



wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 12, 2023 – 10:46 PM EDT

PDB ID : 4NCO
Title : Crystal Structure of the BG505 SOSIP gp140 HIV-1 Env trimer in Complex with the Broadly Neutralizing Fab PGT122
Authors : Julien, J.-P.; Stanfield, R.L.; Lyumkis, D.; Ward, A.B.; Wilson, I.A.
Deposited on : 2013-10-24
Resolution : 4.70 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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/XrayValidationReportHelp>

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:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.35.1
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35.1

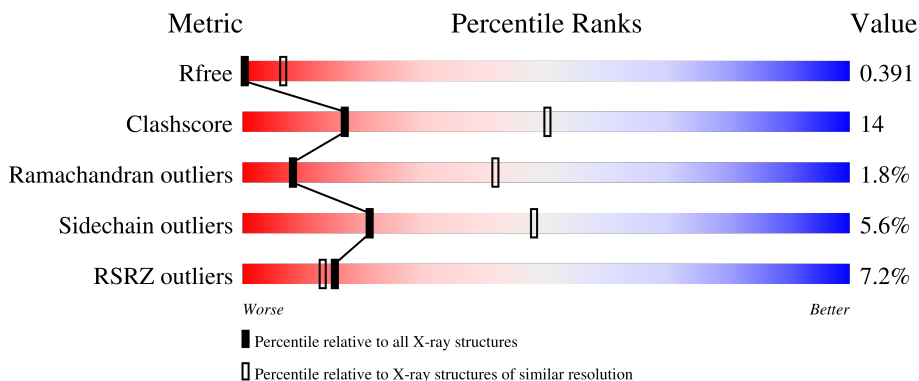
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 4.70 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.



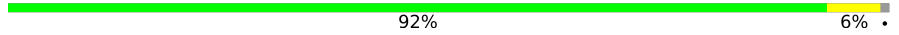


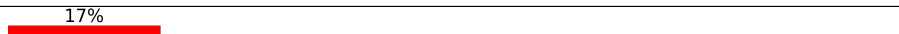
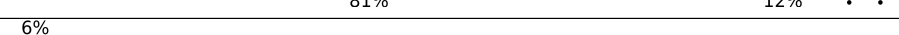
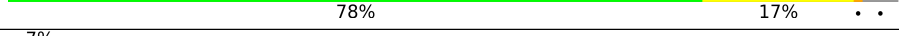



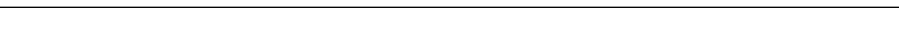
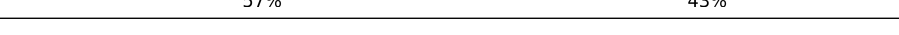




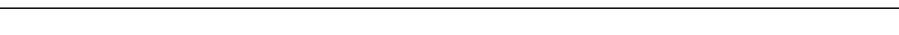


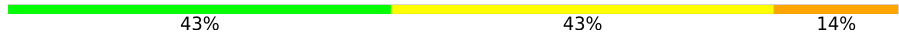



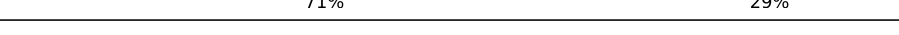


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1085 (5.58-3.80)
Clashscore	141614	1159 (5.60-3.80)
Ramachandran outliers	138981	1094 (5.58-3.80)
Sidechain outliers	138945	1074 (5.58-3.80)
RSRZ outliers	127900	1118 (5.70-3.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower 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 $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	475	 3% 51% 33% 5% 12%
1	E	475	 4% 51% 33% 5% 12%
1	I	475	 3% 51% 33% 5% 12%
2	B	78	 95% . .
2	F	78	 95% . .

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Mol	Chain	Length	Quality of chain
2	J	78	 92% 6% . .
3	C	211	 8% 82% 13% . .
3	G	211	 11% 82% 13% . .
3	K	211	 17% 81% 12% . .
4	D	235	 6% 78% 17% . .
4	H	235	 7% 78% 17% .
4	L	235	 12% 77% 19% . .
5	M	7	 57% 29% 14%
5	N	7	 57% 43%
5	O	7	 71% 14% 14%
5	P	7	 57% 43%
5	S	7	 71% 14% 14%
5	T	7	 57% 43%
5	U	7	 71% 14% 14%
5	V	7	 57% 43%
5	Y	7	 43% 43% 14%
5	Z	7	 57% 43%
5	a	7	 71% 29%
5	b	7	 71% 29%
6	Q	9	 44% 44% 11%
6	W	9	 44% 56%
6	c	9	 44% 56%
7	R	2	 50% 50%
7	X	2	 100%
7	d	2	 50% 50%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	NAG	M	1	-	-	-	X
5	NAG	M	2	-	-	-	X
5	BMA	M	3	-	-	-	X
5	MAN	M	4	-	-	-	X
5	MAN	M	5	-	-	-	X
5	MAN	M	6	-	-	-	X
5	MAN	M	7	-	-	-	X
5	BMA	N	3	-	-	-	X
5	MAN	N	4	-	-	-	X
5	MAN	N	5	-	-	-	X
5	MAN	N	6	-	-	-	X
5	MAN	N	7	-	-	-	X
5	NAG	O	1	-	-	-	X
5	MAN	O	4	-	-	-	X
5	MAN	O	5	-	-	-	X
5	MAN	O	6	-	-	-	X
5	BMA	P	3	-	-	-	X
5	MAN	P	4	-	-	-	X
5	MAN	P	5	-	-	-	X
5	MAN	P	6	-	-	-	X
5	MAN	P	7	-	-	-	X
5	NAG	S	1	-	-	-	X
5	NAG	S	2	-	-	-	X
5	BMA	S	3	-	-	-	X
5	MAN	S	4	-	-	-	X
5	MAN	S	5	-	-	-	X
5	MAN	S	6	-	-	-	X
5	MAN	S	7	-	-	-	X
5	MAN	T	4	-	-	-	X
5	MAN	T	5	-	-	-	X
5	MAN	T	6	-	-	-	X
5	MAN	T	7	-	-	-	X
5	NAG	U	1	-	-	-	X
5	NAG	U	2	-	-	-	X
5	MAN	U	4	-	-	-	X
5	MAN	U	5	-	-	-	X
5	MAN	U	6	-	-	-	X
5	MAN	V	4	-	-	-	X
5	MAN	V	5	-	-	-	X
5	MAN	V	6	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	NAG	Y	1	-	-	-	X
5	NAG	Y	2	-	-	-	X
5	BMA	Y	3	-	-	-	X
5	MAN	Y	4	-	-	-	X
5	MAN	Y	5	-	-	-	X
5	MAN	Y	6	-	-	-	X
5	MAN	Y	7	-	-	-	X
5	BMA	Z	3	-	-	-	X
5	MAN	Z	4	-	-	-	X
5	MAN	Z	5	-	-	-	X
5	MAN	Z	7	-	-	-	X
5	NAG	a	1	-	-	-	X
5	MAN	a	4	-	-	-	X
5	MAN	a	5	-	-	-	X
5	MAN	a	6	-	-	-	X
5	NAG	b	2	-	-	-	X
5	MAN	b	4	-	-	-	X
5	MAN	b	5	-	-	-	X
5	MAN	b	6	-	-	-	X
6	NAG	Q	1	-	-	-	X
6	MAN	Q	6	-	-	-	X
6	MAN	W	4	-	-	-	X
6	MAN	W	6	-	-	-	X
6	MAN	W	7	-	-	-	X
6	MAN	W	8	-	-	-	X
6	MAN	c	4	-	-	-	X
6	MAN	c	6	-	-	-	X
6	MAN	c	7	-	-	-	X
6	MAN	c	9	-	-	-	X
7	MAN	R	1	-	-	-	X
7	MAN	R	2	-	-	-	X
7	MAN	X	1	-	-	-	X
7	MAN	X	2	-	-	-	X
7	MAN	d	1	-	-	-	X
7	MAN	d	2	-	-	-	X
8	NAG	A	1088	-	-	-	X
8	NAG	A	1160	-	-	-	X
8	NAG	A	1295	-	-	-	X
8	NAG	A	1355	-	-	-	X
8	NAG	A	1386	-	-	-	X
8	NAG	A	1392	-	-	-	X
8	NAG	A	1448	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
8	NAG	E	1088	-	-	-	X
8	NAG	E	1160	-	-	-	X
8	NAG	E	1234	-	-	-	X
8	NAG	E	1295	-	-	-	X
8	NAG	E	1386	-	-	-	X
8	NAG	E	1392	-	-	-	X
8	NAG	E	1448	-	-	-	X
8	NAG	I	1088	-	-	-	X
8	NAG	I	1160	-	-	-	X
8	NAG	I	1234	-	-	-	X
8	NAG	I	1295	-	-	-	X
8	NAG	I	1386	-	-	-	X
8	NAG	I	1392	-	-	-	X
8	NAG	I	1448	-	-	-	X

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 22014 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 BG505 SOSIP gp120.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	420	3096	1937	544	590	25	0	0	0
1	E	420	3096	1937	544	590	25	0	0	0
1	I	420	3096	1937	544	590	25	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	332	ASN	THR	engineered mutation	UNP Q2N0S6
A	501	CYS	ALA	engineered mutation	UNP Q2N0S6
E	332	ASN	THR	engineered mutation	UNP Q2N0S6
E	501	CYS	ALA	engineered mutation	UNP Q2N0S6
I	332	ASN	THR	engineered mutation	UNP Q2N0S6
I	501	CYS	ALA	engineered mutation	UNP Q2N0S6

- Molecule 2 is a protein called BG505 SOSIP gp41.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	B	77	385	231	77	77	0	0	0
2	F	77	385	231	77	77	0	0	0
2	J	77	385	231	77	77	0	0	0

- Molecule 3 is a protein called PGT122 light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	202	1530	964	255	307	4	0	0	0

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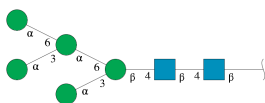
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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	G	202	Total	C	N	O	S	0	0	0
			1530	964	255	307	4			
3	K	202	Total	C	N	O	S	0	0	0
			1530	964	255	307	4			

- Molecule 4 is a protein called PGT122 heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	D	226	Total	C	N	O	S	0	0	0
			1728	1100	293	330	5			
4	H	226	Total	C	N	O	S	0	0	0
			1728	1100	293	330	5			
4	L	226	Total	C	N	O	S	0	0	0
			1728	1100	293	330	5			

- Molecule 5 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



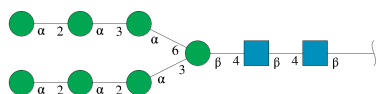
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	M	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	N	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	O	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	P	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	S	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	T	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	U	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	V	7	Total	C	N	O	0	0	0
			83	46	2	35			

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
5	Y	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	Z	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	a	7	Total	C	N	O	0	0	0
			83	46	2	35			
5	b	7	Total	C	N	O	0	0	0
			83	46	2	35			

- Molecule 6 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)]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				ZeroOcc	AltConf	Trace
			Total	C	N	O			
6	Q	9	Total	C	N	O	0	0	0
			105	58	2	45			
6	W	9	Total	C	N	O	0	0	0
			105	58	2	45			
6	c	9	Total	C	N	O	0	0	0
			105	58	2	45			

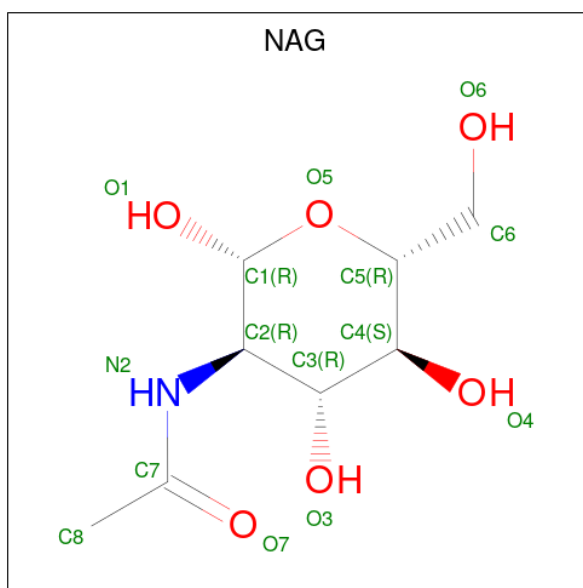
- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose.



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
			Total	C	O			
7	R	2	Total	C	O	0	0	0
			22	12	10			
7	X	2	Total	C	O	0	0	0
			22	12	10			
7	d	2	Total	C	O	0	0	0
			22	12	10			

- Molecule 8 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:

C₈H₁₅NO₆).



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

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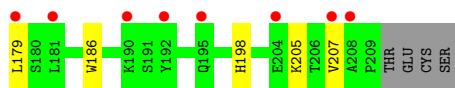
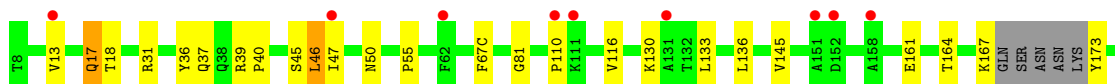
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
8	E	1	Total	C	N	O	0	0
			14	8	1	5		
8	E	1	Total	C	N	O	0	0
			14	8	1	5		
8	E	1	Total	C	N	O	0	0
			14	8	1	5		
8	E	1	Total	C	N	O	0	0
			14	8	1	5		
8	E	1	Total	C	N	O	0	0
			14	8	1	5		
8	E	1	Total	C	N	O	0	0
			14	8	1	5		
8	I	1	Total	C	N	O	0	0
			14	8	1	5		
8	I	1	Total	C	N	O	0	0
			14	8	1	5		
8	I	1	Total	C	N	O	0	0
			14	8	1	5		
8	I	1	Total	C	N	O	0	0
			14	8	1	5		
8	I	1	Total	C	N	O	0	0
			14	8	1	5		
8	I	1	Total	C	N	O	0	0
			14	8	1	5		
8	I	1	Total	C	N	O	0	0
			14	8	1	5		

Chain J:  92% 6%




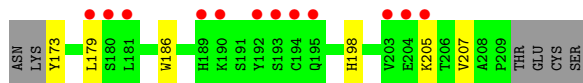
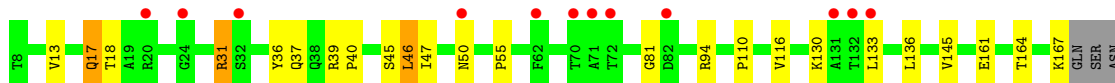
• Molecule 3: PGT122 light chain

Chain C:  8% 82% 13%




• Molecule 3: PGT122 light chain

Chain G:  11% 82% 13%




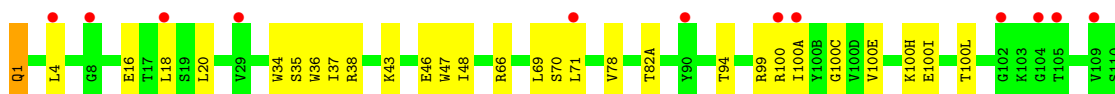
• Molecule 3: PGT122 light chain

Chain K:  17% 81% 12%

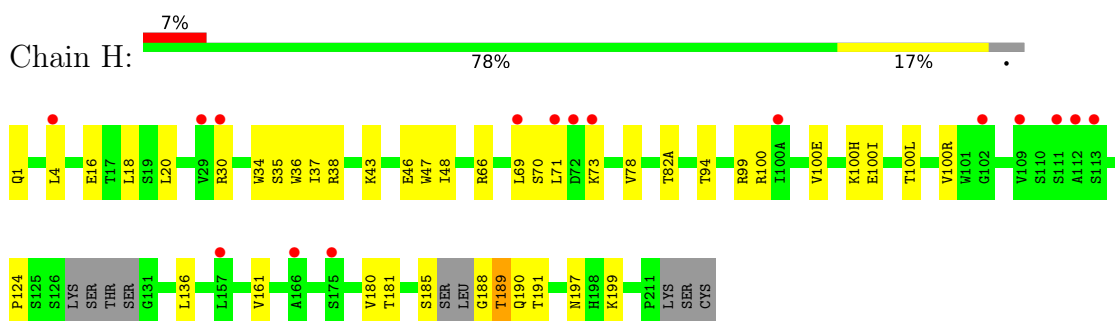


• Molecule 4: PGT122 heavy chain

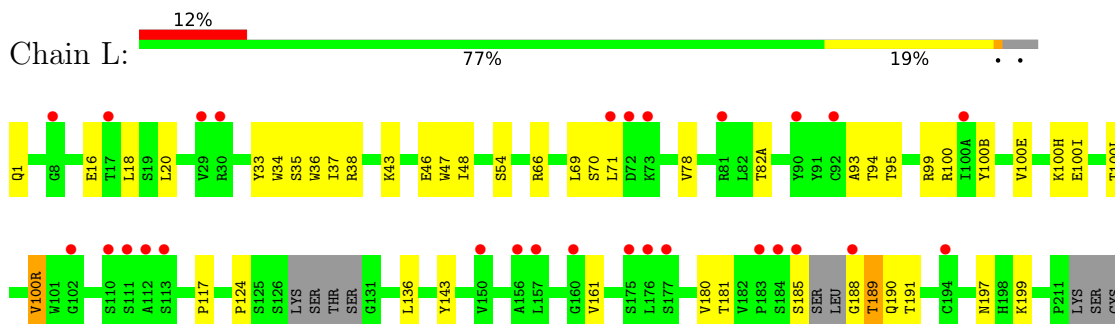
Chain D:  6% 78% 17%



• Molecule 4: PGT122 heavy chain



- Molecule 4: PGT122 heavy chain



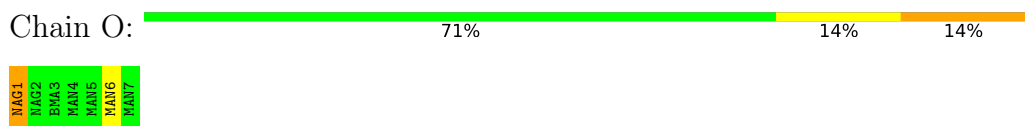
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

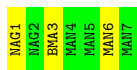


- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain P:  57% 43%



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:  71% 14% 14%



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain T:  57% 43%



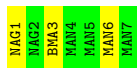
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain U:  71% 14% 14%



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:  57% 43%



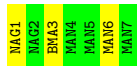
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Y:  43% 43% 14%



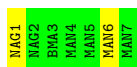
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:  57% 43%



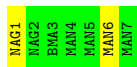
- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain a:  71% 29%



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain b:  71% 29%



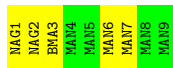
- Molecule 6: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Q:  44% 44% 11%



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

Chain W:  44% 56%



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

Chain c:  44% 56%

MAN1
MAN2
MAN3
MAN4
MAN5
MAN6
MAN7
MAN8
MAN9

- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose

Chain R:  50% 50%

MAN1
MAN2

- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose

Chain X:  100%

MAN1
MAN2

- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose

Chain d:  50% 50%

MAN1
MAN2

4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	152.20Å 260.72Å 283.18Å 90.00° 99.56° 90.00°	Depositor
Resolution (Å)	39.89 – 4.70 39.89 – 4.70	Depositor EDS
% Data completeness (in resolution range)	89.0 (39.89-4.70) 89.1 (39.89-4.70)	Depositor EDS
R_{merge}	0.30	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.22 (at 4.63Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.8.1_1168)	Depositor
R, R_{free}	0.375 , 0.389 0.377 , 0.391	Depositor DCC
R_{free} test set	2550 reflections (5.06%)	wwPDB-VP
Wilson B-factor (Å ²)	136.6	Xtrriage
Anisotropy	1.016	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 374.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.31$, $\langle L^2 \rangle = 0.15$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.75	EDS
Total number of atoms	22014	wwPDB-VP
Average B, all atoms (Å ²)	262.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.71% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.33	0/3161	0.71	4/4306 (0.1%)
1	E	0.35	0/3161	0.71	3/4306 (0.1%)
1	I	0.33	0/3161	0.71	3/4306 (0.1%)
3	C	0.27	0/1571	0.54	1/2151 (0.0%)
3	G	0.27	0/1571	0.55	1/2151 (0.0%)
3	K	0.28	0/1571	0.58	2/2151 (0.1%)
4	D	0.30	0/1774	0.57	0/2421
4	H	0.34	1/1774 (0.1%)	0.57	0/2421
4	L	0.45	1/1774 (0.1%)	0.59	1/2421 (0.0%)
All	All	0.33	2/19518 (0.0%)	0.64	15/26634 (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	3
1	E	0	3
1	I	0	3
3	C	0	1
3	G	0	1
3	K	0	1
All	All	0	12

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	L	100(R)	VAL	C-N	13.91	1.66	1.34
4	H	100(R)	VAL	C-N	6.19	1.48	1.34

The worst 5 of 15 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	335	LYS	N-CA-C	6.21	127.77	111.00
1	A	335	LYS	N-CA-C	6.18	127.69	111.00
1	I	335	LYS	N-CA-C	6.10	127.48	111.00
1	I	450	THR	C-N-CA	-6.05	109.59	122.30
4	L	100(R)	VAL	O-C-N	6.04	132.37	122.70

There are no chirality outliers.

5 of 12 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	236	THR	Peptide
1	A	56	SER	Peptide
1	A	80	ASN	Peptide
3	C	110	PRO	Peptide
1	E	56	SER	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	3096	0	2821	142	0
1	E	3096	0	2821	144	0
1	I	3096	0	2821	140	0
2	B	385	0	82	2	0
2	F	385	0	82	2	0
2	J	385	0	82	3	0
3	C	1530	0	1472	21	0
3	G	1530	0	1472	20	0
3	K	1530	0	1472	22	0
4	D	1728	0	1699	36	0
4	H	1728	0	1699	30	0
4	L	1728	0	1699	40	0
5	M	83	0	70	1	0
5	N	83	0	70	0	0
5	O	83	0	70	5	0
5	P	83	0	70	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	S	83	0	70	1	0
5	T	83	0	70	0	0
5	U	83	0	70	5	0
5	V	83	0	70	0	0
5	Y	83	0	70	1	0
5	Z	83	0	70	0	0
5	a	83	0	70	0	0
5	b	83	0	70	0	0
6	Q	105	0	88	2	0
6	W	105	0	88	0	0
6	c	105	0	88	0	0
7	R	22	0	19	3	0
7	X	22	0	19	1	0
7	d	22	0	19	0	0
8	A	140	0	130	3	0
8	E	140	0	130	3	0
8	I	140	0	130	2	0
All	All	22014	0	19773	580	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 14.

The worst 5 of 580 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:I:293:GLN:HB2	1:I:334:SER:HB3	1.33	1.11
1:E:293:GLN:HB2	1:E:334:SER:HB3	1.33	1.09
1:A:293:GLN:HB2	1:A:334:SER:HB3	1.33	1.08
1:I:91:GLU:HA	1:I:239:CYS:O	1.74	0.88
1:E:91:GLU:HA	1:E:239:CYS:O	1.74	0.86

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 X-ray entries followed by that with respect to entries of similar resolution.

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	414/475 (87%)	349 (84%)	51 (12%)	14 (3%)	3	29
1	E	414/475 (87%)	348 (84%)	51 (12%)	15 (4%)	3	28
1	I	414/475 (87%)	348 (84%)	52 (13%)	14 (3%)	3	29
3	C	198/211 (94%)	191 (96%)	7 (4%)	0	100	100
3	G	198/211 (94%)	191 (96%)	7 (4%)	0	100	100
3	K	198/211 (94%)	192 (97%)	6 (3%)	0	100	100
4	D	220/235 (94%)	213 (97%)	6 (3%)	1 (0%)	29	68
4	H	220/235 (94%)	213 (97%)	6 (3%)	1 (0%)	29	68
4	L	220/235 (94%)	213 (97%)	6 (3%)	1 (0%)	29	68
All	All	2496/2763 (90%)	2258 (90%)	192 (8%)	46 (2%)	8	41

5 of 46 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	57	ASP
1	A	83	GLU
1	A	323	ILE
1	A	429	ARG
1	E	57	ASP

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	317/422 (75%)	293 (92%)	24 (8%)	13	39
1	E	317/422 (75%)	293 (92%)	24 (8%)	13	39
1	I	317/422 (75%)	293 (92%)	24 (8%)	13	39
3	C	171/180 (95%)	164 (96%)	7 (4%)	30	56
3	G	171/180 (95%)	164 (96%)	7 (4%)	30	56

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	K	171/180 (95%)	163 (95%)	8 (5%)	26	52
4	D	196/205 (96%)	189 (96%)	7 (4%)	35	59
4	H	196/205 (96%)	189 (96%)	7 (4%)	35	59
4	L	196/205 (96%)	189 (96%)	7 (4%)	35	59
All	All	2052/2421 (85%)	1937 (94%)	115 (6%)	21	48

5 of 115 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	386	ASN
4	L	69	LEU
4	H	69	LEU
4	L	16	GLU
1	I	467	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	330	HIS
1	E	374	HIS
1	I	374	HIS
1	I	289	ASN
1	E	289	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

117 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
5	NAG	M	1	1,5	14,14,15	0.57	0	17,19,21	1.37	1 (5%)
5	NAG	M	2	5	14,14,15	0.55	0	17,19,21	0.83	0
5	BMA	M	3	5	11,11,12	0.69	0	15,15,17	0.87	1 (6%)
5	MAN	M	4	5	11,11,12	0.71	0	15,15,17	0.87	0
5	MAN	M	5	5	11,11,12	0.64	0	15,15,17	0.66	0
5	MAN	M	6	5	11,11,12	0.66	0	15,15,17	1.12	2 (13%)
5	MAN	M	7	5	11,11,12	0.60	0	15,15,17	0.68	0
5	NAG	N	1	1,5	14,14,15	0.61	0	17,19,21	1.43	3 (17%)
5	NAG	N	2	5	14,14,15	0.57	0	17,19,21	0.88	0
5	BMA	N	3	5	11,11,12	0.77	0	15,15,17	0.83	1 (6%)
5	MAN	N	4	5	11,11,12	0.73	0	15,15,17	1.09	0
5	MAN	N	5	5	11,11,12	0.64	0	15,15,17	0.68	0
5	MAN	N	6	5	11,11,12	0.71	0	15,15,17	0.89	1 (6%)
5	MAN	N	7	5	11,11,12	0.59	0	15,15,17	0.71	0
5	NAG	O	1	1,5	14,14,15	0.76	1 (7%)	17,19,21	1.45	3 (17%)
5	NAG	O	2	5	14,14,15	0.56	0	17,19,21	0.78	0
5	BMA	O	3	5	11,11,12	0.75	0	15,15,17	0.73	0
5	MAN	O	4	5	11,11,12	0.70	0	15,15,17	0.92	0
5	MAN	O	5	5	11,11,12	0.64	0	15,15,17	0.65	0
5	MAN	O	6	5	11,11,12	0.71	0	15,15,17	0.90	1 (6%)
5	MAN	O	7	5	11,11,12	0.59	0	15,15,17	0.69	0
5	NAG	P	1	1,5	14,14,15	0.61	0	17,19,21	1.20	1 (5%)
5	NAG	P	2	5	14,14,15	0.59	0	17,19,21	0.79	0
5	BMA	P	3	5	11,11,12	0.73	0	15,15,17	0.79	1 (6%)
5	MAN	P	4	5	11,11,12	0.71	0	15,15,17	0.92	0
5	MAN	P	5	5	11,11,12	0.63	0	15,15,17	0.65	0
5	MAN	P	6	5	11,11,12	0.70	0	15,15,17	0.90	1 (6%)
5	MAN	P	7	5	11,11,12	0.59	0	15,15,17	0.68	0
6	NAG	Q	1	6,1	14,14,15	0.62	0	17,19,21	1.51	3 (17%)
6	NAG	Q	2	6	14,14,15	0.53	0	17,19,21	1.16	2 (11%)
6	BMA	Q	3	6	11,11,12	0.71	0	15,15,17	1.37	1 (6%)
6	MAN	Q	4	6	11,11,12	0.53	0	15,15,17	0.83	0
6	MAN	Q	5	6	11,11,12	0.61	0	15,15,17	0.81	0
6	MAN	Q	6	6	11,11,12	0.66	0	15,15,17	0.74	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	MAN	Q	7	6	11,11,12	0.67	0	15,15,17	1.10	1 (6%)
6	MAN	Q	8	6	11,11,12	0.62	0	15,15,17	0.66	0
6	MAN	Q	9	6	11,11,12	0.63	0	15,15,17	0.62	0
7	MAN	R	1	7	11,11,12	0.72	0	15,15,17	1.35	2 (13%)
7	MAN	R	2	7	11,11,12	0.70	0	15,15,17	0.71	0
5	NAG	S	1	1,5	14,14,15	0.58	0	17,19,21	1.38	1 (5%)
5	NAG	S	2	5	14,14,15	0.54	0	17,19,21	0.84	0
5	BMA	S	3	5	11,11,12	0.70	0	15,15,17	0.87	1 (6%)
5	MAN	S	4	5	11,11,12	0.71	0	15,15,17	0.88	0
5	MAN	S	5	5	11,11,12	0.62	0	15,15,17	0.66	0
5	MAN	S	6	5	11,11,12	0.70	0	15,15,17	0.87	0
5	MAN	S	7	5	11,11,12	0.61	0	15,15,17	0.67	0
5	NAG	T	1	1,5	14,14,15	0.61	0	17,19,21	1.41	3 (17%)
5	NAG	T	2	5	14,14,15	0.56	0	17,19,21	0.89	0
5	BMA	T	3	5	11,11,12	0.78	0	15,15,17	0.84	1 (6%)
5	MAN	T	4	5	11,11,12	0.75	0	15,15,17	1.09	0
5	MAN	T	5	5	11,11,12	0.63	0	15,15,17	0.68	0
5	MAN	T	6	5	11,11,12	0.71	0	15,15,17	0.90	1 (6%)
5	MAN	T	7	5	11,11,12	0.59	0	15,15,17	0.71	0
5	NAG	U	1	1,5	14,14,15	0.75	1 (7%)	17,19,21	1.44	3 (17%)
5	NAG	U	2	5	14,14,15	0.55	0	17,19,21	0.76	0
5	BMA	U	3	5	11,11,12	0.75	0	15,15,17	0.73	0
5	MAN	U	4	5	11,11,12	0.71	0	15,15,17	0.91	0
5	MAN	U	5	5	11,11,12	0.64	0	15,15,17	0.65	0
5	MAN	U	6	5	11,11,12	0.70	0	15,15,17	0.90	1 (6%)
5	MAN	U	7	5	11,11,12	0.60	0	15,15,17	0.69	0
5	NAG	V	1	1,5	14,14,15	0.62	0	17,19,21	1.13	1 (5%)
5	NAG	V	2	5	14,14,15	0.57	0	17,19,21	0.78	0
5	BMA	V	3	5	11,11,12	0.72	0	15,15,17	0.81	1 (6%)
5	MAN	V	4	5	11,11,12	0.71	0	15,15,17	0.92	0
5	MAN	V	5	5	11,11,12	0.65	0	15,15,17	0.66	0
5	MAN	V	6	5	11,11,12	0.71	0	15,15,17	0.90	1 (6%)
5	MAN	V	7	5	11,11,12	0.61	0	15,15,17	0.68	0
6	NAG	W	1	6,1	14,14,15	0.64	0	17,19,21	1.55	3 (17%)
6	NAG	W	2	6	14,14,15	0.58	0	17,19,21	0.84	1 (5%)
6	BMA	W	3	6	11,11,12	0.76	0	15,15,17	0.97	1 (6%)
6	MAN	W	4	6	11,11,12	0.53	0	15,15,17	0.80	0
6	MAN	W	5	6	11,11,12	0.60	0	15,15,17	0.82	0
6	MAN	W	6	6	11,11,12	0.67	0	15,15,17	0.74	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	MAN	W	7	6	11,11,12	0.67	0	15,15,17	1.10	1 (6%)
6	MAN	W	8	6	11,11,12	0.63	0	15,15,17	0.65	0
6	MAN	W	9	6	11,11,12	0.64	0	15,15,17	0.63	0
7	MAN	X	1	7	11,11,12	0.66	0	15,15,17	1.25	2 (13%)
7	MAN	X	2	7	11,11,12	0.66	0	15,15,17	0.87	0
5	NAG	Y	1	1,5	14,14,15	0.56	0	17,19,21	1.44	1 (5%)
5	NAG	Y	2	5	14,14,15	0.52	0	17,19,21	0.96	1 (5%)
5	BMA	Y	3	5	11,11,12	0.68	0	15,15,17	0.94	1 (6%)
5	MAN	Y	4	5	11,11,12	0.70	0	15,15,17	0.86	0
5	MAN	Y	5	5	11,11,12	0.64	0	15,15,17	0.65	0
5	MAN	Y	6	5	11,11,12	0.69	0	15,15,17	1.18	2 (13%)
5	MAN	Y	7	5	11,11,12	0.60	0	15,15,17	0.67	0
5	NAG	Z	1	1,5	14,14,15	0.63	0	17,19,21	1.47	2 (11%)
5	NAG	Z	2	5	14,14,15	0.59	0	17,19,21	0.88	0
5	BMA	Z	3	5	11,11,12	0.77	0	15,15,17	0.83	1 (6%)
5	MAN	Z	4	5	11,11,12	0.75	0	15,15,17	1.10	0
5	MAN	Z	5	5	11,11,12	0.64	0	15,15,17	0.68	0
5	MAN	Z	6	5	11,11,12	0.70	0	15,15,17	0.90	1 (6%)
5	MAN	Z	7	5	11,11,12	0.57	0	15,15,17	0.71	0
5	NAG	a	1	1,5	14,14,15	0.72	0	17,19,21	1.48	3 (17%)
5	NAG	a	2	5	14,14,15	0.57	0	17,19,21	0.78	0
5	BMA	a	3	5	11,11,12	0.75	0	15,15,17	0.73	0
5	MAN	a	4	5	11,11,12	0.70	0	15,15,17	0.92	0
5	MAN	a	5	5	11,11,12	0.64	0	15,15,17	0.65	0
5	MAN	a	6	5	11,11,12	0.71	0	15,15,17	0.90	1 (6%)
5	MAN	a	7	5	11,11,12	0.59	0	15,15,17	0.69	0
5	NAG	b	1	1,5	14,14,15	0.68	0	17,19,21	1.19	1 (5%)
5	NAG	b	2	5	14,14,15	0.59	0	17,19,21	0.81	0
5	BMA	b	3	5	11,11,12	0.74	0	15,15,17	0.79	0
5	MAN	b	4	5	11,11,12	0.71	0	15,15,17	0.92	0
5	MAN	b	5	5	11,11,12	0.64	0	15,15,17	0.66	0
5	MAN	b	6	5	11,11,12	0.71	0	15,15,17	0.89	1 (6%)
5	MAN	b	7	5	11,11,12	0.60	0	15,15,17	0.68	0
6	NAG	c	1	6,1	14,14,15	0.57	0	17,19,21	1.57	3 (17%)
6	NAG	c	2	6	14,14,15	0.58	0	17,19,21	1.19	1 (5%)
6	BMA	c	3	6	11,11,12	0.71	0	15,15,17	1.44	1 (6%)
6	MAN	c	4	6	11,11,12	0.52	0	15,15,17	0.83	0
6	MAN	c	5	6	11,11,12	0.60	0	15,15,17	0.82	0
6	MAN	c	6	6	11,11,12	0.67	0	15,15,17	0.75	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	MAN	c	7	6	11,11,12	0.67	0	15,15,17	1.19	1 (6%)
6	MAN	c	8	6	11,11,12	0.62	0	15,15,17	0.65	0
6	MAN	c	9	6	11,11,12	0.64	0	15,15,17	0.62	0
7	MAN	d	1	7	11,11,12	0.73	0	15,15,17	1.34	2 (13%)
7	MAN	d	2	7	11,11,12	0.75	0	15,15,17	0.84	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	M	1	1,5	-	3/6/23/26	0/1/1/1
5	NAG	M	2	5	-	0/6/23/26	0/1/1/1
5	BMA	M	3	5	-	0/2/19/22	0/1/1/1
5	MAN	M	4	5	-	0/2/19/22	0/1/1/1
5	MAN	M	5	5	-	0/2/19/22	0/1/1/1
5	MAN	M	6	5	-	0/2/19/22	0/1/1/1
5	MAN	M	7	5	-	0/2/19/22	0/1/1/1
5	NAG	N	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	N	2	5	-	0/6/23/26	0/1/1/1
5	BMA	N	3	5	-	0/2/19/22	0/1/1/1
5	MAN	N	4	5	-	1/2/19/22	0/1/1/1
5	MAN	N	5	5	-	0/2/19/22	0/1/1/1
5	MAN	N	6	5	-	0/2/19/22	0/1/1/1
5	MAN	N	7	5	-	0/2/19/22	0/1/1/1
5	NAG	O	1	1,5	-	2/6/23/26	0/1/1/1
5	NAG	O	2	5	-	0/6/23/26	0/1/1/1
5	BMA	O	3	5	-	0/2/19/22	0/1/1/1
5	MAN	O	4	5	-	2/2/19/22	0/1/1/1
5	MAN	O	5	5	-	0/2/19/22	0/1/1/1
5	MAN	O	6	5	-	0/2/19/22	0/1/1/1
5	MAN	O	7	5	-	0/2/19/22	0/1/1/1
5	NAG	P	1	1,5	-	1/6/23/26	0/1/1/1
5	NAG	P	2	5	-	0/6/23/26	0/1/1/1
5	BMA	P	3	5	-	0/2/19/22	0/1/1/1
5	MAN	P	4	5	-	2/2/19/22	0/1/1/1
5	MAN	P	5	5	-	0/2/19/22	0/1/1/1
5	MAN	P	6	5	-	0/2/19/22	0/1/1/1
5	MAN	P	7	5	-	0/2/19/22	0/1/1/1
6	NAG	Q	1	6,1	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	Q	2	6	-	0/6/23/26	0/1/1/1
6	BMA	Q	3	6	-	0/2/19/22	0/1/1/1
6	MAN	Q	4	6	-	0/2/19/22	0/1/1/1
6	MAN	Q	5	6	-	2/2/19/22	0/1/1/1
6	MAN	Q	6	6	-	0/2/19/22	0/1/1/1
6	MAN	Q	7	6	-	2/2/19/22	0/1/1/1
6	MAN	Q	8	6	-	0/2/19/22	0/1/1/1
6	MAN	Q	9	6	-	0/2/19/22	0/1/1/1
7	MAN	R	1	7	-	2/2/19/22	0/1/1/1
7	MAN	R	2	7	-	0/2/19/22	0/1/1/1
5	NAG	S	1	1,5	-	3/6/23/26	0/1/1/1
5	NAG	S	2	5	-	0/6/23/26	0/1/1/1
5	BMA	S	3	5	-	0/2/19/22	0/1/1/1
5	MAN	S	4	5	-	0/2/19/22	0/1/1/1
5	MAN	S	5	5	-	0/2/19/22	0/1/1/1
5	MAN	S	6	5	-	0/2/19/22	0/1/1/1
5	MAN	S	7	5	-	0/2/19/22	0/1/1/1
5	NAG	T	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	T	2	5	-	0/6/23/26	0/1/1/1
5	BMA	T	3	5	-	0/2/19/22	0/1/1/1
5	MAN	T	4	5	-	1/2/19/22	0/1/1/1
5	MAN	T	5	5	-	0/2/19/22	0/1/1/1
5	MAN	T	6	5	-	0/2/19/22	0/1/1/1
5	MAN	T	7	5	-	0/2/19/22	0/1/1/1
5	NAG	U	1	1,5	-	2/6/23/26	0/1/1/1
5	NAG	U	2	5	-	0/6/23/26	0/1/1/1
5	BMA	U	3	5	-	0/2/19/22	0/1/1/1
5	MAN	U	4	5	-	2/2/19/22	0/1/1/1
5	MAN	U	5	5	-	0/2/19/22	0/1/1/1
5	MAN	U	6	5	-	0/2/19/22	0/1/1/1
5	MAN	U	7	5	-	0/2/19/22	0/1/1/1
5	NAG	V	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	V	2	5	-	0/6/23/26	0/1/1/1
5	BMA	V	3	5	-	0/2/19/22	0/1/1/1
5	MAN	V	4	5	-	2/2/19/22	0/1/1/1
5	MAN	V	5	5	-	0/2/19/22	0/1/1/1
5	MAN	V	6	5	-	0/2/19/22	0/1/1/1
5	MAN	V	7	5	-	0/2/19/22	0/1/1/1
6	NAG	W	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	W	2	6	-	1/6/23/26	0/1/1/1
6	BMA	W	3	6	-	0/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	MAN	W	4	6	-	0/2/19/22	0/1/1/1
6	MAN	W	5	6	-	2/2/19/22	0/1/1/1
6	MAN	W	6	6	-	0/2/19/22	0/1/1/1
6	MAN	W	7	6	-	2/2/19/22	0/1/1/1
6	MAN	W	8	6	-	0/2/19/22	0/1/1/1
6	MAN	W	9	6	-	0/2/19/22	0/1/1/1
7	MAN	X	1	7	-	2/2/19/22	1/1/1/1
7	MAN	X	2	7	-	0/2/19/22	0/1/1/1
5	NAG	Y	1	1,5	-	3/6/23/26	0/1/1/1
5	NAG	Y	2	5	-	0/6/23/26	0/1/1/1
5	BMA	Y	3	5	-	0/2/19/22	0/1/1/1
5	MAN	Y	4	5	-	0/2/19/22	0/1/1/1
5	MAN	Y	5	5	-	0/2/19/22	0/1/1/1
5	MAN	Y	6	5	-	2/2/19/22	0/1/1/1
5	MAN	Y	7	5	-	0/2/19/22	0/1/1/1
5	NAG	Z	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	Z	2	5	-	0/6/23/26	0/1/1/1
5	BMA	Z	3	5	-	0/2/19/22	0/1/1/1
5	MAN	Z	4	5	-	1/2/19/22	0/1/1/1
5	MAN	Z	5	5	-	0/2/19/22	0/1/1/1
5	MAN	Z	6	5	-	0/2/19/22	0/1/1/1
5	MAN	Z	7	5	-	0/2/19/22	0/1/1/1
5	NAG	a	1	1,5	-	2/6/23/26	0/1/1/1
5	NAG	a	2	5	-	0/6/23/26	0/1/1/1
5	BMA	a	3	5	-	0/2/19/22	0/1/1/1
5	MAN	a	4	5	-	2/2/19/22	0/1/1/1
5	MAN	a	5	5	-	0/2/19/22	0/1/1/1
5	MAN	a	6	5	-	0/2/19/22	0/1/1/1
5	MAN	a	7	5	-	0/2/19/22	0/1/1/1
5	NAG	b	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	b	2	5	-	0/6/23/26	0/1/1/1
5	BMA	b	3	5	-	0/2/19/22	0/1/1/1
5	MAN	b	4	5	-	2/2/19/22	0/1/1/1
5	MAN	b	5	5	-	0/2/19/22	0/1/1/1
5	MAN	b	6	5	-	0/2/19/22	0/1/1/1
5	MAN	b	7	5	-	0/2/19/22	0/1/1/1
6	NAG	c	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	c	2	6	-	2/6/23/26	0/1/1/1
6	BMA	c	3	6	-	0/2/19/22	0/1/1/1
6	MAN	c	4	6	-	0/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	MAN	c	5	6	-	2/2/19/22	0/1/1/1
6	MAN	c	6	6	-	0/2/19/22	0/1/1/1
6	MAN	c	7	6	-	2/2/19/22	0/1/1/1
6	MAN	c	8	6	-	0/2/19/22	0/1/1/1
6	MAN	c	9	6	-	0/2/19/22	0/1/1/1
7	MAN	d	1	7	-	2/2/19/22	0/1/1/1
7	MAN	d	2	7	-	0/2/19/22	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	U	1	NAG	O5-C1	-2.02	1.40	1.43
5	O	1	NAG	O5-C1	-2.01	1.40	1.43

The worst 5 of 73 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	c	3	BMA	C1-C2-C3	4.35	115.01	109.67
6	Q	3	BMA	C1-C2-C3	4.13	114.75	109.67
5	Y	1	NAG	C4-C3-C2	4.11	117.05	111.02
5	S	1	NAG	C4-C3-C2	3.87	116.69	111.02
5	M	1	NAG	C4-C3-C2	3.84	116.65	111.02

There are no chirality outliers.

5 of 54 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	O	1	NAG	C8-C7-N2-C2
5	O	1	NAG	O7-C7-N2-C2
5	U	1	NAG	C8-C7-N2-C2
5	U	1	NAG	O7-C7-N2-C2
5	a	1	NAG	C8-C7-N2-C2

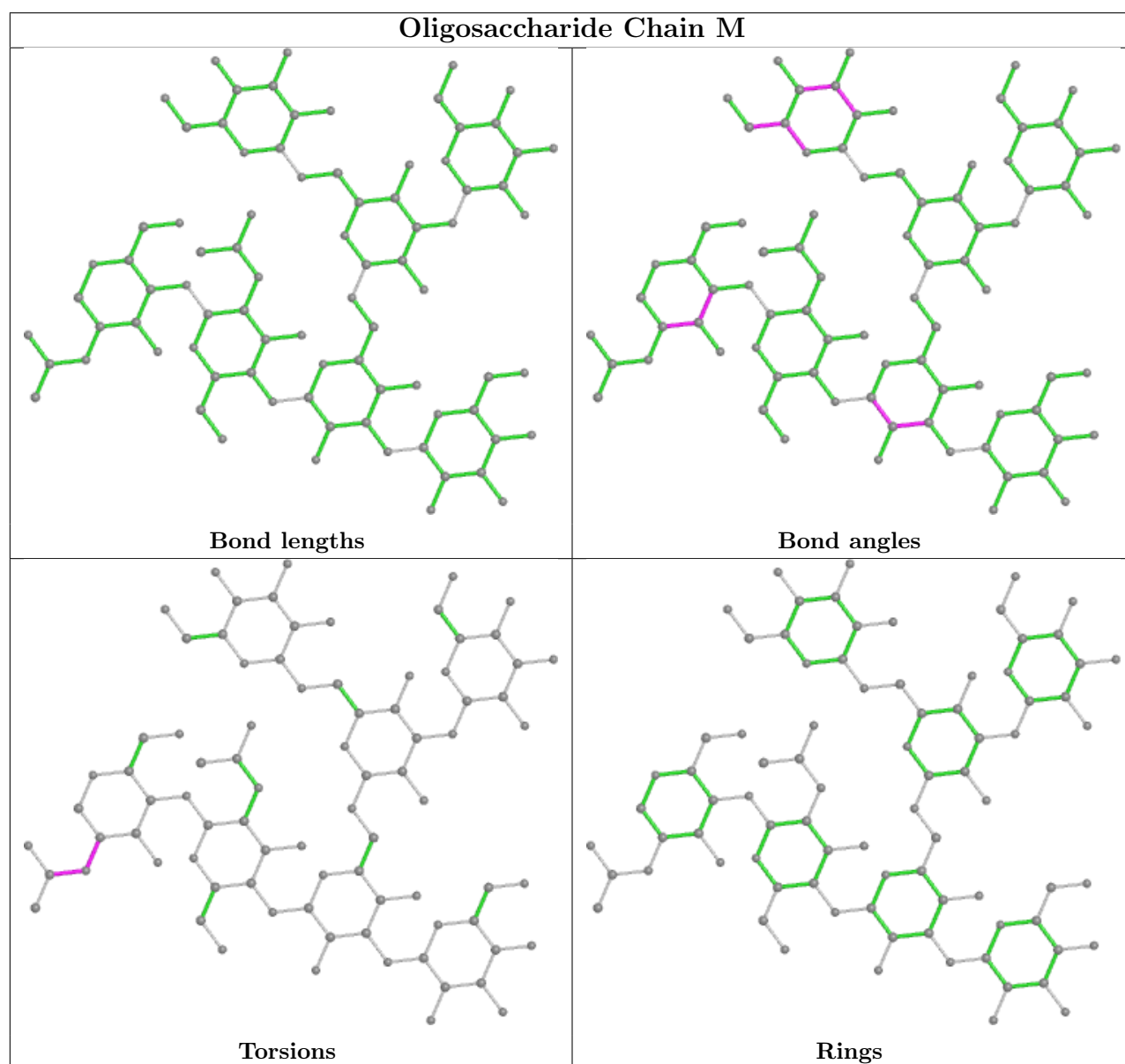
All (1) ring outliers are listed below:

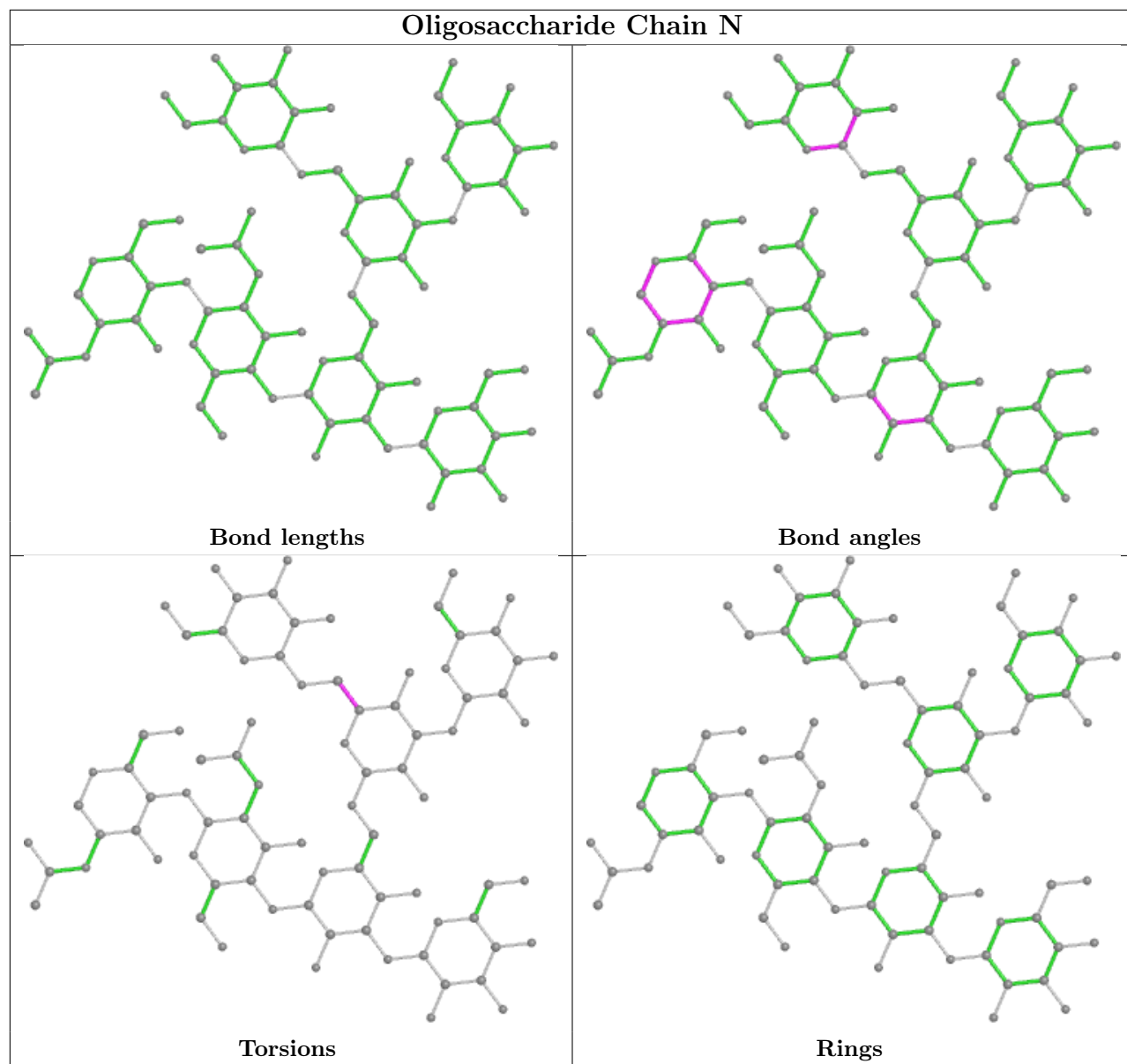
Mol	Chain	Res	Type	Atoms
7	X	1	MAN	C1-C2-C3-C4-C5-O5

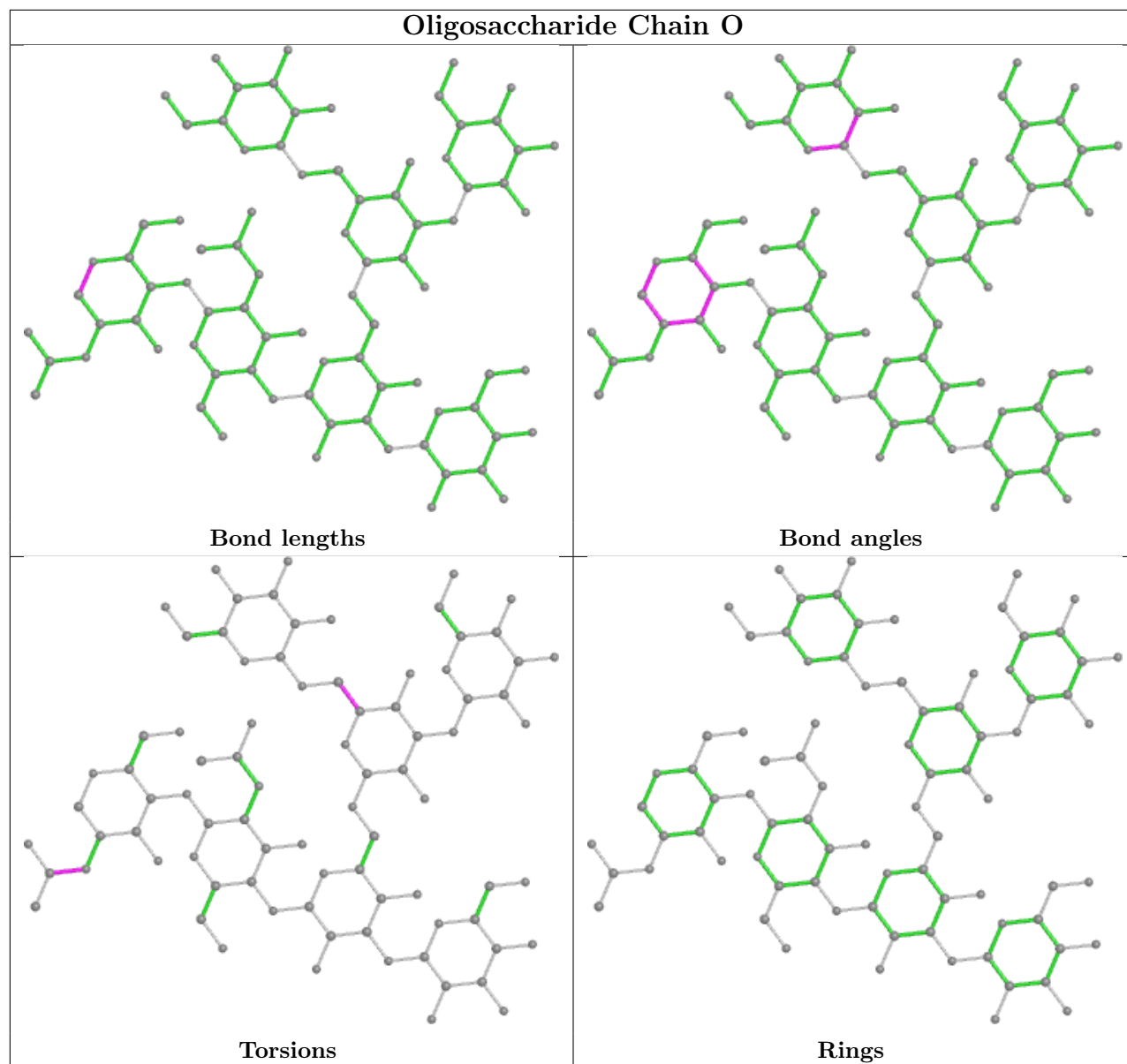
9 monomers are involved in 19 short contacts:

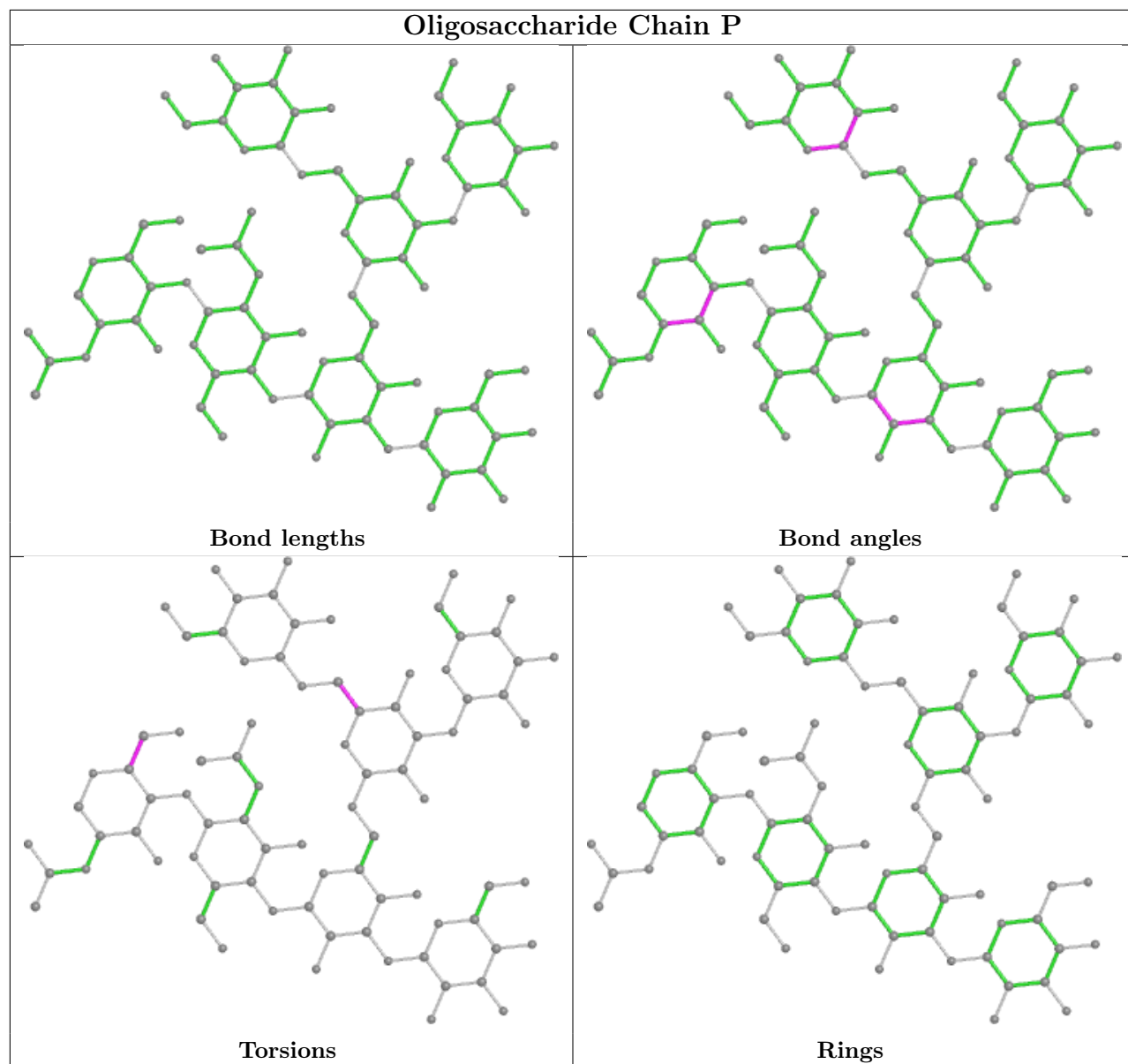
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	X	2	MAN	1	0
5	S	1	NAG	1	0
7	R	2	MAN	1	0
5	Y	6	MAN	1	0
5	M	1	NAG	1	0
5	O	1	NAG	5	0
7	R	1	MAN	2	0
5	U	1	NAG	5	0
6	Q	2	NAG	2	0

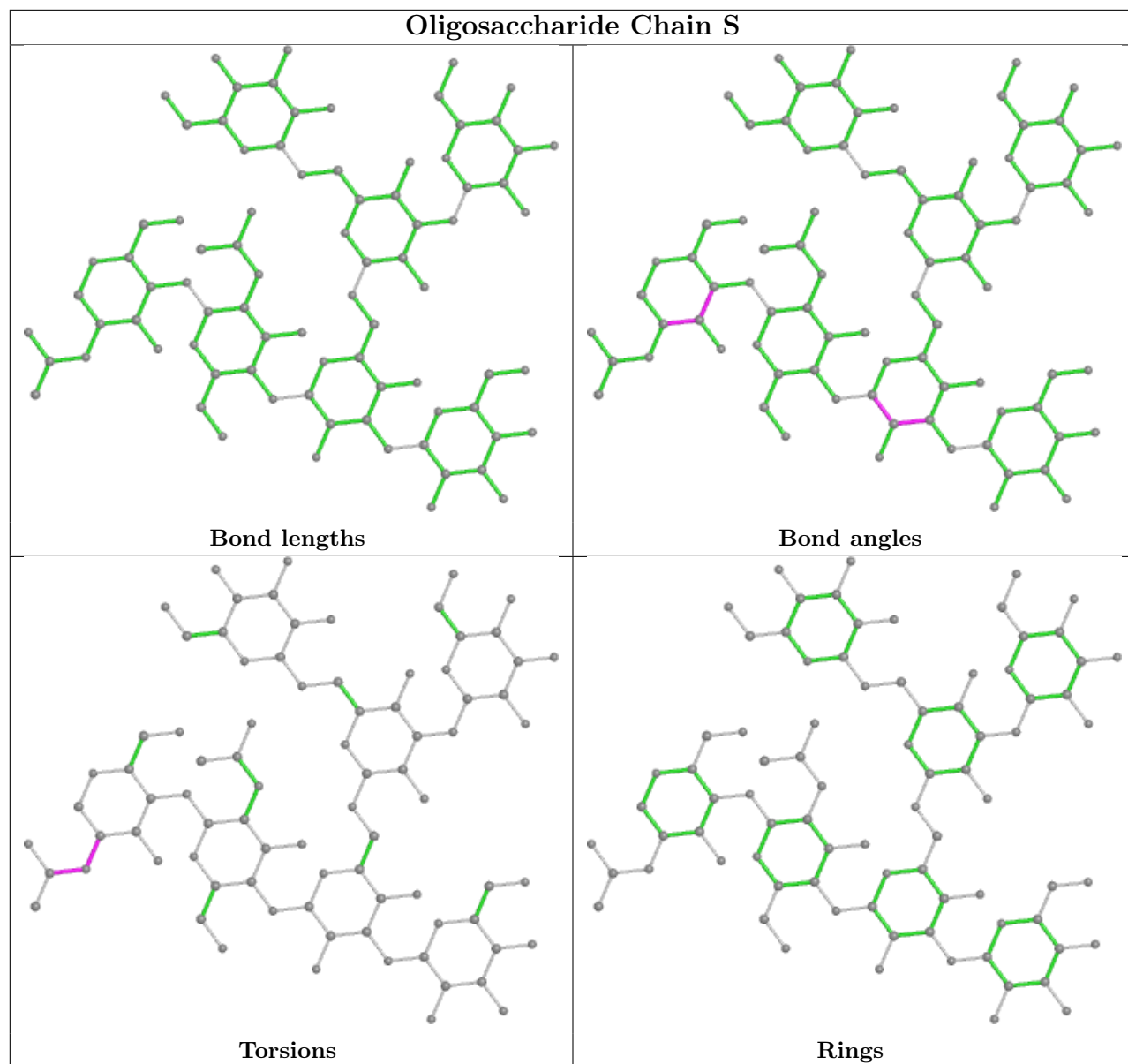
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

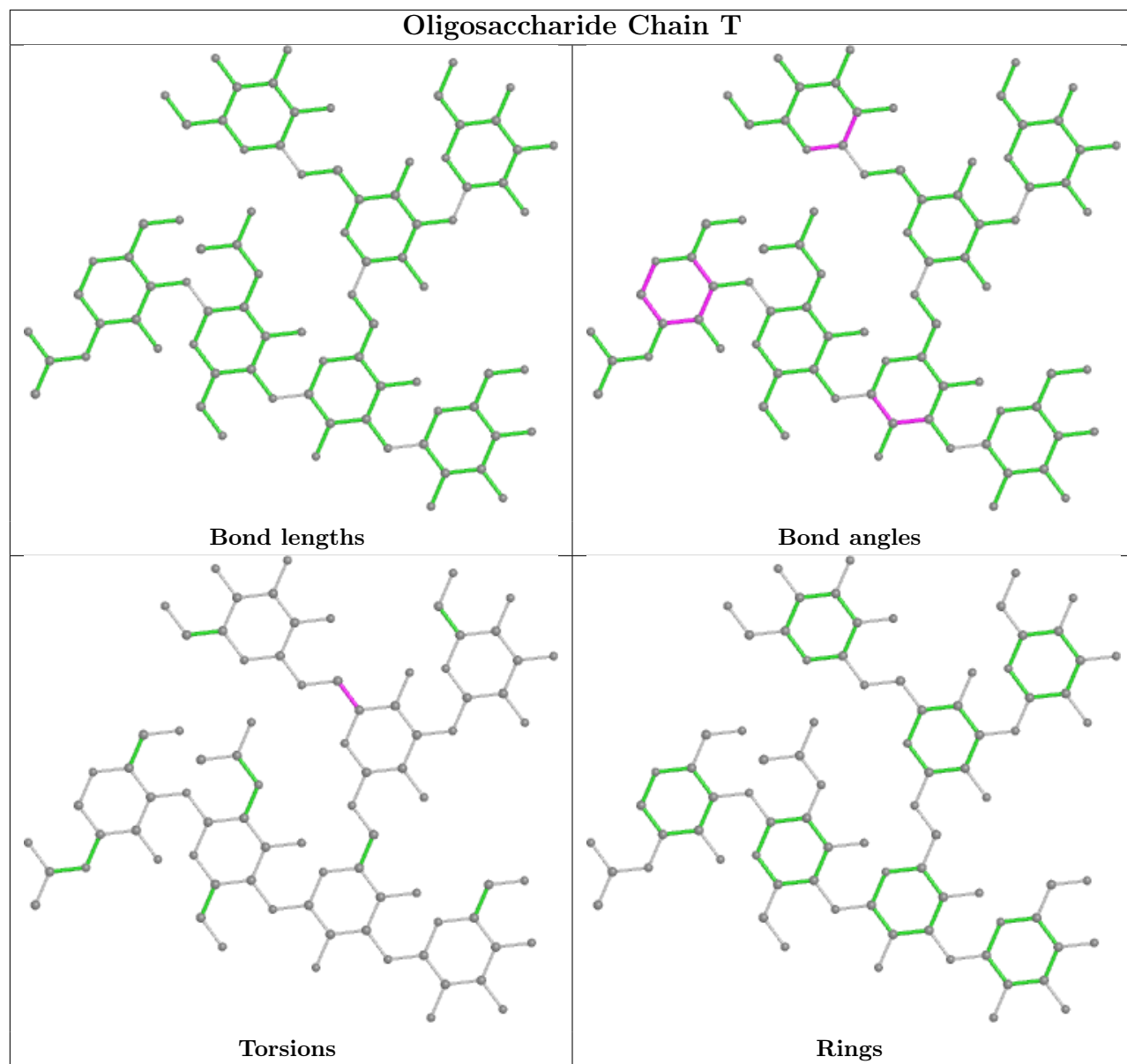


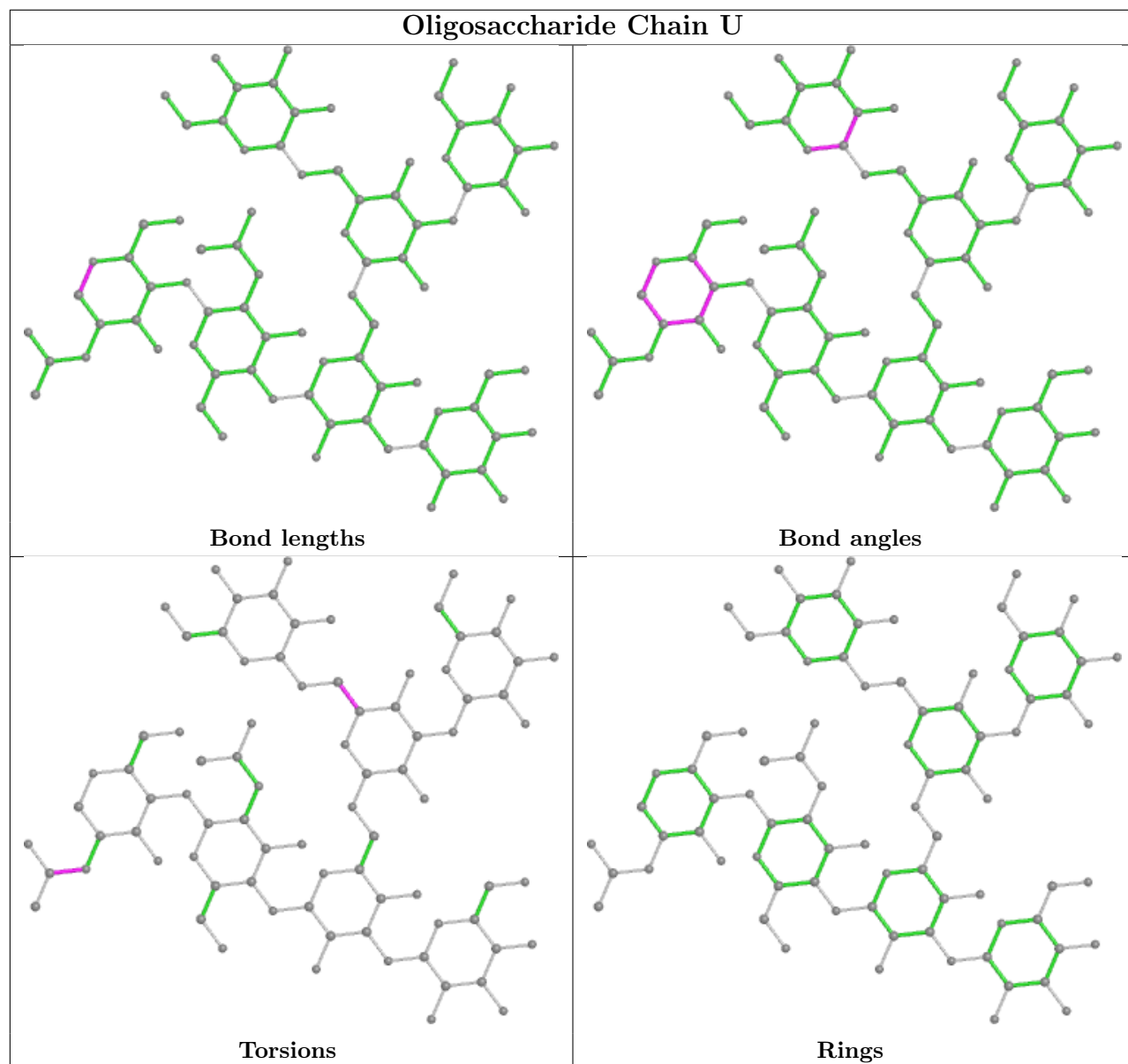


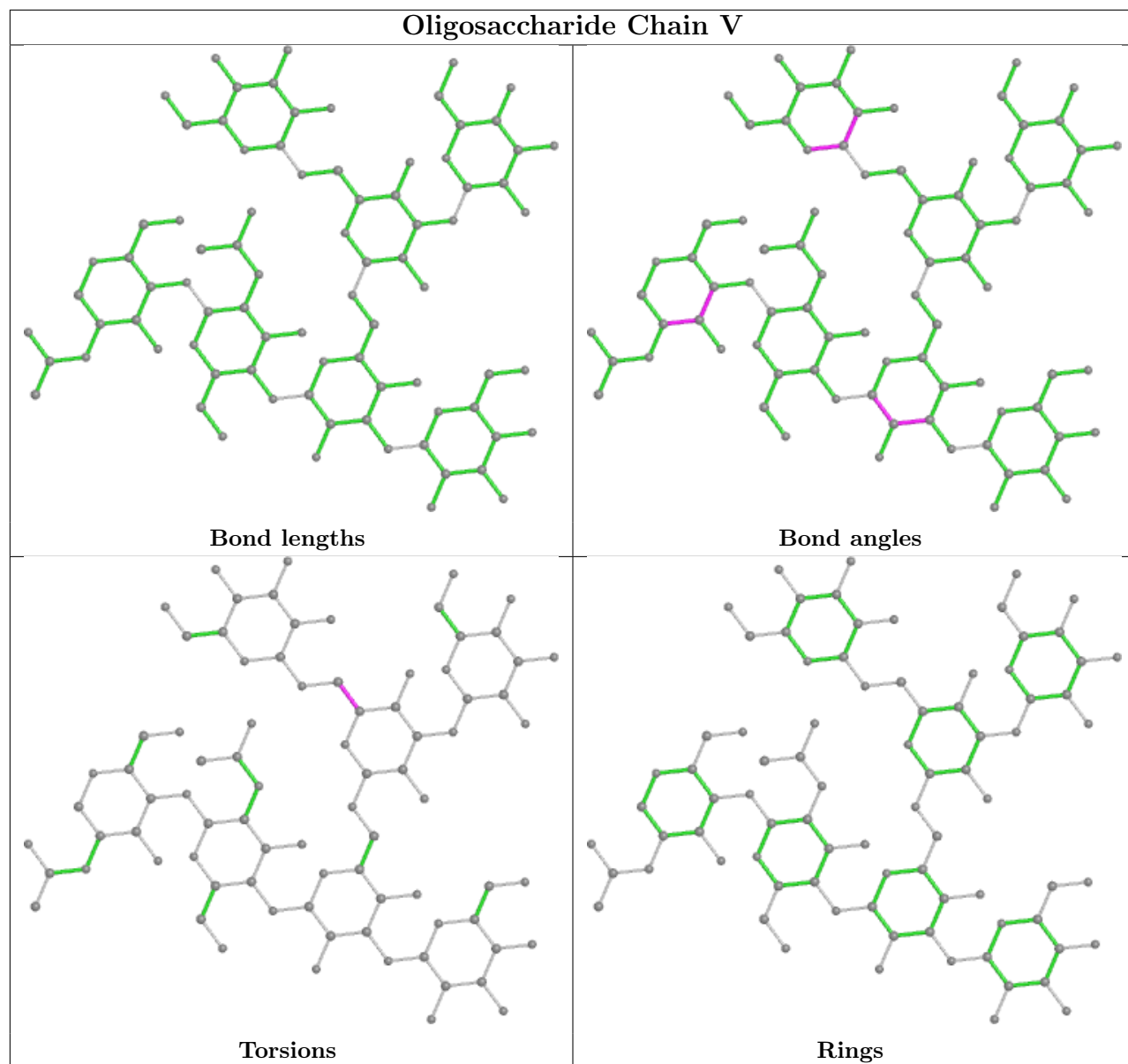


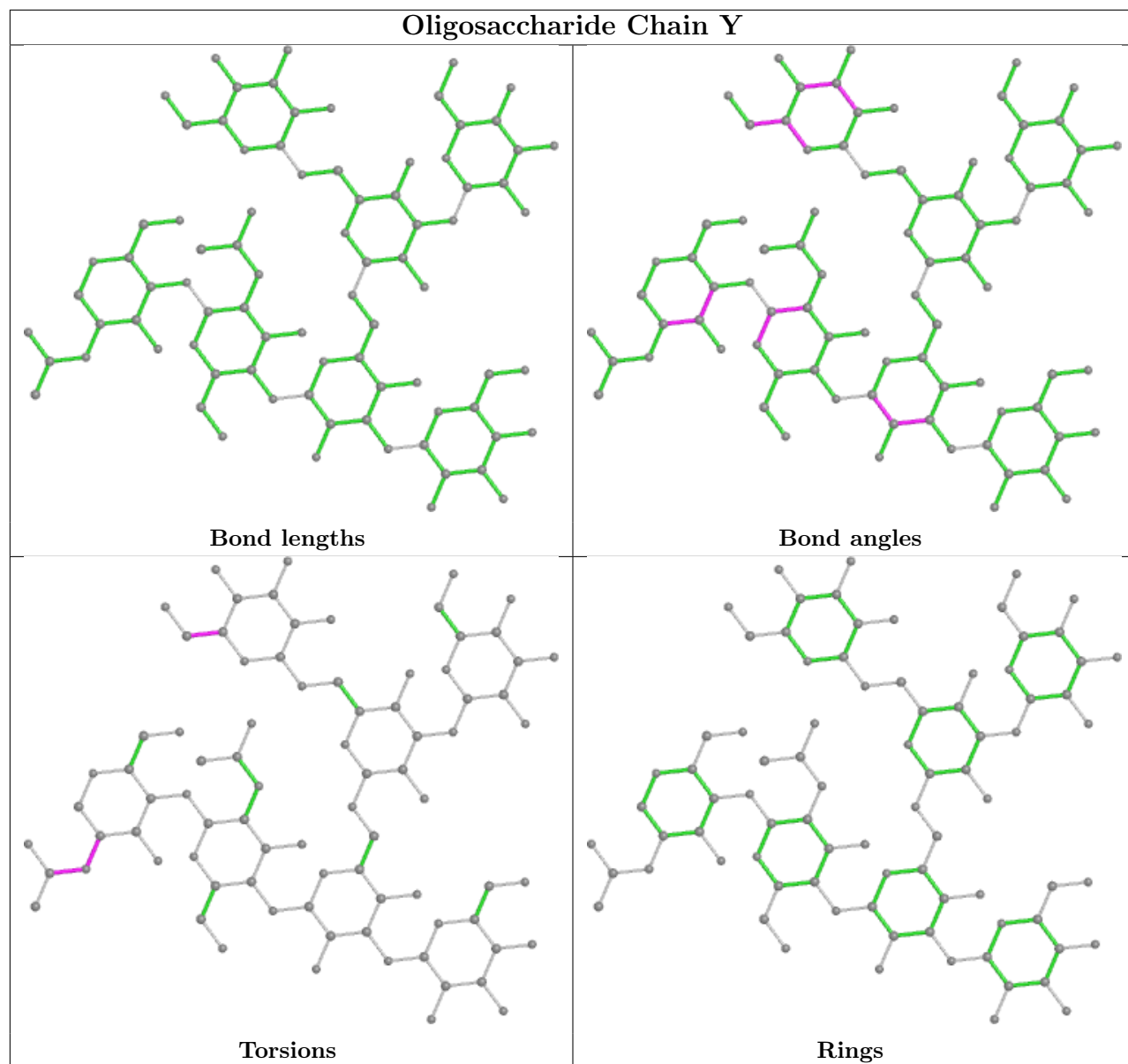


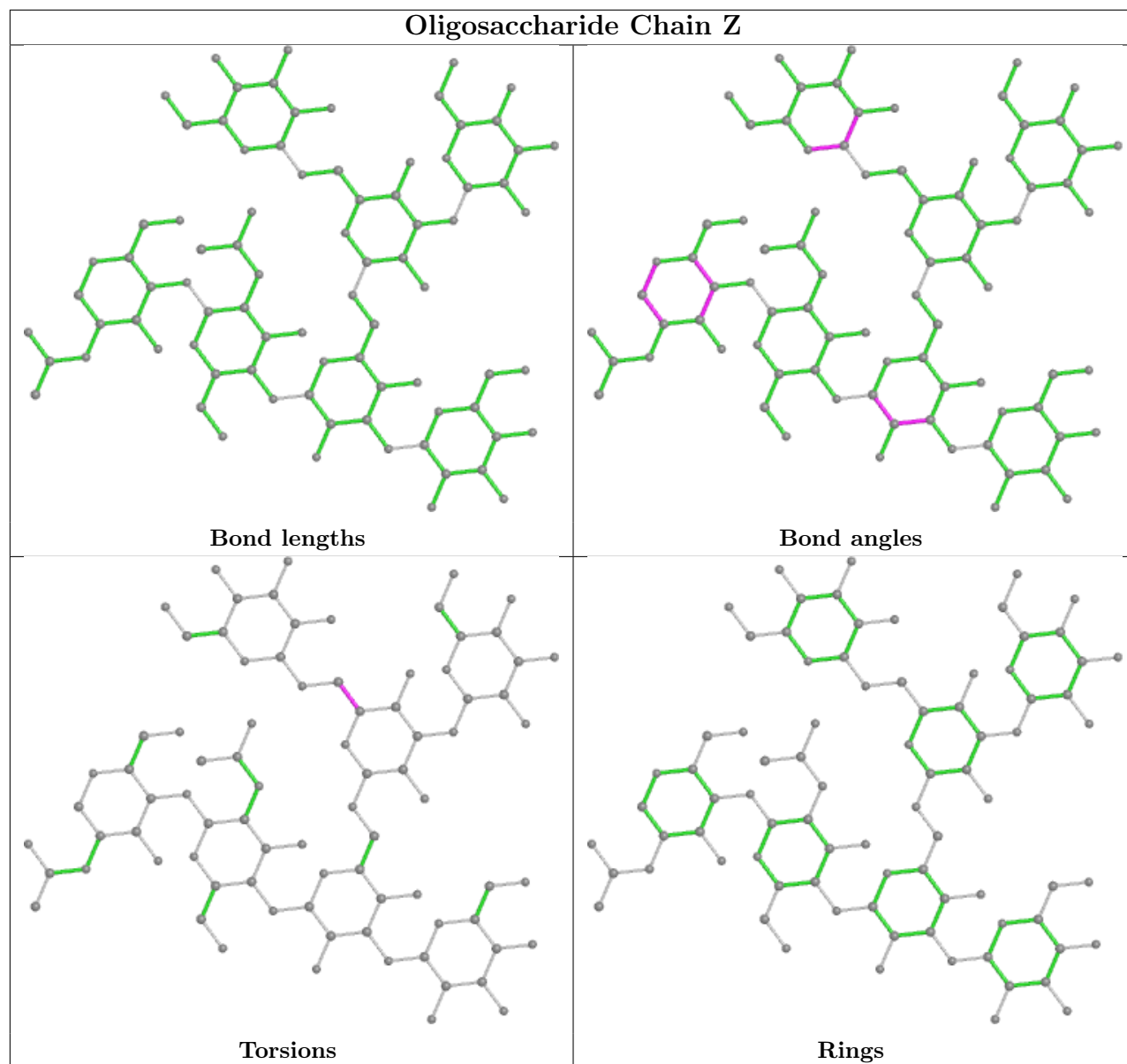


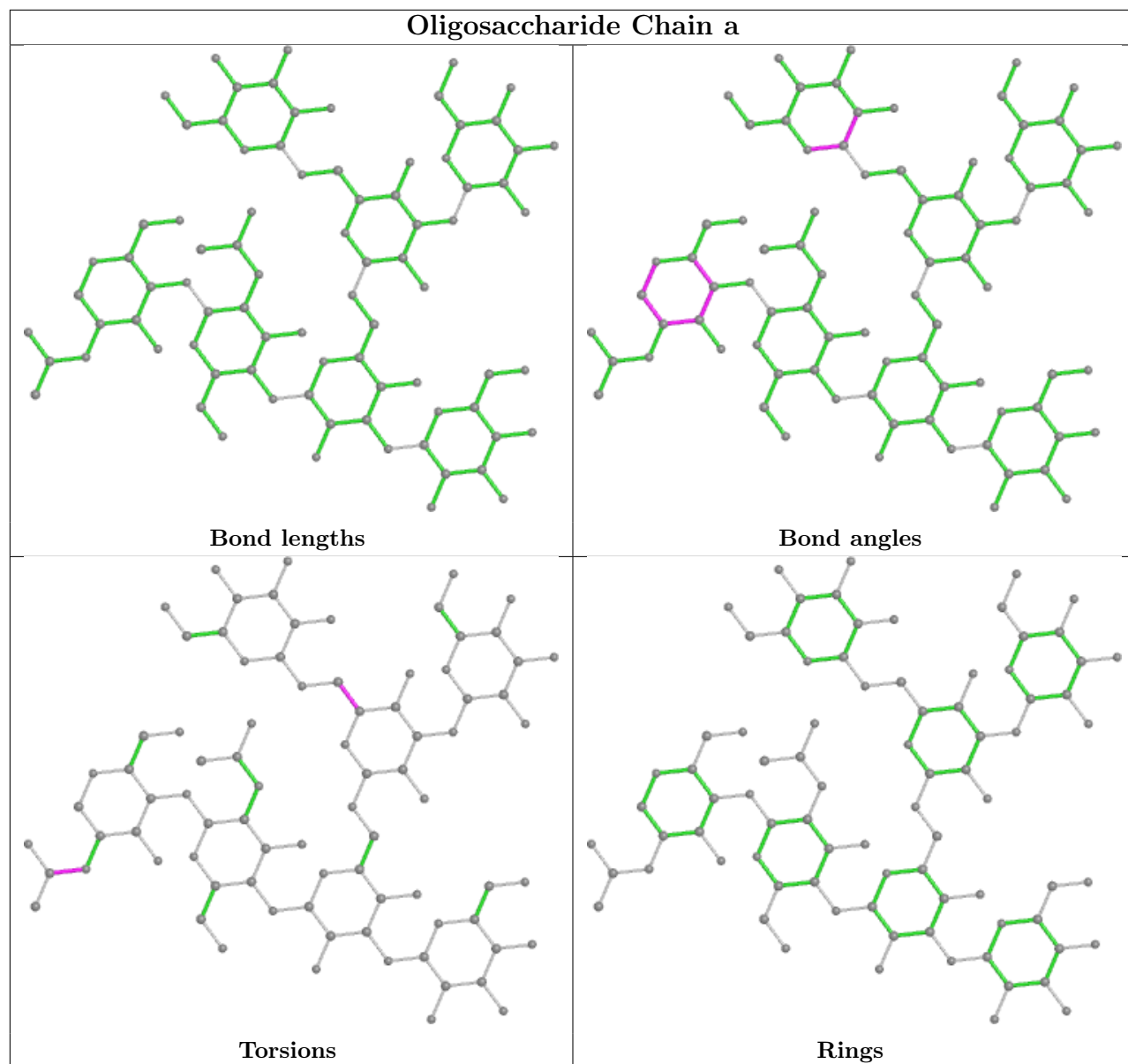


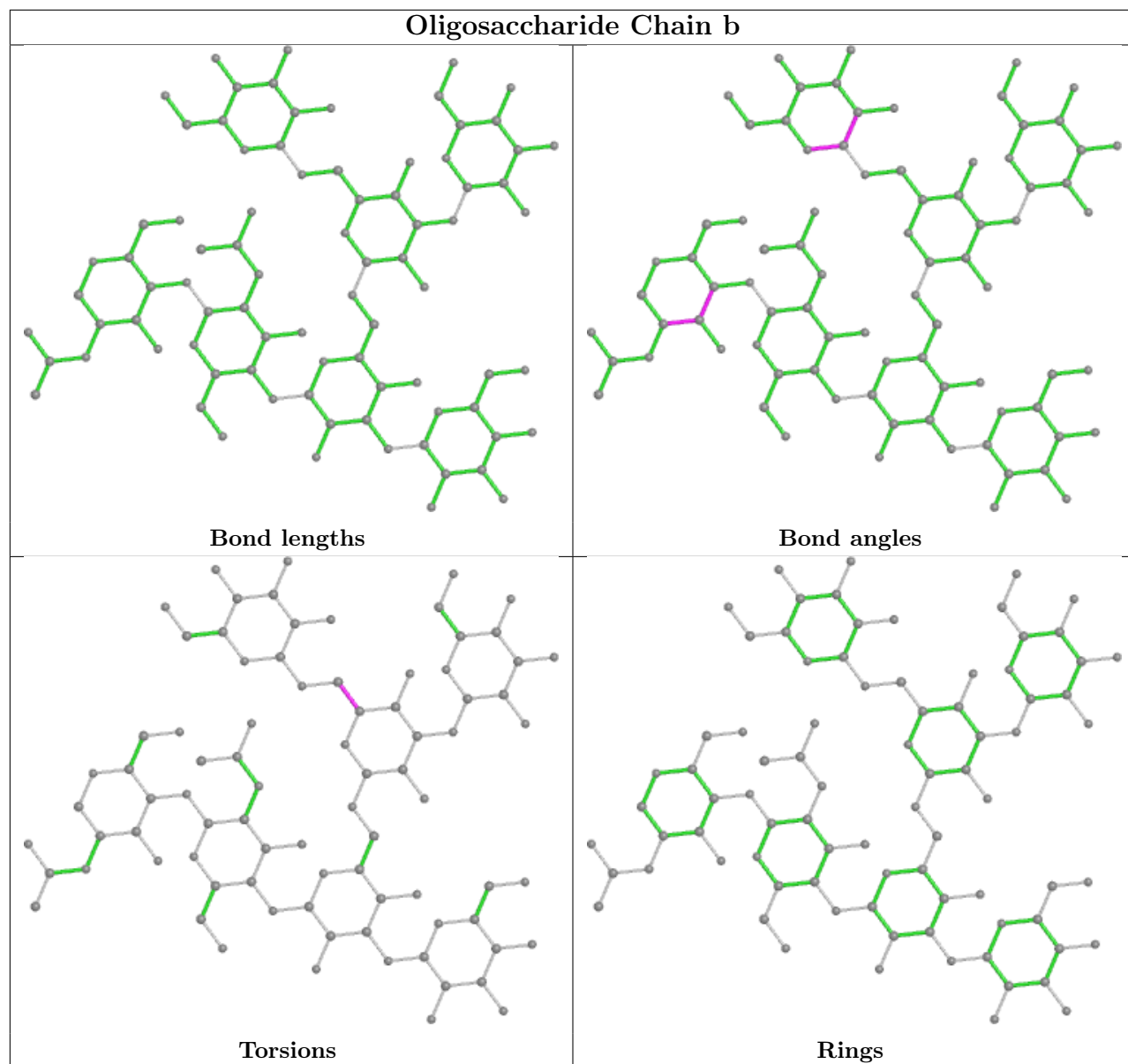


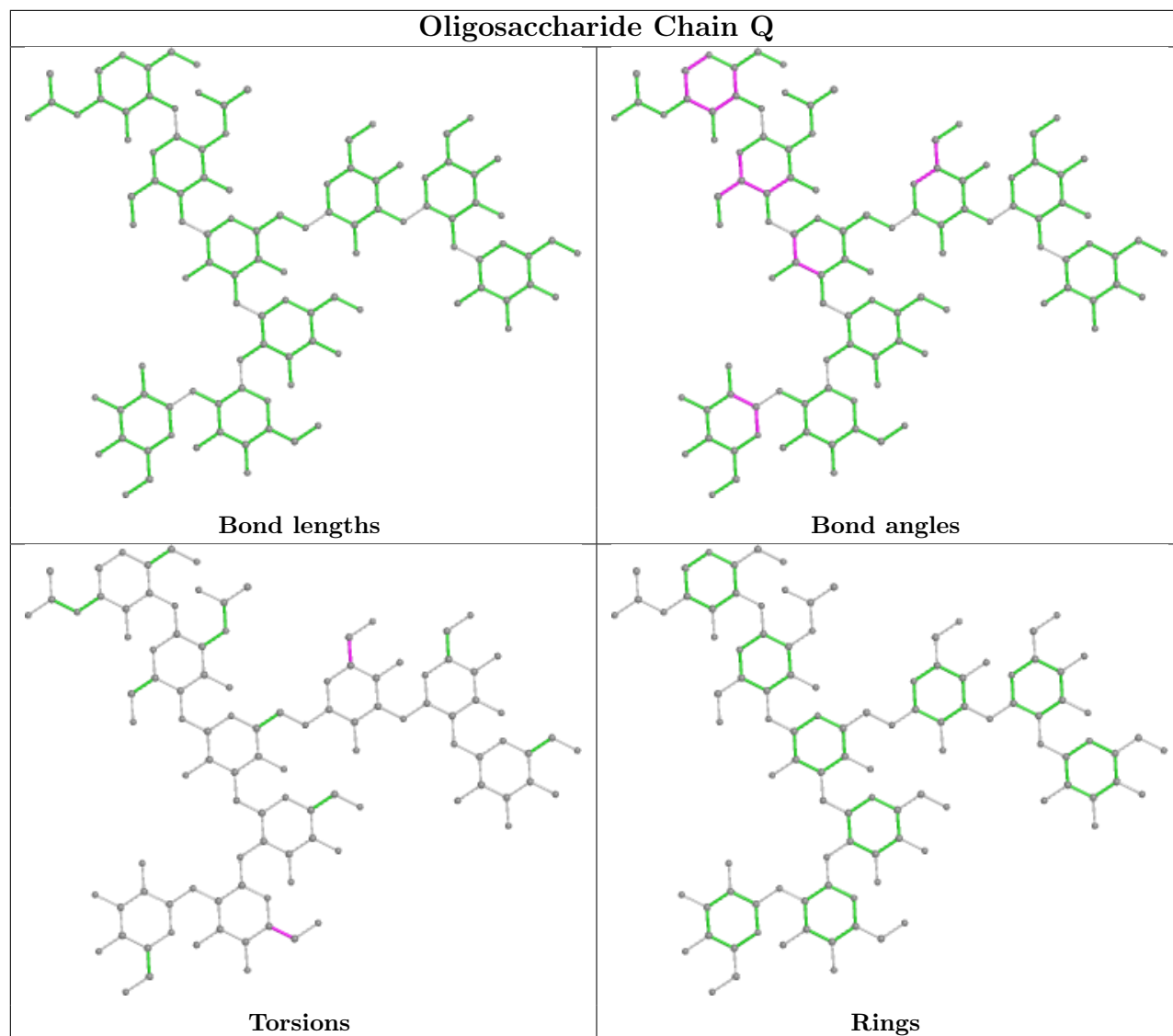


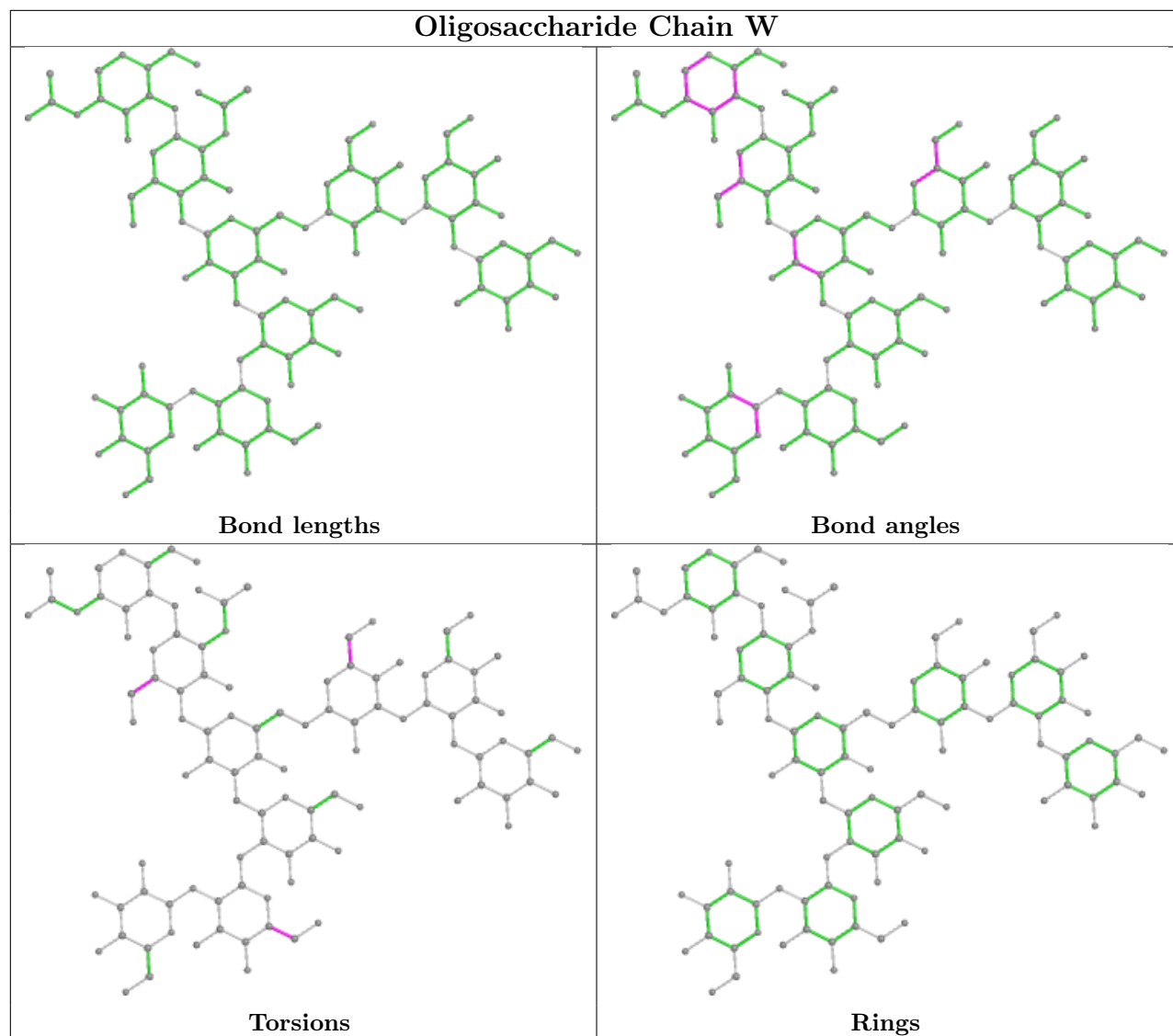


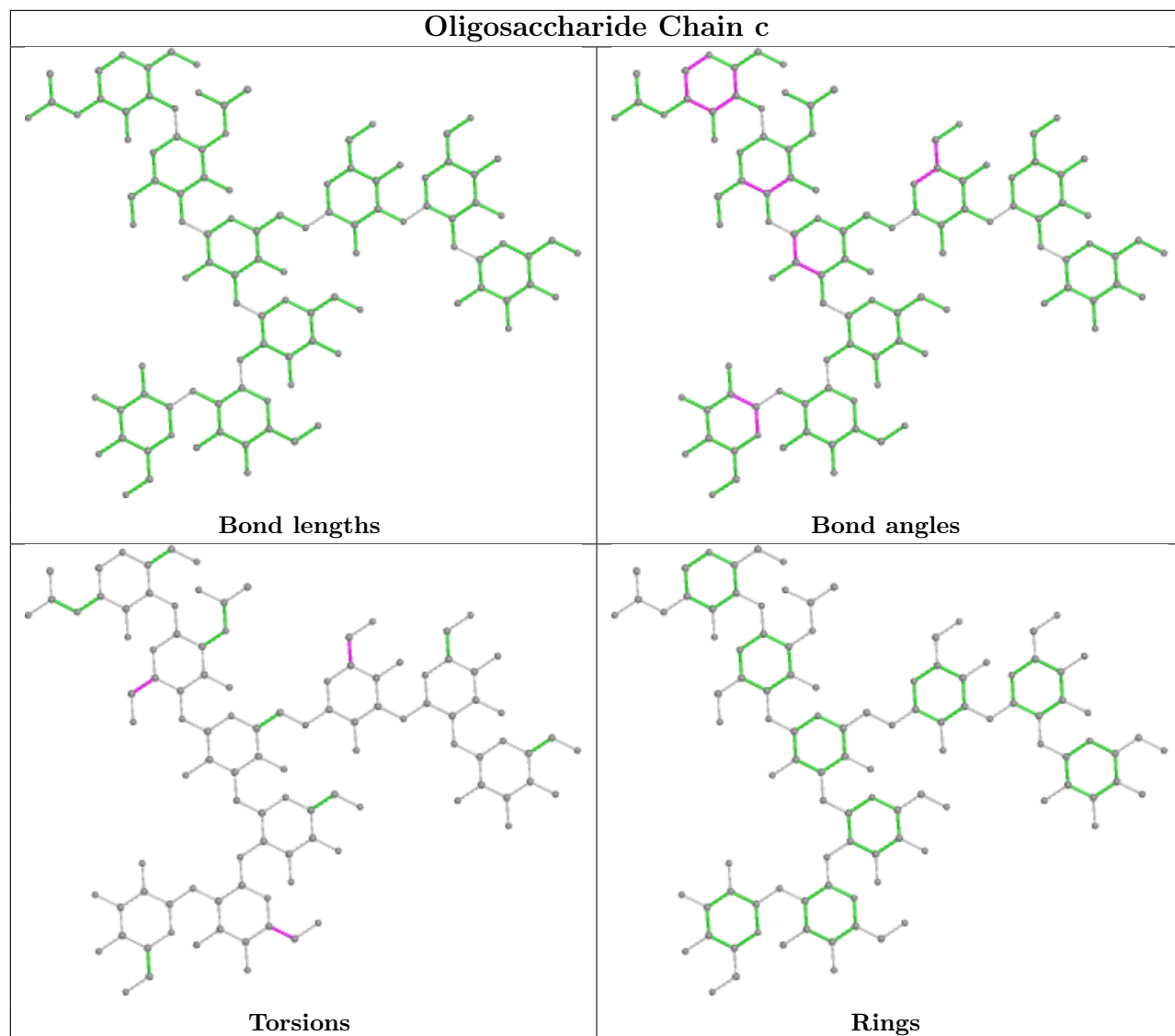


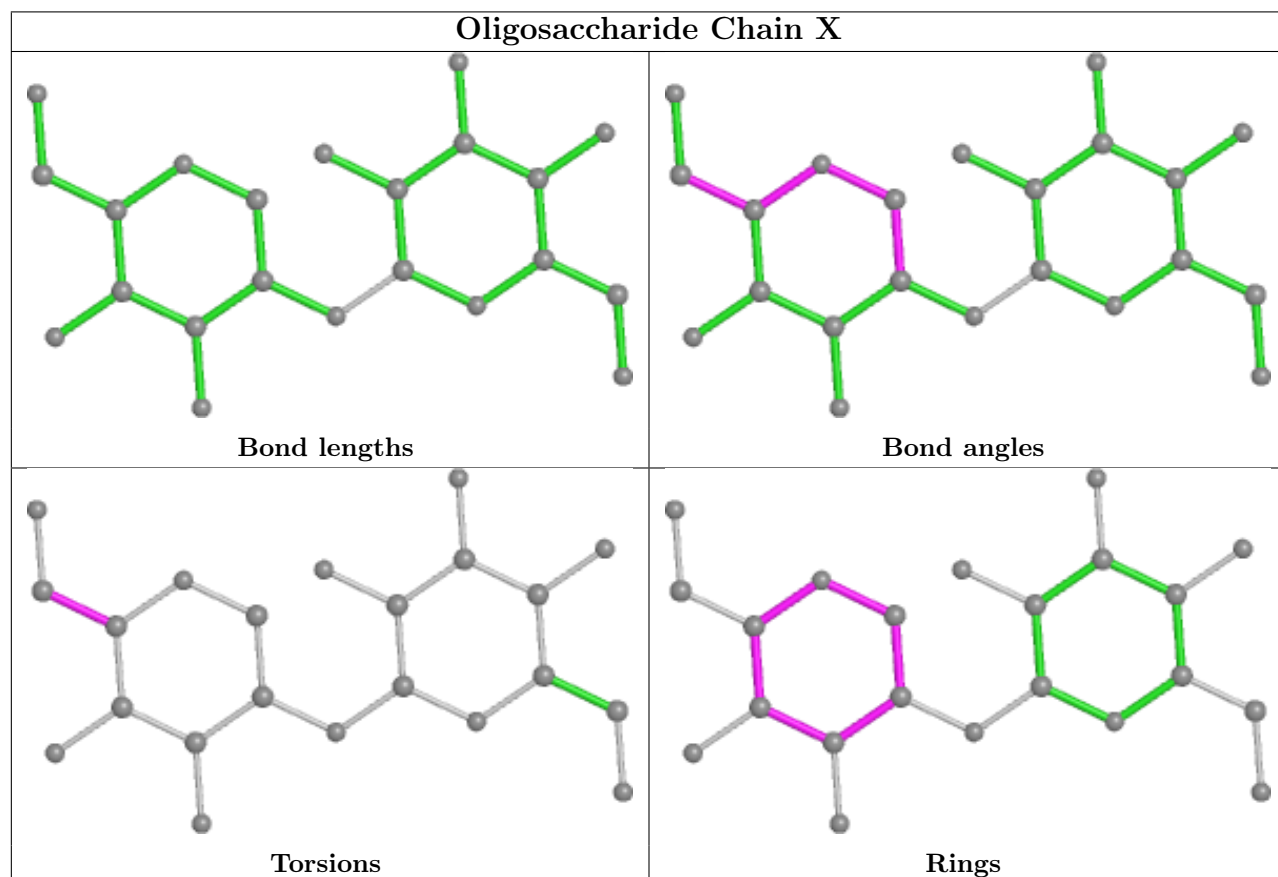
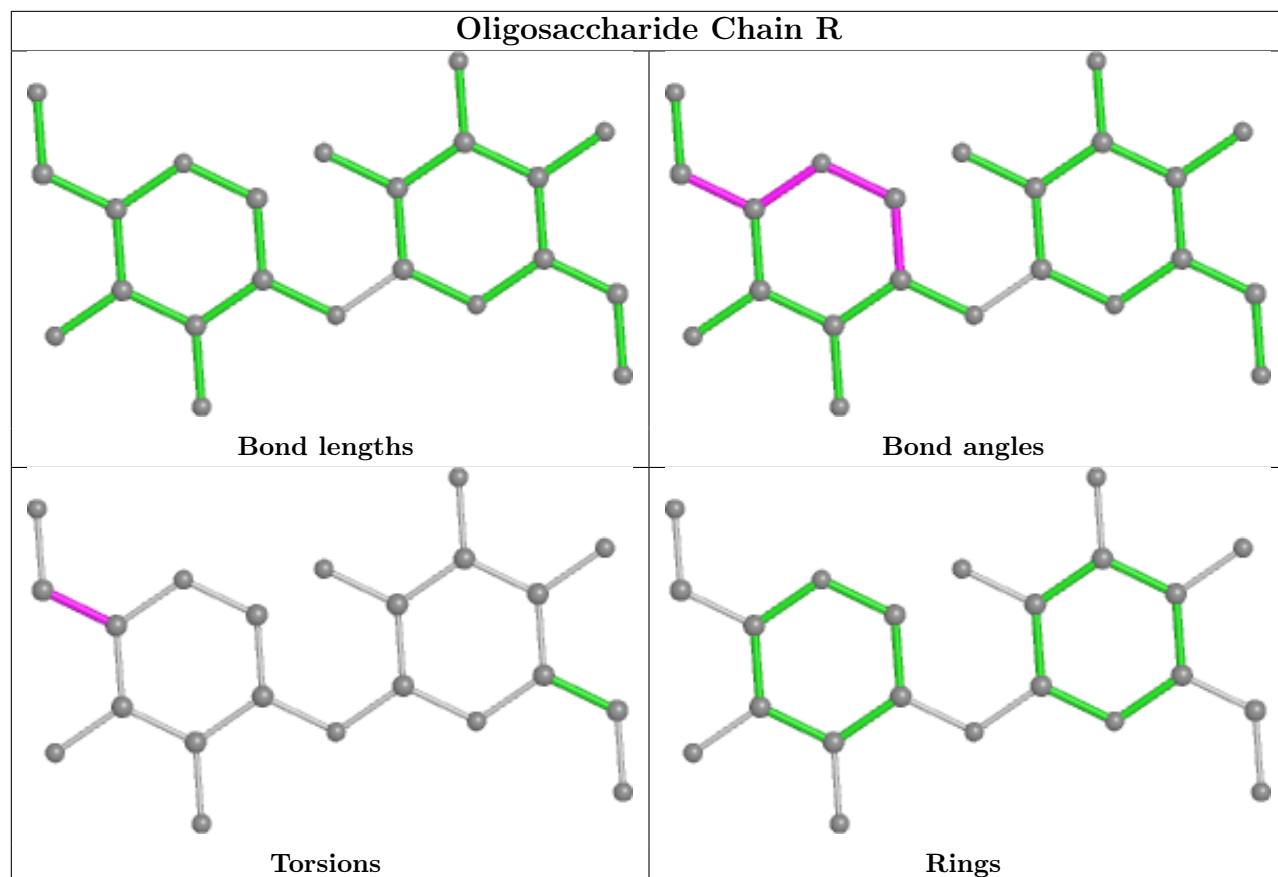


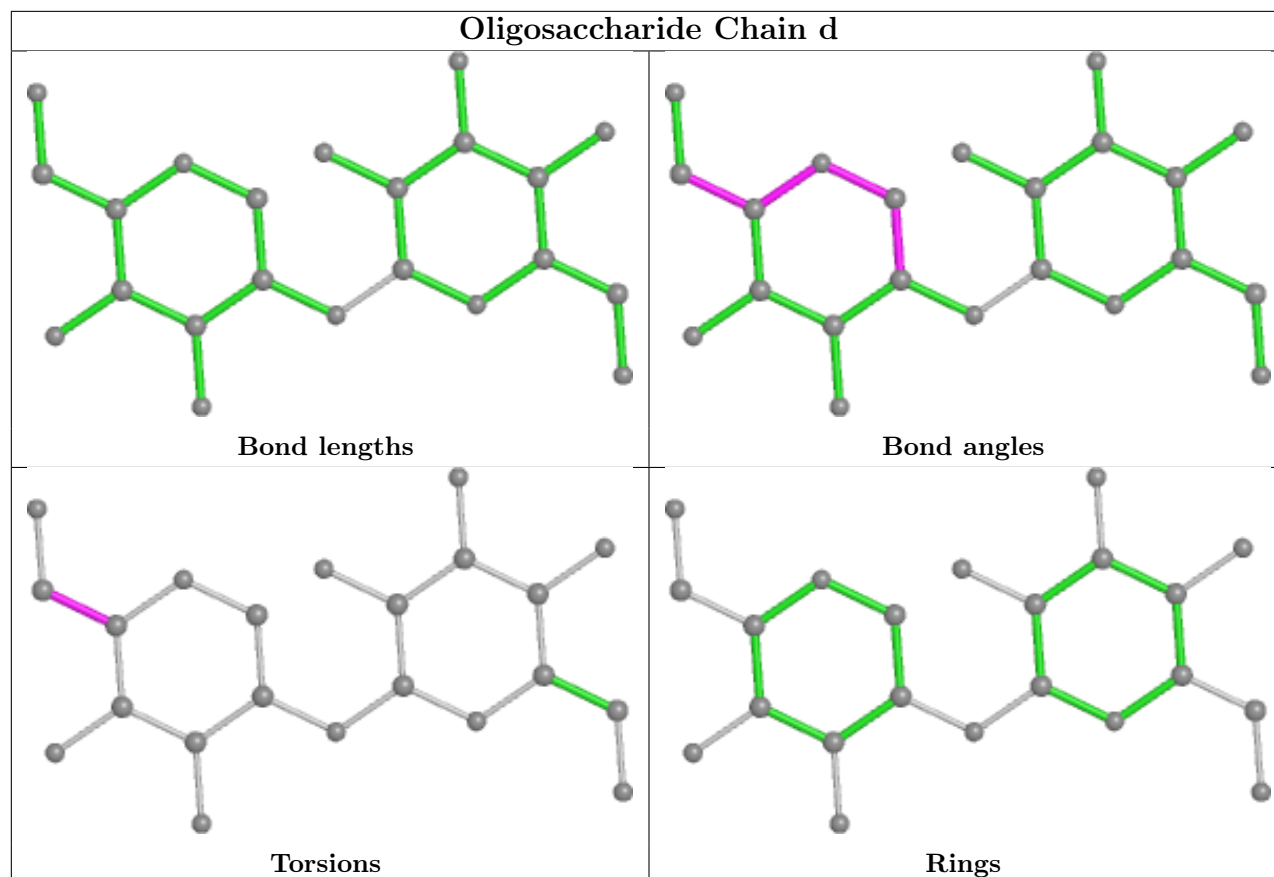












5.6 Ligand geometry [i](#)

30 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
8	NAG	A	1234	1	14,14,15	0.44	0	17,19,21	1.19	2 (11%)
8	NAG	I	1234	1	14,14,15	0.47	0	17,19,21	1.18	2 (11%)
8	NAG	I	1355	1	14,14,15	0.48	0	17,19,21	0.87	1 (5%)
8	NAG	I	1392	1	14,14,15	0.43	0	17,19,21	0.80	0
8	NAG	I	1160	1	14,14,15	0.42	0	17,19,21	0.91	1 (5%)
8	NAG	A	1448	1	14,14,15	0.51	0	17,19,21	1.47	3 (17%)
8	NAG	A	1392	1	14,14,15	0.46	0	17,19,21	0.75	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	NAG	I	1386	1	14,14,15	0.54	0	17,19,21	0.83	1 (5%)
8	NAG	A	1276	1	14,14,15	0.41	0	17,19,21	1.19	1 (5%)
8	NAG	E	1197	1	14,14,15	0.47	0	17,19,21	0.82	0
8	NAG	A	1160	1	14,14,15	0.50	0	17,19,21	0.78	0
8	NAG	E	1386	1	14,14,15	0.58	0	17,19,21	0.76	0
8	NAG	A	1295	1	14,14,15	0.54	0	17,19,21	0.74	0
8	NAG	A	1355	1	14,14,15	0.50	0	17,19,21	0.78	0
8	NAG	E	1276	1	14,14,15	0.45	0	17,19,21	1.25	2 (11%)
8	NAG	I	1088	1	14,14,15	0.50	0	17,19,21	0.89	1 (5%)
8	NAG	I	1295	1	14,14,15	0.52	0	17,19,21	0.83	1 (5%)
8	NAG	E	1088	1	14,14,15	0.56	0	17,19,21	0.75	0
8	NAG	E	1234	1	14,14,15	0.44	0	17,19,21	1.15	2 (11%)
8	NAG	E	1392	1	14,14,15	0.49	0	17,19,21	0.71	0
8	NAG	E	1355	1	14,14,15	0.51	0	17,19,21	0.75	0
8	NAG	I	1197	1	14,14,15	0.50	0	17,19,21	0.83	0
8	NAG	I	1276	1	14,14,15	0.47	0	17,19,21	1.04	1 (5%)
8	NAG	E	1160	1	14,14,15	0.50	0	17,19,21	0.73	0
8	NAG	E	1448	1	14,14,15	0.50	0	17,19,21	1.53	3 (17%)
8	NAG	A	1197	1	14,14,15	0.46	0	17,19,21	0.91	1 (5%)
8	NAG	I	1448	1	14,14,15	0.46	0	17,19,21	1.56	3 (17%)
8	NAG	A	1088	1	14,14,15	0.49	0	17,19,21	0.88	1 (5%)
8	NAG	E	1295	1	14,14,15	0.51	0	17,19,21	0.77	0
8	NAG	A	1386	1	14,14,15	0.57	0	17,19,21	0.79	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
8	NAG	A	1234	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1234	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1355	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1392	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1160	1	-	2/6/23/26	0/1/1/1
8	NAG	A	1448	1	-	4/6/23/26	0/1/1/1
8	NAG	A	1392	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1386	1	-	0/6/23/26	0/1/1/1
8	NAG	A	1276	1	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	NAG	E	1197	1	-	0/6/23/26	0/1/1/1
8	NAG	A	1160	1	-	2/6/23/26	0/1/1/1
8	NAG	E	1386	1	-	0/6/23/26	0/1/1/1
8	NAG	A	1295	1	-	0/6/23/26	0/1/1/1
8	NAG	A	1355	1	-	0/6/23/26	0/1/1/1
8	NAG	E	1276	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1088	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1295	1	-	0/6/23/26	0/1/1/1
8	NAG	E	1088	1	-	0/6/23/26	0/1/1/1
8	NAG	E	1234	1	-	0/6/23/26	0/1/1/1
8	NAG	E	1392	1	-	0/6/23/26	0/1/1/1
8	NAG	E	1355	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1197	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1276	1	-	0/6/23/26	0/1/1/1
8	NAG	E	1160	1	-	2/6/23/26	0/1/1/1
8	NAG	E	1448	1	-	4/6/23/26	0/1/1/1
8	NAG	A	1197	1	-	0/6/23/26	0/1/1/1
8	NAG	I	1448	1	-	4/6/23/26	0/1/1/1
8	NAG	A	1088	1	-	0/6/23/26	0/1/1/1
8	NAG	E	1295	1	-	0/6/23/26	0/1/1/1
8	NAG	A	1386	1	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

The worst 5 of 27 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	I	1448	NAG	C1-O5-C5	3.33	116.71	112.19
8	E	1448	NAG	C1-O5-C5	3.31	116.68	112.19
8	A	1448	NAG	C1-O5-C5	3.09	116.38	112.19
8	A	1276	NAG	C1-O5-C5	2.99	116.25	112.19
8	E	1276	NAG	C1-O5-C5	2.97	116.21	112.19

There are no chirality outliers.

5 of 18 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	E	1160	NAG	C8-C7-N2-C2
8	A	1160	NAG	C8-C7-N2-C2
8	E	1160	NAG	O7-C7-N2-C2
8	I	1160	NAG	C8-C7-N2-C2
8	I	1160	NAG	O7-C7-N2-C2

There are no ring outliers.

5 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	A	1276	NAG	1	0
8	A	1295	NAG	2	0
8	E	1276	NAG	1	0
8	I	1295	NAG	2	0
8	E	1295	NAG	2	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
4	L	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	L	100(R):VAL	C	101:TRP	N	1.66

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	420/475 (88%)	0.03	13 (3%) 49 39	7, 227, 434, 596	0
1	E	420/475 (88%)	0.06	18 (4%) 35 30	16, 221, 423, 559	0
1	I	420/475 (88%)	0.08	16 (3%) 40 33	25, 216, 434, 550	0
2	B	0/78	-	-	-	-
2	F	0/78	-	-	-	-
2	J	0/78	-	-	-	-
3	C	202/211 (95%)	0.41	17 (8%) 11 10	74, 234, 422, 563	0
3	G	202/211 (95%)	0.46	24 (11%) 4 5	43, 229, 392, 572	0
3	K	202/211 (95%)	0.77	36 (17%) 1 2	47, 291, 454, 533	0
4	D	226/235 (96%)	0.42	15 (6%) 18 15	67, 232, 488, 582	0
4	H	226/235 (96%)	0.30	16 (7%) 16 13	56, 232, 421, 563	0
4	L	226/235 (96%)	0.65	28 (12%) 4 5	71, 287, 466, 582	0
All	All	2544/2997 (84%)	0.28	183 (7%) 15 13	7, 236, 440, 596	0

The worst 5 of 183 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	D	100(A)	ILE	6.9
3	K	204	GLU	6.5
4	L	111	SER	6.2
4	D	29	VAL	6.1
3	K	147	VAL	5.6

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates i

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	MAN	a	6	11/12	-0.36	1.46	532,532,532,532	0
5	MAN	Z	7	11/12	-0.35	2.15	550,550,550,550	0
5	MAN	Y	4	11/12	-0.27	0.99	550,550,550,550	0
7	MAN	R	2	11/12	-0.25	2.17	489,489,489,489	0
5	MAN	S	5	11/12	-0.16	1.74	550,550,550,550	0
5	NAG	S	1	14/15	-0.13	1.36	550,550,550,550	0
5	MAN	S	4	11/12	-0.09	1.23	550,550,550,550	0
7	MAN	X	1	11/12	-0.07	1.12	427,427,427,427	0
7	MAN	X	2	11/12	-0.07	1.31	545,545,545,545	0
7	MAN	R	1	11/12	-0.06	1.94	550,550,550,550	0
5	MAN	U	5	11/12	-0.05	1.40	550,550,550,550	0
5	MAN	S	6	11/12	-0.05	1.53	497,497,497,497	0
5	MAN	O	6	11/12	-0.03	0.70	455,455,455,455	0
7	MAN	d	2	11/12	-0.01	1.83	550,550,550,550	0
5	MAN	Y	5	11/12	0.03	1.50	477,477,477,477	0
5	MAN	b	4	11/12	0.06	0.40	467,467,467,467	0
5	MAN	U	6	11/12	0.07	0.82	515,515,515,515	0
5	MAN	S	7	11/12	0.09	1.10	518,518,518,518	0
5	MAN	U	4	11/12	0.09	0.72	550,550,550,550	0
5	MAN	M	5	11/12	0.10	1.53	481,481,481,481	0
5	MAN	V	6	11/12	0.12	0.97	454,454,454,454	0
5	MAN	P	6	11/12	0.15	0.78	470,470,470,470	0
5	MAN	P	7	11/12	0.17	1.17	447,447,447,447	0
5	MAN	N	6	11/12	0.18	0.72	464,464,464,464	0
7	MAN	d	1	11/12	0.27	1.13	408,408,408,408	0
5	MAN	a	5	11/12	0.28	1.14	507,507,507,507	0
5	NAG	Y	1	14/15	0.29	0.77	530,530,530,530	0
5	BMA	V	3	11/12	0.31	0.27	492,492,492,492	0
5	MAN	O	5	11/12	0.32	1.00	468,468,468,468	0
5	MAN	V	5	11/12	0.33	1.21	495,495,495,495	0
5	MAN	Y	6	11/12	0.34	1.48	494,494,494,494	0
5	MAN	P	5	11/12	0.35	0.96	418,418,418,418	0
6	MAN	W	6	11/12	0.35	0.63	452,452,452,452	0
5	BMA	S	3	11/12	0.36	1.00	500,500,500,500	0
5	BMA	Y	3	11/12	0.39	0.41	402,402,402,402	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
5	MAN	V	4	11/12	0.39	0.61	471,471,471,471	0
5	NAG	U	1	14/15	0.39	0.67	408,408,408,408	0
5	NAG	M	1	14/15	0.40	0.58	439,439,439,439	0
5	MAN	a	4	11/12	0.40	0.72	545,545,545,545	0
5	MAN	M	4	11/12	0.40	0.82	517,517,517,517	0
5	BMA	N	3	11/12	0.41	0.47	483,483,483,483	0
5	MAN	Y	7	11/12	0.42	0.74	520,520,520,520	0
6	MAN	Q	5	11/12	0.44	0.35	302,302,302,302	0
5	MAN	Z	6	11/12	0.45	0.32	428,428,428,428	0
5	BMA	Z	3	11/12	0.45	0.56	491,491,491,491	0
5	MAN	T	6	11/12	0.46	0.52	446,446,446,446	0
5	MAN	N	7	11/12	0.46	1.55	498,498,498,498	0
5	MAN	M	7	11/12	0.46	0.49	451,451,451,451	0
5	MAN	O	4	11/12	0.48	0.60	550,550,550,550	0
5	MAN	Z	4	11/12	0.50	0.57	550,550,550,550	0
5	MAN	N	4	11/12	0.51	0.83	550,550,550,550	0
5	NAG	O	1	14/15	0.52	0.65	423,423,423,423	0
6	MAN	W	5	11/12	0.53	0.37	330,330,330,330	0
6	BMA	W	3	11/12	0.53	0.35	400,400,400,400	0
6	MAN	Q	6	11/12	0.54	0.49	422,422,422,422	0
6	MAN	W	7	11/12	0.54	0.63	418,418,418,418	0
5	MAN	b	6	11/12	0.54	0.89	474,474,474,474	0
5	NAG	a	1	14/15	0.54	0.70	437,437,437,437	0
6	MAN	Q	9	11/12	0.55	0.38	303,303,303,303	0
5	MAN	T	7	11/12	0.56	1.41	542,542,542,542	0
5	MAN	N	5	11/12	0.56	0.45	329,329,329,329	0
5	MAN	T	4	11/12	0.57	0.54	550,550,550,550	0
5	NAG	Y	2	14/15	0.57	0.55	460,460,460,460	0
5	BMA	U	3	11/12	0.58	0.27	340,340,340,340	0
6	MAN	c	6	11/12	0.58	0.51	436,436,436,436	0
5	BMA	O	3	11/12	0.59	0.22	506,506,506,506	0
6	MAN	W	4	11/12	0.59	0.62	550,550,550,550	0
5	BMA	T	3	11/12	0.59	0.31	466,466,466,466	0
5	BMA	b	3	11/12	0.60	0.34	474,474,474,474	0
5	BMA	P	3	11/12	0.60	0.54	455,455,455,455	0
5	MAN	M	6	11/12	0.60	1.15	434,434,434,434	0
5	MAN	b	5	11/12	0.61	1.07	482,482,482,482	0
5	MAN	P	4	11/12	0.62	0.66	483,483,483,483	0
5	BMA	M	3	11/12	0.62	0.44	356,356,356,356	0
5	MAN	T	5	11/12	0.62	0.60	422,422,422,422	0
5	NAG	M	2	14/15	0.64	0.97	519,519,519,519	0

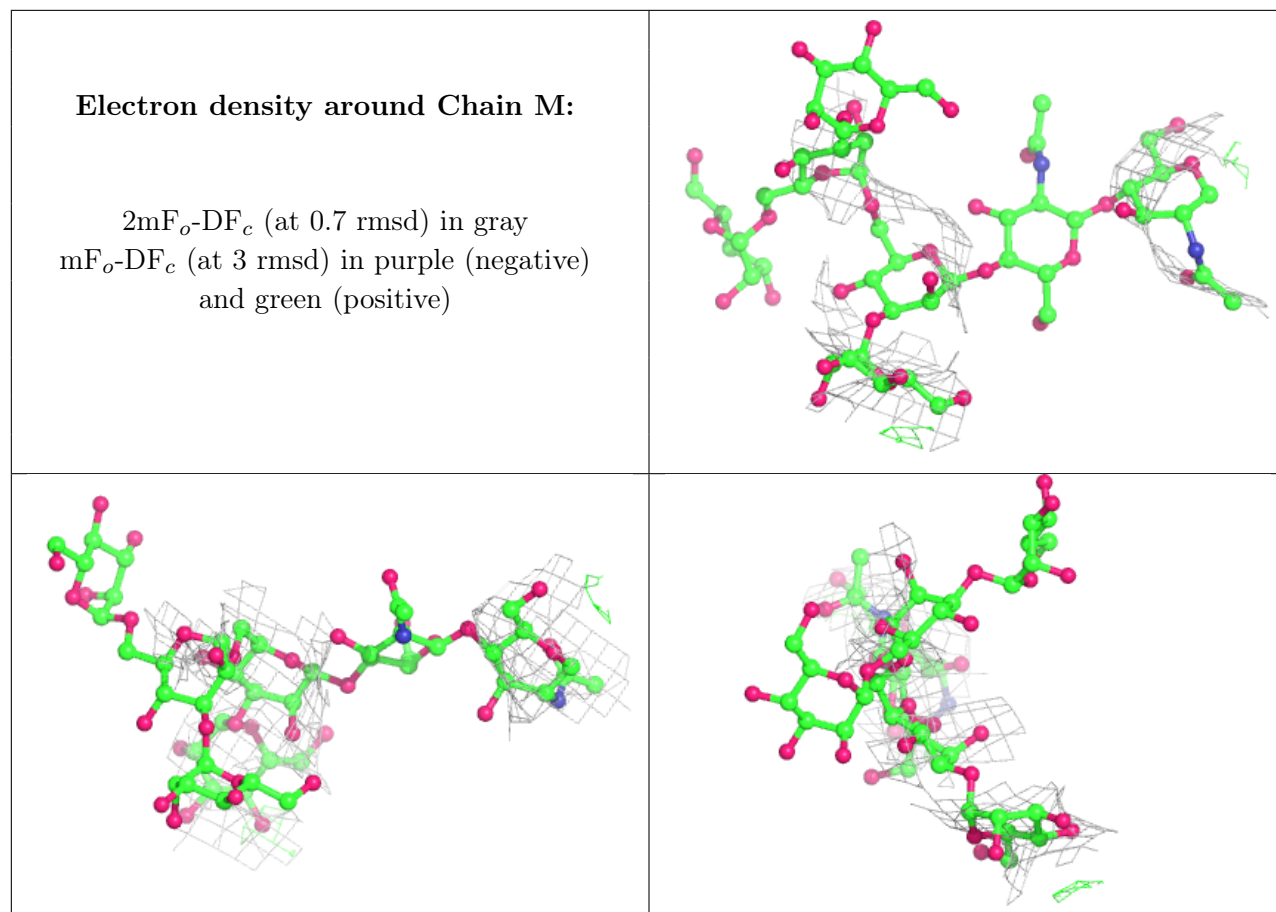
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
6	MAN	Q	7	11/12	0.66	0.34	309,309,309,309	0
5	NAG	b	2	14/15	0.66	0.47	382,382,382,382	0
6	NAG	Q	1	14/15	0.68	0.54	366,366,366,366	0
5	MAN	b	7	11/12	0.69	0.36	330,330,330,330	0
5	NAG	S	2	14/15	0.69	1.08	488,488,488,488	0
6	MAN	c	5	11/12	0.70	0.29	277,277,277,277	0
5	MAN	Z	5	11/12	0.70	0.47	410,410,410,410	0
6	MAN	c	7	11/12	0.71	0.47	382,382,382,382	0
6	MAN	c	9	11/12	0.71	0.52	362,362,362,362	0
5	NAG	U	2	14/15	0.72	0.42	310,310,310,310	0
6	NAG	c	1	14/15	0.75	0.37	292,292,292,292	0
6	MAN	c	4	11/12	0.75	0.68	550,550,550,550	0
6	NAG	W	1	14/15	0.77	0.35	302,302,302,302	0
5	NAG	V	2	14/15	0.77	0.31	335,335,335,335	0
5	NAG	P	2	14/15	0.77	0.26	307,307,307,307	0
6	NAG	W	2	14/15	0.78	0.39	388,388,388,388	0
5	NAG	Z	1	14/15	0.78	0.36	337,337,337,337	0
6	MAN	W	8	11/12	0.78	0.81	491,491,491,491	0
5	MAN	V	7	11/12	0.78	0.38	377,377,377,377	0
5	NAG	b	1	14/15	0.78	0.36	276,276,276,276	0
5	MAN	O	7	11/12	0.80	0.20	229,229,229,229	0
5	NAG	Z	2	14/15	0.81	0.38	375,375,375,375	0
5	NAG	P	1	14/15	0.82	0.29	202,202,202,202	0
5	MAN	U	7	11/12	0.82	0.30	195,195,195,195	0
6	BMA	Q	3	11/12	0.82	0.36	292,292,292,292	0
5	MAN	a	7	11/12	0.83	0.26	197,197,197,197	0
5	NAG	V	1	14/15	0.84	0.30	242,242,242,242	0
6	MAN	Q	4	11/12	0.84	0.35	550,550,550,550	0
6	MAN	W	9	11/12	0.84	0.55	335,335,335,335	0
5	NAG	a	2	14/15	0.84	0.29	231,231,231,231	0
6	NAG	Q	2	14/15	0.84	0.35	258,258,258,258	0
5	NAG	T	1	14/15	0.85	0.31	186,186,186,186	0
6	MAN	c	8	11/12	0.85	0.83	507,507,507,507	0
5	BMA	a	3	11/12	0.85	0.15	297,297,297,297	0
5	NAG	N	1	14/15	0.87	0.34	356,356,356,356	0
5	NAG	O	2	14/15	0.88	0.31	410,410,410,410	0
5	NAG	N	2	14/15	0.89	0.28	310,310,310,310	0
6	MAN	Q	8	11/12	0.91	0.82	500,500,500,500	0
6	BMA	c	3	11/12	0.91	0.25	345,345,345,345	0
5	NAG	T	2	14/15	0.92	0.28	301,301,301,301	0
6	NAG	c	2	14/15	0.96	0.22	213,213,213,213	0

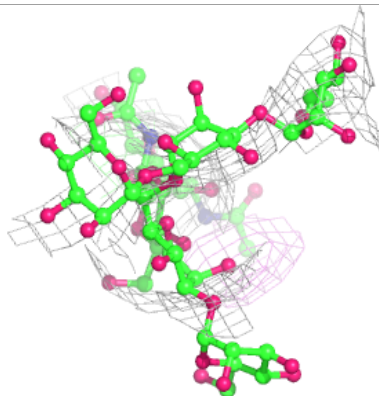
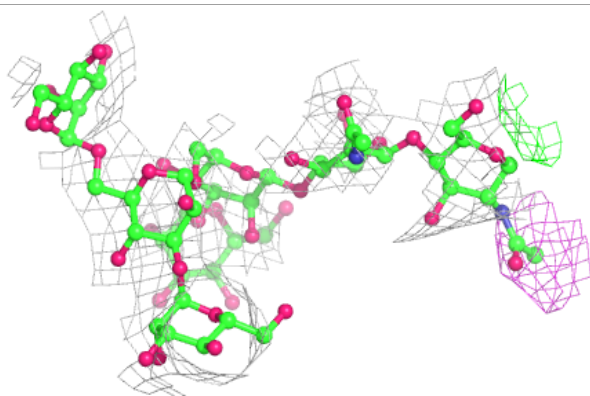
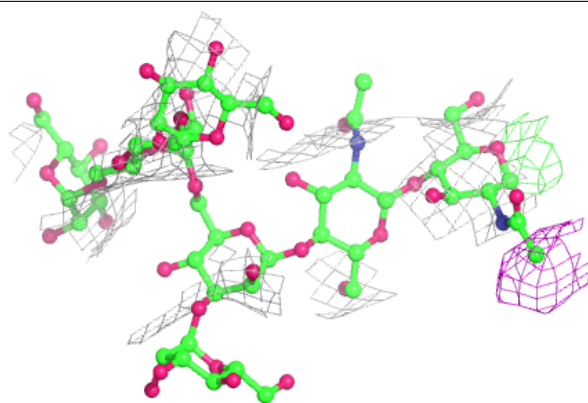
The following is a graphical depiction of the model fit to experimental electron density for oligosac-

charide. Each fit is shown from different orientation to approximate a three-dimensional view.

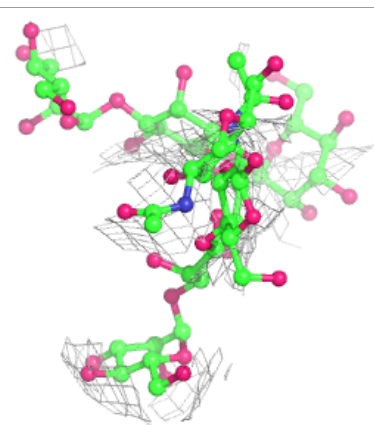
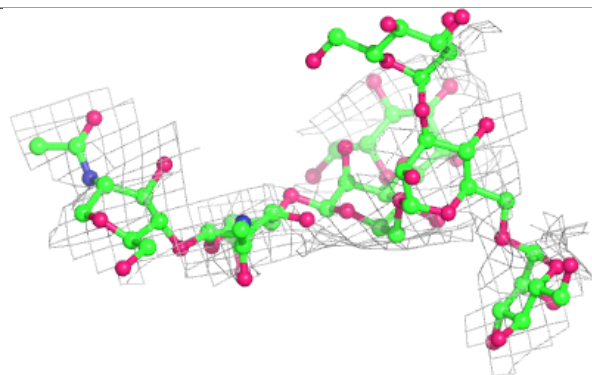
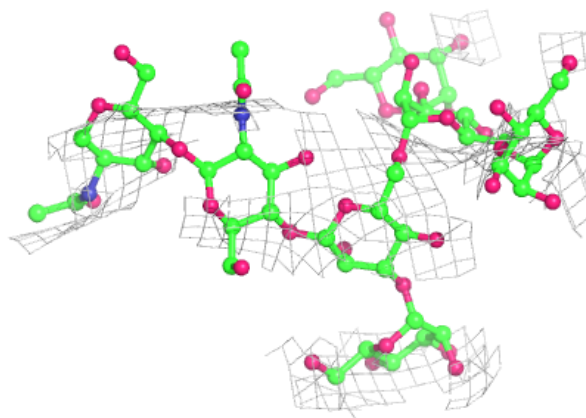


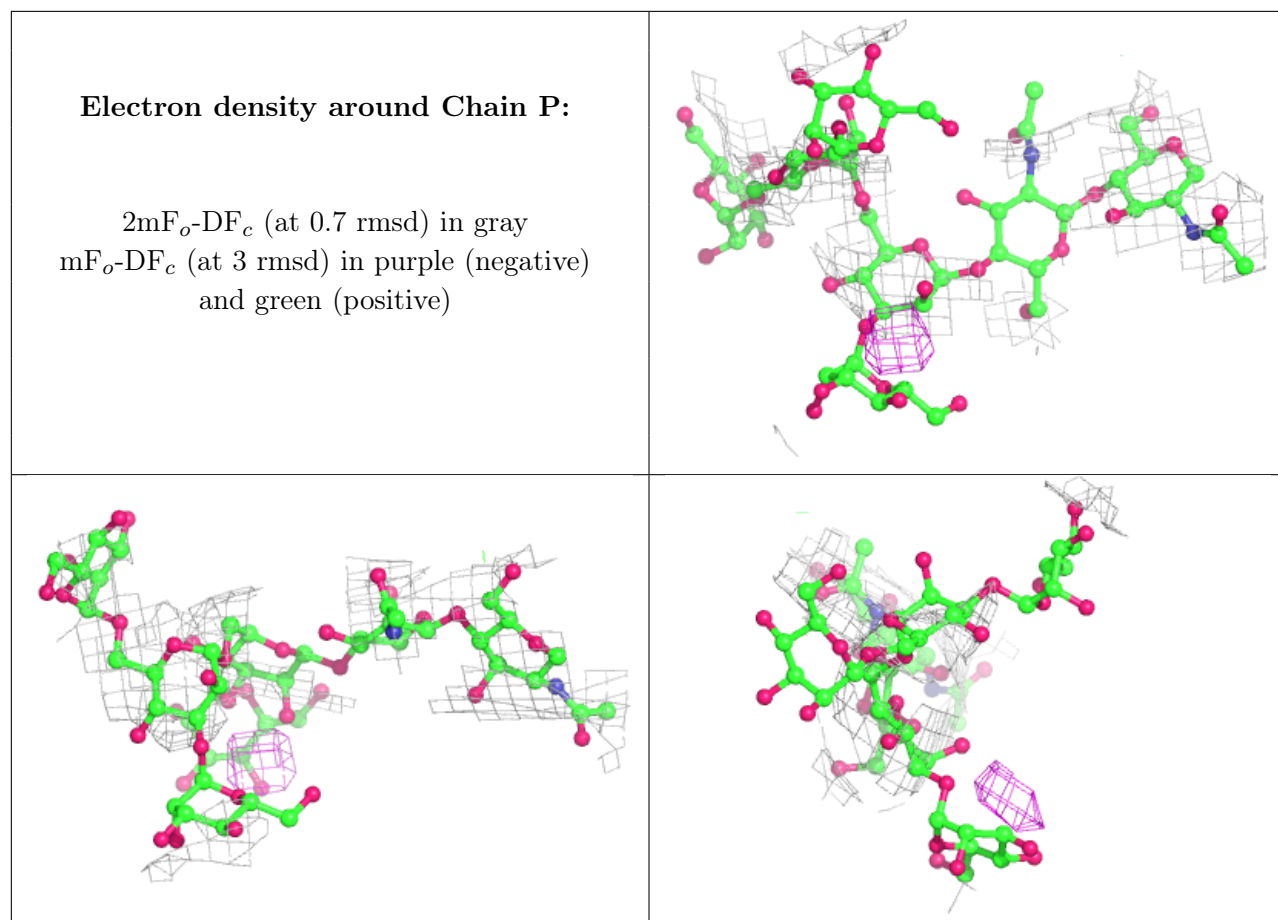
Electron density around Chain N:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around Chain O:**

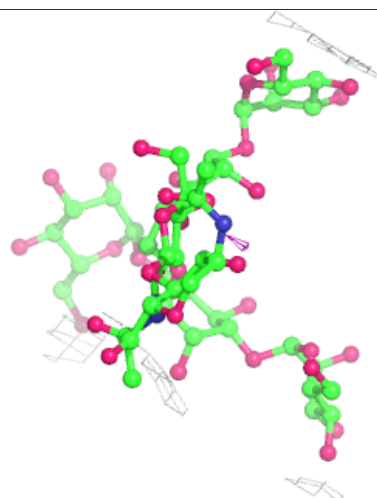
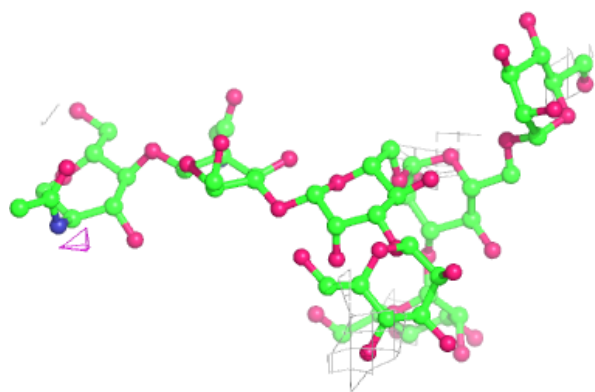
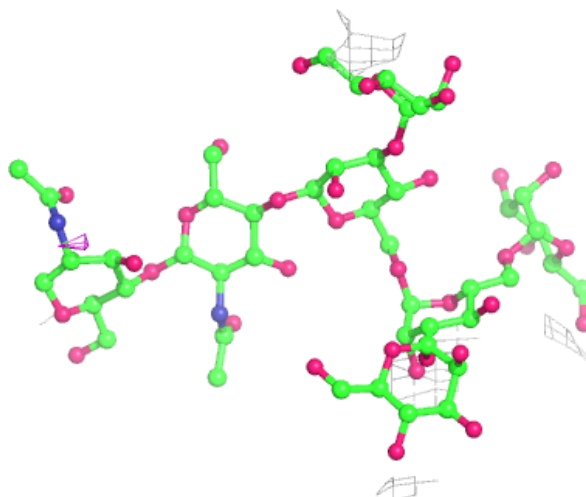
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

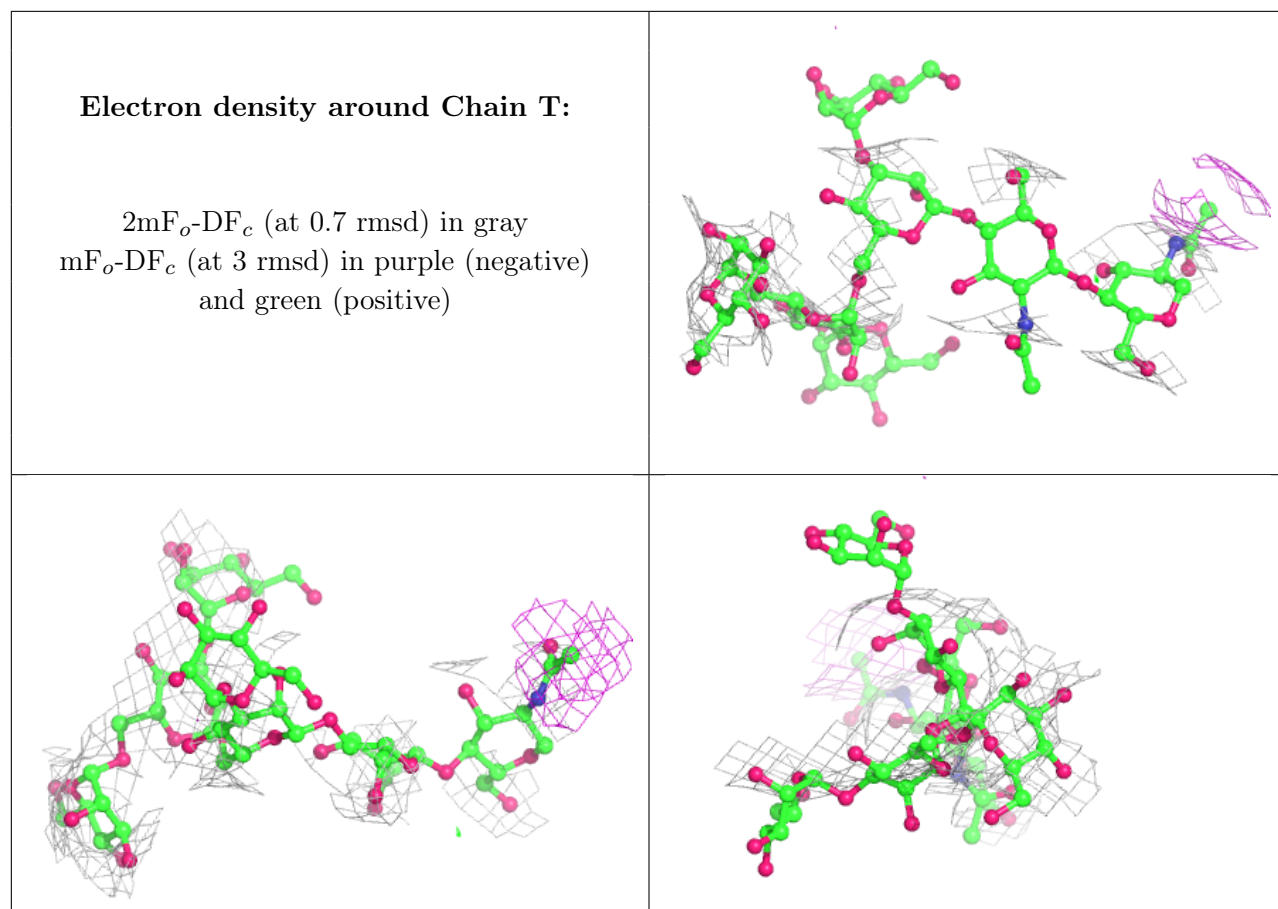




Electron density around Chain S:

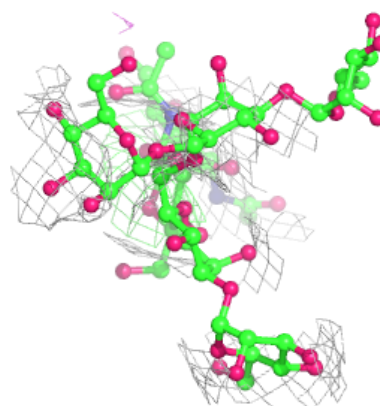
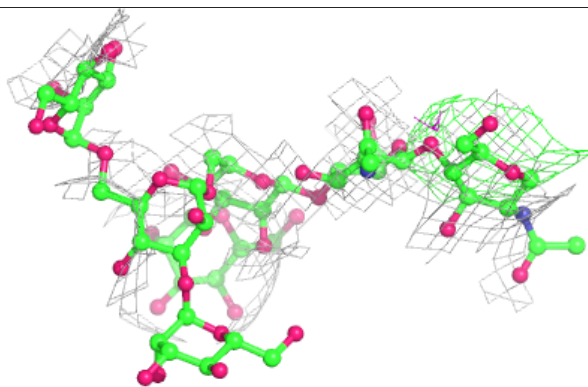
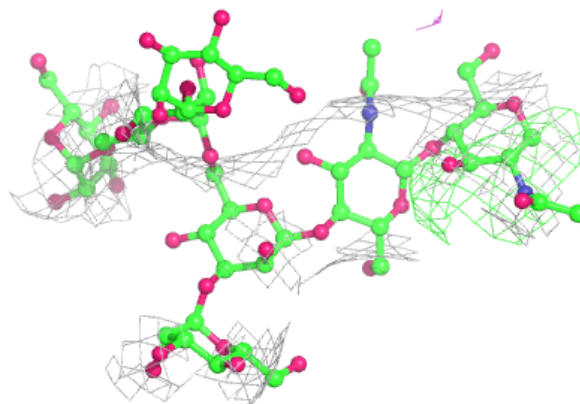
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



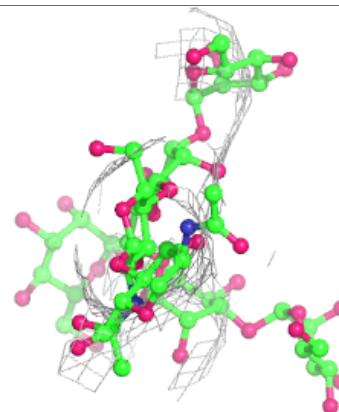
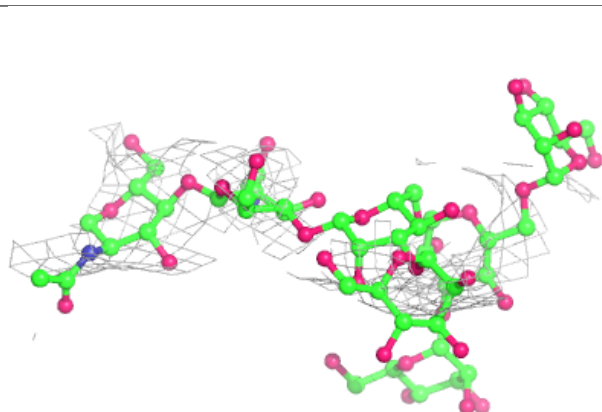
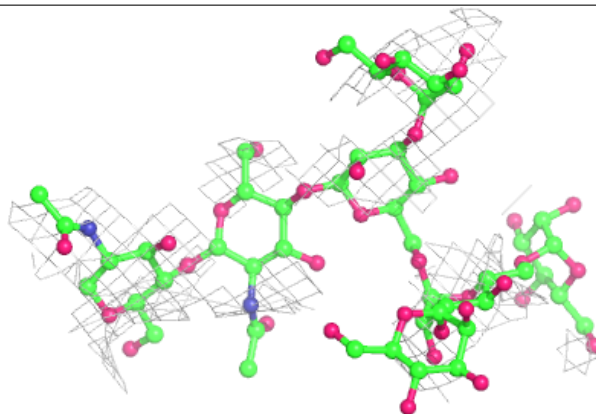


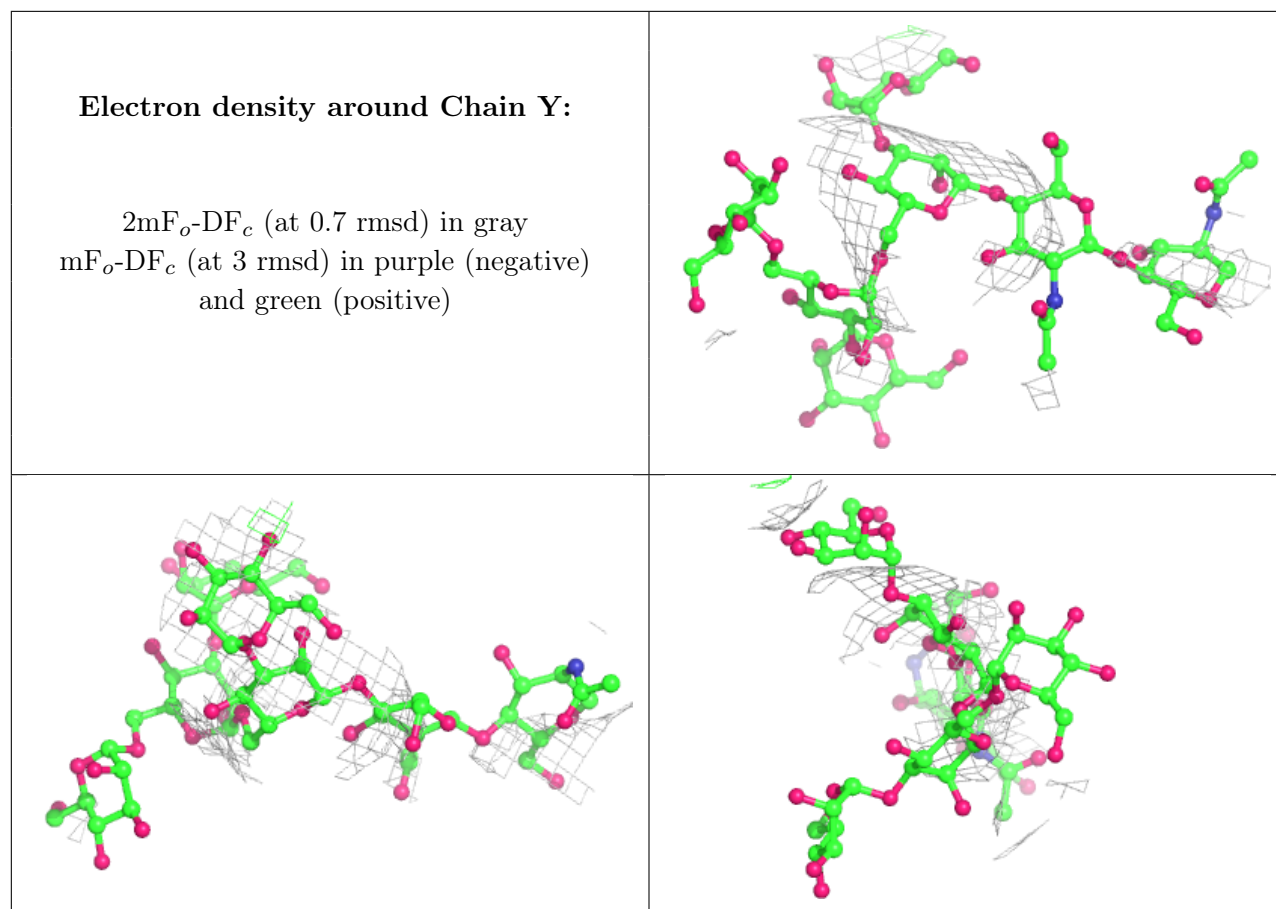
Electron density around Chain U:

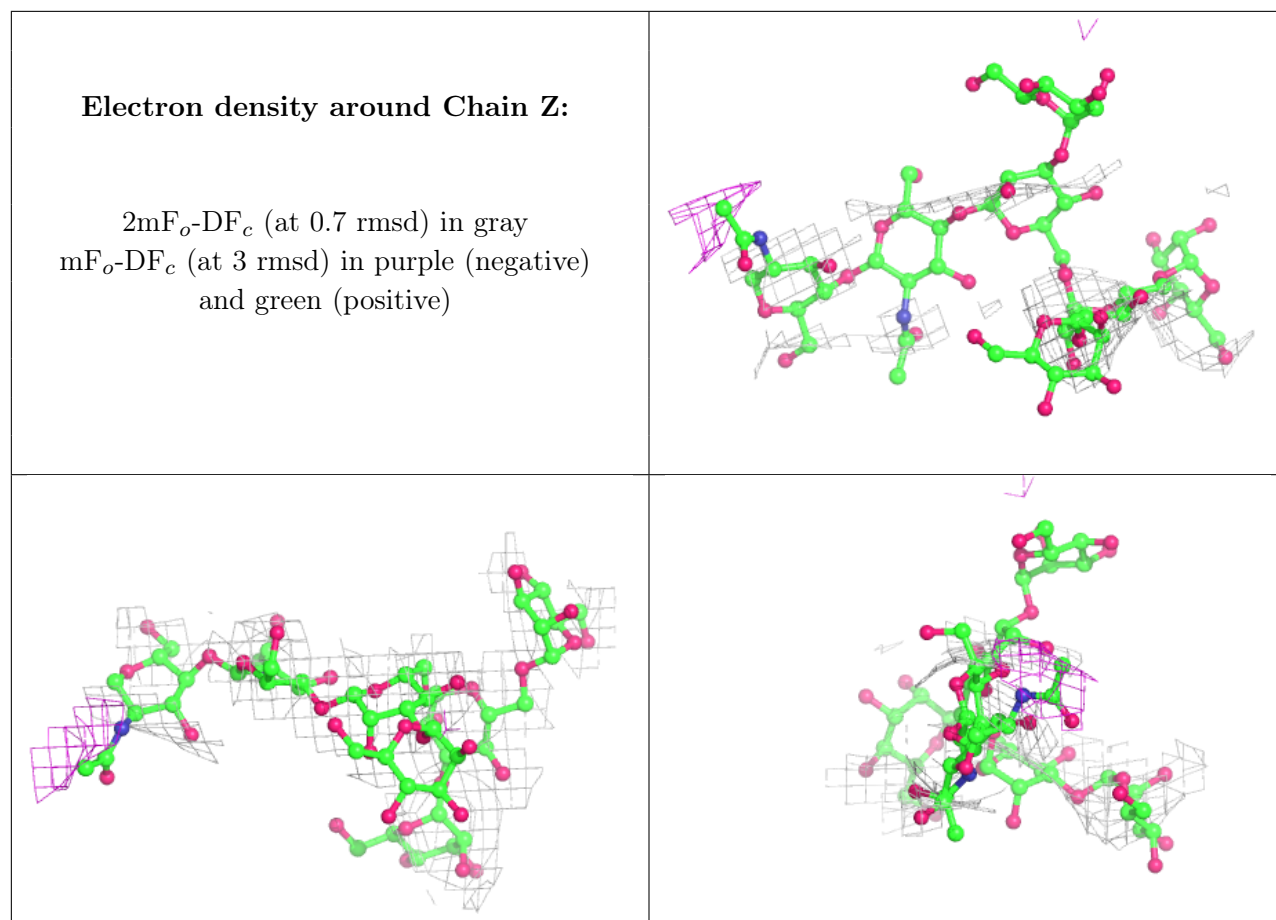
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around Chain V:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

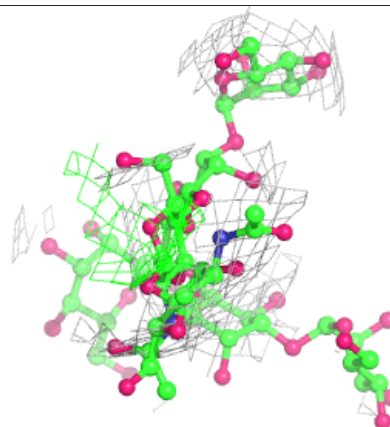
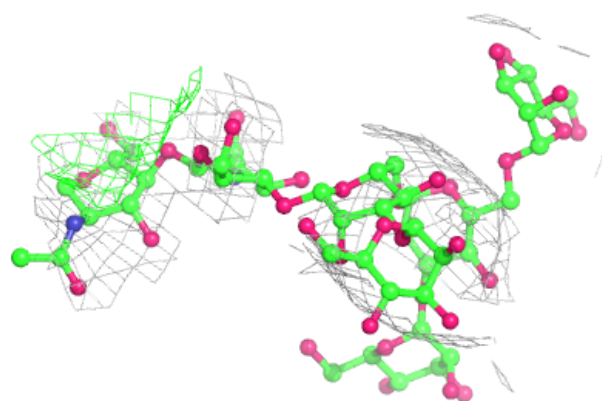
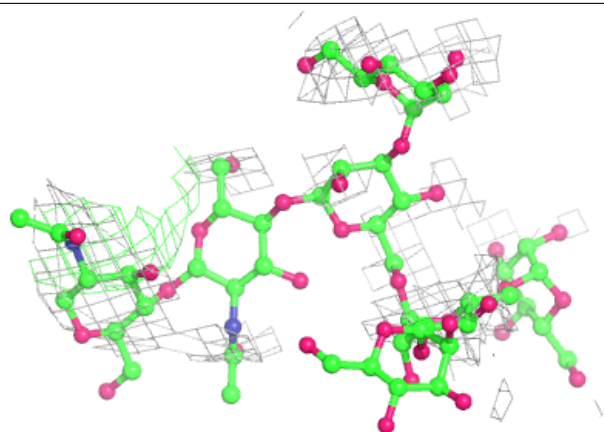




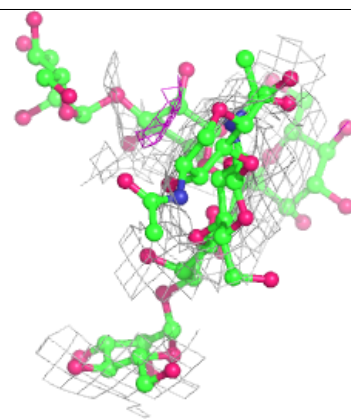
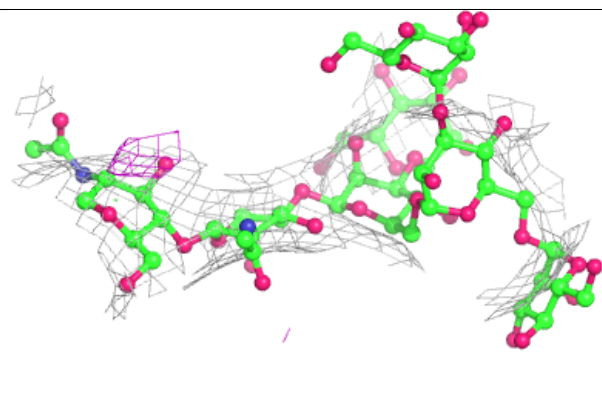
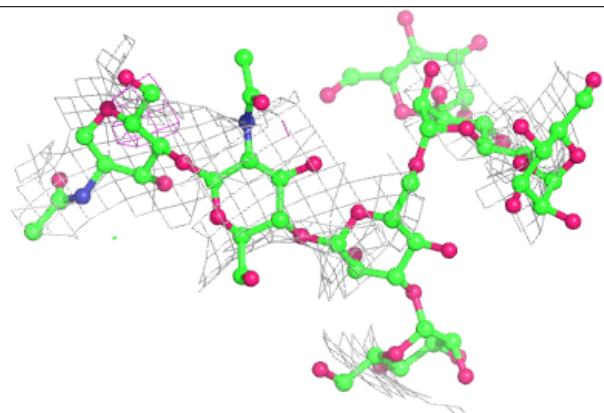


Electron density around Chain a:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

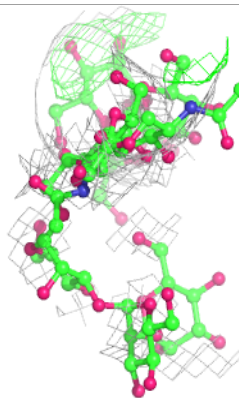
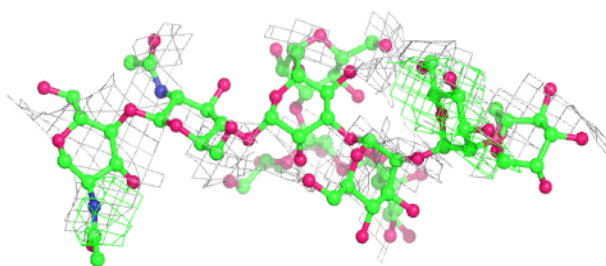
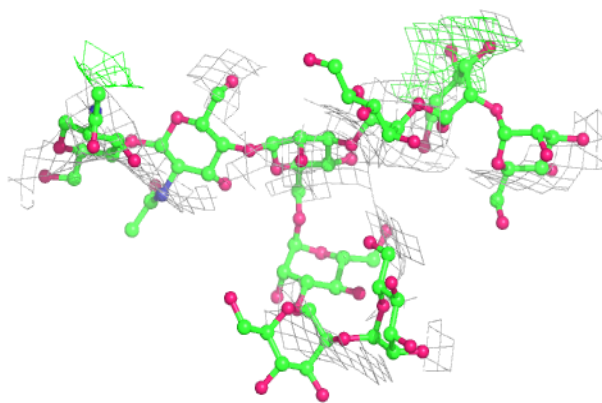
**Electron density around Chain b:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

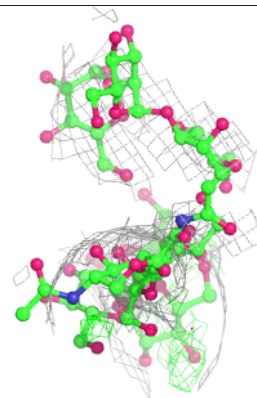
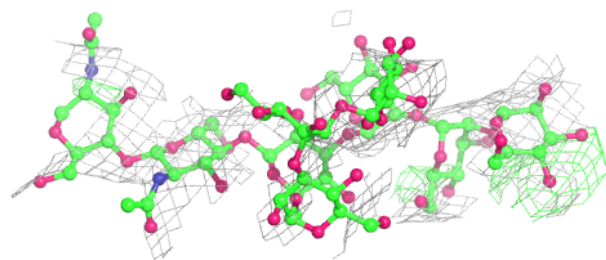
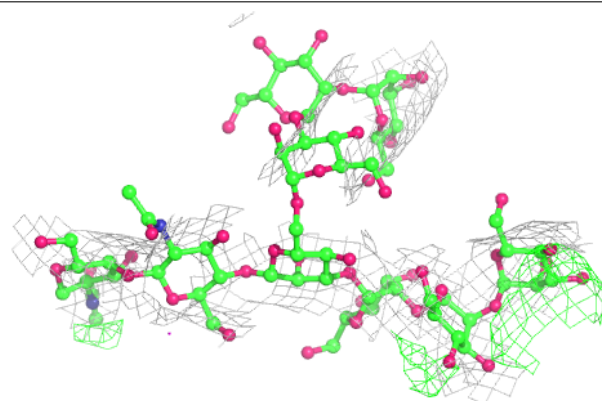


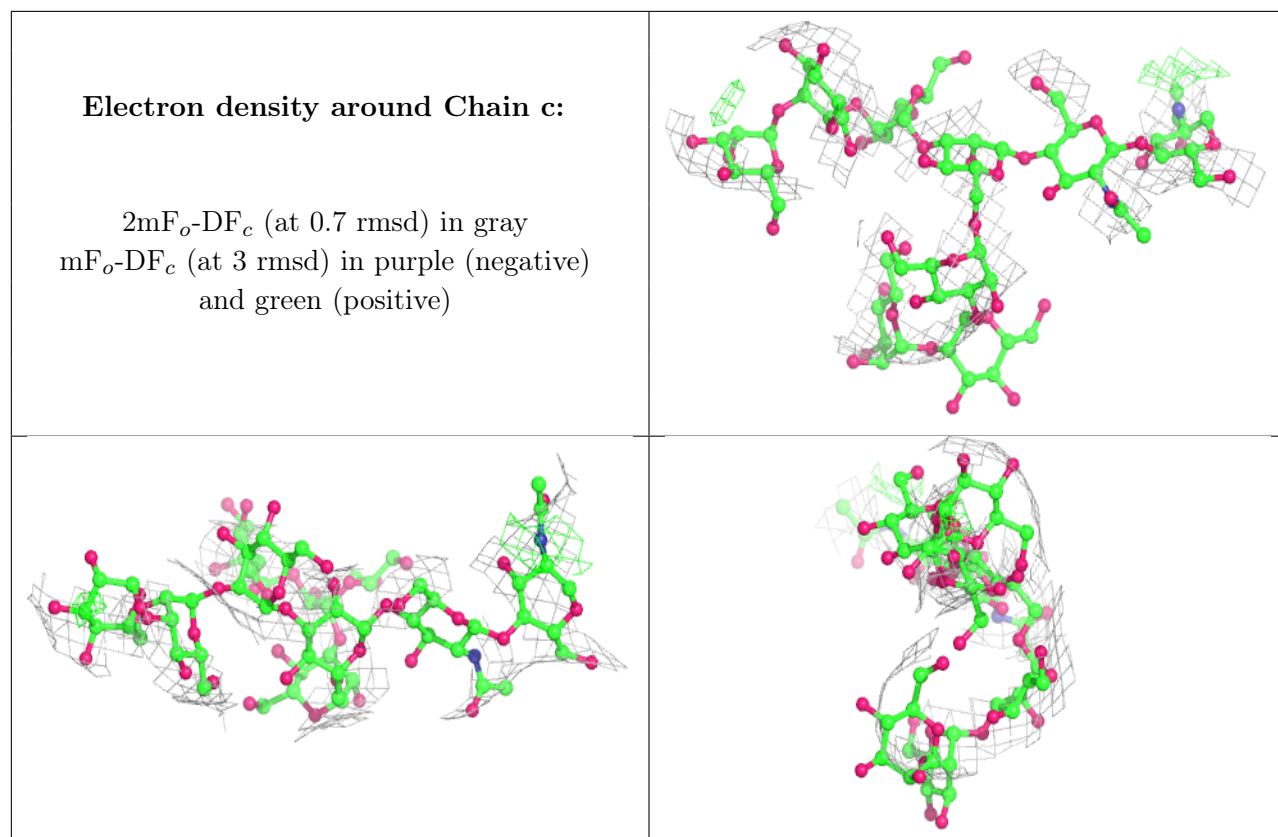
Electron density around Chain Q:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around Chain W:**

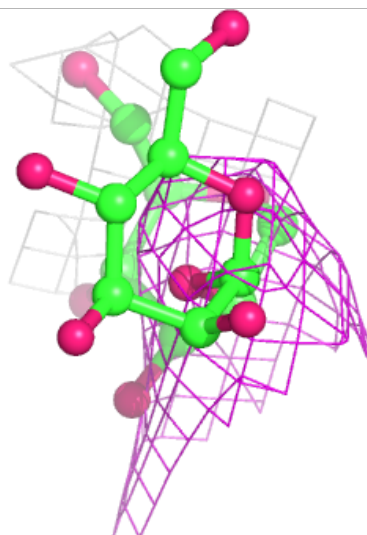
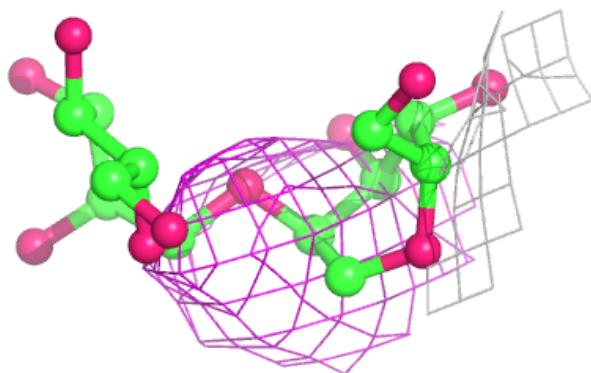
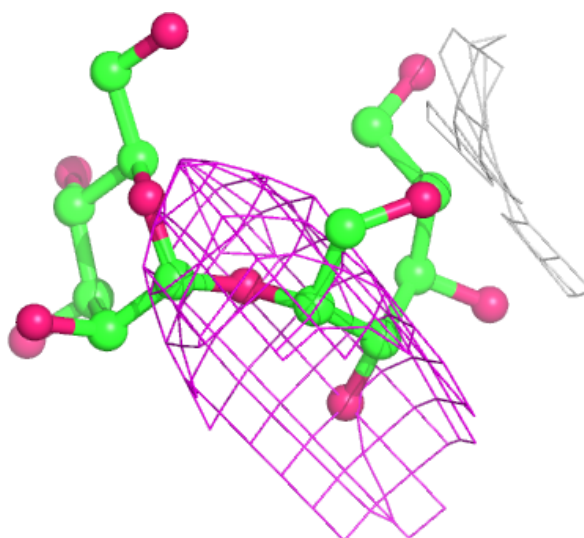
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





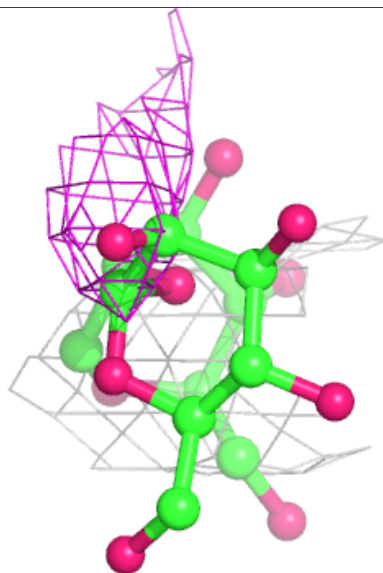
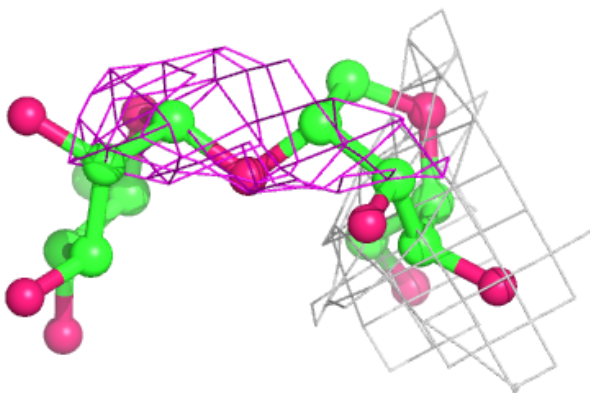
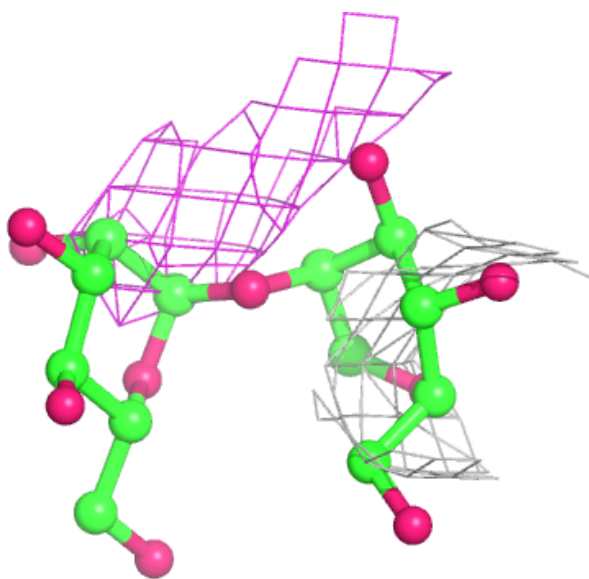
Electron density around Chain R:

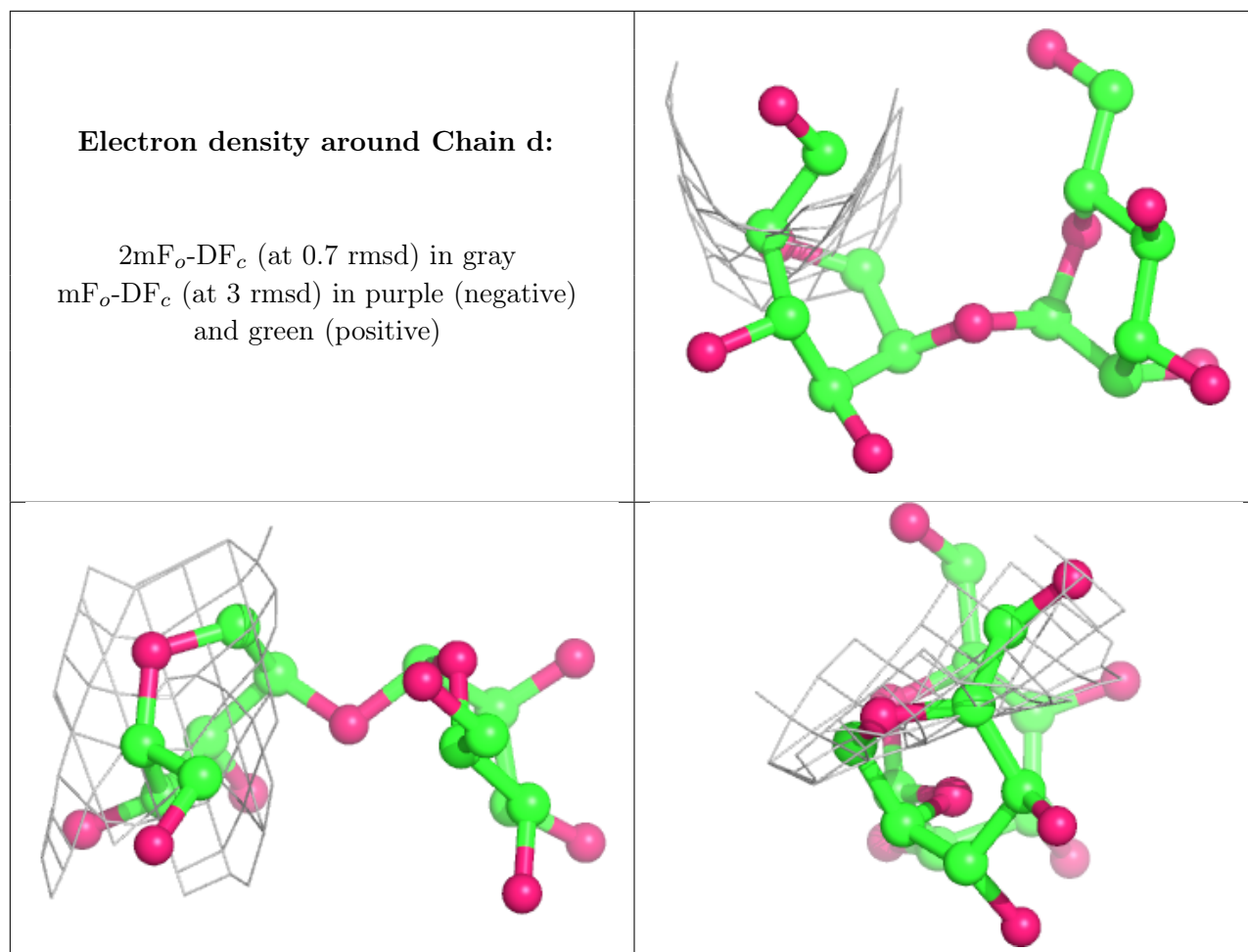
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around Chain X:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q<0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
8	NAG	A	1392	14/15	0.17	0.93	386,386,386,386	0
8	NAG	E	1295	14/15	0.25	0.70	356,356,356,356	0
8	NAG	I	1160	14/15	0.26	1.07	362,362,362,362	0
8	NAG	A	1088	14/15	0.38	0.69	474,474,474,474	0
8	NAG	E	1392	14/15	0.39	0.78	305,305,305,305	0
8	NAG	I	1088	14/15	0.40	0.75	503,503,503,503	0
8	NAG	A	1295	14/15	0.40	0.61	330,330,330,330	0
8	NAG	I	1392	14/15	0.44	0.68	345,345,345,345	0
8	NAG	E	1160	14/15	0.49	0.69	245,245,245,245	0
8	NAG	A	1448	14/15	0.54	0.61	279,279,279,279	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
8	NAG	E	1448	14/15	0.56	0.54	361,361,361,361	0
8	NAG	I	1295	14/15	0.58	0.44	323,323,323,323	0
8	NAG	I	1355	14/15	0.59	0.35	266,266,266,266	0
8	NAG	E	1088	14/15	0.61	0.64	486,486,486,486	0
8	NAG	I	1448	14/15	0.63	0.49	287,287,287,287	0
8	NAG	I	1234	14/15	0.65	0.46	345,345,345,345	0
8	NAG	E	1386	14/15	0.67	0.67	427,427,427,427	0
8	NAG	A	1386	14/15	0.69	0.58	356,356,356,356	0
8	NAG	E	1234	14/15	0.71	0.49	405,405,405,405	0
8	NAG	A	1160	14/15	0.71	0.56	267,267,267,267	0
8	NAG	E	1355	14/15	0.73	0.34	411,411,411,411	0
8	NAG	I	1386	14/15	0.73	0.50	331,331,331,331	0
8	NAG	A	1355	14/15	0.76	0.40	238,238,238,238	0
8	NAG	E	1276	14/15	0.80	0.43	313,313,313,313	0
8	NAG	I	1197	14/15	0.83	0.23	304,304,304,304	0
8	NAG	E	1197	14/15	0.84	0.33	288,288,288,288	0
8	NAG	A	1197	14/15	0.85	0.27	302,302,302,302	0
8	NAG	A	1234	14/15	0.88	0.28	431,431,431,431	0
8	NAG	A	1276	14/15	0.90	0.30	288,288,288,288	0
8	NAG	I	1276	14/15	0.91	0.37	281,281,281,281	0

6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.