



wwPDB EM Validation Summary Report ⓘ

May 13, 2025 – 02:03 PM EDT

PDB ID : 8TTW / pdb_00008ttw
EMDB ID : EMD-41613
Title : Cryo-EM structure of BG505 SOSIP.664 HIV-1 Env trimer in complex with temsavir, 8ANC195, and 10-1074
Authors : Tolbert, W.D.; Pozharski, E.; Pazgier, M.
Deposited on : 2023-08-15
Resolution : 2.96 Å(reported)

This is a wwPDB EM 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/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev118
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.43.1

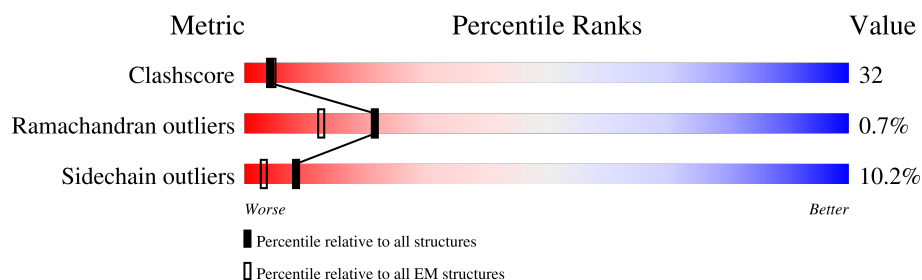
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.96 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	481	
1	E	481	
1	I	481	
2	B	153	
2	F	153	
2	J	153	
3	C	238	
3	G	238	

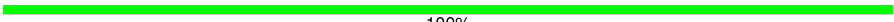
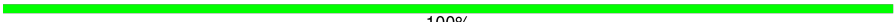

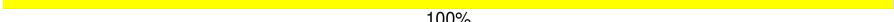




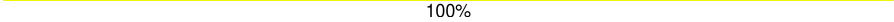
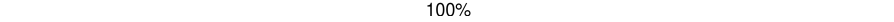
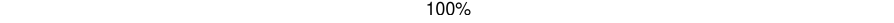
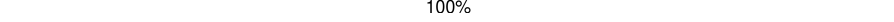
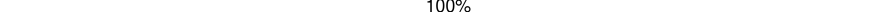


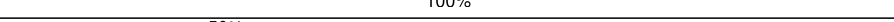

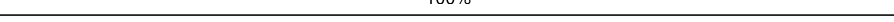
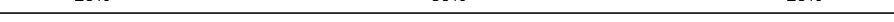






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Mol	Chain	Length	Quality of chain
3	K	238	
4	D	215	
4	H	215	
4	L	215	
5	M	238	
5	O	238	
5	Q	238	
6	N	214	
6	P	214	
6	R	214	
7	1	2	
7	2	2	
7	4	2	
7	5	2	
7	6	2	
7	7	2	
7	S	2	
7	T	2	
7	U	2	
7	V	2	
7	W	2	
7	X	2	
7	Y	2	
7	Z	2	
7	a	2	

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Mol	Chain	Length	Quality of chain
7	d	2	 100%
7	e	2	 100%
7	g	2	 50% 50%
7	h	2	 100%
7	i	2	 50% 50%
7	j	2	 50% 50%
7	k	2	 100%
7	l	2	 50% 50%
7	m	2	 100%
7	p	2	 100%
7	q	2	 100%
7	s	2	 50% 100%
7	t	2	 100%
7	u	2	 50% 50%
7	v	2	 50% 50%
7	w	2	 100%
7	x	2	 50% 50%
7	y	2	 100%
8	b	10	 20% 60% 20%
8	n	10	 30% 50% 20%
8	z	10	 30% 60% 10%
9	0	5	 60% 40%
9	c	5	 60% 40%
9	o	5	 60% 40%
10	3	9	 11% 67% 22%

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Mol	Chain	Length	Quality of chain
10	f	9	<div><div></div><div>11%67%22%</div></div>
10	r	9	<div><div></div><div>78%22%</div></div>

2 Entry composition

There are 12 unique types of molecules in this entry. The entry contains 31275 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 Envelope glycoprotein gp160.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	451	Total	C	N	O	S	0	0
			3554	2230	628	668	28		
1	E	451	Total	C	N	O	S	0	0
			3554	2230	628	668	28		
1	I	451	Total	C	N	O	S	0	0
			3554	2230	628	668	28		

There are 18 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
A	509	ARG	GLU	engineered mutation	UNP Q2N0S6
A	510	ARG	LYS	engineered mutation	UNP Q2N0S6
A	512	ARG	ALA	engineered mutation	UNP Q2N0S6
A	513	ARG	VAL	engineered mutation	UNP Q2N0S6
E	332	ASN	THR	engineered mutation	UNP Q2N0S6
E	501	CYS	ALA	engineered mutation	UNP Q2N0S6
E	509	ARG	GLU	engineered mutation	UNP Q2N0S6
E	510	ARG	LYS	engineered mutation	UNP Q2N0S6
E	512	ARG	ALA	engineered mutation	UNP Q2N0S6
E	513	ARG	VAL	engineered mutation	UNP Q2N0S6
I	332	ASN	THR	engineered mutation	UNP Q2N0S6
I	501	CYS	ALA	engineered mutation	UNP Q2N0S6
I	509	ARG	GLU	engineered mutation	UNP Q2N0S6
I	510	ARG	LYS	engineered mutation	UNP Q2N0S6
I	512	ARG	ALA	engineered mutation	UNP Q2N0S6
I	513	ARG	VAL	engineered mutation	UNP Q2N0S6

- Molecule 2 is a protein called BG505 SOSIP.664 transmembrane protein gp41.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	123	Total	C	N	O	S	0	0
			979	619	169	185	6		
2	F	123	Total	C	N	O	S	0	0
			979	619	169	185	6		
2	J	123	Total	C	N	O	S	0	0
			979	619	169	185	6		

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	559	PRO	ILE	engineered mutation	UNP Q2N0S5
B	605	CYS	THR	engineered mutation	UNP Q2N0S5
F	559	PRO	ILE	engineered mutation	UNP Q2N0S5
F	605	CYS	THR	engineered mutation	UNP Q2N0S5
J	559	PRO	ILE	engineered mutation	UNP Q2N0S5
J	605	CYS	THR	engineered mutation	UNP Q2N0S5

- Molecule 3 is a protein called Antibody 8anc195 heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	227	Total	C	N	O	S	0	0
			1710	1084	291	330	5		
3	G	227	Total	C	N	O	S	0	0
			1710	1084	291	330	5		
3	K	227	Total	C	N	O	S	0	0
			1710	1084	291	330	5		

- Molecule 4 is a protein called Antibody 8anc195 light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	D	212	Total	C	N	O	S	0	0
			1626	1017	282	322	5		
4	H	212	Total	C	N	O	S	0	0
			1626	1017	282	322	5		
4	L	212	Total	C	N	O	S	0	0
			1626	1017	282	322	5		

- Molecule 5 is a protein called Antibody 10-1074 heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	M	130	Total	C	N	O	S	0	0
			1021	646	171	200	4		

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Mol	Chain	Residues	Atoms					AltConf	Trace
5	O	130	Total	C	N	O	S	0	0
			1021	646	171	200	4		
5	Q	130	Total	C	N	O	S	0	0
			1021	646	171	200	4		

- Molecule 6 is a protein called Antibody 10-1074 light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	N	105	Total	C	N	O	S	0	0
			812	507	150	152	3		
6	P	105	Total	C	N	O	S	0	0
			812	507	150	152	3		
6	R	105	Total	C	N	O	S	0	0
			812	507	150	152	3		

- Molecule 7 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
7	S	2	Total	C	N	O	0	0
			28	16	2	10		
7	T	2	Total	C	N	O	0	0
			28	16	2	10		
7	U	2	Total	C	N	O	0	0
			28	16	2	10		
7	V	2	Total	C	N	O	0	0
			28	16	2	10		
7	W	2	Total	C	N	O	0	0
			28	16	2	10		
7	X	2	Total	C	N	O	0	0
			28	16	2	10		
7	Y	2	Total	C	N	O	0	0
			28	16	2	10		
7	Z	2	Total	C	N	O	0	0
			28	16	2	10		
7	a	2	Total	C	N	O	0	0
			28	16	2	10		

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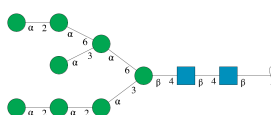
Mol	Chain	Residues	Atoms				AltConf	Trace
7	d	2	Total	C	N	O	0	0
			28	16	2	10		
7	e	2	Total	C	N	O	0	0
			28	16	2	10		
7	g	2	Total	C	N	O	0	0
			28	16	2	10		
7	h	2	Total	C	N	O	0	0
			28	16	2	10		
7	i	2	Total	C	N	O	0	0
			28	16	2	10		
7	j	2	Total	C	N	O	0	0
			28	16	2	10		
7	k	2	Total	C	N	O	0	0
			28	16	2	10		
7	l	2	Total	C	N	O	0	0
			28	16	2	10		
7	m	2	Total	C	N	O	0	0
			28	16	2	10		
7	p	2	Total	C	N	O	0	0
			28	16	2	10		
7	q	2	Total	C	N	O	0	0
			28	16	2	10		
7	s	2	Total	C	N	O	0	0
			28	16	2	10		
7	t	2	Total	C	N	O	0	0
			28	16	2	10		
7	u	2	Total	C	N	O	0	0
			28	16	2	10		
7	v	2	Total	C	N	O	0	0
			28	16	2	10		
7	w	2	Total	C	N	O	0	0
			28	16	2	10		
7	x	2	Total	C	N	O	0	0
			28	16	2	10		
7	y	2	Total	C	N	O	0	0
			28	16	2	10		
7	1	2	Total	C	N	O	0	0
			28	16	2	10		
7	2	2	Total	C	N	O	0	0
			28	16	2	10		
7	4	2	Total	C	N	O	0	0
			28	16	2	10		

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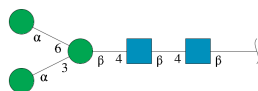
Mol	Chain	Residues	Atoms				AltConf	Trace
7	5	2	Total	C	N	O	0	0
			28	16	2	10		
7	6	2	Total	C	N	O	0	0
			28	16	2	10		
7	7	2	Total	C	N	O	0	0
			28	16	2	10		

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



Mol	Chain	Residues	Atoms				AltConf	Trace
8	b	10	Total	C	N	O	0	0
			116	64	2	50		
8	n	10	Total	C	N	O	0	0
			116	64	2	50		
8	z	10	Total	C	N	O	0	0
			116	64	2	50		

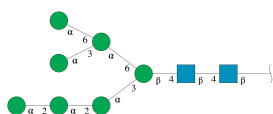
- Molecule 9 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
9	c	5	Total	C	N	O	0	0
			61	34	2	25		
9	o	5	Total	C	N	O	0	0
			61	34	2	25		
9	0	5	Total	C	N	O	0	0
			61	34	2	25		

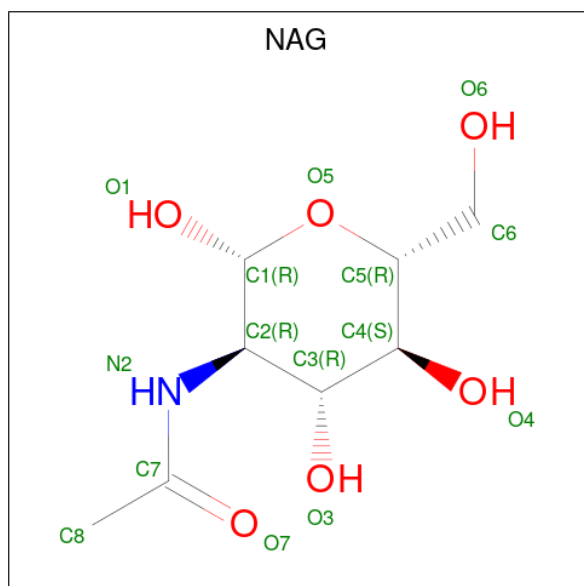
- Molecule 10 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyra

nose-(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
10	f	9	Total	C	N	O	0	0
			105	58	2	45		
10	r	9	Total	C	N	O	0	0
			105	58	2	45		
10	3	9	Total	C	N	O	0	0
			105	58	2	45		

- Molecule 11 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



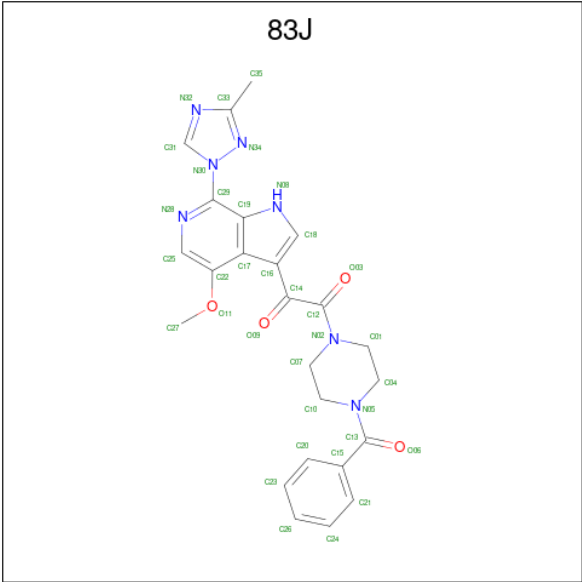
Mol	Chain	Residues	Atoms				AltConf
11	A	1	Total	C	N	O	0
			14	8	1	5	
11	A	1	Total	C	N	O	0
			14	8	1	5	
11	A	1	Total	C	N	O	0
			14	8	1	5	
11	A	1	Total	C	N	O	0
			14	8	1	5	

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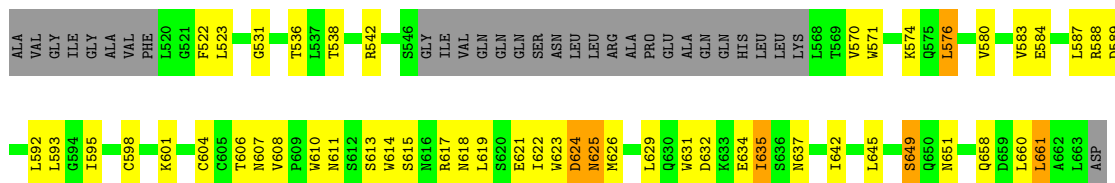
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Mol	Chain	Residues	Atoms				AltConf
11	B	1	Total	C	N	O	0
			14	8	1	5	
11	B	1	Total	C	N	O	0
			14	8	1	5	
11	C	1	Total	C	N	O	0
			14	8	1	5	
11	E	1	Total	C	N	O	0
			14	8	1	5	
11	E	1	Total	C	N	O	0
			14	8	1	5	
11	E	1	Total	C	N	O	0
			14	8	1	5	
11	E	1	Total	C	N	O	0
			14	8	1	5	
11	F	1	Total	C	N	O	0
			14	8	1	5	
11	F	1	Total	C	N	O	0
			14	8	1	5	
11	G	1	Total	C	N	O	0
			14	8	1	5	
11	I	1	Total	C	N	O	0
			14	8	1	5	
11	I	1	Total	C	N	O	0
			14	8	1	5	
11	I	1	Total	C	N	O	0
			14	8	1	5	
11	I	1	Total	C	N	O	0
			14	8	1	5	
11	J	1	Total	C	N	O	0
			14	8	1	5	
11	J	1	Total	C	N	O	0
			14	8	1	5	
11	K	1	Total	C	N	O	0
			14	8	1	5	

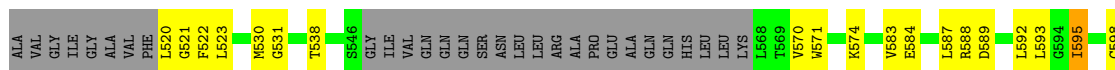
- Molecule 12 is 1-[4-(benzenecarbonyl)piperazin-1-yl]-2-[4-methoxy-7-(3-methyl-1H-1,2,4-triazol-1-yl)-1H-pyrrolo[2,3-c]pyridin-3-yl]ethane-1,2-dione (CCD ID: 83J) (formula: C₂₄H₂₃N₇O₄) (labeled as "Ligand of Interest" by depositor).



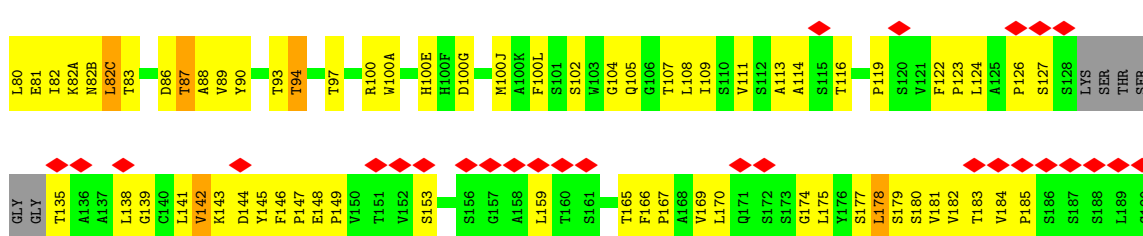
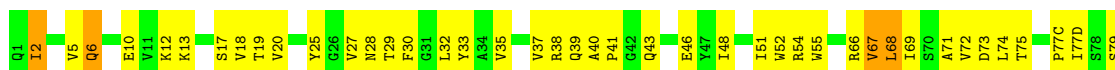
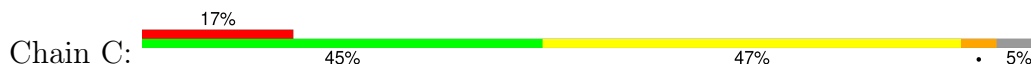
Mol	Chain	Residues	Atoms				AltConf
12	A	1	Total	C	N	O	0
			35	24	7	4	
12	E	1	Total	C	N	O	0
			35	24	7	4	
12	I	1	Total	C	N	O	0
			35	24	7	4	



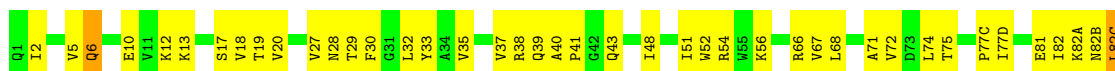
• Molecule 2: BG505 SOSIP.664 transmembrane protein gp41



• Molecule 3: Antibody 8anc195 heavy chain

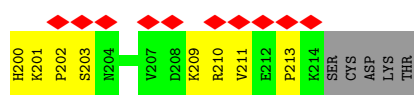
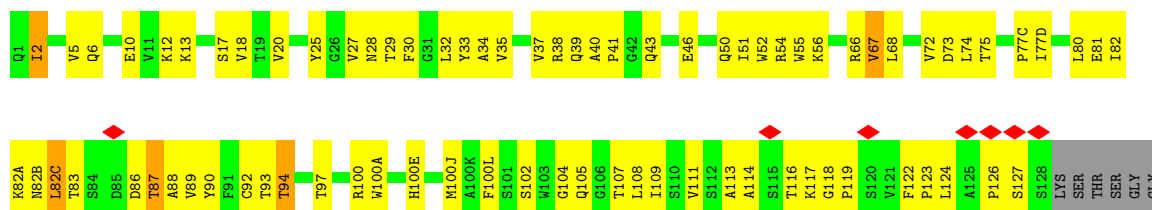
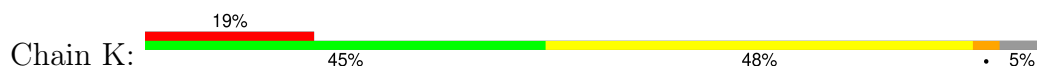


• Molecule 3: Antibody 8anc195 heavy chain

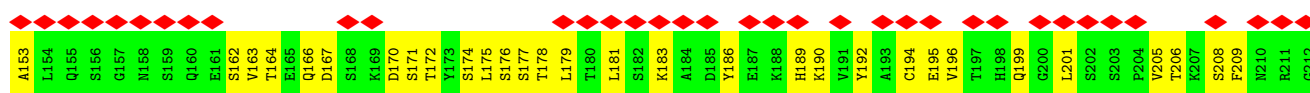




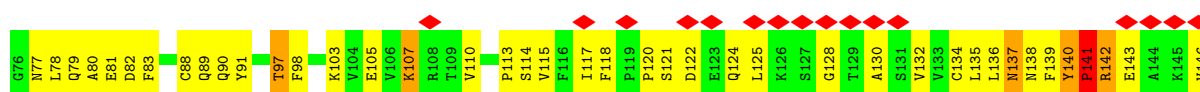
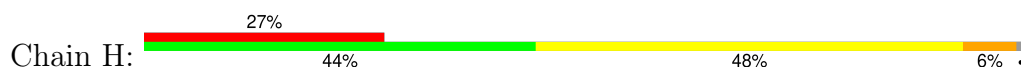
• Molecule 3: Antibody 8anc195 heavy chain



• Molecule 4: Antibody 8anc195 light chain

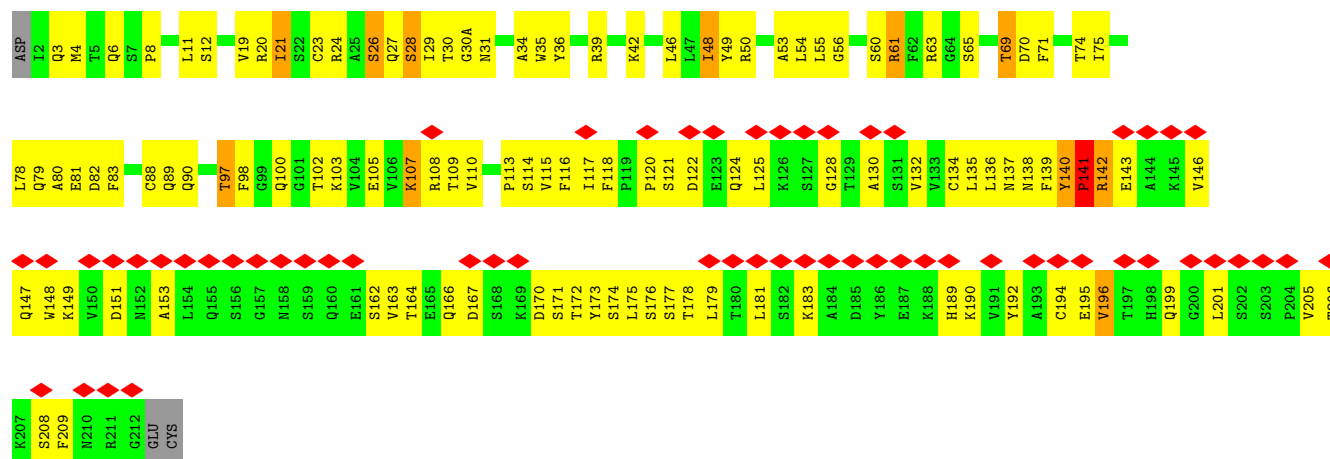


• Molecule 4: Antibody 8anc195 light chain

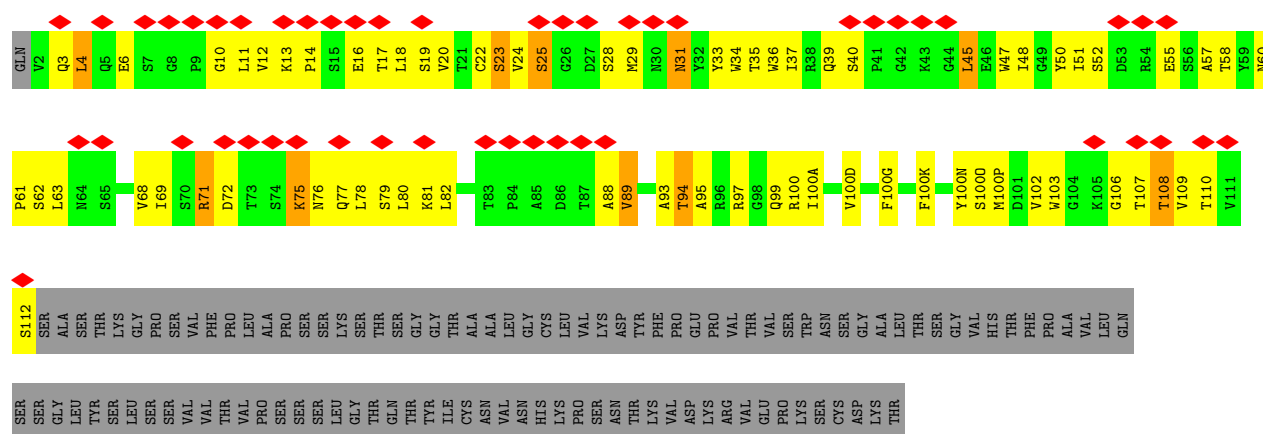
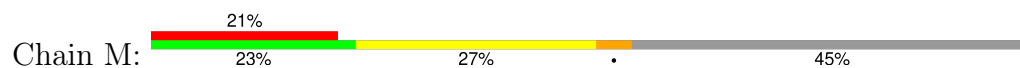




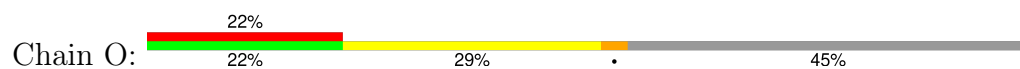
• Molecule 4: Antibody 8anc195 light chain



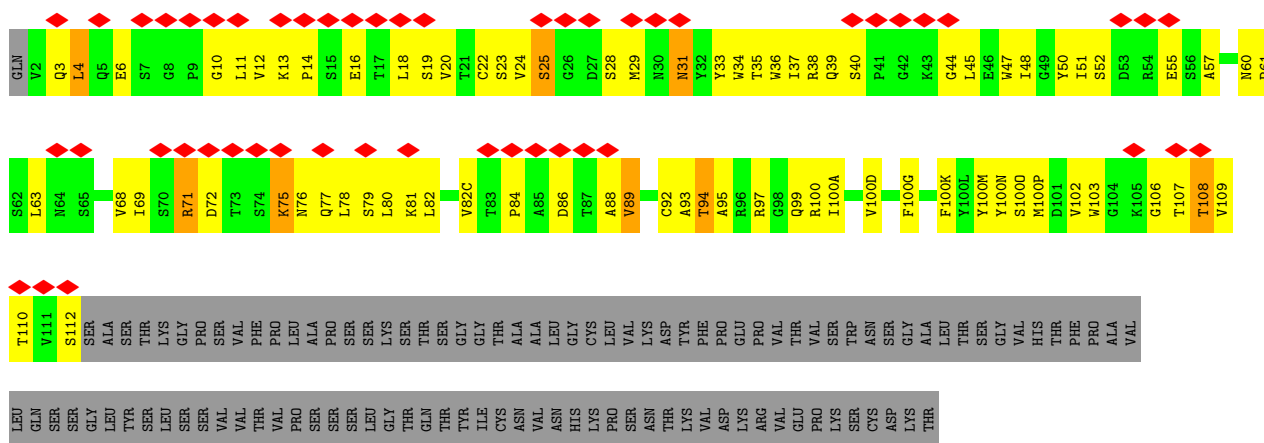
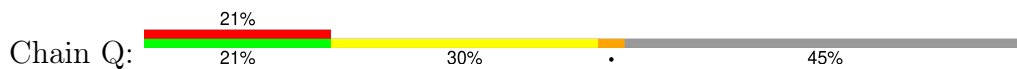
• Molecule 5: Antibody 10-1074 heavy chain



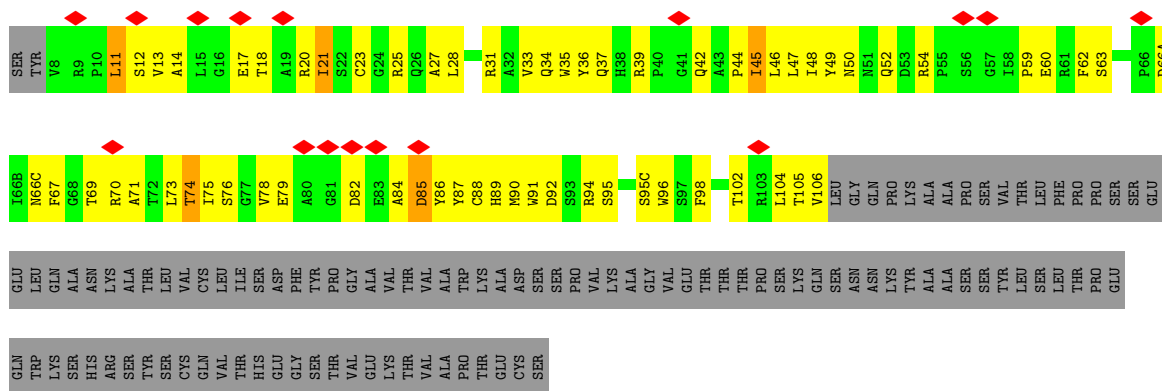
• Molecule 5: Antibody 10-1074 heavy chain



- Molecule 5: Antibody 10-1074 heavy chain

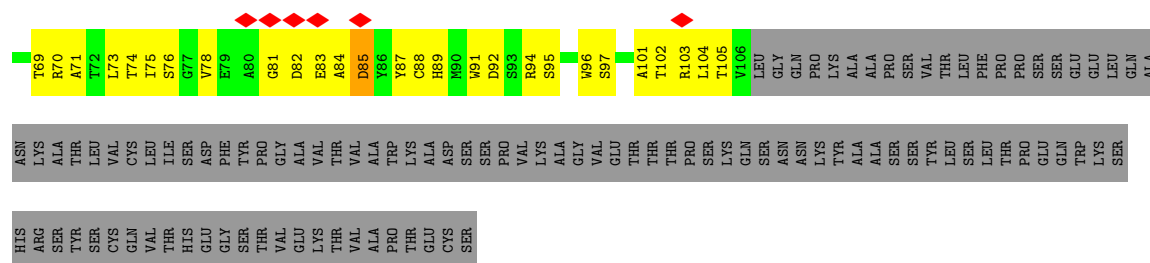


- Molecule 6: Antibody 10-1074 light chain

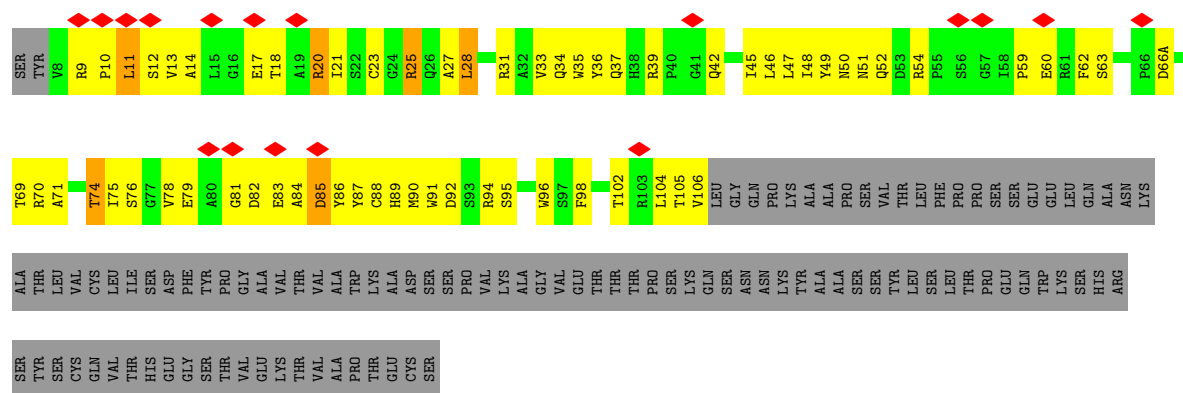


- Molecule 6: Antibody 10-1074 light chain





• Molecule 6: Antibody 10-1074 light chain



• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:  50% 50%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W:  100%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain X:  50% 50%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Y:  100%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:  50% 50% 50%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain a:  100%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain d:  100%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain e:  100%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain g:  50%  50%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain h:  100%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain i:  50%  50%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain j:  50%  50%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain k:  100%



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose





- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



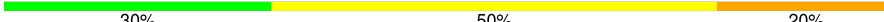
- Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-6)-[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



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

Chain n:  30% 50% 20%



- Molecule 8: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-6)-[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 z:  30% 60% 10%



- Molecule 9: 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:  60% 40%



- Molecule 9: 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 o:  60% 40%




- Molecule 9: 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 0:  60% 40%

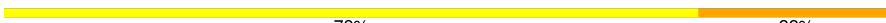


- Molecule 10: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain f:  11% 67% 22%

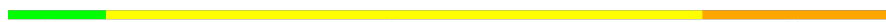


- Molecule 10: α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-3)-[α -D-mannopyranose-(1-3)-[α -D-mannopyranose-(1-6)] α -D-mannopyranose-(1-6)] β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose

Chain r:  78% 22%

MAG1	MAG2	BR43	MAN4	MAN5	MAN6	MAN7	MAN8	MAN9
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- Molecule 10: α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-2)- α -D-mannopyranose-(1-3)-[α -D-mannopyranose-(1-3)-[α -D-mannopyranose-(1-6)] α -D-mannopyranose-(1-6)] β -D-mannopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose-(1-4)-2-acetamido-2-deoxy- β -D-glucopyranose

Chain 3:  11% 67% 22%

MAG1	MAG2	BR43	MAN4	MAN5	MAN6	MAN7	MAN8	MAN9
------	------	------	------	------	------	------	------	------

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C3	Depositor
Number of particles used	319575	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	43.8	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.007	Depositor
Minimum map value	-1.362	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.043	Depositor
Recommended contour level	0.1151	Depositor
Map size (Å)	319.68, 319.68, 319.68	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.88799995, 0.88799995, 0.88799995	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, BMA, 83J, MAN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.20	0/3628	0.41	0/4926
1	E	0.18	0/3628	0.41	2/4926 (0.0%)
1	I	0.20	0/3628	0.41	0/4926
2	B	0.14	0/996	0.33	0/1351
2	F	0.14	0/996	0.34	0/1351
2	J	0.14	0/996	0.35	0/1351
3	C	0.12	0/1755	0.28	0/2397
3	G	0.13	0/1755	0.28	0/2397
3	K	0.13	0/1755	0.28	0/2397
4	D	0.16	0/1661	0.38	0/2255
4	H	0.16	0/1661	0.35	1/2255 (0.0%)
4	L	0.16	0/1661	0.39	0/2255
5	M	0.10	0/1046	0.25	0/1424
5	O	0.09	0/1046	0.25	0/1424
5	Q	0.09	0/1046	0.24	0/1424
6	N	0.10	0/833	0.29	0/1132
6	P	0.18	0/833	0.34	0/1132
6	R	0.15	0/833	0.33	0/1132
All	All	0.16	0/29757	0.35	3/40455 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	195	ASN	CA-C-N	5.73	132.48	121.54
1	E	195	ASN	C-N-CA	5.73	132.48	121.54
4	H	141	PRO	N-CA-CB	-5.11	97.89	103.25

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	3554	0	3486	214	0
1	E	3554	0	3486	187	0
1	I	3554	0	3486	208	0
2	B	979	0	961	61	0
2	F	979	0	961	62	0
2	J	979	0	961	57	0
3	C	1710	0	1680	122	0
3	G	1710	0	1680	114	0
3	K	1710	0	1680	125	0
4	D	1626	0	1581	142	0
4	H	1626	0	1581	152	0
4	L	1626	0	1581	143	0
5	M	1021	0	984	89	0
5	O	1021	0	984	88	0
5	Q	1021	0	984	101	0
6	N	812	0	774	68	0
6	P	812	0	774	70	0
6	R	812	0	774	74	0
7	1	28	0	25	0	0
7	2	28	0	25	0	0
7	4	28	0	25	2	0
7	5	28	0	25	3	0
7	6	28	0	25	1	0
7	7	28	0	25	1	0
7	S	28	0	25	0	0
7	T	28	0	25	2	0
7	U	28	0	25	0	0
7	V	28	0	25	2	0
7	W	28	0	25	0	0
7	X	28	0	25	2	0
7	Y	28	0	25	0	0
7	Z	28	0	25	3	0
7	a	28	0	25	2	0
7	d	28	0	25	0	0
7	e	28	0	25	0	0
7	g	28	0	25	2	0
7	h	28	0	25	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	i	28	0	25	1	0
7	j	28	0	25	1	0
7	k	28	0	25	0	0
7	l	28	0	25	3	0
7	m	28	0	25	4	0
7	p	28	0	25	0	0
7	q	28	0	25	0	0
7	s	28	0	25	2	0
7	t	28	0	25	3	0
7	u	28	0	25	1	0
7	v	28	0	25	1	0
7	w	28	0	25	0	0
7	x	28	0	25	3	0
7	y	28	0	25	3	0
8	b	116	0	97	4	0
8	n	116	0	97	5	0
8	z	116	0	97	6	0
9	o	61	0	52	0	0
9	c	61	0	52	0	0
9	o	61	0	52	0	0
10	3	105	0	88	7	0
10	f	105	0	88	7	0
10	r	105	0	88	6	0
11	A	56	0	52	14	0
11	B	28	0	26	0	0
11	C	14	0	13	0	0
11	E	56	0	52	12	0
11	F	28	0	26	0	0
11	G	14	0	13	0	0
11	I	56	0	52	11	0
11	J	28	0	26	0	0
11	K	14	0	13	0	0
12	A	35	0	0	1	0
12	E	35	0	0	1	0
12	I	35	0	0	1	0
All	All	31275	0	30207	1949	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 32.

The worst 5 of 1949 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)
4:H:140:TYR:CG	4:H:141:PRO:HD2	1.43	1.51
4:H:140:TYR:CG	4:H:141:PRO:CD	2.08	1.36
4:D:140:TYR:HB3	4:D:141:PRO:CD	1.54	1.36
4:L:140:TYR:HB3	4:L:141:PRO:CD	1.51	1.35
4:D:140:TYR:CB	4:D:141:PRO:HD2	1.51	1.32

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	445/481 (92%)	401 (90%)	41 (9%)	3 (1%)	19	41
1	E	445/481 (92%)	401 (90%)	40 (9%)	4 (1%)	14	35
1	I	445/481 (92%)	399 (90%)	43 (10%)	3 (1%)	19	41
2	B	119/153 (78%)	105 (88%)	13 (11%)	1 (1%)	16	39
2	F	119/153 (78%)	106 (89%)	12 (10%)	1 (1%)	16	39
2	J	119/153 (78%)	106 (89%)	12 (10%)	1 (1%)	16	39
3	C	223/238 (94%)	209 (94%)	14 (6%)	0	100	100
3	G	223/238 (94%)	209 (94%)	14 (6%)	0	100	100
3	K	223/238 (94%)	209 (94%)	14 (6%)	0	100	100
4	D	210/215 (98%)	196 (93%)	11 (5%)	3 (1%)	9	25
4	H	210/215 (98%)	197 (94%)	10 (5%)	3 (1%)	9	25
4	L	210/215 (98%)	196 (93%)	11 (5%)	3 (1%)	9	25
5	M	128/238 (54%)	124 (97%)	3 (2%)	1 (1%)	16	39
5	O	128/238 (54%)	122 (95%)	5 (4%)	1 (1%)	16	39
5	Q	128/238 (54%)	122 (95%)	5 (4%)	1 (1%)	16	39
6	N	103/214 (48%)	95 (92%)	8 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	P	103/214 (48%)	93 (90%)	10 (10%)	0	100	100
6	R	103/214 (48%)	92 (89%)	11 (11%)	0	100	100
All	All	3684/4617 (80%)	3382 (92%)	277 (8%)	25 (1%)	21	41

5 of 25 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	625	ASN
4	D	140	TYR
4	D	141	PRO
1	E	196	CYS
2	F	625	ASN

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	403/428 (94%)	357 (89%)	46 (11%)	4	14
1	E	403/428 (94%)	365 (91%)	38 (9%)	7	20
1	I	403/428 (94%)	361 (90%)	42 (10%)	5	16
2	B	106/129 (82%)	95 (90%)	11 (10%)	5	16
2	F	106/129 (82%)	95 (90%)	11 (10%)	5	16
2	J	106/129 (82%)	98 (92%)	8 (8%)	11	27
3	C	195/204 (96%)	168 (86%)	27 (14%)	3	8
3	G	195/204 (96%)	172 (88%)	23 (12%)	4	13
3	K	195/204 (96%)	171 (88%)	24 (12%)	4	11
4	D	179/182 (98%)	165 (92%)	14 (8%)	10	26
4	H	179/182 (98%)	162 (90%)	17 (10%)	7	19
4	L	179/182 (98%)	164 (92%)	15 (8%)	9	24
5	M	114/208 (55%)	102 (90%)	12 (10%)	5	16
5	O	114/208 (55%)	105 (92%)	9 (8%)	10	25

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	Q	114/208 (55%)	106 (93%)	8 (7%)	12	31
6	N	84/178 (47%)	76 (90%)	8 (10%)	7	19
6	P	84/178 (47%)	76 (90%)	8 (10%)	7	19
6	R	84/178 (47%)	74 (88%)	10 (12%)	4	12
All	All	3243/3987 (81%)	2912 (90%)	331 (10%)	8	17

5 of 331 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	J	595	ILE
5	M	94	THR
3	K	5	VAL
3	K	193	THR
5	O	71	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 45 such sidechains are listed below:

Mol	Chain	Res	Type
2	J	630	GLN
6	N	50	ASN
2	J	651	ASN
4	L	37	GLN
5	O	77	GLN

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 ⓘ

138 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	$\# Z > 2$
9	NAG	0	1	1,9	14,14,15	0.27	0	17,19,21	0.52	0
9	NAG	0	2	9	14,14,15	0.21	0	17,19,21	0.45	0
9	BMA	0	3	9	11,11,12	0.63	0	15,15,17	0.77	0
9	MAN	0	4	9	11,11,12	0.59	0	15,15,17	0.91	2 (13%)
9	MAN	0	5	9	11,11,12	0.56	0	15,15,17	0.97	2 (13%)
7	NAG	1	1	1,7	14,14,15	0.29	0	17,19,21	0.41	0
7	NAG	1	2	7	14,14,15	0.23	0	17,19,21	0.41	0
7	NAG	2	1	1,7	14,14,15	0.24	0	17,19,21	0.48	0
7	NAG	2	2	7	14,14,15	0.23	0	17,19,21	0.44	0
10	NAG	3	1	1,10	14,14,15	0.40	0	17,19,21	0.41	0
10	NAG	3	2	10	14,14,15	0.26	0	17,19,21	0.56	0
10	BMA	3	3	10	11,11,12	0.72	0	15,15,17	1.09	1 (6%)
10	MAN	3	4	10	11,11,12	0.54	0	15,15,17	1.03	2 (13%)
10	MAN	3	5	10	11,11,12	0.54	0	15,15,17	0.90	1 (6%)
10	MAN	3	6	10	11,11,12	0.53	0	15,15,17	1.03	2 (13%)
10	MAN	3	7	10	11,11,12	0.56	0	15,15,17	0.96	2 (13%)
10	MAN	3	8	10	11,11,12	0.58	0	15,15,17	1.09	2 (13%)
10	MAN	3	9	10	11,11,12	0.64	0	15,15,17	0.93	2 (13%)
7	NAG	4	1	1,7	14,14,15	0.57	1 (7%)	17,19,21	0.56	0
7	NAG	4	2	7	14,14,15	0.24	0	17,19,21	0.49	0
7	NAG	5	1	1,7	14,14,15	0.21	0	17,19,21	0.49	0
7	NAG	5	2	7	14,14,15	0.22	0	17,19,21	0.55	0
7	NAG	6	1	1,7	14,14,15	0.27	0	17,19,21	0.42	0
7	NAG	6	2	7	14,14,15	0.24	0	17,19,21	0.51	0
7	NAG	7	1	1,7	14,14,15	0.25	0	17,19,21	0.53	0
7	NAG	7	2	7	14,14,15	0.22	0	17,19,21	0.44	0
7	NAG	S	1	1,7	14,14,15	0.48	0	17,19,21	0.49	0
7	NAG	S	2	7	14,14,15	0.26	0	17,19,21	0.50	0
7	NAG	T	1	7,2	14,14,15	0.37	0	17,19,21	0.57	0
7	NAG	T	2	7	14,14,15	0.32	0	17,19,21	0.48	0
7	NAG	U	1	1,7	14,14,15	0.48	0	17,19,21	0.48	0
7	NAG	U	2	7	14,14,15	0.27	0	17,19,21	0.49	0
7	NAG	V	1	7,2	14,14,15	0.36	0	17,19,21	0.55	0
7	NAG	V	2	7	14,14,15	0.33	0	17,19,21	0.48	0
7	NAG	W	1	1,7	14,14,15	0.48	0	17,19,21	0.49	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
7	NAG	W	2	7	14,14,15	0.27	0	17,19,21	0.48	0
7	NAG	X	1	7,2	14,14,15	0.41	0	17,19,21	0.56	0
7	NAG	X	2	7	14,14,15	0.31	0	17,19,21	0.49	0
7	NAG	Y	1	1,7	14,14,15	0.27	0	17,19,21	0.37	0
7	NAG	Y	2	7	14,14,15	0.18	0	17,19,21	0.48	0
7	NAG	Z	1	1,7	14,14,15	0.29	0	17,19,21	0.38	0
7	NAG	Z	2	7	14,14,15	0.21	0	17,19,21	0.41	0
7	NAG	a	1	1,7	14,14,15	0.28	0	17,19,21	0.40	0
7	NAG	a	2	7	14,14,15	0.20	0	17,19,21	0.45	0
8	NAG	b	1	1,8	14,14,15	0.28	0	17,19,21	0.62	0
8	MAN	b	10	8	11,11,12	0.57	0	15,15,17	0.94	2 (13%)
8	NAG	b	2	8	14,14,15	0.42	0	17,19,21	0.63	1 (5%)
8	BMA	b	3	8	11,11,12	0.52	0	15,15,17	0.89	0
8	MAN	b	4	8	11,11,12	0.80	1 (9%)	15,15,17	1.00	2 (13%)
8	MAN	b	5	8	11,11,12	0.65	0	15,15,17	1.08	2 (13%)
8	MAN	b	6	8	11,11,12	0.65	1 (9%)	15,15,17	1.12	2 (13%)
8	MAN	b	7	8	11,11,12	0.68	0	15,15,17	1.01	2 (13%)
8	MAN	b	8	8	11,11,12	0.74	0	15,15,17	1.22	2 (13%)
8	MAN	b	9	8	11,11,12	0.57	0	15,15,17	0.95	2 (13%)
9	NAG	c	1	1,9	14,14,15	0.23	0	17,19,21	0.53	0
9	NAG	c	2	9	14,14,15	0.19	0	17,19,21	0.44	0
9	BMA	c	3	9	11,11,12	0.64	0	15,15,17	0.78	0
9	MAN	c	4	9	11,11,12	0.60	0	15,15,17	0.91	2 (13%)
9	MAN	c	5	9	11,11,12	0.57	0	15,15,17	0.97	2 (13%)
7	NAG	d	1	1,7	14,14,15	0.32	0	17,19,21	0.41	0
7	NAG	d	2	7	14,14,15	0.24	0	17,19,21	0.41	0
7	NAG	e	1	1,7	14,14,15	0.23	0	17,19,21	0.48	0
7	NAG	e	2	7	14,14,15	0.25	0	17,19,21	0.44	0
10	NAG	f	1	1,10	14,14,15	0.41	0	17,19,21	0.41	0
10	NAG	f	2	10	14,14,15	0.27	0	17,19,21	0.57	0
10	BMA	f	3	10	11,11,12	0.72	0	15,15,17	1.09	1 (6%)
10	MAN	f	4	10	11,11,12	0.52	0	15,15,17	1.04	2 (13%)
10	MAN	f	5	10	11,11,12	0.55	0	15,15,17	0.90	1 (6%)
10	MAN	f	6	10	11,11,12	0.53	0	15,15,17	1.02	2 (13%)
10	MAN	f	7	10	11,11,12	0.57	0	15,15,17	0.95	2 (13%)
10	MAN	f	8	10	11,11,12	0.59	0	15,15,17	1.11	2 (13%)
10	MAN	f	9	10	11,11,12	0.64	0	15,15,17	0.94	2 (13%)
7	NAG	g	1	1,7	14,14,15	0.55	0	17,19,21	0.56	0
7	NAG	g	2	7	14,14,15	0.26	0	17,19,21	0.48	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
7	NAG	h	1	1,7	14,14,15	0.21	0	17,19,21	0.48	0
7	NAG	h	2	7	14,14,15	0.21	0	17,19,21	0.55	0
7	NAG	i	1	1,7	14,14,15	0.29	0	17,19,21	0.41	0
7	NAG	i	2	7	14,14,15	0.23	0	17,19,21	0.50	0
7	NAG	j	1	1,7	14,14,15	0.26	0	17,19,21	0.52	0
7	NAG	j	2	7	14,14,15	0.24	0	17,19,21	0.44	0
7	NAG	k	1	1,7	14,14,15	0.29	0	17,19,21	0.38	0
7	NAG	k	2	7	14,14,15	0.19	0	17,19,21	0.48	0
7	NAG	l	1	1,7	14,14,15	0.27	0	17,19,21	0.39	0
7	NAG	l	2	7	14,14,15	0.21	0	17,19,21	0.42	0
7	NAG	m	1	1,7	14,14,15	0.30	0	17,19,21	0.41	0
7	NAG	m	2	7	14,14,15	0.18	0	17,19,21	0.45	0
8	NAG	n	1	1,8	14,14,15	0.34	0	17,19,21	0.46	0
8	MAN	n	10	8	11,11,12	0.57	0	15,15,17	0.93	2 (13%)
8	NAG	n	2	8	14,14,15	0.39	0	17,19,21	0.55	0
8	BMA	n	3	8	11,11,12	0.52	0	15,15,17	0.89	0
8	MAN	n	4	8	11,11,12	0.77	0	15,15,17	1.00	2 (13%)
8	MAN	n	5	8	11,11,12	0.65	0	15,15,17	1.05	1 (6%)
8	MAN	n	6	8	11,11,12	0.65	1 (9%)	15,15,17	1.11	2 (13%)
8	MAN	n	7	8	11,11,12	0.69	0	15,15,17	1.03	2 (13%)
8	MAN	n	8	8	11,11,12	0.74	0	15,15,17	1.23	2 (13%)
8	MAN	n	9	8	11,11,12	0.57	0	15,15,17	0.93	2 (13%)
9	NAG	o	1	1,9	14,14,15	0.24	0	17,19,21	0.55	0
9	NAG	o	2	9	14,14,15	0.20	0	17,19,21	0.45	0
9	BMA	o	3	9	11,11,12	0.65	0	15,15,17	0.77	0
9	MAN	o	4	9	11,11,12	0.60	0	15,15,17	0.91	2 (13%)
9	MAN	o	5	9	11,11,12	0.57	0	15,15,17	0.96	2 (13%)
7	NAG	p	1	1,7	14,14,15	0.31	0	17,19,21	0.40	0
7	NAG	p	2	7	14,14,15	0.23	0	17,19,21	0.40	0
7	NAG	q	1	1,7	14,14,15	0.25	0	17,19,21	0.48	0
7	NAG	q	2	7	14,14,15	0.23	0	17,19,21	0.44	0
10	NAG	r	1	1,10	14,14,15	0.41	0	17,19,21	0.40	0
10	NAG	r	2	10	14,14,15	0.26	0	17,19,21	0.57	0
10	BMA	r	3	10	11,11,12	0.70	0	15,15,17	1.11	1 (6%)
10	MAN	r	4	10	11,11,12	0.51	0	15,15,17	1.07	2 (13%)
10	MAN	r	5	10	11,11,12	0.55	0	15,15,17	0.91	1 (6%)
10	MAN	r	6	10	11,11,12	0.49	0	15,15,17	1.05	2 (13%)
10	MAN	r	7	10	11,11,12	0.55	0	15,15,17	0.97	2 (13%)
10	MAN	r	8	10	11,11,12	0.58	0	15,15,17	1.10	2 (13%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	MAN	r	9	10	11,11,12	0.65	0	15,15,17	0.94	2 (13%)
7	NAG	s	1	1,7	14,14,15	0.58	1 (7%)	17,19,21	0.57	0
7	NAG	s	2	7	14,14,15	0.24	0	17,19,21	0.48	0
7	NAG	t	1	1,7	14,14,15	0.21	0	17,19,21	0.49	0
7	NAG	t	2	7	14,14,15	0.22	0	17,19,21	0.56	0
7	NAG	u	1	1,7	14,14,15	0.25	0	17,19,21	0.40	0
7	NAG	u	2	7	14,14,15	0.24	0	17,19,21	0.50	0
7	NAG	v	1	1,7	14,14,15	0.25	0	17,19,21	0.53	0
7	NAG	v	2	7	14,14,15	0.24	0	17,19,21	0.44	0
7	NAG	w	1	1,7	14,14,15	0.28	0	17,19,21	0.38	0
7	NAG	w	2	7	14,14,15	0.20	0	17,19,21	0.48	0
7	NAG	x	1	1,7	14,14,15	0.30	0	17,19,21	0.38	0
7	NAG	x	2	7	14,14,15	0.20	0	17,19,21	0.41	0
7	NAG	y	1	1,7	14,14,15	0.38	0	17,19,21	0.38	0
7	NAG	y	2	7	14,14,15	0.21	0	17,19,21	0.42	0
8	NAG	z	1	1,8	14,14,15	0.27	0	17,19,21	0.63	0
8	MAN	z	10	8	11,11,12	0.59	0	15,15,17	0.93	2 (13%)
8	NAG	z	2	8	14,14,15	0.46	0	17,19,21	0.61	0
8	BMA	z	3	8	11,11,12	0.52	0	15,15,17	0.92	0
8	MAN	z	4	8	11,11,12	0.78	0	15,15,17	1.02	2 (13%)
8	MAN	z	5	8	11,11,12	0.71	0	15,15,17	1.03	0
8	MAN	z	6	8	11,11,12	0.65	1 (9%)	15,15,17	1.12	2 (13%)
8	MAN	z	7	8	11,11,12	0.67	0	15,15,17	1.02	2 (13%)
8	MAN	z	8	8	11,11,12	0.75	0	15,15,17	1.23	2 (13%)
8	MAN	z	9	8	11,11,12	0.59	0	15,15,17	0.94	2 (13%)

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
9	NAG	0	1	1,9	-	2/6/23/26	0/1/1/1
9	NAG	0	2	9	-	0/6/23/26	0/1/1/1
9	BMA	0	3	9	-	2/2/19/22	0/1/1/1
9	MAN	0	4	9	-	2/2/19/22	0/1/1/1
9	MAN	0	5	9	-	0/2/19/22	0/1/1/1
7	NAG	1	1	1,7	-	0/6/23/26	0/1/1/1
7	NAG	1	2	7	-	2/6/23/26	0/1/1/1
7	NAG	2	1	1,7	-	2/6/23/26	0/1/1/1

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

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

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

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

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	s	1	NAG	O5-C1	-2.08	1.40	1.43
8	b	4	MAN	O5-C1	-2.05	1.40	1.43
8	z	6	MAN	C1-C2	2.04	1.57	1.52
8	b	6	MAN	C1-C2	2.03	1.57	1.52
7	4	1	NAG	O5-C1	-2.02	1.40	1.43

The worst 5 of 88 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	b	8	MAN	O2-C2-C3	-3.13	103.67	110.15
8	z	8	MAN	O2-C2-C3	-3.13	103.67	110.15
8	n	8	MAN	O2-C2-C3	-3.08	103.77	110.15
10	r	8	MAN	C1-O5-C5	2.99	116.19	112.19
10	f	8	MAN	C1-O5-C5	2.97	116.17	112.19

There are no chirality outliers.

5 of 193 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	T	2	NAG	C3-C2-N2-C7
7	V	2	NAG	C3-C2-N2-C7
7	X	2	NAG	C3-C2-N2-C7
10	r	6	MAN	C4-C5-C6-O6
7	X	1	NAG	O5-C5-C6-O6

There are no ring outliers.

43 monomers are involved in 72 short contacts:

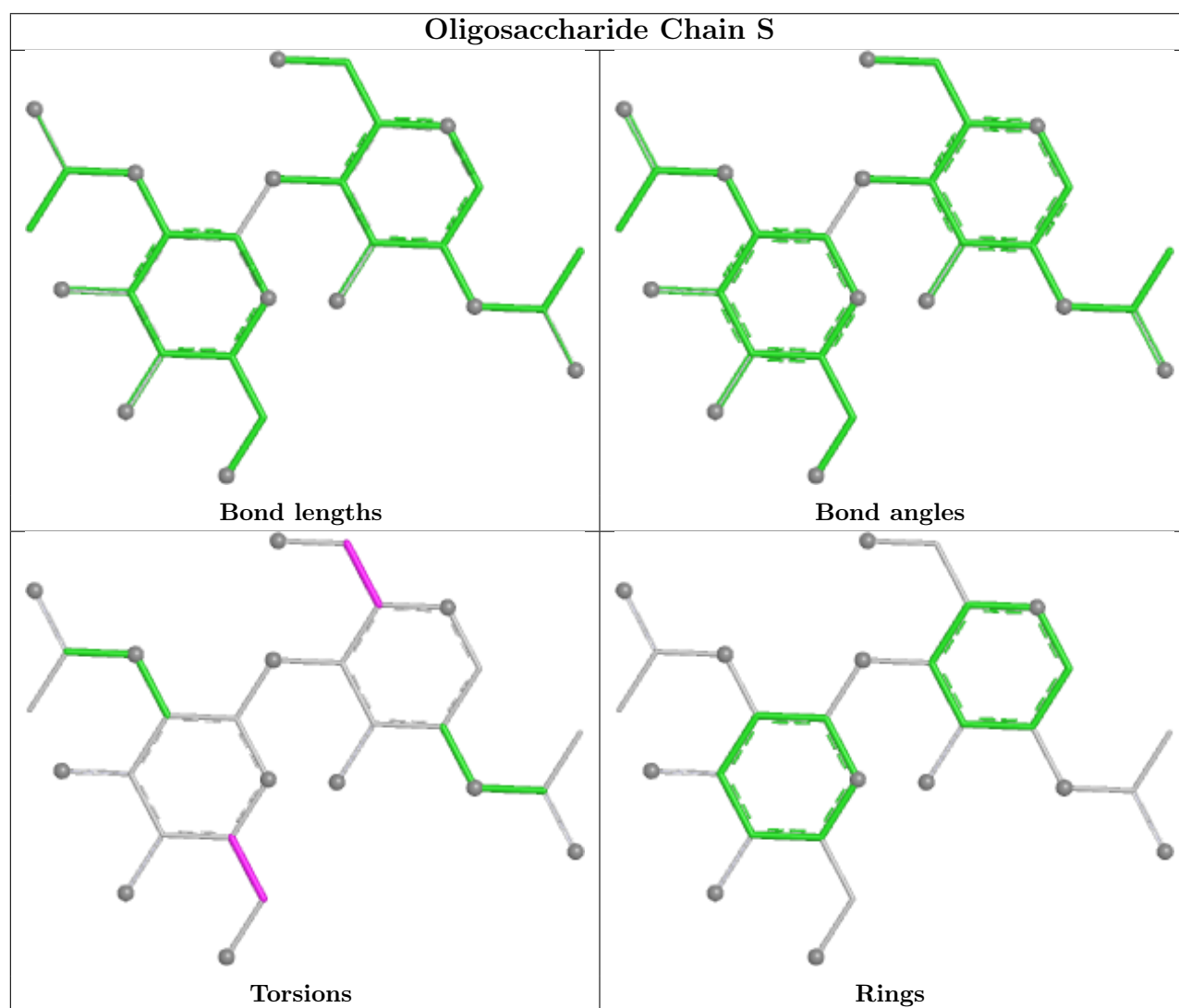
Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	3	6	MAN	5	0
7	g	2	NAG	2	0
7	Z	1	NAG	3	0
8	z	5	MAN	5	0
7	5	1	NAG	1	0
7	l	1	NAG	3	0
7	y	2	NAG	2	0
7	7	1	NAG	1	0
8	z	6	MAN	1	0
8	n	6	MAN	1	0
7	m	1	NAG	4	0
8	b	6	MAN	1	0
7	t	1	NAG	1	0
7	u	1	NAG	1	0
10	r	5	MAN	1	0
7	i	1	NAG	1	0
7	T	2	NAG	2	0
7	X	2	NAG	2	0
7	m	2	NAG	2	0
8	n	5	MAN	4	0
7	x	1	NAG	3	0
7	t	2	NAG	2	0
10	3	5	MAN	1	0
7	j	1	NAG	1	0
10	r	6	MAN	3	0
7	a	1	NAG	2	0
7	s	2	NAG	2	0
8	b	5	MAN	3	0
7	a	2	NAG	1	0
7	h	1	NAG	2	0
10	f	1	NAG	1	0
10	r	1	NAG	2	0
10	f	5	MAN	2	0

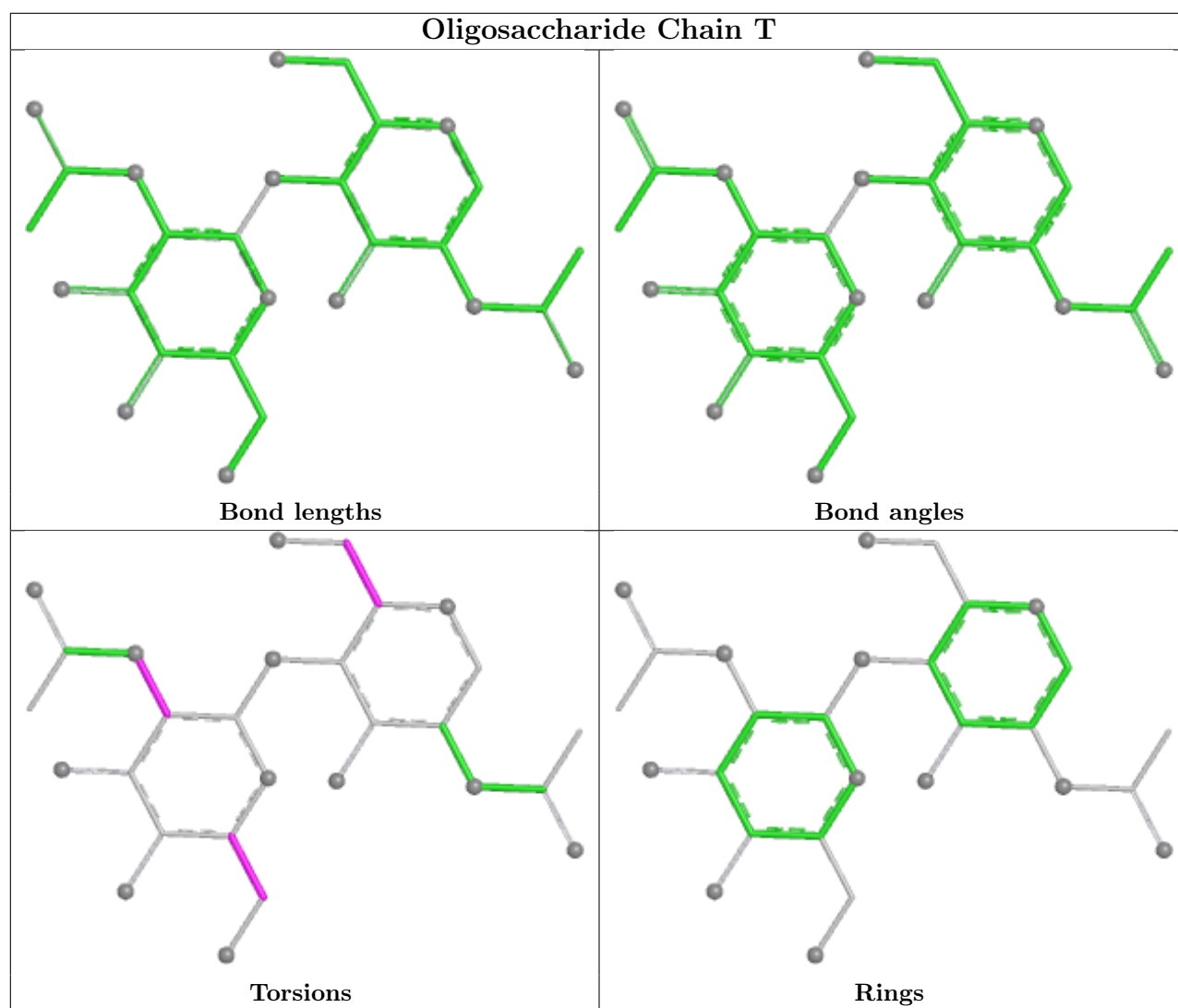
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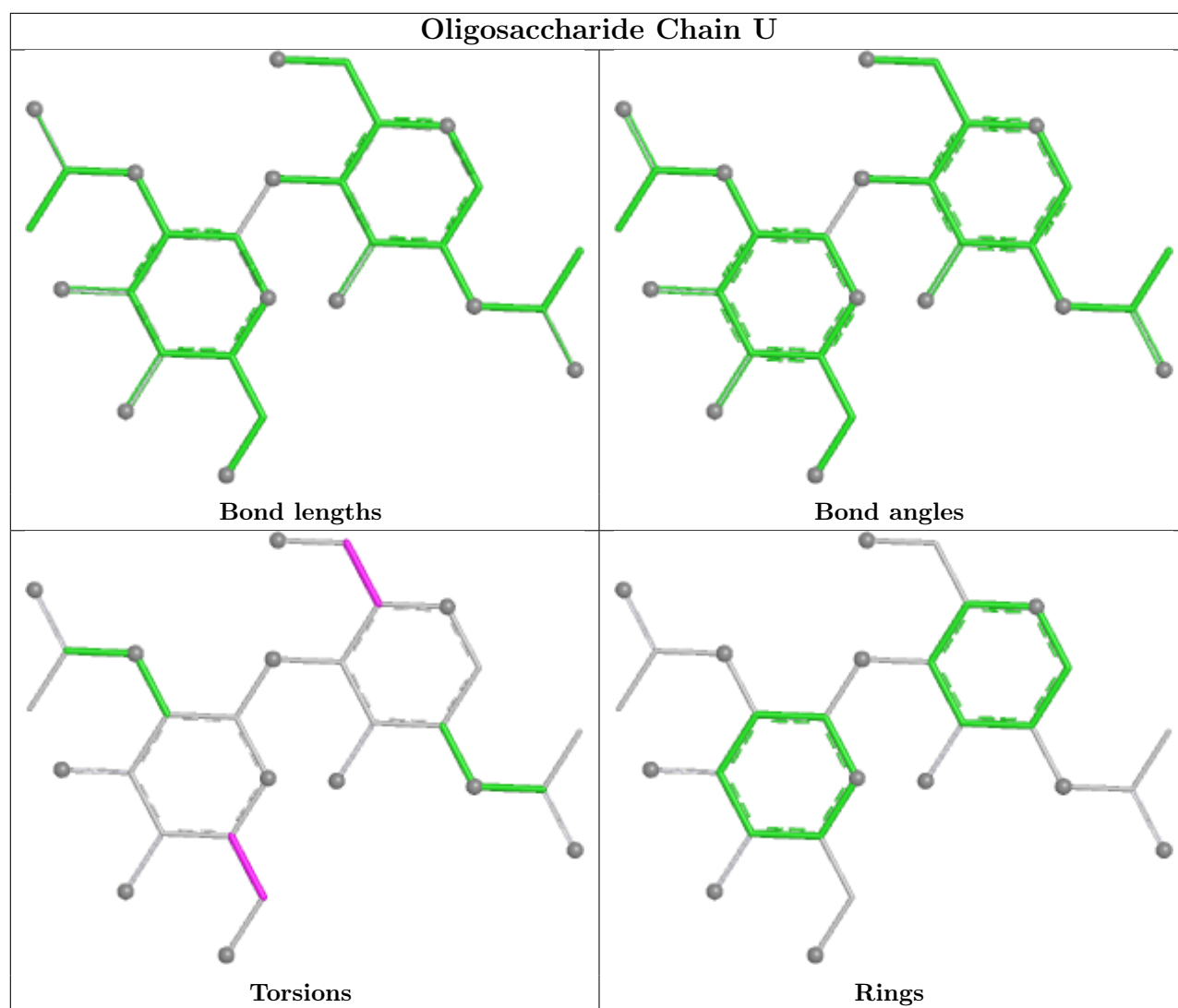
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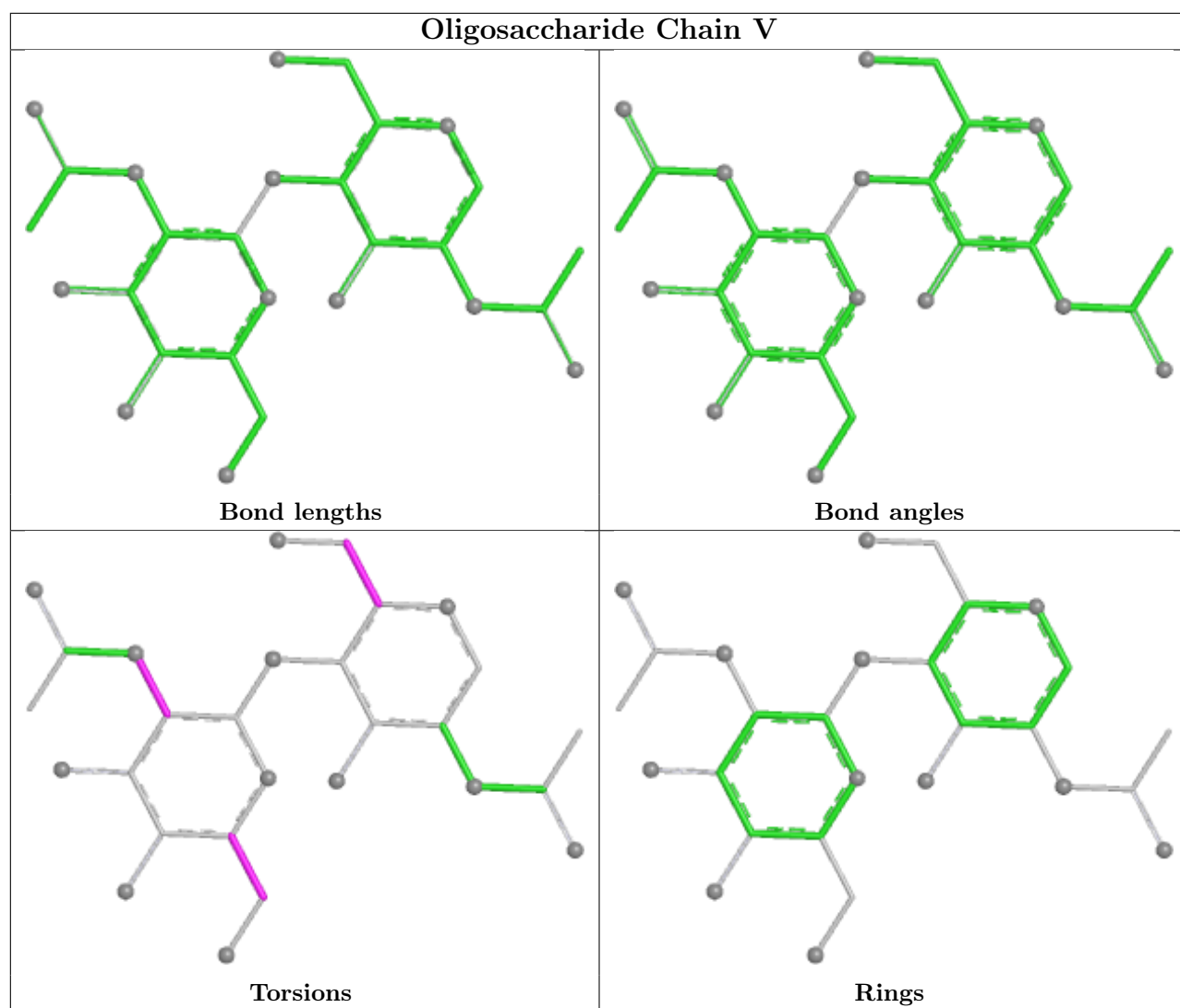
Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	r	2	NAG	1	0
7	h	2	NAG	2	0
10	f	6	MAN	4	0
7	V	2	NAG	2	0
7	6	1	NAG	1	0
7	4	2	NAG	2	0
7	5	2	NAG	2	0
7	y	1	NAG	3	0
10	3	1	NAG	1	0
7	v	1	NAG	1	0

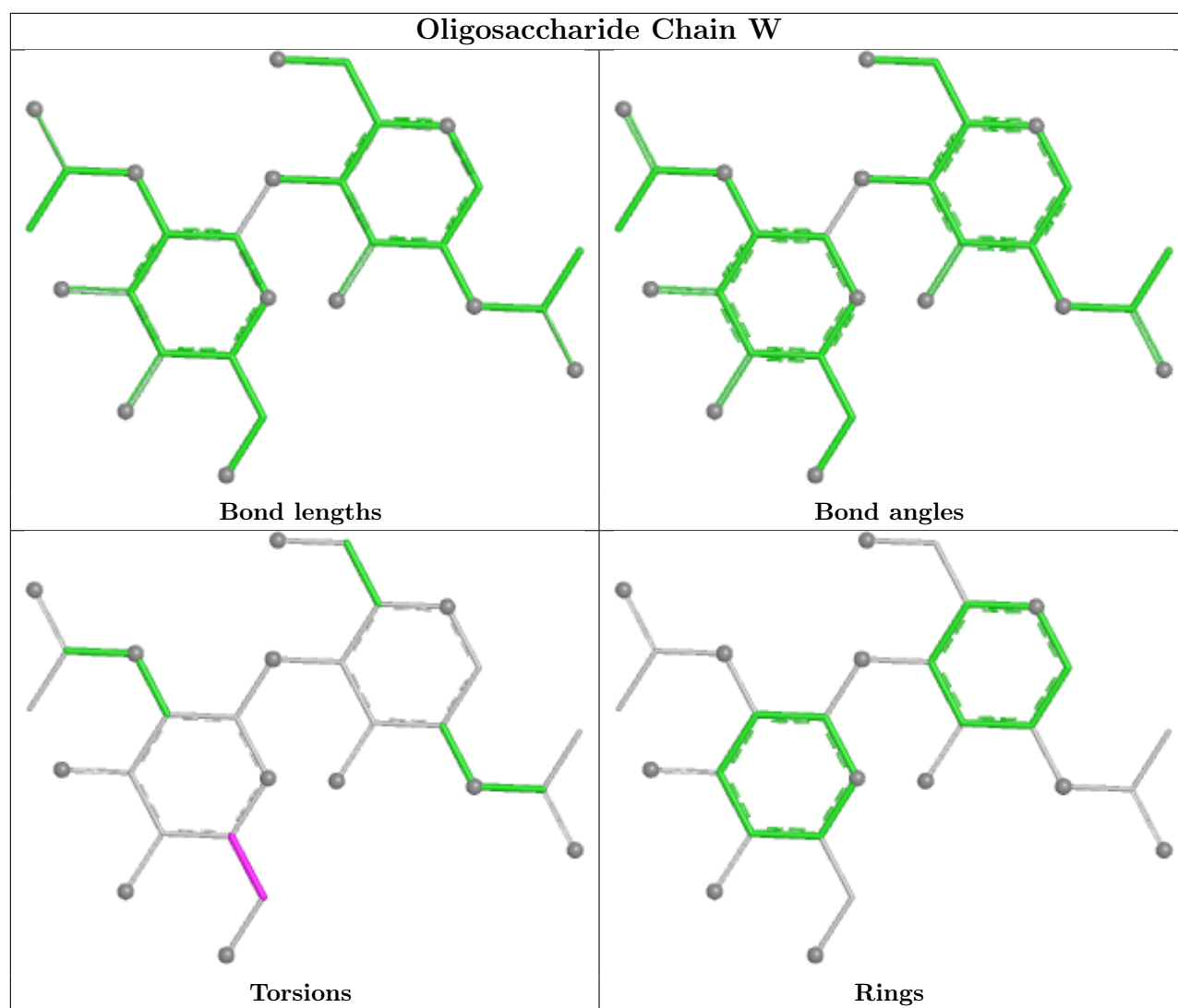
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

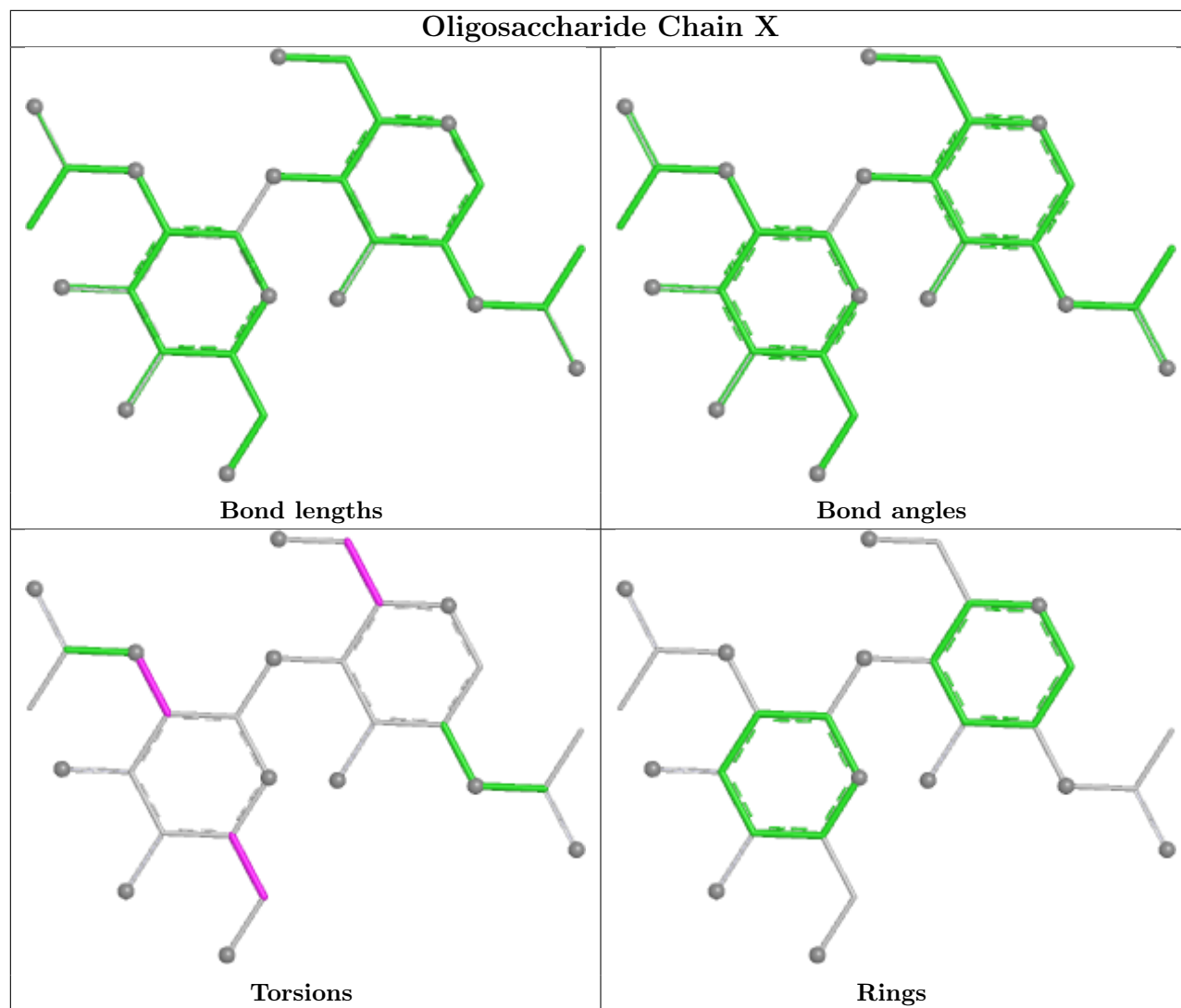


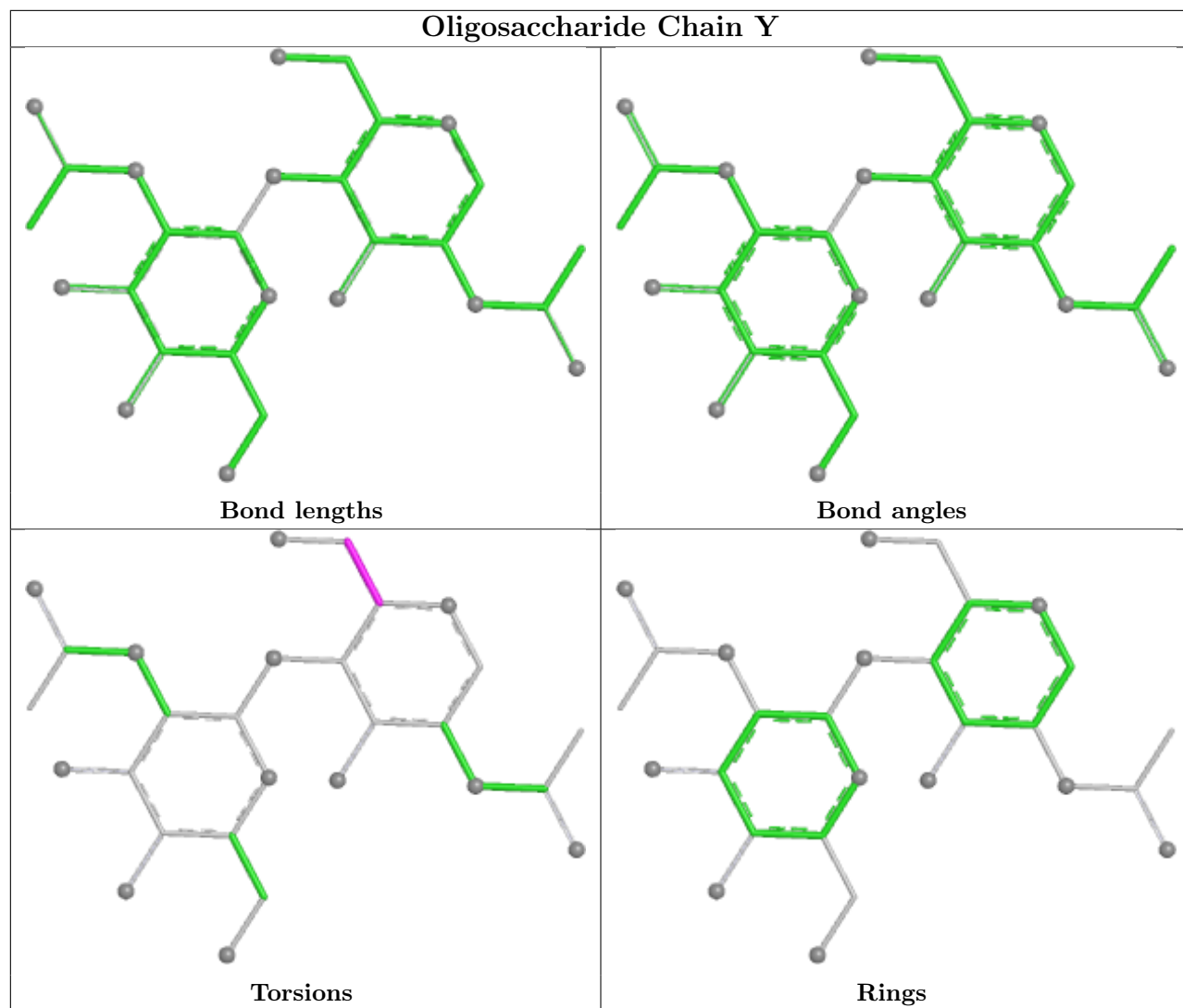


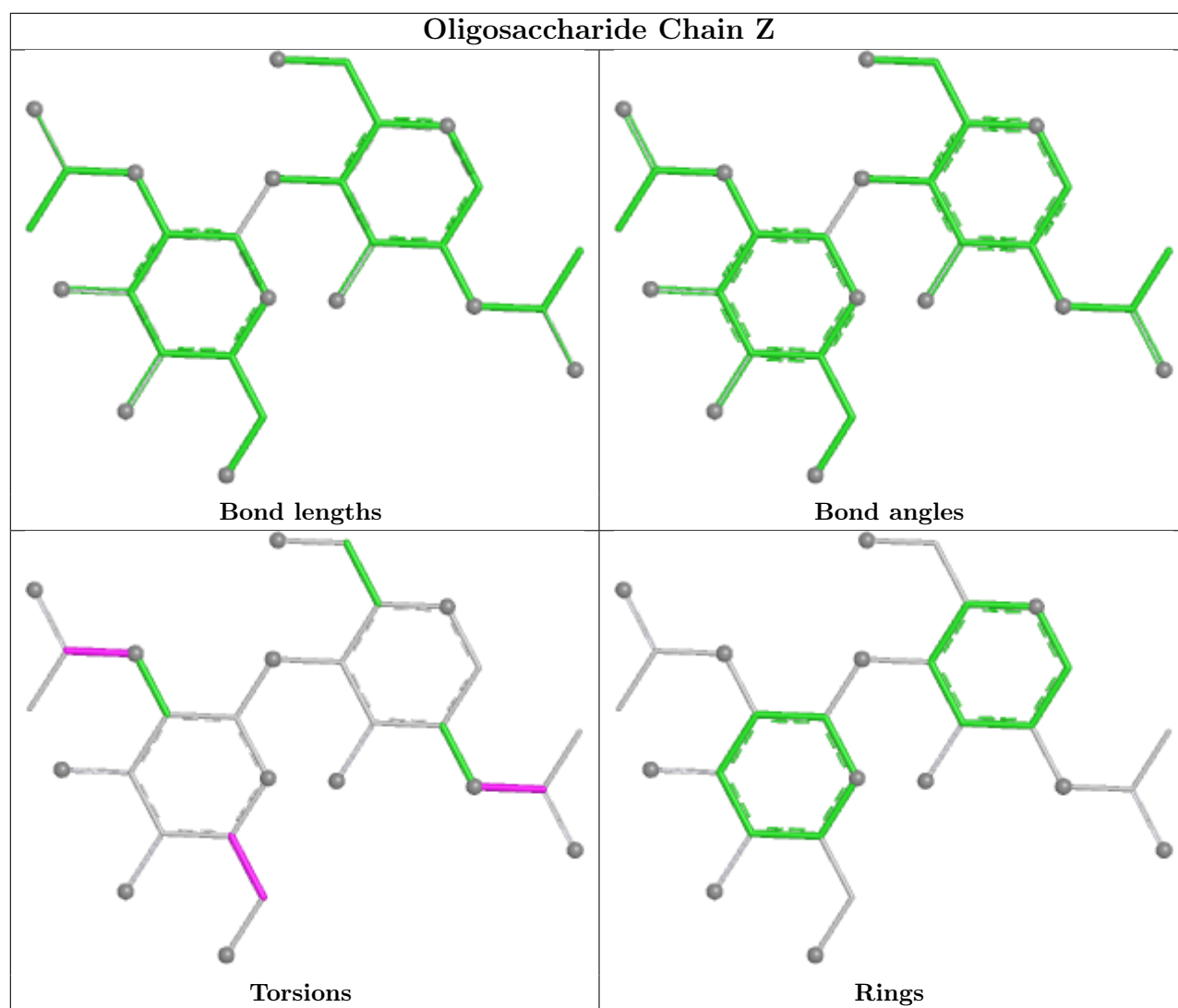


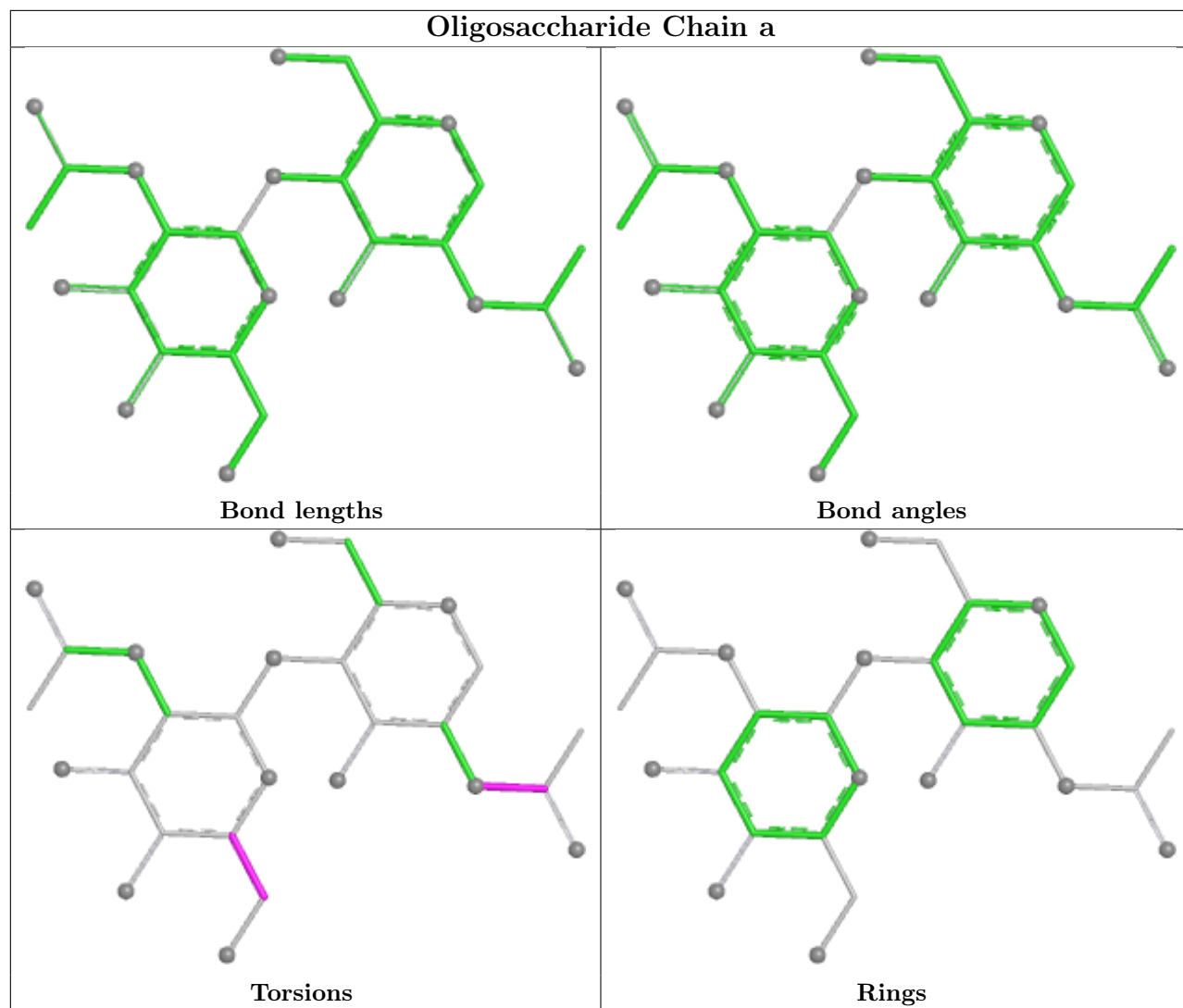


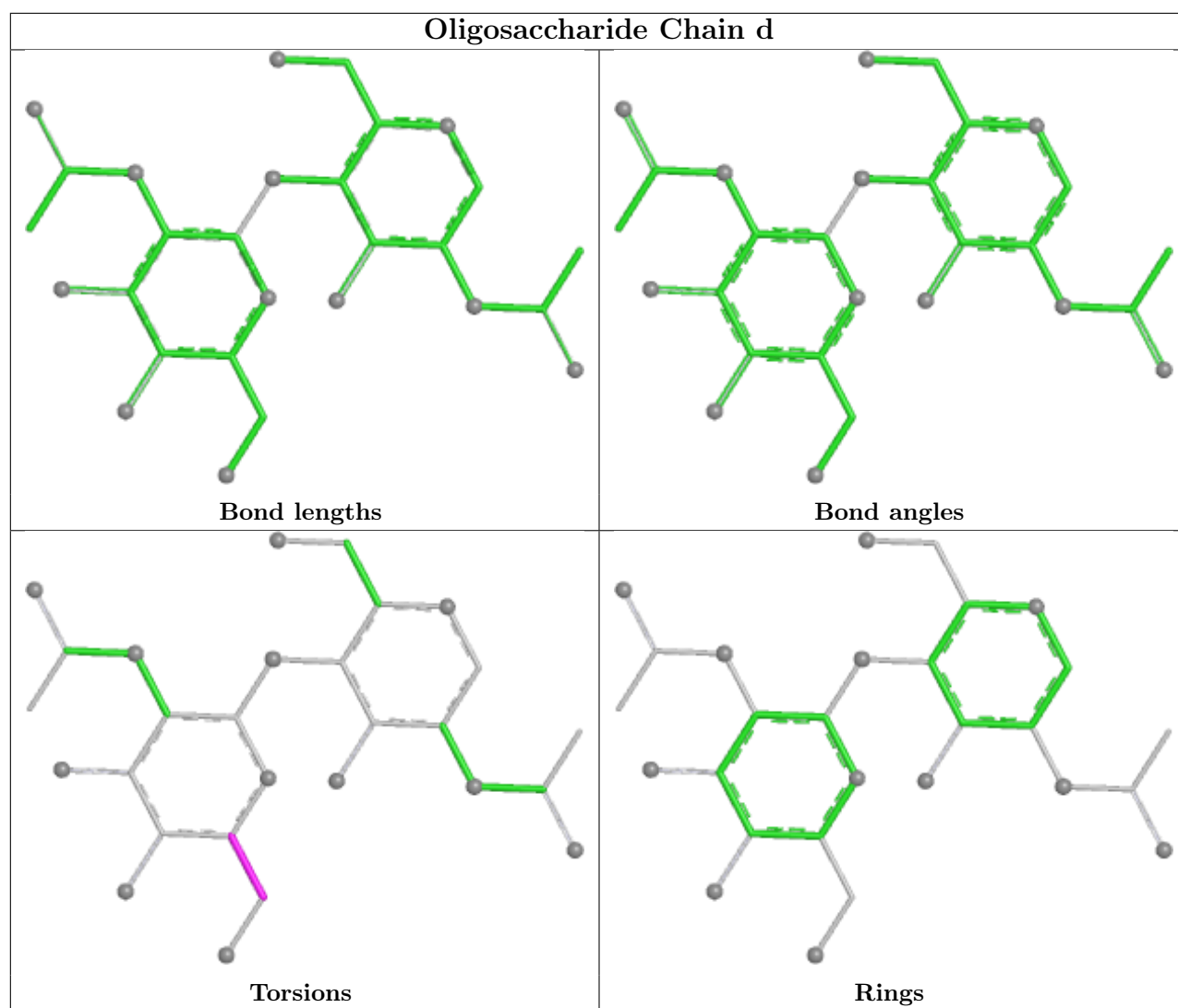


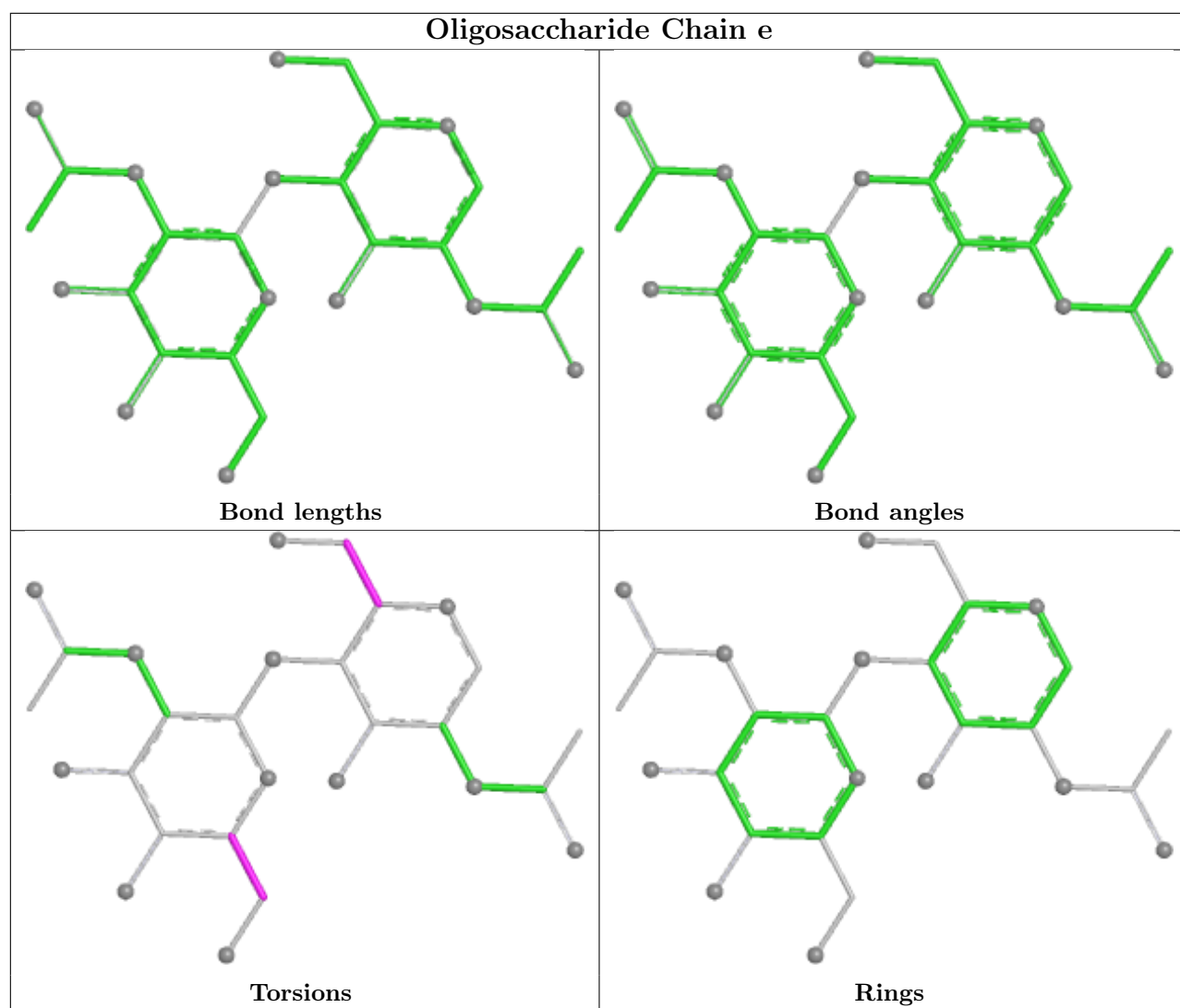


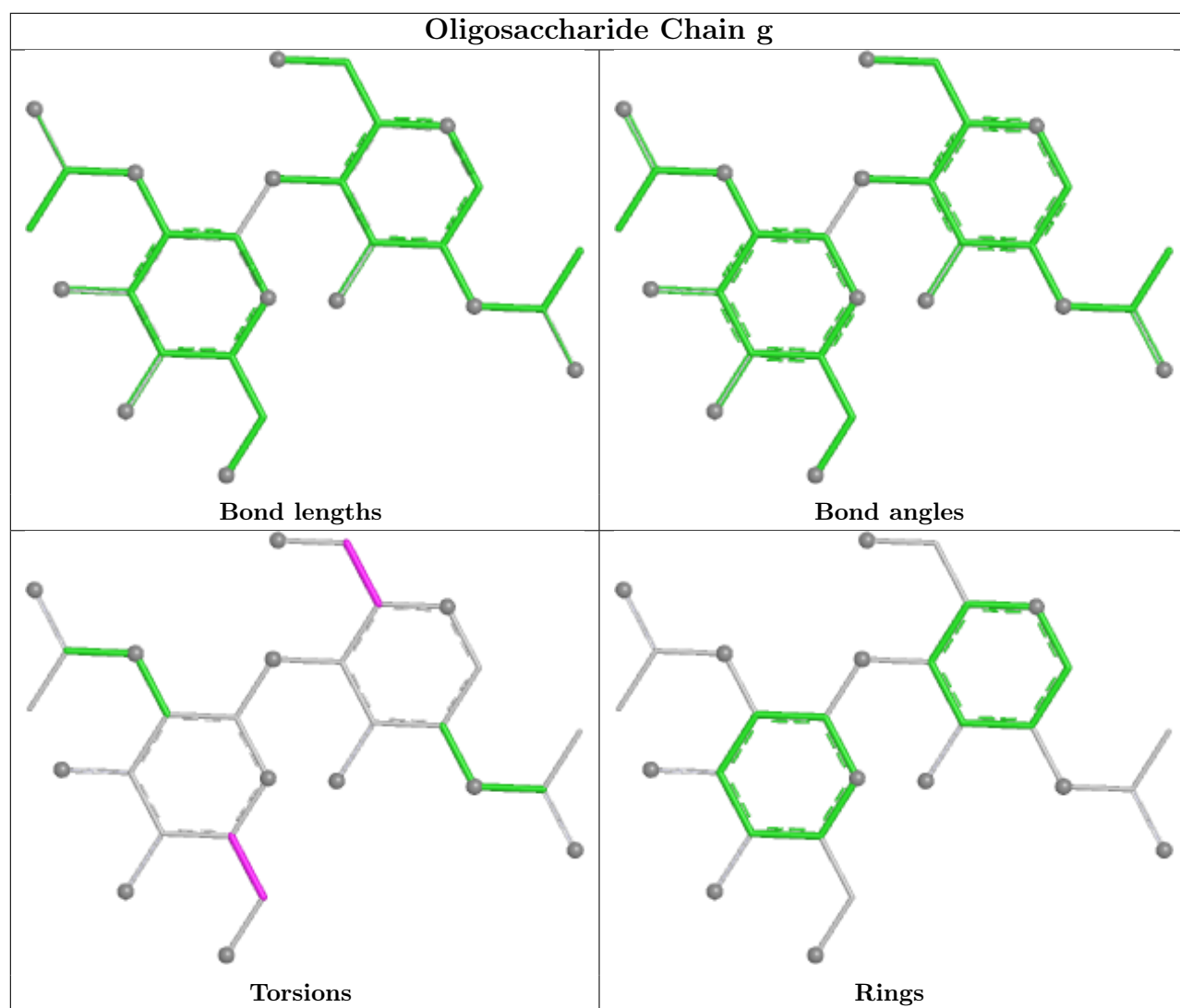


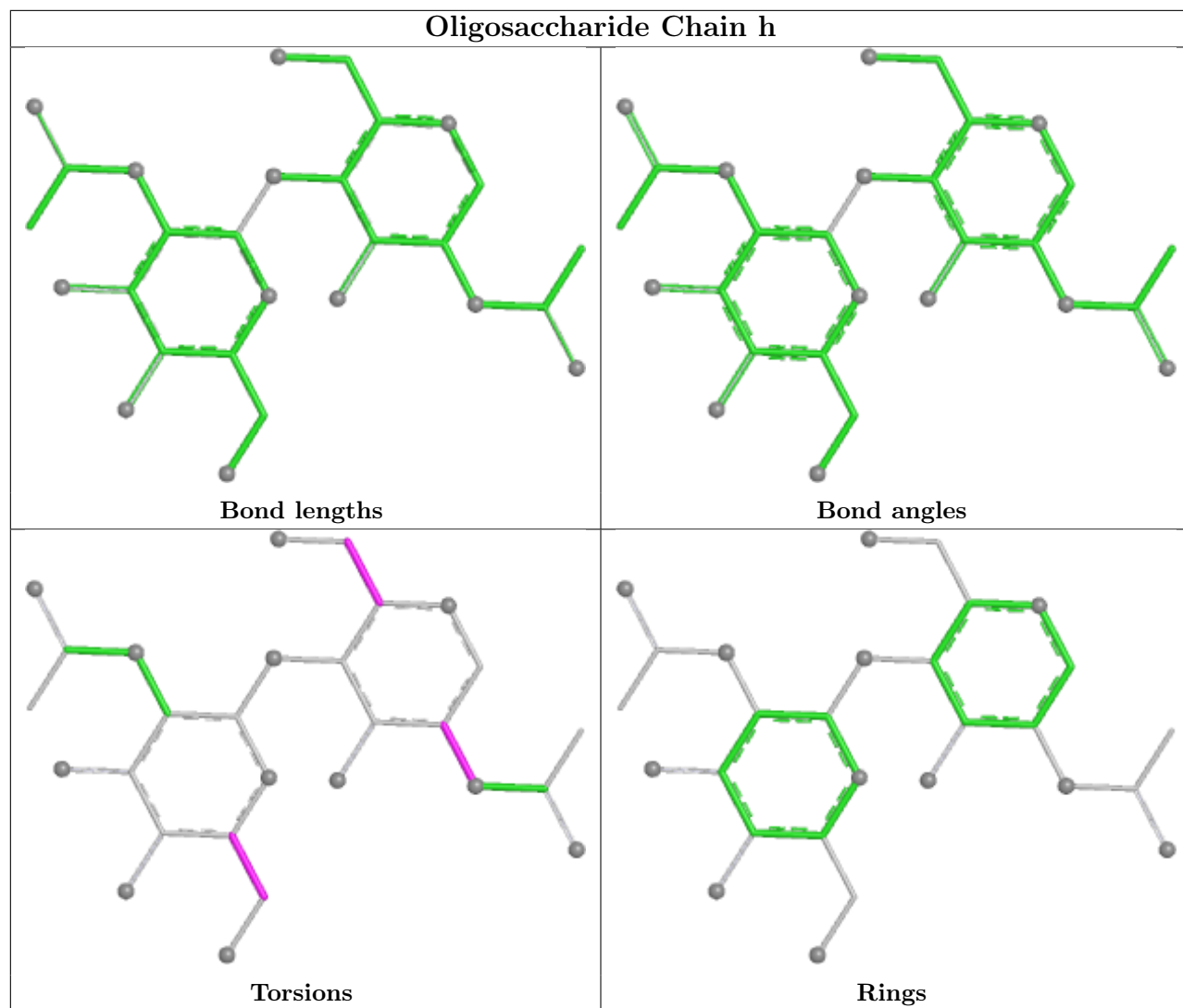


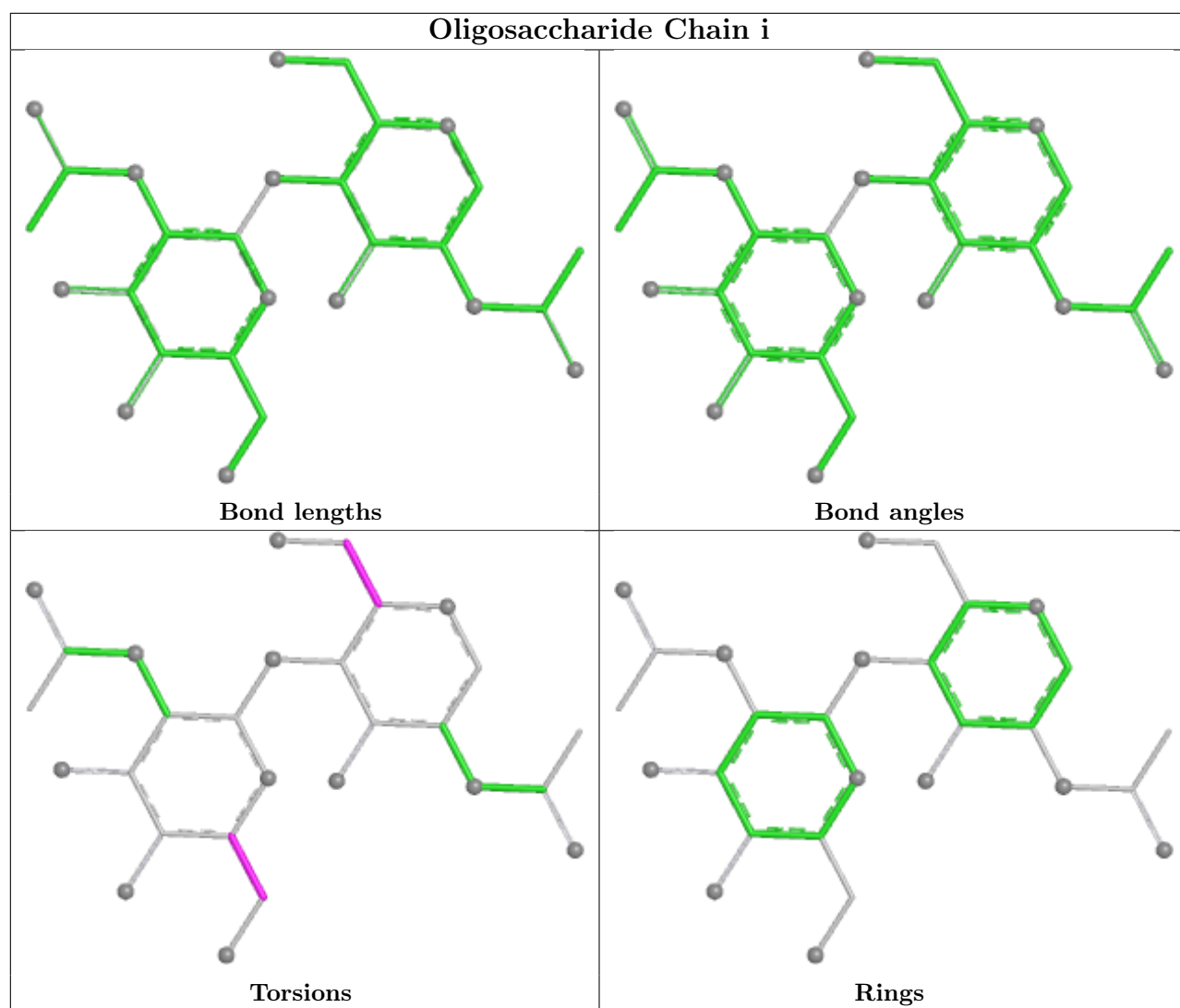


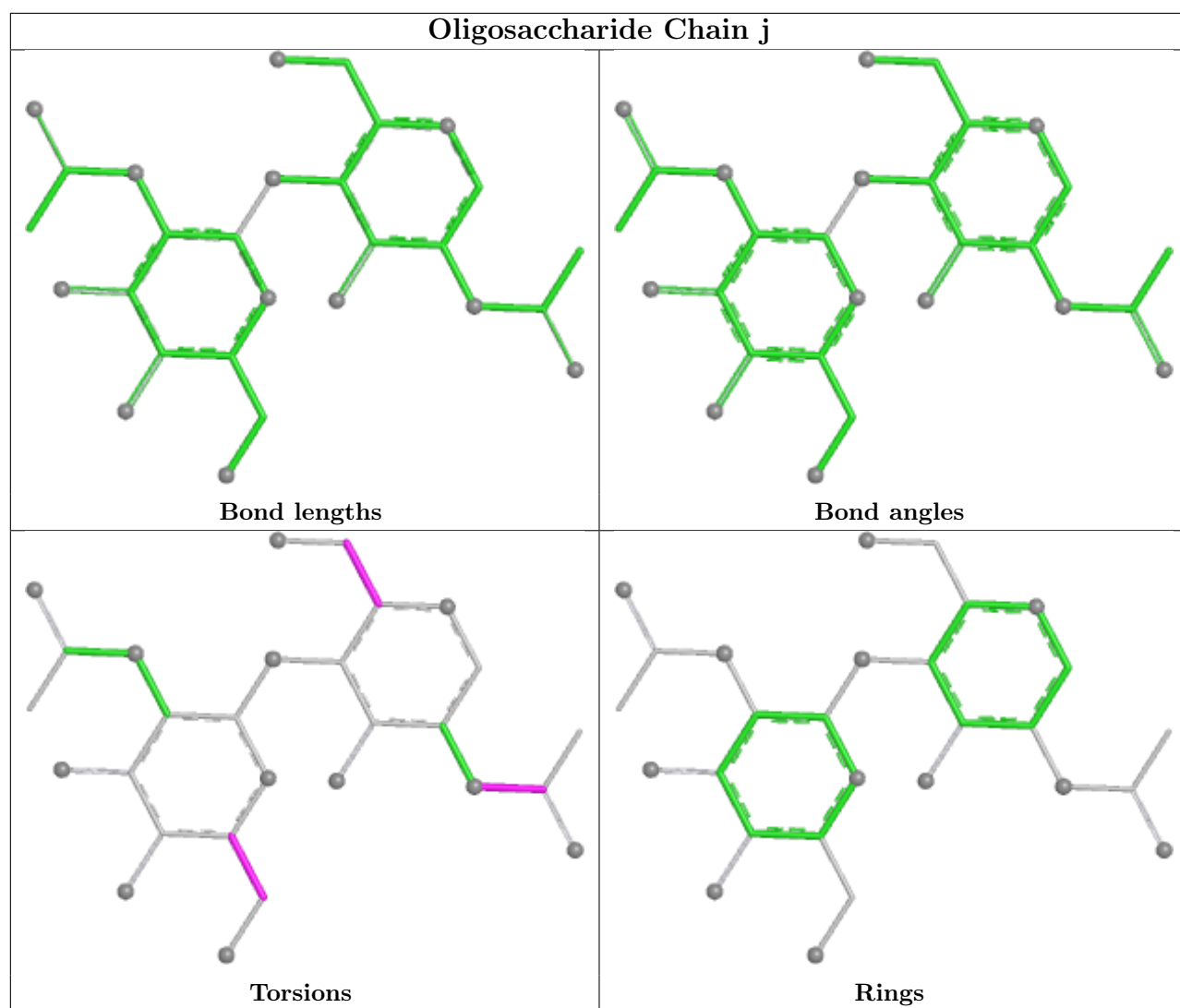


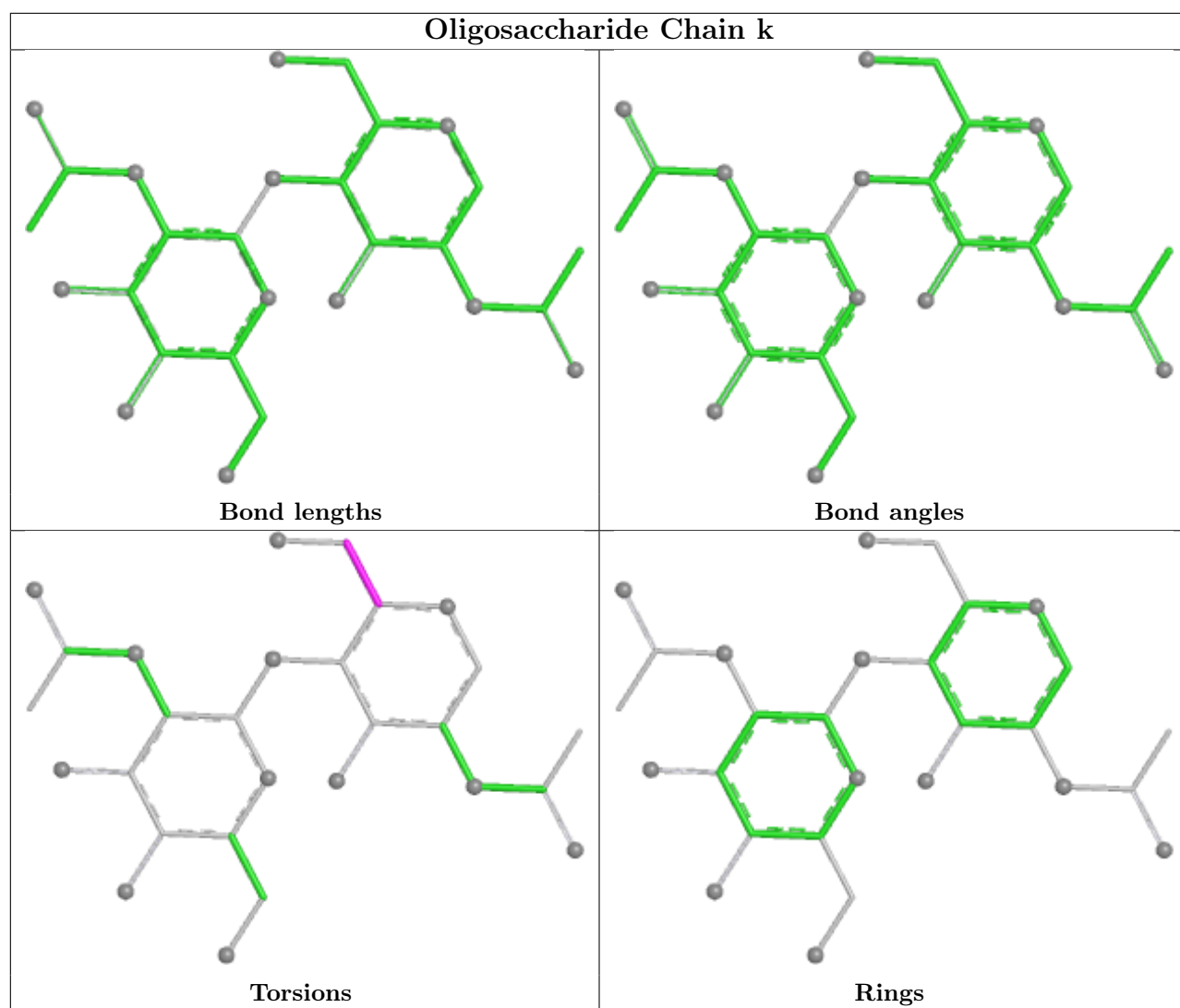


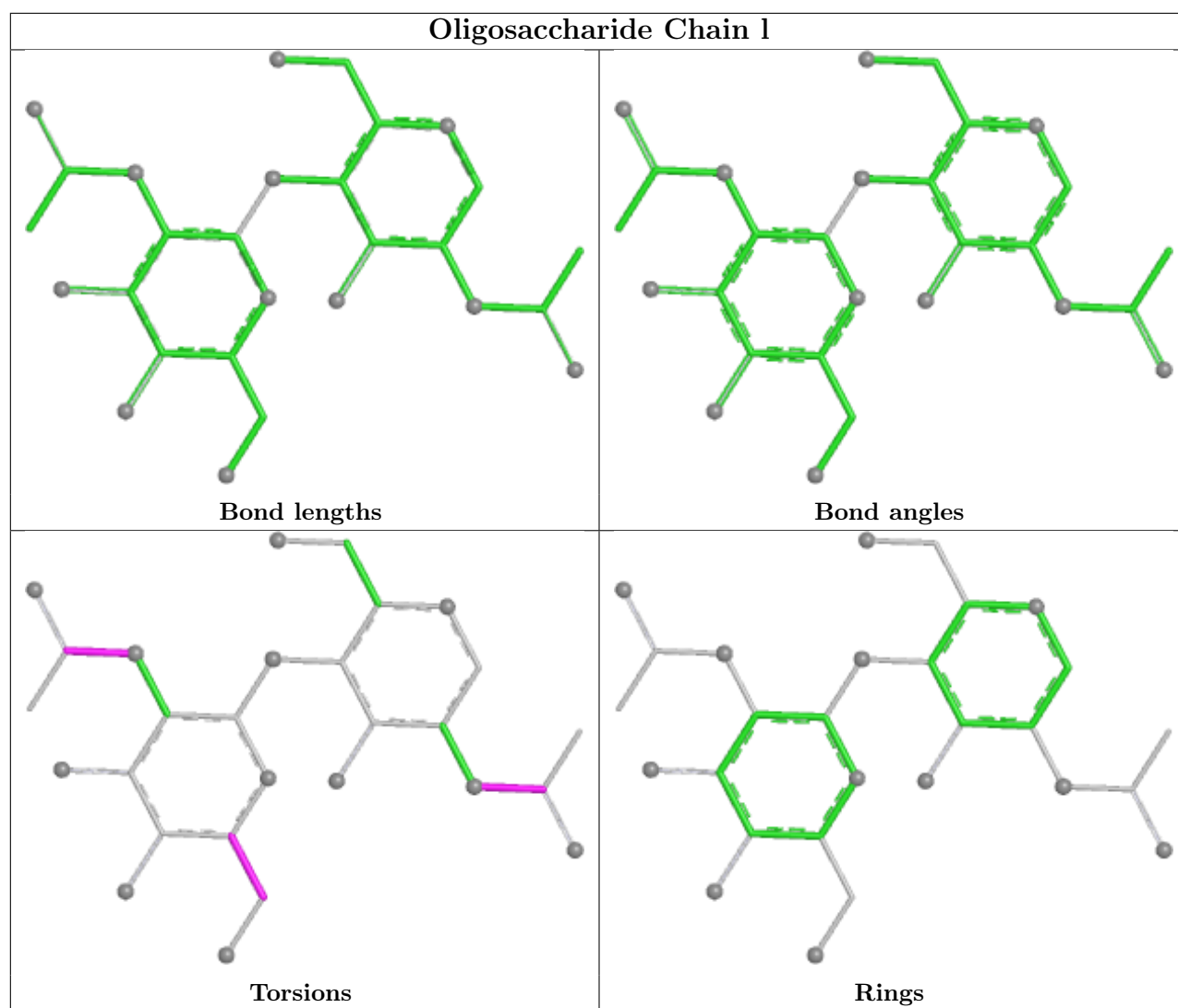


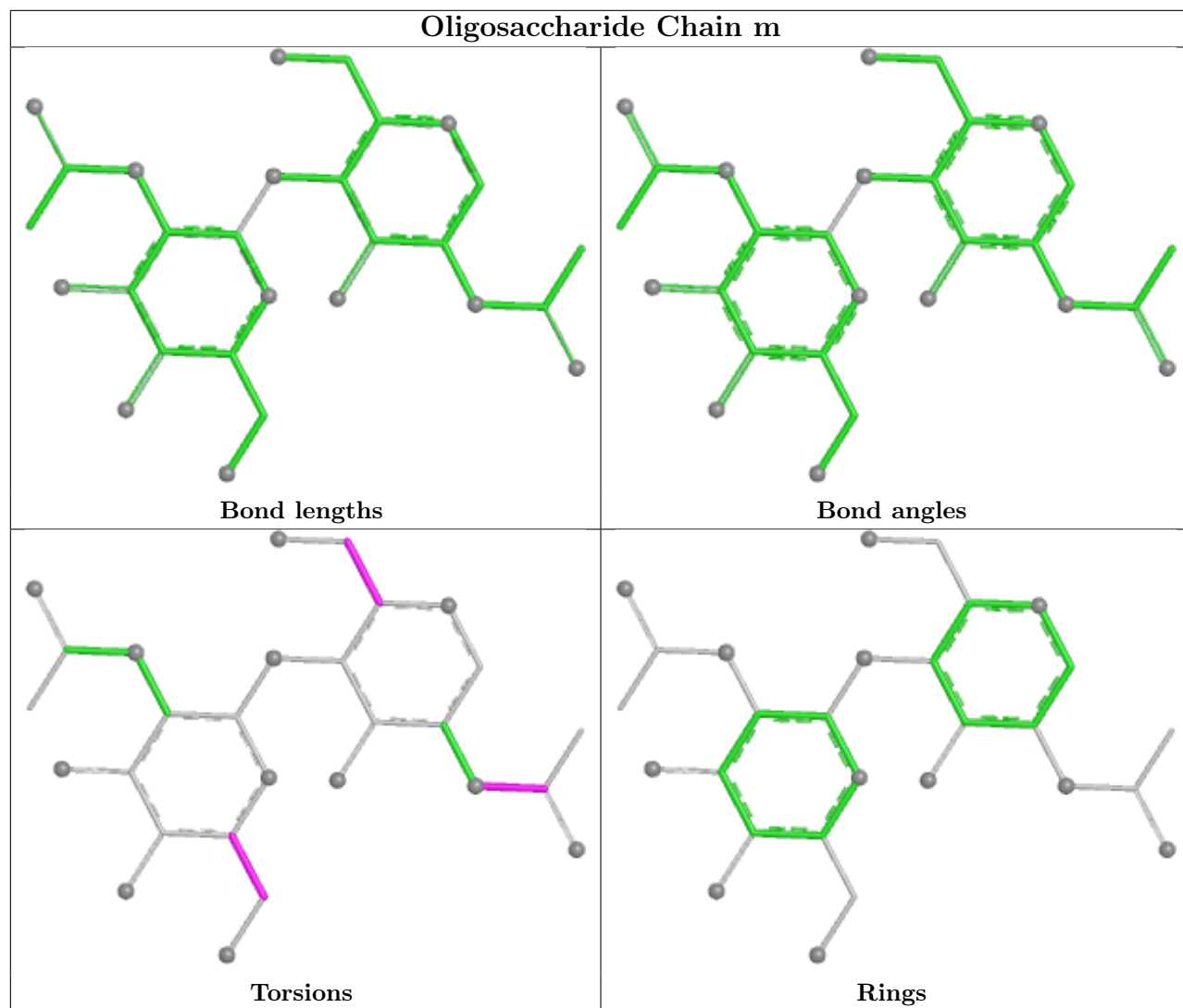


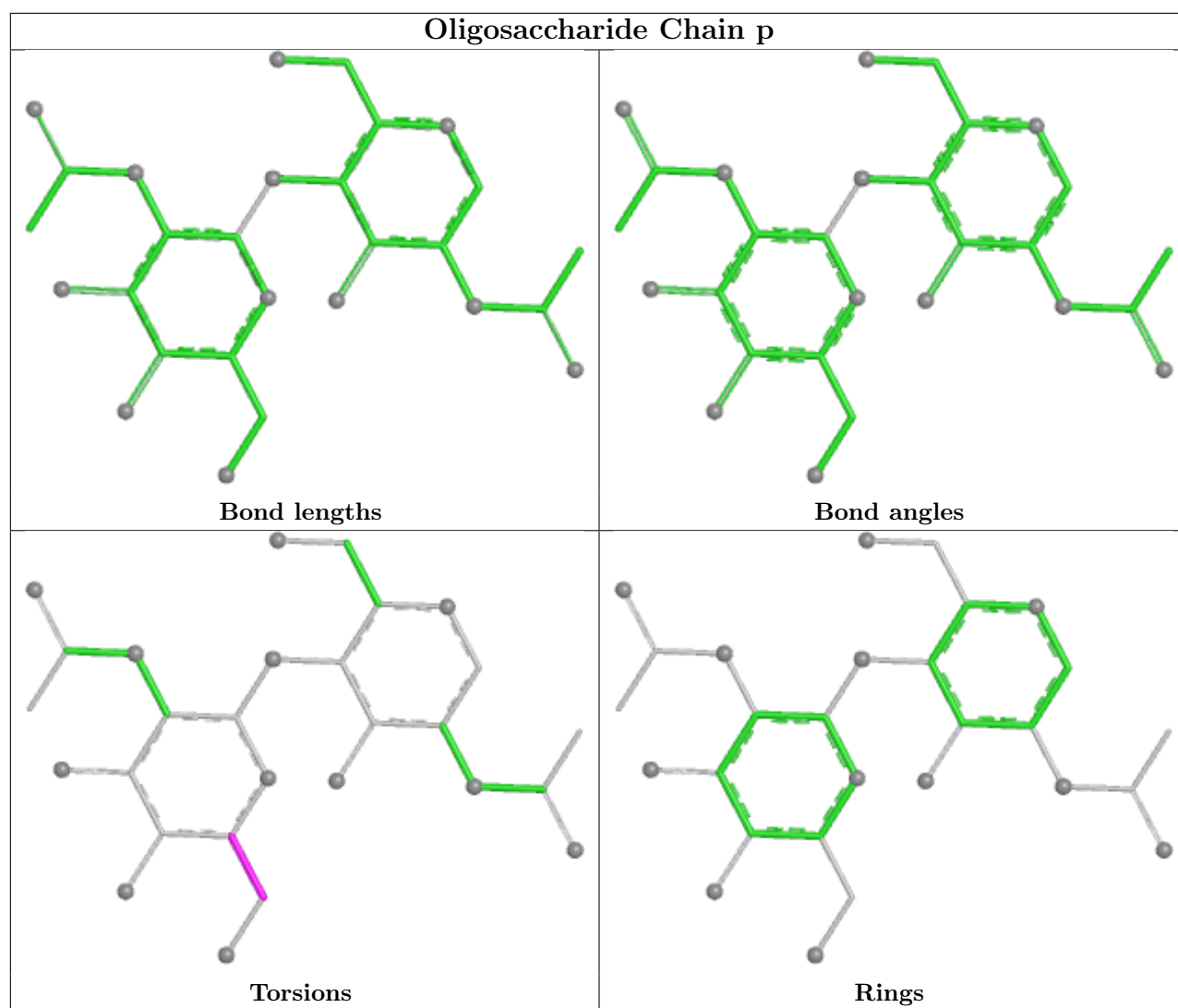


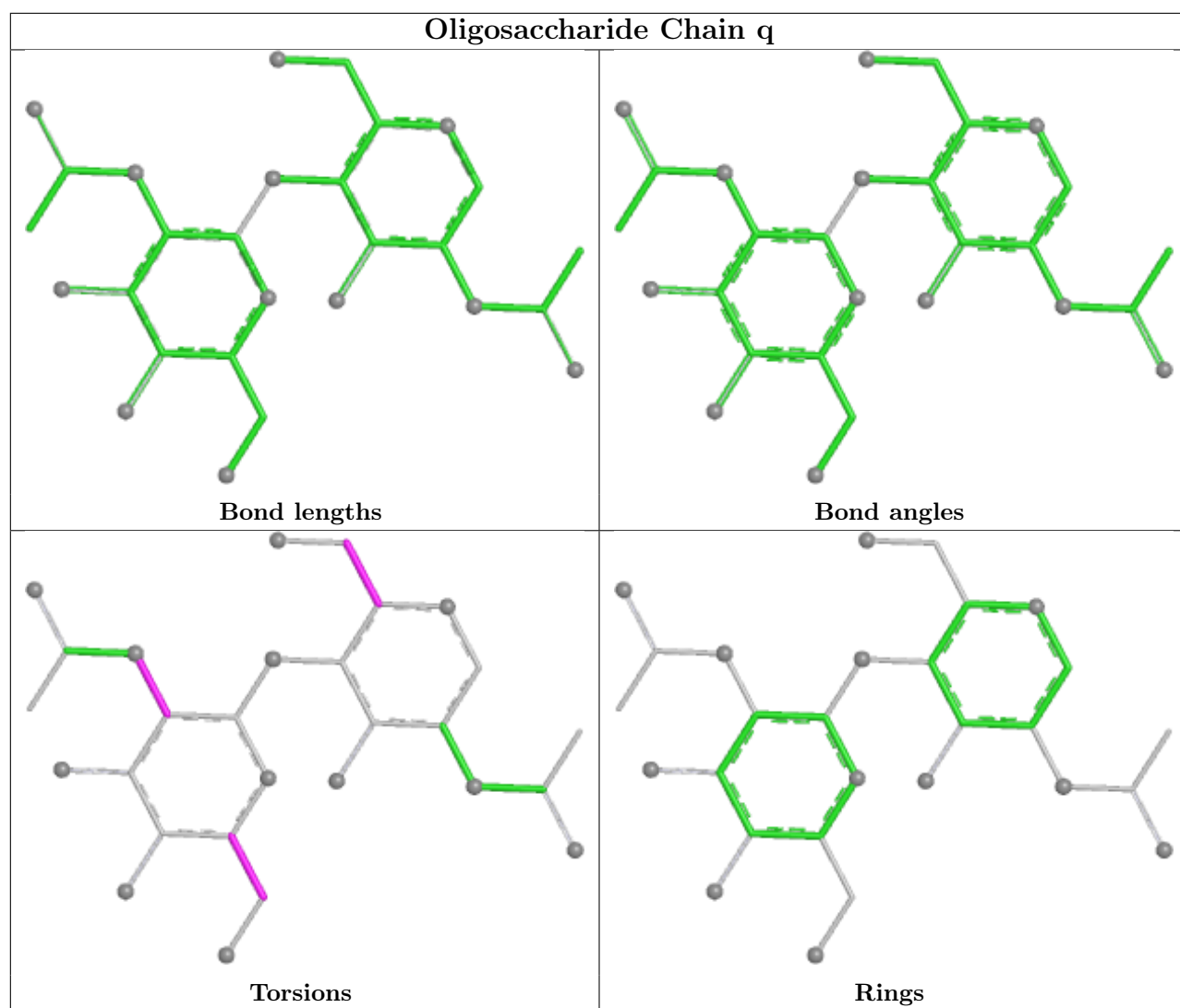


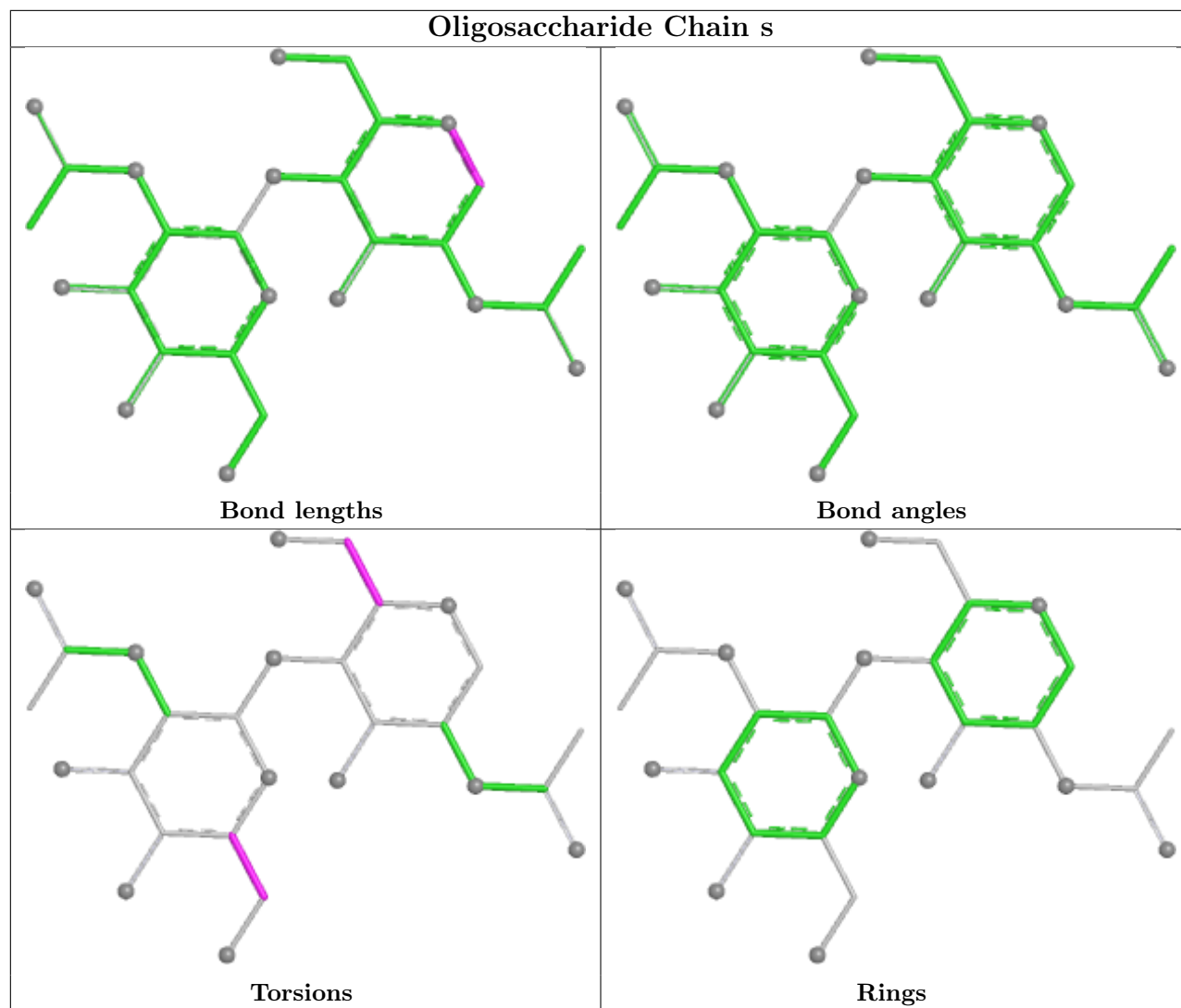


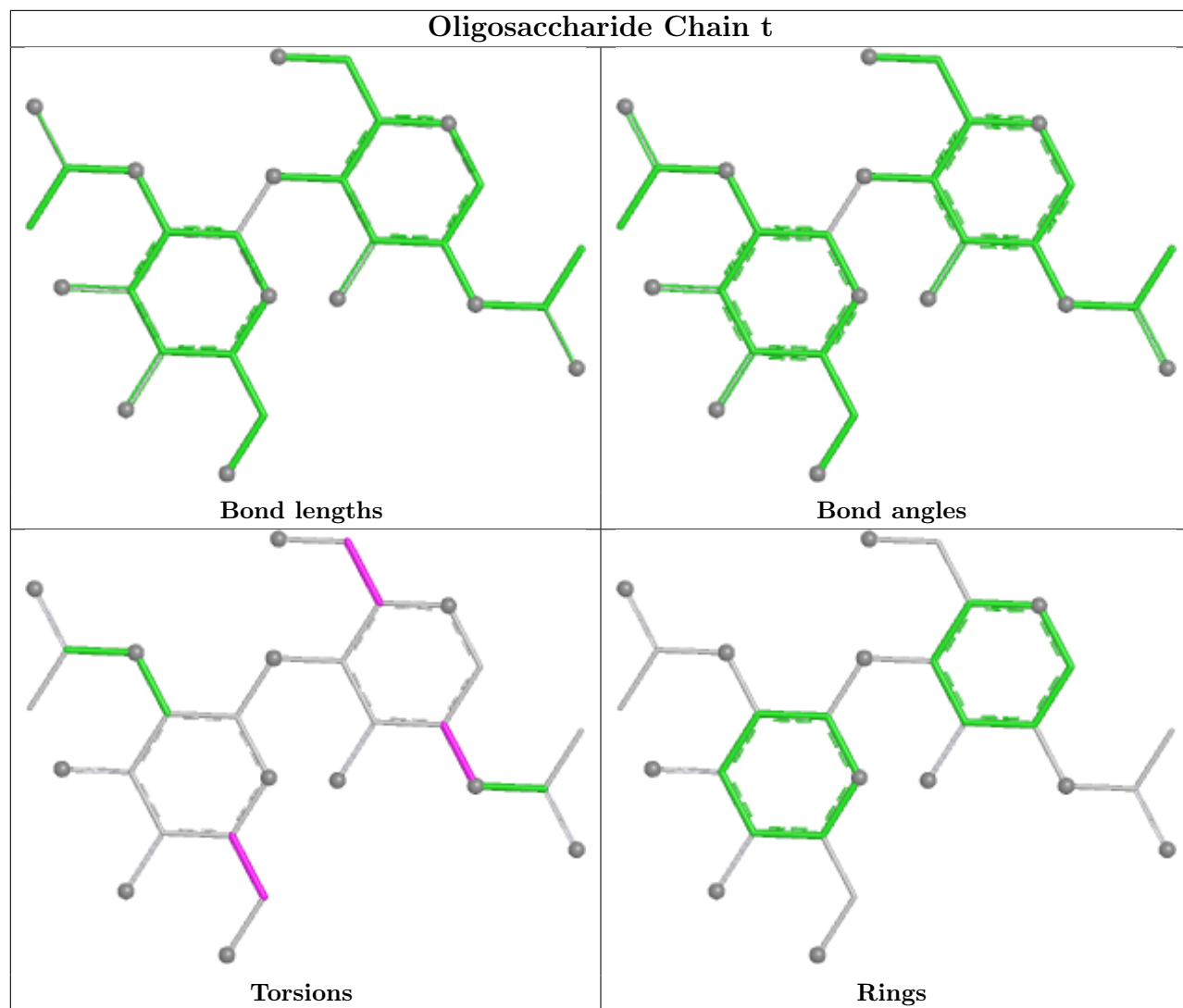


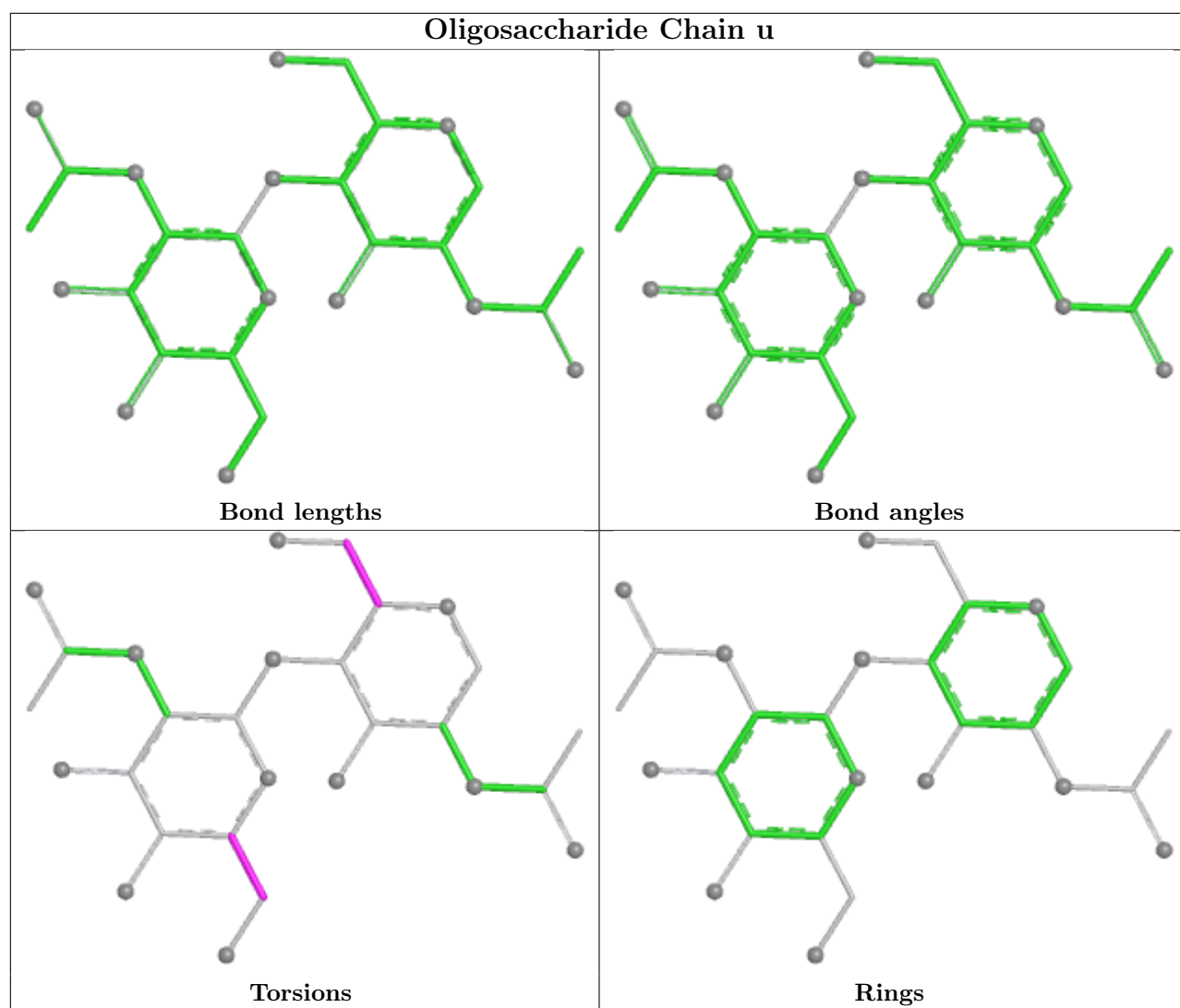


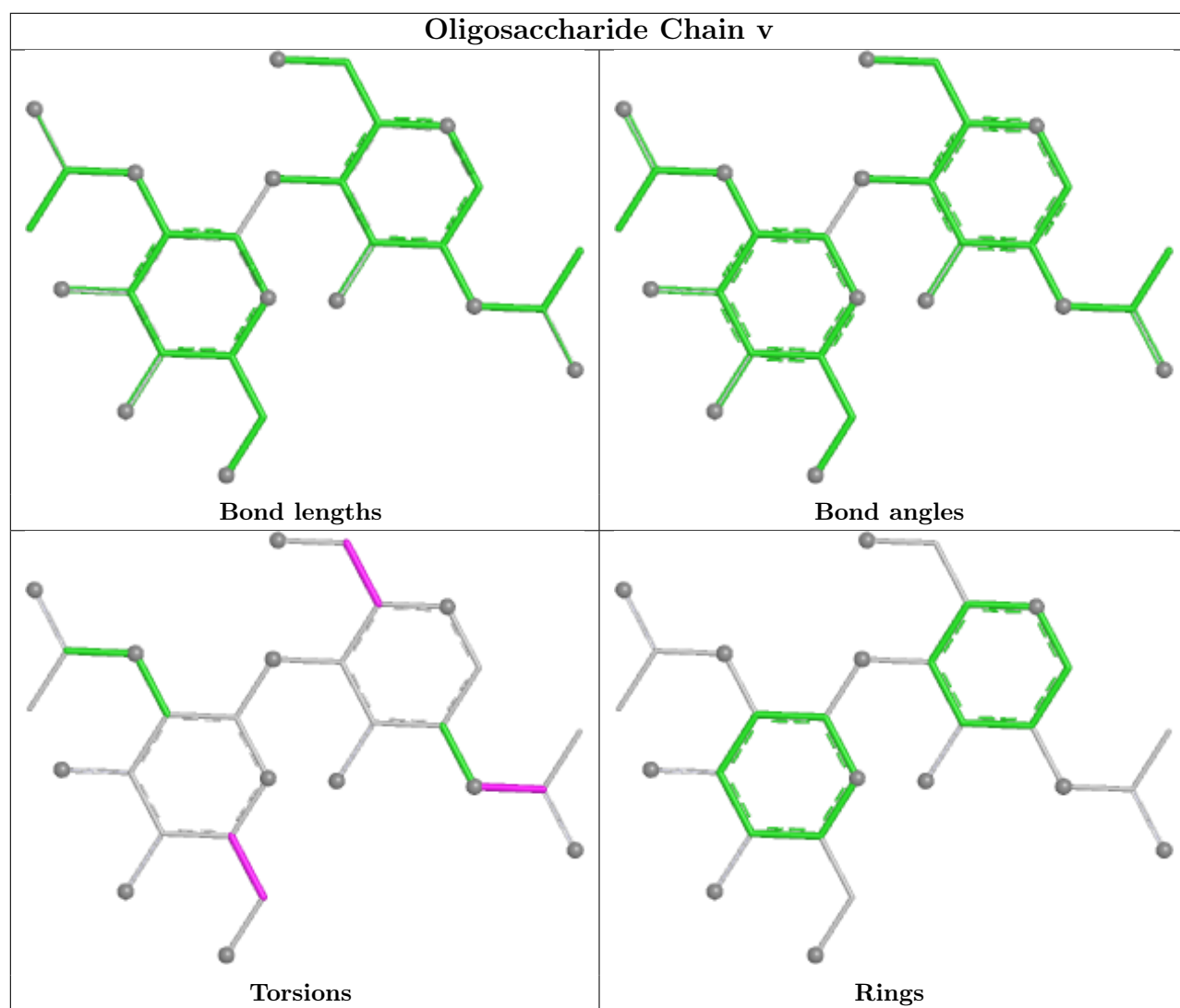


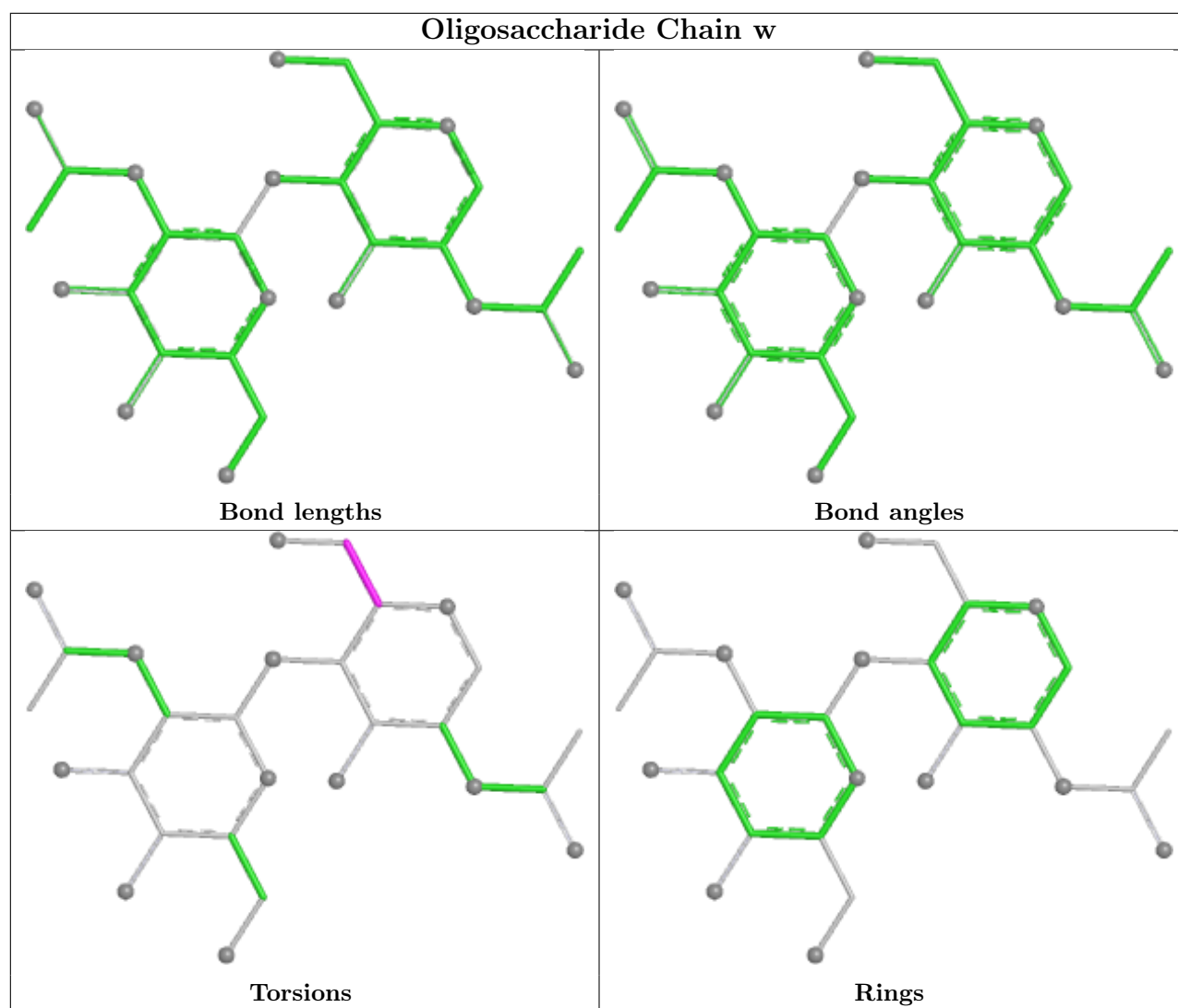


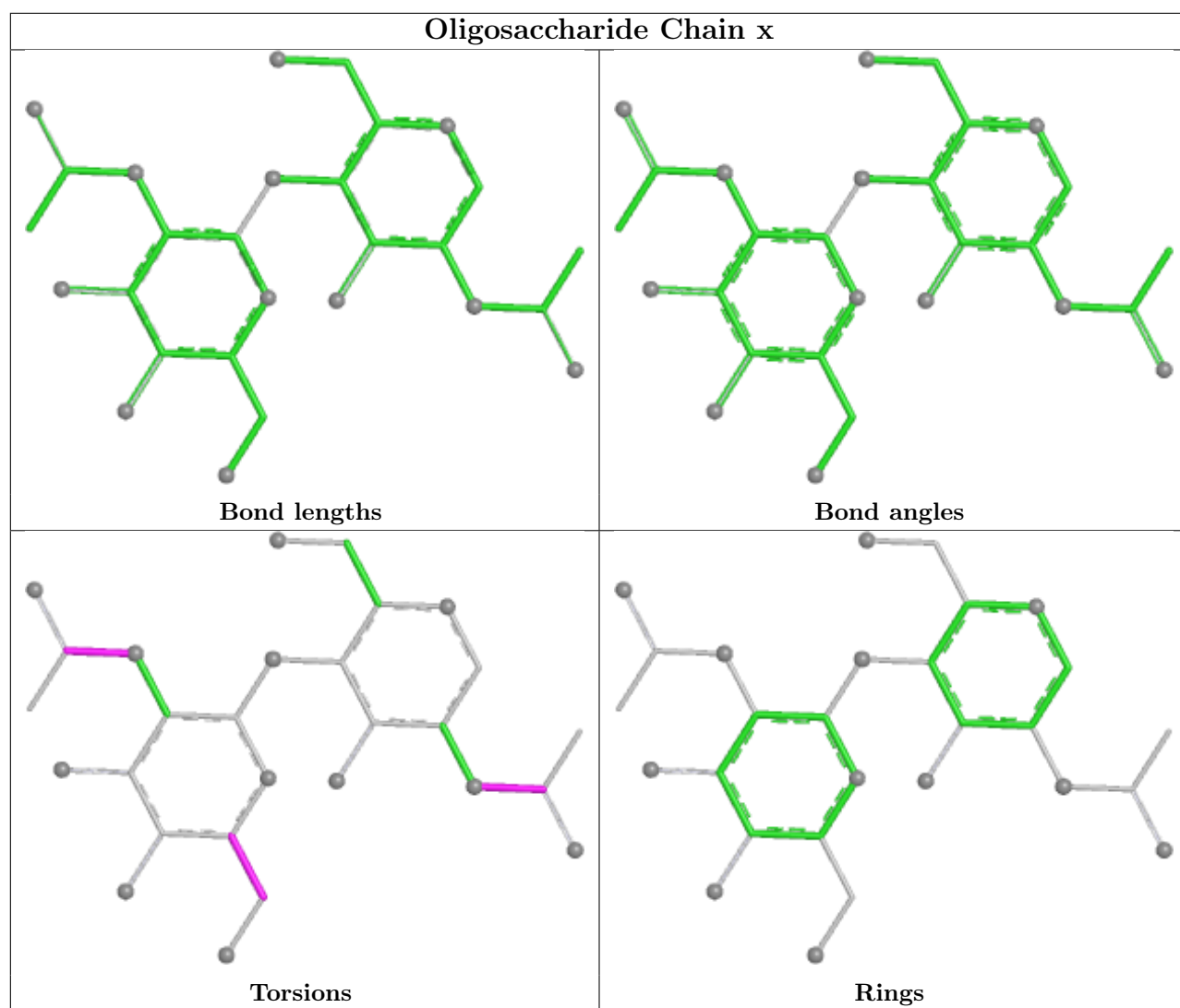


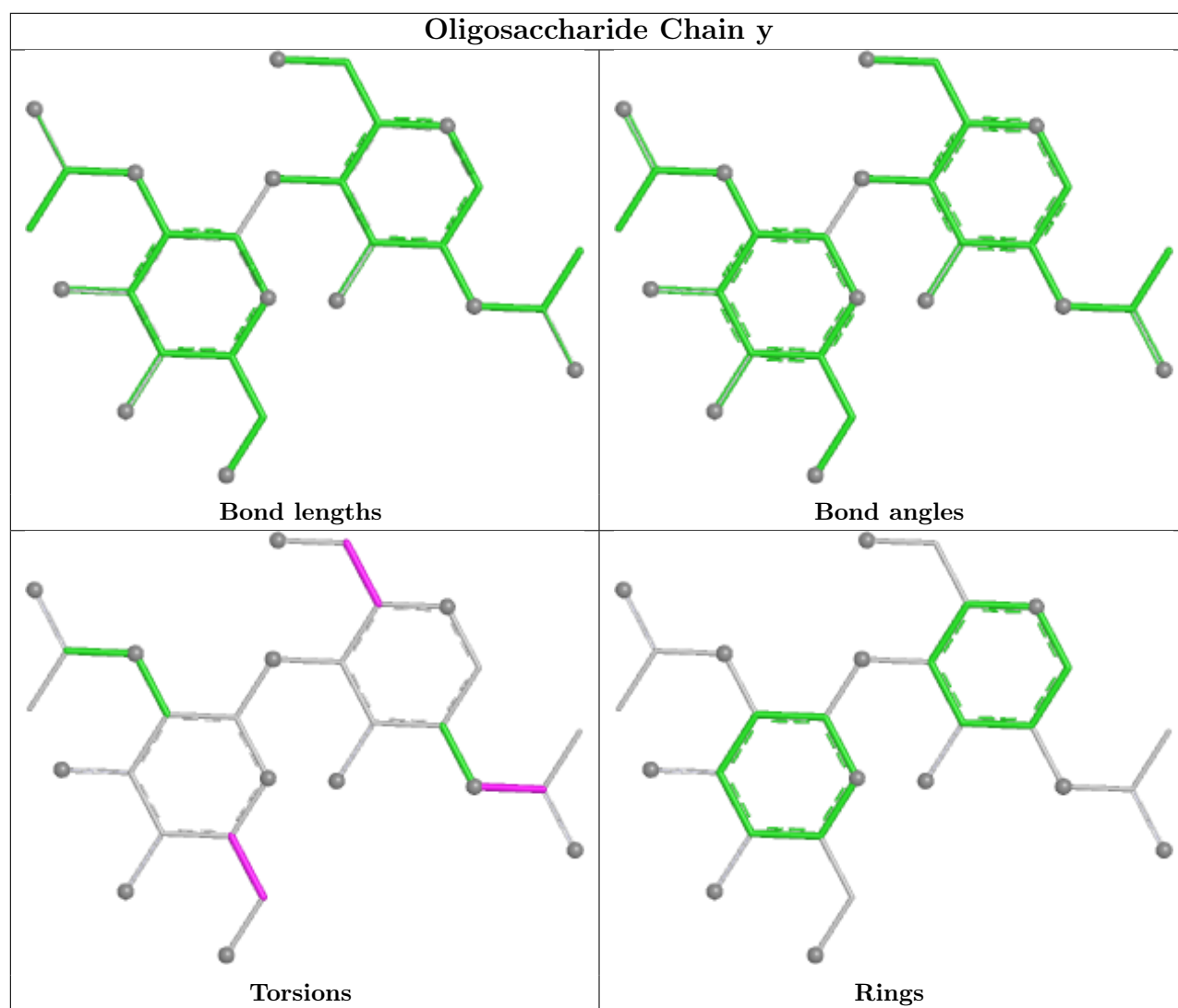


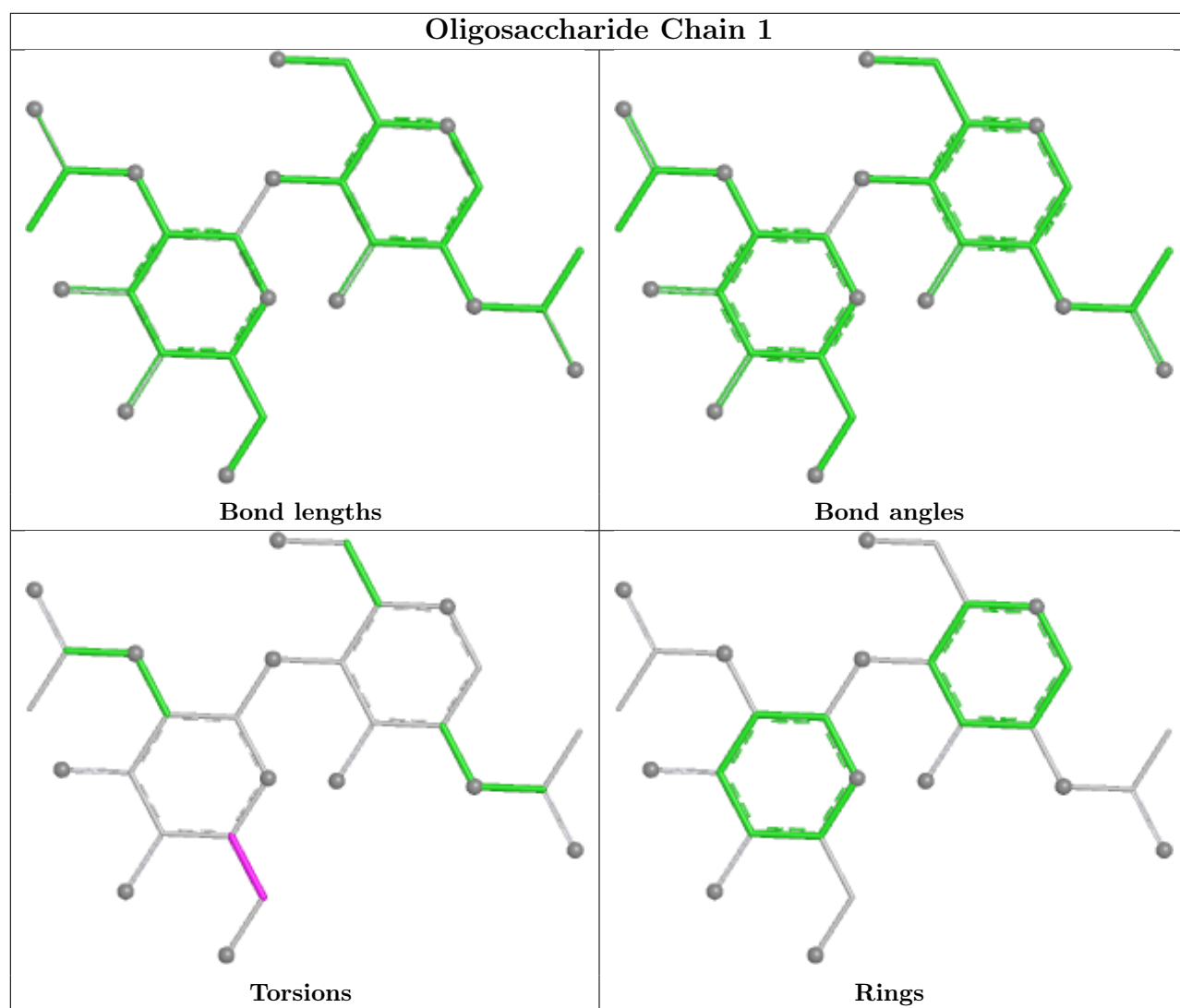


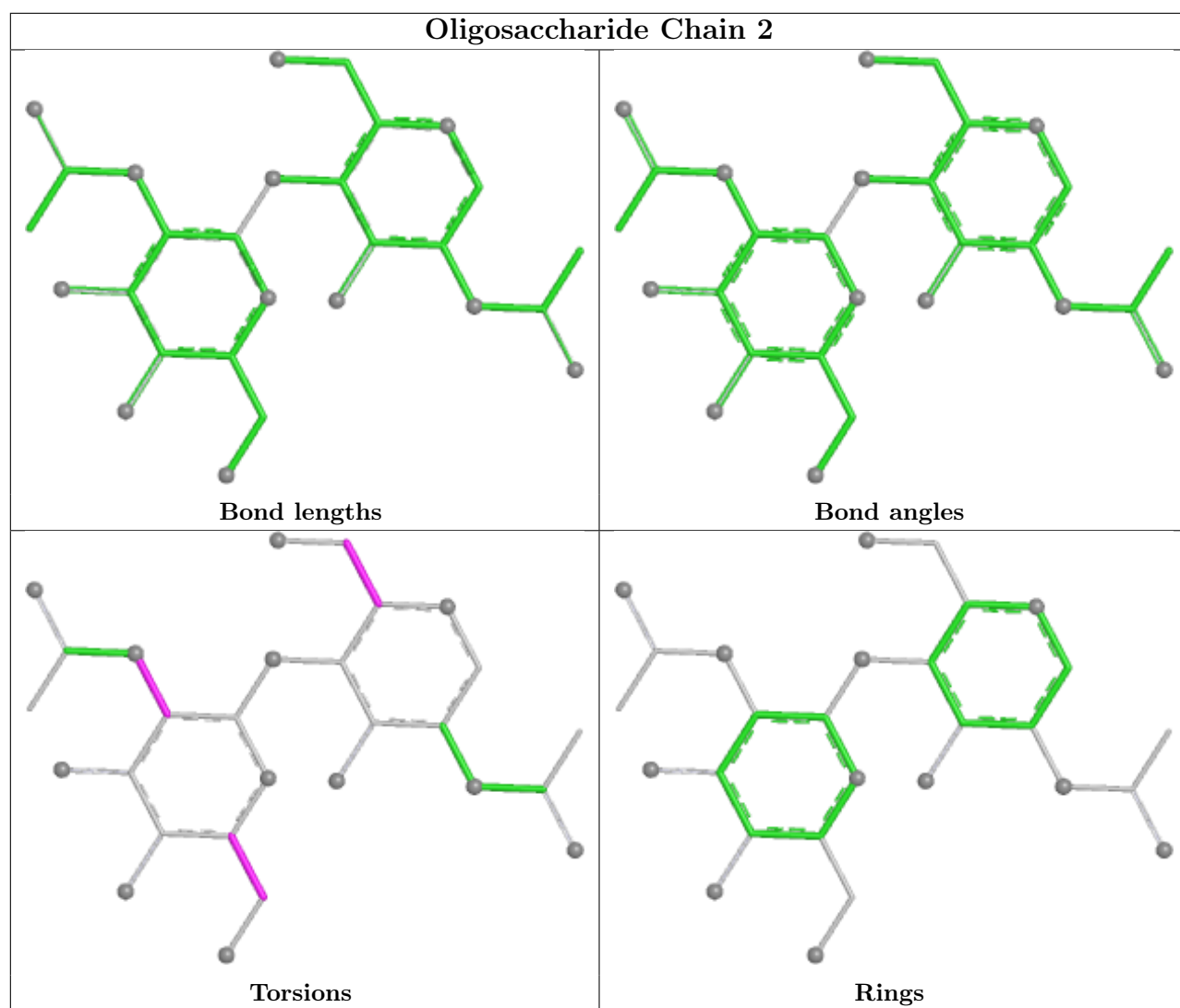


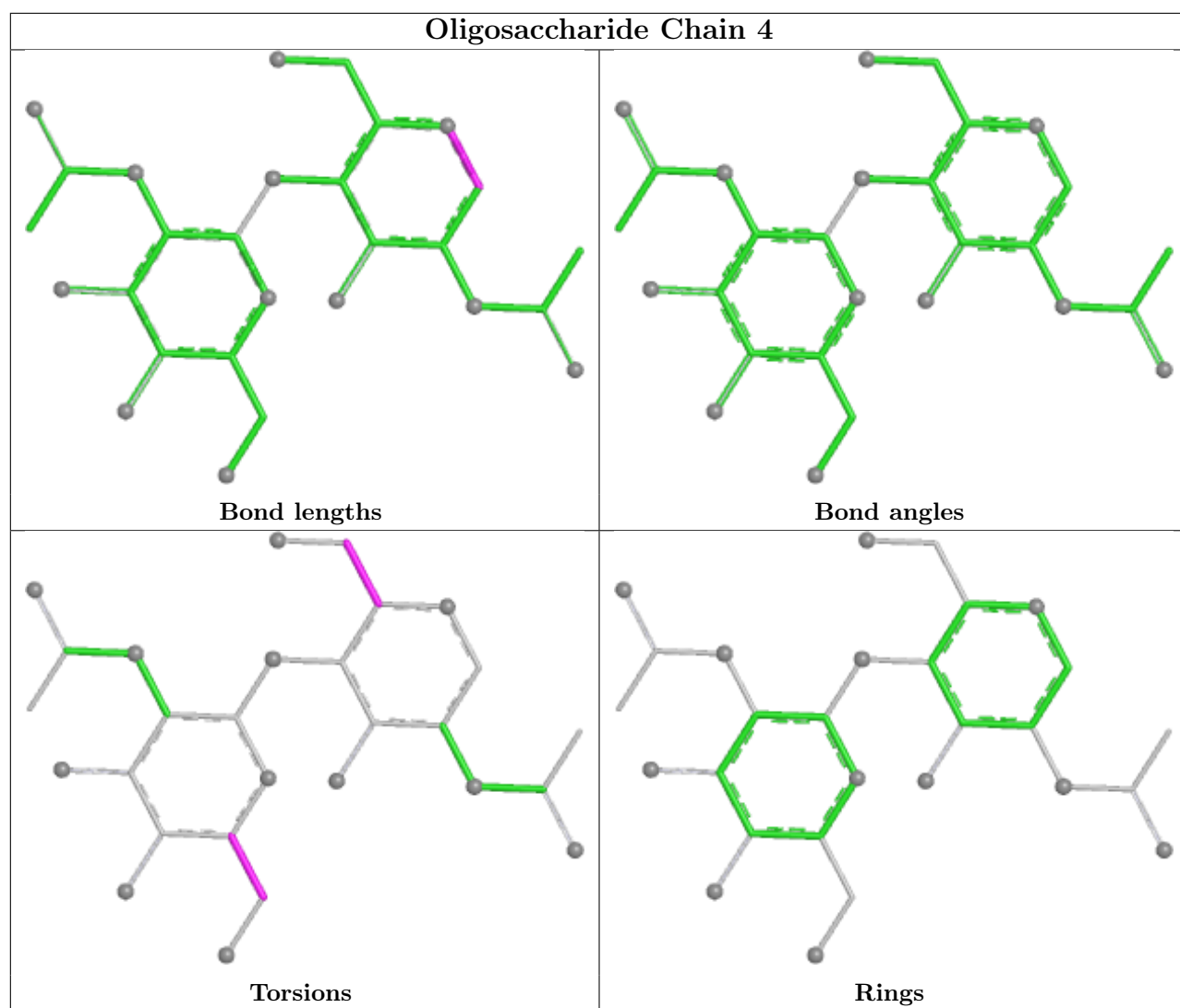


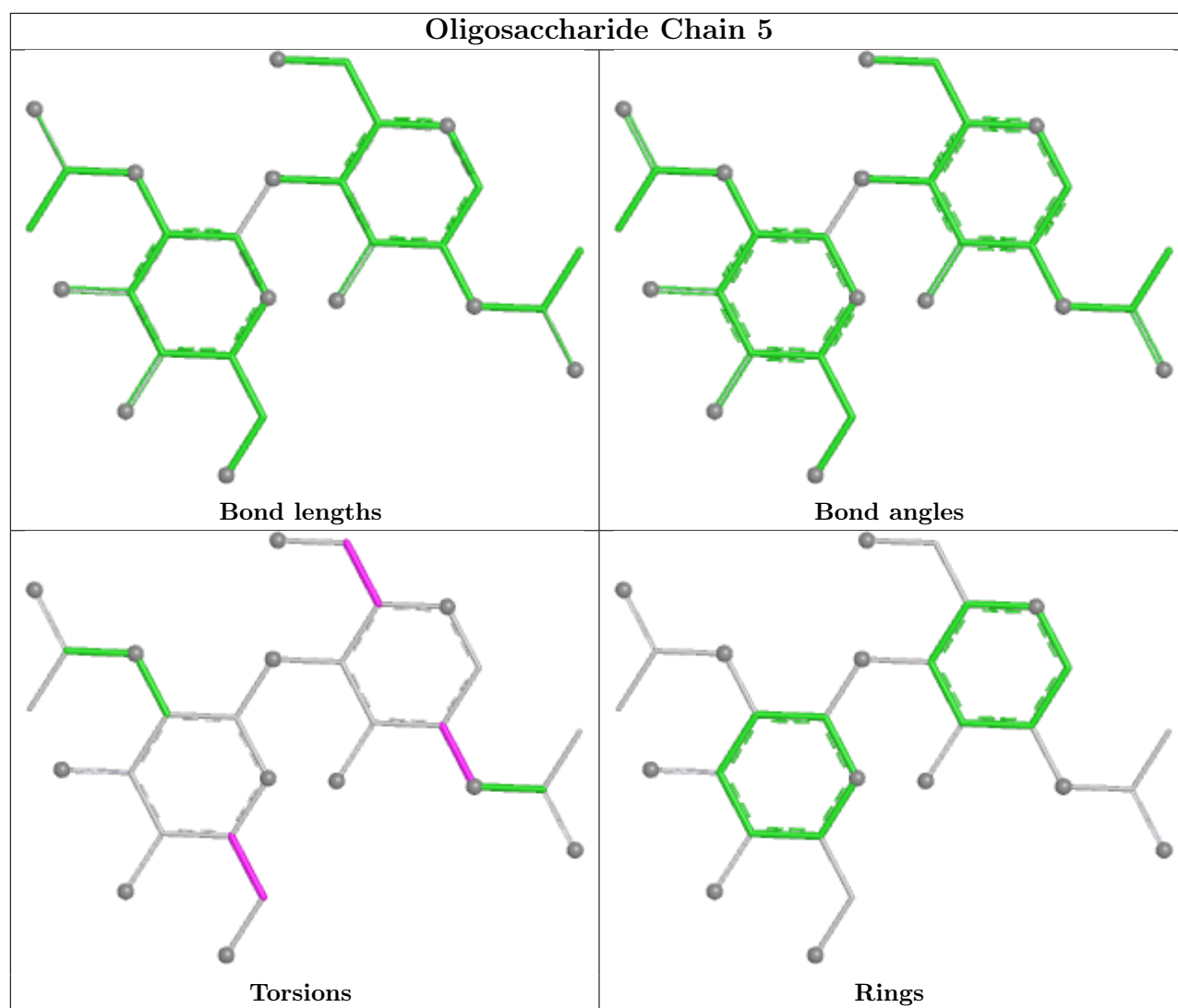


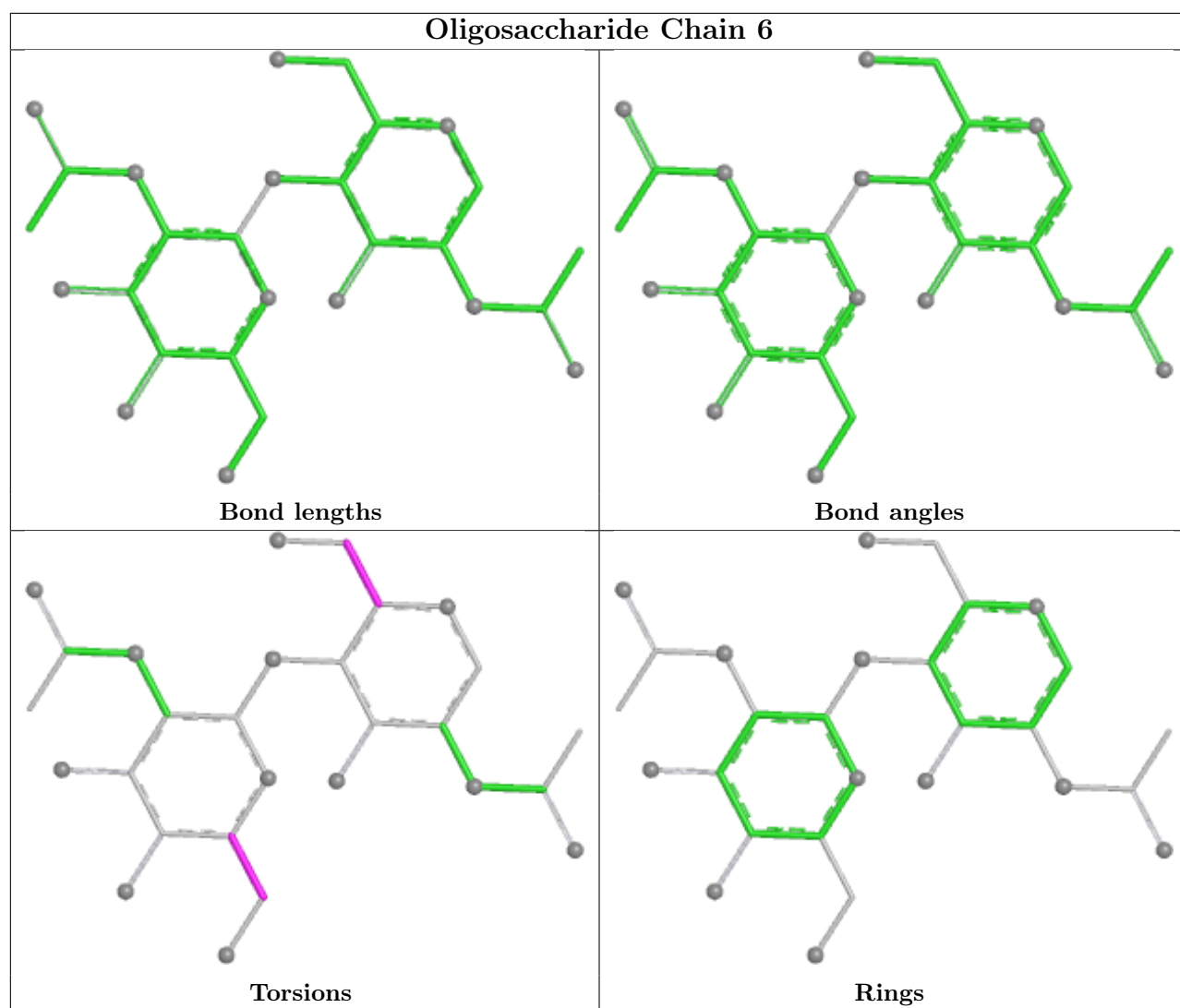


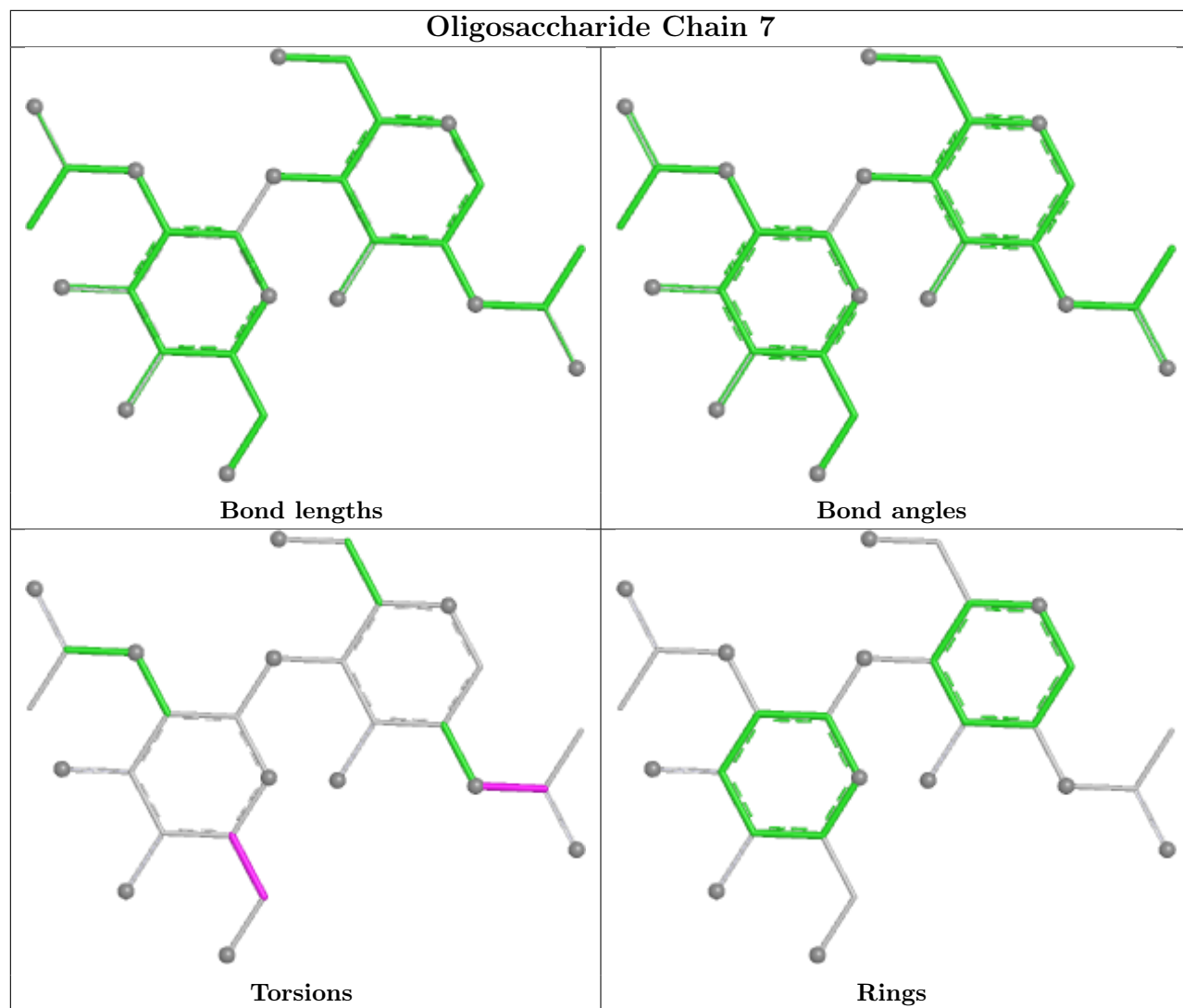


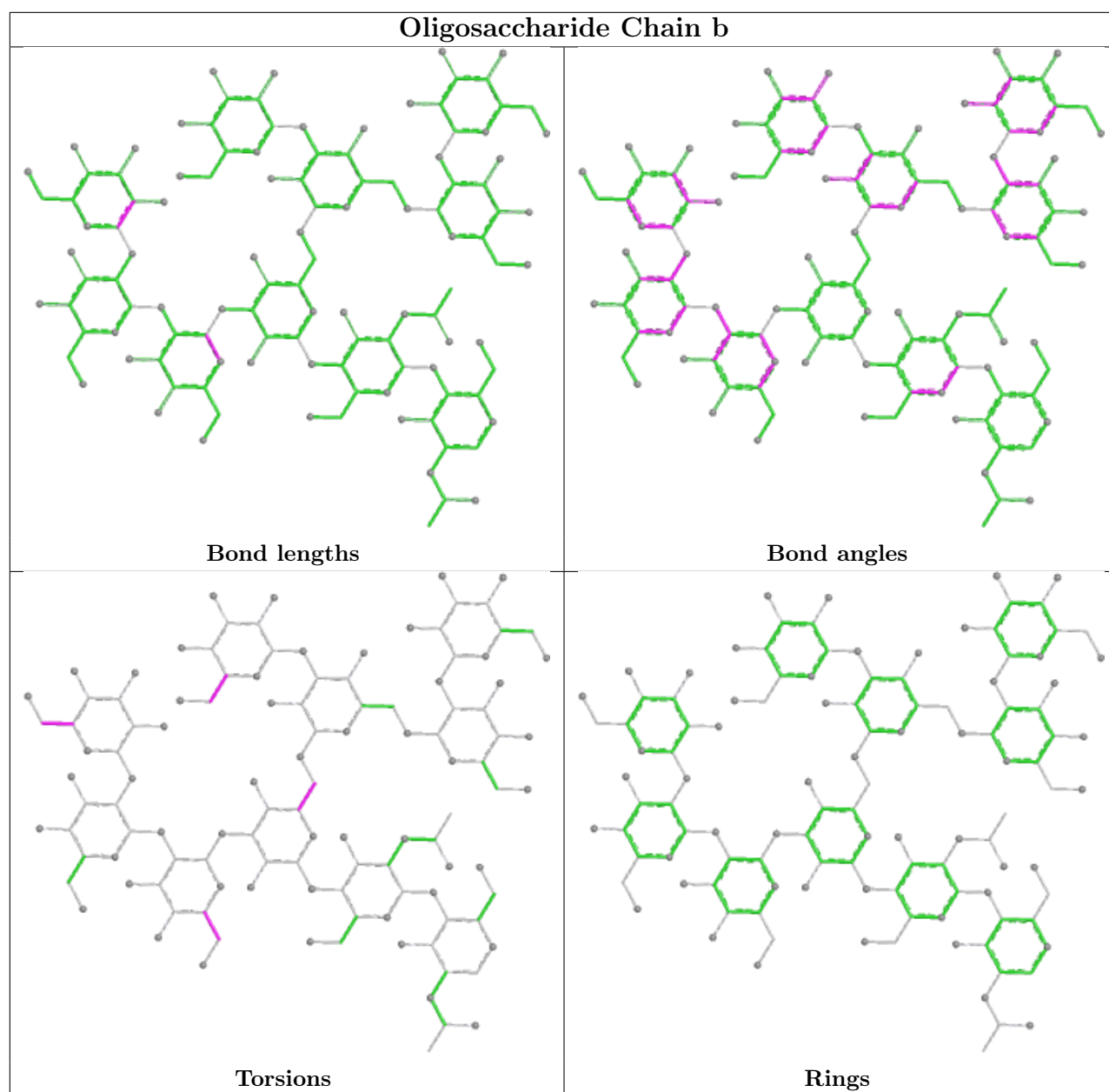


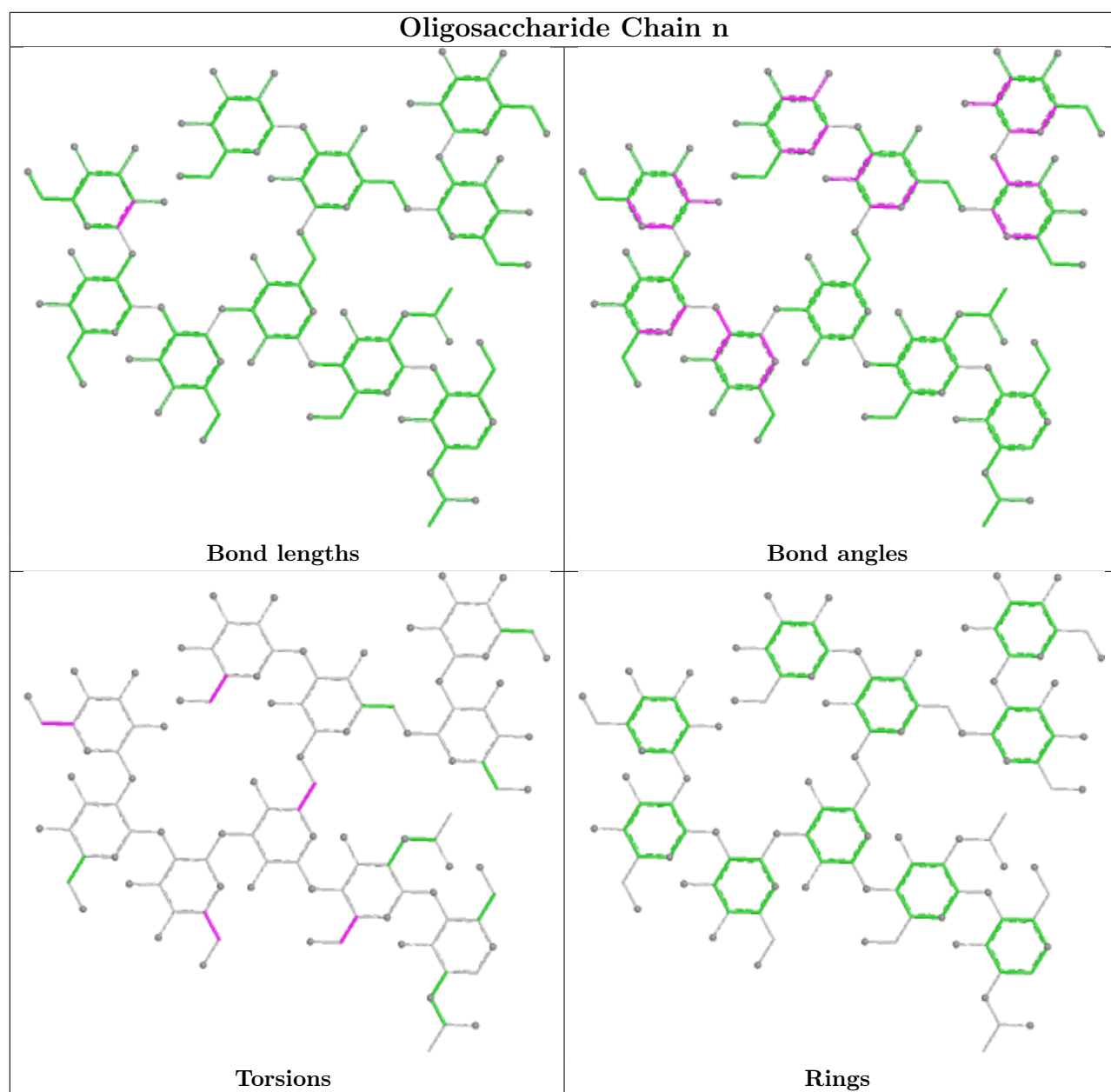


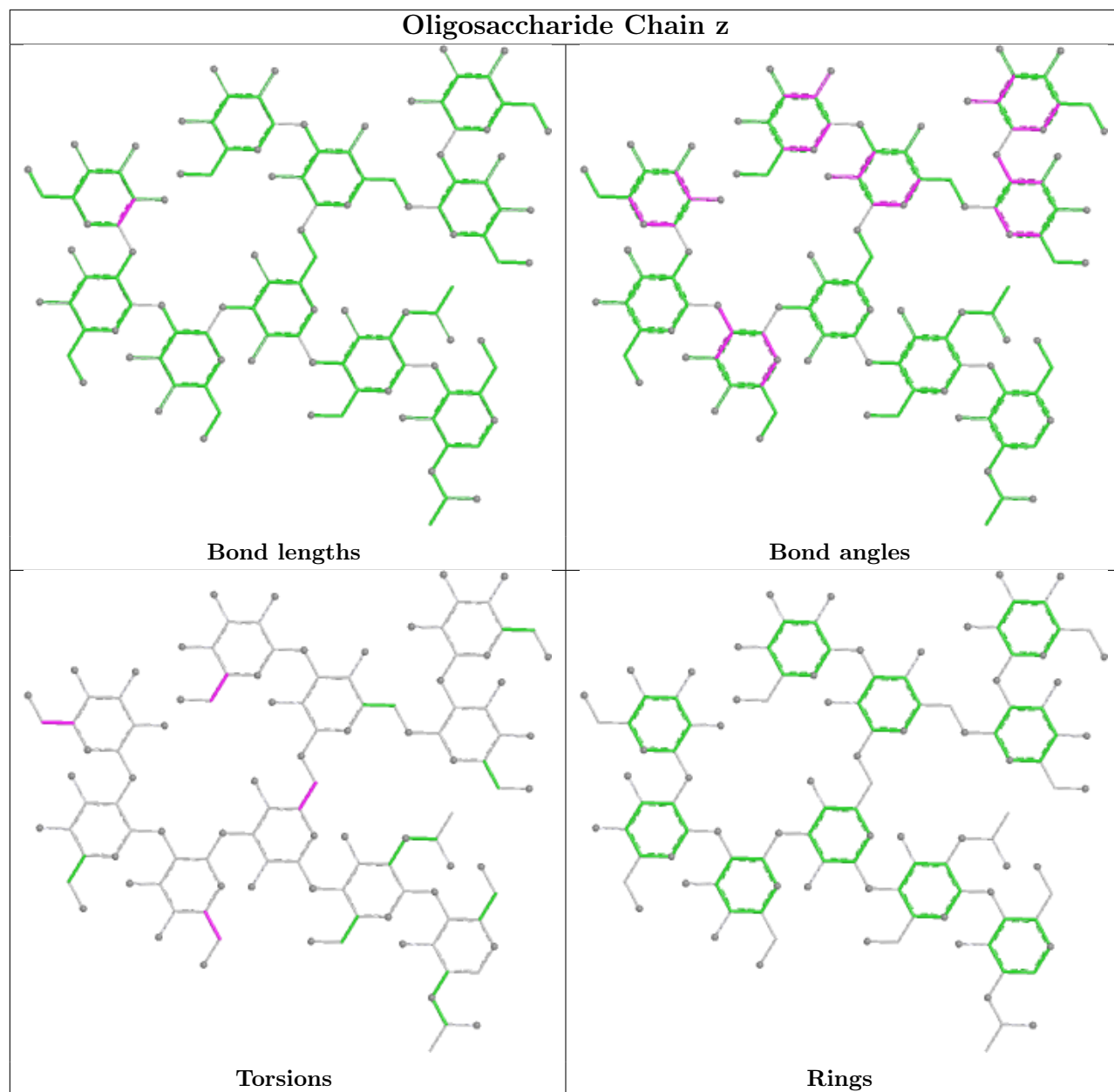


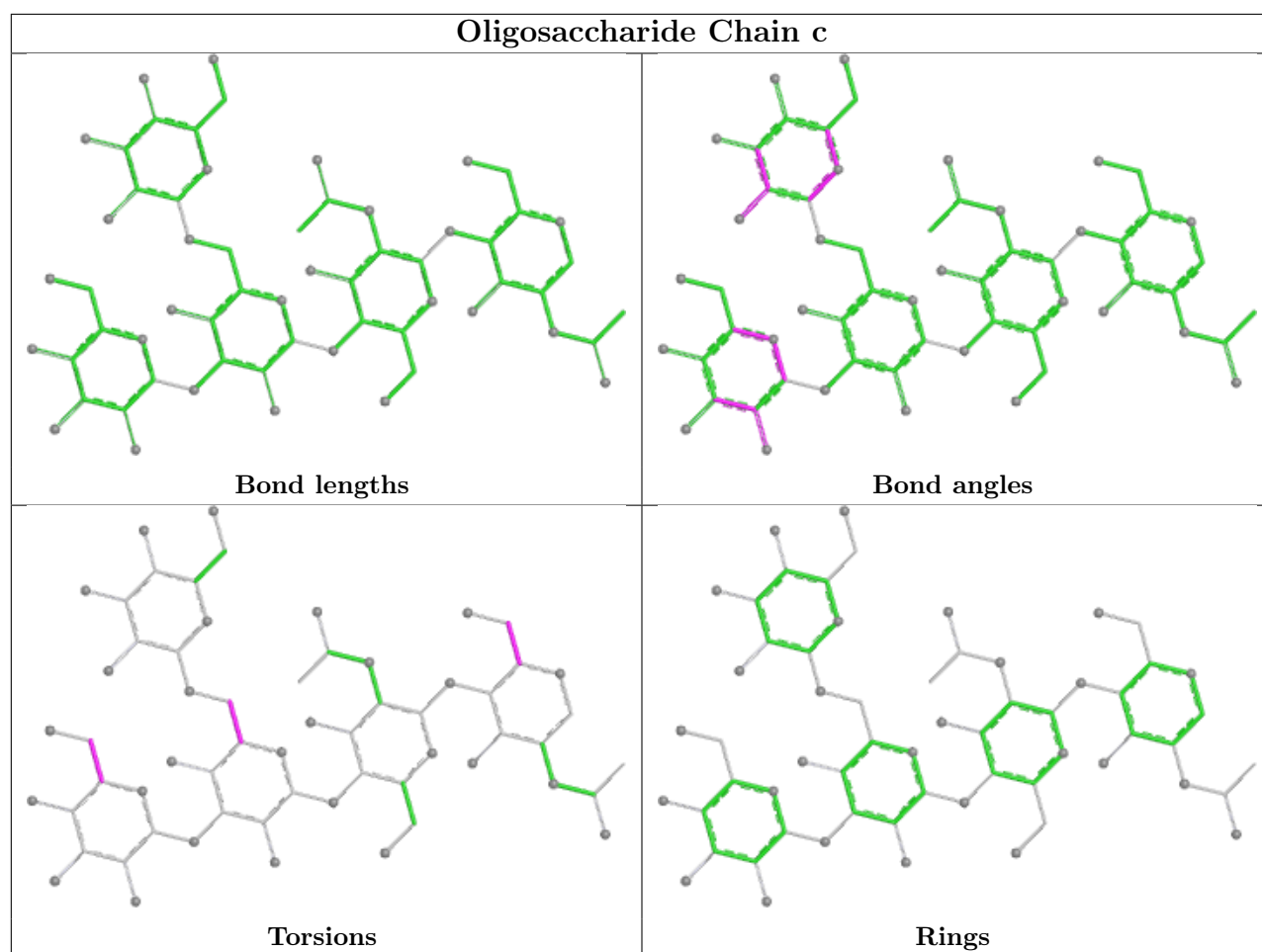


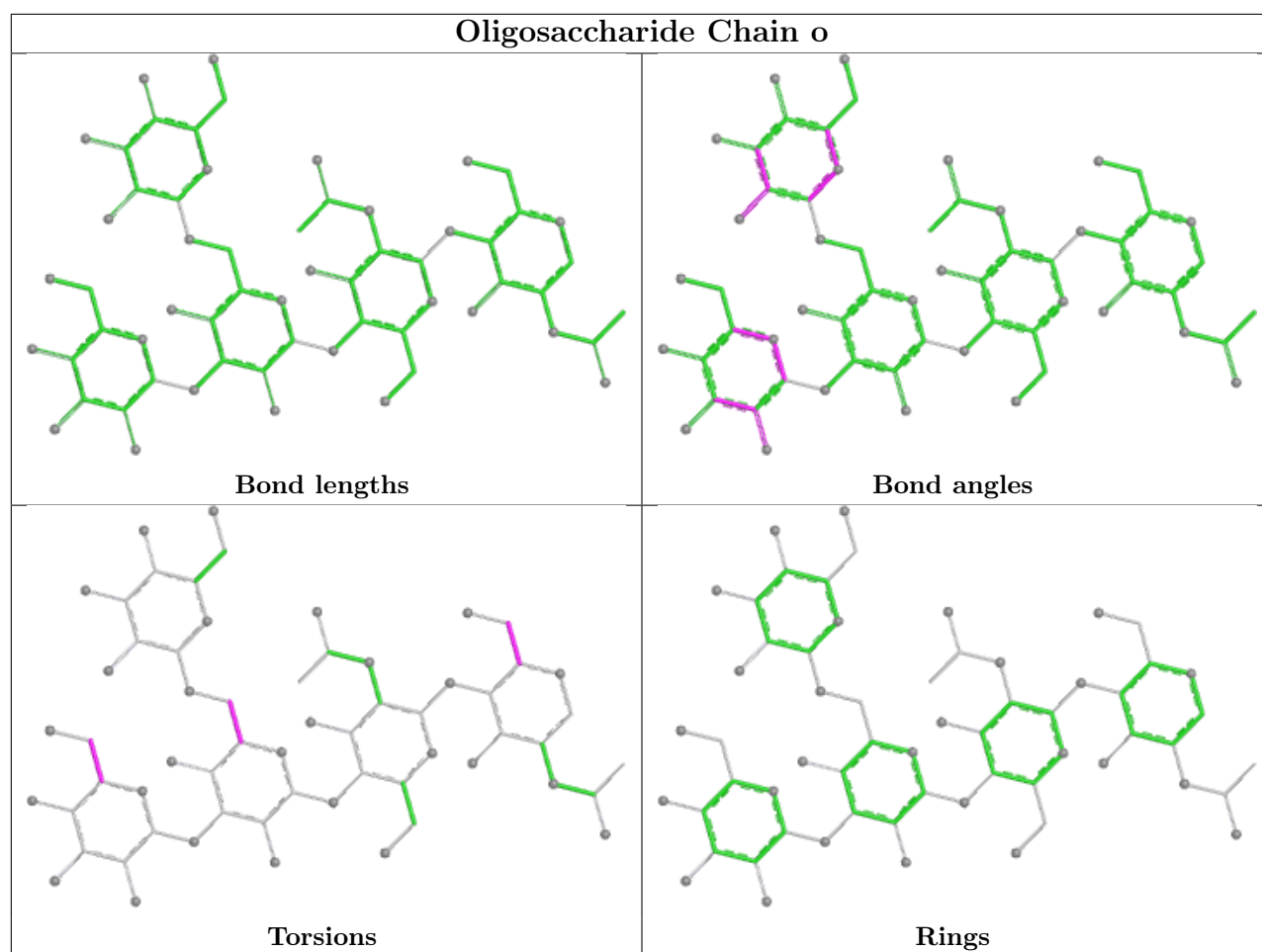


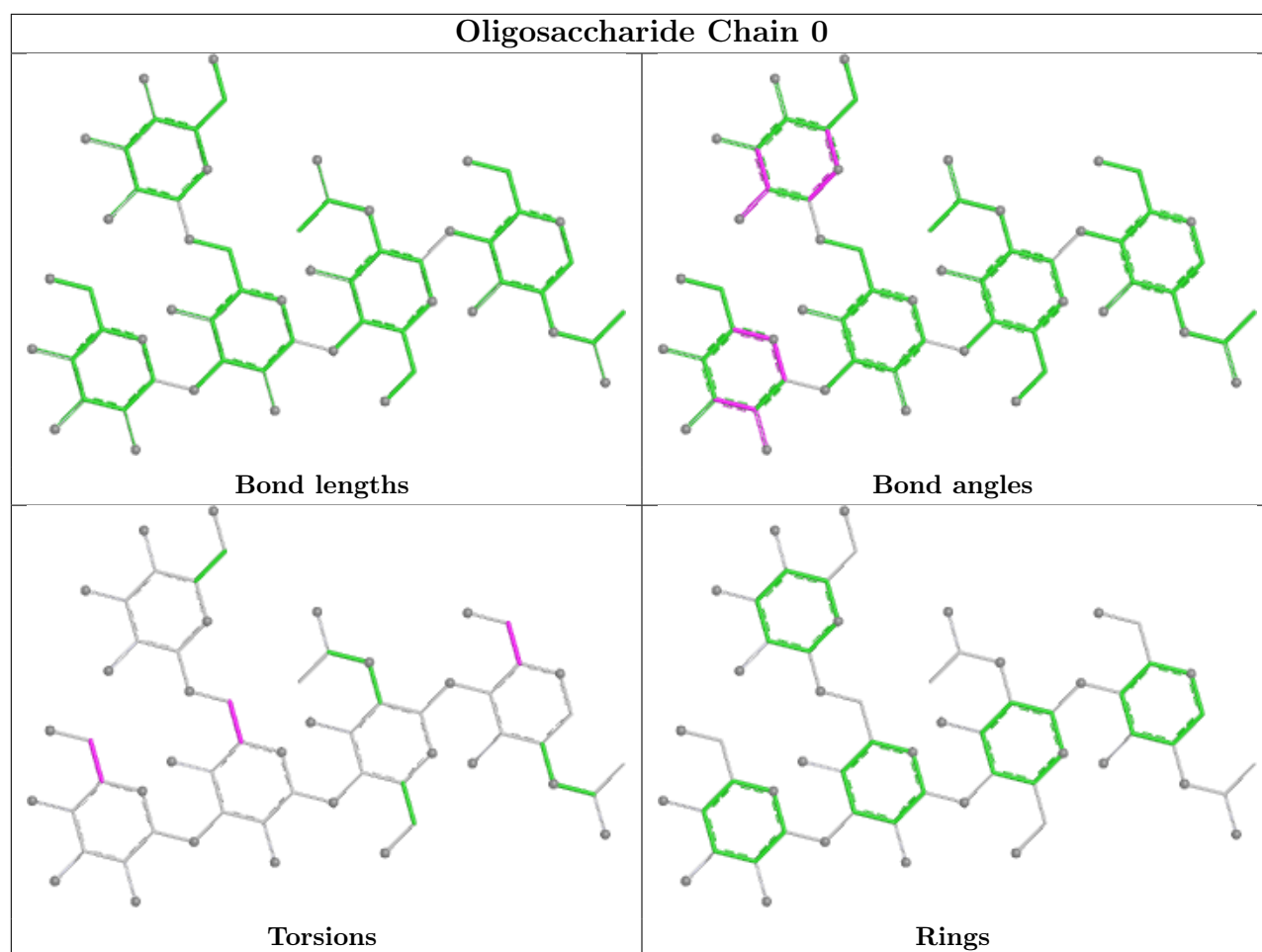


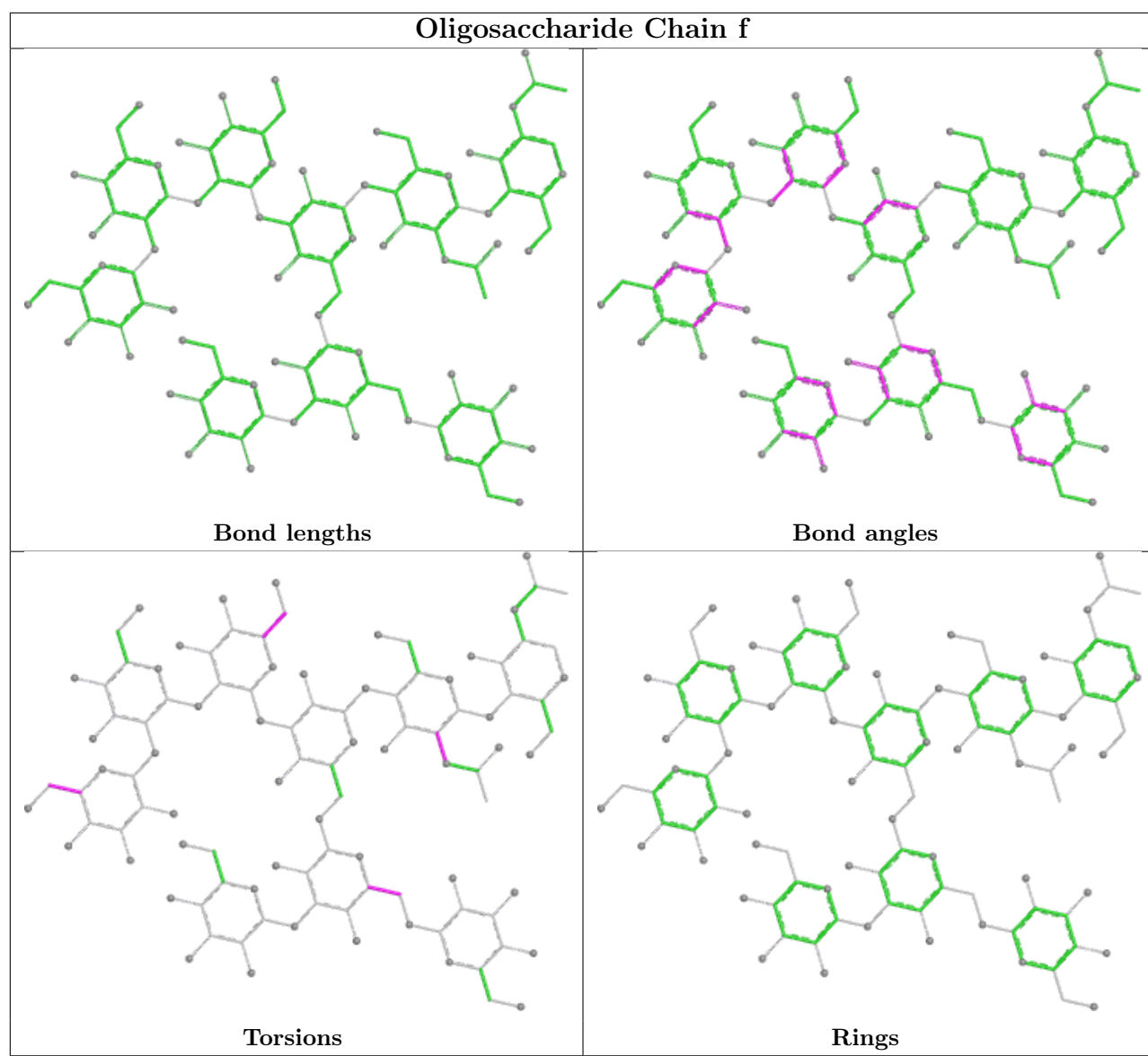


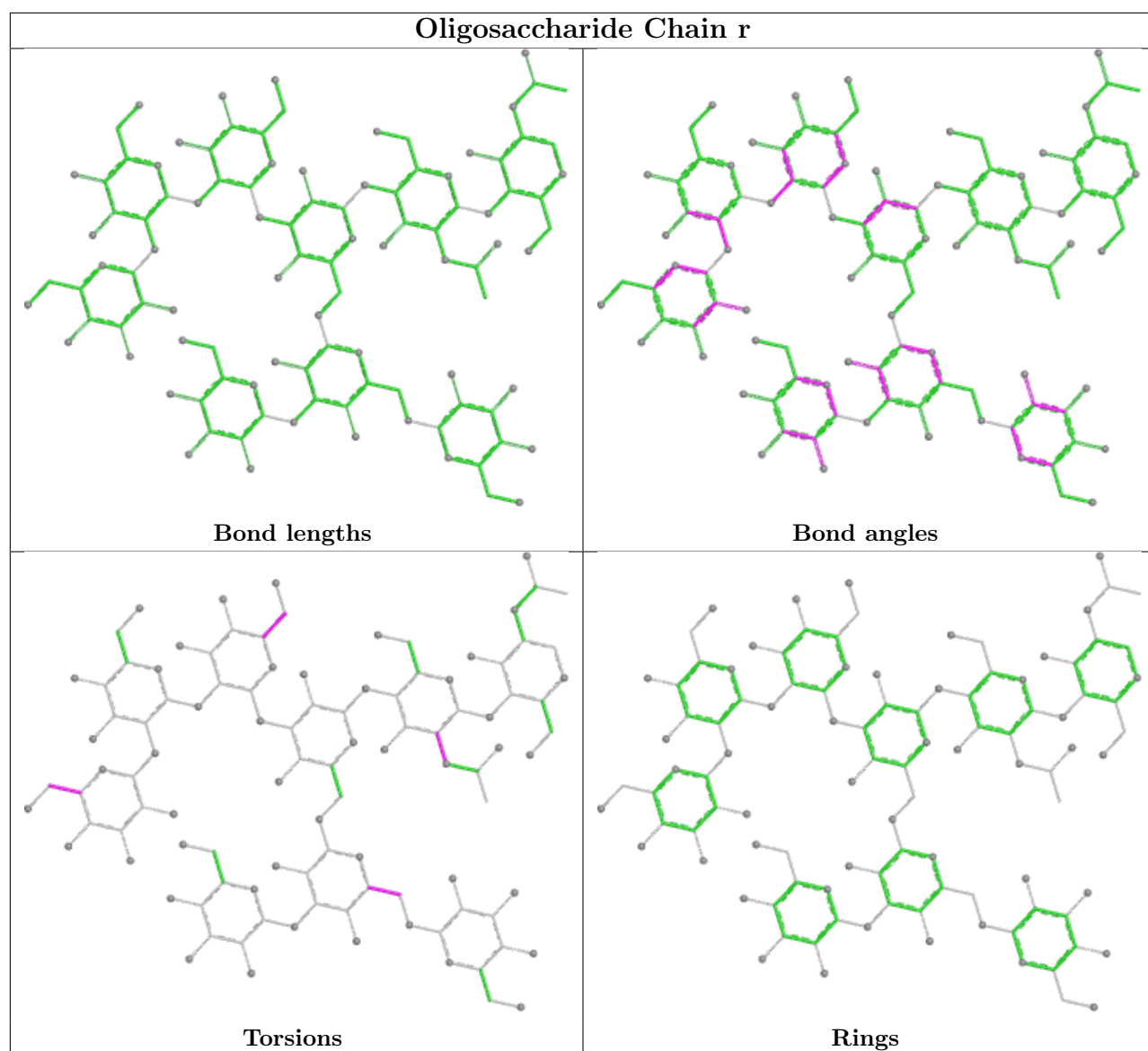


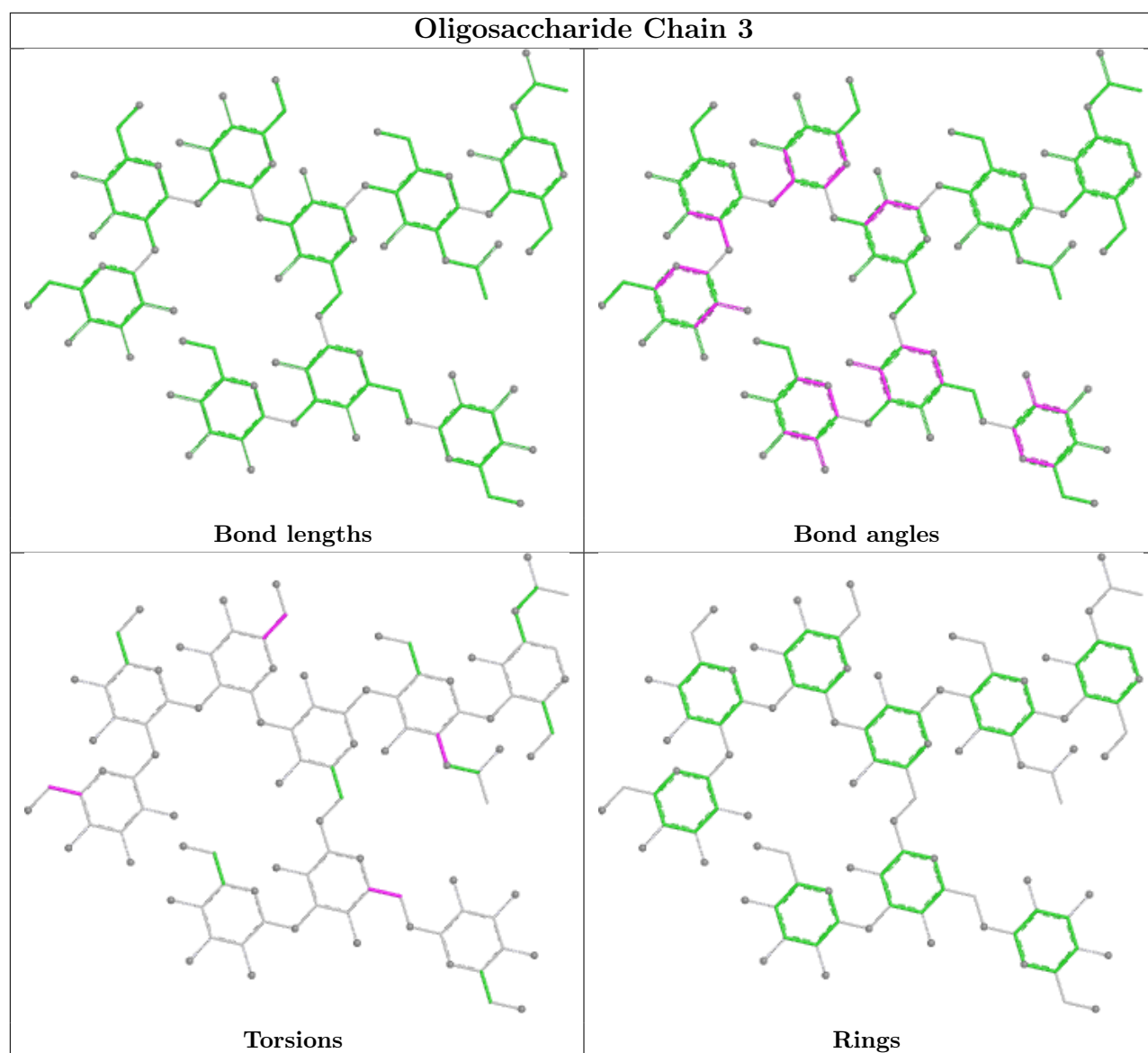












5.6 Ligand geometry [i](#)

24 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	B	701	2	14,14,15	0.20	0	17,19,21	0.40	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
11	NAG	A	602	1	14,14,15	0.28	0	17,19,21	0.53	0
11	NAG	A	603	1	14,14,15	0.26	0	17,19,21	0.46	0
11	NAG	E	602	1	14,14,15	0.30	0	17,19,21	0.54	0
11	NAG	G	301	3	14,14,15	0.22	0	17,19,21	0.45	0
11	NAG	F	702	2	14,14,15	0.21	0	17,19,21	0.52	0
12	83J	E	605	-	35,39,39	2.08	10 (28%)	42,56,56	3.97	18 (42%)
11	NAG	E	603	1	14,14,15	0.27	0	17,19,21	0.44	0
12	83J	I	605	-	35,39,39	2.08	10 (28%)	42,56,56	3.96	18 (42%)
11	NAG	E	604	1	14,14,15	0.50	0	17,19,21	0.62	0
11	NAG	E	601	1	14,14,15	0.21	0	17,19,21	0.49	0
11	NAG	A	601	1	14,14,15	0.21	0	17,19,21	0.49	0
11	NAG	J	702	2	14,14,15	0.19	0	17,19,21	0.51	0
12	83J	A	605	-	35,39,39	2.08	11 (31%)	42,56,56	3.97	17 (40%)
11	NAG	J	701	2	14,14,15	0.22	0	17,19,21	0.40	0
11	NAG	I	602	1	14,14,15	0.28	0	17,19,21	0.54	0
11	NAG	K	301	3	14,14,15	0.22	0	17,19,21	0.43	0
11	NAG	I	601	1	14,14,15	0.19	0	17,19,21	0.48	0
11	NAG	A	604	1	14,14,15	0.27	0	17,19,21	0.41	0
11	NAG	F	701	2	14,14,15	0.22	0	17,19,21	0.40	0
11	NAG	B	702	2	14,14,15	0.21	0	17,19,21	0.52	0
11	NAG	I	603	1	14,14,15	0.26	0	17,19,21	0.44	0
11	NAG	I	604	1	14,14,15	0.50	0	17,19,21	0.63	0
11	NAG	C	301	3	14,14,15	0.21	0	17,19,21	0.43	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	NAG	B	701	2	-	3/6/23/26	0/1/1/1
11	NAG	A	602	1	-	6/6/23/26	0/1/1/1
11	NAG	A	603	1	-	2/6/23/26	0/1/1/1
11	NAG	E	602	1	-	6/6/23/26	0/1/1/1
11	NAG	G	301	3	-	2/6/23/26	0/1/1/1
11	NAG	F	702	2	-	2/6/23/26	0/1/1/1
12	83J	E	605	-	-	2/18/36/36	0/5/5/5
11	NAG	E	603	1	-	2/6/23/26	0/1/1/1
12	83J	I	605	-	-	2/18/36/36	0/5/5/5
11	NAG	E	604	1	-	1/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	NAG	E	601	1	-	2/6/23/26	0/1/1/1
11	NAG	A	601	1	-	2/6/23/26	0/1/1/1
11	NAG	J	702	2	-	2/6/23/26	0/1/1/1
12	83J	A	605	-	-	2/18/36/36	0/5/5/5
11	NAG	J	701	2	-	3/6/23/26	0/1/1/1
11	NAG	I	602	1	-	6/6/23/26	0/1/1/1
11	NAG	K	301	3	-	3/6/23/26	0/1/1/1
11	NAG	I	601	1	-	2/6/23/26	0/1/1/1
11	NAG	A	604	1	-	3/6/23/26	0/1/1/1
11	NAG	F	701	2	-	3/6/23/26	0/1/1/1
11	NAG	B	702	2	-	2/6/23/26	0/1/1/1
11	NAG	I	603	1	-	2/6/23/26	0/1/1/1
11	NAG	I	604	1	-	1/6/23/26	0/1/1/1
11	NAG	C	301	3	-	3/6/23/26	0/1/1/1

The worst 5 of 31 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	A	605	83J	C12-N02	6.38	1.45	1.34
12	I	605	83J	C12-N02	6.38	1.45	1.34
12	E	605	83J	C12-N02	6.32	1.45	1.34
12	E	605	83J	C13-N05	5.47	1.46	1.34
12	I	605	83J	C13-N05	5.45	1.46	1.34

The worst 5 of 53 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	E	605	83J	C18-C16-C14	-11.09	104.31	127.72
12	A	605	83J	C18-C16-C14	-11.05	104.39	127.72
12	I	605	83J	C18-C16-C14	-10.99	104.51	127.72
12	A	605	83J	O11-C22-C17	10.64	131.07	115.91
12	E	605	83J	O11-C22-C17	10.57	130.97	115.91

There are no chirality outliers.

5 of 64 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	B	701	NAG	C1-C2-N2-C7

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Mol	Chain	Res	Type	Atoms
11	E	604	NAG	C3-C2-N2-C7
11	F	701	NAG	C1-C2-N2-C7
11	I	604	NAG	C3-C2-N2-C7
11	J	701	NAG	C1-C2-N2-C7

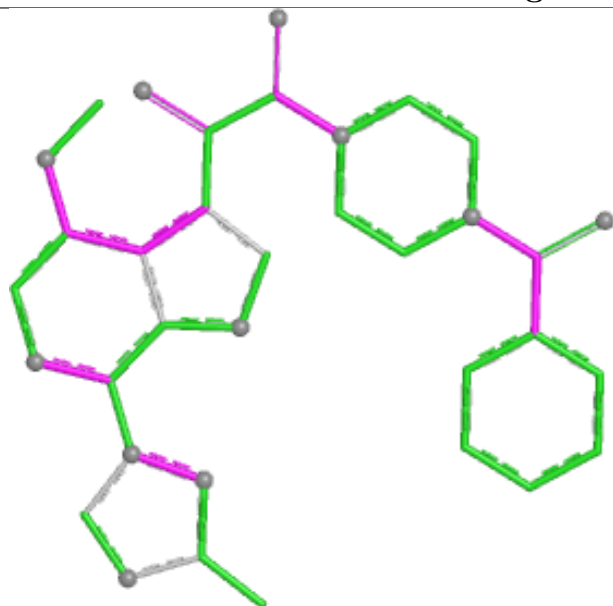
There are no ring outliers.

12 monomers are involved in 40 short contacts:

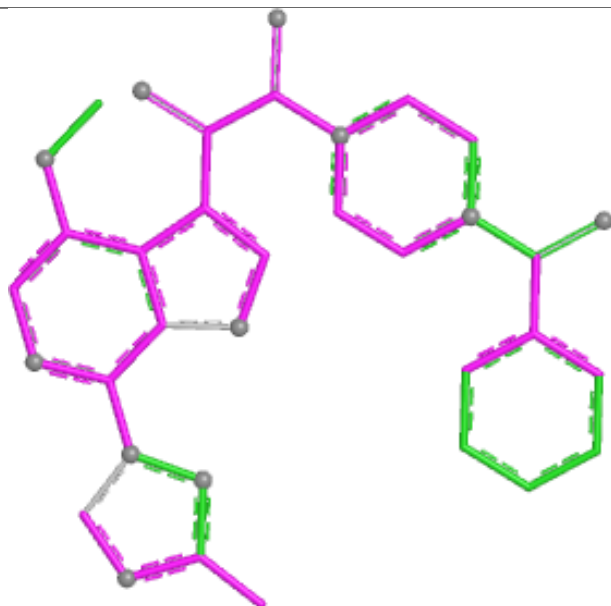
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	A	602	NAG	5	0
11	E	602	NAG	6	0
12	E	605	83J	1	0
12	I	605	83J	1	0
11	E	604	NAG	4	0
11	E	601	NAG	2	0
11	A	601	NAG	6	0
12	A	605	83J	1	0
11	I	602	NAG	5	0
11	I	601	NAG	3	0
11	A	604	NAG	3	0
11	I	604	NAG	3	0

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

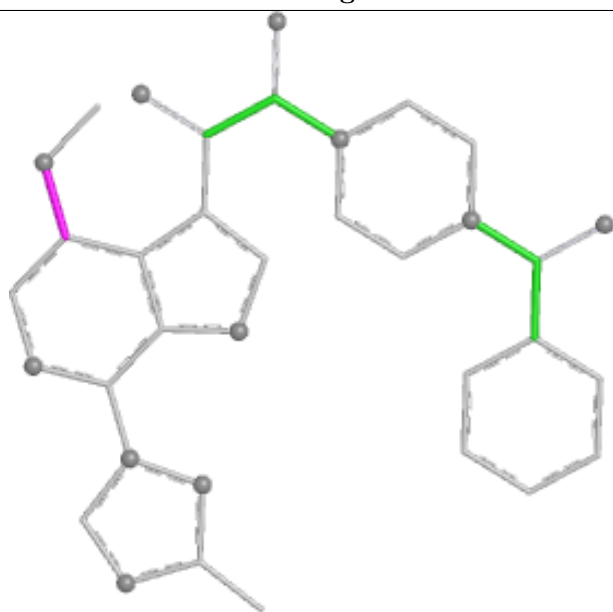
Ligand 83J E 605



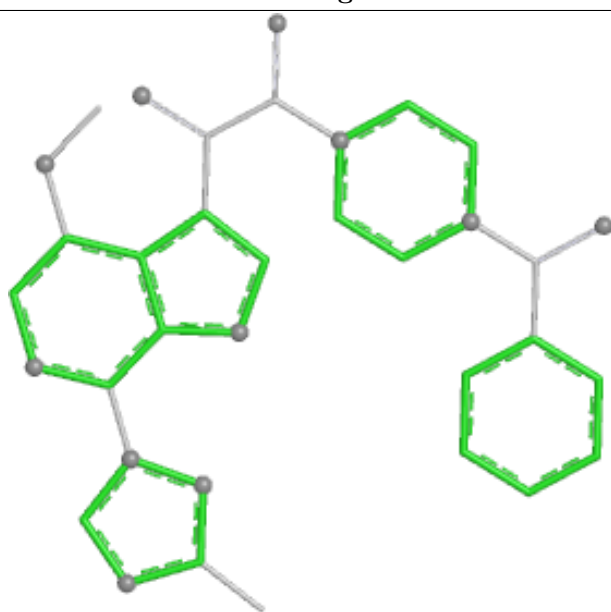
Bond lengths



Bond angles

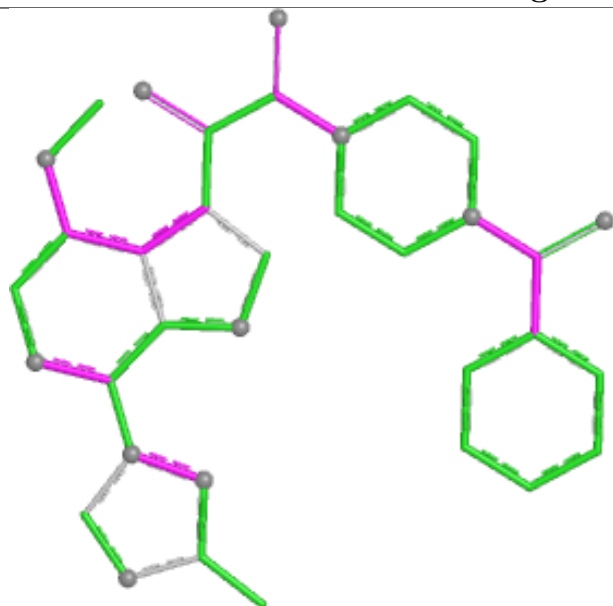


Torsions

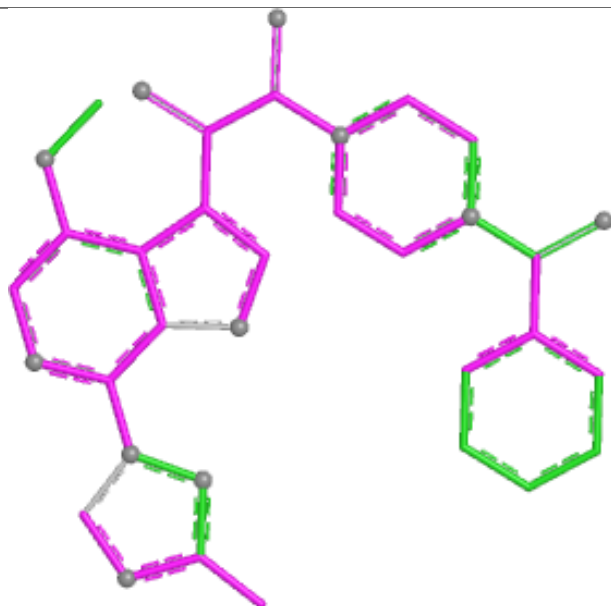


Rings

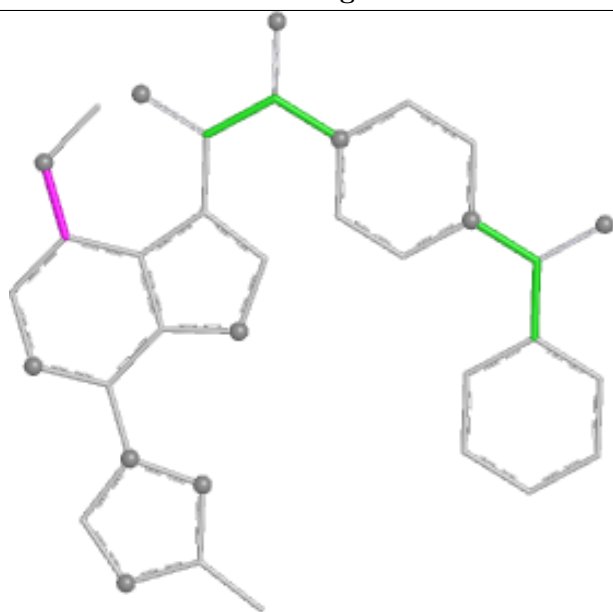
Ligand 83J I 605



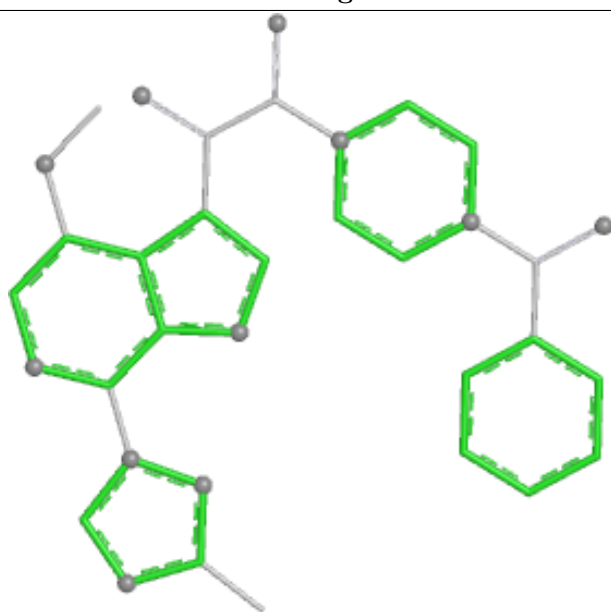
Bond lengths



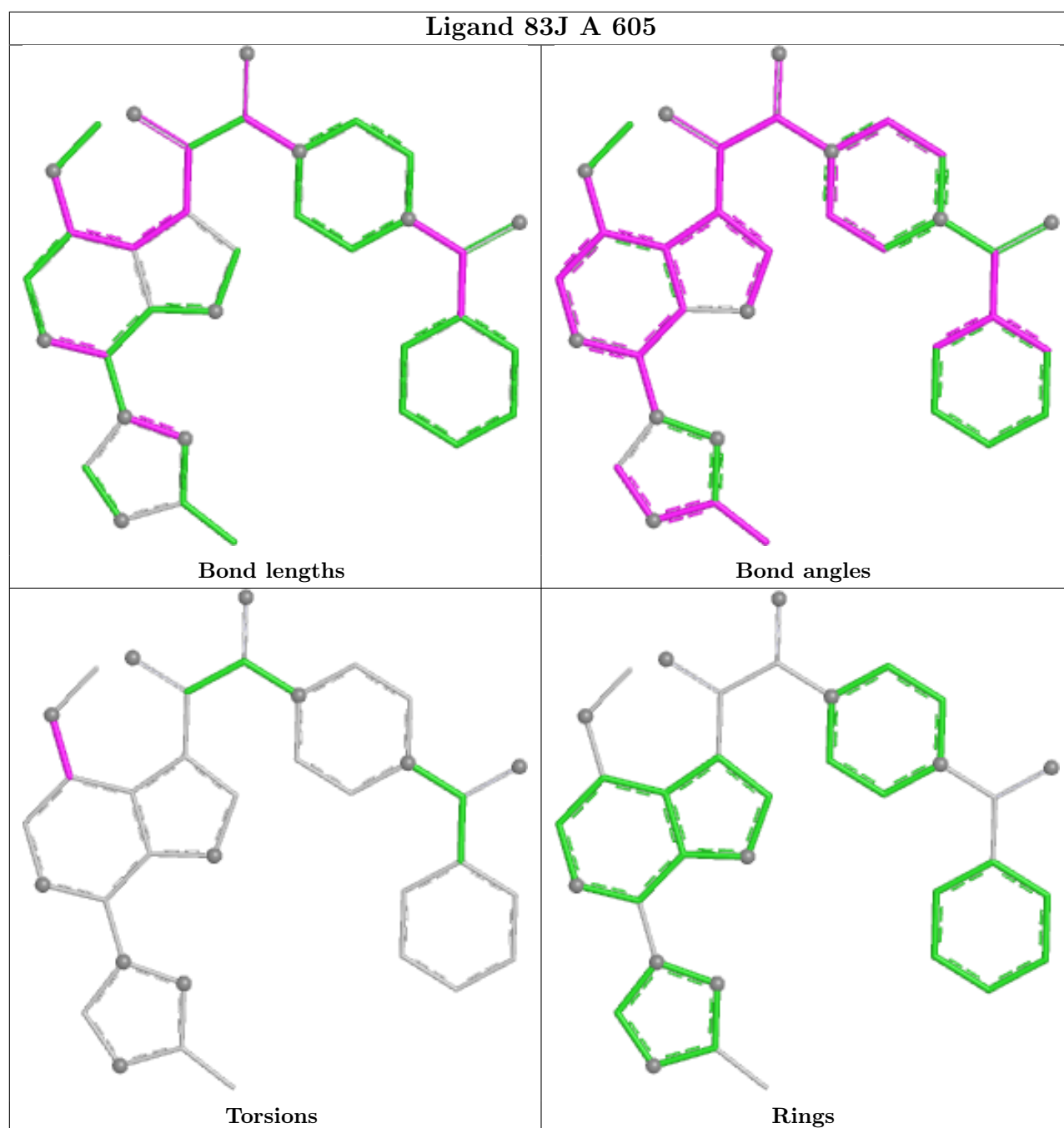
Bond angles



Torsions



Rings



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

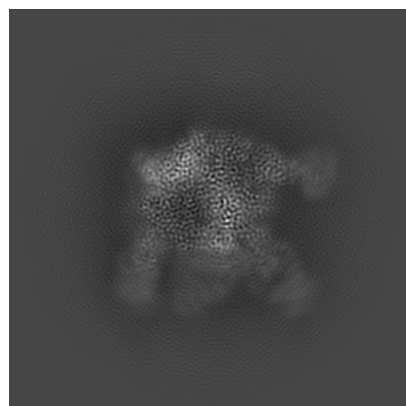
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-41613. These allow visual inspection of the internal detail of the map and identification of artifacts.

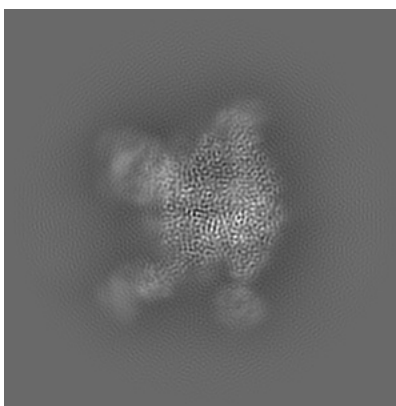
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

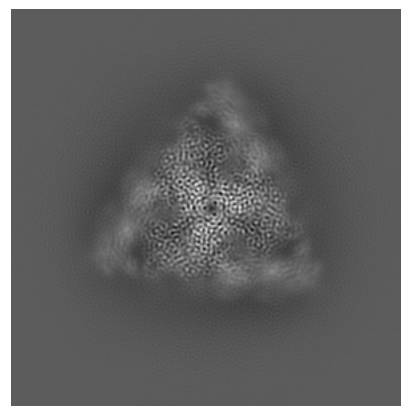
6.1.1 Primary map



X

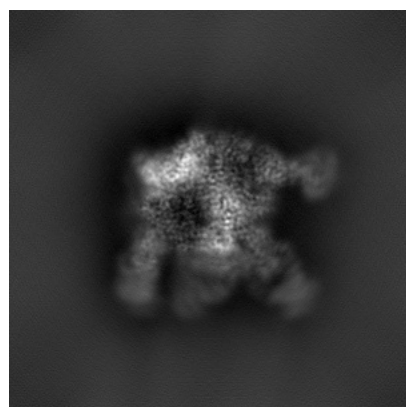


Y

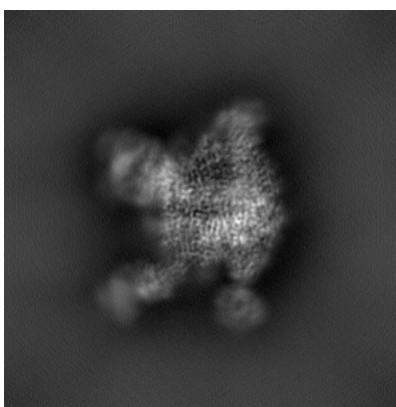


Z

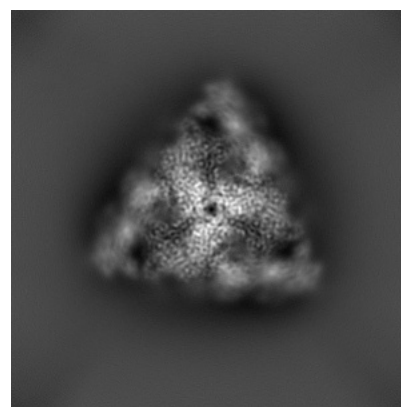
6.1.2 Raw map



X



Y

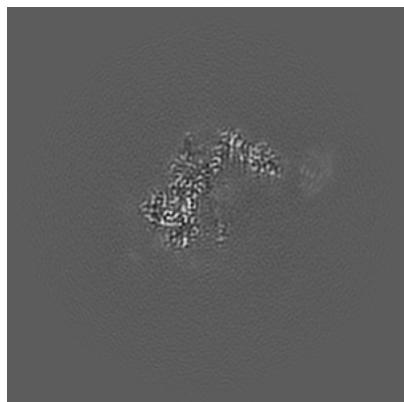


Z

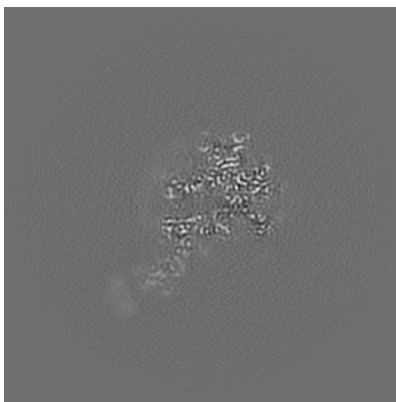
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

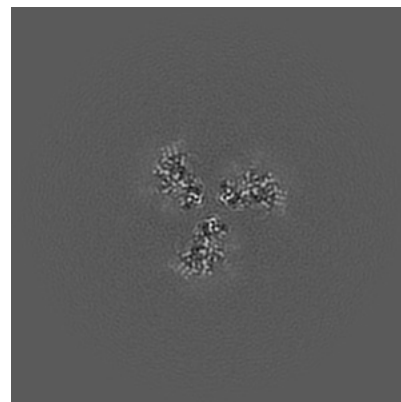
6.2.1 Primary map



X Index: 180

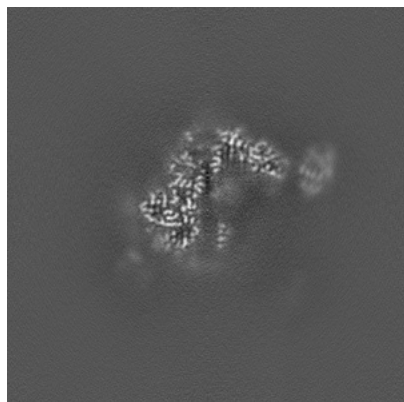


Y Index: 180

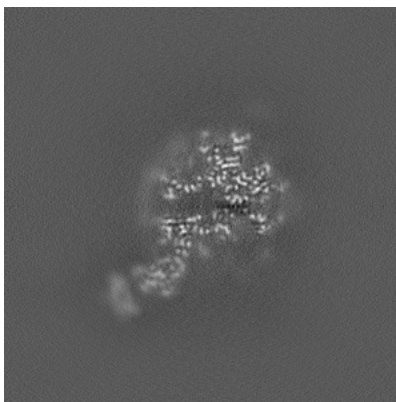


Z Index: 180

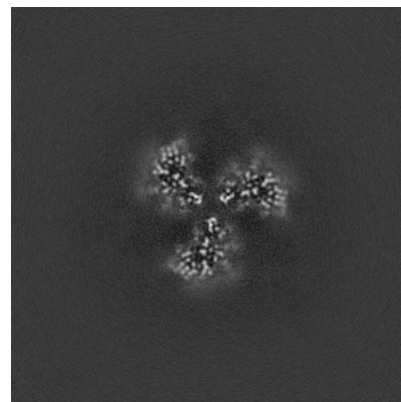
6.2.2 Raw map



X Index: 180



Y Index: 180

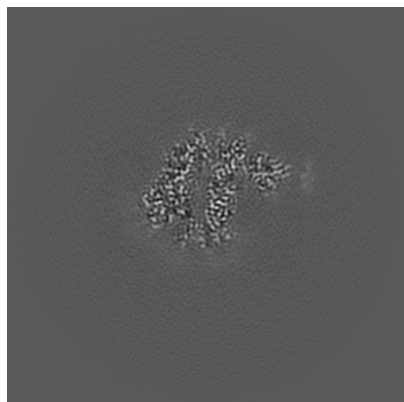


Z Index: 180

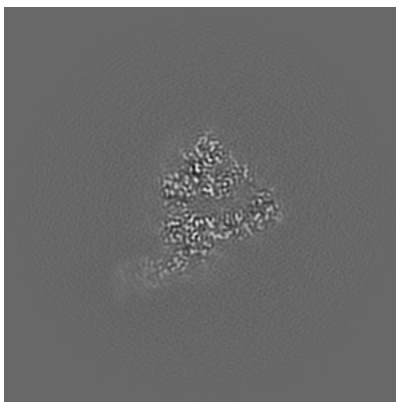
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

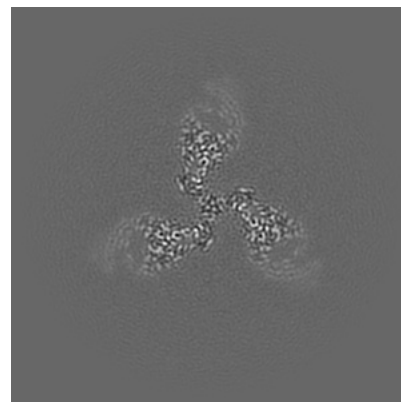
6.3.1 Primary map



X Index: 169

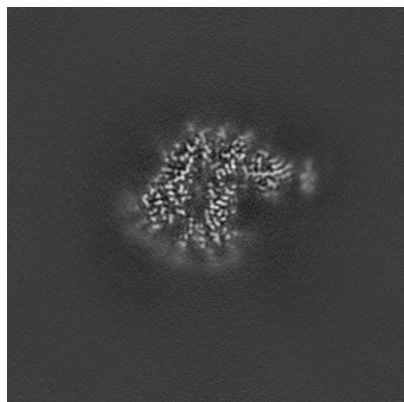


Y Index: 194

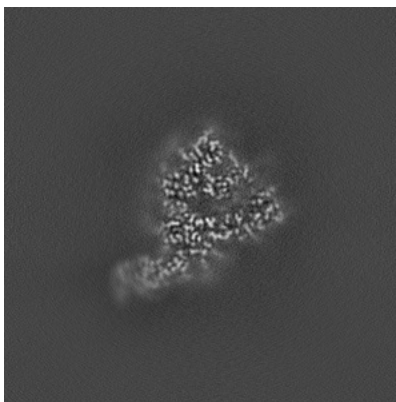


Z Index: 216

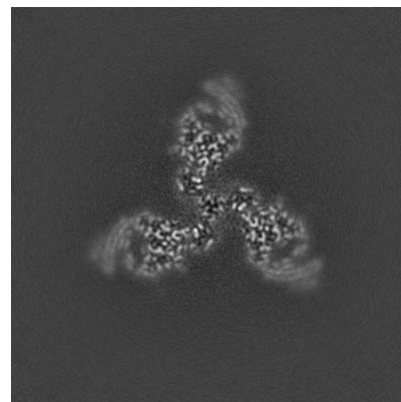
6.3.2 Raw map



X Index: 169



Y Index: 194

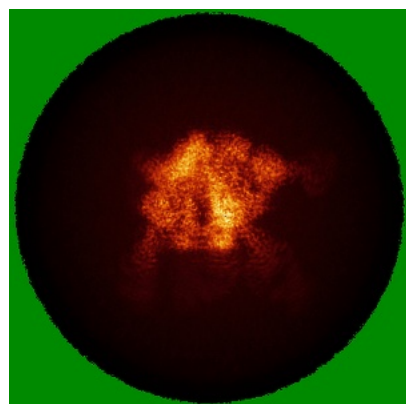


Z Index: 216

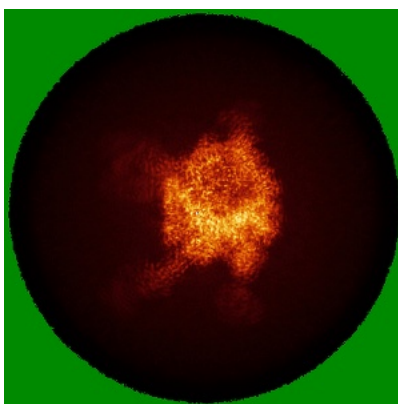
The images above show the largest variance slices of the map in three orthogonal directions.

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

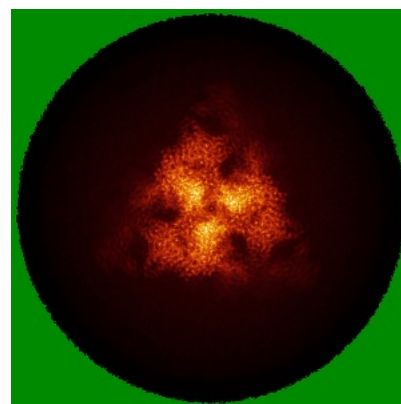
6.4.1 Primary map



X

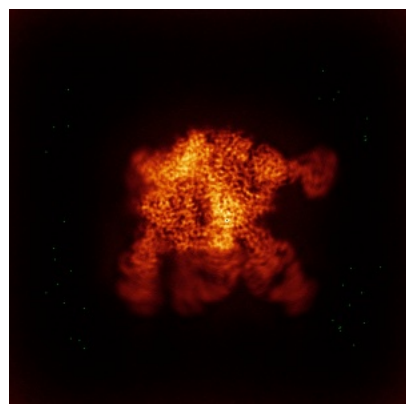


Y

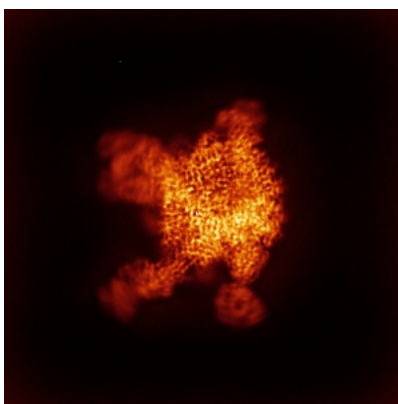


Z

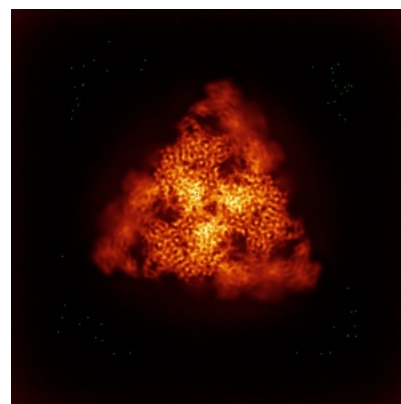
6.4.2 Raw map



X



Y

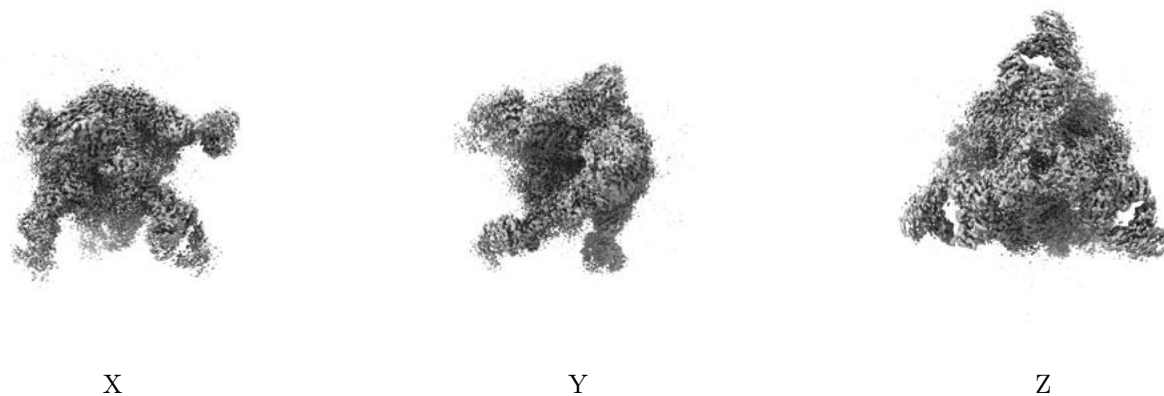


Z

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

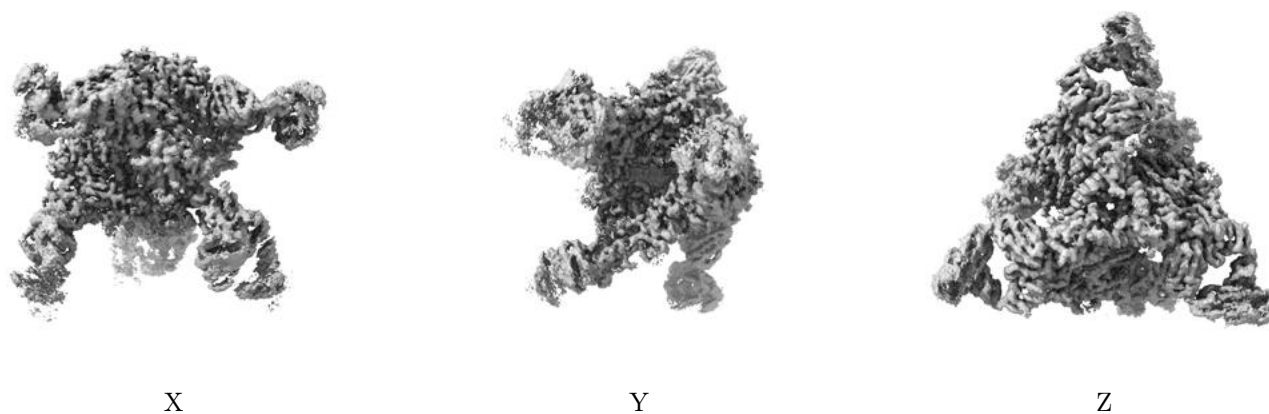
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.1151. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

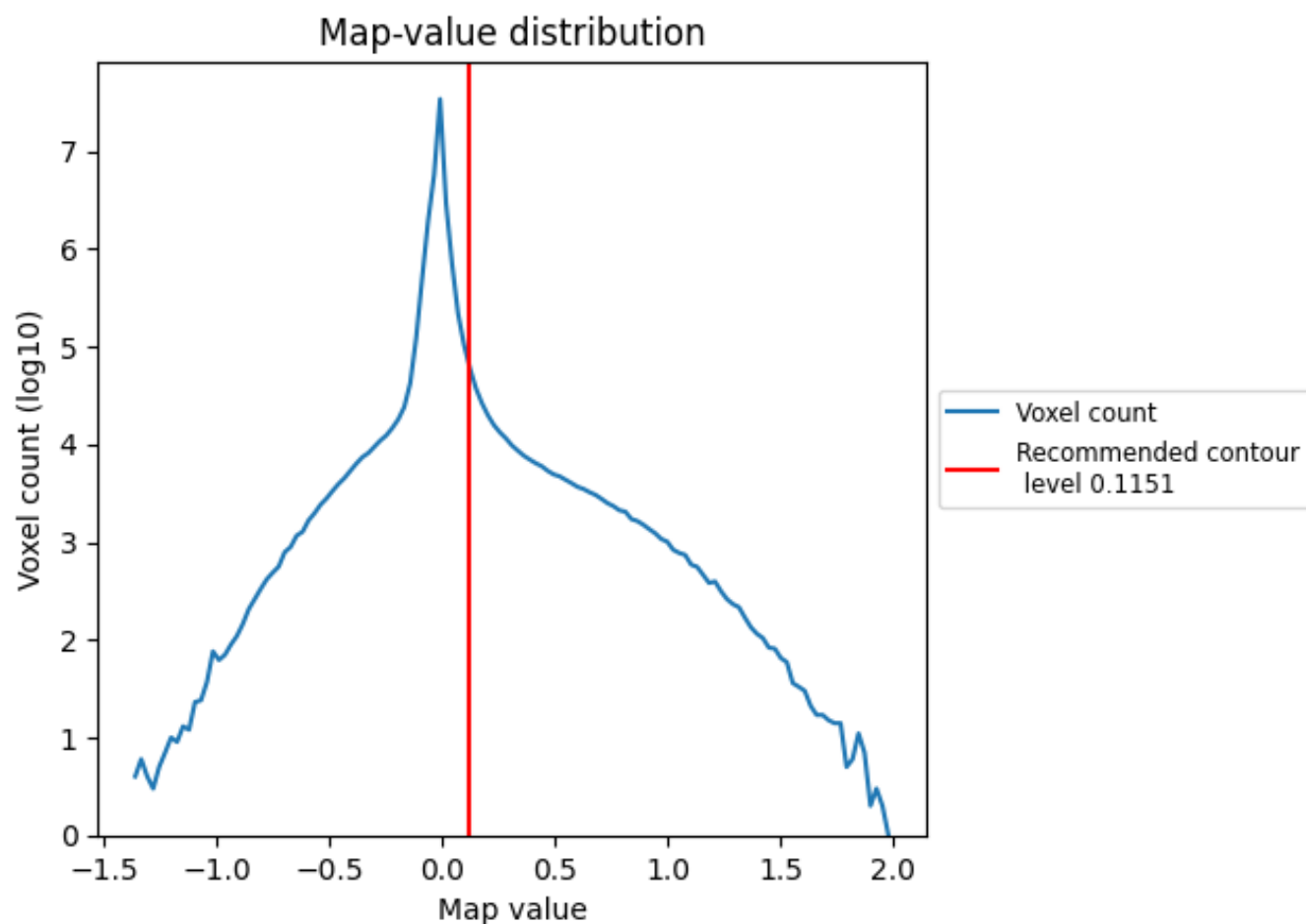
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

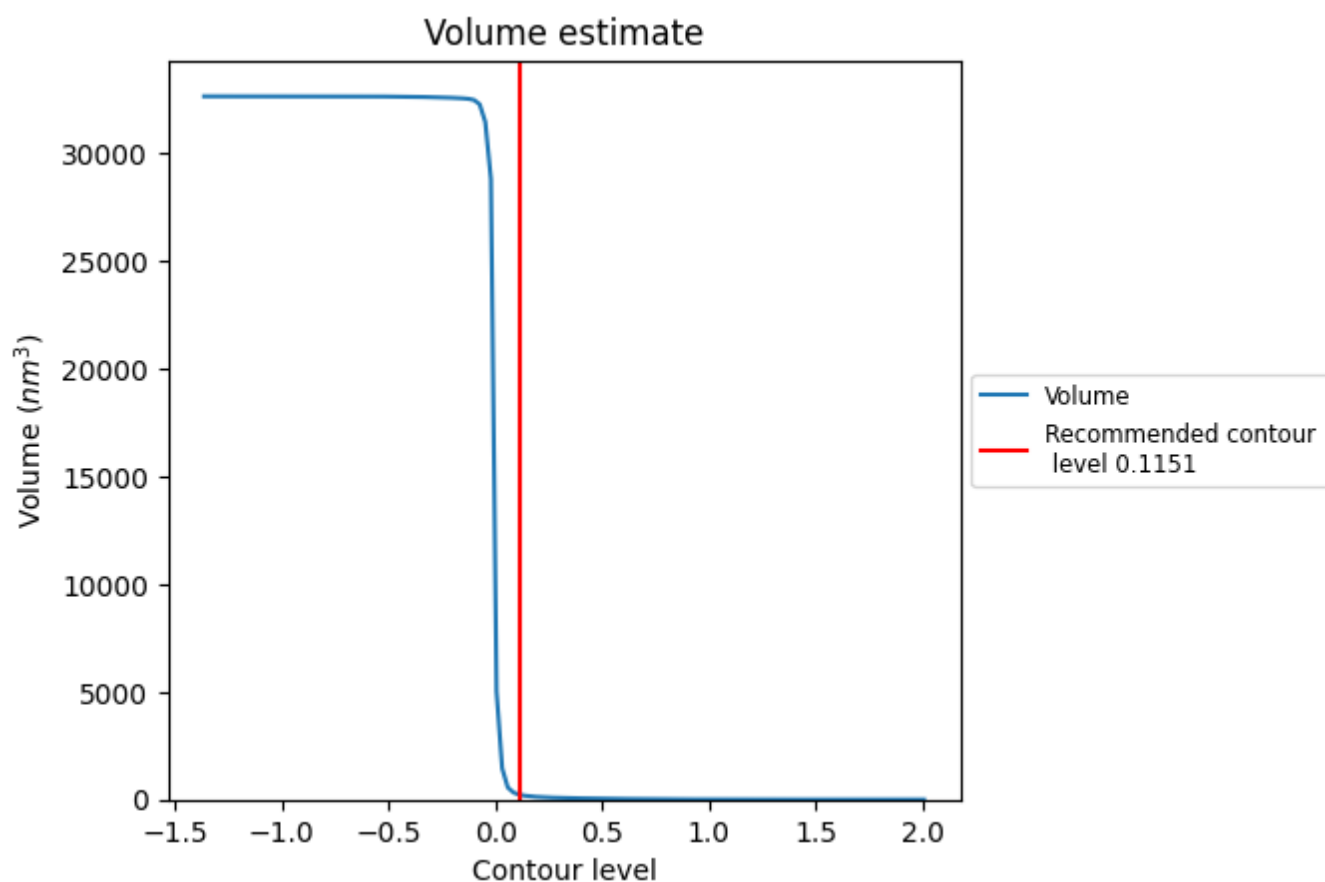
This section contains the results of statistical analysis of the map.

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.

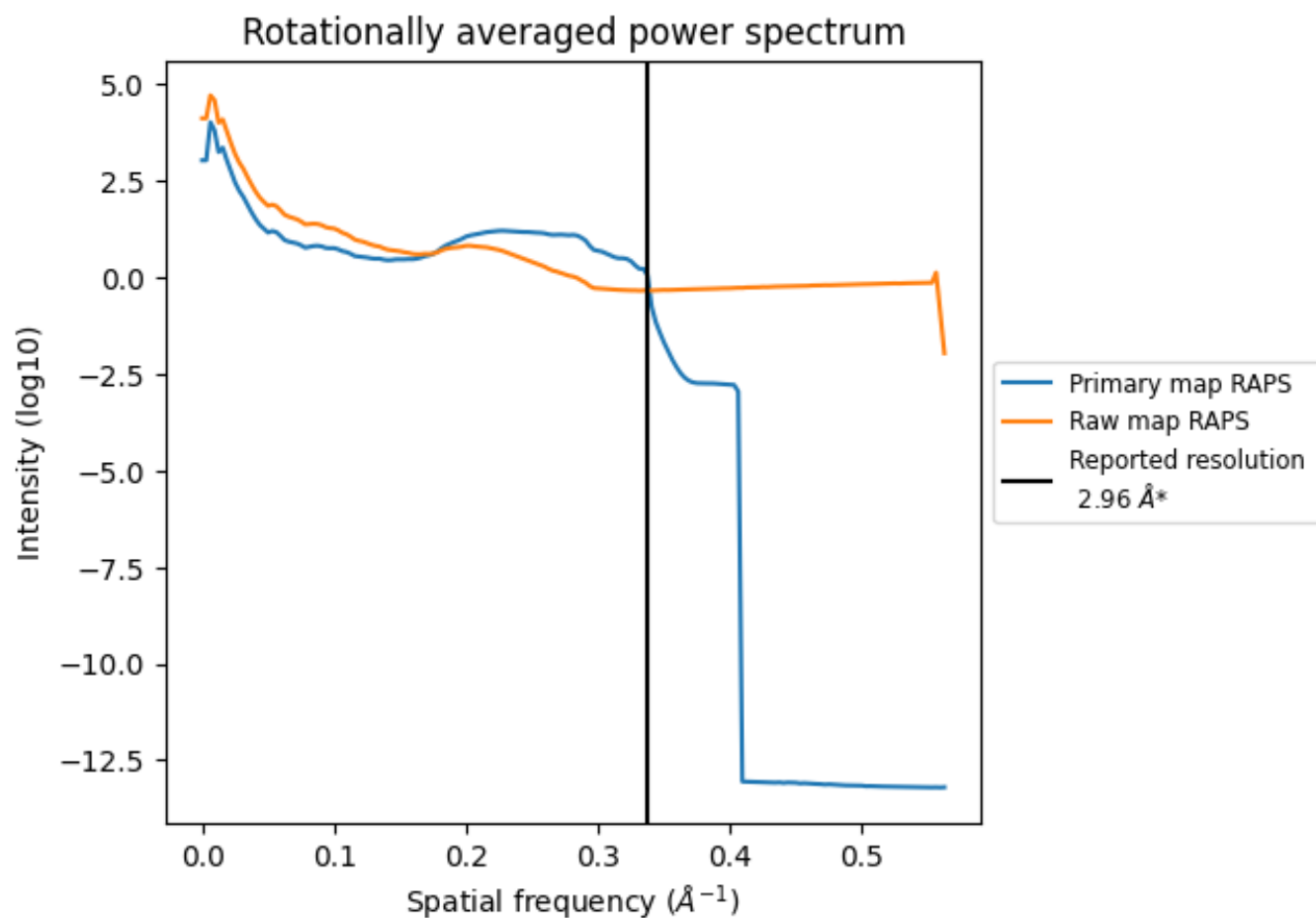
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 226 nm^3 ; this corresponds to an approximate mass of 204 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 ⓘ

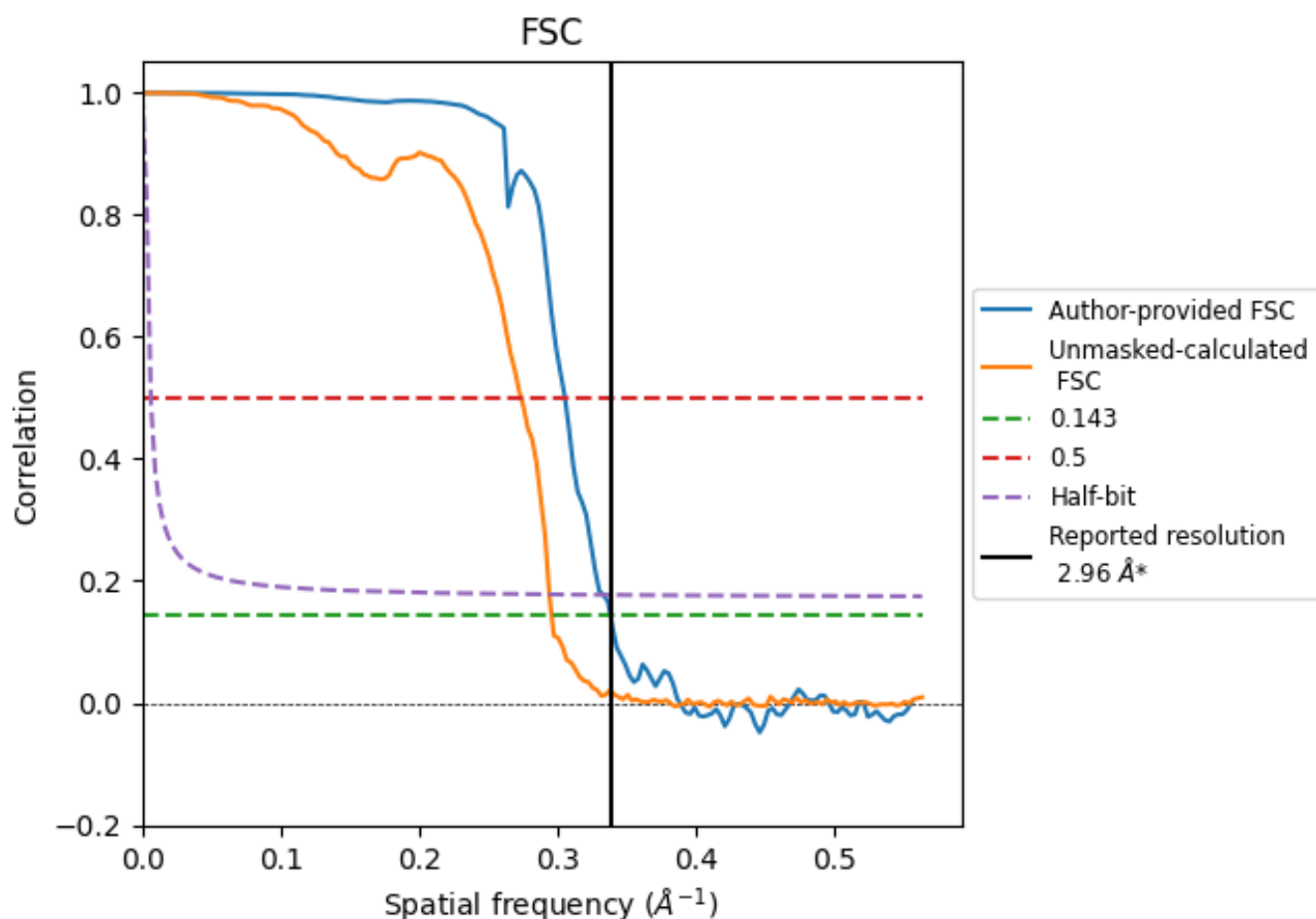


*Reported resolution corresponds to spatial frequency of 0.338 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.338 \AA^{-1}

8.2 Resolution estimates [i](#)

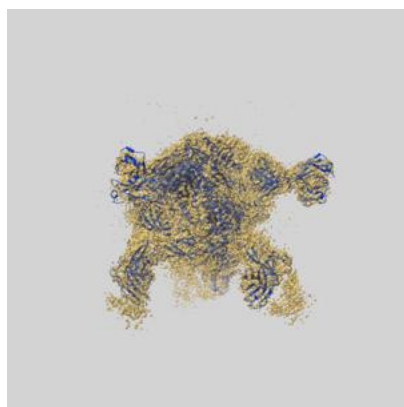
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.96	-	-
Author-provided FSC curve	2.96	3.28	3.00
Unmasked-calculated*	3.38	3.66	3.40

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.38 differs from the reported value 2.96 by more than 10 %

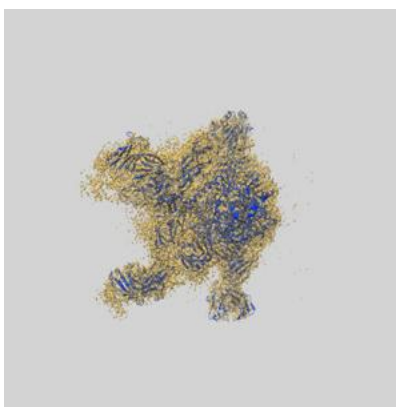
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-41613 and PDB model 8TTW. Per-residue inclusion information can be found in section [3](#) on page [14](#).

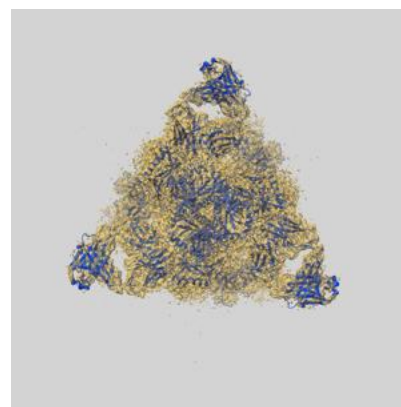
9.1 Map-model overlay [i](#)



X



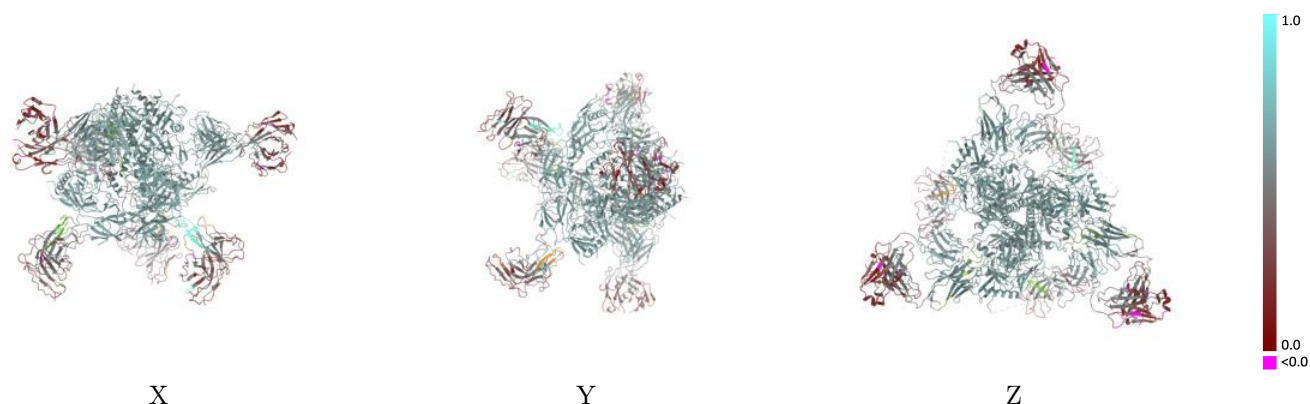
Y



Z

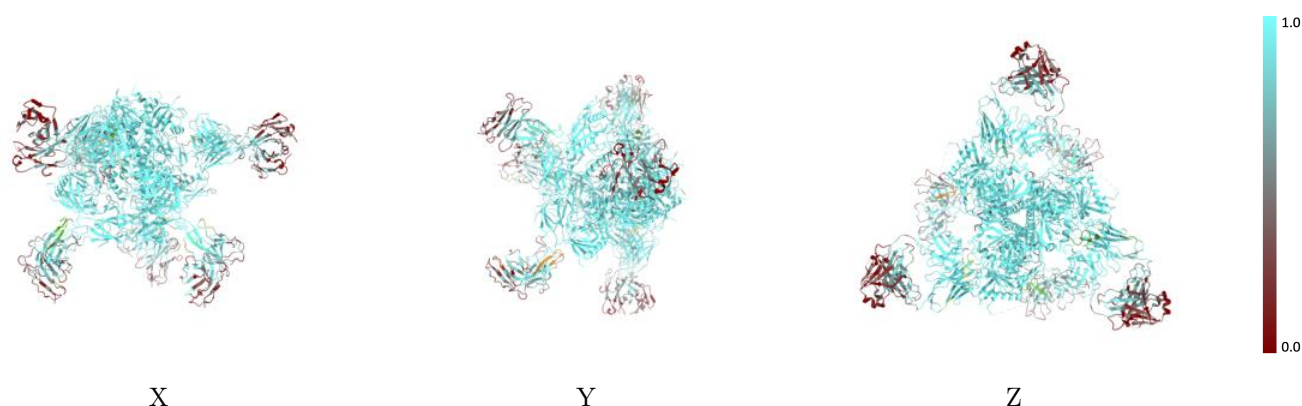
The images above show the 3D surface view of the map at the recommended contour level 0.1151 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



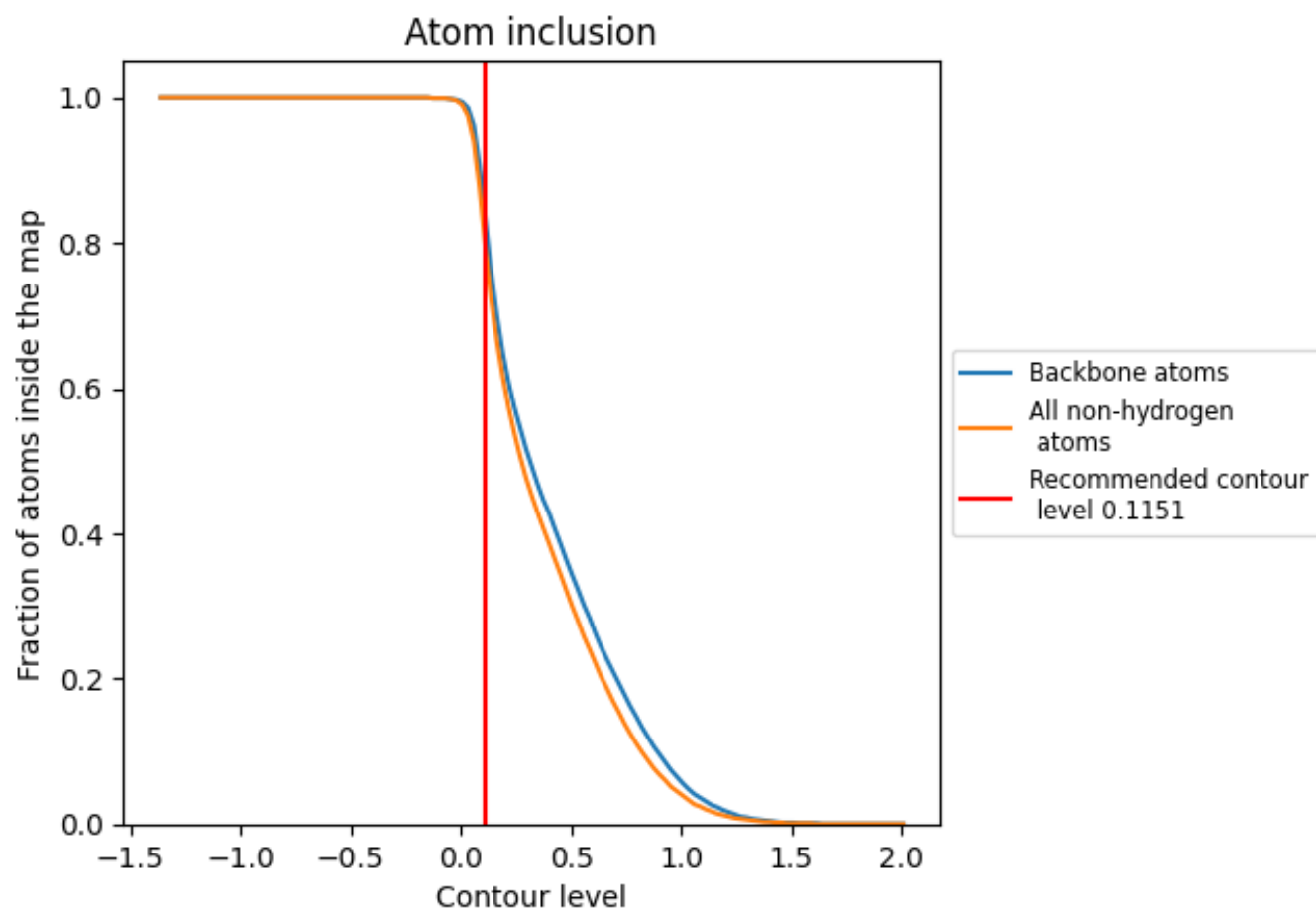
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.1151).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 82% of all backbone atoms, 78% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ





















































The table lists the average atom inclusion at the recommended contour level (0.1151) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7850	 0.5070
0	 0.7210	 0.4540
1	 0.8210	 0.5260
2	 0.6070	 0.3570
3	 0.8190	 0.4920
4	 0.5360	 0.3220
5	 0.7140	 0.4270
6	 0.4640	 0.2650
7	 0.7140	 0.3720
A	 0.9260	 0.5830
B	 0.9370	 0.5820
C	 0.7320	 0.4800
D	 0.6400	 0.4460
E	 0.9290	 0.5830
F	 0.9320	 0.5800
G	 0.7240	 0.4760
H	 0.6320	 0.4430
I	 0.9230	 0.5820
J	 0.9320	 0.5800
K	 0.7300	 0.4770
L	 0.6370	 0.4420
M	 0.5510	 0.3950
N	 0.7150	 0.4390
O	 0.5410	 0.3930
P	 0.7100	 0.4410
Q	 0.5470	 0.3930
R	 0.7100	 0.4400
S	 0.8210	 0.5090
T	 0.8570	 0.5500
U	 0.8930	 0.5160
V	 0.8570	 0.5490
W	 0.8570	 0.5120
X	 0.8570	 0.5400
Y	 0.7140	 0.5210
Z	 0.5360	 0.2630



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Chain	Atom inclusion	Q-score
a	 0.6790	 0.4080
b	 0.8880	 0.5380
c	 0.7050	 0.4490
d	 0.8210	 0.5160
e	 0.6430	 0.3520
f	 0.8290	 0.4850
g	 0.5360	 0.3160
h	 0.7140	 0.4310
i	 0.4640	 0.2730
j	 0.7140	 0.3640
k	 0.7860	 0.5120
l	 0.5000	 0.2510
m	 0.6790	 0.4160
n	 0.8790	 0.5410
o	 0.7050	 0.4500
p	 0.8210	 0.5100
q	 0.6070	 0.3620
r	 0.8190	 0.4920
s	 0.5360	 0.3160
t	 0.7140	 0.4250
u	 0.4290	 0.2580
v	 0.6790	 0.3660
w	 0.7500	 0.5080
x	 0.5360	 0.2540
y	 0.7140	 0.4230
z	 0.8790	 0.5390