Full wwPDB EM Validation Report ⓘ

Nov 15, 2025 – 12:34 PM EST

PDB ID	:	9N4M / pdb_00009n4m
EMDB ID	:	EMD-48898
Title	:	Composite map for GluK2 in the apo state with 2-fold symmetrical ligand-binding domain
Authors	:	Gangwar, S.P.; Yelshanskaya, M.V.; Yen, L.Y.; Newton, T.P.; Sobolevsky, A.I.
Deposited on	:	2025-02-03
Resolution	:	3.77 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

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

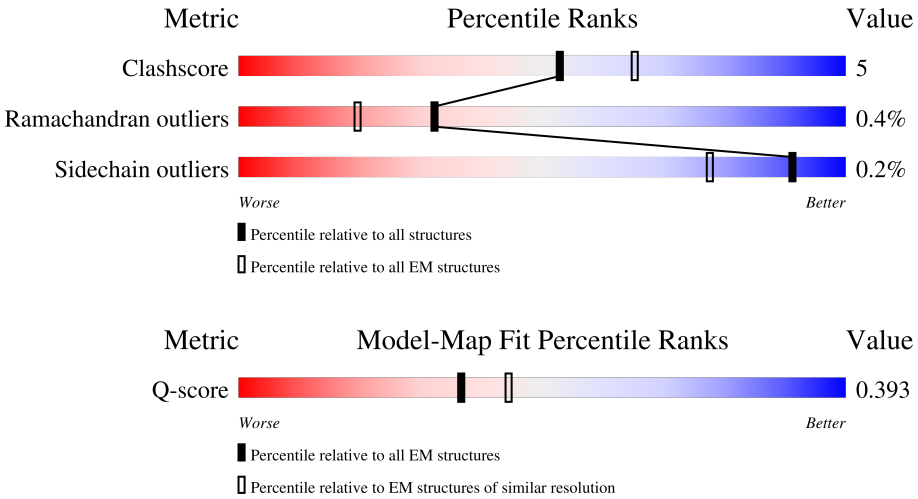
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

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 3.77 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	10146 (3.27 - 4.27)

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	908	5% 78% 14% • 7%
1	B	908	5% 78% 14% • 7%
1	C	908	6% 79% 13% • 7%
1	D	908	5% 79% 13% • 7%

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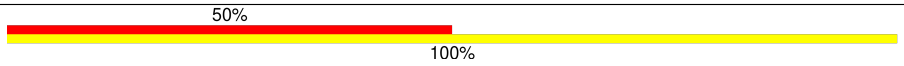
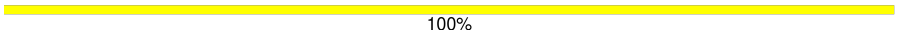
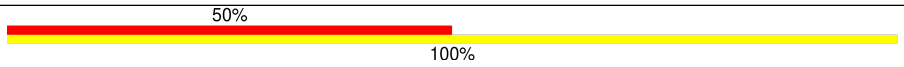
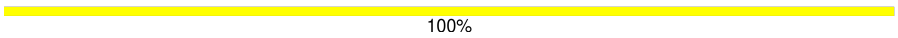
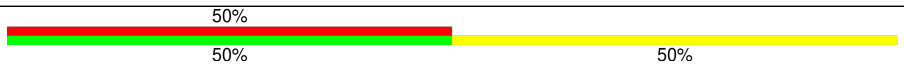
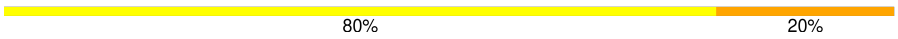
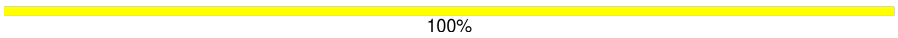
Mol	Chain	Length	Quality of chain
2	E	2	
2	F	2	
2	G	2	
2	I	2	
2	J	2	
2	K	2	
2	L	2	
2	M	2	
2	O	2	
2	P	2	
3	H	5	
3	N	5	

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 28054 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 Glutamate receptor ionotropic, kainate 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	840	Total	C	N	O	S	0	0
			6655	4266	1109	1240	40		
1	B	840	Total	C	N	O	S	0	0
			6655	4266	1109	1240	40		
1	C	840	Total	C	N	O	S	0	0
			6655	4266	1109	1240	40		
1	D	840	Total	C	N	O	S	0	0
			6655	4266	1109	1240	40		

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	567	VAL	ILE	conflict	UNP P42260
A	571	CYS	TYR	conflict	UNP P42260
B	567	VAL	ILE	conflict	UNP P42260
B	571	CYS	TYR	conflict	UNP P42260
C	567	VAL	ILE	conflict	UNP P42260
C	571	CYS	TYR	conflict	UNP P42260
D	567	VAL	ILE	conflict	UNP P42260
D	571	CYS	TYR	conflict	UNP P42260

- 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	E	2	Total	C	N	O	0	0
			28	16	2	10		
2	F	2	Total	C	N	O	0	0
			28	16	2	10		

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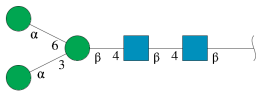
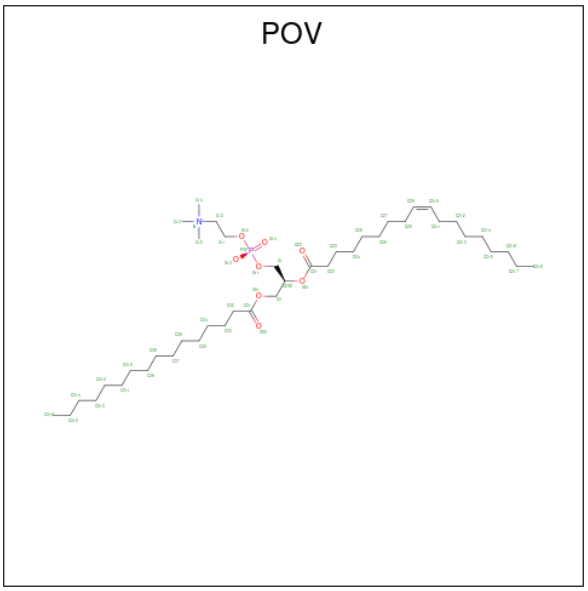
Mol	Chain	Residues	Atoms				AltConf	Trace
2	G	2	Total	C	N	O	0	0
			28	16	2	10		
2	I	2	Total	C	N	O	0	0
			28	16	2	10		
2	J	2	Total	C	N	O	0	0
			28	16	2	10		
2	K	2	Total	C	N	O	0	0
			28	16	2	10		
2	L	2	Total	C	N	O	0	0
			28	16	2	10		
2	M	2	Total	C	N	O	0	0
			28	16	2	10		
2	O	2	Total	C	N	O	0	0
			28	16	2	10		
2	P	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 3 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[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
3	H	5	Total	C	N	O	0	0
			61	34	2	25		
3	N	5	Total	C	N	O	0	0
			61	34	2	25		

- Molecule 4 is (2S)-3-(hexadecanoyloxy)-2-[(9Z)-octadec-9-enoyloxy]propyl 2-(trimethylammonio)ethyl phosphate (CCD ID: POV) (formula: $C_{42}H_{82}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
4	A	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	A	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	A	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	A	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	A	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	B	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	B	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	B	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	B	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	C	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	C	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	C	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	D	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	D	1	Total	C	N	O	P	0
			52	42	1	8	1	

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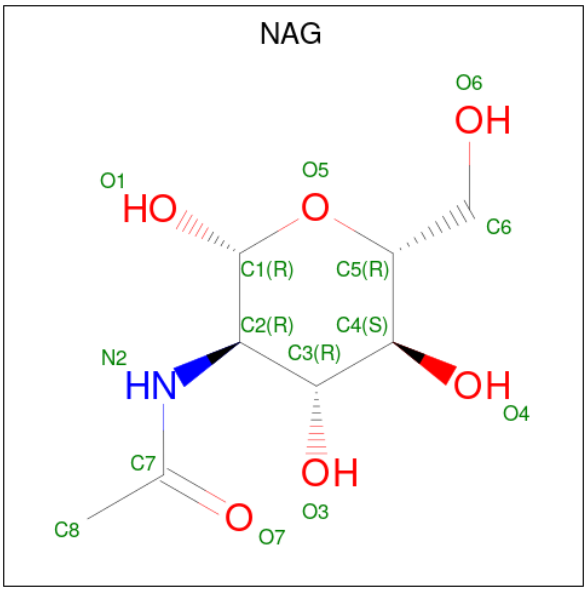
Mol	Chain	Residues	Atoms					AltConf
4	D	1	Total	C	N	O	P	0
			52	42	1	8	1	
4	D	1	Total	C	N	O	P	0
			52	42	1	8	1	

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



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

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

- Molecule 6 is SODIUM ION (CCD ID: NA) (formula: Na) (labeled as "Ligand of Interest" by depositor).

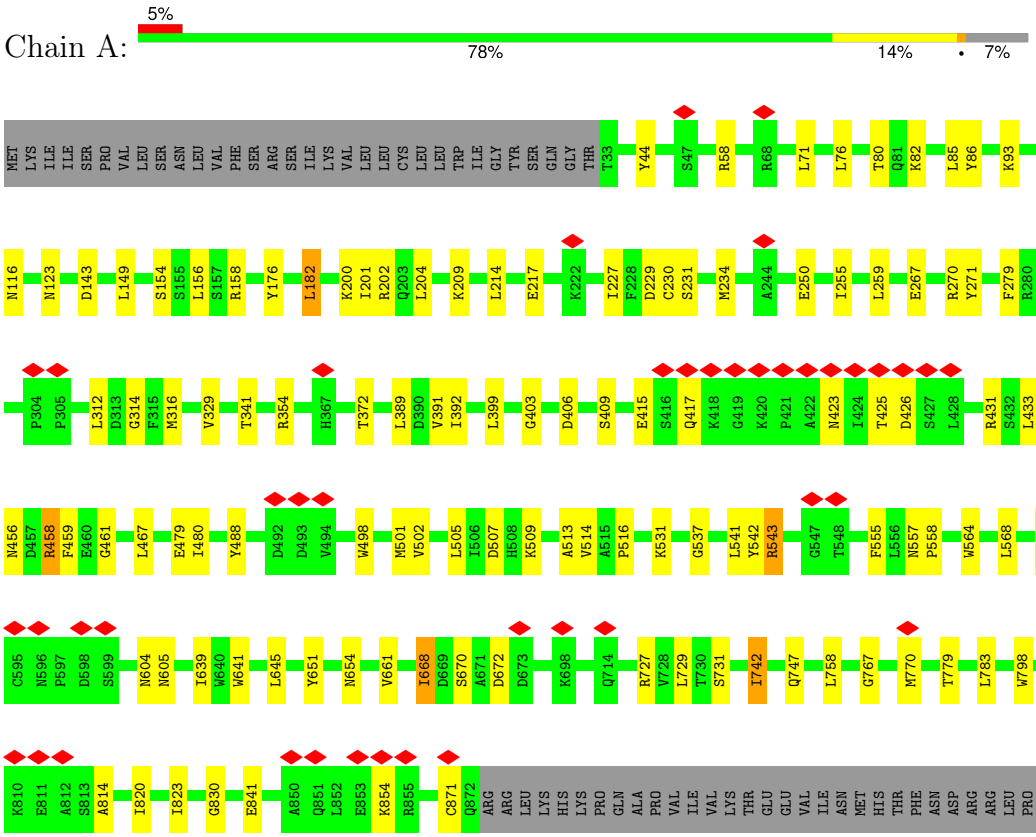
Mol	Chain	Residues	Atoms	AltConf
6	A	4	Total Na 4 4	0

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.

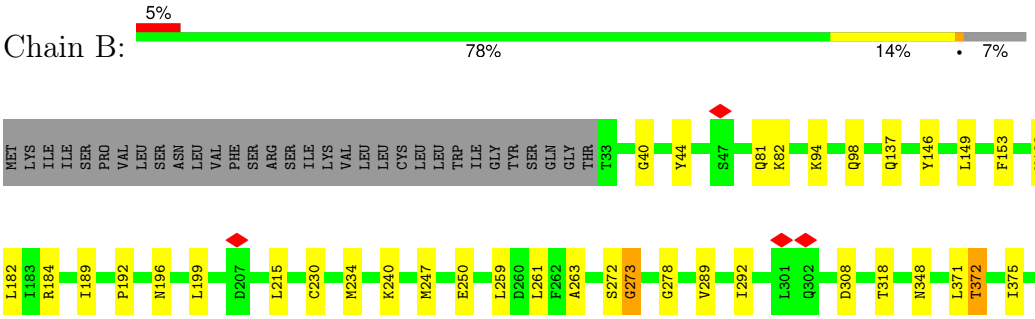
• Molecule 1: Glutamate receptor ionotropic, kainate 2

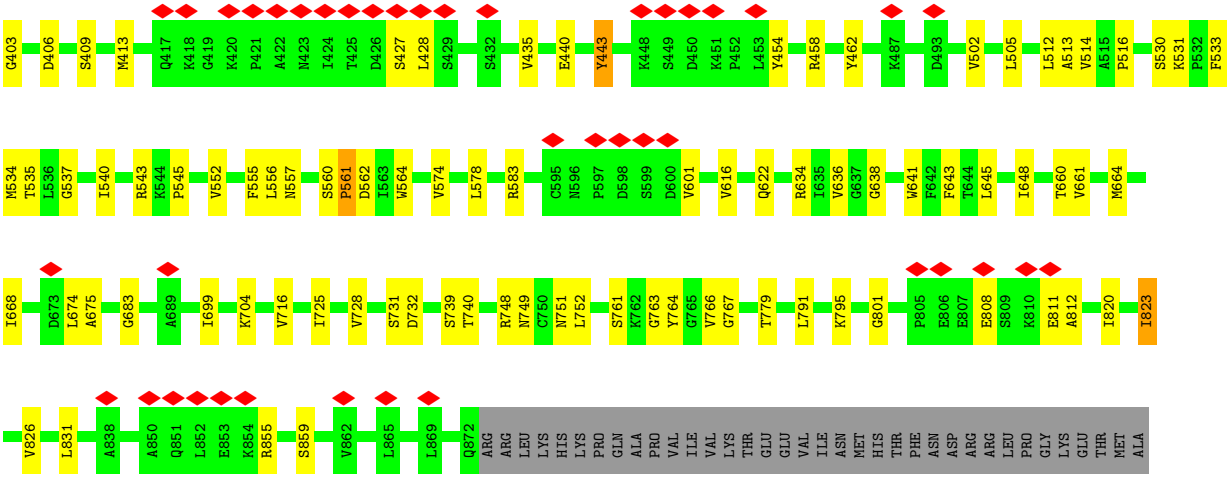
Chain A:



• Molecule 1: Glutamate receptor ionotropic, kainate 2

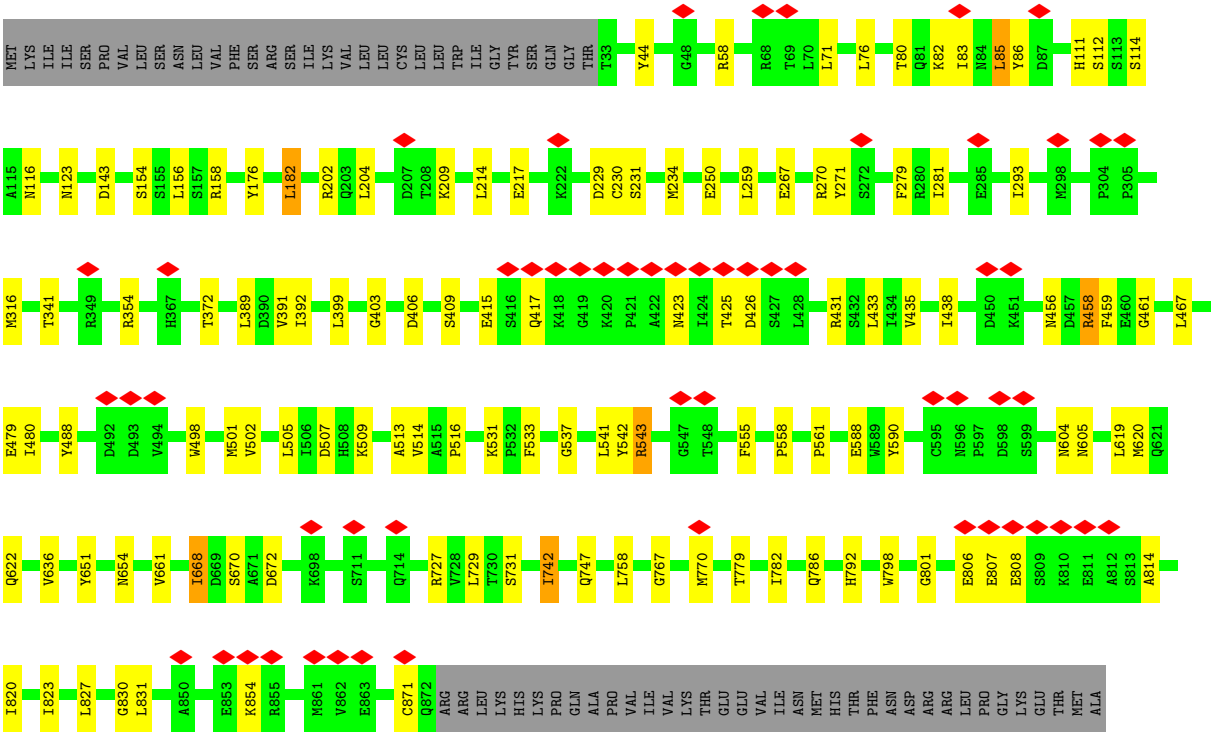
Chain B:





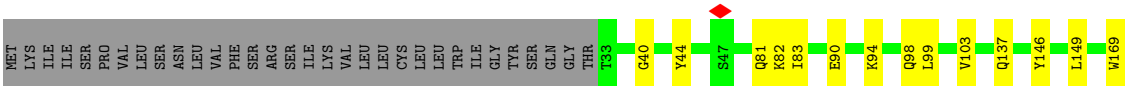
• Molecule 1: Glutamate receptor ionotropic, kainate 2

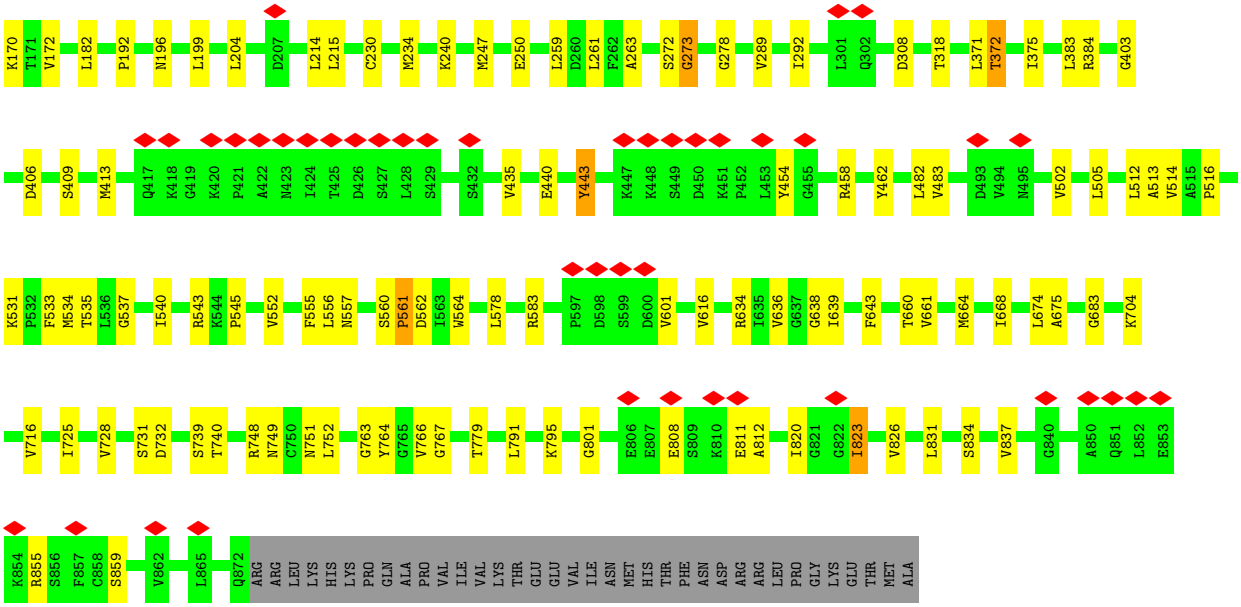
Chain C:



• Molecule 1: Glutamate receptor ionotropic, kainate 2

Chain D:





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

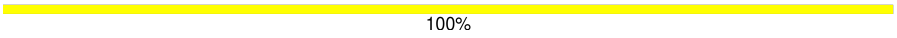
Chain E:

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

Chain F:

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

Chain G:



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

Chain I:

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

Chain J:

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

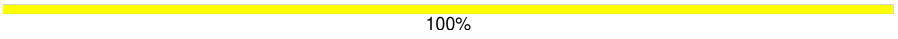
Chain K:

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

Chain L:

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

Chain M:



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

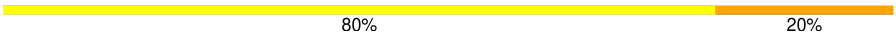
Chain O:

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

Chain P:

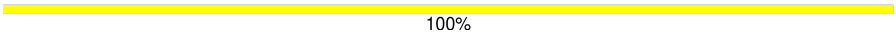
• Molecule 3: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain H:



• Molecule 3: alpha-D-mannopyranose-(1-3)-[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 N:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	56646	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	67.214	Depositor
Minimum map value	-52.693	Depositor
Average map value	-0.049	Depositor
Map value standard deviation	1.292	Depositor
Recommended contour level	4.5	Depositor
Map size (Å)	314.88, 314.88, 314.88	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.82, 0.82, 0.82	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.28	1/6805 (0.0%)	0.81	7/9212 (0.1%)
1	B	0.30	1/6805 (0.0%)	0.78	5/9212 (0.1%)
1	C	0.28	0/6805	0.81	7/9212 (0.1%)
1	D	0.30	1/6805 (0.0%)	0.78	5/9212 (0.1%)
All	All	0.29	3/27220 (0.0%)	0.79	24/36848 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	8
1	B	0	2
1	C	0	8
1	D	0	2
All	All	0	20

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	557	ASN	C-N	5.40	1.38	1.33
1	D	557	ASN	C-N	5.35	1.38	1.33
1	A	557	ASN	C-N	5.01	1.39	1.34

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	742	ILE	N-CA-C	-7.59	105.81	113.47
1	A	742	ILE	N-CA-C	-7.56	105.84	113.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	85	LEU	CA-C-N	6.10	133.20	121.54
1	C	85	LEU	C-N-CA	6.10	133.20	121.54
1	A	85	LEU	CA-C-N	6.08	133.15	121.54
1	A	85	LEU	C-N-CA	6.08	133.15	121.54
1	D	263	ALA	N-CA-C	-5.86	107.37	114.75
1	B	263	ALA	N-CA-C	-5.86	107.37	114.75
1	D	601	VAL	N-CA-C	-5.65	106.81	112.17
1	A	543	ARG	CA-C-N	5.64	128.90	120.83
1	A	543	ARG	C-N-CA	5.64	128.90	120.83
1	C	270	ARG	N-CA-C	-5.62	106.32	112.72
1	A	270	ARG	N-CA-C	-5.59	106.34	112.72
1	C	543	ARG	CA-C-N	5.59	128.82	120.83
1	C	543	ARG	C-N-CA	5.59	128.82	120.83
1	B	601	VAL	N-CA-C	-5.58	106.87	112.17
1	B	808	GLU	CA-C-N	5.48	132.01	121.54
1	B	808	GLU	C-N-CA	5.48	132.01	121.54
1	D	808	GLU	CA-C-N	5.47	131.98	121.54
1	D	808	GLU	C-N-CA	5.47	131.98	121.54
1	B	372	THR	N-CA-C	-5.37	107.98	114.75
1	D	372	THR	N-CA-C	-5.36	108.00	114.75
1	C	426	ASP	N-CA-C	5.11	116.57	110.44
1	A	426	ASP	N-CA-C	5.05	116.50	110.44

There are no chirality outliers.

All (20) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	267	GLU	Peptide
1	A	271	TYR	Peptide
1	A	423	ASN	Peptide
1	A	425	THR	Peptide
1	A	770	MET	Peptide
1	A	808	GLU	Peptide
1	A	814	ALA	Peptide
1	A	854	LYS	Peptide
1	B	443	TYR	Peptide
1	B	811	GLU	Peptide
1	C	267	GLU	Peptide
1	C	271	TYR	Peptide
1	C	423	ASN	Peptide
1	C	425	THR	Peptide
1	C	770	MET	Peptide

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Mol	Chain	Res	Type	Group
1	C	808	GLU	Peptide
1	C	814	ALA	Peptide
1	C	854	LYS	Peptide
1	D	443	TYR	Peptide
1	D	811	GLU	Peptide

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	6655	0	6628	70	0
1	B	6655	0	6628	81	0
1	C	6655	0	6628	69	0
1	D	6655	0	6628	68	0
2	E	28	0	25	0	0
2	F	28	0	25	0	0
2	G	28	0	25	0	0
2	I	28	0	25	0	0
2	J	28	0	25	0	0
2	K	28	0	25	0	0
2	L	28	0	25	0	0
2	M	28	0	25	0	0
2	O	28	0	25	0	0
2	P	28	0	25	0	0
3	H	61	0	52	1	0
3	N	61	0	52	0	0
4	A	260	0	410	13	0
4	B	208	0	328	10	0
4	C	156	0	246	12	0
4	D	208	0	328	10	0
5	A	56	0	52	2	0
5	B	42	0	39	0	0
5	C	56	0	52	2	0
5	D	42	0	39	0	0
6	A	4	0	0	0	0
All	All	28054	0	28360	290	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 5.

All (290) 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:806:GLU:HG3	1:C:807:GLU:HG2	1.71	0.72
1:A:806:GLU:HG3	1:A:807:GLU:HG2	1.71	0.71
1:D:545:PRO:HB2	1:D:664:MET:HB3	1.77	0.67
1:B:545:PRO:HB2	1:B:664:MET:HB3	1.77	0.66
1:C:541:LEU:HD12	1:C:742:ILE:HG13	1.79	0.64
1:D:823:ILE:HA	1:D:826:VAL:HG12	1.79	0.64
1:A:415:GLU:H	1:A:417:GLN:HE22	1.46	0.64
1:C:415:GLU:H	1:C:417:GLN:HE22	1.46	0.64
4:C:1001:POV:H31D	4:C:1002:POV:H31A	1.80	0.63
1:A:541:LEU:HD12	1:A:742:ILE:HG13	1.80	0.63
1:C:531:LYS:HB2	1:C:779:THR:HG23	1.81	0.63
1:B:823:ILE:HA	1:B:826:VAL:HG12	1.79	0.62
1:D:443:TYR:HB3	1:D:462:TYR:HB3	1.81	0.62
1:D:534:MET:HE3	1:D:795:LYS:HE3	1.82	0.62
4:A:1001:POV:H31D	4:A:1002:POV:H31A	1.80	0.62
1:A:871:CYS:SG	1:D:583:ARG:NH2	2.73	0.62
1:B:443:TYR:HB3	1:B:462:TYR:HB3	1.82	0.62
1:B:534:MET:HE3	1:B:795:LYS:HE3	1.82	0.62
1:B:137:GLN:NE2	1:B:146:TYR:OH	2.33	0.61
1:A:531:LYS:HB2	1:A:779:THR:HG23	1.81	0.61
1:D:137:GLN:NE2	1:D:146:TYR:OH	2.33	0.60
1:A:123:ASN:ND2	1:A:143:ASP:OD1	2.36	0.59
1:A:182:LEU:HD12	1:B:182:LEU:HB3	1.83	0.59
1:C:123:ASN:ND2	1:C:143:ASP:OD1	2.36	0.58
1:A:250:GLU:HB2	5:A:1005:NAG:H81	1.86	0.57
1:B:289:VAL:HG13	1:B:371:LEU:HD22	1.87	0.56
1:D:215:LEU:HD23	1:D:247:MET:HG3	1.86	0.56
1:B:215:LEU:HD23	1:B:247:MET:HG3	1.86	0.56
1:C:250:GLU:HB2	5:C:1004:NAG:H81	1.87	0.56
1:A:645:LEU:HD21	1:B:648:ILE:HD12	1.86	0.56
1:D:261:LEU:HD13	1:D:278:GLY:HA3	1.88	0.56
1:D:289:VAL:HG13	1:D:371:LEU:HD22	1.87	0.56
1:B:261:LEU:HD13	1:B:278:GLY:HA3	1.88	0.56
1:A:823:ILE:HD11	1:D:643:PHE:HA	1.88	0.56
1:A:641:TRP:CD1	1:B:622:GLN:HG3	2.42	0.55
1:B:44:TYR:HA	1:B:82:LYS:HD3	1.89	0.55
4:A:1001:POV:H36	4:A:1002:POV:H212	1.88	0.54
1:A:201:ILE:HD13	1:B:189:ILE:HG22	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:279:PHE:HB3	1:C:389:LEU:HD22	1.90	0.54
1:A:293:ILE:HG23	1:A:316:MET:HG3	1.89	0.54
1:C:58:ARG:HE	1:C:80:THR:HG21	1.74	0.53
1:A:58:ARG:HE	1:A:80:THR:HG21	1.74	0.53
1:C:293:ILE:HG23	1:C:316:MET:HG3	1.89	0.53
1:D:44:TYR:HA	1:D:82:LYS:HD3	1.89	0.53
1:A:513:ALA:HB3	1:A:767:GLY:HA3	1.91	0.53
1:B:406:ASP:HB3	1:B:409:SER:HB3	1.91	0.52
1:C:588:GLU:O	1:C:604:ASN:ND2	2.42	0.52
1:C:590:TYR:OH	1:C:605:ASN:OD1	2.28	0.52
1:C:513:ALA:HB3	1:C:767:GLY:HA3	1.91	0.52
1:A:279:PHE:HB3	1:A:389:LEU:HD22	1.90	0.52
1:A:588:GLU:O	1:A:604:ASN:ND2	2.42	0.52
1:D:406:ASP:HB3	1:D:409:SER:HB3	1.91	0.52
1:C:209:LYS:HG3	1:C:234:MET:HE3	1.92	0.52
1:A:555:PHE:HB3	1:A:820:ILE:HG22	1.92	0.51
1:A:590:TYR:OH	1:A:605:ASN:OD1	2.27	0.51
1:B:530:SER:O	1:C:531:LYS:NZ	2.43	0.51
1:A:209:LYS:HG3	1:A:234:MET:HE3	1.92	0.51
1:A:93:LYS:NZ	1:B:348:ASN:O	2.43	0.51
1:D:540:ILE:HD13	1:D:674:LEU:HD23	1.93	0.51
1:A:281:ILE:HG12	1:A:372:THR:HB	1.93	0.51
1:C:555:PHE:HB3	1:C:820:ILE:HG22	1.92	0.51
1:C:281:ILE:HG12	1:C:372:THR:HB	1.93	0.51
1:B:372:THR:HG21	1:B:384:ARG:HH22	1.76	0.50
1:B:540:ILE:HD13	1:B:674:LEU:HD23	1.93	0.50
1:B:761:SER:O	1:C:786:GLN:NE2	2.44	0.50
1:D:372:THR:HG21	1:D:384:ARG:HH22	1.76	0.50
1:C:661:VAL:HG21	1:D:812:ALA:HB2	1.94	0.50
1:A:574:VAL:HG22	1:B:831:LEU:HD21	1.94	0.50
4:D:1004:POV:H3A	4:D:1004:POV:H34A	1.93	0.50
1:A:537:GLY:HA3	1:A:758:LEU:HD12	1.94	0.49
1:D:675:ALA:O	1:D:704:LYS:NZ	2.45	0.49
1:A:200:LYS:HA	1:B:192:PRO:HB2	1.94	0.49
1:B:149:LEU:HD11	1:B:375:ILE:HD12	1.94	0.49
1:A:670:SER:OG	1:A:672:ASP:OD1	2.30	0.49
1:B:675:ALA:O	1:B:704:LYS:NZ	2.45	0.49
1:C:44:TYR:HA	1:C:82:LYS:HE2	1.95	0.49
1:C:537:GLY:HA3	1:C:758:LEU:HD12	1.94	0.49
1:C:558:PRO:O	1:C:654:ASN:ND2	2.45	0.49
1:D:535:THR:HA	1:D:763:GLY:HA2	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:81:GLN:HB3	1:D:94:LYS:HZ3	1.76	0.49
1:A:154:SER:O	1:A:158:ARG:NH2	2.46	0.49
1:A:558:PRO:O	1:A:654:ASN:ND2	2.45	0.49
1:B:240:LYS:NZ	1:B:308:ASP:O	2.46	0.49
1:D:556:LEU:HD13	4:D:1002:POV:H23A	1.94	0.49
1:A:456:ASN:HD22	1:A:479:GLU:HG2	1.77	0.49
1:C:204:LEU:HD23	1:C:214:LEU:HD13	1.95	0.49
1:C:456:ASN:HD22	1:C:479:GLU:HG2	1.78	0.49
1:B:645:LEU:HD11	1:C:620:MET:HA	1.94	0.49
1:C:406:ASP:HB3	1:C:409:SER:HB2	1.94	0.49
1:A:202:ARG:NH1	1:A:217:GLU:OE1	2.46	0.48
1:C:154:SER:O	1:C:158:ARG:NH2	2.46	0.48
1:D:578:LEU:HB2	1:D:636:VAL:HG11	1.95	0.48
1:B:535:THR:HA	1:B:763:GLY:HA2	1.95	0.48
1:D:560:SER:O	1:D:562:ASP:N	2.46	0.48
1:B:81:GLN:HB3	1:B:94:LYS:HZ3	1.78	0.48
1:A:406:ASP:HB3	1:A:409:SER:HB2	1.94	0.48
1:B:560:SER:O	1:B:562:ASP:N	2.46	0.48
1:D:149:LEU:HD11	1:D:375:ILE:HD12	1.94	0.48
1:B:578:LEU:HB2	1:B:636:VAL:HG11	1.95	0.48
1:D:240:LYS:NZ	1:D:308:ASP:O	2.46	0.48
1:A:204:LEU:HD23	1:A:214:LEU:HD13	1.95	0.48
4:A:1001:POV:H27	4:A:1001:POV:H3	1.95	0.48
1:A:44:TYR:HA	1:A:82:LYS:HE2	1.95	0.47
1:A:555:PHE:O	1:A:651:TYR:OH	2.27	0.47
1:A:661:VAL:HG21	1:B:812:ALA:HB2	1.96	0.47
4:B:1006:POV:H26A	4:B:1006:POV:H29	1.69	0.47
4:A:1008:POV:H24A	4:A:1008:POV:H27A	1.70	0.47
1:C:202:ARG:NH1	1:C:217:GLU:OE1	2.46	0.47
1:A:111:HIS:HB3	1:A:114:SER:HB2	1.97	0.47
1:A:830:GLY:HA2	4:A:1002:POV:H35A	1.97	0.47
1:D:435:VAL:HG22	1:D:512:LEU:HB2	1.97	0.47
1:B:583:ARG:NH2	1:C:871:CYS:SG	2.87	0.47
1:D:513:ALA:HB3	1:D:767:GLY:HA3	1.96	0.47
1:A:458:ARG:HG3	1:A:459:PHE:H	1.80	0.47
1:C:111:HIS:HB3	1:C:114:SER:HB2	1.97	0.47
1:C:176:TYR:HA	1:C:229:ASP:HB3	1.96	0.47
1:C:458:ARG:HG3	1:C:459:PHE:H	1.80	0.47
1:C:830:GLY:HA2	4:C:1002:POV:H35A	1.96	0.47
4:C:1001:POV:H36	4:C:1002:POV:H212	1.97	0.47
4:C:1007:POV:H28	4:C:1007:POV:H211	1.74	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:112:SER:O	1:A:116:ASN:ND2	2.48	0.47
1:D:826:VAL:HG21	4:D:1002:POV:H37	1.96	0.47
1:B:250:GLU:HA	1:B:273:GLY:HA3	1.97	0.47
1:B:555:PHE:HB3	1:B:820:ILE:HG22	1.97	0.47
1:C:620:MET:HE1	4:C:1001:POV:H38A	1.97	0.47
1:D:855:ARG:HG2	1:D:859:SER:HB2	1.97	0.47
1:B:513:ALA:HB3	1:B:767:GLY:HA3	1.96	0.46
1:B:683:GLY:HA2	1:B:716:VAL:HB	1.97	0.46
1:C:543:ARG:HH22	5:C:1006:NAG:H61	1.80	0.46
1:A:176:TYR:HA	1:A:229:ASP:HB3	1.96	0.46
1:B:855:ARG:HG2	1:B:859:SER:HB2	1.97	0.46
1:B:574:VAL:HG21	1:C:827:LEU:HD11	1.98	0.46
1:C:438:ILE:HG22	1:C:516:PRO:HD2	1.96	0.46
1:A:438:ILE:HG22	1:A:516:PRO:HD2	1.96	0.46
1:B:435:VAL:HG22	1:B:512:LEU:HB2	1.96	0.46
1:D:250:GLU:HG3	1:D:273:GLY:HA3	1.98	0.46
1:D:454:TYR:HB3	1:D:458:ARG:HD2	1.98	0.46
1:B:250:GLU:HG3	1:B:273:GLY:HA3	1.98	0.46
4:C:1007:POV:H29	4:C:1007:POV:H26	1.75	0.46
1:D:683:GLY:HA2	1:D:716:VAL:HB	1.97	0.46
1:D:749:ASN:O	1:D:751:ASN:N	2.48	0.46
4:B:1002:POV:H21A	4:B:1002:POV:H28A	1.73	0.46
1:C:747:GLN:HB3	1:C:801:GLY:HA3	1.98	0.46
1:D:40:GLY:O	1:D:98:GLN:NE2	2.43	0.46
1:A:467:LEU:HD13	1:A:514:VAL:HG21	1.98	0.45
1:A:505:LEU:HD11	1:A:513:ALA:HB2	1.97	0.45
1:D:555:PHE:HB3	1:D:820:ILE:HG22	1.97	0.45
1:A:433:LEU:HD23	1:A:433:LEU:HA	1.83	0.45
4:B:1007:POV:H313	4:B:1007:POV:H31A	1.82	0.45
1:C:112:SER:O	1:C:116:ASN:ND2	2.48	0.45
1:D:531:LYS:H	1:D:779:THR:HG22	1.82	0.45
1:B:454:TYR:HB3	1:B:458:ARG:HD2	1.98	0.45
1:B:643:PHE:HA	1:C:823:ILE:HD11	1.97	0.45
1:C:498:TRP:HB3	1:C:502:VAL:HG23	1.98	0.45
1:C:670:SER:OG	1:C:672:ASP:OD1	2.30	0.45
1:B:81:GLN:HG2	1:B:98:GLN:HE21	1.81	0.45
1:C:467:LEU:HD13	1:C:514:VAL:HG21	1.98	0.45
1:D:81:GLN:HG2	1:D:98:GLN:HE21	1.81	0.45
4:D:1001:POV:H26A	4:D:1001:POV:H29	1.68	0.45
4:D:1003:POV:H28A	4:D:1003:POV:H21A	1.75	0.45
4:A:1009:POV:H21A	4:A:1009:POV:H28A	1.70	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:1001:POV:H27A	4:B:1001:POV:H24	1.74	0.45
1:C:505:LEU:HD11	1:C:513:ALA:HB2	1.97	0.45
1:B:823:ILE:H	1:B:823:ILE:HG13	1.65	0.45
1:B:502:VAL:HA	1:B:505:LEU:HB2	1.99	0.45
1:B:616:VAL:HG11	4:B:1001:POV:H31D	1.98	0.45
1:D:250:GLU:HA	1:D:273:GLY:HA3	1.97	0.45
4:C:1007:POV:H11	1:D:552:VAL:HG21	1.99	0.45
1:A:543:ARG:NH1	1:A:729:LEU:O	2.50	0.45
1:C:543:ARG:NH1	1:C:729:LEU:O	2.50	0.45
4:C:1001:POV:H214	4:C:1001:POV:H21G	1.73	0.45
1:A:747:GLN:HB3	1:A:801:GLY:HA3	1.98	0.44
1:D:502:VAL:HA	1:D:505:LEU:HB2	1.99	0.44
1:D:660:THR:HG23	1:D:661:VAL:HG23	1.99	0.44
1:A:498:TRP:HB3	1:A:502:VAL:HG23	1.98	0.44
4:A:1003:POV:H31B	4:A:1003:POV:H38A	1.69	0.44
1:B:531:LYS:H	1:B:779:THR:HG22	1.81	0.44
4:C:1001:POV:H22A	4:C:1001:POV:H2	1.79	0.44
1:A:564:TRP:HB3	4:A:1001:POV:H28	1.99	0.44
1:D:668:ILE:HG21	1:D:674:LEU:HD13	2.00	0.44
4:D:1002:POV:H27A	4:D:1002:POV:H24	1.72	0.44
1:C:391:VAL:HB	1:C:403:GLY:HA3	1.98	0.44
1:D:740:THR:HG21	1:D:764:TYR:HE2	1.83	0.44
4:D:1002:POV:H31C	4:D:1002:POV:H39A	1.74	0.44
1:A:341:THR:HG22	1:A:354:ARG:HH22	1.83	0.44
1:C:636:VAL:HG22	1:D:831:LEU:HG	1.98	0.44
1:A:391:VAL:HB	1:A:403:GLY:HA3	1.98	0.44
1:B:660:THR:HG23	1:B:661:VAL:HG23	1.99	0.44
1:B:170:LYS:HE2	1:B:196:ASN:HD21	1.83	0.44
1:D:170:LYS:HE2	1:D:196:ASN:HD21	1.83	0.44
1:A:639:ILE:HD11	4:B:1002:POV:H39	2.00	0.43
1:C:555:PHE:O	1:C:651:TYR:OH	2.27	0.43
1:C:341:THR:HG22	1:C:354:ARG:HH22	1.83	0.43
1:D:725:ILE:HA	1:D:728:VAL:HG12	2.00	0.43
1:B:740:THR:HG21	1:B:764:TYR:HE2	1.83	0.43
1:B:192:PRO:HD3	1:B:199:LEU:HD23	1.99	0.43
1:D:192:PRO:HD3	1:D:199:LEU:HD23	1.99	0.43
1:D:230:CYS:HB3	1:D:234:MET:HB2	2.01	0.43
1:D:482:LEU:HB3	1:D:483:VAL:H	1.73	0.43
1:A:568:LEU:HD11	4:A:1002:POV:H21B	2.01	0.43
1:B:403:GLY:HA2	1:B:413:MET:HA	2.00	0.43
1:B:641:TRP:CG	1:C:622:GLN:HG3	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:40:GLY:O	1:B:98:GLN:NE2	2.43	0.43
1:D:634:ARG:O	1:D:638:GLY:N	2.52	0.43
1:A:641:TRP:CG	1:B:622:GLN:HG3	2.54	0.43
1:C:438:ILE:HD12	1:C:438:ILE:HA	1.91	0.43
1:D:259:LEU:HB2	1:D:318:THR:HG21	2.00	0.43
1:A:461:GLY:O	1:A:798:TRP:NE1	2.52	0.43
1:D:533:PHE:HB2	1:D:791:LEU:HD21	2.01	0.43
1:B:668:ILE:HG21	1:B:674:LEU:HD13	2.00	0.43
1:B:749:ASN:O	1:B:751:ASN:N	2.48	0.43
1:C:182:LEU:HD12	1:D:182:LEU:HB3	2.01	0.43
1:A:156:LEU:HD11	1:A:259:LEU:HD21	2.01	0.43
4:A:1009:POV:H34A	4:A:1009:POV:H3A	2.00	0.43
1:B:259:LEU:HB2	1:B:318:THR:HG21	2.00	0.43
1:C:488:TYR:HA	1:C:501:MET:HE2	2.01	0.43
1:A:507:ASP:OD2	1:A:509:LYS:NZ	2.52	0.42
1:B:537:GLY:O	1:B:739:SER:N	2.52	0.42
1:B:748:ARG:HE	1:B:801:GLY:HA3	1.84	0.42
1:D:731:SER:OG	1:D:732:ASP:N	2.52	0.42
1:A:841:GLU:HG2	4:A:1003:POV:H23	2.00	0.42
1:B:561:PRO:HB3	4:B:1001:POV:H24A	1.99	0.42
1:B:574:VAL:HG13	1:C:831:LEU:HD21	2.01	0.42
1:C:433:LEU:HD23	1:C:433:LEU:HA	1.83	0.42
1:C:507:ASP:OD2	1:C:509:LYS:NZ	2.52	0.42
1:B:634:ARG:O	1:B:638:GLY:N	2.52	0.42
1:B:725:ILE:HA	1:B:728:VAL:HG12	2.00	0.42
1:A:488:TYR:HA	1:A:501:MET:HE2	2.01	0.42
1:B:169:TRP:HE3	1:B:172:VAL:HG12	1.84	0.42
1:B:533:PHE:HB2	1:B:791:LEU:HD21	2.01	0.42
1:D:137:GLN:HG3	1:D:383:LEU:HD21	2.02	0.42
1:B:731:SER:OG	1:B:732:ASP:N	2.52	0.42
1:C:461:GLY:O	1:C:798:TRP:NE1	2.52	0.42
1:D:292:ILE:HD12	1:D:371:LEU:HD21	2.01	0.42
1:D:537:GLY:O	1:D:739:SER:N	2.52	0.42
1:C:542:TYR:CG	1:C:668:ILE:HD11	2.55	0.42
1:D:561:PRO:HA	1:D:564:TRP:HD1	1.85	0.42
1:D:748:ARG:HE	1:D:801:GLY:HA3	1.84	0.42
4:A:1008:POV:H11	1:B:552:VAL:HG21	2.02	0.42
1:B:230:CYS:HB3	1:B:234:MET:HB2	2.01	0.42
1:B:514:VAL:HG22	1:B:766:VAL:HG22	2.01	0.42
1:C:561:PRO:HB3	4:C:1001:POV:H24	2.02	0.42
1:D:403:GLY:HA2	1:D:413:MET:HA	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:514:VAL:HG22	1:D:766:VAL:HG22	2.01	0.42
1:A:542:TYR:CG	1:A:668:ILE:HD11	2.55	0.41
1:A:727:ARG:O	1:A:731:SER:N	2.44	0.41
1:B:137:GLN:HG3	1:B:383:LEU:HD21	2.02	0.41
1:C:156:LEU:HD11	1:C:259:LEU:HD21	2.01	0.41
1:D:169:TRP:HE3	1:D:172:VAL:HG12	1.84	0.41
1:D:616:VAL:HG11	4:D:1002:POV:H31D	2.01	0.41
4:A:1008:POV:H29	4:A:1008:POV:H26	1.76	0.41
1:A:830:GLY:HA3	1:D:639:ILE:HG13	2.03	0.41
1:B:292:ILE:HD12	1:B:371:LEU:HD21	2.01	0.41
1:B:381:ASN:OD1	3:H:1:NAG:N2	2.48	0.41
1:A:312:LEU:O	1:A:314:GLY:N	2.50	0.41
1:D:440:GLU:HG3	1:D:516:PRO:HG3	2.03	0.41
1:D:834:SER:HA	1:D:837:VAL:HG12	2.03	0.41
1:A:435:VAL:HG23	1:A:480:ILE:HA	2.03	0.41
1:B:556:LEU:HD13	4:B:1001:POV:H23A	2.02	0.41
1:D:204:LEU:HD23	1:D:214:LEU:HD13	2.03	0.41
1:A:392:ILE:HD12	1:A:399:LEU:HD12	2.02	0.41
1:A:543:ARG:HH22	5:A:1007:NAG:H61	1.85	0.41
1:B:427:SER:OG	1:B:428:LEU:N	2.54	0.41
1:B:440:GLU:HG3	1:B:516:PRO:HG3	2.03	0.41
1:B:543:ARG:HA	1:B:752:LEU:HD23	2.03	0.41
1:C:435:VAL:HG23	1:C:480:ILE:HA	2.03	0.41
1:D:543:ARG:HA	1:D:752:LEU:HD23	2.03	0.41
4:D:1004:POV:H22	4:D:1004:POV:H25A	1.74	0.41
1:A:230:CYS:SG	1:A:231:SER:N	2.94	0.41
4:B:1007:POV:H31B	4:B:1007:POV:H38A	1.68	0.41
1:C:392:ILE:HD12	1:C:399:LEU:HD12	2.02	0.41
4:D:1001:POV:H210	4:D:1001:POV:H21C	1.85	0.41
1:B:153:PHE:CG	1:B:184:ARG:HB2	2.57	0.40
1:B:826:VAL:HG21	4:B:1001:POV:H37	2.02	0.40
1:B:561:PRO:HA	1:B:564:TRP:HD1	1.85	0.40
1:C:83:ILE:HG23	1:C:85:LEU:HD12	2.04	0.40
1:C:533:PHE:HB3	1:C:782:ILE:HD11	2.02	0.40
1:D:83:ILE:HG22	1:D:90:GLU:HG2	2.03	0.40
1:A:531:LYS:HG2	1:A:783:LEU:HD21	2.03	0.40
1:B:641:TRP:CD1	1:C:622:GLN:HG3	2.55	0.40
1:C:230:CYS:SG	1:C:231:SER:N	2.94	0.40
1:C:727:ARG:O	1:C:731:SER:N	2.43	0.40
4:C:1007:POV:H24A	4:C:1007:POV:H27A	1.72	0.40
1:A:149:LEU:HD21	1:A:329:VAL:HG21	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:227:ILE:HG12	1:A:255:ILE:HB	2.04	0.40
1:C:71:LEU:HD23	1:C:76:LEU:HD11	2.04	0.40
1:A:71:LEU:HD23	1:A:76:LEU:HD11	2.04	0.40
1:B:699:ILE:HG21	1:C:792:HIS:HD2	1.87	0.40
1:C:619:LEU:HD21	4:C:1001:POV:H21E	2.02	0.40
1:D:99:LEU:HA	1:D:103:VAL:HG22	2.03	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	838/908 (92%)	706 (84%)	129 (15%)	3 (0%)	30	63
1	B	838/908 (92%)	714 (85%)	121 (14%)	3 (0%)	30	63
1	C	838/908 (92%)	704 (84%)	131 (16%)	3 (0%)	30	63
1	D	838/908 (92%)	715 (85%)	120 (14%)	3 (0%)	30	63
All	All	3352/3632 (92%)	2839 (85%)	501 (15%)	12 (0%)	32	63

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	272	SER
1	D	272	SER
1	A	86	TYR
1	B	561	PRO
1	C	86	TYR
1	D	561	PRO
1	A	431	ARG
1	A	458	ARG
1	C	431	ARG

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Mol	Chain	Res	Type
1	C	458	ARG
1	B	273	GLY
1	D	273	GLY

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	731/794 (92%)	729 (100%)	2 (0%)	91	94
1	B	731/794 (92%)	730 (100%)	1 (0%)	92	96
1	C	731/794 (92%)	729 (100%)	2 (0%)	91	94
1	D	731/794 (92%)	730 (100%)	1 (0%)	92	96
All	All	2924/3176 (92%)	2918 (100%)	6 (0%)	91	95

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	182	LEU
1	A	668	ILE
1	B	823	ILE
1	C	182	LEU
1	C	668	ILE
1	D	823	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	98	GLN
1	A	165	GLN
1	A	335	GLN
1	A	350	HIS
1	A	417	GLN
1	A	456	ASN
1	A	593	HIS

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Mol	Chain	Res	Type
1	A	604	ASN
1	B	81	GLN
1	B	137	GLN
1	B	499	ASN
1	B	549	ASN
1	B	726	GLN
1	B	754	GLN
1	C	98	GLN
1	C	116	ASN
1	C	335	GLN
1	C	417	GLN
1	C	456	ASN
1	C	593	HIS
1	C	596	ASN
1	C	604	ASN
1	C	792	HIS
1	D	81	GLN
1	D	137	GLN
1	D	499	ASN
1	D	549	ASN
1	D	726	GLN
1	D	754	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)

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

5.5 Carbohydrates (i)

30 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	E	1	1,2	14,14,15	0.57	0	17,19,21	1.01	1 (5%)
2	NAG	E	2	2	14,14,15	0.43	0	17,19,21	0.49	0
2	NAG	F	1	1,2	14,14,15	0.64	1 (7%)	17,19,21	0.70	0
2	NAG	F	2	2	14,14,15	1.58	2 (14%)	17,19,21	1.42	1 (5%)
2	NAG	G	1	1,2	14,14,15	0.73	1 (7%)	17,19,21	1.01	1 (5%)
2	NAG	G	2	2	14,14,15	0.54	0	17,19,21	0.69	1 (5%)
3	NAG	H	1	1,3	14,14,15	0.74	1 (7%)	17,19,21	1.62	2 (11%)
3	NAG	H	2	3	14,14,15	0.68	1 (7%)	17,19,21	1.05	2 (11%)
3	BMA	H	3	3	11,11,12	1.60	4 (36%)	15,15,17	1.96	2 (13%)
3	MAN	H	4	3	11,11,12	1.19	2 (18%)	15,15,17	2.00	2 (13%)
3	MAN	H	5	3	11,11,12	1.02	0	15,15,17	1.47	2 (13%)
2	NAG	I	1	1,2	14,14,15	0.29	0	17,19,21	0.51	0
2	NAG	I	2	2	14,14,15	0.29	0	17,19,21	0.72	1 (5%)
2	NAG	J	1	1,2	14,14,15	1.24	2 (14%)	17,19,21	1.60	3 (17%)
2	NAG	J	2	2	14,14,15	0.51	0	17,19,21	0.37	0
2	NAG	K	1	1,2	14,14,15	0.60	1 (7%)	17,19,21	0.98	1 (5%)
2	NAG	K	2	2	14,14,15	0.41	0	17,19,21	0.48	0
2	NAG	L	1	1,2	14,14,15	0.55	0	17,19,21	0.75	1 (5%)
2	NAG	L	2	2	14,14,15	1.60	2 (14%)	17,19,21	1.43	1 (5%)
2	NAG	M	1	1,2	14,14,15	0.65	1 (7%)	17,19,21	1.00	1 (5%)
2	NAG	M	2	2	14,14,15	0.55	0	17,19,21	0.68	1 (5%)
3	NAG	N	1	1,3	14,14,15	0.78	1 (7%)	17,19,21	1.54	2 (11%)
3	NAG	N	2	3	14,14,15	0.66	1 (7%)	17,19,21	1.05	2 (11%)
3	BMA	N	3	3	11,11,12	1.64	4 (36%)	15,15,17	2.00	2 (13%)
3	MAN	N	4	3	11,11,12	1.17	2 (18%)	15,15,17	1.90	2 (13%)
3	MAN	N	5	3	11,11,12	1.03	0	15,15,17	1.48	2 (13%)
2	NAG	O	1	1,2	14,14,15	0.27	0	17,19,21	0.51	0
2	NAG	O	2	2	14,14,15	0.28	0	17,19,21	0.70	1 (5%)
2	NAG	P	1	1,2	14,14,15	1.25	2 (14%)	17,19,21	1.61	3 (17%)
2	NAG	P	2	2	14,14,15	0.51	0	17,19,21	0.37	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
2	NAG	E	1	1,2	-	3/6/23/26	0/1/1/1
2	NAG	E	2	2	-	2/6/23/26	0/1/1/1
2	NAG	F	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	F	2	2	-	4/6/23/26	0/1/1/1
2	NAG	G	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	G	2	2	-	2/6/23/26	0/1/1/1
3	NAG	H	1	1,3	-	4/6/23/26	0/1/1/1
3	NAG	H	2	3	-	0/6/23/26	0/1/1/1
3	BMA	H	3	3	-	2/2/19/22	0/1/1/1
3	MAN	H	4	3	-	1/2/19/22	0/1/1/1
3	MAN	H	5	3	-	0/2/19/22	0/1/1/1
2	NAG	I	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	I	2	2	-	4/6/23/26	0/1/1/1
2	NAG	J	1	1,2	-	4/6/23/26	0/1/1/1
2	NAG	J	2	2	-	0/6/23/26	0/1/1/1
2	NAG	K	1	1,2	-	3/6/23/26	0/1/1/1
2	NAG	K	2	2	-	2/6/23/26	0/1/1/1
2	NAG	L	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	L	2	2	-	4/6/23/26	0/1/1/1
2	NAG	M	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	M	2	2	-	2/6/23/26	0/1/1/1
3	NAG	N	1	1,3	-	4/6/23/26	0/1/1/1
3	NAG	N	2	3	-	0/6/23/26	0/1/1/1
3	BMA	N	3	3	-	2/2/19/22	0/1/1/1
3	MAN	N	4	3	-	1/2/19/22	0/1/1/1
3	MAN	N	5	3	-	0/2/19/22	0/1/1/1
2	NAG	O	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	O	2	2	-	4/6/23/26	0/1/1/1
2	NAG	P	1	1,2	-	4/6/23/26	0/1/1/1
2	NAG	P	2	2	-	0/6/23/26	0/1/1/1

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	L	2	NAG	O5-C1	4.81	1.51	1.43
2	F	2	NAG	O5-C1	4.65	1.51	1.43
2	P	1	NAG	O5-C1	4.02	1.50	1.43
2	J	1	NAG	O5-C1	3.92	1.50	1.43
2	F	2	NAG	C1-C2	3.35	1.56	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	L	2	NAG	C1-C2	3.28	1.56	1.52
3	N	3	BMA	O5-C5	3.17	1.49	1.43
3	H	3	BMA	O5-C5	3.02	1.49	1.43
3	H	4	MAN	O5-C5	2.79	1.48	1.43
3	N	3	BMA	O5-C1	2.77	1.48	1.43
3	N	1	NAG	C1-C2	2.76	1.56	1.52
3	H	3	BMA	O5-C1	2.71	1.48	1.43
3	N	4	MAN	O5-C5	2.66	1.48	1.43
3	H	1	NAG	C1-C2	2.62	1.55	1.52
3	N	3	BMA	O3-C3	2.45	1.49	1.43
2	G	1	NAG	C1-C2	2.43	1.55	1.52
3	H	3	BMA	O3-C3	2.37	1.48	1.43
2	F	1	NAG	C1-C2	2.24	1.55	1.52
3	N	3	BMA	C4-C5	2.22	1.57	1.53
3	H	4	MAN	C1-C2	2.22	1.57	1.52
3	H	3	BMA	C4-C5	2.22	1.57	1.53
3	N	4	MAN	C1-C2	2.21	1.57	1.52
2	J	1	NAG	C1-C2	2.21	1.55	1.52
2	M	1	NAG	C1-C2	2.16	1.55	1.52
3	H	2	NAG	C1-C2	2.11	1.55	1.52
2	P	1	NAG	C1-C2	2.06	1.55	1.52
2	K	1	NAG	C1-C2	2.05	1.55	1.52
3	N	2	NAG	C1-C2	2.04	1.55	1.52

All (37) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	N	3	BMA	C1-O5-C5	6.97	121.53	112.19
3	H	4	MAN	C1-O5-C5	6.82	121.33	112.19
3	H	3	BMA	C1-O5-C5	6.81	121.31	112.19
3	N	4	MAN	C1-O5-C5	6.48	120.88	112.19
2	L	2	NAG	C1-O5-C5	5.39	119.41	112.19
2	F	2	NAG	C1-O5-C5	5.35	119.36	112.19
3	H	1	NAG	C1-O5-C5	5.20	119.15	112.19
2	P	1	NAG	C1-O5-C5	5.05	118.95	112.19
2	J	1	NAG	C1-O5-C5	5.00	118.89	112.19
3	N	1	NAG	C1-O5-C5	4.81	118.63	112.19
3	N	5	MAN	C1-O5-C5	3.81	117.29	112.19
3	H	5	MAN	C1-O5-C5	3.75	117.21	112.19
2	J	1	NAG	C2-N2-C7	3.33	127.36	122.90
2	P	1	NAG	C2-N2-C7	3.30	127.32	122.90
2	E	1	NAG	C2-N2-C7	3.13	127.10	122.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	K	1	NAG	C2-N2-C7	3.13	127.09	122.90
3	H	1	NAG	C2-N2-C7	3.12	127.08	122.90
3	N	1	NAG	C2-N2-C7	3.08	127.02	122.90
2	G	1	NAG	C1-O5-C5	2.87	116.04	112.19
2	M	1	NAG	C1-O5-C5	2.78	115.92	112.19
3	N	2	NAG	C1-O5-C5	2.63	115.71	112.19
3	H	2	NAG	C1-O5-C5	2.54	115.59	112.19
2	L	1	NAG	C1-O5-C5	2.41	115.42	112.19
3	H	5	MAN	O2-C2-C3	-2.39	105.19	110.15
3	N	5	MAN	O2-C2-C3	-2.39	105.20	110.15
3	H	4	MAN	O2-C2-C3	-2.29	105.41	110.15
2	G	2	NAG	C1-O5-C5	2.29	115.25	112.19
3	N	4	MAN	O2-C2-C3	-2.27	105.44	110.15
2	I	2	NAG	C1-O5-C5	2.25	115.20	112.19
2	M	2	NAG	C1-O5-C5	2.23	115.18	112.19
2	O	2	NAG	C1-O5-C5	2.20	115.14	112.19
3	H	3	BMA	O3-C3-C4	2.13	115.40	110.38
3	N	3	BMA	O3-C3-C4	2.08	115.28	110.38
3	H	2	NAG	C4-C3-C2	2.05	114.03	111.02
2	P	1	NAG	C1-C2-N2	2.02	113.61	110.43
2	J	1	NAG	C1-C2-N2	2.01	113.61	110.43
3	N	2	NAG	C4-C3-C2	2.00	113.95	111.02

There are no chirality outliers.

All (60) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	P	1	NAG	C4-C5-C6-O6
2	J	1	NAG	C4-C5-C6-O6
2	J	1	NAG	O5-C5-C6-O6
2	E	2	NAG	O5-C5-C6-O6
2	G	2	NAG	O5-C5-C6-O6
3	H	1	NAG	O5-C5-C6-O6
2	M	2	NAG	O5-C5-C6-O6
2	P	1	NAG	O5-C5-C6-O6
3	H	3	BMA	O5-C5-C6-O6
3	N	3	BMA	O5-C5-C6-O6
2	K	2	NAG	O5-C5-C6-O6
2	G	1	NAG	O5-C5-C6-O6
2	O	1	NAG	O5-C5-C6-O6
3	N	1	NAG	O5-C5-C6-O6
2	M	1	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
2	G	1	NAG	C4-C5-C6-O6
2	I	2	NAG	O5-C5-C6-O6
2	O	2	NAG	O5-C5-C6-O6
2	M	1	NAG	O5-C5-C6-O6
2	K	2	NAG	C4-C5-C6-O6
2	O	2	NAG	C4-C5-C6-O6
3	N	1	NAG	C4-C5-C6-O6
2	I	2	NAG	C4-C5-C6-O6
2	E	2	NAG	C4-C5-C6-O6
2	G	2	NAG	C4-C5-C6-O6
3	H	1	NAG	C4-C5-C6-O6
2	M	2	NAG	C4-C5-C6-O6
3	N	3	BMA	C4-C5-C6-O6
2	I	1	NAG	O5-C5-C6-O6
3	H	3	BMA	C4-C5-C6-O6
2	F	2	NAG	C8-C7-N2-C2
2	F	2	NAG	O7-C7-N2-C2
2	I	2	NAG	C8-C7-N2-C2
2	I	2	NAG	O7-C7-N2-C2
2	L	2	NAG	C8-C7-N2-C2
2	L	2	NAG	O7-C7-N2-C2
2	O	2	NAG	C8-C7-N2-C2
2	O	2	NAG	O7-C7-N2-C2
2	F	2	NAG	O5-C5-C6-O6
2	L	2	NAG	O5-C5-C6-O6
2	L	2	NAG	C4-C5-C6-O6
2	O	1	NAG	C4-C5-C6-O6
2	F	2	NAG	C4-C5-C6-O6
3	H	4	MAN	O5-C5-C6-O6
3	N	4	MAN	O5-C5-C6-O6
2	I	1	NAG	C4-C5-C6-O6
2	E	1	NAG	O5-C5-C6-O6
2	E	1	NAG	C3-C2-N2-C7
2	K	1	NAG	C3-C2-N2-C7
3	H	1	NAG	C3-C2-N2-C7
3	N	1	NAG	C3-C2-N2-C7
2	K	1	NAG	O5-C5-C6-O6
2	E	1	NAG	C1-C2-N2-C7
2	J	1	NAG	C1-C2-N2-C7
2	K	1	NAG	C1-C2-N2-C7
2	P	1	NAG	C1-C2-N2-C7
3	H	1	NAG	C1-C2-N2-C7

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Mol	Chain	Res	Type	Atoms
3	N	1	NAG	C1-C2-N2-C7
2	J	1	NAG	C3-C2-N2-C7
2	P	1	NAG	C3-C2-N2-C7

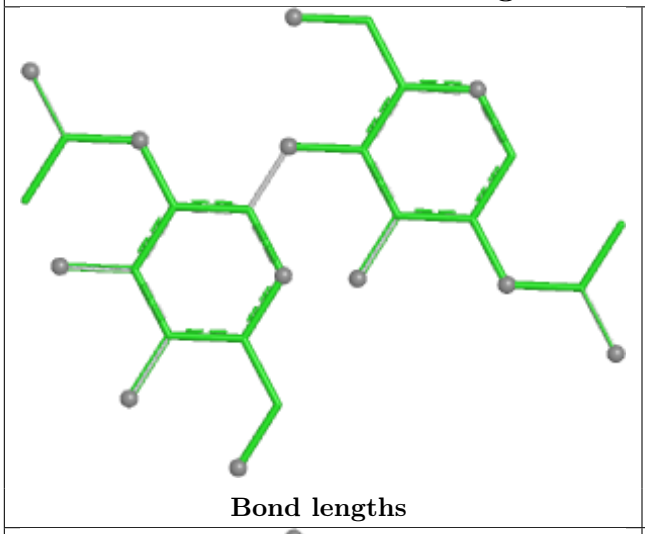
There are no ring outliers.

1 monomer is involved in 1 short contact:

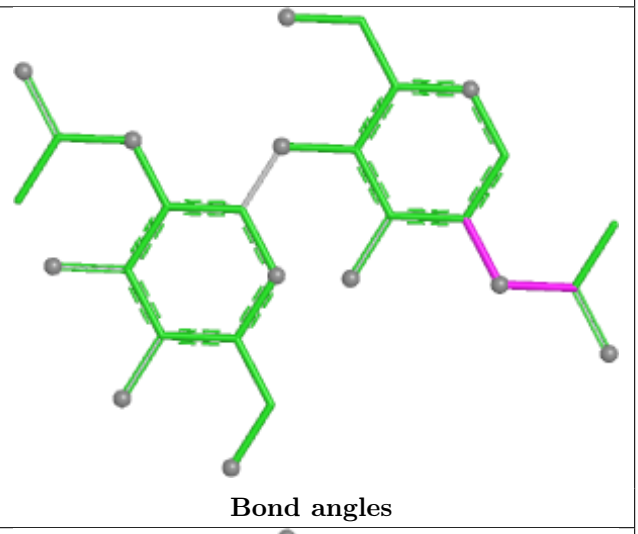
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	H	1	NAG	1	0

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

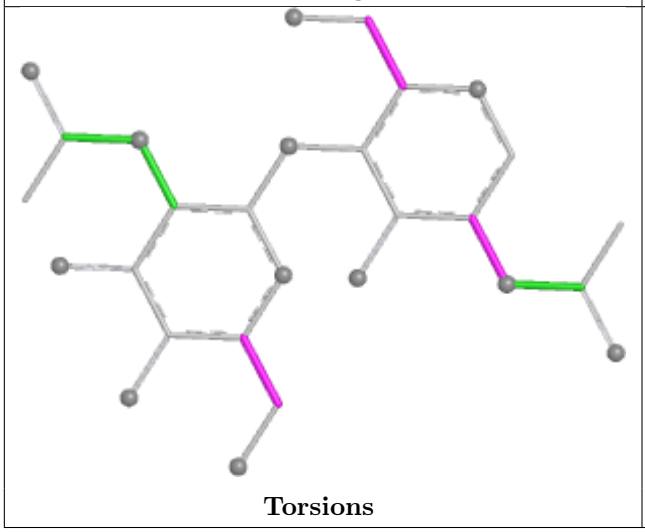
Oligosaccharide Chain E



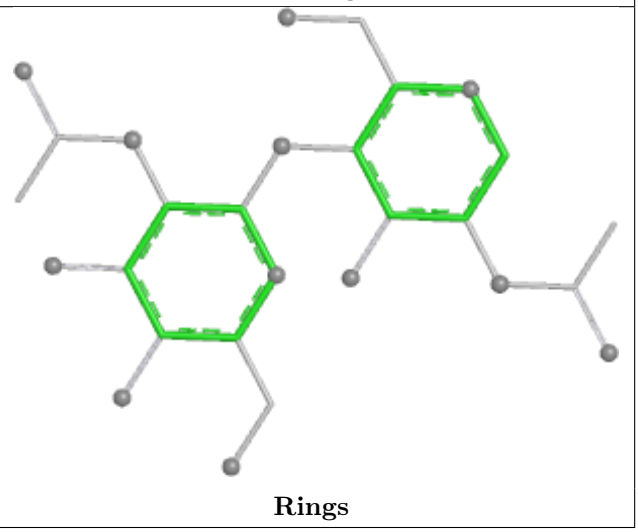
Bond lengths



Bond angles

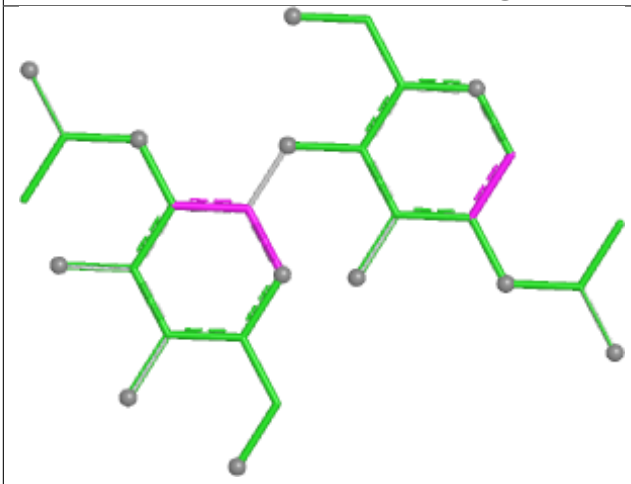


Torsions

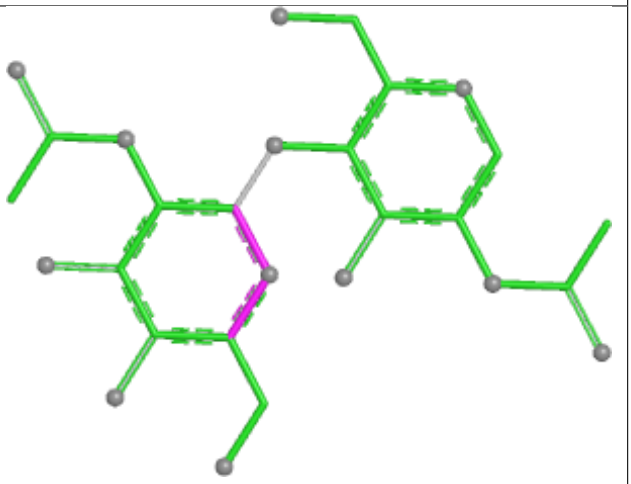


Rings

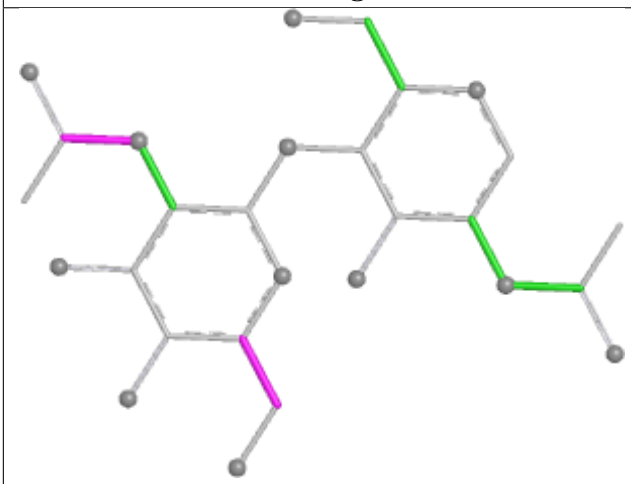
Oligosaccharide Chain F



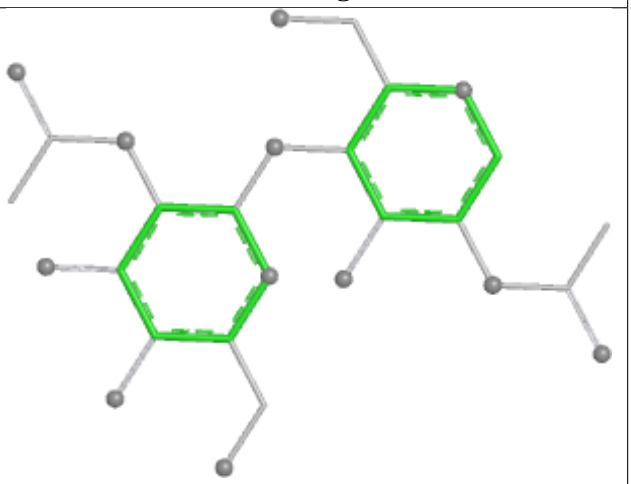
Bond lengths



Bond angles

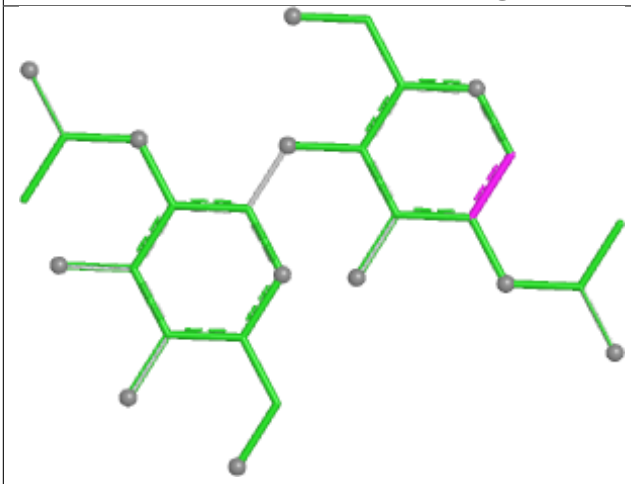


Torsions

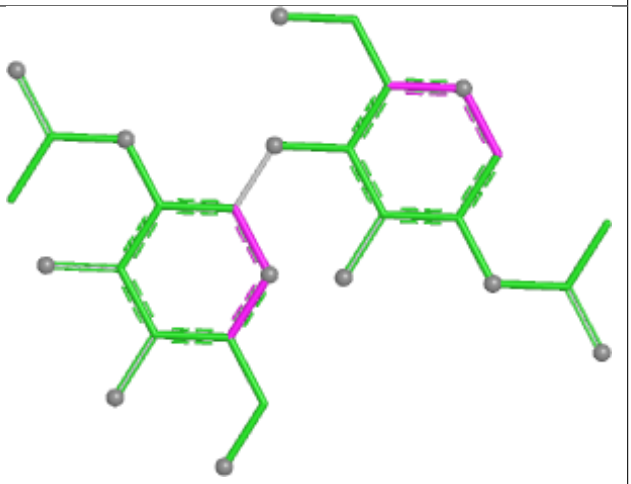


Rings

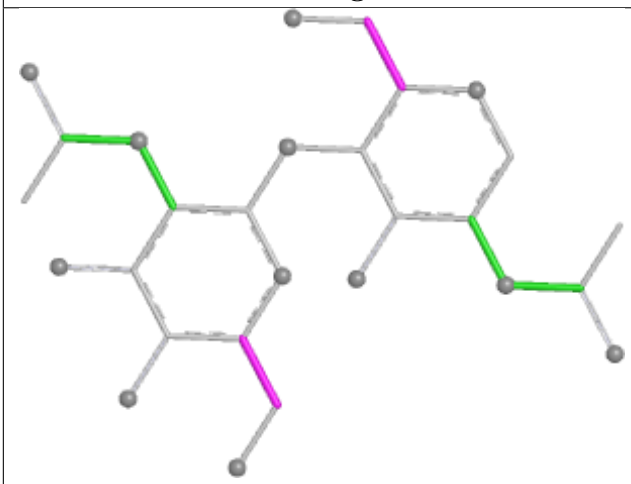
Oligosaccharide Chain G



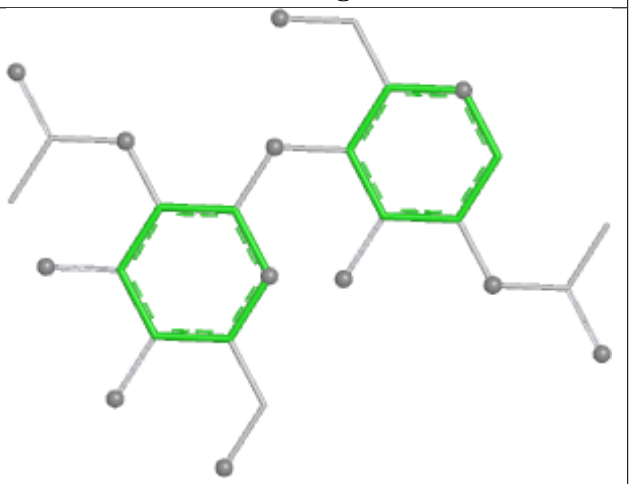
Bond lengths



Bond angles

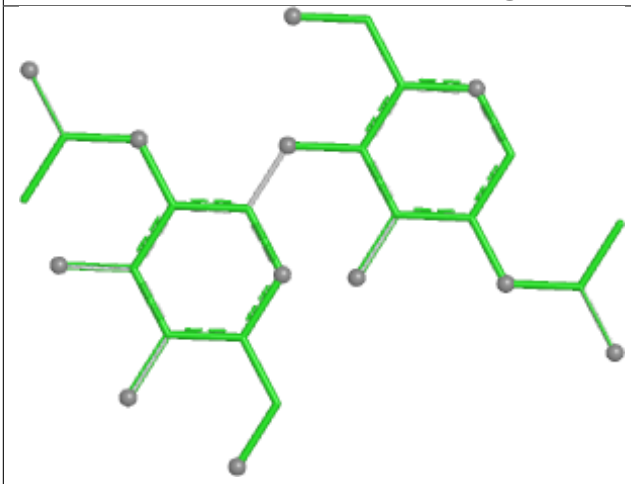


Torsions

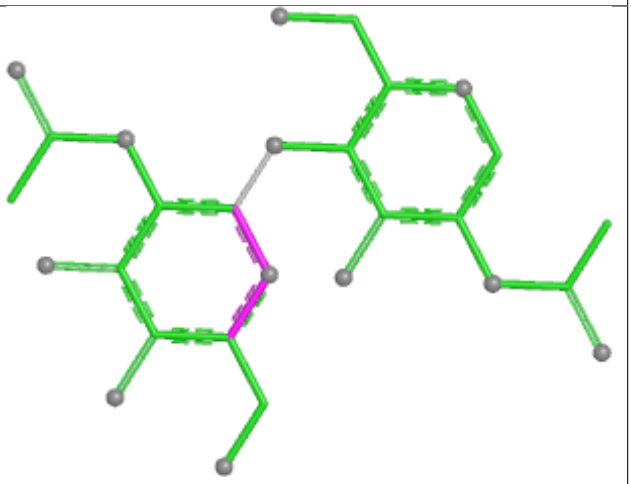


Rings

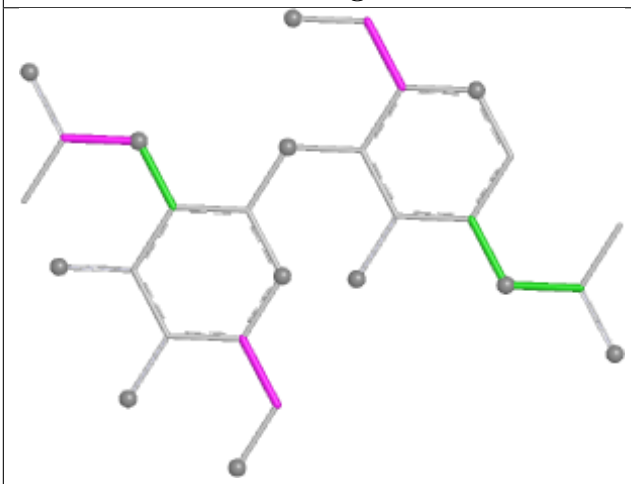
Oligosaccharide Chain I



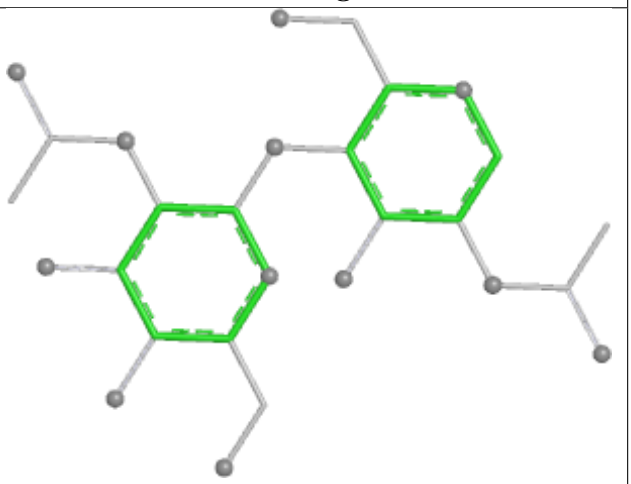
Bond lengths



Bond angles

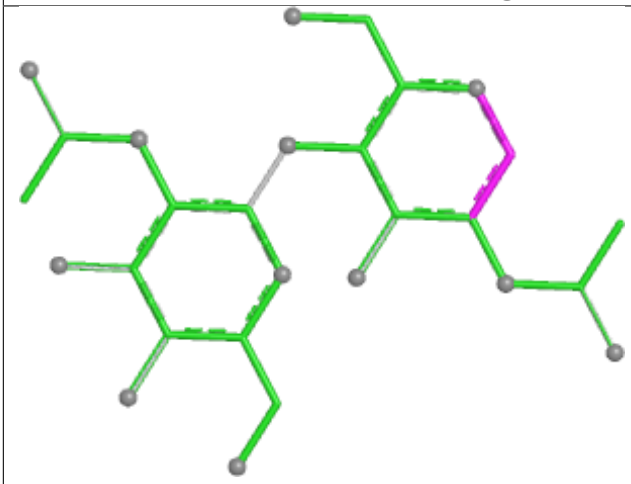


Torsions

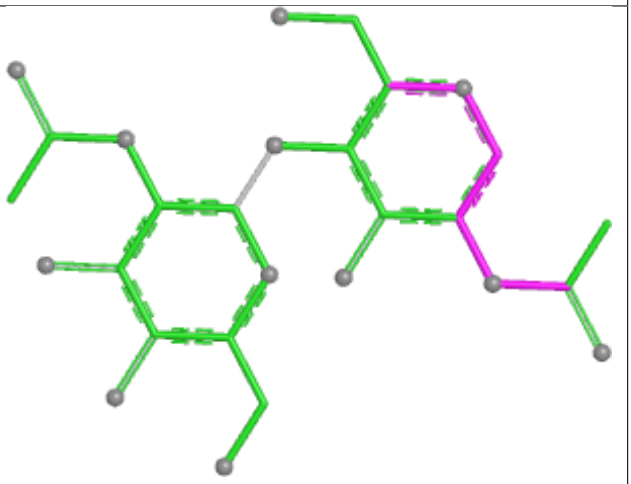


Rings

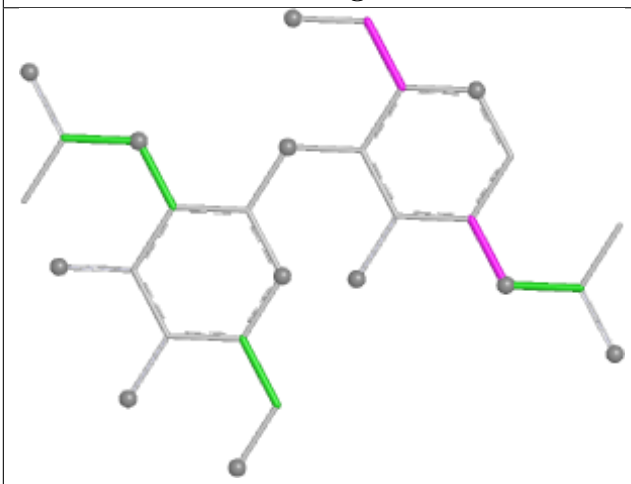
Oligosaccharide Chain J



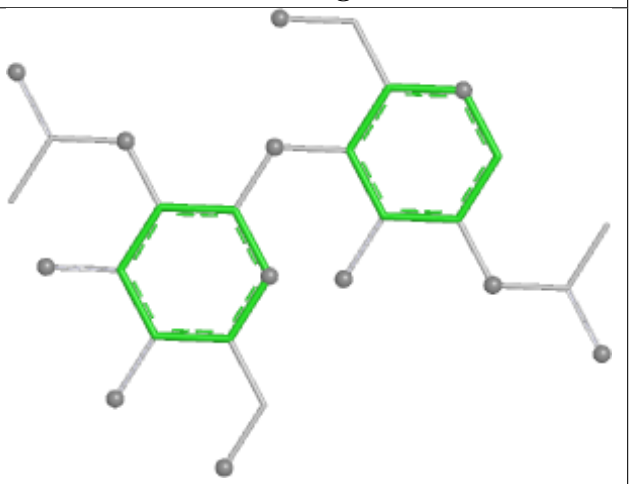
Bond lengths



Bond angles

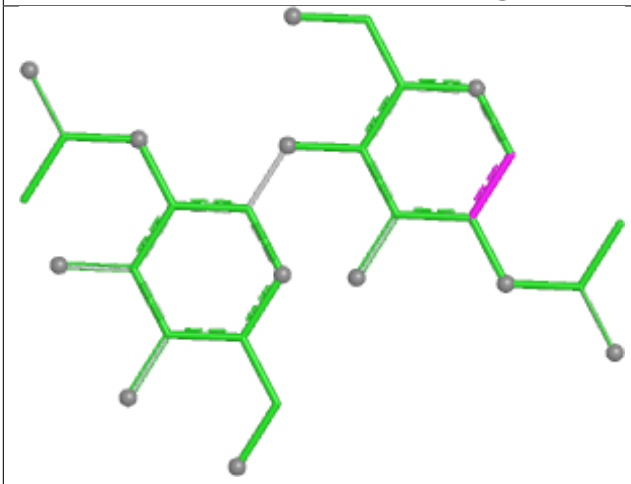


Torsions

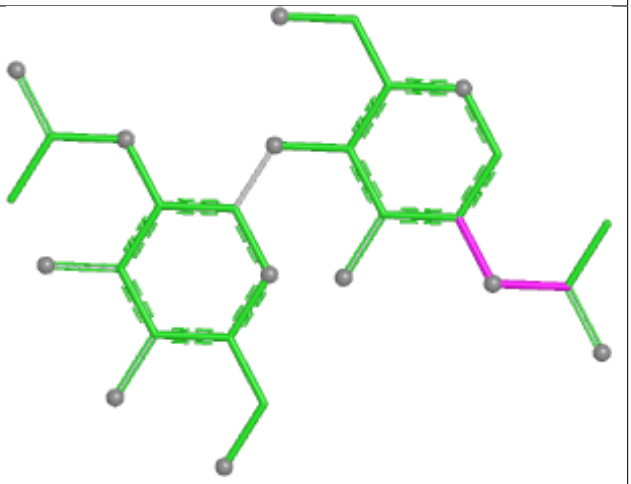


Rings

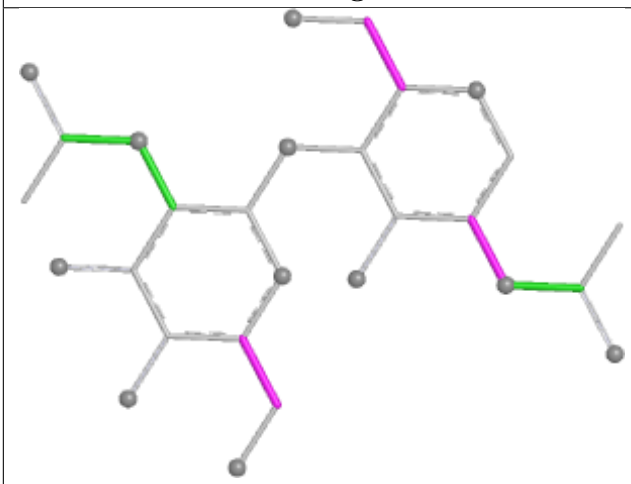
Oligosaccharide Chain K



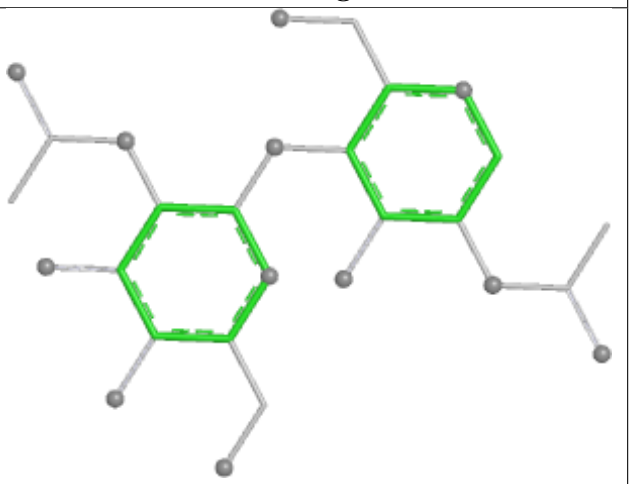
Bond lengths



Bond angles

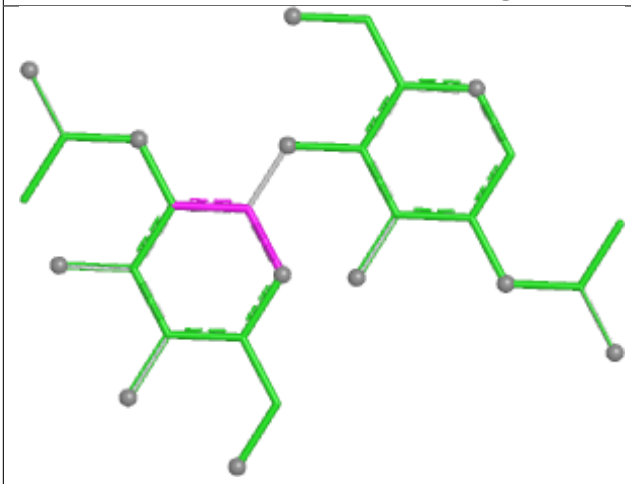


Torsions

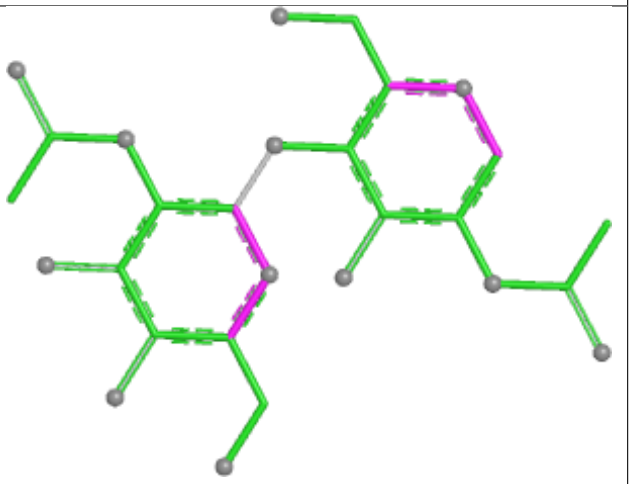


Rings

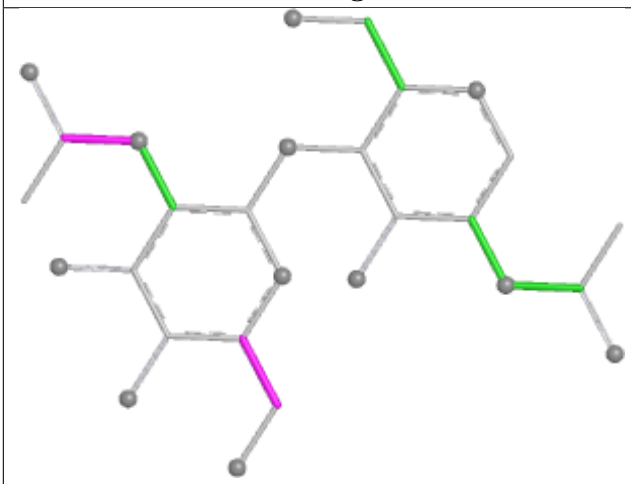
Oligosaccharide Chain L



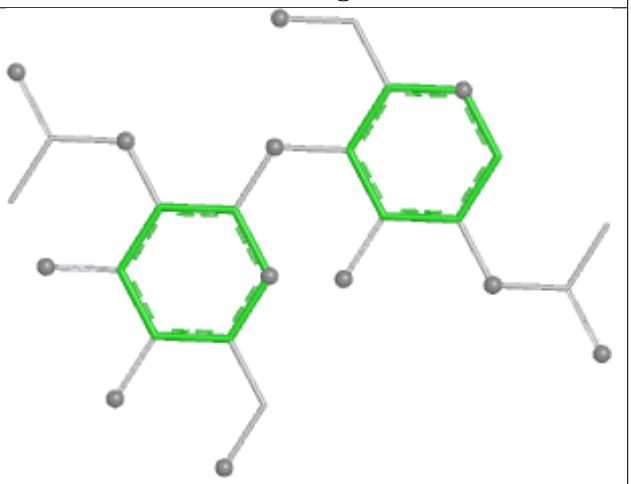
Bond lengths



Bond angles

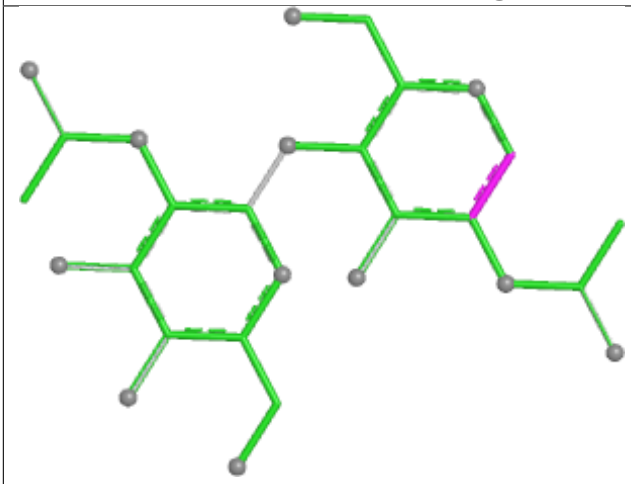


Torsions

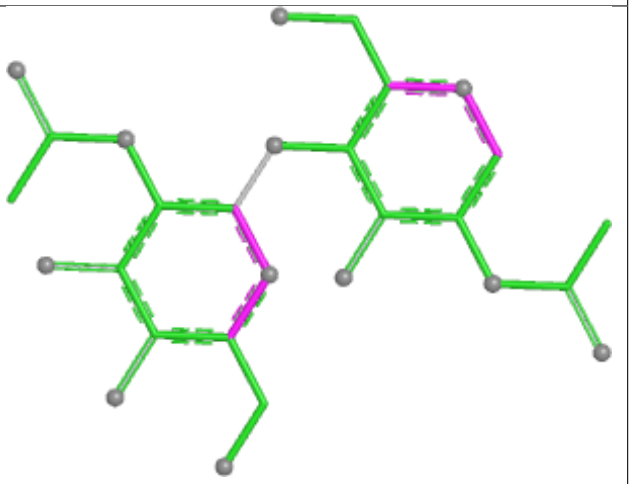


Rings

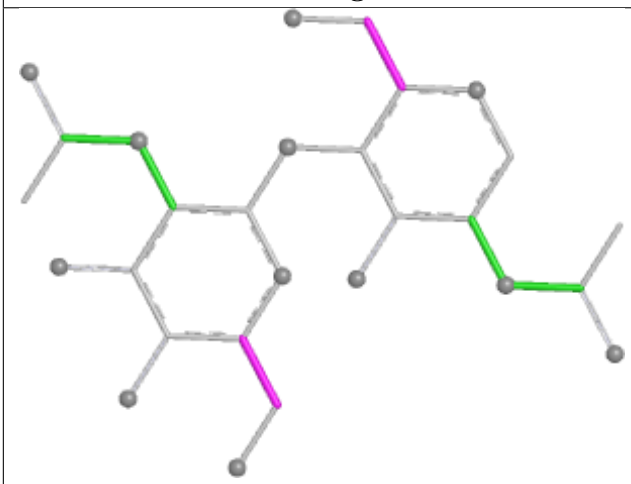
Oligosaccharide Chain M



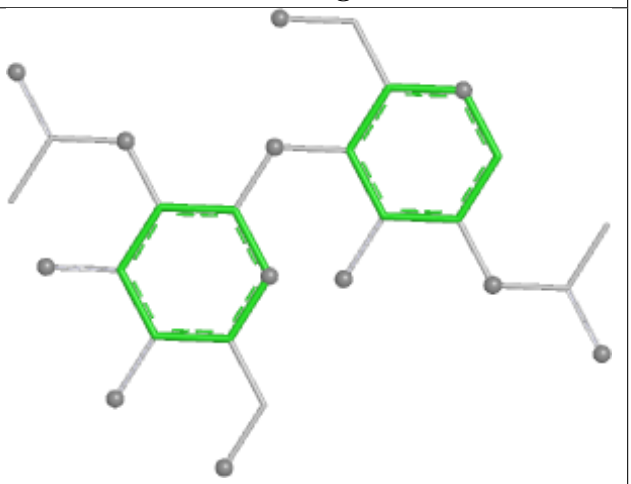
Bond lengths



Bond angles

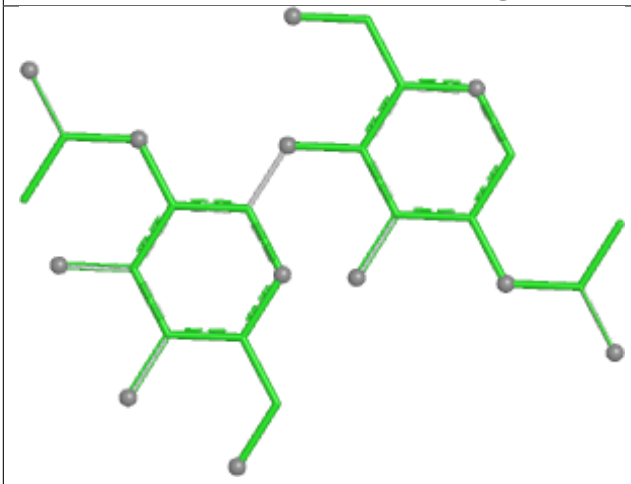


Torsions

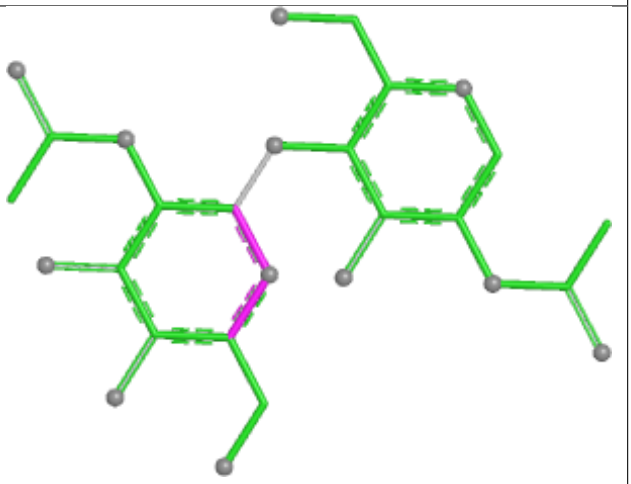


Rings

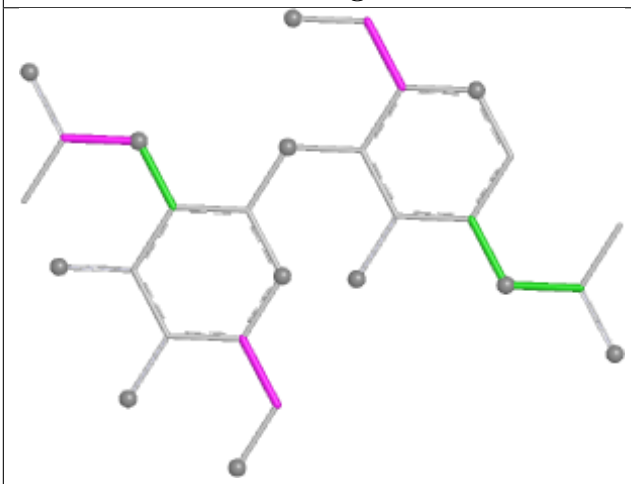
Oligosaccharide Chain O



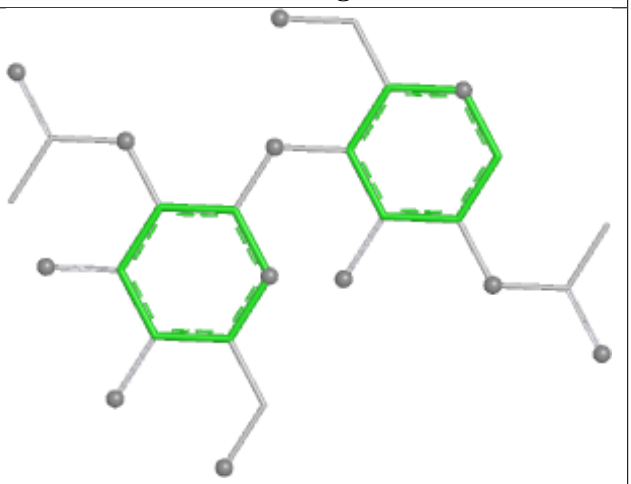
Bond lengths



Bond angles

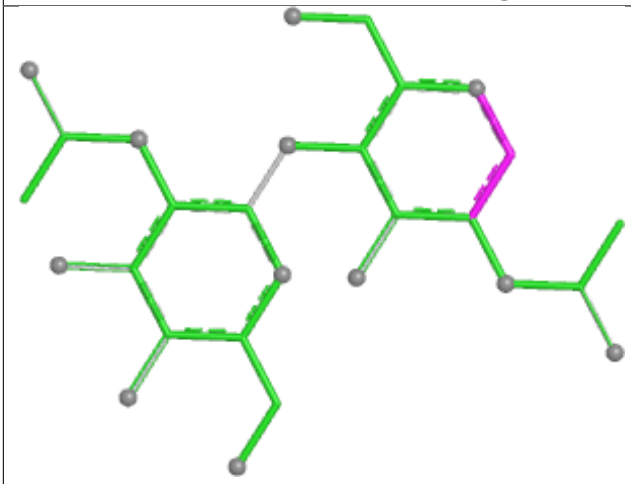


Torsions

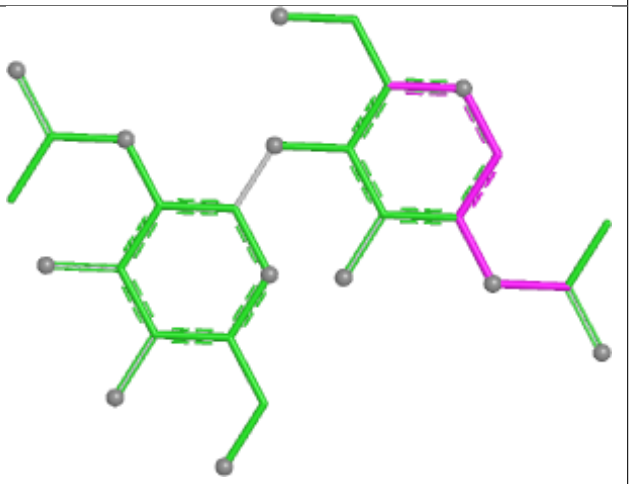


Rings

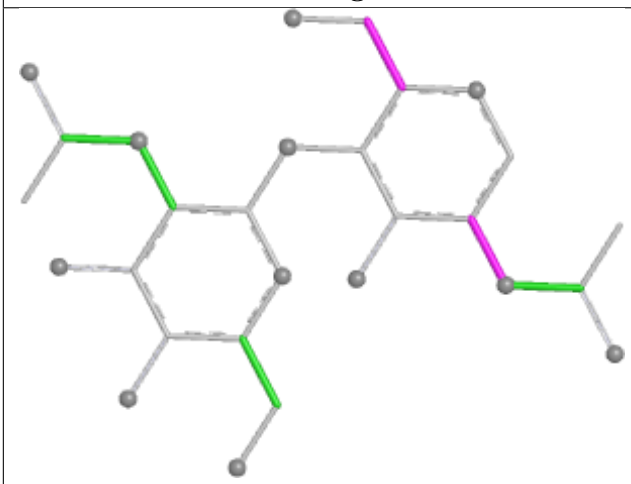
Oligosaccharide Chain P



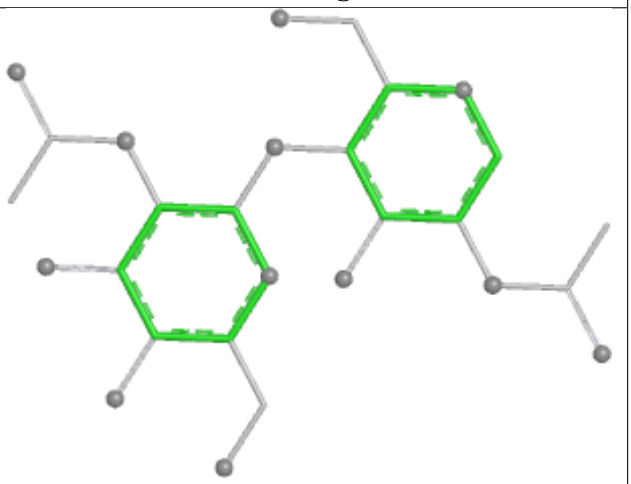
Bond lengths



Bond angles

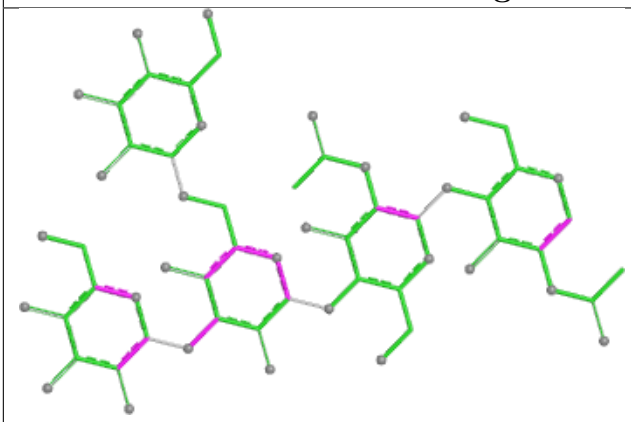


Torsions

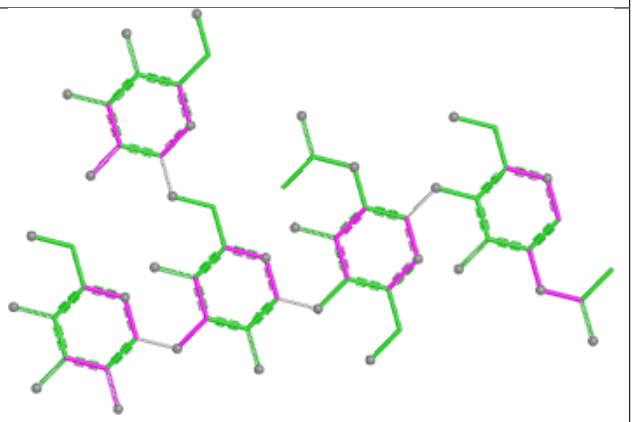


Rings

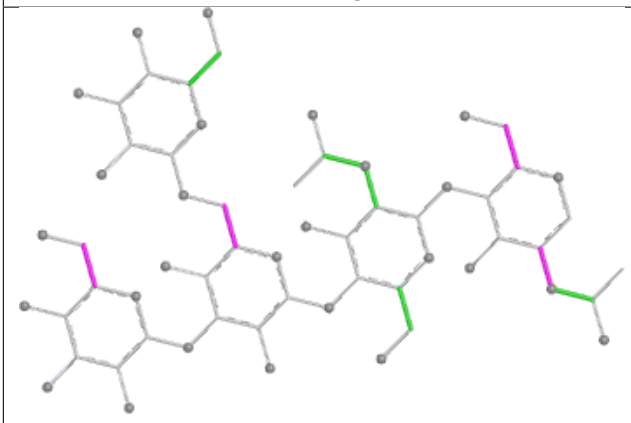
Oligosaccharide Chain H



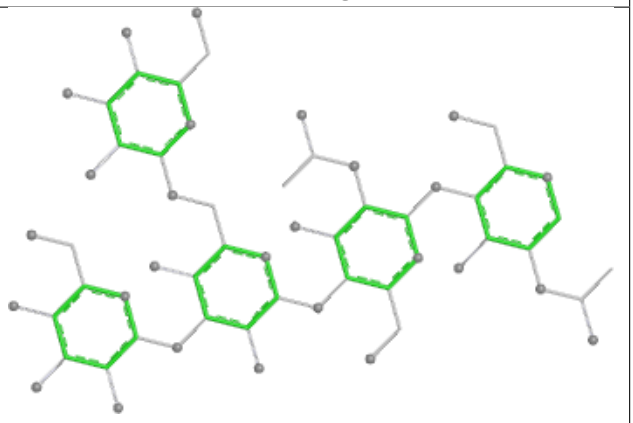
Bond lengths



Bond angles

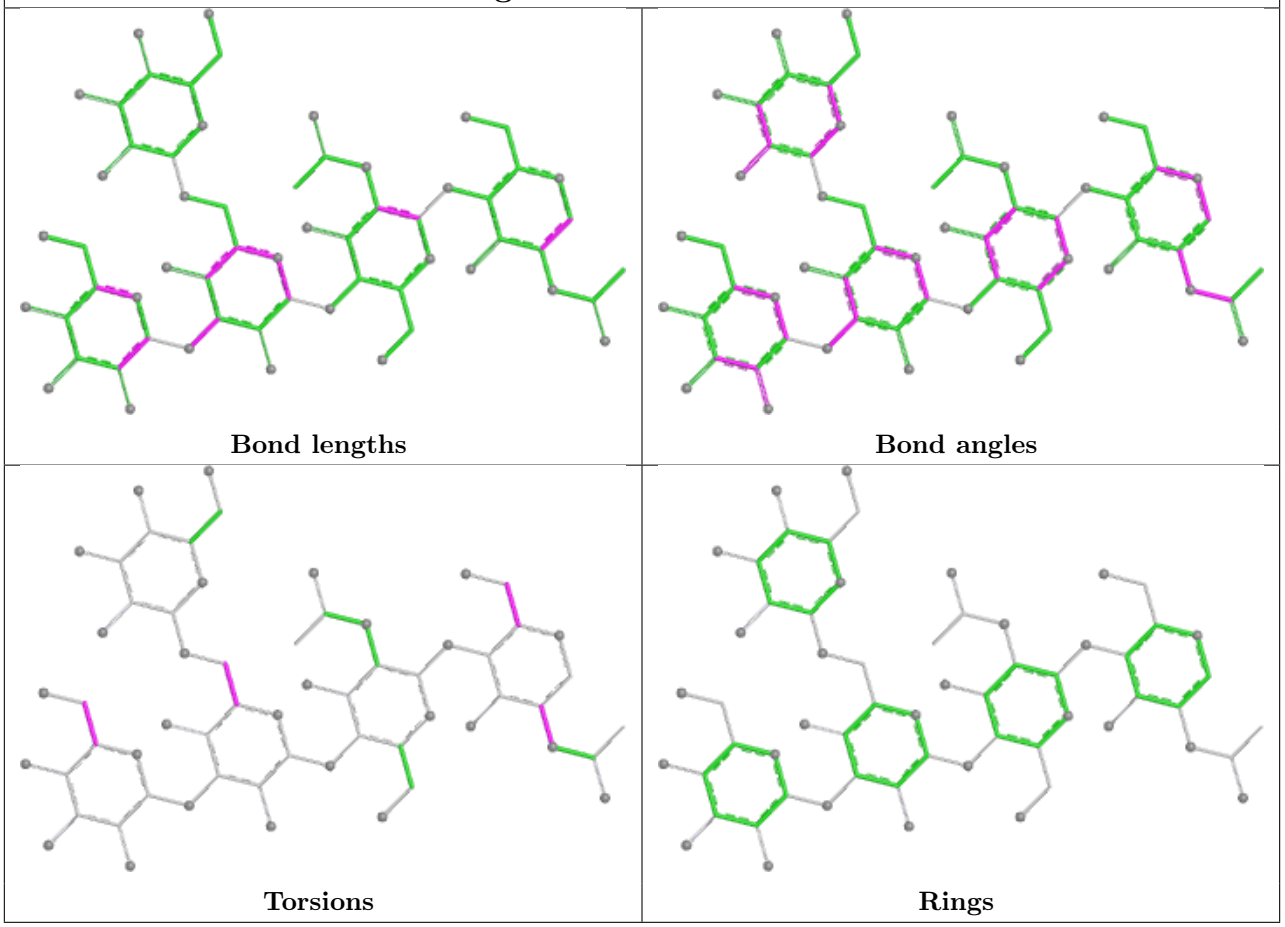


Torsions



Rings

Oligosaccharide Chain N



5.6 Ligand geometry (i)

Of 34 ligands modelled in this entry, 4 are monoatomic - leaving 30 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
5	NAG	C	1005	1	14,14,15	0.57	0	17,19,21	0.54	0
4	POV	A	1008	-	51,51,51	1.10	3 (5%)	57,59,59	0.87	2 (3%)
5	NAG	D	1005	1	14,14,15	0.37	0	17,19,21	0.56	0
5	NAG	D	1007	1	14,14,15	0.48	0	17,19,21	1.02	1 (5%)
4	POV	A	1001	-	51,51,51	1.11	3 (5%)	57,59,59	1.07	3 (5%)
4	POV	B	1001	-	51,51,51	1.10	3 (5%)	57,59,59	0.87	3 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	NAG	C	1006	1	14,14,15	0.35	0	17,19,21	0.56	0
4	POV	D	1004	-	51,51,51	1.10	2 (3%)	57,59,59	0.92	3 (5%)
4	POV	D	1001	-	51,51,51	1.10	3 (5%)	57,59,59	0.90	3 (5%)
4	POV	B	1006	-	51,51,51	1.10	3 (5%)	57,59,59	0.90	3 (5%)
5	NAG	B	1004	1	14,14,15	0.42	0	17,19,21	0.50	0
4	POV	A	1009	-	51,51,51	1.11	3 (5%)	57,59,59	0.92	3 (5%)
4	POV	B	1002	-	51,51,51	1.09	3 (5%)	57,59,59	0.95	3 (5%)
4	POV	A	1002	-	51,51,51	1.11	3 (5%)	57,59,59	0.97	4 (7%)
5	NAG	A	1004	1	14,14,15	0.64	1 (7%)	17,19,21	0.44	0
4	POV	A	1003	-	51,51,51	1.10	3 (5%)	57,59,59	0.91	3 (5%)
4	POV	D	1003	-	51,51,51	1.09	3 (5%)	57,59,59	0.95	3 (5%)
5	NAG	B	1003	1	14,14,15	0.41	0	17,19,21	0.51	0
5	NAG	C	1004	1	14,14,15	1.15	2 (14%)	17,19,21	1.33	1 (5%)
4	POV	C	1007	-	51,51,51	1.10	3 (5%)	57,59,59	0.88	2 (3%)
4	POV	B	1007	-	51,51,51	1.10	3 (5%)	57,59,59	0.90	3 (5%)
4	POV	D	1002	-	51,51,51	1.10	3 (5%)	57,59,59	0.87	3 (5%)
5	NAG	D	1006	1	14,14,15	0.43	0	17,19,21	0.50	0
4	POV	C	1002	-	51,51,51	1.10	3 (5%)	57,59,59	0.97	3 (5%)
4	POV	C	1001	-	51,51,51	1.12	3 (5%)	57,59,59	1.06	3 (5%)
5	NAG	C	1003	1	14,14,15	0.63	1 (7%)	17,19,21	0.48	0
5	NAG	A	1007	1	14,14,15	0.36	0	17,19,21	0.52	0
5	NAG	B	1005	1	14,14,15	0.46	0	17,19,21	1.01	1 (5%)
5	NAG	A	1006	1	14,14,15	0.60	0	17,19,21	0.55	0
5	NAG	A	1005	1	14,14,15	1.14	1 (7%)	17,19,21	1.30	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
5	NAG	C	1005	1	-	1/6/23/26	0/1/1/1
4	POV	A	1008	-	-	28/55/55/55	-
5	NAG	D	1005	1	-	0/6/23/26	0/1/1/1
5	NAG	D	1007	1	-	4/6/23/26	0/1/1/1
4	POV	A	1001	-	-	30/55/55/55	-
4	POV	B	1001	-	-	30/55/55/55	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	C	1006	1	-	2/6/23/26	0/1/1/1
4	POV	D	1004	-	-	25/55/55/55	-
4	POV	D	1001	-	-	29/55/55/55	-
4	POV	B	1006	-	-	29/55/55/55	-
5	NAG	B	1004	1	-	4/6/23/26	0/1/1/1
4	POV	A	1009	-	-	25/55/55/55	-
4	POV	B	1002	-	-	27/55/55/55	-
4	POV	A	1002	-	-	26/55/55/55	-
5	NAG	A	1004	1	-	1/6/23/26	0/1/1/1
4	POV	A	1003	-	-	27/55/55/55	-
4	POV	D	1003	-	-	25/55/55/55	-
5	NAG	B	1003	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1004	1	-	2/6/23/26	0/1/1/1
4	POV	C	1007	-	-	28/55/55/55	-
4	POV	B	1007	-	-	29/55/55/55	-
4	POV	D	1002	-	-	30/55/55/55	-
5	NAG	D	1006	1	-	4/6/23/26	0/1/1/1
4	POV	C	1002	-	-	25/55/55/55	-
4	POV	C	1001	-	-	30/55/55/55	-
5	NAG	C	1003	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1007	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1005	1	-	4/6/23/26	0/1/1/1
5	NAG	A	1006	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1005	1	-	2/6/23/26	0/1/1/1

All (52) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	1005	NAG	O5-C1	3.65	1.49	1.43
5	C	1004	NAG	O5-C1	3.63	1.49	1.43
4	A	1001	POV	O21-C21	3.17	1.43	1.34
4	C	1001	POV	O21-C21	3.15	1.43	1.34
4	A	1009	POV	O21-C21	3.02	1.42	1.34
4	D	1004	POV	O21-C21	2.99	1.42	1.34
4	B	1001	POV	O21-C21	2.91	1.42	1.34
4	A	1002	POV	O21-C21	2.90	1.42	1.34
4	C	1001	POV	O31-C31	2.89	1.41	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	1002	POV	O21-C21	2.88	1.42	1.34
4	C	1002	POV	O21-C21	2.86	1.42	1.34
4	B	1007	POV	O21-C21	2.85	1.42	1.34
4	A	1008	POV	O21-C21	2.84	1.42	1.34
4	B	1002	POV	O21-C21	2.82	1.42	1.34
4	A	1001	POV	O31-C31	2.82	1.41	1.33
4	A	1009	POV	O31-C31	2.82	1.41	1.33
4	C	1007	POV	O21-C21	2.81	1.42	1.34
4	A	1003	POV	O21-C21	2.81	1.42	1.34
4	D	1003	POV	O21-C21	2.80	1.42	1.34
4	A	1008	POV	O31-C31	2.80	1.41	1.33
4	D	1001	POV	O31-C31	2.79	1.41	1.33
4	B	1006	POV	O31-C31	2.79	1.41	1.33
4	C	1007	POV	O31-C31	2.79	1.41	1.33
4	D	1002	POV	O31-C31	2.75	1.41	1.33
4	B	1001	POV	O31-C31	2.75	1.41	1.33
4	B	1007	POV	O31-C31	2.75	1.41	1.33
4	A	1003	POV	O31-C31	2.75	1.41	1.33
4	A	1002	POV	O31-C31	2.74	1.41	1.33
4	D	1004	POV	O31-C31	2.73	1.41	1.33
4	D	1001	POV	O21-C21	2.73	1.42	1.34
4	C	1002	POV	O31-C31	2.72	1.41	1.33
4	B	1006	POV	O21-C21	2.72	1.42	1.34
4	B	1002	POV	O31-C31	2.69	1.41	1.33
4	D	1003	POV	O31-C31	2.65	1.41	1.33
4	B	1001	POV	O21-C2	-2.59	1.40	1.46
4	D	1002	POV	O21-C2	-2.59	1.40	1.46
4	A	1002	POV	O21-C2	-2.57	1.40	1.46
4	A	1003	POV	O21-C2	-2.56	1.40	1.46
4	D	1001	POV	O21-C2	-2.54	1.40	1.46
4	B	1006	POV	O21-C2	-2.53	1.40	1.46
4	D	1003	POV	O21-C2	-2.53	1.40	1.46
4	C	1002	POV	O21-C2	-2.51	1.40	1.46
4	B	1007	POV	O21-C2	-2.50	1.40	1.46
4	B	1002	POV	O21-C2	-2.48	1.40	1.46
4	C	1007	POV	O21-C2	-2.45	1.40	1.46
4	A	1008	POV	O21-C2	-2.44	1.40	1.46
4	C	1001	POV	O21-C2	-2.32	1.41	1.46
4	A	1001	POV	O21-C2	-2.31	1.41	1.46
5	A	1004	NAG	C1-C2	2.22	1.55	1.52
5	C	1003	NAG	C1-C2	2.19	1.55	1.52
5	C	1004	NAG	C1-C2	2.05	1.55	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1009	POV	O21-C2	-2.04	1.41	1.46

All (51) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	C	1004	NAG	C1-O5-C5	5.26	119.24	112.19
5	A	1005	NAG	C1-O5-C5	5.13	119.06	112.19
4	A	1001	POV	O21-C21-C22	5.09	122.49	111.48
4	C	1001	POV	O21-C21-C22	5.05	122.41	111.48
4	A	1002	POV	O21-C21-C22	4.52	121.27	111.48
4	C	1002	POV	O21-C21-C22	4.52	121.26	111.48
4	B	1002	POV	O21-C21-C22	3.93	119.99	111.48
4	D	1003	POV	O21-C21-C22	3.92	119.97	111.48
4	B	1006	POV	O21-C21-C22	3.90	119.91	111.48
4	B	1007	POV	O21-C21-C22	3.88	119.88	111.48
4	D	1001	POV	O21-C21-C22	3.88	119.88	111.48
4	A	1003	POV	O21-C21-C22	3.83	119.77	111.48
4	A	1008	POV	O21-C21-C22	3.77	119.63	111.48
4	C	1007	POV	O21-C21-C22	3.76	119.62	111.48
4	D	1004	POV	O21-C21-C22	3.72	119.52	111.48
4	A	1009	POV	O21-C21-C22	3.66	119.41	111.48
4	B	1001	POV	O21-C21-C22	3.59	119.24	111.48
4	D	1002	POV	O21-C21-C22	3.36	118.74	111.48
5	D	1007	NAG	C2-N2-C7	3.26	127.28	122.90
5	B	1005	NAG	C2-N2-C7	3.21	127.20	122.90
4	A	1001	POV	O31-C31-C32	3.05	121.14	111.83
4	C	1001	POV	O31-C31-C32	3.00	120.97	111.83
4	A	1009	POV	O31-C31-C32	2.80	120.38	111.83
4	C	1002	POV	O31-C31-C32	2.71	120.09	111.83
4	A	1002	POV	O31-C31-C32	2.69	120.05	111.83
4	D	1004	POV	O31-C31-C32	2.69	120.03	111.83
4	D	1001	POV	O31-C31-C32	2.69	120.02	111.83
4	B	1006	POV	O31-C31-C32	2.68	120.02	111.83
4	A	1003	POV	O31-C31-C32	2.67	119.97	111.83
4	B	1007	POV	O31-C31-C32	2.66	119.95	111.83
4	D	1002	POV	O31-C31-C32	2.66	119.93	111.83
4	B	1001	POV	O31-C31-C32	2.63	119.86	111.83
4	C	1007	POV	O31-C31-C32	2.59	119.75	111.83
4	B	1002	POV	O31-C31-C32	2.59	119.74	111.83
4	A	1008	POV	O31-C31-C32	2.58	119.71	111.83
4	D	1003	POV	O31-C31-C32	2.58	119.69	111.83
4	A	1009	POV	C14-N-C12	2.43	119.56	109.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	1004	POV	C14-N-C12	2.40	119.45	109.91
4	C	1001	POV	C14-N-C12	2.35	119.26	109.91
4	A	1001	POV	C14-N-C12	2.34	119.20	109.91
4	A	1003	POV	C14-N-C12	2.33	119.17	109.91
4	D	1003	POV	C14-N-C12	2.32	119.15	109.91
4	B	1002	POV	C14-N-C12	2.32	119.13	109.91
4	B	1001	POV	C14-N-C12	2.17	118.54	109.91
4	D	1002	POV	C14-N-C12	2.15	118.48	109.91
4	C	1002	POV	C14-N-C12	2.14	118.43	109.91
4	A	1002	POV	C14-N-C12	2.14	118.42	109.91
4	D	1001	POV	C14-N-C12	2.13	118.36	109.91
4	B	1006	POV	C14-N-C12	2.11	118.31	109.91
4	B	1007	POV	C14-N-C12	2.06	118.11	109.91
4	A	1002	POV	O21-C21-O22	-2.03	118.96	123.70

There are no chirality outliers.

All (474) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1001	POV	C11-O12-P-O11
4	A	1001	POV	C11-O12-P-O13
4	A	1001	POV	C11-O12-P-O14
4	A	1001	POV	C22-C21-O21-C2
4	A	1001	POV	O22-C21-O21-C2
4	A	1002	POV	C1-O11-P-O12
4	A	1002	POV	C1-O11-P-O14
4	A	1002	POV	O11-C1-C2-O21
4	A	1002	POV	C22-C21-O21-C2
4	A	1002	POV	O22-C21-O21-C2
4	A	1003	POV	C11-O12-P-O11
4	A	1003	POV	C11-O12-P-O13
4	A	1003	POV	C11-O12-P-O14
4	A	1003	POV	C22-C21-O21-C2
4	A	1008	POV	C1-O11-P-O12
4	A	1008	POV	C1-O11-P-O13
4	A	1008	POV	C22-C21-O21-C2
4	A	1008	POV	O22-C21-O21-C2
4	A	1008	POV	C26-C27-C28-C29
4	A	1009	POV	O22-C21-O21-C2
4	B	1001	POV	C1-O11-P-O12
4	B	1001	POV	C11-O12-P-O11
4	B	1001	POV	C11-O12-P-O13

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Mol	Chain	Res	Type	Atoms
4	B	1002	POV	C1-O11-P-O12
4	B	1002	POV	C1-O11-P-O13
4	B	1002	POV	C1-O11-P-O14
4	B	1002	POV	C11-O12-P-O11
4	B	1002	POV	C11-O12-P-O13
4	B	1002	POV	C11-O12-P-O14
4	B	1002	POV	C22-C21-O21-C2
4	B	1006	POV	C1-O11-P-O12
4	B	1006	POV	C1-O11-P-O13
4	B	1006	POV	C1-O11-P-O14
4	B	1006	POV	C11-O12-P-O11
4	B	1006	POV	C11-O12-P-O13
4	B	1006	POV	C11-O12-P-O14
4	B	1006	POV	C22-C21-O21-C2
4	B	1007	POV	C1-O11-P-O14
4	B	1007	POV	C11-O12-P-O11
4	B	1007	POV	C11-O12-P-O14
4	B	1007	POV	O12-C11-C12-N
4	C	1001	POV	C11-O12-P-O11
4	C	1001	POV	C11-O12-P-O13
4	C	1001	POV	C11-O12-P-O14
4	C	1001	POV	C22-C21-O21-C2
4	C	1001	POV	O22-C21-O21-C2
4	C	1002	POV	C1-O11-P-O12
4	C	1002	POV	C1-O11-P-O14
4	C	1002	POV	O11-C1-C2-O21
4	C	1002	POV	C22-C21-O21-C2
4	C	1002	POV	O22-C21-O21-C2
4	C	1007	POV	C1-O11-P-O12
4	C	1007	POV	C1-O11-P-O13
4	C	1007	POV	C1-O11-P-O14
4	C	1007	POV	C22-C21-O21-C2
4	C	1007	POV	O22-C21-O21-C2
4	C	1007	POV	C26-C27-C28-C29
4	D	1001	POV	C1-O11-P-O12
4	D	1001	POV	C1-O11-P-O13
4	D	1001	POV	C1-O11-P-O14
4	D	1001	POV	C11-O12-P-O11
4	D	1001	POV	C11-O12-P-O13
4	D	1001	POV	C11-O12-P-O14
4	D	1002	POV	C1-O11-P-O12
4	D	1002	POV	C11-O12-P-O11

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Mol	Chain	Res	Type	Atoms
4	D	1002	POV	C11-O12-P-O13
4	D	1002	POV	C11-O12-P-O14
4	D	1003	POV	C1-O11-P-O12
4	D	1003	POV	C1-O11-P-O13
4	D	1003	POV	C1-O11-P-O14
4	D	1003	POV	C11-O12-P-O11
4	D	1003	POV	C11-O12-P-O13
4	D	1003	POV	C11-O12-P-O14
4	D	1003	POV	O21-C2-C3-O31
4	D	1003	POV	C22-C21-O21-C2
4	D	1004	POV	C22-C21-O21-C2
4	A	1003	POV	O32-C31-O31-C3
4	A	1009	POV	O32-C31-O31-C3
4	B	1007	POV	O32-C31-O31-C3
4	D	1004	POV	O32-C31-O31-C3
4	A	1003	POV	O22-C21-O21-C2
4	B	1002	POV	O22-C21-O21-C2
4	B	1006	POV	O22-C21-O21-C2
4	D	1001	POV	O22-C21-O21-C2
4	D	1003	POV	O22-C21-O21-C2
4	D	1004	POV	O22-C21-O21-C2
5	C	1003	NAG	C4-C5-C6-O6
4	A	1009	POV	C32-C31-O31-C3
4	D	1004	POV	C32-C31-O31-C3
4	A	1009	POV	C22-C21-O21-C2
4	D	1001	POV	C22-C21-O21-C2
5	D	1007	NAG	O5-C5-C6-O6
4	A	1003	POV	C32-C31-O31-C3
4	B	1007	POV	C32-C31-O31-C3
5	A	1005	NAG	O5-C5-C6-O6
5	B	1004	NAG	O5-C5-C6-O6
5	B	1005	NAG	O5-C5-C6-O6
5	D	1007	NAG	C4-C5-C6-O6
5	C	1006	NAG	O5-C5-C6-O6
5	C	1003	NAG	O5-C5-C6-O6
5	B	1005	NAG	C4-C5-C6-O6
5	C	1004	NAG	C4-C5-C6-O6
5	D	1006	NAG	O5-C5-C6-O6
5	B	1004	NAG	C4-C5-C6-O6
5	A	1005	NAG	C4-C5-C6-O6
5	A	1007	NAG	O5-C5-C6-O6
4	D	1002	POV	C24-C25-C26-C27

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Mol	Chain	Res	Type	Atoms
4	B	1007	POV	C22-C21-O21-C2
4	A	1002	POV	C32-C31-O31-C3
4	C	1002	POV	C32-C31-O31-C3
5	D	1006	NAG	C4-C5-C6-O6
4	C	1001	POV	C214-C215-C216-C217
5	C	1004	NAG	O5-C5-C6-O6
4	B	1001	POV	C24-C25-C26-C27
4	A	1002	POV	O32-C31-O31-C3
4	C	1002	POV	O32-C31-O31-C3
4	C	1001	POV	O11-C1-C2-O21
5	B	1004	NAG	C8-C7-N2-C2
5	B	1004	NAG	O7-C7-N2-C2
5	D	1006	NAG	C8-C7-N2-C2
5	D	1006	NAG	O7-C7-N2-C2
4	D	1002	POV	C31-C32-C33-C34
4	A	1009	POV	C36-C37-C38-C39
4	D	1004	POV	C22-C23-C24-C25
4	A	1001	POV	C21-C22-C23-C24
4	A	1003	POV	C21-C22-C23-C24
4	B	1001	POV	C31-C32-C33-C34
4	C	1001	POV	C21-C22-C23-C24
4	D	1001	POV	C21-C22-C23-C24
4	D	1004	POV	C36-C37-C38-C39
4	A	1001	POV	C214-C215-C216-C217
4	D	1002	POV	C39-C310-C311-C312
4	B	1006	POV	C21-C22-C23-C24
4	B	1007	POV	O22-C21-O21-C2
5	B	1003	NAG	O5-C5-C6-O6
4	B	1007	POV	C21-C22-C23-C24
4	A	1008	POV	C21-C22-C23-C24
4	B	1007	POV	C24-C25-C26-C27
4	A	1002	POV	C24-C25-C26-C27
4	C	1002	POV	C24-C25-C26-C27
4	C	1007	POV	C21-C22-C23-C24
5	C	1006	NAG	C4-C5-C6-O6
4	A	1003	POV	C24-C25-C26-C27
4	A	1003	POV	C311-C310-C39-C38
4	B	1007	POV	C311-C310-C39-C38
4	D	1001	POV	C34-C35-C36-C37
4	C	1002	POV	C31-C32-C33-C34
4	B	1006	POV	C34-C35-C36-C37
4	A	1009	POV	C39-C310-C311-C312

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Mol	Chain	Res	Type	Atoms
4	A	1008	POV	C24-C25-C26-C27
4	A	1001	POV	O11-C1-C2-O21
4	D	1001	POV	C311-C310-C39-C38
4	B	1002	POV	O21-C2-C3-O31
4	A	1001	POV	C36-C37-C38-C39
4	A	1003	POV	C22-C23-C24-C25
4	A	1009	POV	C211-C212-C213-C214
4	B	1001	POV	C33-C34-C35-C36
4	B	1006	POV	C24-C25-C26-C27
5	A	1007	NAG	C4-C5-C6-O6
4	B	1006	POV	C311-C310-C39-C38
4	C	1001	POV	C311-C310-C39-C38
4	B	1001	POV	C23-C24-C25-C26
4	B	1006	POV	C211-C212-C213-C214
4	B	1007	POV	C22-C23-C24-C25
4	C	1002	POV	C39-C310-C311-C312
4	D	1001	POV	C211-C212-C213-C214
4	A	1002	POV	C39-C310-C311-C312
4	B	1007	POV	C213-C214-C215-C216
4	C	1002	POV	C311-C312-C313-C314
4	A	1002	POV	C311-C312-C313-C314
4	B	1002	POV	C25-C26-C27-C28
4	C	1007	POV	C24-C25-C26-C27
4	D	1001	POV	C24-C25-C26-C27
4	A	1008	POV	C32-C33-C34-C35
4	B	1006	POV	C23-C24-C25-C26
4	C	1002	POV	C25-C26-C27-C28
4	C	1007	POV	C32-C33-C34-C35
4	D	1002	POV	C211-C212-C213-C214
4	B	1001	POV	C211-C212-C213-C214
4	D	1001	POV	C23-C24-C25-C26
4	D	1004	POV	C39-C310-C311-C312
4	A	1002	POV	C31-C32-C33-C34
4	A	1002	POV	C212-C213-C214-C215
4	A	1002	POV	C25-C26-C27-C28
4	A	1009	POV	C34-C35-C36-C37
4	D	1004	POV	C211-C212-C213-C214
4	B	1006	POV	C36-C37-C38-C39
4	A	1008	POV	C213-C214-C215-C216
4	C	1007	POV	C213-C214-C215-C216
4	D	1001	POV	C36-C37-C38-C39
4	C	1001	POV	C25-C26-C27-C28

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Mol	Chain	Res	Type	Atoms
4	C	1001	POV	C36-C37-C38-C39
4	D	1003	POV	C25-C26-C27-C28
4	A	1008	POV	C33-C34-C35-C36
4	D	1002	POV	C33-C34-C35-C36
4	C	1007	POV	C33-C34-C35-C36
4	A	1001	POV	C23-C24-C25-C26
4	B	1007	POV	C32-C33-C34-C35
4	C	1001	POV	C24-C25-C26-C27
4	D	1002	POV	C37-C38-C39-C310
4	A	1009	POV	C24-C25-C26-C27
4	C	1001	POV	C23-C24-C25-C26
4	B	1001	POV	C2-C1-O11-P
4	A	1009	POV	C22-C23-C24-C25
4	B	1007	POV	C39-C310-C311-C312
4	A	1008	POV	C25-C26-C27-C28
4	B	1001	POV	C32-C33-C34-C35
4	D	1004	POV	C311-C312-C313-C314
4	A	1001	POV	C311-C310-C39-C38
4	B	1002	POV	C36-C37-C38-C39
4	B	1007	POV	C36-C37-C38-C39
4	D	1003	POV	C36-C37-C38-C39
4	A	1001	POV	C25-C26-C27-C28
4	C	1007	POV	C25-C26-C27-C28
4	A	1003	POV	C36-C37-C38-C39
4	C	1001	POV	C310-C311-C312-C313
4	A	1009	POV	C311-C310-C39-C38
4	A	1001	POV	C35-C36-C37-C38
4	B	1002	POV	C212-C213-C214-C215
4	A	1003	POV	C39-C310-C311-C312
4	A	1003	POV	C211-C212-C213-C214
4	D	1003	POV	C212-C213-C214-C215
4	A	1003	POV	C213-C214-C215-C216
4	A	1003	POV	C32-C33-C34-C35
4	A	1009	POV	C35-C36-C37-C38
4	C	1001	POV	C35-C36-C37-C38
4	D	1004	POV	C32-C33-C34-C35
4	A	1001	POV	C32-C33-C34-C35
4	B	1001	POV	C37-C38-C39-C310
4	D	1004	POV	C35-C36-C37-C38
4	D	1001	POV	C32-C31-O31-C3
4	A	1001	POV	C310-C311-C312-C313
4	D	1004	POV	C311-C310-C39-C38

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Mol	Chain	Res	Type	Atoms
4	B	1002	POV	C22-C23-C24-C25
4	A	1001	POV	C26-C27-C28-C29
4	D	1003	POV	C210-C211-C212-C213
4	D	1004	POV	C210-C211-C212-C213
4	D	1002	POV	C311-C312-C313-C314
4	D	1003	POV	C22-C23-C24-C25
4	B	1007	POV	C214-C215-C216-C217
4	D	1003	POV	C311-C310-C39-C38
4	B	1002	POV	C311-C310-C39-C38
4	D	1001	POV	O11-C1-C2-O21
4	A	1003	POV	C214-C215-C216-C217
4	B	1001	POV	C36-C37-C38-C39
4	A	1001	POV	C31-C32-C33-C34
4	A	1009	POV	C210-C211-C212-C213
4	B	1001	POV	O21-C2-C3-O31
4	D	1003	POV	C211-C212-C213-C214
4	D	1002	POV	C32-C33-C34-C35
4	B	1001	POV	C311-C312-C313-C314
4	D	1002	POV	C36-C37-C38-C39
4	D	1002	POV	C2-C1-O11-P
4	B	1006	POV	C32-C31-O31-C3
4	A	1009	POV	C33-C34-C35-C36
4	A	1001	POV	C24-C25-C26-C27
4	D	1002	POV	C23-C24-C25-C26
4	A	1009	POV	C26-C27-C28-C29
4	B	1002	POV	C210-C211-C212-C213
4	C	1007	POV	C311-C312-C313-C314
4	A	1002	POV	O11-C1-C2-C3
4	C	1001	POV	O11-C1-C2-C3
4	C	1002	POV	O11-C1-C2-C3
5	A	1004	NAG	O5-C5-C6-O6
4	A	1009	POV	C32-C33-C34-C35
4	C	1001	POV	C32-C33-C34-C35
4	A	1008	POV	C311-C312-C313-C314
4	D	1004	POV	C33-C34-C35-C36
4	D	1004	POV	C34-C35-C36-C37
4	D	1001	POV	O32-C31-O31-C3
5	C	1005	NAG	O5-C5-C6-O6
4	C	1007	POV	C22-C23-C24-C25
4	C	1007	POV	C37-C38-C39-C310
5	A	1006	NAG	O5-C5-C6-O6
4	B	1006	POV	C213-C214-C215-C216

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Mol	Chain	Res	Type	Atoms
4	D	1003	POV	C213-C214-C215-C216
4	B	1007	POV	C1-C2-C3-O31
4	C	1007	POV	C1-C2-C3-O31
4	D	1001	POV	C1-C2-C3-O31
4	D	1003	POV	C1-C2-C3-O31
4	D	1001	POV	C213-C214-C215-C216
4	C	1002	POV	C26-C27-C28-C29
4	C	1007	POV	C210-C211-C212-C213
4	D	1001	POV	C26-C27-C28-C29
4	C	1001	POV	C34-C35-C36-C37
4	B	1002	POV	C213-C214-C215-C216
4	B	1002	POV	C211-C212-C213-C214
4	B	1007	POV	C211-C212-C213-C214
4	C	1001	POV	C31-C32-C33-C34
4	B	1006	POV	O32-C31-O31-C3
4	A	1008	POV	C22-C23-C24-C25
4	D	1003	POV	C21-C22-C23-C24
4	B	1002	POV	C311-C312-C313-C314
4	A	1009	POV	C3-C2-O21-C21
4	D	1004	POV	C3-C2-O21-C21
4	A	1002	POV	C23-C24-C25-C26
4	D	1002	POV	C311-C310-C39-C38
4	A	1008	POV	C210-C211-C212-C213
4	B	1006	POV	C26-C27-C28-C29
4	C	1002	POV	C210-C211-C212-C213
4	C	1001	POV	C29-C210-C211-C212
4	B	1006	POV	O11-C1-C2-O21
4	A	1001	POV	C34-C35-C36-C37
4	A	1008	POV	C37-C38-C39-C310
4	D	1003	POV	C311-C312-C313-C314
4	A	1001	POV	C215-C216-C217-C218
4	D	1002	POV	O21-C2-C3-O31
4	A	1009	POV	C311-C312-C313-C314
4	B	1001	POV	C311-C310-C39-C38
4	C	1002	POV	C311-C310-C39-C38
4	A	1001	POV	C32-C31-O31-C3
4	A	1002	POV	C311-C310-C39-C38
4	A	1008	POV	C34-C35-C36-C37
4	C	1001	POV	C27-C28-C29-C210
4	C	1007	POV	C34-C35-C36-C37
4	A	1008	POV	C2-C1-O11-P
4	C	1001	POV	C215-C216-C217-C218

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Mol	Chain	Res	Type	Atoms
4	D	1001	POV	C210-C211-C212-C213
4	A	1001	POV	O11-C1-C2-C3
4	A	1008	POV	O11-C1-C2-C3
4	D	1001	POV	O11-C1-C2-C3
4	B	1001	POV	C215-C216-C217-C218
4	D	1002	POV	C215-C216-C217-C218
4	C	1002	POV	C23-C24-C25-C26
4	B	1001	POV	C212-C213-C214-C215
4	D	1002	POV	C212-C213-C214-C215
4	B	1006	POV	C210-C211-C212-C213
4	A	1002	POV	C34-C35-C36-C37
4	A	1003	POV	C1-C2-C3-O31
4	B	1002	POV	C1-C2-C3-O31
4	B	1002	POV	C37-C38-C39-C310
4	C	1001	POV	C22-C23-C24-C25
4	C	1007	POV	C2-C1-O11-P
4	B	1001	POV	C39-C310-C311-C312
4	C	1002	POV	O21-C2-C3-O31
4	D	1001	POV	O21-C2-C3-O31
4	A	1002	POV	C22-C23-C24-C25
4	D	1004	POV	C23-C24-C25-C26
4	A	1002	POV	C26-C27-C28-C29
4	A	1001	POV	O32-C31-O31-C3
4	C	1001	POV	C32-C31-O31-C3
4	D	1003	POV	C37-C38-C39-C310
4	D	1001	POV	C37-C38-C39-C310
4	C	1007	POV	O11-C1-C2-C3
4	A	1002	POV	C37-C38-C39-C310
4	A	1008	POV	C35-C36-C37-C38
4	B	1006	POV	C35-C36-C37-C38
4	D	1001	POV	C35-C36-C37-C38
4	D	1004	POV	C310-C311-C312-C313
4	A	1003	POV	C310-C311-C312-C313
4	B	1006	POV	C37-C38-C39-C310
5	B	1003	NAG	C4-C5-C6-O6
4	C	1007	POV	C35-C36-C37-C38
4	D	1004	POV	C213-C214-C215-C216
4	C	1001	POV	O32-C31-O31-C3
4	A	1008	POV	O11-C1-C2-O21
4	C	1007	POV	O11-C1-C2-O21
4	A	1008	POV	C1-C2-C3-O31
4	B	1001	POV	C1-C2-C3-O31

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Mol	Chain	Res	Type	Atoms
4	B	1006	POV	C1-C2-C3-O31
4	A	1009	POV	C23-C24-C25-C26
4	A	1003	POV	C12-C11-O12-P
4	B	1007	POV	C12-C11-O12-P
4	B	1007	POV	C310-C311-C312-C313
4	C	1002	POV	C22-C23-C24-C25
4	A	1002	POV	O21-C2-C3-O31
4	B	1007	POV	O21-C2-C3-O31
4	C	1007	POV	O21-C2-C3-O31
4	C	1002	POV	C34-C35-C36-C37
4	C	1002	POV	C37-C38-C39-C310
4	A	1001	POV	O12-C11-C12-N
4	A	1002	POV	O12-C11-C12-N
4	A	1009	POV	O12-C11-C12-N
4	B	1001	POV	O12-C11-C12-N
4	B	1002	POV	O12-C11-C12-N
4	B	1006	POV	O12-C11-C12-N
4	C	1001	POV	O12-C11-C12-N
4	C	1002	POV	O12-C11-C12-N
4	D	1001	POV	O12-C11-C12-N
4	D	1002	POV	O12-C11-C12-N
4	D	1003	POV	O12-C11-C12-N
4	D	1004	POV	O12-C11-C12-N
4	A	1009	POV	C310-C311-C312-C313
4	D	1002	POV	C25-C26-C27-C28
4	D	1002	POV	C22-C23-C24-C25
4	D	1001	POV	C25-C26-C27-C28
4	B	1006	POV	O11-C1-C2-C3
4	C	1007	POV	C36-C37-C38-C39
4	D	1002	POV	C213-C214-C215-C216
4	A	1003	POV	O21-C2-C3-O31
4	B	1006	POV	O21-C2-C3-O31
4	D	1002	POV	C1-C2-C3-O31
4	A	1002	POV	C1-O11-P-O13
4	A	1002	POV	C11-O12-P-O14
4	A	1008	POV	C1-O11-P-O14
4	A	1009	POV	C1-O11-P-O13
4	A	1009	POV	C11-O12-P-O14
4	B	1001	POV	C1-O11-P-O14
4	B	1007	POV	C1-O11-P-O12
4	B	1007	POV	C1-O11-P-O13
4	C	1002	POV	C1-O11-P-O13

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Mol	Chain	Res	Type	Atoms
4	C	1002	POV	C11-O12-P-O14
4	D	1002	POV	C1-O11-P-O14
4	D	1004	POV	C1-O11-P-O13
4	D	1004	POV	C11-O12-P-O14
4	A	1003	POV	C2-C1-O11-P
4	B	1007	POV	C2-C1-O11-P
4	B	1001	POV	C213-C214-C215-C216
4	A	1008	POV	C36-C37-C38-C39
4	A	1009	POV	O21-C2-C3-O31
4	D	1002	POV	O21-C21-C22-C23
4	B	1001	POV	O21-C21-C22-C23
4	A	1003	POV	C26-C27-C28-C29
4	B	1006	POV	C25-C26-C27-C28
4	A	1003	POV	C31-C32-C33-C34
4	B	1002	POV	C24-C25-C26-C27
4	A	1002	POV	C36-C37-C38-C39
4	C	1002	POV	C1-C2-C3-O31
4	D	1004	POV	C313-C314-C315-C316
4	B	1007	POV	C26-C27-C28-C29
4	B	1007	POV	C23-C24-C25-C26
4	C	1001	POV	C212-C213-C214-C215
4	A	1009	POV	C313-C314-C315-C316
4	B	1001	POV	C27-C28-C29-C210
4	D	1002	POV	C27-C28-C29-C210
4	A	1008	POV	O21-C2-C3-O31
4	A	1003	POV	C23-C24-C25-C26
4	B	1001	POV	C22-C23-C24-C25
5	B	1005	NAG	C1-C2-N2-C7
5	D	1007	NAG	C1-C2-N2-C7
4	A	1008	POV	C23-C24-C25-C26
4	B	1007	POV	C31-C32-C33-C34
4	C	1007	POV	C211-C212-C213-C214
5	B	1005	NAG	C3-C2-N2-C7
5	D	1007	NAG	C3-C2-N2-C7
4	A	1003	POV	C34-C35-C36-C37
4	B	1006	POV	C27-C28-C29-C210
4	B	1001	POV	C214-C215-C216-C217
4	A	1001	POV	C39-C310-C311-C312
4	A	1001	POV	C212-C213-C214-C215
4	D	1001	POV	C27-C28-C29-C210
4	B	1002	POV	C214-C215-C216-C217
4	A	1001	POV	C22-C23-C24-C25

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Mol	Chain	Res	Type	Atoms
4	A	1002	POV	C1-C2-C3-O31
4	D	1003	POV	C214-C215-C216-C217
4	C	1007	POV	C23-C24-C25-C26
4	C	1001	POV	O21-C21-C22-C23
4	B	1001	POV	C312-C313-C314-C315
4	A	1001	POV	O21-C21-C22-C23
4	B	1002	POV	O31-C31-C32-C33
4	A	1003	POV	C210-C211-C212-C213
4	D	1003	POV	O31-C31-C32-C33
4	D	1004	POV	C37-C38-C39-C310
4	B	1001	POV	C313-C314-C315-C316
4	D	1002	POV	C214-C215-C216-C217
4	C	1007	POV	O21-C21-C22-C23
4	D	1002	POV	O31-C31-C32-C33
4	A	1008	POV	C211-C212-C213-C214
4	A	1008	POV	O21-C21-C22-C23
4	B	1001	POV	O31-C31-C32-C33
4	A	1008	POV	C311-C310-C39-C38
4	C	1001	POV	C2-C1-O11-P
4	B	1002	POV	C32-C31-O31-C3
4	B	1002	POV	O32-C31-O31-C3
4	A	1001	POV	O22-C21-C22-C23
4	B	1002	POV	O32-C31-C32-C33
4	C	1001	POV	O22-C21-C22-C23
4	D	1002	POV	O32-C31-C32-C33
4	B	1007	POV	C34-C35-C36-C37
4	A	1001	POV	C2-C1-O11-P
4	B	1001	POV	O32-C31-C32-C33
4	D	1003	POV	O32-C31-C32-C33
4	C	1007	POV	O22-C21-C22-C23
4	D	1004	POV	C24-C25-C26-C27

There are no ring outliers.

20 monomers are involved in 49 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1008	POV	3	0
4	A	1001	POV	4	0
4	B	1001	POV	5	0
5	C	1006	NAG	1	0
4	D	1004	POV	2	0
4	D	1001	POV	2	0

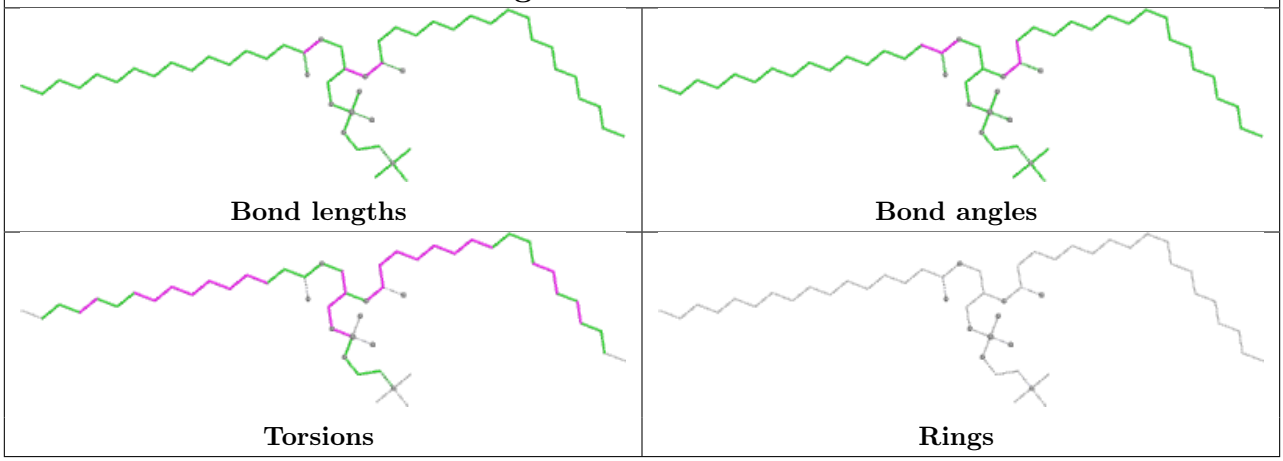
Continued on next page...

Continued from previous page...

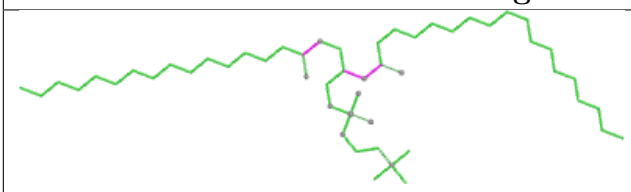
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1006	POV	1	0
4	A	1009	POV	2	0
4	B	1002	POV	2	0
4	A	1002	POV	4	0
4	A	1003	POV	2	0
4	D	1003	POV	1	0
5	C	1004	NAG	1	0
4	C	1007	POV	4	0
4	B	1007	POV	2	0
4	D	1002	POV	5	0
4	C	1002	POV	3	0
4	C	1001	POV	7	0
5	A	1007	NAG	1	0
5	A	1005	NAG	1	0

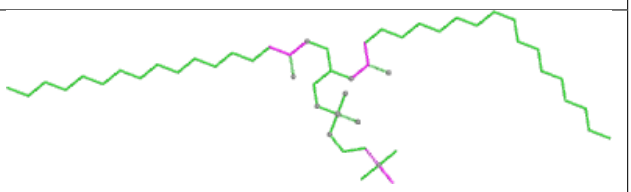
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

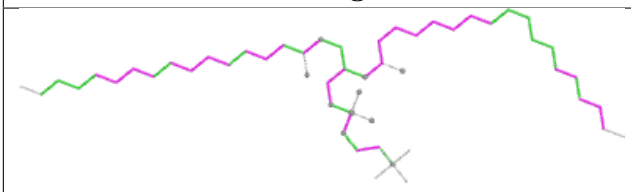
Ligand POV A 1008

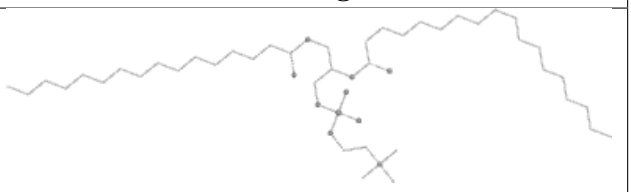


Ligand POV A 1001

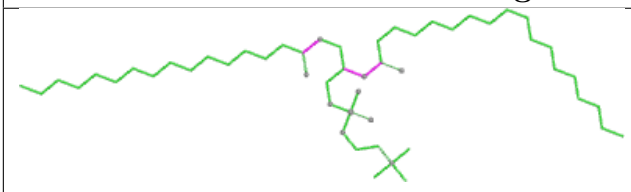

Bond lengths

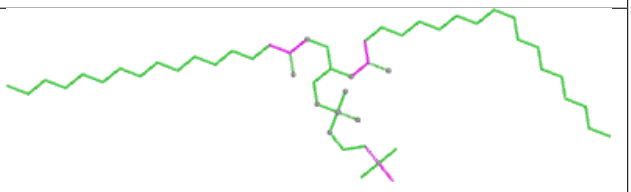

Bond angles

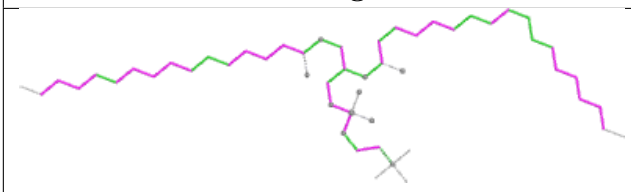

Torsions

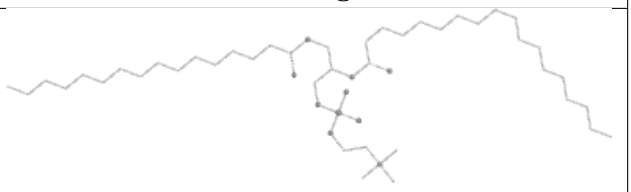

Rings

Ligand POV B 1001

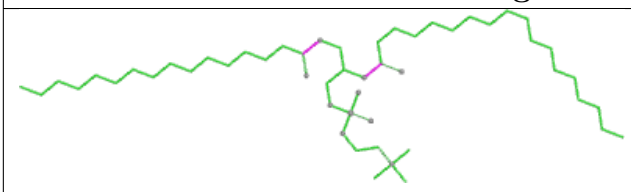

Bond lengths

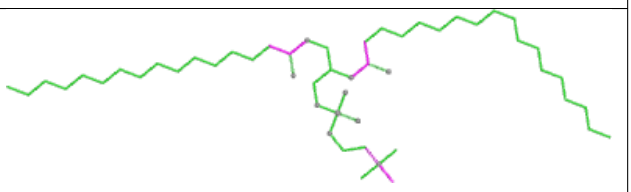

Bond angles

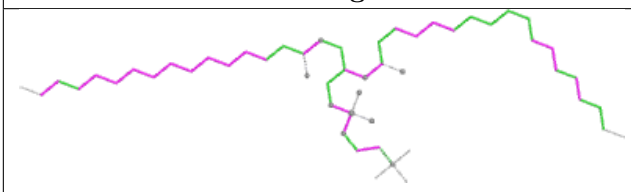

Torsions

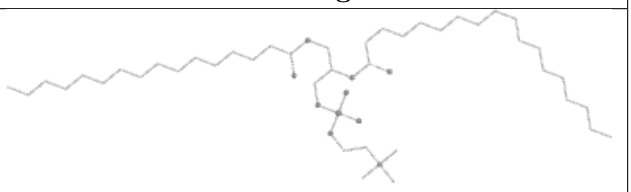

Rings

Ligand POV D 1004

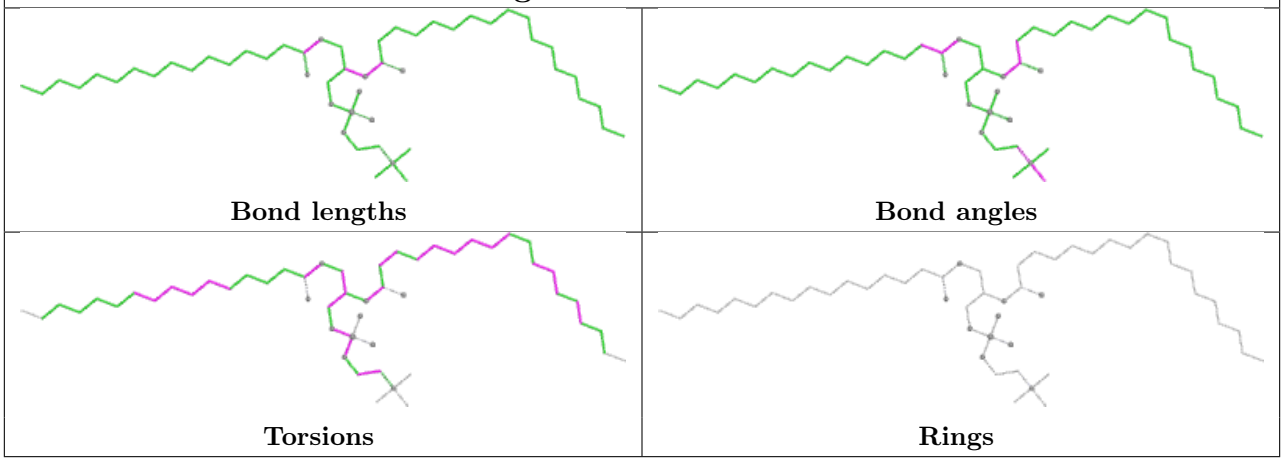

Bond lengths


Bond angles

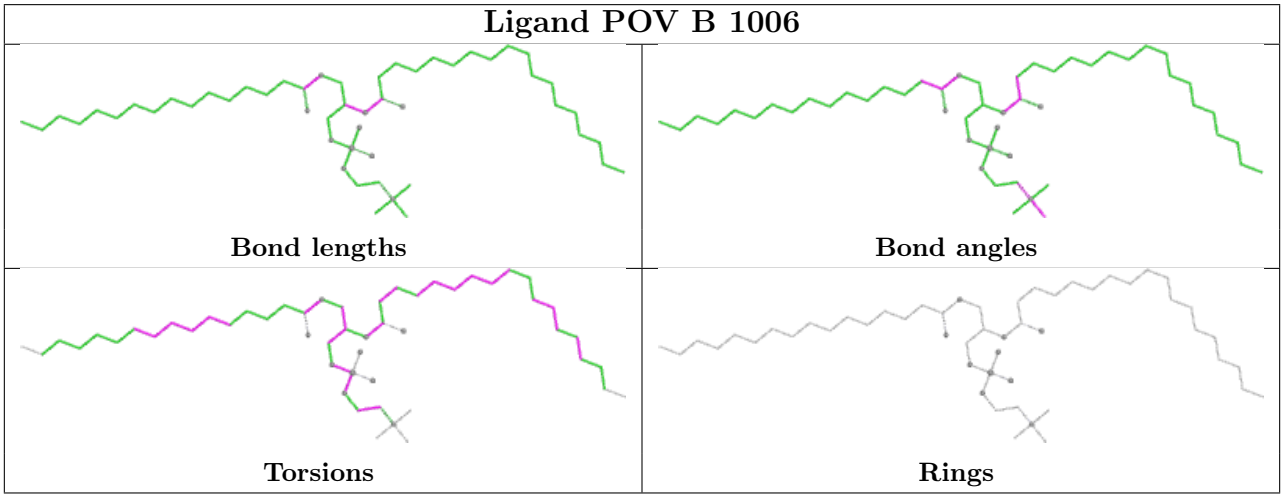

Torsions


Rings

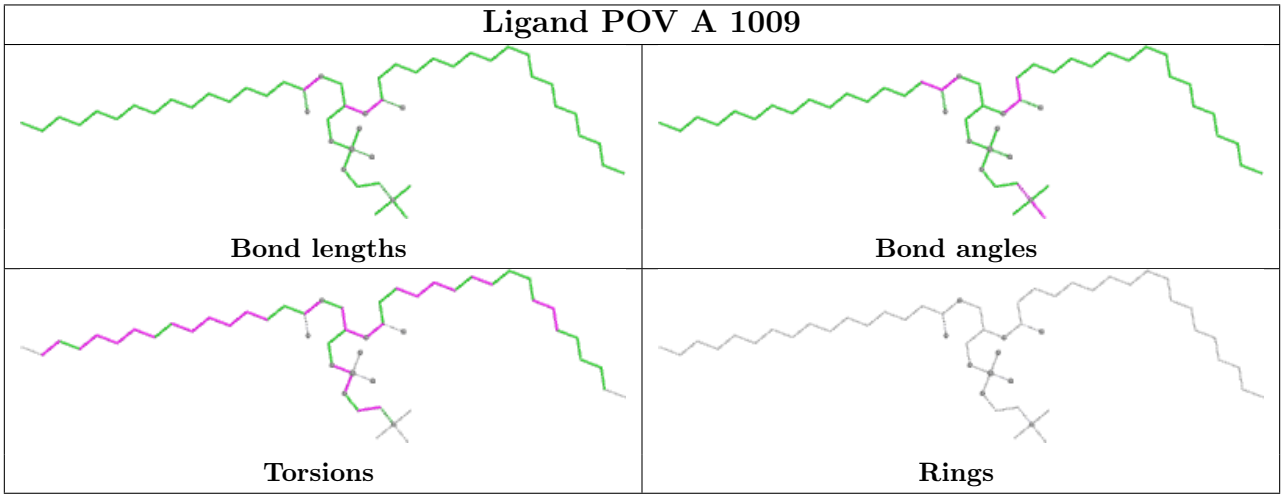
Ligand POV D 1001



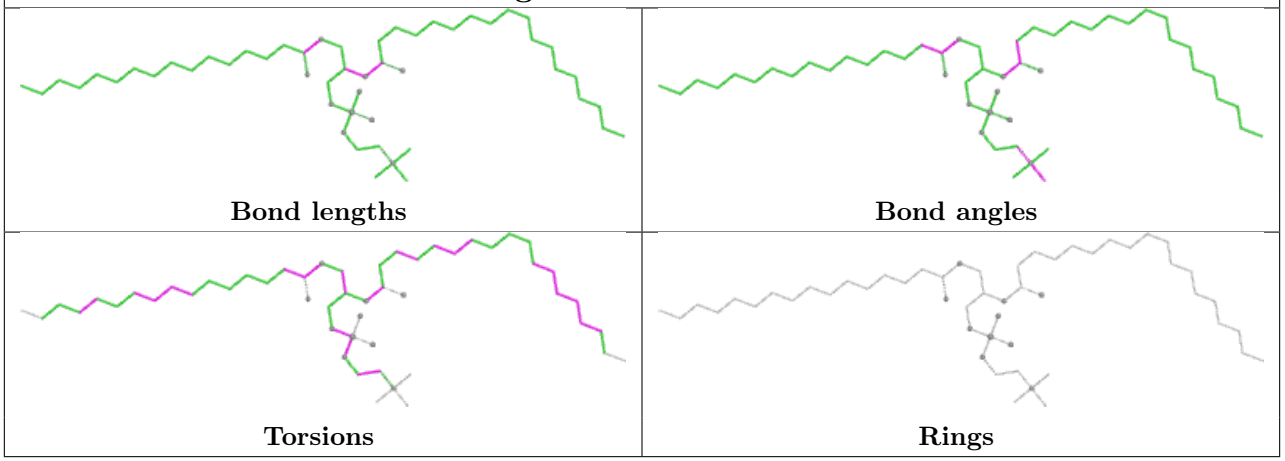
Ligand POV B 1006



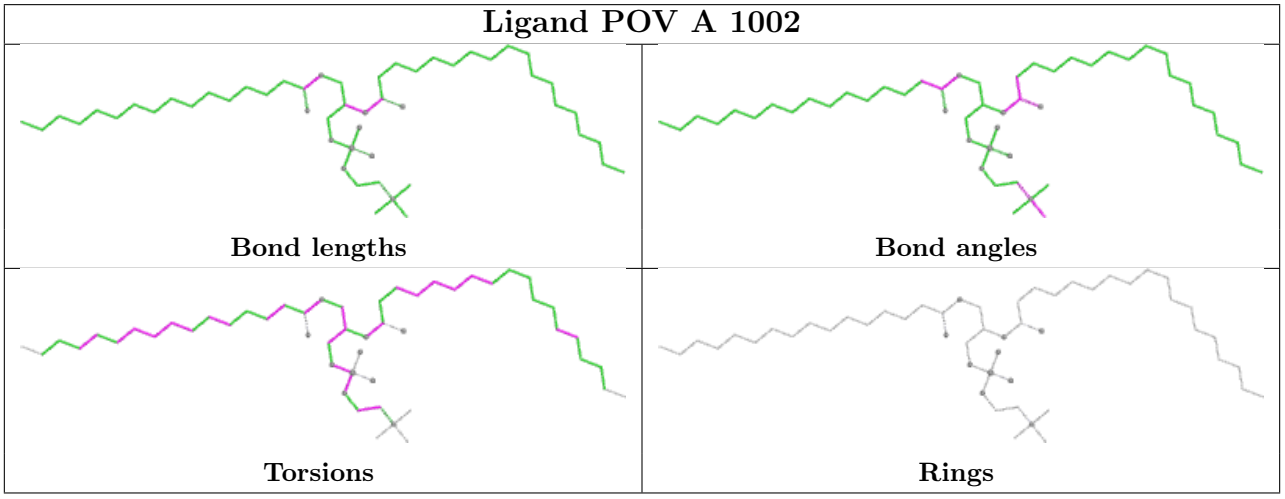
Ligand POV A 1009



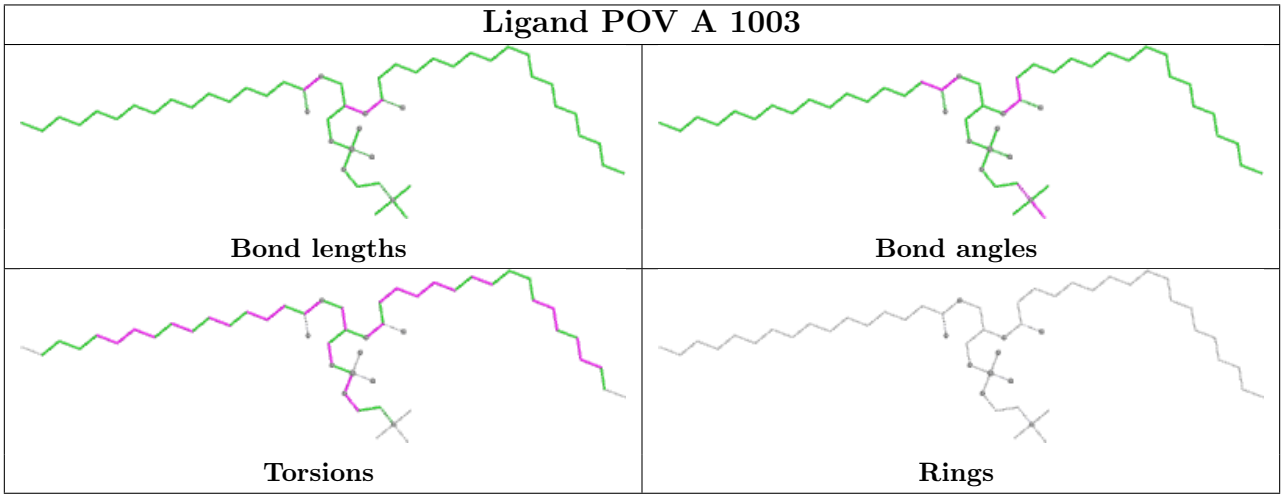
Ligand POV B 1002



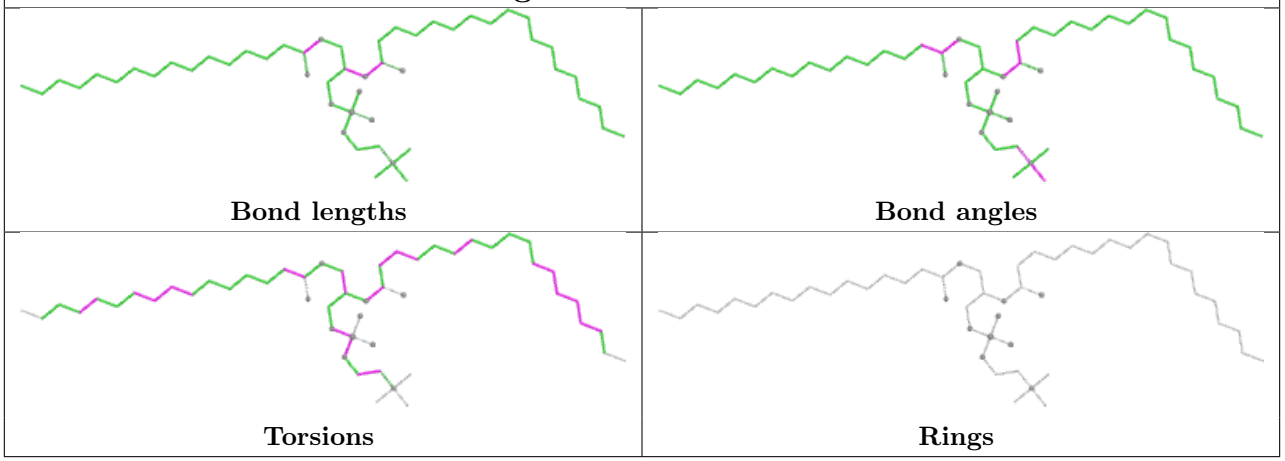
Ligand POV A 1002



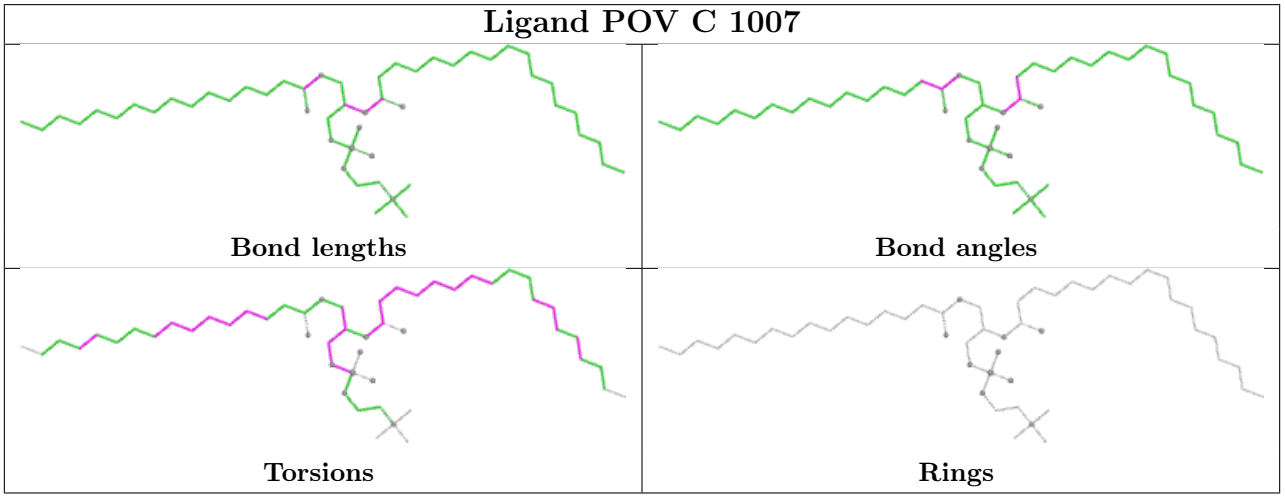
Ligand POV A 1003



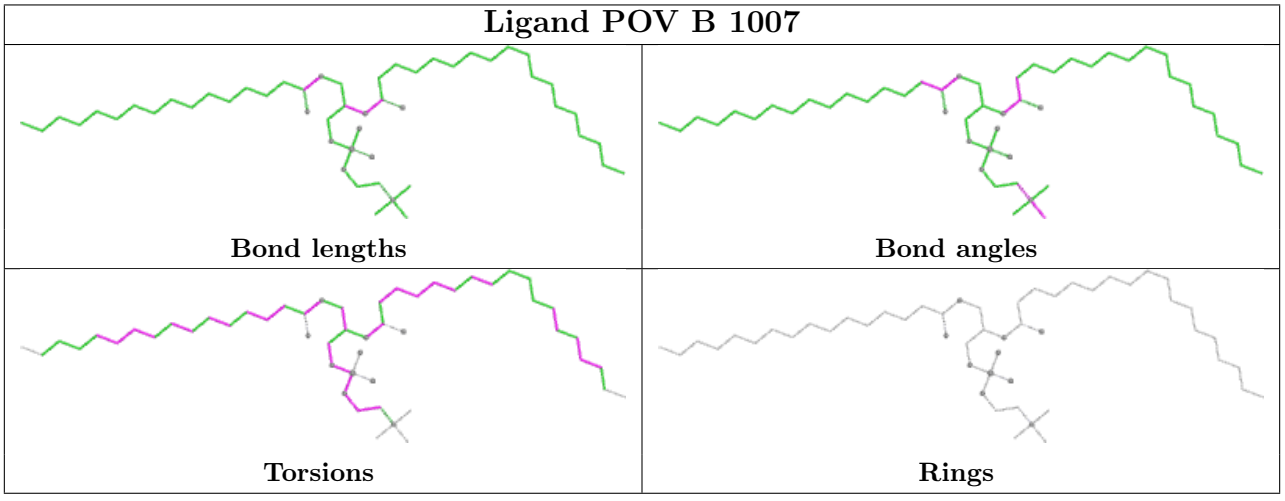
Ligand POV D 1003

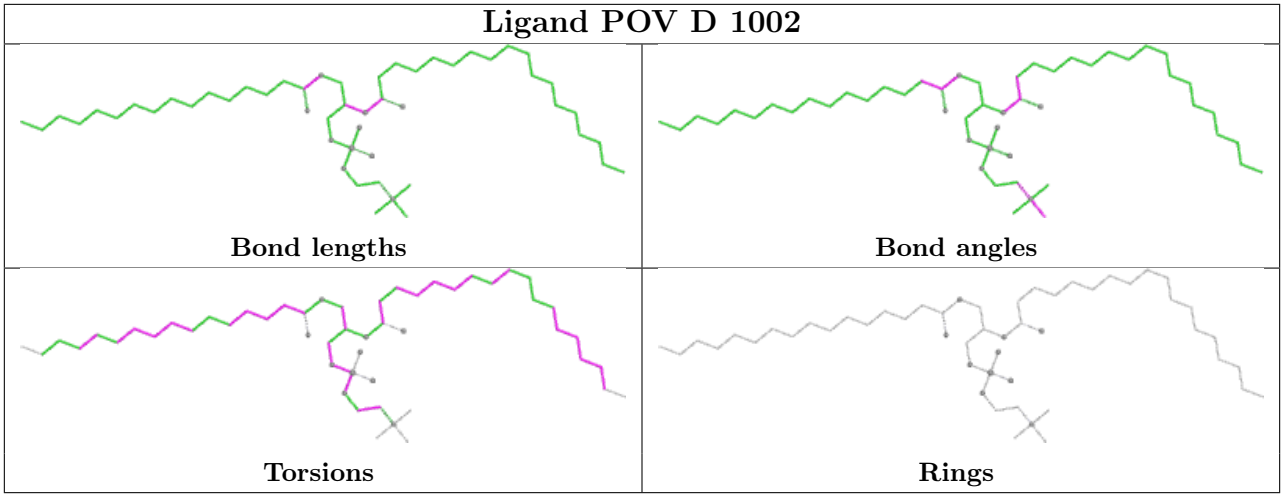


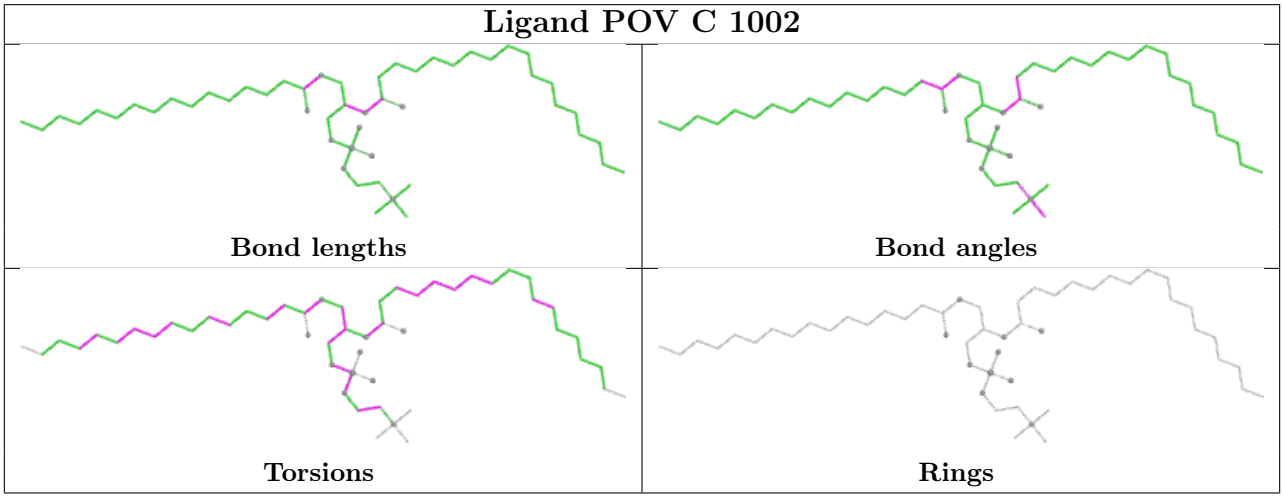
Ligand POV C 1007

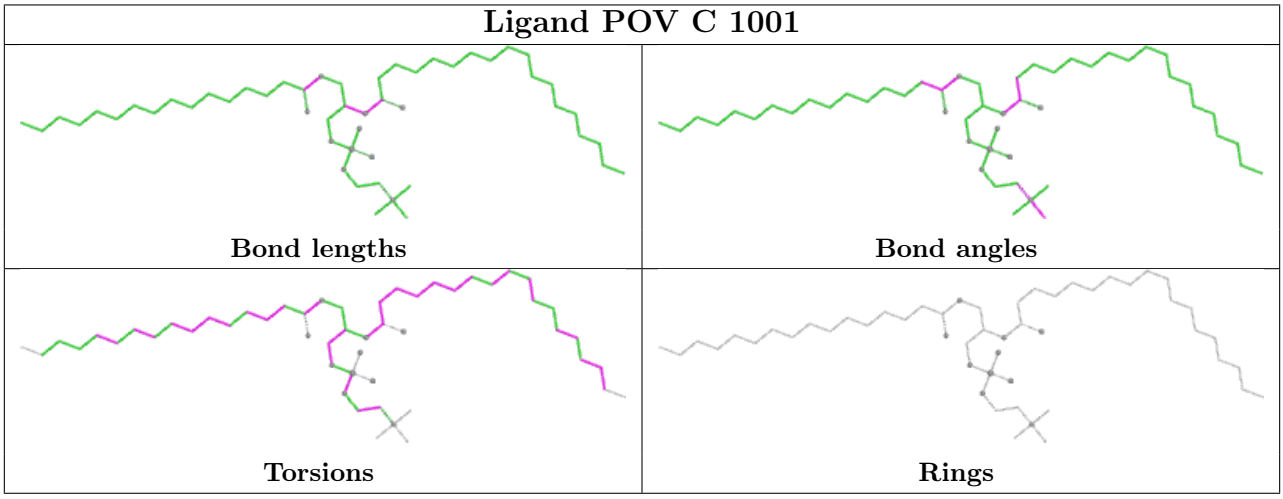


Ligand POV B 1007









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.

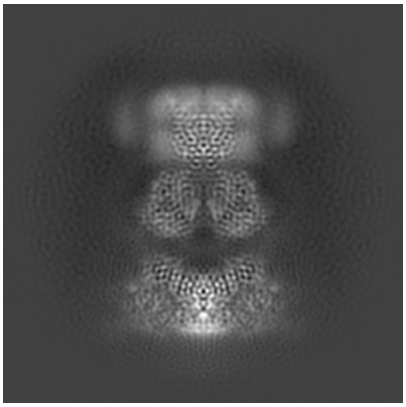
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-48898. These allow visual inspection of the internal detail of the map and identification of artifacts.

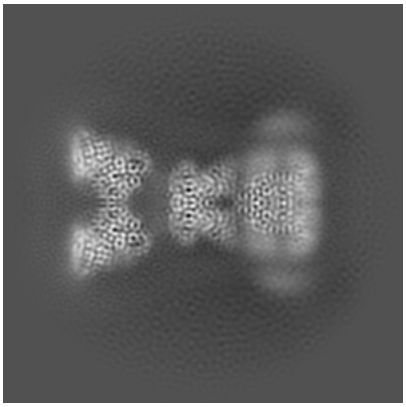
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

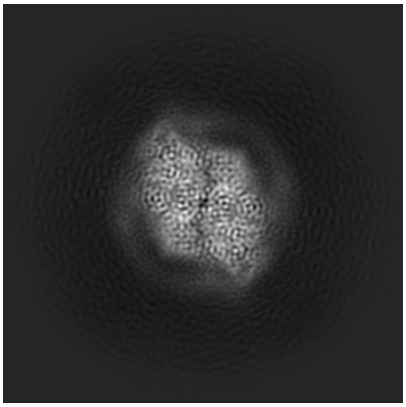
6.1.1 Primary map



X



Y

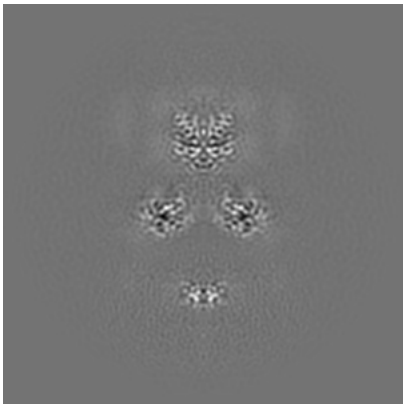


Z

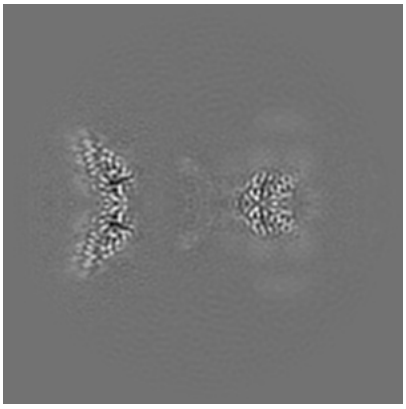
The images above show the map projected in three orthogonal directions.

6.2 Central slices

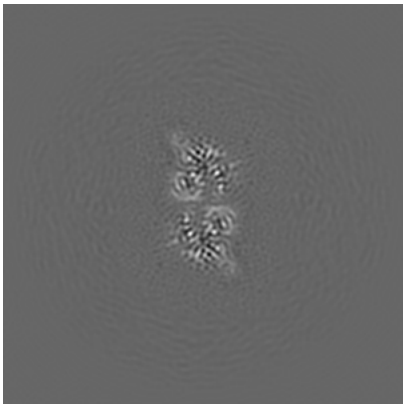
6.2.1 Primary map



X Index: 192



Y Index: 192

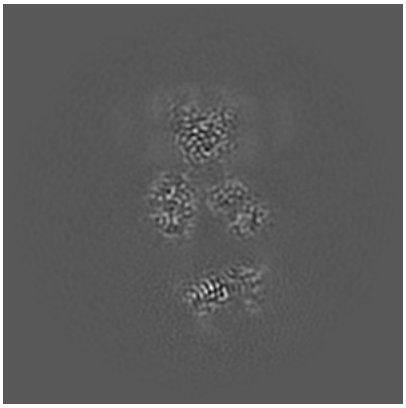


Z Index: 192

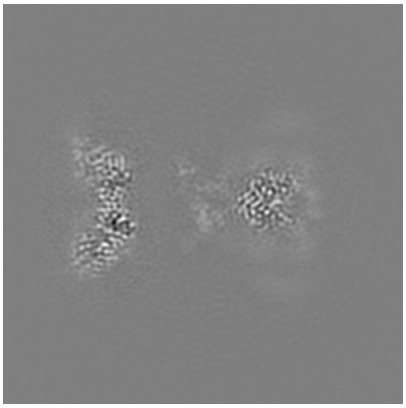
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

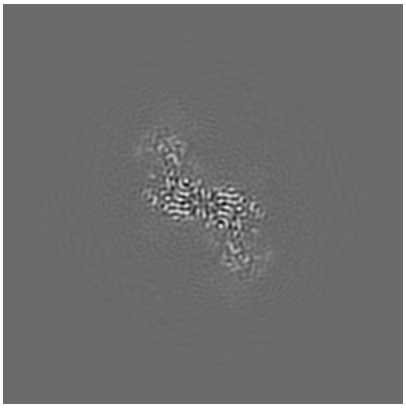
6.3.1 Primary map



X Index: 176



Y Index: 198

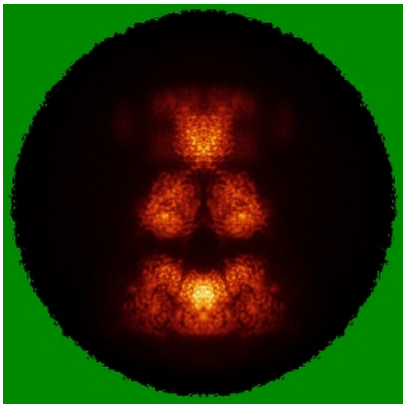


Z Index: 104

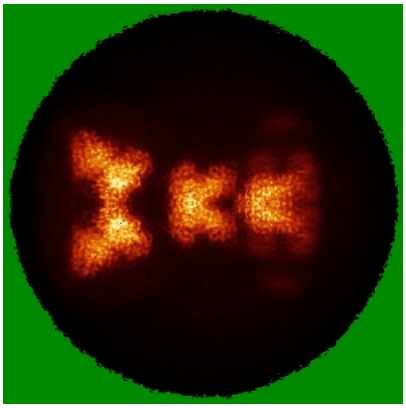
The images above show the largest variance slices of the map in three orthogonal directions.

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

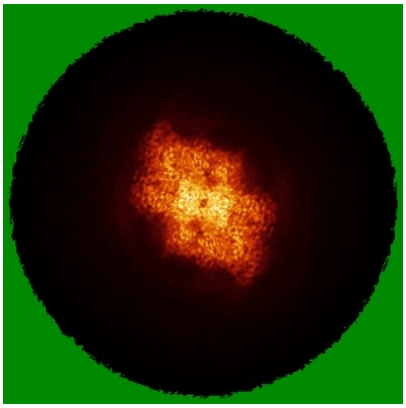
6.4.1 Primary map



X



Y

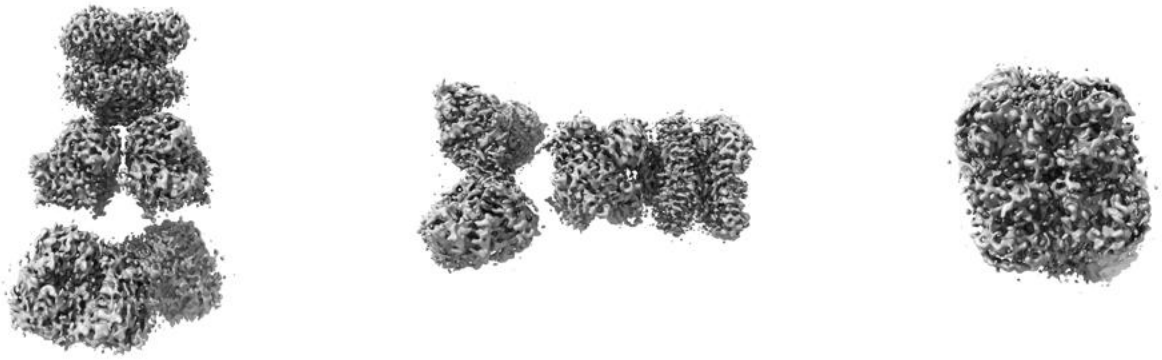


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 4.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

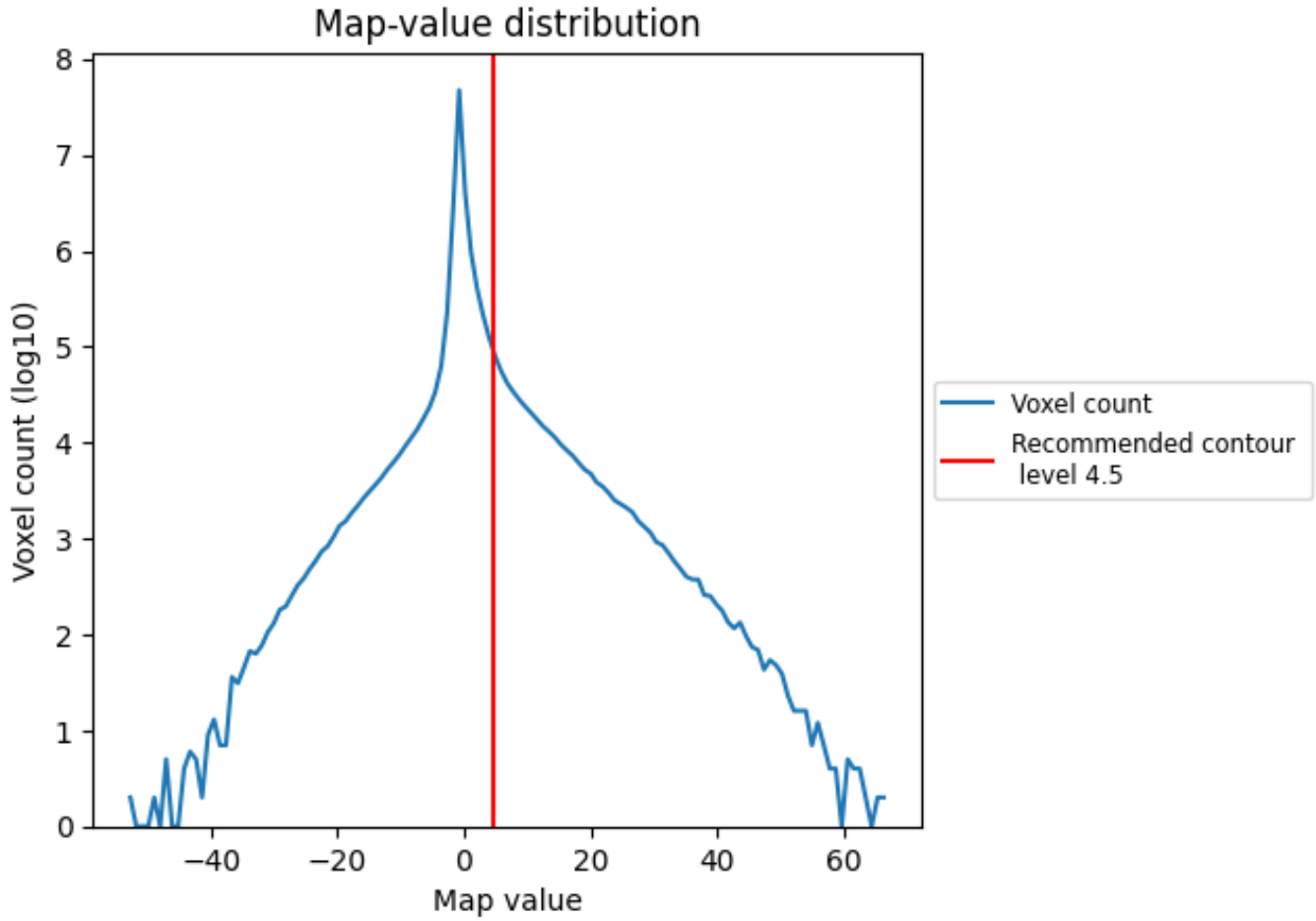
6.6 Mask visualisation (i)

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

7 Map analysis

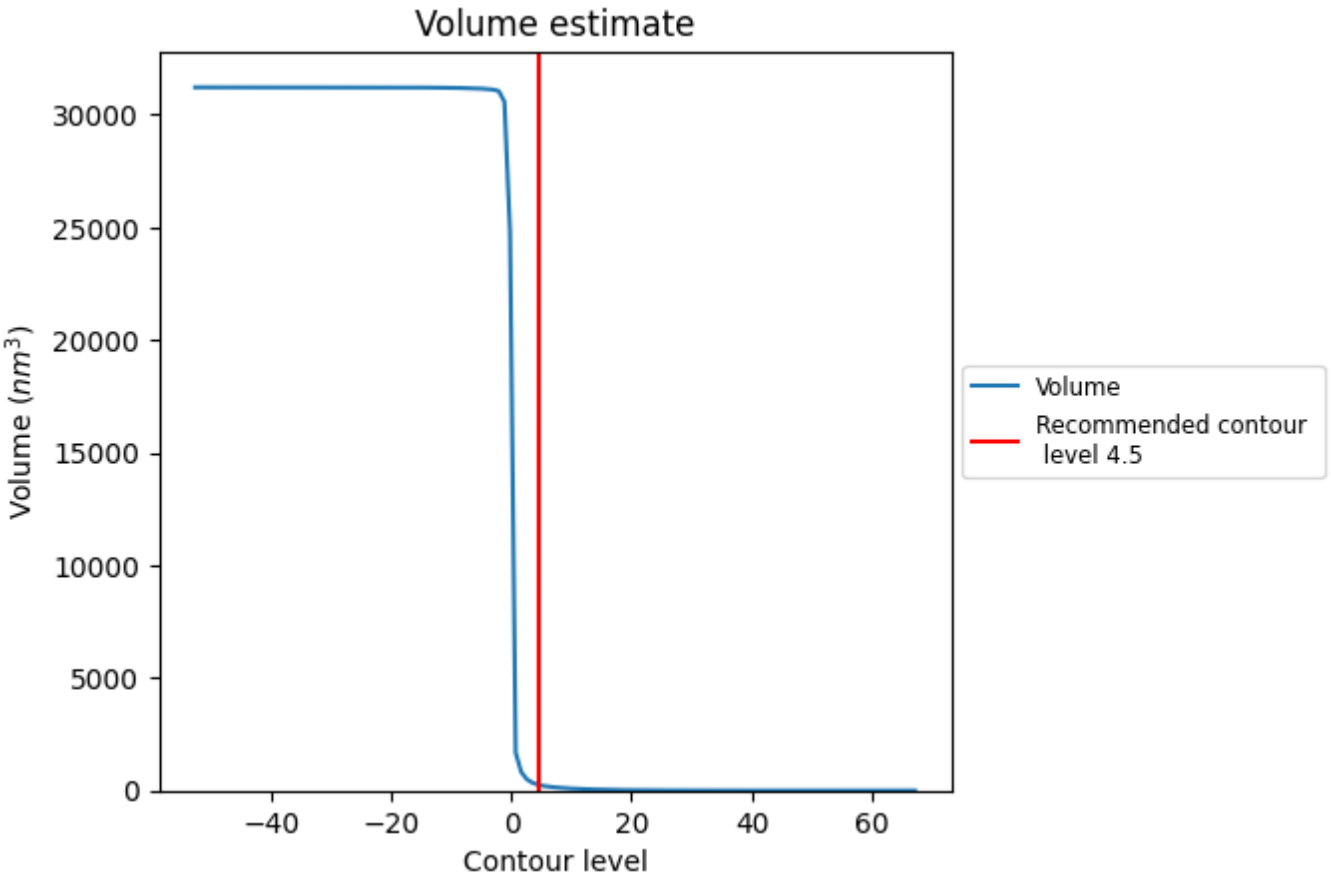
This section contains the results of statistical analysis of the map.

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.

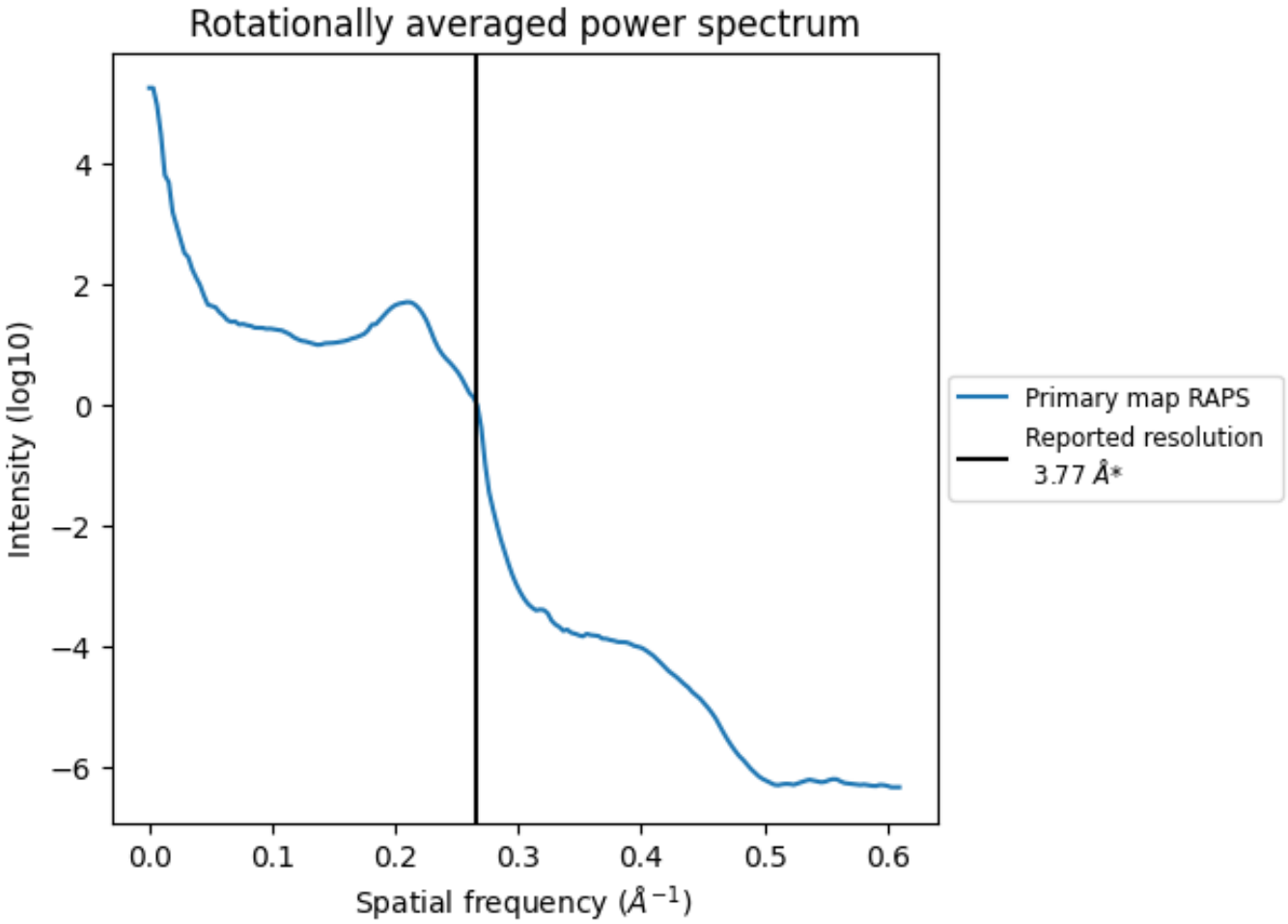
7.2 Volume estimate



The volume at the recommended contour level is 254 nm^3; this corresponds to an approximate mass of 229 kDa.

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

7.3 Rotationally averaged power spectrum (i)



*Reported resolution corresponds to spatial frequency of 0.265 Å^{-1}

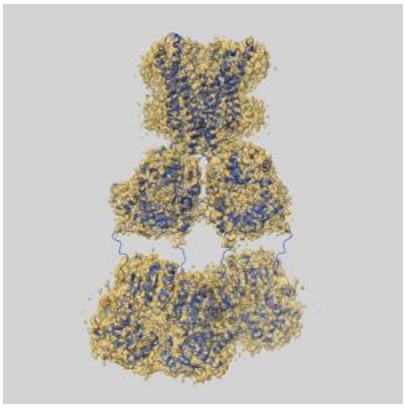
8 Fourier-Shell correlation

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

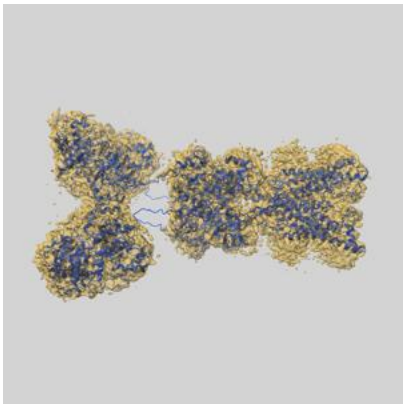
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-48898 and PDB model 9N4M. Per-residue inclusion information can be found in section 3 on page 9.

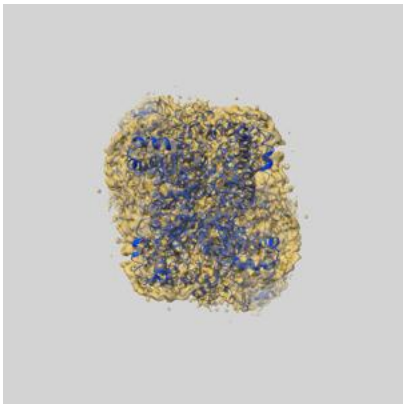
9.1 Map-model overlay



X



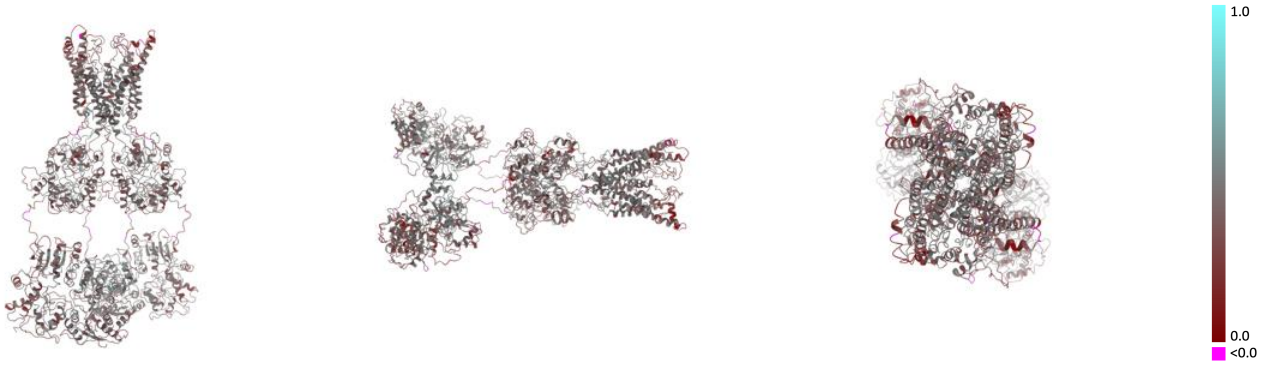
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 4.5 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.

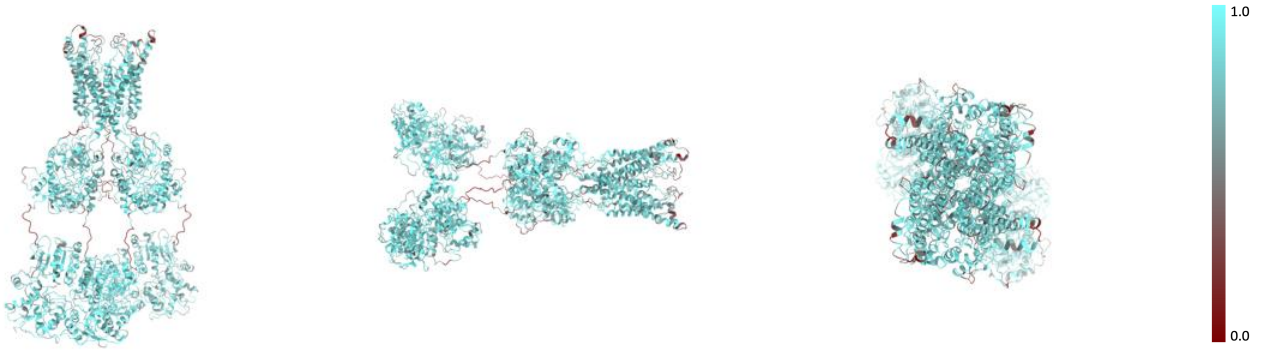
9.2 Q-score mapped to coordinate model (i)



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.

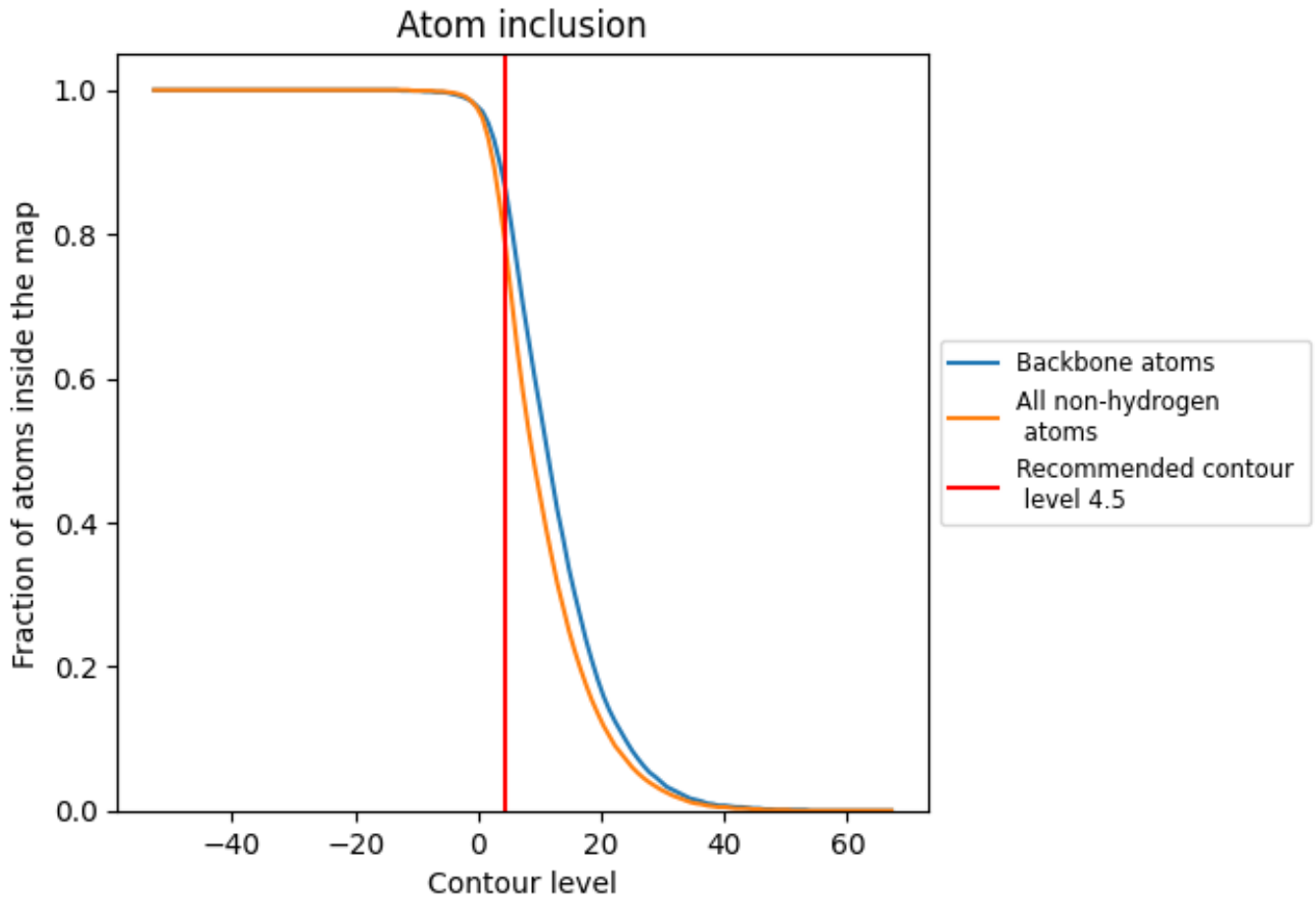
9.3 Atom inclusion mapped to coordinate model (i)



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 (4.5).

9.4 Atom inclusion (i)



At the recommended contour level, 86% of all backbone atoms, 78% 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 (4.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7790	0.3930
A	0.7730	0.3880
B	0.7950	0.4080
C	0.7640	0.3760
D	0.7890	0.4040
E	0.7140	0.3640
F	0.5710	0.3080
G	0.6790	0.2920
H	0.7700	0.3810
I	0.8930	0.4630
J	0.3570	0.2140
K	0.7140	0.3430
L	0.5710	0.2880
M	0.6790	0.2930
N	0.7700	0.3790
O	0.8930	0.4620
P	0.4290	0.2330