



wwPDB EM Validation Summary Report ⓘ

Oct 27, 2024 – 02:41 PM JST

PDB ID : 7D0C
EMDB ID : EMD-30530
Title : S protein of SARS-CoV-2 in complex bound with P5A-3A1
Authors : Yan, R.H.; Wang, R.K.; Yu, J.F.; Zhang, Y.Y.; Liu, N.; Wang, H.W.; Wang, X.Q.; Zhang, L.Q.; Zhou, Q.
Deposited on : 2020-09-09
Resolution : 3.40 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

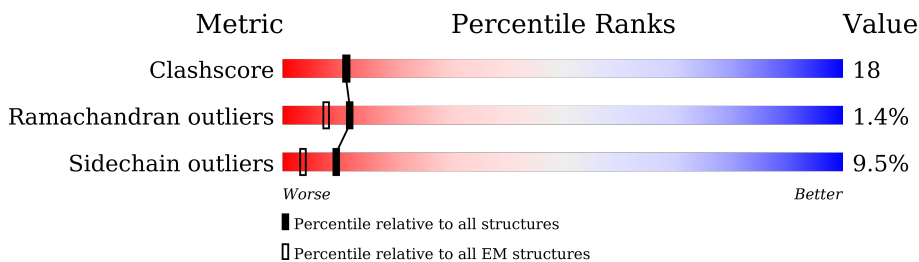
EMDB validation analysis : 0.0.1.dev113
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

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 3.40 Å.

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









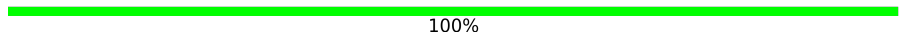



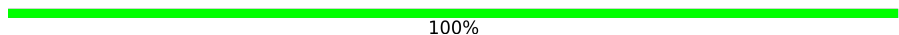

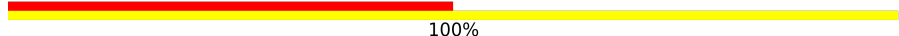


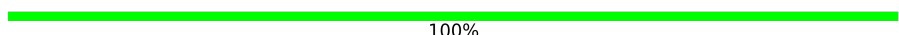


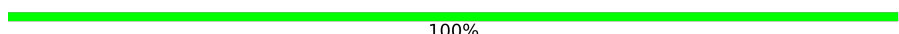


Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1283	
1	B	1283	
1	C	1283	
2	G	219	
2	H	219	
3	F	215	
3	L	215	
4	D	2	

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Mol	Chain	Length	Quality of chain
4	E	2	 50% 50%
4	I	2	 50% 50%
4	J	2	 50% 50%
4	K	2	 50% 50%
4	M	2	 50% 50%
4	N	2	 50% 50%
4	O	2	 100%
4	P	2	 50% 50%
4	Q	2	 50% 50%
4	R	2	 100%
4	S	2	 100%
4	T	2	 50% 50%
4	U	2	 50% 100%
4	V	2	 50% 50%
4	W	2	 50% 50%
4	X	2	 100%
4	Y	2	 50% 50%
4	Z	2	 100%
4	a	2	 100%
4	b	2	 50% 50%
4	c	2	 50% 50%

2 Entry composition i

There are 5 unique types of molecules in this entry. The entry contains 30966 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	1006	7863	5019	1308	1500	36	0	0
1	B	982	7696	4920	1279	1462	35	0	0
1	C	1004	7853	5014	1307	1496	36	0	0

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	986	PRO	LYS	engineered mutation	UNP P0DTC2
A	987	PRO	VAL	engineered mutation	UNP P0DTC2
A	1274	LEU	-	expression tag	UNP P0DTC2
A	1275	GLU	-	expression tag	UNP P0DTC2
A	1276	ASP	-	expression tag	UNP P0DTC2
A	1277	TYR	-	expression tag	UNP P0DTC2
A	1278	LYS	-	expression tag	UNP P0DTC2
A	1279	ASP	-	expression tag	UNP P0DTC2
A	1280	ASP	-	expression tag	UNP P0DTC2
A	1281	ASP	-	expression tag	UNP P0DTC2
A	1282	ASP	-	expression tag	UNP P0DTC2
A	1283	LYS	-	expression tag	UNP P0DTC2
B	986	PRO	LYS	engineered mutation	UNP P0DTC2
B	987	PRO	VAL	engineered mutation	UNP P0DTC2
B	1274	LEU	-	expression tag	UNP P0DTC2
B	1275	GLU	-	expression tag	UNP P0DTC2
B	1276	ASP	-	expression tag	UNP P0DTC2
B	1277	TYR	-	expression tag	UNP P0DTC2
B	1278	LYS	-	expression tag	UNP P0DTC2
B	1279	ASP	-	expression tag	UNP P0DTC2
B	1280	ASP	-	expression tag	UNP P0DTC2
B	1281	ASP	-	expression tag	UNP P0DTC2
B	1282	ASP	-	expression tag	UNP P0DTC2
B	1283	LYS	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	986	PRO	LYS	engineered mutation	UNP P0DTC2
C	987	PRO	VAL	engineered mutation	UNP P0DTC2
C	1274	LEU	-	expression tag	UNP P0DTC2
C	1275	GLU	-	expression tag	UNP P0DTC2
C	1276	ASP	-	expression tag	UNP P0DTC2
C	1277	TYR	-	expression tag	UNP P0DTC2
C	1278	LYS	-	expression tag	UNP P0DTC2
C	1279	ASP	-	expression tag	UNP P0DTC2
C	1280	ASP	-	expression tag	UNP P0DTC2
C	1281	ASP	-	expression tag	UNP P0DTC2
C	1282	ASP	-	expression tag	UNP P0DTC2
C	1283	LYS	-	expression tag	UNP P0DTC2

- Molecule 2 is a protein called Heavy chain of P5A-3A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	H	219	Total	C	N	O	S	0	0
			1640	1036	271	327	6		
2	G	219	Total	C	N	O	S	0	0
			1640	1036	271	327	6		

- Molecule 3 is a protein called Light chain of P5A-3A1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	L	215	Total	C	N	O	S	0	0
			1647	1027	281	334	5		
3	F	215	Total	C	N	O	S	0	0
			1647	1027	281	334	5		

- Molecule 4 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		
4	D	2	Total	C	N	O	0	0
			28	16	2	10		
4	E	2	Total	C	N	O	0	0
			28	16	2	10		

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	I	2	28	16	2	10	0	0
4	J	2	28	16	2	10	0	0
4	K	2	28	16	2	10	0	0
4	M	2	28	16	2	10	0	0
4	N	2	28	16	2	10	0	0
4	O	2	28	16	2	10	0	0
4	P	2	28	16	2	10	0	0
4	Q	2	28	16	2	10	0	0
4	R	2	28	16	2	10	0	0
4	S	2	28	16	2	10	0	0
4	T	2	28	16	2	10	0	0
4	U	2	28	16	2	10	0	0
4	V	2	28	16	2	10	0	0
4	W	2	28	16	2	10	0	0
4	X	2	28	16	2	10	0	0
4	Y	2	28	16	2	10	0	0
4	Z	2	28	16	2	10	0	0
4	a	2	28	16	2	10	0	0
4	b	2	28	16	2	10	0	0
4	c	2	28	16	2	10	0	0

- Molecule 5 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	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	A	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	

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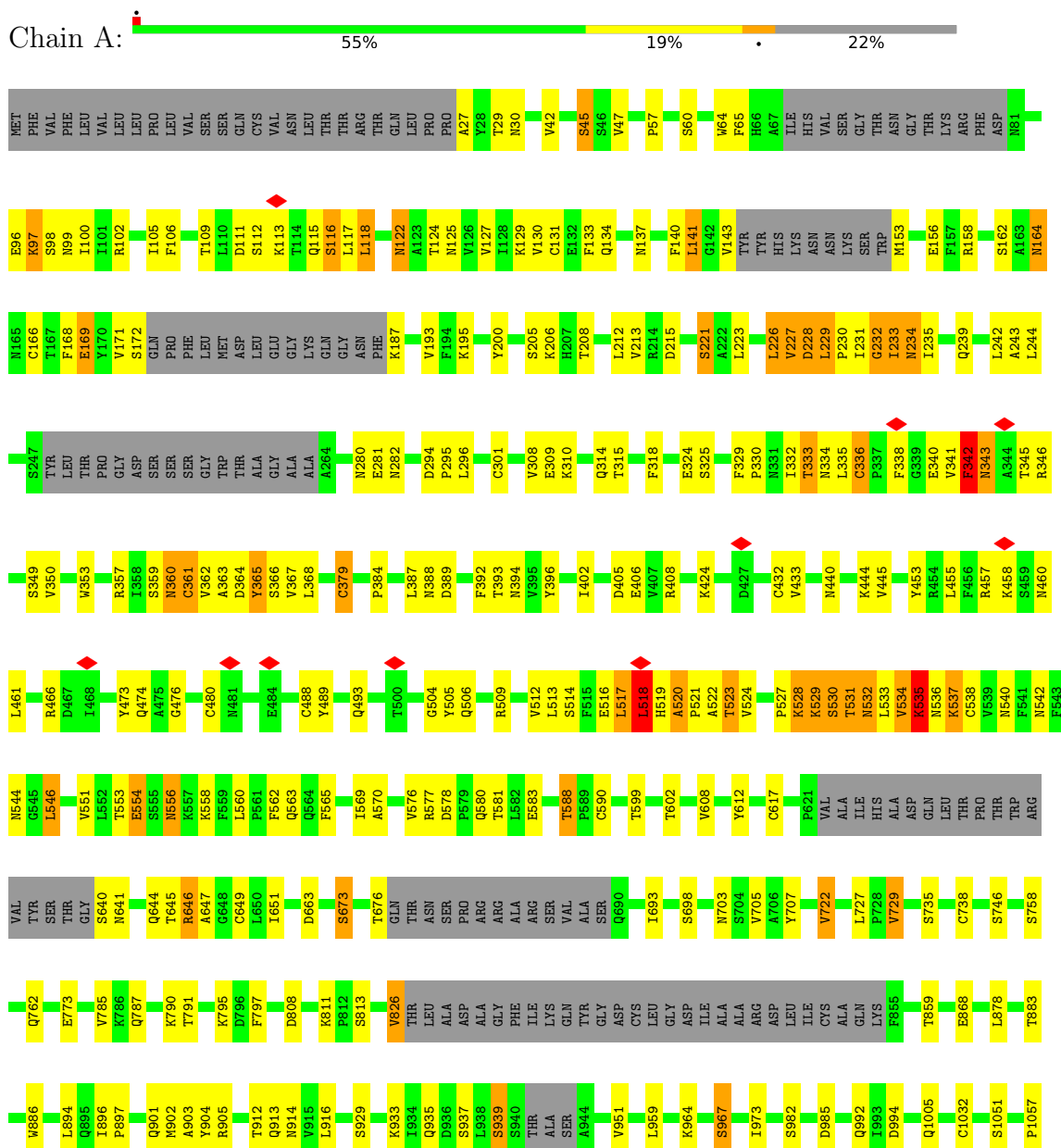
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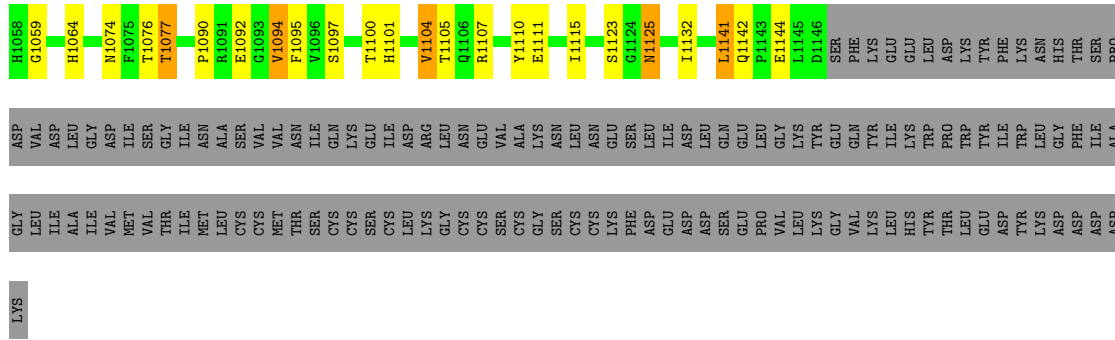
Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
5	B	1	Total 14	8	1	5	0
5	B	1	Total 14	8	1	5	0
5	B	1	Total 14	8	1	5	0
5	B	1	Total 14	8	1	5	0
5	C	1	Total 14	8	1	5	0
5	C	1	Total 14	8	1	5	0
5	C	1	Total 14	8	1	5	0
5	C	1	Total 14	8	1	5	0
5	C	1	Total 14	8	1	5	0
5	C	1	Total 14	8	1	5	0
5	C	1	Total 14	8	1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

3 Residue-property plots

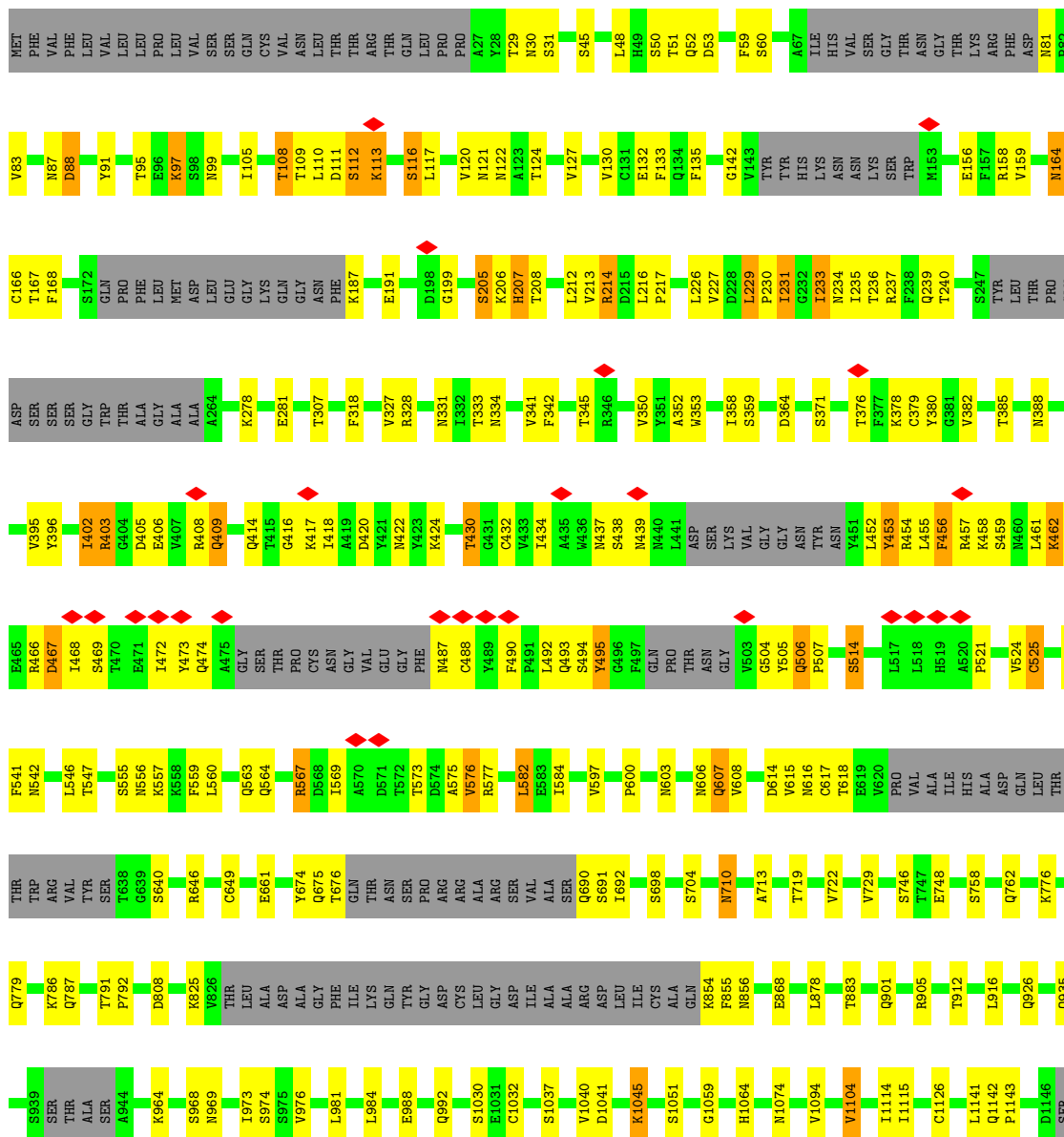
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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





● Molecule 1: Spike glycoprotein



PHE LYS GLU LEU TRP ASP LYS TYR PHE LYS ASN HIS THR SER PRO ASP VAL ASP VAL LEU LEU GLY ASP VAL GLY LEU LEU GLY GLN TYR ILE LYS LEU TRP TRP LEU VAL LEU LEU TRP ASP LEU ASP LEU ASP GLY VAL ASP ASP GLY LEU LEU ASP ASP ASP LYS	GLN TYR ILE LYS LEU TRP TRP LEU VAL LEU LEU TRP ASP LEU ASP LEU ASP VAL GLY LEU LEU GLY VAL LEU LEU LEU LEU VAL MET SER THR SER CYS GLN CYS SER MET MET THR THR SER SER CYS SER GLY CYS CYS GLY GLY GLY SER VAL CYS CYS CYS VAL GLY SER GLY SER SER CYS ASN CYS ASN ASN ASN LYS PHE SER SER ASP GLU ASP SER SER GLN GLU GLU PRO VAL LEU LEU LYS GLY	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
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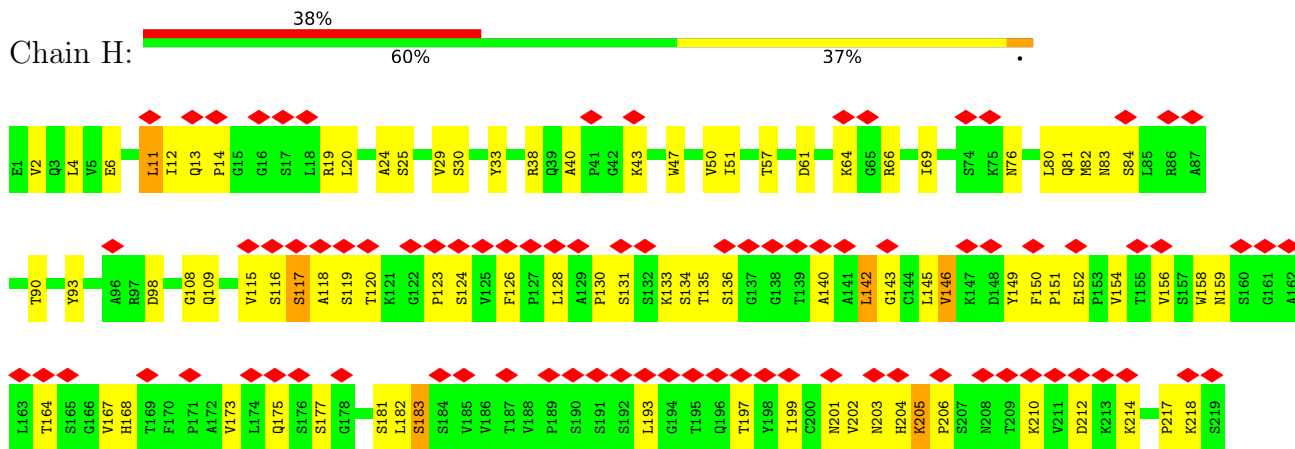
• Molecule 1: Spike glycoprotein



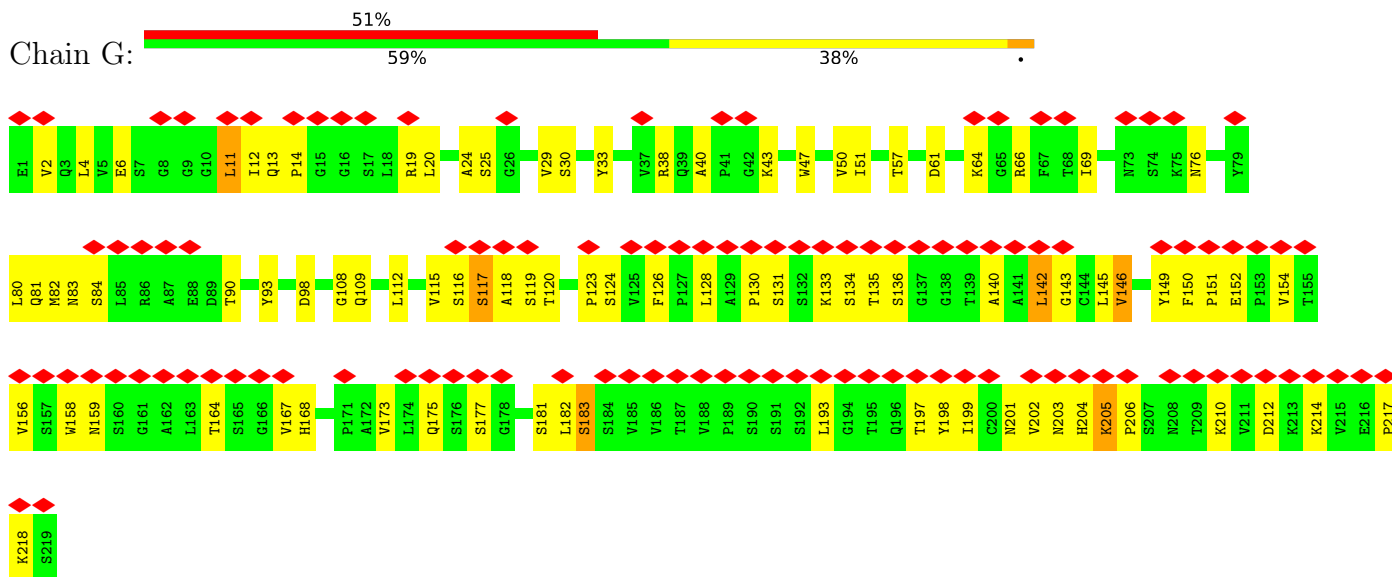
MET PHE VAL PHE LEU VAL LEU LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	PHE LYS GLU LEU TRP ASP LYS TYR PHE LYS ASN HIS THR SER PRO ASP VAL ASP VAL LEU LEU GLY ASP VAL GLY LEU LEU GLY GLN TYR ILE LYS LEU TRP TRP LEU VAL LEU LEU TRP ASP LEU ASP LEU ASP GLY VAL ASP ASP GLY LEU LEU ASP ASP GLY VAL CYS SER MET MET THR THR SER SER CYS SER GLY CYS CYS GLY CYS CYS VAL GLY SER GLY SER SER CYS ASN CYS ASN ASN LYS PHE SER SER ASP GLU ASP SER SER GLN GLU GLU PRO VAL LEU LEU LYS GLY	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	PHE LYS GLU LEU TRP ASP LYS TYR PHE LYS ASN HIS THR SER PRO ASP VAL ASP VAL LEU LEU GLY ASP VAL GLY LEU LEU GLY GLN TYR ILE LYS LEU TRP TRP LEU VAL LEU LEU TRP ASP LEU ASP LEU ASP GLY VAL ASP ASP GLY LEU LEU ASP ASP GLY VAL CYS SER MET MET THR THR SER SER CYS SER GLY CYS CYS VAL GLY SER GLY SER SER CYS ASN CYS ASN ASN LYS PHE SER SER ASP GLU ASP SER SER GLN GLU GLU PRO VAL LEU LEU LYS GLY	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
W81 P82 W83 L84 P85 F86 T96 E96 K97 S98 I105 D111 S112 K113 M114 L114 L117 L118 I119 V120 M121 M122 M125 V126 Y127 I128 K129 V130 C131 F133 Q134 F140 L141 G142 V143 TYR TYR HIS LYS ASN ASN ASN SER SER TRP M153 E154 S155 E156 M164 M165 C166 E169	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
S172 GLN PRO PHE LEU MET ASP LEU GLY GLY ASN PHE K187 S371 L189 R190 V193 F194 K195 M196 I197 D198 G199 Y200 S205 T208 P209 I210 N211 L212 W213 R214 D215 L216 P217 S221 A222 L223 D228 L231 G232 I233 N234 R237 P238 L241 L242 A243	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
L244 S247 T47 THR PRO GLY ASP SER SER GLY TRP THR ALA GLY ALA A264 Q271 K278 D287 C301 S305 F306 E309 Y313 I210 Q314 F318 R328 N331 I332 T333 N334 C335 C336 F337 F338 G339 K424 C432 V433 N440 K444 V445 N448 Y453 R454 L455 F456 K458	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
W853 R357 I358 S359 N360 C361 Y362 I467 S469 E471 Y365 S366 V367 L368 Y369 N370 S371 A372 C379 P384 L387 N388 D389 L390 C391 F392 T393 N394 W895 Y396 I402 E406 V407 R408 G413 K424 C432 V433 N440 K444 V445 N448 Y453 R454 L455 F456 K458	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
S459 N460 L461 R466 I468 S469 E471 Y365 S366 V367 L368 Y369 N370 S371 A372 C379 P384 L387 N388 D389 L390 C391 F392 T393 N394 W895 Y396 I402 E406 V407 R408 G413 K424 C432 V433 N440 K444 V445 N448 Y453 R454 L455 F456 K458	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
V634 R635 M536 L546 G550 V551 E554 S555 M556 F565 G566 R567 D568 I569 A570 T573 Q580 L584 L585 D586 C590 S591 T599 F600 G601 T602 S605 M606 V615 M616 V620 PRO VAL ALA ILE HIS ALA ASP GLN LEU THR PRO THR THR TRP ARG C525 P527 K528 S530 T531 N532 L533	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
Q804 P807 D808 P809 S810 K811 R812 S813 K814 L821 V826 THR LEU LEU ALA ASP ALA GLY PHE LYS LYS GLN TYR GLY ASP CYS LEU LEU GLY ASP ILE ALA ALA ARG P715 W722 I726 L727 V736 M740 I770 Q774 T778 T784 W886 L894 Q901 R905	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
T912 G913 N914 I931 Q935 P936 L938 R939 SER THR ALA SER L944 L945 L948 I973 S974 S975 Y976 L977 P985 Q992 R995 L996 E1017 I1017 T1027 C1032 V1040 D1041 F1042 S1051 V1061 H1064 E1072 T1077 I1081 P1090 V1094 F1095	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
H1101 V1104 I1115 C1126 V1129 L1132 T1136 L1141 L1145 D1146 SER PHE LYS GLU LYS LEU LEU LEU ASP LYS TYR PHE LYS LEU ASN HIS THR SER ILE SER GLY ASP ILE VAL VAL ASP VAL VAL SER GLY ILE LEU MET MET THR SER CYS CYS GLU GLU ILE ASP ARG LEU GLY ASN GLU	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS
VAL ALA LYS ASN LEU ASN GLU SER LEU ILE ASP LEU GLN GLU LEU LEU LEU SER PHE GLU TYR PHE LEU LEU LEU GLY LEU LEU THR THR SER CYS GLY GLY SER SER CYS VAL VAL THR SER CYS CYS GLU GLU ILE ASP ARG LEU GLY ASN GLU	MET PHE VAL PHE LEU VAL LEU LEU PRO LEU PRO ASP LEU LEU ASP GLN CYS VAL ASN LEU THR THR ARG SER A27 Y28 T29 Y37 Y42 S50 T51 D52 D53 L54 F55 S60 T63 H66 A67 ILE HIS SER VAL SER GLY SER CYS CYS LYS LYS GLY PHE SER ASP GLU ASP SER SER GLN GLU GLY VAL ARG PHE ASP	VAL LYS LEU HIS TYR THR LEU GLU SER ASP LEU ASP LYS

SER	CYS	GLY	SER	CYS	CYS	LYS	PHE	ASP	GLU	ASP	SER	GLU	PRO	VAL	LEU	LYS	GLY	VAL	LYS	LEU	LEU	TYR	HIS	THR	LEU	GLU	ASP	LYS	LYS	ASP	ASP	ASP	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

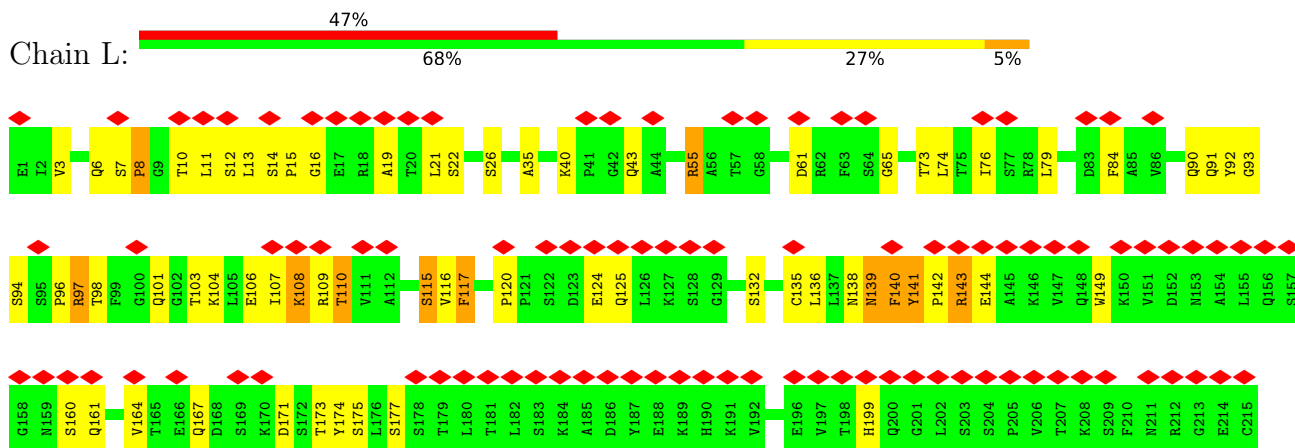
• Molecule 2: Heavy chain of P5A-3A1



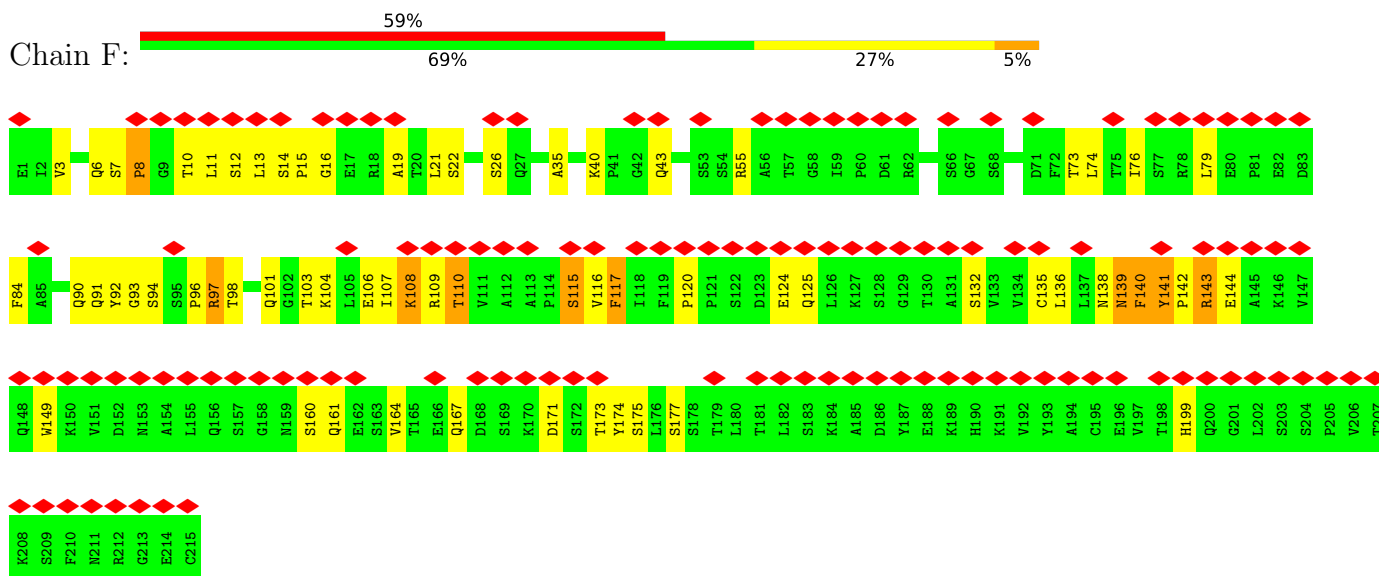
• Molecule 2: Heavy chain of P5A-3A1



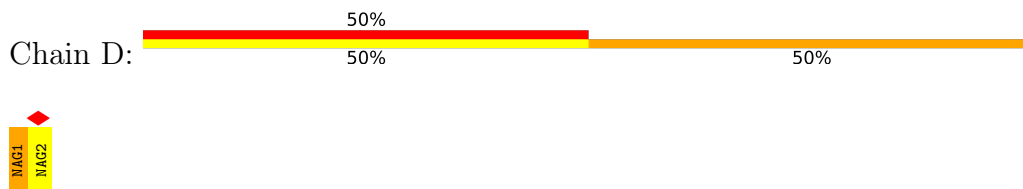
• Molecule 3: Light chain of P5A-3A1



- Molecule 3: Light chain of P5A-3A1



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



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



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



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



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

Chain K:  50% 50%



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

Chain M:  50% 50%



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

Chain N:  50% 50%



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

Chain O:  100%



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

Chain P:  50% 50%



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

Chain Q:  50% 50%



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

Chain R:  100%

MAG1
MAG2

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

Chain S:  100%MAG1
MAG2

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

Chain T:  50% 50%MAG1
MAG2

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

Chain U:  50% 100%MAG1
MAG2

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

Chain V:  50% 50%MAG1
MAG2

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

Chain W:  50% 50%MAG1
MAG2

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

Chain X:  100%MAG1
MAG2

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

Chain Y:  50% 50%

MAG1
MAG2

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

Chain Z:  100%

MAG1
MAG2

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

Chain a:  100%

MAG1
MAG2

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

Chain b:  50% 50%

MAG1
MAG2

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

Chain c:  50% 50%

MAG1
MAG2

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	74535	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.120	Depositor
Minimum map value	-0.057	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.011	Depositor
Map size (\AA)	313.056, 313.056, 313.056	wwPDB
Map dimensions	288, 288, 288	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	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	0.50	0/8039	0.55	0/10936
1	B	0.49	0/7864	0.55	0/10691
1	C	0.50	0/8028	0.55	0/10919
2	G	0.34	0/1680	0.55	0/2288
2	H	0.34	0/1680	0.55	0/2288
3	F	0.42	0/1682	0.57	0/2282
3	L	0.42	0/1682	0.57	0/2282
All	All	0.47	0/30655	0.55	0/41686

There are no bond length outliers.

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	7863	0	7659	299	0
1	B	7696	0	7514	163	0
1	C	7853	0	7654	247	0
2	G	1640	0	1594	94	0
2	H	1640	0	1594	94	0
3	F	1647	0	1602	108	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	L	1647	0	1602	109	0
4	D	28	0	25	6	0
4	E	28	0	25	0	0
4	I	28	0	25	1	0
4	J	28	0	25	1	0
4	K	28	0	25	0	0
4	M	28	0	25	0	0
4	N	28	0	25	1	0
4	O	28	0	25	0	0
4	P	28	0	25	0	0
4	Q	28	0	25	0	0
4	R	28	0	25	1	0
4	S	28	0	25	0	0
4	T	28	0	25	0	0
4	U	28	0	25	2	0
4	V	28	0	25	1	0
4	W	28	0	25	0	0
4	X	28	0	25	0	0
4	Y	28	0	25	1	0
4	Z	28	0	25	2	0
4	a	28	0	25	0	0
4	b	28	0	25	0	0
4	c	28	0	25	0	0
5	A	126	0	117	5	0
5	B	126	0	117	6	0
5	C	112	0	104	2	0
All	All	30966	0	30107	1074	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 18.

The worst 5 of 1074 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)
3:F:15:PRO:HD3	3:F:107:ILE:CD1	1.39	1.52
3:L:15:PRO:HD3	3:L:107:ILE:CD1	1.39	1.51
1:C:391:CYS:SG	1:C:525:CYS:SG	1.47	1.45
3:L:108:LYS:HB3	3:L:141:TYR:OH	1.28	1.32
2:G:14:PRO:CD	2:G:116:SER:HB3	1.60	1.30

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	988/1283 (77%)	877 (89%)	96 (10%)	15 (2%)	8	30
1	B	958/1283 (75%)	864 (90%)	92 (10%)	2 (0%)	44	72
1	C	986/1283 (77%)	879 (89%)	86 (9%)	21 (2%)	5	24
2	G	217/219 (99%)	198 (91%)	18 (8%)	1 (0%)	25	54
2	H	217/219 (99%)	198 (91%)	18 (8%)	1 (0%)	25	54
3	F	213/215 (99%)	194 (91%)	13 (6%)	6 (3%)	4	20
3	L	213/215 (99%)	194 (91%)	13 (6%)	6 (3%)	4	20
All	All	3792/4717 (80%)	3404 (90%)	336 (9%)	52 (1%)	12	31

5 of 52 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	234	ASN
1	A	531	THR
1	C	331	ASN
1	C	529	LYS
1	C	531	THR

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	881/1122 (78%)	788 (89%)	93 (11%)	5	20
1	B	862/1122 (77%)	758 (88%)	104 (12%)	4	15

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	879/1122 (78%)	799 (91%)	80 (9%)	7	26
2	G	184/184 (100%)	172 (94%)	12 (6%)	14	39
2	H	184/184 (100%)	172 (94%)	12 (6%)	14	39
3	F	186/186 (100%)	177 (95%)	9 (5%)	21	48
3	L	186/186 (100%)	177 (95%)	9 (5%)	21	48
All	All	3362/4106 (82%)	3043 (90%)	319 (10%)	9	25

5 of 319 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	365	TYR
2	H	201	ASN
1	C	546	LEU
1	C	856	ASN
2	G	136	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 80 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	556	ASN
1	C	992	GLN
1	C	641	ASN
1	C	901	GLN
1	C	1106	GLN

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](#)

44 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
4	NAG	D	1	4,1	14,14,15	0.58	1 (7%)	17,19,21	0.57	0
4	NAG	D	2	4	14,14,15	0.31	0	17,19,21	0.46	0
4	NAG	E	1	4,1	14,14,15	0.33	0	17,19,21	0.63	1 (5%)
4	NAG	E	2	4	14,14,15	0.53	0	17,19,21	0.46	0
4	NAG	I	1	4,1	14,14,15	0.38	0	17,19,21	0.72	0
4	NAG	I	2	4	14,14,15	0.30	0	17,19,21	1.32	2 (11%)
4	NAG	J	1	4,1	14,14,15	0.69	1 (7%)	17,19,21	0.70	0
4	NAG	J	2	4	14,14,15	0.41	0	17,19,21	1.41	3 (17%)
4	NAG	K	1	4,1	14,14,15	0.70	1 (7%)	17,19,21	0.66	0
4	NAG	K	2	4	14,14,15	0.31	0	17,19,21	0.64	0
4	NAG	M	1	4,1	14,14,15	0.25	0	17,19,21	0.70	1 (5%)
4	NAG	M	2	4	14,14,15	0.15	0	17,19,21	0.46	0
4	NAG	N	1	4,1	14,14,15	0.31	0	17,19,21	0.40	0
4	NAG	N	2	4	14,14,15	0.15	0	17,19,21	0.47	0
4	NAG	O	1	4,1	14,14,15	0.31	0	17,19,21	0.39	0
4	NAG	O	2	4	14,14,15	0.37	0	17,19,21	0.37	0
4	NAG	P	1	4,1	14,14,15	0.34	0	17,19,21	1.12	1 (5%)
4	NAG	P	2	4	14,14,15	0.27	0	17,19,21	0.46	0
4	NAG	Q	1	4,1	14,14,15	0.30	0	17,19,21	0.69	1 (5%)
4	NAG	Q	2	4	14,14,15	0.21	0	17,19,21	0.40	0
4	NAG	R	1	4,1	14,14,15	0.75	1 (7%)	17,19,21	0.91	1 (5%)
4	NAG	R	2	4	14,14,15	0.31	0	17,19,21	0.70	1 (5%)
4	NAG	S	1	4,1	14,14,15	0.27	0	17,19,21	0.44	0
4	NAG	S	2	4	14,14,15	0.28	0	17,19,21	0.38	0
4	NAG	T	1	4,1	14,14,15	0.41	0	17,19,21	0.58	0
4	NAG	T	2	4	14,14,15	0.26	0	17,19,21	0.60	1 (5%)
4	NAG	U	1	4,1	14,14,15	0.55	0	17,19,21	0.56	0
4	NAG	U	2	4	14,14,15	0.29	0	17,19,21	0.45	0
4	NAG	V	1	4,1	14,14,15	0.22	0	17,19,21	1.36	1 (5%)
4	NAG	V	2	4	14,14,15	0.20	0	17,19,21	0.51	0
4	NAG	W	1	4,1	14,14,15	0.54	0	17,19,21	0.69	1 (5%)
4	NAG	W	2	4	14,14,15	0.38	0	17,19,21	0.46	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	NAG	X	1	4,1	14,14,15	0.33	0	17,19,21	0.42	0
4	NAG	X	2	4	14,14,15	0.19	0	17,19,21	0.72	0
4	NAG	Y	1	4,1	14,14,15	0.36	0	17,19,21	0.47	0
4	NAG	Y	2	4	14,14,15	0.56	0	17,19,21	1.33	1 (5%)
4	NAG	Z	1	4,1	14,14,15	0.65	1 (7%)	17,19,21	0.44	0
4	NAG	Z	2	4	14,14,15	0.32	0	17,19,21	1.36	2 (11%)
4	NAG	a	1	4,1	14,14,15	0.41	0	17,19,21	0.44	0
4	NAG	a	2	4	14,14,15	0.25	0	17,19,21	0.48	0
4	NAG	b	1	4,1	14,14,15	0.42	0	17,19,21	1.17	2 (11%)
4	NAG	b	2	4	14,14,15	0.29	0	17,19,21	0.61	0
4	NAG	c	1	4,1	14,14,15	0.42	0	17,19,21	1.16	2 (11%)
4	NAG	c	2	4	14,14,15	0.34	0	17,19,21	0.42	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	D	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	D	2	4	-	4/6/23/26	0/1/1/1
4	NAG	E	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	E	2	4	-	2/6/23/26	0/1/1/1
4	NAG	I	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	I	2	4	-	3/6/23/26	0/1/1/1
4	NAG	J	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	J	2	4	-	5/6/23/26	0/1/1/1
4	NAG	K	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	K	2	4	-	3/6/23/26	0/1/1/1
4	NAG	M	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	M	2	4	-	0/6/23/26	0/1/1/1
4	NAG	N	1	4,1	-	4/6/23/26	0/1/1/1
4	NAG	N	2	4	-	2/6/23/26	0/1/1/1
4	NAG	O	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	O	2	4	-	1/6/23/26	0/1/1/1
4	NAG	P	1	4,1	-	1/6/23/26	0/1/1/1
4	NAG	P	2	4	-	0/6/23/26	0/1/1/1
4	NAG	Q	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	Q	2	4	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	R	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	R	2	4	-	3/6/23/26	0/1/1/1
4	NAG	S	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	S	2	4	-	2/6/23/26	0/1/1/1
4	NAG	T	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	T	2	4	-	2/6/23/26	0/1/1/1
4	NAG	U	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	U	2	4	-	4/6/23/26	0/1/1/1
4	NAG	V	1	4,1	-	6/6/23/26	0/1/1/1
4	NAG	V	2	4	-	2/6/23/26	0/1/1/1
4	NAG	W	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	W	2	4	-	2/6/23/26	0/1/1/1
4	NAG	X	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	X	2	4	-	1/6/23/26	0/1/1/1
4	NAG	Y	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	Y	2	4	-	5/6/23/26	0/1/1/1
4	NAG	Z	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	Z	2	4	-	4/6/23/26	0/1/1/1
4	NAG	a	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	a	2	4	-	2/6/23/26	0/1/1/1
4	NAG	b	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	b	2	4	-	1/6/23/26	0/1/1/1
4	NAG	c	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	c	2	4	-	0/6/23/26	0/1/1/1

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	R	1	NAG	O5-C1	-2.72	1.39	1.43
4	K	1	NAG	O5-C1	-2.55	1.39	1.43
4	J	1	NAG	O5-C1	-2.35	1.40	1.43
4	Z	1	NAG	O5-C1	-2.19	1.40	1.43
4	D	1	NAG	O5-C1	-2.02	1.40	1.43

The worst 5 of 21 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	V	1	NAG	C2-N2-C7	4.67	129.56	122.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	J	2	NAG	C2-N2-C7	4.39	129.16	122.90
4	Y	2	NAG	C2-N2-C7	4.36	129.12	122.90
4	Z	2	NAG	C2-N2-C7	4.35	129.10	122.90
4	I	2	NAG	C2-N2-C7	4.35	129.10	122.90

There are no chirality outliers.

5 of 84 torsion outliers are listed below:

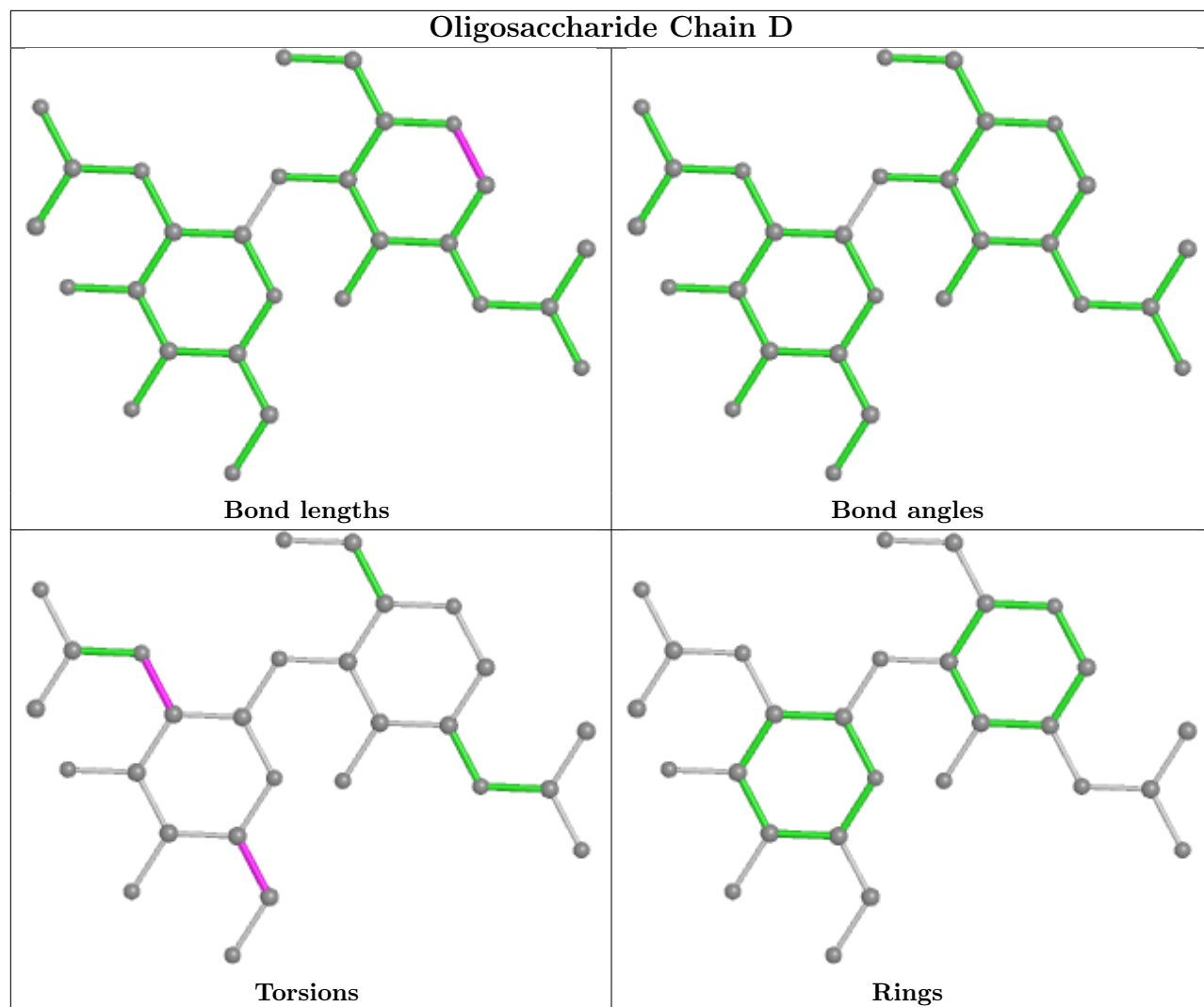
Mol	Chain	Res	Type	Atoms
4	V	2	NAG	O5-C5-C6-O6
4	W	2	NAG	O5-C5-C6-O6
4	X	1	NAG	O5-C5-C6-O6
4	K	1	NAG	O5-C5-C6-O6
4	R	1	NAG	O5-C5-C6-O6

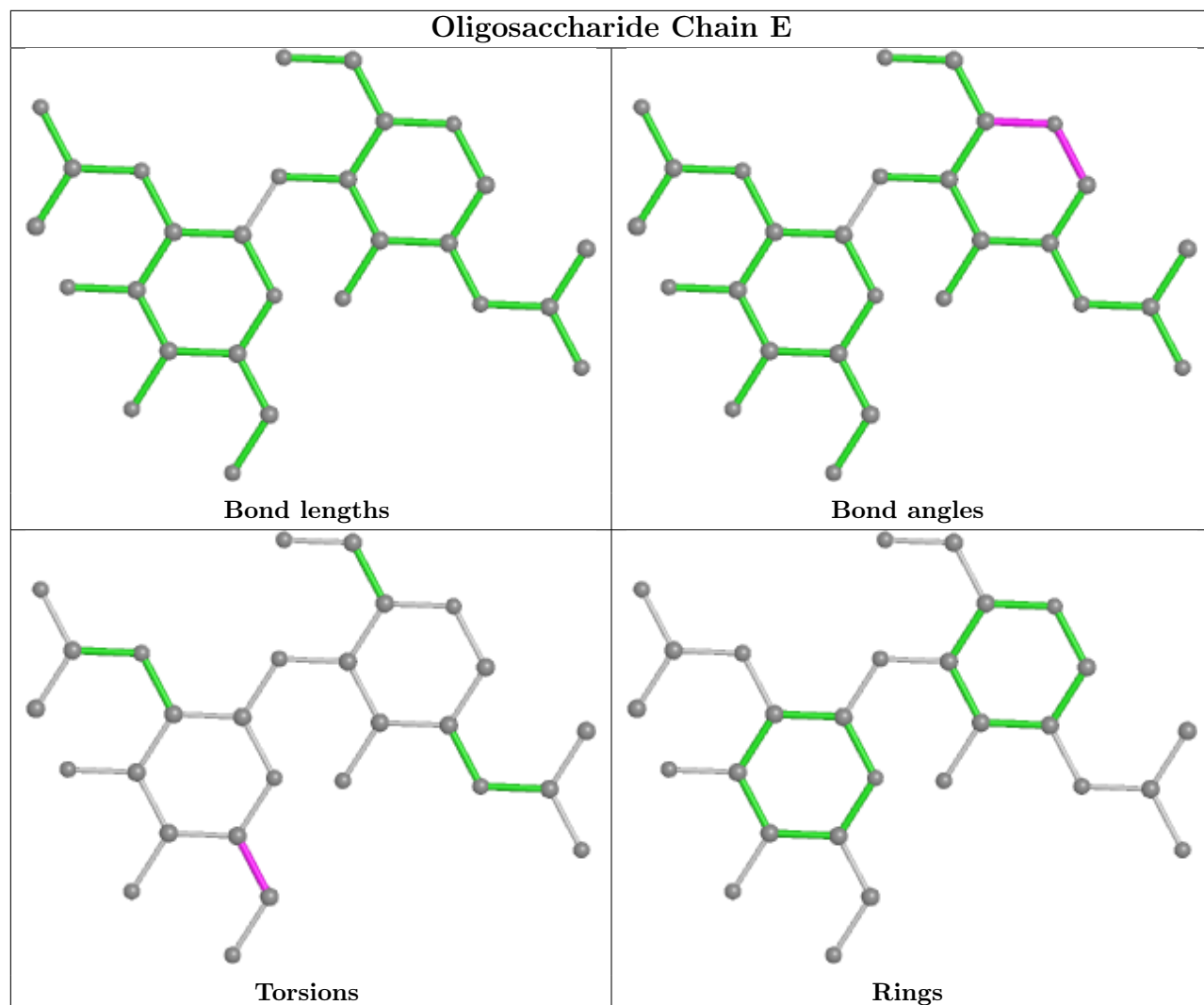
There are no ring outliers.

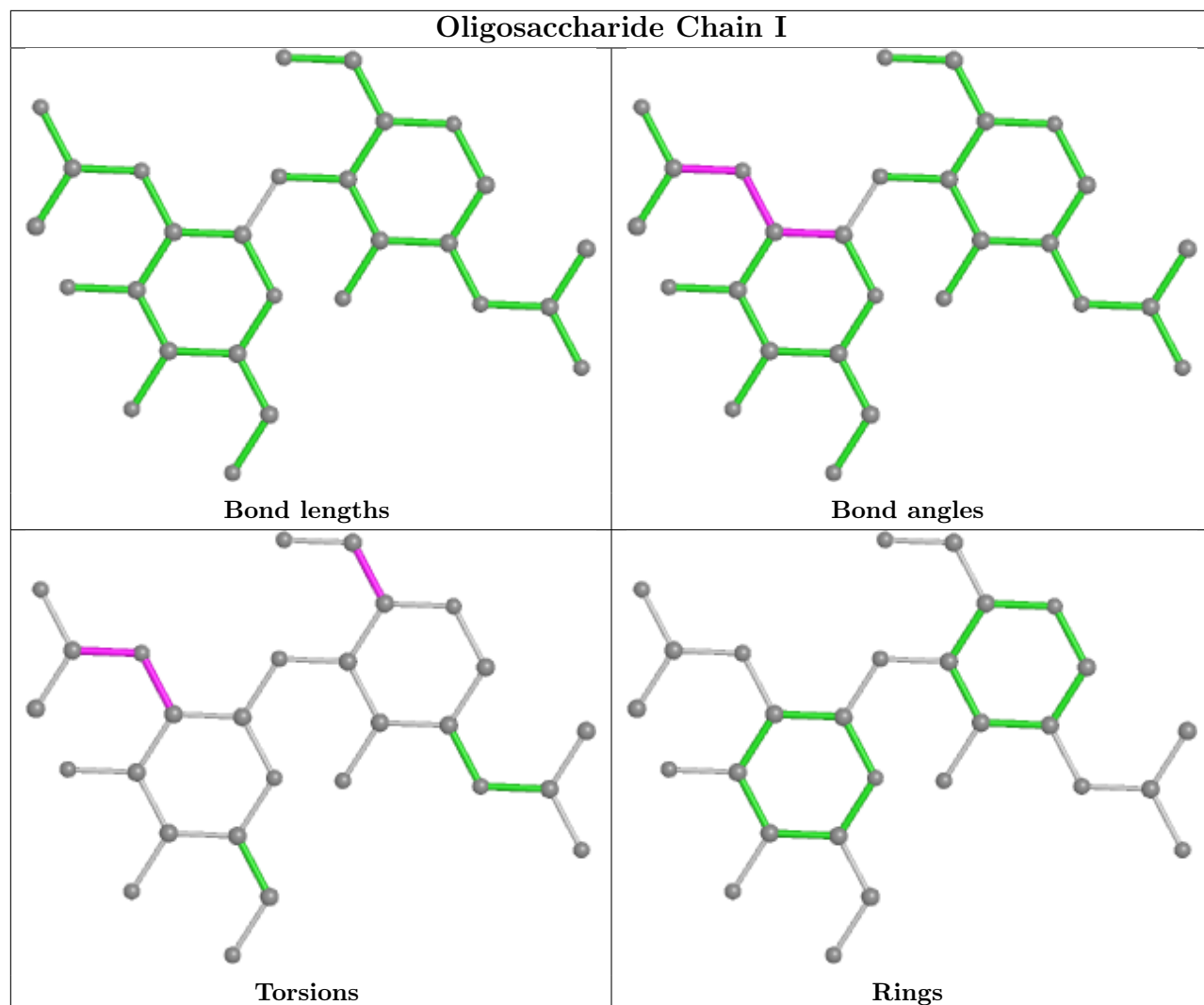
13 monomers are involved in 16 short contacts:

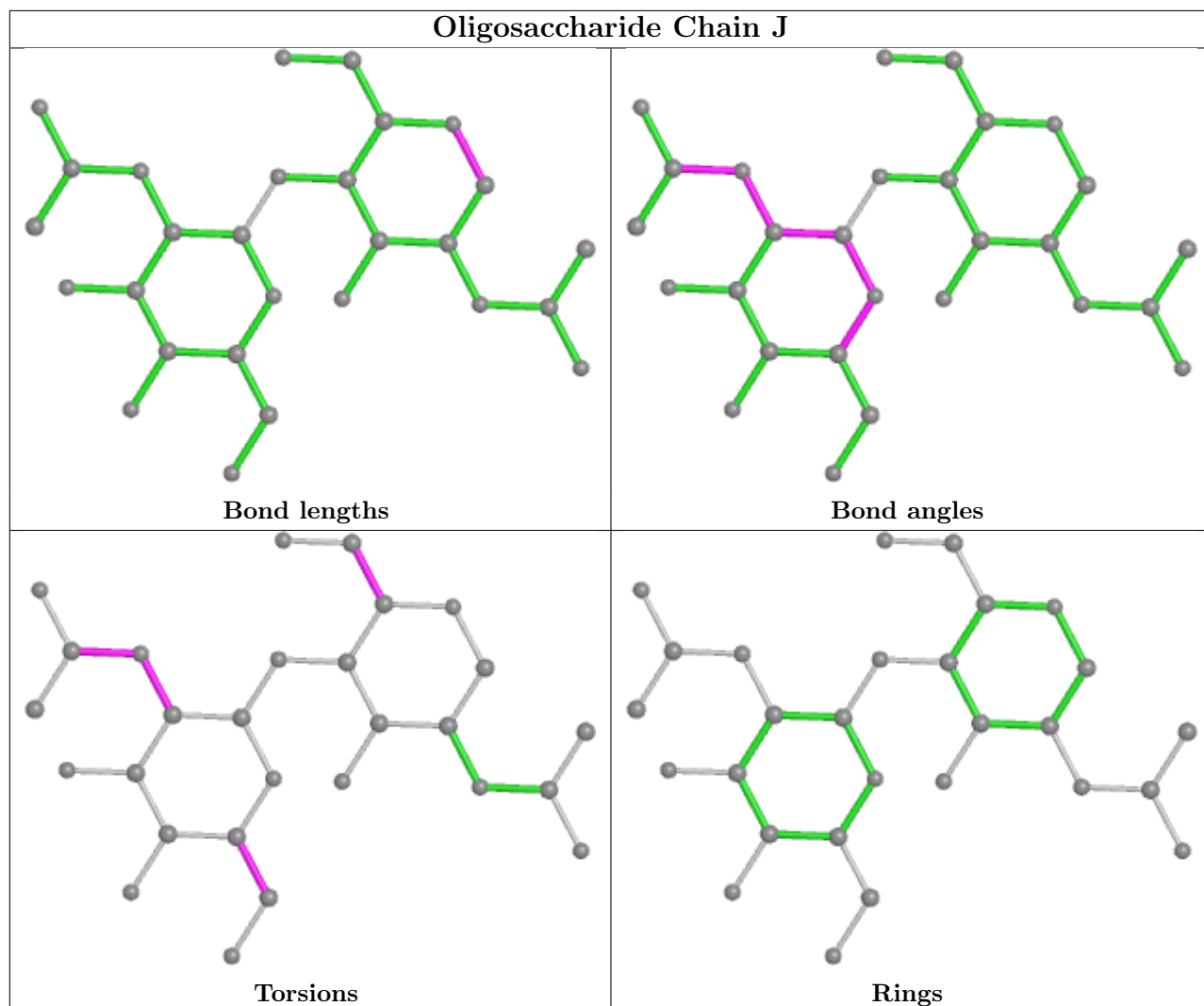
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	I	2	NAG	1	0
4	D	1	NAG	6	0
4	Z	2	NAG	1	0
4	R	2	NAG	1	0
4	N	1	NAG	1	0
4	U	2	NAG	2	0
4	Y	2	NAG	1	0
4	J	2	NAG	1	0
4	U	1	NAG	2	0
4	Z	1	NAG	1	0
4	D	2	NAG	2	0
4	V	1	NAG	1	0
4	R	1	NAG	1	0

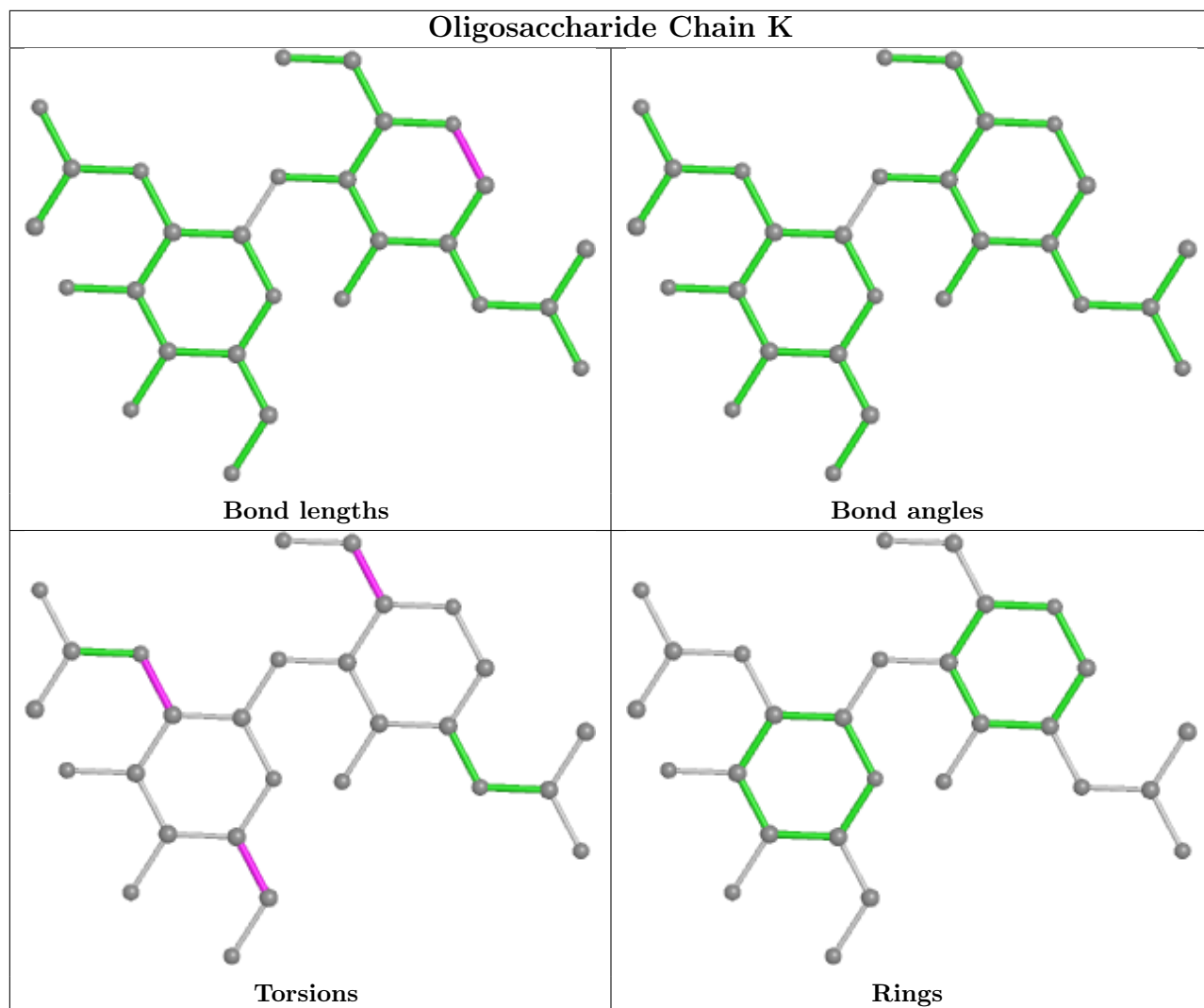
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

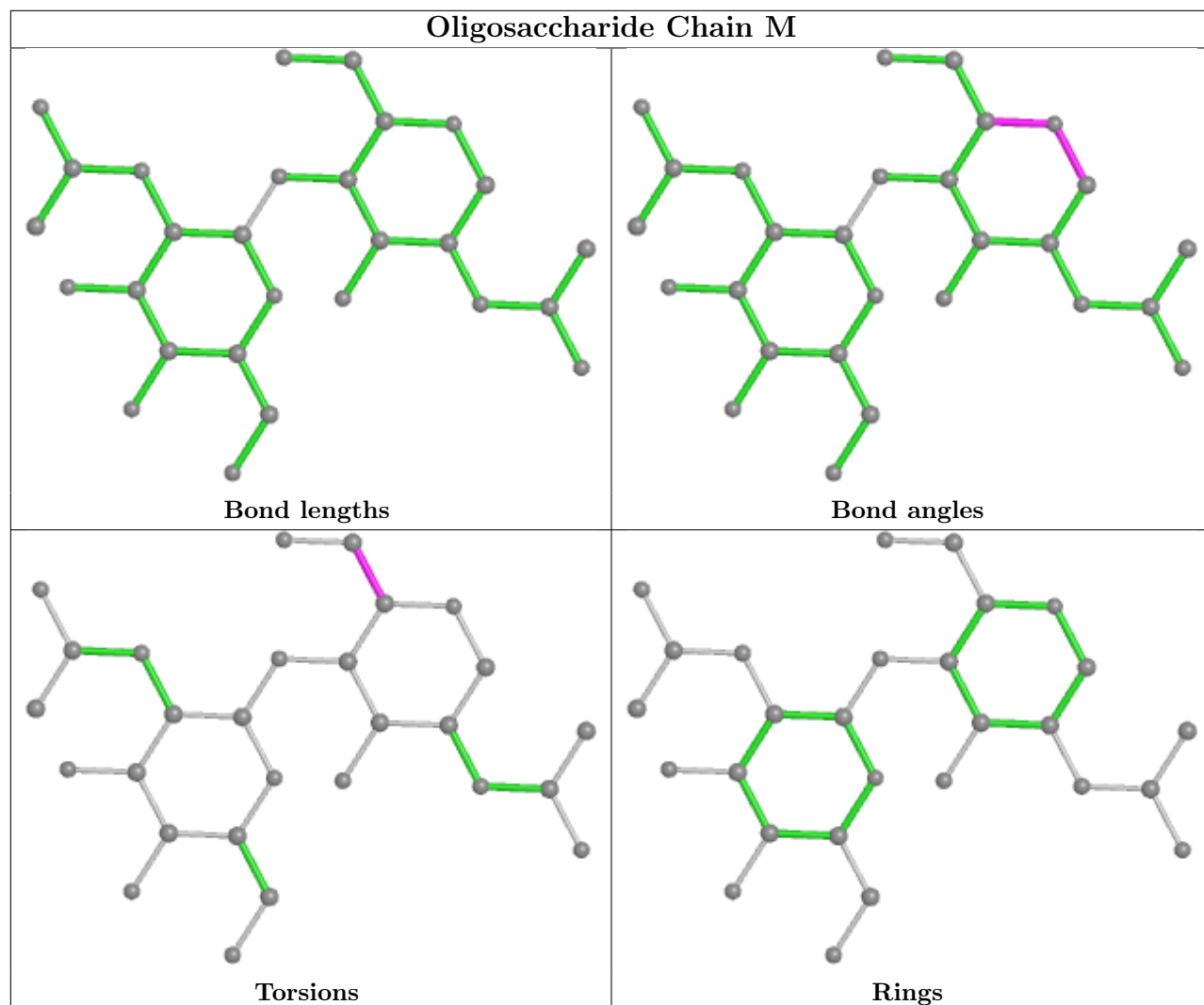


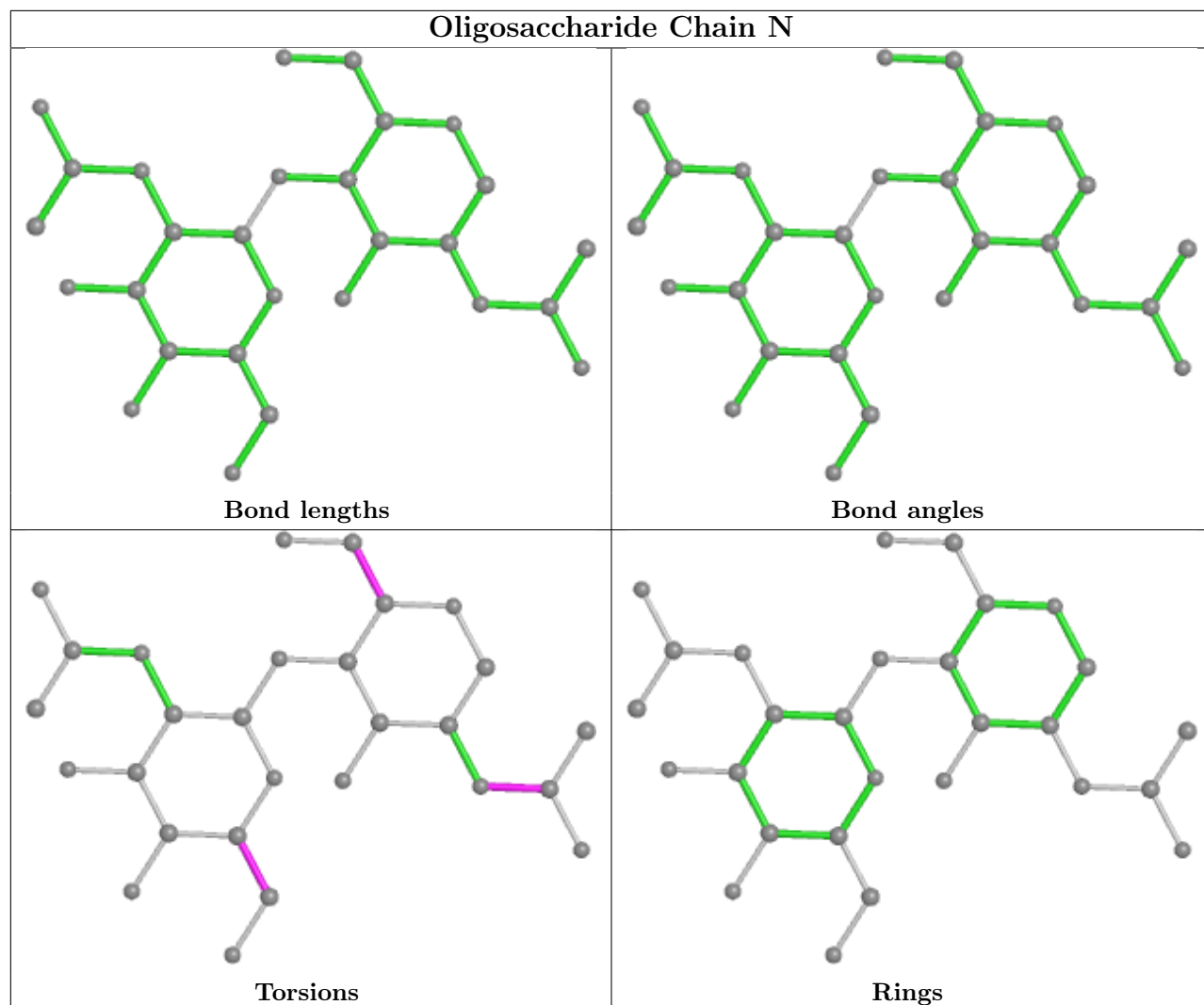


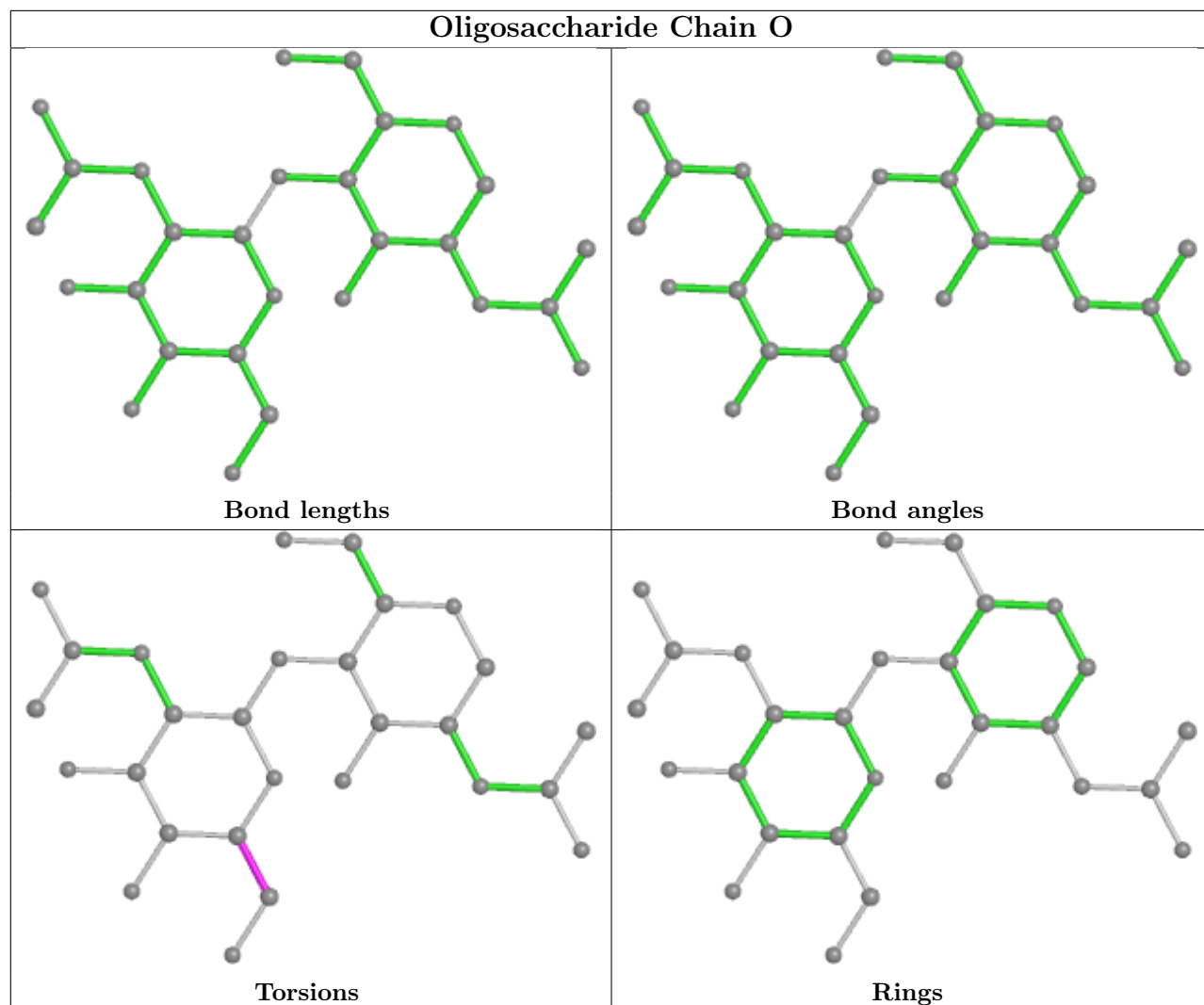


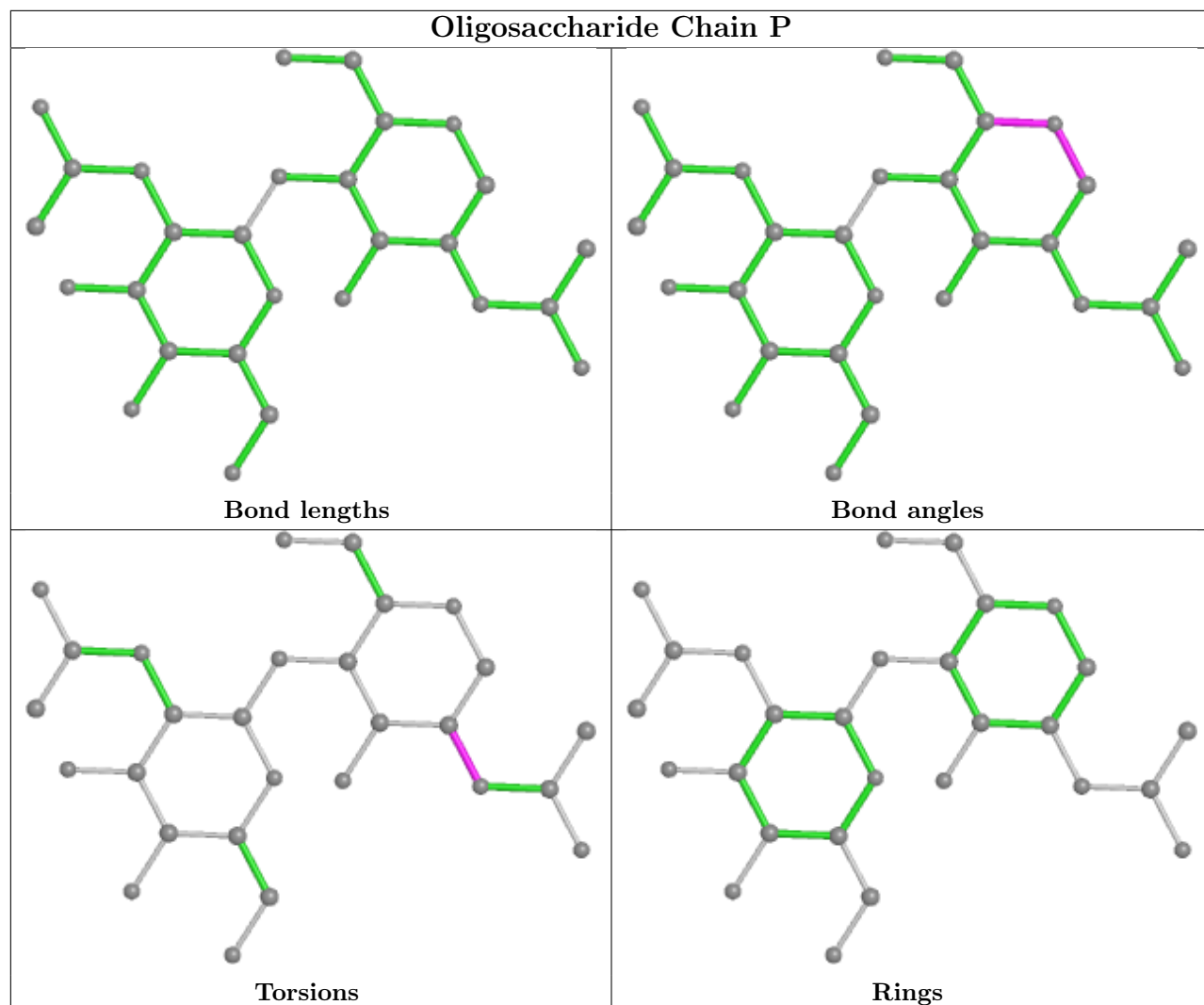


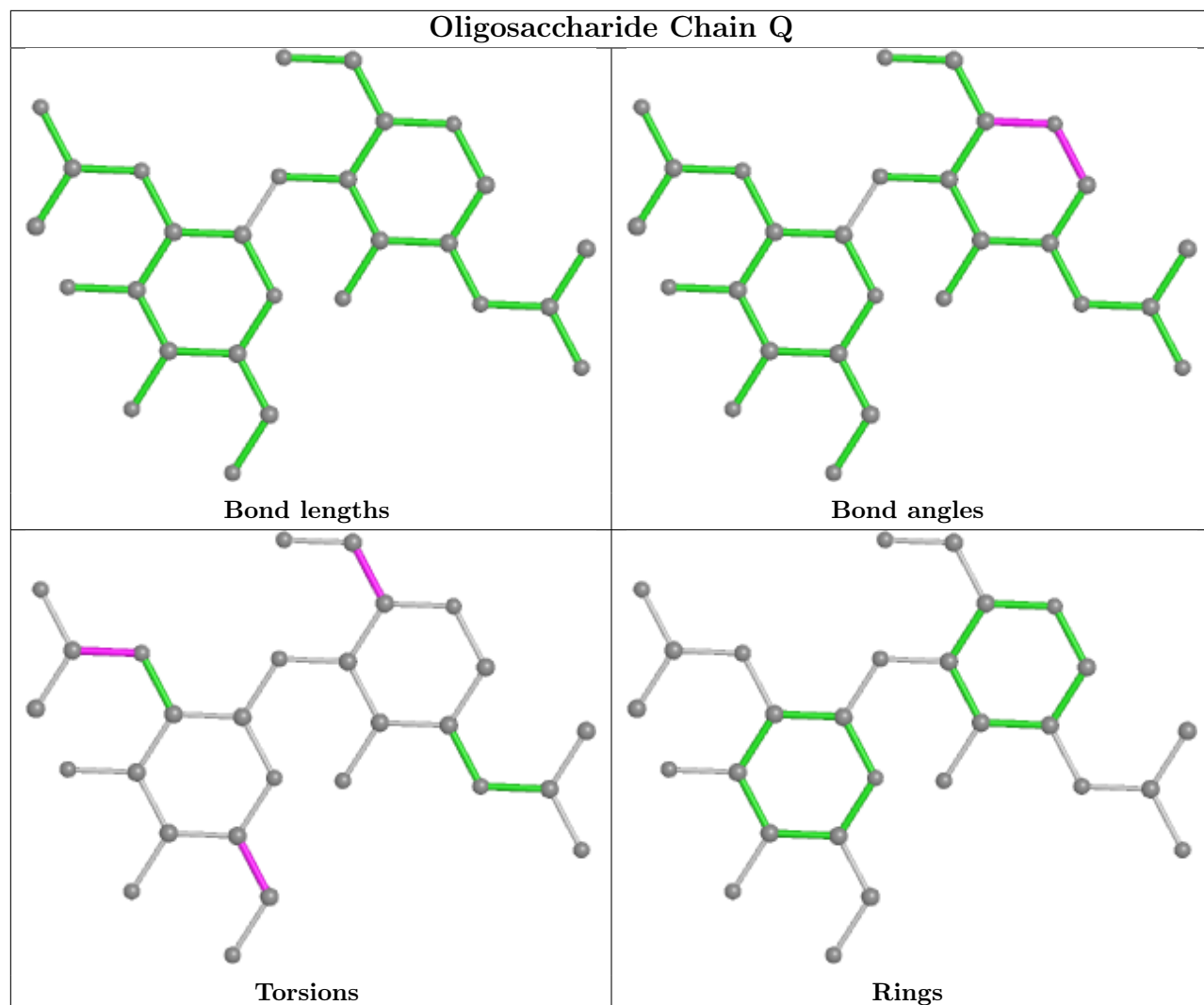


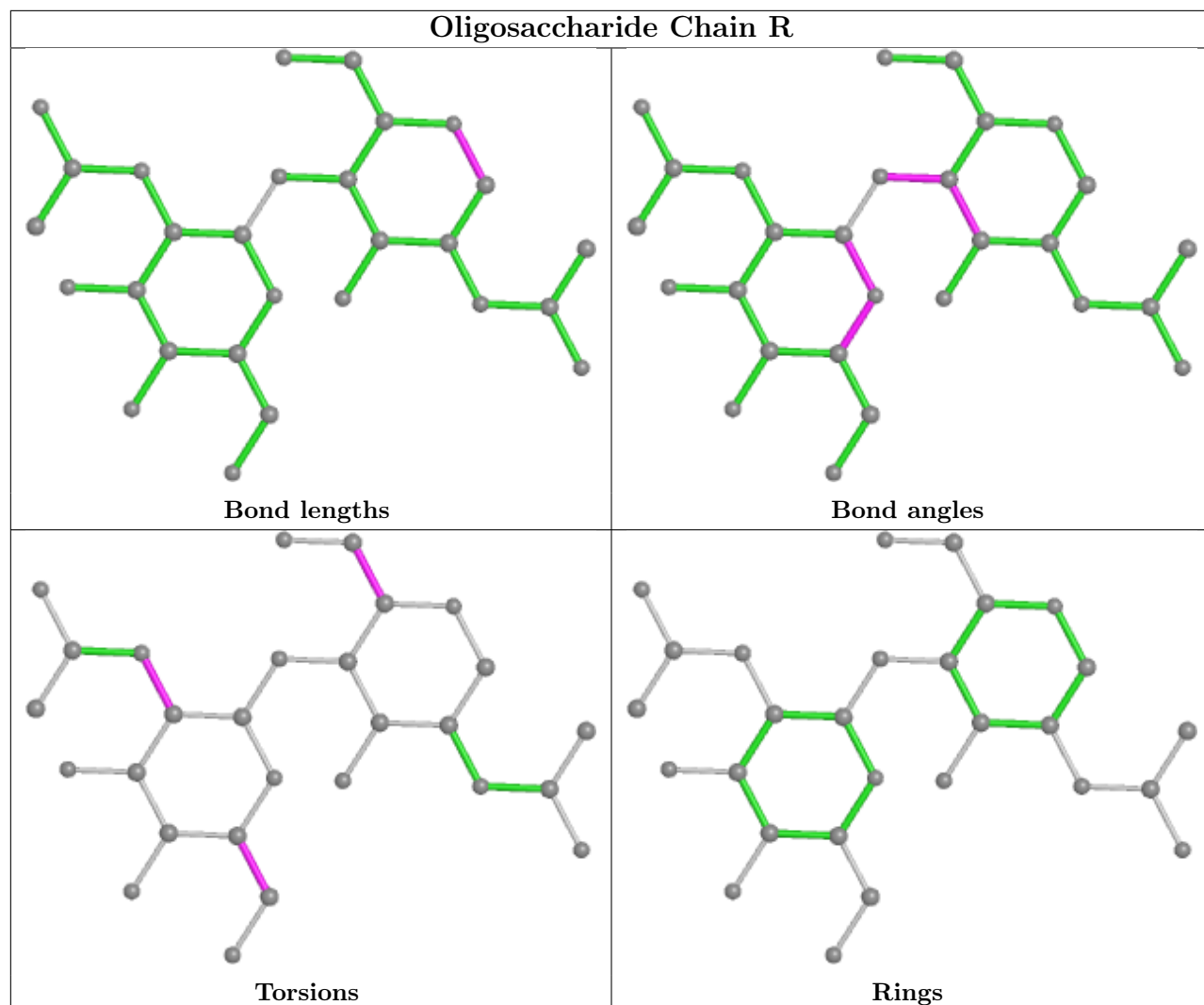


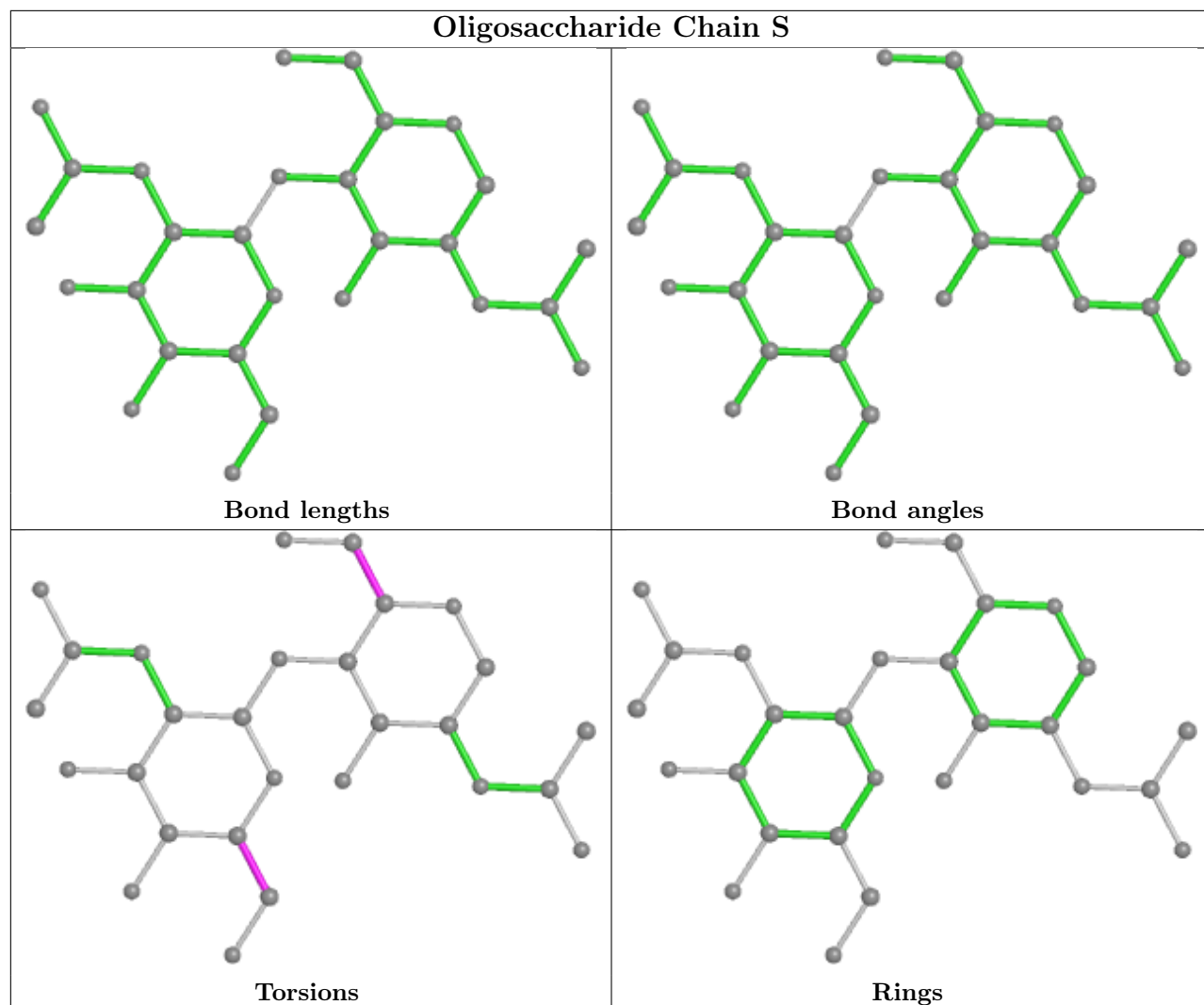


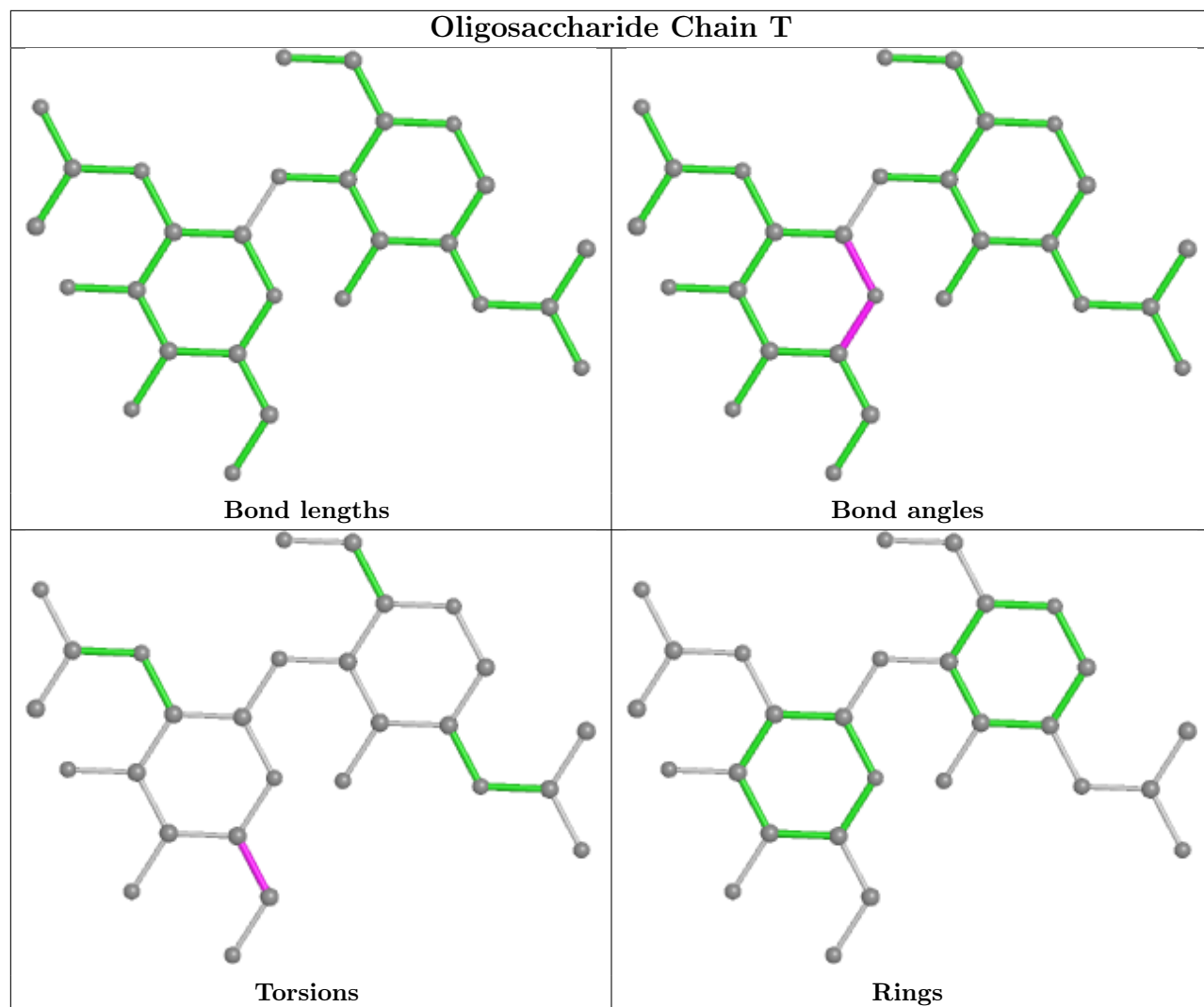


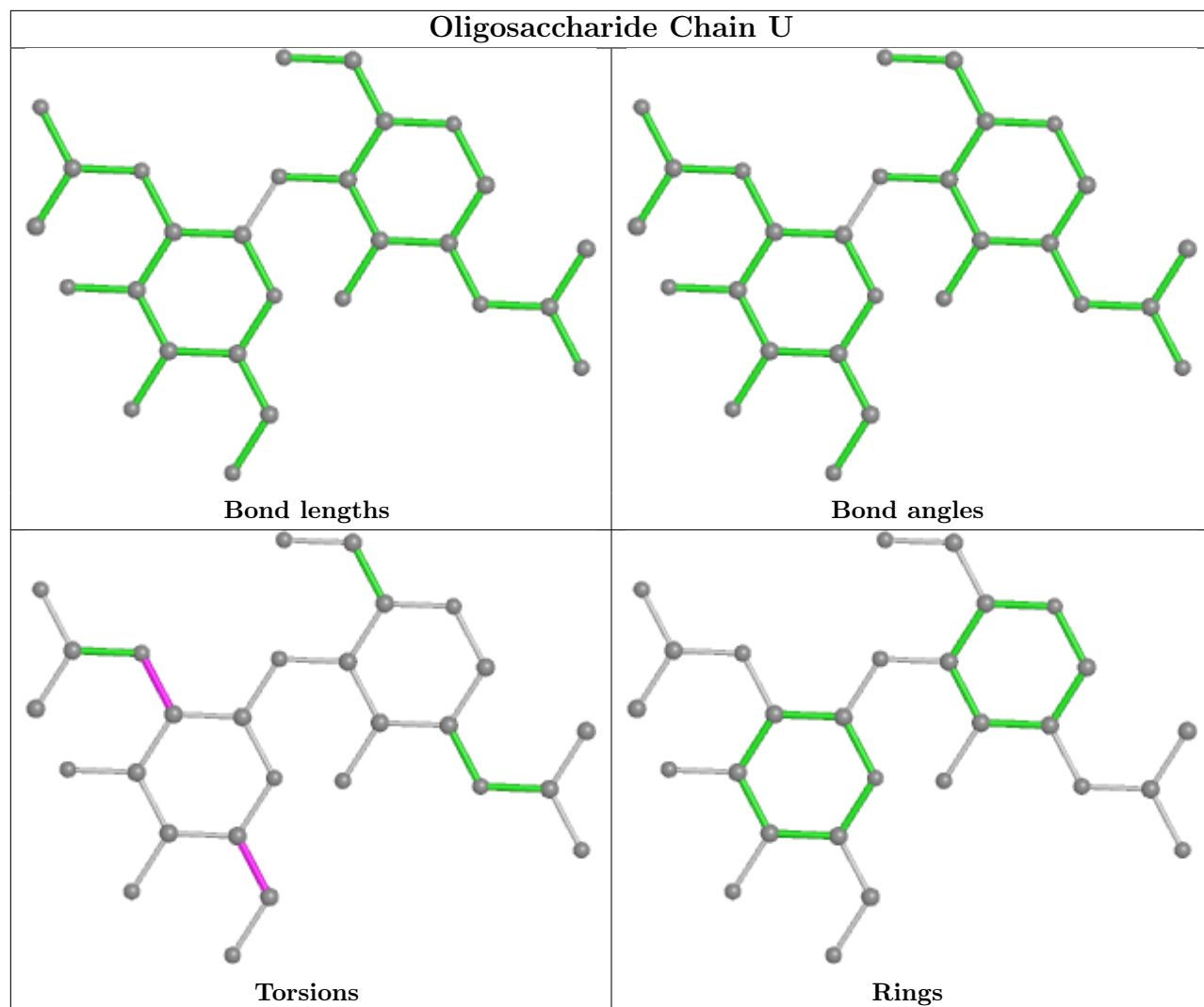


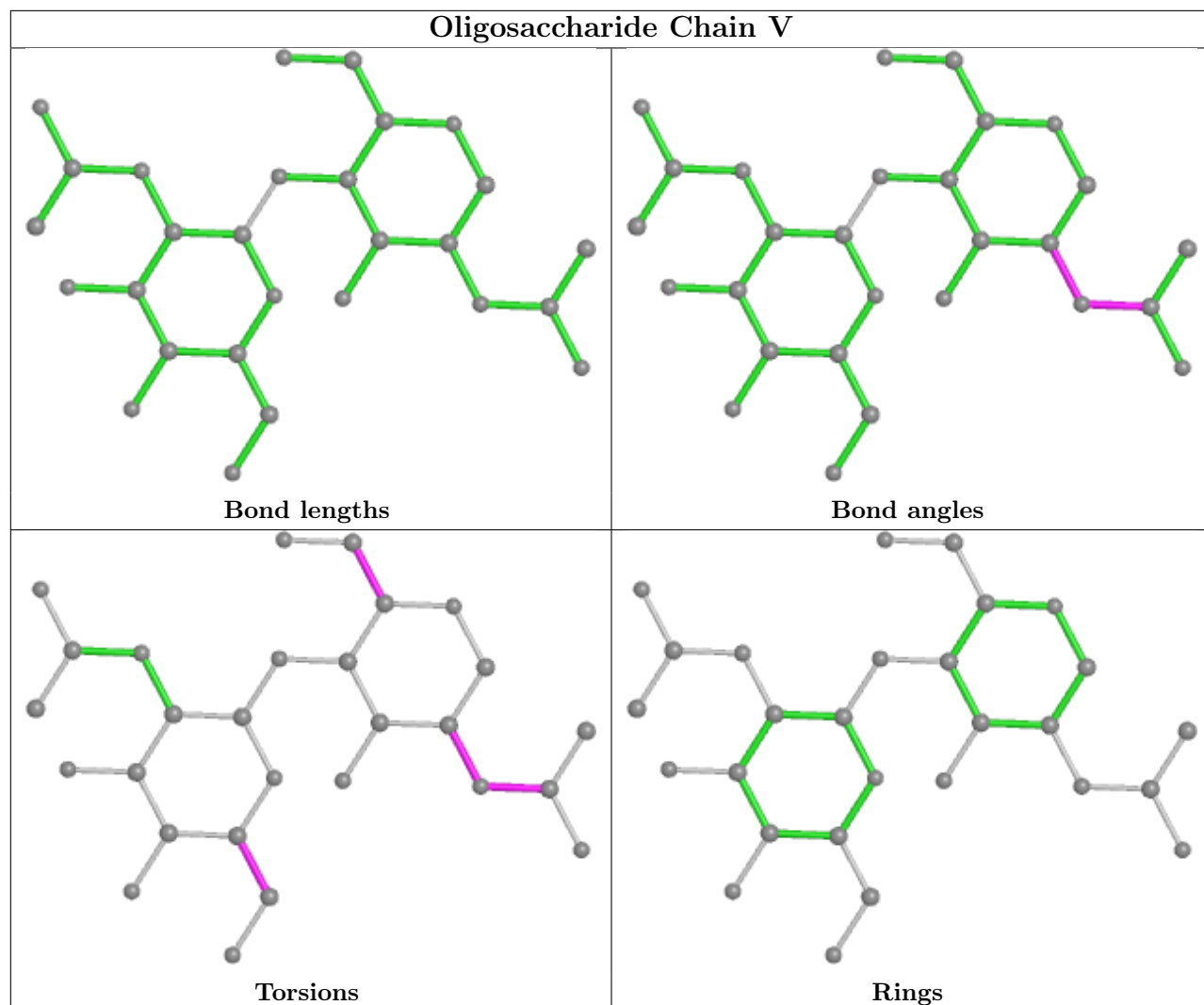


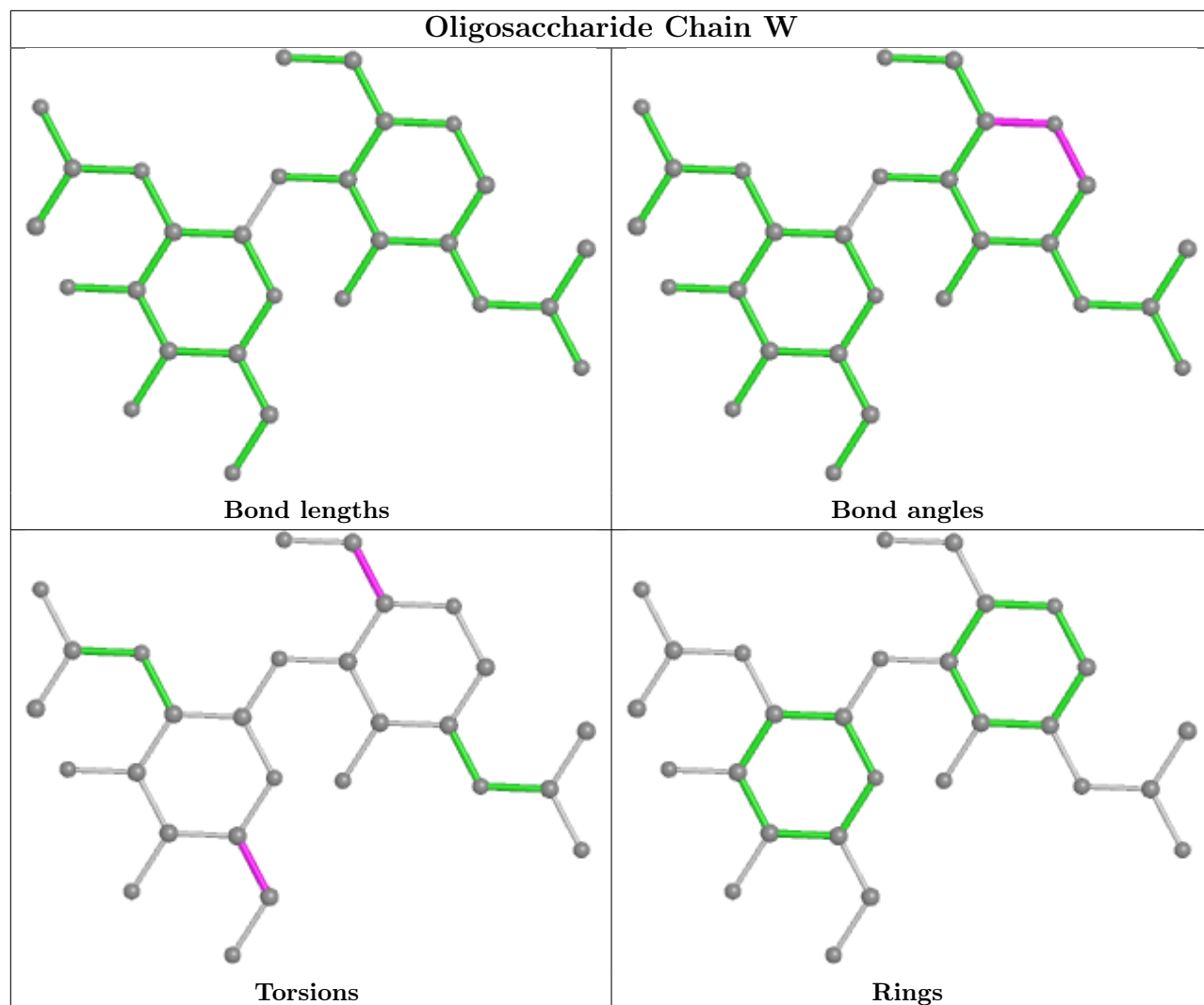


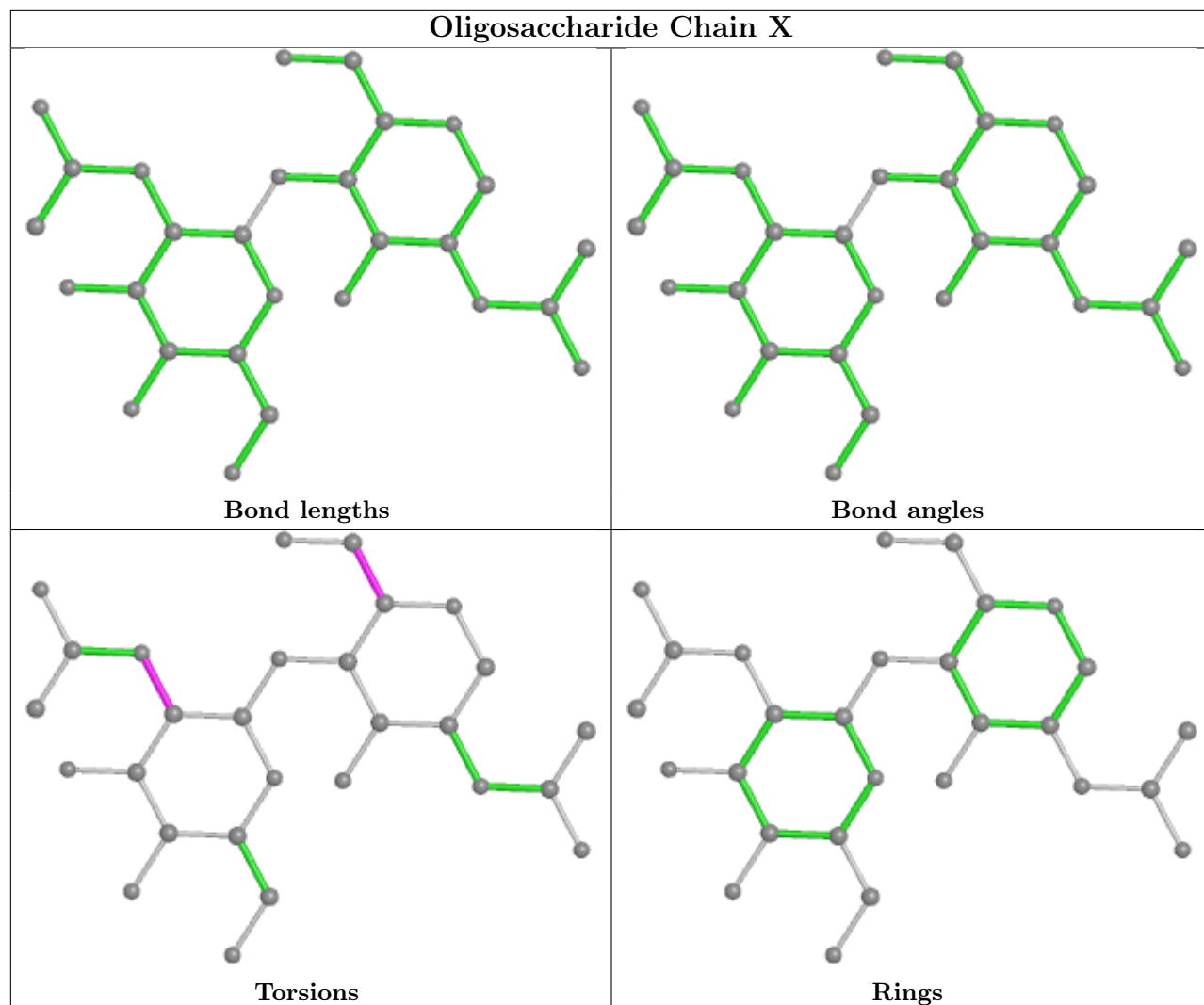


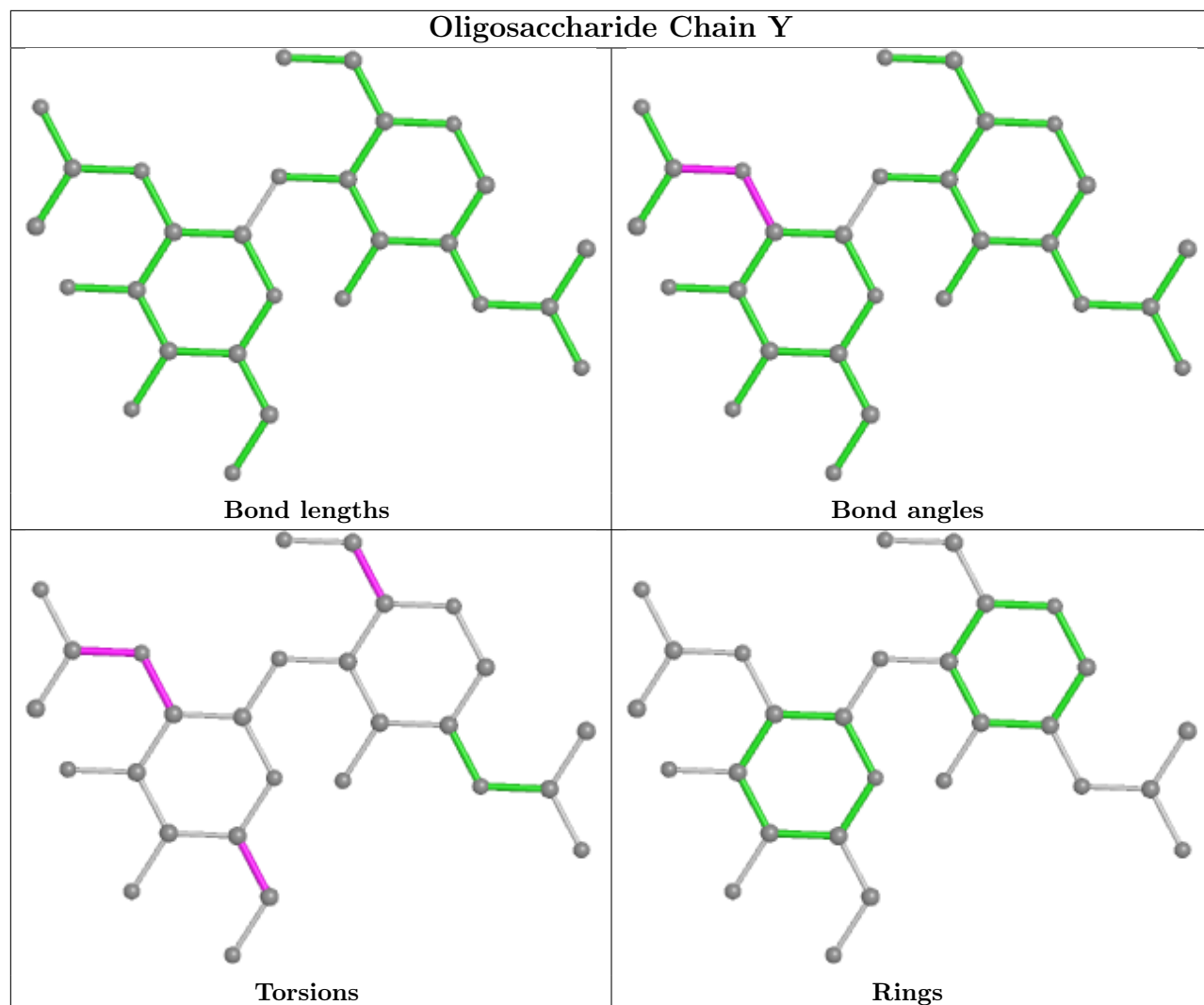


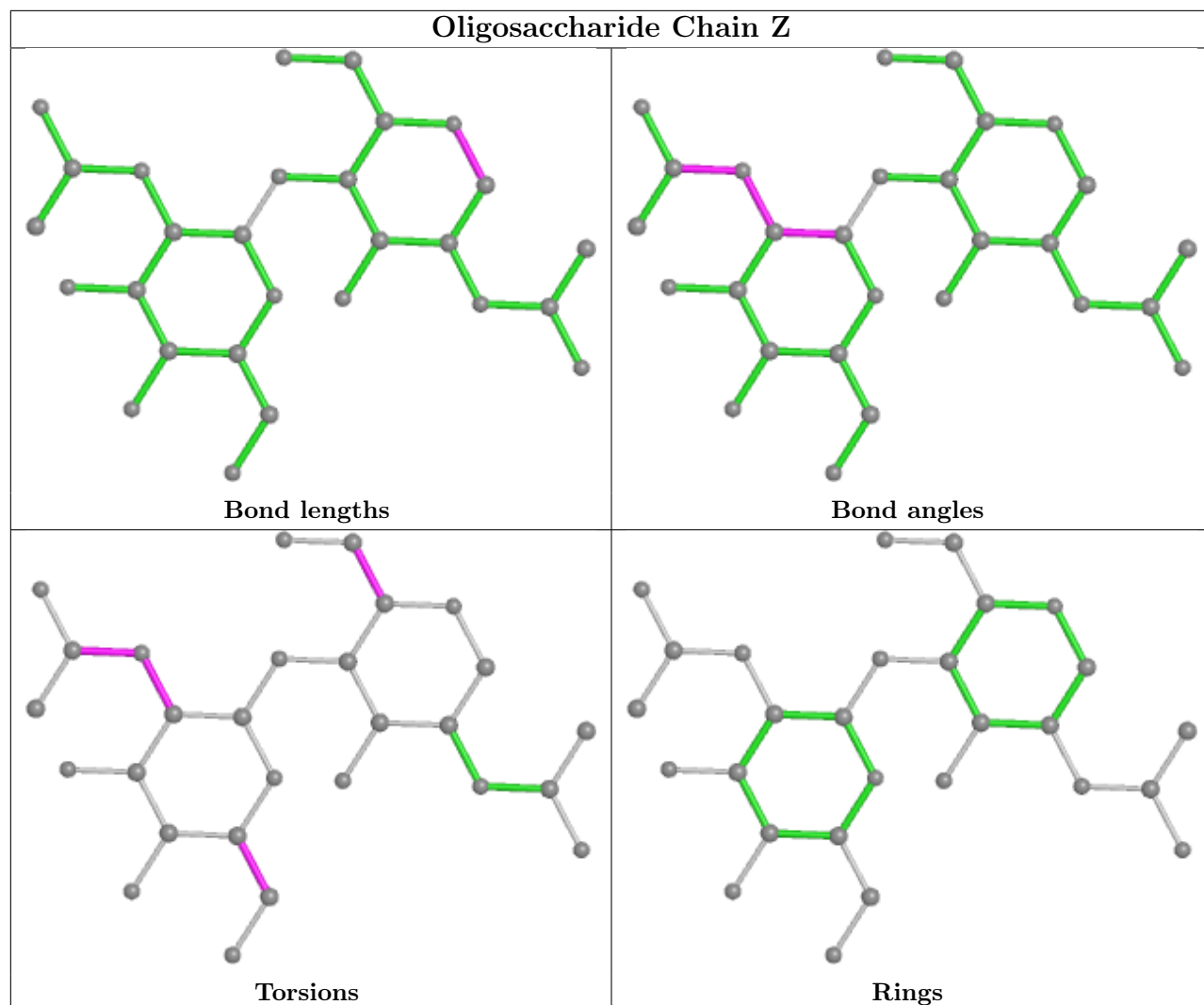


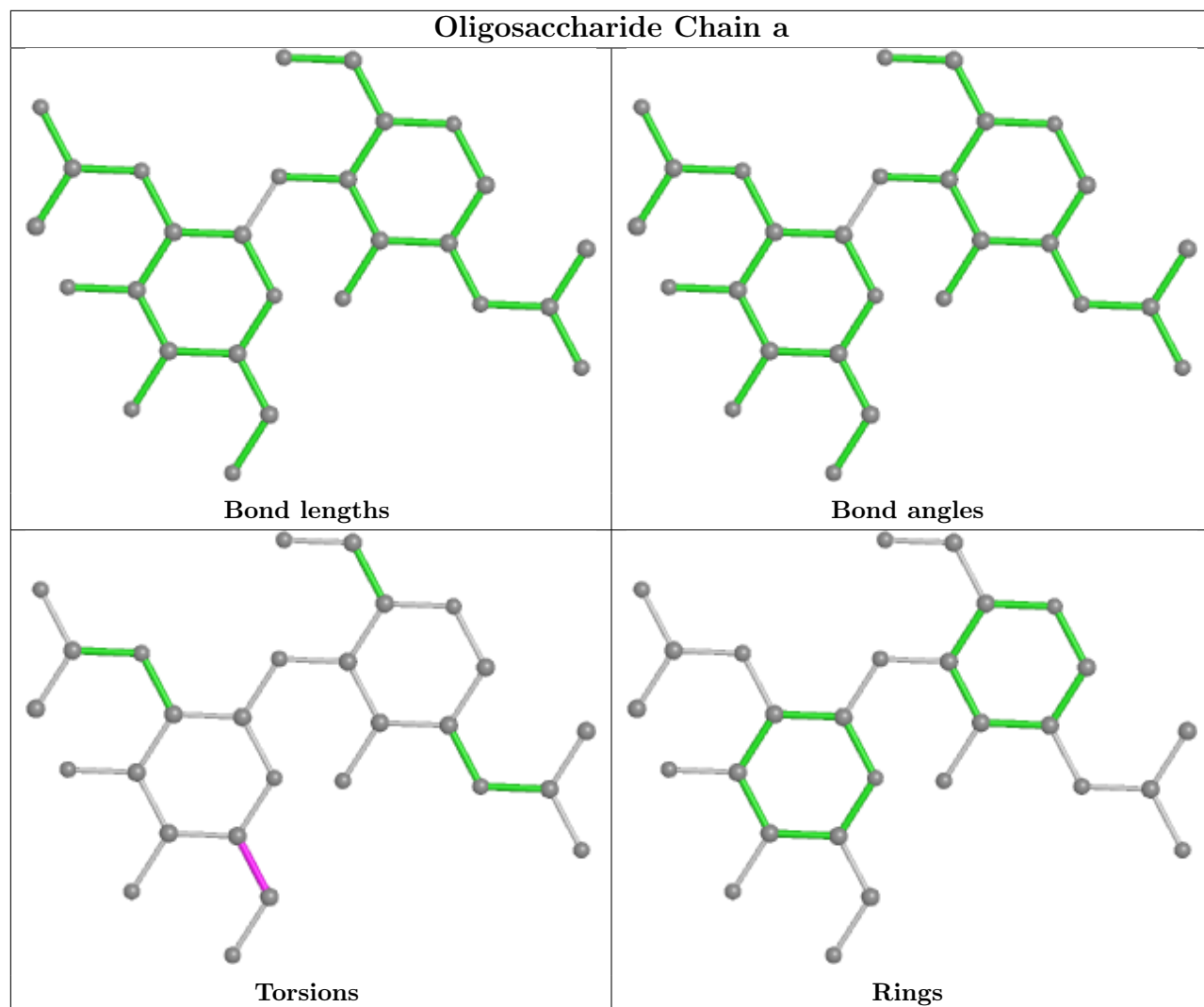


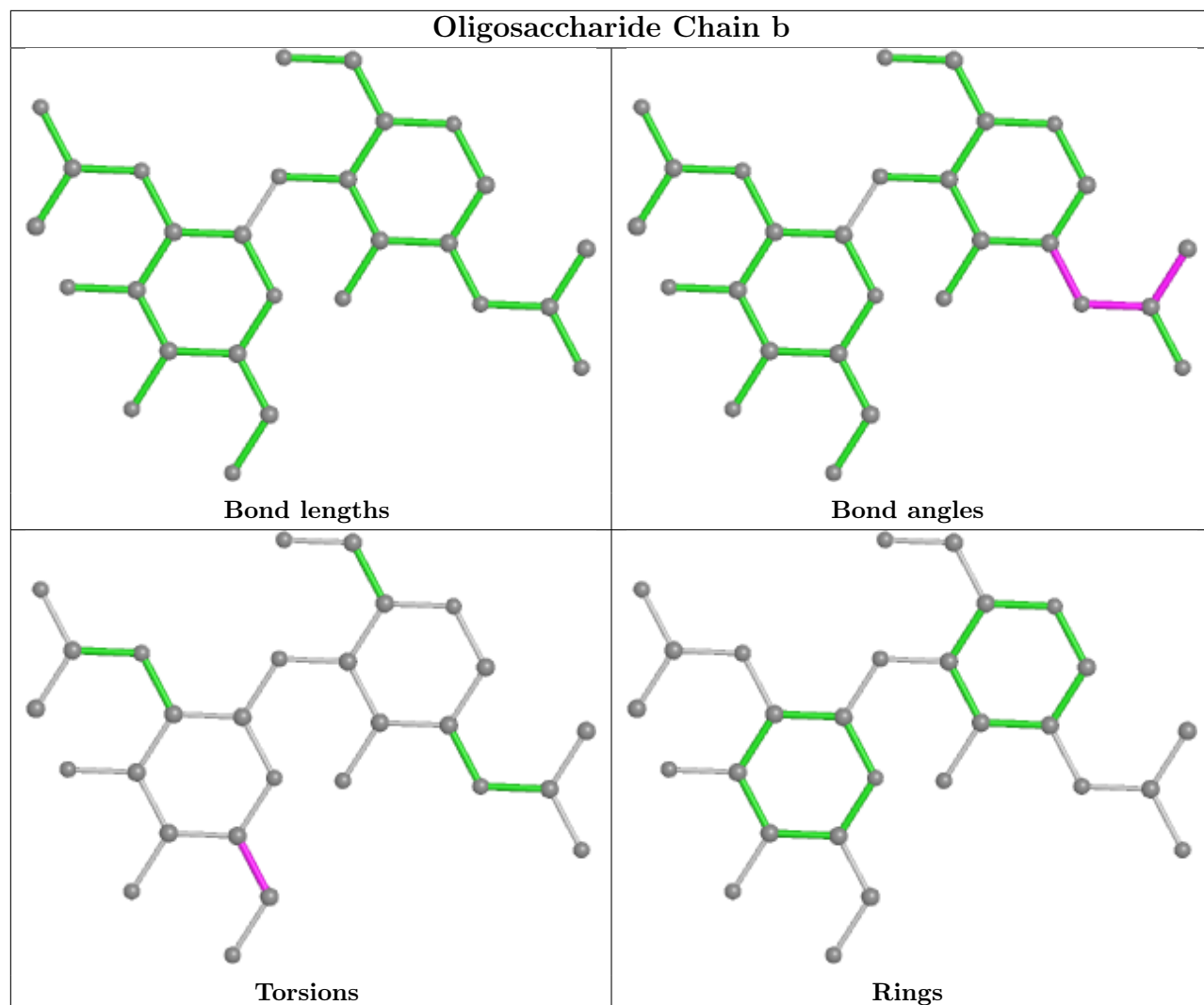


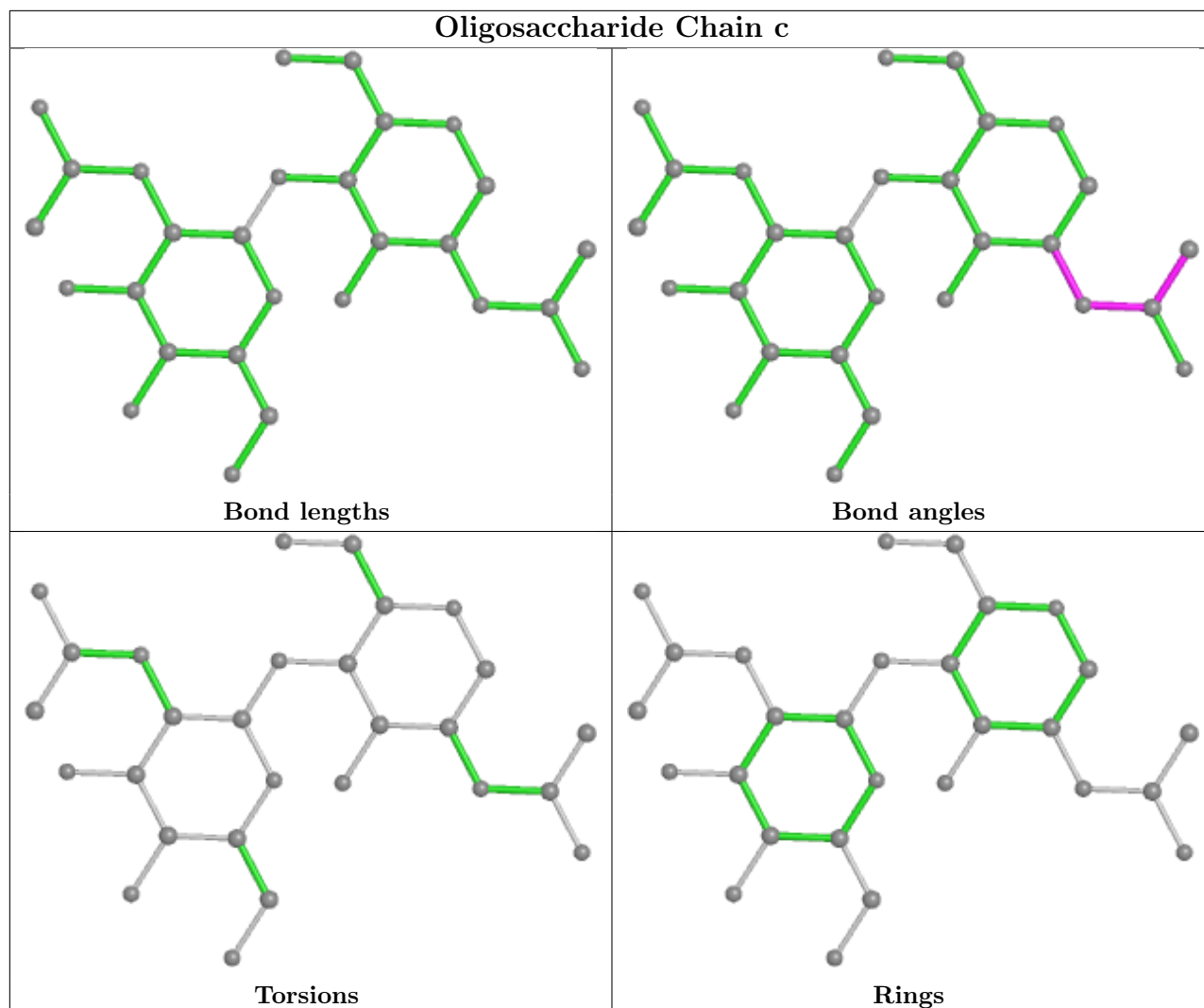












5.6 Ligand geometry [i](#)

26 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	$\# Z > 2$
5	NAG	C	1407	1	14,14,15	0.36	0	17,19,21	0.64	0
5	NAG	C	1405	1	14,14,15	0.36	0	17,19,21	1.29	2 (11%)
5	NAG	C	1408	1	14,14,15	0.16	0	17,19,21	0.56	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	NAG	B	1406	1	14,14,15	0.38	0	17,19,21	0.80	1 (5%)
5	NAG	A	1404	1	14,14,15	0.45	0	17,19,21	0.54	0
5	NAG	B	1403	1	14,14,15	0.28	0	17,19,21	0.39	0
5	NAG	A	1405	1	14,14,15	0.55	0	17,19,21	1.26	1 (5%)
5	NAG	A	1408	1	14,14,15	0.30	0	17,19,21	0.38	0
5	NAG	A	1402	1	14,14,15	0.21	0	17,19,21	0.62	0
5	NAG	C	1406	1	14,14,15	0.20	0	17,19,21	0.37	0
5	NAG	B	1404	1	14,14,15	0.32	0	17,19,21	0.59	0
5	NAG	B	1402	1	14,14,15	0.33	0	17,19,21	0.65	0
5	NAG	A	1401	1	14,14,15	0.29	0	17,19,21	0.34	0
5	NAG	C	1404	1	14,14,15	0.29	0	17,19,21	0.38	0
5	NAG	A	1411	1	14,14,15	0.50	0	17,19,21	0.35	0
5	NAG	C	1401	1	14,14,15	0.43	0	17,19,21	0.79	1 (5%)
5	NAG	A	1403	1	14,14,15	0.22	0	17,19,21	0.41	0
5	NAG	C	1402	1	14,14,15	0.47	0	17,19,21	0.56	0
5	NAG	A	1409	1	14,14,15	0.23	0	17,19,21	0.49	0
5	NAG	B	1405	1	14,14,15	0.39	0	17,19,21	1.28	2 (11%)
5	NAG	B	1409	1	14,14,15	0.21	0	17,19,21	0.39	0
5	NAG	B	1407	1	14,14,15	0.42	0	17,19,21	0.74	1 (5%)
5	NAG	A	1410	1	14,14,15	0.31	0	17,19,21	0.39	0
5	NAG	B	1401	1	14,14,15	0.31	0	17,19,21	0.54	0
5	NAG	C	1403	1	14,14,15	0.54	0	17,19,21	0.45	0
5	NAG	B	1408	1	14,14,15	0.33	0	17,19,21	0.40	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. ^{1,2} means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	C	1407	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1405	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1408	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1406	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1404	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1403	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1405	1	-	5/6/23/26	0/1/1/1
5	NAG	A	1408	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1402	1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	C	1406	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1404	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1402	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1401	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1404	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1411	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1401	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1403	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1402	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1409	1	-	1/6/23/26	0/1/1/1
5	NAG	B	1405	1	-	5/6/23/26	0/1/1/1
5	NAG	B	1409	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1407	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1410	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1401	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1403	1	-	4/6/23/26	0/1/1/1
5	NAG	B	1408	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
5	A	1405	NAG	C2-N2-C7	4.31	129.04	122.90
5	C	1405	NAG	C2-N2-C7	4.30	129.03	122.90
5	B	1405	NAG	C2-N2-C7	4.12	128.76	122.90
5	C	1401	NAG	C1-O5-C5	2.87	116.08	112.19
5	B	1406	NAG	C1-O5-C5	2.55	115.65	112.19

There are no chirality outliers.

5 of 59 torsion outliers are listed below:

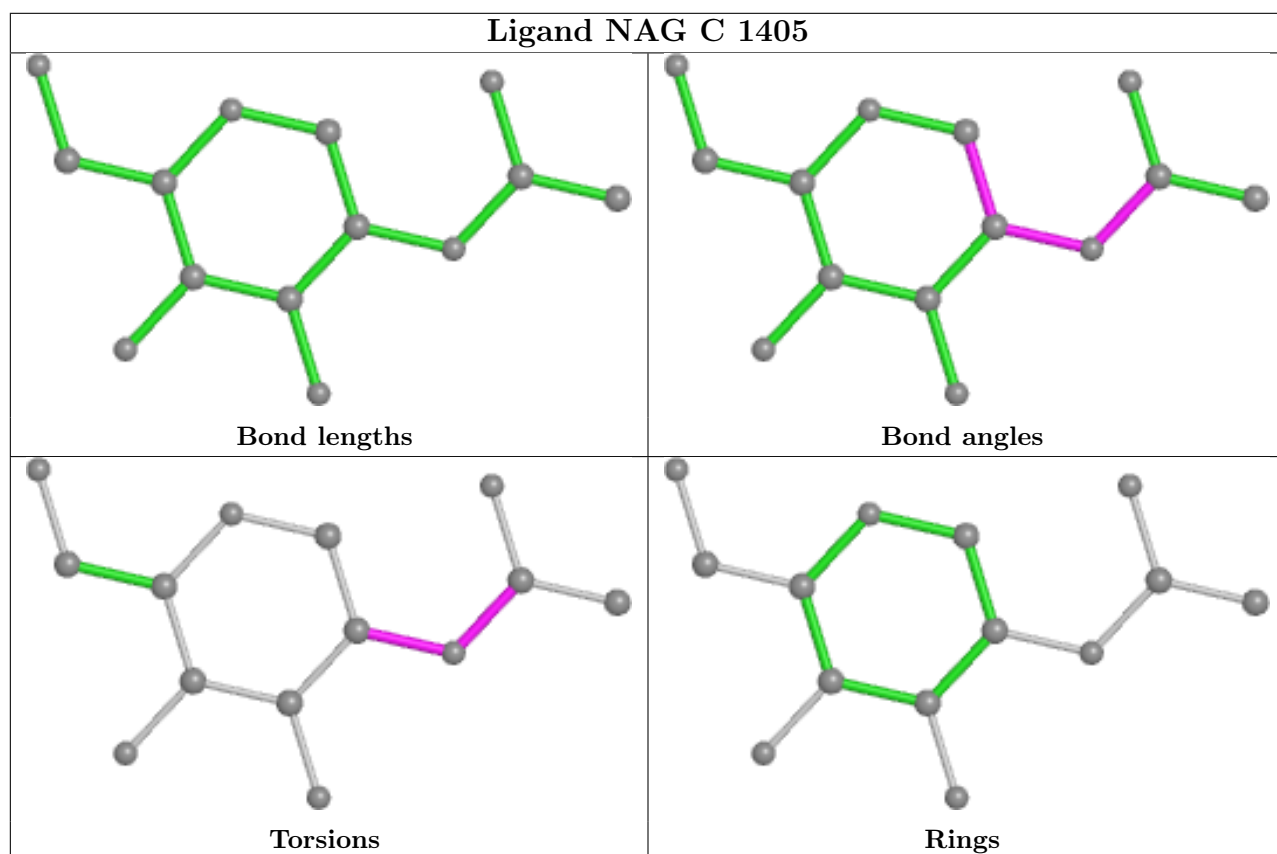
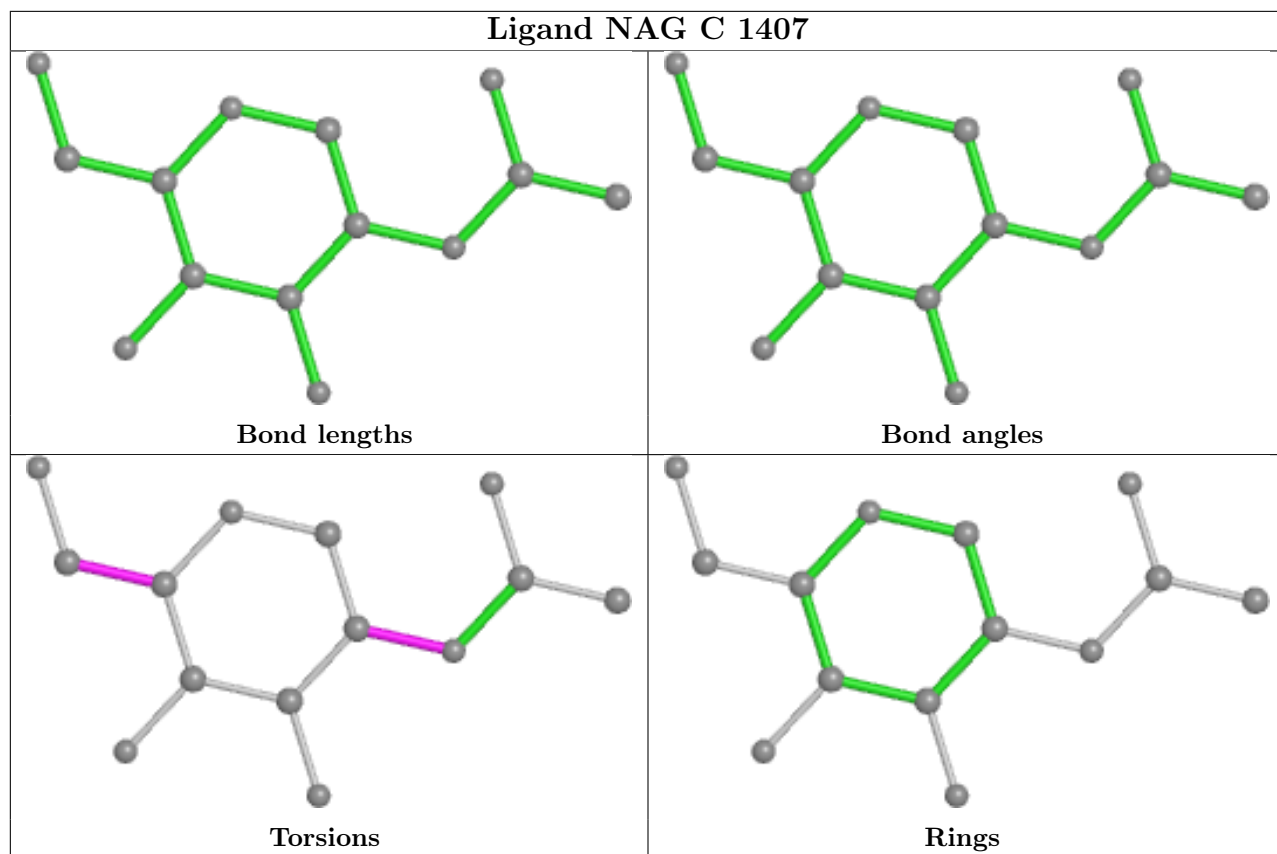
Mol	Chain	Res	Type	Atoms
5	B	1408	NAG	O5-C5-C6-O6
5	B	1401	NAG	O5-C5-C6-O6
5	A	1408	NAG	O5-C5-C6-O6
5	B	1402	NAG	O5-C5-C6-O6
5	C	1408	NAG	O5-C5-C6-O6

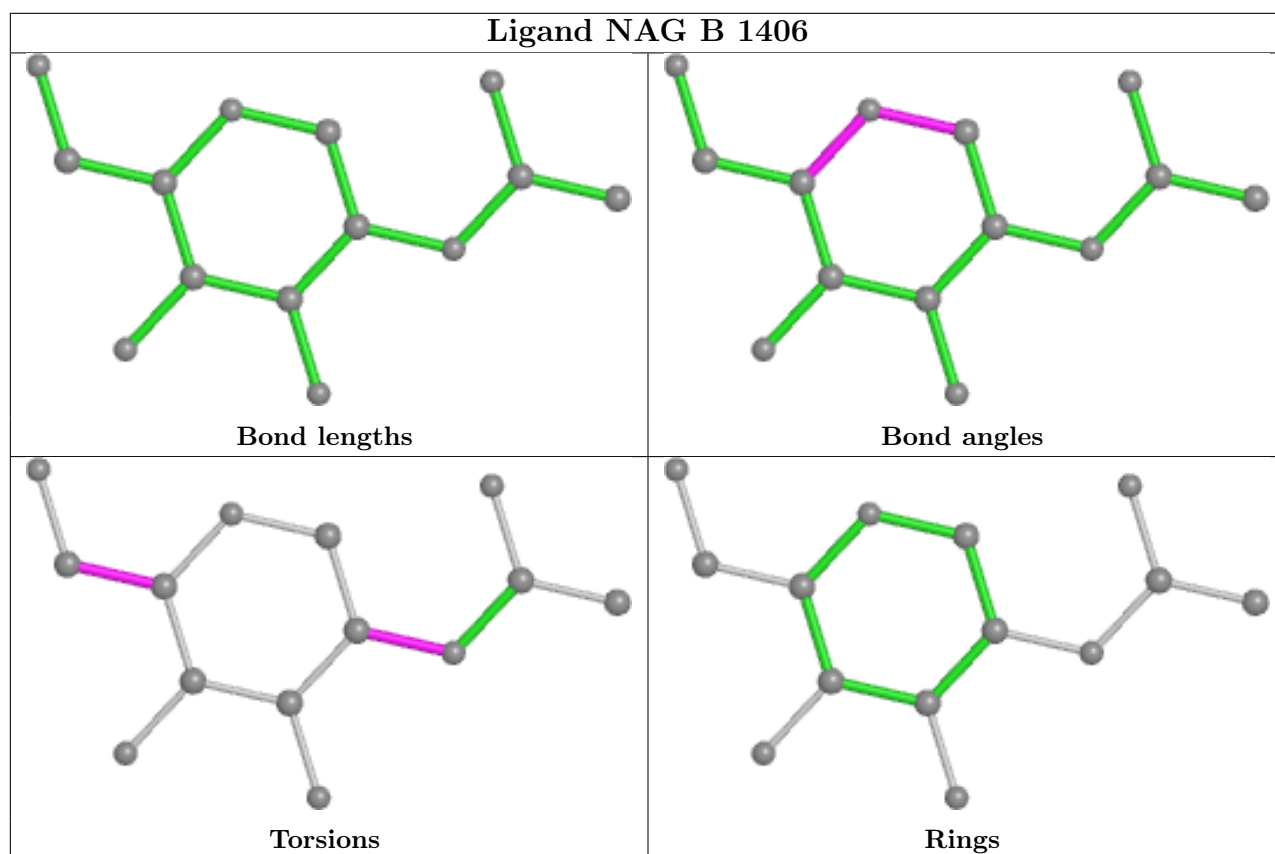
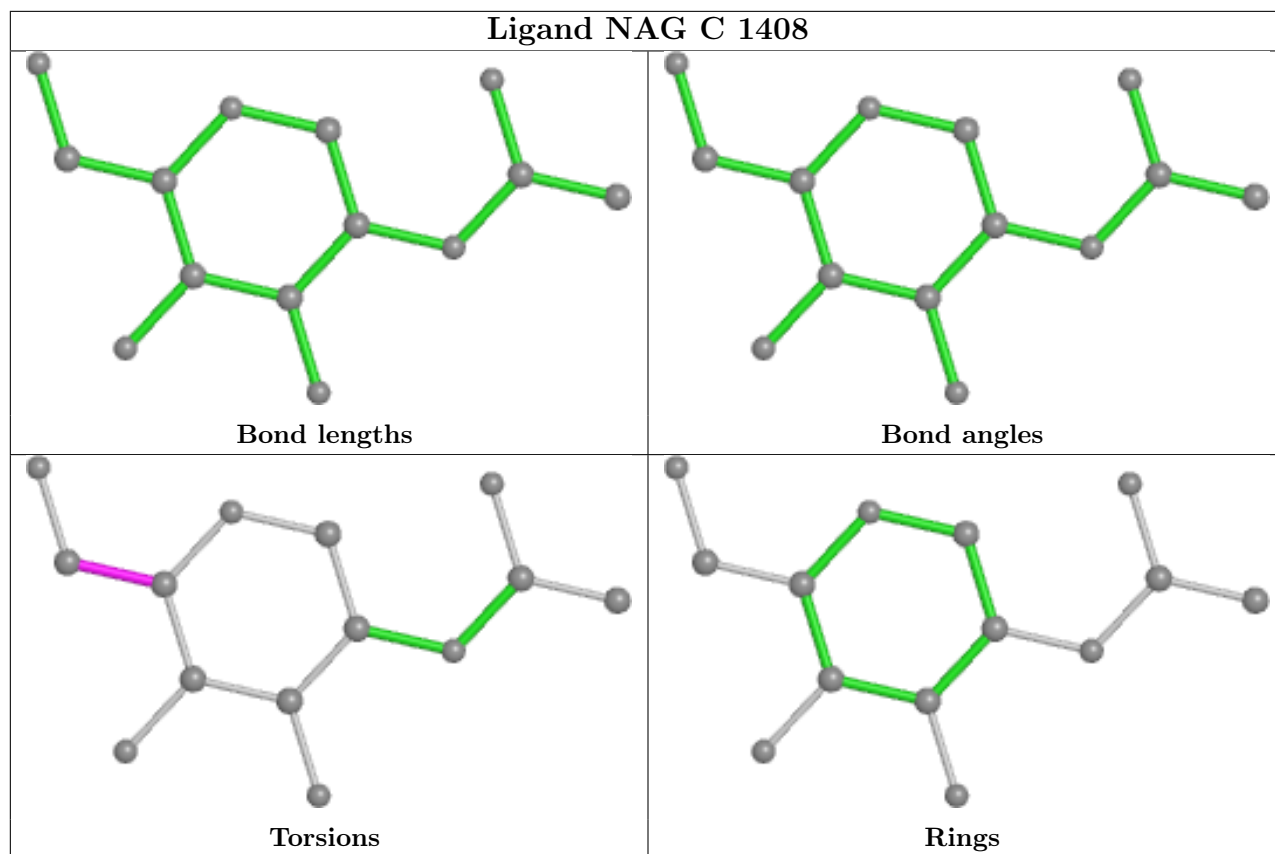
There are no ring outliers.

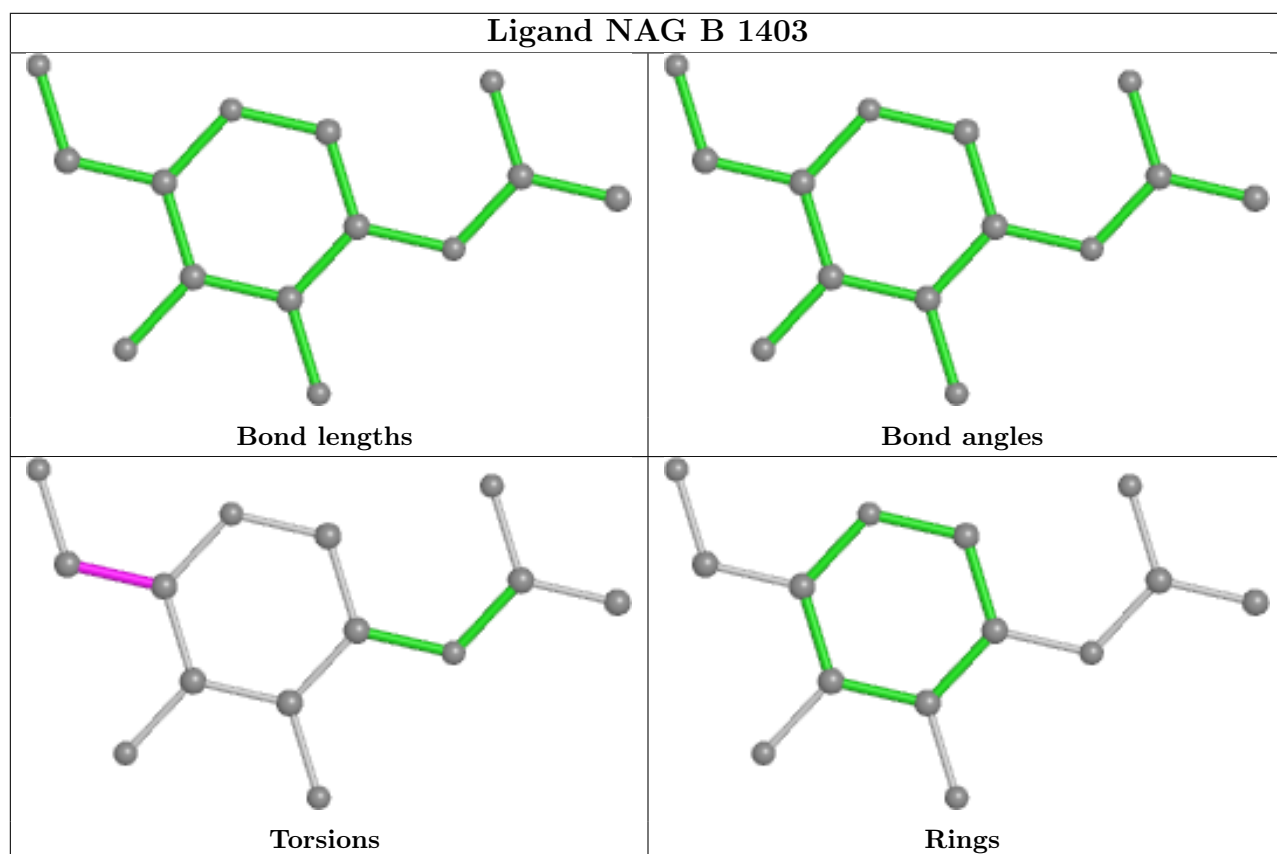
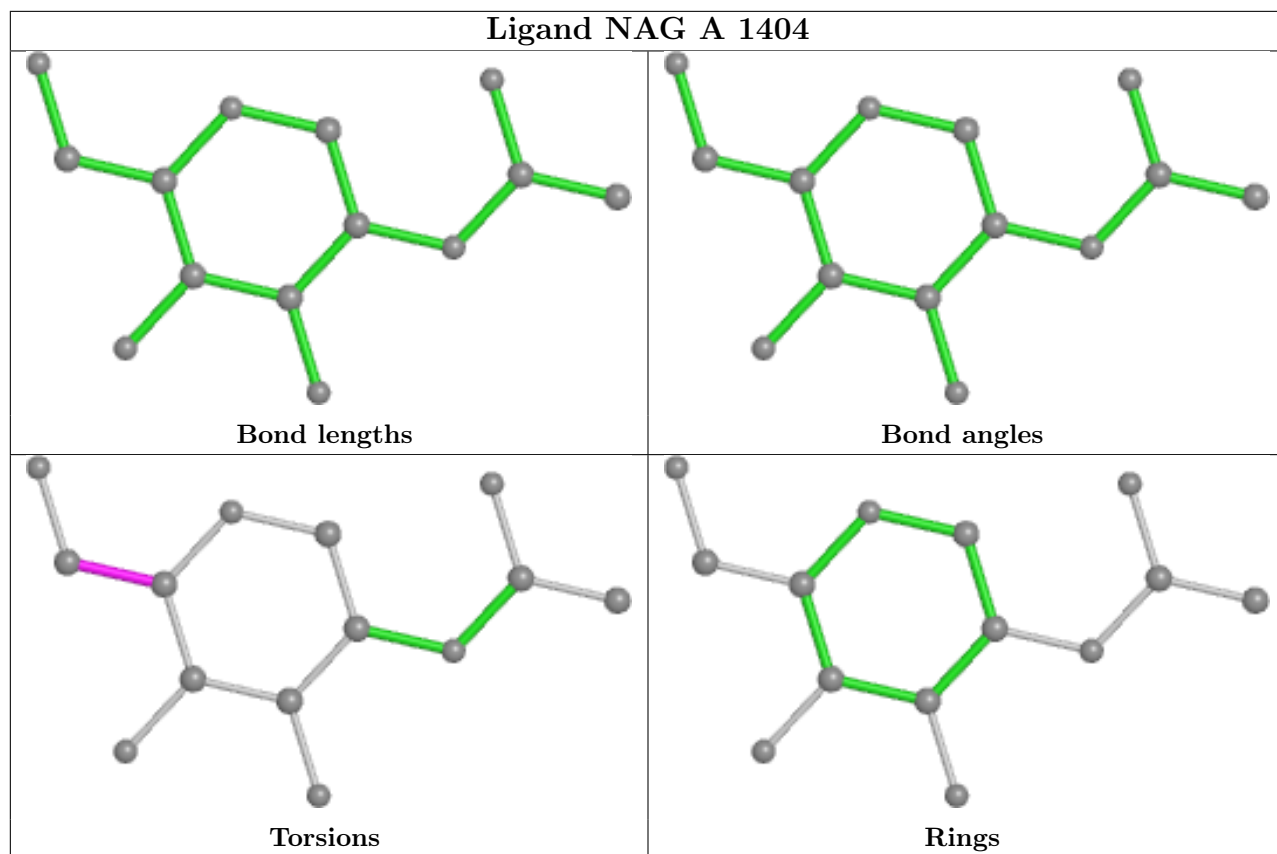
9 monomers are involved in 13 short contacts:

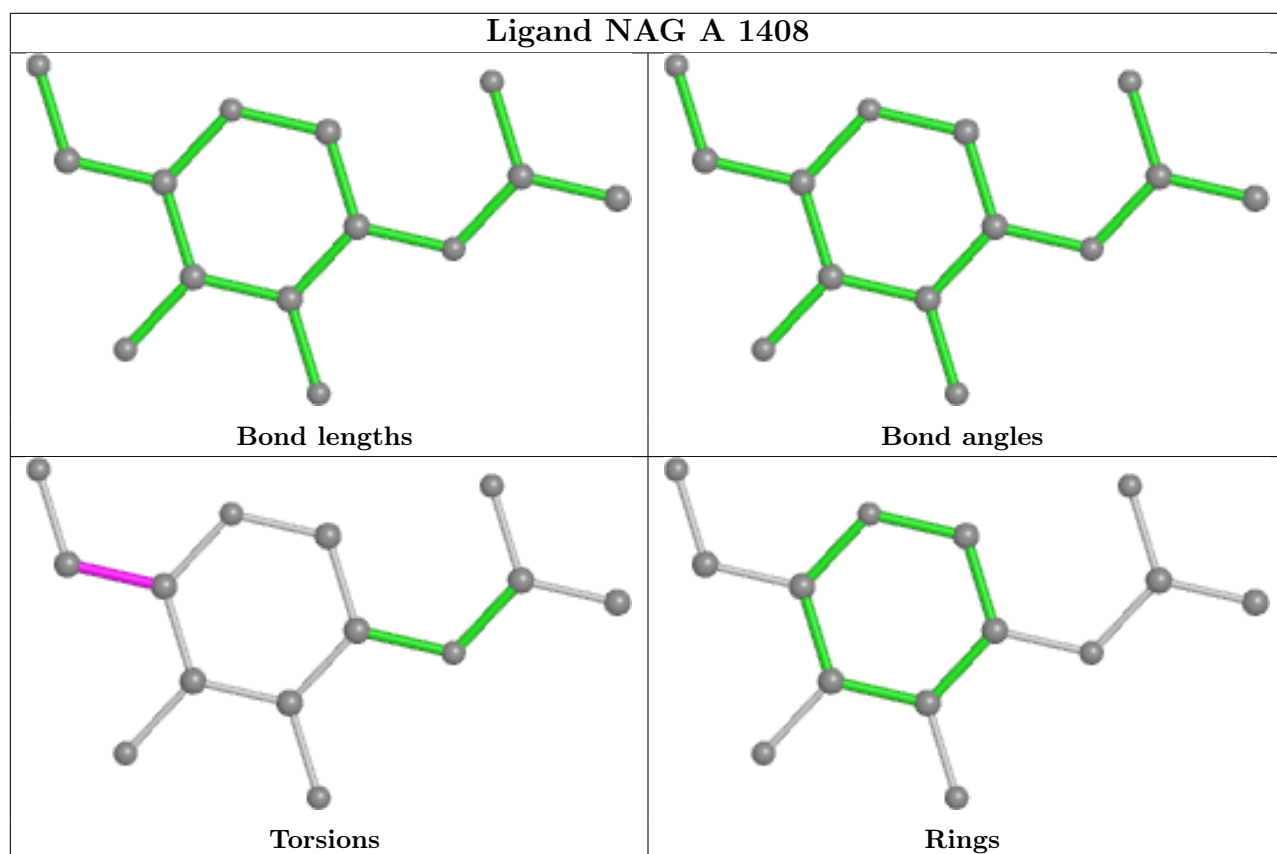
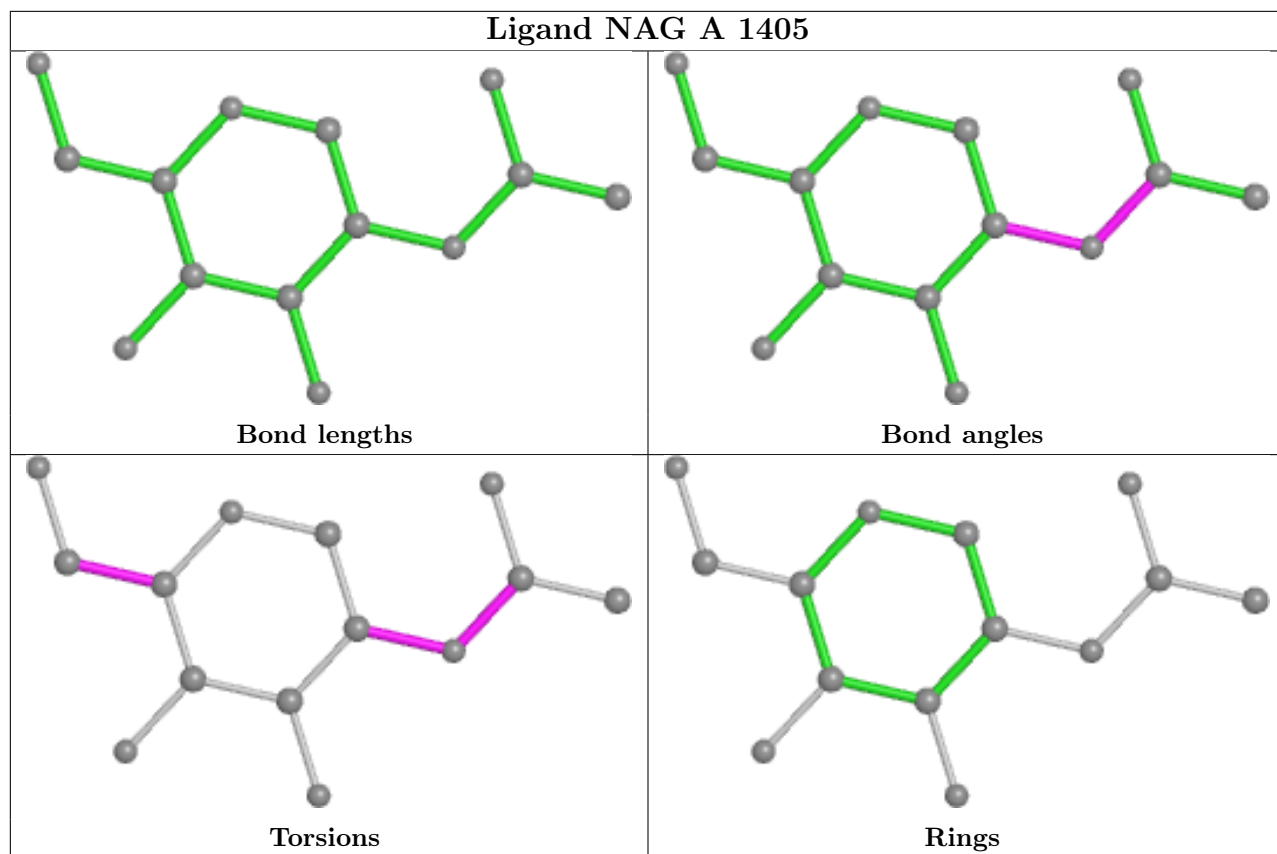
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	C	1405	NAG	1	0
5	A	1404	NAG	1	0
5	B	1403	NAG	2	0
5	A	1405	NAG	1	0
5	A	1402	NAG	3	0
5	B	1402	NAG	1	0
5	C	1402	NAG	1	0
5	B	1405	NAG	2	0
5	B	1407	NAG	1	0

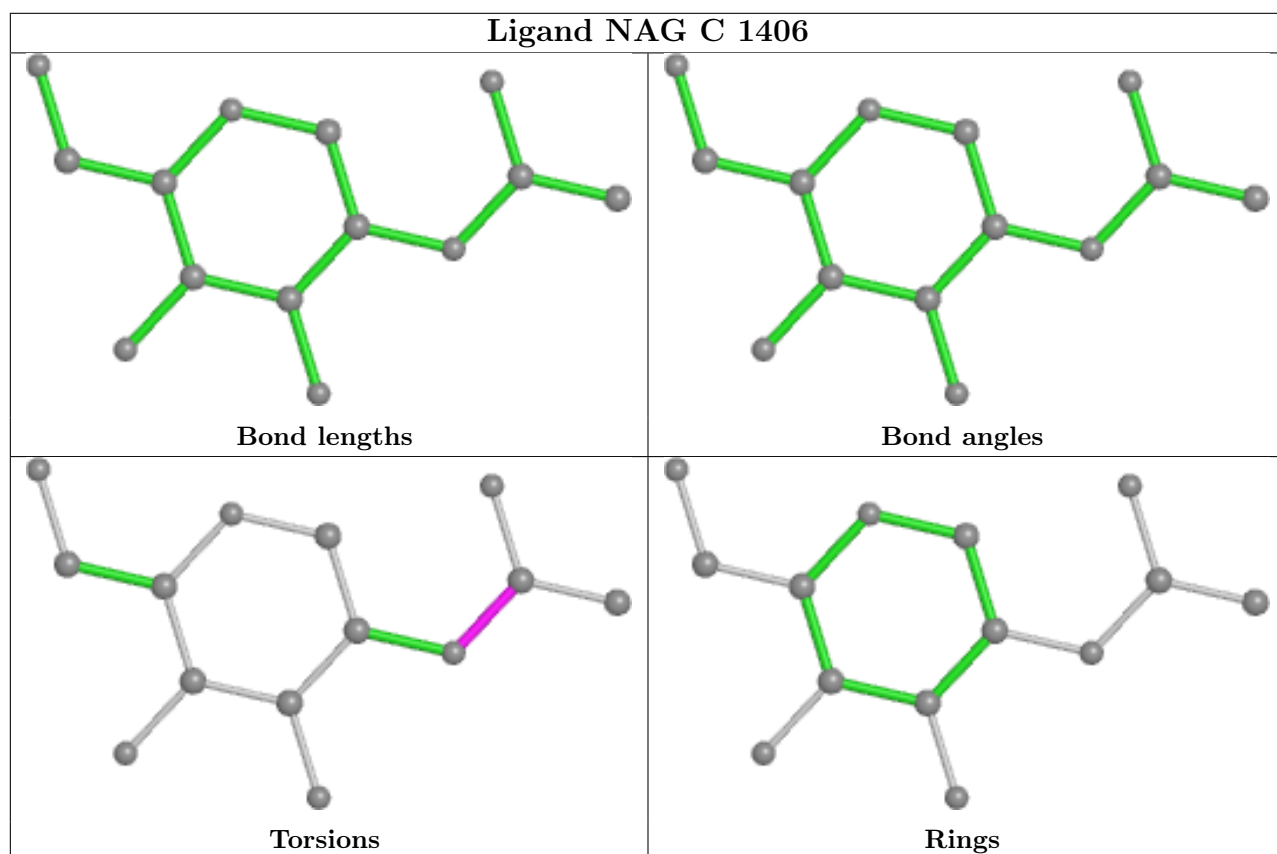
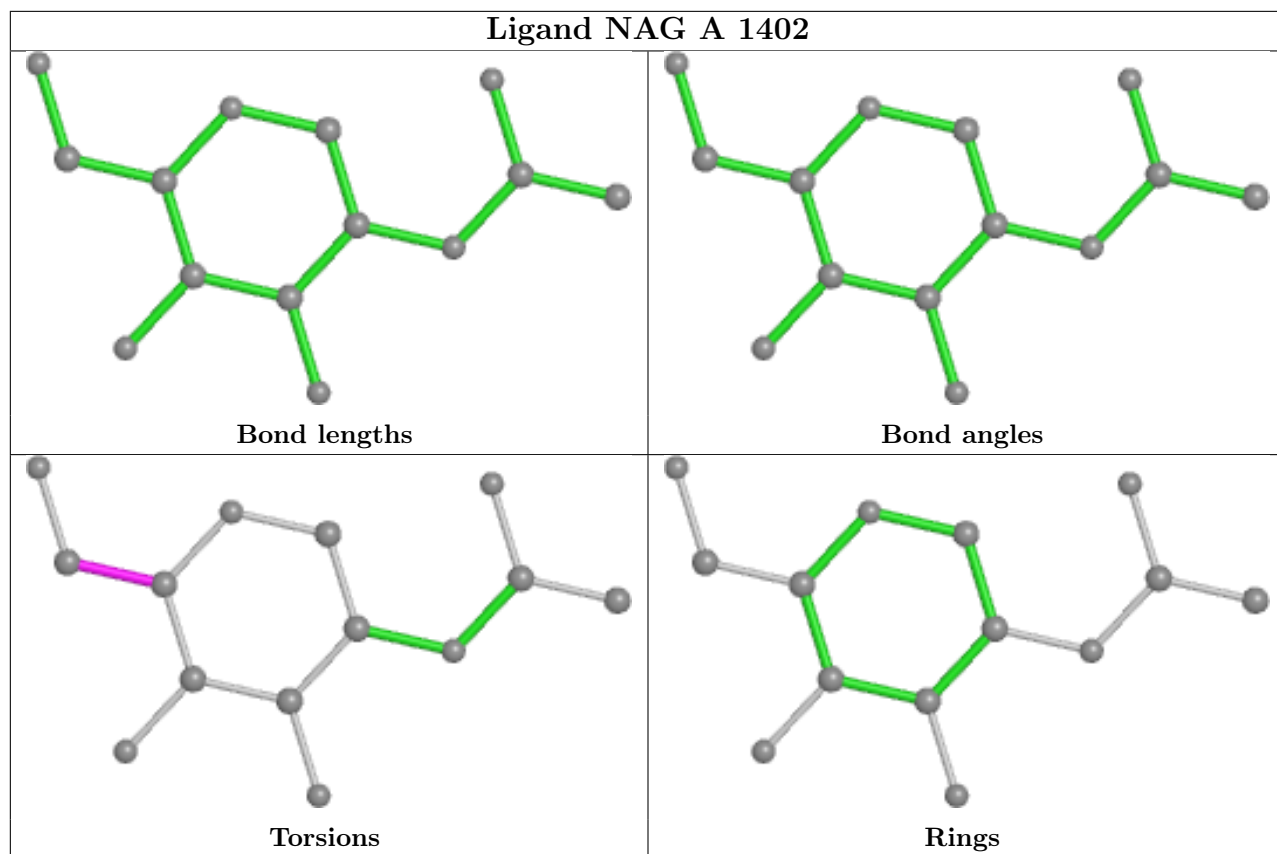
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

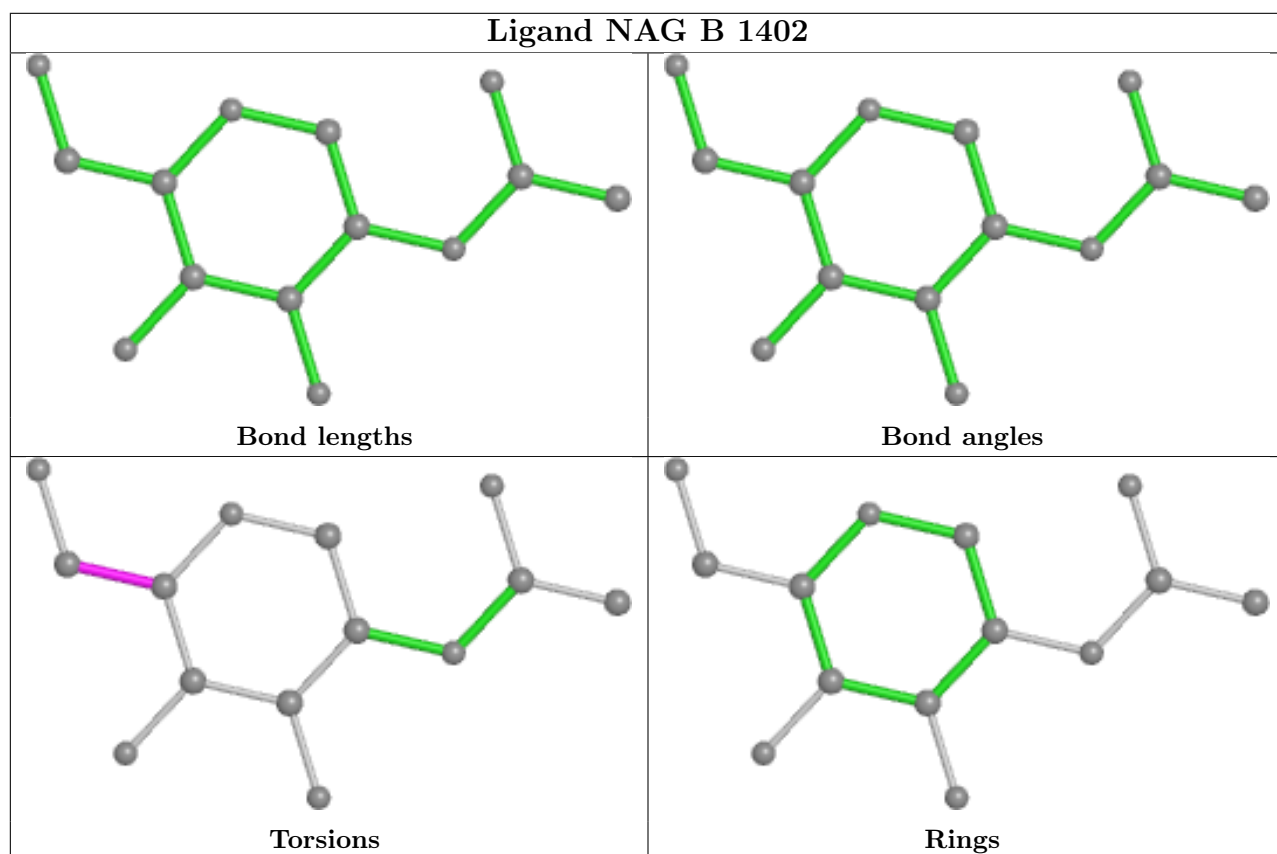
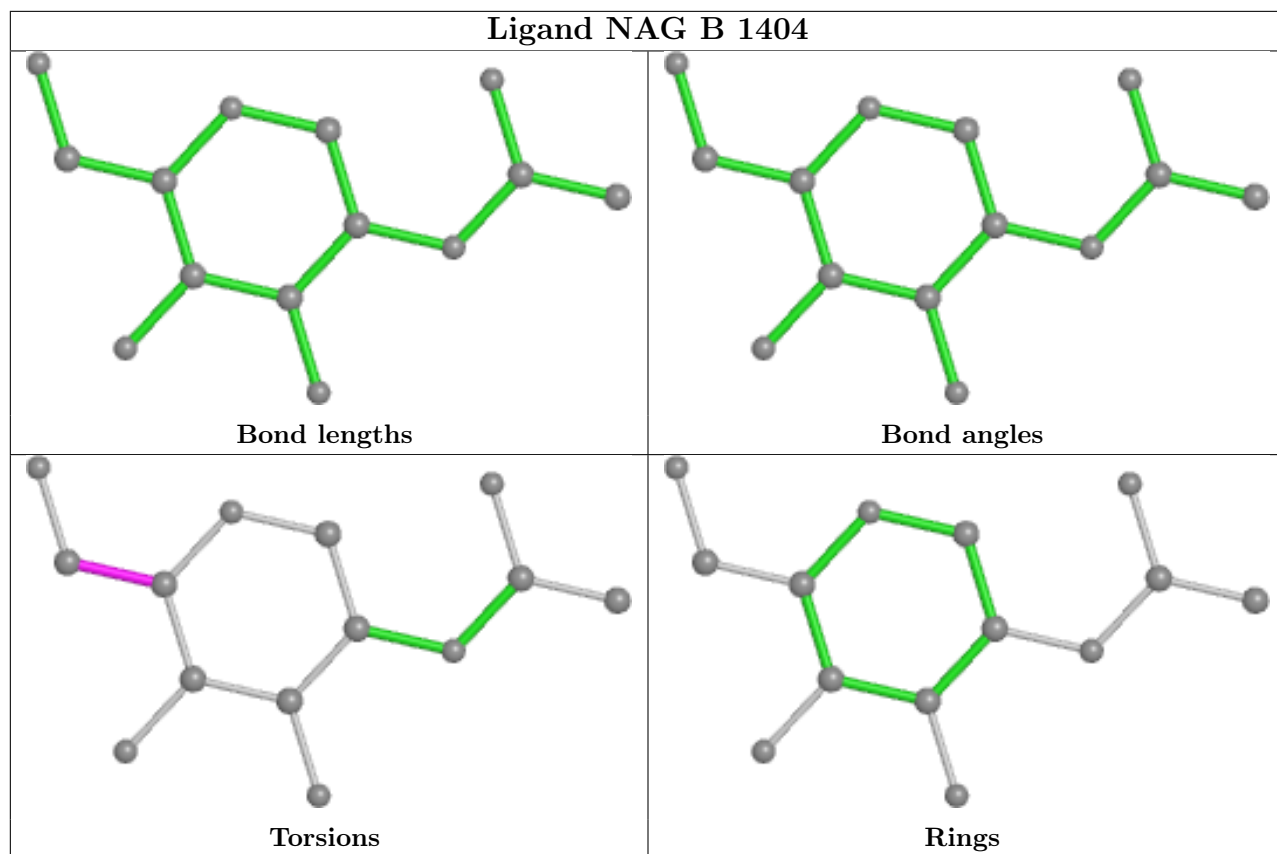


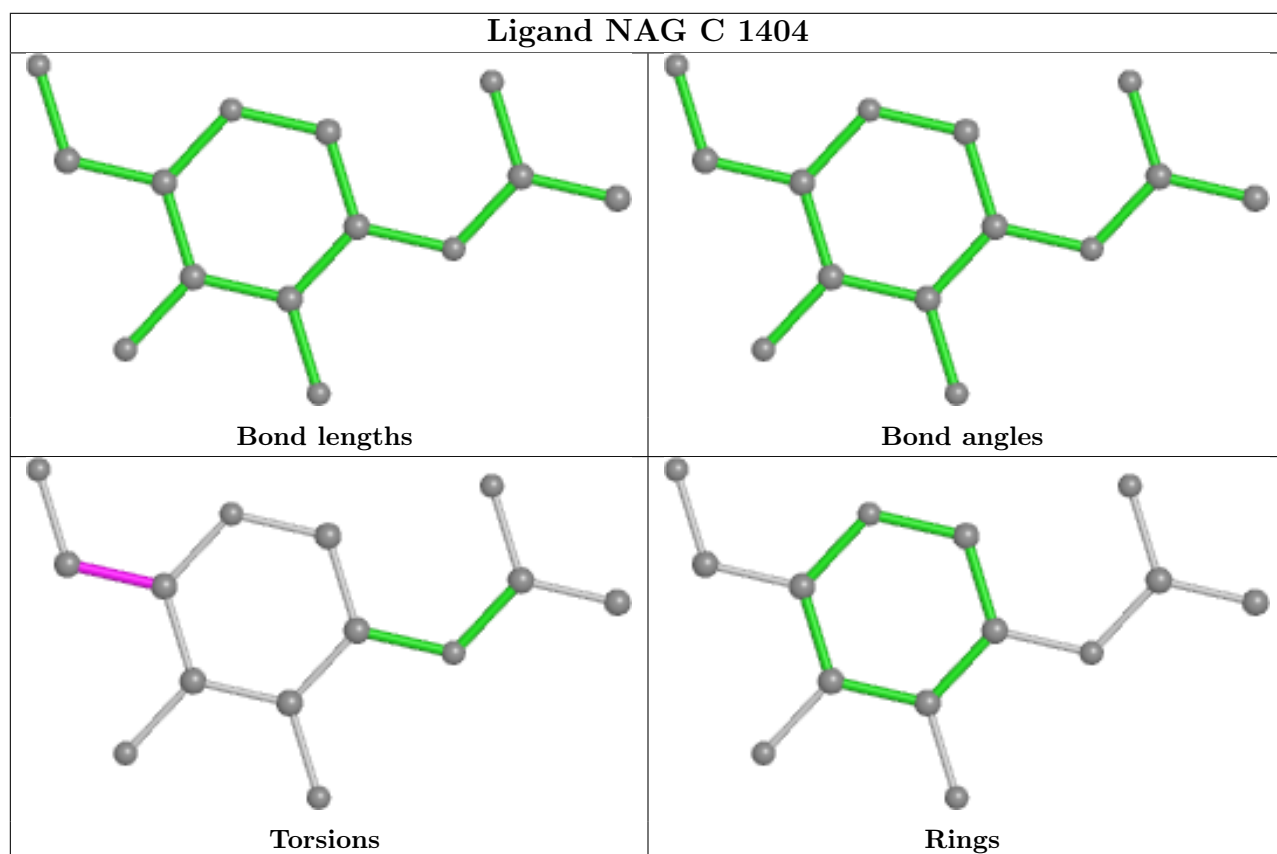
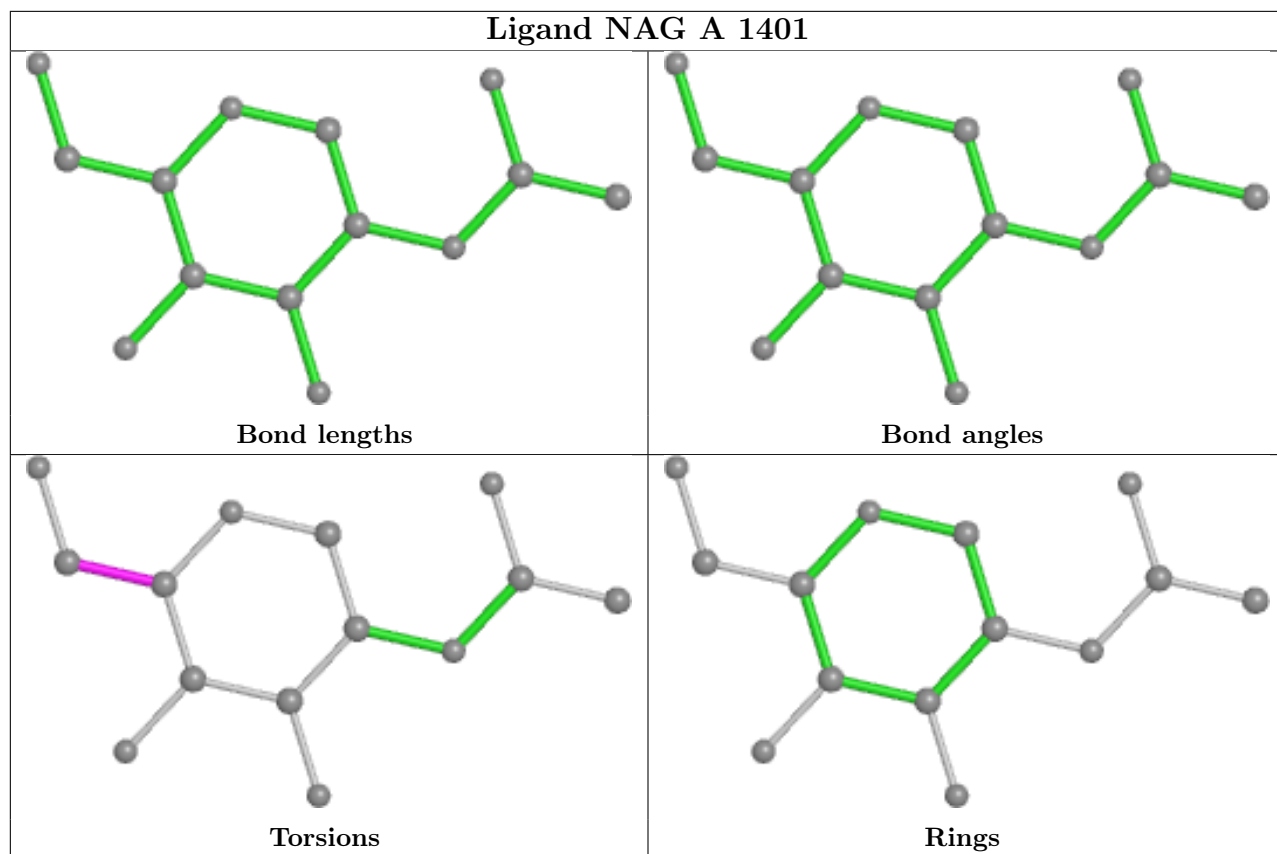


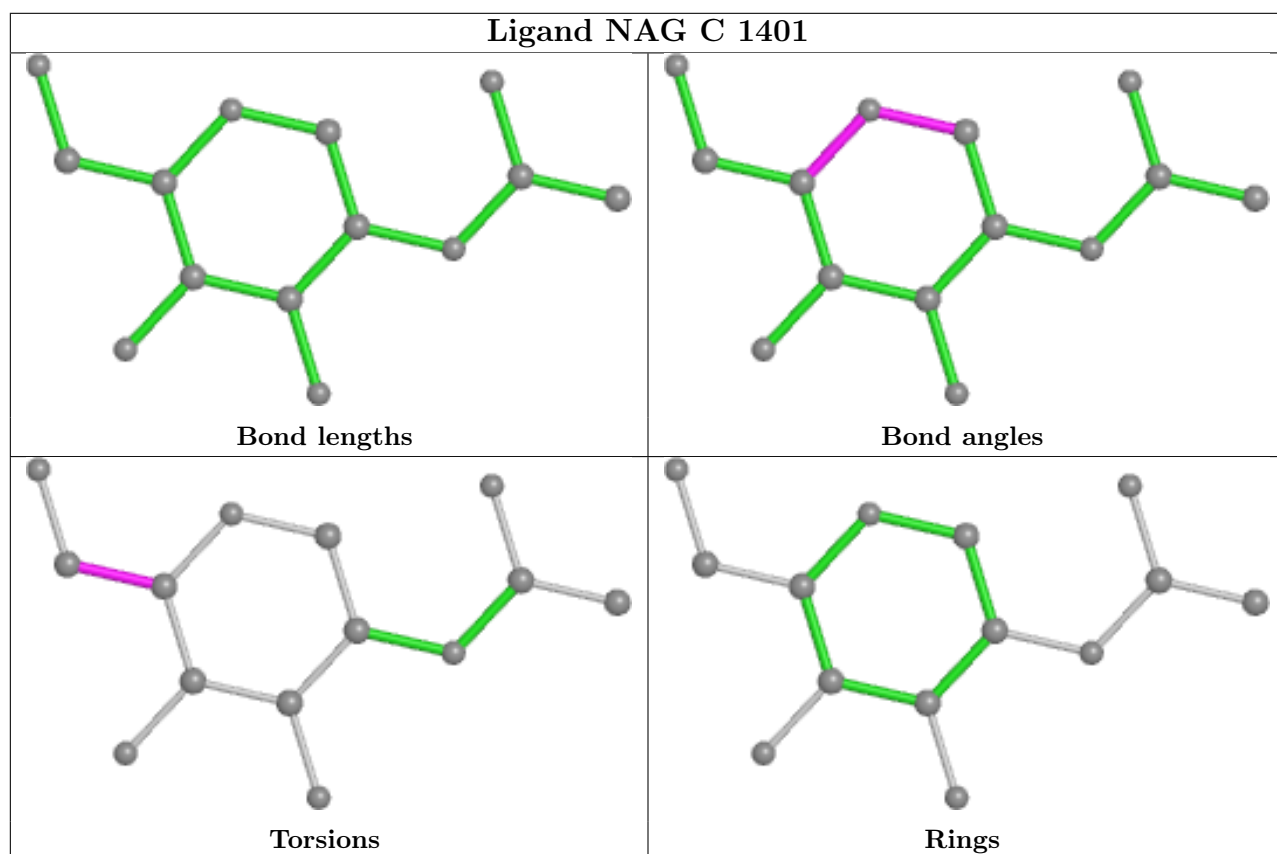
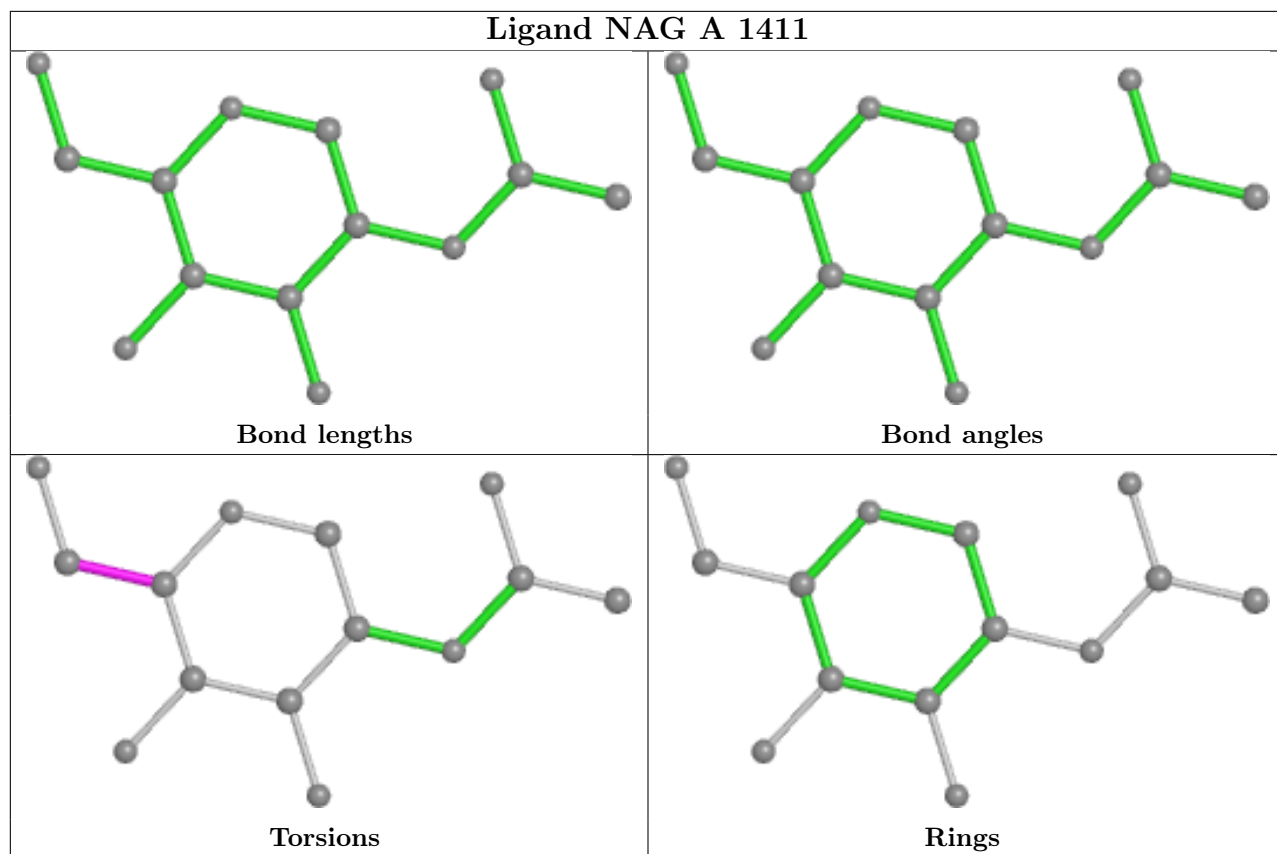


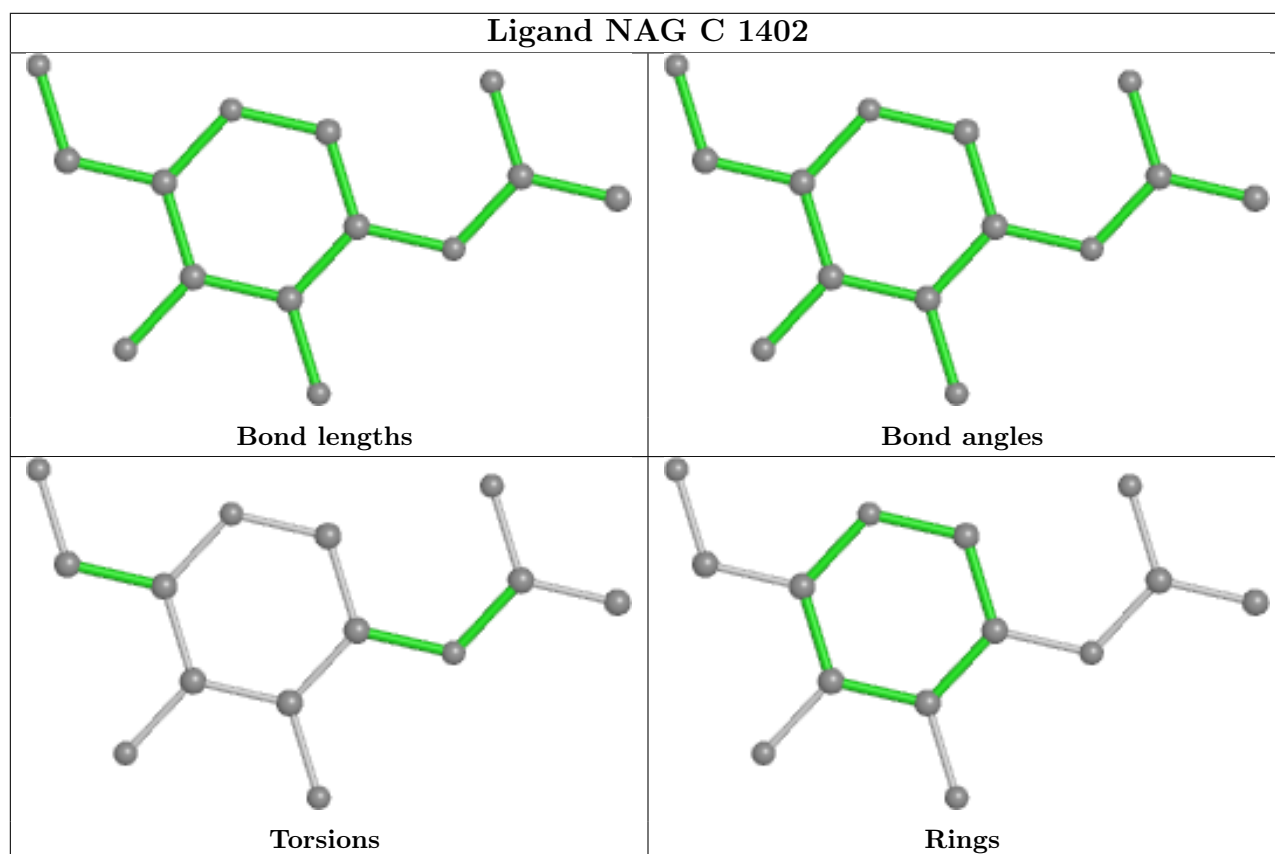
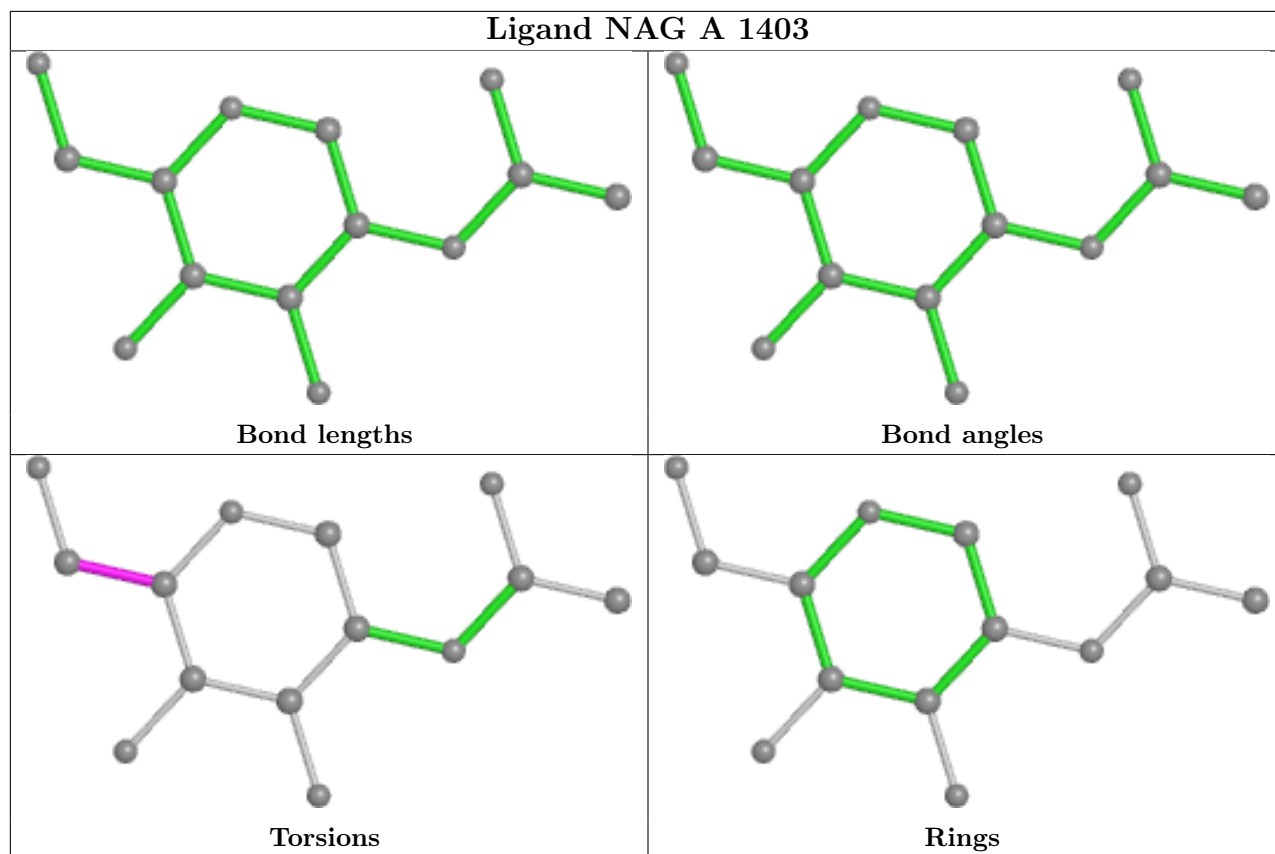


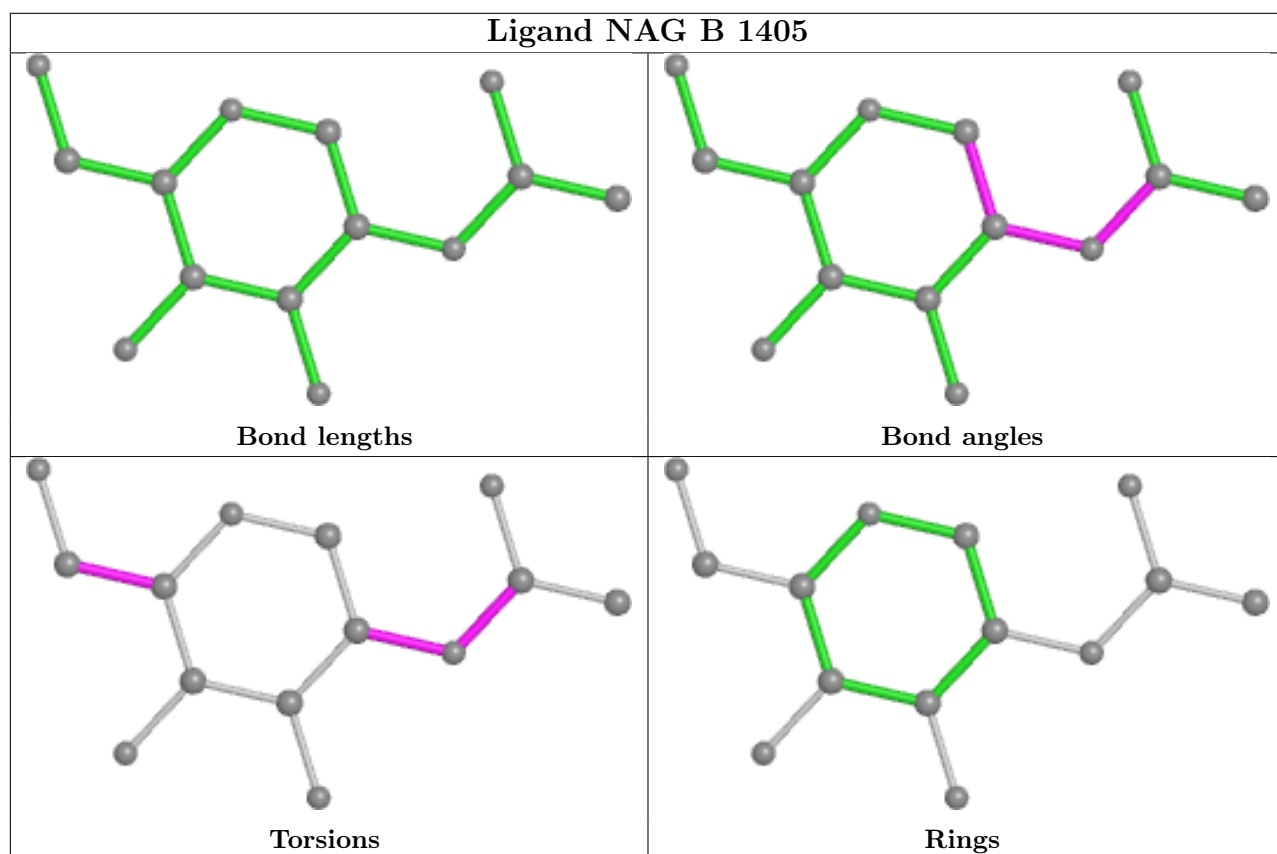
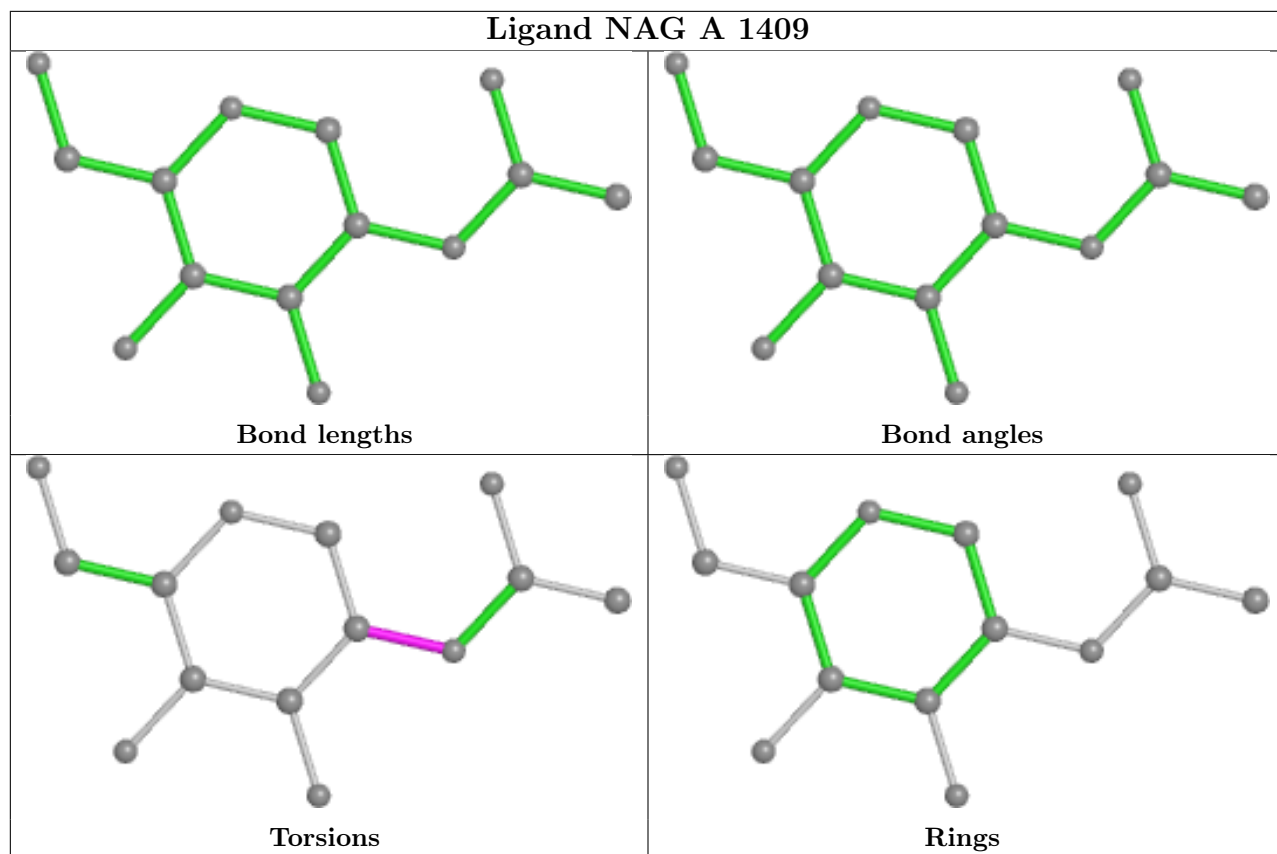


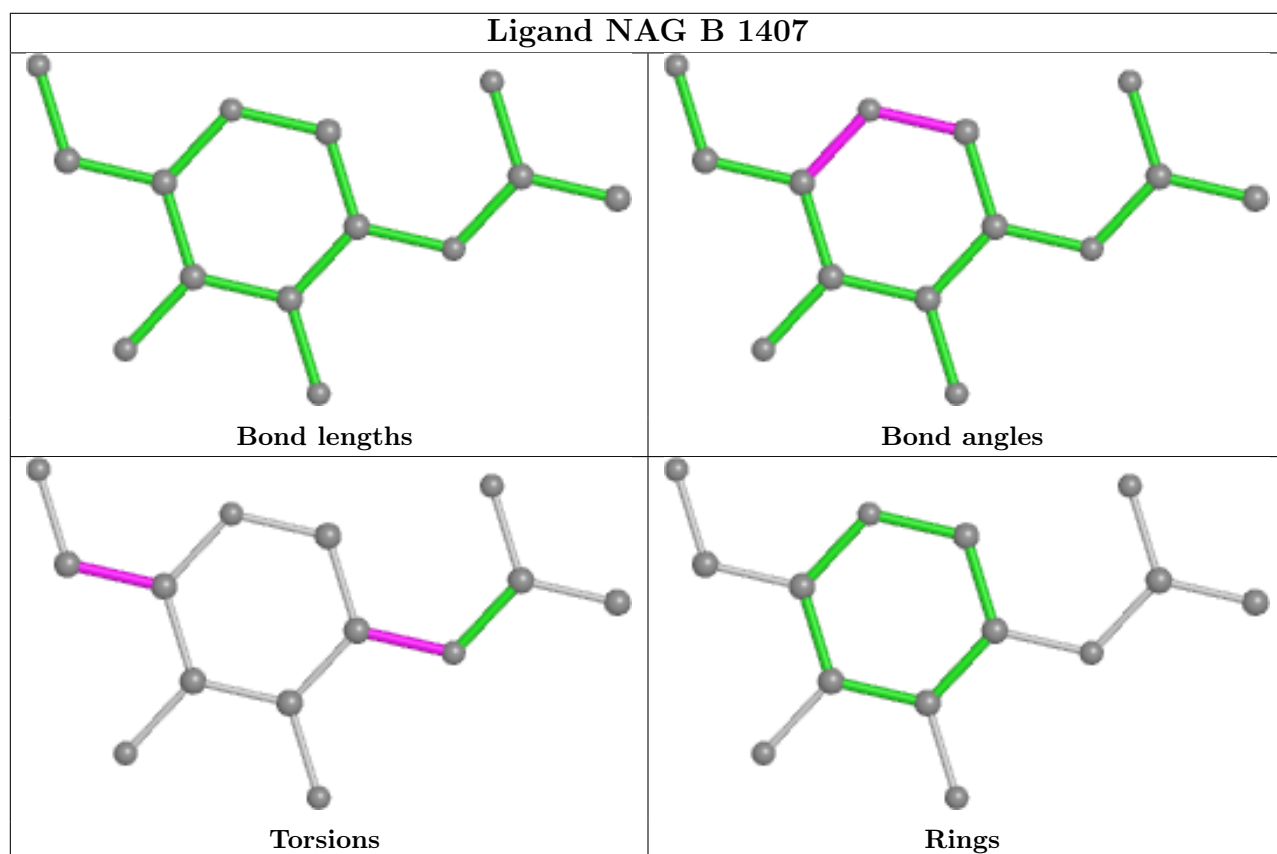
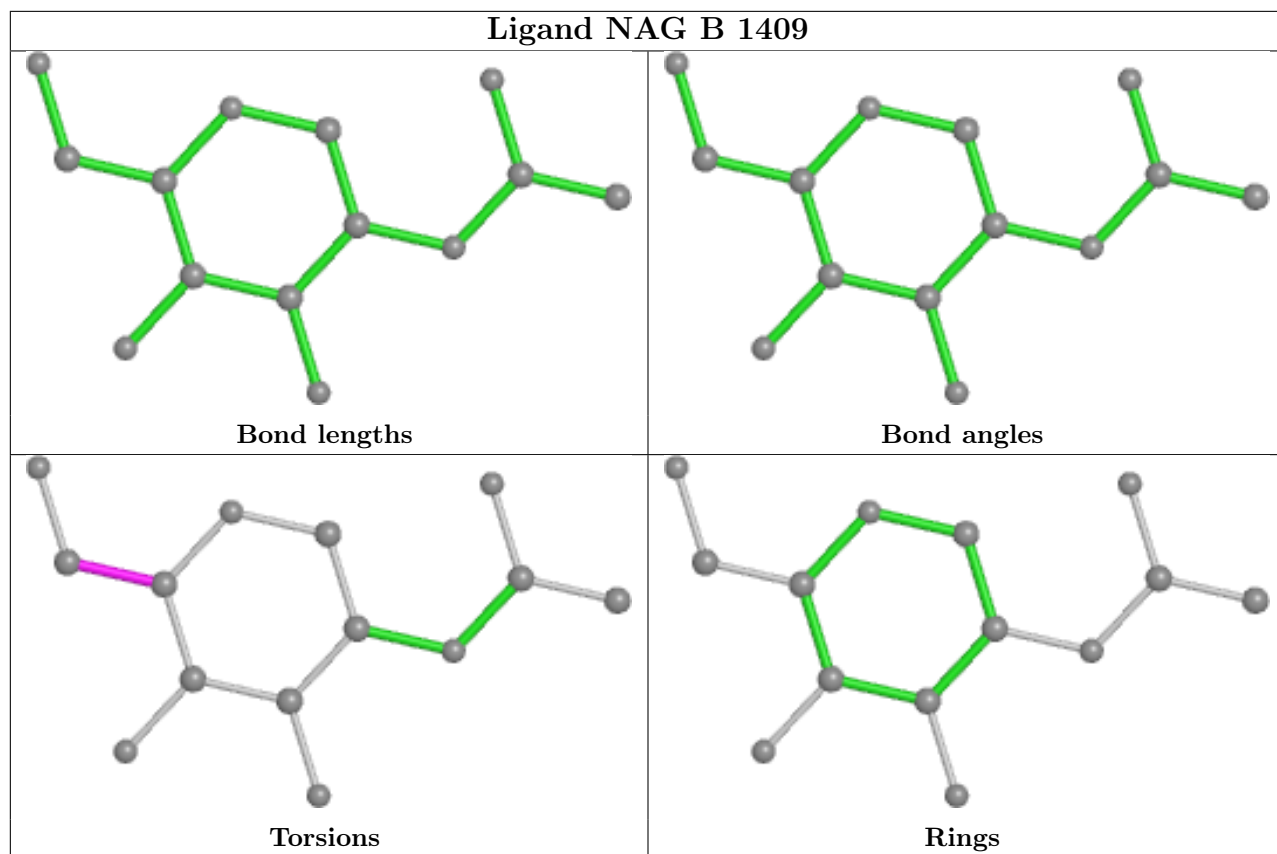


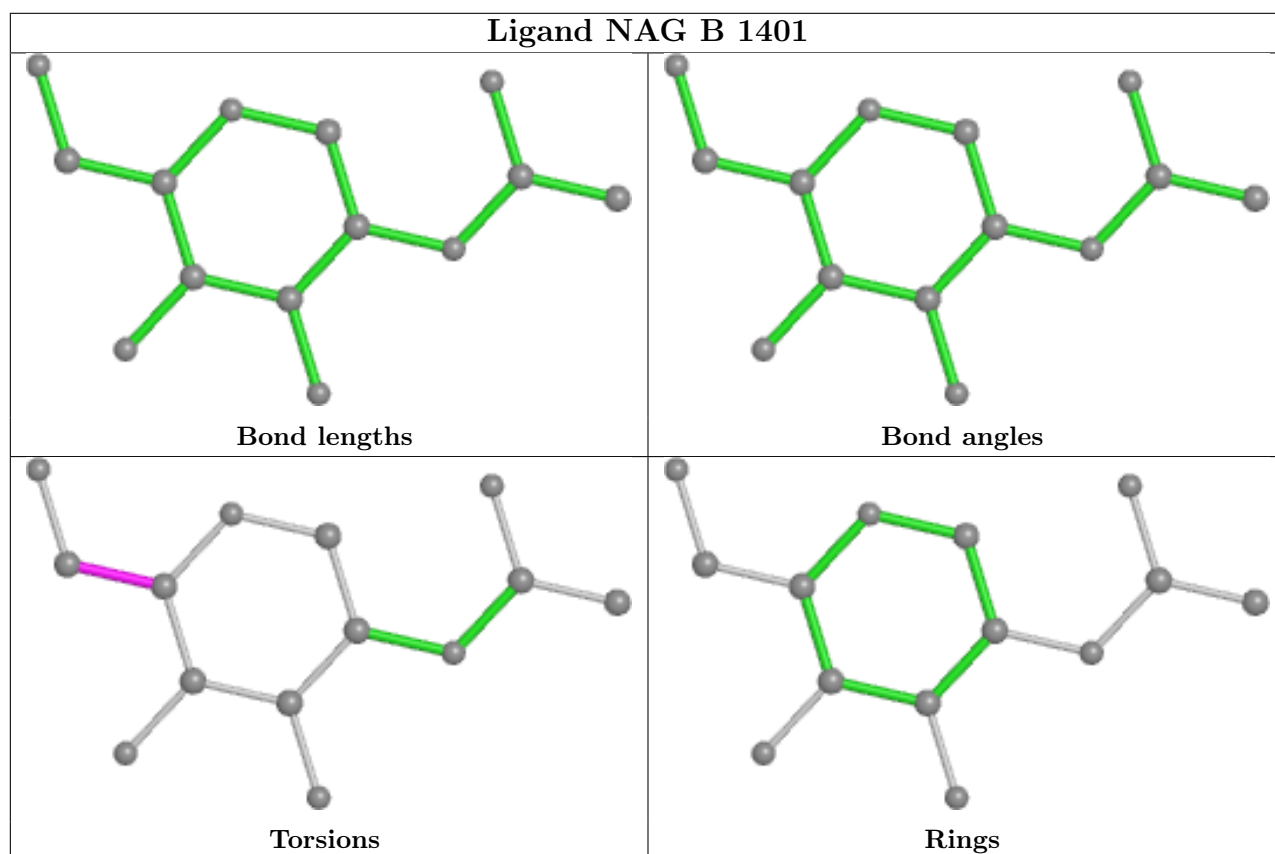
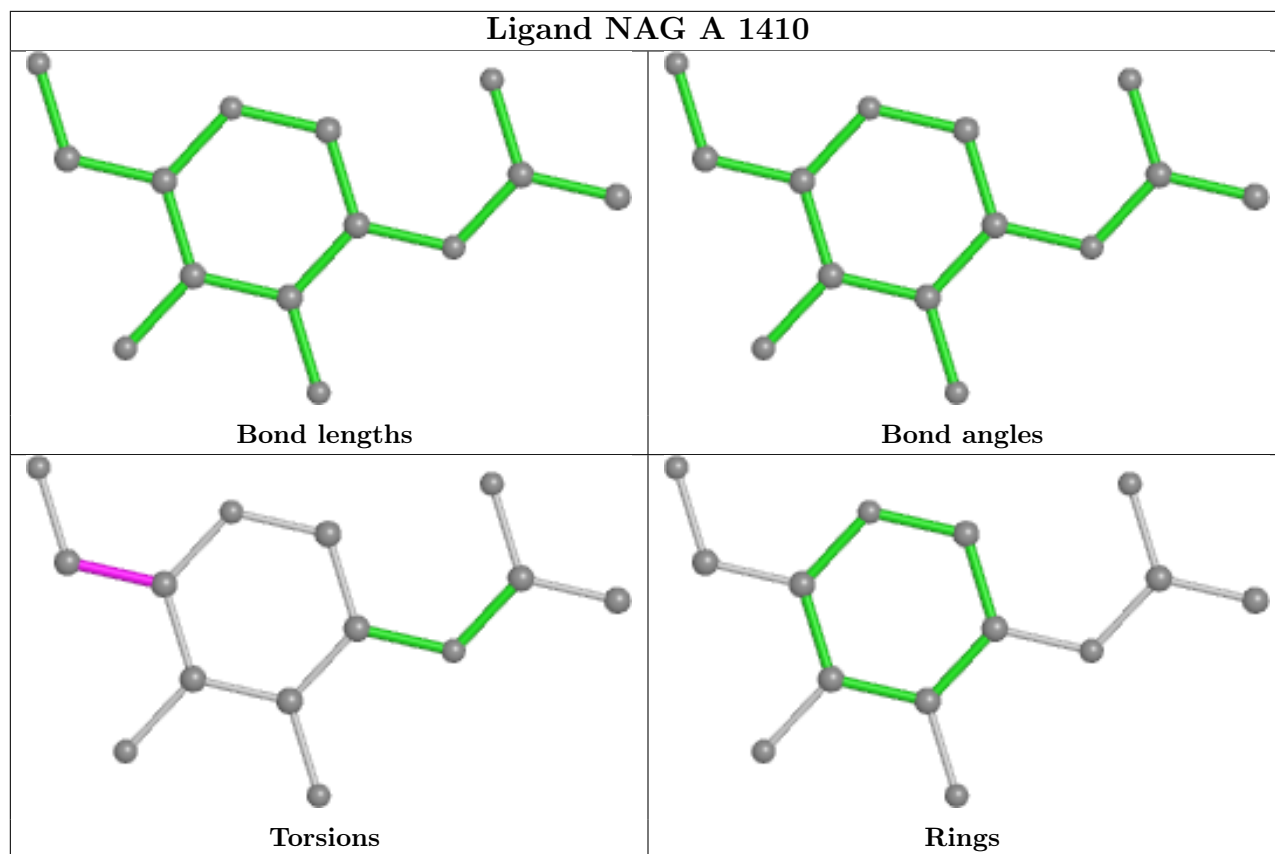


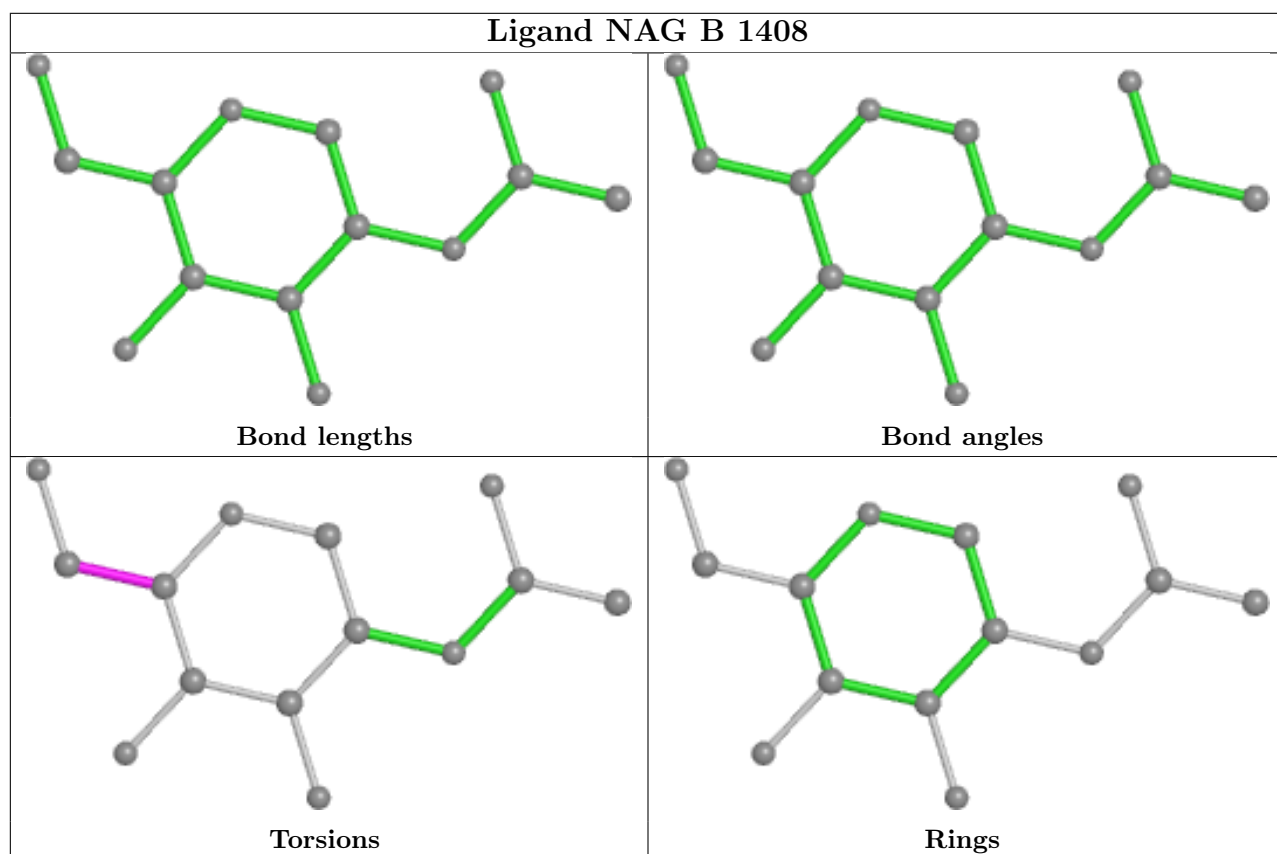
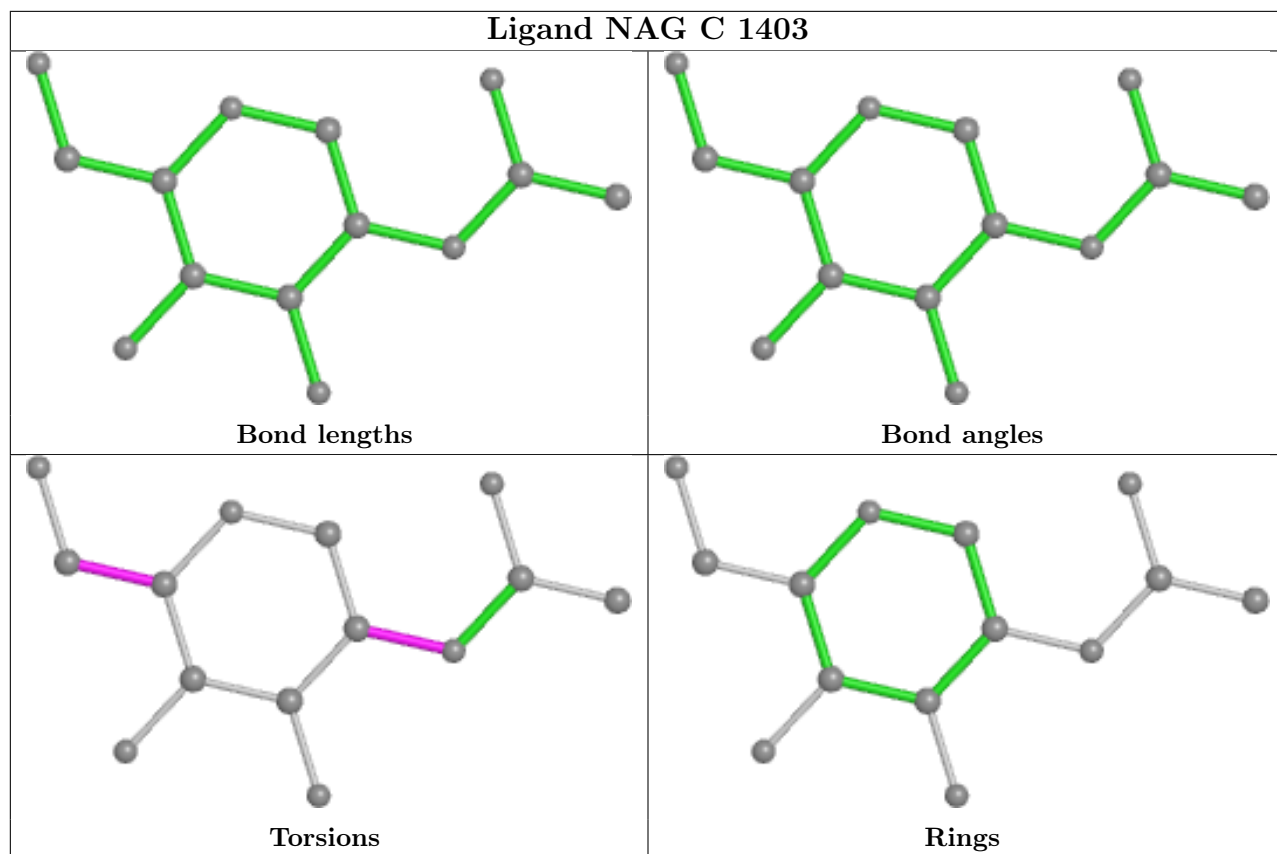












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

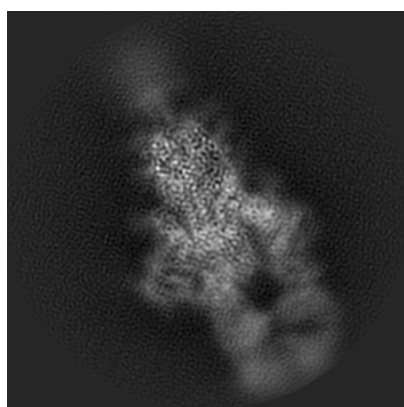
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-30530. These allow visual inspection of the internal detail of the map and identification of artifacts.

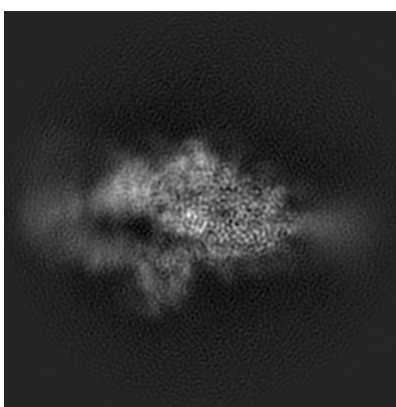
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

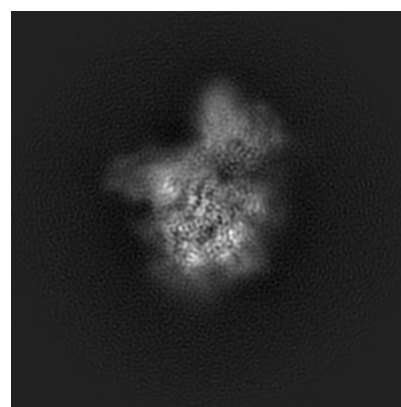
6.1.1 Primary map



X



Y

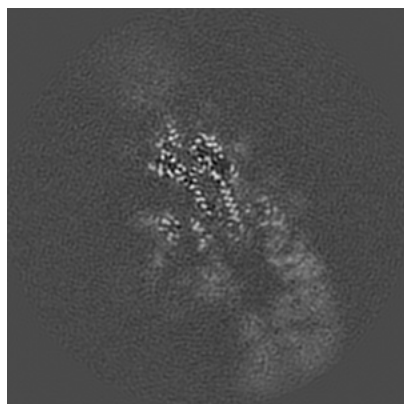


Z

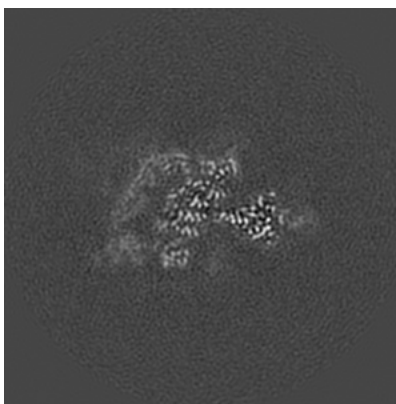
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

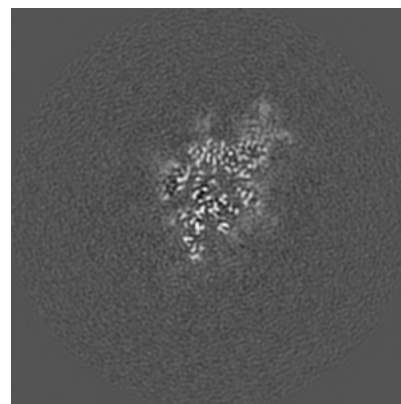
6.2.1 Primary map



X Index: 144



Y Index: 144

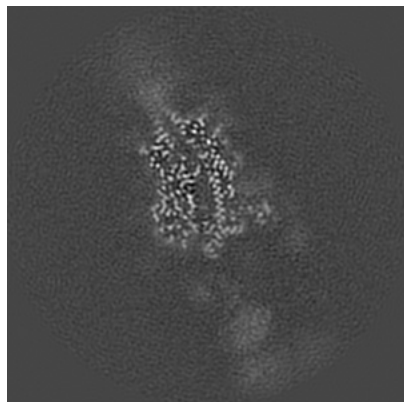


Z Index: 144

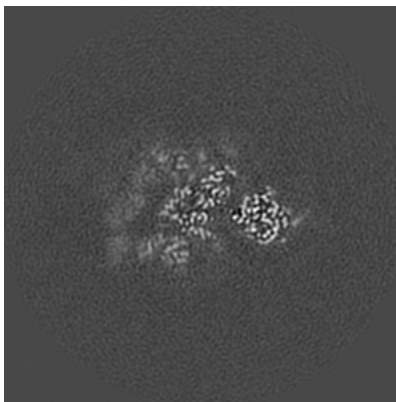
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

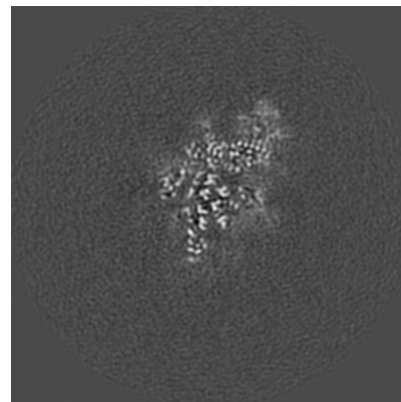
6.3.1 Primary map



X Index: 130



Y Index: 141

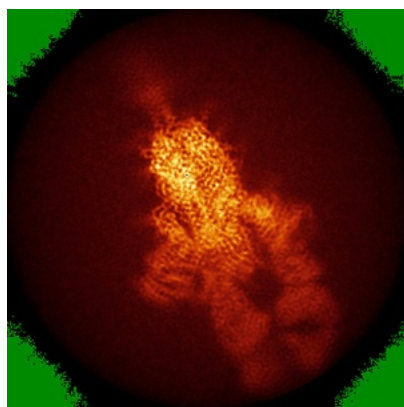


Z Index: 141

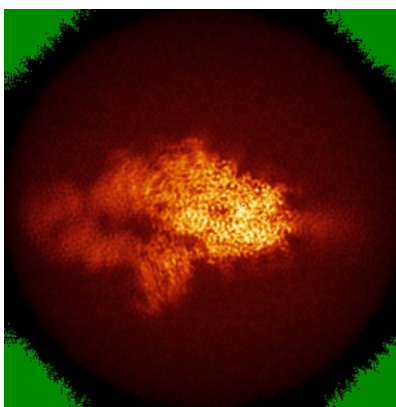
The images above show the largest variance slices of the map in three orthogonal directions.

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

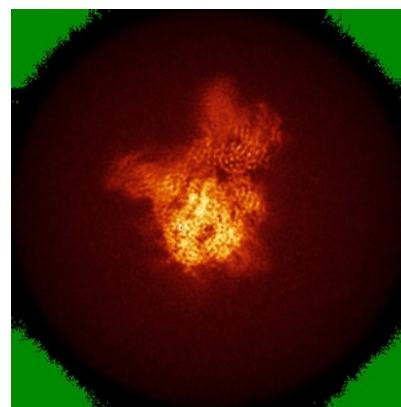
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.011. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

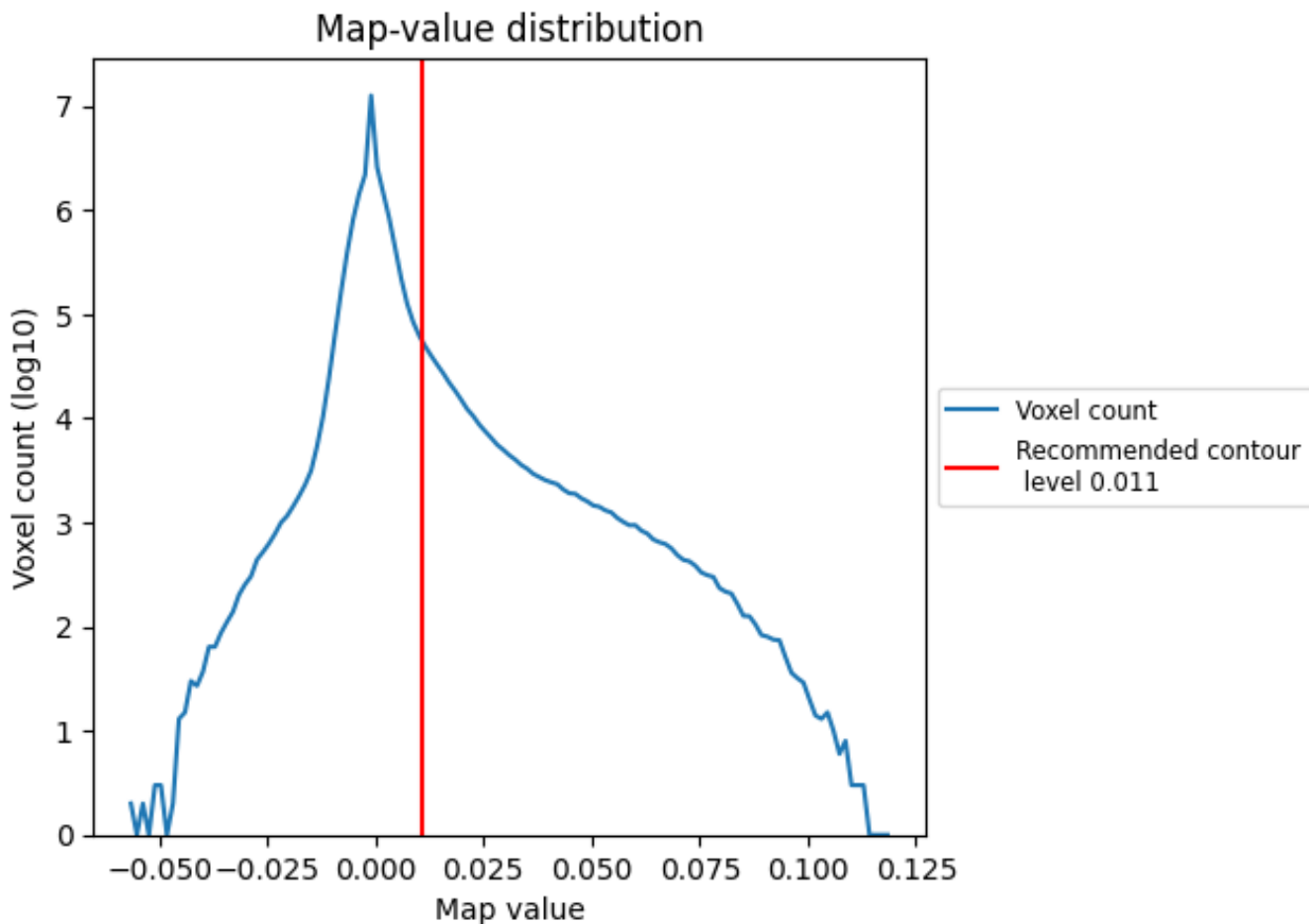
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

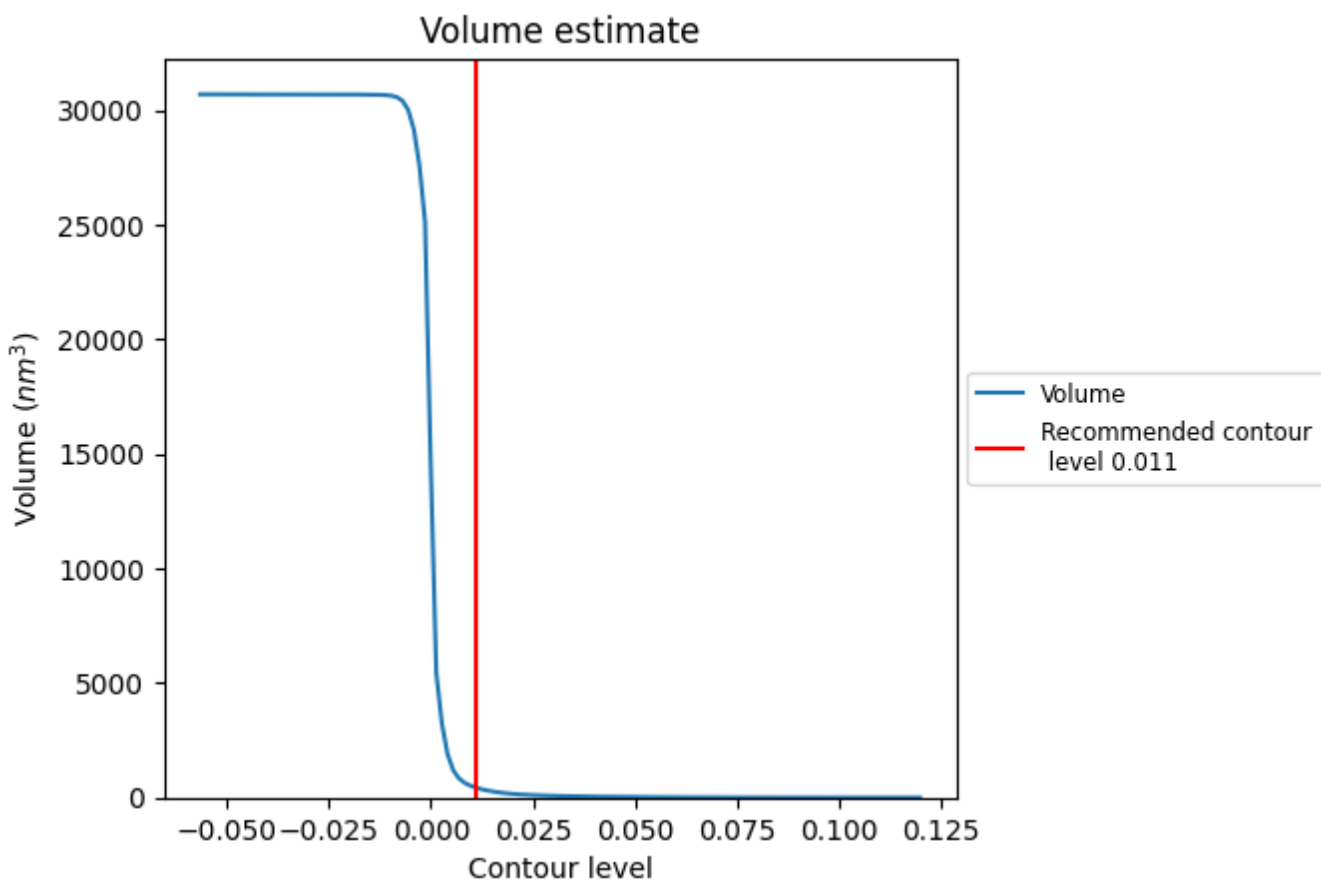
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

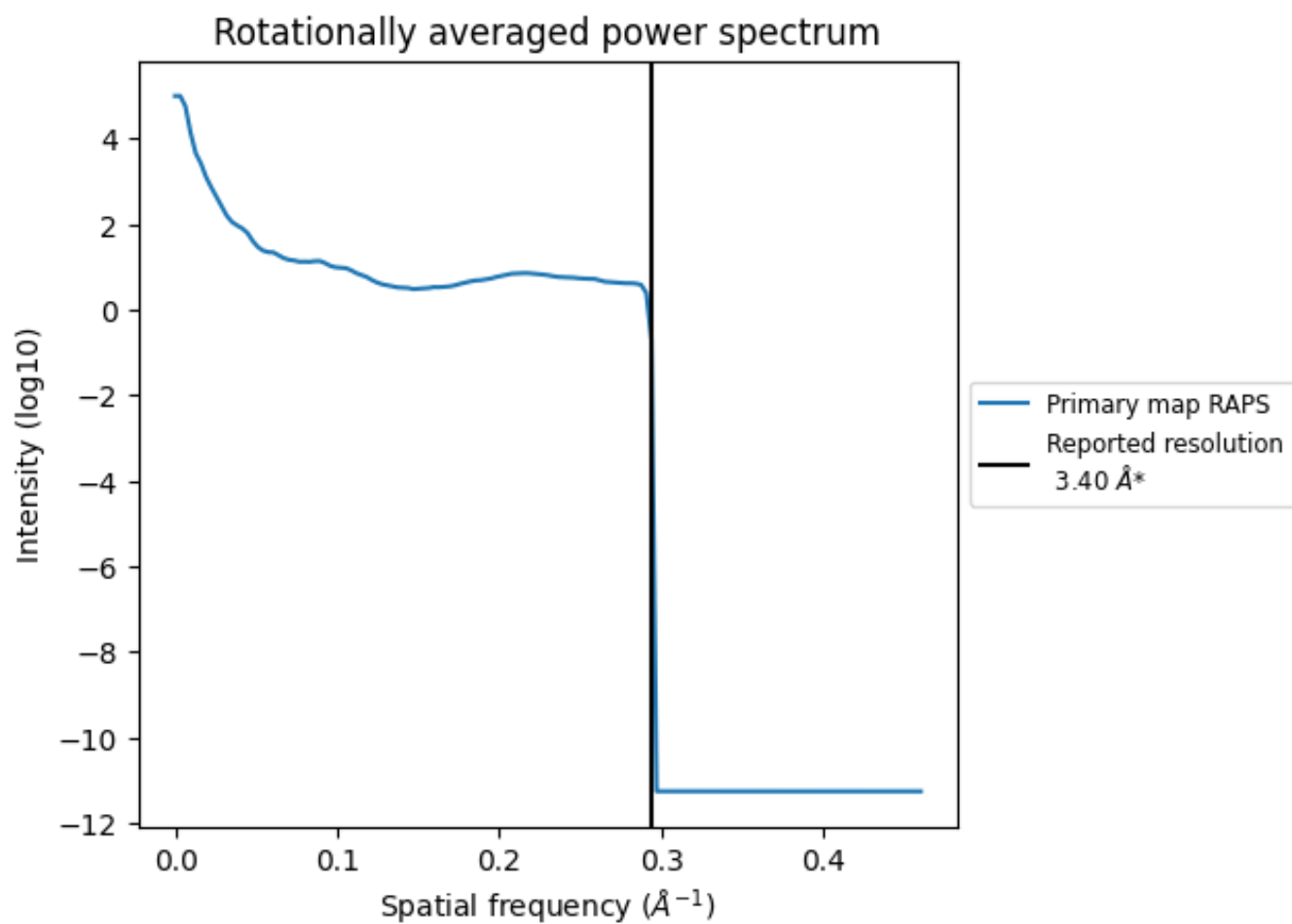
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 435 nm^3 ; this corresponds to an approximate mass of 393 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 0.294 Å⁻¹

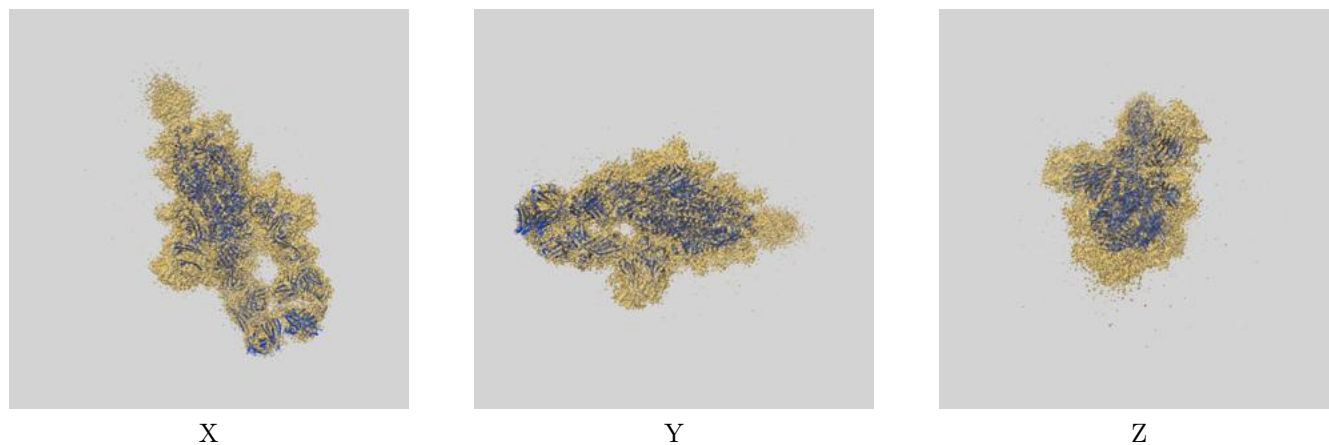
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

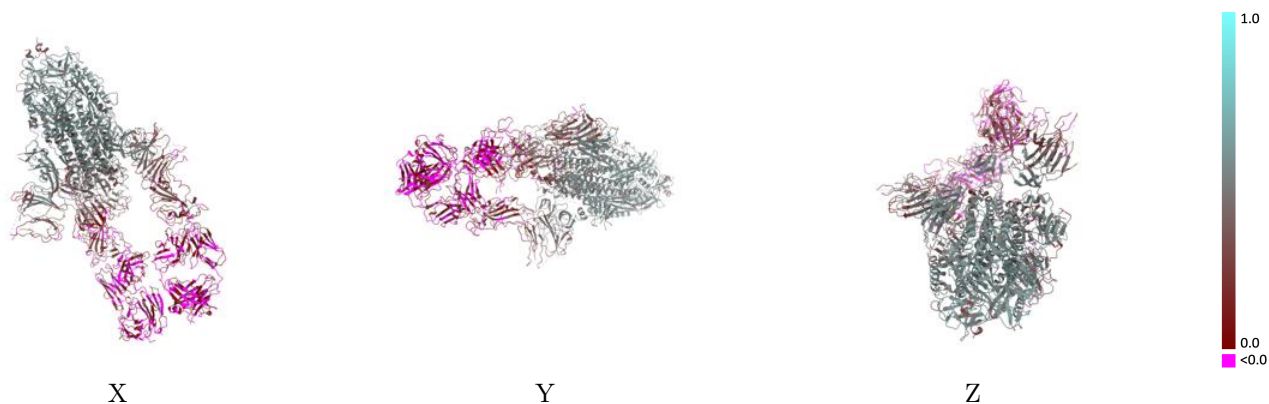
This section contains information regarding the fit between EMDB map EMD-30530 and PDB model 7D0C. Per-residue inclusion information can be found in section [3](#) on page [9](#).

9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.011 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 [\(i\)](#)



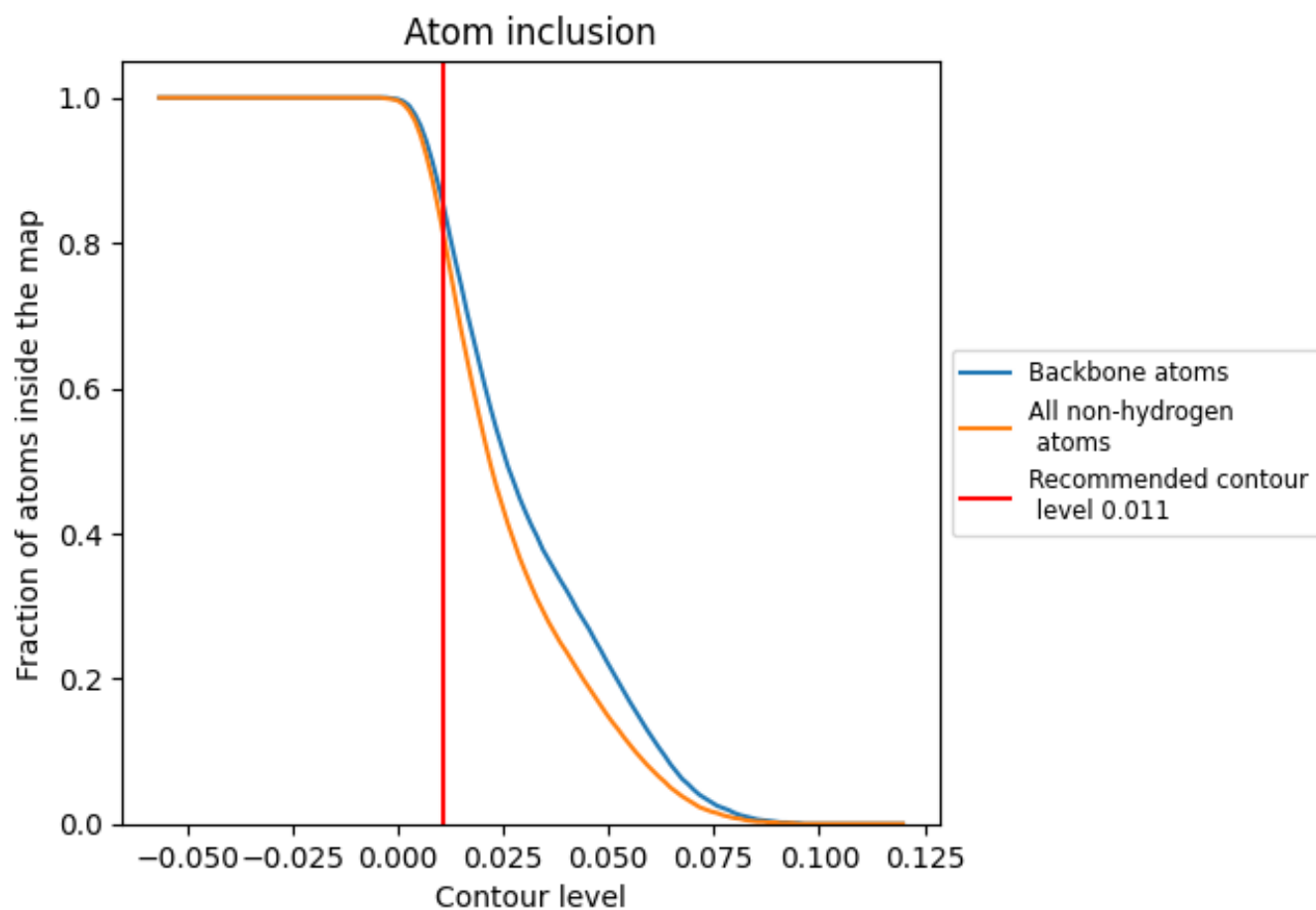
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.011).





























































9.4 Atom inclusion [i](#)



At the recommended contour level, 85% of all backbone atoms, 81% 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 (0.011) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8080	 0.3280
A	 0.9240	 0.4150
B	 0.8900	 0.4150
C	 0.9050	 0.4010
D	 0.5360	 0.0210
E	 0.9640	 0.4710
F	 0.3780	 0.0380
G	 0.4310	 0.0160
H	 0.5230	 0.0200
I	 0.8570	 0.3090
J	 0.8210	 0.3870
K	 0.9640	 0.3910
L	 0.4580	 0.0340
M	 0.9290	 0.3610
N	 0.6790	 0.2110
O	 0.8210	 0.3060
P	 0.9290	 0.4120
Q	 0.9640	 0.3920
R	 0.9290	 0.3750
S	 0.8930	 0.3860
T	 0.9640	 0.3470
U	 0.3570	 0.0710
V	 0.7860	 0.3410
W	 0.8930	 0.4430
X	 0.8570	 0.3590
Y	 0.6790	 0.2940
Z	 0.9290	 0.4200
a	 0.8570	 0.3770
b	 0.9290	 0.3580
c	 0.7860	 0.3810

