Full wwPDB EM Validation Report ⓘ

Jun 24, 2025 – 04:26 pm BST

PDB ID	:	9FAP / pdb_00009fap
EMDB ID	:	EMD-50277
Title	:	CryoEM structure of human full-length alpha1beta3gamma2 GABA(A)R in complex with GARLH4, the TMD of Neuroligin2 and Megabody38 in a closed state (StateC1)
Authors	:	Kasaragod, V.B.; Aricescu, A.R.
Deposited on	:	2024-05-10
Resolution	:	2.80 Å(reported)
Based on initial model	:	6HUO

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:

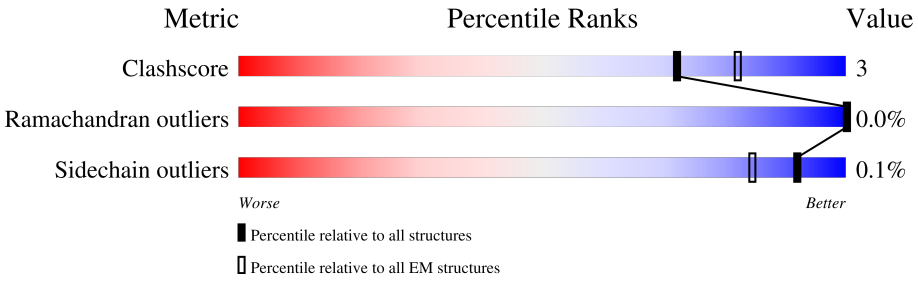
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

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 2.80 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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

Mol	Chain	Length	Quality of chain
1	A	405	78% 7% 15%
1	D	405	80% 6% 14%
2	B	439	71% 5% 24%
2	E	439	71% 6% 22%
3	C	403	78% 8% 14%
4	H	33	9% 85% 15%
5	L	193	6% 92% 8%
6	G	539	21% 78%

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Mol	Chain	Length	Quality of chain
7	F	10	60% 20% 20%
8	I	6	33% 50% 17%
8	M	6	50% 50%
9	J	3	33% 67%
9	N	3	33% 67% 33%
10	K	4	75% 25%

2 Entry composition

There are 20 unique types of molecules in this entry. The entry contains 17805 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 Gamma-aminobutyric acid receptor subunit alpha-1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	345	Total	C	N	O	S	0	0
			2788	1807	466	499	16		
1	D	349	Total	C	N	O	S	0	0
			2822	1829	472	505	16		

- Molecule 2 is a protein called Gamma-aminobutyric acid receptor subunit beta-3.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	335	Total	C	N	O	S	1	0
			2759	1805	454	484	16		
2	E	341	Total	C	N	O	S	1	0
			2807	1840	458	493	16		

- Molecule 3 is a protein called Isoform 2 of Gamma-aminobutyric acid receptor subunit gamma-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	348	Total	C	N	O	S	1	0
			2911	1912	469	510	20		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	429	GLY	-	expression tag	UNP P18507

- Molecule 4 is a protein called Neuroligin-2.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	H	33	Total	C	N	O	0	0
			256	168	38	50		

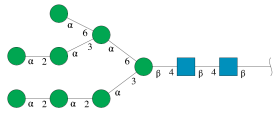
- Molecule 5 is a protein called LHFPL tetraspan subfamily member 4 protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	L	193	1516	1006	240	254	16	2	0

- Molecule 6 is a protein called Megabody38.

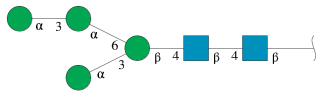
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	G	121	941	589	169	179	4	0	0

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



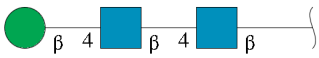
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
7	F	10	116	64	2	50	0	0

- Molecule 8 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-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
			Total	C	N	O		
8	I	6	72	40	2	30	0	0
8	M	6	Total	C	N	O	0	0
			72	40	2	30		

- Molecule 9 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

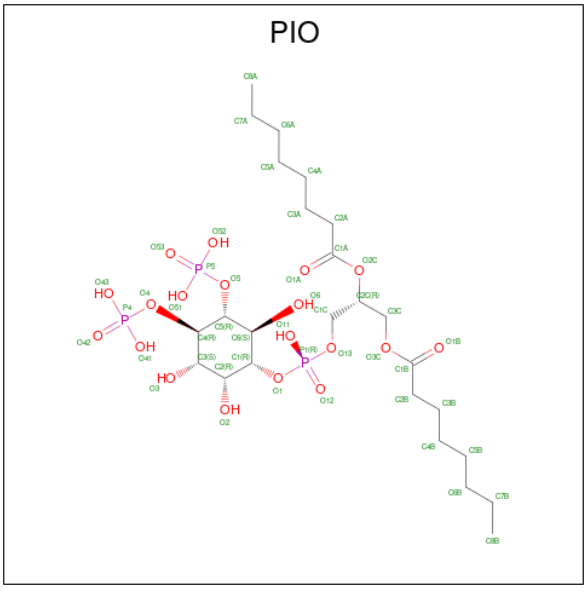


Mol	Chain	Residues	Atoms				AltConf	Trace
9	J	3	Total	C	N	O	0	0
			39	22	2	15		
9	N	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 10 is an oligosaccharide called alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

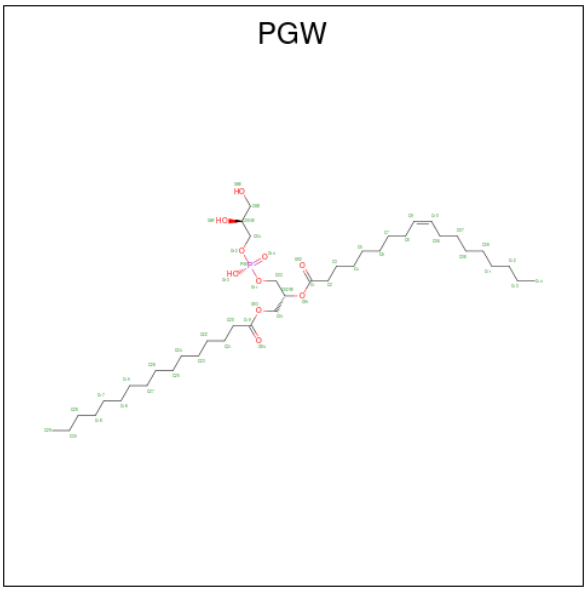
Mol	Chain	Residues	Atoms				AltConf	Trace
10	K	4	Total	C	N	O	0	0
			50	28	2	20		

- Molecule 11 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: $C_{25}H_{49}O_{19}P_3$).



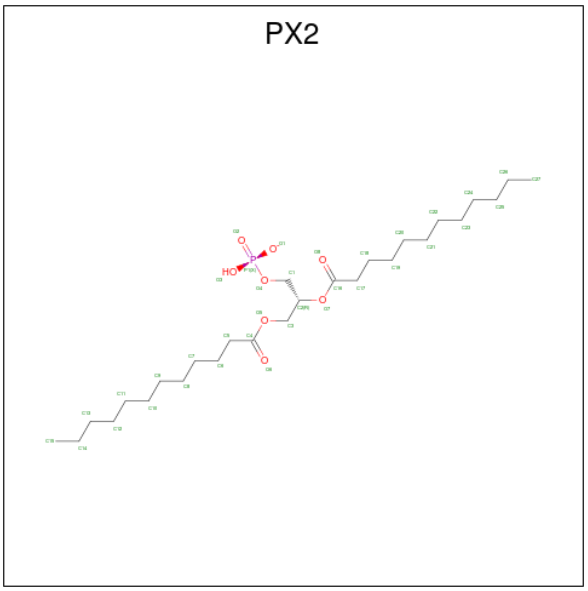
Mol	Chain	Residues	Atoms				AltConf
11	A	1	Total	C	O	P	0
			47	25	19	3	
11	D	1	Total	C	O	P	0
			47	25	19	3	

- Molecule 12 is (1R)-2-{[(S)-{[(2S)-2,3-dihydroxypropyl]oxy}(hydroxy)phosphoryl]oxy }-1-[(hexadecanoyloxy)methyl]ethyl (9Z)-octadec-9-enoate (CCD ID: PGW) (formula: $C_{40}H_{77}O_{10}P$).



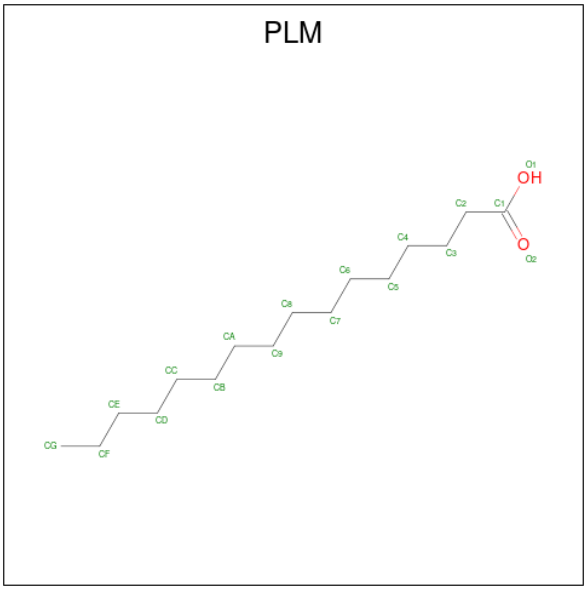
Mol	Chain	Residues	Atoms				AltConf
12	A	1	Total	C	O	P	0
			51	40	10	1	
12	D	1	Total	C	O	P	0
			51	40	10	1	
12	D	1	Total	C	O	P	0
			32	21	10	1	
12	L	1	Total	C	O	P	0
			51	40	10	1	
12	L	1	Total	C	O	P	0
			51	40	10	1	

- Molecule 13 is 1,2-DILAUROYL-SN-GLYCERO-3-PHOSPHATE (CCD ID: PX2) (formula: $C_{27}H_{52}O_8P$).



Mol	Chain	Residues	Atoms	AltConf
13	B	1	Total C O P 36 27 8 1	0
13	L	1	Total C O P 36 27 8 1	0

- Molecule 14 is PALMITIC ACID (CCD ID: PLM) (formula: $C_{16}H_{32}O_2$).



Mol	Chain	Residues	Atoms	AltConf
14	B	1	Total C O 18 16 2	0
14	C	1	Total C O 14 12 2	0

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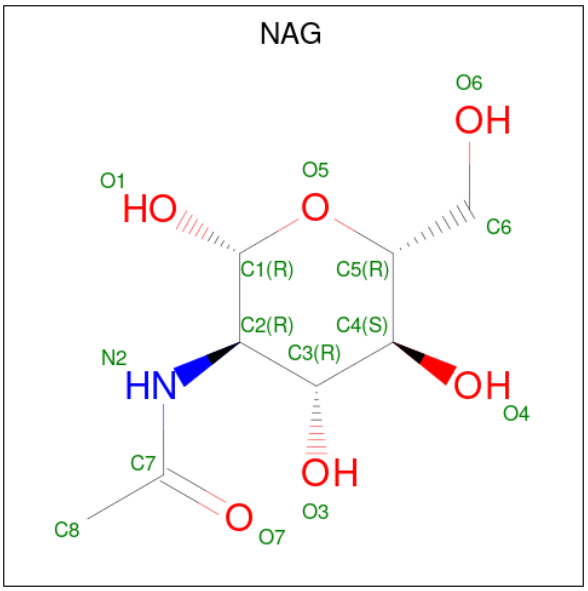
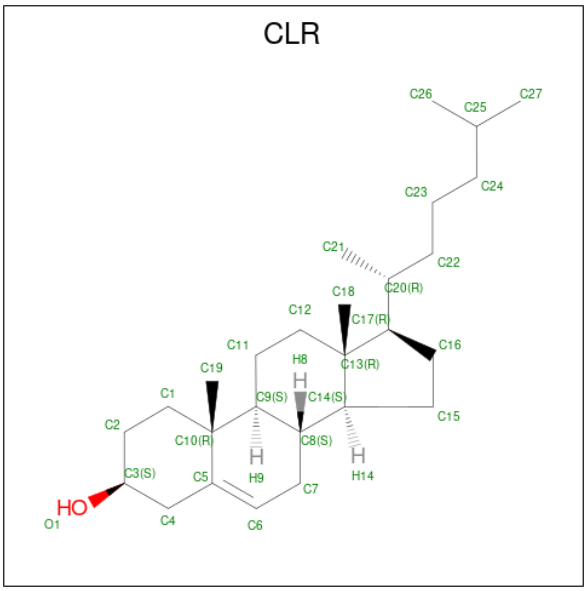
Mol	Chain	Residues	Atoms	AltConf
14	C	1	Total C O 18 16 2	0
14	D	1	Total C O 18 16 2	0
14	E	1	Total C O 18 16 2	0

- Molecule 15 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



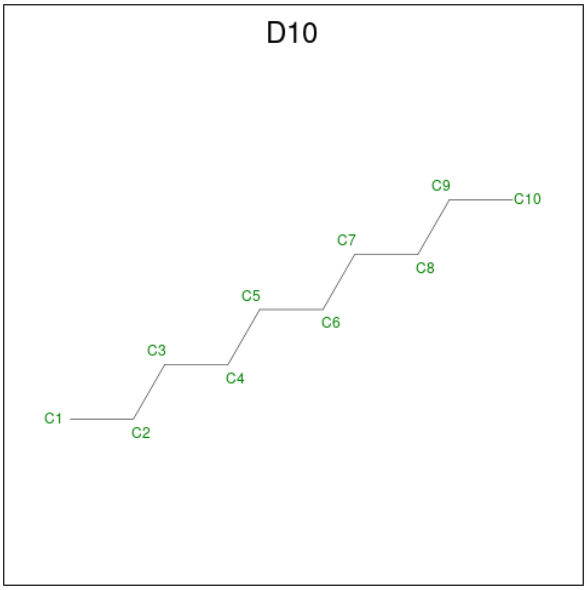
Mol	Chain	Residues	Atoms	AltConf
15	C	1	Total C N O 14 8 1 5	0

- Molecule 16 is CHOLESTEROL (CCD ID: CLR) (formula: $C_{27}H_{46}O$) (labeled as "Ligand of Interest" by depositor).



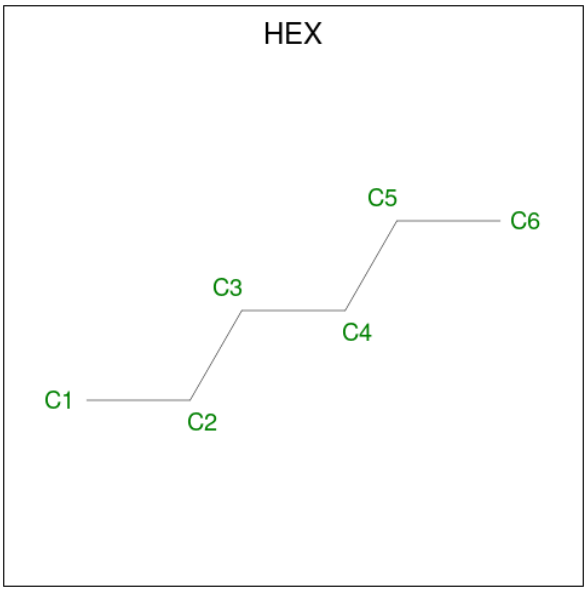
Mol	Chain	Residues	Atoms			AltConf
16	C	1	Total	C	O	0
			28	27	1	

- Molecule 17 is DECANE (CCD ID: D10) (formula: $C_{10}H_{22}$).



Mol	Chain	Residues	Atoms		AltConf
17	C	1	Total	C	0
			10	10	

- Molecule 18 is HEXANE (CCD ID: HEX) (formula: C_6H_{14}).



Mol	Chain	Residues	Atoms	AltConf
18	D	1	Total C 6 6	0
18	D	1	Total C 6 6	0

- Molecule 19 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	AltConf
19	L	1	Total Cl 1 1	0

- Molecule 20 is water.

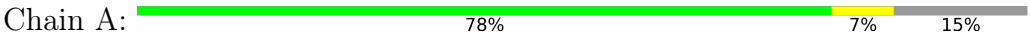
Mol	Chain	Residues	Atoms	AltConf
20	A	12	Total O 12 12	0
20	B	17	Total O 17 17	0
20	C	8	Total O 8 8	0
20	D	12	Total O 12 12	0
20	E	9	Total O 9 9	0
20	G	6	Total O 6 6	0

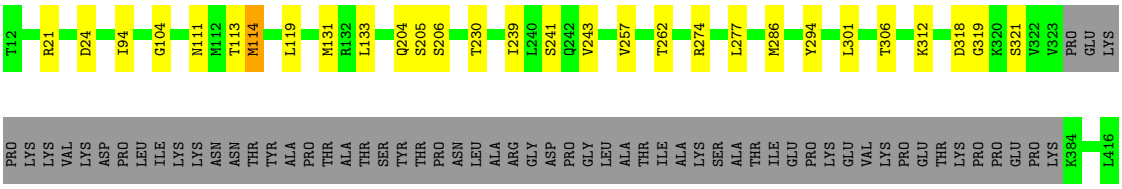
3 Residue-property plots (i)

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

• Molecule 1: Gamma-aminobutyric acid receptor subunit alpha-1

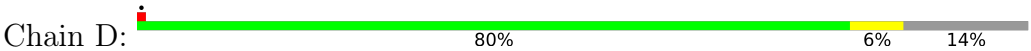
Chain A:

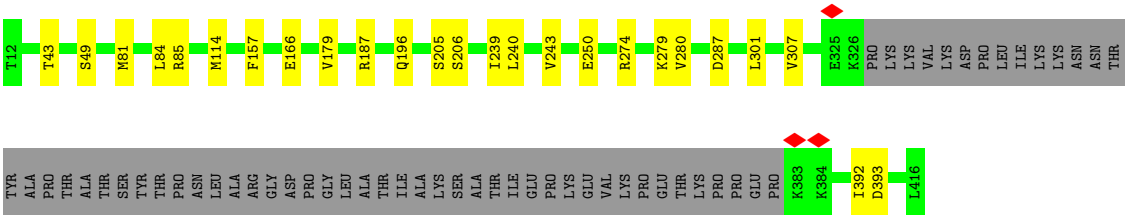




• Molecule 1: Gamma-aminobutyric acid receptor subunit alpha-1

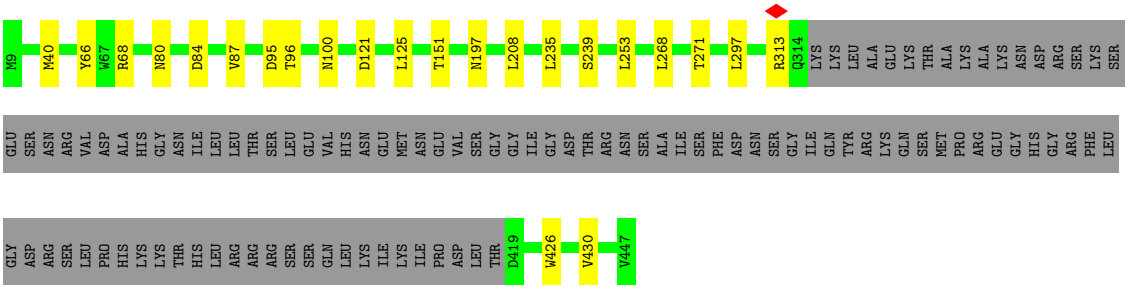
Chain D:





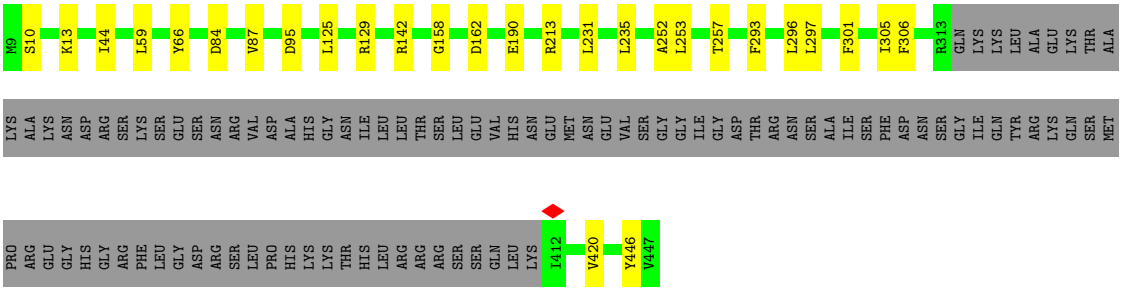
• Molecule 2: Gamma-aminobutyric acid receptor subunit beta-3

Chain B:

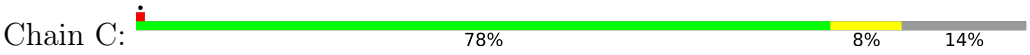


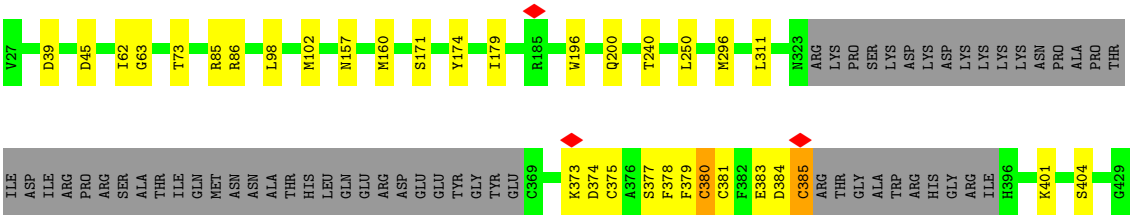
• Molecule 2: Gamma-aminobutyric acid receptor subunit beta-3

Chain E:

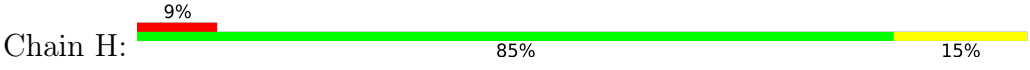


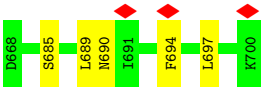
• Molecule 3: Isoform 2 of Gamma-aminobutyric acid receptor subunit gamma-2



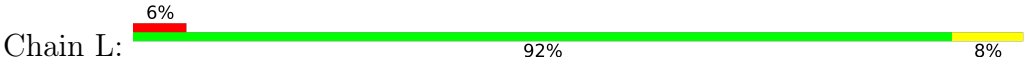


• Molecule 4: Neuroligin-2

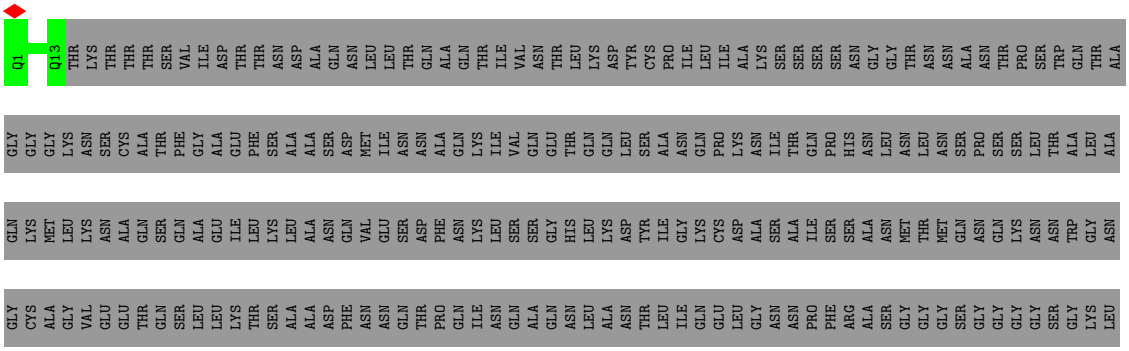


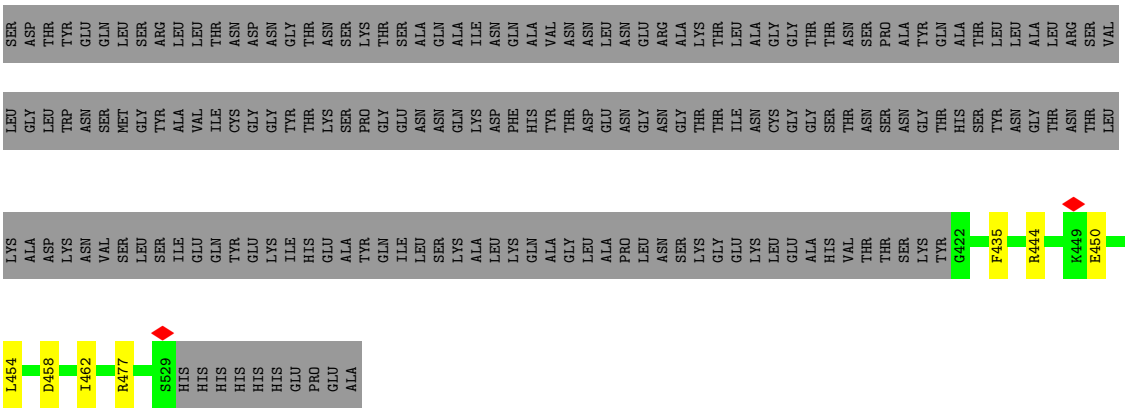


• Molecule 5: LHFPL tetraspan subfamily member 4 protein



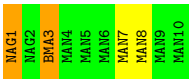
• Molecule 6: Megabody38





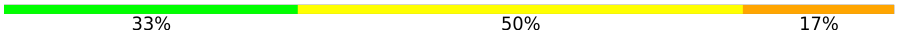
• Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain F:



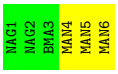
• Molecule 8: alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I:



• Molecule 8: alpha-D-mannopyranose-(1-3)-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

Chain M:



• Molecule 9: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:

• Molecule 9: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:

• Molecule 10: alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain K:

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	41368	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	46.7	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1700	Depositor
Magnification	130000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.055	Depositor
Minimum map value	-0.022	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.008	Depositor
Map size (Å)	234.71912, 234.71912, 234.71912	wwPDB
Map dimensions	296, 296, 296	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.79297, 0.79297, 0.79297	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: NAG, HEX, PGW, CL, PX2, BMA, MAN, D10, CLR, PIO, P1L, PLM

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	0.22	0/2859	0.41	0/3884
1	D	0.15	0/2894	0.35	0/3930
2	B	0.18	0/2836	0.39	0/3857
2	E	0.16	0/2885	0.36	0/3925
3	C	0.22	0/2921	0.42	0/3969
4	H	0.15	0/260	0.36	0/352
5	L	0.16	0/1566	0.34	0/2127
6	G	0.19	0/961	0.38	0/1297
All	All	0.19	0/17182	0.38	0/23341

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2788	0	2783	25	0
1	D	2822	0	2822	18	0
2	B	2759	0	2751	16	0
2	E	2807	0	2809	22	0
3	C	2911	0	2923	22	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	H	256	0	256	6	0
5	L	1516	0	1511	15	0
6	G	941	0	894	4	0
7	F	116	0	97	4	0
8	I	72	0	61	3	0
8	M	72	0	61	0	0
9	J	39	0	34	2	0
9	N	39	0	34	0	0
10	K	50	0	43	1	0
11	A	47	0	44	2	0
11	D	47	0	44	1	0
12	A	51	0	76	1	0
12	D	83	0	110	1	0
12	L	102	0	152	0	0
13	B	36	0	52	0	0
13	L	36	0	52	0	0
14	B	18	0	31	0	0
14	C	32	0	51	0	0
14	D	18	0	31	0	0
14	E	18	0	31	0	0
15	C	14	0	13	0	0
16	C	28	0	46	0	0
17	C	10	0	22	0	0
18	D	12	0	28	0	0
19	L	1	0	0	0	0
20	A	12	0	0	0	0
20	B	17	0	0	0	0
20	C	8	0	0	0	0
20	D	12	0	0	1	0
20	E	9	0	0	0	0
20	G	6	0	0	0	0
All	All	17805	0	17862	115	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 3.

All (115) 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:A:111:ASN:ND2	7:F:1:NAG:C7	2.37	0.81
1:A:274:ARG:HD2	1:A:277:LEU:HD12	1.65	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:94:ILE:HD11	1:A:119:LEU:HD21	1.64	0.78
7:F:7:MAN:H2	7:F:8:MAN:H3	1.67	0.73
3:C:373:LYS:HB3	3:C:378:PHE:HB2	1.70	0.73
3:C:250:LEU:HD22	1:D:301:LEU:HD23	1.70	0.72
3:C:45:ASP:OD1	3:C:85:ARG:NH1	2.23	0.71
1:A:204:GLN:NE2	1:A:205:SER:O	2.26	0.69
1:D:274:ARG:NH2	1:D:280:VAL:O	2.27	0.68
12:D:3903:PGW:O12	12:D:3903:PGW:OAE	2.12	0.65
2:B:84:ASP:O	2:B:87:VAL:HG12	1.97	0.64
1:D:49:SER:OG	1:D:187:ARG:NH1	2.30	0.64
5:L:122:ALA:HB2	5:L:201:GLN:HE21	1.64	0.62
2:E:162:ASP:O	2:E:162:ASP:OD1	2.17	0.62
1:A:113:THR:HG21	2:B:96:THR:HB	1.80	0.62
3:C:374:ASP:H	3:C:377:SER:HB3	1.66	0.61
2:E:142:ARG:NH2	2:E:446:TYR:O	2.35	0.60
2:E:84:ASP:O	2:E:87:VAL:HG12	2.03	0.59
12:A:3902:PGW:O11	12:A:3902:PGW:OAE	2.16	0.58
1:D:240:LEU:HD22	2:E:296:LEU:HD23	1.85	0.58
6:G:435:PHE:O	6:G:477:ARG:NH2	2.36	0.58
1:A:274:ARG:CD	1:A:277:LEU:HD12	2.33	0.58
7:F:3:BMA:H61	7:F:8:MAN:H5	1.86	0.58
3:C:200:GLN:NE2	1:D:279:LYS:O	2.37	0.58
1:A:113:THR:HB	2:B:96:THR:O	2.04	0.57
3:C:375:CYS:HA	3:C:379:PHE:HD2	1.68	0.57
2:E:44:ILE:HD12	2:E:59:LEU:HD11	1.86	0.56
2:B:313:ARG:HA	2:B:313:ARG:HE	1.70	0.56
1:A:318:ASP:OD2	1:A:321:SER:OG	2.16	0.54
2:B:426:TRP:CE2	2:B:430:VAL:HG21	2.41	0.54
5:L:64:TYR:OH	5:L:78:ARG:NE	2.40	0.54
1:D:274:ARG:NH1	1:D:287:ASP:OD2	2.41	0.54
1:A:111:ASN:ND2	7:F:1:NAG:O7	2.41	0.54
3:C:240:THR:HG21	3:C:296:MET:HE2	1.90	0.54
9:J:2:NAG:H3	9:J:2:NAG:H83	1.90	0.53
2:E:66[A]:TYR:CZ	2:E:125:LEU:HD13	2.44	0.53
2:E:66[B]:TYR:CZ	2:E:125:LEU:HD13	2.44	0.53
5:L:122:ALA:HB2	5:L:201:GLN:NE2	2.25	0.52
6:G:444:ARG:HB2	6:G:454:LEU:HD11	1.92	0.52
1:A:301:LEU:HD23	2:E:235:LEU:HD22	1.91	0.52
2:E:306:PHE:HB2	2:E:420:VAL:HG11	1.92	0.51
3:C:62:ILE:HD12	3:C:196:TRP:CZ3	2.46	0.51
1:A:312:LYS:NZ	11:A:3901:PIO:O43	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:250:LEU:HD22	1:D:301:LEU:CD2	2.38	0.51
2:E:95:ASP:OD2	2:E:158:GLY:N	2.44	0.51
1:A:306:THR:HG21	11:A:3901:PIO:H5A	1.93	0.50
1:D:239:ILE:O	1:D:243:VAL:HG23	2.11	0.50
3:C:63:GLY:N	3:C:73:THR:O	2.43	0.50
2:B:235:LEU:HD22	3:C:311:LEU:HD23	1.93	0.50
1:A:241:SER:HB3	1:A:262:THR:HG21	1.94	0.50
11:D:3901:PIO:O43	11:D:3901:PIO:O3	2.26	0.50
6:G:450:GLU:OE1	6:G:450:GLU:N	2.45	0.50
1:D:307:VAL:HG21	1:D:393:ASP:OD1	2.11	0.49
1:A:21:ARG:NH1	1:A:24:ASP:OD1	2.46	0.49
3:C:157:ASN:O	3:C:160:MET:N	2.46	0.49
1:D:81:MET:SD	1:D:84:LEU:HD13	2.53	0.49
1:A:294:TYR:HE2	2:E:231:LEU:HD12	1.80	0.47
2:E:253:LEU:O	2:E:257:THR:HG23	2.15	0.47
2:B:100:ASN:ND2	2:B:151:THR:O	2.48	0.47
4:H:694:PHE:CE2	5:L:189:ILE:HG23	2.50	0.47
1:A:243:VAL:HG21	2:B:297:LEU:CD1	2.45	0.46
1:D:85:ARG:NH1	2:E:158:GLY:O	2.49	0.46
1:A:294:TYR:CE2	2:E:231:LEU:HD12	2.51	0.45
4:H:690:ASN:HB3	5:L:189:ILE:HG21	1.99	0.45
3:C:375:CYS:HA	3:C:379:PHE:CD2	2.51	0.45
5:L:163:THR:HG22	5:L:168:LEU:O	2.17	0.45
2:B:197:ASN:H	8:I:4:MAN:H61	1.82	0.45
3:C:98:LEU:HD13	3:C:102:MET:SD	2.57	0.45
5:L:159:CYS:CB	5:L:163:THR:HG21	2.47	0.45
3:C:383:GLU:O	3:C:385:P1L:N	2.50	0.45
1:D:179:VAL:O	1:D:196:GLN:NE2	2.46	0.44
2:B:66:TYR:CZ	2:B:125:LEU:HD13	2.53	0.44
2:B:268:LEU:HA	2:B:271:THR:HG22	2.00	0.44
1:A:318:ASP:OD1	1:A:319:GLY:N	2.50	0.44
8:I:3:BMA:H3	8:I:6:MAN:H2	1.85	0.44
2:E:10:SER:O	2:E:13:LYS:N	2.50	0.43
1:A:104:GLY:O	2:E:129:ARG:NH2	2.51	0.43
1:A:239:ILE:O	1:A:243:VAL:HG23	2.18	0.43
1:D:166:GLU:OE2	20:D:4001:HOH:O	2.21	0.43
2:E:190:GLU:OE1	2:E:213:ARG:NH2	2.51	0.43
3:C:373:LYS:HB3	3:C:378:PHE:CB	2.45	0.43
2:E:44:ILE:HG23	2:E:59:LEU:CD1	2.48	0.43
2:E:293:PHE:CZ	2:E:297:LEU:HD11	2.54	0.43
1:D:43:THR:HG21	1:D:157:PHE:CE2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:697:LEU:HD22	5:L:193:LEU:CD1	2.48	0.43
3:C:401:LYS:O	3:C:404:SER:OG	2.35	0.43
4:H:694:PHE:HE2	5:L:189:ILE:HG23	1.83	0.43
2:E:293:PHE:CE2	2:E:297:LEU:HD11	2.54	0.43
1:A:205:SER:OG	1:A:206:SER:N	2.51	0.42
2:B:68:ARG:NH1	2:B:121:ASP:OD2	2.50	0.42
5:L:156:ARG:NH1	5:L:163:THR:O	2.52	0.42
8:I:3:BMA:H4	8:I:4:MAN:O2	2.20	0.42
2:B:40:MET:SD	2:B:208:LEU:HD12	2.59	0.42
6:G:458:ASP:OD2	6:G:462:ILE:HB	2.19	0.42
1:A:114:MET:HG3	2:B:95:ASP:HA	2.02	0.42
1:D:307:VAL:HG22	1:D:392:ILE:HB	2.00	0.42
2:E:301:PHE:CZ	2:E:305:ILE:HD11	2.55	0.42
3:C:174:TYR:CD2	3:C:179:ILE:HD12	2.55	0.42
5:L:34:ALA:HB2	5:L:110:ILE:HD11	2.01	0.41
3:C:39:ASP:O	3:C:86:ARG:NH1	2.52	0.41
4:H:697:LEU:HD21	5:L:196:VAL:HB	2.03	0.41
5:L:30:THR:HG23	5:L:106:ILE:HD11	2.01	0.41
4:H:685:SER:O	4:H:689:LEU:HD23	2.21	0.41
1:A:257:VAL:HG22	2:E:252:ALA:HB1	2.03	0.41
1:D:114:MET:HA	10:K:1:NAG:O6	2.21	0.41
1:A:230:THR:HG21	1:A:286:MET:SD	2.61	0.41
2:B:80:ASN:ND2	9:J:1:NAG:O7	2.53	0.41
2:B:239:SER:OG	2:B:253:LEU:HD23	2.21	0.41
1:D:205:SER:OG	1:D:206:SER:N	2.53	0.41
1:D:250:GLU:OE1	1:D:250:GLU:N	2.51	0.41
3:C:373:LYS:CB	3:C:378:PHE:HB2	2.45	0.41
5:L:159:CYS:HB3	5:L:163:THR:HG21	2.02	0.41
1:A:131:MET:HE2	1:A:133:LEU:HD21	2.04	0.40
3:C:380:P1L:H201	5:L:101:LEU:HD21	2.03	0.40
3:C:171:SER:OG	3:C:174:TYR:O	2.40	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	341/405 (84%)	331 (97%)	10 (3%)	0	100	100
1	D	345/405 (85%)	336 (97%)	9 (3%)	0	100	100
2	B	332/439 (76%)	326 (98%)	6 (2%)	0	100	100
2	E	338/439 (77%)	331 (98%)	7 (2%)	0	100	100
3	C	341/403 (85%)	329 (96%)	11 (3%)	1 (0%)	37	67
4	H	31/33 (94%)	30 (97%)	1 (3%)	0	100	100
5	L	193/193 (100%)	188 (97%)	5 (3%)	0	100	100
6	G	117/539 (22%)	113 (97%)	4 (3%)	0	100	100
All	All	2038/2856 (71%)	1984 (97%)	53 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	C	384	ASP

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	307/359 (86%)	306 (100%)	1 (0%)	91	97
1	D	311/359 (87%)	311 (100%)	0	100	100
2	B	302/392 (77%)	302 (100%)	0	100	100
2	E	308/392 (79%)	308 (100%)	0	100	100
3	C	318/365 (87%)	318 (100%)	0	100	100
4	H	27/27 (100%)	27 (100%)	0	100	100
5	L	161/159 (101%)	161 (100%)	0	100	100
6	G	94/435 (22%)	94 (100%)	0	100	100
All	All	1828/2488 (74%)	1827 (100%)	1 (0%)	92	98

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

Mol	Chain	Res	Type
1	A	114	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	217	ASN
2	B	439	ASN
3	C	60	ASN
3	C	80	GLN
1	D	308	ASN
2	E	85	ASN
5	L	201	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

3 non-standard protein/DNA/RNA residues 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	P1L	C	385	3	21,22,23	1.08	1 (4%)	18,23,25	1.18	3 (16%)
3	P1L	C	381	3	21,22,23	0.64	0	18,23,25	1.62	3 (16%)
3	P1L	C	380	3	21,22,23	0.41	0	18,23,25	3.20	1 (5%)

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	P1L	C	385	3	-	11/20/22/24	-
3	P1L	C	381	3	-	6/20/22/24	-
3	P1L	C	380	3	-	6/20/22/24	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	385	P1L	O-C	4.12	1.36	1.19

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	380	P1L	CB-SG-C7	13.55	119.79	100.84
3	C	381	P1L	CB-SG-C7	4.47	107.09	100.84
3	C	381	P1L	C8-C7-SG	-4.15	108.63	113.46
3	C	385	P1L	CB-SG-C7	3.20	105.31	100.84
3	C	381	P1L	O7-C7-SG	2.53	125.91	122.61
3	C	385	P1L	O7-C7-SG	2.46	125.80	122.61
3	C	385	P1L	C8-C7-SG	-2.37	110.69	113.46

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	380	P1L	N-CA-CB-SG
3	C	380	P1L	C-CA-CB-SG
3	C	381	P1L	N-CA-CB-SG
3	C	381	P1L	C8-C7-SG-CB
3	C	381	P1L	C11-C12-C13-C14
3	C	385	P1L	C15-C16-C17-C18
3	C	385	P1L	C9-C10-C11-C12
3	C	385	P1L	C18-C19-C20-C21
3	C	380	P1L	O7-C7-SG-CB
3	C	381	P1L	O7-C7-SG-CB
3	C	385	P1L	SG-C7-C8-C9
3	C	385	P1L	O7-C7-C8-C9
3	C	380	P1L	C8-C7-SG-CB
3	C	380	P1L	CA-CB-SG-C7
3	C	385	P1L	C11-C12-C13-C14
3	C	381	P1L	C9-C10-C11-C12
3	C	380	P1L	C19-C20-C21-C22

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Mol	Chain	Res	Type	Atoms
3	C	385	P1L	C12-C13-C14-C15
3	C	385	P1L	C7-C8-C9-C10
3	C	385	P1L	C11-C10-C9-C8
3	C	381	P1L	C18-C19-C20-C21
3	C	385	P1L	CA-CB-SG-C7
3	C	385	P1L	C16-C17-C18-C19

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	385	P1L	1	0
3	C	380	P1L	1	0

5.5 Carbohydrates (i)

32 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	$\#\|Z\| > 2$
7	NAG	F	1	1,7	14,14,15	0.39	0	17,19,21	0.85	1 (5%)
7	MAN	F	10	7	11,11,12	0.38	0	15,15,17	0.81	0
7	NAG	F	2	7	14,14,15	0.38	0	17,19,21	0.77	0
7	BMA	F	3	7	11,11,12	1.76	2 (18%)	15,15,17	2.31	5 (33%)
7	MAN	F	4	7	11,11,12	0.55	0	15,15,17	0.73	0
7	MAN	F	5	7	11,11,12	0.33	0	15,15,17	0.57	0
7	MAN	F	6	7	11,11,12	0.42	0	15,15,17	0.58	0
7	MAN	F	7	7	11,11,12	0.59	0	15,15,17	0.63	0
7	MAN	F	8	7	11,11,12	0.33	0	15,15,17	0.68	0
7	MAN	F	9	7	11,11,12	0.35	0	15,15,17	0.55	0
8	NAG	I	1	2,8	14,14,15	0.44	0	17,19,21	1.10	2 (11%)
8	NAG	I	2	8	14,14,15	0.43	0	17,19,21	0.83	0
8	BMA	I	3	8	11,11,12	1.13	2 (18%)	15,15,17	1.41	2 (13%)
8	MAN	I	4	8	11,11,12	0.40	0	15,15,17	0.95	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
8	MAN	I	5	8	11,11,12	0.22	0	15,15,17	0.48	0
8	MAN	I	6	8	11,11,12	0.27	0	15,15,17	0.58	0
9	NAG	J	1	2,9	14,14,15	0.39	0	17,19,21	1.36	3 (17%)
9	NAG	J	2	9	14,14,15	0.38	0	17,19,21	1.64	1 (5%)
9	BMA	J	3	9	11,11,12	0.31	0	15,15,17	0.45	0
10	NAG	K	1	1,10	14,14,15	0.39	0	17,19,21	0.74	0
10	NAG	K	2	10	14,14,15	0.39	0	17,19,21	0.69	0
10	BMA	K	3	10	11,11,12	0.29	0	15,15,17	0.76	0
10	MAN	K	4	10	11,11,12	0.29	0	15,15,17	0.56	0
8	NAG	M	1	2,8	14,14,15	0.32	0	17,19,21	0.39	0
8	NAG	M	2	8	14,14,15	0.21	0	17,19,21	0.41	0
8	BMA	M	3	8	11,11,12	0.59	0	15,15,17	0.74	0
8	MAN	M	4	8	11,11,12	0.79	0	15,15,17	1.52	3 (20%)
8	MAN	M	5	8	11,11,12	0.89	1 (9%)	15,15,17	1.19	2 (13%)
8	MAN	M	6	8	11,11,12	0.71	0	15,15,17	1.30	3 (20%)
9	NAG	N	1	2,9	14,14,15	0.39	0	17,19,21	0.75	1 (5%)
9	NAG	N	2	9	14,14,15	0.39	0	17,19,21	0.40	0
9	BMA	N	3	9	11,11,12	0.30	0	15,15,17	0.50	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
7	NAG	F	1	1,7	-	0/6/23/26	0/1/1/1
7	MAN	F	10	7	-	0/2/19/22	0/1/1/1
7	NAG	F	2	7	-	2/6/23/26	0/1/1/1
7	BMA	F	3	7	-	2/2/19/22	0/1/1/1
7	MAN	F	4	7	-	0/2/19/22	0/1/1/1
7	MAN	F	5	7	-	0/2/19/22	0/1/1/1
7	MAN	F	6	7	-	0/2/19/22	0/1/1/1
7	MAN	F	7	7	-	2/2/19/22	0/1/1/1
7	MAN	F	8	7	-	1/2/19/22	0/1/1/1
7	MAN	F	9	7	-	0/2/19/22	0/1/1/1
8	NAG	I	1	2,8	-	4/6/23/26	0/1/1/1
8	NAG	I	2	8	-	0/6/23/26	0/1/1/1
8	BMA	I	3	8	-	2/2/19/22	0/1/1/1
8	MAN	I	4	8	-	0/2/19/22	1/1/1/1
8	MAN	I	5	8	-	0/2/19/22	1/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	MAN	I	6	8	-	0/2/19/22	0/1/1/1
9	NAG	J	1	2,9	-	2/6/23/26	0/1/1/1
9	NAG	J	2	9	-	3/6/23/26	0/1/1/1
9	BMA	J	3	9	-	0/2/19/22	0/1/1/1
10	NAG	K	1	1,10	-	2/6/23/26	0/1/1/1
10	NAG	K	2	10	-	2/6/23/26	0/1/1/1
10	BMA	K	3	10	-	2/2/19/22	0/1/1/1
10	MAN	K	4	10	-	0/2/19/22	0/1/1/1
8	NAG	M	1	2,8	-	2/6/23/26	0/1/1/1
8	NAG	M	2	8	-	0/6/23/26	0/1/1/1
8	BMA	M	3	8	-	2/2/19/22	0/1/1/1
8	MAN	M	4	8	-	0/2/19/22	0/1/1/1
8	MAN	M	5	8	-	2/2/19/22	0/1/1/1
8	MAN	M	6	8	-	0/2/19/22	1/1/1/1
9	NAG	N	1	2,9	-	1/6/23/26	0/1/1/1
9	NAG	N	2	9	-	2/6/23/26	0/1/1/1
9	BMA	N	3	9	-	1/2/19/22	0/1/1/1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	F	3	BMA	C4-C5	-3.72	1.45	1.53
8	I	3	BMA	C2-C3	-2.80	1.48	1.52
7	F	3	BMA	O5-C5	2.66	1.48	1.43
8	M	5	MAN	O5-C1	-2.10	1.40	1.43
8	I	3	BMA	C1-C2	-2.09	1.47	1.52

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	J	2	NAG	C2-N2-C7	6.06	131.53	122.90
7	F	3	BMA	O5-C5-C6	5.01	115.05	107.20
7	F	3	BMA	C6-C5-C4	-4.65	102.11	113.00
8	I	3	BMA	C1-C2-C3	-3.90	104.87	109.67
9	J	1	NAG	C2-N2-C7	3.67	128.13	122.90
8	M	4	MAN	C1-O5-C5	3.35	116.73	112.19
8	M	6	MAN	C1-O5-C5	3.15	116.46	112.19
9	J	1	NAG	C1-C2-N2	3.08	115.74	110.49
8	M	4	MAN	O5-C1-C2	2.85	115.18	110.77
7	F	1	NAG	C1-O5-C5	2.83	116.03	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	F	3	BMA	O5-C1-C2	-2.74	106.55	110.77
8	I	1	NAG	C1-O5-C5	2.66	115.80	112.19
7	F	3	BMA	O3-C3-C4	-2.46	104.66	110.35
8	M	4	MAN	O2-C2-C3	-2.42	105.29	110.14
8	M	5	MAN	O2-C2-C3	-2.38	105.38	110.14
9	J	1	NAG	C1-O5-C5	2.37	115.40	112.19
8	M	6	MAN	O2-C2-C3	-2.36	105.41	110.14
8	I	3	BMA	O3-C3-C4	2.32	115.70	110.35
8	M	6	MAN	O5-C1-C2	2.24	114.23	110.77
8	I	1	NAG	C1-C2-N2	2.24	114.31	110.49
8	M	5	MAN	C1-O5-C5	2.23	115.22	112.19
9	N	1	NAG	C2-N2-C7	2.15	125.97	122.90
7	F	3	BMA	C1-C2-C3	-2.06	107.14	109.67

There are no chirality outliers.

All (34) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	I	1	NAG	C3-C2-N2-C7
9	J	1	NAG	C3-C2-N2-C7
10	K	1	NAG	C8-C7-N2-C2
10	K	1	NAG	O7-C7-N2-C2
9	J	2	NAG	C8-C7-N2-C2
8	M	1	NAG	O5-C5-C6-O6
8	I	3	BMA	C4-C5-C6-O6
8	M	3	BMA	O5-C5-C6-O6
8	M	1	NAG	C4-C5-C6-O6
9	J	2	NAG	O7-C7-N2-C2
8	I	3	BMA	O5-C5-C6-O6
7	F	7	MAN	O5-C5-C6-O6
7	F	2	NAG	C8-C7-N2-C2
7	F	2	NAG	O7-C7-N2-C2
8	I	1	NAG	C8-C7-N2-C2
9	N	2	NAG	C8-C7-N2-C2
9	N	2	NAG	O7-C7-N2-C2
8	M	5	MAN	C4-C5-C6-O6
7	F	7	MAN	C4-C5-C6-O6
8	M	5	MAN	O5-C5-C6-O6
8	I	1	NAG	O7-C7-N2-C2
10	K	3	BMA	O5-C5-C6-O6
10	K	2	NAG	C1-C2-N2-C7
9	N	3	BMA	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
7	F	8	MAN	O5-C5-C6-O6
9	J	1	NAG	C1-C2-N2-C7
7	F	3	BMA	O5-C5-C6-O6
8	M	3	BMA	C4-C5-C6-O6
8	I	1	NAG	C1-C2-N2-C7
9	J	2	NAG	C3-C2-N2-C7
9	N	1	NAG	C3-C2-N2-C7
10	K	3	BMA	C4-C5-C6-O6
7	F	3	BMA	C4-C5-C6-O6
10	K	2	NAG	C3-C2-N2-C7

All (3) ring outliers are listed below:

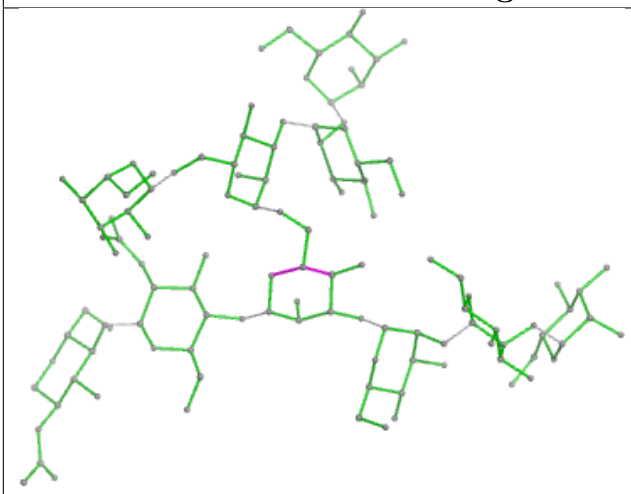
Mol	Chain	Res	Type	Atoms
8	M	6	MAN	C1-C2-C3-C4-C5-O5
8	I	5	MAN	C1-C2-C3-C4-C5-O5
8	I	4	MAN	C1-C2-C3-C4-C5-O5

10 monomers are involved in 10 short contacts:

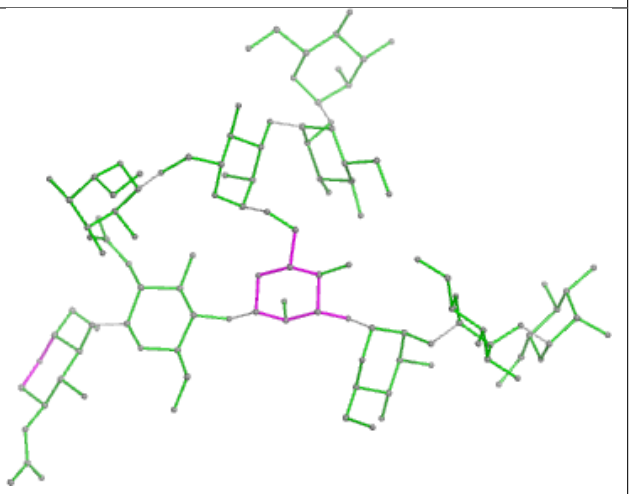
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	I	6	MAN	1	0
7	F	1	NAG	2	0
8	I	3	BMA	2	0
9	J	1	NAG	1	0
7	F	8	MAN	2	0
7	F	7	MAN	1	0
8	I	4	MAN	2	0
10	K	1	NAG	1	0
9	J	2	NAG	1	0
7	F	3	BMA	1	0

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

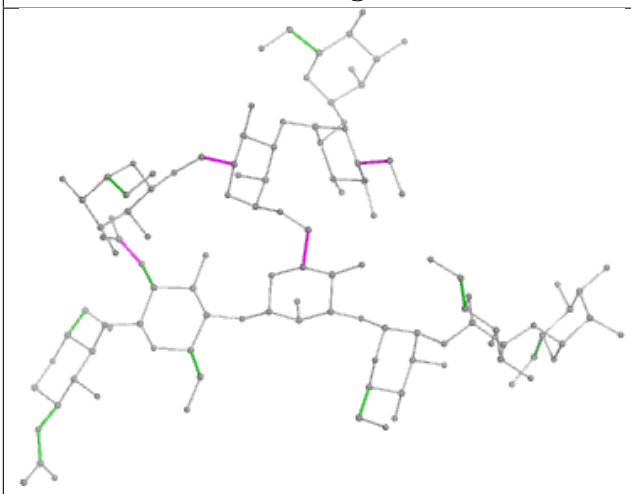
Oligosaccharide Chain F



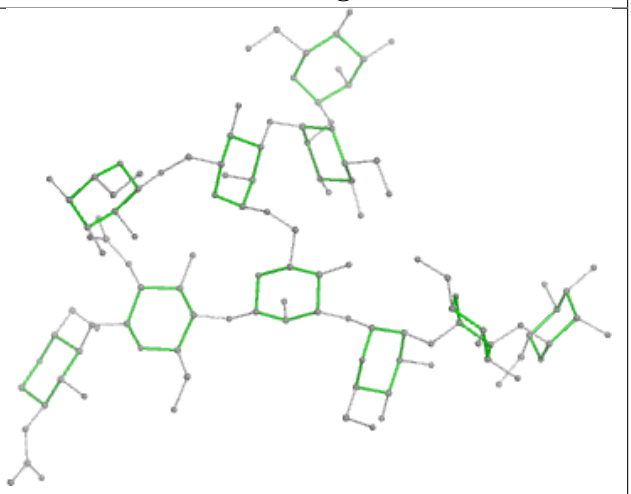
Bond lengths



Bond angles

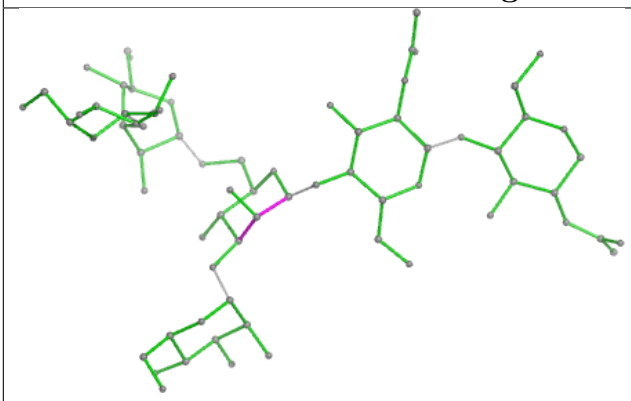


Torsions

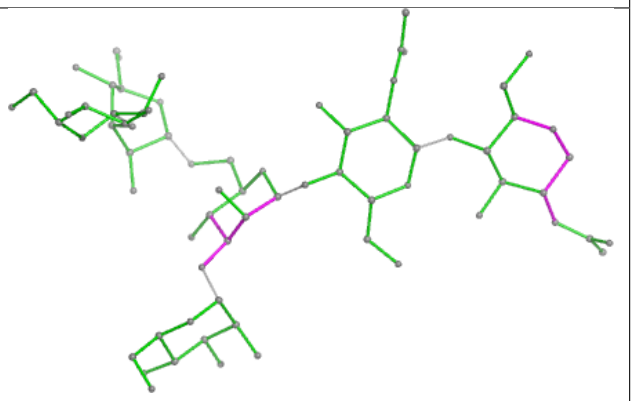


Rings

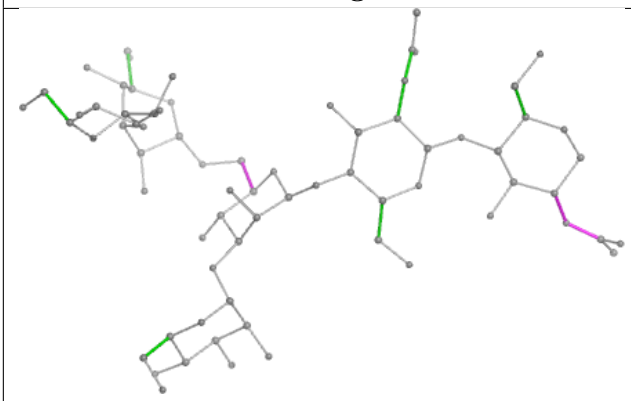
Oligosaccharide Chain I



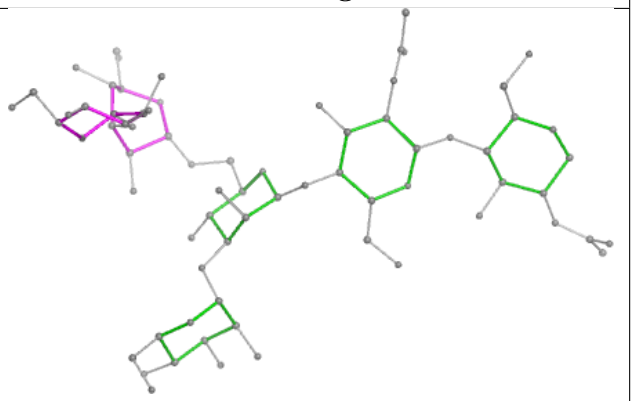
Bond lengths



Bond angles

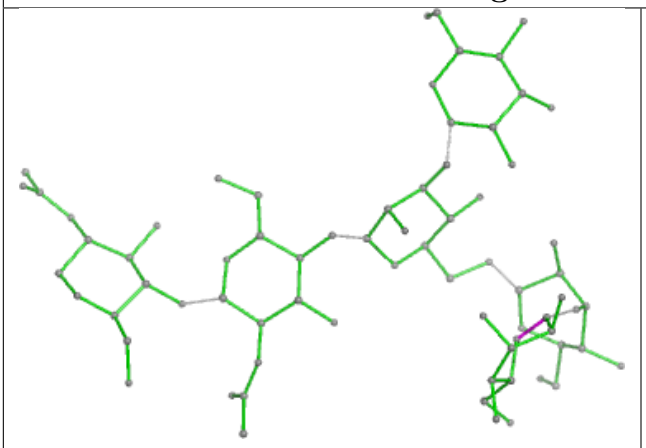


Torsions

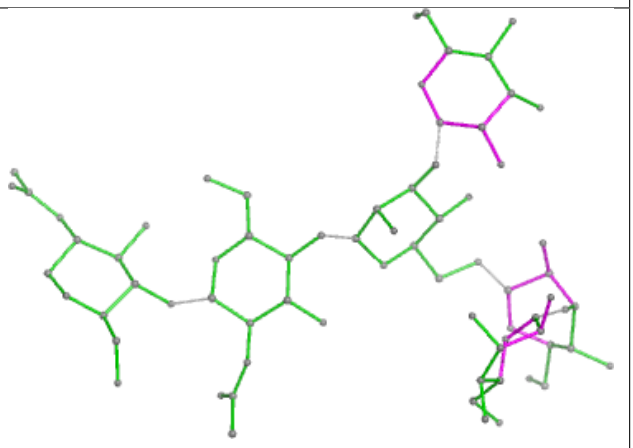


Rings

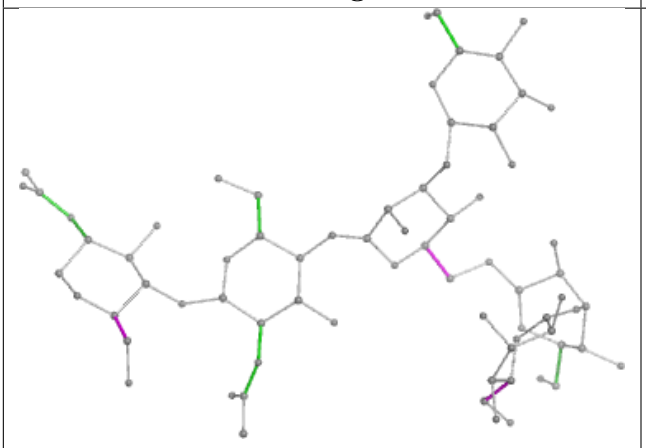
Oligosaccharide Chain M



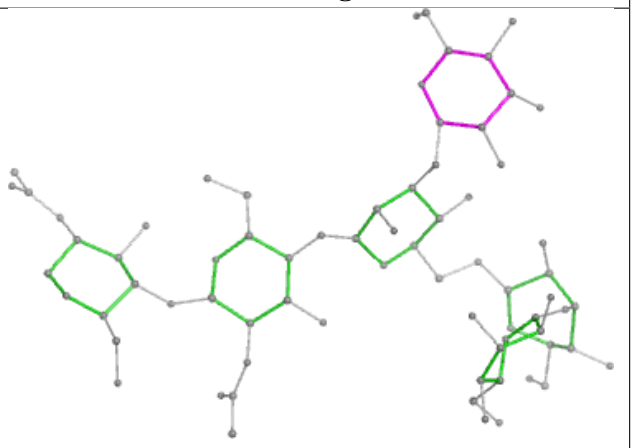
Bond lengths



Bond angles

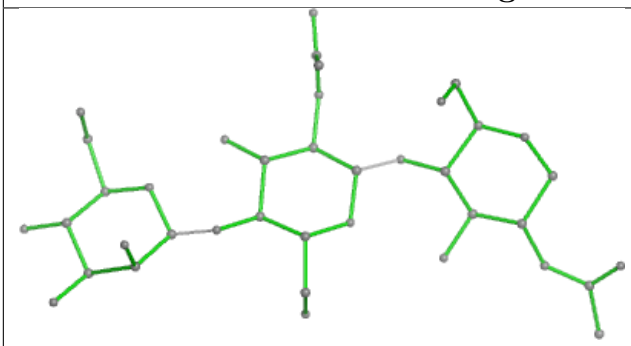


Torsions

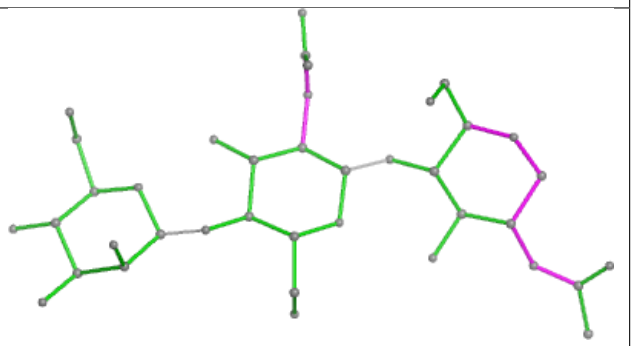


Rings

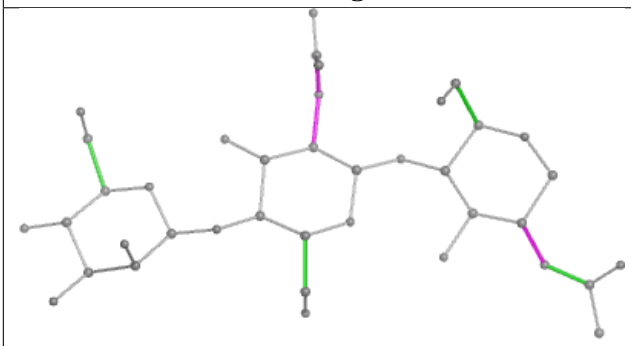
Oligosaccharide Chain J



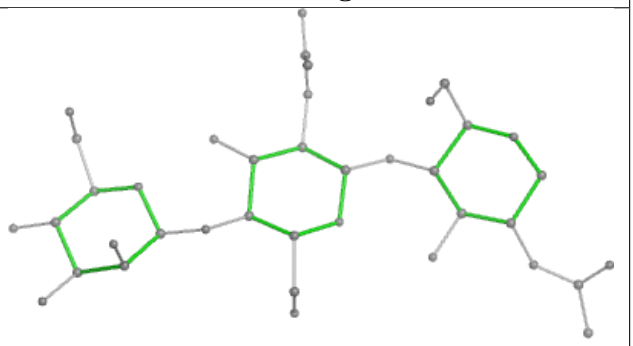
Bond lengths



Bond angles

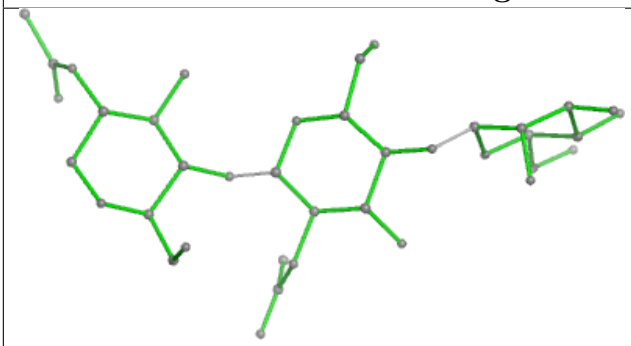


Torsions

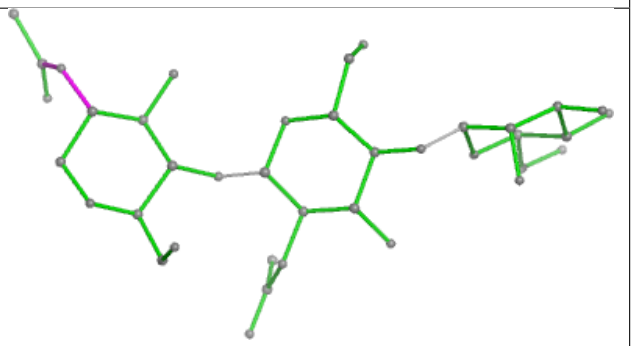


Rings

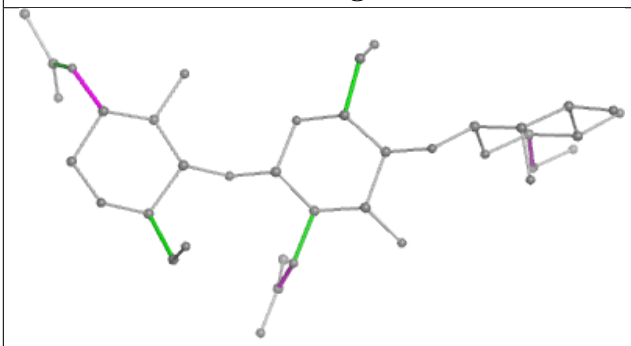
Oligosaccharide Chain N



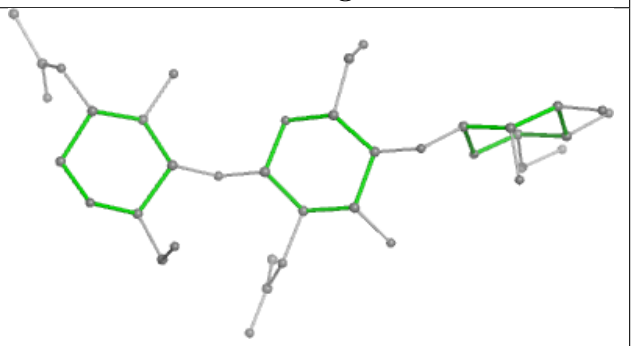
Bond lengths



Bond angles

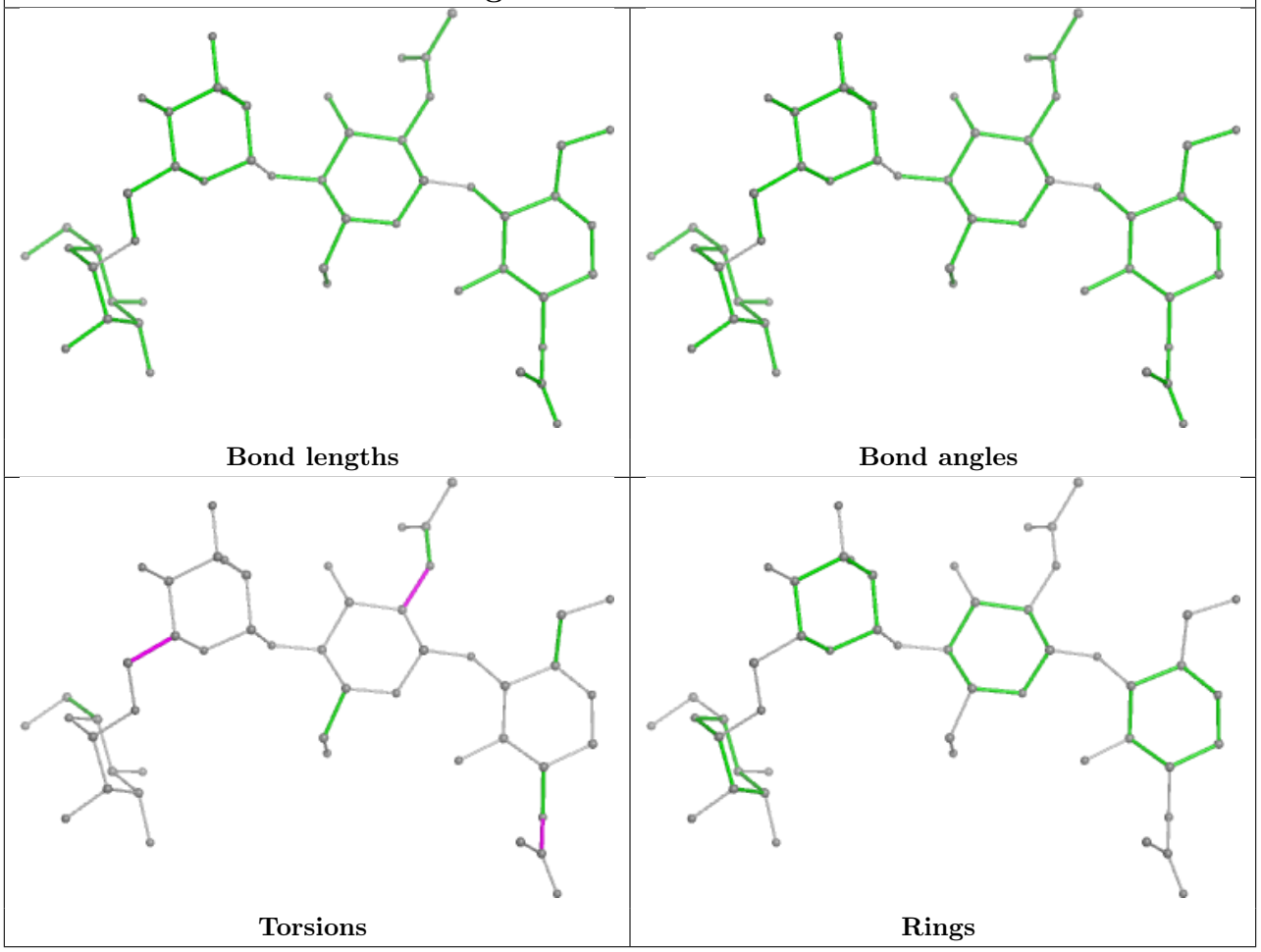


Torsions



Rings

Oligosaccharide Chain K



5.6 Ligand geometry (i)

Of 20 ligands modelled in this entry, 1 is monoatomic - leaving 19 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	$\#\|Z\|>2$
11	PIO	D	3901	-	47,47,47	1.15	6 (12%)	61,65,65	0.91	2 (3%)
18	HEX	D	3902	-	5,5,5	0.31	0	4,4,4	0.55	0
18	HEX	D	3905	-	5,5,5	0.31	0	4,4,4	0.58	0
13	PX2	B	501	-	35,35,35	1.01	4 (11%)	39,40,40	1.12	2 (5%)
16	CLR	C	503	-	31,31,31	0.19	0	48,48,48	0.35	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
14	PLM	B	502	-	17,17,17	0.59	0	17,17,17	0.99	1 (5%)
14	PLM	C	505	-	17,17,17	0.58	0	17,17,17	1.08	1 (5%)
12	PGW	L	302	-	50,50,50	0.98	2 (4%)	53,56,56	0.94	2 (3%)
12	PGW	D	3906	-	31,31,50	1.16	2 (6%)	34,37,56	1.05	2 (5%)
15	NAG	C	501	3	14,14,15	0.21	0	17,19,21	0.77	1 (5%)
12	PGW	A	3902	-	50,50,50	0.96	2 (4%)	53,56,56	1.03	2 (3%)
17	D10	C	504	-	9,9,9	0.29	0	8,8,8	0.69	0
11	PIO	A	3901	-	47,47,47	1.16	5 (10%)	61,65,65	0.98	3 (4%)
12	PGW	D	3903	-	50,50,50	0.96	3 (6%)	53,56,56	1.01	2 (3%)
12	PGW	L	301	-	50,50,50	0.96	2 (4%)	53,56,56	0.94	2 (3%)
14	PLM	E	4401	-	17,17,17	0.61	0	17,17,17	0.93	0
13	PX2	L	304	-	35,35,35	1.03	4 (11%)	39,40,40	1.15	2 (5%)
14	PLM	C	502	-	13,13,17	0.67	0	13,13,17	1.05	1 (7%)
14	PLM	D	3904	-	17,17,17	0.58	0	17,17,17	1.02	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
11	PIO	D	3901	-	-	13/44/68/68	0/1/1/1
18	HEX	D	3902	-	-	0/3/3/3	-
18	HEX	D	3905	-	-	1/3/3/3	-
13	PX2	B	501	-	-	17/37/37/37	-
16	CLR	C	503	-	-	0/10/68/68	0/4/4/4
14	PLM	B	502	-	-	5/15/15/15	-
14	PLM	C	505	-	-	8/15/15/15	-
12	PGW	L	302	-	-	22/55/55/55	-
12	PGW	D	3906	-	-	13/36/36/55	-
15	NAG	C	501	3	-	4/6/23/26	0/1/1/1
12	PGW	A	3902	-	-	24/55/55/55	-
17	D10	C	504	-	-	1/7/7/7	-
11	PIO	A	3901	-	-	12/44/68/68	0/1/1/1
12	PGW	D	3903	-	-	26/55/55/55	-
12	PGW	L	301	-	-	21/55/55/55	-
14	PLM	E	4401	-	-	7/15/15/15	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
13	PX2	L	304	-	-	12/37/37/37	-
14	PLM	C	502	-	-	6/11/11/15	-
14	PLM	D	3904	-	-	6/15/15/15	-

All (30) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	3901	PIO	P4-O4	3.09	1.65	1.59
11	D	3901	PIO	P5-O5	3.08	1.65	1.59
11	A	3901	PIO	P5-O5	3.00	1.65	1.59
11	D	3901	PIO	P4-O4	2.99	1.65	1.59
12	L	301	PGW	O03-C19	2.90	1.41	1.33
12	A	3902	PGW	O03-C19	2.87	1.41	1.33
12	D	3903	PGW	O03-C19	2.85	1.41	1.33
12	L	302	PGW	O03-C19	2.85	1.41	1.33
12	D	3906	PGW	O03-C19	2.84	1.41	1.33
12	A	3902	PGW	O01-C1	2.77	1.42	1.34
12	L	302	PGW	O01-C1	2.76	1.42	1.34
12	L	301	PGW	O01-C1	2.73	1.42	1.34
12	D	3906	PGW	O01-C1	2.72	1.42	1.34
13	B	501	PX2	O5-C4	2.69	1.41	1.33
13	L	304	PX2	O5-C4	2.67	1.41	1.33
12	D	3903	PGW	O01-C1	2.65	1.41	1.34
11	A	3901	PIO	O3C-C1B	2.55	1.40	1.33
13	L	304	PX2	O7-C2	-2.48	1.40	1.46
11	A	3901	PIO	O2C-C2C	-2.46	1.40	1.46
11	D	3901	PIO	O2C-C2C	-2.46	1.40	1.46
13	B	501	PX2	O7-C16	2.43	1.41	1.34
11	D	3901	PIO	O3C-C1B	2.34	1.40	1.33
13	L	304	PX2	O7-C16	2.29	1.40	1.34
13	B	501	PX2	O7-C2	-2.18	1.41	1.46
11	D	3901	PIO	O3C-C3C	-2.16	1.40	1.45
11	D	3901	PIO	O2C-C1A	2.15	1.40	1.34
11	A	3901	PIO	O2C-C1A	2.13	1.40	1.34
13	L	304	PX2	O5-C3	-2.08	1.40	1.45
12	D	3903	PGW	O01-C02	-2.05	1.41	1.46
13	B	501	PX2	O5-C3	-2.00	1.40	1.45

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
13	B	501	PX2	O7-C16-C17	4.32	120.80	111.50
12	D	3903	PGW	O01-C1-C2	4.17	120.48	111.50
12	A	3902	PGW	O01-C1-C2	4.10	120.33	111.50
13	L	304	PX2	O7-C16-C17	3.99	120.10	111.50
11	A	3901	PIO	O2C-C1A-C2A	3.84	119.78	111.50
11	D	3901	PIO	O2C-C1A-C2A	3.84	119.77	111.50
12	L	301	PGW	O01-C1-C2	3.75	119.59	111.50
12	D	3906	PGW	O01-C1-C2	3.73	119.54	111.50
12	L	302	PGW	O01-C1-C2	3.53	119.11	111.50
13	L	304	PX2	O5-C4-C5	2.73	120.47	111.91
12	L	302	PGW	O03-C19-C20	2.64	120.21	111.91
12	D	3903	PGW	O03-C19-C20	2.64	120.18	111.91
12	D	3906	PGW	O03-C19-C20	2.63	120.15	111.91
11	A	3901	PIO	O3C-C1B-C2B	2.58	119.99	111.91
15	C	501	NAG	C2-N2-C7	2.56	126.55	122.90
12	A	3902	PGW	O03-C19-C20	2.52	119.81	111.91
11	D	3901	PIO	O3C-C1B-C2B	2.46	119.64	111.91
12	L	301	PGW	O03-C19-C20	2.39	119.42	111.91
11	A	3901	PIO	C5-C6-C1	2.14	113.39	108.96
14	C	502	PLM	C3-C2-C1	-2.10	109.18	114.47
14	C	505	PLM	O1-C1-C2	2.09	120.75	114.03
14	B	502	PLM	C3-C2-C1	-2.02	109.37	114.47
13	B	501	PX2	O5-C4-C5	2.02	118.26	111.91

There are no chirality outliers.

All (198) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	A	3901	PIO	C1-O1-P1-O11
11	A	3901	PIO	C2A-C1A-O2C-C2C
11	D	3901	PIO	C1-O1-P1-O11
11	D	3901	PIO	C5-O5-P5-O51
12	A	3902	PGW	C2-C1-O01-C02
12	A	3902	PGW	C05-C04-O12-P
12	D	3903	PGW	C2-C1-O01-C02
12	D	3903	PGW	O02-C1-O01-C02
12	L	301	PGW	C04-O12-P-O11
12	L	301	PGW	C04-O12-P-O14
12	L	302	PGW	C03-O11-P-O13
12	L	302	PGW	C03-O11-P-O14
12	L	302	PGW	C04-O12-P-O13
12	L	302	PGW	O12-C04-C05-CAD
13	B	501	PX2	C1-O4-P1-O1

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Mol	Chain	Res	Type	Atoms
13	B	501	PX2	C1-O4-P1-O2
13	B	501	PX2	C1-O4-P1-O3
13	B	501	PX2	C17-C16-O7-C2
13	L	304	PX2	C17-C16-O7-C2
13	L	304	PX2	O6-C4-O5-C3
11	A	3901	PIO	O1A-C1A-O2C-C2C
12	A	3902	PGW	O02-C1-O01-C02
13	L	304	PX2	O8-C16-O7-C2
12	L	302	PGW	O04-C19-O03-C01
12	D	3906	PGW	C20-C19-O03-C01
13	L	304	PX2	C5-C4-O5-C3
13	B	501	PX2	O8-C16-O7-C2
12	D	3906	PGW	O04-C19-O03-C01
12	D	3903	PGW	O12-C04-C05-OAF
12	L	302	PGW	C20-C19-O03-C01
15	C	501	NAG	O5-C5-C6-O6
12	D	3903	PGW	O12-C04-C05-CAD
12	L	301	PGW	O12-C04-C05-CAD
15	C	501	NAG	C4-C5-C6-O6
11	A	3901	PIO	C2B-C1B-O3C-C3C
15	C	501	NAG	C8-C7-N2-C2
15	C	501	NAG	O7-C7-N2-C2
12	L	301	PGW	C20-C19-O03-C01
14	E	4401	PLM	C1-C2-C3-C4
11	A	3901	PIO	C1A-C2A-C3A-C4A
12	L	301	PGW	O12-C04-C05-OAF
12	L	302	PGW	O12-C04-C05-OAF
11	A	3901	PIO	O1B-C1B-O3C-C3C
12	L	301	PGW	O04-C19-O03-C01
12	D	3903	PGW	C03-O11-P-O12
12	L	302	PGW	C03-O11-P-O12
12	L	302	PGW	C04-O12-P-O11
11	A	3901	PIO	C2B-C3B-C4B-C5B
12	L	302	PGW	C27-C15-C16-C17
14	C	505	PLM	C5-C6-C7-C8
14	D	3904	PLM	C9-CA-CB-CC
12	A	3902	PGW	C16-C15-C27-C26
14	B	502	PLM	C9-CA-CB-CC
13	L	304	PX2	C23-C24-C25-C26
14	B	502	PLM	C3-C4-C5-C6
13	L	304	PX2	C2-C1-O4-P1
13	B	501	PX2	C5-C6-C7-C8

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Mol	Chain	Res	Type	Atoms
12	A	3902	PGW	C23-C24-C25-C26
12	D	3903	PGW	C17-C18-C28-C30
12	D	3906	PGW	C2-C3-C4-C5
12	A	3902	PGW	C04-C05-CAD-OAE
12	L	301	PGW	C08-C09-C11-C12
14	E	4401	PLM	C6-C7-C8-C9
14	D	3904	PLM	C1-C2-C3-C4
13	L	304	PX2	C5-C6-C7-C8
12	D	3903	PGW	C2-C3-C4-C5
12	D	3903	PGW	C27-C15-C16-C17
14	C	505	PLM	C7-C8-C9-CA
12	A	3902	PGW	C2-C3-C4-C5
12	L	302	PGW	C2-C3-C4-C5
14	E	4401	PLM	C8-C9-CA-CB
12	A	3902	PGW	C20-C19-O03-C01
12	A	3902	PGW	C08-C09-C11-C12
12	L	302	PGW	C08-C09-C11-C12
13	B	501	PX2	C10-C11-C12-C13
12	A	3902	PGW	OAF-C05-CAD-OAE
12	A	3902	PGW	C10-C06-C07-C08
12	L	301	PGW	C2-C1-O01-C02
12	A	3902	PGW	O04-C19-O03-C01
12	L	301	PGW	O02-C1-O01-C02
12	D	3903	PGW	C19-C20-C21-C22
11	D	3901	PIO	C2A-C1A-O2C-C2C
12	L	302	PGW	O01-C02-C03-O11
12	L	302	PGW	C06-C07-C08-C09
12	D	3903	PGW	C23-C24-C25-C26
11	D	3901	PIO	O1A-C1A-O2C-C2C
12	D	3906	PGW	C04-O12-P-O11
12	D	3906	PGW	C01-C02-C03-O11
12	D	3903	PGW	C06-C07-C08-C09
12	A	3902	PGW	C17-C18-C28-C30
12	D	3906	PGW	O12-C04-C05-CAD
12	D	3903	PGW	O03-C01-C02-C03
14	D	3904	PLM	CC-CD-CE-CF
11	A	3901	PIO	C1-O1-P1-O13
11	D	3901	PIO	C2B-C1B-O3C-C3C
12	D	3906	PGW	C23-C24-C25-C26
12	D	3903	PGW	C11-C12-C13-C14
12	D	3906	PGW	O12-C04-C05-OAF
12	D	3903	PGW	C5-C6-C7-C8

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Mol	Chain	Res	Type	Atoms
14	C	502	PLM	C2-C3-C4-C5
13	B	501	PX2	C23-C24-C25-C26
11	D	3901	PIO	O1B-C1B-O3C-C3C
11	D	3901	PIO	C2A-C3A-C4A-C5A
12	A	3902	PGW	C5-C6-C7-C8
13	L	304	PX2	C19-C20-C21-C22
14	E	4401	PLM	CC-CD-CE-CF
14	D	3904	PLM	C6-C7-C8-C9
14	E	4401	PLM	C4-C5-C6-C7
12	L	302	PGW	C01-C02-C03-O11
12	L	301	PGW	C17-C18-C28-C30
13	B	501	PX2	C16-C17-C18-C19
12	L	302	PGW	C20-C21-C22-C23
14	C	505	PLM	C9-CA-CB-CC
14	C	505	PLM	CB-CC-CD-CE
11	A	3901	PIO	C1C-C2C-C3C-O3C
11	A	3901	PIO	C1-O1-P1-O12
11	D	3901	PIO	C1-O1-P1-O12
14	B	502	PLM	CC-CD-CE-CF
12	D	3906	PGW	O01-C02-C03-O11
11	A	3901	PIO	O2C-C2C-C3C-O3C
12	L	301	PGW	C16-C15-C27-C26
12	A	3902	PGW	C02-C03-O11-P
11	D	3901	PIO	C1-O1-P1-O13
13	B	501	PX2	C7-C8-C9-C10
13	B	501	PX2	C21-C22-C23-C24
11	D	3901	PIO	C5-O5-P5-O53
13	L	304	PX2	C1-O4-P1-O3
14	C	505	PLM	C3-C4-C5-C6
13	B	501	PX2	C1-C2-O7-C16
12	D	3903	PGW	C09-C11-C12-C13
14	C	505	PLM	CD-CE-CF-CG
11	A	3901	PIO	C5-O5-P5-O52
12	D	3903	PGW	C1-C2-C3-C4
12	D	3903	PGW	C03-O11-P-O13
12	D	3906	PGW	C04-O12-P-O13
12	L	302	PGW	C04-O12-P-O14
13	L	304	PX2	C7-C8-C9-C10
13	B	501	PX2	C19-C20-C21-C22
14	C	502	PLM	C4-C5-C6-C7
12	L	302	PGW	C18-C28-C30-C29
12	L	301	PGW	C1-C2-C3-C4

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Mol	Chain	Res	Type	Atoms
12	D	3903	PGW	C4-C5-C6-C7
12	D	3906	PGW	C02-C01-O03-C19
14	C	502	PLM	C6-C7-C8-C9
12	A	3902	PGW	C7-C8-C9-C10
13	L	304	PX2	C11-C10-C9-C8
12	A	3902	PGW	C3-C4-C5-C6
12	A	3902	PGW	C03-C02-O01-C1
12	L	302	PGW	C7-C8-C9-C10
12	D	3903	PGW	O03-C01-C02-O01
12	A	3902	PGW	C03-O11-P-O12
13	B	501	PX2	C18-C19-C20-C21
12	D	3903	PGW	C7-C8-C9-C10
13	B	501	PX2	C20-C21-C22-C23
17	C	504	D10	C3-C4-C5-C6
12	L	302	PGW	C16-C15-C27-C26
14	C	505	PLM	C1-C2-C3-C4
12	L	302	PGW	C09-C11-C12-C13
14	B	502	PLM	O1-C1-C2-C3
13	B	501	PX2	O7-C2-C3-O5
14	B	502	PLM	O2-C1-C2-C3
14	E	4401	PLM	O1-C1-C2-C3
14	E	4401	PLM	O2-C1-C2-C3
12	D	3903	PGW	C20-C21-C22-C23
13	L	304	PX2	O7-C16-C17-C18
12	L	301	PGW	C20-C21-C22-C23
12	L	301	PGW	C07-C06-C10-C9
11	D	3901	PIO	O2C-C1A-C2A-C3A
12	L	301	PGW	C10-C06-C07-C08
14	C	502	PLM	O1-C1-C2-C3
14	C	502	PLM	O2-C1-C2-C3
18	D	3905	HEX	C1-C2-C3-C4
14	D	3904	PLM	O1-C1-C2-C3
14	D	3904	PLM	O2-C1-C2-C3
12	A	3902	PGW	O03-C19-C20-C21
12	L	301	PGW	O03-C19-C20-C21
12	D	3906	PGW	O03-C01-C02-O01
12	D	3903	PGW	C25-C26-C27-C15
12	D	3903	PGW	C6-C7-C8-C9
12	A	3902	PGW	O12-C04-C05-CAD
12	A	3902	PGW	O04-C19-C20-C21
14	C	502	PLM	C7-C8-C9-CA
12	L	301	PGW	C22-C23-C24-C25

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Mol	Chain	Res	Type	Atoms
12	D	3903	PGW	C21-C22-C23-C24
11	D	3901	PIO	C1C-O13-P1-O12
12	A	3902	PGW	C03-O11-P-O14
12	D	3903	PGW	C03-O11-P-O14
12	D	3906	PGW	C04-O12-P-O14
12	L	301	PGW	O04-C19-C20-C21
13	B	501	PX2	C17-C18-C19-C20
12	L	302	PGW	O03-C19-C20-C21
11	D	3901	PIO	O1A-C1A-C2A-C3A
12	L	301	PGW	C23-C24-C25-C26
12	L	301	PGW	C21-C22-C23-C24
12	A	3902	PGW	O12-C04-C05-OAF
12	D	3903	PGW	O03-C19-C20-C21
14	C	505	PLM	O2-C1-C2-C3
12	L	301	PGW	O01-C1-C2-C3

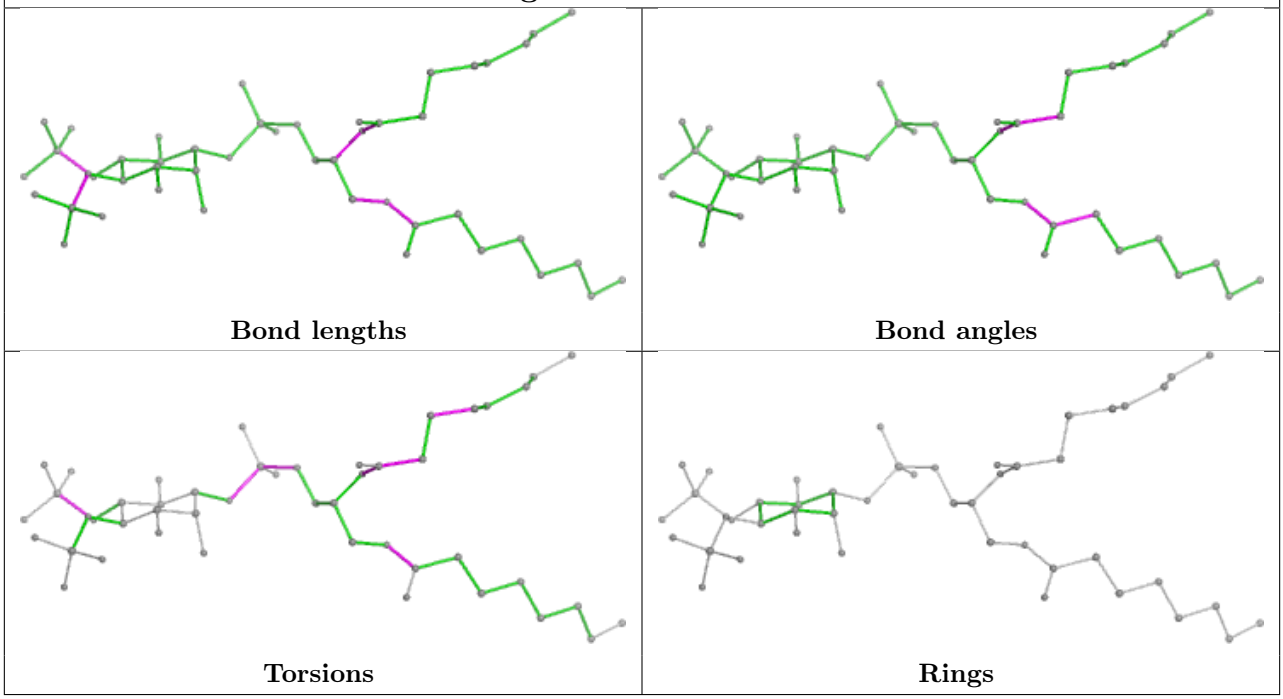
There are no ring outliers.

4 monomers are involved in 5 short contacts:

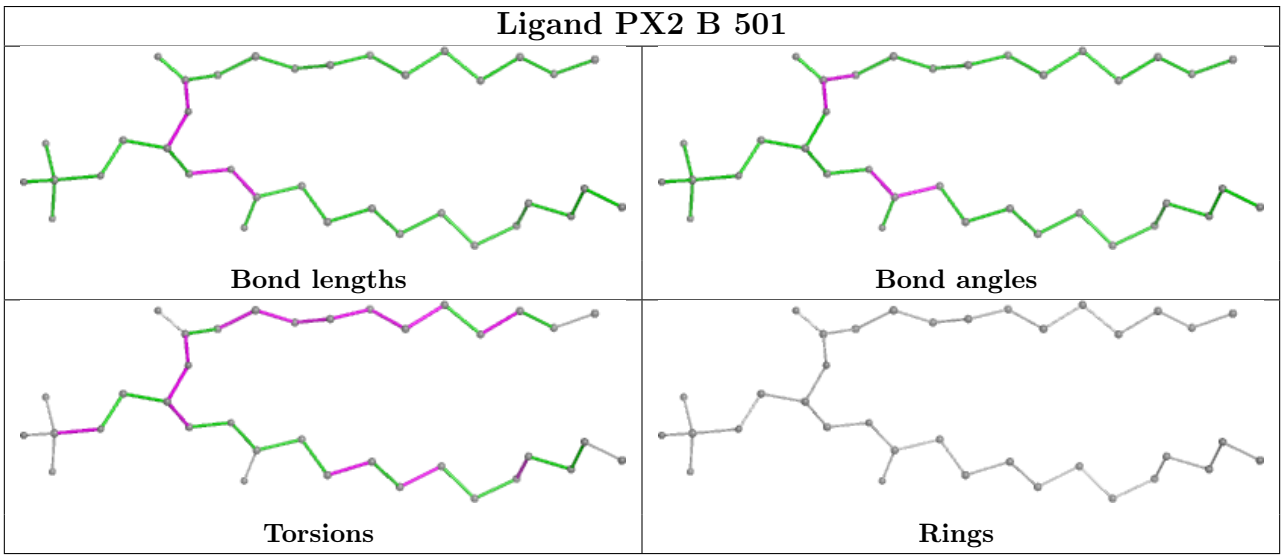
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	D	3901	PIO	1	0
12	A	3902	PGW	1	0
11	A	3901	PIO	2	0
12	D	3903	PGW	1	0

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

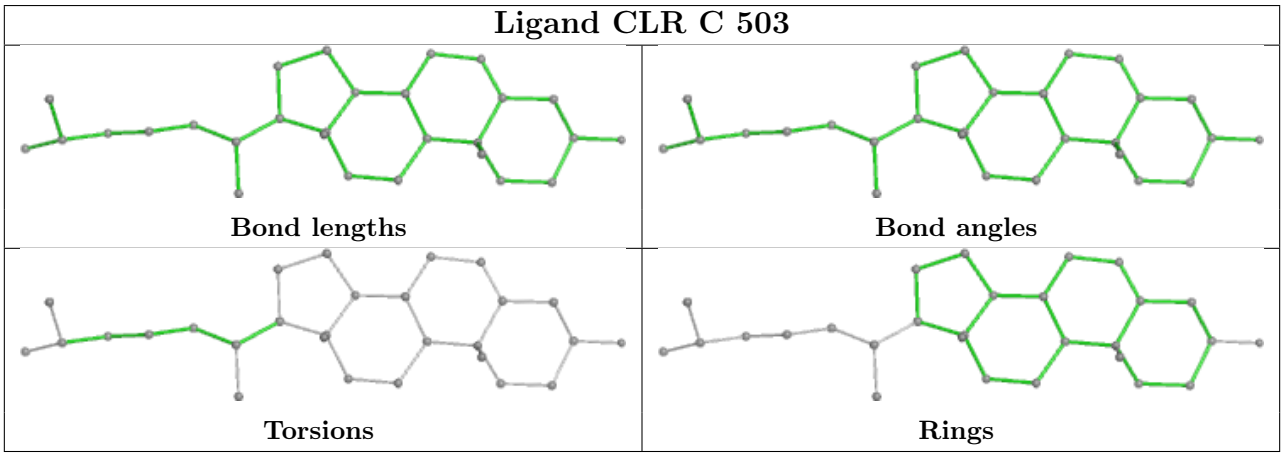
Ligand PIO D 3901



Ligand PX2 B 501



Ligand CLR C 503



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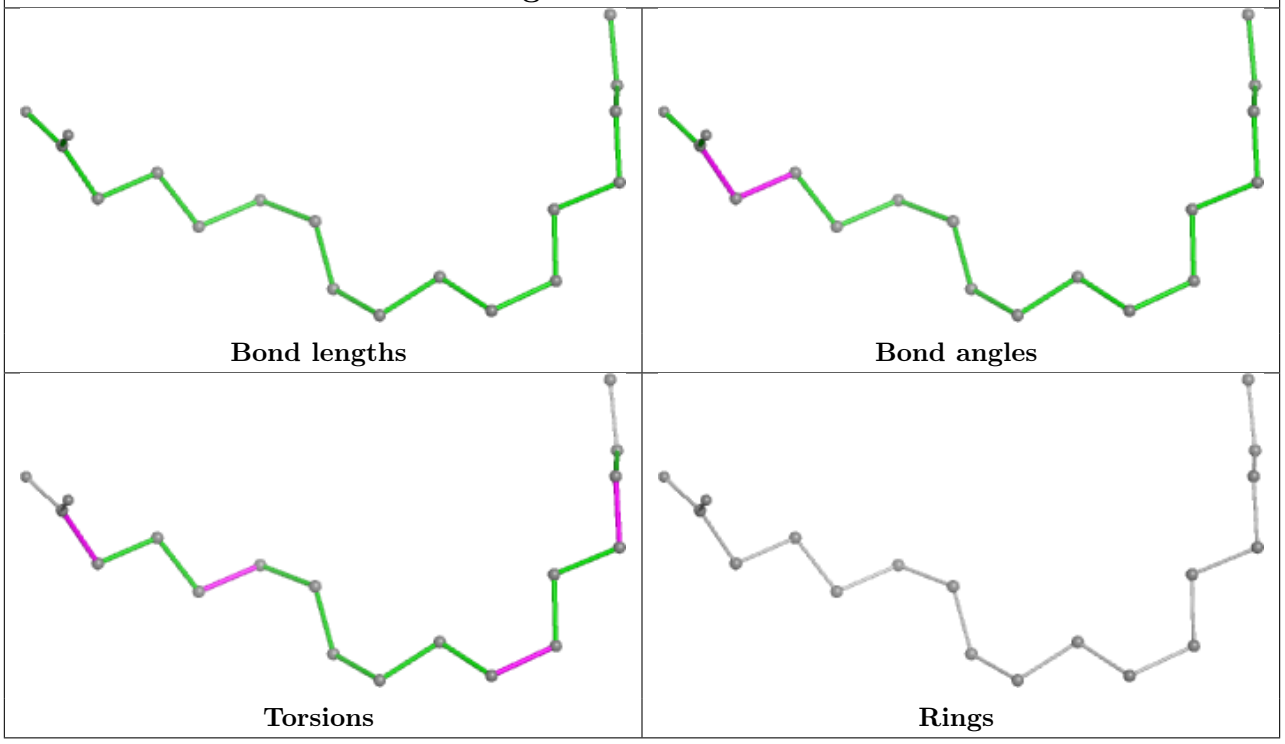

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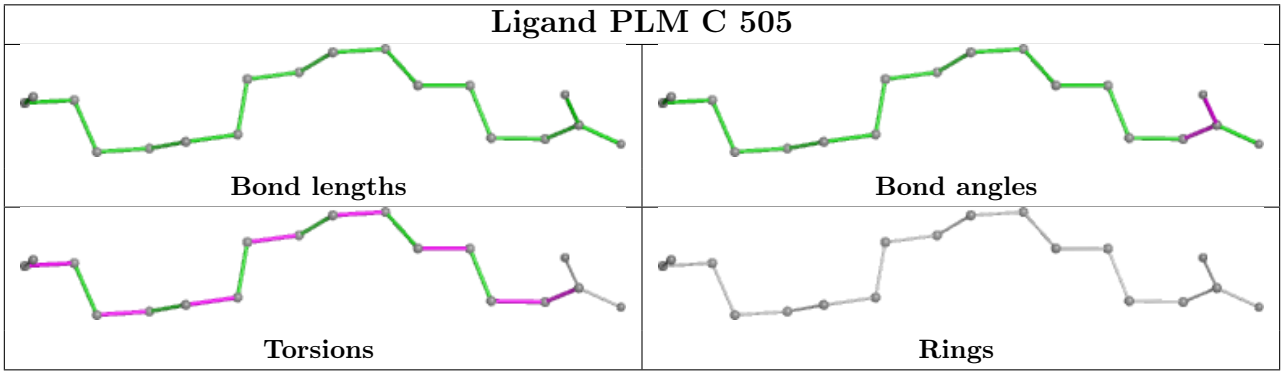
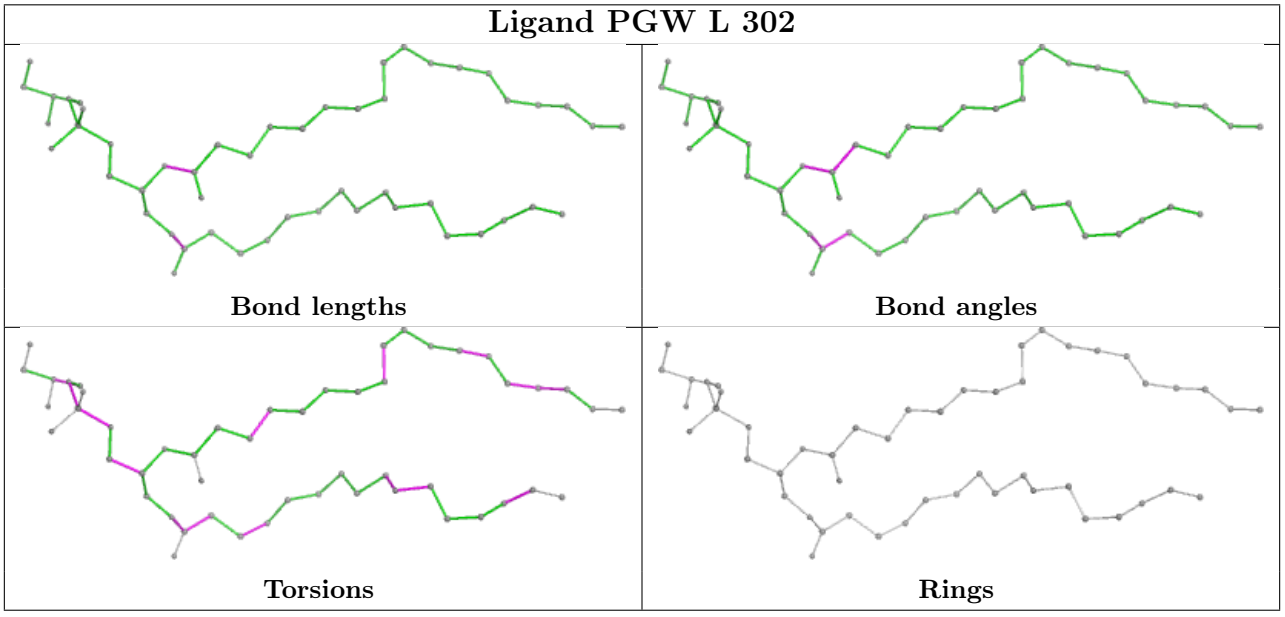
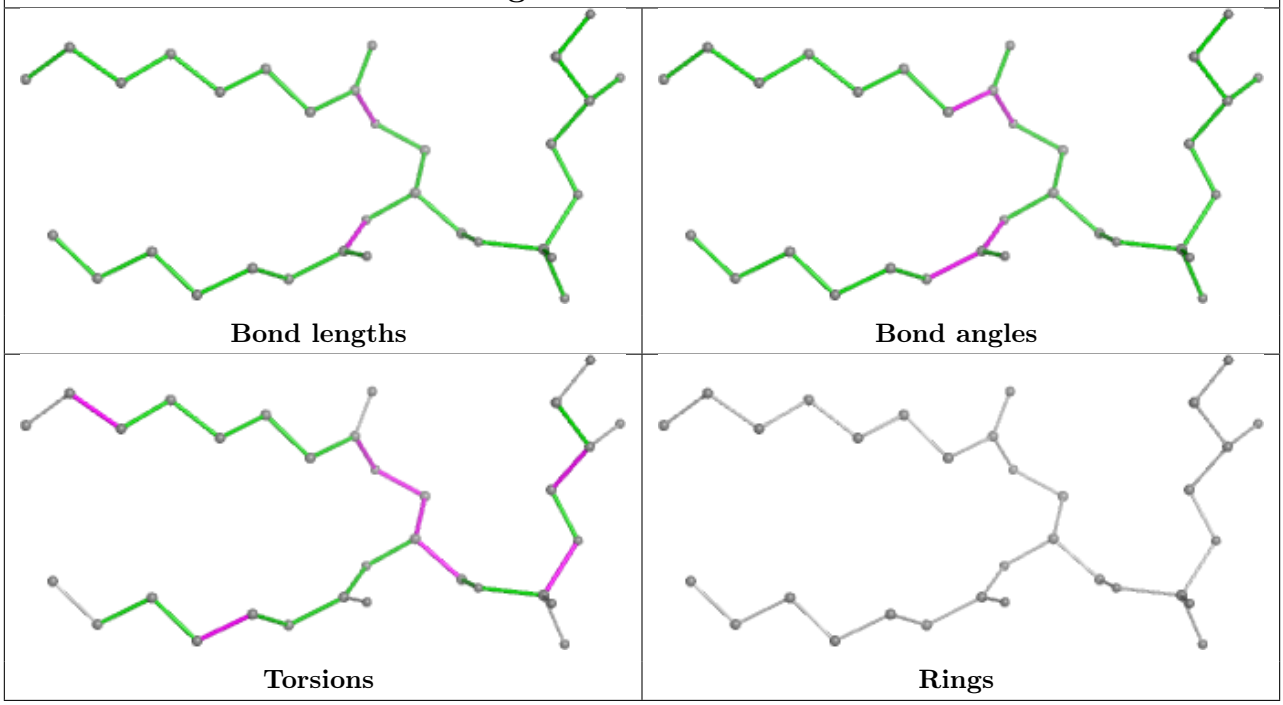


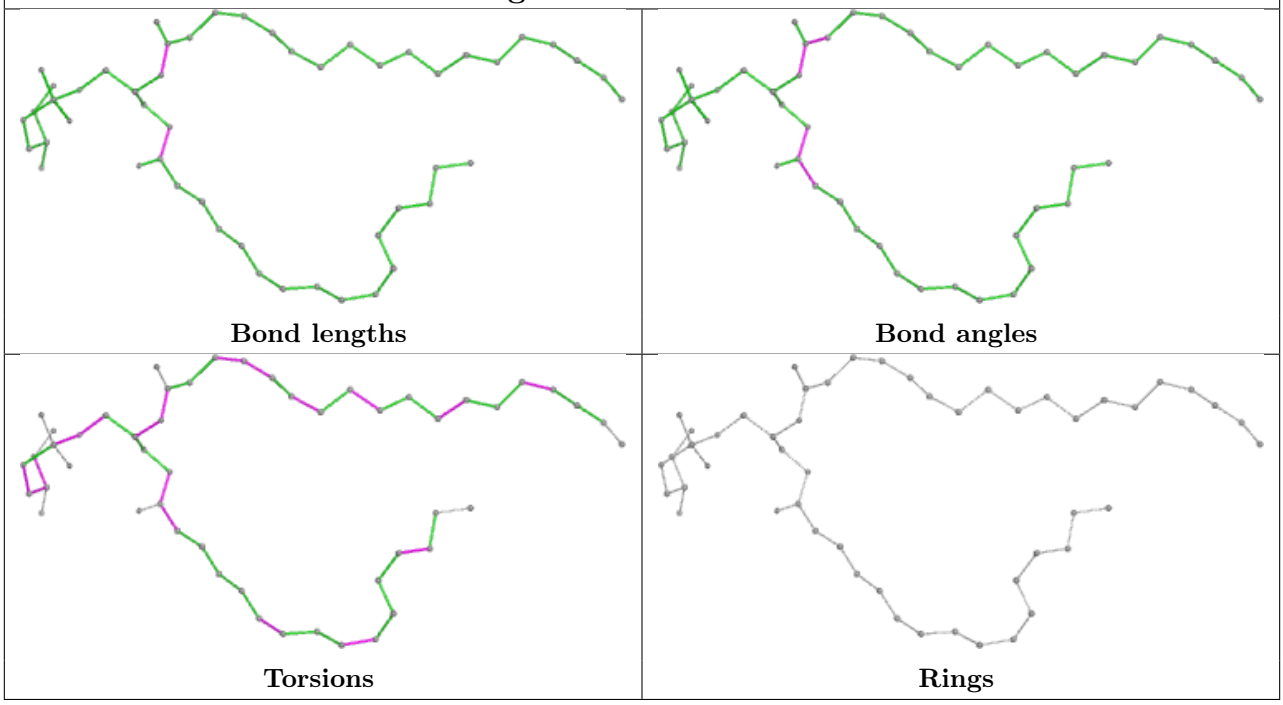
Ligand PGW L 302



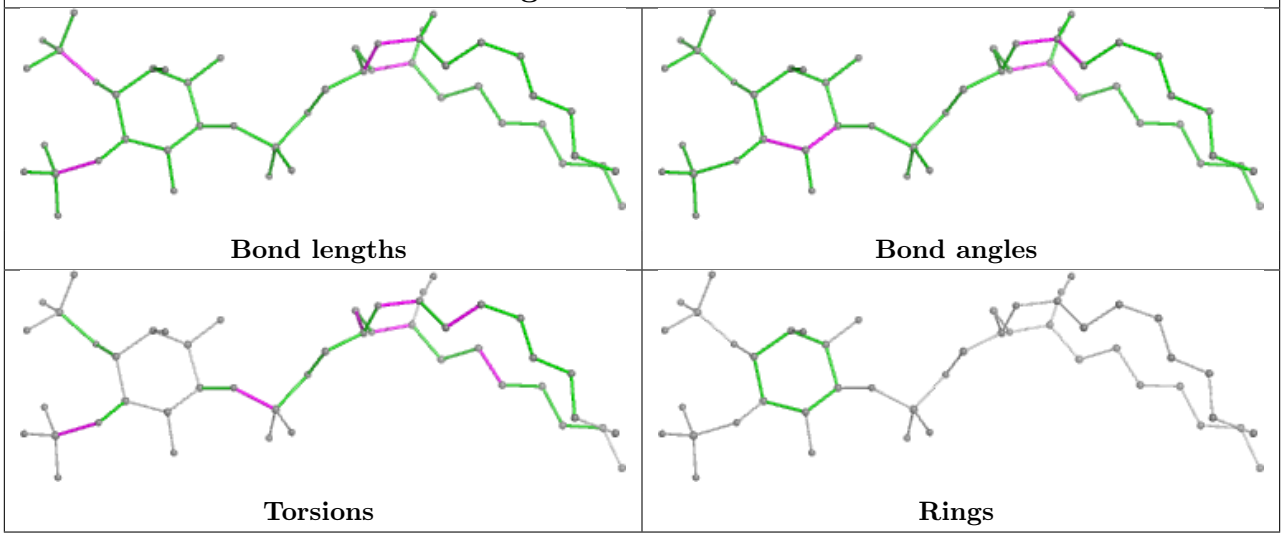
Ligand PGW D 3906



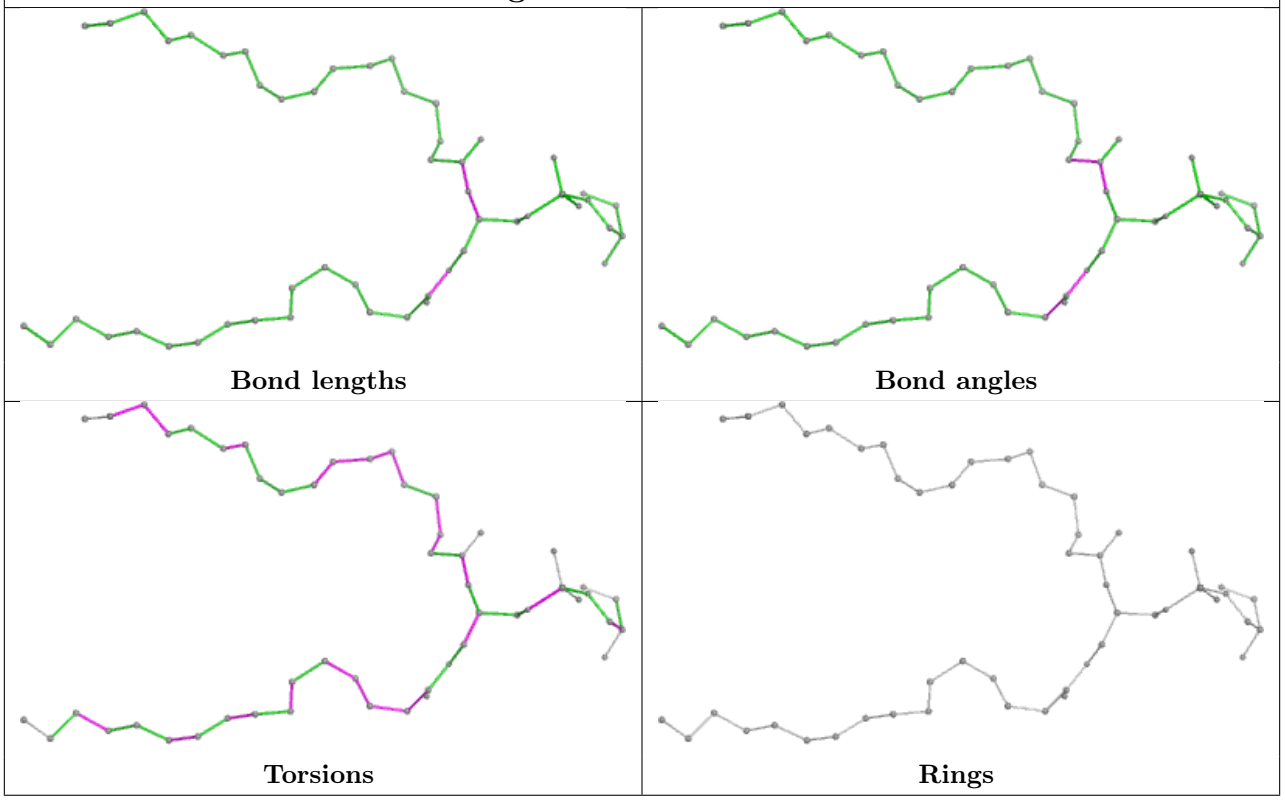
Ligand PGW A 3902



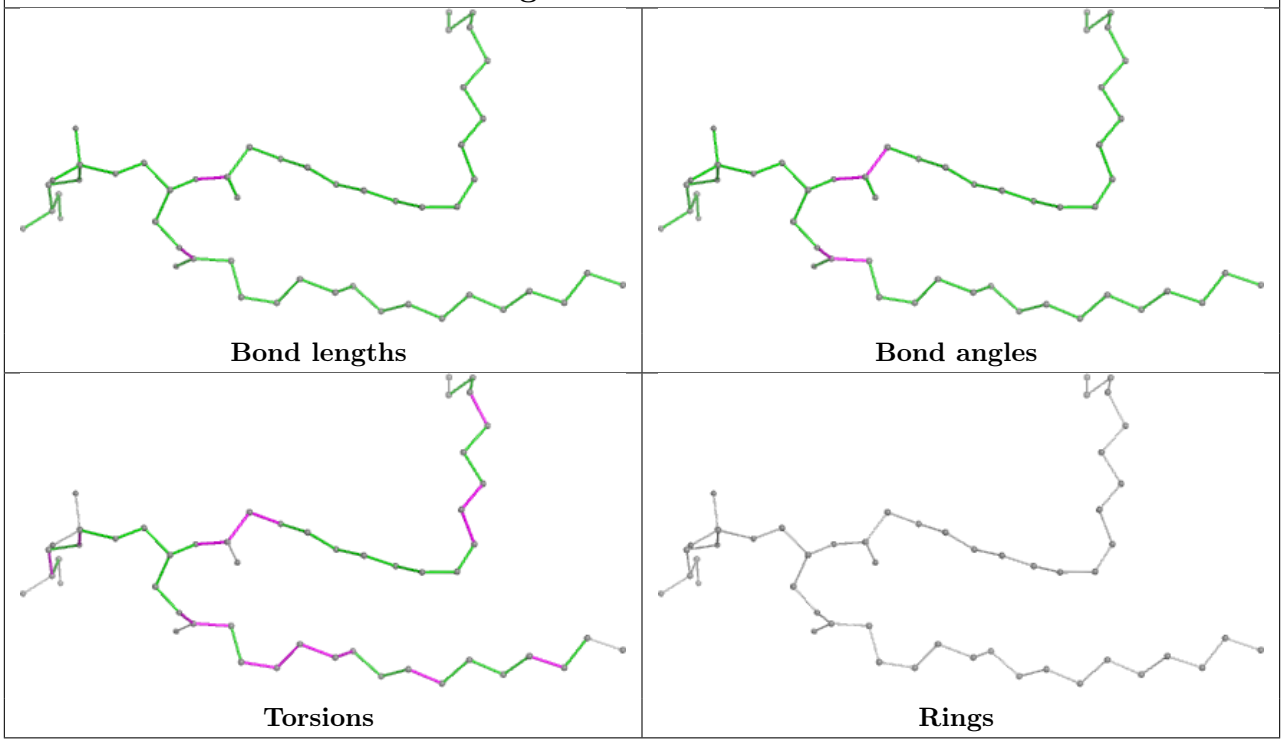
Ligand PIO A 3901



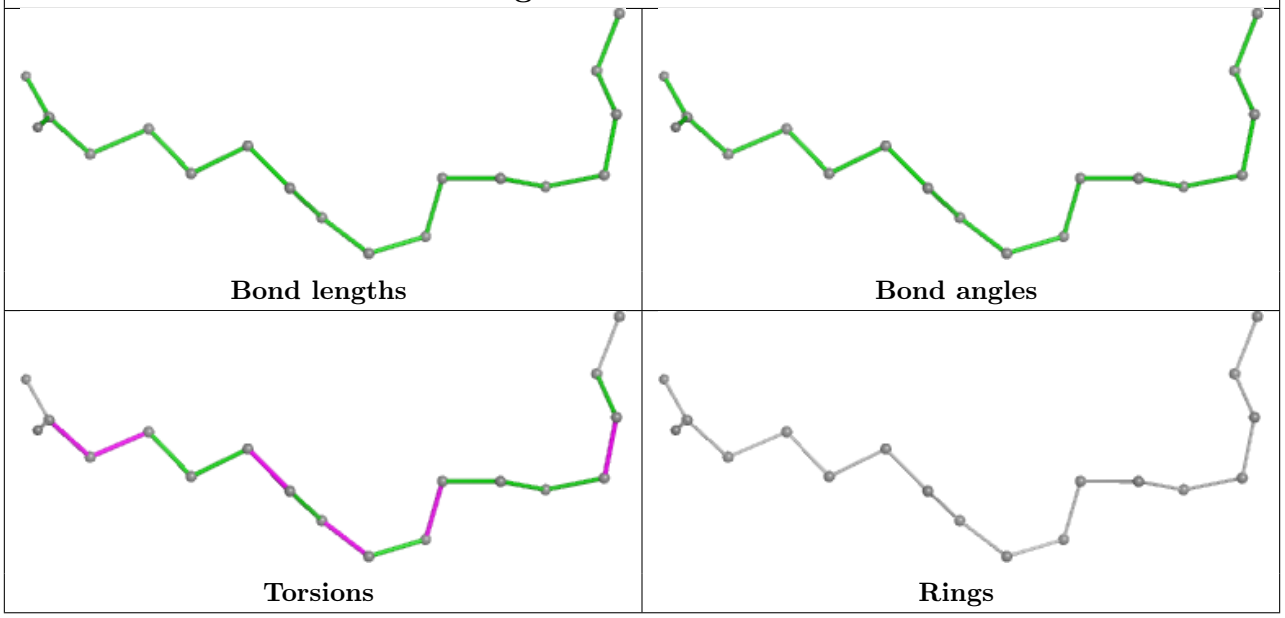
Ligand PGW D 3903



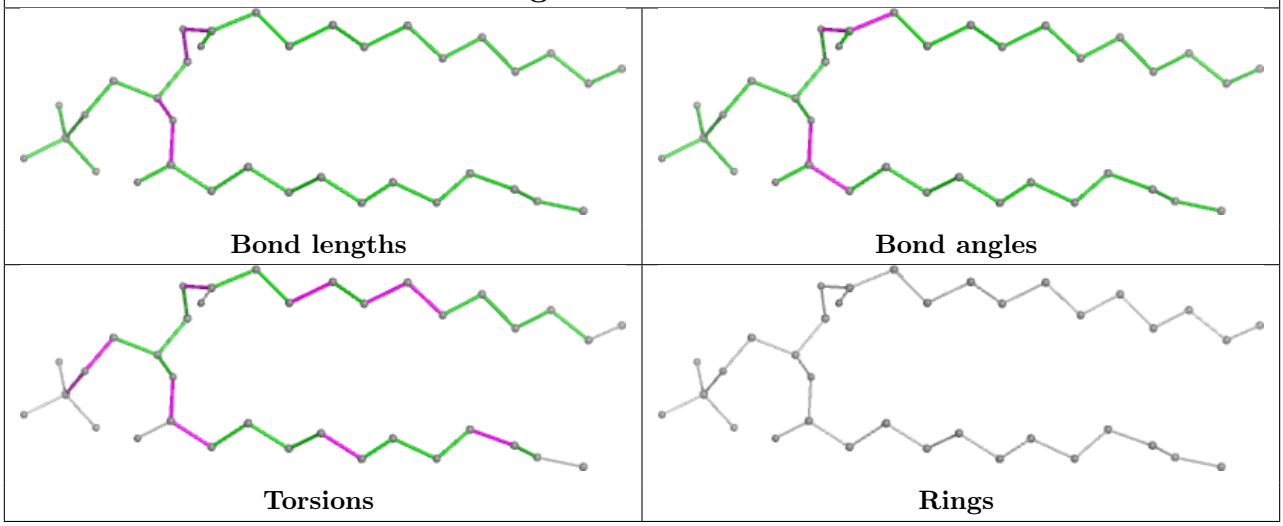
Ligand PGW L 301



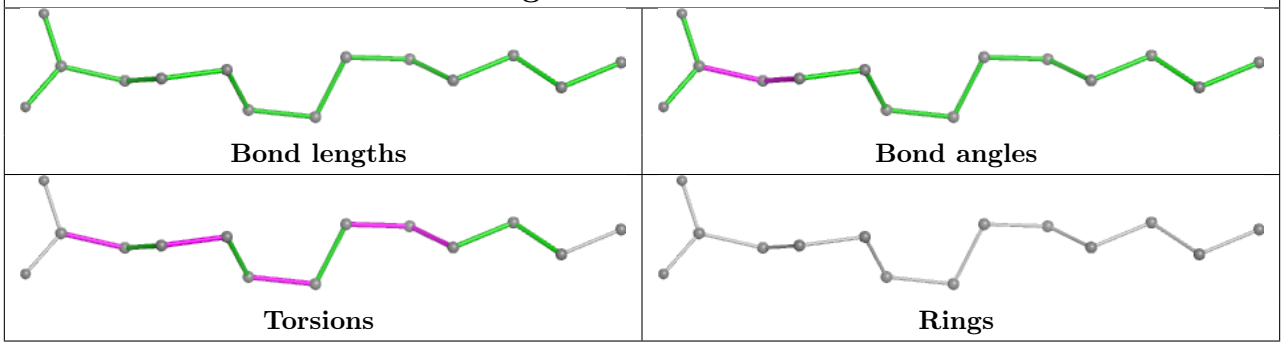
Ligand PLM E 4401



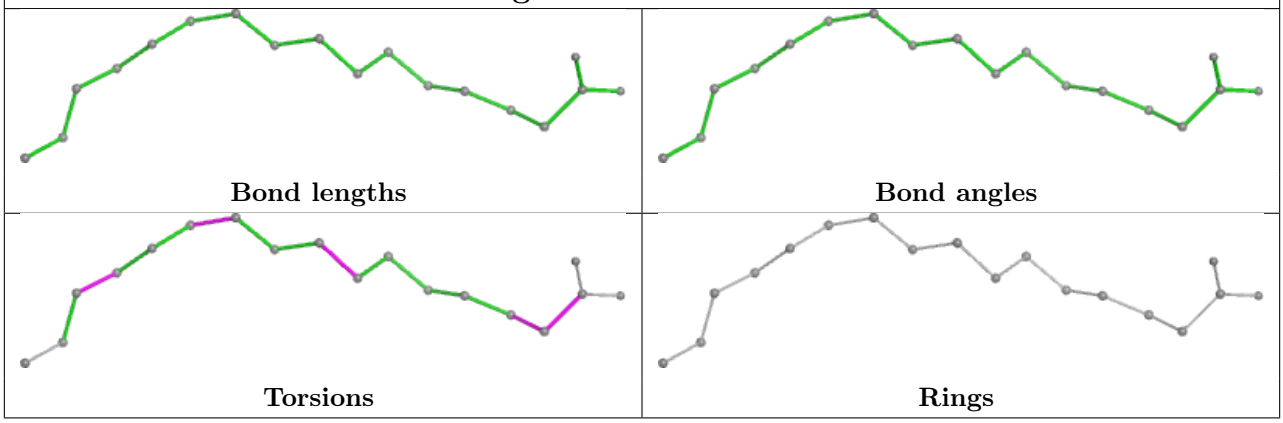
Ligand PX2 L 304



Ligand PLM C 502



Ligand PLM D 3904



5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

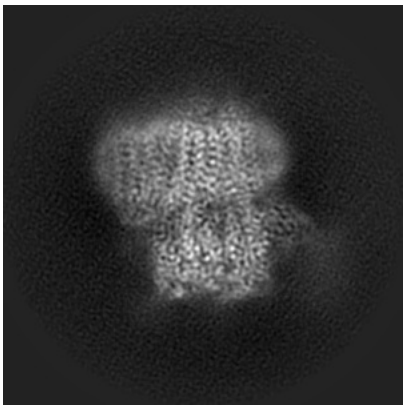
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-50277. These allow visual inspection of the internal detail of the map and identification of artifacts.

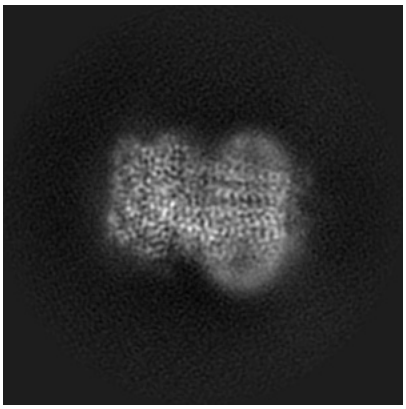
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

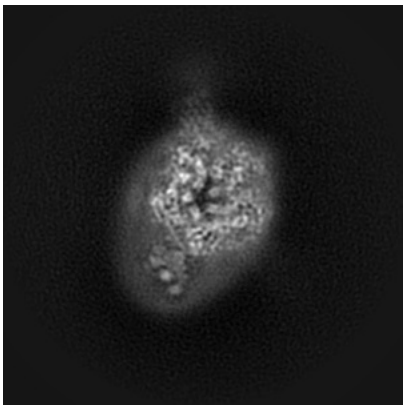
6.1.1 Primary map



X

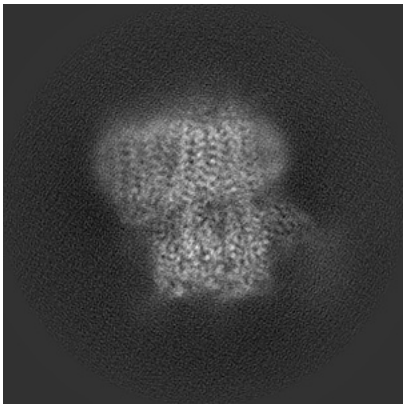


Y

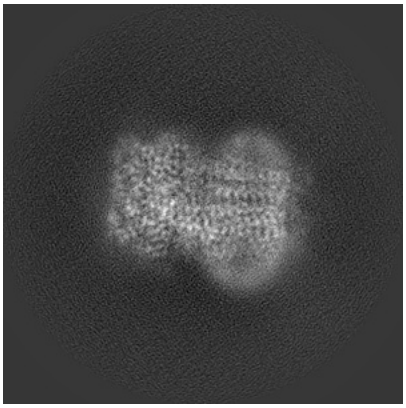


Z

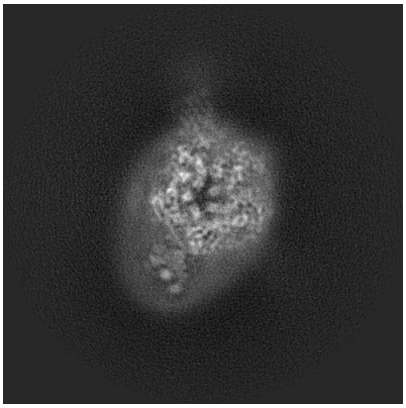
6.1.2 Raw map



X



Y

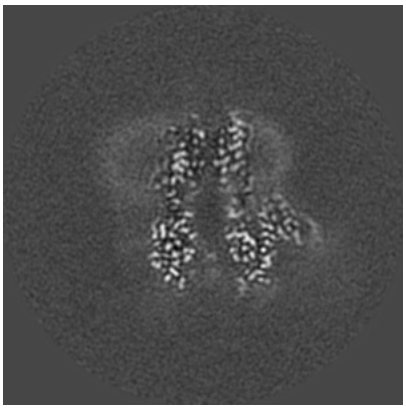


Z

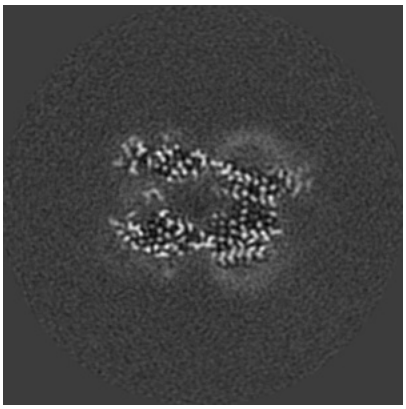
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

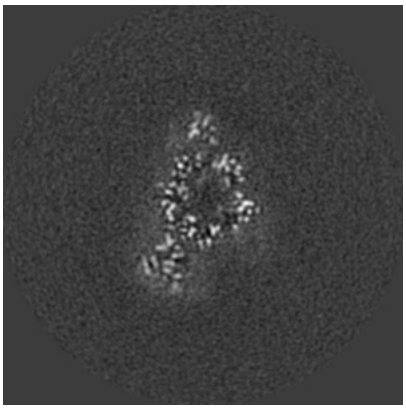
6.2.1 Primary map



X Index: 148

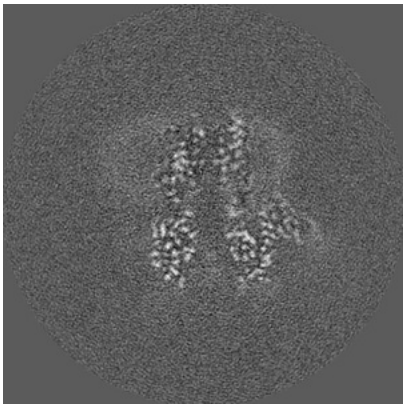


Y Index: 148

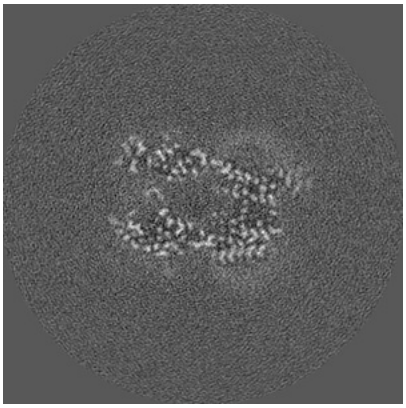


Z Index: 148

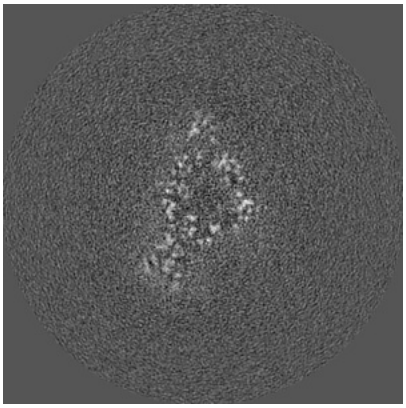
6.2.2 Raw map



X Index: 148



Y Index: 148

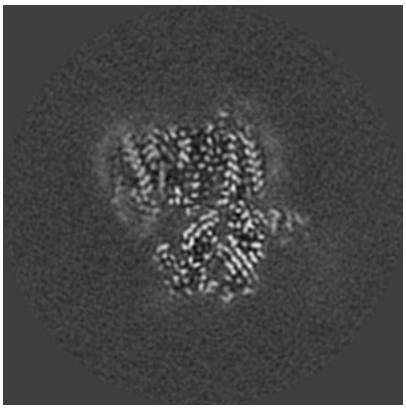


Z Index: 148

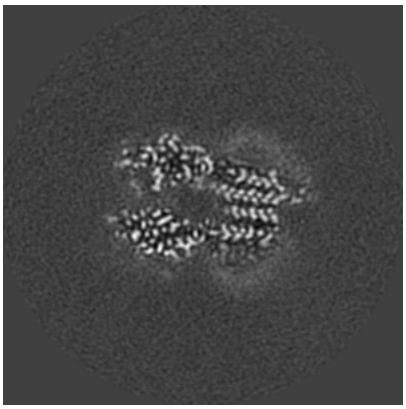
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

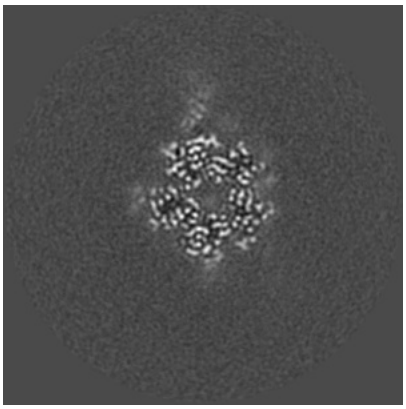
6.3.1 Primary map



X Index: 132

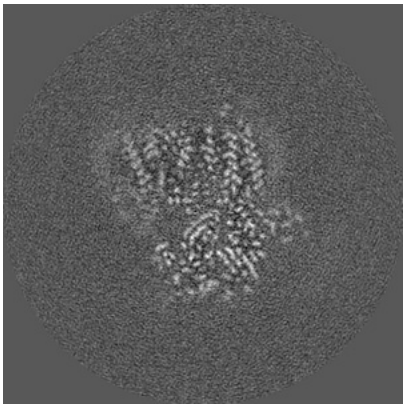


Y Index: 144

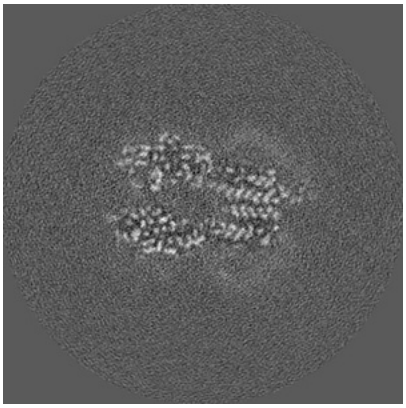


Z Index: 119

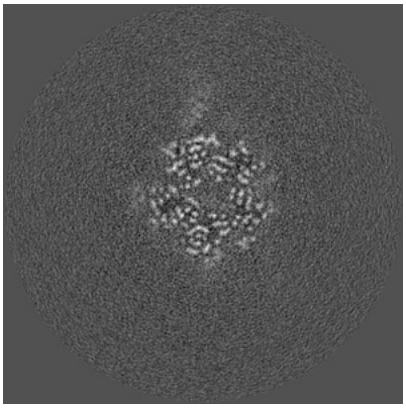
6.3.2 Raw map



X Index: 133



Y Index: 143

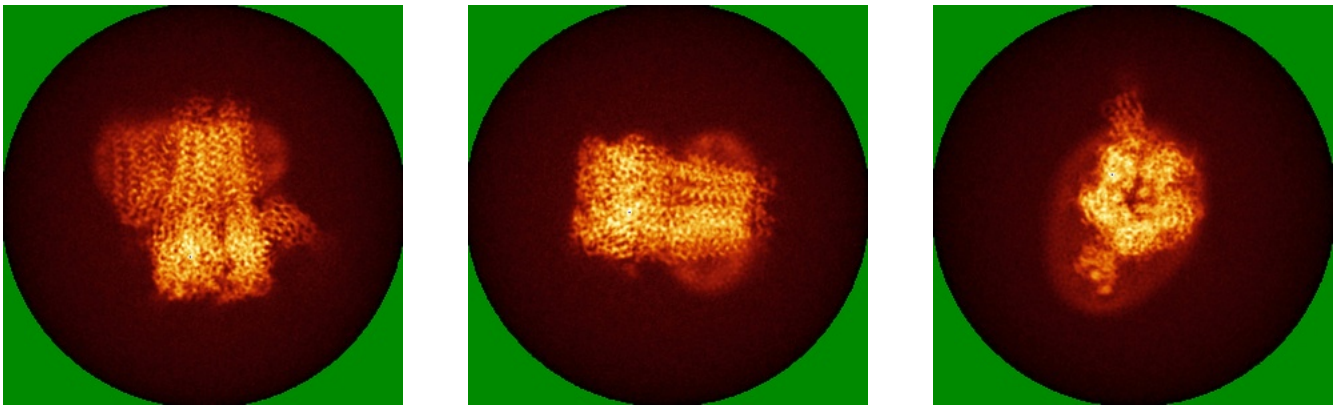


Z Index: 119

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

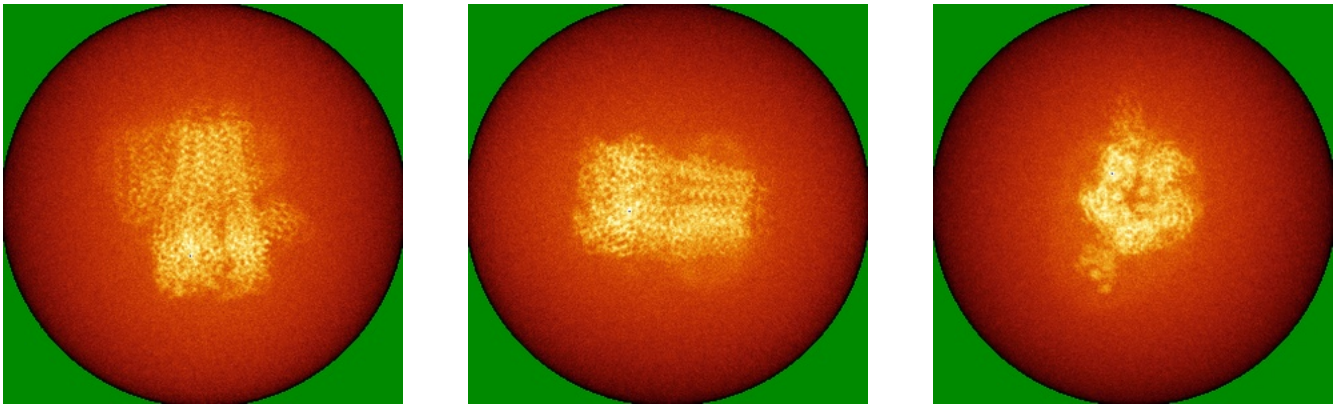
6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map



X Y Z

6.4.2 Raw map



X Y Z

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

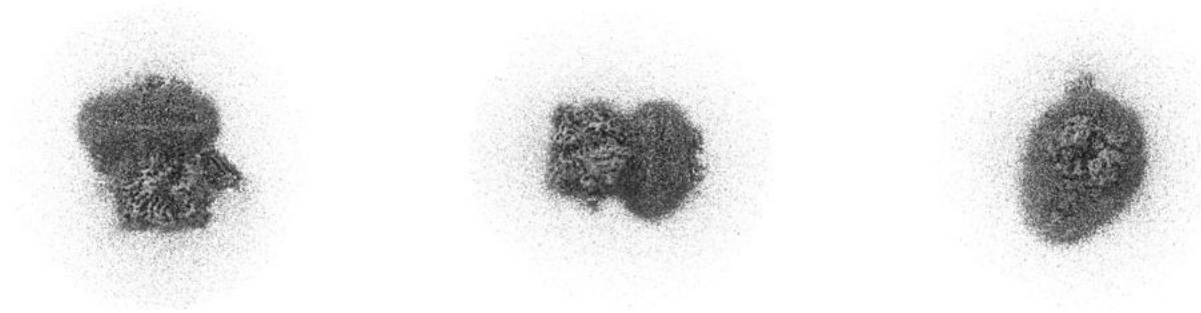
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.008. 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.

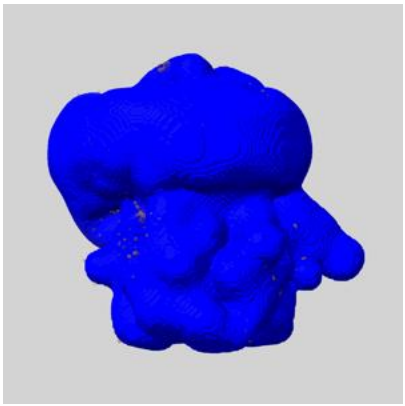
6.6 Mask visualisation (i)

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

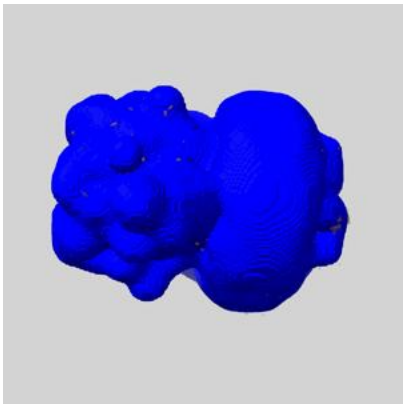
A mask typically either:

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

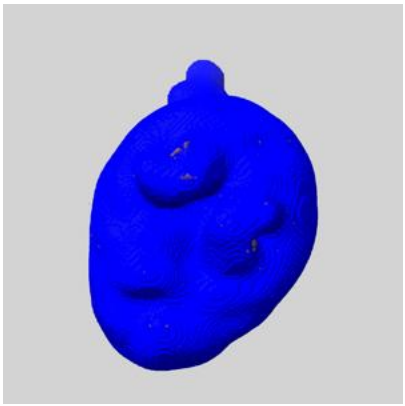
6.6.1 emd_50277_msk_1.map (i)



X



Y

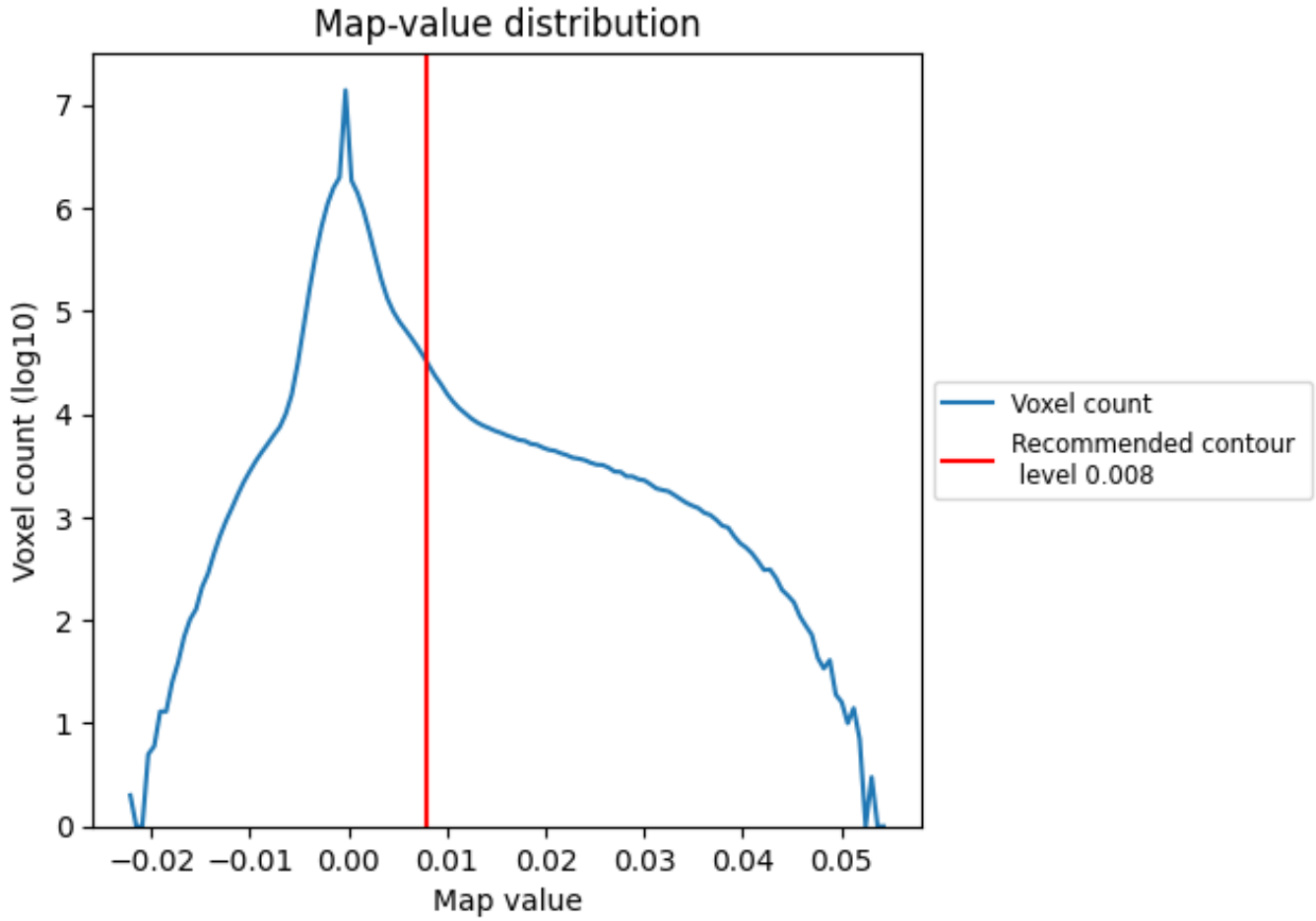


Z

7 Map analysis

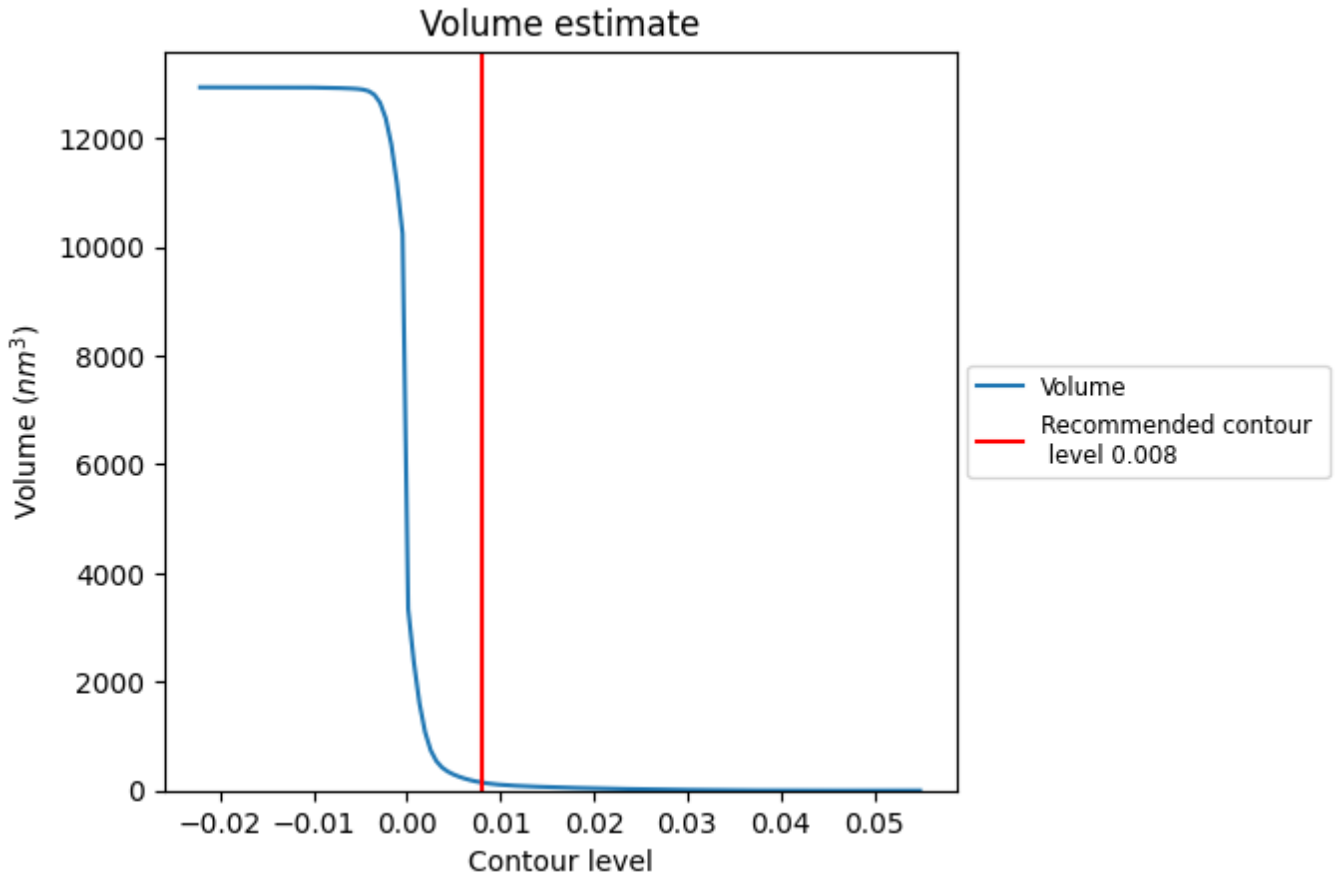
This section contains the results of statistical analysis of the map.

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.

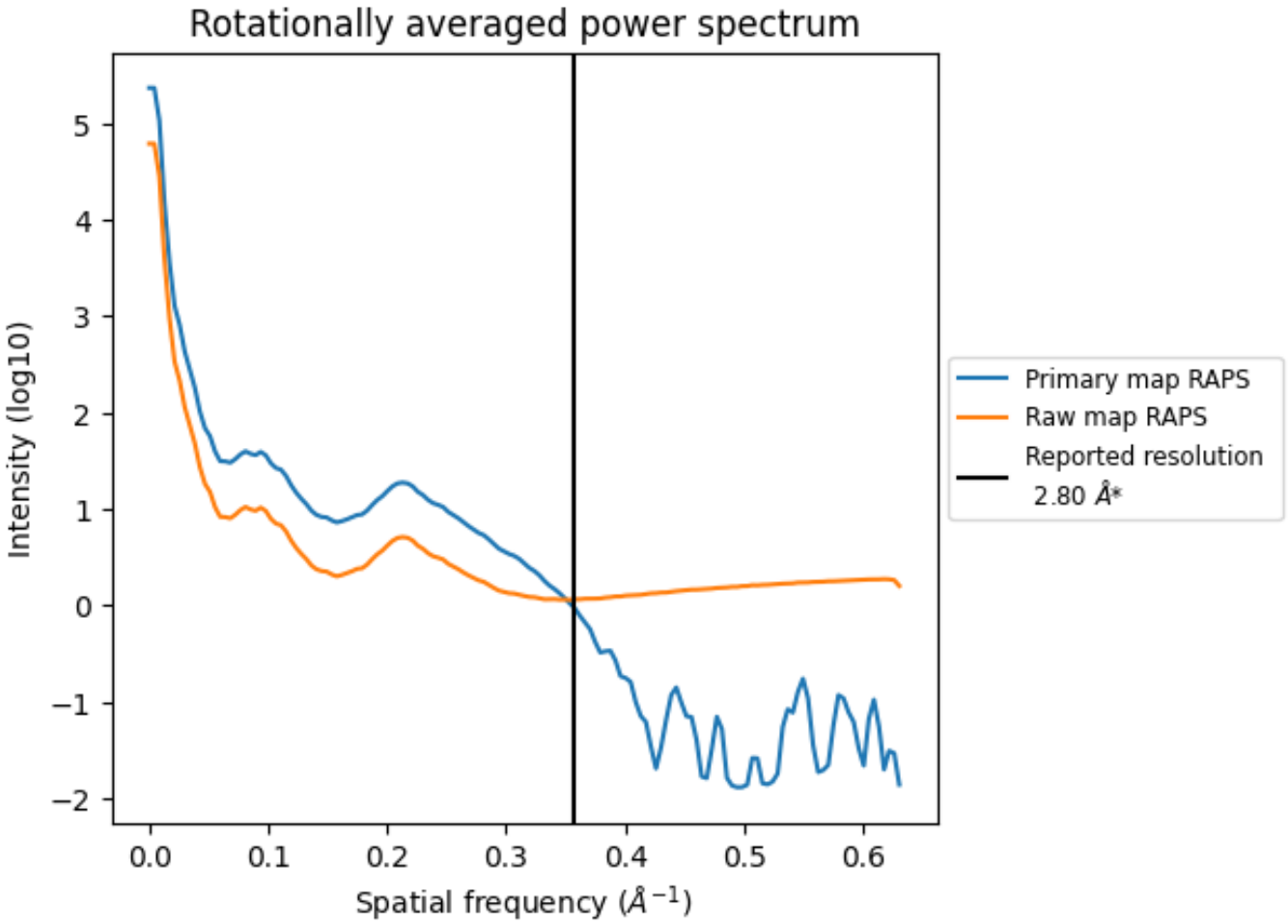
7.2 Volume estimate (i)



The volume at the recommended contour level is 148 nm^3; this corresponds to an approximate mass of 134 kDa.

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

7.3 Rotationally averaged power spectrum (i)

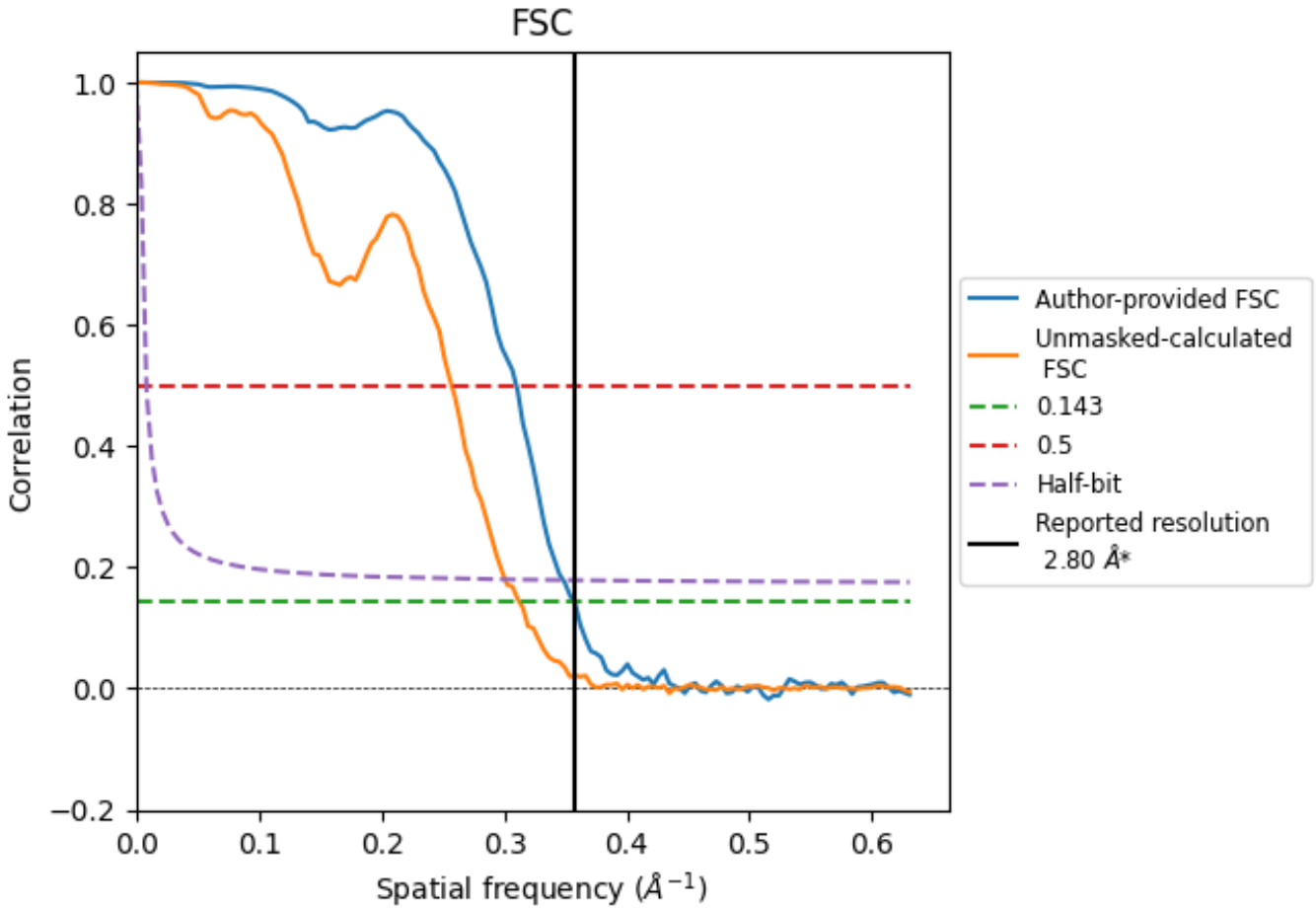


*Reported resolution corresponds to spatial frequency of 0.357 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.357 Å^{-1}

8.2 Resolution estimates (i)

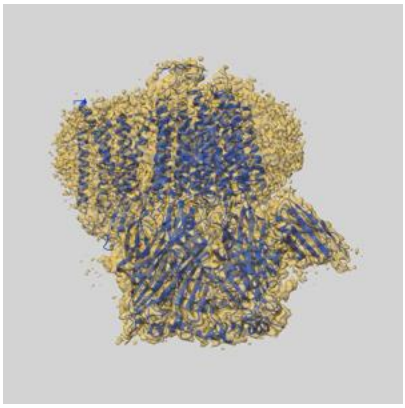
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	2.80	3.23	2.87
Unmasked-calculated*	3.20	3.89	3.32

*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 3.20 differs from the reported value 2.8 by more than 10 %

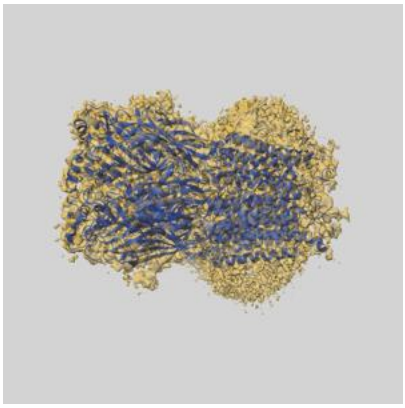
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-50277 and PDB model 9FAP. Per-residue inclusion information can be found in section 3 on page 12.

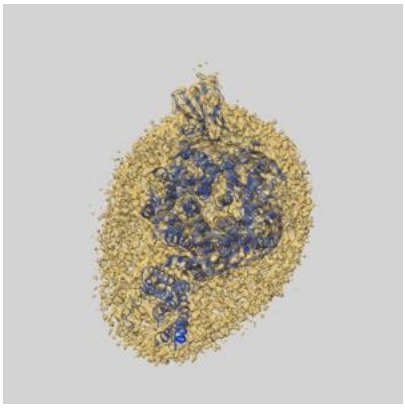
9.1 Map-model overlay



X



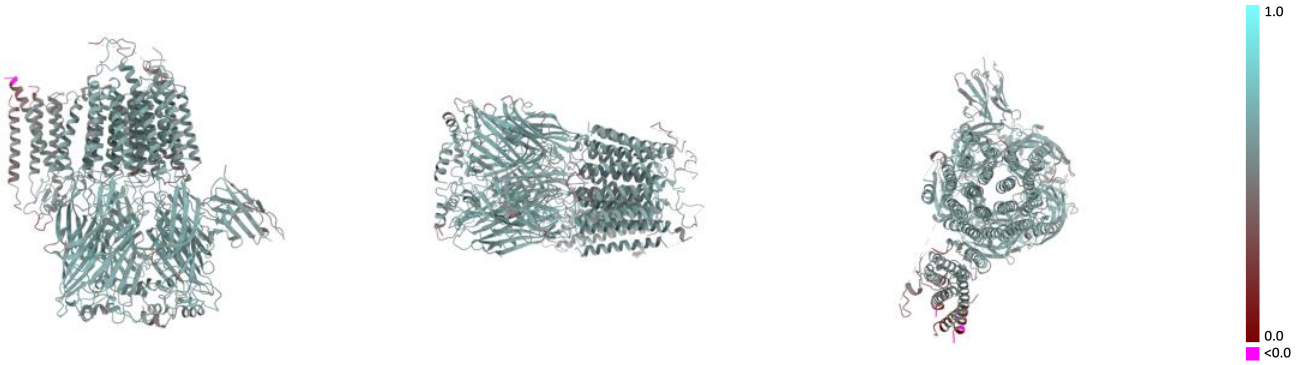
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.008 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

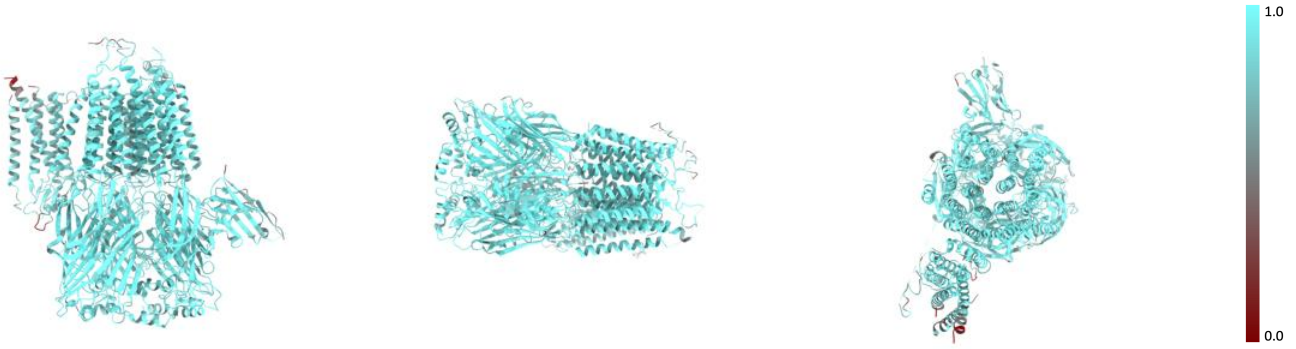
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

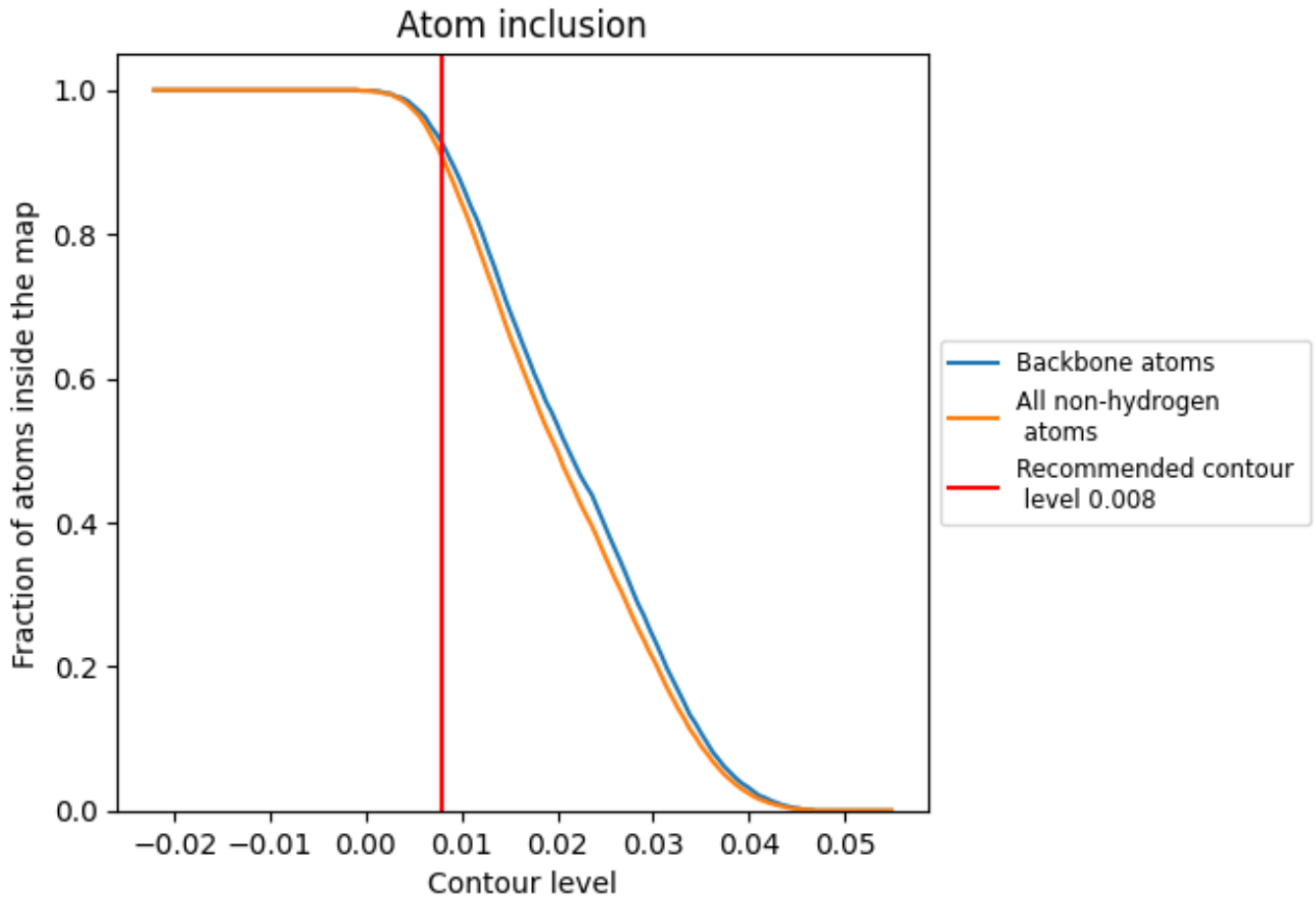
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.008).

9.4 Atom inclusion (i)



At the recommended contour level, 93% of all backbone atoms, 91% 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 (0.008) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9060	0.5700
A	0.9400	0.5890
B	0.9460	0.6000
C	0.9200	0.5810
D	0.9190	0.5850
E	0.9330	0.5830
F	0.8450	0.5250
G	0.8680	0.5500
H	0.6970	0.3810
I	0.7780	0.4640
J	0.7690	0.5040
K	0.6200	0.3960
L	0.8030	0.4780
M	0.8190	0.4950
N	0.6150	0.4300