



# wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 15, 2023 – 09:03 PM EDT

PDB ID : 1XFD  
Title : Structure of a human A-type Potassium Channel Accelerating factor DPPX, a member of the dipeptidyl aminopeptidase family  
Authors : Strop, P.; Bankovich, A.J.; Hansen, K.C.; Garcia, K.C.; Brunger, A.T.  
Deposited on : 2004-09-14  
Resolution : 3.00 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](mailto: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>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.35  
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) : 2.35

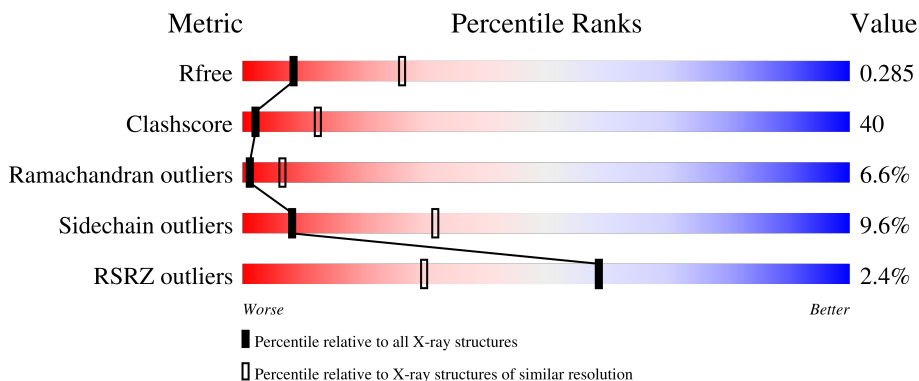
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.00 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.





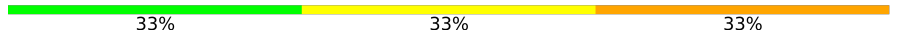
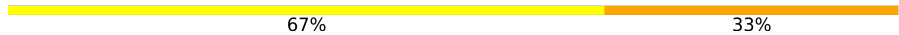
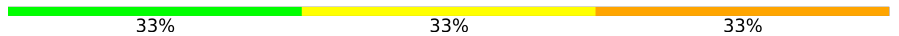
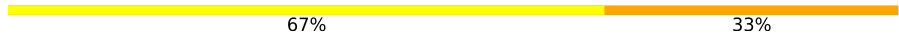
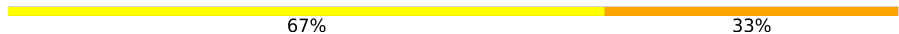

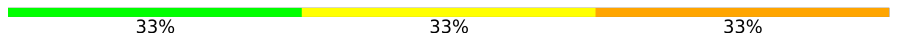



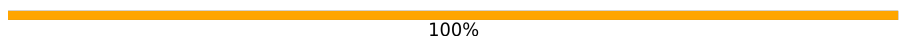


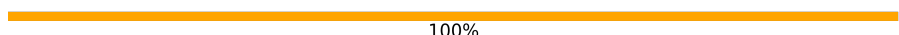





Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	723	 2% 43% 46% 11%
1	B	723	 3% 44% 44% 11%
1	C	723	 2% 42% 46% 11%
1	D	723	 2% 43% 45% 11%
2	E	3	 33% 33% 33%

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Mol	Chain	Length	Quality of chain
2	G	3	 33% 67%
2	I	3	 67% 33%
2	K	3	 33% 33% 33%
2	N	3	 67% 33%
2	Q	3	 33% 33% 33%
2	T	3	 67% 33%
2	V	3	 67% 33%
2	Y	3	 33% 67%
2	Z	3	 33% 33% 33%
3	F	4	 25% 75%
4	H	4	 25% 75%
5	J	2	 50% 50%
5	M	2	 100%
5	O	2	 50% 50%
5	P	2	 50% 50%
5	S	2	 100%
5	U	2	 50% 50%
6	L	3	 100%
6	R	3	 33% 67%
6	W	3	 100%
7	X	4	 100%

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
2	NAG	E	1	X	-	-	-
2	BMA	E	3	-	-	-	X

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	NAG	G	1	X	-	X	-
2	NAG	G	2	-	-	X	-
2	NAG	I	1	X	-	-	-
2	NAG	K	1	X	-	-	-
2	BMA	N	3	-	-	-	X
2	NAG	Q	1	X	-	-	-
2	BMA	Q	3	-	-	-	X
2	NAG	V	1	X	-	-	-
2	NAG	Z	1	X	-	-	-
3	NAG	F	1	X	-	-	-
4	BMA	H	3	-	-	X	-
4	MAN	H	4	-	-	-	X
5	NAG	J	1	X	-	-	-
5	NAG	M	1	X	-	-	-
5	NAG	O	1	X	-	-	-
5	NAG	P	2	-	-	-	X
5	NAG	S	1	X	-	-	-
5	NAG	U	1	X	-	-	-
6	NAG	L	1	X	-	-	-
6	NAG	R	1	X	-	-	-
6	NAG	W	1	X	-	-	-
7	NAG	X	1	X	-	-	-
7	MAN	X	3	-	-	-	X
7	MAN	X	4	-	-	X	X

## 2 Entry composition [i](#)

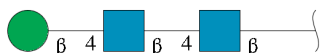
There are 8 unique types of molecules in this entry. The entry contains 24224 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Dipeptidyl aminopeptidase-like protein 6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	723	5837	3718	990	1105	24	0	0	0
1	B	723	5837	3718	990	1105	24	0	0	0
1	C	723	5837	3718	990	1105	24	0	0	0
1	D	723	5837	3718	990	1105	24	0	0	0

- Molecule 2 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			
2	E	3	39	22	2	15	0	0	0
2	G	3	39	22	2	15	0	0	0
2	I	3	39	22	2	15	0	0	0
2	K	3	39	22	2	15	0	0	0
2	N	3	39	22	2	15	0	0	0
2	Q	3	39	22	2	15	0	0	0
2	T	3	39	22	2	15	0	0	0
2	V	3	39	22	2	15	0	0	0

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	Y	3	Total	C	N	O	0	0	0
			39	22	2	15			
2	Z	3	Total	C	N	O	0	0	0
			39	22	2	15			

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



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

- Molecule 4 is an oligosaccharide called alpha-D-mannopyranose-(1-4)-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			
4	H	4	Total	C	N	O	0	0	0
			50	28	2	20			

- Molecule 5 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



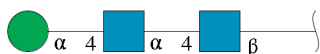
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
5	J	2	Total	C	N	O	0	0	0
			28	16	2	10			
5	M	2	Total	C	N	O	0	0	0
			28	16	2	10			

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
5	O	2	Total 28	C 16	N 2	O 10	0	0	0
5	P	2	Total 28	C 16	N 2	O 10	0	0	0
5	S	2	Total 28	C 16	N 2	O 10	0	0	0
5	U	2	Total 28	C 16	N 2	O 10	0	0	0

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
6	L	3	Total 39	C 22	N 2	O 15	0	0	0
6	R	3	Total 39	C 22	N 2	O 15	0	0	0
6	W	3	Total 39	C 22	N 2	O 15	0	0	0

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-4)-alpha-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	X	4	Total 50	C 28	N 2	O 20	0	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	13	Total 13	O 13	0	0

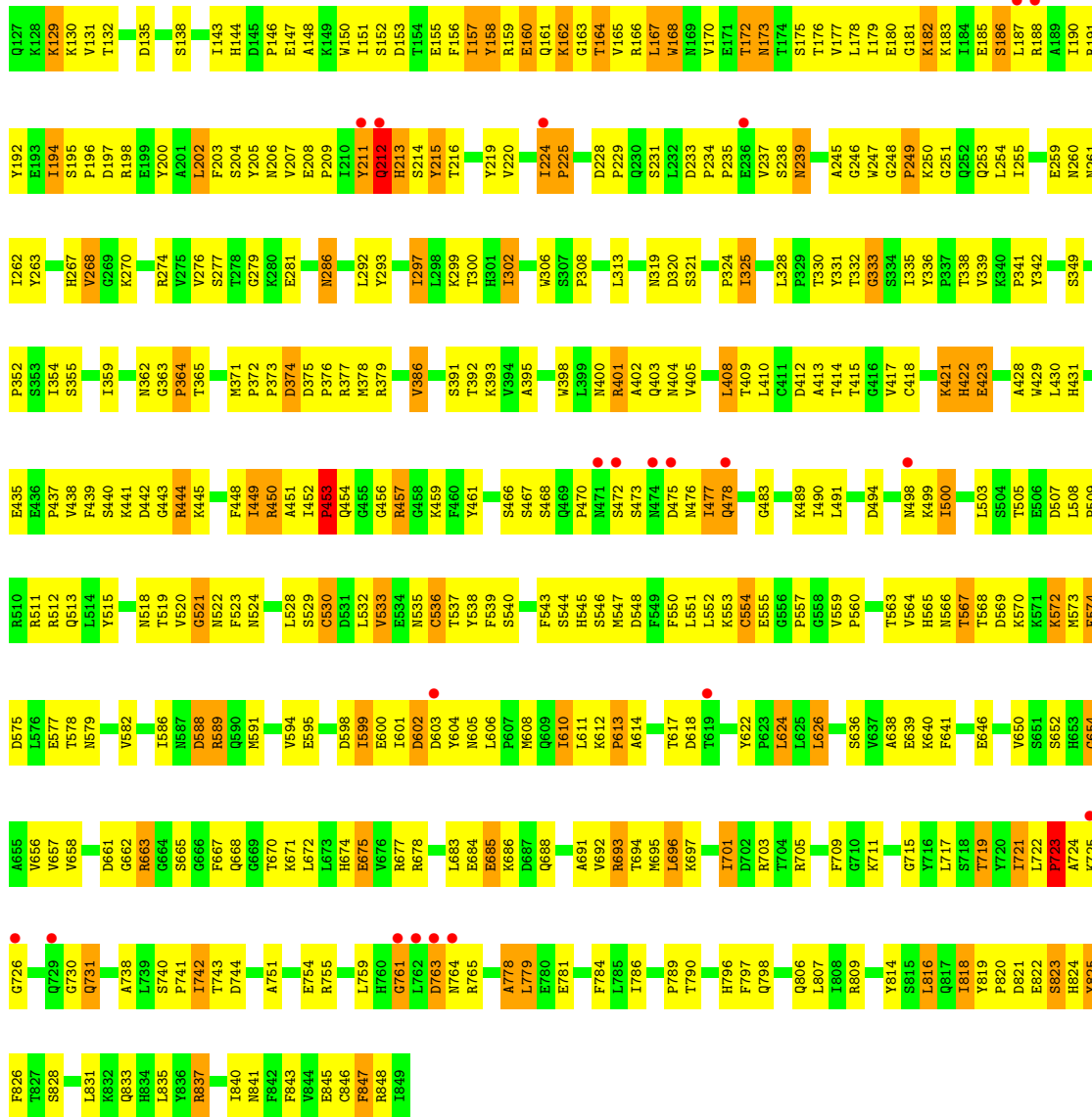
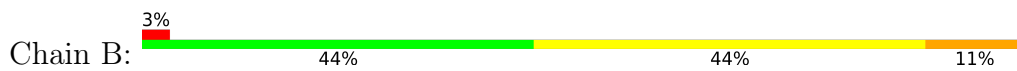
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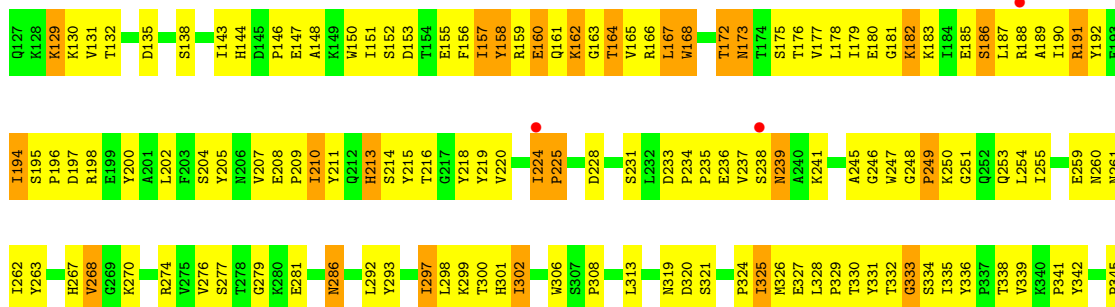
<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>	<b>ZeroOcc</b>	<b>AltConf</b>
8	B	14	Total O 14 14	0	0
8	C	14	Total O 14 14	0	0
8	D	10	Total O 10 10	0	0







• Molecule 1: Dipeptidyl aminopeptidase-like protein 6







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



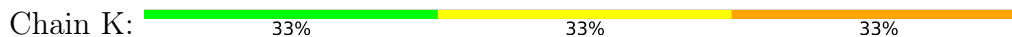
- Molecule 2: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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



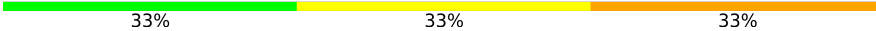
- Molecule 2: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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



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

Chain Q:  33% 33% 33%



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

Chain T:  67% 33%



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

Chain V:  67% 33%



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

Chain Y:  33% 67%



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

Chain Z:  33% 33% 33%



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

Chain F:  25% 75%




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

Chain H:  25% 75%



- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:  50% 50%


MAG1  
MAG2

- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain M:  100%

MAG1  
MAG2

- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain O:  50% 50%

MAG1  
MAG2

- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain P:  50% 50%

MAG1  
MAG2

- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:  100%

MAG1  
MAG2

- Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain U:  50% 50%

MAG1  
MAG2

- Molecule 6: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-alpha-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain L:  100%

MAG1  
MDG2  
MAN3

- Molecule 6: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-alpha-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain R:  33% 67%

MAG1  
MDG2  
MAN3

- Molecule 6: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-alpha-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W:  100%

MAG1  
MDG2  
MAN3

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

Chain X:  100%

MAG1  
MAG2  
MAN3  
MAN4

## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	68.98Å 170.23Å 159.32Å 90.00° 92.11° 90.00°	Depositor
Resolution (Å)	15.00 – 3.00 24.81 – 2.80	Depositor EDS
% Data completeness (in resolution range)	90.6 (15.00-3.00) 77.0 (24.81-2.80)	Depositor EDS
$R_{merge}$	0.10	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.47 (at 2.80Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, $R_{free}$	0.248 , 0.280 0.255 , 0.285	Depositor DCC
$R_{free}$ test set	3338 reflections (4.38%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	70.9	Xtrriage
Anisotropy	0.495	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.35 , 47.1	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.44$ , $\langle L^2 \rangle = 0.26$	Xtrriage
Estimated twinning fraction	0.067 for h,-k,-l	Xtrriage
$F_o, F_c$ correlation	0.91	EDS
Total number of atoms	24224	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	75.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.31% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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, NDG, BMA, MAN

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	0.47	0/5987	0.68	2/8118 (0.0%)
1	B	0.47	0/5987	0.70	3/8118 (0.0%)
1	C	0.51	5/5987 (0.1%)	0.72	8/8118 (0.1%)
1	D	0.46	0/5987	0.68	2/8118 (0.0%)
All	All	0.48	5/23948 (0.0%)	0.70	15/32472 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	840	ILE	CB-CG2	-8.70	1.25	1.52
1	C	191	ARG	CZ-NH2	-8.69	1.21	1.33
1	C	191	ARG	NE-CZ	-8.02	1.22	1.33
1	C	191	ARG	CD-NE	-7.97	1.32	1.46
1	C	191	ARG	CG-CD	-5.22	1.38	1.51

The worst 5 of 15 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	191	ARG	NE-CZ-NH2	-15.02	112.79	120.30
1	C	840	ILE	CG1-CB-CG2	-9.11	91.37	111.40
1	C	191	ARG	CD-NE-CZ	-7.57	113.01	123.60
1	C	191	ARG	NH1-CZ-NH2	7.35	127.48	119.40
1	B	212	GLN	N-CA-C	-6.72	92.85	111.00

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	5837	0	5677	466	1
1	B	5837	0	5678	468	1
1	C	5837	0	5679	482	1
1	D	5837	0	5679	464	1
2	E	39	0	34	1	0
2	G	39	0	34	10	0
2	I	39	0	34	1	0
2	K	39	0	34	2	0
2	N	39	0	34	3	0
2	Q	39	0	34	1	0
2	T	39	0	34	3	0
2	V	39	0	34	3	0
2	Y	39	0	34	5	0
2	Z	39	0	34	2	0
3	F	50	0	42	2	0
4	H	50	0	43	10	0
5	J	28	0	25	4	0
5	M	28	0	25	1	0
5	O	28	0	25	3	0
5	P	28	0	25	3	0
5	S	28	0	25	4	0
5	U	28	0	25	0	0
6	L	39	0	33	6	0
6	R	39	0	33	4	0
6	W	39	0	33	4	0
7	X	50	0	43	10	0
8	A	13	0	0	2	0
8	B	14	0	0	6	0
8	C	14	0	0	2	0
8	D	10	0	0	2	0
All	All	24224	0	23430	1901	2

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 40.

The worst 5 of 1901 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:617:THR:HG22	1:D:618:ASP:H	1.01	1.17
1:A:498:ASN:HA	1:A:519:THR:HG22	1.31	1.11
1:C:498:ASN:HA	1:C:519:THR:HG22	1.32	1.10
1:D:498:ASN:HA	1:D:519:THR:HG22	1.33	1.09
1:B:617:THR:HG22	1:B:618:ASP:H	1.07	1.09

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:473:SER:OG	1:D:362:ASN:OD1[2_546]	2.13	0.07
1:A:473:SER:OG	1:B:362:ASN:OD1[2_655]	2.17	0.03

## 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	721/723 (100%)	578 (80%)	97 (14%)	46 (6%)	1	7
1	B	721/723 (100%)	575 (80%)	98 (14%)	48 (7%)	1	6
1	C	721/723 (100%)	579 (80%)	95 (13%)	47 (6%)	1	7
1	D	721/723 (100%)	577 (80%)	94 (13%)	50 (7%)	1	6
All	All	2884/2892 (100%)	2309 (80%)	384 (13%)	191 (7%)	1	6

5 of 191 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	129	LYS
1	A	160	GLU
1	A	162	LYS
1	A	173	ASN
1	A	472	SER

### 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	643/643 (100%)	581 (90%)	62 (10%)	8	32
1	B	643/643 (100%)	582 (90%)	61 (10%)	8	32
1	C	643/643 (100%)	582 (90%)	61 (10%)	8	32
1	D	643/643 (100%)	580 (90%)	63 (10%)	8	30
All	All	2572/2572 (100%)	2325 (90%)	247 (10%)	8	32

5 of 247 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	790	THR
1	D	598	ASP
1	C	386	VAL
1	D	588	ASP
1	D	731	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	422	HIS
1	B	422	HIS
1	C	351	ASN
1	C	422	HIS
1	D	422	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

63 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	0.59	0	17,19,21	1.31	3 (17%)
2	NAG	E	2	2	14,14,15	0.60	0	17,19,21	0.76	1 (5%)
2	BMA	E	3	2	11,11,12	0.62	0	15,15,17	0.32	0
3	NAG	F	1	3,1	14,14,15	0.81	1 (7%)	17,19,21	1.08	1 (5%)
3	NDG	F	2	3	14,14,15	0.83	0	17,19,21	1.14	2 (11%)
3	MAN	F	3	3	11,11,12	0.85	0	15,15,17	1.02	2 (13%)
3	BMA	F	4	3	11,11,12	0.73	0	15,15,17	1.23	1 (6%)
2	NAG	G	1	2,1	14,14,15	0.52	0	17,19,21	0.85	1 (5%)
2	NAG	G	2	2	14,14,15	0.90	1 (7%)	17,19,21	1.45	3 (17%)
2	BMA	G	3	2	11,11,12	0.59	0	15,15,17	0.59	0
4	NAG	H	1	1,4	14,14,15	0.48	0	17,19,21	0.66	0
4	NAG	H	2	4	14,14,15	0.60	0	17,19,21	1.07	1 (5%)
4	BMA	H	3	4	11,11,12	1.18	1 (9%)	15,15,17	1.62	1 (6%)
4	MAN	H	4	4	11,11,12	0.87	1 (9%)	15,15,17	1.07	1 (6%)
2	NAG	I	1	2,1	14,14,15	0.84	1 (7%)	17,19,21	1.04	2 (11%)
2	NAG	I	2	2	14,14,15	0.56	0	17,19,21	0.65	0
2	BMA	I	3	2	11,11,12	0.46	0	15,15,17	0.30	0
5	NAG	J	1	5,1	14,14,15	1.59	3 (21%)	17,19,21	1.71	5 (29%)
5	NAG	J	2	5	14,14,15	1.86	3 (21%)	17,19,21	1.24	3 (17%)
2	NAG	K	1	2,1	14,14,15	0.81	1 (7%)	17,19,21	1.39	2 (11%)
2	NAG	K	2	2	14,14,15	0.68	0	17,19,21	0.67	0
2	BMA	K	3	2	11,11,12	0.55	0	15,15,17	0.32	0
6	NAG	L	1	6,1	14,14,15	0.82	1 (7%)	17,19,21	1.25	3 (17%)
6	NDG	L	2	6	14,14,15	0.67	0	17,19,21	1.42	3 (17%)
6	MAN	L	3	6	11,11,12	0.73	0	15,15,17	0.89	1 (6%)
5	NAG	M	1	5,1	14,14,15	0.60	0	17,19,21	1.28	2 (11%)
5	NAG	M	2	5	14,14,15	0.57	0	17,19,21	0.71	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	NAG	N	1	2,1	14,14,15	0.50	0	17,19,21	0.63	0
2	NAG	N	2	2	14,14,15	0.69	0	17,19,21	1.38	2 (11%)
2	BMA	N	3	2	11,11,12	0.56	0	15,15,17	0.58	0
5	NAG	O	1	5,1	14,14,15	0.91	1 (7%)	17,19,21	1.05	0
5	NAG	O	2	5	14,14,15	0.64	0	17,19,21	0.69	0
5	NAG	P	1	5,1	14,14,15	1.13	1 (7%)	17,19,21	1.45	3 (17%)
5	NAG	P	2	5	14,14,15	0.69	0	17,19,21	0.67	0
2	NAG	Q	1	2,1	14,14,15	0.79	1 (7%)	17,19,21	1.33	2 (11%)
2	NAG	Q	2	2	14,14,15	0.91	1 (7%)	17,19,21	0.84	0
2	BMA	Q	3	2	11,11,12	0.59	0	15,15,17	0.47	0
6	NAG	R	1	6,1	14,14,15	0.70	0	17,19,21	1.46	3 (17%)
6	NDG	R	2	6	14,14,15	0.67	0	17,19,21	1.09	2 (11%)
6	MAN	R	3	6	11,11,12	0.67	0	15,15,17	0.85	0
5	NAG	S	1	5,1	14,14,15	0.60	0	17,19,21	0.91	1 (5%)
5	NAG	S	2	5	14,14,15	0.56	0	17,19,21	0.94	1 (5%)
2	NAG	T	1	2,1	14,14,15	0.64	0	17,19,21	0.64	0
2	NAG	T	2	2	14,14,15	0.65	0	17,19,21	1.32	2 (11%)
2	BMA	T	3	2	11,11,12	0.55	0	15,15,17	0.35	0
5	NAG	U	1	5,1	14,14,15	0.88	1 (7%)	17,19,21	1.07	1 (5%)
5	NAG	U	2	5	14,14,15	0.57	0	17,19,21	0.67	0
2	NAG	V	1	2,1	14,14,15	0.75	1 (7%)	17,19,21	1.73	4 (23%)
2	NAG	V	2	2	14,14,15	0.64	0	17,19,21	0.75	0
2	BMA	V	3	2	11,11,12	0.54	0	15,15,17	0.26	0
6	NAG	W	1	6,1	14,14,15	0.66	0	17,19,21	1.30	3 (17%)
6	NDG	W	2	6	14,14,15	0.76	0	17,19,21	1.57	3 (17%)
6	MAN	W	3	6	11,11,12	0.63	0	15,15,17	0.94	2 (13%)
7	NAG	X	1	7,1	14,14,15	0.44	0	17,19,21	1.12	2 (11%)
7	NAG	X	2	7	14,14,15	0.67	0	17,19,21	1.27	2 (11%)
7	MAN	X	3	7	11,11,12	0.95	0	15,15,17	2.64	5 (33%)
7	MAN	X	4	7	11,11,12	0.95	1 (9%)	15,15,17	2.06	3 (20%)
2	NAG	Y	1	2,1	14,14,15	0.60	0	17,19,21	0.88	1 (5%)
2	NAG	Y	2	2	14,14,15	0.77	0	17,19,21	1.30	2 (11%)
2	BMA	Y	3	2	11,11,12	0.56	0	15,15,17	0.36	0
2	NAG	Z	1	2,1	14,14,15	0.79	1 (7%)	17,19,21	1.12	2 (11%)
2	NAG	Z	2	2	14,14,15	0.70	0	17,19,21	0.67	0
2	BMA	Z	3	2	11,11,12	0.52	0	15,15,17	0.27	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	2,1	1/1/5/7	3/6/23/26	0/1/1/1
2	NAG	E	2	2	-	3/6/23/26	0/1/1/1
2	BMA	E	3	2	-	2/2/19/22	0/1/1/1
3	NAG	F	1	3,1	1/1/5/7	5/6/23/26	0/1/1/1
3	NDG	F	2	3	-	4/6/23/26	0/1/1/1
3	MAN	F	3	3	-	1/2/19/22	0/1/1/1
3	BMA	F	4	3	-	2/2/19/22	0/1/1/1
2	NAG	G	1	2,1	1/1/5/7	2/6/23/26	0/1/1/1
2	NAG	G	2	2	-	4/6/23/26	0/1/1/1
2	BMA	G	3	2	-	1/2/19/22	0/1/1/1
4	NAG	H	1	1,4	-	5/6/23/26	0/1/1/1
4	NAG	H	2	4	-	2/6/23/26	0/1/1/1
4	BMA	H	3	4	-	2/2/19/22	0/1/1/1
4	MAN	H	4	4	-	1/2/19/22	0/1/1/1
2	NAG	I	1	2,1	1/1/5/7	3/6/23/26	0/1/1/1
2	NAG	I	2	2	-	4/6/23/26	0/1/1/1
2	BMA	I	3	2	-	2/2/19/22	0/1/1/1
5	NAG	J	1	5,1	1/1/5/7	5/6/23/26	0/1/1/1
5	NAG	J	2	5	-	4/6/23/26	0/1/1/1
2	NAG	K	1	2,1	1/1/5/7	3/6/23/26	0/1/1/1
2	NAG	K	2	2	-	2/6/23/26	0/1/1/1
2	BMA	K	3	2	-	1/2/19/22	0/1/1/1
6	NAG	L	1	6,1	1/1/5/7	6/6/23/26	0/1/1/1
6	NDG	L	2	6	-	4/6/23/26	0/1/1/1
6	MAN	L	3	6	-	2/2/19/22	0/1/1/1
5	NAG	M	1	5,1	1/1/5/7	4/6/23/26	0/1/1/1
5	NAG	M	2	5	-	4/6/23/26	0/1/1/1
2	NAG	N	1	2,1	-	5/6/23/26	0/1/1/1
2	NAG	N	2	2	-	4/6/23/26	0/1/1/1
2	BMA	N	3	2	-	2/2/19/22	0/1/1/1
5	NAG	O	1	5,1	1/1/5/7	5/6/23/26	0/1/1/1
5	NAG	O	2	5	-	4/6/23/26	0/1/1/1
5	NAG	P	1	5,1	-	4/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	P	2	5	-	4/6/23/26	0/1/1/1
2	NAG	Q	1	2,1	1/1/5/7	3/6/23/26	0/1/1/1
2	NAG	Q	2	2	-	2/6/23/26	0/1/1/1
2	BMA	Q	3	2	-	2/2/19/22	0/1/1/1
6	NAG	R	1	6,1	1/1/5/7	4/6/23/26	0/1/1/1
6	NDG	R	2	6	-	4/6/23/26	0/1/1/1
6	MAN	R	3	6	-	2/2/19/22	0/1/1/1
5	NAG	S	1	5,1	1/1/5/7	2/6/23/26	0/1/1/1
5	NAG	S	2	5	-	4/6/23/26	0/1/1/1
2	NAG	T	1	2,1	-	5/6/23/26	0/1/1/1
2	NAG	T	2	2	-	4/6/23/26	0/1/1/1
2	BMA	T	3	2	-	2/2/19/22	0/1/1/1
5	NAG	U	1	5,1	1/1/5/7	5/6/23/26	0/1/1/1
5	NAG	U	2	5	-	4/6/23/26	0/1/1/1
2	NAG	V	1	2,1	1/1/5/7	5/6/23/26	0/1/1/1
2	NAG	V	2	2	-	4/6/23/26	0/1/1/1
2	BMA	V	3	2	-	2/2/19/22	0/1/1/1
6	NAG	W	1	6,1	1/1/5/7	4/6/23/26	0/1/1/1
6	NDG	W	2	6	-	2/6/23/26	0/1/1/1
6	MAN	W	3	6	-	2/2/19/22	0/1/1/1
7	NAG	X	1	7,1	1/1/5/7	2/6/23/26	0/1/1/1
7	NAG	X	2	7	-	5/6/23/26	0/1/1/1
7	MAN	X	3	7	-	1/2/19/22	0/1/1/1
7	MAN	X	4	7	-	2/2/19/22	0/1/1/1
2	NAG	Y	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	Y	2	2	-	4/6/23/26	0/1/1/1
2	BMA	Y	3	2	-	1/2/19/22	0/1/1/1
2	NAG	Z	1	2,1	1/1/5/7	4/6/23/26	0/1/1/1
2	NAG	Z	2	2	-	4/6/23/26	0/1/1/1
2	BMA	Z	3	2	-	2/2/19/22	0/1/1/1

The worst 5 of 21 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	J	2	NAG	C1-C2	5.52	1.60	1.52
5	J	1	NAG	O4-C4	3.88	1.52	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	J	1	NAG	C4-C5	3.14	1.59	1.53
5	P	1	NAG	C1-C2	3.04	1.56	1.52
5	J	2	NAG	O5-C5	2.82	1.49	1.43

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	X	3	MAN	C1-C2-C3	7.30	118.64	109.67
4	H	3	BMA	C1-C2-C3	-5.51	102.89	109.67
7	X	4	MAN	C1-C2-C3	5.21	116.07	109.67
7	X	3	MAN	C1-O5-C5	4.35	118.09	112.19
7	X	4	MAN	O5-C1-C2	4.33	117.46	110.77

5 of 17 chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	E	1	NAG	C1
2	G	1	NAG	C1
2	I	1	NAG	C1
2	K	1	NAG	C1
2	Q	1	NAG	C1

5 of 200 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	E	1	NAG	C3-C2-N2-C7
2	E	1	NAG	C8-C7-N2-C2
2	E	1	NAG	O7-C7-N2-C2
2	E	2	NAG	C8-C7-N2-C2
2	E	2	NAG	O7-C7-N2-C2

There are no ring outliers.

49 monomers are involved in 82 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	L	1	NAG	5	0
6	R	1	NAG	4	0
2	G	1	NAG	10	0
2	V	2	NAG	3	0
6	W	2	NDG	3	0
6	R	2	NDG	1	0

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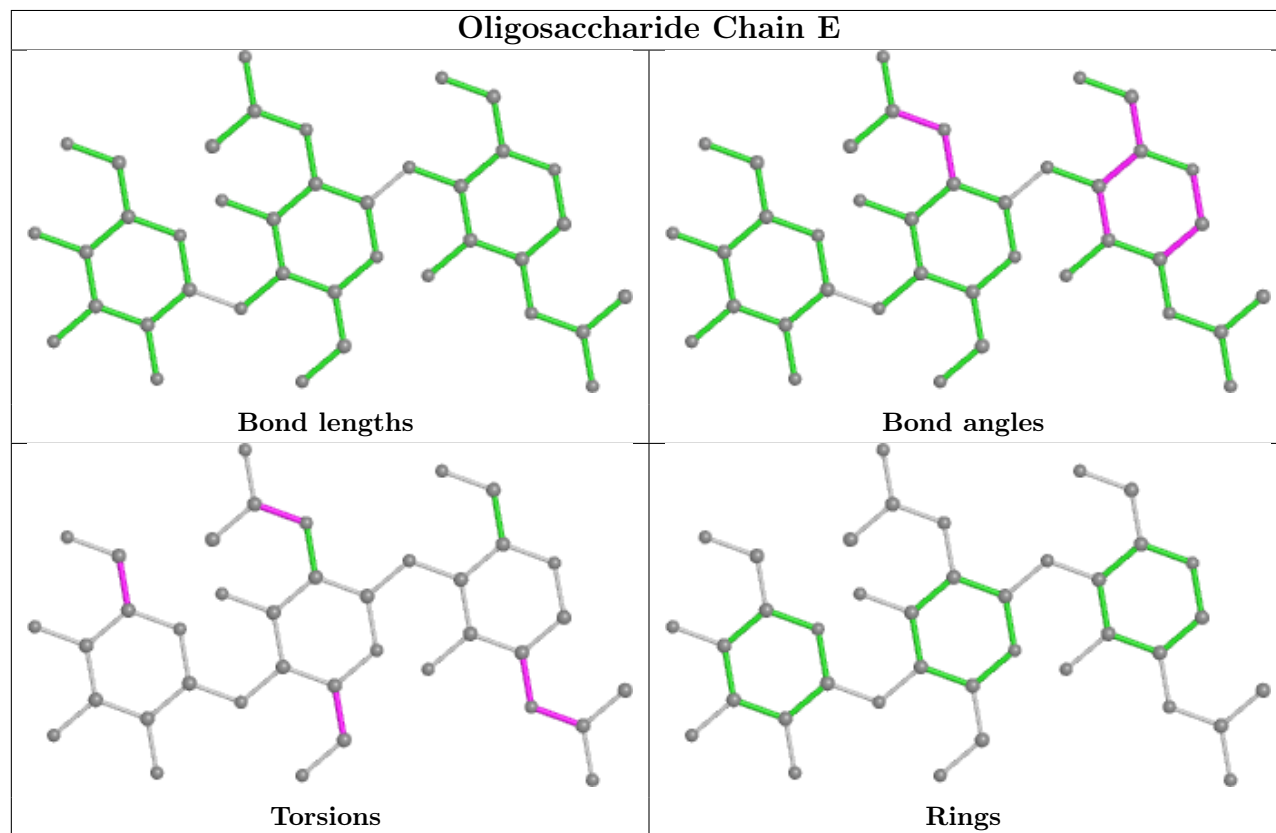
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	T	1	NAG	1	0
7	X	1	NAG	4	0
4	H	4	MAN	3	0
2	V	3	BMA	1	0
2	I	1	NAG	1	0
5	P	2	NAG	2	0
5	M	1	NAG	1	0
2	K	1	NAG	1	0
6	W	3	MAN	1	0
2	K	2	NAG	2	0
7	X	3	MAN	3	0
2	N	2	NAG	1	0
2	G	2	NAG	8	0
5	P	1	NAG	2	0
5	S	1	NAG	4	0
4	H	3	BMA	7	0
2	T	3	BMA	2	0
5	S	2	NAG	3	0
2	T	2	NAG	2	0
2	N	1	NAG	2	0
7	X	2	NAG	3	0
6	L	3	MAN	1	0
2	Y	3	BMA	2	0
4	H	1	NAG	3	0
5	J	1	NAG	4	0
2	Y	2	NAG	2	0
7	X	4	MAN	6	0
6	W	1	NAG	3	0
2	Z	1	NAG	2	0
3	F	1	NAG	1	0
5	O	1	NAG	2	0
3	F	2	NDG	1	0
2	N	3	BMA	1	0
2	Y	1	NAG	3	0
2	Z	2	NAG	1	0
2	E	2	NAG	1	0
5	M	2	NAG	1	0
5	O	2	NAG	1	0
6	L	2	NDG	5	0
4	H	2	NAG	5	0
2	Q	2	NAG	1	0
2	V	1	NAG	2	0

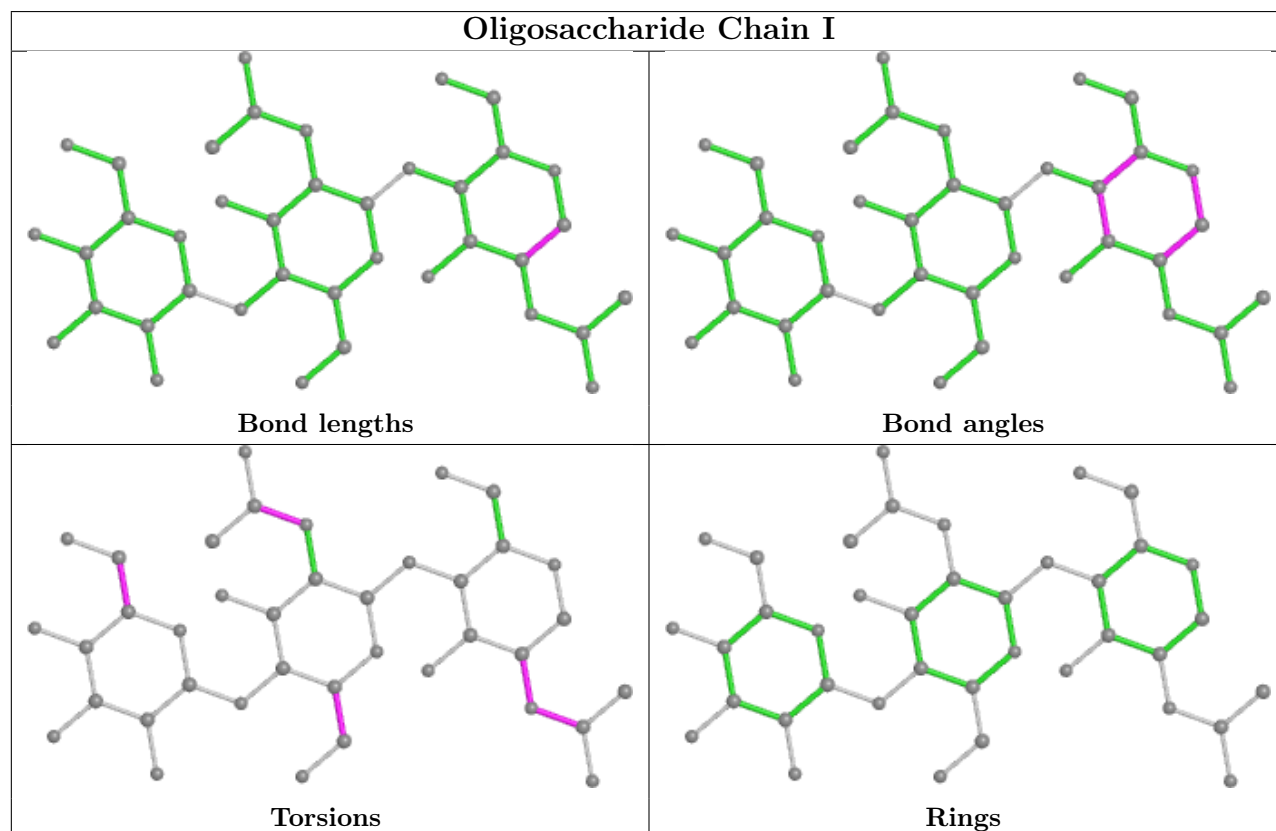
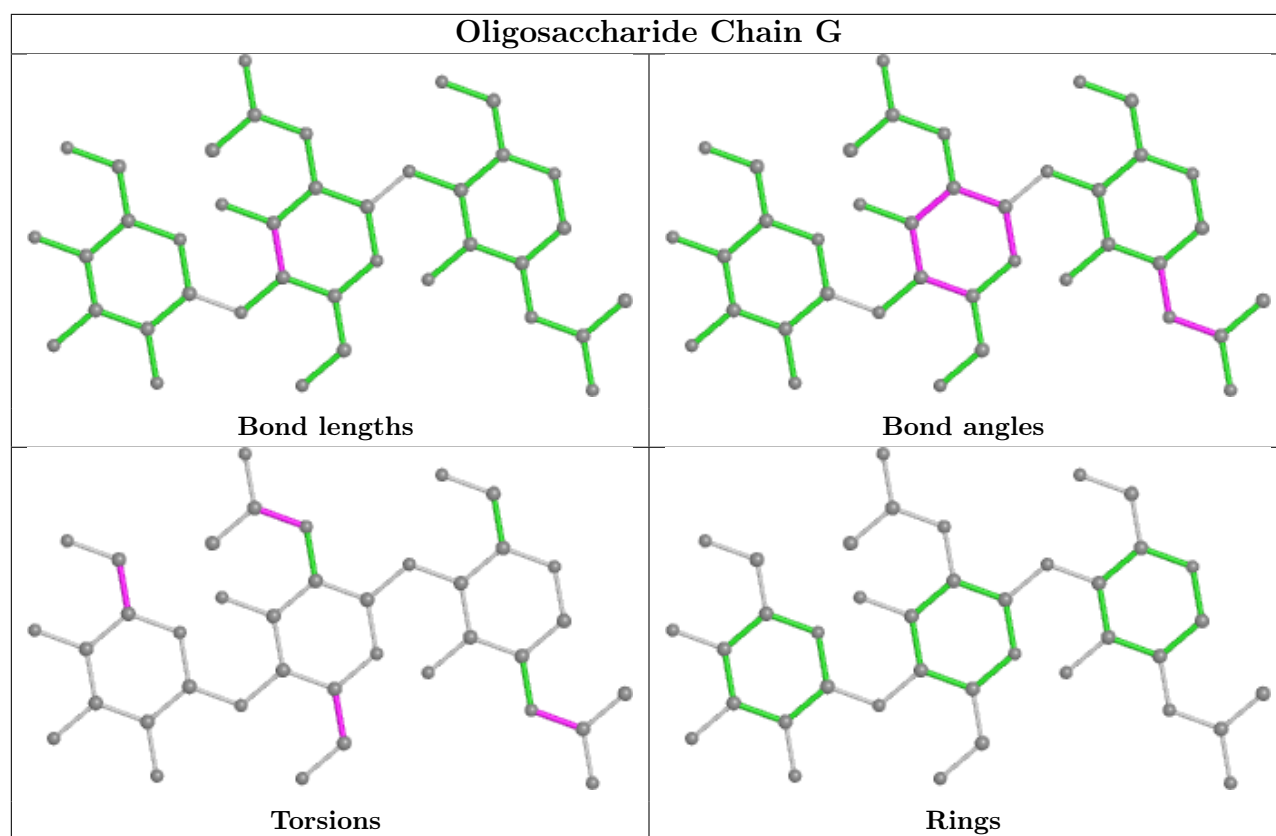
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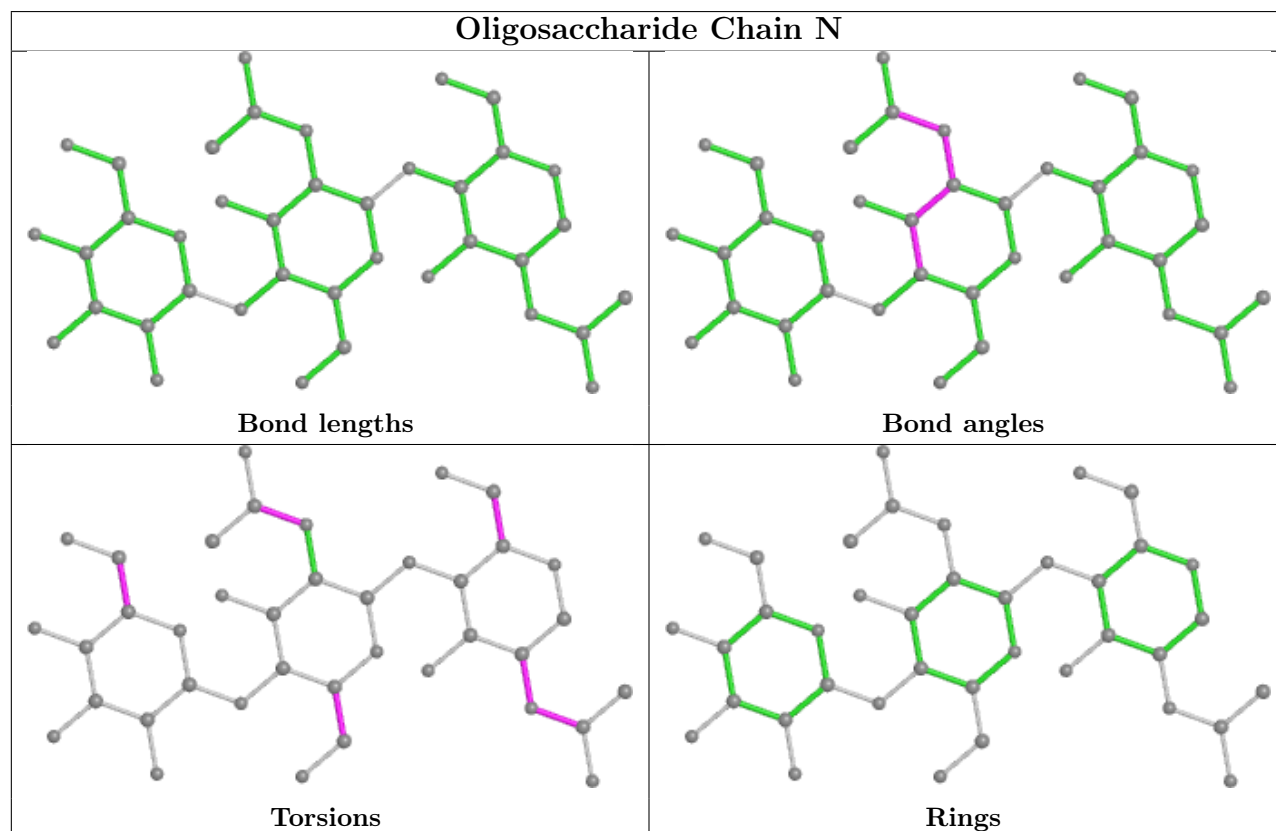
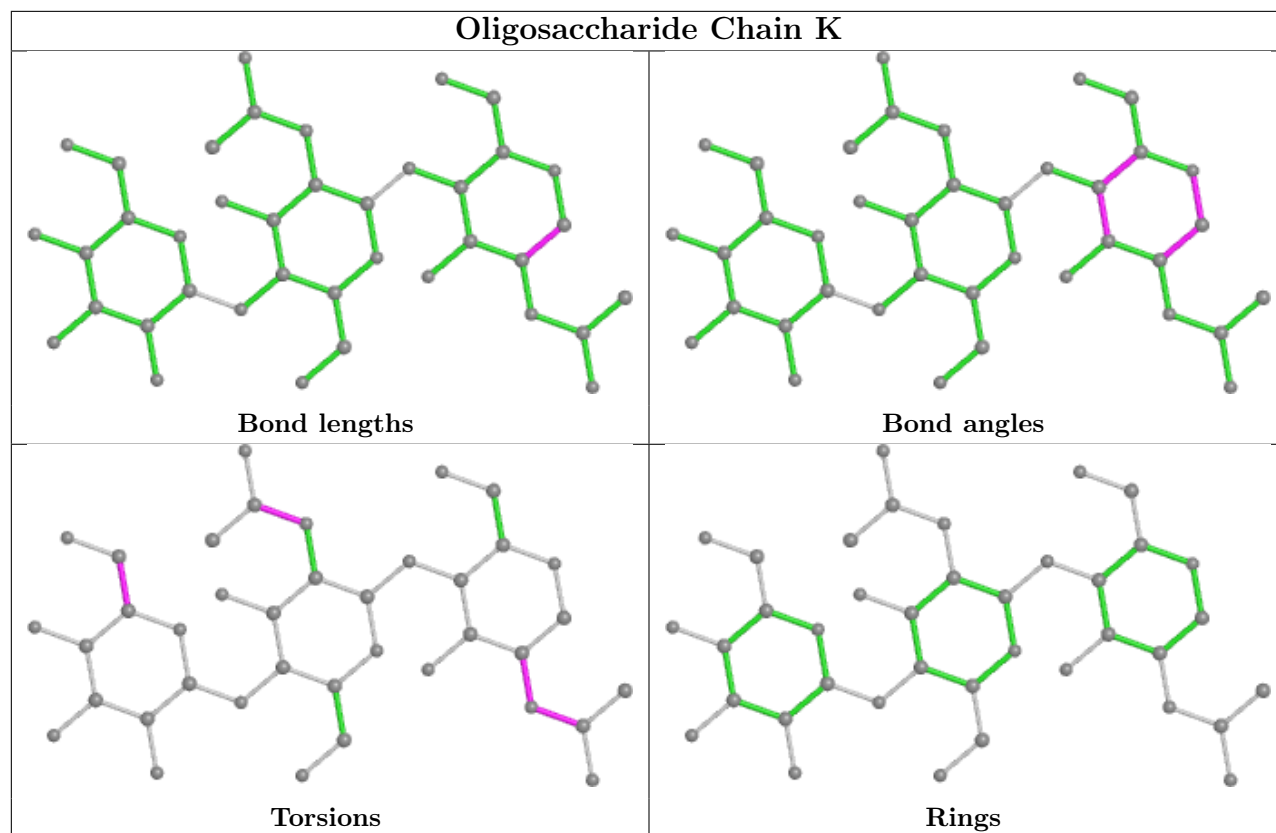
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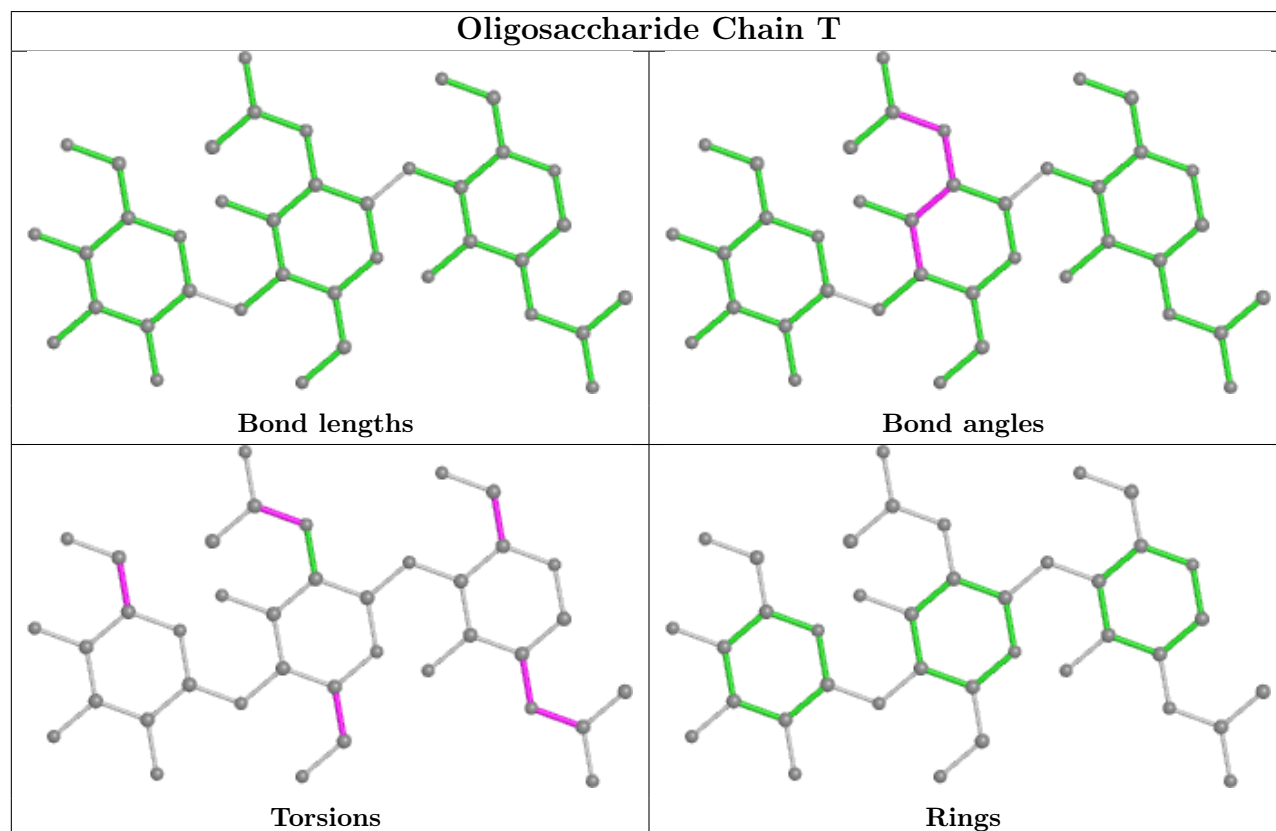
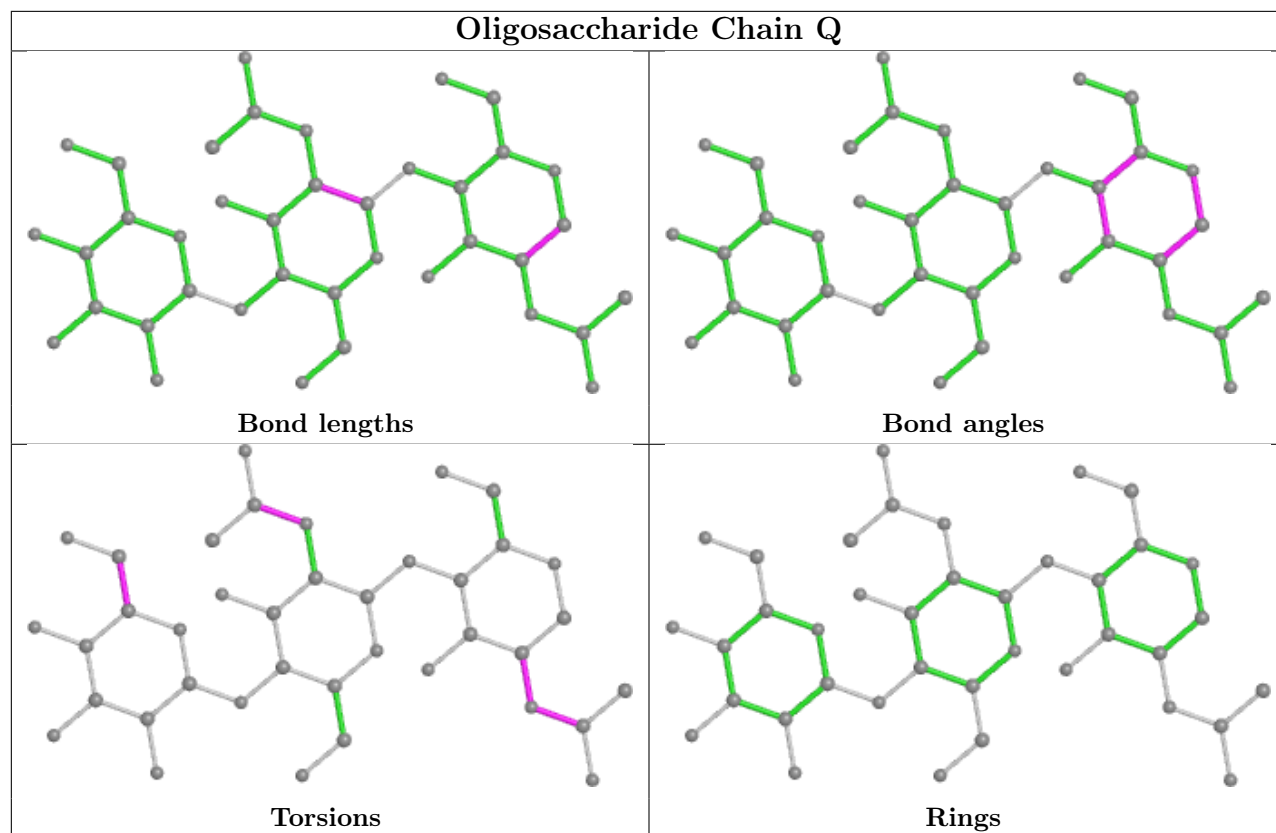
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	3	MAN	1	0

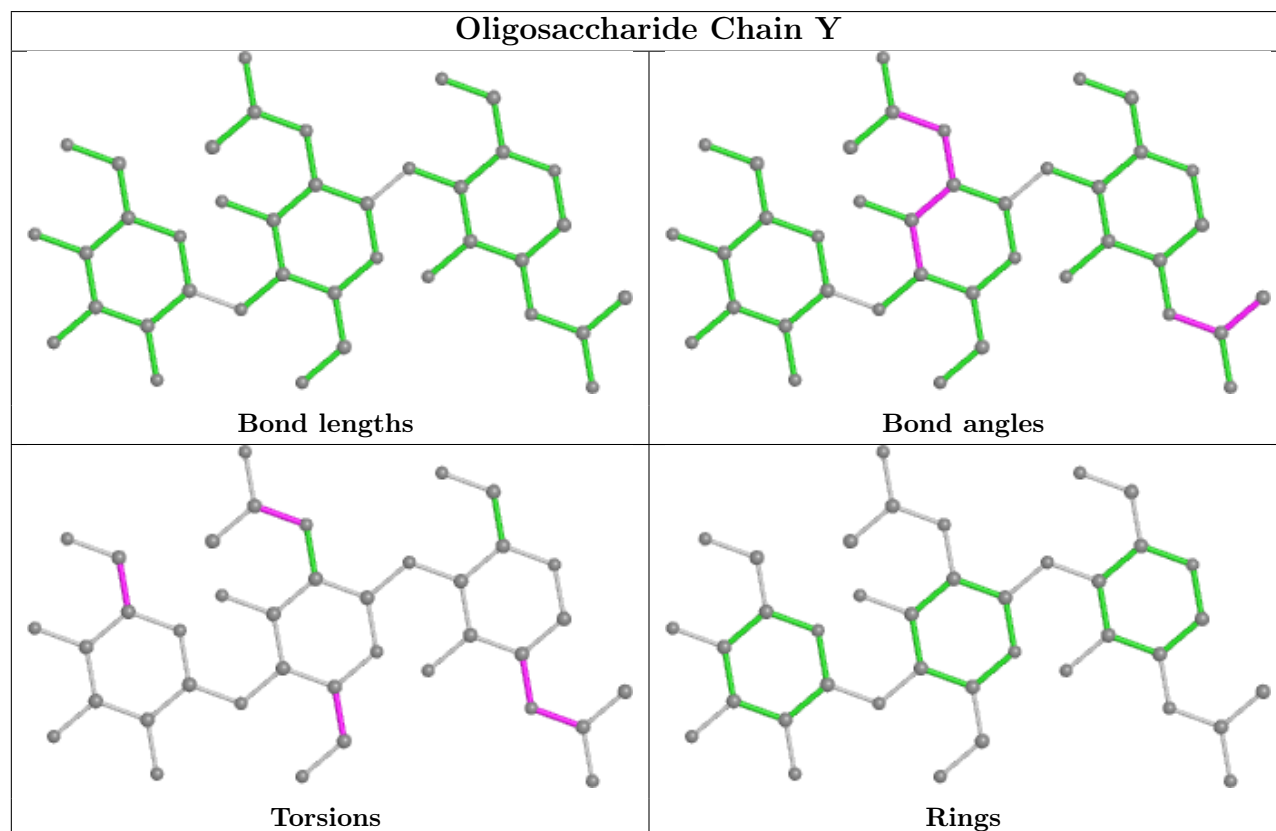
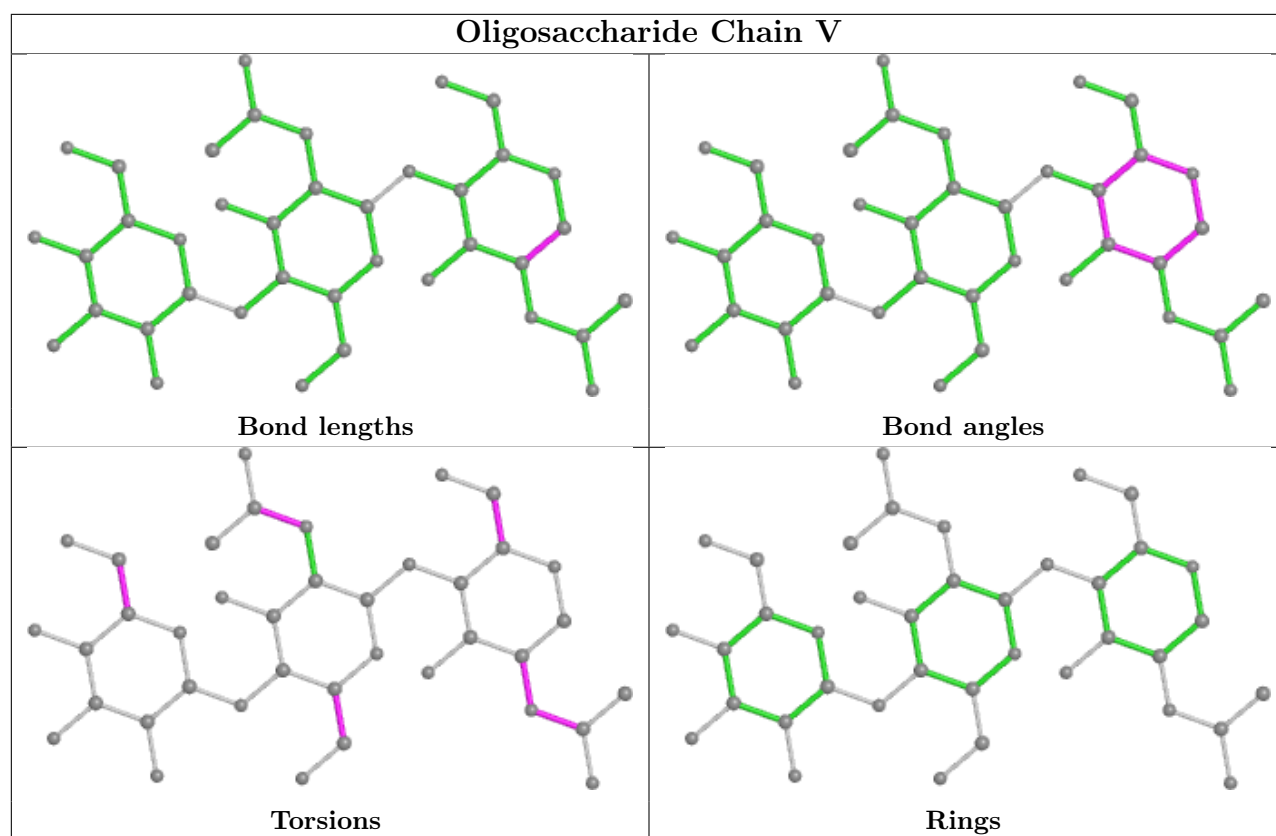
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

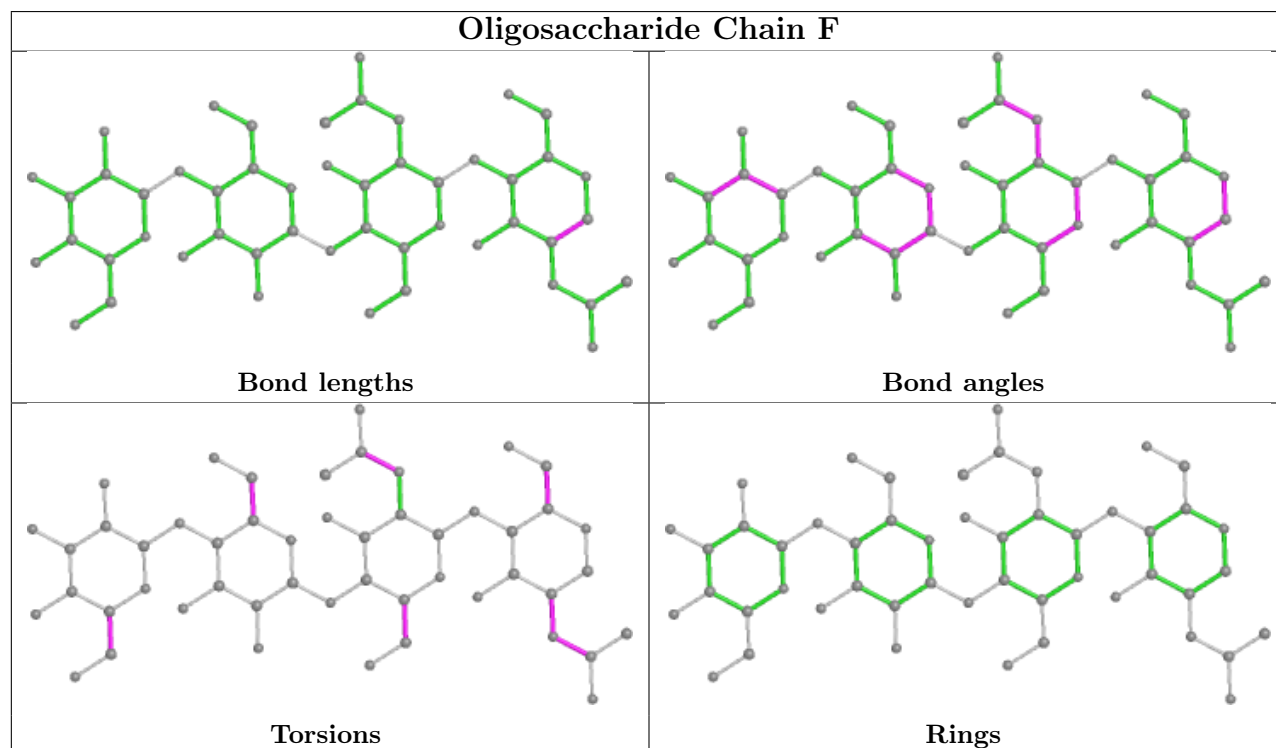
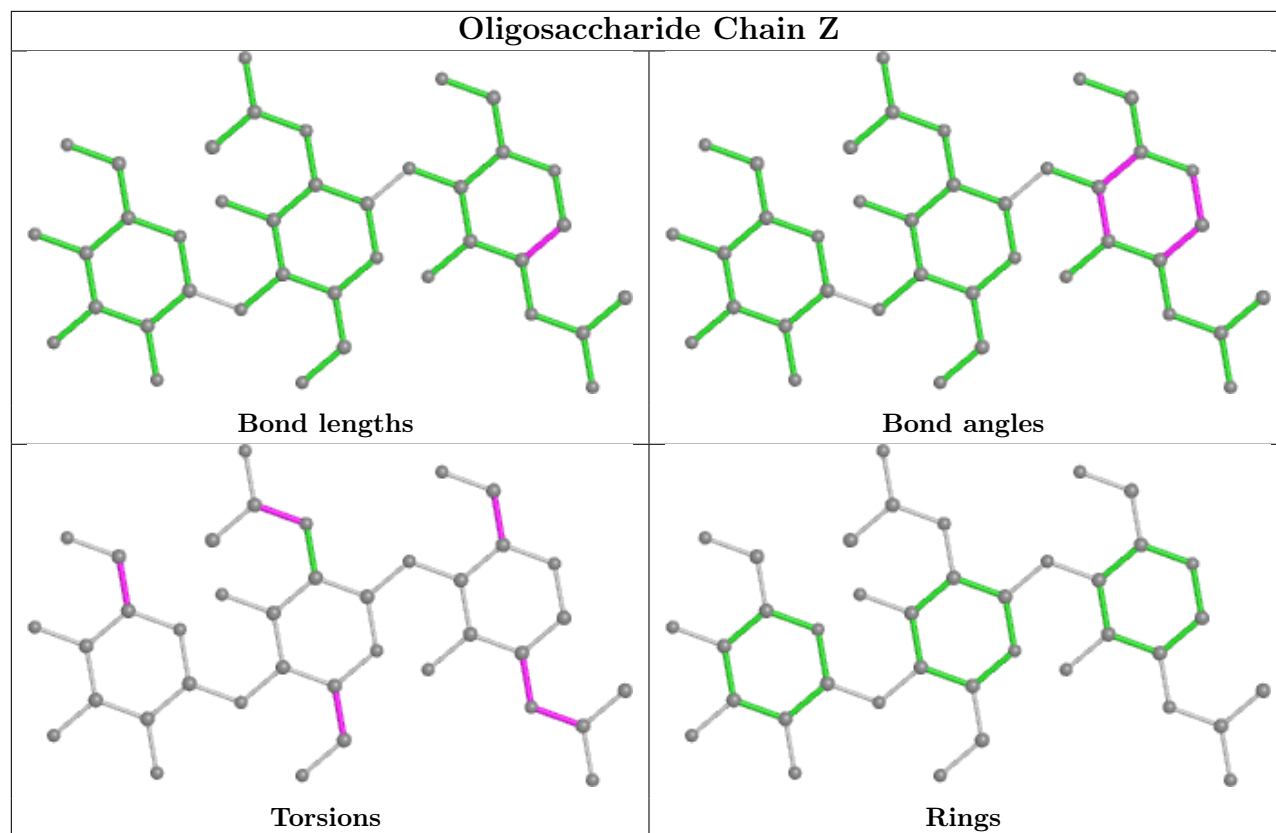




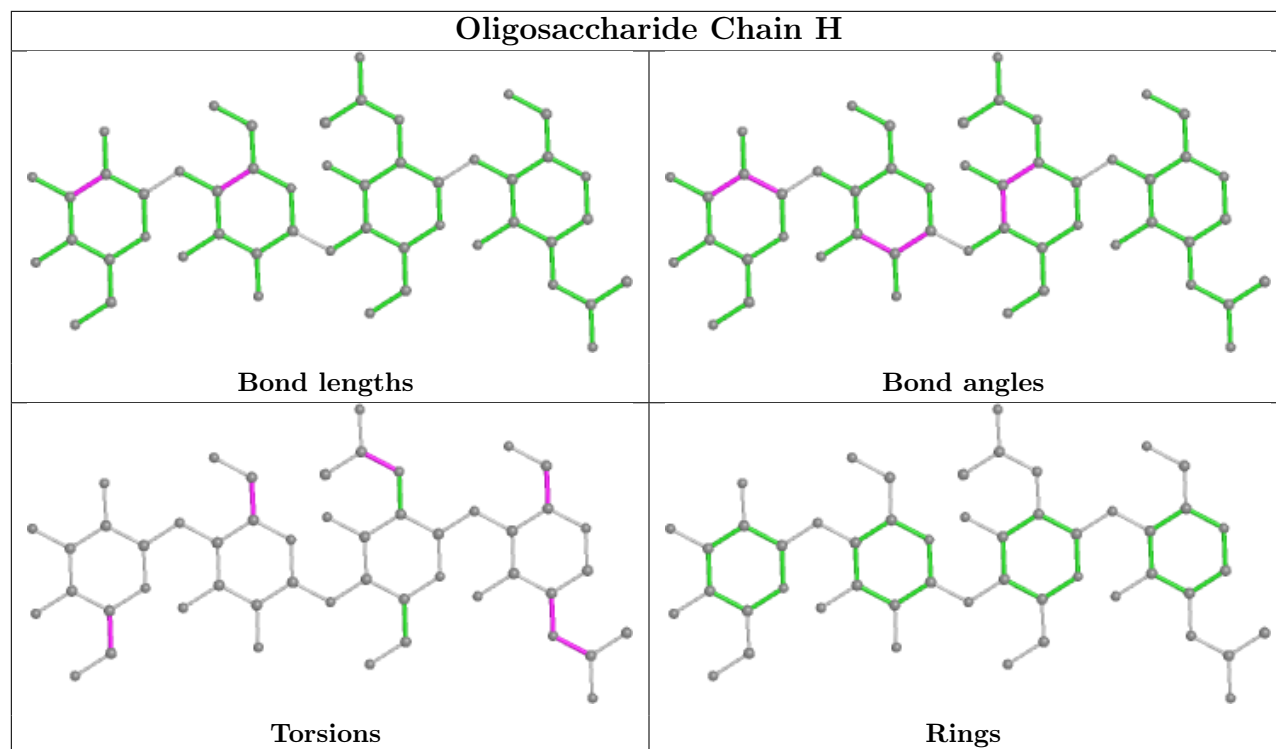


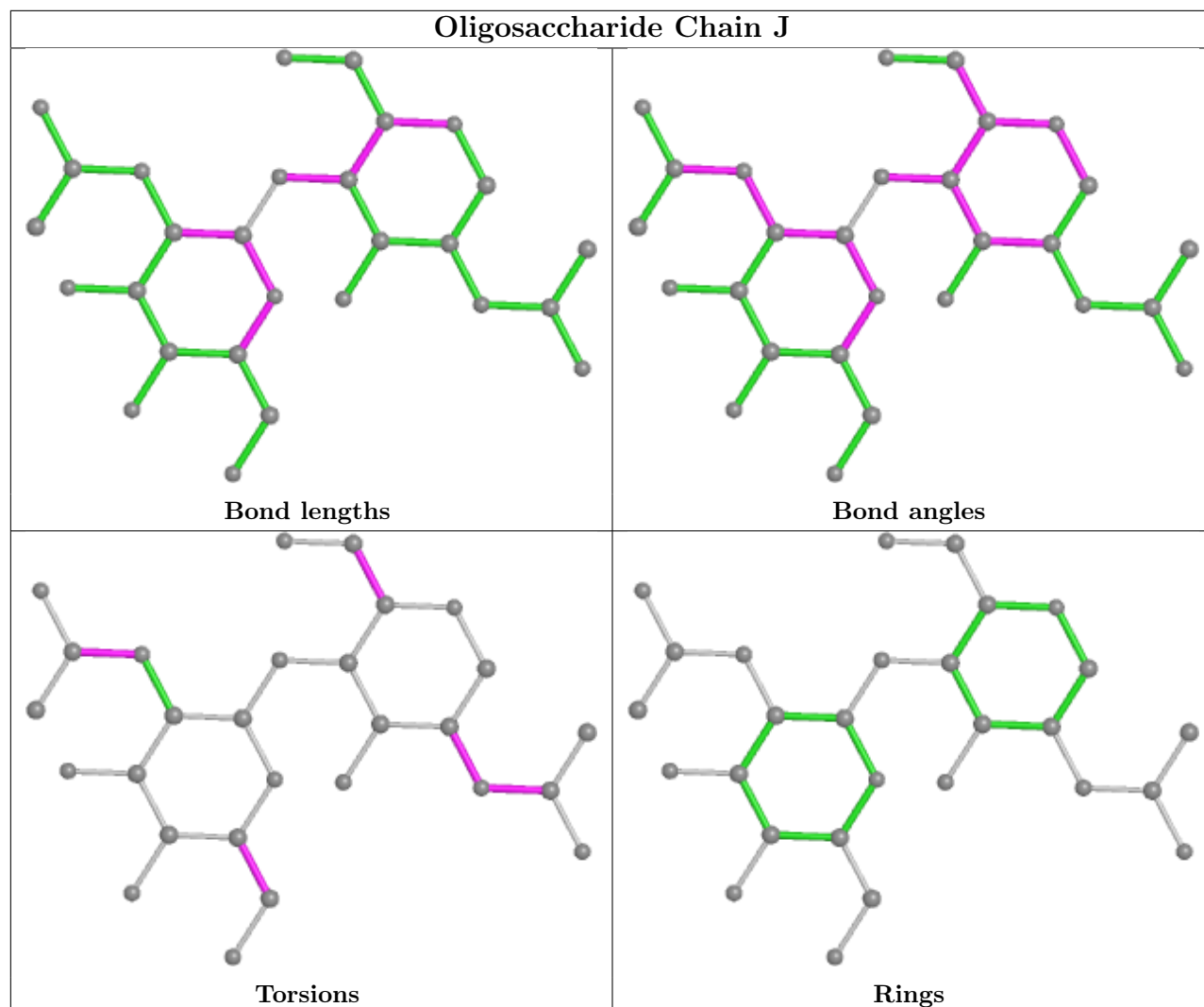


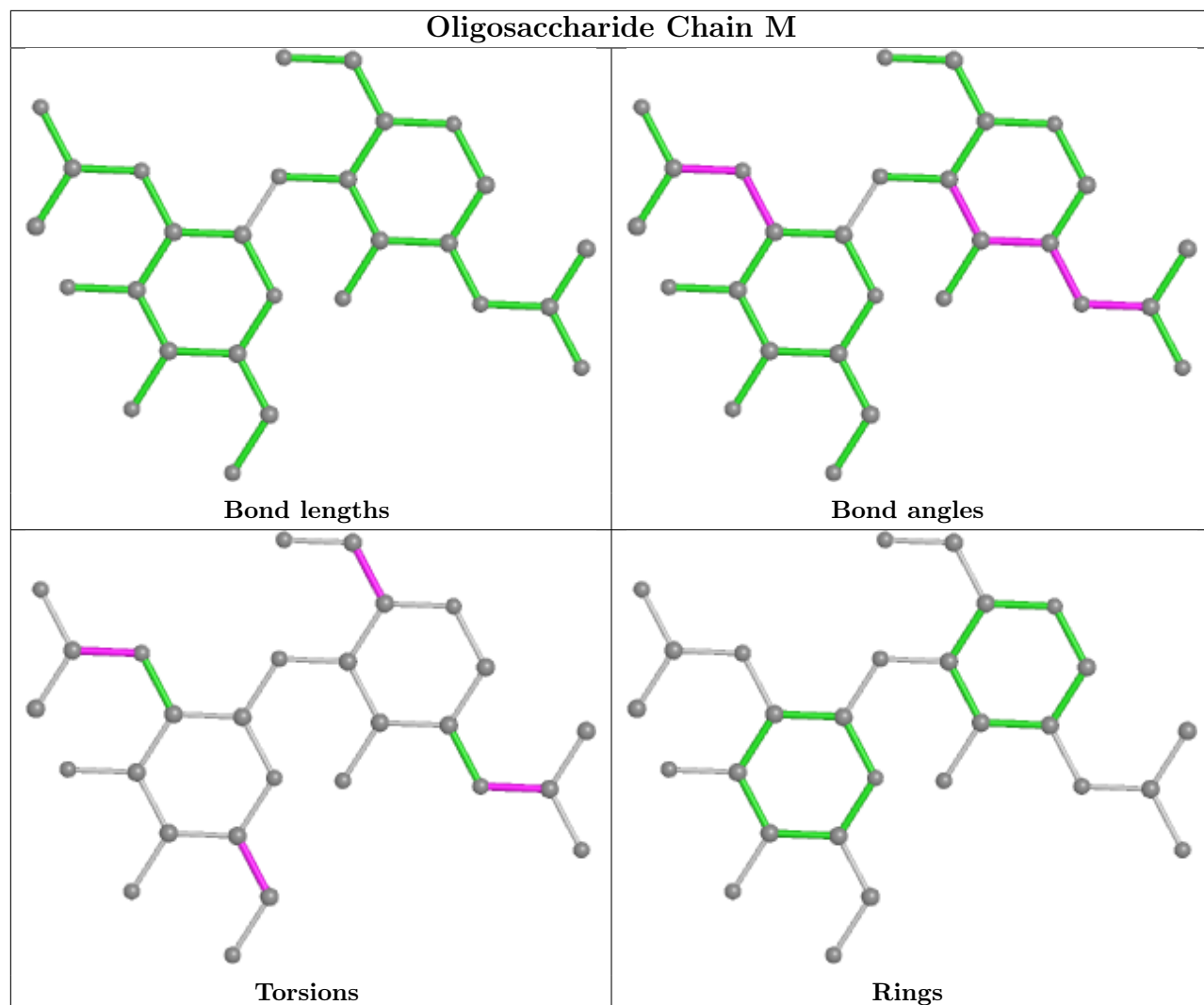


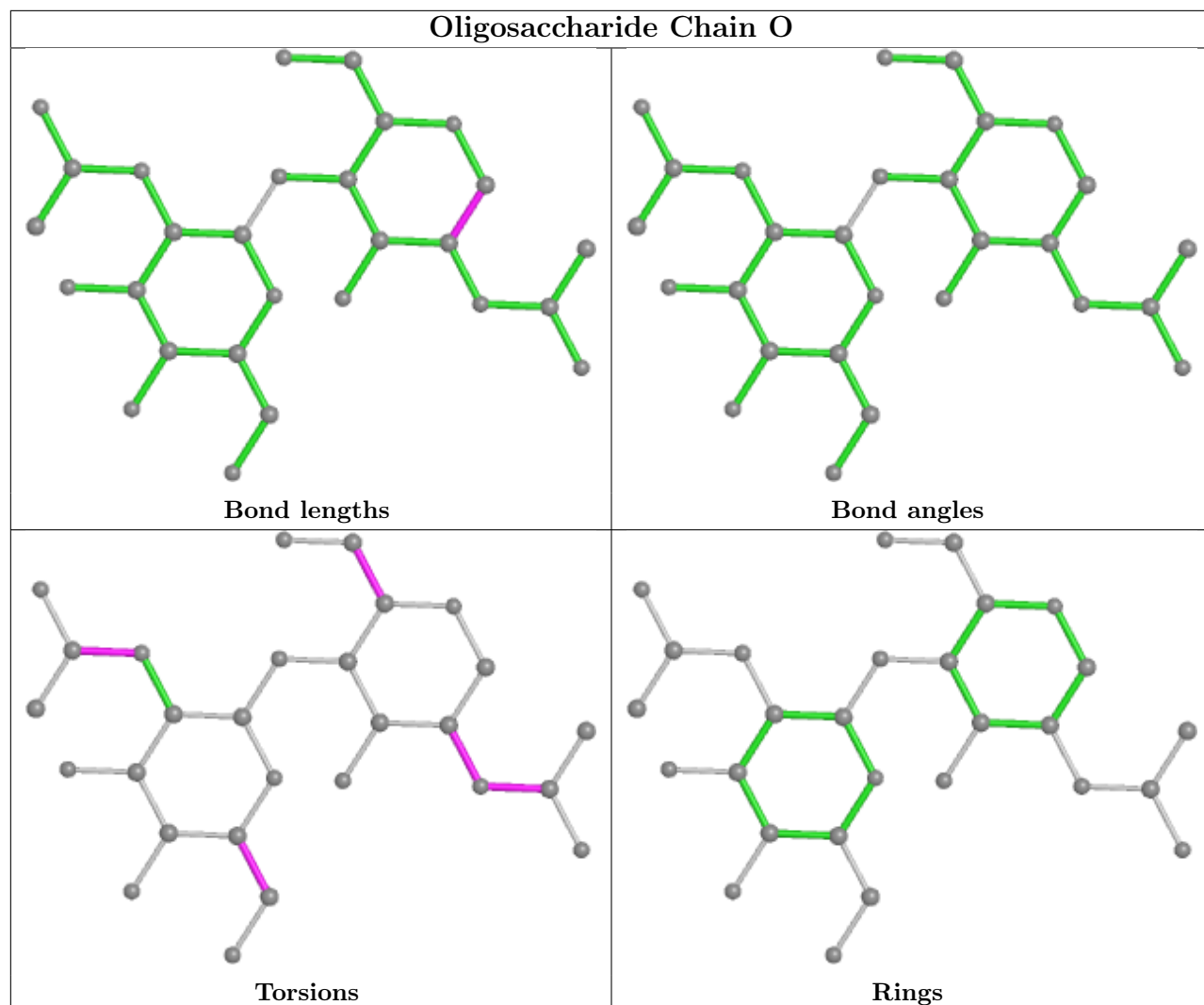


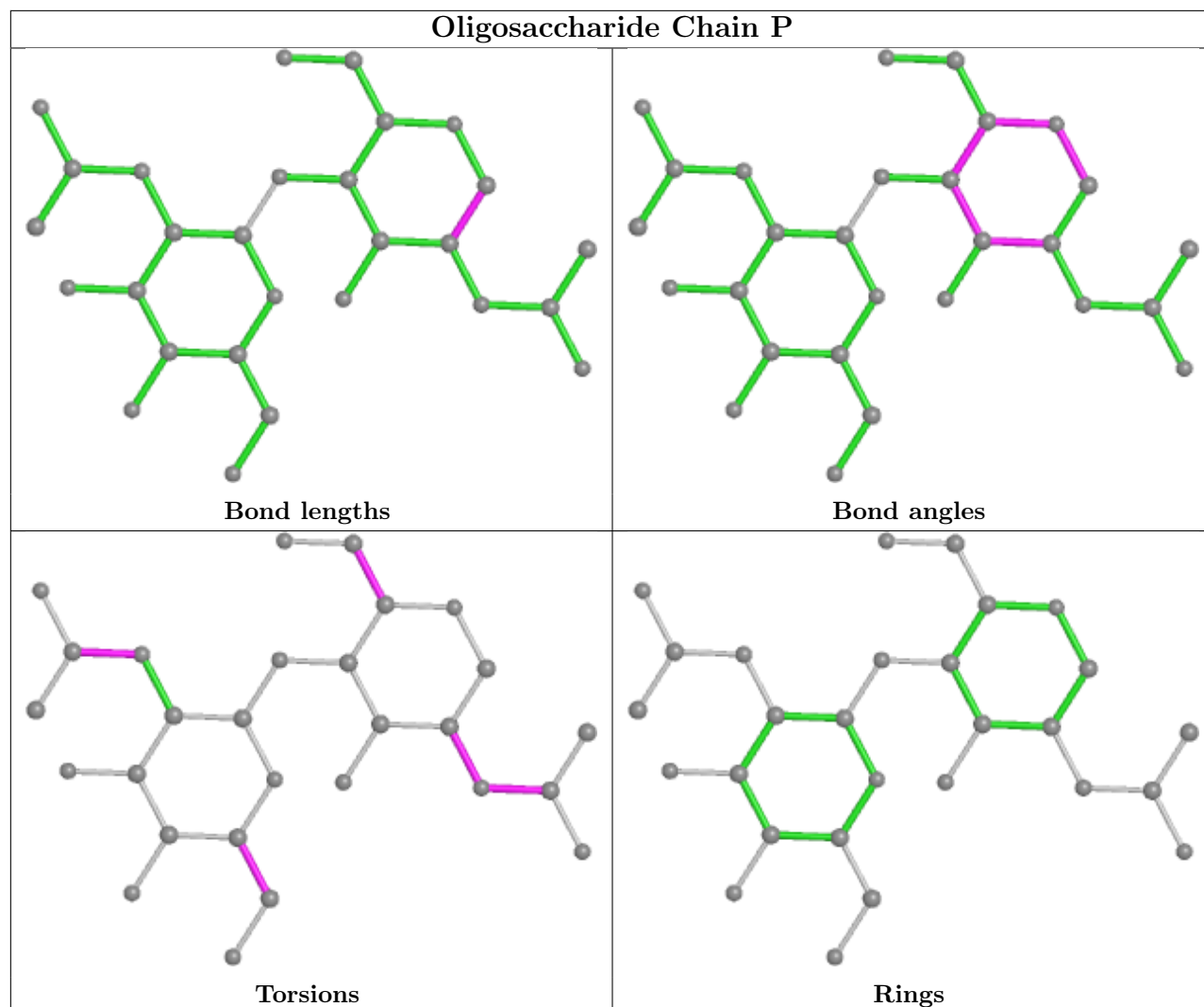


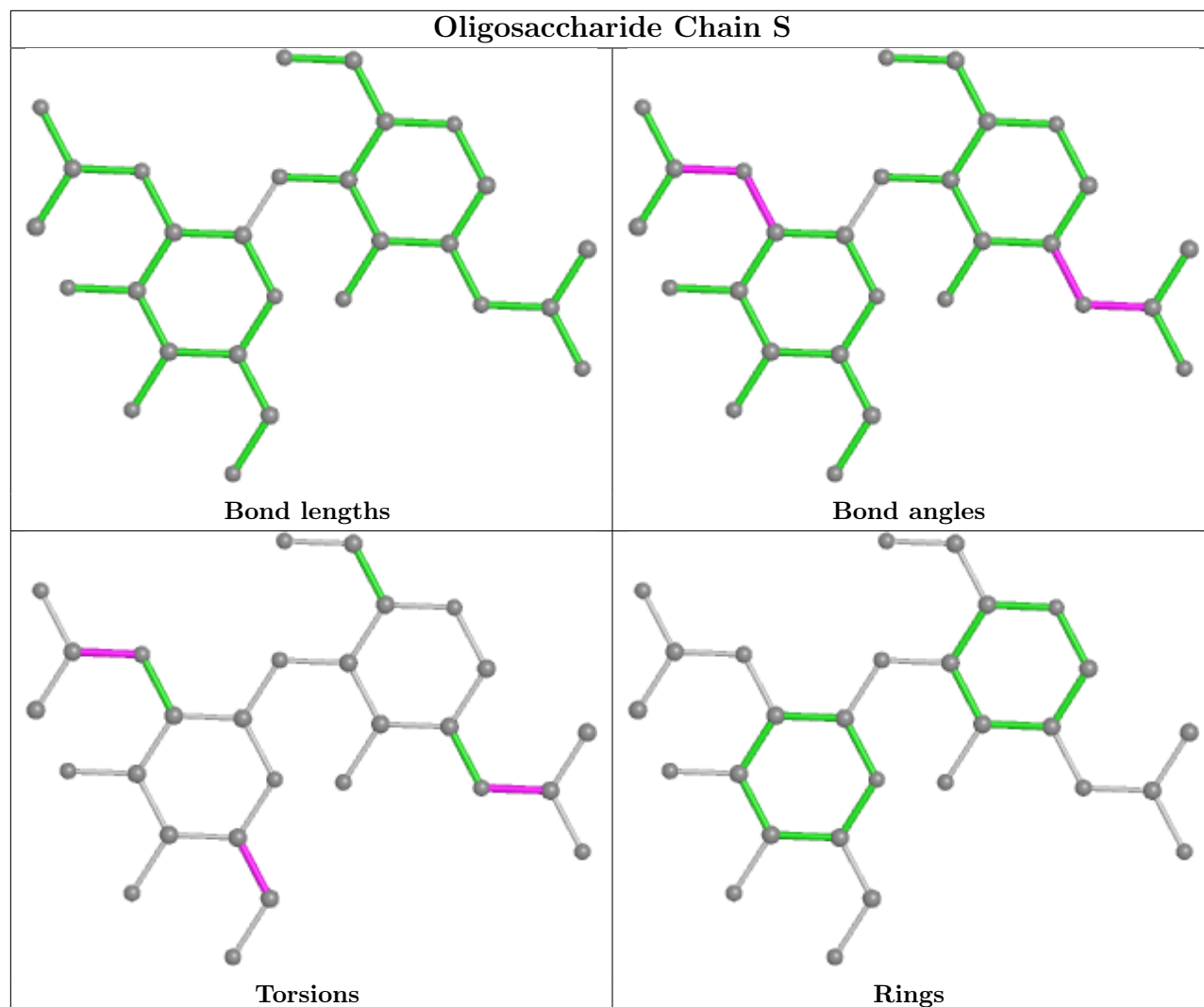


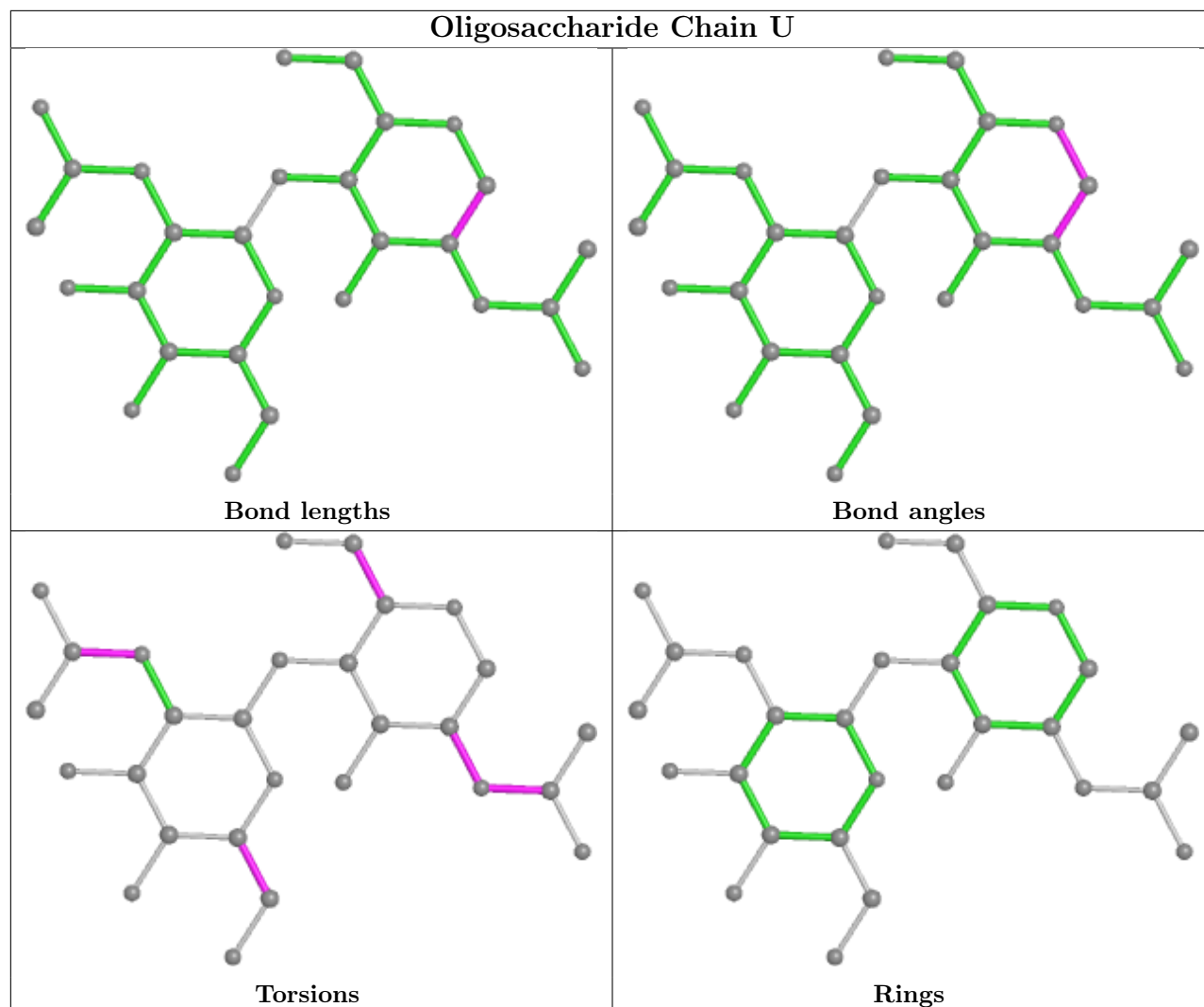


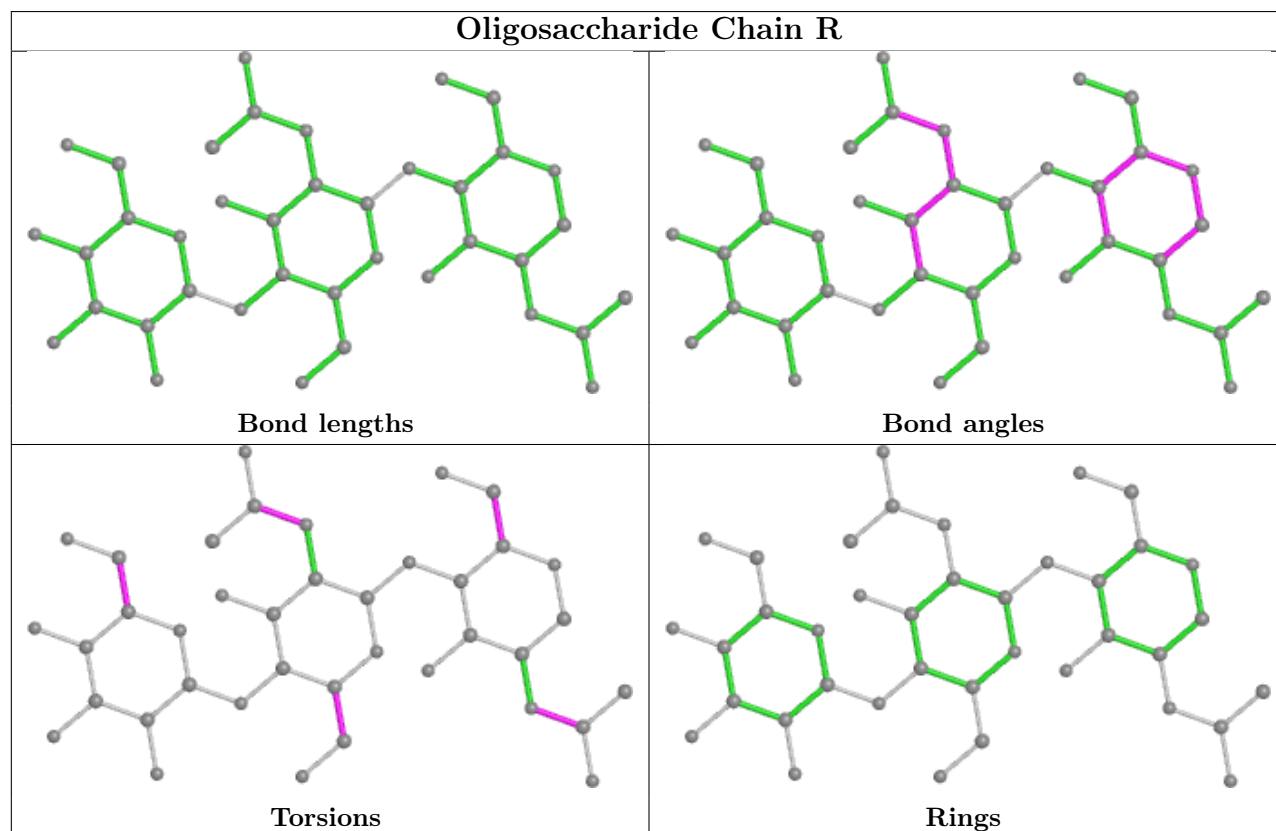
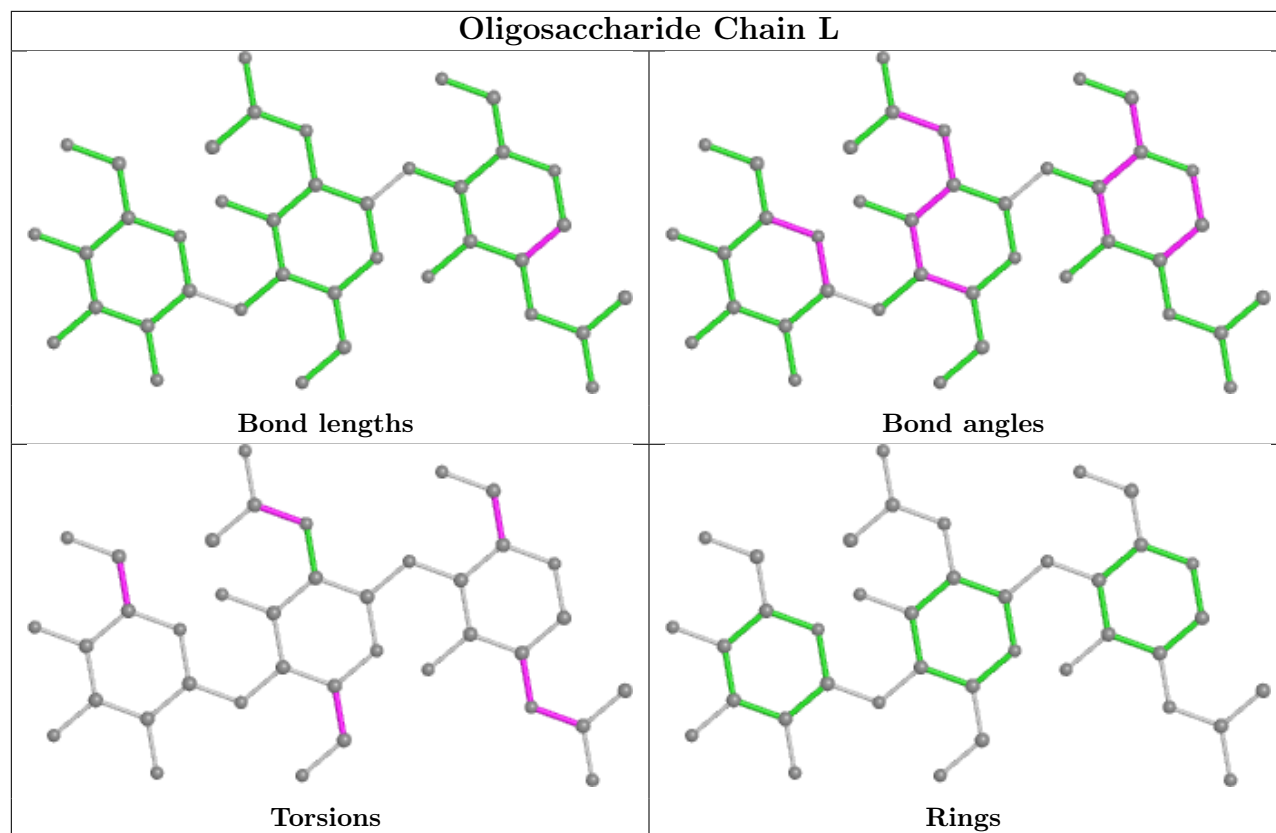




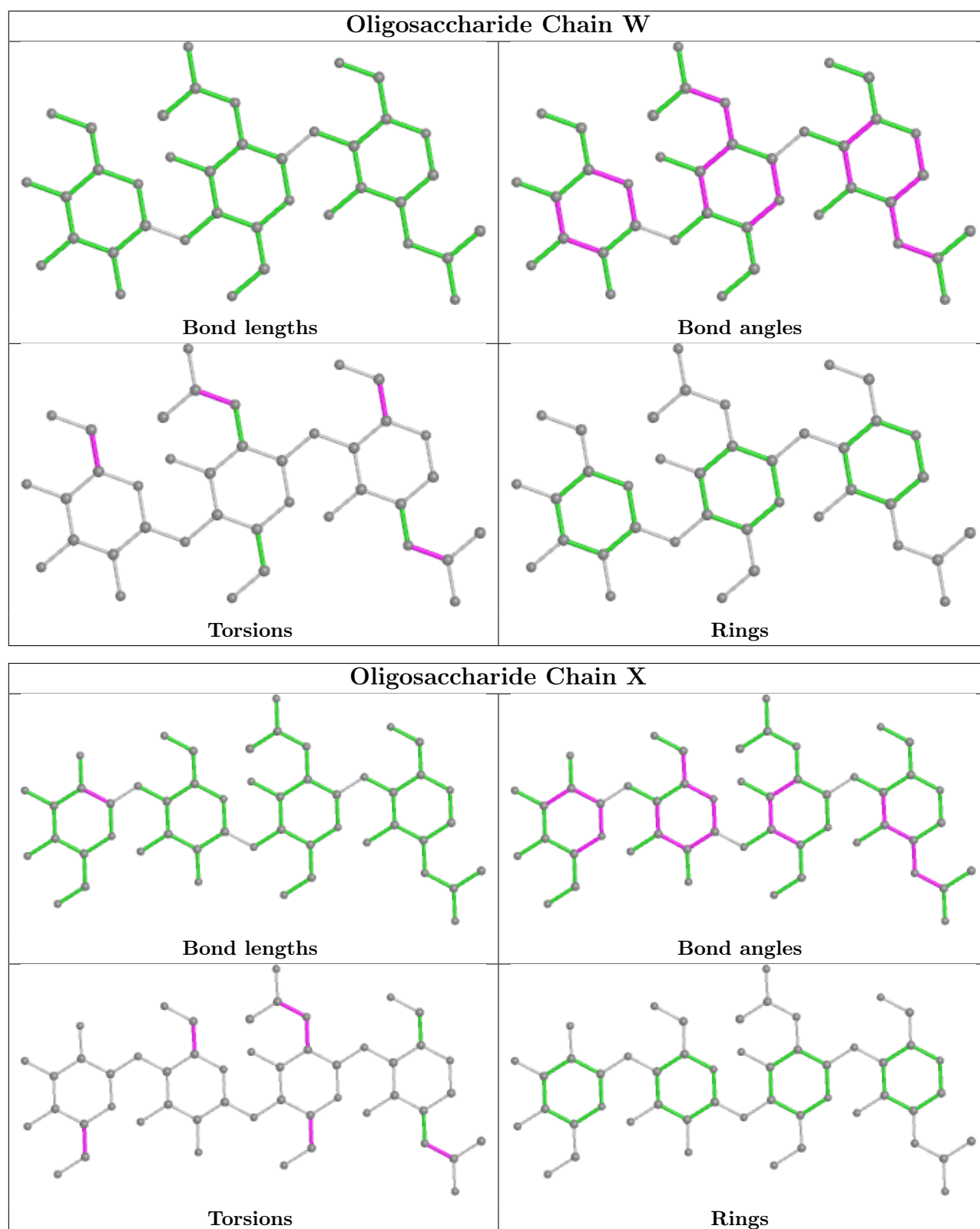












## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	723/723 (100%)	-0.07	18 (2%) 57 29	35, 72, 106, 161	0
1	B	723/723 (100%)	-0.02	21 (2%) 51 23	33, 72, 108, 161	0
1	C	723/723 (100%)	-0.05	15 (2%) 63 34	32, 71, 106, 162	0
1	D	723/723 (100%)	-0.05	16 (2%) 62 33	34, 71, 108, 162	0
All	All	2892/2892 (100%)	-0.05	70 (2%) 59 30	32, 72, 108, 162	0

The worst 5 of 70 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	473	SER	10.4
1	C	471	ASN	8.1
1	D	472	SER	7.4
1	A	474	ASN	7.2
1	C	727	GLU	6.7

### 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	BMA	E	3	11/12	0.17	0.70	131,135,137,137	0
2	BMA	Y	3	11/12	0.21	0.38	133,137,139,139	0

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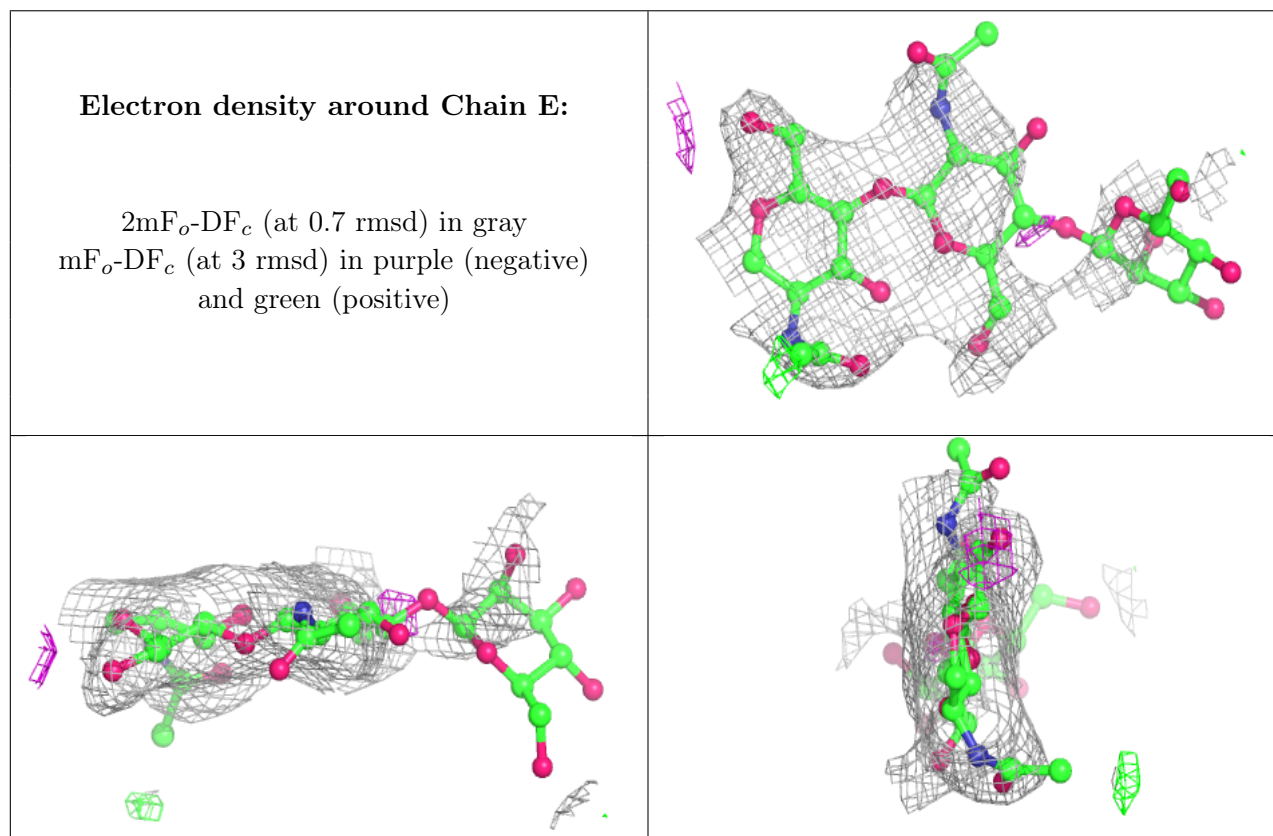
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	BMA	Q	3	11/12	0.23	0.42	131,134,136,137	0
4	MAN	H	4	11/12	0.34	0.61	146,148,150,150	0
2	NAG	Q	2	14/15	0.45	0.33	103,113,117,124	0
2	NAG	V	2	14/15	0.51	0.38	106,113,115,120	0
2	BMA	T	3	11/12	0.52	0.22	132,135,136,136	0
2	NAG	E	2	14/15	0.55	0.38	104,111,118,126	0
2	BMA	K	3	11/12	0.56	0.26	119,126,128,128	0
2	BMA	N	3	11/12	0.58	0.40	125,129,131,131	0
2	NAG	Z	2	14/15	0.58	0.36	133,135,138,142	0
2	BMA	V	3	11/12	0.58	0.32	124,125,128,128	0
2	NAG	K	2	14/15	0.60	0.34	107,115,119,123	0
2	BMA	I	3	11/12	0.62	0.40	150,152,153,153	0
2	BMA	G	3	11/12	0.62	0.24	136,137,138,138	0
5	NAG	J	1	14/15	0.62	0.29	118,120,122,123	0
7	NAG	X	2	14/15	0.62	0.29	123,131,134,143	0
5	NAG	J	2	14/15	0.63	0.34	125,127,129,129	0
6	MAN	R	3	11/12	0.63	0.24	125,127,128,130	0
2	NAG	G	2	14/15	0.63	0.25	122,126,130,133	0
5	NAG	P	2	14/15	0.64	0.42	127,137,143,143	0
4	BMA	H	3	11/12	0.67	0.39	135,138,141,145	0
3	BMA	F	4	11/12	0.69	0.18	113,116,118,119	0
2	BMA	Z	3	11/12	0.69	0.24	144,146,148,148	0
7	MAN	X	3	11/12	0.69	0.43	150,154,156,160	0
6	MAN	W	3	11/12	0.73	0.22	110,113,115,116	0
3	MAN	F	3	11/12	0.73	0.17	103,108,110,111	0
3	NAG	F	1	14/15	0.73	0.21	86,91,98,99	0
7	MAN	X	4	11/12	0.73	0.77	163,165,166,167	0
2	NAG	I	2	14/15	0.74	0.23	132,137,141,145	0
5	NAG	O	2	14/15	0.74	0.33	134,137,139,140	0
6	MAN	L	3	11/12	0.75	0.28	129,132,133,134	0
5	NAG	U	1	14/15	0.75	0.24	109,118,121,123	0
6	NDG	R	2	14/15	0.76	0.25	102,110,118,119	0
2	NAG	Z	1	14/15	0.76	0.17	113,118,122,129	0
5	NAG	U	2	14/15	0.77	0.22	127,128,129,129	0
5	NAG	S	2	14/15	0.77	0.24	108,111,115,117	0
2	NAG	Y	2	14/15	0.79	0.28	109,118,122,130	0
5	NAG	P	1	14/15	0.80	0.23	109,120,124,129	0
5	NAG	O	1	14/15	0.81	0.21	119,123,126,131	0
6	NDG	W	2	14/15	0.81	0.22	104,109,110,112	0
3	NDG	F	2	14/15	0.82	0.21	86,94,99,103	0
2	NAG	I	1	14/15	0.82	0.17	111,114,117,126	0
7	NAG	X	1	14/15	0.83	0.18	84,87,95,111	0

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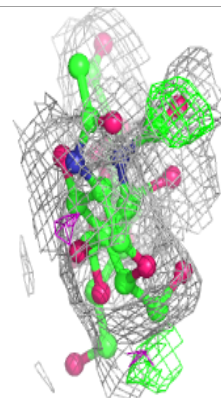
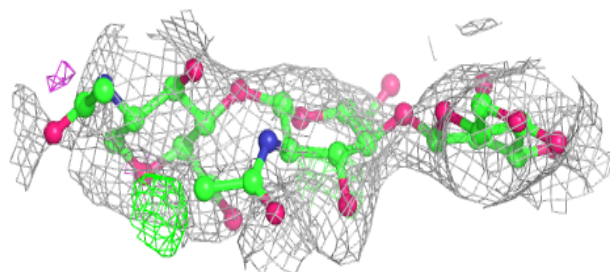
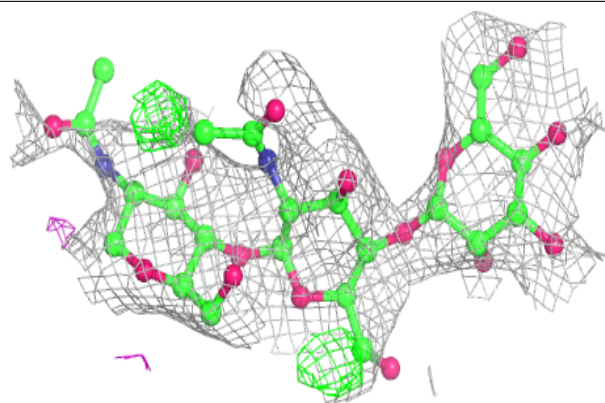
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	NAG	T	2	14/15	0.83	0.24	112,117,123,127	0
4	NAG	H	2	14/15	0.83	0.22	108,112,120,128	0
2	NAG	N	2	14/15	0.83	0.16	96,104,110,119	0
2	NAG	G	1	14/15	0.84	0.21	98,105,111,117	0
6	NAG	L	1	14/15	0.85	0.15	98,101,104,109	0
4	NAG	H	1	14/15	0.85	0.19	77,84,93,100	0
2	NAG	N	1	14/15	0.86	0.19	83,87,92,97	0
5	NAG	M	2	14/15	0.87	0.20	105,111,113,113	0
5	NAG	S	1	14/15	0.87	0.18	92,97,102,105	0
6	NDG	L	2	14/15	0.87	0.19	113,118,125,126	0
6	NAG	R	1	14/15	0.89	0.17	82,92,94,100	0
2	NAG	Y	1	14/15	0.89	0.20	84,88,93,102	0
2	NAG	V	1	14/15	0.89	0.21	72,79,85,97	0
6	NAG	W	1	14/15	0.89	0.18	93,96,100,101	0
5	NAG	M	1	14/15	0.89	0.23	75,86,97,98	0
2	NAG	T	1	14/15	0.90	0.20	87,92,97,104	0
2	NAG	K	1	14/15	0.90	0.18	69,84,90,101	0
2	NAG	Q	1	14/15	0.90	0.20	69,77,81,95	0
2	NAG	E	1	14/15	0.92	0.18	52,71,76,91	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.

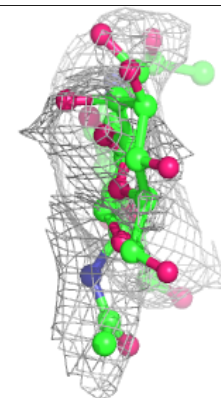
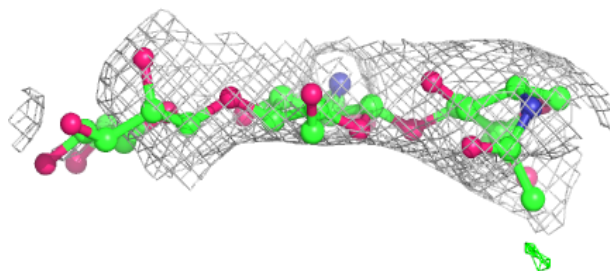
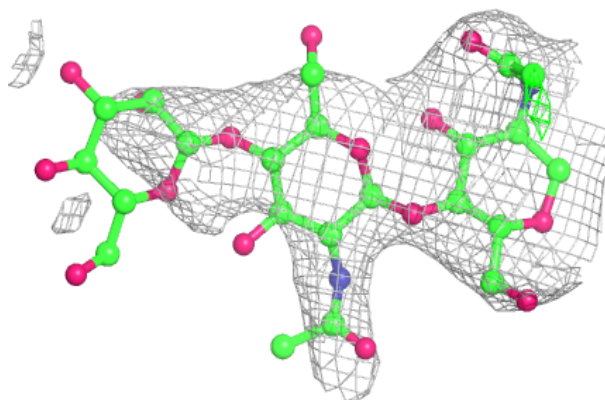


**Electron density around Chain G:**

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

**Electron density around Chain I:**

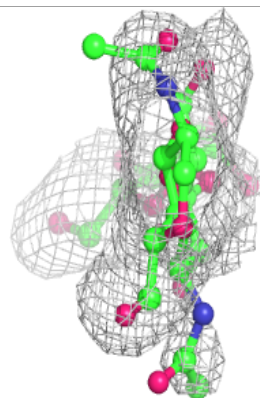
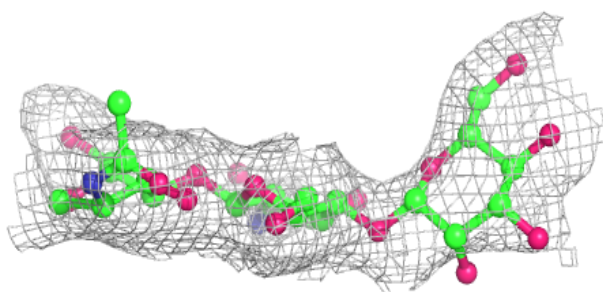
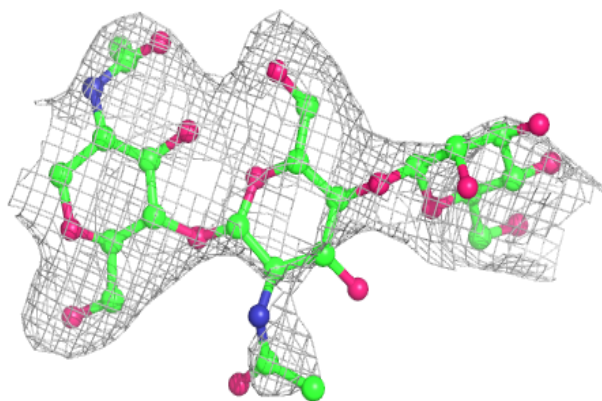
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



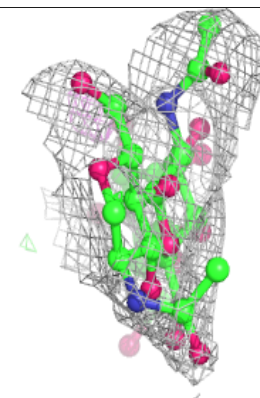
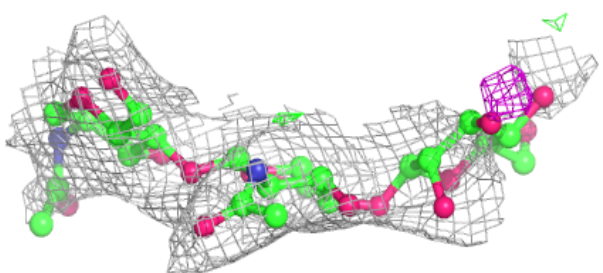
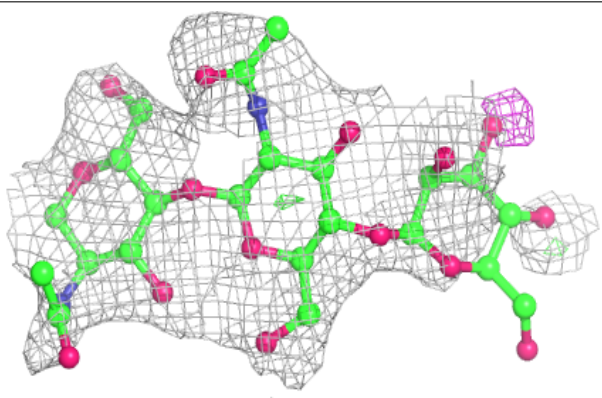


**Electron density around Chain K:**

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

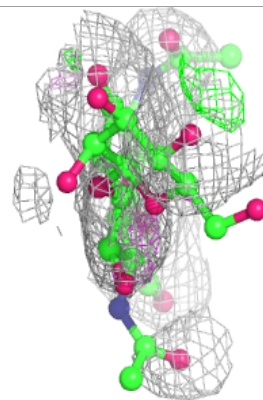
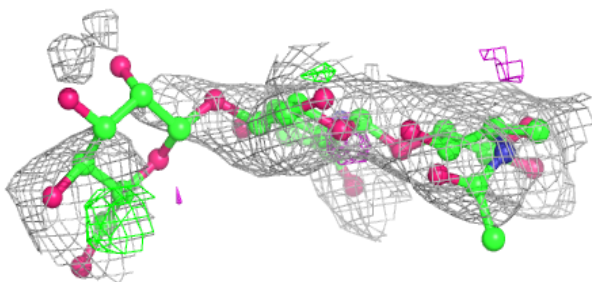
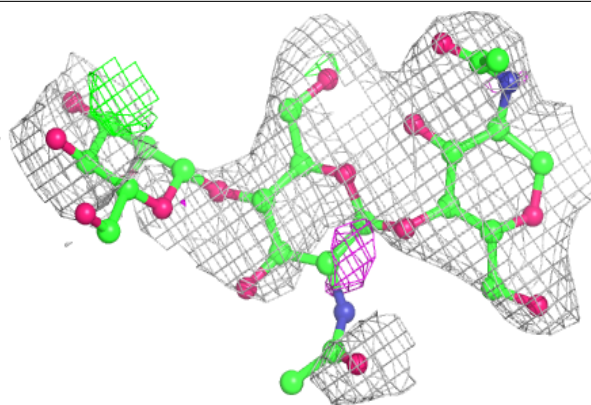
**Electron density around Chain N:**

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

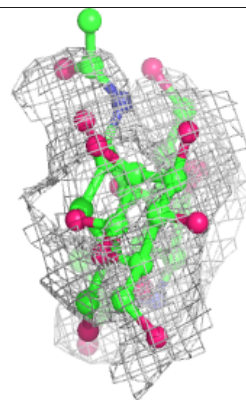
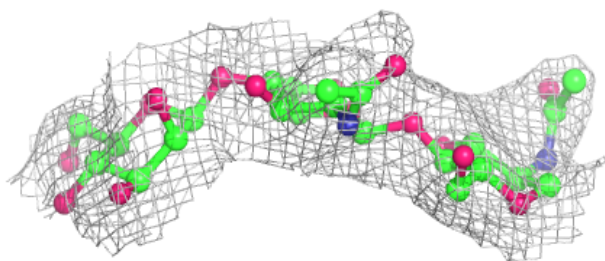
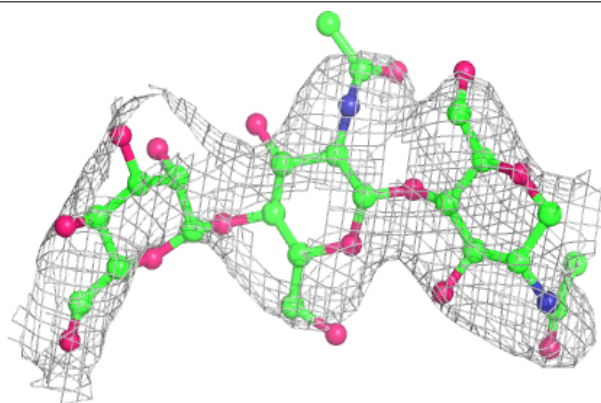


**Electron density around Chain Q:**

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

**Electron density around Chain T:**

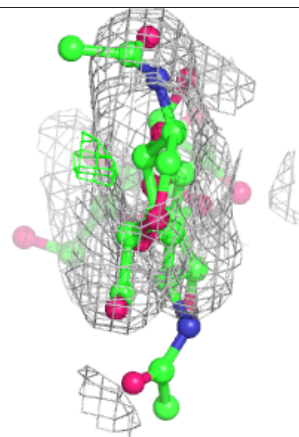
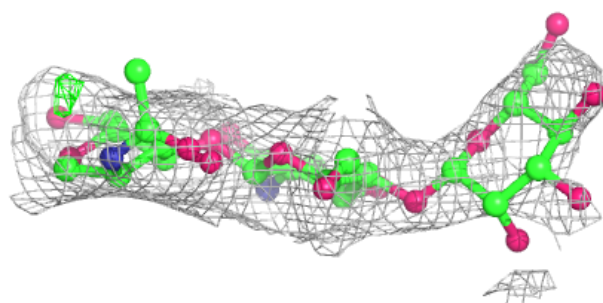
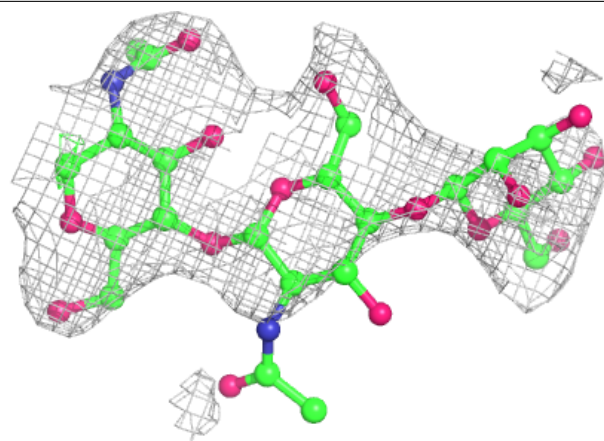
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



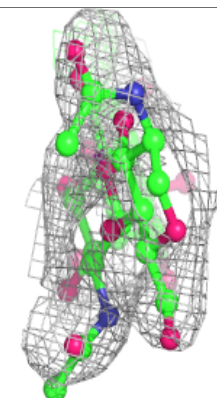
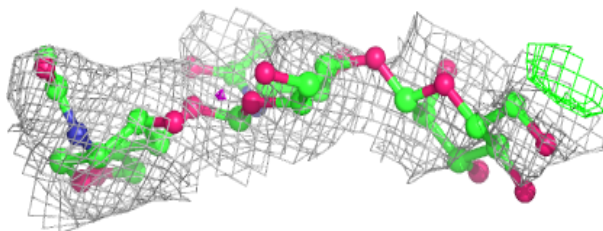
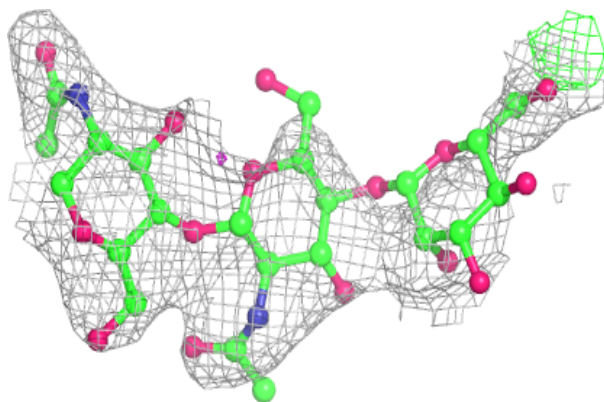


**Electron density around Chain V:**

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

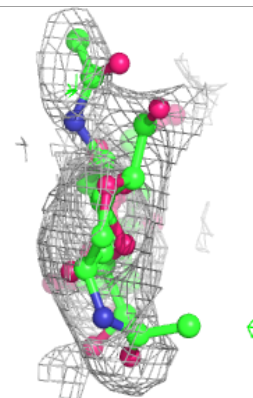
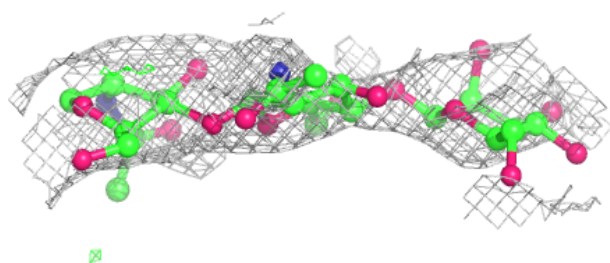
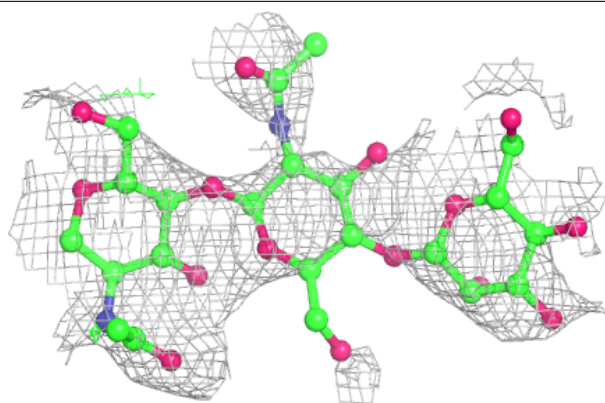
**Electron density around Chain Y:**

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

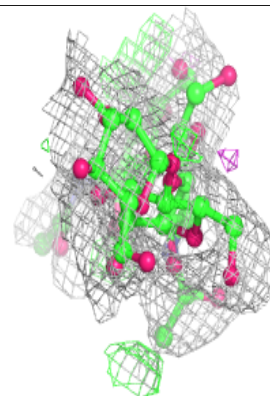
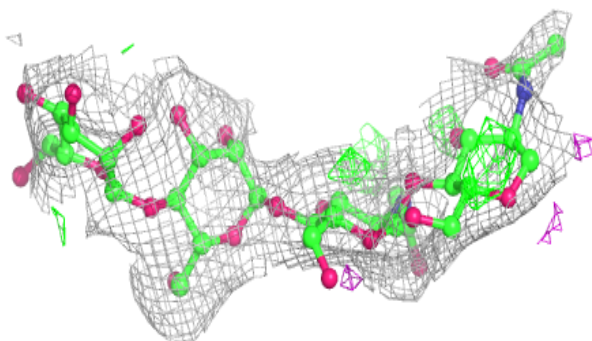
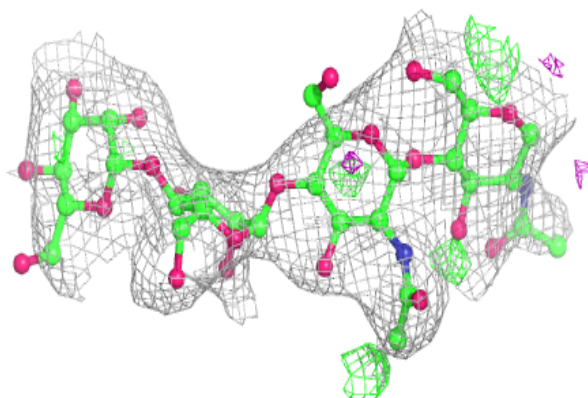


**Electron density around Chain Z:**

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

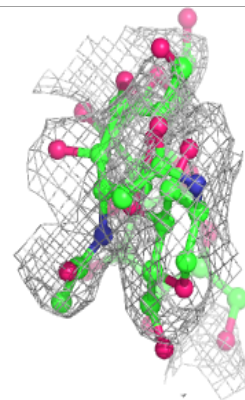
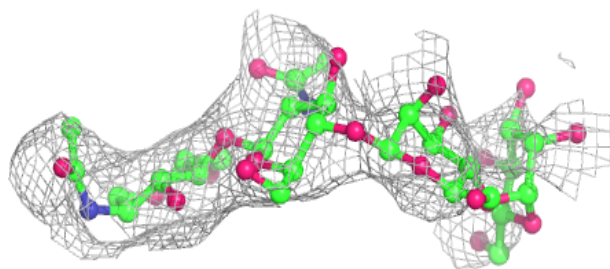
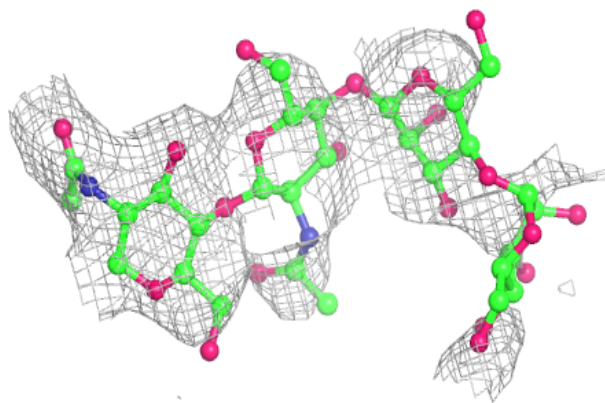
**Electron density around Chain F:**

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



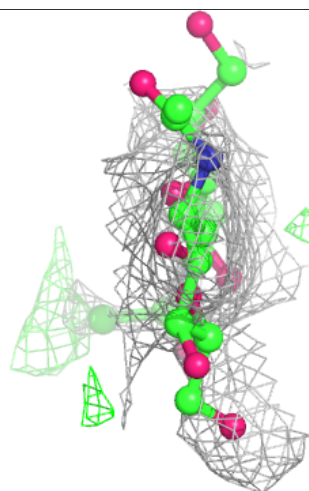
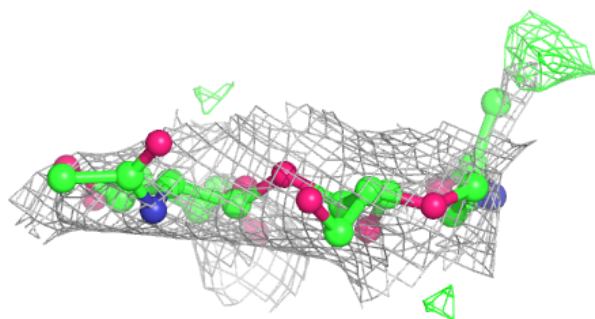
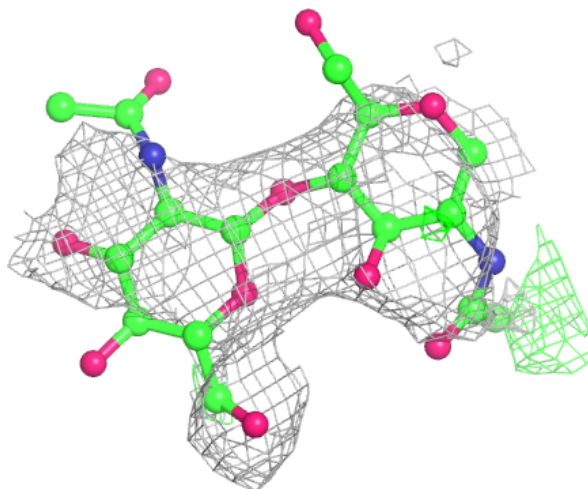
**Electron density around Chain H:**

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



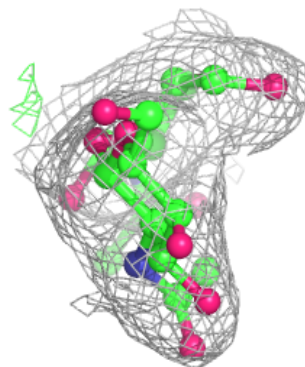
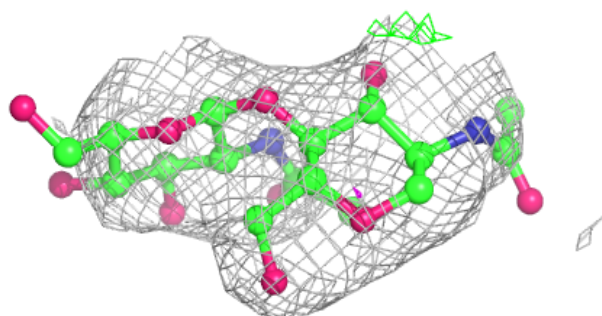
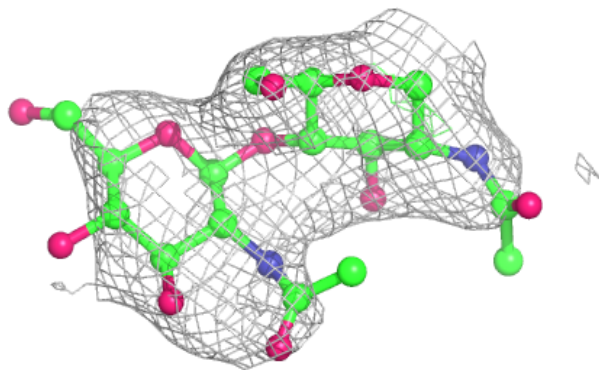
**Electron density around Chain J:**

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



**Electron density around Chain M:**

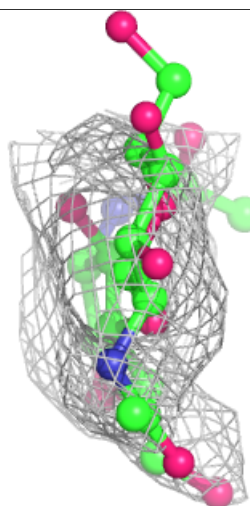
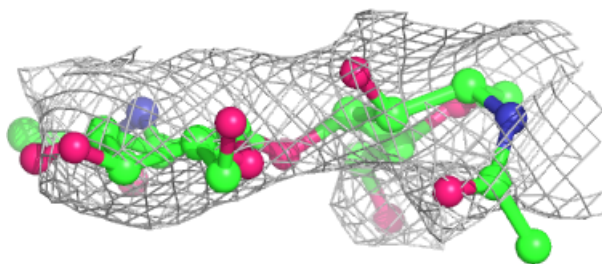
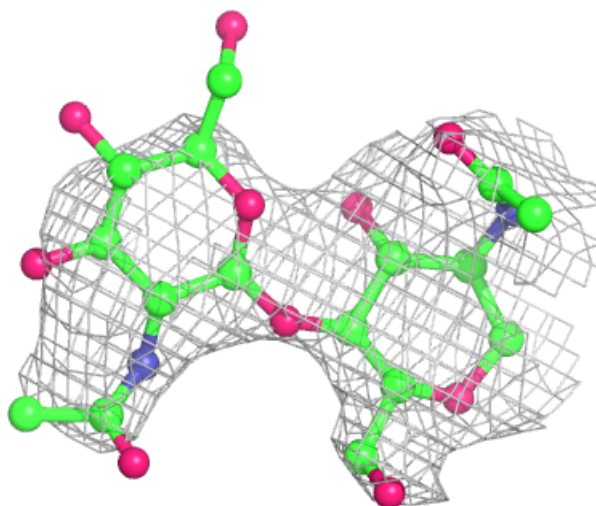
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





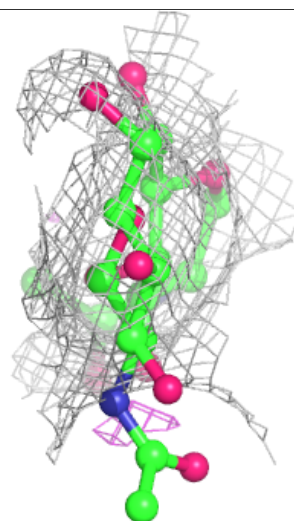
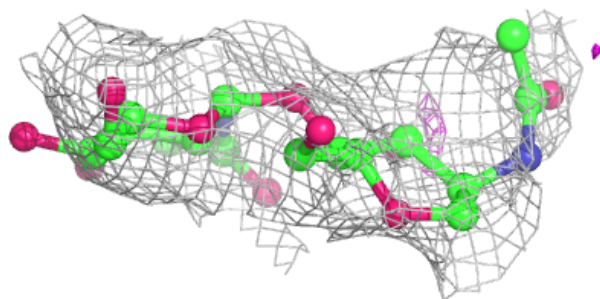
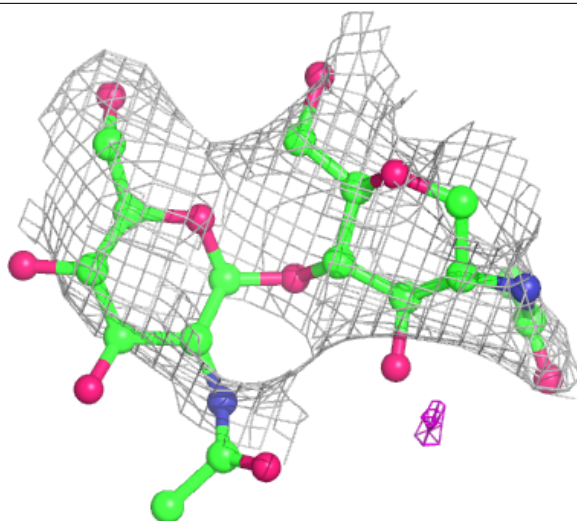
**Electron density around Chain O:**

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



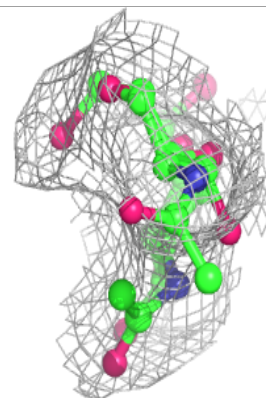
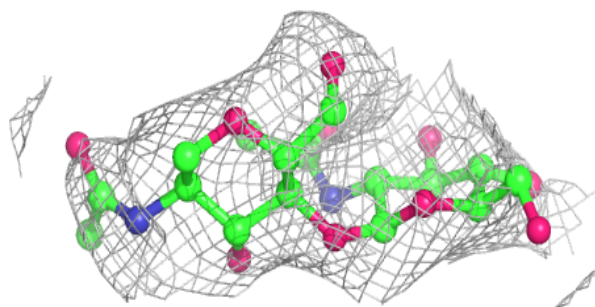
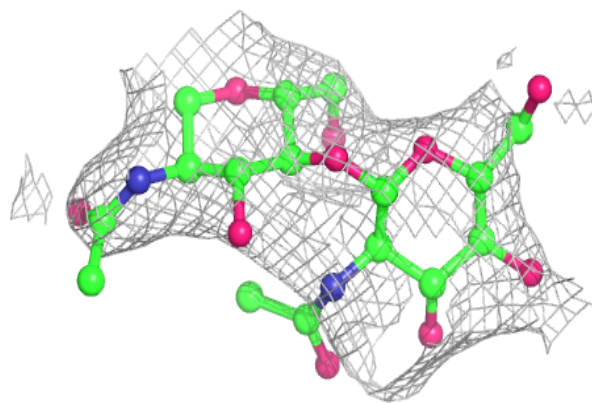
**Electron density around Chain P:**

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



**Electron density around Chain S:**

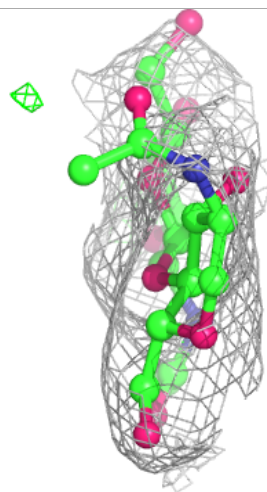
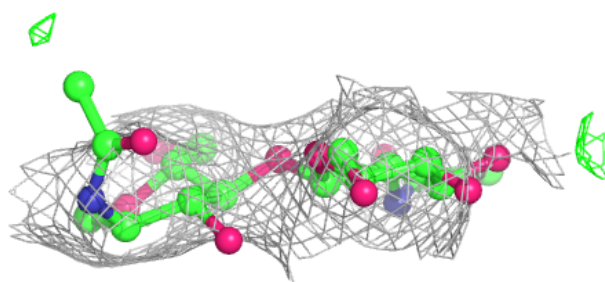
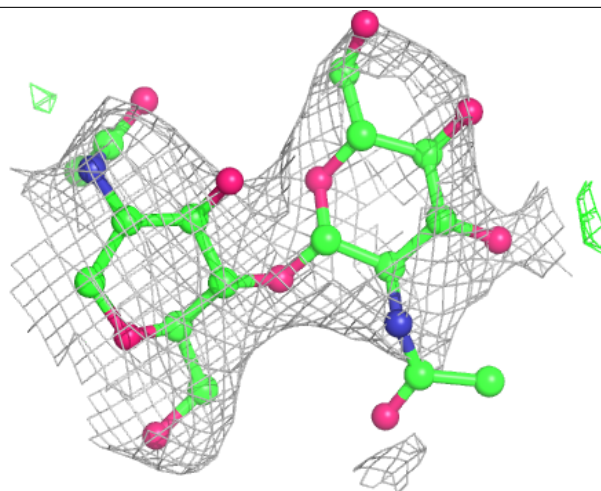
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





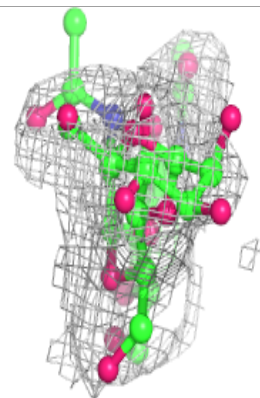
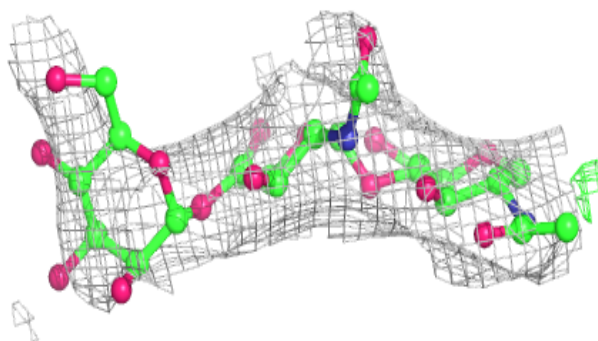
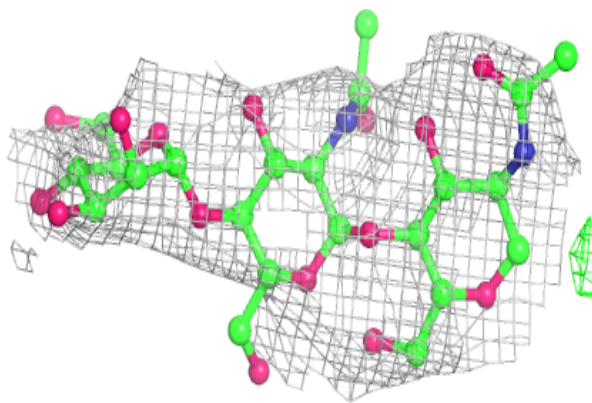
**Electron density around Chain U:**

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

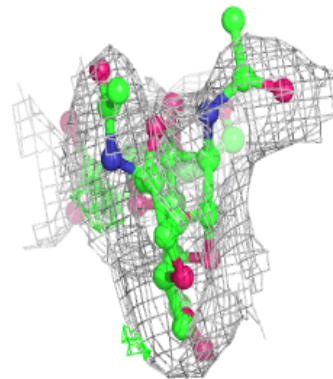
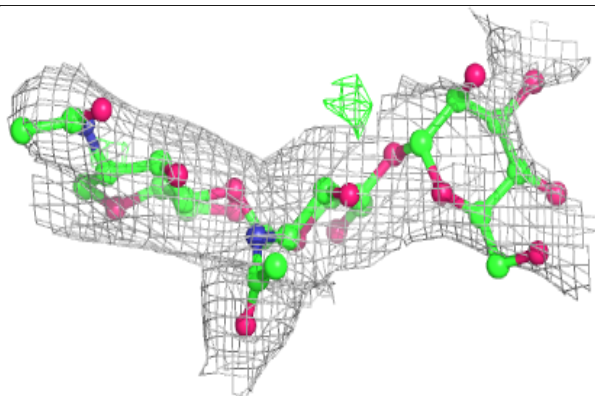
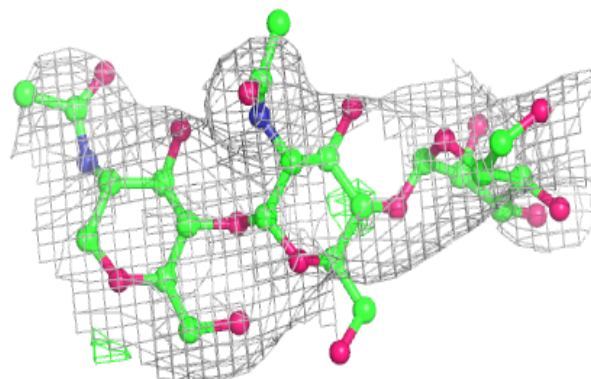


**Electron density around Chain L:**

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

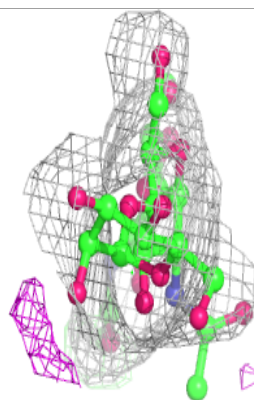
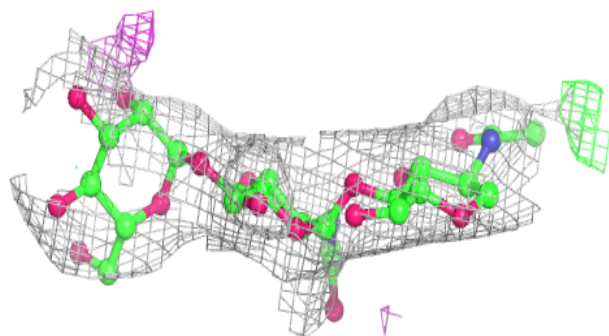
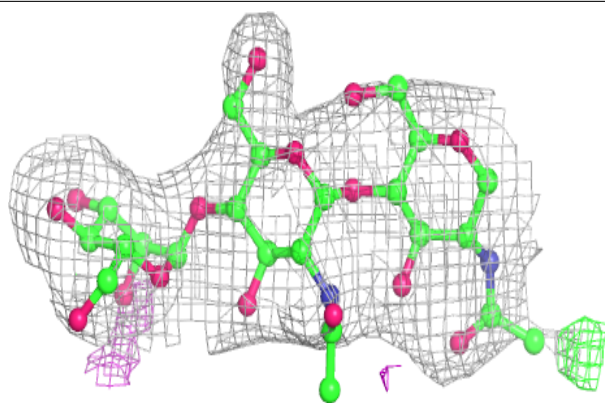
**Electron density around Chain R:**

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

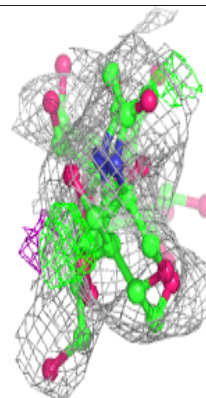
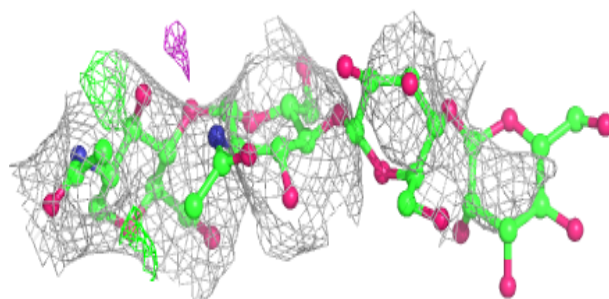
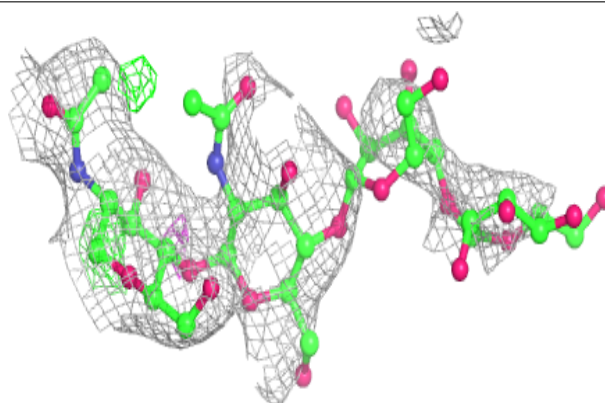


**Electron density around Chain W:**

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

**Electron density around Chain X:**

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



## 6.4 Ligands

There are no ligands in this entry.

## 6.5 Other polymers

There are no such residues in this entry.