



Full wwPDB EM Validation Report ⓘ

Mar 9, 2026 – 03:40 PM UTC

PDB ID : 8WLU / pdb_00008wlu
EMDB ID : EMD-37632
Title : Cryo-EM structure of bat RsSHC014 spike glycoprotein
Authors : Wang, X.; Qiao, S.
Deposited on : 2023-10-01
Resolution : 2.87 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

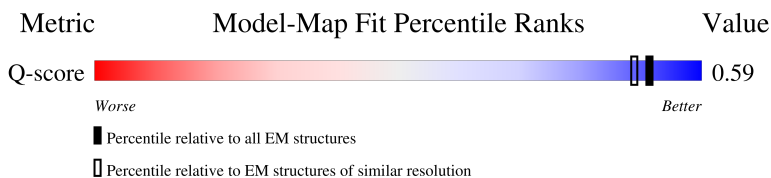
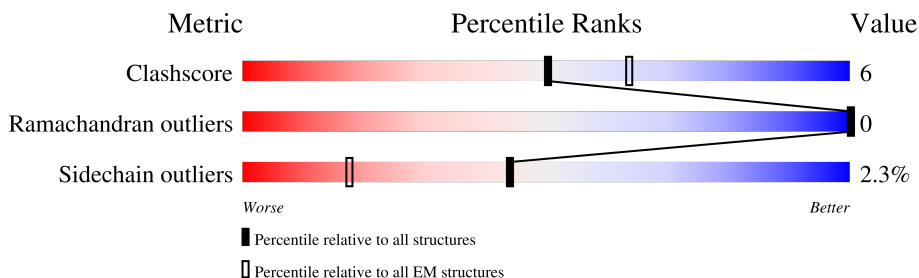
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.87 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.




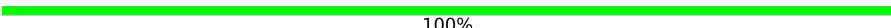
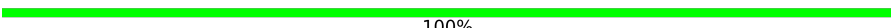

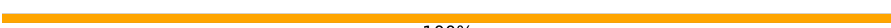








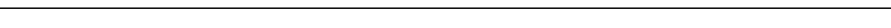

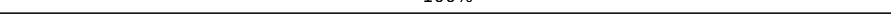
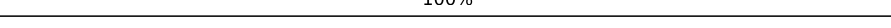
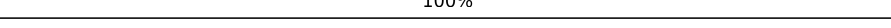
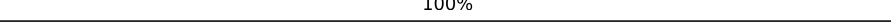
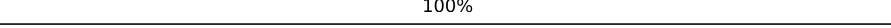
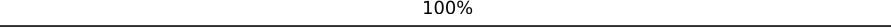

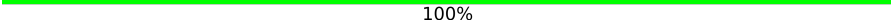
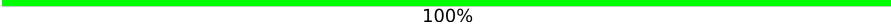

Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	12062 (2.37 - 3.37)

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	1271	
1	B	1271	
1	C	1271	
2	D	2	

















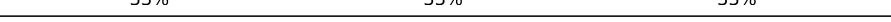
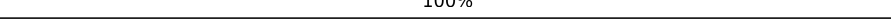

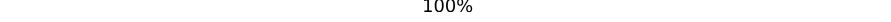
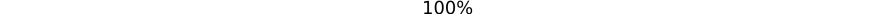
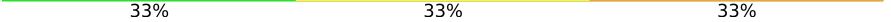
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Mol	Chain	Length	Quality of chain
2	J	2	 50% 50%
2	K	2	 100%
2	L	2	 100%
2	N	2	 50% 50%
2	O	2	 100%
2	P	2	 100%
2	Q	2	 100%
2	R	2	 100%
2	S	2	 100%
2	T	2	 100%
2	Z	2	 50% 50%
2	a	2	 100%
2	b	2	 100%
2	d	2	 50% 50%
2	e	2	 100%
2	f	2	 100%
2	g	2	 100%
2	h	2	 100%
2	i	2	 100%
2	j	2	 100%
2	p	2	 50% 50%
2	q	2	 100%
2	r	2	 100%
2	t	2	 50% 50%
2	u	2	 100%

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Mol	Chain	Length	Quality of chain
2	v	2	 100%
2	w	2	 100%
2	x	2	 100%
2	y	2	 100%
3	E	3	 100%
3	F	3	 100%
3	G	3	 100%
3	H	3	 100%
3	I	3	 33% 67%
3	M	3	 33% 33% 33%
3	U	3	 100%
3	V	3	 100%
3	W	3	 100%
3	X	3	 100%
3	Y	3	 33% 67%
3	c	3	 33% 33% 33%
3	k	3	 100%
3	l	3	 100%
3	m	3	 100%
3	n	3	 100%
3	o	3	 33% 33% 33%
3	s	3	 33% 33% 33%

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 27438 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 Spike glycoprotein,Fibritin.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1106	Total	C	N	O	S	0	0
			8604	5477	1439	1644	44		
1	C	1106	Total	C	N	O	S	0	0
			8604	5477	1439	1644	44		
1	B	1106	Total	C	N	O	S	0	0
			8604	5477	1439	1644	44		

There are 168 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	969	PRO	LYS	conflict	UNP U5WLK5
A	970	PRO	VAL	conflict	UNP U5WLK5
A	1192	GLY	-	linker	UNP U5WLK5
A	1193	SER	-	linker	UNP U5WLK5
A	1220	LEU	-	expression tag	UNP A0A346FJN8
A	1221	GLY	-	expression tag	UNP A0A346FJN8
A	1222	ARG	-	expression tag	UNP A0A346FJN8
A	1223	SER	-	expression tag	UNP A0A346FJN8
A	1224	LEU	-	expression tag	UNP A0A346FJN8
A	1225	GLU	-	expression tag	UNP A0A346FJN8
A	1226	VAL	-	expression tag	UNP A0A346FJN8
A	1227	LEU	-	expression tag	UNP A0A346FJN8
A	1228	PHE	-	expression tag	UNP A0A346FJN8
A	1229	GLN	-	expression tag	UNP A0A346FJN8
A	1230	GLY	-	expression tag	UNP A0A346FJN8
A	1231	PRO	-	expression tag	UNP A0A346FJN8
A	1232	GLY	-	expression tag	UNP A0A346FJN8
A	1233	HIS	-	expression tag	UNP A0A346FJN8
A	1234	HIS	-	expression tag	UNP A0A346FJN8
A	1235	HIS	-	expression tag	UNP A0A346FJN8
A	1236	HIS	-	expression tag	UNP A0A346FJN8
A	1237	HIS	-	expression tag	UNP A0A346FJN8
A	1238	HIS	-	expression tag	UNP A0A346FJN8
A	1239	HIS	-	expression tag	UNP A0A346FJN8

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1240	HIS	-	expression tag	UNP A0A346FJN8
A	1241	SER	-	expression tag	UNP A0A346FJN8
A	1242	ALA	-	expression tag	UNP A0A346FJN8
A	1243	TRP	-	expression tag	UNP A0A346FJN8
A	1244	SER	-	expression tag	UNP A0A346FJN8
A	1245	HIS	-	expression tag	UNP A0A346FJN8
A	1246	PRO	-	expression tag	UNP A0A346FJN8
A	1247	GLN	-	expression tag	UNP A0A346FJN8
A	1248	PHE	-	expression tag	UNP A0A346FJN8
A	1249	GLU	-	expression tag	UNP A0A346FJN8
A	1250	LYS	-	expression tag	UNP A0A346FJN8
A	1251	GLY	-	expression tag	UNP A0A346FJN8
A	1252	GLY	-	expression tag	UNP A0A346FJN8
A	1253	GLY	-	expression tag	UNP A0A346FJN8
A	1254	SER	-	expression tag	UNP A0A346FJN8
A	1255	GLY	-	expression tag	UNP A0A346FJN8
A	1256	GLY	-	expression tag	UNP A0A346FJN8
A	1257	GLY	-	expression tag	UNP A0A346FJN8
A	1258	GLY	-	expression tag	UNP A0A346FJN8
A	1259	SER	-	expression tag	UNP A0A346FJN8
A	1260	GLY	-	expression tag	UNP A0A346FJN8
A	1261	GLY	-	expression tag	UNP A0A346FJN8
A	1262	SER	-	expression tag	UNP A0A346FJN8
A	1263	ALA	-	expression tag	UNP A0A346FJN8
A	1264	TRP	-	expression tag	UNP A0A346FJN8
A	1265	SER	-	expression tag	UNP A0A346FJN8
A	1266	HIS	-	expression tag	UNP A0A346FJN8
A	1267	PRO	-	expression tag	UNP A0A346FJN8
A	1268	GLN	-	expression tag	UNP A0A346FJN8
A	1269	PHE	-	expression tag	UNP A0A346FJN8
A	1270	GLU	-	expression tag	UNP A0A346FJN8
A	1271	LYS	-	expression tag	UNP A0A346FJN8
C	969	PRO	LYS	conflict	UNP U5WLK5
C	970	PRO	VAL	conflict	UNP U5WLK5
C	1192	GLY	-	linker	UNP U5WLK5
C	1193	SER	-	linker	UNP U5WLK5
C	1220	LEU	-	expression tag	UNP A0A346FJN8
C	1221	GLY	-	expression tag	UNP A0A346FJN8
C	1222	ARG	-	expression tag	UNP A0A346FJN8
C	1223	SER	-	expression tag	UNP A0A346FJN8
C	1224	LEU	-	expression tag	UNP A0A346FJN8
C	1225	GLU	-	expression tag	UNP A0A346FJN8

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1226	VAL	-	expression tag	UNP A0A346FJN8
C	1227	LEU	-	expression tag	UNP A0A346FJN8
C	1228	PHE	-	expression tag	UNP A0A346FJN8
C	1229	GLN	-	expression tag	UNP A0A346FJN8
C	1230	GLY	-	expression tag	UNP A0A346FJN8
C	1231	PRO	-	expression tag	UNP A0A346FJN8
C	1232	GLY	-	expression tag	UNP A0A346FJN8
C	1233	HIS	-	expression tag	UNP A0A346FJN8
C	1234	HIS	-	expression tag	UNP A0A346FJN8
C	1235	HIS	-	expression tag	UNP A0A346FJN8
C	1236	HIS	-	expression tag	UNP A0A346FJN8
C	1237	HIS	-	expression tag	UNP A0A346FJN8
C	1238	HIS	-	expression tag	UNP A0A346FJN8
C	1239	HIS	-	expression tag	UNP A0A346FJN8
C	1240	HIS	-	expression tag	UNP A0A346FJN8
C	1241	SER	-	expression tag	UNP A0A346FJN8
C	1242	ALA	-	expression tag	UNP A0A346FJN8
C	1243	TRP	-	expression tag	UNP A0A346FJN8
C	1244	SER	-	expression tag	UNP A0A346FJN8
C	1245	HIS	-	expression tag	UNP A0A346FJN8
C	1246	PRO	-	expression tag	UNP A0A346FJN8
C	1247	GLN	-	expression tag	UNP A0A346FJN8
C	1248	PHE	-	expression tag	UNP A0A346FJN8
C	1249	GLU	-	expression tag	UNP A0A346FJN8
C	1250	LYS	-	expression tag	UNP A0A346FJN8
C	1251	GLY	-	expression tag	UNP A0A346FJN8
C	1252	GLY	-	expression tag	UNP A0A346FJN8
C	1253	GLY	-	expression tag	UNP A0A346FJN8
C	1254	SER	-	expression tag	UNP A0A346FJN8
C	1255	GLY	-	expression tag	UNP A0A346FJN8
C	1256	GLY	-	expression tag	UNP A0A346FJN8
C	1257	GLY	-	expression tag	UNP A0A346FJN8
C	1258	GLY	-	expression tag	UNP A0A346FJN8
C	1259	SER	-	expression tag	UNP A0A346FJN8
C	1260	GLY	-	expression tag	UNP A0A346FJN8
C	1261	GLY	-	expression tag	UNP A0A346FJN8
C	1262	SER	-	expression tag	UNP A0A346FJN8
C	1263	ALA	-	expression tag	UNP A0A346FJN8
C	1264	TRP	-	expression tag	UNP A0A346FJN8
C	1265	SER	-	expression tag	UNP A0A346FJN8
C	1266	HIS	-	expression tag	UNP A0A346FJN8
C	1267	PRO	-	expression tag	UNP A0A346FJN8

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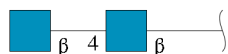
Chain	Residue	Modelled	Actual	Comment	Reference
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C	1269	PHE	-	expression tag	UNP A0A346FJN8
C	1270	GLU	-	expression tag	UNP A0A346FJN8
C	1271	LYS	-	expression tag	UNP A0A346FJN8
B	969	PRO	LYS	conflict	UNP U5WLK5
B	970	PRO	VAL	conflict	UNP U5WLK5
B	1192	GLY	-	linker	UNP U5WLK5
B	1193	SER	-	linker	UNP U5WLK5
B	1220	LEU	-	expression tag	UNP A0A346FJN8
B	1221	GLY	-	expression tag	UNP A0A346FJN8
B	1222	ARG	-	expression tag	UNP A0A346FJN8
B	1223	SER	-	expression tag	UNP A0A346FJN8
B	1224	LEU	-	expression tag	UNP A0A346FJN8
B	1225	GLU	-	expression tag	UNP A0A346FJN8
B	1226	VAL	-	expression tag	UNP A0A346FJN8
B	1227	LEU	-	expression tag	UNP A0A346FJN8
B	1228	PHE	-	expression tag	UNP A0A346FJN8
B	1229	GLN	-	expression tag	UNP A0A346FJN8
B	1230	GLY	-	expression tag	UNP A0A346FJN8
B	1231	PRO	-	expression tag	UNP A0A346FJN8
B	1232	GLY	-	expression tag	UNP A0A346FJN8
B	1233	HIS	-	expression tag	UNP A0A346FJN8
B	1234	HIS	-	expression tag	UNP A0A346FJN8
B	1235	HIS	-	expression tag	UNP A0A346FJN8
B	1236	HIS	-	expression tag	UNP A0A346FJN8
B	1237	HIS	-	expression tag	UNP A0A346FJN8
B	1238	HIS	-	expression tag	UNP A0A346FJN8
B	1239	HIS	-	expression tag	UNP A0A346FJN8
B	1240	HIS	-	expression tag	UNP A0A346FJN8
B	1241	SER	-	expression tag	UNP A0A346FJN8
B	1242	ALA	-	expression tag	UNP A0A346FJN8
B	1243	TRP	-	expression tag	UNP A0A346FJN8
B	1244	SER	-	expression tag	UNP A0A346FJN8
B	1245	HIS	-	expression tag	UNP A0A346FJN8
B	1246	PRO	-	expression tag	UNP A0A346FJN8
B	1247	GLN	-	expression tag	UNP A0A346FJN8
B	1248	PHE	-	expression tag	UNP A0A346FJN8
B	1249	GLU	-	expression tag	UNP A0A346FJN8
B	1250	LYS	-	expression tag	UNP A0A346FJN8
B	1251	GLY	-	expression tag	UNP A0A346FJN8
B	1252	GLY	-	expression tag	UNP A0A346FJN8
B	1253	GLY	-	expression tag	UNP A0A346FJN8

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1254	SER	-	expression tag	UNP A0A346FJN8
B	1255	GLY	-	expression tag	UNP A0A346FJN8
B	1256	GLY	-	expression tag	UNP A0A346FJN8
B	1257	GLY	-	expression tag	UNP A0A346FJN8
B	1258	GLY	-	expression tag	UNP A0A346FJN8
B	1259	SER	-	expression tag	UNP A0A346FJN8
B	1260	GLY	-	expression tag	UNP A0A346FJN8
B	1261	GLY	-	expression tag	UNP A0A346FJN8
B	1262	SER	-	expression tag	UNP A0A346FJN8
B	1263	ALA	-	expression tag	UNP A0A346FJN8
B	1264	TRP	-	expression tag	UNP A0A346FJN8
B	1265	SER	-	expression tag	UNP A0A346FJN8
B	1266	HIS	-	expression tag	UNP A0A346FJN8
B	1267	PRO	-	expression tag	UNP A0A346FJN8
B	1268	GLN	-	expression tag	UNP A0A346FJN8
B	1269	PHE	-	expression tag	UNP A0A346FJN8
B	1270	GLU	-	expression tag	UNP A0A346FJN8
B	1271	LYS	-	expression tag	UNP A0A346FJN8

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



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

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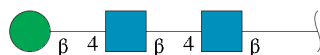
Mol	Chain	Residues	Atoms				AltConf	Trace
2	Q	2	Total	C	N	O	0	0
			28	16	2	10		
2	R	2	Total	C	N	O	0	0
			28	16	2	10		
2	S	2	Total	C	N	O	0	0
			28	16	2	10		
2	T	2	Total	C	N	O	0	0
			28	16	2	10		
2	Z	2	Total	C	N	O	0	0
			28	16	2	10		
2	a	2	Total	C	N	O	0	0
			28	16	2	10		
2	b	2	Total	C	N	O	0	0
			28	16	2	10		
2	d	2	Total	C	N	O	0	0
			28	16	2	10		
2	e	2	Total	C	N	O	0	0
			28	16	2	10		
2	f	2	Total	C	N	O	0	0
			28	16	2	10		
2	g	2	Total	C	N	O	0	0
			28	16	2	10		
2	h	2	Total	C	N	O	0	0
			28	16	2	10		
2	i	2	Total	C	N	O	0	0
			28	16	2	10		
2	j	2	Total	C	N	O	0	0
			28	16	2	10		
2	p	2	Total	C	N	O	0	0
			28	16	2	10		
2	q	2	Total	C	N	O	0	0
			28	16	2	10		
2	r	2	Total	C	N	O	0	0
			28	16	2	10		
2	t	2	Total	C	N	O	0	0
			28	16	2	10		
2	u	2	Total	C	N	O	0	0
			28	16	2	10		
2	v	2	Total	C	N	O	0	0
			28	16	2	10		
2	w	2	Total	C	N	O	0	0
			28	16	2	10		

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Mol	Chain	Residues	Atoms				AltConf	Trace
2	x	2	Total	C	N	O	0	0
			28	16	2	10		
2	y	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 3 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
3	E	3	Total	C	N	O	0	0
			39	22	2	15		
3	F	3	Total	C	N	O	0	0
			39	22	2	15		
3	G	3	Total	C	N	O	0	0
			39	22	2	15		
3	H	3	Total	C	N	O	0	0
			39	22	2	15		
3	I	3	Total	C	N	O	0	0
			39	22	2	15		
3	M	3	Total	C	N	O	0	0
			39	22	2	15		
3	U	3	Total	C	N	O	0	0
			39	22	2	15		
3	V	3	Total	C	N	O	0	0
			39	22	2	15		
3	W	3	Total	C	N	O	0	0
			39	22	2	15		
3	X	3	Total	C	N	O	0	0
			39	22	2	15		
3	Y	3	Total	C	N	O	0	0
			39	22	2	15		
3	c	3	Total	C	N	O	0	0
			39	22	2	15		
3	k	3	Total	C	N	O	0	0
			39	22	2	15		
3	l	3	Total	C	N	O	0	0
			39	22	2	15		
3	m	3	Total	C	N	O	0	0
			39	22	2	15		

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Mol	Chain	Residues	Atoms				AltConf	Trace
3	n	3	Total	C	N	O	0	0
			39	22	2	15		
3	o	3	Total	C	N	O	0	0
			39	22	2	15		
3	s	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).

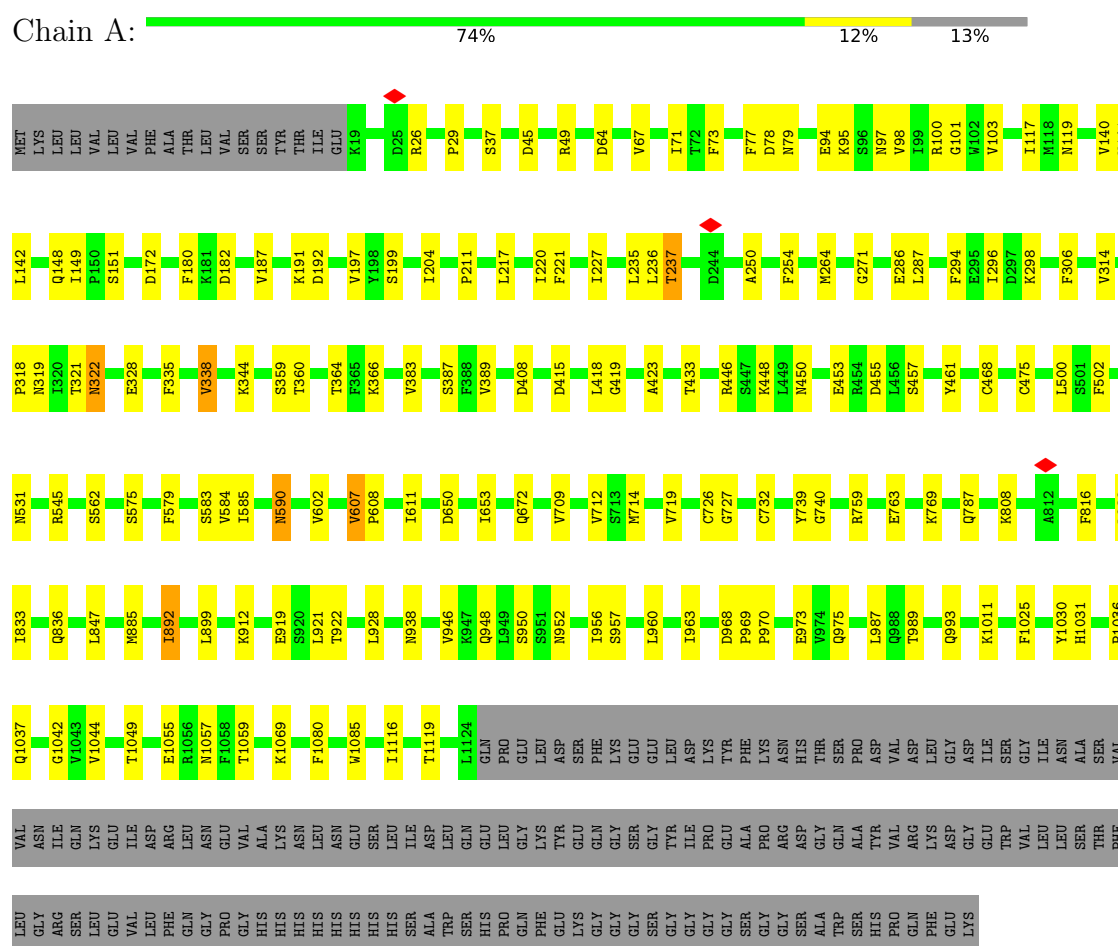


Mol	Chain	Residues	Atoms				AltConf
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	A	1	Total	C	N	O	0
			14	8	1	5	
4	C	1	Total	C	N	O	0
			14	8	1	5	
4	C	1	Total	C	N	O	0
			14	8	1	5	
4	B	1	Total	C	N	O	0
			14	8	1	5	
4	B	1	Total	C	N	O	0
			14	8	1	5	

3 Residue-property plots

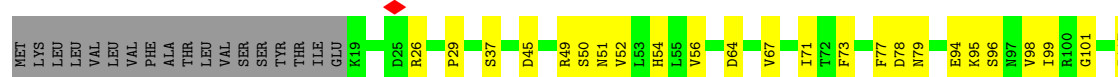
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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.

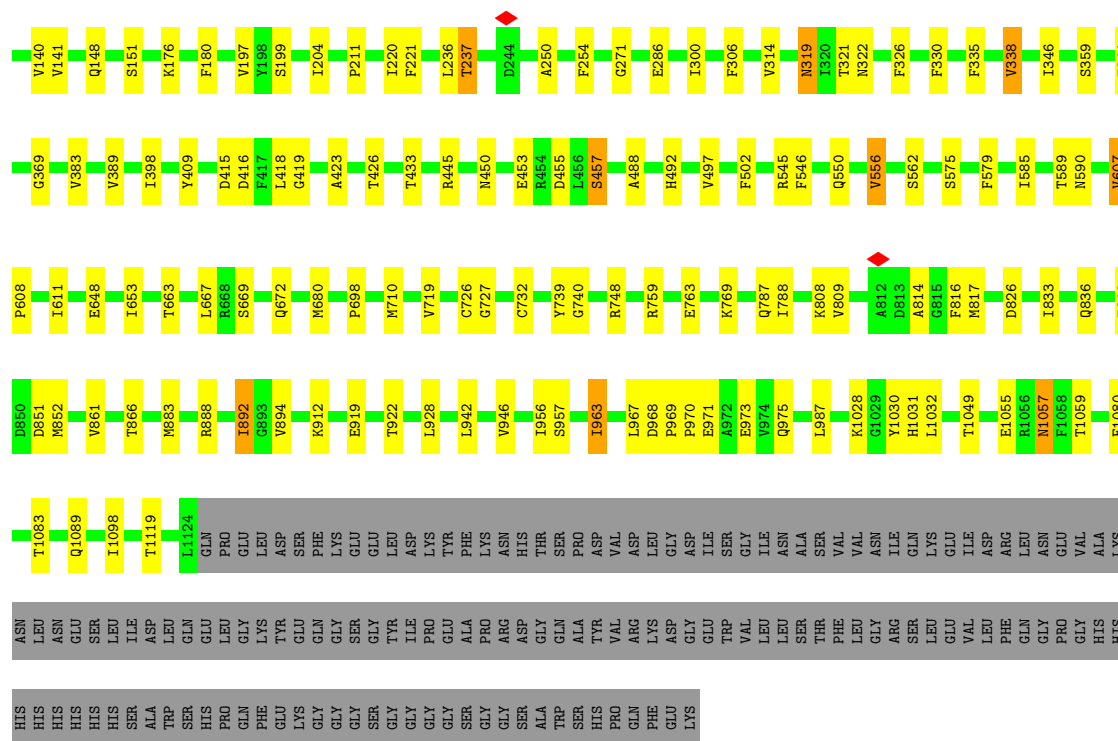
• Molecule 1: Spike glycoprotein,Fibritin



• Molecule 1: Spike glycoprotein,Fibritin

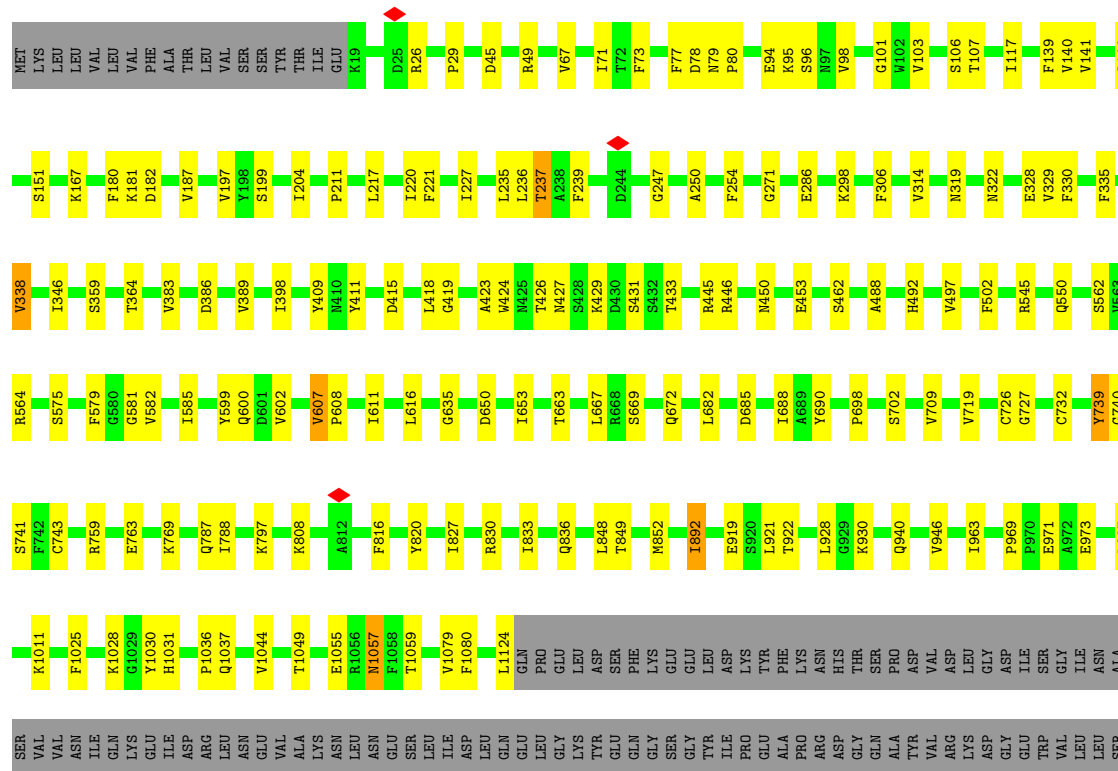
Chain C: 





• Molecule 1: Spike glycoprotein, Fibritin

Chain B:  74%  13%  13%



THR PHE LEU GLY ARG SER LEU GLU VAL LEU PHE GLN GLY PRO GLY HIS HIS HIS HIS HIS HIS HIS ALA TRP SER HIS PRO GLN PHE GLU LYS GLY GLY SER GLY GLY GLY GLY GLY GLY GLY SER ALA TRP SER HIS PRO GLN PHE GLU LYS

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

Chain D:  100%

NAG1
NAG2

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

Chain J:  50%  50%

NAG1
NAG2

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

Chain K:  100%

NAG1
NAG2

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

Chain L:  100%

NAG1
NAG2

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

Chain N:  50%  50%

NAG1
NAG2

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

Chain O:  100%

NAG1
NAG2

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

Chain P:  100%

MAG1
MAG2

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

Chain Q:  100%

MAG1
MAG2

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

Chain R:  100%

MAG1
MAG2

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

Chain S:  100%

MAG1
MAG2

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

Chain T:  100%

MAG1
MAG2

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

Chain Z:  50%  50%

MAG1
MAG2

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

Chain a:  100%



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

Chain b:  100%



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

Chain d:  50% 50%



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

Chain e:  100%



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

Chain f:  100%



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

Chain g:  100%



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

Chain h:  100%




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

Chain i:  100%



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

Chain j:  100%



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

Chain p:  50%  50%



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

Chain q:  100%



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

Chain r:  100%



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

Chain t:  50%  50%



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

Chain u:  100%

NAG1
NAG2

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

Chain v:  100%

NAG1
NAG2

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

Chain w:  100%

NAG1
NAG2

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

Chain x:  100%

NAG1
NAG2

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

Chain y:  100%

NAG1
NAG2

- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:  100%

NAG1
NAG2
BMA3

- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain F:  100%

NAG1
NAG2
BMA3

- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain H:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I:  33% 67%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain M:  33% 33% 33%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain U:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain X:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Y:  33% 67%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain c:  33% 33% 33%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain k:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain l:  100%



- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain m:  100%

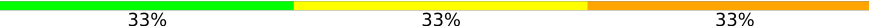


- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain n:  100%

MAG1
MAG2
EMJ3

- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain o:  33% 33% 33%

MAG1
MAG2
EMJ3

- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain s:  33% 33% 33%

MAG1
MAG2
EMJ3

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	250439	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.128	Depositor
Minimum map value	-0.063	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.00821	Depositor
Map size (\AA)	324.97842, 324.97842, 324.97842	wwPDB
Map dimensions	296, 296, 296	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.0979, 1.0979, 1.0979	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

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	0.19	0/8810	0.45	3/11997 (0.0%)
1	B	0.18	0/8810	0.42	3/11997 (0.0%)
1	C	0.19	0/8810	0.44	2/11997 (0.0%)
All	All	0.19	0/26430	0.44	8/35991 (0.0%)

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	727	GLY	N-CA-C	6.20	120.17	112.73
1	C	727	GLY	N-CA-C	6.16	120.12	112.73
1	A	740	GLY	N-CA-C	6.04	119.26	110.63
1	B	740	GLY	N-CA-C	5.84	118.98	110.63
1	A	727	GLY	N-CA-C	5.69	119.56	112.73
1	C	740	GLY	N-CA-C	5.53	118.54	110.63
1	B	739	TYR	N-CA-C	5.48	117.25	111.28
1	A	739	TYR	N-CA-C	5.01	116.74	111.28

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	8604	0	8346	97	0
1	B	8604	0	8344	109	0
1	C	8604	0	8343	102	0
2	D	28	0	25	0	0
2	J	28	0	25	1	0
2	K	28	0	25	0	0
2	L	28	0	25	0	0
2	N	28	0	25	1	0
2	O	28	0	25	2	0
2	P	28	0	25	0	0
2	Q	28	0	25	0	0
2	R	28	0	25	0	0
2	S	28	0	25	0	0
2	T	28	0	25	0	0
2	Z	28	0	25	1	0
2	a	28	0	25	0	0
2	b	28	0	25	0	0
2	d	28	0	25	0	0
2	e	28	0	25	3	0
2	f	28	0	25	0	0
2	g	28	0	25	0	0
2	h	28	0	25	0	0
2	i	28	0	25	0	0
2	j	28	0	25	0	0
2	p	28	0	25	1	0
2	q	28	0	25	0	0
2	r	28	0	25	0	0
2	t	28	0	25	0	0
2	u	28	0	25	2	0
2	v	28	0	25	0	0
2	w	28	0	25	0	0
2	x	28	0	25	0	0
2	y	28	0	25	0	0
3	E	39	0	34	0	0
3	F	39	0	34	0	0
3	G	39	0	34	0	0
3	H	39	0	34	0	0
3	I	39	0	34	2	0
3	M	39	0	34	2	0
3	U	39	0	34	0	0
3	V	39	0	34	0	0
3	W	39	0	34	0	0
3	X	39	0	34	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	Y	39	0	34	2	0
3	c	39	0	34	2	0
3	k	39	0	34	0	0
3	l	39	0	34	0	0
3	m	39	0	34	0	0
3	n	39	0	34	0	0
3	o	39	0	34	2	0
3	s	39	0	34	2	0
4	A	28	0	26	1	0
4	B	28	0	26	0	0
4	C	28	0	26	2	0
All	All	27438	0	26473	304	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 6.

All (304) 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:B:581:GLY:O	1:B:600:GLN:NE2	1.92	1.01
1:B:969:PRO:O	1:B:973:GLU:HG3	1.74	0.87
1:C:369:GLY:HA3	1:C:418:LEU:HD12	1.58	0.86
1:A:545:ARG:HH12	3:o:1:NAG:H5	1.41	0.85
1:B:581:GLY:C	1:B:600:GLN:HE22	1.86	0.84
1:C:545:ARG:HH12	3:I:1:NAG:H5	1.43	0.83
1:C:545:ARG:NH1	3:I:1:NAG:H5	1.95	0.82
1:C:748:ARG:NH1	1:B:940:GLN:NE2	2.35	0.74
1:A:141:VAL:HG22	1:A:148:GLN:HG2	1.71	0.71
1:B:427:ASN:O	1:B:431:SER:OG	2.09	0.71
1:C:849:THR:HG22	1:C:851:ASP:H	1.58	0.69
1:C:748:ARG:NH1	1:B:940:GLN:HE21	1.89	0.69
1:B:581:GLY:O	1:B:600:GLN:CD	2.35	0.69
2:u:1:NAG:O3	2:u:2:NAG:N2	2.25	0.69
1:A:95:LYS:HB3	1:A:180:PHE:HA	1.76	0.68
2:e:1:NAG:O3	2:e:2:NAG:N2	2.26	0.67
1:A:759:ARG:NH1	1:A:763:GLU:HG3	2.09	0.67
2:O:1:NAG:O3	2:O:2:NAG:N2	2.26	0.67
1:C:95:LYS:HB3	1:C:180:PHE:HA	1.77	0.66
1:B:95:LYS:HB3	1:B:180:PHE:HA	1.77	0.66
1:B:581:GLY:C	1:B:600:GLN:NE2	2.47	0.66
1:A:892:ILE:HD12	1:A:1030:TYR:HB3	1.78	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1031:HIS:HA	1:A:1049:THR:HG22	1.78	0.64
1:B:1031:HIS:HA	1:B:1049:THR:HG22	1.80	0.63
1:B:585:ILE:HD13	1:B:653:ILE:HD11	1.82	0.62
1:C:748:ARG:CZ	1:B:940:GLN:NE2	2.63	0.61
1:B:545:ARG:NH1	3:Y:1:NAG:H5	2.15	0.61
1:A:969:PRO:O	1:A:973:GLU:HG3	2.00	0.61
1:B:328:GLU:C	1:B:328:GLU:OE1	2.43	0.61
1:A:101:GLY:HA2	1:A:117:ILE:O	2.01	0.61
1:C:50:SER:O	1:C:52:VAL:HG13	2.00	0.61
1:C:1031:HIS:HA	1:C:1049:THR:HG22	1.82	0.60
1:B:71:ILE:HD11	1:B:73:PHE:HB3	1.83	0.60
1:A:100:ARG:O	1:A:100:ARG:HG2	2.02	0.59
1:A:545:ARG:NH1	3:o:1:NAG:H5	2.15	0.59
1:B:545:ARG:HH12	3:Y:1:NAG:H5	1.68	0.59
1:B:141:VAL:HG22	1:B:148:GLN:HG2	1.83	0.59
1:B:298:LYS:NZ	1:B:650:ASP:OD2	2.33	0.59
1:B:582:VAL:CA	1:B:600:GLN:HE22	2.16	0.58
1:C:101:GLY:HA2	1:C:117:ILE:O	2.02	0.58
1:C:141:VAL:HG22	1:C:148:GLN:HG2	1.84	0.58
1:A:71:ILE:HD11	1:A:73:PHE:HB3	1.85	0.58
1:A:97:ASN:ND2	1:A:172:ASP:OD1	2.36	0.58
1:A:446:ARG:HG2	1:A:461:TYR:HE1	1.69	0.57
1:C:346:ILE:HB	1:C:383:VAL:HG23	1.85	0.57
1:B:98:VAL:HG22	1:B:239:PHE:HE1	1.69	0.57
1:A:1011:LYS:NZ	1:A:1025:PHE:O	2.37	0.57
1:B:669:SER:H	1:B:672:GLN:HE22	1.51	0.56
1:A:468:CYS:HB3	1:A:475:CYS:SG	2.45	0.56
1:A:322:ASN:OD1	1:A:322:ASN:N	2.36	0.56
1:C:416:ASP:O	1:C:416:ASP:OD2	2.22	0.56
1:B:426:THR:HG22	1:B:429:LYS:HB2	1.87	0.56
1:C:748:ARG:CZ	1:B:940:GLN:HE21	2.19	0.56
3:s:1:NAG:H3	3:s:1:NAG:H83	1.88	0.56
1:C:585:ILE:HD13	1:C:653:ILE:HD11	1.86	0.56
1:C:669:SER:H	1:C:672:GLN:NE2	2.04	0.56
1:B:581:GLY:HA3	1:B:600:GLN:OE1	2.05	0.56
3:c:1:NAG:H83	3:c:1:NAG:H3	1.87	0.56
3:M:1:NAG:H83	3:M:1:NAG:H3	1.87	0.55
1:A:359:SER:HB2	2:J:1:NAG:H81	1.89	0.55
1:B:669:SER:H	1:B:672:GLN:NE2	2.05	0.55
1:C:669:SER:H	1:C:672:GLN:HE22	1.54	0.55
1:A:415:ASP:OD2	1:C:969:PRO:HG2	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:455:ASP:OD2	1:A:457:SER:OG	2.25	0.54
1:A:709:VAL:HG22	1:A:1044:VAL:HG22	1.90	0.54
1:A:885:MET:HB3	1:A:899:LEU:HD11	1.90	0.54
1:A:816:PHE:HA	1:A:833:ILE:HD12	1.89	0.54
1:B:140:VAL:HG23	1:B:151:SER:HB2	1.89	0.54
1:B:346:ILE:HB	1:B:383:VAL:HG23	1.90	0.54
1:C:849:THR:HB	1:C:852:MET:HG3	1.89	0.54
1:C:364:THR:HB	1:C:423:ALA:HB3	1.90	0.54
1:C:398:ILE:HD13	1:C:497:VAL:HG11	1.90	0.54
1:C:415:ASP:OD2	1:B:969:PRO:HG2	2.07	0.54
1:B:488:ALA:HB1	1:B:492:HIS:HB2	1.89	0.54
1:B:101:GLY:HA2	1:B:117:ILE:O	2.08	0.54
1:B:582:VAL:HA	1:B:600:GLN:HE22	1.73	0.53
1:A:408:ASP:CG	1:A:448:LYS:HD3	2.33	0.53
1:A:26:ARG:HH21	1:A:77:PHE:HB3	1.74	0.53
1:C:968:ASP:OD2	1:C:970:PRO:HD2	2.08	0.53
1:B:892:ILE:HD12	1:B:1030:TYR:HB3	1.91	0.53
1:C:590:ASN:HB3	4:C:1302:NAG:N2	2.23	0.53
1:C:808:LYS:HB2	1:C:928:LEU:HD22	1.90	0.53
1:B:1055:GLU:CD	1:B:1055:GLU:H	2.17	0.52
1:C:26:ARG:HH21	1:C:77:PHE:HB3	1.74	0.52
1:C:71:ILE:HD11	1:C:73:PHE:HB3	1.92	0.52
1:B:1036:PRO:O	1:B:1037:GLN:NE2	2.41	0.52
1:C:892:ILE:HG13	1:C:1030:TYR:HB3	1.91	0.52
1:B:418:LEU:HD22	1:B:502:PHE:HB2	1.91	0.52
1:A:787:GLN:OE1	3:M:1:NAG:H61	2.09	0.52
1:A:808:LYS:HE2	1:A:921:LEU:O	2.10	0.52
1:A:1059:THR:OG1	1:A:1080:PHE:HB3	2.10	0.52
1:B:787:GLN:OE1	3:s:1:NAG:H61	2.10	0.52
1:C:787:GLN:OE1	3:c:1:NAG:H61	2.10	0.51
1:B:719:VAL:HG11	1:B:987:LEU:HD11	1.91	0.51
1:C:359:SER:HB2	2:Z:1:NAG:H81	1.92	0.51
1:A:1055:GLU:CD	1:A:1055:GLU:H	2.18	0.51
1:C:140:VAL:HG23	1:C:151:SER:HB2	1.92	0.51
1:B:359:SER:HB2	2:p:1:NAG:H81	1.91	0.51
1:C:663:THR:HB	1:C:667:LEU:HD21	1.92	0.51
1:B:709:VAL:HG22	1:B:1044:VAL:HG22	1.93	0.51
1:C:98:VAL:O	1:C:237:THR:HG22	2.11	0.51
1:C:892:ILE:HG22	1:C:894:VAL:HG23	1.91	0.51
1:A:847:LEU:HG	1:C:680:MET:HE1	1.92	0.51
1:C:969:PRO:O	1:C:973:GLU:HG3	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:719:VAL:HG11	1:A:987:LEU:HD11	1.93	0.51
1:B:892:ILE:HD11	1:B:1031:HIS:O	2.11	0.51
1:A:199:SER:HB3	1:A:220:ILE:HG13	1.93	0.50
1:C:199:SER:HB3	1:C:220:ILE:HG13	1.93	0.50
1:A:969:PRO:HG2	1:B:415:ASP:OD2	2.11	0.50
1:C:816:PHE:HA	1:C:833:ILE:HD12	1.93	0.50
1:A:140:VAL:HG23	1:A:151:SER:HB2	1.92	0.50
1:A:602:VAL:HG12	1:B:820:TYR:HB2	1.93	0.50
1:A:919:GLU:O	1:A:922:THR:HG22	2.11	0.50
1:C:719:VAL:HG11	1:C:987:LEU:HD11	1.94	0.50
1:C:967:LEU:HD12	1:C:971:GLU:HG3	1.94	0.50
1:B:364:THR:HB	1:B:423:ALA:HB3	1.93	0.50
1:C:319:ASN:OD1	1:C:319:ASN:N	2.40	0.49
1:B:816:PHE:HA	1:B:833:ILE:HD12	1.94	0.49
1:B:808:LYS:HE2	1:B:921:LEU:O	2.11	0.49
1:C:1059:THR:OG1	1:C:1080:PHE:HB3	2.12	0.49
1:B:197:VAL:HB	1:B:221:PHE:HB2	1.95	0.49
1:C:49:ARG:O	1:C:271:GLY:HA2	2.11	0.49
1:A:759:ARG:NH1	1:A:763:GLU:OE1	2.45	0.49
1:C:96:SER:O	1:C:96:SER:OG	2.27	0.49
1:B:450:ASN:HB2	1:B:453:GLU:CD	2.38	0.49
1:C:488:ALA:HB1	1:C:492:HIS:HB2	1.93	0.49
1:B:199:SER:HB3	1:B:220:ILE:HG13	1.94	0.49
1:C:919:GLU:O	1:C:922:THR:HG22	2.12	0.49
1:C:1055:GLU:H	1:C:1055:GLU:CD	2.19	0.48
1:B:45:ASP:CG	1:B:49:ARG:HH12	2.21	0.48
2:u:1:NAG:H3	2:u:1:NAG:H83	1.95	0.48
1:A:49:ARG:O	1:A:271:GLY:HA2	2.11	0.48
1:B:328:GLU:OE1	1:B:329:VAL:N	2.47	0.48
1:A:590:ASN:HB2	4:A:1302:NAG:H2	1.94	0.48
1:B:71:ILE:HG12	1:B:73:PHE:H	1.78	0.48
1:B:398:ILE:HD13	1:B:497:VAL:HG11	1.94	0.48
1:A:418:LEU:HD22	1:A:502:PHE:HB2	1.95	0.48
1:A:892:ILE:HD11	1:A:1031:HIS:O	2.13	0.48
1:A:298:LYS:NZ	1:A:650:ASP:OD1	2.24	0.48
1:C:607:VAL:HG13	1:C:608:PRO:HD3	1.96	0.48
1:B:582:VAL:N	1:B:600:GLN:HE22	2.10	0.48
1:B:919:GLU:O	1:B:922:THR:HG22	2.13	0.48
1:A:468:CYS:CB	1:A:475:CYS:SG	3.01	0.48
1:B:73:PHE:HA	1:B:250:ALA:HA	1.96	0.48
1:A:98:VAL:O	1:A:237:THR:HG22	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:1:NAG:H3	2:O:1:NAG:H83	1.95	0.48
2:e:1:NAG:H3	2:e:1:NAG:H83	1.95	0.48
1:A:989:THR:O	1:A:993:GLN:HG2	2.14	0.47
1:C:814:ALA:O	1:C:817:MET:SD	2.72	0.47
1:B:550:GLN:O	1:B:564:ARG:NH1	2.47	0.47
1:A:335:PHE:HB3	1:A:389:VAL:HG23	1.96	0.47
1:A:335:PHE:CE2	1:A:387:SER:HB2	2.50	0.47
1:A:364:THR:HB	1:A:423:ALA:HB3	1.96	0.47
1:B:49:ARG:O	1:B:271:GLY:HA2	2.14	0.47
1:B:446:ARG:NH1	1:B:462:SER:O	2.43	0.47
1:B:322:ASN:OD1	1:B:322:ASN:N	2.41	0.47
1:B:286:GLU:HG3	1:B:306:PHE:HB2	1.96	0.47
1:B:607:VAL:HG13	1:B:608:PRO:HD3	1.95	0.47
1:A:607:VAL:HG13	1:A:608:PRO:HD3	1.96	0.47
1:C:769:LYS:HA	1:C:769:LYS:HD3	1.75	0.47
1:C:73:PHE:HA	1:C:250:ALA:HA	1.97	0.47
1:A:287:LEU:HD21	1:A:296:ILE:HG21	1.95	0.46
1:A:321:THR:OG1	1:A:322:ASN:N	2.46	0.46
1:C:369:GLY:HA3	1:C:418:LEU:CD1	2.35	0.46
1:B:581:GLY:CA	1:B:600:GLN:OE1	2.64	0.46
1:B:836:GLN:HG2	1:B:946:VAL:HG21	1.96	0.46
1:A:1036:PRO:O	1:A:1037:GLN:NE2	2.42	0.46
1:B:1059:THR:OG1	1:B:1080:PHE:HB3	2.14	0.46
1:C:300:ILE:HD12	1:C:585:ILE:HG12	1.96	0.46
1:C:1055:GLU:OE1	1:C:1055:GLU:N	2.36	0.46
1:A:45:ASP:CG	1:A:49:ARG:HH12	2.23	0.46
1:B:1011:LYS:NZ	1:B:1025:PHE:O	2.49	0.46
1:B:98:VAL:O	1:B:237:THR:HG22	2.16	0.46
1:C:321:THR:OG1	1:C:322:ASN:N	2.49	0.46
1:A:71:ILE:HG12	1:A:73:PHE:H	1.81	0.45
1:A:450:ASN:HB2	1:A:453:GLU:CD	2.41	0.45
1:A:1069:LYS:HE3	1:A:1069:LYS:HB2	1.80	0.45
1:C:45:ASP:CG	1:C:49:ARG:HH12	2.24	0.45
1:A:26:ARG:NH2	1:A:77:PHE:HB3	2.31	0.45
1:C:79:ASN:OD1	1:C:236:LEU:HD13	2.16	0.45
1:C:286:GLU:HG3	1:C:306:PHE:HB2	1.97	0.45
1:C:836:GLN:HG2	1:C:946:VAL:HG21	1.99	0.45
1:A:948:GLN:HE22	1:B:741:SER:H	1.65	0.45
1:A:963:ILE:HG21	1:A:975:GLN:HB2	1.98	0.45
1:B:726:CYS:HB3	1:B:732:CYS:HB3	1.45	0.45
1:A:328:GLU:OE1	1:A:344:LYS:NZ	2.49	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:952:ASN:O	1:B:739:TYR:HA	2.17	0.45
1:C:338:VAL:HG22	1:C:389:VAL:O	2.17	0.45
1:B:79:ASN:OD1	1:B:236:LEU:HD13	2.16	0.45
1:B:582:VAL:HA	1:B:600:GLN:NE2	2.31	0.44
1:B:599:TYR:O	1:B:635:GLY:HA3	2.15	0.44
1:A:197:VAL:HB	1:A:221:PHE:HB2	1.99	0.44
1:A:264:MET:HE3	1:A:294:PHE:CE1	2.52	0.44
1:B:698:PRO:HA	1:B:1055:GLU:HA	1.99	0.44
1:A:579:PHE:HE1	1:A:611:ILE:HD12	1.82	0.44
1:C:346:ILE:HB	1:C:383:VAL:CG2	2.46	0.44
1:C:710:MET:HE2	1:C:710:MET:HB3	1.83	0.44
1:A:94:GLU:O	1:A:182:ASP:HB2	2.17	0.44
1:A:100:ARG:HG3	1:A:119:ASN:O	2.17	0.44
1:C:759:ARG:NH1	1:C:763:GLU:OE2	2.51	0.44
1:C:809:VAL:HG23	1:C:928:LEU:HD23	2.00	0.44
1:B:611:ILE:HD12	1:B:616:LEU:HD11	2.00	0.44
1:A:286:GLU:HG3	1:A:306:PHE:HB2	1.99	0.44
1:C:912:LYS:HB2	1:C:912:LYS:HE2	1.89	0.44
1:B:29:PRO:HB3	1:B:78:ASP:OD2	2.17	0.44
1:A:836:GLN:HG2	1:A:946:VAL:HG21	1.99	0.44
1:C:888:ARG:NH1	1:C:1032:LEU:O	2.48	0.44
1:B:26:ARG:HH21	1:B:77:PHE:HB3	1.83	0.44
1:A:204:ILE:HG21	1:A:211:PRO:HG2	2.00	0.44
1:C:852:MET:HB3	1:B:682:LEU:HD21	2.00	0.44
1:A:29:PRO:HB3	1:A:78:ASP:OD2	2.17	0.44
1:C:67:VAL:CG1	1:C:254:PHE:HB3	2.48	0.44
1:C:450:ASN:HB2	1:C:453:GLU:CD	2.43	0.44
1:A:73:PHE:HA	1:A:250:ALA:HA	2.00	0.44
1:A:79:ASN:OD1	1:A:236:LEU:HD13	2.17	0.44
1:A:885:MET:HB3	1:A:899:LEU:CD1	2.48	0.44
1:C:546:PHE:HA	1:C:550:GLN:HE21	1.82	0.43
1:B:103:VAL:HG23	1:B:235:LEU:HD21	2.00	0.43
1:A:769:LYS:N	1:A:769:LYS:HD2	2.33	0.43
1:A:808:LYS:HB2	1:A:928:LEU:HD22	1.99	0.43
1:C:29:PRO:HB3	1:C:78:ASP:OD2	2.18	0.43
1:C:698:PRO:HA	1:C:1055:GLU:HA	2.00	0.43
1:B:204:ILE:HG21	1:B:211:PRO:HG2	2.01	0.43
1:C:788:ILE:HG22	1:C:861:VAL:HG11	2.01	0.43
1:B:328:GLU:C	1:B:328:GLU:CD	2.86	0.43
1:B:386:ASP:OD2	1:B:411:TYR:OH	2.26	0.43
1:B:663:THR:HB	1:B:667:LEU:HD21	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:335:PHE:HB3	1:B:389:VAL:HG23	2.00	0.43
1:C:590:ASN:HB3	4:C:1302:NAG:C7	2.49	0.43
1:C:1083:THR:HG23	2:e:1:NAG:H61	2.00	0.43
1:A:383:VAL:HG22	1:A:502:PHE:HD1	1.82	0.43
1:C:326:PHE:CD1	1:C:330:PHE:HE2	2.37	0.43
1:C:94:GLU:OE2	1:C:98:VAL:HB	2.19	0.43
1:B:67:VAL:CG1	1:B:254:PHE:HB3	2.49	0.43
1:A:1085:TRP:CZ2	1:A:1116:ILE:HD13	2.55	0.42
1:C:726:CYS:HB3	1:C:732:CYS:HB3	1.37	0.42
1:B:346:ILE:HB	1:B:383:VAL:CG2	2.48	0.42
1:B:849:THR:OG1	1:B:852:MET:SD	2.77	0.42
1:C:455:ASP:OD1	1:C:457:SER:OG	2.37	0.42
1:C:579:PHE:HE1	1:C:611:ILE:HD12	1.83	0.42
1:B:96:SER:O	1:B:96:SER:OG	2.36	0.42
1:B:239:PHE:N	1:B:247:GLY:O	2.49	0.42
1:A:712:VAL:HG23	1:A:1042:GLY:HA2	2.00	0.42
1:A:264:MET:HE2	1:A:264:MET:HB3	1.88	0.42
1:C:335:PHE:HB3	1:C:389:VAL:HG23	2.01	0.42
1:B:1028:LYS:HD3	1:B:1028:LYS:HA	1.77	0.42
1:A:191:LYS:HD2	1:A:192:ASP:N	2.34	0.42
1:A:956:ILE:HG13	1:A:957:SER:N	2.33	0.42
1:B:971:GLU:H	1:B:971:GLU:HG2	1.68	0.42
1:A:419:GLY:HA2	1:A:502:PHE:CD2	2.54	0.42
1:A:968:ASP:OD2	1:A:970:PRO:HD2	2.19	0.42
1:C:101:GLY:CA	1:C:117:ILE:O	2.67	0.42
1:C:892:ILE:HD11	1:C:1031:HIS:O	2.20	0.42
1:B:808:LYS:HB2	1:B:928:LEU:HD22	2.01	0.42
2:N:1:NAG:O4	2:N:2:NAG:O7	2.38	0.42
1:B:409:TYR:CD1	1:B:445:ARG:HB3	2.54	0.42
1:C:197:VAL:HB	1:C:221:PHE:HB2	2.01	0.42
1:C:419:GLY:HA2	1:C:502:PHE:CD2	2.55	0.42
1:B:769:LYS:HA	1:B:769:LYS:HD3	1.68	0.42
1:B:167:LYS:H	1:B:167:LYS:HD2	1.85	0.42
1:A:142:LEU:HD11	1:A:149:ILE:HD11	2.02	0.42
1:A:912:LYS:HE2	1:A:912:LYS:HB2	1.79	0.42
1:A:37:SER:HA	1:A:64:ASP:OD1	2.19	0.41
1:A:590:ASN:N	1:A:590:ASN:OD1	2.52	0.41
1:C:176:LYS:HA	1:C:176:LYS:HD3	1.90	0.41
1:B:330:PHE:HD1	1:B:424:TRP:CH2	2.38	0.41
1:B:579:PHE:CE1	1:B:611:ILE:HG22	2.55	0.41
1:C:956:ILE:HG13	1:C:957:SER:N	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:26:ARG:NH2	1:C:77:PHE:HB3	2.35	0.41
1:C:1057:ASN:OD1	1:C:1057:ASN:N	2.46	0.41
1:B:827:ILE:O	1:B:830:ARG:HG2	2.21	0.41
1:A:585:ILE:HD13	1:A:653:ILE:HD11	2.02	0.41
1:A:832:LEU:O	1:A:836:GLN:HG3	2.20	0.41
1:B:581:GLY:C	1:B:600:GLN:CD	2.85	0.41
1:B:181:LYS:HA	1:B:204:ILE:O	2.21	0.41
1:B:187:VAL:HG23	1:B:217:LEU:HD12	2.01	0.41
1:A:318:PRO:HD3	1:A:531:ASN:OD1	2.21	0.41
1:C:51:ASN:C	1:C:52:VAL:CG1	2.93	0.41
1:B:94:GLU:O	1:B:182:ASP:HB2	2.21	0.41
1:B:759:ARG:NH1	1:B:763:GLU:OE1	2.53	0.41
1:A:338:VAL:HG22	1:A:389:VAL:O	2.21	0.41
1:A:714:MET:HB2	1:A:938:ASN:HD21	1.85	0.41
1:A:726:CYS:HB3	1:A:732:CYS:HB3	1.40	0.41
1:C:942:LEU:HD12	1:C:942:LEU:HA	1.84	0.41
1:C:1028:LYS:HA	1:C:1028:LYS:HD3	1.79	0.41
1:B:1057:ASN:OD1	1:B:1057:ASN:N	2.54	0.41
1:A:67:VAL:CG1	1:A:254:PHE:HB3	2.50	0.41
1:A:419:GLY:HA3	1:A:500:LEU:O	2.21	0.41
1:C:204:ILE:HG21	1:C:211:PRO:HG2	2.02	0.41
1:C:648:GLU:OE2	1:C:648:GLU:HA	2.21	0.41
1:B:338:VAL:HG22	1:B:389:VAL:O	2.21	0.41
1:C:37:SER:HA	1:C:64:ASP:OD1	2.21	0.40
1:C:866:THR:HG22	1:B:690:TYR:HB2	2.02	0.40
1:C:883:MET:HE3	1:C:883:MET:HB3	1.81	0.40
1:B:383:VAL:HG12	1:B:502:PHE:HD1	1.86	0.40
1:A:187:VAL:HG23	1:A:217:LEU:HD12	2.02	0.40
1:B:78:ASP:C	1:B:80:PRO:HD3	2.47	0.40
1:A:950:SER:HB3	1:C:556:VAL:O	2.21	0.40
1:C:54:HIS:CD2	1:C:56:VAL:HB	2.57	0.40
1:C:963:ILE:HD12	1:C:975:GLN:HB2	2.03	0.40
1:C:409:TYR:CD1	1:C:445:ARG:HB3	2.56	0.40
1:A:103:VAL:HG23	1:A:235:LEU:HD21	2.04	0.40
1:B:106:SER:OG	1:B:107:THR:HG23	2.22	0.40
1:B:419:GLY:HA2	1:B:502:PHE:CD2	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	1104/1271 (87%)	1074 (97%)	30 (3%)	0	100	100
1	B	1104/1271 (87%)	1078 (98%)	26 (2%)	0	100	100
1	C	1104/1271 (87%)	1077 (98%)	27 (2%)	0	100	100
All	All	3312/3813 (87%)	3229 (98%)	83 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	960/1099 (87%)	940 (98%)	20 (2%)	47	75
1	B	960/1099 (87%)	936 (98%)	24 (2%)	42	72
1	C	960/1099 (87%)	939 (98%)	21 (2%)	45	75
All	All	2880/3297 (87%)	2815 (98%)	65 (2%)	44	74

All (65) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	227	ILE
1	A	237	THR
1	A	314	VAL
1	A	319	ASN
1	A	322	ASN

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Mol	Chain	Res	Type
1	A	338	VAL
1	A	360	THR
1	A	366	LYS
1	A	433	THR
1	A	562	SER
1	A	575	SER
1	A	583	SER
1	A	584	VAL
1	A	590	ASN
1	A	607	VAL
1	A	672	GLN
1	A	892	ILE
1	A	960	LEU
1	A	1057	ASN
1	A	1119	THR
1	C	99	ILE
1	C	237	THR
1	C	314	VAL
1	C	319	ASN
1	C	338	VAL
1	C	426	THR
1	C	433	THR
1	C	457	SER
1	C	556	VAL
1	C	562	SER
1	C	575	SER
1	C	589	THR
1	C	607	VAL
1	C	739	TYR
1	C	826	ASP
1	C	892	ILE
1	C	963	ILE
1	C	1057	ASN
1	C	1089	GLN
1	C	1098	ILE
1	C	1119	THR
1	B	139	PHE
1	B	227	ILE
1	B	237	THR
1	B	314	VAL
1	B	319	ASN
1	B	338	VAL

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Mol	Chain	Res	Type
1	B	433	THR
1	B	562	SER
1	B	575	SER
1	B	602	VAL
1	B	607	VAL
1	B	685	ASP
1	B	688	ILE
1	B	702	SER
1	B	743	CYS
1	B	788	ILE
1	B	797	LYS
1	B	848	LEU
1	B	892	ILE
1	B	930	LYS
1	B	963	ILE
1	B	1057	ASN
1	B	1079	VAL
1	B	1124	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	33	GLN
1	A	38	HIS
1	A	59	HIS
1	A	425	ASN
1	A	450	ASN
1	A	642	HIS
1	A	662	HIS
1	A	948	GLN
1	A	1118	ASN
1	C	33	GLN
1	C	59	HIS
1	C	425	ASN
1	C	642	HIS
1	C	662	HIS
1	C	722	ASN
1	C	828	ASN
1	C	948	GLN
1	C	988	GLN
1	C	1019	GLN
1	C	1118	ASN

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Mol	Chain	Res	Type
1	B	33	GLN
1	B	38	HIS
1	B	59	HIS
1	B	425	ASN
1	B	450	ASN
1	B	938	ASN
1	B	940	GLN
1	B	948	GLN
1	B	1091	ASN
1	B	1118	ASN

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 ⓘ

114 monosaccharides are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	NAG	D	1	2,1	14,14,15	0.74	0	17,19,21	1.13	2 (11%)
2	NAG	D	2	2	14,14,15	0.18	0	17,19,21	0.69	1 (5%)
3	NAG	E	1	3,1	14,14,15	0.25	0	17,19,21	0.52	0
3	NAG	E	2	3	14,14,15	0.31	0	17,19,21	0.42	0
3	BMA	E	3	3	11,11,12	0.58	0	15,15,17	0.70	0
3	NAG	F	1	3,1	14,14,15	0.18	0	17,19,21	0.44	0
3	NAG	F	2	3	14,14,15	0.20	0	17,19,21	0.53	0
3	BMA	F	3	3	11,11,12	0.49	0	15,15,17	0.73	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	G	1	3,1	14,14,15	0.22	0	17,19,21	0.47	0
3	NAG	G	2	3	14,14,15	0.17	0	17,19,21	0.49	0
3	BMA	G	3	3	11,11,12	0.67	0	15,15,17	0.66	0
3	NAG	H	1	3,1	14,14,15	0.33	0	17,19,21	0.49	0
3	NAG	H	2	3	14,14,15	0.35	0	17,19,21	0.42	0
3	BMA	H	3	3	11,11,12	0.53	0	15,15,17	0.70	0
3	NAG	I	1	3,1	14,14,15	0.42	0	17,19,21	0.46	0
3	NAG	I	2	3	14,14,15	0.62	1 (7%)	17,19,21	0.83	0
3	BMA	I	3	3	11,11,12	0.68	0	15,15,17	0.86	0
2	NAG	J	1	2,1	14,14,15	0.16	0	17,19,21	0.55	0
2	NAG	J	2	2	14,14,15	0.24	0	17,19,21	0.36	0
2	NAG	K	1	2,1	14,14,15	0.22	0	17,19,21	0.41	0
2	NAG	K	2	2	14,14,15	0.21	0	17,19,21	0.42	0
2	NAG	L	1	2,1	14,14,15	0.41	0	17,19,21	0.41	0
2	NAG	L	2	2	14,14,15	0.28	0	17,19,21	0.44	0
3	NAG	M	1	3,1	14,14,15	0.40	0	17,19,21	1.37	2 (11%)
3	NAG	M	2	3	14,14,15	0.65	1 (7%)	17,19,21	0.98	2 (11%)
3	BMA	M	3	3	11,11,12	0.75	0	15,15,17	0.78	0
2	NAG	N	1	2,1	14,14,15	0.29	0	17,19,21	0.74	1 (5%)
2	NAG	N	2	2	14,14,15	0.37	0	17,19,21	0.52	0
2	NAG	O	1	2,1	14,14,15	0.58	0	17,19,21	1.46	2 (11%)
2	NAG	O	2	2	14,14,15	0.45	0	17,19,21	0.81	1 (5%)
2	NAG	P	1	2,1	14,14,15	0.23	0	17,19,21	0.36	0
2	NAG	P	2	2	14,14,15	0.24	0	17,19,21	0.51	0
2	NAG	Q	1	2,1	14,14,15	0.29	0	17,19,21	0.34	0
2	NAG	Q	2	2	14,14,15	0.32	0	17,19,21	0.43	0
2	NAG	R	1	2,1	14,14,15	0.18	0	17,19,21	0.55	0
2	NAG	R	2	2	14,14,15	0.20	0	17,19,21	0.45	0
2	NAG	S	1	2,1	14,14,15	0.27	0	17,19,21	0.43	0
2	NAG	S	2	2	14,14,15	0.18	0	17,19,21	0.45	0
2	NAG	T	1	2,1	14,14,15	0.78	1 (7%)	17,19,21	1.13	2 (11%)
2	NAG	T	2	2	14,14,15	0.16	0	17,19,21	0.70	1 (5%)
3	NAG	U	1	3,1	14,14,15	0.24	0	17,19,21	0.50	0
3	NAG	U	2	3	14,14,15	0.30	0	17,19,21	0.41	0
3	BMA	U	3	3	11,11,12	0.57	0	15,15,17	0.69	0
3	NAG	V	1	3,1	14,14,15	0.22	0	17,19,21	0.43	0
3	NAG	V	2	3	14,14,15	0.21	0	17,19,21	0.53	0
3	BMA	V	3	3	11,11,12	0.49	0	15,15,17	0.72	0
3	NAG	W	1	3,1	14,14,15	0.24	0	17,19,21	0.50	0
3	NAG	W	2	3	14,14,15	0.16	0	17,19,21	0.51	0
3	BMA	W	3	3	11,11,12	0.67	0	15,15,17	0.65	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	X	1	3,1	14,14,15	0.27	0	17,19,21	0.54	0
3	NAG	X	2	3	14,14,15	0.33	0	17,19,21	0.42	0
3	BMA	X	3	3	11,11,12	0.52	0	15,15,17	0.73	0
3	NAG	Y	1	3,1	14,14,15	0.50	0	17,19,21	0.49	0
3	NAG	Y	2	3	14,14,15	0.61	1 (7%)	17,19,21	0.84	0
3	BMA	Y	3	3	11,11,12	0.67	0	15,15,17	0.86	0
2	NAG	Z	1	2,1	14,14,15	0.17	0	17,19,21	0.52	0
2	NAG	Z	2	2	14,14,15	0.24	0	17,19,21	0.37	0
2	NAG	a	1	2,1	14,14,15	0.22	0	17,19,21	0.42	0
2	NAG	a	2	2	14,14,15	0.20	0	17,19,21	0.41	0
2	NAG	b	1	2,1	14,14,15	0.40	0	17,19,21	0.42	0
2	NAG	b	2	2	14,14,15	0.28	0	17,19,21	0.43	0
3	NAG	c	1	3,1	14,14,15	0.40	0	17,19,21	1.38	2 (11%)
3	NAG	c	2	3	14,14,15	0.68	1 (7%)	17,19,21	0.98	2 (11%)
3	BMA	c	3	3	11,11,12	0.73	0	15,15,17	0.79	0
2	NAG	d	1	2,1	14,14,15	0.27	0	17,19,21	0.74	1 (5%)
2	NAG	d	2	2	14,14,15	0.34	0	17,19,21	0.49	0
2	NAG	e	1	2,1	14,14,15	0.57	0	17,19,21	1.46	2 (11%)
2	NAG	e	2	2	14,14,15	0.36	0	17,19,21	0.84	1 (5%)
2	NAG	f	1	2,1	14,14,15	0.19	0	17,19,21	0.37	0
2	NAG	f	2	2	14,14,15	0.24	0	17,19,21	0.56	0
2	NAG	g	1	2,1	14,14,15	0.29	0	17,19,21	0.34	0
2	NAG	g	2	2	14,14,15	0.26	0	17,19,21	0.44	0
2	NAG	h	1	2,1	14,14,15	0.19	0	17,19,21	0.54	0
2	NAG	h	2	2	14,14,15	0.19	0	17,19,21	0.47	0
2	NAG	i	1	2,1	14,14,15	0.25	0	17,19,21	0.44	0
2	NAG	i	2	2	14,14,15	0.15	0	17,19,21	0.45	0
2	NAG	j	1	2,1	14,14,15	0.75	0	17,19,21	1.12	2 (11%)
2	NAG	j	2	2	14,14,15	0.14	0	17,19,21	0.72	1 (5%)
3	NAG	k	1	3,1	14,14,15	0.25	0	17,19,21	0.56	0
3	NAG	k	2	3	14,14,15	0.29	0	17,19,21	0.42	0
3	BMA	k	3	3	11,11,12	0.57	0	15,15,17	0.69	0
3	NAG	l	1	3,1	14,14,15	0.19	0	17,19,21	0.48	0
3	NAG	l	2	3	14,14,15	0.20	0	17,19,21	0.50	0
3	BMA	l	3	3	11,11,12	0.48	0	15,15,17	0.74	0
3	NAG	m	1	3,1	14,14,15	0.26	0	17,19,21	0.48	0
3	NAG	m	2	3	14,14,15	0.18	0	17,19,21	0.47	0
3	BMA	m	3	3	11,11,12	0.67	0	15,15,17	0.65	0
3	NAG	n	1	3,1	14,14,15	0.32	0	17,19,21	0.53	0
3	NAG	n	2	3	14,14,15	0.34	0	17,19,21	0.42	0
3	BMA	n	3	3	11,11,12	0.53	0	15,15,17	0.71	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	o	1	3,1	14,14,15	0.67	1 (7%)	17,19,21	0.65	0
3	NAG	o	2	3	14,14,15	0.69	1 (7%)	17,19,21	0.92	1 (5%)
3	BMA	o	3	3	11,11,12	0.71	0	15,15,17	0.84	0
2	NAG	p	1	2,1	14,14,15	0.18	0	17,19,21	0.53	0
2	NAG	p	2	2	14,14,15	0.25	0	17,19,21	0.37	0
2	NAG	q	1	2,1	14,14,15	0.22	0	17,19,21	0.42	0
2	NAG	q	2	2	14,14,15	0.20	0	17,19,21	0.41	0
2	NAG	r	1	2,1	14,14,15	0.38	0	17,19,21	0.40	0
2	NAG	r	2	2	14,14,15	0.28	0	17,19,21	0.43	0
3	NAG	s	1	3,1	14,14,15	0.41	0	17,19,21	1.39	2 (11%)
3	NAG	s	2	3	14,14,15	0.62	1 (7%)	17,19,21	0.99	2 (11%)
3	BMA	s	3	3	11,11,12	0.72	0	15,15,17	0.77	0
2	NAG	t	1	2,1	14,14,15	0.30	0	17,19,21	0.73	1 (5%)
2	NAG	t	2	2	14,14,15	0.35	0	17,19,21	0.51	0
2	NAG	u	1	2,1	14,14,15	0.57	0	17,19,21	1.46	2 (11%)
2	NAG	u	2	2	14,14,15	0.46	0	17,19,21	0.82	1 (5%)
2	NAG	v	1	2,1	14,14,15	0.20	0	17,19,21	0.37	0
2	NAG	v	2	2	14,14,15	0.23	0	17,19,21	0.55	0
2	NAG	w	1	2,1	14,14,15	0.27	0	17,19,21	0.34	0
2	NAG	w	2	2	14,14,15	0.30	0	17,19,21	0.44	0
2	NAG	x	1	2,1	14,14,15	0.24	0	17,19,21	0.54	0
2	NAG	x	2	2	14,14,15	0.20	0	17,19,21	0.46	0
2	NAG	y	1	2,1	14,14,15	0.28	0	17,19,21	0.47	0
2	NAG	y	2	2	14,14,15	0.16	0	17,19,21	0.44	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	D	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	D	2	2	-	4/6/23/26	0/1/1/1
3	NAG	E	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	E	2	3	-	0/6/23/26	0/1/1/1
3	BMA	E	3	3	-	0/2/19/22	0/1/1/1
3	NAG	F	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1
3	BMA	F	3	3	-	2/2/19/22	0/1/1/1
3	NAG	G	1	3,1	-	4/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	G	2	3	-	0/6/23/26	0/1/1/1
3	BMA	G	3	3	-	0/2/19/22	0/1/1/1
3	NAG	H	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	H	2	3	-	0/6/23/26	0/1/1/1
3	BMA	H	3	3	-	0/2/19/22	0/1/1/1
3	NAG	I	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	I	2	3	-	4/6/23/26	0/1/1/1
3	BMA	I	3	3	-	2/2/19/22	0/1/1/1
2	NAG	J	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	J	2	2	-	2/6/23/26	0/1/1/1
2	NAG	K	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	K	2	2	-	0/6/23/26	0/1/1/1
2	NAG	L	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	L	2	2	-	0/6/23/26	0/1/1/1
3	NAG	M	1	3,1	-	6/6/23/26	0/1/1/1
3	NAG	M	2	3	-	2/6/23/26	0/1/1/1
3	BMA	M	3	3	-	1/2/19/22	0/1/1/1
2	NAG	N	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	N	2	2	-	2/6/23/26	0/1/1/1
2	NAG	O	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	O	2	2	-	4/6/23/26	0/1/1/1
2	NAG	P	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	P	2	2	-	0/6/23/26	0/1/1/1
2	NAG	Q	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	Q	2	2	-	0/6/23/26	0/1/1/1
2	NAG	R	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	R	2	2	-	0/6/23/26	0/1/1/1
2	NAG	S	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	S	2	2	-	0/6/23/26	0/1/1/1
2	NAG	T	1	2,1	-	3/6/23/26	0/1/1/1
2	NAG	T	2	2	-	4/6/23/26	0/1/1/1
3	NAG	U	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	U	2	3	-	0/6/23/26	0/1/1/1
3	BMA	U	3	3	-	0/2/19/22	0/1/1/1
3	NAG	V	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	V	2	3	-	0/6/23/26	0/1/1/1
3	BMA	V	3	3	-	2/2/19/22	0/1/1/1
3	NAG	W	1	3,1	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	W	2	3	-	0/6/23/26	0/1/1/1
3	BMA	W	3	3	-	0/2/19/22	0/1/1/1
3	NAG	X	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	X	2	3	-	0/6/23/26	0/1/1/1
3	BMA	X	3	3	-	0/2/19/22	0/1/1/1
3	NAG	Y	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	Y	2	3	-	4/6/23/26	0/1/1/1
3	BMA	Y	3	3	-	2/2/19/22	0/1/1/1
2	NAG	Z	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	Z	2	2	-	3/6/23/26	0/1/1/1
2	NAG	a	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	a	2	2	-	0/6/23/26	0/1/1/1
2	NAG	b	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	b	2	2	-	0/6/23/26	0/1/1/1
3	NAG	c	1	3,1	-	6/6/23/26	0/1/1/1
3	NAG	c	2	3	-	2/6/23/26	0/1/1/1
3	BMA	c	3	3	-	2/2/19/22	0/1/1/1
2	NAG	d	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	d	2	2	-	2/6/23/26	0/1/1/1
2	NAG	e	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	e	2	2	-	4/6/23/26	0/1/1/1
2	NAG	f	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	f	2	2	-	0/6/23/26	0/1/1/1
2	NAG	g	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	g	2	2	-	0/6/23/26	0/1/1/1
2	NAG	h	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	h	2	2	-	0/6/23/26	0/1/1/1
2	NAG	i	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	i	2	2	-	0/6/23/26	0/1/1/1
2	NAG	j	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	j	2	2	-	4/6/23/26	0/1/1/1
3	NAG	k	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	k	2	3	-	0/6/23/26	0/1/1/1
3	BMA	k	3	3	-	0/2/19/22	0/1/1/1
3	NAG	l	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	l	2	3	-	0/6/23/26	0/1/1/1
3	BMA	l	3	3	-	2/2/19/22	0/1/1/1
3	NAG	m	1	3,1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	m	2	3	-	0/6/23/26	0/1/1/1
3	BMA	m	3	3	-	0/2/19/22	0/1/1/1
3	NAG	n	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	n	2	3	-	0/6/23/26	0/1/1/1
3	BMA	n	3	3	-	0/2/19/22	0/1/1/1
3	NAG	o	1	3,1	-	3/6/23/26	0/1/1/1
3	NAG	o	2	3	-	4/6/23/26	0/1/1/1
3	BMA	o	3	3	-	2/2/19/22	0/1/1/1
2	NAG	p	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	p	2	2	-	2/6/23/26	0/1/1/1
2	NAG	q	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	q	2	2	-	0/6/23/26	0/1/1/1
2	NAG	r	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	r	2	2	-	1/6/23/26	0/1/1/1
3	NAG	s	1	3,1	-	6/6/23/26	0/1/1/1
3	NAG	s	2	3	-	2/6/23/26	0/1/1/1
3	BMA	s	3	3	-	2/2/19/22	0/1/1/1
2	NAG	t	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	t	2	2	-	2/6/23/26	0/1/1/1
2	NAG	u	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	u	2	2	-	4/6/23/26	0/1/1/1
2	NAG	v	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	v	2	2	-	0/6/23/26	0/1/1/1
2	NAG	w	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	w	2	2	-	0/6/23/26	0/1/1/1
2	NAG	x	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	x	2	2	-	0/6/23/26	0/1/1/1
2	NAG	y	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	y	2	2	-	0/6/23/26	0/1/1/1

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	o	2	NAG	O5-C1	-2.45	1.39	1.43
3	c	2	NAG	O5-C1	-2.28	1.39	1.43
3	o	1	NAG	O5-C1	-2.28	1.39	1.43
3	M	2	NAG	O5-C1	-2.16	1.40	1.43
3	Y	2	NAG	O5-C1	-2.15	1.40	1.43
3	I	2	NAG	O5-C1	-2.14	1.40	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	s	2	NAG	O5-C1	-2.07	1.40	1.43
2	T	1	NAG	O5-C1	2.03	1.47	1.43

All (34) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	s	1	NAG	C2-N2-C7	4.59	129.05	122.90
3	c	1	NAG	C2-N2-C7	4.58	129.03	122.90
3	M	1	NAG	C2-N2-C7	4.56	129.01	122.90
2	e	1	NAG	C2-N2-C7	4.50	128.93	122.90
2	u	1	NAG	C2-N2-C7	4.50	128.92	122.90
2	O	1	NAG	C2-N2-C7	4.47	128.88	122.90
2	D	1	NAG	C1-O5-C5	3.15	116.41	112.19
2	j	1	NAG	C1-O5-C5	3.12	116.37	112.19
2	T	1	NAG	C1-O5-C5	3.10	116.34	112.19
2	e	2	NAG	C1-O5-C5	3.02	116.23	112.19
2	u	2	NAG	C1-O5-C5	2.91	116.08	112.19
2	O	2	NAG	C1-O5-C5	2.86	116.02	112.19
2	N	1	NAG	C1-O5-C5	2.65	115.73	112.19
2	t	1	NAG	C1-O5-C5	2.60	115.66	112.19
2	d	1	NAG	C1-O5-C5	2.58	115.65	112.19
2	j	2	NAG	C1-O5-C5	2.51	115.55	112.19
2	T	2	NAG	C1-O5-C5	2.45	115.47	112.19
2	D	2	NAG	C1-O5-C5	2.38	115.37	112.19
3	c	1	NAG	C1-C2-N2	2.31	114.08	110.43
3	s	1	NAG	C1-C2-N2	2.30	114.06	110.43
3	M	1	NAG	C1-C2-N2	2.27	114.02	110.43
2	u	1	NAG	C1-C2-N2	2.19	113.88	110.43
3	c	2	NAG	C3-C4-C5	2.15	114.13	110.23
3	s	2	NAG	C3-C4-C5	2.15	114.13	110.23
2	O	1	NAG	C1-C2-N2	2.15	113.82	110.43
3	M	2	NAG	C3-C4-C5	2.14	114.12	110.23
2	e	1	NAG	C1-C2-N2	2.14	113.81	110.43
2	T	1	NAG	O4-C4-C5	2.13	114.58	109.32
2	j	1	NAG	O4-C4-C5	2.08	114.44	109.32
2	D	1	NAG	O4-C4-C5	2.07	114.43	109.32
3	c	2	NAG	O4-C4-C3	-2.07	105.49	110.38
3	o	2	NAG	O4-C4-C3	-2.07	105.50	110.38
3	s	2	NAG	O4-C4-C3	-2.05	105.54	110.38
3	M	2	NAG	O4-C4-C3	-2.01	105.64	110.38

There are no chirality outliers.

All (156) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	M	1	NAG	O5-C5-C6-O6
3	s	1	NAG	O5-C5-C6-O6
3	I	3	BMA	C4-C5-C6-O6
3	o	3	BMA	C4-C5-C6-O6
3	c	1	NAG	O5-C5-C6-O6
3	Y	3	BMA	C4-C5-C6-O6
2	O	2	NAG	O5-C5-C6-O6
2	e	2	NAG	O5-C5-C6-O6
2	u	2	NAG	O5-C5-C6-O6
3	I	2	NAG	O5-C5-C6-O6
2	d	2	NAG	O5-C5-C6-O6
2	t	2	NAG	O5-C5-C6-O6
3	Y	2	NAG	O5-C5-C6-O6
3	M	1	NAG	C4-C5-C6-O6
3	c	1	NAG	C4-C5-C6-O6
3	s	1	NAG	C4-C5-C6-O6
3	I	3	BMA	O5-C5-C6-O6
3	o	3	BMA	O5-C5-C6-O6
3	Y	3	BMA	O5-C5-C6-O6
3	o	2	NAG	O5-C5-C6-O6
3	E	1	NAG	C4-C5-C6-O6
2	O	2	NAG	C4-C5-C6-O6
2	u	2	NAG	C4-C5-C6-O6
2	e	2	NAG	C4-C5-C6-O6
2	D	2	NAG	O5-C5-C6-O6
2	T	1	NAG	C4-C5-C6-O6
3	k	1	NAG	C4-C5-C6-O6
3	o	2	NAG	C4-C5-C6-O6
3	U	1	NAG	C4-C5-C6-O6
2	T	2	NAG	O5-C5-C6-O6
2	j	2	NAG	O5-C5-C6-O6
3	Y	2	NAG	C4-C5-C6-O6
2	N	2	NAG	O5-C5-C6-O6
2	j	1	NAG	C4-C5-C6-O6
2	D	2	NAG	C8-C7-N2-C2
2	D	2	NAG	O7-C7-N2-C2
2	O	1	NAG	C8-C7-N2-C2
2	O	1	NAG	O7-C7-N2-C2
2	O	2	NAG	C8-C7-N2-C2
2	O	2	NAG	O7-C7-N2-C2
2	T	2	NAG	C8-C7-N2-C2
2	T	2	NAG	O7-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
2	e	1	NAG	C8-C7-N2-C2
2	e	1	NAG	O7-C7-N2-C2
2	e	2	NAG	C8-C7-N2-C2
2	e	2	NAG	O7-C7-N2-C2
2	j	2	NAG	C8-C7-N2-C2
2	j	2	NAG	O7-C7-N2-C2
2	u	1	NAG	C8-C7-N2-C2
2	u	1	NAG	O7-C7-N2-C2
2	u	2	NAG	C8-C7-N2-C2
2	u	2	NAG	O7-C7-N2-C2
3	F	1	NAG	C8-C7-N2-C2
3	F	1	NAG	O7-C7-N2-C2
3	G	1	NAG	C8-C7-N2-C2
3	G	1	NAG	O7-C7-N2-C2
3	I	1	NAG	C8-C7-N2-C2
3	I	1	NAG	O7-C7-N2-C2
3	I	2	NAG	C8-C7-N2-C2
3	I	2	NAG	O7-C7-N2-C2
3	M	1	NAG	C8-C7-N2-C2
3	M	1	NAG	O7-C7-N2-C2
3	V	1	NAG	C8-C7-N2-C2
3	V	1	NAG	O7-C7-N2-C2
3	W	1	NAG	C8-C7-N2-C2
3	W	1	NAG	O7-C7-N2-C2
3	Y	1	NAG	C8-C7-N2-C2
3	Y	1	NAG	O7-C7-N2-C2
3	Y	2	NAG	C8-C7-N2-C2
3	Y	2	NAG	O7-C7-N2-C2
3	c	1	NAG	C8-C7-N2-C2
3	c	1	NAG	O7-C7-N2-C2
3	l	1	NAG	C8-C7-N2-C2
3	l	1	NAG	O7-C7-N2-C2
3	m	1	NAG	C8-C7-N2-C2
3	m	1	NAG	O7-C7-N2-C2
3	o	1	NAG	C8-C7-N2-C2
3	o	1	NAG	O7-C7-N2-C2
3	o	2	NAG	C8-C7-N2-C2
3	o	2	NAG	O7-C7-N2-C2
3	s	1	NAG	C8-C7-N2-C2
3	s	1	NAG	O7-C7-N2-C2
2	T	1	NAG	O5-C5-C6-O6
2	D	1	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
2	j	1	NAG	O5-C5-C6-O6
3	I	2	NAG	C4-C5-C6-O6
2	D	1	NAG	O5-C5-C6-O6
3	F	3	BMA	C4-C5-C6-O6
3	E	1	NAG	O5-C5-C6-O6
2	p	2	NAG	C4-C5-C6-O6
2	D	2	NAG	C4-C5-C6-O6
3	U	1	NAG	O5-C5-C6-O6
3	k	1	NAG	O5-C5-C6-O6
3	F	3	BMA	O5-C5-C6-O6
2	j	2	NAG	C4-C5-C6-O6
3	n	1	NAG	C4-C5-C6-O6
2	T	2	NAG	C4-C5-C6-O6
2	Z	2	NAG	C4-C5-C6-O6
3	n	1	NAG	O5-C5-C6-O6
3	l	3	BMA	C4-C5-C6-O6
2	S	1	NAG	C4-C5-C6-O6
3	V	3	BMA	C4-C5-C6-O6
2	J	2	NAG	C4-C5-C6-O6
2	p	2	NAG	O5-C5-C6-O6
2	d	2	NAG	C4-C5-C6-O6
2	S	1	NAG	O5-C5-C6-O6
2	h	1	NAG	C4-C5-C6-O6
3	c	3	BMA	C4-C5-C6-O6
3	s	3	BMA	C4-C5-C6-O6
2	t	2	NAG	C4-C5-C6-O6
3	l	3	BMA	O5-C5-C6-O6
3	V	3	BMA	O5-C5-C6-O6
3	H	1	NAG	C4-C5-C6-O6
2	i	1	NAG	C4-C5-C6-O6
2	y	1	NAG	C4-C5-C6-O6
2	R	1	NAG	C4-C5-C6-O6
2	Z	2	NAG	O5-C5-C6-O6
3	H	1	NAG	O5-C5-C6-O6
3	X	1	NAG	C4-C5-C6-O6
2	J	2	NAG	O5-C5-C6-O6
2	y	1	NAG	O5-C5-C6-O6
2	i	1	NAG	O5-C5-C6-O6
2	O	1	NAG	C1-C2-N2-C7
2	e	1	NAG	C1-C2-N2-C7
2	u	1	NAG	C1-C2-N2-C7
3	M	2	NAG	C1-C2-N2-C7

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Mol	Chain	Res	Type	Atoms
3	c	2	NAG	C1-C2-N2-C7
3	s	2	NAG	C1-C2-N2-C7
2	x	1	NAG	C4-C5-C6-O6
3	X	1	NAG	O5-C5-C6-O6
2	h	1	NAG	O5-C5-C6-O6
3	M	3	BMA	C4-C5-C6-O6
3	G	1	NAG	C4-C5-C6-O6
2	O	1	NAG	C3-C2-N2-C7
2	e	1	NAG	C3-C2-N2-C7
2	u	1	NAG	C3-C2-N2-C7
2	R	1	NAG	O5-C5-C6-O6
3	c	3	BMA	O5-C5-C6-O6
3	o	1	NAG	C4-C5-C6-O6
3	G	1	NAG	O5-C5-C6-O6
3	s	3	BMA	O5-C5-C6-O6
2	T	1	NAG	C1-C2-N2-C7
2	Z	2	NAG	C1-C2-N2-C7
3	M	1	NAG	C1-C2-N2-C7
3	c	1	NAG	C1-C2-N2-C7
3	s	1	NAG	C1-C2-N2-C7
3	M	1	NAG	C3-C2-N2-C7
3	M	2	NAG	C3-C2-N2-C7
3	c	1	NAG	C3-C2-N2-C7
3	c	2	NAG	C3-C2-N2-C7
3	s	1	NAG	C3-C2-N2-C7
3	s	2	NAG	C3-C2-N2-C7
2	x	1	NAG	O5-C5-C6-O6
2	N	2	NAG	C4-C5-C6-O6
2	r	2	NAG	O5-C5-C6-O6
3	W	1	NAG	C4-C5-C6-O6

There are no ring outliers.

17 monomers are involved in 23 short contacts:

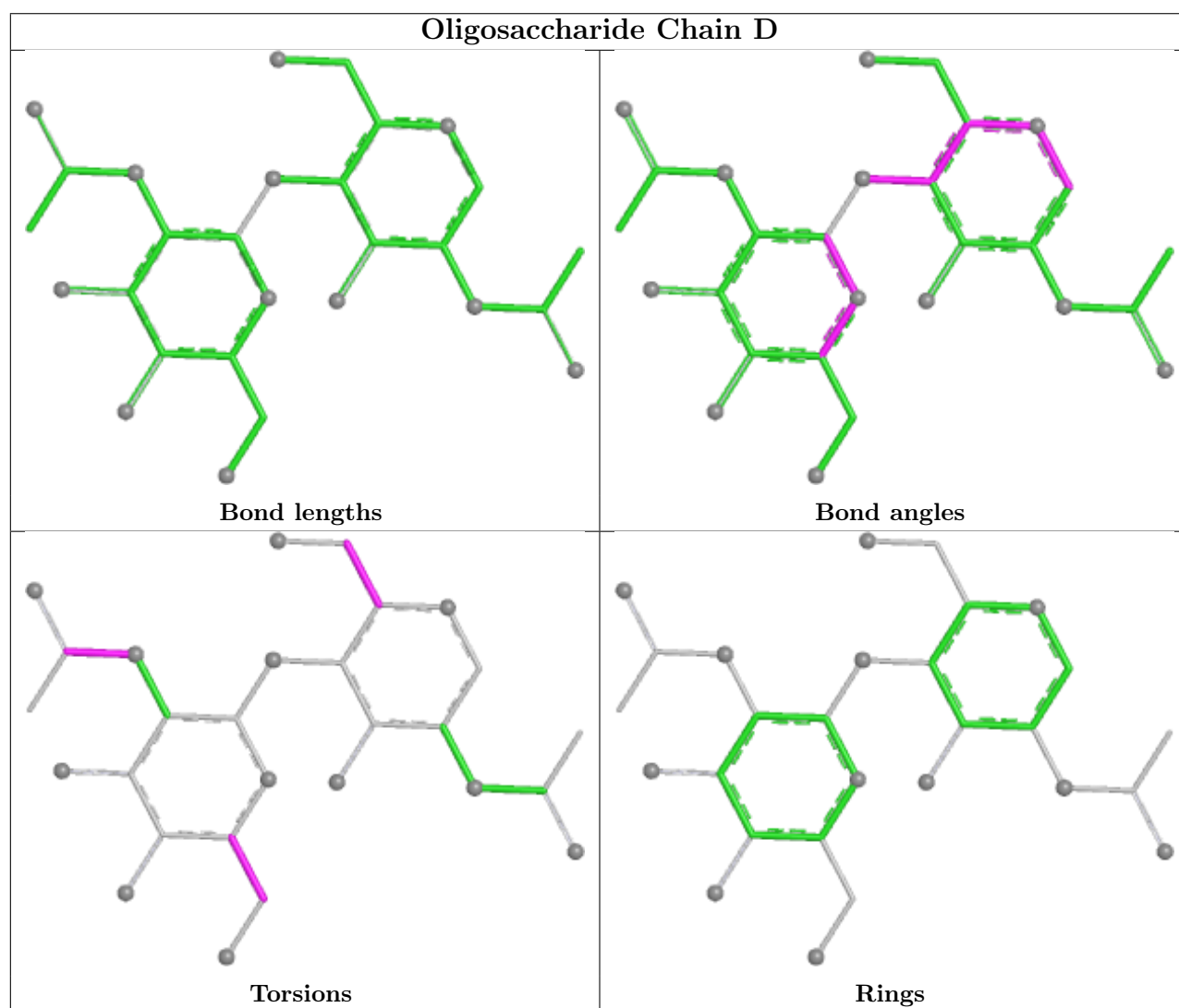
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	p	1	NAG	1	0
3	o	1	NAG	2	0
2	Z	1	NAG	1	0
2	N	1	NAG	1	0
2	O	1	NAG	2	0
2	e	2	NAG	1	0
3	Y	1	NAG	2	0

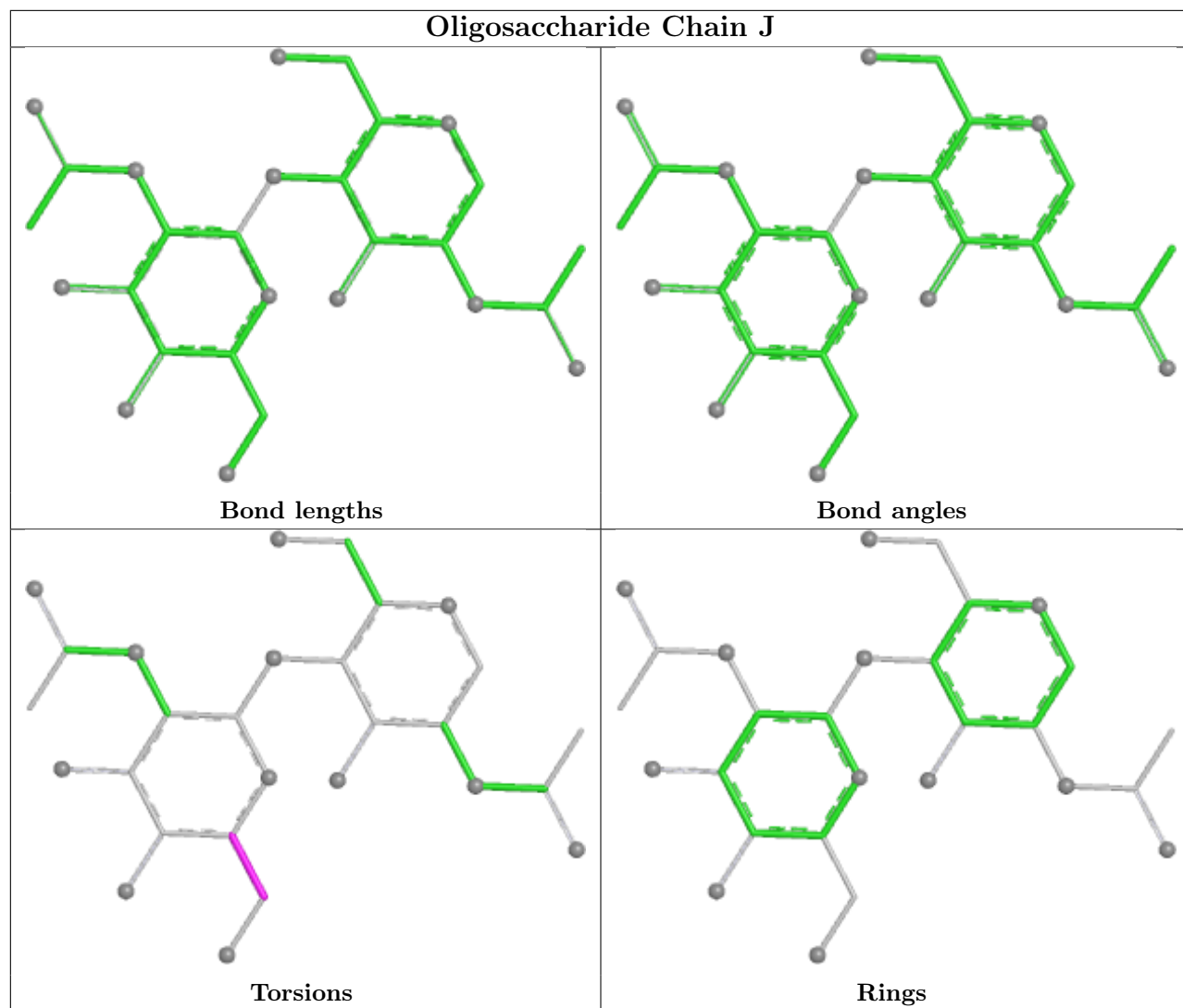
Continued on next page...

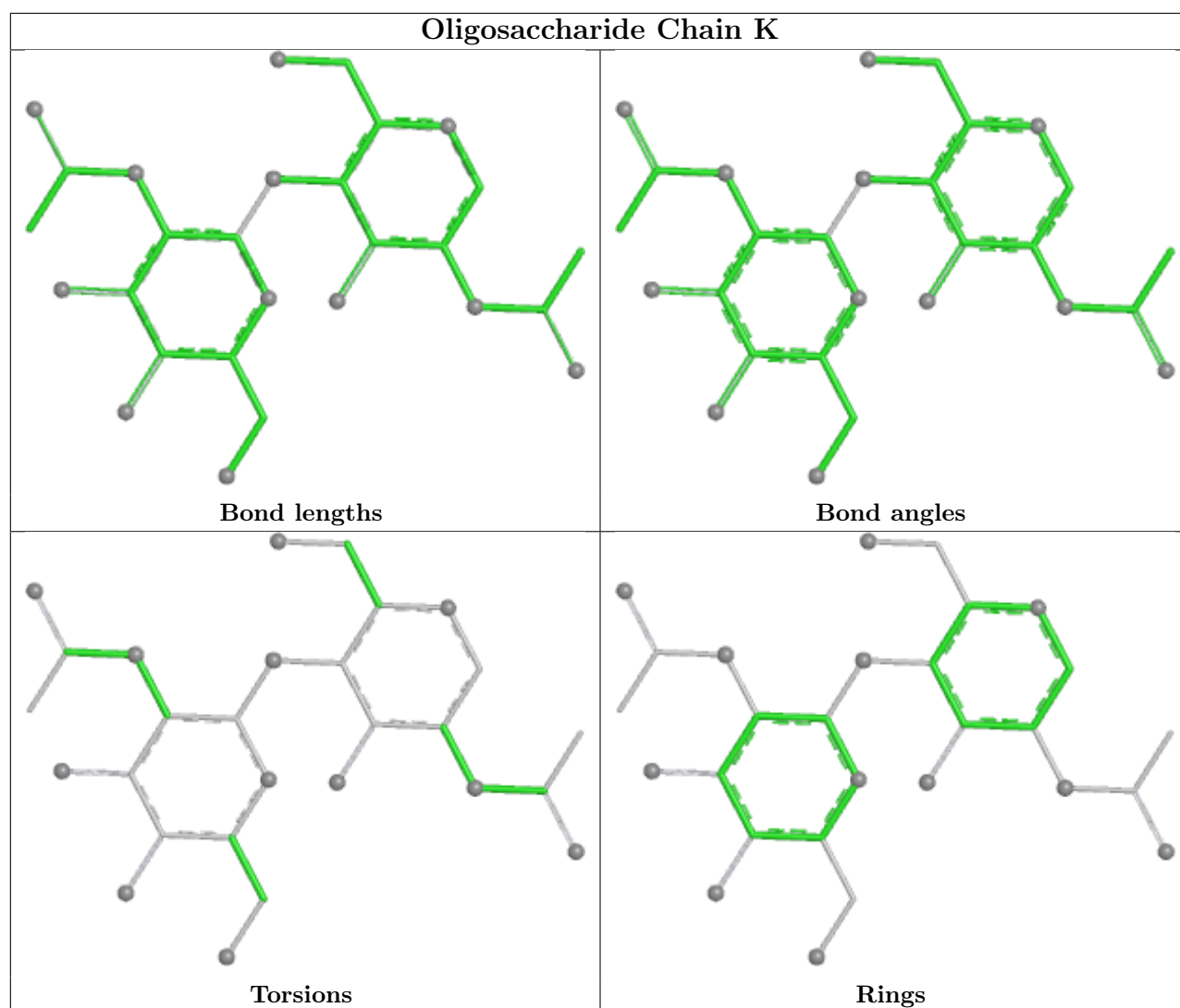
Continued from previous page...

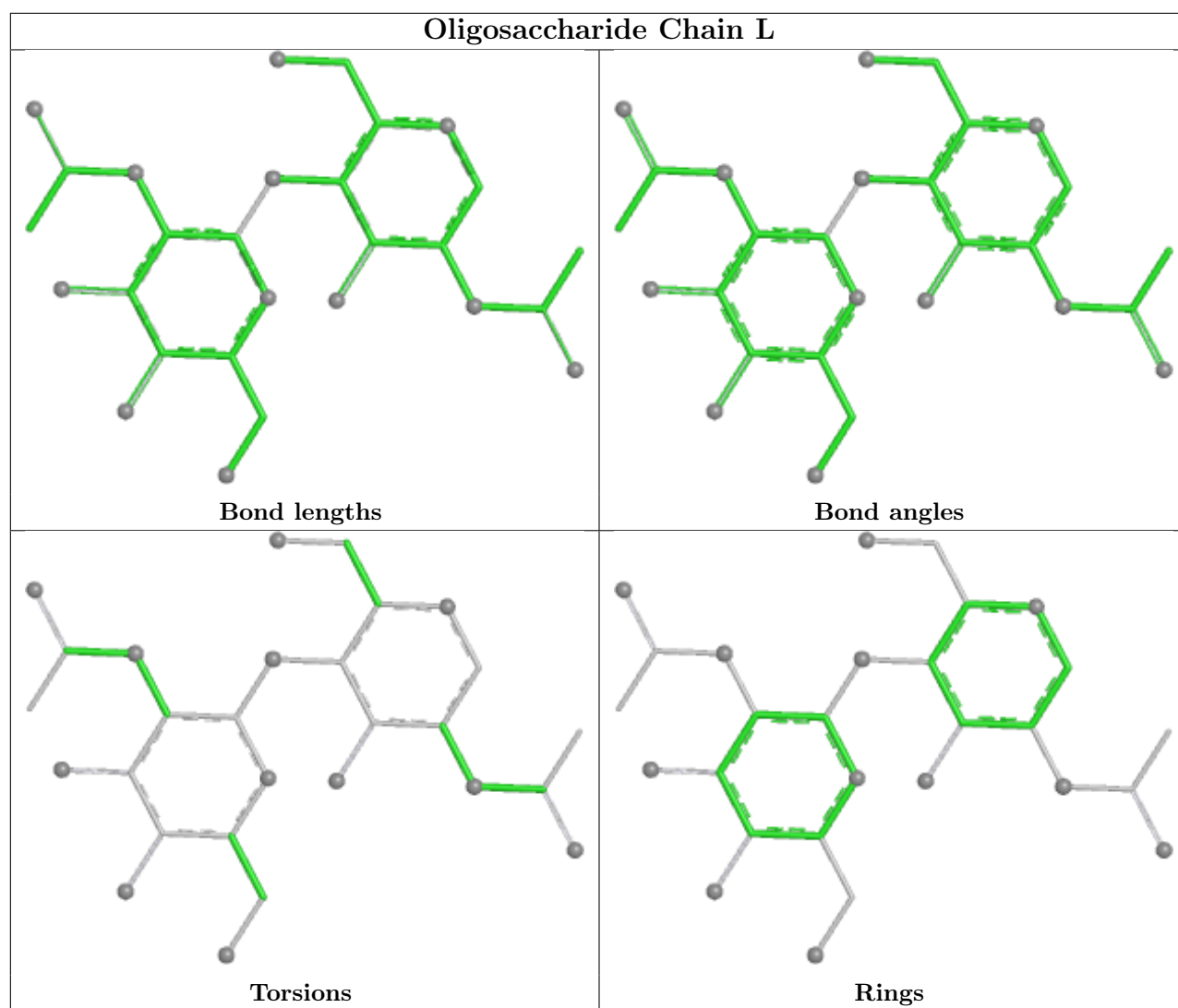
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	M	1	NAG	2	0
3	s	1	NAG	2	0
2	u	1	NAG	2	0
3	c	1	NAG	2	0
2	O	2	NAG	1	0
2	u	2	NAG	1	0
2	e	1	NAG	3	0
2	J	1	NAG	1	0
3	I	1	NAG	2	0
2	N	2	NAG	1	0

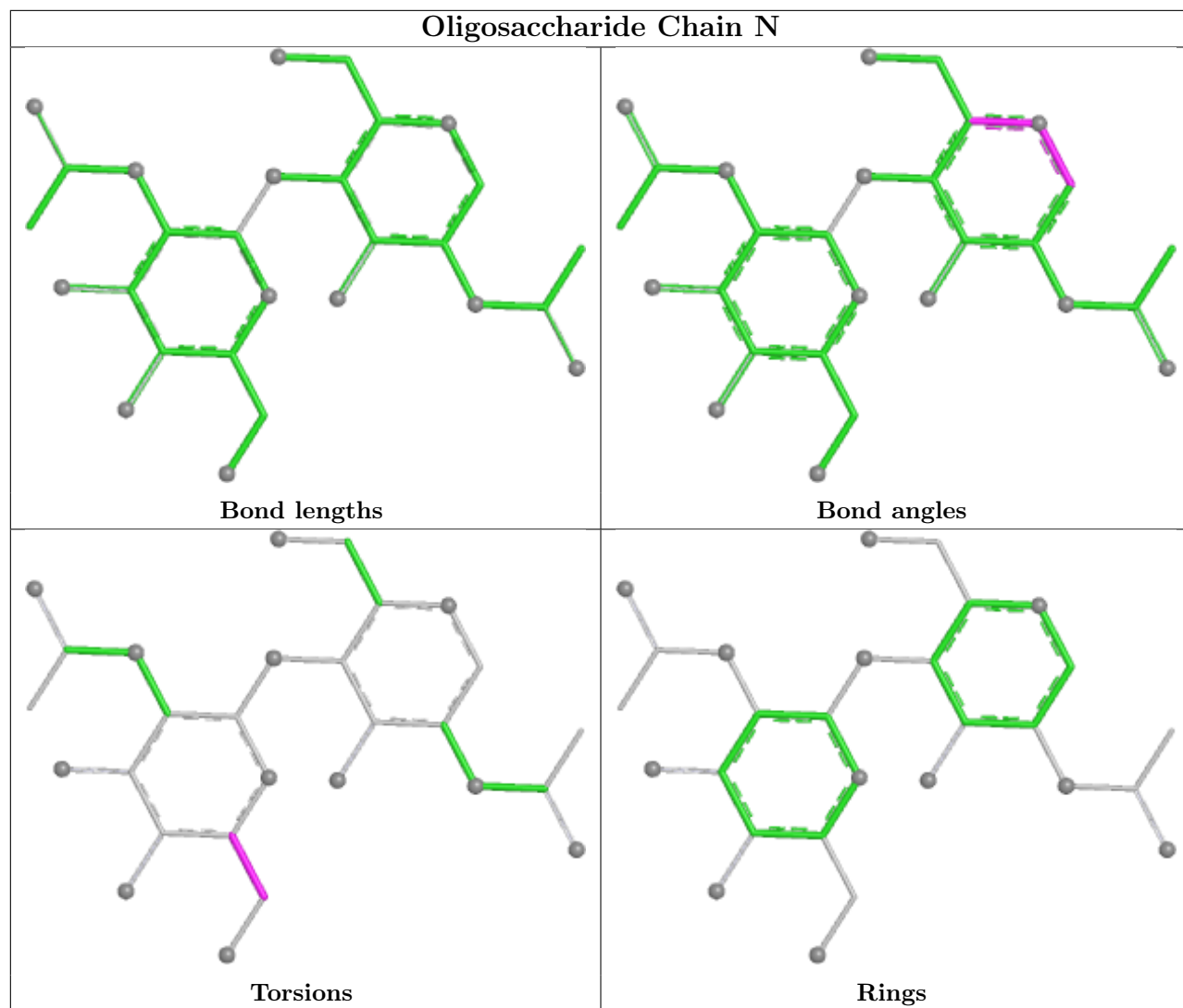
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

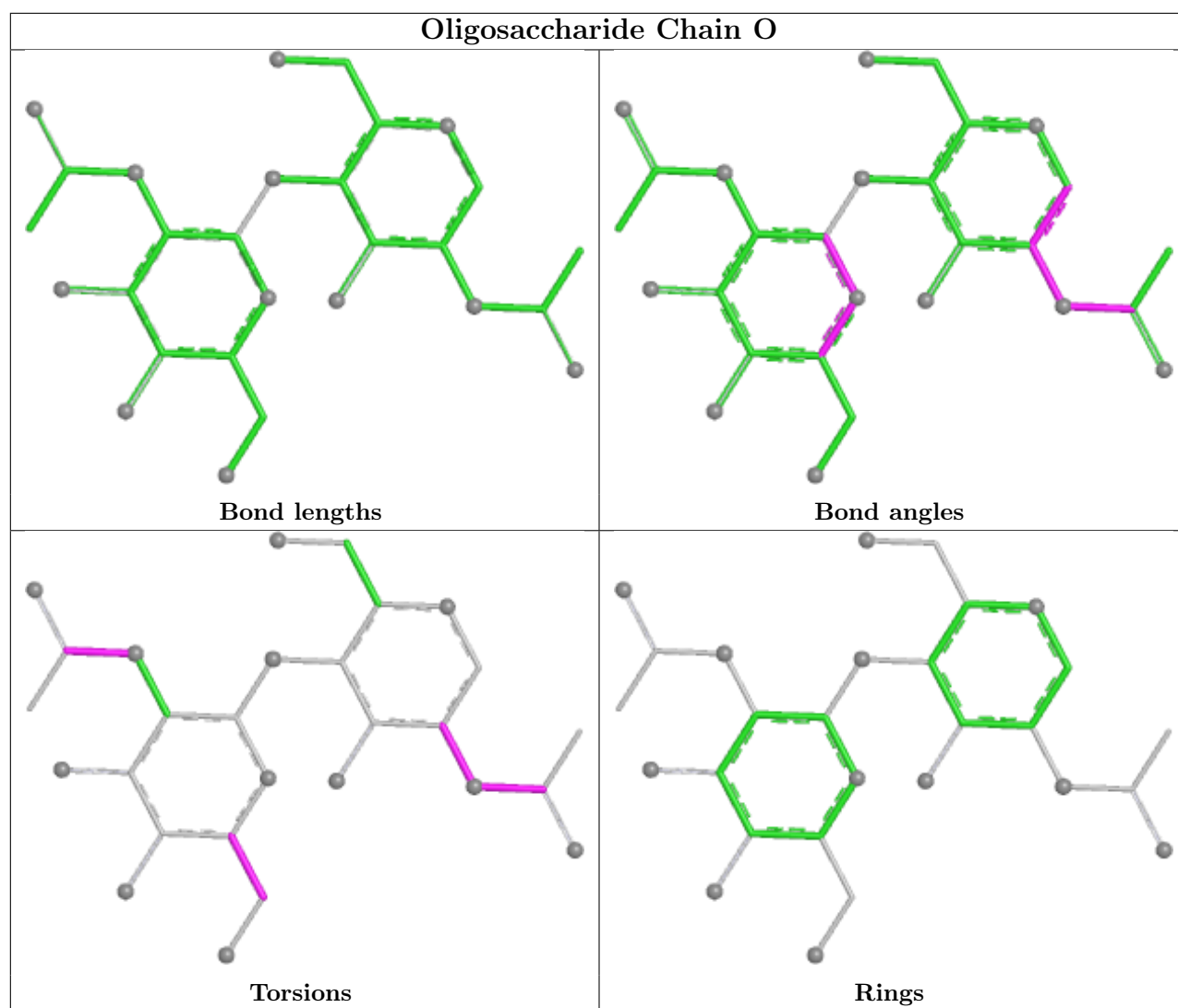


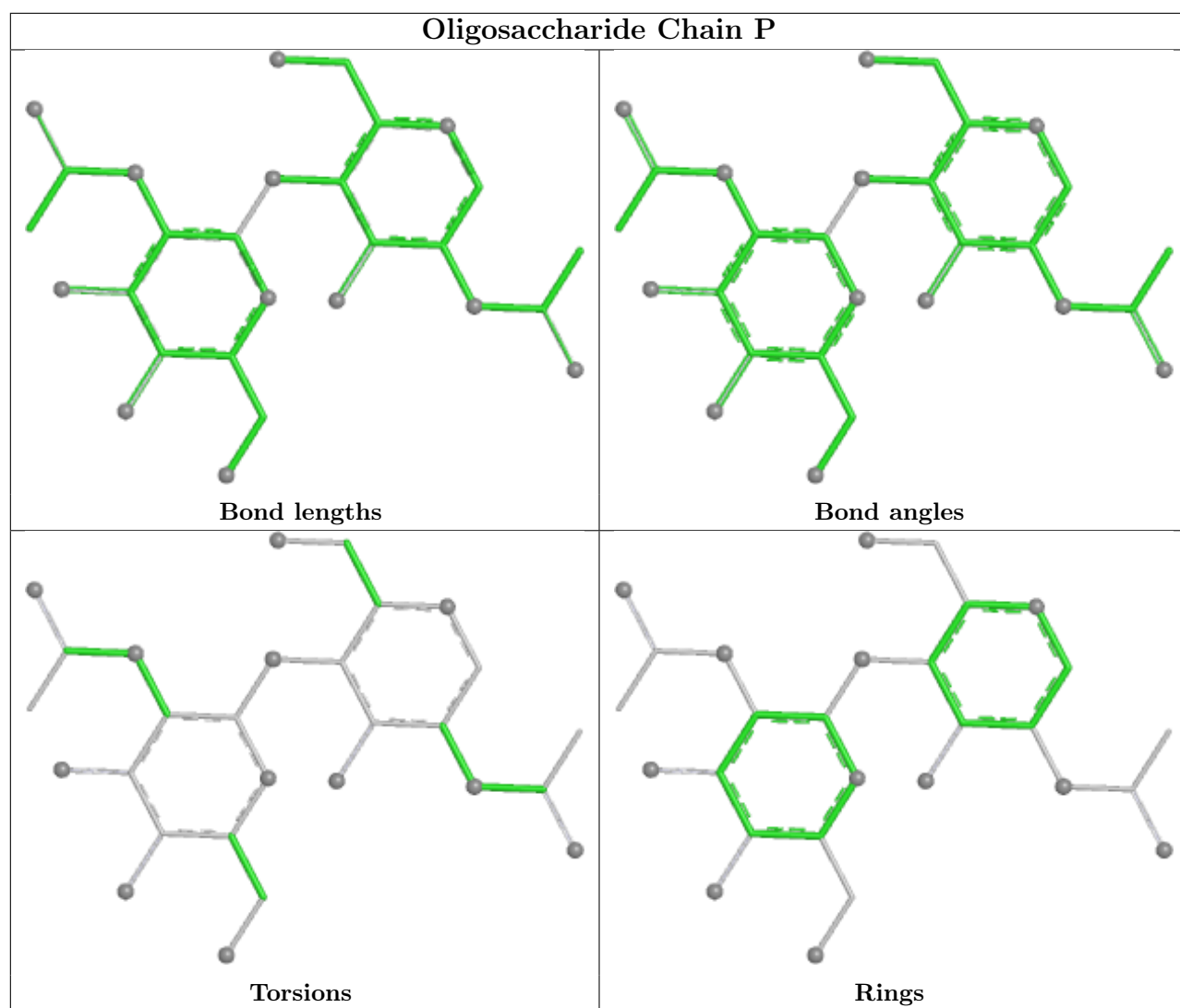


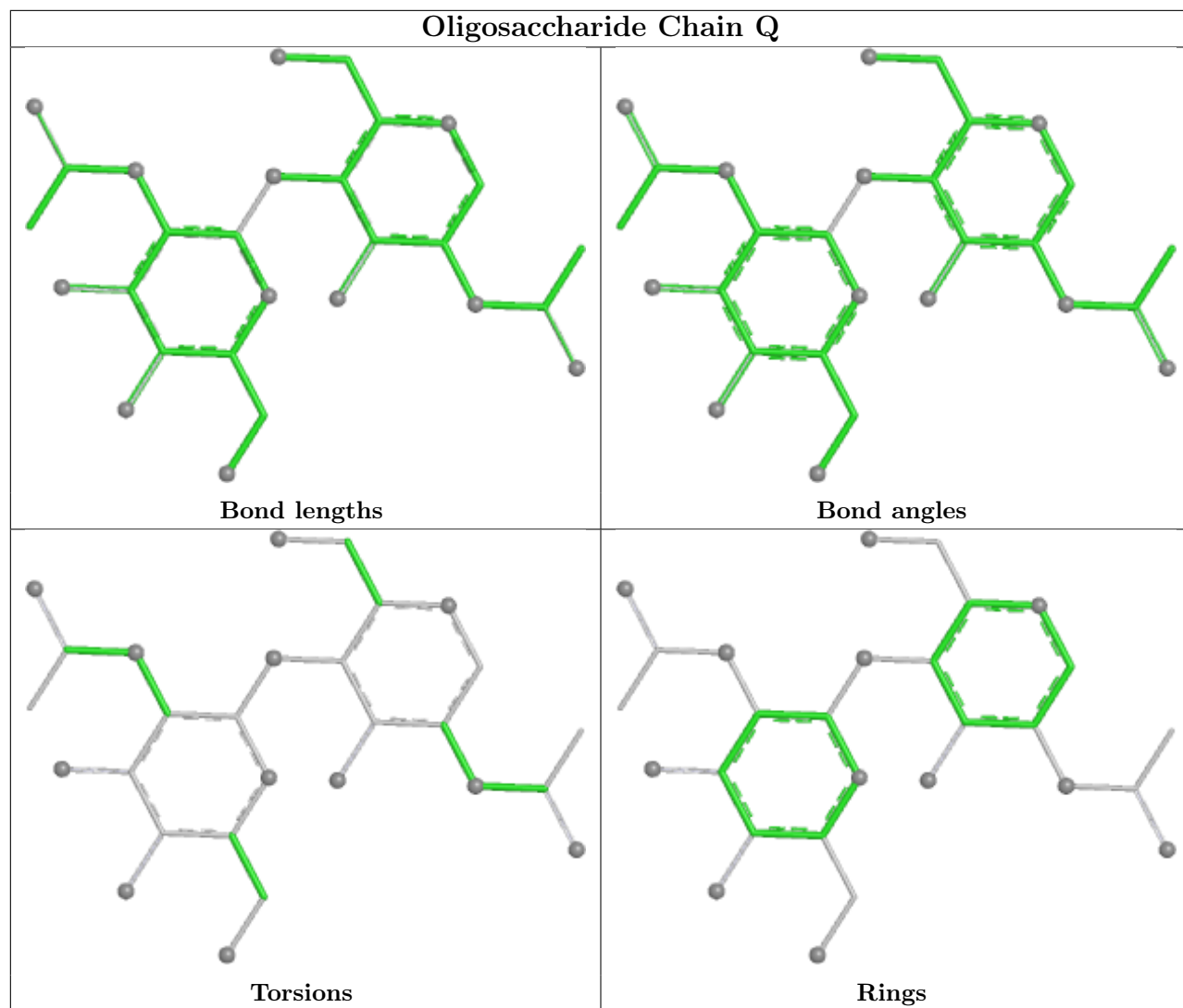


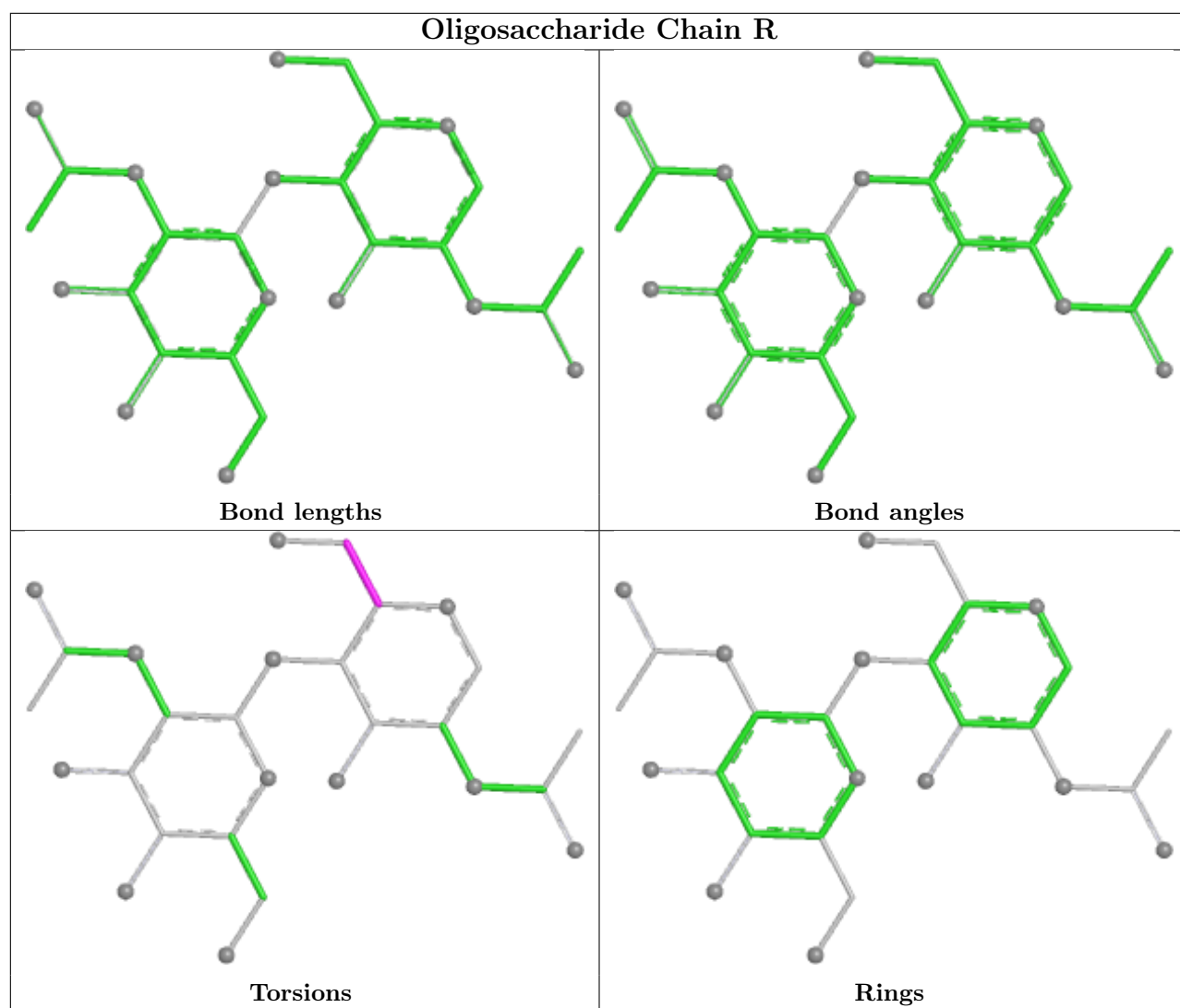


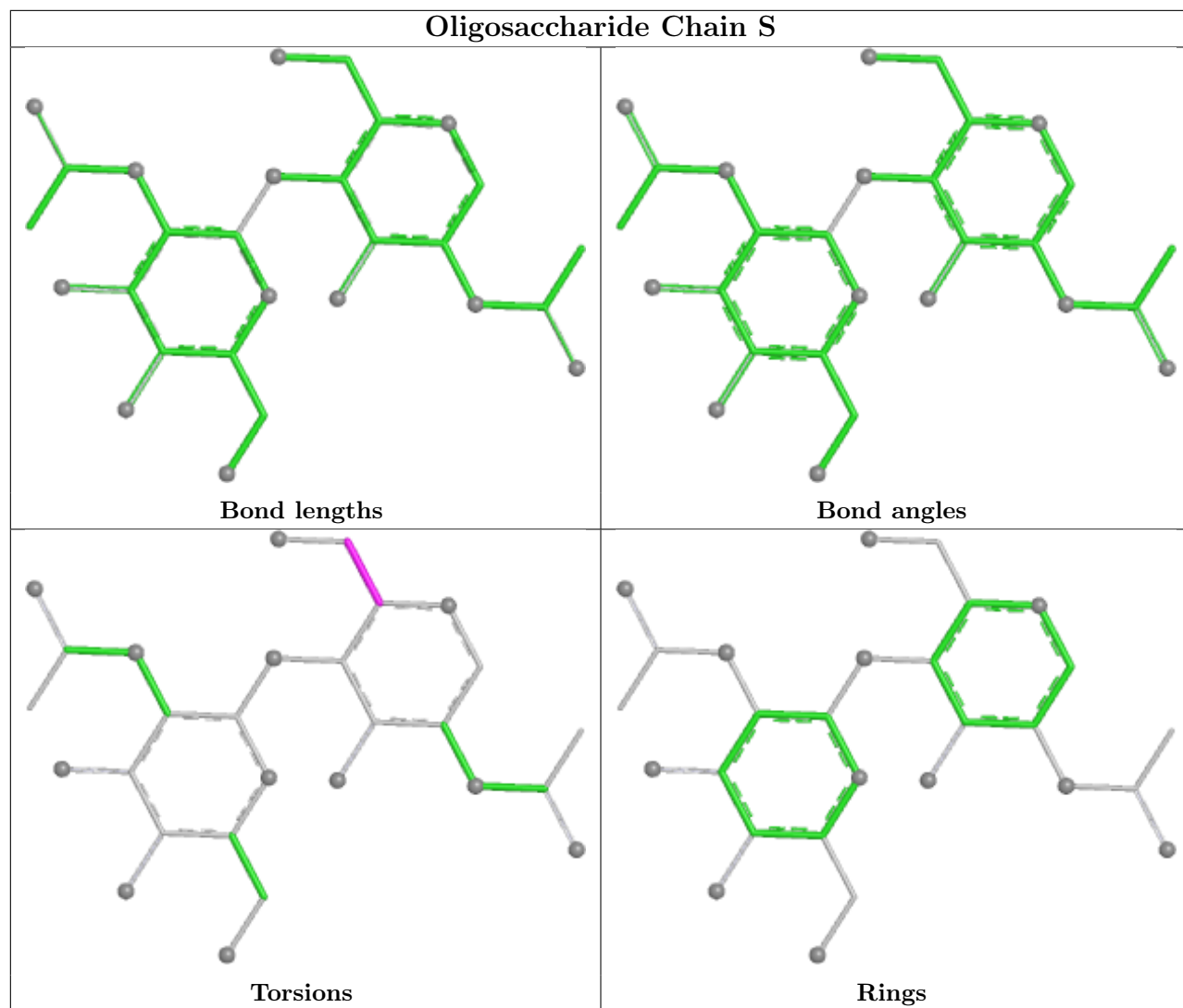


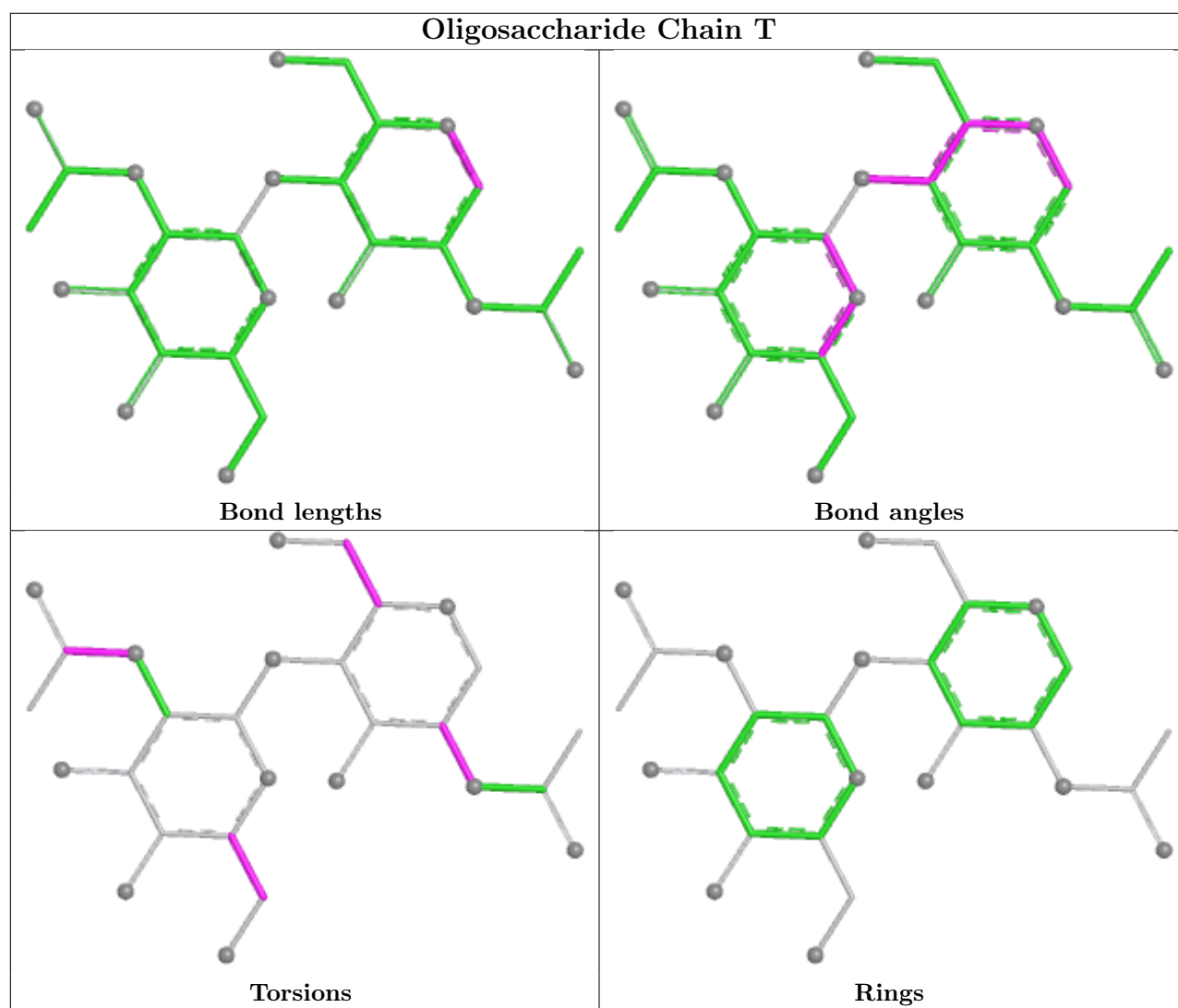


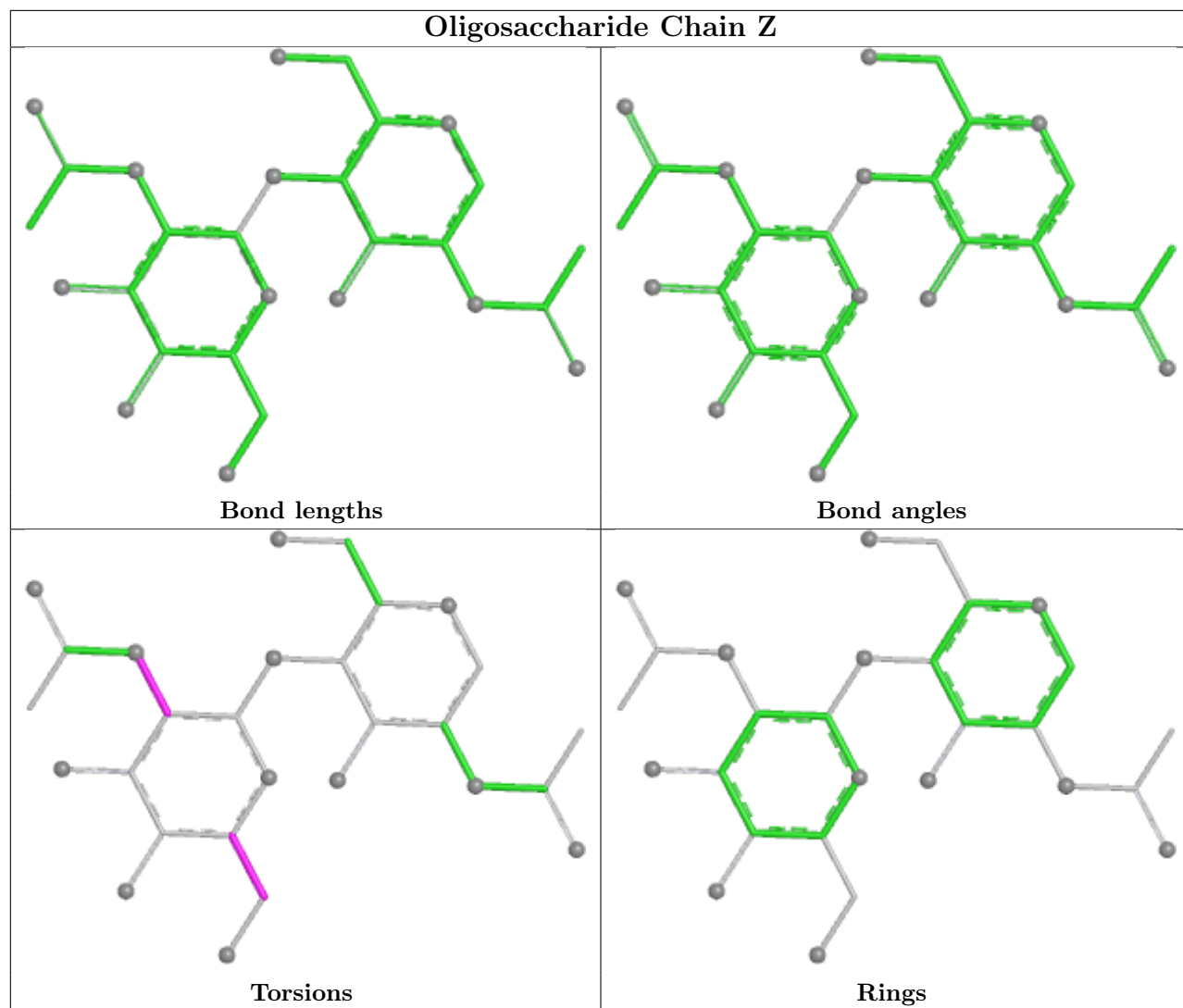


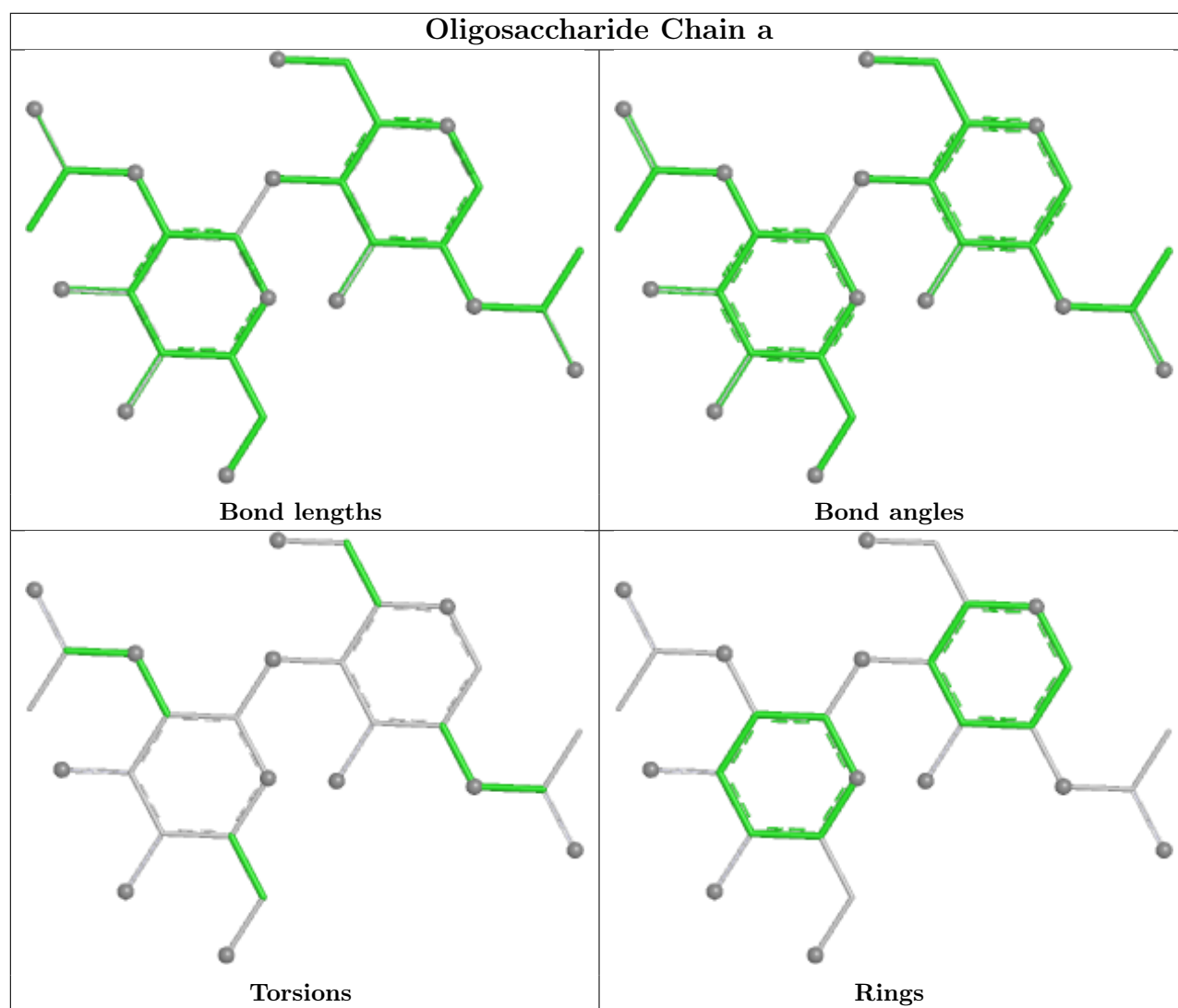


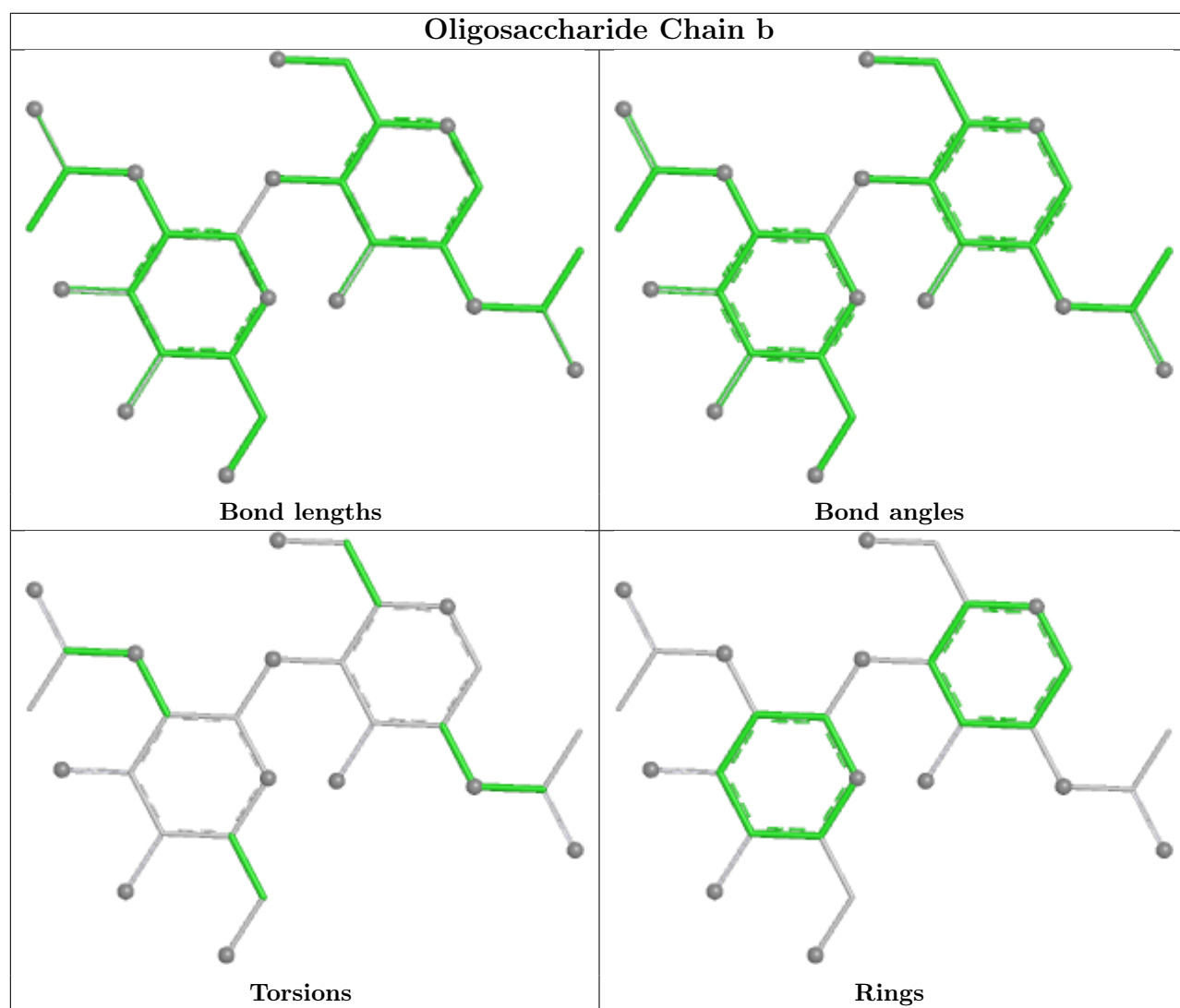


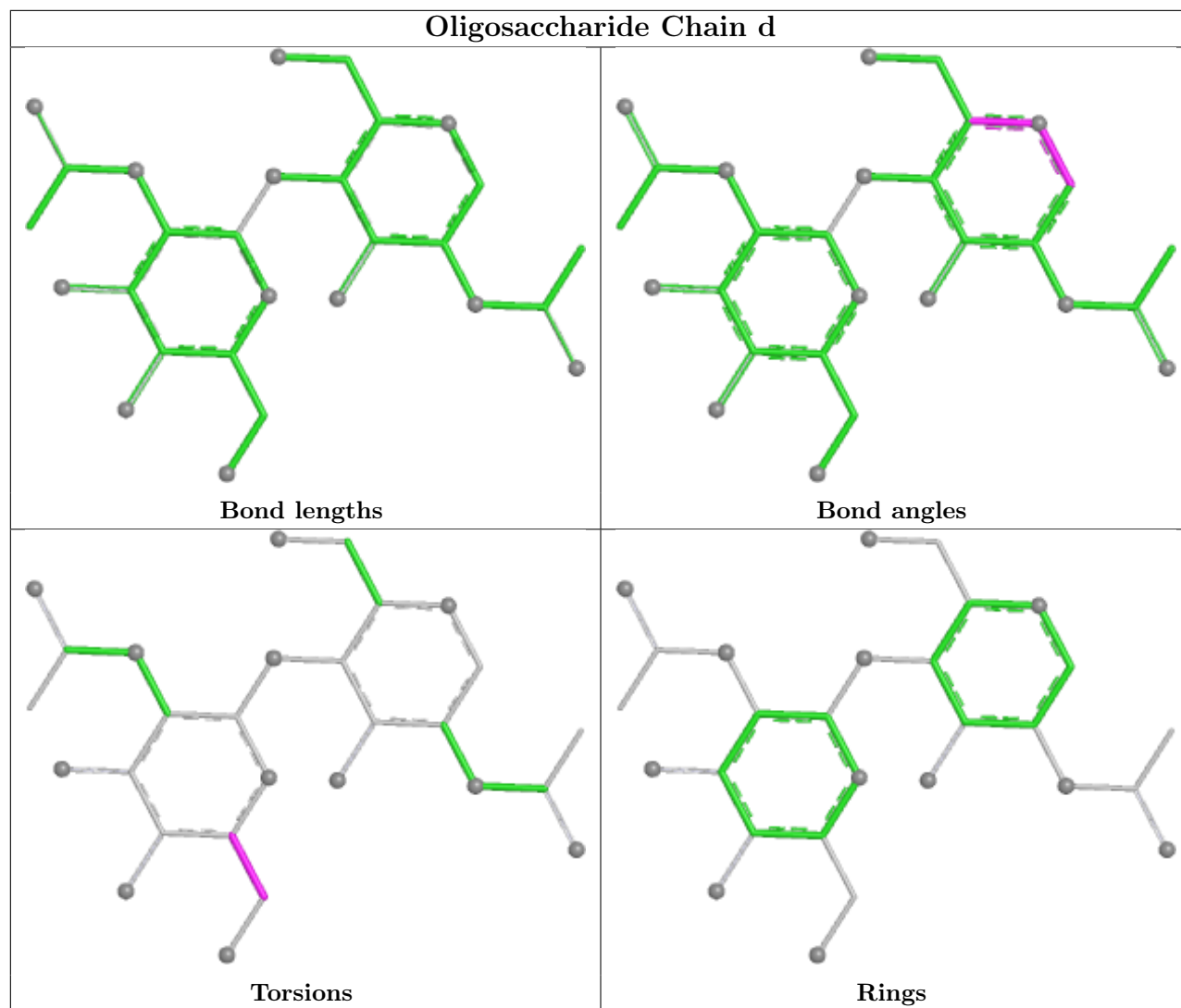


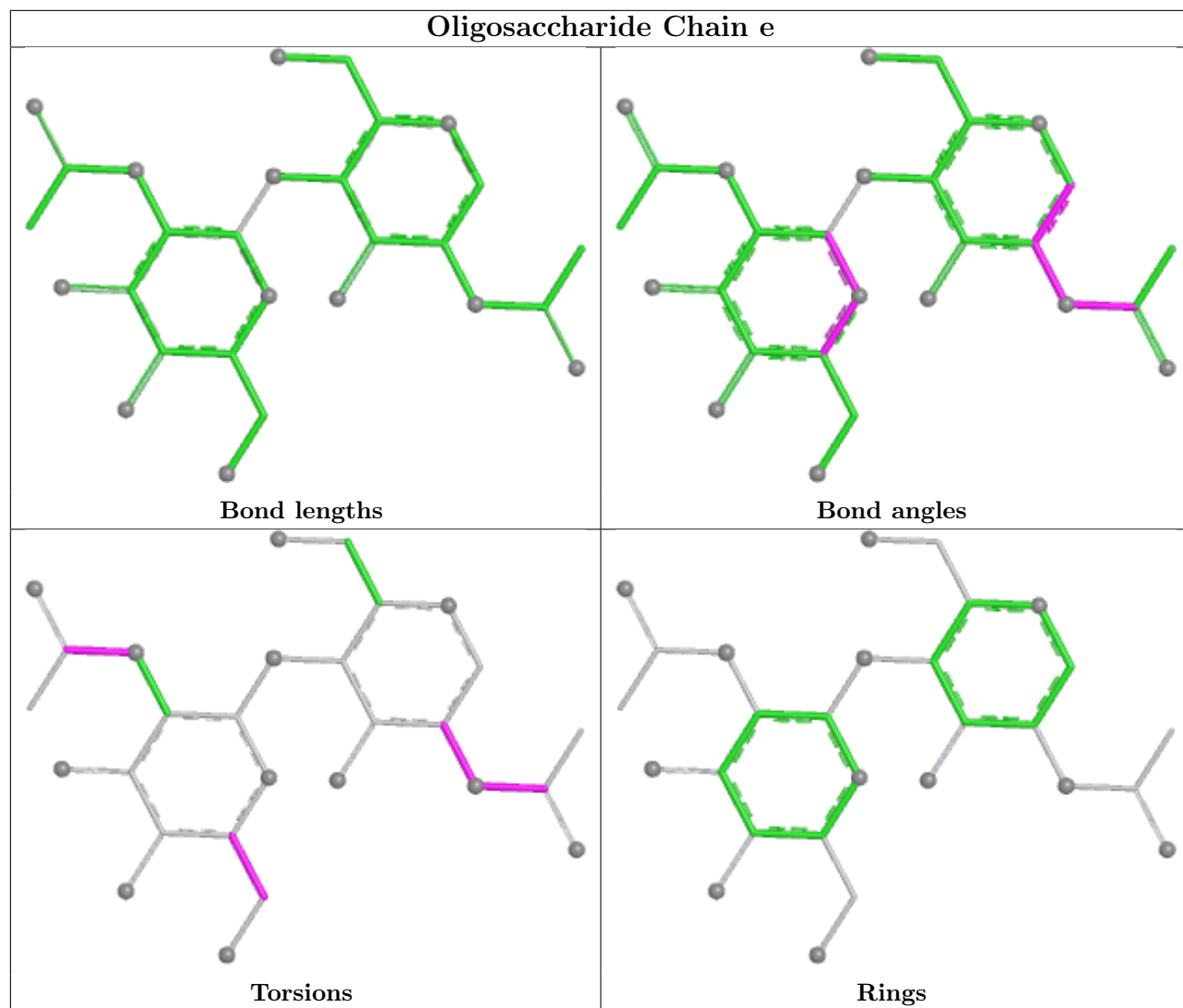


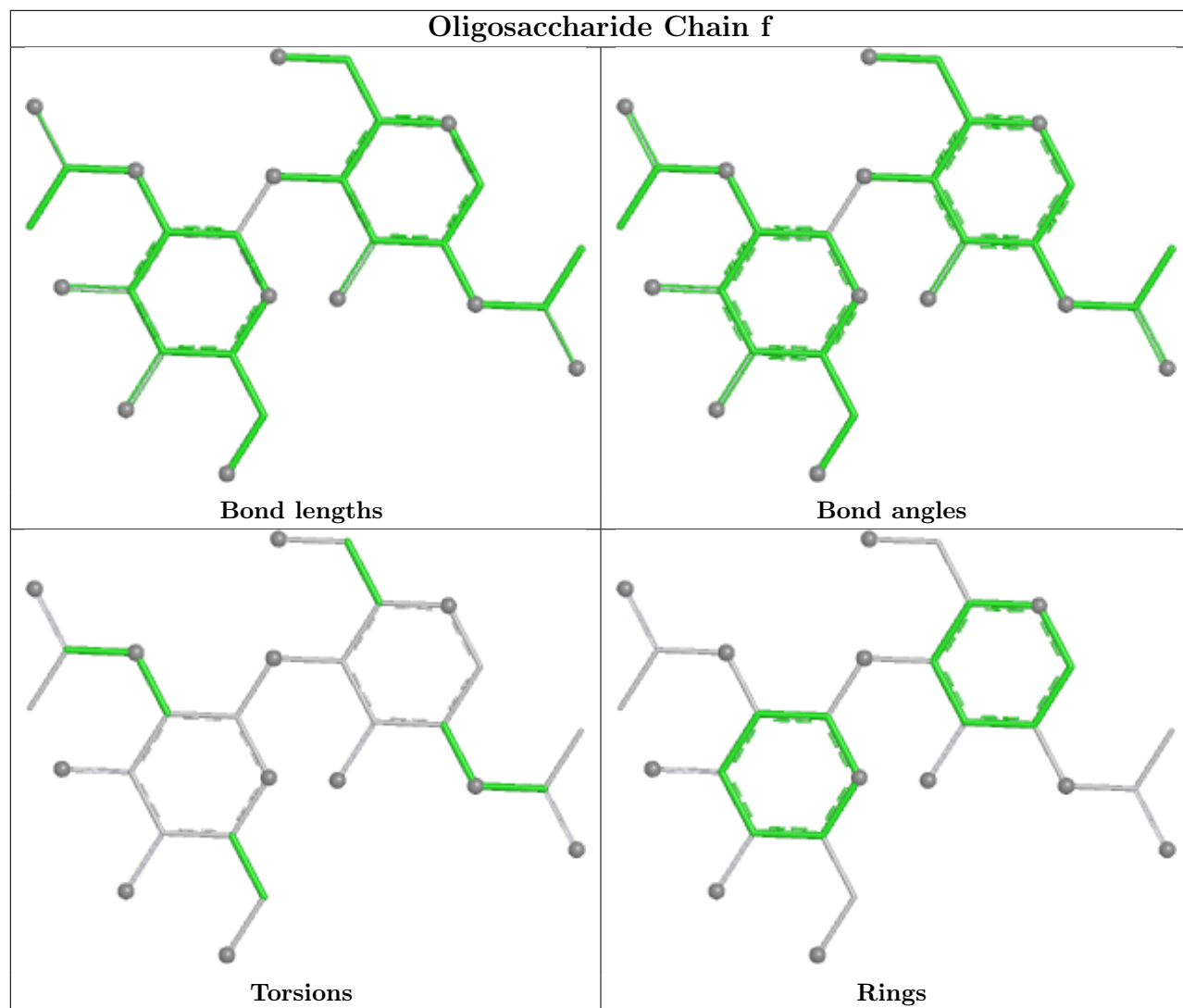


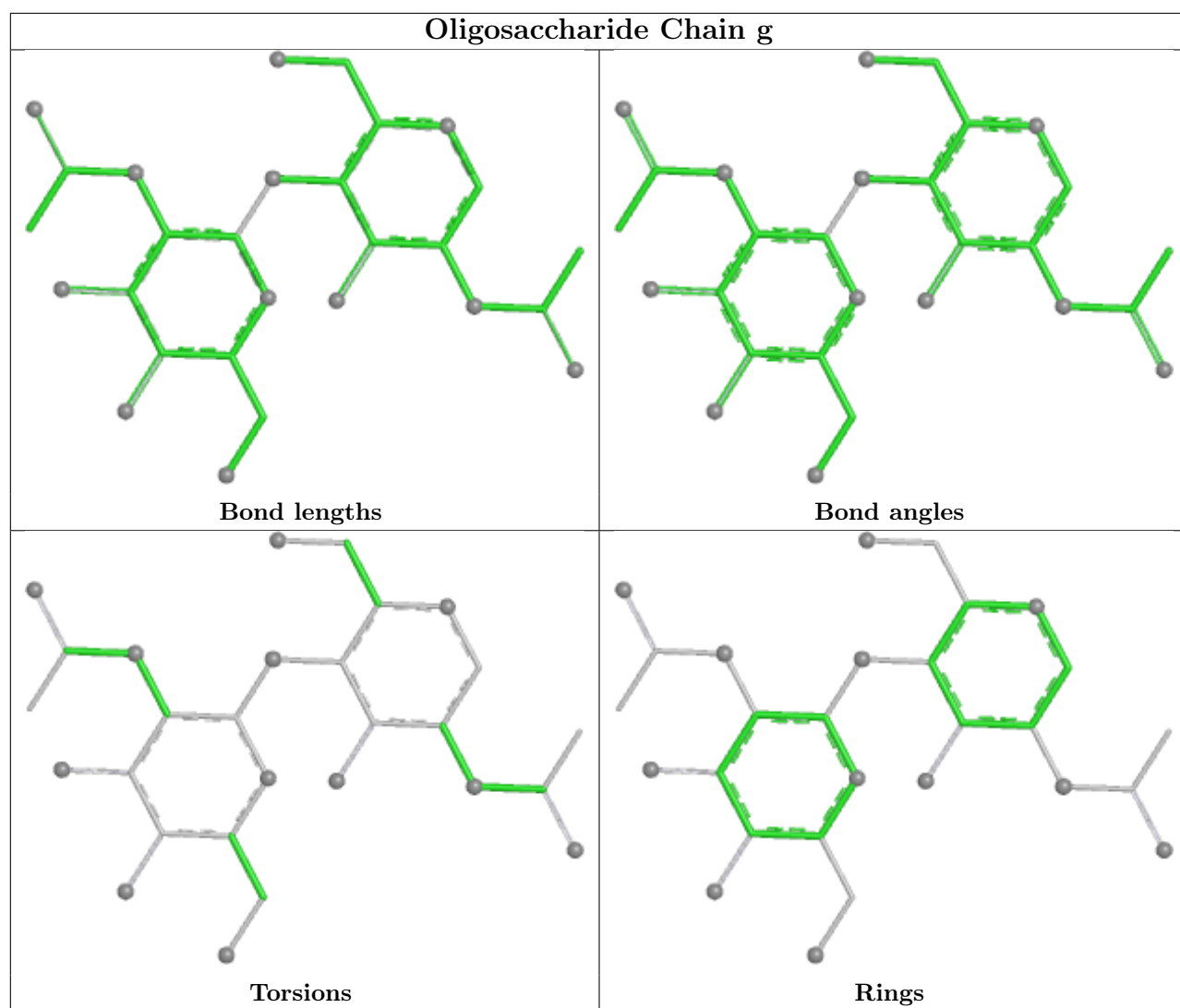


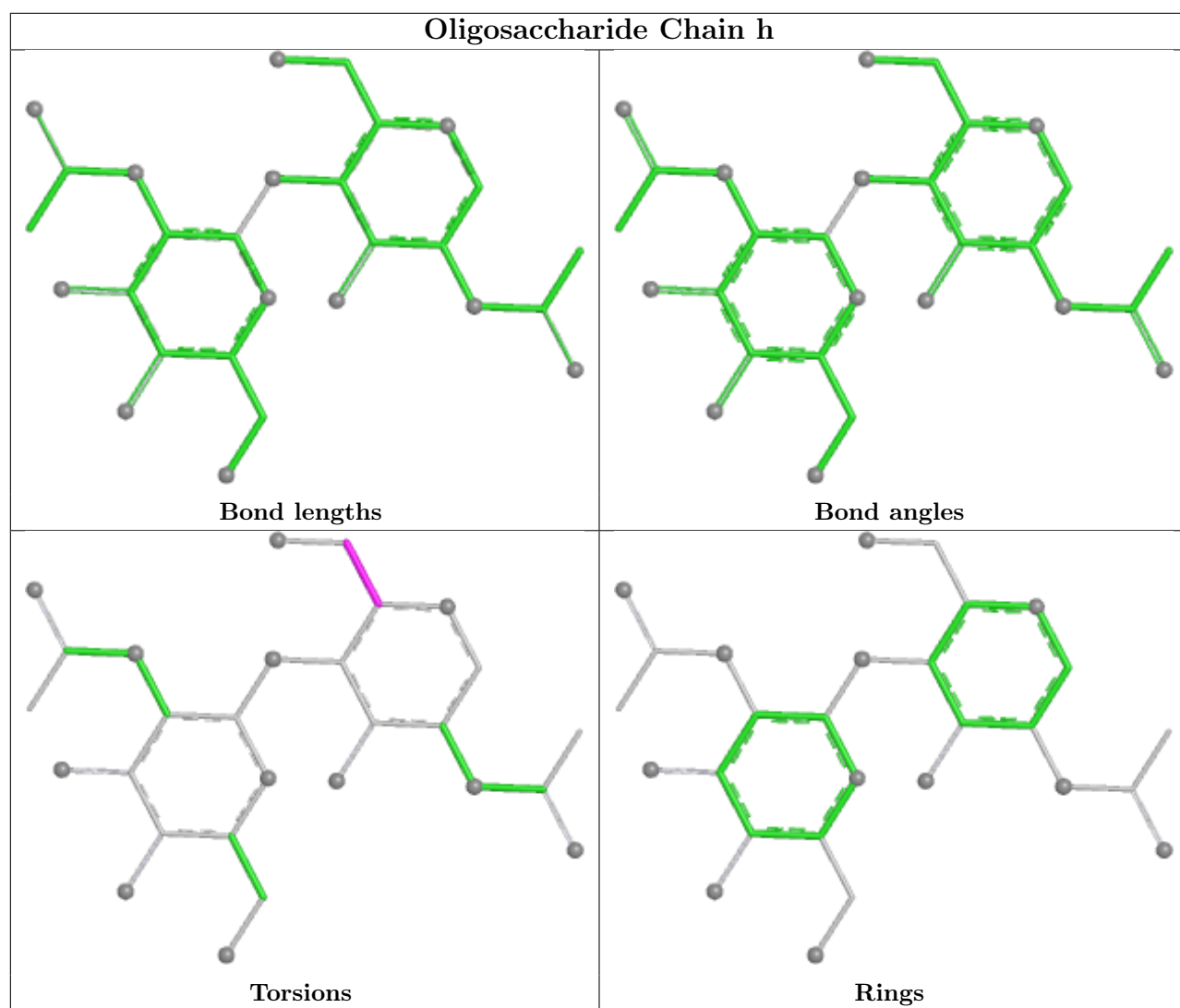


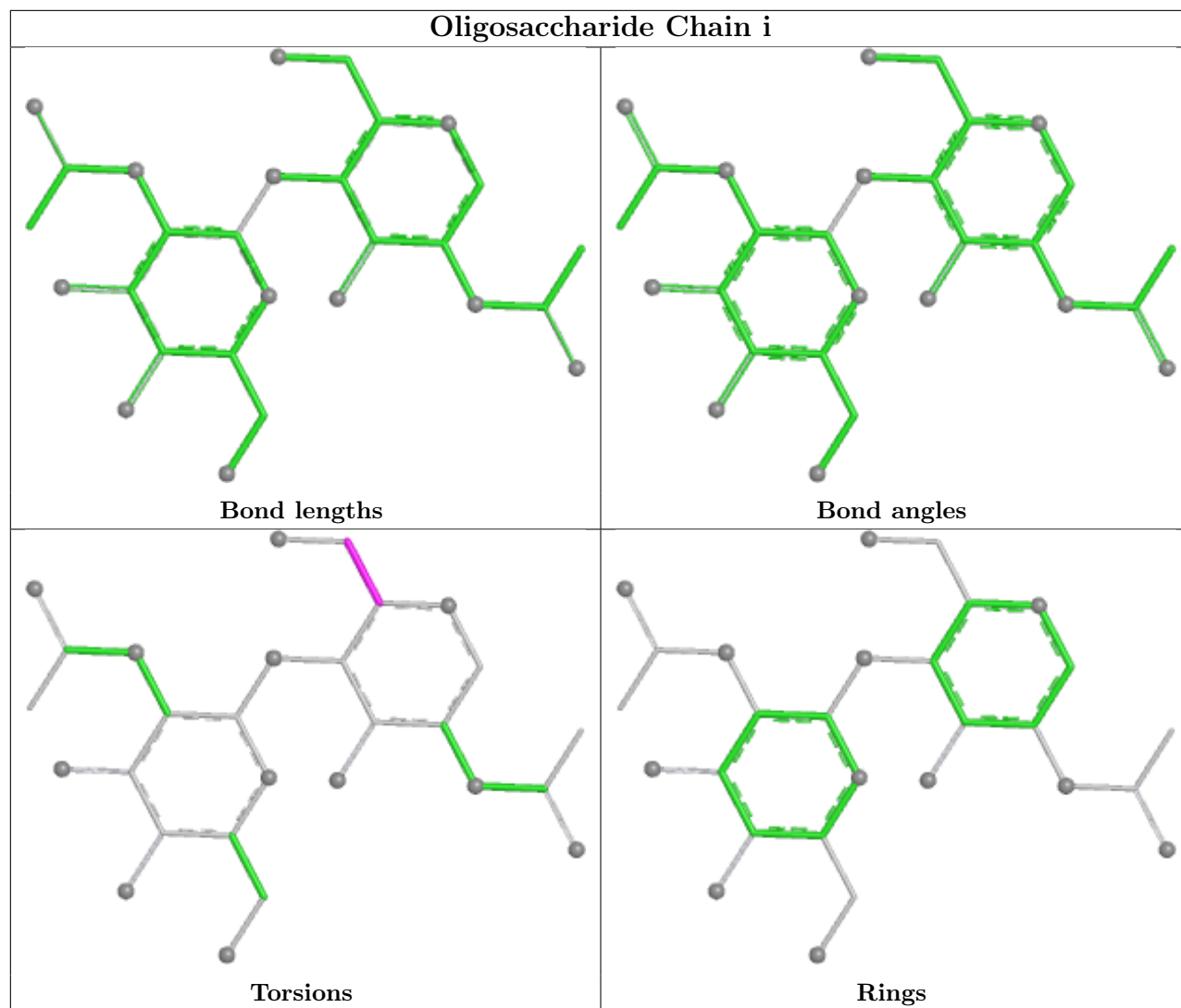


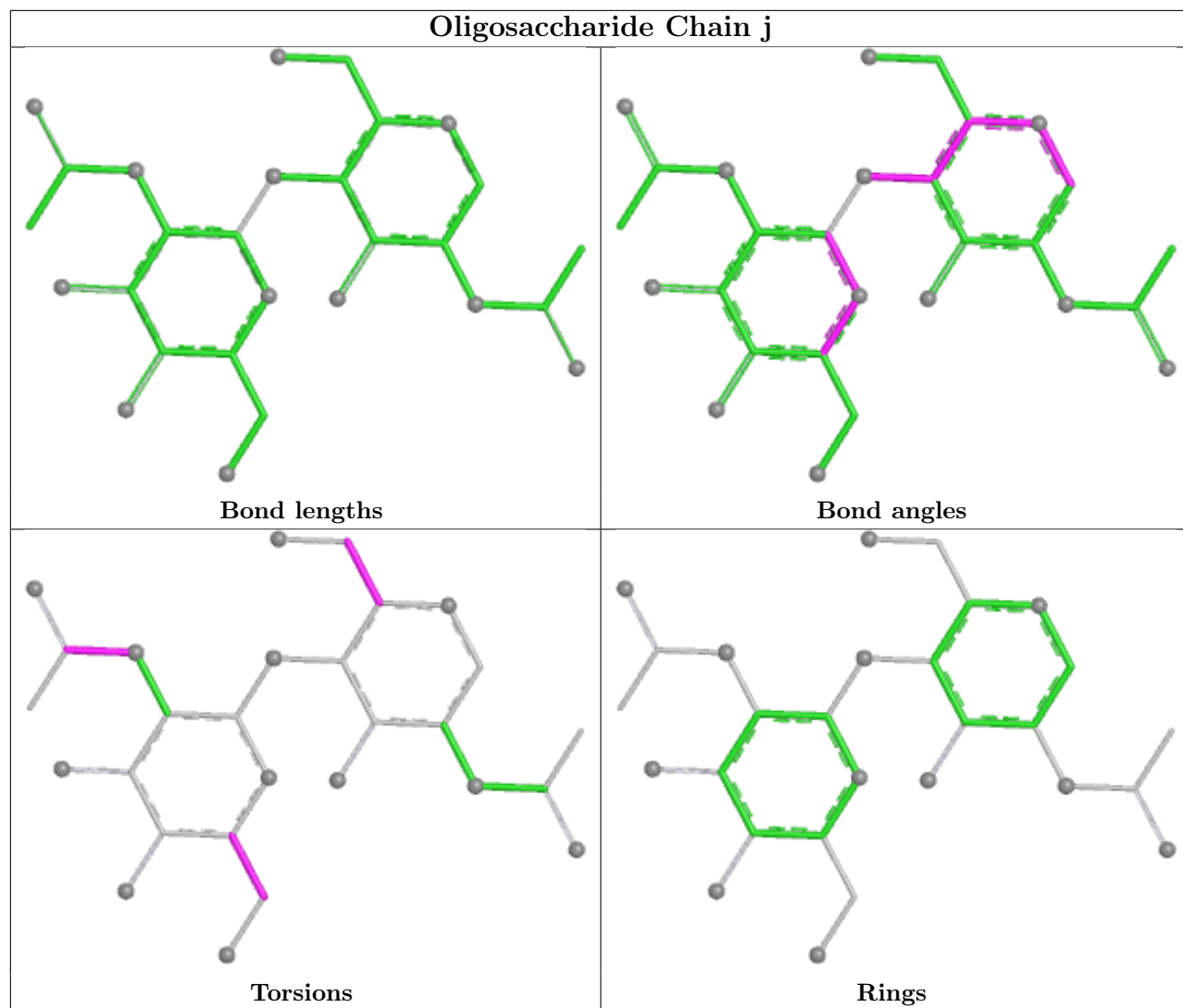


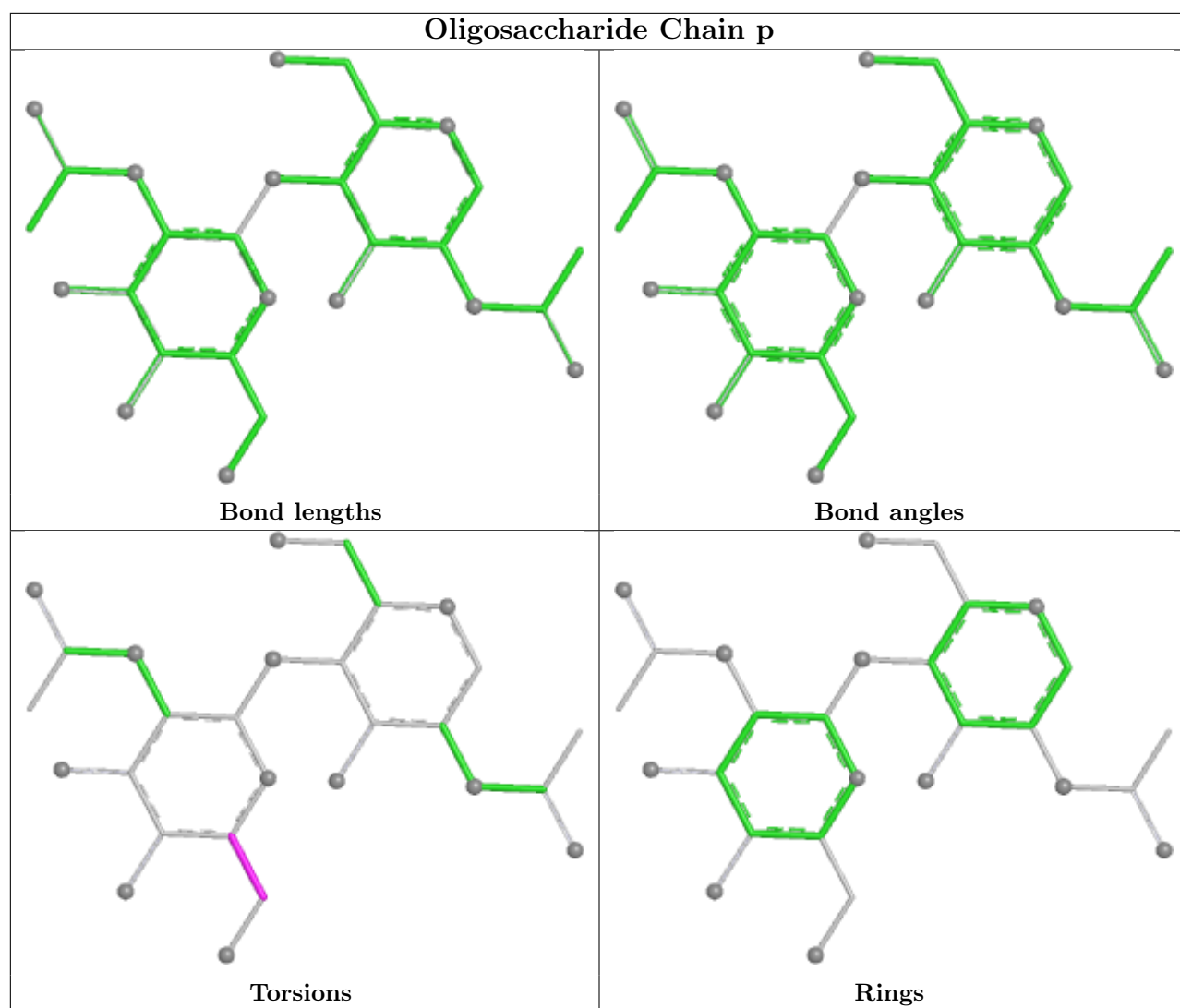


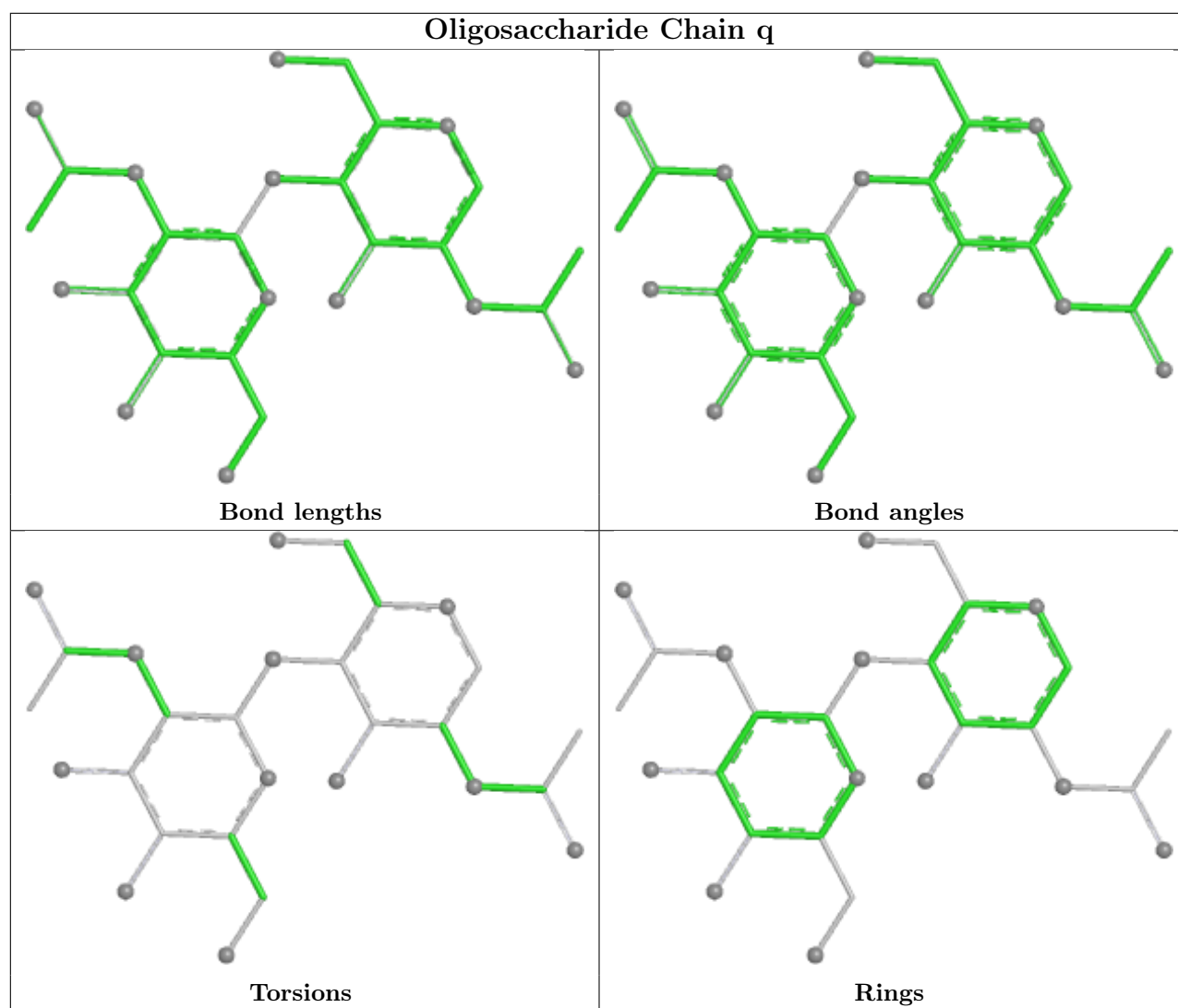


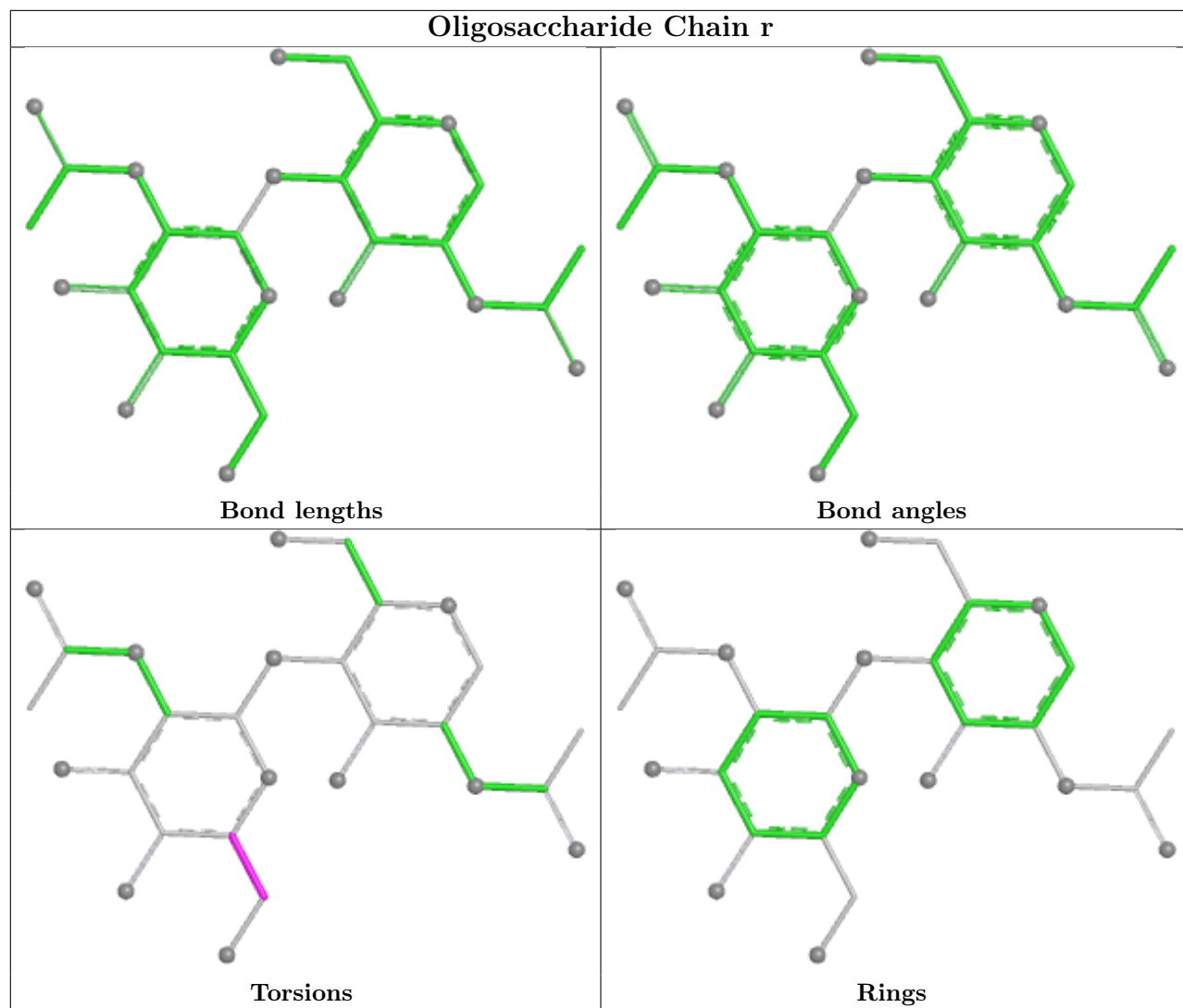


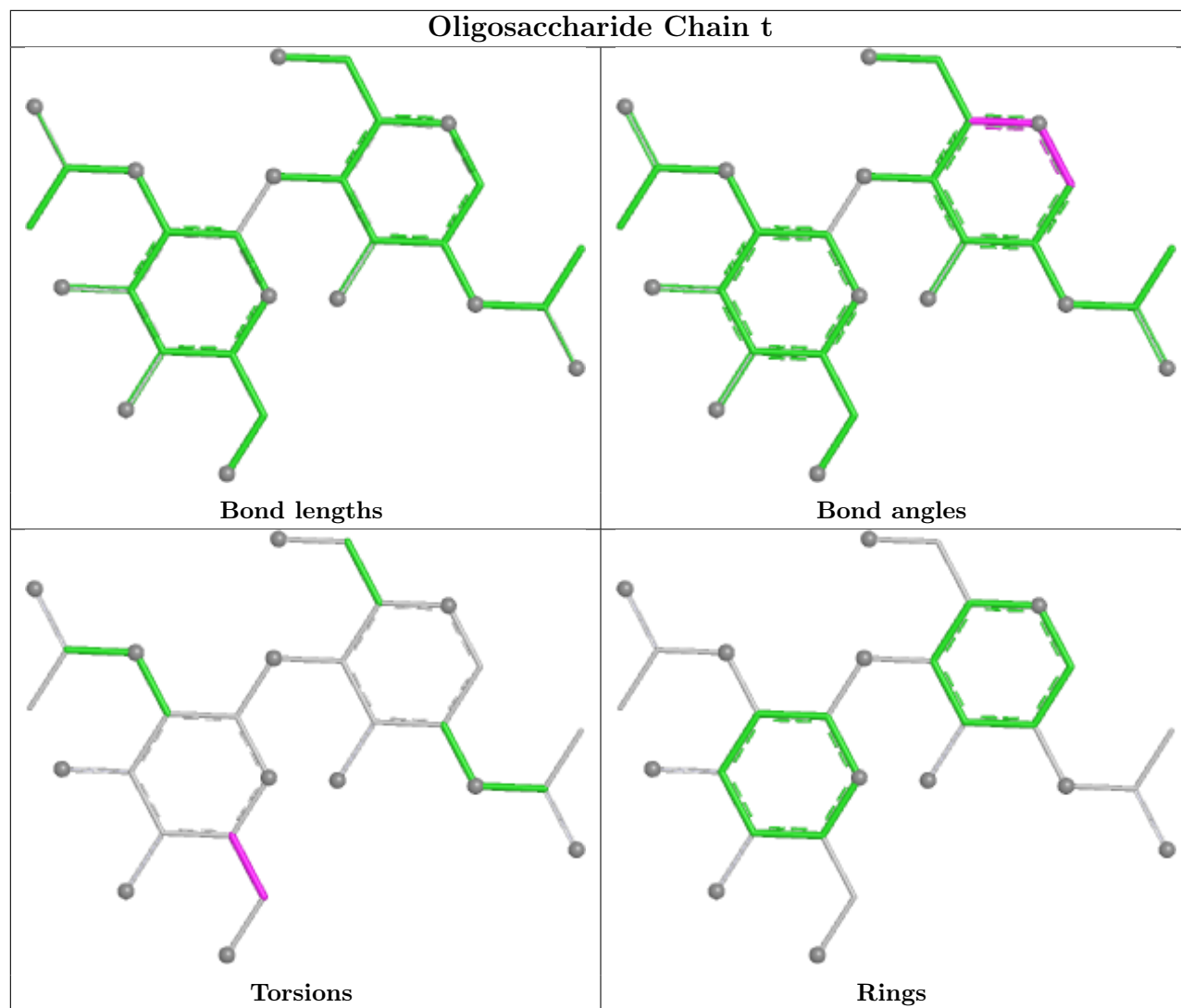


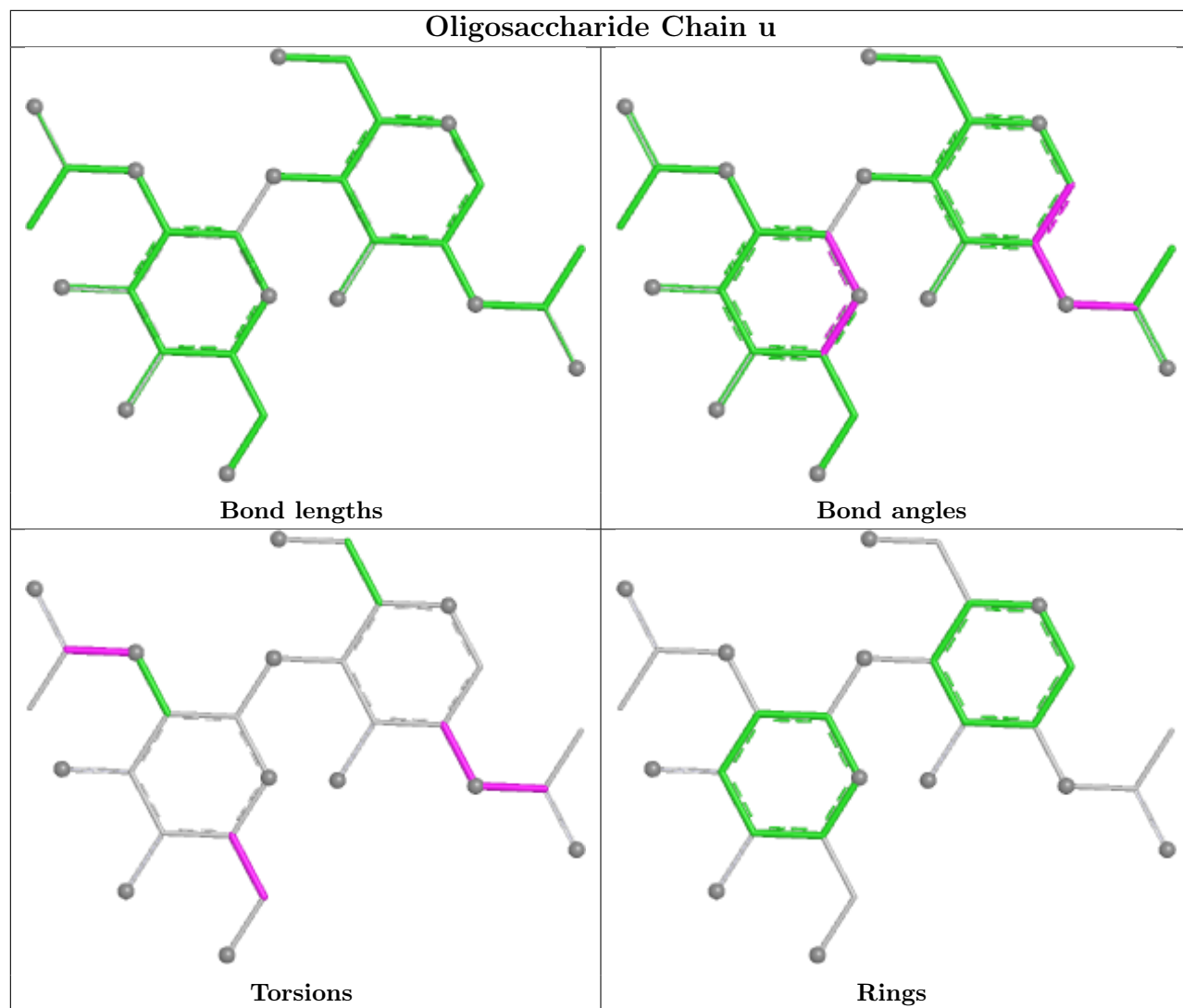


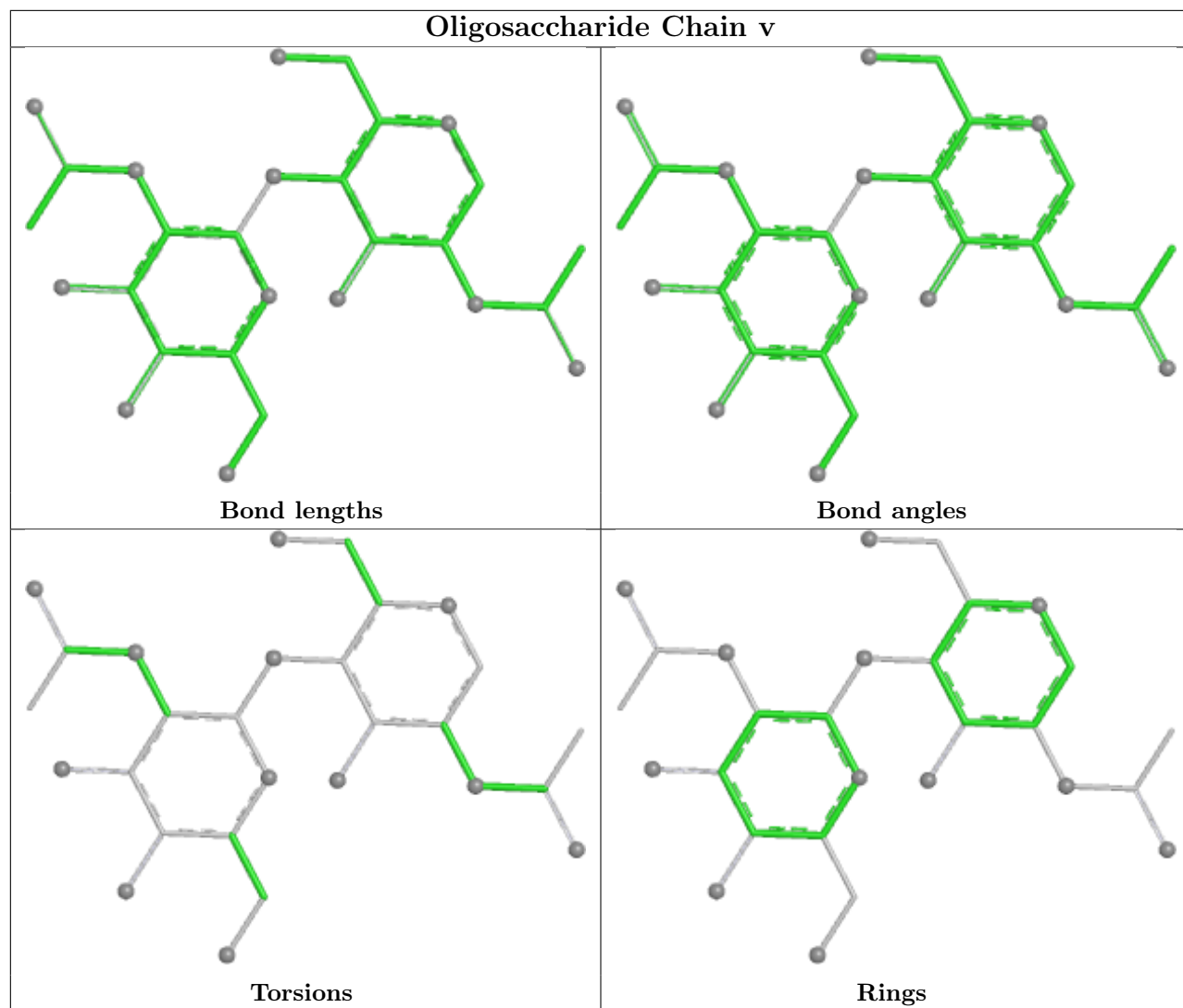


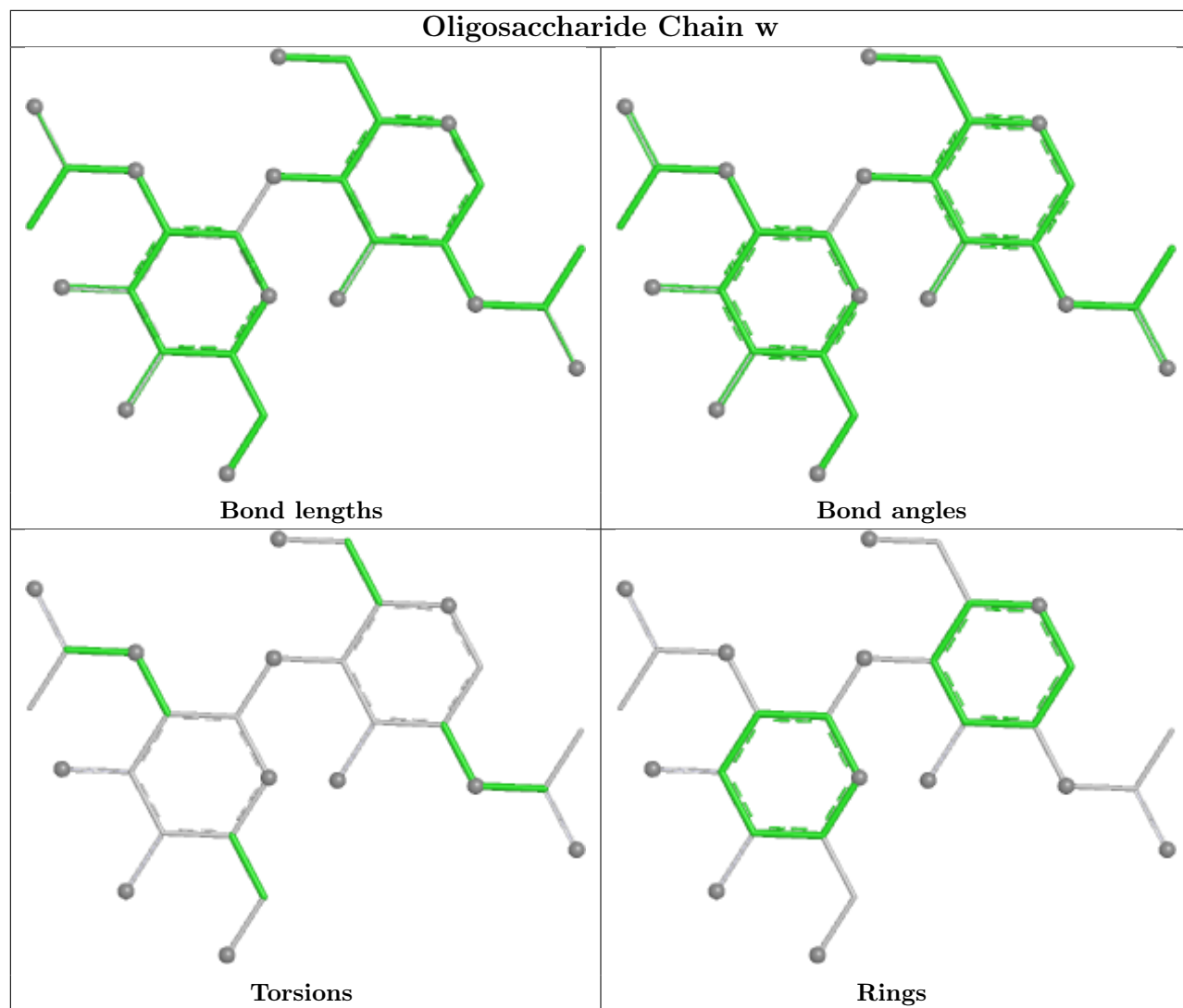


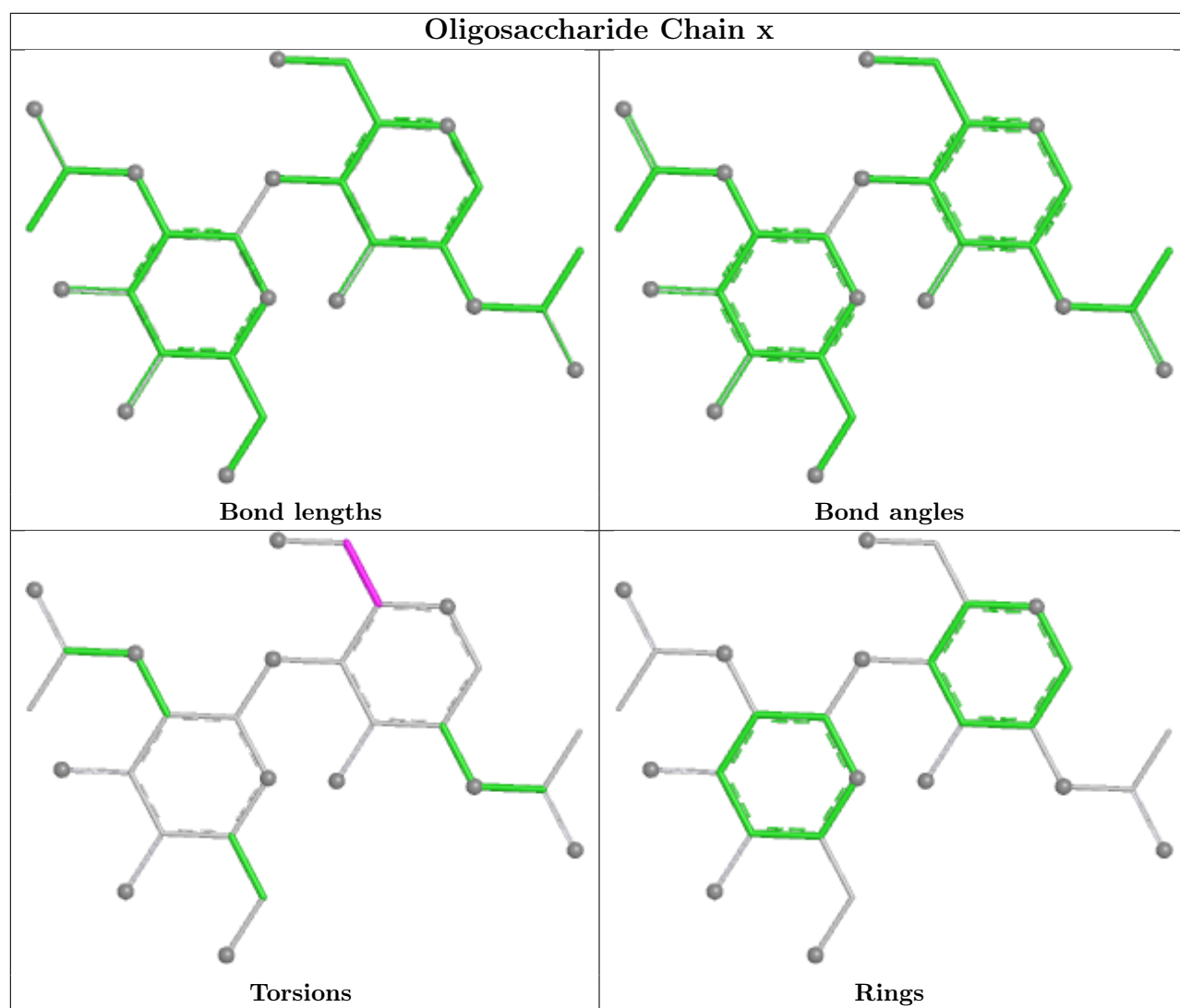


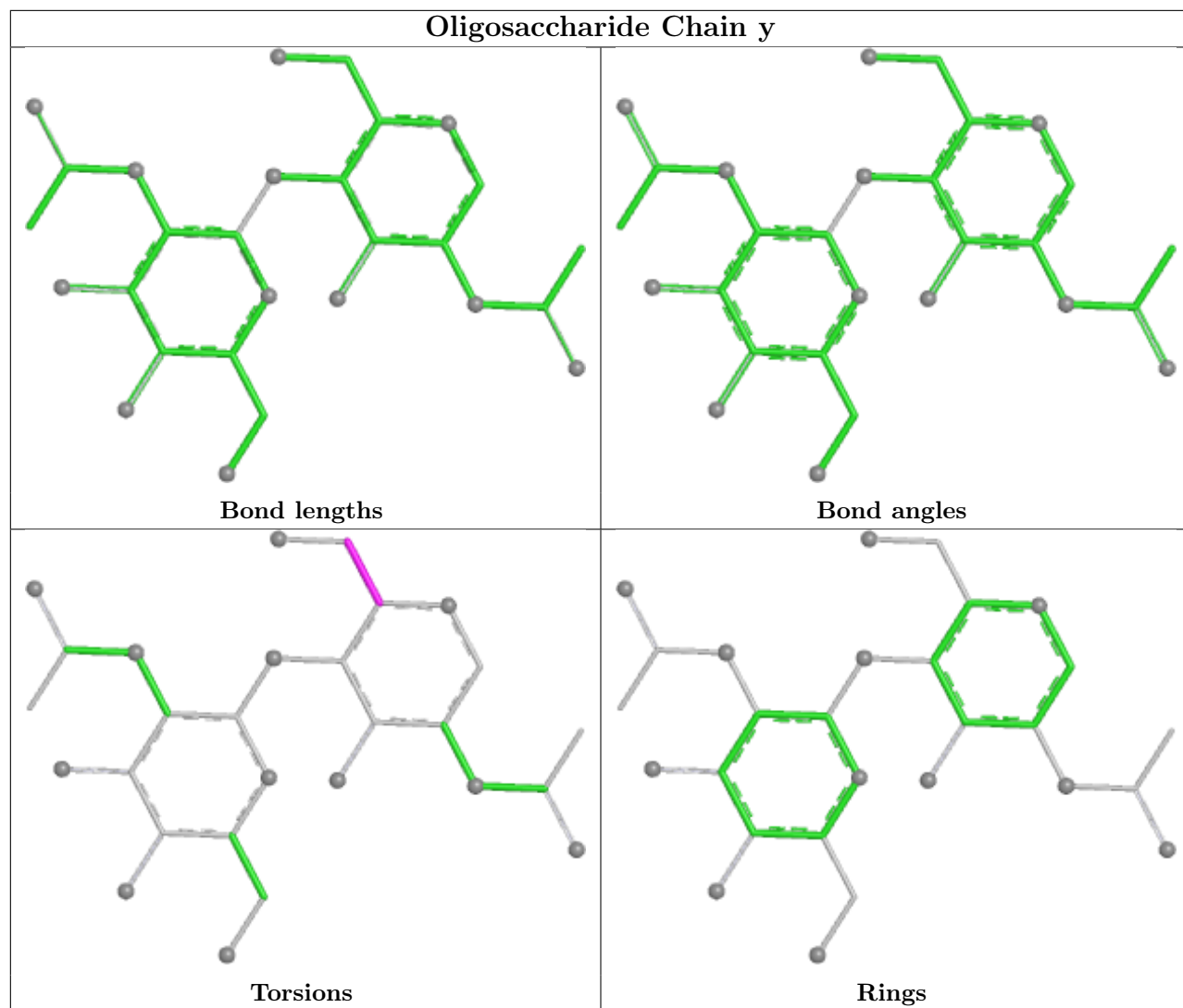


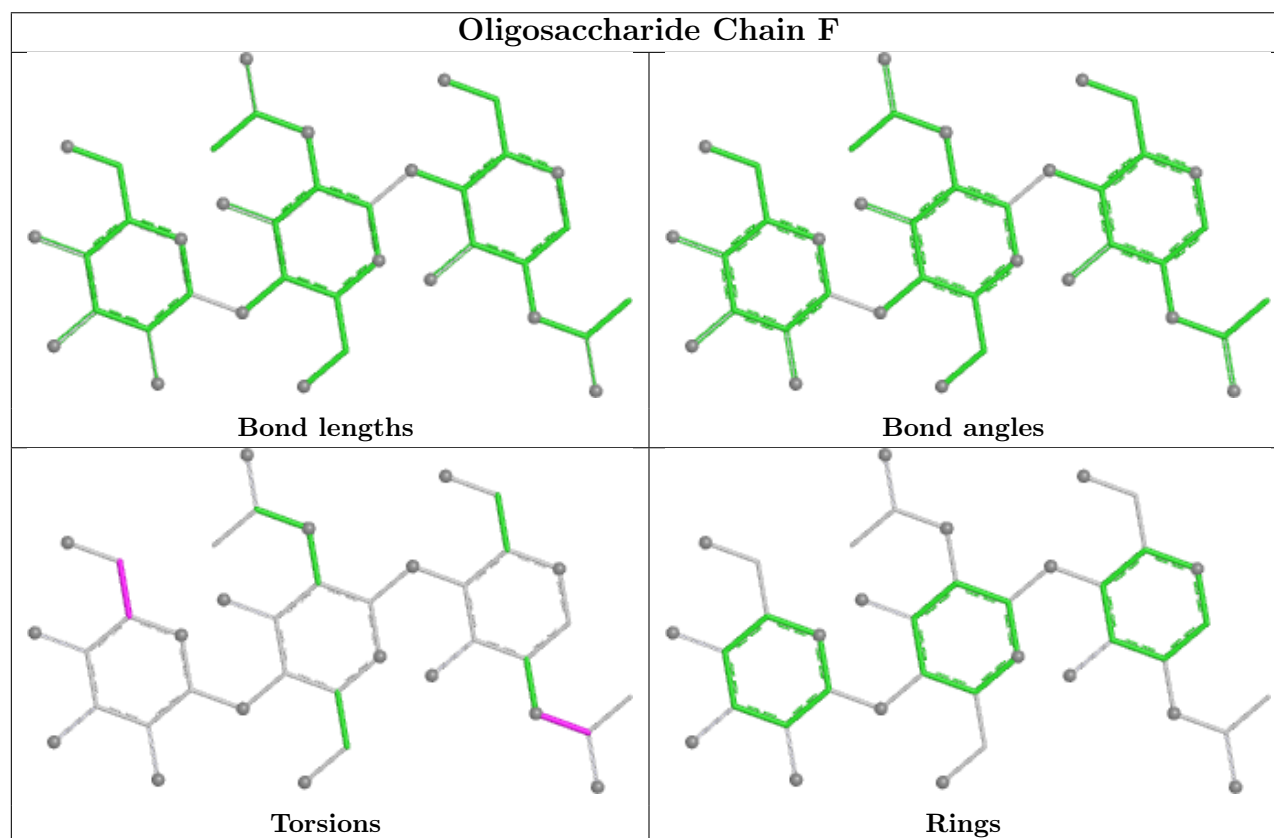
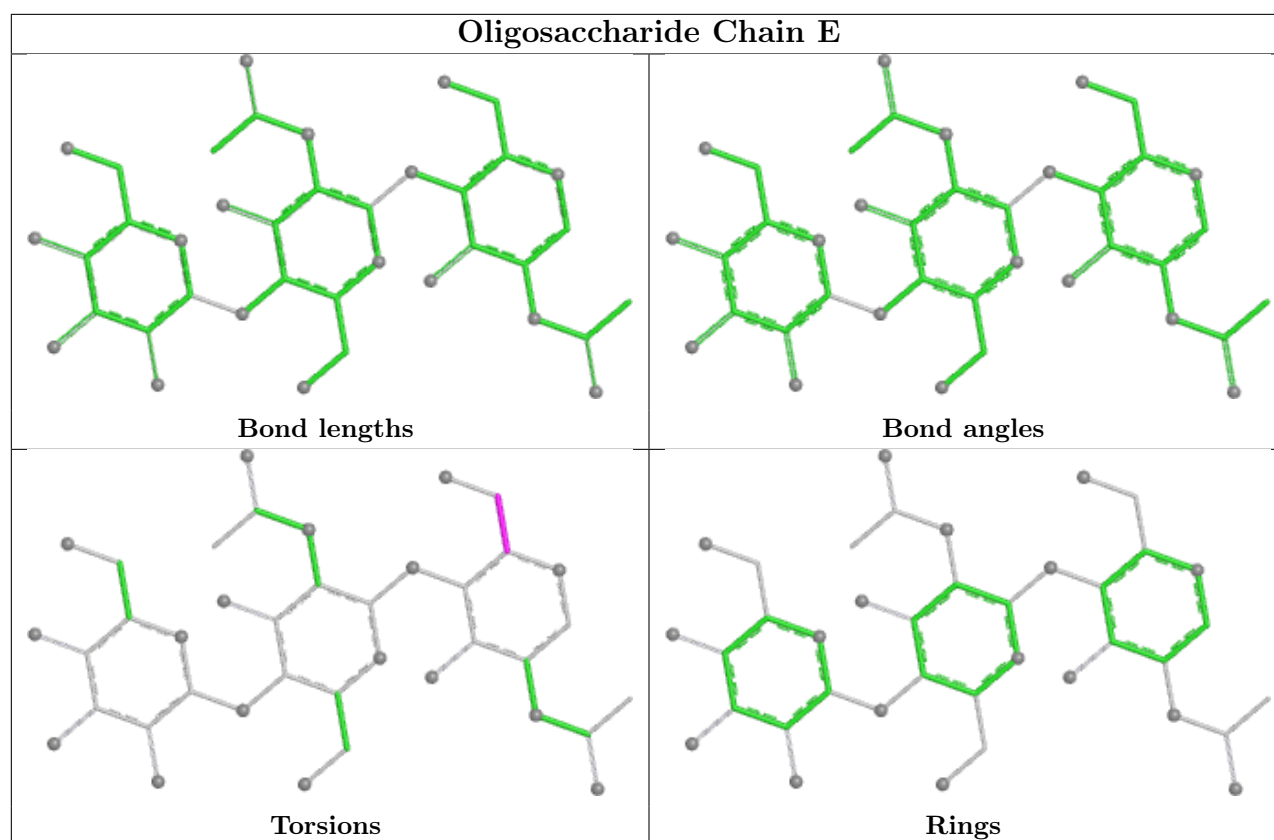


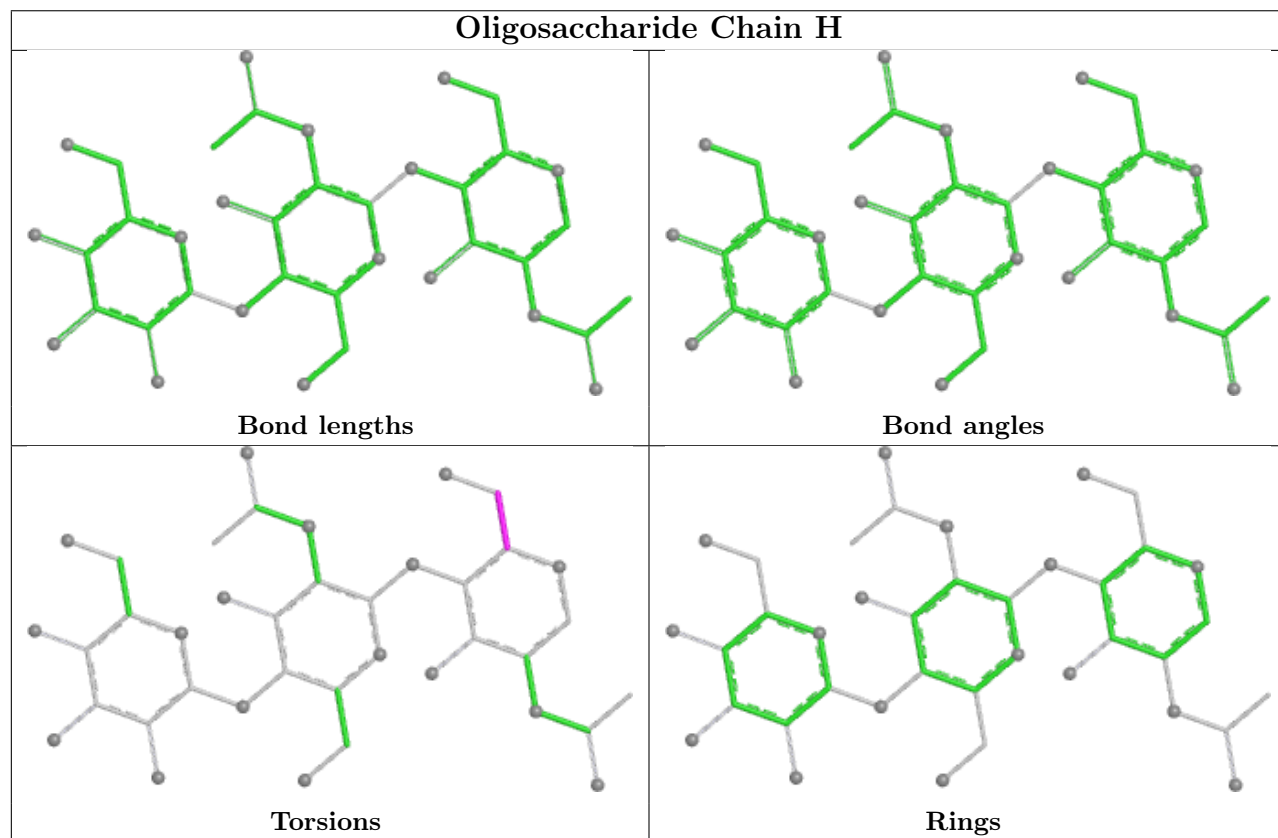
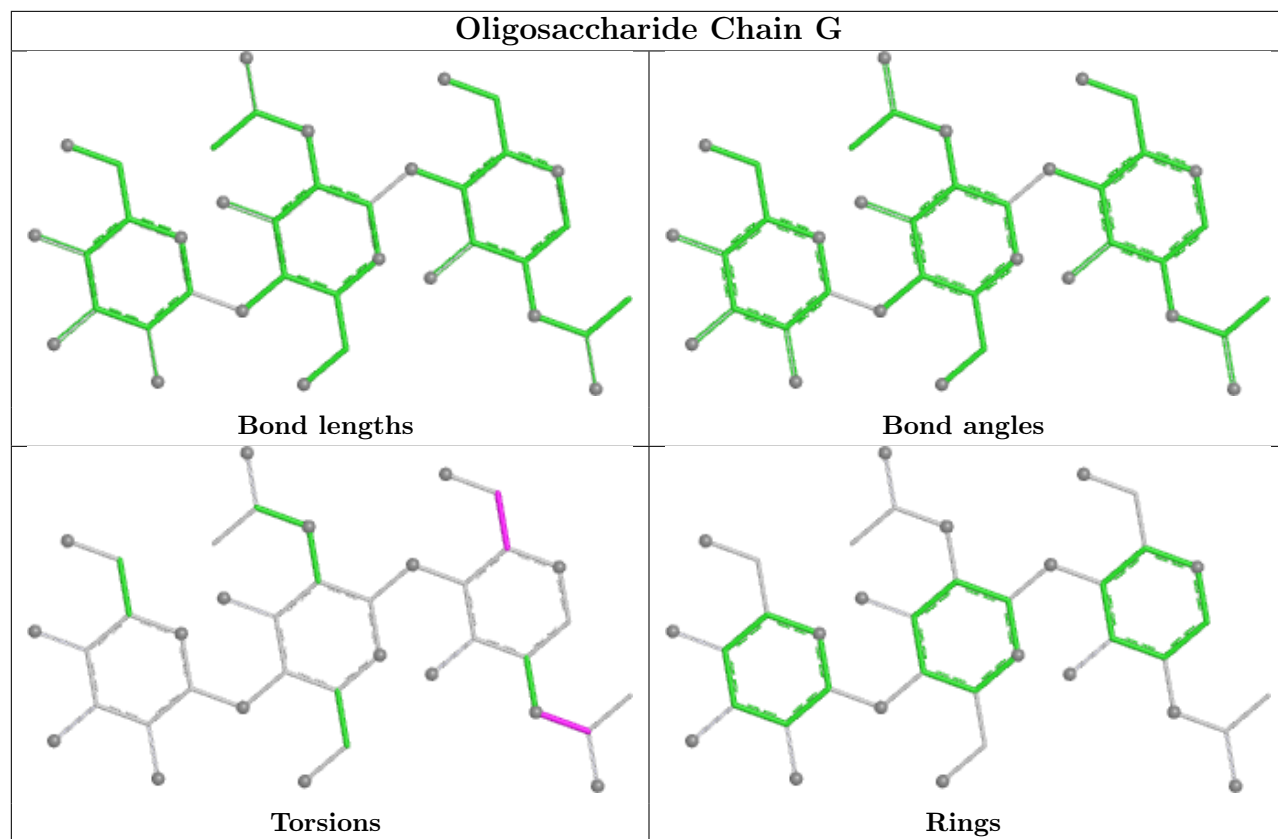


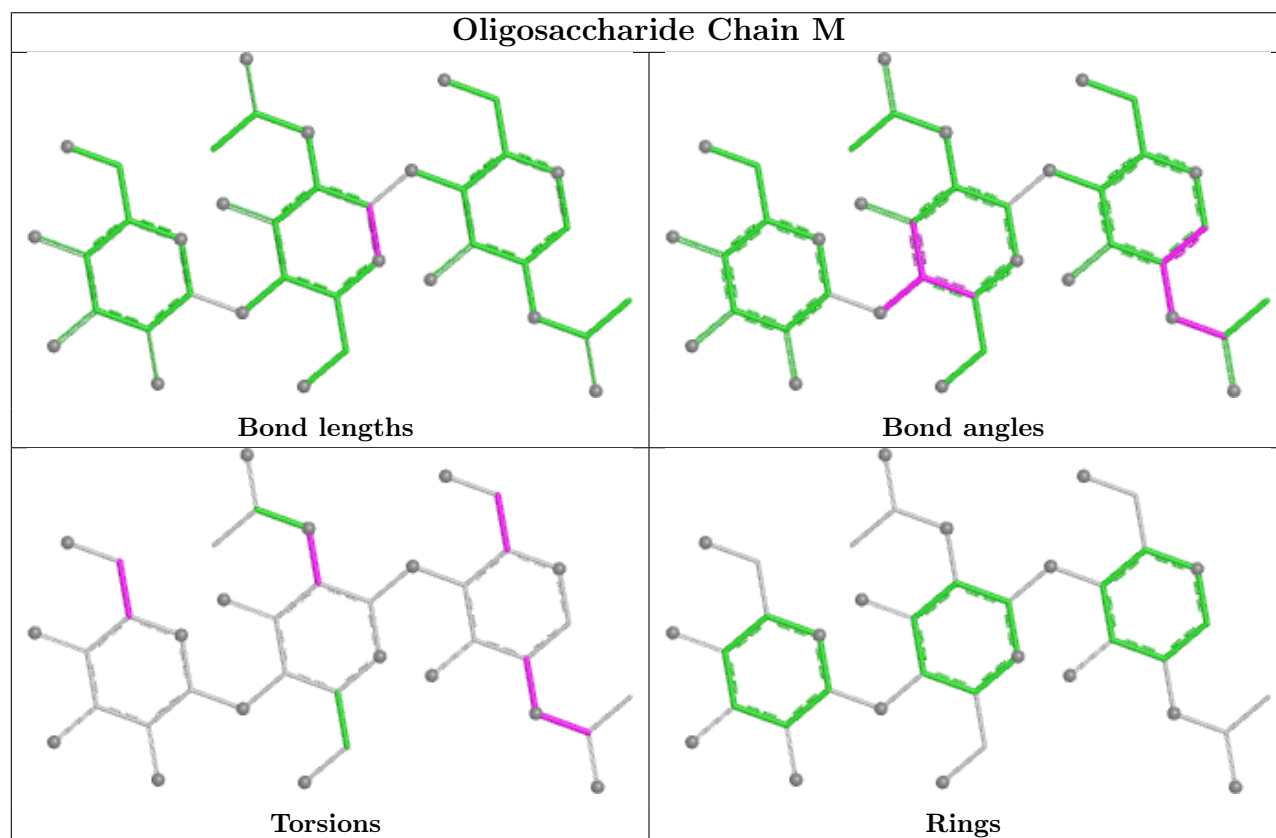
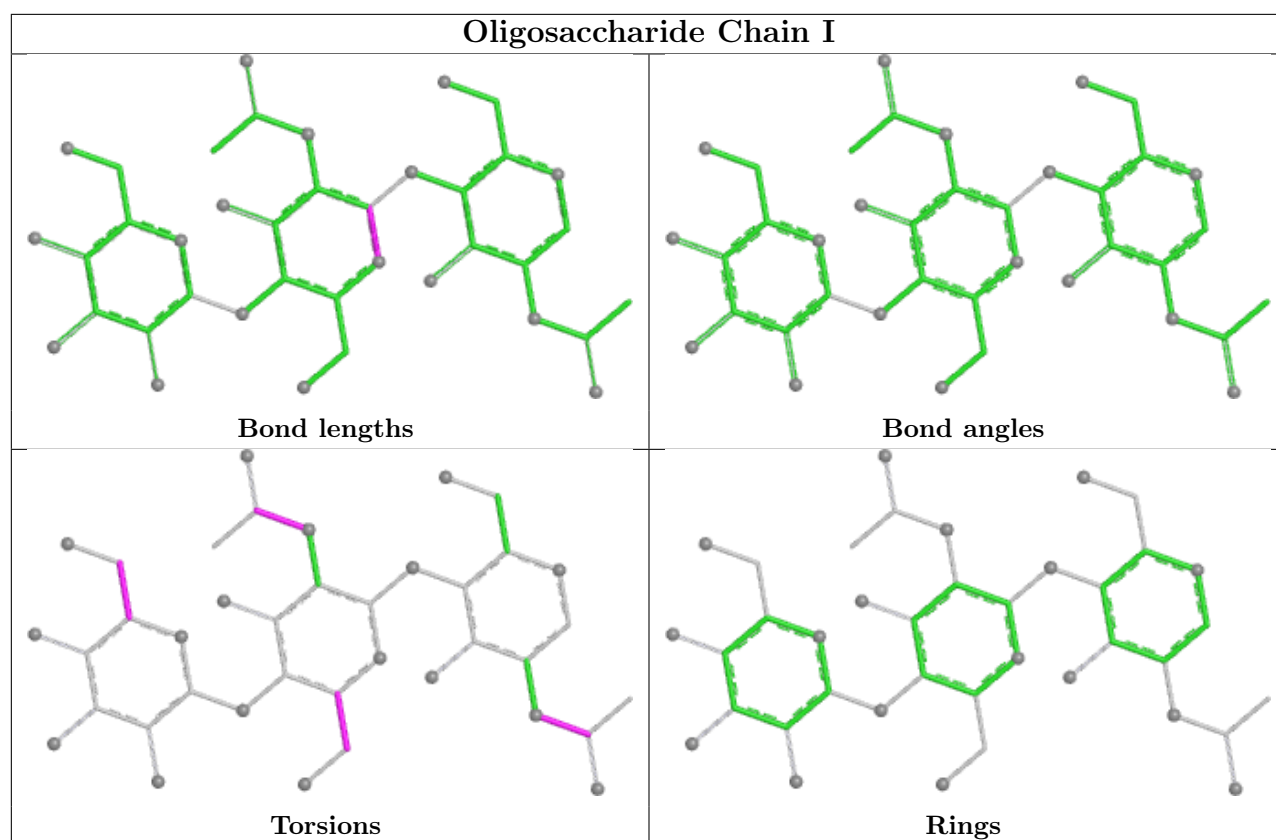


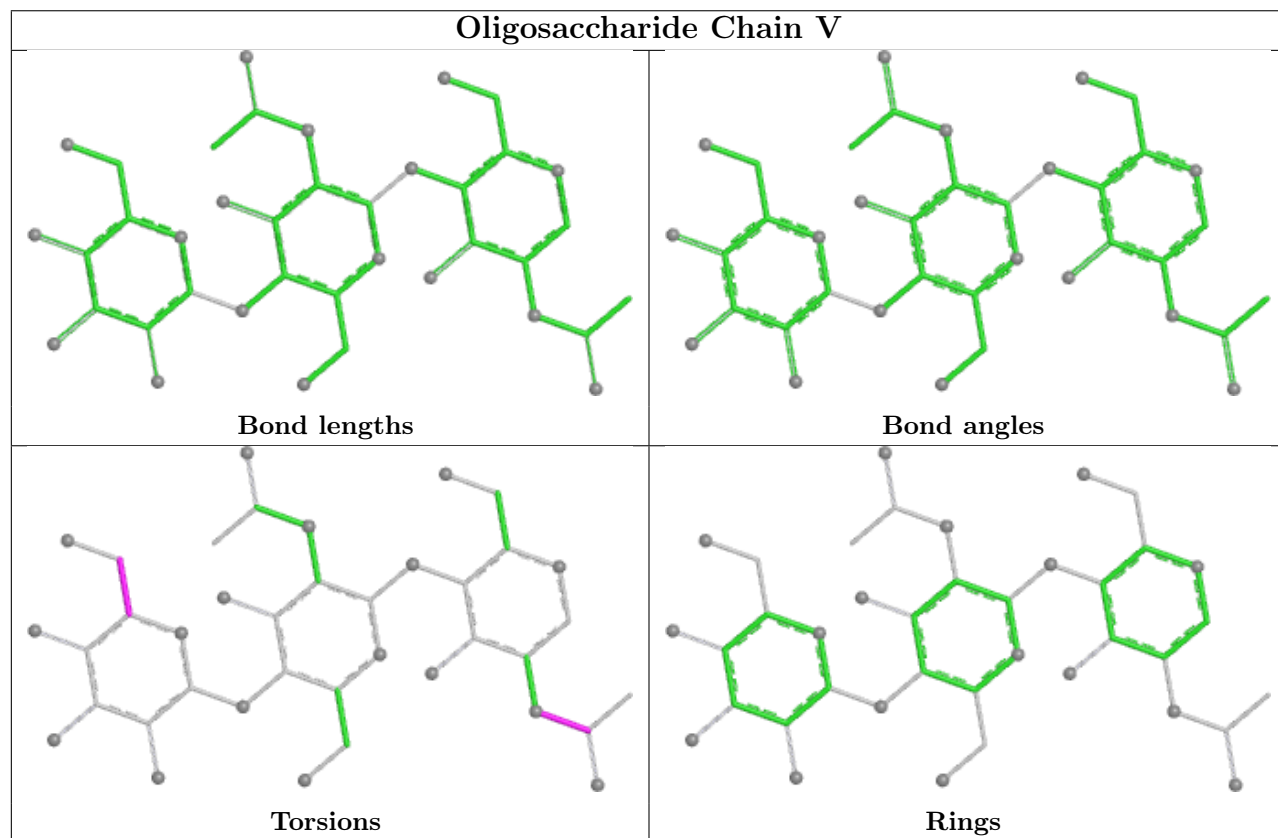
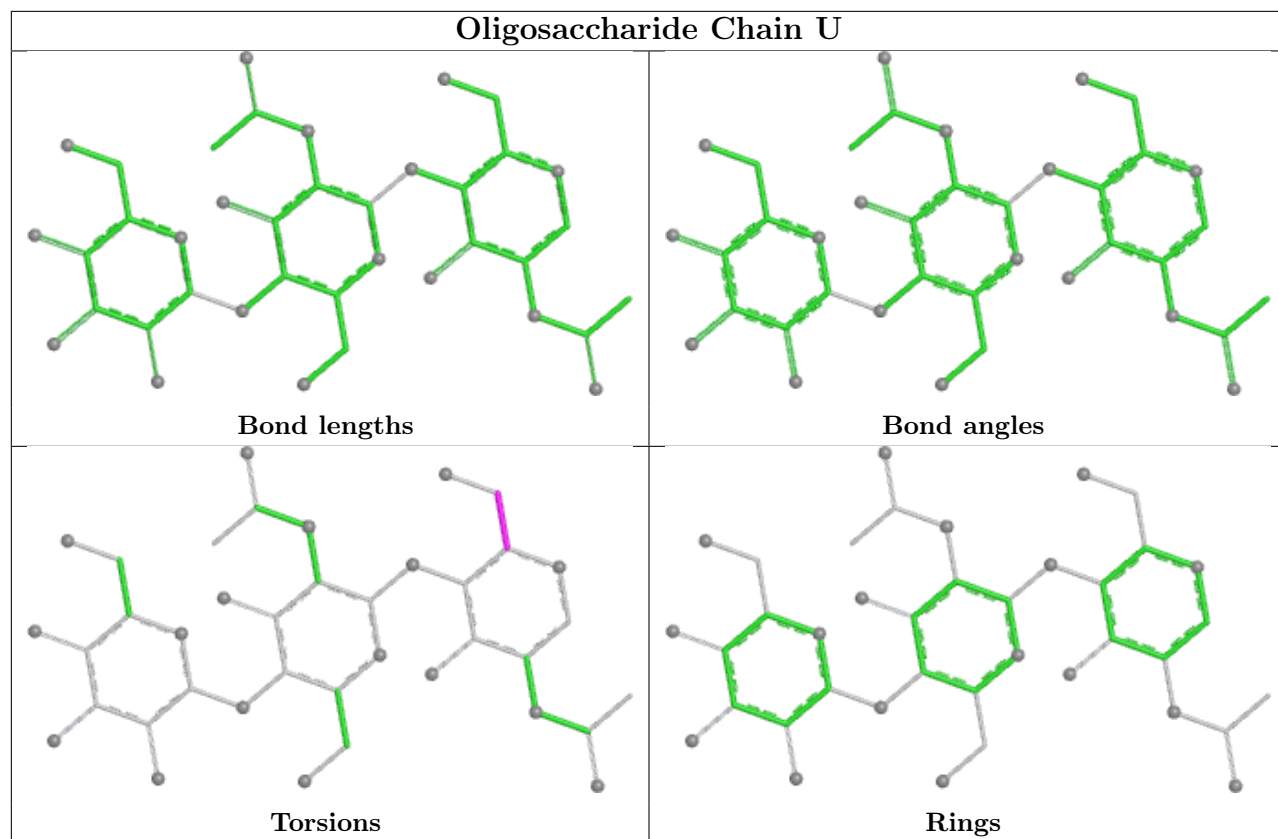




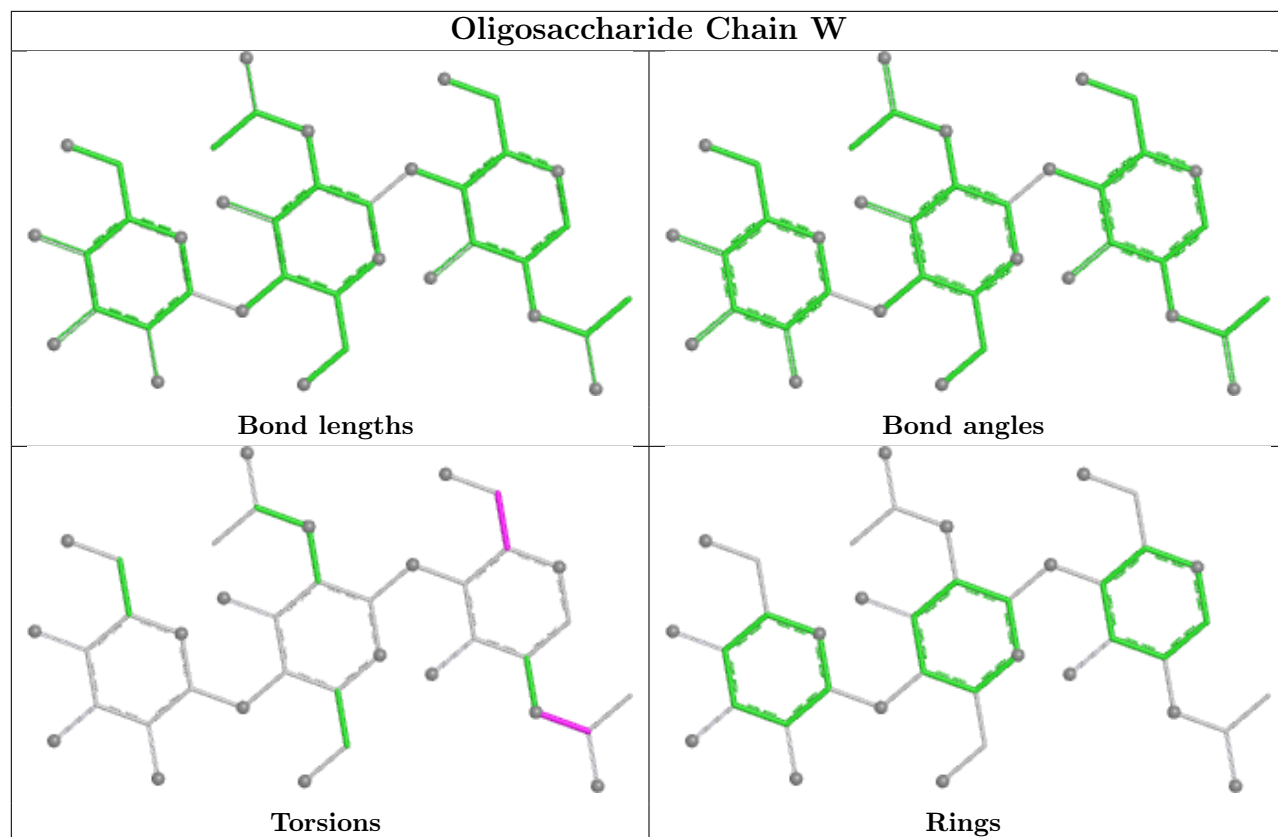




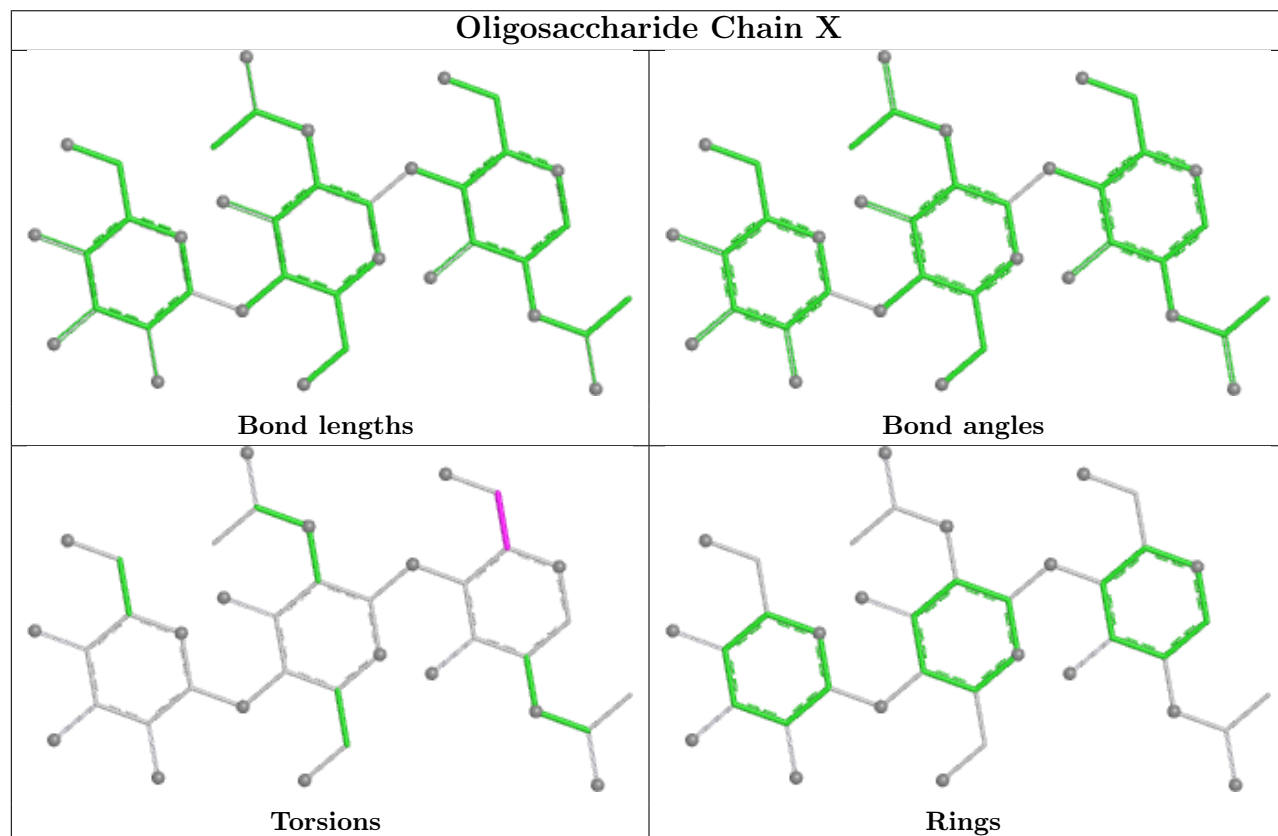


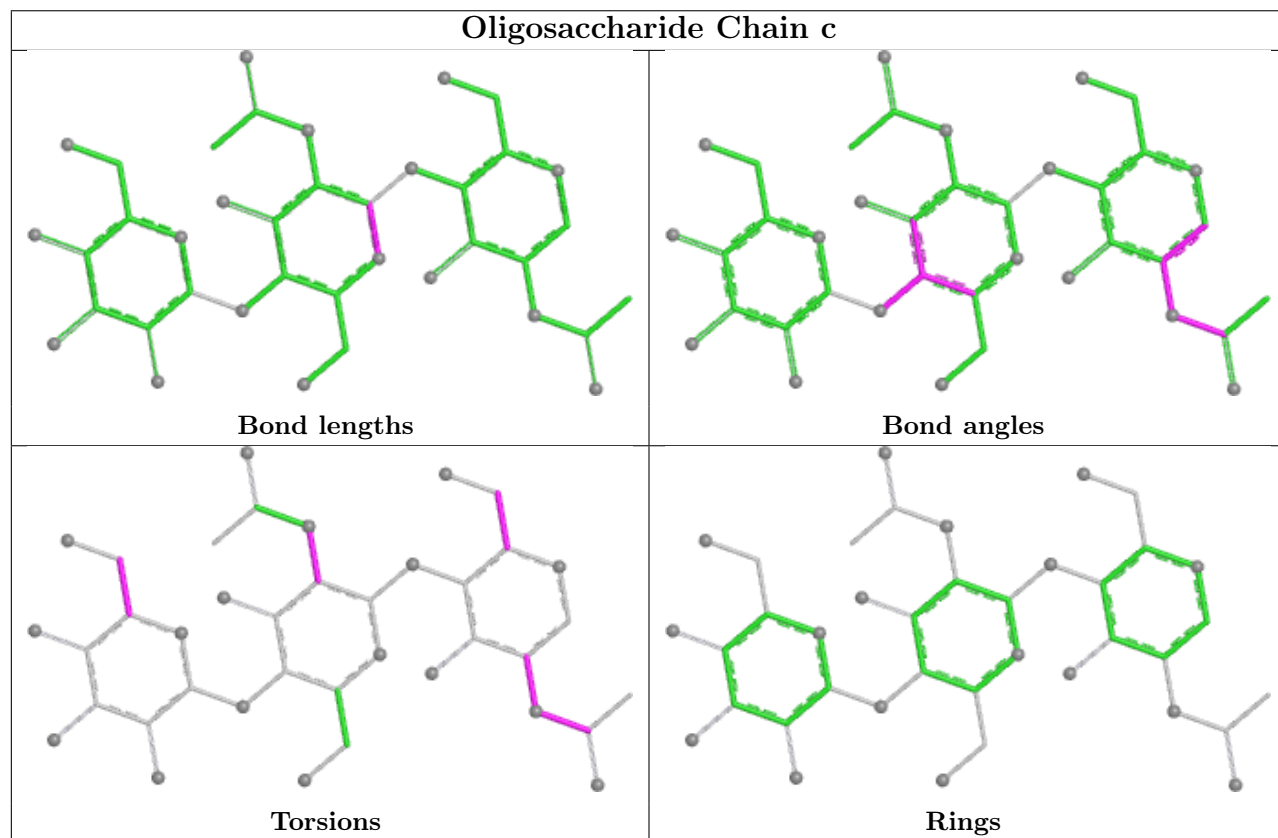
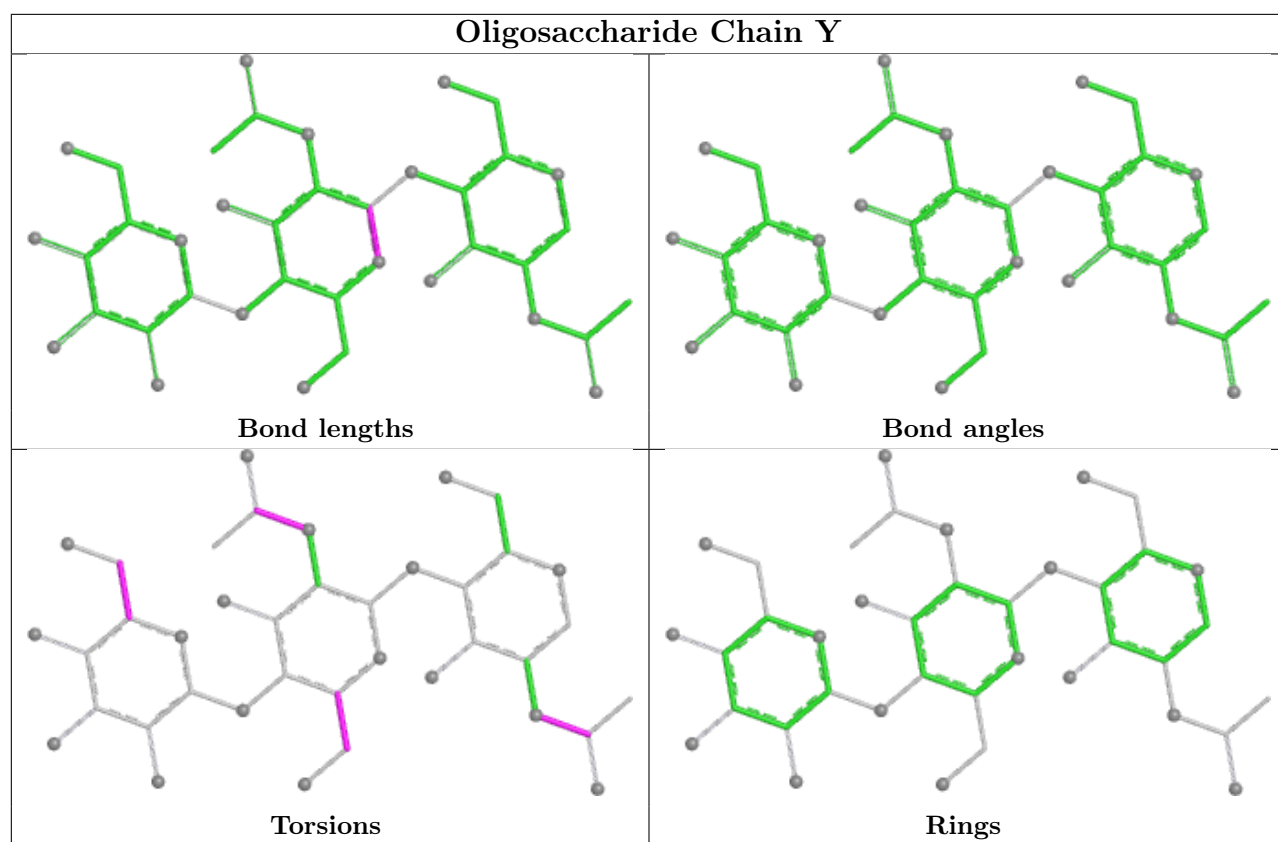


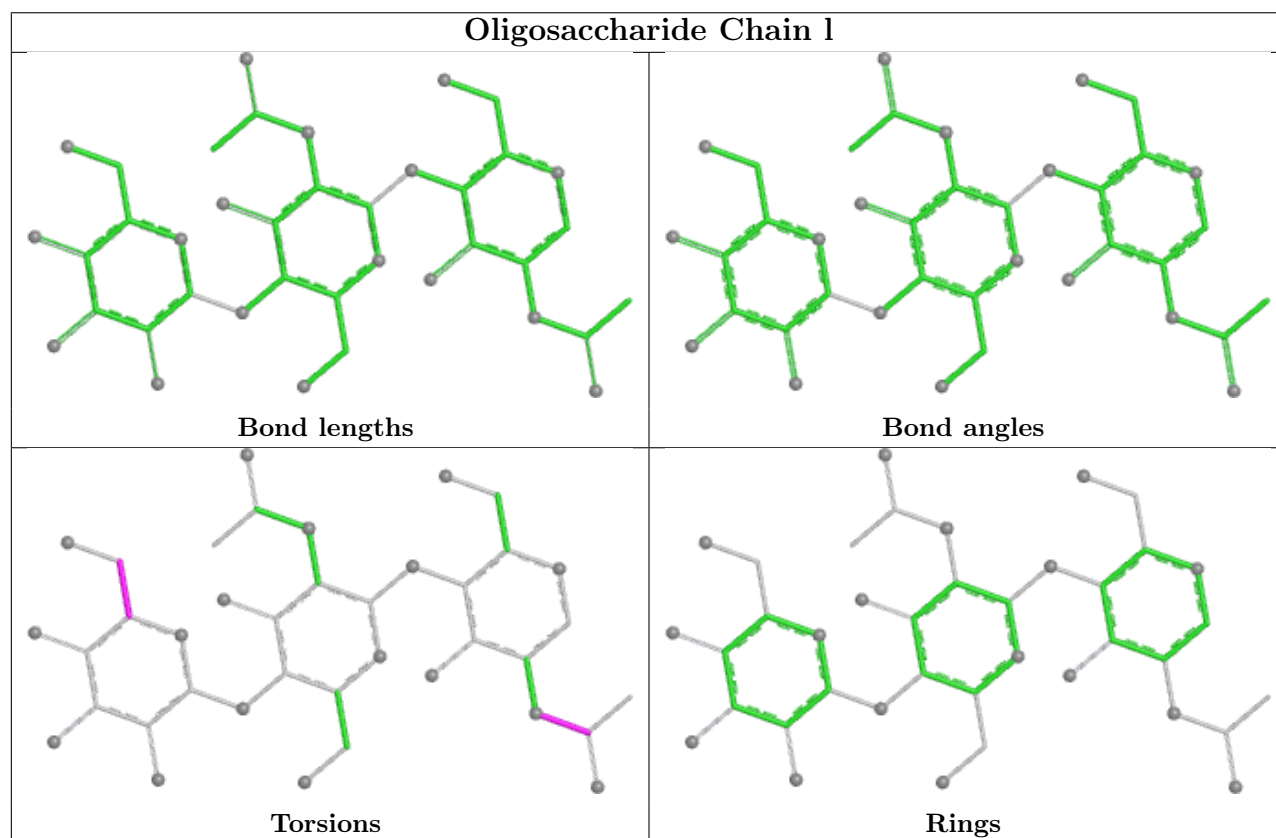
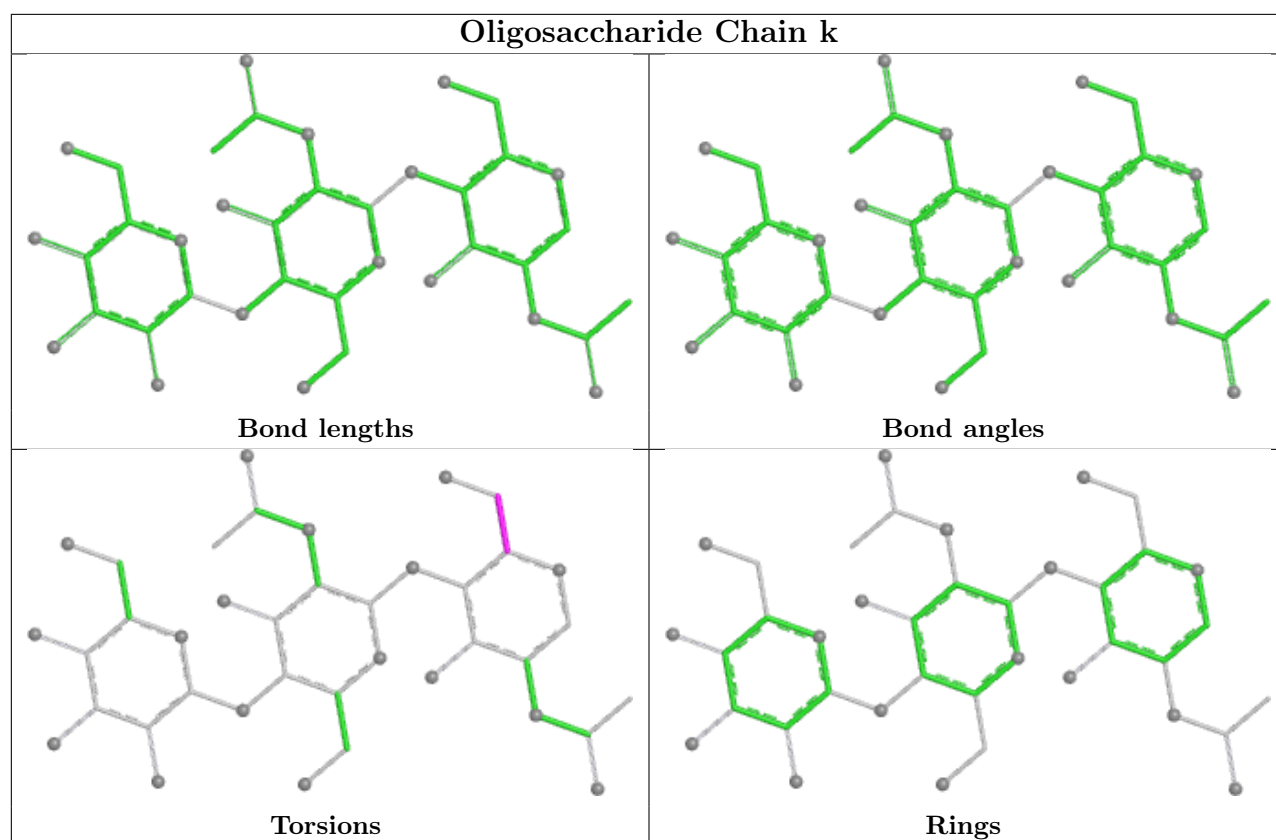
Oligosaccharide Chain W

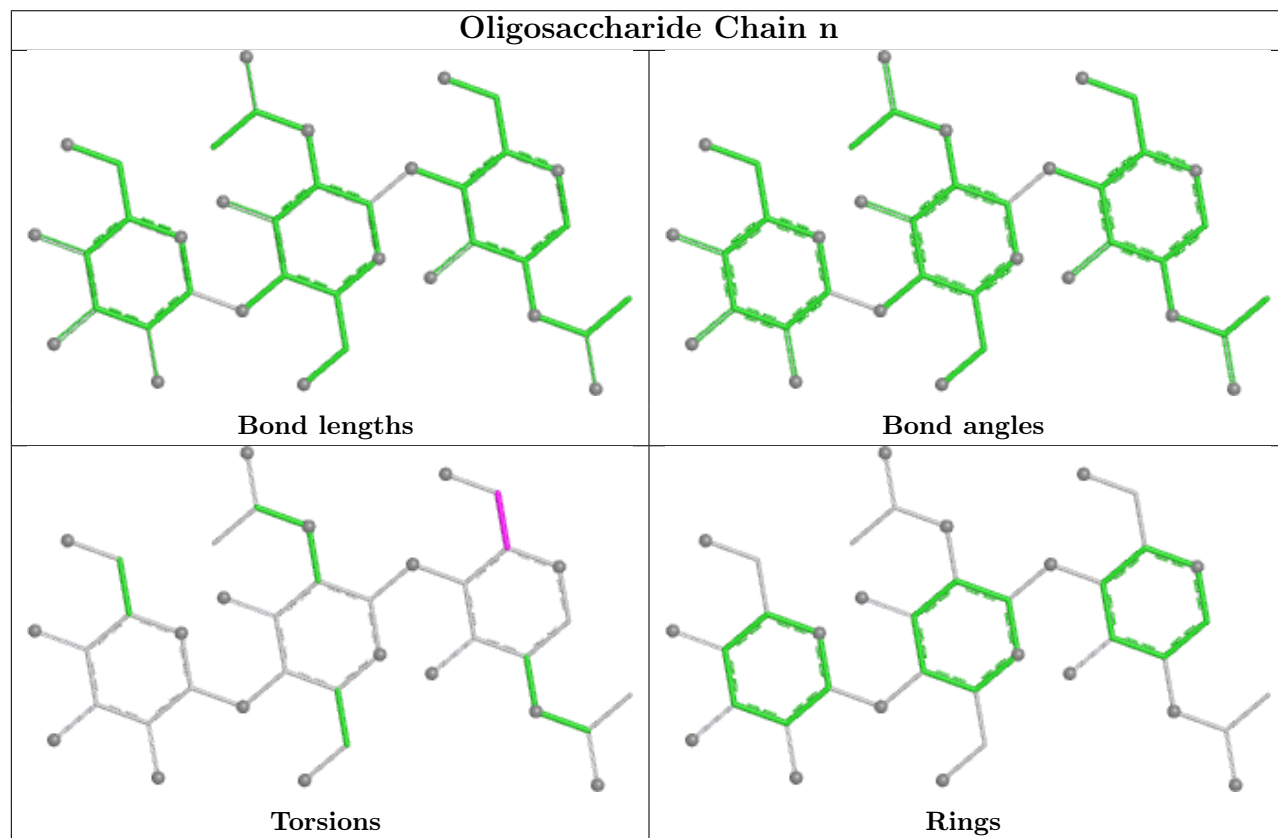
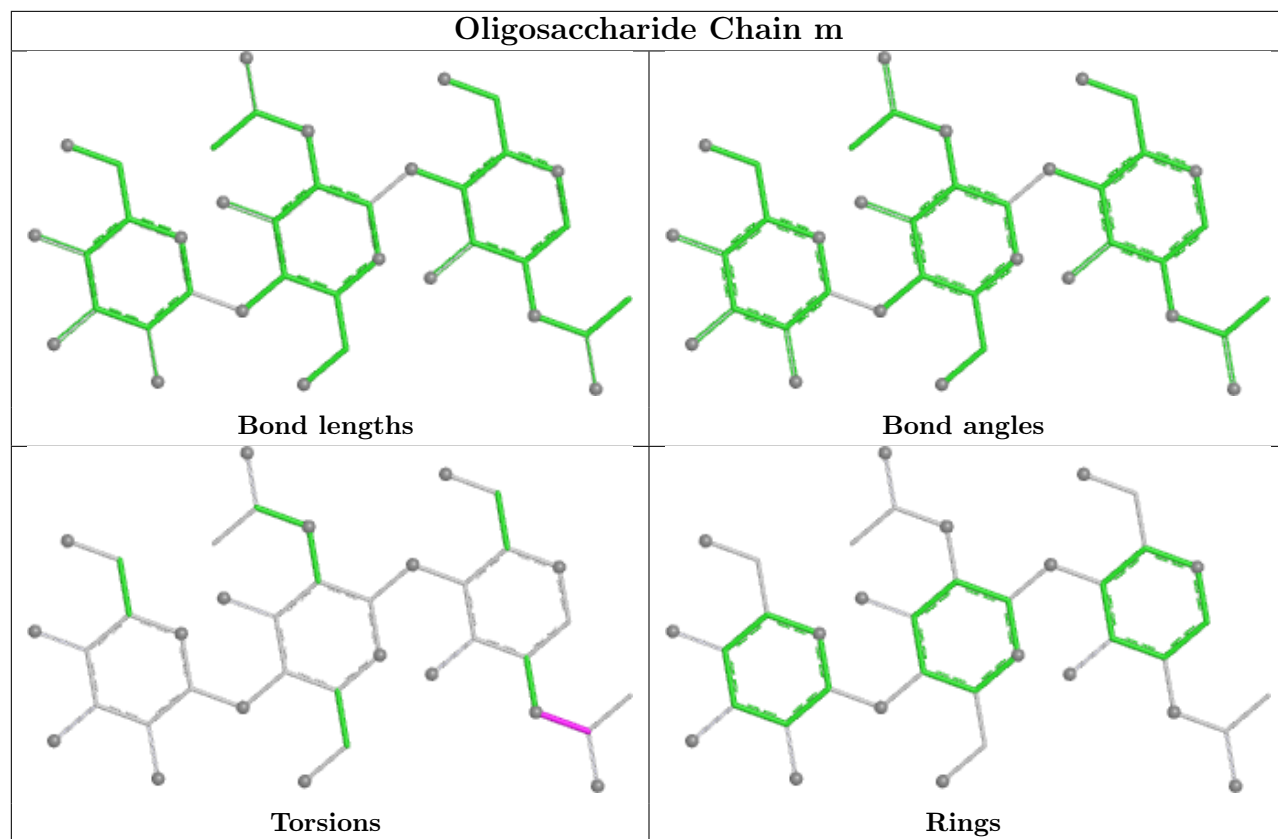


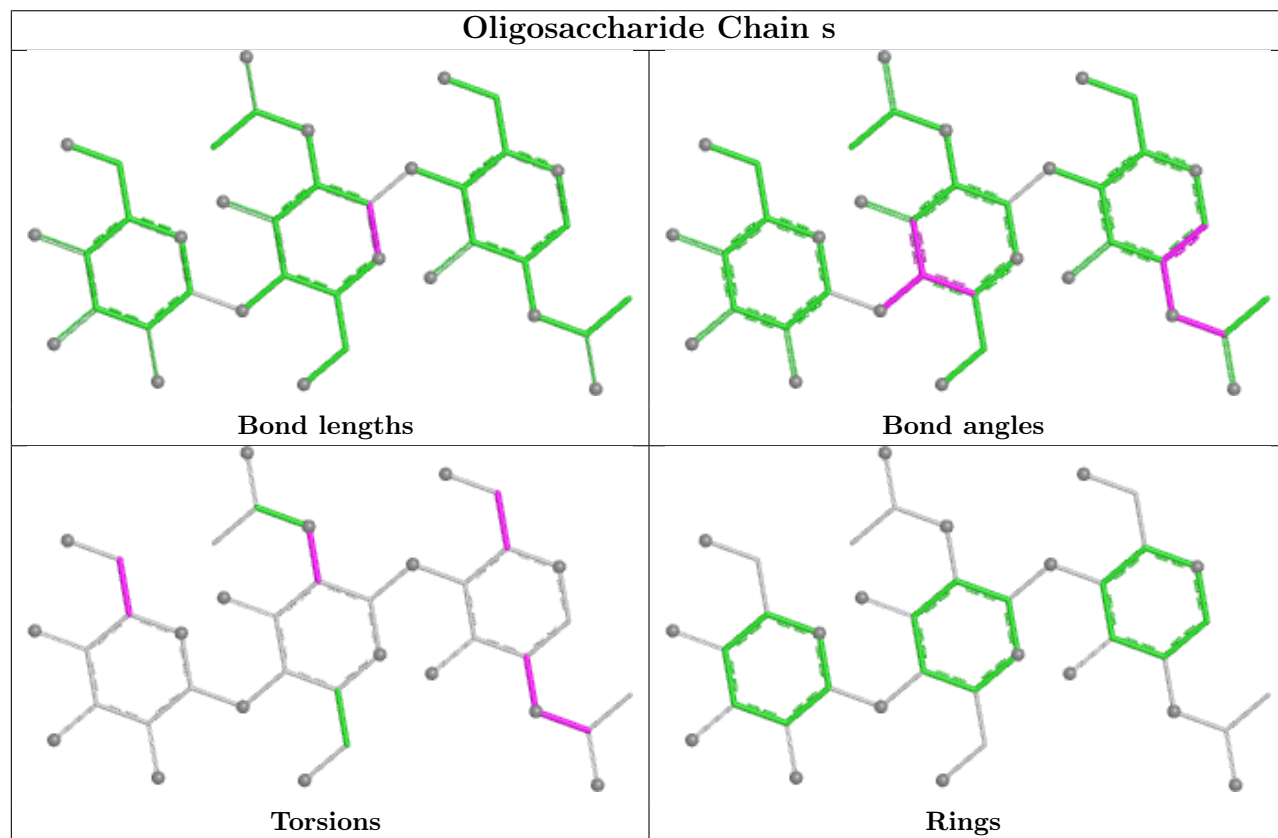
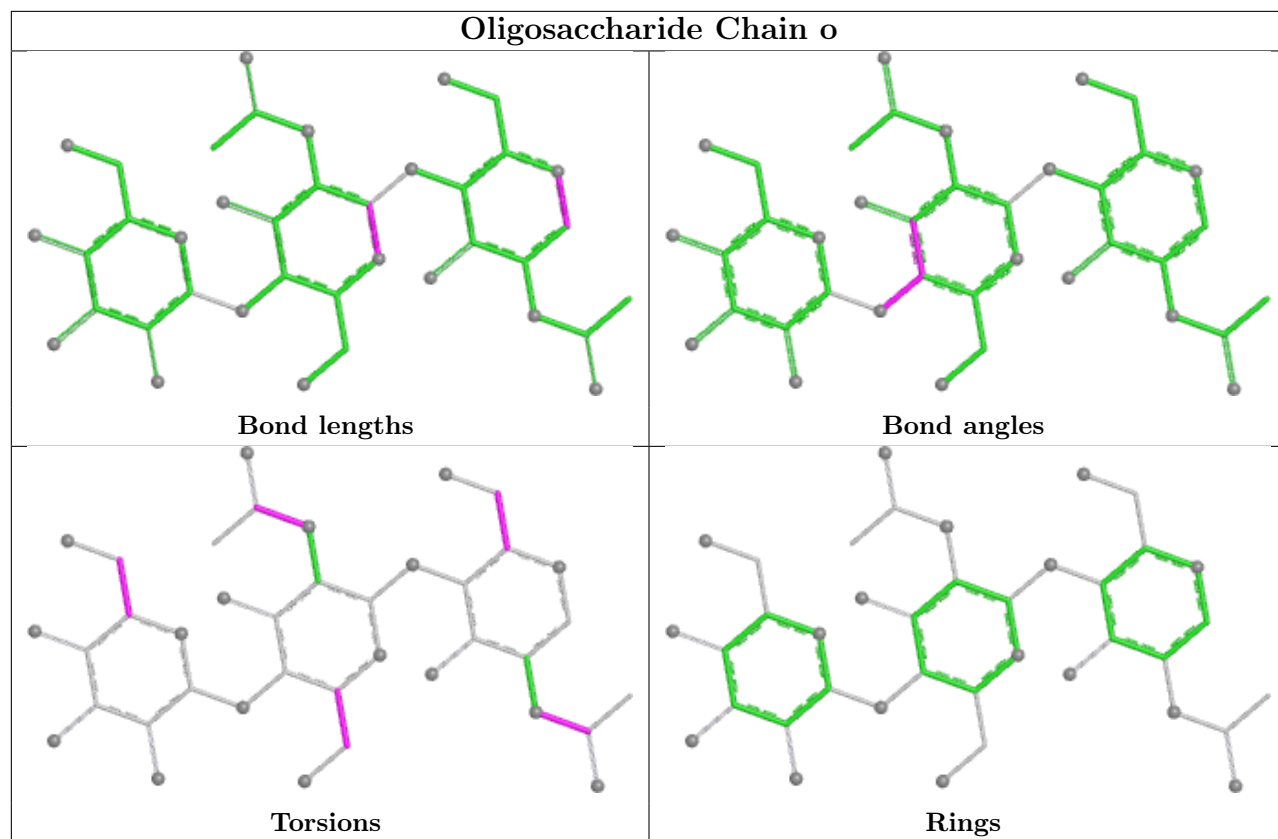
Oligosaccharide Chain X











5.6 Ligand geometry

6 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
4	NAG	A	1302	1	14,14,15	0.89	1 (7%)	17,19,21	0.52	0
4	NAG	B	1301	1	14,14,15	0.36	0	17,19,21	0.37	0
4	NAG	A	1301	1	14,14,15	0.39	0	17,19,21	0.36	0
4	NAG	C	1301	1	14,14,15	0.35	0	17,19,21	0.37	0
4	NAG	C	1302	1	14,14,15	0.78	1 (7%)	17,19,21	0.70	1 (5%)
4	NAG	B	1302	1	14,14,15	0.30	0	17,19,21	0.39	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
4	NAG	A	1302	1	-	4/6/23/26	0/1/1/1
4	NAG	B	1301	1	-	3/6/23/26	0/1/1/1
4	NAG	A	1301	1	-	3/6/23/26	0/1/1/1
4	NAG	C	1301	1	-	3/6/23/26	0/1/1/1
4	NAG	C	1302	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1302	1	-	4/6/23/26	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1302	NAG	C1-C2	3.14	1.56	1.52
4	C	1302	NAG	C1-C2	2.72	1.56	1.52

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	C	1302	NAG	C1-O5-C5	2.11	115.02	112.19

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	C	1301	NAG	C4-C5-C6-O6
4	B	1301	NAG	C4-C5-C6-O6
4	A	1301	NAG	C4-C5-C6-O6
4	A	1302	NAG	O5-C5-C6-O6
4	A	1301	NAG	O5-C5-C6-O6
4	C	1301	NAG	O5-C5-C6-O6
4	B	1301	NAG	O5-C5-C6-O6
4	A	1302	NAG	C4-C5-C6-O6
4	A	1302	NAG	C8-C7-N2-C2
4	A	1302	NAG	O7-C7-N2-C2
4	C	1302	NAG	C8-C7-N2-C2
4	C	1302	NAG	O7-C7-N2-C2
4	B	1302	NAG	C8-C7-N2-C2
4	B	1302	NAG	O7-C7-N2-C2
4	B	1302	NAG	C4-C5-C6-O6
4	B	1302	NAG	O5-C5-C6-O6
4	A	1301	NAG	C3-C2-N2-C7
4	C	1301	NAG	C3-C2-N2-C7
4	B	1301	NAG	C3-C2-N2-C7

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1302	NAG	1	0
4	C	1302	NAG	2	0

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.

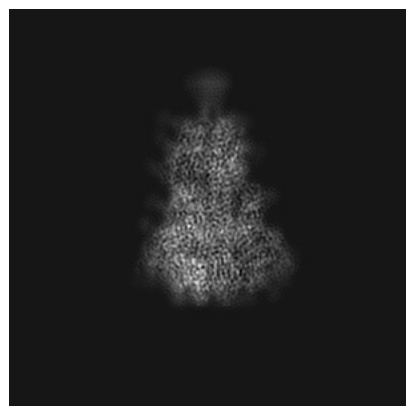
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-37632. These allow visual inspection of the internal detail of the map and identification of artifacts.

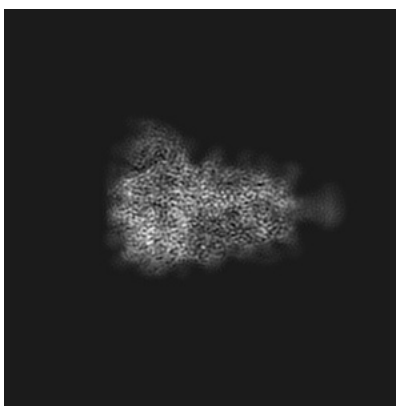
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

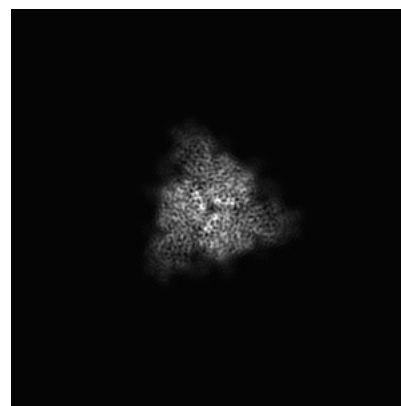
6.1.1 Primary map



X

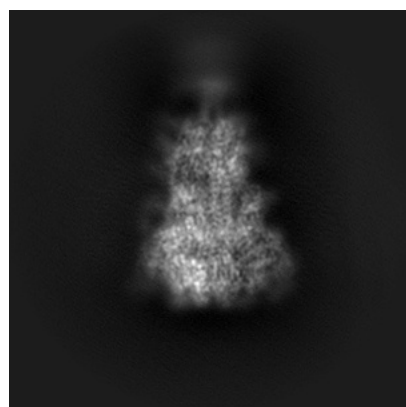


Y

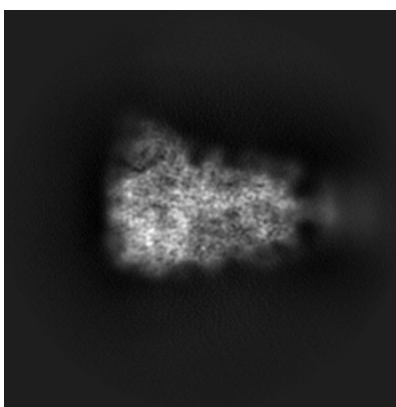


Z

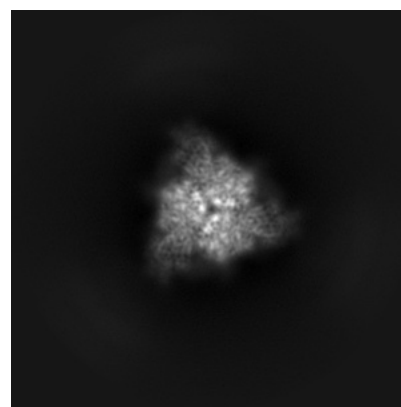
6.1.2 Raw map



X



Y

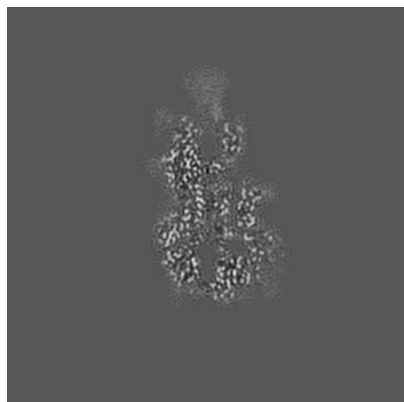


Z

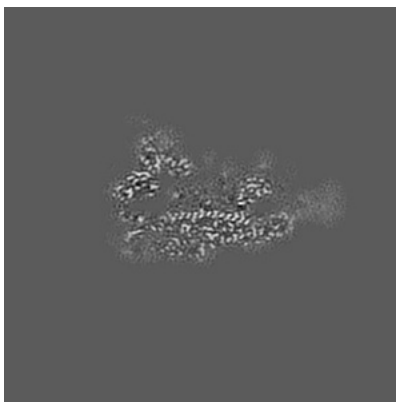
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

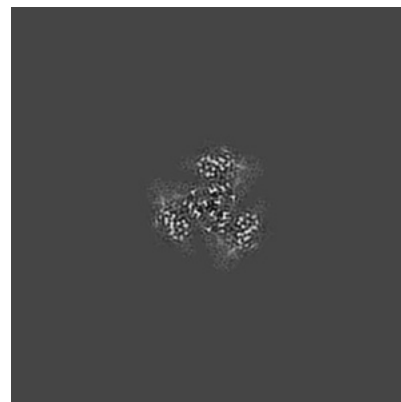
6.2.1 Primary map



X Index: 148

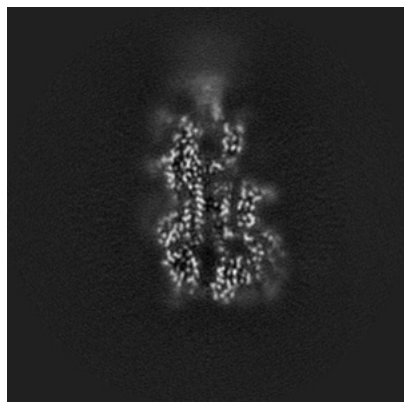


Y Index: 148

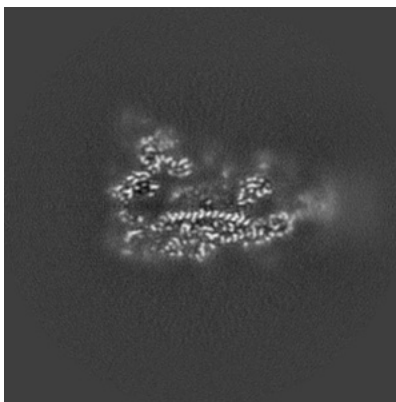


Z Index: 148

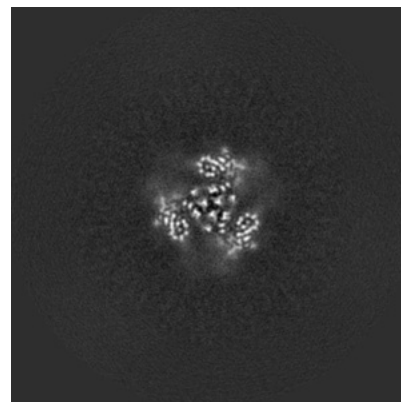
6.2.2 Raw map



X Index: 148



Y Index: 148

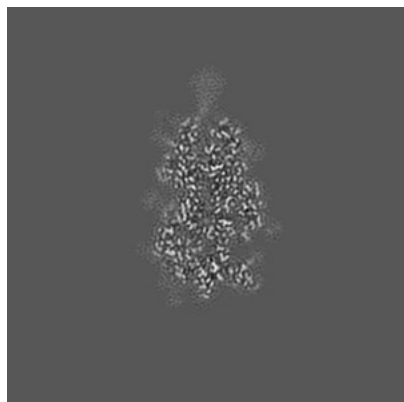


Z Index: 148

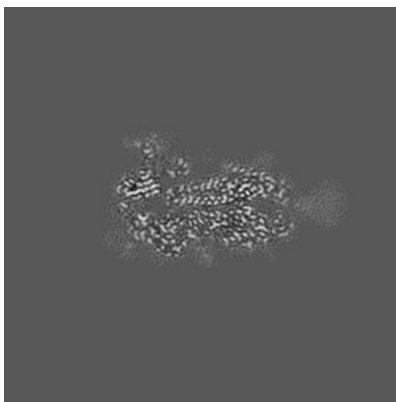
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

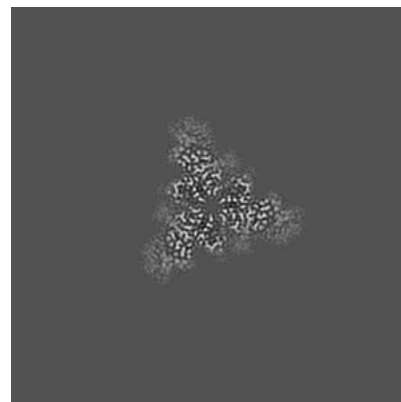
6.3.1 Primary map



X Index: 156

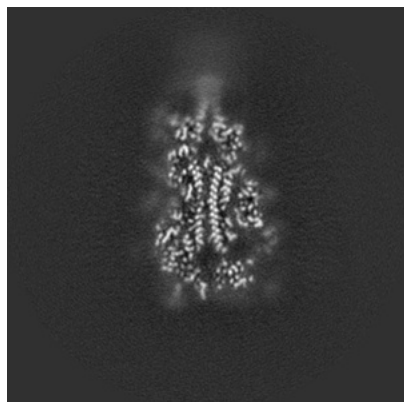


Y Index: 152

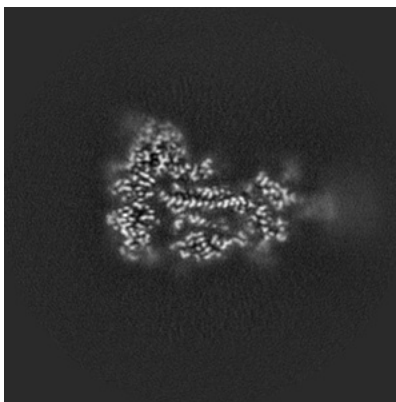


Z Index: 106

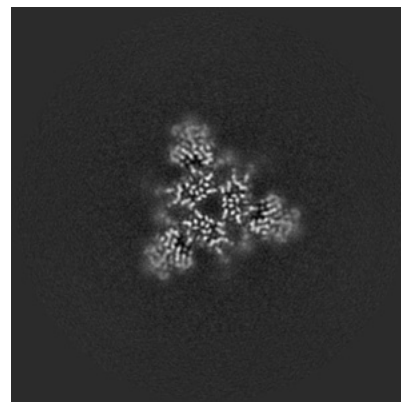
6.3.2 Raw map



X Index: 152



Y Index: 140

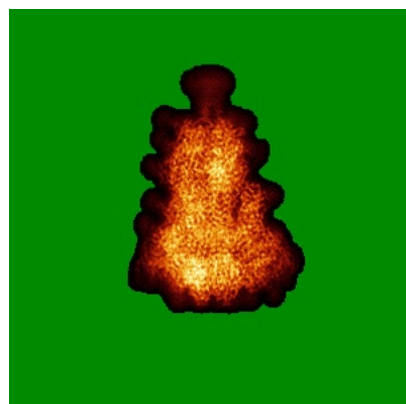


Z Index: 109

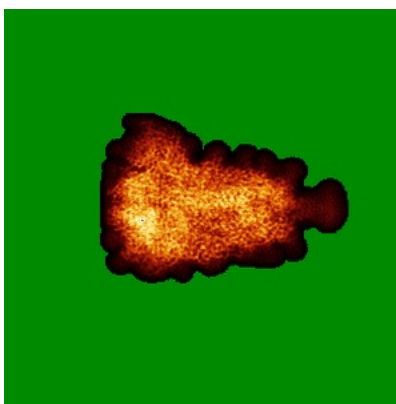
The images above show the largest variance slices of the map in three orthogonal directions.

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

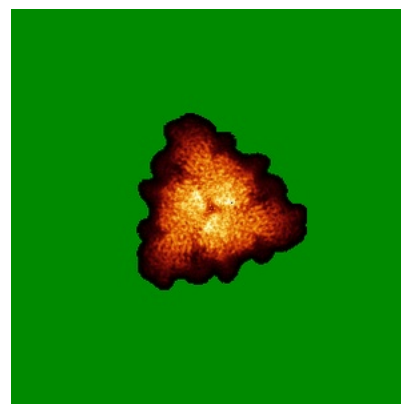
6.4.1 Primary map



X

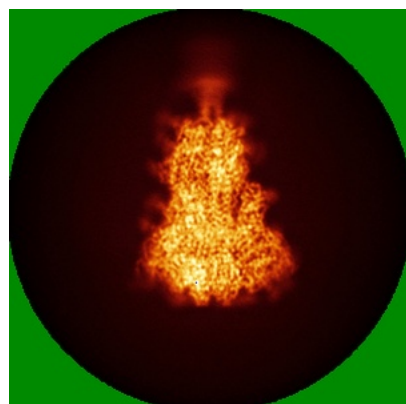


Y

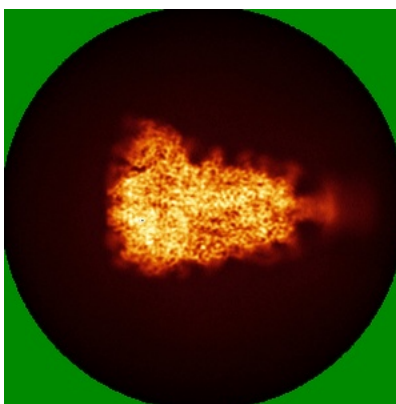


Z

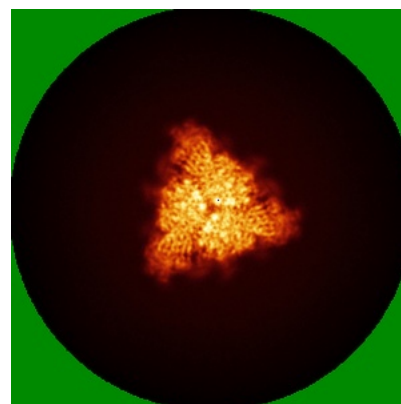
6.4.2 Raw map



X



Y

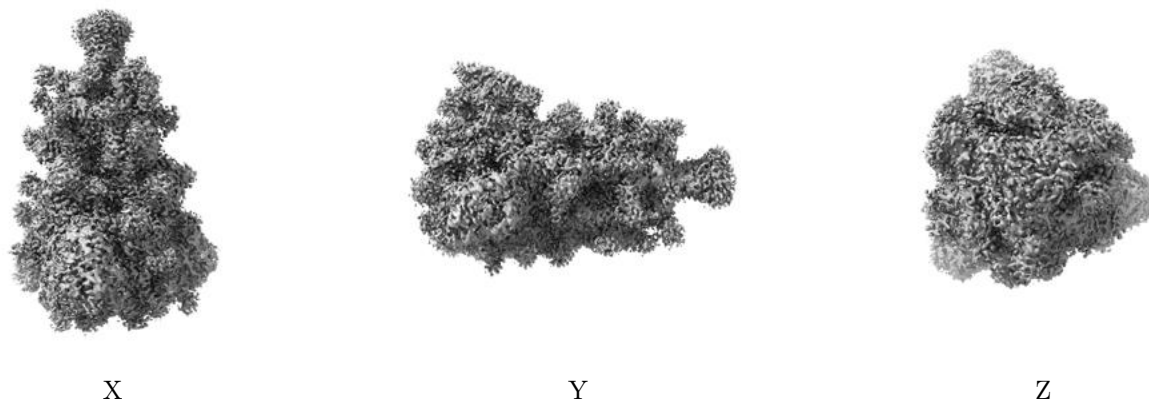


Z

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.

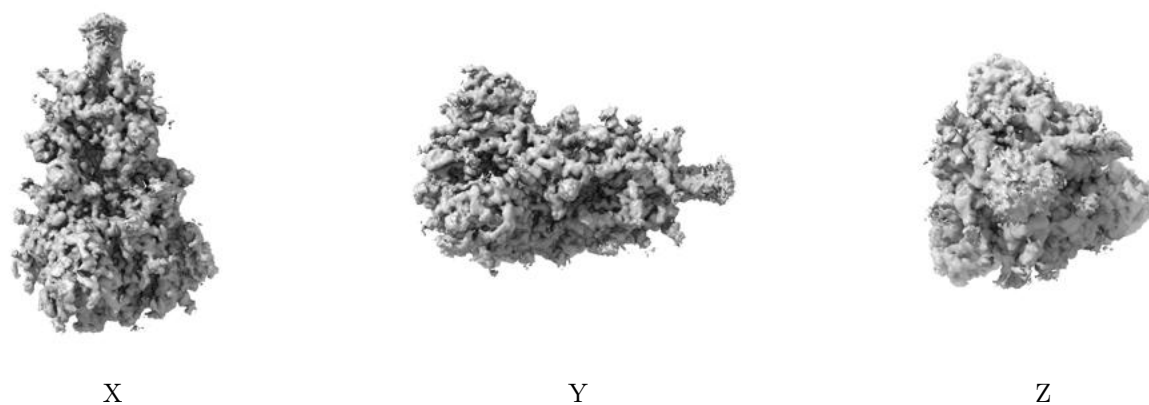
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.00821. 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.

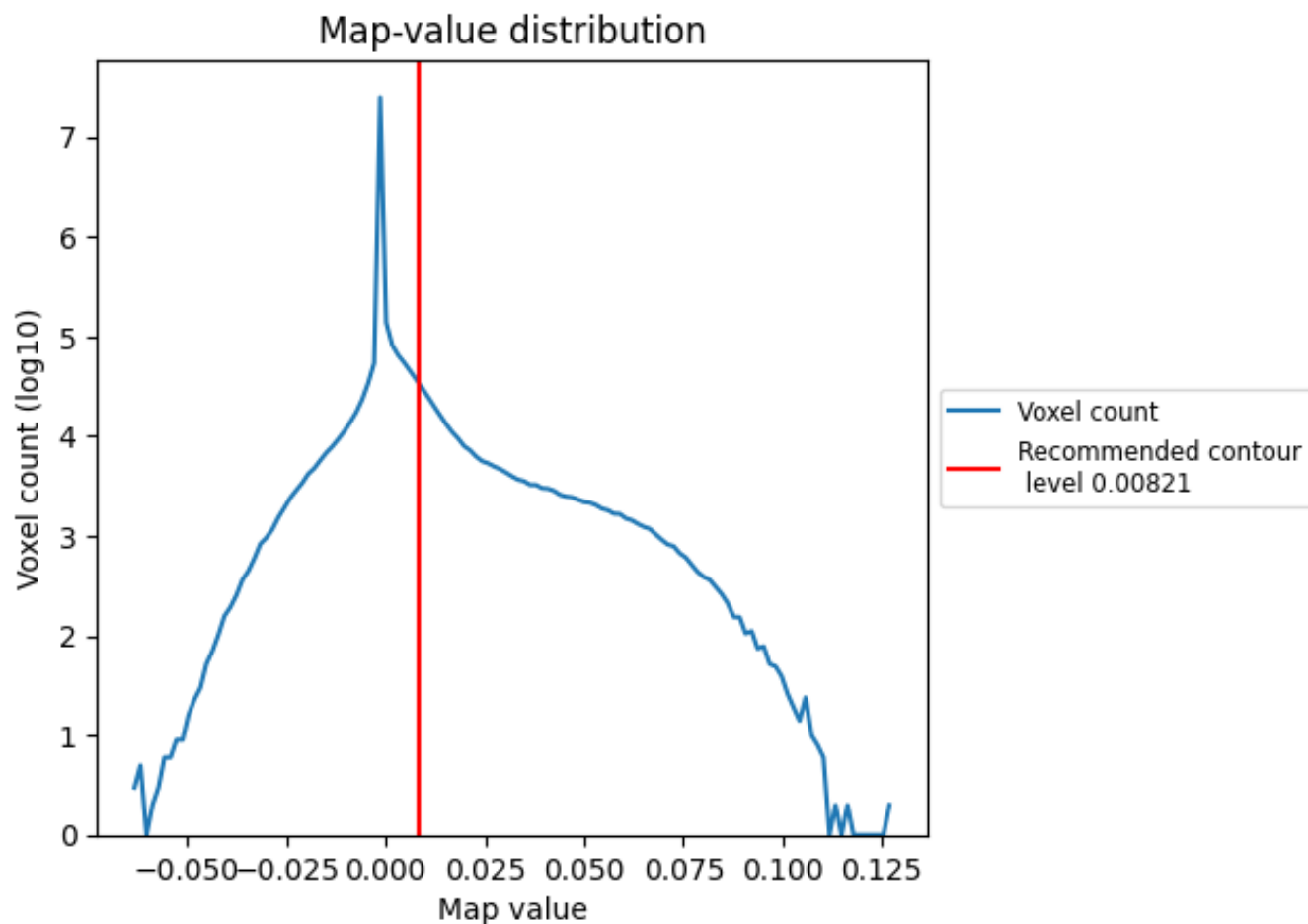
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

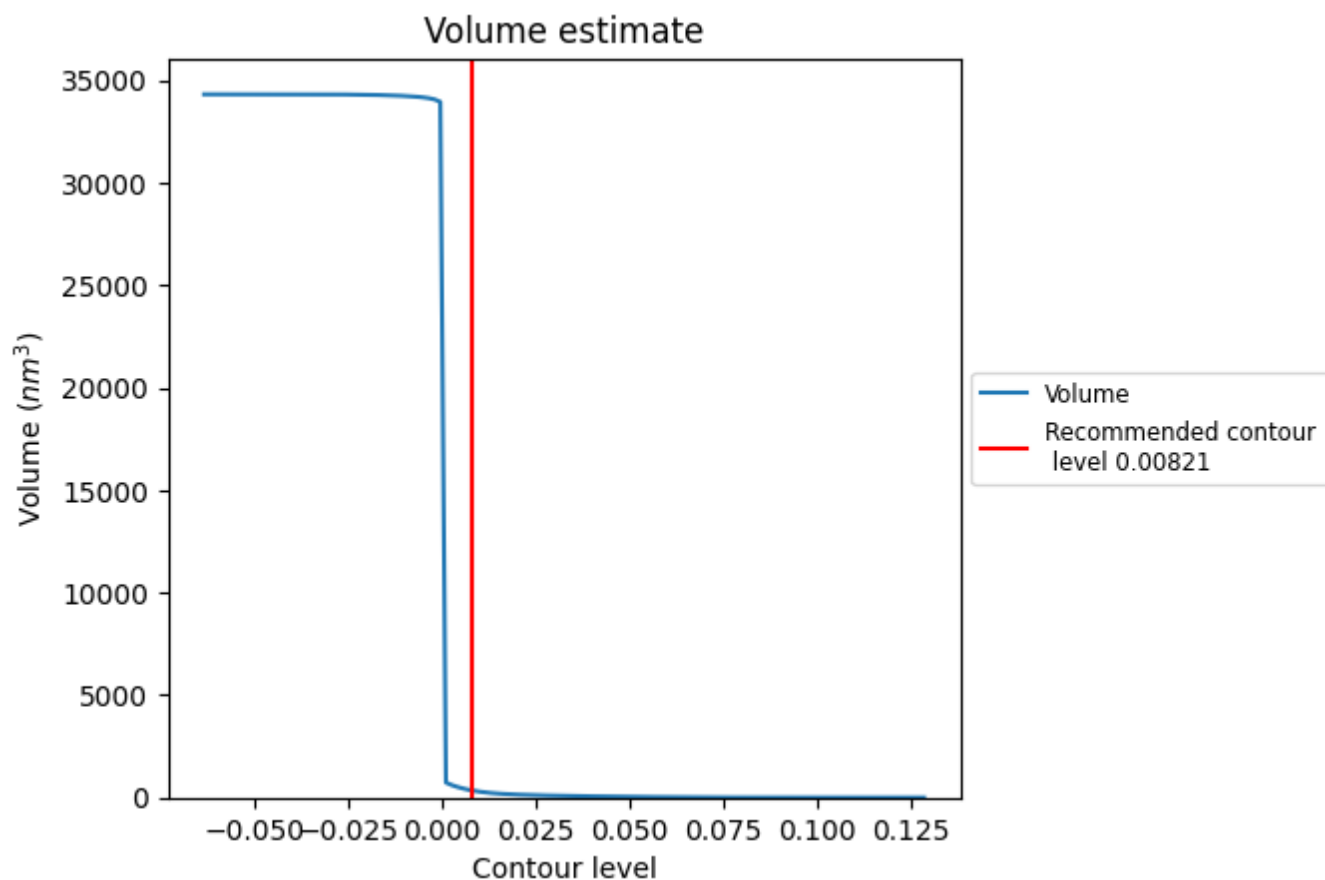
This section contains the results of statistical analysis of the map.

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.

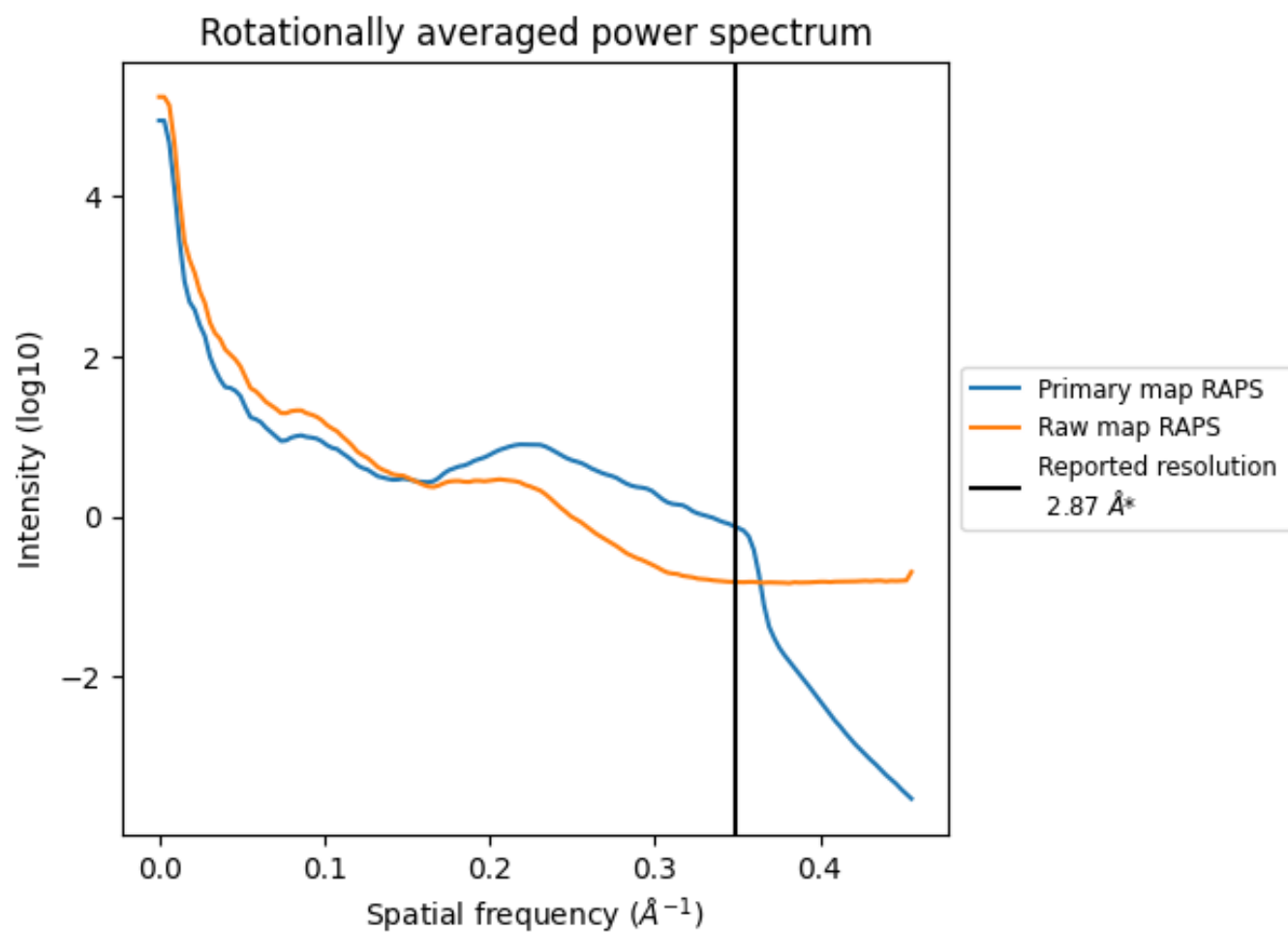
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 345 nm^3 ; this corresponds to an approximate mass of 312 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 ⓘ

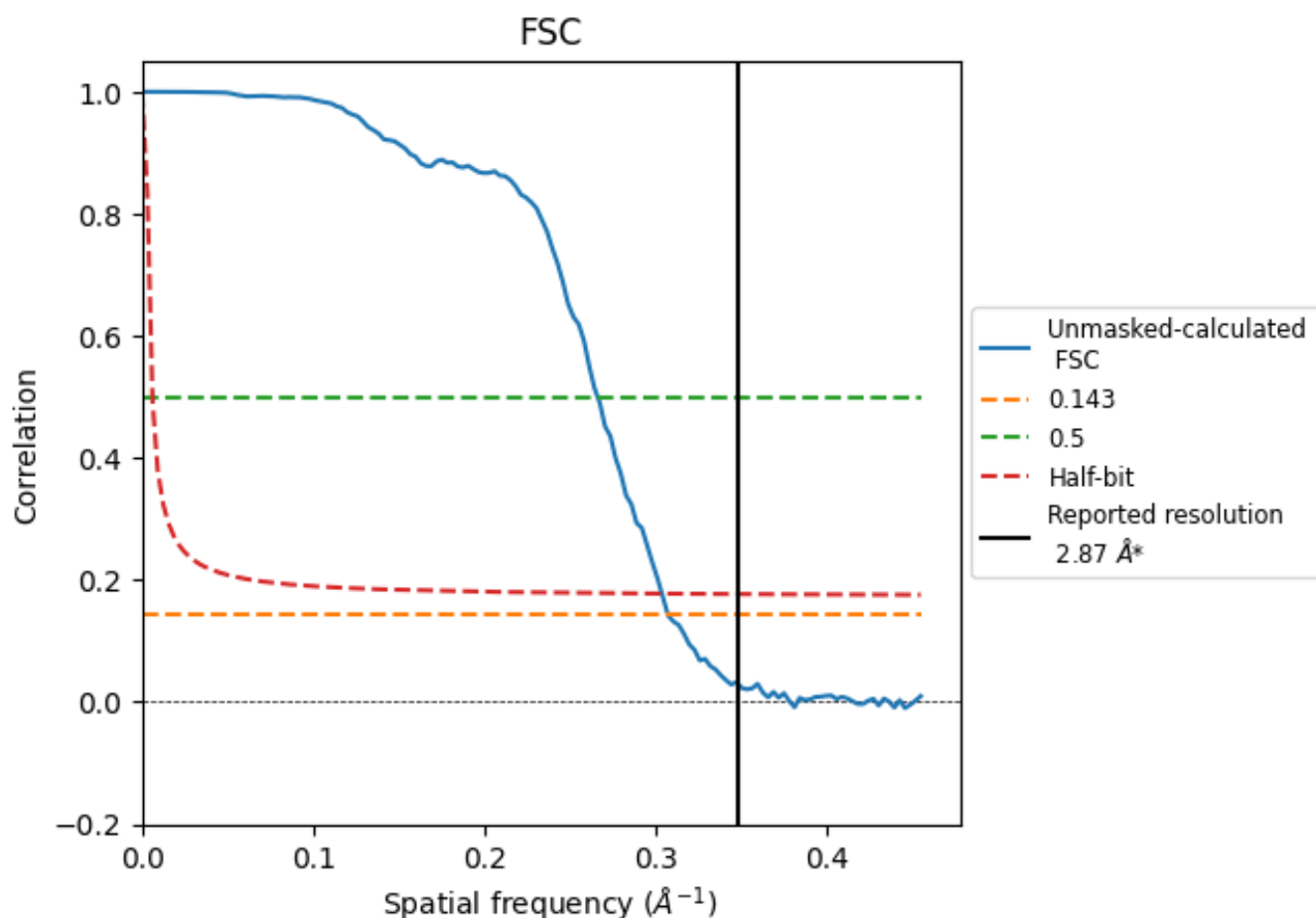


*Reported resolution corresponds to spatial frequency of 0.348 Å⁻¹

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 0.348 \AA^{-1}

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.87	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.25	3.75	3.29

*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 3.25 differs from the reported value 2.87 by more than 10 %

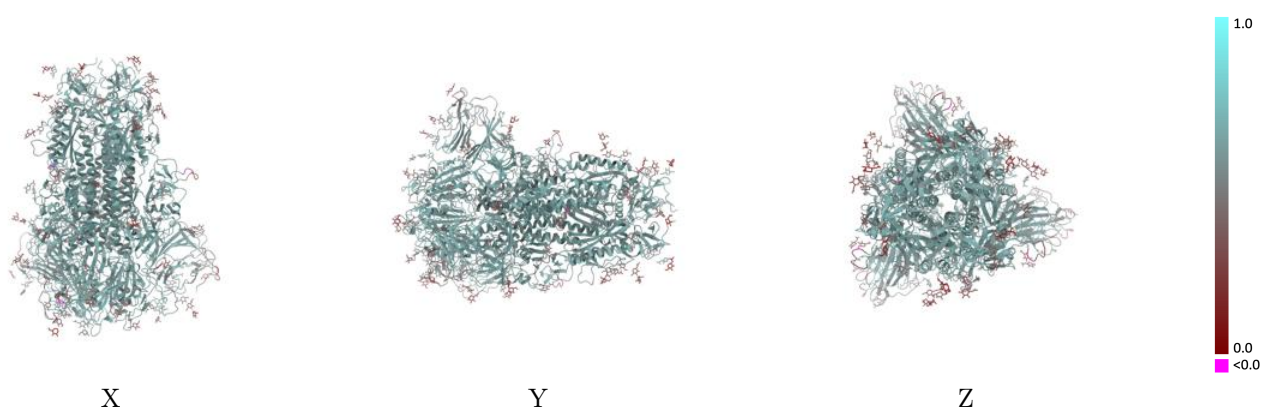
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-37632 and PDB model 8WLU. Per-residue inclusion information can be found in section 3 on page 13.

9.1 Map-model overlay [i](#)

This section was not generated.

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



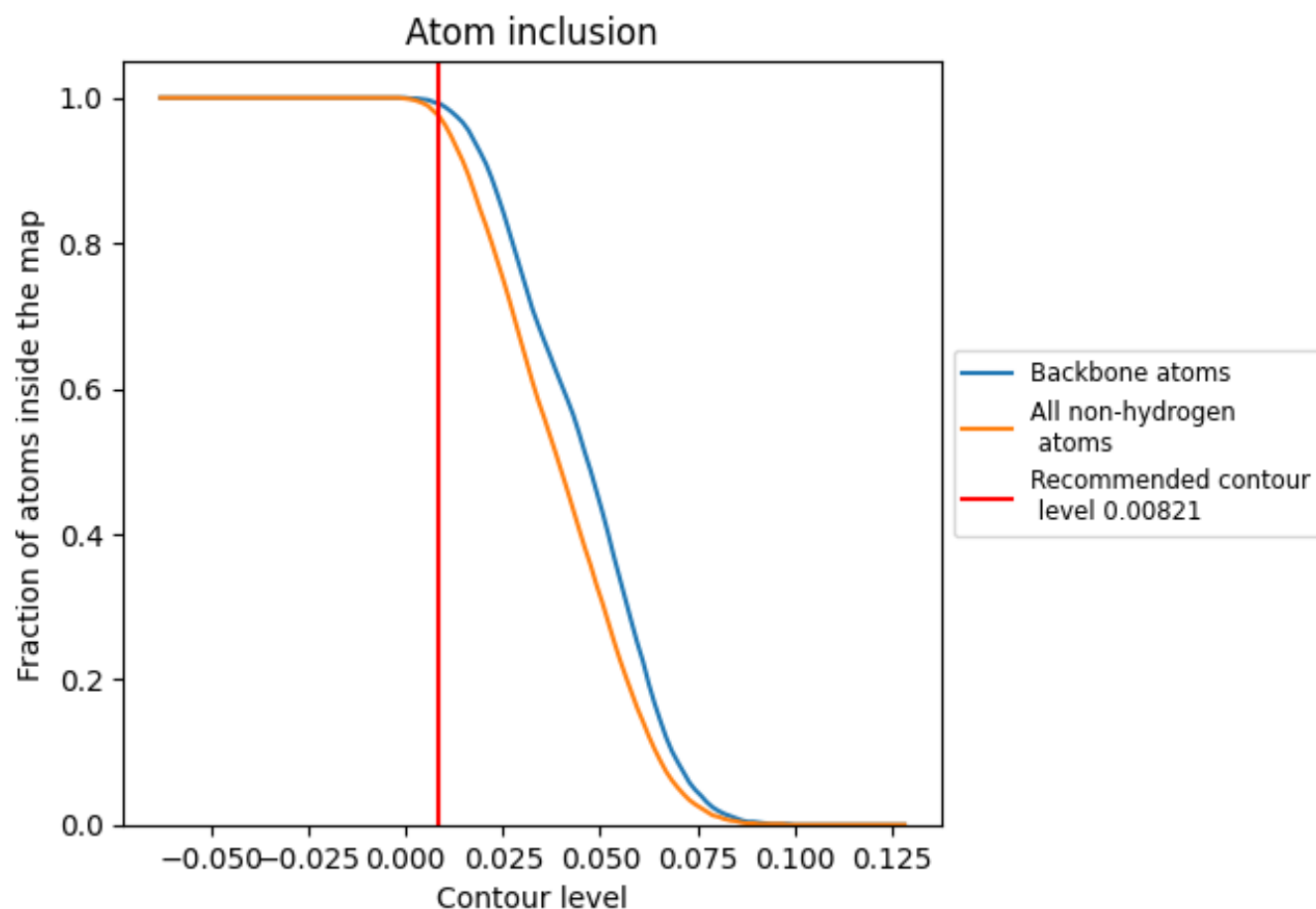
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00821).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 99% of all backbone atoms, 98% 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 (0.00821) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9760	 0.5900
A	 0.9830	 0.6030
B	 0.9840	 0.6030
C	 0.9830	 0.6030
D	 0.7860	 0.2740
E	 0.8720	 0.3250
F	 0.8970	 0.4660
G	 0.9740	 0.5240
H	 0.9740	 0.5140
I	 0.8970	 0.3310
J	 0.7140	 0.3890
K	 0.9640	 0.4480
L	 0.8930	 0.4290
M	 0.8720	 0.3130
N	 0.7860	 0.2870
O	 0.6790	 0.2010
P	 0.8570	 0.2990
Q	 0.7140	 0.2680
R	 0.8570	 0.2660
S	 0.9290	 0.4940
T	 0.7860	 0.2850
U	 0.8720	 0.3110
V	 0.8970	 0.4460
W	 1.0000	 0.5180
X	 0.9740	 0.5090
Y	 0.8460	 0.3270
Z	 0.6790	 0.3900
a	 1.0000	 0.4650
b	 0.8930	 0.4040
c	 0.8970	 0.2970
d	 0.7860	 0.2920
e	 0.7140	 0.2050
f	 0.8930	 0.3100
g	 0.7860	 0.2680
h	 0.7500	 0.2900



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Chain	Atom inclusion	Q-score
i	 0.9290	 0.4960
j	 0.7860	 0.3010
k	 0.8970	 0.3320
l	 0.8970	 0.4660
m	 1.0000	 0.5140
n	 0.9740	 0.5060
o	 0.8210	 0.3270
p	 0.7140	 0.3930
q	 1.0000	 0.4480
r	 0.8930	 0.4150
s	 0.8970	 0.3140
t	 0.7860	 0.3090
u	 0.6790	 0.2050
v	 0.8570	 0.3120
w	 0.7500	 0.2580
x	 0.7500	 0.2800
y	 0.9290	 0.4900