



## wwPDB EM Validation Summary Report ⓘ

Nov 20, 2022 – 05:20 PM JST

PDB ID : 7CAK  
EMDB ID : EMD-30333  
Title : SARS-CoV-2 S trimer with three RBD in the open state and complexed with three H014 Fab  
Authors : Zhe, L.; Cao, L.; Deng, Y.; Sun, Y.; Wang, N.; Xie, L.; Wang, Y.; Rao, Z.; Qin, C.; Wang, X.  
Deposited on : 2020-06-08  
Resolution : 3.58 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](mailto: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:

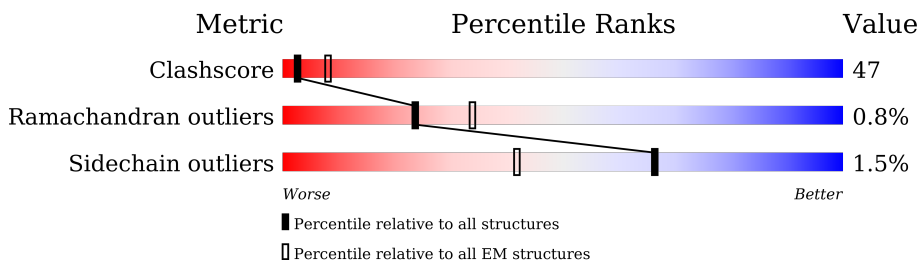
EMDB validation analysis : 0.0.1.dev43  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.3

# 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 3.58 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  $\geq 3$ , 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	1208	
1	B	1208	
1	C	1208	
2	D	210	
2	F	210	
2	H	210	
3	E	223	
3	G	223	

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Length	Quality of chain
3	I	223	 17% 37% 45%
4	J	2	 50% 50%
4	K	2	 100%
4	L	2	 50% 50%
4	M	2	 50% 50%
4	N	2	 50% 50%
4	O	2	 50% 50%
4	P	2	 100%
4	Q	2	 50% 50%
4	R	2	 50% 50%
4	S	2	 50% 50%
4	T	2	 50% 50%
4	U	2	 100%
4	V	2	 50% 50%
4	W	2	 50% 50%
4	X	2	 50% 50%

## 2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 30263 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	1028	8029	5128	1336	1528	37	0	0
1	B	1028	8033	5130	1337	1529	37	0	0
1	C	1028	8033	5130	1337	1529	37	0	0

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	682	GLY	ARG	engineered mutation	UNP P0DTC2
A	683	SER	ARG	engineered mutation	UNP P0DTC2
A	685	SER	ARG	engineered mutation	UNP P0DTC2
A	835	MET	LYS	engineered mutation	UNP P0DTC2
A	844	MET	ILE	engineered mutation	UNP P0DTC2
A	846	TYR	ALA	engineered mutation	UNP P0DTC2
A	986	PRO	LYS	engineered mutation	UNP P0DTC2
A	987	PRO	VAL	engineered mutation	UNP P0DTC2
B	682	GLY	ARG	engineered mutation	UNP P0DTC2
B	683	SER	ARG	engineered mutation	UNP P0DTC2
B	685	SER	ARG	engineered mutation	UNP P0DTC2
B	835	MET	LYS	engineered mutation	UNP P0DTC2
B	844	MET	ILE	engineered mutation	UNP P0DTC2
B	846	TYR	ALA	engineered mutation	UNP P0DTC2
B	986	PRO	LYS	engineered mutation	UNP P0DTC2
B	987	PRO	VAL	engineered mutation	UNP P0DTC2
C	682	GLY	ARG	engineered mutation	UNP P0DTC2
C	683	SER	ARG	engineered mutation	UNP P0DTC2
C	685	SER	ARG	engineered mutation	UNP P0DTC2
C	835	MET	LYS	engineered mutation	UNP P0DTC2
C	844	MET	ILE	engineered mutation	UNP P0DTC2
C	846	TYR	ALA	engineered mutation	UNP P0DTC2
C	986	PRO	LYS	engineered mutation	UNP P0DTC2
C	987	PRO	VAL	engineered mutation	UNP P0DTC2

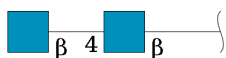
- Molecule 2 is a protein called Light chain of H014 Fab.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	107	Total	C	N	O	S	0	0
			837	534	140	161	2		
2	F	107	Total	C	N	O	S	0	0
			837	534	140	161	2		
2	H	107	Total	C	N	O	S	0	0
			837	534	140	161	2		

- Molecule 3 is a protein called Heavy chain of H014 Fab.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	E	122	Total	C	N	O	S	0	0
			939	598	148	189	4		
3	G	122	Total	C	N	O	S	0	0
			939	598	148	189	4		
3	I	122	Total	C	N	O	S	0	0
			939	598	148	189	4		

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



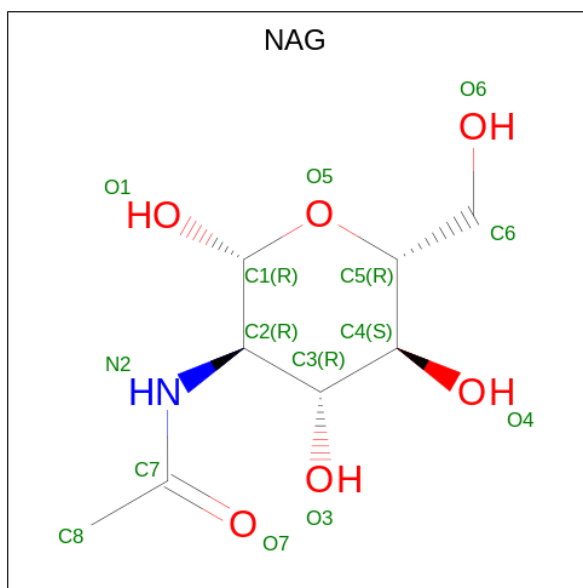
Mol	Chain	Residues	Atoms				AltConf	Trace
4	J	2	Total	C	N	O	0	0
			28	16	2	10		
4	K	2	Total	C	N	O	0	0
			28	16	2	10		
4	L	2	Total	C	N	O	0	0
			28	16	2	10		
4	M	2	Total	C	N	O	0	0
			28	16	2	10		
4	N	2	Total	C	N	O	0	0
			28	16	2	10		
4	O	2	Total	C	N	O	0	0
			28	16	2	10		
4	P	2	Total	C	N	O	0	0
			28	16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

*Continued on next page...*

Continued from previous page...

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	R	2	Total 28	C 16	N 2	O 10	0	0
4	S	2	Total 28	C 16	N 2	O 10	0	0
4	T	2	Total 28	C 16	N 2	O 10	0	0
4	U	2	Total 28	C 16	N 2	O 10	0	0
4	V	2	Total 28	C 16	N 2	O 10	0	0
4	W	2	Total 28	C 16	N 2	O 10	0	0
4	X	2	Total 28	C 16	N 2	O 10	0	0

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
5	A	1	Total 140	C 80	N 10	O 50	0
5	A	1	Total 140	C 80	N 10	O 50	0
5	A	1	Total 140	C 80	N 10	O 50	0
5	A	1	Total 140	C 80	N 10	O 50	0

Continued on next page...

*Continued from previous page...*

Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
5	A	1	140	80	10	50	0
5	A	1	140	80	10	50	0
5	A	1	140	80	10	50	0
5	A	1	140	80	10	50	0
5	A	1	140	80	10	50	0
5	A	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	B	1	140	80	10	50	0
5	C	1	140	80	10	50	0
5	C	1	140	80	10	50	0
5	C	1	140	80	10	50	0
5	C	1	140	80	10	50	0
5	C	1	140	80	10	50	0

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>				<b>AltConf</b>
5	C	1	Total 140	C 80	N 10	O 50	0
5	C	1	Total 140	C 80	N 10	O 50	0
5	C	1	Total 140	C 80	N 10	O 50	0
5	C	1	Total 140	C 80	N 10	O 50	0
5	C	1	Total 140	C 80	N 10	O 50	0







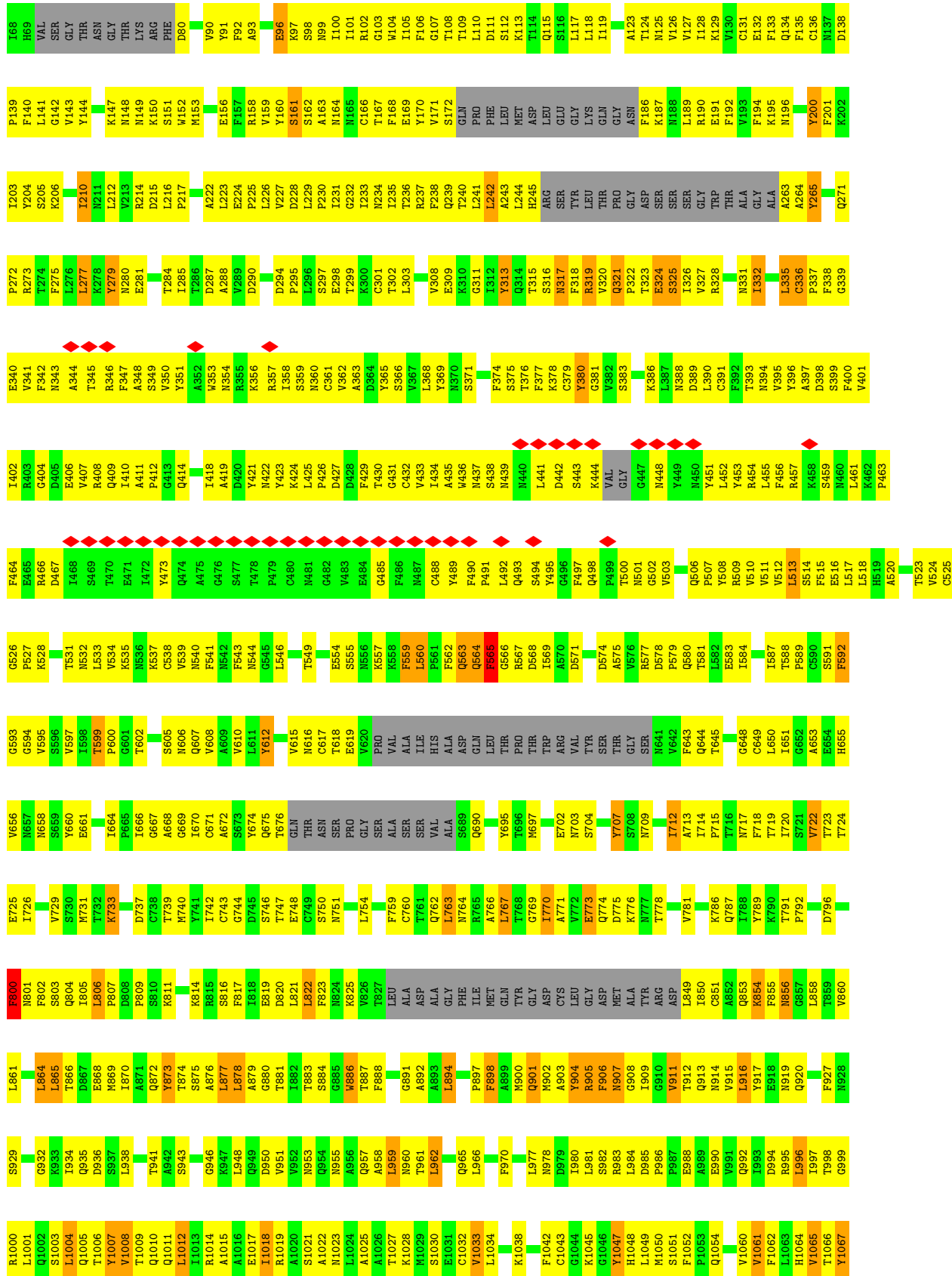
D398	S399	F400	F401	F402	I403	G404	D405	E406	V407	R408	Q409	I410	A411	G412	Q414	I418	A419	D420	Y421	M422	Y423	K424	L425	P426	D427	D428	F429	T430	G431	C432	V433	I434	A435	W436	M437	S438	M439	M440	L441	D442	S443	K444	V445	G447	M448	Y449	M450	Y451	L452	Y453	R454	L455	F456	R457	K458	S459	
M460	L461	K462	F463	F464	E465	R466	D467	I468	S469	T470	E471	I472	Y473	Q474	A475	G476	S477	T478	P479	C480	M481	L482	G483	E484	G485	F486	M487	C488	Y489	F490	P491	L492	Q493	S494	Y495	G496	F497	Q498	P499	T500	N501	G502	Q506	P507	Y508	R509	V510	V511	V512	L513	S514	F515	E516	L517	L518	H519	A520
T523	V524	C525	G526	P527	T531	N532	L533	V534	K537	V539	N540	F541	N542	F543	M544	G545	L546	T549	S555	N556	K557	K558	F559	M560	P561	F562	Q563	Q564	F565	G566	R567	D568	L569	A570	D571	D574	A575	V576	R577	D578	P579	Q580	T581	L582	E583	I584	I587	T588	R589	V590	C591	F592					
V597	Y660	E661	I664	G665	I666	G667	A668	G669	I670	A671	A672	S673	F674	Q675	T676	GLN	THR	ASN	SER	PRO	GLY	V619	PRO	VAL	ALA	VAL	ILE	HIS	ALA	ALA	ASP	GLN	LEU	THR	THR	SER	SER	N641	V642	F643	Q644	T645	G648	C649	L650	E651	G652	I654	A653	F654	H655	V656	M657	N658	V729		
S659	Y660	E661	I664	G665	I666	G667	A668	G669	I670	A671	A672	S673	F674	Q675	T676	GLN	THR	ASN	SER	PRO	GLY	V619	PRO	VAL	ALA	VAL	ILE	HIS	ALA	ALA	ASP	GLN	LEU	THR	THR	SER	SER	N641	V642	F643	Q644	T645	G648	C649	L650	E651	G652	I654	A653	F654	H655	V656	M657	N658	V729		
S730	M731	K732	K733	D737	C738	T739	M740	I741	I742	Q743	G744	D745	S746	T747	E748	C749	S750	N751	L754	F759	C760	T761	Q762	L763	T764	R765	A766	L767	T768	G769	I770	A771	V772	E773	Q774	D775	D776	N777	T778	V781	K786	Q787	I788	Y789	K790	T791	P792	D796	F797	F800	F802						
S803	Q804	L805	L806	R807	D808	R809	S810	K811	K814	L815	R816	F817	I818	E819	T820	L821	L822	F823	M824	K825	V826	T827	LEU	ALA	ASP	ALA	ALA	GLY	PHE	ILE	MET	GLN	TYR	GLY	ASP	MET	ALA	TYR	ARG	ASP	L849	I850	K854	F855	M856	L857	R858	T859	V860	L864	L865	T866	D867				
E868	M869	L870	A871	K872	Y873	T874	S875	R876	L877	L878	A879	G880	T881	I882	T883	S884	G885	M886	T887	F888	G891	A892	A893	L894	P897	F898	A899	M900	Q901	M902	Y903	A904	R905	F906	M907	G908	L909	G910	V911	T912	Q913	N914	V915	L916	Y917	E918	N919	Q920	F927	Q935	T936	S937	L938	T941			
A942	S943	A944	L945	G946	K947	L948	Q949	V950	V951	N952	N953	Q954	N955	A956	E957	A958	L959	N960	T961	L962	Q965	L966	F970	L977	N978	L981	S982	R983	L984	D985	P986	P987	E988	A989	Y991	Q992	L993	D994	R995	L996	T997	T998	G999	R1000	L1001	Q1002	S1003	L1004	Q1005	T1006	D936	Y1007	V1008	Q1010			
Q1011	L1012	L1013	R1014	E1017	I1018	R1019	A1020	S1021	A1022	N1023	L1024	A1025	A1026	T1027	K1028	M1029	S1030	E1031	C1032	V1033	L1034	K1038	F1042	C1043	Q1044	K1045	G1046	Y1047	H1048	L1049	M1050	S1051	F1052	F1053	Q1054	S1055	A1056	P1057	V1060	V1061	L1062	L1063	H1064	V1065	T1066	Y1067	V1068	P1069	A1070	Q1071	Q1072	K1073	M1074	L1075	T1076		
T1077	A1080	I1081	C1082	H1083	D1084	G1085	K1086	A1087	H1088	F1089	P1090	R1091	A1092	G1093	T1094	F1095	V1096	S1097	M1098	G1099	T1100	H1101	F1103	V1104	T1105	Q1106	R1107	M1108	F1109	I1115	T1116	T1117	D1118	M1119	V1122	S1123	G1126	I1132	V1133	M1134	M1135	T1136	V1137	Y1138	D1139	P1140	L1141	Q1142	P1143	E1144	L1145	L1146	S1147				
PHE	LYS	GLU	GLU	LEU	LEU	ASP	LYS	TYR	PHE	LYS	ASN	HIS	THR	SER	PRO	ASP	VAL	ASP	LEU	GLY	ASP	ILE	ILE	ASN	ALA	VAL	VAL	ASN	LYS	ILE	ASP	ARG	LEU	ASN	GLU	VAL	ALA	LYS	ASN	LEU	ASN	GLU	SER	LEU	ILE	ASP	ASP	LEU	GLN	LEU	GLY	LYS	TYR	GLU			

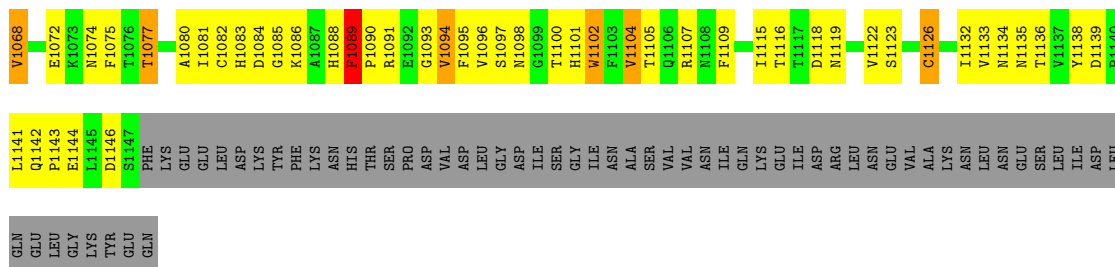
GLN

• Molecule 1: Spike glycoprotein

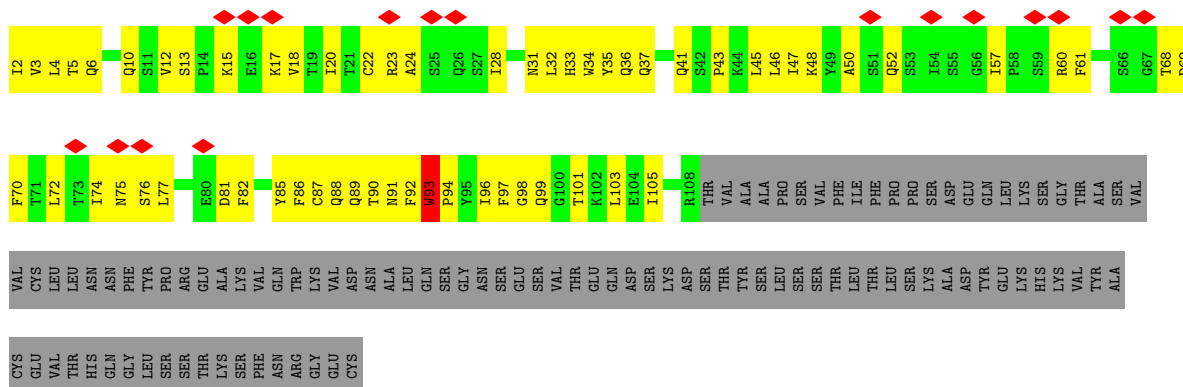
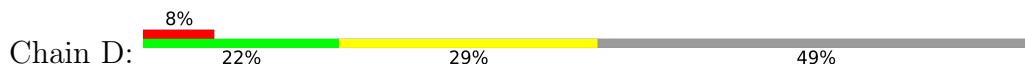


MET	PHE	VAL	PHE	LEU	VAL	LEU	LEU	PRO	VAL	VAL	VAL	SER	GLN	CYS	THR	THR	THR	ARG	P25	P26	A27	N30	S31	F32	T33	R34	Y37	Y38	K41	V42	F43	R44	S45	S46	V47	L48	D53	L54	F55	L56	P57	F58	F59	S60	T63	M64	P65	H66	A67
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

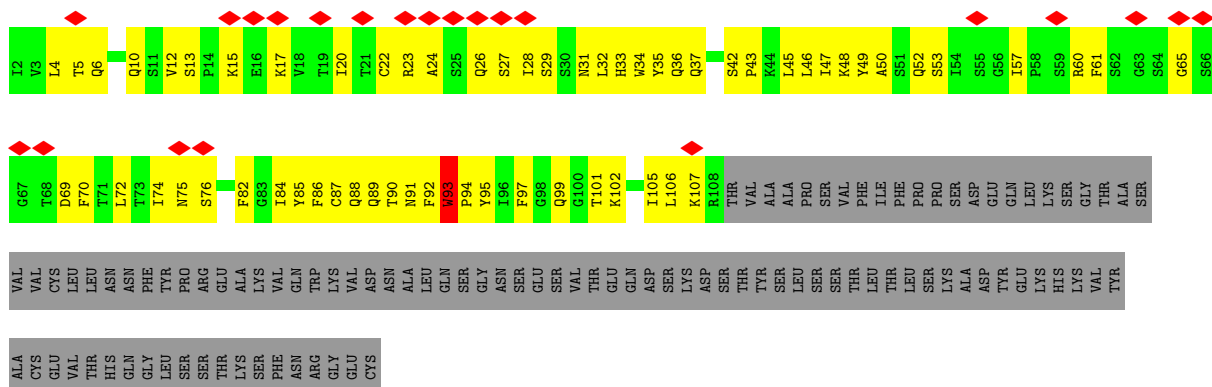




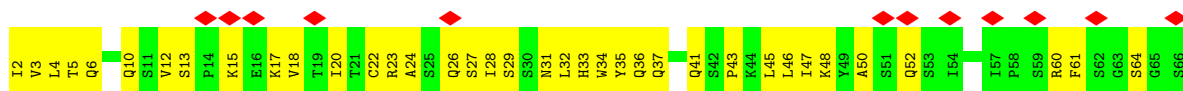
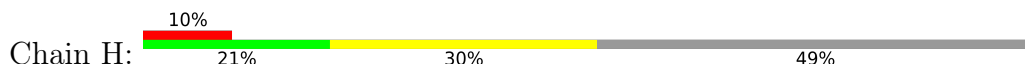
• Molecule 2: Light chain of H014 Fab



• Molecule 2: Light chain of H014 Fab



• Molecule 2: Light chain of H014 Fab









- 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



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





MAG1  
MAG2

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

Chain V:  50% 50%MAG1  
MAG2

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

Chain W:  50% 50%MAG1  
MAG2

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

Chain X:  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	110970	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 ( $e^-/\text{\AA}^2$ )	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.084	Depositor
Minimum map value	-0.035	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0045	Depositor
Map size (Å)	416.0, 416.0, 416.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.04, 1.04, 1.04	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	1.41	101/8214 (1.2%)	0.92	22/11179 (0.2%)
1	B	1.41	99/8218 (1.2%)	0.91	22/11184 (0.2%)
1	C	1.41	101/8218 (1.2%)	0.91	22/11184 (0.2%)
2	D	0.41	0/857	0.66	0/1160
2	F	0.42	0/857	0.71	0/1160
2	H	0.41	0/857	0.66	0/1160
3	E	0.41	0/963	0.59	0/1311
3	G	0.44	0/963	0.65	1/1311 (0.1%)
3	I	0.41	0/963	0.59	0/1311
All	All	1.29	301/30110 (1.0%)	0.87	67/40960 (0.2%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	7
1	B	0	6
1	C	0	7
2	D	0	1
2	F	0	1
2	H	0	1
3	G	0	2
3	I	0	1
All	All	0	26

The worst 5 of 301 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1060	VAL	CB-CG1	-9.27	1.33	1.52

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	1060	VAL	CB-CG1	-9.24	1.33	1.52
1	B	1060	VAL	CB-CG1	-9.21	1.33	1.52
1	B	1102	TRP	CB-CG	-8.84	1.34	1.50
1	A	1102	TRP	CB-CG	-8.81	1.34	1.50

The worst 5 of 67 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	878	LEU	CB-CG-CD2	-9.03	95.66	111.00
1	C	878	LEU	CB-CG-CD2	-9.02	95.67	111.00
1	B	878	LEU	CB-CG-CD2	-9.02	95.67	111.00
1	C	277	LEU	CA-CB-CG	-7.17	98.80	115.30
1	A	277	LEU	CA-CB-CG	-7.17	98.81	115.30

There are no chirality outliers.

5 of 26 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	200	TYR	Peptide
1	A	210	ILE	Peptide
1	A	380	TYR	Peptide
1	A	516	GLU	Peptide
1	A	96	GLU	Peptide

## 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	8029	0	7803	822	0
1	B	8033	0	7807	775	0
1	C	8033	0	7806	767	0
2	D	837	0	820	92	0
2	F	837	0	820	81	0
2	H	837	0	820	85	0
3	E	939	0	891	113	0
3	G	939	0	891	104	0
3	I	939	0	891	105	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	J	28	0	25	1	0
4	K	28	0	25	0	0
4	L	28	0	25	2	0
4	M	28	0	25	0	0
4	N	28	0	25	0	0
4	O	28	0	25	1	0
4	P	28	0	25	0	0
4	Q	28	0	25	2	0
4	R	28	0	25	0	0
4	S	28	0	25	1	0
4	T	28	0	25	1	0
4	U	28	0	25	0	0
4	V	28	0	25	2	0
4	W	28	0	25	0	0
4	X	28	0	25	1	0
5	A	140	0	130	14	0
5	B	140	0	130	13	0
5	C	140	0	130	13	0
All	All	30263	0	29314	2778	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 47.

The worst 5 of 2778 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:43:PHE:CD2	1:B:559:PHE:HE1	1.02	1.63
1:A:43:PHE:CD2	1:B:559:PHE:CE1	1.93	1.56
1:B:324:GLU:CD	1:B:325:SER:H	1.07	1.46
1:C:318:PHE:CZ	1:C:615:VAL:HG11	1.62	1.33
1:A:43:PHE:CG	1:B:559:PHE:CE1	2.18	1.31

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	1012/1208 (84%)	899 (89%)	106 (10%)	7 (1%)	22	62
1	B	1012/1208 (84%)	906 (90%)	101 (10%)	5 (0%)	29	67
1	C	1012/1208 (84%)	900 (89%)	106 (10%)	6 (1%)	25	64
2	D	105/210 (50%)	96 (91%)	8 (8%)	1 (1%)	15	55
2	F	105/210 (50%)	98 (93%)	6 (6%)	1 (1%)	15	55
2	H	105/210 (50%)	96 (91%)	8 (8%)	1 (1%)	15	55
3	E	120/223 (54%)	113 (94%)	4 (3%)	3 (2%)	5	36
3	G	120/223 (54%)	112 (93%)	5 (4%)	3 (2%)	5	36
3	I	120/223 (54%)	112 (93%)	5 (4%)	3 (2%)	5	36
All	All	3711/4923 (75%)	3332 (90%)	349 (9%)	30 (1%)	24	59

5 of 30 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	856	ASN
3	G	102	ASP
3	I	102	ASP
1	A	332	ILE
1	A	557	LYS

### 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	896/1054 (85%)	884 (99%)	12 (1%)	69	87
1	B	897/1054 (85%)	881 (98%)	16 (2%)	59	81
1	C	897/1054 (85%)	880 (98%)	17 (2%)	57	80
2	D	95/189 (50%)	95 (100%)	0	100	100
2	F	95/189 (50%)	95 (100%)	0	100	100

*Continued on next page...*

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	95/189 (50%)	95 (100%)	0	100	100
3	E	101/190 (53%)	100 (99%)	1 (1%)	76	89
3	G	101/190 (53%)	100 (99%)	1 (1%)	76	89
3	I	101/190 (53%)	100 (99%)	1 (1%)	76	89
All	All	3278/4299 (76%)	3230 (98%)	48 (2%)	66	85

5 of 48 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	317	ASN
1	C	563	GLN
1	C	319	ARG
1	C	325	SER
1	C	599	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 50 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	1119	ASN
1	C	354	ASN
2	H	99	GLN
1	C	66	HIS
1	C	196	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](#)

30 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	J	1	1,4	14,14,15	1.45	2 (14%)	17,19,21	1.45	2 (11%)
4	NAG	J	2	4	14,14,15	0.35	0	17,19,21	0.79	1 (5%)
4	NAG	K	1	1,4	14,14,15	1.20	2 (14%)	17,19,21	0.60	0
4	NAG	K	2	4	14,14,15	0.70	1 (7%)	17,19,21	0.61	0
4	NAG	L	1	1,4	14,14,15	0.86	1 (7%)	17,19,21	0.68	0
4	NAG	L	2	4	14,14,15	1.08	1 (7%)	17,19,21	0.73	0
4	NAG	M	1	1,4	14,14,15	1.10	2 (14%)	17,19,21	0.78	0
4	NAG	M	2	4	14,14,15	0.34	0	17,19,21	0.44	0
4	NAG	N	1	1,4	14,14,15	1.33	2 (14%)	17,19,21	0.50	0
4	NAG	N	2	4	14,14,15	0.61	0	17,19,21	0.58	0
4	NAG	O	1	1,4	14,14,15	1.44	2 (14%)	17,19,21	1.45	2 (11%)
4	NAG	O	2	4	14,14,15	0.35	0	17,19,21	0.79	1 (5%)
4	NAG	P	1	1,4	14,14,15	1.21	2 (14%)	17,19,21	0.59	0
4	NAG	P	2	4	14,14,15	0.70	1 (7%)	17,19,21	0.61	0
4	NAG	Q	1	1,4	14,14,15	0.86	1 (7%)	17,19,21	0.67	0
4	NAG	Q	2	4	14,14,15	1.08	1 (7%)	17,19,21	0.73	0
4	NAG	R	1	1,4	14,14,15	1.09	2 (14%)	17,19,21	0.78	0
4	NAG	R	2	4	14,14,15	0.33	0	17,19,21	0.44	0
4	NAG	S	1	1,4	14,14,15	1.34	2 (14%)	17,19,21	0.51	0
4	NAG	S	2	4	14,14,15	0.61	0	17,19,21	0.58	0
4	NAG	T	1	1,4	14,14,15	1.45	2 (14%)	17,19,21	1.45	2 (11%)
4	NAG	T	2	4	14,14,15	0.35	0	17,19,21	0.80	1 (5%)
4	NAG	U	1	1,4	14,14,15	1.20	2 (14%)	17,19,21	0.60	0
4	NAG	U	2	4	14,14,15	0.69	1 (7%)	17,19,21	0.62	0
4	NAG	V	1	1,4	14,14,15	0.86	1 (7%)	17,19,21	0.67	0
4	NAG	V	2	4	14,14,15	1.07	1 (7%)	17,19,21	0.73	0
4	NAG	W	1	1,4	14,14,15	1.09	2 (14%)	17,19,21	0.78	0
4	NAG	W	2	4	14,14,15	0.33	0	17,19,21	0.44	0
4	NAG	X	1	1,4	14,14,15	1.34	2 (14%)	17,19,21	0.51	0
4	NAG	X	2	4	14,14,15	0.61	0	17,19,21	0.60	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. '2' means no outliers of that kind were identified.

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

The worst 5 of 33 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	J	1	NAG	O5-C1	-4.80	1.36	1.43
4	T	1	NAG	O5-C1	-4.80	1.36	1.43

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	O	1	NAG	O5-C1	-4.79	1.36	1.43
4	S	1	NAG	O5-C1	-4.32	1.36	1.43
4	X	1	NAG	O5-C1	-4.32	1.36	1.43

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	J	1	NAG	C3-C4-C5	4.52	118.30	110.24
4	O	1	NAG	C3-C4-C5	4.52	118.30	110.24
4	T	1	NAG	C3-C4-C5	4.51	118.29	110.24
4	T	2	NAG	C1-O5-C5	2.80	115.99	112.19
4	O	2	NAG	C1-O5-C5	2.78	115.96	112.19

There are no chirality outliers.

5 of 45 torsion outliers are listed below:

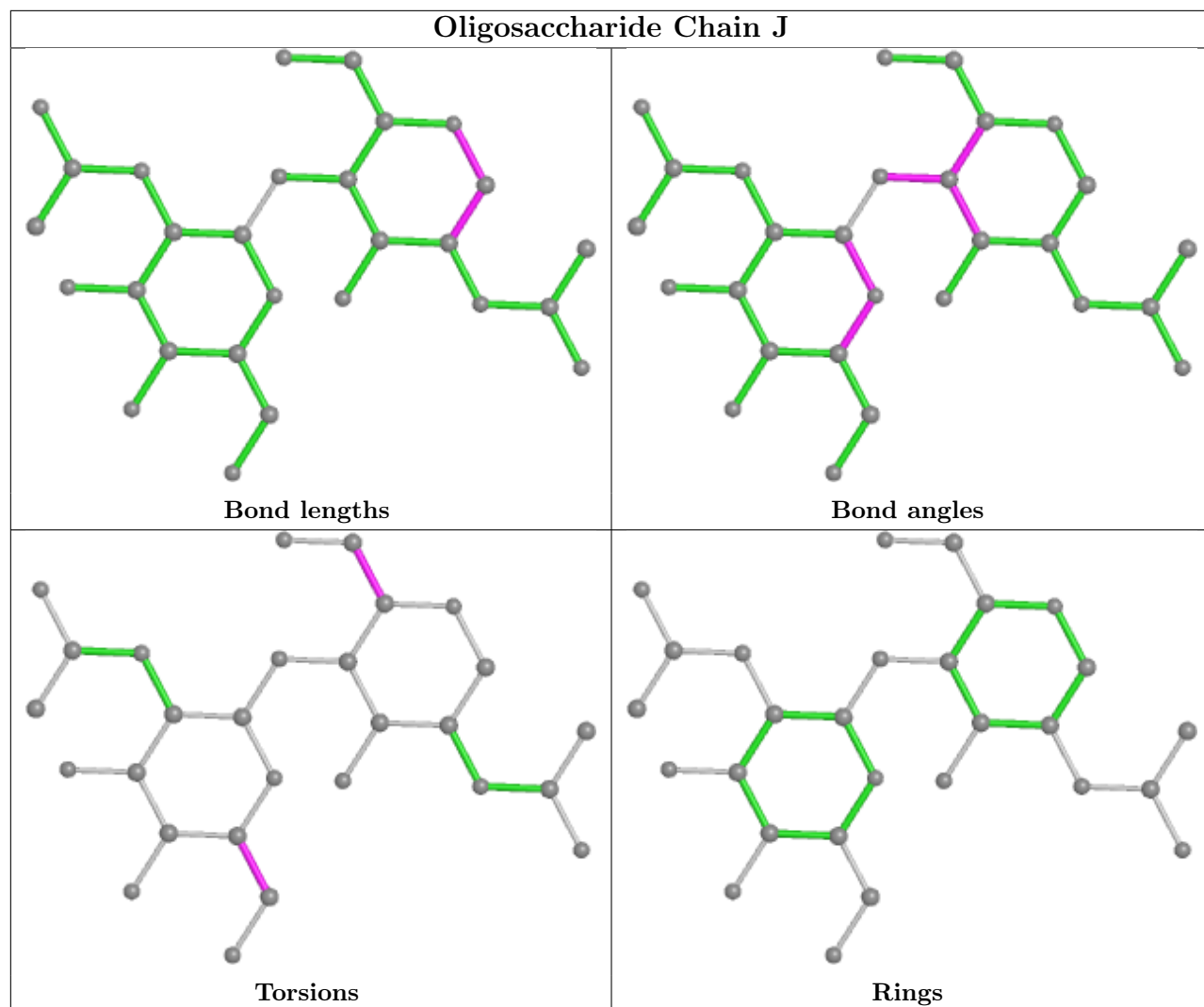
Mol	Chain	Res	Type	Atoms
4	J	1	NAG	O5-C5-C6-O6
4	O	1	NAG	O5-C5-C6-O6
4	T	1	NAG	O5-C5-C6-O6
4	K	2	NAG	O5-C5-C6-O6
4	P	2	NAG	O5-C5-C6-O6

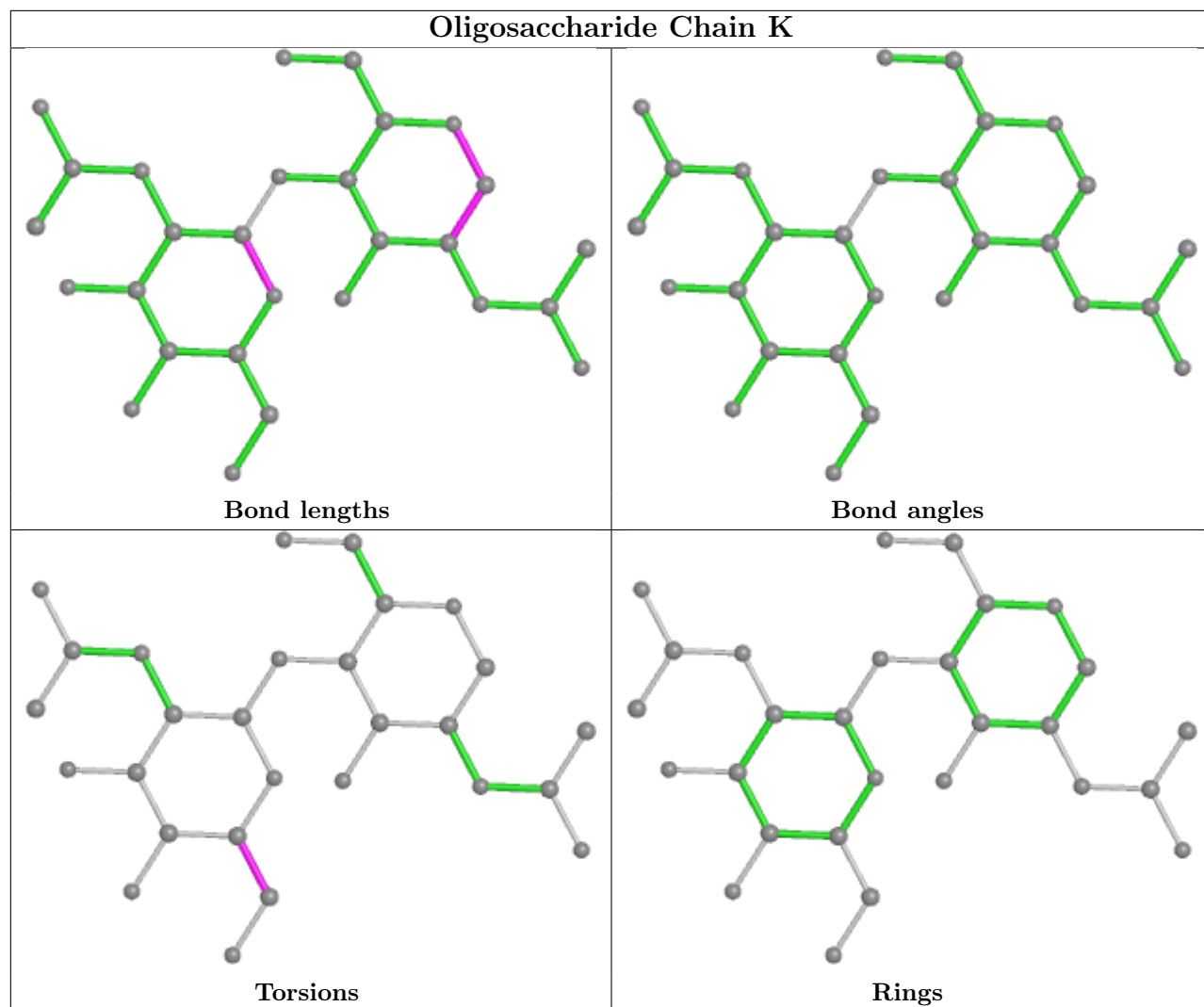
There are no ring outliers.

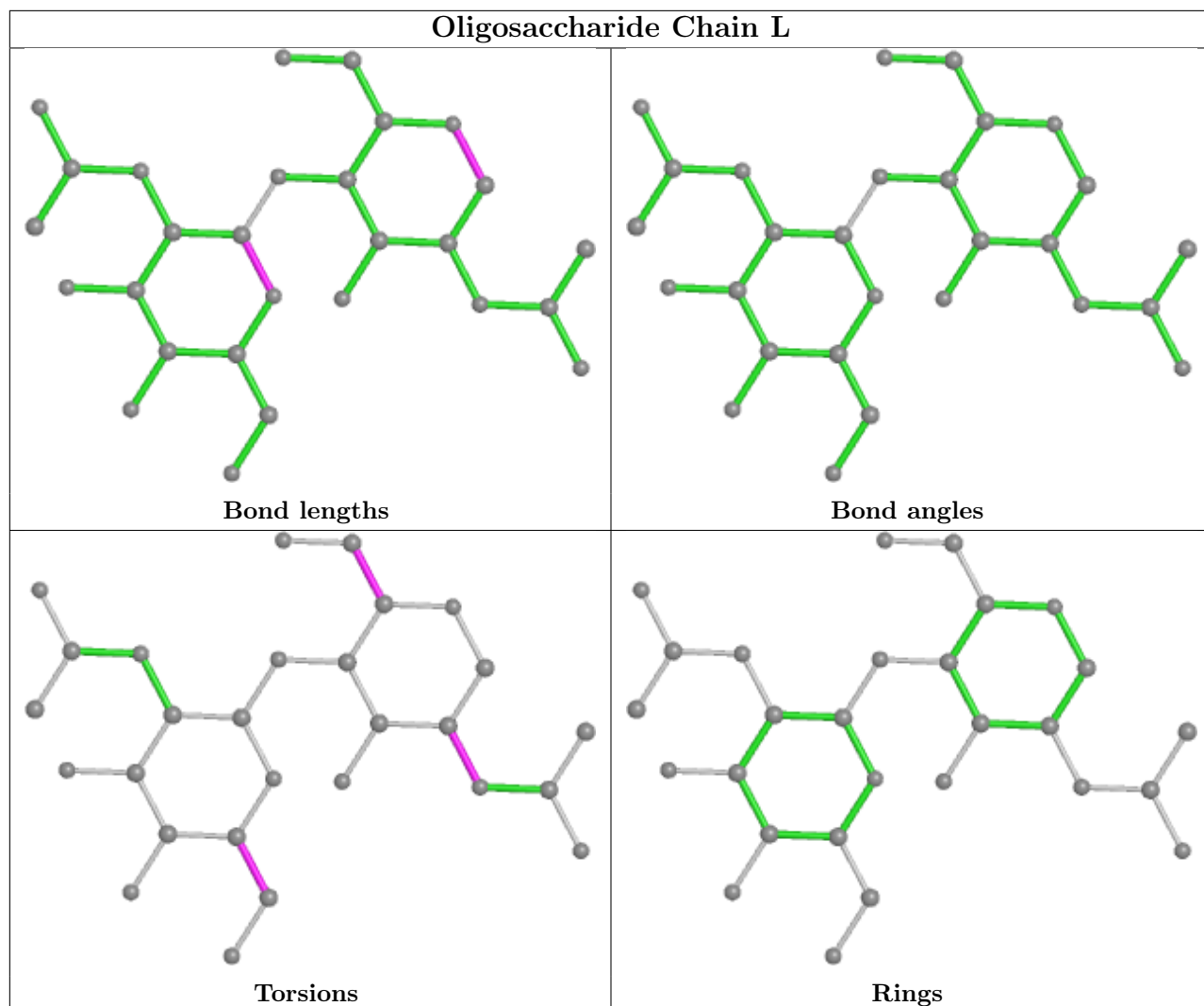
10 monomers are involved in 11 short contacts:

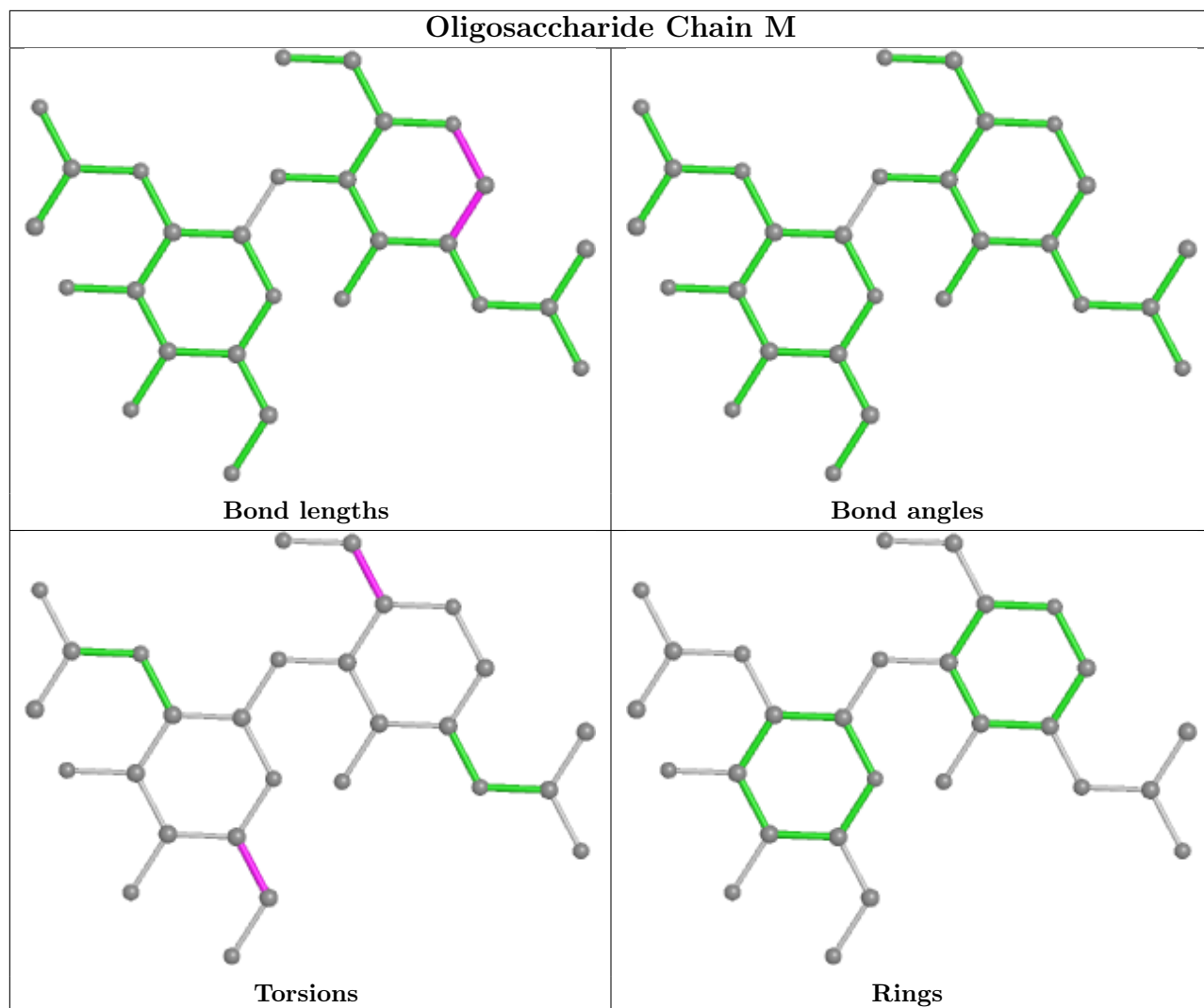
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	S	2	NAG	1	0
4	X	2	NAG	1	0
4	S	1	NAG	1	0
4	O	1	NAG	1	0
4	J	1	NAG	1	0
4	Q	1	NAG	2	0
4	V	1	NAG	2	0
4	T	1	NAG	1	0
4	L	1	NAG	2	0
4	X	1	NAG	1	0

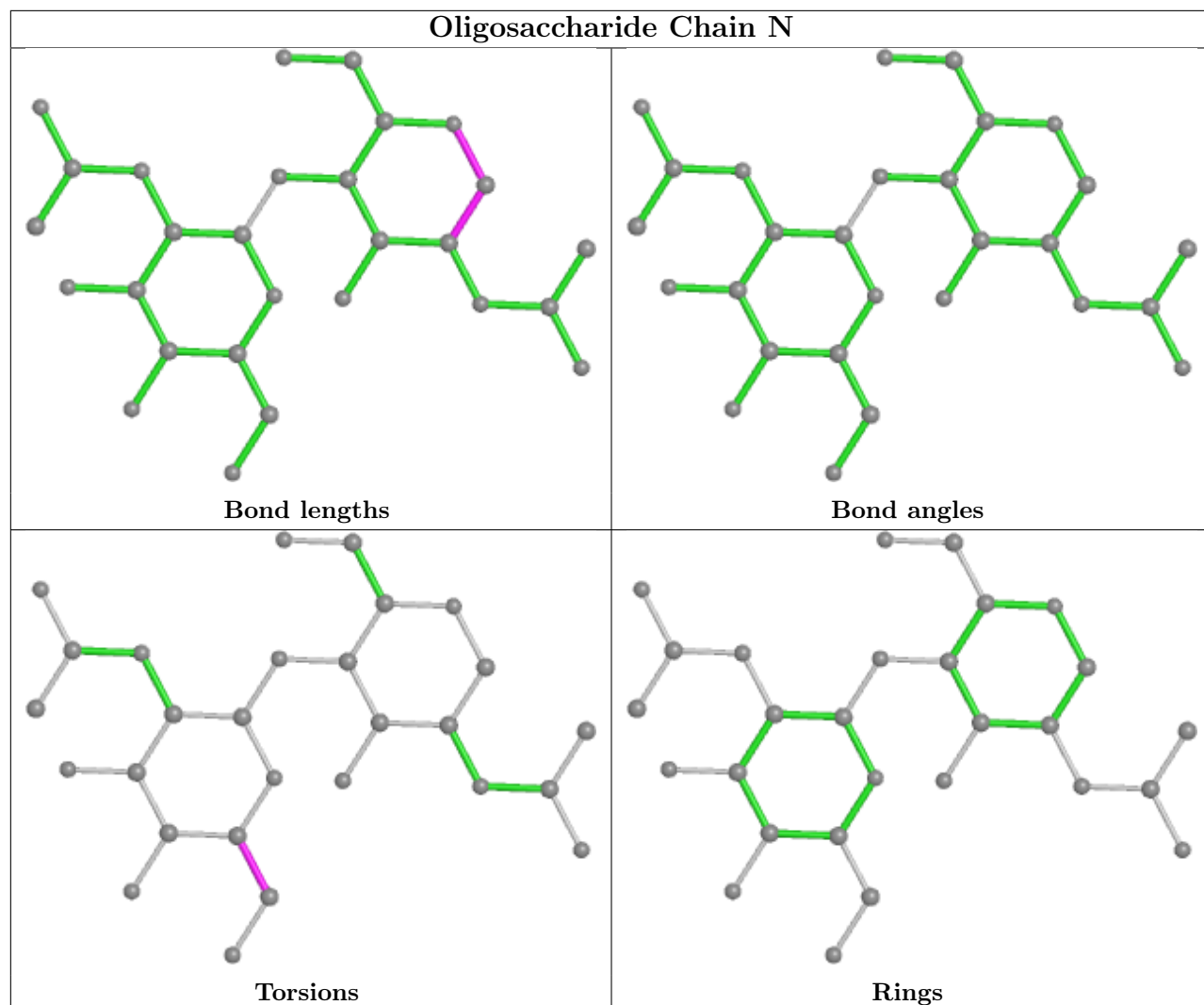
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

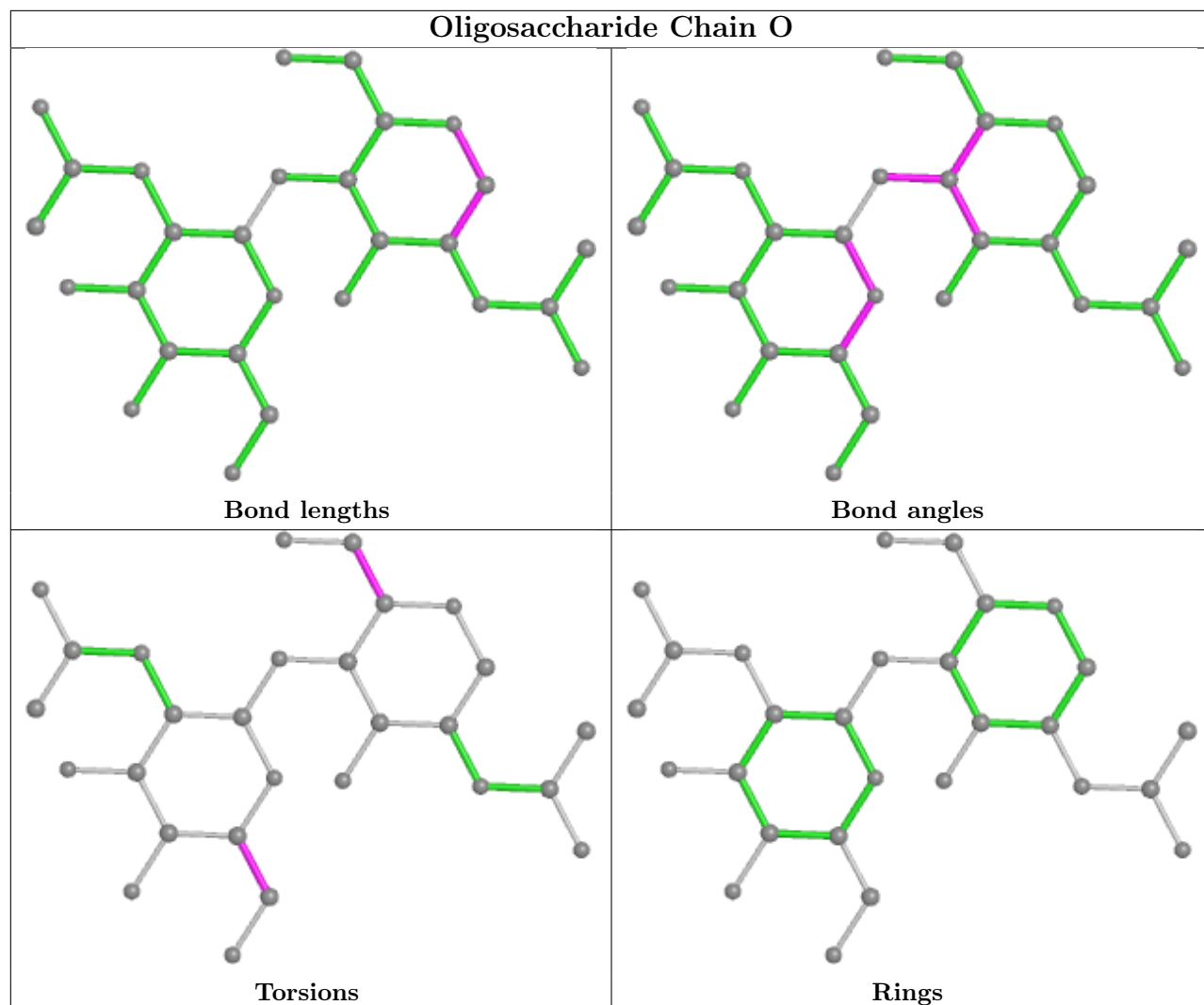




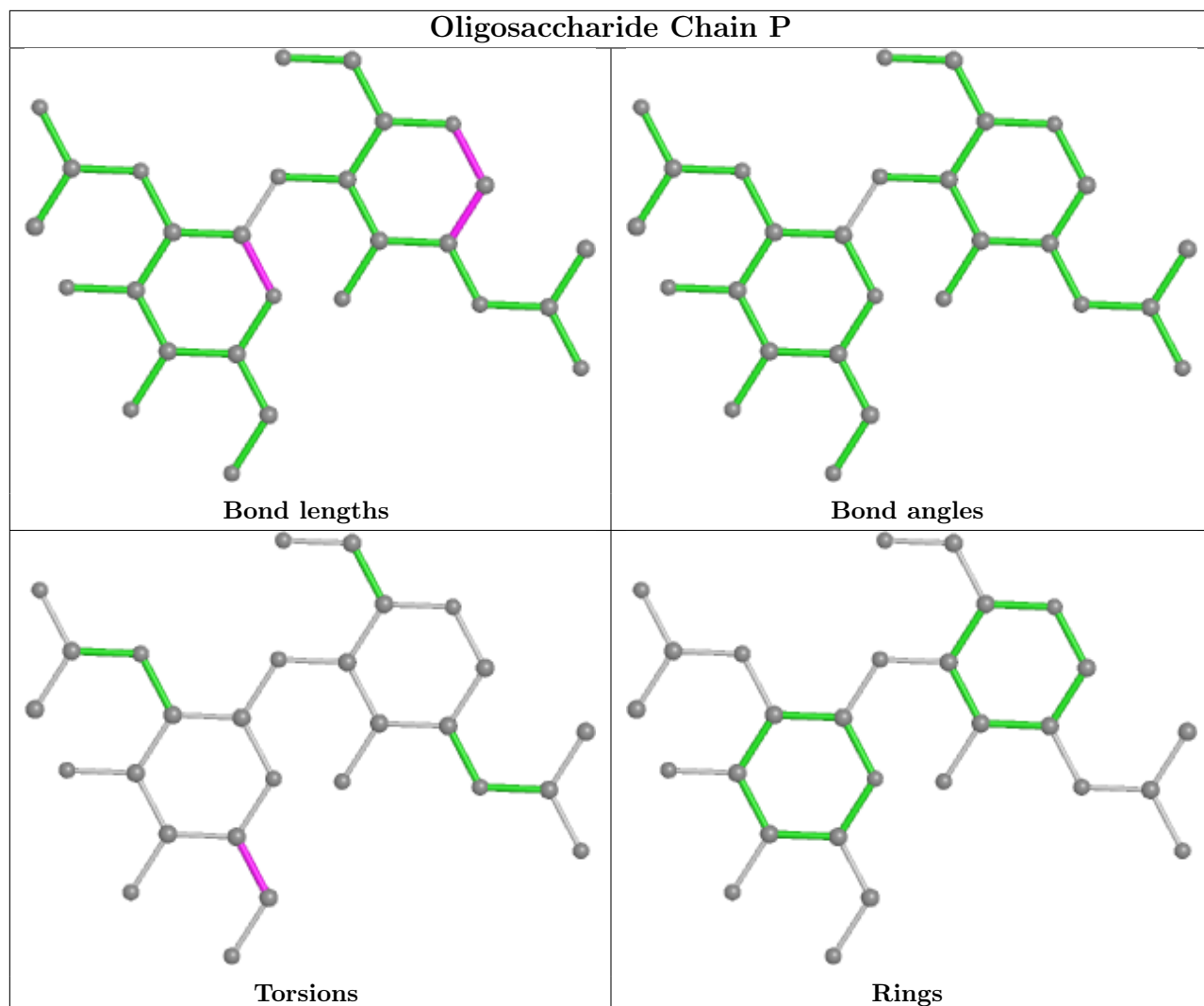


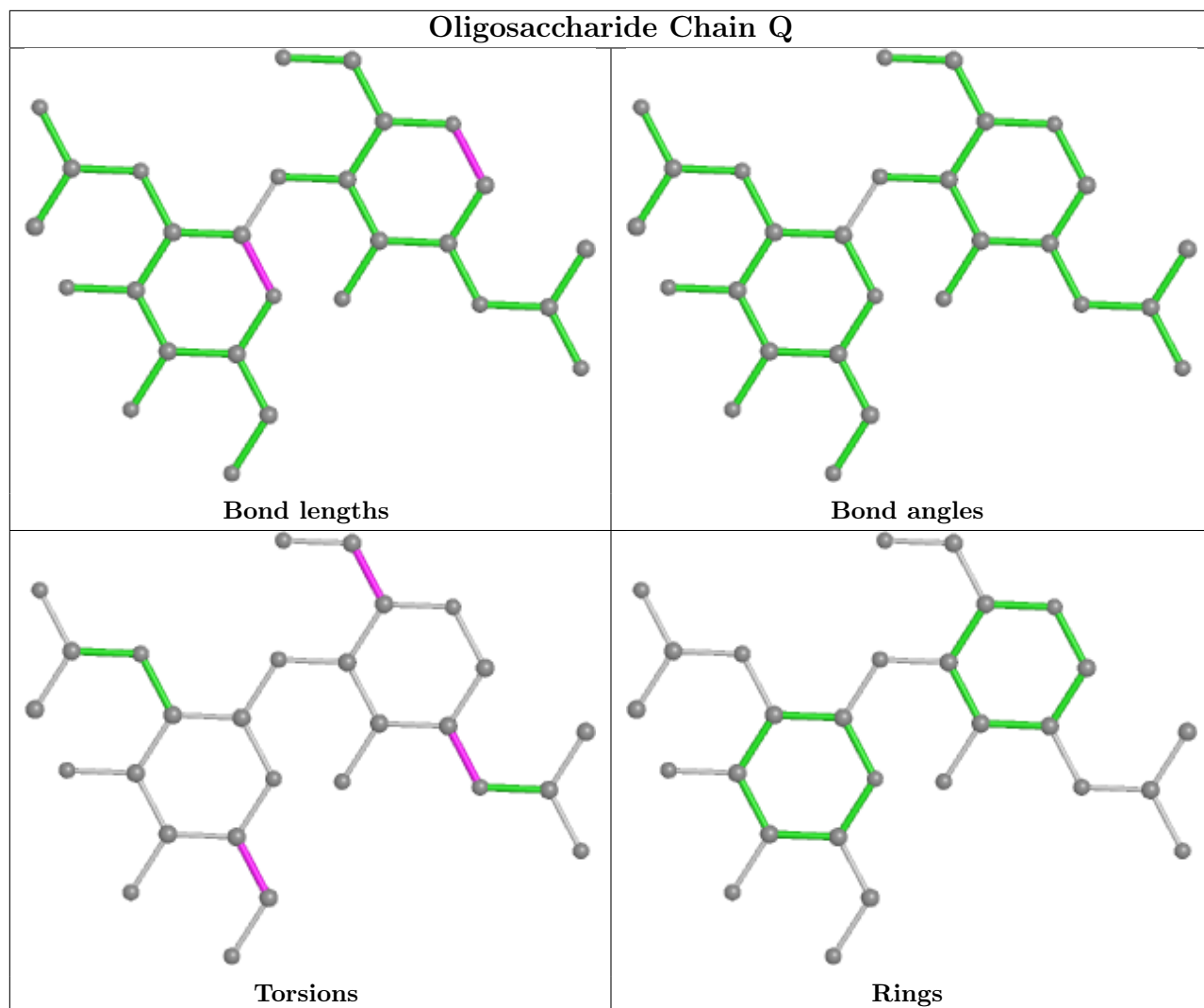


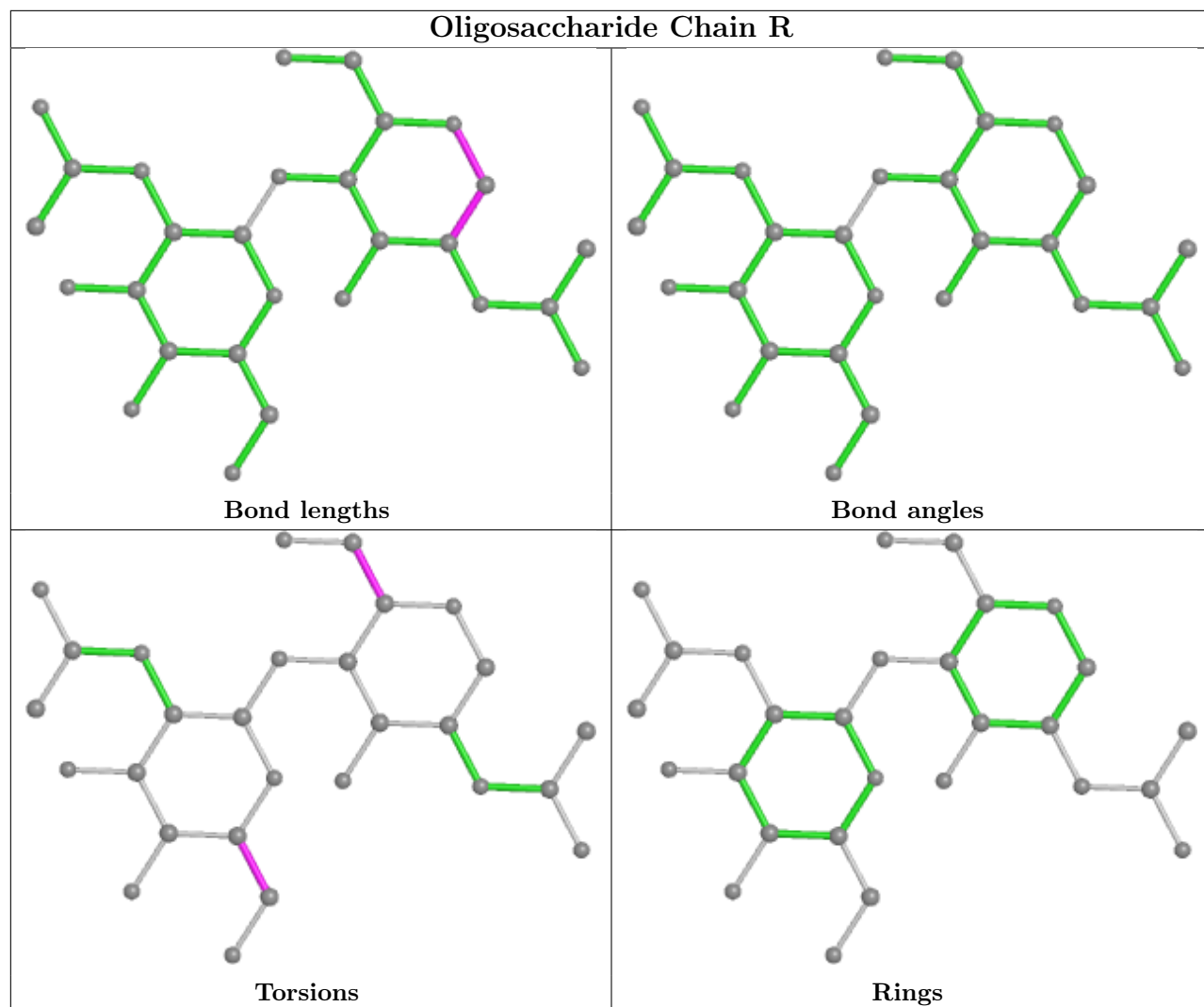


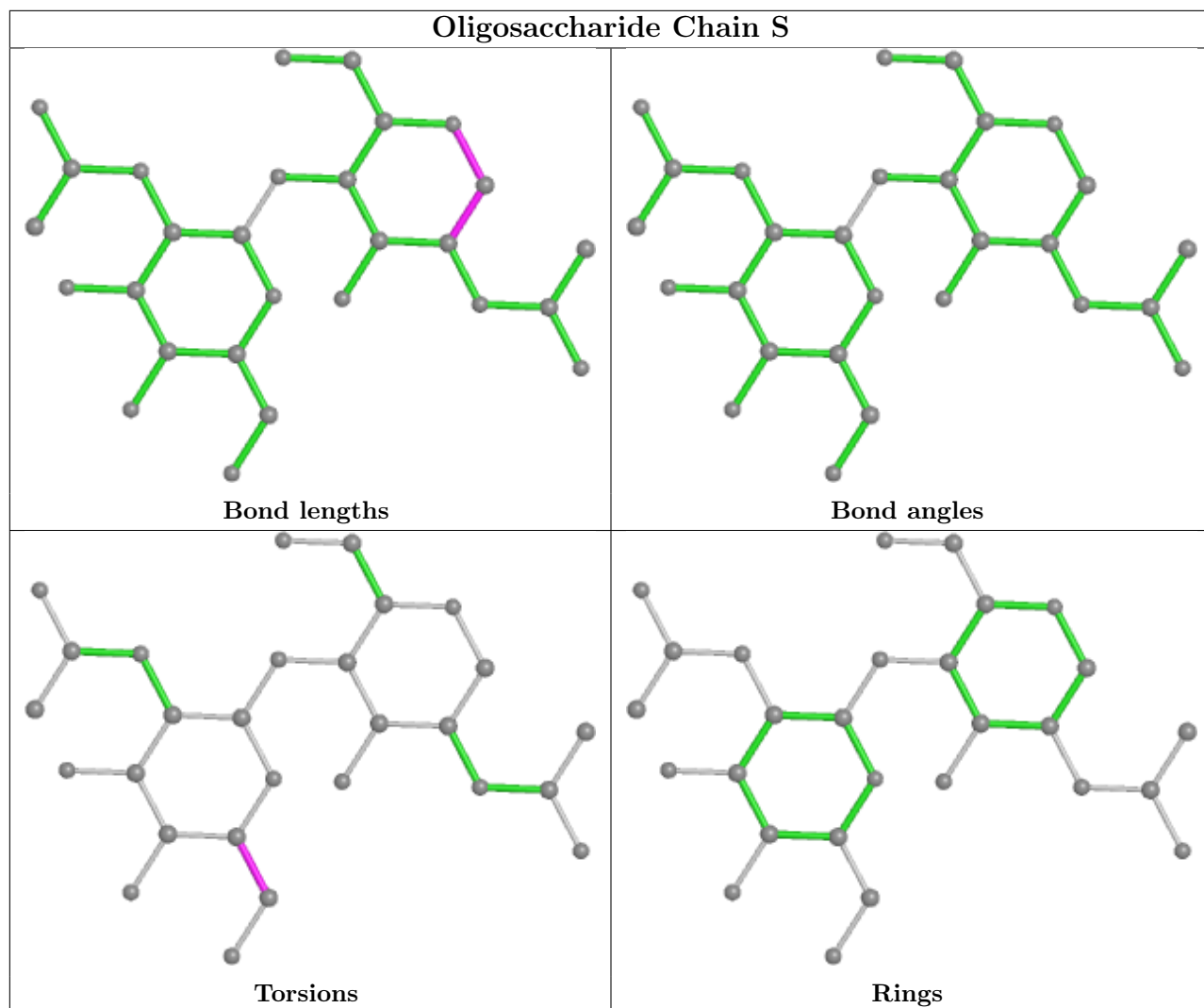


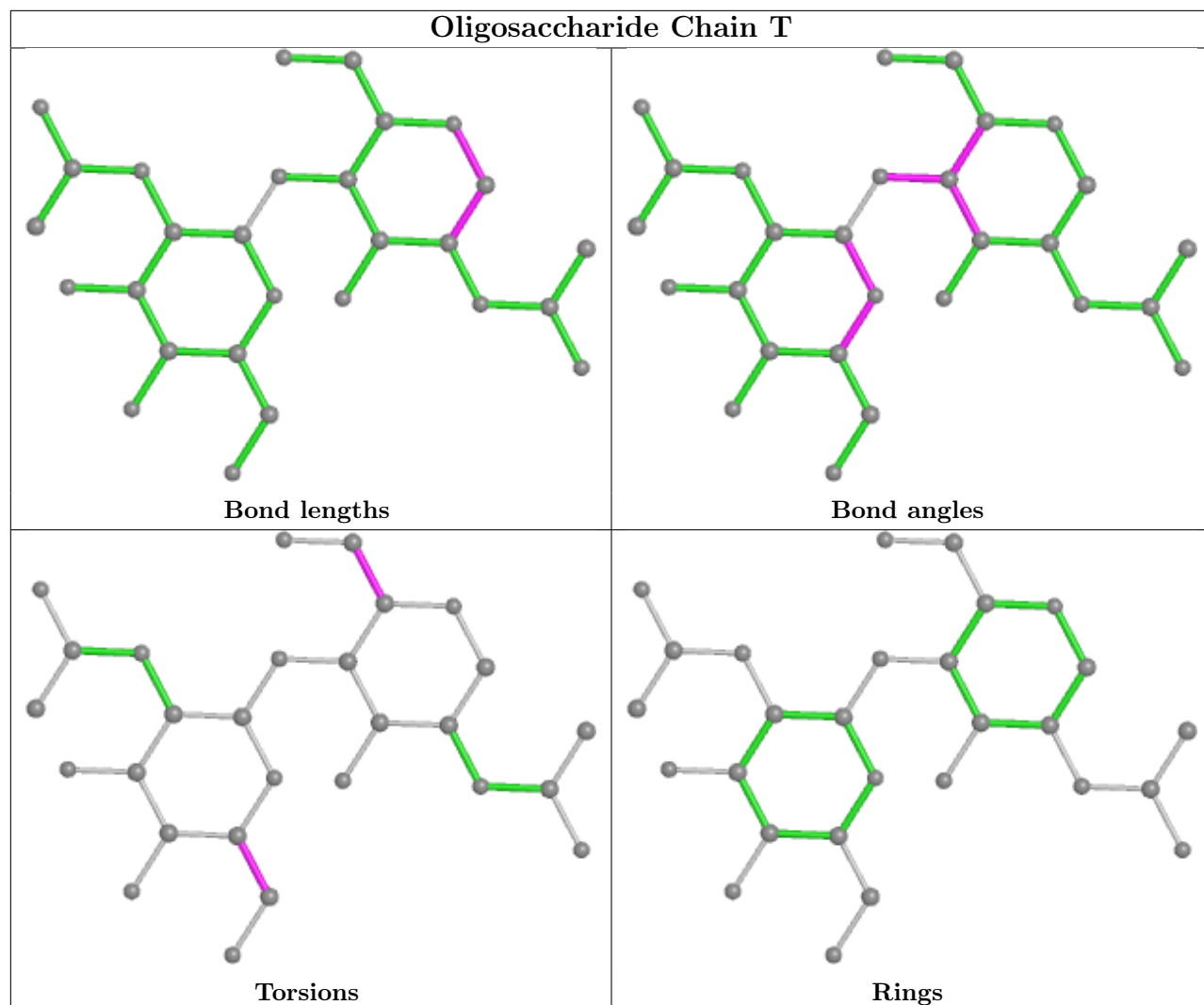


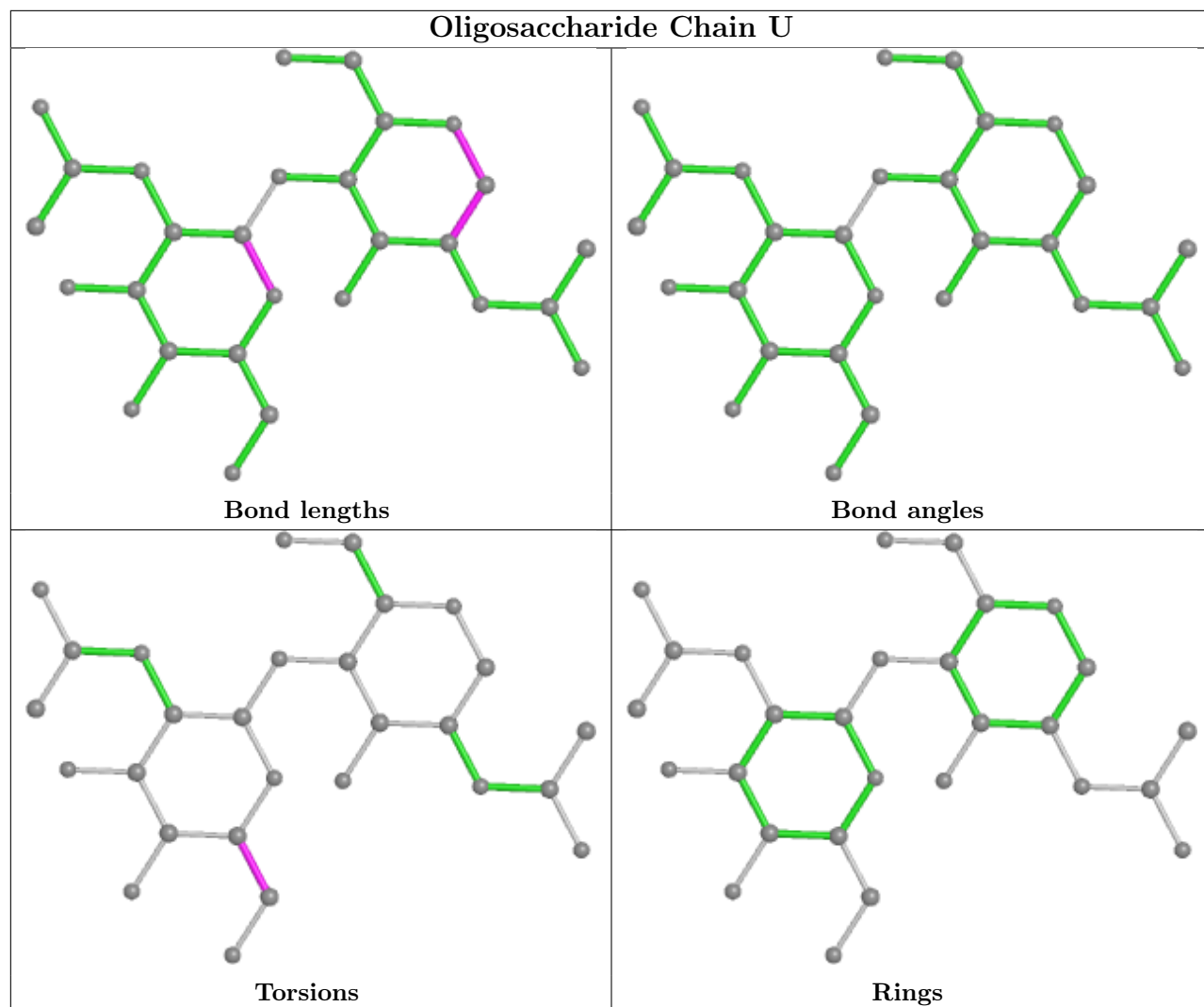


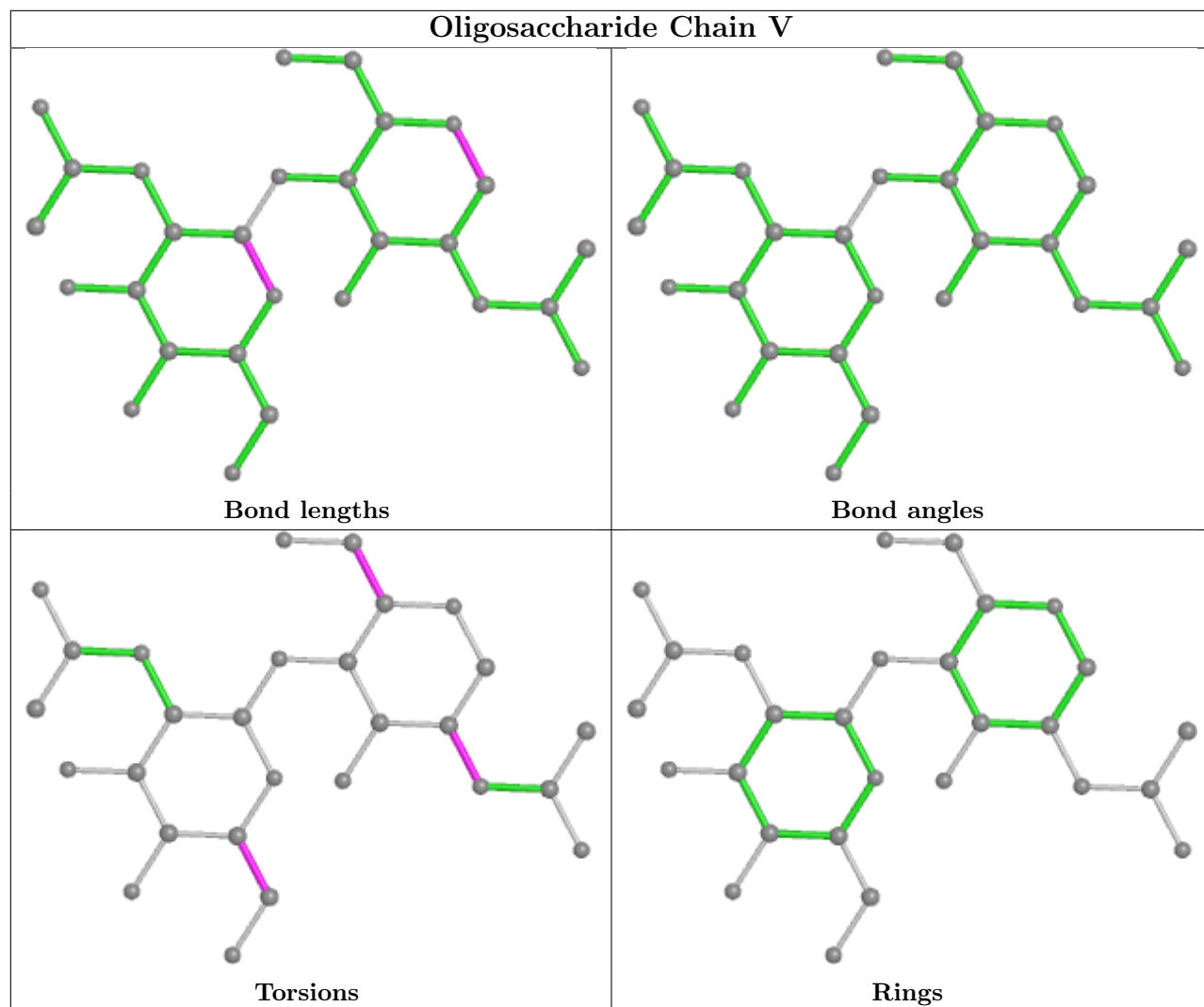


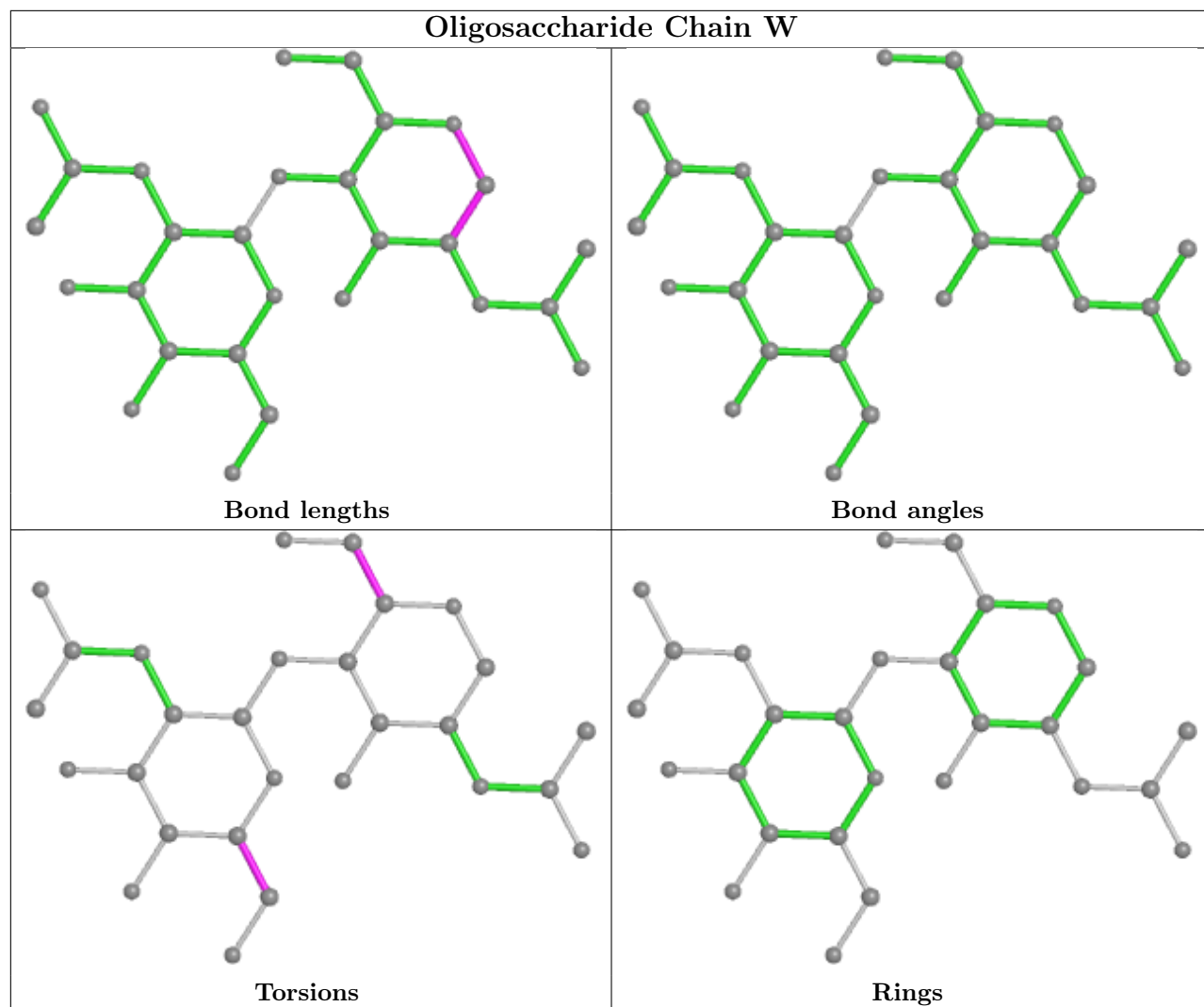




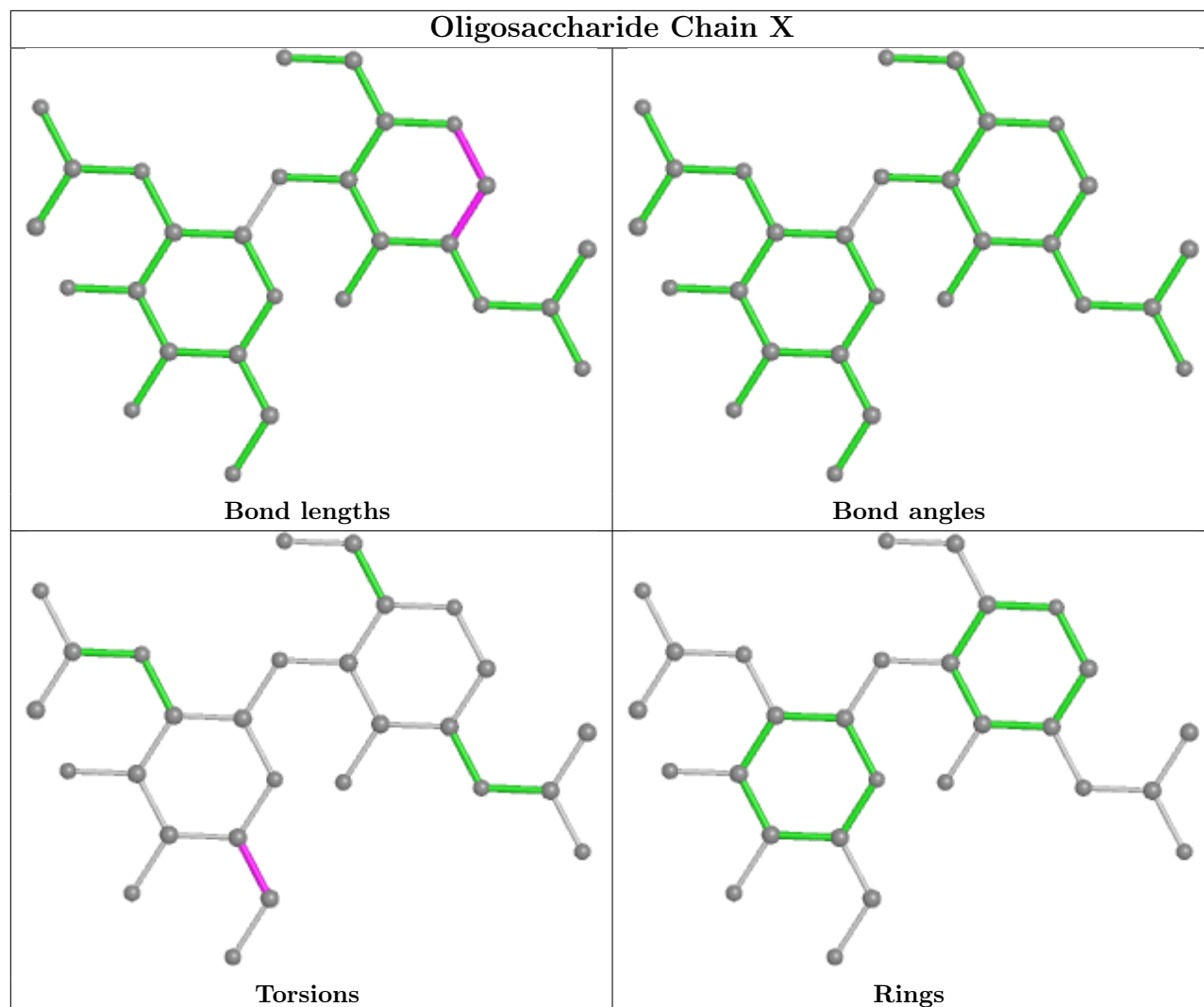












## 5.6 Ligand geometry [i](#)

30 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	B	1302	1	14,14,15	0.22	0	17,19,21	0.48	0
5	NAG	C	1308	1	14,14,15	0.76	1 (7%)	17,19,21	1.02	1 (5%)
5	NAG	A	1304	1	14,14,15	0.32	0	17,19,21	1.05	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	NAG	B	1306	1	14,14,15	1.62	1 (7%)	17,19,21	0.90	1 (5%)
5	NAG	A	1308	1	14,14,15	0.72	1 (7%)	17,19,21	0.65	0
5	NAG	C	1301	1	14,14,15	0.76	1 (7%)	17,19,21	0.59	0
5	NAG	A	1310	1	14,14,15	0.48	0	17,19,21	0.63	0
5	NAG	C	1306	1	14,14,15	0.92	1 (7%)	17,19,21	2.13	1 (5%)
5	NAG	B	1308	1	14,14,15	0.82	1 (7%)	17,19,21	1.12	1 (5%)
5	NAG	B	1310	1	14,14,15	0.47	0	17,19,21	0.63	0
5	NAG	C	1303	1	14,14,15	0.40	0	17,19,21	0.61	0
5	NAG	C	1307	1	14,14,15	0.45	0	17,19,21	0.62	0
5	NAG	A	1305	1	14,14,15	0.40	0	17,19,21	0.32	0
5	NAG	A	1307	1	14,14,15	0.45	0	17,19,21	0.63	0
5	NAG	B	1305	1	14,14,15	0.38	0	17,19,21	0.32	0
5	NAG	B	1309	1	14,14,15	0.89	1 (7%)	17,19,21	0.49	0
5	NAG	B	1307	1	14,14,15	0.44	0	17,19,21	0.63	0
5	NAG	B	1301	1	14,14,15	0.76	1 (7%)	17,19,21	0.60	0
5	NAG	A	1306	1	14,14,15	1.64	1 (7%)	17,19,21	0.87	1 (5%)
5	NAG	A	1303	1	14,14,15	0.40	0	17,19,21	0.61	0
5	NAG	B	1303	1	14,14,15	0.41	0	17,19,21	0.61	0
5	NAG	C	1309	1	14,14,15	0.87	1 (7%)	17,19,21	0.49	0
5	NAG	C	1310	1	14,14,15	0.48	0	17,19,21	0.63	0
5	NAG	B	1304	1	14,14,15	0.33	0	17,19,21	1.04	1 (5%)
5	NAG	C	1304	1	14,14,15	0.32	0	17,19,21	1.05	1 (5%)
5	NAG	A	1302	1	14,14,15	0.22	0	17,19,21	0.48	0
5	NAG	C	1305	1	14,14,15	0.39	0	17,19,21	0.33	0
5	NAG	C	1302	1	14,14,15	0.22	0	17,19,21	0.48	0
5	NAG	A	1309	1	14,14,15	0.89	1 (7%)	17,19,21	0.49	0
5	NAG	A	1301	1	14,14,15	0.77	1 (7%)	17,19,21	0.59	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
5	NAG	B	1302	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1308	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1304	1	-	1/6/23/26	0/1/1/1
5	NAG	B	1306	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1308	1	-	2/6/23/26	0/1/1/1

*Continued on next page...*

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	C	1301	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1310	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1306	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1308	1	-	4/6/23/26	0/1/1/1
5	NAG	B	1310	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1303	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1307	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1305	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1307	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1305	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1309	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1307	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1301	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1306	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1303	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1303	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1309	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1310	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1304	1	-	1/6/23/26	0/1/1/1
5	NAG	C	1304	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1302	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1305	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1302	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1309	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1301	1	-	0/6/23/26	0/1/1/1

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	1306	NAG	O5-C1	-6.06	1.34	1.43
5	B	1306	NAG	O5-C1	-6.04	1.34	1.43
5	A	1309	NAG	O5-C1	-3.05	1.38	1.43
5	B	1309	NAG	O5-C1	-3.04	1.38	1.43
5	C	1309	NAG	O5-C1	-3.01	1.38	1.43

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	1306	NAG	C1-O5-C5	8.49	123.69	112.19
5	B	1308	NAG	C1-O5-C5	4.18	117.86	112.19
5	A	1304	NAG	C1-O5-C5	3.60	117.06	112.19
5	C	1304	NAG	C1-O5-C5	3.58	117.05	112.19
5	B	1304	NAG	C1-O5-C5	3.56	117.02	112.19

There are no chirality outliers.

5 of 56 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	1308	NAG	O5-C5-C6-O6
5	C	1306	NAG	O5-C5-C6-O6
5	C	1308	NAG	O5-C5-C6-O6
5	A	1310	NAG	O5-C5-C6-O6
5	B	1310	NAG	O5-C5-C6-O6

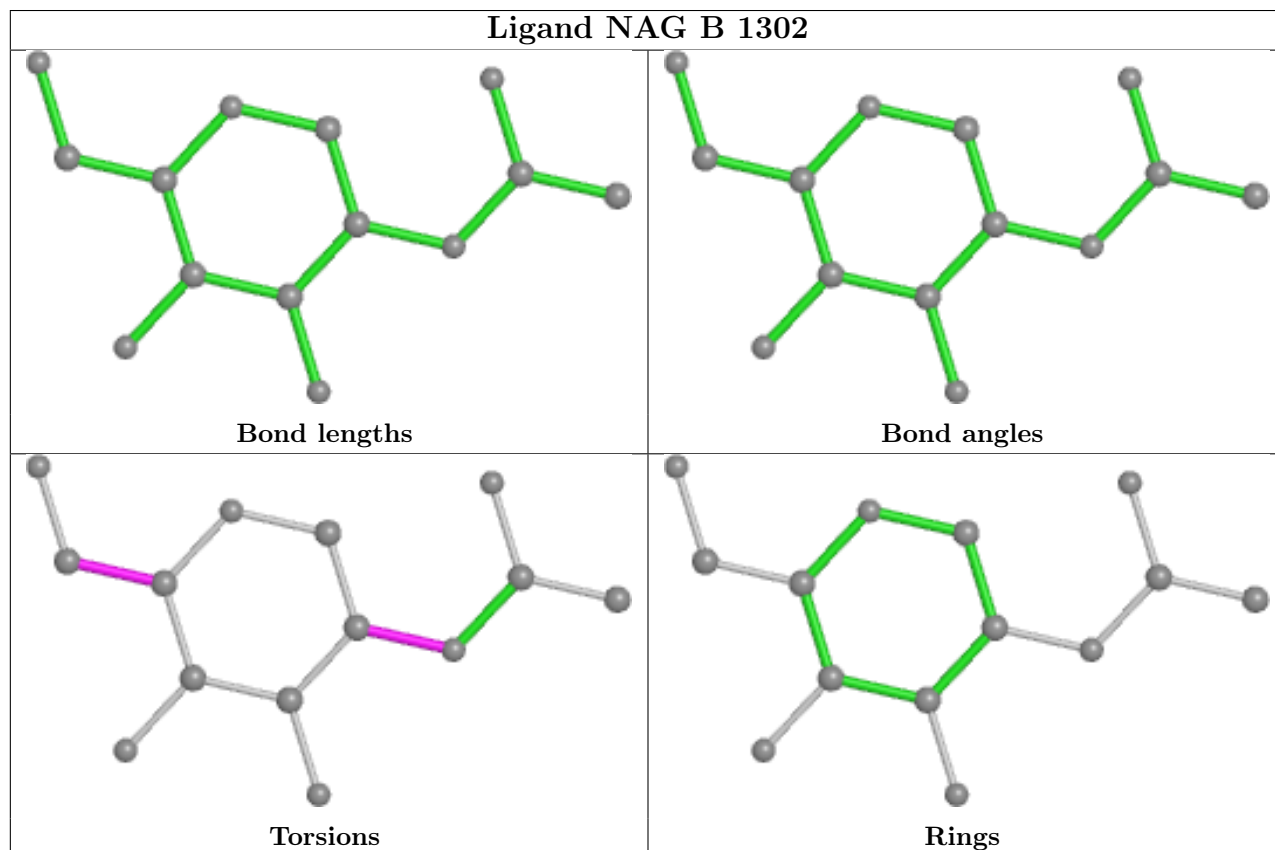
There are no ring outliers.

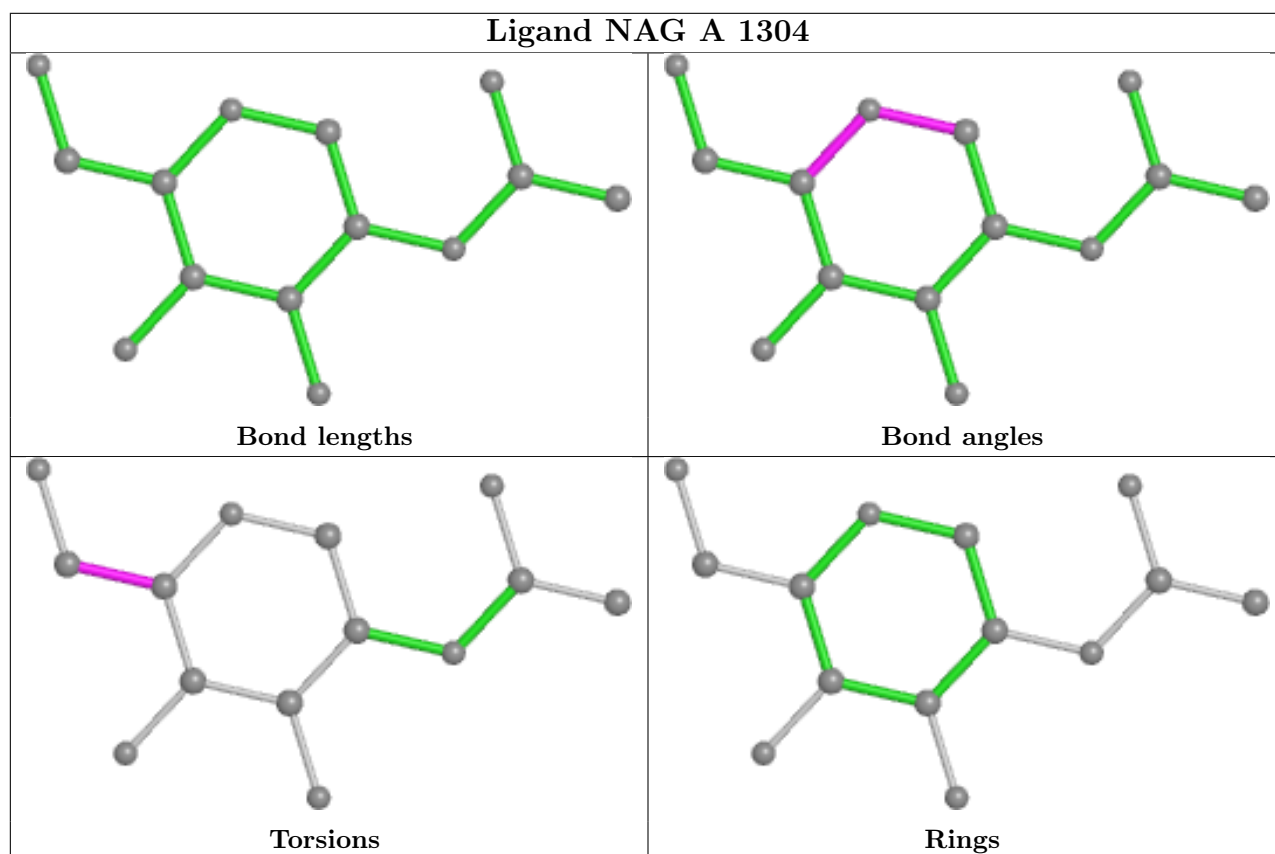
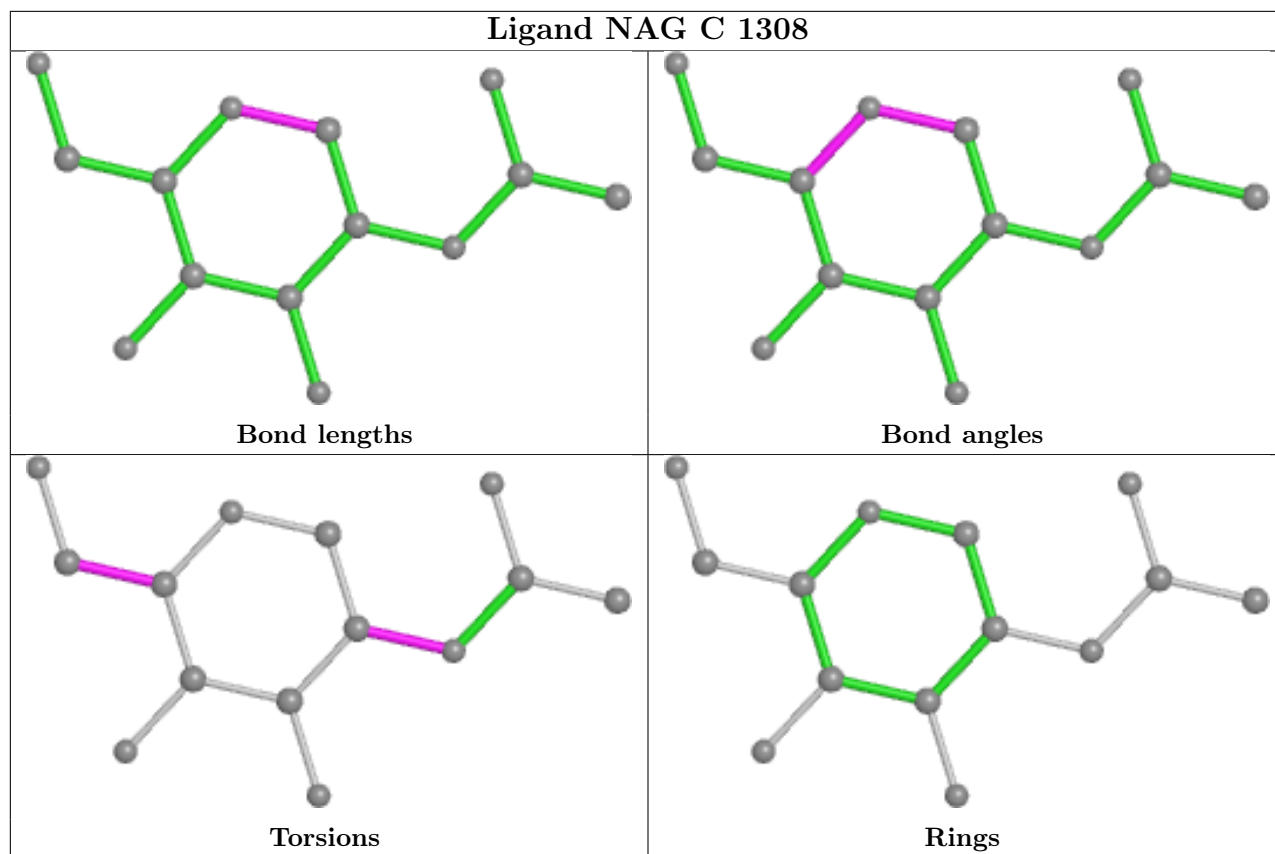
19 monomers are involved in 40 short contacts:

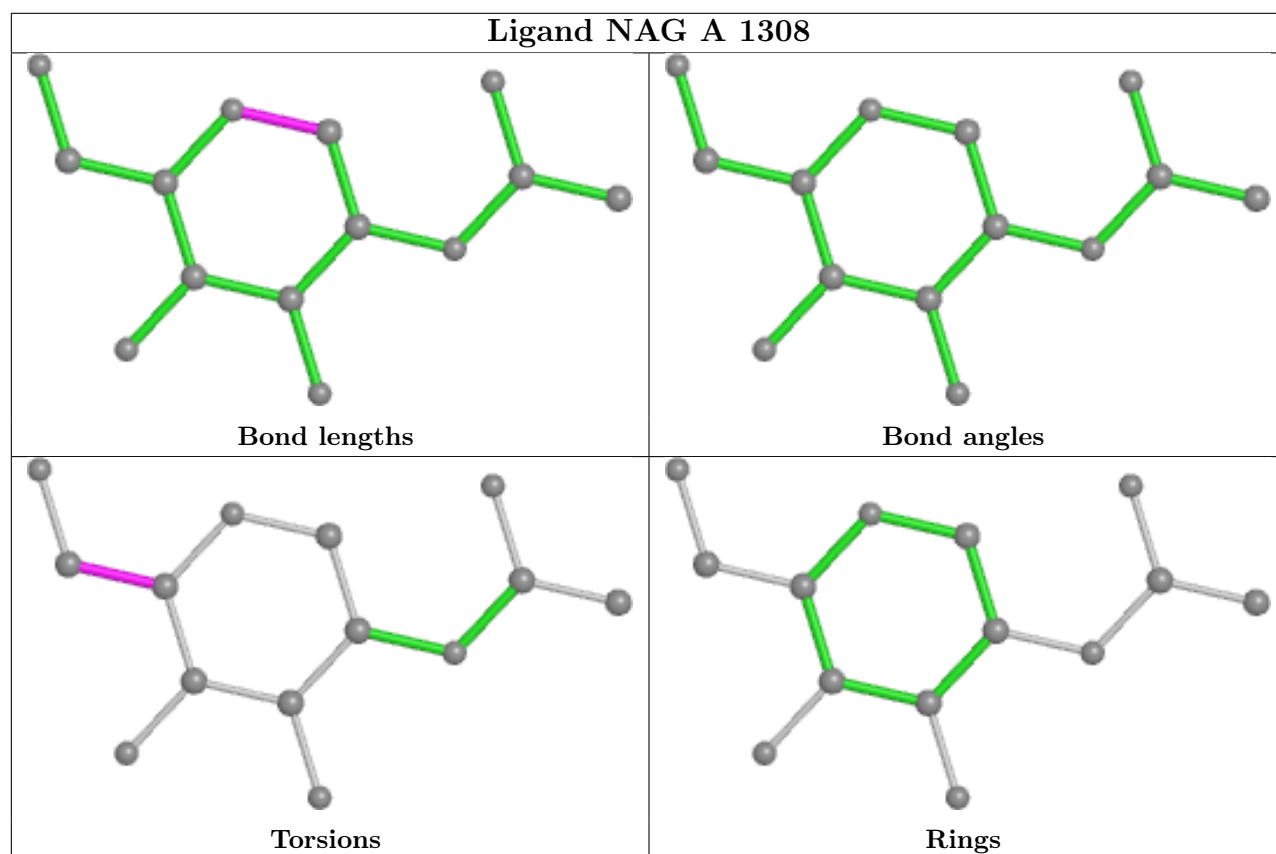
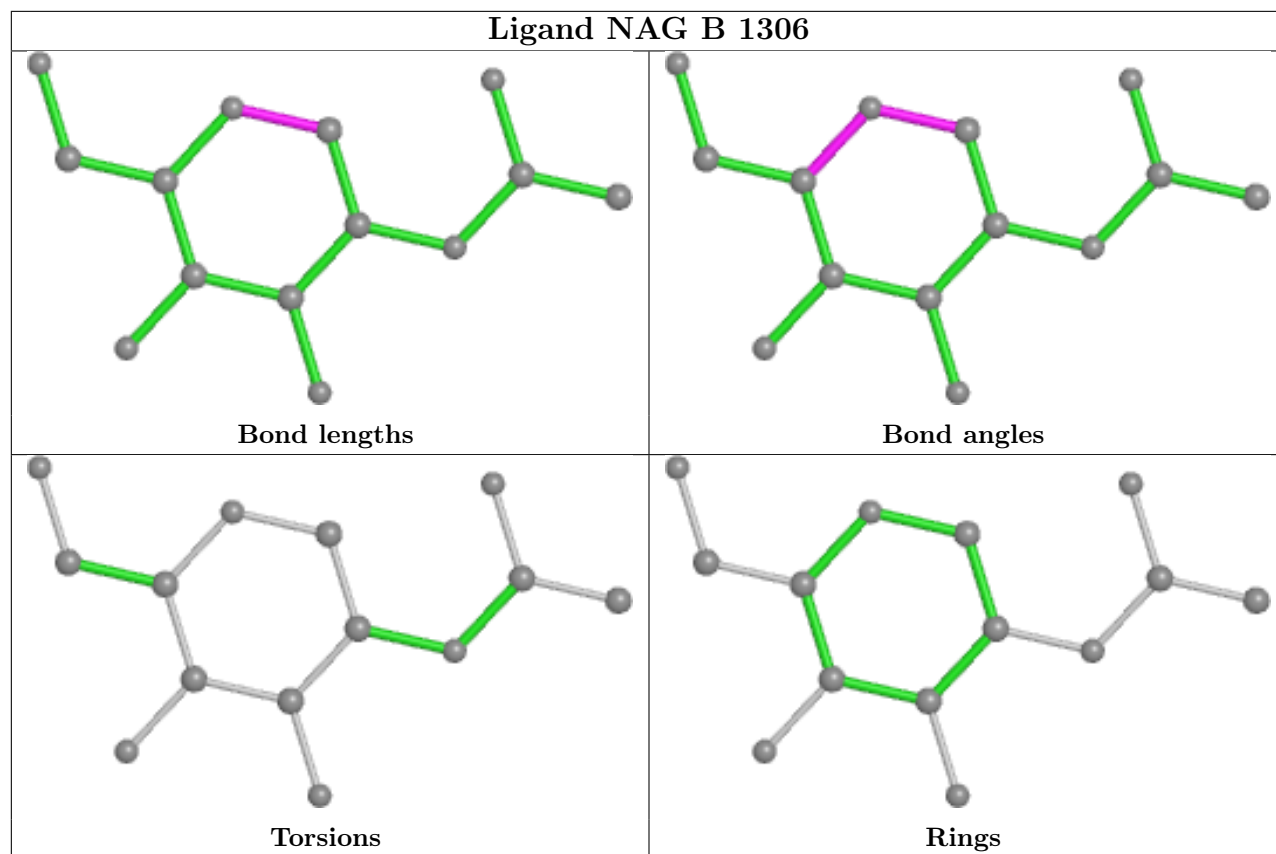
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	1302	NAG	5	0
5	A	1304	NAG	1	0
5	C	1303	NAG	1	0
5	C	1307	NAG	1	0
5	A	1305	NAG	3	0
5	A	1307	NAG	1	0
5	B	1305	NAG	3	0
5	B	1309	NAG	2	0
5	B	1307	NAG	1	0
5	A	1306	NAG	1	0
5	A	1303	NAG	1	0
5	B	1303	NAG	1	0
5	C	1309	NAG	2	0
5	B	1304	NAG	1	0
5	C	1304	NAG	1	0
5	A	1302	NAG	5	0
5	C	1305	NAG	3	0
5	C	1302	NAG	5	0
5	A	1309	NAG	2	0

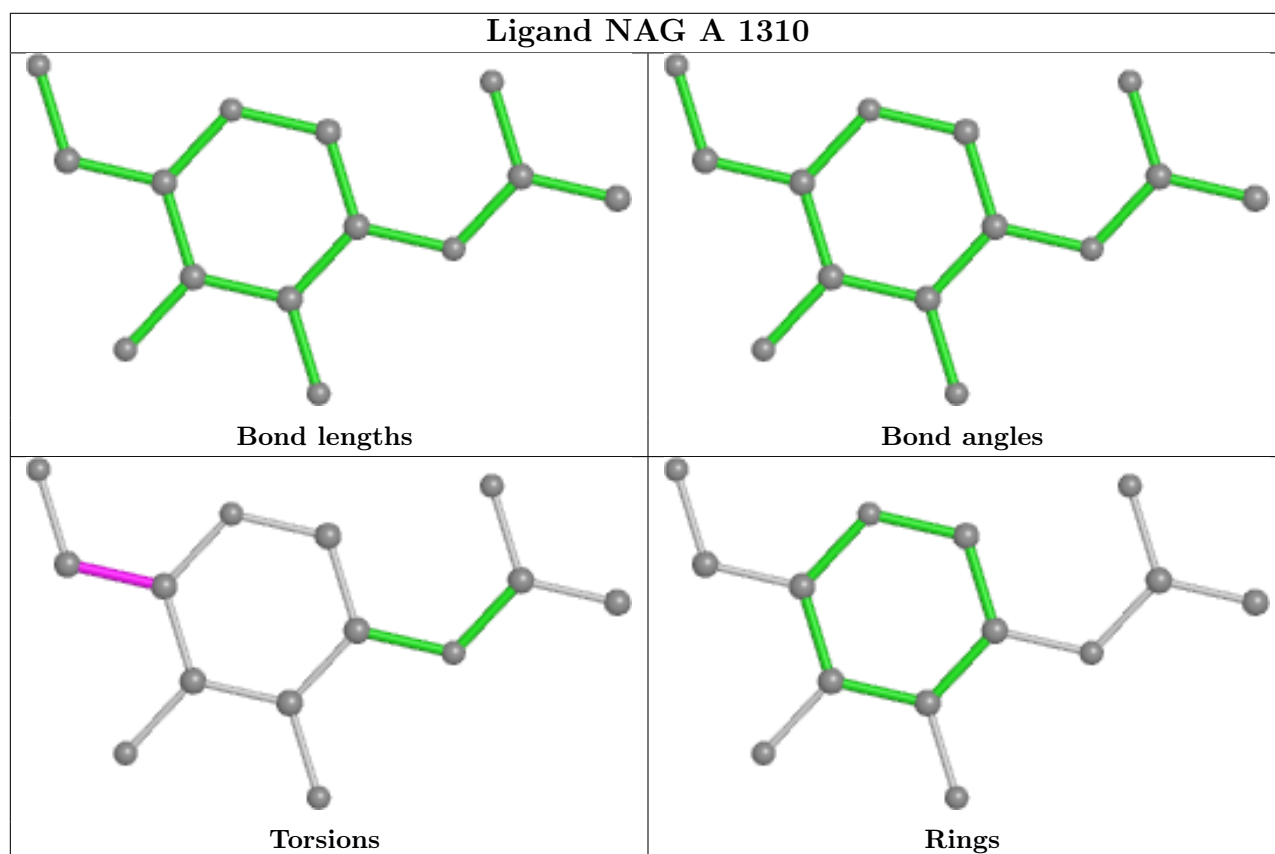
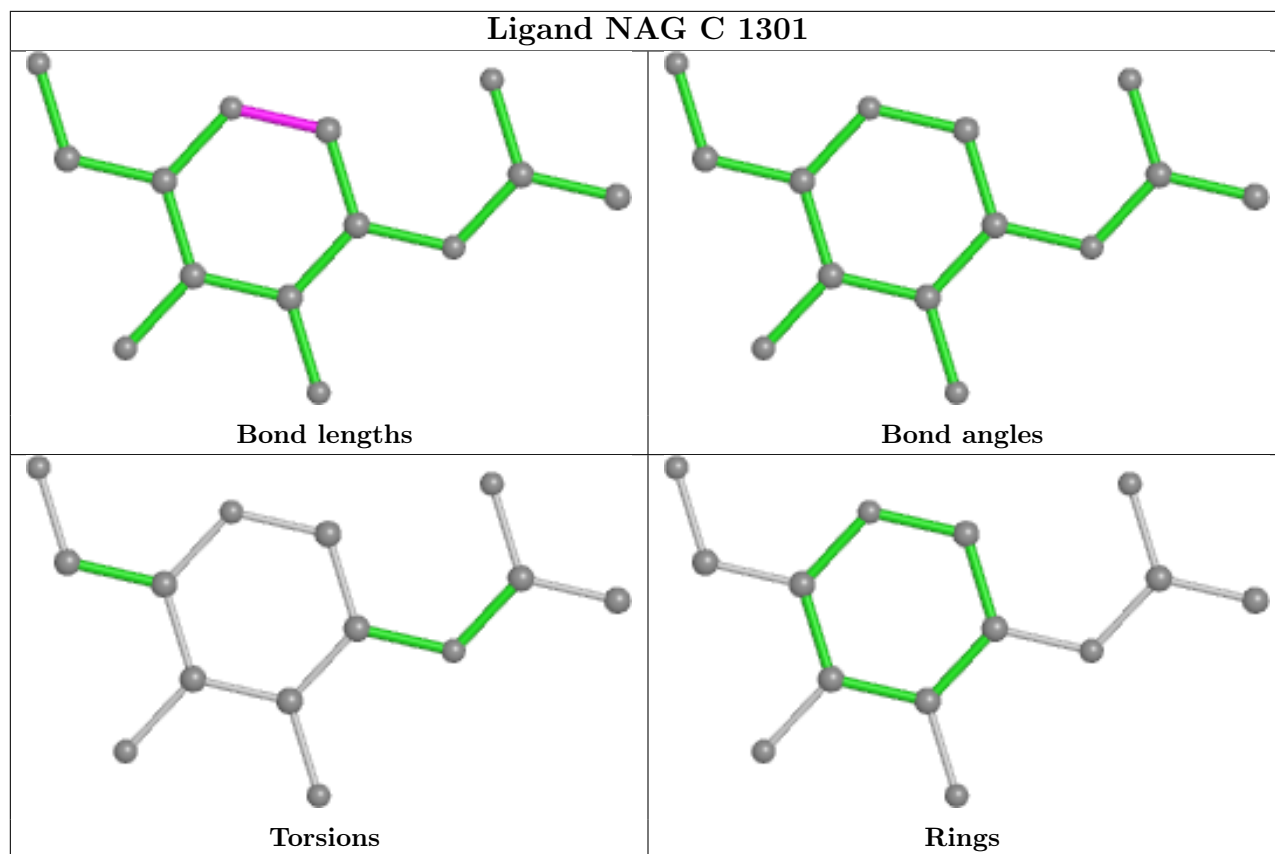
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

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.

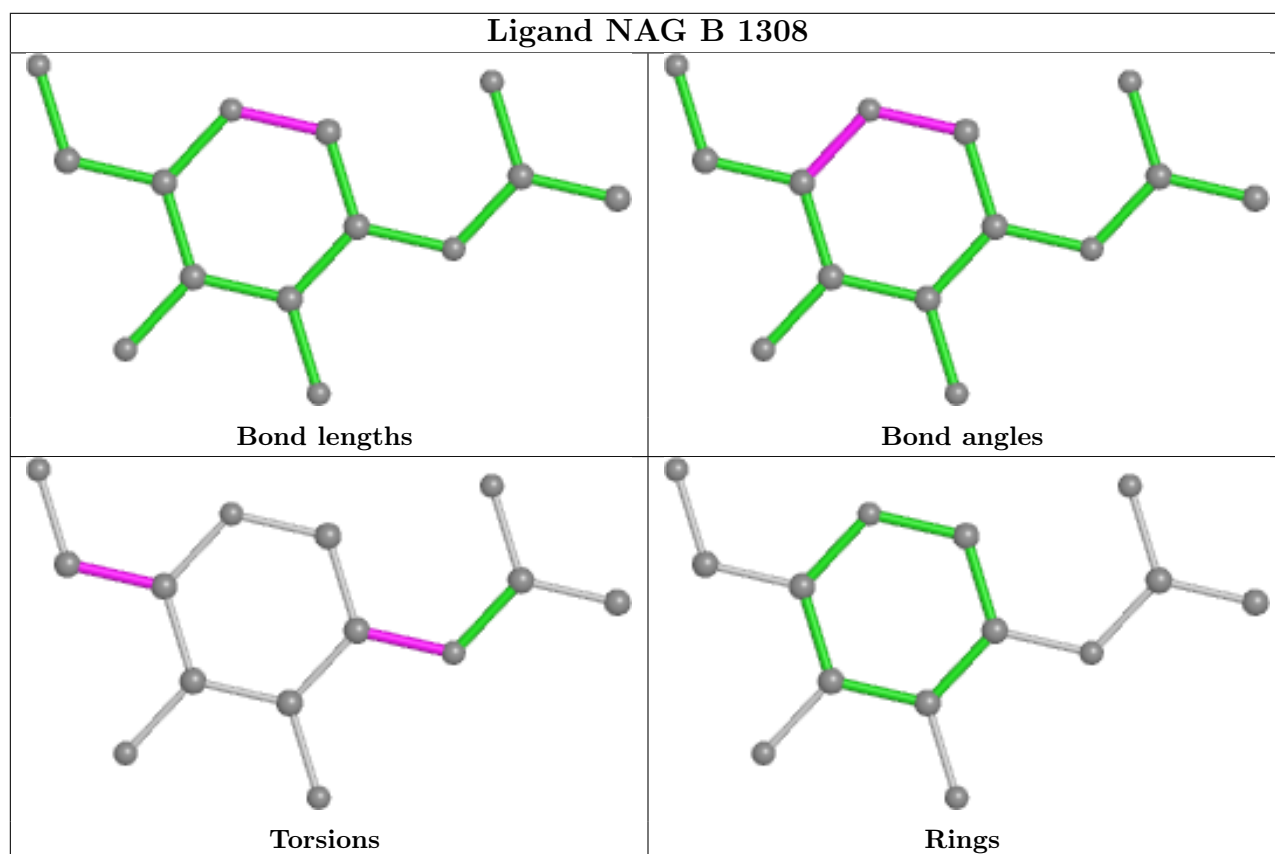
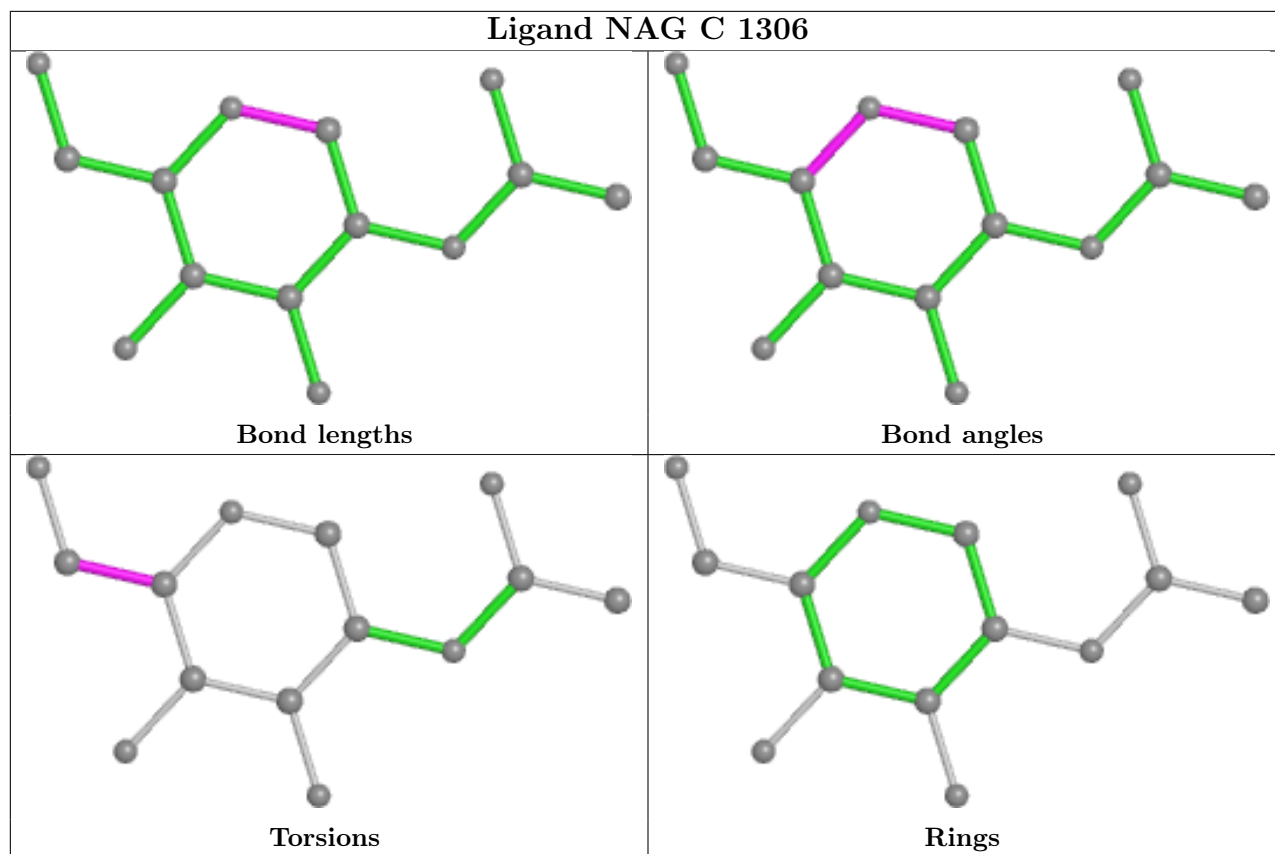


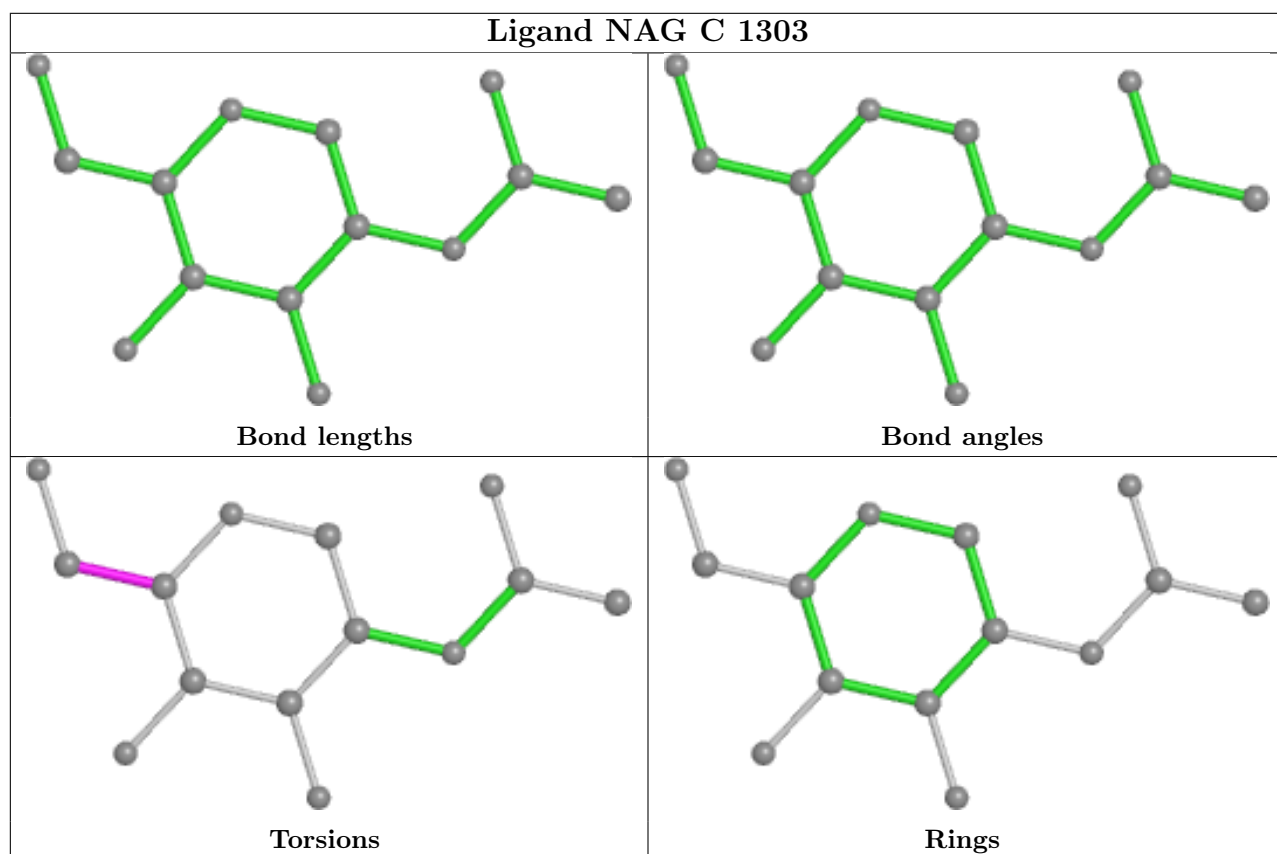
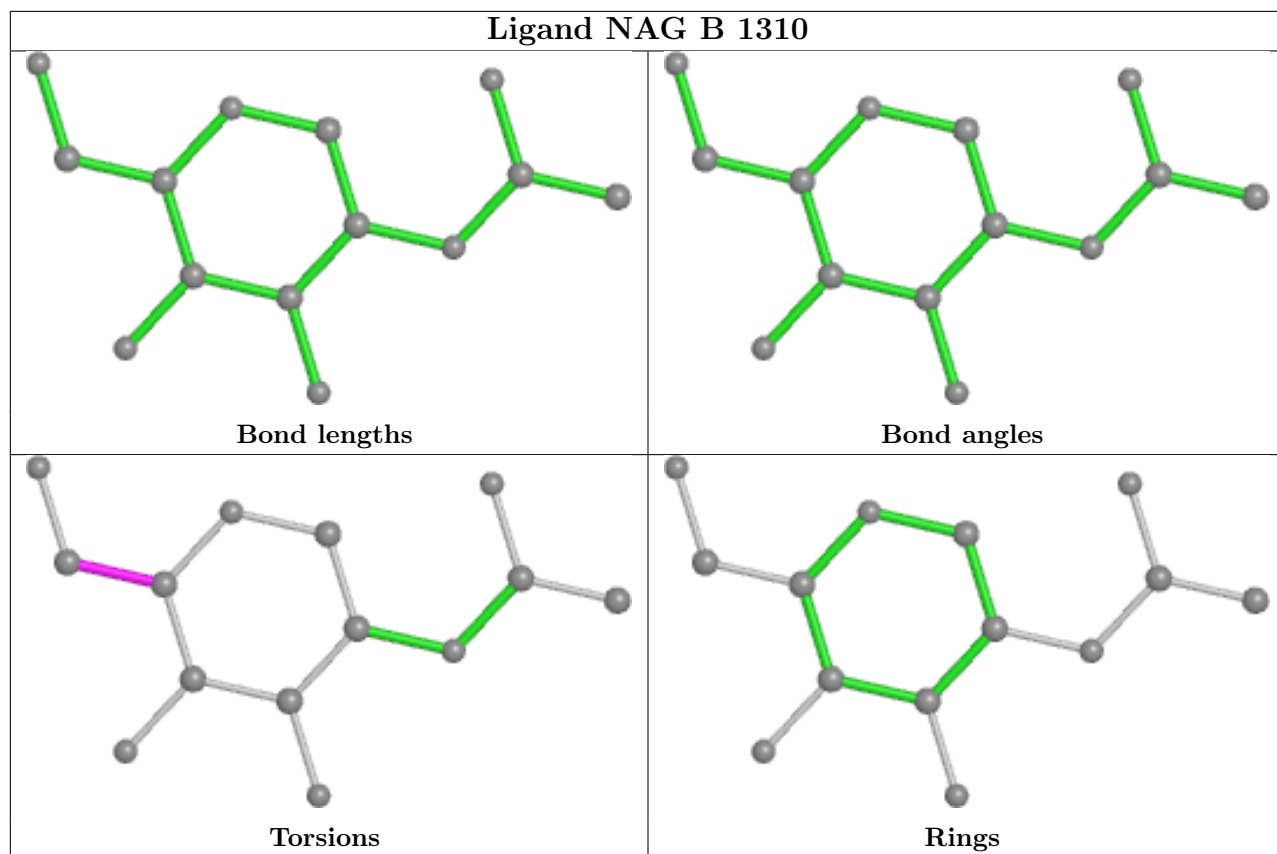


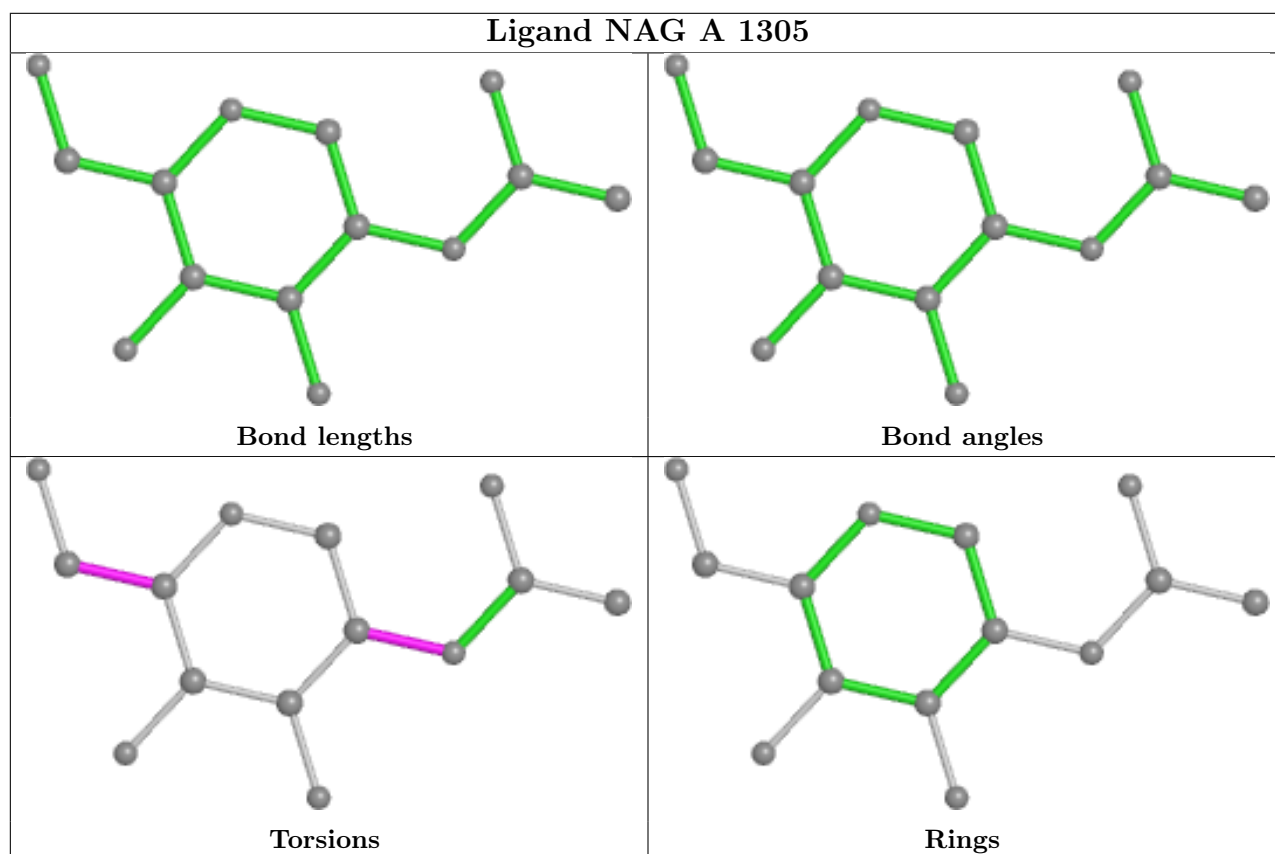
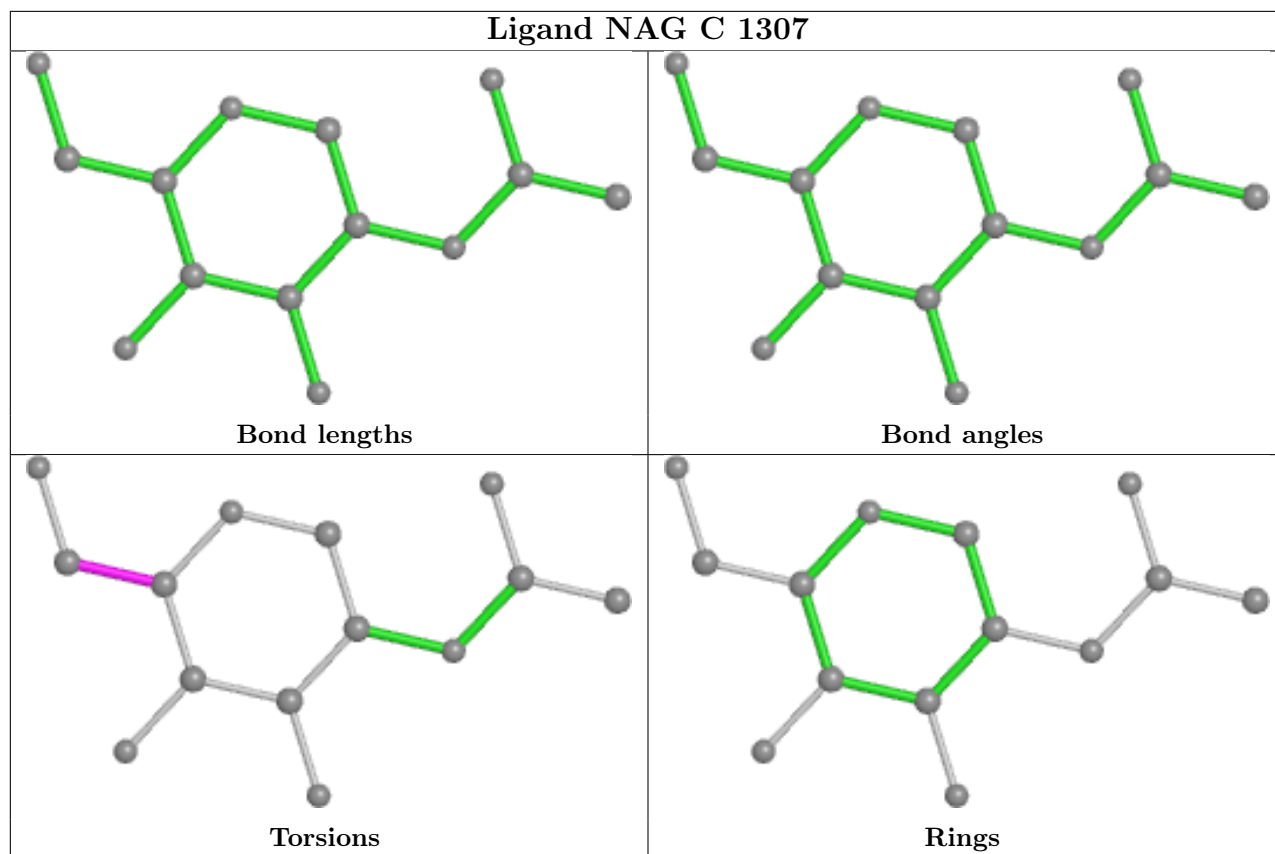


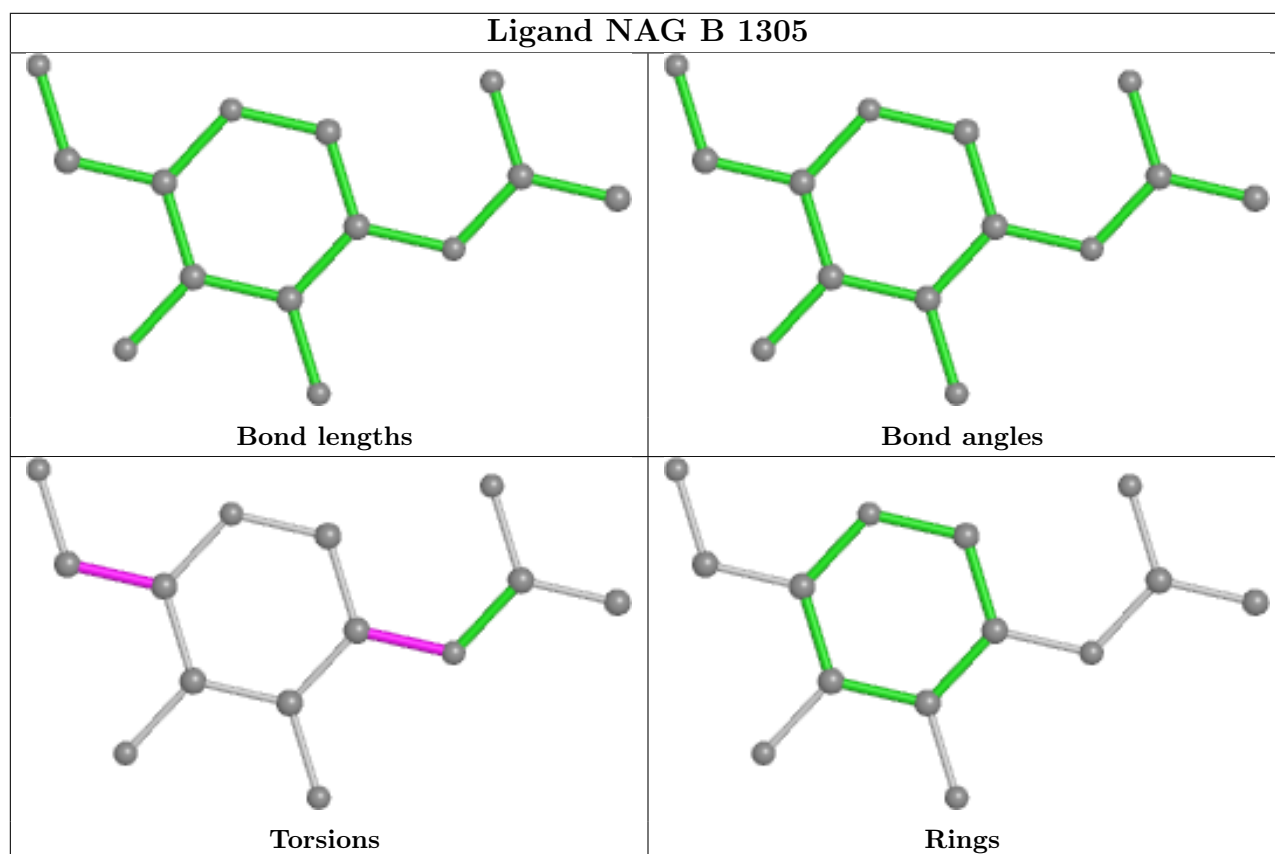
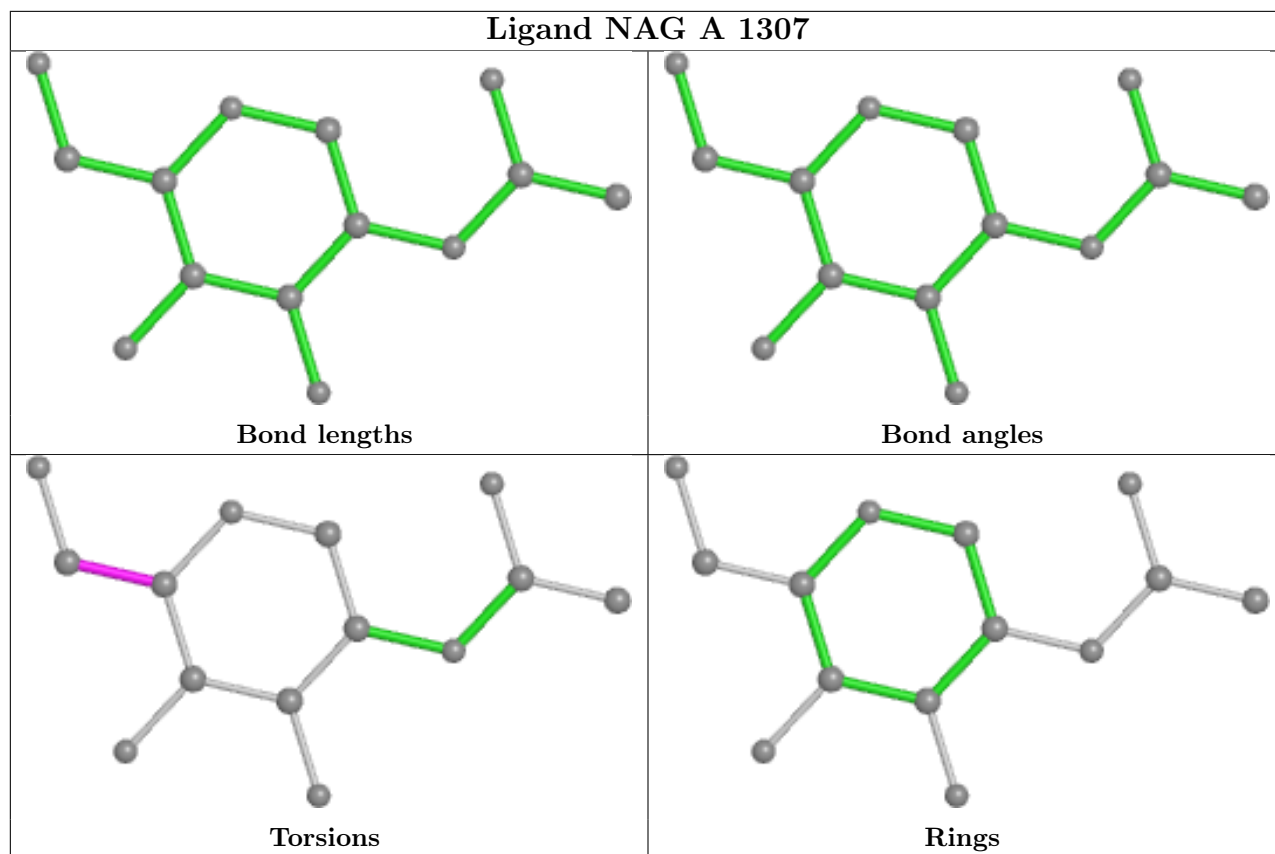


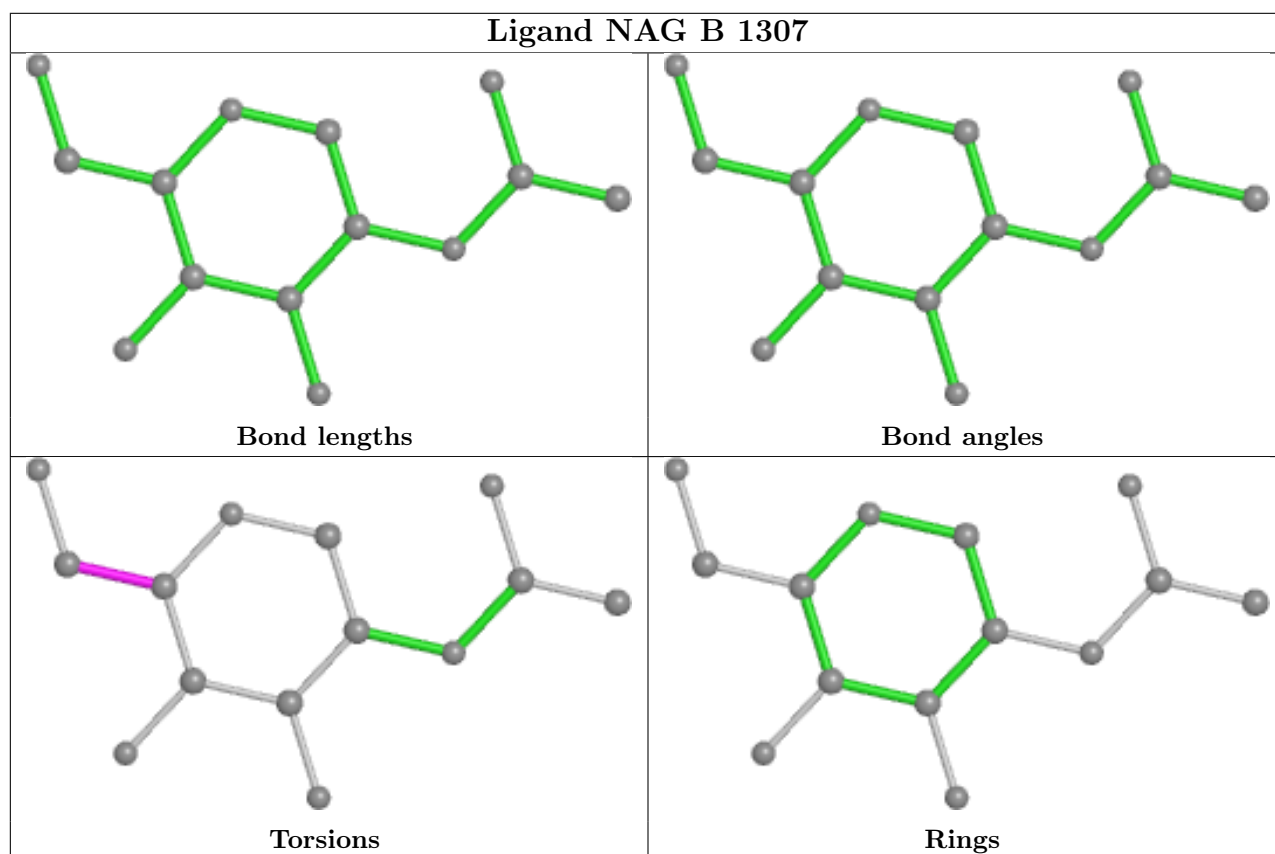
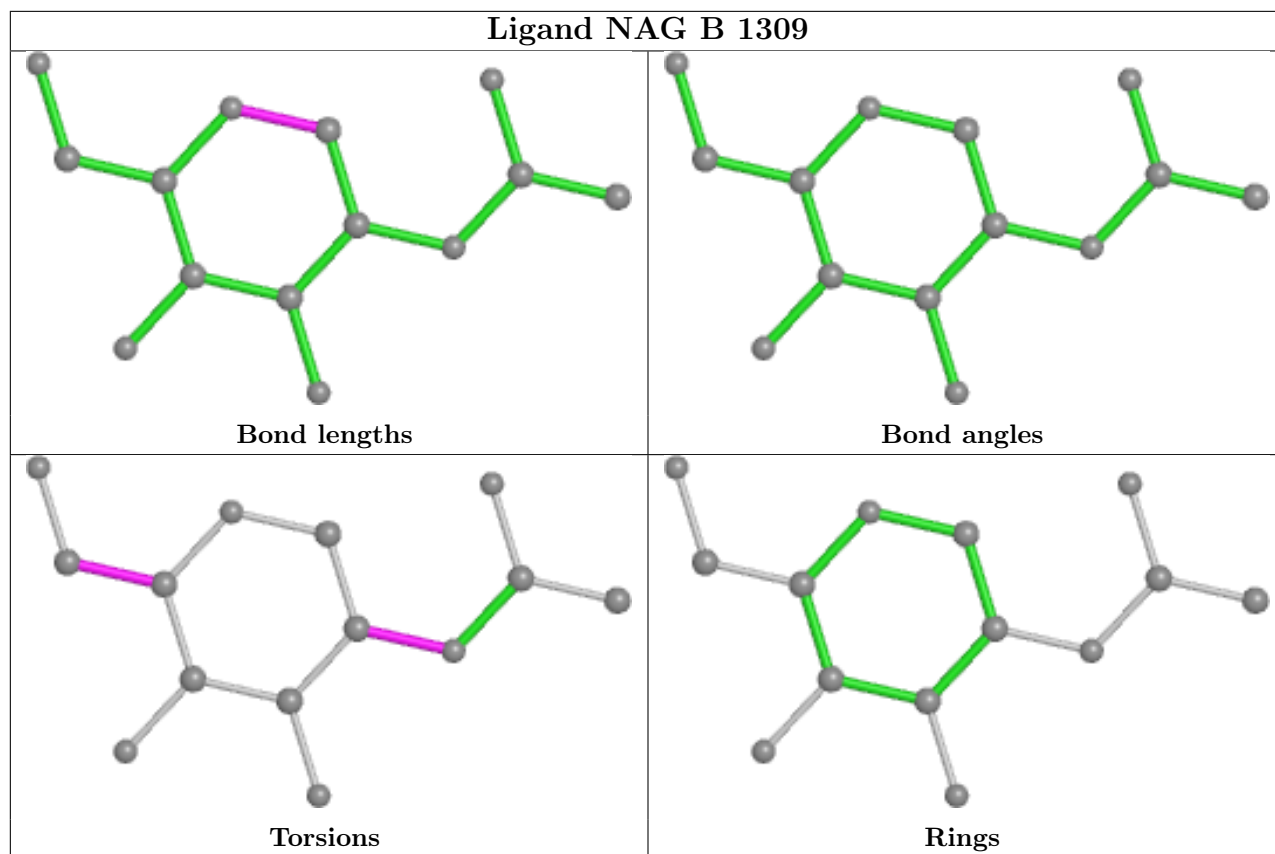


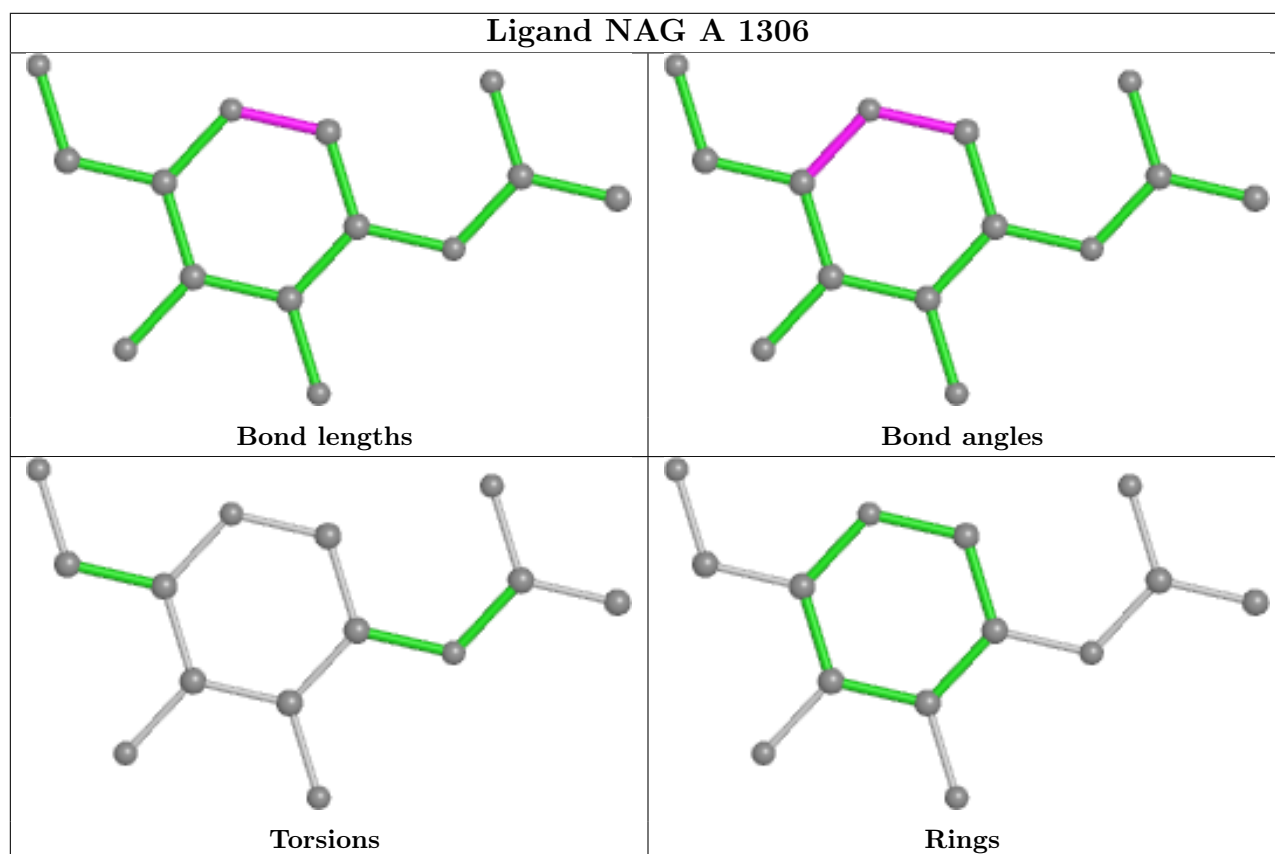
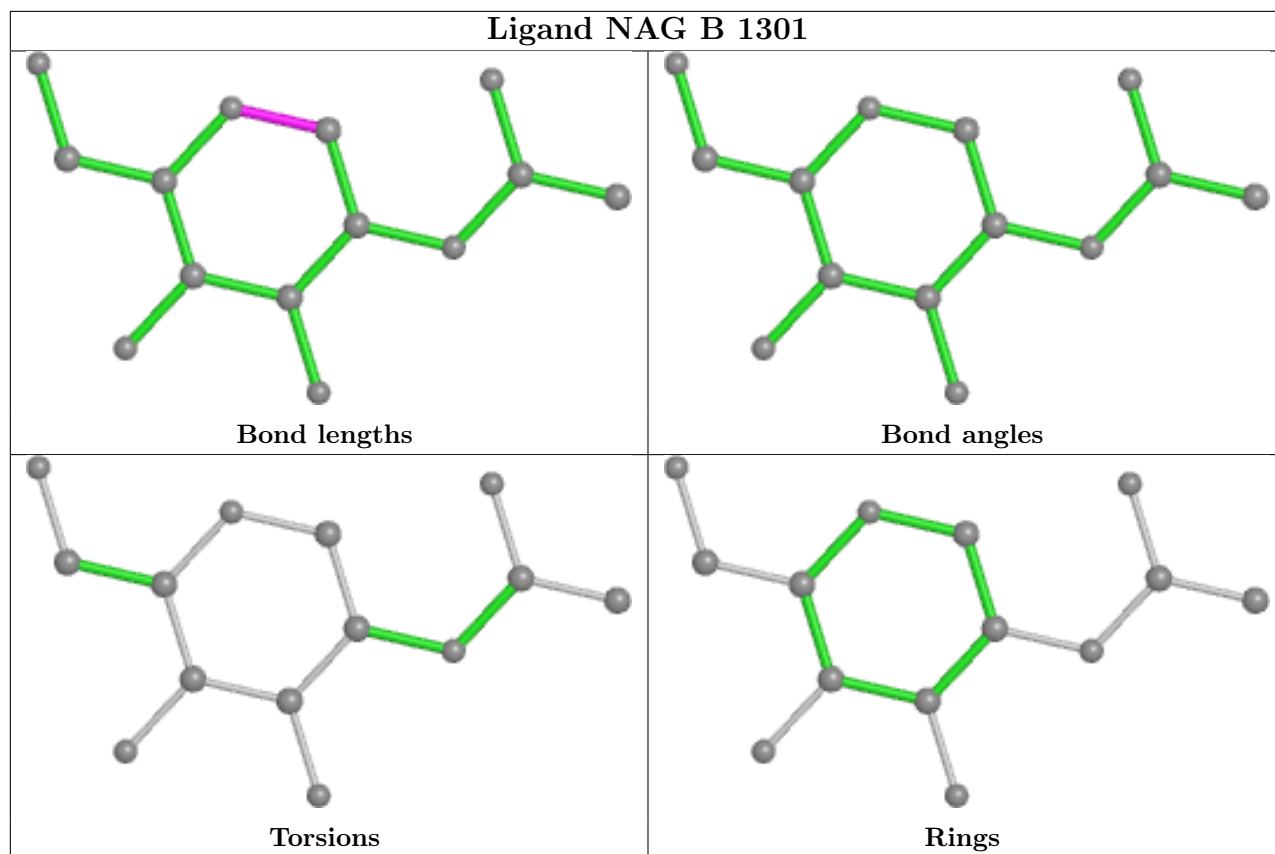


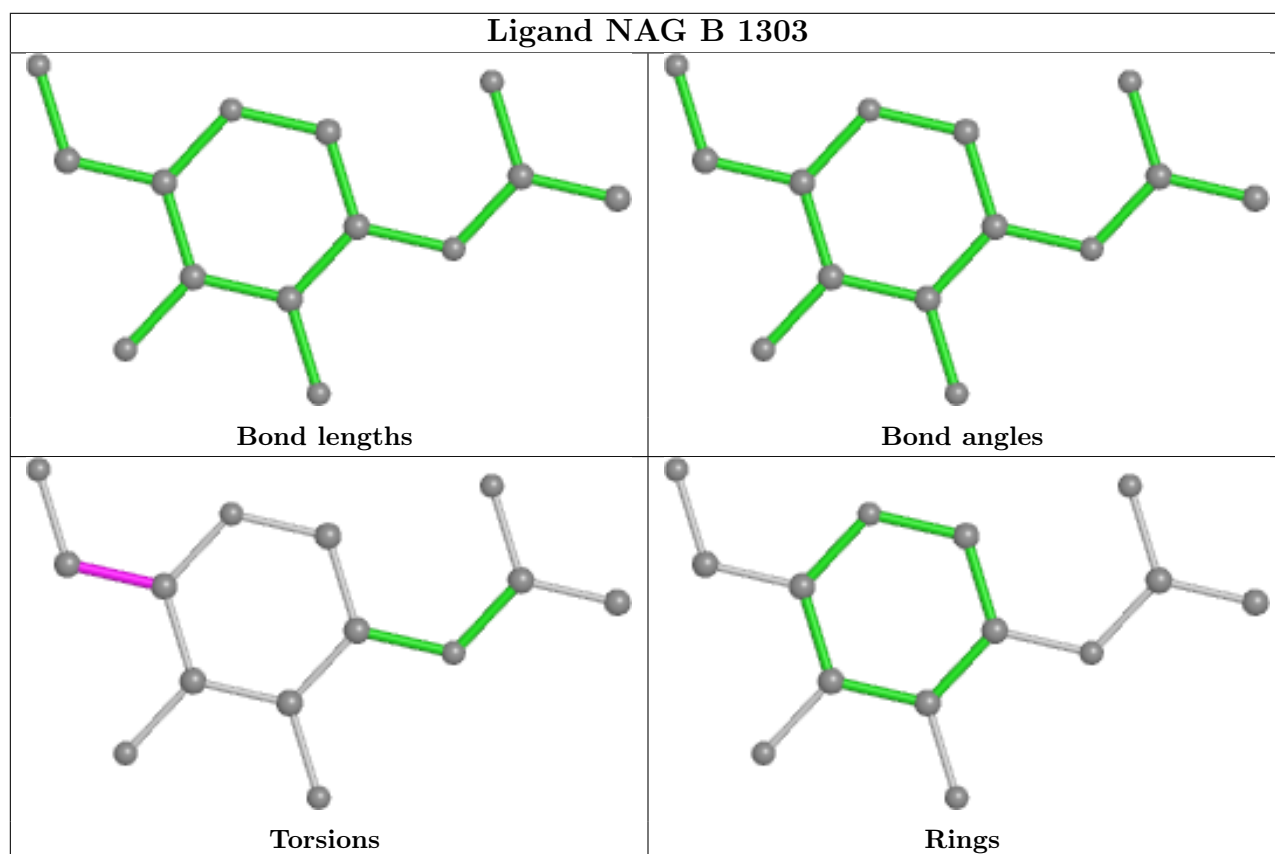
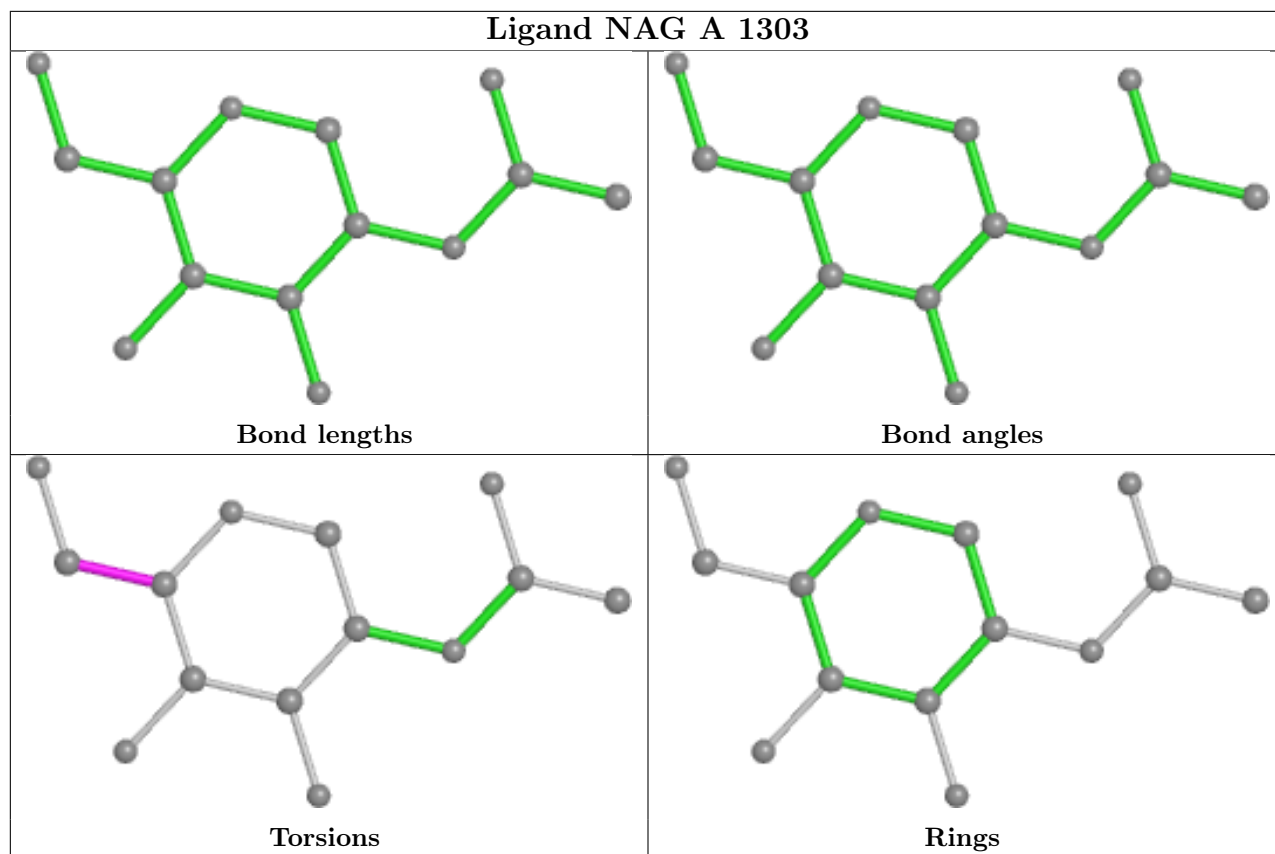


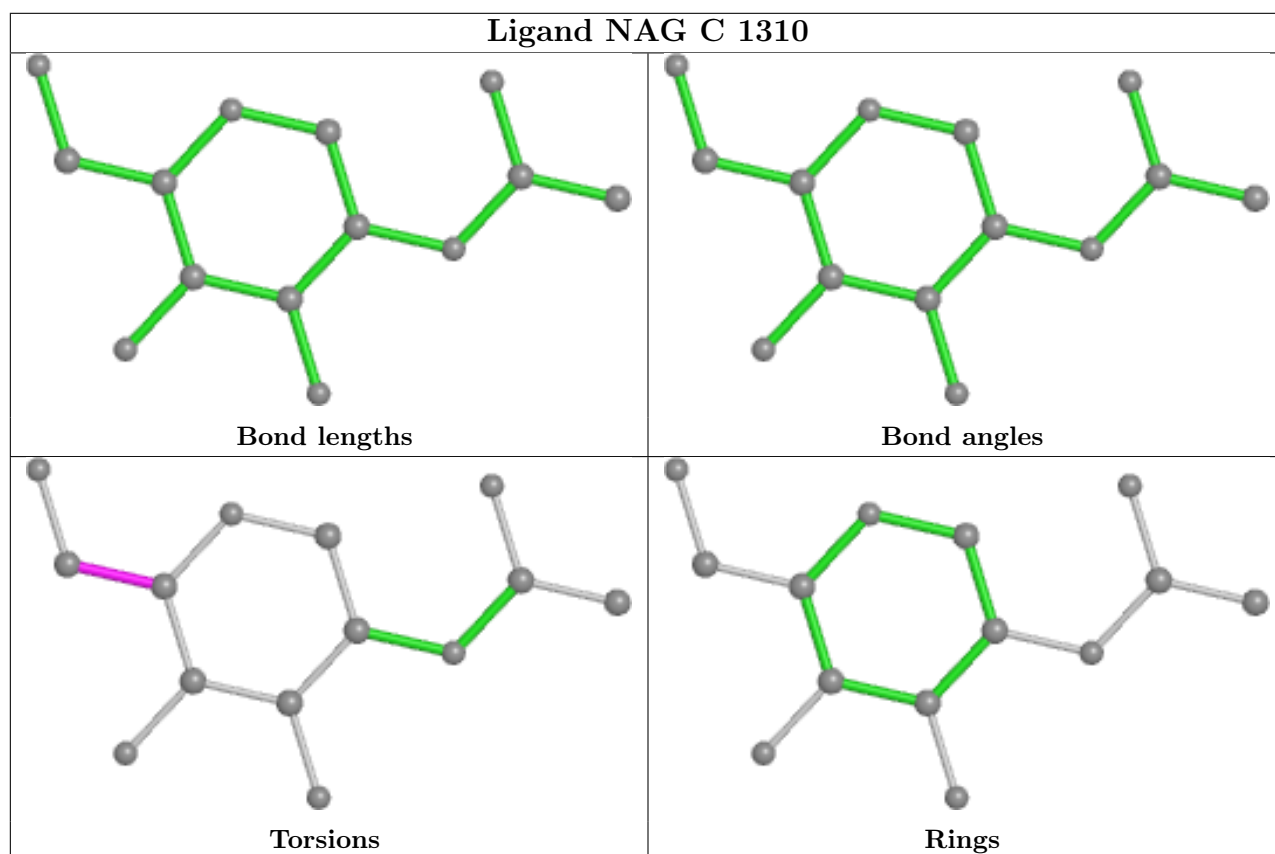
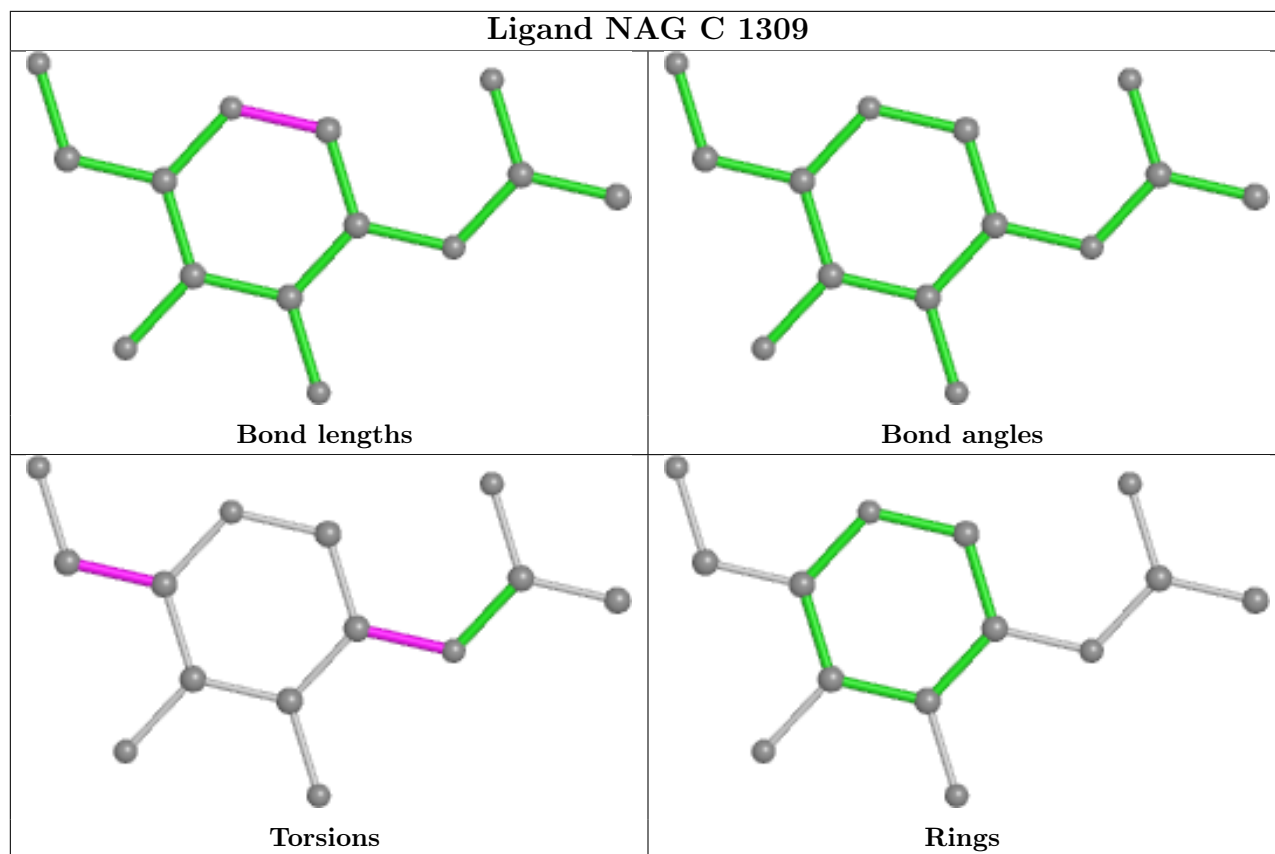




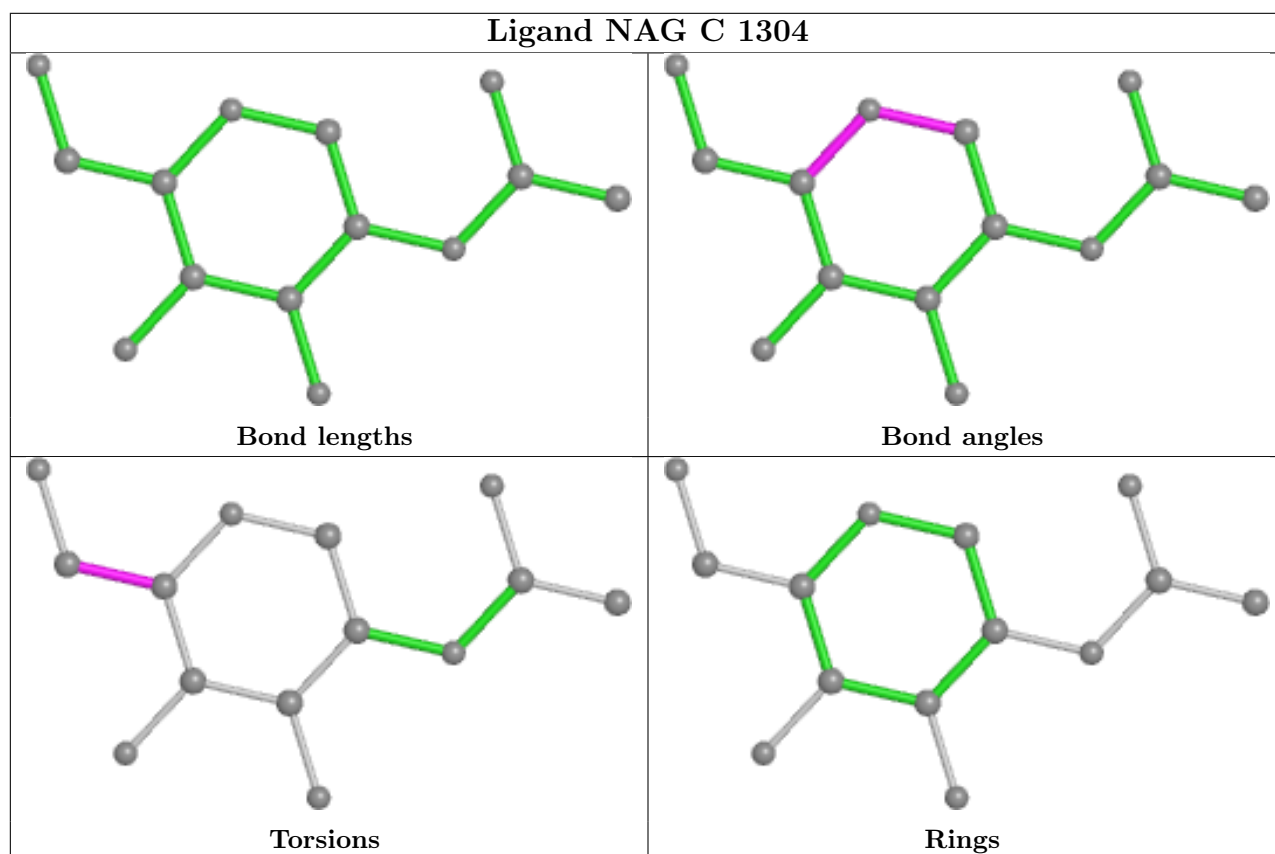
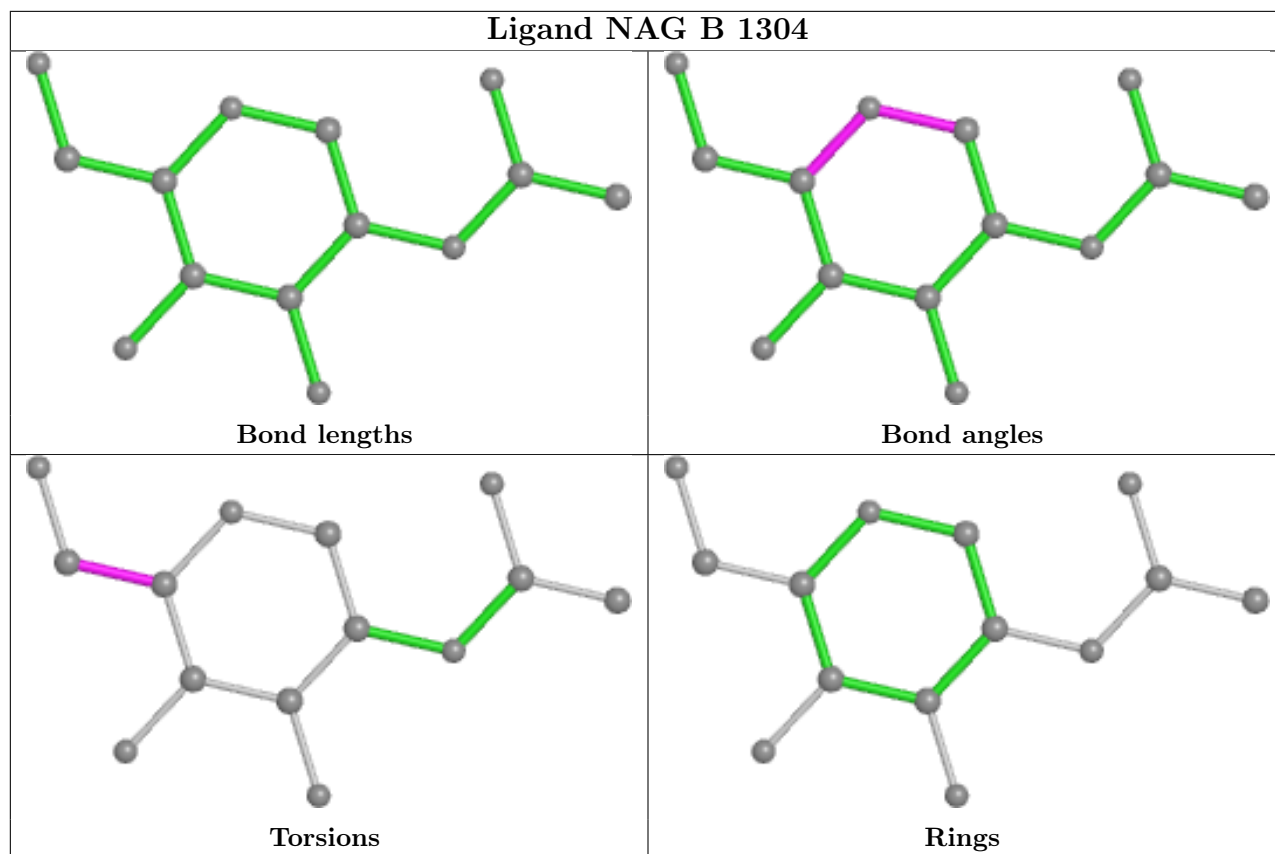


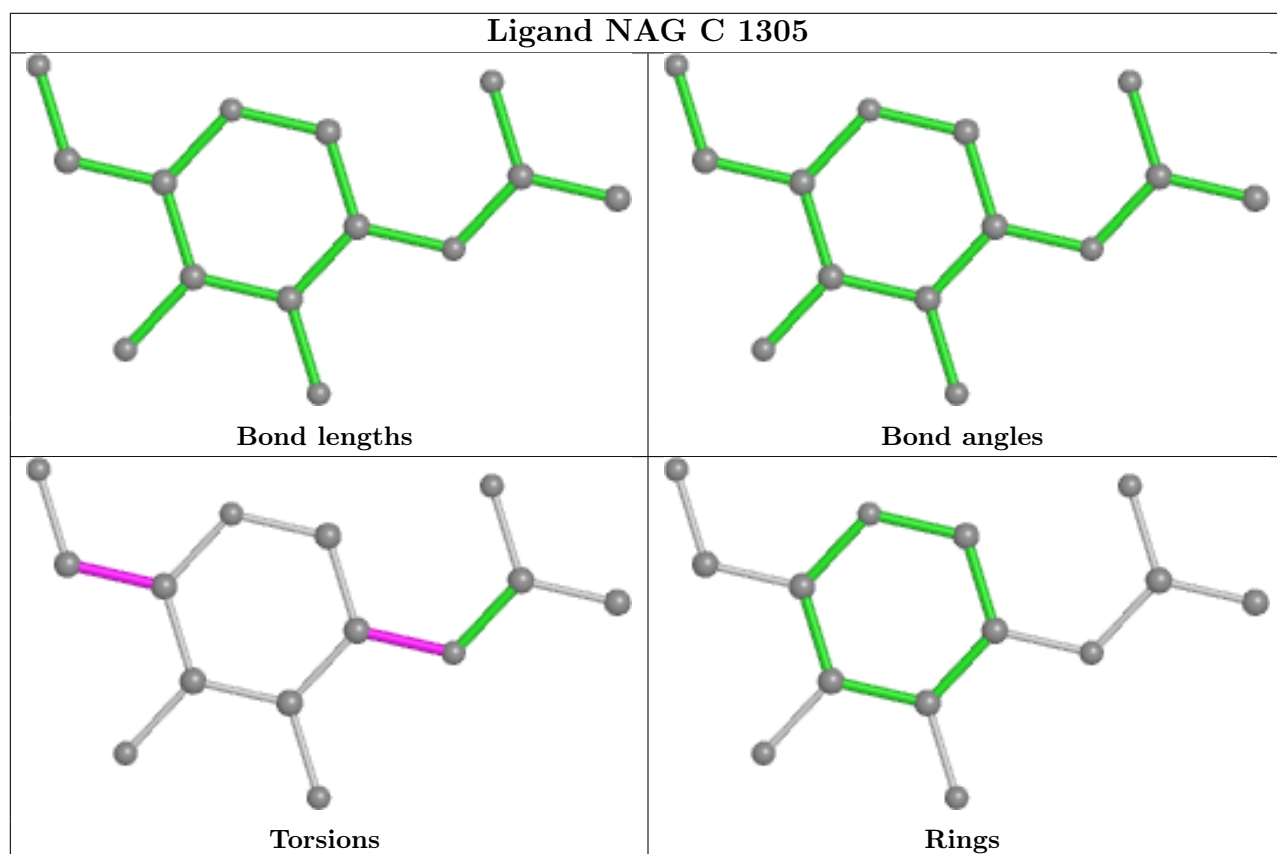
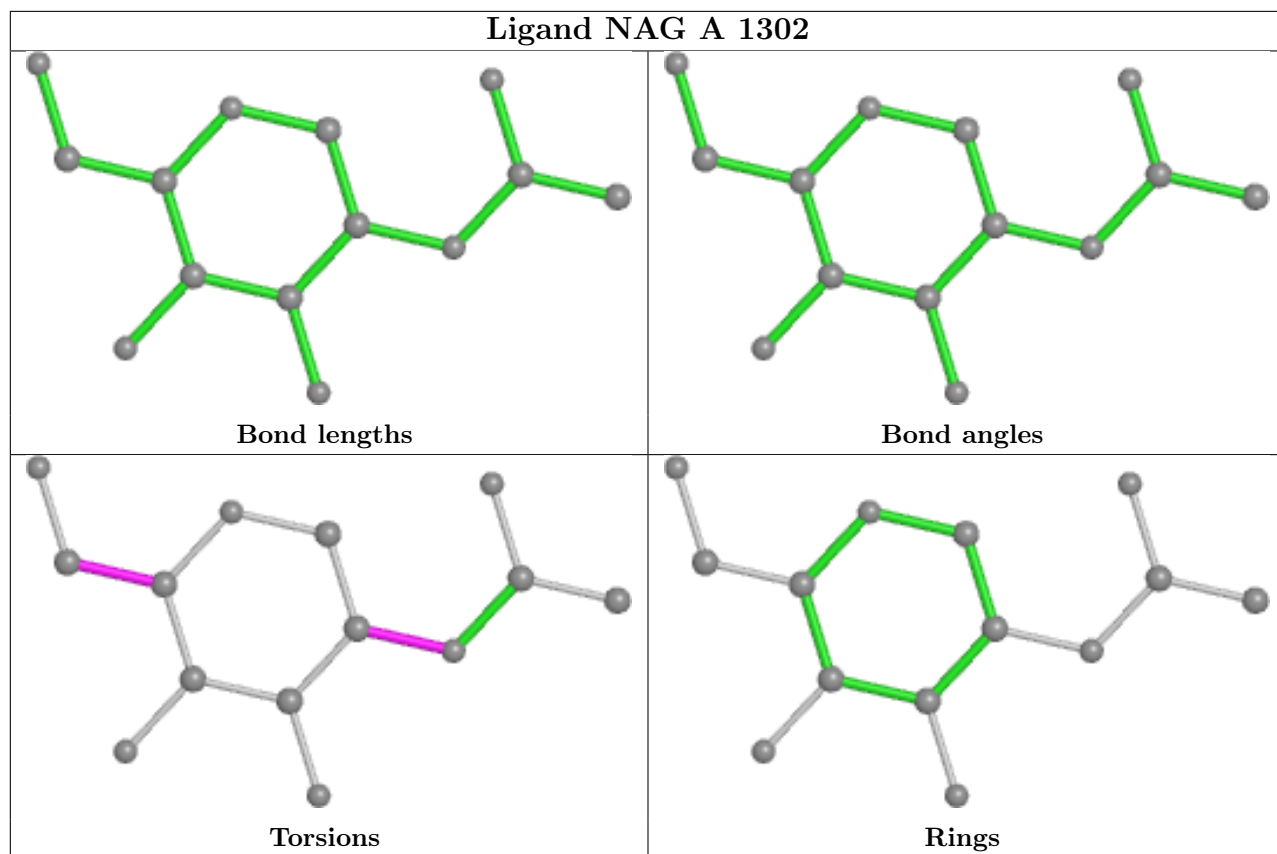


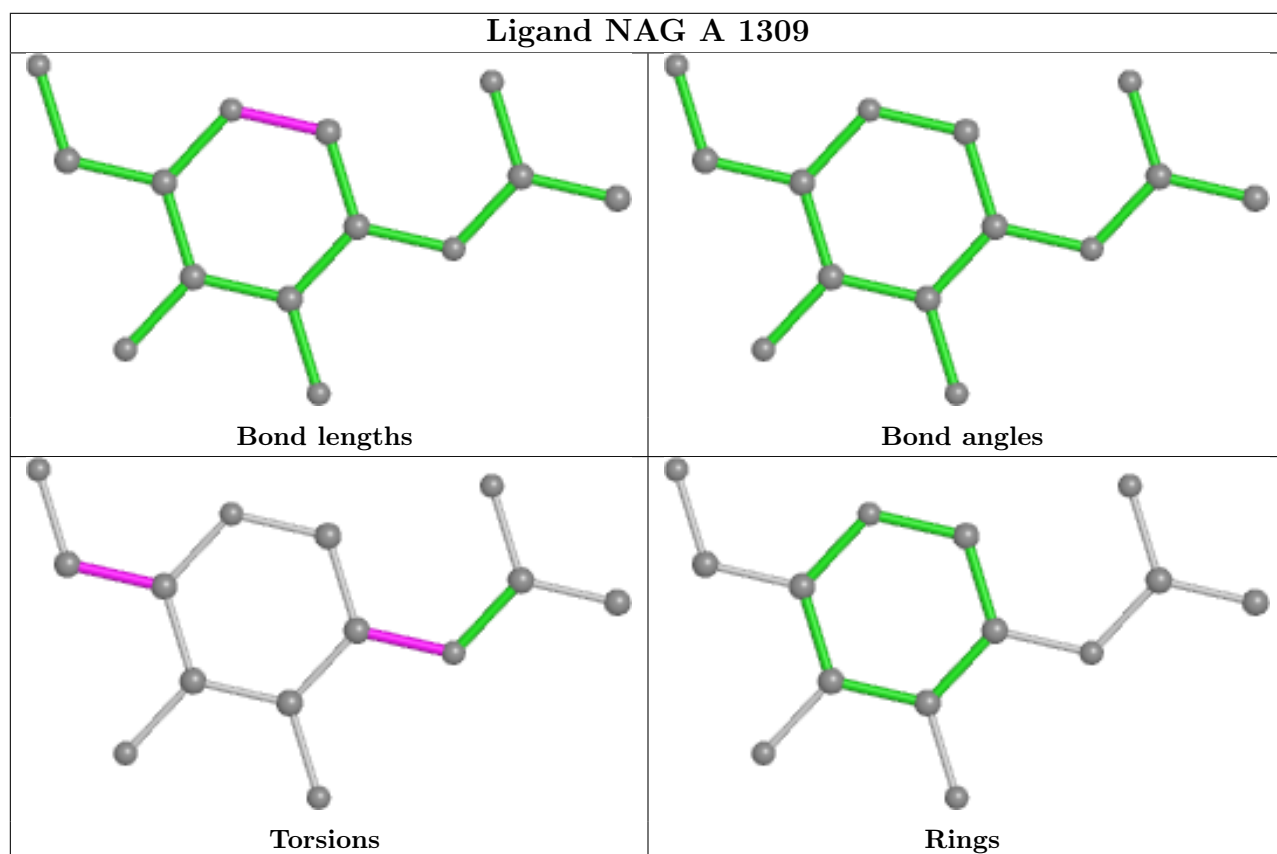
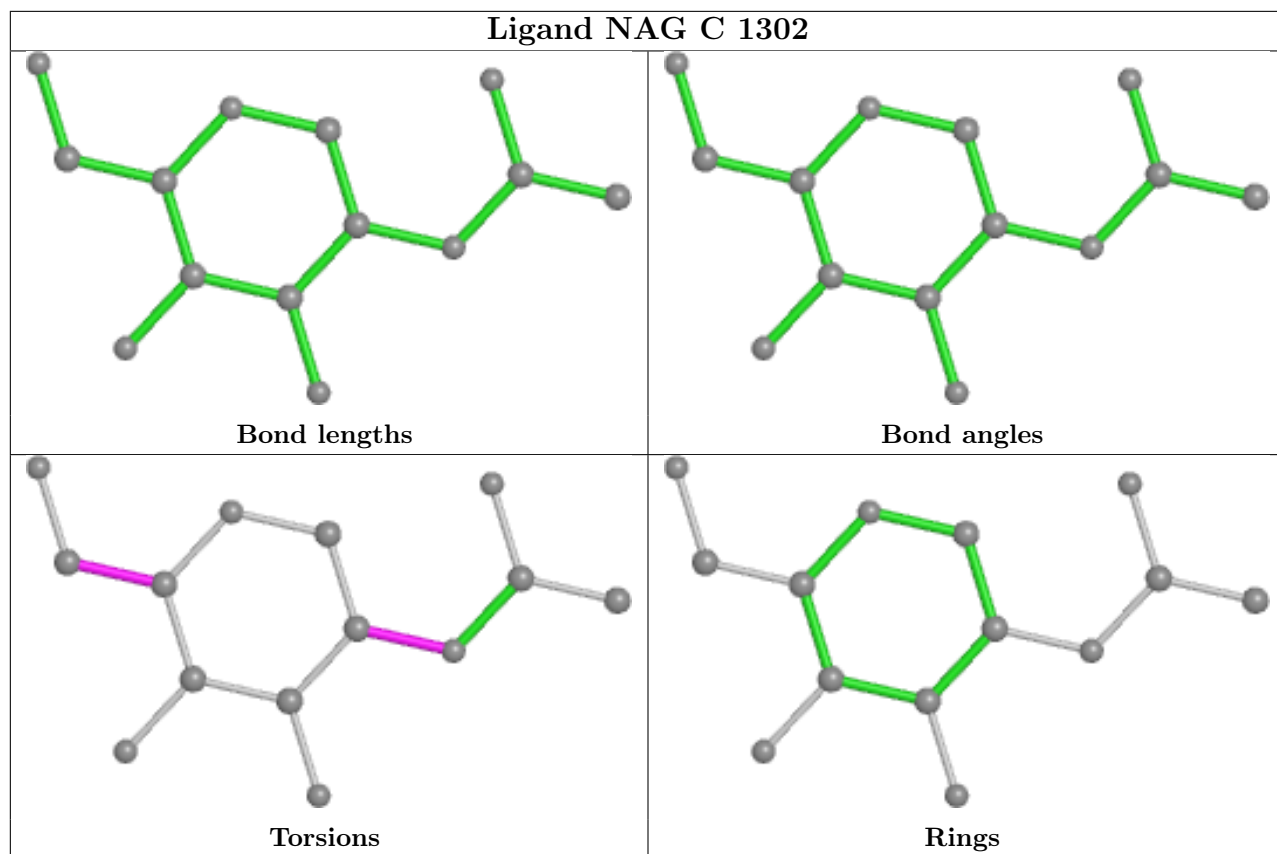


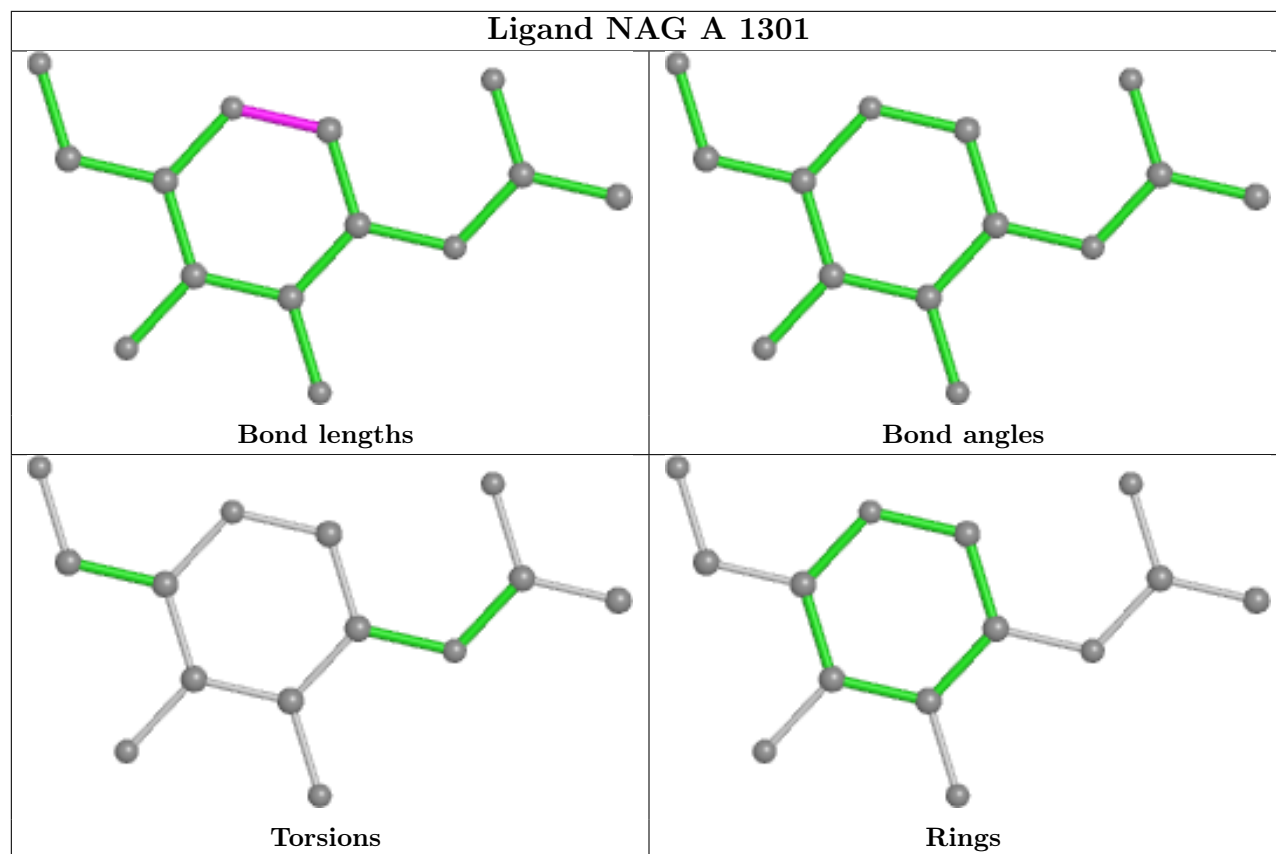












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

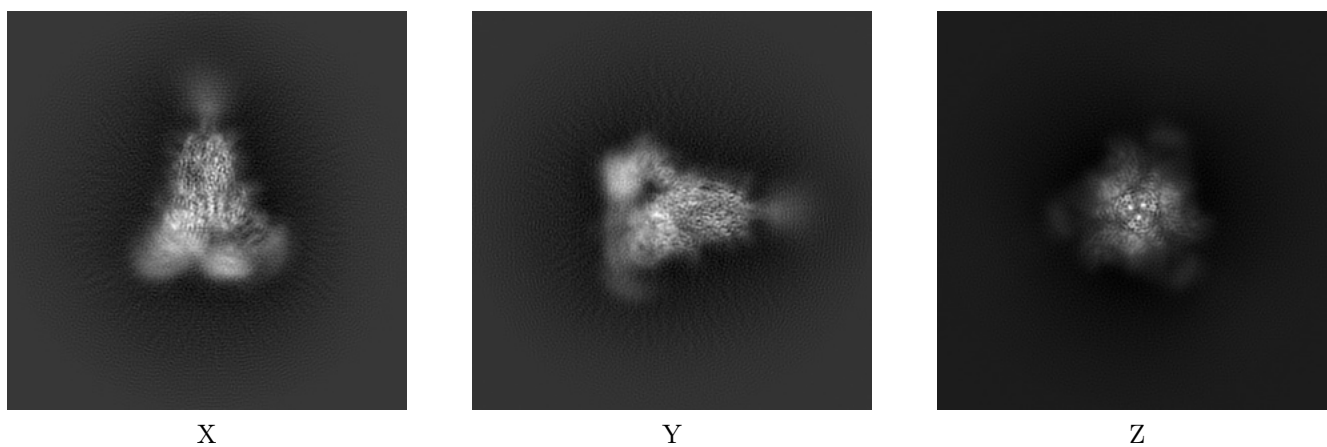
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-30333. 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](#)

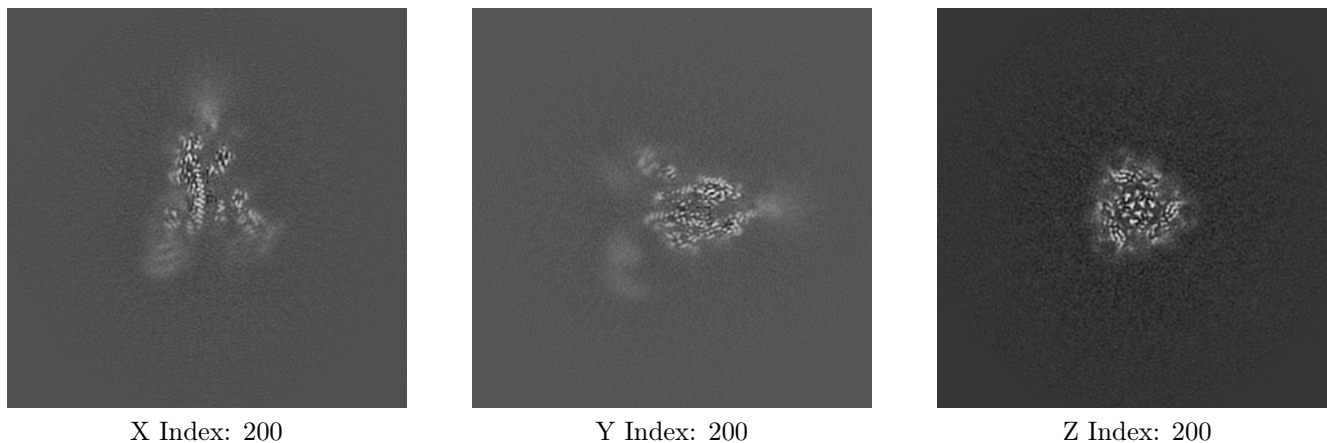
#### 6.1.1 Primary map



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

### 6.2 Central slices [i](#)

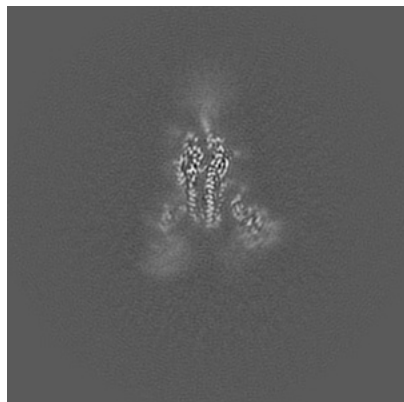
#### 6.2.1 Primary map



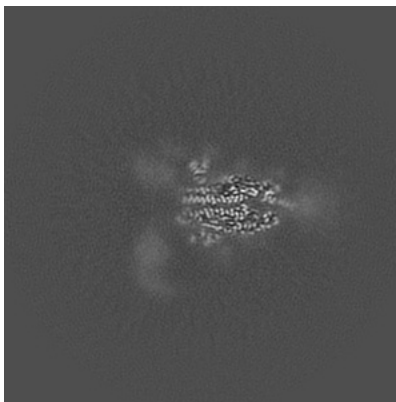
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

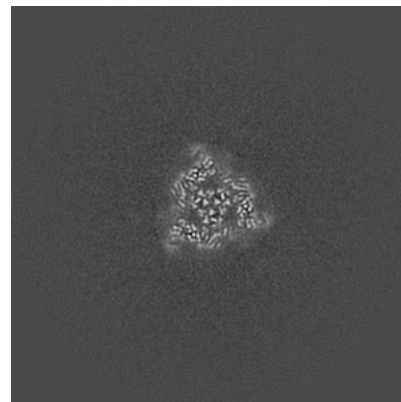
### 6.3.1 Primary map



X Index: 193



Y Index: 205



Z Index: 196

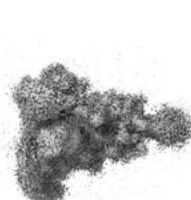
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0045. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

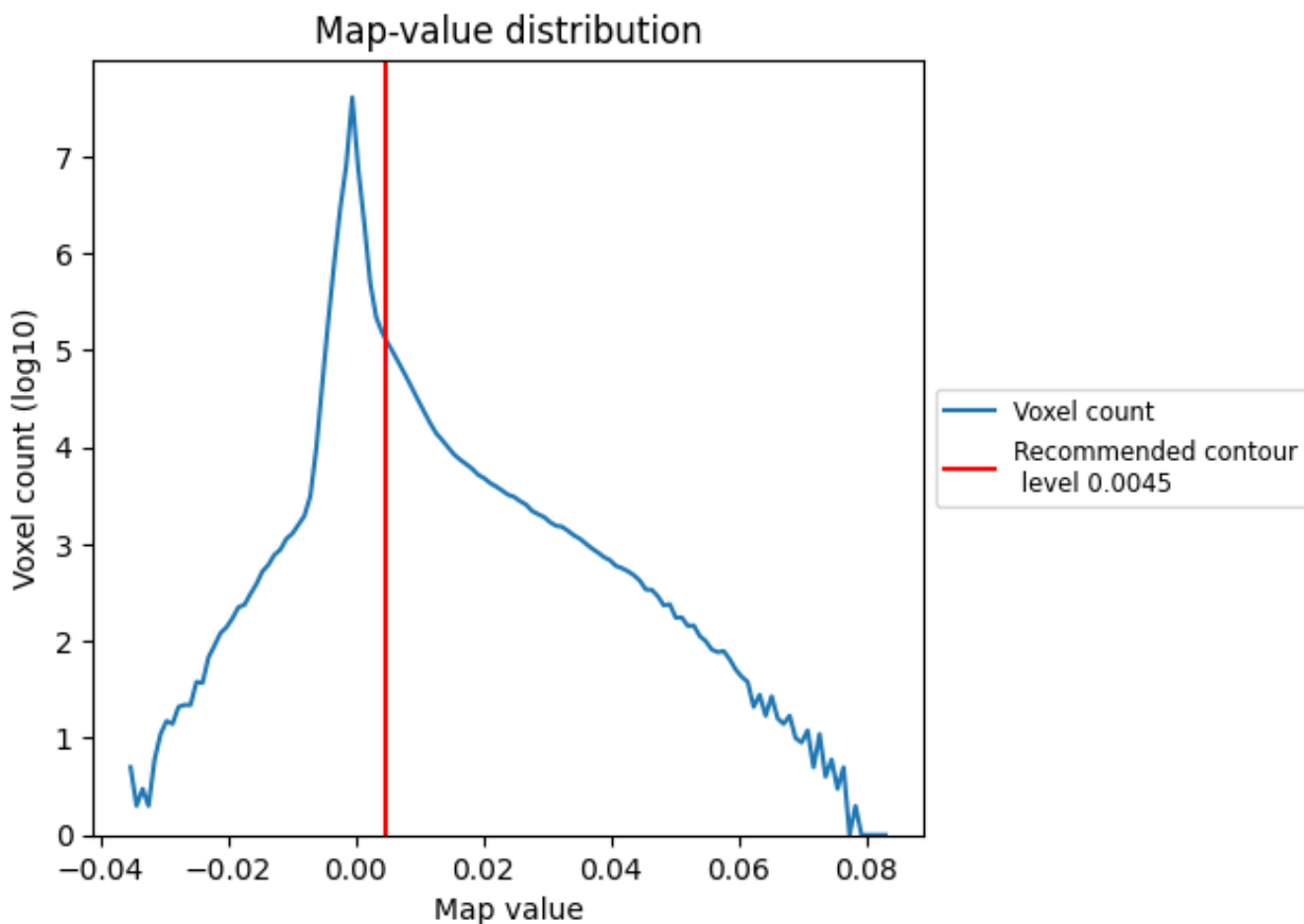
## 6.5 Mask visualisation

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.

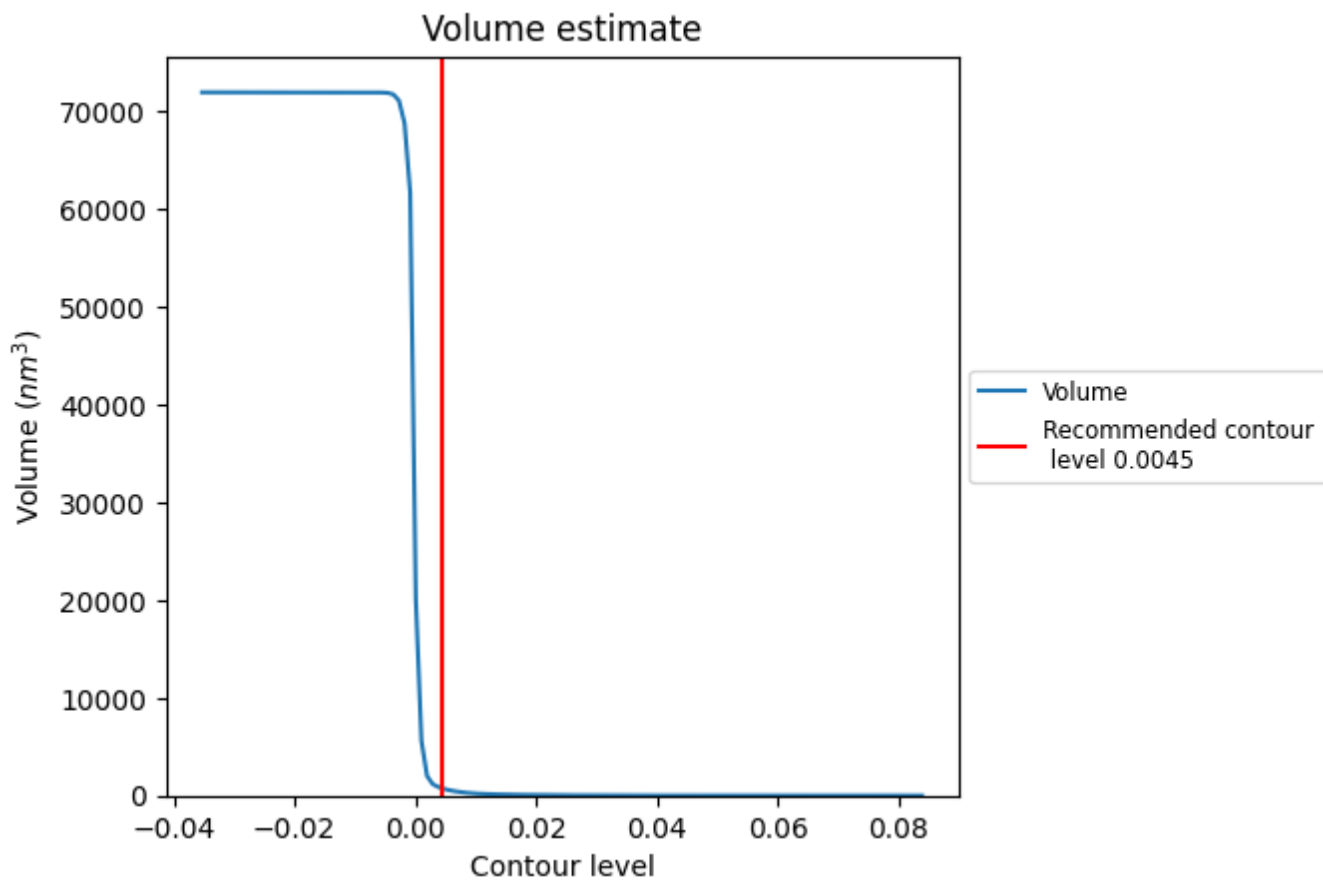
### 7.1 Map-value distribution [i](#)



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.



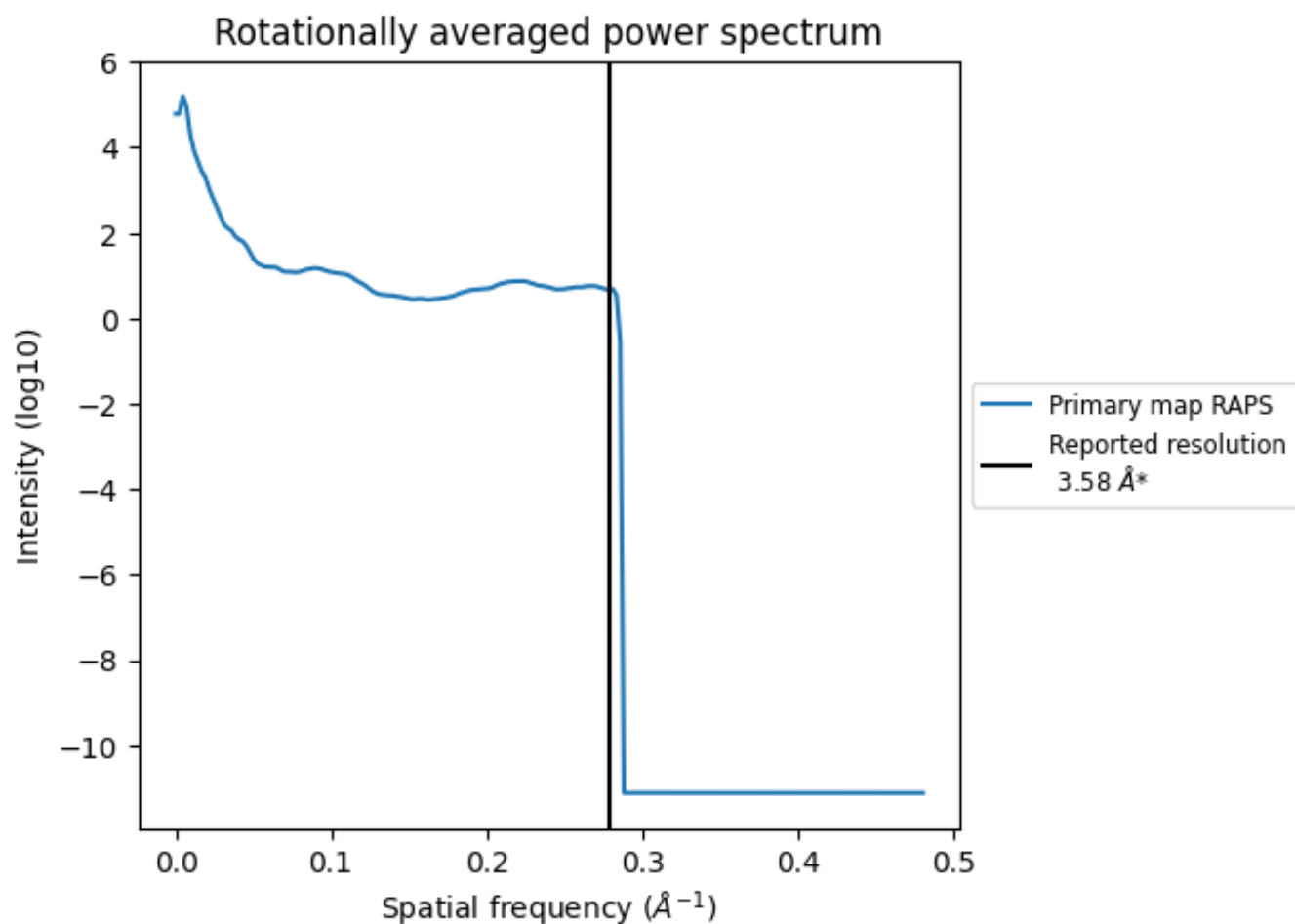
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 742  $\text{nm}^3$ ; this corresponds to an approximate mass of 670 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 0.279 Å<sup>-1</sup>

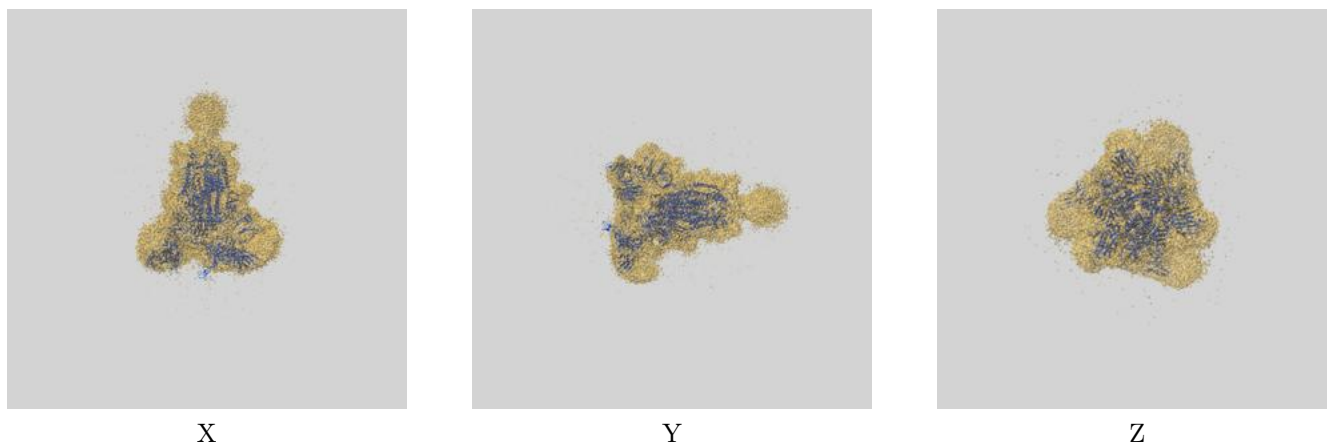
## 8 Fourier-Shell correlation

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

## 9 Map-model fit [i](#)

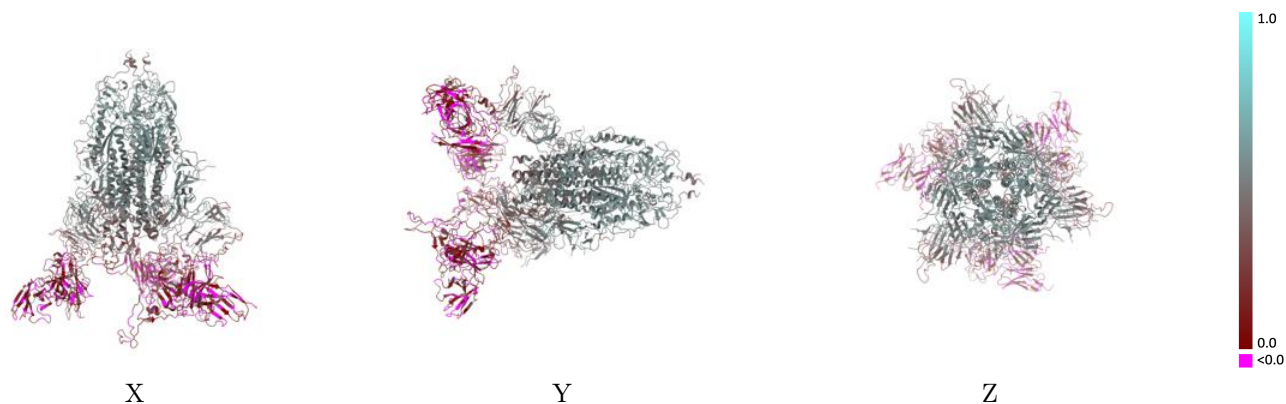
This section contains information regarding the fit between EMDB map EMD-30333 and PDB model 7CAK. Per-residue inclusion information can be found in section [3](#) on page [9](#).

### 9.1 Map-model overlay [i](#)



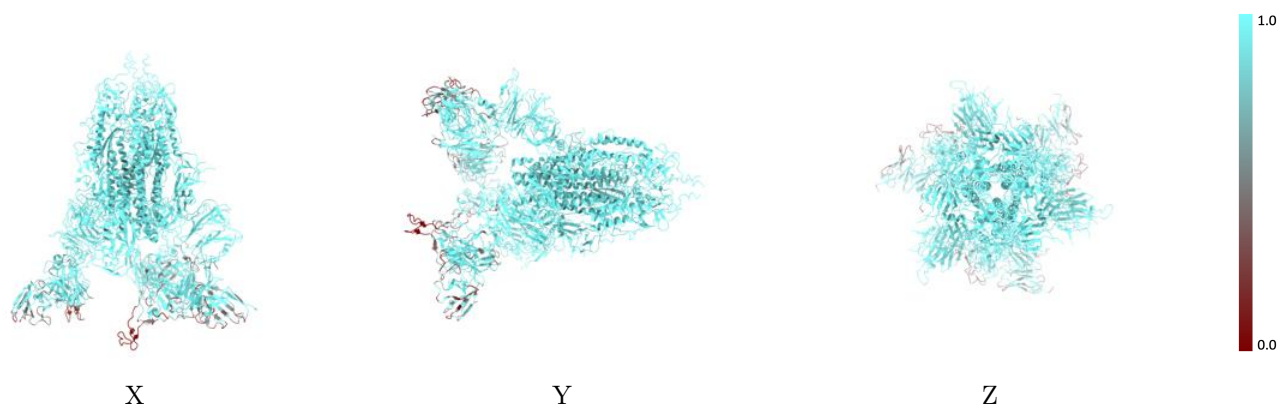
The images above show the 3D surface view of the map at the recommended contour level 0.0045 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



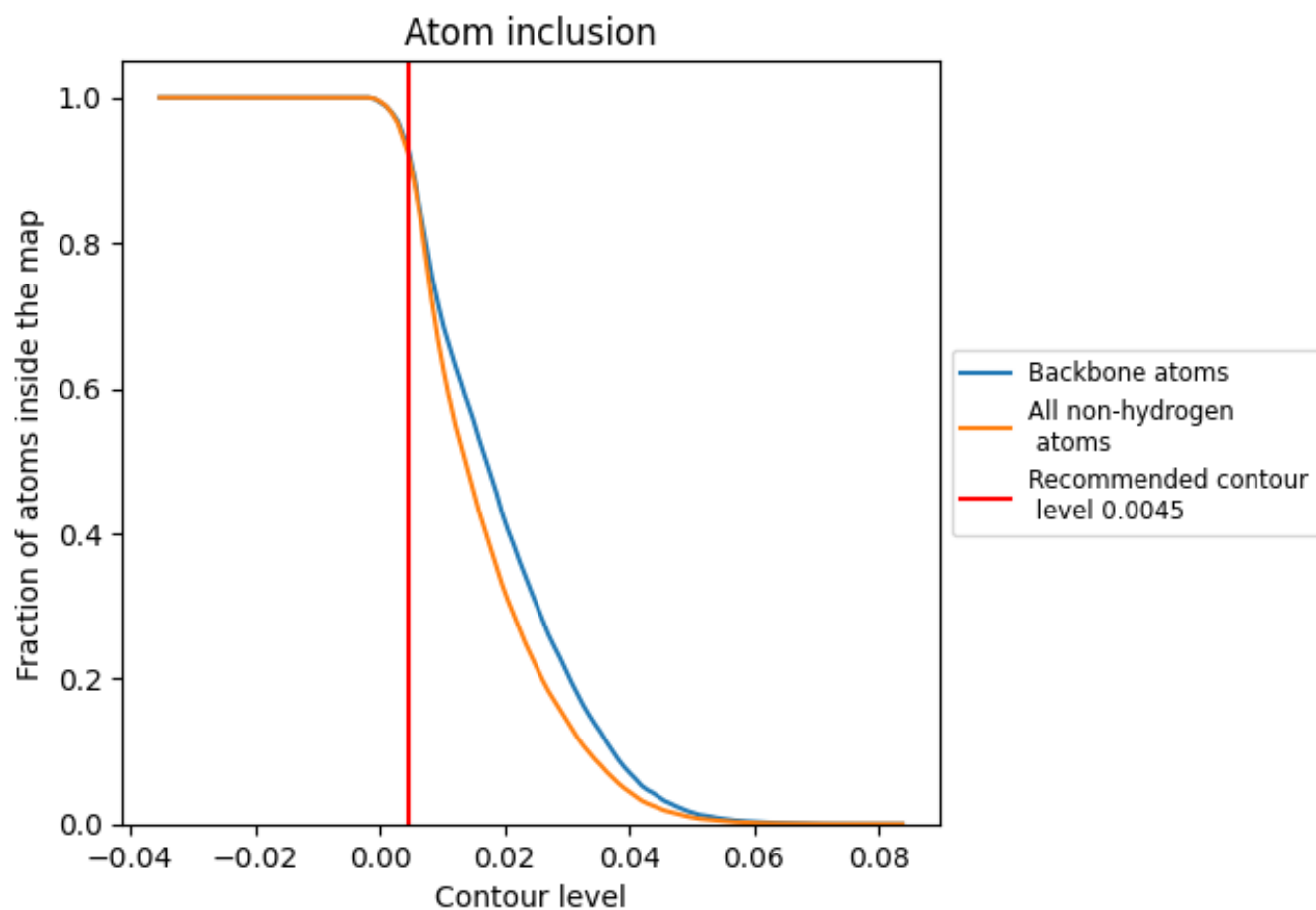
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0045).



















































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 93% of all backbone atoms, 92% 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 (0.0045) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9249	 0.3620
A	 0.9466	 0.4240
B	 0.9477	 0.4230
C	 0.9475	 0.4230
D	 0.7530	 0.0360
E	 0.8958	 0.0620
F	 0.7349	 0.0980
G	 0.8990	 0.0700
H	 0.7373	 0.0670
I	 0.8990	 0.1020
J	 0.5000	 0.2390
K	 1.0000	 0.5040
L	 1.0000	 0.4490
M	 1.0000	 0.4810
N	 1.0000	 0.4550
O	 0.5000	 0.2330
P	 1.0000	 0.5150
Q	 1.0000	 0.4440
R	 1.0000	 0.4770
S	 1.0000	 0.4570
T	 0.5000	 0.2470
U	 1.0000	 0.4940
V	 1.0000	 0.4460
W	 1.0000	 0.4700
X	 1.0000	 0.4660

