W O R L D W I D E

wwPDB

P R O T E I N   D A T A   B A N K

wwPDB EM Validation Summary Report (i)

Nov 14, 2022 – 11:14 AM EST

PDB ID	:	7JHG
EMDB ID	:	EMD-22336
Title	:	Cryo-EM structure of ATP-bound fully inactive AMPK in complex with Dorsomorphin (Compound C) and Fab-nanobody
Authors	:	Yan, Y.; Murkherjee, S.; Zhou, X.E.; Xu, T.H.; Xu, H.E.; Kossiakoff, A.A.; Melcher, K.
Deposited on	:	2020-07-20
Resolution	:	3.47 Å(reported)
Based on initial models	:	6CMO, 6H16, 4RER

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

EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.47 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	Percentile Ranks	Value
Clashscore		4
Ramachandran outliers		0
Sidechain outliers		0.1%

Worse *Better*

▮ Percentile relative to all structures
▯ Percentile relative to all EM structures
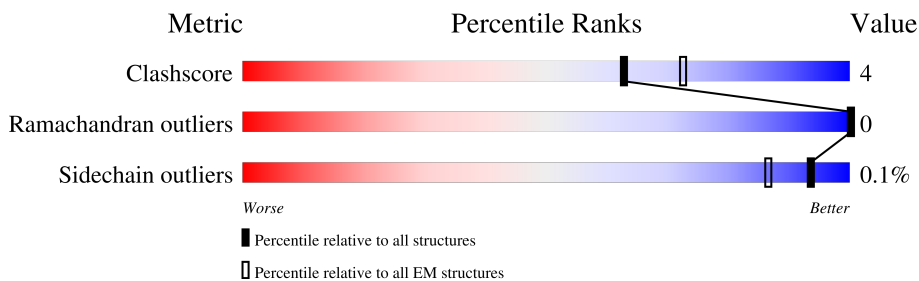
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	484	7% / 64% / 14% / 21%
2	B	198	18% / 41% / 6% / 53%
3	G	306	5% / 89% / 9% / ·
4	M	373	10% / 91% / 8% / ·
5	L	215	· / 87% / 11% / ·
6	H	237	5% / 87% / 9% / ·
7	N	159	15% / 62% / 13% / 25%
8	D	2	100%

2 Entry composition ⓘ

There are 12 unique types of molecules in this entry. The entry contains 13457 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 5'-AMP-activated protein kinase catalytic subunit alpha-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	380	Total 3083	C 1977	N 541	O 547	S 18	0	0

- Molecule 2 is a protein called 5'-AMP-activated protein kinase subunit beta-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	93	Total 736	C 479	N 123	O 130	S 4	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	75	MET	GLN	conflict	UNP O43741
B	199	ALA	GLU	conflict	UNP O43741
B	200	ALA	GLU	conflict	UNP O43741

- Molecule 3 is a protein called 5'-AMP-activated protein kinase subunit gamma-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	G	300	Total 2421	C 1572	N 403	O 439	S 7	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	22	MET	-	expression tag	UNP P54619
G	23	GLY	-	expression tag	UNP P54619

- Molecule 4 is a protein called Maltodextrin-binding protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	M	367	Total 2834	C 1826	N 460	O 542	S 6	0	0

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	-1	MET	-	initiating methionine	UNP C3SHQ8
M	82	ALA	ASP	conflict	UNP C3SHQ8
M	83	ALA	LYS	conflict	UNP C3SHQ8
M	239	ALA	LYS	conflict	UNP C3SHQ8
M	367	ASN	-	expression tag	UNP C3SHQ8
M	368	ALA	-	expression tag	UNP C3SHQ8
M	369	ALA	-	expression tag	UNP C3SHQ8
M	370	GLU	-	expression tag	UNP C3SHQ8
M	371	PHE	-	expression tag	UNP C3SHQ8

- Molecule 5 is a protein called Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	L	211	Total 1601	C 997	N 271	O 328	S 5	0	0

- Molecule 6 is a protein called Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	H	228	Total 1723	C 1098	N 279	O 339	S 7	0	0

- Molecule 7 is a protein called Nanobody.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	N	120	Total 925	C 574	N 163	O 184	S 4	0	0

- Molecule 8 is an oligosaccharide called alpha-D-glucopyranose-(1-4)-alpha-D-glucopyranose.

Mol	Chain	Residues	Atoms			AltConf	Trace
8	D	2	Total 23	C 12	O 11	0	0

- Molecule 9 is 6-[4-(2-piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-a]pyrim idine (three-letter code: TAK) (formula: $C_{24}H_{25}N_5O$) (labeled as "Ligand of Interest" by depositor).
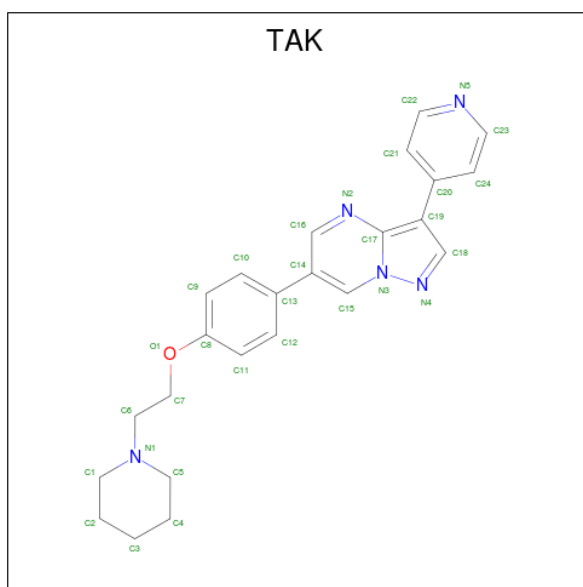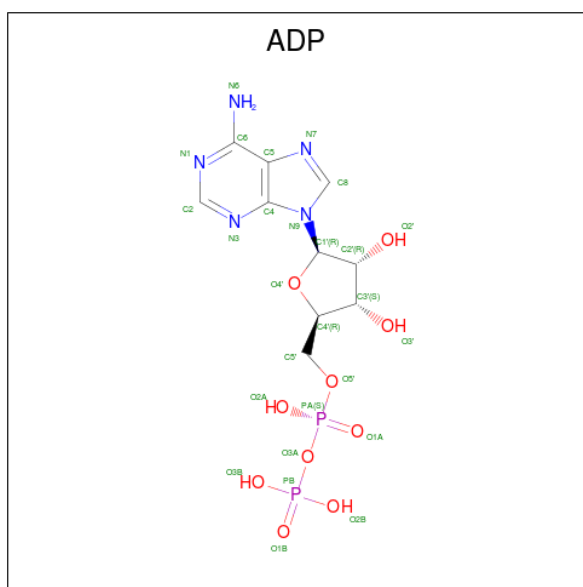
Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
9	A	1	30	24	5	1	0

- Molecule 10 is ADENOSINE-5'-TRIPHOSPHATE (three-letter code: ATP) (formula: $C_{10}H_{16}N_5O_{13}P_3$).
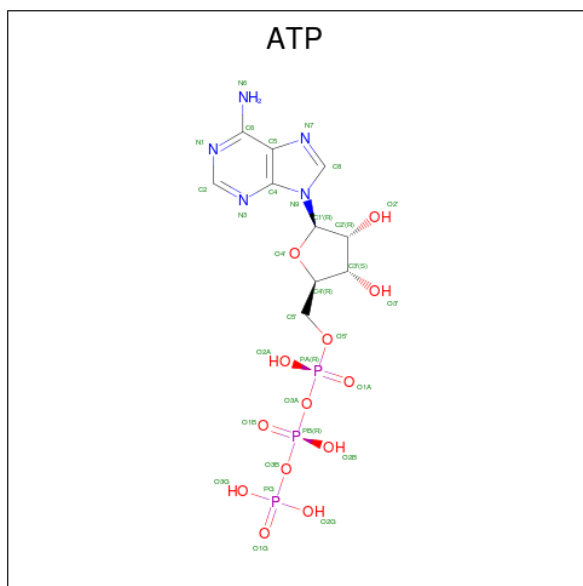
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
10	G	1	31	10	5	13	3	0

- Molecule 11 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).

Mol	Chain	Residues	Atoms					AltConf
11	G	1	Total	C	N	O	P	0
			27	10	5	10	2	

- Molecule 12 is ADENOSINE MONOPHOSPHATE (three-letter code: AMP) (formula: $C_{10}H_{14}N_5O_7P$).
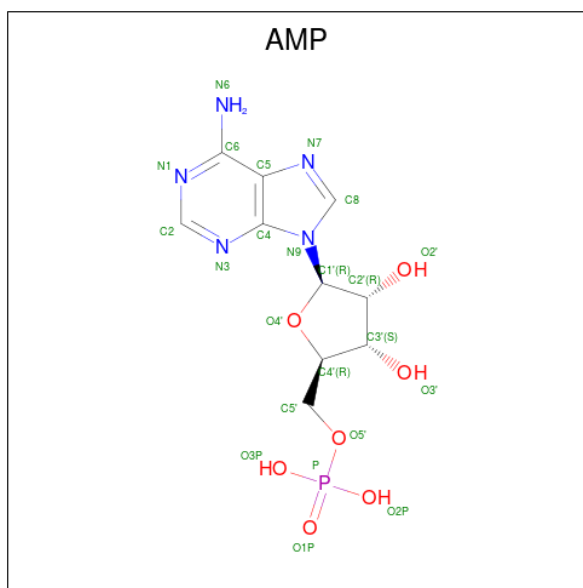
Mol	Chain	Residues	Atoms					AltConf
12	G	1	Total	C	N	O	P	0
			23	10	5	7	1	

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: 5'-AMP-activated protein kinase catalytic subunit alpha-1
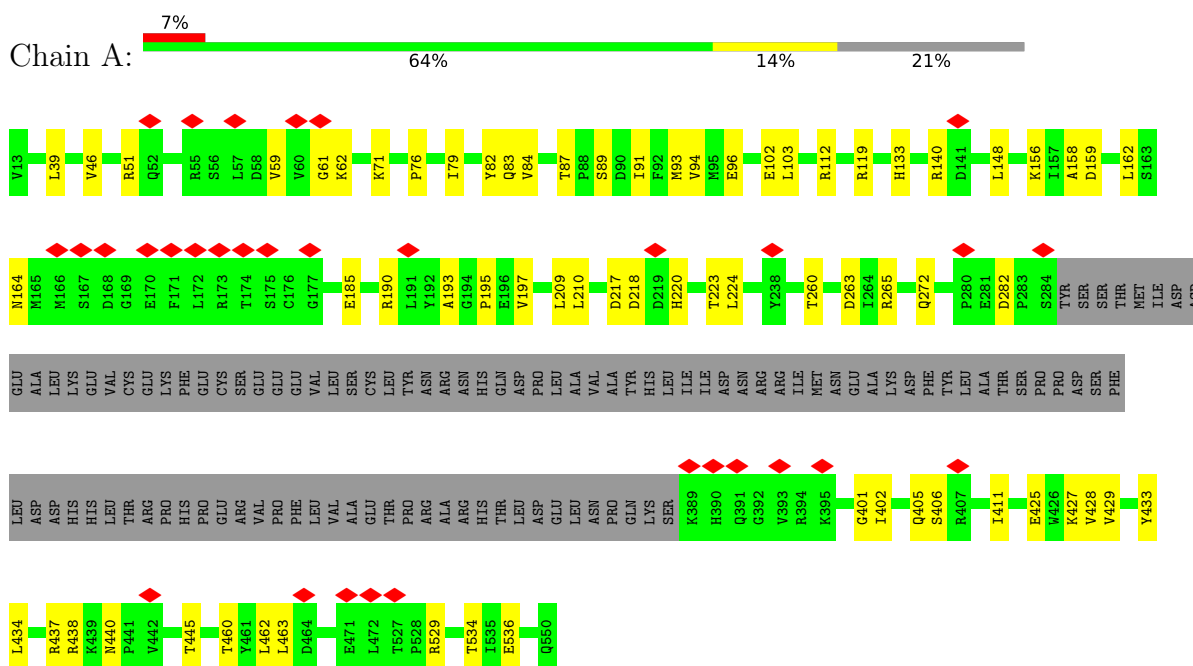
Chain A:

- Molecule 2: 5'-AMP-activated protein kinase subunit beta-2
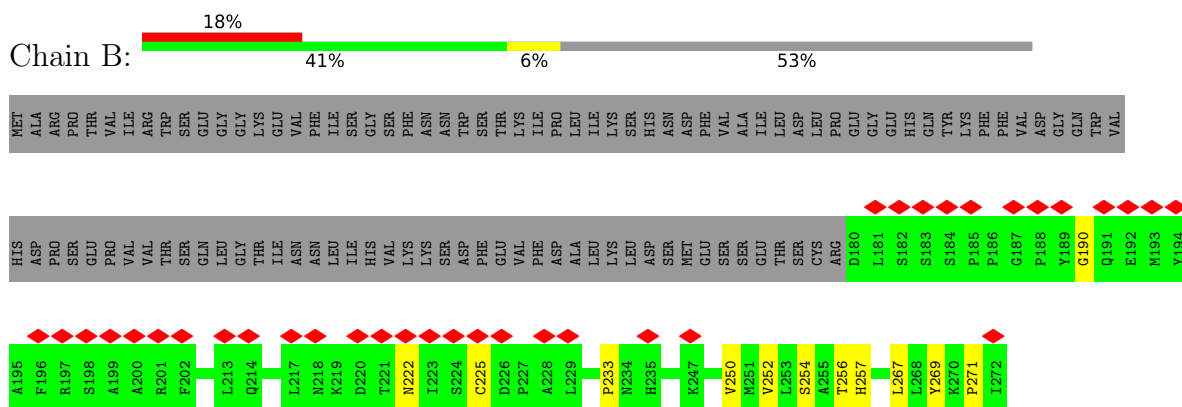
Chain B:

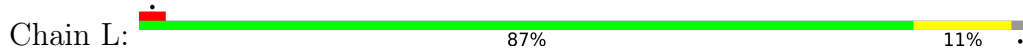- Molecule 3: 5'-AMP-activated protein kinase subunit gamma-1

Chain G:
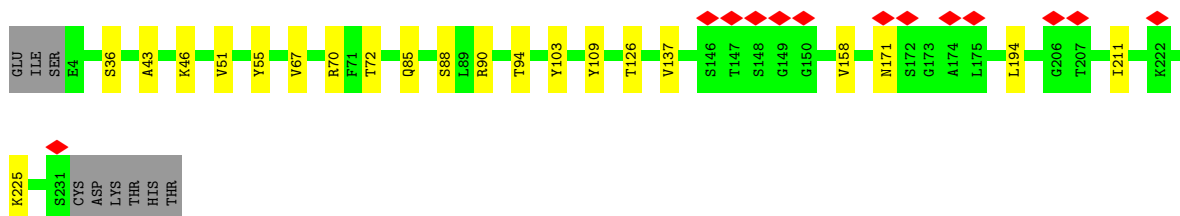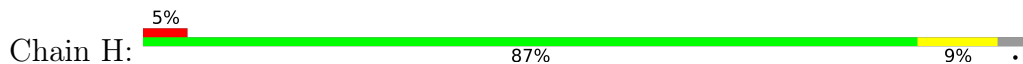
MET GLY SER N25 C38 I41 L55 Q56 K59 F82 T89 L95 Q123 D124 S125 L129 H151 R152 L178 E182 F183 P184 E195 G199 V207 R208 T211 P212 A227 V230 V231 D232 E233 R236 N248 L258 H268

H271 E274 K278 R299 L300 V301 V302 V303 D304 E305 N306 I312 D317 L324 THR GLY GLY
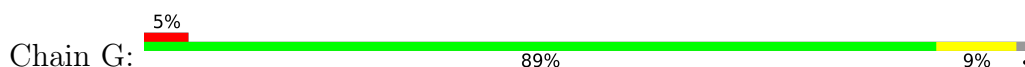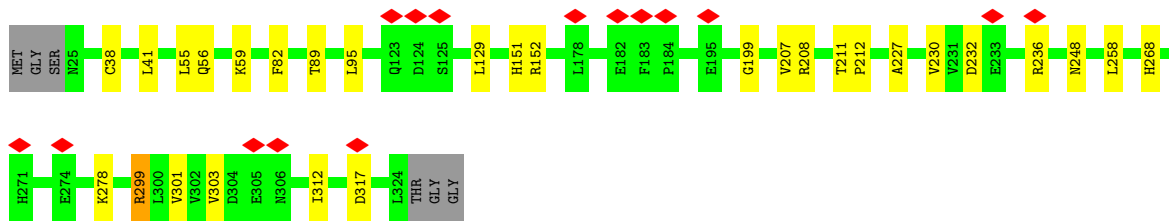
• Molecule 4: Maltodextrin-binding protein

Chain M:
10%
91%
8%

MET ALA LYS ILE GLU GLU G5 K6 N18 G19 L20 A21 E22 K25 K29 D30 T31 G32 P40 L43 E44 E45 A52 D55 G56 I60 E78 P81 A84 F85 Q86 Y90 T93 R98 L115 I116 D120 L121 L122 P126 K127 T128 W129

E130 A134 K137 E138 A141 K142 G143 L160 G174 K179 D180 V181 A186 L192 T193 F194 K202 A215 Y242 G243 V244 L247 G252 V259 A269 E274 L275 E278 K295 E309 K313 R316 M321 I329 N332

R344 G353 V357 Q365 F371
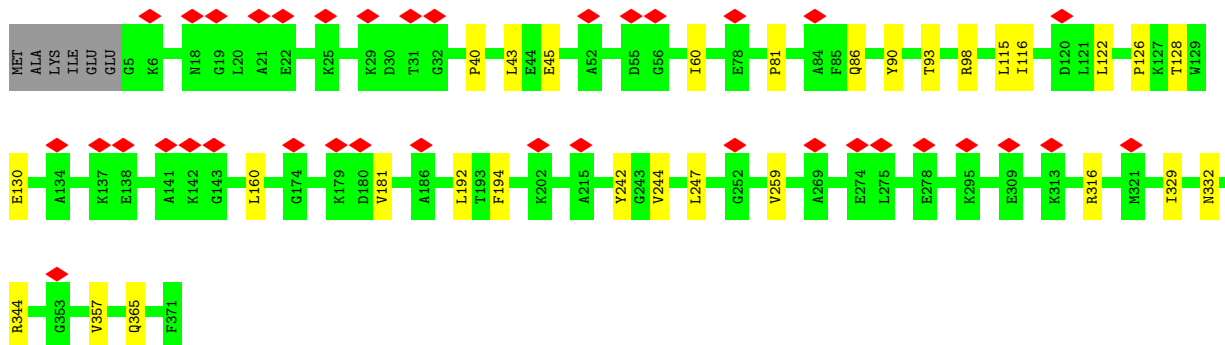
• Molecule 5: Fab light chain

Chain L:
87%
11%

SER ASP ILE Q4 M5 T6 Q7 I22 T23 C24 S27 Q38 K46 L47 L48 S64 T75 P81 F84 Q90 Q91 S92 S93 S94 T103 A113 P114 S115 K127 N138 N139 E144 K170 T173 E188 H199 Q200 G201 E214 CYS

• Molecule 6: Fab heavy chain

Chain H:
5%
87%
9%

GLU ILE SER E4 S36 A43 K46 V51 Y55 V67 R70 F71 T72 Q85 S88 L89 R90 T94 Y103 Y109 T126 V137 S146 T147 S148 G149 G150 V158 N171 S172 G173 A174 L175 L194 G206 T207 I211 K222

K225 S231 CYS ASP LYS THR HIS THR

• Molecule 7: Nanobody

Chain N:
15%
62%
13%
25%

MET LYS TYR LEU LEU PRO THR ALA ALA ALA GLY LEU LEU LEU LEU ALA ALA GLN PRO ALA MET ALA MET HIS HIS HIS HIS HIS HIS GLY GLU ASN LEU TYR PHE GLN GLY SER Q10 V11 Q12 L13 G18 G19 L20 V21 Q22 S26 L27 R28 A32 G35 R36 T37 R40

A49 P50 G51 K52 F56 V59 A60 R61 F68 T78 R81 D82 D83 A84 K85 N86 T87 V88 Q91 P97 T100 I107 T111 F112 Y113 S114 Y119 T127 V128 S129 SER

• Molecule 8: alpha-D-glucopyranose-(1-4)-alpha-D-glucopyranose

Chain D: 100%

GLC1 GLC2

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	286895	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	83	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.142	Depositor
Minimum map value	-0.082	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.015	Depositor
Map size (Å)	246.96, 246.96, 246.96	wwPDB
Map dimensions	240, 240, 240	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.029, 1.029, 1.029	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: ADP, GLC, AMP, TAK, ATP

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	0.25	0/3155	0.48	0/4259
2	B	0.25	0/758	0.52	0/1034
3	G	0.26	0/2472	0.49	0/3356
4	M	0.26	0/2904	0.45	0/3947
5	L	0.26	0/1634	0.50	0/2217
6	H	0.28	0/1770	0.52	0/2414
7	N	0.25	0/944	0.49	0/1276
All	All	0.26	0/13637	0.49	0/18503

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	3083	0	3125	45	0
2	B	736	0	758	8	0
3	G	2421	0	2488	21	0
4	M	2834	0	2792	16	0
5	L	1601	0	1562	13	0
6	H	1723	0	1670	12	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	N	925	0	870	13	0
8	D	23	0	21	1	0
9	A	30	0	25	0	0
10	G	31	0	12	1	0
11	G	27	0	12	4	0
12	G	23	0	12	2	0
All	All	13457	0	13347	119	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 4.

The worst 5 of 119 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)
6:H:70:ARG:HH22	6:H:90:ARG:HG3	1.62	0.63
1:A:79:ILE:HD12	1:A:158:ALA:HA	1.81	0.61
1:A:79:ILE:HG23	1:A:96:GLU:HG2	1.83	0.60
7:N:18:GLY:HA2	7:N:27:LEU:HD21	1.84	0.59
1:A:193:ALA:HB1	1:A:197:VAL:HG21	1.83	0.59

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	376/484 (78%)	368 (98%)	8 (2%)	0	100	100
2	B	91/198 (46%)	84 (92%)	7 (8%)	0	100	100
3	G	298/306 (97%)	289 (97%)	9 (3%)	0	100	100
4	M	365/373 (98%)	359 (98%)	6 (2%)	0	100	100
5	L	209/215 (97%)	199 (95%)	10 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	H	226/237 (95%)	219 (97%)	7 (3%)	0	100	100
7	N	118/159 (74%)	115 (98%)	3 (2%)	0	100	100
All	All	1683/1972 (85%)	1633 (97%)	50 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2   Protein sidechains ⓘ

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	343/440 (78%)	343 (100%)	0	100	100
2	B	85/181 (47%)	85 (100%)	0	100	100
3	G	276/279 (99%)	275 (100%)	1 (0%)	91	96
4	M	289/294 (98%)	289 (100%)	0	100	100
5	L	185/189 (98%)	185 (100%)	0	100	100
6	H	191/200 (96%)	191 (100%)	0	100	100
7	N	96/125 (77%)	96 (100%)	0	100	100
All	All	1465/1708 (86%)	1464 (100%)	1 (0%)	93	98

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	G	299	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 9 such sidechains are listed below:

Mol	Chain	Res	Type
6	H	85	GLN
6	H	171	ASN
3	G	80	GLN
4	M	64	HIS

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Mol	Chain	Res	Type
4	M	86	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

2 monosaccharides 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	$\#\|Z\| > 2$
8	GLC	D	1	8	12,12,12	0.69	0	17,17,17	1.40	2 (11%)
8	GLC	D	2	8	11,11,12	0.45	0	15,15,17	0.74	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
8	GLC	D	1	8	-	2/2/22/22	0/1/1/1
8	GLC	D	2	8	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	D	1	GLC	C4-C3-C2	3.23	116.47	110.82
8	D	1	GLC	C1-O5-C5	-2.51	108.94	113.66

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	D	1	GLC	O5-C5-C6-O6
8	D	1	GLC	C4-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	D	2	GLC	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

Oligosaccharide Chain D

Bond lengths

Bond angles

Torsions

Rings
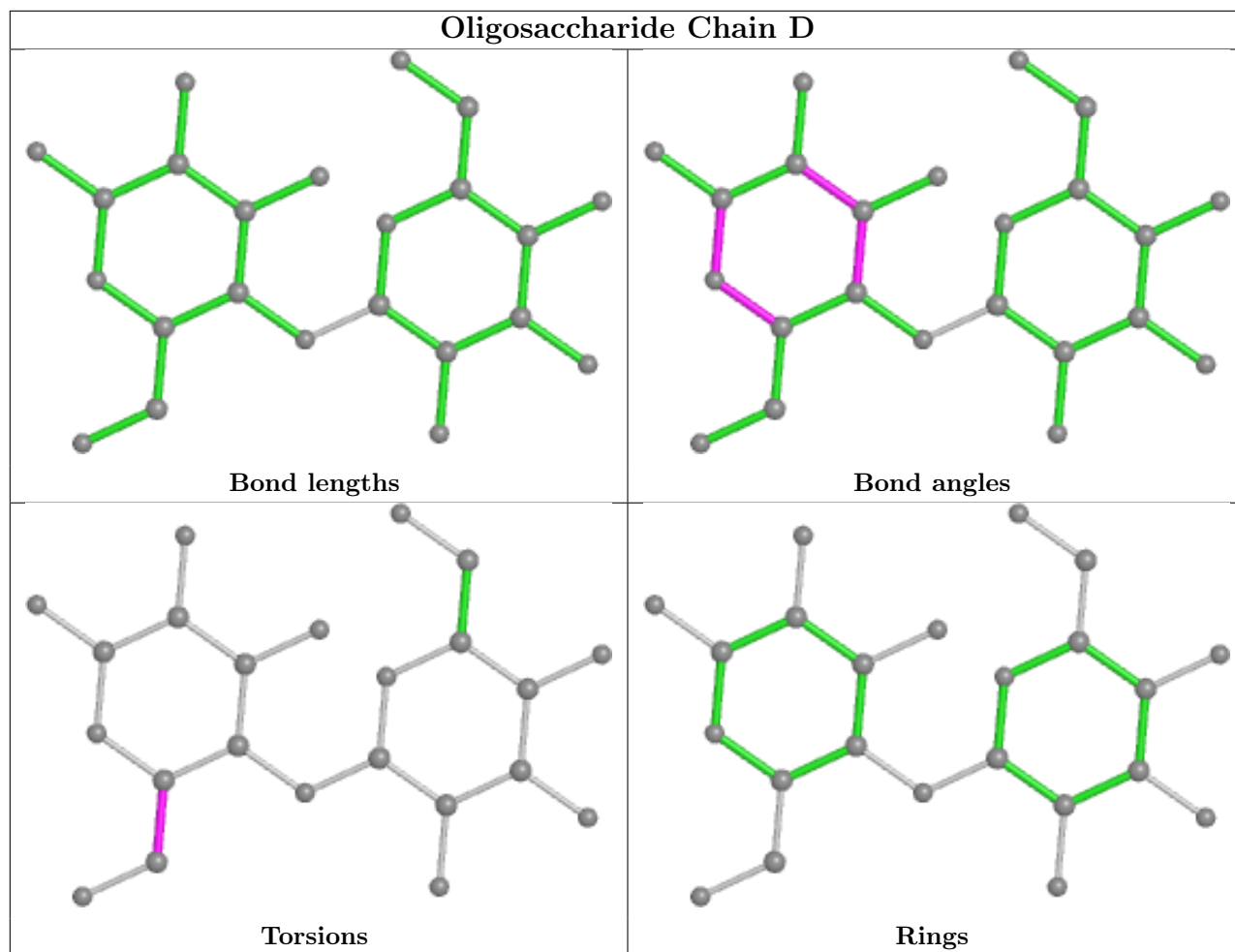
5.6   Ligand geometry ⓘ

4 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	$\#|Z| > 2$
12	AMP	G	403	-	22,25,25	0.89	1 (4%)	25,38,38	1.22	2 (8%)
11	ADP	G	402	-	24,29,29	0.93	1 (4%)	29,45,45	1.48	4 (13%)
9	TAK	A	601	-	28,34,34	0.71	0	30,46,46	1.99	8 (26%)
10	ATP	G	401	-	26,33,33	0.93	1 (3%)	31,52,52	1.54	5 (16%)

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
12	AMP	G	403	-	-	0/6/26/26	0/3/3/3
11	ADP	G	402	-	-	3/12/32/32	0/3/3/3
9	TAK	A	601	-	-	4/6/22/22	0/5/5/5
10	ATP	G	401	-	-	3/18/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	G	403	AMP	C5-C4	2.48	1.47	1.40
10	G	401	ATP	C5-C4	2.47	1.47	1.40
11	G	402	ADP	C5-C4	2.46	1.47	1.40

The worst 5 of 19 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	A	601	TAK	C18-N4-N3	7.43	109.11	103.70
9	A	601	TAK	C14-C16-N2	-3.64	120.11	125.05
11	G	402	ADP	PA-O3A-PB	-3.46	120.97	132.83
10	G	401	ATP	PB-O3B-PG	-3.45	120.98	132.83
9	A	601	TAK	C16-N2-C17	3.39	121.06	116.73

There are no chirality outliers.

5 of 10 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	G	401	ATP	O4'-C4'-C5'-O5'
9	A	601	TAK	C9-C8-O1-C7
9	A	601	TAK	C11-C8-O1-C7
10	G	401	ATP	C3'-C4'-C5'-O5'
9	A	601	TAK	C6-C7-O1-C8

There are no ring outliers.

3 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	G	403	AMP	2	0
11	G	402	ADP	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	G	401	ATP	1	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 AMP G 403

Bond lengths   Bond angles

Torsions   Rings

Ligand ADP G 402

Bond lengths

Bond angles

Torsions

Rings

Ligand TAK A 601

Bond lengths

Bond angles

Torsions

Rings

Ligand ATP G 401

Bond lengths

Bond angles

Torsions

Rings
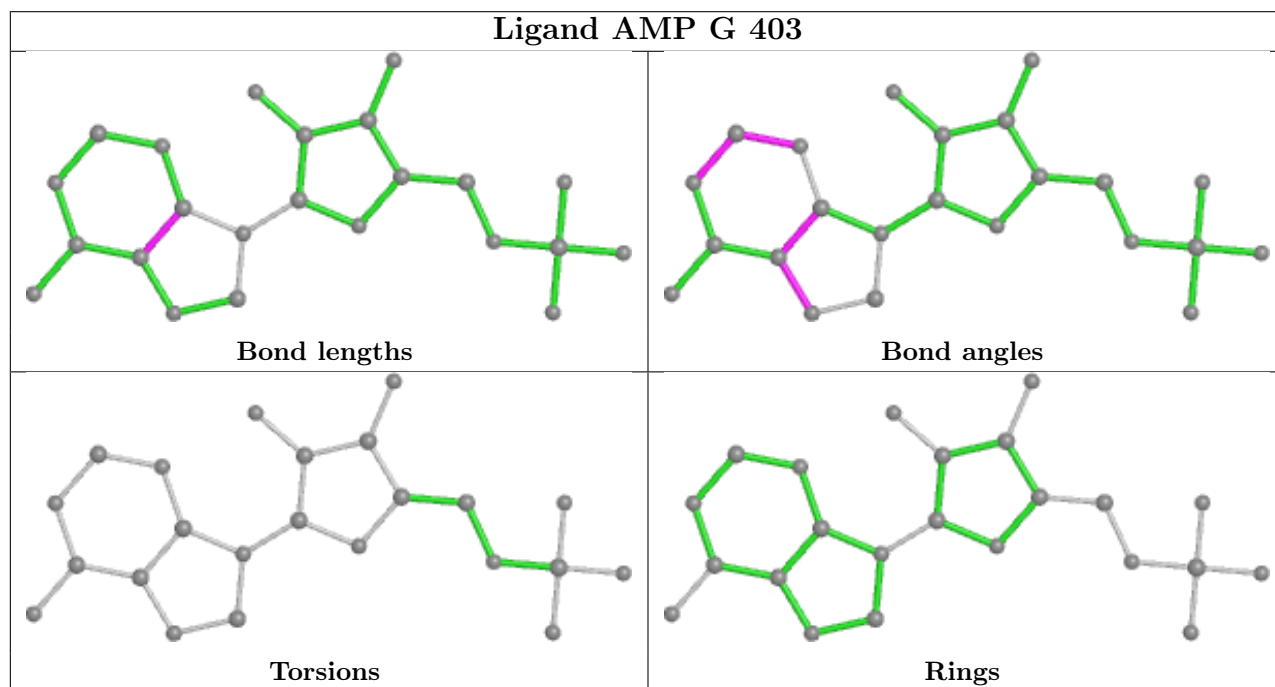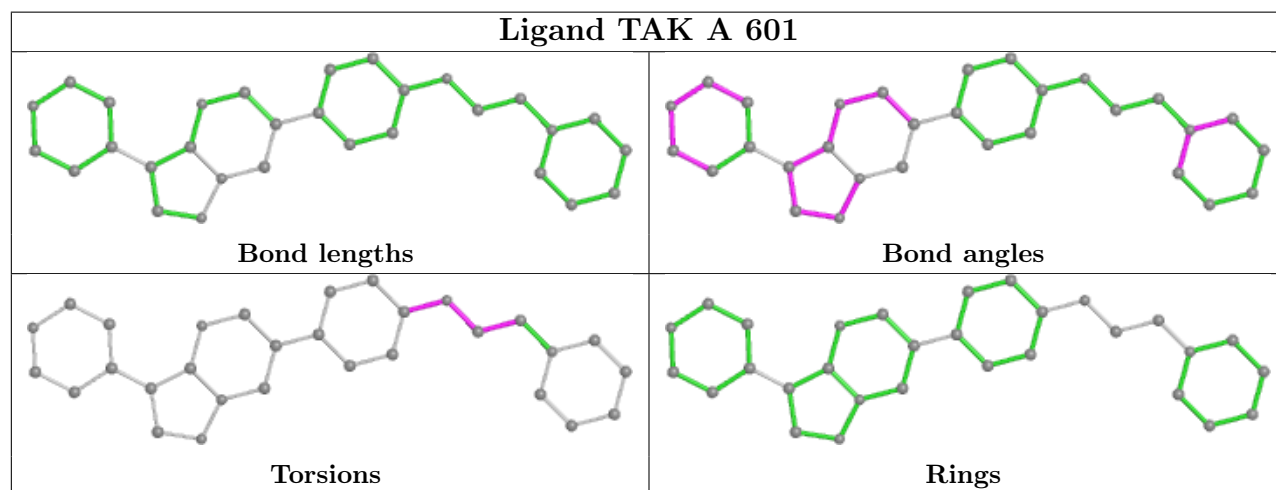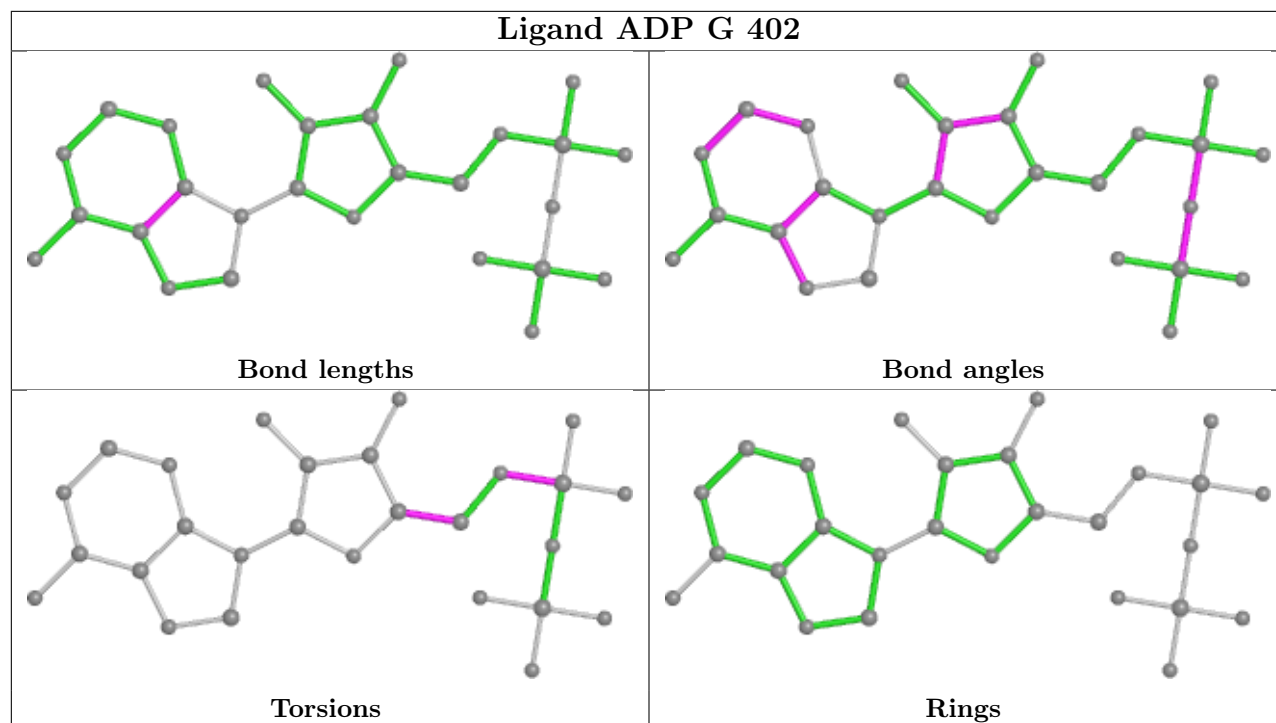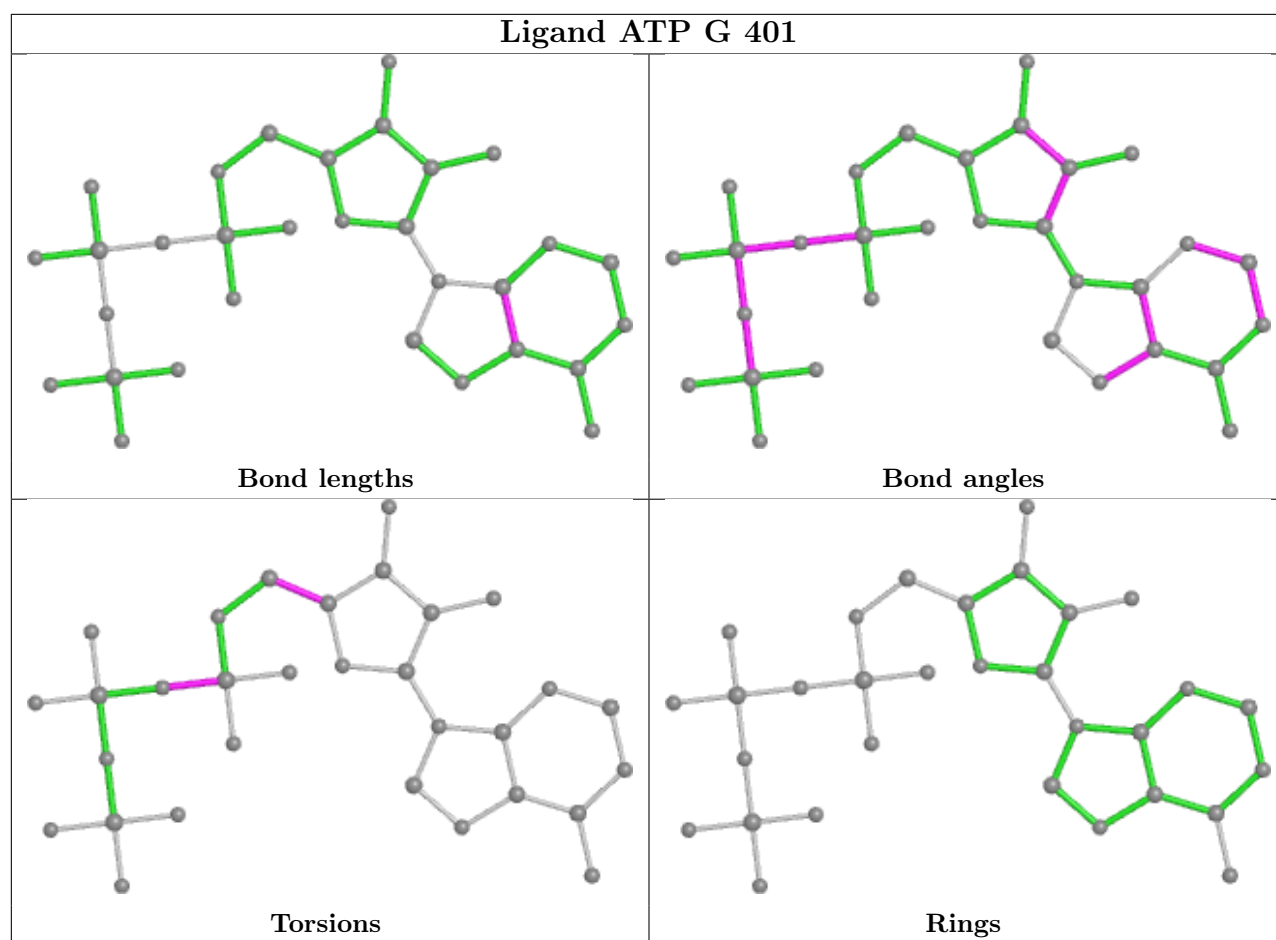
5.7 Other polymers ⓘ

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-22336. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1   Orthogonal projections ⓘ

6.1.1   Primary map

| X | Y | Z |
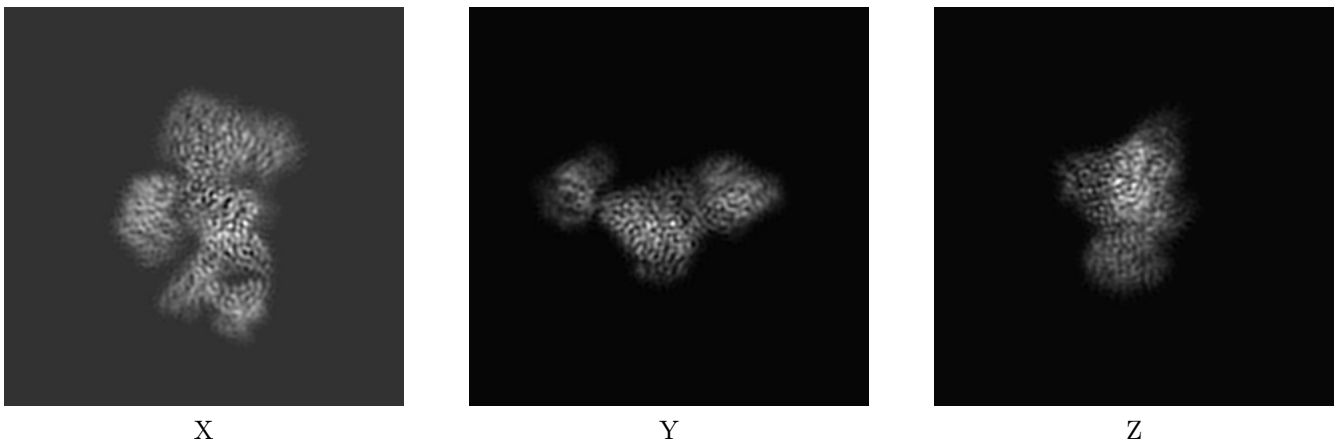
The images above show the map projected in three orthogonal directions.

6.2   Central slices ⓘ

6.2.1   Primary map

| X Index: 120 | Y Index: 120 | Z Index: 120 |
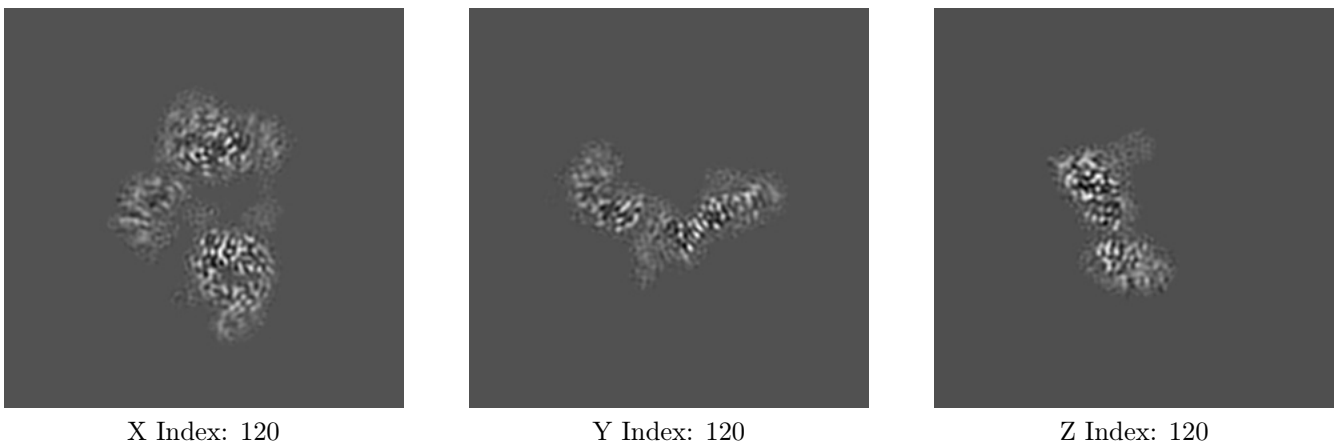
The images above show central slices of the map in three orthogonal directions.

6.3   Largest variance slices ⓘ
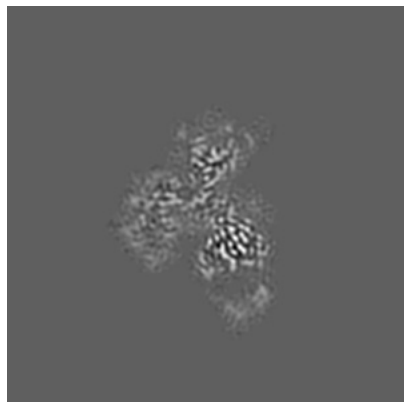
6.3.1   Primary map
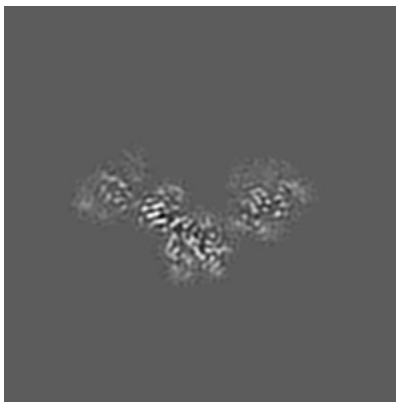
| X Index: 110 | Y Index: 129 | Z Index: 102 |
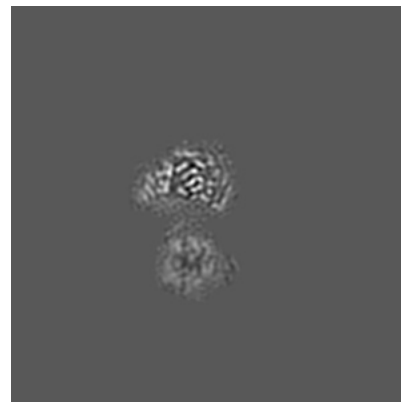
The images above show the largest variance slices of the map in three orthogonal directions.

6.4   Orthogonal surface views ⓘ
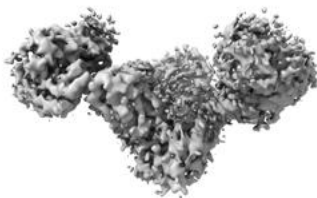
6.4.1   Primary map

| X | Y | Z |

The images above show the 3D surface view of the map at the recommended contour level 0.015. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5   Mask visualisation ⓘ

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

7 Map analysis ⓘ

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

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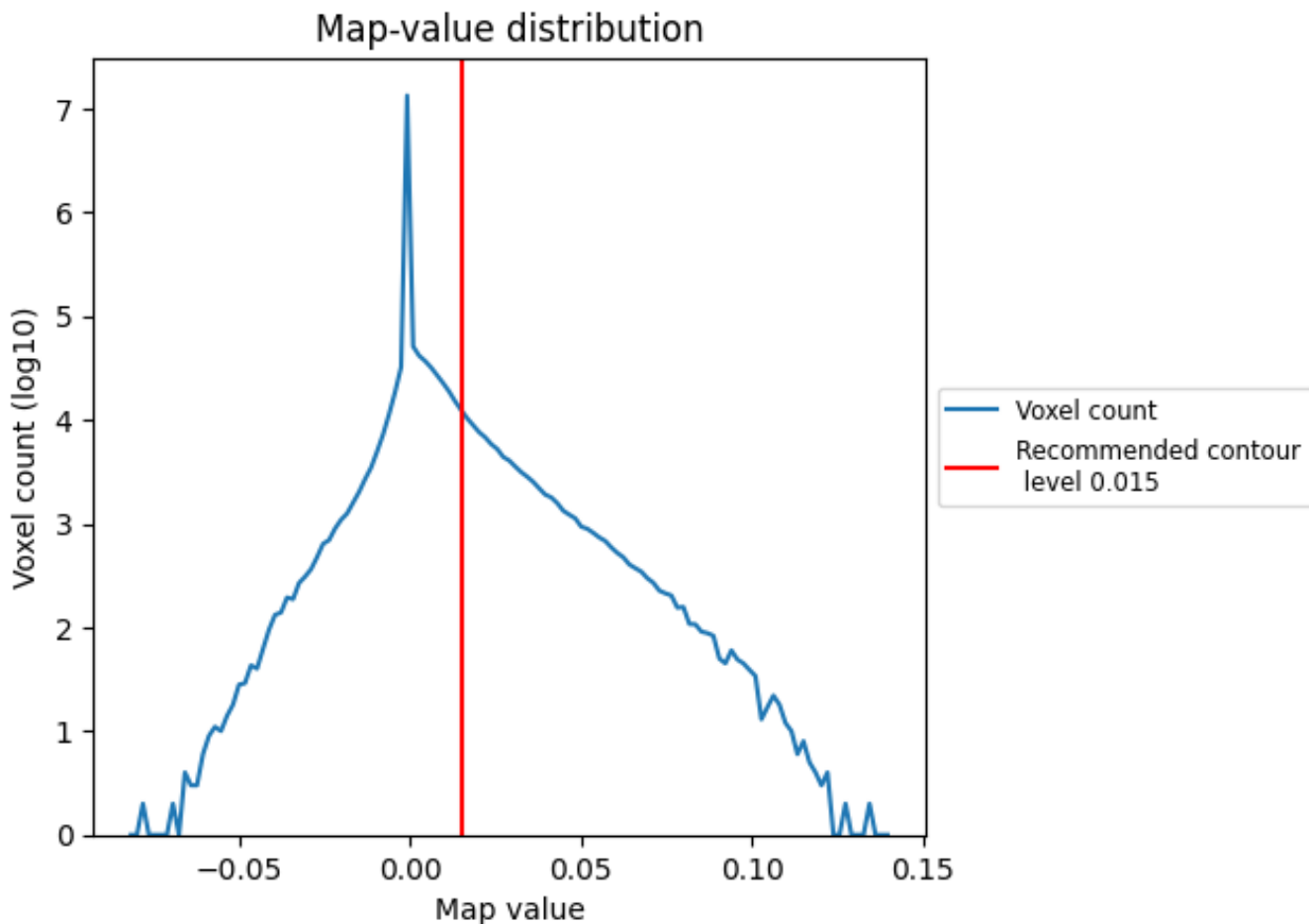
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate ⓘ
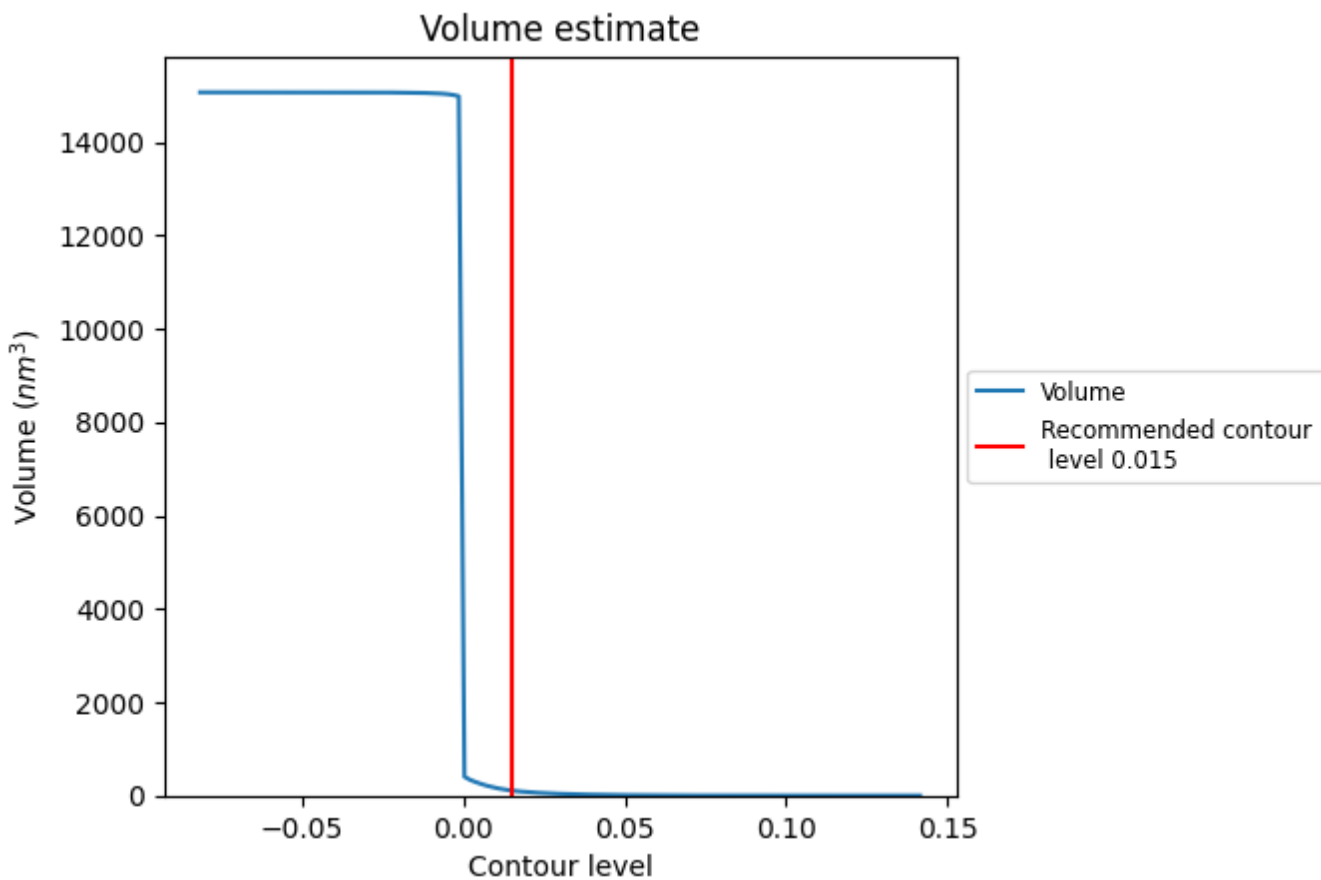
The volume at the recommended contour level is 107 nm^3; this corresponds to an approximate mass of 96 kDa.

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 ⓘ
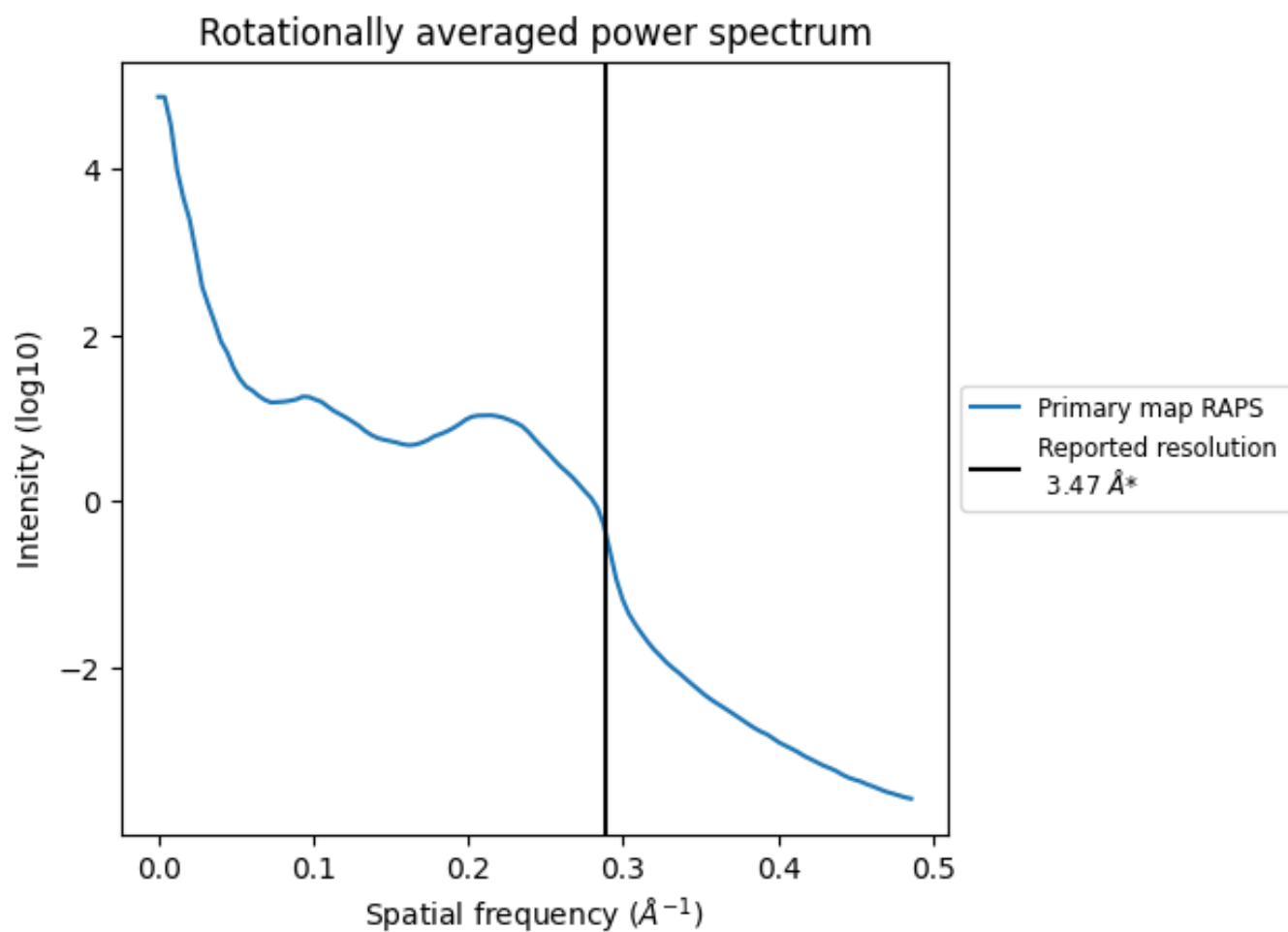
*Reported resolution corresponds to spatial frequency of 0.288 Å^{-1}

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 ⓘ
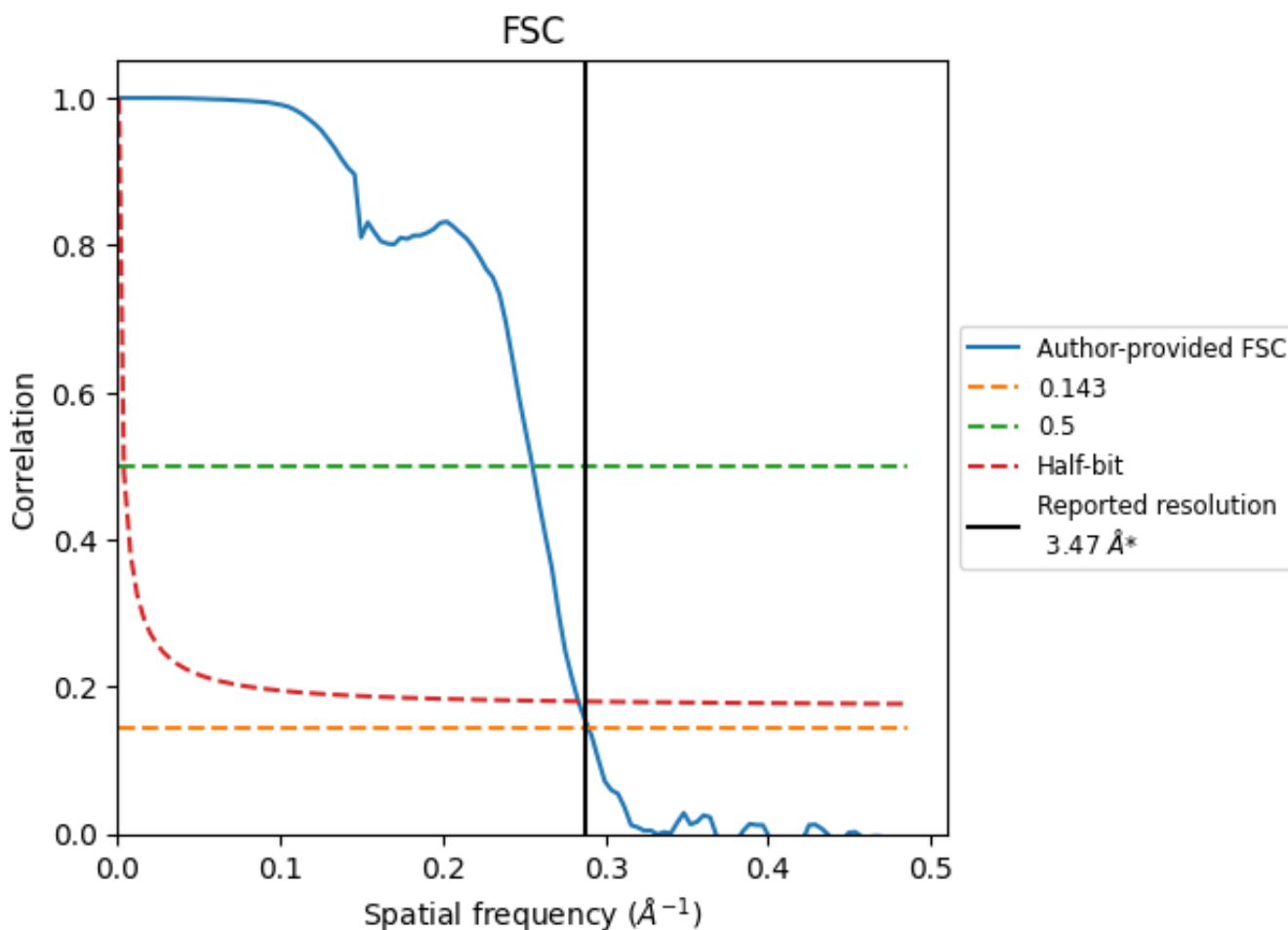
*Reported resolution corresponds to spatial frequency of 0.288 Å^{-1}

8.2   Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.47	-	-
Author-provided FSC curve	3.45	3.92	3.53
Unmasked-calculated*	-	-	-

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

9   Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-22336 and PDB model 7JHG. Per-residue inclusion information can be found in section 3 on page 7.

9.1   Map-model overlay (i)

| X | Y | Z |
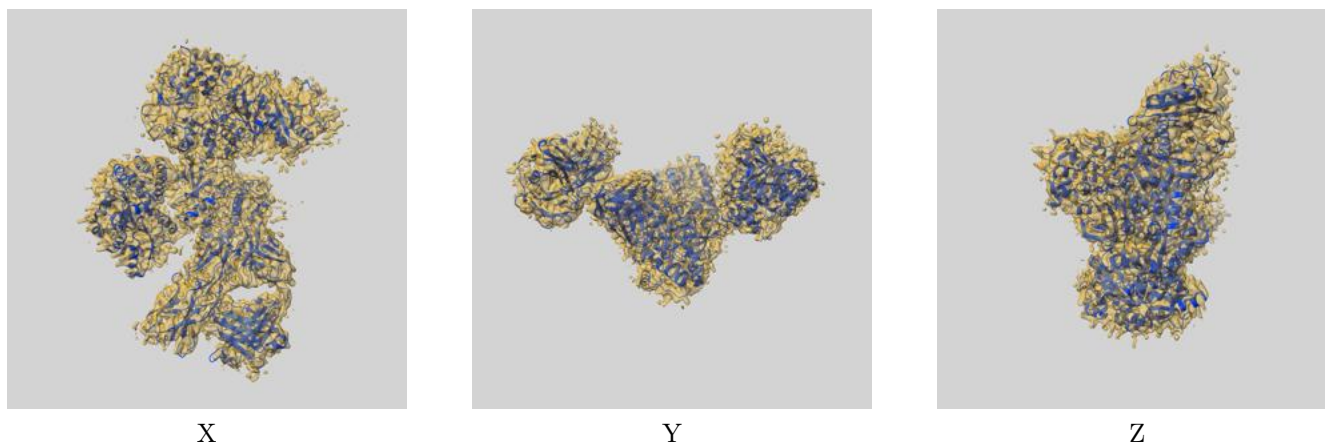
The images above show the 3D surface view of the map at the recommended contour level 0.015 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2   Q-score mapped to coordinate model (i)
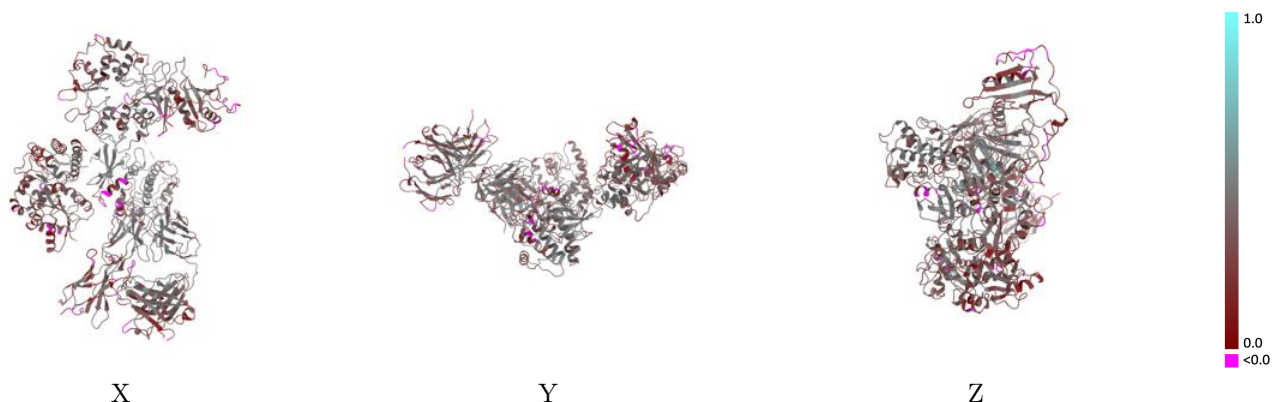
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3   Atom inclusion mapped to coordinate model (i)
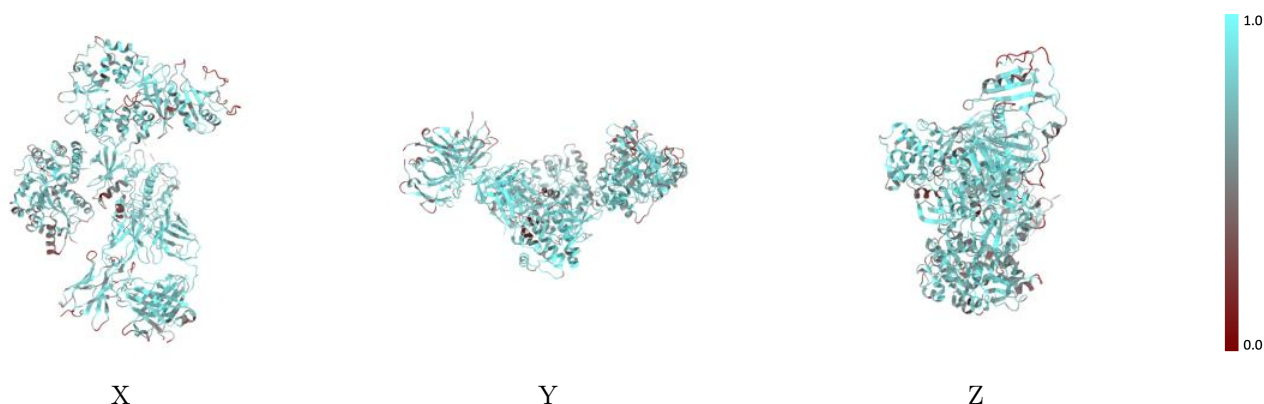
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.015).

9.4 Atom inclusion ⓘ
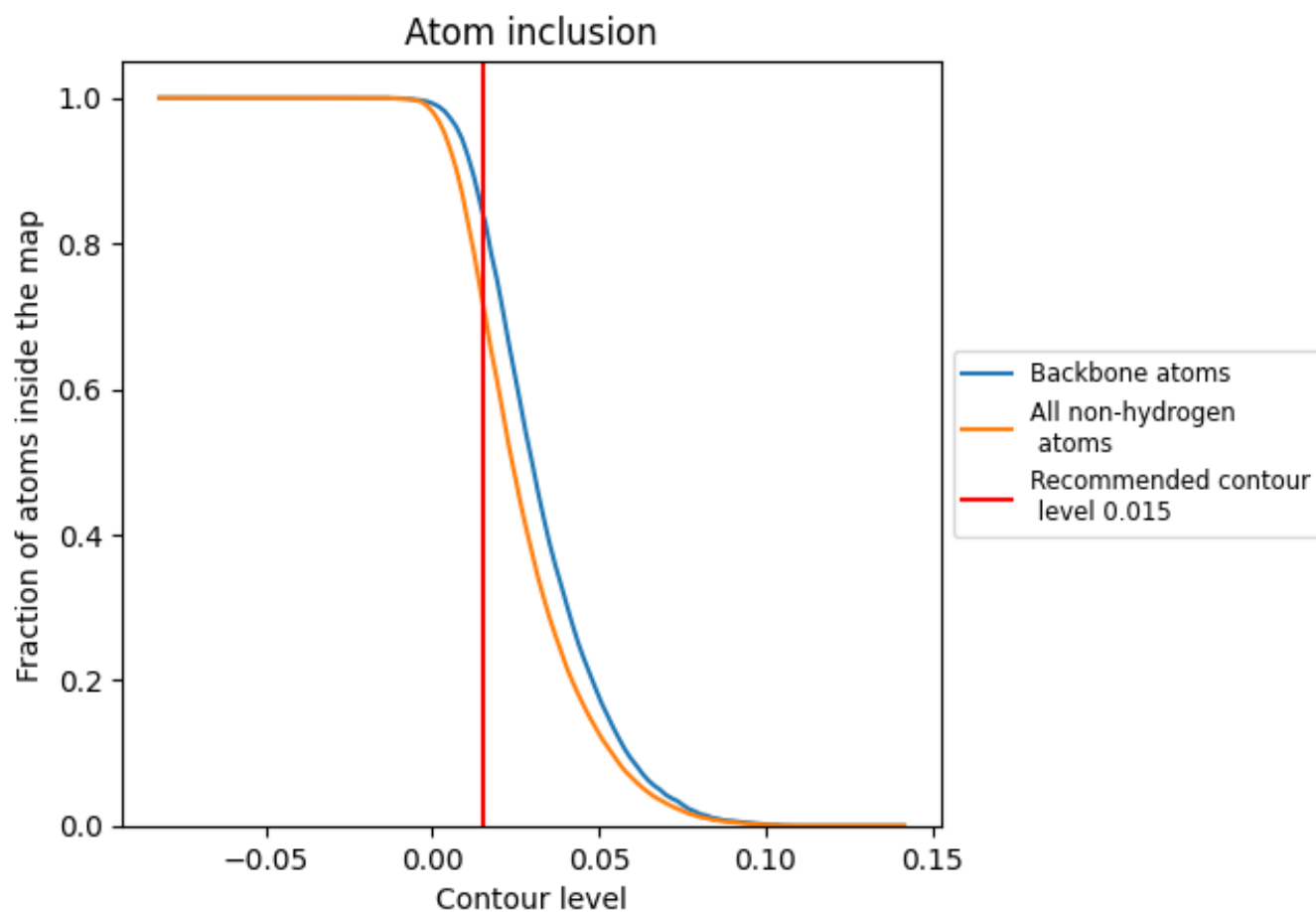
At the recommended contour level, 84% of all backbone atoms, 72% of all non-hydrogen atoms, are inside the map.

9.5   Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.015) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7215	0.3450
A	0.7388	0.3480
B	0.5000	0.2280
D	0.8261	0.3830
G	0.7497	0.3740
H	0.7812	0.3920
L	0.7735	0.3910
M	0.7022	0.3150
N	0.6176	0.2770

1.0

0.0
<0.0