WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB EM Validation Report ⓘ

May 18, 2025 – 02:41 PM EDT

PDB ID	:	6VM0 / pdb_00006vm0
EMDB ID	:	EMD-21234
Title	:	Full length Glycine receptor reconstituted in lipid nanodisc in Gly/IVM-conformation (State-1)
Authors	:	Kumar, A.; Basak, S.; Chakrapani, S.
Deposited on	:	2020-01-27
Resolution	:	3.14 Å(reported)

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 3.14 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		6
Ramachandran outliers		0
Sidechain outliers		0

Worse ← → *Better*

▮ Percentile relative to all structures

◫ Percentile relative to all EM structures
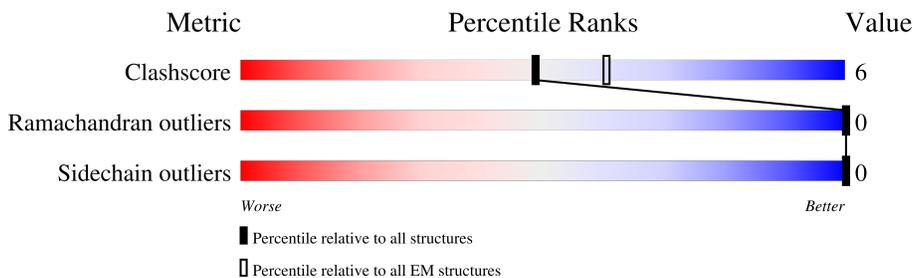
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	444	70% · 11% 18%
1	B	444	70% · 12% 18%
1	C	444	70% · 11% 18%
1	D	444	70% · 11% 18%
1	E	444	70% · 11% 18%
2	F	2	50% 50%
2	G	2	50% 50%
2	H	2	50% 50%

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Mol	Chain	Length	Quality of chain
2	I	2	50%　　　　　　　　　50%
2	J	2	50%　　　　　　　　　50%

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 15355 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.

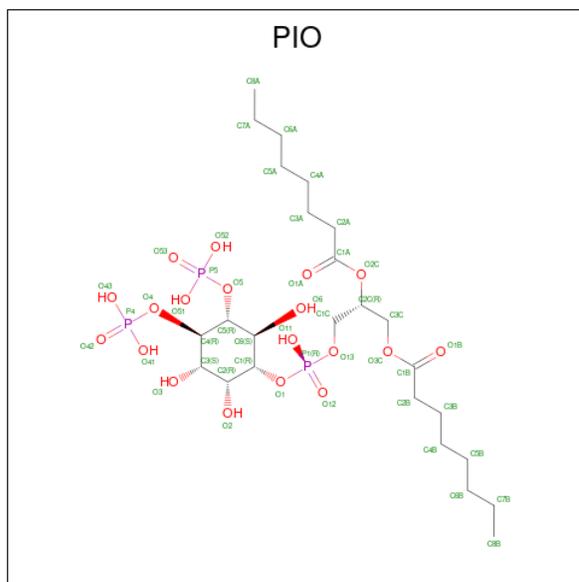- Molecule 1 is a protein called Glycine receptor subunit alphaZ1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	362	Total	C	N	O	S	0	0
			2949	1920	485	524	20		
1	E	362	Total	C	N	O	S	0	0
			2949	1920	485	524	20		
1	C	362	Total	C	N	O	S	0	0
			2949	1920	485	524	20		
1	B	362	Total	C	N	O	S	0	0
			2949	1920	485	524	20		
1	D	362	Total	C	N	O	S	0	0
			2949	1920	485	524	20		

- Molecule 2 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
2	F	2	Total	C	N	O	0	0
			27	15	2	10		
2	G	2	Total	C	N	O	0	0
			27	15	2	10		
2	H	2	Total	C	N	O	0	0
			27	15	2	10		
2	I	2	Total	C	N	O	0	0
			27	15	2	10		
2	J	2	Total	C	N	O	0	0
			27	15	2	10		

- Molecule 3 is [(2R)-2-octanoyloxy-3-[oxidanyl-[(1R,2R,3S,4R,5R,6S)-2,3,6-tris(oxidanyl)-4,5-diphosphonooxy-cyclohexyl]oxy-phosphoryl]oxy-propyl] octanoate (CCD ID: PIO) (formula: $C_{25}H_{49}O_{19}P_3$).

PIO

Mol	Chain	Residues	Atoms				AltConf
3	A	1	Total	C	O	P	0
			28	19	8	1	
3	E	1	Total	C	O	P	0
			28	19	8	1	
3	C	1	Total	C	O	P	0
			28	19	8	1	
3	B	1	Total	C	O	P	0
			28	19	8	1	
3	D	1	Total	C	O	P	0
			28	19	8	1	

- Molecule 4 is GLYCINE (CCD ID: GLY) (formula: $C_2H_5NO_2$) (labeled as "Ligand of Interest" by depositor).
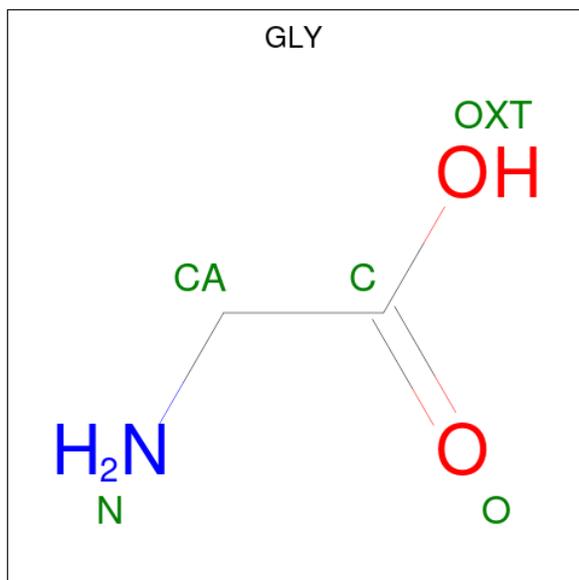
GLY

OXT
OH

CA   C

H₂N

N   O

Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	N	O	0
			5	2	1	2	
4	E	1	Total	C	N	O	0
			5	2	1	2	
4	C	1	Total	C	N	O	0
			5	2	1	2	
4	B	1	Total	C	N	O	0
			5	2	1	2	
4	D	1	Total	C	N	O	0
			5	2	1	2	

- Molecule 5 is (2aE,4E,5'S,6S,6'R,7S,8E,11R,13R,15S,17aR,20R,20aR,20bS)-6'-[(2S)-butan-2 -yl]-20,20b-dihydroxy-5',6,8,19-tetramethyl-17 -oxo-3',4',5',6,6',10,11,14,15,17,17a,20,20a,20 b-tetradecahydro-2H,7H-spiro[11,15-methanofuro[4,3,2-pq][2,6]benzodioxacy clooctadecine-1 3,2'-pyran]-7-yl 2,6-dideoxy-4-O-(2,6-dideoxy-3-O-methyl-alpha-L-arabino-hexopyranosyl)-3 -O-methyl-alpha-L-arabino-hexopyranoside (CCD ID: IVM) (formula: $C_{48}H_{74}O_{14}$) (labeled as "Ligand of Interest" by depositor).
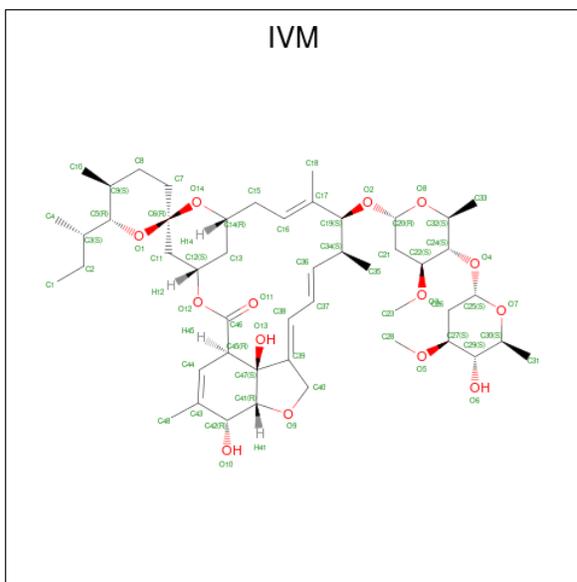
Mol	Chain	Residues	Atoms			AltConf
5	A	1	Total	C	O	0
			62	48	14	
5	E	1	Total	C	O	0
			62	48	14	
5	C	1	Total	C	O	0
			62	48	14	
5	B	1	Total	C	O	0
			62	48	14	
5	D	1	Total	C	O	0
			62	48	14	

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: Glycine receptor subunit alphaZ1
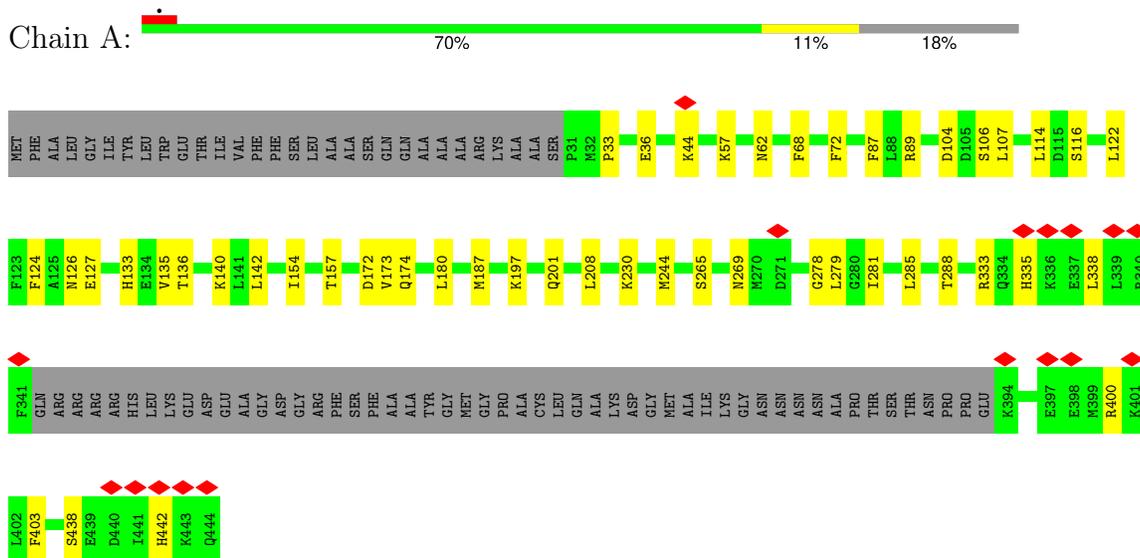
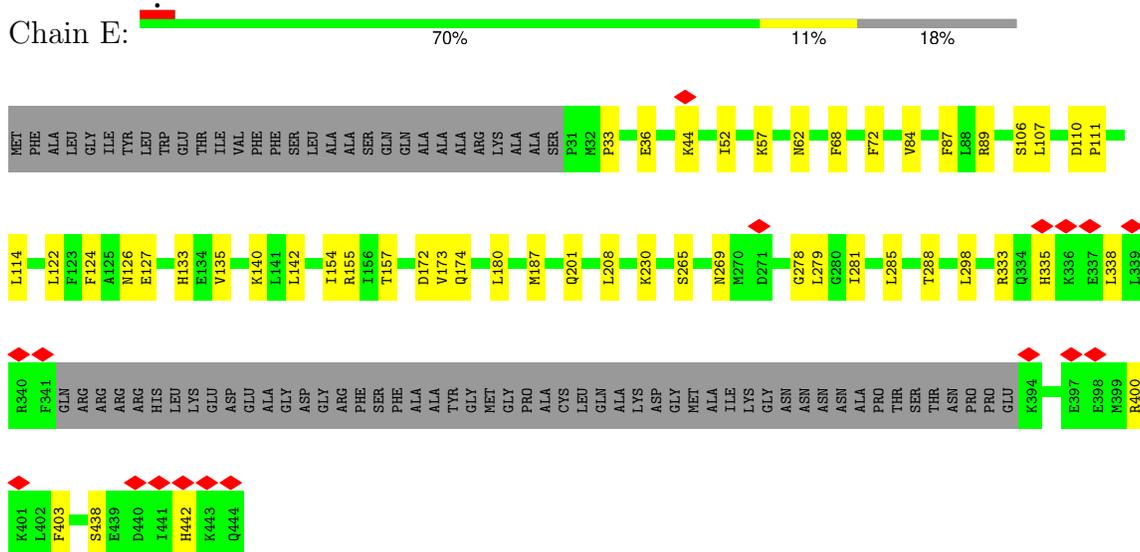
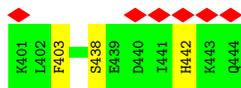• Molecule 1: Glycine receptor subunit alphaZ1

• Molecule 1: Glycine receptor subunit alphaZ1

Chain C:

• Molecule 1: Glycine receptor subunit alphaZ1

Chain B:

• Molecule 1: Glycine receptor subunit alphaZ1

Chain D:

K401 L402 F403 S438 E439 D440 I441 H442 K443 Q444

• Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain F:

50% 50%

NAG1 NAG2

• Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain G:

50% 50%

NAG1 NAG2

• Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain H:

50% 50%

NAG1 NAG2

• Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain I:

50% 50%

NAG1 NAG2

• Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-gluc opyranose

Chain J:

50% 50%

NAG1 NAG2

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C5	Depositor
Number of particles used	19600	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 $(e^-/\text{Å}^2)$	40	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	130000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.063	Depositor
Minimum map value	-0.023	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0114	Depositor
Map size (Å)	317.99997, 317.99997, 317.99997	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	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: IVM, PIO, 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	A	0.44	0/3022	0.69	2/4094 (0.0%)
1	B	0.44	0/3022	0.69	2/4094 (0.0%)
1	C	0.44	0/3022	0.69	2/4094 (0.0%)
1	D	0.44	0/3022	0.69	2/4094 (0.0%)
1	E	0.44	0/3022	0.69	2/4094 (0.0%)
All	All	0.44	0/15110	0.69	10/20470 (0.0%)

There are no bond length outliers.

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	135	VAL	CA-C-N	5.12	131.31	121.54
1	E	135	VAL	C-N-CA	5.12	131.31	121.54
1	D	135	VAL	CA-C-N	5.11	131.31	121.54
1	D	135	VAL	C-N-CA	5.11	131.31	121.54
1	A	135	VAL	CA-C-N	5.11	131.29	121.54
1	A	135	VAL	C-N-CA	5.11	131.29	121.54
1	B	135	VAL	CA-C-N	5.10	131.28	121.54
1	B	135	VAL	C-N-CA	5.10	131.28	121.54
1	C	135	VAL	CA-C-N	5.09	131.26	121.54
1	C	135	VAL	C-N-CA	5.09	131.26	121.54

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	A	2949	0	2972	35	0
1	B	2949	0	2972	39	0
1	C	2949	0	2972	37	0
1	D	2949	0	2972	34	0
1	E	2949	0	2972	36	0
2	F	27	0	22	1	0
2	G	27	0	22	1	0
2	H	27	0	22	2	0
2	I	27	0	22	2	0
2	J	27	0	22	1	0
3	A	28	0	35	0	0
3	B	28	0	35	0	0
3	C	28	0	35	0	0
3	D	28	0	35	0	0
3	E	28	0	35	0	0
4	A	5	0	2	0	0
4	B	5	0	2	0	0
4	C	5	0	2	0	0
4	D	5	0	2	0	0
4	E	5	0	2	0	0
5	A	62	0	73	0	0
5	B	62	0	73	2	0
5	C	62	0	73	2	0
5	D	62	0	73	3	0
5	E	62	0	73	2	0
All	All	15355	0	15520	174	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 6.

All (174) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:265:SER:HB2	1:C:279:LEU:HD22	1.71	0.72
1:B:265:SER:HB2	1:B:279:LEU:HD22	1.71	0.72
1:D:265:SER:HB2	1:D:279:LEU:HD22	1.71	0.71
1:A:265:SER:HB2	1:A:279:LEU:HD22	1.71	0.71
1:E:265:SER:HB2	1:E:279:LEU:HD22	1.71	0.70
1:C:269:ASN:HA	1:B:333:ARG:HD3	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:269:ASN:HA	1:E:333:ARG:HD3	1.78	0.65
1:A:133:HIS:HE1	1:A:157:THR:HG23	1.63	0.64
1:C:133:HIS:HE1	1:C:157:THR:HG23	1.63	0.63
1:E:133:HIS:HE1	1:E:157:THR:HG23	1.63	0.63
1:B:438:SER:O	1:B:442:HIS:ND1	2.32	0.63
1:E:438:SER:O	1:E:442:HIS:ND1	2.32	0.63
1:D:438:SER:O	1:D:442:HIS:ND1	2.32	0.63
1:C:438:SER:O	1:C:442:HIS:ND1	2.32	0.62
1:B:133:HIS:HE1	1:B:157:THR:HG23	1.63	0.62
1:D:133:HIS:HE1	1:D:157:THR:HG23	1.63	0.62
1:A:438:SER:O	1:A:442:HIS:ND1	2.32	0.62
1:A:68:PHE:HB3	1:A:87:PHE:HB2	1.84	0.60
1:B:122:LEU:HD21	1:B:180:LEU:HD23	1.84	0.60
1:E:68:PHE:HB3	1:E:87:PHE:HB2	1.84	0.60
1:D:122:LEU:HD21	1:D:180:LEU:HD23	1.84	0.60
1:B:68:PHE:HB3	1:B:87:PHE:HB2	1.84	0.60
1:A:122:LEU:HD21	1:A:180:LEU:HD23	1.84	0.59
1:C:57:LYS:NZ	1:D:104:ASP:OD2	2.32	0.59
1:D:68:PHE:HB3	1:D:87:PHE:HB2	1.84	0.59
1:C:68:PHE:HB3	1:C:87:PHE:HB2	1.84	0.59
1:C:122:LEU:HD21	1:C:180:LEU:HD23	1.84	0.58
1:E:122:LEU:HD21	1:E:180:LEU:HD23	1.84	0.58
1:C:104:ASP:OD2	1:B:57:LYS:NZ	2.31	0.57
1:E:114:LEU:HD23	1:E:140:LYS:HD3	1.88	0.55
1:A:172:ASP:OD2	1:A:174:GLN:NE2	2.40	0.55
1:B:114:LEU:HD23	1:B:140:LYS:HD3	1.88	0.55
1:B:335:HIS:HD2	1:B:403:PHE:HB2	1.72	0.55
1:B:172:ASP:OD2	1:B:174:GLN:NE2	2.40	0.55
1:C:114:LEU:HD23	1:C:140:LYS:HD3	1.88	0.55
1:E:172:ASP:OD2	1:E:174:GLN:NE2	2.40	0.55
1:D:172:ASP:OD2	1:D:174:GLN:NE2	2.40	0.55
1:A:114:LEU:HD23	1:A:140:LYS:HD3	1.88	0.55
1:A:335:HIS:HD2	1:A:403:PHE:HB2	1.72	0.55
1:A:172:ASP:OD1	1:A:173:VAL:N	2.40	0.54
1:C:335:HIS:HD2	1:C:403:PHE:HB2	1.72	0.54
1:D:172:ASP:OD1	1:D:173:VAL:N	2.40	0.54
1:C:172:ASP:OD2	1:C:174:GLN:NE2	2.40	0.54
1:A:57:LYS:NZ	1:B:104:ASP:OD2	2.32	0.54
1:C:172:ASP:OD1	1:C:173:VAL:N	2.40	0.54
1:D:114:LEU:HD23	1:D:140:LYS:HD3	1.88	0.54
1:E:335:HIS:HD2	1:E:403:PHE:HB2	1.72	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:172:ASP:OD1	1:E:173:VAL:N	2.40	0.53
1:E:269:ASN:HA	1:D:333:ARG:HD3	1.91	0.53
1:B:172:ASP:OD1	1:B:173:VAL:N	2.40	0.53
1:D:335:HIS:HD2	1:D:403:PHE:HB2	1.72	0.53
1:A:68:PHE:HB2	1:A:89:ARG:HH22	1.74	0.53
1:D:62:ASN:ND2	2:J:1:NAG:O6	2.42	0.53
1:C:62:ASN:ND2	2:H:1:NAG:O6	2.42	0.53
1:A:114:LEU:HD13	1:A:142:LEU:HD22	1.91	0.53
1:E:62:ASN:ND2	2:G:1:NAG:O6	2.42	0.53
1:A:104:ASP:OD2	1:E:57:LYS:NZ	2.38	0.53
1:E:68:PHE:HB2	1:E:89:ARG:HH22	1.74	0.53
1:B:62:ASN:ND2	2:I:1:NAG:O6	2.42	0.53
1:A:62:ASN:ND2	2:F:1:NAG:O6	2.42	0.52
1:C:114:LEU:HD13	1:C:142:LEU:HD22	1.91	0.52
1:B:114:LEU:HD13	1:B:142:LEU:HD22	1.91	0.52
1:C:68:PHE:HB2	1:C:89:ARG:HH22	1.74	0.51
1:B:68:PHE:HB2	1:B:89:ARG:HH22	1.74	0.51
1:B:133:HIS:CE1	1:B:157:THR:HG23	2.45	0.51
1:E:114:LEU:HD13	1:E:142:LEU:HD22	1.91	0.51
1:A:133:HIS:CE1	1:A:157:THR:HG23	2.45	0.51
1:E:187:MET:HB2	1:E:230:LYS:HG3	1.93	0.51
1:C:187:MET:HB2	1:C:230:LYS:HG3	1.93	0.51
1:D:114:LEU:HD13	1:D:142:LEU:HD22	1.91	0.51
1:A:187:MET:HB2	1:A:230:LYS:HG3	1.93	0.51
1:B:187:MET:HB2	1:B:230:LYS:HG3	1.93	0.51
1:A:136:THR:HG21	1:E:122:LEU:HB3	1.92	0.51
1:D:187:MET:HB2	1:D:230:LYS:HG3	1.93	0.51
1:D:68:PHE:HB2	1:D:89:ARG:HH22	1.74	0.50
1:C:133:HIS:CE1	1:C:157:THR:HG23	2.45	0.50
1:A:126:ASN:OD1	1:A:126:ASN:N	2.45	0.49
1:D:133:HIS:CE1	1:D:157:THR:HG23	2.45	0.48
1:B:197:LYS:HD3	1:B:197:LYS:HA	1.73	0.47
1:D:126:ASN:OD1	1:D:126:ASN:N	2.45	0.47
1:B:338:LEU:HB2	1:B:400:ARG:HH22	1.80	0.47
1:A:338:LEU:HB2	1:A:400:ARG:HH22	1.80	0.47
1:D:197:LYS:HD3	1:D:197:LYS:HA	1.73	0.47
1:C:312:ALA:HB1	5:C:805:IVM:H18B	1.97	0.47
1:E:133:HIS:CE1	1:E:157:THR:HG23	2.45	0.46
1:A:333:ARG:HD3	1:B:269:ASN:HA	1.97	0.46
1:E:338:LEU:HB2	1:E:400:ARG:HH22	1.80	0.46
1:A:127:GLU:HG3	1:B:155:ARG:HH22	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:244:MET:HE3	1:B:244:MET:HB3	1.89	0.46
1:D:335:HIS:CE1	1:D:400:ARG:HD3	2.51	0.46
1:E:335:HIS:CE1	1:E:400:ARG:HD3	2.51	0.45
1:C:338:LEU:HB2	1:C:400:ARG:HH22	1.80	0.45
1:E:68:PHE:HD1	1:E:201:GLN:HB2	1.81	0.45
1:C:127:GLU:HG3	1:D:155:ARG:HH22	1.81	0.45
1:D:110:ASP:HA	1:D:111:PRO:HD3	1.85	0.45
1:D:68:PHE:HD1	1:D:201:GLN:HB2	1.81	0.45
1:E:106:SER:OG	1:E:107:LEU:N	2.49	0.45
1:C:124:PHE:HB2	1:C:127:GLU:HG2	1.99	0.45
1:B:335:HIS:CE1	1:B:400:ARG:HD3	2.51	0.45
1:B:110:ASP:HA	1:B:111:PRO:HD3	1.85	0.45
1:D:124:PHE:HB2	1:D:127:GLU:HG2	1.99	0.45
1:A:197:LYS:HA	1:A:197:LYS:HD3	1.73	0.45
1:A:278:GLY:HA2	1:A:281:ILE:HG22	1.99	0.45
1:E:124:PHE:HB2	1:E:127:GLU:HG2	1.99	0.45
1:C:278:GLY:HA2	1:C:281:ILE:HG22	1.99	0.45
1:B:124:PHE:HB2	1:B:127:GLU:HG2	1.99	0.45
1:C:335:HIS:CE1	1:C:400:ARG:HD3	2.51	0.45
1:B:106:SER:OG	1:B:107:LEU:N	2.49	0.45
1:A:116:SER:O	1:A:116:SER:OG	2.30	0.44
1:D:106:SER:OG	1:D:107:LEU:N	2.49	0.44
1:D:338:LEU:HB2	1:D:400:ARG:HH22	1.80	0.44
1:A:68:PHE:HD1	1:A:201:GLN:HB2	1.81	0.44
5:E:901:IVM:H1B	5:E:901:IVM:H5	1.87	0.44
1:B:72:PHE:HD2	1:B:208:LEU:HD11	1.82	0.44
1:A:244:MET:HE3	1:A:244:MET:HB3	1.89	0.44
1:B:278:GLY:HA2	1:B:281:ILE:HG22	1.99	0.44
1:A:106:SER:OG	1:A:107:LEU:N	2.49	0.44
1:A:335:HIS:CE1	1:A:400:ARG:HD3	2.51	0.44
1:A:140:LYS:HG2	1:A:154:ILE:HG22	2.00	0.44
1:E:155:ARG:HH22	1:D:127:GLU:HG3	1.83	0.44
1:C:68:PHE:HD1	1:C:201:GLN:HB2	1.81	0.44
1:A:285:LEU:O	1:A:288:THR:OG1	2.32	0.44
1:C:140:LYS:HG2	1:C:154:ILE:HG22	2.00	0.44
1:C:197:LYS:HD3	1:C:197:LYS:HA	1.73	0.44
1:D:278:GLY:HA2	1:D:281:ILE:HG22	1.99	0.44
1:E:140:LYS:HG2	1:E:154:ILE:HG22	2.00	0.44
1:E:278:GLY:HA2	1:E:281:ILE:HG22	1.99	0.44
1:C:72:PHE:HD2	1:C:208:LEU:HD11	1.82	0.44
1:D:140:LYS:HG2	1:D:154:ILE:HG22	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:72:PHE:HD2	1:E:208:LEU:HD11	1.82	0.43
1:B:140:LYS:HG2	1:B:154:ILE:HG22	2.00	0.43
1:E:298:LEU:HD23	1:E:298:LEU:HA	1.86	0.43
1:D:72:PHE:HD2	1:D:208:LEU:HD11	1.82	0.43
1:E:126:ASN:OD1	1:E:126:ASN:N	2.45	0.43
1:B:44:LYS:HD2	1:B:44:LYS:HA	1.88	0.43
1:B:68:PHE:HD1	1:B:201:GLN:HB2	1.81	0.43
1:A:72:PHE:HD2	1:A:208:LEU:HD11	1.82	0.43
1:C:106:SER:OG	1:C:107:LEU:N	2.49	0.43
1:C:258:ILE:HD13	1:C:258:ILE:HA	1.89	0.43
5:B:602:IVM:H1B	5:B:602:IVM:H5	1.87	0.43
1:A:124:PHE:HB2	1:A:127:GLU:HG2	1.99	0.43
1:D:291:SER:HB3	5:D:901:IVM:H48B	2.01	0.43
1:D:285:LEU:O	1:D:288:THR:OG1	2.32	0.43
1:E:285:LEU:O	1:E:288:THR:OG1	2.32	0.43
5:C:805:IVM:H1B	5:C:805:IVM:H5	1.87	0.43
5:E:901:IVM:O11	5:E:901:IVM:O13	2.37	0.43
1:C:126:ASN:OD1	1:C:126:ASN:N	2.45	0.43
1:C:155:ARG:HH22	1:B:127:GLU:HG3	1.83	0.43
1:E:44:LYS:HA	1:E:44:LYS:HD2	1.88	0.42
1:B:285:LEU:O	1:B:288:THR:OG1	2.32	0.42
1:E:33:PRO:HG2	1:E:36:GLU:OE1	2.20	0.42
1:A:44:LYS:HA	1:A:44:LYS:HD2	1.88	0.42
1:C:33:PRO:HG2	1:C:36:GLU:OE1	2.20	0.42
1:B:33:PRO:HG2	1:B:36:GLU:OE1	2.20	0.42
1:B:126:ASN:OD1	1:B:126:ASN:N	2.45	0.41
1:B:105:ASP:OD1	1:B:105:ASP:N	2.47	0.41
1:B:258:ILE:HD13	1:B:258:ILE:HA	1.89	0.41
1:D:33:PRO:HG2	1:D:36:GLU:OE1	2.20	0.41
1:D:258:ILE:HD13	1:D:258:ILE:HA	1.89	0.41
1:C:110:ASP:HA	1:C:111:PRO:HD3	1.85	0.41
5:D:901:IVM:O11	5:D:901:IVM:O13	2.37	0.41
1:A:33:PRO:HG2	1:A:36:GLU:OE1	2.20	0.40
1:C:62:ASN:ND2	2:H:1:NAG:O5	2.55	0.40
1:C:298:LEU:HA	1:C:298:LEU:HD23	1.86	0.40
5:D:901:IVM:H18B	5:D:901:IVM:H34	1.96	0.40
1:E:110:ASP:HA	1:E:111:PRO:HD3	1.85	0.40
1:C:244:MET:HB3	1:C:244:MET:HE3	1.89	0.40
1:B:62:ASN:ND2	2:I:1:NAG:O5	2.55	0.40
5:B:602:IVM:O11	5:B:602:IVM:O13	2.37	0.40
1:E:52:ILE:HD13	1:E:52:ILE:HA	1.90	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:72:PHE:HD1	1:E:84:VAL:HG12	1.87	0.40
1:C:136:THR:HG21	1:B:122:LEU:HB3	2.03	0.40
1:E:338:LEU:HB2	1:E:400:ARG:NH2	2.37	0.40
1:D:116:SER:O	1:D:116:SER:OG	2.30	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	A	358/444 (81%)	343 (96%)	15 (4%)	0	100	100
1	B	358/444 (81%)	343 (96%)	15 (4%)	0	100	100
1	C	358/444 (81%)	343 (96%)	15 (4%)	0	100	100
1	D	358/444 (81%)	343 (96%)	15 (4%)	0	100	100
1	E	358/444 (81%)	343 (96%)	15 (4%)	0	100	100
All	All	1790/2220 (81%)	1715 (96%)	75 (4%)	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	327/387 (84%)	327 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	327/387 (84%)	327 (100%)	0	100	100
1	C	327/387 (84%)	327 (100%)	0	100	100
1	D	327/387 (84%)	327 (100%)	0	100	100
1	E	327/387 (84%)	327 (100%)	0	100	100
All	All	1635/1935 (84%)	1635 (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 (42) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	62	ASN
1	A	70	ASN
1	A	133	HIS
1	A	201	GLN
1	A	210	GLN
1	A	225	HIS
1	A	243	GLN
1	A	335	HIS
1	E	55	ASN
1	E	62	ASN
1	E	70	ASN
1	E	133	HIS
1	E	201	GLN
1	E	210	GLN
1	E	225	HIS
1	E	243	GLN
1	E	335	HIS
1	C	55	ASN
1	C	62	ASN
1	C	70	ASN
1	C	133	HIS
1	C	201	GLN
1	C	210	GLN
1	C	225	HIS
1	C	290	GLN
1	C	335	HIS
1	B	55	ASN
1	B	62	ASN
1	B	70	ASN

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Mol	Chain	Res	Type
1	B	133	HIS
1	B	201	GLN
1	B	210	GLN
1	B	225	HIS
1	B	335	HIS
1	D	55	ASN
1	D	62	ASN
1	D	133	HIS
1	D	201	GLN
1	D	210	GLN
1	D	225	HIS
1	D	243	GLN
1	D	335	HIS

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 ⓘ

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	#$|Z| > 2$
2	NAG	F	1	2	14,14,15	1.15	1 (7%)	17,19,21	1.45	3 (17%)
2	NAG	F	2	2	13,13,15	1.31	1 (7%)	14,17,21	1.70	1 (7%)
2	NAG	G	1	2	14,14,15	1.15	1 (7%)	17,19,21	1.45	3 (17%)
2	NAG	G	2	2	13,13,15	1.32	1 (7%)	14,17,21	1.69	1 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
2	NAG	H	1	2	14,14,15	1.16	1 (7%)	17,19,21	1.44	3 (17%)
2	NAG	H	2	2	13,13,15	1.31	1 (7%)	14,17,21	1.69	1 (7%)
2	NAG	I	1	2	14,14,15	1.17	1 (7%)	17,19,21	1.45	3 (17%)
2	NAG	I	2	2	13,13,15	1.30	1 (7%)	14,17,21	1.70	1 (7%)
2	NAG	J	1	2	14,14,15	1.16	1 (7%)	17,19,21	1.44	3 (17%)
2	NAG	J	2	2	13,13,15	1.31	1 (7%)	14,17,21	1.69	1 (7%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	F	1	2	-	4/6/23/26	0/1/1/1
2	NAG	F	2	2	-	1/5/22/26	0/1/1/1
2	NAG	G	1	2	-	4/6/23/26	0/1/1/1
2	NAG	G	2	2	-	1/5/22/26	0/1/1/1
2	NAG	H	1	2	-	4/6/23/26	0/1/1/1
2	NAG	H	2	2	-	1/5/22/26	0/1/1/1
2	NAG	I	1	2	-	4/6/23/26	0/1/1/1
2	NAG	I	2	2	-	1/5/22/26	0/1/1/1
2	NAG	J	1	2	-	4/6/23/26	0/1/1/1
2	NAG	J	2	2	-	1/5/22/26	0/1/1/1

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	2	NAG	O5-C1	4.34	1.51	1.43
2	G	2	NAG	O5-C1	4.33	1.51	1.43
2	J	2	NAG	O5-C1	4.32	1.50	1.43
2	F	2	NAG	O5-C1	4.29	1.50	1.43
2	I	2	NAG	O5-C1	4.28	1.50	1.43
2	I	1	NAG	O5-C1	-3.92	1.37	1.43
2	H	1	NAG	O5-C1	-3.90	1.37	1.43
2	J	1	NAG	O5-C1	-3.89	1.37	1.43
2	G	1	NAG	O5-C1	-3.86	1.37	1.43
2	F	1	NAG	O5-C1	-3.84	1.37	1.43

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	2	NAG	C1-O5-C5	5.93	120.13	112.19
2	F	2	NAG	C1-O5-C5	5.92	120.12	112.19
2	G	2	NAG	C1-O5-C5	5.91	120.11	112.19
2	H	2	NAG	C1-O5-C5	5.88	120.07	112.19
2	J	2	NAG	C1-O5-C5	5.88	120.06	112.19
2	G	1	NAG	C2-N2-C7	3.20	127.18	122.90
2	F	1	NAG	C2-N2-C7	3.19	127.17	122.90
2	I	1	NAG	C2-N2-C7	3.16	127.14	122.90
2	H	1	NAG	C2-N2-C7	3.16	127.14	122.90
2	J	1	NAG	C2-N2-C7	3.16	127.14	122.90
2	G	1	NAG	C4-C3-C2	3.14	115.62	111.02
2	F	1	NAG	C4-C3-C2	3.13	115.61	111.02
2	J	1	NAG	C4-C3-C2	3.13	115.60	111.02
2	H	1	NAG	C4-C3-C2	3.11	115.57	111.02
2	I	1	NAG	C4-C3-C2	3.10	115.56	111.02
2	I	1	NAG	C3-C4-C5	2.21	114.24	110.23
2	H	1	NAG	C3-C4-C5	2.19	114.20	110.23
2	J	1	NAG	C3-C4-C5	2.18	114.19	110.23
2	G	1	NAG	C3-C4-C5	2.18	114.19	110.23
2	F	1	NAG	C3-C4-C5	2.18	114.18	110.23

There are no chirality outliers.

All (25) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	F	2	NAG	C3-C2-N2-C7
2	G	2	NAG	C3-C2-N2-C7
2	H	2	NAG	C3-C2-N2-C7
2	I	2	NAG	C3-C2-N2-C7
2	J	2	NAG	C3-C2-N2-C7
2	F	1	NAG	O5-C5-C6-O6
2	G	1	NAG	O5-C5-C6-O6
2	H	1	NAG	O5-C5-C6-O6
2	I	1	NAG	O5-C5-C6-O6
2	J	1	NAG	O5-C5-C6-O6
2	F	1	NAG	C4-C5-C6-O6
2	G	1	NAG	C4-C5-C6-O6
2	H	1	NAG	C4-C5-C6-O6
2	I	1	NAG	C4-C5-C6-O6
2	J	1	NAG	C4-C5-C6-O6
2	F	1	NAG	C1-C2-N2-C7
2	G	1	NAG	C1-C2-N2-C7
2	H	1	NAG	C1-C2-N2-C7

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Mol	Chain	Res	Type	Atoms
2	I	1	NAG	C1-C2-N2-C7
2	J	1	NAG	C1-C2-N2-C7
2	F	1	NAG	C3-C2-N2-C7
2	G	1	NAG	C3-C2-N2-C7
2	H	1	NAG	C3-C2-N2-C7
2	I	1	NAG	C3-C2-N2-C7
2	J	1	NAG	C3-C2-N2-C7

There are no ring outliers.

5 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	I	1	NAG	2	0
2	G	1	NAG	1	0
2	J	1	NAG	1	0
2	F	1	NAG	1	0
2	H	1	NAG	2	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 F

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain G

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain H

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain I

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain J

Bond lengths

Bond angles

Torsions

Rings
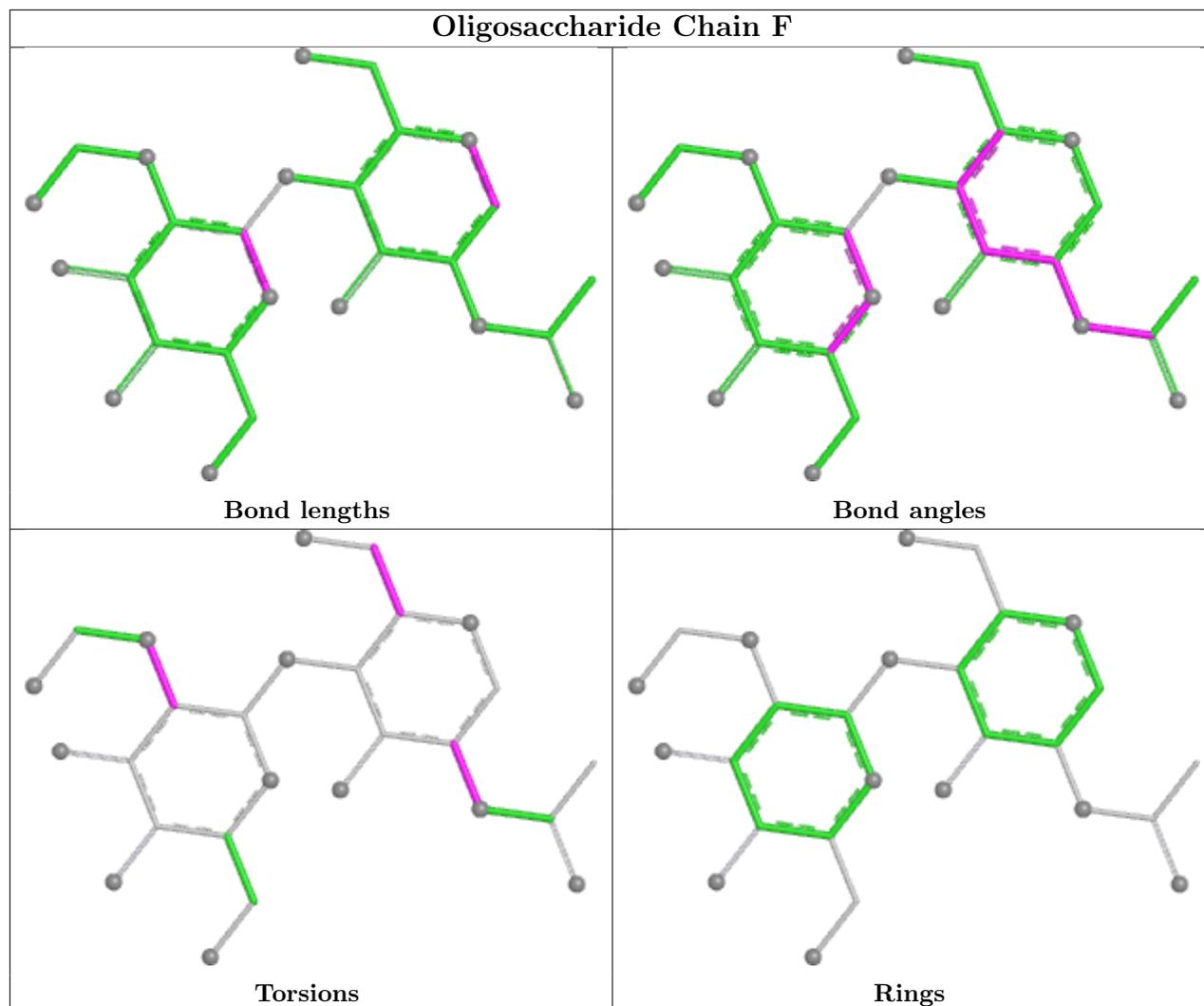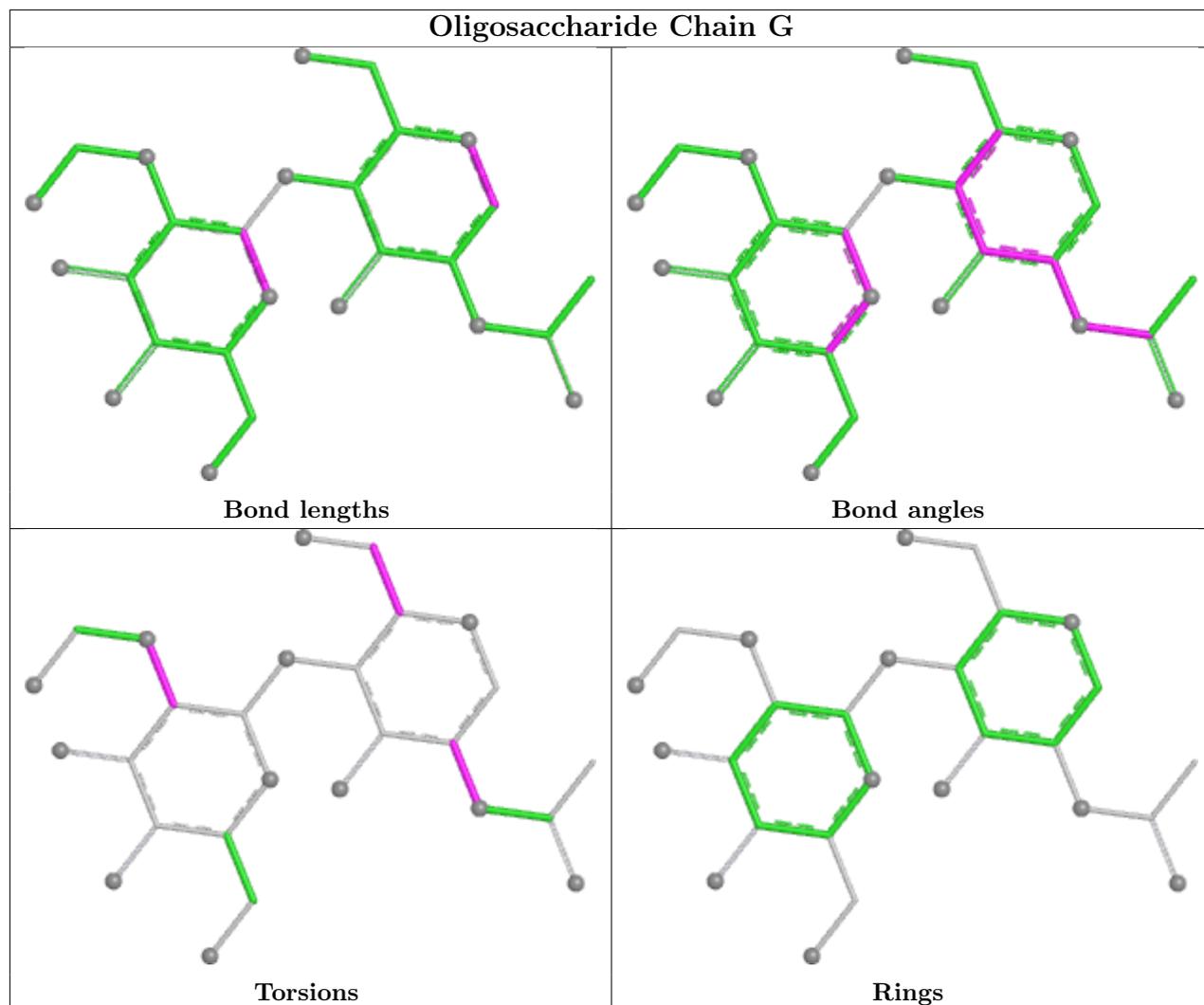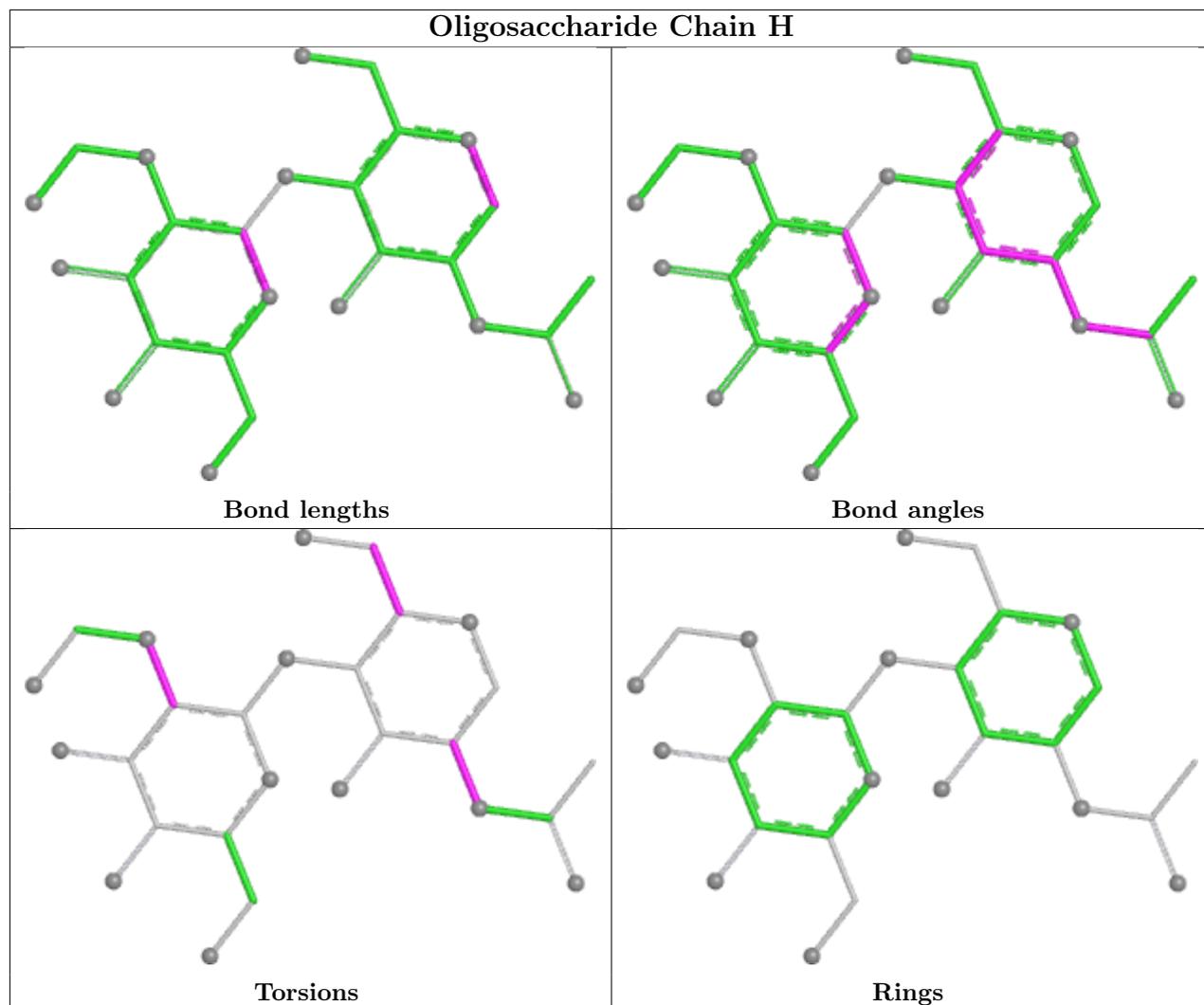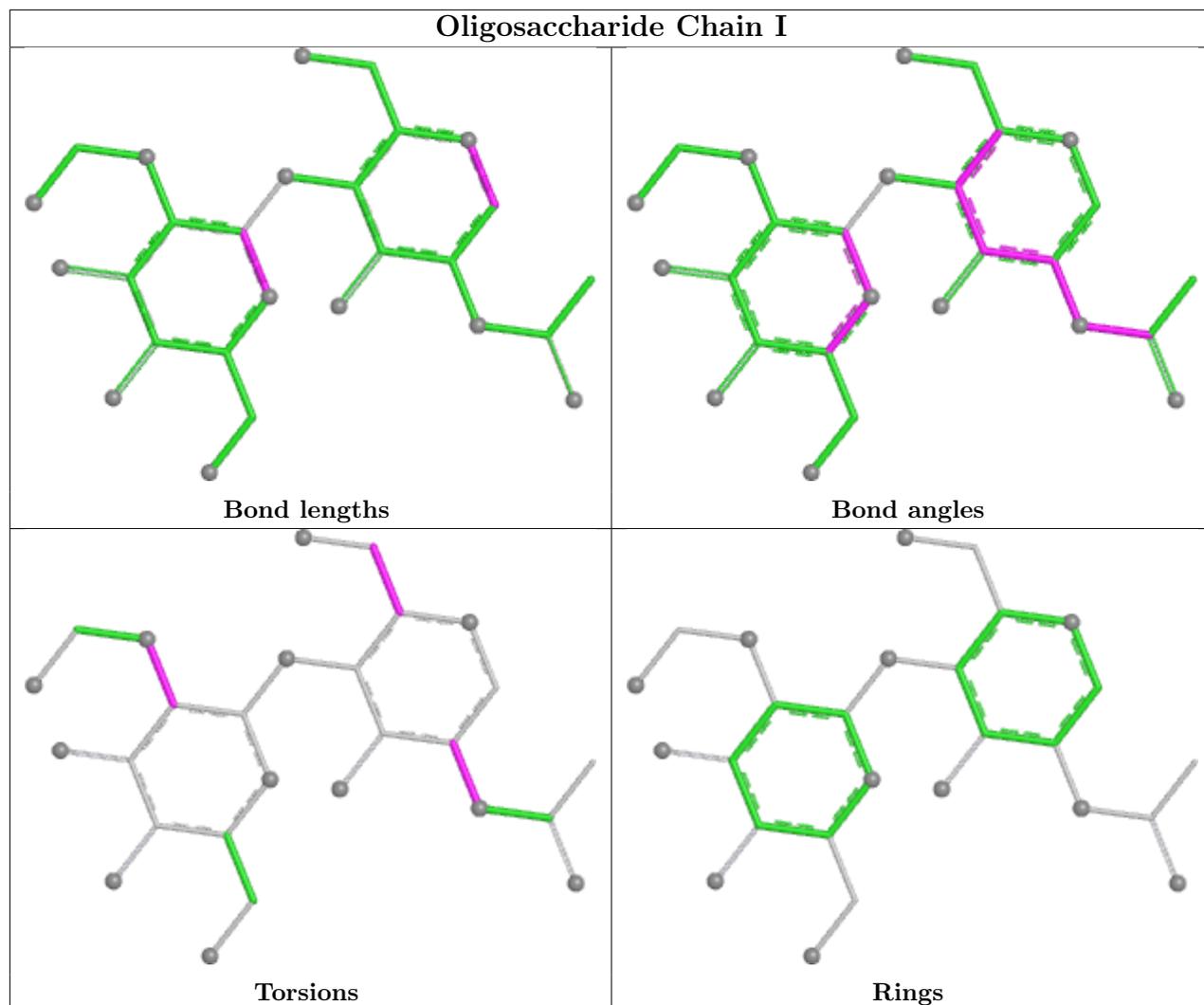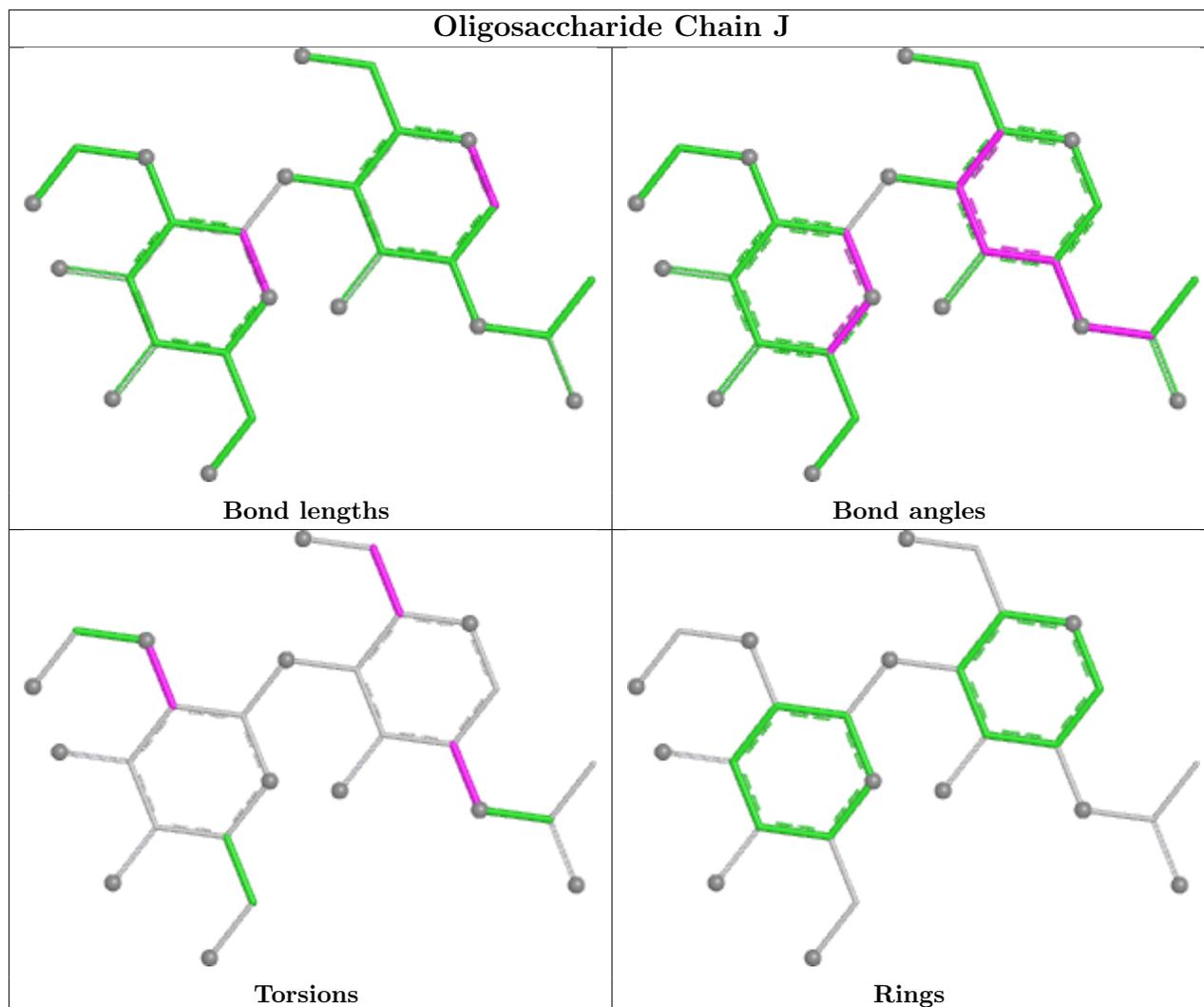
5.6 Ligand geometry ⓘ

15 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	$\#|Z| > 2$
4	GLY	B	601	-	4,4,4	1.26	1 (25%)	3,4,4	1.67	2 (66%)
4	GLY	D	902	-	4,4,4	1.27	1 (25%)	3,4,4	1.68	2 (66%)
5	IVM	A	805	-	67,68,68	5.93	23 (34%)	87,102,102	5.08	35 (40%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
3	PIO	B	603	-	27,27,47	1.22	5 (18%)	30,32,65	1.24	2 (6%)
5	IVM	E	901	-	67,68,68	5.94	23 (34%)	87,102,102	5.09	35 (40%)
5	IVM	B	602	-	67,68,68	5.93	23 (34%)	87,102,102	5.09	35 (40%)
4	GLY	A	804	-	4,4,4	1.27	1 (25%)	3,4,4	1.67	2 (66%)
4	GLY	C	804	-	4,4,4	1.27	1 (25%)	3,4,4	1.65	1 (33%)
5	IVM	C	805	-	67,68,68	5.93	23 (34%)	87,102,102	5.08	35 (40%)
3	PIO	A	801	-	27,27,47	1.22	5 (18%)	30,32,65	1.24	2 (6%)
3	PIO	E	902	-	27,27,47	1.23	5 (18%)	30,32,65	1.24	2 (6%)
3	PIO	D	903	-	27,27,47	1.22	5 (18%)	30,32,65	1.24	2 (6%)
5	IVM	D	901	-	67,68,68	5.93	23 (34%)	87,102,102	5.08	35 (40%)
4	GLY	E	905	-	4,4,4	1.28	1 (25%)	3,4,4	1.68	2 (66%)
3	PIO	C	801	-	27,27,47	1.22	5 (18%)	30,32,65	1.24	2 (6%)

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
4	GLY	B	601	-	-	0/2/2/2	-
4	GLY	D	902	-	-	0/2/2/2	-
5	IVM	A	805	-	-	23/45/141/141	1/7/7/7
3	PIO	B	603	-	-	16/29/29/68	-
5	IVM	E	901	-	-	23/45/141/141	1/7/7/7
5	IVM	B	602	-	-	23/45/141/141	1/7/7/7
4	GLY	A	804	-	-	0/2/2/2	-
4	GLY	C	804	-	-	0/2/2/2	-
5	IVM	C	805	-	-	23/45/141/141	1/7/7/7
3	PIO	A	801	-	-	16/29/29/68	-
3	PIO	E	902	-	-	16/29/29/68	-
3	PIO	D	903	-	-	16/29/29/68	-
5	IVM	D	901	-	-	23/45/141/141	1/7/7/7
4	GLY	E	905	-	-	0/2/2/2	-
3	PIO	C	801	-	-	16/29/29/68	-

All (145) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	901	IVM	C44-C43	30.88	1.69	1.33
5	C	805	IVM	C44-C43	30.85	1.69	1.33
5	B	602	IVM	C44-C43	30.85	1.69	1.33
5	D	901	IVM	C44-C43	30.84	1.69	1.33
5	A	805	IVM	C44-C43	30.80	1.69	1.33
5	B	602	IVM	C16-C17	17.18	1.56	1.33
5	A	805	IVM	C16-C17	17.18	1.56	1.33
5	D	901	IVM	C16-C17	17.15	1.56	1.33
5	E	901	IVM	C16-C17	17.15	1.56	1.33
5	C	805	IVM	C16-C17	17.08	1.56	1.33
5	E	901	IVM	C45-C44	16.25	1.68	1.50
5	B	602	IVM	C45-C44	16.23	1.68	1.50
5	D	901	IVM	C45-C44	16.23	1.68	1.50
5	A	805	IVM	C45-C44	16.22	1.68	1.50
5	C	805	IVM	C45-C44	16.21	1.68	1.50
5	A	805	IVM	C38-C39	13.42	1.53	1.33
5	B	602	IVM	C38-C39	13.41	1.53	1.33
5	C	805	IVM	C38-C39	13.40	1.53	1.33
5	D	901	IVM	C38-C39	13.39	1.53	1.33
5	E	901	IVM	C38-C39	13.38	1.53	1.33
5	D	901	IVM	C47-C41	10.92	1.65	1.54
5	A	805	IVM	C47-C41	10.87	1.65	1.54
5	C	805	IVM	C47-C41	10.86	1.65	1.54
5	E	901	IVM	C47-C41	10.83	1.65	1.54
5	B	602	IVM	C47-C41	10.78	1.65	1.54
5	D	901	IVM	C45-C46	-10.50	1.37	1.52
5	E	901	IVM	C45-C46	-10.49	1.37	1.52
5	B	602	IVM	C45-C46	-10.48	1.37	1.52
5	C	805	IVM	C45-C46	-10.48	1.37	1.52
5	A	805	IVM	C45-C46	-10.46	1.37	1.52
5	A	805	IVM	O9-C40	10.14	1.59	1.43
5	E	901	IVM	O9-C40	10.12	1.59	1.43
5	B	602	IVM	O9-C40	10.12	1.59	1.43
5	C	805	IVM	O9-C40	10.11	1.59	1.43
5	D	901	IVM	O9-C40	10.10	1.59	1.43
5	A	805	IVM	C37-C36	6.07	1.55	1.33
5	B	602	IVM	C37-C36	6.06	1.55	1.33
5	C	805	IVM	C37-C36	6.04	1.55	1.33
5	D	901	IVM	C37-C36	6.04	1.55	1.33
5	E	901	IVM	C37-C36	6.03	1.55	1.33
5	C	805	IVM	C40-C39	5.74	1.59	1.50
5	A	805	IVM	C40-C39	5.73	1.59	1.50
5	E	901	IVM	C40-C39	5.72	1.59	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	D	901	IVM	C40-C39	5.70	1.59	1.50
5	B	602	IVM	C40-C39	5.70	1.59	1.50
5	B	602	IVM	O9-C41	-5.33	1.34	1.44
5	A	805	IVM	C15-C16	5.32	1.60	1.50
5	D	901	IVM	O9-C41	-5.32	1.34	1.44
5	C	805	IVM	O9-C41	-5.31	1.34	1.44
5	C	805	IVM	C15-C16	5.31	1.60	1.50
5	E	901	IVM	O9-C41	-5.31	1.34	1.44
5	A	805	IVM	O9-C41	-5.31	1.34	1.44
5	B	602	IVM	C15-C16	5.30	1.60	1.50
5	E	901	IVM	C15-C16	5.29	1.60	1.50
5	D	901	IVM	C15-C16	5.28	1.60	1.50
5	E	901	IVM	C41-C42	-4.86	1.43	1.52
5	D	901	IVM	C41-C42	-4.85	1.43	1.52
5	C	805	IVM	C41-C42	-4.85	1.43	1.52
5	A	805	IVM	C41-C42	-4.84	1.43	1.52
5	B	602	IVM	C41-C42	-4.80	1.43	1.52
5	D	901	IVM	O14-C14	4.64	1.54	1.44
5	E	901	IVM	O14-C14	4.64	1.54	1.44
5	B	602	IVM	O14-C14	4.61	1.54	1.44
5	A	805	IVM	O14-C14	4.60	1.54	1.44
5	C	805	IVM	O14-C14	4.58	1.54	1.44
5	C	805	IVM	C37-C38	4.43	1.56	1.43
5	D	901	IVM	C37-C38	4.43	1.56	1.43
5	E	901	IVM	C37-C38	4.43	1.56	1.43
5	A	805	IVM	C37-C38	4.43	1.56	1.43
5	B	602	IVM	C37-C38	4.40	1.56	1.43
5	B	602	IVM	O12-C46	4.06	1.43	1.34
5	A	805	IVM	O12-C46	4.05	1.43	1.34
5	C	805	IVM	O12-C46	4.04	1.43	1.34
5	D	901	IVM	O12-C46	4.04	1.43	1.34
5	E	901	IVM	O12-C46	4.01	1.43	1.34
5	B	602	IVM	C11-C6	-3.72	1.46	1.52
5	C	805	IVM	C11-C6	-3.72	1.46	1.52
5	D	901	IVM	C11-C6	-3.70	1.46	1.52
5	E	901	IVM	C11-C6	-3.69	1.46	1.52
5	A	805	IVM	C11-C6	-3.69	1.46	1.52
5	B	602	IVM	O10-C42	3.63	1.49	1.42
5	D	901	IVM	O10-C42	3.63	1.49	1.42
5	C	805	IVM	O10-C42	3.62	1.49	1.42
5	E	901	IVM	O10-C42	3.62	1.49	1.42
5	A	805	IVM	O10-C42	3.59	1.49	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	901	IVM	O1-C6	3.12	1.48	1.42
5	A	805	IVM	O1-C6	3.12	1.48	1.42
5	B	602	IVM	O1-C6	3.11	1.48	1.42
5	D	901	IVM	O1-C6	3.09	1.48	1.42
5	C	805	IVM	O1-C6	3.09	1.48	1.42
5	E	901	IVM	C15-C14	-2.99	1.43	1.52
5	C	805	IVM	C15-C14	-2.99	1.43	1.52
5	B	602	IVM	C15-C14	-2.98	1.43	1.52
5	A	805	IVM	C15-C14	-2.96	1.43	1.52
5	D	901	IVM	C15-C14	-2.95	1.43	1.52
5	C	805	IVM	C7-C8	-2.82	1.47	1.53
3	C	801	PIO	P1-O1	2.82	1.65	1.54
3	E	902	PIO	P1-O1	2.81	1.65	1.54
5	D	901	IVM	C7-C8	-2.81	1.47	1.53
5	E	901	IVM	C7-C8	-2.80	1.47	1.53
5	B	602	IVM	C7-C8	-2.80	1.47	1.53
3	B	603	PIO	P1-O1	2.79	1.65	1.54
3	D	903	PIO	P1-O1	2.79	1.65	1.54
5	A	805	IVM	C7-C8	-2.79	1.47	1.53
3	A	801	PIO	P1-O1	2.78	1.65	1.54
3	B	603	PIO	O2C-C2C	-2.50	1.40	1.46
3	E	902	PIO	O2C-C2C	-2.49	1.40	1.46
3	D	903	PIO	O2C-C2C	-2.49	1.40	1.46
3	C	801	PIO	O2C-C2C	-2.46	1.40	1.46
3	A	801	PIO	O2C-C2C	-2.46	1.40	1.46
4	E	905	GLY	OXT-C	-2.41	1.22	1.30
3	A	801	PIO	O2C-C1A	2.41	1.41	1.34
3	D	903	PIO	O2C-C1A	2.40	1.41	1.34
5	B	602	IVM	O1-C5	2.40	1.47	1.44
3	B	603	PIO	O2C-C1A	2.39	1.41	1.34
4	C	804	GLY	OXT-C	-2.39	1.22	1.30
4	A	804	GLY	OXT-C	-2.39	1.22	1.30
4	B	601	GLY	OXT-C	-2.39	1.22	1.30
4	D	902	GLY	OXT-C	-2.38	1.22	1.30
3	A	801	PIO	O3C-C3C	-2.38	1.39	1.45
3	C	801	PIO	O2C-C1A	2.38	1.41	1.34
3	E	902	PIO	O2C-C1A	2.37	1.41	1.34
5	D	901	IVM	O1-C5	2.37	1.47	1.44
5	C	805	IVM	O1-C5	2.37	1.47	1.44
5	E	901	IVM	C11-C12	-2.36	1.46	1.51
3	E	902	PIO	O3C-C3C	-2.36	1.39	1.45
3	D	903	PIO	O3C-C3C	-2.36	1.39	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	805	IVM	O1-C5	2.36	1.47	1.44
3	C	801	PIO	O3C-C3C	-2.36	1.39	1.45
5	A	805	IVM	C11-C12	-2.35	1.46	1.51
5	E	901	IVM	O1-C5	2.35	1.47	1.44
5	D	901	IVM	C11-C12	-2.34	1.46	1.51
3	E	902	PIO	O3C-C1B	2.34	1.40	1.33
3	B	603	PIO	O3C-C3C	-2.34	1.39	1.45
5	C	805	IVM	C11-C12	-2.33	1.46	1.51
5	B	602	IVM	C11-C12	-2.33	1.46	1.51
3	C	801	PIO	O3C-C1B	2.32	1.40	1.33
3	D	903	PIO	O3C-C1B	2.31	1.40	1.33
3	A	801	PIO	O3C-C1B	2.30	1.40	1.33
3	B	603	PIO	O3C-C1B	2.30	1.40	1.33
5	C	805	IVM	C29-C27	-2.11	1.48	1.53
5	D	901	IVM	C29-C27	-2.11	1.48	1.53
5	B	602	IVM	C29-C27	-2.10	1.48	1.53
5	E	901	IVM	C29-C27	-2.09	1.48	1.53
5	A	805	IVM	C29-C27	-2.08	1.48	1.53

All (194) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	602	IVM	O1-C6-C11	-24.59	72.75	106.26
5	D	901	IVM	O1-C6-C11	-24.58	72.76	106.26
5	A	805	IVM	O1-C6-C11	-24.58	72.77	106.26
5	C	805	IVM	O1-C6-C11	-24.57	72.77	106.26
5	E	901	IVM	O1-C6-C11	-24.57	72.78	106.26
5	A	805	IVM	C7-C6-C11	21.94	148.64	112.22
5	C	805	IVM	C7-C6-C11	21.93	148.62	112.22
5	B	602	IVM	C7-C6-C11	21.92	148.62	112.22
5	E	901	IVM	C7-C6-C11	21.92	148.61	112.22
5	D	901	IVM	C7-C6-C11	21.90	148.57	112.22
5	D	901	IVM	O14-C6-O1	14.82	141.23	110.03
5	E	901	IVM	O14-C6-O1	14.81	141.20	110.03
5	B	602	IVM	O14-C6-O1	14.80	141.17	110.03
5	E	901	IVM	O14-C6-C7	-14.79	66.94	107.23
5	A	805	IVM	O14-C6-O1	14.79	141.17	110.03
5	B	602	IVM	O14-C6-C7	-14.79	66.94	107.23
5	C	805	IVM	O14-C6-O1	14.79	141.16	110.03
5	C	805	IVM	O14-C6-C7	-14.78	66.96	107.23
5	D	901	IVM	O14-C6-C7	-14.78	66.98	107.23
5	A	805	IVM	O14-C6-C7	-14.78	66.99	107.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	C	805	IVM	C37-C38-C39	-10.12	109.86	125.87
5	A	805	IVM	C37-C38-C39	-10.12	109.87	125.87
5	B	602	IVM	C37-C38-C39	-10.10	109.89	125.87
5	D	901	IVM	C37-C38-C39	-10.10	109.89	125.87
5	E	901	IVM	C37-C38-C39	-10.10	109.89	125.87
5	D	901	IVM	O1-C6-C7	9.46	122.80	110.93
5	C	805	IVM	O1-C6-C7	9.45	122.79	110.93
5	B	602	IVM	O1-C6-C7	9.44	122.77	110.93
5	E	901	IVM	O1-C6-C7	9.44	122.77	110.93
5	A	805	IVM	O1-C6-C7	9.43	122.76	110.93
5	B	602	IVM	O14-C6-C11	7.74	120.22	110.79
5	E	901	IVM	O14-C6-C11	7.71	120.19	110.79
5	C	805	IVM	O14-C6-C11	7.69	120.16	110.79
5	A	805	IVM	O14-C6-C11	7.68	120.15	110.79
5	D	901	IVM	O14-C6-C11	7.67	120.14	110.79
5	A	805	IVM	C34-C36-C37	-6.38	112.91	126.11
5	B	602	IVM	C34-C36-C37	-6.37	112.95	126.11
5	E	901	IVM	C34-C36-C37	-6.36	112.96	126.11
5	C	805	IVM	C34-C36-C37	-6.36	112.96	126.11
5	D	901	IVM	C34-C36-C37	-6.36	112.96	126.11
5	B	602	IVM	C48-C43-C44	-5.99	109.18	123.36
5	E	901	IVM	C48-C43-C44	-5.99	109.18	123.36
5	C	805	IVM	C48-C43-C44	-5.98	109.19	123.36
5	D	901	IVM	C48-C43-C44	-5.98	109.20	123.36
5	A	805	IVM	C48-C43-C44	-5.98	109.22	123.36
5	D	901	IVM	C6-O14-C14	-5.15	104.91	114.35
5	B	602	IVM	C6-O14-C14	-5.14	104.92	114.35
5	E	901	IVM	C6-O14-C14	-5.14	104.93	114.35
5	A	805	IVM	C6-O14-C14	-5.13	104.94	114.35
5	C	805	IVM	C6-O14-C14	-5.11	104.98	114.35
5	E	901	IVM	C18-C17-C16	-4.88	112.34	123.39
5	D	901	IVM	C18-C17-C16	-4.87	112.36	123.39
5	B	602	IVM	C18-C17-C16	-4.86	112.36	123.39
5	C	805	IVM	C18-C17-C16	-4.85	112.39	123.39
5	A	805	IVM	C18-C17-C16	-4.85	112.41	123.39
5	A	805	IVM	C15-C16-C17	-4.81	117.31	127.71
5	D	901	IVM	C15-C16-C17	-4.80	117.34	127.71
5	B	602	IVM	C15-C16-C17	-4.79	117.36	127.71
5	E	901	IVM	C15-C16-C17	-4.78	117.39	127.71
5	C	805	IVM	C15-C16-C17	-4.78	117.39	127.71
5	A	805	IVM	C38-C37-C36	-4.70	113.52	124.43
5	E	901	IVM	C38-C37-C36	-4.70	113.53	124.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	C	805	IVM	C38-C37-C36	-4.70	113.54	124.43
5	B	602	IVM	C38-C37-C36	-4.70	113.54	124.43
5	D	901	IVM	C38-C37-C36	-4.68	113.57	124.43
5	E	901	IVM	C42-C43-C44	-4.62	113.22	121.02
5	B	602	IVM	C42-C43-C44	-4.61	113.24	121.02
5	C	805	IVM	C42-C43-C44	-4.60	113.25	121.02
5	A	805	IVM	C42-C43-C44	-4.60	113.25	121.02
5	D	901	IVM	C42-C43-C44	-4.59	113.27	121.02
5	D	901	IVM	O12-C46-C45	4.55	117.82	110.91
5	C	805	IVM	O12-C46-C45	4.54	117.80	110.91
5	E	901	IVM	O12-C46-C45	4.53	117.78	110.91
5	B	602	IVM	O12-C46-C45	4.52	117.78	110.91
5	A	805	IVM	O12-C46-C45	4.51	117.76	110.91
5	C	805	IVM	C13-C12-C11	4.48	119.85	111.02
5	B	602	IVM	C13-C12-C11	4.48	119.85	111.02
5	D	901	IVM	C13-C12-C11	4.47	119.83	111.02
5	E	901	IVM	C13-C12-C11	4.47	119.82	111.02
5	A	805	IVM	C13-C12-C11	4.45	119.79	111.02
5	A	805	IVM	O9-C40-C39	-4.33	102.25	105.77
5	E	901	IVM	O9-C40-C39	-4.31	102.27	105.77
5	C	805	IVM	O9-C40-C39	-4.31	102.27	105.77
5	C	805	IVM	O14-C14-C15	4.30	111.53	106.53
5	D	901	IVM	O9-C40-C39	-4.28	102.30	105.77
5	B	602	IVM	O9-C40-C39	-4.27	102.30	105.77
3	B	603	PIO	O2C-C1A-C2A	4.26	120.70	111.48
5	B	602	IVM	O14-C14-C15	4.26	111.48	106.53
3	A	801	PIO	O2C-C1A-C2A	4.26	120.69	111.48
3	E	902	PIO	O2C-C1A-C2A	4.26	120.69	111.48
3	C	801	PIO	O2C-C1A-C2A	4.26	120.69	111.48
5	E	901	IVM	O14-C14-C15	4.25	111.48	106.53
3	D	903	PIO	O2C-C1A-C2A	4.25	120.68	111.48
5	A	805	IVM	O14-C14-C15	4.25	111.47	106.53
5	D	901	IVM	O14-C14-C15	4.24	111.46	106.53
5	E	901	IVM	C47-C45-C44	-4.08	107.99	112.74
5	A	805	IVM	C47-C45-C44	-4.08	107.99	112.74
5	B	602	IVM	C47-C45-C44	-4.07	108.00	112.74
5	D	901	IVM	C47-C45-C44	-4.06	108.02	112.74
5	C	805	IVM	C47-C45-C44	-4.02	108.05	112.74
5	B	602	IVM	C48-C43-C42	-3.90	110.06	116.51
5	A	805	IVM	C48-C43-C42	-3.90	110.06	116.51
5	E	901	IVM	C48-C43-C42	-3.88	110.09	116.51
5	D	901	IVM	C48-C43-C42	-3.87	110.10	116.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	C	805	IVM	C48-C43-C42	-3.87	110.11	116.51
5	B	602	IVM	C19-C17-C16	-3.69	113.00	120.63
5	A	805	IVM	C19-C17-C16	-3.68	113.02	120.63
5	C	805	IVM	C19-C17-C16	-3.68	113.02	120.63
5	E	901	IVM	C19-C17-C16	-3.66	113.05	120.63
5	D	901	IVM	C19-C17-C16	-3.66	113.06	120.63
5	D	901	IVM	C6-O1-C5	-3.45	109.50	114.21
5	B	602	IVM	C6-O1-C5	-3.44	109.51	114.21
5	A	805	IVM	C6-O1-C5	-3.43	109.52	114.21
5	E	901	IVM	C6-O1-C5	-3.43	109.52	114.21
5	C	805	IVM	C6-O1-C5	-3.42	109.53	114.21
5	B	602	IVM	C22-C24-C32	2.89	114.66	110.56
5	E	901	IVM	C22-C24-C32	2.89	114.65	110.56
5	C	805	IVM	C22-C24-C32	2.88	114.64	110.56
5	A	805	IVM	C22-C24-C32	2.86	114.61	110.56
5	D	901	IVM	C22-C24-C32	2.86	114.61	110.56
5	B	602	IVM	C21-C22-C24	2.80	115.98	110.53
5	D	901	IVM	C21-C22-C24	2.79	115.97	110.53
5	C	805	IVM	C21-C22-C24	2.79	115.97	110.53
5	A	805	IVM	C21-C22-C24	2.79	115.96	110.53
5	E	901	IVM	C21-C22-C24	2.77	115.93	110.53
5	E	901	IVM	C27-C29-C30	2.76	115.37	109.75
5	C	805	IVM	C27-C29-C30	2.76	115.37	109.75
5	B	602	IVM	C27-C29-C30	2.75	115.35	109.75
5	D	901	IVM	C27-C29-C30	2.73	115.32	109.75
5	A	805	IVM	C27-C29-C30	2.73	115.32	109.75
5	C	805	IVM	O8-C20-C21	2.69	115.01	110.84
5	A	805	IVM	C6-C11-C12	2.68	115.53	111.33
5	B	602	IVM	O8-C20-C21	2.68	115.00	110.84
5	E	901	IVM	O8-C20-C21	2.67	114.98	110.84
5	A	805	IVM	O8-C20-C21	2.66	114.97	110.84
5	D	901	IVM	C6-C11-C12	2.66	115.50	111.33
5	E	901	IVM	C6-C11-C12	2.65	115.49	111.33
5	C	805	IVM	C6-C11-C12	2.65	115.48	111.33
5	D	901	IVM	O8-C20-C21	2.64	114.94	110.84
5	B	602	IVM	C6-C11-C12	2.63	115.45	111.33
5	D	901	IVM	O11-C46-C45	-2.55	121.19	125.06
5	C	805	IVM	O11-C46-C45	-2.55	121.19	125.06
5	E	901	IVM	O11-C46-C45	-2.55	121.20	125.06
5	B	602	IVM	O11-C46-C45	-2.54	121.21	125.06
5	A	805	IVM	C35-C34-C19	-2.53	107.30	110.78
5	B	602	IVM	C35-C34-C19	-2.52	107.31	110.78

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	805	IVM	O11-C46-C45	-2.51	121.25	125.06
5	E	901	IVM	C35-C34-C19	-2.50	107.34	110.78
5	C	805	IVM	C35-C34-C19	-2.50	107.34	110.78
5	D	901	IVM	O10-C42-C41	-2.49	106.12	110.24
5	D	901	IVM	C35-C34-C19	-2.48	107.37	110.78
5	A	805	IVM	O10-C42-C41	-2.48	106.13	110.24
5	B	602	IVM	O10-C42-C41	-2.48	106.13	110.24
5	E	901	IVM	O1-C5-C3	2.47	109.98	106.29
5	C	805	IVM	O1-C5-C3	2.47	109.98	106.29
5	C	805	IVM	O10-C42-C41	-2.47	106.16	110.24
5	E	901	IVM	O10-C42-C41	-2.46	106.17	110.24
5	D	901	IVM	O1-C5-C3	2.46	109.96	106.29
5	B	602	IVM	O1-C5-C3	2.45	109.96	106.29
5	A	805	IVM	O1-C5-C3	2.45	109.95	106.29
5	C	805	IVM	C2-C3-C5	-2.33	108.64	112.02
5	E	901	IVM	C2-C3-C5	-2.31	108.66	112.02
5	D	901	IVM	C2-C3-C5	-2.31	108.67	112.02
3	C	801	PIO	O3C-C1B-C2B	2.31	118.87	111.83
3	A	801	PIO	O3C-C1B-C2B	2.30	118.85	111.83
3	B	603	PIO	O3C-C1B-C2B	2.30	118.85	111.83
5	B	602	IVM	C2-C3-C5	-2.30	108.69	112.02
5	D	901	IVM	C45-C44-C43	-2.30	111.59	120.89
5	C	805	IVM	C45-C44-C43	-2.30	111.60	120.89
5	B	602	IVM	C45-C44-C43	-2.30	111.60	120.89
5	E	901	IVM	C45-C44-C43	-2.29	111.60	120.89
5	A	805	IVM	C2-C3-C5	-2.29	108.69	112.02
3	E	902	PIO	O3C-C1B-C2B	2.29	118.81	111.83
3	D	903	PIO	O3C-C1B-C2B	2.29	118.81	111.83
5	A	805	IVM	C45-C44-C43	-2.29	111.63	120.89
5	D	901	IVM	O8-C32-C24	2.13	113.14	109.19
5	A	805	IVM	O8-C32-C24	2.12	113.12	109.19
5	C	805	IVM	O8-C32-C24	2.11	113.11	109.19
5	E	901	IVM	O8-C32-C24	2.10	113.09	109.19
5	B	602	IVM	O8-C32-C24	2.09	113.06	109.19
5	B	602	IVM	O7-C30-C29	2.06	113.26	109.55
5	A	805	IVM	O7-C30-C29	2.05	113.25	109.55
4	D	902	GLY	OXT-C-O	-2.05	118.07	123.33
5	E	901	IVM	O7-C30-C29	2.04	113.23	109.55
4	E	905	GLY	OXT-C-O	-2.04	118.09	123.33
5	C	805	IVM	O7-C30-C29	2.03	113.21	109.55
4	A	804	GLY	OXT-C-O	-2.03	118.11	123.33
5	D	901	IVM	O7-C30-C29	2.03	113.21	109.55

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	B	601	GLY	OXT-C-O	-2.03	118.12	123.33
4	D	902	GLY	OXT-C-CA	2.02	121.43	113.38
4	E	905	GLY	OXT-C-CA	2.02	121.42	113.38
4	B	601	GLY	OXT-C-CA	2.02	121.41	113.38
4	A	804	GLY	OXT-C-CA	2.01	121.38	113.38
4	C	804	GLY	OXT-C-O	-2.00	118.18	123.33

There are no chirality outliers.

All (195) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	801	PIO	C1C-O13-P1-O11
3	A	801	PIO	C1C-O13-P1-O12
3	A	801	PIO	O1A-C1A-O2C-C2C
3	E	902	PIO	C1C-O13-P1-O11
3	E	902	PIO	C1C-O13-P1-O12
3	E	902	PIO	O1A-C1A-O2C-C2C
3	C	801	PIO	C1C-O13-P1-O11
3	C	801	PIO	C1C-O13-P1-O12
3	C	801	PIO	O1A-C1A-O2C-C2C
3	B	603	PIO	C1C-O13-P1-O11
3	B	603	PIO	C1C-O13-P1-O12
3	B	603	PIO	O1A-C1A-O2C-C2C
3	D	903	PIO	C1C-O13-P1-O11
3	D	903	PIO	C1C-O13-P1-O12
3	D	903	PIO	O1A-C1A-O2C-C2C
5	A	805	IVM	C13-C14-C15-C16
5	A	805	IVM	C15-C16-C17-C19
5	A	805	IVM	C18-C17-C19-C34
5	A	805	IVM	O2-C19-C34-C35
5	A	805	IVM	O2-C19-C34-C36
5	A	805	IVM	C17-C19-C34-C35
5	A	805	IVM	C17-C19-C34-C36
5	A	805	IVM	C37-C38-C39-C40
5	A	805	IVM	C37-C38-C39-C47
5	E	901	IVM	C13-C14-C15-C16
5	E	901	IVM	C15-C16-C17-C19
5	E	901	IVM	C18-C17-C19-C34
5	E	901	IVM	O2-C19-C34-C35
5	E	901	IVM	O2-C19-C34-C36
5	E	901	IVM	C17-C19-C34-C35
5	E	901	IVM	C17-C19-C34-C36

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Mol	Chain	Res	Type	Atoms
5	E	901	IVM	C37-C38-C39-C40
5	E	901	IVM	C37-C38-C39-C47
5	C	805	IVM	C13-C14-C15-C16
5	C	805	IVM	C15-C16-C17-C19
5	C	805	IVM	C18-C17-C19-C34
5	C	805	IVM	O2-C19-C34-C35
5	C	805	IVM	O2-C19-C34-C36
5	C	805	IVM	C17-C19-C34-C35
5	C	805	IVM	C17-C19-C34-C36
5	C	805	IVM	C37-C38-C39-C40
5	C	805	IVM	C37-C38-C39-C47
5	B	602	IVM	C13-C14-C15-C16
5	B	602	IVM	C15-C16-C17-C19
5	B	602	IVM	C18-C17-C19-C34
5	B	602	IVM	O2-C19-C34-C35
5	B	602	IVM	O2-C19-C34-C36
5	B	602	IVM	C17-C19-C34-C35
5	B	602	IVM	C17-C19-C34-C36
5	B	602	IVM	C37-C38-C39-C40
5	B	602	IVM	C37-C38-C39-C47
5	D	901	IVM	C13-C14-C15-C16
5	D	901	IVM	C15-C16-C17-C19
5	D	901	IVM	C18-C17-C19-C34
5	D	901	IVM	O2-C19-C34-C35
5	D	901	IVM	O2-C19-C34-C36
5	D	901	IVM	C17-C19-C34-C35
5	D	901	IVM	C17-C19-C34-C36
5	D	901	IVM	C37-C38-C39-C40
5	D	901	IVM	C37-C38-C39-C47
3	A	801	PIO	C2A-C1A-O2C-C2C
3	E	902	PIO	C2A-C1A-O2C-C2C
3	C	801	PIO	C2A-C1A-O2C-C2C
3	B	603	PIO	C2A-C1A-O2C-C2C
3	D	903	PIO	C2A-C1A-O2C-C2C
5	A	805	IVM	C45-C46-O12-C12
5	E	901	IVM	C45-C46-O12-C12
5	C	805	IVM	C45-C46-O12-C12
5	B	602	IVM	C45-C46-O12-C12
5	D	901	IVM	C45-C46-O12-C12
3	A	801	PIO	C2B-C1B-O3C-C3C
3	E	902	PIO	C2B-C1B-O3C-C3C
3	C	801	PIO	C2B-C1B-O3C-C3C

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Mol	Chain	Res	Type	Atoms
3	B	603	PIO	C2B-C1B-O3C-C3C
3	D	903	PIO	C2B-C1B-O3C-C3C
5	A	805	IVM	O11-C46-O12-C12
5	E	901	IVM	O11-C46-O12-C12
5	C	805	IVM	O11-C46-O12-C12
5	B	602	IVM	O11-C46-O12-C12
5	D	901	IVM	O11-C46-O12-C12
5	A	805	IVM	C34-C36-C37-C38
5	E	901	IVM	C34-C36-C37-C38
5	C	805	IVM	C34-C36-C37-C38
5	B	602	IVM	C34-C36-C37-C38
5	D	901	IVM	C34-C36-C37-C38
3	A	801	PIO	O1B-C1B-O3C-C3C
3	E	902	PIO	O1B-C1B-O3C-C3C
3	C	801	PIO	O1B-C1B-O3C-C3C
3	B	603	PIO	O1B-C1B-O3C-C3C
3	D	903	PIO	O1B-C1B-O3C-C3C
5	A	805	IVM	C19-C34-C36-C37
5	E	901	IVM	C19-C34-C36-C37
5	C	805	IVM	C19-C34-C36-C37
5	B	602	IVM	C19-C34-C36-C37
5	D	901	IVM	C19-C34-C36-C37
3	A	801	PIO	C3B-C4B-C5B-C6B
3	E	902	PIO	C3B-C4B-C5B-C6B
3	C	801	PIO	C3B-C4B-C5B-C6B
3	B	603	PIO	C3B-C4B-C5B-C6B
3	D	903	PIO	C3B-C4B-C5B-C6B
3	A	801	PIO	C2A-C3A-C4A-C5A
3	E	902	PIO	C2A-C3A-C4A-C5A
3	C	801	PIO	C2A-C3A-C4A-C5A
3	B	603	PIO	C2A-C3A-C4A-C5A
3	D	903	PIO	C2A-C3A-C4A-C5A
3	A	801	PIO	O2C-C2C-C3C-O3C
3	E	902	PIO	O2C-C2C-C3C-O3C
3	C	801	PIO	O2C-C2C-C3C-O3C
3	B	603	PIO	O2C-C2C-C3C-O3C
3	D	903	PIO	O2C-C2C-C3C-O3C
5	C	805	IVM	C26-C25-O4-C24
5	D	901	IVM	C26-C25-O4-C24
3	E	902	PIO	C1B-C2B-C3B-C4B
3	A	801	PIO	C1B-C2B-C3B-C4B
3	C	801	PIO	C1B-C2B-C3B-C4B

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Mol	Chain	Res	Type	Atoms
3	B	603	PIO	C1B-C2B-C3B-C4B
3	D	903	PIO	C1B-C2B-C3B-C4B
3	A	801	PIO	O2C-C1A-C2A-C3A
3	E	902	PIO	O2C-C1A-C2A-C3A
3	B	603	PIO	O2C-C1A-C2A-C3A
3	D	903	PIO	O2C-C1A-C2A-C3A
3	C	801	PIO	O2C-C1A-C2A-C3A
5	A	805	IVM	C35-C34-C36-C37
5	E	901	IVM	C35-C34-C36-C37
5	C	805	IVM	C35-C34-C36-C37
5	B	602	IVM	C35-C34-C36-C37
5	D	901	IVM	C35-C34-C36-C37
5	A	805	IVM	C26-C25-O4-C24
5	E	901	IVM	C26-C25-O4-C24
5	B	602	IVM	C26-C25-O4-C24
5	C	805	IVM	O7-C25-O4-C24
3	A	801	PIO	C1C-C2C-C3C-O3C
3	E	902	PIO	C1C-C2C-C3C-O3C
3	C	801	PIO	C1C-C2C-C3C-O3C
3	B	603	PIO	C1C-C2C-C3C-O3C
3	D	903	PIO	C1C-C2C-C3C-O3C
5	A	805	IVM	O7-C25-O4-C24
5	E	901	IVM	O7-C25-O4-C24
5	B	602	IVM	O7-C25-O4-C24
5	D	901	IVM	O7-C25-O4-C24
3	D	903	PIO	C2B-C3B-C4B-C5B
3	A	801	PIO	C2B-C3B-C4B-C5B
3	E	902	PIO	C2B-C3B-C4B-C5B
3	C	801	PIO	C2B-C3B-C4B-C5B
3	B	603	PIO	C2B-C3B-C4B-C5B
3	A	801	PIO	C1A-C2A-C3A-C4A
3	C	801	PIO	C1A-C2A-C3A-C4A
3	B	603	PIO	C1A-C2A-C3A-C4A
3	E	902	PIO	C1A-C2A-C3A-C4A
3	D	903	PIO	C1A-C2A-C3A-C4A
5	A	805	IVM	O14-C14-C15-C16
5	E	901	IVM	O14-C14-C15-C16
5	C	805	IVM	O14-C14-C15-C16
5	B	602	IVM	O14-C14-C15-C16
5	D	901	IVM	O14-C14-C15-C16
5	E	901	IVM	C32-C24-O4-C25
5	B	602	IVM	C32-C24-O4-C25

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Mol	Chain	Res	Type	Atoms
5	A	805	IVM	C32-C24-O4-C25
5	C	805	IVM	C32-C24-O4-C25
5	D	901	IVM	C32-C24-O4-C25
3	A	801	PIO	O1A-C1A-C2A-C3A
3	E	902	PIO	O1A-C1A-C2A-C3A
3	B	603	PIO	O1A-C1A-C2A-C3A
3	C	801	PIO	O1A-C1A-C2A-C3A
3	D	903	PIO	O1A-C1A-C2A-C3A
5	A	805	IVM	C22-C24-O4-C25
5	E	901	IVM	C22-C24-O4-C25
5	B	602	IVM	C22-C24-O4-C25
5	C	805	IVM	C22-C24-O4-C25
5	D	901	IVM	C22-C24-O4-C25
5	A	805	IVM	O8-C20-O2-C19
5	E	901	IVM	O8-C20-O2-C19
5	C	805	IVM	O8-C20-O2-C19
5	B	602	IVM	O8-C20-O2-C19
5	D	901	IVM	O8-C20-O2-C19
5	A	805	IVM	C34-C19-O2-C20
5	E	901	IVM	C34-C19-O2-C20
5	C	805	IVM	C34-C19-O2-C20
5	B	602	IVM	C34-C19-O2-C20
5	D	901	IVM	C34-C19-O2-C20
5	A	805	IVM	C4-C3-C5-C9
5	E	901	IVM	C4-C3-C5-C9
5	C	805	IVM	C4-C3-C5-C9
5	B	602	IVM	C4-C3-C5-C9
5	D	901	IVM	C4-C3-C5-C9
3	A	801	PIO	C1C-O13-P1-O1
3	E	902	PIO	C1C-O13-P1-O1
3	C	801	PIO	C1C-O13-P1-O1
3	B	603	PIO	C1C-O13-P1-O1
3	D	903	PIO	C1C-O13-P1-O1
5	A	805	IVM	C36-C37-C38-C39
5	E	901	IVM	C36-C37-C38-C39
5	C	805	IVM	C36-C37-C38-C39
5	B	602	IVM	C36-C37-C38-C39
5	D	901	IVM	C36-C37-C38-C39

All (5) ring outliers are listed below:

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Mol	Chain	Res	Type	Atoms

Mol	Chain	Res	Type	Atoms
5	B	602	IVM	C20-C21-C22-C24-C32-O8
5	D	901	IVM	C20-C21-C22-C24-C32-O8
5	C	805	IVM	C20-C21-C22-C24-C32-O8
5	E	901	IVM	C20-C21-C22-C24-C32-O8
5	A	805	IVM	C20-C21-C22-C24-C32-O8

4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	E	901	IVM	2	0
5	B	602	IVM	2	0
5	C	805	IVM	2	0
5	D	901	IVM	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 GLY B 601

Bond lengths

Bond angles

Torsions

Rings

Ligand GLY D 902

Bond lengths

Bond angles

Torsions

Rings

Ligand IVM A 805

Bond lengths

Bond angles

Torsions

Rings

Ligand PIO B 603

Bond lengths

Bond angles

Torsions

Rings

Ligand IVM E 901

Bond lengths

Bond angles

Torsions

Rings

Ligand IVM B 602

Bond lengths

Bond angles

Torsions

Rings

Ligand GLY A 804

Bond lengths

Bond angles

Torsions

Rings

Ligand GLY C 804

Bond lengths

Bond angles

Torsions

Rings

Ligand IVM C 805

Bond lengths

Bond angles

Torsions

Rings

Ligand PIO A 801

Bond lengths

Bond angles

Torsions

Rings

Ligand PIO E 902

Bond lengths

Bond angles

Torsions

Rings

Ligand PIO D 903

Bond lengths

Bond angles

Torsions

Rings

Ligand IVM D 901

Bond lengths

Bond angles

Torsions

Rings

Ligand GLY E 905

Bond lengths

Bond angles

Torsions

Rings

Ligand PIO C 801

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

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-21234. 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
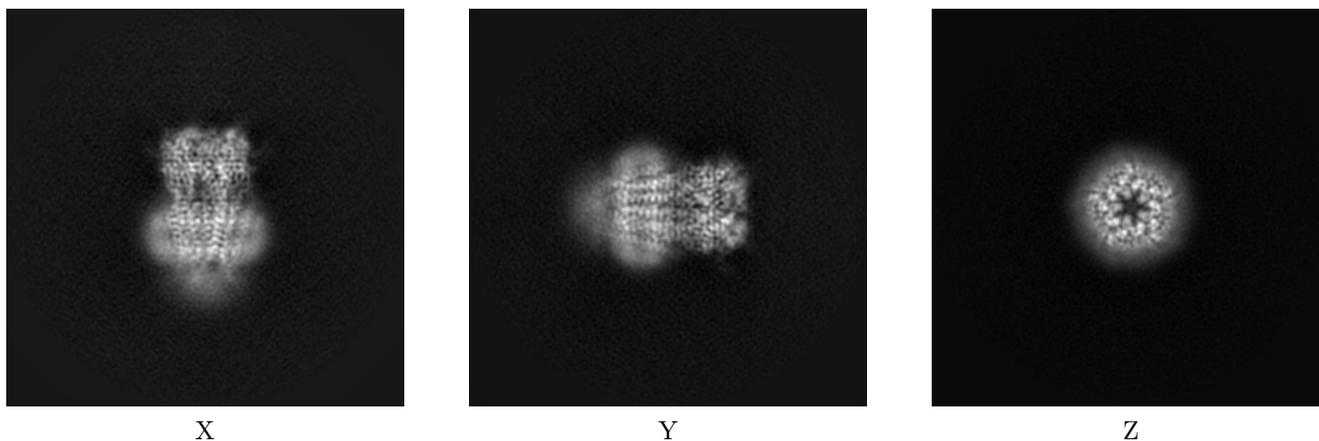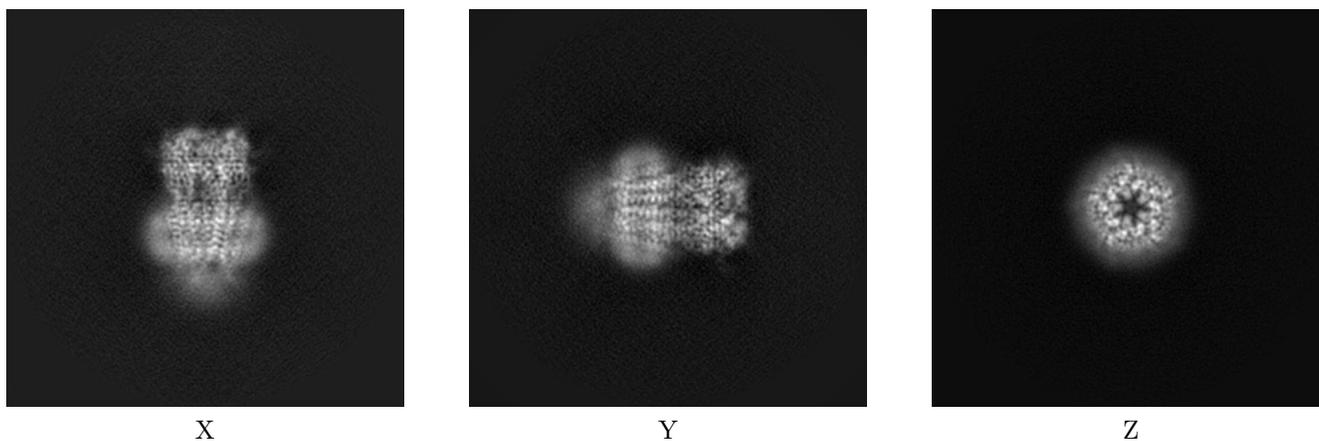
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ
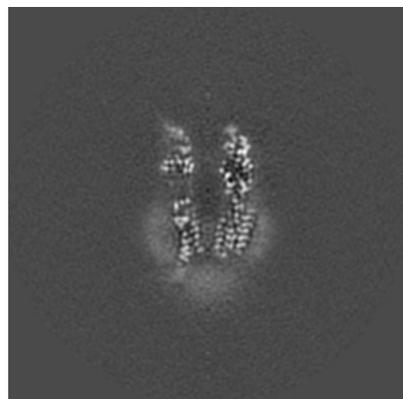
6.2.1 Primary map
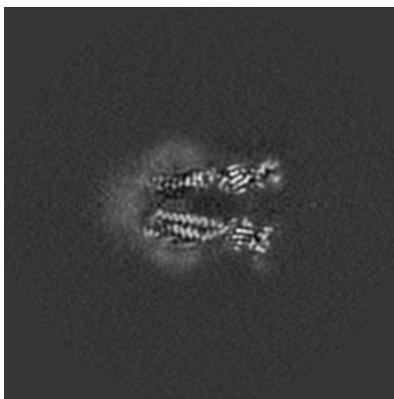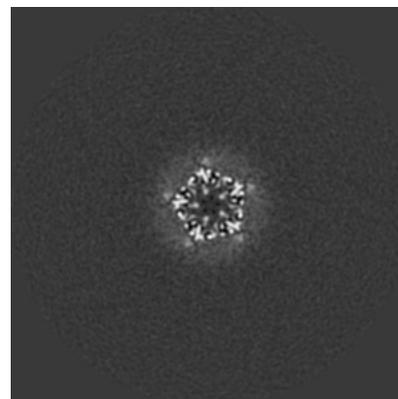
X Index: 150	Y Index: 150	Z Index: 150

6.2.2 Raw map
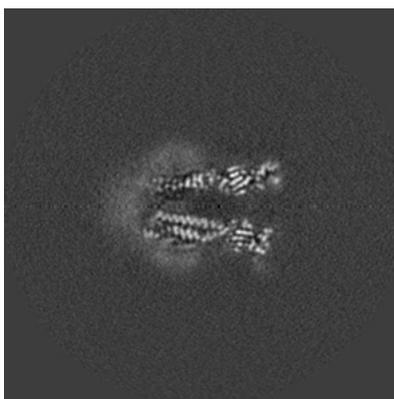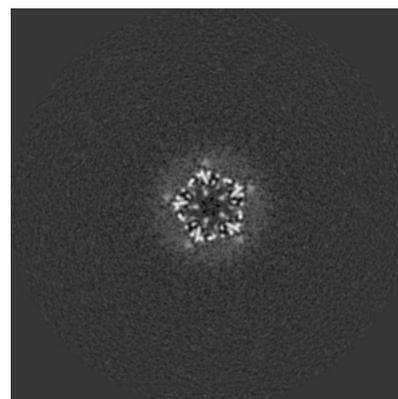
X Index: 150	Y Index: 150	Z Index: 150

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

6.3 Largest variance slices ⓘ

6.3.1 Primary map
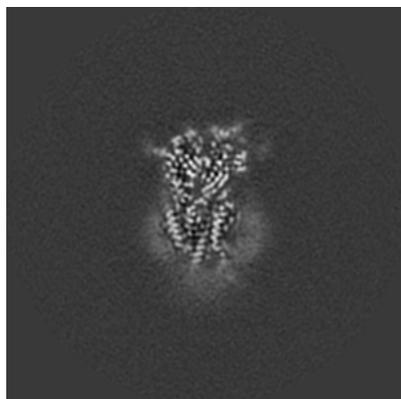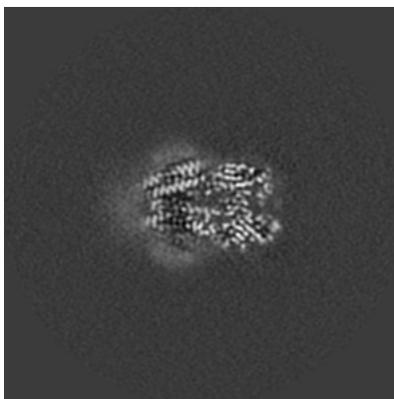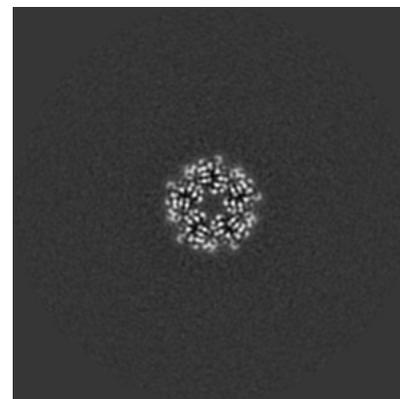
| X Index: 135 | Y Index: 162 | Z Index: 177 |

6.3.2 Raw map
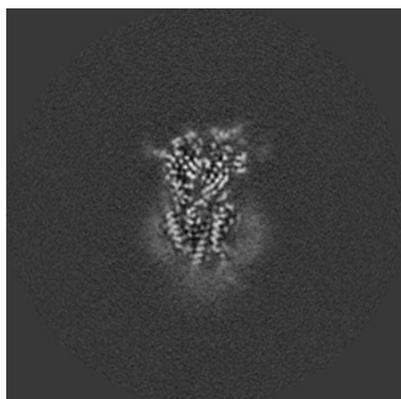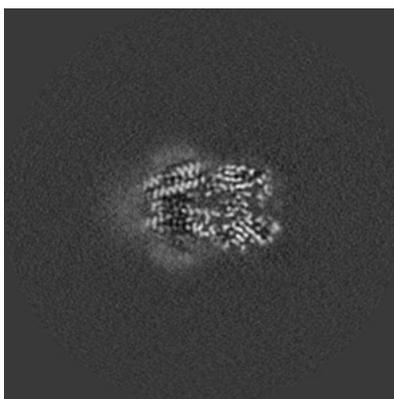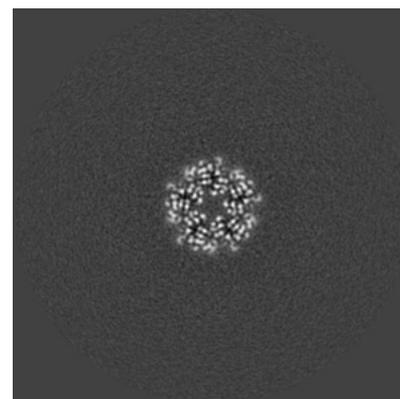
| X Index: 135 | Y Index: 162 | Z Index: 177 |

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

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

6.4.1   Primary map

X   Y   Z

6.4.2   Raw map

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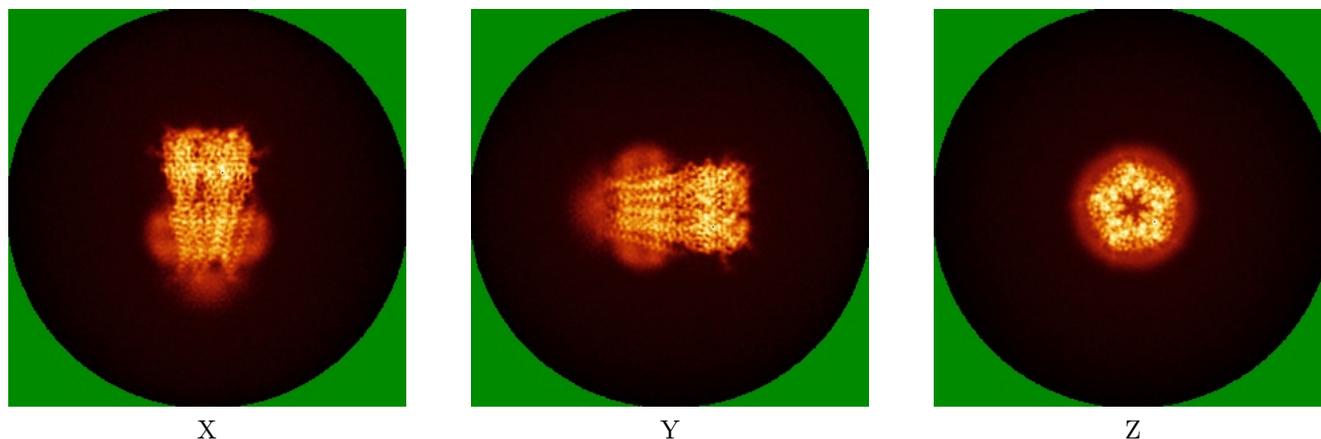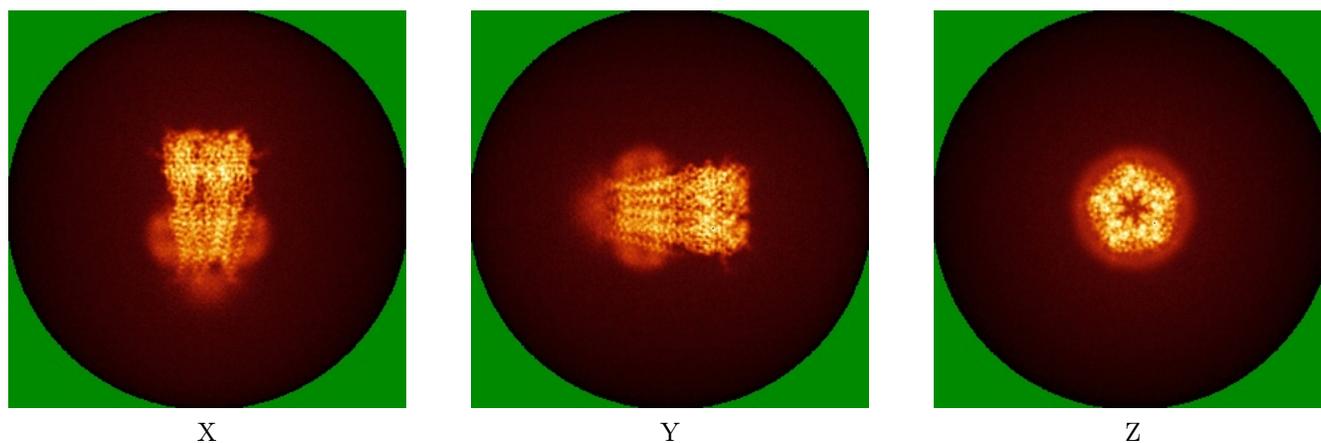
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ
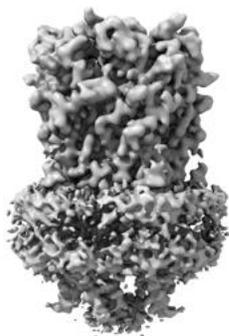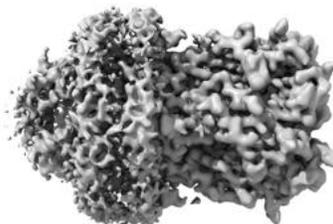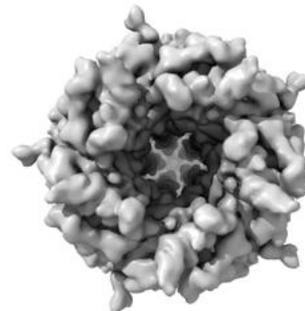
6.5.1 Primary map

| X | Y | Z |

The images above show the 3D surface view of the map at the recommended contour level 0.0114. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map
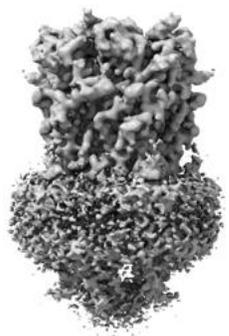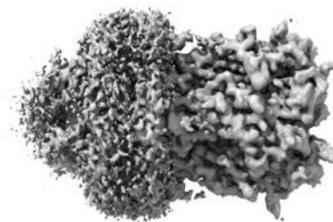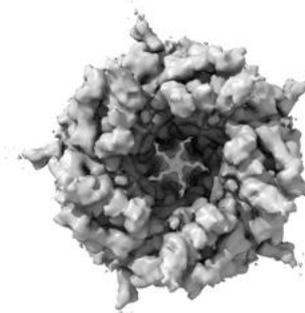
| X | Y | Z |

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

6.6 Mask visualisation (i)

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

A mask typically either:

- Encompasses the whole structure

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

6.6.1 emd_21234_msk_1.map (i)

X   Y   Z
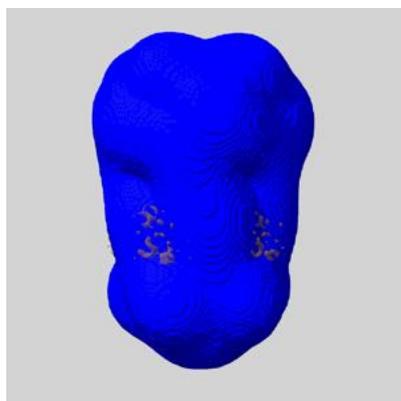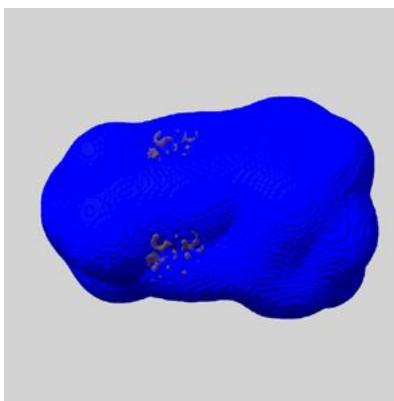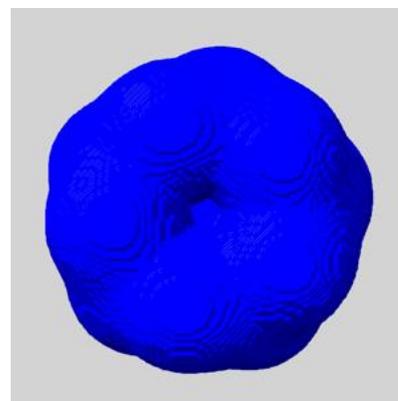
7 Map analysis ⓘ

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

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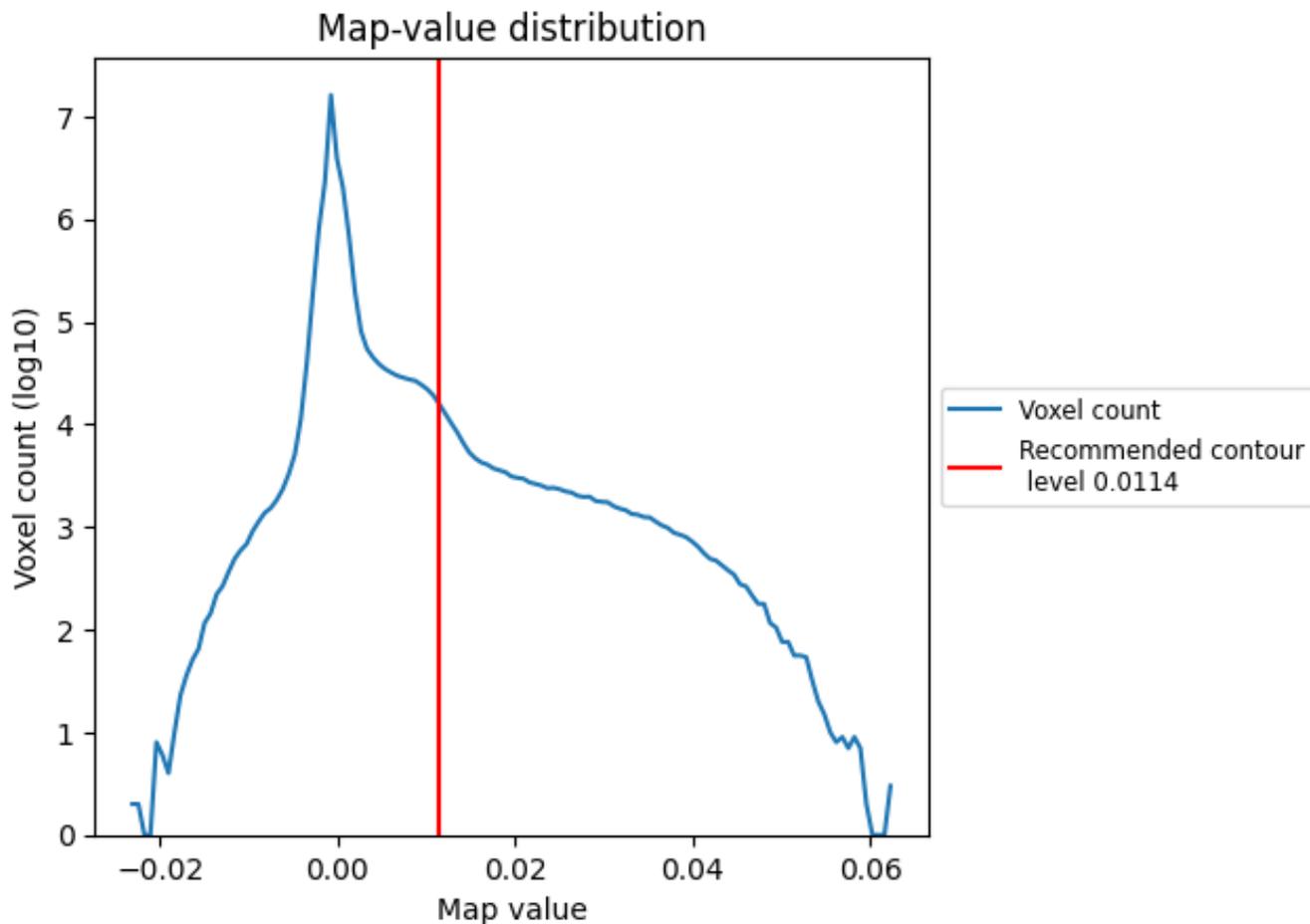
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2   Volume estimate ⓘ
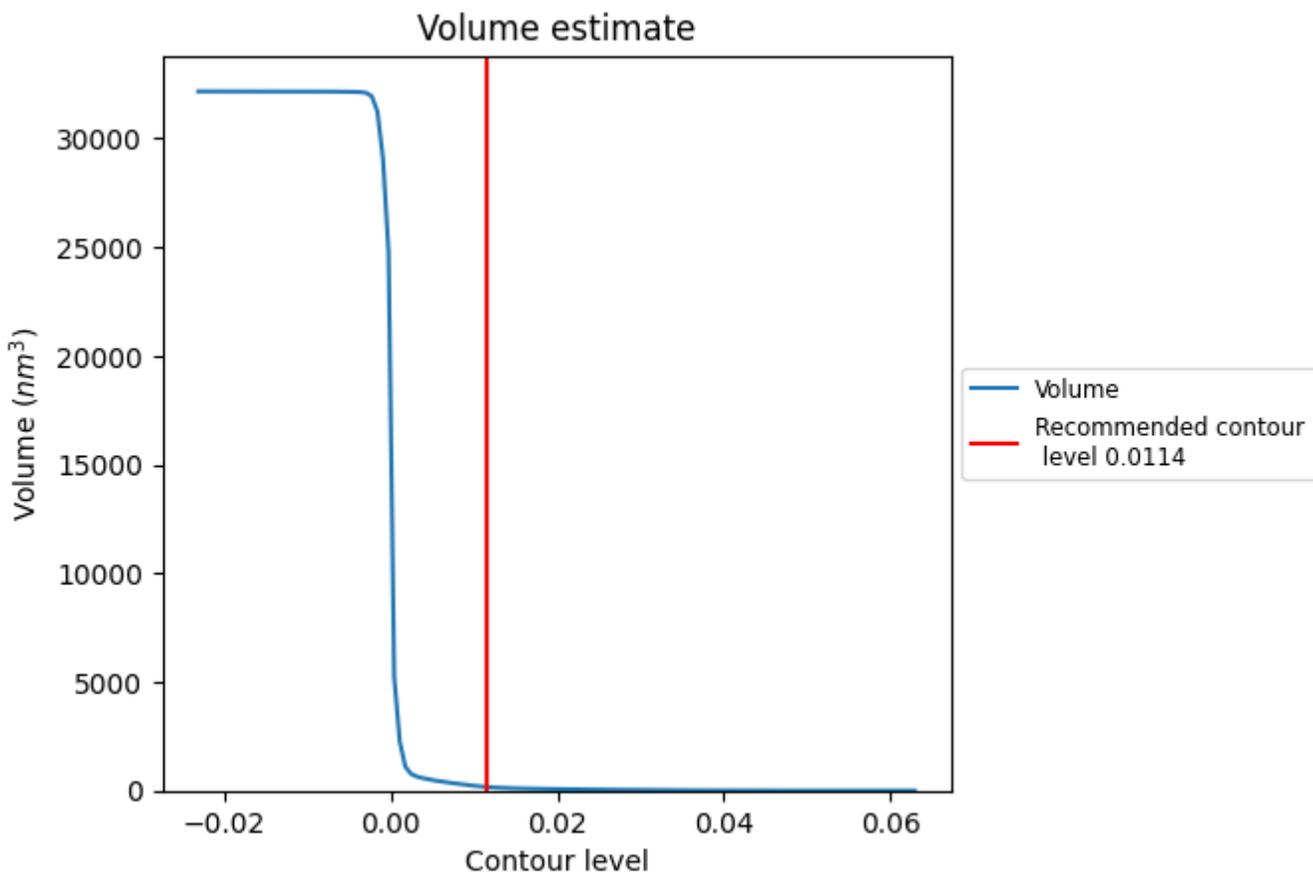
The volume at the recommended contour level is 173 nm^3; this corresponds to an approximate mass of 156 kDa.

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 ⓘ
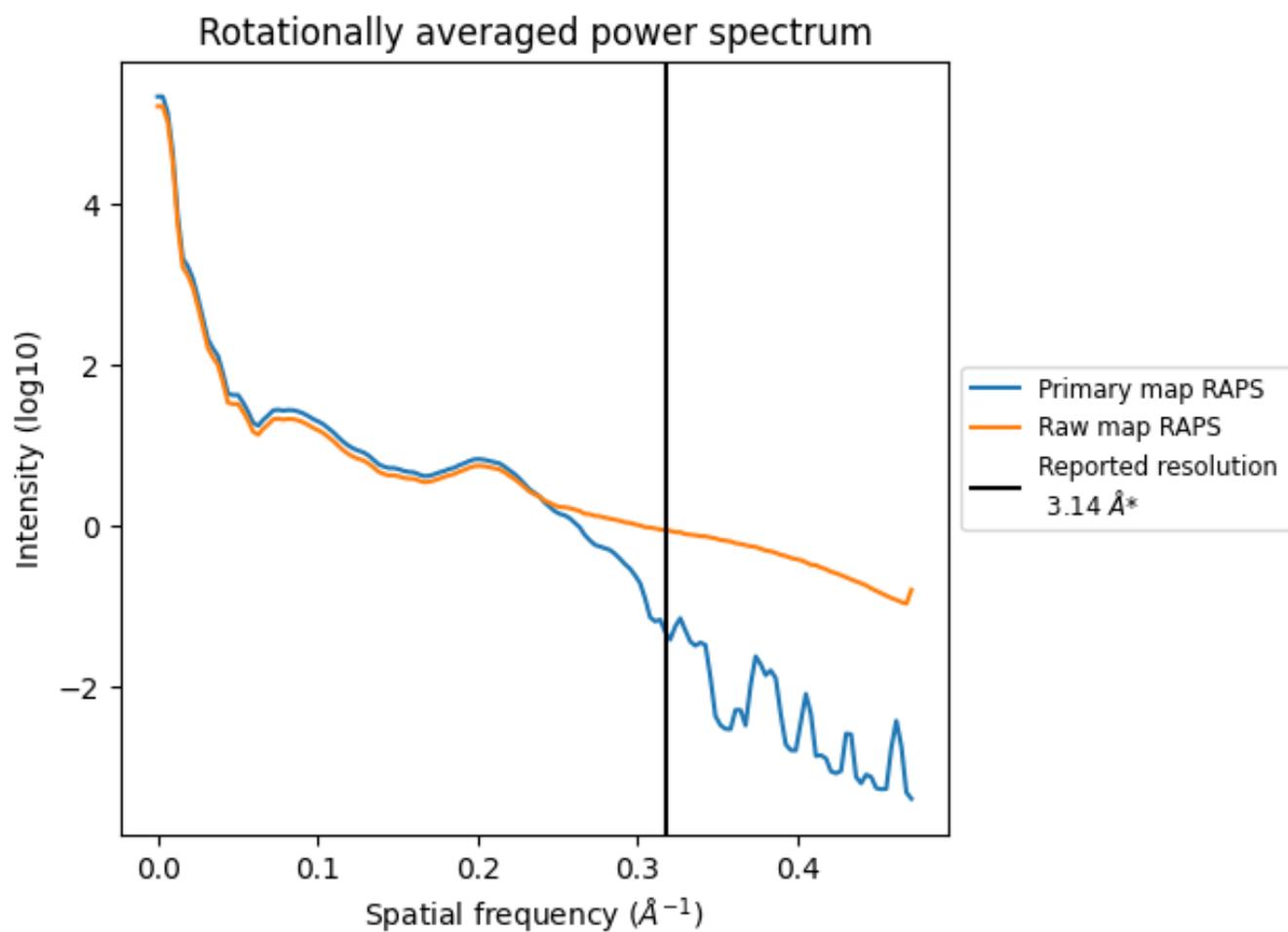
*Reported resolution corresponds to spatial frequency of 0.318 Å^{-1}

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)
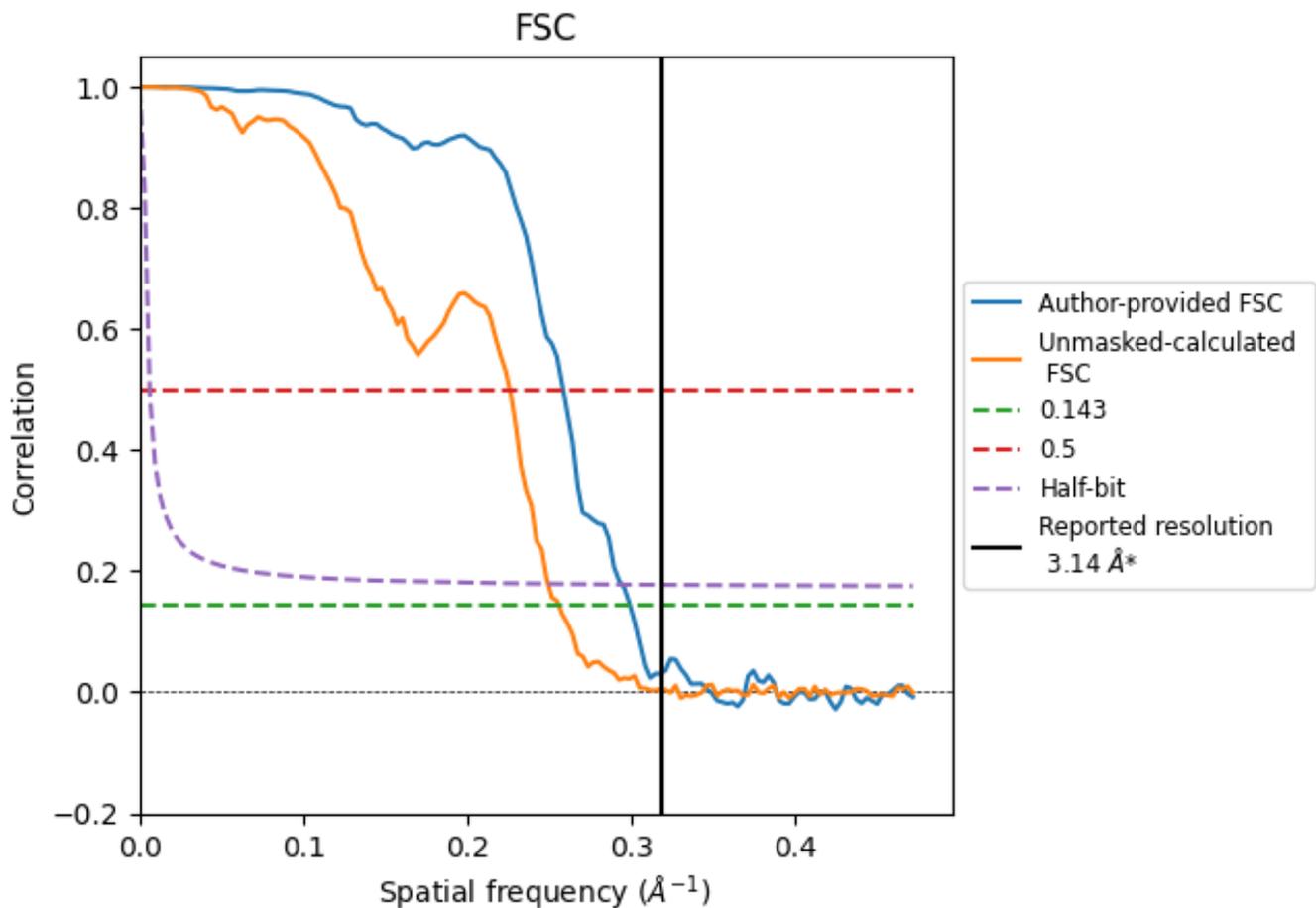
*Reported resolution corresponds to spatial frequency of 0.318 Å^{-1}

8.2 Resolution estimates ⓘ

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.14	-	-
Author-provided FSC curve	3.34	3.87	3.40
Unmasked-calculated*	3.91	4.43	4.01

*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 3.91 differs from the reported value 3.14 by more than 10 %

9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-21234 and PDB model 6VM0. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay (i)
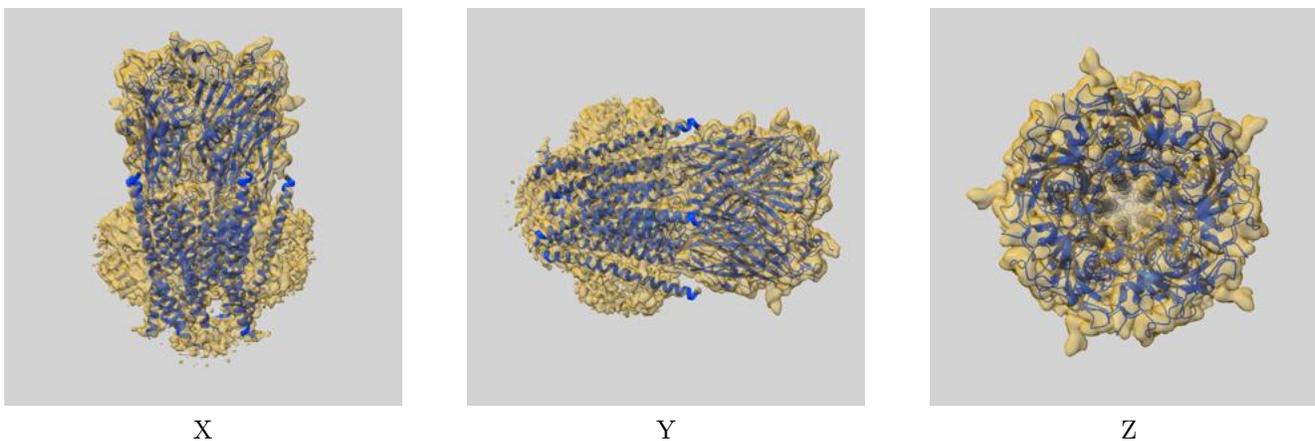

| X | Y | Z |

The images above show the 3D surface view of the map at the recommended contour level 0.0114 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 ⓘ

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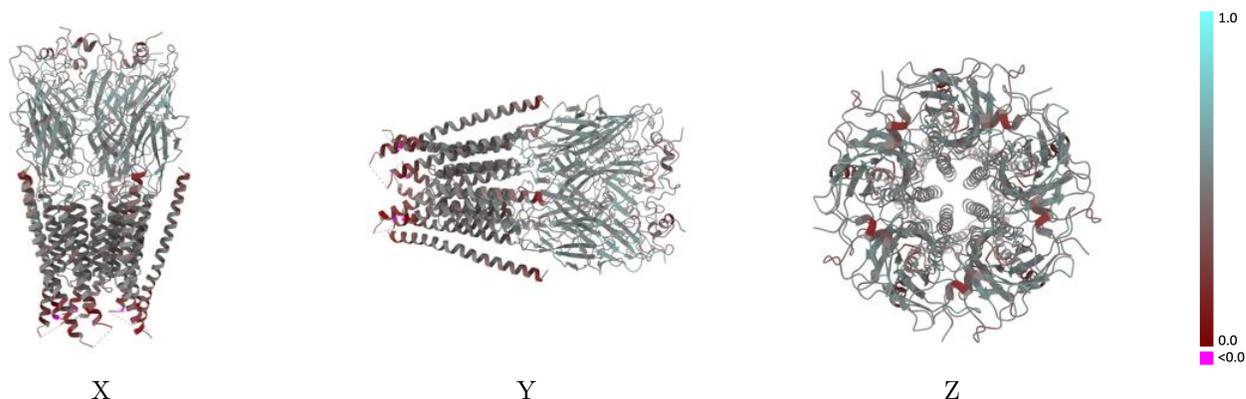
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

X Y Z
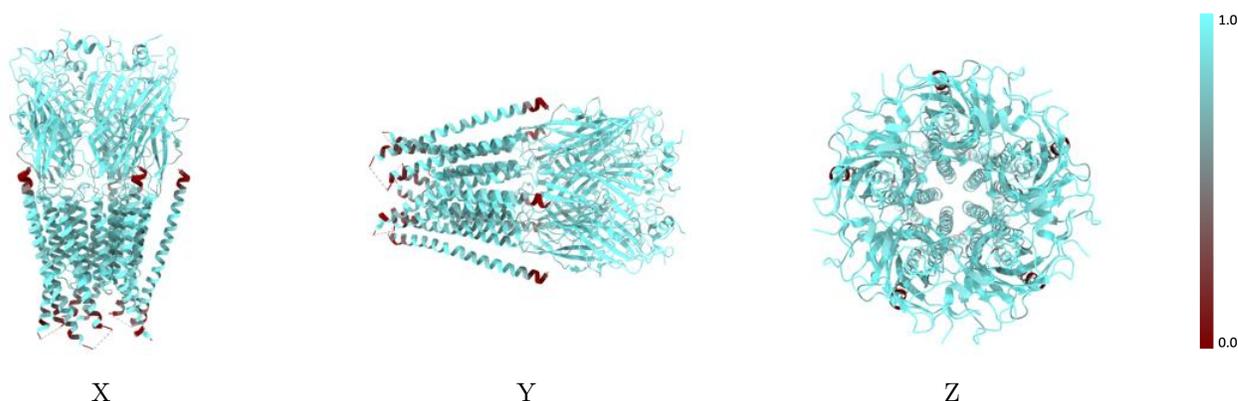
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0114).

9.4 Atom inclusion ⓘ
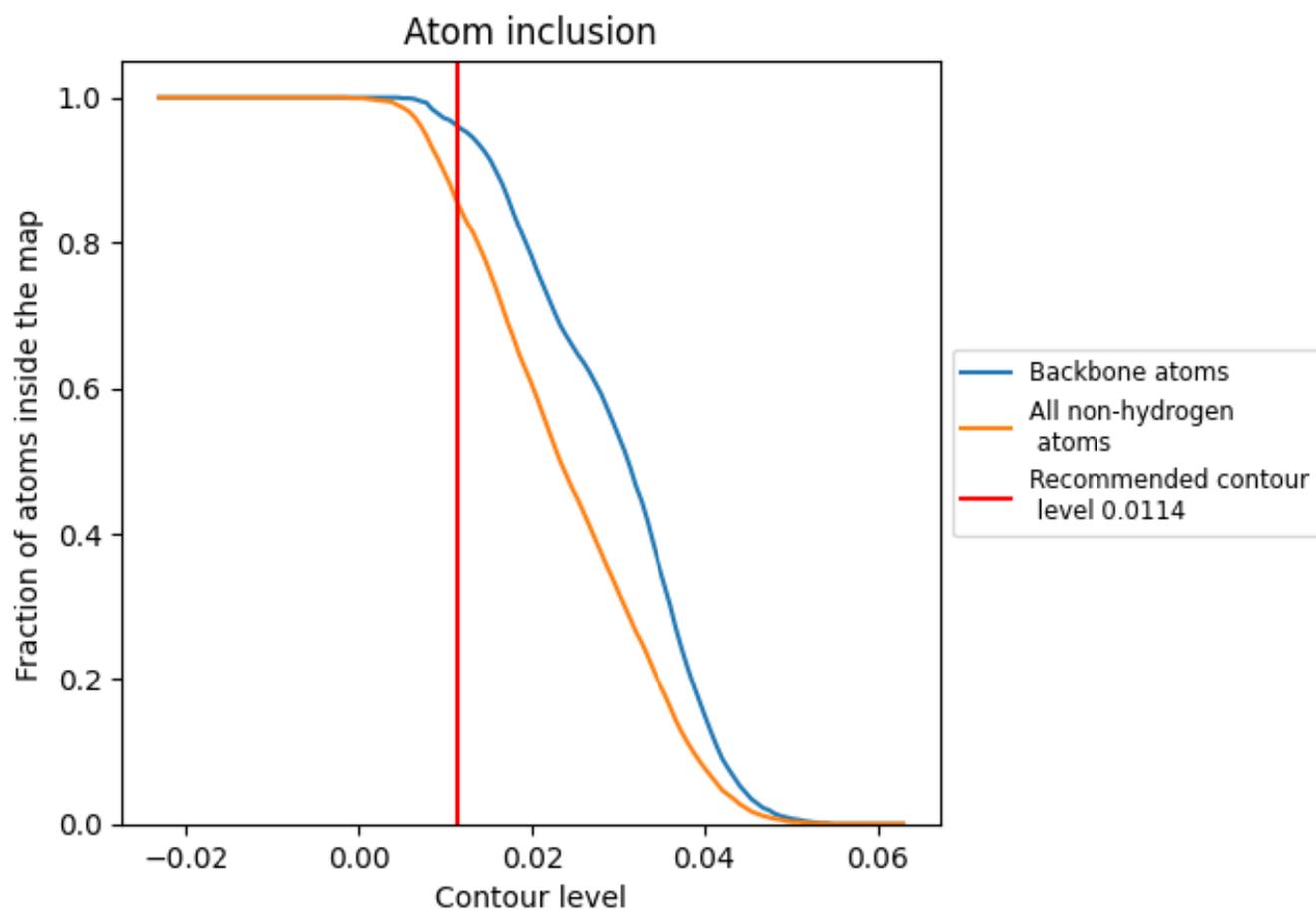
At the recommended contour level, 96% of all backbone atoms, 86% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.0114) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8550	0.4600
A	0.8550	0.4590
B	0.8570	0.4620
C	0.8570	0.4610
D	0.8560	0.4600
E	0.8570	0.4590
F	0.7410	0.3610
G	0.7040	0.3680
H	0.7040	0.3730
I	0.7040	0.3750
J	0.7040	0.3920

1.0

0.0
<0.0