Full wwPDB EM Validation Report (i)

May 4, 2026 – 10:19 AM EDT

PDB ID	:	13BV / pdb_000013bv
EMDB ID	:	EMD-76934
Title	:	Cryo-EM structure of human PI3KC3-C1 complex
Authors	:	Chen, M.; Hurley, J.H.
Deposited on	:	2026-04-28
Resolution	:	3.77 Å(reported)
Based on initial model	:	9MHF

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 (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (i)) were used in the production of this report:

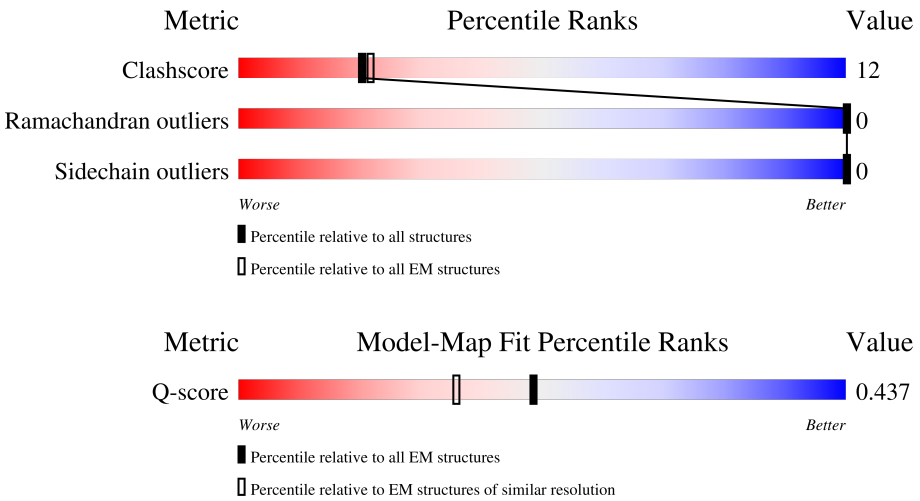
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

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 3.77 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	14557 (2.76 - 3.76)

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	B	887	• 20% 9% 71%
2	C	492	11% 41% 12% 47%
3	D	450	23% 47% 21% 32%
4	A	1358	11% 60% 24% 15%

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 15991 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 Phosphatidylinositol 3-kinase catalytic subunit type 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	B	256	2083	1334	354	380	15	0	0

- Molecule 2 is a protein called Beclin 1-associated autophagy-related key regulator.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	262	2148	1356	387	394	11	0	0

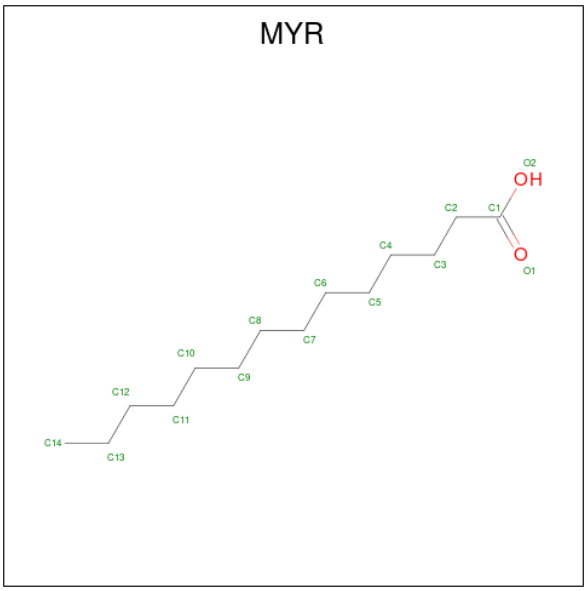
- Molecule 3 is a protein called Beclin-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	305	2518	1581	426	497	14	0	0

- Molecule 4 is a protein called Phosphoinositide 3-kinase regulatory subunit 4.

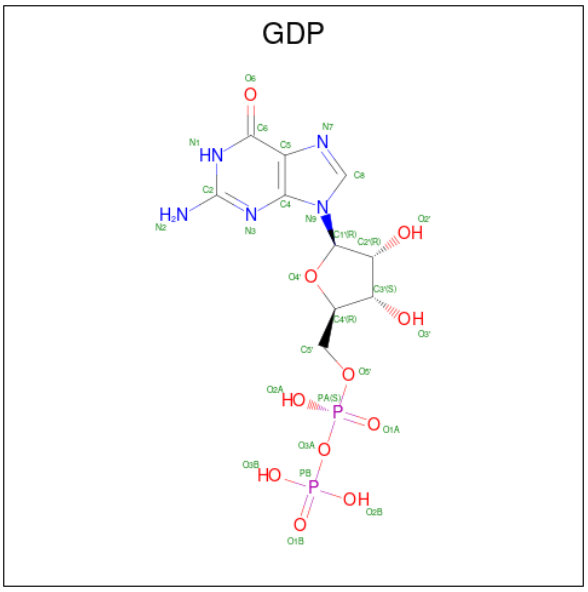
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	A	1153	9197	5869	1592	1690	46	0	0

- Molecule 5 is MYRISTIC ACID (CCD ID: MYR) (formula: $C_{14}H_{28}O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
5	A	1	16	14	2	0

- Molecule 6 is GUANOSINE-5'-DIPHOSPHATE (CCD ID: GDP) (formula: $C_{10}H_{15}N_5O_{11}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
6	A	1	28	10	5	11	2	0

- Molecule 7 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

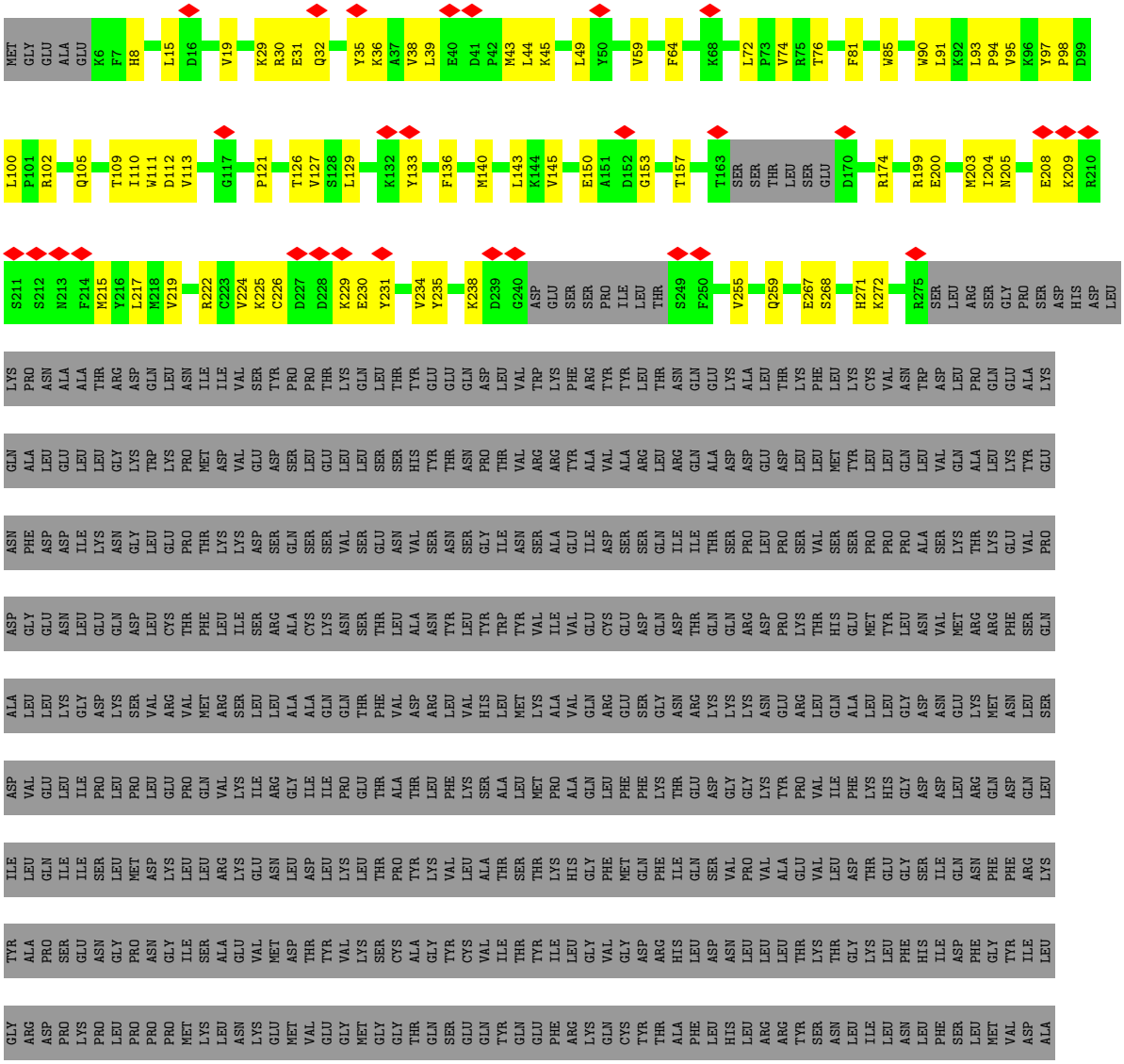
Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
7	A	1	1	1	0

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: Phosphatidylinositol 3-kinase catalytic subunit type 3

Chain B:

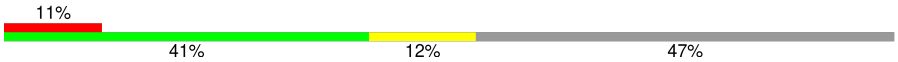


ASN ILE PRO ASP ILE ALA LEU GLU PRO ASP LYS THR VAL LYS LYS VAL GLN ASP LYS PHE ARG LEU ASP LEU SER ASP GLU GLU ALA VAL HIS TYR MET GLN SER LEU ILE ASP GLU SER VAL HIS ALA LEU PHE ALA ALA VAL VAL GLU GLN ILE HIS LYS PHE ALA GLN TYR TRP ARG

LYS

- Molecule 2: Beclin 1-associated autophagy-related key regulator

Chain C:



MET ALA SER PRO SER GLY LYS GLY ALA ARG ALA LEU GLU ALA PRO GLY CYS GLY PRO ARG PRO LEU ALA ARG ASP LEU VAL ASP SER VAL ASP ASP ALA GLU GLY LEU TYR VAL ALA VAL GLU ARG CYS PRO LEU CYS ASN THR THR ARG ARG ARG LEU THR CYS ALA LYS CYS VAL GLN

SER GLY ASP PHE VAL TYR PHE ASP GLY ARG ASP ARG GLU ARG F75 I76 D77 K78 K79 E80 R81 L82 S83 R84 L85 K86 S87 K88 Q89 E90 L97 K98 A99 M100 E101 G102 K103 D107 Q108 L109 R110 W111 M114 K117 M118 E121 Q122 L123 K124 Q125 T126 I127 C128 N131

E132 E133 M134 E135 K136 N137 S138 E139 G140 L141 L142 K145 E146 K147 N148 L151 Y152 S153 R154 R157 K161 K162 E163 K164 I165 Q166 R167 R170 E177 K178 K179 T180 I181 R184 R194 T202 P207 E210 V211 LYS THR GLY VAL ARG ASP PRO ALA ASP VAL

SER SER GLU SER ASP SER ALA MET THR SER SER THR VAL SER LYS LEU ALA GLU ALA ARG ARG THR THR TYR LEU SER GLY ARG TRP VAL CYS ASP ASP HIS ASN GLY D258 T264 I268 Y279 Y280 S281 TRP VAL GLU GLU LYS LYS THR THR GLN GLY PRO ASP MET GLU GLN

SER N298 P299 I303 L307 C308 T311 Q312 K313 V314 N315 I316 D322 C330 N331 S332 E333 F334 C335 G336 E337 N338 Q342 R346 K349 K350 L351 T355 C359 D367 Q368 L369 Q370 T374 E396 V397 R398 ALA ASP LEU GLU GLU SER MET GLU PHE VAL

ASP PRO GLY VAL ALA GLY GLU SER ASP GLU SER GLY ASP GLU ARG VAL SER ASP GLU GLU THR ASP LEU GLY THR ASP TRP GLU ASN LEU PRO SER PRO ARG PHE CYS ASP ILE PRO SER GLN SER VAL GLU VAL SER GLN SER GLN SER THR GLN ALA SER PRO PRO ILE ALA SER SER

SER ALA GLY GLY MET ILE SER SER ALA ALA ALA SER VAL THR SER TRP PHE LYS ALA TYR THR GLY HIS ARG

- Molecule 3: Beclin-1

Chain D:

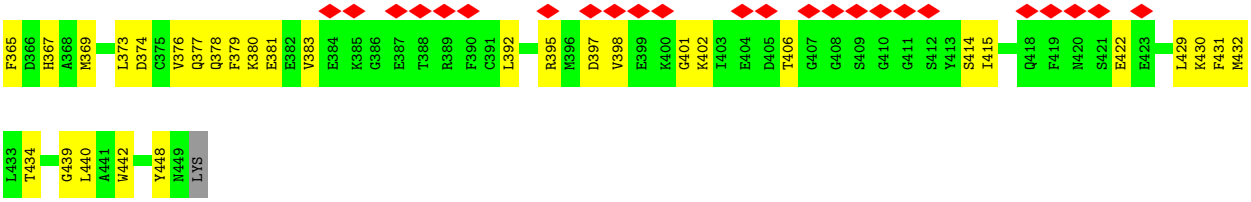
MET GLU GLY SER LYS THR SER ASN ASN SER THR MET GLN VAL SER PHE VAL CYS GLN ARG CYS SER GLN PRO LEU LYS LEU ASP THR SER PHE LYS ILE LEU ASP ARG VAL THR ILE GLN GLU LEU THR ALA PRO LEU LEU THR THR ALA GLN ALA LYS PRO GLY GLU THR GLN GLU GLU

GLU THR ASN SER GLY GLU GLU PRO PHE ILE GLU THR PRO ARG GLN ASP GLY VAL SER ARG ARG PHE ILE PRO PRO ALA ARG MET MET SER THR GLU SER ALA ASN SER PHE THR LEU ILE GLY GLU ALA SER ASP GLY GLY THR MET GLU ASN LEU SER ARG ARG LEU LYS VAL THR GLY

ASP LEU PHE ASP ILE MET SER GLY GLN THR ASP VAL ASP HIS PRO LEU C137 E138 E139 C140 T141 D142 T143 L144 L145 D146 Q147 L148 D149 T150 Q151 L152 N153 E156 N157 Q160 N161 Y162 K163 R164 C165 L166 E167 I168 L169 E170 Q171 M172 N173 E174 D175 D176 S177 E178 Q179 L180 Q181 M182

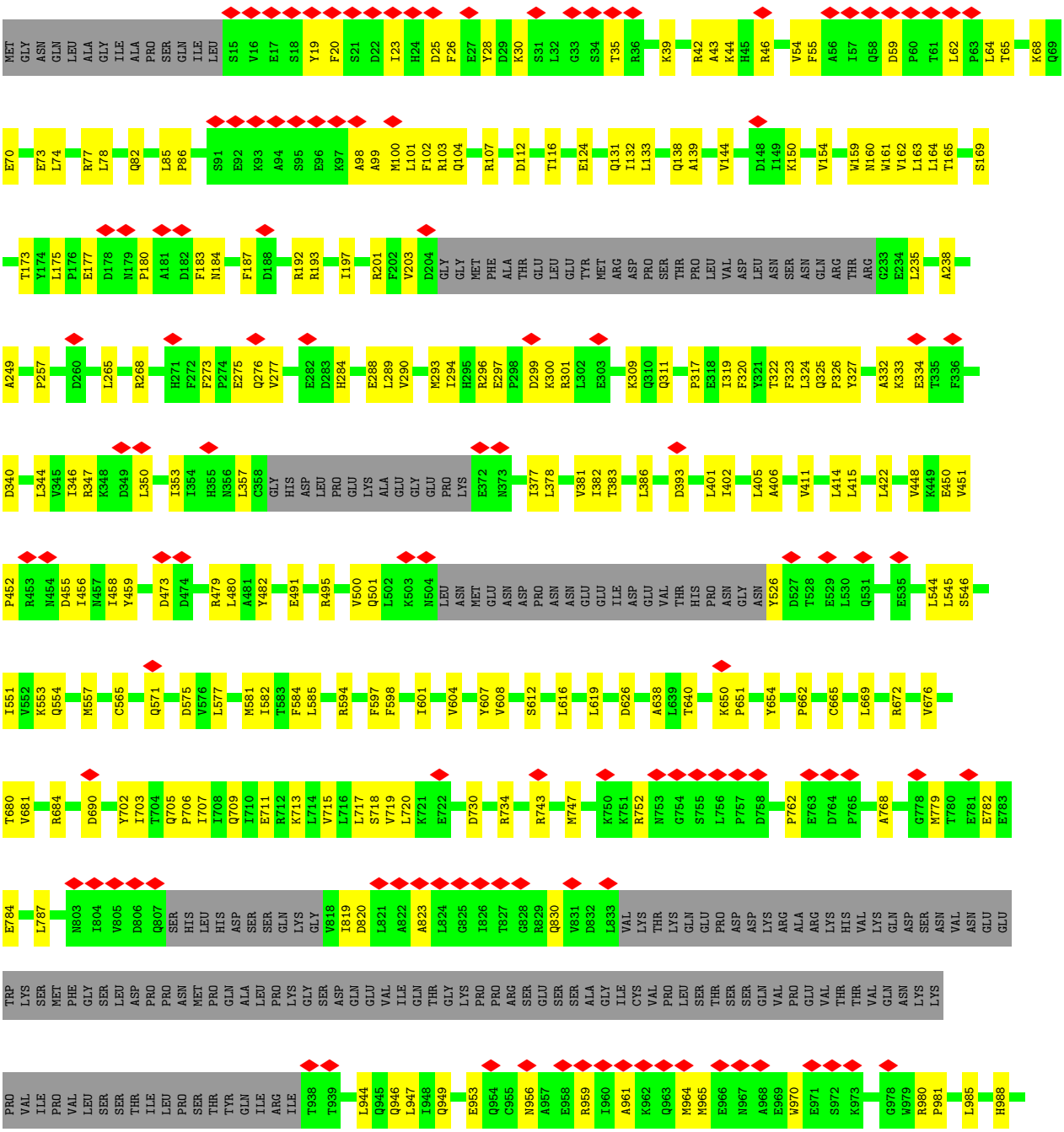
E183 L184 K185 E186 L187 A188 L189 E190 E191 E192 R193 L194 I195 Q196 E197 L198 E199 D200 V201 E202 K203 N204 R205 K206 I207 V208 A209 E210 N211 L212 E213 K214 V215 A219 L222 E226 Y229 Y233 S234 E235 F236 K237 R238 Q239 Q240 L241 N252 Q253 M254 R255 Y256 L264 K265

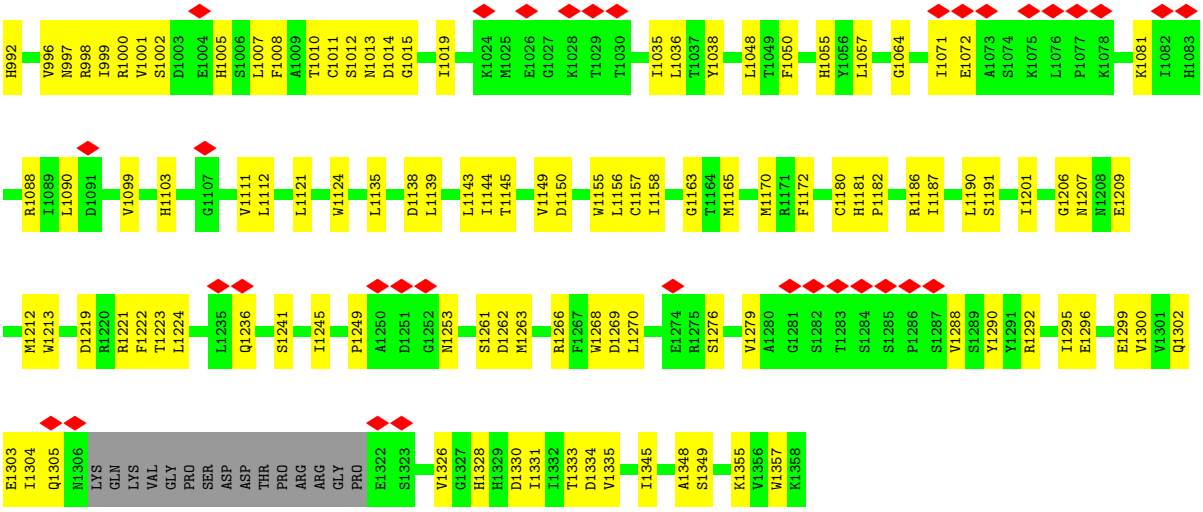
K266 F270 H275 I276 W277 H278 Q281 R289 L290 G291 R292 L293 P294 S295 V296 P297 V298 A305 A306 W307 G308 Q309 L313 M321 L330 Y333 H336 L339 T343 D344 K347 E348 L351 Y352 C353 S354 GLY GLY LEU ARG PHE PHE TRP ASP N363 K364



• Molecule 4: Phosphoinositide 3-kinase regulatory subunit 4

Chain A:




H992
V996
N997
R998
I999
R1000
V1001
S1002
D1003
E1004
H1005
S1006
L1007
F1008
A1009
T1010
C1011
S1012
N1013
D1014
G1015
I1019
K1024
M1025
E1026
G1027
K1028
T1029
T1030
I1035
L1036
T1037
Y1038
L1048
T1049
F1050
H1055
Y1056
L1057
G1064
I1071
E1072
A1073
S1074
K1075
L1076
P1077
K1078
K1081
I1082
H1083
R1088
I1089
L1090
D1091
V1099
H1103
G1107
V1111
L1112
L1121
W1124
L1135
D1138
L1139
L1143
I1144
T1145
V1149
D1150
W1155
L1156
C1157
I1158
G1163
T1164
M1165
M1170
R1171
F1172
C1180
H1181
P1182
R1186
I1187
L1190
S1191
I1201
G1206
N1207
N1208
E1209
M1212
W1213
D1219
R1220
R1221
F1222
T1223
L1224
L1235
Q1236
S1241
I1245
P1249
A1250
D1251
G1252
N1253
S1261
D1262
M1263
R1266
F1267
W1268
D1269
L1270
E1274
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S1276
V1279
A1280
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S1284
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V1288
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E1296
E1299
V1300
V1301
Q1302
E1303
I1304
Q1305
N1306
LYS
GLN
LYS
VAL
GLY
PRO
SER
ASP
ASP
THR
PRO
ARG
ARG
GLY
PRO
E1322
S1323
V1326
G1327
H1328
H1329
D1330
I1331
I1332
T1333
D1334
V1335
I1345
A1348
S1349
K1355
V1356
W1357
K1358

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	181267	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.327	Depositor
Minimum map value	-0.167	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.015	Depositor
Recommended contour level	0.2	Depositor
Map size (Å)	446.0, 446.0, 446.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.115, 1.115, 1.115	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: MYR, GDP, MG

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	B	0.18	0/2134	0.37	0/2877
2	C	0.17	0/2183	0.36	0/2927
3	D	0.18	0/2562	0.36	0/3449
4	A	0.18	0/9397	0.36	0/12738
All	All	0.18	0/16276	0.36	0/21991

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 (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	2083	0	2067	56	0
2	C	2148	0	2206	57	0
3	D	2518	0	2434	78	0
4	A	9197	0	9239	239	0
5	A	16	0	27	3	0
6	A	28	0	12	1	0
7	A	1	0	0	0	0
All	All	15991	0	15985	391	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 12.

All (391) 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)
2:C:308:CYS:SG	2:C:331:ASN:OD1	2.36	0.84
4:A:779:MET:HE2	4:A:784:GLU:HG2	1.66	0.77
4:A:26:PHE:HB3	4:A:43:ALA:HB1	1.69	0.75
3:D:380:LYS:HE2	3:D:392:LEU:HG	1.68	0.74
4:A:1057:LEU:HD22	4:A:1071:ILE:HD13	1.70	0.73
4:A:347:ARG:HA	4:A:401:LEU:HD21	1.71	0.72
3:D:203:LYS:HD3	3:D:206:LYS:HE3	1.71	0.72
4:A:238:ALA:HB1	4:A:301:ARG:HD2	1.72	0.71
4:A:999:ILE:HD11	4:A:1348:ALA:HB2	1.73	0.70
3:D:147:GLN:O	3:D:151:GLN:NE2	2.25	0.69
2:C:131:ASN:HA	2:C:134:MET:HG2	1.75	0.69
2:C:335:CYS:SG	3:D:305:ALA:CB	2.82	0.68
4:A:1328:HIS:ND1	4:A:1349:SER:OG	2.27	0.67
4:A:1292:ARG:NH1	4:A:1299:GLU:OE1	2.27	0.67
2:C:355:ILE:HD12	2:C:374:THR:HG23	1.75	0.67
4:A:249:ALA:HB2	4:A:290:VAL:HG11	1.77	0.67
4:A:581:MET:HE1	4:A:604:VAL:HG21	1.77	0.67
2:C:355:ILE:HD12	2:C:374:THR:CG2	2.24	0.67
4:A:998:ARG:NH1	4:A:1334:ASP:OD2	2.28	0.67
1:B:199:ARG:HG3	1:B:203:MET:HE1	1.77	0.66
2:C:308:CYS:HG	2:C:331:ASN:CG	2.04	0.65
1:B:255:VAL:O	4:A:104:GLN:NE2	2.25	0.65
4:A:20:PHE:HA	4:A:23:ILE:HD12	1.79	0.64
4:A:1207:ASN:HD21	4:A:1236:GLN:HA	1.63	0.64
1:B:45:LYS:NZ	2:C:118:MET:SD	2.70	0.64
4:A:268:ARG:O	4:A:296:ARG:NH1	2.30	0.64
3:D:395:ARG:HH21	3:D:406:THR:HG23	1.63	0.64
4:A:571:GLN:NE2	4:A:575:ASP:OD2	2.32	0.63
4:A:1011:CYS:HB3	4:A:1048:LEU:HD23	1.81	0.63
4:A:289:LEU:HD13	4:A:311:GLN:HE21	1.63	0.63
1:B:267:GLU:O	1:B:271:HIS:ND1	2.26	0.63
3:D:330:LEU:HD23	3:D:339:LEU:HD13	1.80	0.63
4:A:101:LEU:HD11	5:A:1401:MYR:H102	1.81	0.63
4:A:1145:THR:HG21	4:A:1186:ARG:HE	1.64	0.62
3:D:202:GLU:OE1	3:D:203:LYS:NZ	2.32	0.62
4:A:350:LEU:HD11	4:A:405:LEU:HD11	1.81	0.62
4:A:1262:ASP:OD2	4:A:1266:ARG:NH1	2.29	0.62
3:D:369:MET:HE1	3:D:429:LEU:HD21	1.81	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:297:GLU:HB2	4:A:300:LYS:HG2	1.81	0.62
4:A:64:LEU:HD12	5:A:1401:MYR:H112	1.80	0.62
4:A:180:PRO:O	4:A:184:ASN:ND2	2.32	0.62
4:A:1223:THR:HB	4:A:1300:VAL:HG22	1.81	0.62
4:A:491:GLU:O	4:A:495:ARG:HG2	2.00	0.61
2:C:335:CYS:SG	3:D:305:ALA:HB2	2.41	0.61
2:C:359:CYS:HB3	2:C:369:LEU:HD21	1.82	0.61
4:A:1144:ILE:HG23	4:A:1158:ILE:HG23	1.82	0.61
1:B:110:ILE:HD11	1:B:217:LEU:HD12	1.81	0.61
4:A:640:THR:HG23	4:A:681:VAL:HG21	1.83	0.60
3:D:369:MET:HE3	3:D:415:ILE:HG12	1.83	0.60
4:A:1149:VAL:HG13	4:A:1170:MET:HE1	1.83	0.60
4:A:346:ILE:O	4:A:350:LEU:HB2	2.02	0.60
4:A:25:ASP:HB3	4:A:46:ARG:HH12	1.67	0.60
2:C:207:PRO:HD2	2:C:264:THR:HA	1.84	0.60
4:A:159:TRP:HB2	4:A:381:VAL:HG22	1.83	0.60
2:C:335:CYS:SG	3:D:305:ALA:HB1	2.42	0.60
4:A:100:MET:HE3	4:A:102:PHE:HE1	1.67	0.59
4:A:82:GLN:HB3	4:A:161:TRP:HZ2	1.67	0.59
2:C:268:ILE:HD11	3:D:333:TYR:HA	1.84	0.59
2:C:162:LYS:HB2	3:D:229:TYR:HE1	1.68	0.58
1:B:74:VAL:HG23	1:B:94:PRO:HD3	1.86	0.58
4:A:383:THR:HA	4:A:386:LEU:HD12	1.85	0.58
4:A:480:LEU:HD21	4:A:551:ILE:HG23	1.87	0.57
1:B:105:GLN:HE21	1:B:126:THR:HG21	1.70	0.57
4:A:184:ASN:OD1	4:A:193:ARG:NH1	2.38	0.57
4:A:672:ARG:HE	4:A:720:LEU:HD13	1.70	0.57
1:B:145:VAL:HB	1:B:215:MET:HB2	1.87	0.57
4:A:99:ALA:HB1	5:A:1401:MYR:H121	1.86	0.57
4:A:616:LEU:HA	4:A:619:LEU:HD12	1.87	0.56
2:C:128:CYS:HA	2:C:131:ASN:ND2	2.20	0.56
4:A:177:GLU:OE1	4:A:268:ARG:NH1	2.38	0.56
2:C:161:LYS:HG2	2:C:165:ILE:HD11	1.88	0.56
3:D:365:PHE:O	3:D:369:MET:HG2	2.06	0.56
3:D:173:ASN:O	3:D:177:SER:CB	2.53	0.56
3:D:219:ALA:HA	3:D:222:LEU:HD12	1.87	0.56
4:A:177:GLU:HG3	4:A:265:LEU:HD22	1.86	0.56
4:A:1163:GLY:HA2	4:A:1187:ILE:HG12	1.88	0.56
2:C:110:ARG:HH12	4:A:706:PRO:HD2	1.71	0.56
4:A:150:LYS:NZ	6:A:1402:GDP:O3B	2.33	0.56
1:B:36:LYS:HA	1:B:39:LEU:HD12	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1150:ASP:OD2	4:A:1155:TRP:NE1	2.39	0.55
1:B:259:GLN:O	4:A:107:ARG:NH1	2.40	0.55
2:C:166:GLN:HG3	2:C:170:ARG:HH21	1.71	0.55
2:C:279:TYR:HB2	2:C:303:ILE:HG21	1.88	0.55
4:A:1295:ILE:HG22	4:A:1296:GLU:HG3	1.89	0.55
4:A:133:LEU:HD21	4:A:293:MET:HE1	1.87	0.55
3:D:202:GLU:HA	3:D:205:ARG:HG2	1.87	0.55
1:B:59:VAL:HG22	1:B:110:ILE:HG12	1.89	0.55
4:A:350:LEU:HA	4:A:353:ILE:HD12	1.88	0.55
3:D:173:ASN:O	3:D:177:SER:OG	2.25	0.55
1:B:174:ARG:NH1	4:A:1172:PHE:O	2.35	0.55
4:A:451:VAL:HG21	4:A:500:VAL:HG22	1.89	0.55
4:A:1288:VAL:HG12	4:A:1305:GLN:HA	1.89	0.55
1:B:105:GLN:NE2	1:B:157:THR:HG22	2.22	0.54
4:A:350:LEU:HD13	4:A:401:LEU:HD22	1.90	0.54
3:D:294:PRO:HG3	3:D:422:GLU:HB2	1.90	0.54
4:A:997:ASN:HA	4:A:1333:THR:HG21	1.89	0.54
4:A:28:TYR:OH	4:A:42:ARG:NH2	2.41	0.54
4:A:1333:THR:N	4:A:1348:ALA:O	2.41	0.54
1:B:43:MET:HA	1:B:43:MET:HE2	1.89	0.54
1:B:129:LEU:HB3	1:B:136:PHE:CE1	2.43	0.54
3:D:161:ASN:O	3:D:164:ARG:HG2	2.07	0.54
3:D:307:TRP:HZ2	3:D:369:MET:HE1	1.73	0.54
2:C:330:CYS:SG	2:C:332:SER:OG	2.63	0.53
3:D:169:LEU:HA	3:D:172:MET:HG2	1.89	0.53
4:A:35:THR:O	4:A:39:LYS:NZ	2.41	0.53
4:A:131:GLN:HB3	4:A:162:VAL:HB	1.88	0.53
4:A:970:TRP:CD1	4:A:1249:PRO:HD3	2.43	0.53
4:A:1158:ILE:O	4:A:1165:MET:HA	2.07	0.53
4:A:276:GLN:NE2	4:A:277:VAL:HG23	2.23	0.53
2:C:111:TRP:HB2	4:A:709:GLN:HE21	1.73	0.53
3:D:191:GLU:O	3:D:195:ILE:HG12	2.09	0.53
3:D:363:ASN:O	3:D:367:HIS:ND1	2.34	0.53
4:A:779:MET:HE3	4:A:787:LEU:HD12	1.90	0.53
1:B:229:LYS:NZ	1:B:230:GLU:O	2.41	0.53
3:D:252:ASN:ND2	4:A:1330:ASP:HA	2.23	0.53
3:D:336:HIS:HA	3:D:352:TYR:HB3	1.90	0.53
2:C:312:GLN:O	2:C:316:ILE:HG12	2.09	0.52
2:C:355:ILE:CD1	2:C:374:THR:CG2	2.87	0.52
4:A:411:VAL:HG11	4:A:450:GLU:HG2	1.92	0.52
4:A:782:GLU:OE1	4:A:782:GLU:N	2.43	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:35:TYR:OH	3:D:205:ARG:NH2	2.42	0.52
4:A:350:LEU:HA	4:A:353:ILE:HB	1.92	0.52
4:A:1253:ASN:ND2	4:A:1269:ASP:OD1	2.35	0.52
1:B:234:VAL:HG11	4:A:944:LEU:HD12	1.92	0.51
1:B:255:VAL:HG23	4:A:332:ALA:HA	1.92	0.51
4:A:1222:PHE:HD1	4:A:1299:GLU:HG3	1.75	0.51
1:B:97:TYR:HA	1:B:100:LEU:HD12	1.91	0.51
4:A:752:ARG:NH1	4:A:784:GLU:OE1	2.44	0.51
4:A:1201:ILE:HG12	4:A:1212:MET:HG2	1.93	0.51
2:C:131:ASN:OD1	2:C:132:GLU:N	2.43	0.51
4:A:684:ARG:NH2	4:A:711:GLU:O	2.43	0.51
3:D:377:GLN:O	3:D:381:GLU:HG2	2.11	0.51
4:A:124:GLU:OE2	4:A:160:ASN:ND2	2.43	0.51
4:A:192:ARG:HH22	4:A:257:PRO:HD3	1.75	0.51
4:A:1103:HIS:HB2	4:A:1112:LEU:HD12	1.93	0.51
2:C:322:ASP:OD2	3:D:256:TYR:OH	2.23	0.50
4:A:501:GLN:HG3	4:A:526:TYR:CE1	2.46	0.50
4:A:985:LEU:HD11	4:A:1355:LYS:HB3	1.93	0.50
3:D:377:GLN:OE1	3:D:398:VAL:HG13	2.12	0.50
4:A:154:VAL:HG22	4:A:164:LEU:HD13	1.94	0.50
4:A:1266:ARG:NE	4:A:1303:GLU:OE1	2.42	0.50
4:A:1206:GLY:H	4:A:1241:SER:HB3	1.76	0.50
4:A:1064:GLY:O	4:A:1090:LEU:N	2.44	0.50
3:D:374:ASP:O	3:D:378:GLN:HG3	2.11	0.50
4:A:585:LEU:HD21	4:A:597:PHE:CD2	2.46	0.50
3:D:173:ASN:O	3:D:177:SER:HB3	2.12	0.50
3:D:198:LEU:HA	3:D:201:VAL:HG12	1.94	0.50
4:A:949:GLN:O	4:A:953:GLU:HG2	2.12	0.50
1:B:72:LEU:HD11	4:A:554:GLN:HG2	1.93	0.50
2:C:123:LEU:HD21	3:D:194:LEU:HB2	1.94	0.50
3:D:170:GLU:O	3:D:173:ASN:HB3	2.12	0.50
4:A:961:ALA:HA	4:A:964:MET:HE2	1.94	0.50
2:C:177:GLU:O	2:C:181:ILE:HG23	2.11	0.49
3:D:430:LYS:O	3:D:434:THR:HG23	2.12	0.49
4:A:981:PRO:HB2	4:A:1279:VAL:HG21	1.94	0.49
3:D:252:ASN:ND2	4:A:1263:MET:HE2	2.27	0.49
4:A:103:ARG:HD2	4:A:165:THR:OG1	2.13	0.49
3:D:252:ASN:HD21	4:A:1263:MET:HE2	1.77	0.49
4:A:299:ASP:OD1	4:A:300:LYS:N	2.45	0.49
1:B:200:GLU:HA	1:B:203:MET:HE2	1.94	0.49
3:D:379:PHE:HE2	3:D:439:GLY:HA3	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:78:LEU:HB2	4:A:86:PRO:HG3	1.94	0.49
4:A:187:PHE:CG	4:A:197:ILE:HD11	2.48	0.49
4:A:1035:ILE:HG12	4:A:1036:LEU:HD12	1.94	0.49
4:A:1222:PHE:CZ	4:A:1270:LEU:HD22	2.47	0.49
2:C:89:GLN:NE2	3:D:148:LEU:O	2.46	0.49
4:A:452:PRO:HD2	4:A:455:ASP:HB2	1.93	0.49
4:A:1138:ASP:N	4:A:1138:ASP:OD1	2.46	0.49
1:B:224:VAL:HG22	4:A:819:ILE:HD13	1.94	0.49
4:A:996:VAL:HG13	4:A:1348:ALA:HB1	1.95	0.49
4:A:177:GLU:N	4:A:203:VAL:O	2.42	0.49
3:D:270:PHE:HD2	3:D:448:TYR:HE2	1.60	0.49
4:A:456:ILE:HG23	4:A:500:VAL:HG11	1.95	0.49
3:D:192:GLU:O	3:D:196:GLN:HG2	2.13	0.49
4:A:317:PRO:HD2	4:A:320:PHE:CE2	2.48	0.48
4:A:377:ILE:O	4:A:381:VAL:HG23	2.13	0.48
4:A:273:PHE:HD1	4:A:275:GLU:HG2	1.78	0.48
4:A:730:ASP:O	4:A:734:ARG:HG2	2.13	0.48
3:D:212:LEU:HA	3:D:215:VAL:HG22	1.94	0.48
4:A:415:LEU:HD21	4:A:448:VAL:HG21	1.95	0.48
4:A:553:LYS:HD3	4:A:584:PHE:CE1	2.49	0.48
1:B:111:TRP:HA	1:B:121:PRO:HA	1.95	0.48
4:A:54:VAL:HG22	4:A:100:MET:SD	2.53	0.48
1:B:38:VAL:HG22	1:B:44:LEU:HB3	1.96	0.48
2:C:142:LEU:O	2:C:145:LYS:HG2	2.13	0.48
4:A:654:TYR:OH	4:A:690:ASP:OD2	2.23	0.48
4:A:1328:HIS:CE1	4:A:1349:SER:HG	2.31	0.48
2:C:153:SER:O	2:C:157:ARG:HG3	2.14	0.48
4:A:1050:PHE:CE1	4:A:1071:ILE:HD11	2.48	0.48
4:A:173:THR:HG23	4:A:235:LEU:HD23	1.96	0.48
4:A:402:ILE:HG21	4:A:422:LEU:HD21	1.95	0.48
3:D:235:GLU:OE2	3:D:239:GLN:NE2	2.47	0.48
3:D:397:ASP:O	3:D:401:GLY:CA	2.62	0.48
4:A:501:GLN:HG3	4:A:526:TYR:CD1	2.49	0.48
1:B:226:CYS:HB3	1:B:231:TYR:CE1	2.49	0.47
1:B:255:VAL:HG11	4:A:163:LEU:HD11	1.94	0.47
4:A:28:TYR:HE1	4:A:30:LYS:HB2	1.80	0.47
4:A:85:LEU:O	4:A:165:THR:OG1	2.28	0.47
4:A:456:ILE:HD12	4:A:500:VAL:HG13	1.97	0.47
4:A:999:ILE:HD13	4:A:1010:THR:HG22	1.97	0.47
1:B:127:VAL:HG11	1:B:143:LEU:HD22	1.96	0.47
4:A:74:LEU:HD22	4:A:144:VAL:HG23	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:30:ARG:NH2	1:B:49:LEU:HB2	2.29	0.47
1:B:102:ARG:HB2	1:B:235:TYR:CE2	2.49	0.47
2:C:134:MET:SD	3:D:205:ARG:HB3	2.55	0.47
4:A:346:ILE:O	4:A:350:LEU:CB	2.62	0.47
4:A:1001:VAL:HA	4:A:1008:PHE:HB2	1.95	0.47
2:C:202:THR:O	2:C:207:PRO:HA	2.14	0.47
4:A:28:TYR:HB3	4:A:44:LYS:H	1.80	0.47
4:A:998:ARG:HH21	4:A:1000:ARG:NE	2.13	0.47
2:C:114:MET:HE2	4:A:718:SER:HB2	1.97	0.47
2:C:147:LYS:HE2	2:C:151:LEU:HD11	1.96	0.47
3:D:397:ASP:O	3:D:401:GLY:N	2.48	0.47
3:D:432:MET:HB3	3:D:432:MET:HE2	1.80	0.47
4:A:112:ASP:O	4:A:116:THR:N	2.39	0.47
4:A:74:LEU:HD22	4:A:144:VAL:CG2	2.45	0.47
4:A:594:ARG:NH2	4:A:626:ASP:OD2	2.37	0.47
4:A:1224:LEU:HD22	4:A:1268:TRP:CE3	2.49	0.47
3:D:373:LEU:HA	3:D:376:VAL:HG12	1.97	0.47
4:A:1019:ILE:HG12	4:A:1071:ILE:HD12	1.96	0.47
4:A:1180:CYS:SG	4:A:1181:HIS:N	2.88	0.47
4:A:1156:LEU:HD23	4:A:1170:MET:SD	2.55	0.47
4:A:1334:ASP:OD1	4:A:1335:VAL:N	2.48	0.47
3:D:290:LEU:HD12	3:D:306:ALA:HB1	1.96	0.46
4:A:73:GLU:HG3	4:A:77:ARG:HE	1.80	0.46
4:A:327:TYR:HE2	4:A:378:LEU:HD11	1.81	0.46
4:A:1038:TYR:HB2	4:A:1081:LYS:NZ	2.31	0.46
4:A:82:GLN:N	4:A:138:GLN:OE1	2.49	0.46
4:A:323:PHE:HD2	4:A:324:LEU:HD12	1.81	0.46
4:A:996:VAL:HG23	4:A:1011:CYS:O	2.16	0.46
4:A:1302:GLN:HG2	4:A:1304:ILE:HG13	1.98	0.46
1:B:225:LYS:HD2	1:B:230:GLU:HA	1.96	0.46
4:A:327:TYR:CE2	4:A:353:ILE:HD11	2.50	0.46
4:A:616:LEU:HD23	4:A:619:LEU:HD12	1.97	0.46
3:D:313:LEU:HD11	3:D:440:LEU:HD12	1.98	0.46
4:A:662:PRO:HA	4:A:702:TYR:CZ	2.51	0.46
4:A:1014:ASP:OD1	4:A:1015:GLY:N	2.49	0.46
4:A:1157:CYS:SG	4:A:1165:MET:HB3	2.56	0.46
4:A:139:ALA:HB1	4:A:144:VAL:HG13	1.98	0.45
4:A:1111:VAL:HA	4:A:1124:TRP:O	2.17	0.45
2:C:311:THR:HA	2:C:314:VAL:HG12	1.98	0.45
3:D:305:ALA:O	3:D:309:GLN:HG2	2.16	0.45
3:D:397:ASP:O	3:D:401:GLY:HA2	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1005:HIS:ND1	4:A:1072:GLU:OE2	2.48	0.45
4:A:1345:ILE:HB	4:A:1357:TRP:HB2	1.98	0.45
4:A:340:ASP:O	4:A:344:LEU:HG	2.16	0.45
4:A:1088:ARG:HB2	4:A:1124:TRP:HZ2	1.81	0.45
2:C:163:GLU:OE1	2:C:167:ARG:NH2	2.50	0.45
2:C:194:ARG:HG3	3:D:264:LEU:HD11	1.97	0.45
2:C:311:THR:O	2:C:314:VAL:HG12	2.16	0.45
3:D:402:LYS:HG2	3:D:414:SER:HA	1.98	0.45
4:A:85:LEU:HB3	4:A:165:THR:HB	1.98	0.45
4:A:100:MET:HE3	4:A:102:PHE:CE1	2.49	0.45
4:A:1182:PRO:HD3	4:A:1213:TRP:HH2	1.80	0.45
4:A:74:LEU:HD11	4:A:169:SER:HB3	1.98	0.45
4:A:598:PHE:O	4:A:638:ALA:HB2	2.17	0.45
4:A:743:ARG:O	4:A:747:MET:HG2	2.17	0.45
4:A:183:PHE:CD1	4:A:187:PHE:HB2	2.52	0.45
4:A:1326:VAL:O	4:A:1326:VAL:HG13	2.17	0.45
1:B:15:LEU:O	1:B:98:PRO:HD3	2.16	0.45
4:A:284:HIS:O	4:A:288:GLU:HG2	2.16	0.45
4:A:319:ILE:HG12	4:A:357:LEU:HD23	1.99	0.45
3:D:281:GLN:HB2	3:D:293:LEU:HD11	1.98	0.45
4:A:70:GLU:O	4:A:74:LEU:HG	2.17	0.45
4:A:762:PRO:HG2	4:A:768:ALA:HA	1.98	0.45
4:A:197:ILE:HG23	4:A:201:ARG:HD3	1.98	0.44
4:A:325:GLN:HB3	4:A:326:PRO:HD3	1.99	0.44
1:B:19:VAL:HG12	1:B:95:VAL:O	2.17	0.44
1:B:205:ASN:HA	1:B:208:GLU:HG3	1.99	0.44
2:C:103:LYS:HD3	3:D:169:LEU:HD13	1.99	0.44
4:A:473:ASP:O	4:A:479:ARG:NH1	2.45	0.44
4:A:382:ILE:O	4:A:386:LEU:HG	2.17	0.44
2:C:165:ILE:HD13	3:D:233:TYR:CE1	2.53	0.44
2:C:81:ARG:O	2:C:85:LEU:HD23	2.17	0.44
4:A:1036:LEU:HD23	4:A:1081:LYS:HD3	2.00	0.44
1:B:81:PHE:CD2	1:B:85:TRP:HD1	2.36	0.44
1:B:133:TYR:HB3	4:A:947:LEU:HD13	2.00	0.44
4:A:557:MET:HE1	4:A:597:PHE:HA	1.99	0.44
4:A:703:ILE:HG23	4:A:719:VAL:HG11	2.00	0.44
4:A:980:ARG:NH2	4:A:1269:ASP:OD2	2.51	0.44
4:A:1055:HIS:NE2	4:A:1072:GLU:O	2.51	0.44
1:B:76:THR:HG22	1:B:91:LEU:HD21	1.99	0.44
1:B:200:GLU:O	1:B:204:ILE:HG12	2.17	0.44
4:A:175:LEU:HD21	4:A:187:PHE:CE1	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1121:LEU:HB2	4:A:1135:LEU:HB2	2.00	0.44
4:A:85:LEU:HD21	4:A:104:GLN:HB3	1.99	0.43
3:D:174:GLU:HG2	3:D:175:ASP:N	2.33	0.43
3:D:270:PHE:CD2	3:D:448:TYR:HE2	2.36	0.43
3:D:321:MET:HE3	3:D:321:MET:HB2	1.89	0.43
4:A:333:LYS:O	4:A:334:GLU:HG2	2.19	0.43
4:A:1187:ILE:HG21	4:A:1190:LEU:HG	2.01	0.43
1:B:19:VAL:HG13	1:B:93:LEU:HB2	2.01	0.43
4:A:309:LYS:HB2	4:A:309:LYS:HE3	1.80	0.43
2:C:75:PHE:HD2	2:C:76:ILE:HG12	1.83	0.43
4:A:59:ASP:HB3	4:A:62:LEU:HG	2.00	0.43
4:A:132:ILE:HG12	4:A:154:VAL:HG11	2.00	0.43
1:B:31:GLU:O	1:B:32:GLN:HG3	2.18	0.43
1:B:224:VAL:HB	1:B:231:TYR:O	2.19	0.43
2:C:299:PRO:O	2:C:303:ILE:HG12	2.19	0.43
4:A:100:MET:C	4:A:101:LEU:HD12	2.44	0.43
4:A:601:ILE:HD12	4:A:601:ILE:HA	1.89	0.43
1:B:109:THR:HG21	1:B:150:GLU:HG3	2.01	0.43
4:A:565:CYS:HB3	4:A:607:TYR:CD2	2.54	0.43
4:A:669:LEU:HD23	4:A:669:LEU:HA	1.82	0.43
1:B:90:TRP:CZ3	1:B:222:ARG:HG3	2.54	0.43
2:C:110:ARG:CZ	4:A:705:GLN:HB2	2.48	0.43
4:A:1000:ARG:HG3	4:A:1048:LEU:O	2.19	0.43
1:B:112:ASP:OD1	1:B:113:VAL:N	2.50	0.43
4:A:28:TYR:HB3	4:A:43:ALA:HA	2.00	0.43
1:B:238:LYS:HA	1:B:238:LYS:HD3	1.79	0.42
4:A:662:PRO:HA	4:A:702:TYR:OH	2.19	0.42
4:A:676:VAL:HG11	4:A:717:LEU:HG	2.01	0.42
1:B:133:TYR:HE1	4:A:946:GLN:HG3	1.84	0.42
2:C:307:LEU:HD13	2:C:334:PHE:CE1	2.54	0.42
4:A:19:TYR:O	4:A:23:ILE:HG13	2.18	0.42
1:B:225:LYS:NZ	1:B:230:GLU:OE1	2.52	0.42
2:C:179:LYS:O	3:D:254:MET:HE2	2.19	0.42
4:A:956:ASN:HA	4:A:959:ARG:HG2	2.00	0.42
4:A:988:HIS:ND1	4:A:1355:LYS:HE2	2.34	0.42
4:A:992:HIS:ND1	4:A:1012:SER:HB2	2.34	0.42
2:C:134:MET:HE1	3:D:205:ARG:N	2.34	0.42
3:D:237:LYS:O	3:D:241:LEU:HG	2.19	0.42
4:A:290:VAL:O	4:A:294:ILE:HG12	2.19	0.42
4:A:1019:ILE:HD12	4:A:1019:ILE:H	1.83	0.42
4:A:1219:ASP:O	4:A:1221:ARG:HG2	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:140:MET:HE2	1:B:140:MET:HB3	1.96	0.42
4:A:65:THR:O	4:A:68:LYS:HG2	2.19	0.42
3:D:278:HIS:CG	3:D:434:THR:HG22	2.54	0.42
4:A:482:TYR:HD1	4:A:544:LEU:HD11	1.85	0.42
4:A:1276:SER:HB2	4:A:1290:TYR:CG	2.54	0.42
1:B:268:SER:O	1:B:272:LYS:HG2	2.20	0.42
4:A:820:ASP:HB3	4:A:823:ALA:HB3	2.01	0.42
2:C:163:GLU:O	2:C:166:GLN:HG2	2.19	0.42
2:C:351:LEU:O	2:C:355:ILE:HG13	2.19	0.42
3:D:402:LYS:HE3	3:D:414:SER:HB2	2.01	0.42
3:D:431:PHE:O	3:D:434:THR:OG1	2.27	0.42
4:A:319:ILE:HA	4:A:322:THR:HG22	2.02	0.42
4:A:406:ALA:HA	4:A:414:LEU:HD21	2.01	0.42
4:A:582:ILE:HG12	4:A:619:LEU:HD13	2.02	0.42
2:C:110:ARG:NH1	4:A:706:PRO:HD2	2.35	0.42
4:A:28:TYR:CB	4:A:44:LYS:H	2.32	0.42
4:A:393:ASP:N	4:A:393:ASP:OD1	2.52	0.42
4:A:1290:TYR:CE2	4:A:1303:GLU:HB2	2.55	0.42
2:C:81:ARG:HG3	3:D:145:LEU:HD11	2.02	0.41
2:C:147:LYS:O	2:C:151:LEU:HG	2.20	0.41
3:D:237:LYS:HA	3:D:237:LYS:HD2	1.91	0.41
4:A:1099:VAL:HG11	4:A:1143:LEU:HD11	2.00	0.41
4:A:1191:SER:HB2	4:A:1245:ILE:HD11	2.02	0.41
3:D:144:LEU:O	3:D:147:GLN:HG3	2.19	0.41
3:D:234:SER:OG	4:A:1139:LEU:HD22	2.20	0.41
4:A:319:ILE:HA	4:A:319:ILE:HD12	1.89	0.41
2:C:210:GLU:N	2:C:210:GLU:OE1	2.53	0.41
4:A:650:LYS:HB3	4:A:651:PRO:HD3	2.03	0.41
4:A:961:ALA:O	4:A:965:MET:HG3	2.20	0.41
4:A:1071:ILE:HG22	4:A:1081:LYS:HD2	2.02	0.41
1:B:29:LYS:HD3	1:B:30:ARG:H	1.85	0.41
2:C:75:PHE:CD2	2:C:76:ILE:HG12	2.56	0.41
2:C:367:ASP:OD1	2:C:368:GLN:N	2.53	0.41
3:D:380:LYS:HB3	3:D:392:LEU:HD11	2.03	0.41
4:A:545:LEU:HB3	4:A:584:PHE:HZ	1.85	0.41
1:B:217:LEU:HD22	1:B:219:VAL:HG23	2.02	0.41
3:D:292:ARG:HG3	3:D:298:VAL:H	1.84	0.41
4:A:608:VAL:HG11	4:A:612:SER:HB3	2.02	0.41
4:A:1012:SER:OG	4:A:1013:ASN:N	2.54	0.41
1:B:8:HIS:CD2	4:A:830:GLN:HB2	2.56	0.41
4:A:1209:GLU:HG3	4:A:1223:THR:HG23	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:162:LYS:HA	2:C:165:ILE:HD12	2.02	0.41
3:D:164:ARG:HA	3:D:167:GLU:CD	2.46	0.41
3:D:351:LEU:HD23	3:D:351:LEU:HA	1.91	0.41
4:A:707:ILE:HD11	4:A:719:VAL:HG21	2.03	0.41
4:A:715:VAL:O	4:A:719:VAL:HG23	2.21	0.41
4:A:1261:SER:HA	4:A:1331:ILE:HG12	2.02	0.41
1:B:64:PHE:CD2	1:B:153:GLY:HA3	2.56	0.41
1:B:225:LYS:O	4:A:820:ASP:HA	2.21	0.41
4:A:386:LEU:HD11	4:A:402:ILE:HD11	2.02	0.41
4:A:458:ILE:HG23	4:A:459:TYR:CD1	2.56	0.41
4:A:650:LYS:HG3	4:A:654:TYR:CE2	2.56	0.41
4:A:665:CYS:SG	4:A:702:TYR:HD1	2.44	0.41
1:B:209:LYS:HA	1:B:209:LYS:HD2	1.87	0.40
4:A:55:PHE:O	4:A:98:ALA:HB1	2.21	0.40
4:A:545:LEU:HD22	4:A:584:PHE:CE2	2.56	0.40
3:D:383:VAL:HG22	3:D:442:TRP:CE3	2.56	0.40
1:B:105:GLN:HE21	1:B:157:THR:HG22	1.86	0.40
2:C:154:ARG:NH2	3:D:226:GLU:HG3	2.37	0.40
4:A:680:THR:HG21	4:A:713:LYS:HA	2.04	0.40
4:A:1002:SER:OG	4:A:1007:LEU:O	2.34	0.40
4:A:546:SER:O	4:A:546:SER:OG	2.35	0.40
4:A:577:LEU:HD23	4:A:577:LEU:HA	1.97	0.40
2:C:349:LYS:HD2	2:C:349:LYS:HA	1.90	0.40
3:D:170:GLU:O	3:D:174:GLU:OE1	2.38	0.40
4:A:985:LEU:HD12	4:A:985:LEU:HA	1.93	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	B	250/887 (28%)	237 (95%)	13 (5%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	C	256/492 (52%)	250 (98%)	6 (2%)	0	100	100
3	D	301/450 (67%)	297 (99%)	4 (1%)	0	100	100
4	A	1139/1358 (84%)	1082 (95%)	57 (5%)	0	100	100
All	All	1946/3187 (61%)	1866 (96%)	80 (4%)	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	B	229/799 (29%)	229 (100%)	0	100	100
2	C	243/434 (56%)	243 (100%)	0	100	100
3	D	277/405 (68%)	277 (100%)	0	100	100
4	A	1017/1201 (85%)	1017 (100%)	0	100	100
All	All	1766/2839 (62%)	1766 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (18) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	105	GLN
1	B	213	ASN
2	C	108	GLN
3	D	151	GLN
3	D	160	GLN
3	D	216	GLN
3	D	252	ASN
4	A	311	GLN
4	A	427	ASN
4	A	454	ASN
4	A	538	GLN

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Mol	Chain	Res	Type
4	A	705	GLN
4	A	749	GLN
4	A	997	ASN
4	A	1013	ASN
4	A	1137	HIS
4	A	1236	GLN
4	A	1306	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)

Of 3 ligands modelled in this entry, 1 is monoatomic - leaving 2 for Mogul analysis.

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	$\#\|Z\| > 2$
6	GDP	A	1402	-	29,30,30	1.18	3 (10%)	45,47,47	1.79	6 (13%)
5	MYR	A	1401	-	15,15,15	0.54	0	15,15,15	1.05	2 (13%)

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
6	GDP	A	1402	-	-	6/16/32/32	0/3/3/3
5	MYR	A	1401	-	-	2/13/13/13	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	1402	GDP	C5-C4	2.98	1.46	1.38
6	A	1402	GDP	C6-N1	-2.68	1.33	1.38
6	A	1402	GDP	C5-N7	-2.31	1.34	1.39

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	A	1402	GDP	C5-C4-N3	-6.34	118.30	128.39
6	A	1402	GDP	C2-N3-C4	5.06	121.02	112.30
6	A	1402	GDP	N9-C4-N3	4.77	135.48	125.95
6	A	1402	GDP	C6-C5-N7	2.92	135.60	130.29
6	A	1402	GDP	C4-C5-N7	-2.40	106.86	110.67
6	A	1402	GDP	O6-C6-C5	-2.38	120.26	126.53
5	A	1401	MYR	C3-C2-C1	-2.18	108.81	114.51
5	A	1401	MYR	O2-C1-C2	2.00	120.33	114.00

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	1402	GDP	C5'-O5'-PA-O3A
6	A	1402	GDP	C5'-O5'-PA-O1A
6	A	1402	GDP	C5'-O5'-PA-O2A
6	A	1402	GDP	C3'-C4'-C5'-O5'
6	A	1402	GDP	O4'-C4'-C5'-O5'
6	A	1402	GDP	C4'-C5'-O5'-PA
5	A	1401	MYR	O2-C1-C2-C3
5	A	1401	MYR	O1-C1-C2-C3

There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	1402	GDP	1	0

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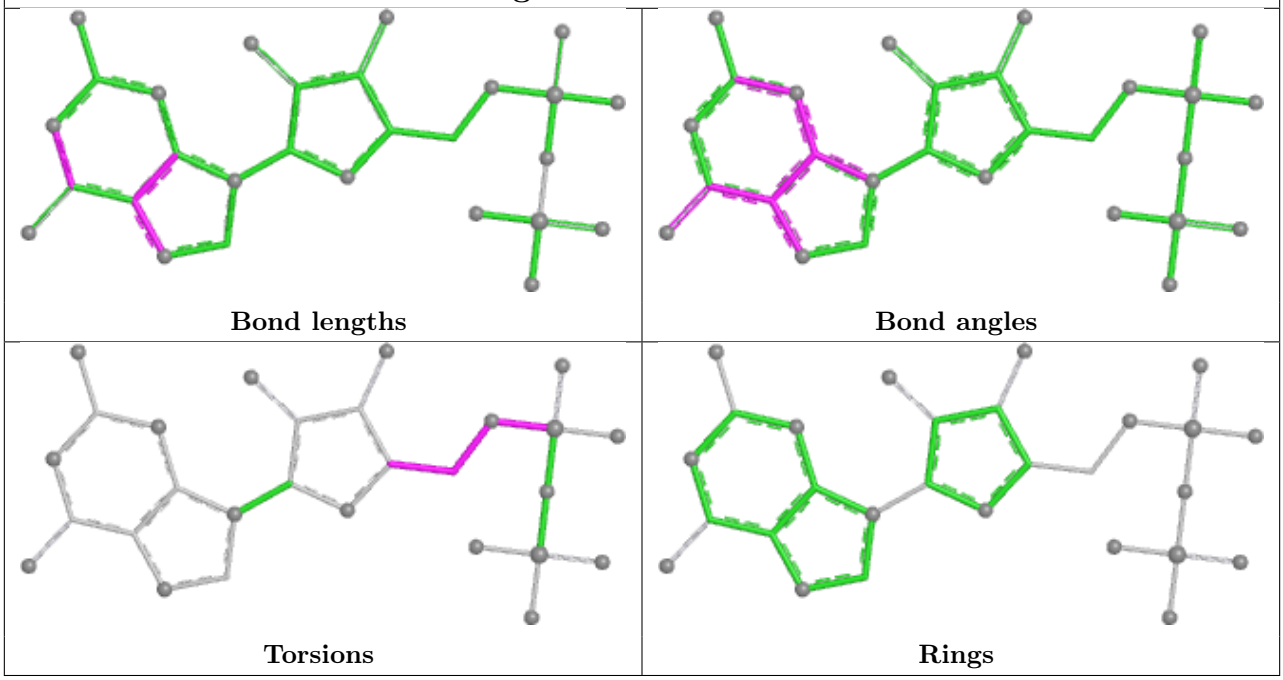
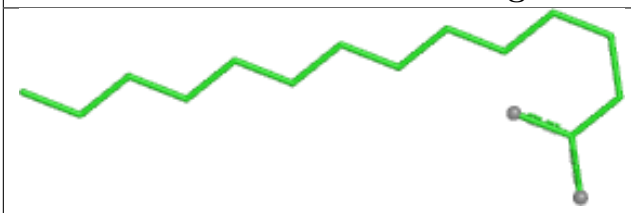
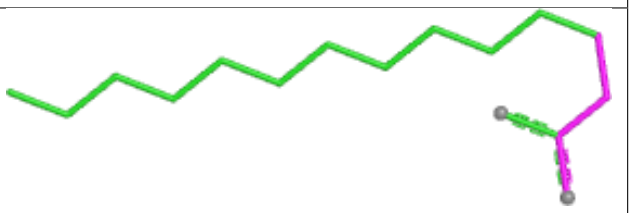
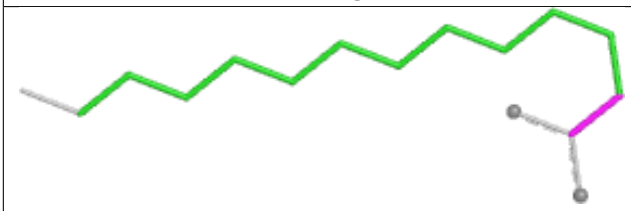
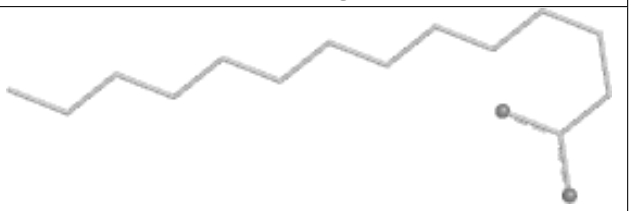
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	1401	MYR	3	0

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 GDP A 1402



Ligand MYR A 1401	
 Bond lengths	 Bond angles
 Torsions	 Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

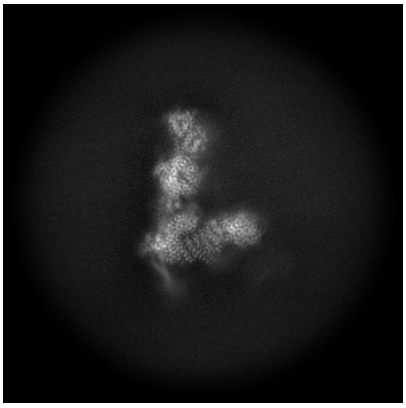
6 Map visualisation (i)

This section contains visualisations of the EMDB entry EMD-76934. These allow visual inspection of the internal detail of the map and identification of artifacts.

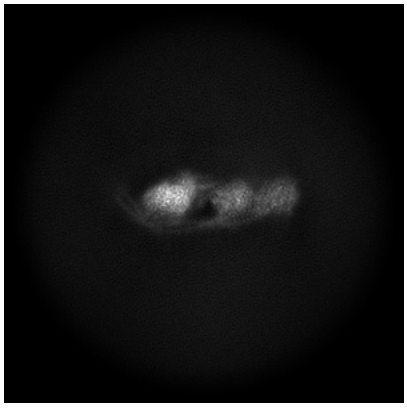
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections (i)

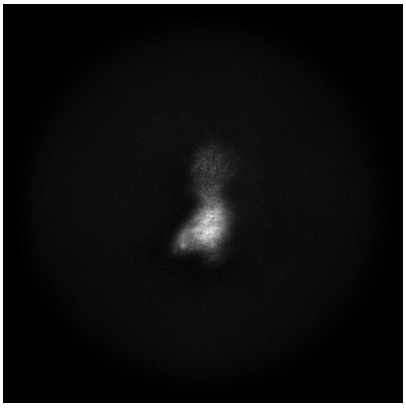
6.1.1 Primary map



X



Y

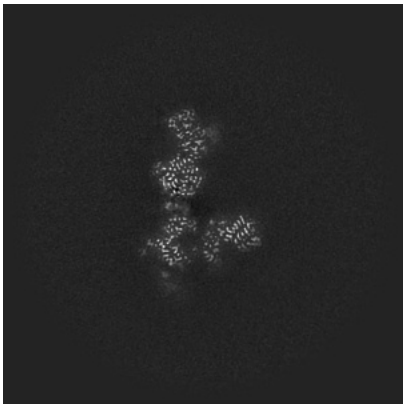


Z

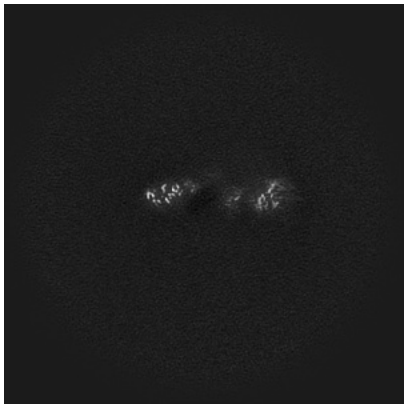
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

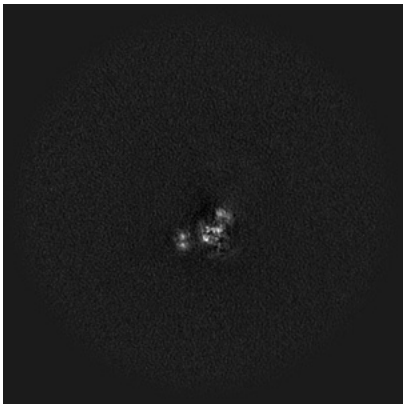
6.2.1 Primary map



X Index: 200



Y Index: 200

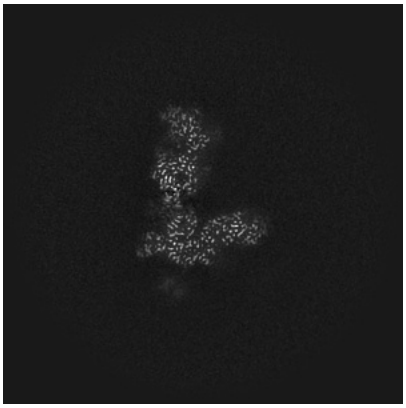


Z Index: 200

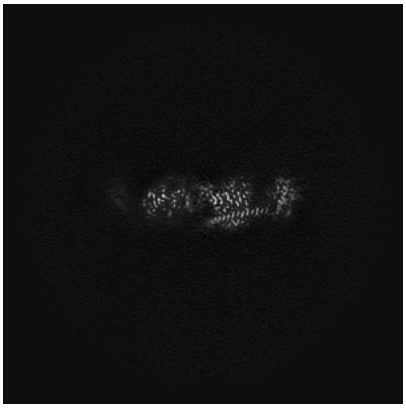
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

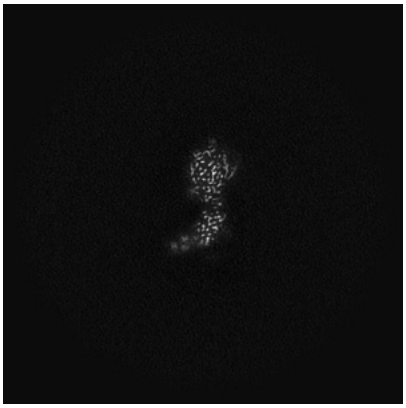
6.3.1 Primary map



X Index: 208



Y Index: 171

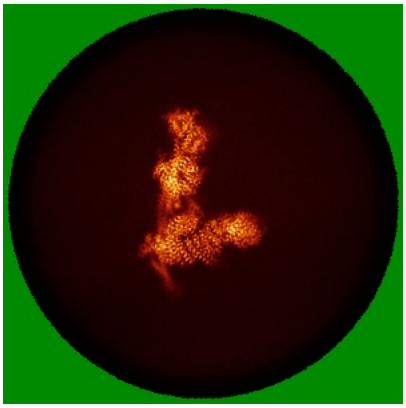


Z Index: 174

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

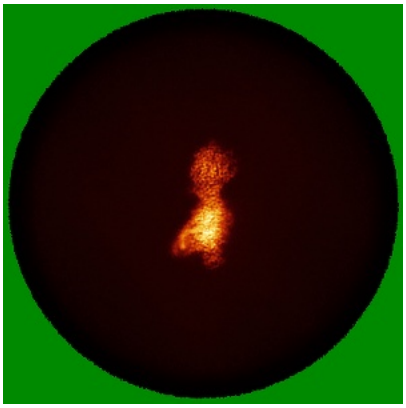
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map



X

Y



Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.2. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

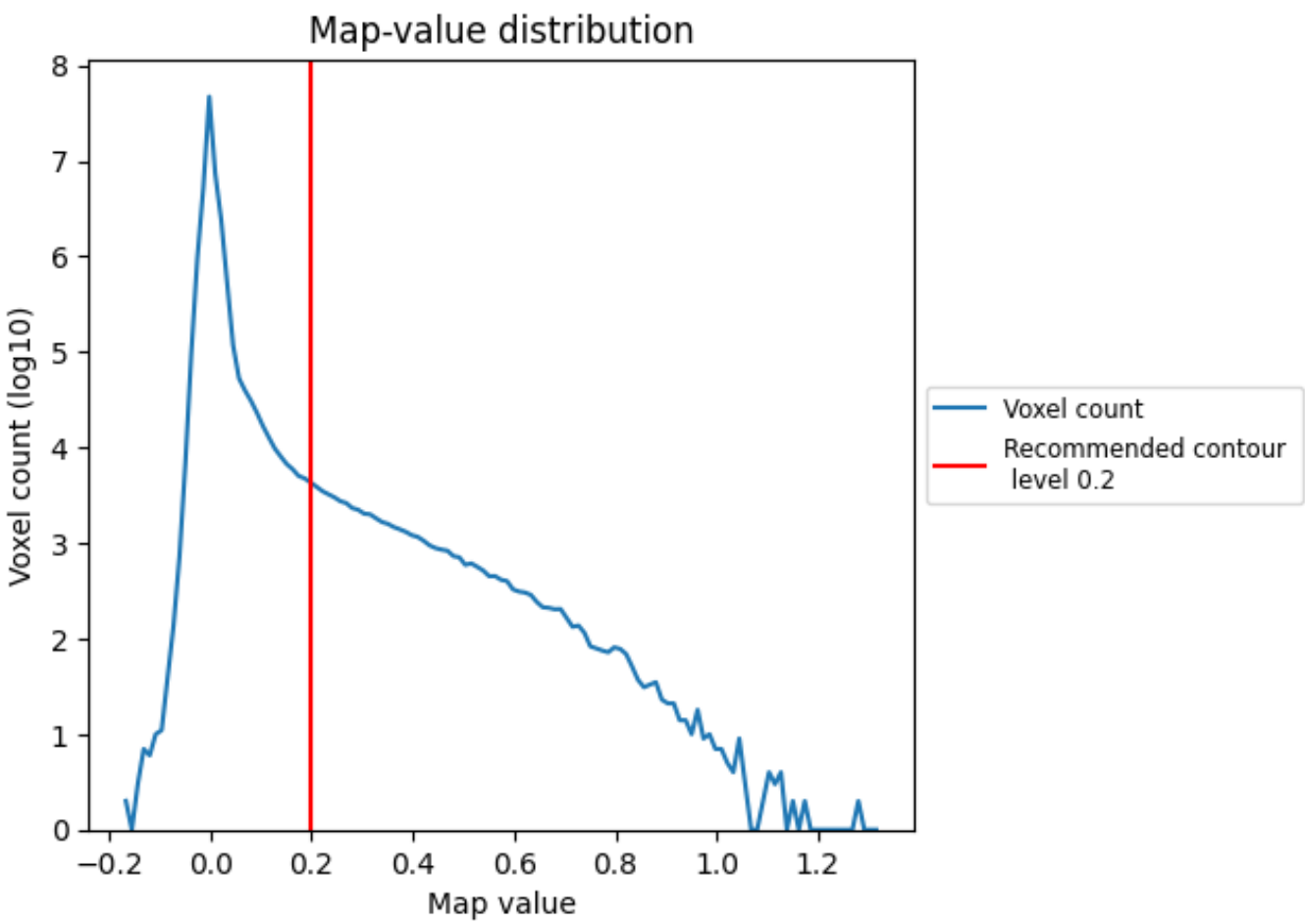
6.6 Mask visualisation (i)

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

7 Map analysis (i)

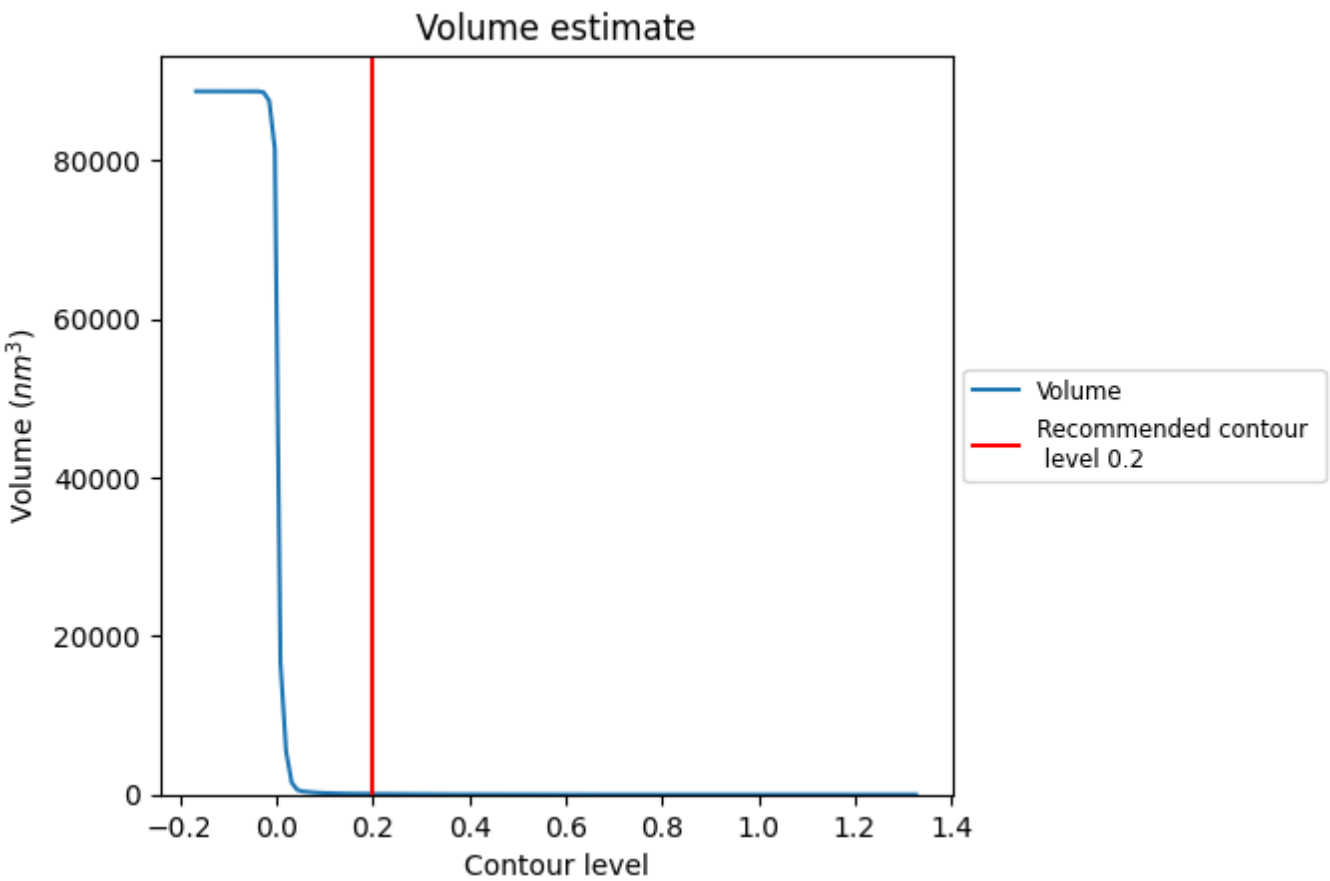
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution (i)



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

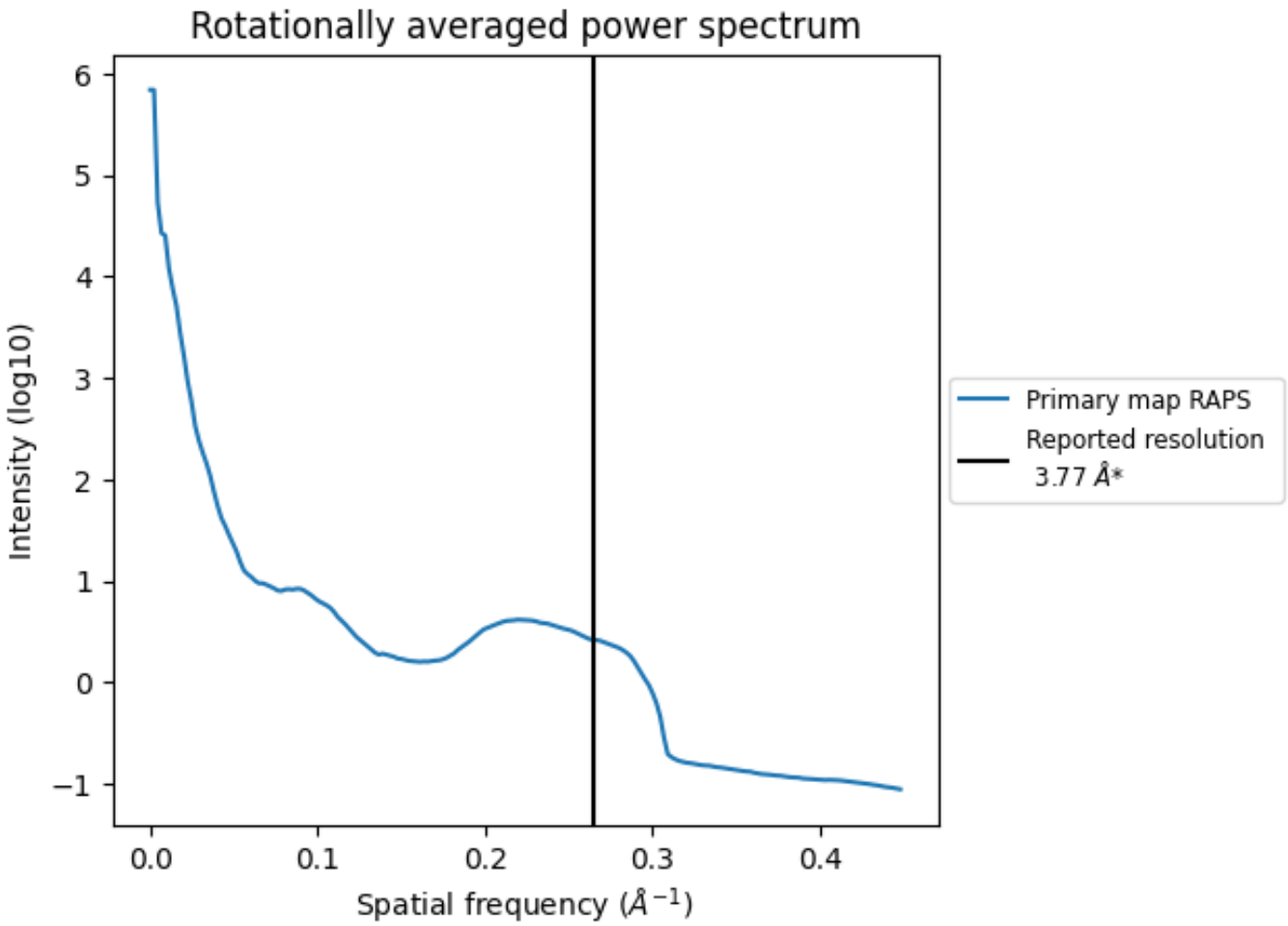
7.2 Volume estimate (i)



The volume at the recommended contour level is 78 nm^3; this corresponds to an approximate mass of 71 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 0.265 Å^{-1}

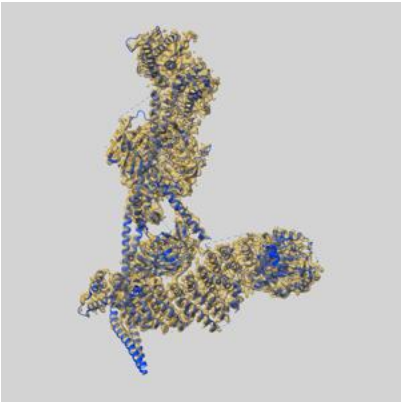
8 Fourier-Shell correlation (i)

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

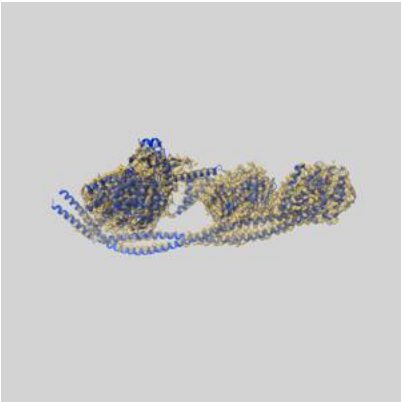
9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-76934 and PDB model 13BV. Per-residue inclusion information can be found in section 3 on page 6.

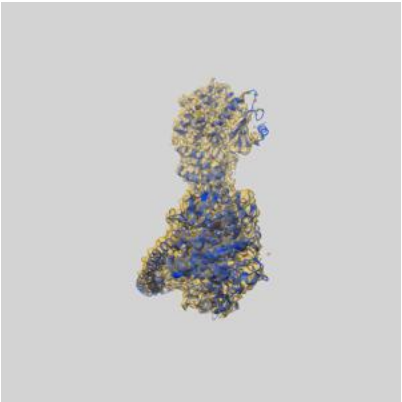
9.1 Map-model overlay (i)



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.2 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

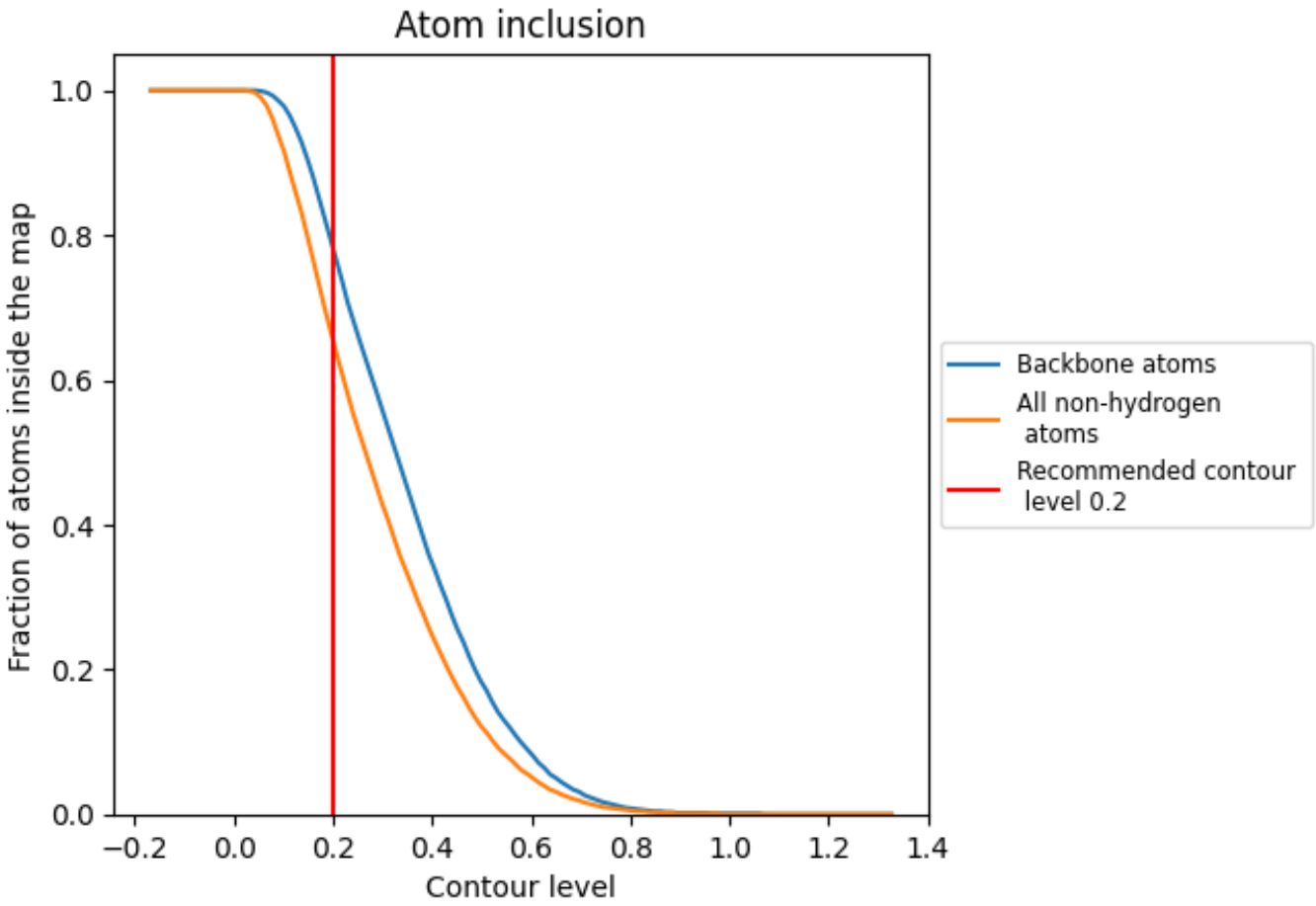
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.2).

9.4 Atom inclusion (i)



At the recommended contour level, 78% of all backbone atoms, 66% 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 (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6550	0.4370
A	0.6910	0.4640
B	0.6940	0.4480
C	0.6100	0.3960
D	0.5270	0.3610