



Full wwPDB EM Validation Report ⓘ

Aug 2, 2023 – 12:23 AM JST

PDB ID : 7Y21
EMDB ID : EMD-33578
Title : S-ECD (Omicron BA.5) in complex with PD of ACE2
Authors : Li, Y.N.; Shen, Y.P.; Zhang, Y.Y.; Yan, R.H.
Deposited on : 2022-06-09
Resolution : 2.80 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:

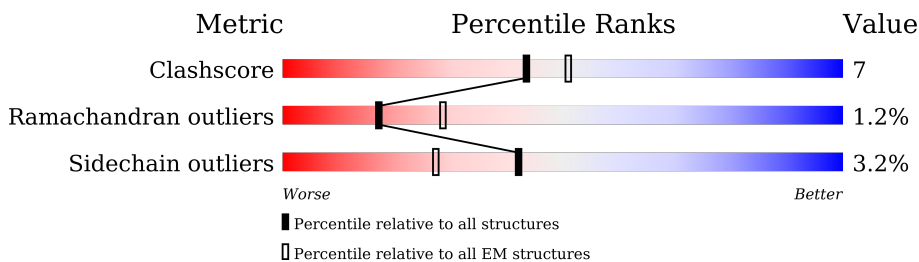
EMDB validation analysis : 0.0.1.dev50
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.34

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 2.80 Å.

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






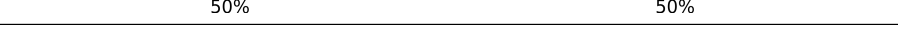
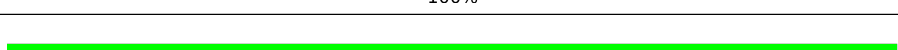
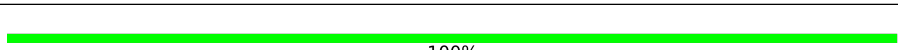



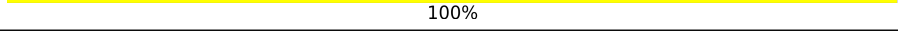

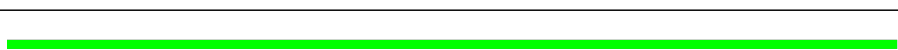
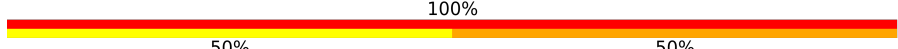
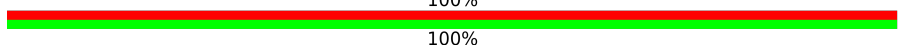


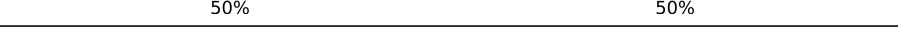
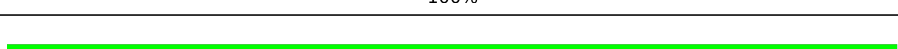
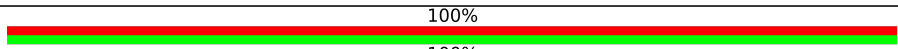


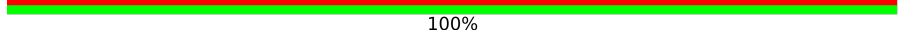



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	1266	
1	B	1266	
1	C	1266	
2	D	624	
2	F	624	
2	H	624	
3	E	2	
3	G	2	

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Mol	Chain	Length	Quality of chain
3	I	2	50% 
3	J	2	50% 
3	K	2	50% 
3	L	2	50% 
3	M	2	100% 
3	N	2	100% 
3	O	2	100% 
3	P	2	100% 
3	Q	2	100% 
3	R	2	50% 
3	S	2	100% 
3	T	2	50% 
3	U	2	50% 
3	V	2	100% 
3	W	2	100% 
3	X	2	100% 
3	Y	2	50% 
3	Z	2	50% 
3	a	2	50% 
3	b	2	100% 
3	c	2	100% 
3	d	2	100% 
3	e	2	100% 
3	f	2	100% 
3	g	2	100% 

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Mol	Chain	Length	Quality of chain
3	h	2	100% 
3	i	2	100% 
3	j	2	100% 
3	k	2	100%  50% 50%
3	l	2	100% 
3	m	2	100% 
3	n	2	100% 
3	o	2	100% 
3	p	2	100%  50% 50%
3	q	2	100% 
3	r	2	100% 

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 39547 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.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	998	7825	5008	1302	1479	36	0	0
1	B	999	7831	5011	1303	1481	36	0	0
1	C	998	7825	5008	1302	1479	36	0	0

There are 315 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	21	ILE	THR	variant	UNP P0DTC2
A	?	-	LEU	deletion	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	26	SER	PRO	variant	UNP P0DTC2
A	27	SER	ALA	variant	UNP P0DTC2
A	?	-	HIS	deletion	UNP P0DTC2
A	?	-	VAL	deletion	UNP P0DTC2
A	142	ASP	GLY	variant	UNP P0DTC2
A	213	GLY	VAL	variant	UNP P0DTC2
A	339	ASP	GLY	variant	UNP P0DTC2
A	371	PHE	SER	variant	UNP P0DTC2
A	373	PRO	SER	variant	UNP P0DTC2
A	375	PHE	SER	variant	UNP P0DTC2
A	376	ALA	THR	variant	UNP P0DTC2
A	405	ASN	ASP	variant	UNP P0DTC2
A	408	SER	ARG	variant	UNP P0DTC2
A	417	ASN	LYS	variant	UNP P0DTC2
A	440	LYS	ASN	variant	UNP P0DTC2
A	452	ARG	LEU	variant	UNP P0DTC2
A	477	ASN	SER	variant	UNP P0DTC2
A	478	LYS	THR	variant	UNP P0DTC2
A	484	ALA	GLU	variant	UNP P0DTC2
A	486	VAL	PHE	variant	UNP P0DTC2
A	498	ARG	GLN	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	501	TYR	ASN	variant	UNP P0DTC2
A	505	HIS	TYR	variant	UNP P0DTC2
A	614	GLY	ASP	variant	UNP P0DTC2
A	655	TYR	HIS	variant	UNP P0DTC2
A	679	LYS	ASN	variant	UNP P0DTC2
A	681	HIS	PRO	variant	UNP P0DTC2
A	682	GLY	ARG	variant	UNP P0DTC2
A	683	SER	ARG	variant	UNP P0DTC2
A	685	SER	ARG	variant	UNP P0DTC2
A	764	LYS	ASN	variant	UNP P0DTC2
A	796	TYR	ASP	variant	UNP P0DTC2
A	817	PRO	PHE	variant	UNP P0DTC2
A	892	PRO	ALA	variant	UNP P0DTC2
A	899	PRO	ALA	variant	UNP P0DTC2
A	942	PRO	ALA	variant	UNP P0DTC2
A	954	HIS	GLN	variant	UNP P0DTC2
A	969	LYS	ASN	variant	UNP P0DTC2
A	986	PRO	LYS	engineered mutation	UNP P0DTC2
A	987	PRO	VAL	engineered mutation	UNP P0DTC2
A	1209	GLY	-	expression tag	UNP P0DTC2
A	1210	SER	-	expression tag	UNP P0DTC2
A	1211	GLY	-	expression tag	UNP P0DTC2
A	1212	TYR	-	expression tag	UNP P0DTC2
A	1213	ILE	-	expression tag	UNP P0DTC2
A	1214	PRO	-	expression tag	UNP P0DTC2
A	1215	GLU	-	expression tag	UNP P0DTC2
A	1216	ALA	-	expression tag	UNP P0DTC2
A	1217	PRO	-	expression tag	UNP P0DTC2
A	1218	ARG	-	expression tag	UNP P0DTC2
A	1219	ASP	-	expression tag	UNP P0DTC2
A	1220	GLY	-	expression tag	UNP P0DTC2
A	1221	GLN	-	expression tag	UNP P0DTC2
A	1222	ALA	-	expression tag	UNP P0DTC2
A	1223	TYR	-	expression tag	UNP P0DTC2
A	1224	VAL	-	expression tag	UNP P0DTC2
A	1225	ARG	-	expression tag	UNP P0DTC2
A	1226	LYS	-	expression tag	UNP P0DTC2
A	1227	ASP	-	expression tag	UNP P0DTC2
A	1228	GLY	-	expression tag	UNP P0DTC2
A	1229	GLU	-	expression tag	UNP P0DTC2
A	1230	TRP	-	expression tag	UNP P0DTC2
A	1231	VAL	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1232	LEU	-	expression tag	UNP P0DTC2
A	1233	LEU	-	expression tag	UNP P0DTC2
A	1234	SER	-	expression tag	UNP P0DTC2
A	1235	THR	-	expression tag	UNP P0DTC2
A	1236	PHE	-	expression tag	UNP P0DTC2
A	1237	LEU	-	expression tag	UNP P0DTC2
A	1238	LEU	-	expression tag	UNP P0DTC2
A	1239	GLU	-	expression tag	UNP P0DTC2
A	1240	GLY	-	expression tag	UNP P0DTC2
A	1241	SER	-	expression tag	UNP P0DTC2
A	1242	ASP	-	expression tag	UNP P0DTC2
A	1243	GLU	-	expression tag	UNP P0DTC2
A	1244	VAL	-	expression tag	UNP P0DTC2
A	1245	ASP	-	expression tag	UNP P0DTC2
A	1246	ALA	-	expression tag	UNP P0DTC2
A	1247	GLY	-	expression tag	UNP P0DTC2
A	1248	SER	-	expression tag	UNP P0DTC2
A	1249	HIS	-	expression tag	UNP P0DTC2
A	1250	HIS	-	expression tag	UNP P0DTC2
A	1251	HIS	-	expression tag	UNP P0DTC2
A	1252	HIS	-	expression tag	UNP P0DTC2
A	1253	HIS	-	expression tag	UNP P0DTC2
A	1254	HIS	-	expression tag	UNP P0DTC2
A	1255	HIS	-	expression tag	UNP P0DTC2
A	1256	HIS	-	expression tag	UNP P0DTC2
A	1257	HIS	-	expression tag	UNP P0DTC2
A	1258	HIS	-	expression tag	UNP P0DTC2
A	1259	GLY	-	expression tag	UNP P0DTC2
A	1260	SER	-	expression tag	UNP P0DTC2
A	1261	VAL	-	expression tag	UNP P0DTC2
A	1262	GLU	-	expression tag	UNP P0DTC2
A	1263	ASP	-	expression tag	UNP P0DTC2
A	1264	TYR	-	expression tag	UNP P0DTC2
A	1265	LYS	-	expression tag	UNP P0DTC2
A	1266	ASP	-	expression tag	UNP P0DTC2
A	1267	ASP	-	expression tag	UNP P0DTC2
A	1268	ASP	-	expression tag	UNP P0DTC2
A	1269	ASP	-	expression tag	UNP P0DTC2
A	1270	LYS	-	expression tag	UNP P0DTC2
B	21	ILE	THR	variant	UNP P0DTC2
B	?	-	LEU	deletion	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	26	SER	PRO	variant	UNP P0DTC2
B	27	SER	ALA	variant	UNP P0DTC2
B	?	-	HIS	deletion	UNP P0DTC2
B	?	-	VAL	deletion	UNP P0DTC2
B	142	ASP	GLY	variant	UNP P0DTC2
B	213	GLY	VAL	variant	UNP P0DTC2
B	339	ASP	GLY	variant	UNP P0DTC2
B	371	PHE	SER	variant	UNP P0DTC2
B	373	PRO	SER	variant	UNP P0DTC2
B	375	PHE	SER	variant	UNP P0DTC2
B	376	ALA	THR	variant	UNP P0DTC2
B	405	ASN	ASP	variant	UNP P0DTC2
B	408	SER	ARG	variant	UNP P0DTC2
B	417	ASN	LYS	variant	UNP P0DTC2
B	440	LYS	ASN	variant	UNP P0DTC2
B	452	ARG	LEU	variant	UNP P0DTC2
B	477	ASN	SER	variant	UNP P0DTC2
B	478	LYS	THR	variant	UNP P0DTC2
B	484	ALA	GLU	variant	UNP P0DTC2
B	486	VAL	PHE	variant	UNP P0DTC2
B	498	ARG	GLN	variant	UNP P0DTC2
B	501	TYR	ASN	variant	UNP P0DTC2
B	505	HIS	TYR	variant	UNP P0DTC2
B	614	GLY	ASP	variant	UNP P0DTC2
B	655	TYR	HIS	variant	UNP P0DTC2
B	679	LYS	ASN	variant	UNP P0DTC2
B	681	HIS	PRO	variant	UNP P0DTC2
B	682	GLY	ARG	variant	UNP P0DTC2
B	683	SER	ARG	variant	UNP P0DTC2
B	685	SER	ARG	variant	UNP P0DTC2
B	764	LYS	ASN	variant	UNP P0DTC2
B	796	TYR	ASP	variant	UNP P0DTC2
B	817	PRO	PHE	variant	UNP P0DTC2
B	892	PRO	ALA	variant	UNP P0DTC2
B	899	PRO	ALA	variant	UNP P0DTC2
B	942	PRO	ALA	variant	UNP P0DTC2
B	954	HIS	GLN	variant	UNP P0DTC2
B	969	LYS	ASN	variant	UNP P0DTC2
B	986	PRO	LYS	engineered mutation	UNP P0DTC2
B	987	PRO	VAL	engineered mutation	UNP P0DTC2
B	1209	GLY	-	expression tag	UNP P0DTC2
B	1210	SER	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1211	GLY	-	expression tag	UNP P0DTC2
B	1212	TYR	-	expression tag	UNP P0DTC2
B	1213	ILE	-	expression tag	UNP P0DTC2
B	1214	PRO	-	expression tag	UNP P0DTC2
B	1215	GLU	-	expression tag	UNP P0DTC2
B	1216	ALA	-	expression tag	UNP P0DTC2
B	1217	PRO	-	expression tag	UNP P0DTC2
B	1218	ARG	-	expression tag	UNP P0DTC2
B	1219	ASP	-	expression tag	UNP P0DTC2
B	1220	GLY	-	expression tag	UNP P0DTC2
B	1221	GLN	-	expression tag	UNP P0DTC2
B	1222	ALA	-	expression tag	UNP P0DTC2
B	1223	TYR	-	expression tag	UNP P0DTC2
B	1224	VAL	-	expression tag	UNP P0DTC2
B	1225	ARG	-	expression tag	UNP P0DTC2
B	1226	LYS	-	expression tag	UNP P0DTC2
B	1227	ASP	-	expression tag	UNP P0DTC2
B	1228	GLY	-	expression tag	UNP P0DTC2
B	1229	GLU	-	expression tag	UNP P0DTC2
B	1230	TRP	-	expression tag	UNP P0DTC2
B	1231	VAL	-	expression tag	UNP P0DTC2
B	1232	LEU	-	expression tag	UNP P0DTC2
B	1233	LEU	-	expression tag	UNP P0DTC2
B	1234	SER	-	expression tag	UNP P0DTC2
B	1235	THR	-	expression tag	UNP P0DTC2
B	1236	PHE	-	expression tag	UNP P0DTC2
B	1237	LEU	-	expression tag	UNP P0DTC2
B	1238	LEU	-	expression tag	UNP P0DTC2
B	1239	GLU	-	expression tag	UNP P0DTC2
B	1240	GLY	-	expression tag	UNP P0DTC2
B	1241	SER	-	expression tag	UNP P0DTC2
B	1242	ASP	-	expression tag	UNP P0DTC2
B	1243	GLU	-	expression tag	UNP P0DTC2
B	1244	VAL	-	expression tag	UNP P0DTC2
B	1245	ASP	-	expression tag	UNP P0DTC2
B	1246	ALA	-	expression tag	UNP P0DTC2
B	1247	GLY	-	expression tag	UNP P0DTC2
B	1248	SER	-	expression tag	UNP P0DTC2
B	1249	HIS	-	expression tag	UNP P0DTC2
B	1250	HIS	-	expression tag	UNP P0DTC2
B	1251	HIS	-	expression tag	UNP P0DTC2
B	1252	HIS	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1253	HIS	-	expression tag	UNP P0DTC2
B	1254	HIS	-	expression tag	UNP P0DTC2
B	1255	HIS	-	expression tag	UNP P0DTC2
B	1256	HIS	-	expression tag	UNP P0DTC2
B	1257	HIS	-	expression tag	UNP P0DTC2
B	1258	HIS	-	expression tag	UNP P0DTC2
B	1259	GLY	-	expression tag	UNP P0DTC2
B	1260	SER	-	expression tag	UNP P0DTC2
B	1261	VAL	-	expression tag	UNP P0DTC2
B	1262	GLU	-	expression tag	UNP P0DTC2
B	1263	ASP	-	expression tag	UNP P0DTC2
B	1264	TYR	-	expression tag	UNP P0DTC2
B	1265	LYS	-	expression tag	UNP P0DTC2
B	1266	ASP	-	expression tag	UNP P0DTC2
B	1267	ASP	-	expression tag	UNP P0DTC2
B	1268	ASP	-	expression tag	UNP P0DTC2
B	1269	ASP	-	expression tag	UNP P0DTC2
B	1270	LYS	-	expression tag	UNP P0DTC2
C	21	ILE	THR	variant	UNP P0DTC2
C	?	-	LEU	deletion	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	26	SER	PRO	variant	UNP P0DTC2
C	27	SER	ALA	variant	UNP P0DTC2
C	?	-	HIS	deletion	UNP P0DTC2
C	?	-	VAL	deletion	UNP P0DTC2
C	142	ASP	GLY	variant	UNP P0DTC2
C	213	GLY	VAL	variant	UNP P0DTC2
C	339	ASP	GLY	variant	UNP P0DTC2
C	371	PHE	SER	variant	UNP P0DTC2
C	373	PRO	SER	variant	UNP P0DTC2
C	375	PHE	SER	variant	UNP P0DTC2
C	376	ALA	THR	variant	UNP P0DTC2
C	405	ASN	ASP	variant	UNP P0DTC2
C	408	SER	ARG	variant	UNP P0DTC2
C	417	ASN	LYS	variant	UNP P0DTC2
C	440	LYS	ASN	variant	UNP P0DTC2
C	452	ARG	LEU	variant	UNP P0DTC2
C	477	ASN	SER	variant	UNP P0DTC2
C	478	LYS	THR	variant	UNP P0DTC2
C	484	ALA	GLU	variant	UNP P0DTC2
C	486	VAL	PHE	variant	UNP P0DTC2
C	498	ARG	GLN	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	501	TYR	ASN	variant	UNP P0DTC2
C	505	HIS	TYR	variant	UNP P0DTC2
C	614	GLY	ASP	variant	UNP P0DTC2
C	655	TYR	HIS	variant	UNP P0DTC2
C	679	LYS	ASN	variant	UNP P0DTC2
C	681	HIS	PRO	variant	UNP P0DTC2
C	682	GLY	ARG	variant	UNP P0DTC2
C	683	SER	ARG	variant	UNP P0DTC2
C	685	SER	ARG	variant	UNP P0DTC2
C	764	LYS	ASN	variant	UNP P0DTC2
C	796	TYR	ASP	variant	UNP P0DTC2
C	817	PRO	PHE	variant	UNP P0DTC2
C	892	PRO	ALA	variant	UNP P0DTC2
C	899	PRO	ALA	variant	UNP P0DTC2
C	942	PRO	ALA	variant	UNP P0DTC2
C	954	HIS	GLN	variant	UNP P0DTC2
C	969	LYS	ASN	variant	UNP P0DTC2
C	986	PRO	LYS	engineered mutation	UNP P0DTC2
C	987	PRO	VAL	engineered mutation	UNP P0DTC2
C	1209	GLY	-	expression tag	UNP P0DTC2
C	1210	SER	-	expression tag	UNP P0DTC2
C	1211	GLY	-	expression tag	UNP P0DTC2
C	1212	TYR	-	expression tag	UNP P0DTC2
C	1213	ILE	-	expression tag	UNP P0DTC2
C	1214	PRO	-	expression tag	UNP P0DTC2
C	1215	GLU	-	expression tag	UNP P0DTC2
C	1216	ALA	-	expression tag	UNP P0DTC2
C	1217	PRO	-	expression tag	UNP P0DTC2
C	1218	ARG	-	expression tag	UNP P0DTC2
C	1219	ASP	-	expression tag	UNP P0DTC2
C	1220	GLY	-	expression tag	UNP P0DTC2
C	1221	GLN	-	expression tag	UNP P0DTC2
C	1222	ALA	-	expression tag	UNP P0DTC2
C	1223	TYR	-	expression tag	UNP P0DTC2
C	1224	VAL	-	expression tag	UNP P0DTC2
C	1225	ARG	-	expression tag	UNP P0DTC2
C	1226	LYS	-	expression tag	UNP P0DTC2
C	1227	ASP	-	expression tag	UNP P0DTC2
C	1228	GLY	-	expression tag	UNP P0DTC2
C	1229	GLU	-	expression tag	UNP P0DTC2
C	1230	TRP	-	expression tag	UNP P0DTC2
C	1231	VAL	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1232	LEU	-	expression tag	UNP P0DTC2
C	1233	LEU	-	expression tag	UNP P0DTC2
C	1234	SER	-	expression tag	UNP P0DTC2
C	1235	THR	-	expression tag	UNP P0DTC2
C	1236	PHE	-	expression tag	UNP P0DTC2
C	1237	LEU	-	expression tag	UNP P0DTC2
C	1238	LEU	-	expression tag	UNP P0DTC2
C	1239	GLU	-	expression tag	UNP P0DTC2
C	1240	GLY	-	expression tag	UNP P0DTC2
C	1241	SER	-	expression tag	UNP P0DTC2
C	1242	ASP	-	expression tag	UNP P0DTC2
C	1243	GLU	-	expression tag	UNP P0DTC2
C	1244	VAL	-	expression tag	UNP P0DTC2
C	1245	ASP	-	expression tag	UNP P0DTC2
C	1246	ALA	-	expression tag	UNP P0DTC2
C	1247	GLY	-	expression tag	UNP P0DTC2
C	1248	SER	-	expression tag	UNP P0DTC2
C	1249	HIS	-	expression tag	UNP P0DTC2
C	1250	HIS	-	expression tag	UNP P0DTC2
C	1251	HIS	-	expression tag	UNP P0DTC2
C	1252	HIS	-	expression tag	UNP P0DTC2
C	1253	HIS	-	expression tag	UNP P0DTC2
C	1254	HIS	-	expression tag	UNP P0DTC2
C	1255	HIS	-	expression tag	UNP P0DTC2
C	1256	HIS	-	expression tag	UNP P0DTC2
C	1257	HIS	-	expression tag	UNP P0DTC2
C	1258	HIS	-	expression tag	UNP P0DTC2
C	1259	GLY	-	expression tag	UNP P0DTC2
C	1260	SER	-	expression tag	UNP P0DTC2
C	1261	VAL	-	expression tag	UNP P0DTC2
C	1262	GLU	-	expression tag	UNP P0DTC2
C	1263	ASP	-	expression tag	UNP P0DTC2
C	1264	TYR	-	expression tag	UNP P0DTC2
C	1265	LYS	-	expression tag	UNP P0DTC2
C	1266	ASP	-	expression tag	UNP P0DTC2
C	1267	ASP	-	expression tag	UNP P0DTC2
C	1268	ASP	-	expression tag	UNP P0DTC2
C	1269	ASP	-	expression tag	UNP P0DTC2
C	1270	LYS	-	expression tag	UNP P0DTC2

- Molecule 2 is a protein called Processed angiotensin-converting enzyme 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	597	Total	C	N	O	S	0	0
			4870	3115	806	920	29		
2	F	597	Total	C	N	O	S	0	0
			4870	3115	806	920	29		
2	H	597	Total	C	N	O	S	0	0
			4870	3115	806	920	29		

There are 81 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	0	MET	-	initiating methionine	UNP Q9BYF1
D	1	GLY	-	expression tag	UNP Q9BYF1
D	2	VAL	-	expression tag	UNP Q9BYF1
D	3	LYS	-	expression tag	UNP Q9BYF1
D	4	VAL	-	expression tag	UNP Q9BYF1
D	5	LEU	-	expression tag	UNP Q9BYF1
D	6	PHE	-	expression tag	UNP Q9BYF1
D	7	ALA	-	expression tag	UNP Q9BYF1
D	8	LEU	-	expression tag	UNP Q9BYF1
D	9	ILE	-	expression tag	UNP Q9BYF1
D	10	CYS	-	expression tag	UNP Q9BYF1
D	11	ILE	-	expression tag	UNP Q9BYF1
D	12	ALA	-	expression tag	UNP Q9BYF1
D	13	VAL	-	expression tag	UNP Q9BYF1
D	14	ALA	-	expression tag	UNP Q9BYF1
D	15	GLU	-	expression tag	UNP Q9BYF1
D	16	ALA	-	expression tag	UNP Q9BYF1
D	17	GLY	-	expression tag	UNP Q9BYF1
D	18	THR	-	expression tag	UNP Q9BYF1
D	616	ASP	-	expression tag	UNP Q9BYF1
D	617	TYR	-	expression tag	UNP Q9BYF1
D	618	LYS	-	expression tag	UNP Q9BYF1
D	619	ASP	-	expression tag	UNP Q9BYF1
D	620	ASP	-	expression tag	UNP Q9BYF1
D	621	ASP	-	expression tag	UNP Q9BYF1
D	622	ASP	-	expression tag	UNP Q9BYF1
D	623	LYS	-	expression tag	UNP Q9BYF1
F	0	MET	-	initiating methionine	UNP Q9BYF1
F	1	GLY	-	expression tag	UNP Q9BYF1
F	2	VAL	-	expression tag	UNP Q9BYF1
F	3	LYS	-	expression tag	UNP Q9BYF1
F	4	VAL	-	expression tag	UNP Q9BYF1
F	5	LEU	-	expression tag	UNP Q9BYF1

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Chain	Residue	Modelled	Actual	Comment	Reference
F	6	PHE	-	expression tag	UNP Q9BYF1
F	7	ALA	-	expression tag	UNP Q9BYF1
F	8	LEU	-	expression tag	UNP Q9BYF1
F	9	ILE	-	expression tag	UNP Q9BYF1
F	10	CYS	-	expression tag	UNP Q9BYF1
F	11	ILE	-	expression tag	UNP Q9BYF1
F	12	ALA	-	expression tag	UNP Q9BYF1
F	13	VAL	-	expression tag	UNP Q9BYF1
F	14	ALA	-	expression tag	UNP Q9BYF1
F	15	GLU	-	expression tag	UNP Q9BYF1
F	16	ALA	-	expression tag	UNP Q9BYF1
F	17	GLY	-	expression tag	UNP Q9BYF1
F	18	THR	-	expression tag	UNP Q9BYF1
F	616	ASP	-	expression tag	UNP Q9BYF1
F	617	TYR	-	expression tag	UNP Q9BYF1
F	618	LYS	-	expression tag	UNP Q9BYF1
F	619	ASP	-	expression tag	UNP Q9BYF1
F	620	ASP	-	expression tag	UNP Q9BYF1
F	621	ASP	-	expression tag	UNP Q9BYF1
F	622	ASP	-	expression tag	UNP Q9BYF1
F	623	LYS	-	expression tag	UNP Q9BYF1
H	0	MET	-	initiating methionine	UNP Q9BYF1
H	1	GLY	-	expression tag	UNP Q9BYF1
H	2	VAL	-	expression tag	UNP Q9BYF1
H	3	LYS	-	expression tag	UNP Q9BYF1
H	4	VAL	-	expression tag	UNP Q9BYF1
H	5	LEU	-	expression tag	UNP Q9BYF1
H	6	PHE	-	expression tag	UNP Q9BYF1
H	7	ALA	-	expression tag	UNP Q9BYF1
H	8	LEU	-	expression tag	UNP Q9BYF1
H	9	ILE	-	expression tag	UNP Q9BYF1
H	10	CYS	-	expression tag	UNP Q9BYF1
H	11	ILE	-	expression tag	UNP Q9BYF1
H	12	ALA	-	expression tag	UNP Q9BYF1
H	13	VAL	-	expression tag	UNP Q9BYF1
H	14	ALA	-	expression tag	UNP Q9BYF1
H	15	GLU	-	expression tag	UNP Q9BYF1
H	16	ALA	-	expression tag	UNP Q9BYF1
H	17	GLY	-	expression tag	UNP Q9BYF1
H	18	THR	-	expression tag	UNP Q9BYF1
H	616	ASP	-	expression tag	UNP Q9BYF1
H	617	TYR	-	expression tag	UNP Q9BYF1

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Chain	Residue	Modelled	Actual	Comment	Reference
H	618	LYS	-	expression tag	UNP Q9BYF1
H	619	ASP	-	expression tag	UNP Q9BYF1
H	620	ASP	-	expression tag	UNP Q9BYF1
H	621	ASP	-	expression tag	UNP Q9BYF1
H	622	ASP	-	expression tag	UNP Q9BYF1
H	623	LYS	-	expression tag	UNP Q9BYF1

- Molecule 3 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
			Total	C	N	O		
3	E	2	28	16	2	10	0	0
3	G	2	28	16	2	10	0	0
3	I	2	28	16	2	10	0	0
3	J	2	28	16	2	10	0	0
3	K	2	28	16	2	10	0	0
3	L	2	28	16	2	10	0	0
3	M	2	28	16	2	10	0	0
3	N	2	28	16	2	10	0	0
3	O	2	28	16	2	10	0	0
3	P	2	28	16	2	10	0	0
3	Q	2	28	16	2	10	0	0
3	R	2	28	16	2	10	0	0
3	S	2	28	16	2	10	0	0
3	T	2	28	16	2	10	0	0

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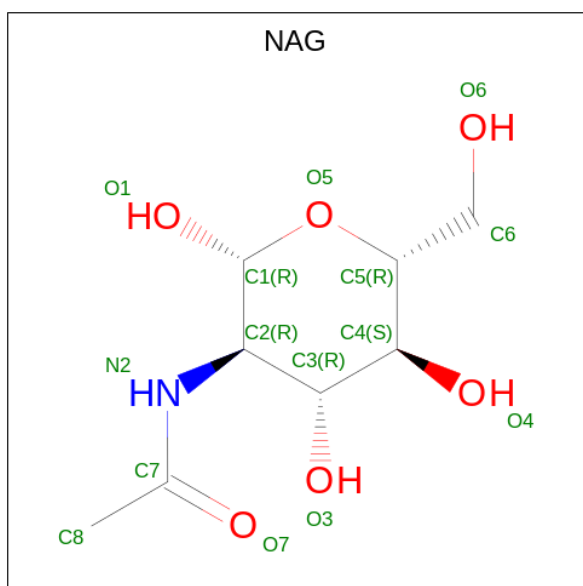
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	U	2	Total 28	C 16	N 2	O 10	0	0
3	V	2	Total 28	C 16	N 2	O 10	0	0
3	W	2	Total 28	C 16	N 2	O 10	0	0
3	X	2	Total 28	C 16	N 2	O 10	0	0
3	Y	2	Total 28	C 16	N 2	O 10	0	0
3	Z	2	Total 28	C 16	N 2	O 10	0	0
3	a	2	Total 28	C 16	N 2	O 10	0	0
3	b	2	Total 28	C 16	N 2	O 10	0	0
3	c	2	Total 28	C 16	N 2	O 10	0	0
3	d	2	Total 28	C 16	N 2	O 10	0	0
3	e	2	Total 28	C 16	N 2	O 10	0	0
3	f	2	Total 28	C 16	N 2	O 10	0	0
3	g	2	Total 28	C 16	N 2	O 10	0	0
3	h	2	Total 28	C 16	N 2	O 10	0	0
3	i	2	Total 28	C 16	N 2	O 10	0	0
3	j	2	Total 28	C 16	N 2	O 10	0	0
3	k	2	Total 28	C 16	N 2	O 10	0	0
3	l	2	Total 28	C 16	N 2	O 10	0	0
3	m	2	Total 28	C 16	N 2	O 10	0	0
3	n	2	Total 28	C 16	N 2	O 10	0	0
3	o	2	Total 28	C 16	N 2	O 10	0	0

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	p	2	Total	C	N	O	0	0
			28	16	2	10		
3	q	2	Total	C	N	O	0	0
			28	16	2	10		
3	r	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆) (labeled as "Ligand of Interest" by depositor).



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

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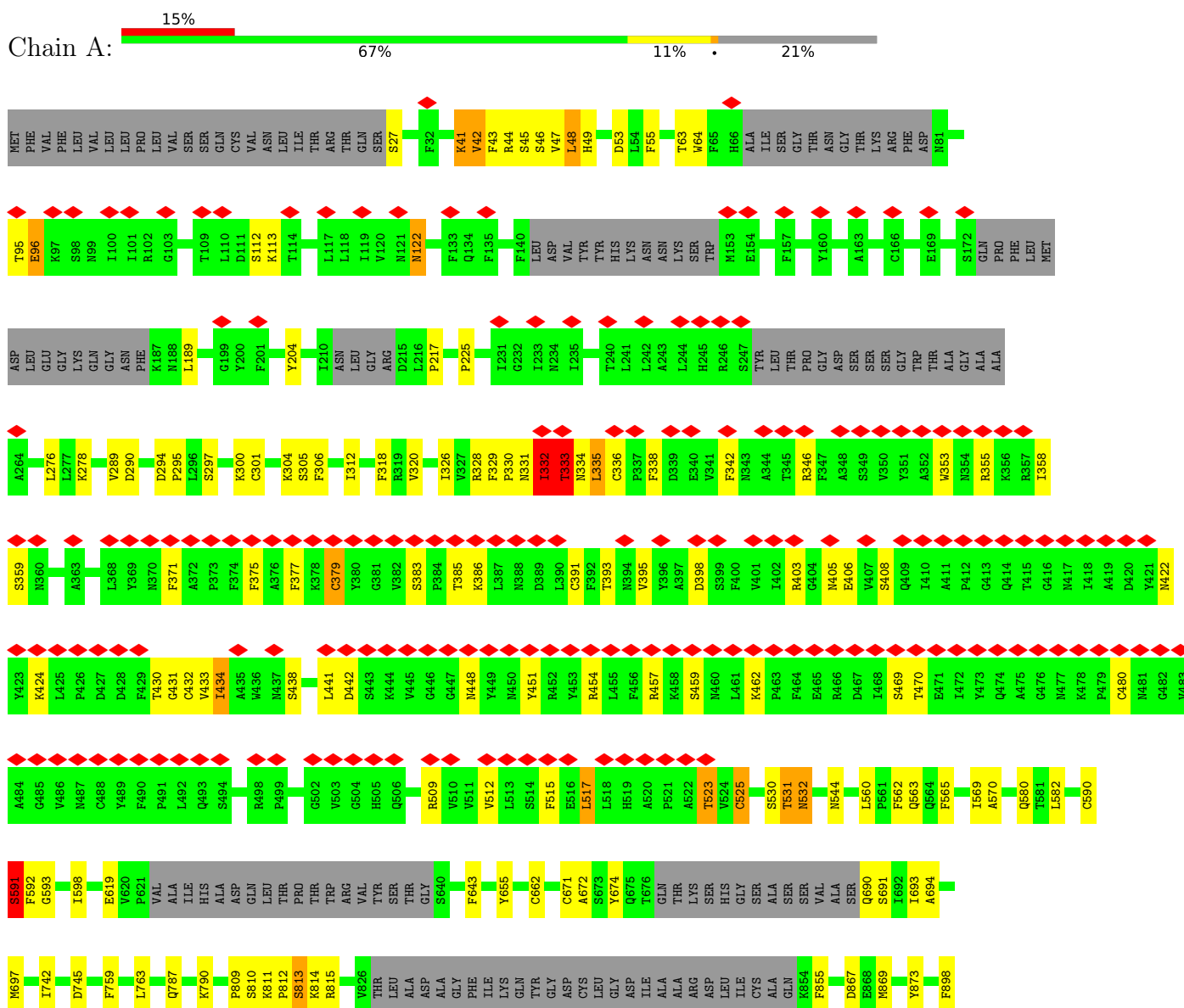
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Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
4	B	1	Total 14	C 8	N 1	O 5	0
4	B	1	Total 14	C 8	N 1	O 5	0
4	B	1	Total 14	C 8	N 1	O 5	0
4	B	1	Total 14	C 8	N 1	O 5	0
4	B	1	Total 14	C 8	N 1	O 5	0
4	B	1	Total 14	C 8	N 1	O 5	0
4	B	1	Total 14	C 8	N 1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

3 Residue-property plots

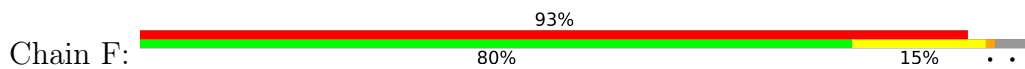
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

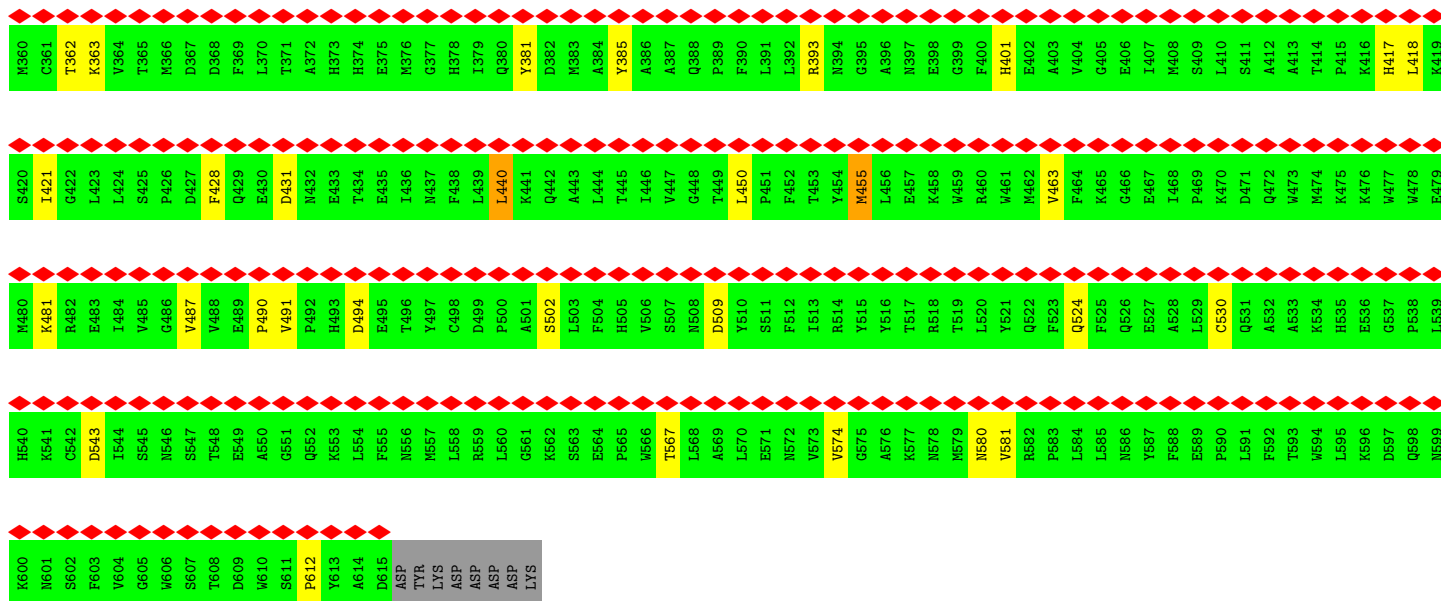


M123	S124	T125	I126	Y127	S128	G130	K131	V132	C133	M134	P135	D136	M137	P138	Q139	E140	C141	L142	L143	L144	E145	P146	G147	L148	M149	E150	I151	M152	A153	M154	S155	L156	D157	Y158	M159	E160	R161	L162	W163	A164	W165	E166	S167	W168	R169	S170	E171	V172	G173	K174	Q175	R177	P178	L179	Y180	E181	E182		
Y183	V184	V185	L186	K187	M188	E189	M190	A191	R192	A193	M194	H195	Y196	E197	D198	Y199	G200	D201	Y202	W203	R204	G205	D206	Y207	E208	V209	M210	G211	V212	D213	G214	Y215	D216	Y217	S218	R219	G220	Q221	L222	L223	E224	D225	V226	E227	H228	T229	F230	E231	E232	I233	K234	P235	L236	Y237	E238	H239	L240	H241	A242
Y243	V244	R245	A246	K247	L248	M249	N250	A251	Y252	P253	S254	Y255	I256	S257	P258	I259	G260	C261	L262	P263	A264	H265	L266	L267	G268	D269	M270	W271	G272	R273	F274	W275	T276	N277	L278	Y279	S280	L281	T282	V283	P284	F285	G286	Q287	K288	P289	N290	I291	D292	V293	T294	D295	A296	M297	V298	Q299	A301	W302	
D303	A304	Q305	R306	A371	F308	K309	E310	A311	E312	K313	S254	F315	V316	S317	Y318	G319	L320	P321	N322	M323	T324	Q325	G326	F327	W328	E329	N330	S331	M332	L333	T334	D335	F336	G337	N338	V339	Q340	K341	A342	H345	P346	T347	D350	L351	K352	K353	D354	F355	D356	R357	M360	C361	T362	K363	V364	T365			
M366	D367	T371	A372	H373	H374	H378	Y381	D382	M383	A384	Y385	A386	A387	Q388	P389	F390	L391	L392	R393	N394	G395	A396	N397	E398	G399	F400	H401	E402	A403	E406	I407	M408	S409	L410	S411	A412	A413	T414	P415	K416	H417	L418	K419	S420	I421	G422	L423	L424	S425	P426	D427	F428	Q429	E430	D431				
M432	E433	T434	E435	I436	M437	F438	L439	L440	K441	Q442	A443	L444	T445	I446	V447	G448	T449	L450	P451	F452	T453	Y454	M455	L456	E457	K458	V459	R460	V461	M462	V463	F464	L465	G466	E467	I468	P469	K470	D471	Q472	V473	M474	K475	K476	K419	W477	W478	E479	M480	K481	R482	E483	I484	V485	G486	V487	V488	P490	V491
P492	H493	D494	E495	T496	Y497	C498	D499	P500	A501	S502	L503	F504	H505	V506	S507	N508	D509	Y510	S511	F512	L513	R514	Y515	Y516	R518	T519	L520	Y521	Q522	F523	Q524	F525	Q526	E527	A528	L529	C530	Q531	A532	A533	K534	H535	E536	P538	L539	H540	M541	C542	D543	T544	S545	N546	S547	T548	E549	A550	G551		
Q552	K553	L554	F555	N556	M557	L558	R559	L560	G561	K562	S563	E564	P565	A566	T567	L568	A569	L570	N571	E572	M573	Y574	G575	A576	N578	M579	N580	V581	R582	P583	L584	L585	N586	Y587	F588	E589	P590	L591	F592	T593	A594	L595	K596	D597	Q598	N599	K600	N601	S602	F603	V604	G605	V606	S607	T608	D609	W610	S611	
P612	V613	A614	D615	ASP	TYR	LYS	ASP	ASP	ASP	ASP	LYS																																																

• Molecule 2: Processed angiotensin-converting enzyme 2



NET	GLY	VAL	LYS	VAL	LEU	PHE	ALA	LEU	ILE	CYS	ILE	ALA	VAL	ALA	GLU	ALA	GLY	THR	S19	T20	I21	E22	E23	Q24	A25	K26	T27	F28	L29	D30	K31	F32	N33	H34	E35	E36	E37	D38	L39	F40	Y41	Q42	S43	S44	L45	A46	S47	W48	Y50	N51	T52	M53	I54	T55	E56	E57	M58	V59				
Q60	M61	M62	M63	M64	A65	G66	D67	K68	W69	S70	A71	F72	L73	K74	E75	G76	S77	T78	L79	A80	Q81	M82	Y83	P84	L85	Q86	E87	F88	O89	N90	L91	T92	A93	Y93	K94	L95	Q96	L97	Q98	A99	L100	Q101	Q102	Q103	G104	S105	S106	V107	L108	S109	E110	D111	K112	S113	K114	R115	L116	N117	T118	I119		
L120	M121	T122	M123	S124	T125	G126	Y127	S128	T129	G130	K131	V132	C133	M134	P135	D136	M137	P138	Q139	E140	D141	Y142	L143	L144	L145	E146	P146	D206	Y207	G147	L148	M149	E150	I151	M152	A153	M154	S155	L156	D157	Y158	M159	E160	R161	L162	W163	A164	W165	E166	S167	W168	R169	S170	E171	V172	G173	K174	Q175	L176	R177	P178	L179
Y180	E181	E182	Y183	V184	V185	L186	K187	M188	E189	M190	A191	R192	A193	M194	H195	Y196	E197	D198	Y199	G200	D201	Y202	L203	R204	G205	D206	Y207	G147	L148	M149	E150	I151	M152	A153	M154	S155	L156	D157	Y158	M159	E160	R161	L162	W163	A164	W165	E166	S167	W168	R169	S170	E171	V172	G173	K174	Q175	L176	R177	P178	L179		



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



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



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



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



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



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



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



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



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



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



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

Chain Q:  100%

NAG1
NAG2

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

Chain R:  50% 50%

NAG1
NAG2

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

Chain S:  100%

NAG1
NAG2

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

Chain T:  50% 50%

NAG1
NAG2

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

Chain U:  50% 50%

NAG1
NAG2

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

Chain V:  100%

NAG1
NAG2

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

Chain W:  50% 100% 50%



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



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



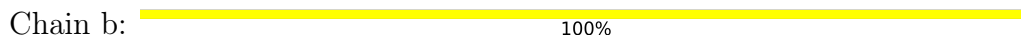
- Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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



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



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



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

Chain d:  100%
100%



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

Chain e:  100%
100%



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

Chain f:  100%
50% 50%



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

Chain g:  100%
100%



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

Chain h:  100%
100%



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

Chain i:  100%
100%



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



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



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



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



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



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



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



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



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



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	458101	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	4.745	Depositor
Minimum map value	-3.507	Depositor
Average map value	0.008	Depositor
Map value standard deviation	0.095	Depositor
Recommended contour level	0.23	Depositor
Map size (Å)	313.056, 313.056, 313.056	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.087, 1.087, 1.087	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z > 5$	RMSZ	# $ Z > 5$
1	A	0.55	0/8007	0.54	0/10890
1	B	0.56	0/8013	0.55	0/10898
1	C	0.56	1/8007 (0.0%)	0.54	0/10890
2	D	0.30	0/5007	0.43	0/6803
2	F	0.30	0/5007	0.43	0/6803
2	H	0.30	0/5007	0.43	0/6803
All	All	0.47	1/39048 (0.0%)	0.50	0/53087

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	293	LEU	C-N	5.19	1.46	1.34

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	7825	0	7633	144	0
1	B	7831	0	7639	117	0
1	C	7825	0	7634	160	0
2	D	4870	0	4637	47	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	4870	0	4637	44	0
2	H	4870	0	4637	42	0
3	E	28	0	25	5	0
3	G	28	0	25	2	0
3	I	28	0	25	0	0
3	J	28	0	25	0	0
3	K	28	0	25	1	0
3	L	28	0	25	0	0
3	M	28	0	25	0	0
3	N	28	0	25	0	0
3	O	28	0	25	0	0
3	P	28	0	25	3	0
3	Q	28	0	25	0	0
3	R	28	0	25	0	0
3	S	28	0	25	0	0
3	T	28	0	25	0	0
3	U	28	0	25	0	0
3	V	28	0	25	0	0
3	W	28	0	25	2	0
3	X	28	0	25	0	0
3	Y	28	0	25	0	0
3	Z	28	0	25	0	0
3	a	28	0	25	0	0
3	b	28	0	25	0	0
3	c	28	0	25	0	0
3	d	28	0	25	0	0
3	e	28	0	25	0	0
3	f	28	0	25	0	0
3	g	28	0	25	0	0
3	h	28	0	25	0	0
3	i	28	0	25	0	0
3	j	28	0	25	0	0
3	k	28	0	25	0	0
3	l	28	0	25	0	0
3	m	28	0	25	0	0
3	n	28	0	25	0	0
3	o	28	0	25	0	0
3	p	28	0	25	0	0
3	q	28	0	25	0	0
3	r	28	0	25	0	0
4	A	112	0	104	0	0
4	B	126	0	117	5	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	C	112	0	104	0	0
4	D	14	0	13	0	0
4	F	14	0	13	0	0
4	H	14	0	13	0	0
All	All	39547	0	38131	543	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 7.

All (543) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:534:VAL:O	1:C:535:LYS:HG2	1.28	1.26
1:B:289:VAL:HG23	1:B:306:PHE:CE2	1.71	1.24
1:A:334:ASN:O	1:A:335:LEU:CG	1.85	1.23
1:A:582:LEU:HD12	3:E:2:NAG:C8	1.75	1.17
1:A:981:LEU:HD23	1:A:989:ALA:HB1	1.16	1.13
1:A:334:ASN:O	1:A:335:LEU:HG	0.94	1.11
1:C:326:ILE:HD11	1:C:534:VAL:CG2	1.81	1.09
1:C:534:VAL:HG12	1:C:535:LYS:H	1.06	1.09
1:C:326:ILE:HD11	1:C:534:VAL:HG23	1.10	1.06
1:C:332:ILE:HD11	1:C:335:LEU:HD21	1.37	1.04
1:A:328:ARG:O	1:A:329:PHE:CD1	2.11	1.03
1:A:981:LEU:HD23	1:A:989:ALA:CB	1.88	1.02
1:C:326:ILE:CD1	1:C:534:VAL:HG23	1.90	1.01
1:B:326:ILE:HD13	1:B:533:LEU:HA	1.46	0.97
1:B:534:VAL:O	1:B:535:LYS:HG3	1.64	0.97
1:C:656:VAL:HG22	1:C:694:ALA:O	1.63	0.96
1:C:431:GLY:O	1:C:432:CYS:SG	2.26	0.94
1:A:431:GLY:O	1:A:432:CYS:SG	2.26	0.93
1:B:431:GLY:O	1:B:432:CYS:SG	2.26	0.93
1:B:294:ASP:HB2	1:B:295:PRO:CD	2.01	0.90
1:C:643:PHE:CZ	1:C:655:TYR:CE1	2.61	0.89
1:A:582:LEU:HD12	3:E:2:NAG:H83	1.53	0.88
1:A:981:LEU:HD21	1:A:993:ILE:HD12	1.54	0.88
1:C:534:VAL:HG12	1:C:535:LYS:N	1.85	0.87
1:A:981:LEU:HD21	1:A:993:ILE:CD1	2.04	0.86
1:C:332:ILE:HG23	1:C:333:THR:H	1.38	0.86
1:B:534:VAL:HG23	1:B:535:LYS:N	1.90	0.85
1:A:981:LEU:HG	1:A:993:ILE:HD11	1.56	0.85
1:C:329:PHE:CD2	1:C:330:PRO:HD2	2.12	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:332:ILE:HB	1:B:362:VAL:HG21	1.60	0.84
1:B:289:VAL:CG2	1:B:306:PHE:CE2	2.61	0.84
1:C:528:LYS:O	1:C:529:LYS:HB2	1.77	0.84
1:B:95:THR:HG22	1:B:189:LEU:HD23	1.60	0.83
1:A:981:LEU:CG	1:A:993:ILE:HD11	2.08	0.83
1:A:95:THR:HG22	1:A:189:LEU:HD23	1.60	0.83
1:C:95:THR:HG22	1:C:189:LEU:HD23	1.60	0.83
1:A:48:LEU:CD2	1:A:305:SER:HA	2.10	0.81
1:B:534:VAL:O	1:B:535:LYS:CG	2.28	0.81
1:C:328:ARG:HE	1:C:533:LEU:HB2	1.44	0.81
1:C:534:VAL:C	1:C:535:LYS:HG2	2.02	0.80
1:B:27:SER:OG	1:B:64:TRP:CE3	2.34	0.79
1:B:28:TYR:CE2	4:B:1401:NAG:H62	2.17	0.79
1:B:528:LYS:O	1:B:529:LYS:HD3	1.81	0.79
1:C:320:VAL:CG2	1:C:591:SER:HB3	2.12	0.79
1:C:27:SER:OG	1:C:64:TRP:CE3	2.34	0.79
1:C:656:VAL:CG2	1:C:694:ALA:O	2.30	0.79
1:A:27:SER:OG	1:A:64:TRP:CE3	2.34	0.78
1:A:95:THR:HG22	1:A:189:LEU:CD2	2.14	0.77
1:C:95:THR:HG22	1:C:189:LEU:CD2	2.14	0.77
1:B:28:TYR:CD2	4:B:1401:NAG:H62	2.20	0.77
1:A:981:LEU:CD2	1:A:989:ALA:HB1	2.09	0.76
1:C:534:VAL:O	1:C:535:LYS:CG	2.23	0.76
1:C:328:ARG:CD	1:C:532:ASN:O	2.33	0.76
1:A:582:LEU:CD1	3:E:2:NAG:C8	2.61	0.76
1:B:95:THR:HG22	1:B:189:LEU:CD2	2.14	0.76
1:B:534:VAL:HG23	1:B:535:LYS:H	1.48	0.75
1:A:320:VAL:HG21	1:A:591:SER:HB2	1.69	0.75
1:A:320:VAL:HG12	1:A:590:CYS:SG	2.27	0.74
1:B:289:VAL:HG23	1:B:306:PHE:CD2	2.21	0.74
1:B:565:PHE:O	1:C:42:VAL:HA	1.87	0.74
1:C:662:CYS:HB2	1:C:697:MET:HE3	1.69	0.74
1:A:582:LEU:HD12	3:E:2:NAG:H82	1.66	0.73
1:B:565:PHE:CZ	1:C:42:VAL:HG22	2.22	0.73
1:B:854:LYS:O	1:B:855:PHE:HB2	1.88	0.73
1:A:48:LEU:HD22	1:A:304:LYS:O	1.87	0.72
1:A:873:TYR:OH	1:C:699:LEU:HD22	1.89	0.72
1:B:295:PRO:HG2	1:B:608:VAL:HG21	1.69	0.72
1:C:342:PHE:HE2	1:C:434:ILE:HD11	1.55	0.72
1:B:276:LEU:O	1:B:306:PHE:HZ	1.73	0.71
1:C:320:VAL:HG21	1:C:591:SER:HB3	1.70	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:438:SER:HB2	1:A:509:ARG:HG3	1.72	0.71
1:B:438:SER:HB2	1:B:509:ARG:HG3	1.72	0.71
1:C:329:PHE:HD2	1:C:330:PRO:HD2	1.55	0.71
1:C:328:ARG:HH12	1:C:580:GLN:HB2	1.56	0.71
1:A:342:PHE:HE2	1:A:434:ILE:HD11	1.55	0.70
1:B:342:PHE:HE2	1:B:434:ILE:HD11	1.55	0.70
1:C:438:SER:HB2	1:C:509:ARG:HG3	1.73	0.70
1:A:422:ASN:HD21	1:A:454:ARG:H	1.39	0.70
1:C:422:ASN:HD21	1:C:454:ARG:H	1.39	0.70
1:B:342:PHE:HE2	1:B:434:ILE:CD1	2.05	0.70
1:C:342:PHE:HE2	1:C:434:ILE:CD1	2.05	0.70
1:A:342:PHE:HE2	1:A:434:ILE:CD1	2.05	0.70
1:A:48:LEU:HD23	1:A:305:SER:HA	1.74	0.69
1:B:565:PHE:CE2	1:C:42:VAL:HG22	2.27	0.69
1:C:332:ILE:HG23	1:C:333:THR:N	2.08	0.69
1:B:854:LYS:O	1:B:855:PHE:CB	2.39	0.69
1:B:289:VAL:CG2	1:B:306:PHE:CD2	2.75	0.68
1:B:422:ASN:HD21	1:B:454:ARG:H	1.39	0.68
1:B:855:PHE:CG	1:B:856:ASN:N	2.61	0.68
2:D:123:MET:HG2	2:D:176:LEU:HD12	1.76	0.68
1:A:328:ARG:O	1:A:329:PHE:HD1	1.73	0.67
1:A:674:TYR:CD2	1:A:691:SER:O	2.47	0.67
1:C:534:VAL:CG1	1:C:535:LYS:H	1.93	0.67
1:C:549:THR:HG22	1:C:590:CYS:SG	2.35	0.67
1:A:48:LEU:CD2	1:A:304:LYS:O	2.43	0.66
1:A:331:ASN:O	1:A:332:ILE:C	2.33	0.66
1:A:278:LYS:HB2	1:A:306:PHE:CE1	2.29	0.66
2:F:123:MET:HG2	2:F:176:LEU:HD12	1.76	0.66
1:A:981:LEU:CD2	1:A:993:ILE:HD11	2.26	0.65
2:H:123:MET:HG2	2:H:176:LEU:HD12	1.76	0.65
1:A:582:LEU:CD1	3:E:2:NAG:H82	2.25	0.65
1:A:320:VAL:HG21	1:A:591:SER:CB	2.27	0.65
1:A:672:ALA:HA	1:A:693:ILE:O	1.96	0.65
1:C:643:PHE:CZ	1:C:655:TYR:CD1	2.84	0.65
2:F:284:PRO:HD3	2:F:440:LEU:HD22	1.79	0.65
2:D:152:MET:O	2:D:161:ARG:NH2	2.29	0.65
1:C:48:LEU:CD2	1:C:305:SER:HA	2.27	0.64
2:H:152:MET:O	2:H:161:ARG:NH2	2.29	0.64
1:A:329:PHE:CZ	1:A:544:ASN:HA	2.32	0.64
1:A:592:PHE:CD1	1:A:593:GLY:N	2.65	0.64
2:H:284:PRO:HD3	2:H:440:LEU:HD22	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:152:MET:O	2:F:161:ARG:NH2	2.30	0.64
1:A:320:VAL:CG1	1:A:590:CYS:SG	2.85	0.64
2:D:284:PRO:HD3	2:D:440:LEU:HD22	1.79	0.64
1:A:457:ARG:NH1	1:A:459:SER:O	2.30	0.64
1:B:457:ARG:NH1	1:B:459:SER:O	2.30	0.64
1:C:328:ARG:CG	1:C:532:ASN:O	2.46	0.63
1:C:550:GLY:HA2	1:C:590:CYS:SG	2.37	0.63
1:C:799:GLY:O	1:C:800:PHE:C	2.37	0.63
1:C:530:SER:C	1:C:531:THR:HG22	2.18	0.63
1:C:457:ARG:NH1	1:C:459:SER:O	2.30	0.63
1:A:328:ARG:NH1	1:A:531:THR:O	2.31	0.63
1:A:591:SER:O	1:A:592:PHE:HB3	1.97	0.63
1:A:981:LEU:CD2	1:A:993:ILE:CD1	2.76	0.63
1:A:530:SER:OG	1:A:580:GLN:NE2	2.31	0.62
1:B:289:VAL:HG23	1:B:306:PHE:HE2	1.51	0.62
1:C:379:CYS:HA	1:C:432:CYS:CB	2.29	0.62
1:C:696:THR:HG22	1:C:697:MET:N	2.14	0.62
1:A:333:THR:OG1	1:A:334:ASN:N	2.32	0.62
1:C:529:LYS:CG	1:C:530:SER:H	2.12	0.62
1:A:393:THR:HB	1:A:517:LEU:HA	1.82	0.62
1:B:393:THR:HB	1:B:517:LEU:HA	1.82	0.61
1:B:331:ASN:OD1	1:B:331:ASN:N	2.34	0.61
1:B:294:ASP:HB2	1:B:295:PRO:HD2	1.81	0.61
1:C:393:THR:HB	1:C:517:LEU:HA	1.82	0.61
1:A:290:ASP:O	1:A:297:SER:HB3	2.01	0.61
1:A:759:PHE:CD2	1:A:1001:LEU:HD21	2.36	0.60
1:A:379:CYS:HA	1:A:432:CYS:CB	2.29	0.60
1:C:327:VAL:O	1:C:328:ARG:HG2	2.01	0.60
1:C:533:LEU:HG	1:C:534:VAL:N	2.16	0.60
1:A:873:TYR:CZ	1:C:699:LEU:HD22	2.37	0.60
1:B:379:CYS:HA	1:B:432:CYS:CB	2.29	0.60
1:B:559:PHE:HA	1:C:43:PHE:CD1	2.37	0.60
1:B:95:THR:O	1:B:96:GLU:HB2	2.02	0.60
1:B:28:TYR:CD1	4:B:1401:NAG:O6	2.52	0.59
1:A:95:THR:O	1:A:96:GLU:HB2	2.02	0.59
1:C:332:ILE:HD11	1:C:335:LEU:CD2	2.23	0.59
1:A:276:LEU:CD2	1:A:304:LYS:HA	2.31	0.59
1:C:383:SER:HB3	1:C:386:LYS:HG2	1.84	0.59
1:B:383:SER:HB3	1:B:386:LYS:HG2	1.85	0.59
1:C:531:THR:O	1:C:532:ASN:HB2	2.02	0.59
1:B:336:CYS:O	1:B:338:PHE:N	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:442:ASP:O	1:C:448:ASN:ND2	2.34	0.58
1:A:531:THR:OG1	1:A:532:ASN:N	2.36	0.58
1:A:383:SER:HB3	1:A:386:LYS:HG2	1.84	0.58
1:A:745:ASP:CG	1:C:319:ARG:HH21	2.07	0.58
1:B:333:THR:O	1:B:334:ASN:HB2	2.02	0.58
1:C:320:VAL:HG23	1:C:591:SER:HB3	1.85	0.58
1:A:326:ILE:HG23	1:A:531:THR:HG23	1.85	0.58
1:A:591:SER:OG	1:A:619:GLU:CD	2.42	0.58
1:C:95:THR:O	1:C:96:GLU:HB2	2.02	0.58
1:A:591:SER:OG	1:A:619:GLU:OE2	2.20	0.58
1:B:442:ASP:O	1:B:448:ASN:ND2	2.34	0.58
1:C:328:ARG:HD3	1:C:532:ASN:O	2.04	0.57
1:C:403:ARG:HB3	1:C:406:GLU:HG3	1.86	0.57
1:A:403:ARG:HB3	1:A:406:GLU:HG3	1.86	0.57
1:A:289:VAL:HG23	1:A:306:PHE:CE2	2.40	0.57
1:C:656:VAL:HG23	1:C:695:TYR:HB3	1.86	0.57
1:B:565:PHE:O	1:C:43:PHE:N	2.36	0.57
1:C:312:ILE:HD12	1:C:598:ILE:HG12	1.87	0.57
3:K:2:NAG:H3	3:K:2:NAG:H83	4.64	0.57
3:P:2:NAG:H3	3:P:2:NAG:H83	4.35	0.57
1:B:403:ARG:HB3	1:B:406:GLU:HG3	1.86	0.57
1:B:28:TYR:CD2	4:B:1401:NAG:C6	2.88	0.56
1:C:333:THR:HG22	1:C:334:ASN:OD1	2.04	0.56
2:D:55:THR:OG1	2:D:56:GLU:N	2.38	0.56
2:H:55:THR:OG1	2:H:56:GLU:N	2.38	0.56
1:B:276:LEU:O	1:B:306:PHE:CZ	2.57	0.56
1:C:379:CYS:HA	1:C:432:CYS:HB3	1.88	0.56
2:F:29:LEU:HD12	2:F:93:VAL:HG23	1.87	0.56
2:F:55:THR:OG1	2:F:56:GLU:N	2.38	0.56
1:A:334:ASN:O	1:A:335:LEU:CB	2.50	0.56
1:A:815:ARG:NH2	1:A:867:ASP:OD2	2.38	0.56
1:A:869:MET:HE1	1:C:697:MET:SD	2.44	0.56
2:H:29:LEU:HD12	2:H:93:VAL:HG23	1.87	0.56
2:H:490:PRO:HA	2:H:612:PRO:HG2	1.88	0.56
1:A:379:CYS:HA	1:A:432:CYS:HB3	1.88	0.56
1:A:336:CYS:O	1:A:338:PHE:N	2.36	0.56
1:B:294:ASP:HB2	1:B:295:PRO:HD3	1.84	0.56
1:C:27:SER:OG	1:C:64:TRP:CD2	2.59	0.56
2:H:418:LEU:O	2:H:421:ILE:HG22	2.07	0.55
1:A:334:ASN:C	1:A:335:LEU:HG	2.05	0.55
1:A:27:SER:OG	1:A:64:TRP:CD2	2.59	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:565:PHE:CZ	1:B:42:VAL:HG22	2.41	0.55
1:A:398:ASP:HB2	1:A:512:VAL:HG22	1.89	0.55
1:B:27:SER:OG	1:B:64:TRP:CD2	2.59	0.55
1:C:533:LEU:HG	1:C:534:VAL:H	1.70	0.55
2:D:29:LEU:HD12	2:D:93:VAL:HG23	1.87	0.55
1:B:379:CYS:HA	1:B:432:CYS:HB3	1.88	0.55
2:F:418:LEU:O	2:F:421:ILE:HG22	2.07	0.55
1:B:393:THR:HA	1:B:523:THR:OG1	2.07	0.55
1:B:398:ASP:HB2	1:B:512:VAL:HG22	1.89	0.55
1:A:122:ASN:OD1	1:A:122:ASN:N	2.40	0.55
1:C:336:CYS:O	1:C:338:PHE:N	2.36	0.55
1:A:787:GLN:OE1	1:C:703:ASN:HB3	2.07	0.54
1:B:28:TYR:CE1	4:B:1401:NAG:O6	2.51	0.54
2:F:490:PRO:HA	2:F:612:PRO:HG2	1.88	0.54
1:C:393:THR:HA	1:C:523:THR:OG1	2.07	0.54
2:D:418:LEU:O	2:D:421:ILE:HG22	2.07	0.54
1:B:898:PHE:N	1:B:899:PRO:CD	2.70	0.54
1:C:122:ASN:N	1:C:122:ASN:OD1	2.40	0.54
2:D:490:PRO:HA	2:D:612:PRO:HG2	1.88	0.54
1:A:674:TYR:CE1	1:A:690:GLN:N	2.75	0.54
1:B:534:VAL:C	1:B:535:LYS:HG3	2.27	0.54
1:A:331:ASN:O	1:A:332:ILE:O	2.26	0.54
1:B:796:TYR:O	1:B:798:GLY:N	2.39	0.54
1:C:398:ASP:HB2	1:C:512:VAL:HG22	1.89	0.54
1:A:294:ASP:HB3	1:A:295:PRO:CD	2.38	0.54
1:C:395:VAL:HG22	1:C:515:PHE:HD1	1.73	0.54
1:A:53:ASP:HB3	1:A:55:PHE:CE2	2.44	0.53
1:B:122:ASN:OD1	1:B:122:ASN:N	2.40	0.53
1:B:534:VAL:CG2	1:B:535:LYS:H	2.13	0.53
1:A:393:THR:HA	1:A:523:THR:OG1	2.07	0.53
1:A:591:SER:HG	1:A:619:GLU:CD	2.11	0.53
1:A:395:VAL:HG22	1:A:515:PHE:HD1	1.73	0.53
1:C:329:PHE:CG	1:C:528:LYS:HG3	2.44	0.53
2:H:417:HIS:HB2	2:H:543:ASP:OD2	2.08	0.53
1:B:395:VAL:HG22	1:B:515:PHE:HD1	1.73	0.53
1:B:438:SER:O	1:B:438:SER:OG	2.24	0.53
1:C:528:LYS:O	1:C:529:LYS:CB	2.52	0.53
2:D:417:HIS:HB2	2:D:543:ASP:OD2	2.08	0.53
1:B:312:ILE:HD12	1:B:598:ILE:HG12	1.91	0.52
1:C:438:SER:OG	1:C:438:SER:O	2.24	0.52
2:F:417:HIS:HB2	2:F:543:ASP:OD2	2.08	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:278:LYS:HB2	1:C:306:PHE:CZ	2.44	0.52
1:B:53:ASP:HB3	1:B:55:PHE:CE2	2.44	0.52
1:C:431:GLY:C	1:C:432:CYS:SG	2.88	0.52
1:A:431:GLY:C	1:A:432:CYS:SG	2.88	0.52
1:A:320:VAL:CG2	1:A:591:SER:CB	2.88	0.52
1:A:438:SER:O	1:A:438:SER:OG	2.24	0.52
3:G:1:NAG:H61	3:G:2:NAG:N2	2.24	0.52
1:A:442:ASP:O	1:A:448:ASN:ND2	2.34	0.52
1:C:898:PHE:N	1:C:899:PRO:CD	2.73	0.52
1:A:276:LEU:HD21	1:A:304:LYS:HA	1.92	0.52
1:C:48:LEU:HD22	1:C:304:LYS:O	2.09	0.52
3:P:1:NAG:H61	3:P:2:NAG:N2	2.25	0.52
1:B:320:VAL:HG21	1:B:591:SER:HB3	1.92	0.52
1:C:53:ASP:HB3	1:C:55:PHE:CE2	2.44	0.51
3:W:1:NAG:H61	3:W:2:NAG:N2	2.24	0.51
2:H:333:LEU:O	2:H:334:THR:OG1	2.27	0.51
1:B:332:ILE:O	1:B:333:THR:OG1	2.28	0.51
1:B:320:VAL:HG12	1:B:590:CYS:SG	2.50	0.51
1:C:41:LYS:O	1:C:42:VAL:HB	2.11	0.51
1:C:328:ARG:NE	1:C:533:LEU:HB2	2.21	0.51
3:W:1:NAG:H61	3:W:2:NAG:HN2	1.75	0.51
1:B:431:GLY:C	1:B:432:CYS:SG	2.88	0.51
1:A:41:LYS:O	1:A:42:VAL:HB	2.11	0.51
2:D:333:LEU:O	2:D:334:THR:OG1	2.27	0.51
2:H:147:GLY:O	2:H:150:GLU:HG3	2.11	0.51
2:F:147:GLY:O	2:F:150:GLU:HG3	2.11	0.51
1:B:43:PHE:CG	1:B:44:ARG:N	2.79	0.51
1:C:656:VAL:CG2	1:C:695:TYR:HB3	2.41	0.51
1:A:790:LYS:NZ	1:C:702:GLU:OE2	2.44	0.50
1:A:898:PHE:N	1:A:899:PRO:CD	2.74	0.50
1:C:332:ILE:CG2	1:C:333:THR:H	2.18	0.50
1:A:671:CYS:O	1:A:694:ALA:HA	2.11	0.50
1:A:318:PHE:O	1:A:592:PHE:HA	2.11	0.50
1:C:43:PHE:CG	1:C:44:ARG:N	2.79	0.50
1:B:391:CYS:HA	1:B:525:CYS:HB3	1.93	0.50
2:D:147:GLY:O	2:D:150:GLU:HG3	2.11	0.50
1:A:43:PHE:CG	1:A:44:ARG:N	2.79	0.50
1:C:328:ARG:HG2	1:C:532:ASN:O	2.11	0.50
1:C:391:CYS:HA	1:C:525:CYS:HB3	1.93	0.50
1:A:276:LEU:HD21	1:A:305:SER:N	2.27	0.50
1:B:329:PHE:HE1	1:B:544:ASN:OD1	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:332:ILE:C	1:B:333:THR:OG1	2.50	0.50
1:A:745:ASP:OD2	1:C:319:ARG:NH2	2.44	0.50
2:D:77:SER:O	2:D:81:GLN:HG2	2.12	0.50
3:P:1:NAG:H61	3:P:2:NAG:HN2	1.76	0.50
3:G:1:NAG:H61	3:G:2:NAG:HN2	1.75	0.50
1:A:391:CYS:HA	1:A:525:CYS:HB3	1.93	0.49
1:B:433:VAL:HG13	1:B:512:VAL:HG12	1.94	0.49
1:A:276:LEU:HD21	1:A:304:LYS:C	2.32	0.49
1:C:695:TYR:CD1	1:C:695:TYR:C	2.85	0.49
2:F:77:SER:O	2:F:81:GLN:HG2	2.12	0.49
2:F:333:LEU:O	2:F:334:THR:OG1	2.27	0.49
1:A:45:SER:O	1:A:47:VAL:N	2.46	0.49
2:H:77:SER:O	2:H:81:GLN:HG2	2.12	0.49
1:B:332:ILE:O	1:B:333:THR:CB	2.60	0.49
1:C:45:SER:O	1:C:47:VAL:N	2.46	0.49
1:A:320:VAL:CG2	1:A:591:SER:HB3	2.42	0.49
1:A:592:PHE:HD1	1:A:593:GLY:N	2.09	0.49
1:B:41:LYS:O	1:B:42:VAL:HB	2.11	0.49
1:C:433:VAL:HG13	1:C:512:VAL:HG12	1.94	0.49
1:A:662:CYS:HB2	1:A:697:MET:CB	2.43	0.49
1:C:744:GLY:O	1:C:745:ASP:HB2	2.12	0.48
1:A:47:VAL:O	1:A:49:HIS:N	2.46	0.48
1:A:433:VAL:HG13	1:A:512:VAL:HG12	1.94	0.48
1:C:532:ASN:OD1	1:C:533:LEU:N	2.41	0.48
1:A:42:VAL:HA	1:C:565:PHE:O	2.13	0.48
2:D:163:TRP:O	2:D:167:SER:OG	2.25	0.48
1:B:45:SER:O	1:B:47:VAL:N	2.46	0.48
1:B:47:VAL:O	1:B:49:HIS:N	2.46	0.48
1:A:662:CYS:HB2	1:A:697:MET:SD	2.53	0.48
1:C:696:THR:CG2	1:C:697:MET:N	2.76	0.48
2:D:271:TRP:NE1	2:D:502:SER:O	2.47	0.48
1:C:533:LEU:HD21	1:C:535:LYS:HE3	1.95	0.48
2:H:274:PHE:HB3	2:H:276:THR:HG22	1.96	0.48
1:C:529:LYS:O	1:C:530:SER:O	2.31	0.48
2:D:274:PHE:HB3	2:D:276:THR:HG22	1.96	0.48
1:A:763:LEU:HD13	1:A:1004:LEU:CD2	2.44	0.47
1:B:916:LEU:C	1:B:916:LEU:HD13	2.34	0.47
2:F:274:PHE:HB3	2:F:276:THR:HG22	1.96	0.47
1:B:454:ARG:NH2	1:B:469:SER:O	2.40	0.47
1:C:47:VAL:O	1:C:49:HIS:N	2.46	0.47
2:H:145:GLU:HB3	2:H:146:PRO:HD3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:529:LYS:HG2	1:C:530:SER:H	1.78	0.47
1:C:1082:CYS:SG	1:C:1132:ILE:HD13	2.55	0.47
1:C:328:ARG:NE	1:C:532:ASN:O	2.46	0.47
2:F:37:GLU:OE1	2:F:393:ARG:NH1	2.36	0.47
2:F:145:GLU:HB3	2:F:146:PRO:HD3	1.97	0.47
2:F:90:ASN:HB3	2:F:93:VAL:HG12	1.96	0.47
2:H:37:GLU:OE1	2:H:393:ARG:NH1	2.36	0.47
1:A:565:PHE:CE2	1:B:42:VAL:HG22	2.50	0.47
1:B:326:ILE:HG21	1:B:533:LEU:HB2	1.97	0.47
1:C:529:LYS:CG	1:C:530:SER:N	2.78	0.47
2:D:145:GLU:HB3	2:D:146:PRO:HD3	1.97	0.47
1:A:276:LEU:HD22	1:A:304:LYS:HA	1.96	0.47
1:C:278:LYS:HB2	1:C:306:PHE:CE1	2.50	0.47
1:C:430:THR:O	1:C:430:THR:OG1	2.32	0.47
1:C:332:ILE:CG2	1:C:333:THR:N	2.78	0.46
2:F:524:GLN:OE1	2:F:580:ASN:N	2.48	0.46
1:A:289:VAL:HG11	1:A:300:LYS:HB2	1.95	0.46
1:A:454:ARG:NH2	1:A:469:SER:O	2.40	0.46
2:D:62:MET:HG3	2:D:63:ASN:N	2.30	0.46
2:H:90:ASN:HB3	2:H:93:VAL:HG12	1.97	0.46
1:B:329:PHE:CE1	1:B:544:ASN:OD1	2.68	0.46
1:B:888:PHE:CZ	1:B:1034:LEU:CD2	2.99	0.46
1:C:694:ALA:O	1:C:695:TYR:HB3	2.15	0.46
2:D:90:ASN:HB3	2:D:93:VAL:HG12	1.97	0.46
2:D:166:GLU:HG3	2:D:491:VAL:HG21	1.98	0.46
1:A:470:THR:O	1:A:470:THR:HG22	2.16	0.46
1:A:662:CYS:HB2	1:A:697:MET:HB3	1.97	0.46
1:A:981:LEU:CD2	1:A:989:ALA:CB	2.77	0.46
2:F:62:MET:HG3	2:F:63:ASN:N	2.31	0.46
2:F:271:TRP:NE1	2:F:502:SER:O	2.47	0.46
2:H:62:MET:HG3	2:H:63:ASN:N	2.30	0.46
1:C:470:THR:HG22	1:C:470:THR:O	2.16	0.45
2:D:291:ILE:HD11	2:D:428:PHE:HZ	1.81	0.45
2:H:166:GLU:HG3	2:H:491:VAL:HG21	1.98	0.45
1:B:353:TRP:HZ3	1:B:355:ARG:HD3	1.82	0.45
1:B:470:THR:HG22	1:B:470:THR:O	2.16	0.45
2:H:524:GLN:OE1	2:H:580:ASN:N	2.49	0.45
1:A:643:PHE:CZ	1:A:655:TYR:CD1	3.05	0.45
1:C:695:TYR:HD1	1:C:696:THR:O	1.99	0.45
2:D:345:HIS:O	2:D:347:THR:OG1	2.35	0.45
1:A:560:LEU:O	1:A:562:PHE:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:50:TYR:CE1	2:F:59:VAL:HG22	2.51	0.45
1:A:320:VAL:HG23	1:A:591:SER:HB3	1.97	0.45
1:B:276:LEU:HG	1:B:306:PHE:CE1	2.52	0.45
1:C:329:PHE:CD2	1:C:528:LYS:HG3	2.51	0.45
1:C:454:ARG:NH2	1:C:469:SER:O	2.40	0.45
2:H:50:TYR:CE1	2:H:59:VAL:HG22	2.51	0.45
1:A:983:ARG:O	1:A:984:LEU:HB2	2.15	0.45
1:B:112:SER:O	1:B:113:LYS:HB2	2.17	0.45
2:D:183:TYR:OH	2:D:509:ASP:OD1	2.28	0.45
2:F:20:THR:HB	2:F:23:GLU:HG3	1.99	0.45
1:A:297:SER:O	1:A:301:CYS:SG	2.75	0.45
1:A:569:ILE:O	1:A:570:ALA:HB3	2.17	0.45
1:C:329:PHE:CB	1:C:330:PRO:HD2	2.47	0.45
1:C:353:TRP:HZ3	1:C:355:ARG:HD3	1.82	0.45
1:A:63:THR:HG22	1:A:64:TRP:N	2.32	0.45
1:C:112:SER:O	1:C:113:LYS:HB2	2.17	0.45
1:C:530:SER:O	1:C:531:THR:CB	2.64	0.45
2:D:50:TYR:CE1	2:D:59:VAL:HG22	2.51	0.45
2:H:345:HIS:O	2:H:347:THR:OG1	2.34	0.45
1:A:353:TRP:HZ3	1:A:355:ARG:HD3	1.82	0.45
1:A:442:ASP:OD1	1:A:451:TYR:OH	2.22	0.45
1:A:811:LYS:HB3	1:A:812:PRO:HD2	1.99	0.45
2:F:291:ILE:HD11	2:F:428:PHE:HZ	1.81	0.45
1:C:27:SER:OG	1:C:64:TRP:HB3	2.18	0.44
2:H:291:ILE:HD11	2:H:428:PHE:HZ	1.82	0.44
1:B:298:GLU:O	1:B:301:CYS:N	2.49	0.44
2:F:166:GLU:HG3	2:F:491:VAL:HG21	1.98	0.44
1:A:112:SER:O	1:A:113:LYS:HB2	2.17	0.44
1:A:811:LYS:HB3	1:A:812:PRO:CD	2.48	0.44
2:H:20:THR:HB	2:H:23:GLU:HG3	1.99	0.44
1:B:27:SER:OG	1:B:64:TRP:HB3	2.18	0.44
1:B:310:LYS:HD3	1:B:600:PRO:O	2.18	0.44
2:D:524:GLN:OE1	2:D:580:ASN:N	2.48	0.44
1:B:328:ARG:HD2	1:B:328:ARG:HA	1.80	0.44
1:B:569:ILE:O	1:B:570:ALA:HB3	2.17	0.44
1:C:560:LEU:O	1:C:562:PHE:N	2.50	0.44
1:C:695:TYR:CD1	1:C:696:THR:O	2.70	0.44
1:A:438:SER:OG	1:A:442:ASP:OD2	2.26	0.44
2:F:233:ILE:HD13	2:F:450:LEU:HD13	2.00	0.44
2:F:345:HIS:O	2:F:347:THR:OG1	2.34	0.44
2:H:183:TYR:OH	2:H:509:ASP:OD1	2.28	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:63:THR:HG22	1:B:64:TRP:N	2.32	0.44
1:C:569:ILE:O	1:C:570:ALA:HB3	2.17	0.44
1:C:986:PRO:HB2	1:C:987:PRO:HD3	1.99	0.44
1:C:1126:CYS:SG	1:C:1132:ILE:HD13	2.58	0.44
1:A:742:ILE:O	1:A:1000:ARG:NH1	2.49	0.44
1:B:643:PHE:CZ	1:B:655:TYR:CD1	3.05	0.44
2:F:431:ASP:N	2:F:431:ASP:OD1	2.50	0.44
1:A:27:SER:OG	1:A:64:TRP:HB3	2.18	0.43
2:H:271:TRP:NE1	2:H:502:SER:O	2.47	0.43
2:H:431:ASP:N	2:H:431:ASP:OD1	2.50	0.43
2:D:20:THR:HB	2:D:23:GLU:HG3	1.99	0.43
1:A:405:ASN:OD1	1:A:405:ASN:N	2.51	0.43
1:C:328:ARG:NH1	1:C:580:GLN:HB2	2.28	0.43
1:C:712:ILE:O	1:C:1074:ASN:HA	2.18	0.43
1:C:916:LEU:C	1:C:916:LEU:HD23	2.39	0.43
2:H:267:LEU:HD11	2:H:487:VAL:HG11	2.00	0.43
1:A:312:ILE:HD12	1:A:598:ILE:HG12	2.00	0.43
1:B:438:SER:OG	1:B:442:ASP:OD2	2.26	0.43
1:C:405:ASN:OD1	1:C:405:ASN:N	2.51	0.43
2:D:247:LYS:HB3	2:D:282:THR:HG22	2.00	0.43
1:C:792:PRO:HA	1:C:793:PRO:HD3	1.91	0.43
2:D:245:ARG:NH1	2:D:603:PHE:O	2.52	0.43
1:C:534:VAL:CG1	1:C:535:LYS:N	2.59	0.43
1:A:294:ASP:CB	1:A:295:PRO:CD	2.97	0.43
1:A:563:GLN:OE1	1:B:43:PHE:HD1	2.01	0.43
1:B:654:GLU:O	1:B:693:ILE:HA	2.17	0.43
1:A:905:ARG:NH1	1:A:1049:LEU:O	2.51	0.43
1:C:462:LYS:HA	1:C:462:LYS:HD3	1.82	0.43
1:C:530:SER:O	1:C:531:THR:HG22	2.19	0.43
1:B:560:LEU:O	1:B:562:PHE:N	2.50	0.43
1:B:898:PHE:HB3	1:B:899:PRO:HD3	1.99	0.43
1:C:63:THR:HG22	1:C:64:TRP:N	2.32	0.43
2:D:85:LEU:HD12	2:D:85:LEU:HA	1.90	0.43
2:F:223:ILE:H	2:F:223:ILE:HG13	1.67	0.43
2:F:245:ARG:NH1	2:F:603:PHE:O	2.52	0.43
2:H:225:ASP:O	2:H:229:THR:HG23	2.19	0.43
2:H:247:LYS:HB3	2:H:282:THR:HG22	2.00	0.43
1:C:980:ILE:O	1:C:984:LEU:HB3	2.19	0.43
1:B:294:ASP:OD1	1:B:294:ASP:N	2.52	0.42
1:B:676:THR:HA	1:B:690:GLN:HE21	1.84	0.42
1:C:528:LYS:HA	1:C:528:LYS:HD3	1.86	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:151:ILE:O	2:D:155:SER:HB3	2.18	0.42
2:D:247:LYS:HG2	2:D:282:THR:HA	2.01	0.42
2:F:20:THR:O	2:F:23:GLU:N	2.28	0.42
2:F:225:ASP:O	2:F:229:THR:HG23	2.19	0.42
2:F:247:LYS:HB3	2:F:282:THR:HG22	2.00	0.42
2:H:247:LYS:HG2	2:H:282:THR:HA	2.01	0.42
1:B:342:PHE:CE2	1:B:434:ILE:HD11	2.45	0.42
1:C:328:ARG:HH21	1:C:533:LEU:CB	2.33	0.42
1:C:434:ILE:O	1:C:434:ILE:HG12	2.20	0.42
2:F:151:ILE:O	2:F:155:SER:HB3	2.18	0.42
2:F:267:LEU:HD11	2:F:487:VAL:HG11	2.01	0.42
2:H:151:ILE:O	2:H:155:SER:HB3	2.18	0.42
1:A:986:PRO:HB2	1:A:987:PRO:HD3	2.01	0.42
1:B:530:SER:O	1:B:531:THR:HG23	2.19	0.42
1:B:669:GLY:N	1:C:864:LEU:O	2.48	0.42
1:C:532:ASN:CG	1:C:533:LEU:H	2.19	0.42
1:A:430:THR:O	1:A:430:THR:OG1	2.32	0.42
1:B:331:ASN:O	1:B:332:ILE:HB	2.20	0.42
1:B:654:GLU:O	1:B:694:ALA:N	2.48	0.42
1:A:434:ILE:O	1:A:434:ILE:HG12	2.20	0.42
1:B:434:ILE:O	1:B:434:ILE:HG12	2.20	0.42
1:C:310:LYS:HG3	1:C:600:PRO:HA	2.01	0.42
2:D:225:ASP:O	2:D:229:THR:HG23	2.19	0.42
2:D:431:ASP:OD1	2:D:431:ASP:N	2.50	0.42
2:F:183:TYR:OH	2:F:509:ASP:OD1	2.28	0.42
2:H:233:ILE:HD13	2:H:450:LEU:HD13	2.00	0.42
2:D:267:LEU:HD11	2:D:487:VAL:HG11	2.01	0.42
1:A:48:LEU:HD23	1:A:304:LYS:O	2.19	0.42
2:F:247:LYS:HG2	2:F:282:THR:HA	2.01	0.42
1:B:204:TYR:CE2	1:B:225:PRO:HG3	2.55	0.42
1:A:359:SER:O	1:A:523:THR:HG22	2.20	0.42
1:C:700:GLY:O	1:C:701:ALA:O	2.37	0.42
1:C:898:PHE:HB3	1:C:899:PRO:HD3	2.01	0.42
1:B:559:PHE:CD1	1:C:43:PHE:CG	3.07	0.41
1:B:986:PRO:N	1:B:987:PRO:HD2	2.35	0.41
1:C:530:SER:O	1:C:531:THR:HB	2.20	0.41
2:D:136:ASP:OD1	2:D:137:ASN:N	2.53	0.41
2:D:233:ILE:HD13	2:D:450:LEU:HD13	2.00	0.41
2:F:287:GLN:O	2:F:287:GLN:HG2	2.20	0.41
2:H:27:THR:HA	2:H:30:ASP:HB2	2.02	0.41
1:A:916:LEU:C	1:A:916:LEU:HD23	2.41	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:295:PRO:HG2	1:B:608:VAL:CG2	2.46	0.41
1:B:970:PHE:O	1:B:995:ARG:NH2	2.53	0.41
1:C:329:PHE:CE1	1:C:544:ASN:HA	2.55	0.41
1:C:1102:TRP:HB2	1:C:1135:ASN:ND2	2.36	0.41
2:D:232:GLU:HB2	2:D:581:VAL:HG11	2.02	0.41
2:H:85:LEU:HD21	2:H:98:GLN:HB2	2.02	0.41
2:D:82:MET:O	2:D:82:MET:HG2	2.20	0.41
2:D:287:GLN:O	2:D:287:GLN:HG2	2.20	0.41
2:F:27:THR:HA	2:F:30:ASP:HB2	2.02	0.41
2:H:20:THR:O	2:H:23:GLU:N	2.28	0.41
2:H:82:MET:O	2:H:82:MET:HG2	2.21	0.41
1:C:359:SER:O	1:C:523:THR:HG22	2.20	0.41
2:D:303:ASP:OD1	2:D:303:ASP:N	2.54	0.41
2:F:232:GLU:HB2	2:F:581:VAL:HG11	2.02	0.41
1:A:204:TYR:CE2	1:A:225:PRO:HG3	2.55	0.41
1:C:204:TYR:CE2	1:C:225:PRO:HG3	2.55	0.41
2:D:164:ALA:O	2:D:270:MET:HE1	2.20	0.41
1:A:276:LEU:HD21	1:A:304:LYS:CA	2.51	0.41
1:B:528:LYS:HB2	1:B:529:LYS:H	1.67	0.41
2:D:85:LEU:HD21	2:D:98:GLN:HB2	2.03	0.41
2:F:82:MET:O	2:F:82:MET:HG2	2.21	0.41
2:H:455:MET:HE3	2:H:455:MET:HB3	1.85	0.41
1:A:48:LEU:HD21	1:A:305:SER:HA	1.95	0.41
1:A:790:LYS:CE	1:C:702:GLU:OE2	2.69	0.41
1:C:320:VAL:HG21	1:C:591:SER:CB	2.45	0.41
2:D:37:GLU:OE1	2:D:393:ARG:NH1	2.36	0.41
2:F:85:LEU:HD21	2:F:98:GLN:HB2	2.03	0.41
2:H:232:GLU:HB2	2:H:581:VAL:HG11	2.02	0.41
2:H:303:ASP:OD1	2:H:303:ASP:N	2.54	0.41
1:C:329:PHE:CG	1:C:330:PRO:HD2	2.53	0.41
2:D:215:TYR:HB3	2:D:567:THR:HG23	2.03	0.41
2:D:543:ASP:OD1	2:D:545:SER:OG	2.35	0.41
2:F:324:THR:C	2:F:326:GLY:H	2.24	0.41
2:H:215:TYR:HB3	2:H:567:THR:HG23	2.03	0.41
1:A:462:LYS:HD3	1:A:462:LYS:HA	1.82	0.41
1:B:359:SER:O	1:B:523:THR:HG22	2.20	0.41
1:B:736:VAL:HG22	1:B:858:LEU:CD2	2.51	0.41
1:C:342:PHE:CE2	1:C:434:ILE:HD11	2.45	0.41
1:C:986:PRO:N	1:C:987:PRO:CD	2.83	0.41
2:D:20:THR:O	2:D:23:GLU:N	2.28	0.41
1:B:43:PHE:CD2	1:B:44:ARG:N	2.89	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:95:THR:O	1:C:96:GLU:CB	2.69	0.41
1:C:534:VAL:C	1:C:535:LYS:CG	2.79	0.41
2:H:136:ASP:OD1	2:H:137:ASN:N	2.53	0.41
2:H:494:ASP:N	2:H:494:ASP:OD1	2.51	0.41
1:C:535:LYS:O	1:C:537:LYS:N	2.54	0.40
2:F:164:ALA:O	2:F:270:MET:HE1	2.21	0.40
1:A:981:LEU:CG	1:A:993:ILE:CD1	2.90	0.40
1:B:331:ASN:O	1:B:332:ILE:CB	2.69	0.40
1:C:1047:TYR:HB2	1:C:1067:TYR:HB3	2.04	0.40
2:F:303:ASP:OD1	2:F:303:ASP:N	2.54	0.40
1:A:43:PHE:CD2	1:A:44:ARG:N	2.90	0.40
1:C:326:ILE:HD13	1:C:533:LEU:HA	2.02	0.40
2:D:134:ASN:OD1	2:D:135:PRO:HD2	2.21	0.40
2:F:136:ASP:OD1	2:F:137:ASN:N	2.53	0.40
1:B:319:ARG:HH12	1:B:590:CYS:HB3	1.86	0.40
1:C:535:LYS:O	1:C:537:LYS:HG3	2.20	0.40
2:H:134:ASN:OD1	2:H:135:PRO:HD2	2.21	0.40
1:A:812:PRO:O	1:A:813:SER:HB3	2.21	0.40
1:C:334:ASN:OD1	1:C:334:ASN:N	2.53	0.40
2:D:27:THR:HA	2:D:30:ASP:HB2	2.02	0.40
2:D:138:PRO:HD2	2:D:139:GLN:HE22	1.87	0.40
2:F:215:TYR:HB3	2:F:567:THR:HG23	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	978/1266 (77%)	895 (92%)	65 (7%)	18 (2%)	8 28
1	B	979/1266 (77%)	899 (92%)	62 (6%)	18 (2%)	8 28
1	C	978/1266 (77%)	892 (91%)	65 (7%)	21 (2%)	7 23

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	D	595/624 (95%)	558 (94%)	37 (6%)	0	100	100
2	F	595/624 (95%)	560 (94%)	35 (6%)	0	100	100
2	H	595/624 (95%)	559 (94%)	36 (6%)	0	100	100
All	All	4720/5670 (83%)	4363 (92%)	300 (6%)	57 (1%)	17	39

All (57) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	46	SER
1	A	332	ILE
1	A	333	THR
1	A	335	LEU
1	A	591	SER
1	A	984	LEU
1	B	46	SER
1	B	330	PRO
1	B	534	VAL
1	B	591	SER
1	B	855	PHE
1	C	46	SER
1	C	330	PRO
1	C	332	ILE
1	C	529	LYS
1	C	530	SER
1	A	41	LYS
1	A	96	GLU
1	A	532	ASN
1	A	814	LYS
1	A	855	PHE
1	B	41	LYS
1	B	96	GLU
1	B	332	ILE
1	B	701	ALA
1	C	41	LYS
1	C	96	GLU
1	C	331	ASN
1	C	333	THR
1	C	534	VAL
1	C	536	ASN
1	C	591	SER
1	C	701	ALA

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Mol	Chain	Res	Type
1	A	48	LEU
1	A	330	PRO
1	A	810	SER
1	B	48	LEU
1	B	533	LEU
1	B	797	PHE
1	C	48	LEU
1	C	531	THR
1	A	217	PRO
1	A	813	SER
1	B	217	PRO
1	B	798	GLY
1	C	217	PRO
1	C	532	ASN
1	A	42	VAL
1	B	42	VAL
1	B	334	ASN
1	C	42	VAL
1	C	528	LYS
1	B	527	PRO
1	B	294	ASP
1	A	809	PRO
1	C	692	ILE
1	C	742	ILE

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	876/1103 (79%)	856 (98%)	20 (2%)	50	82
1	B	877/1103 (80%)	852 (97%)	25 (3%)	42	76
1	C	876/1103 (79%)	850 (97%)	26 (3%)	41	75
2	D	527/548 (96%)	506 (96%)	21 (4%)	31	65
2	F	527/548 (96%)	506 (96%)	21 (4%)	31	65

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	527/548 (96%)	506 (96%)	21 (4%)	31	65
All	All	4210/4953 (85%)	4076 (97%)	134 (3%)	42	73

All (134) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	122	ASN
1	A	332	ILE
1	A	333	THR
1	A	346	ARG
1	A	358	ILE
1	A	371	PHE
1	A	375	PHE
1	A	377	PHE
1	A	379	CYS
1	A	385	THR
1	A	408	SER
1	A	424	LYS
1	A	434	ILE
1	A	441	LEU
1	A	480	CYS
1	A	517	LEU
1	A	523	THR
1	A	525	CYS
1	A	531	THR
1	A	591	SER
1	B	122	ASN
1	B	297	SER
1	B	298	GLU
1	B	331	ASN
1	B	333	THR
1	B	346	ARG
1	B	358	ILE
1	B	371	PHE
1	B	375	PHE
1	B	377	PHE
1	B	379	CYS
1	B	385	THR
1	B	408	SER
1	B	424	LYS
1	B	434	ILE
1	B	441	LEU

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Mol	Chain	Res	Type
1	B	480	CYS
1	B	517	LEU
1	B	523	THR
1	B	525	CYS
1	B	529	LYS
1	B	530	SER
1	B	531	THR
1	B	533	LEU
1	B	1074	ASN
1	C	122	ASN
1	C	325	SER
1	C	332	ILE
1	C	334	ASN
1	C	346	ARG
1	C	358	ILE
1	C	371	PHE
1	C	375	PHE
1	C	377	PHE
1	C	379	CYS
1	C	385	THR
1	C	408	SER
1	C	424	LYS
1	C	434	ILE
1	C	441	LEU
1	C	480	CYS
1	C	517	LEU
1	C	523	THR
1	C	525	CYS
1	C	529	LYS
1	C	530	SER
1	C	531	THR
1	C	535	LYS
1	C	591	SER
1	C	656	VAL
1	C	1074	ASN
2	D	30	ASP
2	D	44	SER
2	D	115	ARG
2	D	117	ASN
2	D	169	ARG
2	D	183	TYR
2	D	290	ASN

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Mol	Chain	Res	Type
2	D	318	VAL
2	D	333	LEU
2	D	335	ASP
2	D	362	THR
2	D	363	LYS
2	D	381	TYR
2	D	385	TYR
2	D	401	HIS
2	D	440	LEU
2	D	455	MET
2	D	463	VAL
2	D	481	LYS
2	D	530	CYS
2	D	574	VAL
2	F	30	ASP
2	F	44	SER
2	F	115	ARG
2	F	117	ASN
2	F	169	ARG
2	F	183	TYR
2	F	290	ASN
2	F	318	VAL
2	F	333	LEU
2	F	335	ASP
2	F	362	THR
2	F	363	LYS
2	F	381	TYR
2	F	385	TYR
2	F	401	HIS
2	F	440	LEU
2	F	455	MET
2	F	463	VAL
2	F	481	LYS
2	F	530	CYS
2	F	574	VAL
2	H	30	ASP
2	H	44	SER
2	H	115	ARG
2	H	117	ASN
2	H	169	ARG
2	H	183	TYR
2	H	290	ASN

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Mol	Chain	Res	Type
2	H	318	VAL
2	H	333	LEU
2	H	335	ASP
2	H	362	THR
2	H	363	LYS
2	H	381	TYR
2	H	385	TYR
2	H	401	HIS
2	H	440	LEU
2	H	455	MET
2	H	463	VAL
2	H	481	LYS
2	H	530	CYS
2	H	574	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (56) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	370	ASN
1	A	422	ASN
1	A	580	GLN
1	A	992	GLN
1	A	1005	GLN
1	B	370	ASN
1	B	422	ASN
1	B	690	GLN
1	C	370	ASN
1	C	422	ASN
1	C	1002	GLN
2	D	34	HIS
2	D	42	GLN
2	D	58	ASN
2	D	76	GLN
2	D	210	ASN
2	D	239	HIS
2	D	277	ASN
2	D	330	ASN
2	D	338	ASN
2	D	340	GLN
2	D	401	HIS
2	D	472	GLN
2	D	552	GLN

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Mol	Chain	Res	Type
2	D	599	ASN
2	D	601	ASN
2	F	34	HIS
2	F	42	GLN
2	F	58	ASN
2	F	76	GLN
2	F	210	ASN
2	F	239	HIS
2	F	277	ASN
2	F	330	ASN
2	F	338	ASN
2	F	340	GLN
2	F	401	HIS
2	F	472	GLN
2	F	552	GLN
2	F	599	ASN
2	F	601	ASN
2	H	34	HIS
2	H	42	GLN
2	H	58	ASN
2	H	76	GLN
2	H	210	ASN
2	H	239	HIS
2	H	277	ASN
2	H	330	ASN
2	H	338	ASN
2	H	340	GLN
2	H	401	HIS
2	H	472	GLN
2	H	552	GLN
2	H	599	ASN
2	H	601	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates i

76 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
3	NAG	E	1	1,3	14,14,15	0.41	0	17,19,21	1.17	2 (11%)
3	NAG	E	2	3	14,14,15	0.24	0	17,19,21	0.58	0
3	NAG	G	1	1,3	14,14,15	0.56	0	17,19,21	0.89	1 (5%)
3	NAG	G	2	3	14,14,15	0.30	0	17,19,21	0.41	0
3	NAG	I	1	1,3	14,14,15	0.23	0	17,19,21	1.37	1 (5%)
3	NAG	I	2	3	14,14,15	0.16	0	17,19,21	0.50	0
3	NAG	J	1	1,3	14,14,15	0.54	0	17,19,21	0.70	1 (5%)
3	NAG	J	2	3	14,14,15	0.39	0	17,19,21	0.46	0
3	NAG	K	1	1,3	14,14,15	0.39	0	17,19,21	0.40	0
3	NAG	K	2	3	14,14,15	0.21	0	17,19,21	0.75	0
3	NAG	L	1	1,3	14,14,15	0.38	0	17,19,21	0.48	0
3	NAG	L	2	3	14,14,15	0.57	0	17,19,21	1.31	1 (5%)
3	NAG	M	1	1,3	14,14,15	0.65	1 (7%)	17,19,21	0.42	0
3	NAG	M	2	3	14,14,15	0.34	0	17,19,21	1.35	2 (11%)
3	NAG	N	1	1,3	14,14,15	0.40	0	17,19,21	0.45	0
3	NAG	N	2	3	14,14,15	0.25	0	17,19,21	0.49	0
3	NAG	O	1	1,3	14,14,15	0.52	0	17,19,21	0.51	0
3	NAG	O	2	3	14,14,15	0.25	0	17,19,21	0.58	0
3	NAG	P	1	1,3	14,14,15	0.54	0	17,19,21	0.89	1 (5%)
3	NAG	P	2	3	14,14,15	0.27	0	17,19,21	0.41	0
3	NAG	Q	1	1,3	14,14,15	0.31	0	17,19,21	0.61	0
3	NAG	Q	2	3	14,14,15	0.53	0	17,19,21	0.47	0
3	NAG	R	1	1,3	14,14,15	0.37	0	17,19,21	0.72	0
3	NAG	R	2	3	14,14,15	0.28	0	17,19,21	1.32	2 (11%)
3	NAG	S	1	1,3	14,14,15	0.69	1 (7%)	17,19,21	0.70	0
3	NAG	S	2	3	14,14,15	0.38	0	17,19,21	1.41	3 (17%)
3	NAG	T	1	1,3	14,14,15	0.71	1 (7%)	17,19,21	0.67	0
3	NAG	T	2	3	14,14,15	0.27	0	17,19,21	0.64	0
3	NAG	U	1	1,3	14,14,15	0.24	0	17,19,21	0.68	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	U	2	3	14,14,15	0.16	0	17,19,21	0.47	0
3	NAG	V	1	1,3	14,14,15	0.52	0	17,19,21	0.50	0
3	NAG	V	2	3	14,14,15	0.24	0	17,19,21	0.58	0
3	NAG	W	1	1,3	14,14,15	0.55	0	17,19,21	0.88	1 (5%)
3	NAG	W	2	3	14,14,15	0.29	0	17,19,21	0.41	0
3	NAG	X	1	1,3	14,14,15	0.31	0	17,19,21	0.40	0
3	NAG	X	2	3	14,14,15	0.36	0	17,19,21	0.36	0
3	NAG	Y	1	1,3	14,14,15	0.34	0	17,19,21	1.13	1 (5%)
3	NAG	Y	2	3	14,14,15	0.26	0	17,19,21	0.46	0
3	NAG	Z	1	1,3	14,14,15	0.32	0	17,19,21	0.69	1 (5%)
3	NAG	Z	2	3	14,14,15	0.23	0	17,19,21	0.40	0
3	NAG	a	1	1,3	14,14,15	0.42	0	17,19,21	1.14	2 (11%)
3	NAG	a	2	3	14,14,15	0.37	0	17,19,21	0.41	0
3	NAG	b	1	1,3	14,14,15	0.75	1 (7%)	17,19,21	0.91	1 (5%)
3	NAG	b	2	3	14,14,15	0.36	0	17,19,21	0.71	1 (5%)
3	NAG	c	1	1,3	14,14,15	0.21	0	17,19,21	0.43	0
3	NAG	c	2	3	14,14,15	0.29	0	17,19,21	0.37	0
3	NAG	d	1	3,2	14,14,15	0.20	0	17,19,21	0.59	0
3	NAG	d	2	3	14,14,15	0.24	0	17,19,21	0.47	0
3	NAG	e	1	3,2	14,14,15	0.27	0	17,19,21	0.36	0
3	NAG	e	2	3	14,14,15	0.26	0	17,19,21	0.47	0
3	NAG	f	1	3,2	14,14,15	0.27	0	17,19,21	0.49	0
3	NAG	f	2	3	14,14,15	0.44	0	17,19,21	1.23	1 (5%)
3	NAG	g	1	3,2	14,14,15	0.18	0	17,19,21	0.41	0
3	NAG	g	2	3	14,14,15	0.24	0	17,19,21	0.43	0
3	NAG	h	1	3,2	14,14,15	0.19	0	17,19,21	0.49	0
3	NAG	h	2	3	14,14,15	0.22	0	17,19,21	0.46	0
3	NAG	i	1	3,2	14,14,15	0.19	0	17,19,21	0.60	0
3	NAG	i	2	3	14,14,15	0.25	0	17,19,21	0.47	0
3	NAG	j	1	3,2	14,14,15	0.28	0	17,19,21	0.36	0
3	NAG	j	2	3	14,14,15	0.27	0	17,19,21	0.46	0
3	NAG	k	1	3,2	14,14,15	0.26	0	17,19,21	0.49	0
3	NAG	k	2	3	14,14,15	0.44	0	17,19,21	1.23	1 (5%)
3	NAG	l	1	3,2	14,14,15	0.19	0	17,19,21	0.39	0
3	NAG	l	2	3	14,14,15	0.24	0	17,19,21	0.43	0
3	NAG	m	1	3,2	14,14,15	0.19	0	17,19,21	0.50	0
3	NAG	m	2	3	14,14,15	0.22	0	17,19,21	0.46	0
3	NAG	n	1	3,2	14,14,15	0.20	0	17,19,21	0.59	0
3	NAG	n	2	3	14,14,15	0.25	0	17,19,21	0.47	0
3	NAG	o	1	3,2	14,14,15	0.28	0	17,19,21	0.36	0
3	NAG	o	2	3	14,14,15	0.26	0	17,19,21	0.46	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	p	1	3,2	14,14,15	0.25	0	17,19,21	0.49	0
3	NAG	p	2	3	14,14,15	0.44	0	17,19,21	1.23	1 (5%)
3	NAG	q	1	3,2	14,14,15	0.18	0	17,19,21	0.40	0
3	NAG	q	2	3	14,14,15	0.25	0	17,19,21	0.43	0
3	NAG	r	1	3,2	14,14,15	0.19	0	17,19,21	0.49	0
3	NAG	r	2	3	14,14,15	0.23	0	17,19,21	0.46	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
3	NAG	E	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	E	2	3	-	0/6/23/26	0/1/1/1
3	NAG	G	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	G	2	3	-	0/6/23/26	0/1/1/1
3	NAG	I	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	I	2	3	-	0/6/23/26	0/1/1/1
3	NAG	J	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	J	2	3	-	0/6/23/26	0/1/1/1
3	NAG	K	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	K	2	3	-	0/6/23/26	0/1/1/1
3	NAG	L	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	L	2	3	-	0/6/23/26	0/1/1/1
3	NAG	M	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	M	2	3	-	0/6/23/26	0/1/1/1
3	NAG	N	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	N	2	3	-	0/6/23/26	0/1/1/1
3	NAG	O	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	O	2	3	-	0/6/23/26	0/1/1/1
3	NAG	P	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	P	2	3	-	0/6/23/26	0/1/1/1
3	NAG	Q	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	Q	2	3	-	0/6/23/26	0/1/1/1
3	NAG	R	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	R	2	3	-	0/6/23/26	0/1/1/1
3	NAG	S	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	S	2	3	-	0/6/23/26	0/1/1/1
3	NAG	T	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	T	2	3	-	0/6/23/26	0/1/1/1
3	NAG	U	1	1,3	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	U	2	3	-	0/6/23/26	0/1/1/1
3	NAG	V	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	V	2	3	-	0/6/23/26	0/1/1/1
3	NAG	W	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	W	2	3	-	0/6/23/26	0/1/1/1
3	NAG	X	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	X	2	3	-	0/6/23/26	0/1/1/1
3	NAG	Y	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	Y	2	3	-	0/6/23/26	0/1/1/1
3	NAG	Z	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	Z	2	3	-	0/6/23/26	0/1/1/1
3	NAG	a	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	a	2	3	-	0/6/23/26	0/1/1/1
3	NAG	b	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	b	2	3	-	0/6/23/26	0/1/1/1
3	NAG	c	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	c	2	3	-	0/6/23/26	0/1/1/1
3	NAG	d	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	d	2	3	-	2/6/23/26	0/1/1/1
3	NAG	e	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	e	2	3	-	0/6/23/26	0/1/1/1
3	NAG	f	1	3,2	-	2/6/23/26	0/1/1/1
3	NAG	f	2	3	-	5/6/23/26	0/1/1/1
3	NAG	g	1	3,2	-	2/6/23/26	0/1/1/1
3	NAG	g	2	3	-	2/6/23/26	0/1/1/1
3	NAG	h	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	h	2	3	-	0/6/23/26	0/1/1/1
3	NAG	i	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	i	2	3	-	2/6/23/26	0/1/1/1
3	NAG	j	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	j	2	3	-	0/6/23/26	0/1/1/1
3	NAG	k	1	3,2	-	2/6/23/26	0/1/1/1
3	NAG	k	2	3	-	5/6/23/26	0/1/1/1
3	NAG	l	1	3,2	-	2/6/23/26	0/1/1/1
3	NAG	l	2	3	-	2/6/23/26	0/1/1/1
3	NAG	m	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	m	2	3	-	0/6/23/26	0/1/1/1
3	NAG	n	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	n	2	3	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	o	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	o	2	3	-	0/6/23/26	0/1/1/1
3	NAG	p	1	3,2	-	2/6/23/26	0/1/1/1
3	NAG	p	2	3	-	5/6/23/26	0/1/1/1
3	NAG	q	1	3,2	-	2/6/23/26	0/1/1/1
3	NAG	q	2	3	-	2/6/23/26	0/1/1/1
3	NAG	r	1	3,2	-	0/6/23/26	0/1/1/1
3	NAG	r	2	3	-	0/6/23/26	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	b	1	NAG	O5-C1	-2.73	1.39	1.43
3	T	1	NAG	O5-C1	-2.58	1.39	1.43
3	S	1	NAG	O5-C1	-2.31	1.40	1.43
3	M	1	NAG	O5-C1	-2.19	1.40	1.43

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	I	1	NAG	C2-N2-C7	4.72	129.62	122.90
3	S	2	NAG	C2-N2-C7	4.46	129.25	122.90
3	L	2	NAG	C2-N2-C7	4.32	129.06	122.90
3	M	2	NAG	C2-N2-C7	4.31	129.04	122.90
3	p	2	NAG	C2-N2-C7	4.30	129.03	122.90
3	f	2	NAG	C2-N2-C7	4.30	129.02	122.90
3	k	2	NAG	C2-N2-C7	4.28	129.00	122.90
3	R	2	NAG	C2-N2-C7	4.27	128.99	122.90
3	Y	1	NAG	C1-O5-C5	3.27	116.62	112.19
3	G	1	NAG	C1-O5-C5	2.81	115.99	112.19
3	P	1	NAG	C1-O5-C5	2.80	115.98	112.19
3	W	1	NAG	C1-O5-C5	2.77	115.94	112.19
3	S	2	NAG	C1-C2-N2	2.40	114.58	110.49
3	b	1	NAG	O4-C4-C3	-2.39	104.83	110.35
3	R	2	NAG	C1-C2-N2	2.38	114.56	110.49
3	E	1	NAG	C8-C7-N2	2.33	120.04	116.10
3	J	1	NAG	C1-O5-C5	2.23	115.22	112.19
3	a	1	NAG	C8-C7-N2	2.22	119.85	116.10
3	M	2	NAG	C1-C2-N2	2.22	114.27	110.49
3	Z	1	NAG	C1-O5-C5	2.21	115.19	112.19
3	a	1	NAG	C2-N2-C7	-2.09	119.93	122.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	U	1	NAG	C1-O5-C5	2.07	115.00	112.19
3	b	2	NAG	C1-O5-C5	2.06	114.98	112.19
3	S	2	NAG	C1-O5-C5	2.05	114.96	112.19
3	E	1	NAG	C2-N2-C7	-2.03	120.02	122.90

There are no chirality outliers.

All (45) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	G	1	NAG	O5-C5-C6-O6
3	P	1	NAG	O5-C5-C6-O6
3	W	1	NAG	O5-C5-C6-O6
3	g	2	NAG	C4-C5-C6-O6
3	l	2	NAG	C4-C5-C6-O6
3	q	2	NAG	C4-C5-C6-O6
3	d	2	NAG	O5-C5-C6-O6
3	i	2	NAG	O5-C5-C6-O6
3	n	2	NAG	O5-C5-C6-O6
3	G	1	NAG	C4-C5-C6-O6
3	P	1	NAG	C4-C5-C6-O6
3	W	1	NAG	C4-C5-C6-O6
3	g	2	NAG	O5-C5-C6-O6
3	l	2	NAG	O5-C5-C6-O6
3	q	2	NAG	O5-C5-C6-O6
3	f	2	NAG	C8-C7-N2-C2
3	f	2	NAG	O7-C7-N2-C2
3	k	2	NAG	C8-C7-N2-C2
3	k	2	NAG	O7-C7-N2-C2
3	p	2	NAG	C8-C7-N2-C2
3	p	2	NAG	O7-C7-N2-C2
3	f	1	NAG	O5-C5-C6-O6
3	k	1	NAG	O5-C5-C6-O6
3	l	1	NAG	O5-C5-C6-O6
3	p	1	NAG	O5-C5-C6-O6
3	q	1	NAG	O5-C5-C6-O6
3	g	1	NAG	O5-C5-C6-O6
3	d	2	NAG	C4-C5-C6-O6
3	i	2	NAG	C4-C5-C6-O6
3	n	2	NAG	C4-C5-C6-O6
3	k	1	NAG	C4-C5-C6-O6
3	f	1	NAG	C4-C5-C6-O6
3	p	1	NAG	C4-C5-C6-O6

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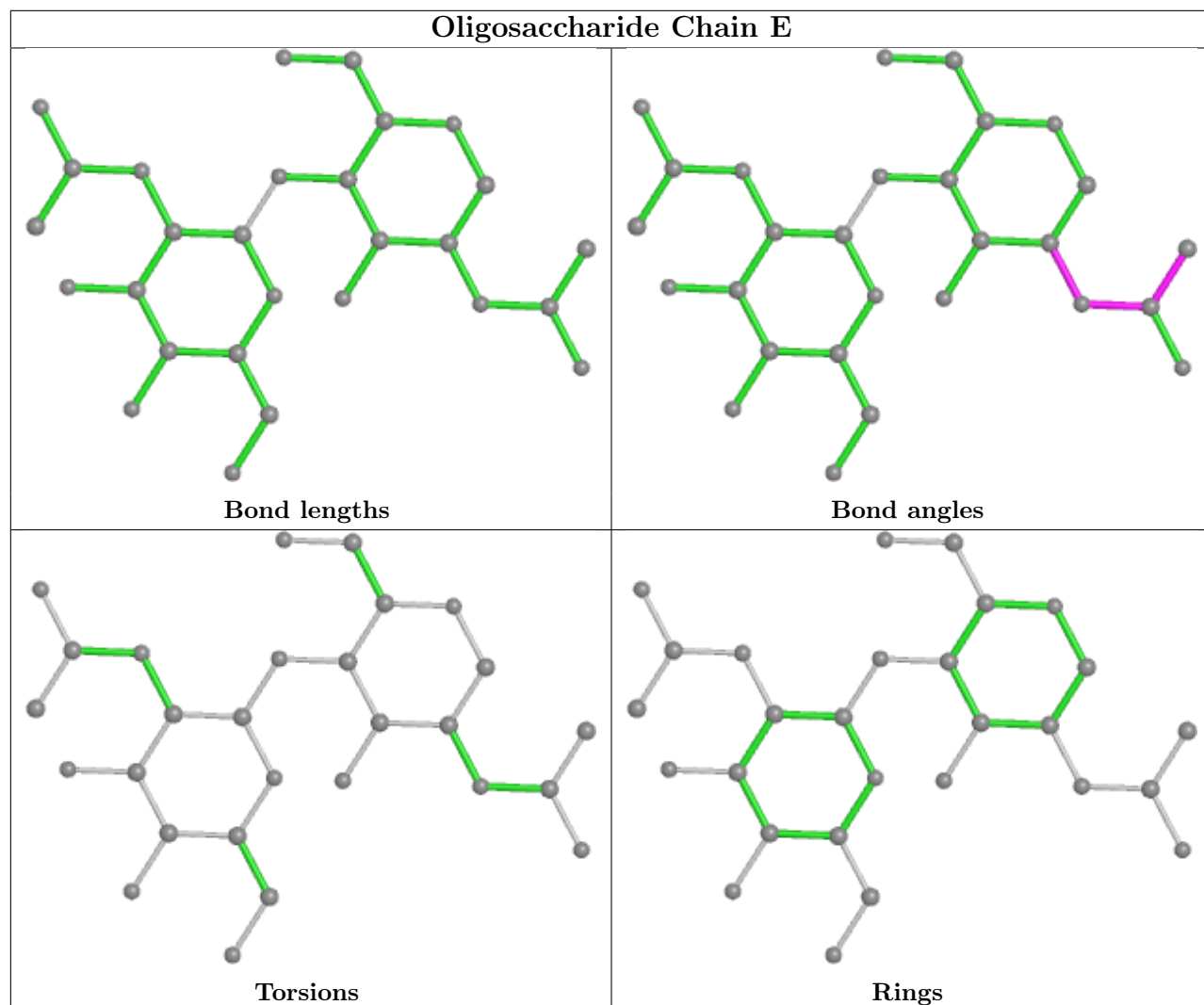
Mol	Chain	Res	Type	Atoms
3	l	1	NAG	C4-C5-C6-O6
3	q	1	NAG	C4-C5-C6-O6
3	g	1	NAG	C4-C5-C6-O6
3	f	2	NAG	C4-C5-C6-O6
3	k	2	NAG	C4-C5-C6-O6
3	p	2	NAG	C4-C5-C6-O6
3	f	2	NAG	C3-C2-N2-C7
3	k	2	NAG	C3-C2-N2-C7
3	p	2	NAG	C3-C2-N2-C7
3	k	2	NAG	O5-C5-C6-O6
3	f	2	NAG	O5-C5-C6-O6
3	p	2	NAG	O5-C5-C6-O6

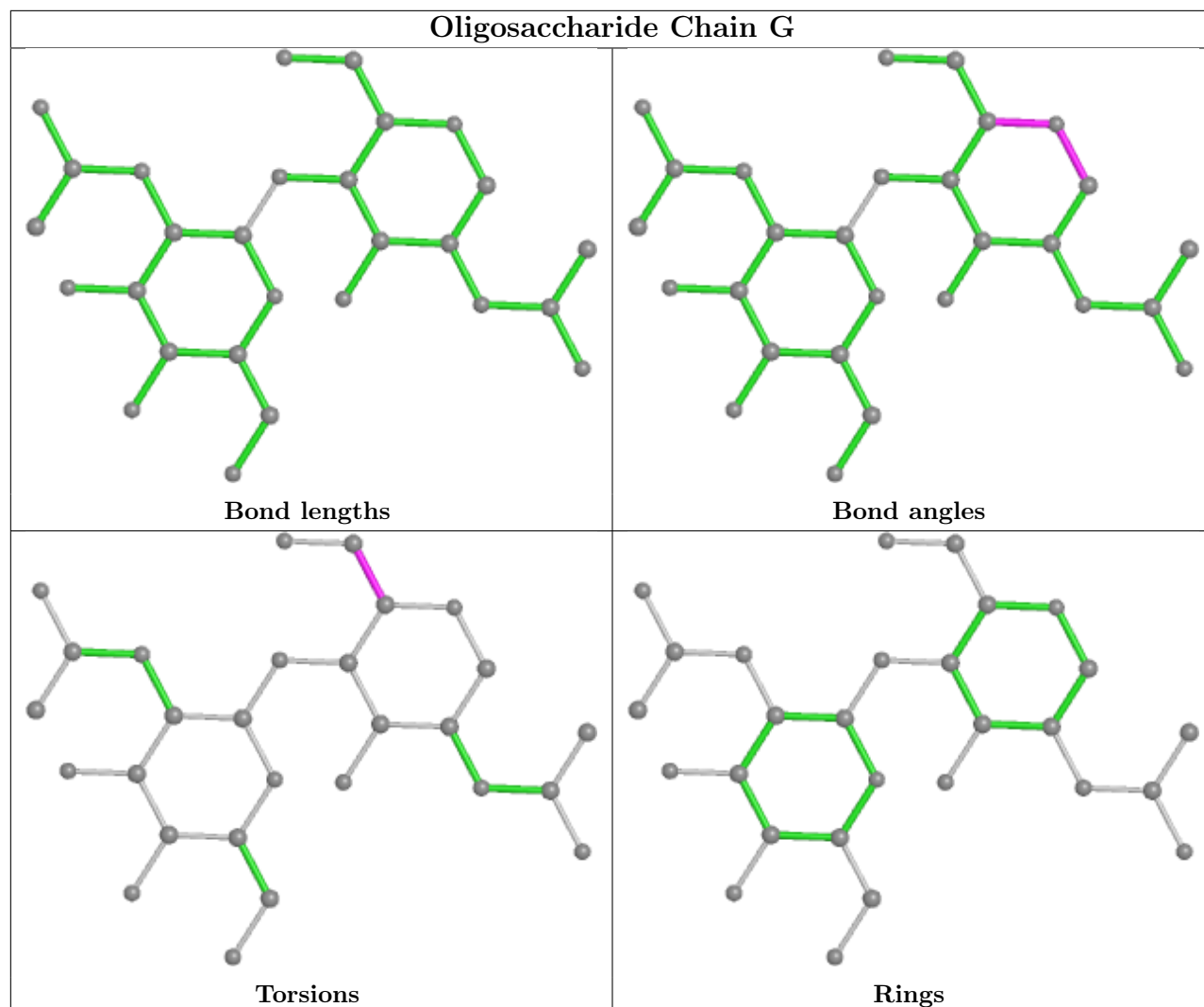
There are no ring outliers.

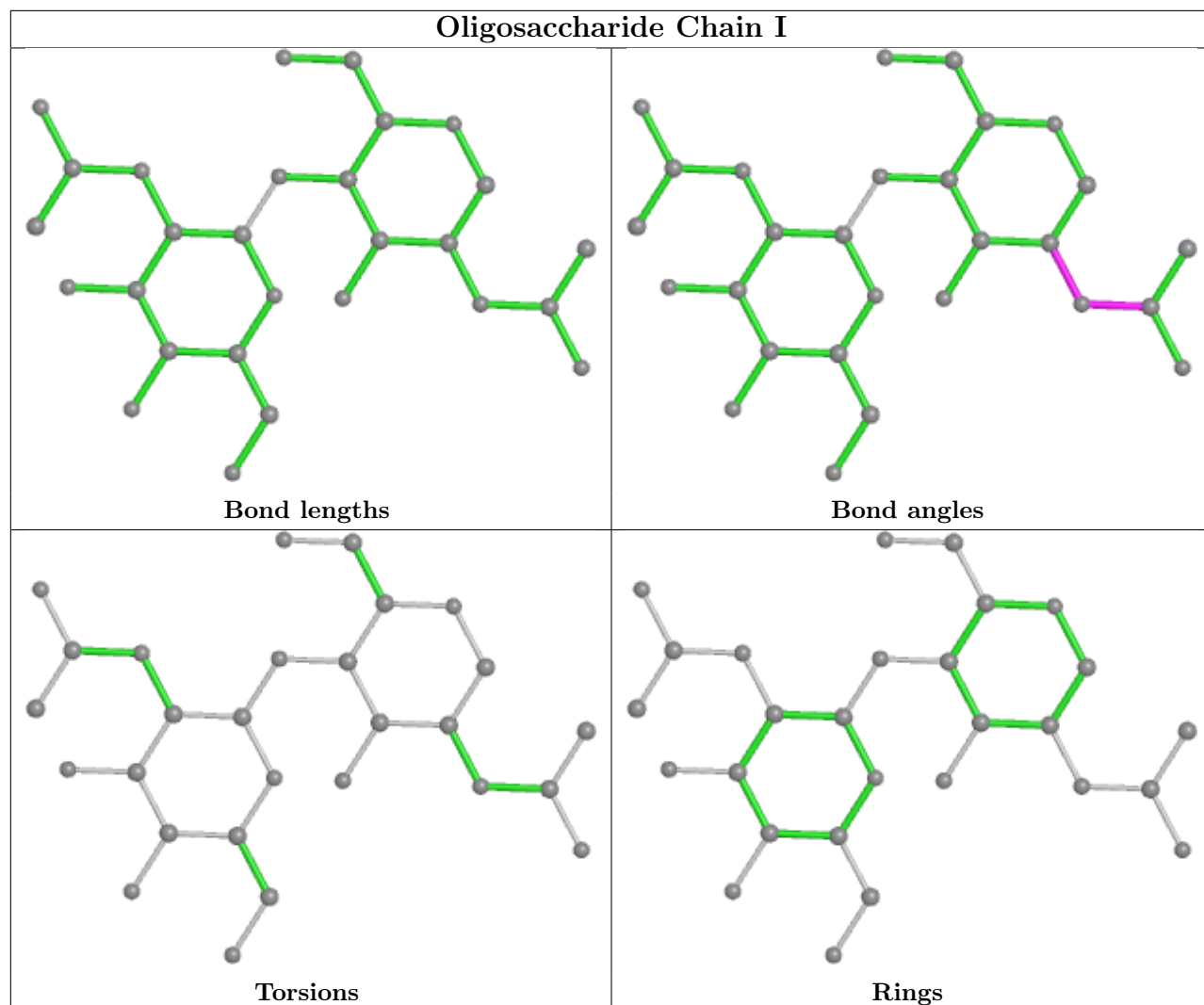
8 monomers are involved in 13 short contacts:

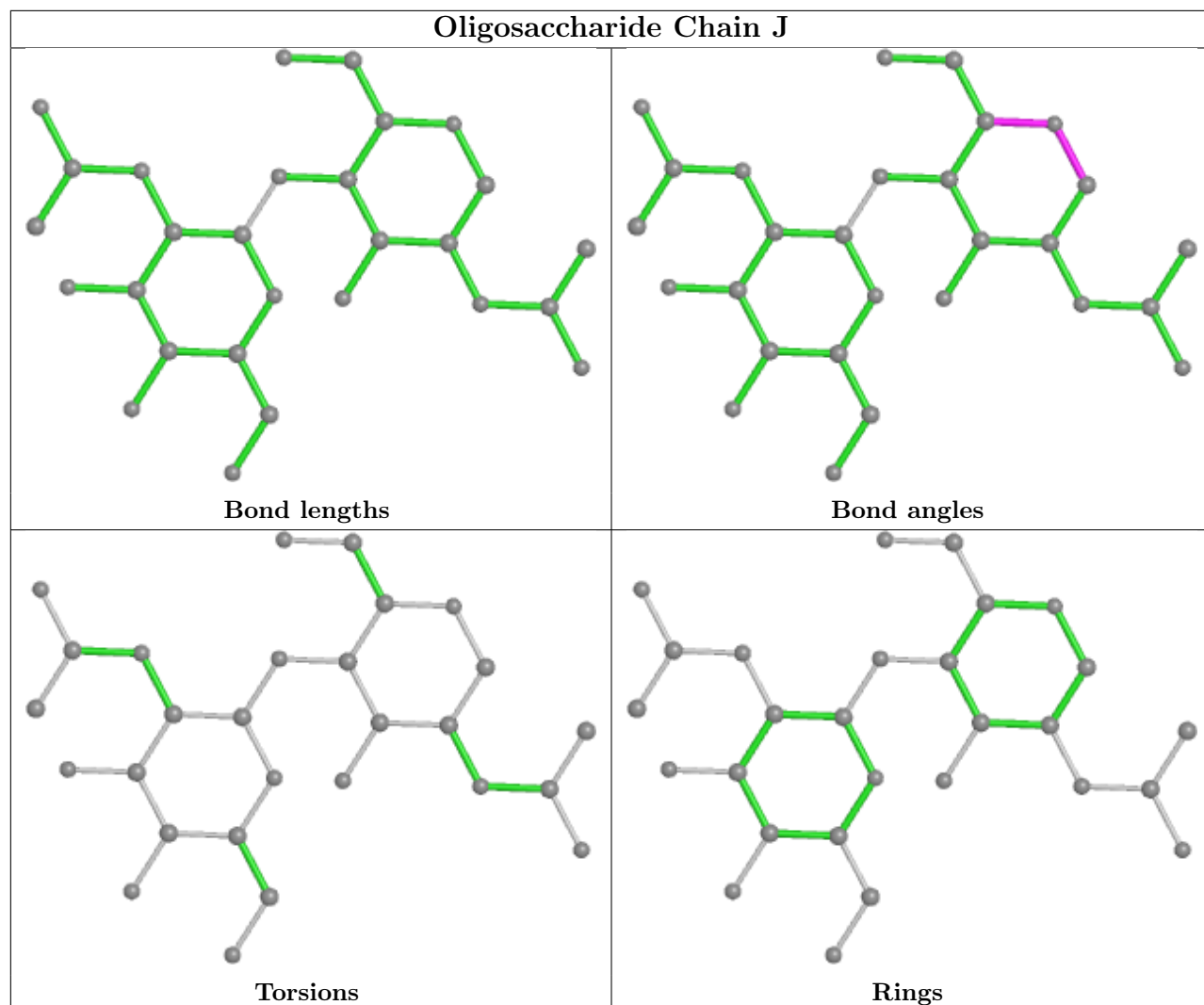
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	1	NAG	2	0
3	K	2	NAG	1	0
3	E	2	NAG	5	0
3	P	1	NAG	2	0
3	G	2	NAG	2	0
3	P	2	NAG	3	0
3	W	2	NAG	2	0
3	W	1	NAG	2	0

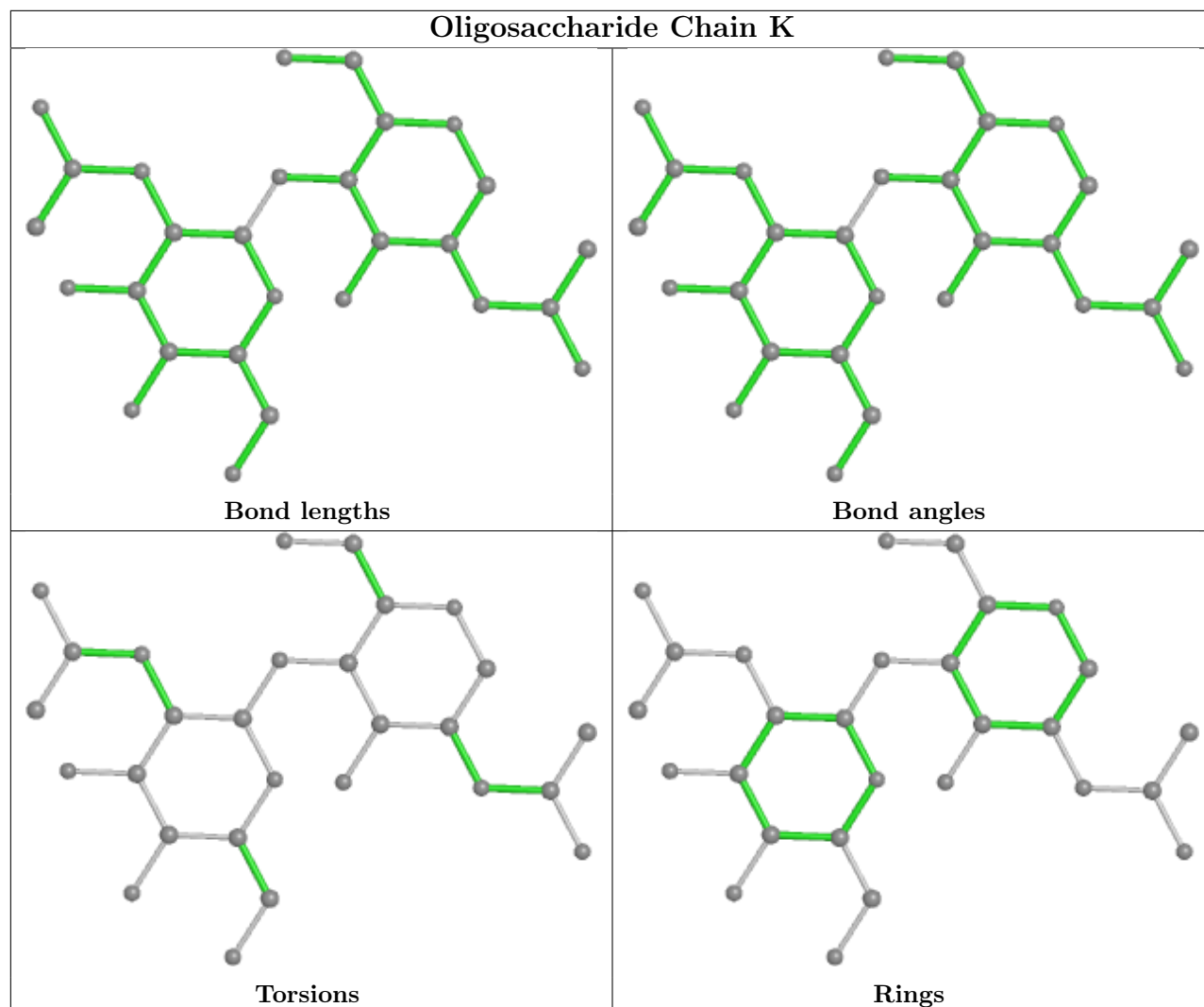
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

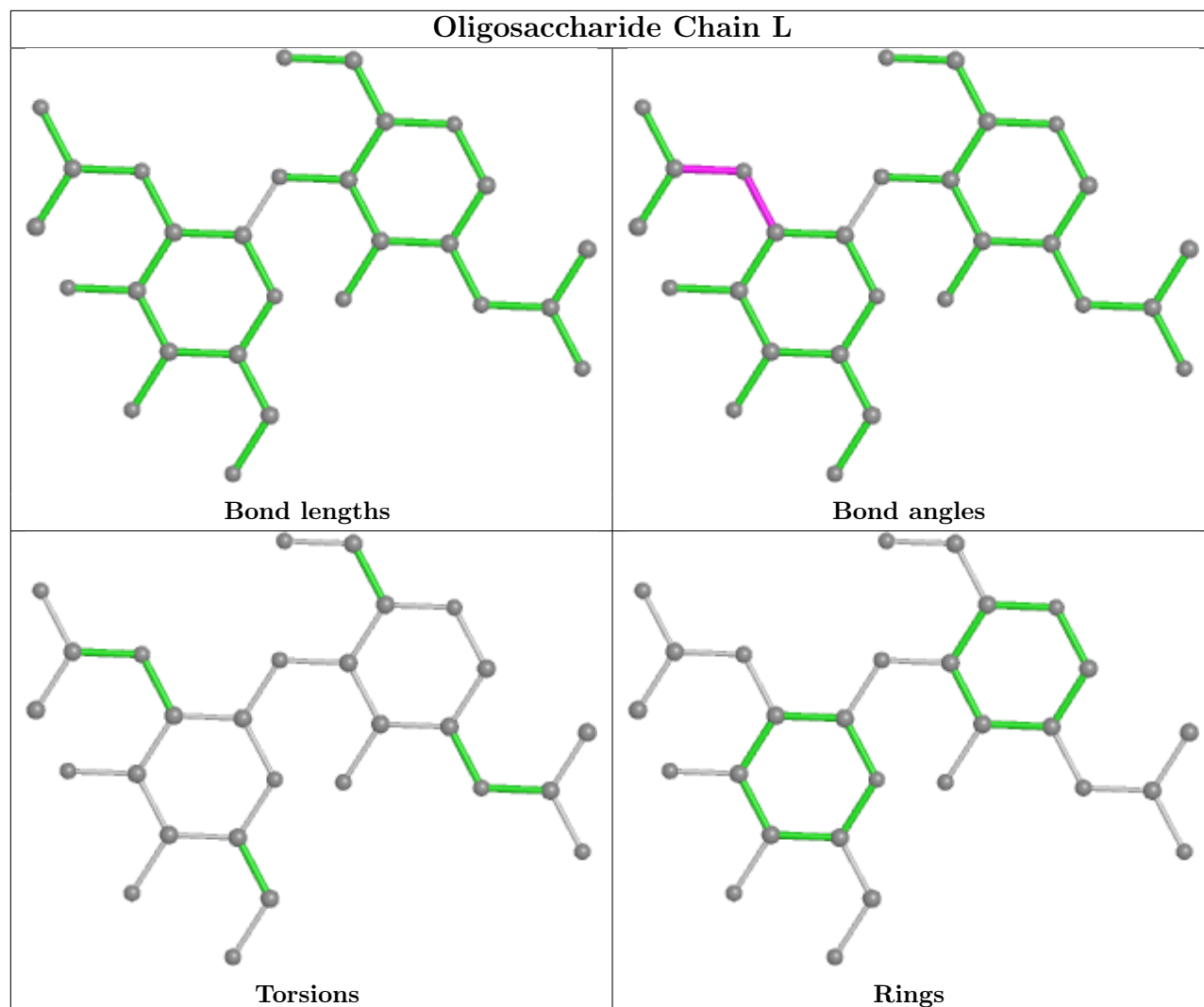


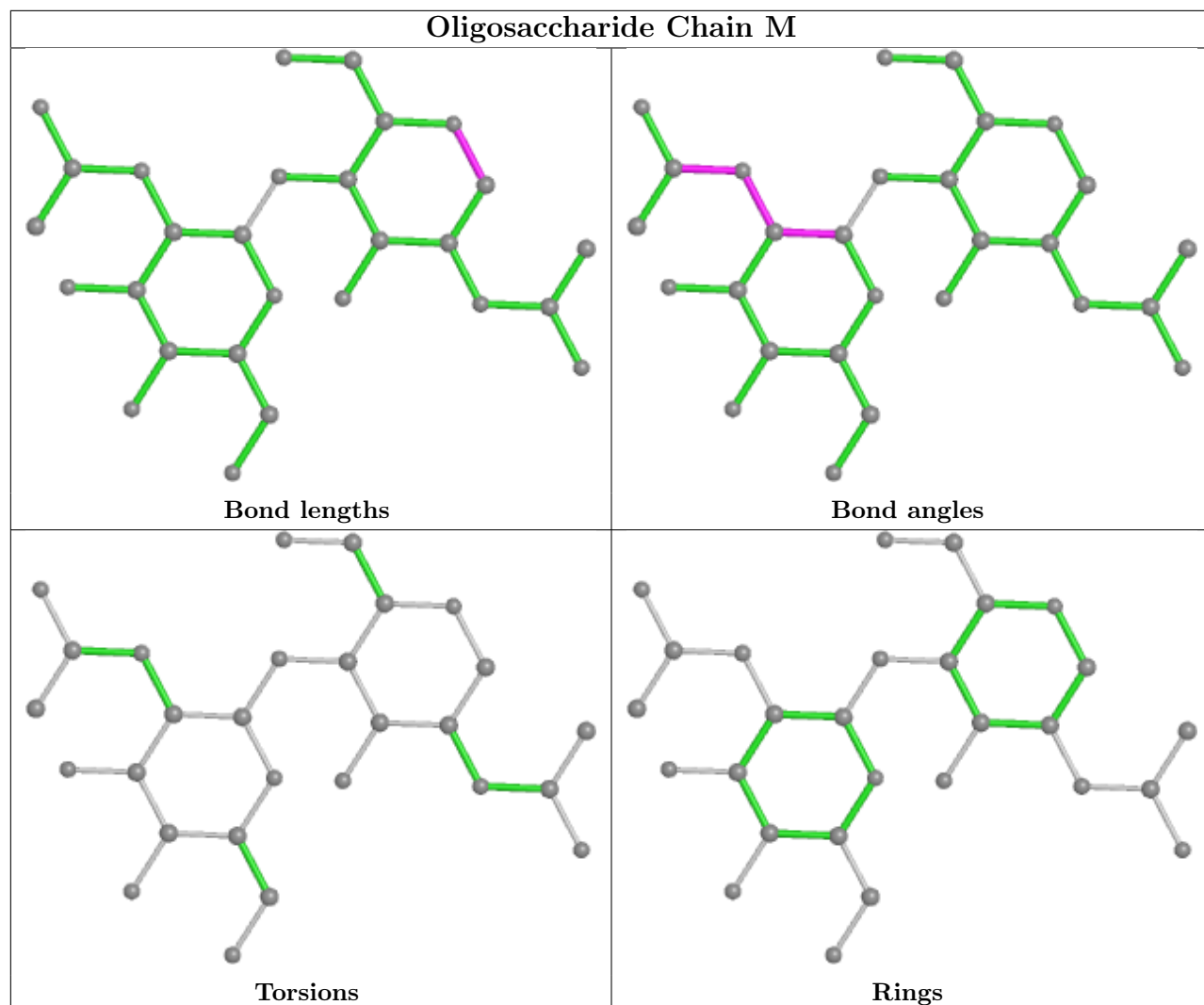


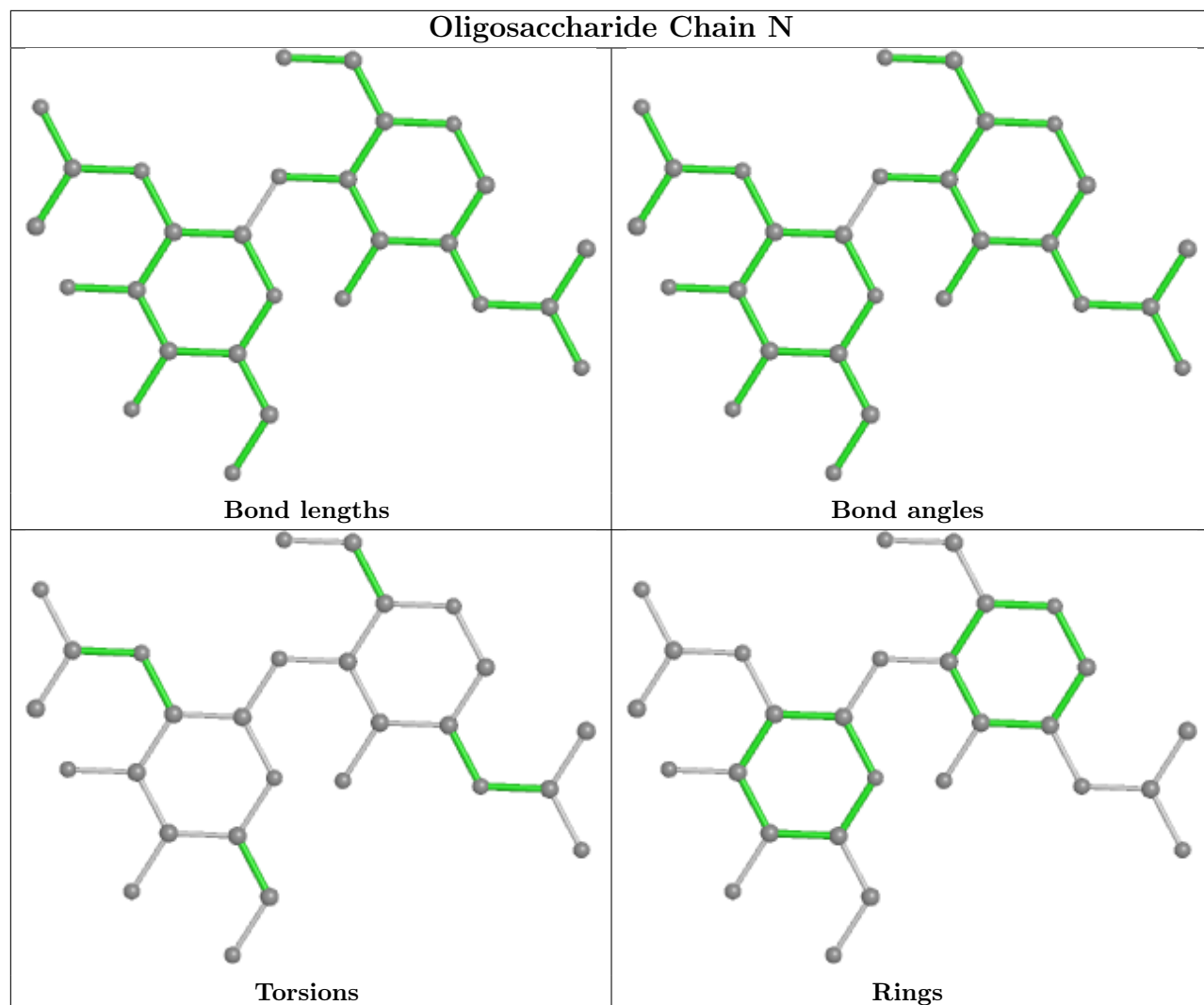


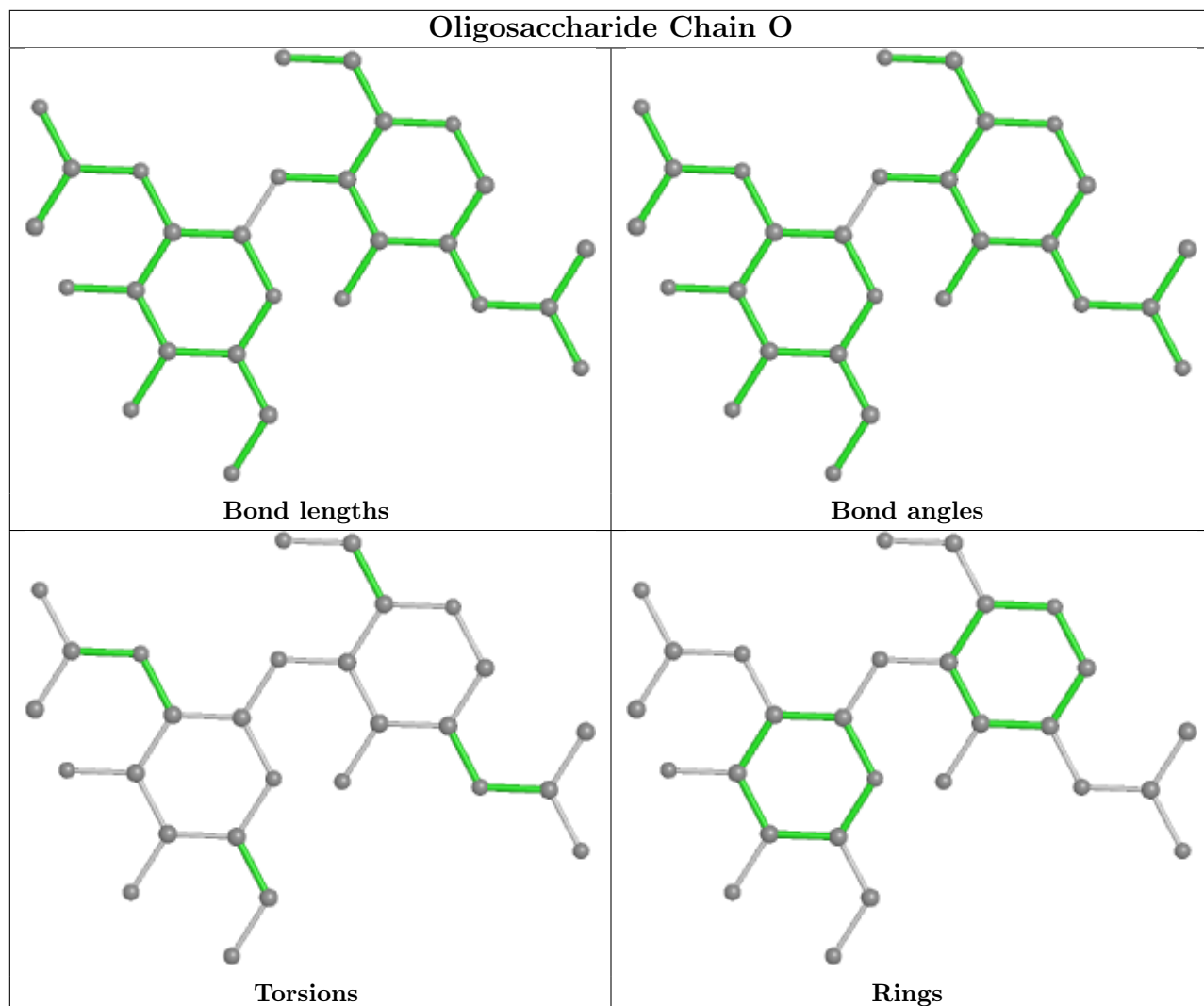


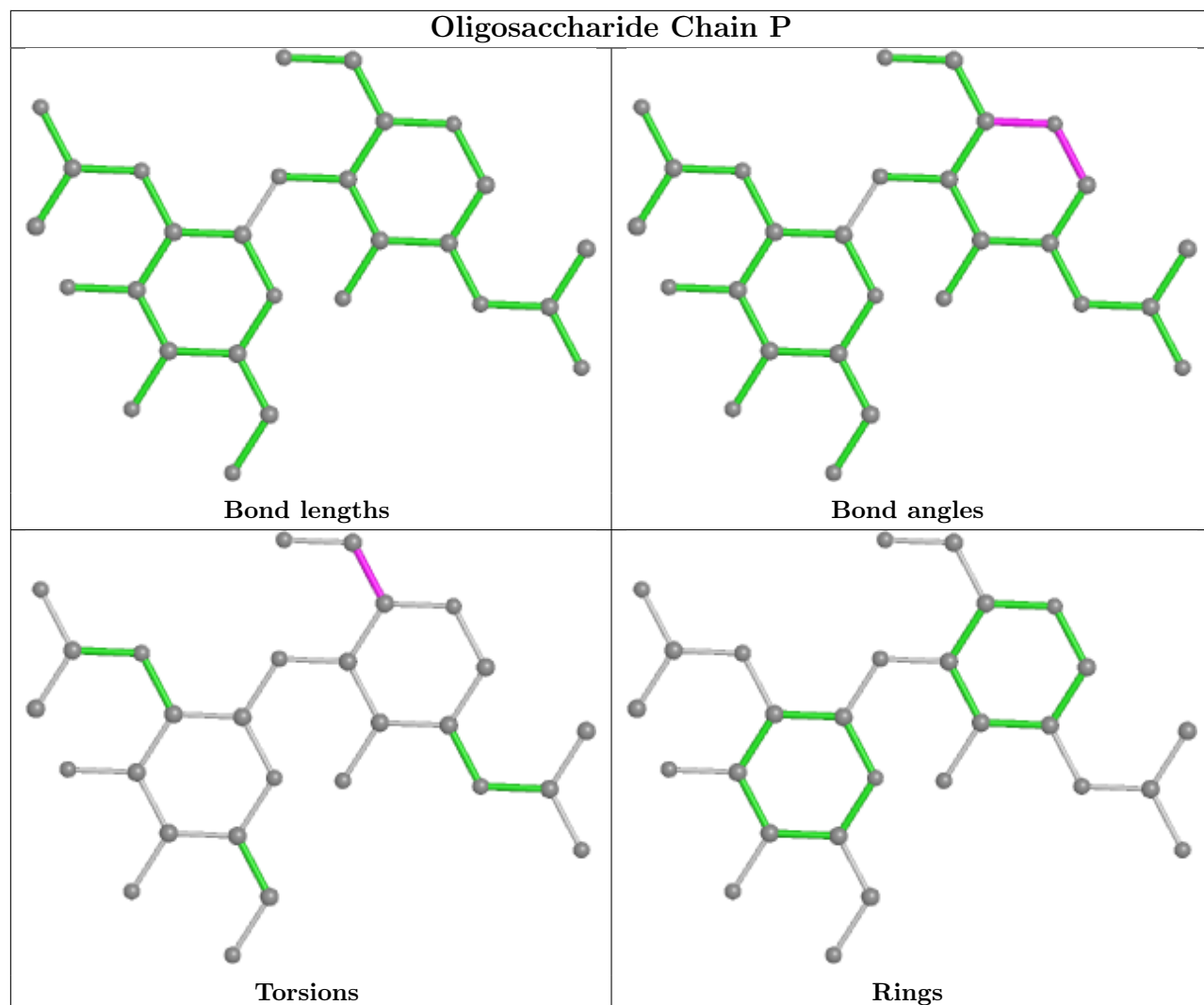


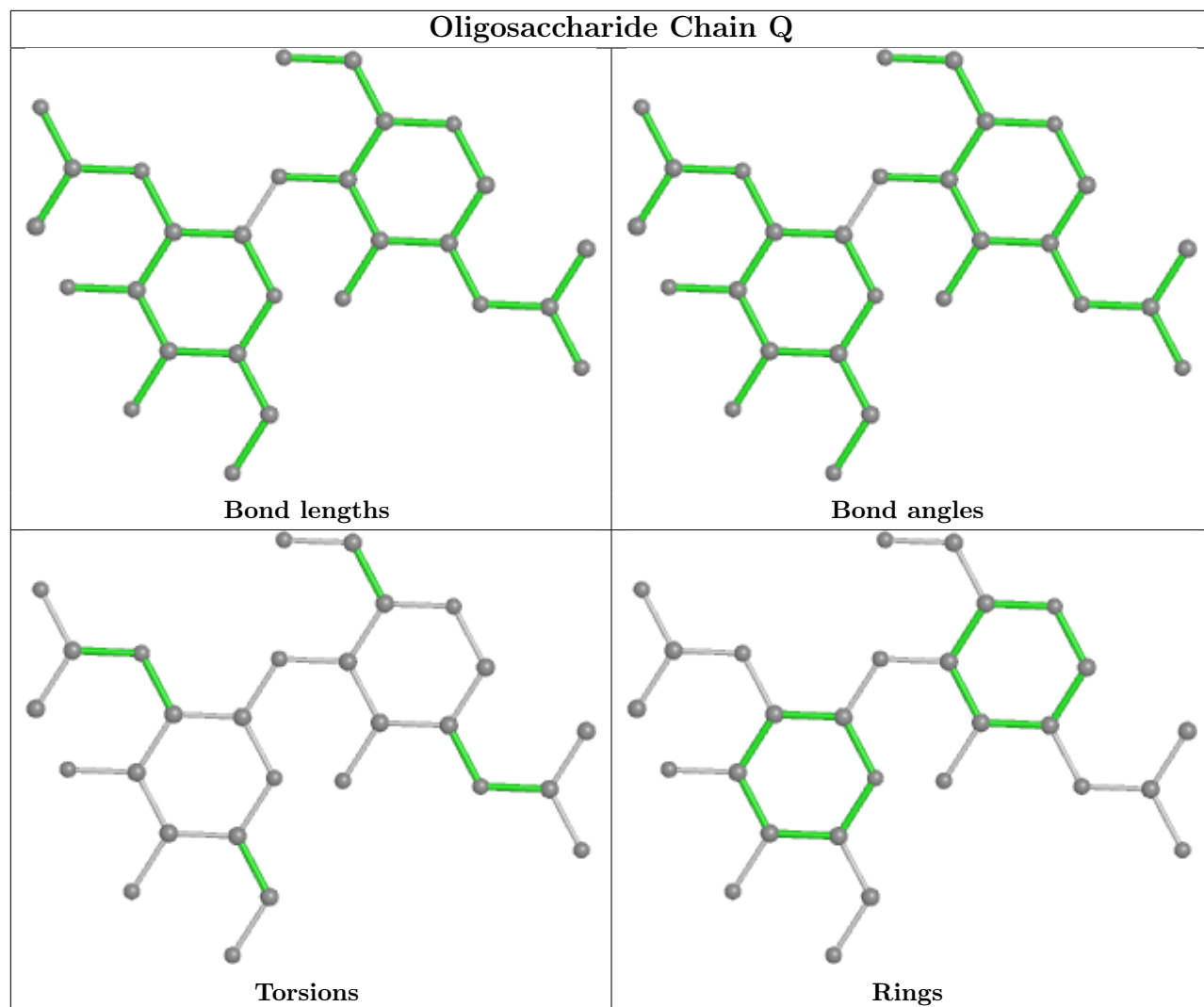


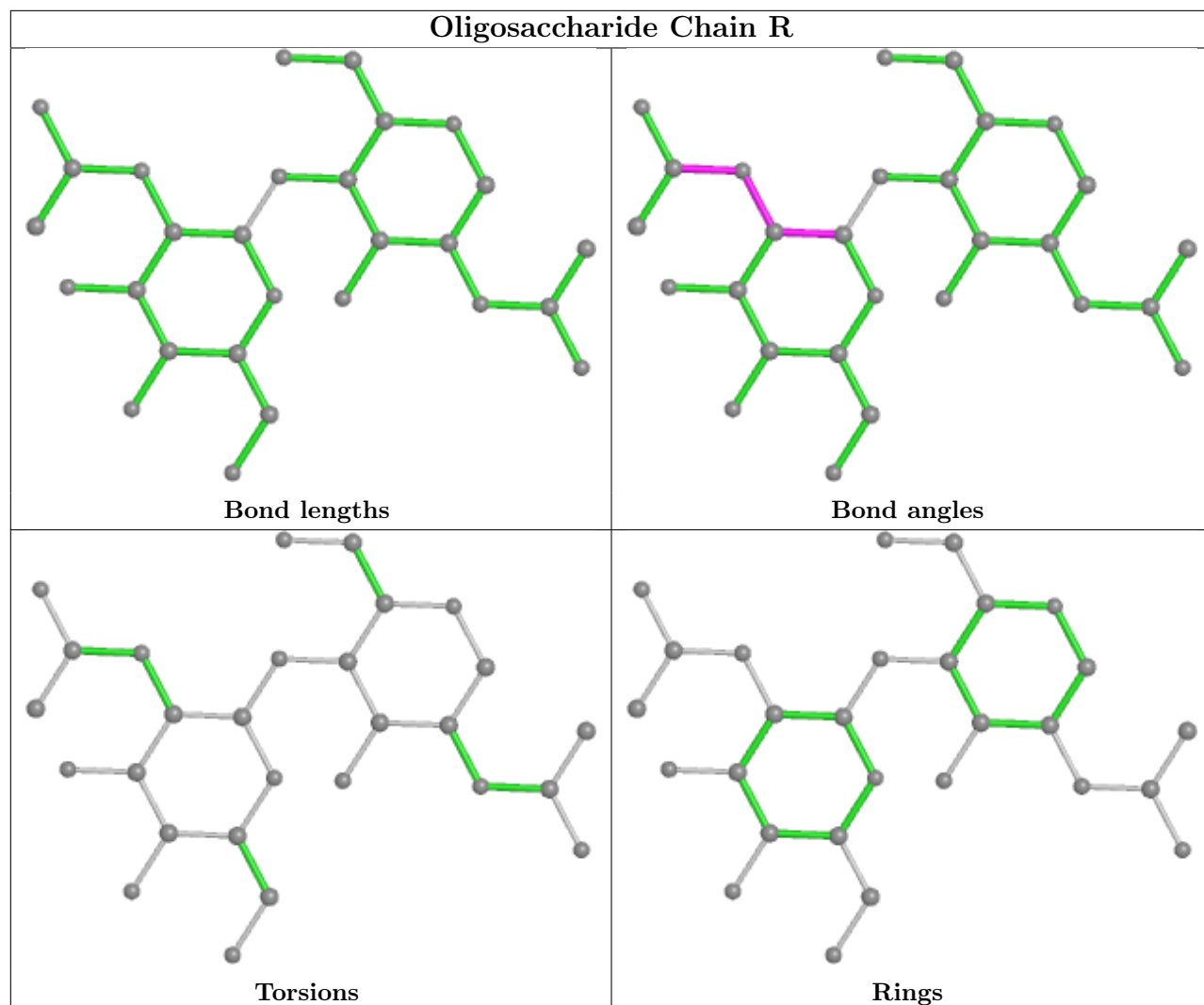


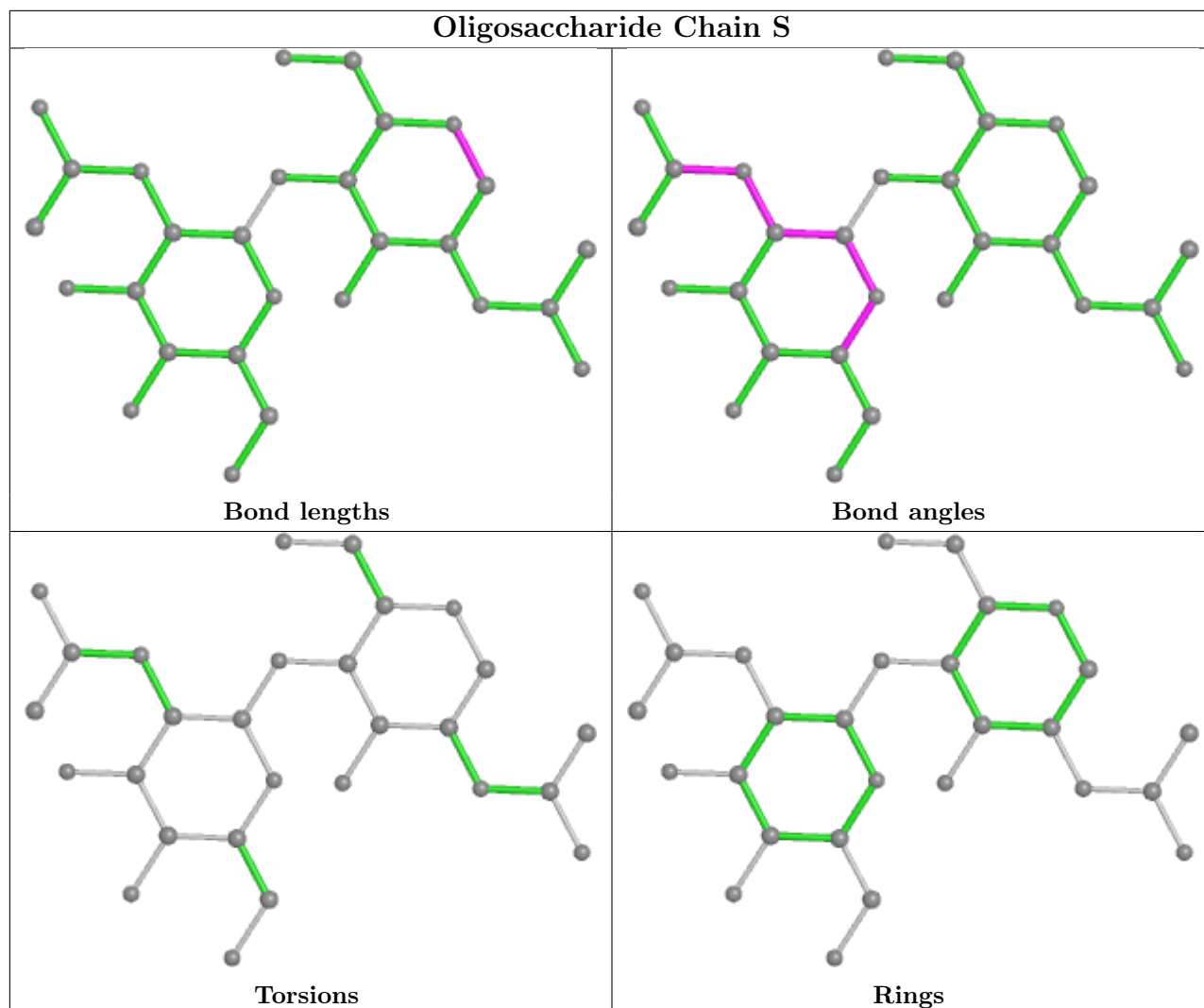


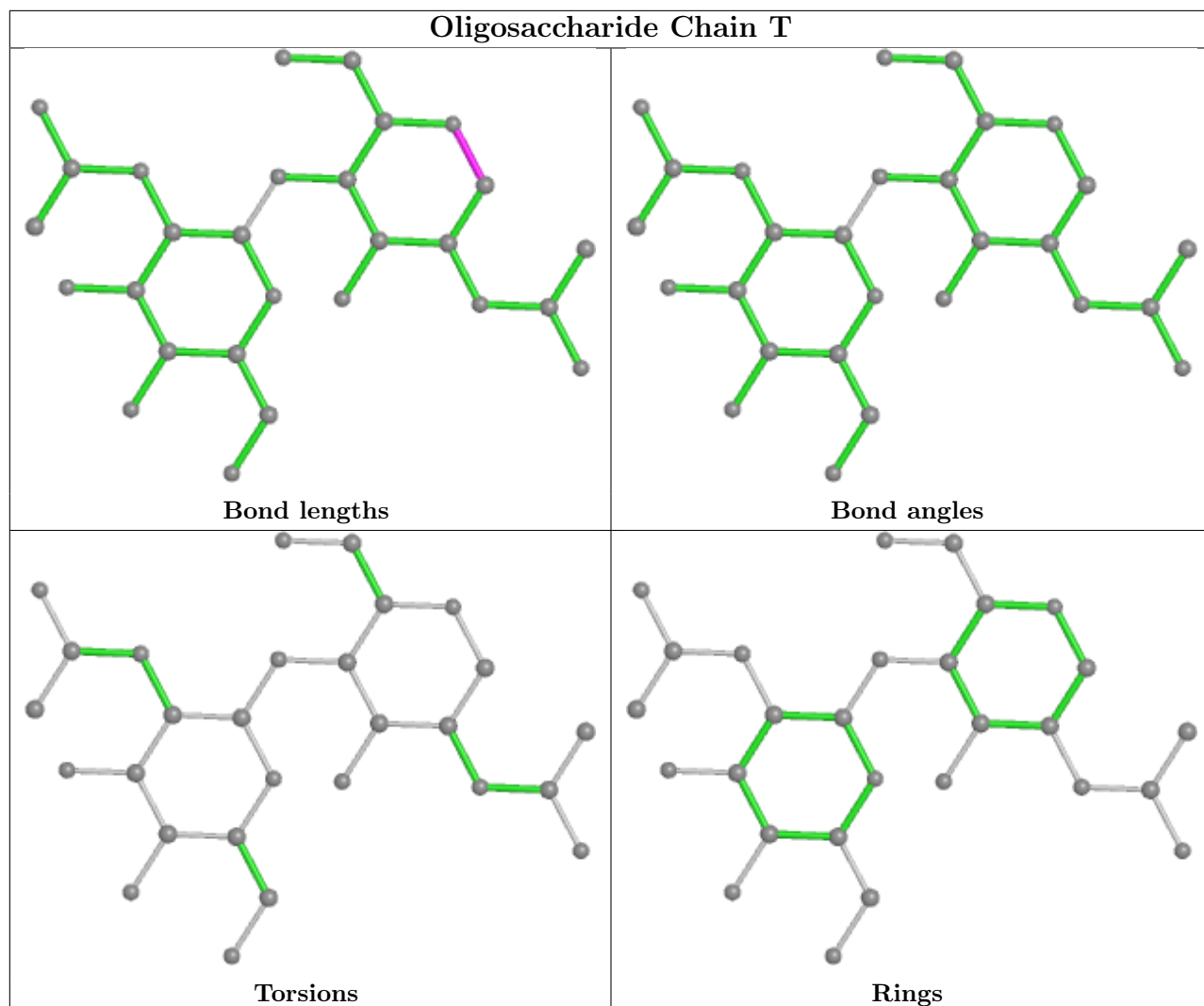


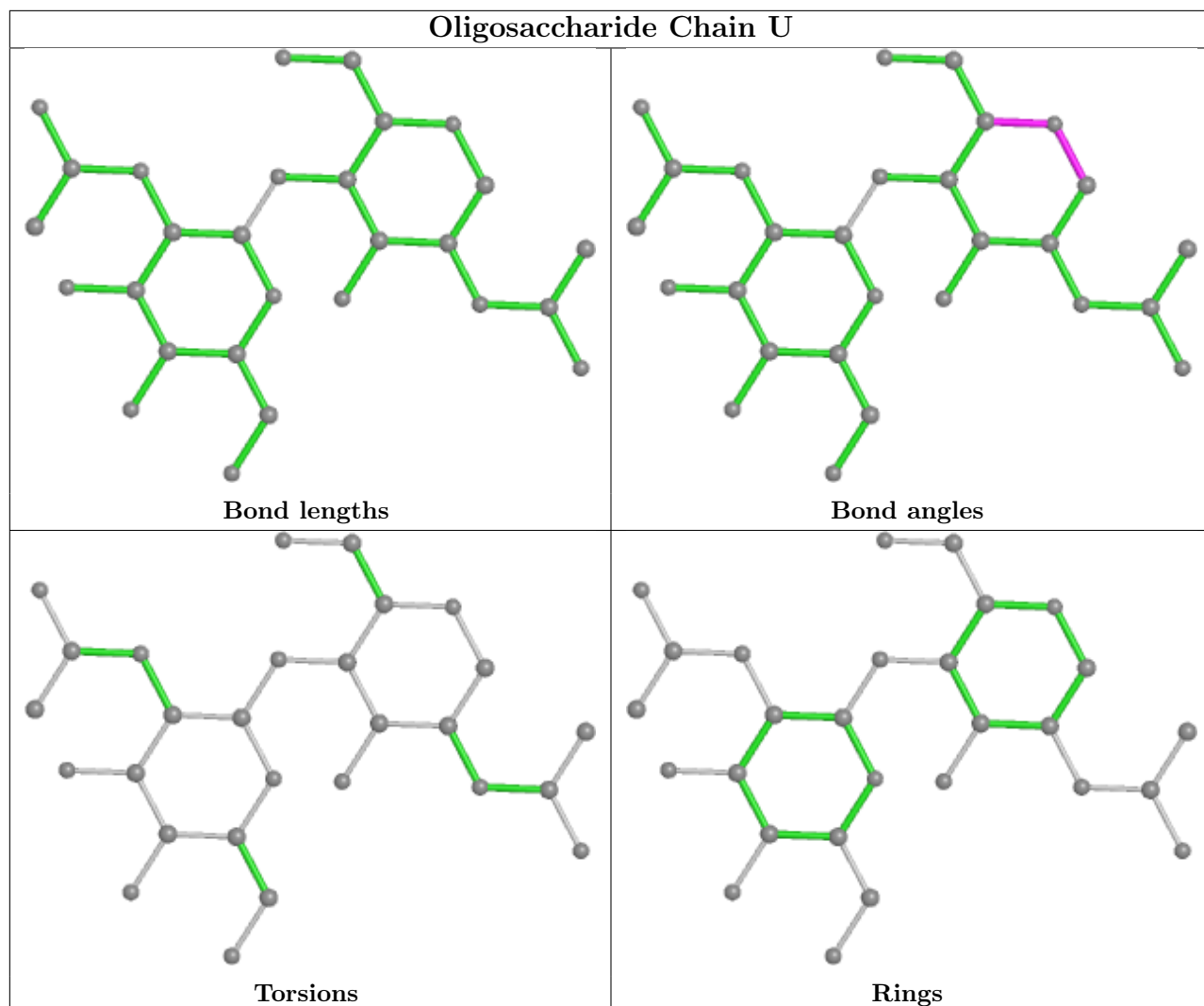


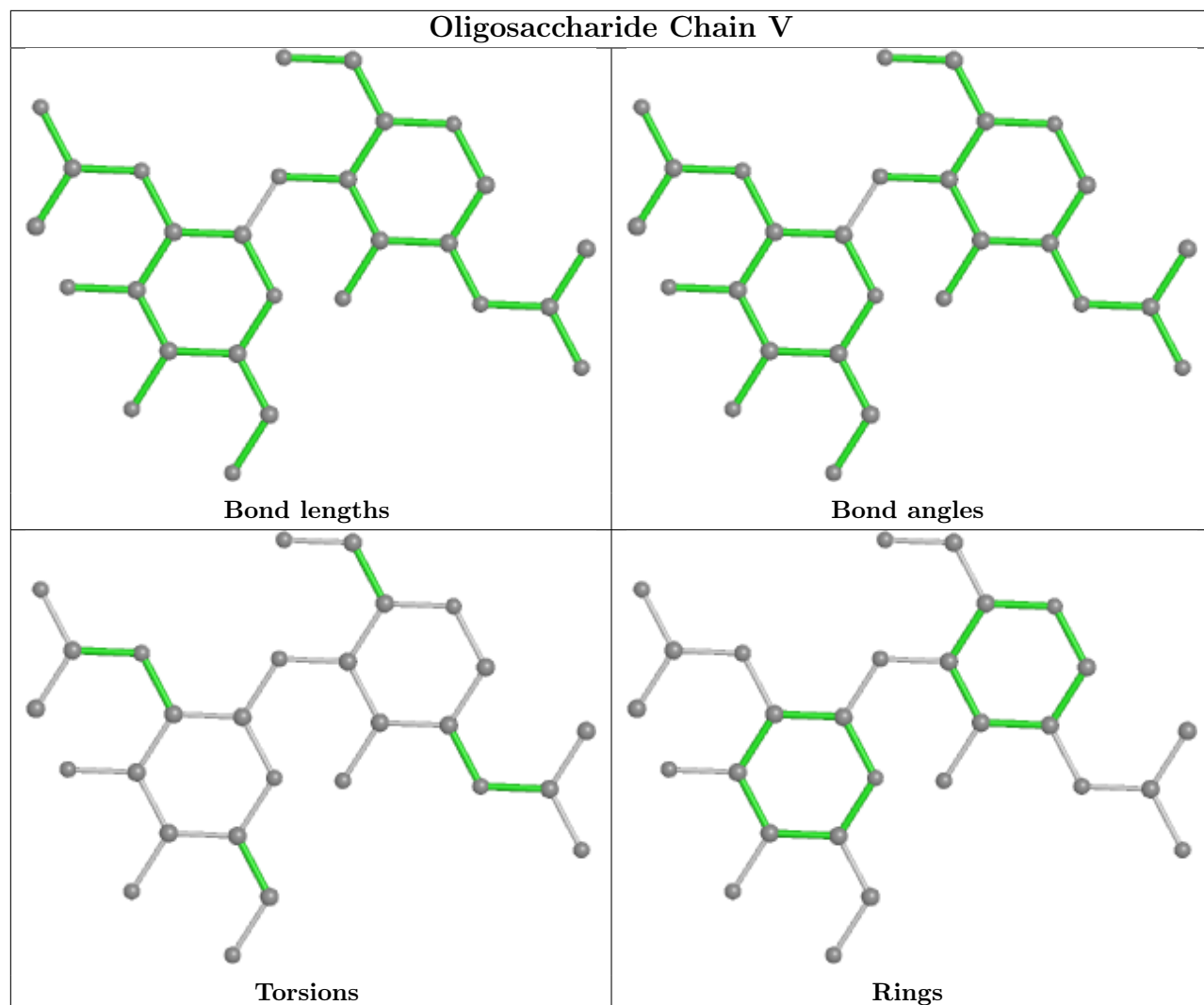


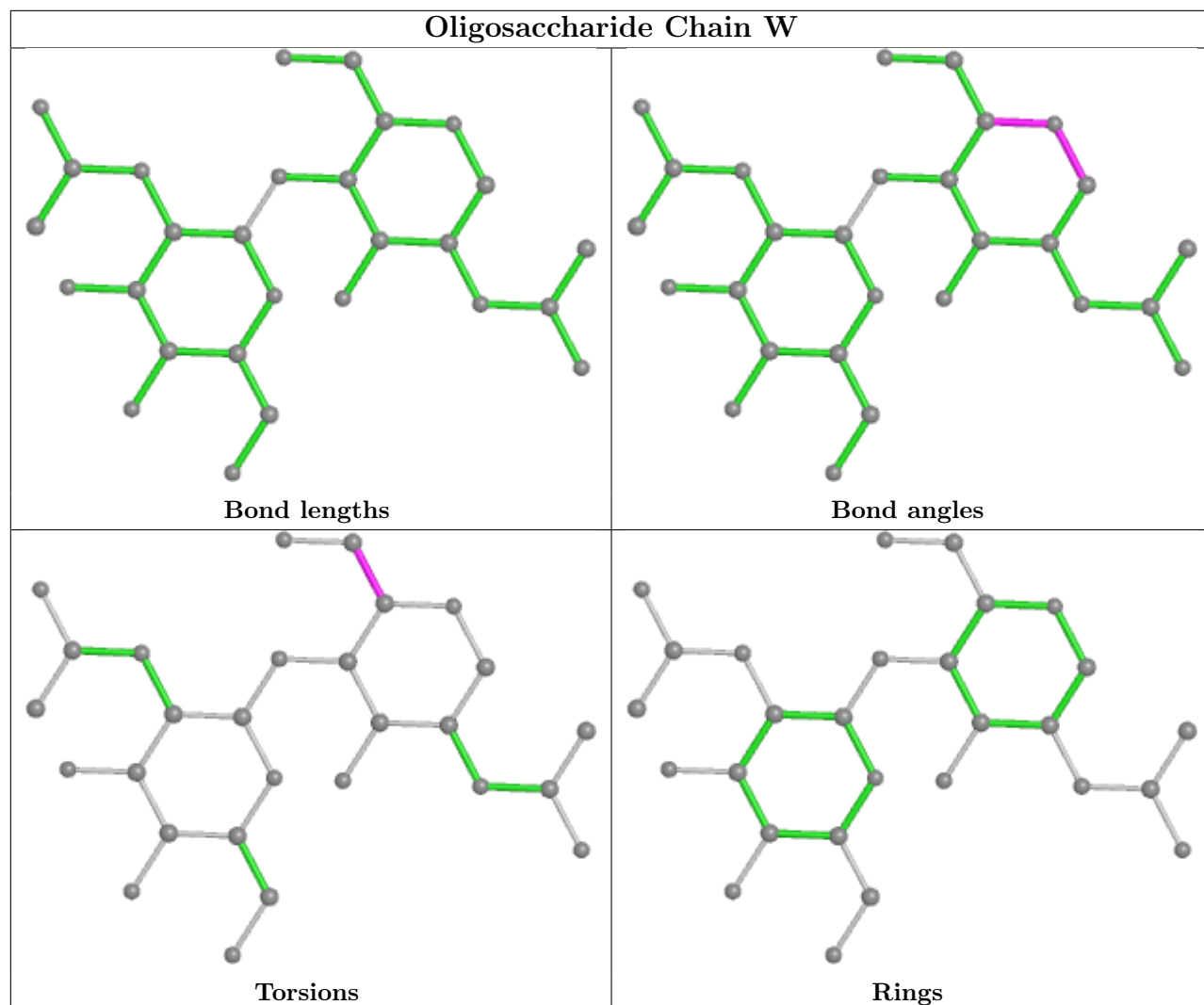


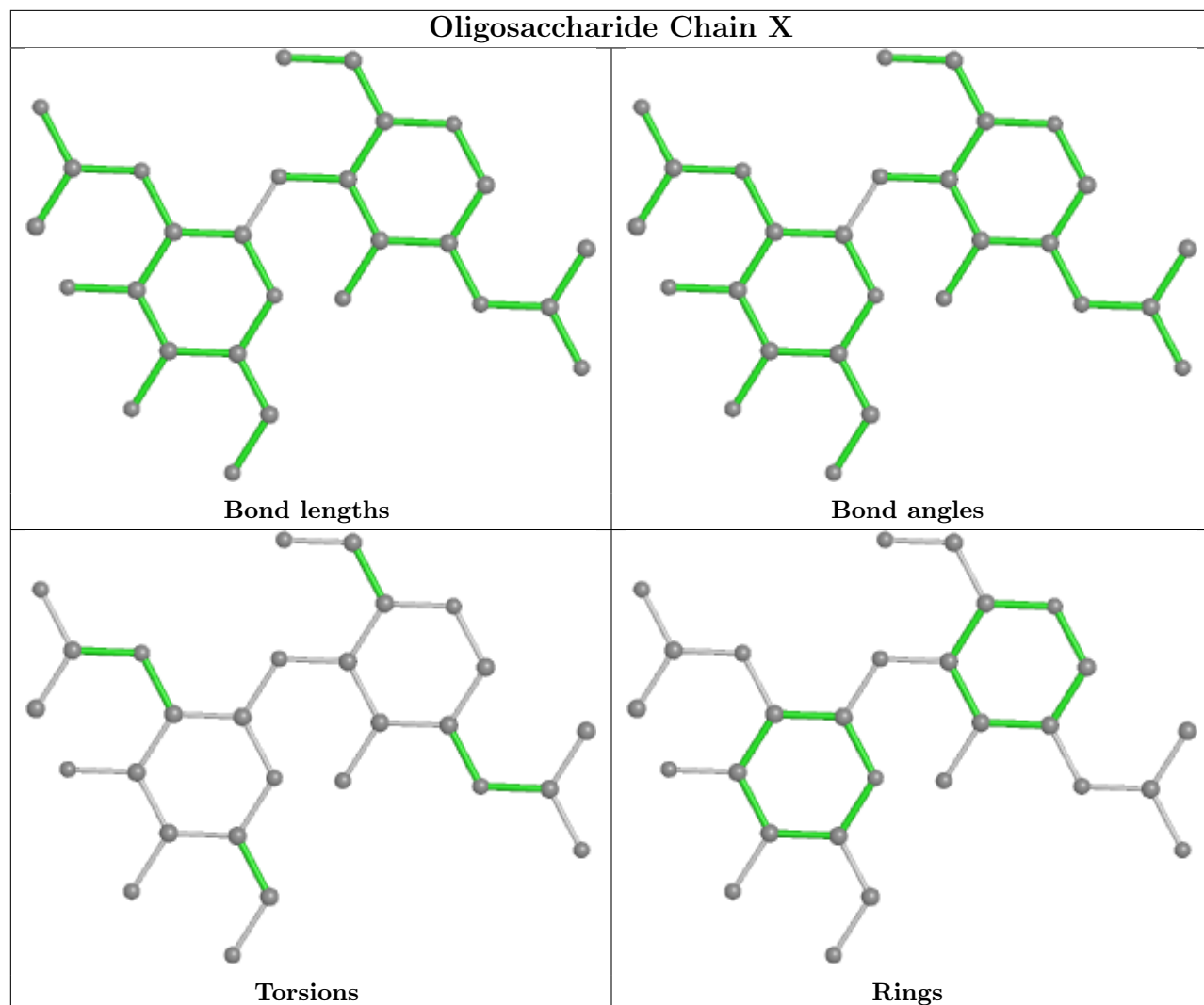


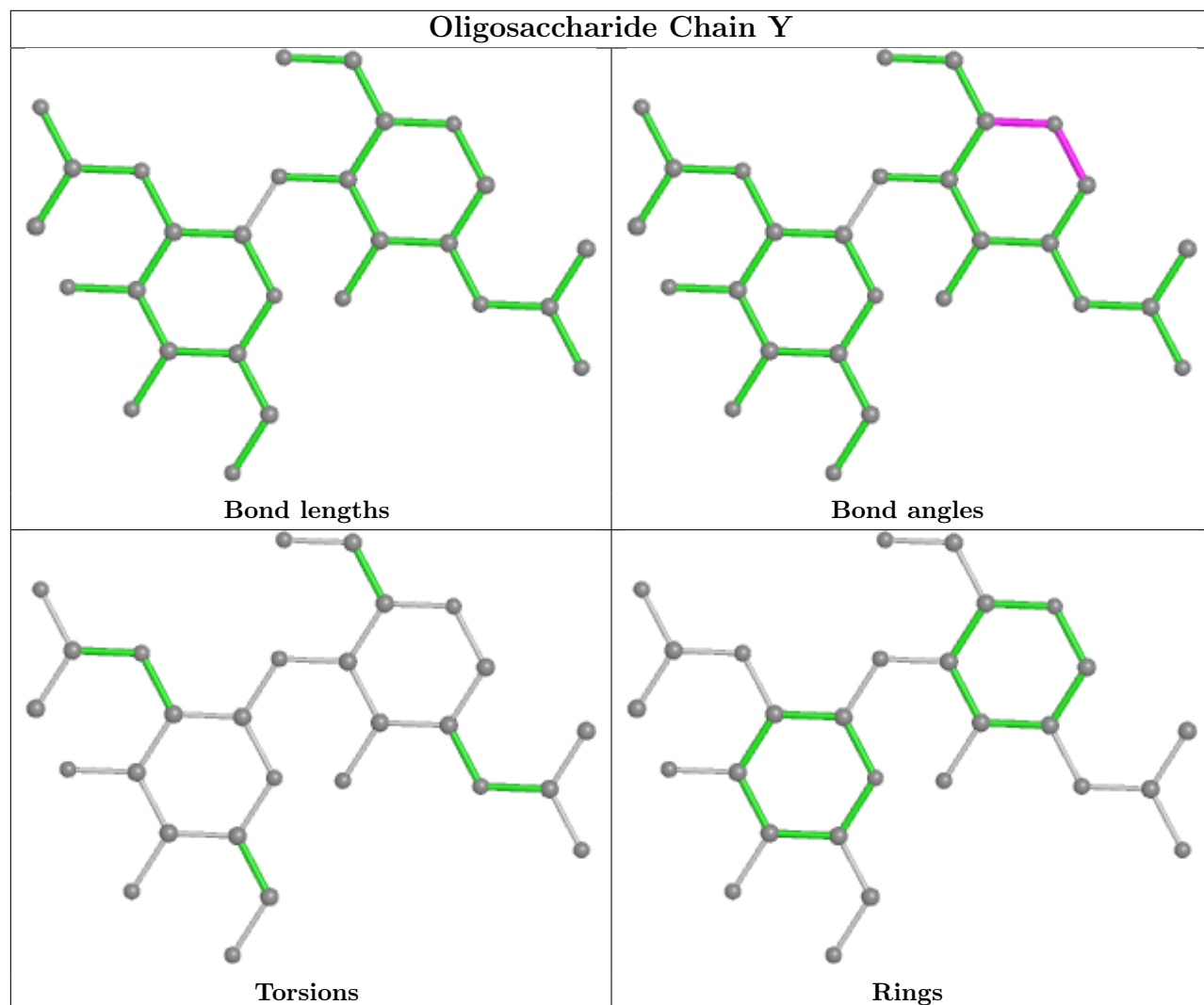


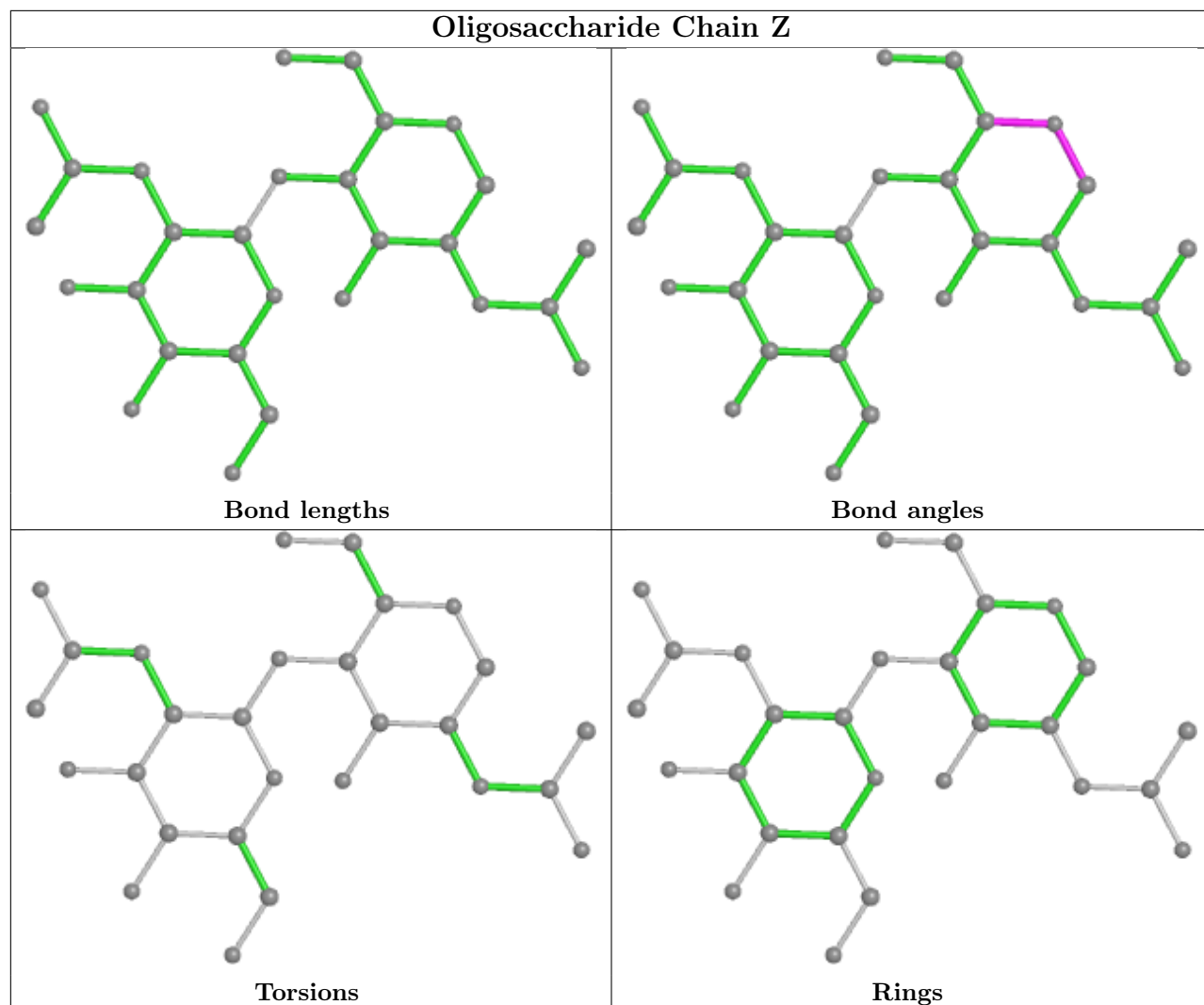


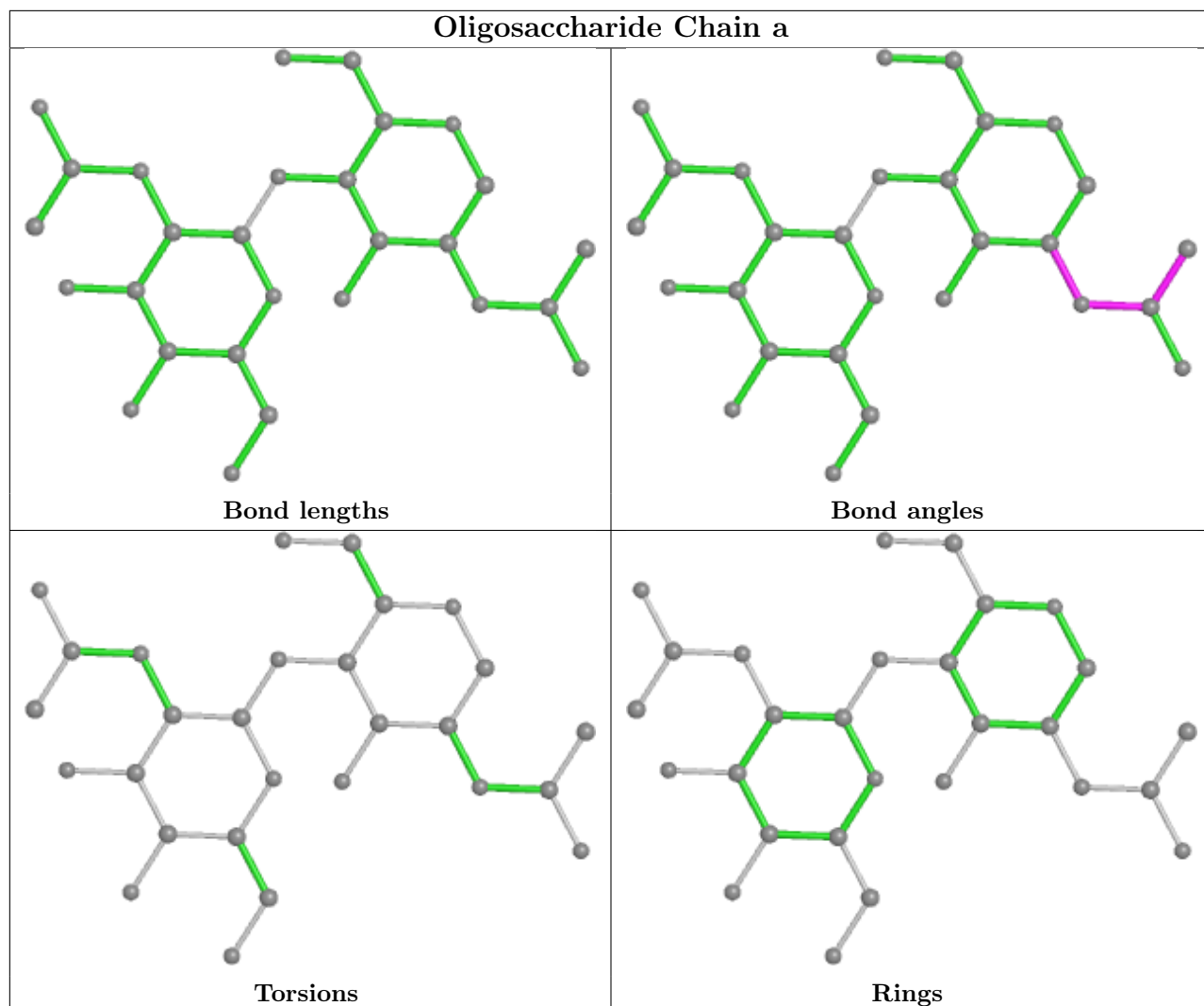


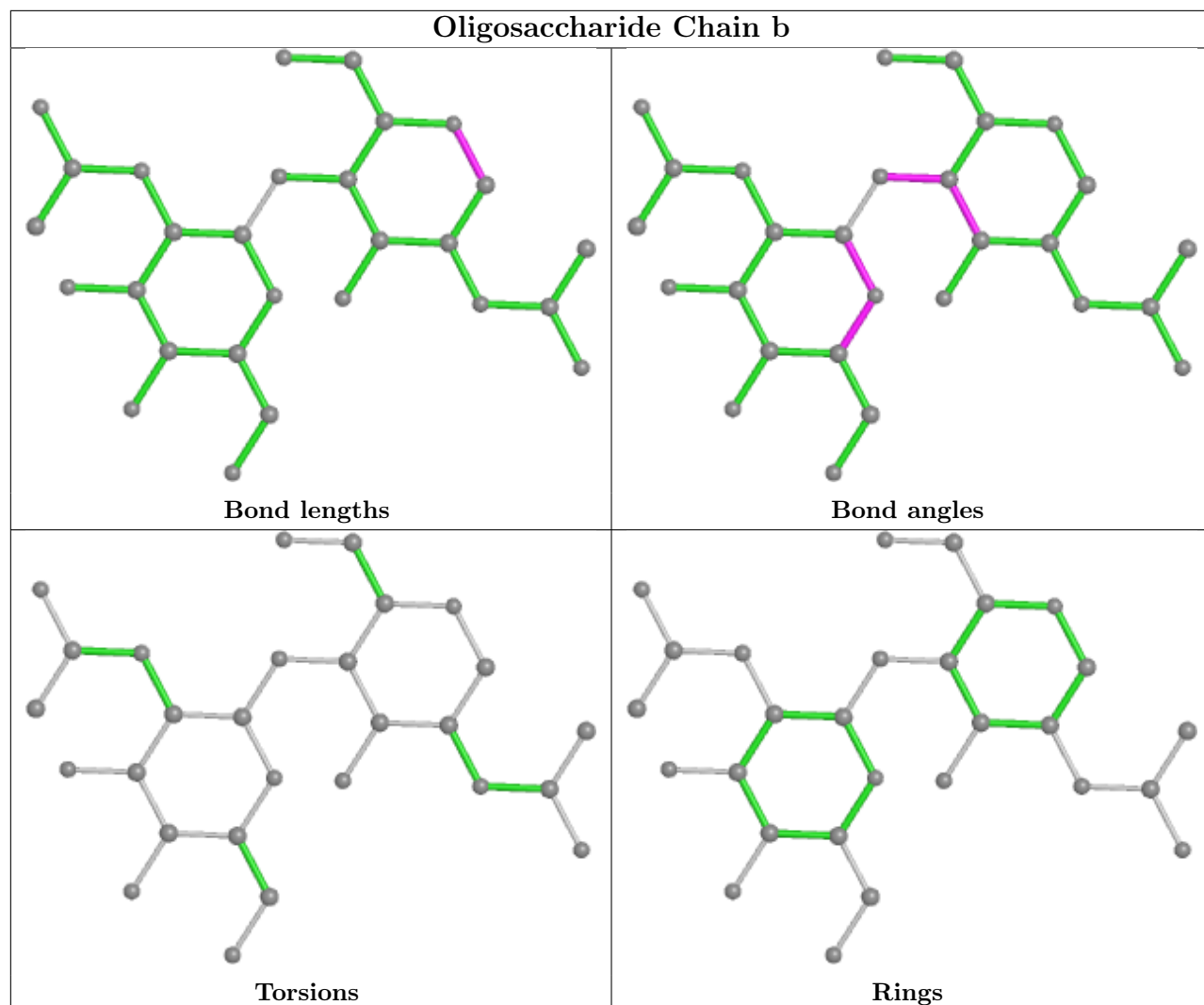


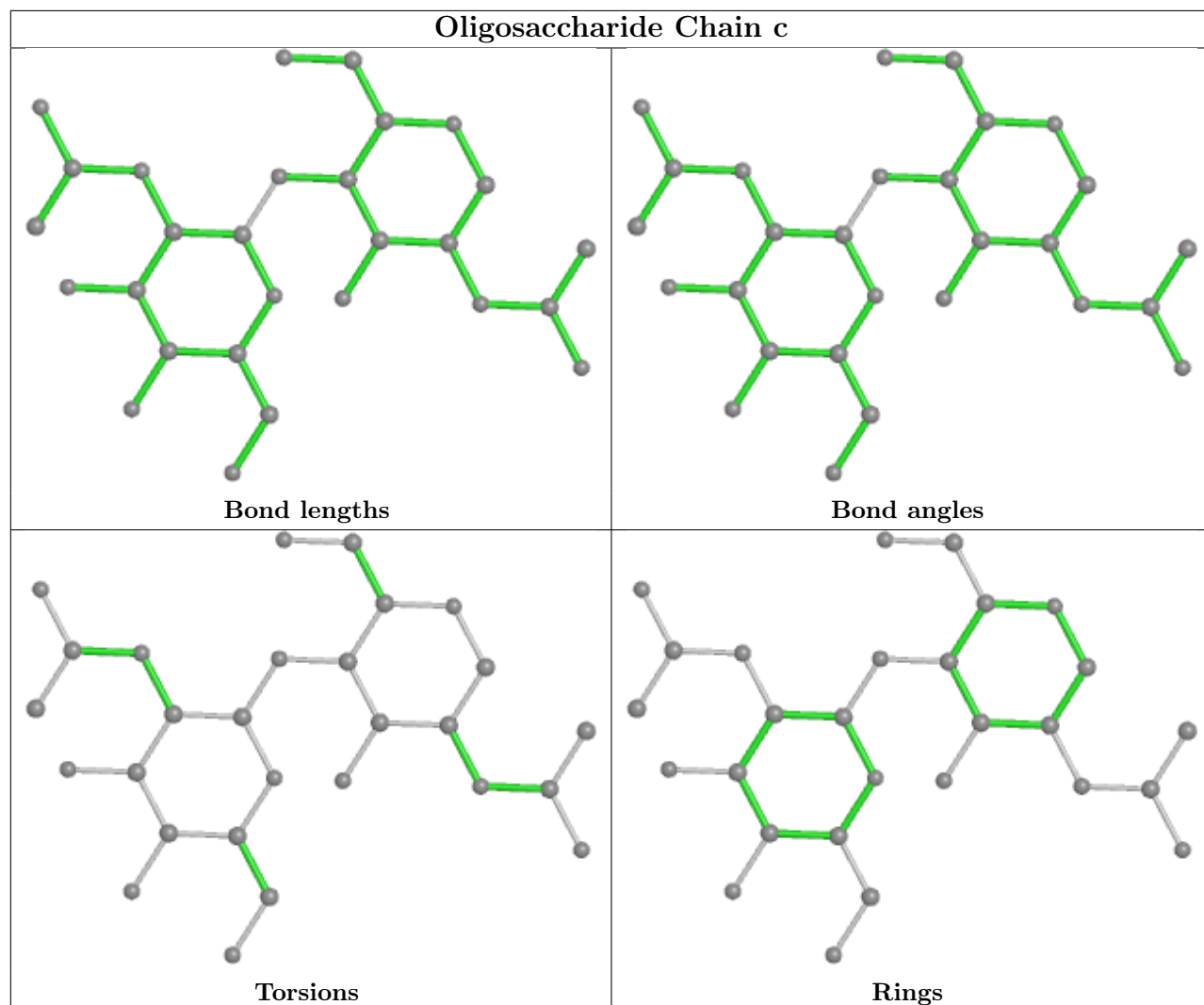


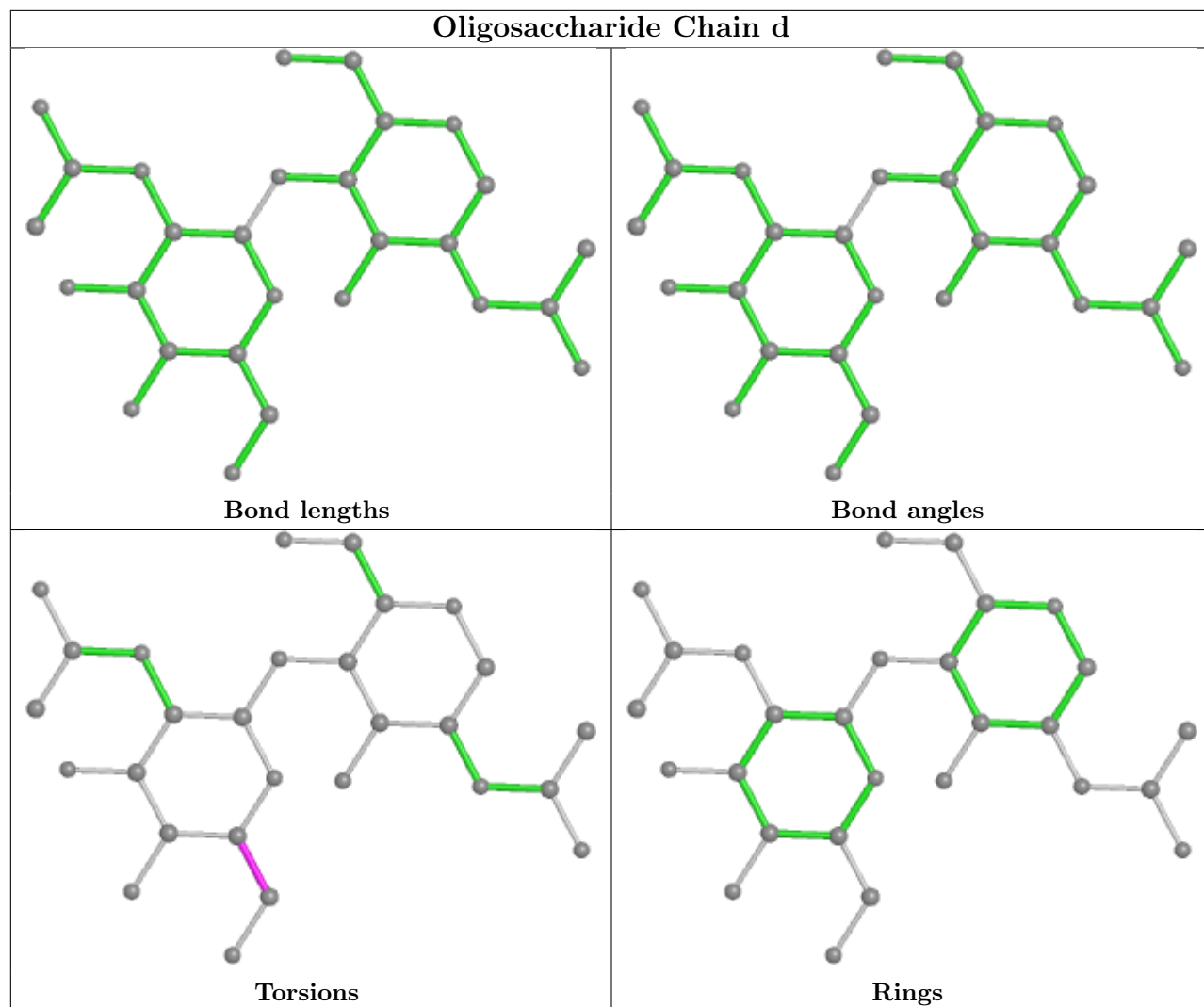


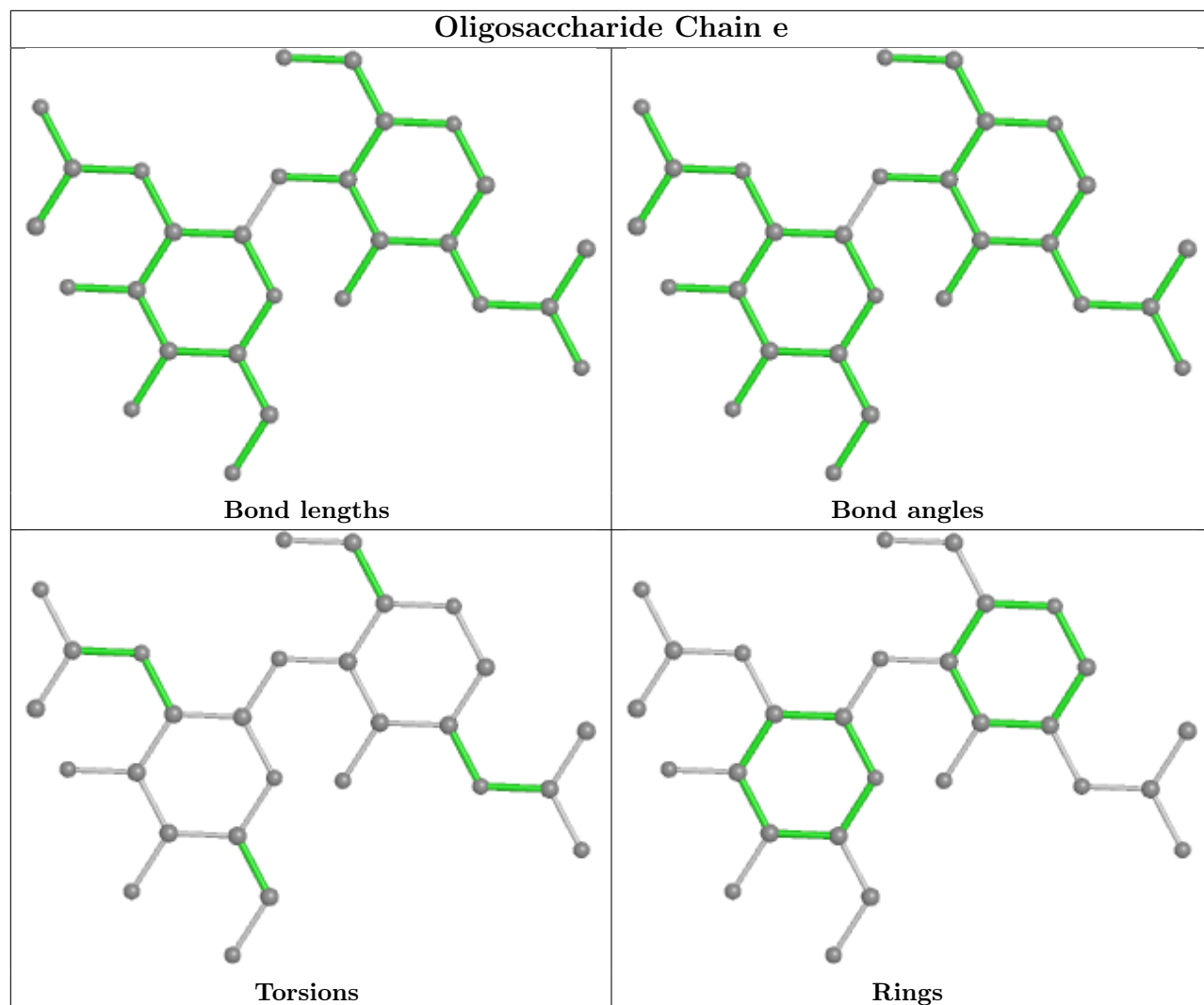


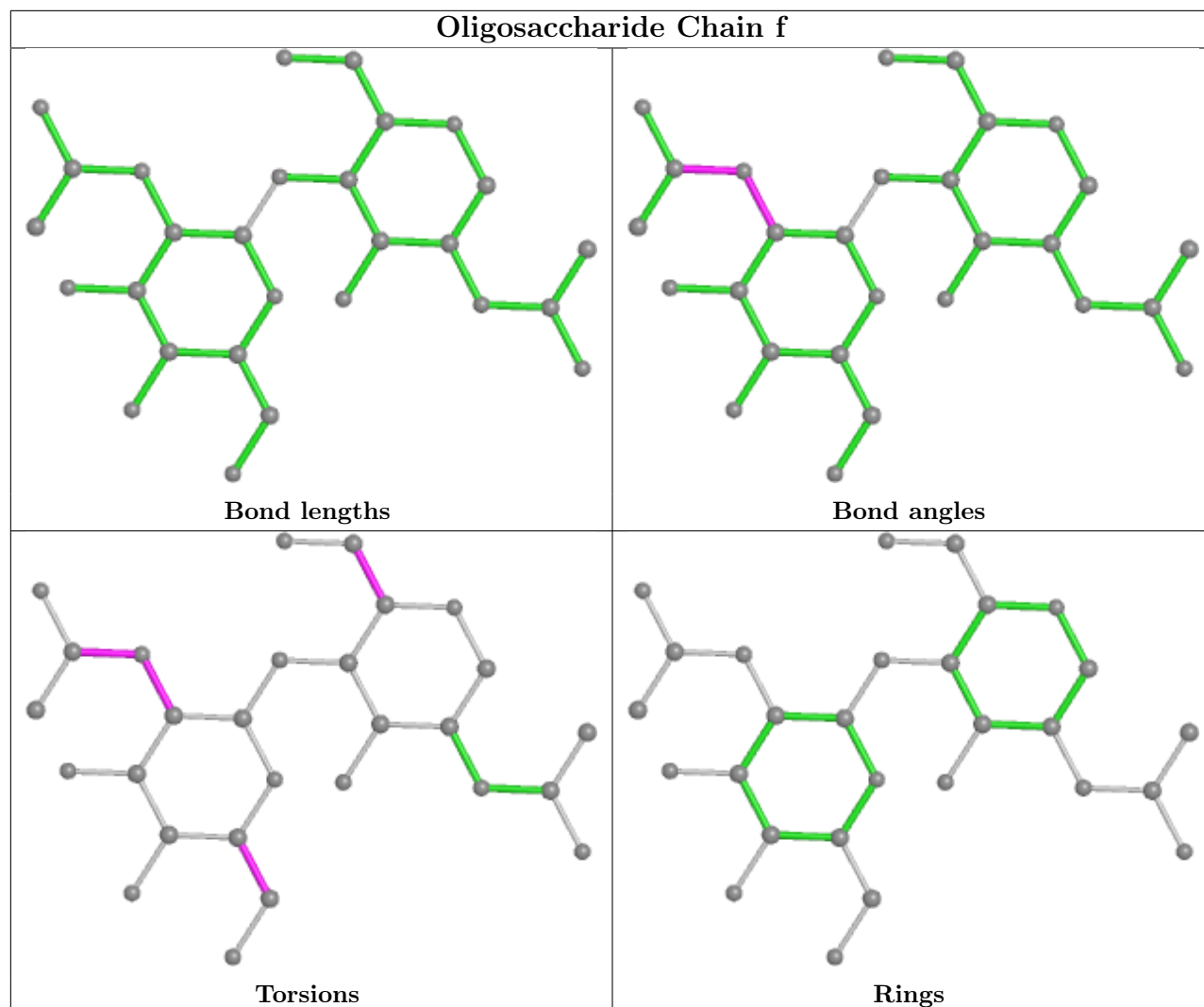


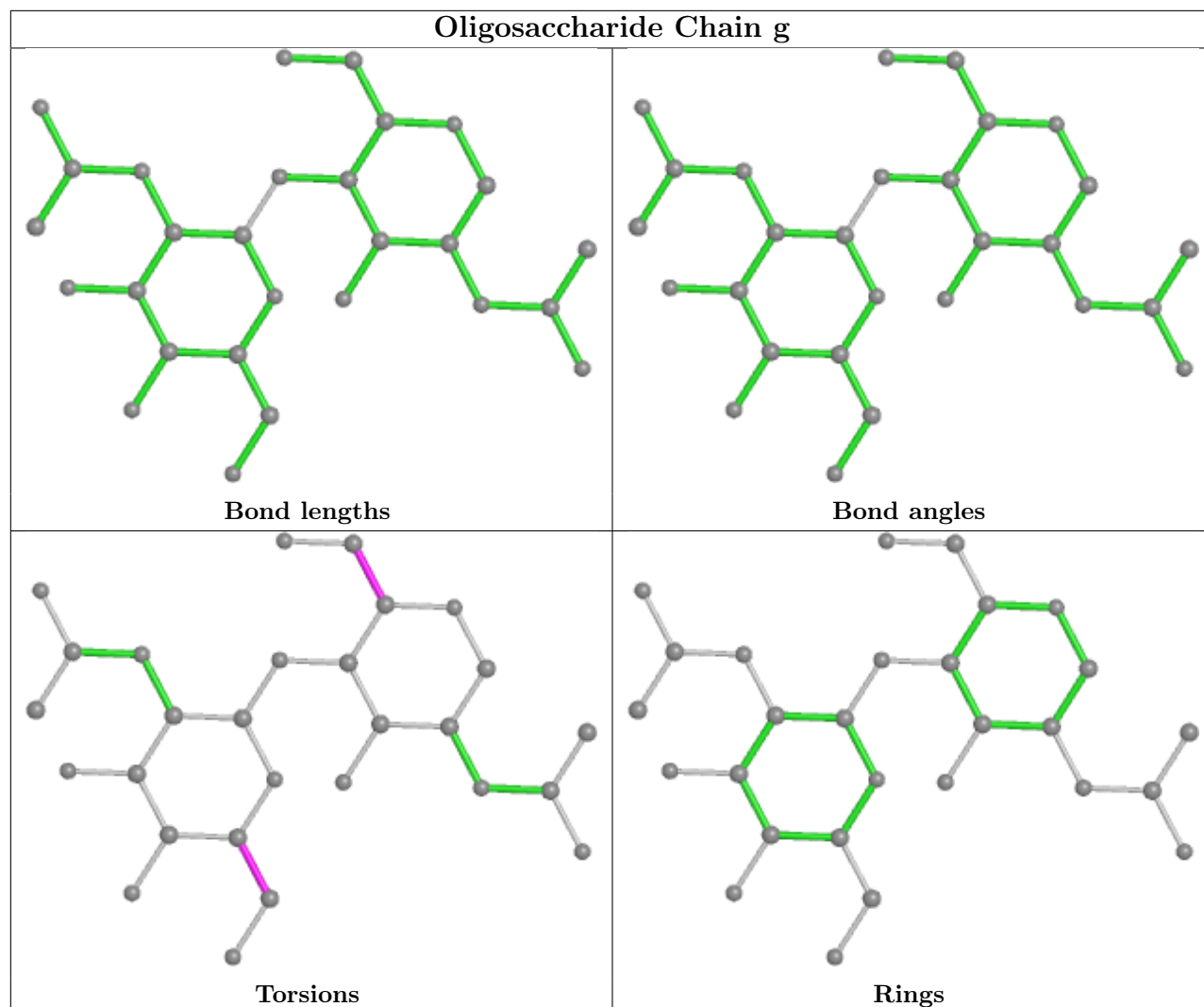


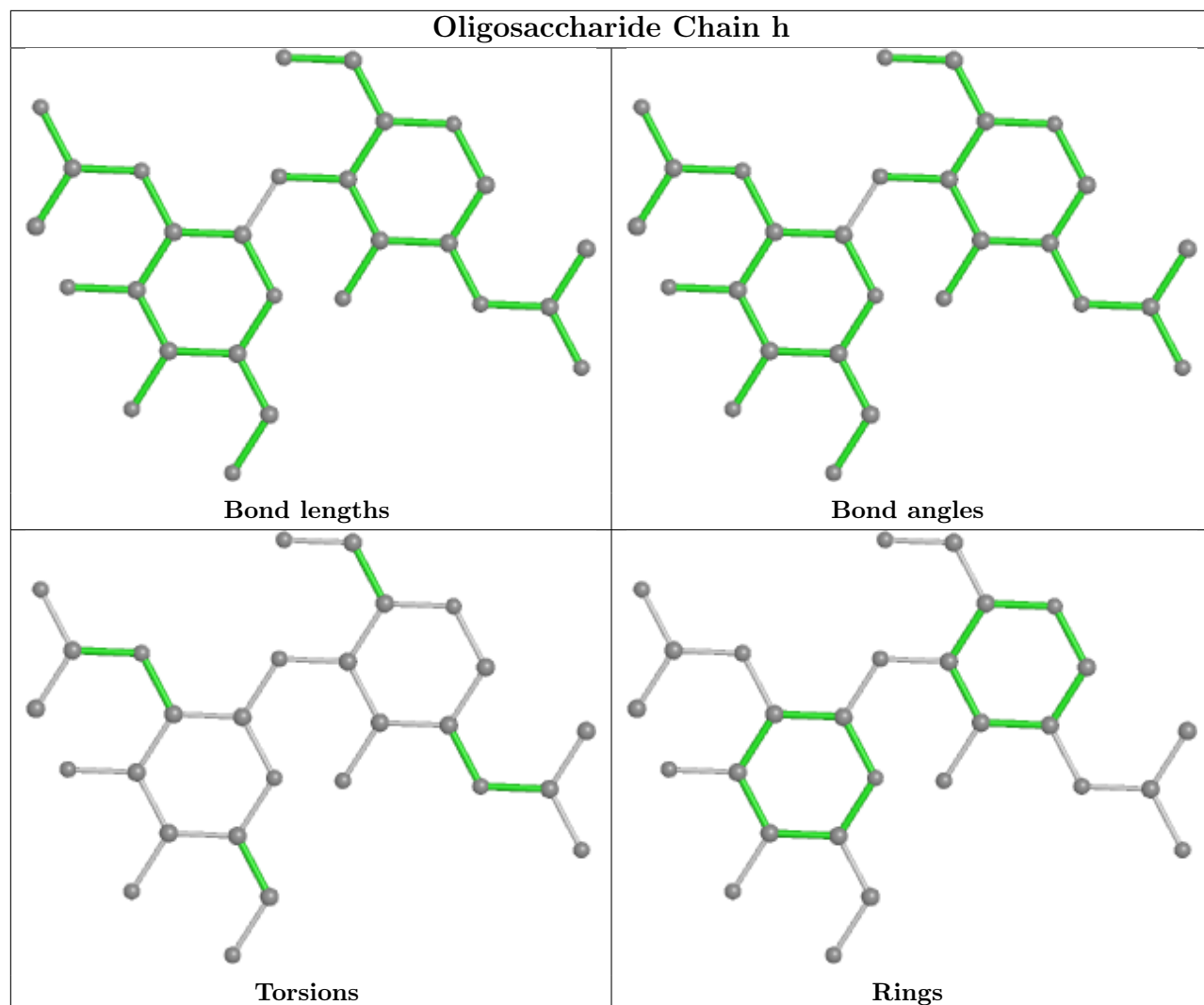


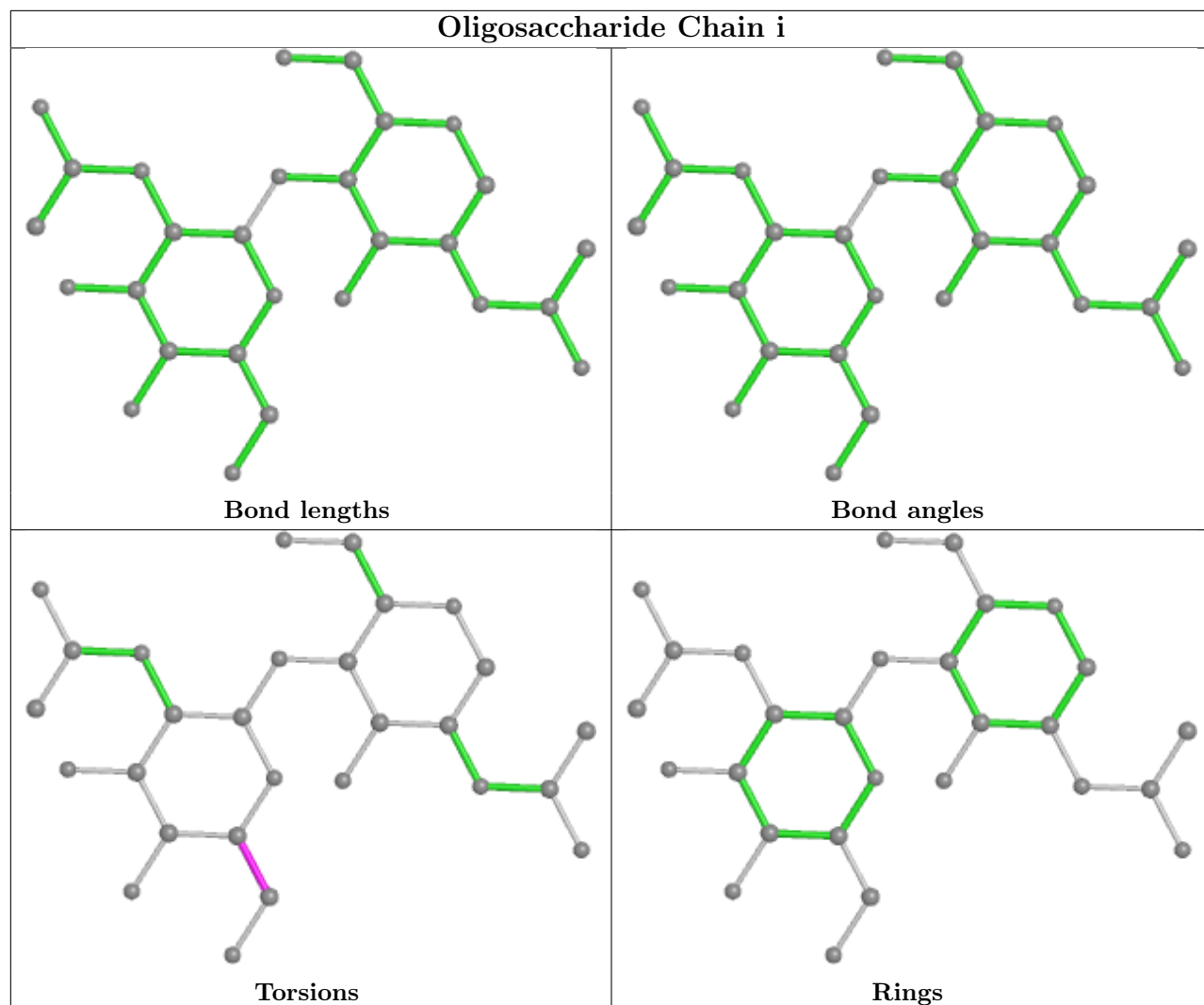


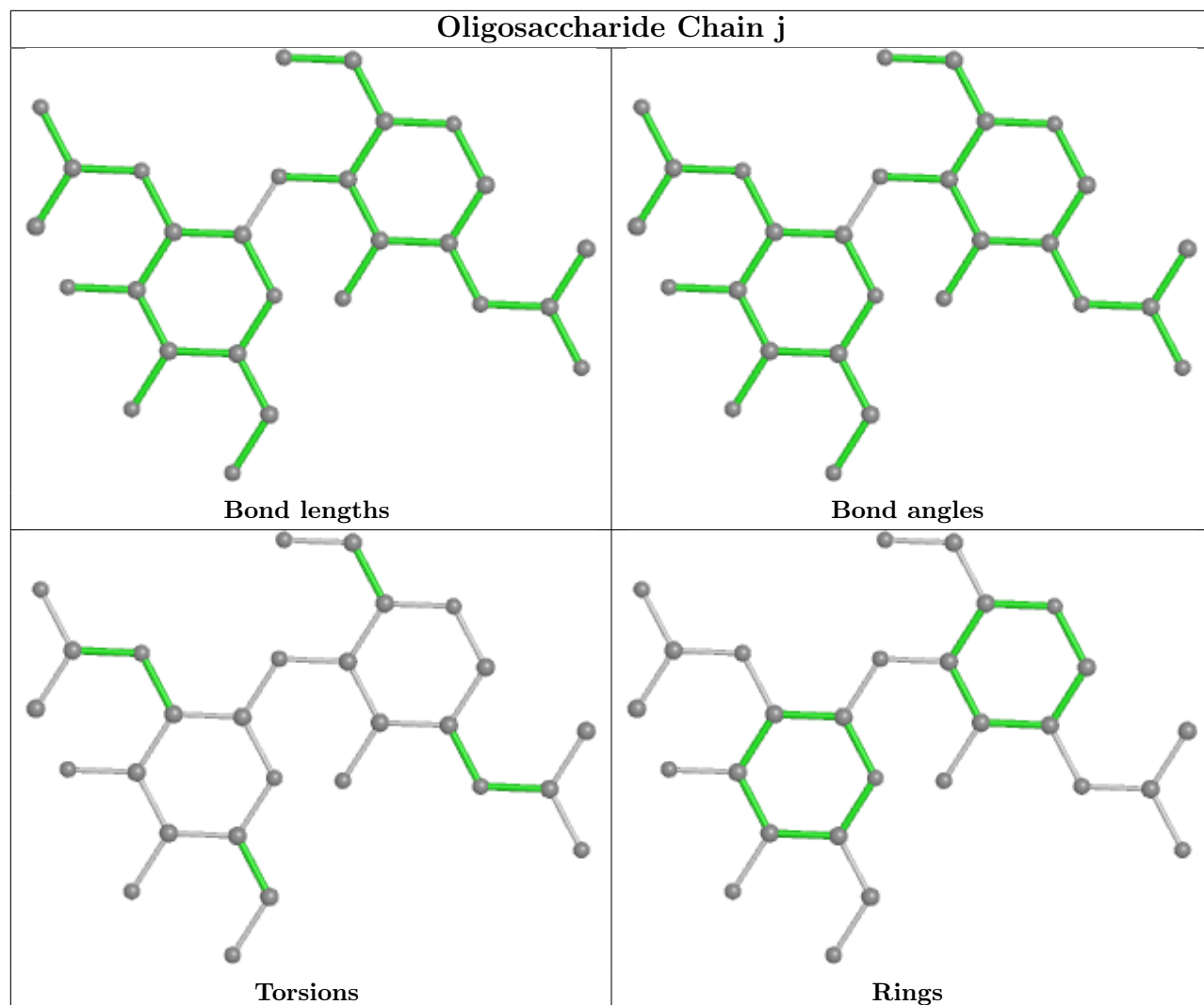


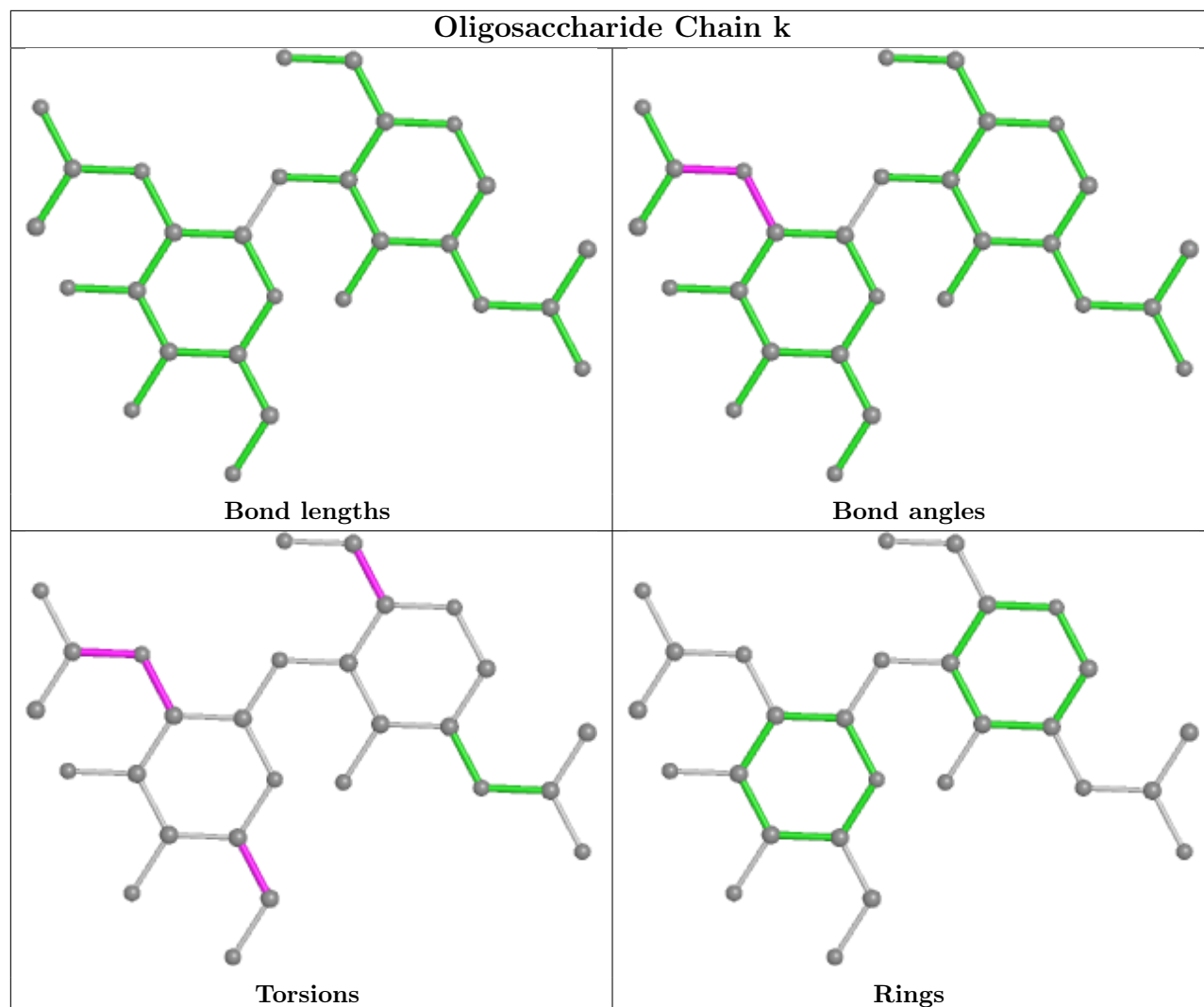


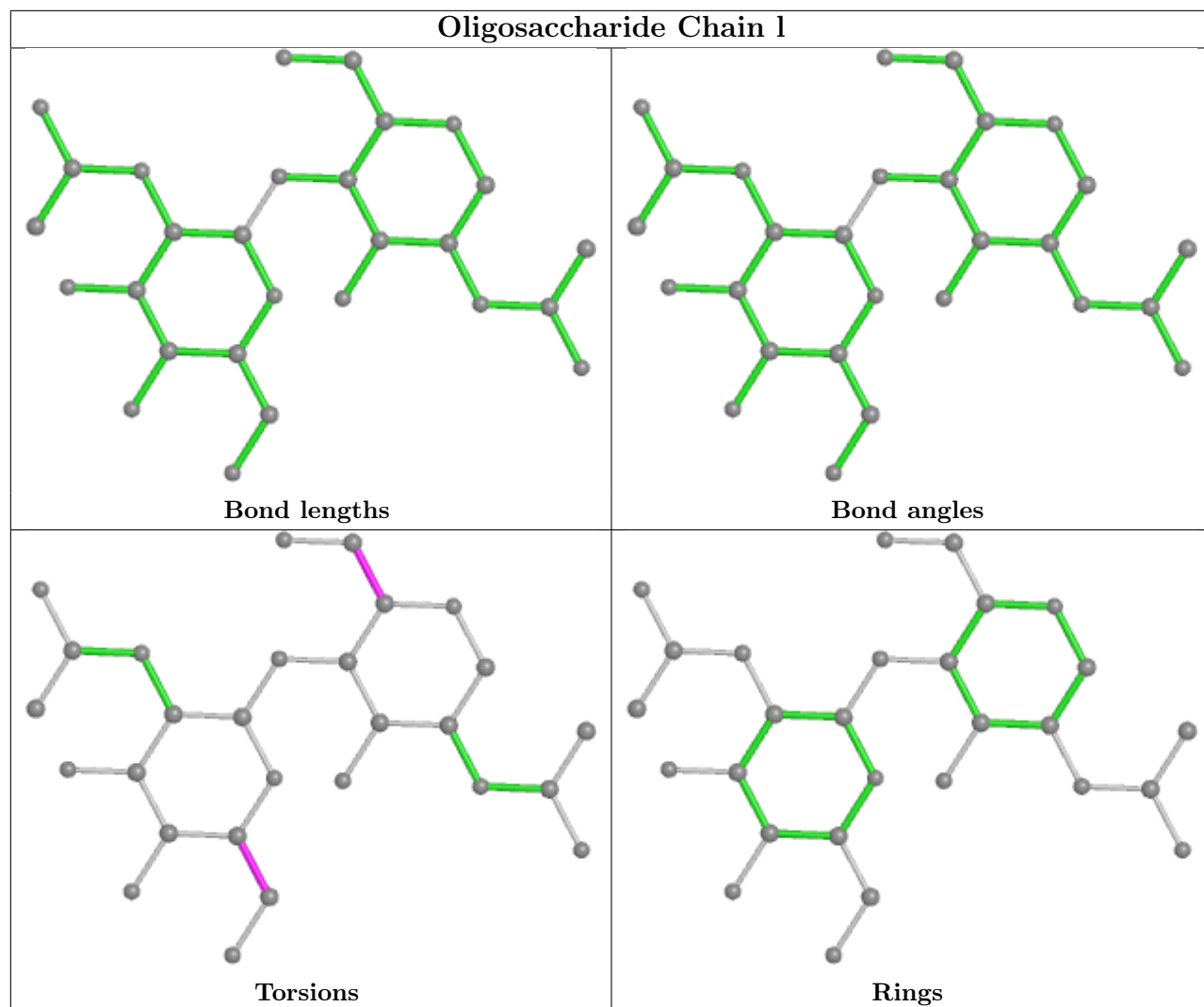


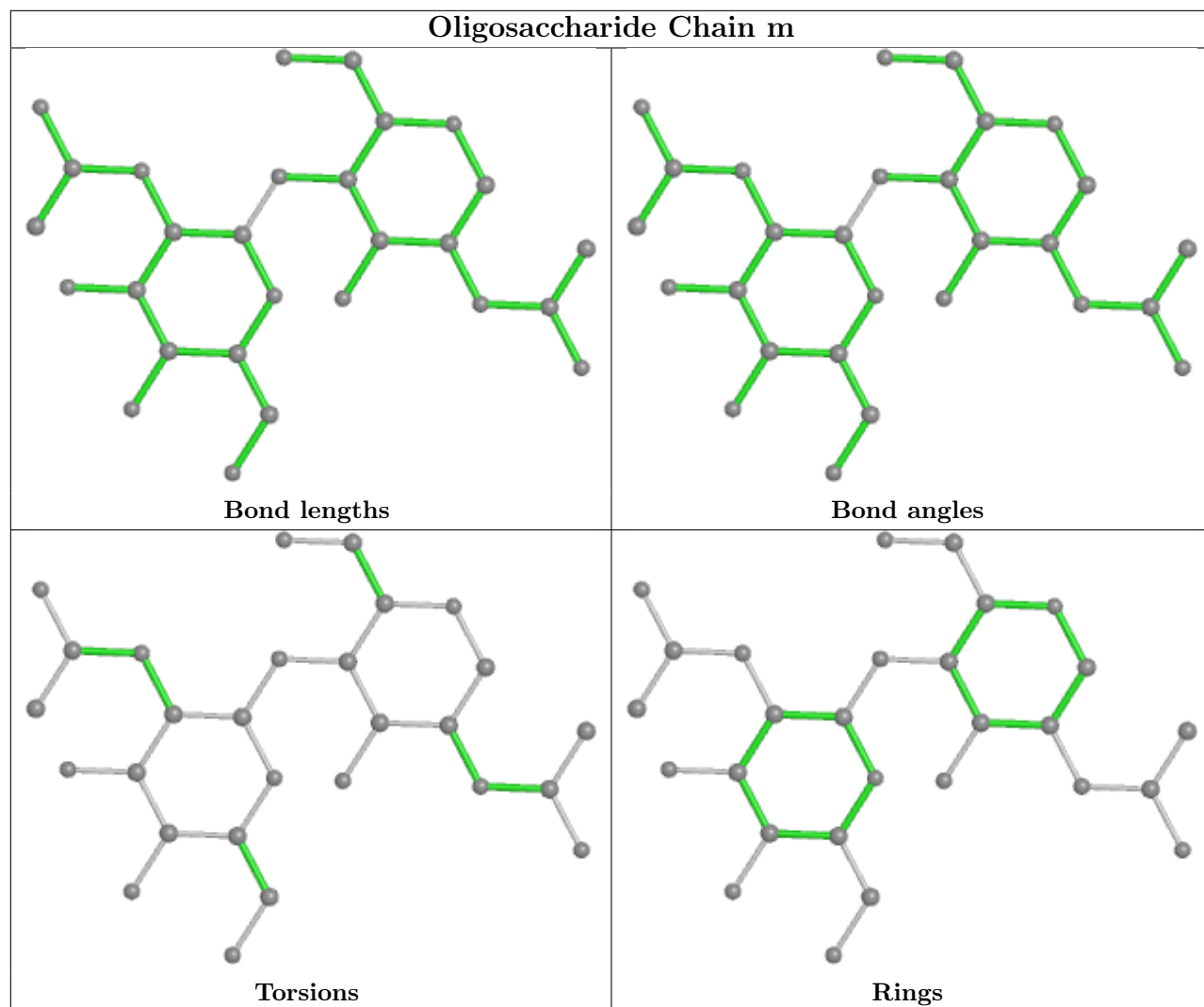


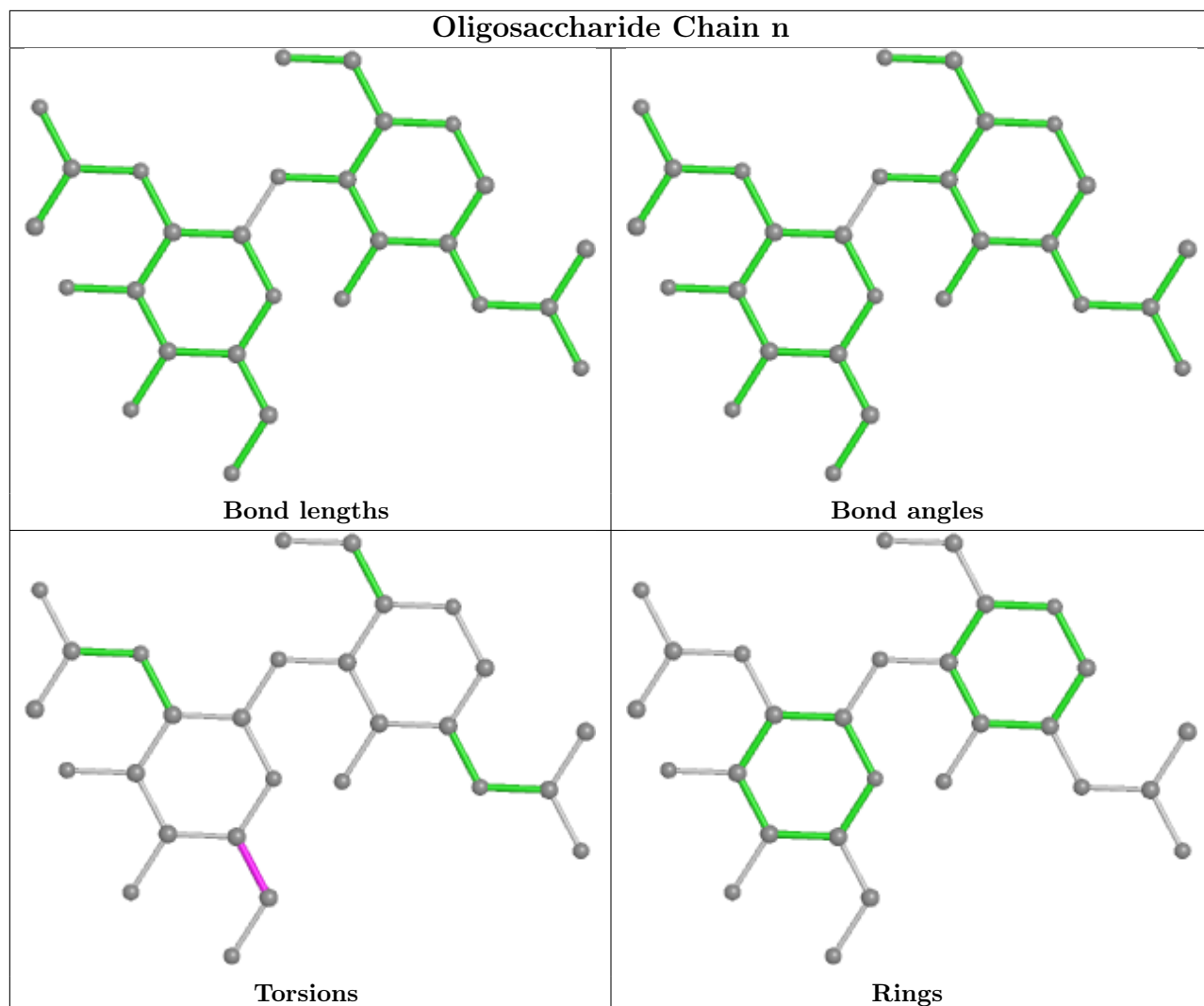


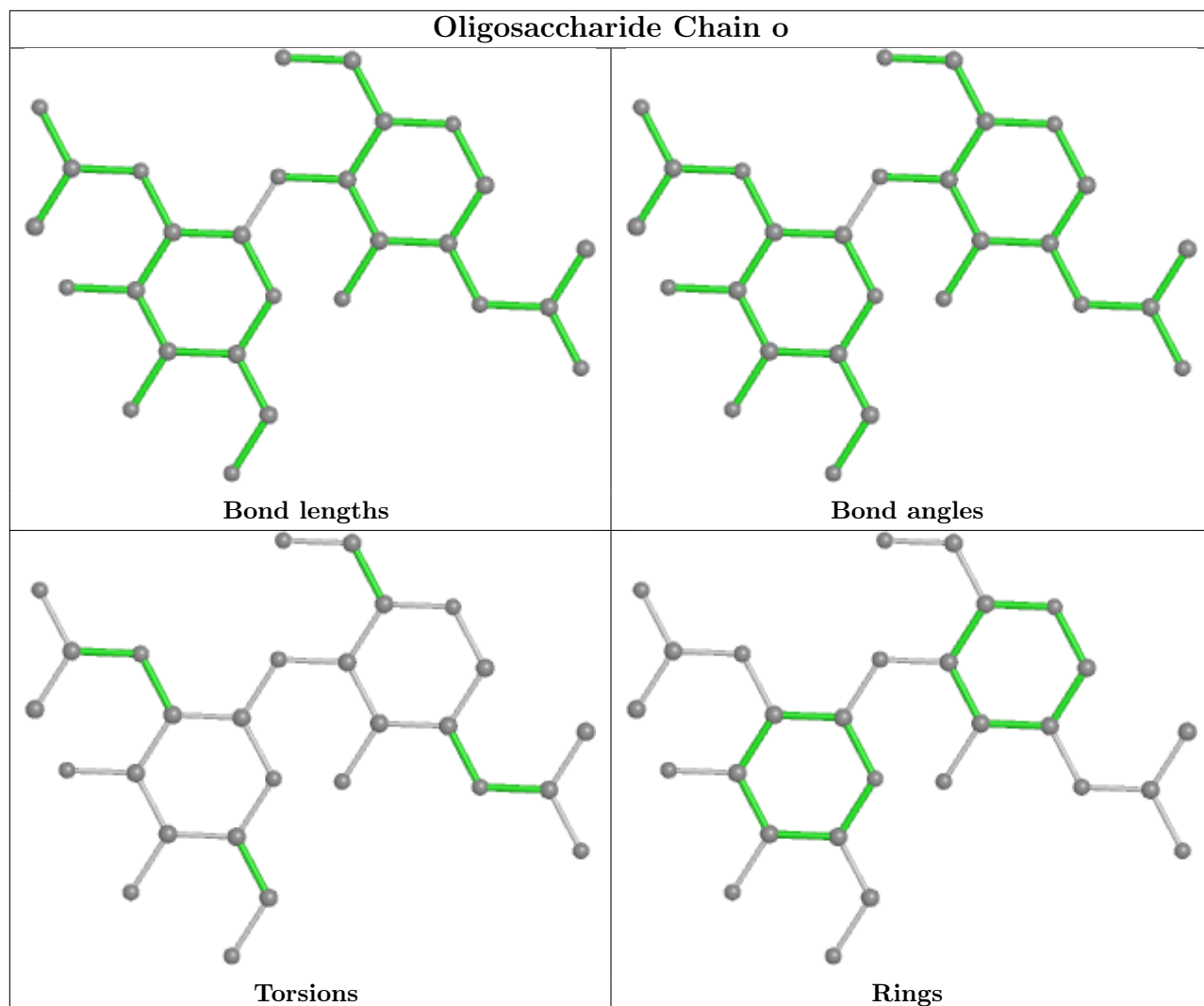


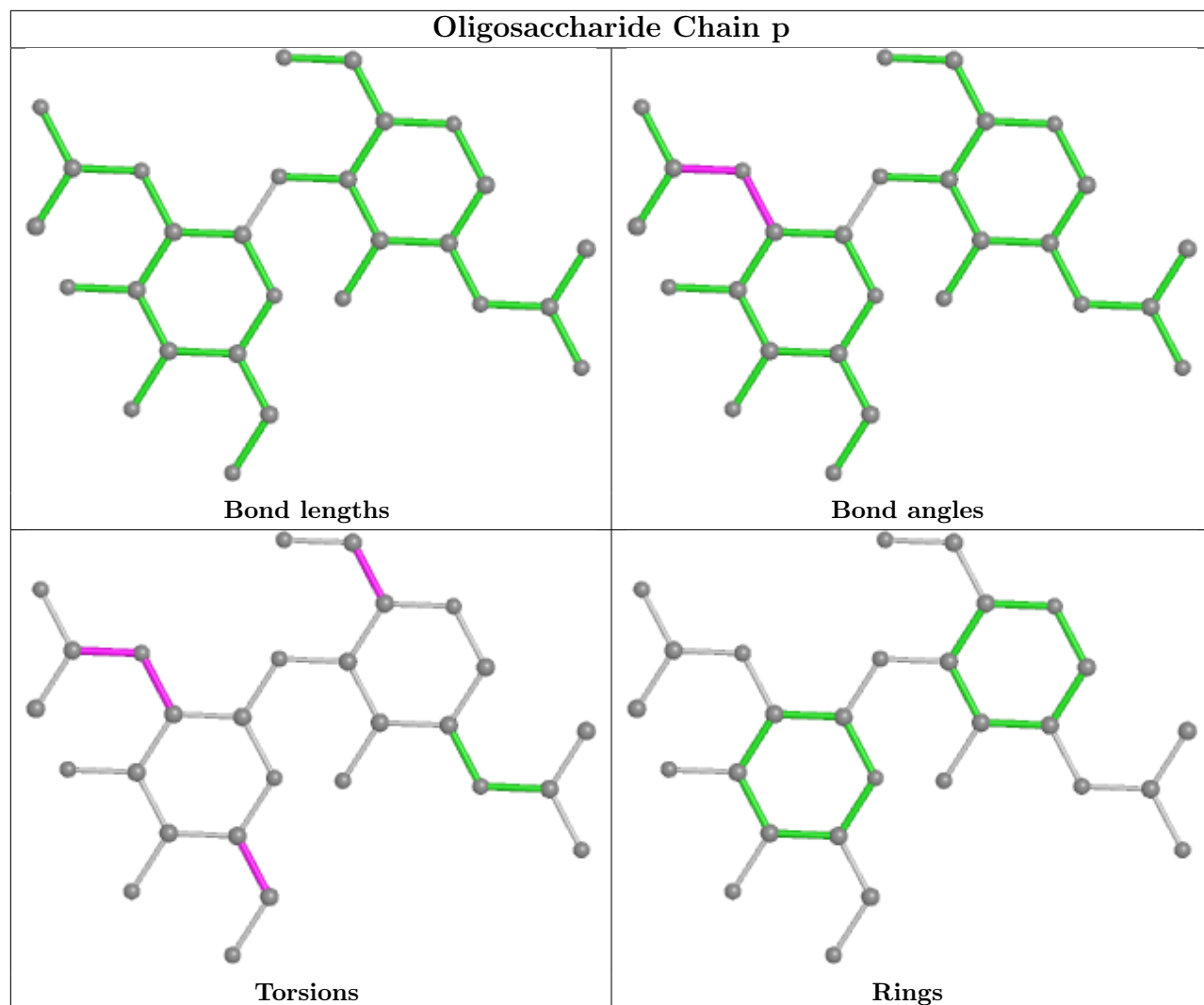


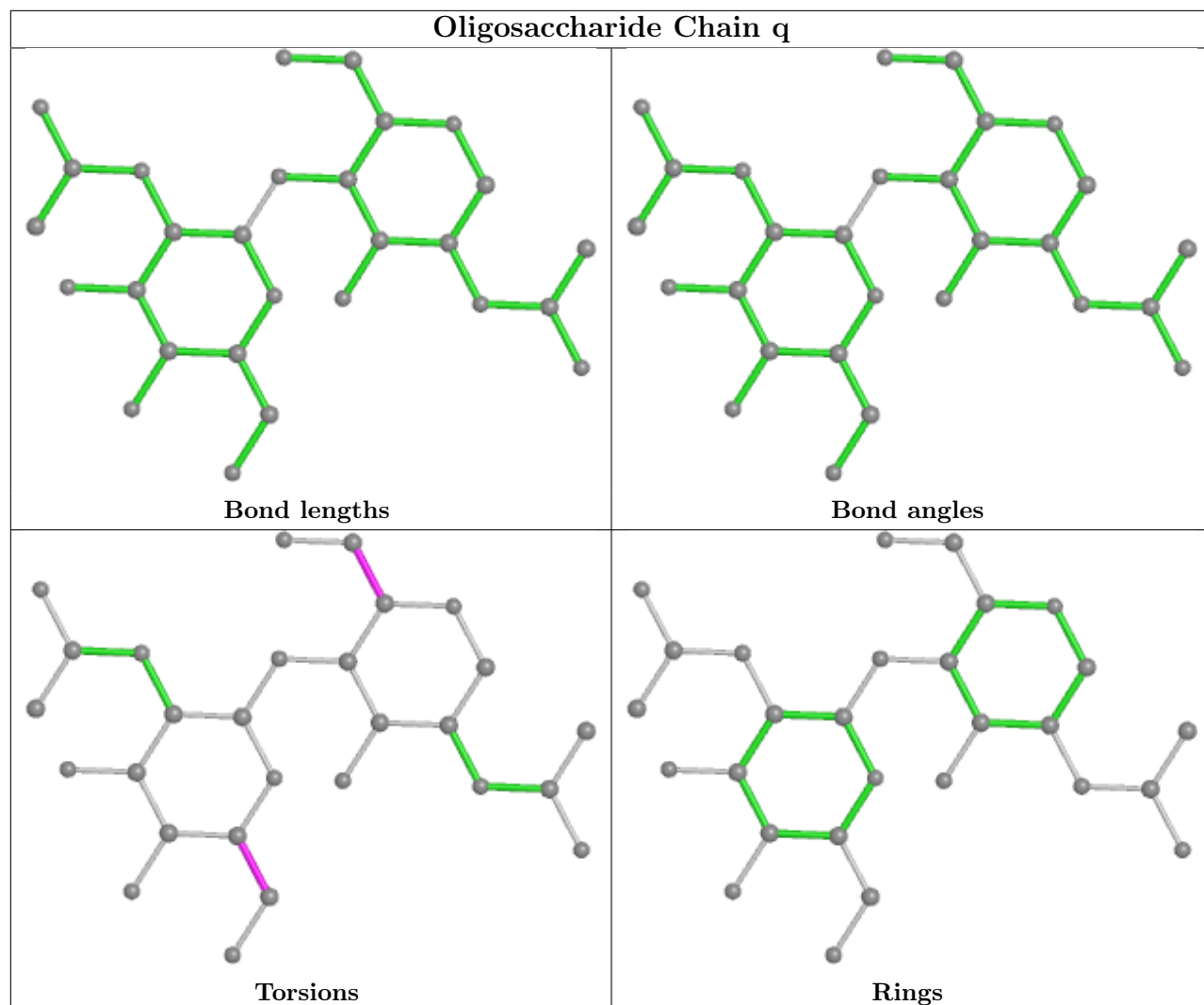


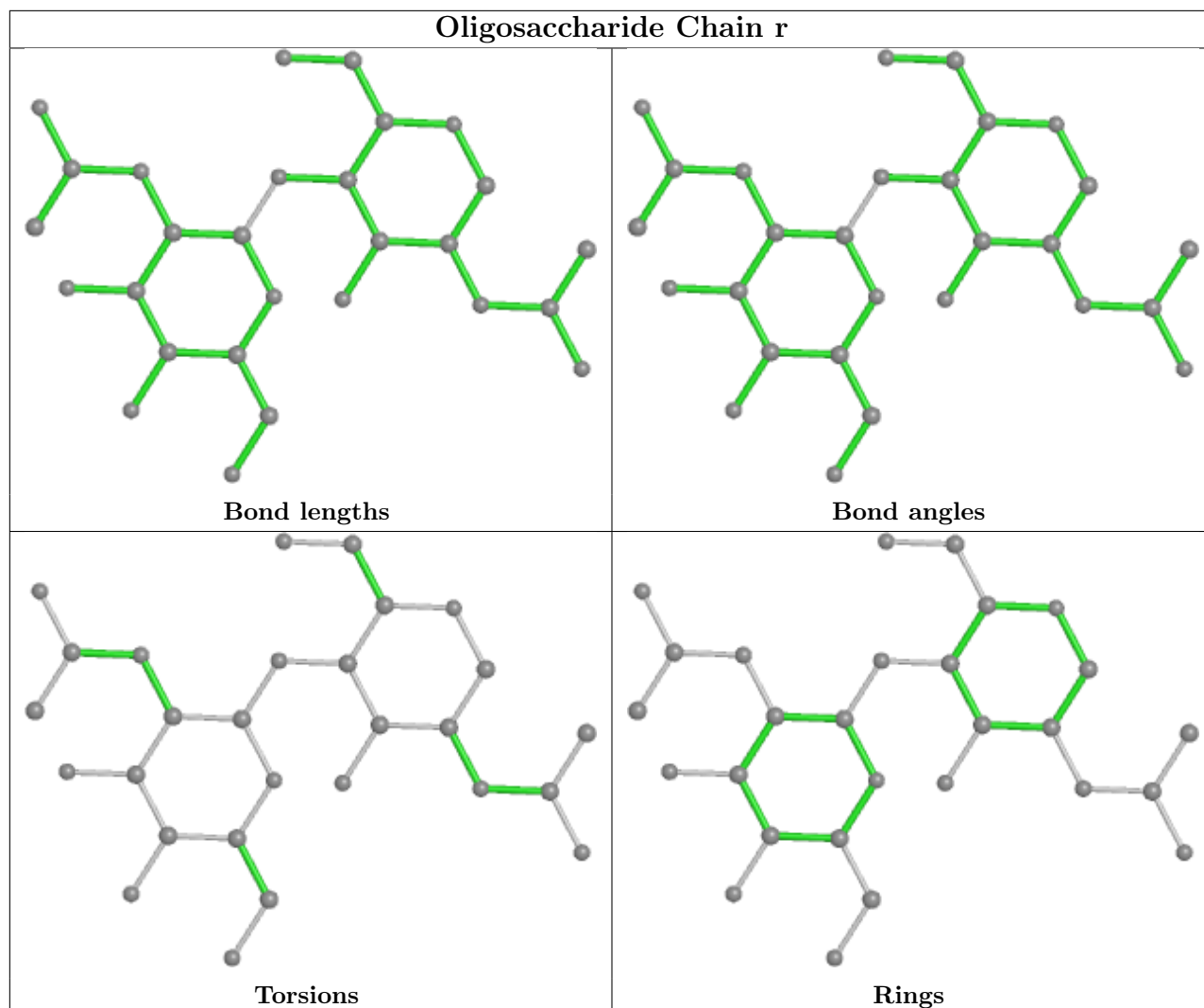












5.6 Ligand geometry [i](#)

28 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	B	1401	1	14,14,15	0.28	0	17,19,21	0.33	0
4	NAG	C	1405	1	14,14,15	0.41	0	17,19,21	1.16	2 (11%)
4	NAG	A	1404	1	14,14,15	0.49	0	17,19,21	0.53	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	NAG	B	1408	1	14,14,15	0.30	0	17,19,21	0.40	0
4	NAG	A	1402	1	14,14,15	0.22	0	17,19,21	0.63	0
4	NAG	A	1407	1	14,14,15	0.22	0	17,19,21	0.48	0
4	NAG	C	1406	1	14,14,15	0.28	0	17,19,21	0.38	0
4	NAG	C	1401	1	14,14,15	0.28	0	17,19,21	0.33	0
4	NAG	A	1406	1	14,14,15	0.28	0	17,19,21	0.38	0
4	NAG	A	1401	1	14,14,15	0.28	0	17,19,21	0.33	0
4	NAG	B	1405	1	14,14,15	0.60	0	17,19,21	1.27	1 (5%)
4	NAG	C	1403	1	14,14,15	0.22	0	17,19,21	0.43	0
4	NAG	C	1404	1	14,14,15	0.48	0	17,19,21	0.53	0
4	NAG	C	1408	1	14,14,15	0.32	0	17,19,21	0.40	0
4	NAG	A	1408	1	14,14,15	0.30	0	17,19,21	0.40	0
4	NAG	B	1402	1	14,14,15	0.21	0	17,19,21	0.62	0
4	NAG	B	1406	1	14,14,15	0.27	0	17,19,21	0.38	0
4	NAG	B	1403	1	14,14,15	0.21	0	17,19,21	0.43	0
4	NAG	A	1403	1	14,14,15	0.21	0	17,19,21	0.43	0
4	NAG	B	1407	1	14,14,15	0.22	0	17,19,21	0.49	0
4	NAG	H	701	2	14,14,15	0.23	0	17,19,21	0.44	0
4	NAG	F	701	2	14,14,15	0.22	0	17,19,21	0.45	0
4	NAG	C	1402	1	14,14,15	0.20	0	17,19,21	0.63	0
4	NAG	B	1409	1	14,14,15	0.50	0	17,19,21	0.37	0
4	NAG	C	1407	1	14,14,15	0.23	0	17,19,21	0.49	0
4	NAG	B	1404	1	14,14,15	0.48	0	17,19,21	0.53	0
4	NAG	A	1405	1	14,14,15	0.41	0	17,19,21	1.16	2 (11%)
4	NAG	D	701	2	14,14,15	0.22	0	17,19,21	0.45	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	B	1401	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1405	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1404	1	-	0/6/23/26	0/1/1/1
4	NAG	B	1408	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1402	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1407	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1406	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1401	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1406	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1401	1	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	B	1405	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1403	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1404	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1408	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1408	1	-	0/6/23/26	0/1/1/1
4	NAG	B	1402	1	-	0/6/23/26	0/1/1/1
4	NAG	B	1406	1	-	0/6/23/26	0/1/1/1
4	NAG	B	1403	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1403	1	-	0/6/23/26	0/1/1/1
4	NAG	B	1407	1	-	0/6/23/26	0/1/1/1
4	NAG	H	701	2	-	2/6/23/26	0/1/1/1
4	NAG	F	701	2	-	2/6/23/26	0/1/1/1
4	NAG	C	1402	1	-	0/6/23/26	0/1/1/1
4	NAG	B	1409	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1407	1	-	0/6/23/26	0/1/1/1
4	NAG	B	1404	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1405	1	-	0/6/23/26	0/1/1/1
4	NAG	D	701	2	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	1405	NAG	C2-N2-C7	4.38	129.14	122.90
4	A	1405	NAG	C8-C7-N2	2.31	120.02	116.10
4	C	1405	NAG	C8-C7-N2	2.31	120.01	116.10
4	C	1405	NAG	C2-N2-C7	-2.01	120.04	122.90
4	A	1405	NAG	C2-N2-C7	-2.01	120.05	122.90

There are no chirality outliers.

All (6) torsion outliers are listed below:

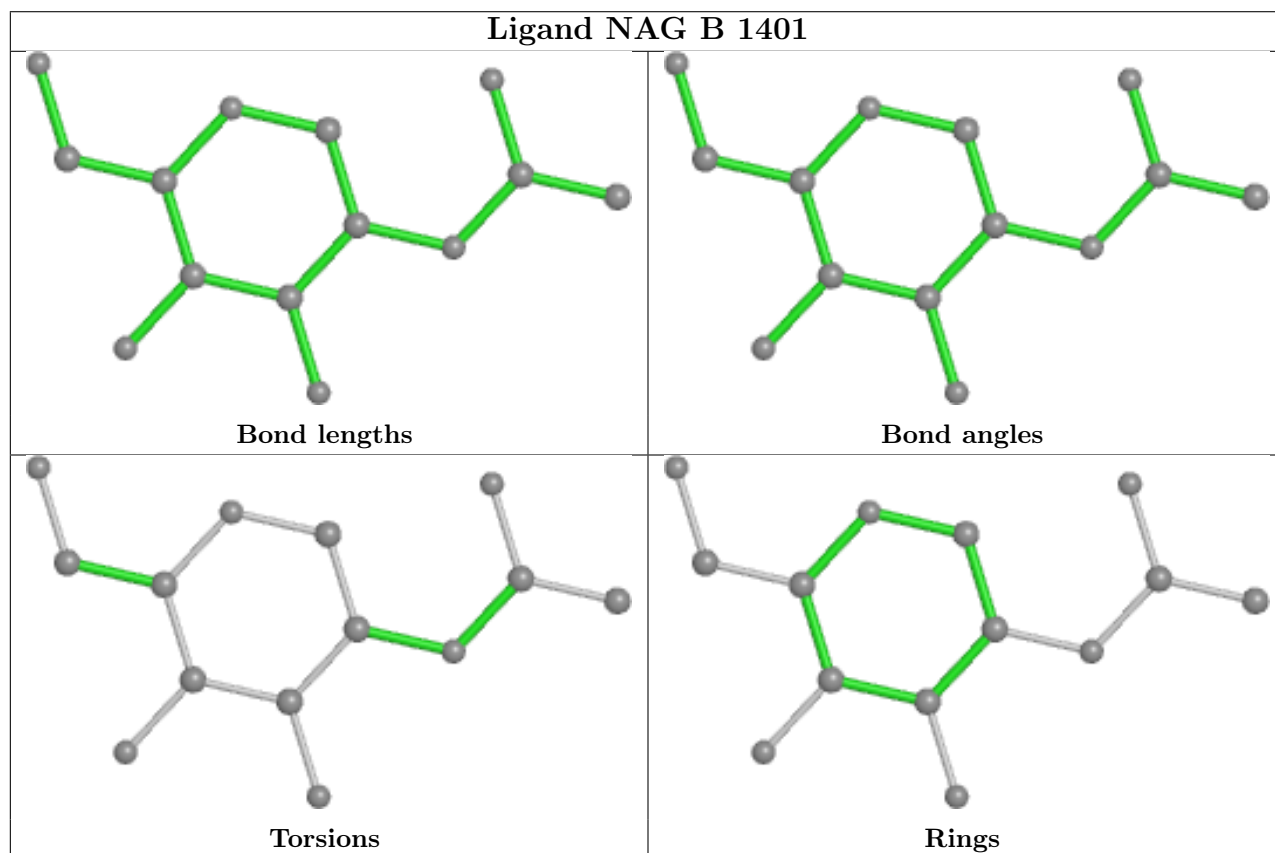
Mol	Chain	Res	Type	Atoms
4	D	701	NAG	O5-C5-C6-O6
4	F	701	NAG	O5-C5-C6-O6
4	H	701	NAG	O5-C5-C6-O6
4	D	701	NAG	C4-C5-C6-O6
4	F	701	NAG	C4-C5-C6-O6
4	H	701	NAG	C4-C5-C6-O6

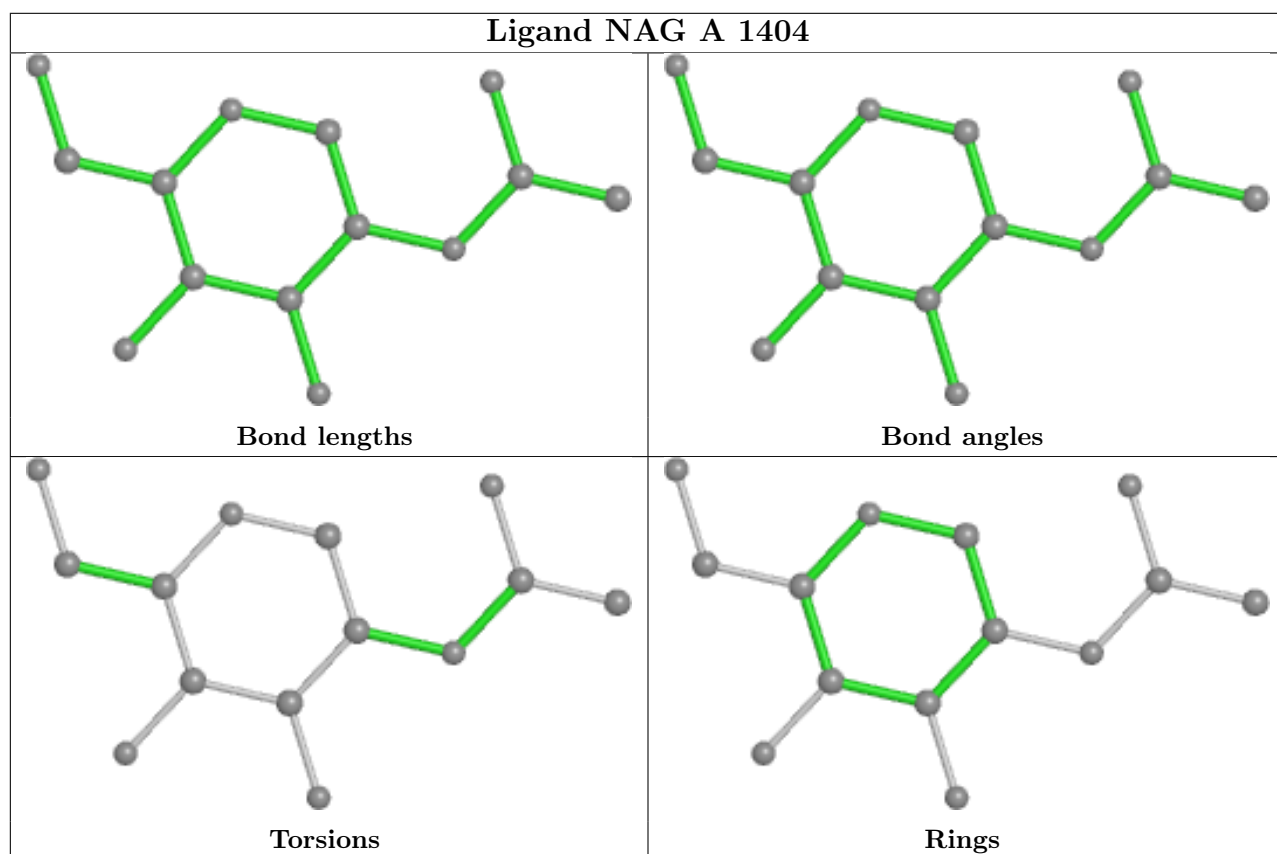
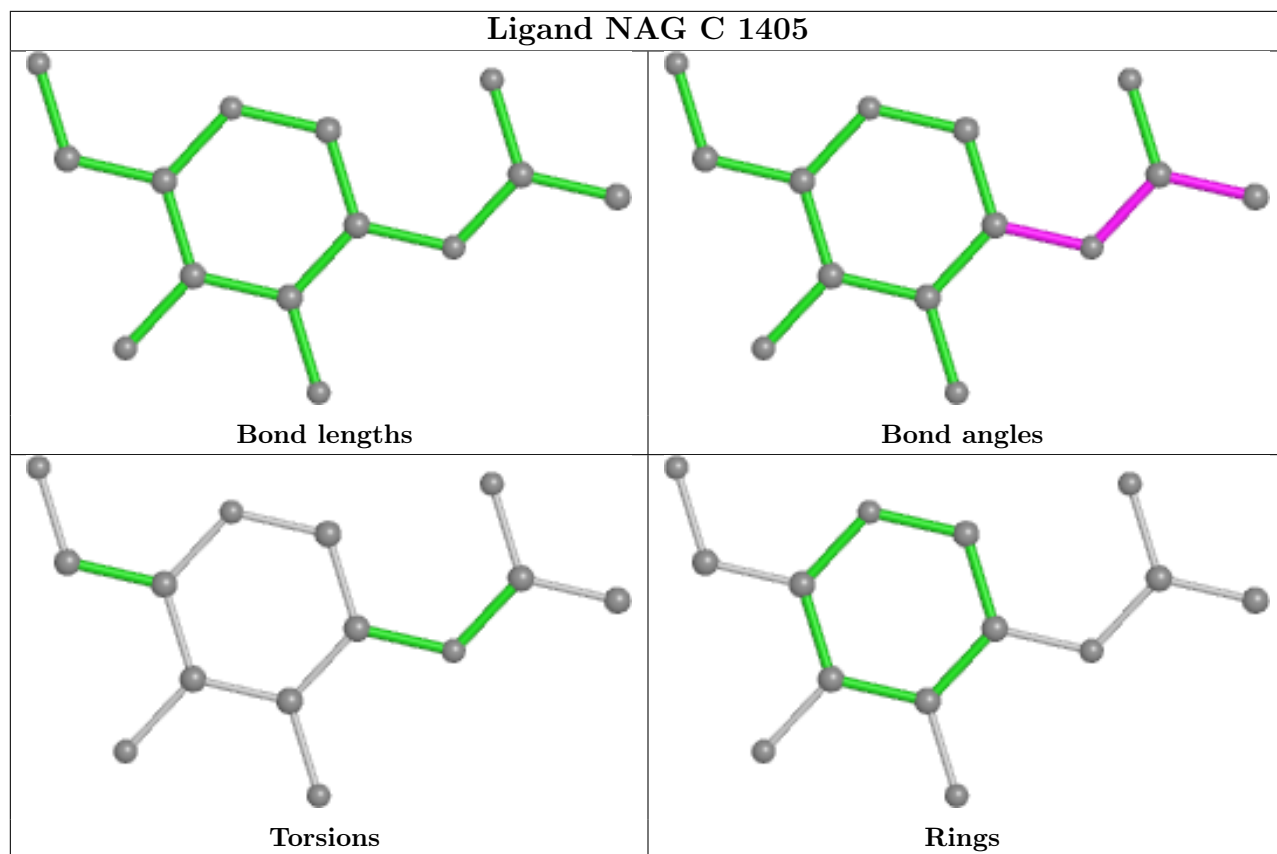
There are no ring outliers.

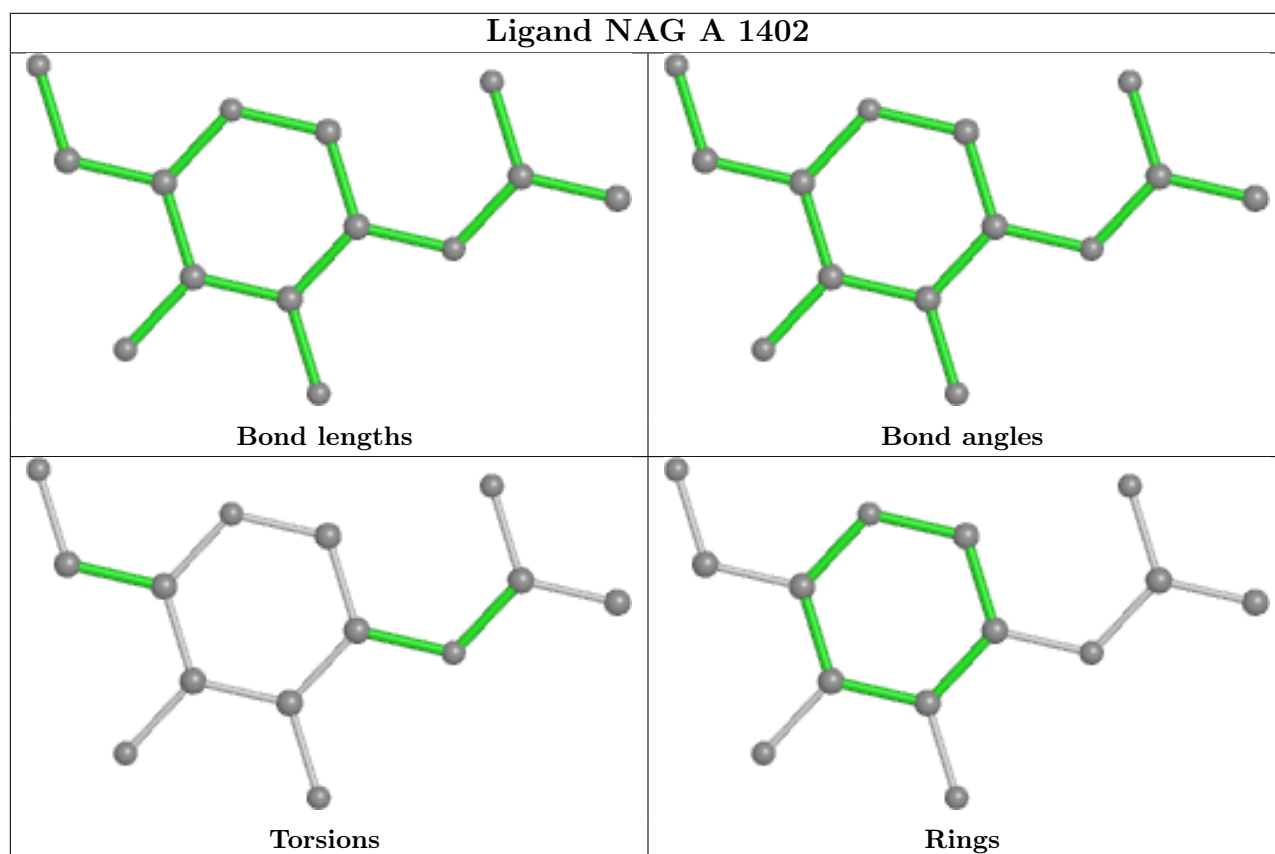
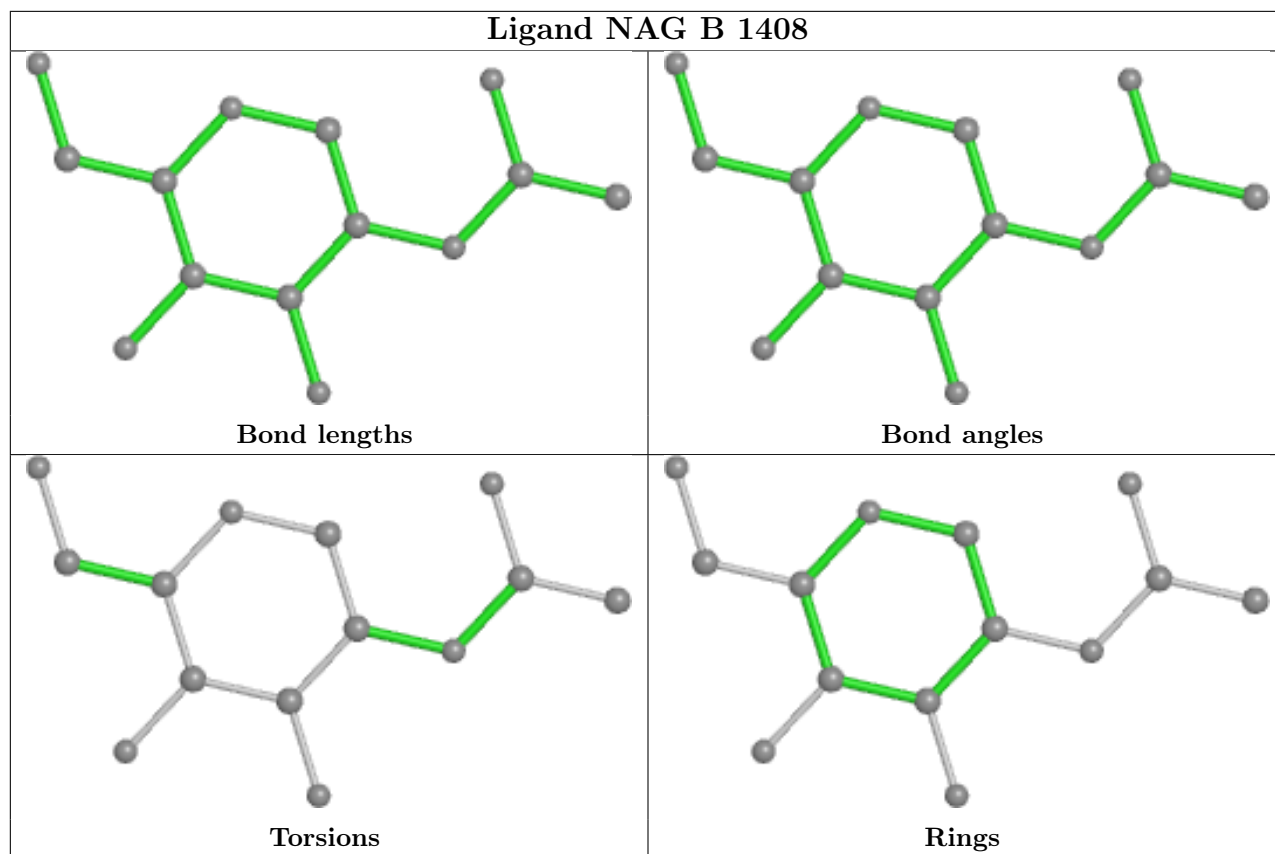
1 monomer is involved in 5 short contacts:

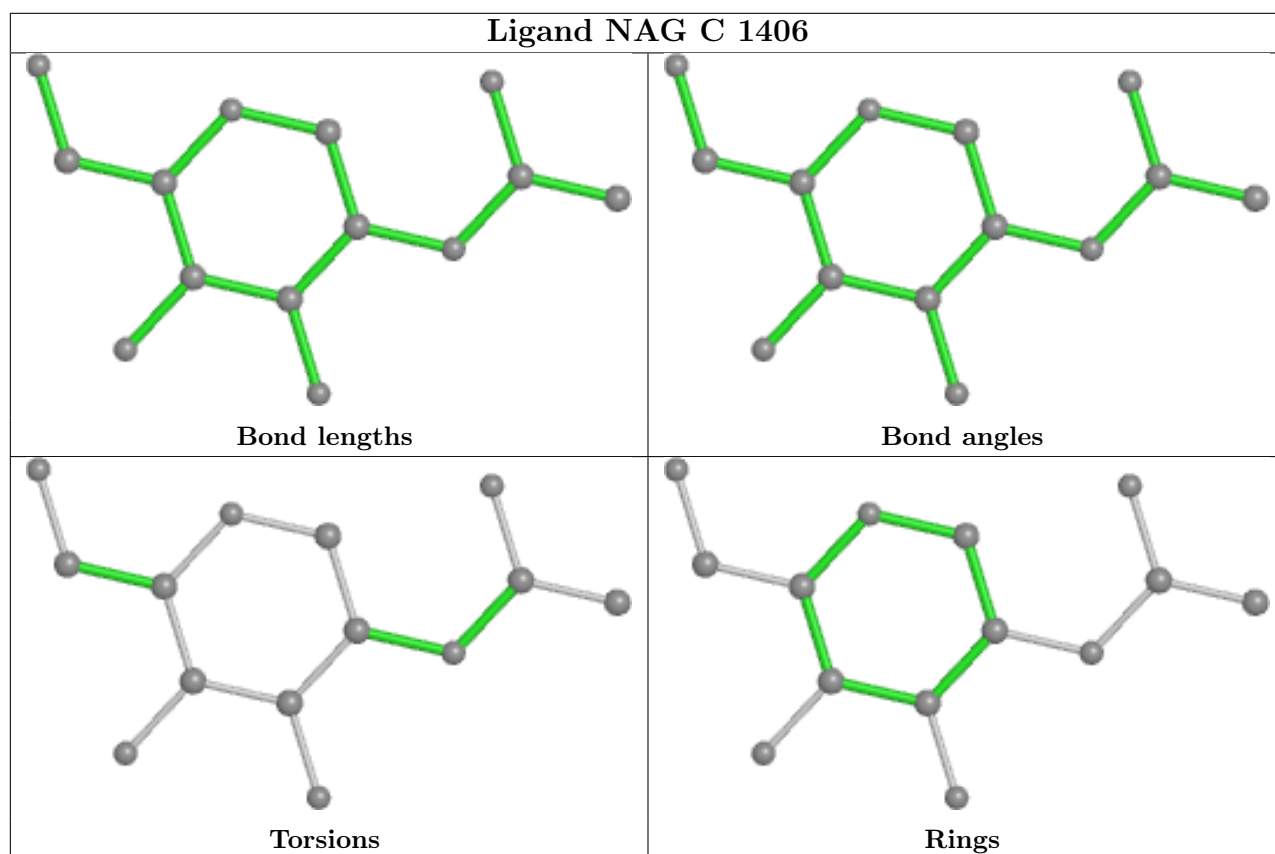
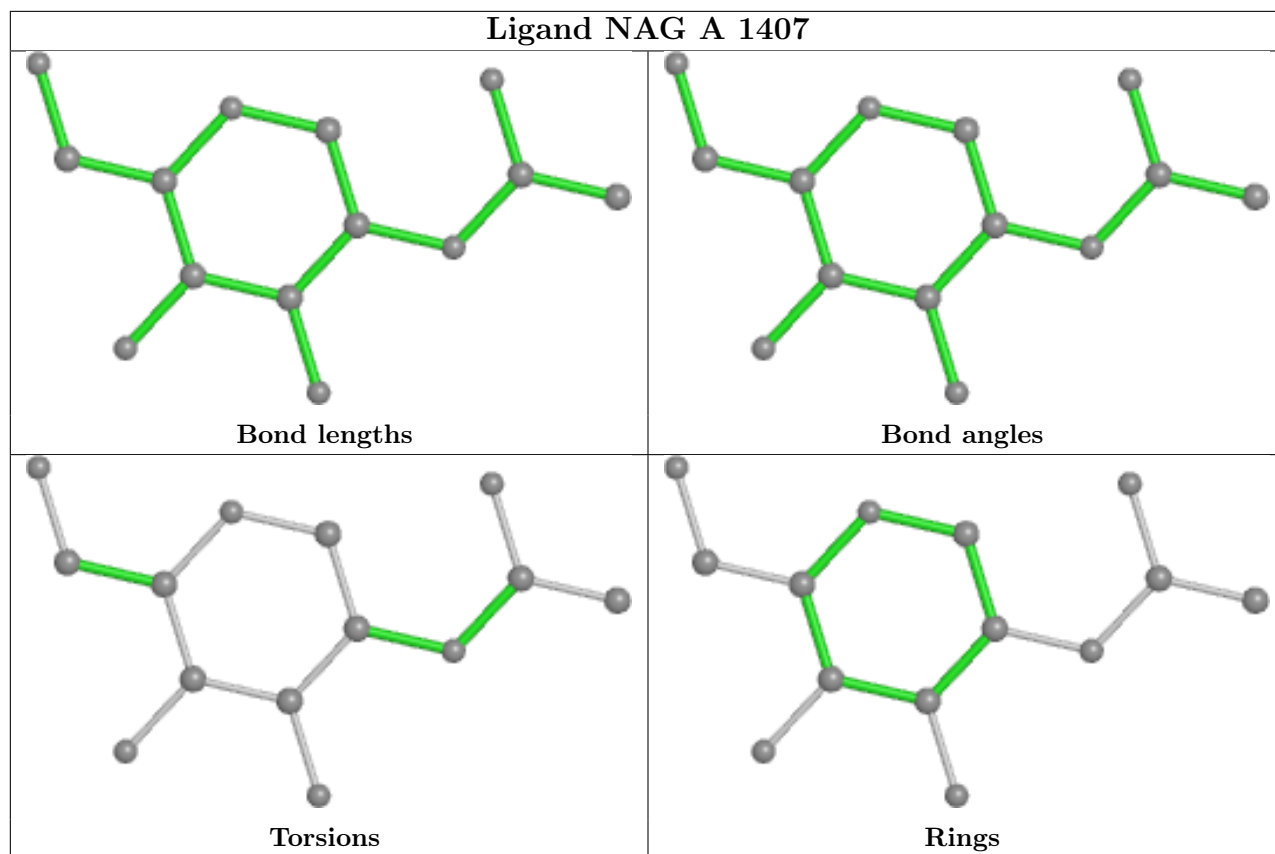
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1401	NAG	5	0

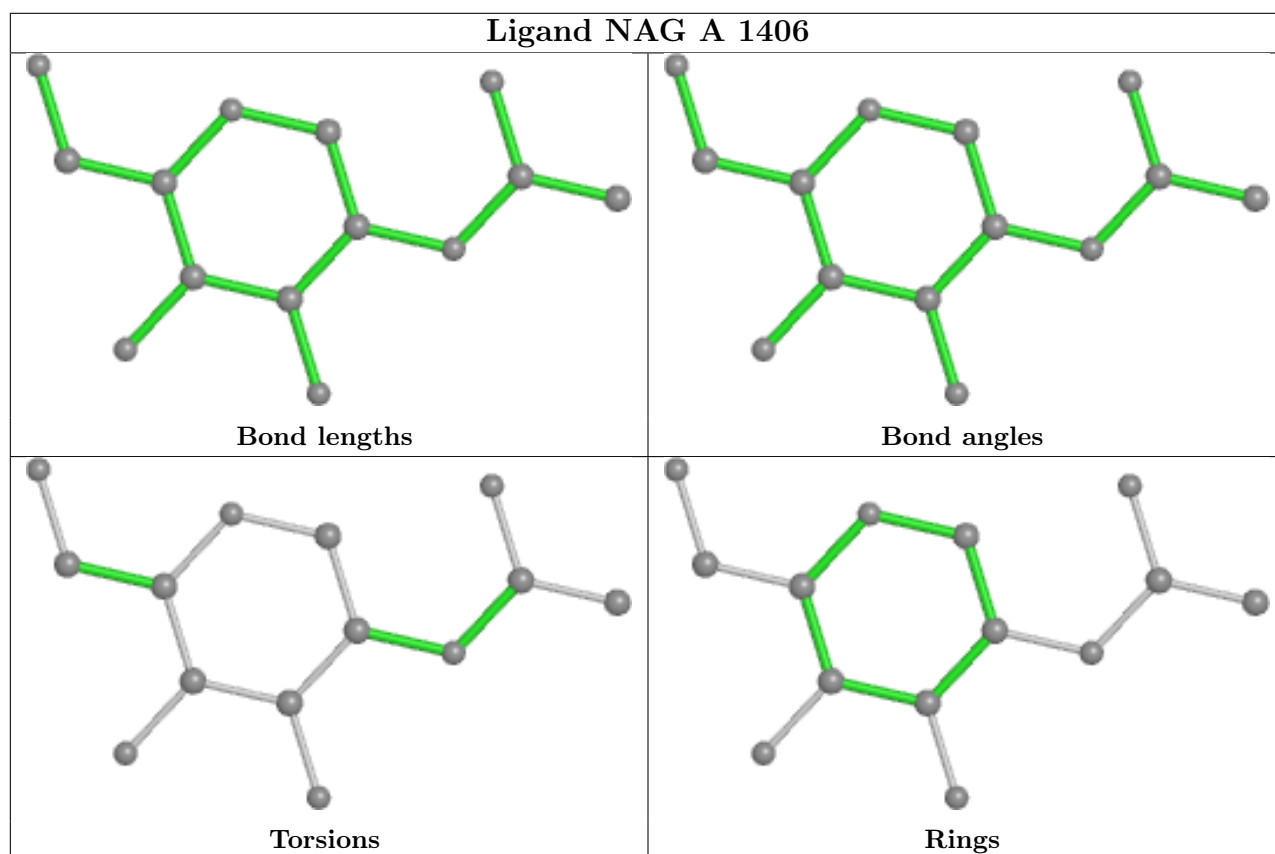
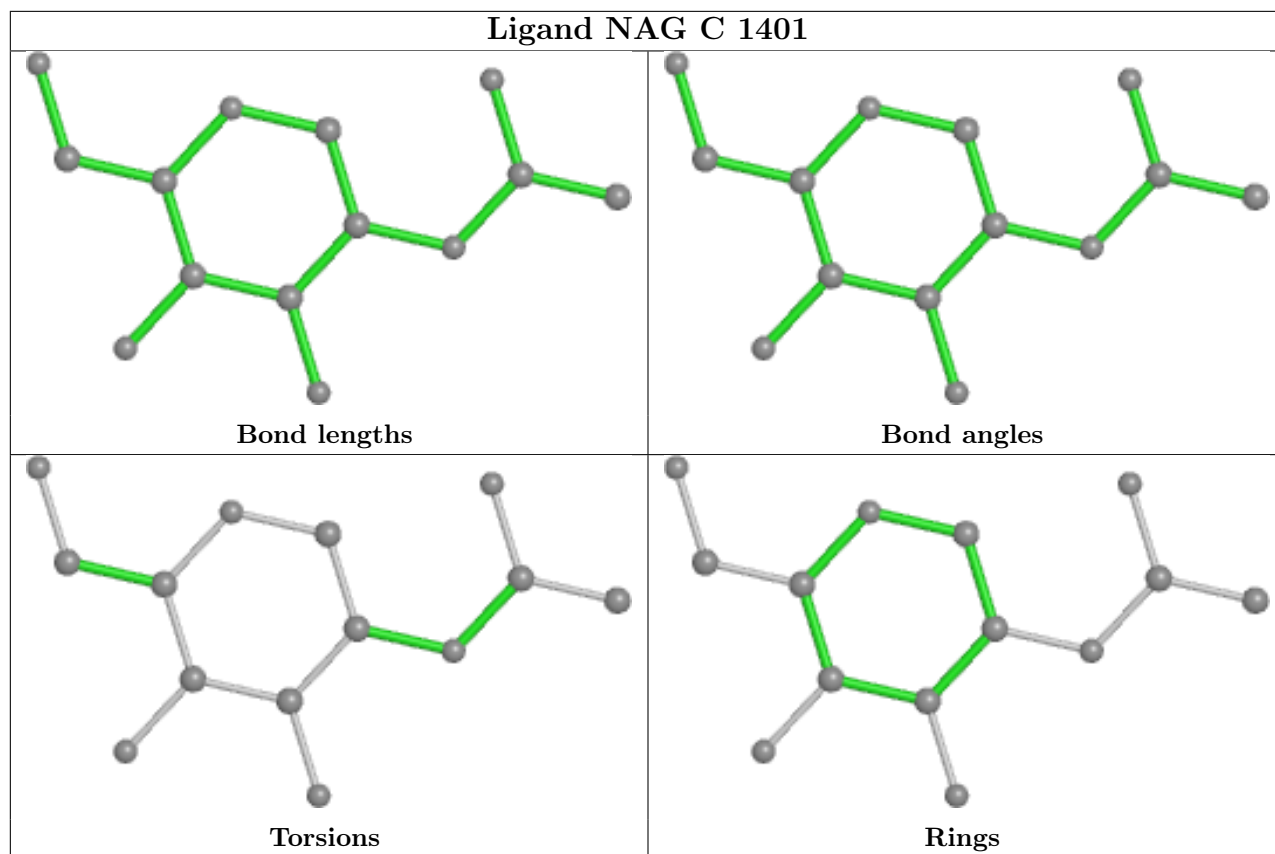
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

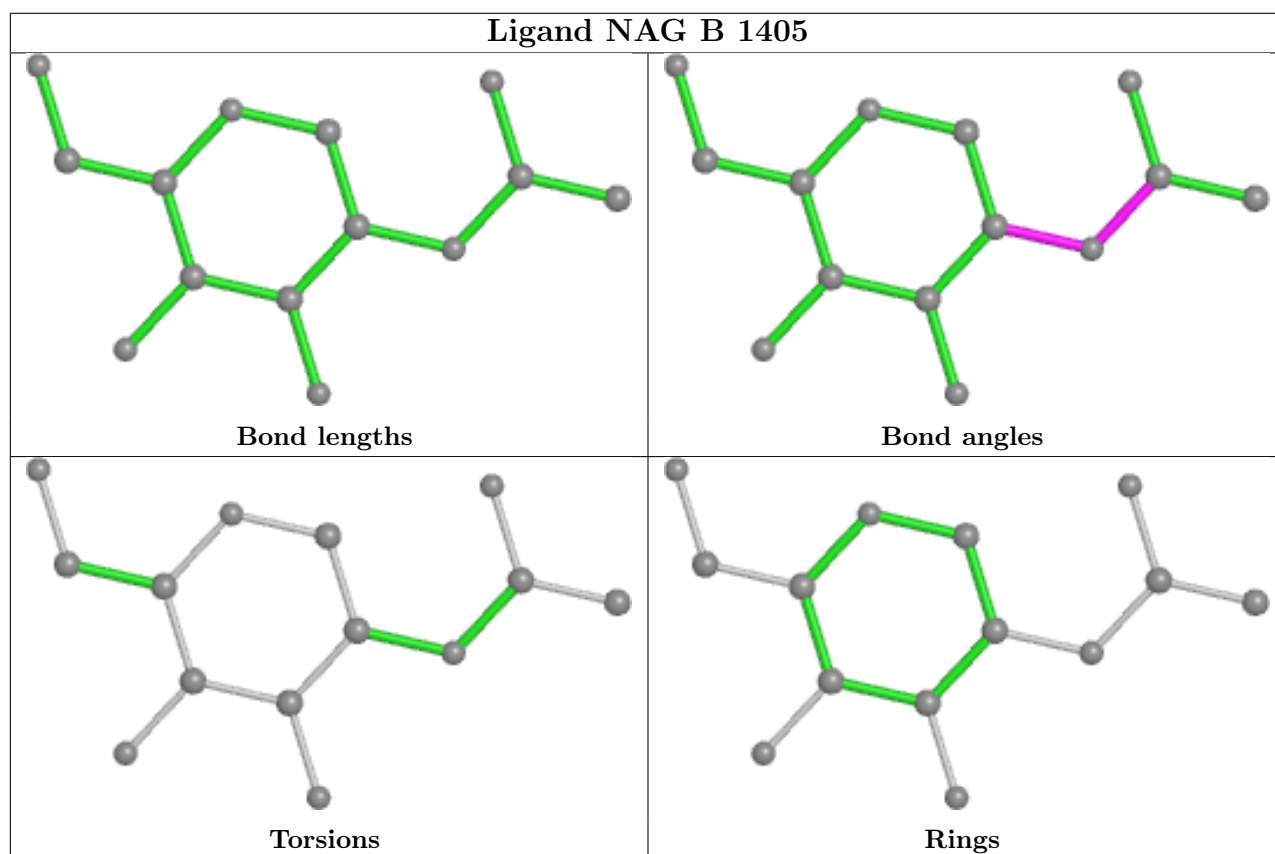
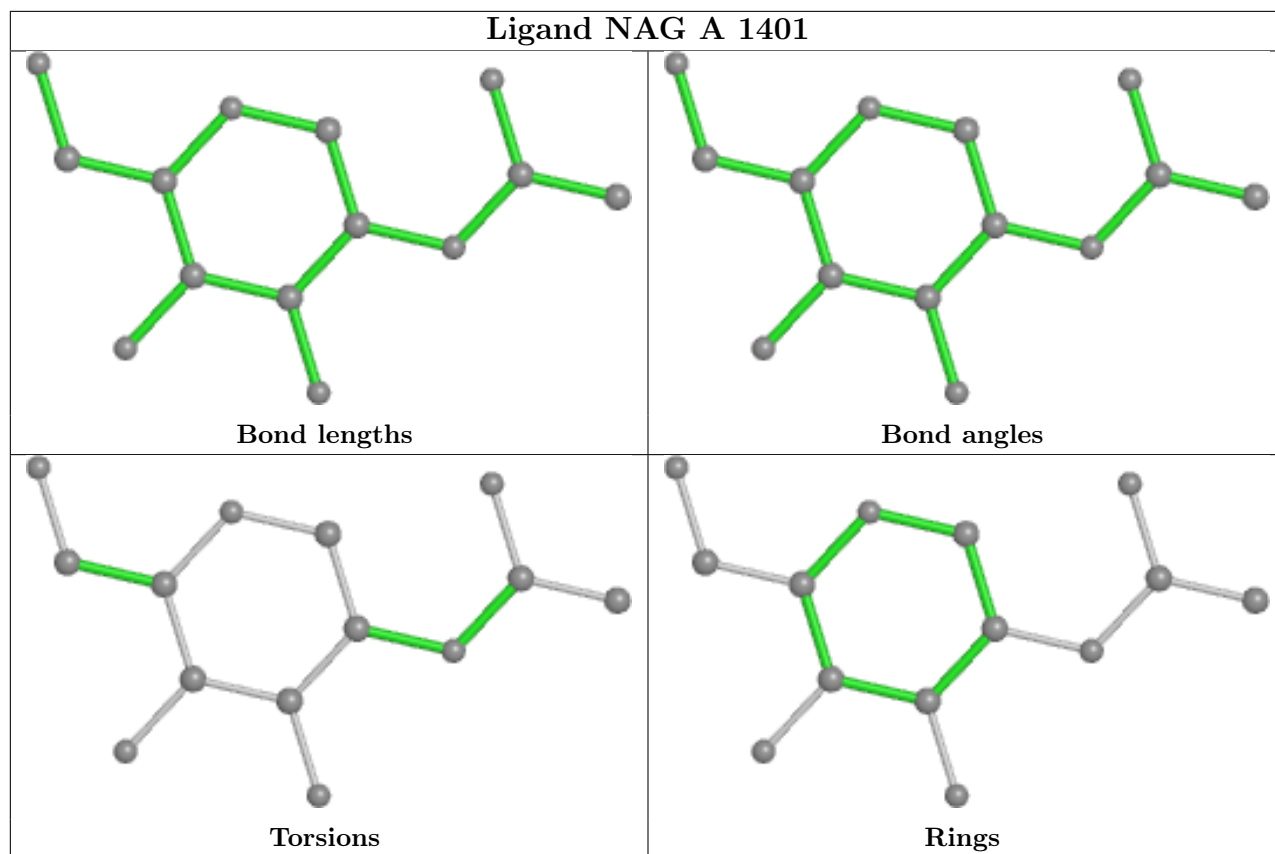


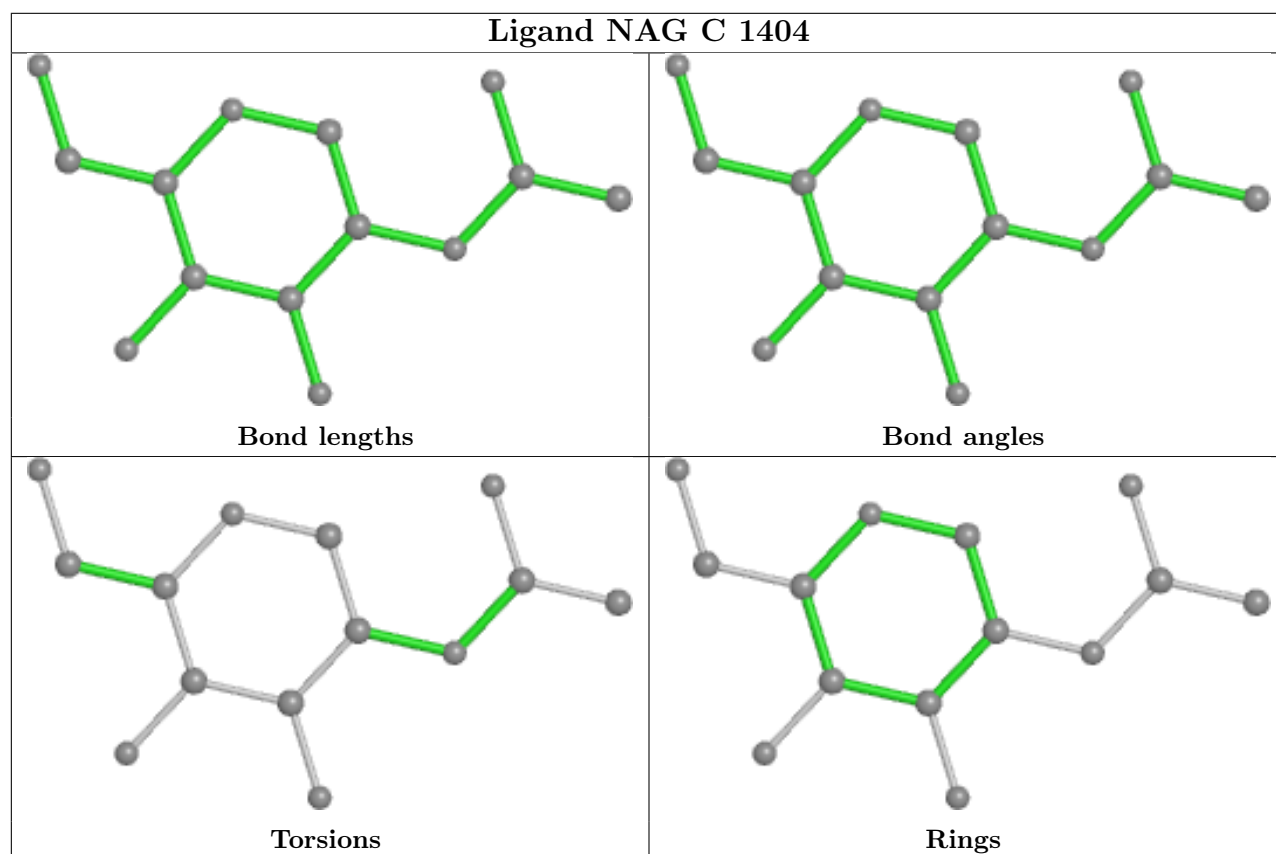
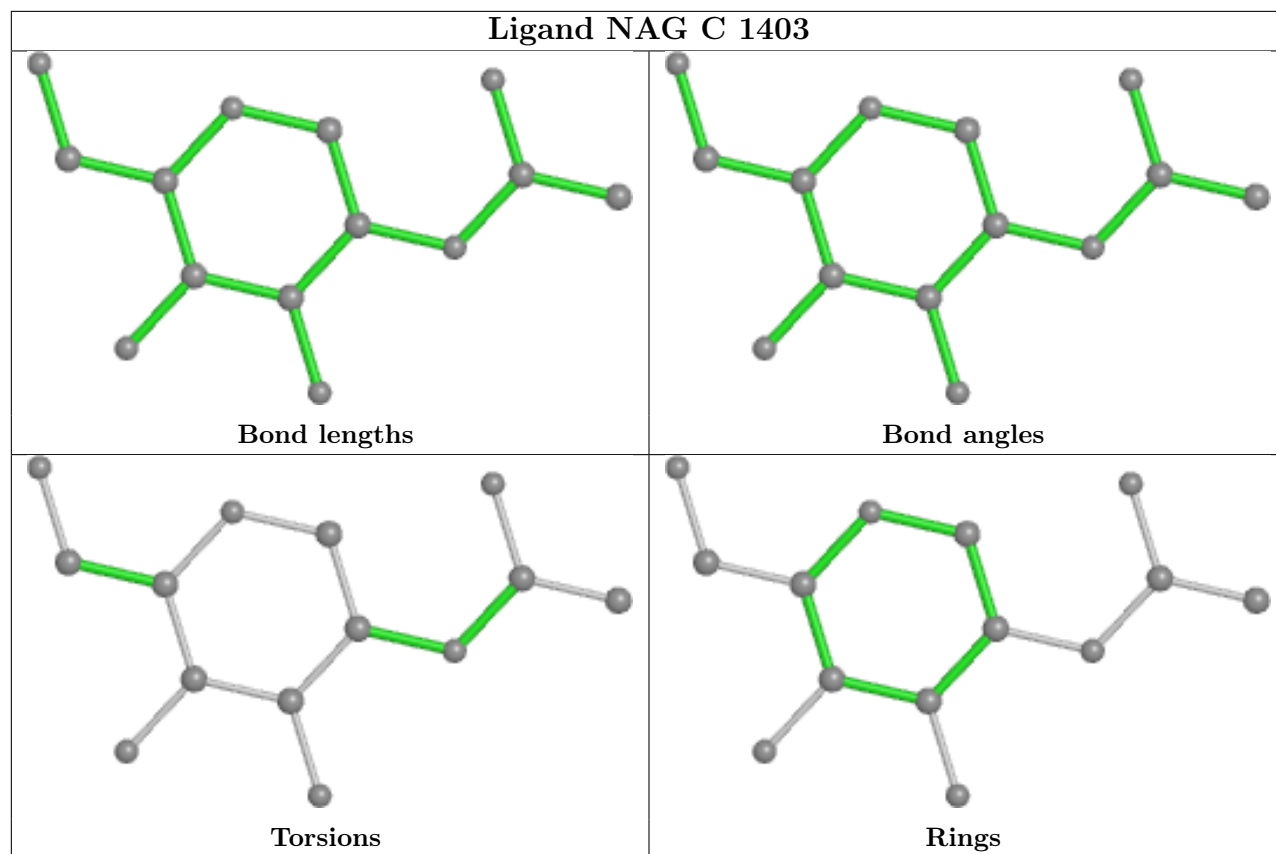


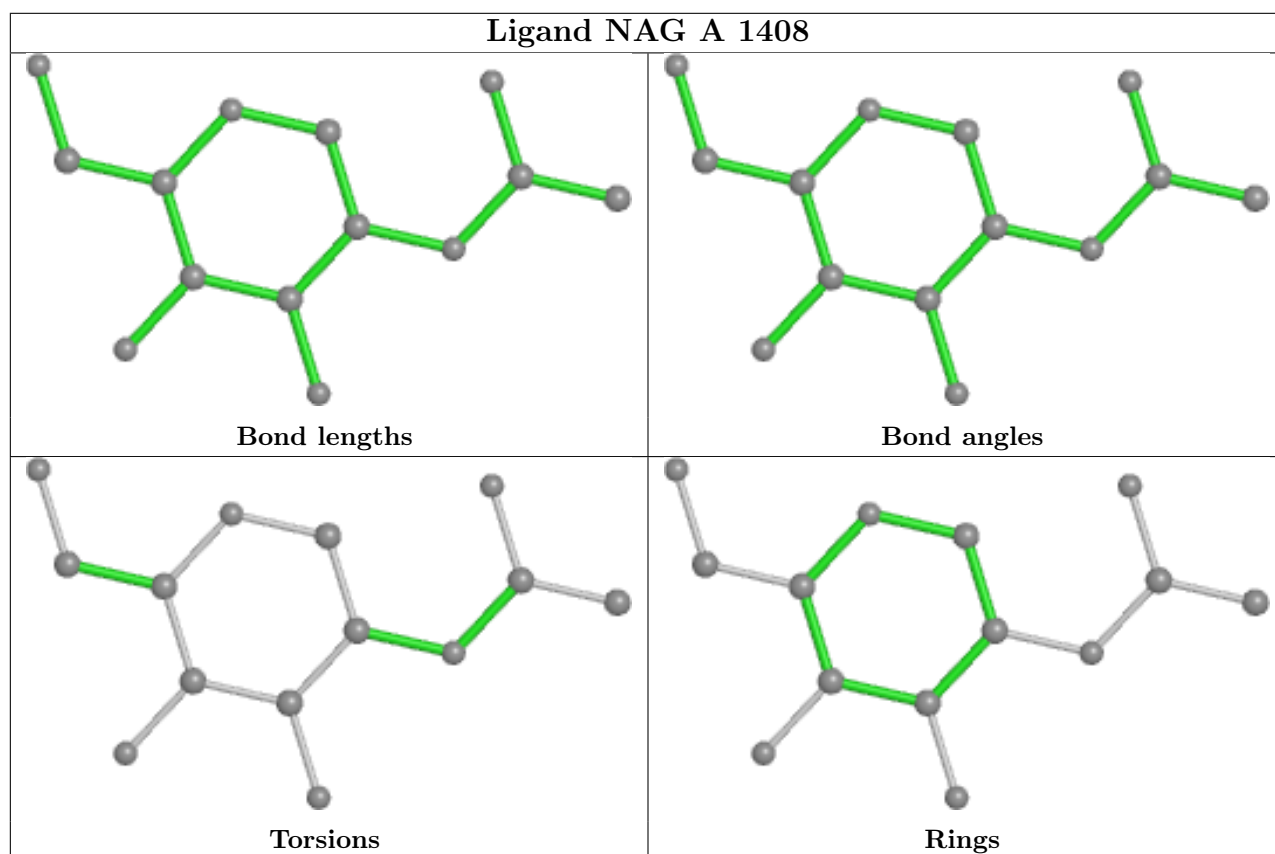
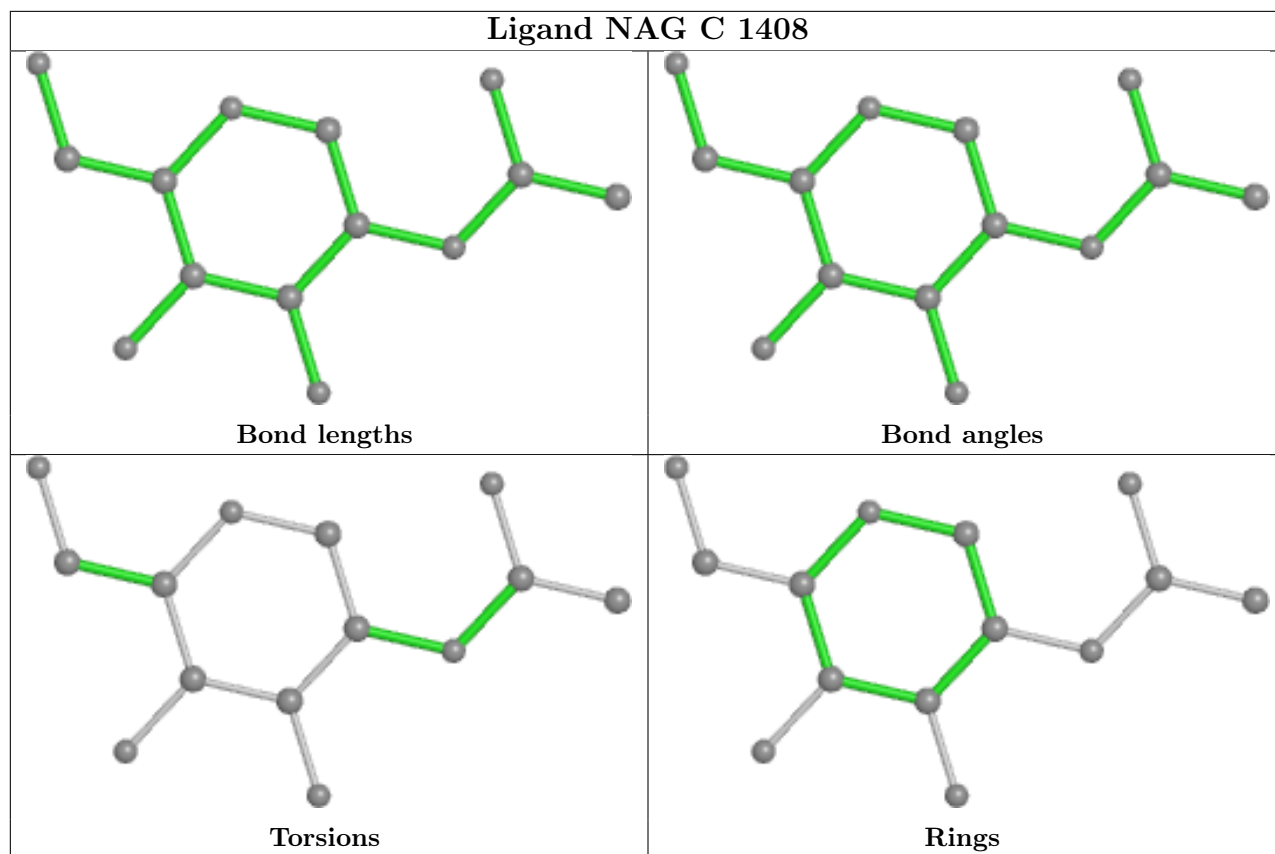


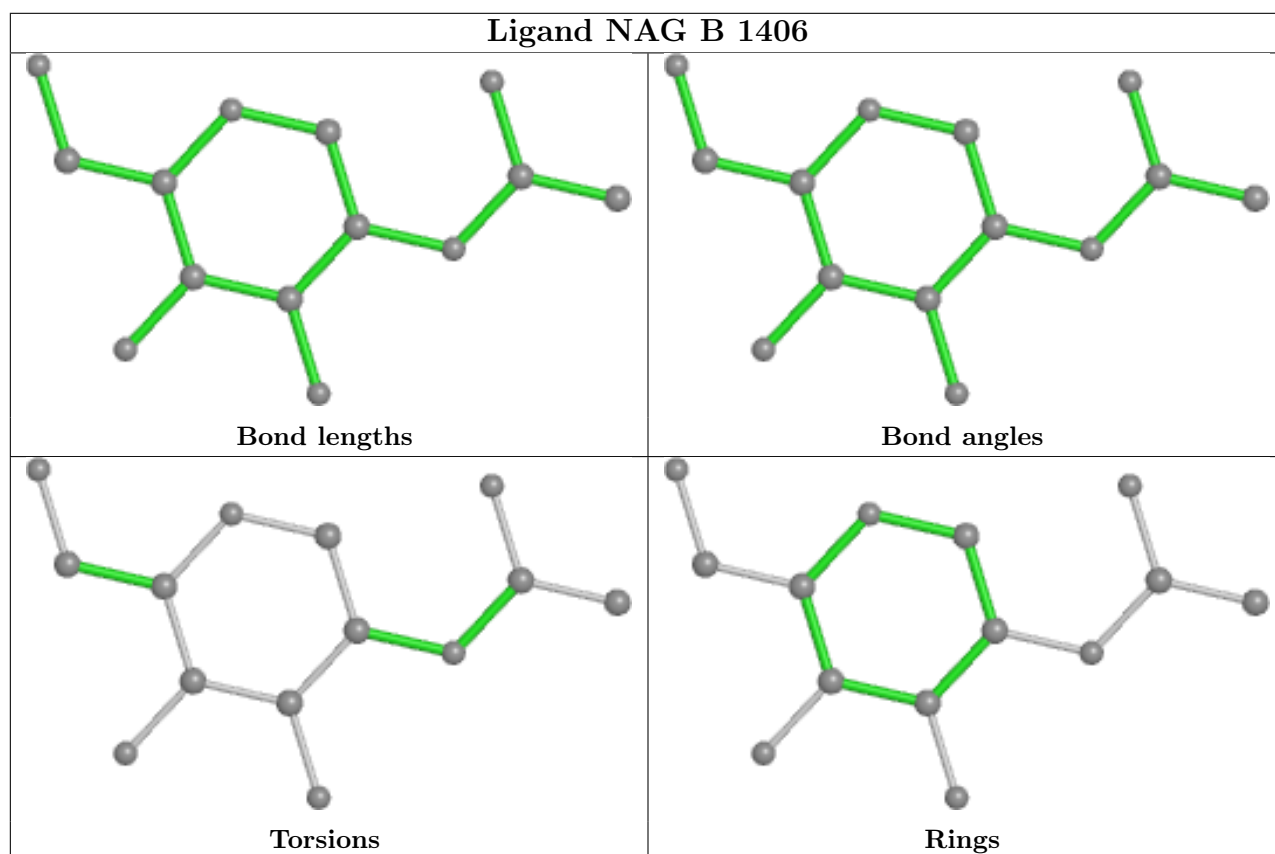
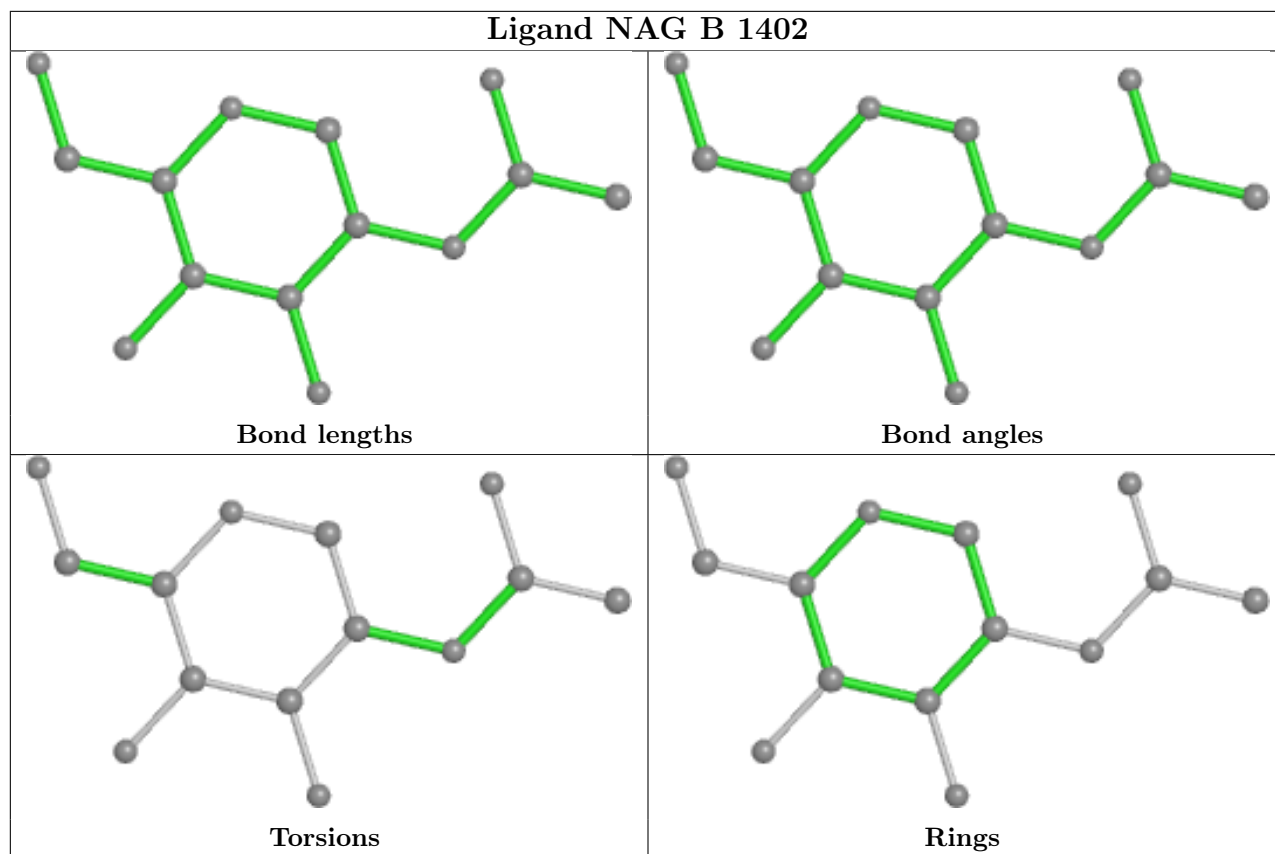


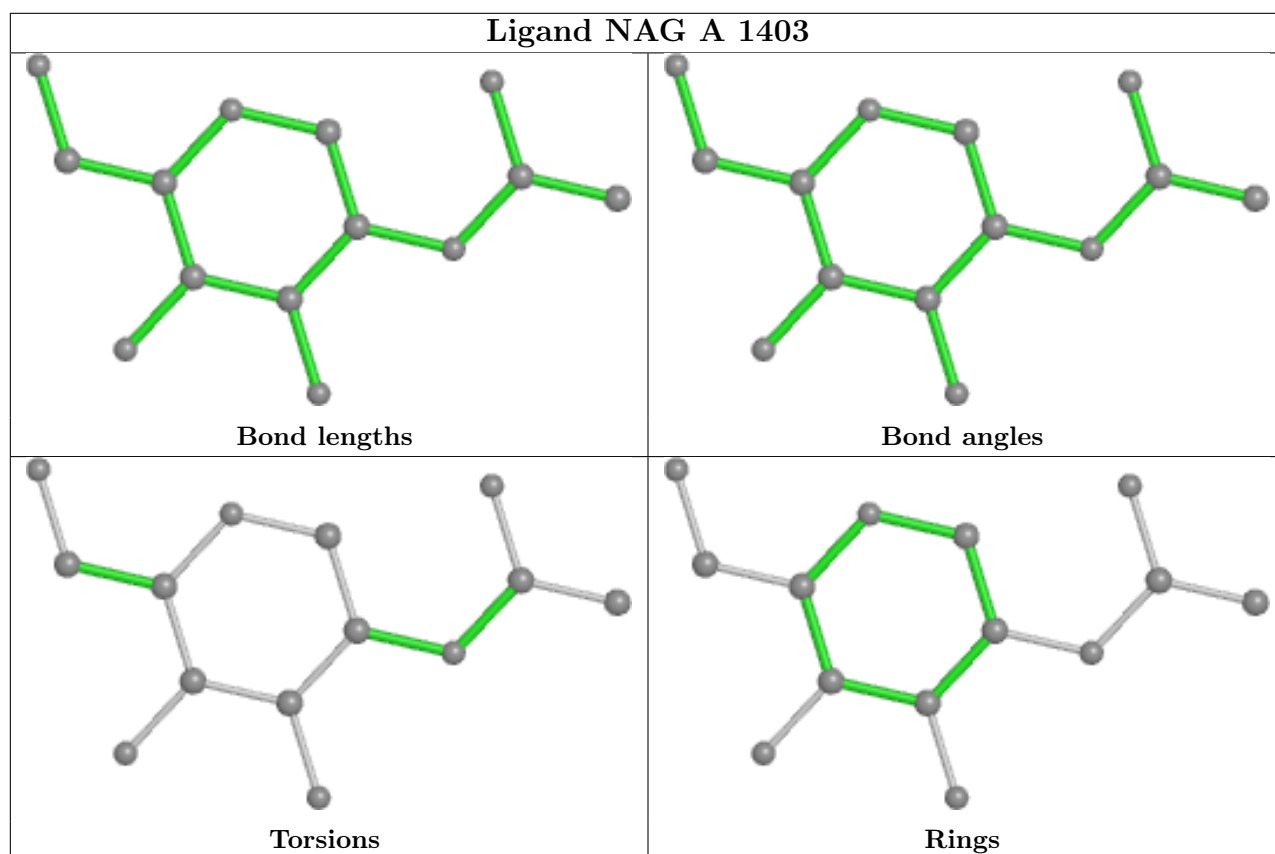
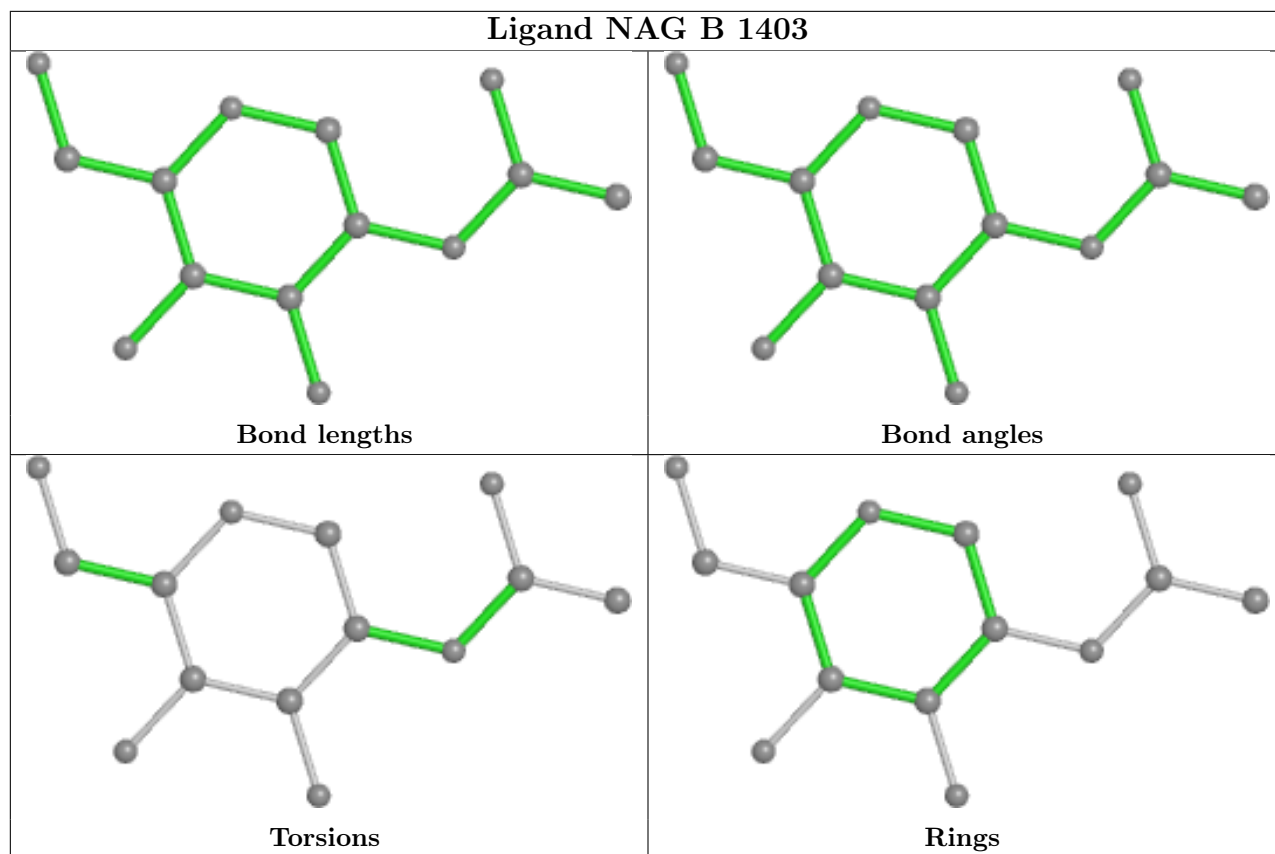


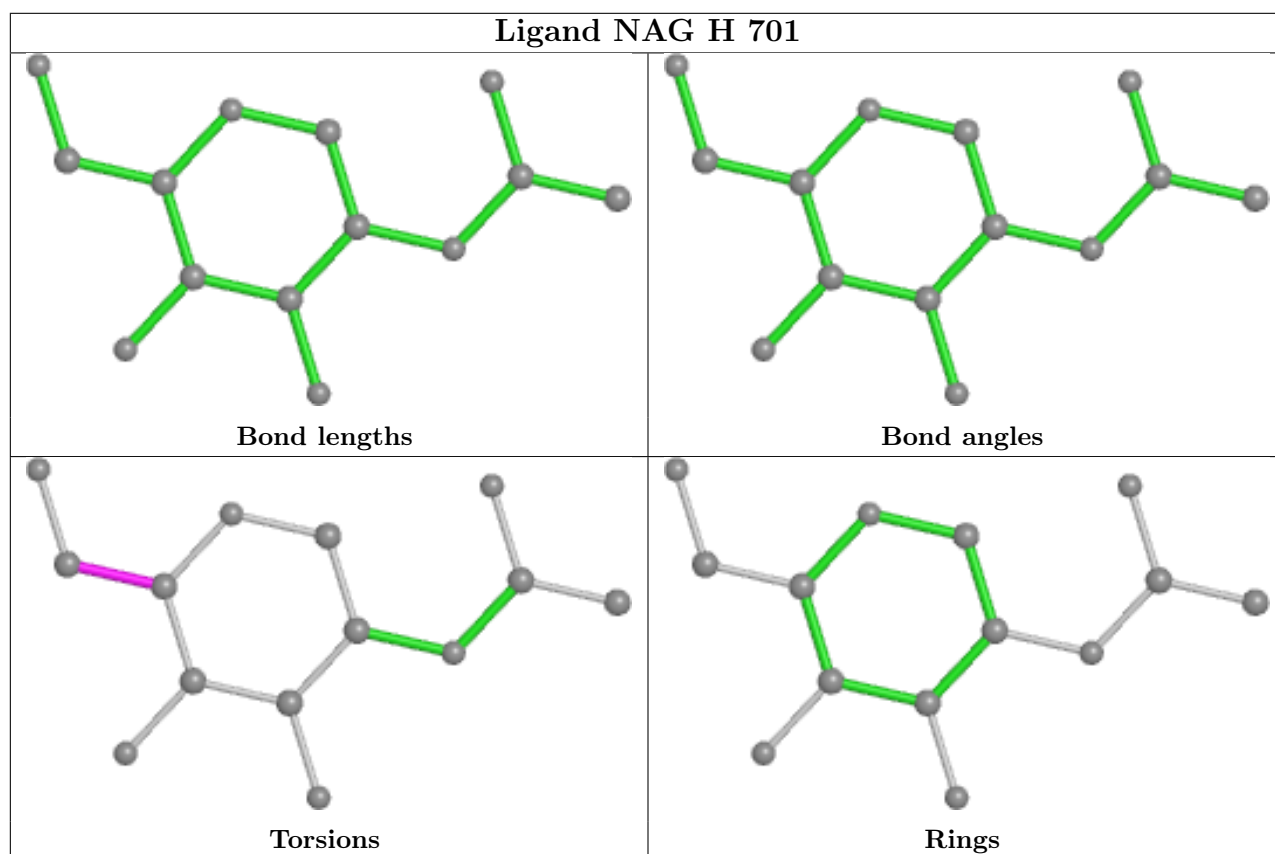
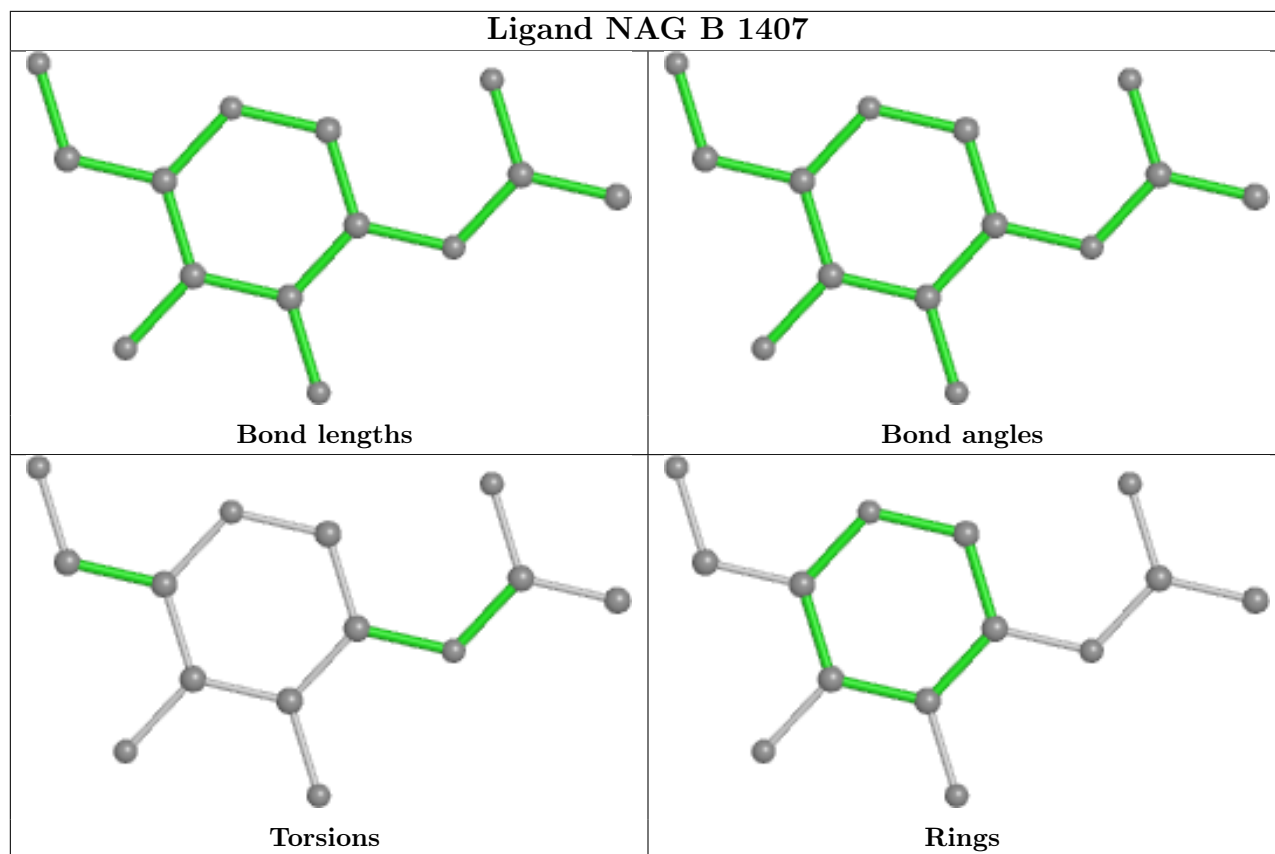


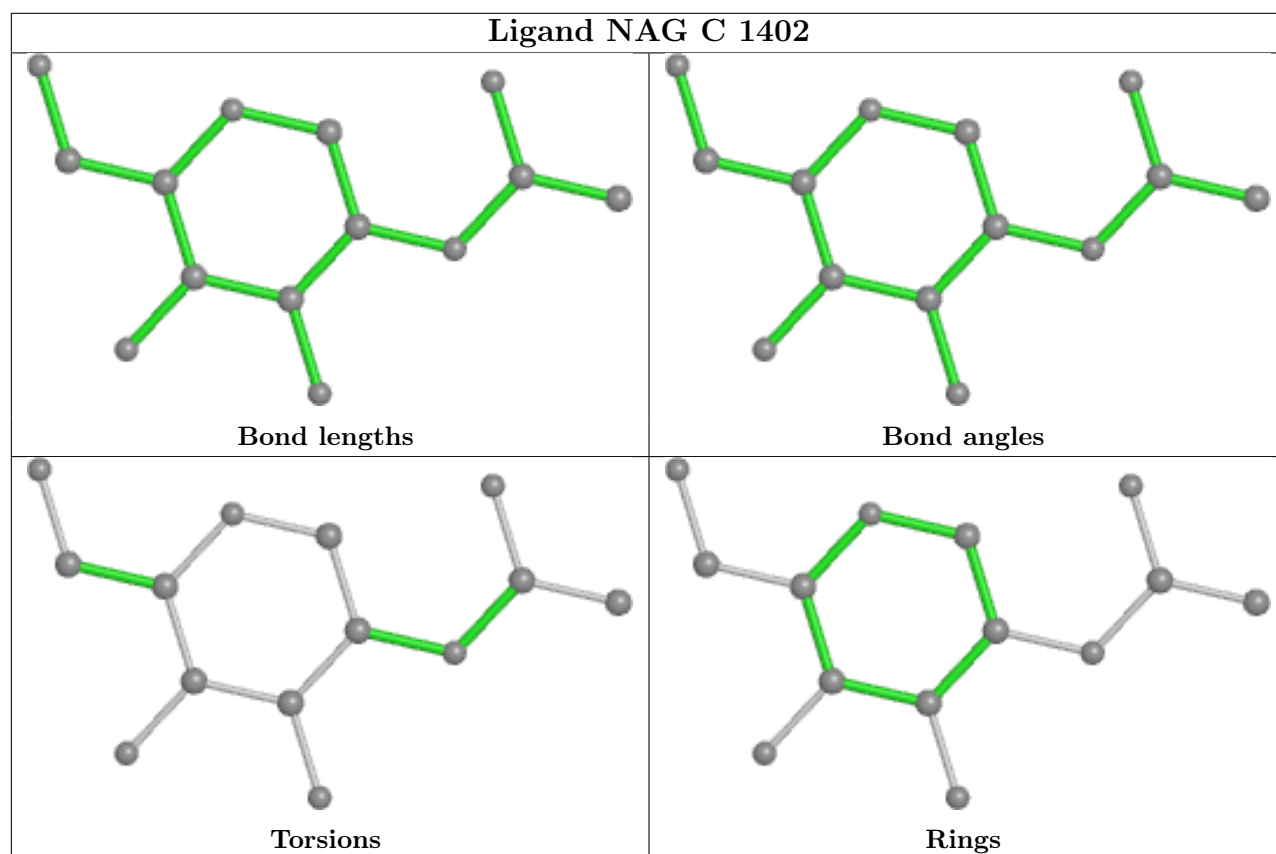
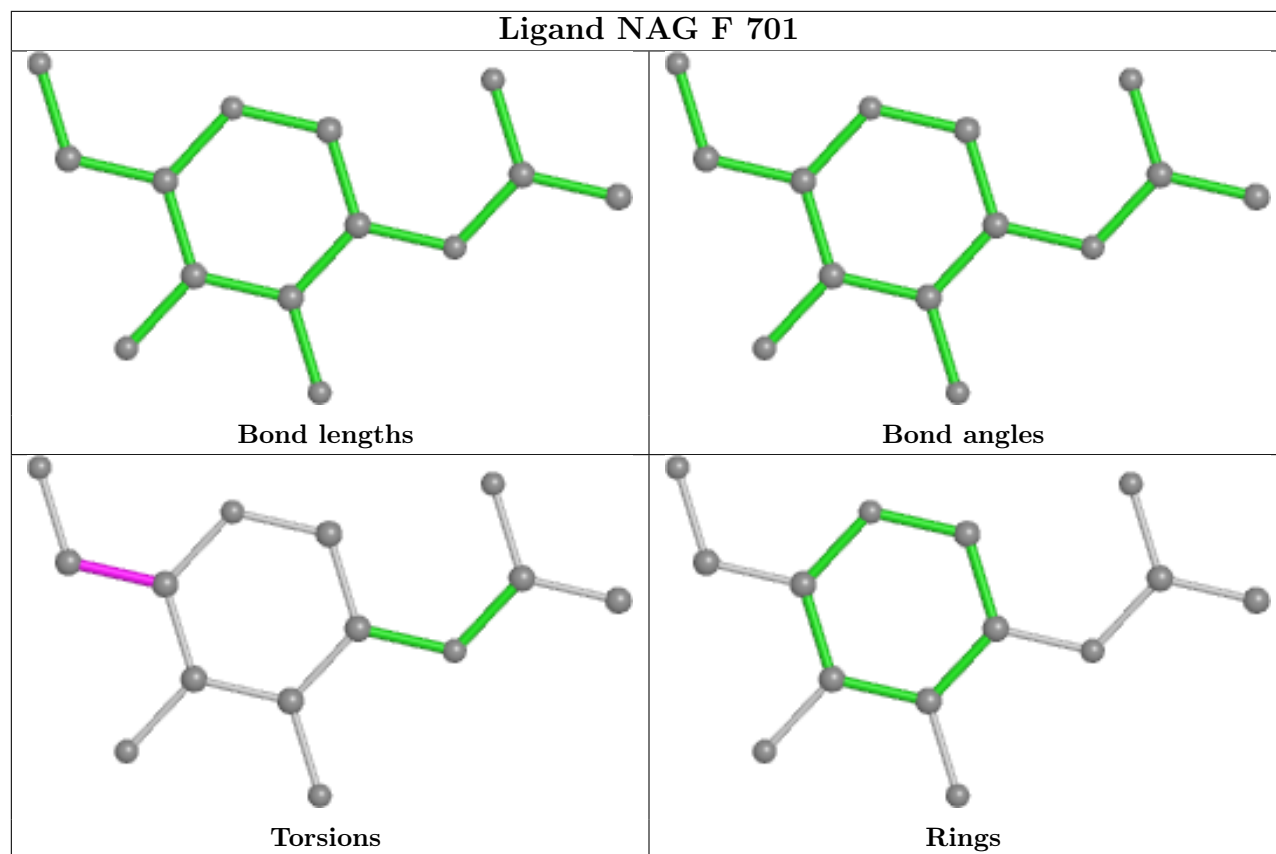


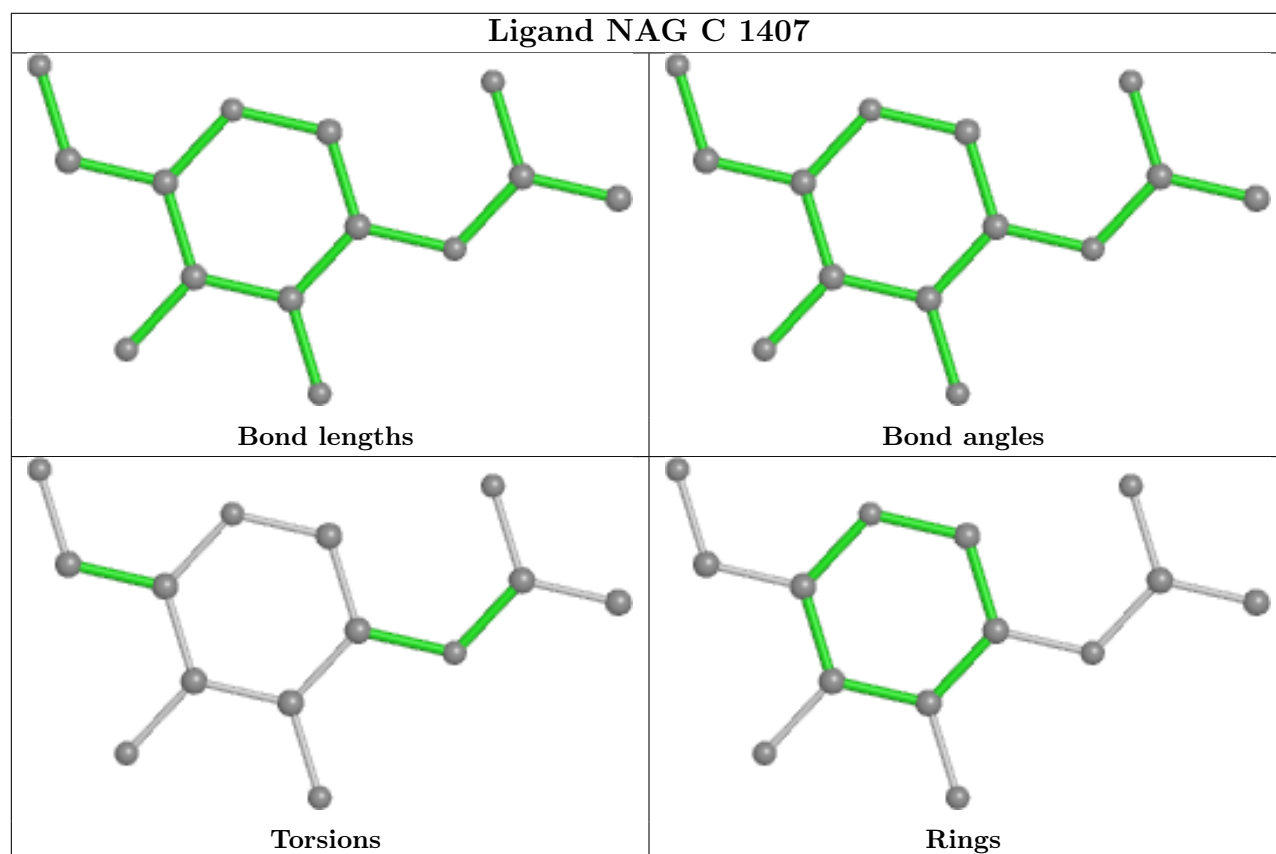
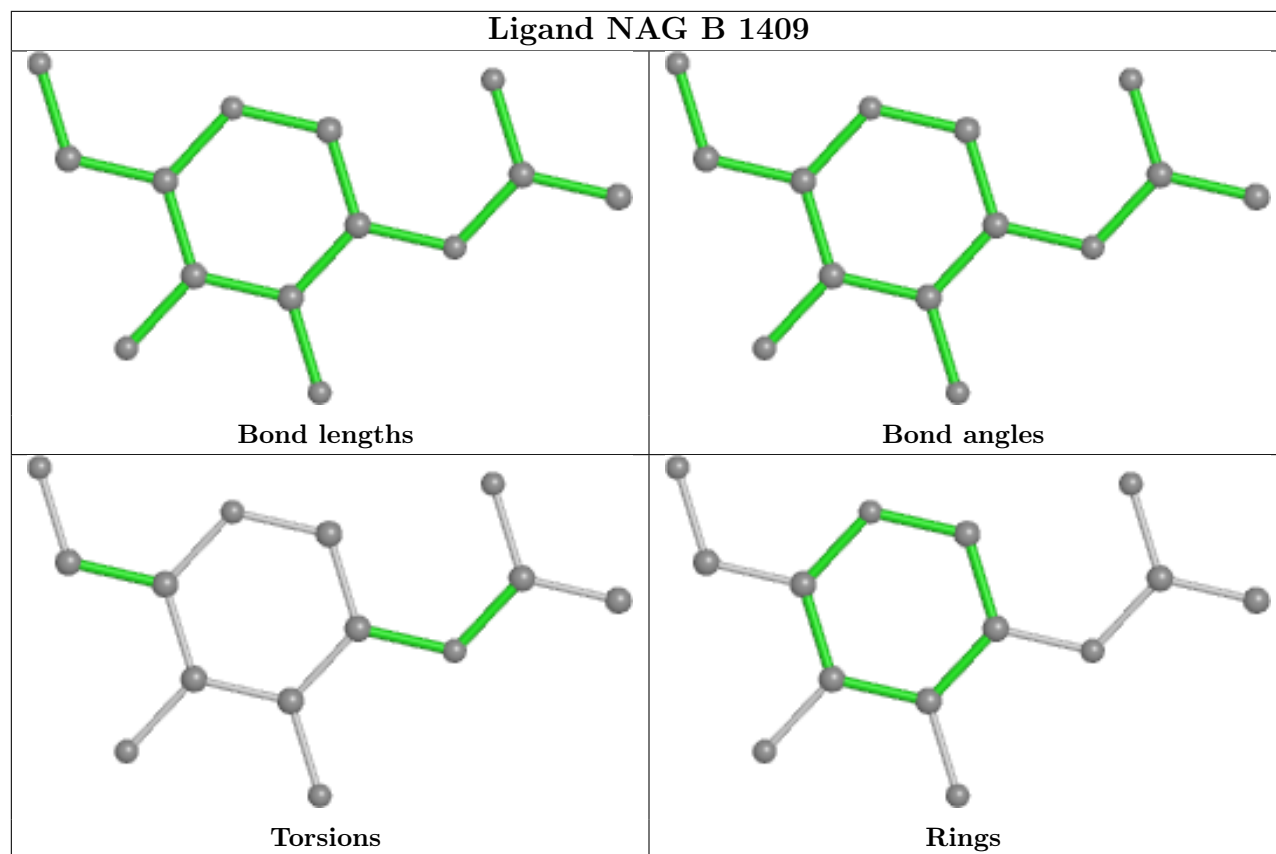


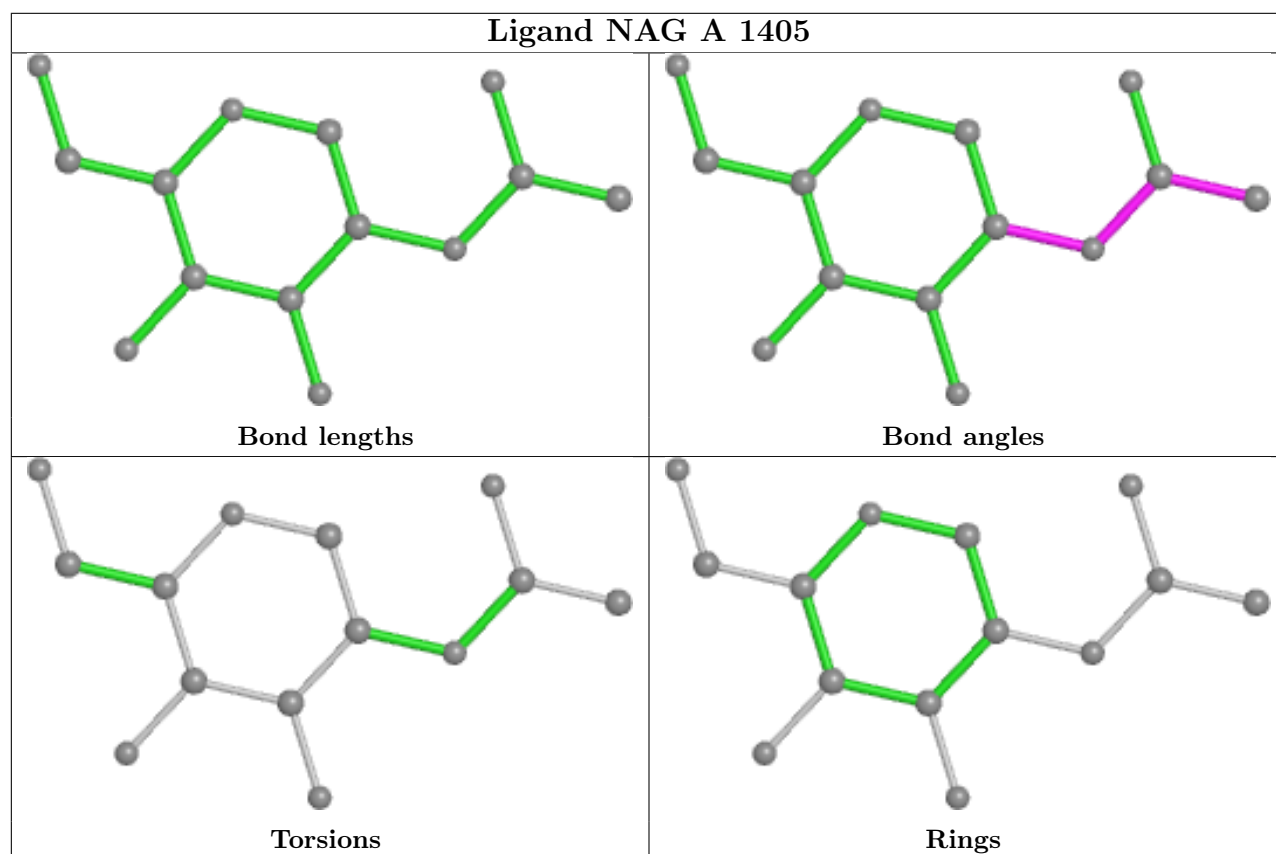
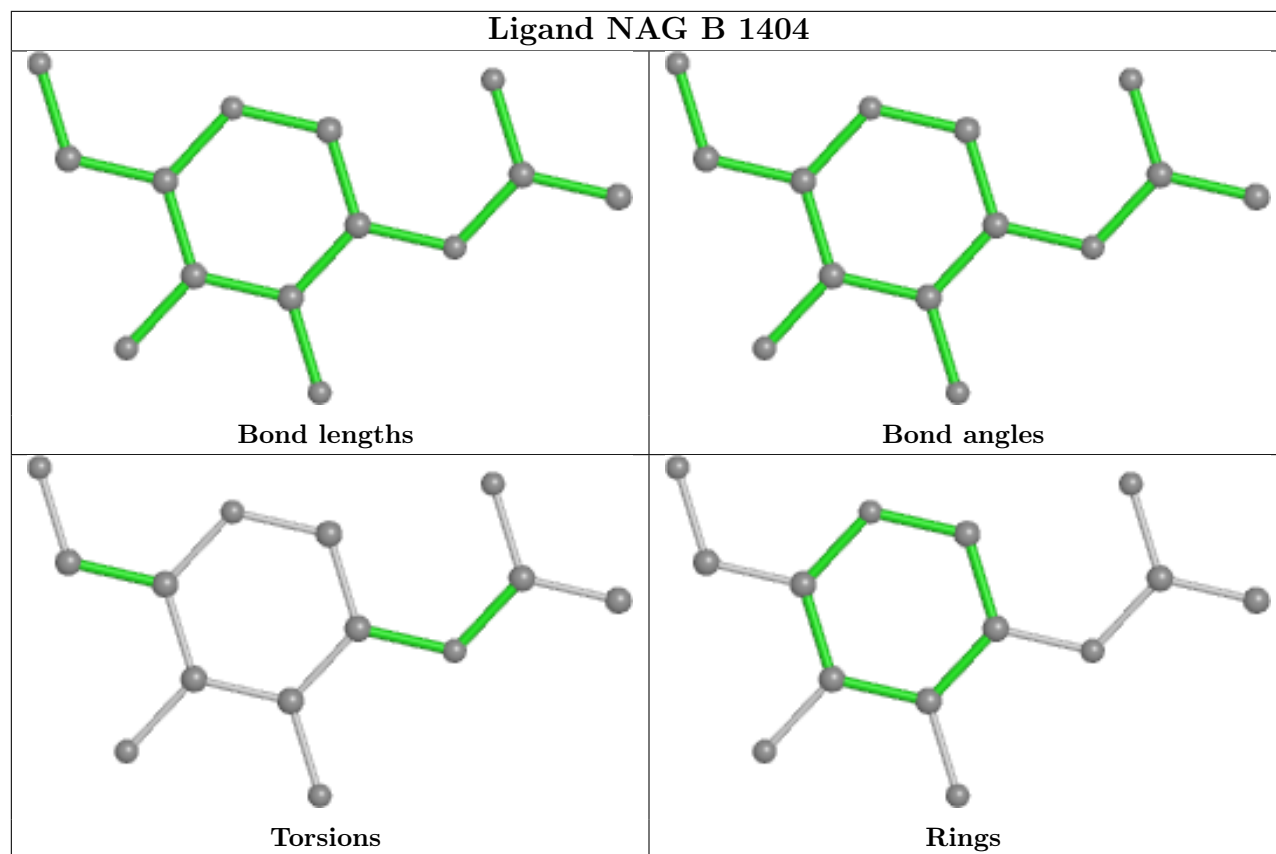


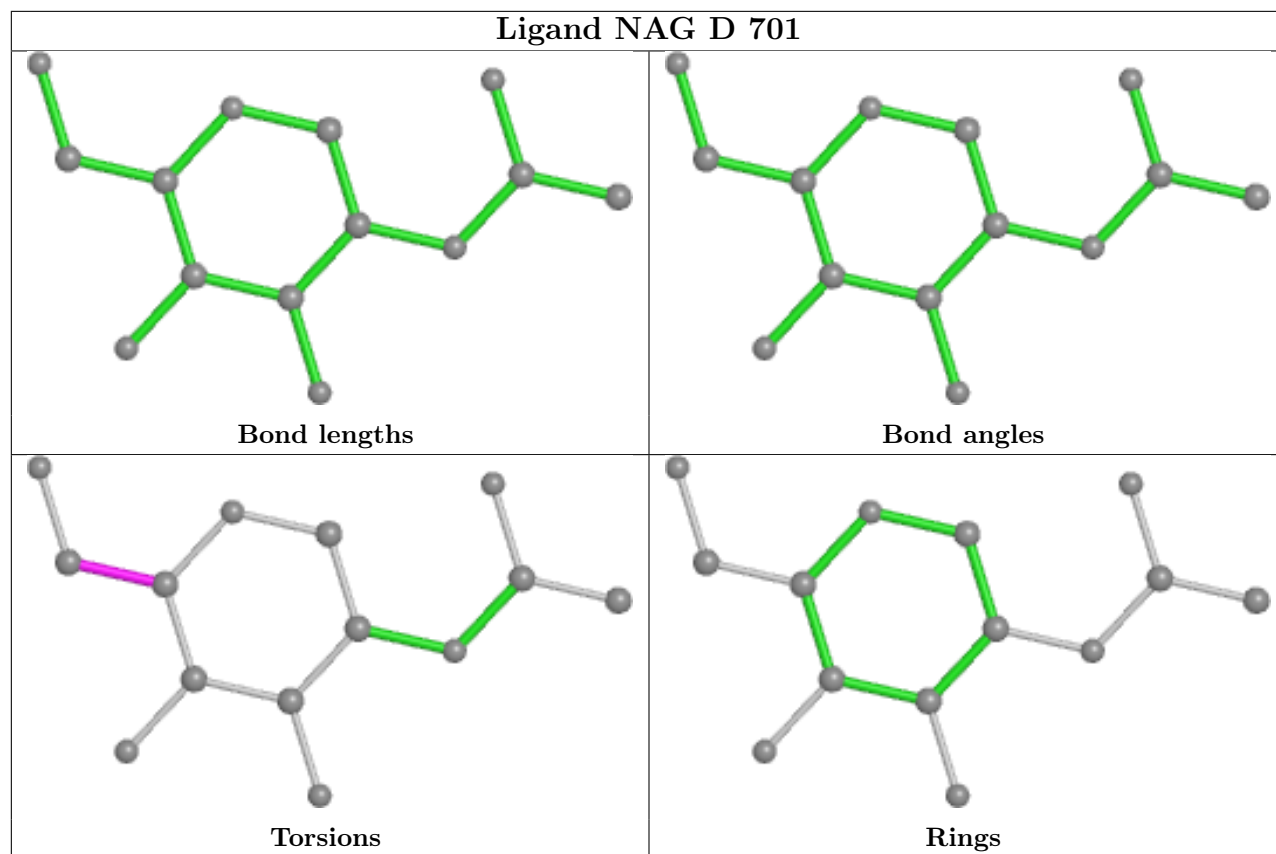












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

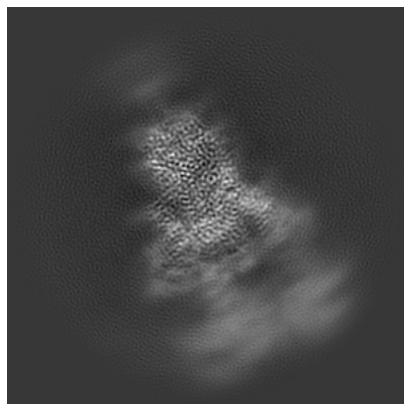
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-33578. These allow visual inspection of the internal detail of the map and identification of artifacts.

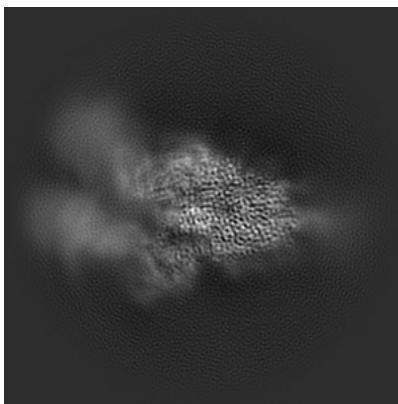
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

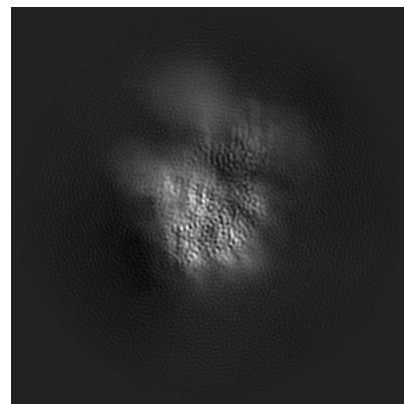
6.1.1 Primary map



X

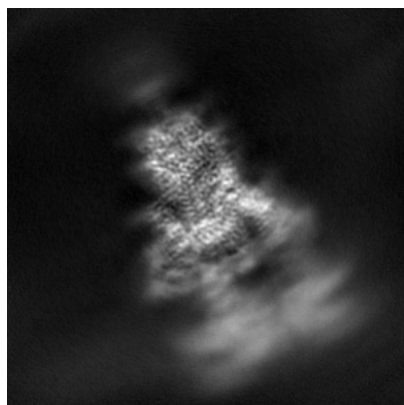


Y

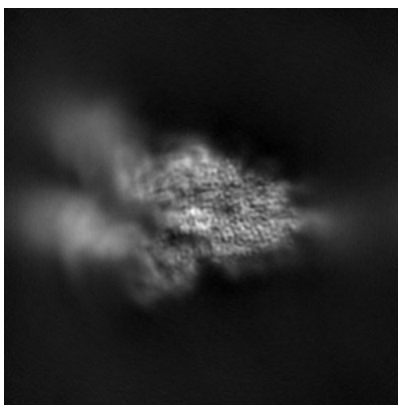


Z

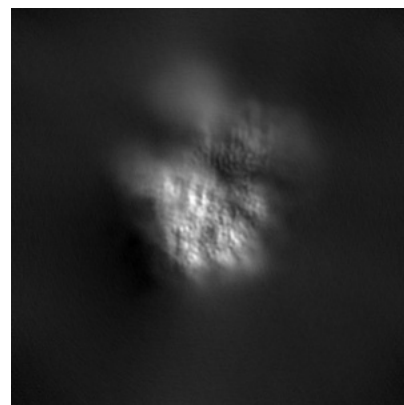
6.1.2 Raw map



X



Y

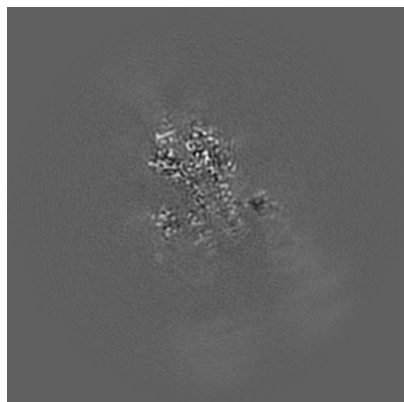


Z

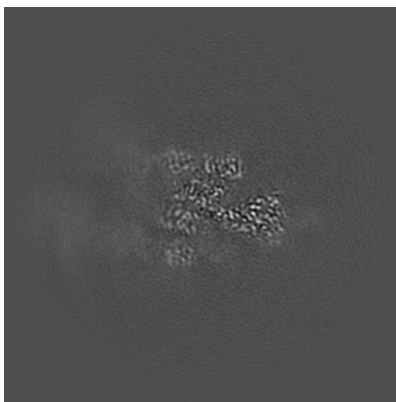
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

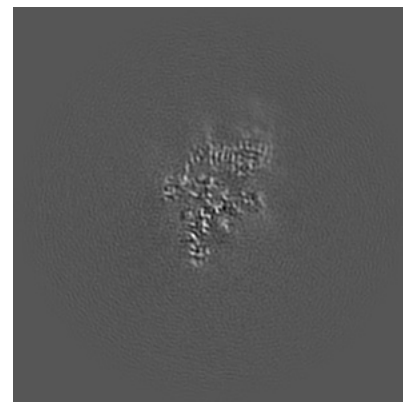
6.2.1 Primary map



X Index: 144

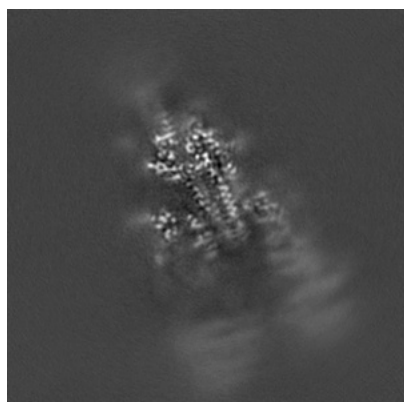


Y Index: 144

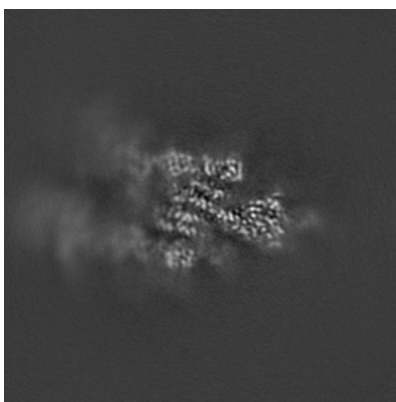


Z Index: 144

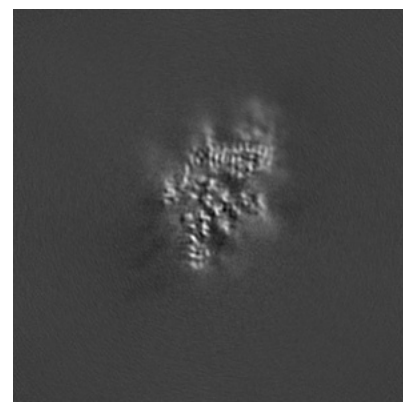
6.2.2 Raw map



X Index: 144



Y Index: 144

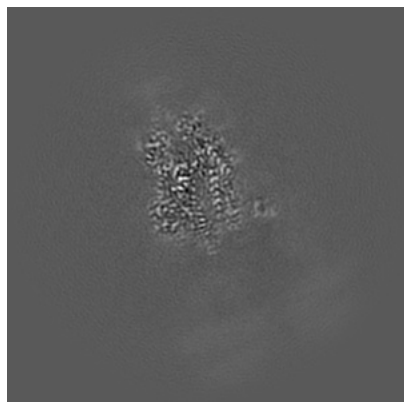


Z Index: 144

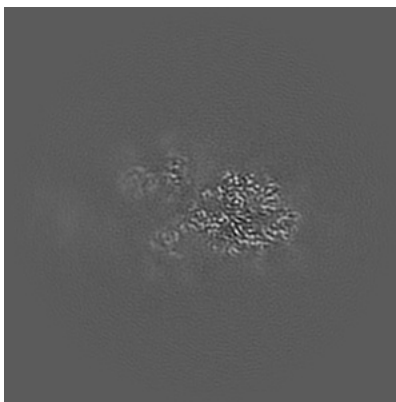
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

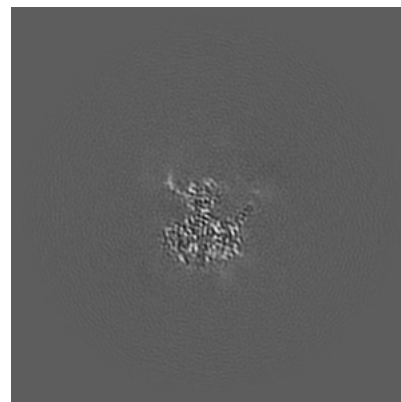
6.3.1 Primary map



X Index: 132

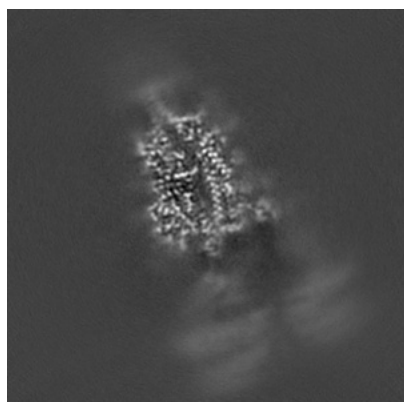


Y Index: 130

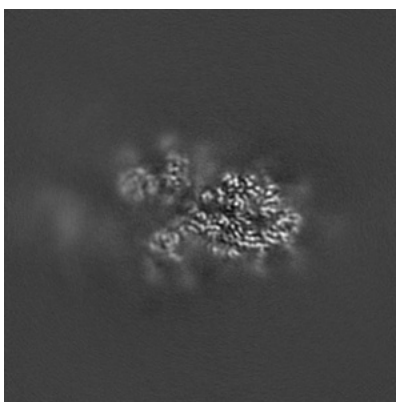


Z Index: 171

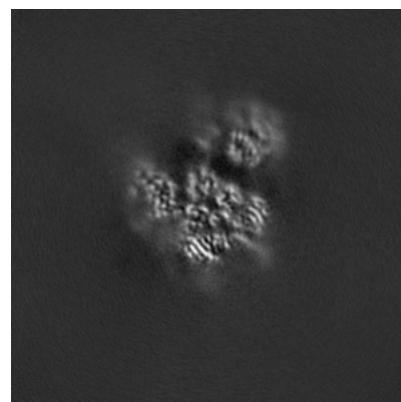
6.3.2 Raw map



X Index: 130



Y Index: 130

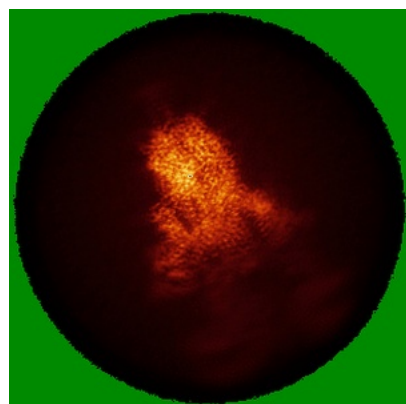


Z Index: 131

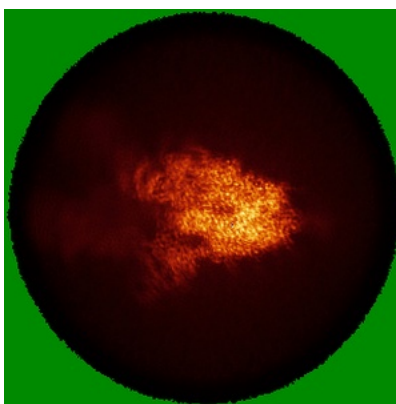
The images above show the largest variance slices of the map in three orthogonal directions.

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

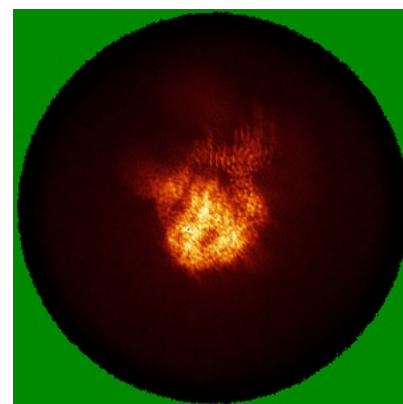
6.4.1 Primary map



X

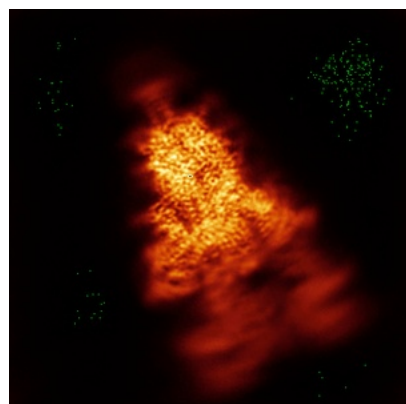


Y

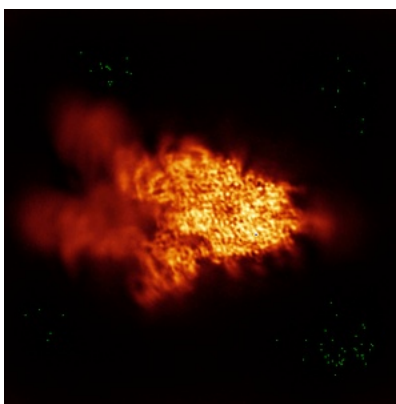


Z

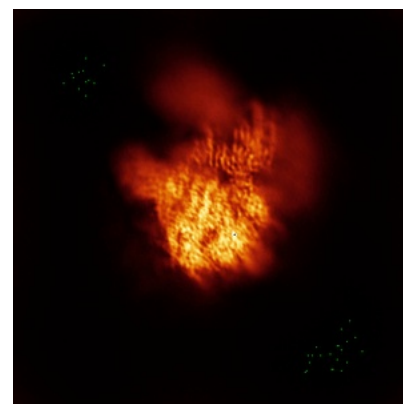
6.4.2 Raw map



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 0.23. 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.

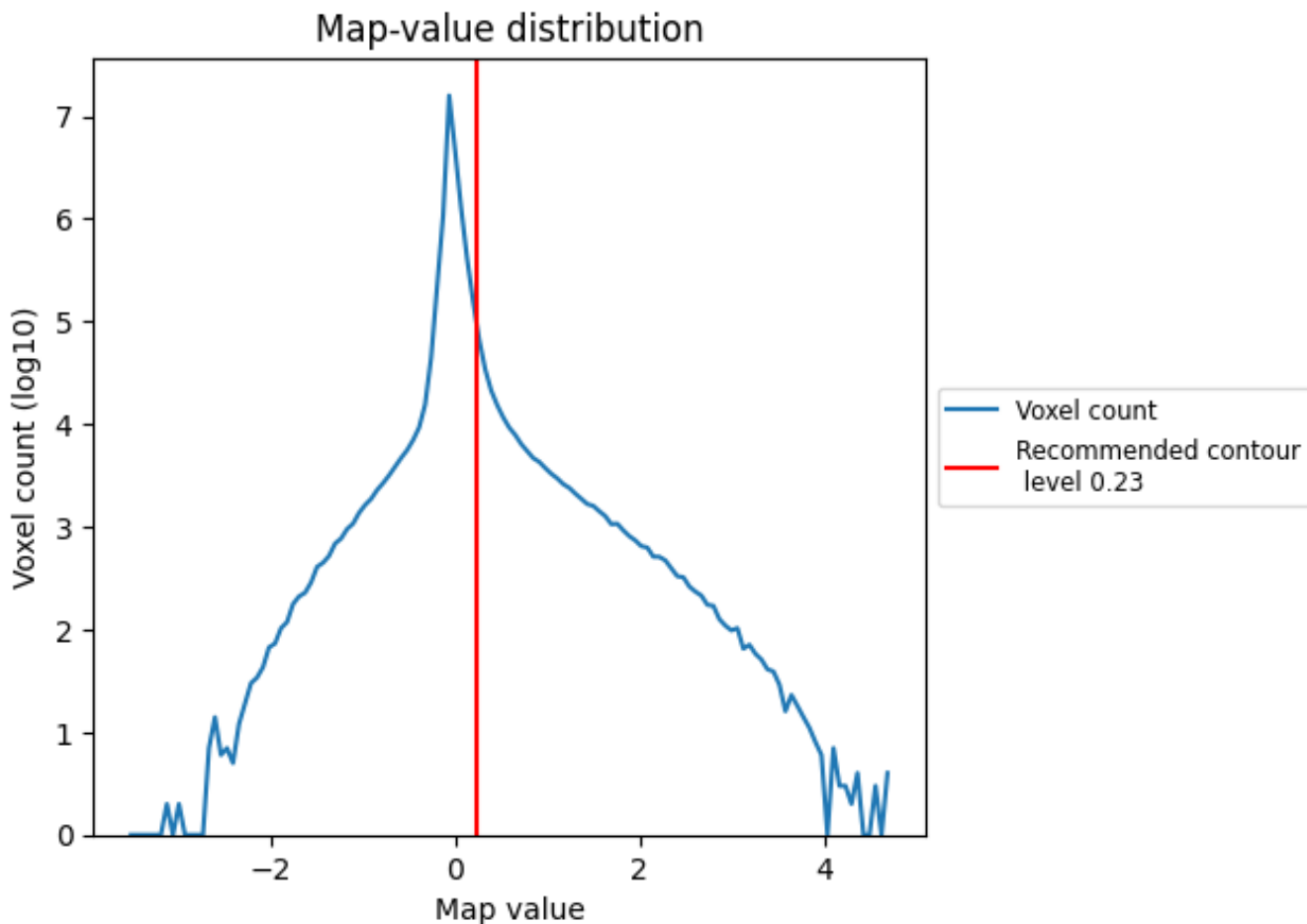
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

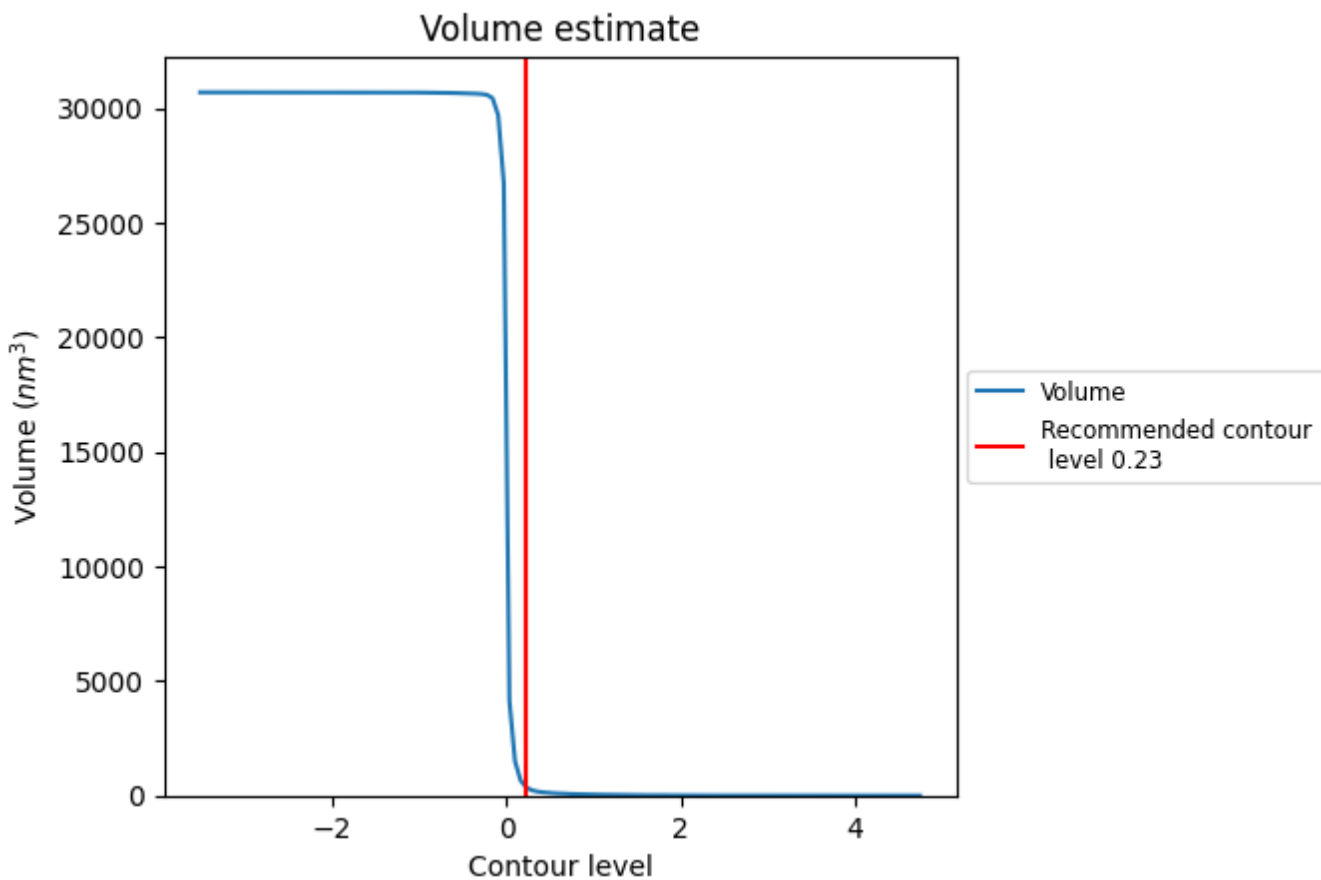
This section contains the results of statistical analysis of the map.

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.

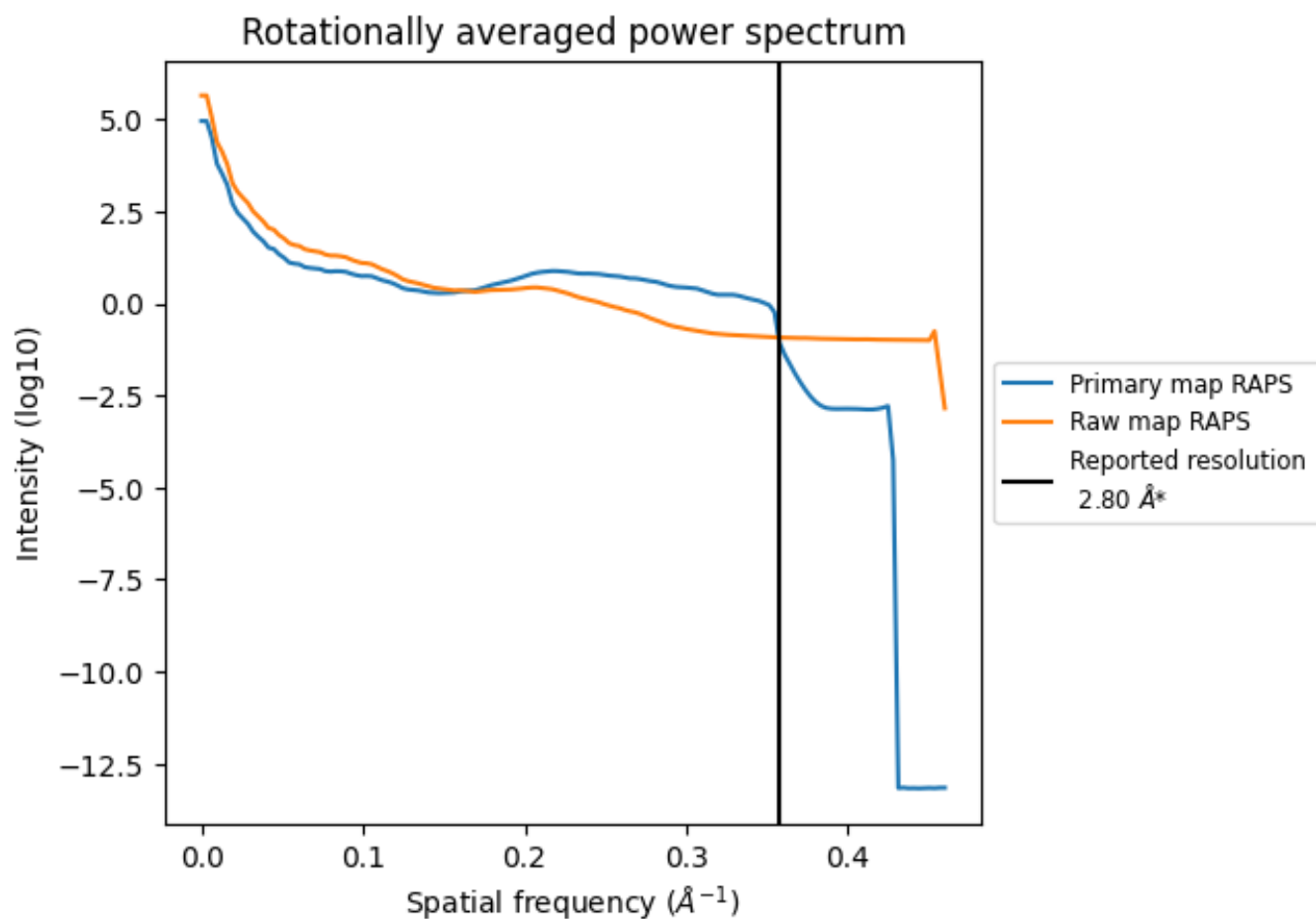
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 364 nm³; this corresponds to an approximate mass of 329 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)

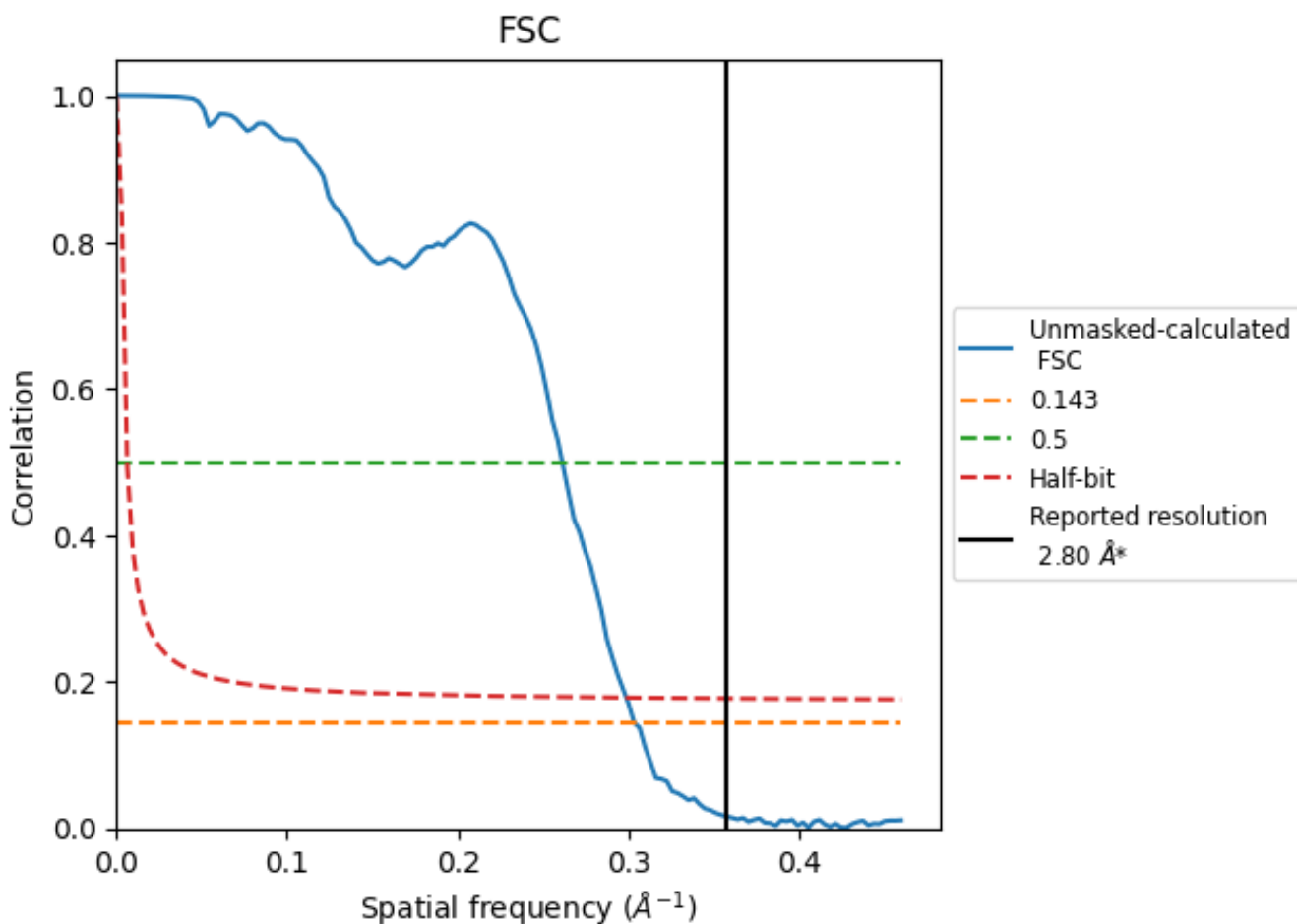


*Reported resolution corresponds to spatial frequency of 0.357 Å⁻¹

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 0.357\AA^{-1}

8.2 Resolution estimates [i](#)

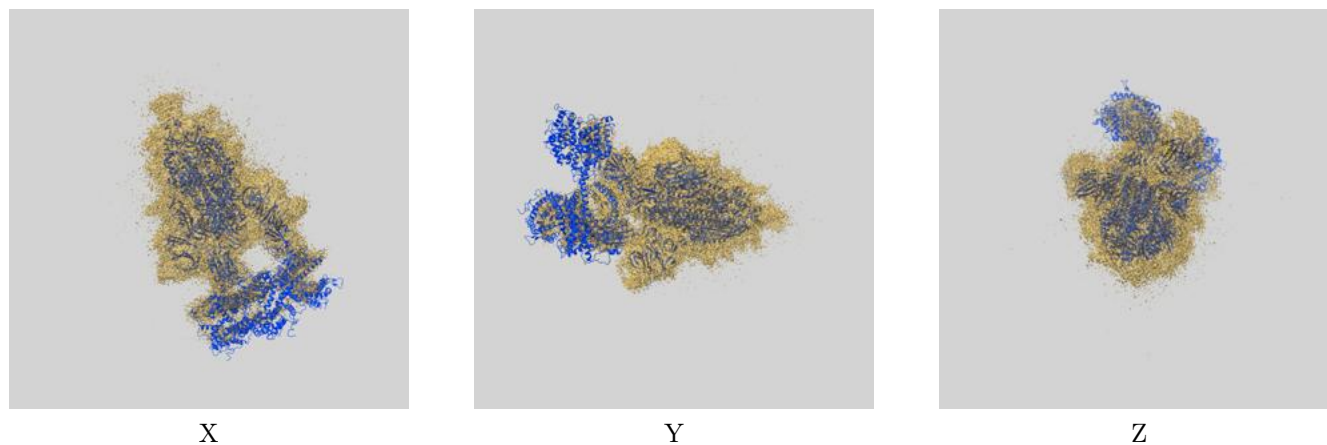
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.29	3.83	3.35

*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 3.29 differs from the reported value 2.8 by more than 10 %

9 Map-model fit [i](#)

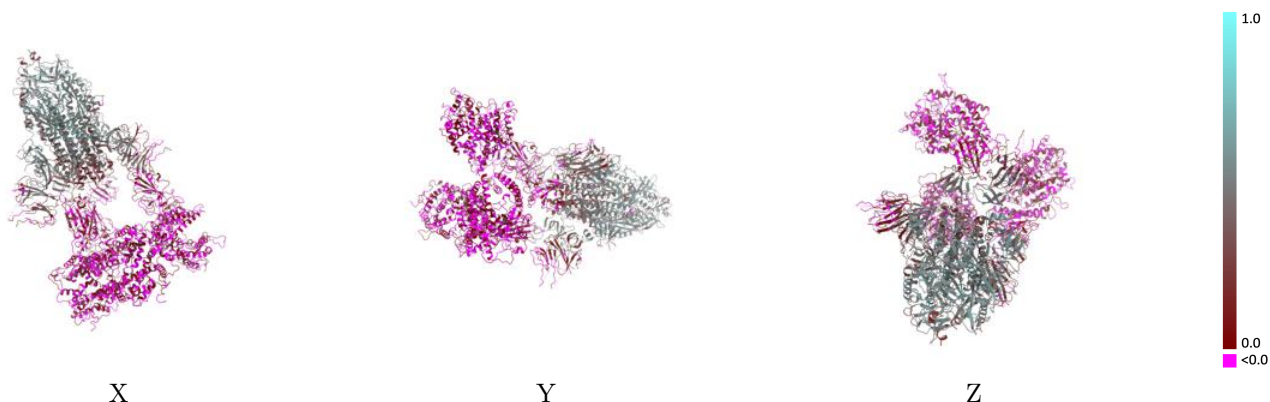
This section contains information regarding the fit between EMDB map EMD-33578 and PDB model 7Y21. Per-residue inclusion information can be found in section [3](#) on page [19](#).

9.1 Map-model overlay [i](#)



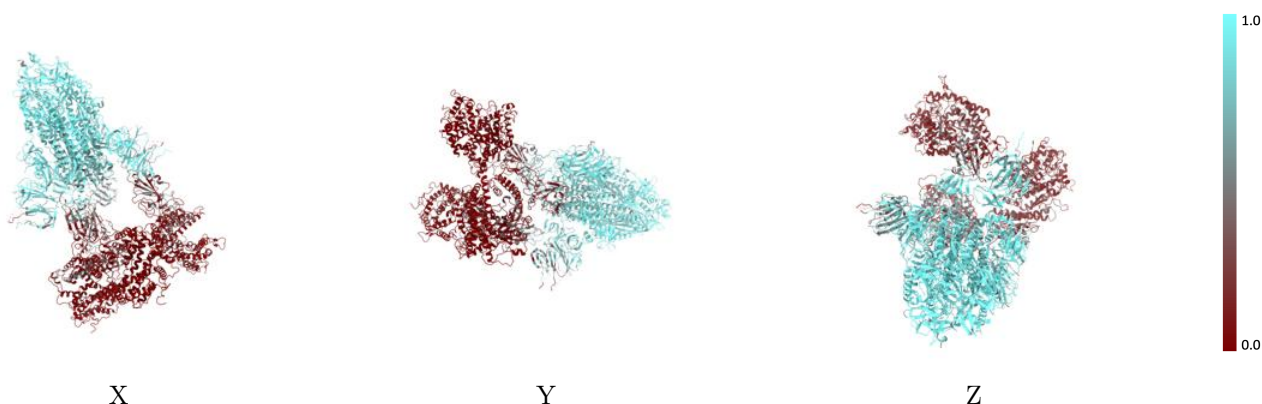
The images above show the 3D surface view of the map at the recommended contour level 0.23 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



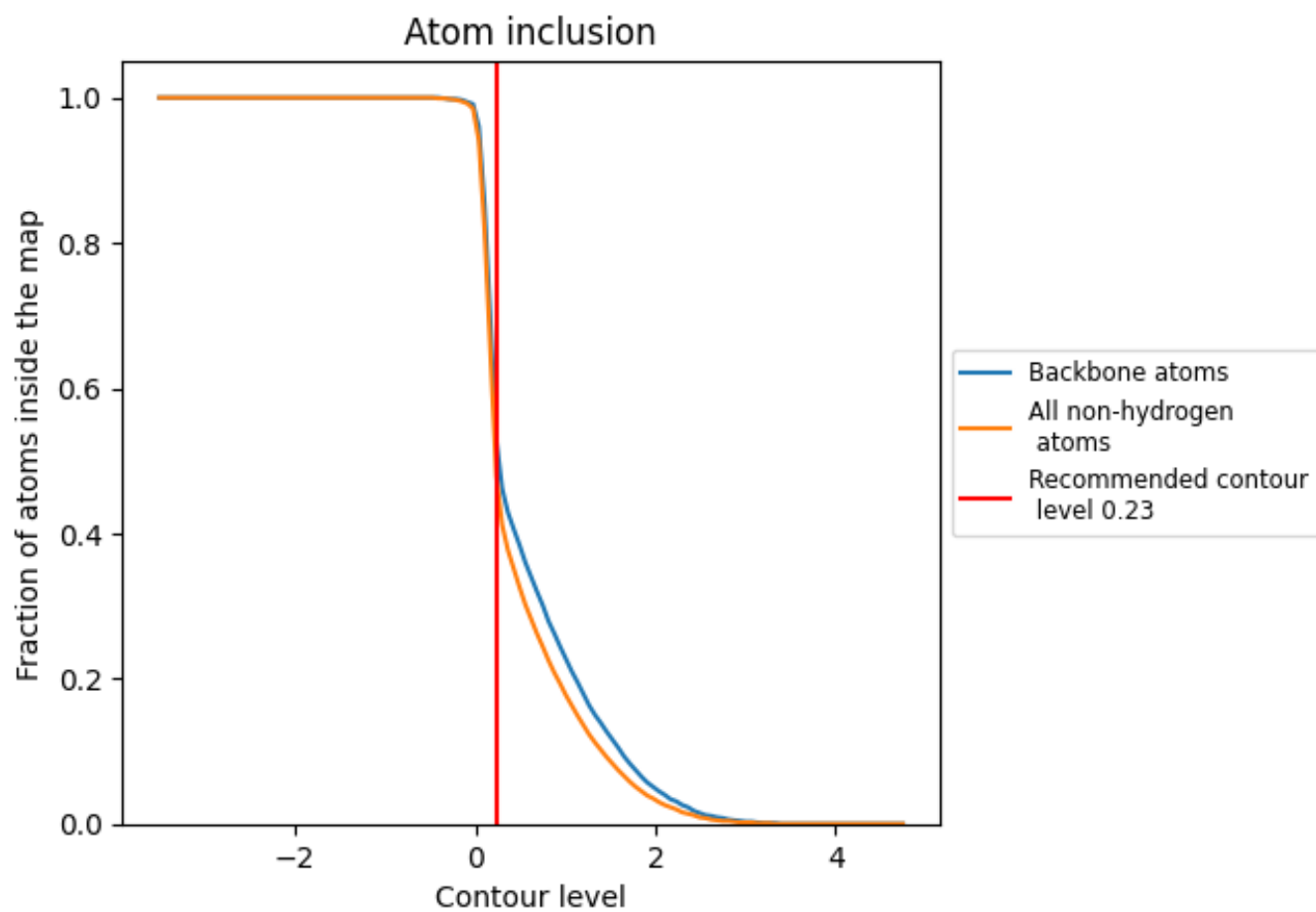
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.23).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 53% of all backbone atoms, 48% 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 (0.23) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.4820	 0.2090
A	 0.7140	 0.3080
B	 0.7490	 0.3430
C	 0.7650	 0.3430
D	 0.1130	 0.0190
E	 0.5710	 0.1250
F	 0.0610	 0.0070
G	 0.2140	 -0.0240
H	 0.0210	 0.0240
I	 0.5000	 0.0580
J	 0.6430	 0.3080
K	 0.5360	 0.2670
L	 0.8570	 0.2900
M	 0.7860	 0.3640
N	 0.8210	 0.3120
O	 0.7140	 0.1770
P	 0.0710	 0.0100
Q	 0.7860	 0.3320
R	 0.6430	 0.2530
S	 0.7500	 0.4350
T	 0.9290	 0.3990
U	 0.9290	 0.3120
V	 0.5000	 0.1740
W	 0.0000	 -0.1130
X	 0.1070	 0.0380
Y	 0.8210	 0.2940
Z	 0.9290	 0.3090
a	 0.6070	 0.2470
b	 0.8930	 0.2730
c	 0.7500	 0.2710
d	 0.0000	 -0.1100
e	 0.0000	 0.0400
f	 0.0360	 -0.1830
g	 0.0000	 0.0640
h	 0.0360	 0.1150



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Chain	Atom inclusion	Q-score
i	 0.0000	 -0.0570
j	 0.0000	 -0.0000
k	 0.0360	 0.1900
l	 0.0000	 -0.0770
m	 0.0000	 -0.1230
n	 0.0360	 -0.1060
o	 0.0000	 0.0330
p	 0.0000	 0.0910
q	 0.0000	 0.0450
r	 0.0000	 0.0580