



Full wwPDB EM Validation Report ⓘ

Mar 25, 2026 – 03:15 PM UTC

PDB ID : 7LXM / pdb_00007lxm
EMDB ID : EMD-23571
Title : Cryo-EM structure of ConM SOSIP.v7 (ConM) in complex with bNAb PGT122
Authors : Martin, G.M.; Ward, A.B.; Sattentau, Q.J.
Deposited on : 2021-03-04
Resolution : 3.41 Å(reported)

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

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

A user guide is available at

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

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

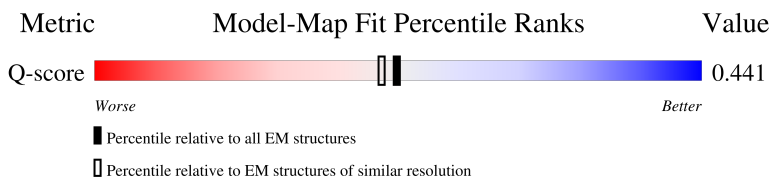
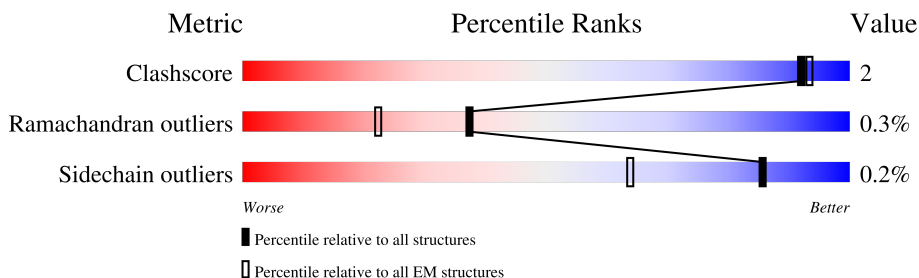
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.41 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	13997 (2.91 - 3.91)

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 $\leq 5\%$. 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	493	7% 79% 8% 12%
1	C	493	6% 80% 8% 12%
1	E	493	7% 81% 6% 12%
2	B	153	10% 75% 23%

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Mol	Chain	Length	Quality of chain
2	D	153	
2	F	153	
3	H	235	
3	N	235	
3	P	235	
4	L	213	
4	M	213	
4	O	213	
5	G	8	
5	a	8	
5	o	8	
6	0	2	
6	1	2	
6	I	2	
6	J	2	
6	K	2	
6	Q	2	
6	R	2	
6	T	2	
6	Y	2	
6	Z	2	
6	b	2	
6	c	2	
6	d	2	
6	e	2	

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Mol	Chain	Length	Quality of chain
6	f	2	50% 100%
6	h	2	50% 100%
6	m	2	50% 100%
6	n	2	100%
6	p	2	100%
6	q	2	50% 100%
6	r	2	50% 50%
6	s	2	100%
6	t	2	50% 100%
6	v	2	50% 100%
7	S	7	57% 14% 71% 14%
7	g	7	43% 14% 86%
7	u	7	43% 14% 86%
8	U	4	75% 25% 50% 25%
8	i	4	75% 25% 75%
8	w	4	75% 25% 75%
9	V	9	22% 22% 67% 11%
9	j	9	22% 11% 89%
9	x	9	22% 22% 56% 22%
10	W	3	67% 100%
10	X	3	67% 33% 67%
10	k	3	67% 100%
10	l	3	67% 33% 67%
10	y	3	67% 100%
10	z	3	67% 33% 67%

2 Entry composition [i](#)

There are 11 unique types of molecules in this entry. The entry contains 20820 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 HIV-1 Env glycoprotein gp120.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	434	Total	C	N	O	S	0	0
			3450	2170	605	649	26		
1	C	434	Total	C	N	O	S	0	0
			3450	2170	605	649	26		
1	E	434	Total	C	N	O	S	0	0
			3450	2170	605	649	26		

- Molecule 2 is a protein called HIV-1 Env glycoprotein gp41.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	118	Total	C	N	O	S	0	0
			950	598	160	185	7		
2	D	118	Total	C	N	O	S	0	0
			950	598	160	185	7		
2	F	118	Total	C	N	O	S	0	0
			950	598	160	185	7		

- Molecule 3 is a protein called PGT122 Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	H	131	Total	C	N	O	S	0	0
			1041	666	179	193	3		
3	N	131	Total	C	N	O	S	0	0
			1041	666	179	193	3		
3	P	131	Total	C	N	O	S	0	0
			1041	666	179	193	3		

- Molecule 4 is a protein called PGT122 Fab light chain.

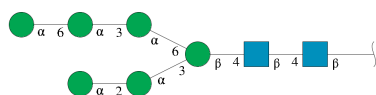
Mol	Chain	Residues	Atoms					AltConf	Trace
4	L	108	Total	C	N	O	S	0	0
			823	515	142	164	2		

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	M	108	Total	C	N	O	S	0	0
			823	515	142	164	2		
4	O	108	Total	C	N	O	S	0	0
			823	515	142	164	2		

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



Mol	Chain	Residues	Atoms				AltConf	Trace
5	G	8	Total	C	N	O	0	0
			94	52	2	40		
5	a	8	Total	C	N	O	0	0
			94	52	2	40		
5	o	8	Total	C	N	O	0	0
			94	52	2	40		

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



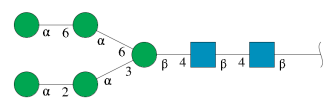
Mol	Chain	Residues	Atoms				AltConf	Trace
6	I	2	Total	C	N	O	0	0
			28	16	2	10		
6	J	2	Total	C	N	O	0	0
			28	16	2	10		
6	K	2	Total	C	N	O	0	0
			28	16	2	10		
6	Q	2	Total	C	N	O	0	0
			28	16	2	10		
6	R	2	Total	C	N	O	0	0
			28	16	2	10		
6	T	2	Total	C	N	O	0	0
			28	16	2	10		

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Mol	Chain	Residues	Atoms				AltConf	Trace
6	Y	2	Total	C	N	O	0	0
			28	16	2	10		
6	Z	2	Total	C	N	O	0	0
			28	16	2	10		
6	b	2	Total	C	N	O	0	0
			28	16	2	10		
6	c	2	Total	C	N	O	0	0
			28	16	2	10		
6	d	2	Total	C	N	O	0	0
			28	16	2	10		
6	e	2	Total	C	N	O	0	0
			28	16	2	10		
6	f	2	Total	C	N	O	0	0
			28	16	2	10		
6	h	2	Total	C	N	O	0	0
			28	16	2	10		
6	m	2	Total	C	N	O	0	0
			28	16	2	10		
6	n	2	Total	C	N	O	0	0
			28	16	2	10		
6	p	2	Total	C	N	O	0	0
			28	16	2	10		
6	q	2	Total	C	N	O	0	0
			28	16	2	10		
6	r	2	Total	C	N	O	0	0
			28	16	2	10		
6	s	2	Total	C	N	O	0	0
			28	16	2	10		
6	t	2	Total	C	N	O	0	0
			28	16	2	10		
6	v	2	Total	C	N	O	0	0
			28	16	2	10		
6	0	2	Total	C	N	O	0	0
			28	16	2	10		
6	1	2	Total	C	N	O	0	0
			28	16	2	10		

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



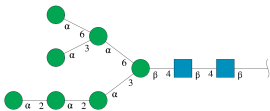
Mol	Chain	Residues	Atoms				AltConf	Trace
7	S	7	Total	C	N	O	0	0
			83	46	2	35		
7	g	7	Total	C	N	O	0	0
			83	46	2	35		
7	u	7	Total	C	N	O	0	0
			83	46	2	35		

- Molecule 8 is an oligosaccharide called alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
8	U	4	Total	C	N	O	0	0
			50	28	2	20		
8	i	4	Total	C	N	O	0	0
			50	28	2	20		
8	w	4	Total	C	N	O	0	0
			50	28	2	20		

- Molecule 9 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



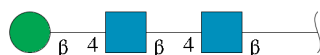
Mol	Chain	Residues	Atoms				AltConf	Trace
9	V	9	Total	C	N	O	0	0
			105	58	2	45		
9	j	9	Total	C	N	O	0	0
			105	58	2	45		

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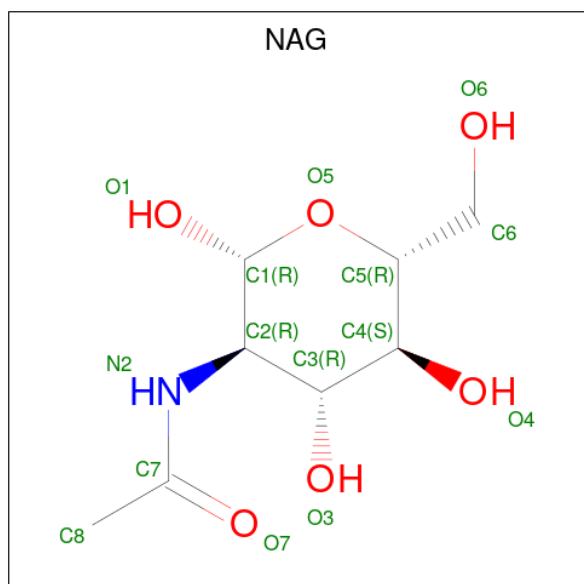
Mol	Chain	Residues	Atoms				AltConf	Trace
9	x	9	Total	C	N	O	0	0
			105	58	2	45		

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



Mol	Chain	Residues	Atoms				AltConf	Trace
10	W	3	Total	C	N	O	0	0
			39	22	2	15		
10	X	3	Total	C	N	O	0	0
			39	22	2	15		
10	k	3	Total	C	N	O	0	0
			39	22	2	15		
10	l	3	Total	C	N	O	0	0
			39	22	2	15		
10	y	3	Total	C	N	O	0	0
			39	22	2	15		
10	z	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 11 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆).

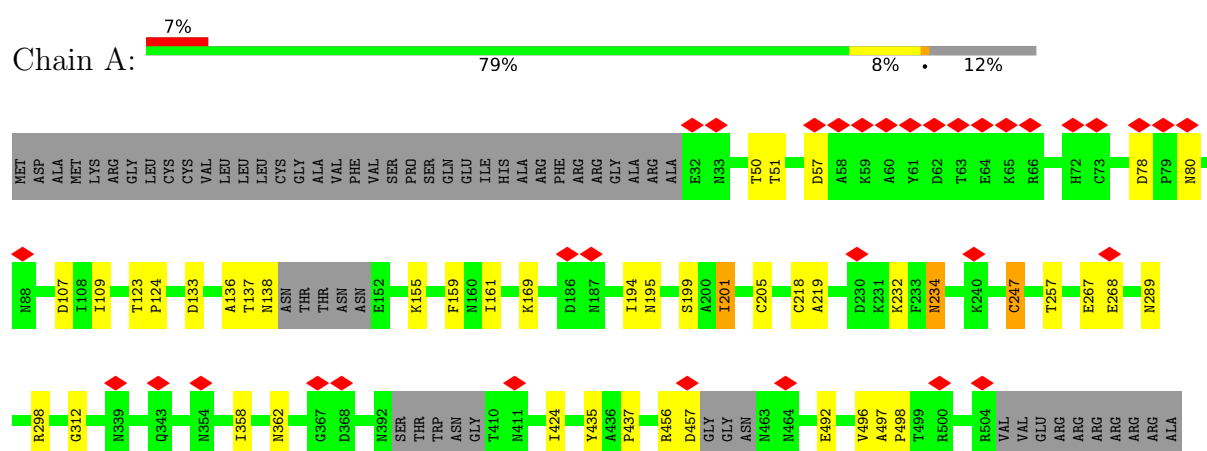


Mol	Chain	Residues	Atoms				AltConf
11	A	1	Total	C	N	O	0
			14	8	1	5	
11	A	1	Total	C	N	O	0
			14	8	1	5	
11	B	1	Total	C	N	O	0
			14	8	1	5	
11	C	1	Total	C	N	O	0
			14	8	1	5	
11	C	1	Total	C	N	O	0
			14	8	1	5	
11	D	1	Total	C	N	O	0
			14	8	1	5	
11	E	1	Total	C	N	O	0
			14	8	1	5	
11	E	1	Total	C	N	O	0
			14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

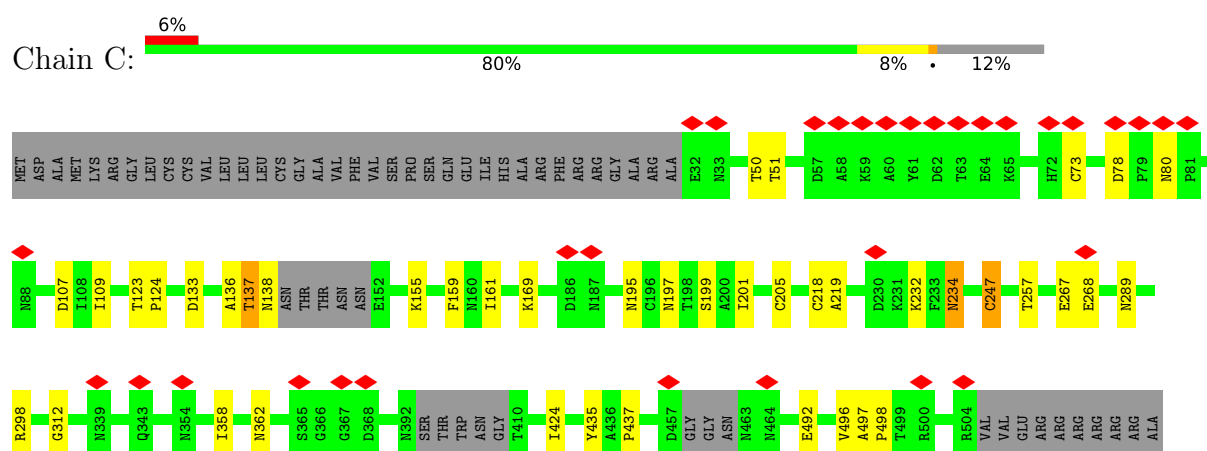
3 Residue-property plots

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

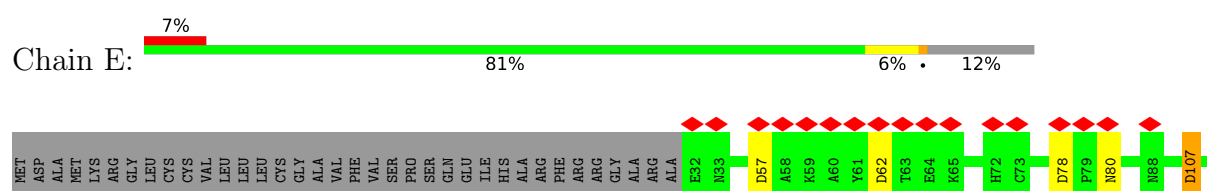
• Molecule 1: HIV-1 Env glycoprotein gp120

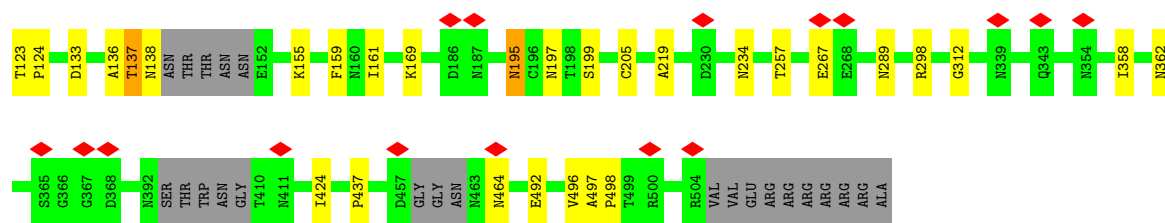


• Molecule 1: HIV-1 Env glycoprotein gp120

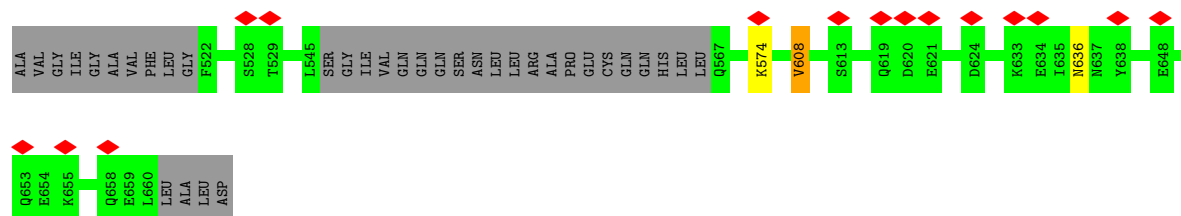
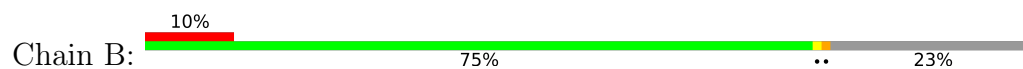


• Molecule 1: HIV-1 Env glycoprotein gp120

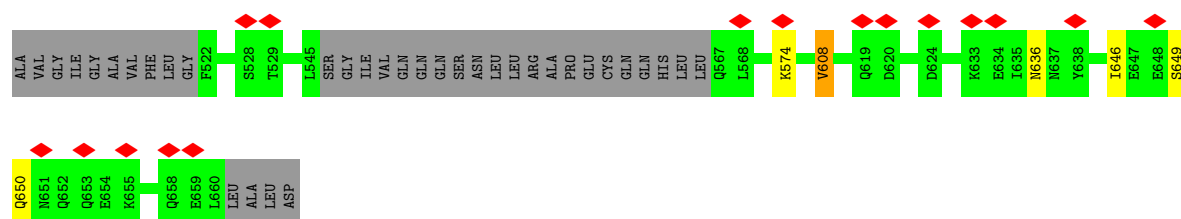
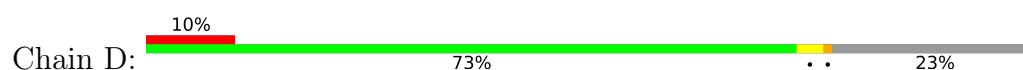




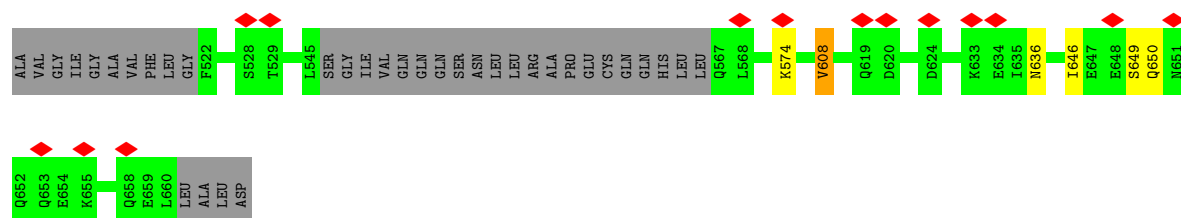
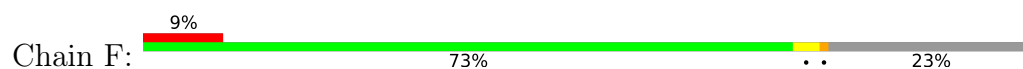
• Molecule 2: HIV-1 Env glycoprotein gp41



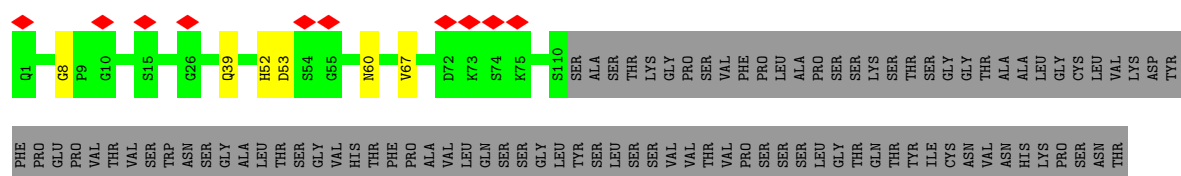
• Molecule 2: HIV-1 Env glycoprotein gp41



• Molecule 2: HIV-1 Env glycoprotein gp41



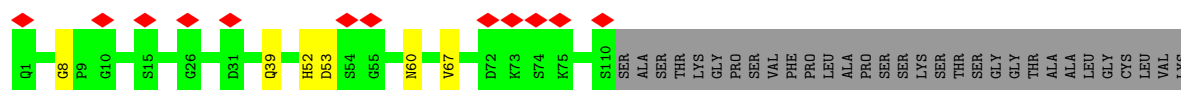
• Molecule 3: PGT122 Fab heavy chain



LYS
VAL
ASP
LYS
ARG
VAL
GLU
PRO
LYS
SER
CYS

• Molecule 3: PGT122 Fab heavy chain

Chain N: 

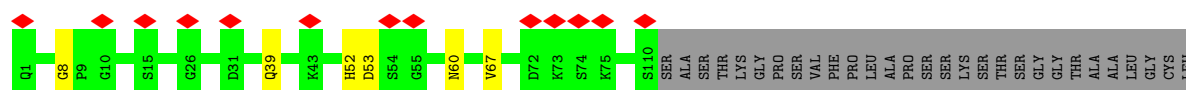


ASP
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• Molecule 3: PGT122 Fab heavy chain

Chain P: 

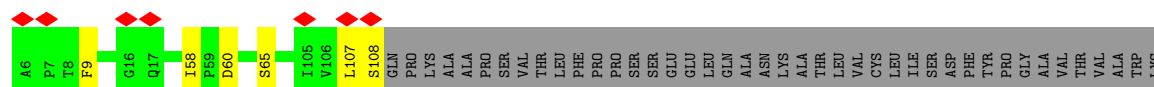


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ALA
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• Molecule 4: PGT122 Fab light chain

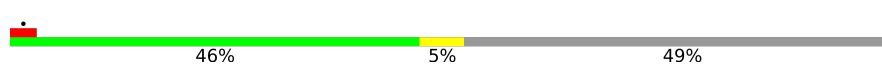
Chain L: 

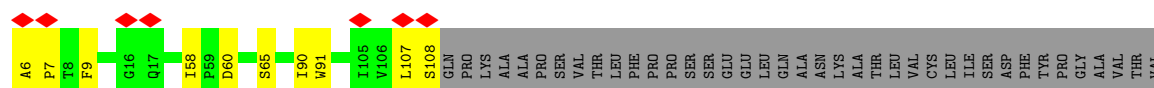


ALA
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GLN
SER
ASN
GLN
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ALA
ALA
SER
SER
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LEU
PHE
PRO
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GLN
GLU
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SER
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SER
ALA
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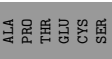
GLU
CYS
SER

• Molecule 4: PGT122 Fab light chain

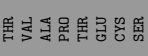
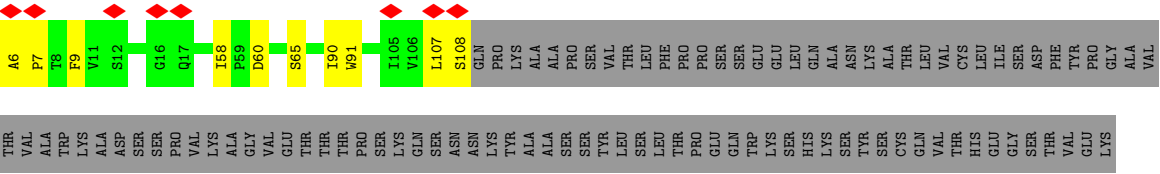
Chain M: 



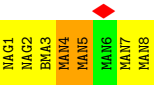
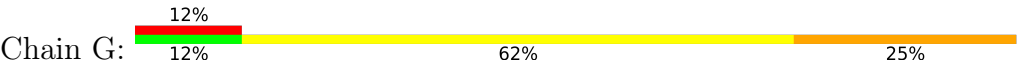
ALA
TRP
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GLU
THR
THR
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LYS
GLN
SER
ASN
ASN
TYR
ALA
ALA
SER
SER
VAL
TYR
LEU
LEU
PHE
THR
PRO
PRO
GLU
SER
SER
GLN
TRP
LYS
SER
HIS
LYS
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TYR
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CYS
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THR
VAL



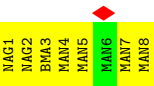
• Molecule 4: PGT122 Fab light chain



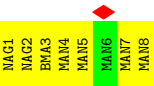
• Molecule 5: alpha-D-mannopyranose-(1-6)-alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose





- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



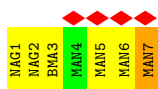
- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



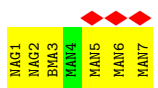
- Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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



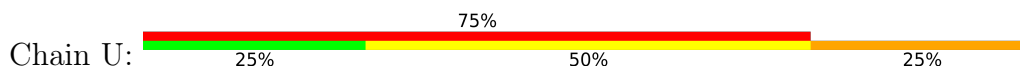
- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



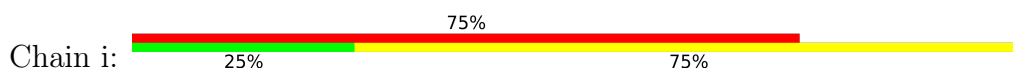
- Molecule 7: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



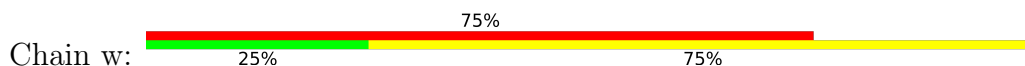
- Molecule 8: alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: 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



- Molecule 8: 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



- Molecule 9: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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



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



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



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



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



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



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	144741	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	3.676	Depositor
Minimum map value	-2.248	Depositor
Average map value	0.014	Depositor
Map value standard deviation	0.103	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	225.72, 225.72, 225.72	wwPDB
Map dimensions	220, 220, 220	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.026, 1.026, 1.026	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, 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	1.04	2/3520 (0.1%)	1.26	36/4779 (0.8%)
1	C	1.04	3/3520 (0.1%)	1.27	36/4779 (0.8%)
1	E	1.03	2/3520 (0.1%)	1.25	34/4779 (0.7%)
2	B	1.04	0/967	1.02	2/1310 (0.2%)
2	D	1.03	0/967	1.01	3/1310 (0.2%)
2	F	1.03	0/967	1.02	3/1310 (0.2%)
3	H	1.10	0/1070	1.18	7/1457 (0.5%)
3	N	1.09	0/1070	1.19	7/1457 (0.5%)
3	P	1.11	0/1070	1.18	7/1457 (0.5%)
4	L	1.08	0/845	1.25	5/1157 (0.4%)
4	M	1.08	1/845 (0.1%)	1.26	7/1157 (0.6%)
4	O	1.09	1/845 (0.1%)	1.28	6/1157 (0.5%)
All	All	1.05	9/19206 (0.0%)	1.21	153/26109 (0.6%)

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	247	CYS	CB-SG	-5.91	1.61	1.81
1	A	247	CYS	CB-SG	-5.85	1.61	1.81
1	E	137	THR	CA-C	-5.25	1.46	1.53
1	C	159	PHE	CB-CG	-5.12	1.38	1.50
1	E	159	PHE	CB-CG	-5.11	1.39	1.50
4	O	91	TRP	NE1-CE2	-5.10	1.31	1.37
4	M	91	TRP	NE1-CE2	-5.08	1.31	1.37
1	A	159	PHE	CB-CG	-5.06	1.39	1.50
1	C	137	THR	CA-C	-5.02	1.46	1.53

All (153) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	159	PHE	CA-CB-CG	8.77	122.57	113.80
1	C	159	PHE	CA-CB-CG	8.71	122.52	113.80
1	E	159	PHE	CA-CB-CG	8.69	122.49	113.80
1	E	298	ARG	CA-C-N	7.90	128.09	119.87
1	E	298	ARG	C-N-CA	7.90	128.09	119.87
1	A	298	ARG	CA-C-N	7.89	128.08	119.87
1	A	298	ARG	C-N-CA	7.89	128.08	119.87
1	C	298	ARG	CA-C-N	7.88	128.07	119.87
1	C	298	ARG	C-N-CA	7.88	128.07	119.87
3	N	8	GLY	CA-C-N	7.80	127.44	119.56
3	N	8	GLY	C-N-CA	7.80	127.44	119.56
3	H	8	GLY	CA-C-N	7.77	127.40	119.56
3	H	8	GLY	C-N-CA	7.77	127.40	119.56
2	B	608	VAL	CA-C-N	7.72	128.18	119.92
2	B	608	VAL	C-N-CA	7.72	128.18	119.92
3	P	8	GLY	CA-C-N	7.71	127.34	119.56
3	P	8	GLY	C-N-CA	7.71	127.34	119.56
1	A	492	GLU	CA-C-N	7.55	127.73	119.87
1	A	492	GLU	C-N-CA	7.55	127.73	119.87
1	E	492	GLU	CA-C-N	7.54	127.72	119.87
1	E	492	GLU	C-N-CA	7.54	127.72	119.87
2	F	608	VAL	CA-C-N	7.53	127.98	119.92
2	F	608	VAL	C-N-CA	7.53	127.98	119.92
1	C	492	GLU	CA-C-N	7.52	127.69	119.87
1	C	492	GLU	C-N-CA	7.52	127.69	119.87
2	D	608	VAL	CA-C-N	7.43	127.87	119.92
2	D	608	VAL	C-N-CA	7.43	127.87	119.92
1	E	195	ASN	CA-CB-CG	-7.29	105.31	112.60
1	C	247	CYS	N-CA-C	7.10	118.97	108.60
1	A	247	CYS	N-CA-C	7.06	118.91	108.60
1	C	219	ALA	CA-C-N	6.84	127.29	120.52
1	C	219	ALA	C-N-CA	6.84	127.29	120.52
1	A	219	ALA	CA-C-N	6.70	127.15	120.52
1	A	219	ALA	C-N-CA	6.70	127.15	120.52
1	C	497	ALA	CA-C-N	6.65	126.41	119.76
1	C	497	ALA	C-N-CA	6.65	126.41	119.76
1	E	497	ALA	CA-C-N	6.61	126.37	119.76
1	E	497	ALA	C-N-CA	6.61	126.37	119.76
1	A	205	CYS	CA-C-N	6.61	126.23	119.56
1	A	205	CYS	C-N-CA	6.61	126.23	119.56
1	E	362	ASN	CA-C-N	6.58	126.96	119.92
1	E	362	ASN	C-N-CA	6.58	126.96	119.92
1	E	205	CYS	CA-C-N	6.57	126.19	119.56

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	205	CYS	C-N-CA	6.57	126.19	119.56
1	A	497	ALA	CA-C-N	6.56	126.32	119.76
1	A	497	ALA	C-N-CA	6.56	126.32	119.76
1	C	205	CYS	CA-C-N	6.53	126.16	119.56
1	C	205	CYS	C-N-CA	6.53	126.16	119.56
1	C	362	ASN	CA-C-N	6.41	126.78	119.92
1	C	362	ASN	C-N-CA	6.41	126.78	119.92
1	C	195	ASN	CA-CB-CG	-6.36	106.24	112.60
4	M	9	PHE	N-CA-C	6.36	119.55	109.50
4	O	9	PHE	N-CA-C	6.36	119.55	109.50
1	E	219	ALA	CA-C-N	6.30	126.75	120.52
1	E	219	ALA	C-N-CA	6.30	126.75	120.52
1	A	159	PHE	CB-CA-C	-6.21	97.06	109.79
4	L	9	PHE	N-CA-C	6.18	119.26	109.50
1	A	424	ILE	N-CA-C	6.16	117.35	108.48
1	C	424	ILE	N-CA-C	6.15	117.33	108.48
1	C	498	PRO	N-CA-C	6.11	120.79	111.19
1	A	437	PRO	CA-C-N	6.10	126.01	119.85
1	A	437	PRO	C-N-CA	6.10	126.01	119.85
4	O	65	SER	CA-C-N	6.07	126.04	120.03
4	O	65	SER	C-N-CA	6.07	126.04	120.03
1	E	424	ILE	N-CA-C	6.06	117.21	108.48
1	E	437	PRO	CA-C-N	5.98	125.89	119.85
1	E	437	PRO	C-N-CA	5.98	125.89	119.85
1	C	159	PHE	CB-CA-C	-5.96	96.92	109.38
1	A	201	ILE	N-CA-C	5.95	116.87	108.36
1	E	498	PRO	N-CA-C	5.95	120.53	111.19
1	A	195	ASN	CA-CB-CG	-5.94	106.66	112.60
1	C	136	ALA	N-CA-C	-5.94	103.50	111.87
1	C	437	PRO	CA-C-N	5.91	125.82	119.85
1	C	437	PRO	C-N-CA	5.91	125.82	119.85
1	A	358	ILE	N-CA-C	5.90	116.43	108.17
1	E	159	PHE	CB-CA-C	-5.90	97.06	109.38
1	A	161	ILE	N-CA-C	5.88	116.40	108.17
1	A	136	ALA	N-CA-C	-5.87	103.59	111.87
4	L	65	SER	CA-C-N	5.86	125.83	120.03
4	L	65	SER	C-N-CA	5.86	125.83	120.03
4	O	58	ILE	CA-C-N	5.81	125.78	120.03
4	O	58	ILE	C-N-CA	5.81	125.78	120.03
1	E	197	ASN	CA-CB-CG	5.81	118.41	112.60
4	L	58	ILE	CA-C-N	5.80	125.78	120.03
4	L	58	ILE	C-N-CA	5.80	125.78	120.03

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	M	58	ILE	CA-C-N	5.79	125.77	120.03
4	M	58	ILE	C-N-CA	5.79	125.77	120.03
1	A	267	GLU	N-CA-C	5.79	117.67	111.36
4	M	65	SER	CA-C-N	5.77	125.68	119.85
4	M	65	SER	C-N-CA	5.77	125.68	119.85
1	A	498	PRO	N-CA-C	5.77	120.25	111.19
1	C	73	CYS	N-CA-C	-5.76	104.97	113.61
1	C	161	ILE	N-CA-C	5.75	116.22	108.17
1	C	358	ILE	N-CA-C	5.74	116.21	108.17
1	E	358	ILE	N-CA-C	5.73	116.20	108.17
1	C	80	ASN	CA-C-N	5.71	125.62	119.85
1	C	80	ASN	C-N-CA	5.71	125.62	119.85
1	E	161	ILE	N-CA-C	5.70	116.15	108.17
1	E	136	ALA	N-CA-C	-5.67	103.88	111.87
1	E	80	ASN	CA-C-N	5.67	125.57	119.85
1	E	80	ASN	C-N-CA	5.67	125.57	119.85
1	A	80	ASN	CA-C-N	5.66	125.57	119.85
1	A	80	ASN	C-N-CA	5.66	125.57	119.85
1	E	199	SER	N-CA-C	5.65	117.43	108.79
1	C	257	THR	N-CA-C	5.63	121.18	113.97
4	O	90	ILE	N-CA-C	5.61	115.87	107.51
1	E	257	THR	N-CA-C	5.59	121.13	113.97
1	A	312	GLY	CA-C-N	5.59	126.83	119.84
1	A	312	GLY	C-N-CA	5.59	126.83	119.84
1	C	267	GLU	N-CA-C	5.57	117.44	111.36
1	A	362	ASN	CA-C-N	5.56	125.87	119.92
1	A	362	ASN	C-N-CA	5.56	125.87	119.92
3	N	39	GLN	CA-C-N	5.55	125.50	119.78
3	N	39	GLN	C-N-CA	5.55	125.50	119.78
1	A	496	VAL	N-CA-C	5.54	116.72	108.46
1	E	267	GLU	N-CA-C	5.53	117.39	111.36
1	C	496	VAL	N-CA-C	5.49	116.64	108.46
1	E	312	GLY	CA-C-N	5.46	126.67	119.84
1	E	312	GLY	C-N-CA	5.46	126.67	119.84
1	C	197	ASN	CA-CB-CG	5.46	118.06	112.60
3	H	67	VAL	N-CA-C	5.45	116.58	108.46
1	A	257	THR	N-CA-C	5.45	120.94	113.97
3	N	67	VAL	N-CA-C	5.45	116.57	108.46
1	C	312	GLY	CA-C-N	5.44	126.64	119.84
1	C	312	GLY	C-N-CA	5.44	126.64	119.84
1	C	199	SER	N-CA-C	5.43	117.10	108.79
1	E	496	VAL	N-CA-C	5.43	116.55	108.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	39	GLN	CA-C-N	5.42	125.36	119.78
3	H	39	GLN	C-N-CA	5.42	125.36	119.78
4	M	90	ILE	N-CA-C	5.40	115.56	107.51
3	P	39	GLN	CA-C-N	5.38	125.32	119.78
3	P	39	GLN	C-N-CA	5.38	125.32	119.78
2	D	646	ILE	N-CA-C	-5.36	106.46	111.45
3	P	67	VAL	N-CA-C	5.35	116.44	108.46
1	A	199	SER	N-CA-C	5.32	117.16	109.07
2	F	646	ILE	N-CA-C	-5.32	106.50	111.45
1	E	107	ASP	CA-CB-CG	5.29	117.89	112.60
3	P	60	ASN	CA-C-N	5.17	125.47	119.47
3	P	60	ASN	C-N-CA	5.17	125.47	119.47
1	A	78	ASP	CA-C-N	5.17	124.78	119.56
1	A	78	ASP	C-N-CA	5.17	124.78	119.56
3	N	60	ASN	CA-C-N	5.16	125.45	119.47
3	N	60	ASN	C-N-CA	5.16	125.45	119.47
1	C	109	ILE	CB-CA-C	-5.15	105.19	112.14
1	E	78	ASP	CA-C-N	5.13	124.75	119.56
1	E	78	ASP	C-N-CA	5.13	124.75	119.56
4	M	90	ILE	CB-CA-C	-5.05	104.23	111.31
1	A	194	ILE	N-CA-C	5.05	117.36	111.05
1	C	78	ASP	CA-C-N	5.05	124.66	119.56
1	C	78	ASP	C-N-CA	5.05	124.66	119.56
1	A	109	ILE	CB-CA-C	-5.02	105.36	112.14
3	H	60	ASN	CA-C-N	5.01	125.28	119.47
3	H	60	ASN	C-N-CA	5.01	125.28	119.47

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3450	0	3396	13	0
1	C	3450	0	3396	11	0
1	E	3450	0	3396	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	950	0	917	1	0
2	D	950	0	917	2	0
2	F	950	0	917	2	0
3	H	1041	0	1021	2	0
3	N	1041	0	1021	2	0
3	P	1041	0	1021	2	0
4	L	823	0	778	2	0
4	M	823	0	778	4	0
4	O	823	0	778	4	0
5	G	94	0	79	2	0
5	a	94	0	79	0	0
5	o	94	0	79	0	0
6	0	28	0	25	0	0
6	1	28	0	25	0	0
6	I	28	0	25	0	0
6	J	28	0	25	0	0
6	K	28	0	25	2	0
6	Q	28	0	25	0	0
6	R	28	0	25	0	0
6	T	28	0	25	0	0
6	Y	28	0	25	0	0
6	Z	28	0	25	0	0
6	b	28	0	25	0	0
6	c	28	0	25	0	0
6	d	28	0	25	2	0
6	e	28	0	25	0	0
6	f	28	0	25	0	0
6	h	28	0	25	0	0
6	m	28	0	25	0	0
6	n	28	0	25	0	0
6	p	28	0	25	0	0
6	q	28	0	25	0	0
6	r	28	0	25	1	0
6	s	28	0	25	0	0
6	t	28	0	25	0	0
6	v	28	0	25	0	0
7	S	83	0	70	1	0
7	g	83	0	70	0	0
7	u	83	0	70	0	0
8	U	50	0	43	1	0
8	i	50	0	43	0	0
8	w	50	0	43	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	V	105	0	88	1	0
9	j	105	0	88	0	0
9	x	105	0	88	2	0
10	W	39	0	34	0	0
10	X	39	0	34	0	0
10	k	39	0	34	0	0
10	l	39	0	34	0	0
10	y	39	0	34	0	0
10	z	39	0	34	0	0
11	A	28	0	26	0	0
11	B	14	0	13	0	0
11	C	28	0	26	0	0
11	D	14	0	13	0	0
11	E	28	0	26	0	0
11	F	14	0	13	0	0
All	All	20820	0	20097	62	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 2.

All (62) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:234:ASN:N	1:A:234:ASN:OD1	2.37	0.57
9:V:5:MAN:HO6	9:V:5:MAN:HO4	1.50	0.57
1:C:137:THR:O	1:C:138:ASN:C	2.49	0.56
2:F:649:SER:OG	2:F:650:GLN:N	2.38	0.56
1:E:137:THR:O	1:E:138:ASN:C	2.48	0.56
1:A:137:THR:O	1:A:138:ASN:C	2.50	0.54
2:D:649:SER:OG	2:D:650:GLN:N	2.38	0.54
1:A:218:CYS:HA	1:A:247:CYS:HB3	1.91	0.53
1:C:234:ASN:N	1:C:234:ASN:OD1	2.42	0.53
4:L:107:LEU:O	4:L:108:SER:C	2.52	0.52
1:C:218:CYS:HA	1:C:247:CYS:HB3	1.92	0.52
4:O:107:LEU:O	4:O:108:SER:C	2.53	0.51
3:H:52:HIS:CG	3:H:53:ASP:N	2.79	0.51
3:H:52:HIS:CG	3:H:53:ASP:H	2.29	0.51
4:M:107:LEU:O	4:M:108:SER:C	2.53	0.51
1:A:107:ASP:OD1	2:B:574:LYS:NZ	2.45	0.50
1:A:123:THR:N	1:A:124:PRO:CD	2.75	0.50
1:C:107:ASP:OD1	2:D:574:LYS:NZ	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:G:5:MAN:O6	5:G:5:MAN:O4	2.19	0.49
3:P:52:HIS:CG	3:P:53:ASP:N	2.81	0.49
1:E:133:ASP:OD1	1:E:155:LYS:NZ	2.39	0.48
9:x:5:MAN:O6	9:x:5:MAN:O4	2.29	0.48
1:C:123:THR:N	1:C:124:PRO:CD	2.77	0.48
1:A:57:ASP:OD1	1:A:57:ASP:N	2.45	0.48
1:A:232:LYS:NZ	1:A:268:GLU:OE1	2.42	0.48
8:U:4:MAN:O6	8:U:4:MAN:O4	2.31	0.48
1:C:133:ASP:OD1	1:C:155:LYS:NZ	2.39	0.48
1:E:123:THR:N	1:E:124:PRO:CD	2.77	0.47
1:C:232:LYS:NZ	1:C:268:GLU:OE1	2.43	0.47
3:N:52:HIS:CG	3:N:53:ASP:N	2.83	0.47
4:O:60:ASP:N	4:O:60:ASP:OD1	2.44	0.46
3:P:52:HIS:CG	3:P:53:ASP:H	2.34	0.46
6:K:2:NAG:O6	6:K:2:NAG:O4	2.28	0.46
1:A:137:THR:OG1	1:A:138:ASN:N	2.48	0.46
9:x:8:MAN:O6	9:x:8:MAN:O4	2.31	0.46
1:A:169:LYS:HB2	6:K:1:NAG:H82	1.98	0.46
1:C:137:THR:OG1	1:C:138:ASN:N	2.49	0.45
1:E:169:LYS:HB2	6:r:1:NAG:H82	1.97	0.45
3:N:52:HIS:CG	3:N:53:ASP:H	2.34	0.45
4:M:6:ALA:N	4:M:7:PRO:CD	2.80	0.45
1:C:201:ILE:HG21	1:C:435:TYR:HB2	1.99	0.45
1:E:137:THR:OG1	1:E:138:ASN:N	2.49	0.45
1:E:57:ASP:OD1	1:E:57:ASP:N	2.45	0.44
1:E:464:ASN:OD1	1:E:464:ASN:N	2.50	0.44
6:d:2:NAG:O6	6:d:2:NAG:O4	2.28	0.44
4:M:60:ASP:N	4:M:60:ASP:OD1	2.44	0.44
4:O:6:ALA:N	4:O:7:PRO:CD	2.80	0.44
1:E:107:ASP:OD1	2:F:574:LYS:NZ	2.51	0.44
1:E:62:ASP:OD1	1:E:62:ASP:C	2.61	0.44
4:L:60:ASP:OD1	4:L:60:ASP:N	2.44	0.44
1:E:195:ASN:OD1	1:E:195:ASN:N	2.51	0.43
1:C:169:LYS:HB2	6:d:1:NAG:H82	1.98	0.43
1:A:133:ASP:OD1	1:A:155:LYS:NZ	2.38	0.43
4:M:6:ALA:N	4:M:7:PRO:HD2	2.34	0.42
1:A:201:ILE:HG21	1:A:435:TYR:HB2	2.01	0.42
1:A:456:ARG:O	1:A:457:ASP:C	2.62	0.42
4:O:6:ALA:N	4:O:7:PRO:HD2	2.34	0.42
5:G:4:MAN:O6	5:G:4:MAN:O4	2.37	0.41
7:S:7:MAN:O6	7:S:7:MAN:O4	2.30	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:234:ASN:OD1	1:E:234:ASN:N	2.53	0.40
1:A:50:THR:OG1	1:A:51:THR:N	2.54	0.40
1:C:50:THR:OG1	1:C:51:THR:N	2.54	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	426/493 (86%)	421 (99%)	5 (1%)	0	100	100
1	C	426/493 (86%)	421 (99%)	5 (1%)	0	100	100
1	E	426/493 (86%)	422 (99%)	4 (1%)	0	100	100
2	B	114/153 (74%)	111 (97%)	1 (1%)	2 (2%)	6	26
2	D	114/153 (74%)	110 (96%)	2 (2%)	2 (2%)	6	26
2	F	114/153 (74%)	110 (96%)	2 (2%)	2 (2%)	6	26
3	H	129/235 (55%)	127 (98%)	2 (2%)	0	100	100
3	N	129/235 (55%)	127 (98%)	2 (2%)	0	100	100
3	P	129/235 (55%)	127 (98%)	2 (2%)	0	100	100
4	L	106/213 (50%)	105 (99%)	1 (1%)	0	100	100
4	M	106/213 (50%)	105 (99%)	1 (1%)	0	100	100
4	O	106/213 (50%)	105 (99%)	1 (1%)	0	100	100
All	All	2325/3282 (71%)	2291 (98%)	28 (1%)	6 (0%)	37	65

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	636	ASN

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Mol	Chain	Res	Type
2	D	636	ASN
2	F	636	ASN
2	B	608	VAL
2	D	608	VAL
2	F	608	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	393/440 (89%)	391 (100%)	2 (0%)	81	80
1	C	393/440 (89%)	391 (100%)	2 (0%)	81	80
1	E	393/440 (89%)	392 (100%)	1 (0%)	86	84
2	B	104/131 (79%)	104 (100%)	0	100	100
2	D	104/131 (79%)	104 (100%)	0	100	100
2	F	104/131 (79%)	104 (100%)	0	100	100
3	H	115/205 (56%)	115 (100%)	0	100	100
3	N	115/205 (56%)	115 (100%)	0	100	100
3	P	115/205 (56%)	115 (100%)	0	100	100
4	L	90/181 (50%)	90 (100%)	0	100	100
4	M	90/181 (50%)	90 (100%)	0	100	100
4	O	90/181 (50%)	90 (100%)	0	100	100
All	All	2106/2871 (73%)	2101 (100%)	5 (0%)	85	85

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	234	ASN
1	A	289	ASN
1	C	234	ASN
1	C	289	ASN
1	E	289	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	315	GLN
1	A	432	GLN
3	H	68	HIS
1	C	422	GLN
1	C	432	GLN
3	N	68	HIS
1	E	362	ASN
1	E	422	GLN
1	E	432	GLN
3	P	68	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

150 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	$\# Z > 2$
6	NAG	0	1	6,1	14,14,15	1.13	1 (7%)	17,19,21	1.19	2 (11%)
6	NAG	0	2	6	14,14,15	0.75	1 (7%)	17,19,21	0.93	1 (5%)
6	NAG	1	1	6,1	14,14,15	1.17	1 (7%)	17,19,21	1.70	4 (23%)
6	NAG	1	2	6	14,14,15	0.74	1 (7%)	17,19,21	0.87	1 (5%)
5	NAG	G	1	5,1	14,14,15	0.93	1 (7%)	17,19,21	1.49	3 (17%)
5	NAG	G	2	5	14,14,15	0.90	1 (7%)	17,19,21	1.26	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	BMA	G	3	5	11,11,12	0.58	0	15,15,17	1.68	2 (13%)
5	MAN	G	4	5	11,11,12	0.81	0	15,15,17	1.73	4 (26%)
5	MAN	G	5	5	11,11,12	0.78	0	15,15,17	1.15	2 (13%)
5	MAN	G	6	5	11,11,12	0.68	0	15,15,17	0.81	0
5	MAN	G	7	5	11,11,12	0.70	0	15,15,17	1.35	3 (20%)
5	MAN	G	8	5	11,11,12	0.81	0	15,15,17	1.24	1 (6%)
6	NAG	I	1	6,1	14,14,15	1.05	1 (7%)	17,19,21	0.95	1 (5%)
6	NAG	I	2	6	14,14,15	0.80	1 (7%)	17,19,21	0.79	1 (5%)
6	NAG	J	1	6,1	14,14,15	1.07	1 (7%)	17,19,21	1.29	3 (17%)
6	NAG	J	2	6	14,14,15	0.80	1 (7%)	17,19,21	0.83	1 (5%)
6	NAG	K	1	6,1	14,14,15	0.99	1 (7%)	17,19,21	1.08	1 (5%)
6	NAG	K	2	6	14,14,15	0.81	1 (7%)	17,19,21	0.95	1 (5%)
6	NAG	Q	1	6,1	14,14,15	1.01	1 (7%)	17,19,21	1.58	2 (11%)
6	NAG	Q	2	6	14,14,15	1.37	1 (7%)	17,19,21	0.96	2 (11%)
6	NAG	R	1	6,1	14,14,15	1.00	1 (7%)	17,19,21	0.92	0
6	NAG	R	2	6	14,14,15	0.78	1 (7%)	17,19,21	0.72	1 (5%)
7	NAG	S	1	7,1	14,14,15	1.02	1 (7%)	17,19,21	0.86	1 (5%)
7	NAG	S	2	7	14,14,15	0.80	1 (7%)	17,19,21	0.87	0
7	BMA	S	3	7	11,11,12	0.56	0	15,15,17	0.81	1 (6%)
7	MAN	S	4	7	11,11,12	0.63	0	15,15,17	0.77	0
7	MAN	S	5	7	11,11,12	0.63	0	15,15,17	0.74	1 (6%)
7	MAN	S	6	7	11,11,12	0.70	0	15,15,17	0.85	1 (6%)
7	MAN	S	7	7	11,11,12	0.68	0	15,15,17	0.85	1 (6%)
6	NAG	T	1	6,1	14,14,15	0.92	1 (7%)	17,19,21	1.01	1 (5%)
6	NAG	T	2	6	14,14,15	0.71	1 (7%)	17,19,21	0.80	1 (5%)
8	NAG	U	1	8,1	14,14,15	1.00	1 (7%)	17,19,21	0.79	0
8	NAG	U	2	8	14,14,15	0.74	0	17,19,21	0.76	0
8	BMA	U	3	8	11,11,12	0.61	0	15,15,17	0.81	1 (6%)
8	MAN	U	4	8	11,11,12	0.69	0	15,15,17	0.97	1 (6%)
9	NAG	V	1	9,1	14,14,15	0.79	1 (7%)	17,19,21	1.18	0
9	NAG	V	2	9	14,14,15	0.67	0	17,19,21	1.47	2 (11%)
9	BMA	V	3	9	11,11,12	0.42	0	15,15,17	0.94	1 (6%)
9	MAN	V	4	9	11,11,12	0.39	0	15,15,17	0.86	0
9	MAN	V	5	9	11,11,12	0.56	0	15,15,17	0.93	1 (6%)
9	MAN	V	6	9	11,11,12	0.55	0	15,15,17	0.85	0
9	MAN	V	7	9	11,11,12	0.60	0	15,15,17	0.71	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
9	MAN	V	8	9	11,11,12	0.65	0	15,15,17	0.85	1 (6%)
9	MAN	V	9	9	11,11,12	0.64	0	15,15,17	0.77	1 (6%)
10	NAG	W	1	1,10	14,14,15	0.99	1 (7%)	17,19,21	0.71	1 (5%)
10	NAG	W	2	10	14,14,15	0.77	1 (7%)	17,19,21	0.72	0
10	BMA	W	3	10	11,11,12	0.59	0	15,15,17	0.74	1 (6%)
10	NAG	X	1	1,10	14,14,15	1.07	1 (7%)	17,19,21	1.10	2 (11%)
10	NAG	X	2	10	14,14,15	0.78	1 (7%)	17,19,21	0.86	1 (5%)
10	BMA	X	3	10	11,11,12	0.62	0	15,15,17	0.69	0
6	NAG	Y	1	6,1	14,14,15	1.25	1 (7%)	17,19,21	0.91	1 (5%)
6	NAG	Y	2	6	14,14,15	0.76	1 (7%)	17,19,21	0.97	1 (5%)
6	NAG	Z	1	6,1	14,14,15	1.16	1 (7%)	17,19,21	1.81	4 (23%)
6	NAG	Z	2	6	14,14,15	0.75	1 (7%)	17,19,21	0.87	1 (5%)
5	NAG	a	1	5,1	14,14,15	0.94	1 (7%)	17,19,21	1.56	4 (23%)
5	NAG	a	2	5	14,14,15	1.00	1 (7%)	17,19,21	1.53	3 (17%)
5	BMA	a	3	5	11,11,12	0.65	0	15,15,17	1.63	2 (13%)
5	MAN	a	4	5	11,11,12	0.73	0	15,15,17	1.72	2 (13%)
5	MAN	a	5	5	11,11,12	0.75	0	15,15,17	1.07	2 (13%)
5	MAN	a	6	5	11,11,12	0.64	0	15,15,17	0.78	0
5	MAN	a	7	5	11,11,12	0.65	0	15,15,17	1.45	3 (20%)
5	MAN	a	8	5	11,11,12	0.79	0	15,15,17	1.26	1 (6%)
6	NAG	b	1	6,1	14,14,15	1.04	1 (7%)	17,19,21	0.95	1 (5%)
6	NAG	b	2	6	14,14,15	0.81	1 (7%)	17,19,21	0.79	1 (5%)
6	NAG	c	1	6,1	14,14,15	1.08	1 (7%)	17,19,21	1.33	2 (11%)
6	NAG	c	2	6	14,14,15	0.81	1 (7%)	17,19,21	0.82	1 (5%)
6	NAG	d	1	6,1	14,14,15	1.01	1 (7%)	17,19,21	1.07	1 (5%)
6	NAG	d	2	6	14,14,15	0.79	1 (7%)	17,19,21	0.93	1 (5%)
6	NAG	e	1	6,1	14,14,15	1.10	1 (7%)	17,19,21	1.58	2 (11%)
6	NAG	e	2	6	14,14,15	1.41	1 (7%)	17,19,21	1.02	2 (11%)
6	NAG	f	1	6,1	14,14,15	1.00	1 (7%)	17,19,21	0.89	0
6	NAG	f	2	6	14,14,15	0.78	1 (7%)	17,19,21	0.72	1 (5%)
7	NAG	g	1	7,1	14,14,15	1.02	1 (7%)	17,19,21	0.98	1 (5%)
7	NAG	g	2	7	14,14,15	0.82	1 (7%)	17,19,21	0.82	1 (5%)
7	BMA	g	3	7	11,11,12	0.56	0	15,15,17	0.85	1 (6%)
7	MAN	g	4	7	11,11,12	0.65	0	15,15,17	0.79	0
7	MAN	g	5	7	11,11,12	0.63	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
7	MAN	g	6	7	11,11,12	0.70	0	15,15,17	0.85	1 (6%)
7	MAN	g	7	7	11,11,12	0.67	0	15,15,17	0.85	1 (6%)
6	NAG	h	1	6,1	14,14,15	0.93	1 (7%)	17,19,21	1.05	1 (5%)
6	NAG	h	2	6	14,14,15	0.70	1 (7%)	17,19,21	0.80	1 (5%)
8	NAG	i	1	8,1	14,14,15	1.00	1 (7%)	17,19,21	0.79	0
8	NAG	i	2	8	14,14,15	0.72	0	17,19,21	0.75	0
8	BMA	i	3	8	11,11,12	0.60	0	15,15,17	0.81	1 (6%)
8	MAN	i	4	8	11,11,12	0.68	0	15,15,17	0.97	1 (6%)
9	NAG	j	1	9,1	14,14,15	0.80	1 (7%)	17,19,21	1.12	0
9	NAG	j	2	9	14,14,15	0.69	0	17,19,21	1.46	2 (11%)
9	BMA	j	3	9	11,11,12	0.45	0	15,15,17	0.99	1 (6%)
9	MAN	j	4	9	11,11,12	0.40	0	15,15,17	0.95	1 (6%)
9	MAN	j	5	9	11,11,12	0.51	0	15,15,17	1.02	1 (6%)
9	MAN	j	6	9	11,11,12	0.54	0	15,15,17	0.85	0
9	MAN	j	7	9	11,11,12	0.62	0	15,15,17	0.73	1 (6%)
9	MAN	j	8	9	11,11,12	0.65	0	15,15,17	0.86	1 (6%)
9	MAN	j	9	9	11,11,12	0.66	0	15,15,17	0.82	1 (6%)
10	NAG	k	1	1,10	14,14,15	0.99	1 (7%)	17,19,21	0.74	1 (5%)
10	NAG	k	2	10	14,14,15	0.78	1 (7%)	17,19,21	0.73	0
10	BMA	k	3	10	11,11,12	0.59	0	15,15,17	0.74	1 (6%)
10	NAG	l	1	1,10	14,14,15	0.97	1 (7%)	17,19,21	0.94	1 (5%)
10	NAG	l	2	10	14,14,15	0.78	1 (7%)	17,19,21	0.85	1 (5%)
10	BMA	l	3	10	11,11,12	0.63	0	15,15,17	0.68	0
6	NAG	m	1	6,1	14,14,15	1.23	1 (7%)	17,19,21	0.88	0
6	NAG	m	2	6	14,14,15	0.77	1 (7%)	17,19,21	0.97	1 (5%)
6	NAG	n	1	6,1	14,14,15	1.18	1 (7%)	17,19,21	1.71	4 (23%)
6	NAG	n	2	6	14,14,15	0.72	1 (7%)	17,19,21	0.87	1 (5%)
5	NAG	o	1	5,1	14,14,15	0.92	1 (7%)	17,19,21	1.69	4 (23%)
5	NAG	o	2	5	14,14,15	0.93	1 (7%)	17,19,21	1.31	2 (11%)
5	BMA	o	3	5	11,11,12	0.57	0	15,15,17	1.71	3 (20%)
5	MAN	o	4	5	11,11,12	0.81	0	15,15,17	1.85	4 (26%)
5	MAN	o	5	5	11,11,12	0.78	1 (9%)	15,15,17	1.13	2 (13%)
5	MAN	o	6	5	11,11,12	0.64	0	15,15,17	0.81	0
5	MAN	o	7	5	11,11,12	0.67	0	15,15,17	1.44	3 (20%)
5	MAN	o	8	5	11,11,12	0.84	0	15,15,17	1.46	3 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	NAG	p	1	6,1	14,14,15	1.05	1 (7%)	17,19,21	0.94	1 (5%)
6	NAG	p	2	6	14,14,15	0.81	1 (7%)	17,19,21	0.79	1 (5%)
6	NAG	q	1	6,1	14,14,15	1.08	1 (7%)	17,19,21	1.28	2 (11%)
6	NAG	q	2	6	14,14,15	0.81	1 (7%)	17,19,21	0.81	1 (5%)
6	NAG	r	1	6,1	14,14,15	0.99	1 (7%)	17,19,21	1.08	1 (5%)
6	NAG	r	2	6	14,14,15	0.81	1 (7%)	17,19,21	0.94	1 (5%)
6	NAG	s	1	6,1	14,14,15	1.06	1 (7%)	17,19,21	1.88	4 (23%)
6	NAG	s	2	6	14,14,15	1.48	1 (7%)	17,19,21	0.97	2 (11%)
6	NAG	t	1	6,1	14,14,15	1.00	1 (7%)	17,19,21	0.91	0
6	NAG	t	2	6	14,14,15	0.77	1 (7%)	17,19,21	0.73	1 (5%)
7	NAG	u	1	7,1	14,14,15	1.01	1 (7%)	17,19,21	0.99	1 (5%)
7	NAG	u	2	7	14,14,15	0.82	1 (7%)	17,19,21	0.83	0
7	BMA	u	3	7	11,11,12	0.60	0	15,15,17	0.85	1 (6%)
7	MAN	u	4	7	11,11,12	0.69	0	15,15,17	0.81	0
7	MAN	u	5	7	11,11,12	0.63	0	15,15,17	0.75	1 (6%)
7	MAN	u	6	7	11,11,12	0.71	0	15,15,17	0.87	1 (6%)
7	MAN	u	7	7	11,11,12	0.68	0	15,15,17	0.84	1 (6%)
6	NAG	v	1	6,1	14,14,15	0.91	1 (7%)	17,19,21	1.07	1 (5%)
6	NAG	v	2	6	14,14,15	0.72	1 (7%)	17,19,21	0.81	1 (5%)
8	NAG	w	1	8,1	14,14,15	1.00	1 (7%)	17,19,21	0.79	0
8	NAG	w	2	8	14,14,15	0.73	0	17,19,21	0.75	0
8	BMA	w	3	8	11,11,12	0.62	0	15,15,17	0.81	1 (6%)
8	MAN	w	4	8	11,11,12	0.69	0	15,15,17	0.96	1 (6%)
9	NAG	x	1	9,1	14,14,15	0.81	1 (7%)	17,19,21	1.13	0
9	NAG	x	2	9	14,14,15	0.68	0	17,19,21	1.46	2 (11%)
9	BMA	x	3	9	11,11,12	0.45	0	15,15,17	0.99	1 (6%)
9	MAN	x	4	9	11,11,12	0.46	0	15,15,17	0.79	0
9	MAN	x	5	9	11,11,12	0.60	0	15,15,17	0.99	1 (6%)
9	MAN	x	6	9	11,11,12	0.55	0	15,15,17	0.85	0
9	MAN	x	7	9	11,11,12	0.59	0	15,15,17	0.71	1 (6%)
9	MAN	x	8	9	11,11,12	0.64	0	15,15,17	0.85	1 (6%)
9	MAN	x	9	9	11,11,12	0.64	0	15,15,17	0.75	1 (6%)
10	NAG	y	1	1,10	14,14,15	0.97	1 (7%)	17,19,21	0.75	1 (5%)
10	NAG	y	2	10	14,14,15	0.77	1 (7%)	17,19,21	0.72	0
10	BMA	y	3	10	11,11,12	0.59	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
10	NAG	z	1	1,10	14,14,15	1.00	1 (7%)	17,19,21	0.90	1 (5%)
10	NAG	z	2	10	14,14,15	0.79	1 (7%)	17,19,21	0.86	1 (5%)
10	BMA	z	3	10	11,11,12	0.65	0	15,15,17	0.69	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
6	NAG	0	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	0	2	6	-	2/6/23/26	0/1/1/1
6	NAG	1	1	6,1	-	1/6/23/26	0/1/1/1
6	NAG	1	2	6	-	1/6/23/26	0/1/1/1
5	NAG	G	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	G	2	5	-	0/6/23/26	0/1/1/1
5	BMA	G	3	5	-	0/2/19/22	0/1/1/1
5	MAN	G	4	5	-	1/2/19/22	0/1/1/1
5	MAN	G	5	5	-	2/2/19/22	0/1/1/1
5	MAN	G	6	5	-	1/2/19/22	0/1/1/1
5	MAN	G	7	5	-	1/2/19/22	0/1/1/1
5	MAN	G	8	5	-	1/2/19/22	0/1/1/1
6	NAG	I	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	I	2	6	-	1/6/23/26	0/1/1/1
6	NAG	J	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	J	2	6	-	1/6/23/26	0/1/1/1
6	NAG	K	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	K	2	6	-	1/6/23/26	0/1/1/1
6	NAG	Q	1	6,1	-	1/6/23/26	0/1/1/1
6	NAG	Q	2	6	-	1/6/23/26	0/1/1/1
6	NAG	R	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	R	2	6	-	2/6/23/26	0/1/1/1
7	NAG	S	1	7,1	-	0/6/23/26	0/1/1/1
7	NAG	S	2	7	-	0/6/23/26	0/1/1/1
7	BMA	S	3	7	-	0/2/19/22	0/1/1/1
7	MAN	S	4	7	-	1/2/19/22	0/1/1/1
7	MAN	S	5	7	-	1/2/19/22	0/1/1/1
7	MAN	S	6	7	-	1/2/19/22	0/1/1/1
7	MAN	S	7	7	-	1/2/19/22	0/1/1/1
6	NAG	T	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	T	2	6	-	1/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	NAG	U	1	8,1	-	0/6/23/26	0/1/1/1
8	NAG	U	2	8	-	0/6/23/26	0/1/1/1
8	BMA	U	3	8	-	0/2/19/22	0/1/1/1
8	MAN	U	4	8	-	1/2/19/22	0/1/1/1
9	NAG	V	1	9,1	-	0/6/23/26	0/1/1/1
9	NAG	V	2	9	-	1/6/23/26	0/1/1/1
9	BMA	V	3	9	-	0/2/19/22	0/1/1/1
9	MAN	V	4	9	-	0/2/19/22	0/1/1/1
9	MAN	V	5	9	-	1/2/19/22	0/1/1/1
9	MAN	V	6	9	-	1/2/19/22	0/1/1/1
9	MAN	V	7	9	-	0/2/19/22	0/1/1/1
9	MAN	V	8	9	-	1/2/19/22	0/1/1/1
9	MAN	V	9	9	-	1/2/19/22	0/1/1/1
10	NAG	W	1	1,10	-	0/6/23/26	0/1/1/1
10	NAG	W	2	10	-	1/6/23/26	0/1/1/1
10	BMA	W	3	10	-	1/2/19/22	0/1/1/1
10	NAG	X	1	1,10	-	2/6/23/26	0/1/1/1
10	NAG	X	2	10	-	2/6/23/26	0/1/1/1
10	BMA	X	3	10	-	1/2/19/22	0/1/1/1
6	NAG	Y	1	6,1	-	3/6/23/26	0/1/1/1
6	NAG	Y	2	6	-	2/6/23/26	0/1/1/1
6	NAG	Z	1	6,1	-	1/6/23/26	0/1/1/1
6	NAG	Z	2	6	-	1/6/23/26	0/1/1/1
5	NAG	a	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	a	2	5	-	2/6/23/26	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	-	2/2/19/22	0/1/1/1
5	MAN	a	6	5	-	2/2/19/22	0/1/1/1
5	MAN	a	7	5	-	1/2/19/22	0/1/1/1
5	MAN	a	8	5	-	1/2/19/22	0/1/1/1
6	NAG	b	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	b	2	6	-	1/6/23/26	0/1/1/1
6	NAG	c	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	c	2	6	-	1/6/23/26	0/1/1/1
6	NAG	d	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	d	2	6	-	1/6/23/26	0/1/1/1
6	NAG	e	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	e	2	6	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	f	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	f	2	6	-	2/6/23/26	0/1/1/1
7	NAG	g	1	7,1	-	0/6/23/26	0/1/1/1
7	NAG	g	2	7	-	2/6/23/26	0/1/1/1
7	BMA	g	3	7	-	0/2/19/22	0/1/1/1
7	MAN	g	4	7	-	1/2/19/22	0/1/1/1
7	MAN	g	5	7	-	1/2/19/22	0/1/1/1
7	MAN	g	6	7	-	1/2/19/22	0/1/1/1
7	MAN	g	7	7	-	1/2/19/22	0/1/1/1
6	NAG	h	1	6,1	-	1/6/23/26	0/1/1/1
6	NAG	h	2	6	-	1/6/23/26	0/1/1/1
8	NAG	i	1	8,1	-	0/6/23/26	0/1/1/1
8	NAG	i	2	8	-	0/6/23/26	0/1/1/1
8	BMA	i	3	8	-	0/2/19/22	0/1/1/1
8	MAN	i	4	8	-	1/2/19/22	0/1/1/1
9	NAG	j	1	9,1	-	0/6/23/26	0/1/1/1
9	NAG	j	2	9	-	1/6/23/26	0/1/1/1
9	BMA	j	3	9	-	0/2/19/22	0/1/1/1
9	MAN	j	4	9	-	2/2/19/22	0/1/1/1
9	MAN	j	5	9	-	1/2/19/22	0/1/1/1
9	MAN	j	6	9	-	1/2/19/22	0/1/1/1
9	MAN	j	7	9	-	0/2/19/22	0/1/1/1
9	MAN	j	8	9	-	1/2/19/22	0/1/1/1
9	MAN	j	9	9	-	1/2/19/22	0/1/1/1
10	NAG	k	1	1,10	-	1/6/23/26	0/1/1/1
10	NAG	k	2	10	-	1/6/23/26	0/1/1/1
10	BMA	k	3	10	-	1/2/19/22	0/1/1/1
10	NAG	l	1	1,10	-	2/6/23/26	0/1/1/1
10	NAG	l	2	10	-	1/6/23/26	0/1/1/1
10	BMA	l	3	10	-	1/2/19/22	0/1/1/1
6	NAG	m	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	m	2	6	-	2/6/23/26	0/1/1/1
6	NAG	n	1	6,1	-	1/6/23/26	0/1/1/1
6	NAG	n	2	6	-	1/6/23/26	0/1/1/1
5	NAG	o	1	5,1	-	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	-	1/2/19/22	0/1/1/1
5	MAN	o	5	5	-	2/2/19/22	0/1/1/1
5	MAN	o	6	5	-	2/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	MAN	o	7	5	-	1/2/19/22	0/1/1/1
5	MAN	o	8	5	-	1/2/19/22	0/1/1/1
6	NAG	p	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	p	2	6	-	1/6/23/26	0/1/1/1
6	NAG	q	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	q	2	6	-	1/6/23/26	0/1/1/1
6	NAG	r	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	r	2	6	-	1/6/23/26	0/1/1/1
6	NAG	s	1	6,1	-	3/6/23/26	0/1/1/1
6	NAG	s	2	6	-	2/6/23/26	0/1/1/1
6	NAG	t	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	t	2	6	-	2/6/23/26	0/1/1/1
7	NAG	u	1	7,1	-	0/6/23/26	0/1/1/1
7	NAG	u	2	7	-	1/6/23/26	0/1/1/1
7	BMA	u	3	7	-	0/2/19/22	0/1/1/1
7	MAN	u	4	7	-	1/2/19/22	0/1/1/1
7	MAN	u	5	7	-	1/2/19/22	0/1/1/1
7	MAN	u	6	7	-	1/2/19/22	0/1/1/1
7	MAN	u	7	7	-	1/2/19/22	0/1/1/1
6	NAG	v	1	6,1	-	1/6/23/26	0/1/1/1
6	NAG	v	2	6	-	1/6/23/26	0/1/1/1
8	NAG	w	1	8,1	-	0/6/23/26	0/1/1/1
8	NAG	w	2	8	-	0/6/23/26	0/1/1/1
8	BMA	w	3	8	-	0/2/19/22	0/1/1/1
8	MAN	w	4	8	-	1/2/19/22	0/1/1/1
9	NAG	x	1	9,1	-	0/6/23/26	0/1/1/1
9	NAG	x	2	9	-	1/6/23/26	0/1/1/1
9	BMA	x	3	9	-	1/2/19/22	0/1/1/1
9	MAN	x	4	9	-	1/2/19/22	0/1/1/1
9	MAN	x	5	9	-	1/2/19/22	0/1/1/1
9	MAN	x	6	9	-	1/2/19/22	0/1/1/1
9	MAN	x	7	9	-	1/2/19/22	0/1/1/1
9	MAN	x	8	9	-	1/2/19/22	0/1/1/1
9	MAN	x	9	9	-	1/2/19/22	0/1/1/1
10	NAG	y	1	1,10	-	1/6/23/26	0/1/1/1
10	NAG	y	2	10	-	1/6/23/26	0/1/1/1
10	BMA	y	3	10	-	1/2/19/22	0/1/1/1
10	NAG	z	1	1,10	-	0/6/23/26	0/1/1/1
10	NAG	z	2	10	-	1/6/23/26	0/1/1/1
10	BMA	z	3	10	-	1/2/19/22	0/1/1/1

All (79) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	s	2	NAG	C1-C2	5.34	1.59	1.52
6	e	2	NAG	C1-C2	5.07	1.59	1.52
6	Q	2	NAG	C1-C2	4.89	1.59	1.52
6	Y	1	NAG	C1-C2	4.46	1.58	1.52
6	m	1	NAG	C1-C2	4.37	1.58	1.52
6	0	1	NAG	C1-C2	3.97	1.57	1.52
6	n	1	NAG	C1-C2	3.84	1.57	1.52
6	l	1	NAG	C1-C2	3.79	1.57	1.52
6	Z	1	NAG	C1-C2	3.71	1.57	1.52
10	X	1	NAG	C1-C2	3.59	1.57	1.52
6	e	1	NAG	C1-C2	3.54	1.57	1.52
6	c	1	NAG	C1-C2	3.50	1.57	1.52
6	q	1	NAG	C1-C2	3.50	1.57	1.52
7	S	1	NAG	C1-C2	3.49	1.57	1.52
10	W	1	NAG	C1-C2	3.49	1.57	1.52
10	k	1	NAG	C1-C2	3.48	1.57	1.52
7	g	1	NAG	C1-C2	3.48	1.57	1.52
10	y	1	NAG	C1-C2	3.42	1.57	1.52
7	u	1	NAG	C1-C2	3.42	1.57	1.52
6	t	1	NAG	C1-C2	3.40	1.57	1.52
6	J	1	NAG	C1-C2	3.39	1.57	1.52
6	R	1	NAG	C1-C2	3.38	1.57	1.52
6	f	1	NAG	C1-C2	3.36	1.56	1.52
6	I	1	NAG	C1-C2	3.33	1.56	1.52
6	d	1	NAG	C1-C2	3.33	1.56	1.52
6	p	1	NAG	C1-C2	3.31	1.56	1.52
6	K	1	NAG	C1-C2	3.25	1.56	1.52
8	U	1	NAG	C1-C2	3.24	1.56	1.52
6	r	1	NAG	C1-C2	3.24	1.56	1.52
6	b	1	NAG	C1-C2	3.24	1.56	1.52
10	z	1	NAG	C1-C2	3.23	1.56	1.52
8	i	1	NAG	C1-C2	3.23	1.56	1.52
8	w	1	NAG	C1-C2	3.23	1.56	1.52
6	h	1	NAG	C1-C2	3.22	1.56	1.52
10	l	1	NAG	C1-C2	3.19	1.56	1.52
6	s	1	NAG	C1-C2	3.19	1.56	1.52
5	o	2	NAG	C1-C2	3.13	1.56	1.52
6	v	1	NAG	C1-C2	3.13	1.56	1.52
5	a	2	NAG	C1-C2	3.12	1.56	1.52
6	T	1	NAG	C1-C2	3.12	1.56	1.52
5	G	2	NAG	C1-C2	3.00	1.56	1.52
6	Q	1	NAG	C1-C2	2.98	1.56	1.52
5	G	1	NAG	C1-C2	2.95	1.56	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	a	1	NAG	C1-C2	2.95	1.56	1.52
5	o	1	NAG	C1-C2	2.90	1.56	1.52
7	u	2	NAG	C1-C2	2.77	1.56	1.52
7	g	2	NAG	C1-C2	2.76	1.56	1.52
7	S	2	NAG	C1-C2	2.63	1.55	1.52
9	j	1	NAG	C1-C2	2.57	1.55	1.52
6	q	2	NAG	C1-C2	2.54	1.55	1.52
9	x	1	NAG	C1-C2	2.54	1.55	1.52
6	J	2	NAG	C1-C2	2.54	1.55	1.52
6	c	2	NAG	C1-C2	2.53	1.55	1.52
6	r	2	NAG	C1-C2	2.53	1.55	1.52
6	p	2	NAG	C1-C2	2.52	1.55	1.52
6	I	2	NAG	C1-C2	2.51	1.55	1.52
6	f	2	NAG	C1-C2	2.51	1.55	1.52
6	K	2	NAG	C1-C2	2.50	1.55	1.52
6	R	2	NAG	C1-C2	2.49	1.55	1.52
6	b	2	NAG	C1-C2	2.49	1.55	1.52
6	t	2	NAG	C1-C2	2.47	1.55	1.52
9	V	1	NAG	C1-C2	2.46	1.55	1.52
6	m	2	NAG	C1-C2	2.45	1.55	1.52
6	d	2	NAG	C1-C2	2.43	1.55	1.52
6	Y	2	NAG	C1-C2	2.42	1.55	1.52
6	0	2	NAG	C1-C2	2.39	1.55	1.52
6	l	2	NAG	C1-C2	2.20	1.55	1.52
6	Z	2	NAG	C1-C2	2.19	1.55	1.52
10	W	2	NAG	C1-C2	2.18	1.55	1.52
10	k	2	NAG	C1-C2	2.17	1.55	1.52
10	y	2	NAG	C1-C2	2.17	1.55	1.52
6	v	2	NAG	C1-C2	2.16	1.55	1.52
6	n	2	NAG	C1-C2	2.13	1.55	1.52
6	T	2	NAG	C1-C2	2.12	1.55	1.52
10	z	2	NAG	C1-C2	2.12	1.55	1.52
6	h	2	NAG	C1-C2	2.11	1.55	1.52
10	l	2	NAG	C1-C2	2.06	1.55	1.52
10	X	2	NAG	C1-C2	2.02	1.55	1.52
5	o	5	MAN	C1-C2	2.02	1.57	1.52

All (178) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	a	4	MAN	O3-C3-C4	5.01	122.18	110.38
6	s	1	NAG	C4-C3-C2	-4.92	103.80	111.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	o	4	MAN	O3-C3-C4	4.87	121.85	110.38
5	G	4	MAN	O3-C3-C4	4.61	121.23	110.38
6	e	1	NAG	C4-C3-C2	-4.61	104.27	111.02
6	Q	1	NAG	C4-C3-C2	-4.58	104.31	111.02
5	o	3	BMA	C2-C3-C4	-4.55	102.85	110.86
6	Z	1	NAG	O4-C4-C3	-4.46	99.86	110.38
5	G	3	BMA	C2-C3-C4	-4.42	103.08	110.86
5	a	3	BMA	C2-C3-C4	-4.42	103.09	110.86
6	n	1	NAG	O4-C4-C3	-4.11	100.69	110.38
6	l	1	NAG	O4-C4-C3	-4.10	100.72	110.38
5	o	1	NAG	C1-O5-C5	-4.08	106.71	112.19
5	G	2	NAG	C4-C3-C2	-3.76	105.51	111.02
5	a	2	NAG	C4-C3-C2	-3.69	105.61	111.02
6	Z	1	NAG	O5-C5-C6	-3.64	100.58	107.66
5	o	2	NAG	C4-C3-C2	-3.64	105.69	111.02
5	a	1	NAG	C1-O5-C5	-3.56	107.42	112.19
5	o	1	NAG	O4-C4-C5	-3.48	100.75	109.32
5	G	1	NAG	O4-C4-C5	-3.38	101.00	109.32
5	G	1	NAG	C1-O5-C5	-3.36	107.69	112.19
5	a	1	NAG	O4-C4-C5	-3.31	101.18	109.32
5	a	7	MAN	C1-O5-C5	3.29	116.59	112.19
6	n	1	NAG	O5-C5-C6	-3.25	101.33	107.66
5	o	4	MAN	C2-C3-C4	-3.25	105.15	110.86
6	l	1	NAG	O5-C5-C6	-3.24	101.35	107.66
6	s	1	NAG	O5-C1-C2	-3.20	106.35	111.29
6	c	1	NAG	C4-C3-C2	-3.16	106.38	111.02
5	o	7	MAN	O2-C2-C1	3.14	116.41	109.22
6	n	1	NAG	C3-C4-C5	-3.08	104.64	110.23
5	a	2	NAG	O4-C4-C5	-3.08	101.74	109.32
6	s	1	NAG	C2-N2-C7	3.06	127.00	122.90
5	a	7	MAN	O2-C2-C1	3.05	116.20	109.22
6	l	1	NAG	C3-C4-C5	-3.04	104.72	110.23
6	Z	1	NAG	C3-C4-C5	-3.01	104.77	110.23
9	j	3	BMA	C2-C3-C4	-3.01	105.57	110.86
6	J	1	NAG	C4-C3-C2	-2.99	106.63	111.02
5	G	4	MAN	C2-C3-C4	-2.98	105.61	110.86
10	X	1	NAG	C4-C3-C2	-2.98	106.65	111.02
6	q	1	NAG	C4-C3-C2	-2.96	106.68	111.02
6	d	1	NAG	C1-O5-C5	-2.93	108.26	112.19
7	u	1	NAG	C3-C4-C5	-2.93	104.92	110.23
5	o	8	MAN	C6-C5-C4	-2.93	105.83	113.02
9	x	3	BMA	C2-C3-C4	-2.92	105.73	110.86

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	o	7	MAN	C1-O5-C5	2.92	116.09	112.19
6	r	1	NAG	C1-O5-C5	-2.91	108.28	112.19
6	K	1	NAG	C1-O5-C5	-2.89	108.31	112.19
6	Z	1	NAG	C4-C3-C2	2.88	115.23	111.02
7	g	1	NAG	C3-C4-C5	-2.87	105.04	110.23
6	e	1	NAG	O5-C1-C2	-2.86	106.86	111.29
5	a	3	BMA	C1-O5-C5	2.85	116.01	112.19
5	G	7	MAN	O2-C2-C1	2.85	115.75	109.22
6	K	2	NAG	C4-C3-C2	-2.80	106.91	111.02
6	m	2	NAG	C4-C3-C2	-2.79	106.92	111.02
6	r	2	NAG	C4-C3-C2	-2.76	106.97	111.02
9	V	3	BMA	C2-C3-C4	-2.76	106.01	110.86
7	u	3	BMA	C2-C3-C4	-2.75	106.03	110.86
6	d	2	NAG	C4-C3-C2	-2.74	107.00	111.02
9	j	5	MAN	C2-C3-C4	-2.74	106.05	110.86
6	Y	2	NAG	C4-C3-C2	-2.73	107.01	111.02
6	0	2	NAG	C4-C3-C2	-2.72	107.03	111.02
7	g	3	BMA	C2-C3-C4	-2.72	106.08	110.86
5	a	2	NAG	O5-C5-C6	-2.71	102.38	107.66
6	l	1	NAG	C4-C3-C2	2.70	114.98	111.02
6	n	1	NAG	C4-C3-C2	2.70	114.97	111.02
8	U	4	MAN	C2-C3-C4	-2.68	106.15	110.86
8	i	4	MAN	C2-C3-C4	-2.68	106.15	110.86
9	V	2	NAG	O4-C4-C5	-2.66	102.78	109.32
6	v	1	NAG	C4-C3-C2	-2.65	107.13	111.02
9	x	2	NAG	O4-C4-C5	-2.65	102.79	109.32
8	w	4	MAN	C2-C3-C4	-2.65	106.20	110.86
9	x	2	NAG	C3-C4-C5	-2.64	105.44	110.23
6	Q	1	NAG	O5-C1-C2	-2.64	107.20	111.29
5	o	5	MAN	C2-C3-C4	-2.63	106.23	110.86
9	j	2	NAG	O4-C4-C5	-2.63	102.86	109.32
6	h	1	NAG	C4-C3-C2	-2.60	107.21	111.02
7	S	3	BMA	C2-C3-C4	-2.56	106.35	110.86
9	j	2	NAG	C3-C4-C5	-2.55	105.61	110.23
5	a	4	MAN	C2-C3-C4	-2.51	106.44	110.86
9	V	2	NAG	C3-C4-C5	-2.51	105.68	110.23
5	G	5	MAN	C6-C5-C4	-2.51	106.86	113.02
6	T	1	NAG	C4-C3-C2	-2.51	107.34	111.02
5	a	5	MAN	C2-C3-C4	-2.49	106.47	110.86
6	c	2	NAG	C4-C3-C2	-2.49	107.38	111.02
7	S	1	NAG	C3-C4-C5	-2.48	105.73	110.23
6	J	2	NAG	C4-C3-C2	-2.45	107.43	111.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	q	2	NAG	C4-C3-C2	-2.43	107.46	111.02
5	G	7	MAN	C1-O5-C5	2.42	115.43	112.19
9	j	9	MAN	C2-C3-C4	-2.42	106.60	110.86
6	e	2	NAG	C1-O5-C5	2.41	115.42	112.19
10	z	2	NAG	C3-C4-C5	-2.41	105.86	110.23
7	S	7	MAN	C2-C3-C4	-2.41	106.62	110.86
9	V	5	MAN	C2-C3-C4	-2.40	106.64	110.86
5	o	2	NAG	O4-C4-C5	-2.40	103.42	109.32
10	l	2	NAG	C3-C4-C5	-2.40	105.89	110.23
9	j	7	MAN	C2-C3-C4	-2.39	106.65	110.86
6	e	2	NAG	O5-C1-C2	-2.39	107.60	111.29
5	G	7	MAN	C2-C3-C4	-2.38	106.67	110.86
5	G	3	BMA	C1-O5-C5	2.38	115.37	112.19
5	G	5	MAN	C2-C3-C4	-2.36	106.71	110.86
7	g	7	MAN	C2-C3-C4	-2.35	106.72	110.86
9	j	8	MAN	C2-C3-C4	-2.35	106.73	110.86
9	V	8	MAN	C2-C3-C4	-2.35	106.73	110.86
9	x	8	MAN	C2-C3-C4	-2.33	106.76	110.86
7	u	7	MAN	C2-C3-C4	-2.32	106.78	110.86
9	x	5	MAN	C2-C3-C4	-2.30	106.81	110.86
7	u	6	MAN	C2-C3-C4	-2.29	106.84	110.86
5	a	1	NAG	O5-C1-C2	2.28	114.83	111.29
5	a	1	NAG	O3-C3-C2	-2.27	104.68	109.40
7	g	6	MAN	C2-C3-C4	-2.27	106.86	110.86
5	G	8	MAN	C6-C5-C4	-2.27	107.44	113.02
6	v	2	NAG	C4-C3-C2	-2.27	107.70	111.02
6	T	2	NAG	C4-C3-C2	-2.26	107.70	111.02
5	o	1	NAG	O5-C1-C2	2.26	114.79	111.29
5	G	1	NAG	O3-C3-C2	-2.26	104.71	109.40
9	x	7	MAN	C2-C3-C4	-2.26	106.89	110.86
7	S	6	MAN	C2-C3-C4	-2.26	106.89	110.86
6	h	2	NAG	C4-C3-C2	-2.26	107.71	111.02
6	Q	2	NAG	O5-C1-C2	-2.25	107.80	111.29
7	S	5	MAN	C2-C3-C4	-2.25	106.90	110.86
7	u	5	MAN	C2-C3-C4	-2.25	106.90	110.86
9	V	7	MAN	C2-C3-C4	-2.25	106.91	110.86
5	a	8	MAN	C6-C5-C4	-2.25	107.50	113.02
5	o	4	MAN	C1-C2-C3	2.24	112.90	109.64
5	o	3	BMA	C1-O5-C5	2.24	115.18	112.19
7	g	5	MAN	C2-C3-C4	-2.23	106.93	110.86
5	o	7	MAN	C2-C3-C4	-2.23	106.93	110.86
10	l	1	NAG	C1-C2-N2	-2.23	106.92	110.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	s	2	NAG	O5-C1-C2	-2.23	107.84	111.29
6	J	1	NAG	C1-O5-C5	-2.23	109.20	112.19
5	o	1	NAG	O3-C3-C2	-2.22	104.79	109.40
9	j	4	MAN	C1-O5-C5	2.22	115.16	112.19
5	a	7	MAN	C2-C3-C4	-2.21	106.98	110.86
10	X	2	NAG	C3-C4-C5	-2.21	106.23	110.23
6	0	1	NAG	C3-C4-C5	-2.20	106.24	110.23
6	Z	2	NAG	C4-C3-C2	-2.20	107.79	111.02
6	Q	2	NAG	C1-O5-C5	2.20	115.13	112.19
6	s	2	NAG	C1-O5-C5	2.20	115.13	112.19
6	b	2	NAG	C4-C3-C2	-2.18	107.82	111.02
6	p	2	NAG	C4-C3-C2	-2.17	107.83	111.02
6	n	2	NAG	C4-C3-C2	-2.17	107.84	111.02
6	l	2	NAG	C4-C3-C2	-2.16	107.86	111.02
9	V	9	MAN	C2-C3-C4	-2.15	107.08	110.86
5	G	2	NAG	O4-C4-C5	-2.15	104.03	109.32
6	t	2	NAG	C4-C3-C2	-2.15	107.87	111.02
10	z	1	NAG	C1-C2-N2	-2.14	107.05	110.43
6	f	2	NAG	C4-C3-C2	-2.13	107.89	111.02
6	I	1	NAG	C3-C4-C5	-2.13	106.37	110.23
6	b	1	NAG	C3-C4-C5	-2.12	106.38	110.23
6	I	2	NAG	C4-C3-C2	-2.12	107.92	111.02
10	y	1	NAG	C3-C4-C5	-2.11	106.41	110.23
6	Y	1	NAG	C4-C3-C2	-2.11	107.93	111.02
6	R	2	NAG	C4-C3-C2	-2.11	107.93	111.02
6	q	1	NAG	C1-O5-C5	-2.11	109.36	112.19
6	p	1	NAG	C3-C4-C5	-2.11	106.41	110.23
5	o	5	MAN	C6-C5-C4	-2.10	107.85	113.02
10	k	1	NAG	C3-C4-C5	-2.10	106.42	110.23
5	G	4	MAN	C1-C2-C3	2.10	112.70	109.64
6	c	1	NAG	C1-O5-C5	-2.09	109.38	112.19
5	o	4	MAN	O3-C3-C2	-2.09	105.78	110.05
5	o	8	MAN	O5-C5-C6	2.09	111.73	107.66
5	o	8	MAN	C1-C2-C3	2.09	112.68	109.64
9	x	9	MAN	C2-C3-C4	-2.06	107.24	110.86
10	W	1	NAG	C3-C4-C5	-2.05	106.52	110.23
6	0	1	NAG	C4-C3-C2	-2.04	108.02	111.02
5	a	5	MAN	C6-C5-C4	-2.04	108.01	113.02
6	J	1	NAG	O4-C4-C5	2.03	114.33	109.32
7	g	2	NAG	C3-C4-C5	-2.03	106.55	110.23
6	s	1	NAG	O3-C3-C4	2.02	115.15	110.38
8	i	3	BMA	C2-C3-C4	-2.02	107.30	110.86

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	U	3	BMA	C2-C3-C4	-2.01	107.32	110.86
5	o	3	BMA	C1-C2-C3	2.01	112.57	109.64
5	G	4	MAN	O2-C2-C1	-2.01	104.62	109.22
10	y	3	BMA	C2-C3-C4	-2.01	107.33	110.86
10	X	1	NAG	C1-O5-C5	-2.01	109.50	112.19
8	w	3	BMA	C2-C3-C4	-2.00	107.34	110.86
10	W	3	BMA	C2-C3-C4	-2.00	107.34	110.86
10	k	3	BMA	C2-C3-C4	-2.00	107.34	110.86

There are no chirality outliers.

All (146) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	s	1	NAG	C3-C2-N2-C7
6	J	1	NAG	O5-C5-C6-O6
6	c	1	NAG	O5-C5-C6-O6
6	q	1	NAG	O5-C5-C6-O6
5	a	5	MAN	C4-C5-C6-O6
5	o	5	MAN	C4-C5-C6-O6
5	a	2	NAG	O5-C5-C6-O6
5	G	5	MAN	C4-C5-C6-O6
5	a	4	MAN	O5-C5-C6-O6
6	m	2	NAG	C4-C5-C6-O6
6	0	2	NAG	C4-C5-C6-O6
6	Y	2	NAG	C4-C5-C6-O6
5	o	1	NAG	O5-C5-C6-O6
6	q	1	NAG	C4-C5-C6-O6
9	j	4	MAN	O5-C5-C6-O6
6	c	1	NAG	C4-C5-C6-O6
6	t	2	NAG	O5-C5-C6-O6
5	a	2	NAG	C4-C5-C6-O6
5	o	5	MAN	O5-C5-C6-O6
6	J	1	NAG	C4-C5-C6-O6
6	Y	2	NAG	O5-C5-C6-O6
5	G	5	MAN	O5-C5-C6-O6
5	a	5	MAN	O5-C5-C6-O6
6	m	2	NAG	O5-C5-C6-O6
6	0	2	NAG	O5-C5-C6-O6
5	a	4	MAN	C4-C5-C6-O6
9	j	4	MAN	C4-C5-C6-O6
6	R	2	NAG	O5-C5-C6-O6
6	e	2	NAG	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
6	s	2	NAG	O5-C5-C6-O6
6	K	1	NAG	O5-C5-C6-O6
6	f	2	NAG	O5-C5-C6-O6
10	l	1	NAG	O5-C5-C6-O6
5	G	1	NAG	O5-C5-C6-O6
6	K	2	NAG	O5-C5-C6-O6
6	d	1	NAG	O5-C5-C6-O6
6	d	2	NAG	O5-C5-C6-O6
6	r	1	NAG	O5-C5-C6-O6
6	r	2	NAG	O5-C5-C6-O6
7	g	2	NAG	O5-C5-C6-O6
5	G	4	MAN	O5-C5-C6-O6
6	J	2	NAG	O5-C5-C6-O6
7	g	2	NAG	C4-C5-C6-O6
7	S	7	MAN	O5-C5-C6-O6
6	I	2	NAG	O5-C5-C6-O6
6	Q	2	NAG	O5-C5-C6-O6
6	c	2	NAG	O5-C5-C6-O6
6	q	2	NAG	O5-C5-C6-O6
7	g	7	MAN	O5-C5-C6-O6
7	u	7	MAN	O5-C5-C6-O6
9	x	9	MAN	O5-C5-C6-O6
5	o	1	NAG	C4-C5-C6-O6
5	a	1	NAG	O5-C5-C6-O6
9	V	9	MAN	O5-C5-C6-O6
9	j	2	NAG	O5-C5-C6-O6
6	T	1	NAG	O5-C5-C6-O6
9	x	2	NAG	O5-C5-C6-O6
9	V	2	NAG	O5-C5-C6-O6
5	G	7	MAN	O5-C5-C6-O6
6	h	1	NAG	O5-C5-C6-O6
6	s	1	NAG	O5-C5-C6-O6
9	x	8	MAN	O5-C5-C6-O6
5	o	7	MAN	O5-C5-C6-O6
6	b	2	NAG	O5-C5-C6-O6
10	l	2	NAG	O5-C5-C6-O6
6	p	2	NAG	O5-C5-C6-O6
9	j	8	MAN	O5-C5-C6-O6
9	V	8	MAN	O5-C5-C6-O6
10	y	2	NAG	O5-C5-C6-O6
10	W	2	NAG	O5-C5-C6-O6
10	k	2	NAG	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
6	T	2	NAG	O5-C5-C6-O6
9	j	9	MAN	O5-C5-C6-O6
6	h	2	NAG	O5-C5-C6-O6
6	v	1	NAG	O5-C5-C6-O6
6	v	2	NAG	O5-C5-C6-O6
7	u	5	MAN	O5-C5-C6-O6
9	x	4	MAN	O5-C5-C6-O6
10	z	2	NAG	O5-C5-C6-O6
5	a	7	MAN	O5-C5-C6-O6
5	o	8	MAN	O5-C5-C6-O6
10	W	3	BMA	O5-C5-C6-O6
10	k	3	BMA	O5-C5-C6-O6
10	y	3	BMA	O5-C5-C6-O6
7	S	4	MAN	O5-C5-C6-O6
8	i	4	MAN	O5-C5-C6-O6
7	u	6	MAN	O5-C5-C6-O6
8	U	4	MAN	O5-C5-C6-O6
8	w	4	MAN	O5-C5-C6-O6
10	X	2	NAG	C4-C5-C6-O6
10	l	1	NAG	C4-C5-C6-O6
6	n	2	NAG	O5-C5-C6-O6
6	l	2	NAG	O5-C5-C6-O6
5	a	8	MAN	O5-C5-C6-O6
6	Z	1	NAG	O5-C5-C6-O6
6	Z	2	NAG	O5-C5-C6-O6
5	o	6	MAN	C4-C5-C6-O6
7	g	6	MAN	O5-C5-C6-O6
5	a	6	MAN	C4-C5-C6-O6
7	g	4	MAN	O5-C5-C6-O6
7	u	4	MAN	O5-C5-C6-O6
6	Y	1	NAG	O5-C5-C6-O6
9	V	6	MAN	O5-C5-C6-O6
9	j	6	MAN	O5-C5-C6-O6
9	x	6	MAN	O5-C5-C6-O6
5	G	8	MAN	O5-C5-C6-O6
7	S	5	MAN	O5-C5-C6-O6
6	Q	1	NAG	C3-C2-N2-C7
6	n	1	NAG	O5-C5-C6-O6
6	l	1	NAG	O5-C5-C6-O6
9	V	5	MAN	O5-C5-C6-O6
9	j	5	MAN	O5-C5-C6-O6
10	l	3	BMA	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
5	o	4	MAN	O5-C5-C6-O6
10	X	3	BMA	O5-C5-C6-O6
10	z	3	BMA	O5-C5-C6-O6
7	S	6	MAN	O5-C5-C6-O6
7	g	5	MAN	O5-C5-C6-O6
9	x	5	MAN	O5-C5-C6-O6
6	K	1	NAG	C4-C5-C6-O6
6	e	1	NAG	C1-C2-N2-C7
10	X	1	NAG	C1-C2-N2-C7
5	G	1	NAG	C4-C5-C6-O6
6	r	1	NAG	C4-C5-C6-O6
10	X	2	NAG	O5-C5-C6-O6
6	d	1	NAG	C4-C5-C6-O6
6	t	2	NAG	C4-C5-C6-O6
5	o	6	MAN	O5-C5-C6-O6
6	e	1	NAG	C3-C2-N2-C7
10	X	1	NAG	C3-C2-N2-C7
5	a	6	MAN	O5-C5-C6-O6
6	s	2	NAG	C4-C5-C6-O6
6	e	2	NAG	C4-C5-C6-O6
9	x	3	BMA	C4-C5-C6-O6
7	u	2	NAG	C4-C5-C6-O6
6	R	2	NAG	C4-C5-C6-O6
5	a	1	NAG	C4-C5-C6-O6
10	k	1	NAG	C1-C2-N2-C7
10	y	1	NAG	C1-C2-N2-C7
6	Y	1	NAG	C3-C2-N2-C7
6	s	1	NAG	C4-C5-C6-O6
6	f	2	NAG	C4-C5-C6-O6
6	Y	1	NAG	C4-C5-C6-O6
5	G	6	MAN	C4-C5-C6-O6
9	x	7	MAN	C4-C5-C6-O6
6	T	1	NAG	C4-C5-C6-O6

There are no ring outliers.

12 monomers are involved in 12 short contacts:

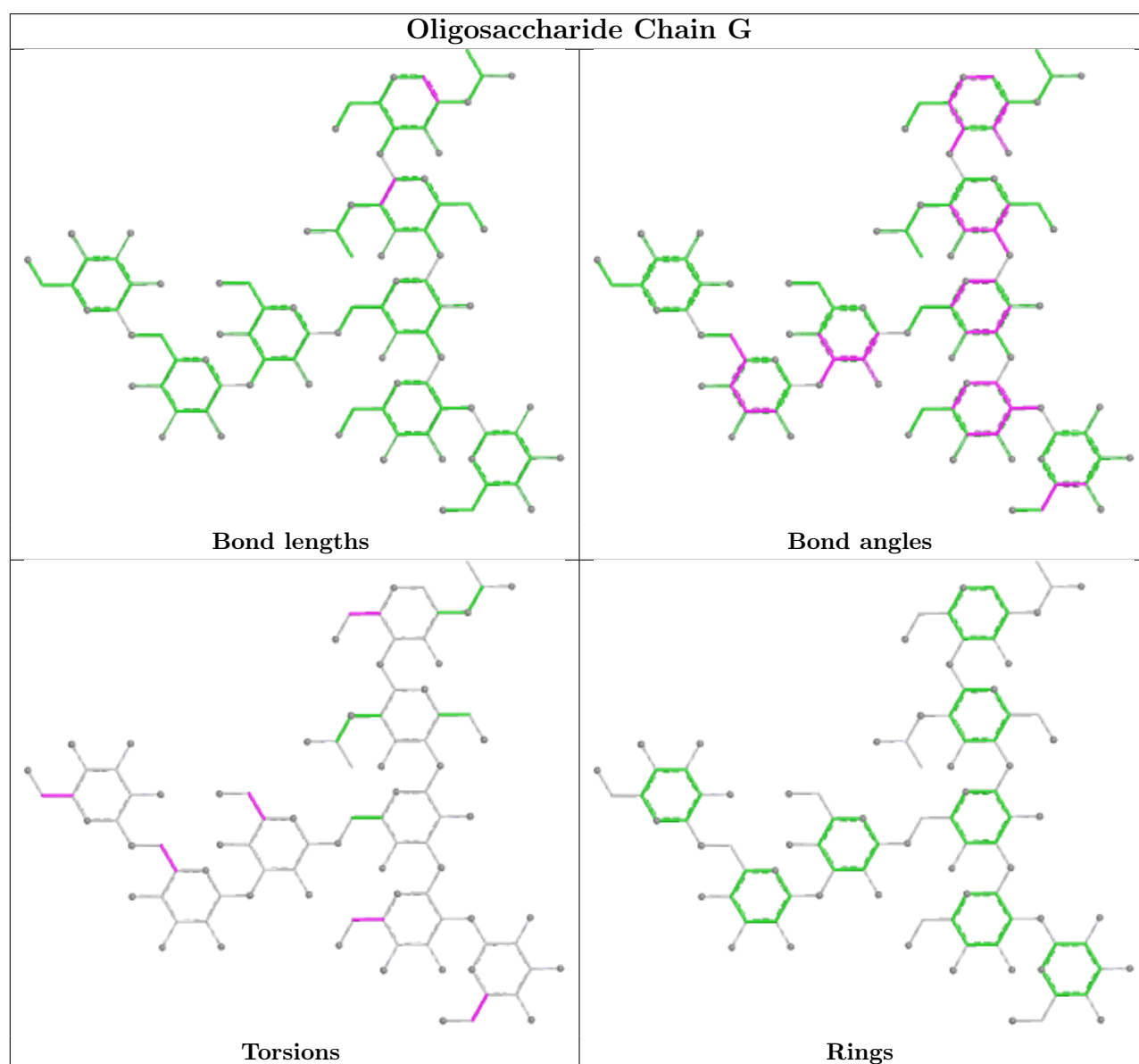
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	U	4	MAN	1	0
6	d	1	NAG	1	0
7	S	7	MAN	1	0
5	G	4	MAN	1	0

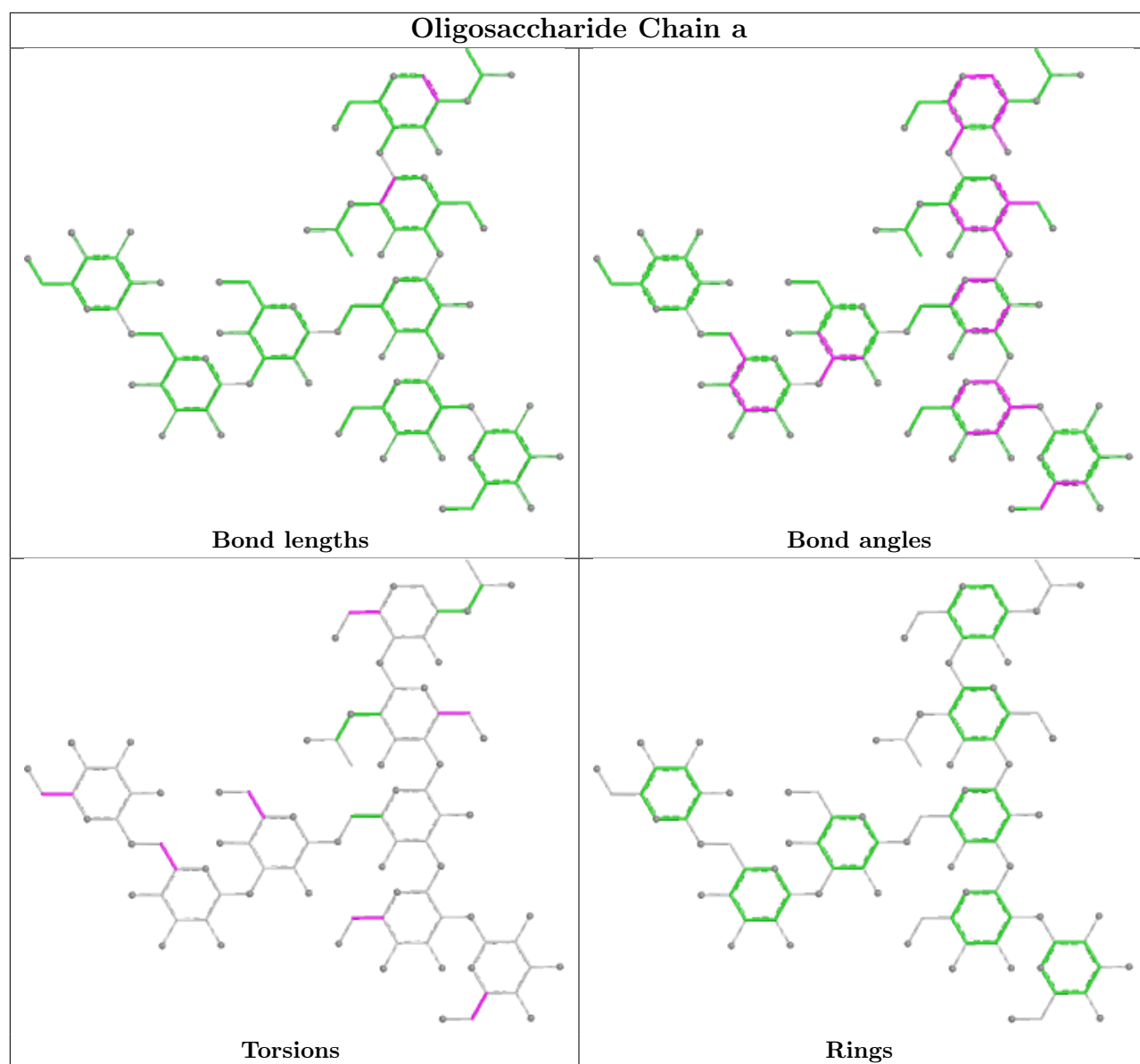
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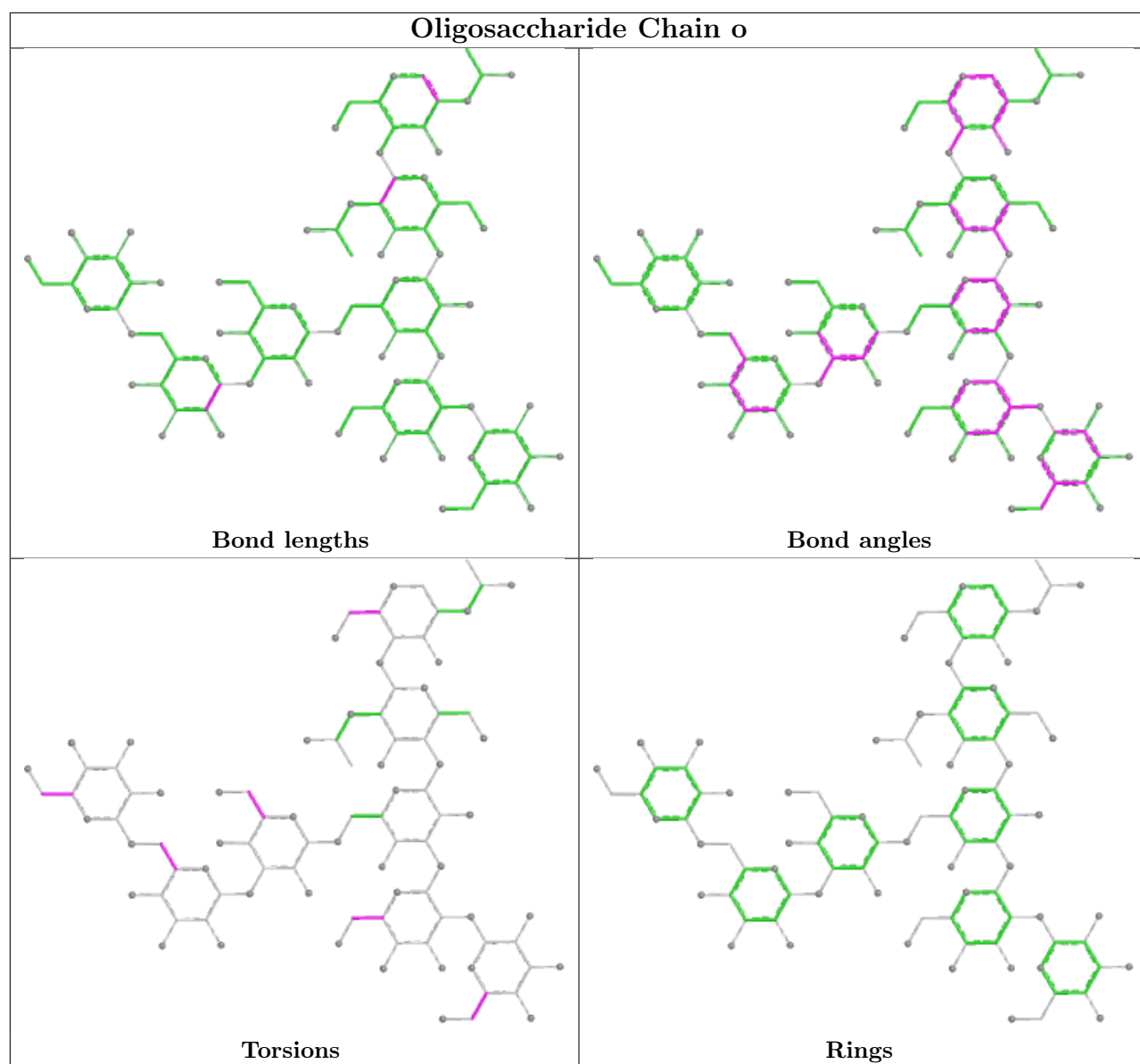
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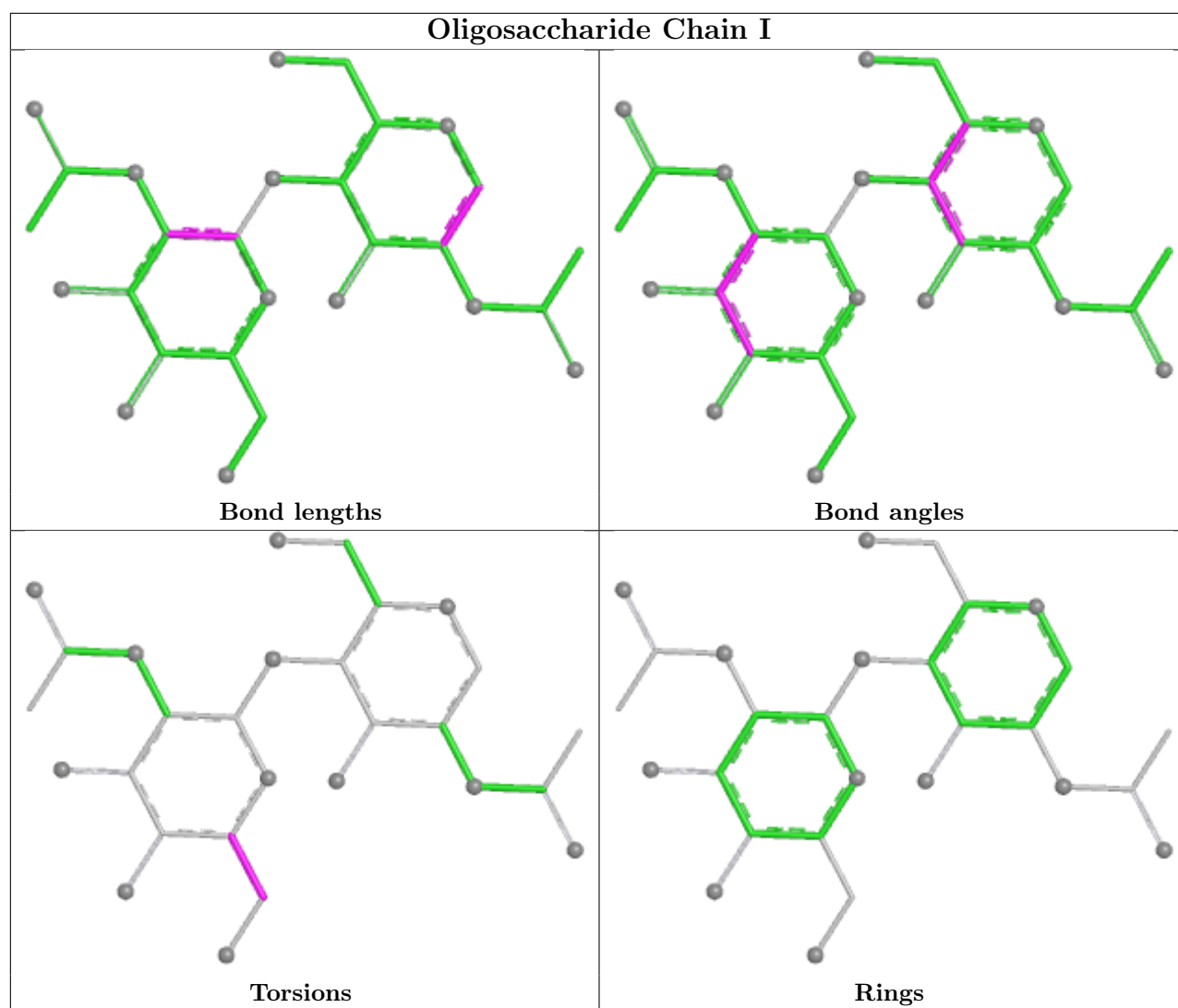
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	K	1	NAG	1	0
9	x	8	MAN	1	0
6	d	2	NAG	1	0
9	V	5	MAN	1	0
6	r	1	NAG	1	0
5	G	5	MAN	1	0
9	x	5	MAN	1	0
6	K	2	NAG	1	0

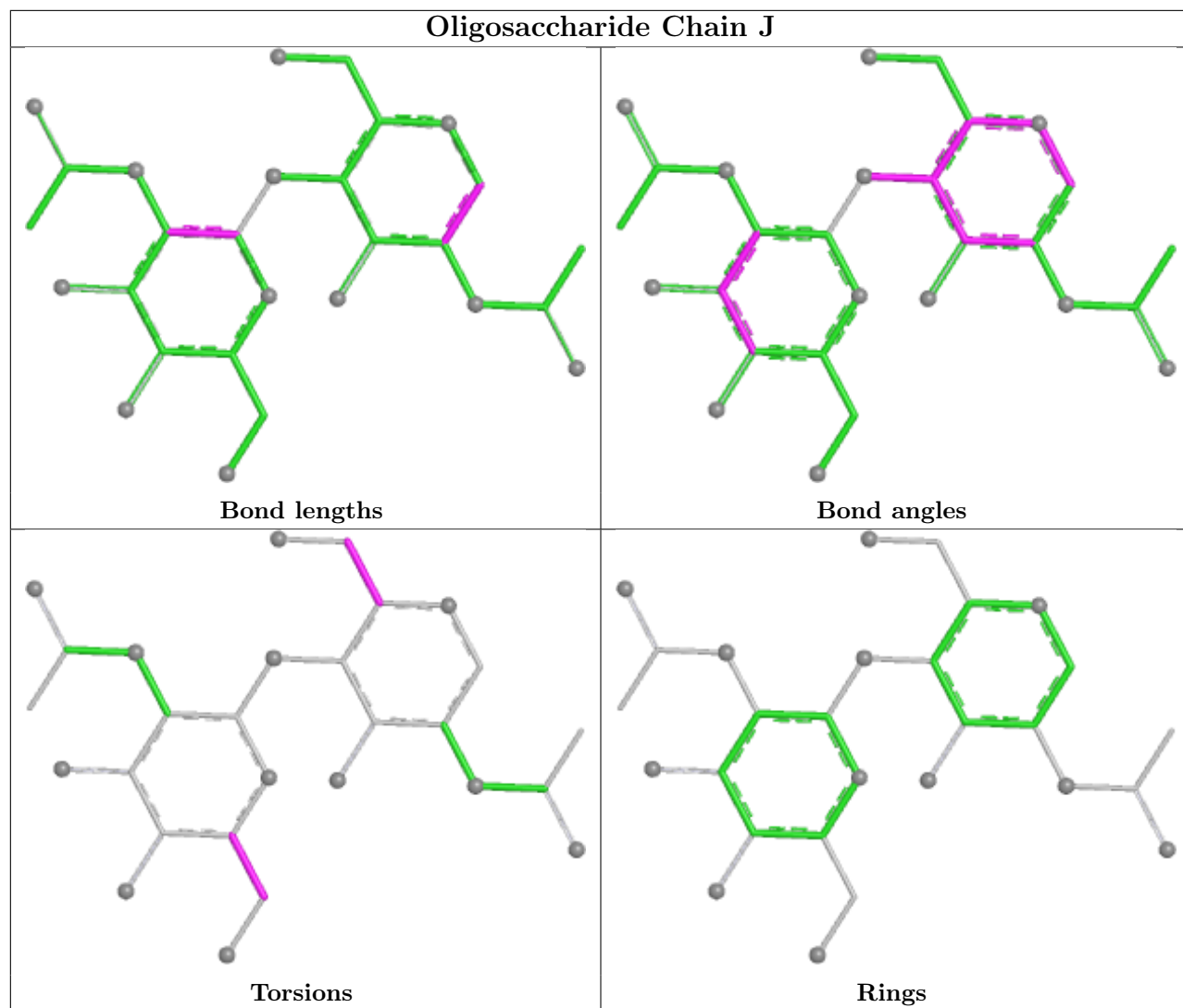
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

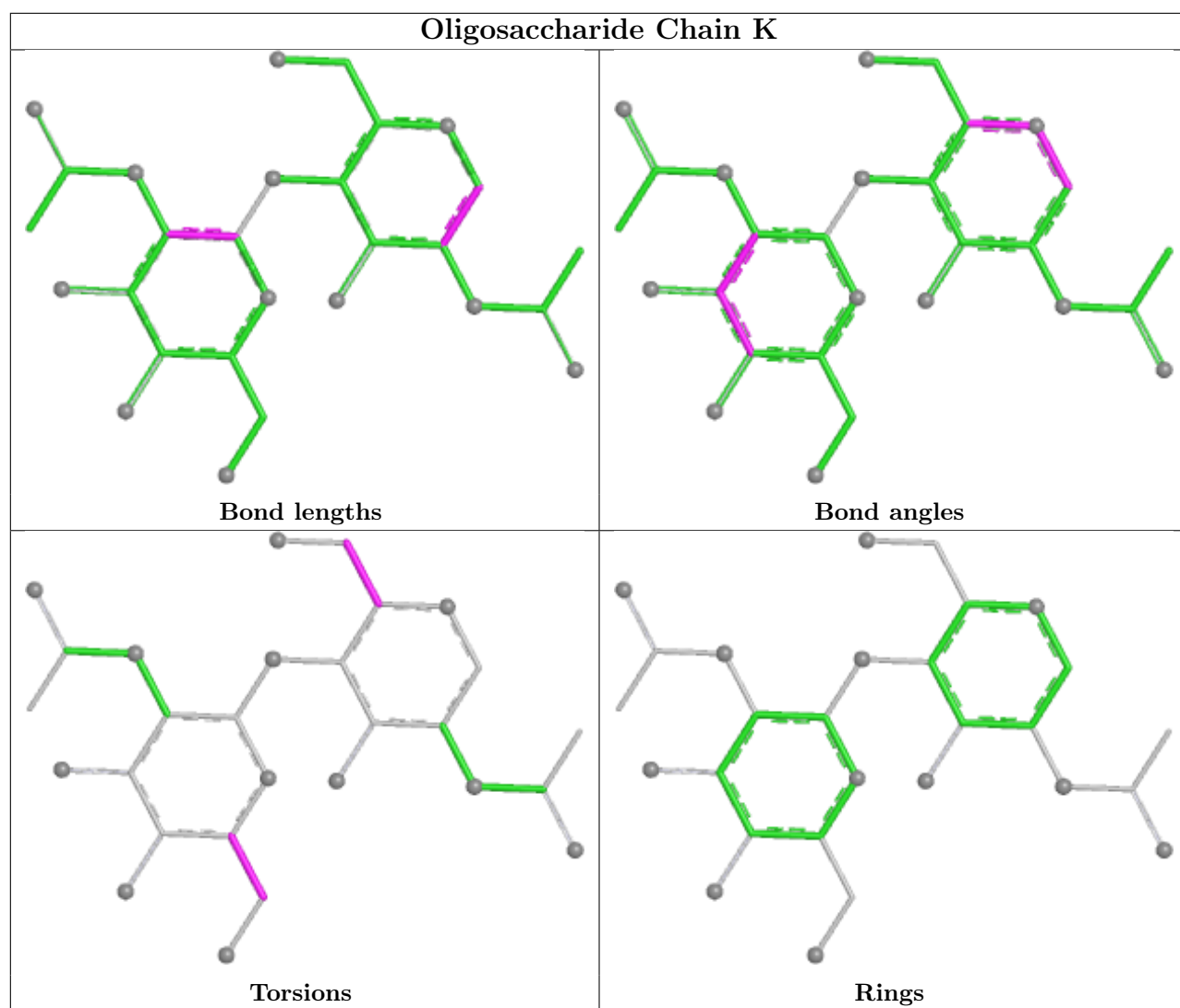


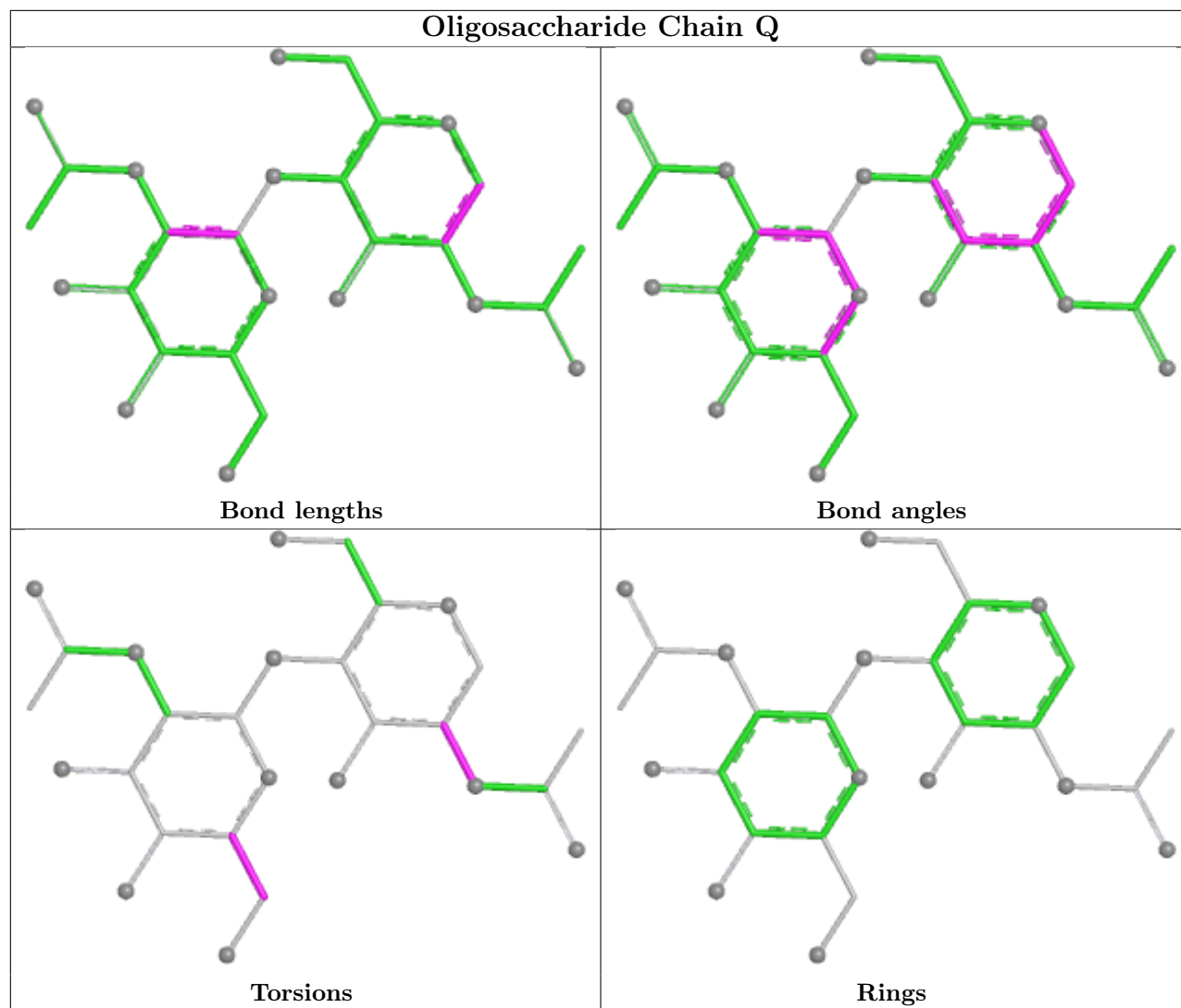


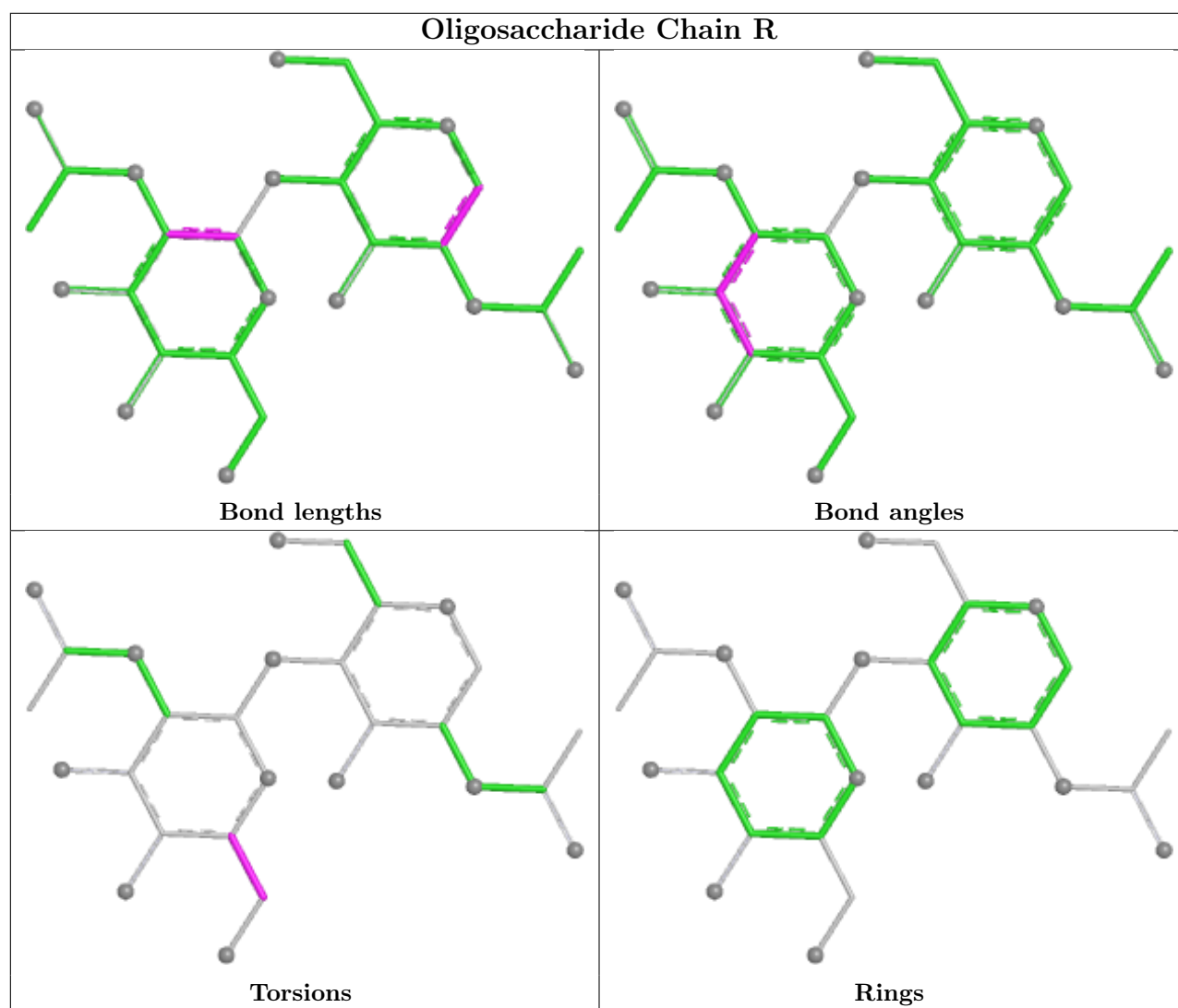


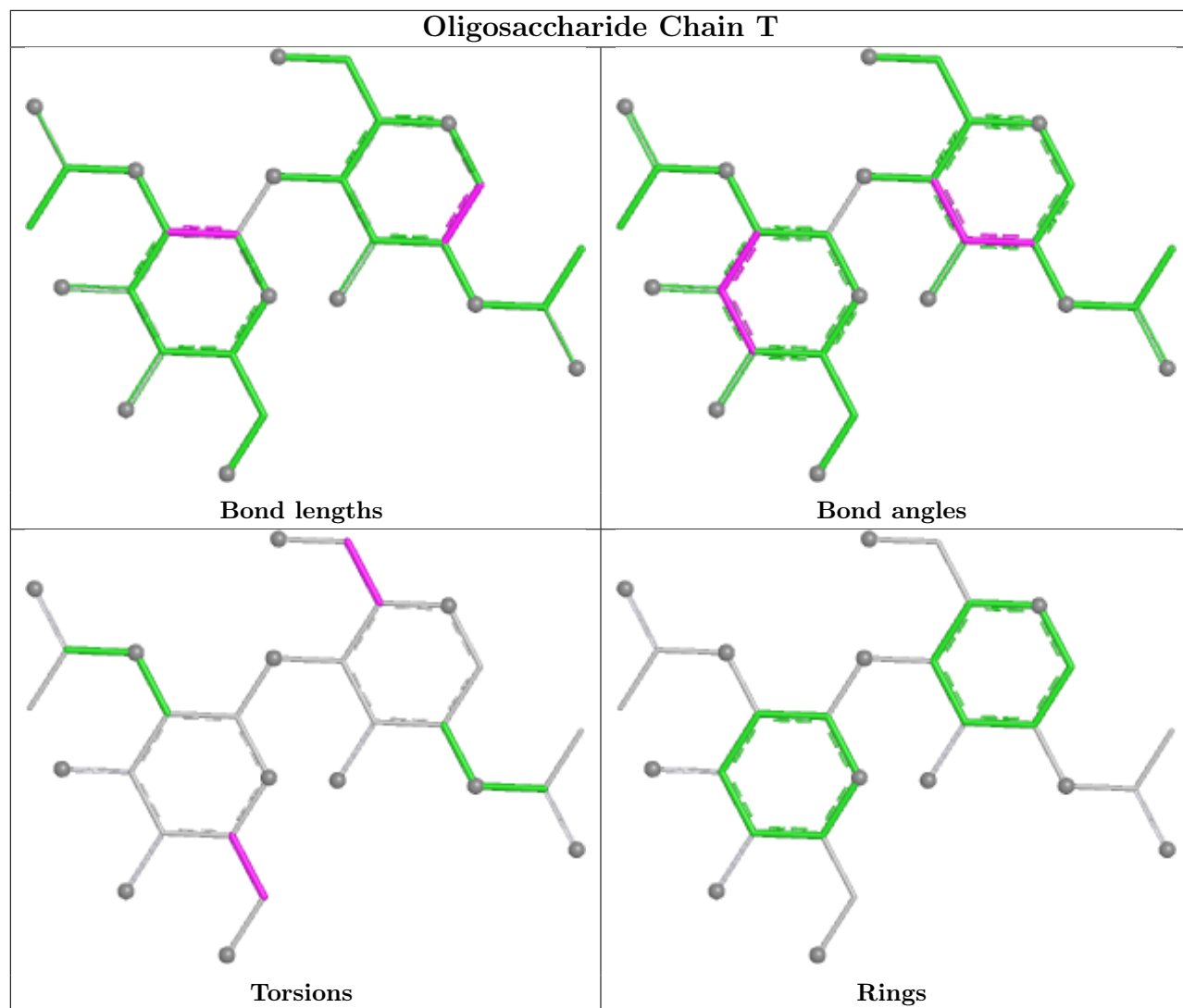


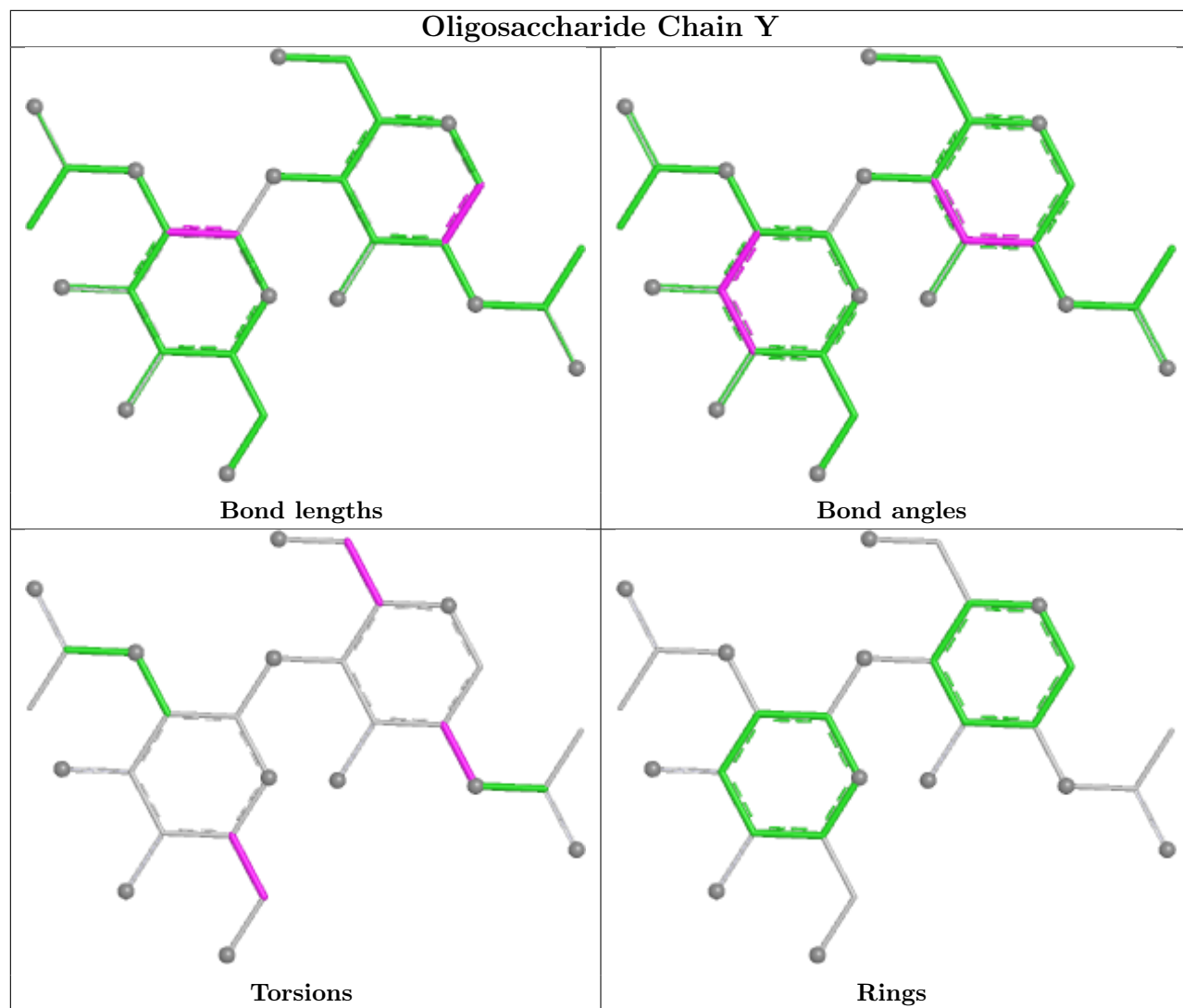


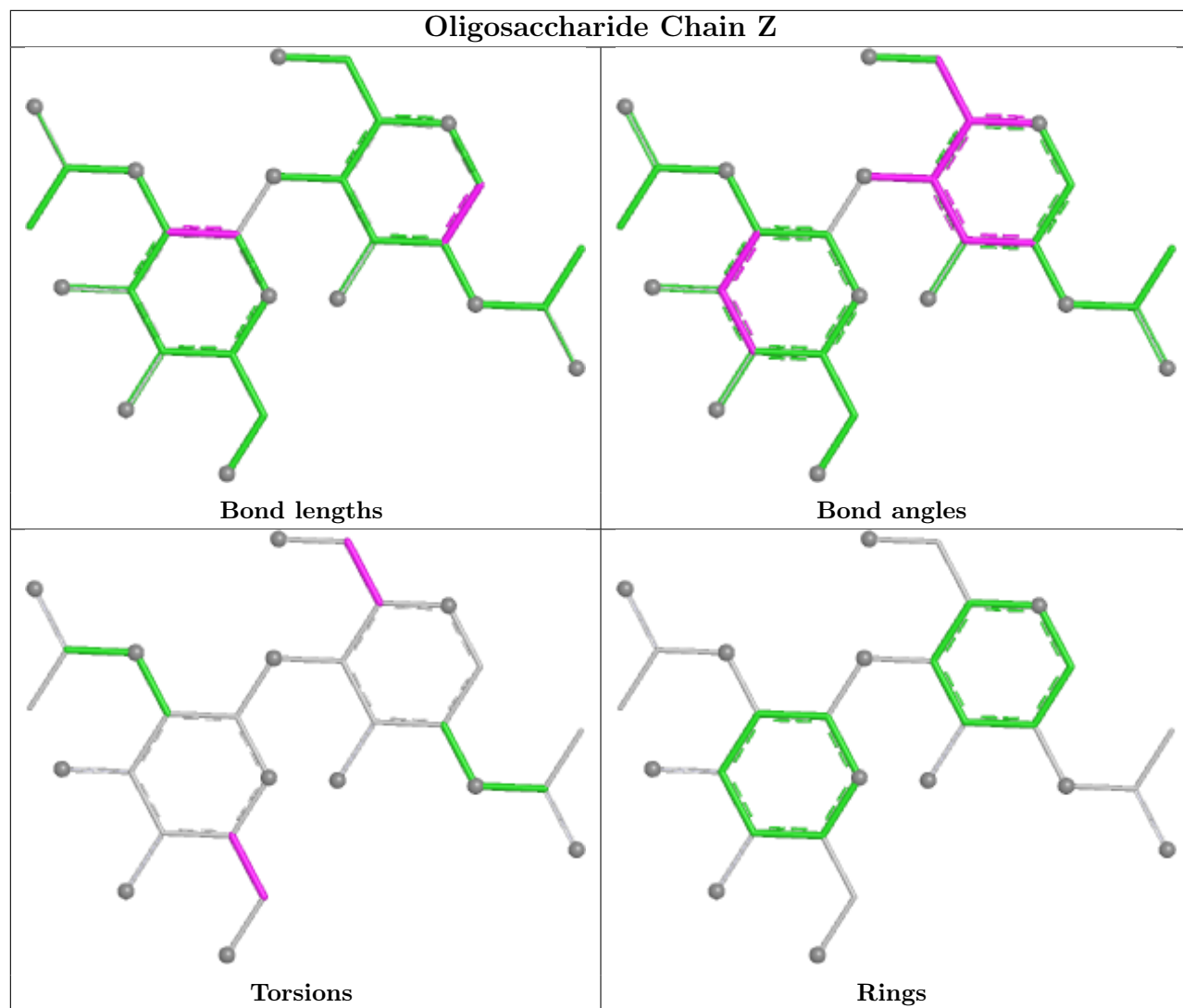


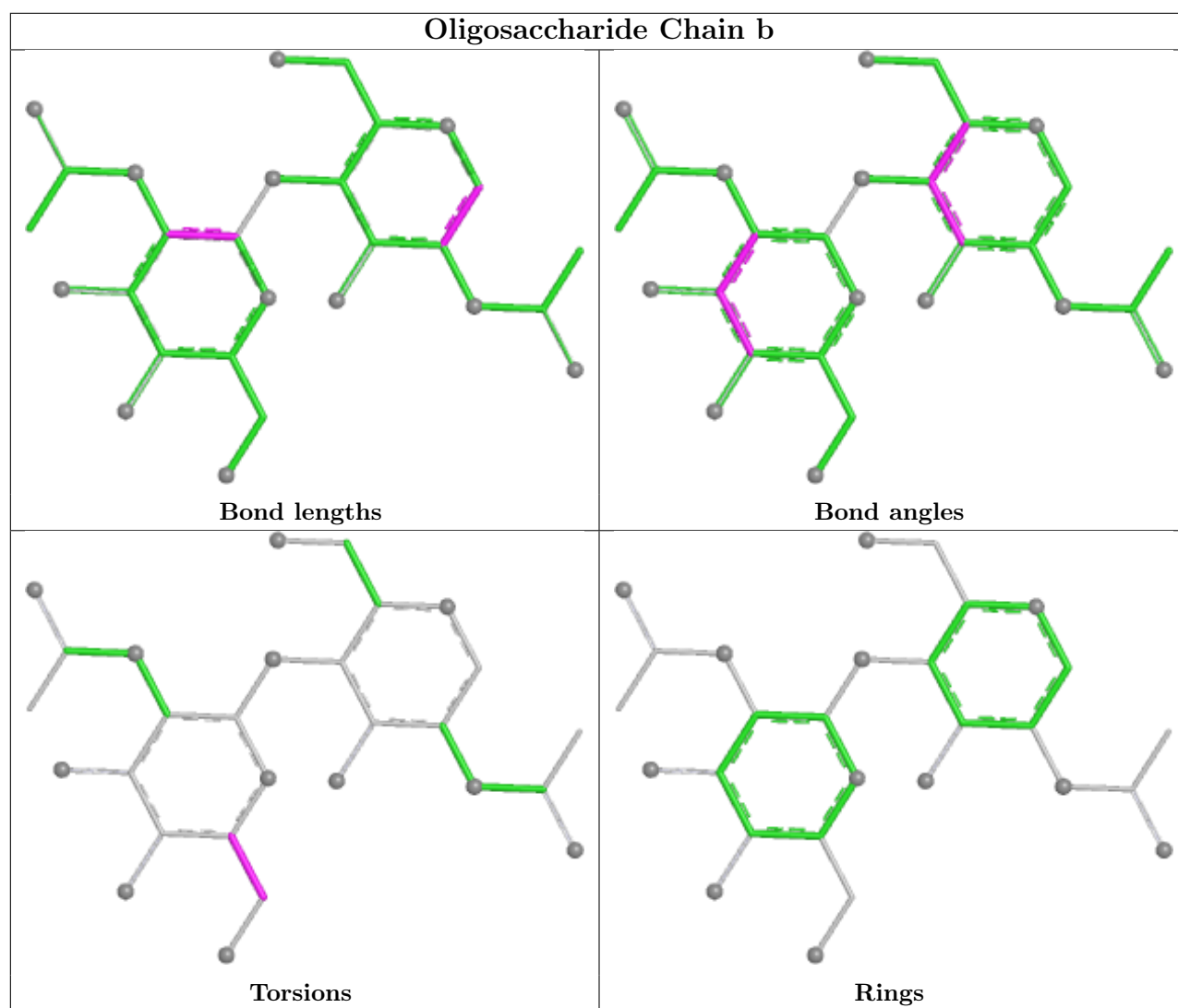


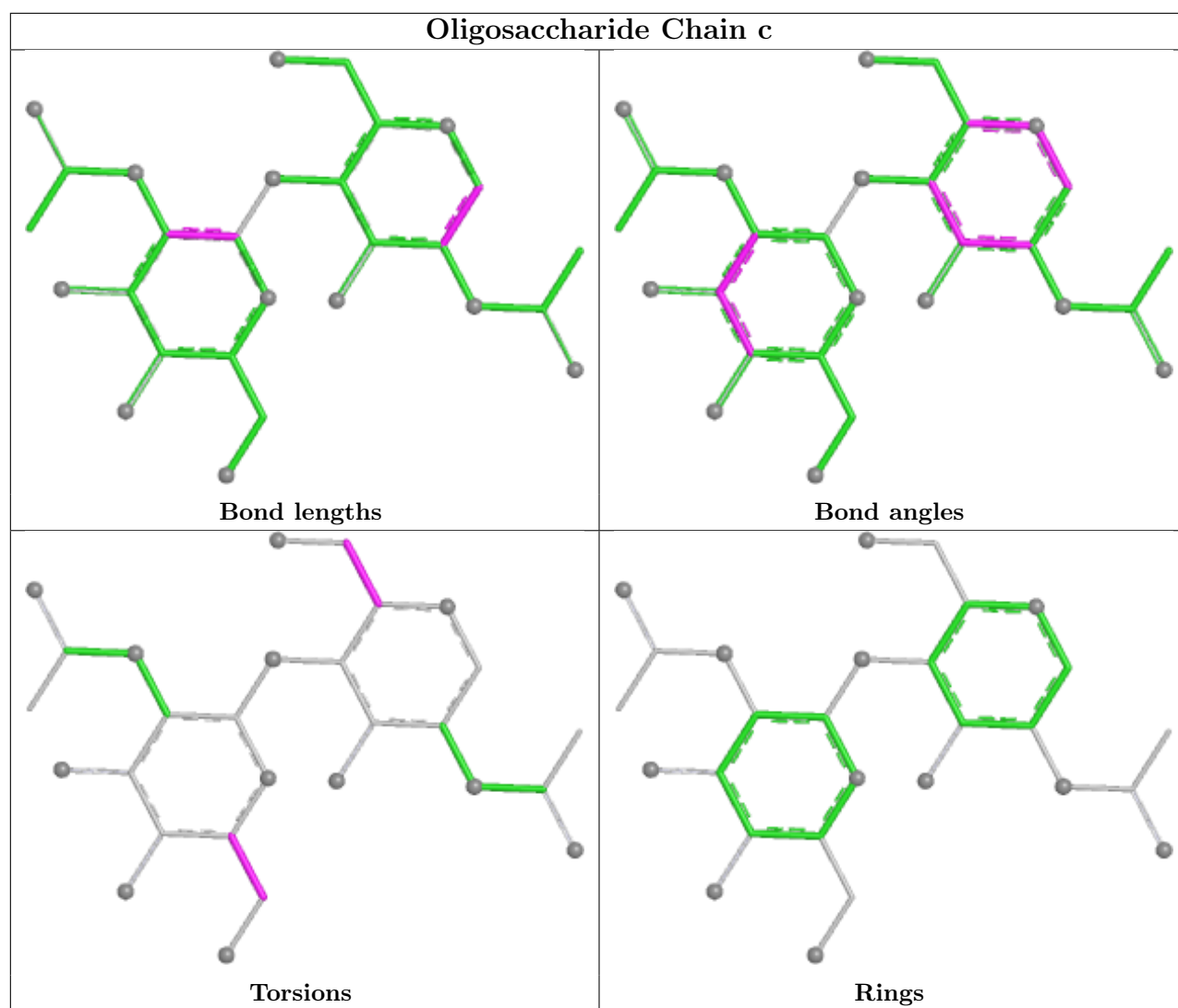


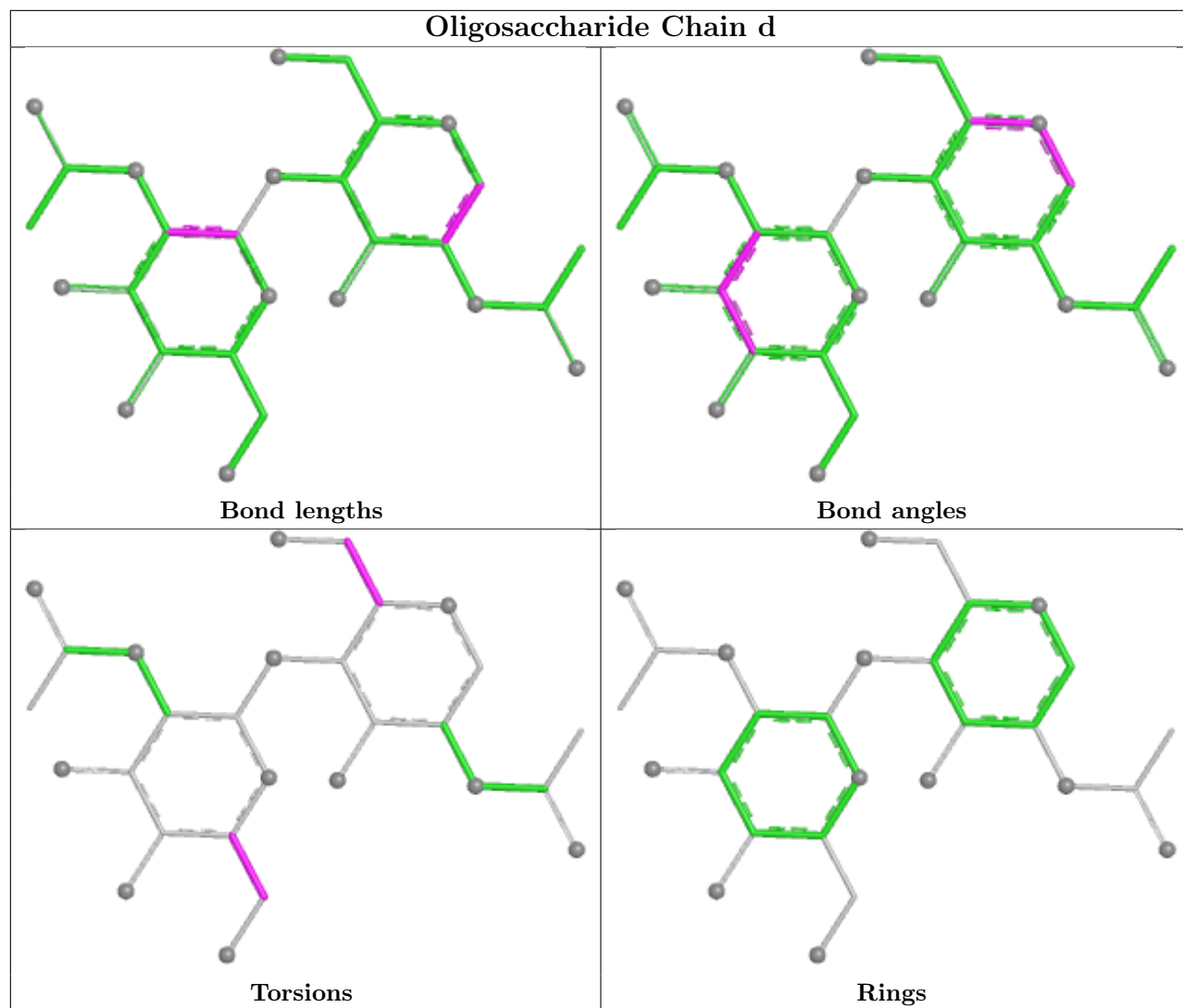


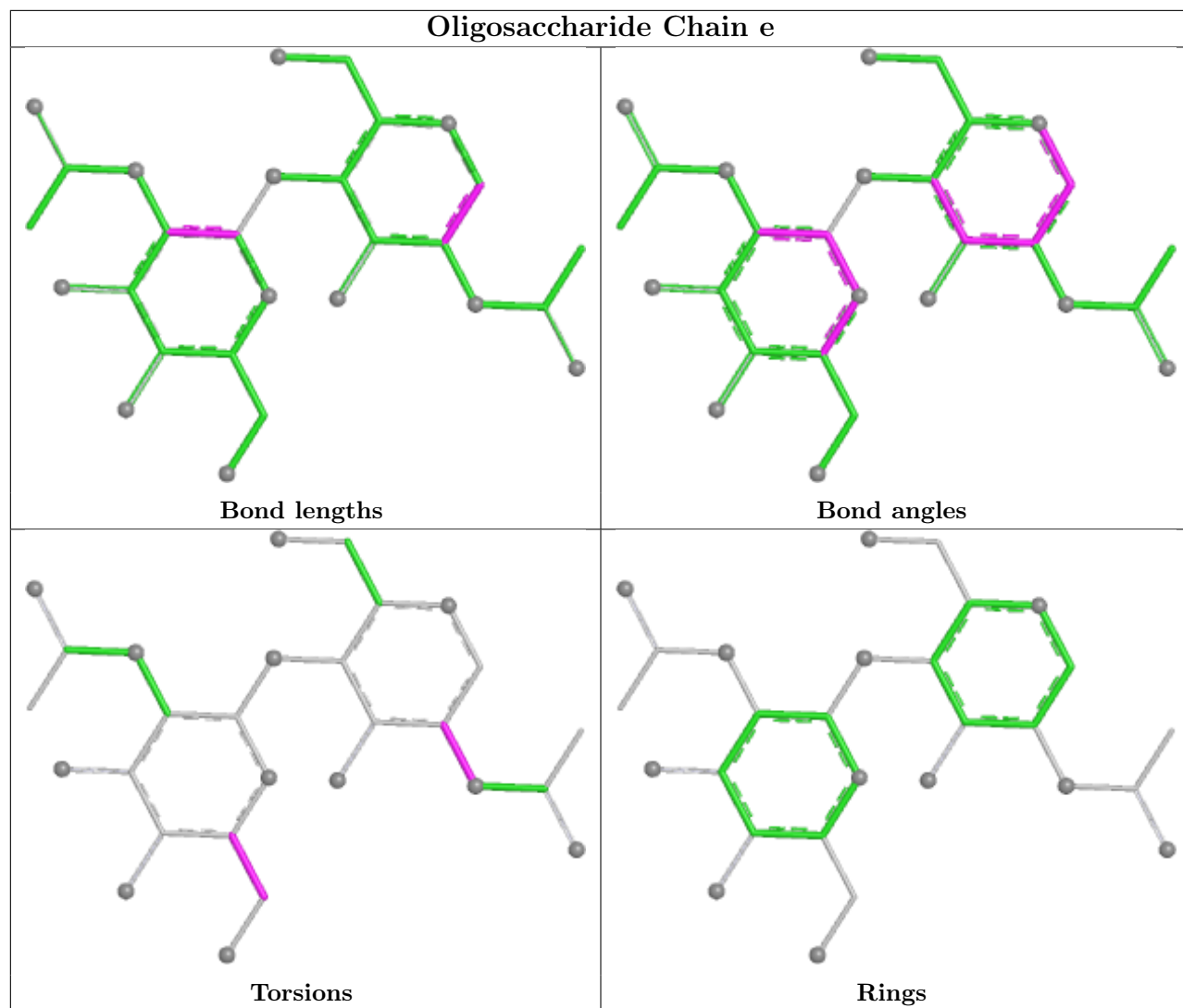


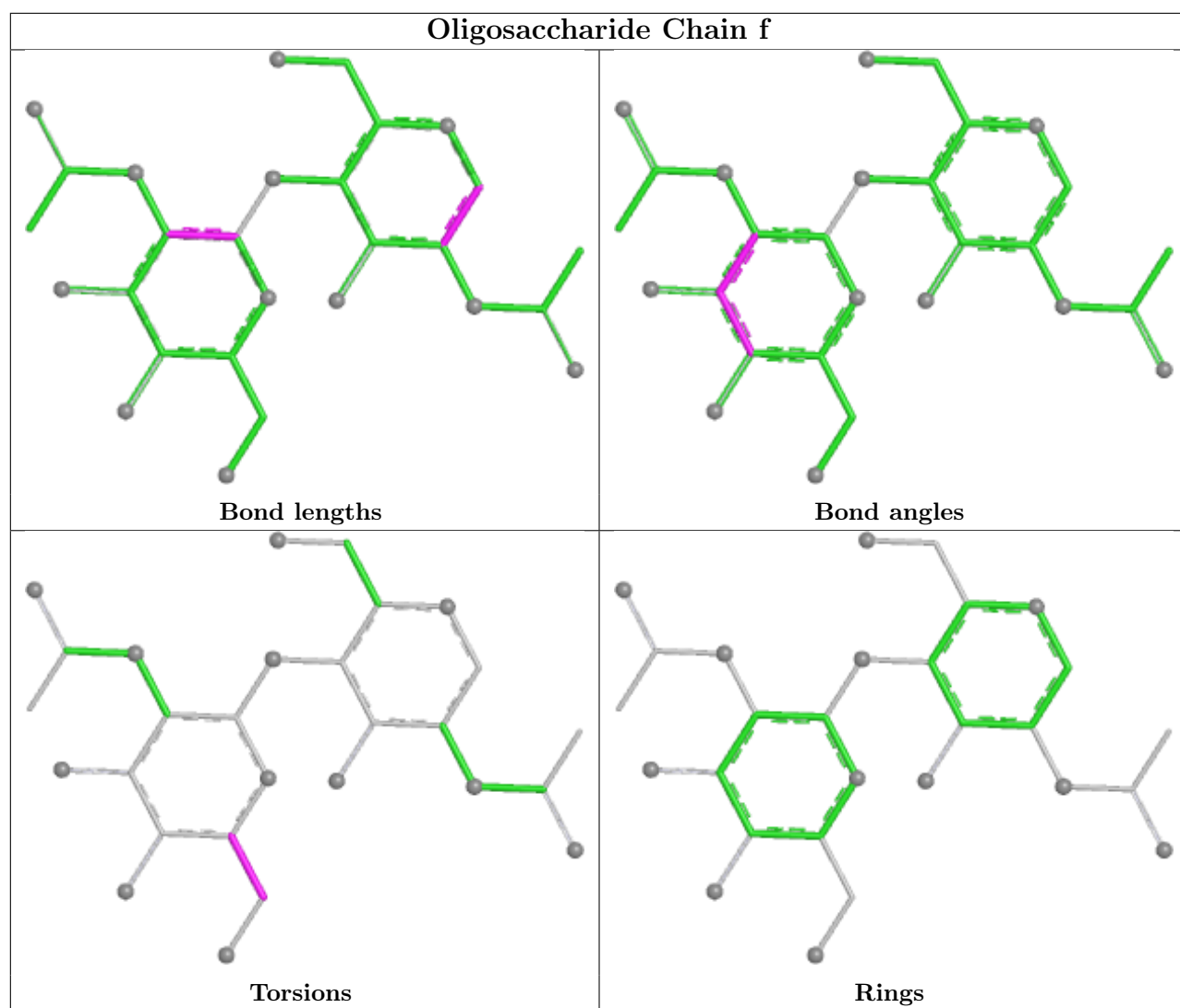


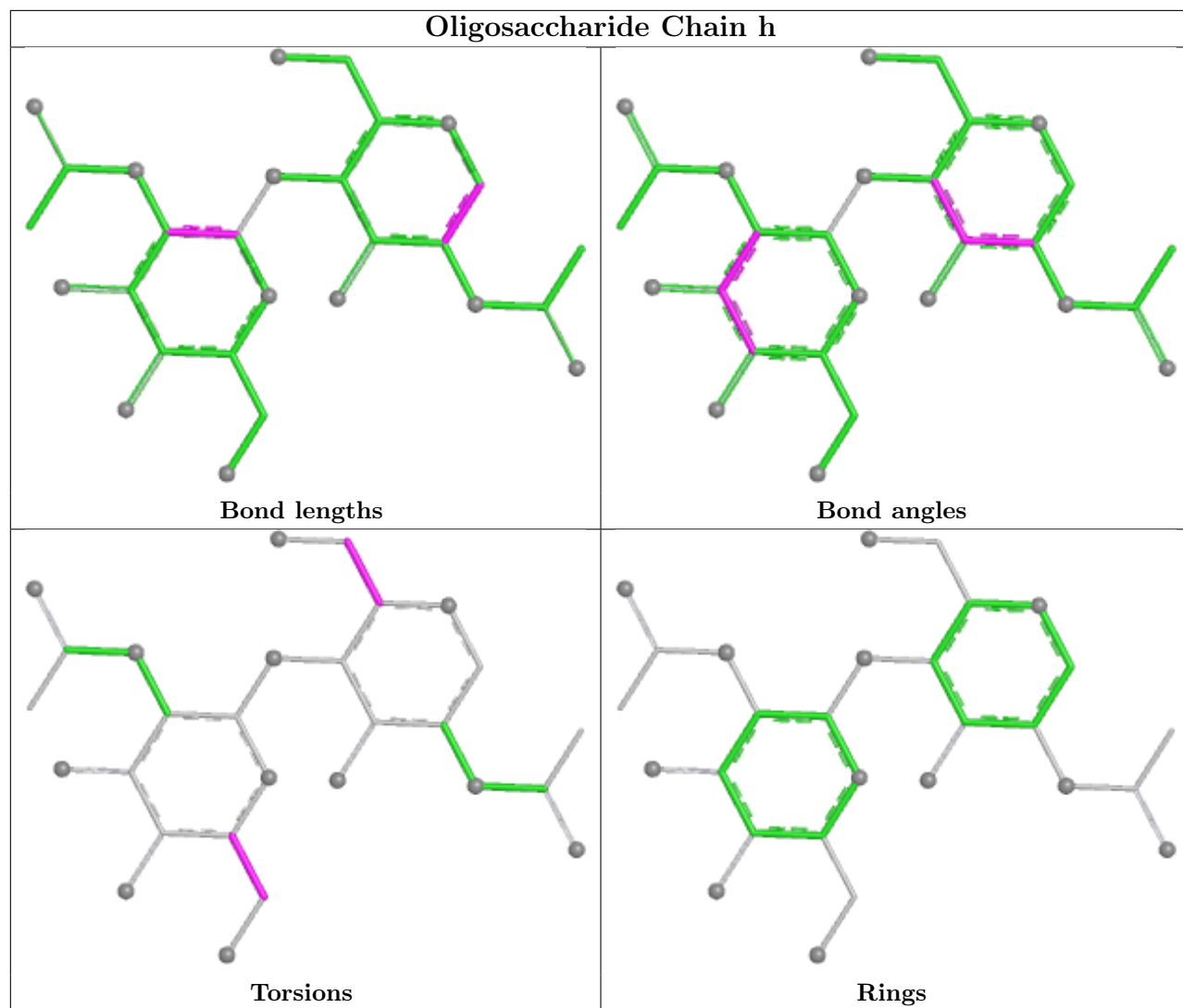


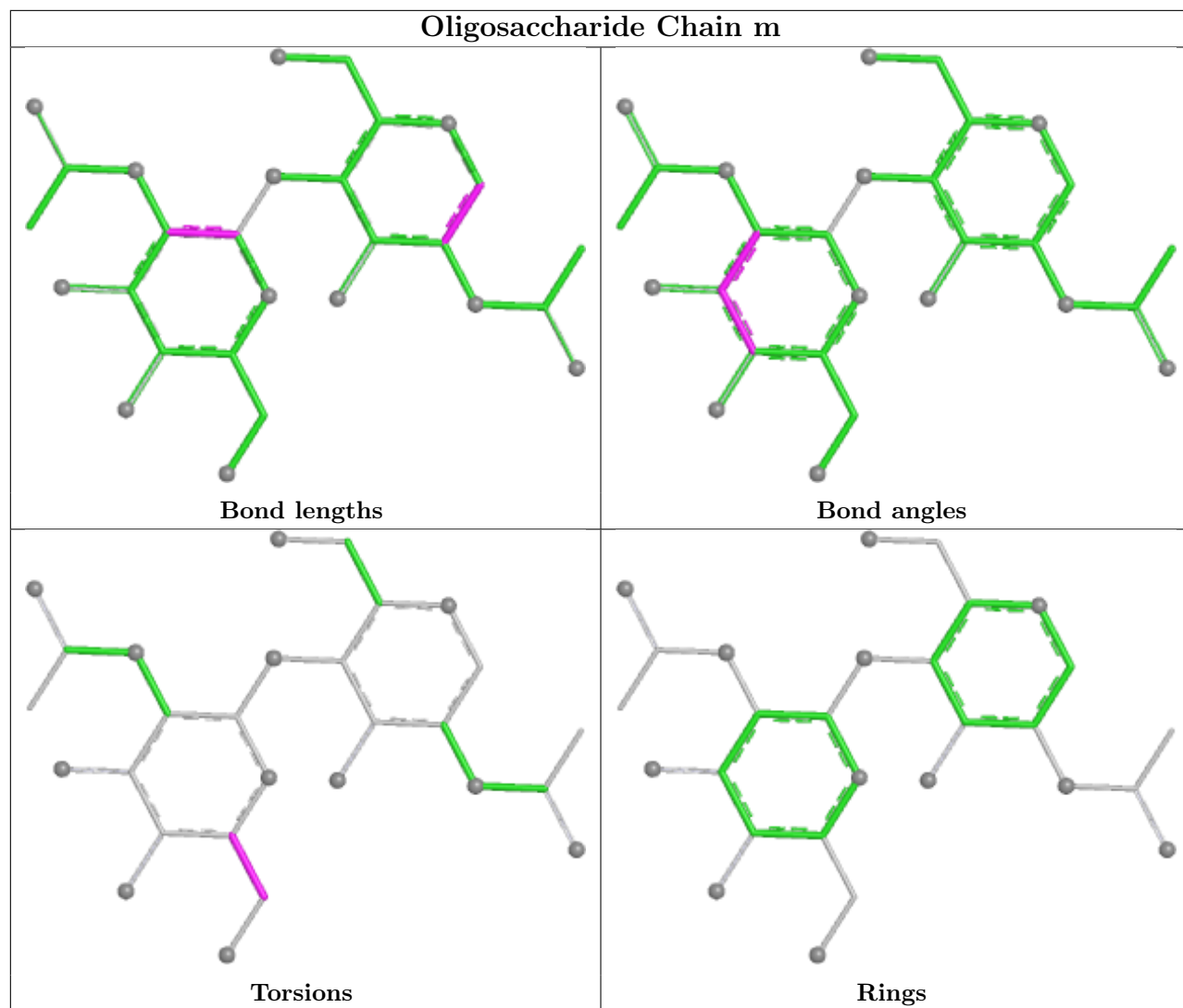


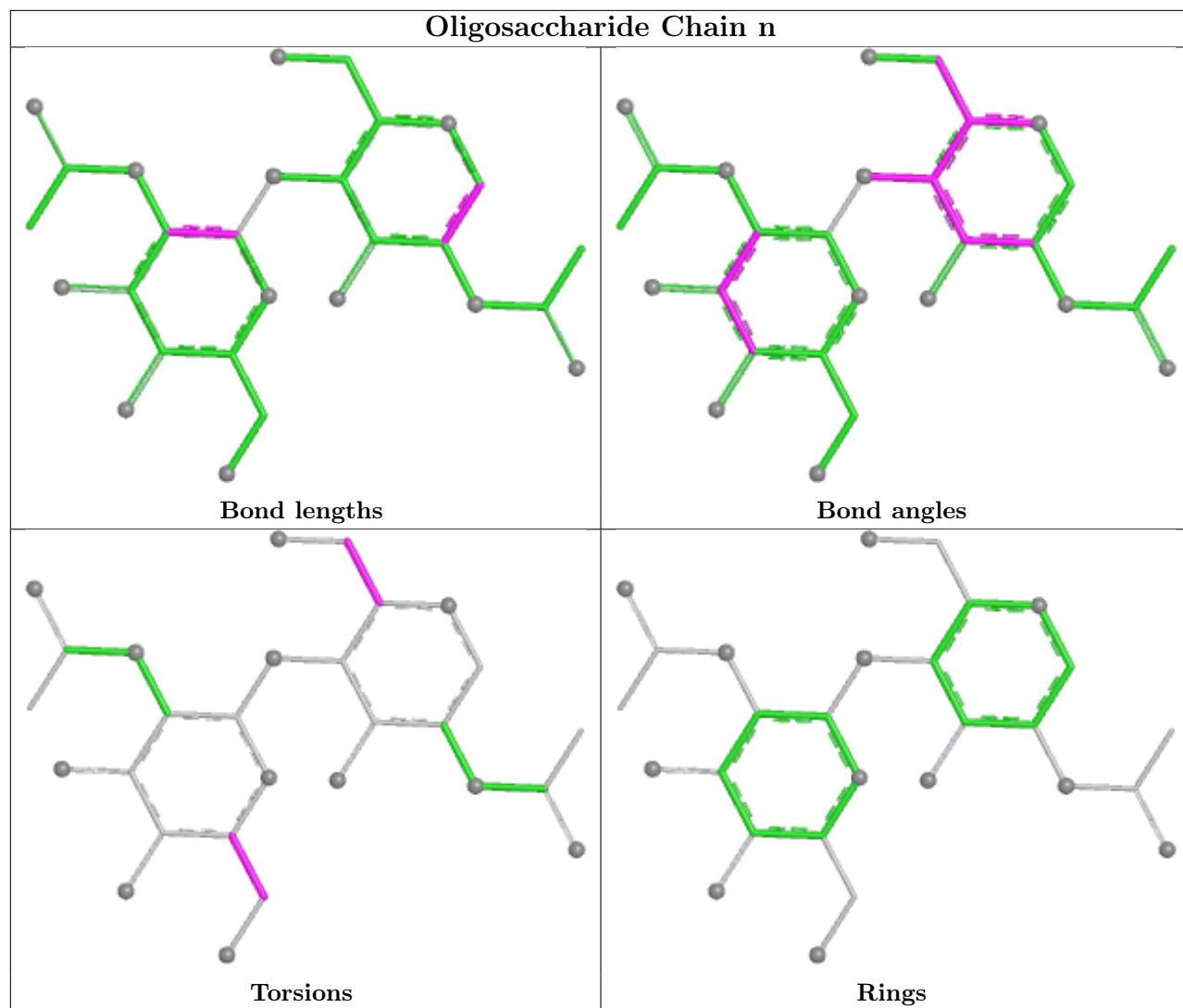


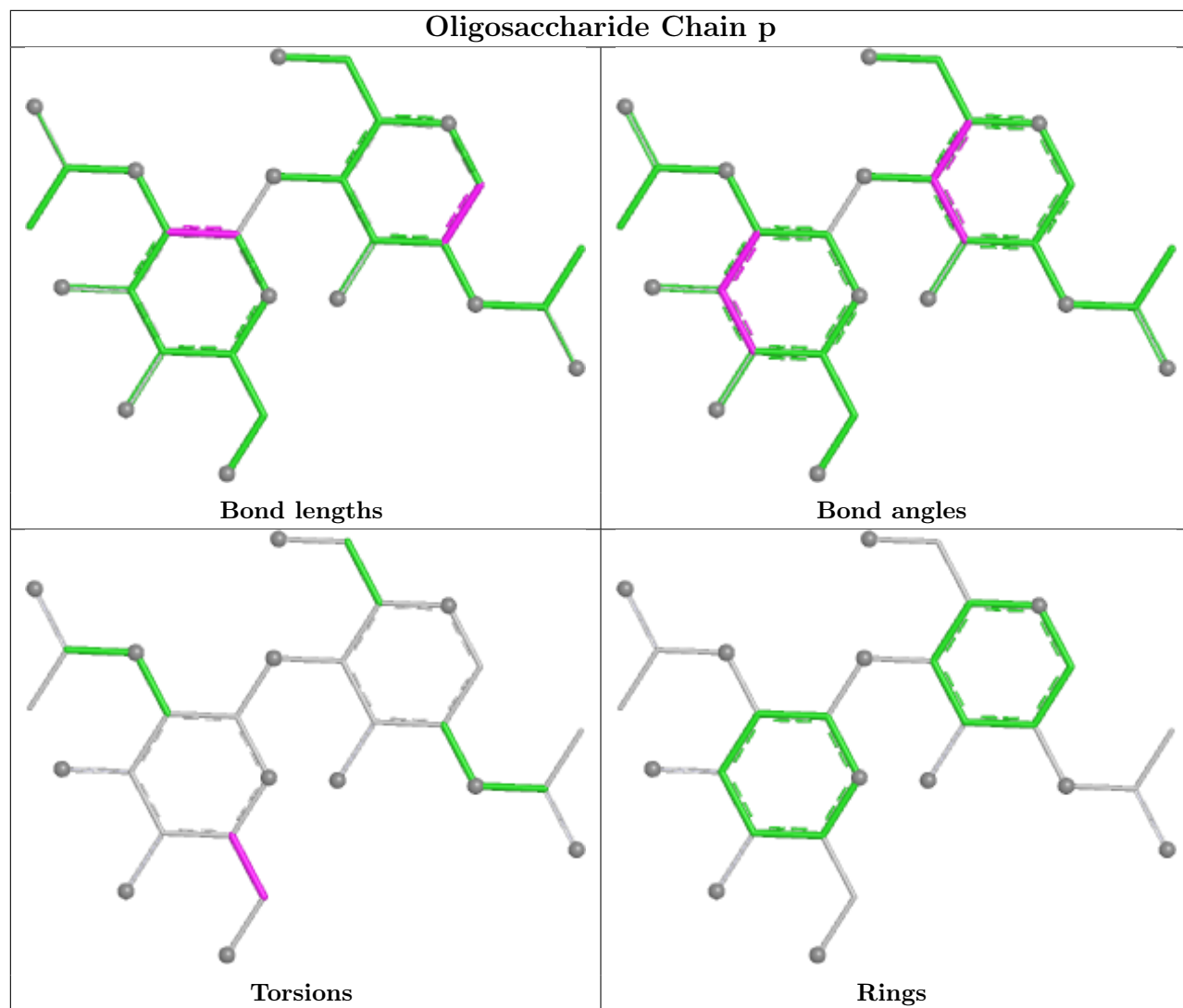


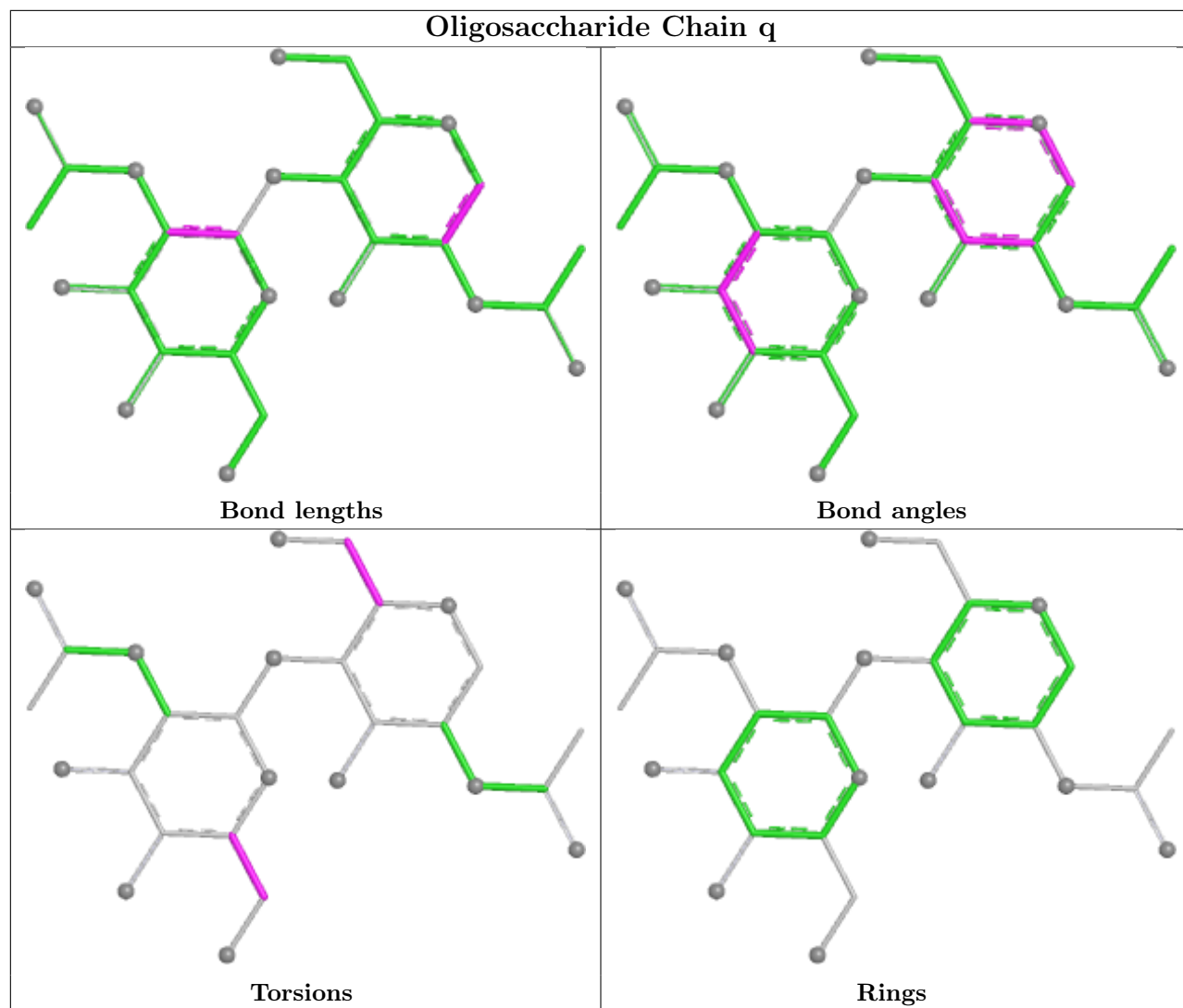


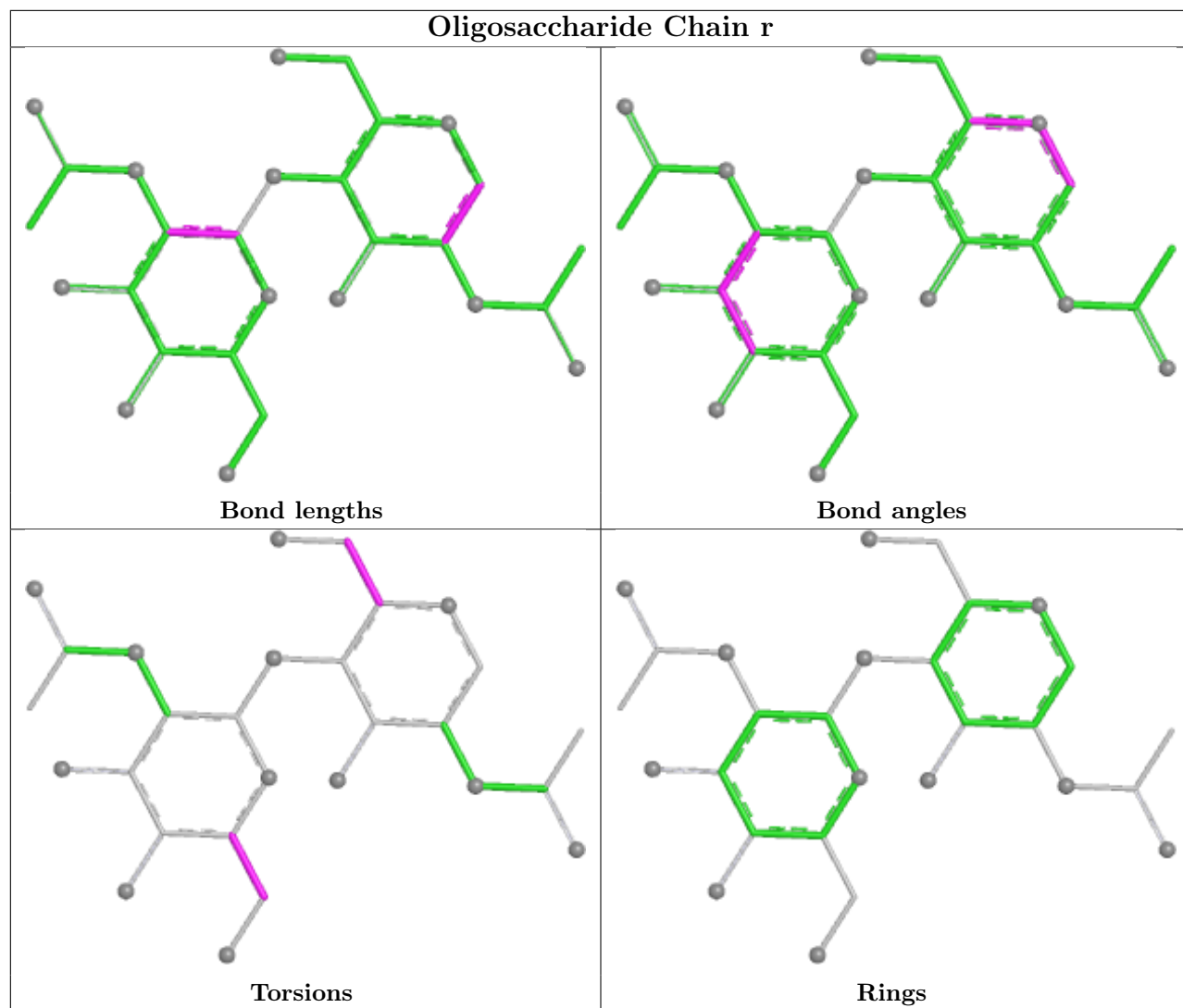


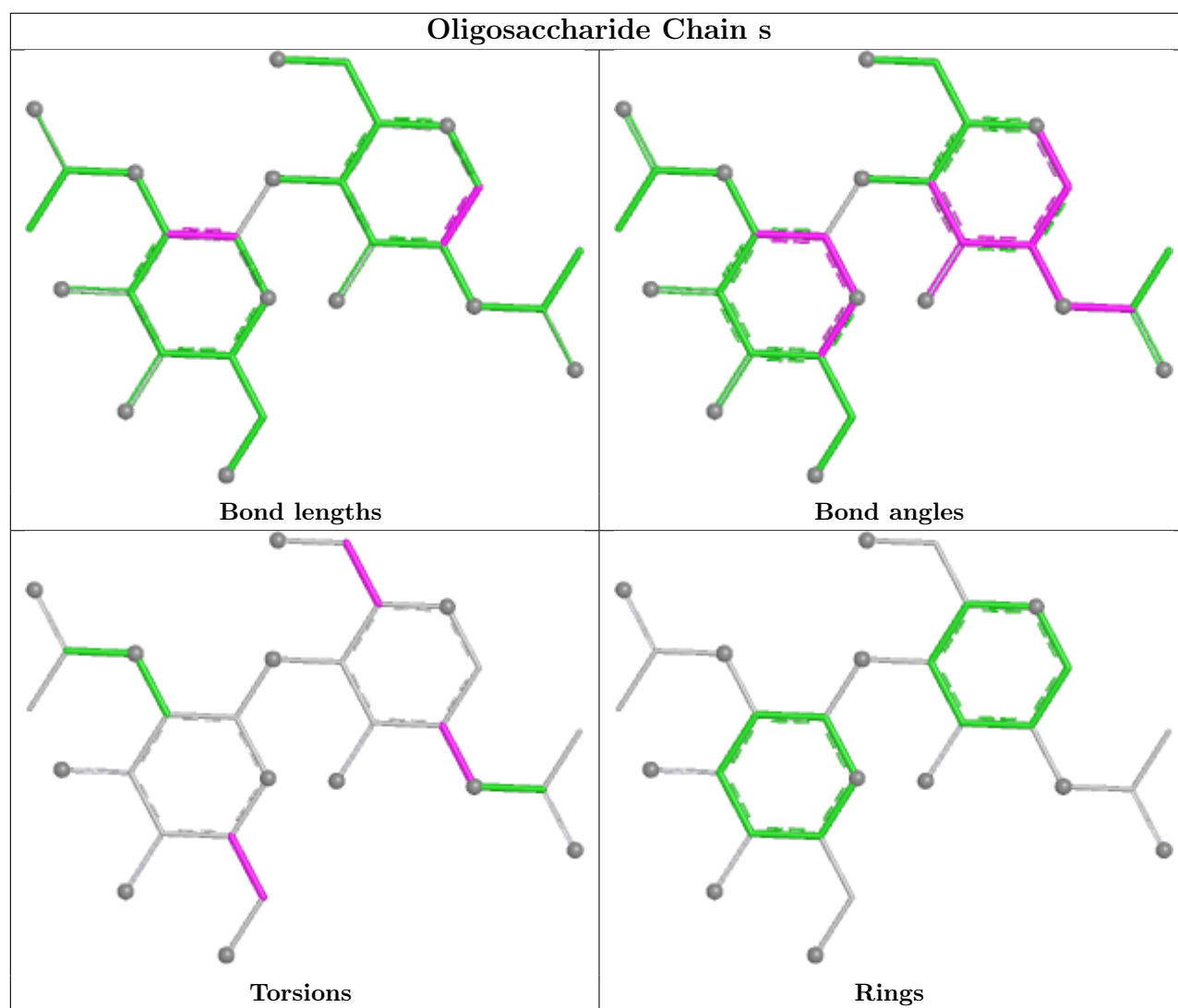


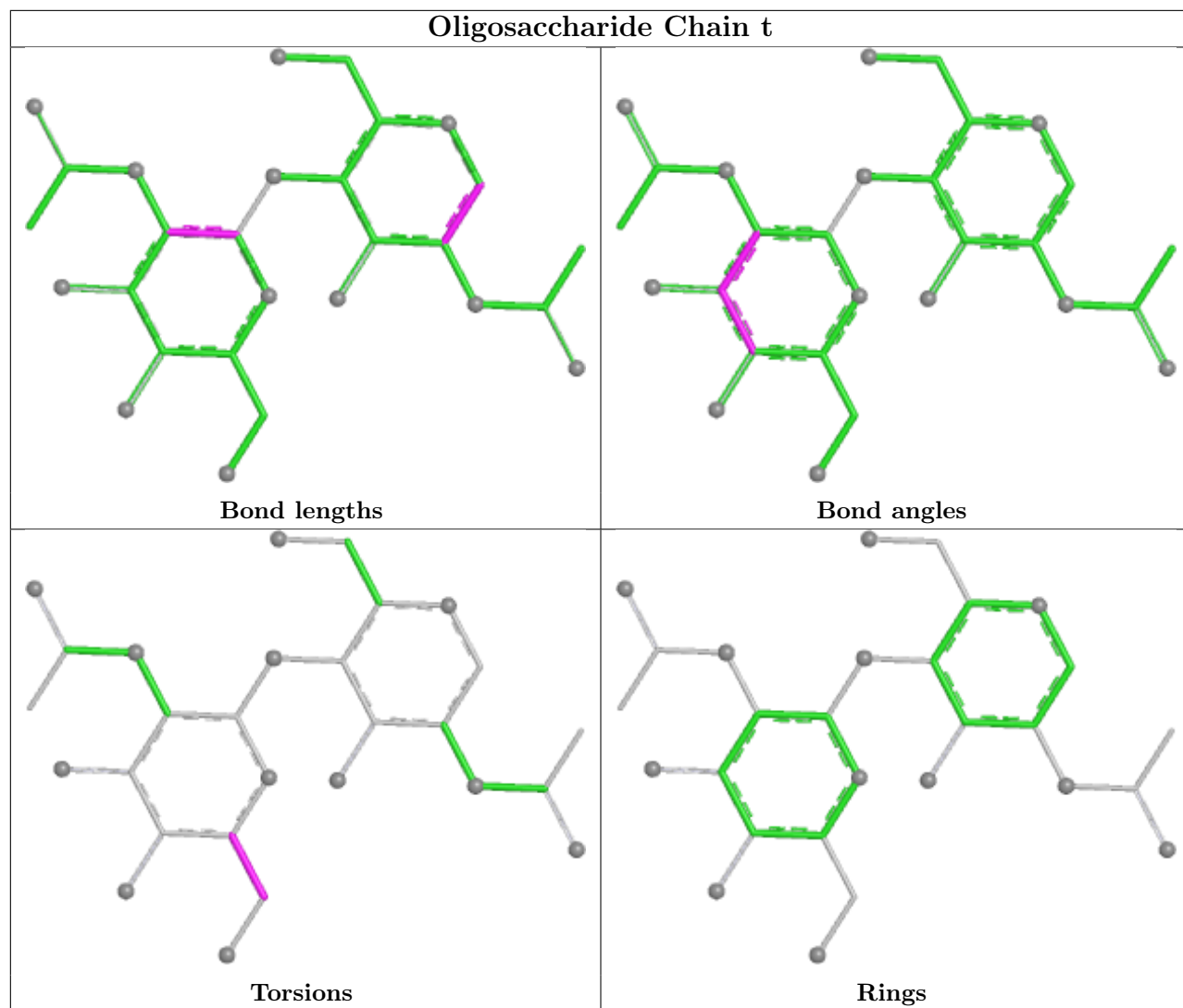


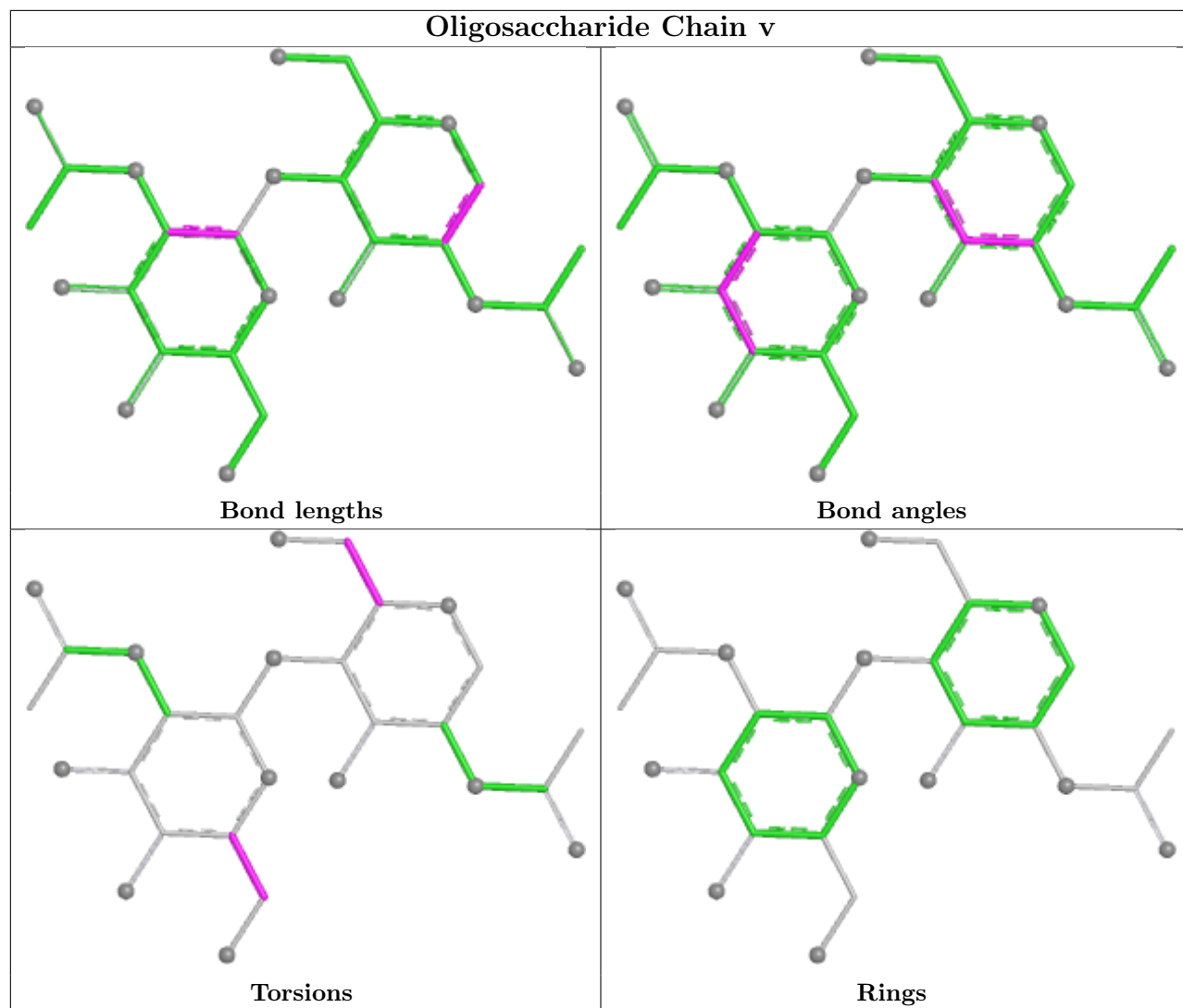


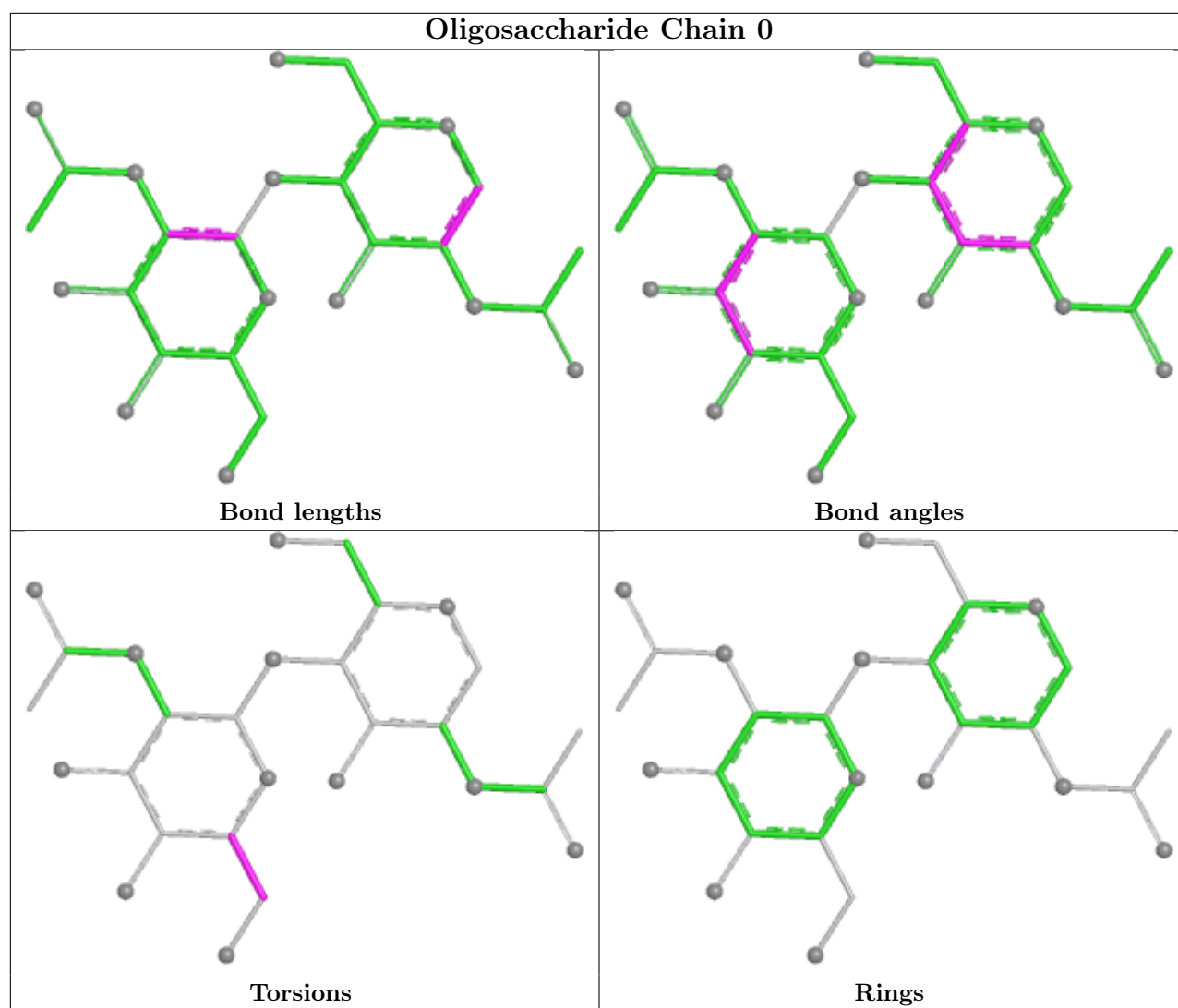


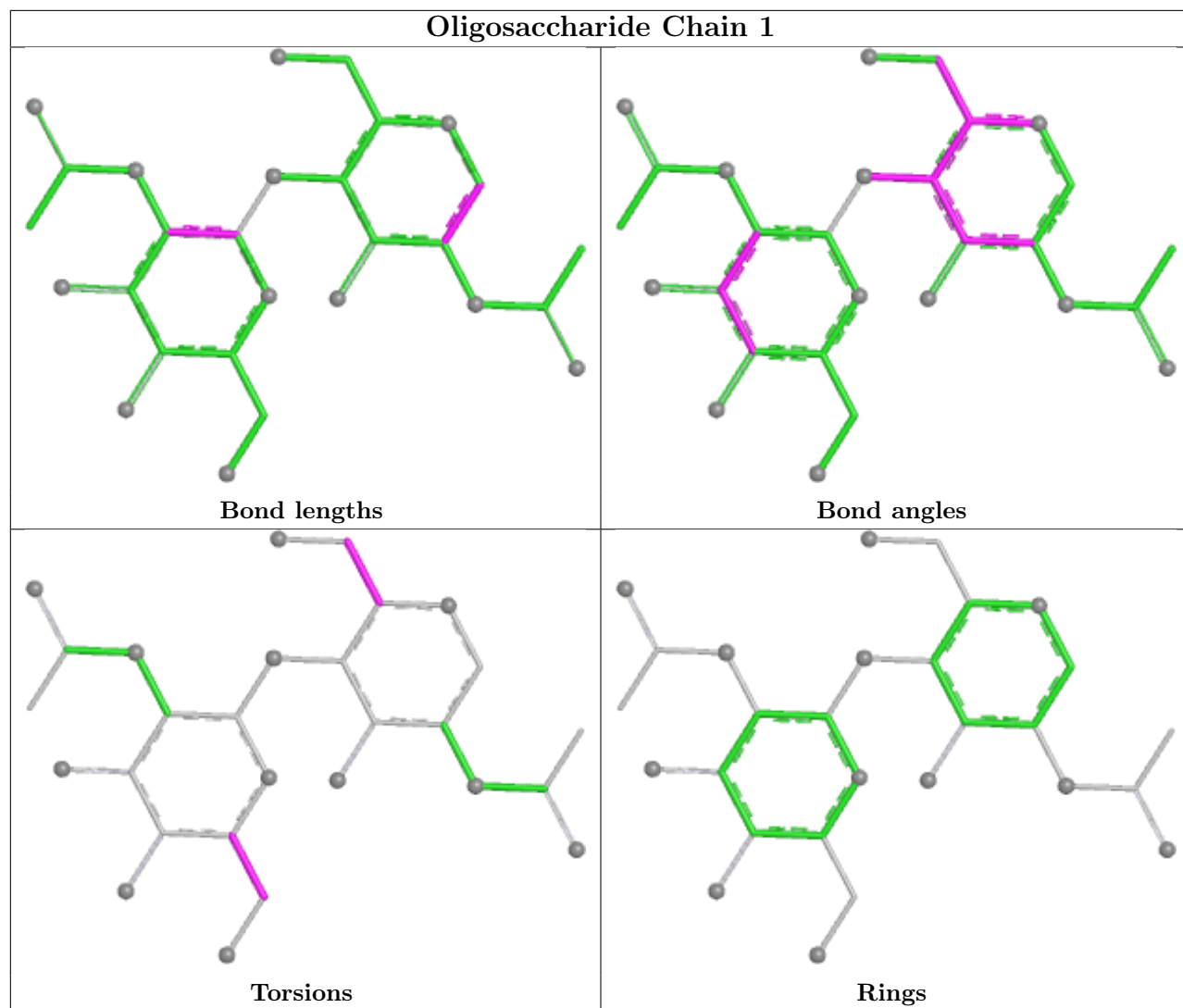


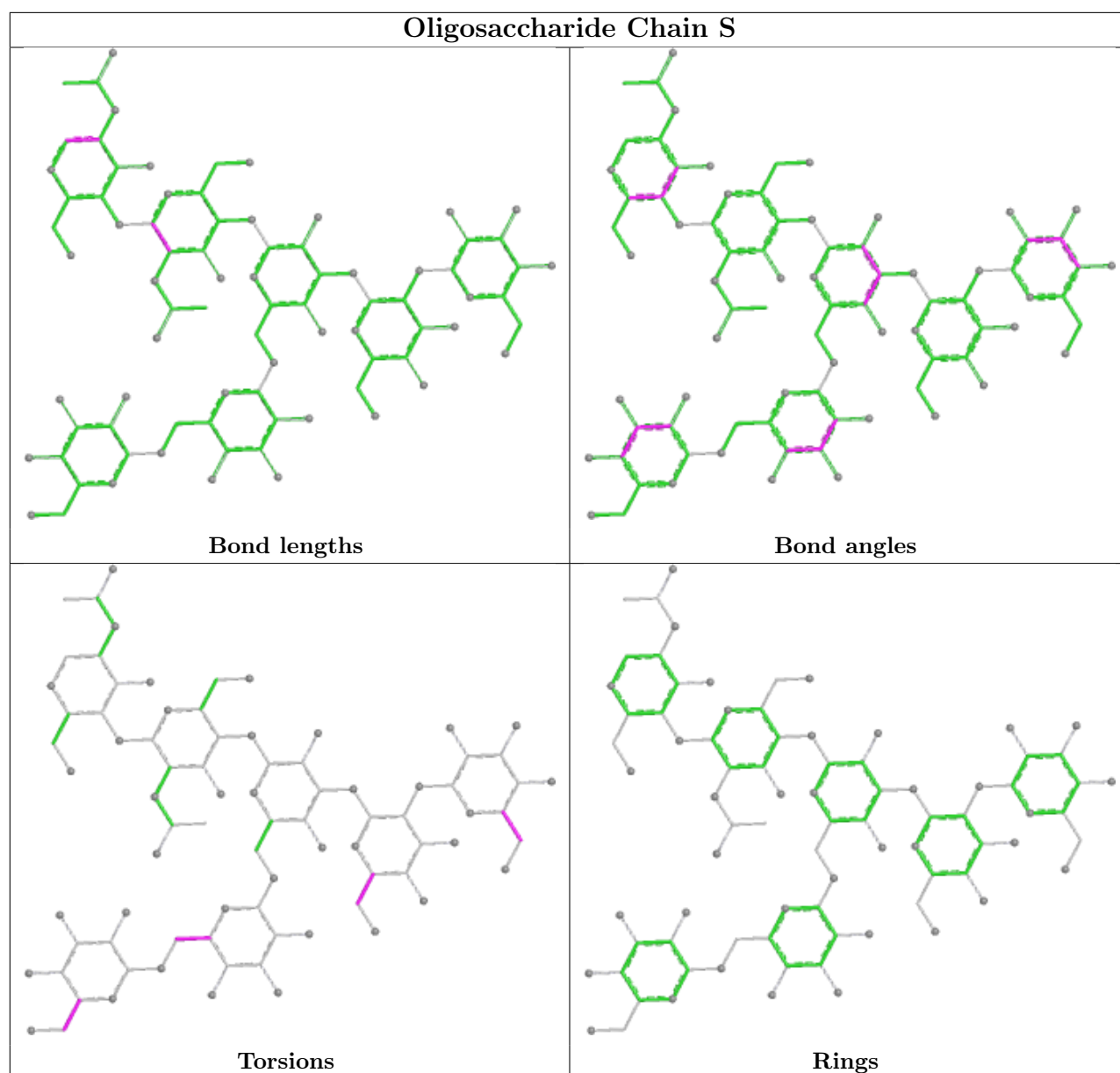


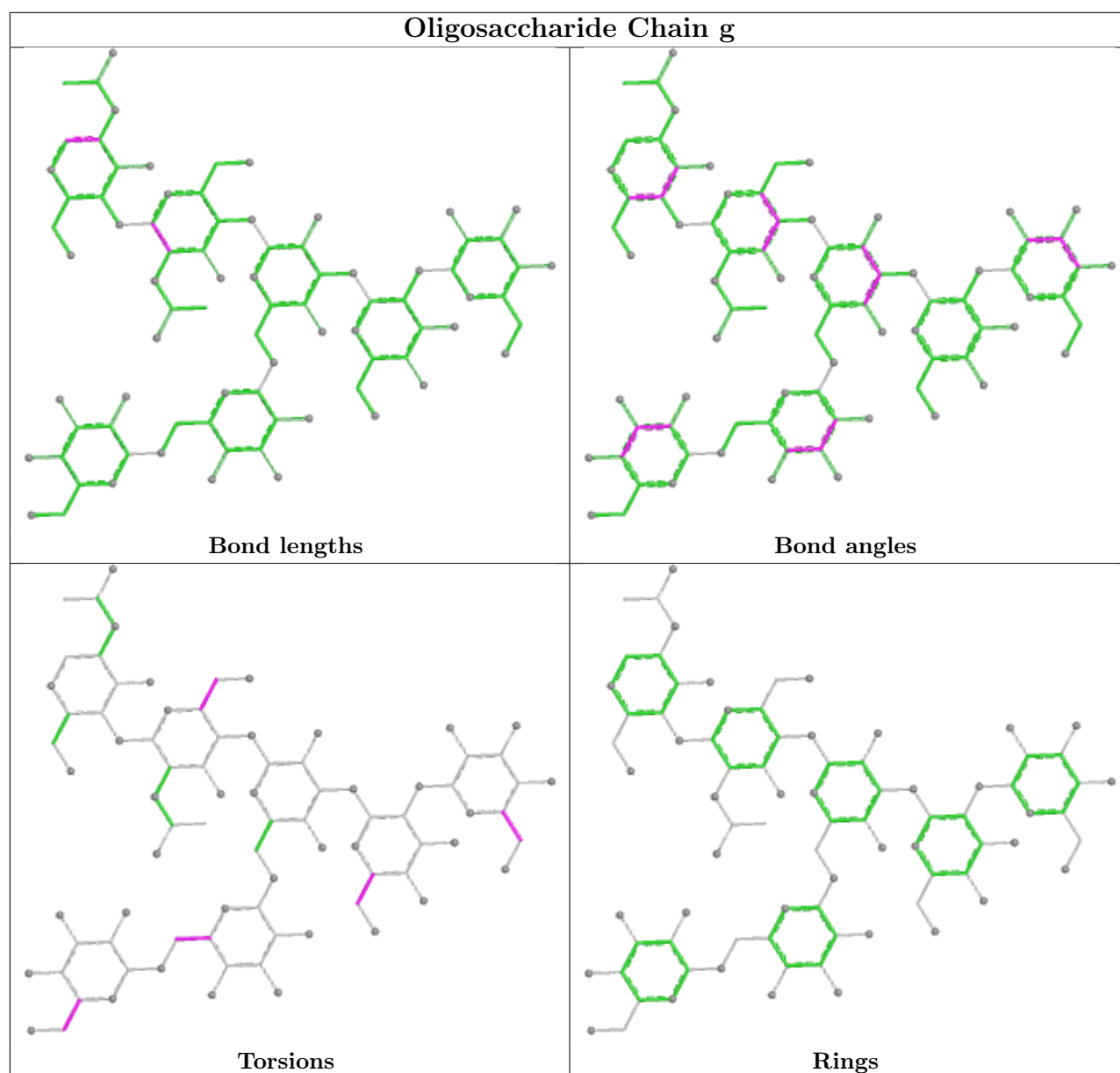


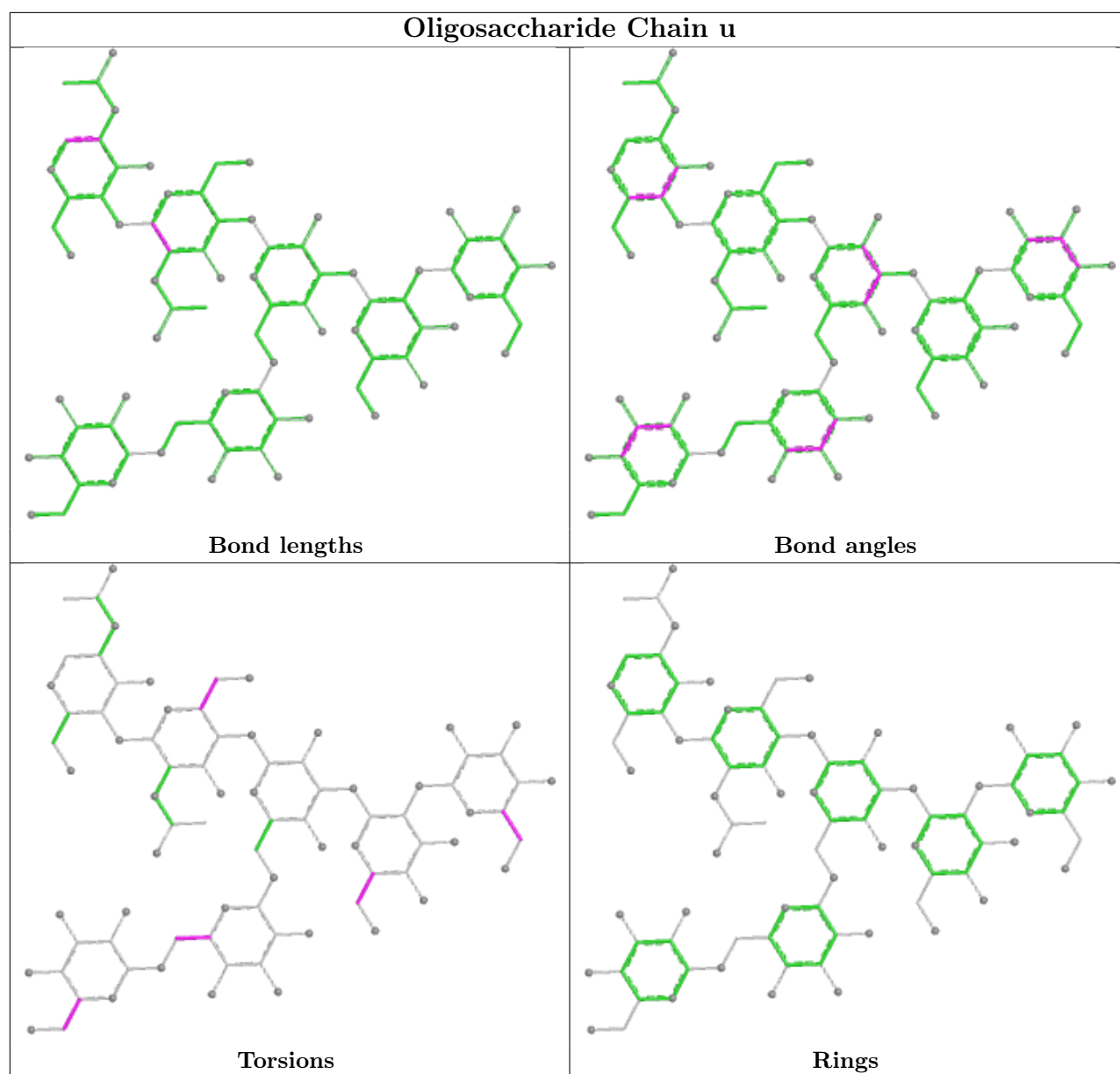


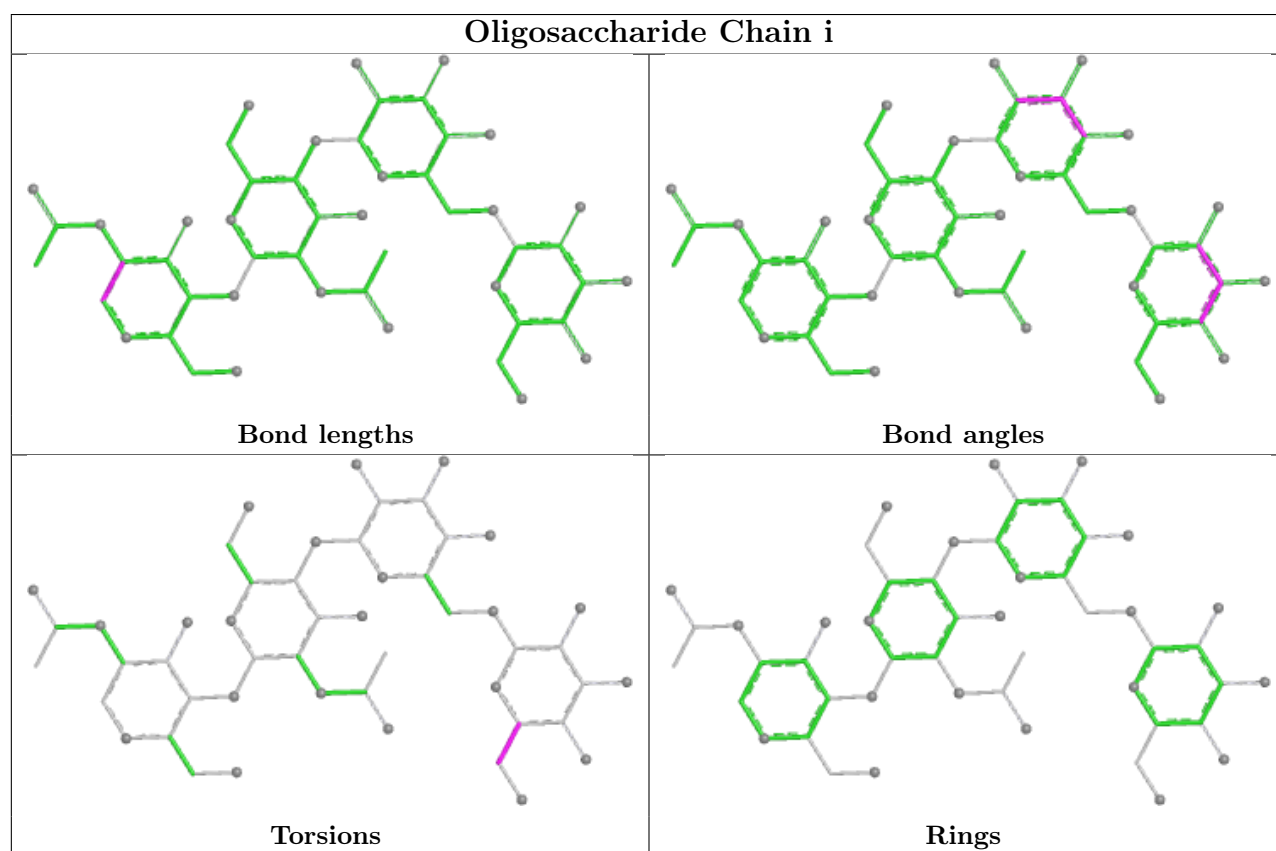
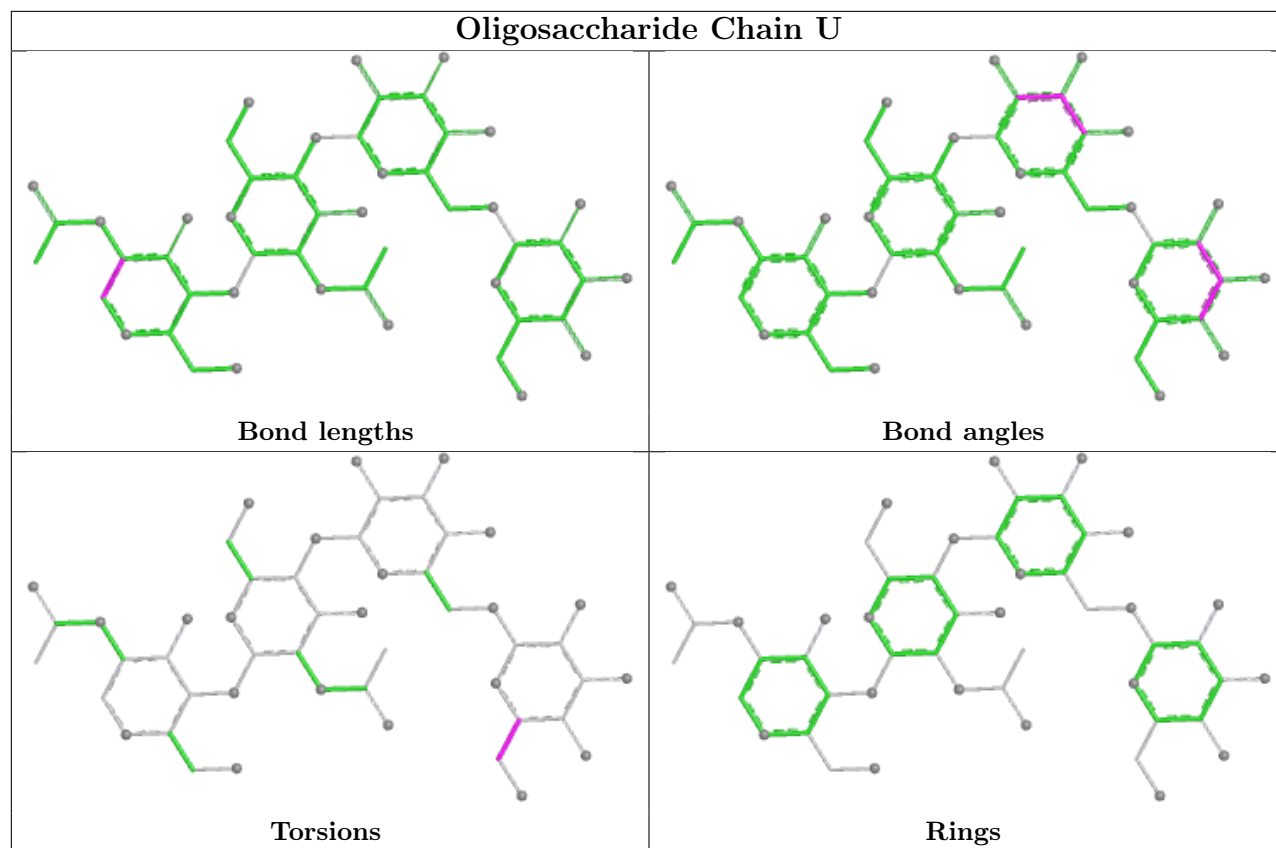


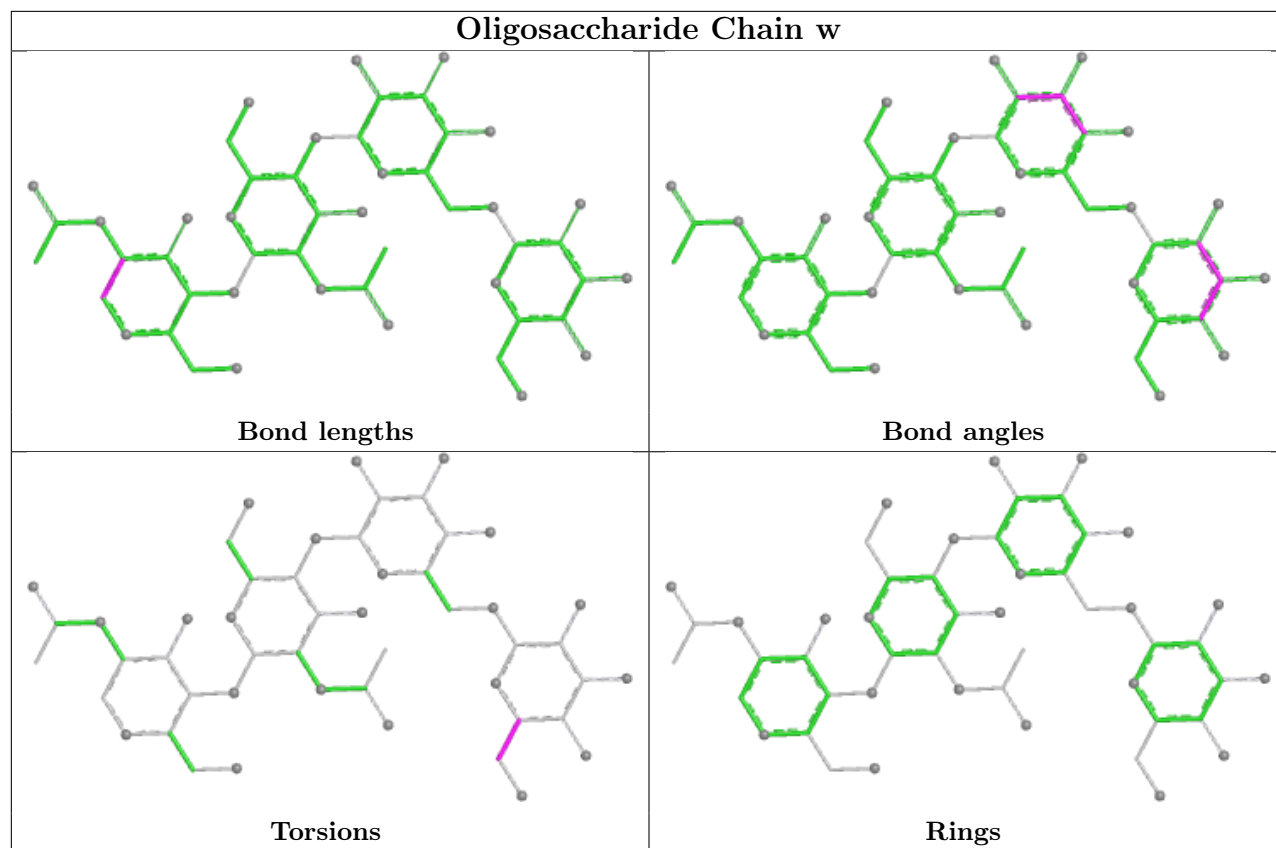


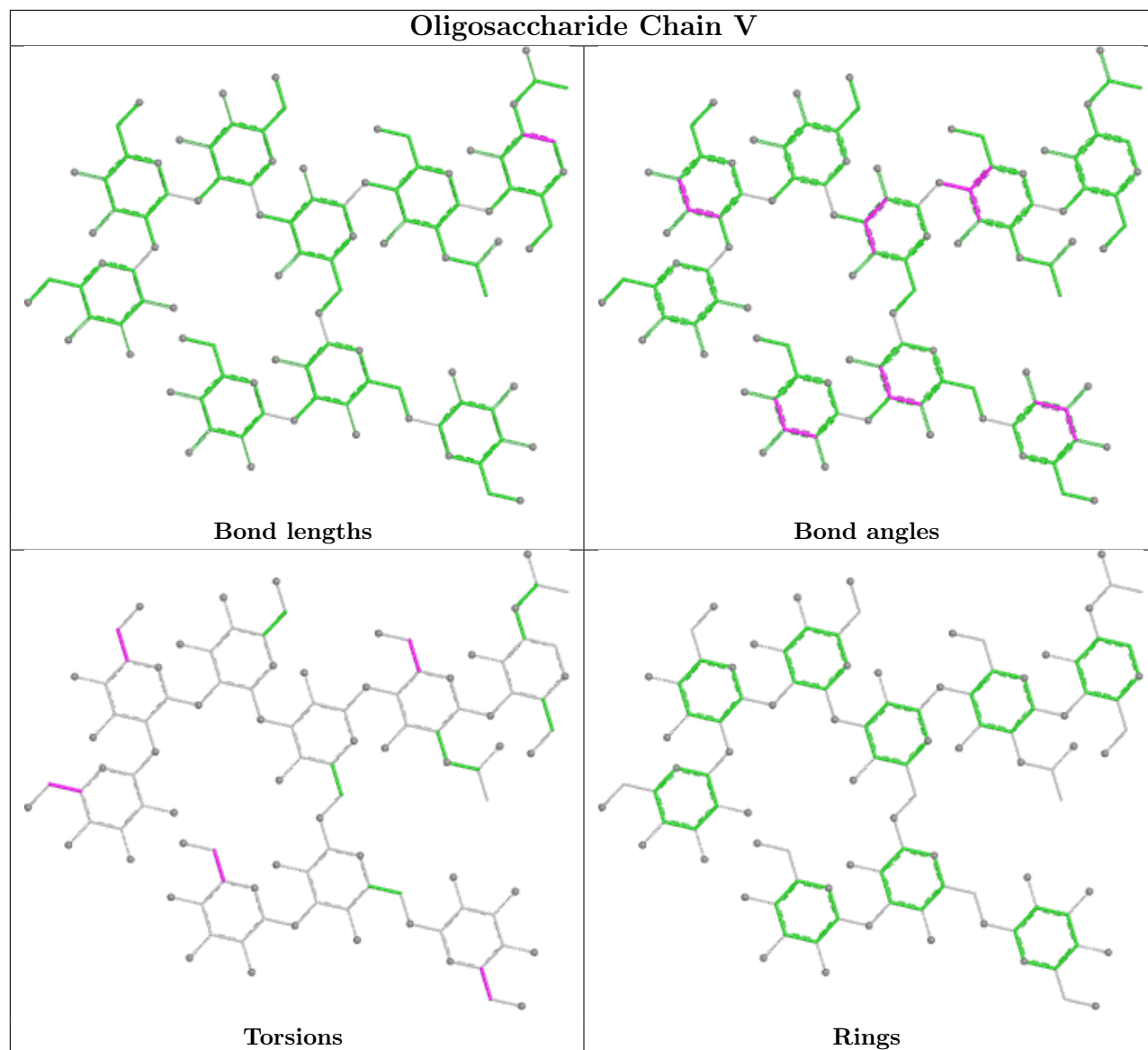


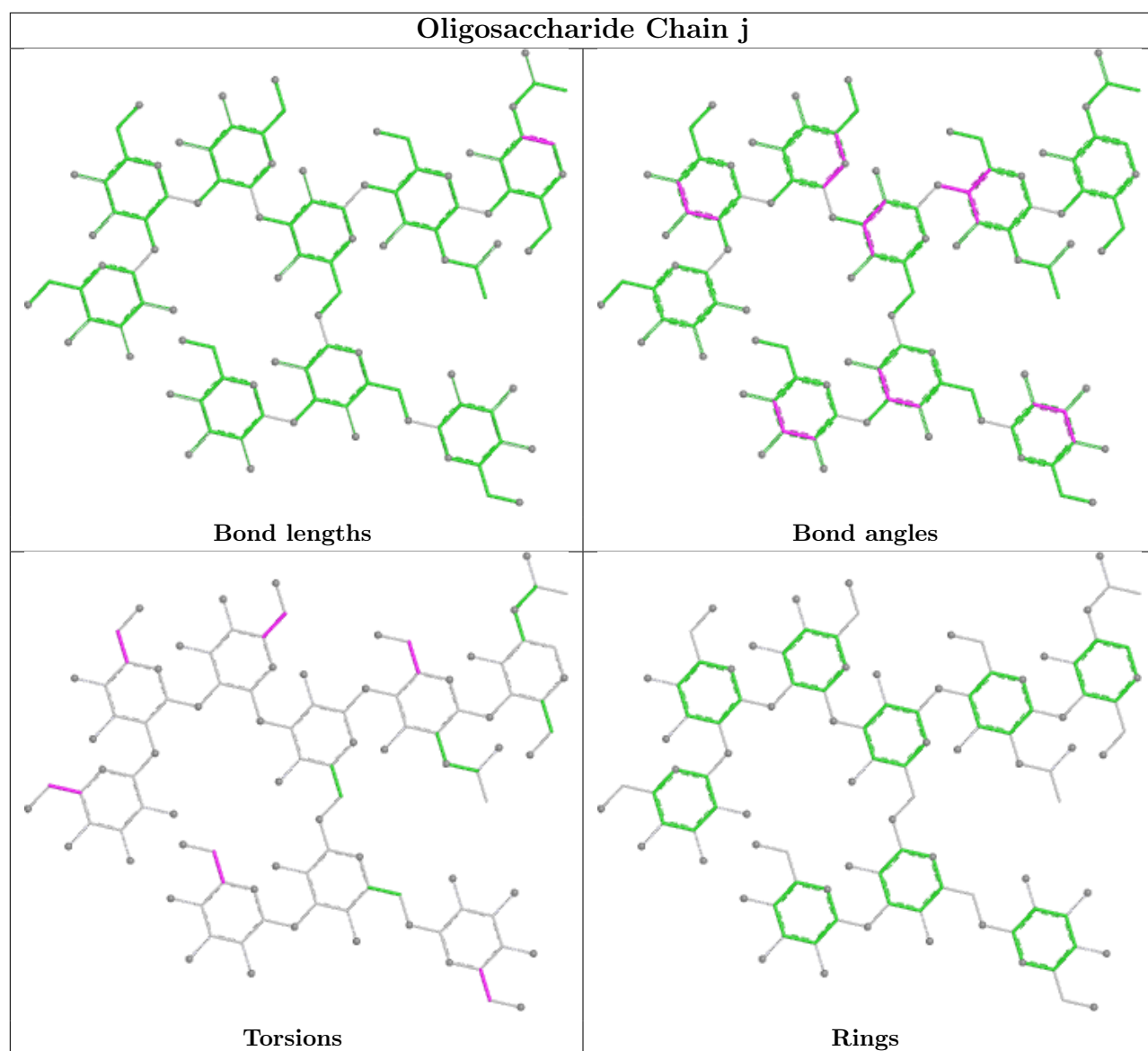


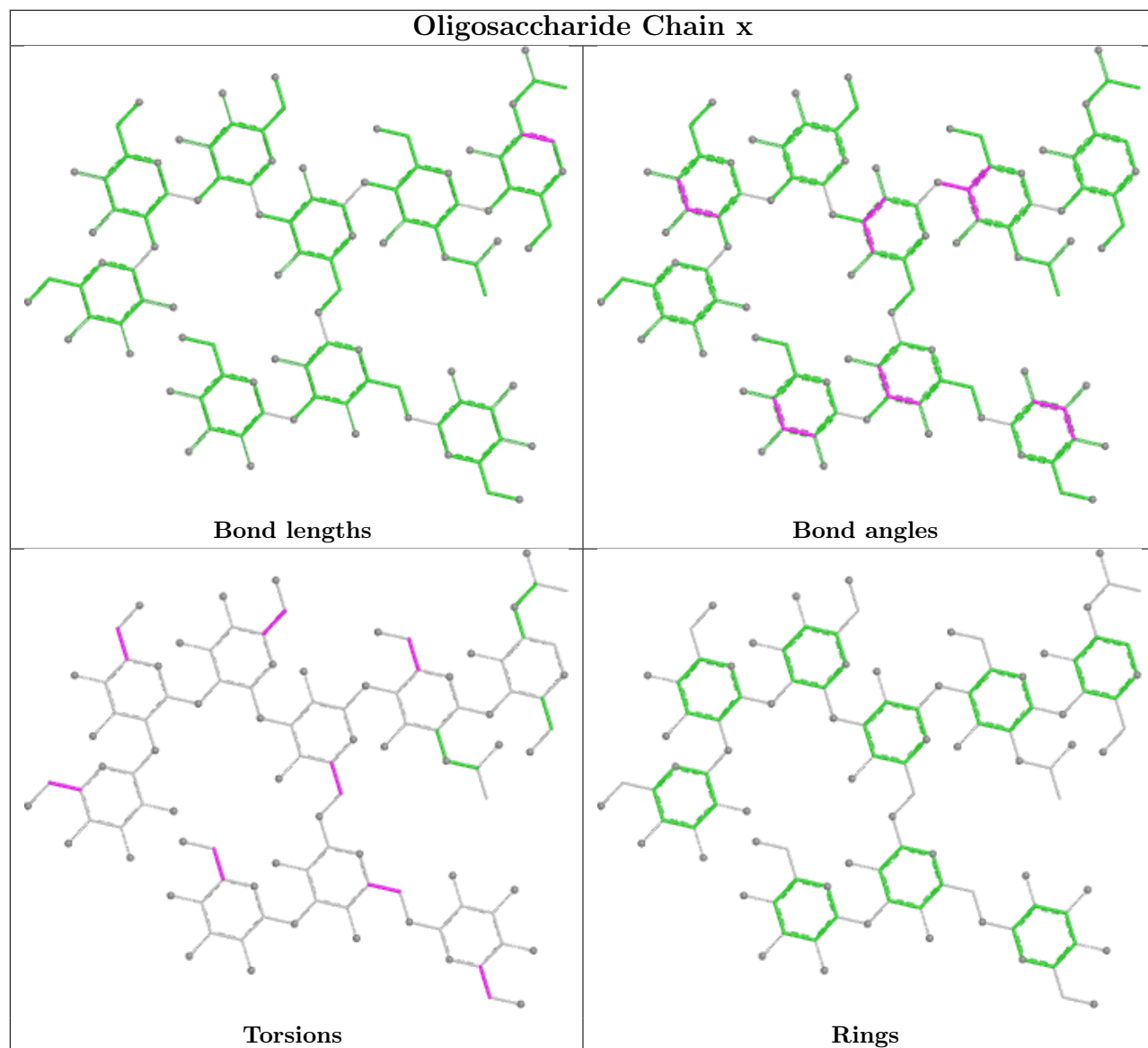


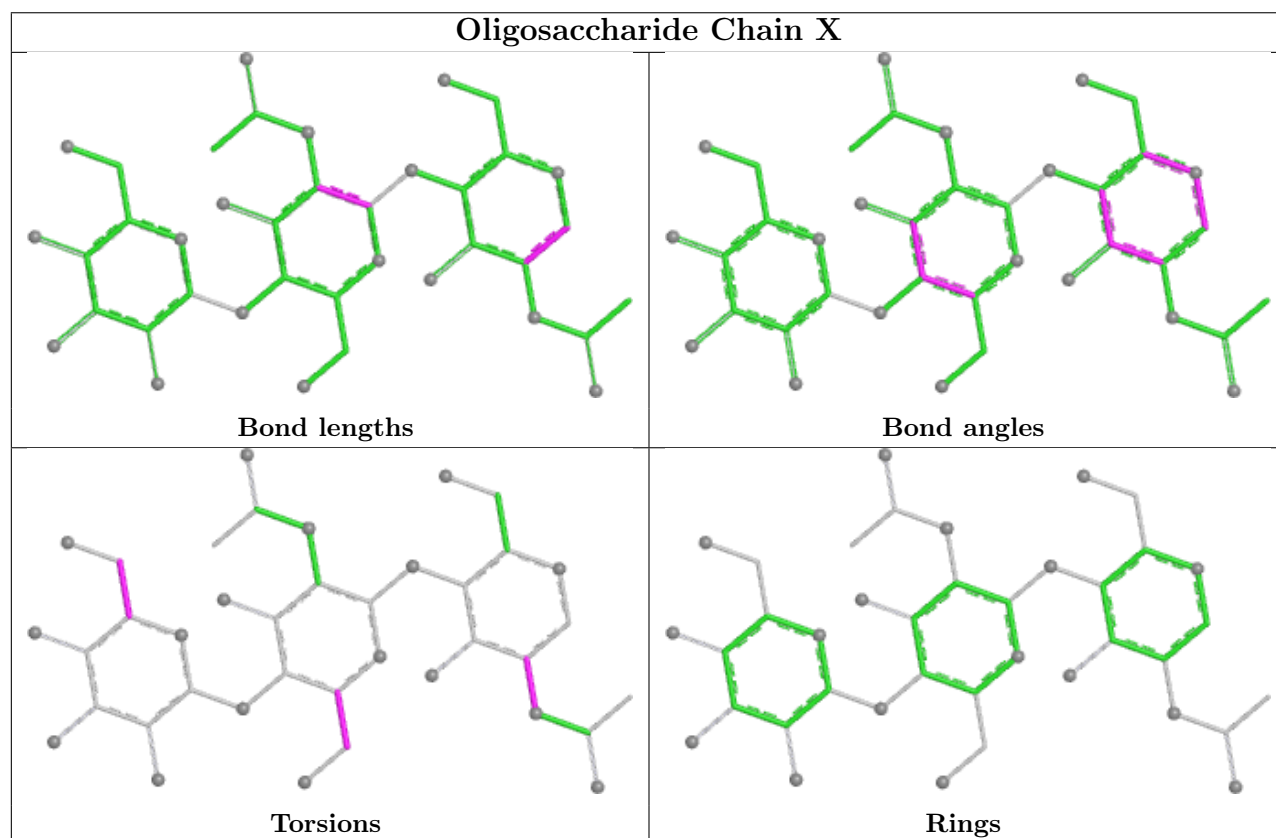
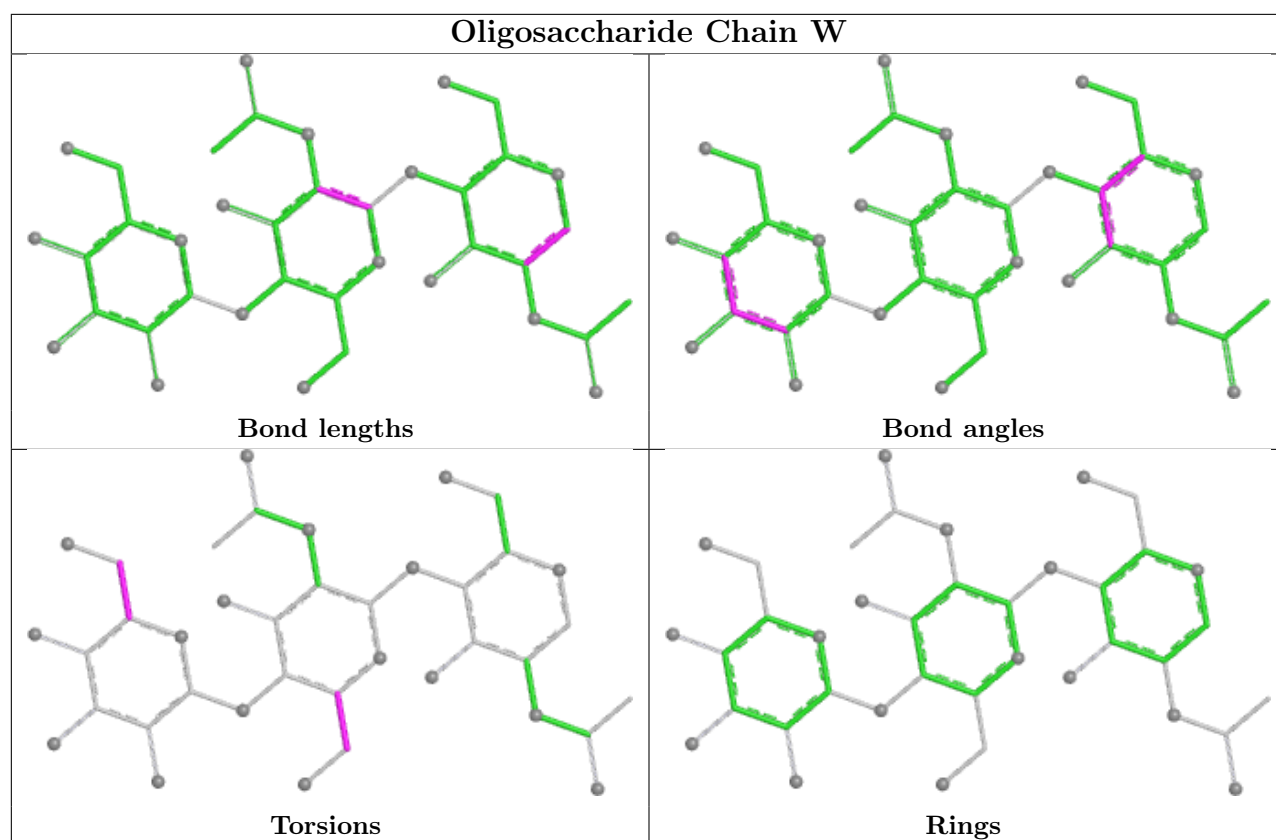


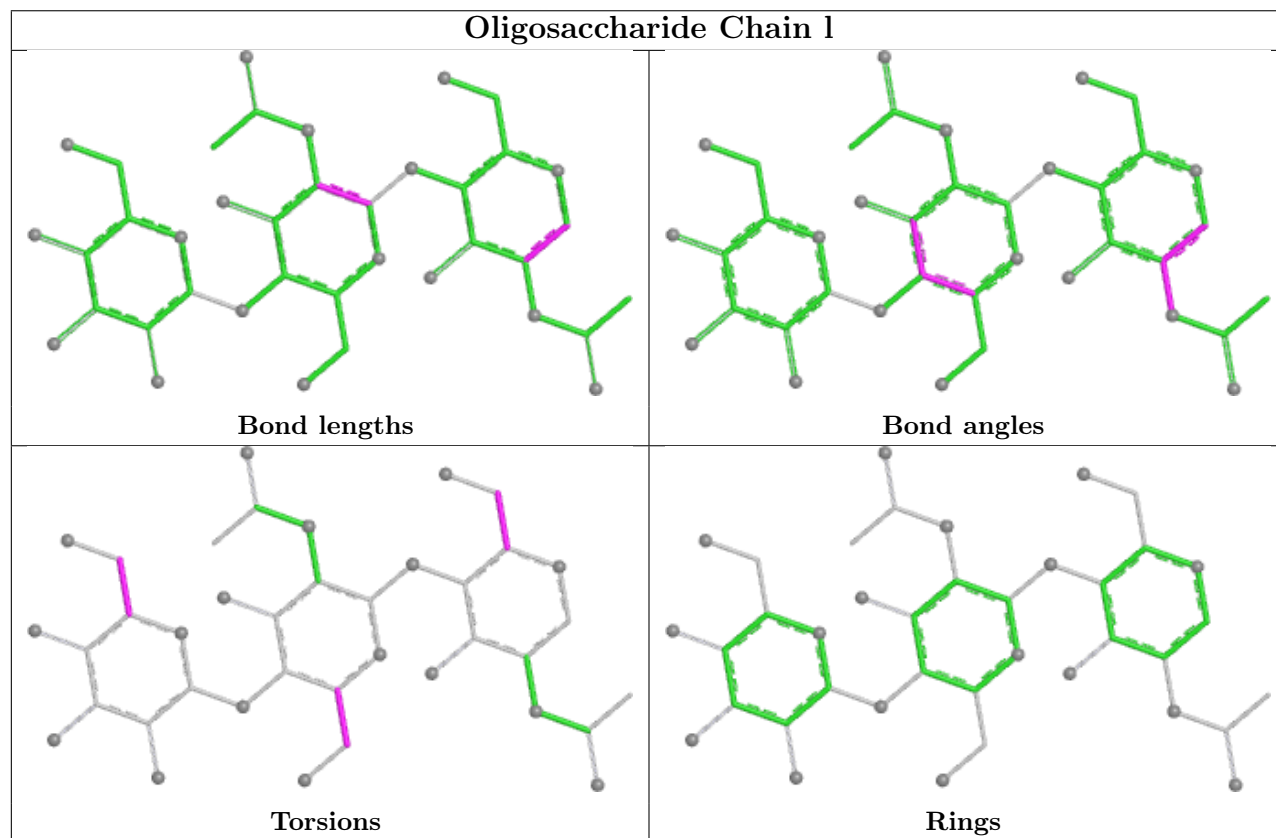
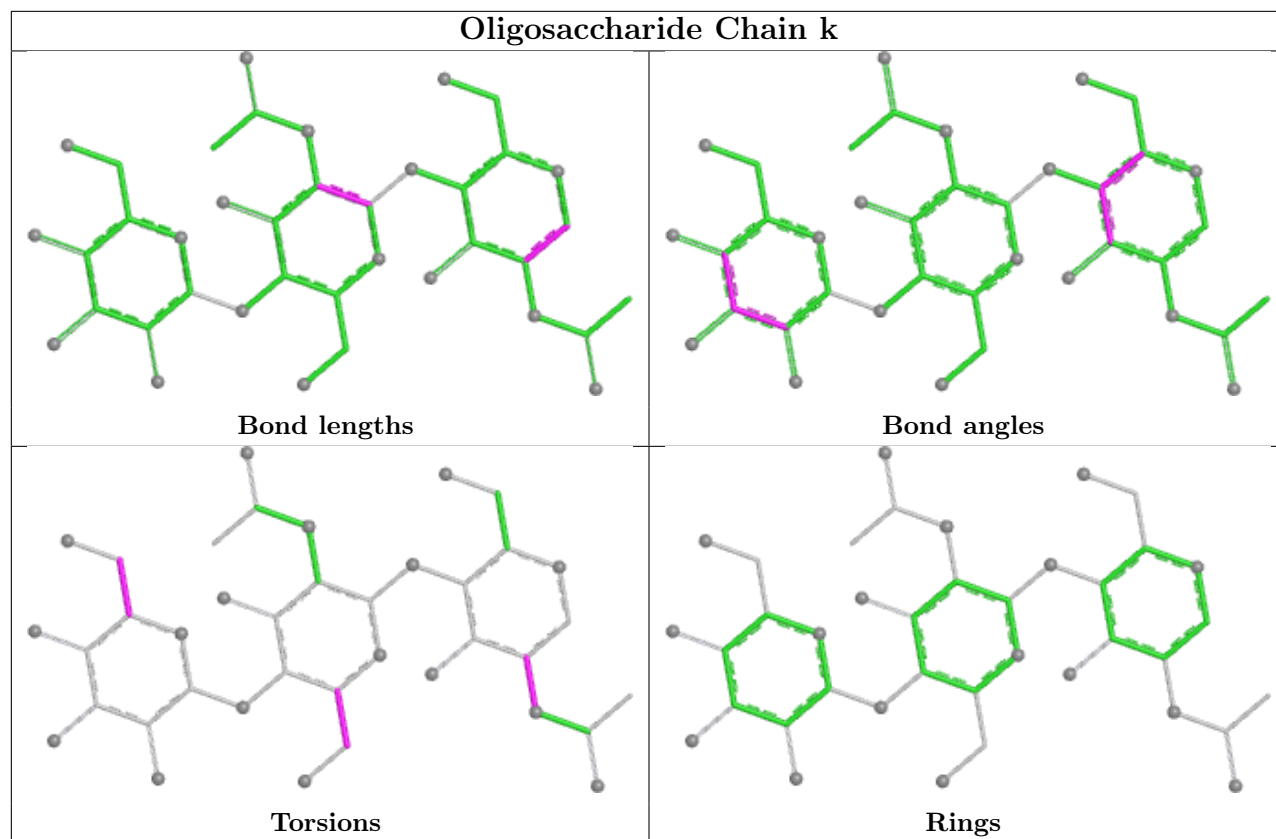


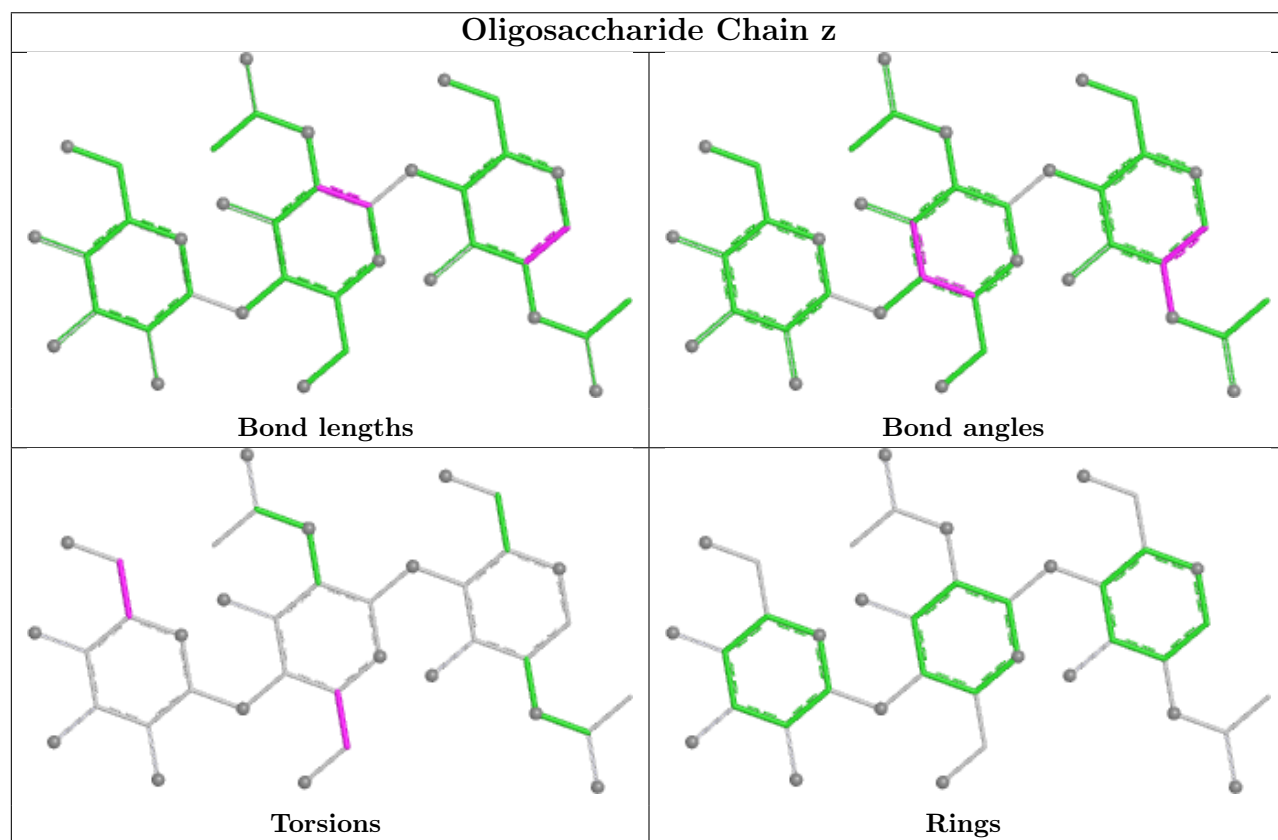
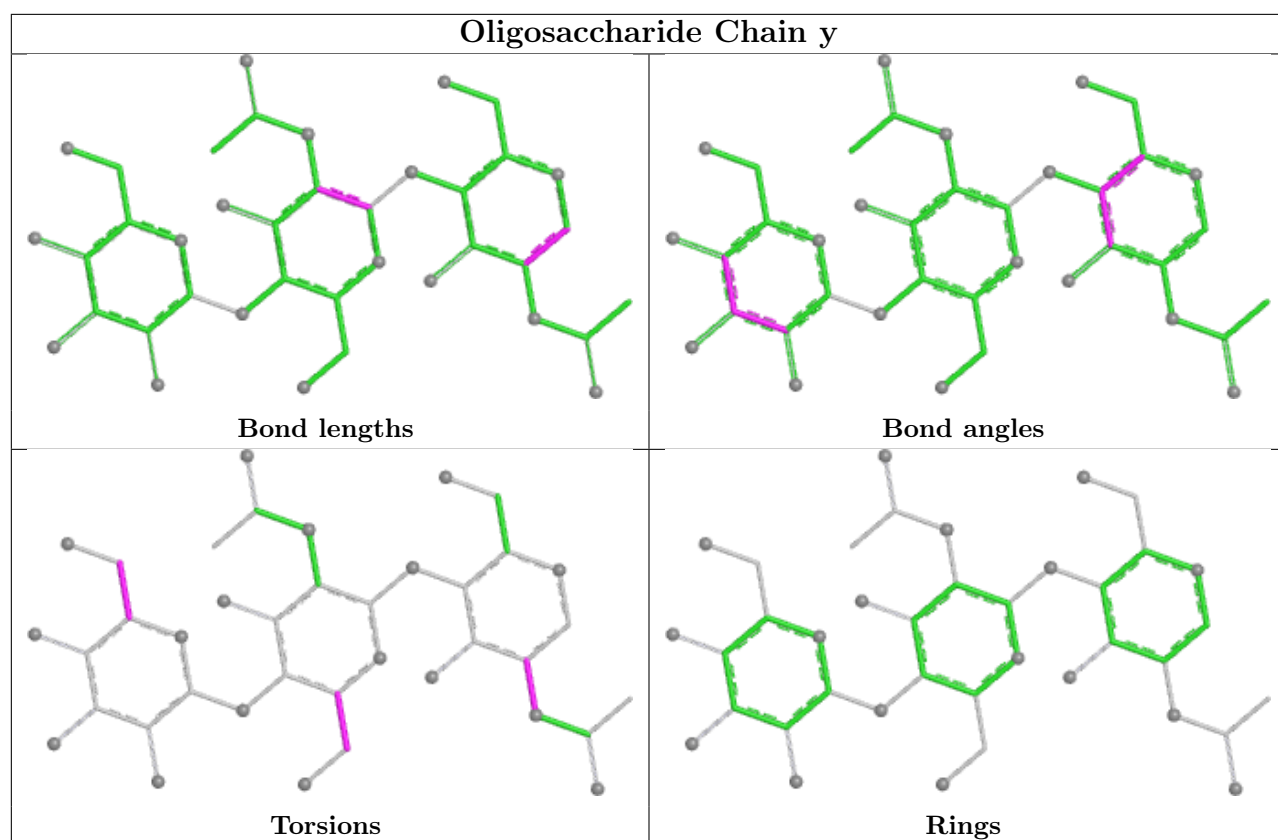












5.6 Ligand geometry

9 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
11	NAG	A	601	1	14,14,15	0.92	1 (7%)	17,19,21	1.04	1 (5%)
11	NAG	D	701	2	14,14,15	0.95	1 (7%)	17,19,21	1.24	1 (5%)
11	NAG	E	601	1	14,14,15	0.92	1 (7%)	17,19,21	1.06	1 (5%)
11	NAG	A	602	1	14,14,15	1.11	1 (7%)	17,19,21	0.92	2 (11%)
11	NAG	C	602	1	14,14,15	1.13	1 (7%)	17,19,21	0.92	1 (5%)
11	NAG	E	602	1	14,14,15	1.14	1 (7%)	17,19,21	0.92	1 (5%)
11	NAG	C	601	1	14,14,15	0.91	1 (7%)	17,19,21	1.09	1 (5%)
11	NAG	B	701	2	14,14,15	0.95	1 (7%)	17,19,21	1.22	1 (5%)
11	NAG	F	701	2	14,14,15	0.96	1 (7%)	17,19,21	1.24	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
11	NAG	A	601	1	-	1/6/23/26	0/1/1/1
11	NAG	D	701	2	-	1/6/23/26	0/1/1/1
11	NAG	E	601	1	-	1/6/23/26	0/1/1/1
11	NAG	A	602	1	-	1/6/23/26	0/1/1/1
11	NAG	C	602	1	-	1/6/23/26	0/1/1/1
11	NAG	E	602	1	-	1/6/23/26	0/1/1/1
11	NAG	C	601	1	-	1/6/23/26	0/1/1/1
11	NAG	B	701	2	-	1/6/23/26	0/1/1/1
11	NAG	F	701	2	-	1/6/23/26	0/1/1/1

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	E	602	NAG	C1-C2	4.00	1.57	1.52
11	C	602	NAG	C1-C2	3.96	1.57	1.52
11	A	602	NAG	C1-C2	3.89	1.57	1.52
11	F	701	NAG	C1-C2	3.18	1.56	1.52
11	B	701	NAG	C1-C2	3.17	1.56	1.52
11	D	701	NAG	C1-C2	3.17	1.56	1.52
11	E	601	NAG	C1-C2	3.09	1.56	1.52
11	C	601	NAG	C1-C2	3.08	1.56	1.52
11	A	601	NAG	C1-C2	3.06	1.56	1.52

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	F	701	NAG	C4-C3-C2	-3.89	105.31	111.02
11	D	701	NAG	C4-C3-C2	-3.80	105.45	111.02
11	B	701	NAG	C4-C3-C2	-3.70	105.60	111.02
11	E	602	NAG	C4-C3-C2	-2.61	107.20	111.02
11	C	602	NAG	C4-C3-C2	-2.56	107.26	111.02
11	C	601	NAG	C4-C3-C2	-2.55	107.27	111.02
11	A	601	NAG	C4-C3-C2	-2.55	107.29	111.02
11	E	601	NAG	C4-C3-C2	-2.53	107.32	111.02
11	A	602	NAG	C4-C3-C2	-2.49	107.37	111.02
11	A	602	NAG	C1-O5-C5	-2.10	109.38	112.19

There are no chirality outliers.

All (9) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	D	701	NAG	O5-C5-C6-O6
11	F	701	NAG	O5-C5-C6-O6
11	C	602	NAG	O5-C5-C6-O6
11	E	602	NAG	O5-C5-C6-O6
11	E	601	NAG	O5-C5-C6-O6
11	C	601	NAG	O5-C5-C6-O6
11	A	601	NAG	O5-C5-C6-O6
11	A	602	NAG	O5-C5-C6-O6
11	B	701	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

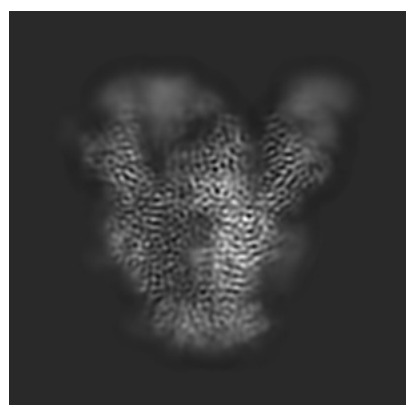
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-23571. These allow visual inspection of the internal detail of the map and identification of artifacts.

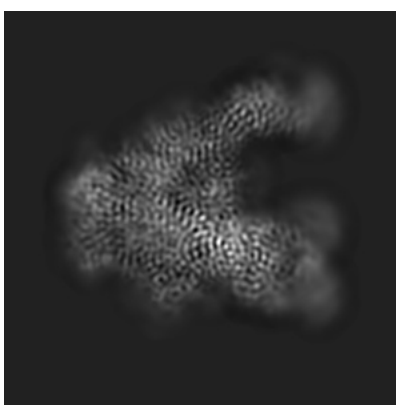
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

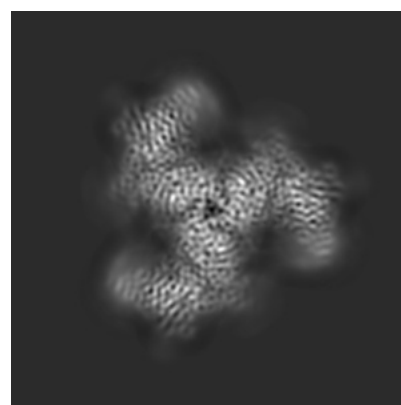
6.1.1 Primary map



X



Y



Z

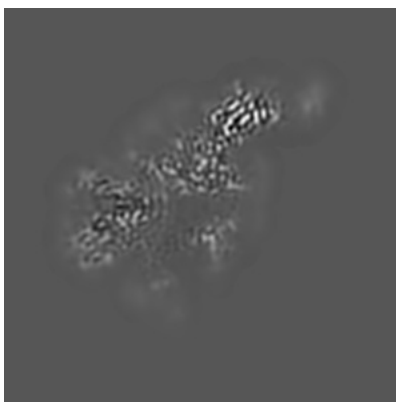
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 110



Y Index: 110



Z Index: 110

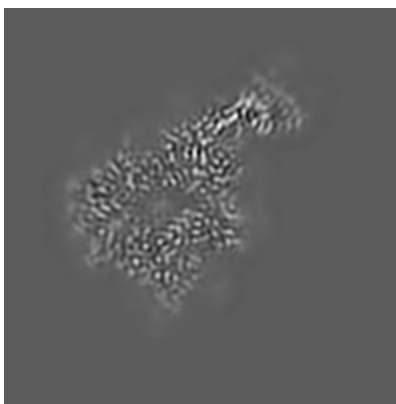
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

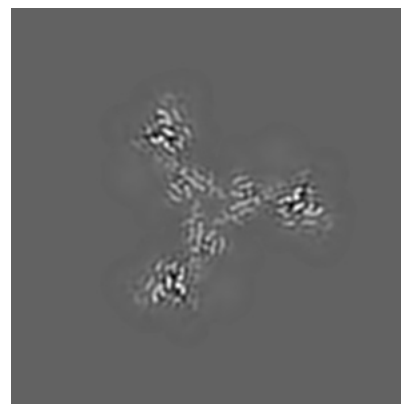
6.3.1 Primary map



X Index: 86



Y Index: 120

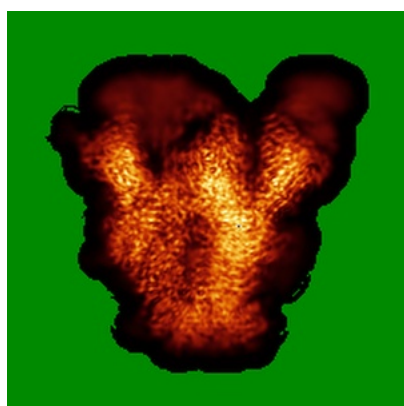


Z Index: 124

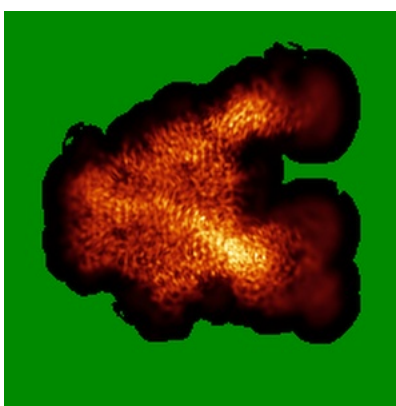
The images above show the largest variance slices of the map in three orthogonal directions.

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

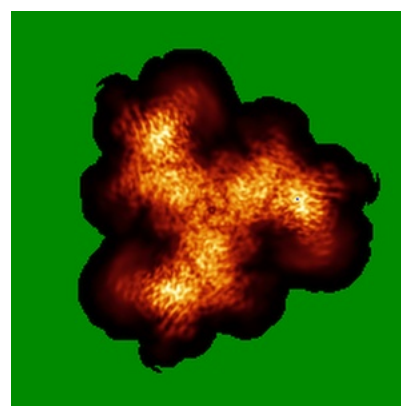
6.4.1 Primary map



X



Y

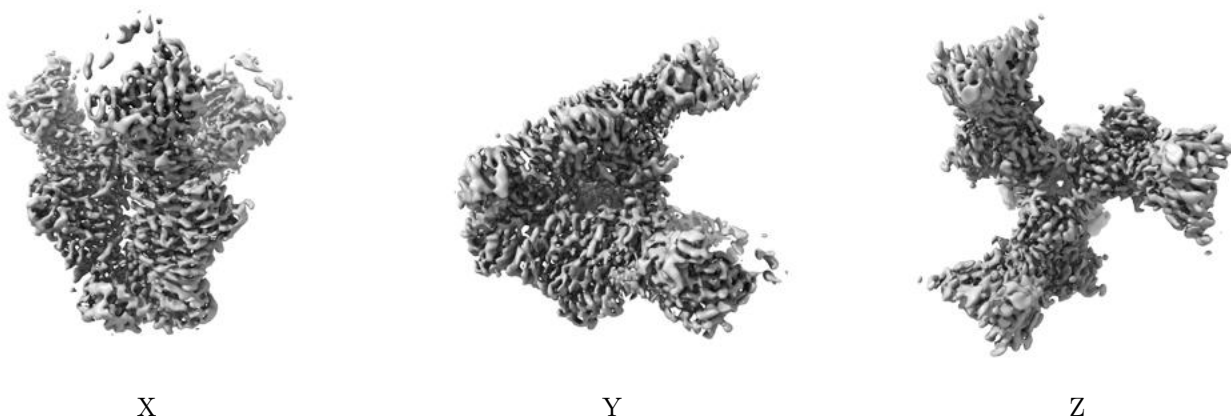


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.4. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

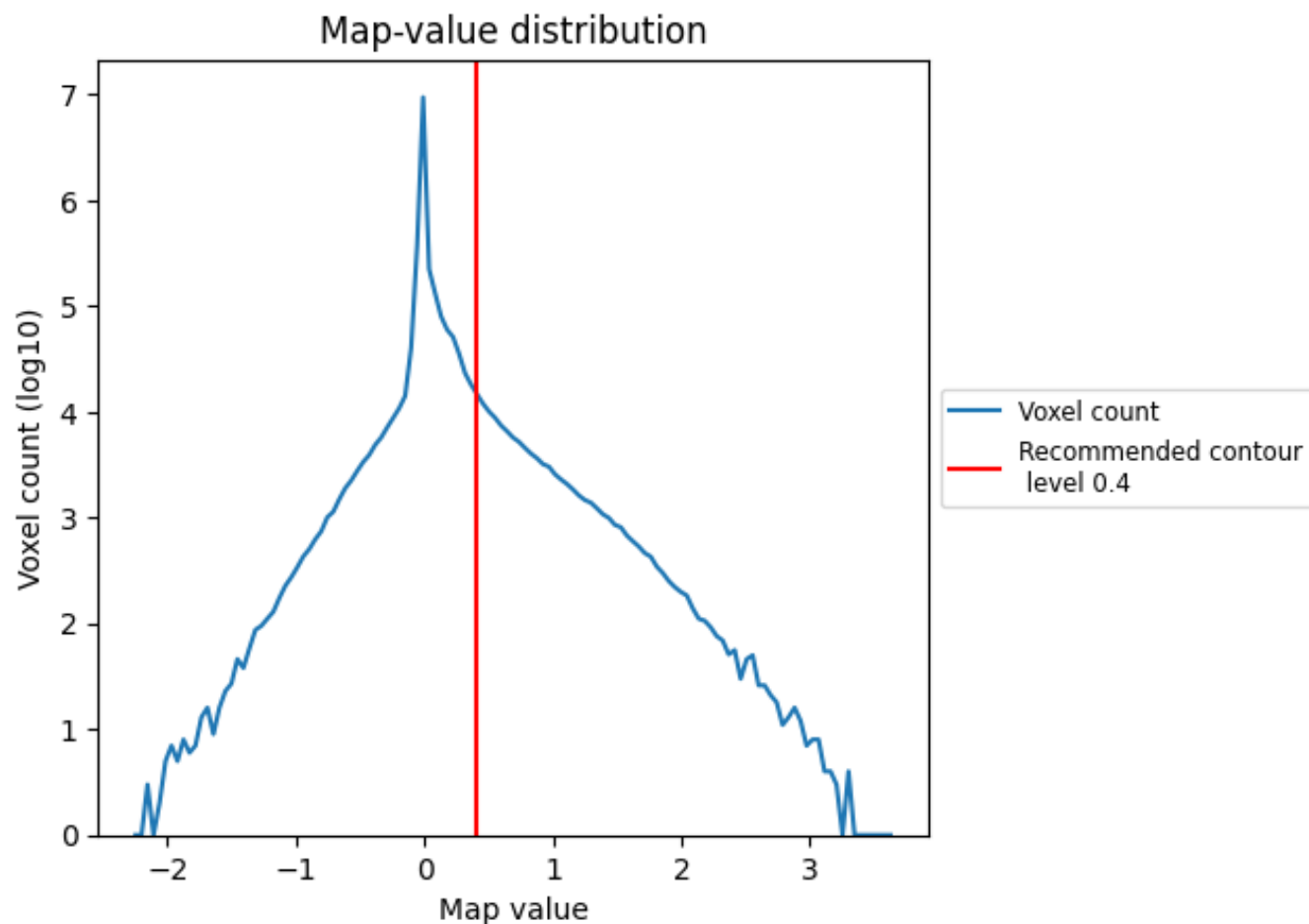
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

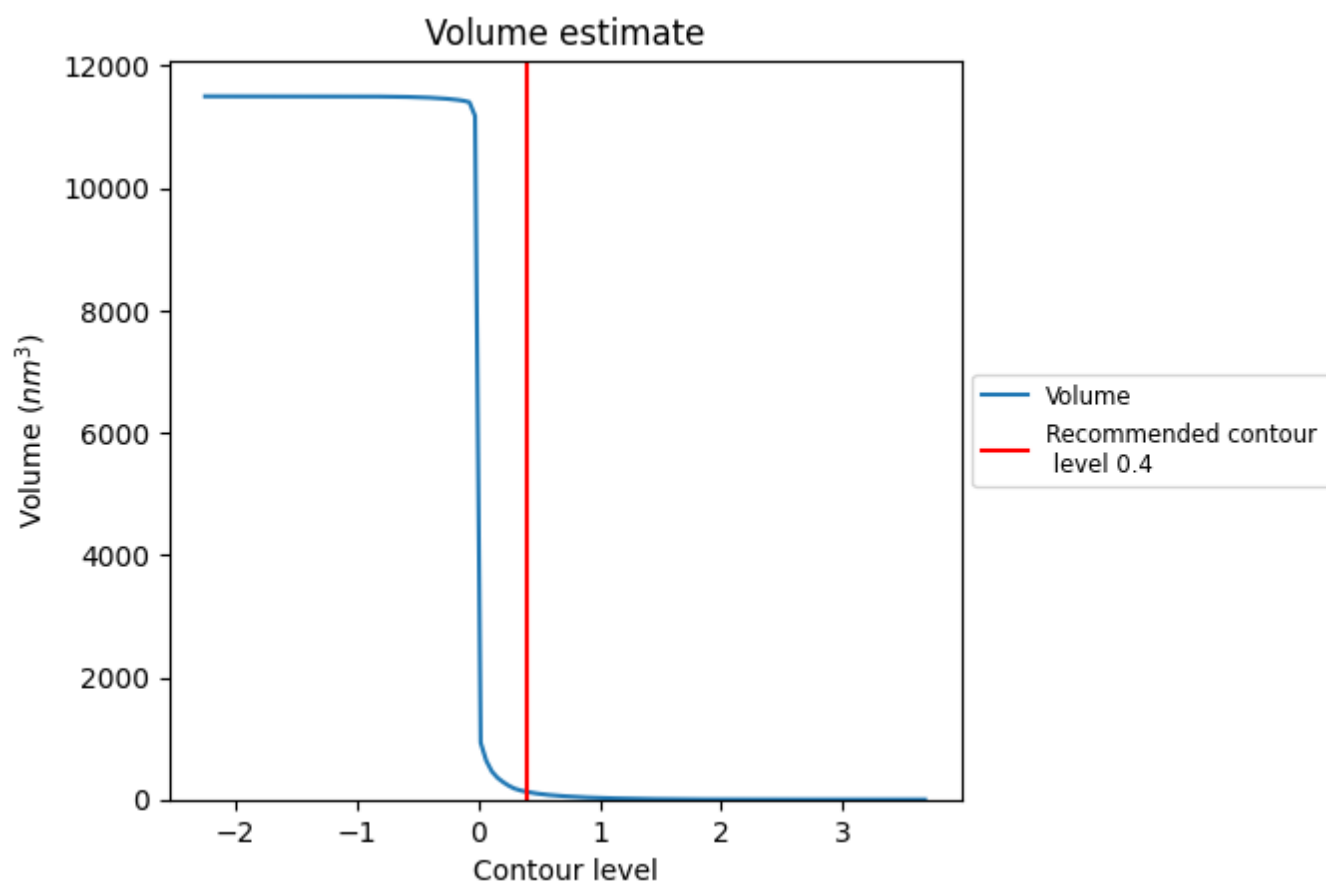
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

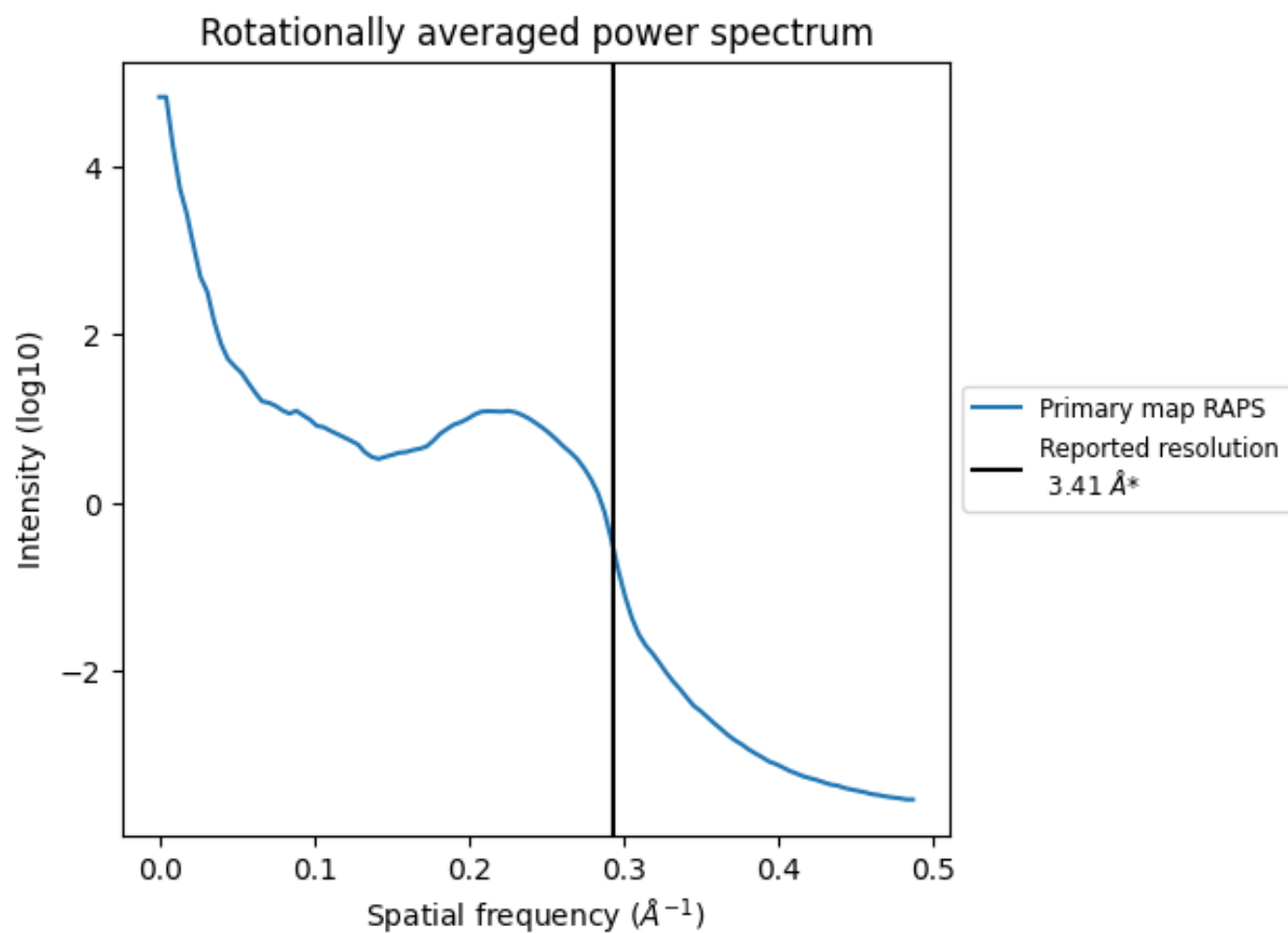
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 126 nm³; this corresponds to an approximate mass of 114 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.293 Å⁻¹

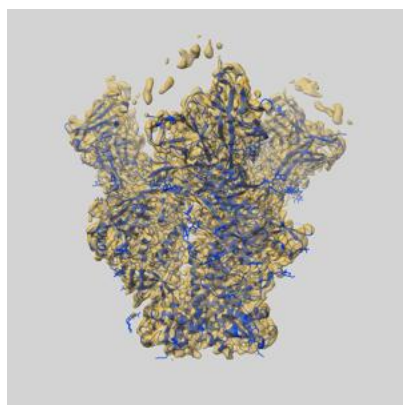
8 Fourier-Shell correlation

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

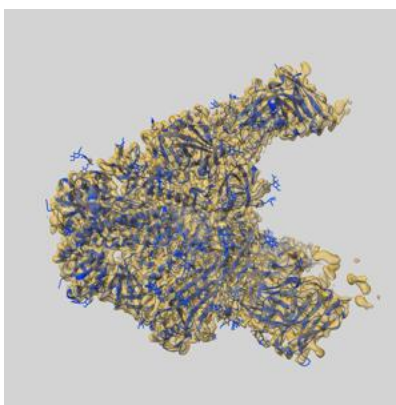
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-23571 and PDB model 7LXM. Per-residue inclusion information can be found in section [3](#) on page [11](#).

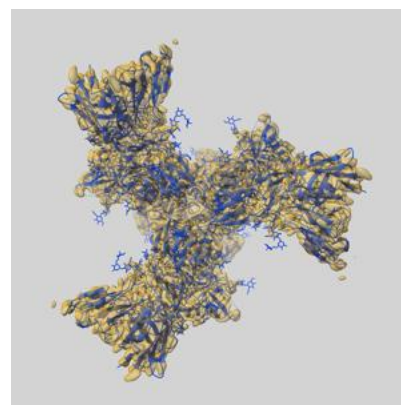
9.1 Map-model overlay [i](#)



X



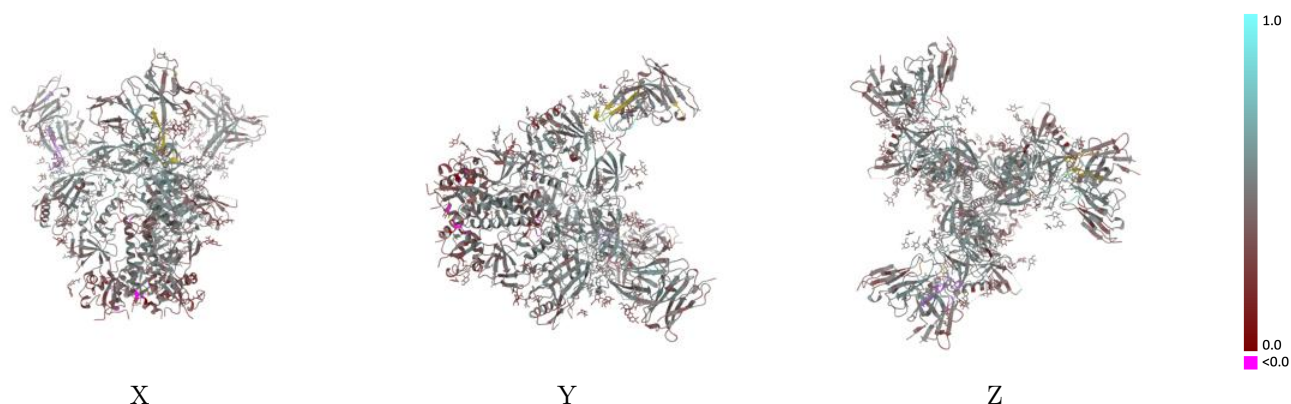
Y



Z

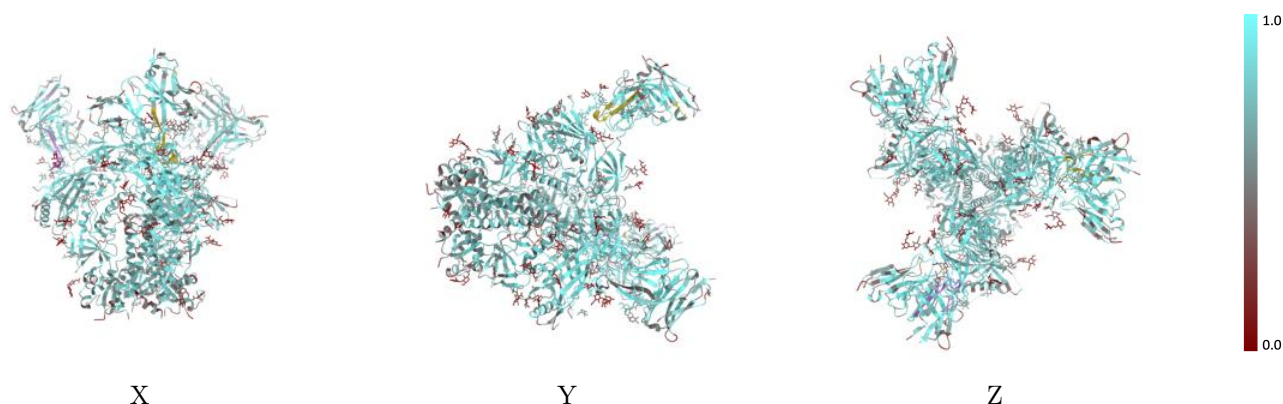
The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



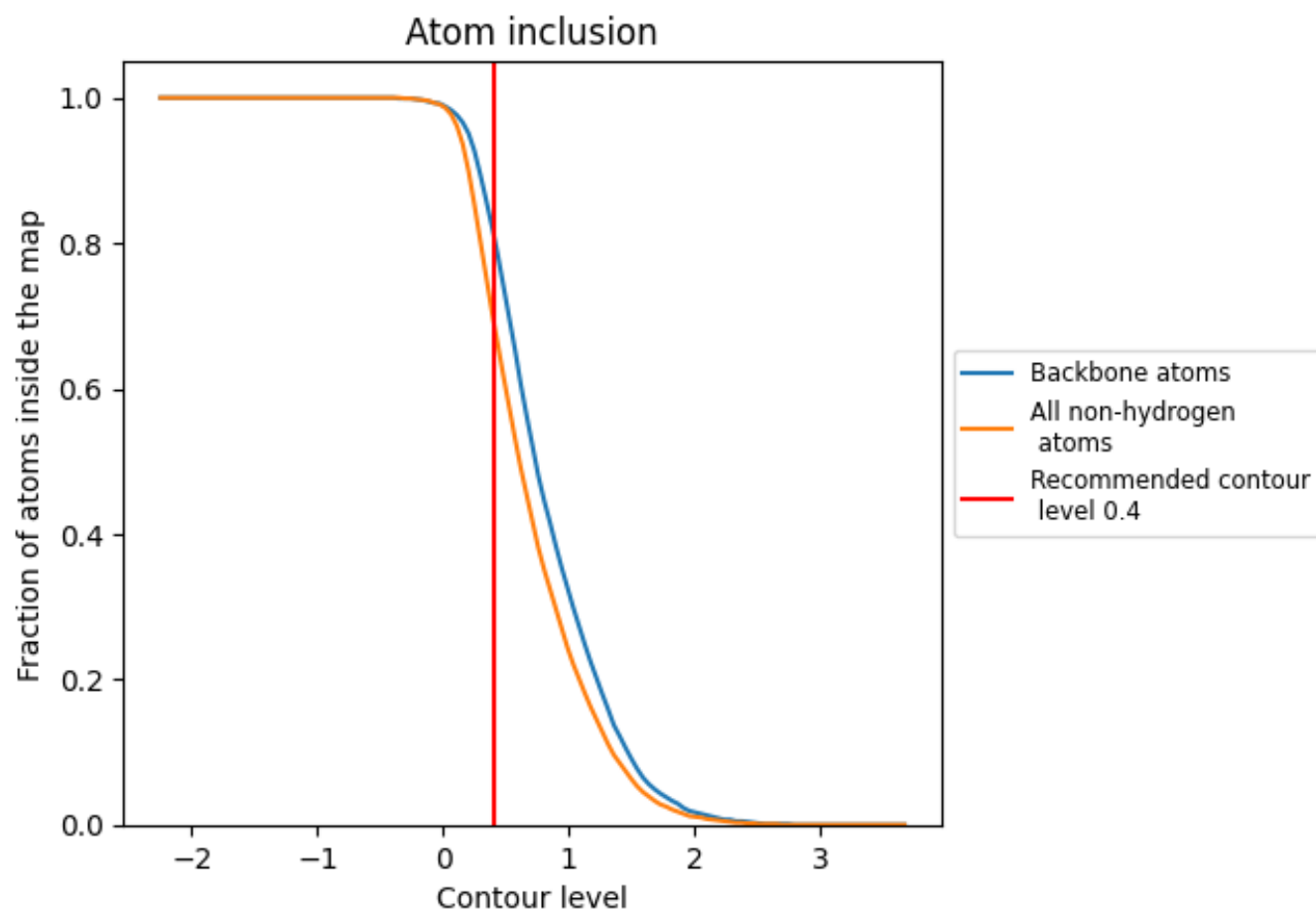
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.4).

9.4 Atom inclusion [i](#)



At the recommended contour level, 82% of all backbone atoms, 70% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6960	 0.4410
0	 0.3930	 0.3500
1	 0.0360	 0.3340
A	 0.7430	 0.4620
B	 0.6340	 0.3690
C	 0.7400	 0.4590
D	 0.6310	 0.3690
E	 0.7410	 0.4610
F	 0.6300	 0.3710
G	 0.6280	 0.3330
H	 0.7360	 0.4520
I	 0.0710	 0.3180
J	 0.2140	 0.3180
K	 0.2860	 0.3090
L	 0.7490	 0.4630
M	 0.7510	 0.4660
N	 0.7350	 0.4570
O	 0.7560	 0.4610
P	 0.7360	 0.4540
Q	 0.1430	 0.2310
R	 0.3930	 0.4270
S	 0.4460	 0.4530
T	 0.3930	 0.4830
U	 0.2800	 0.4580
V	 0.6860	 0.4660
W	 0.3330	 0.4270
X	 0.2560	 0.3520
Y	 0.4640	 0.3690
Z	 0.0360	 0.3310
a	 0.6170	 0.3400
b	 0.0710	 0.3060
c	 0.2500	 0.3180
d	 0.3210	 0.3220
e	 0.1070	 0.2550
f	 0.3930	 0.4420



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Chain	Atom inclusion	Q-score
g	 0.4700	 0.4560
h	 0.4290	 0.4590
i	 0.3200	 0.4470
j	 0.6950	 0.4790
k	 0.3330	 0.4180
l	 0.2560	 0.3800
m	 0.4640	 0.3570
n	 0.0360	 0.3340
o	 0.6060	 0.3410
p	 0.0710	 0.3190
q	 0.2500	 0.3300
r	 0.2860	 0.3210
s	 0.1790	 0.2140
t	 0.3930	 0.4510
u	 0.4700	 0.4510
v	 0.3930	 0.4690
w	 0.3200	 0.4610
x	 0.6860	 0.4770
y	 0.3330	 0.4290
z	 0.2560	 0.3700