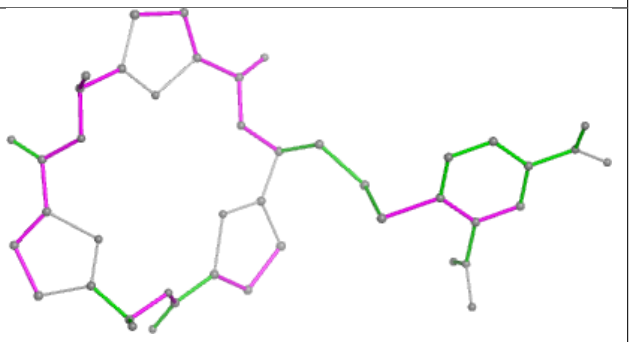
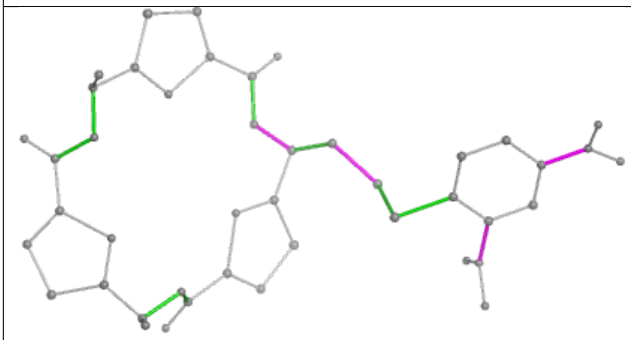
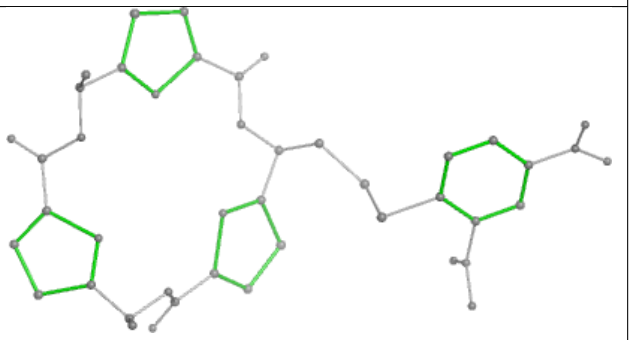
Mol	Chain	Res	Type	Atoms
4	A	1403	Y01	CAJ-CAN-CBA-CAA
4	A	1404	Y01	CAJ-CAN-CBA-CAB
2	A	1401	JJI	C02-C01-N01-C15
4	A	1406	Y01	CAL-CAM-CAY-OAW

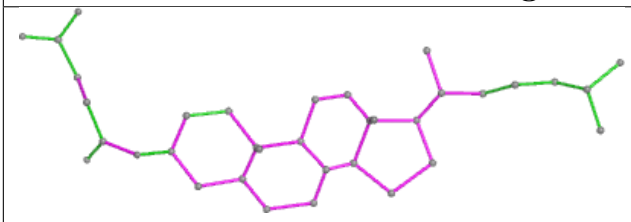
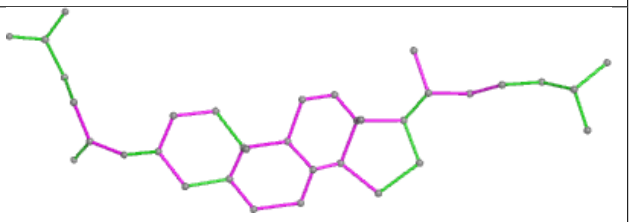
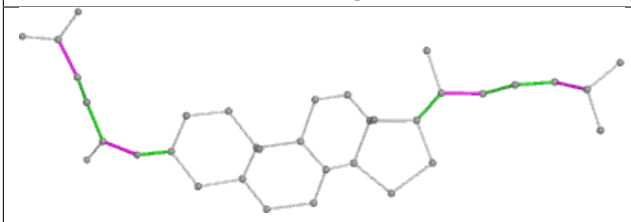
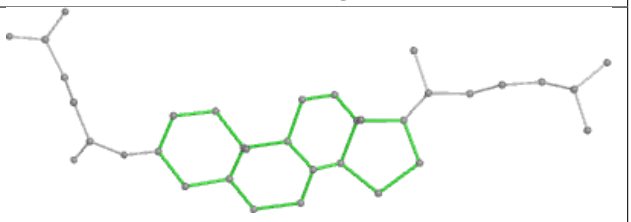
There are no ring outliers.

7 monomers are involved in 28 short contacts:

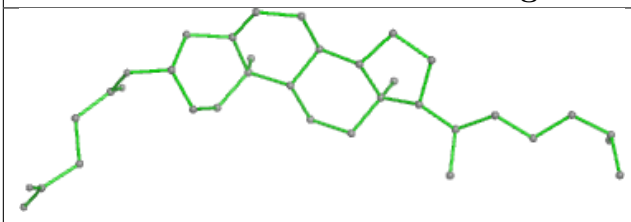
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1401	JJI	3	0
4	A	1407	Y01	9	0
4	A	1406	Y01	1	0
4	A	1405	Y01	4	0
3	A	1402	JIZ	5	0
4	A	1404	Y01	3	0
4	A	1403	Y01	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

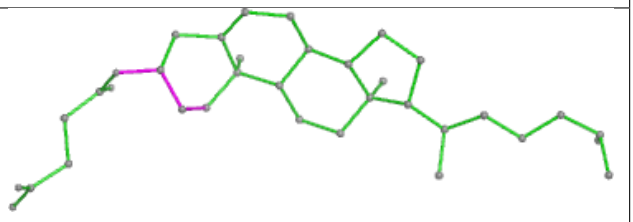
Ligand JJI A 1401	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand Y01 A 1407	
 Bond lengths	 Bond angles
 Torsions	 Rings

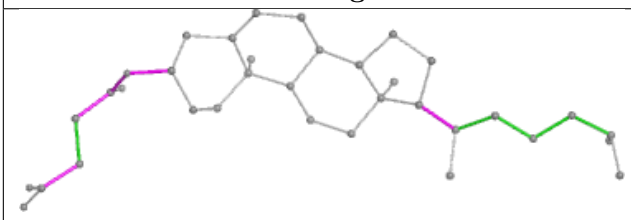
Ligand Y01 A 1406



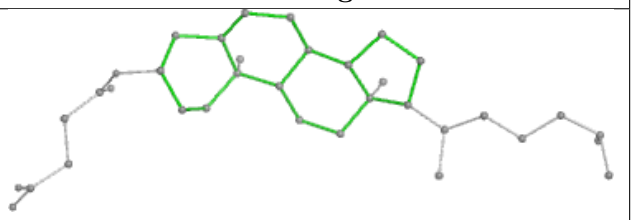
Bond lengths



Bond angles

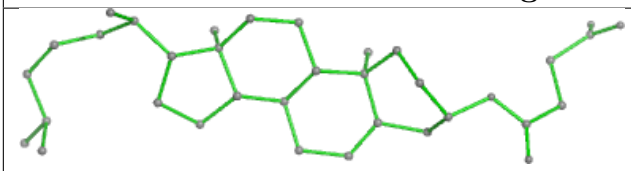


Torsions

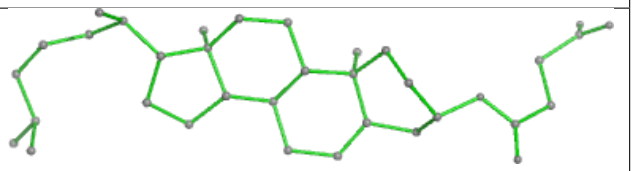


Rings

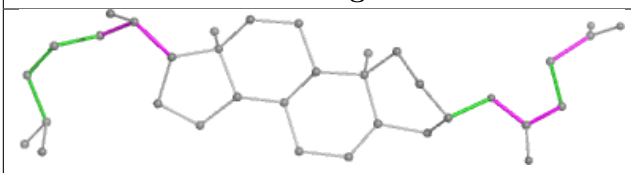
Ligand Y01 A 1405



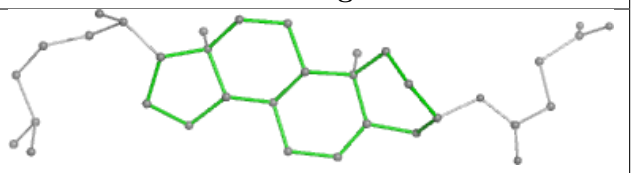
Bond lengths



Bond angles

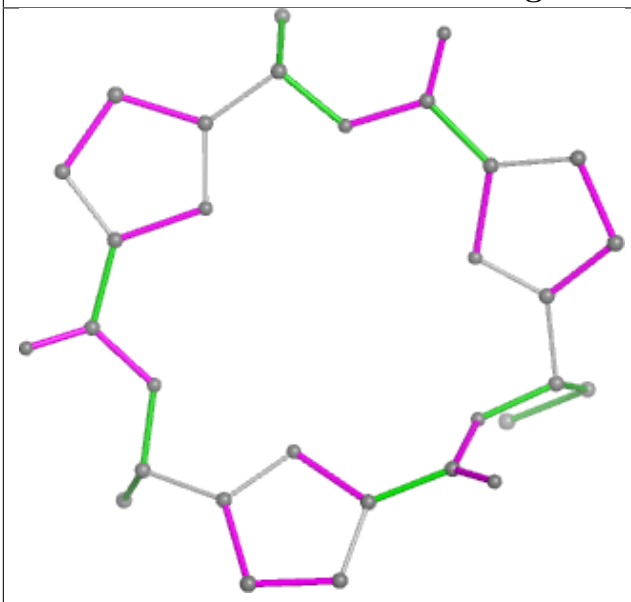


Torsions

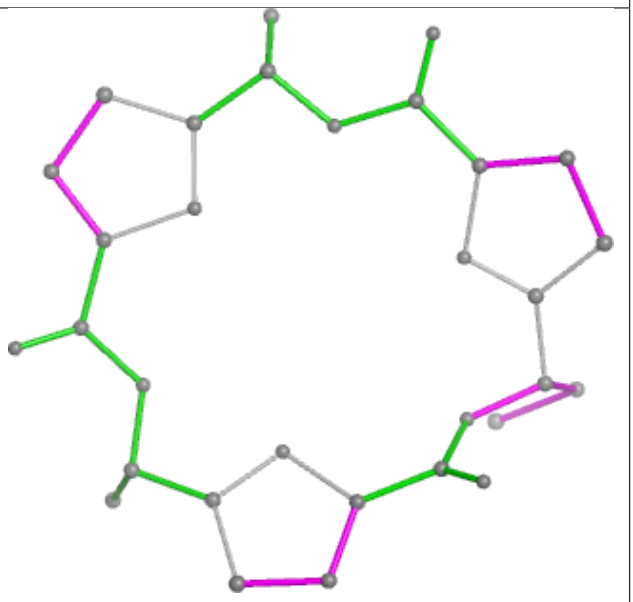


Rings

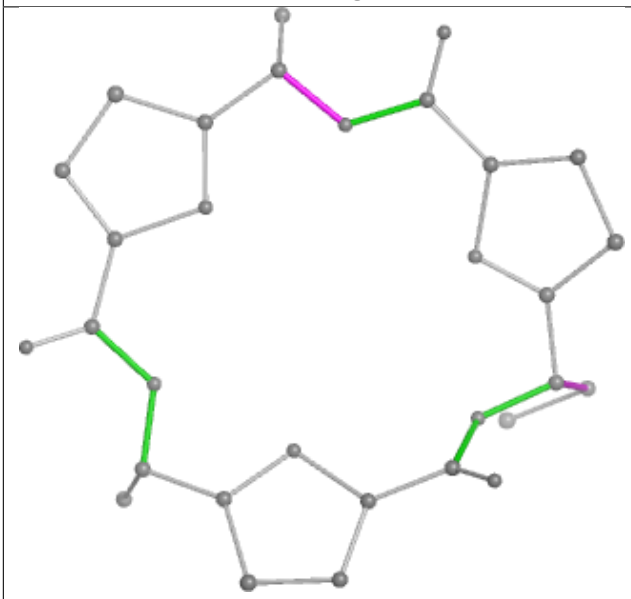
Ligand JIZ A 1402



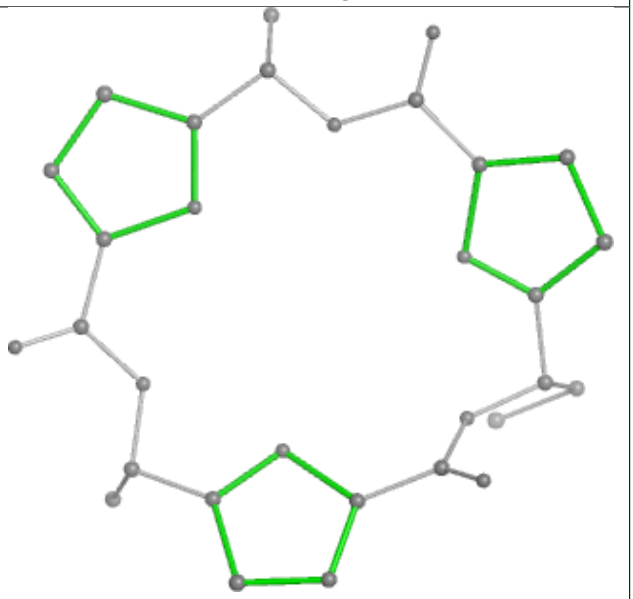
Bond lengths



Bond angles

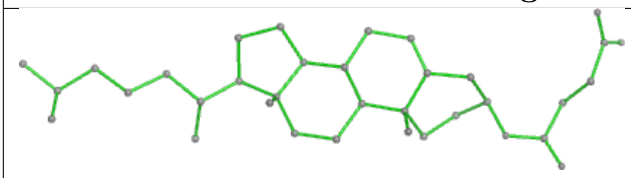


Torsions

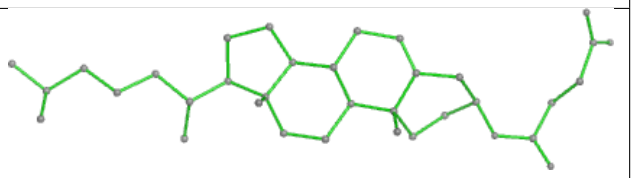


Rings

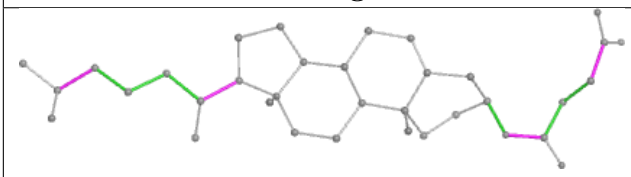
Ligand Y01 A 1404



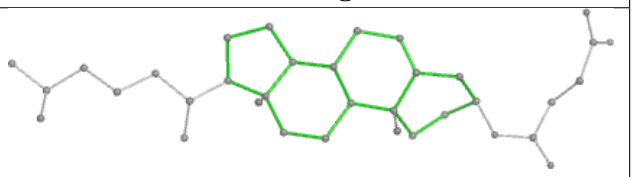
Bond lengths



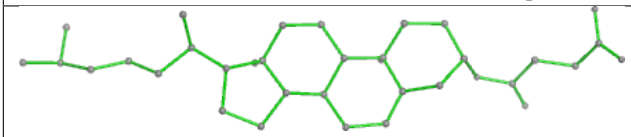
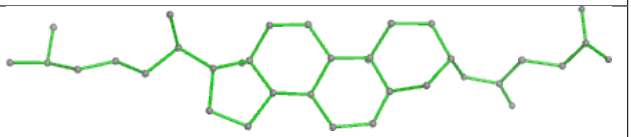
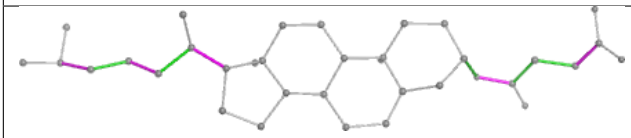
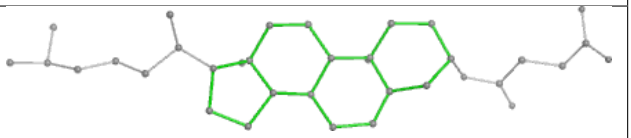
Bond angles



Torsions



Rings

Ligand Y01 A 1403	
 Bond lengths	 Bond angles
 Torsions	 Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

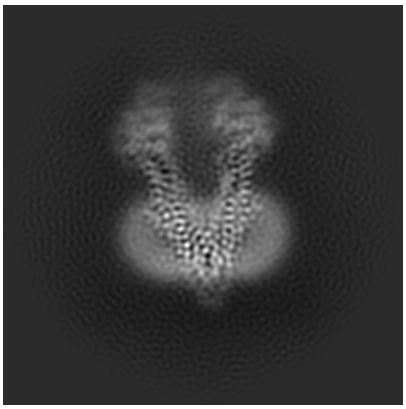
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-17630. These allow visual inspection of the internal detail of the map and identification of artifacts.

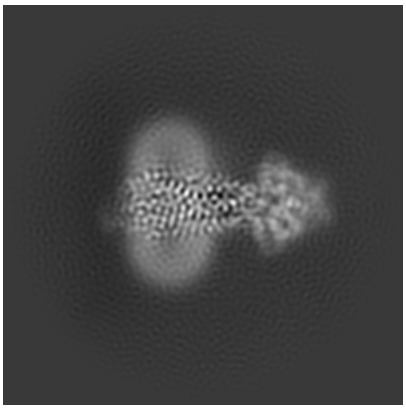
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

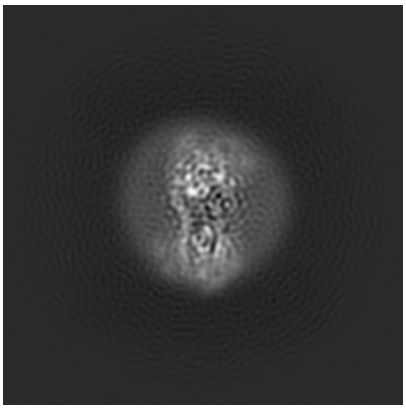
6.1.1 Primary map



X

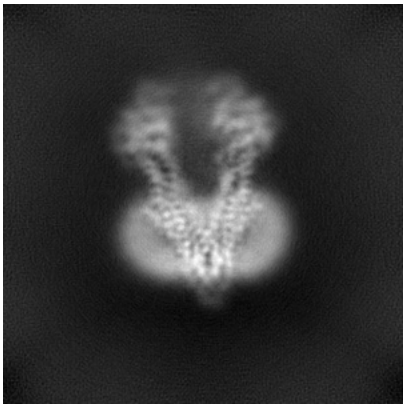


Y

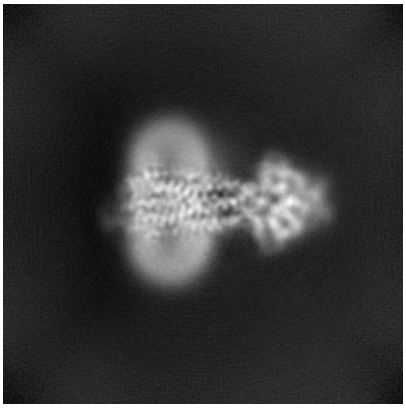


Z

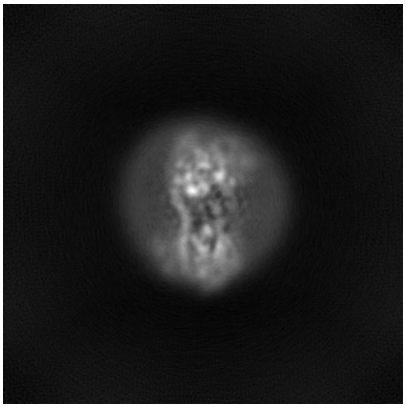
6.1.2 Raw map



X



Y

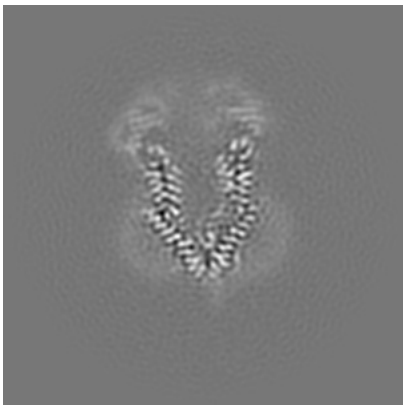


Z

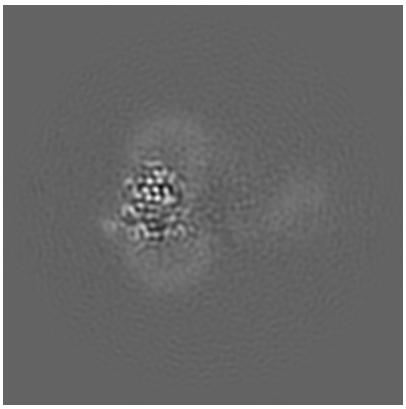
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

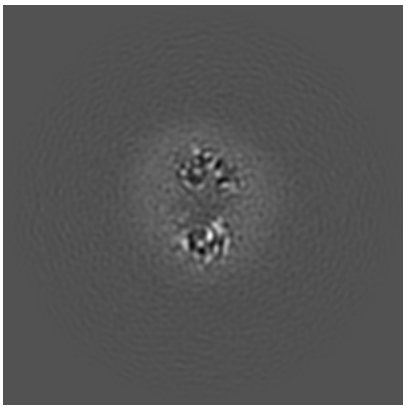
6.2.1 Primary map



X Index: 140

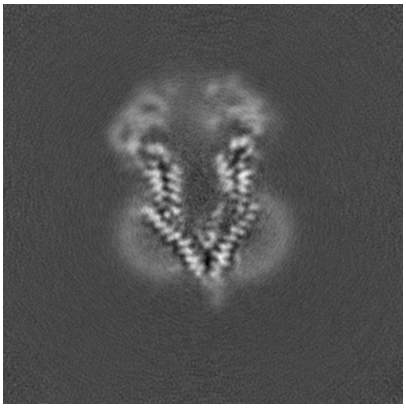


Y Index: 140

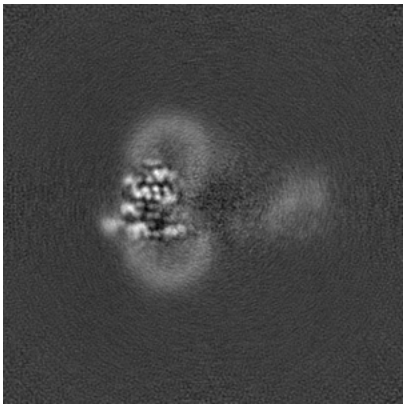


Z Index: 140

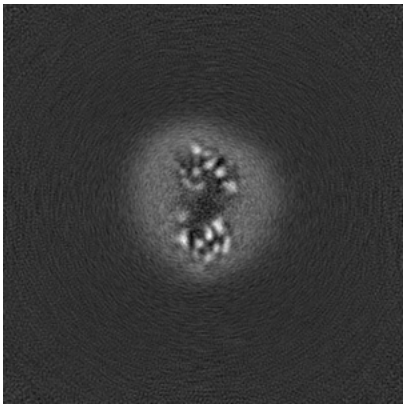
6.2.2 Raw map



X Index: 140



Y Index: 140

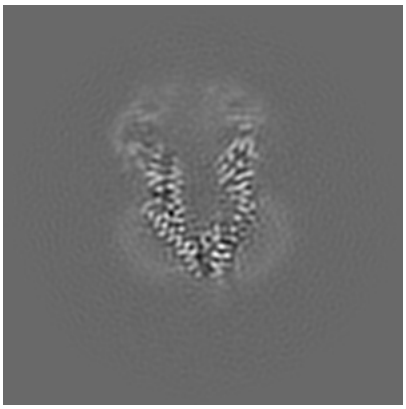


Z Index: 140

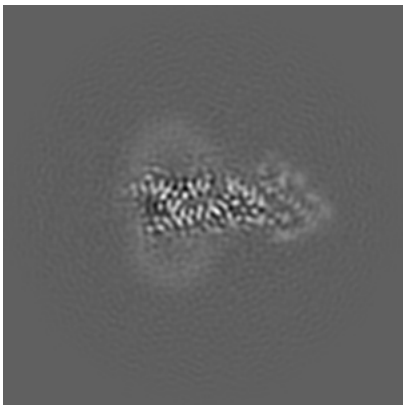
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

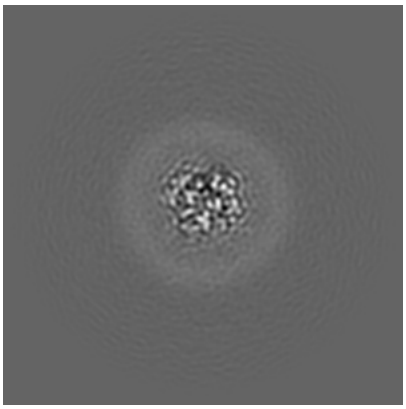
6.3.1 Primary map



X Index: 142

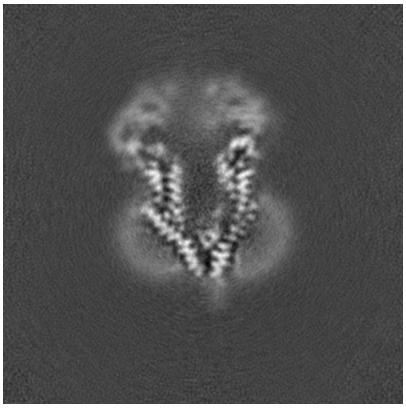


Y Index: 160

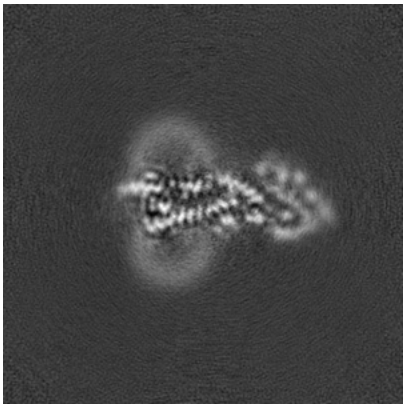


Z Index: 107

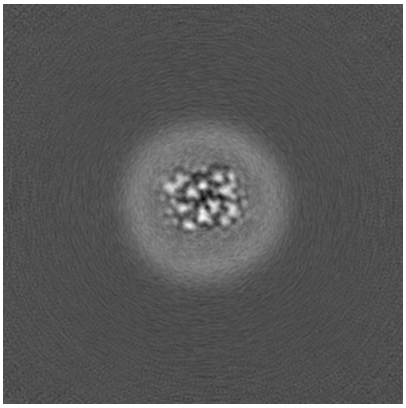
6.3.2 Raw map



X Index: 141



Y Index: 158

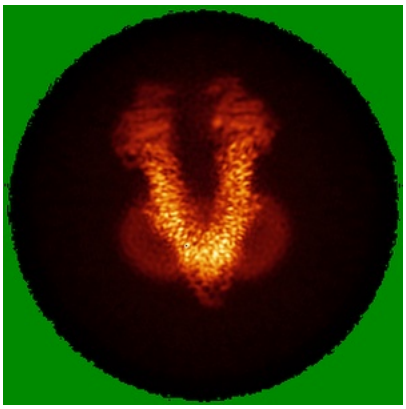


Z Index: 101

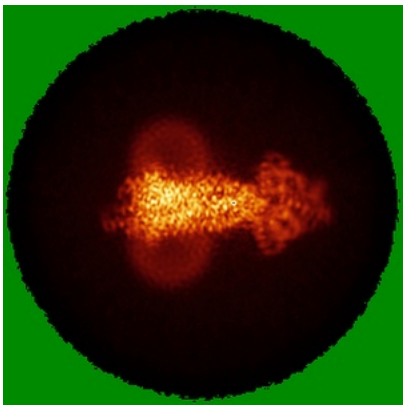
The images above show the largest variance slices of the map in three orthogonal directions.

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

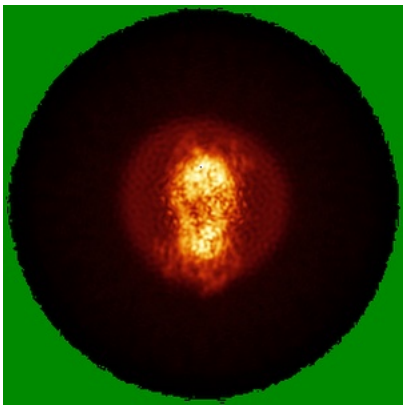
6.4.1 Primary map



X

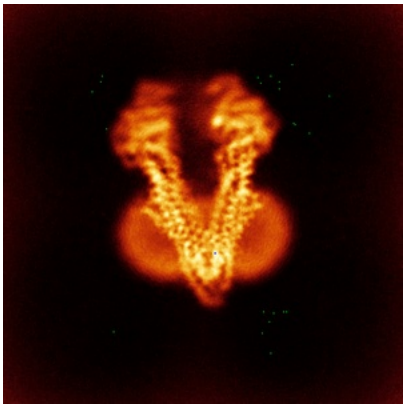


Y

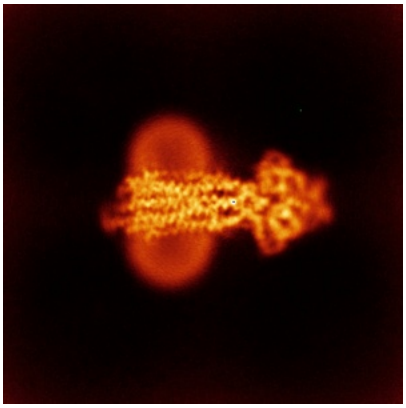


Z

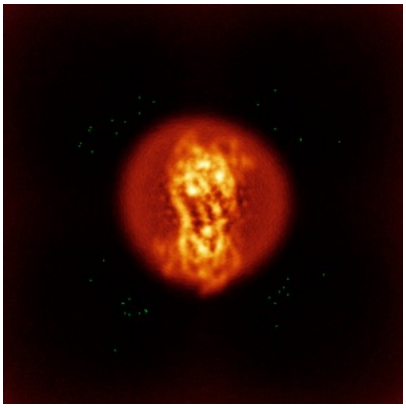
6.4.2 Raw map



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.

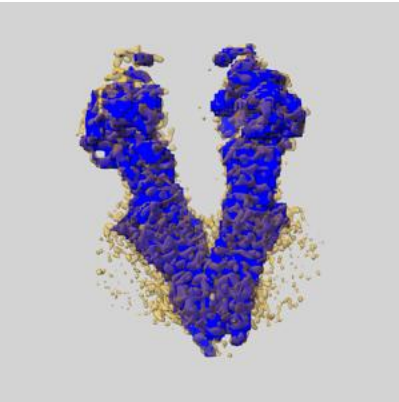
6.6 Mask visualisation (i)

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

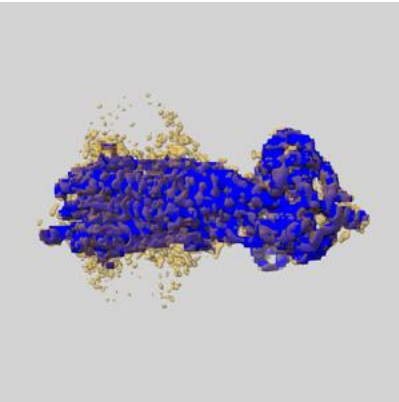
A mask typically either:

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

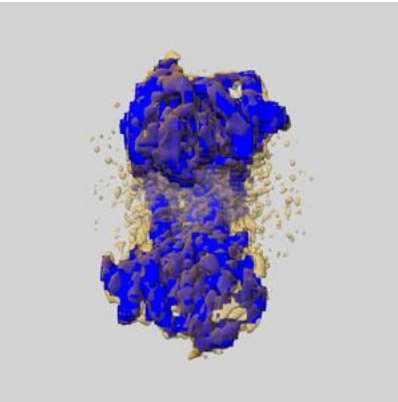
6.6.1 emd_17630_msk_1.map (i)



X



Y

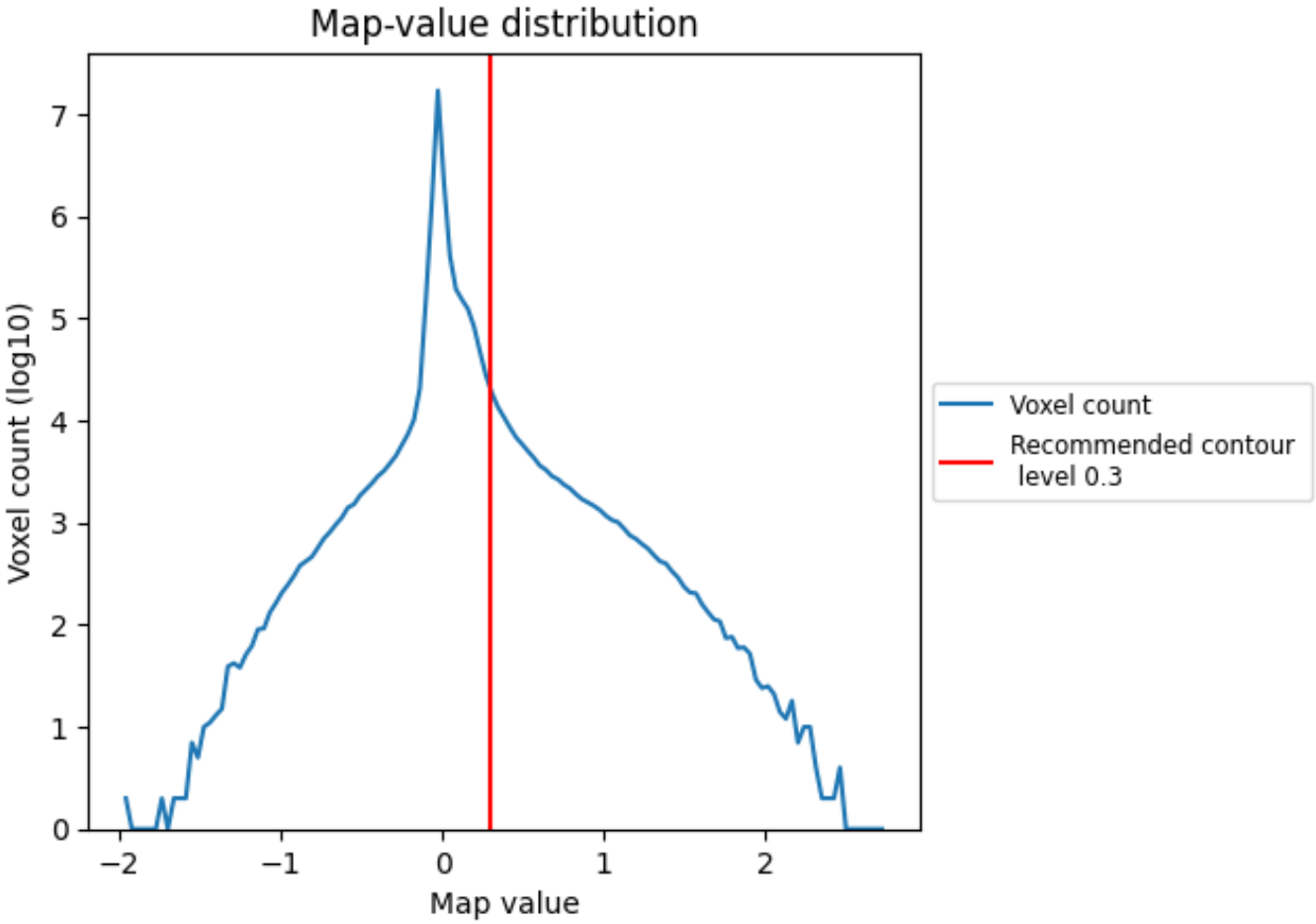


Z

7 Map analysis

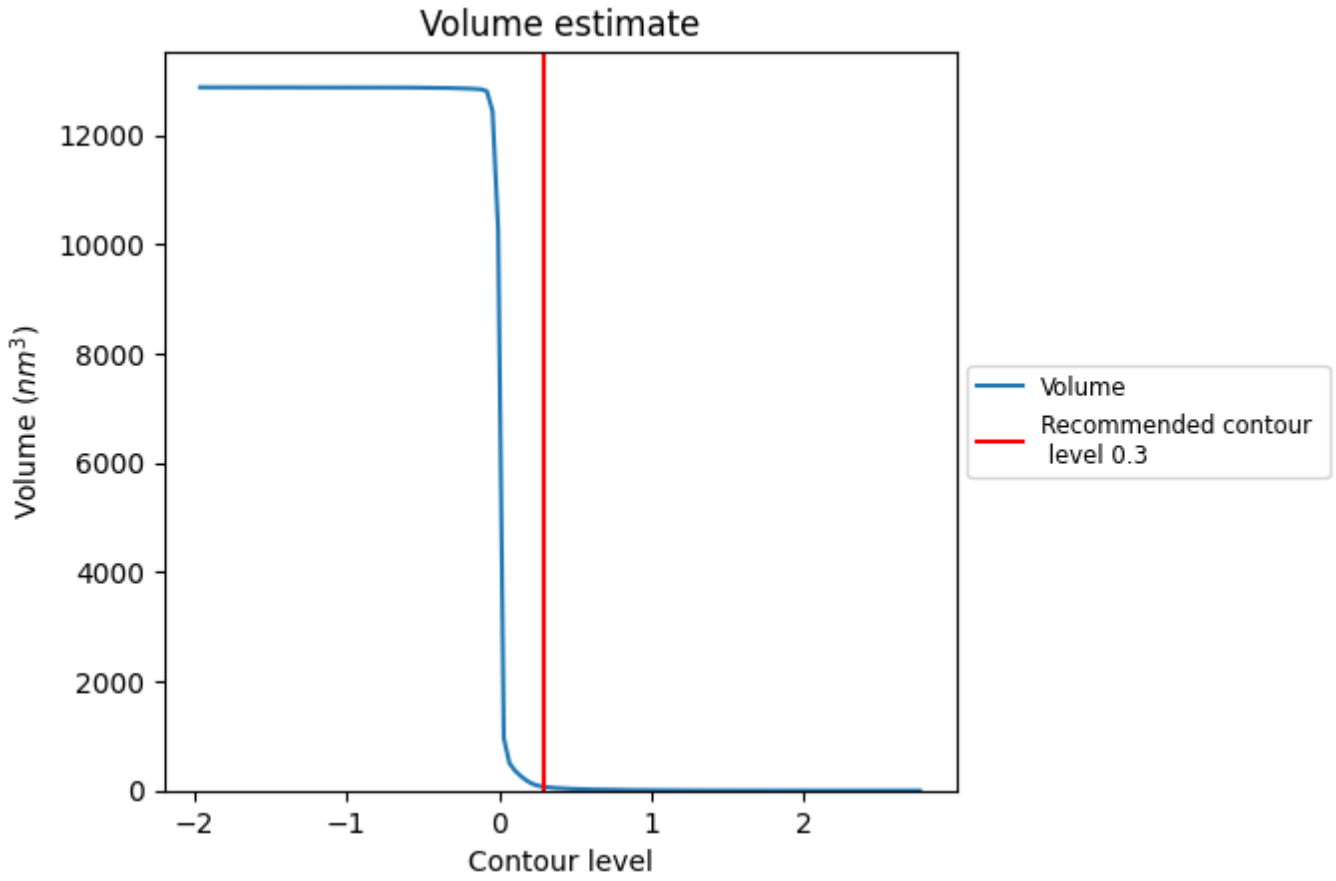
This section contains the results of statistical analysis of the map.

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.

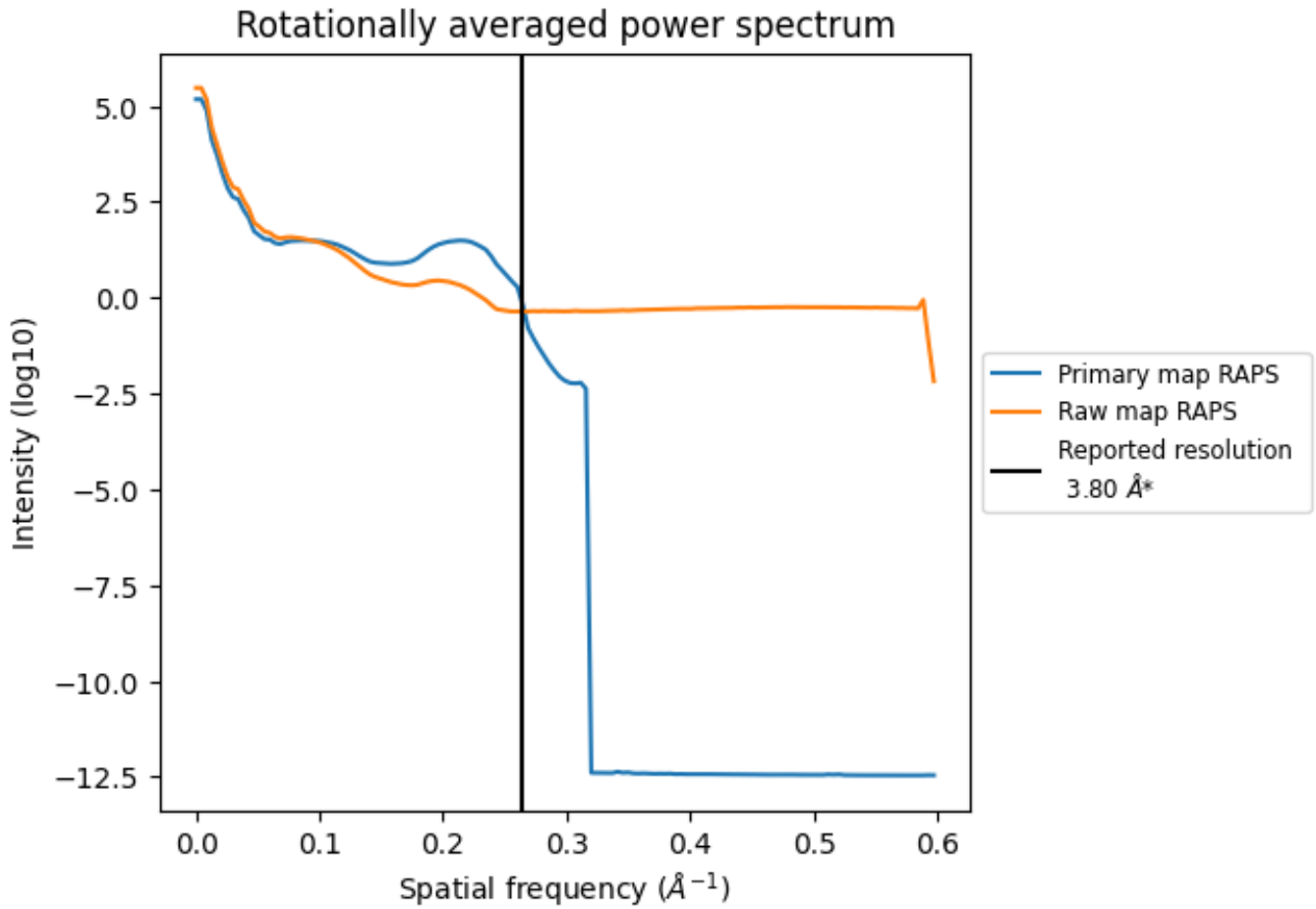
7.2 Volume estimate



The volume at the recommended contour level is 67 nm^3; this corresponds to an approximate mass of 61 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

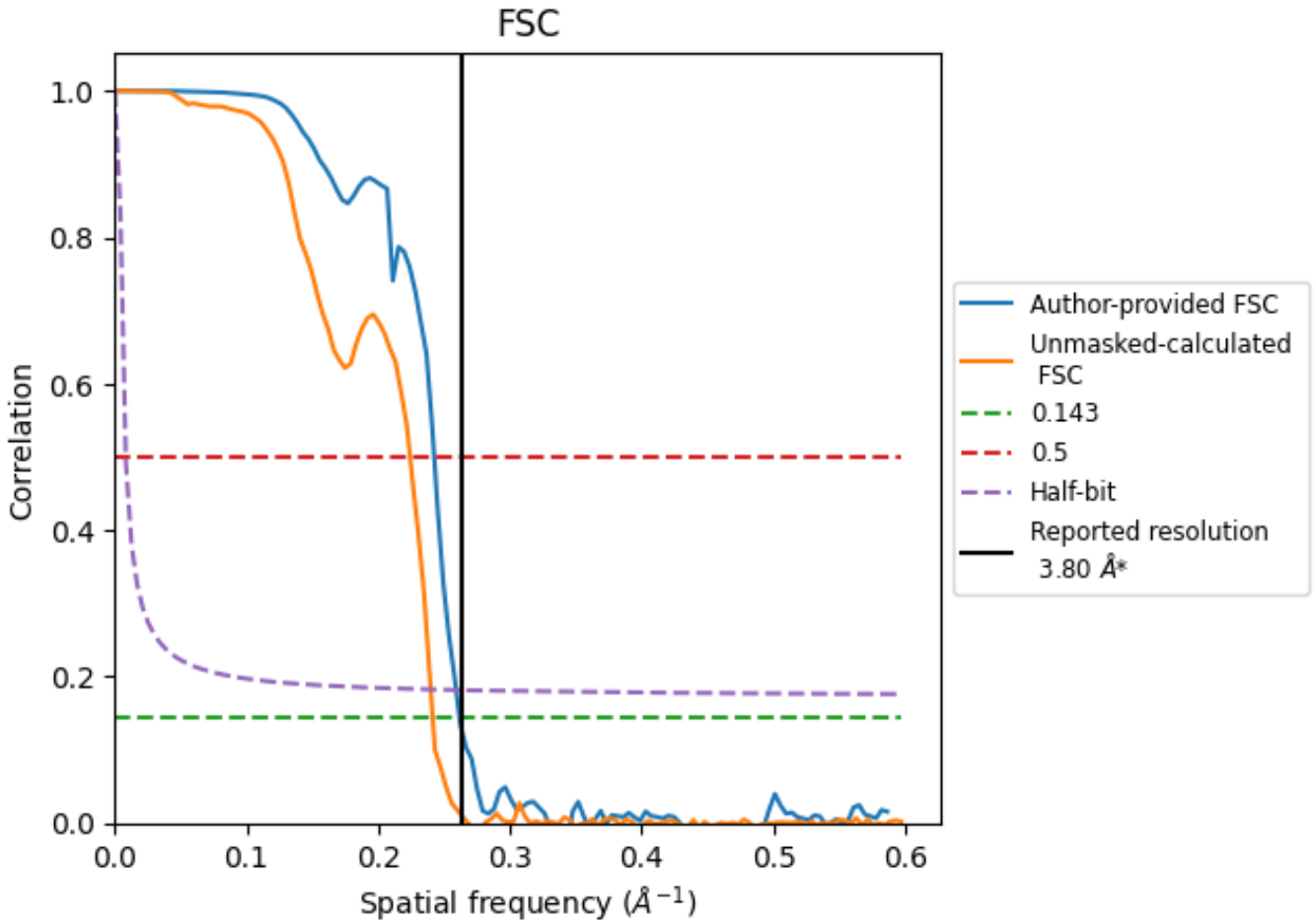


*Reported resolution corresponds to spatial frequency of 0.263 $Å^{-1}$

8 Fourier-Shell correlation

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 0.263 Å^{-1}

8.2 Resolution estimates (i)

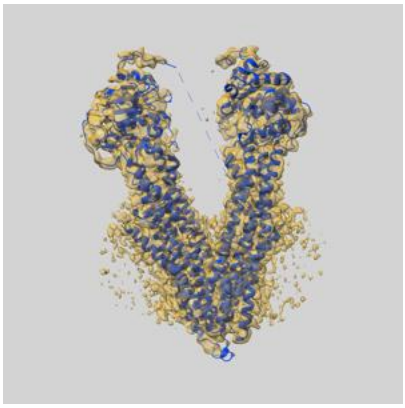
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.82	4.12	3.86
Unmasked-calculated*	4.14	4.46	4.17

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

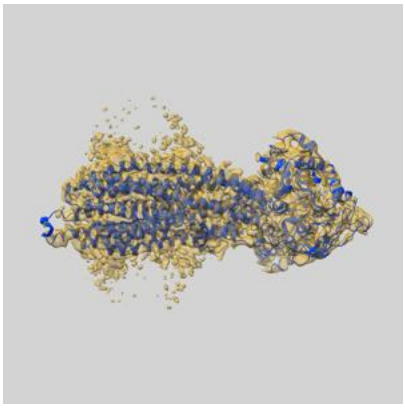
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-17630 and PDB model 8PEE. Per-residue inclusion information can be found in section 3 on page 7.

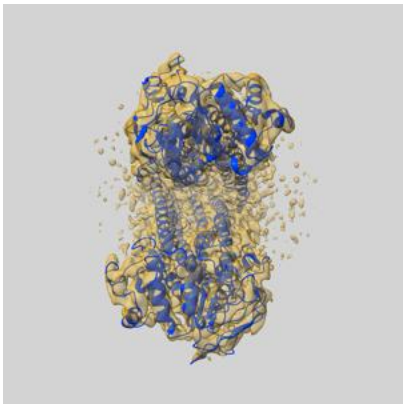
9.1 Map-model overlay



X



Y



Z

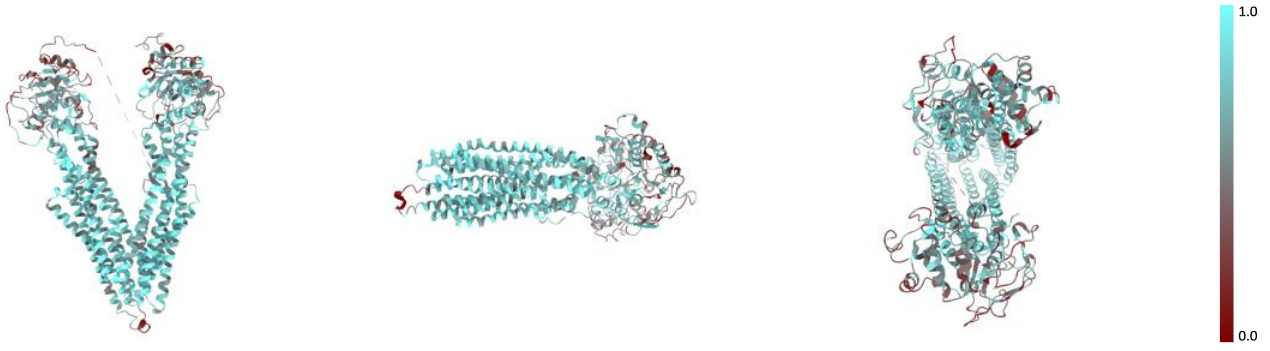
The images above show the 3D surface view of the map at the recommended contour level 0.3 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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.

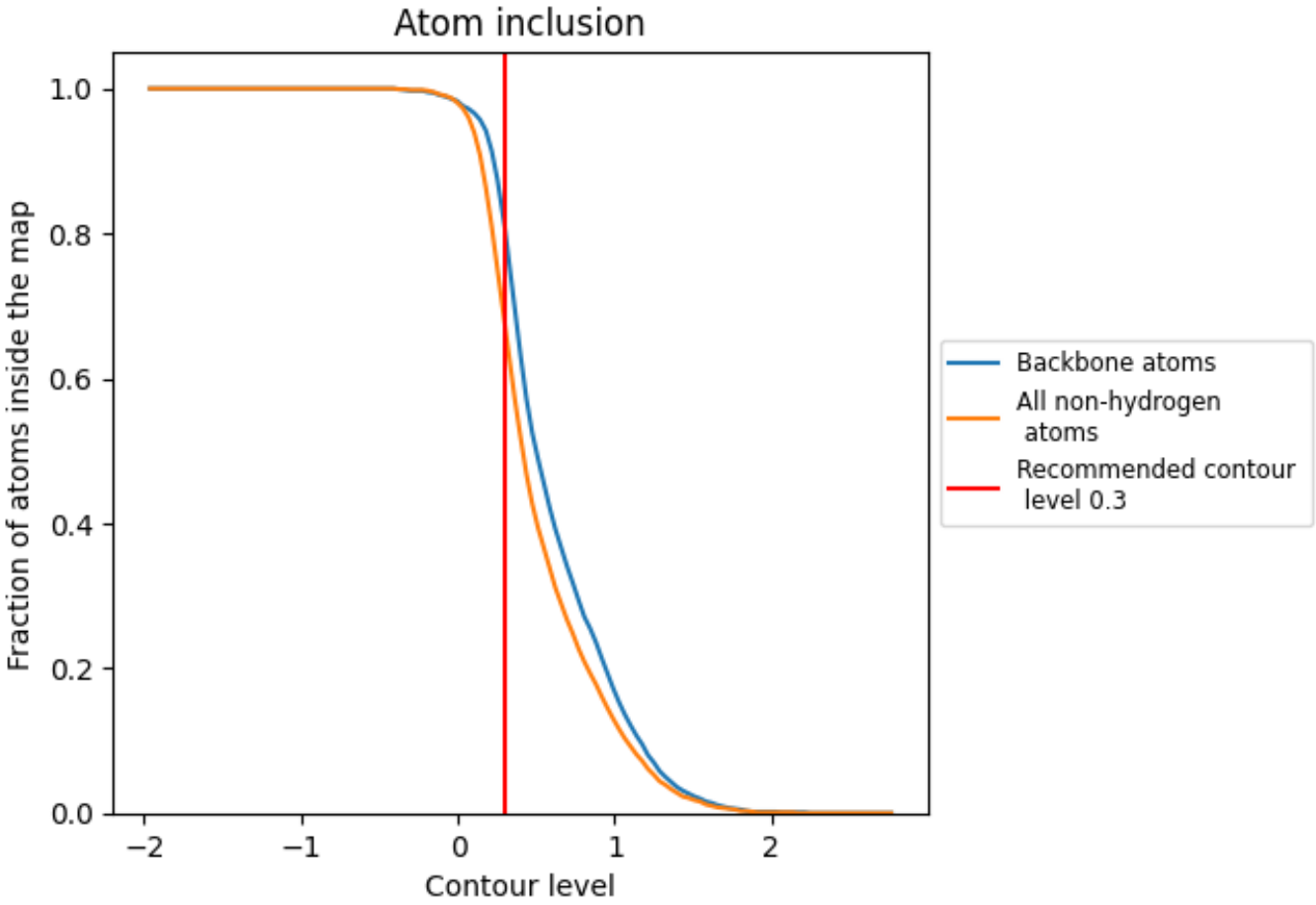
9.3 Atom inclusion mapped to coordinate model (i)



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, 81% of all backbone atoms, 68% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.3) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6760	0.3790
A	0.6760	0.3790