



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 2, 2023 – 01:45 PM EDT

PDB ID : 6NIG
Title : Crystal structure of the human TLR2-Diprovocim complex
Authors : Zhang, H.; Beutler, B.A.; Tomchick, D.R.; Su, L.
Deposited on : 2018-12-27
Resolution : 2.35 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)
Xtrriage (Phenix) : 1.13
EDS : **FAILED**
buster-report : 1.1.7 (2018)
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 2.35 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 5 unique types of molecules in this entry. The entry contains 35983 atoms, of which 18046 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 Toll-like receptor 2, Variable lymphocyte receptor B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace	
			Total	C	H	N	O				S
1	A	546	8745	2755	4400	732	837	21	0	0	0
1	B	545	8716	2747	4385	727	836	21	0	0	0
1	C	549	8784	2766	4419	735	843	21	0	0	0
1	D	546	8750	2758	4402	731	838	21	0	2	0

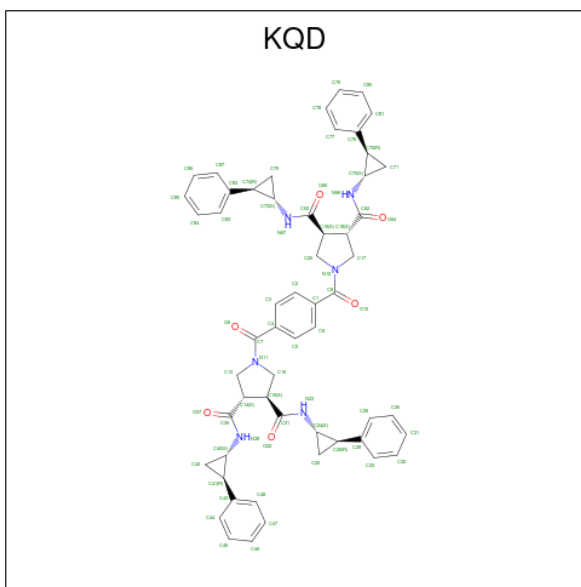
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	508	ARG	-	linker	UNP O60603
B	508	ARG	-	linker	UNP O60603
C	508	ARG	-	linker	UNP O60603
D	508	ARG	-	linker	UNP O60603

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

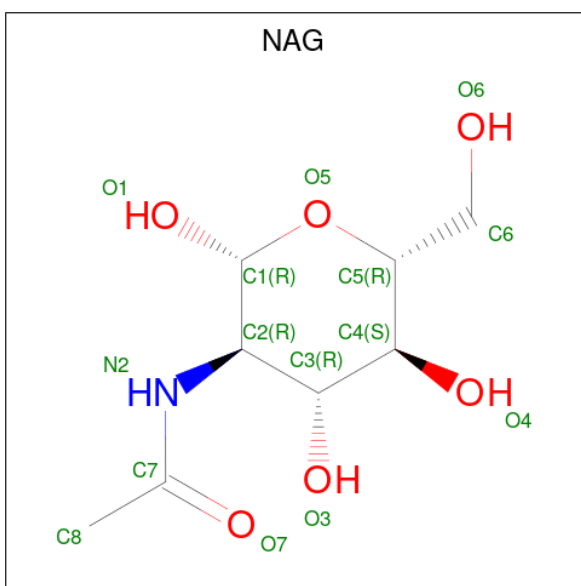
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	H	N	O			
2	E	2	53	16	25	2	10	0	0	0
2	F	2	53	16	25	2	10	0	0	0
2	G	2	53	16	25	2	10	0	0	0
2	H	2	53	16	25	2	10	0	0	0

- Molecule 3 is (3S,4S,3'S,4'S)-1,1'-(1,4-phenylenedicarbonyl)bis{N 3 ,N 4 -bis[(1S,2R)-2-phenylcyclopropyl]pyrrolidine-3,4-dicarboxamide} (three-letter code: KQD) (formula: C₅₆H₅₆N₆O₆).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	H	N			O
3	A	1	Total	C	H	N	O	0	0
			124	56	56	6	6		
3	B	1	Total	C	H	N	O	0	0
			124	56	56	6	6		
3	C	1	Total	C	H	N	O	0	0
			124	56	56	6	6		
3	D	1	Total	C	H	N	O	0	0
			124	56	56	6	6		

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	H	N	O	0	0
			27	8	13	1	5		
4	A	1	Total	C	H	N	O	0	0
			27	8	13	1	5		
4	A	1	Total	C	H	N	O	0	0
			26	8	12	1	5		
4	A	1	Total	C	H	N	O	0	0
			27	8	13	1	5		
4	B	1	Total	C	H	N	O	0	0
			27	8	13	1	5		
4	B	1	Total	C	H	N	O	0	0
			27	8	13	1	5		
4	C	1	Total	C	H	N	O	0	0
			27	8	13	1	5		
4	D	1	Total	C	H	N	O	0	0
			27	8	13	1	5		
4	D	1	Total	C	H	N	O	0	0
			27	8	13	1	5		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	14	Total	O	0	0
			14	14		
5	B	13	Total	O	0	0
			13	13		
5	C	4	Total	O	0	0
			4	4		
5	D	7	Total	O	0	0
			7	7		

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

3 Data and refinement statistics

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

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	66.10Å 201.25Å 109.36Å 90.00° 94.26° 90.00°	Depositor
Resolution (Å)	37.76 – 2.35	Depositor
% Data completeness (in resolution range)	94.8 (37.76-2.35)	Depositor
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.61 (at 2.34Å)	Xtrriage
Refinement program	PHENIX 1.13_2998	Depositor
R, R_{free}	0.210 , 0.236	Depositor
Wilson B-factor (Å ²)	66.8	Xtrriage
Anisotropy	0.020	Xtrriage
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	35983	wwPDB-VP
Average B, all atoms (Å ²)	93.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.63% 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](#)

8 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
2	NAG	E	1	2,1	14,14,15	0.15	0	17,19,21	0.48	0
2	NAG	E	2	2	14,14,15	0.18	0	17,19,21	0.44	0
2	NAG	F	1	2,1	14,14,15	0.29	0	17,19,21	0.47	0
2	NAG	F	2	2	14,14,15	0.30	0	17,19,21	0.35	0
2	NAG	G	1	2,1	14,14,15	0.21	0	17,19,21	0.49	0
2	NAG	G	2	2	14,14,15	0.18	0	17,19,21	1.13	2 (11%)
2	NAG	H	1	2,1	14,14,15	0.20	0	17,19,21	0.43	0
2	NAG	H	2	2	14,14,15	0.30	0	17,19,21	0.86	1 (5%)

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
2	NAG	E	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	E	2	2	-	2/6/23/26	0/1/1/1
2	NAG	F	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	F	2	2	-	2/6/23/26	0/1/1/1
2	NAG	G	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	G	2	2	-	5/6/23/26	0/1/1/1
2	NAG	H	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	H	2	2	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	G	2	NAG	C2-N2-C7	2.86	126.97	122.90
2	H	2	NAG	C1-O5-C5	2.56	115.66	112.19
2	G	2	NAG	C1-O5-C5	2.47	115.54	112.19

There are no chirality outliers.

All (15) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	E	1	NAG	C4-C5-C6-O6
2	F	2	NAG	O5-C5-C6-O6
2	F	2	NAG	C4-C5-C6-O6

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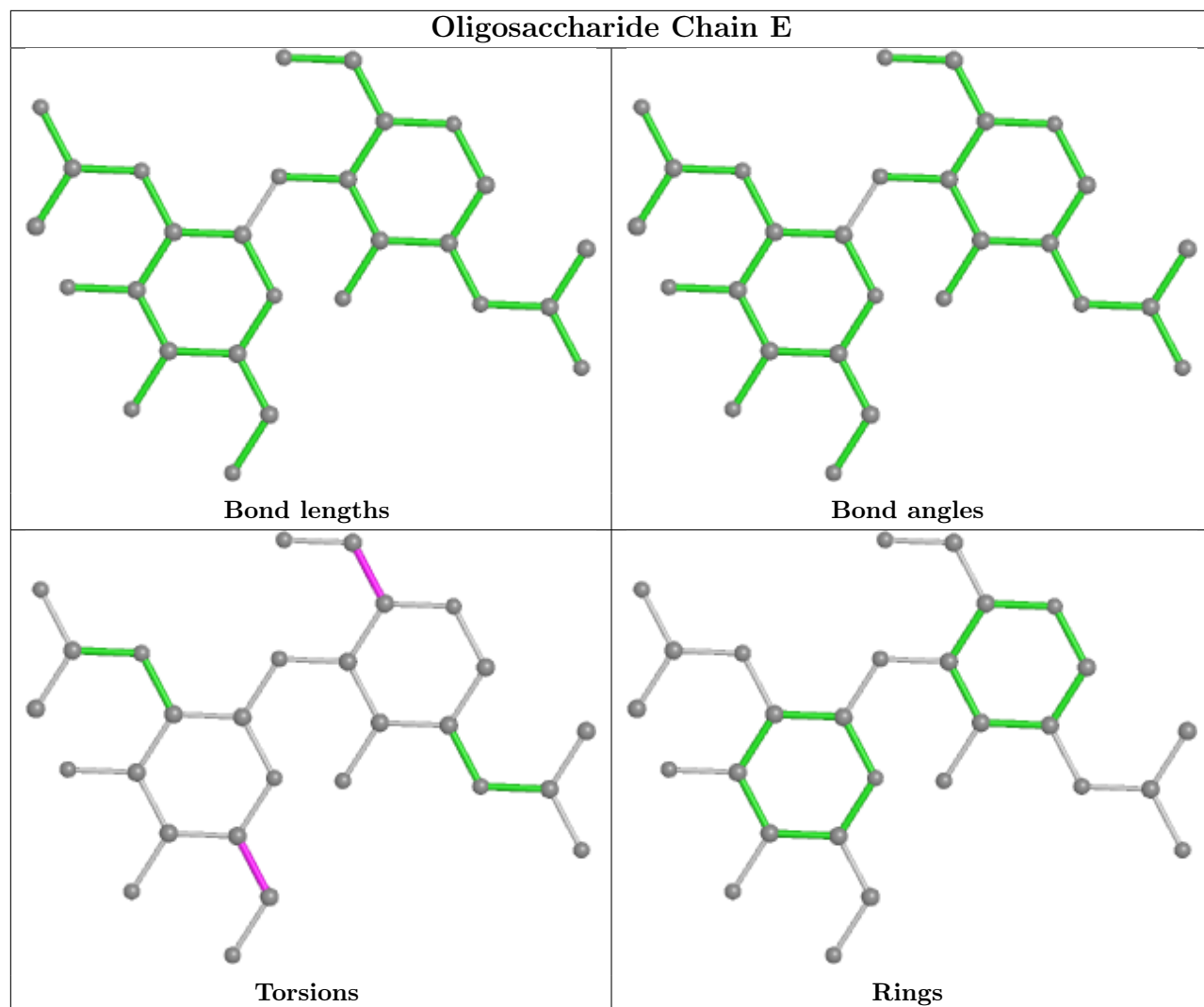
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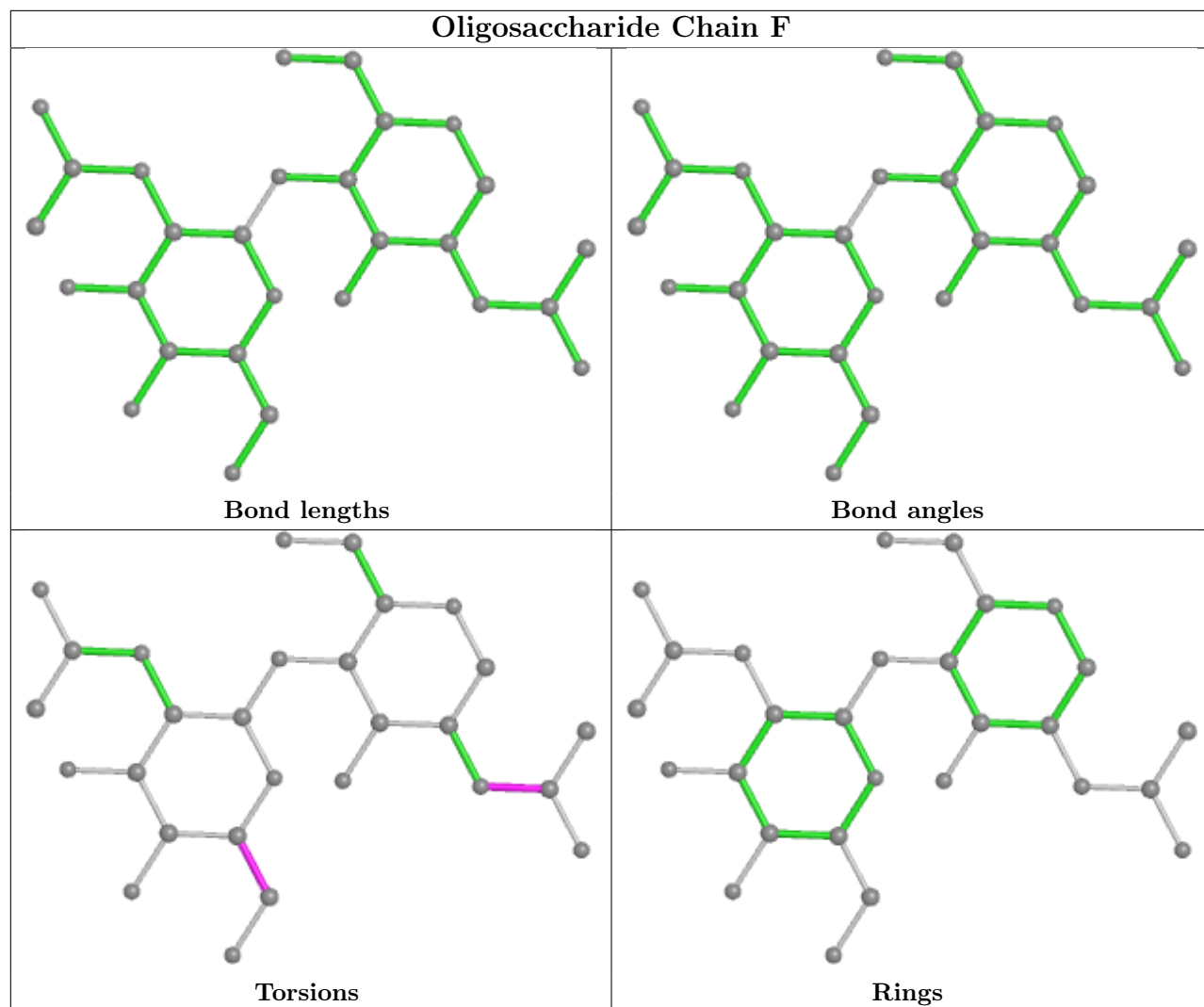
Mol	Chain	Res	Type	Atoms
2	G	2	NAG	O5-C5-C6-O6
2	E	2	NAG	O5-C5-C6-O6
2	E	2	NAG	C4-C5-C6-O6
2	F	1	NAG	C8-C7-N2-C2
2	F	1	NAG	O7-C7-N2-C2
2	G	1	NAG	C8-C7-N2-C2
2	G	1	NAG	O7-C7-N2-C2
2	G	2	NAG	C8-C7-N2-C2
2	G	2	NAG	O7-C7-N2-C2
2	G	2	NAG	C4-C5-C6-O6
2	E	1	NAG	O5-C5-C6-O6
2	G	2	NAG	C3-C2-N2-C7

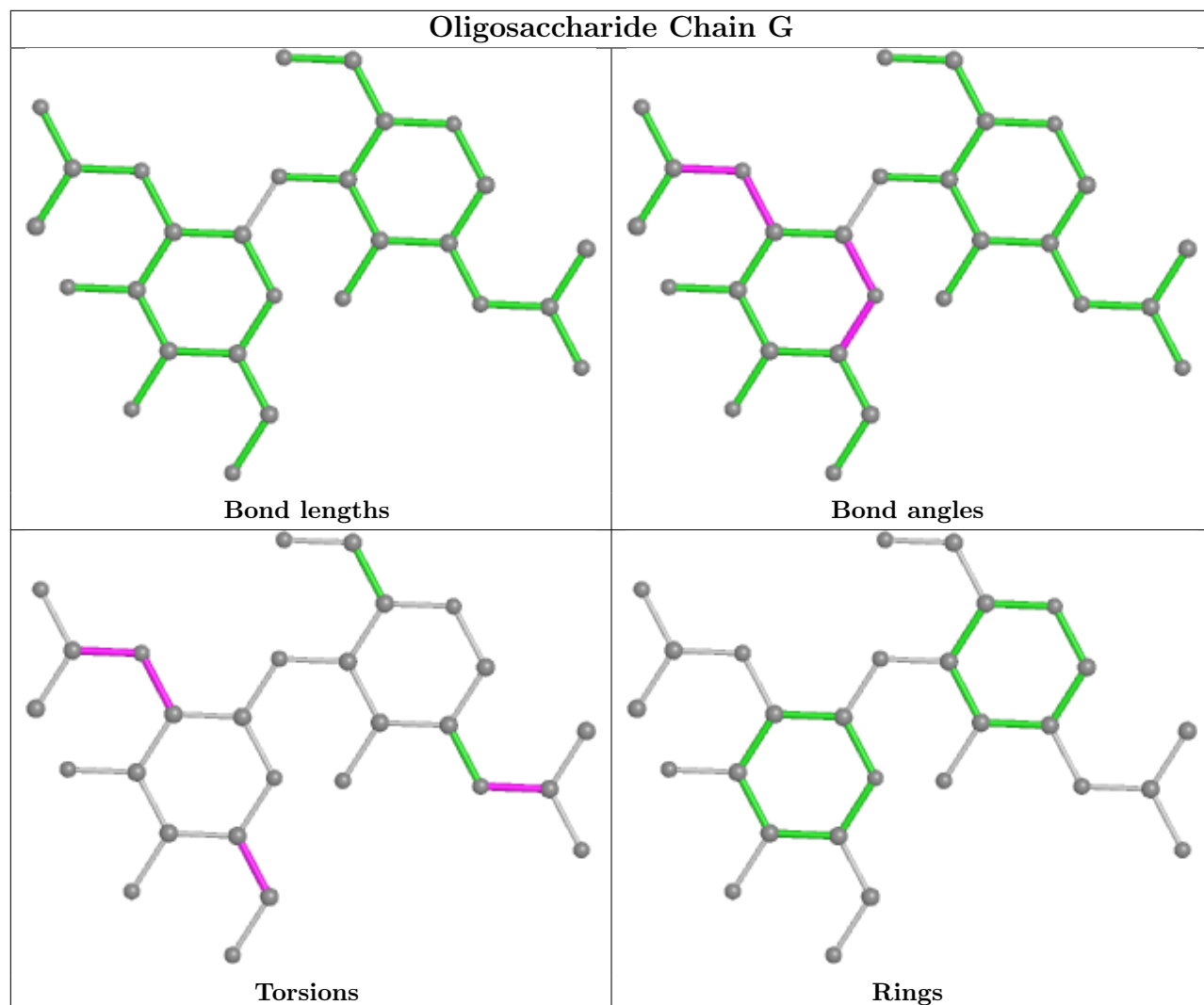
There are no ring outliers.

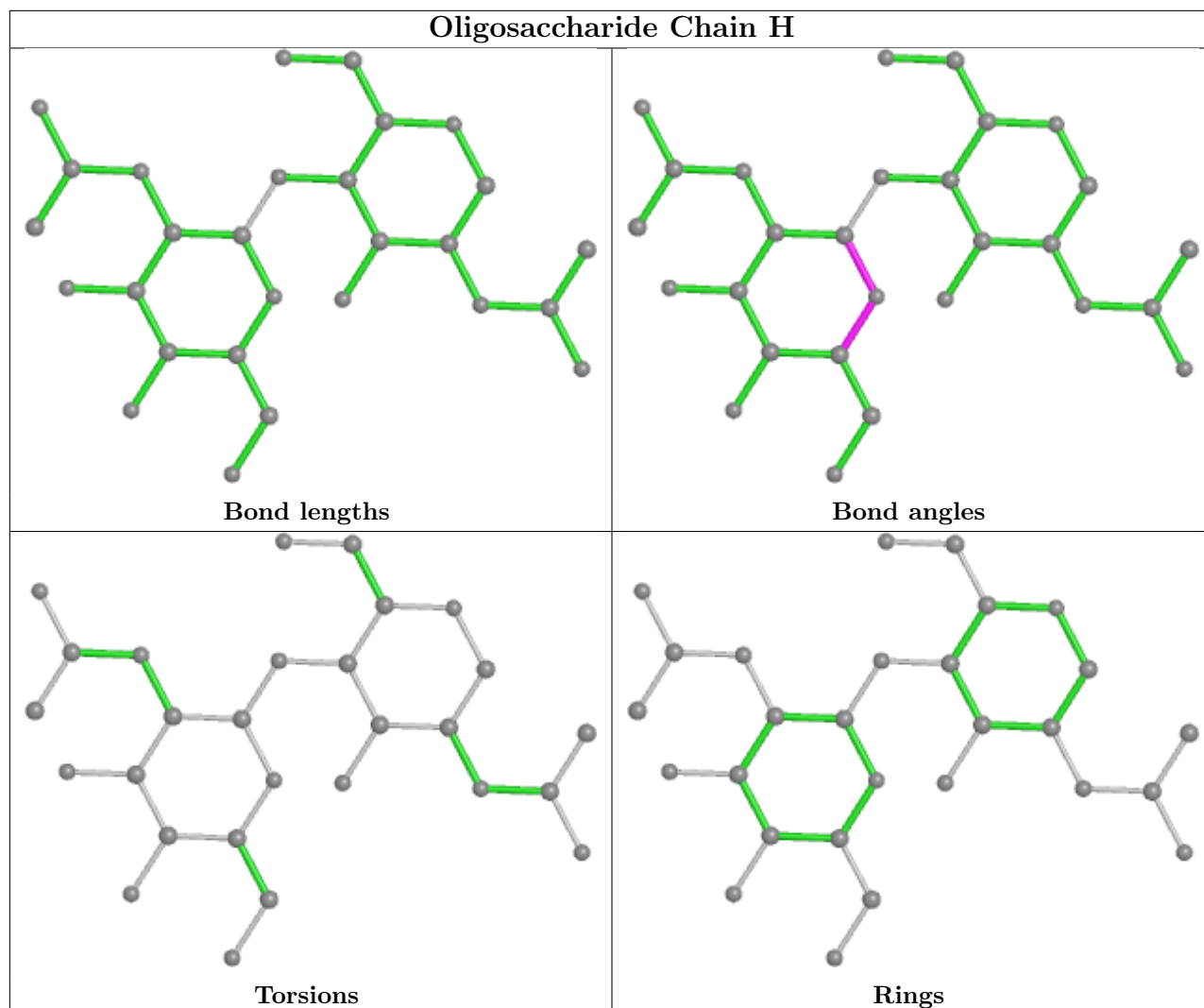
No monomer is involved in short contacts.

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](#)

13 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	$\# Z > 2$
3	KQD	D	601	-	74,78,78	2.99	27 (36%)	86,114,114	1.94	20 (23%)
4	NAG	A	606	1	14,14,15	0.29	0	17,19,21	0.47	0
4	NAG	C	802	1	14,14,15	0.51	0	17,19,21	0.45	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	KQD	B	801	-	74,78,78	3.02	25 (33%)	86,114,114	1.75	8 (9%)
4	NAG	A	604	1	14,14,15	0.23	0	17,19,21	0.40	0
4	NAG	B	802	1	14,14,15	0.24	0	17,19,21	0.71	1 (5%)
4	NAG	D	603	1	14,14,15	0.20	0	17,19,21	0.73	0
4	NAG	B	803	1	14,14,15	0.28	0	17,19,21	0.87	1 (5%)
4	NAG	A	605	1	14,14,15	0.26	0	17,19,21	0.48	0
3	KQD	C	801	-	74,78,78	3.00	27 (36%)	86,114,114	1.87	14 (16%)
3	KQD	A	601	-	74,78,78	3.00	23 (31%)	86,114,114	1.89	19 (22%)
4	NAG	A	607	-	14,14,15	0.30	0	17,19,21	0.47	0
4	NAG	D	602	1	14,14,15	0.21	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
3	KQD	D	601	-	-	5/64/108/108	0/11/11/11
4	NAG	A	606	1	-	2/6/23/26	0/1/1/1
4	NAG	C	802	1	-	3/6/23/26	0/1/1/1
3	KQD	B	801	-	-	22/64/108/108	0/11/11/11
4	NAG	A	604	1	-	2/6/23/26	0/1/1/1
4	NAG	B	802	1	-	2/6/23/26	0/1/1/1
4	NAG	D	603	1	-	1/6/23/26	0/1/1/1
4	NAG	B	803	1	-	6/6/23/26	0/1/1/1
4	NAG	A	605	1	-	3/6/23/26	0/1/1/1
3	KQD	C	801	-	-	21/64/108/108	0/11/11/11
3	KQD	A	601	-	-	5/64/108/108	0/11/11/11
4	NAG	A	607	-	-	2/6/23/26	0/1/1/1
4	NAG	D	602	1	-	0/6/23/26	0/1/1/1

All (102) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	601	KQD	C17-C18	-9.85	1.35	1.53
3	D	601	KQD	C17-C18	-9.80	1.35	1.53
3	B	801	KQD	C17-C18	-9.29	1.36	1.53
3	C	801	KQD	C17-C18	-9.28	1.36	1.53
3	C	801	KQD	C15-C14	-8.62	1.33	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	601	KQD	C15-C14	-8.57	1.33	1.54
3	D	601	KQD	C15-C14	-8.50	1.33	1.54
3	B	801	KQD	C15-C14	-8.49	1.33	1.54
3	B	801	KQD	C17-N12	7.64	1.62	1.46
3	C	801	KQD	C17-N12	7.47	1.62	1.46
3	D	601	KQD	C17-N12	7.34	1.61	1.46
3	A	601	KQD	C17-N12	7.30	1.61	1.46
3	B	801	KQD	C20-N12	-6.39	1.33	1.46
3	A	601	KQD	C21-N23	6.31	1.47	1.34
3	A	601	KQD	C36-N38	6.28	1.47	1.34
3	D	601	KQD	C36-N38	6.27	1.47	1.34
3	D	601	KQD	C21-N23	6.27	1.47	1.34
3	A	601	KQD	C13-N11	-6.27	1.33	1.46
3	D	601	KQD	C13-N11	-6.24	1.33	1.46
3	B	801	KQD	C21-N23	6.21	1.47	1.34
3	C	801	KQD	C13-C14	6.20	1.64	1.53
3	B	801	KQD	C36-N38	6.15	1.47	1.34
3	C	801	KQD	C21-N23	6.14	1.47	1.34
3	A	601	KQD	C63-N67	6.13	1.47	1.34
3	D	601	KQD	C63-N67	6.12	1.47	1.34
3	C	801	KQD	C13-N11	-6.12	1.33	1.46
3	B	801	KQD	C13-C14	6.08	1.64	1.53
3	C	801	KQD	C36-N38	6.08	1.47	1.34
3	B	801	KQD	C13-N11	-5.99	1.34	1.46
3	D	601	KQD	C20-N12	-5.95	1.34	1.46
3	C	801	KQD	C20-N12	-5.87	1.34	1.46
3	A	601	KQD	C20-N12	-5.87	1.34	1.46
3	B	801	KQD	C62-N66	5.82	1.46	1.34
3	A	601	KQD	C13-C14	5.75	1.63	1.53
3	D	601	KQD	C13-C14	5.69	1.63	1.53
3	C	801	KQD	C63-N67	5.68	1.46	1.34
3	C	801	KQD	C8-N12	5.25	1.46	1.34
3	B	801	KQD	C63-N67	5.24	1.45	1.34
3	C	801	KQD	C16-N11	5.12	1.57	1.46
3	C	801	KQD	C7-N11	5.05	1.46	1.34
3	C	801	KQD	C62-N66	4.97	1.45	1.34
3	A	601	KQD	C8-N12	4.96	1.45	1.34
3	B	801	KQD	C7-N11	4.93	1.45	1.34
3	A	601	KQD	C62-N66	4.91	1.44	1.34
3	D	601	KQD	C8-N12	4.91	1.45	1.34
3	A	601	KQD	C16-N11	4.90	1.56	1.46
3	D	601	KQD	C16-N11	4.89	1.56	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	801	KQD	C8-N12	4.84	1.45	1.34
3	D	601	KQD	C62-N66	4.83	1.44	1.34
3	B	801	KQD	C16-N11	4.78	1.56	1.46
3	A	601	KQD	C7-N11	4.49	1.44	1.34
3	D	601	KQD	C7-N11	4.30	1.44	1.34
3	B	801	KQD	C42-C40	3.34	1.54	1.49
3	C	801	KQD	C42-C40	3.28	1.54	1.49
3	C	801	KQD	C16-C15	3.07	1.59	1.53
3	D	601	KQD	C20-C19	3.00	1.58	1.53
3	A	601	KQD	C20-C19	2.99	1.58	1.53
3	B	801	KQD	C16-C15	2.98	1.58	1.53
3	D	601	KQD	C16-C15	2.91	1.58	1.53
3	A	601	KQD	C16-C15	2.88	1.58	1.53
3	B	801	KQD	C71-C70	2.85	1.53	1.49
3	C	801	KQD	C25-C24	2.81	1.53	1.49
3	B	801	KQD	C4-C7	2.81	1.54	1.50
3	D	601	KQD	C42-C40	2.80	1.53	1.49
3	A	601	KQD	C42-C40	2.79	1.53	1.49
3	A	601	KQD	C4-C7	2.77	1.54	1.50
3	A	601	KQD	C25-C24	2.73	1.53	1.49
3	B	801	KQD	C25-C24	2.72	1.53	1.49
3	B	801	KQD	C75-C73	2.71	1.53	1.49
3	D	601	KQD	C25-C24	2.71	1.53	1.49
3	D	601	KQD	C4-C7	2.68	1.54	1.50
3	C	801	KQD	C4-C7	2.64	1.54	1.50
3	C	801	KQD	C20-C19	2.63	1.58	1.53
3	C	801	KQD	C43-C41	2.62	1.55	1.51
3	D	601	KQD	C75-C73	2.59	1.53	1.49
3	B	801	KQD	C43-C41	2.57	1.55	1.51
3	B	801	KQD	C20-C19	2.56	1.58	1.53
3	A	601	KQD	C75-C73	2.55	1.53	1.49
3	A	601	KQD	C28-C26	2.54	1.55	1.51
3	C	801	KQD	C75-C73	2.53	1.53	1.49
3	B	801	KQD	O9-C7	-2.48	1.17	1.22
3	C	801	KQD	C71-C70	2.38	1.52	1.49
3	B	801	KQD	C1-C8	2.35	1.53	1.50
3	D	601	KQD	C1-C8	2.32	1.53	1.50
3	D	601	KQD	O22-C21	-2.31	1.18	1.23
3	B	801	KQD	O10-C8	-2.29	1.18	1.22
3	B	801	KQD	C15-C21	2.27	1.55	1.51
3	A	601	KQD	O22-C21	-2.26	1.18	1.23
3	C	801	KQD	O9-C7	-2.21	1.18	1.22

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	801	KQD	C15-C21	2.21	1.55	1.51
3	D	601	KQD	C71-C70	2.17	1.52	1.49
3	D	601	KQD	O9-C7	-2.17	1.18	1.22
3	A	601	KQD	C71-C70	2.15	1.52	1.49
3	A	601	KQD	O9-C7	-2.13	1.18	1.22
3	D	601	KQD	C28-C26	2.08	1.55	1.51
3	C	801	KQD	C1-C8	2.05	1.53	1.50
3	D	601	KQD	O65-C63	-2.05	1.19	1.23
3	C	801	KQD	O10-C8	-2.03	1.18	1.22
3	D	601	KQD	C15-C21	2.03	1.55	1.51
3	C	801	KQD	O64-C62	-2.02	1.19	1.23
3	D	601	KQD	C71-C72	2.00	1.53	1.50
3	C	801	KQD	C28-C26	2.00	1.54	1.51

All (63) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	601	KQD	C25-C26-C28	7.69	137.04	122.24
3	C	801	KQD	C42-C41-C43	7.66	136.97	122.24
3	B	801	KQD	C42-C41-C43	7.55	136.77	122.24
3	D	601	KQD	C42-C41-C43	7.36	136.41	122.24
3	A	601	KQD	C25-C26-C28	7.15	135.99	122.24
3	A	601	KQD	C42-C41-C43	7.13	135.97	122.24
3	B	801	KQD	C25-C26-C28	6.67	135.09	122.24
3	C	801	KQD	C25-C26-C28	6.45	134.65	122.24
3	B	801	KQD	C25-C24-N23	-5.52	106.74	117.50
3	C	801	KQD	C25-C24-N23	-5.43	106.91	117.50
3	A	601	KQD	C15-C21-N23	5.10	122.08	116.00
3	D	601	KQD	C15-C21-N23	5.08	122.05	116.00
3	D	601	KQD	C70-N66-C62	-4.59	114.96	123.07
3	C	801	KQD	C42-C40-N38	-4.14	109.42	117.50
3	C	801	KQD	C70-N66-C62	-4.03	115.96	123.07
3	C	801	KQD	C40-N38-C36	-3.93	116.13	123.07
3	B	801	KQD	C42-C40-N38	-3.87	109.96	117.50
3	A	601	KQD	C42-C40-N38	-3.73	110.23	117.50
3	D	601	KQD	C42-C40-N38	-3.63	110.43	117.50
3	B	801	KQD	C40-N38-C36	-3.62	116.67	123.07
3	A	601	KQD	C70-N66-C62	-3.62	116.68	123.07
3	A	601	KQD	C25-C24-N23	-3.47	110.74	117.50
3	B	801	KQD	C73-N67-C63	-3.33	117.19	123.07
3	D	601	KQD	C19-C63-N67	3.27	119.89	116.00
3	C	801	KQD	C29-C28-C26	-3.21	115.00	121.08

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	801	KQD	C29-C28-C26	-3.12	115.17	121.08
3	C	801	KQD	C1-C8-N12	-3.10	114.77	118.72
3	D	601	KQD	O22-C21-N23	-3.09	117.21	122.93
3	A	601	KQD	C19-C63-N67	3.05	119.64	116.00
3	C	801	KQD	C81-C76-C72	-3.00	115.41	121.08
3	D	601	KQD	O9-C7-N11	-2.95	117.46	122.34
3	A	601	KQD	O9-C7-N11	-2.89	117.56	122.34
3	A	601	KQD	C40-N38-C36	-2.87	118.00	123.07
3	D	601	KQD	C40-N38-C36	-2.87	118.00	123.07
3	A	601	KQD	O22-C21-N23	-2.77	117.80	122.93
4	B	803	NAG	C2-N2-C7	2.75	126.81	122.90
3	A	601	KQD	C2-C1-C6	2.62	122.31	118.59
3	A	601	KQD	O65-C63-N67	-2.57	118.16	122.93
3	D	601	KQD	O10-C8-N12	-2.57	118.09	122.34
3	D	601	KQD	C75-C73-N67	2.56	122.50	117.50
3	D	601	KQD	C25-C24-N23	-2.52	112.60	117.50
3	D	601	KQD	C81-C76-C72	-2.48	116.39	121.08
3	D	601	KQD	C81-C76-C77	2.48	121.38	118.29
3	B	801	KQD	C87-C82-C74	-2.47	116.41	121.08
3	D	601	KQD	O65-C63-N67	-2.44	118.42	122.93
3	D	601	KQD	C4-C7-N11	2.37	121.73	118.72
3	D	601	KQD	C2-C1-C6	2.36	121.95	118.59
3	C	801	KQD	C4-C7-N11	-2.36	115.72	118.72
3	A	601	KQD	C4-C7-N11	2.34	121.68	118.72
3	C	801	KQD	C73-N67-C63	-2.30	119.01	123.07
3	A	601	KQD	C17-C18-C19	2.26	108.13	104.05
3	A	601	KQD	C81-C76-C77	2.21	121.05	118.29
3	A	601	KQD	C81-C76-C72	-2.16	116.98	121.08
4	B	802	NAG	C1-O5-C5	2.13	115.08	112.19
3	C	801	KQD	C81-C76-C77	2.12	120.94	118.29
3	D	601	KQD	C3-C4-C5	2.10	121.58	118.59
3	A	601	KQD	O10-C8-N12	-2.09	118.88	122.34
3	A	601	KQD	C3-C4-C5	2.04	121.49	118.59
3	C	801	KQD	C33-C28-C26	2.03	124.93	121.08
3	A	601	KQD	C75-C73-N67	2.03	121.46	117.50
3	D	601	KQD	C17-C18-C19	2.01	107.69	104.05
3	C	801	KQD	C3-C4-C7	-2.01	115.20	120.29
3	D	601	KQD	C75-C74-C82	2.00	126.10	122.24

There are no chirality outliers.

All (74) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	801	KQD	C72-C70-N66-C62
4	D	603	NAG	C3-C2-N2-C7
3	A	601	KQD	C15-C21-N23-C24
3	A	601	KQD	C19-C63-N67-C73
3	D	601	KQD	C15-C21-N23-C24
3	D	601	KQD	C19-C63-N67-C73
4	A	604	NAG	O5-C5-C6-O6
4	A	605	NAG	C1-C2-N2-C7
4	A	605	NAG	C4-C5-C6-O6
4	A	606	NAG	C8-C7-N2-C2
4	A	606	NAG	O7-C7-N2-C2
4	A	607	NAG	C8-C7-N2-C2
4	A	607	NAG	O7-C7-N2-C2
4	B	803	NAG	C8-C7-N2-C2
4	B	803	NAG	O7-C7-N2-C2
4	B	802	NAG	O5-C5-C6-O6
4	B	803	NAG	C4-C5-C6-O6
4	B	802	NAG	C4-C5-C6-O6
3	A	601	KQD	O22-C21-N23-C24
3	D	601	KQD	O22-C21-N23-C24
3	A	601	KQD	O65-C63-N67-C73
3	D	601	KQD	O65-C63-N67-C73
4	A	605	NAG	O5-C5-C6-O6
4	B	803	NAG	O5-C5-C6-O6
4	A	604	NAG	C4-C5-C6-O6
3	B	801	KQD	C15-C14-C36-N38
3	B	801	KQD	C18-C19-C63-N67
3	C	801	KQD	C15-C14-C36-N38
3	C	801	KQD	C19-C18-C62-N66
3	C	801	KQD	C18-C19-C63-N67
3	B	801	KQD	C13-C14-C36-N38
3	C	801	KQD	C13-C14-C36-N38
3	C	801	KQD	C17-C18-C62-N66
3	B	801	KQD	C15-C14-C36-O37
3	B	801	KQD	C18-C19-C63-O65
3	C	801	KQD	C15-C14-C36-O37
3	C	801	KQD	C19-C18-C62-O64
3	C	801	KQD	C18-C19-C63-O65
3	B	801	KQD	C75-C74-C82-C87
3	B	801	KQD	C14-C15-C21-N23
3	C	801	KQD	C14-C15-C21-N23
4	C	802	NAG	C3-C2-N2-C7
3	B	801	KQD	C13-C14-C36-O37

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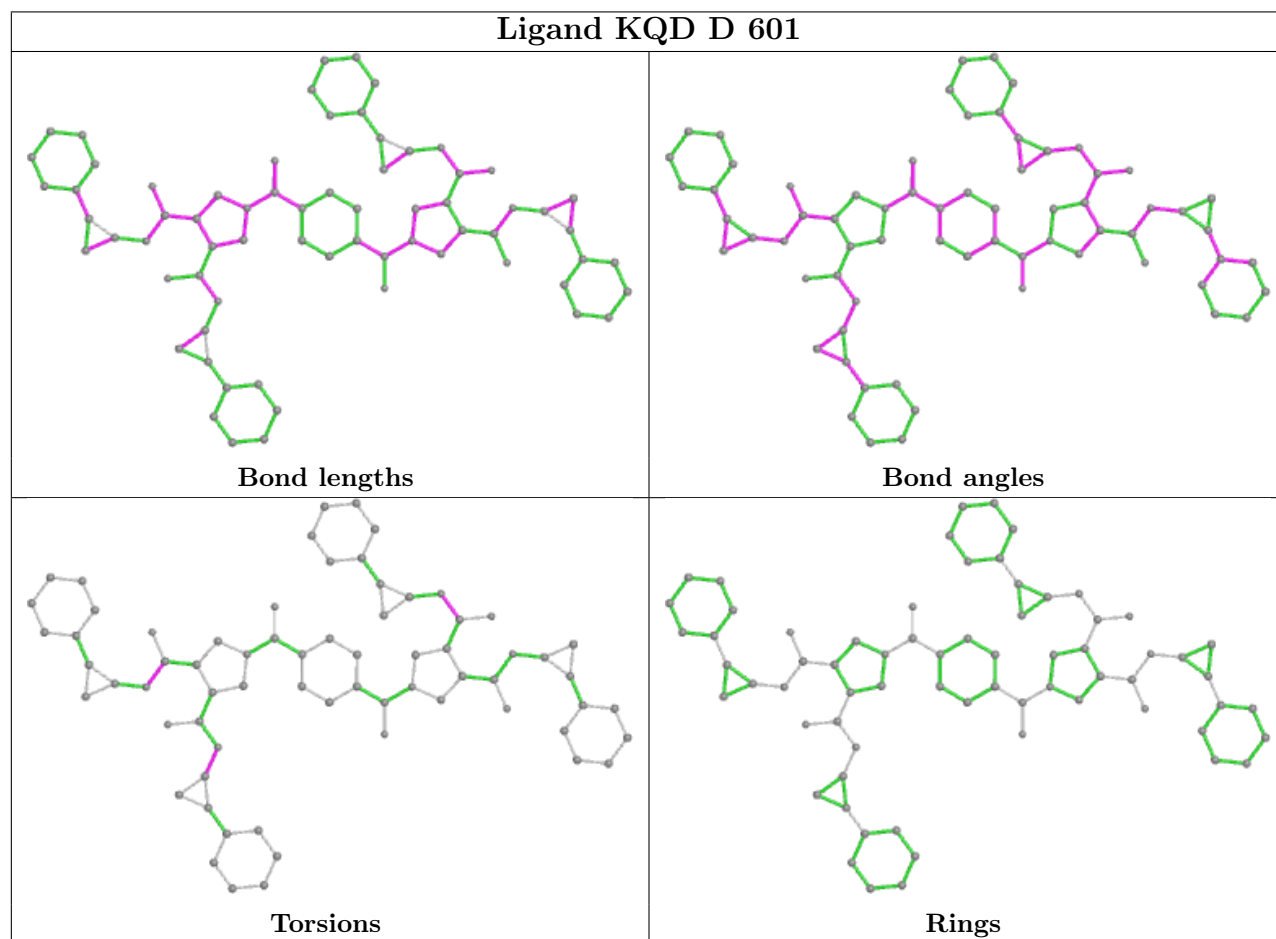
Mol	Chain	Res	Type	Atoms
3	C	801	KQD	C13-C14-C36-O37
3	C	801	KQD	C17-C18-C62-O64
3	B	801	KQD	C20-C19-C63-N67
4	C	802	NAG	C4-C5-C6-O6
3	C	801	KQD	C71-C72-C76-C81
4	C	802	NAG	O5-C5-C6-O6
3	B	801	KQD	C20-C19-C63-O65
3	B	801	KQD	C14-C15-C21-O22
3	C	801	KQD	C14-C15-C21-O22
3	B	801	KQD	C42-C41-C43-C48
3	B	801	KQD	C75-C74-C82-C83
3	C	801	KQD	C42-C41-C43-C48
3	B	801	KQD	C16-C15-C21-O22
3	B	801	KQD	C17-C18-C62-O64
3	C	801	KQD	C16-C15-C21-O22
3	B	801	KQD	C16-C15-C21-N23
3	C	801	KQD	C16-C15-C21-N23
3	C	801	KQD	C20-C19-C63-N67
3	B	801	KQD	C42-C41-C43-C44
3	C	801	KQD	C42-C41-C43-C44
3	C	801	KQD	C20-C19-C63-O65
3	B	801	KQD	C19-C18-C62-O64
3	C	801	KQD	C71-C72-C76-C77
3	B	801	KQD	C19-C18-C62-N66
3	A	601	KQD	C41-C40-N38-C36
3	B	801	KQD	C41-C40-N38-C36
3	C	801	KQD	C41-C40-N38-C36
3	D	601	KQD	C41-C40-N38-C36
3	B	801	KQD	C17-C18-C62-N66
4	B	803	NAG	C1-C2-N2-C7
4	B	803	NAG	C3-C2-N2-C7

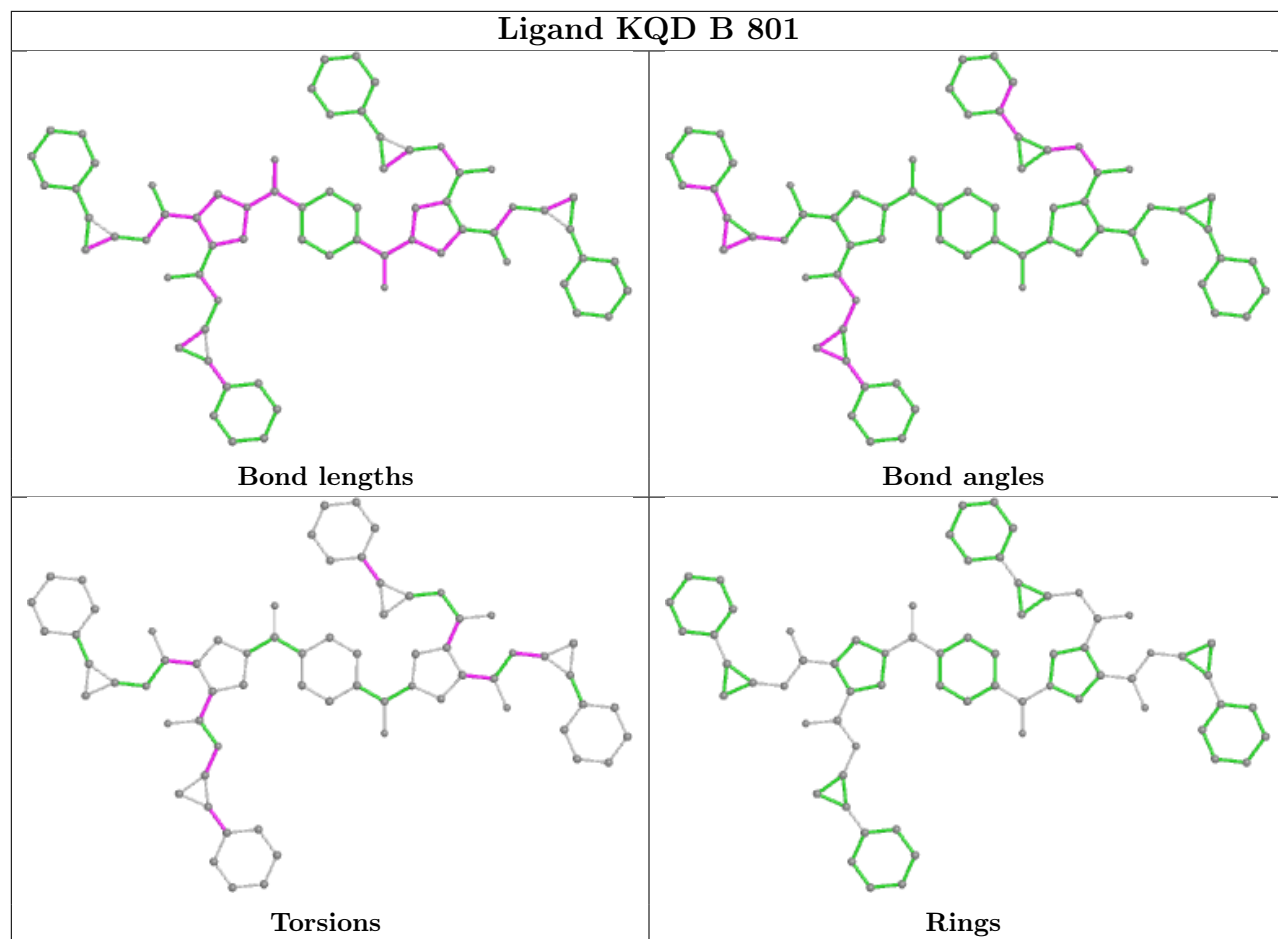
There are no ring outliers.

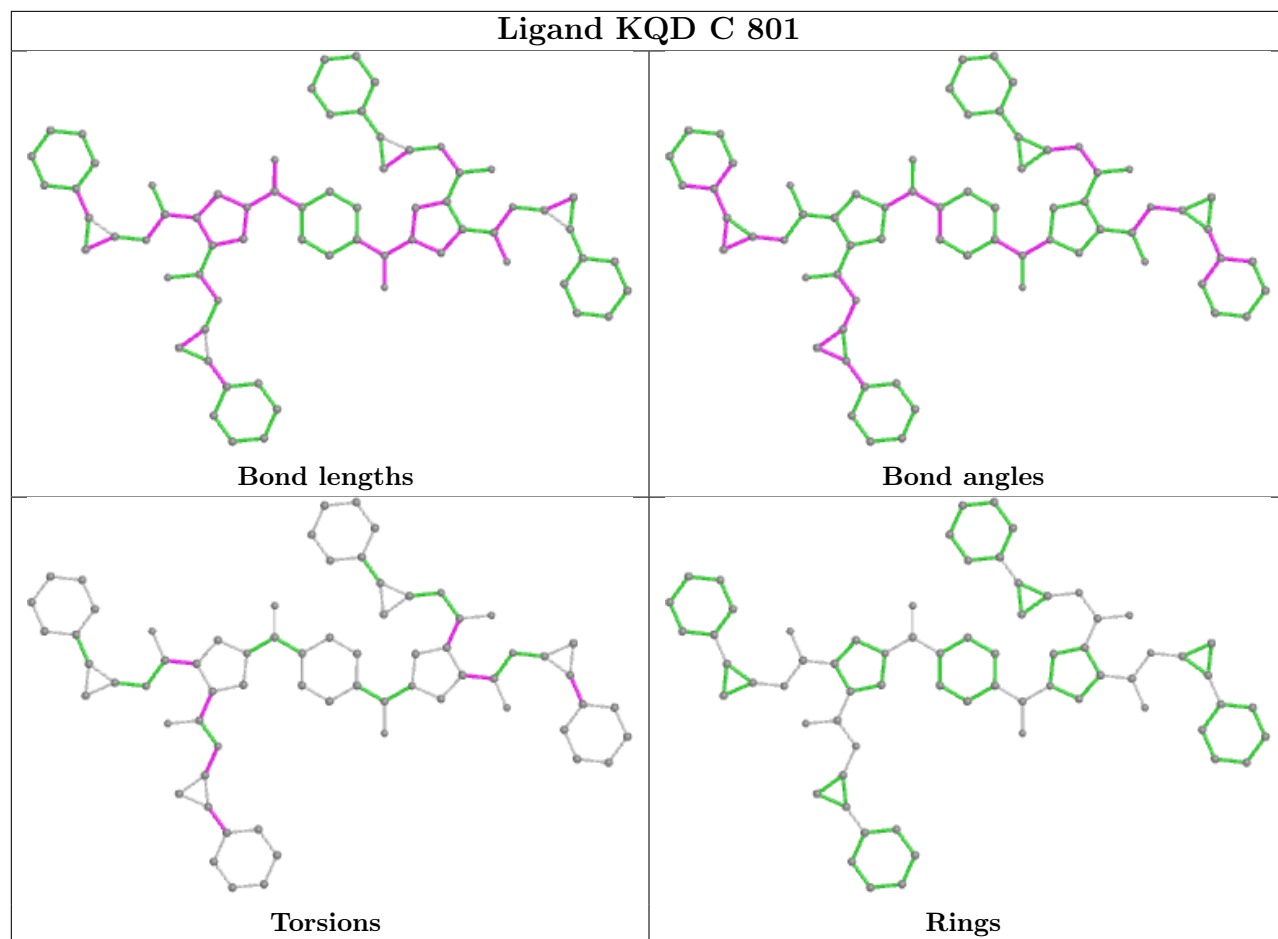
No monomer is involved in short contacts.

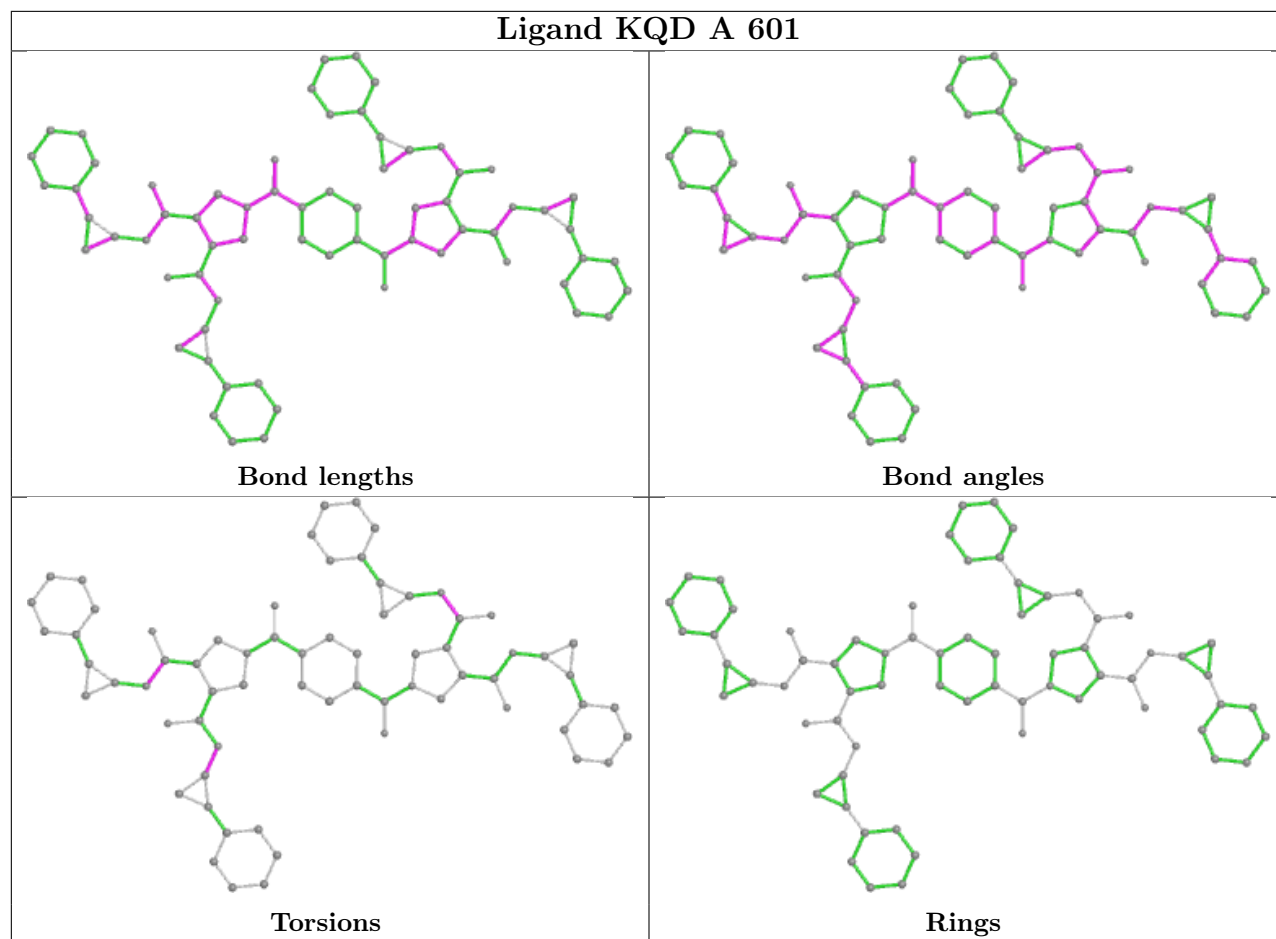
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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









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.