



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 5, 2023 – 04:35 AM EDT

PDB ID : 6V6W
Title : Crystal structure of antibody 438-B11 DSS mutant (Cys98A-100aA) in complex with an uncleaved prefusion optimized (UFO) soluble BG505 trimer and Fab 35O22
Authors : Kumar, S.; Wilson, I.A.
Deposited on : 2019-12-06
Resolution : 6.50 Å(reported)

This is a Full wwPDB X-ray Structure 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/XrayValidationReportHelp>

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:

MolProbity : **FAILED**
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : **FAILED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35.1

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 6.50 Å.

There are no overall percentile quality scores available for this entry.

MolProbity and EDS failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 23434 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 35O22 Fab Heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	D	240	Total 1813	C 1150	N 303	O 352	S 8	0	0	0
1	A	240	Total 1813	C 1150	N 303	O 352	S 8	0	0	0

- Molecule 2 is a protein called 35O22 Fab Light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	E	213	Total 1615	C 1012	N 267	O 328	S 8	0	0	0
2	B	213	Total 1615	C 1012	N 267	O 328	S 8	0	0	0

- Molecule 3 is a protein called Envelope glycoprotein gp120.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	G	453	Total 3563	C 2234	N 630	O 671	S 28	0	0	0
3	C	453	Total 3563	C 2234	N 630	O 671	S 28	0	0	0

There are 28 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	62	ASP	GLU	conflict	UNP Q2N0S6
G	332	ASN	THR	conflict	UNP Q2N0S6
G	501	CYS	ALA	conflict	UNP Q2N0S6
G	507	GLY	-	expression tag	UNP Q2N0S6
G	508	GLY	-	expression tag	UNP Q2N0S6
G	509	GLY	-	expression tag	UNP Q2N0S6
G	510	GLY	-	expression tag	UNP Q2N0S6
G	511	GLY	-	expression tag	UNP Q2N0S6

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Chain	Residue	Modelled	Actual	Comment	Reference
G	512	SER	-	expression tag	UNP Q2N0S6
G	513	GLY	-	expression tag	UNP Q2N0S6
G	514	GLY	-	expression tag	UNP Q2N0S6
G	515	GLY	-	expression tag	UNP Q2N0S6
G	516	GLY	-	expression tag	UNP Q2N0S6
G	517	SER	-	expression tag	UNP Q2N0S6
C	62	ASP	GLU	conflict	UNP Q2N0S6
C	332	ASN	THR	conflict	UNP Q2N0S6
C	501	CYS	ALA	conflict	UNP Q2N0S6
C	507	GLY	-	expression tag	UNP Q2N0S6
C	508	GLY	-	expression tag	UNP Q2N0S6
C	509	GLY	-	expression tag	UNP Q2N0S6
C	510	GLY	-	expression tag	UNP Q2N0S6
C	511	GLY	-	expression tag	UNP Q2N0S6
C	512	SER	-	expression tag	UNP Q2N0S6
C	513	GLY	-	expression tag	UNP Q2N0S6
C	514	GLY	-	expression tag	UNP Q2N0S6
C	515	GLY	-	expression tag	UNP Q2N0S6
C	516	GLY	-	expression tag	UNP Q2N0S6
C	517	SER	-	expression tag	UNP Q2N0S6

- Molecule 4 is a protein called B11 DSS Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	I	226	Total	C	N	O	S	0	0	0
			1716	1091	291	328	6			
4	F	226	Total	C	N	O	S	0	0	0
			1716	1091	291	328	6			

- Molecule 5 is a protein called B11 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	J	213	Total	C	N	O	S	0	0	0
			1634	1022	281	327	4			
5	H	213	Total	C	N	O	S	0	0	0
			1634	1022	281	327	4			

- Molecule 6 is a protein called Envelope glycoprotein gp41.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	T	134	Total	C	N	O	S	0	0	0
			1069	677	182	203	7			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	K	134	1069	677	182	203	7	0	0	0

There are 42 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
T	?	-	ILE	deletion	UNP Q2N0S9
T	?	-	VAL	deletion	UNP Q2N0S9
T	?	-	GLN	deletion	UNP Q2N0S9
T	?	-	GLN	deletion	UNP Q2N0S9
T	?	-	GLN	deletion	UNP Q2N0S9
T	?	-	SER	deletion	UNP Q2N0S9
T	?	-	ASN	deletion	UNP Q2N0S9
T	?	-	LEU	deletion	UNP Q2N0S9
T	?	-	LEU	deletion	UNP Q2N0S9
T	?	-	ARG	deletion	UNP Q2N0S9
T	?	-	ALA	deletion	UNP Q2N0S9
T	?	-	ILE	deletion	UNP Q2N0S9
T	?	-	GLU	deletion	UNP Q2N0S9
T	547A	ASN	ALA	conflict	UNP Q2N0S9
T	547B	PRO	GLN	conflict	UNP Q2N0S9
T	547C	ASP	GLN	conflict	UNP Q2N0S9
T	547D	TRP	HIS	conflict	UNP Q2N0S9
T	547F	PRO	LEU	conflict	UNP Q2N0S9
T	547G	ASP	LYS	conflict	UNP Q2N0S9
T	547H	MET	LEU	conflict	UNP Q2N0S9
T	605	CYS	THR	conflict	UNP Q2N0S9
K	?	-	ILE	deletion	UNP Q2N0S9
K	?	-	VAL	deletion	UNP Q2N0S9
K	?	-	GLN	deletion	UNP Q2N0S9
K	?	-	GLN	deletion	UNP Q2N0S9
K	?	-	GLN	deletion	UNP Q2N0S9
K	?	-	SER	deletion	UNP Q2N0S9
K	?	-	ASN	deletion	UNP Q2N0S9
K	?	-	LEU	deletion	UNP Q2N0S9
K	?	-	LEU	deletion	UNP Q2N0S9
K	?	-	ARG	deletion	UNP Q2N0S9
K	?	-	ALA	deletion	UNP Q2N0S9
K	?	-	ILE	deletion	UNP Q2N0S9
K	?	-	GLU	deletion	UNP Q2N0S9
K	547A	ASN	ALA	conflict	UNP Q2N0S9
K	547B	PRO	GLN	conflict	UNP Q2N0S9

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Chain	Residue	Modelled	Actual	Comment	Reference
K	547C	ASP	GLN	conflict	UNP Q2N0S9
K	547D	TRP	HIS	conflict	UNP Q2N0S9
K	547F	PRO	LEU	conflict	UNP Q2N0S9
K	547G	ASP	LYS	conflict	UNP Q2N0S9
K	547H	MET	LEU	conflict	UNP Q2N0S9
K	605	CYS	THR	conflict	UNP Q2N0S9

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
7	L	4	Total	C	N	O	0	0	0
			50	28	2	20			
7	O	4	Total	C	N	O	0	0	0
			50	28	2	20			

- Molecule 8 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
8	M	2	Total	C	N	O	0	0	0
			28	16	2	10			
8	P	2	Total	C	N	O	0	0	0
			28	16	2	10			

- Molecule 9 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
9	N	5	Total	C	N	O	0	0	0
			61	34	2	25			
9	Q	5	Total	C	N	O	0	0	0
			61	34	2	25			

- Molecule 10 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
10	G	1	Total	C	N	O	0	0
			14	8	1	5		
10	G	1	Total	C	N	O	0	0
			14	8	1	5		
10	G	1	Total	C	N	O	0	0
			14	8	1	5		
10	G	1	Total	C	N	O	0	0
			14	8	1	5		
10	G	1	Total	C	N	O	0	0
			14	8	1	5		
10	G	1	Total	C	N	O	0	0
			14	8	1	5		
10	G	1	Total	C	N	O	0	0
			14	8	1	5		
10	T	1	Total	C	N	O	0	0
			14	8	1	5		
10	T	1	Total	C	N	O	0	0
			14	8	1	5		
10	T	1	Total	C	N	O	0	0
			14	8	1	5		
10	C	1	Total	C	N	O	0	0
			14	8	1	5		
10	C	1	Total	C	N	O	0	0
			14	8	1	5		

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

MolProbity and EDS failed to run properly - this section is therefore empty.

3 Data and refinement statistics i

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α , β , γ	148.53Å 148.53Å 843.55Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	46.72 – 6.50	Depositor
% Data completeness (in resolution range)	97.2 (46.72-6.50)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.82 (at 6.67Å)	Xtrriage
Refinement program	PHENIX 1.16_3549	Depositor
R, R_{free}	0.309 , 0.355	Depositor
Wilson B-factor (Å ²)	233.9	Xtrriage
Anisotropy	0.538	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.43$, $\langle L^2 \rangle = 0.26$	Xtrriage
Estimated twinning fraction	0.359 for -h-k,k,-l	Xtrriage
Total number of atoms	23434	wwPDB-VP
Average B, all atoms (Å ²)	279.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.35% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

4 Model quality [i](#)

4.1 Standard geometry [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles [i](#)

4.3.1 Protein backbone [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

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

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

4.5 Carbohydrates [i](#)

22 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
7	NAG	L	1	3,7	14,14,15	0.21	0	17,19,21	0.51	0
7	NAG	L	2	7	14,14,15	0.20	0	17,19,21	0.38	0
7	BMA	L	3	7	11,11,12	0.81	0	15,15,17	0.78	0
7	MAN	L	4	7	11,11,12	0.94	0	15,15,17	1.11	1 (6%)
8	NAG	M	1	3,8	14,14,15	0.27	0	17,19,21	0.50	0
8	NAG	M	2	8	14,14,15	0.24	0	17,19,21	0.45	0
9	NAG	N	1	3,9	14,14,15	0.21	0	17,19,21	0.49	0
9	NAG	N	2	9	14,14,15	0.40	0	17,19,21	1.29	2 (11%)
9	BMA	N	3	9	11,11,12	0.73	0	15,15,17	0.77	0
9	MAN	N	4	9	11,11,12	0.74	0	15,15,17	1.04	2 (13%)
9	MAN	N	5	9	11,11,12	0.71	0	15,15,17	1.08	2 (13%)
7	NAG	O	1	3,7	14,14,15	0.22	0	17,19,21	0.48	0
7	NAG	O	2	7	14,14,15	0.19	0	17,19,21	0.38	0
7	BMA	O	3	7	11,11,12	0.78	0	15,15,17	0.79	0
7	MAN	O	4	7	11,11,12	0.94	0	15,15,17	1.10	1 (6%)
8	NAG	P	1	3,8	14,14,15	0.26	0	17,19,21	0.49	0
8	NAG	P	2	8	14,14,15	0.24	0	17,19,21	0.42	0
9	NAG	Q	1	3,9	14,14,15	0.21	0	17,19,21	0.52	0
9	NAG	Q	2	9	14,14,15	0.40	0	17,19,21	1.29	2 (11%)
9	BMA	Q	3	9	11,11,12	0.76	0	15,15,17	0.78	0
9	MAN	Q	4	9	11,11,12	0.73	0	15,15,17	1.06	2 (13%)
9	MAN	Q	5	9	11,11,12	0.74	0	15,15,17	1.10	2 (13%)

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
7	NAG	L	1	3,7	-	2/6/23/26	0/1/1/1
7	NAG	L	2	7	-	0/6/23/26	0/1/1/1
7	BMA	L	3	7	-	0/2/19/22	0/1/1/1
7	MAN	L	4	7	-	2/2/19/22	0/1/1/1
8	NAG	M	1	3,8	-	2/6/23/26	0/1/1/1
8	NAG	M	2	8	-	0/6/23/26	0/1/1/1
9	NAG	N	1	3,9	-	0/6/23/26	0/1/1/1
9	NAG	N	2	9	-	4/6/23/26	0/1/1/1
9	BMA	N	3	9	-	1/2/19/22	0/1/1/1
9	MAN	N	4	9	-	2/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	MAN	N	5	9	-	2/2/19/22	0/1/1/1
7	NAG	O	1	3,7	-	2/6/23/26	0/1/1/1
7	NAG	O	2	7	-	0/6/23/26	0/1/1/1
7	BMA	O	3	7	-	0/2/19/22	0/1/1/1
7	MAN	O	4	7	-	2/2/19/22	0/1/1/1
8	NAG	P	1	3,8	-	2/6/23/26	0/1/1/1
8	NAG	P	2	8	-	0/6/23/26	0/1/1/1
9	NAG	Q	1	3,9	-	1/6/23/26	0/1/1/1
9	NAG	Q	2	9	-	5/6/23/26	0/1/1/1
9	BMA	Q	3	9	-	1/2/19/22	0/1/1/1
9	MAN	Q	4	9	-	2/2/19/22	0/1/1/1
9	MAN	Q	5	9	-	2/2/19/22	0/1/1/1

There are no bond length outliers.

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	Q	2	NAG	C2-N2-C7	4.42	129.20	122.90
9	N	2	NAG	C2-N2-C7	4.42	129.19	122.90
7	O	4	MAN	C1-O5-C5	2.70	115.86	112.19
7	L	4	MAN	C1-O5-C5	2.68	115.83	112.19
9	Q	4	MAN	O2-C2-C3	-2.39	105.35	110.14
9	Q	5	MAN	O2-C2-C3	-2.33	105.48	110.14
9	N	4	MAN	O2-C2-C3	-2.30	105.53	110.14
9	N	5	MAN	O2-C2-C3	-2.22	105.68	110.14
9	Q	5	MAN	C1-O5-C5	2.17	115.13	112.19
9	Q	4	MAN	C1-O5-C5	2.15	115.11	112.19
9	N	4	MAN	C1-O5-C5	2.14	115.09	112.19
9	N	5	MAN	C1-O5-C5	2.11	115.06	112.19
9	N	2	NAG	C1-C2-N2	2.03	113.96	110.49
9	Q	2	NAG	C1-C2-N2	2.02	113.93	110.49

There are no chirality outliers.

All (32) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	L	4	MAN	C4-C5-C6-O6
7	O	4	MAN	C4-C5-C6-O6
9	N	2	NAG	C8-C7-N2-C2

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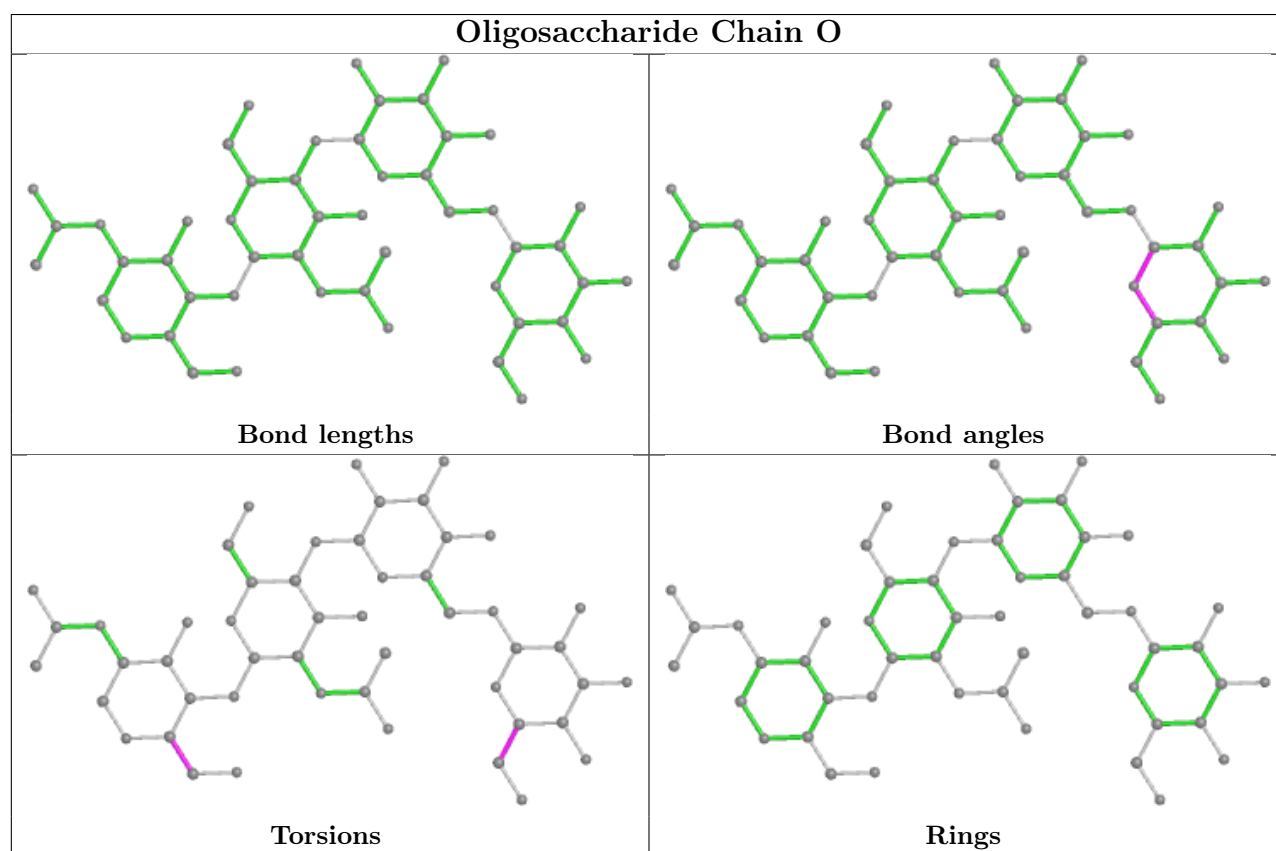
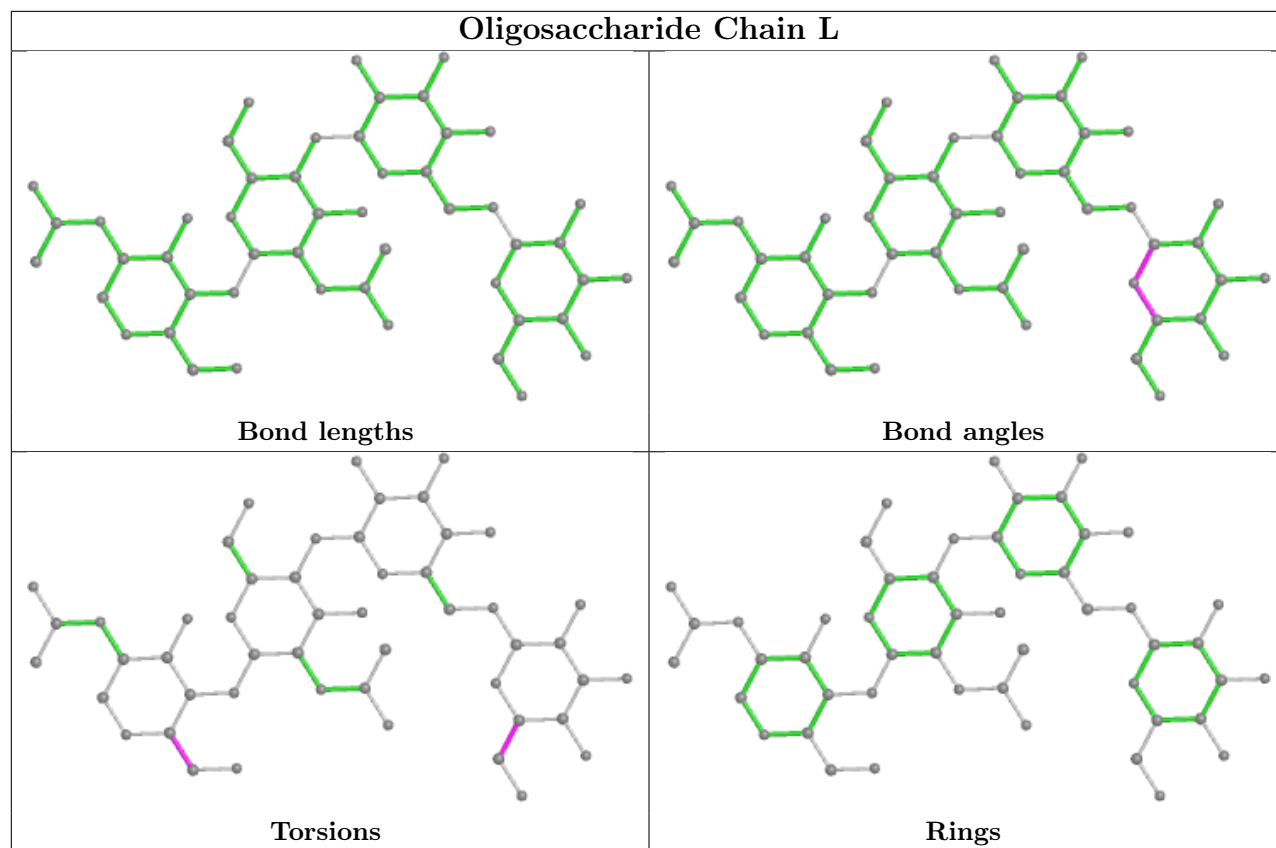
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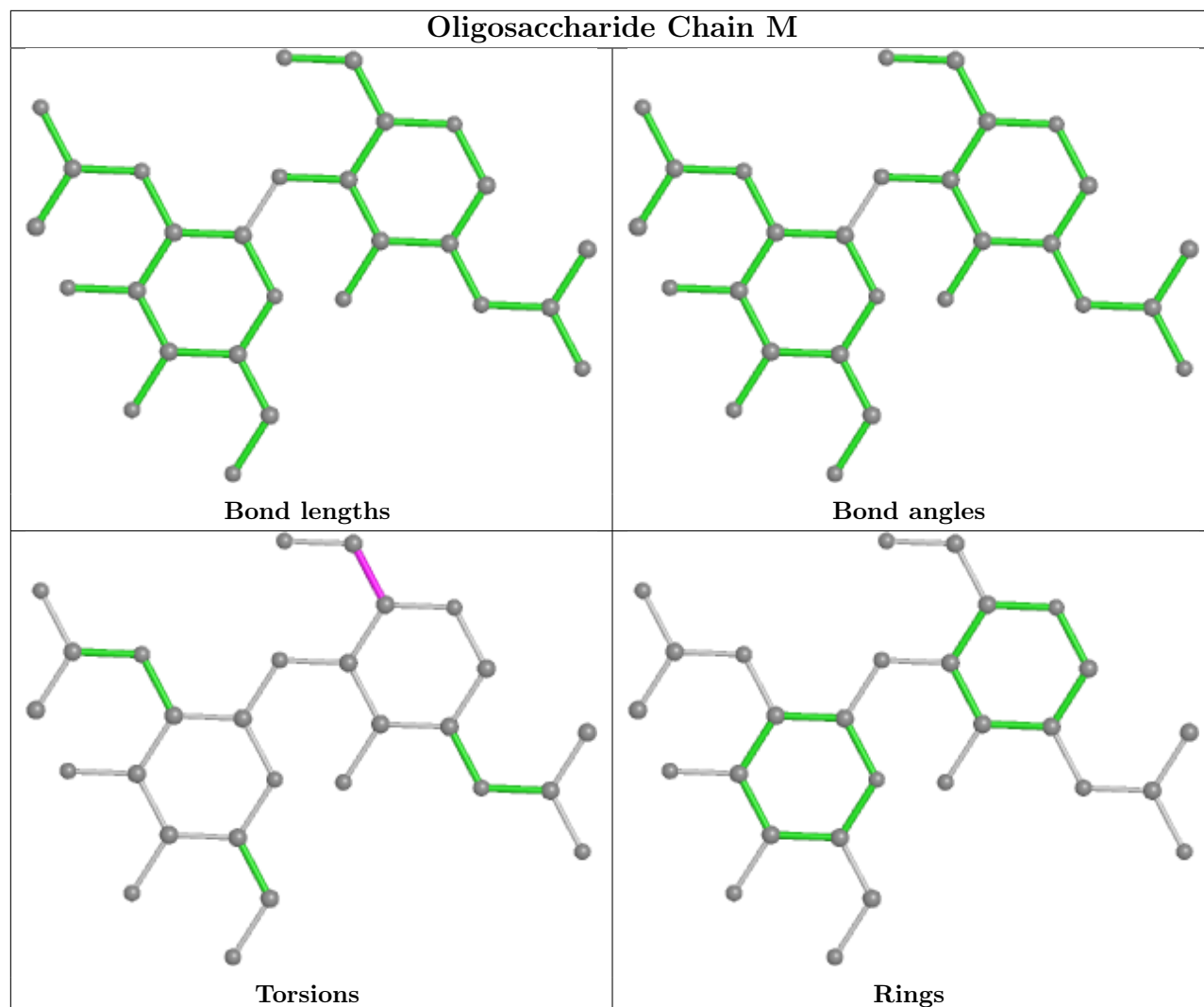
Mol	Chain	Res	Type	Atoms
9	N	2	NAG	O7-C7-N2-C2
9	Q	2	NAG	C8-C7-N2-C2
9	Q	2	NAG	O7-C7-N2-C2
9	N	4	MAN	O5-C5-C6-O6
9	Q	4	MAN	O5-C5-C6-O6
9	Q	2	NAG	O5-C5-C6-O6
7	L	4	MAN	O5-C5-C6-O6
7	O	4	MAN	O5-C5-C6-O6
9	N	3	BMA	O5-C5-C6-O6
9	Q	3	BMA	O5-C5-C6-O6
8	M	1	NAG	O5-C5-C6-O6
8	P	1	NAG	C4-C5-C6-O6
8	M	1	NAG	C4-C5-C6-O6
8	P	1	NAG	O5-C5-C6-O6
7	O	1	NAG	C4-C5-C6-O6
7	O	1	NAG	O5-C5-C6-O6
9	N	2	NAG	O5-C5-C6-O6
7	L	1	NAG	C4-C5-C6-O6
7	L	1	NAG	O5-C5-C6-O6
9	Q	4	MAN	C4-C5-C6-O6
9	N	4	MAN	C4-C5-C6-O6
9	Q	2	NAG	C4-C5-C6-O6
9	N	5	MAN	C4-C5-C6-O6
9	Q	5	MAN	C4-C5-C6-O6
9	Q	1	NAG	C4-C5-C6-O6
9	N	2	NAG	C3-C2-N2-C7
9	Q	2	NAG	C3-C2-N2-C7
9	N	5	MAN	O5-C5-C6-O6
9	Q	5	MAN	O5-C5-C6-O6

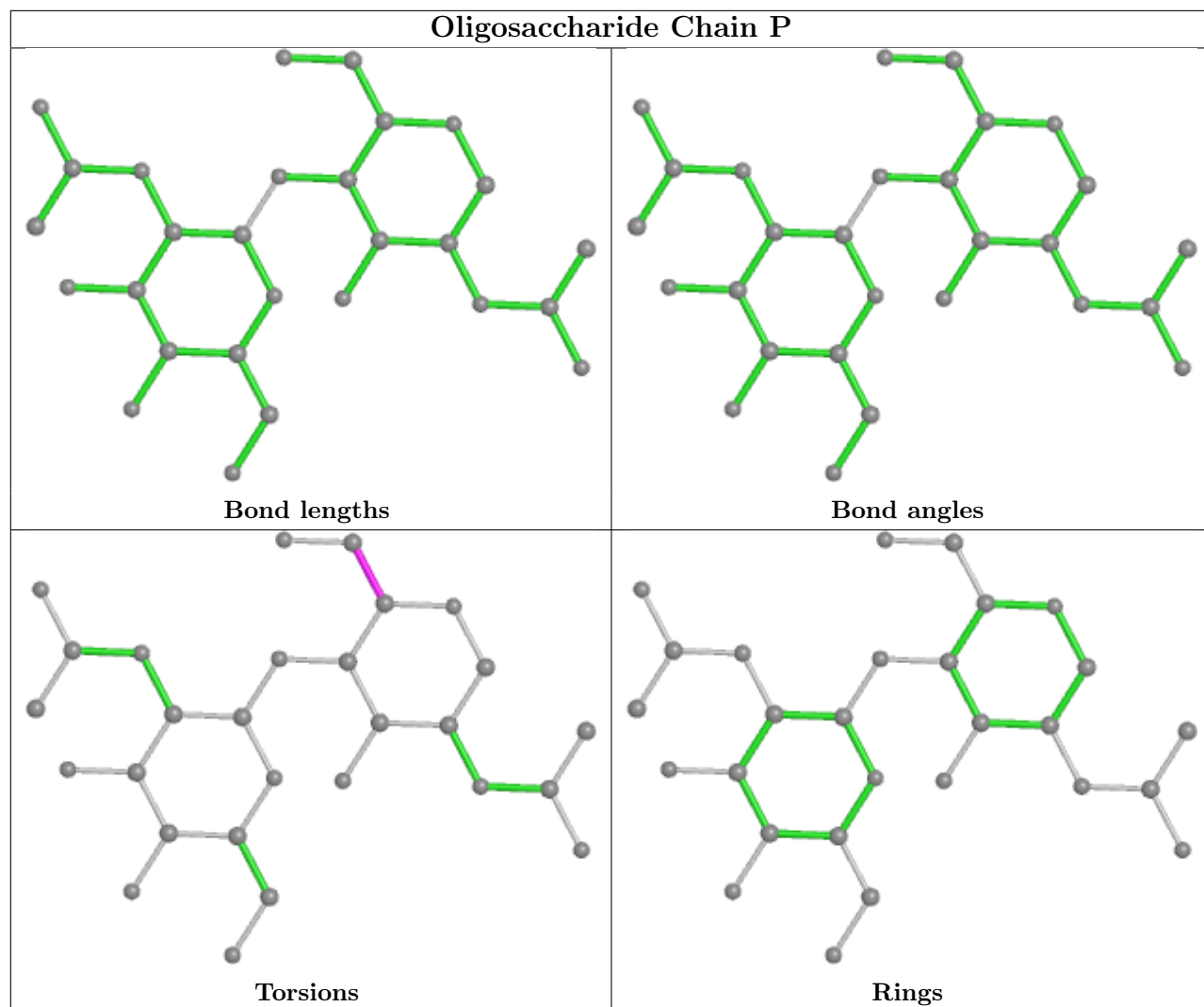
There are no ring outliers.

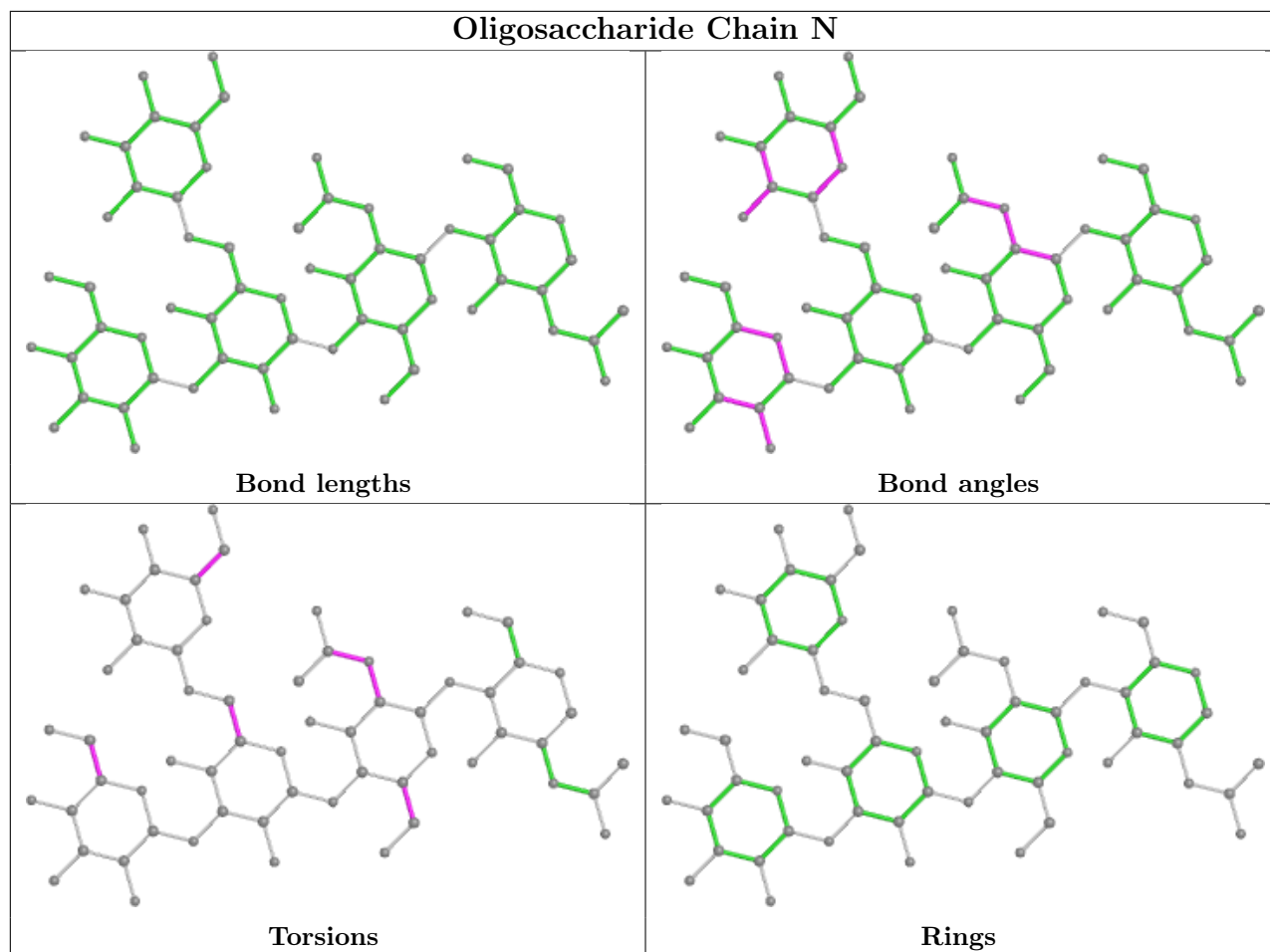
No monomer is involved in short contacts.

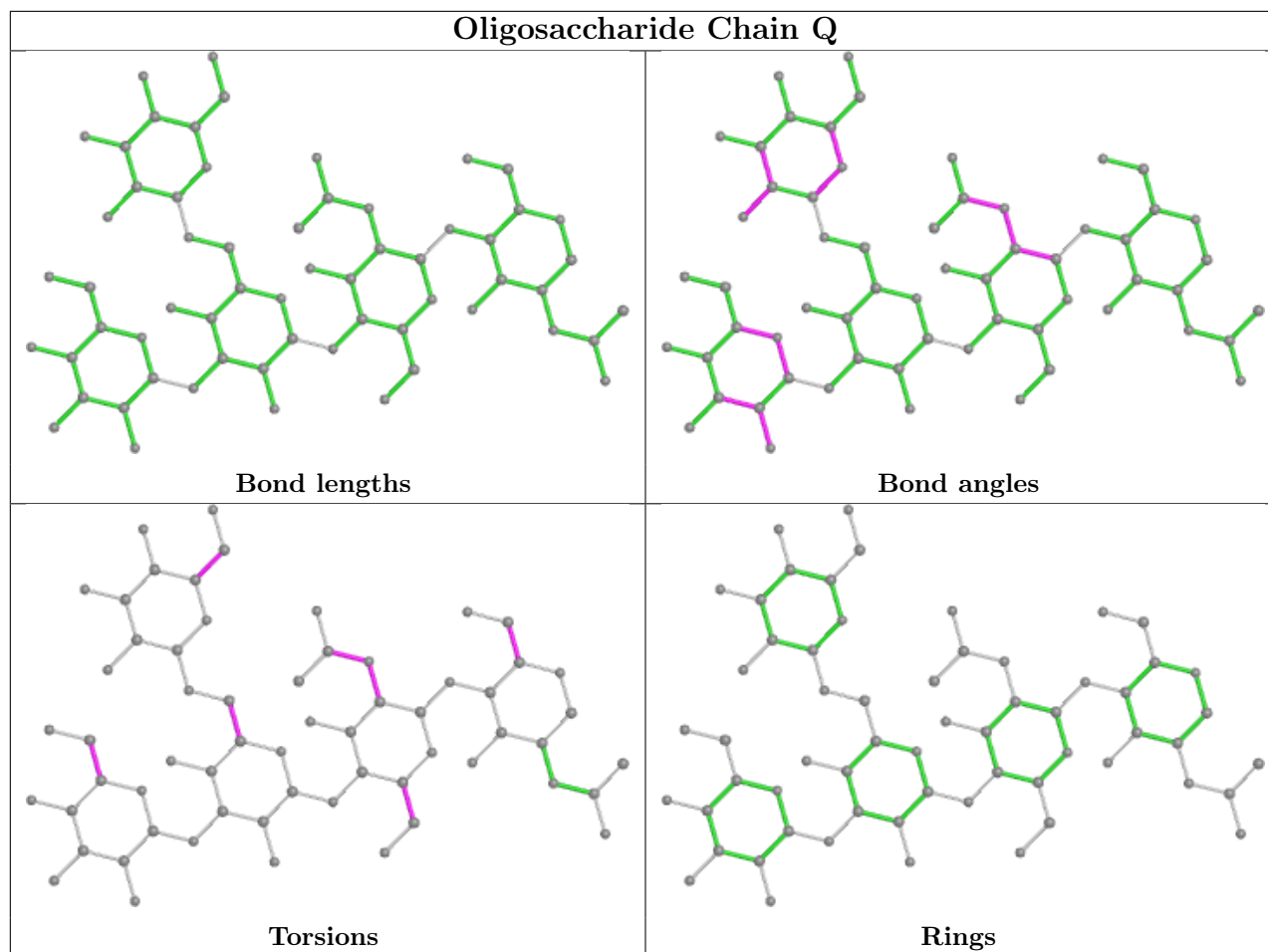
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.











4.6 Ligand geometry [i](#)

24 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	$\# Z > 2$
10	NAG	G	613	3	14,14,15	0.25	0	17,19,21	0.41	0
10	NAG	C	615	3	14,14,15	0.32	0	17,19,21	0.58	0
10	NAG	G	620	3	14,14,15	0.25	0	17,19,21	0.42	0
10	NAG	C	613	3	14,14,15	0.27	0	17,19,21	0.39	0
10	NAG	C	618	3	14,14,15	0.48	0	17,19,21	0.55	0
10	NAG	C	619	3	14,14,15	0.33	0	17,19,21	0.57	0
10	NAG	G	616	3	14,14,15	0.30	0	17,19,21	0.57	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	NAG	G	614	3	14,14,15	0.24	0	17,19,21	0.47	0
10	NAG	K	703	6	14,14,15	0.40	0	17,19,21	0.56	0
10	NAG	T	701	6	14,14,15	0.25	0	17,19,21	0.45	0
10	NAG	G	618	3	14,14,15	0.52	0	17,19,21	0.54	0
10	NAG	G	617	3	14,14,15	0.33	0	17,19,21	0.51	0
10	NAG	C	616	3	14,14,15	0.28	0	17,19,21	0.56	0
10	NAG	T	702	6	14,14,15	0.31	0	17,19,21	0.36	0
10	NAG	G	612	3	14,14,15	0.36	0	17,19,21	0.41	0
10	NAG	C	620	3	14,14,15	0.25	0	17,19,21	0.43	0
10	NAG	K	701	6	14,14,15	0.26	0	17,19,21	0.45	0
10	NAG	K	702	6	14,14,15	0.31	0	17,19,21	0.37	0
10	NAG	G	619	3	14,14,15	0.30	0	17,19,21	0.55	0
10	NAG	T	703	6	14,14,15	0.44	0	17,19,21	0.56	0
10	NAG	G	615	3	14,14,15	0.35	0	17,19,21	0.57	0
10	NAG	C	617	3	14,14,15	0.32	0	17,19,21	0.48	0
10	NAG	C	614	3	14,14,15	0.22	0	17,19,21	0.48	0
10	NAG	C	612	3	14,14,15	0.34	0	17,19,21	0.42	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	NAG	G	613	3	-	1/6/23/26	0/1/1/1
10	NAG	C	615	3	-	3/6/23/26	0/1/1/1
10	NAG	G	620	3	-	2/6/23/26	0/1/1/1
10	NAG	C	613	3	-	1/6/23/26	0/1/1/1
10	NAG	C	618	3	-	1/6/23/26	0/1/1/1
10	NAG	C	619	3	-	2/6/23/26	0/1/1/1
10	NAG	G	616	3	-	1/6/23/26	0/1/1/1
10	NAG	G	614	3	-	2/6/23/26	0/1/1/1
10	NAG	K	703	6	-	2/6/23/26	0/1/1/1
10	NAG	T	701	6	-	2/6/23/26	0/1/1/1
10	NAG	G	618	3	-	1/6/23/26	0/1/1/1
10	NAG	G	617	3	-	1/6/23/26	0/1/1/1
10	NAG	C	616	3	-	1/6/23/26	0/1/1/1
10	NAG	T	702	6	-	2/6/23/26	0/1/1/1
10	NAG	G	612	3	-	3/6/23/26	0/1/1/1
10	NAG	C	620	3	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	NAG	K	701	6	-	2/6/23/26	0/1/1/1
10	NAG	K	702	6	-	2/6/23/26	0/1/1/1
10	NAG	G	619	3	-	2/6/23/26	0/1/1/1
10	NAG	T	703	6	-	2/6/23/26	0/1/1/1
10	NAG	G	615	3	-	3/6/23/26	0/1/1/1
10	NAG	C	617	3	-	1/6/23/26	0/1/1/1
10	NAG	C	614	3	-	2/6/23/26	0/1/1/1
10	NAG	C	612	3	-	3/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (44) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	T	701	NAG	O5-C5-C6-O6
10	K	701	NAG	O5-C5-C6-O6
10	G	615	NAG	O5-C5-C6-O6
10	C	615	NAG	O5-C5-C6-O6
10	G	614	NAG	C4-C5-C6-O6
10	C	614	NAG	C4-C5-C6-O6
10	G	615	NAG	C4-C5-C6-O6
10	C	615	NAG	C4-C5-C6-O6
10	G	612	NAG	C8-C7-N2-C2
10	G	612	NAG	O7-C7-N2-C2
10	G	620	NAG	C8-C7-N2-C2
10	G	620	NAG	O7-C7-N2-C2
10	C	612	NAG	C8-C7-N2-C2
10	C	612	NAG	O7-C7-N2-C2
10	C	620	NAG	C8-C7-N2-C2
10	C	620	NAG	O7-C7-N2-C2
10	T	703	NAG	O5-C5-C6-O6
10	T	701	NAG	C4-C5-C6-O6
10	K	701	NAG	C4-C5-C6-O6
10	T	703	NAG	C4-C5-C6-O6
10	C	614	NAG	O5-C5-C6-O6
10	G	614	NAG	O5-C5-C6-O6
10	K	703	NAG	O5-C5-C6-O6
10	K	703	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
10	T	702	NAG	C4-C5-C6-O6
10	T	702	NAG	O5-C5-C6-O6
10	G	619	NAG	O5-C5-C6-O6
10	C	619	NAG	O5-C5-C6-O6
10	K	702	NAG	C4-C5-C6-O6
10	G	612	NAG	O5-C5-C6-O6
10	K	702	NAG	O5-C5-C6-O6
10	C	612	NAG	O5-C5-C6-O6
10	G	615	NAG	C3-C2-N2-C7
10	G	618	NAG	C3-C2-N2-C7
10	G	619	NAG	C3-C2-N2-C7
10	C	615	NAG	C3-C2-N2-C7
10	C	618	NAG	C3-C2-N2-C7
10	C	619	NAG	C3-C2-N2-C7
10	G	617	NAG	C1-C2-N2-C7
10	C	617	NAG	C1-C2-N2-C7
10	G	616	NAG	C3-C2-N2-C7
10	C	616	NAG	C3-C2-N2-C7
10	G	613	NAG	C4-C5-C6-O6
10	C	613	NAG	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

4.7 Other polymers [i](#)

There are no such residues in this entry.

4.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

5 Fit of model and data

5.1 Protein, DNA and RNA chains

EDS failed to run properly - this section is therefore empty.

5.2 Non-standard residues in protein, DNA, RNA chains

EDS failed to run properly - this section is therefore empty.

5.3 Carbohydrates

EDS failed to run properly - this section is therefore empty.

5.4 Ligands

EDS failed to run properly - this section is therefore empty.

5.5 Other polymers

EDS failed to run properly - this section is therefore empty.