



Full wwPDB EM Validation Report ⓘ

Jul 15, 2025 – 10:01 PM JST

PDB ID : 8ZC2 / pdb_00008zc2
EMDB ID : EMD-39920
Title : SARS-CoV-2 Omicron BA.2 spike trimer (6P) in complex with D1F6 Fab, head-to-head aggregate
Authors : Liu, B.; Gao, X.; Li, Z.; Chen, Q.; He, J.; Xiong, X.
Deposited on : 2024-04-28
Resolution : 7.82 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : **FAILED**
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : **FAILED**
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

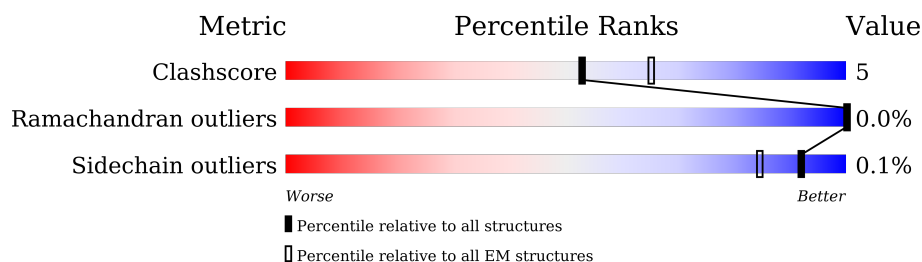
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 7.82 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.



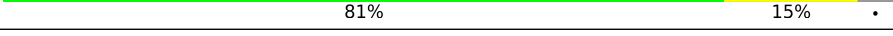
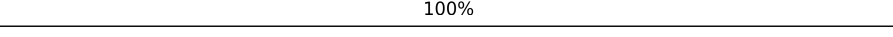
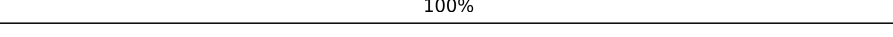
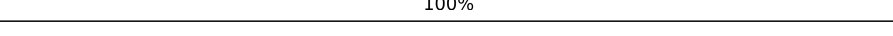
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	1240	71% 9% 20%
1	B	1240	69% 11% 20%
1	C	1240	71% 9% 20%
1	D	1240	72% 8% 20%
1	E	1240	68% 13% 20%
1	F	1240	70% 10% 20%
2	G	223	88% 8% .
2	I	223	87% 9% .
2	K	223	77% 18% .

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Mol	Chain	Length	Quality of chain
2	L	223	 88% 8% .
2	M	223	 73% 22% .
2	N	223	 87% 8% .
3	H	230	 83% 13% .
3	J	230	 80% 16% .
3	O	230	 75% 21% .
3	P	230	 83% 13% .
3	Q	230	 77% 18% . .
3	R	230	 81% 15% .
4	S	2	 50% 50%
4	T	2	 100%
4	U	2	 50% 50%
4	V	2	 100%
4	W	2	 100%
4	X	2	 50% 50%
4	Y	2	 50% 50%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 66850 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
1	A	994	Total	C	N	O	S	0	0
			7793	4999	1292	1468	34		
1	B	993	Total	C	N	O	S	0	0
			7785	4993	1291	1467	34		
1	C	993	Total	C	N	O	S	0	0
			7781	4993	1287	1467	34		
1	D	994	Total	C	N	O	S	0	0
			7793	4999	1292	1468	34		
1	E	994	Total	C	N	O	S	0	0
			7793	4999	1292	1468	34		
1	F	993	Total	C	N	O	S	0	0
			7781	4993	1287	1467	34		

There are 534 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	22	ILE	THR	variant	UNP P0DTC2
A	?	-	LEU	deletion	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	27	SER	ALA	variant	UNP P0DTC2
A	142	ASP	GLY	variant	UNP P0DTC2
A	213	GLY	VAL	variant	UNP P0DTC2
A	339	ASP	GLY	variant	UNP P0DTC2
A	371	PHE	SER	variant	UNP P0DTC2
A	373	PRO	SER	variant	UNP P0DTC2
A	375	PHE	SER	variant	UNP P0DTC2
A	376	ALA	THR	variant	UNP P0DTC2
A	405	ASN	ASP	variant	UNP P0DTC2
A	408	SER	ARG	variant	UNP P0DTC2
A	417	ASN	LYS	variant	UNP P0DTC2
A	440	LYS	ASN	variant	UNP P0DTC2
A	477	ASN	SER	variant	UNP P0DTC2
A	478	LYS	THR	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	484	ALA	GLU	variant	UNP P0DTC2
A	493	ARG	GLN	variant	UNP P0DTC2
A	498	ARG	GLN	variant	UNP P0DTC2
A	501	TYR	ASN	variant	UNP P0DTC2
A	505	HIS	TYR	variant	UNP P0DTC2
A	614	GLY	ASP	variant	UNP P0DTC2
A	655	TYR	HIS	variant	UNP P0DTC2
A	683	LYS	ASN	variant	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	?	-	ARG	deletion	UNP P0DTC2
A	?	-	ARG	deletion	UNP P0DTC2
A	?	-	ALA	deletion	UNP P0DTC2
A	764	LYS	ASN	variant	UNP P0DTC2
A	796	TYR	ASP	variant	UNP P0DTC2
A	817	PRO	PHE	engineered mutation	UNP P0DTC2
A	892	PRO	ALA	engineered mutation	UNP P0DTC2
A	899	PRO	ALA	engineered mutation	UNP P0DTC2
A	942	PRO	ALA	engineered mutation	UNP P0DTC2
A	954	HIS	GLN	variant	UNP P0DTC2
A	969	LYS	ASN	variant	UNP P0DTC2
A	986	PRO	LYS	engineered mutation	UNP P0DTC2
A	987	PRO	VAL	engineered mutation	UNP P0DTC2
A	1212	GLY	-	expression tag	UNP P0DTC2
A	1213	SER	-	expression tag	UNP P0DTC2
A	1214	GLY	-	expression tag	UNP P0DTC2
A	1215	ARG	-	expression tag	UNP P0DTC2
A	1216	GLU	-	expression tag	UNP P0DTC2
A	1217	ASN	-	expression tag	UNP P0DTC2
A	1218	LEU	-	expression tag	UNP P0DTC2
A	1219	TYR	-	expression tag	UNP P0DTC2
A	1220	PHE	-	expression tag	UNP P0DTC2
A	1221	GLN	-	expression tag	UNP P0DTC2
A	1222	GLY	-	expression tag	UNP P0DTC2
A	1223	GLY	-	expression tag	UNP P0DTC2
A	1224	GLY	-	expression tag	UNP P0DTC2
A	1225	GLY	-	expression tag	UNP P0DTC2
A	1226	SER	-	expression tag	UNP P0DTC2
A	1227	GLY	-	expression tag	UNP P0DTC2
A	1228	TYR	-	expression tag	UNP P0DTC2
A	1229	ILE	-	expression tag	UNP P0DTC2
A	1230	PRO	-	expression tag	UNP P0DTC2
A	1231	GLU	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1232	ALA	-	expression tag	UNP P0DTC2
A	1233	PRO	-	expression tag	UNP P0DTC2
A	1234	ARG	-	expression tag	UNP P0DTC2
A	1235	ASP	-	expression tag	UNP P0DTC2
A	1236	GLY	-	expression tag	UNP P0DTC2
A	1237	GLN	-	expression tag	UNP P0DTC2
A	1238	ALA	-	expression tag	UNP P0DTC2
A	1239	TYR	-	expression tag	UNP P0DTC2
A	1240	VAL	-	expression tag	UNP P0DTC2
A	1241	ARG	-	expression tag	UNP P0DTC2
A	1242	LYS	-	expression tag	UNP P0DTC2
A	1243	ASP	-	expression tag	UNP P0DTC2
A	1244	GLY	-	expression tag	UNP P0DTC2
A	1245	GLU	-	expression tag	UNP P0DTC2
A	1246	TRP	-	expression tag	UNP P0DTC2
A	1247	VAL	-	expression tag	UNP P0DTC2
A	1248	LEU	-	expression tag	UNP P0DTC2
A	1249	LEU	-	expression tag	UNP P0DTC2
A	1250	SER	-	expression tag	UNP P0DTC2
A	1251	THR	-	expression tag	UNP P0DTC2
A	1252	PHE	-	expression tag	UNP P0DTC2
A	1253	LEU	-	expression tag	UNP P0DTC2
A	1254	GLY	-	expression tag	UNP P0DTC2
A	1255	HIS	-	expression tag	UNP P0DTC2
A	1256	HIS	-	expression tag	UNP P0DTC2
A	1257	HIS	-	expression tag	UNP P0DTC2
A	1258	HIS	-	expression tag	UNP P0DTC2
A	1259	HIS	-	expression tag	UNP P0DTC2
A	1260	HIS	-	expression tag	UNP P0DTC2
B	22	ILE	THR	variant	UNP P0DTC2
B	?	-	LEU	deletion	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2
B	27	SER	ALA	variant	UNP P0DTC2
B	142	ASP	GLY	variant	UNP P0DTC2
B	213	GLY	VAL	variant	UNP P0DTC2
B	339	ASP	GLY	variant	UNP P0DTC2
B	371	PHE	SER	variant	UNP P0DTC2
B	373	PRO	SER	variant	UNP P0DTC2
B	375	PHE	SER	variant	UNP P0DTC2
B	376	ALA	THR	variant	UNP P0DTC2
B	405	ASN	ASP	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	408	SER	ARG	variant	UNP P0DTC2
B	417	ASN	LYS	variant	UNP P0DTC2
B	440	LYS	ASN	variant	UNP P0DTC2
B	477	ASN	SER	variant	UNP P0DTC2
B	478	LYS	THR	variant	UNP P0DTC2
B	484	ALA	GLU	variant	UNP P0DTC2
B	493	ARG	GLN	variant	UNP P0DTC2
B	498	ARG	GLN	variant	UNP P0DTC2
B	501	TYR	ASN	variant	UNP P0DTC2
B	505	HIS	TYR	variant	UNP P0DTC2
B	614	GLY	ASP	variant	UNP P0DTC2
B	655	TYR	HIS	variant	UNP P0DTC2
B	683	LYS	ASN	variant	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2
B	?	-	ARG	deletion	UNP P0DTC2
B	?	-	ARG	deletion	UNP P0DTC2
B	?	-	ALA	deletion	UNP P0DTC2
B	764	LYS	ASN	variant	UNP P0DTC2
B	796	TYR	ASP	variant	UNP P0DTC2
B	817	PRO	PHE	engineered mutation	UNP P0DTC2
B	892	PRO	ALA	engineered mutation	UNP P0DTC2
B	899	PRO	ALA	engineered mutation	UNP P0DTC2
B	942	PRO	ALA	engineered mutation	UNP P0DTC2
B	954	HIS	GLN	variant	UNP P0DTC2
B	969	LYS	ASN	variant	UNP P0DTC2
B	986	PRO	LYS	engineered mutation	UNP P0DTC2
B	987	PRO	VAL	engineered mutation	UNP P0DTC2
B	1212	GLY	-	expression tag	UNP P0DTC2
B	1213	SER	-	expression tag	UNP P0DTC2
B	1214	GLY	-	expression tag	UNP P0DTC2
B	1215	ARG	-	expression tag	UNP P0DTC2
B	1216	GLU	-	expression tag	UNP P0DTC2
B	1217	ASN	-	expression tag	UNP P0DTC2
B	1218	LEU	-	expression tag	UNP P0DTC2
B	1219	TYR	-	expression tag	UNP P0DTC2
B	1220	PHE	-	expression tag	UNP P0DTC2
B	1221	GLN	-	expression tag	UNP P0DTC2
B	1222	GLY	-	expression tag	UNP P0DTC2
B	1223	GLY	-	expression tag	UNP P0DTC2
B	1224	GLY	-	expression tag	UNP P0DTC2
B	1225	GLY	-	expression tag	UNP P0DTC2
B	1226	SER	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1227	GLY	-	expression tag	UNP P0DTC2
B	1228	TYR	-	expression tag	UNP P0DTC2
B	1229	ILE	-	expression tag	UNP P0DTC2
B	1230	PRO	-	expression tag	UNP P0DTC2
B	1231	GLU	-	expression tag	UNP P0DTC2
B	1232	ALA	-	expression tag	UNP P0DTC2
B	1233	PRO	-	expression tag	UNP P0DTC2
B	1234	ARG	-	expression tag	UNP P0DTC2
B	1235	ASP	-	expression tag	UNP P0DTC2
B	1236	GLY	-	expression tag	UNP P0DTC2
B	1237	GLN	-	expression tag	UNP P0DTC2
B	1238	ALA	-	expression tag	UNP P0DTC2
B	1239	TYR	-	expression tag	UNP P0DTC2
B	1240	VAL	-	expression tag	UNP P0DTC2
B	1241	ARG	-	expression tag	UNP P0DTC2
B	1242	LYS	-	expression tag	UNP P0DTC2
B	1243	ASP	-	expression tag	UNP P0DTC2
B	1244	GLY	-	expression tag	UNP P0DTC2
B	1245	GLU	-	expression tag	UNP P0DTC2
B	1246	TRP	-	expression tag	UNP P0DTC2
B	1247	VAL	-	expression tag	UNP P0DTC2
B	1248	LEU	-	expression tag	UNP P0DTC2
B	1249	LEU	-	expression tag	UNP P0DTC2
B	1250	SER	-	expression tag	UNP P0DTC2
B	1251	THR	-	expression tag	UNP P0DTC2
B	1252	PHE	-	expression tag	UNP P0DTC2
B	1253	LEU	-	expression tag	UNP P0DTC2
B	1254	GLY	-	expression tag	UNP P0DTC2
B	1255	HIS	-	expression tag	UNP P0DTC2
B	1256	HIS	-	expression tag	UNP P0DTC2
B	1257	HIS	-	expression tag	UNP P0DTC2
B	1258	HIS	-	expression tag	UNP P0DTC2
B	1259	HIS	-	expression tag	UNP P0DTC2
B	1260	HIS	-	expression tag	UNP P0DTC2
C	22	ILE	THR	variant	UNP P0DTC2
C	?	-	LEU	deletion	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	27	SER	ALA	variant	UNP P0DTC2
C	142	ASP	GLY	variant	UNP P0DTC2
C	213	GLY	VAL	variant	UNP P0DTC2
C	339	ASP	GLY	variant	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	371	PHE	SER	variant	UNP P0DTC2
C	373	PRO	SER	variant	UNP P0DTC2
C	375	PHE	SER	variant	UNP P0DTC2
C	376	ALA	THR	variant	UNP P0DTC2
C	405	ASN	ASP	variant	UNP P0DTC2
C	408	SER	ARG	variant	UNP P0DTC2
C	417	ASN	LYS	variant	UNP P0DTC2
C	440	LYS	ASN	variant	UNP P0DTC2
C	477	ASN	SER	variant	UNP P0DTC2
C	478	LYS	THR	variant	UNP P0DTC2
C	484	ALA	GLU	variant	UNP P0DTC2
C	493	ARG	GLN	variant	UNP P0DTC2
C	498	ARG	GLN	variant	UNP P0DTC2
C	501	TYR	ASN	variant	UNP P0DTC2
C	505	HIS	TYR	variant	UNP P0DTC2
C	614	GLY	ASP	variant	UNP P0DTC2
C	655	TYR	HIS	variant	UNP P0DTC2
C	683	LYS	ASN	variant	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	?	-	ARG	deletion	UNP P0DTC2
C	?	-	ARG	deletion	UNP P0DTC2
C	?	-	ALA	deletion	UNP P0DTC2
C	764	LYS	ASN	variant	UNP P0DTC2
C	796	TYR	ASP	variant	UNP P0DTC2
C	817	PRO	PHE	engineered mutation	UNP P0DTC2
C	892	PRO	ALA	engineered mutation	UNP P0DTC2
C	899	PRO	ALA	engineered mutation	UNP P0DTC2
C	942	PRO	ALA	engineered mutation	UNP P0DTC2
C	954	HIS	GLN	variant	UNP P0DTC2
C	969	LYS	ASN	variant	UNP P0DTC2
C	986	PRO	LYS	engineered mutation	UNP P0DTC2
C	987	PRO	VAL	engineered mutation	UNP P0DTC2
C	1212	GLY	-	expression tag	UNP P0DTC2
C	1213	SER	-	expression tag	UNP P0DTC2
C	1214	GLY	-	expression tag	UNP P0DTC2
C	1215	ARG	-	expression tag	UNP P0DTC2
C	1216	GLU	-	expression tag	UNP P0DTC2
C	1217	ASN	-	expression tag	UNP P0DTC2
C	1218	LEU	-	expression tag	UNP P0DTC2
C	1219	TYR	-	expression tag	UNP P0DTC2
C	1220	PHE	-	expression tag	UNP P0DTC2
C	1221	GLN	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1222	GLY	-	expression tag	UNP P0DTC2
C	1223	GLY	-	expression tag	UNP P0DTC2
C	1224	GLY	-	expression tag	UNP P0DTC2
C	1225	GLY	-	expression tag	UNP P0DTC2
C	1226	SER	-	expression tag	UNP P0DTC2
C	1227	GLY	-	expression tag	UNP P0DTC2
C	1228	TYR	-	expression tag	UNP P0DTC2
C	1229	ILE	-	expression tag	UNP P0DTC2
C	1230	PRO	-	expression tag	UNP P0DTC2
C	1231	GLU	-	expression tag	UNP P0DTC2
C	1232	ALA	-	expression tag	UNP P0DTC2
C	1233	PRO	-	expression tag	UNP P0DTC2
C	1234	ARG	-	expression tag	UNP P0DTC2
C	1235	ASP	-	expression tag	UNP P0DTC2
C	1236	GLY	-	expression tag	UNP P0DTC2
C	1237	GLN	-	expression tag	UNP P0DTC2
C	1238	ALA	-	expression tag	UNP P0DTC2
C	1239	TYR	-	expression tag	UNP P0DTC2
C	1240	VAL	-	expression tag	UNP P0DTC2
C	1241	ARG	-	expression tag	UNP P0DTC2
C	1242	LYS	-	expression tag	UNP P0DTC2
C	1243	ASP	-	expression tag	UNP P0DTC2
C	1244	GLY	-	expression tag	UNP P0DTC2
C	1245	GLU	-	expression tag	UNP P0DTC2
C	1246	TRP	-	expression tag	UNP P0DTC2
C	1247	VAL	-	expression tag	UNP P0DTC2
C	1248	LEU	-	expression tag	UNP P0DTC2
C	1249	LEU	-	expression tag	UNP P0DTC2
C	1250	SER	-	expression tag	UNP P0DTC2
C	1251	THR	-	expression tag	UNP P0DTC2
C	1252	PHE	-	expression tag	UNP P0DTC2
C	1253	LEU	-	expression tag	UNP P0DTC2
C	1254	GLY	-	expression tag	UNP P0DTC2
C	1255	HIS	-	expression tag	UNP P0DTC2
C	1256	HIS	-	expression tag	UNP P0DTC2
C	1257	HIS	-	expression tag	UNP P0DTC2
C	1258	HIS	-	expression tag	UNP P0DTC2
C	1259	HIS	-	expression tag	UNP P0DTC2
C	1260	HIS	-	expression tag	UNP P0DTC2
D	22	ILE	THR	variant	UNP P0DTC2
D	?	-	LEU	deletion	UNP P0DTC2
D	?	-	PRO	deletion	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	PRO	deletion	UNP P0DTC2
D	27	SER	ALA	variant	UNP P0DTC2
D	142	ASP	GLY	variant	UNP P0DTC2
D	213	GLY	VAL	variant	UNP P0DTC2
D	339	ASP	GLY	variant	UNP P0DTC2
D	371	PHE	SER	variant	UNP P0DTC2
D	373	PRO	SER	variant	UNP P0DTC2
D	375	PHE	SER	variant	UNP P0DTC2
D	376	ALA	THR	variant	UNP P0DTC2
D	405	ASN	ASP	variant	UNP P0DTC2
D	408	SER	ARG	variant	UNP P0DTC2
D	417	ASN	LYS	variant	UNP P0DTC2
D	440	LYS	ASN	variant	UNP P0DTC2
D	477	ASN	SER	variant	UNP P0DTC2
D	478	LYS	THR	variant	UNP P0DTC2
D	484	ALA	GLU	variant	UNP P0DTC2
D	493	ARG	GLN	variant	UNP P0DTC2
D	498	ARG	GLN	variant	UNP P0DTC2
D	501	TYR	ASN	variant	UNP P0DTC2
D	505	HIS	TYR	variant	UNP P0DTC2
D	614	GLY	ASP	variant	UNP P0DTC2
D	655	TYR	HIS	variant	UNP P0DTC2
D	683	LYS	ASN	variant	UNP P0DTC2
D	?	-	PRO	deletion	UNP P0DTC2
D	?	-	ARG	deletion	UNP P0DTC2
D	?	-	ARG	deletion	UNP P0DTC2
D	?	-	ALA	deletion	UNP P0DTC2
D	764	LYS	ASN	variant	UNP P0DTC2
D	796	TYR	ASP	variant	UNP P0DTC2
D	817	PRO	PHE	engineered mutation	UNP P0DTC2
D	892	PRO	ALA	engineered mutation	UNP P0DTC2
D	899	PRO	ALA	engineered mutation	UNP P0DTC2
D	942	PRO	ALA	engineered mutation	UNP P0DTC2
D	954	HIS	GLN	variant	UNP P0DTC2
D	969	LYS	ASN	variant	UNP P0DTC2
D	986	PRO	LYS	engineered mutation	UNP P0DTC2
D	987	PRO	VAL	engineered mutation	UNP P0DTC2
D	1212	GLY	-	expression tag	UNP P0DTC2
D	1213	SER	-	expression tag	UNP P0DTC2
D	1214	GLY	-	expression tag	UNP P0DTC2
D	1215	ARG	-	expression tag	UNP P0DTC2
D	1216	GLU	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
D	1217	ASN	-	expression tag	UNP P0DTC2
D	1218	LEU	-	expression tag	UNP P0DTC2
D	1219	TYR	-	expression tag	UNP P0DTC2
D	1220	PHE	-	expression tag	UNP P0DTC2
D	1221	GLN	-	expression tag	UNP P0DTC2
D	1222	GLY	-	expression tag	UNP P0DTC2
D	1223	GLY	-	expression tag	UNP P0DTC2
D	1224	GLY	-	expression tag	UNP P0DTC2
D	1225	GLY	-	expression tag	UNP P0DTC2
D	1226	SER	-	expression tag	UNP P0DTC2
D	1227	GLY	-	expression tag	UNP P0DTC2
D	1228	TYR	-	expression tag	UNP P0DTC2
D	1229	ILE	-	expression tag	UNP P0DTC2
D	1230	PRO	-	expression tag	UNP P0DTC2
D	1231	GLU	-	expression tag	UNP P0DTC2
D	1232	ALA	-	expression tag	UNP P0DTC2
D	1233	PRO	-	expression tag	UNP P0DTC2
D	1234	ARG	-	expression tag	UNP P0DTC2
D	1235	ASP	-	expression tag	UNP P0DTC2
D	1236	GLY	-	expression tag	UNP P0DTC2
D	1237	GLN	-	expression tag	UNP P0DTC2
D	1238	ALA	-	expression tag	UNP P0DTC2
D	1239	TYR	-	expression tag	UNP P0DTC2
D	1240	VAL	-	expression tag	UNP P0DTC2
D	1241	ARG	-	expression tag	UNP P0DTC2
D	1242	LYS	-	expression tag	UNP P0DTC2
D	1243	ASP	-	expression tag	UNP P0DTC2
D	1244	GLY	-	expression tag	UNP P0DTC2
D	1245	GLU	-	expression tag	UNP P0DTC2
D	1246	TRP	-	expression tag	UNP P0DTC2
D	1247	VAL	-	expression tag	UNP P0DTC2
D	1248	LEU	-	expression tag	UNP P0DTC2
D	1249	LEU	-	expression tag	UNP P0DTC2
D	1250	SER	-	expression tag	UNP P0DTC2
D	1251	THR	-	expression tag	UNP P0DTC2
D	1252	PHE	-	expression tag	UNP P0DTC2
D	1253	LEU	-	expression tag	UNP P0DTC2
D	1254	GLY	-	expression tag	UNP P0DTC2
D	1255	HIS	-	expression tag	UNP P0DTC2
D	1256	HIS	-	expression tag	UNP P0DTC2
D	1257	HIS	-	expression tag	UNP P0DTC2
D	1258	HIS	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
D	1259	HIS	-	expression tag	UNP P0DTC2
D	1260	HIS	-	expression tag	UNP P0DTC2
E	22	ILE	THR	variant	UNP P0DTC2
E	?	-	LEU	deletion	UNP P0DTC2
E	?	-	PRO	deletion	UNP P0DTC2
E	?	-	PRO	deletion	UNP P0DTC2
E	27	SER	ALA	variant	UNP P0DTC2
E	142	ASP	GLY	variant	UNP P0DTC2
E	213	GLY	VAL	variant	UNP P0DTC2
E	339	ASP	GLY	variant	UNP P0DTC2
E	371	PHE	SER	variant	UNP P0DTC2
E	373	PRO	SER	variant	UNP P0DTC2
E	375	PHE	SER	variant	UNP P0DTC2
E	376	ALA	THR	variant	UNP P0DTC2
E	405	ASN	ASP	variant	UNP P0DTC2
E	408	SER	ARG	variant	UNP P0DTC2
E	417	ASN	LYS	variant	UNP P0DTC2
E	440	LYS	ASN	variant	UNP P0DTC2
E	477	ASN	SER	variant	UNP P0DTC2
E	478	LYS	THR	variant	UNP P0DTC2
E	484	ALA	GLU	variant	UNP P0DTC2
E	493	ARG	GLN	variant	UNP P0DTC2
E	498	ARG	GLN	variant	UNP P0DTC2
E	501	TYR	ASN	variant	UNP P0DTC2
E	505	HIS	TYR	variant	UNP P0DTC2
E	614	GLY	ASP	variant	UNP P0DTC2
E	655	TYR	HIS	variant	UNP P0DTC2
E	683	LYS	ASN	variant	UNP P0DTC2
E	?	-	PRO	deletion	UNP P0DTC2
E	?	-	ARG	deletion	UNP P0DTC2
E	?	-	ARG	deletion	UNP P0DTC2
E	?	-	ALA	deletion	UNP P0DTC2
E	764	LYS	ASN	variant	UNP P0DTC2
E	796	TYR	ASP	variant	UNP P0DTC2
E	817	PRO	PHE	engineered mutation	UNP P0DTC2
E	892	PRO	ALA	engineered mutation	UNP P0DTC2
E	899	PRO	ALA	engineered mutation	UNP P0DTC2
E	942	PRO	ALA	engineered mutation	UNP P0DTC2
E	954	HIS	GLN	variant	UNP P0DTC2
E	969	LYS	ASN	variant	UNP P0DTC2
E	986	PRO	LYS	engineered mutation	UNP P0DTC2
E	987	PRO	VAL	engineered mutation	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
E	1212	GLY	-	expression tag	UNP P0DTC2
E	1213	SER	-	expression tag	UNP P0DTC2
E	1214	GLY	-	expression tag	UNP P0DTC2
E	1215	ARG	-	expression tag	UNP P0DTC2
E	1216	GLU	-	expression tag	UNP P0DTC2
E	1217	ASN	-	expression tag	UNP P0DTC2
E	1218	LEU	-	expression tag	UNP P0DTC2
E	1219	TYR	-	expression tag	UNP P0DTC2
E	1220	PHE	-	expression tag	UNP P0DTC2
E	1221	GLN	-	expression tag	UNP P0DTC2
E	1222	GLY	-	expression tag	UNP P0DTC2
E	1223	GLY	-	expression tag	UNP P0DTC2
E	1224	GLY	-	expression tag	UNP P0DTC2
E	1225	GLY	-	expression tag	UNP P0DTC2
E	1226	SER	-	expression tag	UNP P0DTC2
E	1227	GLY	-	expression tag	UNP P0DTC2
E	1228	TYR	-	expression tag	UNP P0DTC2
E	1229	ILE	-	expression tag	UNP P0DTC2
E	1230	PRO	-	expression tag	UNP P0DTC2
E	1231	GLU	-	expression tag	UNP P0DTC2
E	1232	ALA	-	expression tag	UNP P0DTC2
E	1233	PRO	-	expression tag	UNP P0DTC2
E	1234	ARG	-	expression tag	UNP P0DTC2
E	1235	ASP	-	expression tag	UNP P0DTC2
E	1236	GLY	-	expression tag	UNP P0DTC2
E	1237	GLN	-	expression tag	UNP P0DTC2
E	1238	ALA	-	expression tag	UNP P0DTC2
E	1239	TYR	-	expression tag	UNP P0DTC2
E	1240	VAL	-	expression tag	UNP P0DTC2
E	1241	ARG	-	expression tag	UNP P0DTC2
E	1242	LYS	-	expression tag	UNP P0DTC2
E	1243	ASP	-	expression tag	UNP P0DTC2
E	1244	GLY	-	expression tag	UNP P0DTC2
E	1245	GLU	-	expression tag	UNP P0DTC2
E	1246	TRP	-	expression tag	UNP P0DTC2
E	1247	VAL	-	expression tag	UNP P0DTC2
E	1248	LEU	-	expression tag	UNP P0DTC2
E	1249	LEU	-	expression tag	UNP P0DTC2
E	1250	SER	-	expression tag	UNP P0DTC2
E	1251	THR	-	expression tag	UNP P0DTC2
E	1252	PHE	-	expression tag	UNP P0DTC2
E	1253	LEU	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
E	1254	GLY	-	expression tag	UNP P0DTC2
E	1255	HIS	-	expression tag	UNP P0DTC2
E	1256	HIS	-	expression tag	UNP P0DTC2
E	1257	HIS	-	expression tag	UNP P0DTC2
E	1258	HIS	-	expression tag	UNP P0DTC2
E	1259	HIS	-	expression tag	UNP P0DTC2
E	1260	HIS	-	expression tag	UNP P0DTC2
F	22	ILE	THR	variant	UNP P0DTC2
F	?	-	LEU	deletion	UNP P0DTC2
F	?	-	PRO	deletion	UNP P0DTC2
F	?	-	PRO	deletion	UNP P0DTC2
F	27	SER	ALA	variant	UNP P0DTC2
F	142	ASP	GLY	variant	UNP P0DTC2
F	213	GLY	VAL	variant	UNP P0DTC2
F	339	ASP	GLY	variant	UNP P0DTC2
F	371	PHE	SER	variant	UNP P0DTC2
F	373	PRO	SER	variant	UNP P0DTC2
F	375	PHE	SER	variant	UNP P0DTC2
F	376	ALA	THR	variant	UNP P0DTC2
F	405	ASN	ASP	variant	UNP P0DTC2
F	408	SER	ARG	variant	UNP P0DTC2
F	417	ASN	LYS	variant	UNP P0DTC2
F	440	LYS	ASN	variant	UNP P0DTC2
F	477	ASN	SER	variant	UNP P0DTC2
F	478	LYS	THR	variant	UNP P0DTC2
F	484	ALA	GLU	variant	UNP P0DTC2
F	493	ARG	GLN	variant	UNP P0DTC2
F	498	ARG	GLN	variant	UNP P0DTC2
F	501	TYR	ASN	variant	UNP P0DTC2
F	505	HIS	TYR	variant	UNP P0DTC2
F	614	GLY	ASP	variant	UNP P0DTC2
F	655	TYR	HIS	variant	UNP P0DTC2
F	683	LYS	ASN	variant	UNP P0DTC2
F	?	-	PRO	deletion	UNP P0DTC2
F	?	-	ARG	deletion	UNP P0DTC2
F	?	-	ARG	deletion	UNP P0DTC2
F	?	-	ALA	deletion	UNP P0DTC2
F	764	LYS	ASN	variant	UNP P0DTC2
F	796	TYR	ASP	variant	UNP P0DTC2
F	817	PRO	PHE	engineered mutation	UNP P0DTC2
F	892	PRO	ALA	engineered mutation	UNP P0DTC2
F	899	PRO	ALA	engineered mutation	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
F	942	PRO	ALA	engineered mutation	UNP P0DTC2
F	954	HIS	GLN	variant	UNP P0DTC2
F	969	LYS	ASN	variant	UNP P0DTC2
F	986	PRO	LYS	engineered mutation	UNP P0DTC2
F	987	PRO	VAL	engineered mutation	UNP P0DTC2
F	1212	GLY	-	expression tag	UNP P0DTC2
F	1213	SER	-	expression tag	UNP P0DTC2
F	1214	GLY	-	expression tag	UNP P0DTC2
F	1215	ARG	-	expression tag	UNP P0DTC2
F	1216	GLU	-	expression tag	UNP P0DTC2
F	1217	ASN	-	expression tag	UNP P0DTC2
F	1218	LEU	-	expression tag	UNP P0DTC2
F	1219	TYR	-	expression tag	UNP P0DTC2
F	1220	PHE	-	expression tag	UNP P0DTC2
F	1221	GLN	-	expression tag	UNP P0DTC2
F	1222	GLY	-	expression tag	UNP P0DTC2
F	1223	GLY	-	expression tag	UNP P0DTC2
F	1224	GLY	-	expression tag	UNP P0DTC2
F	1225	GLY	-	expression tag	UNP P0DTC2
F	1226	SER	-	expression tag	UNP P0DTC2
F	1227	GLY	-	expression tag	UNP P0DTC2
F	1228	TYR	-	expression tag	UNP P0DTC2
F	1229	ILE	-	expression tag	UNP P0DTC2
F	1230	PRO	-	expression tag	UNP P0DTC2
F	1231	GLU	-	expression tag	UNP P0DTC2
F	1232	ALA	-	expression tag	UNP P0DTC2
F	1233	PRO	-	expression tag	UNP P0DTC2
F	1234	ARG	-	expression tag	UNP P0DTC2
F	1235	ASP	-	expression tag	UNP P0DTC2
F	1236	GLY	-	expression tag	UNP P0DTC2
F	1237	GLN	-	expression tag	UNP P0DTC2
F	1238	ALA	-	expression tag	UNP P0DTC2
F	1239	TYR	-	expression tag	UNP P0DTC2
F	1240	VAL	-	expression tag	UNP P0DTC2
F	1241	ARG	-	expression tag	UNP P0DTC2
F	1242	LYS	-	expression tag	UNP P0DTC2
F	1243	ASP	-	expression tag	UNP P0DTC2
F	1244	GLY	-	expression tag	UNP P0DTC2
F	1245	GLU	-	expression tag	UNP P0DTC2
F	1246	TRP	-	expression tag	UNP P0DTC2
F	1247	VAL	-	expression tag	UNP P0DTC2
F	1248	LEU	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
F	1249	LEU	-	expression tag	UNP P0DTC2
F	1250	SER	-	expression tag	UNP P0DTC2
F	1251	THR	-	expression tag	UNP P0DTC2
F	1252	PHE	-	expression tag	UNP P0DTC2
F	1253	LEU	-	expression tag	UNP P0DTC2
F	1254	GLY	-	expression tag	UNP P0DTC2
F	1255	HIS	-	expression tag	UNP P0DTC2
F	1256	HIS	-	expression tag	UNP P0DTC2
F	1257	HIS	-	expression tag	UNP P0DTC2
F	1258	HIS	-	expression tag	UNP P0DTC2
F	1259	HIS	-	expression tag	UNP P0DTC2
F	1260	HIS	-	expression tag	UNP P0DTC2

- Molecule 2 is a protein called Light chain of D1F6 Fab.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	G	213	Total	C	N	O	S	0	0
			1591	1001	266	320	4		
2	M	213	Total	C	N	O	S	0	0
			1591	1001	266	320	4		
2	N	213	Total	C	N	O	S	0	0
			1591	1001	266	320	4		
2	I	213	Total	C	N	O	S	0	0
			1591	1001	266	320	4		
2	K	213	Total	C	N	O	S	0	0
			1591	1001	266	320	4		
2	L	213	Total	C	N	O	S	0	0
			1591	1001	266	320	4		

- Molecule 3 is a protein called Heavy chain of D1F6 Fab.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	H	221	Total	C	N	O	S	0	0
			1679	1061	280	328	10		
3	Q	221	Total	C	N	O	S	0	0
			1679	1061	280	328	10		
3	R	221	Total	C	N	O	S	0	0
			1679	1061	280	328	10		
3	J	221	Total	C	N	O	S	0	0
			1679	1061	280	328	10		
3	O	221	Total	C	N	O	S	0	0
			1679	1061	280	328	10		

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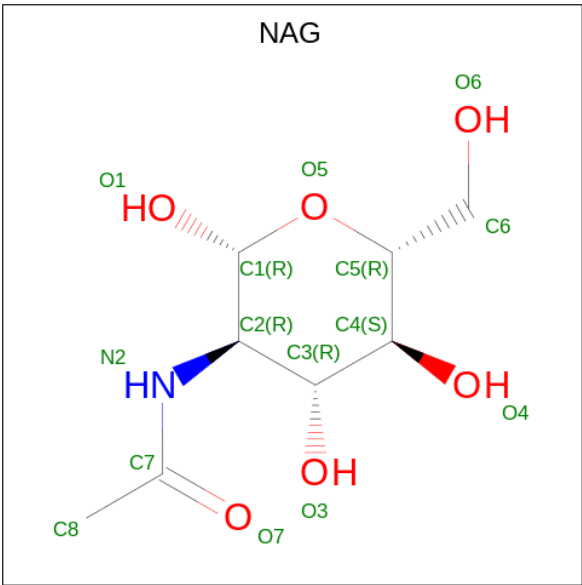
Mol	Chain	Residues	Atoms					AltConf	Trace
3	P	221	Total	C	N	O	S	0	0
			1679	1061	280	328	10		

- 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	S	2	Total	C	N	O	0	0
			28	16	2	10		
4	T	2	Total	C	N	O	0	0
			28	16	2	10		
4	U	2	Total	C	N	O	0	0
			28	16	2	10		
4	V	2	Total	C	N	O	0	0
			28	16	2	10		
4	W	2	Total	C	N	O	0	0
			28	16	2	10		
4	X	2	Total	C	N	O	0	0
			28	16	2	10		
4	Y	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆) (labeled as "Ligand of Interest" by depositor).



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

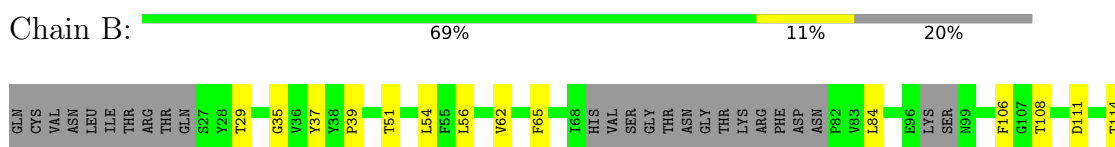
3 Residue-property plots

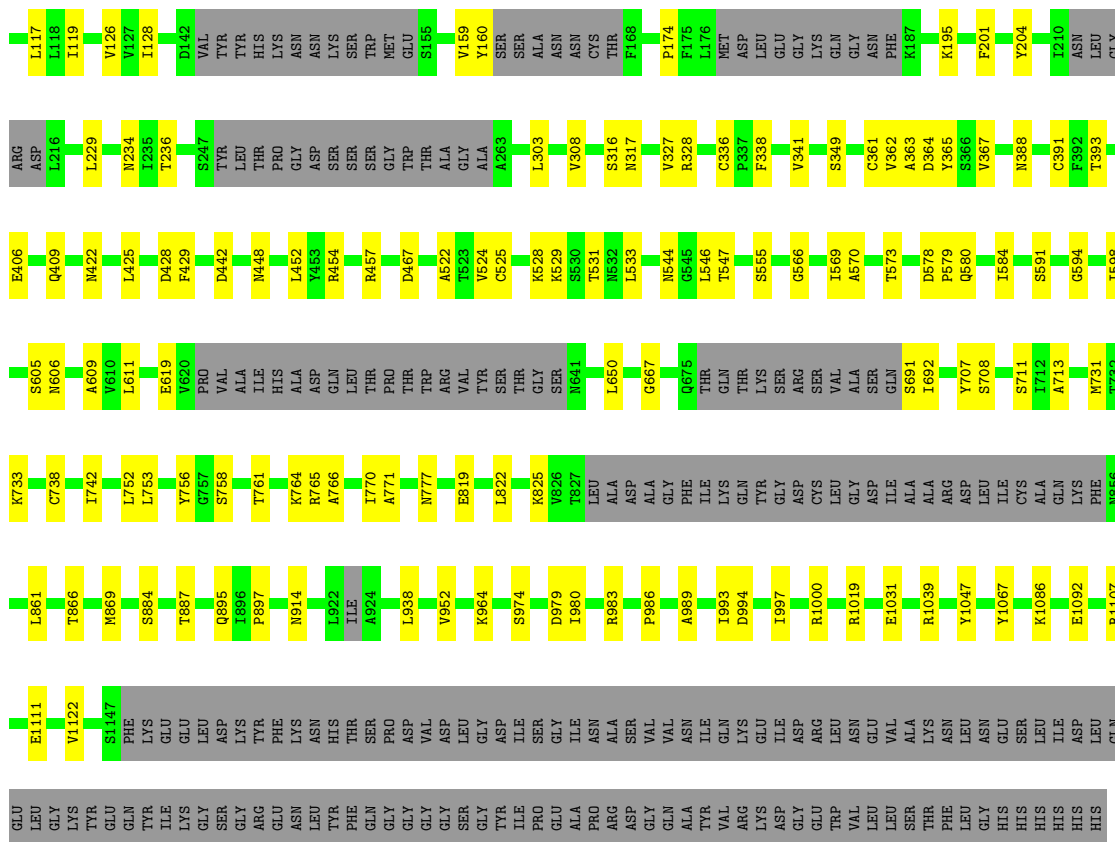
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded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

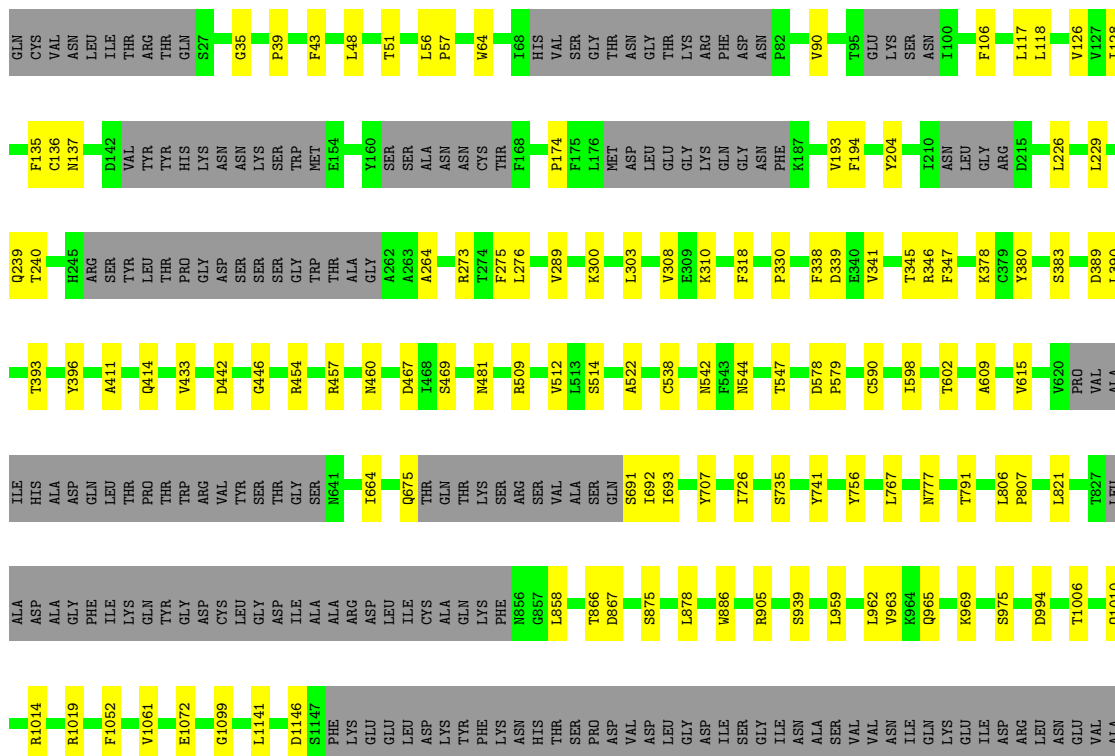


- Molecule 1: Spike glycoprotein





- Molecule 1: Spike glycoprotein



[illegible]

- Molecule 1: Spike glycoprotein

Chain D: 72% 8% 20%

[illegible]

- Molecule 1: Spike glycoprotein

Chain E: 68% 13% 20%

K378	L118	GLN
C379	I119	CYS
P384	V126	ASN
T385	V127	LEU
	I128	ILE
N388		THR
	E132	ARG
C391	F135	GLN
T393		THR
S408	D142	S27
	VAL	Y28
	TYR	T29
N422	TYR	G35
L425	HIS	V36
	LYS	Y37
D428	ASN	Y38
F429	ASN	P39
I434	LYS	
A435	SER	T51
	TRP	
D442	NET	L54
	GLU	F55
	S155	L56
N448	V159	V62
L452	Y160	F65
Y453	SER	
R454	SER	T68
R457	ALA	HIS
	ASN	VAL
	ASN	SER
	CYS	GLY
D467	THR	THR
A522	F168	ASN
T523	P174	GLY
V524	F175	THR
G525	L176	LYS
G526	NET	ARG
F527	ASP	PHE
K528	LEU	ASP
K529	GLU	ASN
	GLY	P82
	GLN	V83
L533	GLY	L84
N540	GLY	
F541	ASN	E96
F543	PHE	LYS
N544	R187	SER
	K187	N99
G550	K195	
	F201	T108
S555	Y204	D111
Q563	F375	S112
	A376	K113
	F377	T114
		ASN

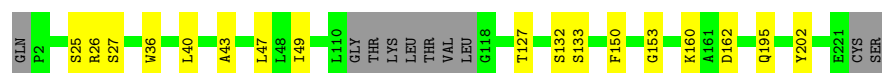
LEU	I569	ALA	LEU	E1031	ALA	SER
ILE	A570	LYS	ILE	C1032	LYS	THR
CYS	R577	ASN	CYS	R1039	ASN	PHE
ALA	D578	GLN	ALA	V1061	GLU	LEU
LYS	I584	PHE	LYS	F1062	THR	HIS
PHE	G593	ASP	PHE	V1065	HIS	HIS
G593	I598	GLN	G593	V1094	HIS	HIS
I598	S605	LEU	L861	S1097	LEU	HIS
S605	N606	GLN	L865	W1102	GLU	
N606	A609	LEU	M969	W1102	LEU	
A609	V610	TYR	S884	S1147	GLY	
V610	L611	GLN	G885	PHE	LYS	
L611	V620	ILE	M886	LYS	GLU	
V620	PRO	LYS	T887	GLU	LEU	
PRO	VAL	ASP	Q895	GLY	LEU	
VAL	ALA	ASP	Y904	ASP	ASP	
ALA	ILE	TYR	N919	TYR	TYR	
ILE	HIS	ARG	N919	ARG	ARG	
HIS	ALA	GLU	L922	GLU	GLU	
ALA	ASP	ASN	L922	LYS	LYS	
ASP	GLN	LEU	L938	ASN	LEU	
GLN	LEU	ASN	L938	TYR	TYR	
LEU	THR	PHE	L964	PHE	PHE	
THR	PRO	GLN	Q965	GLN	GLN	
PRO	THR	GLY	L966	GLY	GLY	
THR	TRP	GLY	S974	GLY	GLY	
TRP	ARG	GLY	S975	SER	SER	
ARG	VAL	GLY	S975	LEU	LEU	
VAL	TYR	GLY	T980	GLY	GLY	
TYR	SER	TYR	T980	ASP	ASP	
SER	THR	ILE	D985	ILE	ILE	
THR	GLY	ALA	P986	PRO	PRO	
GLY	N641	ASP	P987	GLU	GLU	
N641	L650	ALA	E988	ILE	ALA	
L650	G667	GLY	A989	ARG	ARG	
G667	Q675	PHE	E990	GLY	GLY	
Q675	THR	LYS	I993	VAL	GLN	
THR	GLN	GLN	I993	ASN	ALA	
GLN	THR	TYR	I997	ILE	TYR	
THR	LYS	GLY	R1000	GLN	VAL	
LYS	ARG	CYS	L1001	LYS	VAL	
ARG	SER	LEU	V1008	ASP	ARG	
SER	VAL	ASP	I1018	GLY	GLY	
VAL	ALA	ILE	R1019	TRP	TRP	
ALA	SER	ALA	I1018	VAL	VAL	
SER	GLN	ALA	R1019	LEU	LEU	
GLN	ASP	ASP	K1028	ASN	ASN	
ASP	S691	VAL		VAL	VAL	

• Molecule 1: Spike glycoprotein

Chain F:  70% 10% 20%

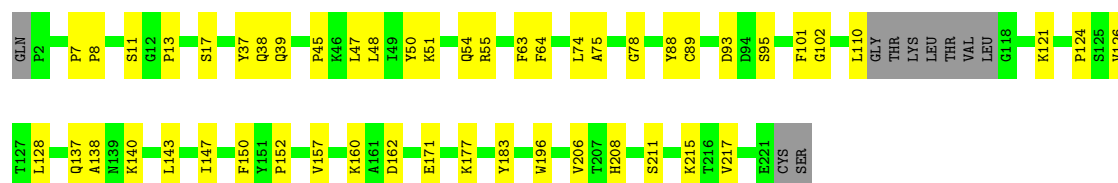
GLY GLN ALA TYR VAL GLN VAL ARG LYS GLU ASP ILE GLY GLY GLU TRP VAL LEU LEU LEU SER THR PHE LEU GLY HIS HIS HIS HIS HIS	VAL	R983	R815	A609	T430	LEU	THR	TYR	GLN	GLN	S27	G35	P39	F43	L48	T51	L56	P57	T68	HIS	VAL	GLY	SER	ASN	GLY	THR	ASN	GLN	GLY	THR	ASN	ASP	ASP	ASN	T95	GLU	LYS	SER	ASN	GLY	ARG	I100	F106	L117	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																					
	ASN	R984	R821	V620	V433	THR	PRO	HIS	ASN	VAL	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	ILE	D985	L821	P80	V433	GLY	ASP	ASN	GLN	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	GLN	P986		VAL	D442	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	LYS	A989		LEU	D442	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	ASP			ALA	L452	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	GLY	I993		ALA	L452	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	GLU	D994		ALA	R457	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	TRP			GLY	ASP	R457	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	VAL	I1018		PHE	N460	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	ASN	R1019		ILE	LEU	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	LEU			ILE	LEU	THR	ASP	GLN	THR	THR	E154	Y160	SER	ALA	ASN	CYS	THR	P174	F175	L176	ASP	VAL	GLY	ASN	ASN	LYS	TRP	THR	ASN	GLY	THR	ASN	ASP	ASN	LYS	GLY	ASN	ARG	D215	L229	Q239	T240	H245	ARG	D142	VAL																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	LEU	VAL		GLN	THR	PRO	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR	THR

Chain G:  88% 8% .



- Molecule 2: Light chain of D1F6 Fab

Chain M:  73% 22% .



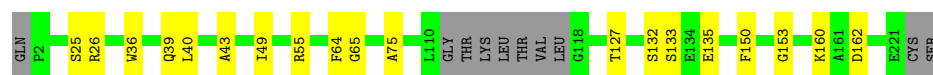
- Molecule 2: Light chain of D1F6 Fab

Chain N:  87% 8% .



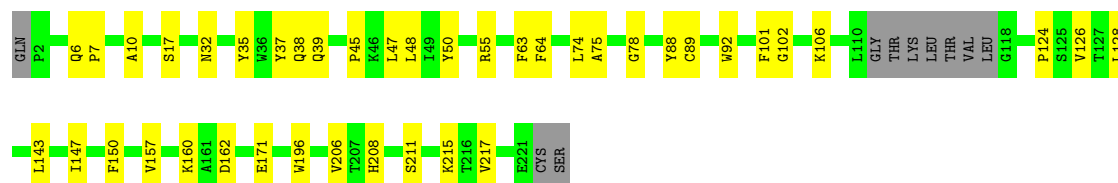
- Molecule 2: Light chain of D1F6 Fab

Chain I:  87% 9% .



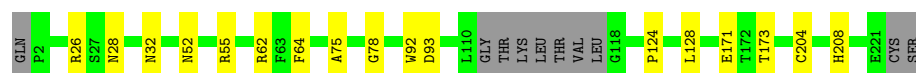
- Molecule 2: Light chain of D1F6 Fab

Chain K:  77% 18% .



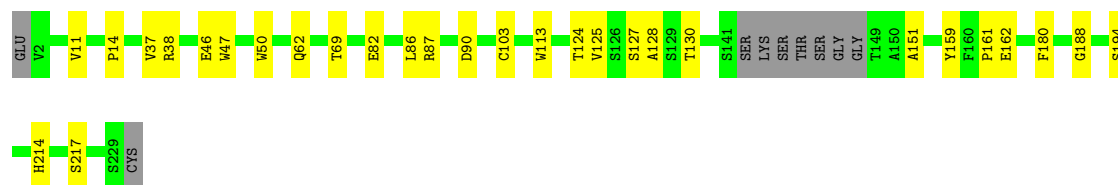
- Molecule 2: Light chain of D1F6 Fab

Chain L:  88% 8% .



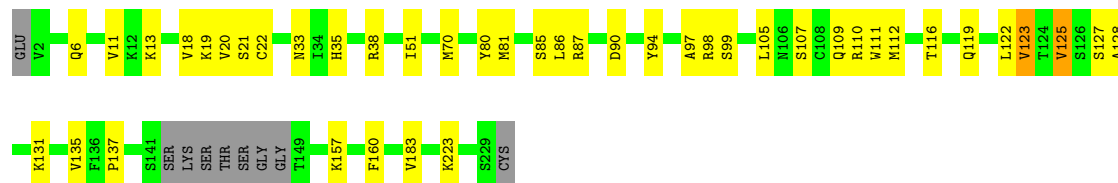
- Molecule 3: Heavy chain of D1F6 Fab

Chain H:  83% 13% .



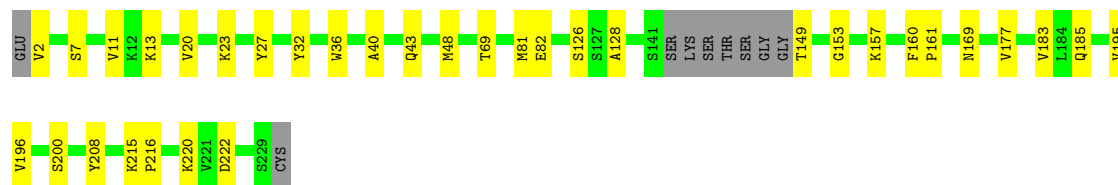
• Molecule 3: Heavy chain of D1F6 Fab

Chain Q: 77% 18% . .



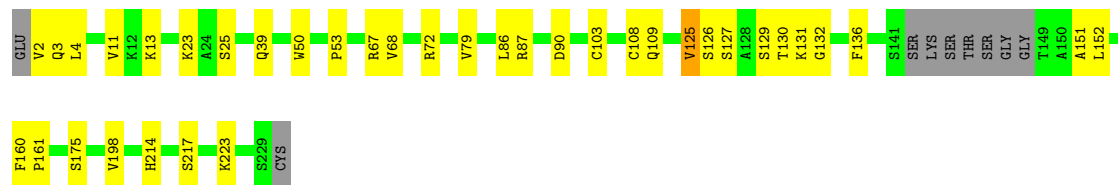
• Molecule 3: Heavy chain of D1F6 Fab

Chain R: 81% 15% .



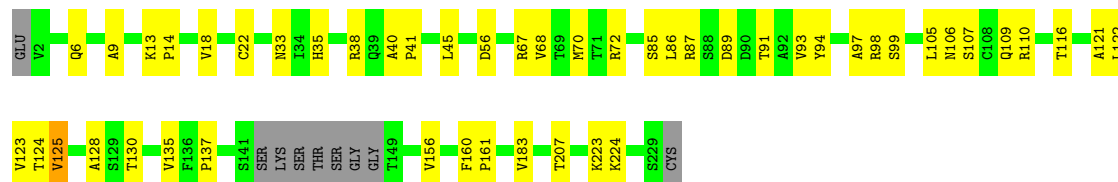
• Molecule 3: Heavy chain of D1F6 Fab

Chain J: 80% 16% .



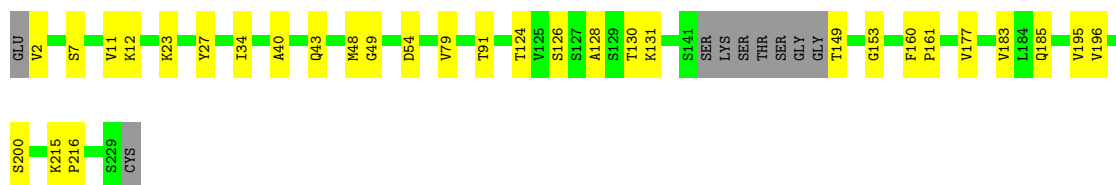
• Molecule 3: Heavy chain of D1F6 Fab

Chain O: 75% 21% .



• Molecule 3: Heavy chain of D1F6 Fab

Chain P: 83% 13% .



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

Chain S: 50% 50%



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

Chain T: 100%



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

Chain U: 50% 50%



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

Chain V: 100%



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

Chain W: 100%



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

Chain X: 50% 50%



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

Chain Y:
The bar is divided into two equal halves. The left half is green and labeled '50%', and the right half is yellow and labeled '50%'.



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	23087	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	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	0.14	0/7976	0.34	0/10850
1	B	0.15	0/7967	0.36	0/10836
1	C	0.14	0/7964	0.36	0/10835
1	D	0.13	0/7976	0.34	0/10850
1	E	0.15	0/7976	0.37	0/10850
1	F	0.14	0/7964	0.37	0/10835
2	G	0.12	0/1633	0.31	0/2229
2	I	0.12	0/1633	0.31	0/2229
2	K	0.14	0/1633	0.36	0/2229
2	L	0.13	0/1633	0.35	0/2229
2	M	0.14	0/1633	0.35	0/2229
2	N	0.13	0/1633	0.35	0/2229
3	H	0.14	0/1722	0.40	0/2349
3	J	0.15	0/1722	0.40	0/2349
3	O	0.16	0/1722	0.41	0/2349
3	P	0.14	0/1722	0.40	0/2349
3	Q	0.17	0/1722	0.41	0/2349
3	R	0.14	0/1722	0.40	0/2349
All	All	0.14	0/67953	0.36	0/92524

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	7793	0	7622	71	0
1	B	7785	0	7608	92	0
1	C	7781	0	7610	69	0
1	D	7793	0	7632	61	0
1	E	7793	0	7634	98	0
1	F	7781	0	7617	80	0
2	G	1591	0	1539	10	0
2	I	1591	0	1539	12	0
2	K	1591	0	1539	25	0
2	L	1591	0	1539	12	0
2	M	1591	0	1539	29	0
2	N	1591	0	1539	12	0
3	H	1679	0	1624	20	0
3	J	1679	0	1624	28	0
3	O	1679	0	1624	36	0
3	P	1679	0	1624	19	0
3	Q	1679	0	1624	28	0
3	R	1679	0	1624	22	0
4	S	28	0	25	3	0
4	T	28	0	25	1	0
4	U	28	0	25	1	0
4	V	28	0	25	0	0
4	W	28	0	25	0	0
4	X	28	0	25	2	0
4	Y	28	0	25	1	0
5	A	98	0	91	1	0
5	B	126	0	117	2	0
5	C	84	0	78	2	0
All	All	66850	0	65162	676	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 5.

All (676) 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:H:130:THR:HG22	3:H:161:PRO:HD3	1.52	0.89
3:O:130:THR:HG22	3:O:161:PRO:HD3	1.57	0.86
3:O:86:LEU:HB3	3:O:125:VAL:HG23	1.59	0.84

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:O:18:VAL:HG11	3:O:123:VAL:HG11	1.60	0.83
3:P:128:ALA:HB3	3:P:160:PHE:CE1	2.15	0.82
1:B:580:GLN:HB3	4:X:1:NAG:H5	1.64	0.79
3:J:11:VAL:HG13	3:J:129:SER:HA	1.66	0.77
1:F:542:ASN:HA	1:F:547:THR:HA	1.67	0.76
3:O:14:PRO:HG3	3:O:125:VAL:HG22	1.66	0.76
1:A:897:PRO:HA	1:B:707:TYR:CE1	2.21	0.75
3:Q:86:LEU:HD23	3:Q:125:VAL:HB	1.68	0.74
3:R:128:ALA:HB3	3:R:160:PHE:CE1	2.21	0.74
3:O:94:TYR:CE2	3:O:123:VAL:HB	2.26	0.71
3:H:86:LEU:HB3	3:H:125:VAL:HG13	1.73	0.70
1:C:542:ASN:HA	1:C:547:THR:HA	1.73	0.68
3:P:91:THR:HB	3:P:124:THR:HG22	1.75	0.68
3:J:86:LEU:HB2	3:J:125:VAL:HG21	1.75	0.68
1:A:897:PRO:HA	1:B:707:TYR:HE1	1.60	0.67
1:E:362:VAL:HB	1:E:526:GLY:HA2	1.77	0.67
1:F:328:ARG:HB2	1:F:543:PHE:CE1	2.30	0.66
3:Q:90:ASP:HB3	3:Q:125:VAL:HG11	1.77	0.66
1:C:1006:THR:HG22	1:C:1010:GLN:HE22	1.60	0.66
2:M:47:LEU:HD21	2:M:50:TYR:HB3	1.77	0.66
1:C:393:THR:HB	1:C:522:ALA:HA	1.79	0.65
1:E:363:ALA:HB1	1:E:365:TYR:CZ	2.31	0.65
3:J:86:LEU:HD13	3:J:125:VAL:HB	1.79	0.65
1:C:522:ALA:HB3	1:C:544:ASN:HB3	1.79	0.65
3:J:130:THR:HG22	3:J:161:PRO:HD3	1.79	0.65
3:Q:19:LYS:HZ3	3:Q:81:MET:H	1.44	0.64
3:J:67:ARG:HG3	3:J:68:VAL:HG23	1.78	0.64
1:F:328:ARG:HD3	1:F:543:PHE:HE1	1.62	0.64
3:O:93:VAL:HG12	3:O:122:LEU:HG	1.80	0.63
2:I:39:GLN:HE22	3:J:39:GLN:HG3	1.63	0.63
2:K:47:LEU:HD21	2:K:50:TYR:HB3	1.80	0.63
1:B:201:PHE:HB3	1:B:229:LEU:HB2	1.81	0.63
1:B:738:CYS:SG	1:B:764:LYS:NZ	2.71	0.63
3:O:14:PRO:HG3	3:O:125:VAL:CG2	2.28	0.62
1:A:125:ASN:HB2	4:S:1:NAG:H5	1.79	0.62
1:E:201:PHE:HB3	1:E:229:LEU:HB2	1.80	0.62
1:E:722:VAL:HG22	1:E:1065:VAL:HG22	1.82	0.62
1:A:237:ARG:HD3	1:A:239:GLN:HE22	1.65	0.62
3:O:91:THR:HA	3:O:124:THR:HB	1.81	0.62
1:B:731:MET:HE1	1:B:952:VAL:HG13	1.83	0.61
1:F:324:GLU:HG2	1:F:539:VAL:HG11	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:821:LEU:HD21	1:C:939:SER:HB2	1.83	0.61
1:C:1006:THR:O	1:C:1010:GLN:NE2	2.35	0.60
1:D:319:ARG:HB2	1:F:740:MET:HE2	1.83	0.60
1:F:821:LEU:HD21	1:F:939:SER:HB2	1.84	0.60
3:O:86:LEU:CB	3:O:125:VAL:HG23	2.30	0.60
3:Q:18:VAL:HG21	3:Q:123:VAL:HG22	1.84	0.60
1:E:363:ALA:H	1:E:525:CYS:C	2.09	0.60
1:D:411:ALA:HB3	1:D:414:GLN:HB3	1.83	0.59
3:J:13:LYS:HB3	3:J:127:SER:HA	1.83	0.59
1:D:662:CYS:HB2	1:D:697:MET:HG3	1.84	0.59
1:E:325:SER:HA	1:E:540:ASN:OD1	2.02	0.59
1:F:697:MET:HE3	1:F:698:SER:H	1.67	0.59
1:D:43:PHE:H	1:E:566:GLY:HA2	1.67	0.59
1:F:541:PHE:CZ	1:F:587:ILE:HD12	2.38	0.59
3:R:13:LYS:HZ2	3:R:128:ALA:N	2.01	0.59
1:E:1031:GLU:OE1	1:E:1039:ARG:NH2	2.35	0.58
1:A:125:ASN:CB	4:S:1:NAG:H5	2.33	0.58
1:B:979:ASP:O	1:B:983:ARG:HB3	2.04	0.58
3:H:14:PRO:HD3	3:H:127:SER:HA	1.84	0.58
1:A:43:PHE:H	1:B:566:GLY:HA2	1.68	0.58
2:G:160:LYS:HG3	2:G:162:ASP:H	1.67	0.58
1:F:363:ALA:N	1:F:525:CYS:O	2.36	0.58
1:F:396:TYR:HB2	1:F:514:SER:HB3	1.86	0.58
1:B:1031:GLU:OE1	1:B:1039:ARG:NH2	2.37	0.57
3:H:50:TRP:NE1	3:H:103:CYS:O	2.36	0.57
1:D:396:TYR:HB2	1:D:514:SER:HB3	1.85	0.57
3:J:13:LYS:CB	3:J:127:SER:HA	2.34	0.57
1:D:894:LEU:HB3	1:E:713:ALA:HB3	1.87	0.57
3:O:56:ASP:OD2	3:O:72:ARG:NH2	2.37	0.57
3:Q:51:ILE:HG12	3:Q:70:MET:HE2	1.87	0.57
1:E:425:LEU:HD22	1:E:429:PHE:HE1	1.68	0.57
1:B:733:LYS:HB2	1:B:861:LEU:HB2	1.87	0.57
2:M:160:LYS:HG3	2:M:162:ASP:H	1.69	0.57
1:C:433:VAL:HG12	1:C:512:VAL:HG12	1.87	0.57
1:D:106:PHE:HB2	1:D:117:LEU:HB2	1.87	0.56
1:F:474:GLN:NE2	1:F:476:GLY:O	2.38	0.56
3:J:50:TRP:NE1	3:J:103:CYS:O	2.31	0.56
1:B:363:ALA:HB1	1:B:365:TYR:CZ	2.40	0.56
3:J:152:LEU:HD12	3:J:198:VAL:HG21	1.86	0.56
1:B:580:GLN:O	4:X:1:NAG:H3	2.05	0.56
3:R:13:LYS:NZ	3:R:128:ALA:H	2.03	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:106:PHE:HB2	1:F:117:LEU:HB3	1.87	0.56
2:K:160:LYS:HG3	2:K:162:ASP:H	1.70	0.56
1:A:577:ARG:HB2	1:A:584:ILE:HG22	1.86	0.56
1:F:48:LEU:HD23	1:F:276:LEU:HD21	1.87	0.56
2:I:40:LEU:HB3	2:I:43:ALA:HB3	1.87	0.56
1:A:106:PHE:HB2	1:A:117:LEU:HB2	1.86	0.56
2:G:195:GLN:O	2:G:202:TYR:OH	2.23	0.56
3:Q:13:LYS:HE2	3:Q:127:SER:O	2.06	0.56
1:C:735:SER:HA	1:C:767:LEU:HD13	1.88	0.56
1:F:57:PRO:HG3	1:F:273:ARG:HE	1.71	0.56
2:K:128:LEU:HD23	2:K:217:VAL:HB	1.88	0.56
3:R:149:THR:HA	3:R:200:SER:HB2	1.88	0.55
1:C:57:PRO:HG3	1:C:273:ARG:HE	1.71	0.55
1:B:425:LEU:HD22	1:B:429:PHE:HE1	1.71	0.55
1:D:1047:TYR:HB2	1:D:1067:TYR:HB3	1.88	0.55
1:E:384:PRO:HD2	1:F:475:ALA:HB1	1.88	0.55
1:B:422:ASN:ND2	1:B:454:ARG:O	2.39	0.55
1:A:954:HIS:O	1:A:957:GLN:HG2	2.06	0.55
3:R:169:ASN:HD21	3:R:208:TYR:HD1	1.54	0.55
1:C:48:LEU:HD23	1:C:276:LEU:HD21	1.89	0.55
1:F:979:ASP:OD2	1:F:983:ARG:NH2	2.40	0.55
2:I:36:TRP:HB2	2:I:49:ILE:HB	1.89	0.55
3:Q:85:SER:O	3:Q:87:ARG:NH1	2.40	0.55
3:Q:90:ASP:HB3	3:Q:125:VAL:CG1	2.37	0.55
1:D:598:ILE:HB	1:D:609:ALA:HB3	1.89	0.55
1:F:815:ARG:NH1	1:F:867:ASP:OD2	2.40	0.55
1:B:761:THR:OG1	1:B:765:ARG:NH1	2.40	0.55
1:C:106:PHE:HB2	1:C:117:LEU:HB3	1.87	0.55
2:M:128:LEU:HD23	2:M:217:VAL:HB	1.88	0.54
1:D:577:ARG:HB2	1:D:584:ILE:HG22	1.88	0.54
1:E:986:PRO:N	1:E:987:PRO:HD2	2.22	0.54
2:K:37:TYR:HB2	2:K:88:TYR:HB2	1.90	0.54
1:A:598:ILE:HB	1:A:609:ALA:HB3	1.88	0.54
1:E:338:PHE:HA	1:E:341:VAL:HG12	1.88	0.54
1:E:422:ASN:ND2	1:E:454:ARG:O	2.40	0.54
3:P:149:THR:HA	3:P:200:SER:HB2	1.89	0.54
2:M:37:TYR:HB2	2:M:88:TYR:HB2	1.90	0.54
1:C:878:LEU:HD11	1:C:1052:PHE:HB3	1.90	0.54
1:F:878:LEU:HD11	1:F:1052:PHE:HB3	1.89	0.54
1:A:396:TYR:HB2	1:A:514:SER:HB3	1.90	0.54
1:C:330:PRO:HB3	1:C:579:PRO:HB2	1.88	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:157:VAL:HG22	2:M:206:VAL:HG12	1.90	0.54
1:F:733:LYS:HB2	1:F:861:LEU:HB2	1.90	0.54
1:A:978:ASN:HB2	1:B:547:THR:HG21	1.89	0.54
1:B:338:PHE:HA	1:B:341:VAL:HG12	1.89	0.54
1:C:396:TYR:HB2	1:C:514:SER:HB3	1.89	0.54
3:O:87:ARG:O	3:O:125:VAL:HB	2.08	0.54
1:C:777:ASN:HD21	1:C:1019:ARG:HD2	1.72	0.53
3:R:177:VAL:HA	3:R:196:VAL:HG12	1.88	0.53
1:F:433:VAL:HG12	1:F:512:VAL:HG12	1.90	0.53
2:K:124:PRO:HB2	2:K:147:ILE:HD11	1.91	0.53
2:M:17:SER:HA	2:M:78:GLY:H	1.73	0.53
1:A:1031:GLU:HG2	1:A:1037:SER:HB2	1.90	0.53
2:I:160:LYS:HG3	2:I:162:ASP:H	1.74	0.53
2:K:55:ARG:NH1	2:K:63:PHE:O	2.41	0.53
2:K:157:VAL:HG22	2:K:206:VAL:HG12	1.91	0.53
3:O:6:GLN:HB3	3:O:22:CYS:HA	1.91	0.53
3:Q:105:LEU:HD12	3:Q:107:SER:H	1.73	0.53
1:F:983:ARG:HG3	1:F:984:LEU:HD12	1.90	0.53
1:A:314:GLN:NE2	1:A:316:SER:O	2.41	0.53
1:E:442:ASP:O	1:E:448:ASN:ND2	2.41	0.53
1:F:188:ASN:HA	1:F:209:PRO:HA	1.91	0.53
1:A:280:ASN:ND2	1:A:286:THR:OG1	2.43	0.52
1:B:388:ASN:O	1:B:528:LYS:NZ	2.40	0.52
2:M:124:PRO:HB2	2:M:147:ILE:HD11	1.92	0.52
1:F:673:SER:HG	1:F:695:TYR:HH	1.56	0.52
1:B:361:CYS:H	1:B:524:VAL:HG23	1.74	0.52
2:G:25:SER:OG	2:G:26:ARG:N	2.42	0.52
1:E:385:THR:HG1	1:F:473:TYR:HH	1.57	0.52
1:E:541:PHE:HE2	1:E:550:GLY:H	1.55	0.52
1:E:555:SER:HB2	1:E:584:ILE:HG13	1.91	0.52
3:P:177:VAL:HA	3:P:196:VAL:HG12	1.90	0.52
1:A:964:LYS:NZ	1:B:569:ILE:O	2.43	0.52
1:D:280:ASN:ND2	1:D:286:THR:OG1	2.42	0.52
2:I:127:THR:HG21	3:J:151:ALA:HB3	1.92	0.52
1:A:894:LEU:HB3	1:B:713:ALA:HB3	1.91	0.52
1:E:919:ASN:HB2	1:E:922:LEU:HB3	1.91	0.52
1:A:715:PRO:HA	1:A:1072:GLU:HA	1.91	0.52
2:M:51:LYS:HD2	2:M:54:GLN:HE22	1.75	0.52
1:D:347:PHE:HD1	1:D:399:SER:HB2	1.75	0.52
1:E:457:ARG:NH1	1:E:467:ASP:OD2	2.42	0.52
3:H:87:ARG:O	3:H:125:VAL:HG11	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:540:ASN:HA	1:F:549:THR:HA	1.92	0.52
2:L:128:LEU:HD11	2:L:204:CYS:HB2	1.92	0.52
3:O:67:ARG:NH2	3:O:85:SER:O	2.42	0.52
1:A:580:GLN:NE2	5:A:1307:NAG:H4	2.25	0.51
1:A:1047:TYR:HB2	1:A:1067:TYR:HB3	1.91	0.51
3:Q:6:GLN:HB3	3:Q:22:CYS:HA	1.90	0.51
3:Q:109:GLN:HA	3:Q:112:MET:HE1	1.92	0.51
1:B:742:ILE:O	1:B:1000:ARG:NH1	2.43	0.51
1:D:715:PRO:HA	1:D:1072:GLU:HA	1.92	0.51
1:E:733:LYS:HB2	1:E:861:LEU:HB2	1.91	0.51
2:I:25:SER:OG	2:I:26:ARG:N	2.42	0.51
1:B:442:ASP:O	1:B:448:ASN:ND2	2.41	0.51
1:E:361:CYS:C	1:E:524:VAL:HG23	2.35	0.51
1:C:858:LEU:HD13	1:C:959:LEU:HD21	1.92	0.51
1:E:985:ASP:HB3	1:E:987:PRO:HD2	1.93	0.51
1:F:481:ASN:O	2:L:26:ARG:NH1	2.43	0.51
1:A:127:VAL:HG22	4:S:1:NAG:H62	1.91	0.51
2:M:55:ARG:HH22	2:M:63:PHE:H	1.58	0.51
3:O:105:LEU:HD12	3:O:107:SER:H	1.75	0.51
2:K:17:SER:HA	2:K:78:GLY:H	1.75	0.51
1:A:1092:GLU:O	1:A:1107:ARG:NH2	2.44	0.51
2:G:36:TRP:HB2	2:G:49:ILE:HB	1.93	0.51
3:R:40:ALA:HB3	3:R:43:GLN:HB3	1.93	0.51
1:D:276:LEU:HD11	1:D:304:LYS:HA	1.92	0.51
1:E:29:THR:HG23	1:E:62:VAL:HG13	1.92	0.51
1:F:328:ARG:HB2	1:F:543:PHE:HE1	1.76	0.51
3:H:86:LEU:CB	3:H:125:VAL:HG13	2.40	0.51
1:F:393:THR:HB	1:F:522:ALA:HA	1.92	0.50
3:J:3:GLN:OE1	3:J:25:SER:OG	2.29	0.50
1:D:964:LYS:NZ	1:E:569:ILE:O	2.44	0.50
1:A:347:PHE:HD1	1:A:399:SER:HB2	1.77	0.50
1:C:39:PRO:HG3	1:C:51:THR:HG21	1.94	0.50
3:H:11:VAL:HG23	3:H:124:THR:O	2.10	0.50
1:B:29:THR:HG23	1:B:62:VAL:HG13	1.93	0.50
1:B:457:ARG:NH1	1:B:467:ASP:OD2	2.45	0.50
2:N:128:LEU:HD11	2:N:204:CYS:HB2	1.92	0.50
3:R:36:TRP:HB3	3:R:48:MET:HE3	1.93	0.50
3:O:33:ASN:O	3:O:99:SER:OG	2.29	0.50
3:H:180:PHE:HE2	3:H:194:SER:HA	1.77	0.50
2:M:64:PHE:HB3	2:M:75:ALA:HB3	1.93	0.50
2:K:55:ARG:HH22	2:K:63:PHE:H	1.59	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:986:PRO:HA	1:F:989:ALA:HB3	1.94	0.50
3:P:40:ALA:HB3	3:P:43:GLN:HB3	1.92	0.50
1:C:1072:GLU:HB3	5:C:1303:NAG:H83	1.94	0.50
1:E:986:PRO:HA	1:E:989:ALA:HB3	1.94	0.50
3:P:130:THR:O	3:P:131:LYS:HB3	2.12	0.50
1:B:406:GLU:HB3	1:B:409:GLN:HE22	1.77	0.49
1:B:756:TYR:OH	1:B:994:ASP:OD1	2.30	0.49
2:M:13:PRO:HB3	2:M:110:LEU:HB2	1.93	0.49
2:M:124:PRO:HB3	2:M:150:PHE:HB3	1.93	0.49
2:K:38:GLN:HG2	2:K:48:LEU:HD13	1.93	0.49
3:O:9:ALA:HB3	3:O:122:LEU:O	2.12	0.49
1:D:499:PRO:HA	1:D:506:GLN:HE22	1.78	0.49
1:A:364:ASP:OD1	1:A:364:ASP:N	2.46	0.49
1:B:708:SER:HB2	1:B:711:SER:HB3	1.95	0.49
1:E:598:ILE:HB	1:E:609:ALA:HB3	1.95	0.49
1:F:675:GLN:HB3	1:F:693:ILE:HD11	1.95	0.49
2:M:38:GLN:HG2	2:M:48:LEU:HD13	1.93	0.49
3:R:2:VAL:HG11	3:R:27:TYR:HB3	1.94	0.49
3:R:220:LYS:NZ	3:R:222:ASP:OD1	2.46	0.49
1:F:39:PRO:HG3	1:F:51:THR:HG21	1.93	0.49
2:K:126:VAL:HG13	2:K:215:LYS:HB2	1.95	0.49
2:L:124:PRO:HG3	2:L:208:HIS:HB3	1.94	0.49
1:A:1029:MET:HE1	1:A:1053:PRO:HG3	1.93	0.49
3:H:38:ARG:NH1	3:H:46:GLU:OE1	2.46	0.49
1:E:119:ILE:HG12	1:E:128:ILE:HG12	1.95	0.49
1:F:578:ASP:OD1	1:F:578:ASP:N	2.46	0.49
1:B:119:ILE:HG12	1:B:128:ILE:HG12	1.93	0.49
1:B:578:ASP:OD1	1:B:578:ASP:N	2.46	0.49
1:D:1029:MET:HE1	1:D:1053:PRO:HG3	1.95	0.49
1:D:1092:GLU:O	1:D:1107:ARG:NH2	2.45	0.49
1:E:742:ILE:O	1:E:1000:ARG:NH1	2.46	0.49
1:E:974:SER:HB2	1:E:980:ILE:HD11	1.94	0.49
1:C:481:ASN:O	2:N:26:ARG:NH1	2.46	0.49
2:G:40:LEU:HB2	2:G:43:ALA:HB3	1.95	0.49
1:D:364:ASP:OD1	1:D:364:ASP:N	2.45	0.49
1:E:39:PRO:HG3	1:E:51:THR:HG21	1.95	0.49
2:L:62:ARG:NH1	2:L:78:GLY:O	2.46	0.49
1:A:1115:ILE:HG22	1:A:1137:VAL:HG23	1.95	0.49
1:C:239:GLN:NE2	1:C:240:THR:O	2.45	0.49
1:C:675:GLN:HB3	1:C:693:ILE:HD11	1.95	0.49
1:C:726:ILE:HG12	1:C:1061:VAL:HG23	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:969:LYS:HD3	1:C:975:SER:HB3	1.95	0.49
2:M:171:GLU:HG3	3:Q:183:VAL:HG11	1.95	0.49
1:F:273:ARG:HD2	1:F:275:PHE:HE1	1.77	0.49
1:B:467:ASP:OD1	1:B:467:ASP:N	2.46	0.48
3:R:69:THR:OG1	3:R:82:GLU:OE2	2.30	0.48
1:B:393:THR:HB	1:B:522:ALA:HA	1.94	0.48
1:C:598:ILE:HB	1:C:609:ALA:HB3	1.95	0.48
1:F:598:ILE:HB	1:F:609:ALA:HB3	1.94	0.48
1:D:316:SER:OG	1:D:317:ASN:N	2.45	0.48
1:F:726:ILE:HG12	1:F:1061:VAL:HG23	1.95	0.48
2:K:171:GLU:HG3	3:O:183:VAL:HG11	1.95	0.48
3:O:91:THR:HA	3:O:124:THR:CB	2.43	0.48
1:A:555:SER:HB2	1:A:584:ILE:HG13	1.94	0.48
1:B:126:VAL:HG23	1:B:174:PRO:HA	1.96	0.48
1:C:273:ARG:HD2	1:C:275:PHE:HE1	1.77	0.48
3:Q:33:ASN:O	3:Q:99:SER:OG	2.31	0.48
1:D:667:GLY:HA2	1:F:864:LEU:HA	1.95	0.48
3:P:2:VAL:HG11	3:P:27:TYR:HB3	1.95	0.48
3:P:48:MET:SD	3:P:49:GLY:N	2.86	0.48
1:A:316:SER:OG	1:A:317:ASN:N	2.44	0.48
1:B:598:ILE:HB	1:B:609:ALA:HB3	1.95	0.48
3:R:13:LYS:HZ2	3:R:128:ALA:H	1.60	0.48
1:E:997:ILE:O	1:E:1001:LEU:HB2	2.14	0.48
1:F:239:GLN:NE2	1:F:240:THR:O	2.46	0.48
1:B:128:ILE:HD13	1:B:229:LEU:HD11	1.95	0.48
1:E:328:ARG:HH22	1:E:533:LEU:HB2	1.79	0.48
1:E:541:PHE:HE2	1:E:550:GLY:N	2.12	0.48
2:K:208:HIS:HB3	2:K:211:SER:HB2	1.95	0.48
1:A:906:PHE:HE2	1:A:916:LEU:HD13	1.78	0.48
1:C:411:ALA:HB3	1:C:414:GLN:HG3	1.96	0.48
3:H:14:PRO:CD	3:H:127:SER:HA	2.43	0.48
1:D:644:GLN:NE2	1:D:645:THR:O	2.47	0.48
3:H:86:LEU:HB3	3:H:125:VAL:CG1	2.43	0.48
1:D:102:ARG:HE	1:D:243:ALA:HB2	1.79	0.48
1:D:201:PHE:HB3	1:D:229:LEU:HB2	1.96	0.48
1:E:388:ASN:O	1:E:528:LYS:NZ	2.40	0.48
3:O:130:THR:HA	3:O:160:PHE:O	2.14	0.48
1:B:303:LEU:HD13	1:B:308:VAL:HG12	1.96	0.48
1:B:708:SER:HA	5:B:1305:NAG:H81	1.95	0.48
1:C:1010:GLN:HB3	1:C:1014:ARG:HH21	1.79	0.48
1:B:752:LEU:HD22	1:B:993:ILE:HG22	1.96	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:T:1:NAG:H61	4:T:2:NAG:C7	2.44	0.48
1:B:1047:TYR:HB2	1:B:1067:TYR:HB3	1.95	0.47
1:E:35:GLY:HA3	1:E:56:LEU:HD23	1.96	0.47
1:A:499:PRO:HA	1:A:506:GLN:HE22	1.79	0.47
1:C:339:ASP:OD1	1:C:339:ASP:N	2.47	0.47
1:A:29:THR:HG23	1:A:62:VAL:HG13	1.96	0.47
1:A:102:ARG:HE	1:A:243:ALA:HB2	1.79	0.47
1:B:35:GLY:HA3	1:B:56:LEU:HD23	1.95	0.47
1:B:974:SER:HB2	1:B:980:ILE:HD11	1.95	0.47
1:B:980:ILE:HA	1:B:983:ARG:HG2	1.95	0.47
1:C:118:LEU:HD12	1:C:135:PHE:HE1	1.78	0.47
2:M:126:VAL:HG13	2:M:215:LYS:HB2	1.96	0.47
1:D:29:THR:HG23	1:D:62:VAL:HG13	1.96	0.47
1:C:90:VAL:HB	1:C:194:PHE:HB2	1.95	0.47
1:B:317:ASN:HA	1:B:594:GLY:HA2	1.95	0.47
1:C:193:VAL:HB	1:C:204:TYR:HB2	1.97	0.47
1:E:428:ASP:OD1	1:E:428:ASP:N	2.48	0.47
1:F:330:PRO:HB3	1:F:579:PRO:HB2	1.96	0.47
1:B:364:ASP:O	1:B:367:VAL:HG22	2.15	0.47
3:H:69:THR:OG1	3:H:82:GLU:OE2	2.32	0.47
2:M:208:HIS:HB3	2:M:211:SER:HB2	1.96	0.47
1:E:758:SER:HB3	1:E:761:THR:HG22	1.97	0.47
1:F:303:LEU:HD23	1:F:308:VAL:HG12	1.97	0.47
1:A:60:SER:OG	1:A:61:ASN:N	2.48	0.47
1:A:108:THR:OG1	1:A:234:ASN:O	2.32	0.47
2:M:11:SER:HB3	2:M:110:LEU:HD21	1.96	0.47
1:E:128:ILE:HD13	1:E:229:LEU:HD11	1.95	0.47
1:E:726:ILE:HG12	1:E:1061:VAL:HG22	1.96	0.47
1:F:289:VAL:HG21	1:F:300:LYS:HD3	1.97	0.47
1:F:389:ASP:OD1	1:F:389:ASP:N	2.48	0.47
1:A:901:GLN:OE1	1:A:905:ARG:NE	2.42	0.47
1:B:159:VAL:HG23	1:B:160:TYR:HD1	1.80	0.47
1:D:409:GLN:HE22	1:D:418:ILE:HB	1.80	0.47
1:E:467:ASP:OD1	1:E:467:ASP:N	2.47	0.47
1:E:777:ASN:HD21	1:E:1019:ARG:HA	1.79	0.47
1:C:289:VAL:HG21	1:C:300:LYS:HD3	1.97	0.47
1:C:807:PRO:HG2	1:C:875:SER:HB2	1.97	0.47
2:G:127:THR:HG21	3:H:151:ALA:HB3	1.97	0.47
1:D:27:SER:OG	1:D:28:TYR:N	2.48	0.47
1:F:90:VAL:HB	1:F:194:PHE:HB2	1.96	0.47
1:F:193:VAL:HB	1:F:204:TYR:HB2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:338:PHE:HA	1:F:341:VAL:HG12	1.97	0.47
1:F:691:SER:OG	1:F:692:ILE:N	2.47	0.47
1:B:529:LYS:HB2	1:B:529:LYS:HE3	1.74	0.47
1:C:457:ARG:NH1	1:C:460:ASN:O	2.48	0.47
1:C:741:TYR:OH	1:C:962:LEU:O	2.33	0.47
1:D:108:THR:OG1	1:D:234:ASN:O	2.33	0.47
1:E:393:THR:HB	1:E:522:ALA:HA	1.96	0.47
1:E:752:LEU:HD22	1:E:993:ILE:HG22	1.96	0.47
1:A:27:SER:OG	1:A:28:TYR:N	2.48	0.46
1:B:39:PRO:HG3	1:B:51:THR:HG21	1.97	0.46
1:D:733:LYS:HD2	1:D:771:ALA:HB1	1.95	0.46
1:E:725:GLU:HB3	1:E:1062:PHE:HD2	1.81	0.46
1:E:159:VAL:HG23	1:E:160:TYR:HD1	1.80	0.46
1:E:778:THR:HG22	1:E:865:LEU:HD12	1.96	0.46
1:B:555:SER:HB2	1:B:584:ILE:HG13	1.97	0.46
1:D:60:SER:OG	1:D:61:ASN:N	2.48	0.46
1:E:740:MET:HE2	1:E:857:GLY:HA2	1.97	0.46
1:E:986:PRO:O	1:E:990:GLU:N	2.47	0.46
1:F:347:PHE:HE2	1:F:509:ARG:HH11	1.61	0.46
1:F:1049:LEU:HD11	1:F:1067:TYR:HB2	1.96	0.46
3:J:131:LYS:HG2	3:J:160:PHE:CB	2.46	0.46
3:J:86:LEU:CD1	3:J:125:VAL:HB	2.43	0.46
2:K:10:ALA:N	2:K:106:LYS:O	2.49	0.46
1:A:899:PRO:HA	1:A:902:MET:HG2	1.97	0.46
1:E:37:TYR:OH	1:E:54:LEU:O	2.30	0.46
1:E:126:VAL:HG23	1:E:174:PRO:HA	1.96	0.46
2:L:28:ASN:HA	2:L:93:ASP:HB3	1.97	0.46
3:O:98:ARG:HB2	3:O:116:THR:H	1.80	0.46
1:A:403:ARG:HH21	1:A:495:TYR:HA	1.80	0.46
1:B:349:SER:OG	1:B:452:LEU:O	2.34	0.46
3:R:7:SER:OG	3:R:23:LYS:NZ	2.49	0.46
1:D:864:LEU:HA	1:E:667:GLY:HA2	1.98	0.46
1:A:976:VAL:HB	1:A:979:ASP:HB2	1.98	0.46
3:H:128:ALA:HB2	3:H:188:GLY:HA3	1.96	0.46
1:D:1115:ILE:HG22	1:D:1137:VAL:HG23	1.97	0.46
1:E:316:SER:OG	1:E:317:ASN:N	2.48	0.46
1:F:457:ARG:NH1	1:F:460:ASN:O	2.49	0.46
1:C:578:ASP:OD1	1:C:578:ASP:N	2.45	0.46
1:C:691:SER:OG	1:C:692:ILE:N	2.48	0.46
2:G:47:LEU:HD11	3:H:113:TRP:HB2	1.97	0.46
2:N:62:ARG:NH1	2:N:78:GLY:O	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:108:CYS:SG	3:J:109:GLN:NE2	2.71	0.46
1:A:276:LEU:HD11	1:A:304:LYS:HA	1.97	0.46
1:A:1133:VAL:HA	4:U:1:NAG:H82	1.97	0.46
1:B:1086:LYS:HD2	1:B:1122:VAL:HG11	1.98	0.46
3:O:14:PRO:CG	3:O:125:VAL:HG22	2.41	0.46
3:P:160:PHE:HA	3:P:161:PRO:HA	1.82	0.46
1:B:544:ASN:HD21	1:B:579:PRO:HG3	1.81	0.45
1:C:136:CYS:SG	1:C:137:ASN:N	2.88	0.45
1:C:457:ARG:NH2	1:C:467:ASP:OD2	2.44	0.45
3:Q:137:PRO:HG3	3:Q:223:LYS:HB2	1.97	0.45
1:D:139:PRO:HB2	1:D:159:VAL:HG12	1.98	0.45
1:D:1031:GLU:HG2	1:D:1037:SER:HB2	1.97	0.45
1:E:318:PHE:HB3	1:E:593:GLY:O	2.16	0.45
3:J:131:LYS:HG2	3:J:160:PHE:HB2	1.97	0.45
1:B:895:GLN:HE22	5:C:1303:NAG:HN2	1.64	0.45
1:C:347:PHE:HE2	1:C:509:ARG:HH11	1.62	0.45
1:F:339:ASP:N	1:F:339:ASP:OD1	2.47	0.45
3:J:53:PRO:HA	3:J:72:ARG:HD3	1.97	0.45
2:K:124:PRO:HB3	2:K:150:PHE:HB3	1.97	0.45
1:B:591:SER:OG	1:B:619:GLU:OE2	2.33	0.45
2:M:48:LEU:HD23	2:M:74:LEU:HD21	1.99	0.45
1:F:310:LYS:HB2	1:F:664:ILE:HD11	1.97	0.45
1:E:349:SER:OG	1:E:452:LEU:O	2.34	0.45
1:E:578:ASP:N	1:E:578:ASP:OD1	2.47	0.45
1:A:139:PRO:HB2	1:A:159:VAL:HG12	1.98	0.45
2:N:171:GLU:HG2	3:R:185:GLN:HA	1.99	0.45
2:N:173:THR:HB	3:R:183:VAL:HG12	1.99	0.45
1:C:756:TYR:OH	1:C:994:ASP:OD1	2.31	0.45
1:F:777:ASN:HD21	1:F:1019:ARG:HD2	1.81	0.45
3:O:135:VAL:HG11	3:O:156:VAL:HG23	1.99	0.45
1:A:409:GLN:HE22	1:A:418:ILE:HB	1.82	0.45
3:H:159:TYR:OH	3:H:162:GLU:OE2	2.33	0.45
3:O:68:VAL:HB	3:O:70:MET:HE3	1.99	0.45
1:A:858:LEU:HD11	1:A:962:LEU:HD23	1.99	0.45
1:B:758:SER:N	1:C:965:GLN:OE1	2.47	0.45
1:E:303:LEU:HD13	1:E:308:VAL:HG12	1.97	0.45
1:E:363:ALA:H	1:E:526:GLY:N	2.15	0.45
1:A:438:SER:OG	1:A:440:LYS:NZ	2.49	0.45
3:Q:35:HIS:HB2	3:Q:97:ALA:HB3	1.99	0.45
1:D:403:ARG:HH21	1:D:495:TYR:HA	1.82	0.45
1:F:903:ALA:HB1	1:F:913:GLN:HB2	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:O:207:THR:HG23	3:O:224:LYS:HE3	1.98	0.45
1:A:605:SER:OG	1:A:606:ASN:N	2.50	0.44
1:B:108:THR:HB	1:B:114:THR:HG21	1.98	0.44
2:M:93:ASP:OD2	2:M:95:SER:OG	2.33	0.44
1:D:877:LEU:HD13	1:D:1029:MET:HE2	1.99	0.44
1:E:731:MET:HE3	1:E:1018:ILE:HG13	1.99	0.44
1:F:756:TYR:OH	1:F:994:ASP:OD1	2.30	0.44
2:L:173:THR:HB	3:P:183:VAL:HG12	1.99	0.44
1:A:302:THR:HG23	1:A:303:LEU:HD12	1.99	0.44
1:B:327:VAL:H	1:B:531:THR:HG1	1.64	0.44
1:D:669:GLY:HA2	1:D:697:MET:HE1	1.98	0.44
1:F:452:LEU:HD13	1:F:492:LEU:HB3	1.98	0.44
2:I:135:GLU:HG3	3:J:136:PHE:HD2	1.81	0.44
2:K:35:TYR:OH	3:O:110:ARG:O	2.35	0.44
2:L:64:PHE:HD2	2:L:75:ALA:HB3	1.82	0.44
3:O:137:PRO:HG3	3:O:223:LYS:HB2	1.98	0.44
1:B:106:PHE:HB2	1:B:117:LEU:HB2	1.99	0.44
1:B:336:CYS:N	1:B:361:CYS:SG	2.90	0.44
2:G:132:SER:OG	2:G:133:SER:N	2.50	0.44
3:P:34:ILE:HD13	3:P:79:VAL:HG11	1.99	0.44
1:F:886:TRP:HB3	1:F:905:ARG:NH2	2.32	0.44
1:C:64:TRP:HE1	1:C:264:ALA:HB1	1.83	0.44
1:F:387:LEU:HD23	1:F:390:LEU:HD21	1.98	0.44
1:F:544:ASN:C	1:F:546:LEU:H	2.26	0.44
2:K:6:GLN:HG3	2:K:7:PRO:HD2	1.99	0.44
2:N:124:PRO:HG3	2:N:208:HIS:HB3	2.00	0.44
1:D:339:ASP:OD1	1:D:339:ASP:N	2.50	0.44
1:D:516:GLU:C	1:D:517:LEU:HD22	2.43	0.44
1:D:555:SER:HB2	1:D:584:ILE:HG13	1.99	0.44
1:E:543:PHE:HB3	1:E:544:ASN:H	1.66	0.44
3:J:72:ARG:HA	3:J:79:VAL:HG12	1.98	0.44
3:O:106:ASN:OD1	3:O:109:GLN:NE2	2.51	0.44
1:A:788:ILE:HG21	1:A:872:GLN:HE21	1.82	0.44
3:Q:98:ARG:HB2	3:Q:116:THR:H	1.82	0.44
1:D:605:SER:OG	1:D:606:ASN:N	2.50	0.44
1:A:111:ASP:OD1	1:A:111:ASP:N	2.49	0.44
1:B:328:ARG:HH22	1:B:533:LEU:HB2	1.83	0.44
1:E:375:PHE:N	1:E:435:ALA:O	2.47	0.44
2:I:132:SER:OG	2:I:133:SER:N	2.50	0.44
1:B:108:THR:OG1	1:B:234:ASN:O	2.35	0.44
1:C:303:LEU:HD23	1:C:308:VAL:HG12	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:55:ARG:NH1	2:M:63:PHE:O	2.51	0.44
1:F:1146:ASP:OD1	1:F:1146:ASP:N	2.46	0.44
1:B:819:GLU:HA	1:B:822:LEU:HG	1.99	0.43
1:B:884:SER:O	1:B:887:THR:OG1	2.33	0.43
1:B:1092:GLU:O	1:B:1107:ARG:NH1	2.51	0.43
1:E:865:LEU:HA	1:E:869:MET:HE3	1.99	0.43
1:F:35:GLY:HA3	1:F:56:LEU:HD23	2.00	0.43
3:J:223:LYS:HA	3:J:223:LYS:HD2	1.83	0.43
1:A:375:PHE:N	1:A:435:ALA:O	2.51	0.43
2:M:39:GLN:HA	2:M:45:PRO:HA	2.01	0.43
2:N:52:ASN:O	2:N:52:ASN:ND2	2.51	0.43
3:Q:11:VAL:HG21	3:Q:160:PHE:HE2	1.83	0.43
3:Q:94:TYR:CE2	3:Q:123:VAL:HG21	2.52	0.43
1:C:308:VAL:N	1:C:602:THR:OG1	2.43	0.43
3:H:214:HIS:HB3	3:H:217:SER:HB3	2.00	0.43
1:E:408:SER:OG	2:L:55:ARG:NH2	2.49	0.43
1:E:1028:LYS:O	1:E:1032:CYS:HB2	2.17	0.43
2:K:32:ASN:ND2	2:K:92:TRP:O	2.52	0.43
1:B:605:SER:OG	1:B:606:ASN:N	2.51	0.43
1:B:691:SER:OG	1:B:692:ILE:N	2.52	0.43
1:C:1146:ASP:OD1	1:C:1146:ASP:N	2.46	0.43
3:O:121:ALA:C	3:O:122:LEU:HD12	2.44	0.43
1:C:389:ASP:OD1	1:C:389:ASP:N	2.50	0.43
1:D:302:THR:HG23	1:D:303:LEU:HD12	1.99	0.43
1:E:744:GLY:O	1:F:319:ARG:NH1	2.51	0.43
1:E:763:LEU:HD22	1:E:1008:VAL:HG11	1.99	0.43
2:I:64:PHE:HB2	2:I:75:ALA:HB3	2.00	0.43
1:B:428:ASP:OD1	1:B:428:ASP:N	2.48	0.43
1:C:35:GLY:HA3	1:C:56:LEU:HD23	2.01	0.43
3:Q:135:VAL:HG12	3:Q:157:LYS:H	1.84	0.43
1:A:37:TYR:OH	1:A:54:LEU:O	2.33	0.43
1:A:552:LEU:HD12	1:A:585:LEU:HD13	2.01	0.43
1:B:777:ASN:HD21	1:B:1019:ARG:HA	1.84	0.43
1:B:897:PRO:HA	1:C:707:TYR:HE1	1.83	0.43
2:G:26:ARG:HE	2:G:27:SER:H	1.66	0.43
2:M:89:CYS:O	2:M:102:GLY:N	2.46	0.43
3:R:160:PHE:HA	3:R:161:PRO:HA	1.82	0.43
1:E:379:CYS:SG	1:F:489:TYR:OH	2.71	0.43
1:A:864:LEU:HA	1:B:667:GLY:HA2	2.01	0.43
3:H:37:VAL:HG22	3:H:47:TRP:HD1	1.84	0.43
3:Q:128:ALA:HB1	3:Q:131:LYS:NZ	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:R:11:VAL:CG2	3:R:126:SER:HB3	2.48	0.43
1:E:691:SER:OG	1:E:692:ILE:N	2.52	0.43
3:J:131:LYS:O	3:J:132:GLY:C	2.62	0.43
2:N:28:ASN:HA	2:N:93:ASP:HB3	2.00	0.43
1:E:365:TYR:O	1:E:366:SER:C	2.61	0.43
1:F:442:ASP:OD2	1:F:509:ARG:NH2	2.46	0.43
2:K:37:TYR:HE2	2:K:101:PHE:HE2	1.67	0.43
1:B:65:PHE:HE2	1:B:84:LEU:HD21	1.84	0.43
1:B:983:ARG:O	1:C:383:SER:N	2.44	0.43
1:D:106:PHE:HD2	1:D:235:ILE:HG21	1.84	0.43
1:F:974:SER:OG	1:F:983:ARG:NH2	2.52	0.43
3:J:3:GLN:HE22	3:J:23:LYS:HG2	1.83	0.43
2:K:39:GLN:HA	2:K:45:PRO:HA	2.01	0.43
2:L:171:GLU:HG2	3:P:185:GLN:HA	1.99	0.43
1:B:108:THR:HA	1:B:236:THR:HG22	2.01	0.42
1:E:385:THR:OG1	1:F:473:TYR:OH	2.32	0.42
1:B:316:SER:OG	1:B:317:ASN:N	2.52	0.42
1:B:611:LEU:HD12	1:B:650:LEU:HD13	2.01	0.42
1:B:825:LYS:NZ	1:B:938:LEU:O	2.50	0.42
1:C:538:CYS:HB3	1:C:590:CYS:HB3	1.62	0.42
1:D:433:VAL:HG23	1:D:512:VAL:HG22	2.02	0.42
1:A:1140:PRO:O	1:A:1144:GLU:HB2	2.20	0.42
1:C:338:PHE:HA	1:C:341:VAL:HG12	2.01	0.42
1:C:866:THR:OG1	1:C:867:ASP:N	2.53	0.42
1:F:126:VAL:HG23	1:F:174:PRO:HA	2.01	0.42
3:P:153:GLY:HA2	3:P:195:VAL:HA	2.01	0.42
1:A:570:ALA:HB1	1:C:963:VAL:HG11	2.01	0.42
1:B:391:CYS:HA	1:B:525:CYS:HB3	2.02	0.42
3:Q:19:LYS:HE2	3:Q:80:TYR:HD1	1.83	0.42
1:D:737:ASP:HB3	1:E:317:ASN:HD21	1.84	0.42
1:E:825:LYS:NZ	1:E:938:LEU:O	2.48	0.42
2:K:48:LEU:HD23	2:K:74:LEU:HD21	2.01	0.42
3:O:98:ARG:HG3	3:O:116:THR:HB	2.01	0.42
2:N:5:THR:OG1	2:N:23:SER:OG	2.36	0.42
1:D:566:GLY:HA2	1:F:43:PHE:HB3	2.02	0.42
1:E:377:PHE:HE1	1:E:434:ILE:HG12	1.84	0.42
1:E:542:ASN:OD1	1:E:543:PHE:N	2.52	0.42
1:E:884:SER:O	1:E:887:THR:OG1	2.33	0.42
1:E:895:GLN:NE2	1:F:1074:ASN:OD1	2.52	0.42
3:P:215:LYS:HG3	3:P:216:PRO:HD3	2.02	0.42
1:B:753:LEU:HD13	1:B:997:ILE:HD12	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:137:GLN:HE21	2:I:55:ARG:HG2	1.83	0.42
2:N:93:ASP:N	2:N:93:ASP:OD1	2.52	0.42
1:E:605:SER:OG	1:E:606:ASN:N	2.51	0.42
1:E:964:LYS:HB2	1:E:964:LYS:HE2	1.88	0.42
2:L:32:ASN:HD21	2:L:92:TRP:HE3	1.67	0.42
3:R:215:LYS:HG3	3:R:216:PRO:HD3	2.01	0.42
1:D:424:LYS:HB3	1:D:424:LYS:HE2	1.82	0.42
1:D:756:TYR:OH	1:D:994:ASP:OD1	2.27	0.42
3:J:2:VAL:HG23	3:J:4:LEU:HG	2.01	0.42
3:P:91:THR:HG22	3:P:124:THR:HA	2.00	0.42
1:A:902:MET:HE3	1:A:916:LEU:HD21	2.01	0.42
1:B:195:LYS:HD3	1:B:204:TYR:HE2	1.85	0.42
3:Q:98:ARG:HG3	3:Q:116:THR:HB	2.01	0.42
1:D:416:GLY:H	1:D:419:ALA:HB3	1.85	0.42
3:Q:87:ARG:O	3:Q:125:VAL:HG11	2.20	0.42
3:R:20:VAL:HG13	3:R:81:MET:HB3	2.01	0.42
1:E:195:LYS:HD3	1:E:204:TYR:HE2	1.85	0.42
1:E:988:GLU:CD	1:E:988:GLU:H	2.27	0.42
1:A:336:CYS:HA	1:A:337:PRO:HD3	1.89	0.42
1:A:339:ASP:OD1	1:A:339:ASP:N	2.50	0.42
1:B:363:ALA:HB1	1:B:365:TYR:CE2	2.55	0.42
1:B:733:LYS:HD2	1:B:771:ALA:HB1	2.01	0.42
1:B:914:ASN:ND2	1:B:1111:GLU:OE2	2.53	0.42
1:B:983:ARG:HB2	1:C:390:LEU:HD13	2.01	0.42
1:B:986:PRO:HA	1:B:989:ALA:HB3	2.02	0.42
1:E:886:TRP:HH2	1:E:904:TYR:HB3	1.84	0.42
1:F:605:SER:OG	1:F:606:ASN:N	2.53	0.42
1:F:1106:GLN:NE2	1:F:1111:GLU:OE1	2.45	0.42
3:J:126:SER:HB2	3:J:160:PHE:CE2	2.55	0.42
1:A:794:ILE:HD11	5:B:1305:NAG:H83	2.01	0.41
1:C:886:TRP:HB3	1:C:905:ARG:NH2	2.35	0.41
2:M:7:PRO:HA	2:M:8:PRO:HD3	1.94	0.41
1:D:879:ALA:HA	1:D:882:ILE:HG22	2.02	0.41
1:D:1140:PRO:O	1:D:1144:GLU:HB2	2.20	0.41
1:F:475:ALA:HB3	1:F:488:CYS:HA	2.01	0.41
1:F:603:ASN:OD1	1:F:603:ASN:N	2.53	0.41
1:B:362:VAL:O	1:B:364:ASP:N	2.48	0.41
1:B:964:LYS:HE2	1:B:964:LYS:HB2	1.87	0.41
2:M:138:ALA:HB3	2:M:140:LYS:HG2	2.01	0.41
2:M:177:LYS:HD3	2:M:183:TYR:HE1	1.83	0.41
3:Q:109:GLN:C	3:Q:111:TRP:H	2.28	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:111:ASP:N	1:E:111:ASP:OD1	2.52	0.41
2:K:89:CYS:O	2:K:102:GLY:N	2.48	0.41
1:A:370:ASN:OD1	1:A:370:ASN:N	2.53	0.41
1:A:963:VAL:HG11	1:B:570:ALA:HB1	2.02	0.41
1:C:318:PHE:HE2	1:C:615:VAL:HG11	1.85	0.41
1:C:378:LYS:NZ	1:C:380:TYR:OH	2.53	0.41
1:C:791:THR:HG21	1:C:806:LEU:HD21	2.02	0.41
2:M:37:TYR:HE2	2:M:101:PHE:HE2	1.66	0.41
3:Q:6:GLN:N	3:Q:119:GLN:OE1	2.47	0.41
1:E:112:SER:HA	1:E:132:GLU:HB2	2.02	0.41
1:E:277:LEU:HD22	1:E:285:ILE:HD12	2.02	0.41
1:F:128:ILE:HG21	1:F:229:LEU:HD13	2.02	0.41
3:J:130:THR:HA	3:J:160:PHE:O	2.20	0.41
2:L:52:ASN:O	2:L:52:ASN:ND2	2.51	0.41
1:A:879:ALA:HA	1:A:882:ILE:HG22	2.03	0.41
1:C:226:LEU:HD23	1:C:226:LEU:HA	1.96	0.41
3:Q:19:LYS:NZ	3:Q:21:SER:HB3	2.36	0.41
1:D:111:ASP:OD1	1:D:111:ASP:N	2.54	0.41
1:D:393:THR:OG1	1:D:394:ASN:N	2.54	0.41
1:D:746:SER:OG	1:D:978:ASN:OD1	2.38	0.41
1:D:811:LYS:NZ	1:D:820:ASP:OD2	2.50	0.41
3:J:87:ARG:H	3:J:90:ASP:HB2	1.85	0.41
1:A:727:LEU:HD12	1:A:1062:PHE:CE2	2.54	0.41
1:B:37:TYR:OH	1:B:54:LEU:O	2.30	0.41
1:B:866:THR:HG23	1:B:869:MET:H	1.85	0.41
1:D:707:TYR:HE1	1:F:897:PRO:HA	1.86	0.41
3:J:175:SER:O	3:J:175:SER:OG	2.34	0.41
3:O:35:HIS:HB2	3:O:97:ALA:HB3	2.03	0.41
3:O:40:ALA:HA	3:O:41:PRO:HD3	1.95	0.41
3:P:54:ASP:OD1	3:P:54:ASP:N	2.48	0.41
3:R:153:GLY:HA2	3:R:195:VAL:HA	2.01	0.41
1:D:159:VAL:HG23	1:D:160:TYR:HD1	1.86	0.41
1:D:1076:THR:OG1	1:D:1097:SER:OG	2.36	0.41
1:E:65:PHE:HE2	1:E:84:LEU:HD21	1.86	0.41
2:I:55:ARG:CZ	2:I:65:GLY:H	2.33	0.41
2:K:101:PHE:HB2	3:O:45:LEU:H	1.86	0.41
1:A:433:VAL:HG23	1:A:512:VAL:HG22	2.02	0.41
1:C:454:ARG:HH22	1:C:469:SER:HB2	1.85	0.41
1:C:1099:GLY:HA3	4:Y:1:NAG:H82	2.02	0.41
3:H:87:ARG:H	3:H:90:ASP:HB2	1.84	0.41
2:M:143:LEU:HD13	2:M:196:TRP:HH2	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:R:157:LYS:HA	3:R:157:LYS:HD3	1.93	0.41
1:E:563:GLN:O	1:E:577:ARG:NH2	2.53	0.41
3:J:214:HIS:HB3	3:J:217:SER:HB3	2.01	0.41
1:A:201:PHE:HB3	1:A:229:LEU:HB2	2.02	0.41
1:A:393:THR:OG1	1:A:516:GLU:O	2.39	0.41
1:A:416:GLY:H	1:A:419:ALA:HB3	1.86	0.41
1:C:310:LYS:HB2	1:C:664:ILE:HD11	2.03	0.41
3:H:86:LEU:HB3	3:H:125:VAL:HG22	2.01	0.41
1:E:108:THR:HB	1:E:114:THR:HG21	2.03	0.41
1:F:308:VAL:N	1:F:602:THR:OG1	2.44	0.41
1:C:126:VAL:HG23	1:C:174:PRO:HA	2.01	0.41
3:Q:20:VAL:HG21	3:Q:94:TYR:HD2	1.85	0.41
1:D:370:ASN:OD1	1:D:370:ASN:N	2.53	0.41
1:D:963:VAL:HG11	1:E:570:ALA:HB1	2.02	0.41
1:E:391:CYS:HA	1:E:525:CYS:HB3	2.03	0.41
1:E:611:LEU:HD12	1:E:650:LEU:HD13	2.03	0.41
1:E:1097:SER:HB3	1:E:1102:TRP:CD2	2.56	0.41
1:F:1018:ILE:HD13	1:F:1018:ILE:HA	1.95	0.41
1:B:328:ARG:HD3	1:B:328:ARG:HA	1.73	0.41
1:C:128:ILE:HG21	1:C:229:LEU:HD13	2.03	0.41
1:C:442:ASP:OD2	1:C:509:ARG:NH2	2.47	0.41
3:Q:38:ARG:HE	3:Q:94:TYR:HE1	1.67	0.41
2:I:150:PHE:HE2	2:I:153:GLY:HA2	1.86	0.41
2:L:93:ASP:OD1	2:L:93:ASP:N	2.53	0.41
1:A:566:GLY:HA2	1:C:43:PHE:HB3	2.04	0.40
1:A:596:SER:HB2	1:A:611:LEU:HD23	2.04	0.40
1:E:118:LEU:HD12	1:E:135:PHE:HZ	1.85	0.40
1:E:966:LEU:O	1:E:975:SER:OG	2.39	0.40
1:A:159:VAL:HG23	1:A:160:TYR:HD1	1.85	0.40
1:B:546:LEU:HD21	1:B:573:THR:HG21	2.02	0.40
2:N:47:LEU:HD21	2:N:50:TYR:HB3	2.03	0.40
1:E:767:LEU:HD23	1:E:767:LEU:HA	1.88	0.40
1:F:973:ILE:HG13	1:F:984:LEU:HD21	2.02	0.40
1:F:993:ILE:HD12	1:F:993:ILE:HA	1.96	0.40
3:P:11:VAL:HA	3:P:124:THR:O	2.21	0.40
1:A:1076:THR:OG1	1:A:1097:SER:OG	2.35	0.40
1:B:766:ALA:O	1:B:770:ILE:HG12	2.22	0.40
1:C:446:GLY:HA3	3:R:32:TYR:HE1	1.86	0.40
1:D:900:MET:HE2	1:E:1094:VAL:HG23	2.04	0.40
1:E:1018:ILE:HD13	1:E:1018:ILE:HA	1.93	0.40
1:F:411:ALA:HB3	1:F:414:GLN:HG3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:430:THR:OG1	1:F:515:PHE:O	2.38	0.40
2:K:64:PHE:HB3	2:K:75:ALA:HB3	2.03	0.40
3:O:38:ARG:HE	3:O:94:TYR:HE1	1.70	0.40
3:O:87:ARG:HG3	3:O:89:ASP:H	1.86	0.40
3:P:12:LYS:O	3:P:126:SER:N	2.55	0.40
1:C:345:THR:OG1	1:C:346:ARG:N	2.54	0.40
2:K:143:LEU:HD13	2:K:196:TRP:HH2	1.87	0.40
3:O:93:VAL:HG12	3:O:122:LEU:CG	2.49	0.40
1:B:111:ASP:N	1:B:111:ASP:OD1	2.55	0.40
2:G:150:PHE:HE2	2:G:153:GLY:HA2	1.87	0.40
2:M:121:LYS:HE3	2:M:152:PRO:HD2	2.02	0.40
2:N:7:PRO:HA	2:N:8:PRO:HD3	1.96	0.40
1:E:529:LYS:HE3	1:E:529:LYS:HB2	1.75	0.40
1:E:708:SER:HB2	1:E:711:SER:HB3	2.03	0.40
1:F:391:CYS:HA	1:F:525:CYS:HB3	2.02	0.40
3:O:13:LYS:HZ1	3:O:128:ALA:C	2.30	0.40
3:P:7:SER:OG	3:P:23:LYS:NZ	2.50	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	972/1240 (78%)	936 (96%)	36 (4%)	0	100	100
1	B	969/1240 (78%)	929 (96%)	40 (4%)	0	100	100
1	C	971/1240 (78%)	920 (95%)	50 (5%)	1 (0%)	48	83
1	D	972/1240 (78%)	934 (96%)	38 (4%)	0	100	100
1	E	972/1240 (78%)	928 (96%)	44 (4%)	0	100	100
1	F	971/1240 (78%)	913 (94%)	57 (6%)	1 (0%)	48	83
2	G	209/223 (94%)	205 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	I	209/223 (94%)	203 (97%)	6 (3%)	0	100	100
2	K	209/223 (94%)	203 (97%)	6 (3%)	0	100	100
2	L	209/223 (94%)	197 (94%)	12 (6%)	0	100	100
2	M	209/223 (94%)	202 (97%)	7 (3%)	0	100	100
2	N	209/223 (94%)	198 (95%)	11 (5%)	0	100	100
3	H	217/230 (94%)	204 (94%)	13 (6%)	0	100	100
3	J	217/230 (94%)	206 (95%)	11 (5%)	0	100	100
3	O	217/230 (94%)	208 (96%)	9 (4%)	0	100	100
3	P	217/230 (94%)	208 (96%)	9 (4%)	0	100	100
3	Q	217/230 (94%)	206 (95%)	10 (5%)	1 (0%)	25	64
3	R	217/230 (94%)	206 (95%)	11 (5%)	0	100	100
All	All	8383/10158 (82%)	8006 (96%)	374 (4%)	3 (0%)	100	100

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	1141	LEU
1	F	1141	LEU
3	Q	110	ARG

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	871/1077 (81%)	871 (100%)	0	100	100
1	B	870/1077 (81%)	870 (100%)	0	100	100
1	C	869/1077 (81%)	869 (100%)	0	100	100
1	D	871/1077 (81%)	871 (100%)	0	100	100
1	E	871/1077 (81%)	870 (100%)	1 (0%)	92	95
1	F	869/1077 (81%)	869 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	G	178/187 (95%)	178 (100%)	0	100	100
2	I	178/187 (95%)	178 (100%)	0	100	100
2	K	178/187 (95%)	178 (100%)	0	100	100
2	L	178/187 (95%)	178 (100%)	0	100	100
2	M	178/187 (95%)	178 (100%)	0	100	100
2	N	178/187 (95%)	178 (100%)	0	100	100
3	H	191/198 (96%)	190 (100%)	1 (0%)	86	89
3	J	191/198 (96%)	190 (100%)	1 (0%)	86	89
3	O	191/198 (96%)	190 (100%)	1 (0%)	86	89
3	P	191/198 (96%)	191 (100%)	0	100	100
3	Q	191/198 (96%)	188 (98%)	3 (2%)	58	73
3	R	191/198 (96%)	191 (100%)	0	100	100
All	All	7435/8772 (85%)	7428 (100%)	7 (0%)	92	95

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	H	62	GLN
3	Q	122	LEU
3	Q	123	VAL
3	Q	125	VAL
1	E	320	VAL
3	J	125	VAL
3	O	125	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (103) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	52	GLN
1	A	115	GLN
1	A	134	GLN
1	A	207	HIS
1	A	239	GLN
1	A	394	ASN
1	A	409	GLN
1	A	460	ASN
1	A	519	HIS

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Mol	Chain	Res	Type
1	A	536	ASN
1	A	542	ASN
1	A	563	GLN
1	A	580	GLN
1	A	856	ASN
1	A	955	ASN
1	A	1010	GLN
1	A	1083	HIS
1	B	334	ASN
1	B	414	GLN
1	B	519	HIS
1	B	542	ASN
1	B	580	GLN
1	B	658	ASN
1	B	710	ASN
1	B	777	ASN
1	B	955	ASN
1	B	957	GLN
1	B	992	GLN
1	B	1058	HIS
1	B	1108	ASN
1	B	1119	ASN
1	C	61	ASN
1	C	239	GLN
1	C	388	ASN
1	C	505	HIS
1	C	536	ASN
1	C	564	GLN
1	C	777	ASN
1	C	779	GLN
1	C	784	GLN
1	C	804	GLN
1	C	1010	GLN
1	C	1108	ASN
2	G	6	GLN
2	G	16	GLN
2	G	52	ASN
2	G	208	HIS
3	H	3	GLN
3	H	6	GLN
3	H	65	GLN
3	H	218	ASN

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Mol	Chain	Res	Type
2	N	32	ASN
2	N	119	GLN
3	Q	65	GLN
3	Q	109	GLN
3	Q	185	GLN
3	R	106	ASN
3	R	185	GLN
1	D	30	ASN
1	D	115	GLN
1	D	134	GLN
1	D	207	HIS
1	D	409	GLN
1	D	422	ASN
1	D	460	ASN
1	D	536	ASN
1	D	542	ASN
1	D	563	GLN
1	D	755	GLN
1	D	1010	GLN
1	E	317	ASN
1	E	334	ASN
1	E	519	HIS
1	E	658	ASN
1	E	777	ASN
1	E	954	HIS
1	E	992	GLN
1	E	1058	HIS
1	E	1108	ASN
1	F	52	GLN
1	F	61	ASN
1	F	239	GLN
1	F	388	ASN
1	F	487	ASN
1	F	505	HIS
1	F	536	ASN
1	F	564	GLN
1	F	779	GLN
1	F	784	GLN
1	F	1011	GLN
1	F	1108	ASN
2	I	32	ASN
2	I	52	ASN

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Mol	Chain	Res	Type
2	I	54	GLN
2	I	208	HIS
3	J	6	GLN
3	J	33	ASN
3	J	218	ASN
2	K	205	GLN
2	L	32	ASN
3	O	109	GLN
3	O	211	ASN
3	P	185	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

14 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	S	1	4,1	14,14,15	0.26	0	17,19,21	0.76	0
4	NAG	S	2	4	14,14,15	0.29	0	17,19,21	0.64	0
4	NAG	T	1	4,1	14,14,15	0.34	0	17,19,21	0.64	0
4	NAG	T	2	4	14,14,15	0.31	0	17,19,21	0.64	0
4	NAG	U	1	4,1	14,14,15	0.30	0	17,19,21	0.62	0
4	NAG	U	2	4	14,14,15	0.31	0	17,19,21	0.67	0
4	NAG	V	1	4,1	14,14,15	0.28	0	17,19,21	0.48	0
4	NAG	V	2	4	14,14,15	0.31	0	17,19,21	0.46	0
4	NAG	W	1	4,1	14,14,15	0.22	0	17,19,21	0.45	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	NAG	W	2	4	14,14,15	0.28	0	17,19,21	0.44	0
4	NAG	X	1	4,1	14,14,15	0.31	0	17,19,21	0.77	1 (5%)
4	NAG	X	2	4	14,14,15	0.34	0	17,19,21	0.65	0
4	NAG	Y	1	4,1	14,14,15	0.21	0	17,19,21	0.43	0
4	NAG	Y	2	4	14,14,15	0.32	0	17,19,21	0.45	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	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	-	1/6/23/26	0/1/1/1
4	NAG	U	2	4	-	0/6/23/26	0/1/1/1
4	NAG	V	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	V	2	4	-	2/6/23/26	0/1/1/1
4	NAG	W	1	4,1	-	0/6/23/26	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	-	2/6/23/26	0/1/1/1
4	NAG	Y	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	Y	2	4	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	X	1	NAG	C1-O5-C5	2.01	114.92	112.19

There are no chirality outliers.

All (19) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	S	2	NAG	C8-C7-N2-C2
4	S	2	NAG	O7-C7-N2-C2

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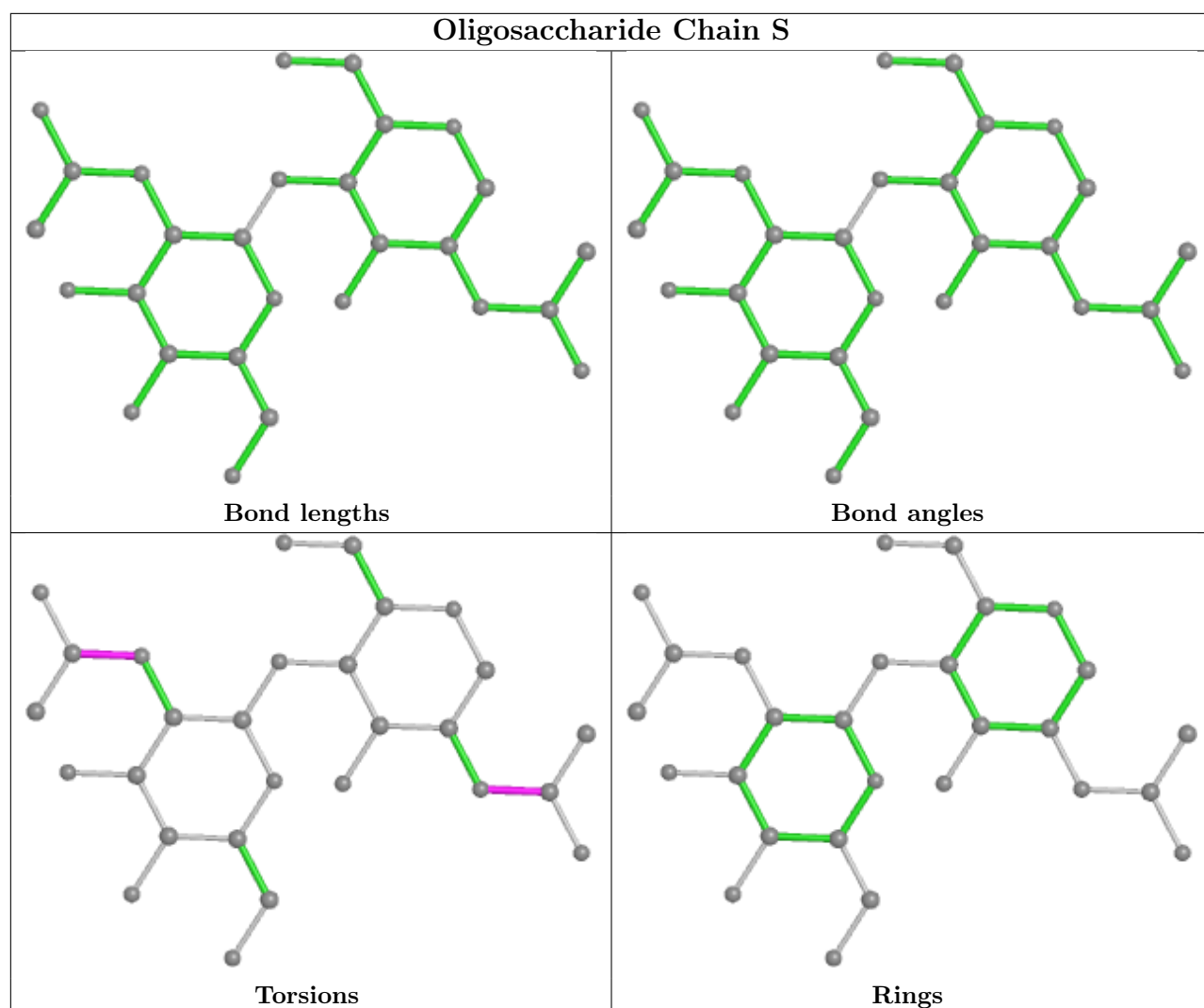
Mol	Chain	Res	Type	Atoms
4	X	2	NAG	C8-C7-N2-C2
4	X	2	NAG	O7-C7-N2-C2
4	S	1	NAG	C8-C7-N2-C2
4	S	1	NAG	O7-C7-N2-C2
4	Y	2	NAG	C4-C5-C6-O6
4	W	2	NAG	C4-C5-C6-O6
4	X	1	NAG	C8-C7-N2-C2
4	T	2	NAG	C8-C7-N2-C2
4	X	1	NAG	O7-C7-N2-C2
4	Y	2	NAG	O5-C5-C6-O6
4	W	2	NAG	O5-C5-C6-O6
4	T	2	NAG	O7-C7-N2-C2
4	U	1	NAG	O5-C5-C6-O6
4	V	2	NAG	C4-C5-C6-O6
4	V	2	NAG	O5-C5-C6-O6
4	Y	1	NAG	C4-C5-C6-O6
4	Y	1	NAG	O5-C5-C6-O6

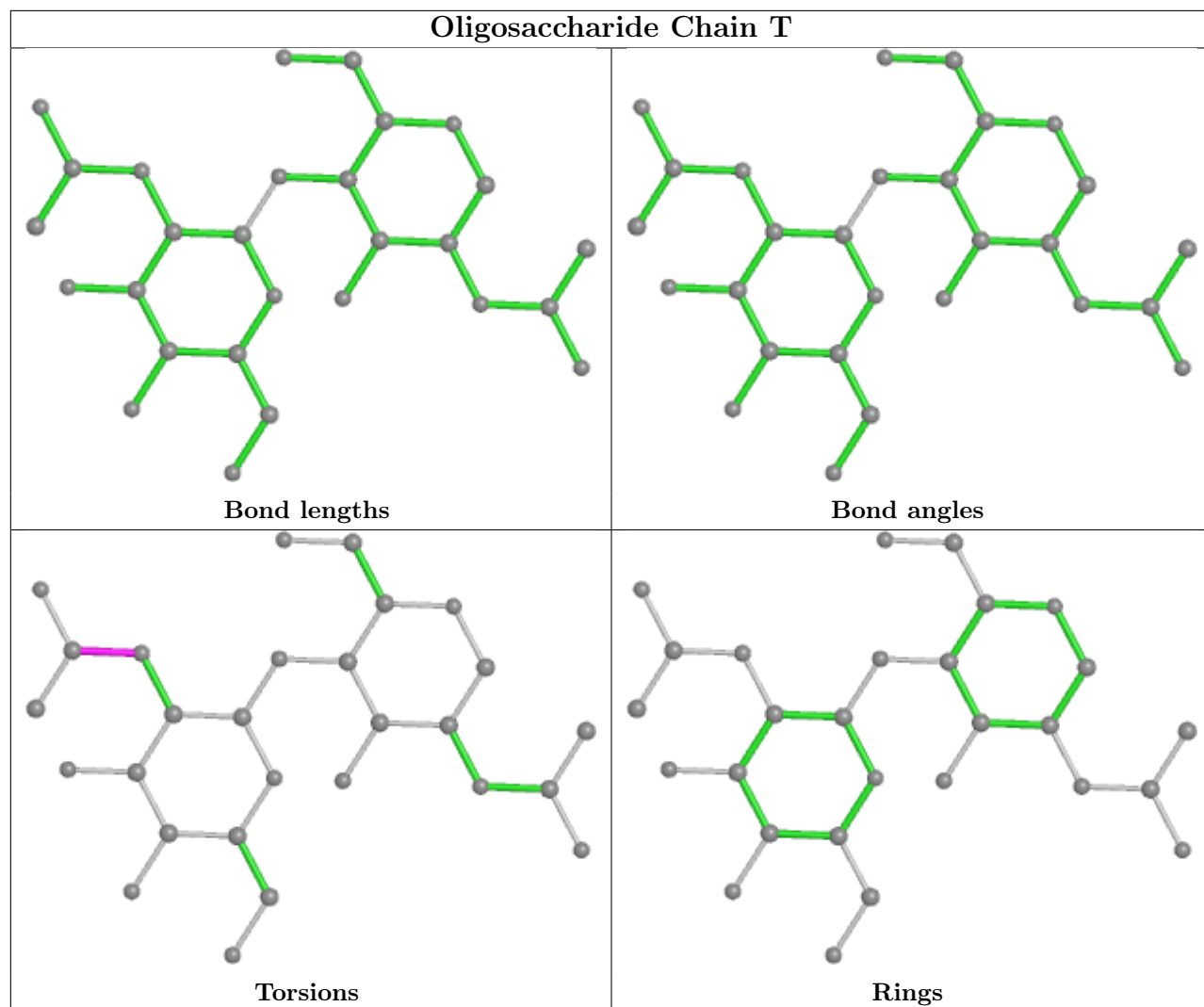
There are no ring outliers.

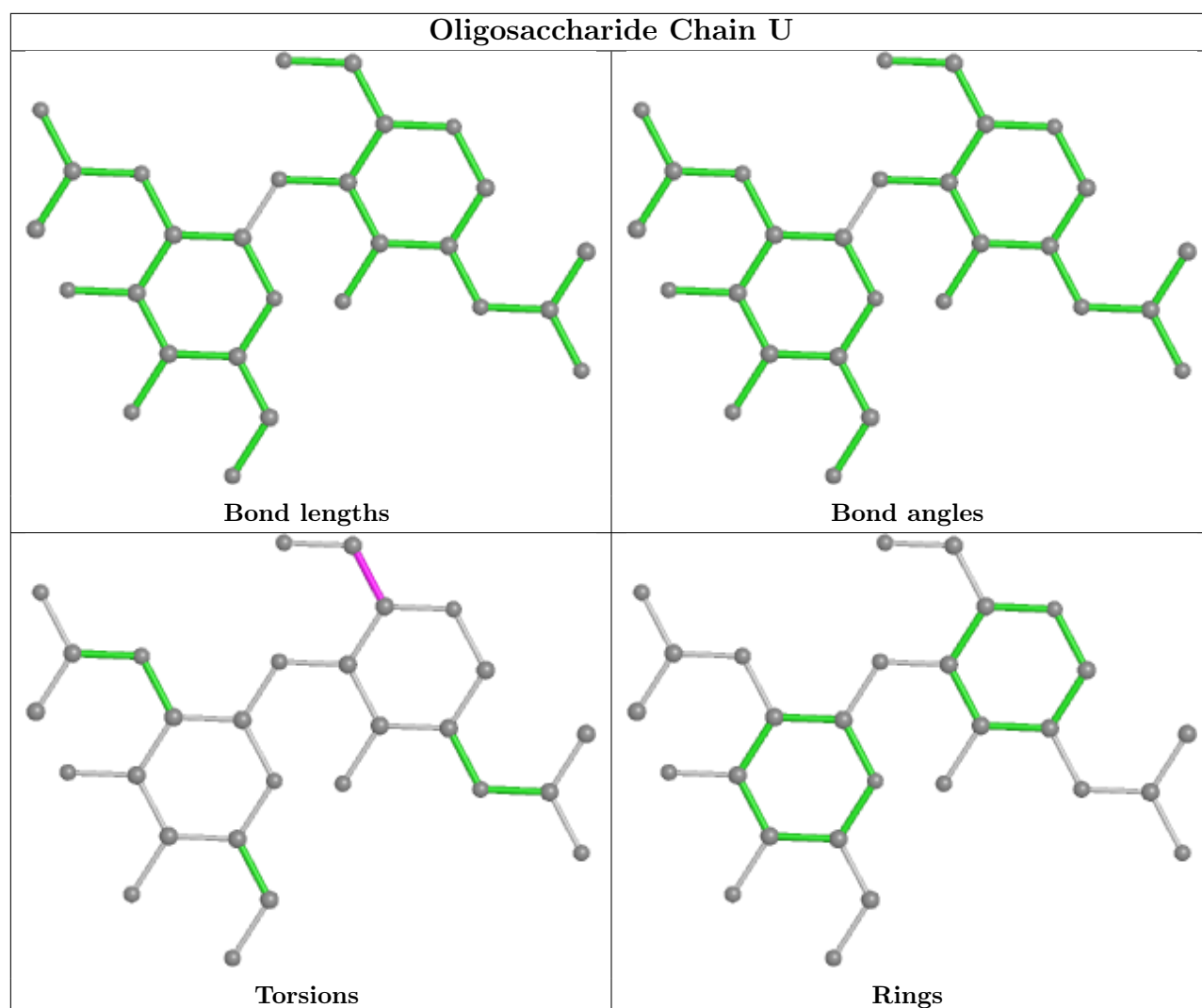
6 monomers are involved in 8 short contacts:

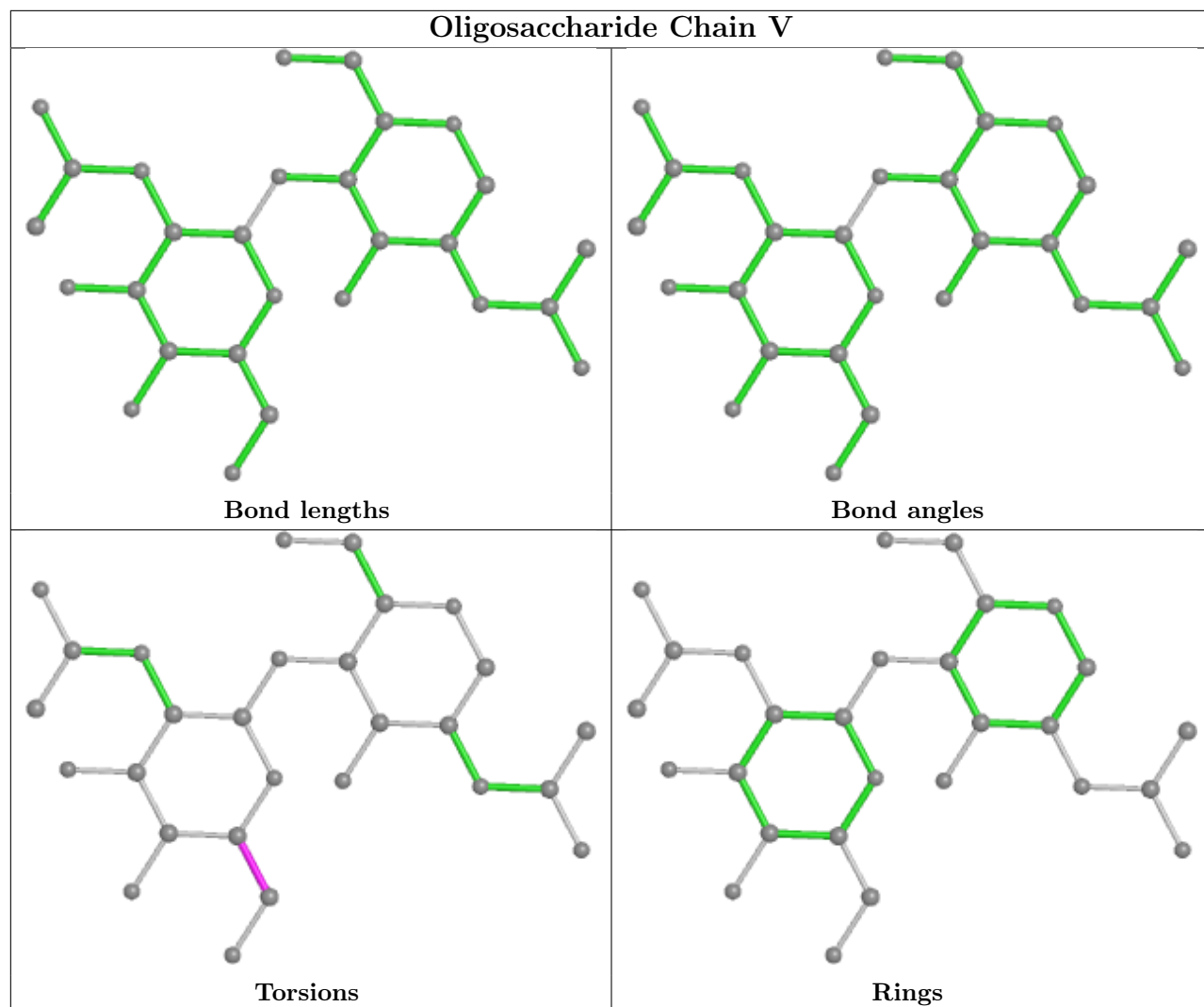
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	Y	1	NAG	1	0
4	X	1	NAG	2	0
4	T	2	NAG	1	0
4	S	1	NAG	3	0
4	T	1	NAG	1	0
4	U	1	NAG	1	0

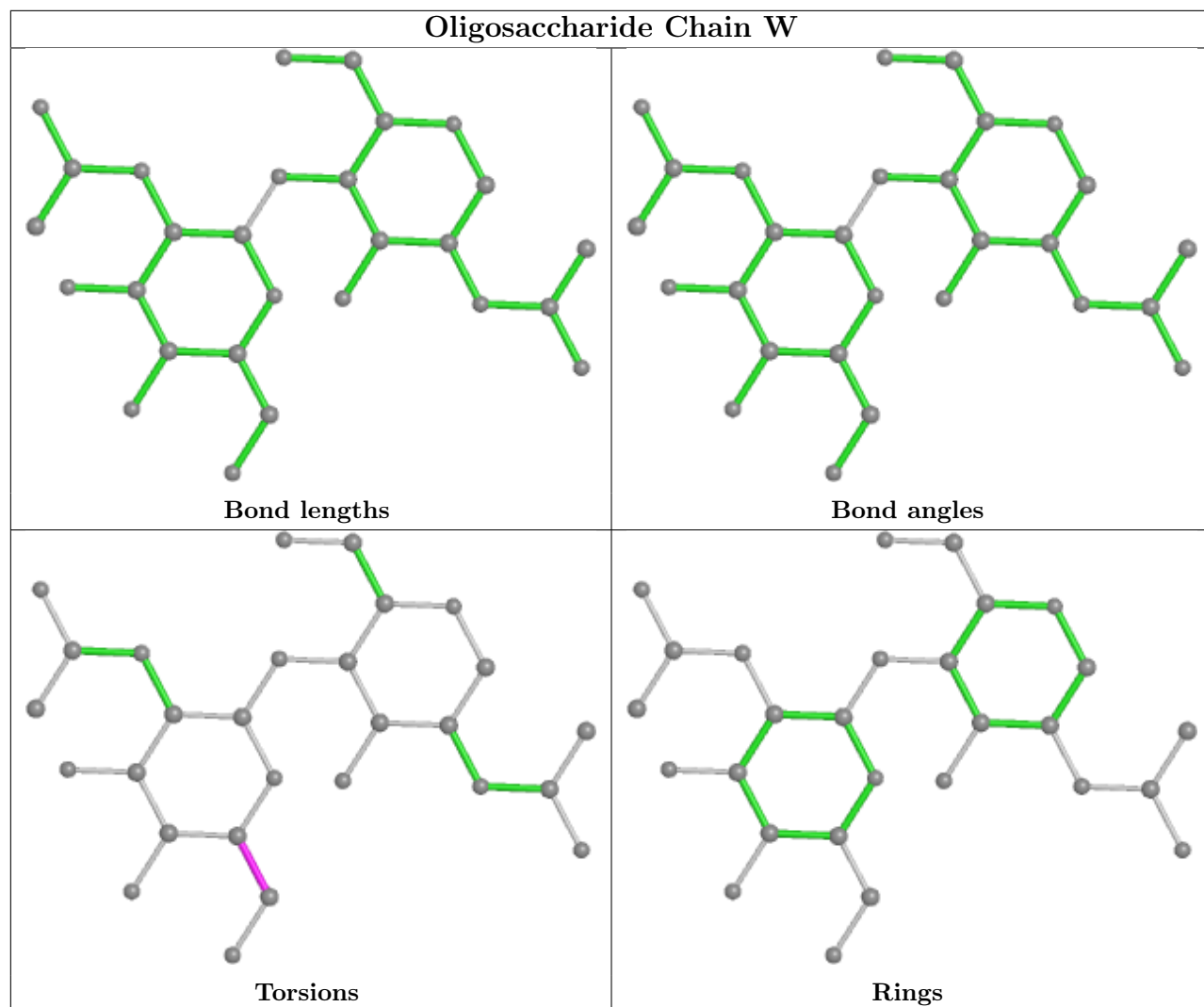
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

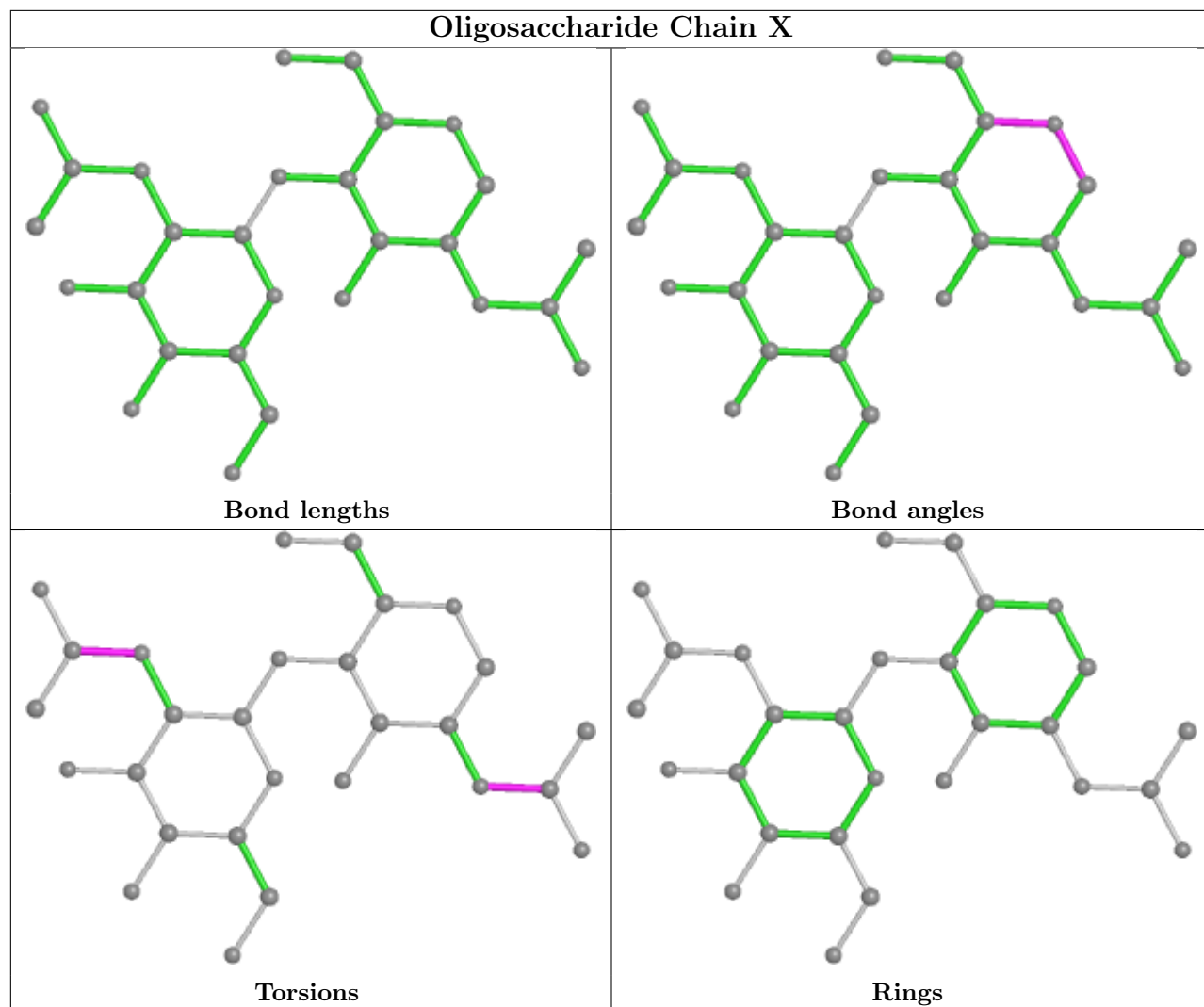


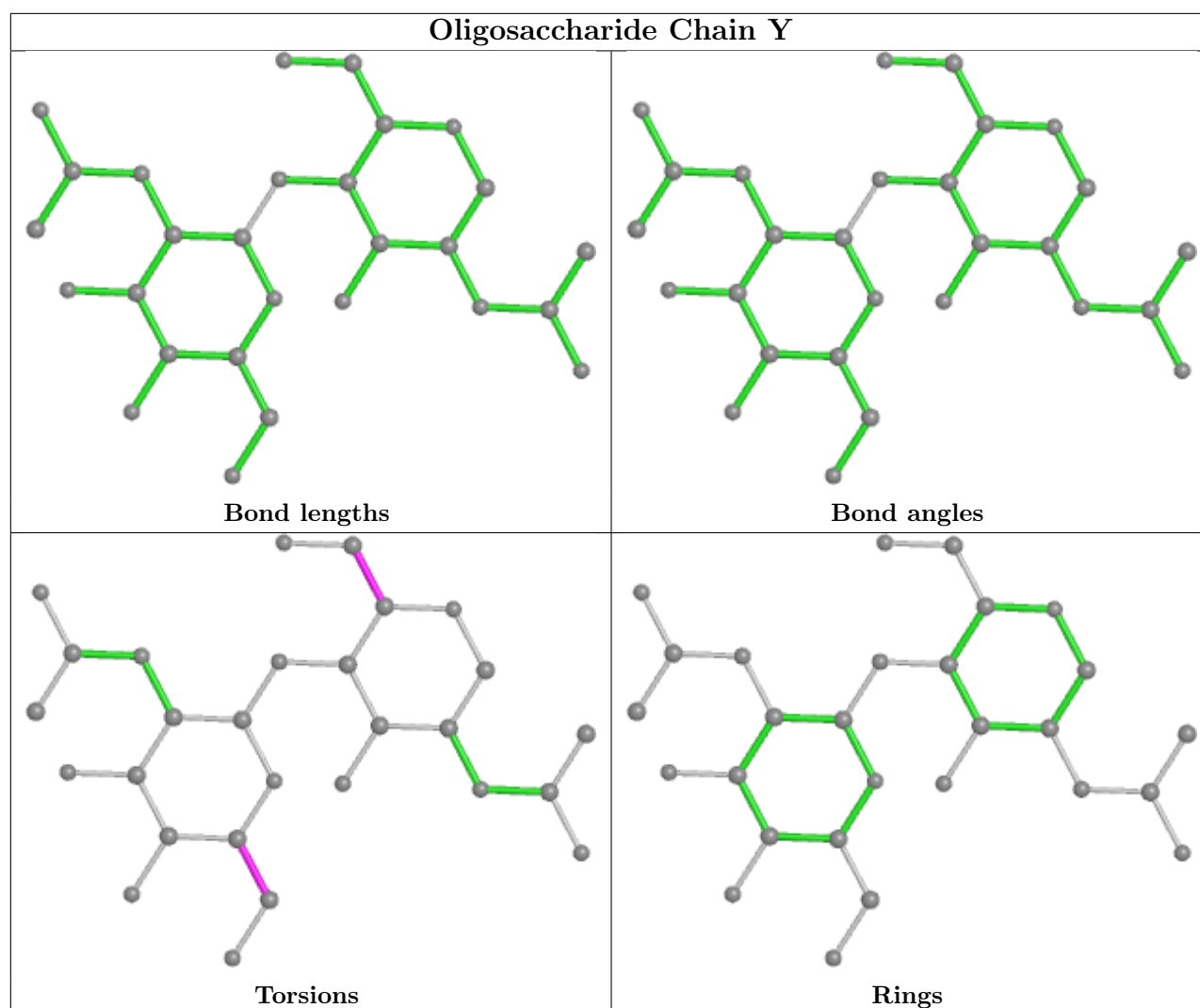












5.6 Ligand geometry [i](#)

22 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	1304	1	14,14,15	0.30	0	17,19,21	0.47	0
5	NAG	A	1304	1	14,14,15	0.23	0	17,19,21	0.44	0
5	NAG	A	1303	1	14,14,15	0.31	0	17,19,21	0.63	0
5	NAG	A	1306	1	14,14,15	0.23	0	17,19,21	0.47	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	NAG	B	1307	1	14,14,15	0.30	0	17,19,21	0.50	0
5	NAG	B	1306	1	14,14,15	0.29	0	17,19,21	0.46	0
5	NAG	A	1302	1	14,14,15	0.27	0	17,19,21	0.43	0
5	NAG	B	1302	1	14,14,15	0.29	0	17,19,21	0.47	0
5	NAG	A	1301	1	14,14,15	0.29	0	17,19,21	0.45	0
5	NAG	B	1303	1	14,14,15	0.29	0	17,19,21	0.50	0
5	NAG	B	1301	1	14,14,15	0.32	0	17,19,21	0.50	0
5	NAG	C	1306	1	14,14,15	0.47	0	17,19,21	0.63	0
5	NAG	A	1307	1	14,14,15	0.27	0	17,19,21	0.62	0
5	NAG	B	1309	1	14,14,15	0.31	0	17,19,21	0.75	0
5	NAG	C	1305	1	14,14,15	0.33	0	17,19,21	0.61	1 (5%)
5	NAG	A	1305	1	14,14,15	0.35	0	17,19,21	0.81	1 (5%)
5	NAG	C	1304	1	14,14,15	0.24	0	17,19,21	0.44	0
5	NAG	C	1302	1	14,14,15	0.24	0	17,19,21	0.47	0
5	NAG	C	1303	1	14,14,15	0.34	0	17,19,21	0.78	0
5	NAG	B	1305	1	14,14,15	0.33	0	17,19,21	0.63	0
5	NAG	C	1301	1	14,14,15	0.25	0	17,19,21	0.47	0
5	NAG	B	1308	1	14,14,15	0.27	0	17,19,21	0.48	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	1304	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1304	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1303	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1306	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1307	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1306	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1302	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1302	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1301	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1303	1	-	4/6/23/26	0/1/1/1
5	NAG	B	1301	1	-	1/6/23/26	0/1/1/1
5	NAG	C	1306	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1307	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1309	1	-	2/6/23/26	0/1/1/1

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

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	1305	NAG	C2-N2-C7	2.43	126.36	122.90
5	C	1305	NAG	C1-O5-C5	2.03	114.94	112.19

There are no chirality outliers.

All (40) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	1306	NAG	O5-C5-C6-O6
5	B	1303	NAG	O5-C5-C6-O6
5	C	1305	NAG	C4-C5-C6-O6
5	A	1307	NAG	C8-C7-N2-C2
5	A	1307	NAG	O7-C7-N2-C2
5	C	1301	NAG	O5-C5-C6-O6
5	B	1303	NAG	C4-C5-C6-O6
5	A	1305	NAG	O5-C5-C6-O6
5	A	1302	NAG	O5-C5-C6-O6
5	A	1306	NAG	C4-C5-C6-O6
5	C	1305	NAG	O5-C5-C6-O6
5	B	1306	NAG	O5-C5-C6-O6
5	B	1303	NAG	C8-C7-N2-C2
5	B	1303	NAG	O7-C7-N2-C2
5	B	1309	NAG	C8-C7-N2-C2
5	C	1301	NAG	C8-C7-N2-C2
5	C	1301	NAG	O7-C7-N2-C2
5	B	1302	NAG	C4-C5-C6-O6
5	B	1306	NAG	C4-C5-C6-O6
5	C	1301	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
5	A	1305	NAG	C4-C5-C6-O6
5	B	1309	NAG	O7-C7-N2-C2
5	B	1304	NAG	O5-C5-C6-O6
5	B	1304	NAG	C4-C5-C6-O6
5	C	1304	NAG	O5-C5-C6-O6
5	B	1307	NAG	O5-C5-C6-O6
5	B	1307	NAG	C4-C5-C6-O6
5	B	1302	NAG	O5-C5-C6-O6
5	A	1302	NAG	C4-C5-C6-O6
5	B	1305	NAG	O5-C5-C6-O6
5	B	1301	NAG	O5-C5-C6-O6
5	A	1307	NAG	O5-C5-C6-O6
5	A	1301	NAG	C4-C5-C6-O6
5	C	1306	NAG	C4-C5-C6-O6
5	C	1306	NAG	O5-C5-C6-O6
5	A	1301	NAG	O5-C5-C6-O6
5	A	1303	NAG	C8-C7-N2-C2
5	C	1304	NAG	C4-C5-C6-O6
5	A	1305	NAG	C3-C2-N2-C7
5	A	1303	NAG	O7-C7-N2-C2

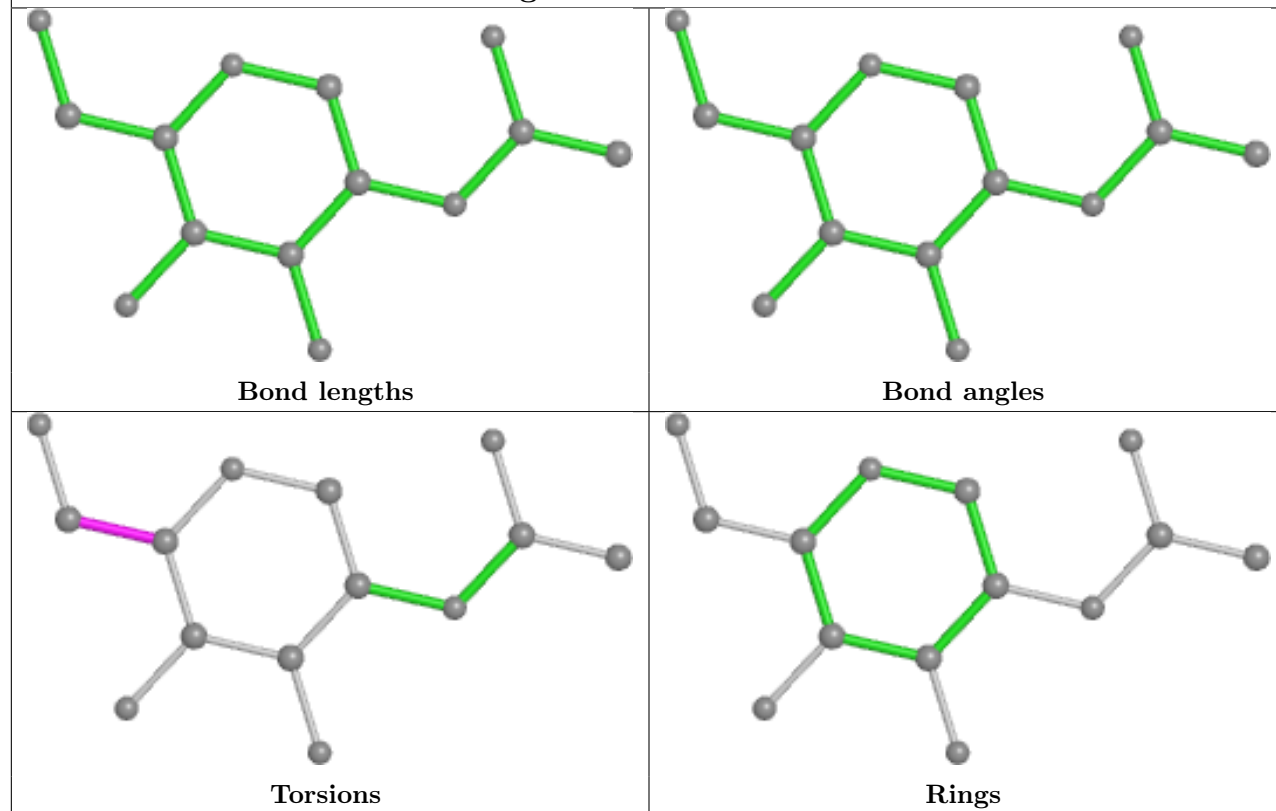
There are no ring outliers.

3 monomers are involved in 5 short contacts:

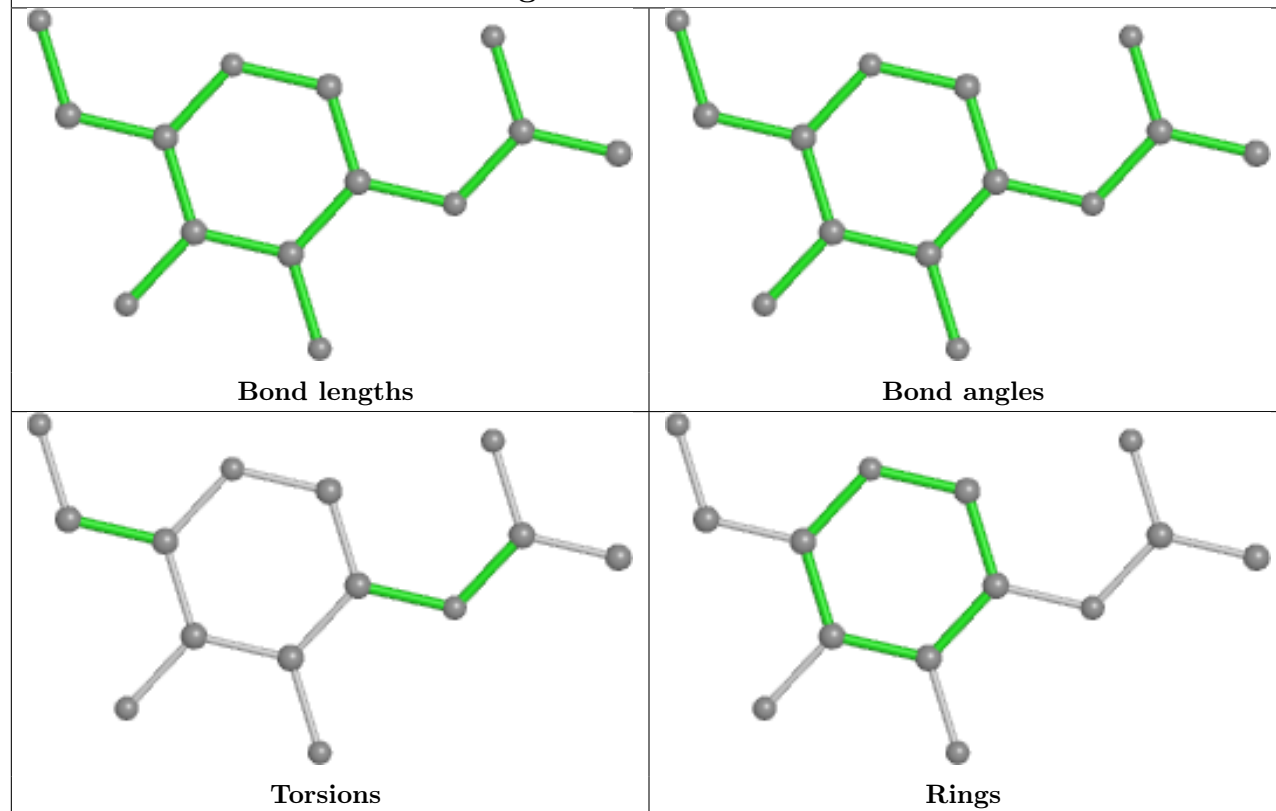
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	1307	NAG	1	0
5	C	1303	NAG	2	0
5	B	1305	NAG	2	0

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.

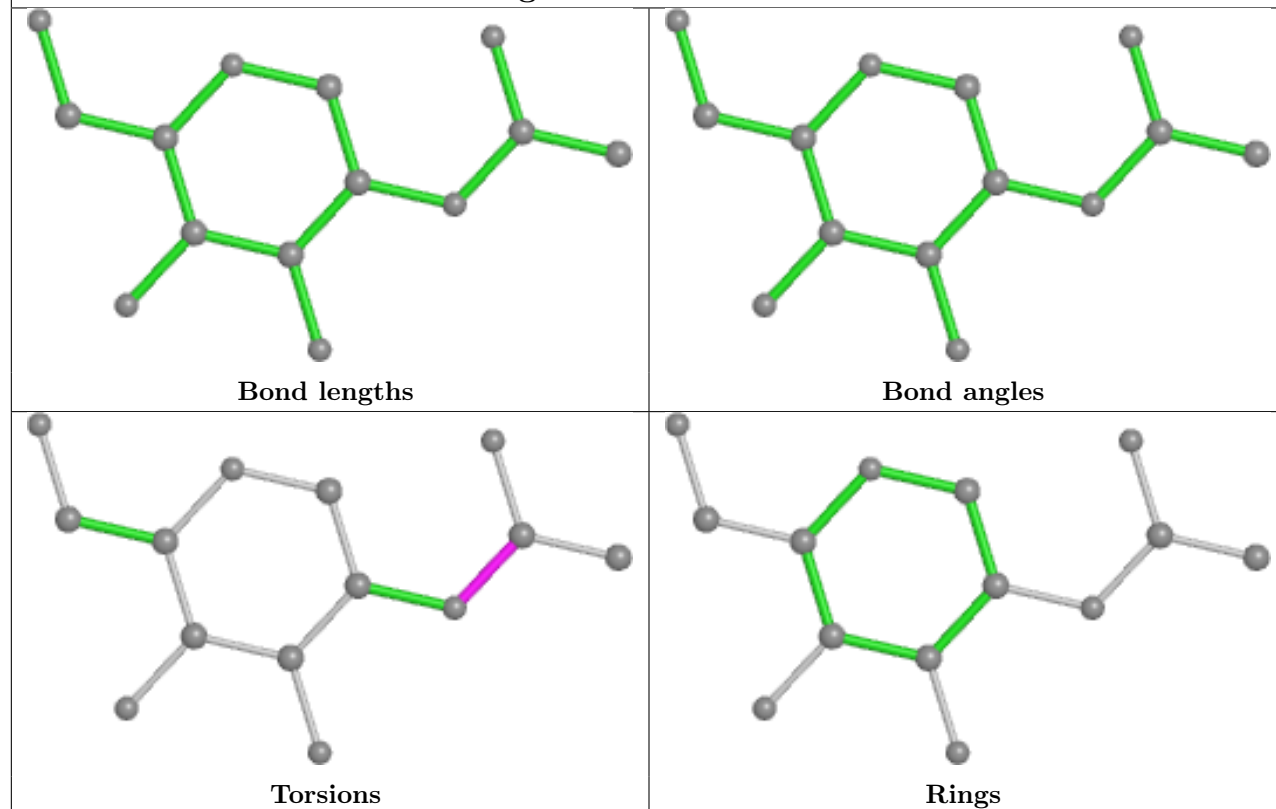
Ligand NAG B 1304



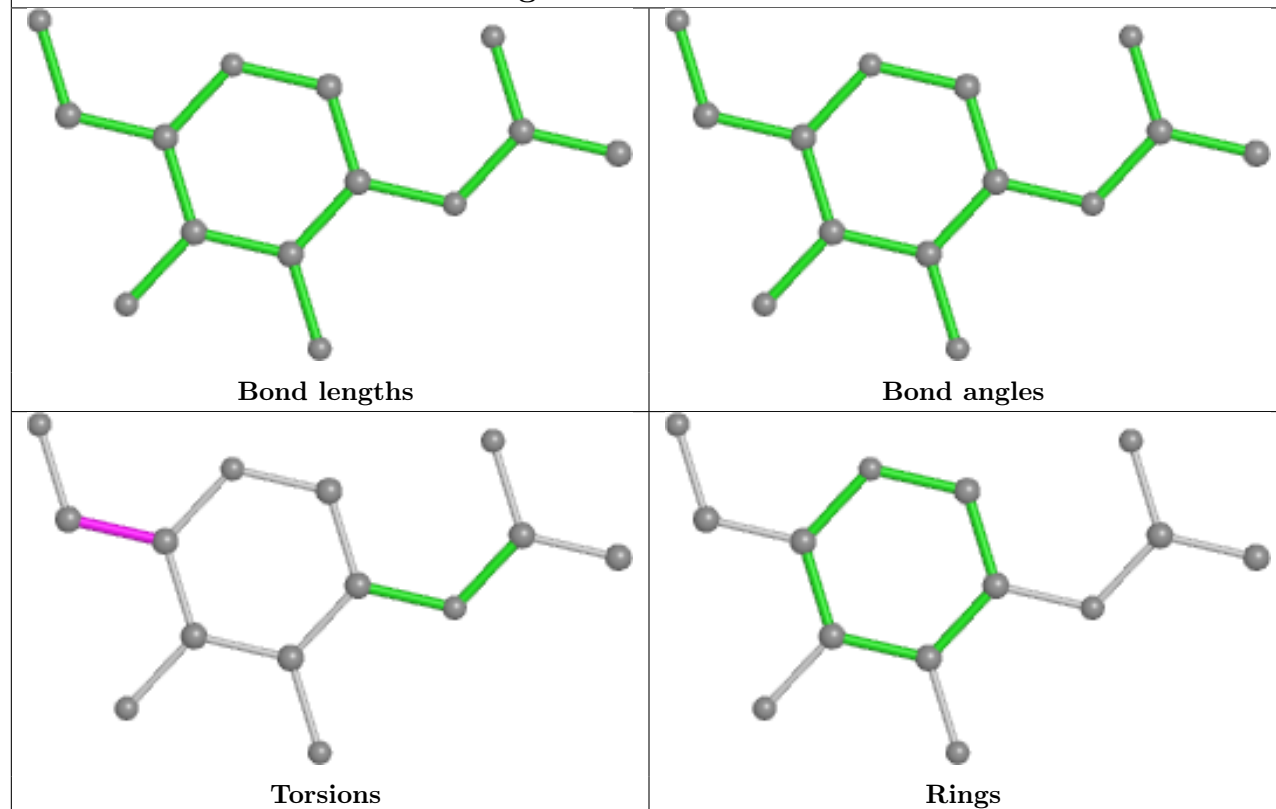
Ligand NAG A 1304

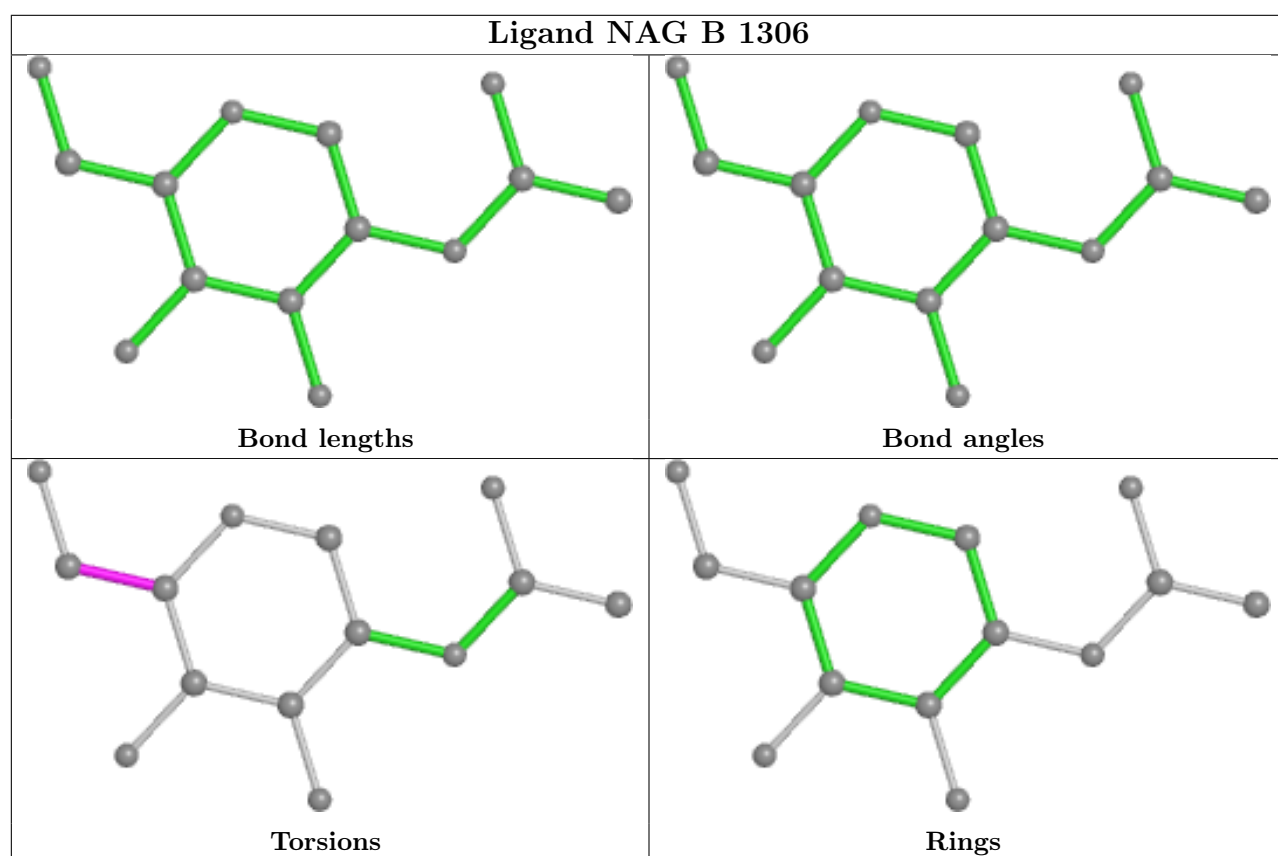
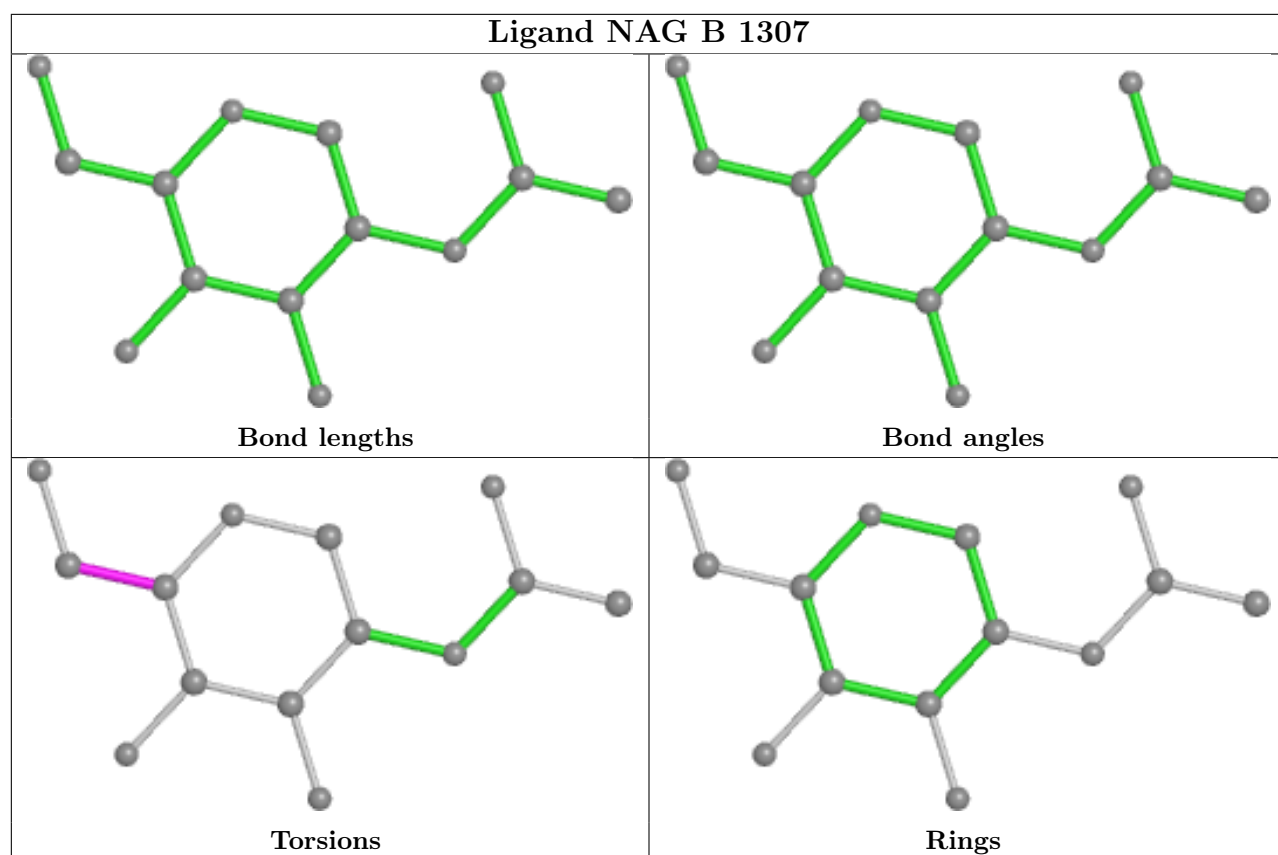


Ligand NAG A 1303

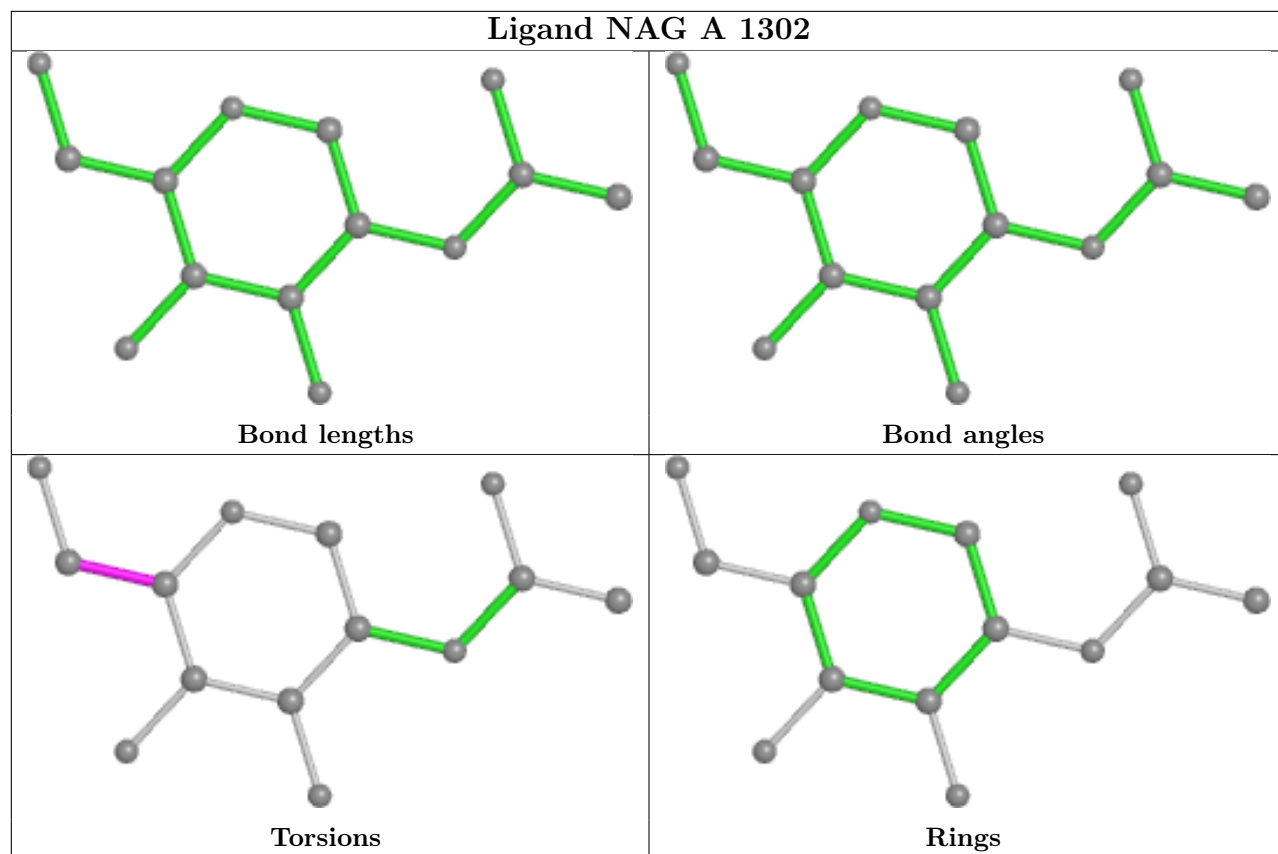


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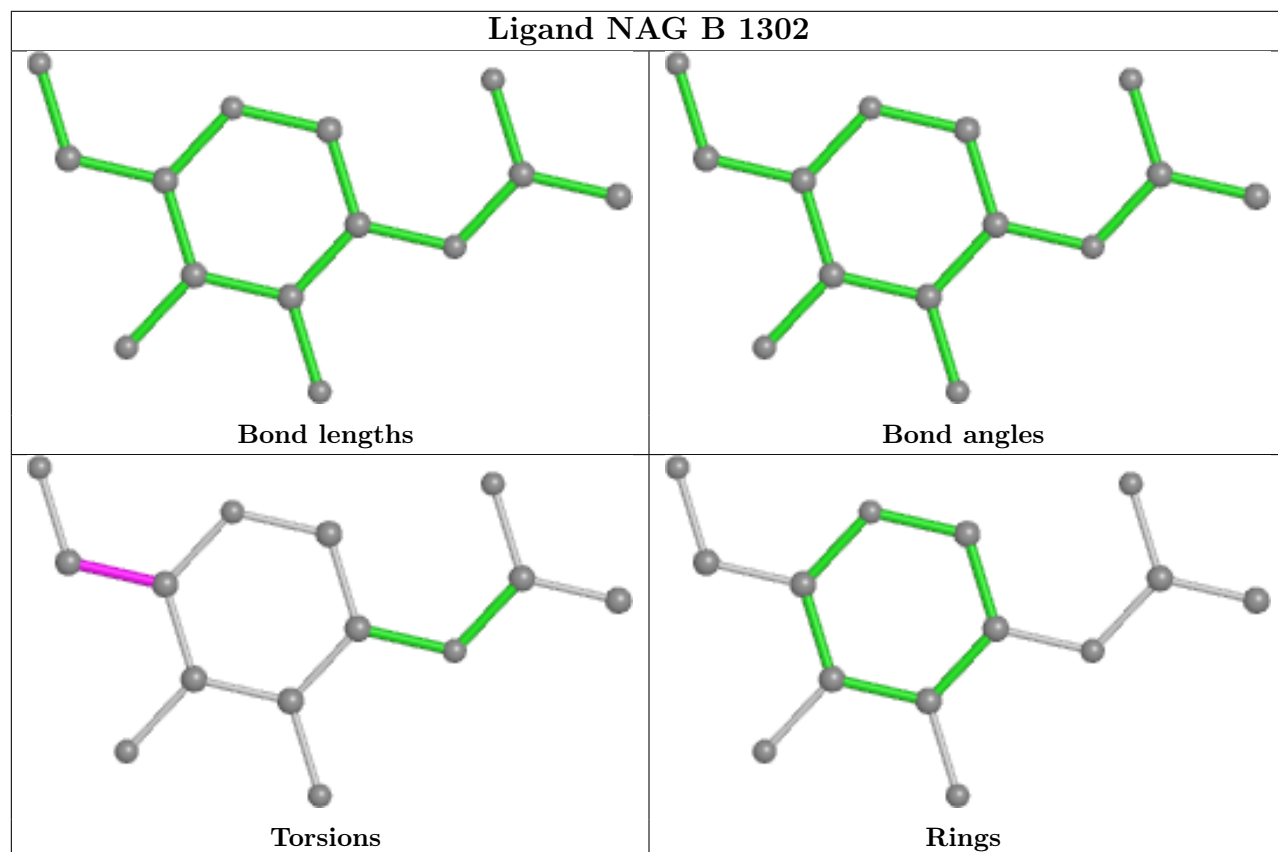


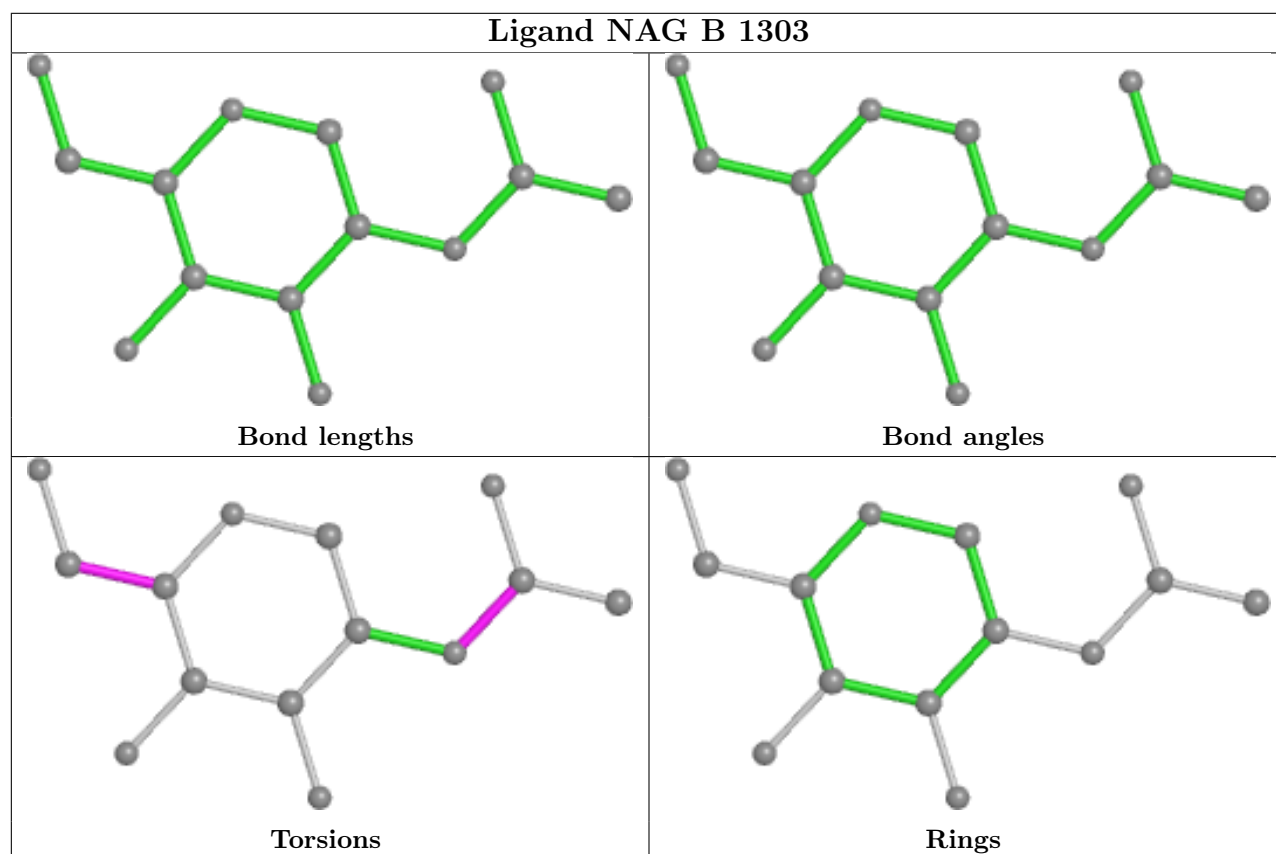
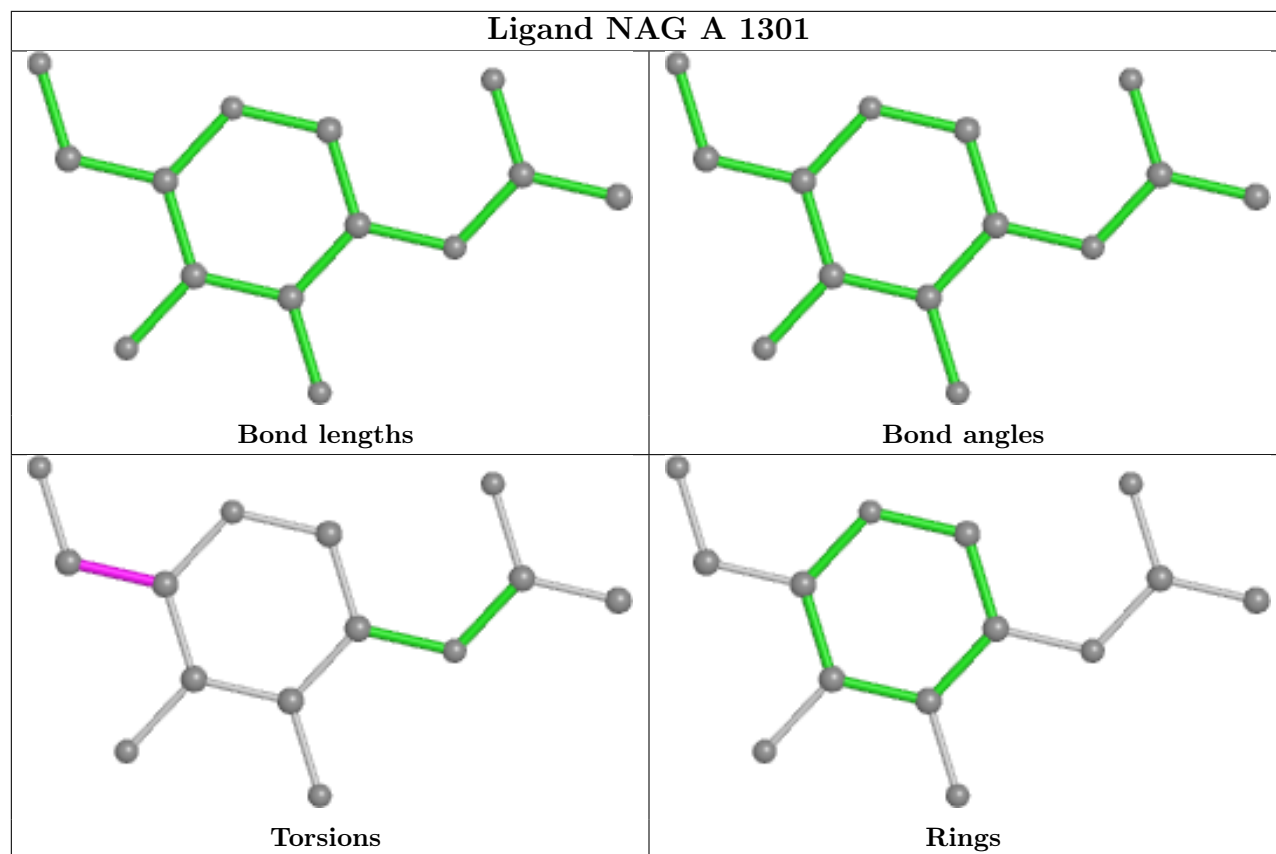


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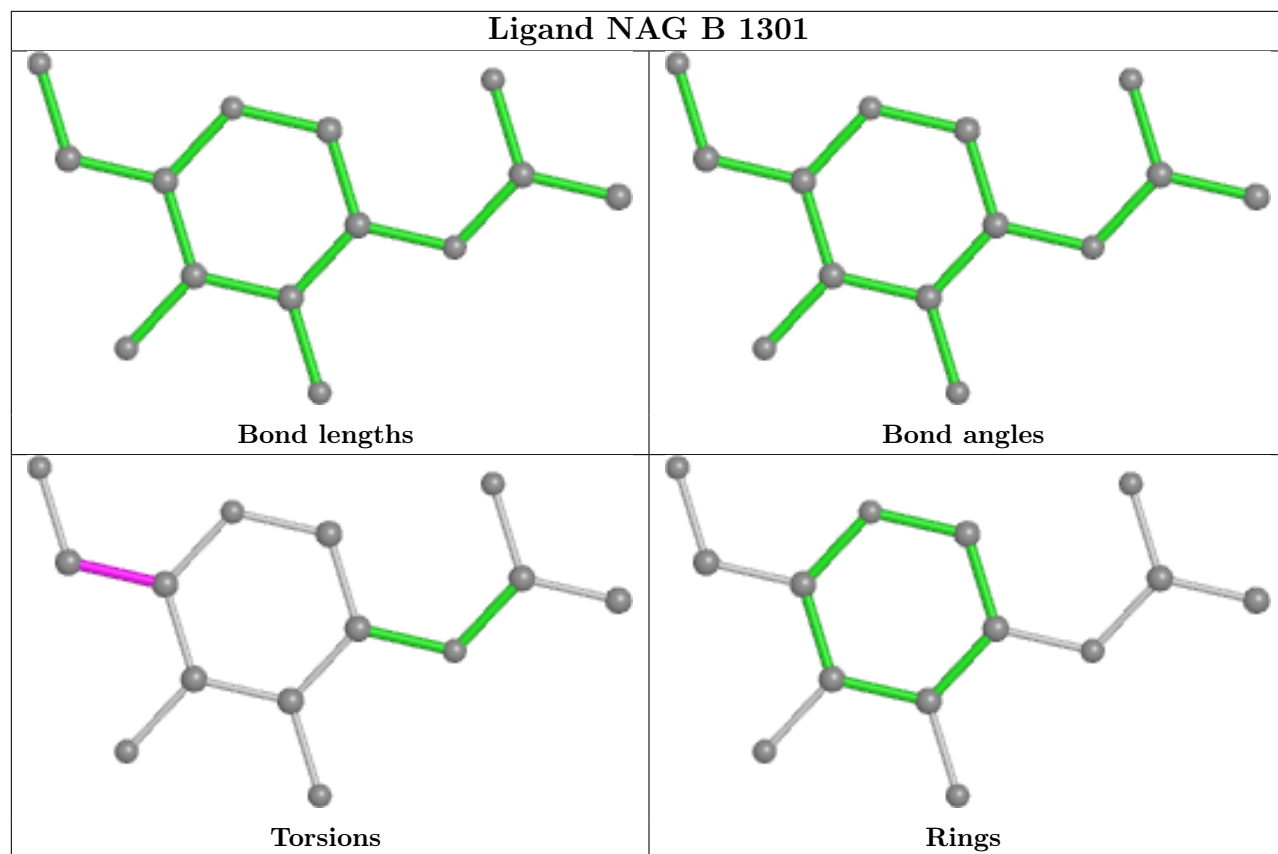


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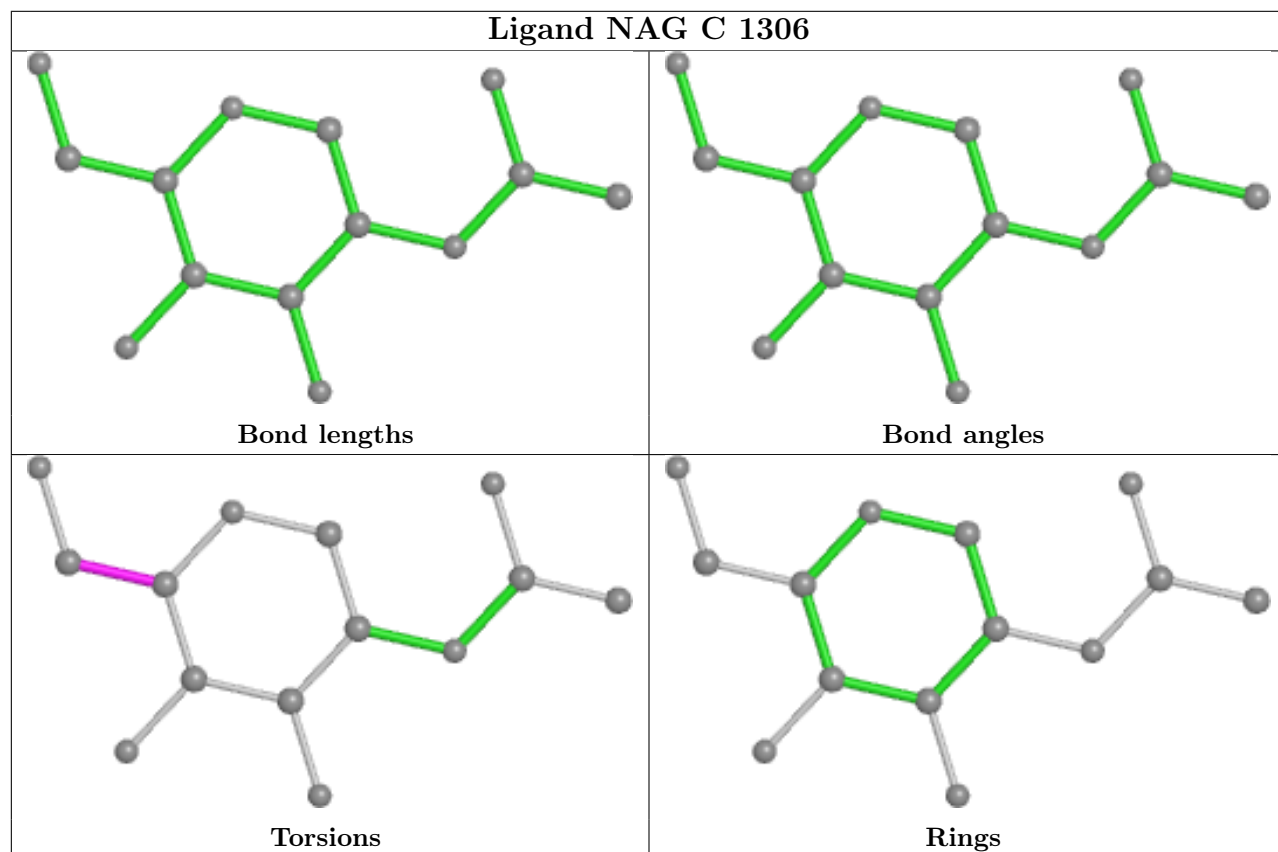




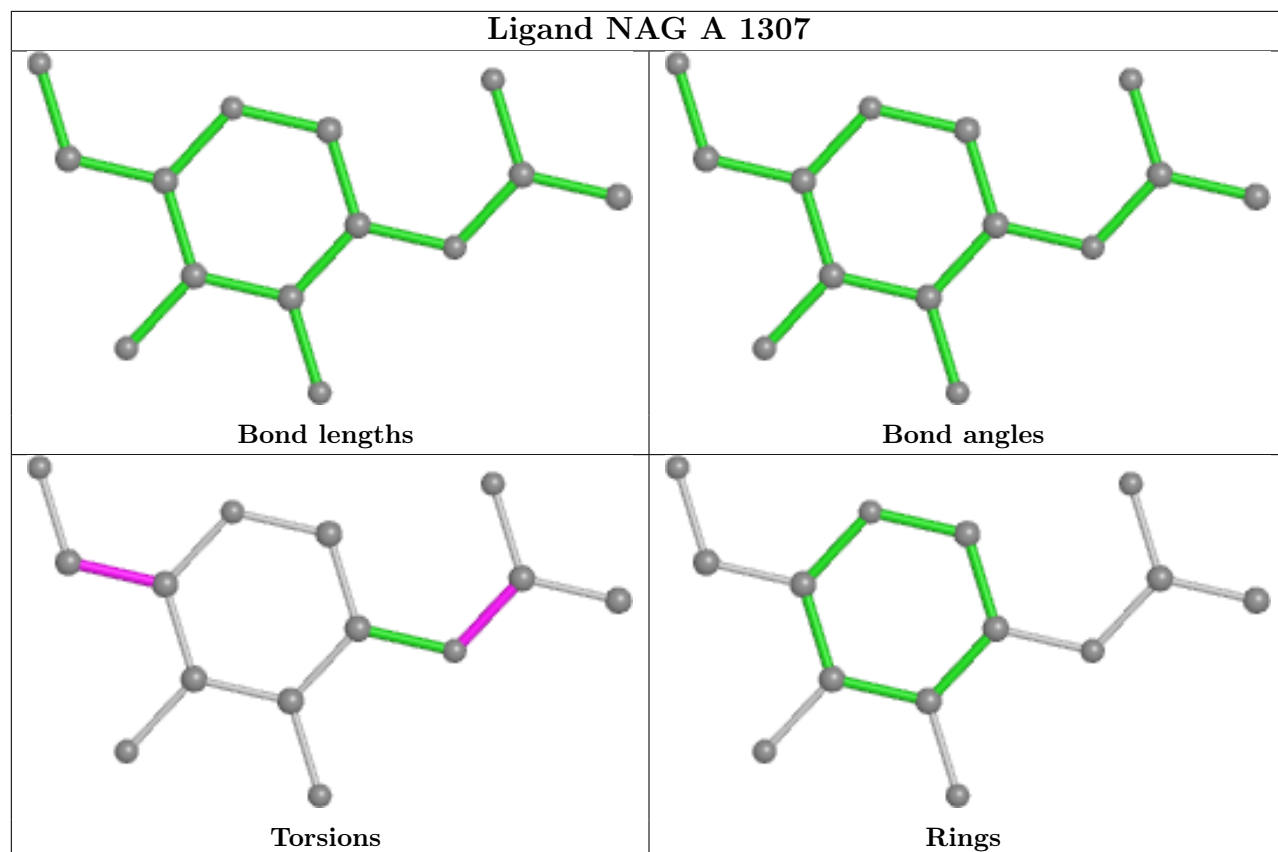
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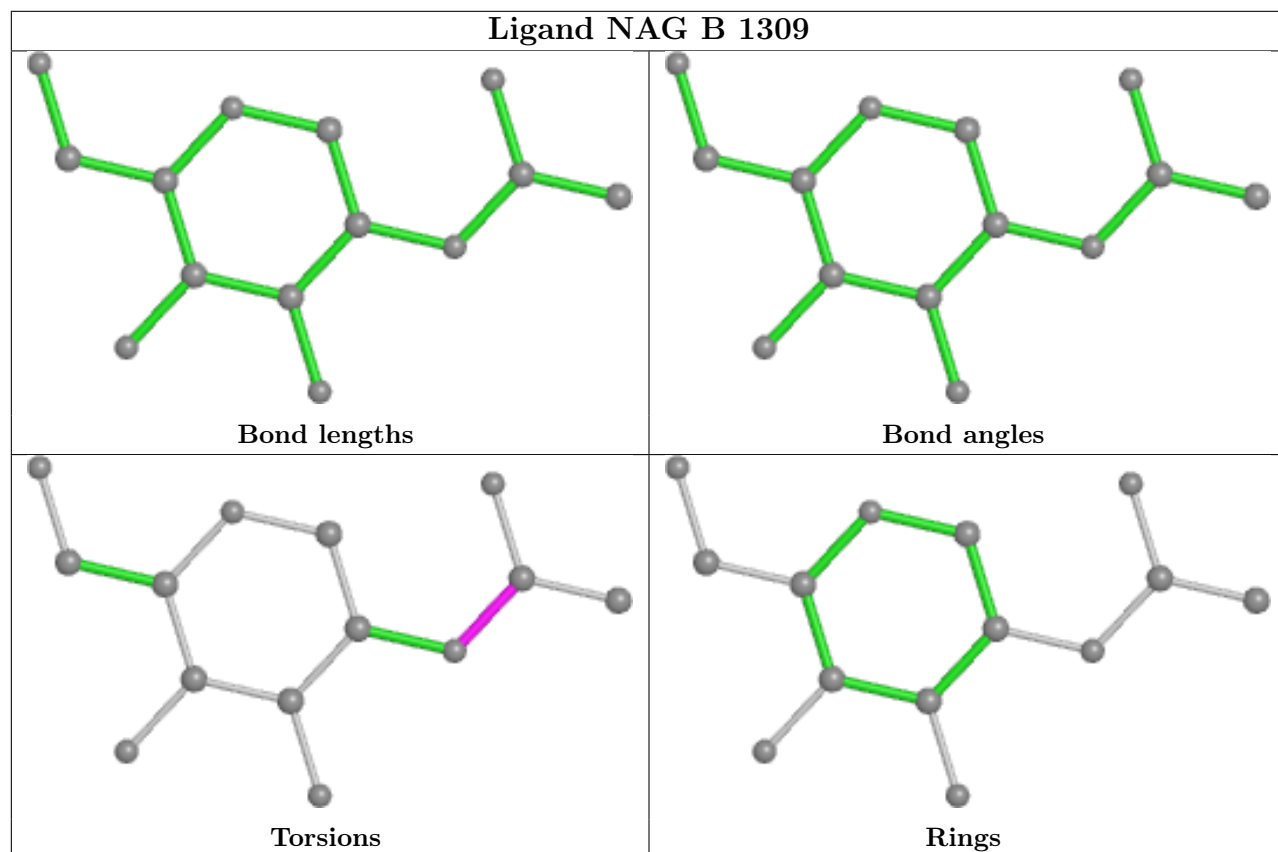
Ligand NAG C 1306

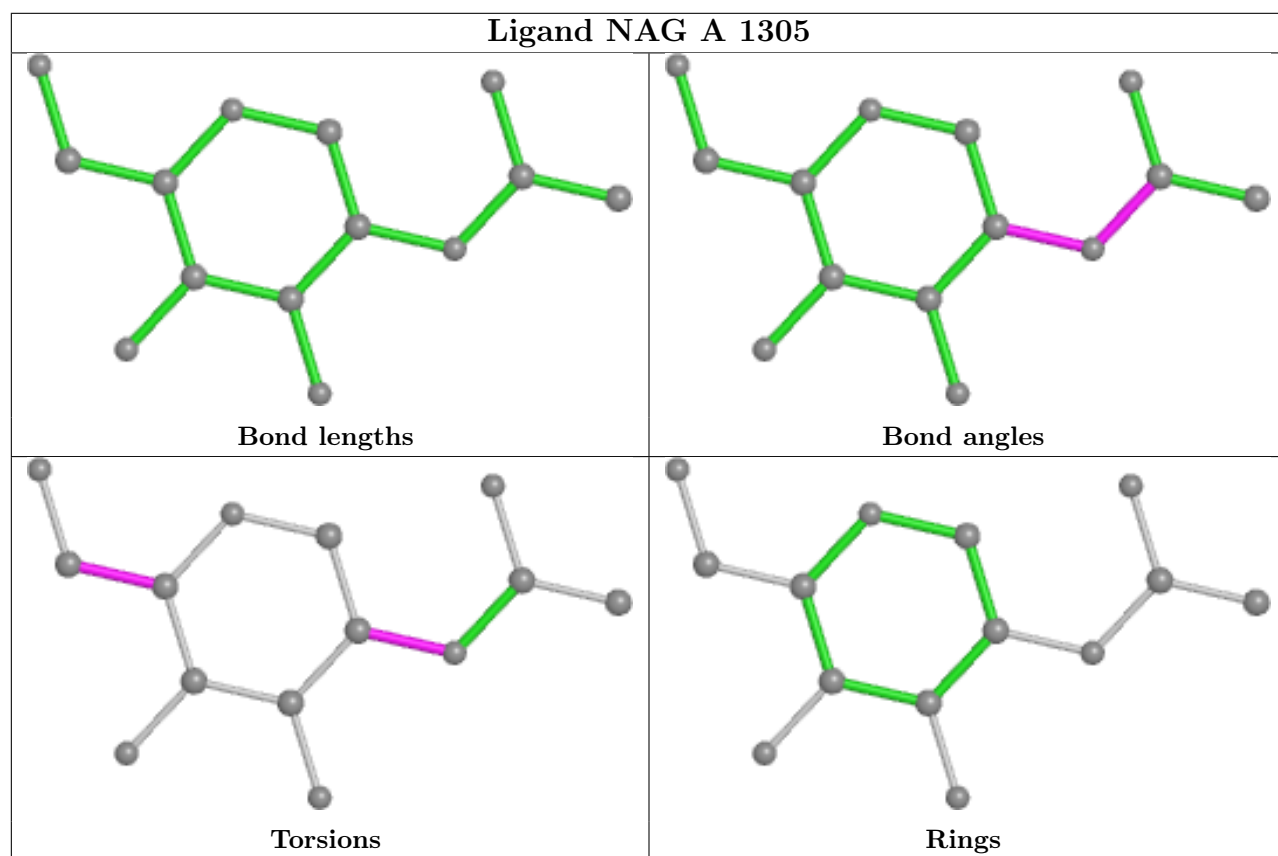
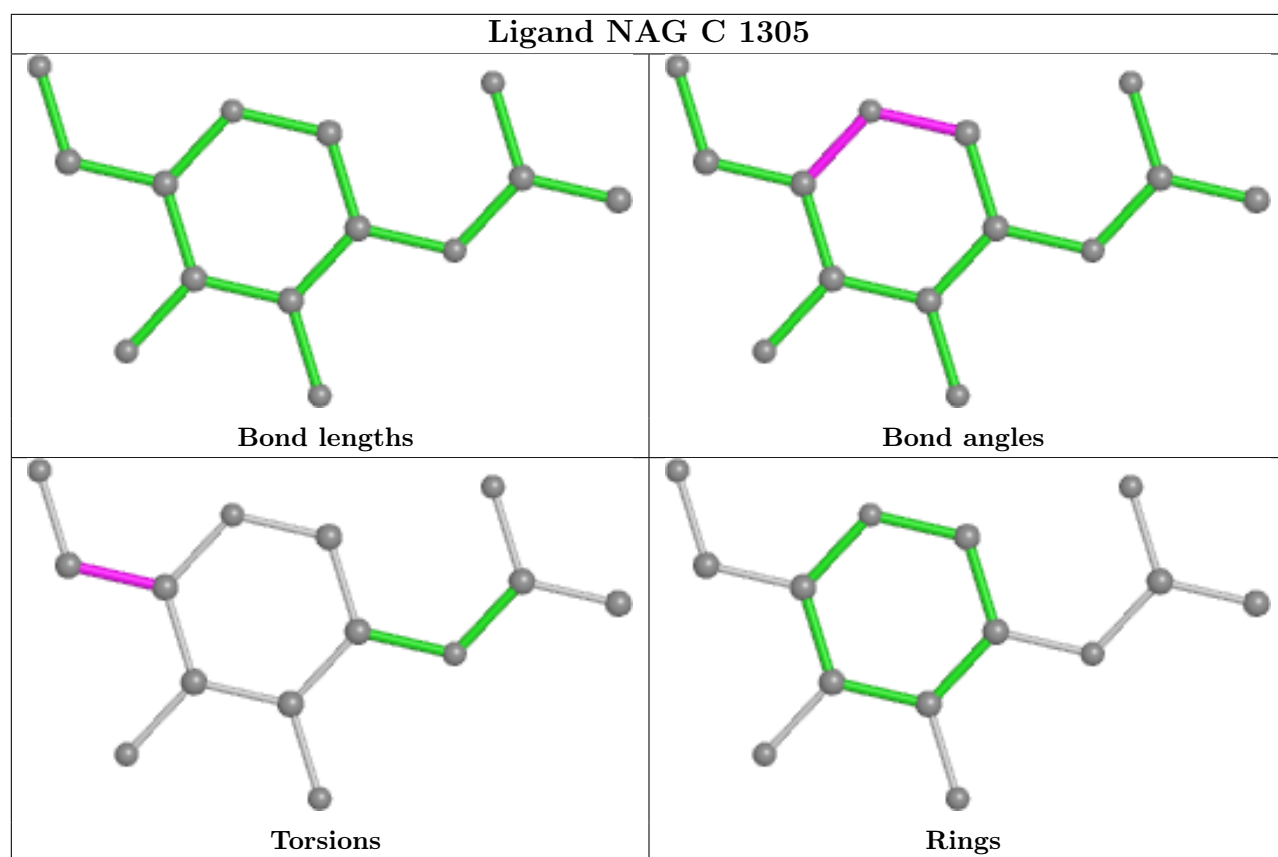


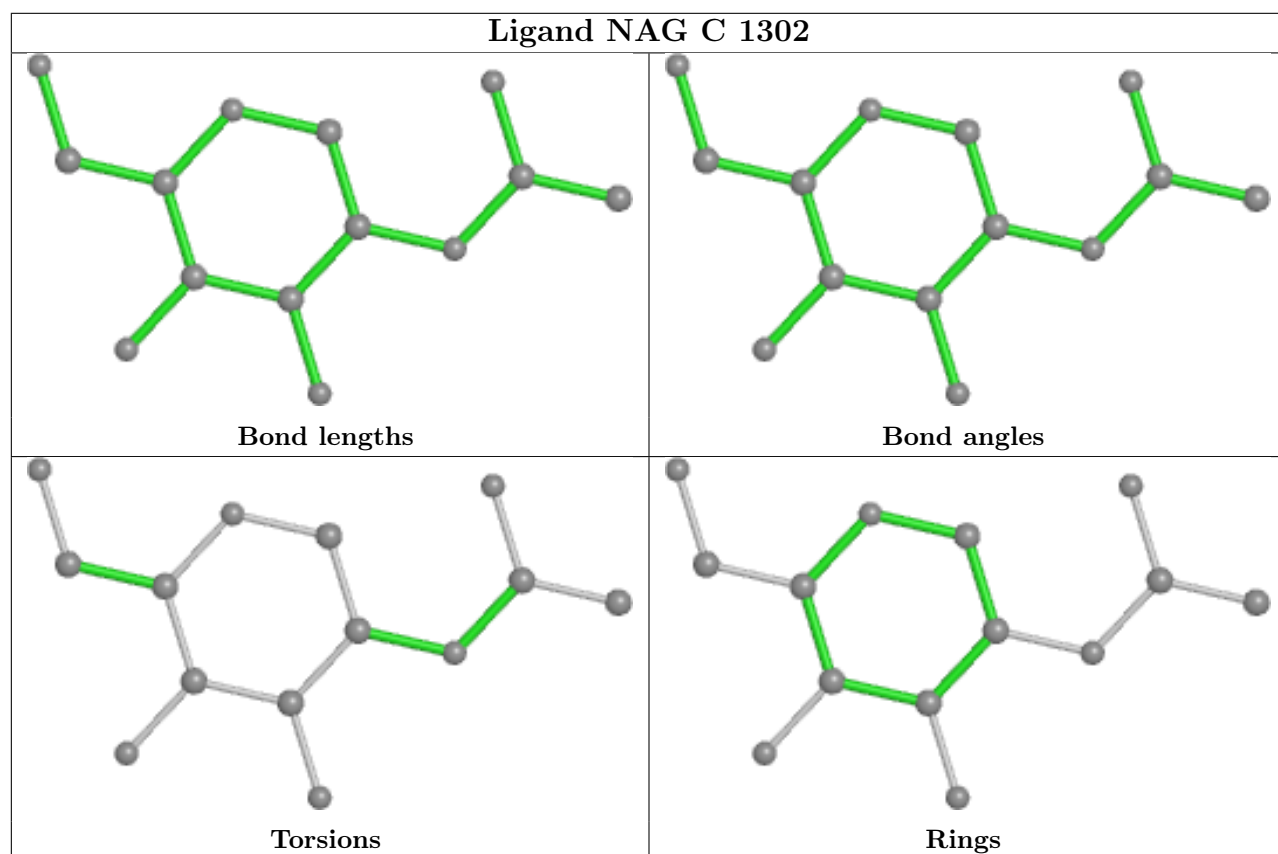
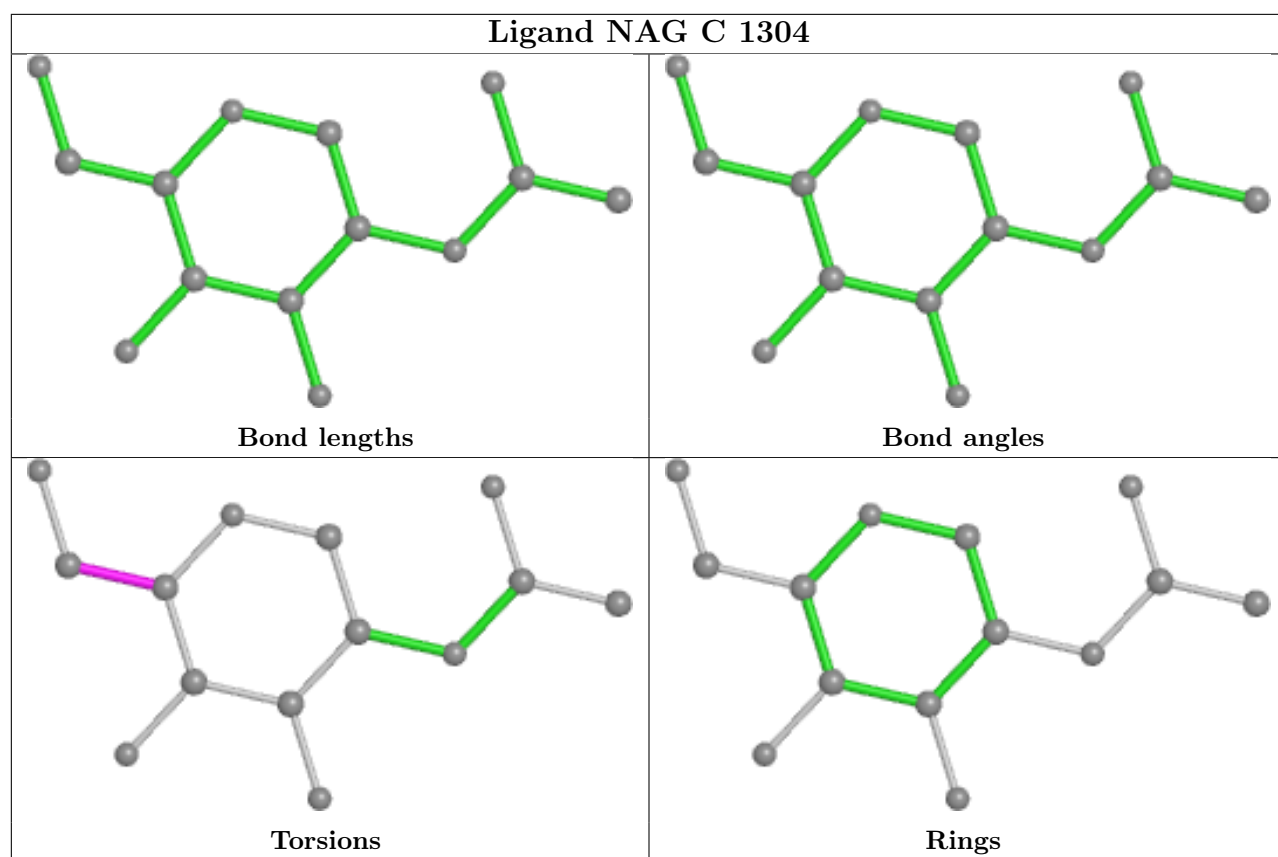
Ligand NAG A 1307

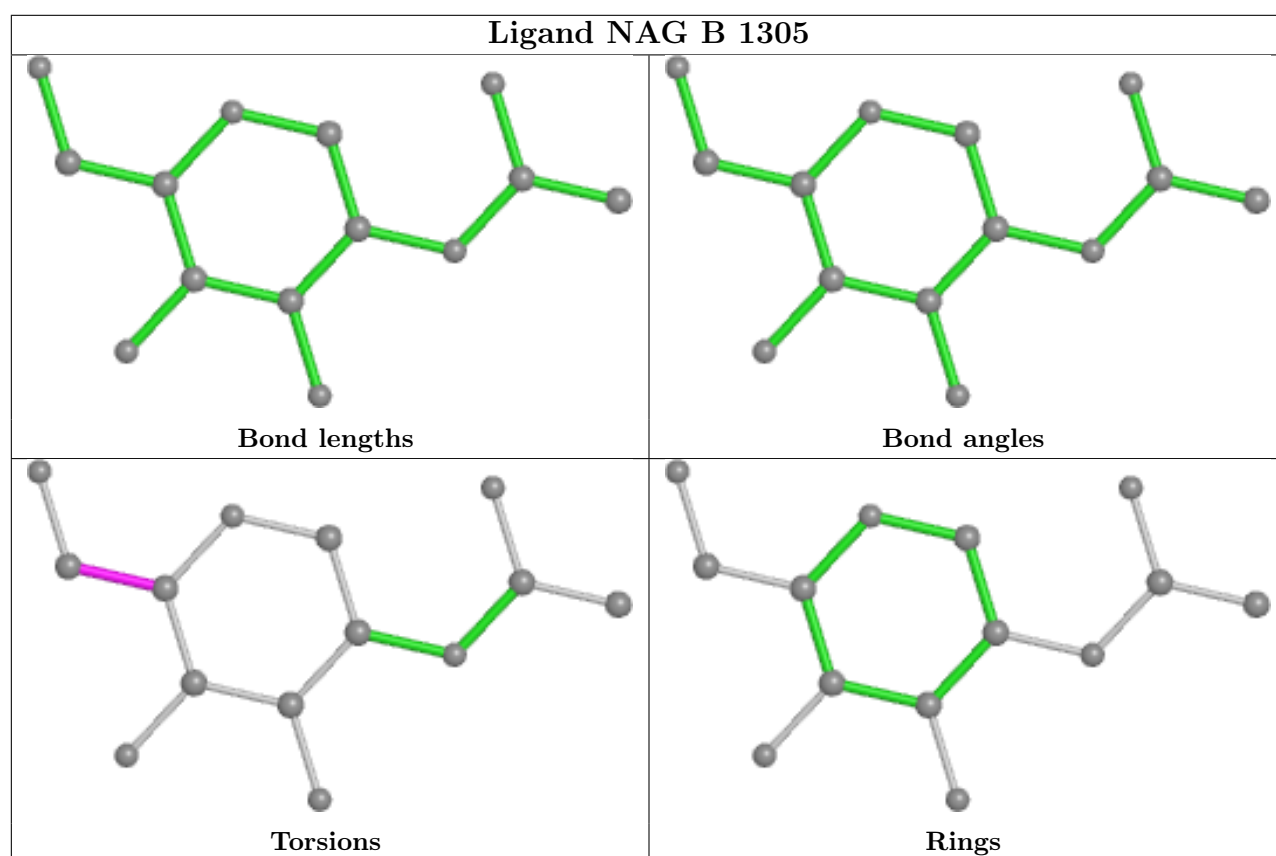
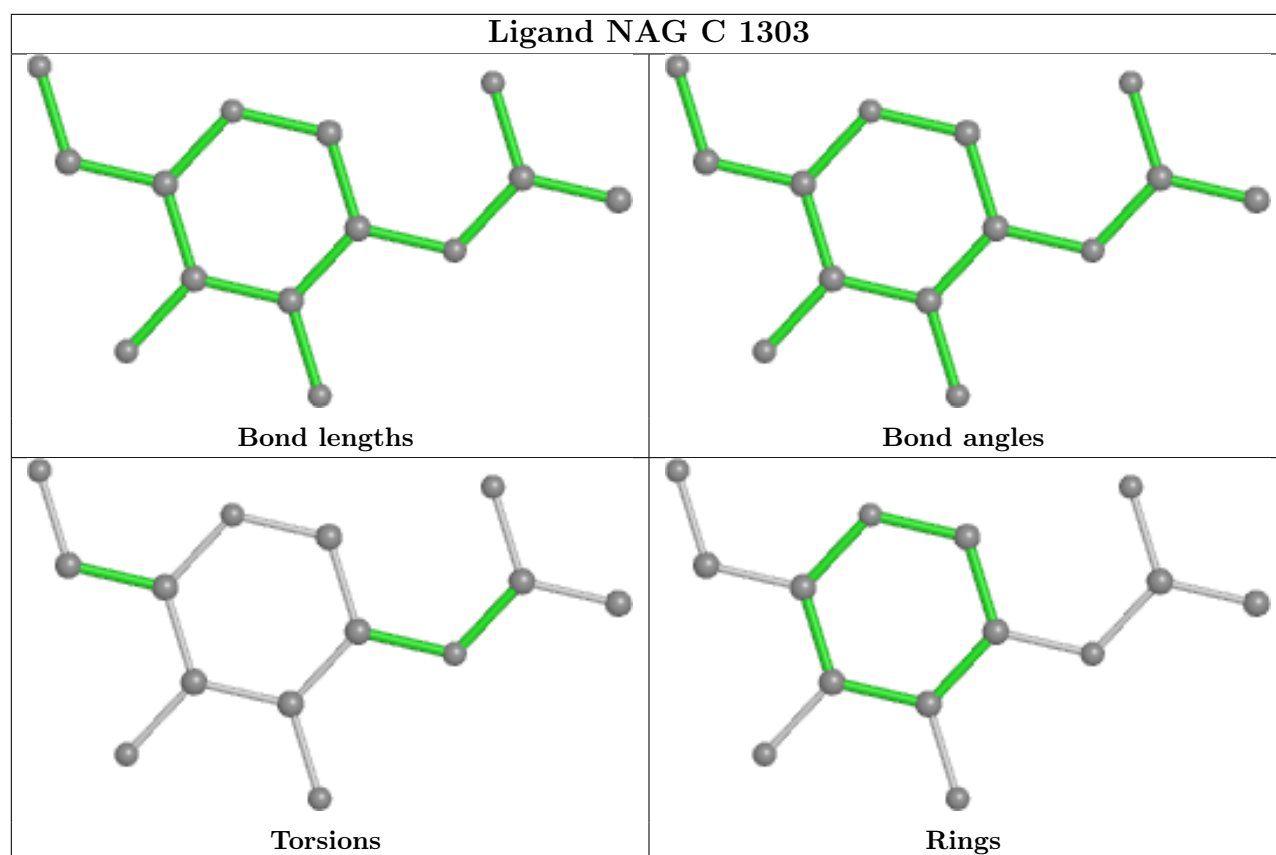


Ligand NAG B 1309

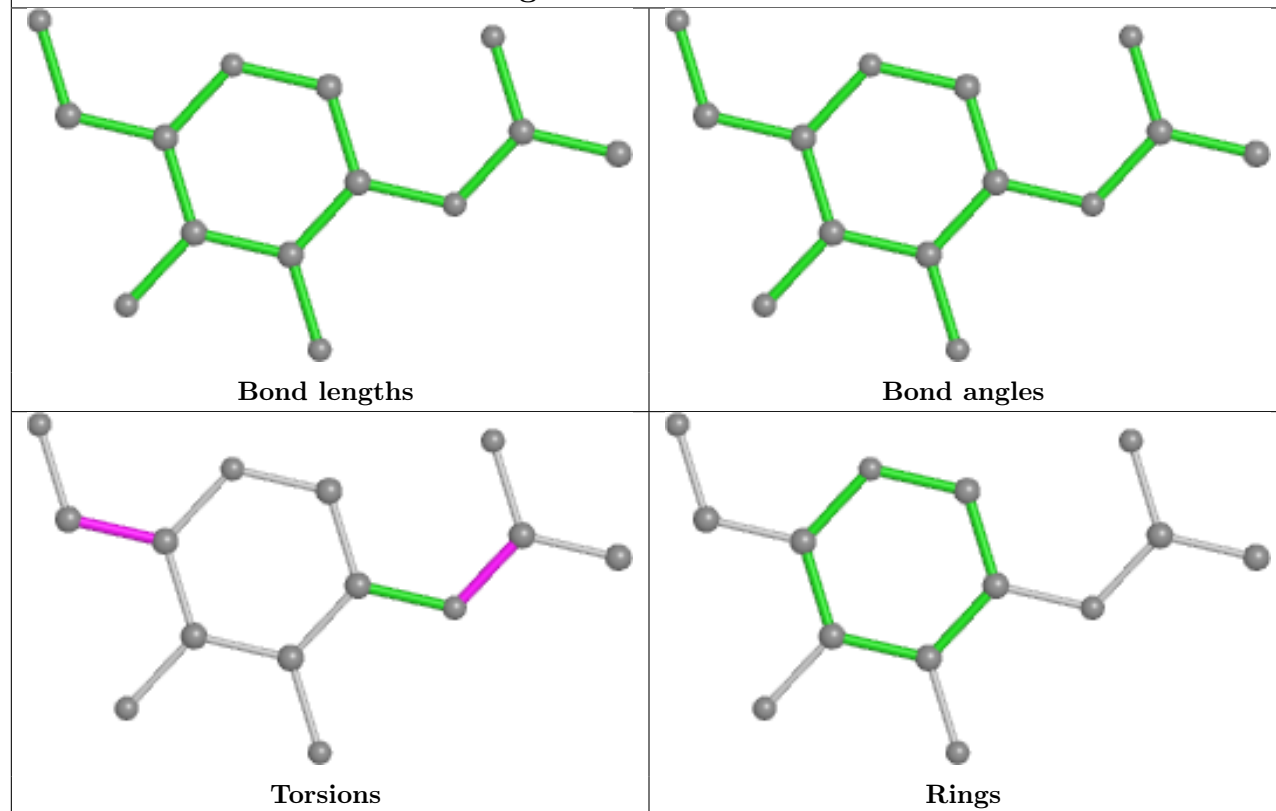




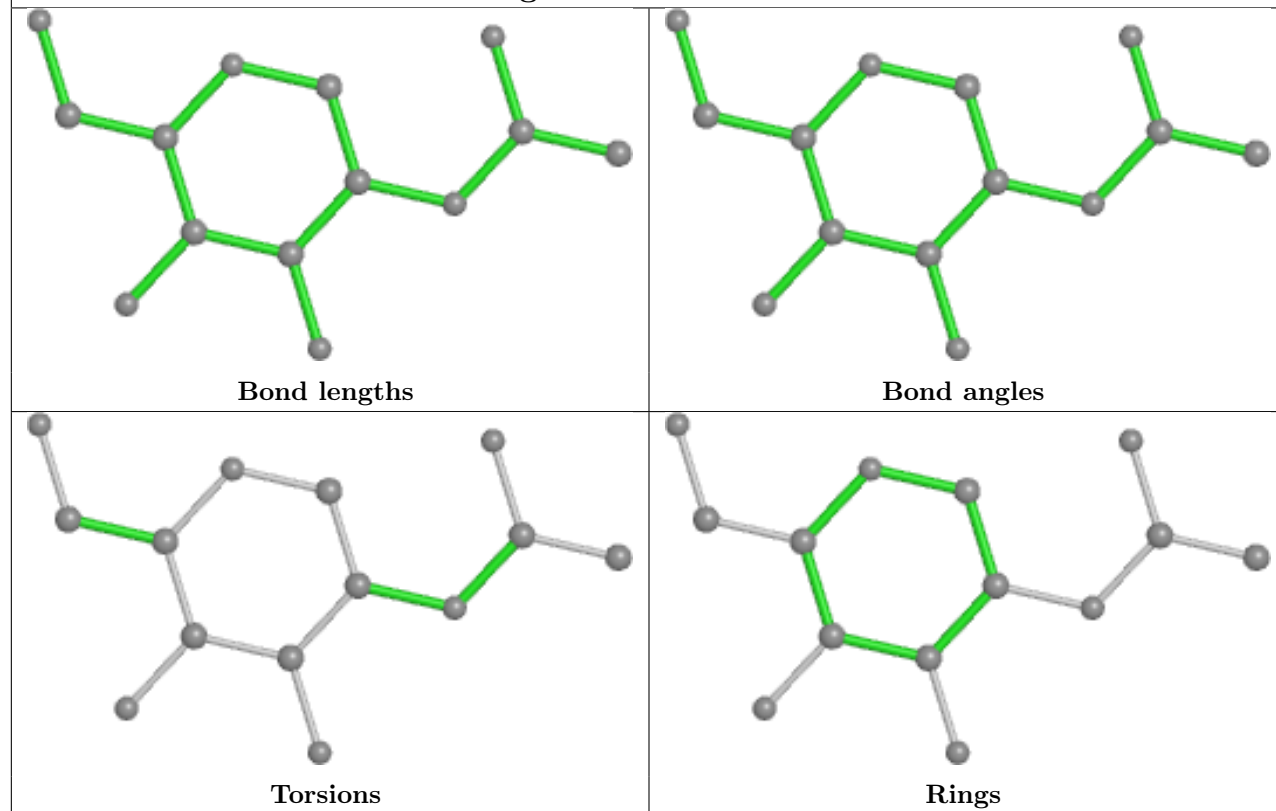




Ligand NAG C 1301



Ligand NAG B 1308



5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.