



wwPDB X-ray Structure Validation Summary Report ⓘ

Jul 25, 2023 – 04:45 pm BST

PDB ID : 8BRN
Title : Crystal structure of red kidney bean purple acid phosphatase in complex with an alpha-aminonaphthylmethylphosphonic acid inhibitor
Authors : Feder, D.; Hussein, W.M.; Guddat, L.W.; Schenk, G.
Deposited on : 2022-11-23
Resolution : 2.00 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/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 : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.34
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.34

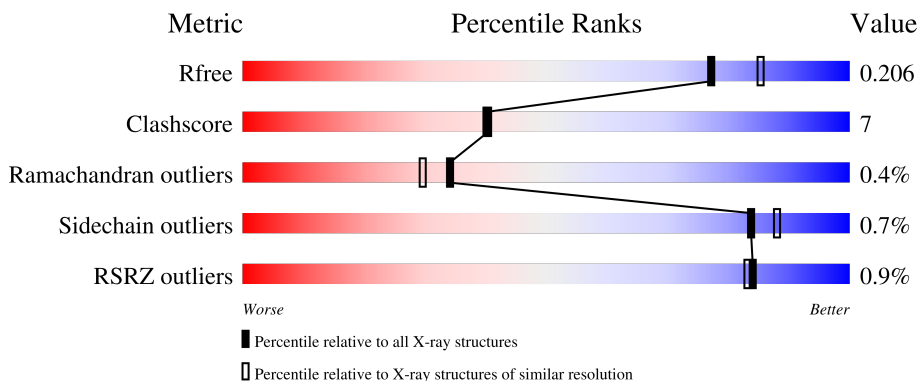
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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.



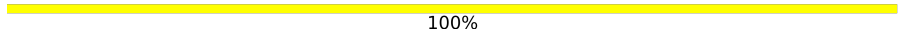



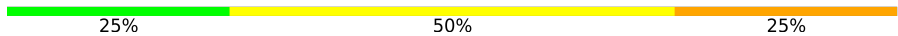




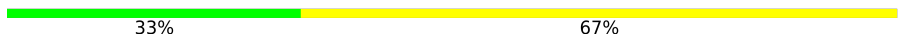
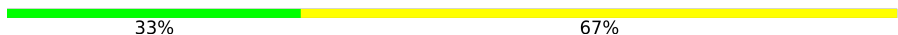
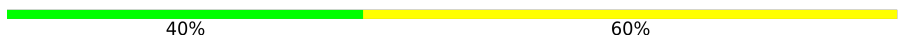
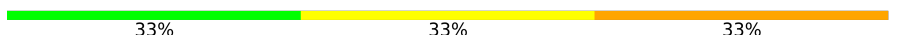



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	8085 (2.00-2.00)
Clashscore	141614	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

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

Mol	Chain	Length	Quality of chain
1	A	428	89% 10% .
1	B	428	89% 11%
1	C	428	90% 9% .
1	D	428	89% 10%
2	E	2	100%

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Mol	Chain	Length	Quality of chain
2	K	2	 100%
2	Q	2	 50% 50%
3	F	6	 50% 33% 17%
4	G	4	 50% 50%
4	I	4	 25% 50% 25%
4	N	4	 50% 50%
4	P	4	 75% 25%
4	S	4	 75% 25%
4	V	4	 75% 25%
5	H	6	 33% 67%
5	J	6	 33% 67%
6	L	5	 40% 60%
7	M	3	 33% 33% 33%
8	O	2	 50% 50%
9	R	4	 50% 50%
10	T	2	 50% 50%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
13	FLC	A	505	-	X	-	-
13	FLC	A	530	-	X	-	-
13	FLC	B	503	-	X	-	-
13	FLC	B	505	-	-	X	-
13	FLC	C	627	-	X	-	-
13	FLC	D	503	-	-	X	-
14	PGE	B	508	-	-	-	X
14	PGE	D	504	-	-	X	-
16	SO4	A	510	-	-	X	-
16	SO4	A	512	-	-	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
16	SO4	C	608	-	-	X	-
16	SO4	C	613	-	-	X	-
18	GOL	A	526	-	-	-	X
18	GOL	A	531	-	-	X	-
18	GOL	D	522	-	-	X	-
20	R9X	A	532[A]	X	-	-	-
20	R9X	A	532[B]	X	-	-	-
20	R9X	C	632[A]	-	-	-	X
20	R9X	C	633[B]	X	-	-	X
20	R9X	D	535[A]	X	-	-	-
20	R9X	D	535[B]	X	-	-	-
4	BMA	I	3	-	-	-	X
4	BMA	N	3	-	-	-	X
7	BMA	M	3	-	-	-	X
9	BMA	R	3	X	-	-	-

2 Entry composition [i](#)

There are 23 unique types of molecules in this entry. The entry contains 18800 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 Fe(3+)-Zn(2+) purple acid phosphatase.

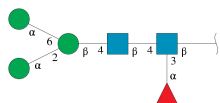
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	425	Total 3569	C 2299	N 620	O 640	S 10	4	12	0
1	B	428	Total 3558	C 2284	N 618	O 645	S 11	3	5	0
1	C	428	Total 3584	C 2304	N 619	O 650	S 11	0	11	0
1	D	426	Total 3586	C 2307	N 626	O 642	S 11	5	12	0

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



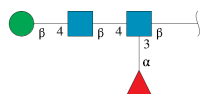
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	E	2	Total 28	C 16	N 2	O 10	0	0	0
2	K	2	Total 28	C 16	N 2	O 10	0	0	0
2	Q	2	Total 28	C 16	N 2	O 10	0	0	0

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



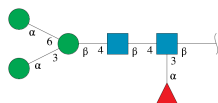
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	F	6	71	40	2	29	0	0	0

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



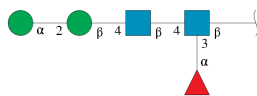
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
4	G	4	49	28	2	19	0	0	0
4	I	4	49	28	2	19	0	0	0
4	N	4	49	28	2	19	0	0	0
4	P	4	49	28	2	19	0	0	0
4	S	4	49	28	2	19	0	0	0
4	V	4	49	28	2	19	0	0	0

- Molecule 5 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)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose.



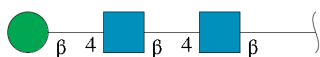
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
5	H	6	71	40	2	29	0	0	0
5	J	6	71	40	2	29	0	0	0

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
6	L	5	60	34	2	24	0	0	0

- Molecule 7 is an oligosaccharide called 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
			Total	C	N	O			
7	M	3	39	22	2	15	0	0	0

- Molecule 8 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose.



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

- Molecule 9 is an oligosaccharide called beta-D-mannopyranose-(5-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
9	R	4	48	27	2	19	0	0	0

- Molecule 10 is an oligosaccharide called alpha-L-fucopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
10	T	2	Total	C	N	O	0	0	0
			24	14	1	9			

- Molecule 11 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	A	1	Total	Zn	0	0
			1	1		
11	B	1	Total	Zn	0	0
			1	1		
11	C	1	Total	Zn	0	0
			1	1		
11	D	1	Total	Zn	0	0
			1	1		

- Molecule 12 is FE (III) ION (three-letter code: FE) (formula: Fe).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
12	A	1	Total	Fe	0	0
			1	1		
12	B	1	Total	Fe	0	0
			1	1		
12	C	1	Total	Fe	0	0
			1	1		
12	D	1	Total	Fe	0	0
			1	1		

- Molecule 13 is CITRATE ANION (three-letter code: FLC) (formula: C₆H₅O₇).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
13	A	1	Total C O 13 6 7	0	0
13	A	1	Total C O 13 6 7	0	0
13	A	1	Total C O 13 6 7	0	0
13	B	1	Total C O 13 6 7	0	0
13	B	1	Total C O 13 6 7	0	0
13	B	1	Total C O 13 6 7	0	0
13	B	1	Total C O 13 6 7	0	0
13	C	1	Total C O 13 6 7	0	0
13	C	1	Total C O 13 6 7	0	0
13	C	1	Total C O 13 6 7	0	0
13	C	1	Total C O 13 6 7	0	0
13	C	1	Total C O 13 6 7	0	0
13	D	1	Total C O 13 6 7	0	0

- Molecule 14 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula: C₆H₁₄O₄).



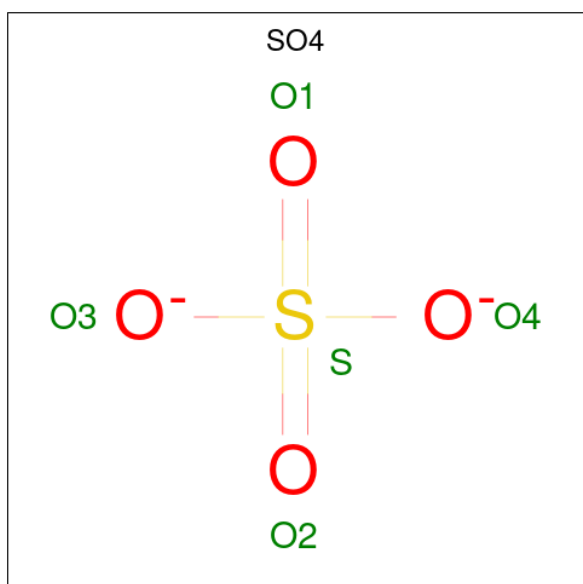
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
14	A	1	Total	C	O	0	0
			10	6	4		
14	A	1	Total	C	O	0	0
			7	4	3		
14	B	1	Total	C	O	0	0
			10	6	4		
14	B	1	Total	C	O	0	0
			10	6	4		
14	C	1	Total	C	O	0	0
			10	6	4		
14	D	1	Total	C	O	0	0
			10	6	4		

- Molecule 15 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
15	A	1	Total 14	C 8	N 1	O 5	0	0
15	C	1	Total 14	C 8	N 1	O 5	0	0
15	C	1	Total 14	C 8	N 1	O 5	0	0
15	D	1	Total 14	C 8	N 1	O 5	0	0
15	D	1	Total 14	C 8	N 1	O 5	0	0

- Molecule 16 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



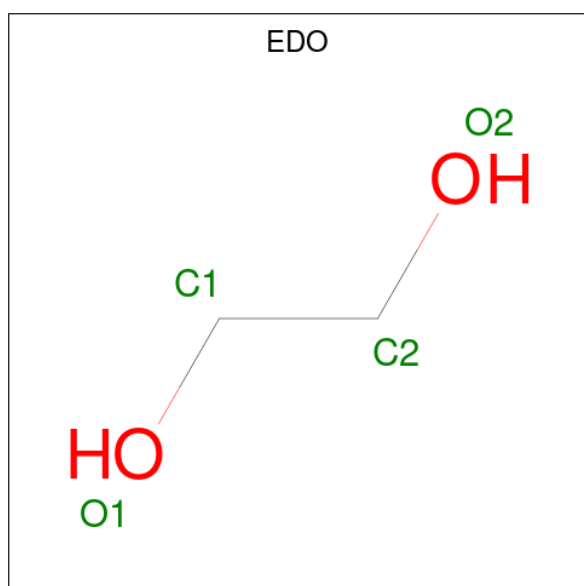
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
16	A	1	Total	O	S	0	0
			5	4	1		
16	A	1	Total	O	S	0	0
			5	4	1		
16	A	1	Total	O	S	0	0
			5	4	1		
16	A	1	Total	O	S	0	0
			5	4	1		
16	A	1	Total	O	S	0	0
			5	4	1		
16	A	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	B	1	Total	O	S	0	0
			5	4	1		
16	C	1	Total	O	S	0	0
			5	4	1		
16	C	1	Total	O	S	0	0
			5	4	1		
16	C	1	Total	O	S	0	0
			5	4	1		
16	C	1	Total	O	S	0	0
			5	4	1		
16	C	1	Total	O	S	0	0
			5	4	1		
16	C	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
16	C	1	Total	O	S	0	0
			5	4	1		
16	D	1	Total	O	S	0	0
			5	4	1		
16	D	1	Total	O	S	0	0
			5	4	1		
16	D	1	Total	O	S	0	0
			5	4	1		
16	D	1	Total	O	S	0	0
			5	4	1		
16	D	1	Total	O	S	0	0
			5	4	1		
16	D	1	Total	O	S	0	0
			5	4	1		
16	D	1	Total	O	S	0	0
			5	4	1		

- Molecule 17 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



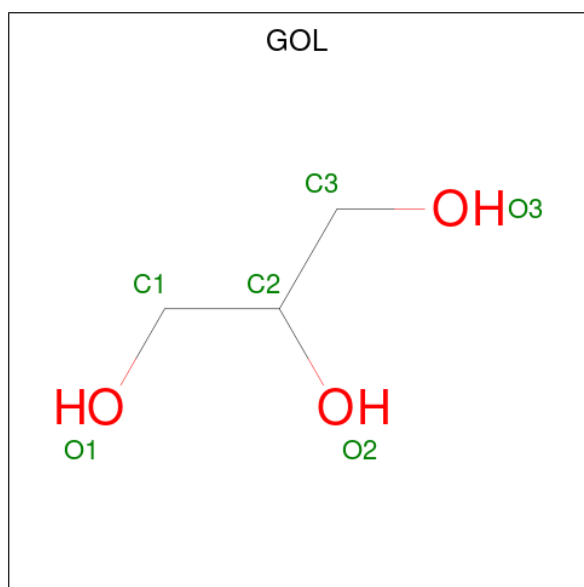
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
17	A	1	Total	C	O	0	0
			4	2	2		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
17	B	1	Total	C	O	0	0
			4	2	2		
17	C	1	Total	C	O	0	0
			4	2	2		
17	D	1	Total	C	O	0	0
			4	2	2		

- Molecule 18 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
18	A	1	Total	C	O	0	0
			6	3	3		
18	A	1	Total	C	O	0	0
			6	3	3		
18	A	1	Total	C	O	0	0
			6	3	3		
18	A	1	Total	C	O	0	0
			6	3	3		
18	A	1	Total	C	O	0	0
			6	3	3		
18	A	1	Total	C	O	0	0
			6	3	3		
18	A	1	Total	C	O	0	0
			6	3	3		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
18	A	1	Total 6	C 3	O 3	0	0
18	A	1	Total 6	C 3	O 3	0	0
18	A	1	Total 6	C 3	O 3	0	0
18	A	1	Total 6	C 3	O 3	0	0
18	A	1	Total 6	C 3	O 3	0	0
18	A	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	B	1	Total 6	C 3	O 3	0	0
18	C	1	Total 6	C 3	O 3	0	0
18	C	1	Total 6	C 3	O 3	0	0
18	C	1	Total 6	C 3	O 3	0	0
18	C	1	Total 6	C 3	O 3	0	0
18	C	1	Total 6	C 3	O 3	0	0

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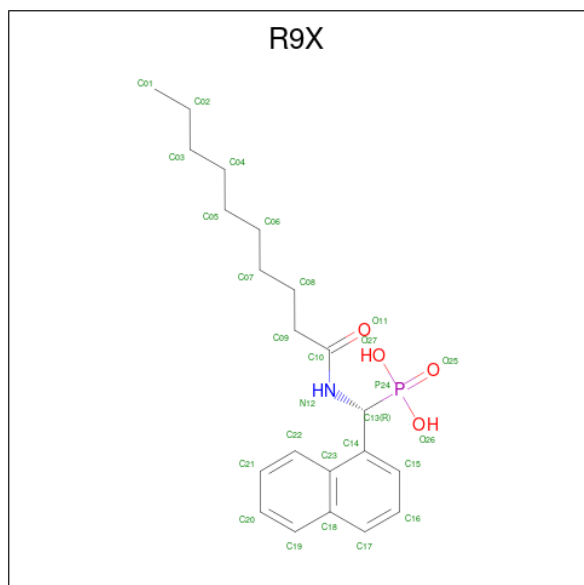
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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
18	C	1	Total	C	O	0	0
			6	3	3		
18	C	1	Total	C	O	0	0
			6	3	3		
18	C	1	Total	C	O	0	0
			6	3	3		
18	C	1	Total	C	O	0	0
			6	3	3		
18	C	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		
18	D	1	Total	C	O	0	0
			6	3	3		

- Molecule 19 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
19	A	2	Total Cl 2 2	0	0
19	B	1	Total Cl 1 1	0	0
19	C	1	Total Cl 1 1	0	0
19	D	2	Total Cl 2 2	0	0

- Molecule 20 is [(R)-(decanoylamino)-naphthalen-1-yl-methyl]phosphonic acid (three-letter code: R9X) (formula: C₂₁H₃₀NO₄P) (labeled as "Ligand of Interest" by depositor).

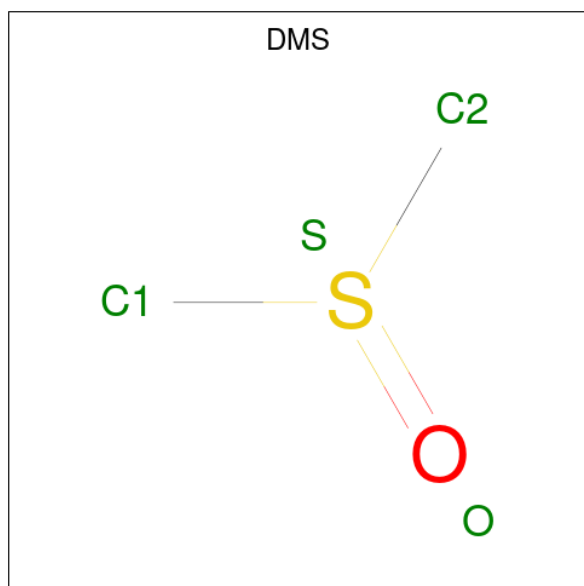


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
20	A	1	Total C N O P 54 42 2 8 2	0	1
20	B	1	Total C N O P 54 42 2 8 2	0	1
20	C	1	Total C N O P 27 21 1 4 1	0	1
20	C	1	Total C N O P 27 21 1 4 1	0	1
20	D	1	Total C N O P 54 42 2 8 2	0	1

- Molecule 21 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
21	B	1	Total Na 1 1	0	0

- Molecule 22 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C₂H₆OS).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
22	D	1	4	2	1	1	0	0

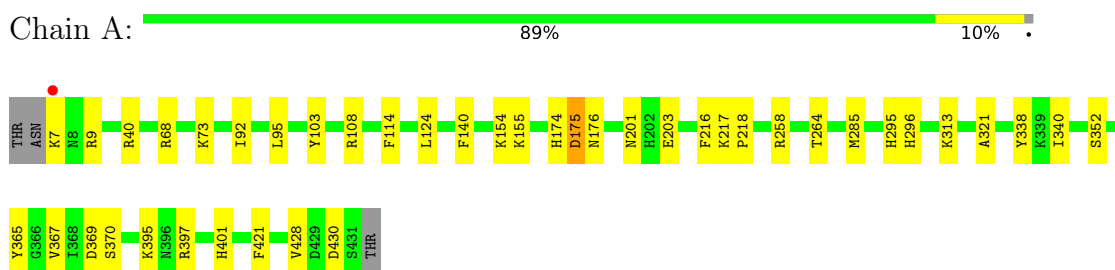
- Molecule 23 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
23	A	711	Total O 720 720	1	9
23	B	644	Total O 658 658	1	14
23	C	674	Total O 682 682	0	8
23	D	634	Total O 646 646	2	12

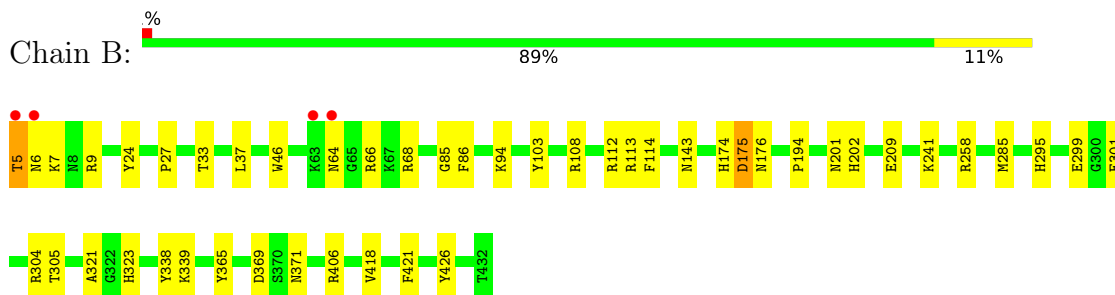
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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.

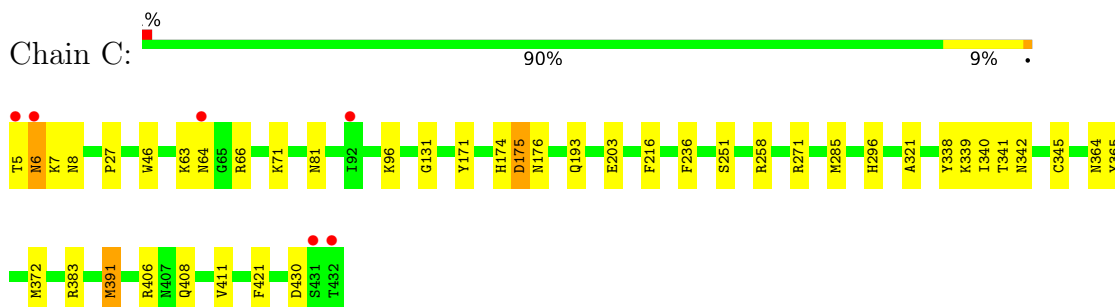
- Molecule 1: Fe(3+)-Zn(2+) purple acid phosphatase



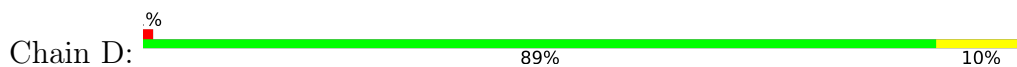
- Molecule 1: Fe(3+)-Zn(2+) purple acid phosphatase

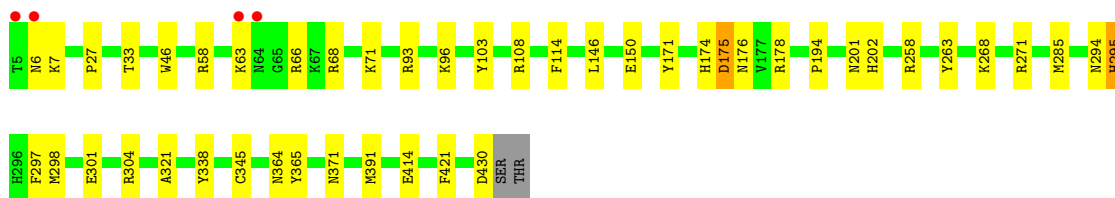


- Molecule 1: Fe(3+)-Zn(2+) purple acid phosphatase



- Molecule 1: Fe(3+)-Zn(2+) purple acid phosphatase





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

Chain E: 100%

MAG1
MAG2

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

Chain K: 100%

MAG1
MAG2

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

Chain Q: 50% 50%

MAG1
MAG2

- Molecule 3: alpha-D-mannopyranose-(1-2)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain F: 50% 33% 17%

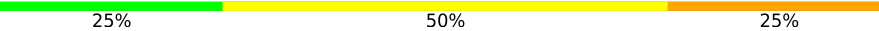
MAG1
MAG2
BMA3
MAN4
MAN5
FUC6

- Molecule 4: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G: 50% 50%

MAG1
MAG2
BMA3
FUC4

- Molecule 4: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I:  25% 50% 25%



- Molecule 4: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:  50% 50%



- Molecule 4: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain P:  75% 25%



- Molecule 4: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:  75% 25%

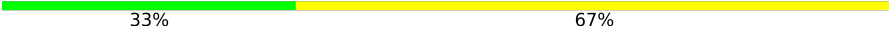


- Molecule 4: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:  75% 25%



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain H:  33% 67%



- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:  33% 67%



- Molecule 6: alpha-D-mannopyranose-(1-2)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: beta-D-mannopyranose-(5-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 10: alpha-L-fucopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose



4 Data and refinement statistics i

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α , β , γ	125.86Å 125.86Å 298.34Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.96 – 2.00 19.96 – 2.00	Depositor EDS
% Data completeness (in resolution range)	98.6 (19.96-2.00) 98.6 (19.96-2.00)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.17	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.64 (at 2.01Å)	Xtrriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.157 , 0.206 0.157 , 0.206	Depositor DCC
R_{free} test set	9127 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	23.0	Xtrriage
Anisotropy	0.018	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 59.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtrriage
Estimated twinning fraction	0.038 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	18800	wwPDB-VP
Average B, all atoms (Å ²)	26.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.96% 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.

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, FLC, R9X, GOL, PGE, BMA, ZN, SO4, NA, FE, FUC, EDO, DMS, MAN, CL

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	0.40	0/3722	0.59	0/5057
1	B	0.39	0/3687	0.59	0/5011
1	C	0.39	0/3734	0.60	0/5076
1	D	0.39	0/3736	0.60	0/5076
All	All	0.39	0/14879	0.60	0/20220

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	3569	0	3431	44	0
1	B	3558	0	3379	51	0
1	C	3584	0	3423	39	0
1	D	3586	0	3442	43	0
2	E	28	0	25	0	0
2	K	28	0	25	1	0
2	Q	28	0	25	1	0
3	F	71	0	61	1	0
4	G	49	0	43	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	I	49	0	43	2	0
4	N	49	0	43	0	0
4	P	49	0	43	0	0
4	S	49	0	43	0	0
4	V	49	0	43	0	0
5	H	71	0	61	1	0
5	J	71	0	61	0	0
6	L	60	0	52	0	0
7	M	39	0	34	1	0
8	O	28	0	25	0	0
9	R	48	0	41	2	0
10	T	24	0	22	0	0
11	A	1	0	0	0	0
11	B	1	0	0	0	0
11	C	1	0	0	0	0
11	D	1	0	0	0	0
12	A	1	0	0	0	0
12	B	1	0	0	0	0
12	C	1	0	0	0	0
12	D	1	0	0	0	0
13	A	39	0	15	5	0
13	B	52	0	20	9	0
13	C	65	0	25	6	0
13	D	13	0	5	6	0
14	A	17	0	23	6	0
14	B	20	0	28	3	0
14	C	10	0	14	1	0
14	D	10	0	14	8	0
15	A	14	0	13	0	0
15	C	28	0	26	1	0
15	D	28	0	26	3	0
16	A	30	0	0	6	0
16	B	45	0	0	3	0
16	C	40	0	0	6	0
16	D	45	0	0	4	0
17	A	4	0	6	0	0
17	B	4	0	6	0	0
17	C	4	0	6	1	0
17	D	4	0	6	0	0
18	A	84	0	111	13	0
18	B	60	0	80	7	0
18	C	66	0	88	10	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
18	D	90	0	120	11	0
19	A	2	0	0	1	0
19	B	1	0	0	0	0
19	C	1	0	0	0	0
19	D	2	0	0	1	0
20	A	54	0	0	12	0
20	B	54	0	0	7	0
20	C	54	0	0	8	0
20	D	54	0	0	8	0
21	B	1	0	0	0	0
22	D	4	0	6	1	0
23	A	720	0	0	12	0
23	B	658	0	0	15	0
23	C	682	0	0	19	0
23	D	646	0	0	12	0
All	All	18800	0	15003	224	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 7.

The worst 5 of 224 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)
20:B:531[A]:R9X:O26	23:B:601:HOH:O	1.78	1.01
1:A:397:ARG:HH22	13:A:505:FLC:HG2	1.25	0.98
1:A:68:ARG:NH1	16:A:510:SO4:O4	2.02	0.92
1:C:8:ASN:HD22	17:C:617:EDO:H21	1.37	0.88
1:A:365:TYR:OH	20:A:532[A]:R9X:O11	1.94	0.84

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	435/428 (102%)	417 (96%)	17 (4%)	1 (0%)	47	44
1	B	431/428 (101%)	412 (96%)	18 (4%)	1 (0%)	47	44
1	C	437/428 (102%)	415 (95%)	20 (5%)	2 (0%)	29	23
1	D	436/428 (102%)	414 (95%)	20 (5%)	2 (0%)	29	23
All	All	1739/1712 (102%)	1658 (95%)	75 (4%)	6 (0%)	34	37

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	175	ASP
1	A	175	ASP
1	B	175	ASP
1	C	175	ASP
1	D	63	LYS

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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	386/377 (102%)	384 (100%)	2 (0%)	88	92
1	B	382/377 (101%)	378 (99%)	4 (1%)	76	81
1	C	388/377 (103%)	385 (99%)	3 (1%)	81	86
1	D	387/377 (103%)	383 (99%)	4 (1%)	76	81
All	All	1543/1508 (102%)	1530 (99%)	13 (1%)	84	86

5 of 13 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	391[A]	MET
1	C	391[B]	MET
1	D	295[B]	HIS
1	D	176	ASN
1	D	295[A]	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	295	HIS
1	B	295	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

64 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	1,2	14,14,15	0.57	0	17,19,21	0.54	0
2	NAG	E	2	2	14,14,15	0.47	0	17,19,21	0.52	0
3	NAG	F	1	1,3	14,14,15	0.34	0	17,19,21	0.50	0
3	NAG	F	2	3	14,14,15	0.44	0	17,19,21	0.56	0
3	BMA	F	3	3	11,11,12	1.70	3 (27%)	15,15,17	1.47	3 (20%)
3	MAN	F	4	3	11,11,12	1.49	2 (18%)	15,15,17	1.89	5 (33%)
3	MAN	F	5	3	11,11,12	1.00	1 (9%)	15,15,17	1.27	2 (13%)
3	FUC	F	6	3	10,10,11	0.77	0	14,14,16	0.73	0
4	NAG	G	1	1,4	14,14,15	0.50	0	17,19,21	0.64	0
4	NAG	G	2	4	14,14,15	0.49	0	17,19,21	0.76	1 (5%)
4	BMA	G	3	4	11,11,12	0.78	0	15,15,17	0.82	0
4	FUC	G	4	4	10,10,11	0.60	0	14,14,16	1.02	1 (7%)
5	NAG	H	1	1,5	14,14,15	0.47	0	17,19,21	0.68	0
5	NAG	H	2	5	14,14,15	0.28	0	17,19,21	0.50	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	BMA	H	3	5	11,11,12	1.17	0	15,15,17	1.01	1 (6%)
5	MAN	H	4	5	11,11,12	0.63	0	15,15,17	1.36	2 (13%)
5	MAN	H	5	5	11,11,12	0.99	1 (9%)	15,15,17	1.21	2 (13%)
5	FUC	H	6	5	10,10,11	0.92	0	14,14,16	0.90	0
4	NAG	I	1	1,4	14,14,15	0.39	0	17,19,21	0.73	1 (5%)
4	NAG	I	2	4	14,14,15	0.38	0	17,19,21	0.54	0
4	BMA	I	3	4	11,11,12	1.65	2 (18%)	15,15,17	1.86	4 (26%)
4	FUC	I	4	4	10,10,11	0.55	0	14,14,16	1.08	1 (7%)
5	NAG	J	1	1,5	14,14,15	0.50	0	17,19,21	0.57	0
5	NAG	J	2	5	14,14,15	0.44	0	17,19,21	0.53	0
5	BMA	J	3	5	11,11,12	1.18	2 (18%)	15,15,17	1.22	3 (20%)
5	MAN	J	4	5	11,11,12	1.11	1 (9%)	15,15,17	1.35	3 (20%)
5	MAN	J	5	5	11,11,12	0.83	0	15,15,17	1.21	1 (6%)
5	FUC	J	6	5	10,10,11	0.96	0	14,14,16	1.16	1 (7%)
2	NAG	K	1	1,2	14,14,15	0.49	0	17,19,21	0.58	0
2	NAG	K	2	2	14,14,15	0.17	0	17,19,21	0.88	1 (5%)
6	NAG	L	1	1,6	14,14,15	0.45	0	17,19,21	0.67	1 (5%)
6	NAG	L	2	6	14,14,15	0.31	0	17,19,21	0.55	0
6	BMA	L	3	6	11,11,12	0.97	0	15,15,17	0.87	0
6	MAN	L	4	6	11,11,12	1.17	2 (18%)	15,15,17	1.15	2 (13%)
6	FUC	L	5	6	10,10,11	0.74	0	14,14,16	0.95	1 (7%)
7	NAG	M	1	1,7	14,14,15	0.36	0	17,19,21	0.63	0
7	NAG	M	2	7	14,14,15	0.92	1 (7%)	17,19,21	1.53	1 (5%)
7	BMA	M	3	7	11,11,12	1.74	3 (27%)	15,15,17	1.99	4 (26%)
4	NAG	N	1	1,4	14,14,15	0.55	0	17,19,21	0.66	0
4	NAG	N	2	4	14,14,15	0.41	0	17,19,21	0.70	0
4	BMA	N	3	4	11,11,12	1.63	3 (27%)	15,15,17	1.83	3 (20%)
4	FUC	N	4	4	10,10,11	0.66	0	14,14,16	1.14	1 (7%)
8	NAG	O	1	1,8	14,14,15	0.79	1 (7%)	17,19,21	1.04	2 (11%)
8	NAG	O	2	8	14,14,15	0.54	0	17,19,21	0.62	0
4	NAG	P	1	1,4	14,14,15	0.48	0	17,19,21	0.66	0
4	NAG	P	2	4	14,14,15	0.60	0	17,19,21	0.67	0
4	BMA	P	3	4	11,11,12	1.38	2 (18%)	15,15,17	1.71	2 (13%)
4	FUC	P	4	4	10,10,11	0.56	0	14,14,16	0.73	0
2	NAG	Q	1	1,2	14,14,15	0.30	0	17,19,21	0.53	0
2	NAG	Q	2	2	14,14,15	0.24	0	17,19,21	0.65	1 (5%)
9	NAG	R	1	9,1	14,14,15	0.51	0	17,19,21	0.59	0
9	NAG	R	2	9	14,14,15	0.40	0	17,19,21	0.56	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
9	BMA	R	3	9	10,10,12	0.87	0	14,14,17	0.88	0
9	FUC	R	4	9	10,10,11	0.88	0	14,14,16	1.04	0
4	NAG	S	1	1,4	14,14,15	0.58	0	17,19,21	0.56	0
4	NAG	S	2	4	14,14,15	0.54	0	17,19,21	0.70	0
4	BMA	S	3	4	11,11,12	1.45	2 (18%)	15,15,17	1.47	1 (6%)
4	FUC	S	4	4	10,10,11	0.81	0	14,14,16	0.84	0
10	NAG	T	1	1,10	14,14,15	0.46	0	17,19,21	0.65	0
10	FUC	T	2	10	10,10,11	1.36	2 (20%)	14,14,16	1.87	3 (21%)
4	NAG	V	1	1,4	14,14,15	0.46	0	17,19,21	0.57	0
4	NAG	V	2	4	14,14,15	0.40	0	17,19,21	0.55	0
4	BMA	V	3	4	11,11,12	0.77	1 (9%)	15,15,17	0.97	0
4	FUC	V	4	4	10,10,11	0.50	0	14,14,16	0.74	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
2	NAG	E	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	E	2	2	-	2/6/23/26	0/1/1/1
3	NAG	F	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	F	2	3	-	2/6/23/26	0/1/1/1
3	BMA	F	3	3	-	2/2/19/22	0/1/1/1
3	MAN	F	4	3	-	2/2/19/22	0/1/1/1
3	MAN	F	5	3	-	1/2/19/22	1/1/1/1
3	FUC	F	6	3	-	-	0/1/1/1
4	NAG	G	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	G	2	4	-	4/6/23/26	0/1/1/1
4	BMA	G	3	4	-	2/2/19/22	0/1/1/1
4	FUC	G	4	4	-	-	0/1/1/1
5	NAG	H	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	H	2	5	-	0/6/23/26	0/1/1/1
5	BMA	H	3	5	-	0/2/19/22	0/1/1/1
5	MAN	H	4	5	-	2/2/19/22	0/1/1/1
5	MAN	H	5	5	-	0/2/19/22	0/1/1/1
5	FUC	H	6	5	-	-	0/1/1/1
4	NAG	I	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	I	2	4	-	4/6/23/26	0/1/1/1
4	BMA	I	3	4	-	2/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	FUC	I	4	4	-	-	0/1/1/1
5	NAG	J	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	J	2	5	-	2/6/23/26	0/1/1/1
5	BMA	J	3	5	-	0/2/19/22	0/1/1/1
5	MAN	J	4	5	-	0/2/19/22	1/1/1/1
5	MAN	J	5	5	-	0/2/19/22	0/1/1/1
5	FUC	J	6	5	-	-	0/1/1/1
2	NAG	K	1	1,2	-	4/6/23/26	0/1/1/1
2	NAG	K	2	2	-	2/6/23/26	0/1/1/1
6	NAG	L	1	1,6	-	0/6/23/26	0/1/1/1
6	NAG	L	2	6	-	0/6/23/26	0/1/1/1
6	BMA	L	3	6	-	0/2/19/22	0/1/1/1
6	MAN	L	4	6	-	2/2/19/22	1/1/1/1
6	FUC	L	5	6	-	-	0/1/1/1
7	NAG	M	1	1,7	-	0/6/23/26	0/1/1/1
7	NAG	M	2	7	-	2/6/23/26	0/1/1/1
7	BMA	M	3	7	-	0/2/19/22	0/1/1/1
4	NAG	N	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	N	2	4	-	2/6/23/26	0/1/1/1
4	BMA	N	3	4	-	0/2/19/22	0/1/1/1
4	FUC	N	4	4	-	-	0/1/1/1
8	NAG	O	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	O	2	8	-	0/6/23/26	0/1/1/1
4	NAG	P	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	P	2	4	-	0/6/23/26	0/1/1/1
4	BMA	P	3	4	-	1/2/19/22	0/1/1/1
4	FUC	P	4	4	-	-	0/1/1/1
2	NAG	Q	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	Q	2	2	-	2/6/23/26	0/1/1/1
9	NAG	R	1	9,1	-	0/6/23/26	0/1/1/1
9	NAG	R	2	9	-	2/6/23/26	0/1/1/1
9	BMA	R	3	9	1/1/4/5	-	0/1/1/1
9	FUC	R	4	9	-	-	0/1/1/1
4	NAG	S	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	S	2	4	-	2/6/23/26	0/1/1/1
4	BMA	S	3	4	-	1/2/19/22	1/1/1/1
4	FUC	S	4	4	-	-	0/1/1/1
10	NAG	T	1	1,10	-	4/6/23/26	0/1/1/1
10	FUC	T	2	10	-	-	0/1/1/1
4	NAG	V	1	1,4	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	V	2	4	-	2/6/23/26	0/1/1/1
4	BMA	V	3	4	-	2/2/19/22	0/1/1/1
4	FUC	V	4	4	-	-	0/1/1/1

The worst 5 of 29 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	N	3	BMA	C1-C2	4.01	1.61	1.52
7	M	3	BMA	C1-C2	3.80	1.60	1.52
4	I	3	BMA	C1-C2	3.79	1.60	1.52
3	F	4	MAN	C2-C3	3.71	1.58	1.52
3	F	3	BMA	C1-C2	3.65	1.60	1.52

The worst 5 of 54 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	M	3	BMA	C1-O5-C5	5.88	120.16	112.19
7	M	2	NAG	C1-O5-C5	5.81	120.07	112.19
4	P	3	BMA	C1-O5-C5	5.29	119.36	112.19
4	I	3	BMA	C1-O5-C5	5.11	119.11	112.19
4	N	3	BMA	C1-O5-C5	5.08	119.07	112.19

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
9	R	3	BMA	C5

5 of 55 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	F	4	MAN	C4-C5-C6-O6
4	I	3	BMA	C4-C5-C6-O6
2	E	2	NAG	O5-C5-C6-O6
3	F	4	MAN	O5-C5-C6-O6
4	I	3	BMA	O5-C5-C6-O6

All (4) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	S	3	BMA	C1-C2-C3-C4-C5-O5
6	L	4	MAN	C1-C2-C3-C4-C5-O5

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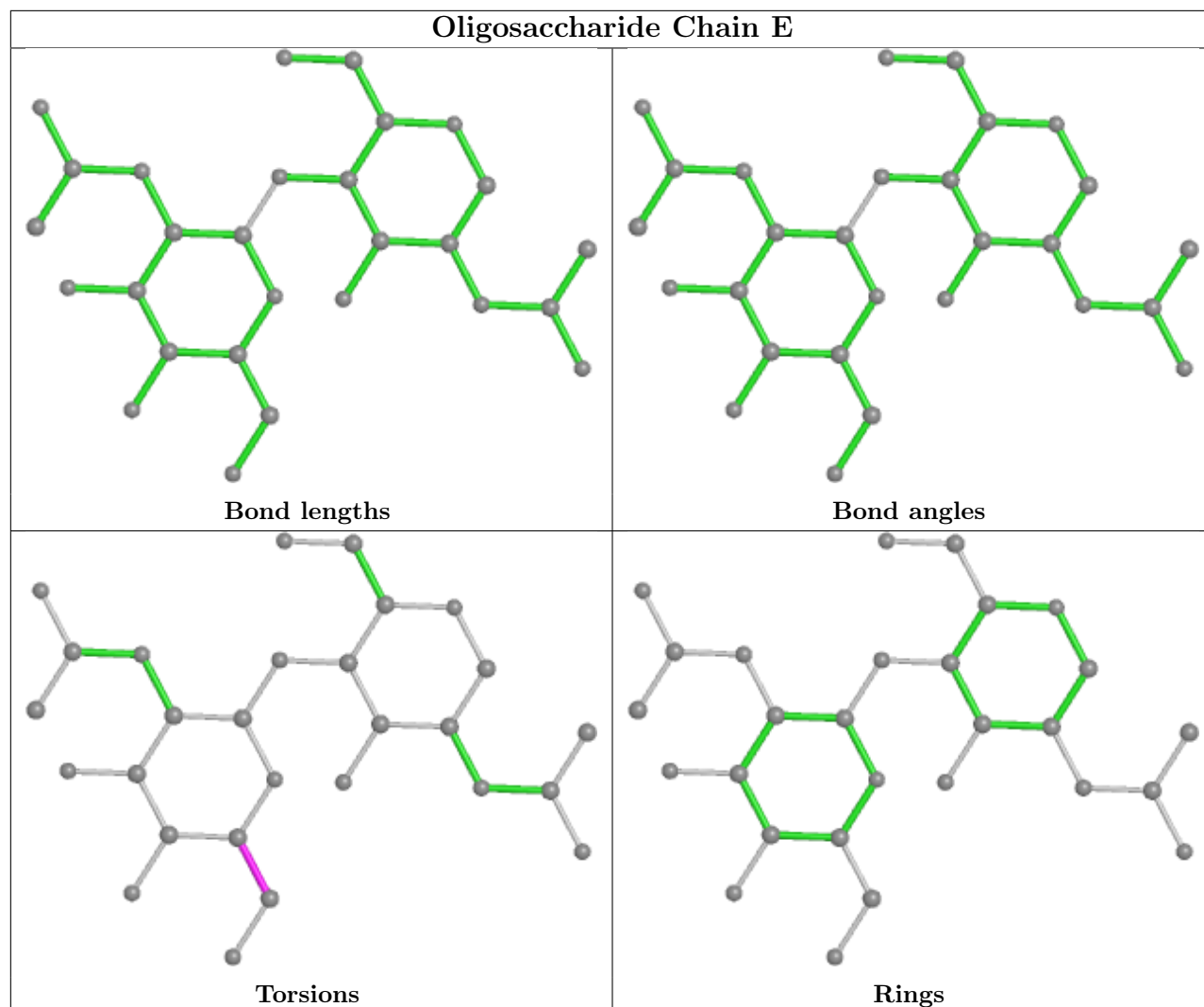
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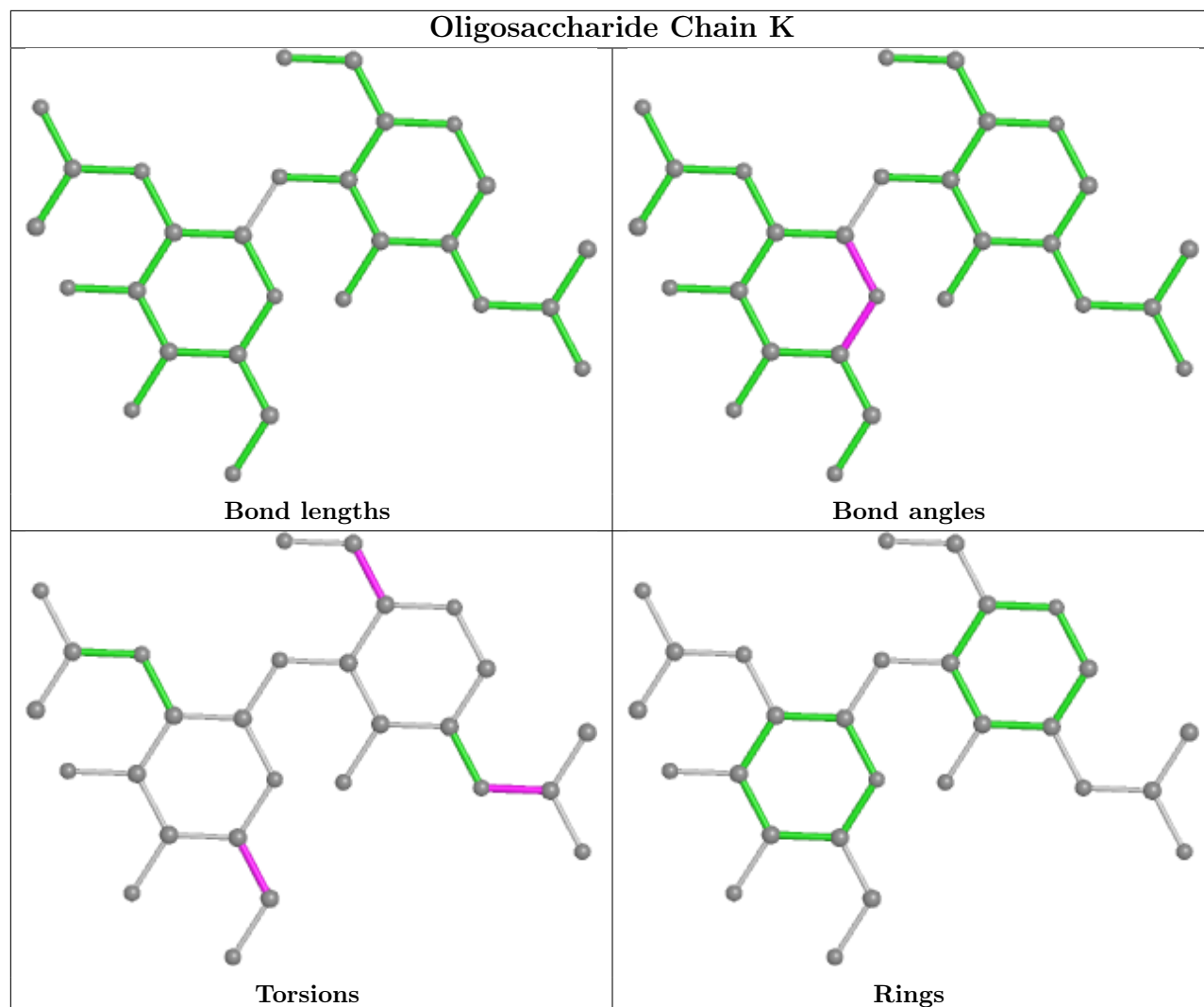
Mol	Chain	Res	Type	Atoms
3	F	5	MAN	C1-C2-C3-C4-C5-O5
5	J	4	MAN	C1-C2-C3-C4-C5-O5

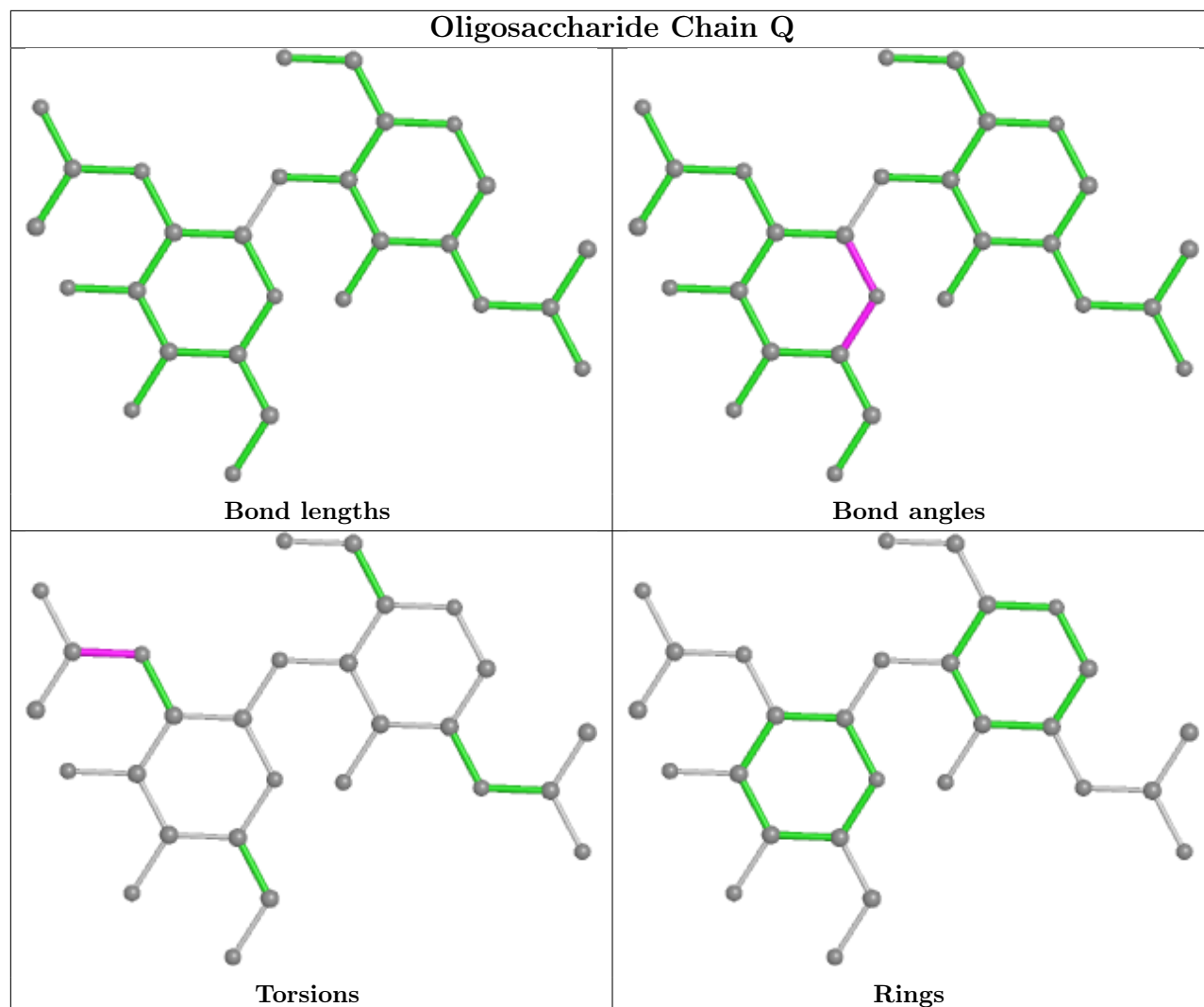
8 monomers are involved in 9 short contacts:

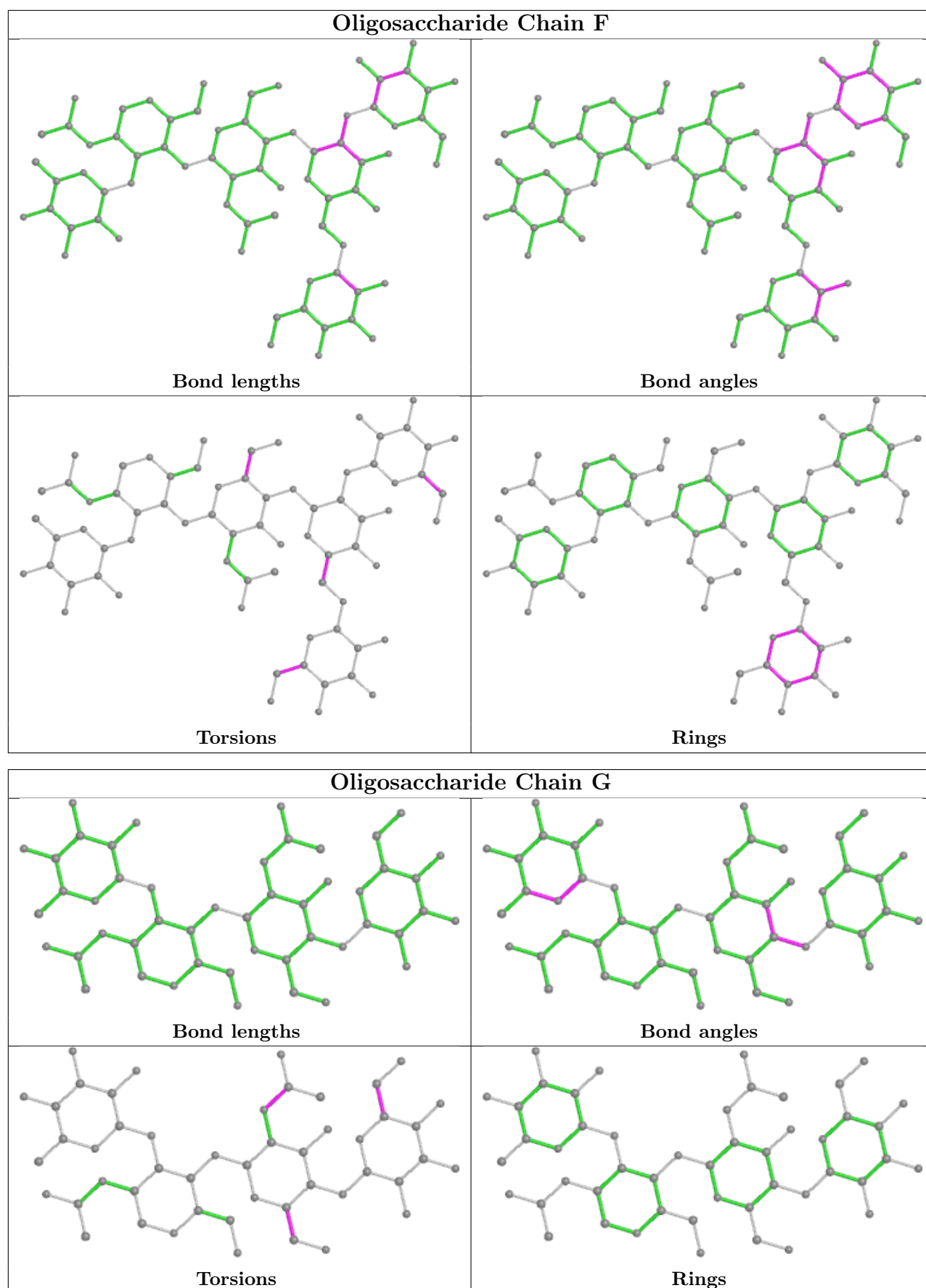
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	H	2	NAG	1	0
2	Q	2	NAG	1	0
4	I	1	NAG	2	0
7	M	2	NAG	1	0
2	K	1	NAG	1	0
3	F	4	MAN	1	0
9	R	2	NAG	1	0
9	R	1	NAG	1	0

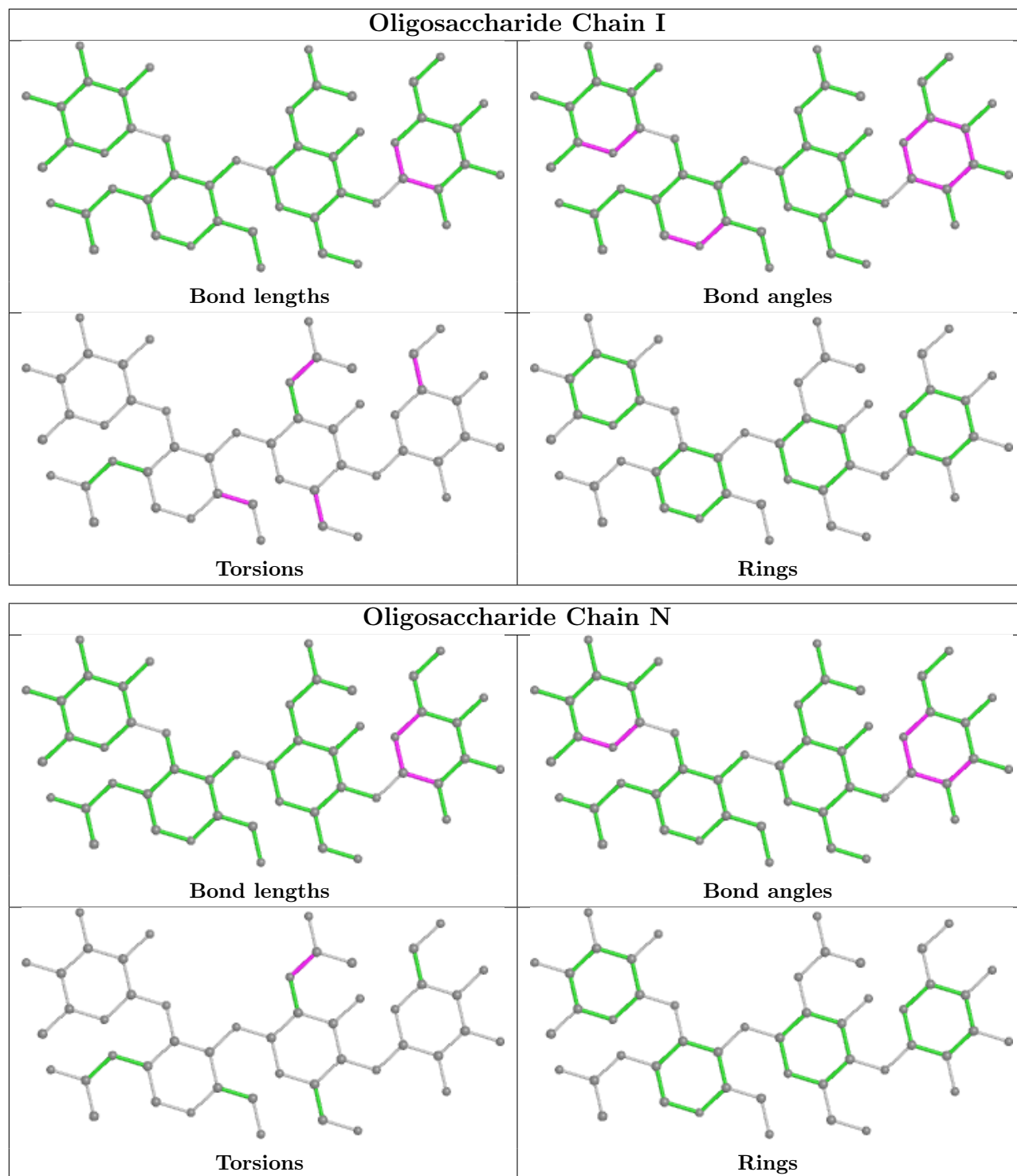
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

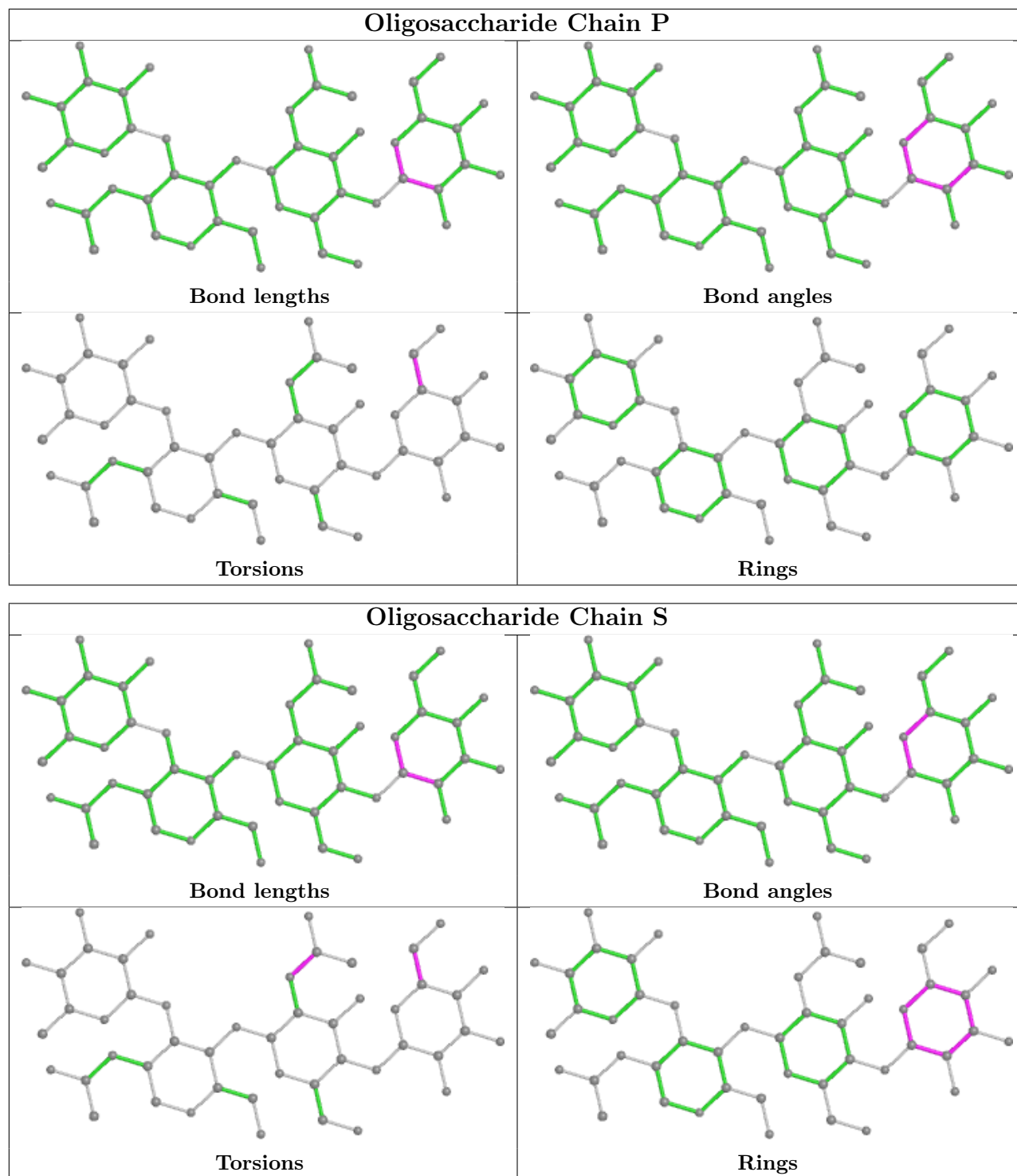


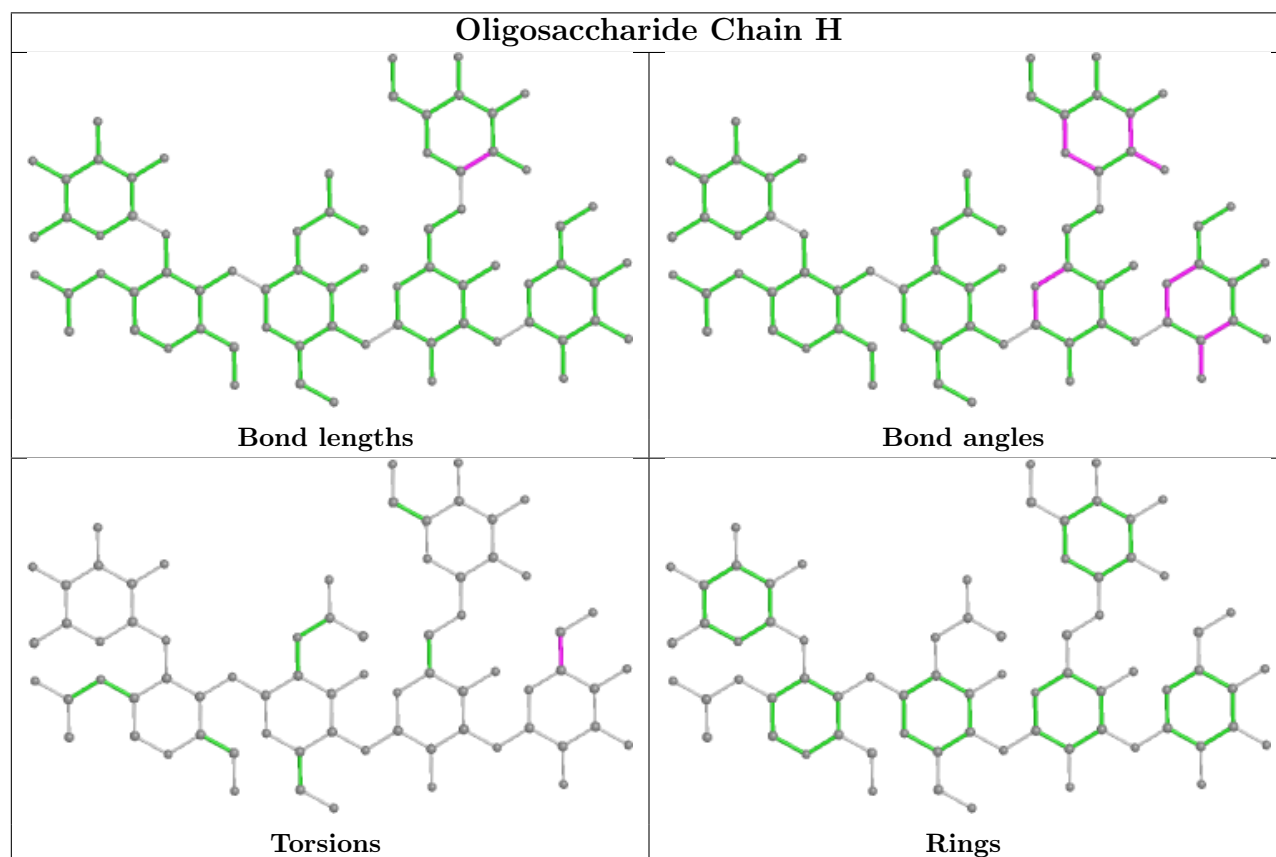
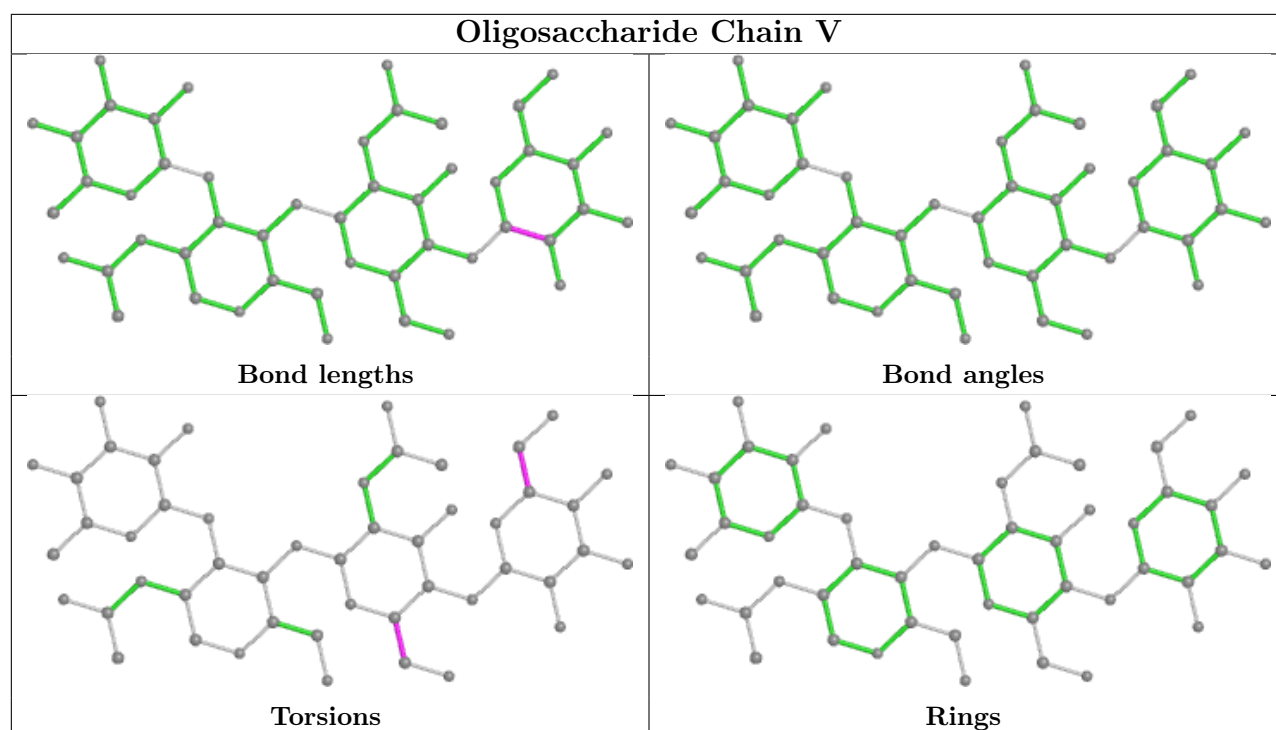


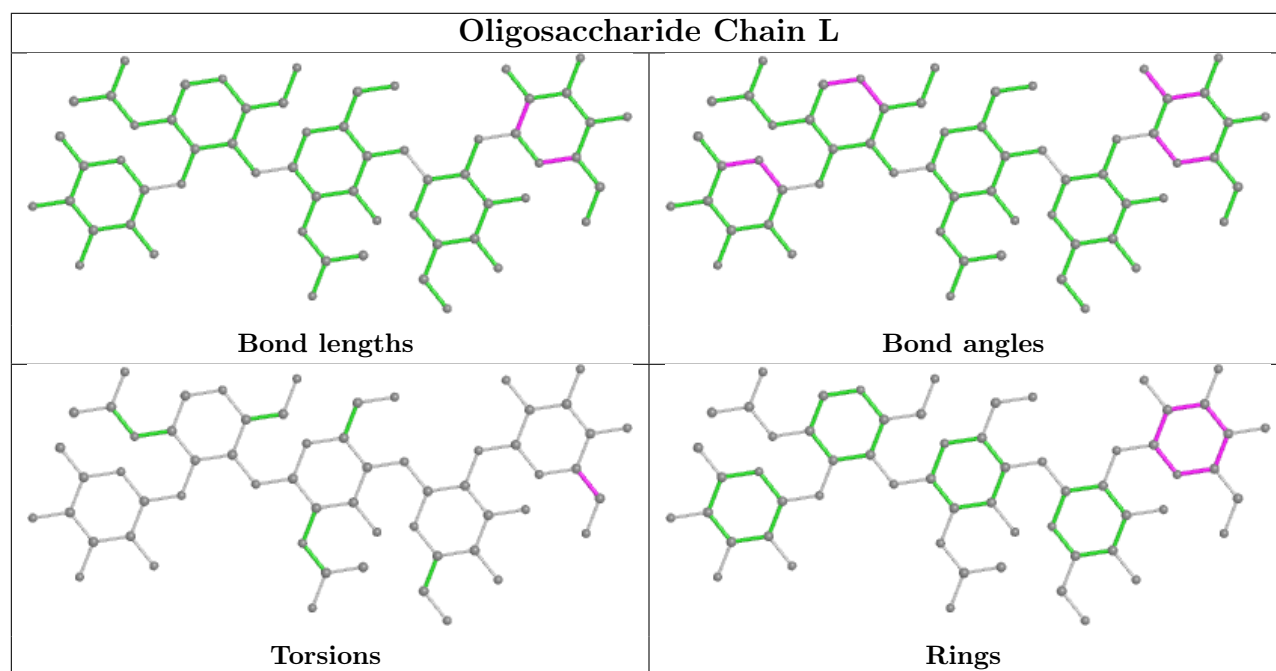
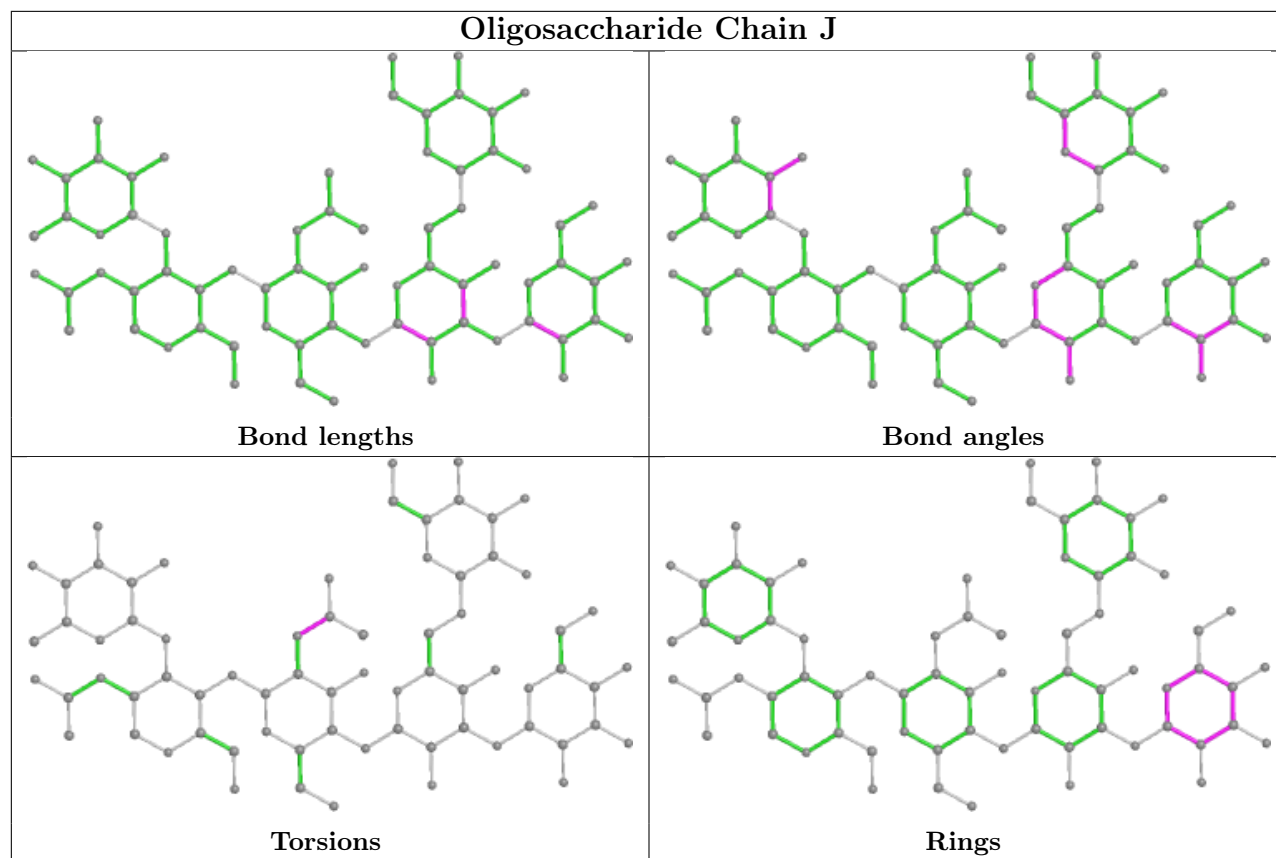


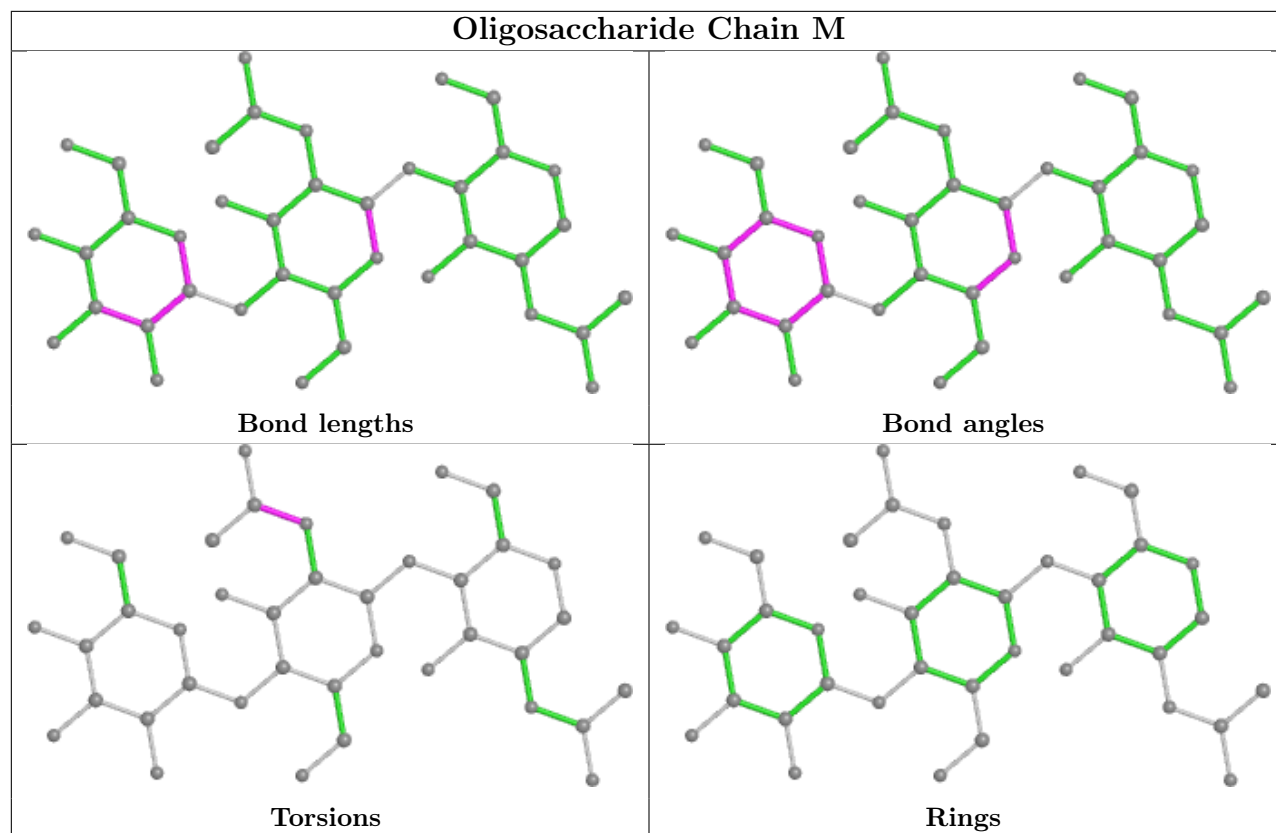


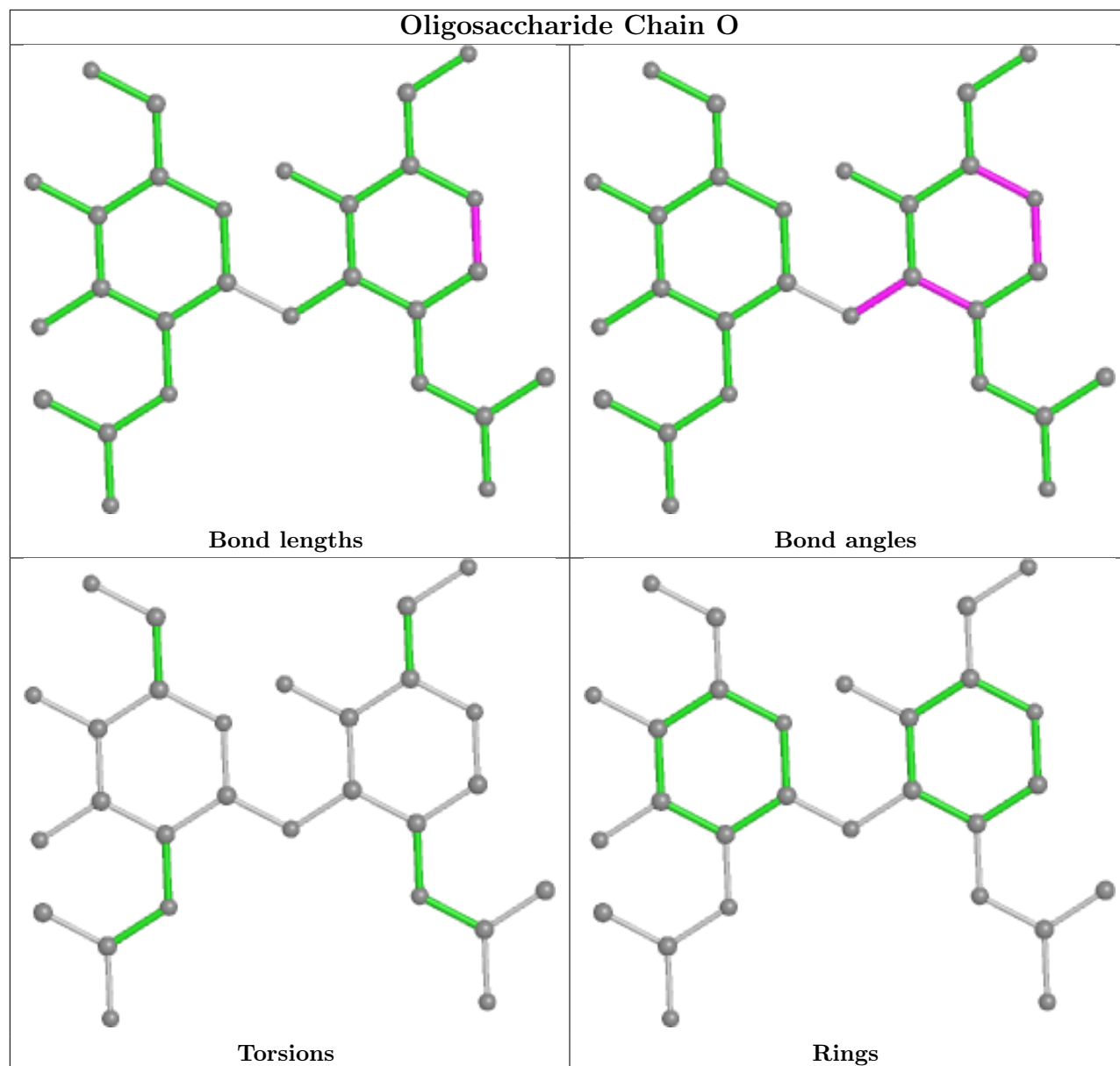


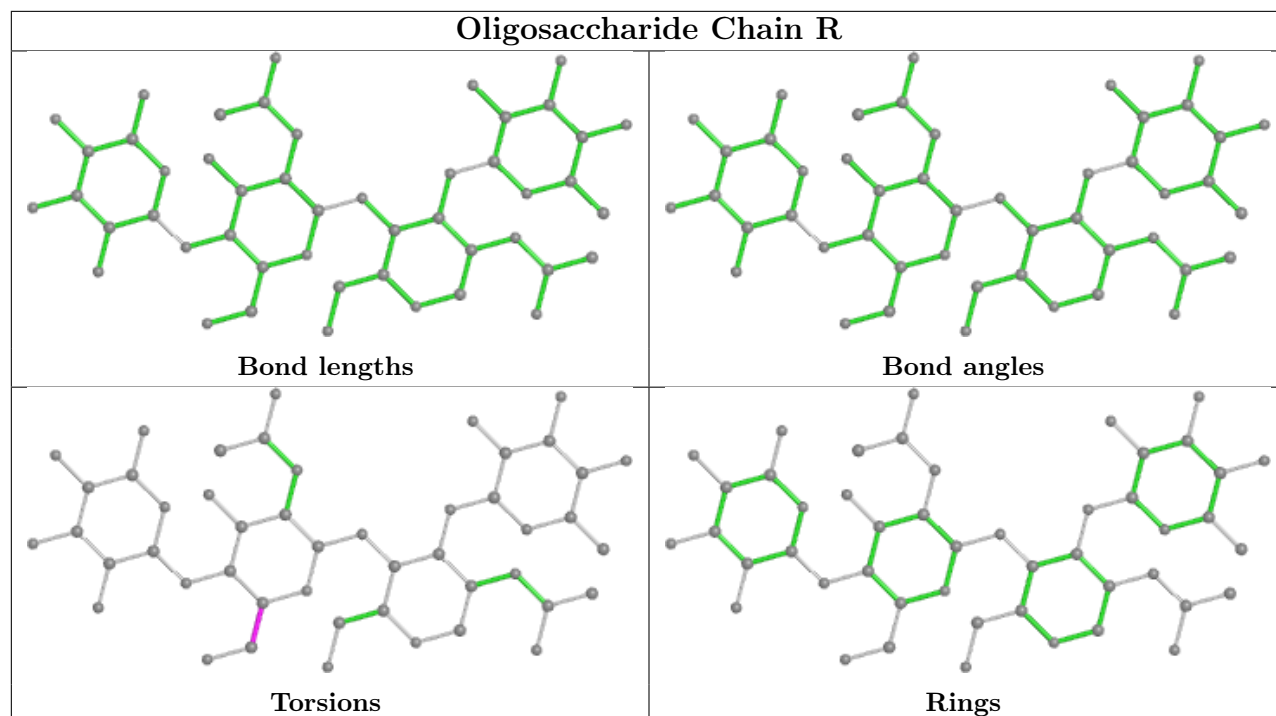


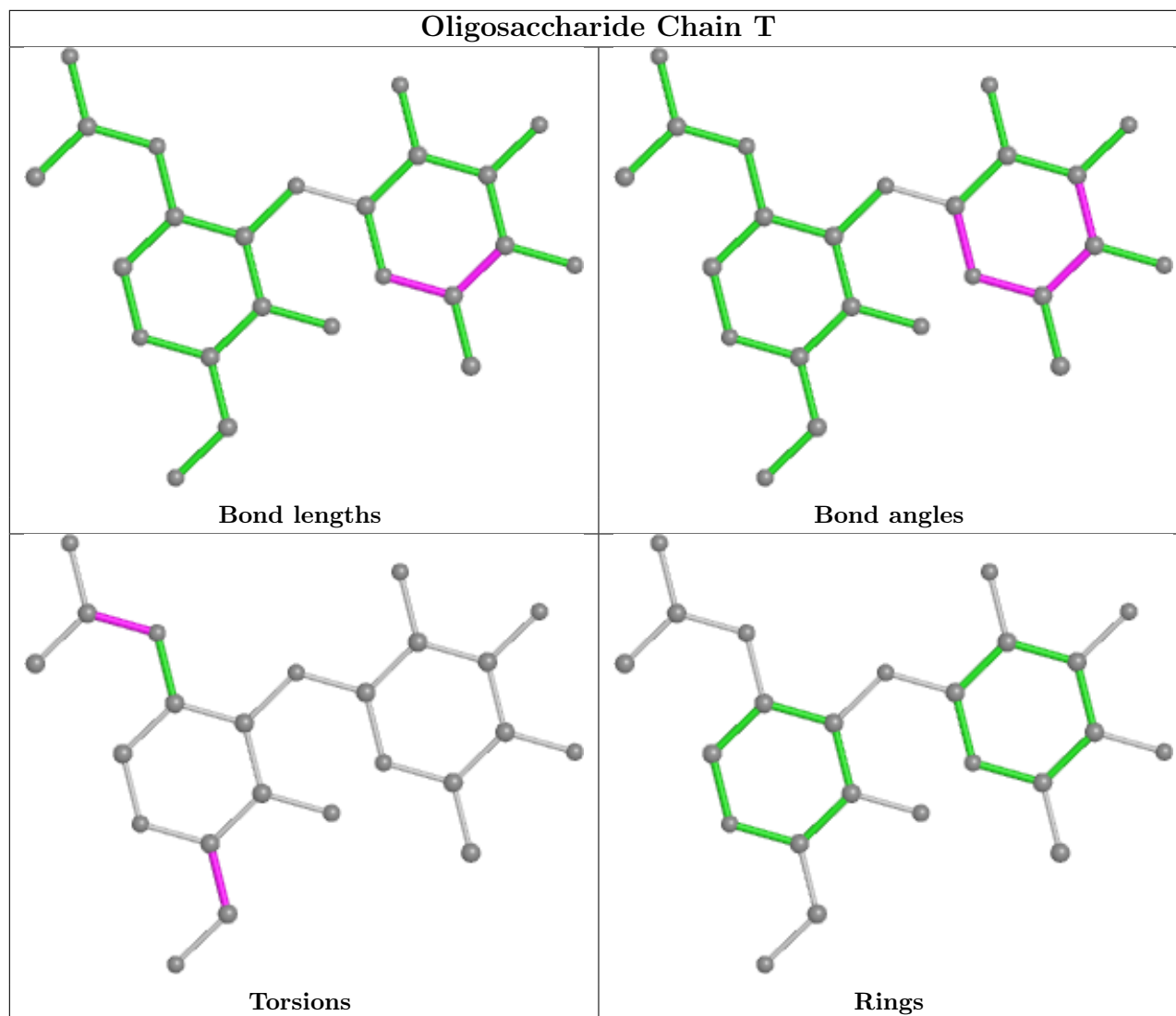












5.6 Ligand geometry [i](#)

Of 134 ligands modelled in this entry, 15 are monoatomic - leaving 119 for Mogul analysis.

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
17	EDO	A	514	-	3,3,3	0.37	0	2,2,2	0.44	0
18	GOL	B	521	-	5,5,5	1.08	1 (20%)	5,5,5	1.00	0
16	SO4	A	510	-	4,4,4	0.12	0	6,6,6	0.18	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
20	R9X	A	532[A]	-	28,28,28	1.59	5 (17%)	35,37,37	2.64	9 (25%)
16	SO4	C	608	-	4,4,4	0.19	0	6,6,6	0.44	0
18	GOL	B	524	-	5,5,5	0.77	0	5,5,5	1.04	0
16	SO4	D	508	-	4,4,4	0.14	0	6,6,6	0.19	0
18	GOL	D	523	-	5,5,5	0.85	0	5,5,5	1.04	0
16	SO4	A	508	-	4,4,4	0.17	0	6,6,6	0.25	0
16	SO4	B	514	-	4,4,4	0.14	0	6,6,6	0.07	0
16	SO4	C	610	-	4,4,4	0.15	0	6,6,6	0.12	0
16	SO4	A	511	-	4,4,4	0.15	0	6,6,6	0.10	0
18	GOL	B	528	-	5,5,5	0.89	0	5,5,5	1.01	0
13	FLC	C	628	-	12,12,12	1.51	4 (33%)	17,17,17	2.28	4 (23%)
18	GOL	C	620	-	5,5,5	1.37	2 (40%)	5,5,5	0.90	0
16	SO4	C	615	-	4,4,4	0.16	0	6,6,6	0.15	0
18	GOL	C	619	-	5,5,5	0.90	0	5,5,5	0.90	0
13	FLC	C	602	-	12,12,12	1.03	2 (16%)	17,17,17	2.07	2 (11%)
18	GOL	A	518	-	5,5,5	0.89	0	5,5,5	1.20	1 (20%)
18	GOL	C	625	-	5,5,5	0.98	0	5,5,5	1.07	1 (20%)
14	PGE	B	504	-	9,9,9	0.26	0	8,8,8	0.38	0
18	GOL	C	618	-	5,5,5	1.07	0	5,5,5	1.09	1 (20%)
20	R9X	B	531[B]	-	28,28,28	1.51	3 (10%)	35,37,37	2.01	6 (17%)
15	NAG	C	616	1	14,14,15	0.28	0	17,19,21	0.50	0
18	GOL	C	621	-	5,5,5	0.97	0	5,5,5	0.97	0
18	GOL	D	520	-	5,5,5	1.06	1 (20%)	5,5,5	1.07	0
16	SO4	D	512	-	4,4,4	0.20	0	6,6,6	0.17	0
18	GOL	D	528	-	5,5,5	0.80	0	5,5,5	1.14	0
18	GOL	D	529	-	5,5,5	0.92	0	5,5,5	0.96	0
16	SO4	B	511	-	4,4,4	0.12	0	6,6,6	0.12	0
18	GOL	A	520	-	5,5,5	0.77	0	5,5,5	1.01	0
16	SO4	D	513	-	4,4,4	0.13	0	6,6,6	0.09	0
20	R9X	A	532[B]	-	28,28,28	1.53	6 (21%)	35,37,37	1.21	3 (8%)
18	GOL	D	534	-	5,5,5	0.91	0	5,5,5	1.01	0
18	GOL	A	527	-	5,5,5	0.91	0	5,5,5	0.90	0
18	GOL	A	521	-	5,5,5	0.93	0	5,5,5	1.04	0
16	SO4	B	509	-	4,4,4	0.14	0	6,6,6	0.13	0
16	SO4	D	509	-	4,4,4	0.13	0	6,6,6	0.06	0
13	FLC	B	507	-	12,12,12	1.56	4 (33%)	17,17,17	2.35	4 (23%)
18	GOL	A	524	-	5,5,5	0.82	0	5,5,5	0.96	0
16	SO4	D	515	-	4,4,4	0.15	0	6,6,6	0.13	0
16	SO4	D	514	-	4,4,4	0.12	0	6,6,6	0.13	0
15	NAG	A	506	1	14,14,15	1.11	1 (7%)	17,19,21	1.25	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
18	GOL	A	519	-	5,5,5	1.34	1 (20%)	5,5,5	0.82	0
14	PGE	B	508	-	9,9,9	0.29	0	8,8,8	0.45	0
18	GOL	D	522	-	5,5,5	0.86	0	5,5,5	0.92	0
14	PGE	C	604	-	9,9,9	0.31	0	8,8,8	0.29	0
16	SO4	C	613	-	4,4,4	0.14	0	6,6,6	0.05	0
13	FLC	B	506	-	12,12,12	1.15	2 (16%)	17,17,17	1.39	2 (11%)
16	SO4	B	513	-	4,4,4	0.13	0	6,6,6	0.09	0
14	PGE	D	504	-	9,9,9	0.27	0	8,8,8	0.57	0
13	FLC	A	503	-	12,12,12	0.23	0	17,17,17	0.56	0
13	FLC	C	627	-	12,12,12	1.89	6 (50%)	17,17,17	2.77	8 (47%)
18	GOL	A	523	-	5,5,5	0.83	0	5,5,5	1.15	0
13	FLC	B	503	-	12,12,12	1.49	4 (33%)	17,17,17	2.33	4 (23%)
18	GOL	D	525	-	5,5,5	0.80	0	5,5,5	1.02	0
18	GOL	D	533	-	5,5,5	0.81	0	5,5,5	1.16	0
16	SO4	A	509	-	4,4,4	0.16	0	6,6,6	0.24	0
20	R9X	D	535[B]	-	28,28,28	1.69	4 (14%)	35,37,37	1.13	3 (8%)
16	SO4	D	511	-	4,4,4	0.13	0	6,6,6	0.16	0
20	R9X	D	535[A]	-	28,28,28	1.43	4 (14%)	35,37,37	1.90	7 (20%)
13	FLC	C	603	-	12,12,12	1.50	4 (33%)	17,17,17	2.37	4 (23%)
16	SO4	B	512	-	4,4,4	0.20	0	6,6,6	0.18	0
13	FLC	A	530	-	12,12,12	1.58	4 (33%)	17,17,17	1.36	4 (23%)
15	NAG	D	506	1	14,14,15	0.50	0	17,19,21	0.43	0
16	SO4	A	513	-	4,4,4	0.15	0	6,6,6	0.08	0
18	GOL	B	525	-	5,5,5	0.84	0	5,5,5	1.02	0
14	PGE	A	507	-	6,6,9	0.23	0	5,5,8	0.84	0
18	GOL	A	522	-	5,5,5	0.90	0	5,5,5	0.95	0
18	GOL	C	630	-	5,5,5	1.06	0	5,5,5	1.02	0
18	GOL	A	531	-	5,5,5	0.91	0	5,5,5	1.19	0
18	GOL	B	526	-	5,5,5	0.90	0	5,5,5	1.04	0
16	SO4	A	512	-	4,4,4	0.16	0	6,6,6	0.23	0
18	GOL	D	527	-	5,5,5	1.15	0	5,5,5	1.18	1 (20%)
16	SO4	D	510	-	4,4,4	0.10	0	6,6,6	0.15	0
18	GOL	D	521	-	5,5,5	0.83	0	5,5,5	1.02	0
16	SO4	B	515	-	4,4,4	0.14	0	6,6,6	0.06	0
13	FLC	A	505	-	12,12,12	1.51	4 (33%)	17,17,17	2.31	4 (23%)
18	GOL	D	519	-	5,5,5	1.08	0	5,5,5	0.85	0
18	GOL	A	515	-	5,5,5	1.01	0	5,5,5	0.88	0
18	GOL	C	623	-	5,5,5	0.94	0	5,5,5	1.04	0
17	EDO	D	517	-	3,3,3	0.50	0	2,2,2	0.26	0
16	SO4	C	609	-	4,4,4	0.14	0	6,6,6	0.10	0
18	GOL	C	624	-	5,5,5	0.86	0	5,5,5	1.05	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
17	EDO	C	617	-	3,3,3	0.49	0	2,2,2	0.25	0
16	SO4	B	510	-	4,4,4	0.12	0	6,6,6	0.29	0
18	GOL	D	526	-	5,5,5	0.86	0	5,5,5	1.05	0
18	GOL	C	629	-	5,5,5	0.90	0	5,5,5	0.93	0
18	GOL	D	518	-	5,5,5	0.87	0	5,5,5	1.01	0
18	GOL	C	622	-	5,5,5	0.94	0	5,5,5	1.03	0
16	SO4	C	614	-	4,4,4	0.14	0	6,6,6	0.11	0
18	GOL	B	527	-	5,5,5	1.00	0	5,5,5	0.86	0
13	FLC	C	601	-	12,12,12	1.19	2 (16%)	17,17,17	1.03	2 (11%)
18	GOL	A	517	-	5,5,5	0.85	0	5,5,5	0.98	0
18	GOL	A	516	-	5,5,5	1.04	1 (20%)	5,5,5	0.89	0
15	NAG	C	605	1	14,14,15	1.09	1 (7%)	17,19,21	1.66	1 (5%)
18	GOL	A	525	-	5,5,5	0.88	0	5,5,5	0.98	0
20	R9X	C	633[B]	-	28,28,28	1.67	4 (14%)	35,37,37	1.78	7 (20%)
20	R9X	C	632[A]	-	28,28,28	1.60	4 (14%)	35,37,37	2.75	7 (20%)
15	NAG	D	516	1	14,14,15	0.28	0	17,19,21	0.64	1 (5%)
18	GOL	D	524	-	5,5,5	0.93	0	5,5,5	1.01	0
18	GOL	A	526	-	5,5,5	0.88	0	5,5,5	1.05	0
17	EDO	B	518	-	3,3,3	0.46	0	2,2,2	0.38	0
22	DMS	D	505	-	3,3,3	0.69	0	3,3,3	0.51	0
16	SO4	C	611	-	4,4,4	0.11	0	6,6,6	0.12	0
18	GOL	C	631	-	5,5,5	0.87	0	5,5,5	1.01	0
16	SO4	C	612	-	4,4,4	0.12	0	6,6,6	0.16	0
13	FLC	B	505	-	12,12,12	0.15	0	17,17,17	0.32	0
18	GOL	B	523	-	5,5,5	0.74	0	5,5,5	1.12	0
16	SO4	D	507	-	4,4,4	0.16	0	6,6,6	0.15	0
18	GOL	B	519	-	5,5,5	0.82	0	5,5,5	1.02	0
16	SO4	B	517	-	4,4,4	0.13	0	6,6,6	0.06	0
14	PGE	A	504	-	9,9,9	0.31	0	8,8,8	0.26	0
20	R9X	B	531[A]	-	28,28,28	1.69	7 (25%)	35,37,37	1.55	6 (17%)
18	GOL	D	532	-	5,5,5	0.84	0	5,5,5	1.01	0
13	FLC	D	503	-	12,12,12	1.49	4 (33%)	17,17,17	2.36	4 (23%)
18	GOL	B	522	-	5,5,5	0.95	0	5,5,5	1.16	1 (20%)
16	SO4	B	516	-	4,4,4	0.13	0	6,6,6	0.11	0
18	GOL	B	520	-	5,5,5	0.93	0	5,5,5	0.95	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
17	EDO	A	514	-	-	0/1/1/1	-
18	GOL	B	521	-	-	3/4/4/4	-
20	R9X	A	532[A]	-	1/1/3/4	10/23/23/23	0/2/2/2
18	GOL	B	524	-	-	4/4/4/4	-
18	GOL	D	523	-	-	2/4/4/4	-
18	GOL	B	528	-	-	4/4/4/4	-
13	FLC	C	628	-	-	9/16/16/16	-
18	GOL	C	620	-	-	2/4/4/4	-
18	GOL	C	619	-	-	1/4/4/4	-
13	FLC	C	602	-	-	3/16/16/16	-
18	GOL	A	518	-	-	0/4/4/4	-
18	GOL	C	625	-	-	3/4/4/4	-
14	PGE	B	504	-	-	6/7/7/7	-
18	GOL	C	618	-	-	0/4/4/4	-
20	R9X	B	531[B]	-	-	7/23/23/23	0/2/2/2
15	NAG	C	616	1	-	4/6/23/26	0/1/1/1
18	GOL	C	621	-	-	0/4/4/4	-
18	GOL	D	520	-	-	0/4/4/4	-
18	GOL	D	528	-	-	0/4/4/4	-
18	GOL	D	529	-	-	1/4/4/4	-
18	GOL	A	520	-	-	2/4/4/4	-
20	R9X	A	532[B]	-	1/1/3/4	9/23/23/23	0/2/2/2
18	GOL	D	534	-	-	2/4/4/4	-
18	GOL	A	527	-	-	1/4/4/4	-
18	GOL	A	521	-	-	2/4/4/4	-
13	FLC	B	507	-	-	9/16/16/16	-
18	GOL	A	524	-	-	2/4/4/4	-
15	NAG	A	506	1	-	2/6/23/26	0/1/1/1
18	GOL	A	519	-	-	2/4/4/4	-
14	PGE	B	508	-	-	3/7/7/7	-
18	GOL	D	522	-	-	4/4/4/4	-
14	PGE	C	604	-	-	5/7/7/7	-
13	FLC	B	506	-	-	10/16/16/16	-
14	PGE	D	504	-	-	6/7/7/7	-
13	FLC	A	503	-	-	6/16/16/16	-
13	FLC	C	627	-	-	11/16/16/16	-
18	GOL	A	523	-	-	1/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
13	FLC	B	503	-	-	11/16/16/16	-
18	GOL	D	525	-	-	2/4/4/4	-
18	GOL	D	533	-	-	2/4/4/4	-
20	R9X	D	535[B]	-	1/1/3/4	14/23/23/23	0/2/2/2
20	R9X	D	535[A]	-	1/1/3/4	17/23/23/23	0/2/2/2
13	FLC	C	603	-	-	3/16/16/16	-
13	FLC	A	530	-	-	10/16/16/16	-
15	NAG	D	506	1	-	3/6/23/26	0/1/1/1
18	GOL	B	525	-	-	2/4/4/4	-
14	PGE	A	507	-	-	3/4/4/7	-
18	GOL	A	522	-	-	2/4/4/4	-
18	GOL	C	630	-	-	2/4/4/4	-
18	GOL	A	531	-	-	2/4/4/4	-
18	GOL	B	526	-	-	2/4/4/4	-
18	GOL	D	527	-	-	2/4/4/4	-
18	GOL	D	521	-	-	2/4/4/4	-
13	FLC	A	505	-	-	14/16/16/16	-
18	GOL	D	519	-	-	0/4/4/4	-
18	GOL	A	515	-	-	0/4/4/4	-
18	GOL	C	623	-	-	0/4/4/4	-
17	EDO	D	517	-	-	1/1/1/1	-
18	GOL	C	624	-	-	2/4/4/4	-
17	EDO	C	617	-	-	1/1/1/1	-
18	GOL	D	526	-	-	0/4/4/4	-
18	GOL	C	629	-	-	4/4/4/4	-
18	GOL	D	518	-	-	0/4/4/4	-
18	GOL	C	622	-	-	1/4/4/4	-
18	GOL	B	527	-	-	1/4/4/4	-
13	FLC	C	601	-	-	2/16/16/16	-
18	GOL	A	517	-	-	3/4/4/4	-
18	GOL	A	516	-	-	1/4/4/4	-
15	NAG	C	605	1	-	4/6/23/26	0/1/1/1
18	GOL	A	525	-	-	2/4/4/4	-
20	R9X	C	633[B]	-	1/1/3/4	14/23/23/23	0/2/2/2
20	R9X	C	632[A]	-	-	13/23/23/23	0/2/2/2
15	NAG	D	516	1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	GOL	D	524	-	-	3/4/4/4	-
18	GOL	A	526	-	-	1/4/4/4	-
17	EDO	B	518	-	-	0/1/1/1	-
18	GOL	C	631	-	-	2/4/4/4	-
13	FLC	B	505	-	-	9/16/16/16	-
18	GOL	B	523	-	-	0/4/4/4	-
18	GOL	B	519	-	-	2/4/4/4	-
14	PGE	A	504	-	-	3/7/7/7	-
20	R9X	B	531[A]	-	-	10/23/23/23	0/2/2/2
18	GOL	D	532	-	-	0/4/4/4	-
13	FLC	D	503	-	-	4/16/16/16	-
18	GOL	B	522	-	-	2/4/4/4	-
18	GOL	B	520	-	-	0/4/4/4	-

The worst 5 of 85 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
20	C	633[B]	R9X	C10-N12	6.42	1.47	1.34
20	C	632[A]	R9X	C10-N12	5.92	1.46	1.34
20	A	532[B]	R9X	C10-N12	5.62	1.46	1.34
20	D	535[B]	R9X	C10-N12	5.54	1.45	1.34
20	B	531[B]	R9X	C10-N12	5.53	1.45	1.34

The worst 5 of 98 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	C	632[A]	R9X	C13-N12-C10	10.95	136.25	121.19
20	A	532[A]	R9X	C14-C13-N12	-9.26	103.01	114.52
20	B	531[B]	R9X	C14-C13-N12	-8.16	104.38	114.52
20	C	632[A]	R9X	P24-C13-N12	-7.70	92.58	108.01
20	C	633[B]	R9X	C14-C13-N12	-6.90	105.95	114.52

All (5) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
20	A	532[A]	R9X	C13
20	A	532[B]	R9X	C13
20	C	633[B]	R9X	C13
20	D	535[A]	R9X	C13
20	D	535[B]	R9X	C13

5 of 316 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
13	A	530	FLC	CAC-CA-CB-CBC
13	A	530	FLC	CAC-CA-CB-CG
13	A	530	FLC	CAC-CA-CB-OHB
13	A	530	FLC	CG-CB-CBC-OB1
13	A	530	FLC	OHB-CB-CBC-OB1

There are no ring outliers.

66 monomers are involved in 143 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
18	B	521	GOL	1	0
16	A	510	SO4	2	0
20	A	532[A]	R9X	7	0
16	C	608	SO4	2	0
18	B	524	GOL	1	0
16	D	508	SO4	1	0
16	C	610	SO4	1	0
13	C	628	FLC	2	0
18	C	620	GOL	3	0
16	C	615	SO4	1	0
13	C	602	FLC	1	0
18	A	518	GOL	3	0
18	C	625	GOL	1	0
14	B	504	PGE	3	0
18	C	618	GOL	1	0
18	C	621	GOL	2	0
18	D	529	GOL	1	0
20	A	532[B]	R9X	5	0
18	D	534	GOL	1	0
16	B	509	SO4	1	0
13	B	507	FLC	2	0
18	A	524	GOL	1	0
16	D	515	SO4	1	0
16	D	514	SO4	1	0
18	A	519	GOL	1	0
18	D	522	GOL	4	0
14	C	604	PGE	1	0
16	C	613	SO4	2	0
13	B	506	FLC	3	0
14	D	504	PGE	8	0
13	A	503	FLC	3	0

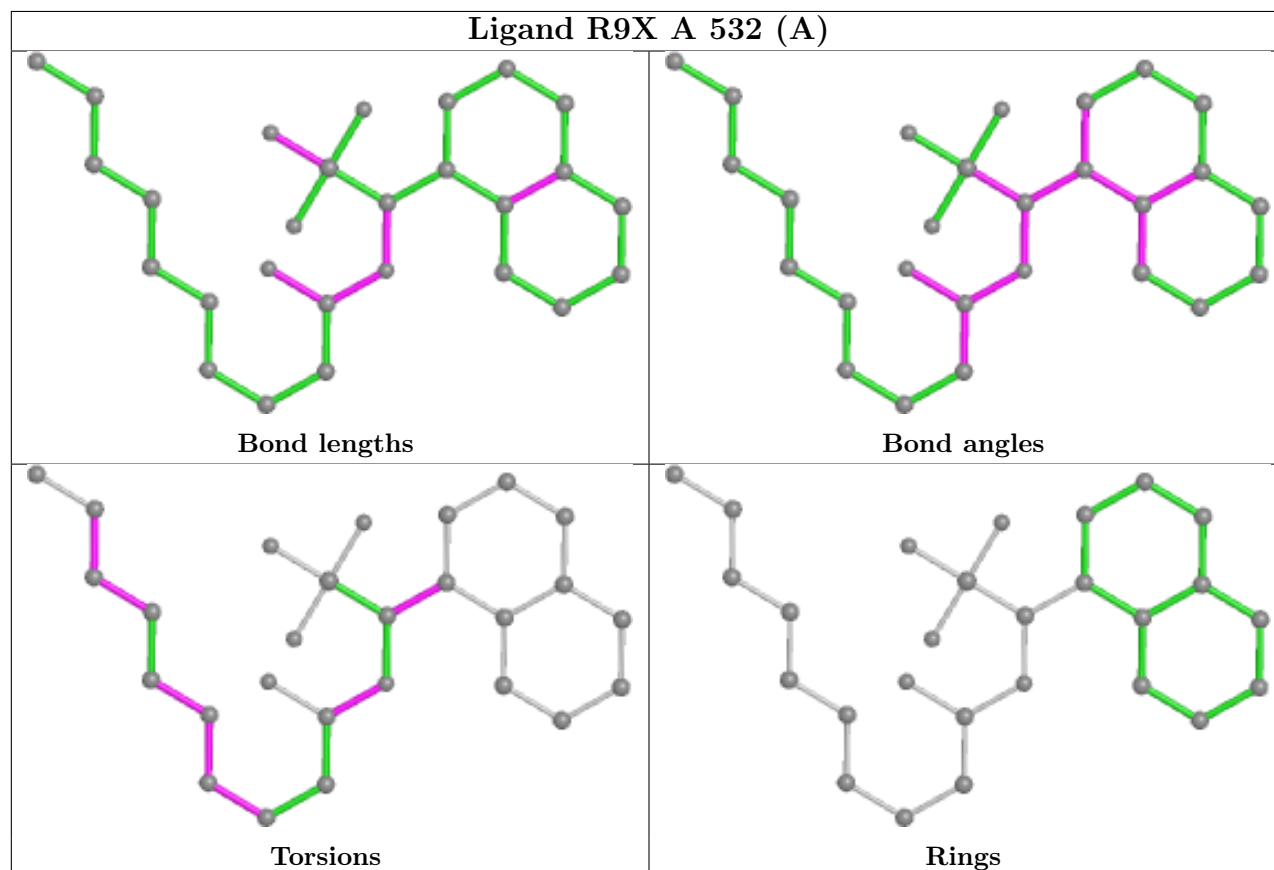
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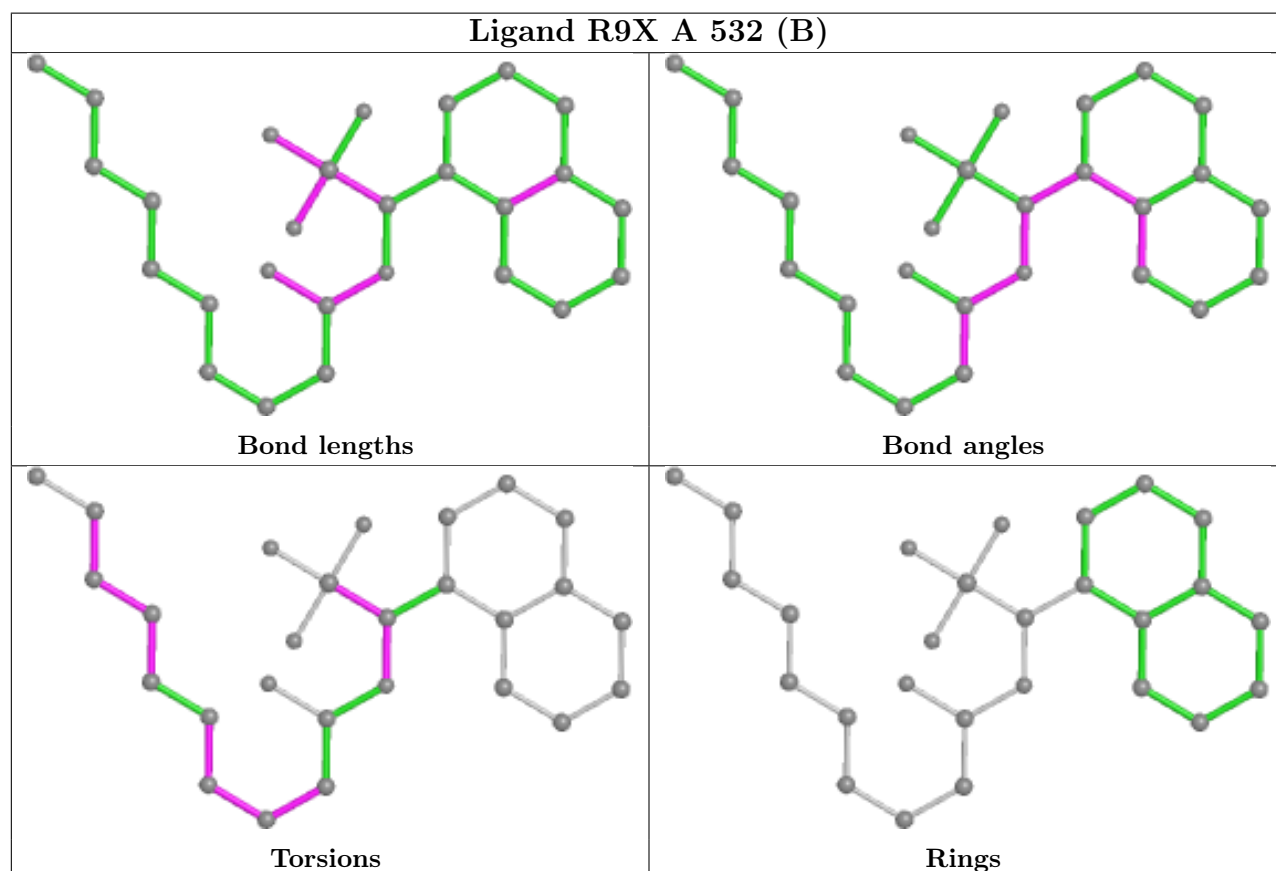
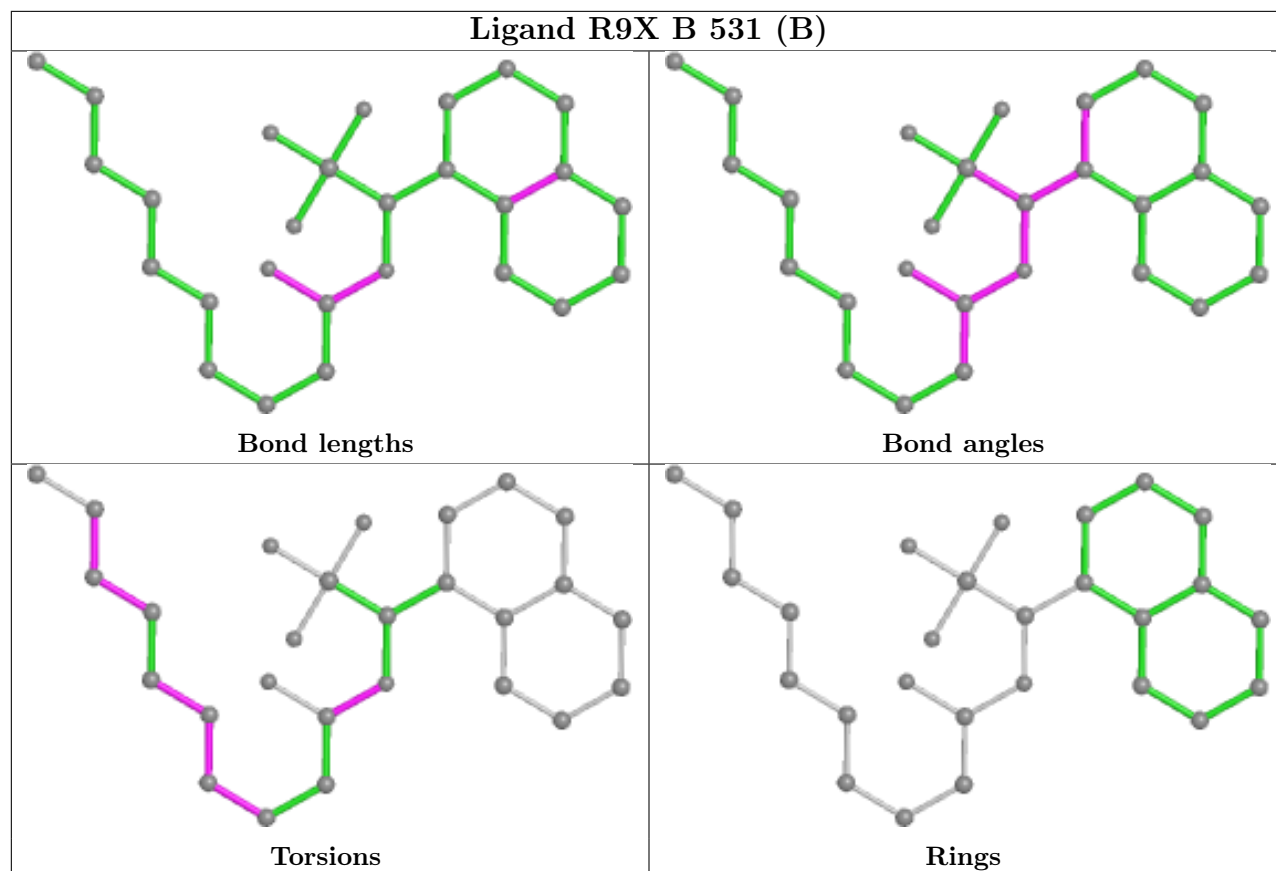
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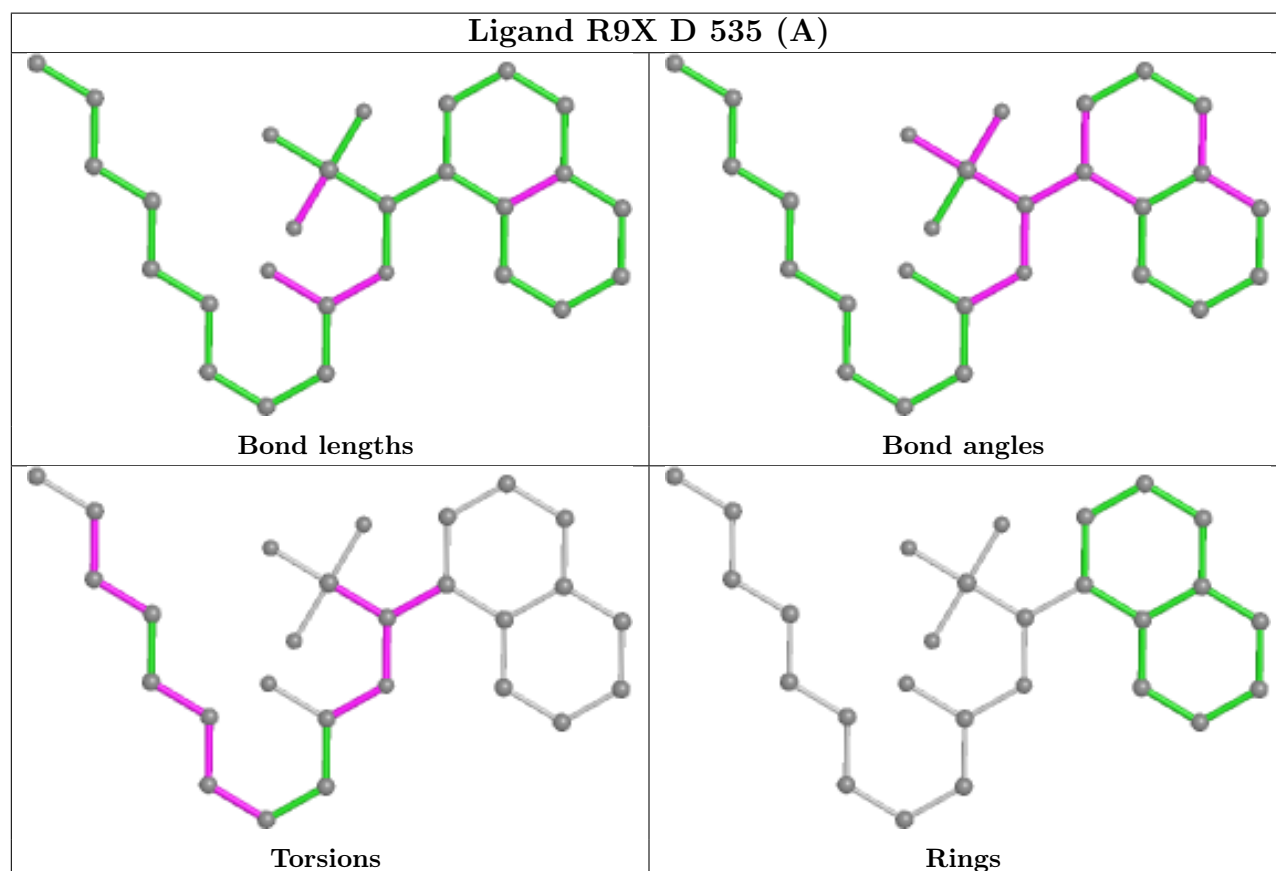
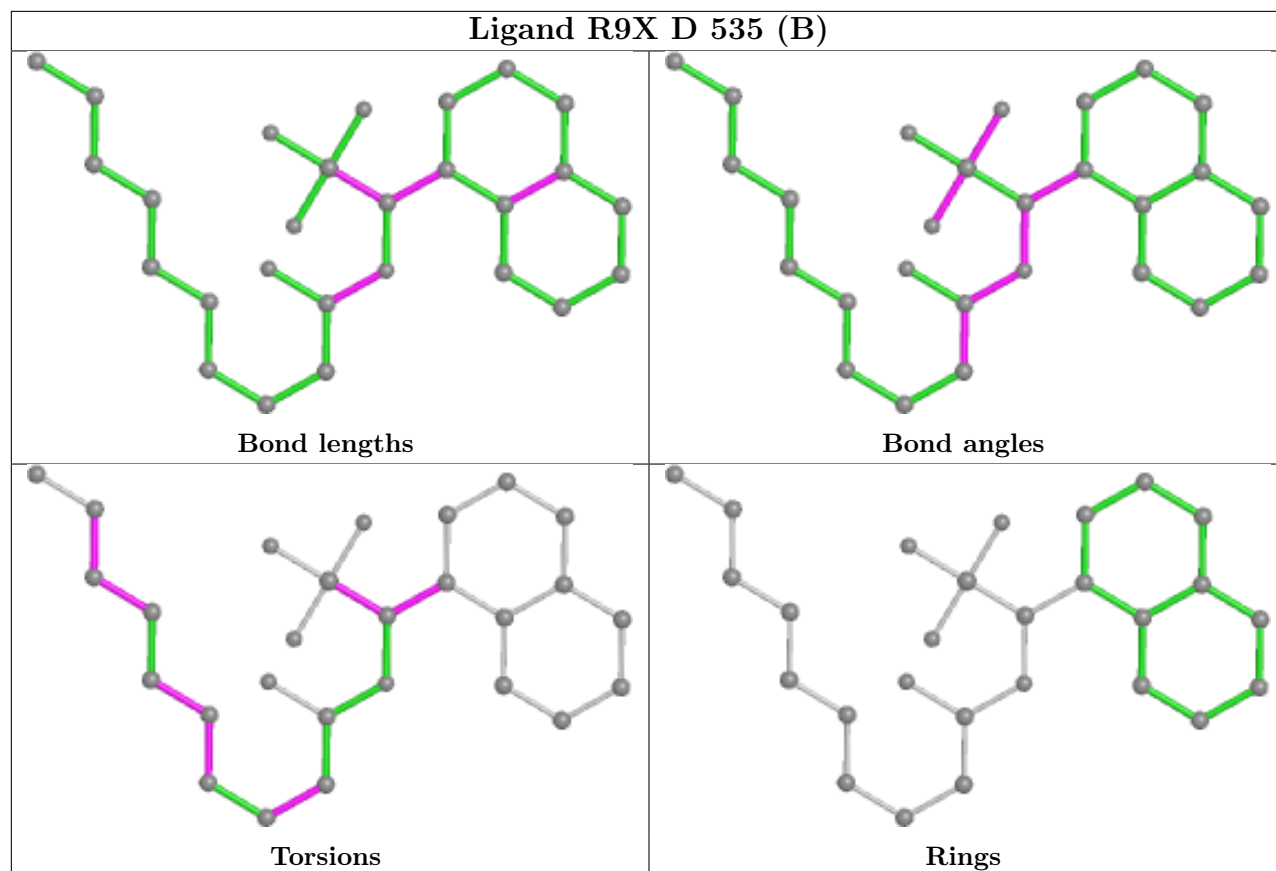
Mol	Chain	Res	Type	Clashes	Symm-Clashes
13	C	627	FLC	2	0
18	A	523	GOL	2	0
18	D	533	GOL	1	0
16	A	509	SO4	1	0
20	D	535[B]	R9X	2	0
20	D	535[A]	R9X	6	0
13	C	603	FLC	1	0
16	B	512	SO4	1	0
15	D	506	NAG	3	0
18	B	525	GOL	1	0
14	A	507	PGE	4	0
18	A	531	GOL	4	0
16	A	512	SO4	3	0
18	D	527	GOL	3	0
13	A	505	FLC	2	0
18	C	623	GOL	1	0
18	C	624	GOL	1	0
17	C	617	EDO	1	0
16	B	510	SO4	1	0
18	C	622	GOL	1	0
18	B	527	GOL	2	0
18	A	516	GOL	2	0
15	C	605	NAG	1	0
20	C	633[B]	R9X	6	0
20	C	632[A]	R9X	2	0
18	D	524	GOL	1	0
18	A	526	GOL	1	0
22	D	505	DMS	1	0
13	B	505	FLC	4	0
16	D	507	SO4	1	0
18	B	519	GOL	1	0
14	A	504	PGE	2	0
20	B	531[A]	R9X	7	0
13	D	503	FLC	6	0
18	B	522	GOL	1	0

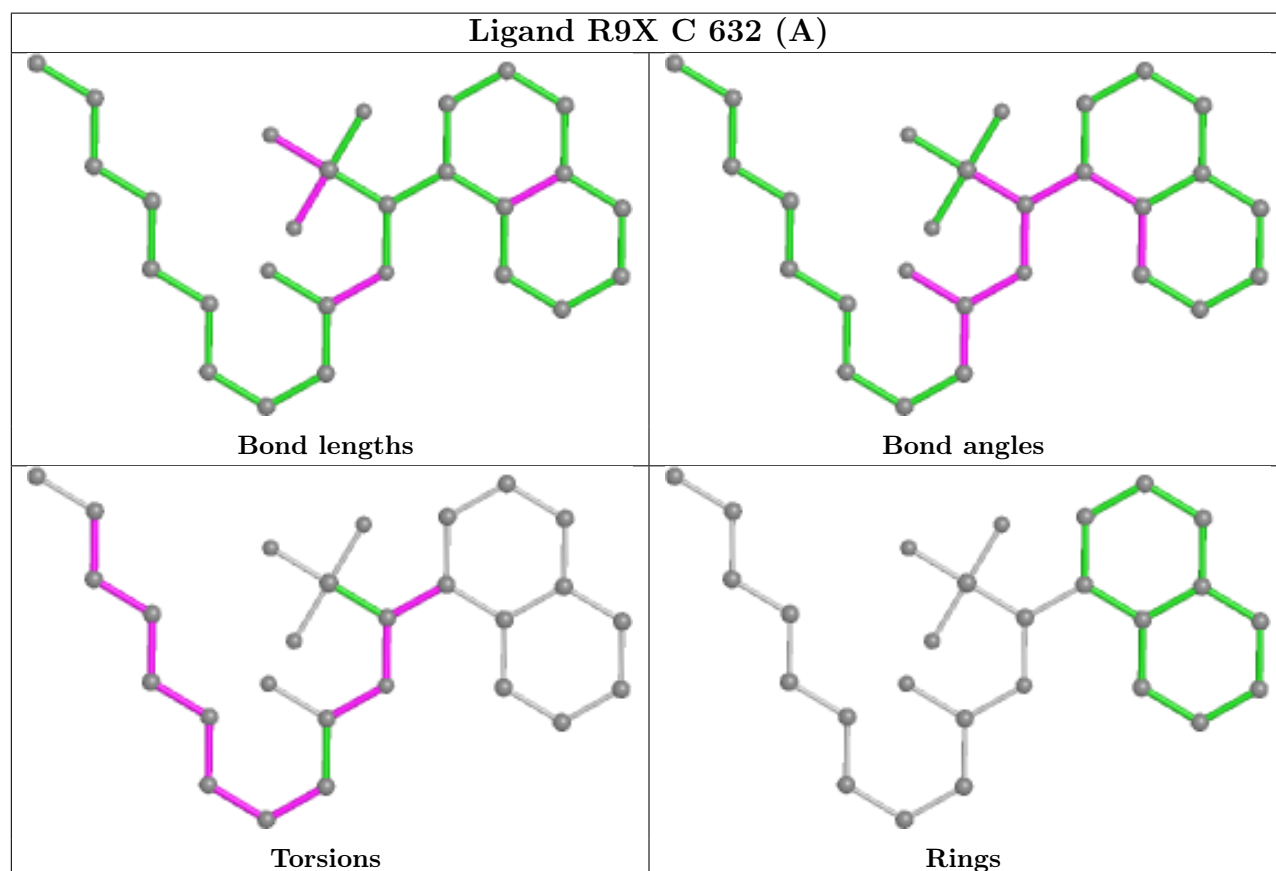
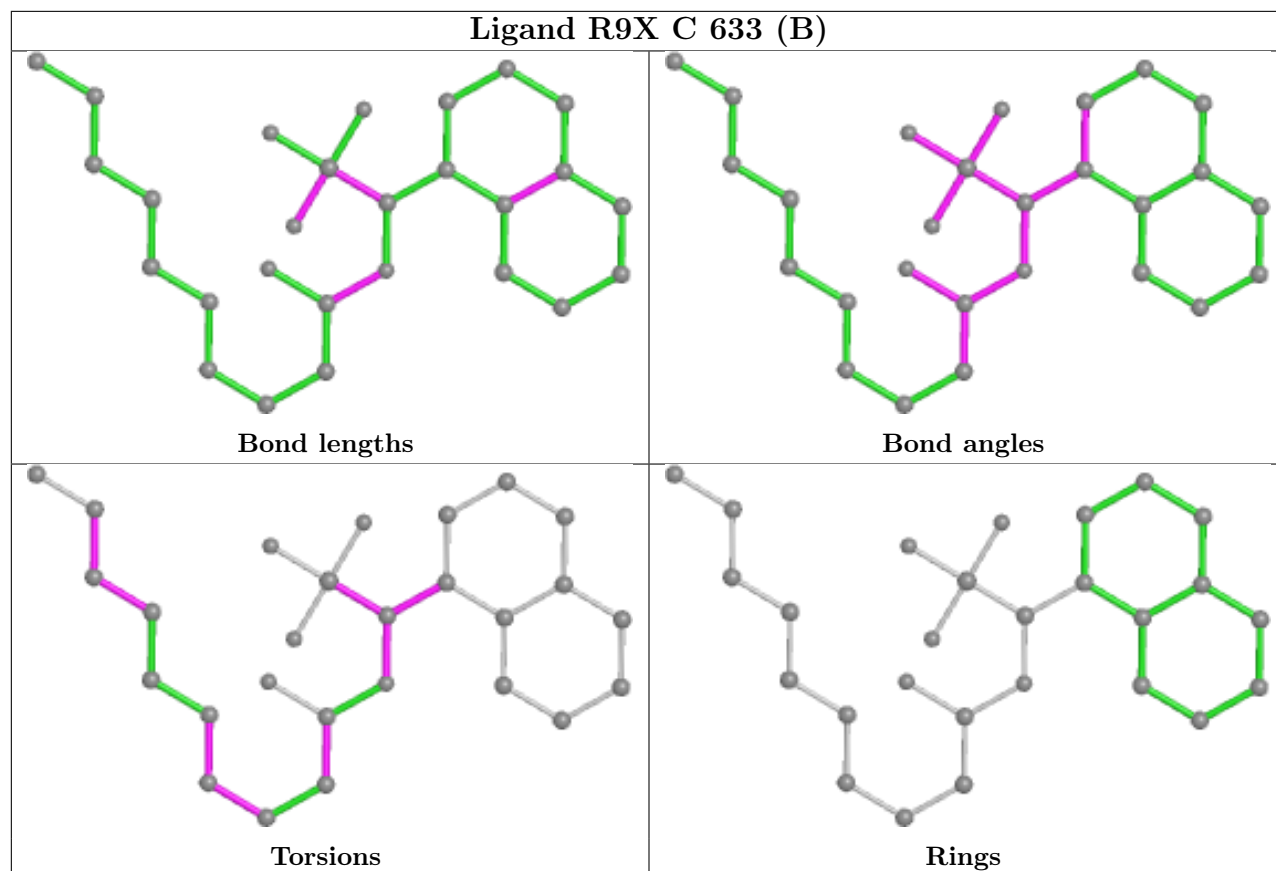
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring

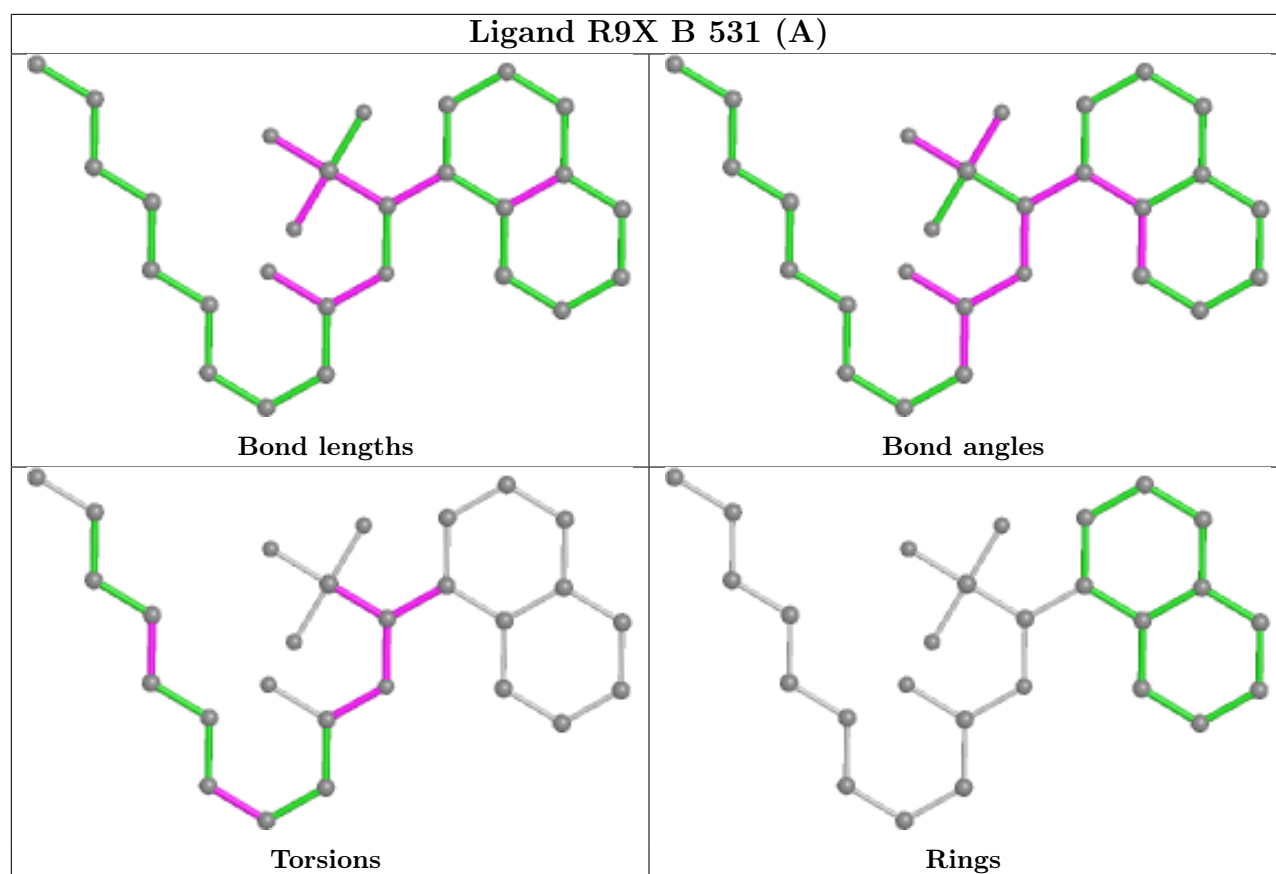
in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.











5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q < 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	425/428 (99%)	-0.89	1 (0%) 95 94	13, 20, 33, 58	0
1	B	428/428 (100%)	-0.81	4 (0%) 84 83	15, 22, 37, 93	0
1	C	428/428 (100%)	-0.80	6 (1%) 75 74	14, 21, 36, 79	0
1	D	426/428 (99%)	-0.83	4 (0%) 84 83	14, 21, 35, 77	1 (0%)
All	All	1707/1712 (99%)	-0.83	15 (0%) 84 83	13, 21, 35, 93	1 (0%)

The worst 5 of 15 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	5	THR	6.3
1	B	6	ASN	4.9
1	C	64	ASN	4.6
1	C	5	THR	4.3
1	B	64	ASN	4.2

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

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

6.3 Carbohydrates [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q < 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
7	BMA	M	3	11/12	0.58	0.42	68,72,75,79	11
4	BMA	G	3	11/12	0.61	0.36	68,82,88,88	11

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	BMA	I	3	11/12	0.63	0.45	83,100,103,108	0
4	BMA	N	3	11/12	0.65	0.44	59,62,68,70	11
4	BMA	V	3	11/12	0.70	0.35	48,60,68,85	11
2	NAG	E	2	14/15	0.71	0.28	30,41,48,49	14
9	NAG	R	2	14/15	0.72	0.33	38,50,61,63	14
9	FUC	R	4	10/11	0.72	0.22	47,50,56,58	10
4	BMA	S	3	11/12	0.74	0.31	59,70,74,75	11
5	MAN	J	4	11/12	0.75	0.35	40,54,64,69	11
3	MAN	F	4	11/12	0.76	0.22	43,48,51,51	11
8	NAG	O	2	14/15	0.77	0.32	41,46,52,58	14
4	NAG	N	2	14/15	0.77	0.31	43,49,57,59	14
5	BMA	J	3	11/12	0.77	0.19	42,44,52,57	11
3	MAN	F	5	11/12	0.78	0.29	48,51,59,60	11
7	NAG	M	2	14/15	0.78	0.25	40,48,60,65	14
9	BMA	R	3	10/12	0.79	0.34	64,67,70,71	10
4	NAG	I	2	14/15	0.81	0.34	60,73,82,92	14
5	MAN	J	5	11/12	0.81	0.16	39,48,52,54	11
10	NAG	T	1	14/15	0.82	0.28	43,48,53,53	14
10	FUC	T	2	10/11	0.82	0.41	46,50,53,55	10
4	NAG	S	2	14/15	0.83	0.25	39,52,60,61	14
2	NAG	Q	2	14/15	0.83	0.26	27,43,49,50	14
2	NAG	K	2	14/15	0.84	0.30	38,46,47,48	14
4	NAG	G	2	14/15	0.85	0.25	51,61,74,78	14
4	FUC	G	4	10/11	0.85	0.20	44,48,55,59	10
4	BMA	P	3	11/12	0.86	0.28	65,75,82,83	0
6	MAN	L	4	11/12	0.86	0.34	40,52,67,72	11
5	BMA	H	3	11/12	0.87	0.16	25,32,39,42	11
8	NAG	O	1	14/15	0.87	0.13	32,35,47,54	14
4	FUC	S	4	10/11	0.87	0.19	30,43,46,47	10
3	BMA	F	3	11/12	0.87	0.17	45,49,57,62	11
5	NAG	J	2	14/15	0.88	0.20	31,37,42,45	14
6	BMA	L	3	11/12	0.88	0.16	39,45,51,57	11
4	FUC	V	4	10/11	0.88	0.14	34,39,47,48	10
4	FUC	I	4	10/11	0.88	0.21	45,60,68,71	0
5	FUC	J	6	10/11	0.89	0.23	35,43,47,56	10
4	FUC	N	4	10/11	0.89	0.15	40,44,49,50	10
5	MAN	H	5	11/12	0.89	0.28	39,44,49,50	11
4	NAG	V	2	14/15	0.90	0.18	21,38,44,53	14
4	NAG	I	1	14/15	0.91	0.15	35,44,57,61	0
4	FUC	P	4	10/11	0.91	0.12	37,46,51,51	0
3	NAG	F	2	14/15	0.92	0.13	35,39,44,44	14
4	NAG	N	1	14/15	0.92	0.12	28,43,49,51	14

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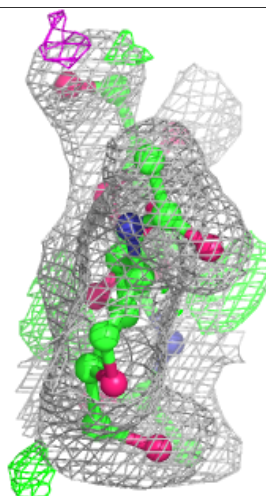
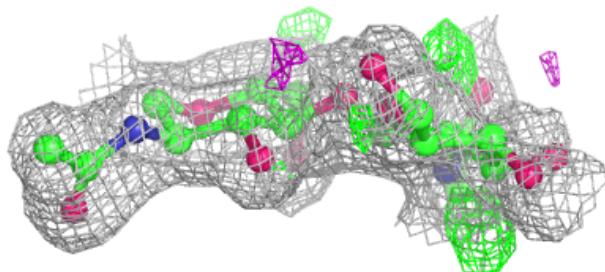
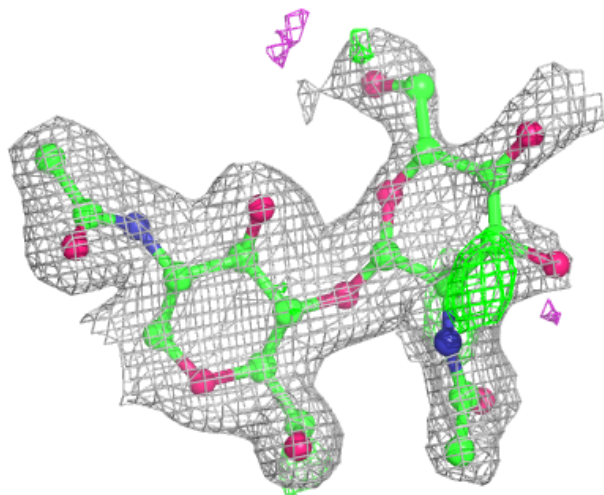
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	NAG	P	2	14/15	0.92	0.19	29,40,52,62	0
3	FUC	F	6	10/11	0.92	0.18	39,43,51,53	10
9	NAG	R	1	14/15	0.92	0.11	34,40,52,53	14
4	NAG	S	1	14/15	0.93	0.11	30,39,44,46	14
3	NAG	F	1	14/15	0.95	0.09	31,34,39,44	0
4	NAG	G	1	14/15	0.95	0.10	30,38,51,55	0
5	NAG	J	1	14/15	0.95	0.07	27,32,36,37	0
4	NAG	V	1	14/15	0.95	0.09	19,25,30,30	0
6	NAG	L	2	14/15	0.96	0.07	22,28,38,39	0
2	NAG	K	1	14/15	0.96	0.09	22,31,38,46	0
5	MAN	H	4	11/12	0.96	0.13	27,34,36,40	11
7	NAG	M	1	14/15	0.96	0.07	17,28,38,39	0
2	NAG	E	1	14/15	0.96	0.07	22,28,34,39	0
5	FUC	H	6	10/11	0.96	0.12	26,30,33,47	0
5	NAG	H	2	14/15	0.96	0.10	22,27,30,31	0
5	NAG	H	1	14/15	0.97	0.07	17,22,27,32	0
4	NAG	P	1	14/15	0.97	0.08	25,30,38,42	0
2	NAG	Q	1	14/15	0.97	0.09	28,31,39,41	0
6	FUC	L	5	10/11	0.97	0.08	23,29,33,40	0
6	NAG	L	1	14/15	0.97	0.06	19,24,30,31	0

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

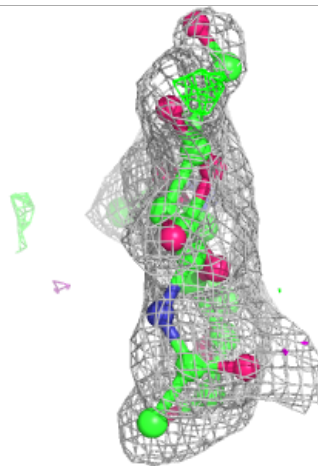
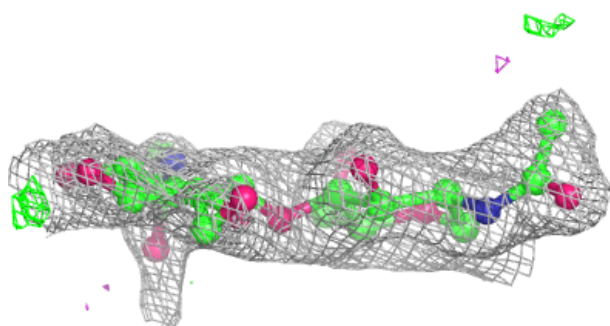
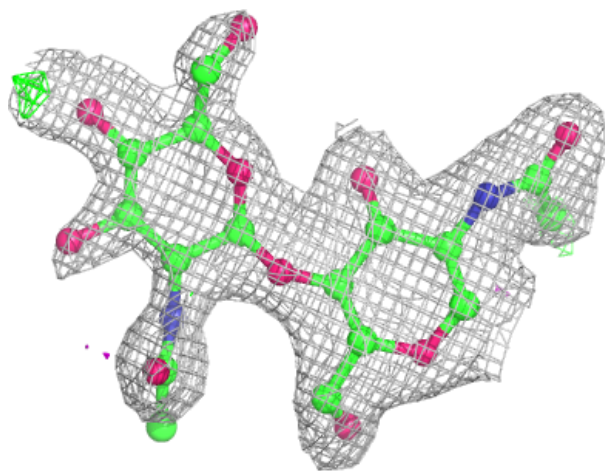
Electron density around Chain E:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



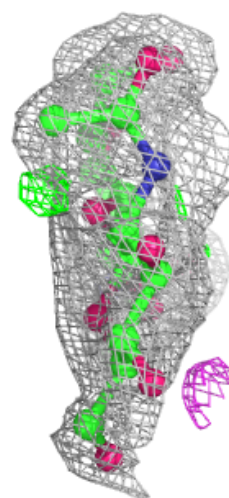
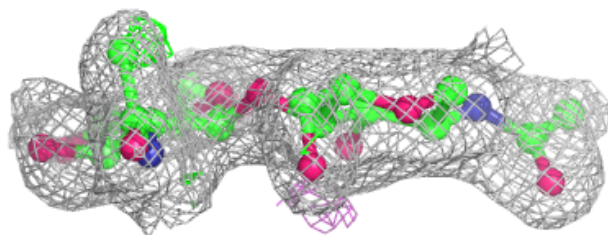
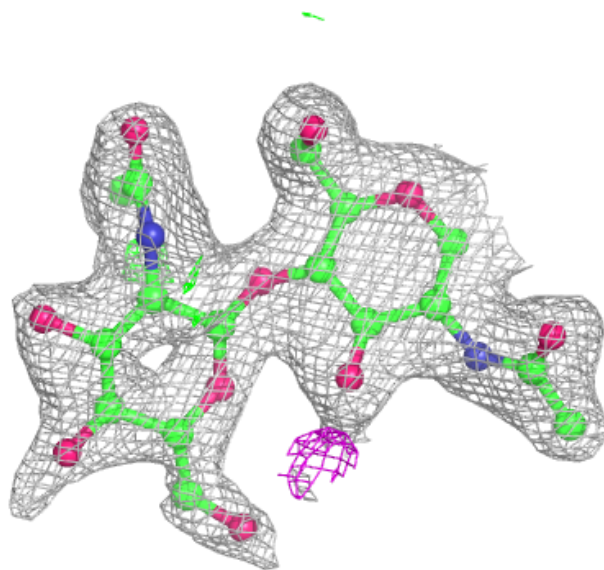
Electron density around Chain K:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



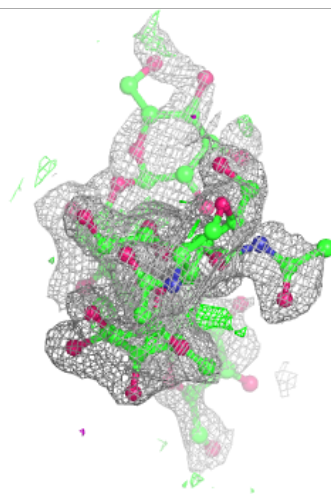
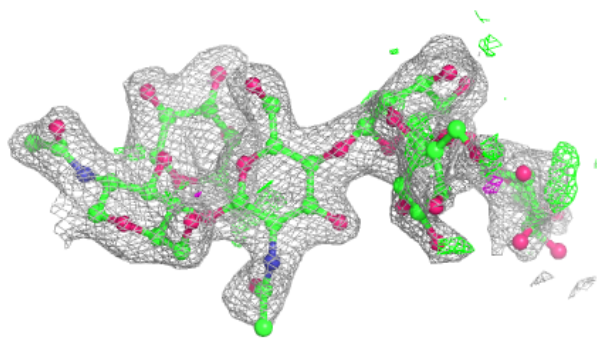
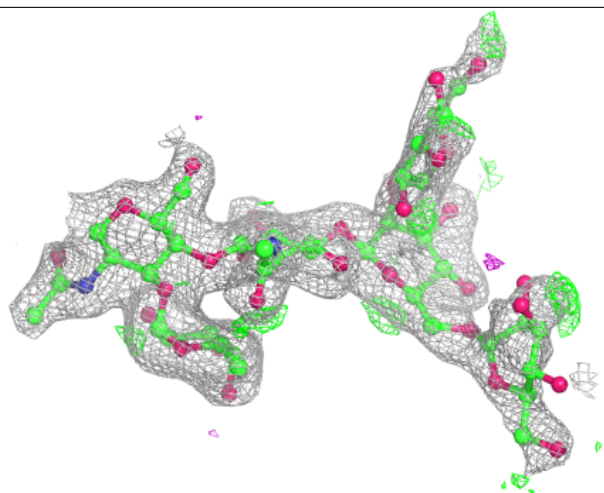
Electron density around Chain Q:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



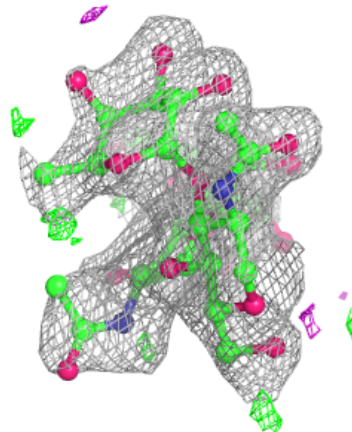
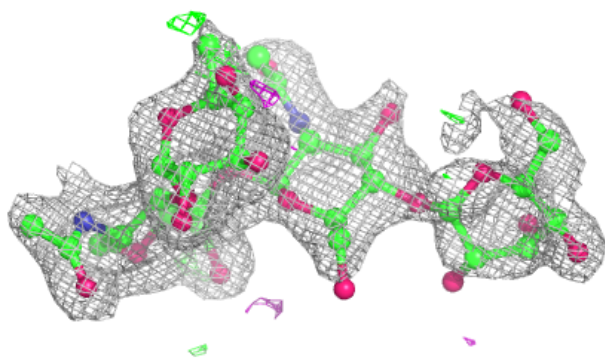
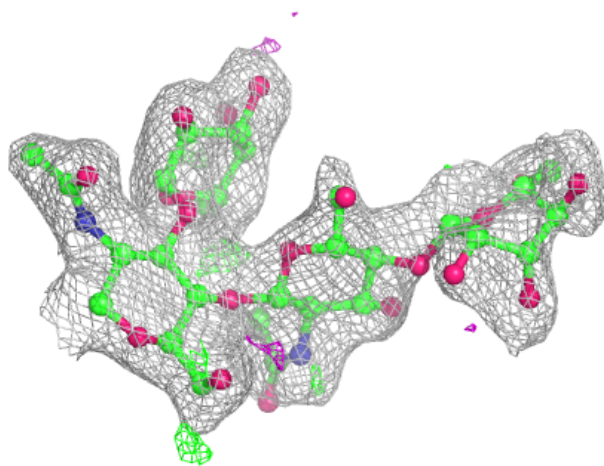
Electron density around Chain F:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



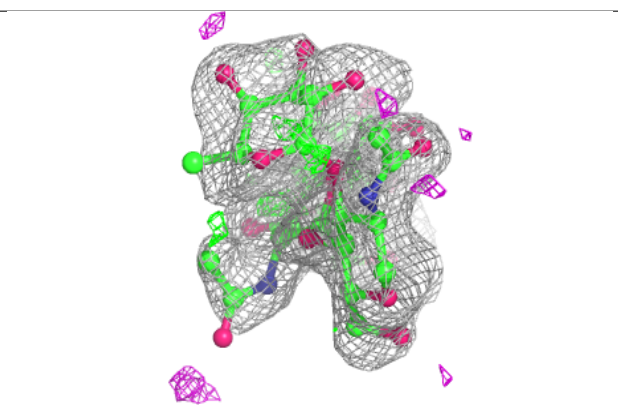
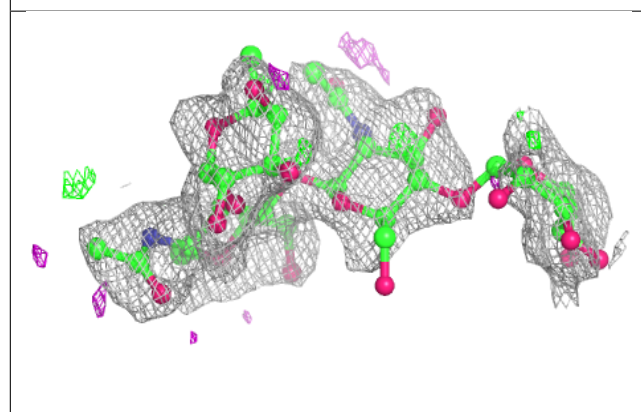
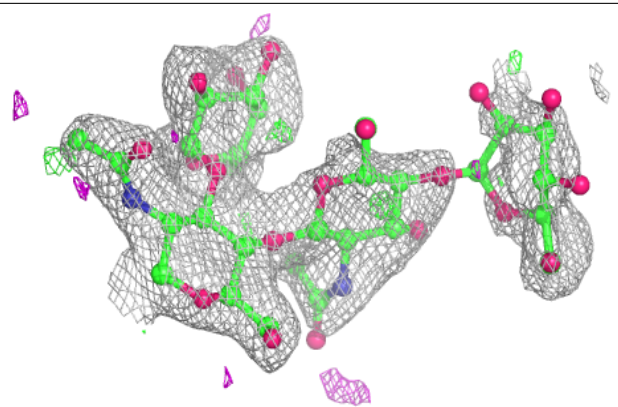
Electron density around Chain G:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

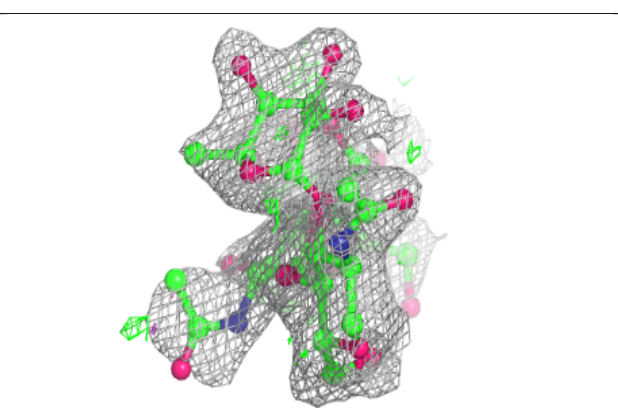
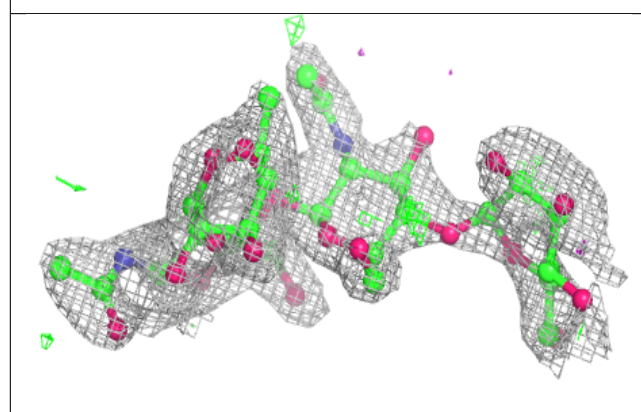
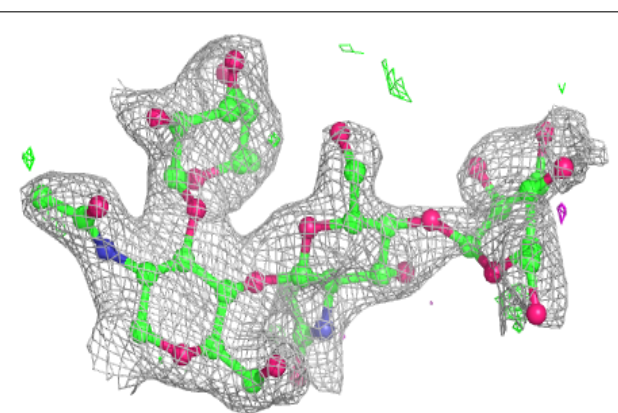


Electron density around Chain I:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

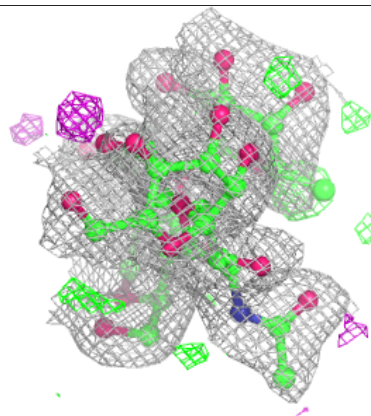
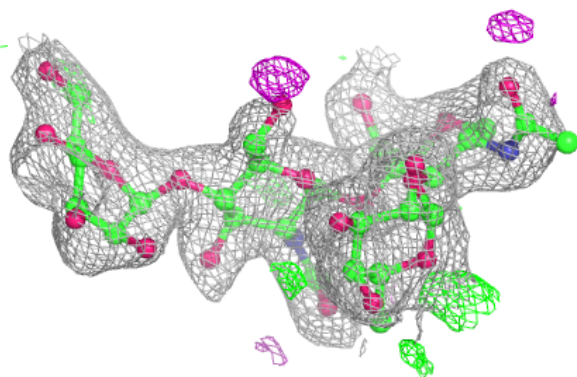
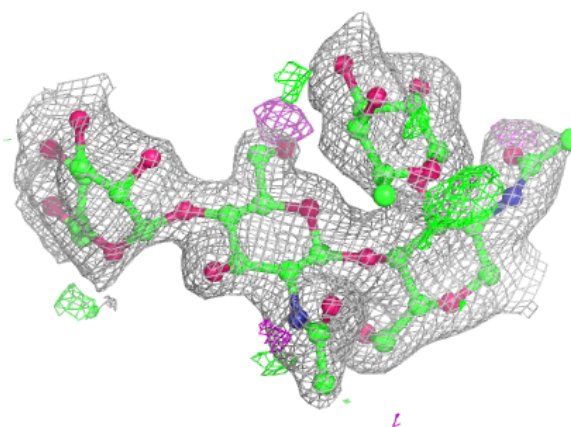
**Electron density around Chain N:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

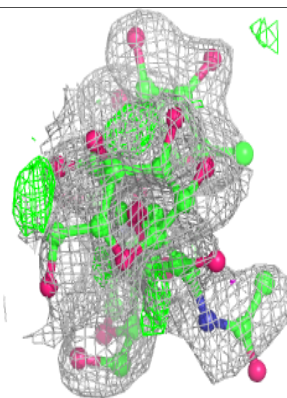
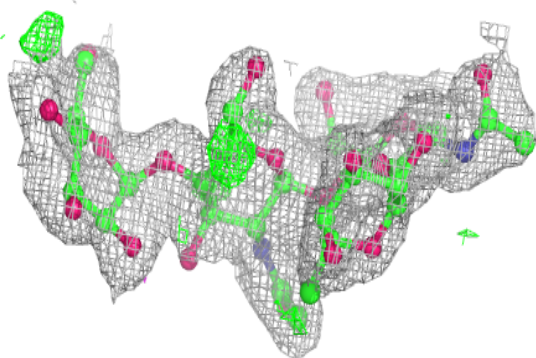
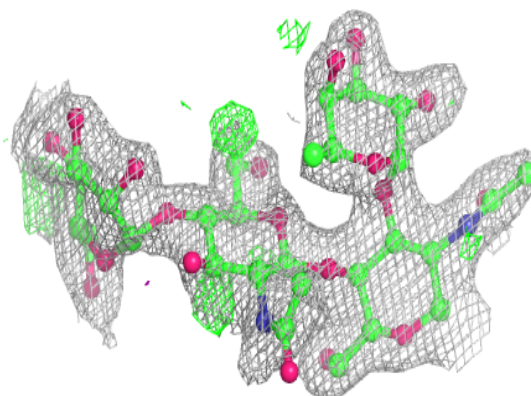


Electron density around Chain P:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

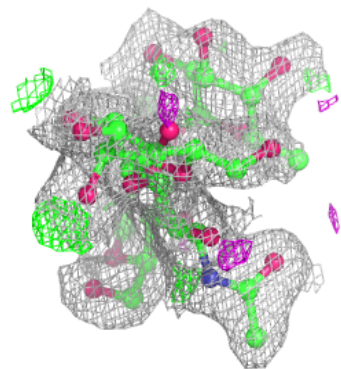
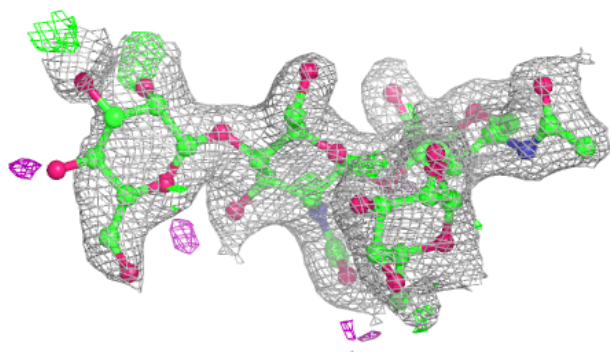
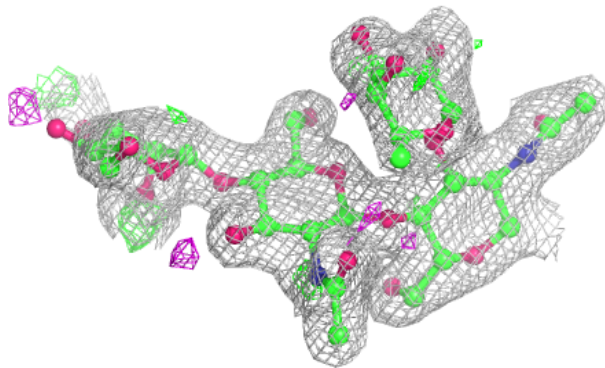
**Electron density around Chain S:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



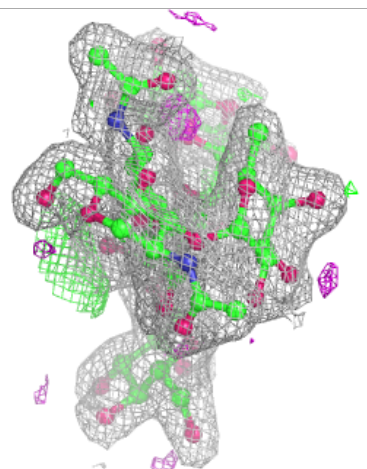
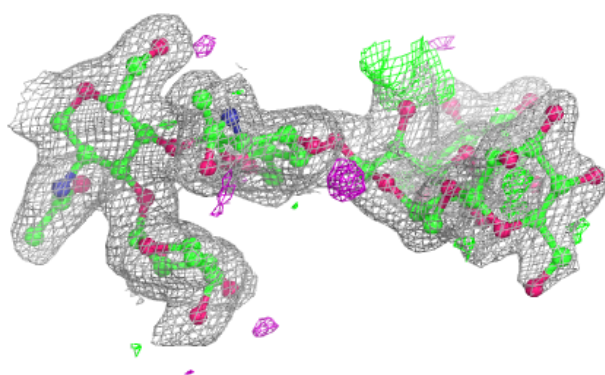
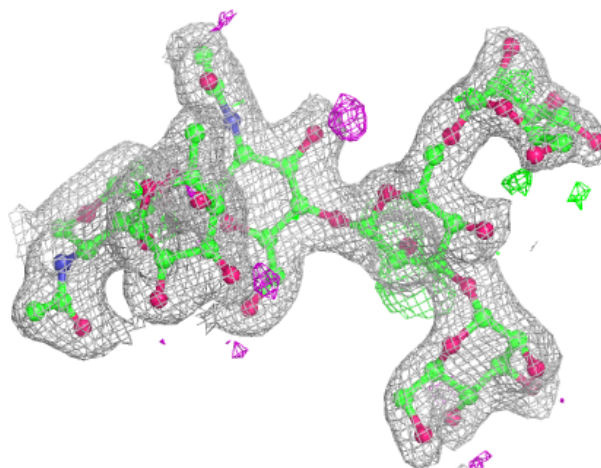
Electron density around Chain V:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



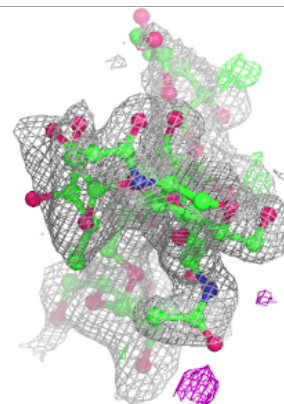
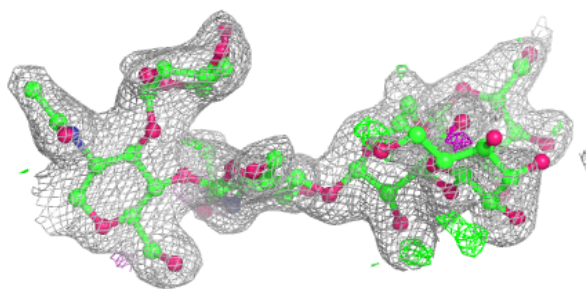
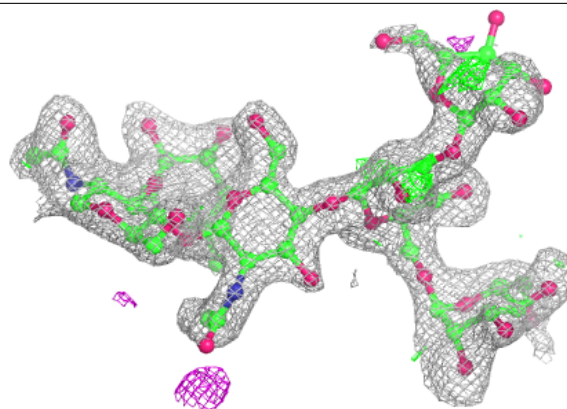
Electron density around Chain H:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

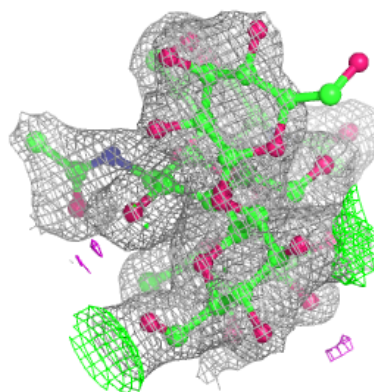
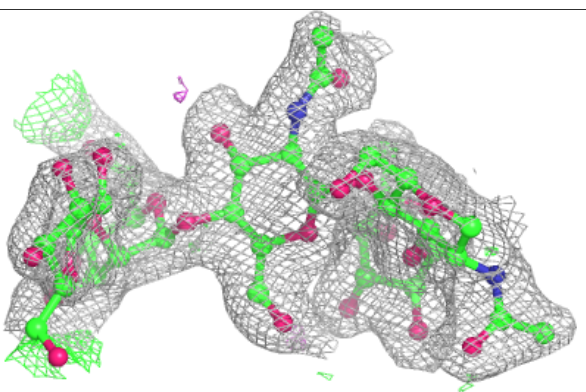
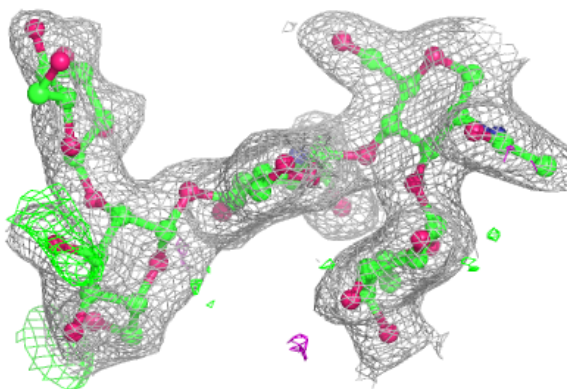


Electron density around Chain J:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

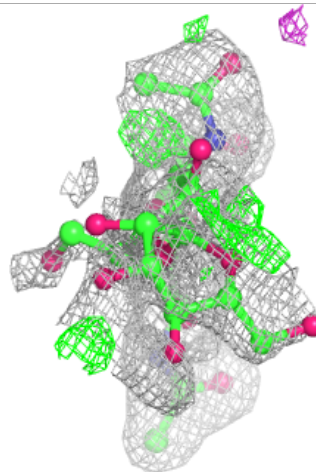
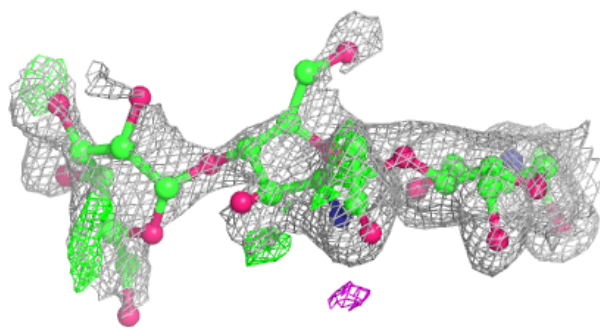
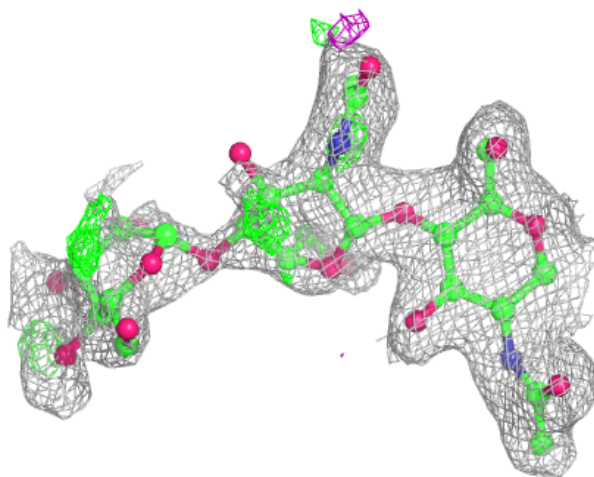
**Electron density around Chain L:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



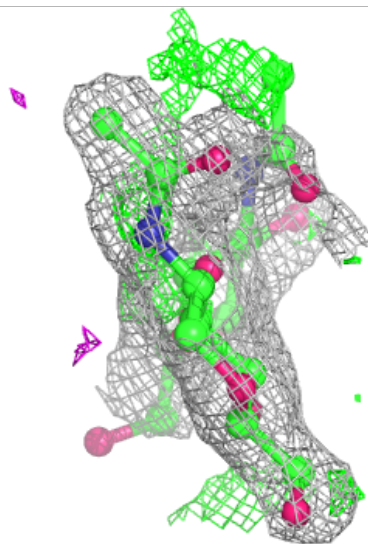
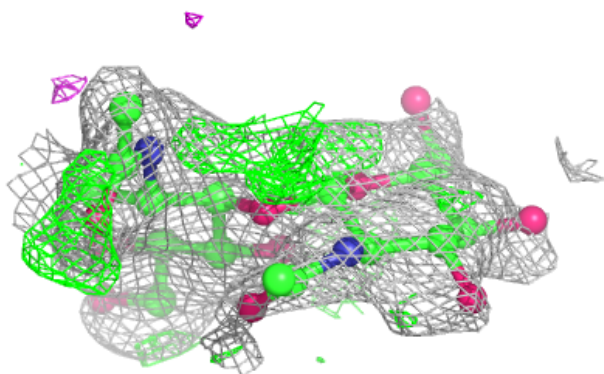
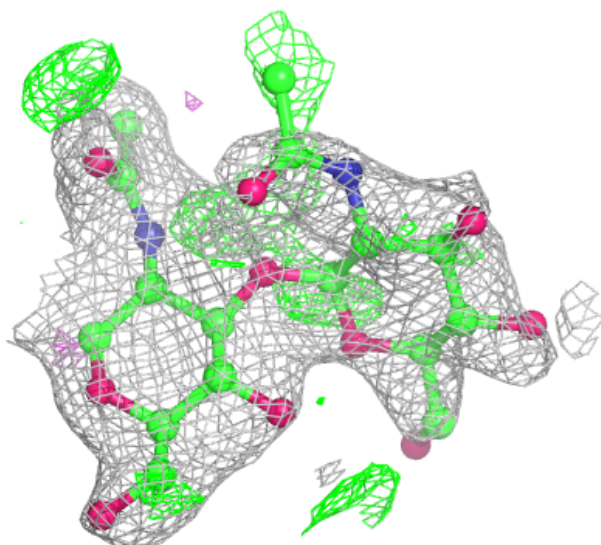
Electron density around Chain M:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



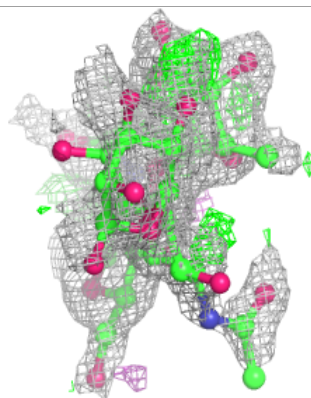
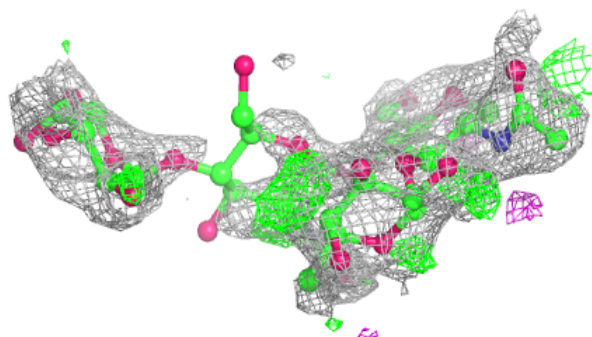
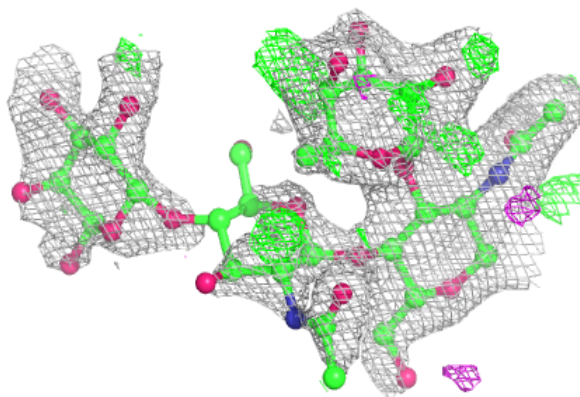
Electron density around Chain O:

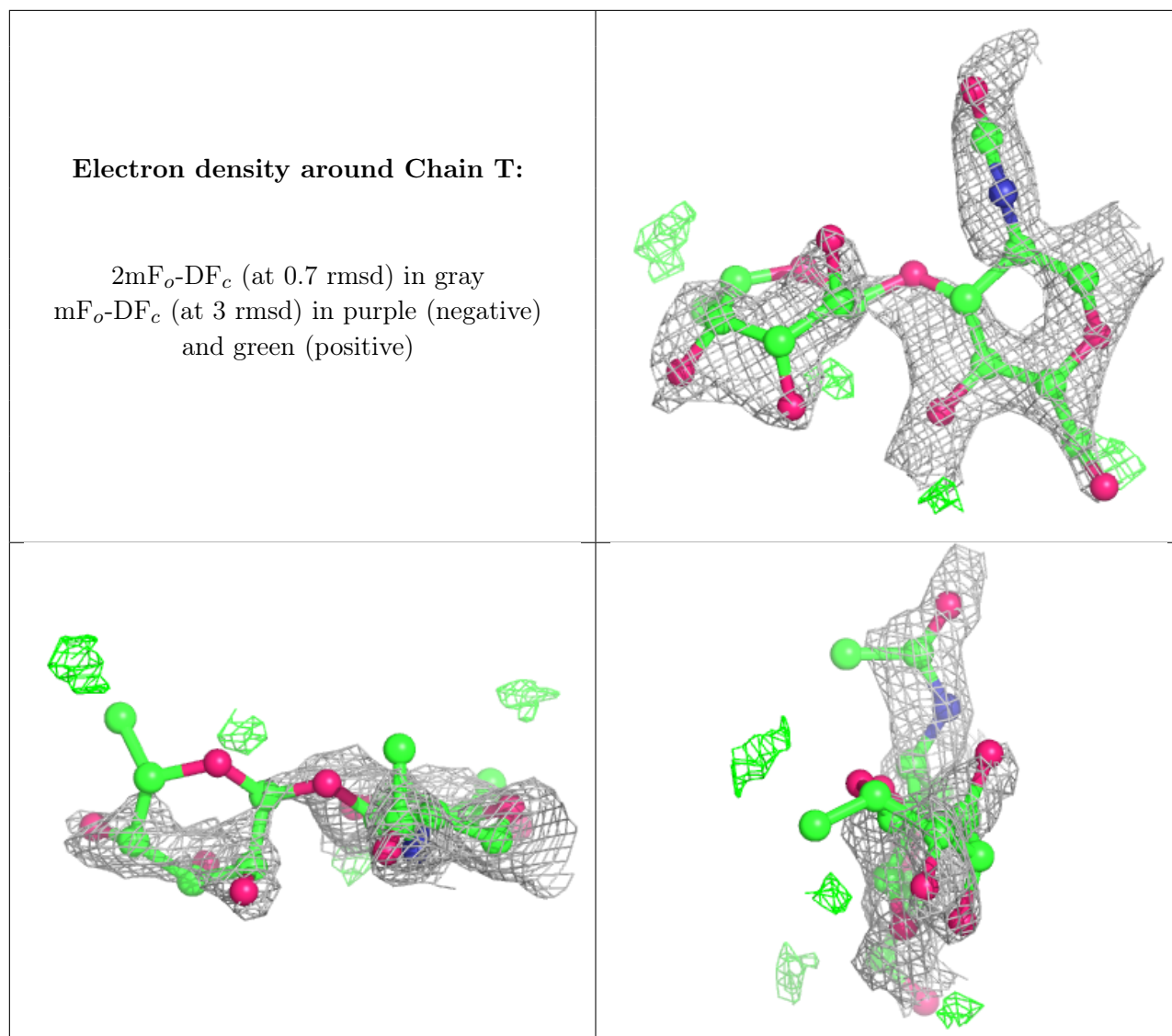
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around Chain R:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
14	PGE	B	508	10/10	0.57	0.46	37,43,48,49	10
13	FLC	B	507	13/13	0.59	0.39	17,32,38,38	13
15	NAG	D	506	14/15	0.63	0.34	53,60,74,80	14
13	FLC	C	603	13/13	0.68	0.33	30,35,48,54	13
18	GOL	A	526	6/6	0.68	0.41	45,50,51,52	6
20	R9X	D	535[A]	27/27	0.68	0.39	21,37,44,45	27
20	R9X	D	535[B]	27/27	0.68	0.39	36,40,45,51	27

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
15	NAG	A	506	14/15	0.69	0.27	33,44,47,55	14
13	FLC	A	505	13/13	0.70	0.34	40,44,49,57	13
20	R9X	A	532[A]	27/27	0.71	0.36	29,43,48,49	27
20	R9X	A	532[B]	27/27	0.71	0.36	23,44,50,57	27
13	FLC	C	602	13/13	0.71	0.34	25,35,44,49	13
15	NAG	C	605	14/15	0.71	0.25	30,43,51,55	14
13	FLC	D	503	13/13	0.72	0.31	26,33,38,43	13
20	R9X	C	633[B]	27/27	0.72	0.41	36,46,50,52	27
20	R9X	C	632[A]	27/27	0.73	0.41	31,45,48,50	27
18	GOL	C	631	6/6	0.73	0.30	51,55,59,60	6
13	FLC	B	503	13/13	0.73	0.26	28,39,48,54	13
15	NAG	C	616	14/15	0.73	0.27	42,47,52,61	14
13	FLC	A	530	13/13	0.74	0.29	30,39,45,50	13
16	SO4	B	517	5/5	0.74	0.26	42,43,49,53	5
13	FLC	A	503	13/13	0.74	0.31	25,32,40,42	13
13	FLC	B	505	13/13	0.74	0.30	33,41,46,50	13
13	FLC	B	506	13/13	0.74	0.32	47,54,68,68	13
20	R9X	B	531[A]	27/27	0.75	0.36	25,40,44,46	27
20	R9X	B	531[B]	27/27	0.75	0.36	35,42,46,49	27
13	FLC	C	628	13/13	0.77	0.30	43,48,54,54	13
18	GOL	A	527	6/6	0.77	0.28	39,44,50,52	6
18	GOL	C	624	6/6	0.77	0.22	31,37,42,43	6
18	GOL	A	517	6/6	0.77	0.23	27,32,36,37	6
17	EDO	C	617	4/4	0.79	0.25	39,41,44,46	4
18	GOL	B	520	6/6	0.80	0.23	36,39,43,46	6
18	GOL	D	534	6/6	0.80	0.28	36,37,40,41	6
18	GOL	D	532	6/6	0.81	0.26	40,51,54,57	6
18	GOL	C	629	6/6	0.81	0.14	51,53,56,56	6
18	GOL	B	524	6/6	0.82	0.26	33,39,41,50	6
18	GOL	D	524	6/6	0.82	0.32	30,32,35,36	6
18	GOL	C	623	6/6	0.82	0.32	30,39,46,49	6
14	PGE	A	504	10/10	0.82	0.27	31,36,43,44	10
16	SO4	B	516	5/5	0.82	0.29	40,41,45,47	5
18	GOL	C	630	6/6	0.82	0.26	33,41,43,45	6
18	GOL	B	523	6/6	0.83	0.29	31,38,41,41	6
18	GOL	A	524	6/6	0.83	0.20	24,34,39,41	6
13	FLC	C	627	13/13	0.83	0.19	28,33,39,52	13
17	EDO	B	518	4/4	0.84	0.34	28,31,32,37	4
18	GOL	D	533	6/6	0.85	0.35	26,29,32,33	6
18	GOL	A	522	6/6	0.85	0.17	33,38,41,41	6
18	GOL	D	526	6/6	0.85	0.32	32,36,42,43	6
18	GOL	D	529	6/6	0.85	0.36	25,28,34,34	6

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
14	PGE	A	507	7/10	0.85	0.28	25,27,34,38	7
18	GOL	C	622	6/6	0.86	0.21	22,28,30,35	6
18	GOL	A	531	6/6	0.86	0.28	37,41,43,46	6
14	PGE	D	504	10/10	0.86	0.24	20,22,26,28	10
16	SO4	C	611	5/5	0.86	0.25	51,52,67,69	5
14	PGE	B	504	10/10	0.86	0.26	17,25,33,33	10
18	GOL	B	526	6/6	0.86	0.23	32,36,39,41	6
18	GOL	D	520	6/6	0.86	0.16	35,38,44,47	6
18	GOL	A	525	6/6	0.87	0.20	36,41,45,47	6
16	SO4	C	615	5/5	0.87	0.20	38,43,46,49	5
18	GOL	B	527	6/6	0.87	0.23	27,31,37,41	6
18	GOL	B	528	6/6	0.87	0.28	43,44,45,46	6
15	NAG	D	516	14/15	0.87	0.14	37,45,47,51	14
18	GOL	A	523	6/6	0.88	0.23	56,58,60,60	6
18	GOL	A	519	6/6	0.88	0.18	22,33,39,39	6
16	SO4	D	513	5/5	0.88	0.28	41,44,46,55	5
18	GOL	C	619	6/6	0.89	0.20	24,25,28,34	6
16	SO4	A	513	5/5	0.89	0.22	44,49,51,56	5
16	SO4	A	511	5/5	0.89	0.29	36,46,63,63	5
18	GOL	B	522	6/6	0.89	0.20	17,34,36,37	6
18	GOL	A	520	6/6	0.89	0.14	29,36,43,46	6
18	GOL	D	527	6/6	0.89	0.23	17,26,32,38	6
14	PGE	C	604	10/10	0.90	0.22	25,33,37,42	10
16	SO4	D	515	5/5	0.90	0.21	47,48,52,62	5
18	GOL	B	525	6/6	0.90	0.24	40,52,54,56	0
17	EDO	D	517	4/4	0.90	0.27	30,30,34,37	4
18	GOL	D	523	6/6	0.90	0.22	30,36,40,45	6
18	GOL	A	516	6/6	0.90	0.20	23,26,31,34	6
18	GOL	D	525	6/6	0.90	0.13	37,47,49,51	6
18	GOL	B	519	6/6	0.91	0.17	27,28,33,35	6
13	FLC	C	601	13/13	0.91	0.13	21,35,45,48	13
18	GOL	C	620	6/6	0.91	0.19	15,27,28,29	6
18	GOL	C	621	6/6	0.91	0.23	20,29,38,48	6
22	DMS	D	505	4/4	0.91	0.27	41,47,53,74	4
18	GOL	D	528	6/6	0.92	0.18	42,44,47,47	0
18	GOL	D	522	6/6	0.92	0.15	25,34,38,40	6
18	GOL	B	521	6/6	0.93	0.17	26,30,35,37	6
16	SO4	D	512	5/5	0.93	0.25	33,36,41,42	5
16	SO4	B	515	5/5	0.93	0.31	55,63,69,70	5
18	GOL	A	521	6/6	0.93	0.17	15,26,27,31	6
18	GOL	C	618	6/6	0.93	0.13	28,29,36,43	6
18	GOL	C	625	6/6	0.94	0.22	22,36,42,45	6

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
16	SO4	D	514	5/5	0.94	0.18	55,56,62,63	5
16	SO4	C	608	5/5	0.94	0.13	26,28,30,33	5
18	GOL	A	518	6/6	0.94	0.11	19,23,33,34	6
18	GOL	D	519	6/6	0.94	0.18	23,26,31,34	6
16	SO4	D	509	5/5	0.94	0.20	38,44,56,56	5
18	GOL	D	521	6/6	0.94	0.17	27,33,40,43	6
16	SO4	A	512	5/5	0.94	0.31	26,30,31,34	5
16	SO4	C	613	5/5	0.94	0.31	56,58,59,63	5
16	SO4	C	610	5/5	0.95	0.15	22,24,36,42	5
16	SO4	D	510	5/5	0.95	0.16	27,37,39,43	5
16	SO4	C	609	5/5	0.95	0.19	40,43,54,55	5
16	SO4	D	511	5/5	0.96	0.20	28,37,39,50	5
16	SO4	B	510	5/5	0.96	0.12	18,28,31,32	5
16	SO4	D	508	5/5	0.96	0.17	26,28,32,34	5
16	SO4	B	514	5/5	0.96	0.09	24,28,35,37	5
16	SO4	C	614	5/5	0.96	0.20	35,36,45,51	5
17	EDO	A	514	4/4	0.96	0.13	19,22,28,28	4
16	SO4	C	612	5/5	0.97	0.07	25,34,36,39	5
16	SO4	B	513	5/5	0.97	0.20	40,46,50,51	5
18	GOL	A	515	6/6	0.97	0.07	17,22,24,24	0
16	SO4	B	509	5/5	0.97	0.20	36,42,48,52	5
16	SO4	A	509	5/5	0.97	0.08	25,30,40,40	5
16	SO4	D	507	5/5	0.97	0.09	26,35,40,43	5
18	GOL	D	518	6/6	0.98	0.06	16,20,22,25	0
16	SO4	B	512	5/5	0.98	0.14	26,26,32,37	5
16	SO4	A	508	5/5	0.98	0.08	22,27,27,28	5
19	CL	A	528	1/1	0.99	0.04	24,24,24,24	0
19	CL	C	626	1/1	0.99	0.02	19,19,19,19	0
19	CL	D	531	1/1	0.99	0.04	30,30,30,30	0
16	SO4	B	511	5/5	0.99	0.08	27,29,31,40	5
16	SO4	A	510	5/5	0.99	0.07	28,35,36,38	0
12	FE	B	502	1/1	0.99	0.02	27,27,27,27	1
11	ZN	B	501	1/1	1.00	0.03	24,24,24,24	0
11	ZN	C	606	1/1	1.00	0.01	23,23,23,23	0
11	ZN	D	501	1/1	1.00	0.01	22,22,22,22	0
12	FE	A	502	1/1	1.00	0.02	22,22,22,22	1
11	ZN	A	501	1/1	1.00	0.02	22,22,22,22	0
12	FE	C	607	1/1	1.00	0.01	25,25,25,25	1
19	CL	A	529	1/1	1.00	0.02	19,19,19,19	0
19	CL	B	529	1/1	1.00	0.06	19,19,19,19	0
12	FE	D	502	1/1	1.00	0.02	24,24,24,24	1
21	NA	B	530	1/1	1.00	0.22	21,21,21,21	0

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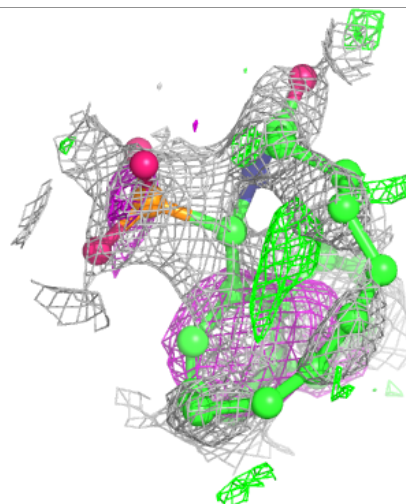
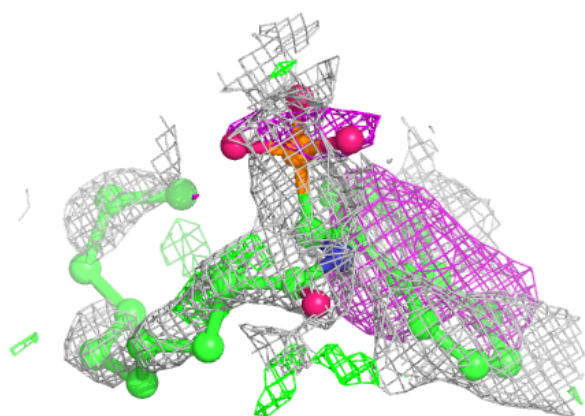
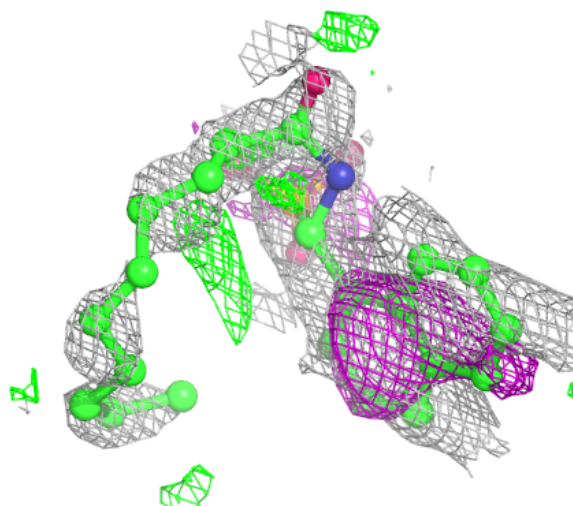
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
19	CL	D	530	1/1	1.00	0.02	19,19,19,19	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

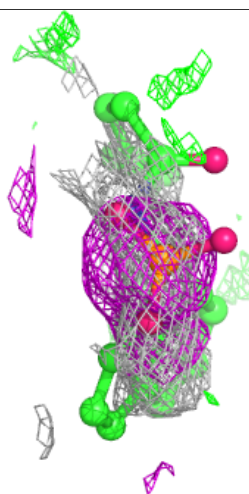
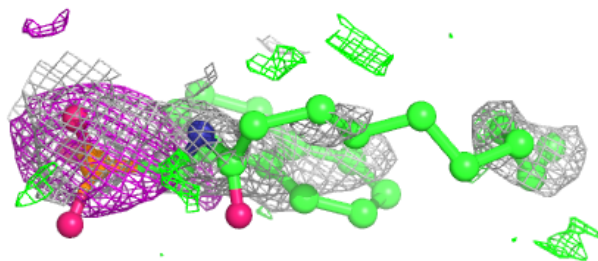
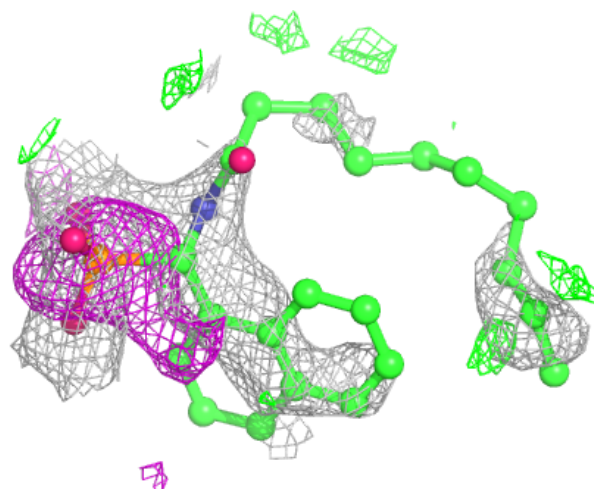
Electron density around R9X D 535 (A):

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



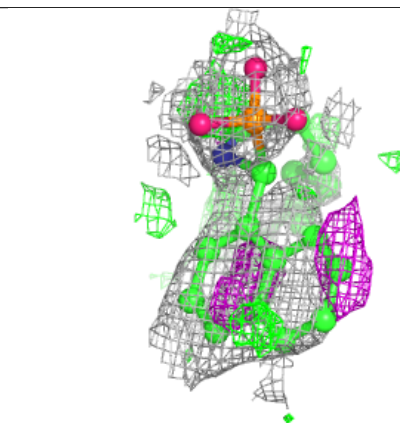
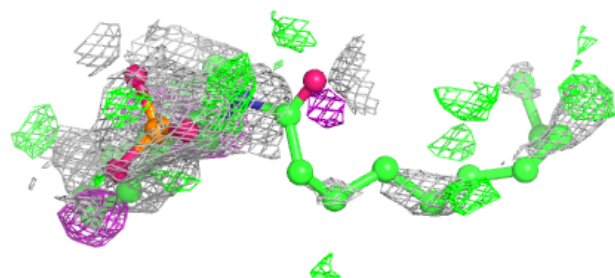
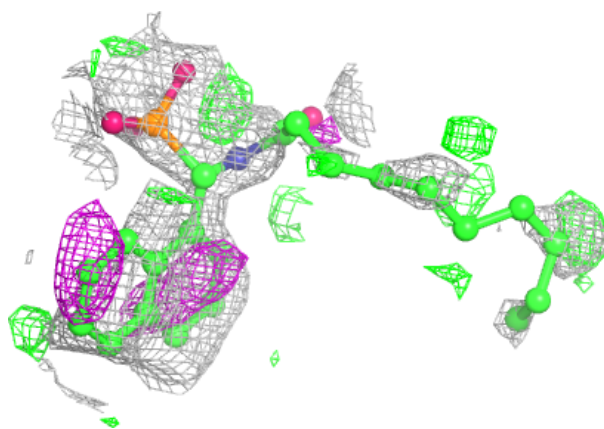
Electron density around R9X D 535 (B):

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

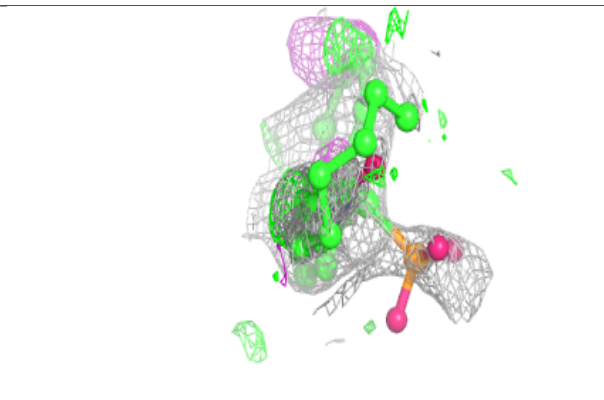
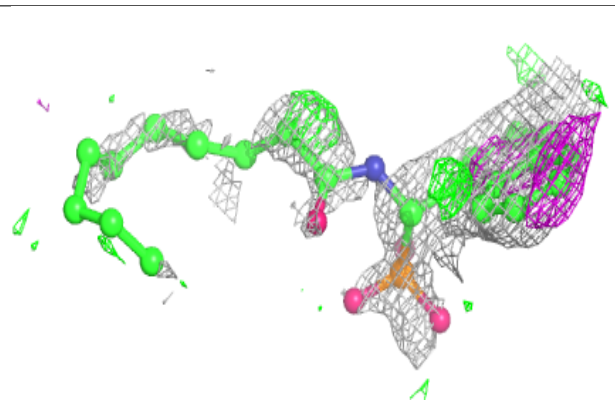
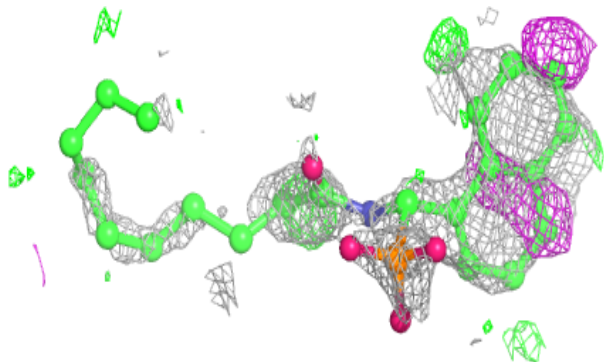


Electron density around R9X A 532 (A):

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

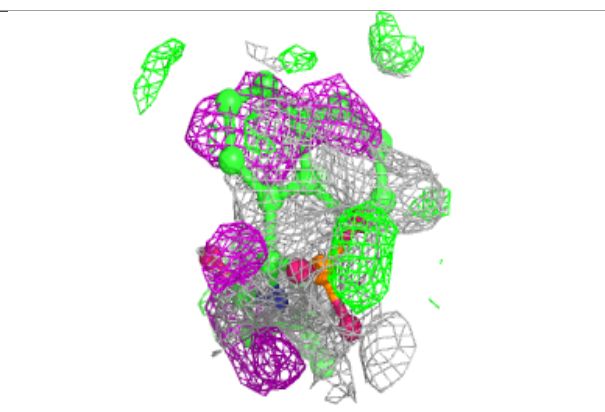
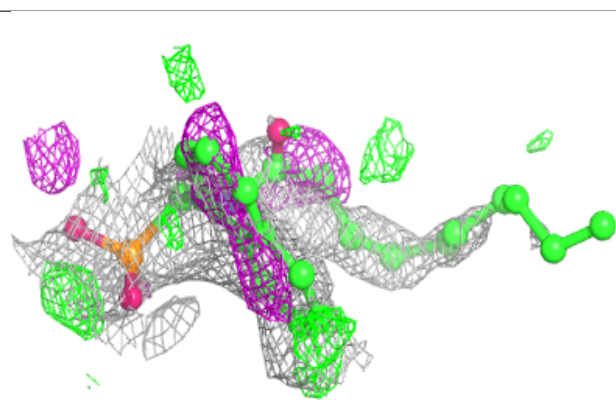
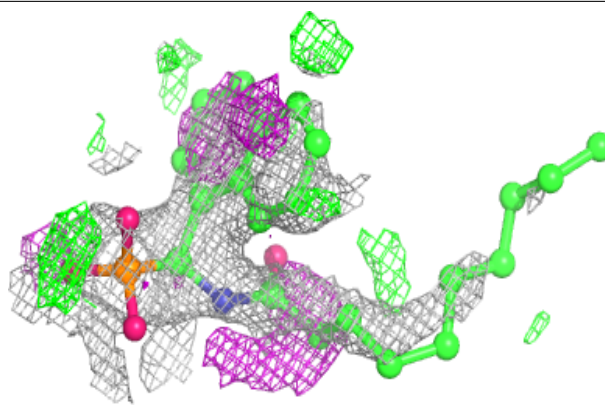
**Electron density around R9X A 532 (B):**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

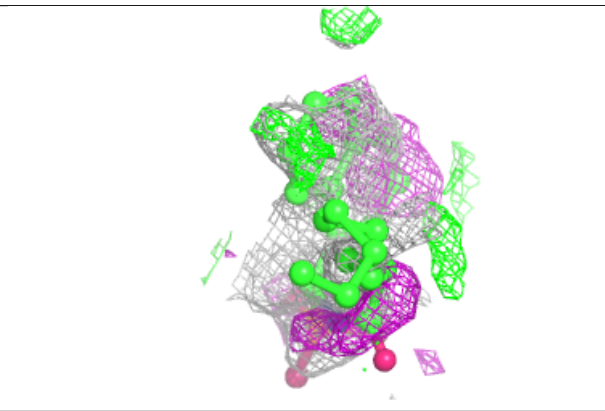
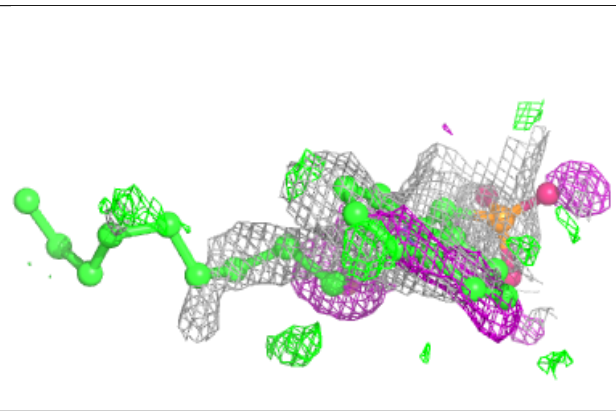
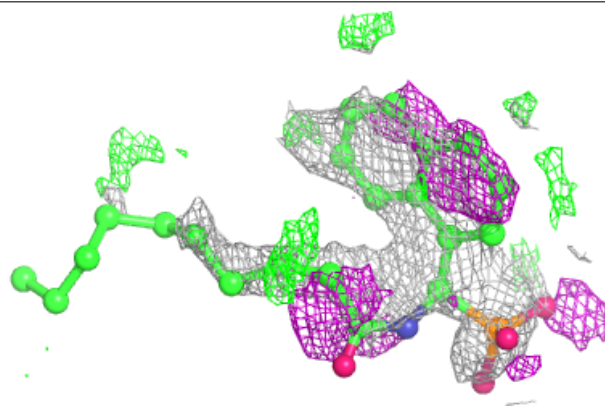


Electron density around R9X C 633 (B):

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

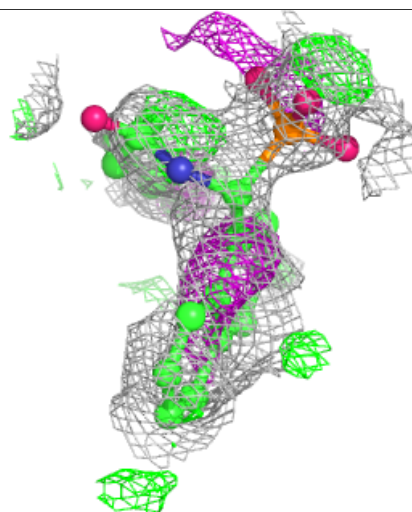
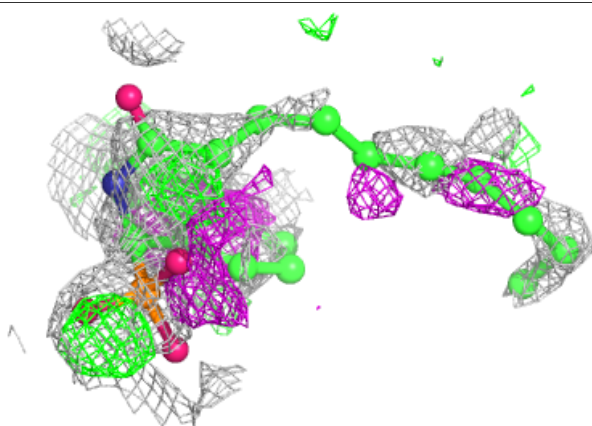
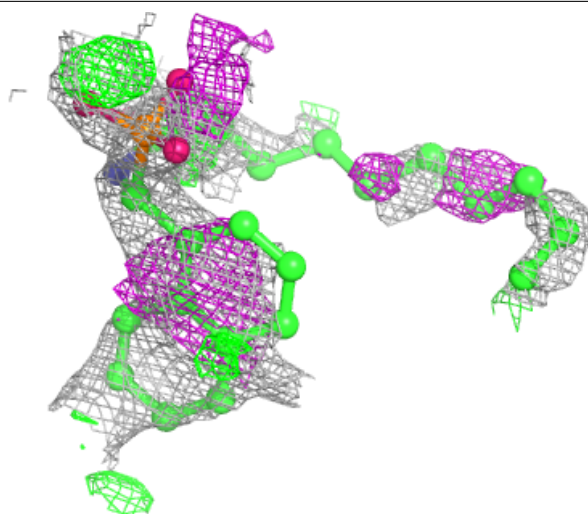
**Electron density around R9X C 632 (A):**

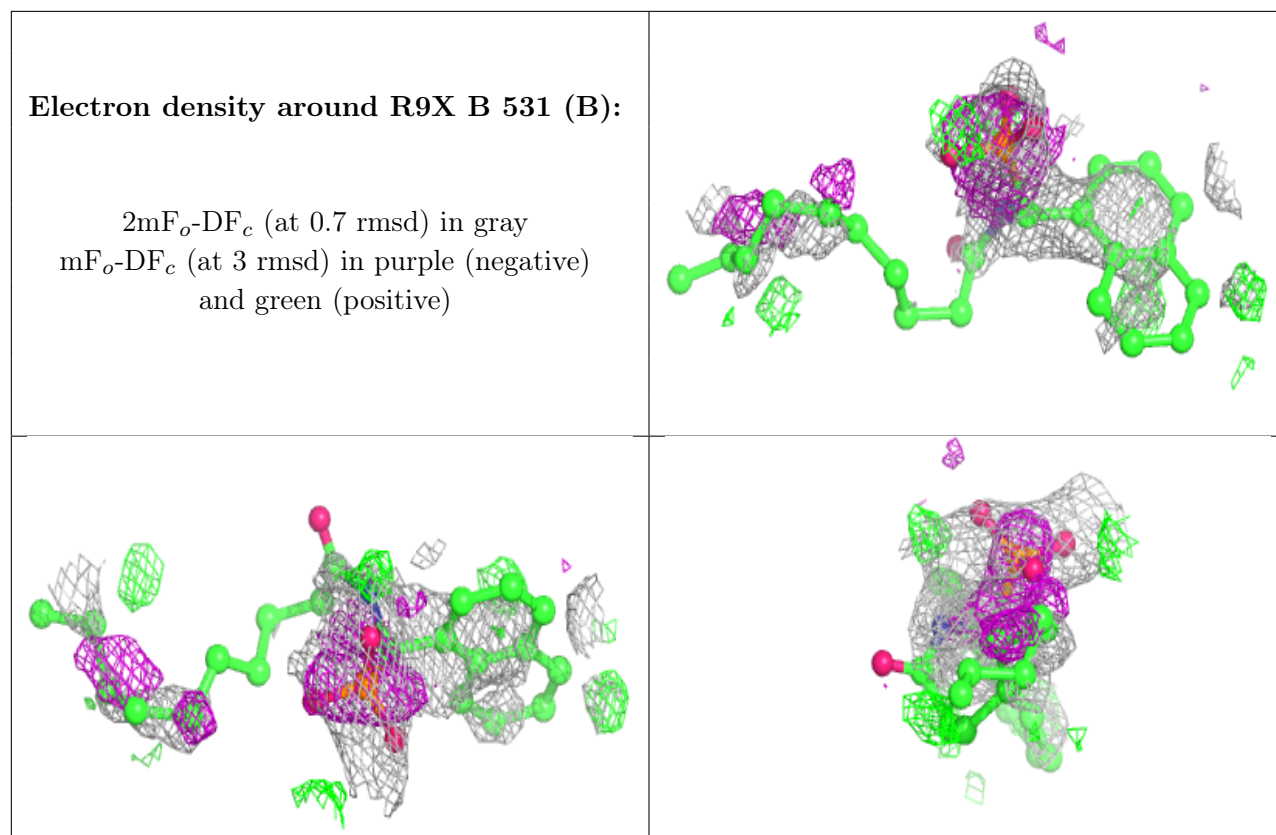
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around R9X B 531 (A):

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.5 Other polymers [i](#)

There are no such residues in this entry.