



Full wwPDB EM Validation Report ⓘ

Mar 9, 2026 – 09:02 PM UTC

PDB ID : 9DZV / pdb_00009dzv
EMDB ID : EMD-47339
Title : Cryo-EM structure of the C. neoformans lipid flippase Apt1-Cdc50 in the E1 state
Authors : Duan, H.D.; Li, H.
Deposited on : 2024-10-17
Resolution : 3.27 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

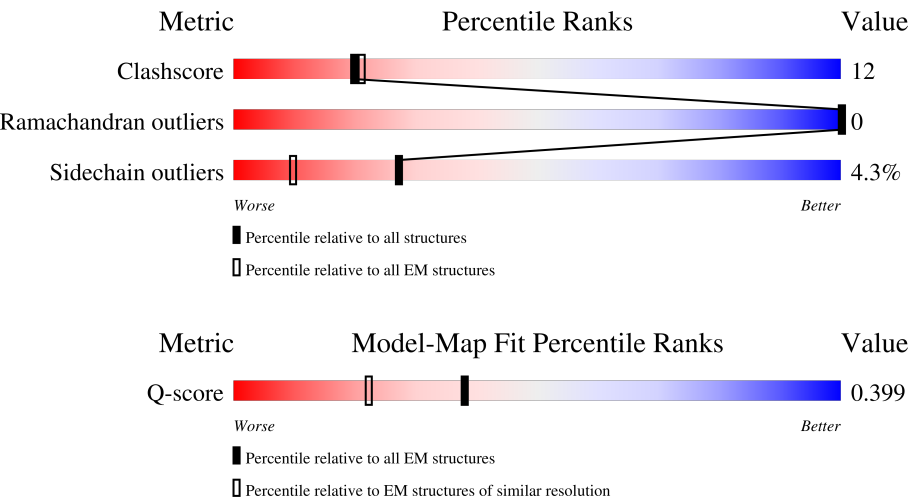
EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
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 3.27 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	14508 (2.77 - 3.77)

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	411	65% 19% 15%
2	A	1570	46% 21% 31%
3	D	2	100%
3	G	2	100%

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Mol	Chain	Length	Quality of chain
4	E	6	 A horizontal bar chart showing the quality of chain E. The bar is divided into three segments: green (50%), yellow (17%), and orange (33%).

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 11502 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 Transcription regulator.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	349	Total	C	N	O	S	0	0
			2723	1749	452	512	10		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	402	HIS	-	expression tag	UNP J9VW44
B	403	HIS	-	expression tag	UNP J9VW44
B	404	HIS	-	expression tag	UNP J9VW44
B	405	HIS	-	expression tag	UNP J9VW44
B	406	HIS	-	expression tag	UNP J9VW44
B	407	HIS	-	expression tag	UNP J9VW44
B	408	HIS	-	expression tag	UNP J9VW44
B	409	HIS	-	expression tag	UNP J9VW44
B	410	HIS	-	expression tag	UNP J9VW44
B	411	HIS	-	expression tag	UNP J9VW44

- Molecule 2 is a protein called Phospholipid-transporting ATPase.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	1082	Total	C	N	O	S	0	0
			8636	5569	1444	1588	35		

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1562	ASP	-	expression tag	UNP J9VZ19
A	1563	TYR	-	expression tag	UNP J9VZ19
A	1564	LYS	-	expression tag	UNP J9VZ19
A	1565	ASP	-	expression tag	UNP J9VZ19
A	1566	ASP	-	expression tag	UNP J9VZ19
A	1567	ASP	-	expression tag	UNP J9VZ19
A	1568	ASP	-	expression tag	UNP J9VZ19

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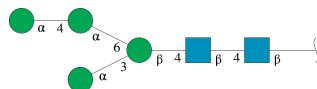
Chain	Residue	Modelled	Actual	Comment	Reference
A	1569	LYS	-	expression tag	UNP J9VZ19
A	1570	ILE	-	expression tag	UNP J9VZ19

- Molecule 3 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



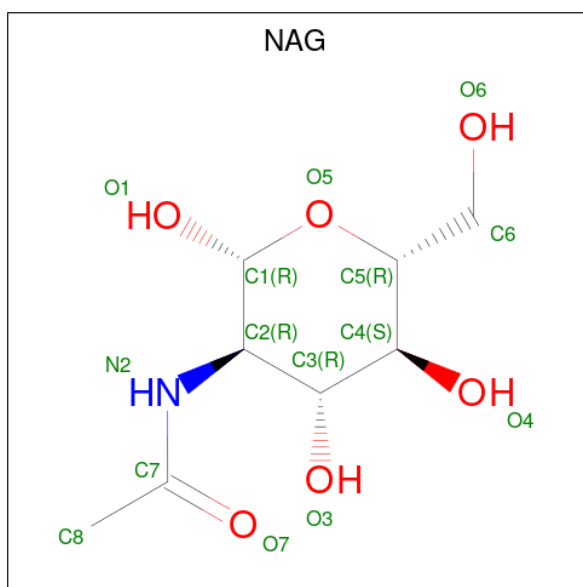
Mol	Chain	Residues	Atoms				AltConf	Trace
3	D	2	Total	C	N	O	0	0
			28	16	2	10		
3	G	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 4 is an oligosaccharide called alpha-D-mannopyranose-(1-4)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
4	E	6	Total	C	N	O	0	0
			72	40	2	30		

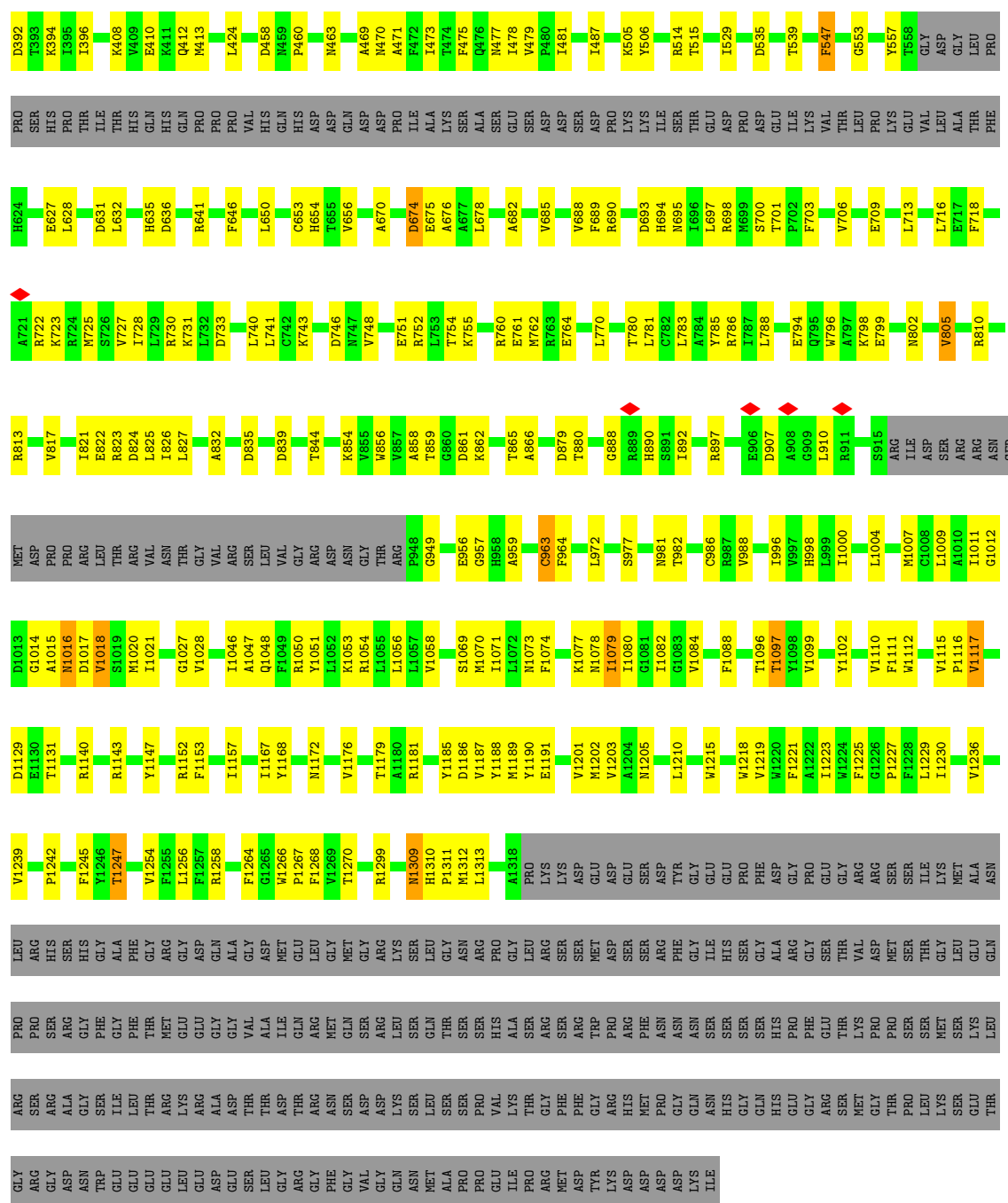
- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆).



Mol	Chain	Residues	Atoms				AltConf
5	B	1	Total	C	N	O	0
			14	8	1	5	

- Molecule 6 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

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



- Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain D:

MAG2

- Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:  100%

MAN1
NAG2

- Molecule 4: α -D-mannopyranose-(1-4)- α -D-mannopyranose-(1-6)-[α -D-mannopyranose-(1-3)] β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose

Chain E:  50% 17% 33%

MAN1
NAG2
EMAN3
MAN4
MAN5
MAN6

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	131633	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	1300	Depositor
Maximum defocus (nm)	1700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.787	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.029	Depositor
Recommended contour level	0.01	Depositor
Map size (Å)	248.40001, 248.40001, 248.40001	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.828, 0.828, 0.828	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, BMA, MAN, NAG

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	0.10	0/2800	0.24	0/3824
2	A	0.15	0/8838	0.32	0/12007
All	All	0.14	0/11638	0.30	0/15831

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	B	2723	0	2660	54	0
2	A	8636	0	8536	239	0
3	D	28	0	25	0	0
3	G	28	0	25	0	0
4	E	72	0	61	1	0
5	B	14	0	13	1	0
6	A	1	0	0	0	0
All	All	11502	0	11320	284	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 (284) 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:A:154:ASN:HD22	2:A:260:TRP:HE3	1.18	0.87
2:A:1012:GLY:HA3	2:A:1017:ASP:CG	2.03	0.84
2:A:283:ILE:HA	2:A:384:GLY:HA3	1.65	0.79
2:A:1012:GLY:CA	2:A:1017:ASP:CG	2.60	0.75
2:A:740:LEU:HB3	2:A:786:ARG:HB3	1.69	0.75
2:A:844:THR:HG23	2:A:1053:LYS:HB2	1.67	0.75
2:A:1070:MET:HG3	2:A:1117:VAL:HG13	1.68	0.75
2:A:1012:GLY:HA3	2:A:1017:ASP:OD1	1.88	0.73
2:A:107:ILE:HG23	2:A:473:ILE:HG13	1.73	0.70
2:A:718:PHE:HA	2:A:723:LYS:HA	1.72	0.70
2:A:1021:ILE:HG23	2:A:1027:GLY:HA3	1.74	0.70
2:A:370:MET:SD	2:A:370:MET:N	2.66	0.69
2:A:45:VAL:HG13	2:A:46:PRO:HD3	1.74	0.69
2:A:110:LEU:HD21	2:A:469:ALA:HB1	1.73	0.69
2:A:956:GLU:HG2	2:A:957:GLY:H	1.57	0.69
2:A:111:GLN:HE22	2:A:118:THR:H	1.40	0.68
1:B:136:GLY:O	1:B:329:ASN:ND2	2.26	0.67
2:A:688:VAL:HB	2:A:700:SER:HB3	1.75	0.67
2:A:728:ILE:HG13	2:A:740:LEU:HD23	1.76	0.66
2:A:111:GLN:HG2	2:A:124:VAL:HG11	1.75	0.66
2:A:794:GLU:OE1	2:A:798:LYS:NZ	2.28	0.66
2:A:858:ALA:HB1	2:A:988:VAL:HG21	1.78	0.66
1:B:323:ARG:HH22	5:B:501:NAG:H81	1.60	0.66
2:A:1140:ARG:HD2	2:A:1143:ARG:HH21	1.61	0.65
2:A:743:LYS:HE2	2:A:781:LEU:HD21	1.78	0.65
2:A:1309:ASN:OD1	2:A:1309:ASN:N	2.30	0.65
2:A:752:ARG:HH22	2:A:825:LEU:H	1.44	0.64
2:A:785:TYR:O	2:A:826:ILE:N	2.31	0.64
1:B:85:THR:OG1	1:B:339:LYS:N	2.31	0.64
2:A:347:VAL:O	2:A:362:HIS:ND1	2.24	0.64
2:A:478:ILE:HB	2:A:1082:ILE:HG13	1.80	0.63
2:A:1012:GLY:C	2:A:1017:ASP:OD2	2.42	0.63
2:A:319:ASN:HB3	2:A:383:ILE:HG21	1.81	0.63
1:B:142:GLU:HG2	1:B:325:VAL:HG22	1.81	0.62
1:B:160:LYS:HB3	1:B:340:SER:HB2	1.82	0.62
1:B:53:LEU:HD11	1:B:374:GLY:HA3	1.82	0.62
2:A:1079:ILE:HG13	2:A:1157:ILE:HD12	1.82	0.61
2:A:154:ASN:ND2	2:A:260:TRP:HE3	1.95	0.61
2:A:839:ASP:O	2:A:1050:ARG:NH1	2.33	0.60
2:A:339:ASN:O	2:A:394:LYS:NZ	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1310:HIS:HB3	2:A:1313:LEU:HB2	1.84	0.60
1:B:179:GLN:NE2	1:B:206:TYR:O	2.35	0.60
2:A:731:LYS:HG3	2:A:733:ASP:H	1.67	0.60
2:A:272:TYR:HA	2:A:381:TRP:HB3	1.85	0.59
2:A:154:ASN:CG	2:A:155:HIS:H	2.11	0.59
2:A:335:ALA:O	2:A:339:ASN:ND2	2.36	0.58
2:A:1069:SER:O	2:A:1073:ASN:ND2	2.32	0.58
2:A:690:ARG:HB3	2:A:698:ARG:HB2	1.85	0.58
2:A:798:LYS:O	2:A:802:ASN:ND2	2.37	0.58
2:A:1201:VAL:HG21	2:A:1230:ILE:HD12	1.86	0.58
2:A:1221:PHE:O	2:A:1225:PHE:HB3	2.03	0.58
2:A:557:TYR:HB3	2:A:627:GLU:HG3	1.86	0.57
2:A:888:GLY:O	2:A:890:HIS:ND1	2.29	0.57
1:B:185:ARG:HH11	1:B:189:GLN:HB3	1.69	0.57
2:A:1012:GLY:CA	2:A:1017:ASP:OD1	2.51	0.57
2:A:291:ASP:OD1	2:A:291:ASP:N	2.33	0.57
2:A:329:LEU:HD23	2:A:349:ASN:HB3	1.85	0.57
2:A:1000:ILE:HG23	2:A:1004:LEU:HD12	1.85	0.57
2:A:460:PRO:HA	2:A:463:ASN:HB2	1.85	0.57
1:B:207:TYR:HB3	1:B:208:PRO:HD3	1.85	0.57
2:A:157:ILE:HD11	2:A:257:ARG:HB2	1.85	0.57
2:A:73:ALA:H	2:A:264:LYS:NZ	2.03	0.57
1:B:288:ARG:O	1:B:294:GLN:NE2	2.38	0.56
2:A:628:LEU:HG	2:A:631:ASP:HB3	1.87	0.56
2:A:716:LEU:HD21	2:A:722:ARG:HB3	1.86	0.56
2:A:287:SER:HB2	2:A:381:TRP:CE2	2.40	0.56
1:B:49:PRO:HA	1:B:52:VAL:HG12	1.87	0.56
2:A:387:VAL:HG12	2:A:388:TYR:H	1.70	0.56
1:B:79:THR:HB	1:B:108:ASP:HB2	1.88	0.55
2:A:270:LYS:HB3	2:A:383:ILE:HB	1.87	0.55
2:A:160:VAL:HG22	2:A:269:VAL:HB	1.88	0.55
2:A:1215:TRP:HA	2:A:1219:VAL:HG21	1.89	0.55
2:A:670:ALA:HB3	2:A:676:ALA:HB2	1.90	0.54
2:A:1110:VAL:HG13	2:A:1111:PHE:HD1	1.72	0.54
2:A:854:LYS:HD2	2:A:981:ASN:HA	1.89	0.54
1:B:388:MET:HE3	2:A:1313:LEU:HG	1.90	0.54
2:A:635:HIS:HA	2:A:641:ARG:HH22	1.71	0.54
2:A:650:LEU:HD11	2:A:678:LEU:HD22	1.89	0.54
2:A:743:LYS:HB3	2:A:783:LEU:HD23	1.90	0.54
2:A:1054:ARG:O	2:A:1058:VAL:HG22	2.08	0.54
2:A:689:PHE:HE1	2:A:697:LEU:HD12	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:471:ALA:HB2	2:A:1096:THR:HG21	1.88	0.53
2:A:1188:TYR:CE2	2:A:1190:TYR:HB2	2.44	0.53
1:B:207:TYR:HB2	1:B:266:VAL:HG11	1.90	0.53
2:A:410:GLU:HA	2:A:413:MET:HE3	1.91	0.53
2:A:752:ARG:HB3	2:A:825:LEU:HD12	1.90	0.53
1:B:240:PHE:HB3	1:B:310:ALA:HB1	1.91	0.53
2:A:154:ASN:CG	2:A:155:HIS:N	2.67	0.52
2:A:1254:VAL:HA	2:A:1258:ARG:HH11	1.75	0.52
2:A:343:LEU:HD22	2:A:369:THR:HG21	1.91	0.52
2:A:529:ILE:HG13	2:A:1056:LEU:HD11	1.91	0.52
2:A:287:SER:HB2	2:A:381:TRP:CD2	2.44	0.52
2:A:82:TYR:HB3	2:A:90:LYS:HD3	1.91	0.52
1:B:332:VAL:HG21	1:B:339:LYS:HG3	1.91	0.52
2:A:675:GLU:OE2	2:A:743:LYS:NZ	2.43	0.52
2:A:786:ARG:HB2	2:A:825:LEU:HD23	1.92	0.52
2:A:547:PHE:HE1	2:A:832:ALA:H	1.57	0.51
2:A:279:ALA:HB1	2:A:389:THR:HG23	1.91	0.51
1:B:226:LEU:N	1:B:236:GLN:O	2.34	0.51
2:A:1227:PRO:HA	2:A:1230:ILE:HG22	1.92	0.51
2:A:1153:PHE:O	2:A:1157:ILE:HG12	2.10	0.51
2:A:458:ASP:O	2:A:463:ASN:ND2	2.43	0.51
2:A:76:GLN:HA	2:A:391:GLU:HG2	1.92	0.51
2:A:799:GLU:HA	2:A:802:ASN:HD21	1.76	0.51
1:B:388:MET:O	1:B:394:ASN:ND2	2.44	0.50
2:A:654:HIS:HA	2:A:725:MET:HE1	1.92	0.50
2:A:1015:ALA:O	2:A:1018:VAL:HG22	2.11	0.50
2:A:296:GLU:HB2	2:A:376:LEU:HD12	1.92	0.50
2:A:1012:GLY:C	2:A:1017:ASP:CG	2.79	0.50
2:A:856:TRP:CZ2	2:A:977:SER:HB2	2.47	0.50
1:B:180:LEU:HD13	1:B:254:TYR:HE1	1.77	0.50
2:A:1088:PHE:CG	2:A:1099:VAL:HB	2.47	0.50
2:A:1172:ASN:O	2:A:1176:VAL:HG23	2.12	0.50
2:A:51:ILE:HG23	2:A:52:ASN:H	1.77	0.49
2:A:76:GLN:OE1	2:A:76:GLN:N	2.43	0.49
1:B:179:GLN:NE2	1:B:207:TYR:O	2.44	0.49
2:A:50:PHE:HE1	2:A:327:ALA:HA	1.77	0.49
2:A:636:ASP:H	2:A:641:ARG:HH12	1.60	0.49
2:A:286:THR:HG22	2:A:288:GLU:H	1.78	0.49
2:A:424:LEU:HB2	2:A:478:ILE:HG21	1.94	0.49
2:A:706:VAL:HB	2:A:731:LYS:HE2	1.95	0.49
1:B:181:ILE:HD13	1:B:253:ASN:HA	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:553:GLY:HA2	2:A:762:MET:HE1	1.94	0.49
2:A:371:LEU:HD12	2:A:372:ARG:N	2.27	0.48
2:A:329:LEU:H	2:A:349:ASN:HA	1.78	0.48
2:A:823:ARG:NH1	2:A:824:ASP:OD2	2.45	0.48
2:A:506:TYR:HB2	2:A:1051:TYR:HE2	1.78	0.48
2:A:349:ASN:HD22	2:A:362:HIS:CE1	2.31	0.48
2:A:956:GLU:CD	2:A:956:GLU:H	2.21	0.48
2:A:1077:LYS:NZ	2:A:1078:ASN:OD1	2.38	0.48
1:B:208:PRO:HB2	1:B:213:ALA:HB1	1.96	0.48
2:A:47:ARG:HB2	2:A:333:LEU:HD12	1.96	0.48
2:A:259:ILE:HG23	2:A:261:GLU:H	1.77	0.48
1:B:109:LEU:HD11	1:B:120:ILE:HD11	1.95	0.48
2:A:1266:TRP:CD1	2:A:1267:PRO:HD3	2.48	0.48
2:A:271:ILE:HG21	2:A:277:PHE:HE1	1.76	0.48
2:A:859:THR:HG23	2:A:986:CYS:HA	1.96	0.48
2:A:261:GLU:OE1	2:A:261:GLU:N	2.43	0.48
2:A:158:VAL:HG12	2:A:160:VAL:HG23	1.96	0.47
1:B:91:ALA:HB3	1:B:127:PHE:HB2	1.97	0.47
2:A:156:ALA:HB3	2:A:260:TRP:CD1	2.48	0.47
2:A:470:ASN:HA	2:A:473:ILE:HG22	1.97	0.47
2:A:1266:TRP:CG	2:A:1267:PRO:HD3	2.49	0.47
1:B:178:THR:HG21	1:B:185:ARG:HH21	1.79	0.47
1:B:308:LEU:H	2:A:1186:ASP:CG	2.22	0.47
2:A:408:LYS:HB2	2:A:1007:MET:HE1	1.97	0.47
2:A:628:LEU:HD23	2:A:632:LEU:HB2	1.96	0.47
2:A:674:ASP:N	2:A:674:ASP:OD1	2.47	0.47
2:A:770:LEU:HD11	2:A:780:THR:HB	1.97	0.47
2:A:796:TRP:HE1	2:A:817:VAL:HG13	1.80	0.47
2:A:1202:MET:HE2	2:A:1266:TRP:HZ3	1.78	0.47
2:A:119:ILE:HG22	2:A:120:SER:H	1.80	0.47
2:A:761:GLU:O	2:A:764:GLU:HG3	2.15	0.47
2:A:164:GLN:HB2	2:A:252:GLU:HA	1.97	0.47
2:A:288:GLU:HG3	2:A:289:GLU:H	1.80	0.46
2:A:535:ASP:O	2:A:539:THR:HB	2.15	0.46
2:A:701:THR:O	2:A:703:PHE:N	2.47	0.46
2:A:693:ASP:HB3	2:A:698:ARG:HH12	1.79	0.46
2:A:119:ILE:HD11	2:A:1102:TYR:HB3	1.97	0.46
2:A:755:LYS:O	2:A:760:ARG:NH2	2.48	0.46
2:A:810:ARG:HA	2:A:813:ARG:HB2	1.98	0.46
2:A:862:LYS:HB2	2:A:865:THR:HG22	1.98	0.46
1:B:162:THR:OG1	1:B:338:THR:OG1	2.28	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:125:ILE:HG13	2:A:129:ILE:HG12	1.97	0.46
2:A:70:HIS:CE1	2:A:263:VAL:HG23	2.50	0.46
2:A:752:ARG:HE	2:A:822:GLU:HB3	1.80	0.46
1:B:301:ALA:HB2	2:A:1189:MET:HA	1.97	0.46
2:A:835:ASP:OD1	2:A:835:ASP:N	2.43	0.46
2:A:1017:ASP:HA	2:A:1020:MET:HG2	1.98	0.46
2:A:289:GLU:HG3	2:A:290:GLU:HG3	1.97	0.46
2:A:328:HIS:HB2	2:A:349:ASN:HB2	1.98	0.45
1:B:387:ASP:OD1	1:B:387:ASP:N	2.45	0.45
2:A:709:GLU:N	2:A:730:ARG:O	2.48	0.45
2:A:1116:PRO:HB3	2:A:1223:ILE:HD13	1.98	0.45
1:B:245:ILE:HG22	1:B:295:VAL:HG21	1.98	0.45
2:A:51:ILE:HG22	2:A:59:TYR:CE1	2.51	0.45
2:A:296:GLU:H	2:A:305:ASN:HB2	1.82	0.45
2:A:752:ARG:NH2	2:A:825:LEU:H	2.13	0.45
2:A:892:ILE:HG21	2:A:959:ALA:HA	1.97	0.45
2:A:1167:ILE:HD11	2:A:1203:VAL:HG21	1.98	0.45
2:A:529:ILE:HD12	2:A:1009:LEU:HB2	1.97	0.45
2:A:879:ASP:O	2:A:949:GLY:N	2.41	0.45
2:A:283:ILE:HG21	2:A:382:VAL:HB	1.98	0.45
2:A:654:HIS:HB2	2:A:656:VAL:HG23	1.99	0.45
2:A:309:ARG:HH21	2:A:805:VAL:HG11	1.82	0.45
2:A:646:PHE:CE2	2:A:783:LEU:HD12	2.52	0.45
2:A:682:ALA:HA	2:A:685:VAL:HG12	1.97	0.45
1:B:167:ASN:O	2:A:1097:THR:HG21	2.17	0.44
1:B:171:TYR:CZ	1:B:212:ILE:HA	2.52	0.44
1:B:261:ILE:HG21	1:B:266:VAL:HG23	1.99	0.44
2:A:746:ASP:OD1	2:A:746:ASP:N	2.49	0.44
2:A:796:TRP:NE1	2:A:817:VAL:HG13	2.32	0.44
2:A:1181:ARG:HH21	2:A:1185:TYR:HB2	1.83	0.44
1:B:297:MET:HE3	1:B:297:MET:HB3	1.85	0.44
2:A:296:GLU:HB2	2:A:376:LEU:HB2	1.99	0.44
2:A:475:PHE:O	2:A:478:ILE:HG22	2.18	0.44
2:A:1191:GLU:HA	2:A:1256:LEU:HD11	1.99	0.44
2:A:260:TRP:CD1	2:A:278:PRO:HB3	2.53	0.44
2:A:505:LYS:HD3	2:A:514:ARG:NH1	2.32	0.44
2:A:694:HIS:CG	2:A:695:ASN:H	2.36	0.44
2:A:154:ASN:HA	2:A:260:TRP:CE3	2.53	0.44
2:A:1129:ASP:OD1	2:A:1129:ASP:N	2.50	0.44
2:A:56:PRO:HB3	2:A:59:TYR:CZ	2.53	0.43
2:A:1012:GLY:N	2:A:1017:ASP:OD1	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:1236:VAL:O	2:A:1239:VAL:HG22	2.17	0.43
4:E:4:MAN:H4	4:E:5:MAN:H2	1.54	0.43
2:A:859:THR:HG21	2:A:866:ALA:HB1	2.00	0.43
1:B:217:PHE:CE2	1:B:219:ASP:HB3	2.53	0.43
2:A:748:VAL:O	2:A:751:GLU:HG3	2.17	0.43
2:A:1011:ILE:HA	2:A:1028:VAL:O	2.18	0.43
2:A:1047:ALA:O	2:A:1048:GLN:NE2	2.27	0.43
2:A:330:CYS:N	2:A:348:ILE:O	2.51	0.43
2:A:1088:PHE:HA	2:A:1168:TYR:CZ	2.54	0.43
2:A:332:ASP:HB2	2:A:346:ALA:HB3	2.01	0.43
2:A:713:LEU:HA	2:A:727:VAL:HG23	2.01	0.43
2:A:907:ASP:OD2	2:A:910:LEU:N	2.50	0.43
2:A:796:TRP:CE2	2:A:821:ILE:HB	2.54	0.43
1:B:225:VAL:HA	1:B:237:THR:HA	2.01	0.43
1:B:388:MET:HE2	2:A:1312:MET:HE3	2.00	0.43
2:A:315:LEU:O	2:A:318:LEU:HG	2.18	0.42
1:B:52:VAL:HG13	1:B:53:LEU:HD22	2.00	0.42
2:A:112:PHE:CE1	2:A:121:PRO:HB3	2.54	0.42
2:A:786:ARG:NH1	2:A:821:ILE:O	2.52	0.42
1:B:204:LYS:HE3	1:B:267:LEU:HD11	2.01	0.42
2:A:295:ILE:HD12	2:A:374:CYS:SG	2.59	0.42
2:A:1188:TYR:CE1	2:A:1191:GLU:HG3	2.54	0.42
2:A:371:LEU:HD12	2:A:372:ARG:H	1.84	0.42
2:A:810:ARG:O	2:A:810:ARG:HG2	2.18	0.42
2:A:1016:ASN:OD1	2:A:1016:ASN:N	2.53	0.42
2:A:1245:PHE:O	2:A:1247:THR:HB	2.19	0.42
2:A:487:ILE:HD11	2:A:1071:ILE:HG12	2.01	0.42
2:A:740:LEU:HD12	2:A:825:LEU:HD21	2.01	0.42
2:A:963:CYS:SG	2:A:964:PHE:N	2.92	0.42
2:A:1088:PHE:HE2	2:A:1097:THR:HG23	1.84	0.42
1:B:388:MET:HE1	2:A:1310:HIS:CE1	2.55	0.42
2:A:892:ILE:HD13	2:A:959:ALA:HA	2.01	0.42
1:B:286:ASN:CG	1:B:289:GLU:HB2	2.45	0.42
1:B:196:LYS:HE2	1:B:196:LYS:HA	2.02	0.41
1:B:360:TYR:OH	2:A:1264:PHE:O	2.37	0.41
2:A:98:ARG:O	2:A:100:ALA:N	2.43	0.41
2:A:282:VAL:HG11	2:A:364:ILE:HD13	2.02	0.41
2:A:515:THR:HG23	2:A:1046:ILE:HG22	2.01	0.41
2:A:408:LYS:HE2	2:A:412:GLN:NE2	2.35	0.41
2:A:557:TYR:HD2	2:A:627:GLU:HB3	1.86	0.41
2:A:656:VAL:HG13	2:A:670:ALA:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:328:MET:HE2	1:B:328:MET:HB3	1.97	0.41
2:A:75:ASN:O	2:A:391:GLU:HB3	2.20	0.41
2:A:653:CYS:HB2	2:A:741:LEU:HB3	2.02	0.41
1:B:84:TYR:HB3	1:B:143:ILE:HD11	2.01	0.41
2:A:61:ASP:OD1	2:A:62:LYS:N	2.52	0.41
2:A:152:ARG:CZ	2:A:152:ARG:HA	2.50	0.41
2:A:367:GLU:H	2:A:367:GLU:HG2	1.59	0.41
2:A:372:ARG:NH2	2:A:391:GLU:O	2.54	0.41
1:B:99:ALA:HA	1:B:124:THR:HG22	2.02	0.41
2:A:294:TYR:HB3	2:A:376:LEU:HD13	2.01	0.41
2:A:294:TYR:CD2	2:A:378:ASN:HB3	2.56	0.41
1:B:53:LEU:HD12	1:B:371:ALA:HA	2.03	0.41
1:B:253:ASN:HB3	2:A:1242:PRO:HB3	2.03	0.41
1:B:164:TYR:HB3	1:B:305:PHE:HE2	1.86	0.41
1:B:170:ARG:NH1	2:A:458:ASP:OD2	2.54	0.41
1:B:360:TYR:CZ	2:A:1268:PHE:HB2	2.55	0.41
2:A:104:PHE:CE2	2:A:481:ILE:HA	2.55	0.41
2:A:477:ASN:HB2	2:A:1082:ILE:HD11	2.02	0.41
2:A:897:ARG:HB2	2:A:972:LEU:HD13	2.03	0.41
2:A:1080:ILE:O	2:A:1084:VAL:HG23	2.21	0.41
2:A:1147:TYR:O	2:A:1152:ARG:NH1	2.54	0.41
2:A:1205:ASN:O	2:A:1223:ILE:HD12	2.21	0.41
2:A:725:MET:HE3	2:A:725:MET:HB3	1.98	0.41
2:A:1203:VAL:HG22	2:A:1270:THR:HA	2.03	0.41
2:A:1310:HIS:CG	2:A:1311:PRO:HD2	2.56	0.41
2:A:68:ARG:HD2	2:A:69:ALA:HB2	2.02	0.40
2:A:1014:GLY:O	2:A:1018:VAL:HG13	2.21	0.40
1:B:157:LEU:HD11	1:B:341:ILE:HG23	2.04	0.40
2:A:51:ILE:HG23	2:A:52:ASN:N	2.36	0.40
2:A:1221:PHE:O	2:A:1225:PHE:CB	2.68	0.40
1:B:92:PRO:HD2	1:B:126:THR:HA	2.03	0.40
2:A:125:ILE:HD12	2:A:125:ILE:HA	1.94	0.40
2:A:861:ASP:O	2:A:986:CYS:HB3	2.22	0.40
2:A:287:SER:HB3	2:A:380:ALA:HB3	2.04	0.40
2:A:392:ASP:HA	2:A:396:ILE:HD12	2.02	0.40
2:A:697:LEU:HD23	2:A:697:LEU:H	1.86	0.40
2:A:1074:PHE:O	2:A:1077:LYS:HG3	2.21	0.40
1:B:167:ASN:OD1	1:B:167:ASN:N	2.50	0.40
2:A:1131:THR:OG1	2:A:1299:ARG:NH1	2.54	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	347/411 (84%)	327 (94%)	20 (6%)	0	100	100
2	A	1072/1570 (68%)	954 (89%)	118 (11%)	0	100	100
All	All	1419/1981 (72%)	1281 (90%)	138 (10%)	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	B	298/351 (85%)	291 (98%)	7 (2%)	44	66
2	A	926/1347 (69%)	880 (95%)	46 (5%)	22	50
All	All	1224/1698 (72%)	1171 (96%)	53 (4%)	27	54

All (53) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	53	LEU
1	B	199	THR
1	B	289	GLU
1	B	290	ASP
1	B	345	THR
1	B	375	LEU
1	B	390	LEU
2	A	45	VAL

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Mol	Chain	Res	Type
2	A	49	VAL
2	A	79	THR
2	A	83	THR
2	A	102	CYS
2	A	118	THR
2	A	119	ILE
2	A	262	ASP
2	A	263	VAL
2	A	268	PHE
2	A	269	VAL
2	A	291	ASP
2	A	328	HIS
2	A	343	LEU
2	A	367	GLU
2	A	371	LEU
2	A	372	ARG
2	A	375	VAL
2	A	387	VAL
2	A	388	TYR
2	A	479	VAL
2	A	547	PHE
2	A	674	ASP
2	A	754	THR
2	A	788	LEU
2	A	805	VAL
2	A	827	LEU
2	A	880	THR
2	A	963	CYS
2	A	982	THR
2	A	996	ILE
2	A	998	HIS
2	A	1016	ASN
2	A	1018	VAL
2	A	1079	ILE
2	A	1097	THR
2	A	1112	TRP
2	A	1115	VAL
2	A	1117	VAL
2	A	1179	THR
2	A	1187	VAL
2	A	1210	LEU
2	A	1218	TRP

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Mol	Chain	Res	Type
2	A	1229	LEU
2	A	1247	THR
2	A	1309	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (11) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	236	GLN
1	B	327	ASN
2	A	75	ASN
2	A	310	ASN
2	A	349	ASN
2	A	714	HIS
2	A	719	ASN
2	A	759	GLN
2	A	801	HIS
2	A	802	ASN
2	A	1205	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](#)

10 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
3	NAG	D	1	1,3	14,14,15	0.26	0	17,19,21	0.47	0
3	NAG	D	2	3	14,14,15	0.27	0	17,19,21	0.56	0
4	NAG	E	1	1,4	14,14,15	0.27	0	17,19,21	0.50	0
4	NAG	E	2	4	14,14,15	0.27	0	17,19,21	0.43	0
4	BMA	E	3	4	11,11,12	0.46	0	15,15,17	0.75	0
4	MAN	E	4	4	11,11,12	0.72	0	15,15,17	1.46	2 (13%)
4	MAN	E	5	4	11,11,12	0.75	1 (9%)	15,15,17	1.01	2 (13%)
4	MAN	E	6	4	11,11,12	0.55	0	15,15,17	0.95	2 (13%)
3	NAG	G	1	1,3	14,14,15	0.24	0	17,19,21	0.40	0
3	NAG	G	2	3	14,14,15	0.21	0	17,19,21	0.45	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
3	NAG	D	1	1,3	-	4/6/23/26	0/1/1/1
3	NAG	D	2	3	-	3/6/23/26	0/1/1/1
4	NAG	E	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	E	2	4	-	0/6/23/26	0/1/1/1
4	BMA	E	3	4	-	2/2/19/22	0/1/1/1
4	MAN	E	4	4	-	1/2/19/22	0/1/1/1
4	MAN	E	5	4	-	2/2/19/22	1/1/1/1
4	MAN	E	6	4	-	1/2/19/22	0/1/1/1
3	NAG	G	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	G	2	3	-	0/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	E	5	MAN	C1-C2	2.05	1.57	1.52

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	4	MAN	C1-O5-C5	3.89	117.39	112.19
4	E	5	MAN	C1-O5-C5	2.87	116.03	112.19
4	E	6	MAN	C1-O5-C5	2.33	115.30	112.19
4	E	4	MAN	O2-C2-C3	-2.31	105.37	110.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	6	MAN	O2-C2-C3	-2.13	105.74	110.15
4	E	5	MAN	O2-C2-C3	-2.09	105.81	110.15

There are no chirality outliers.

All (17) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	E	1	NAG	O5-C5-C6-O6
4	E	1	NAG	C4-C5-C6-O6
4	E	3	BMA	O5-C5-C6-O6
3	G	1	NAG	O5-C5-C6-O6
3	G	1	NAG	C4-C5-C6-O6
4	E	3	BMA	C4-C5-C6-O6
4	E	5	MAN	O5-C5-C6-O6
3	D	1	NAG	O5-C5-C6-O6
3	D	1	NAG	C8-C7-N2-C2
3	D	1	NAG	O7-C7-N2-C2
3	D	1	NAG	C4-C5-C6-O6
3	D	2	NAG	O5-C5-C6-O6
4	E	5	MAN	C4-C5-C6-O6
4	E	6	MAN	O5-C5-C6-O6
3	D	2	NAG	C3-C2-N2-C7
4	E	4	MAN	C4-C5-C6-O6
3	D	2	NAG	C1-C2-N2-C7

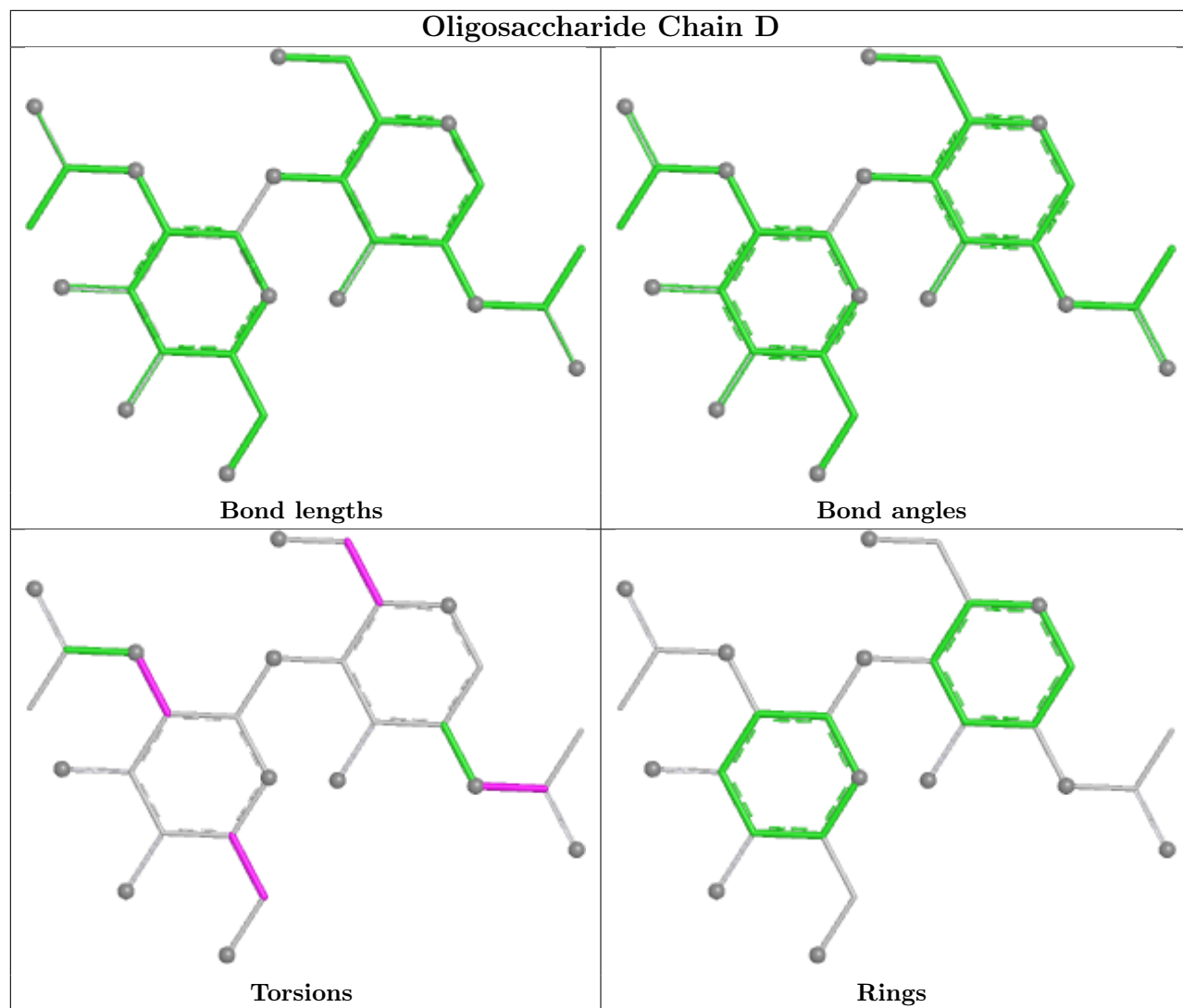
All (1) ring outliers are listed below:

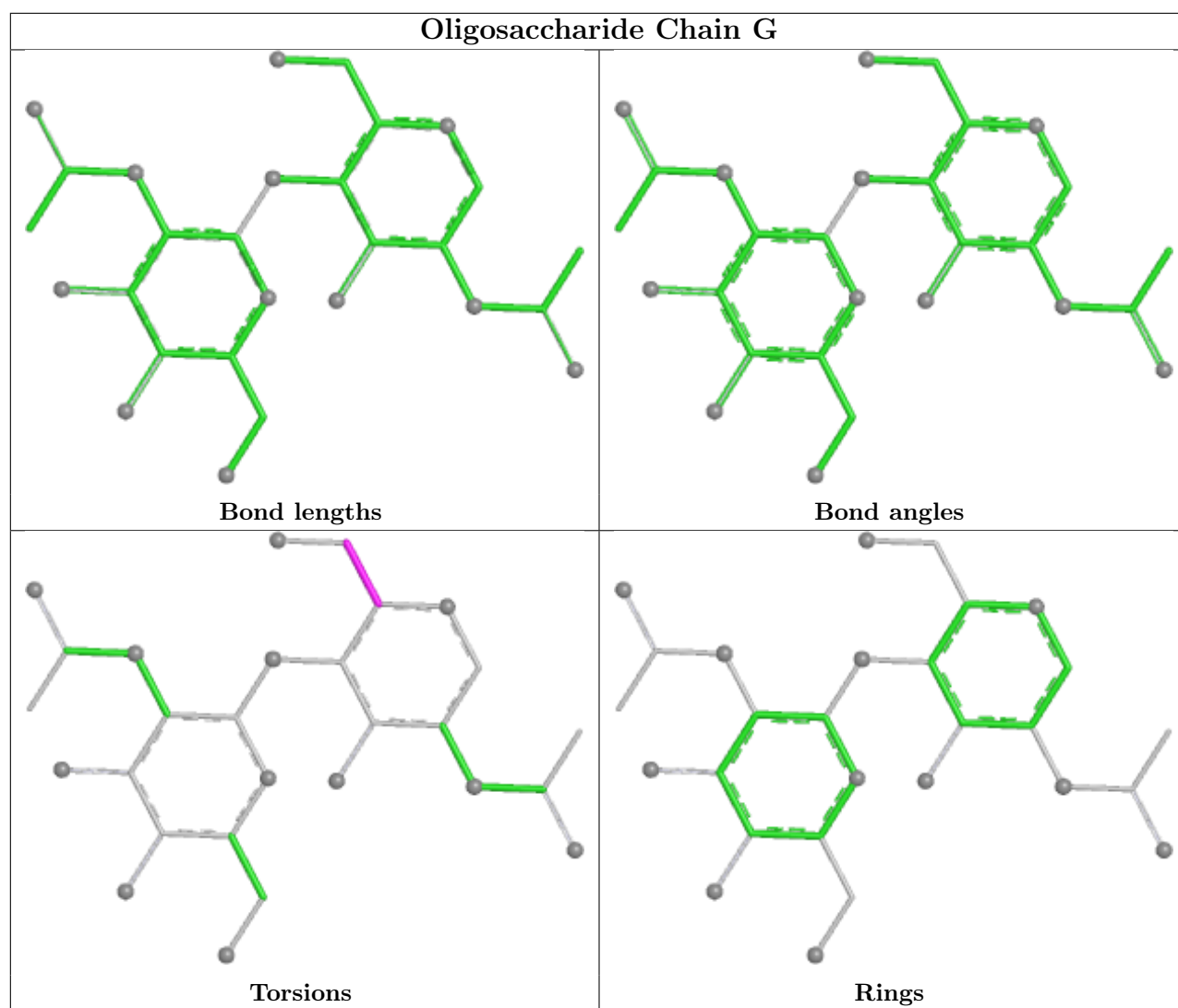
Mol	Chain	Res	Type	Atoms
4	E	5	MAN	C1-C2-C3-C4-C5-O5

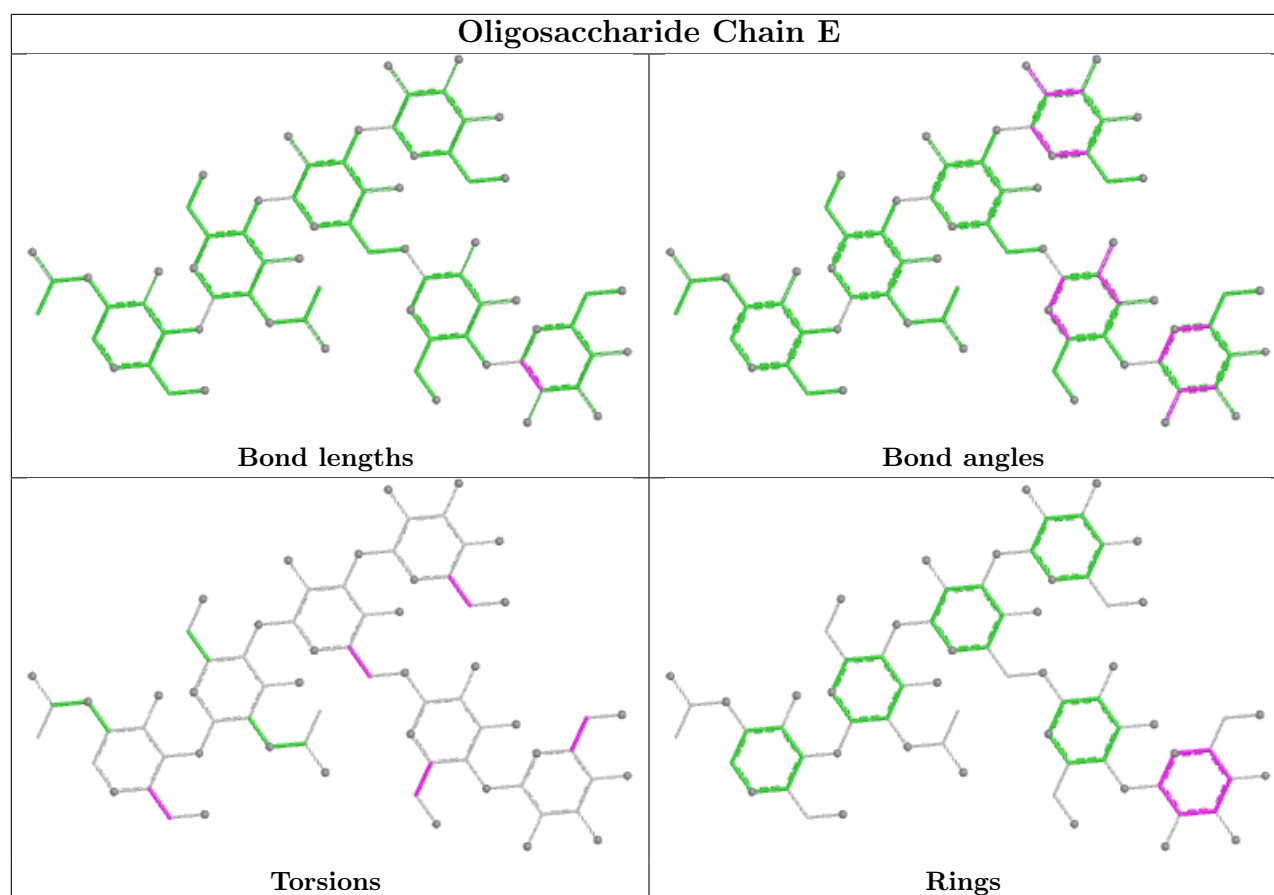
2 monomers are involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	E	4	MAN	1	0
4	E	5	MAN	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.







5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 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	$\# Z > 2$
5	NAG	B	501	1	14,14,15	0.17	0	17,19,21	0.41	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
5	NAG	B	501	1	-	4/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	501	NAG	O5-C5-C6-O6
5	B	501	NAG	C4-C5-C6-O6
5	B	501	NAG	C8-C7-N2-C2
5	B	501	NAG	O7-C7-N2-C2

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	501	NAG	1	0

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-47339. These allow visual inspection of the internal detail of the map and identification of artifacts.

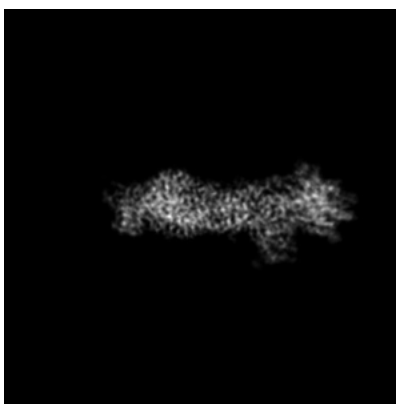
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

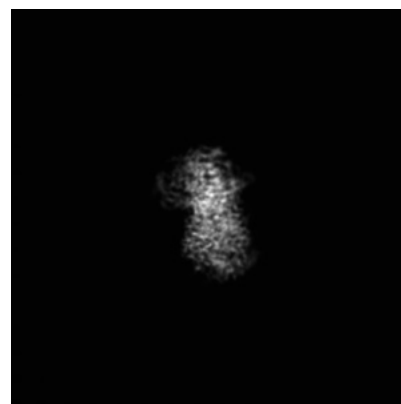
6.1.1 Primary map



X

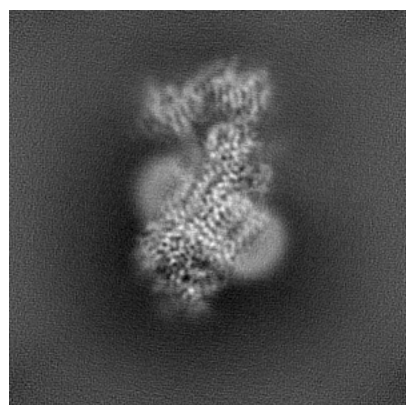


Y

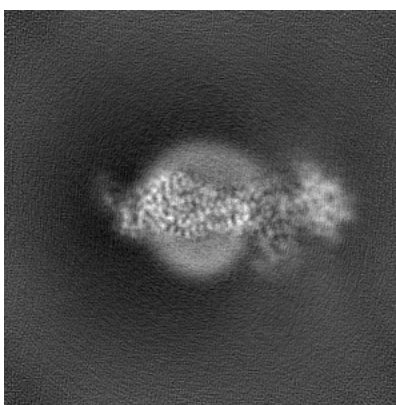


Z

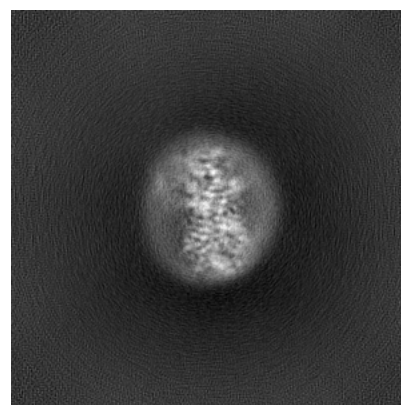
6.1.2 Raw map



X



Y



Z

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

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 150

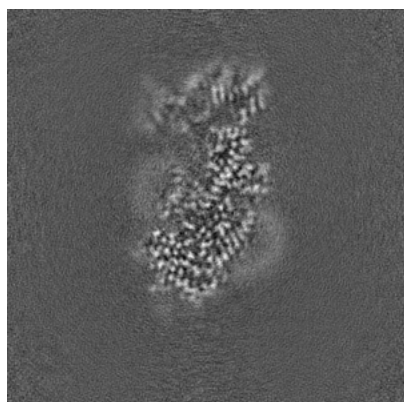


Y Index: 150

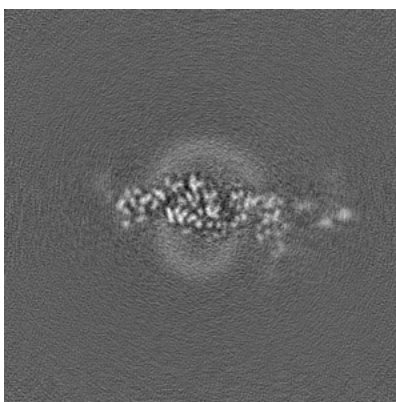


Z Index: 150

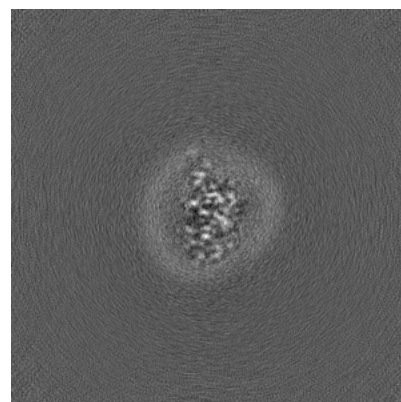
6.2.2 Raw map



X Index: 150



Y Index: 150



Z Index: 150

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

6.3 Largest variance slices [i](#)

6.3.1 Primary map



X Index: 149

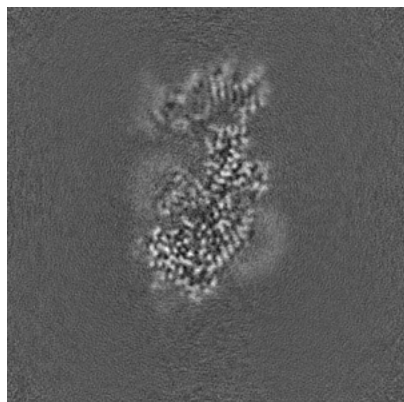


Y Index: 155

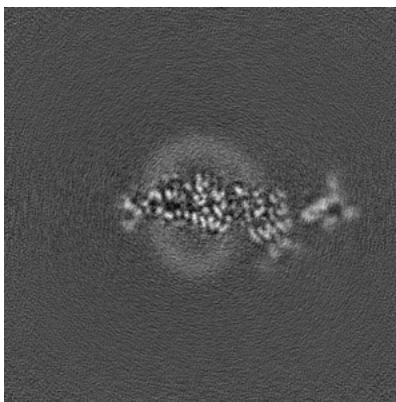


Z Index: 124

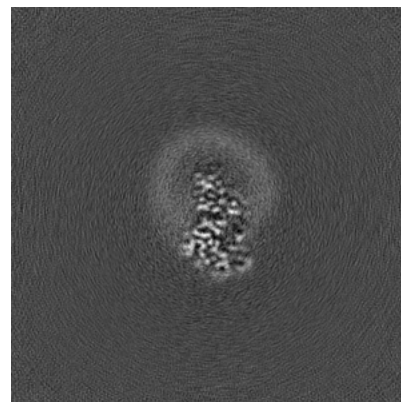
6.3.2 Raw map



X Index: 151



Y Index: 155

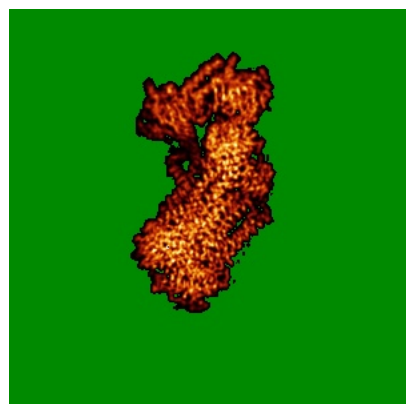


Z Index: 125

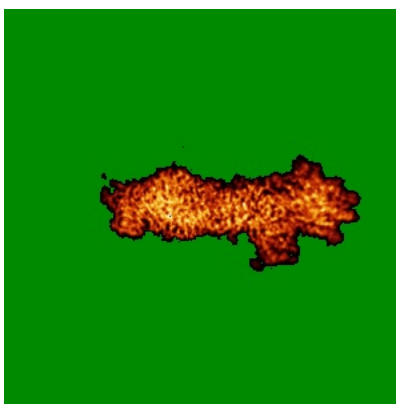
The images above show the largest variance slices of the map in three orthogonal directions.

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

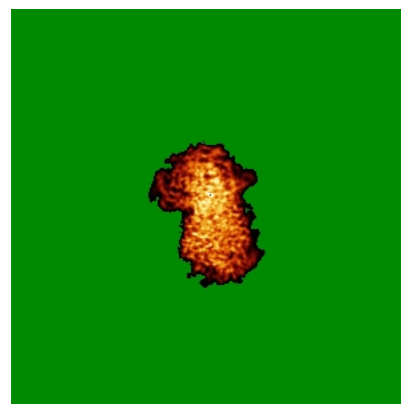
6.4.1 Primary map



X

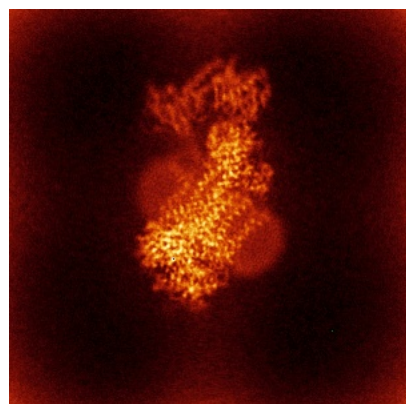


Y



Z

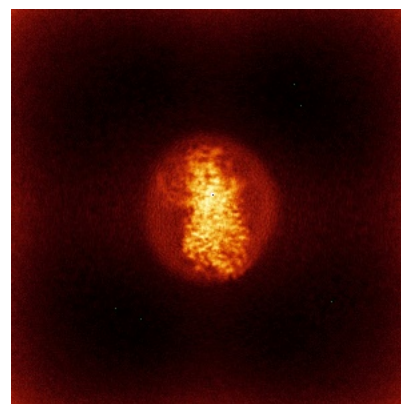
6.4.2 Raw map



X



Y

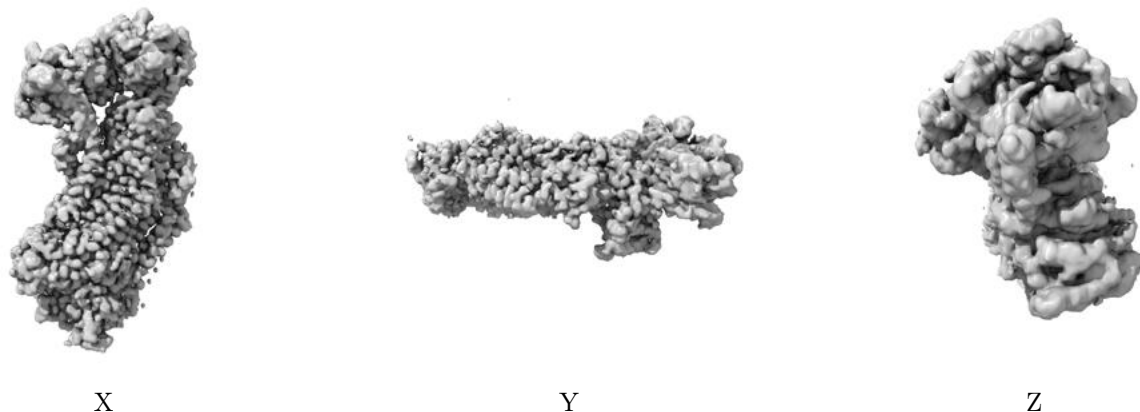


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.01. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

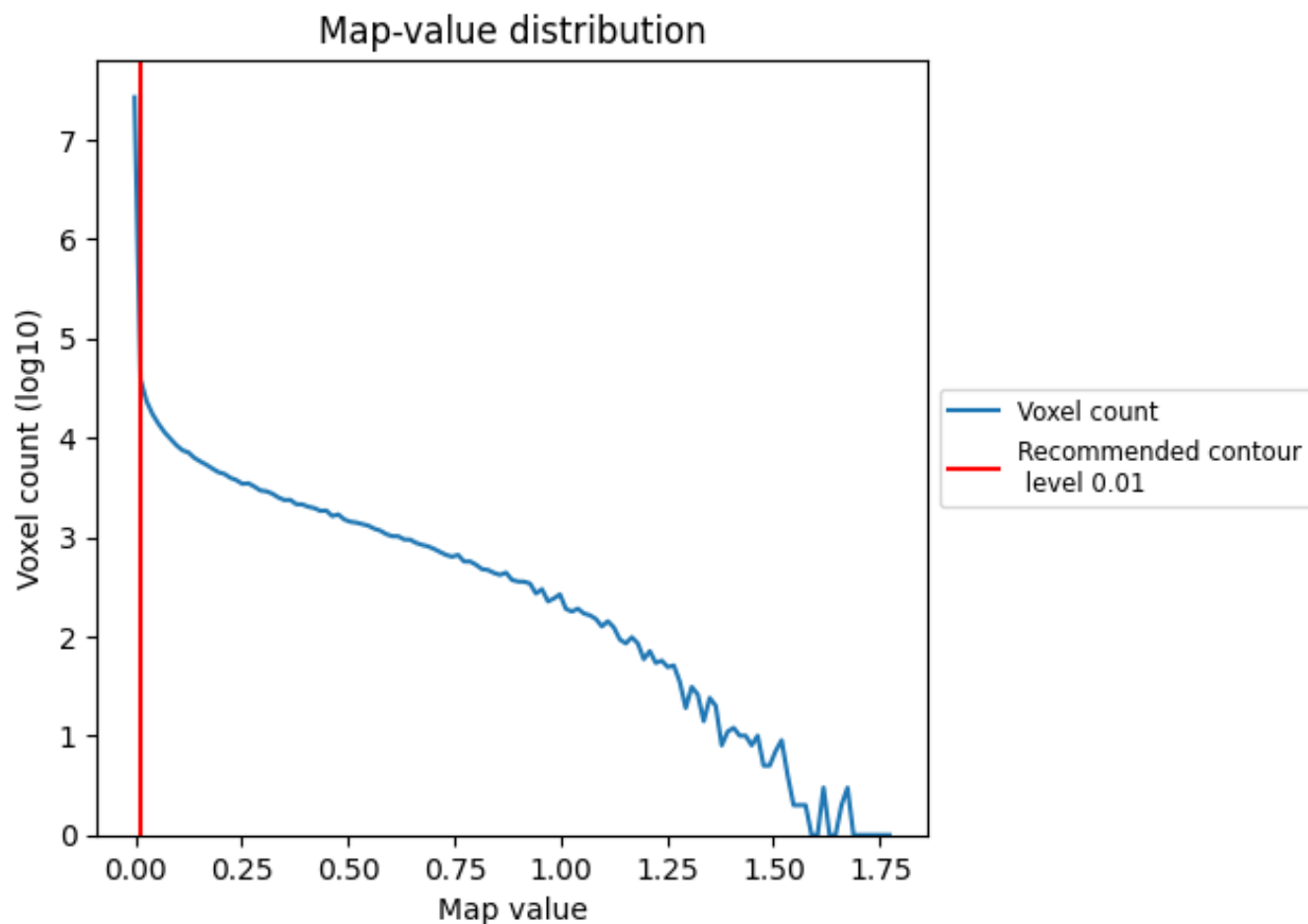
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

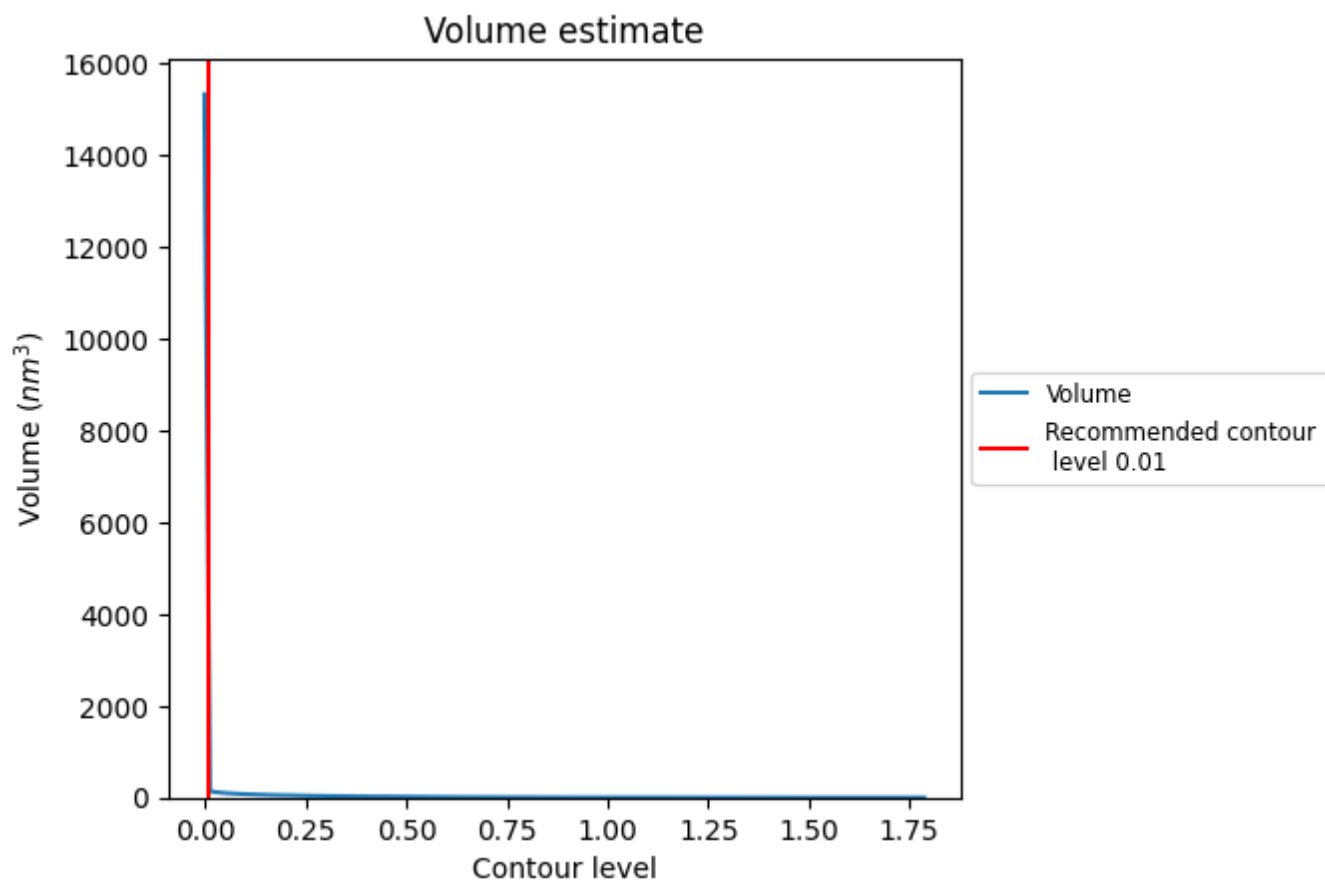
This section contains the results of statistical analysis of the map.

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.

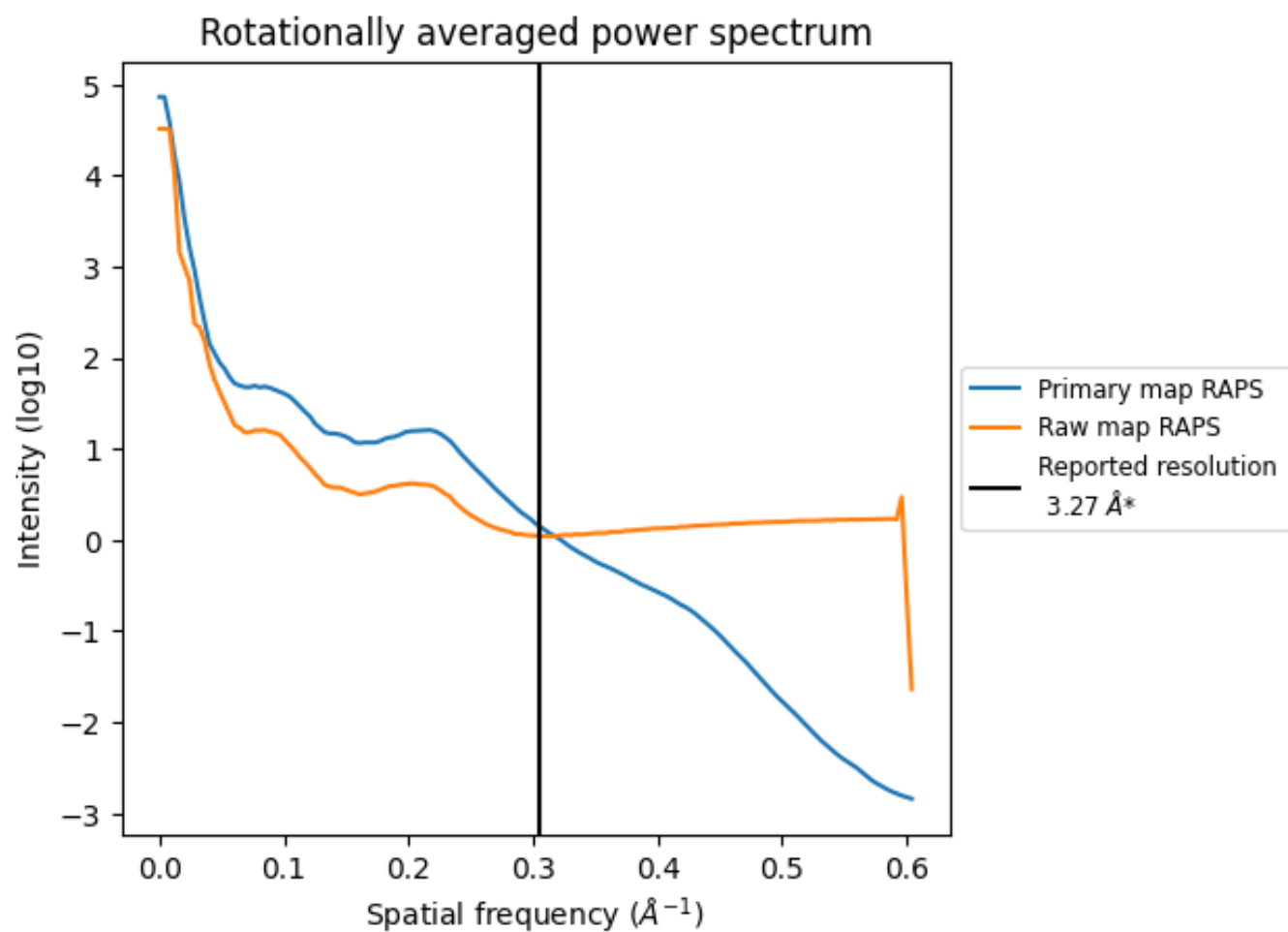
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2528 nm^3 ; this corresponds to an approximate mass of 2284 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 ⓘ

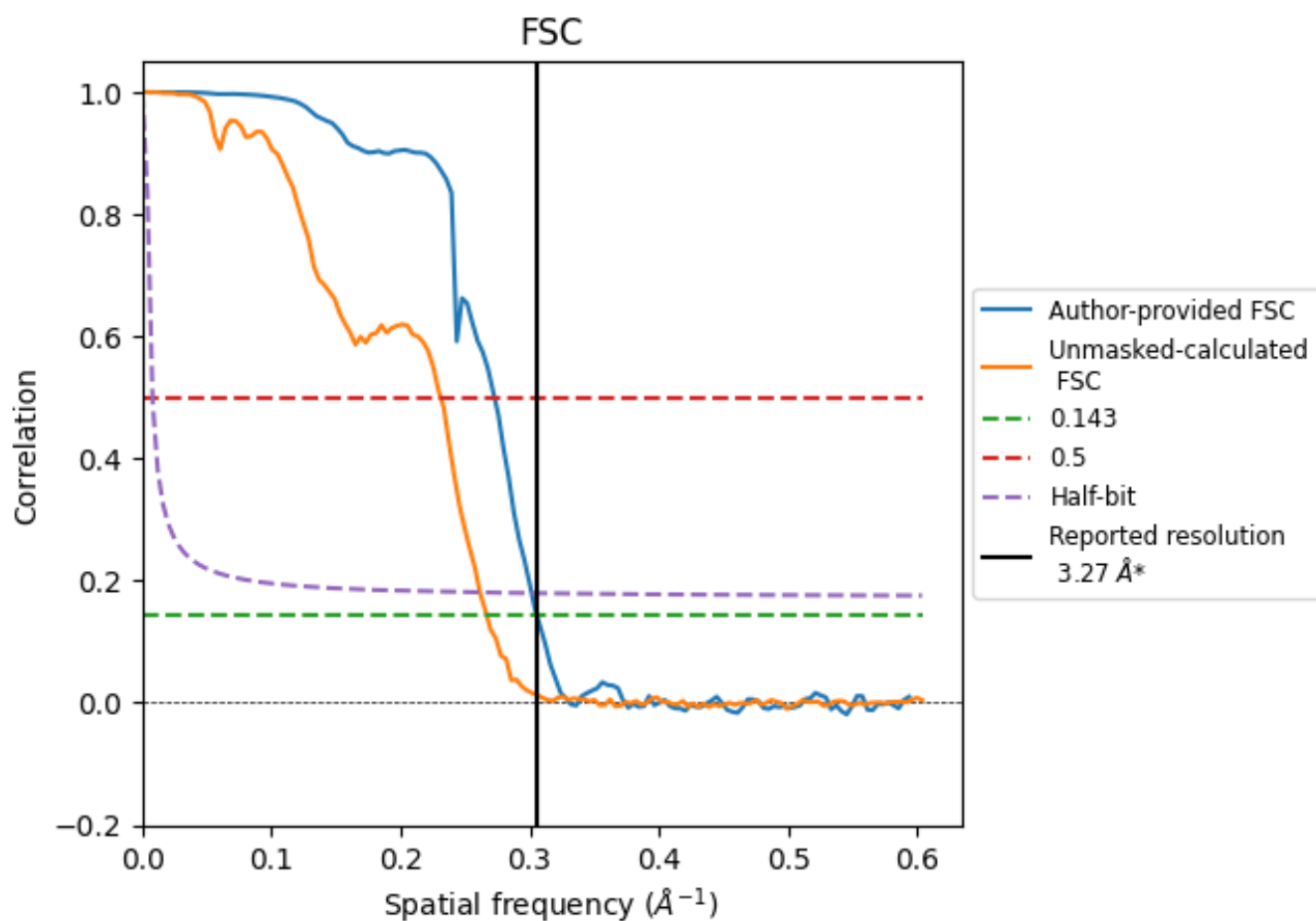


*Reported resolution corresponds to spatial frequency of 0.306 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.306 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

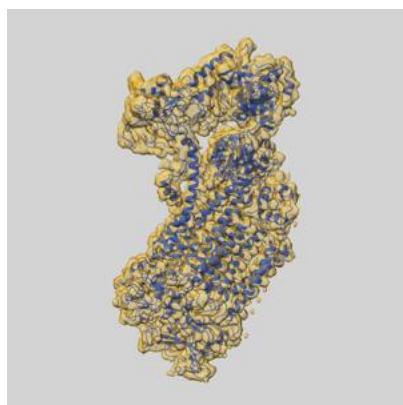
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.27	-	-
Author-provided FSC curve	3.27	3.67	3.32
Unmasked-calculated*	3.75	4.33	3.82

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.75 differs from the reported value 3.27 by more than 10 %

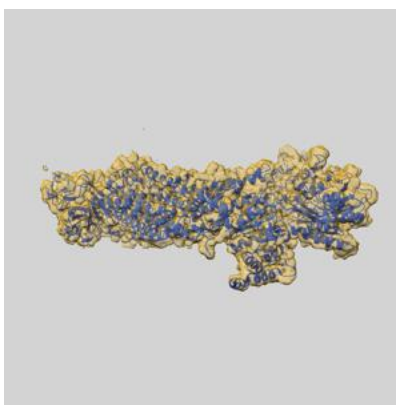
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-47339 and PDB model 9DZV. Per-residue inclusion information can be found in section 3 on page 7.

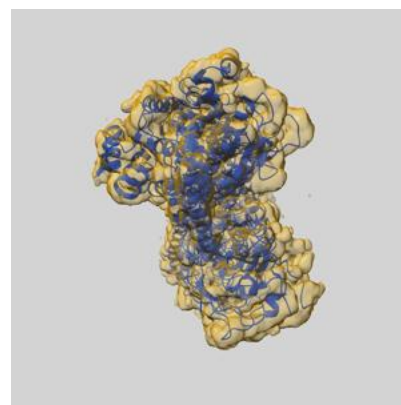
9.1 Map-model overlay [i](#)



X



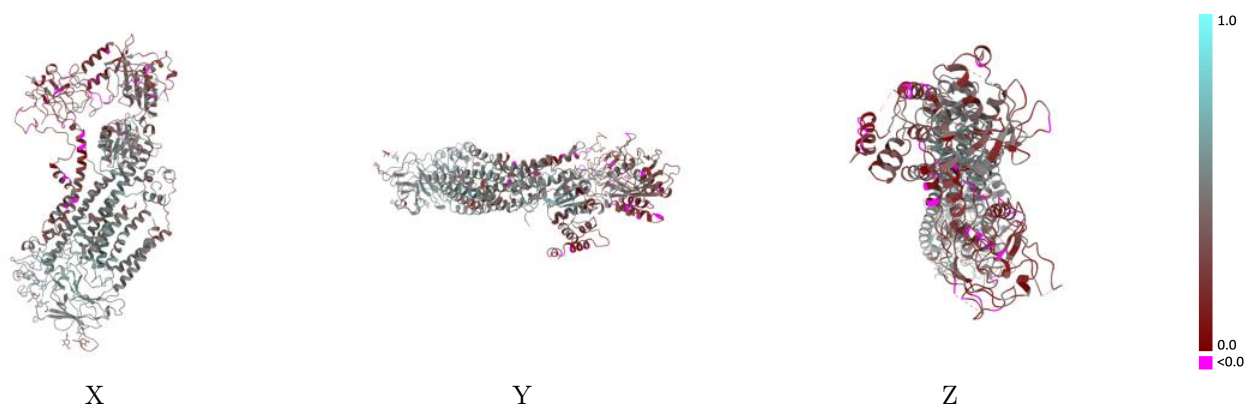
Y



Z

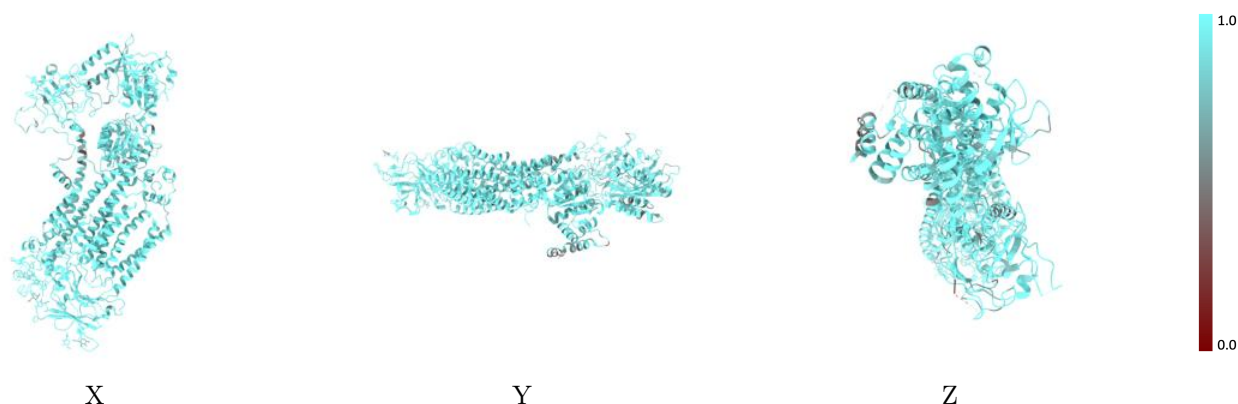
The images above show the 3D surface view of the map at the recommended contour level 0.01 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



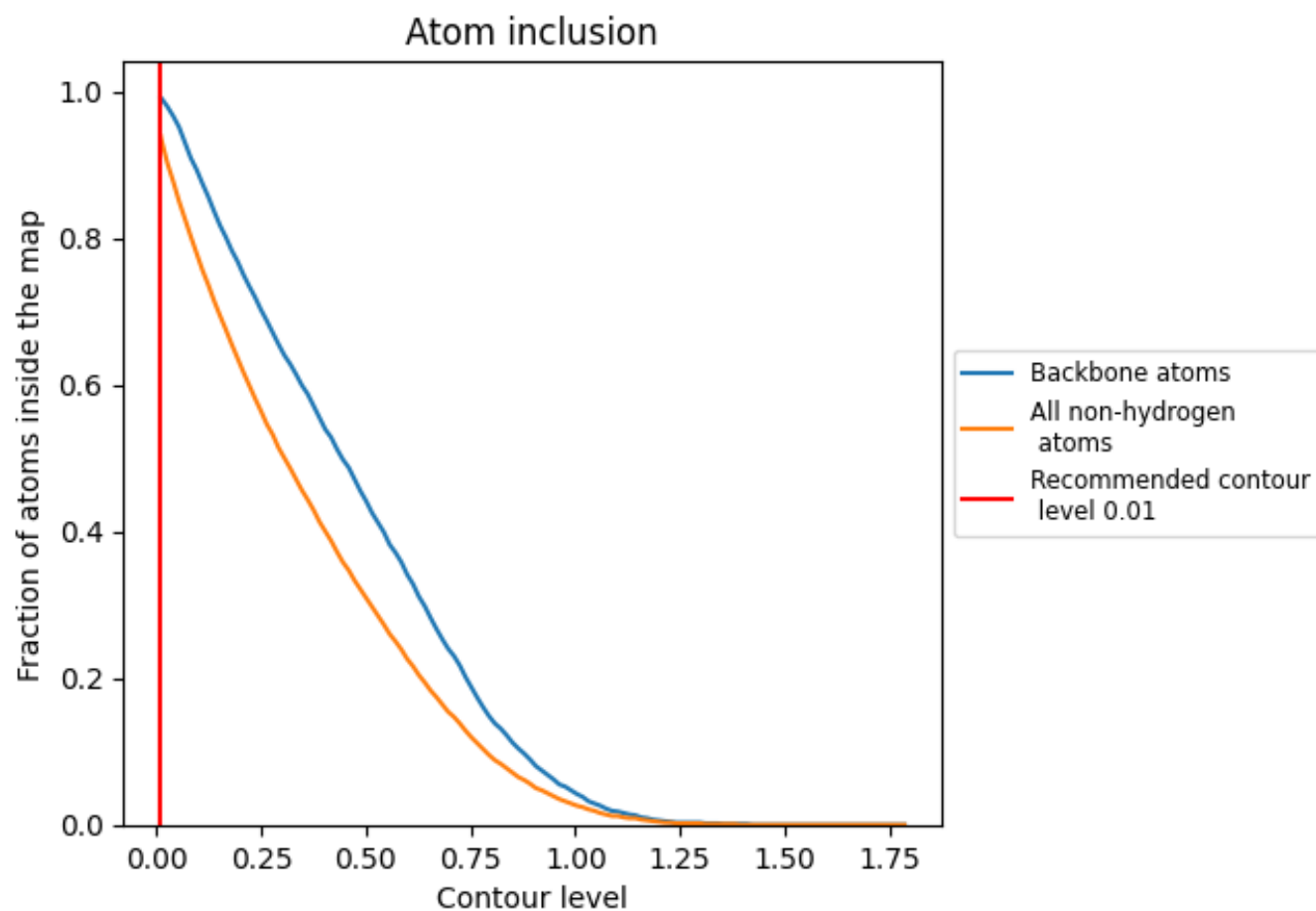
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.01).

9.4 Atom inclusion [i](#)



At the recommended contour level, 99% of all backbone atoms, 94% 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 (0.01) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9390	0.3990
A	0.9280	0.3690
B	0.9770	0.4910
D	0.8210	0.3800
E	0.9860	0.5040
G	0.8210	0.3780

