



# wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 12, 2023 – 05:53 AM EDT

PDB ID : 4MHH  
Title : Crystal structure of Fab H5M9 in complex with influenza virus hemagglutinin from A/Viet Nam/1203/2004 (H5N1)  
Authors : Zhu, X.; Wilson, I.A.  
Deposited on : 2013-08-29  
Resolution : 3.56 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 : 2.35.1  
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

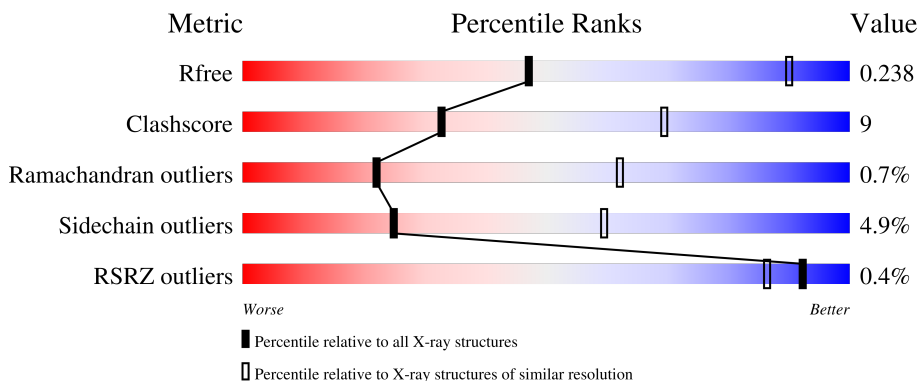
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.56 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.










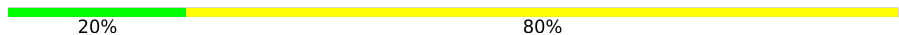
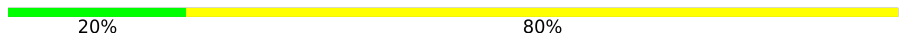
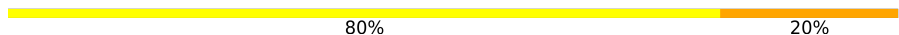
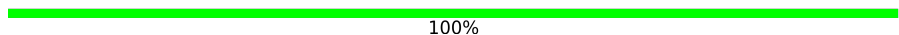
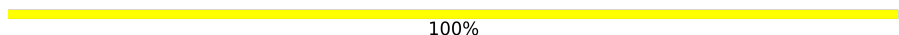

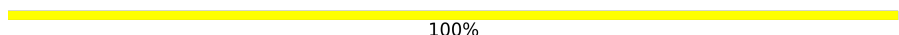
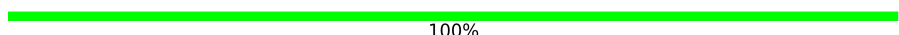
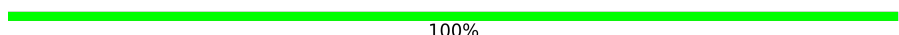
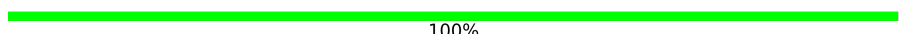
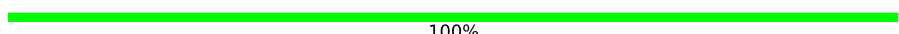
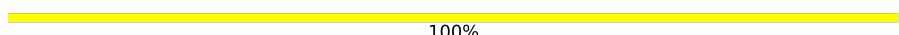
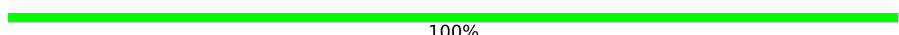




Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1020 (3.62-3.50)
Clashscore	141614	1100 (3.62-3.50)
Ramachandran outliers	138981	1065 (3.62-3.50)
Sidechain outliers	138945	1066 (3.62-3.50)
RSRZ outliers	127900	1009 (3.64-3.48)

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	334	 76% 19% . .
1	C	334	 79% 16% . .
1	E	334	 75% 21% . .
2	I	218	 80% 18% .
2	K	218	 78% 20% .

*Continued on next page...*

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Mol	Chain	Length	Quality of chain
2	L	218	 68% 29%
3	B	181	 83% 13%
3	D	181	 80% 17%
3	F	181	 80% 17%
4	G	222	 69% 26% 5%
4	H	222	 69% 26% 5%
4	J	222	 69% 29%
5	M	5	 20% 80%
5	S	5	 20% 80%
5	X	5	 80% 20%
6	N	2	 100%
6	O	2	 100%
6	P	2	 50% 50%
6	R	2	 100%
6	T	2	 100%
6	U	2	 100%
6	V	2	 100%
6	W	2	 100%
6	Y	2	 100%
6	a	2	 100%
7	Q	3	 67% 33%
7	Z	3	 67% 33%
7	b	3	 33% 67%
8	c	4	 25% 75%

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 crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	MAN	M	5	-	-	-	X
5	MAN	S	5	-	-	-	X
5	MAN	X	5	-	-	-	X
6	NAG	O	2	-	-	-	X
6	NAG	U	1	-	-	-	X
6	NAG	U	2	-	-	-	X
6	NAG	V	2	-	-	-	X
6	NAG	W	2	-	-	-	X
6	NAG	a	2	-	-	-	X
7	MAN	b	3	-	-	-	X
9	NAG	F	2001	-	-	-	X

## 2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 22784 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 Hemagglutinin HA1 chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	324	Total 2568	C 1622	N 443	O 488	S 15	0	0	0
1	C	324	Total 2568	C 1622	N 443	O 488	S 15	0	0	0
1	E	324	Total 2568	C 1622	N 443	O 488	S 15	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	7	ALA	-	expression tag	UNP Q6DQ33
A	8	ASP	-	expression tag	UNP Q6DQ33
A	9	PRO	-	expression tag	UNP Q6DQ33
A	10	GLY	-	expression tag	UNP Q6DQ33
C	7	ALA	-	expression tag	UNP Q6DQ33
C	8	ASP	-	expression tag	UNP Q6DQ33
C	9	PRO	-	expression tag	UNP Q6DQ33
C	10	GLY	-	expression tag	UNP Q6DQ33
E	7	ALA	-	expression tag	UNP Q6DQ33
E	8	ASP	-	expression tag	UNP Q6DQ33
E	9	PRO	-	expression tag	UNP Q6DQ33
E	10	GLY	-	expression tag	UNP Q6DQ33

- Molecule 2 is a protein called H5M9 antibody, light chain (kappa).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	L	217	Total 1683	C 1044	N 291	O 342	S 6	0	0	0
2	I	217	Total 1683	C 1044	N 291	O 342	S 6	0	0	0
2	K	217	Total 1683	C 1044	N 291	O 342	S 6	0	0	0

- Molecule 3 is a protein called Hemagglutinin HA2 chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	B	177	1433	889	251	285	8	0	0	0
3	D	177	1433	889	251	285	8	0	0	0
3	F	177	1433	889	251	285	8	0	0	0

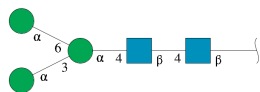
There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	175	SER	-	expression tag	UNP Q6DQ33
B	176	GLY	-	expression tag	UNP Q6DQ33
B	177	ARG	-	expression tag	UNP Q6DQ33
B	178	LEU	-	expression tag	UNP Q6DQ33
B	179	VAL	-	expression tag	UNP Q6DQ33
B	180	PRO	-	expression tag	UNP Q6DQ33
B	181	ARG	-	expression tag	UNP Q6DQ33
D	175	SER	-	expression tag	UNP Q6DQ33
D	176	GLY	-	expression tag	UNP Q6DQ33
D	177	ARG	-	expression tag	UNP Q6DQ33
D	178	LEU	-	expression tag	UNP Q6DQ33
D	179	VAL	-	expression tag	UNP Q6DQ33
D	180	PRO	-	expression tag	UNP Q6DQ33
D	181	ARG	-	expression tag	UNP Q6DQ33
F	175	SER	-	expression tag	UNP Q6DQ33
F	176	GLY	-	expression tag	UNP Q6DQ33
F	177	ARG	-	expression tag	UNP Q6DQ33
F	178	LEU	-	expression tag	UNP Q6DQ33
F	179	VAL	-	expression tag	UNP Q6DQ33
F	180	PRO	-	expression tag	UNP Q6DQ33
F	181	ARG	-	expression tag	UNP Q6DQ33

- Molecule 4 is a protein called H5M9 antibody, heavy chain (IgG1).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	H	222	1682	1062	277	334	9	0	0	0
4	G	222	1682	1062	277	334	9	0	0	0
4	J	222	1682	1062	277	334	9	0	0	0

- Molecule 5 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



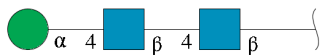
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
5	M	5	61	34	2	25	0	0	0
5	S	5	61	34	2	25	0	0	0
5	X	5	61	34	2	25	0	0	0

- Molecule 6 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			
6	N	2	28	16	2	10	0	0	0
6	O	2	28	16	2	10	0	0	0
6	P	2	28	16	2	10	0	0	0
6	R	2	28	16	2	10	0	0	0
6	T	2	28	16	2	10	0	0	0
6	U	2	28	16	2	10	0	0	0
6	V	2	28	16	2	10	0	0	0
6	W	2	28	16	2	10	0	0	0
6	Y	2	28	16	2	10	0	0	0
6	a	2	28	16	2	10	0	0	0

- Molecule 7 is an oligosaccharide called 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	Q	3	39	22	2	15	0	0	0
7	Z	3	39	22	2	15	0	0	0
7	b	3	39	22	2	15	0	0	0

- Molecule 8 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-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			
8	c	4	50	28	2	20	0	0	0

- Molecule 9 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).





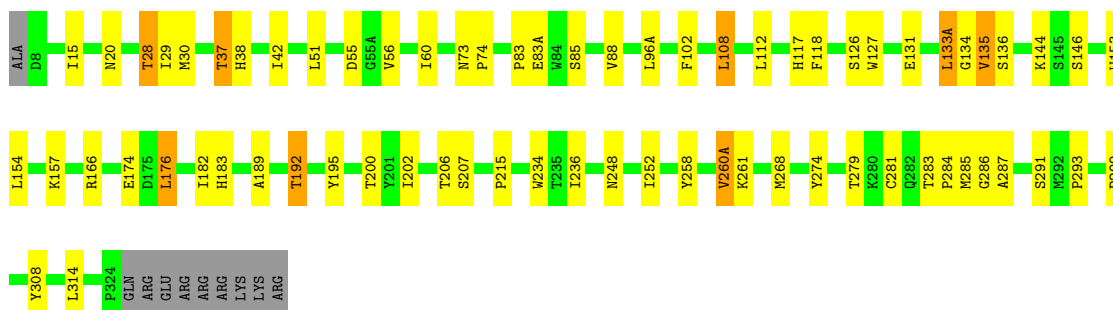
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
9	L	1	Total 14	8	1	5	0	0
9	I	1	Total 14	8	1	5	0	0
9	K	1	Total 14	8	1	5	0	0
9	F	1	Total 14	8	1	5	0	0

### 3 Residue-property plots


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

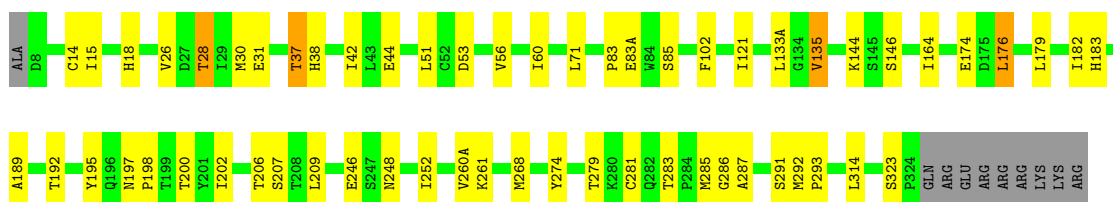
- Molecule 1: Hemagglutinin HA1 chain

Chain A: 



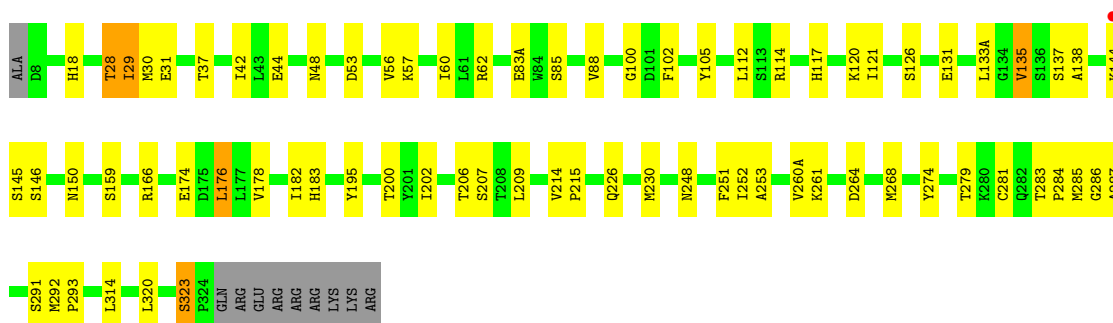
- Molecule 1: Hemagglutinin HA1 chain

Chain C: 

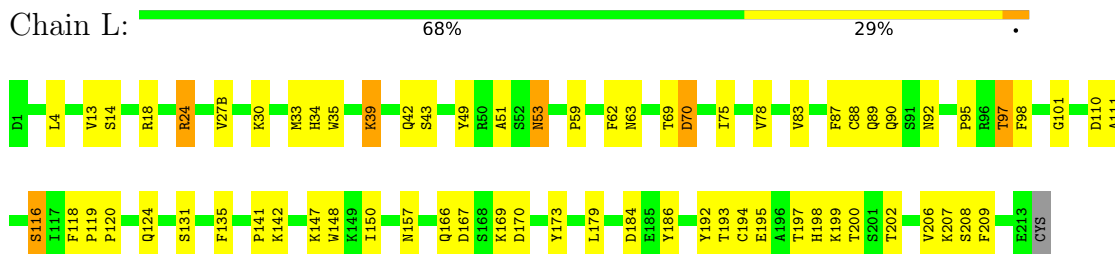


- Molecule 1: Hemagglutinin HA1 chain

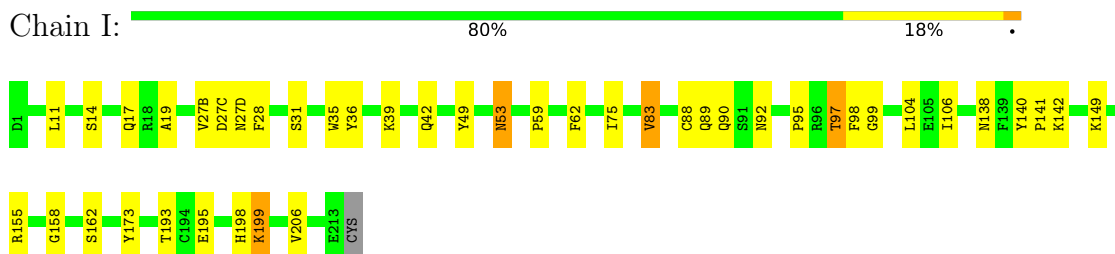
Chain E: 



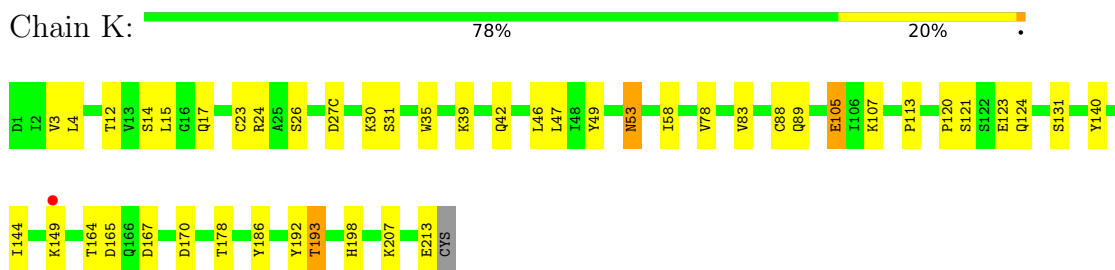
- Molecule 2: H5M9 antibody, light chain (kappa)



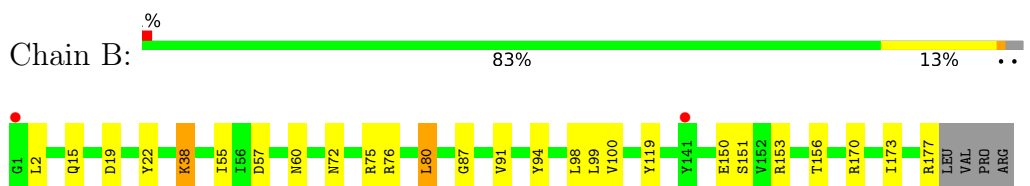
- Molecule 2: H5M9 antibody, light chain (kappa)



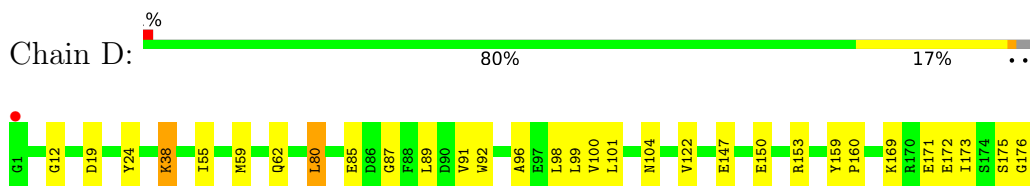
- Molecule 2: H5M9 antibody, light chain (kappa)



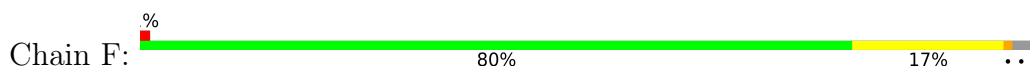
- Molecule 3: Hemagglutinin HA2 chain

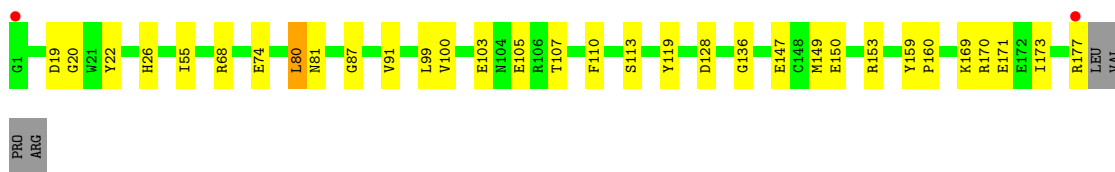


- Molecule 3: Hemagglutinin HA2 chain



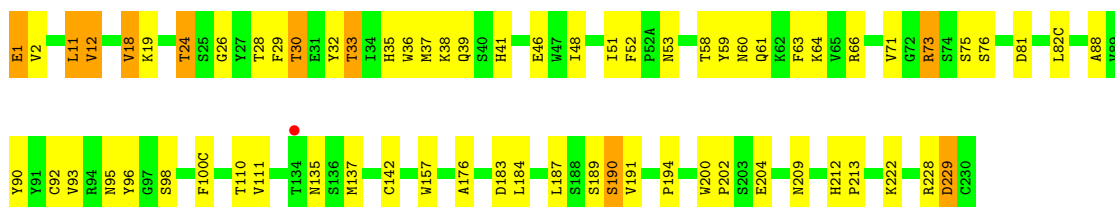
- Molecule 3: Hemagglutinin HA2 chain





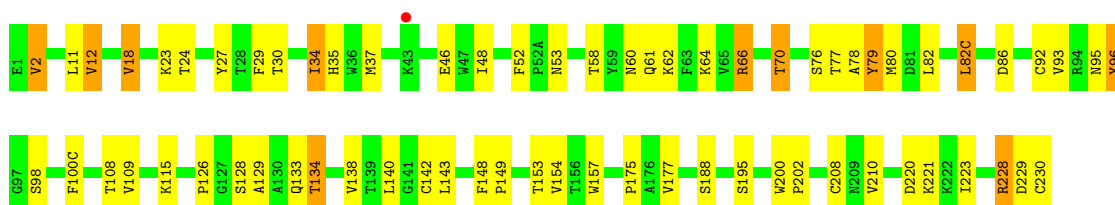
- Molecule 4: H5M9 antibody, heavy chain (IgG1)

Chain H: 69% 26% 5%



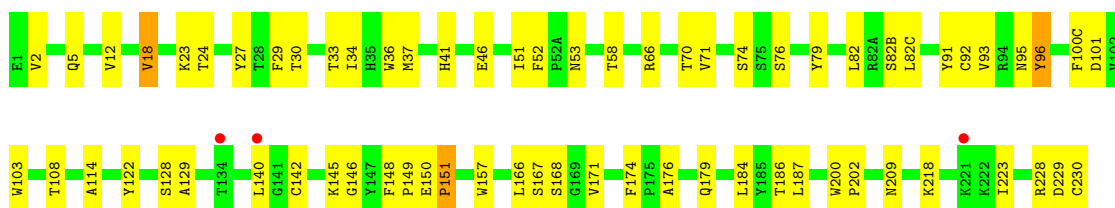
- Molecule 4: H5M9 antibody, heavy chain (IgG1)

Chain G: 69% 26% 5%



- Molecule 4: H5M9 antibody, heavy chain (IgG1)

Chain J: 69% 29% 2%

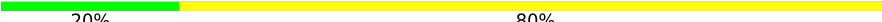


- Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain M: 20% 80%




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

Chain S:  20% 80%

  
MAG1  
MAG2  
MAN3  
MAN4  
MAN5

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

Chain X:  80% 20%

  
MAG1  
MAG2  
MAN3  
MAN4  
MAN5

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

Chain N:  100%

  
MAG1  
MAG2

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

Chain O:  100%

  
MAG1  
MAG2

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

Chain P:  50% 50%

  
MAG1  
MAG2

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

Chain R:  100%

  
MAG1  
MAG2

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

Chain T:  100%

MAG1  
MAG2

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

Chain U:  100%MAG1  
MAG2

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

Chain V:  100%MAG1  
MAG2

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

Chain W:  100%MAG1  
MAG2

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

Chain Y:  100%MAG1  
MAG2

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

Chain a:  100%MAG1  
MAG2

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


Chain Q:  67% 33%MAG1  
MAG2  
MAN3

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

Chain Z:  67% 33%

MAG1  
MAG2  
MAN3

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

Chain b:  33% 67%

MAG1  
MAG2  
MAN3

- Molecule 8: alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain c:  25% 75%

MAG1  
MAG2  
MAN3  
MAN4

## 4 Data and refinement statistics i

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	142.01Å 251.42Å 230.81Å 90.00° 107.01° 90.00°	Depositor
Resolution (Å)	47.30 – 3.56 47.30 – 3.56	Depositor EDS
% Data completeness (in resolution range)	91.5 (47.30-3.56) 91.7 (47.30-3.56)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.16 (at 3.57Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.8.2_1309)	Depositor
R, $R_{free}$	0.201 , 0.238 0.202 , 0.238	Depositor DCC
$R_{free}$ test set	4217 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	126.7	Xtrriage
Anisotropy	0.211	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 98.6	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.000 for h,-k,-h-l	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	22784	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	144.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.26% 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: MAN, NAG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.59	0/2631	0.83	2/3574 (0.1%)
1	C	0.56	0/2631	0.80	1/3574 (0.0%)
1	E	0.63	0/2631	0.86	1/3574 (0.0%)
2	I	0.52	0/1720	0.63	0/2332
2	K	0.48	0/1720	0.60	0/2332
2	L	0.65	0/1720	0.75	1/2332 (0.0%)
3	B	0.63	1/1460 (0.1%)	0.75	1/1961 (0.1%)
3	D	0.73	5/1460 (0.3%)	0.75	1/1961 (0.1%)
3	F	0.76	7/1460 (0.5%)	0.83	0/1961
4	G	0.56	0/1728	0.71	0/2361
4	H	0.62	0/1728	0.77	0/2361
4	J	0.47	0/1728	0.66	0/2361
All	All	0.60	13/22617 (0.1%)	0.76	7/30684 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1
1	E	0	1
All	All	0	2

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	171	GLU	CD-OE1	5.94	1.32	1.25
3	D	171	GLU	CD-OE2	5.85	1.32	1.25
3	F	147	GLU	CD-OE2	5.77	1.32	1.25
3	F	177	ARG	CZ-NH1	5.68	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	171	GLU	CD-OE2	5.64	1.31	1.25

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	195	TYR	N-CA-C	-7.95	89.55	111.00
1	A	195	TYR	N-CA-C	-7.07	91.91	111.00
1	C	195	TYR	N-CA-C	-6.46	93.54	111.00
2	L	63	ASN	N-CA-CB	5.57	120.62	110.60
1	A	108	LEU	CB-CG-CD1	-5.36	101.89	111.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	323	SER	Peptide
1	E	323	SER	Peptide

## 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	2568	0	2504	48	0
1	C	2568	0	2504	35	0
1	E	2568	0	2504	47	0
2	I	1683	0	1606	29	0
2	K	1683	0	1606	26	0
2	L	1683	0	1606	45	0
3	B	1433	0	1339	17	0
3	D	1433	0	1339	18	0
3	F	1433	0	1339	21	0
4	G	1682	0	1632	41	0
4	H	1682	0	1632	49	0
4	J	1682	0	1632	41	0
5	M	61	0	52	0	0
5	S	61	0	52	0	0
5	X	61	0	52	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	N	28	0	25	0	0
6	O	28	0	25	1	0
6	P	28	0	25	2	0
6	R	28	0	25	1	0
6	T	28	0	25	0	0
6	U	28	0	25	0	0
6	V	28	0	25	0	0
6	W	28	0	25	0	0
6	Y	28	0	25	0	0
6	a	28	0	25	0	0
7	Q	39	0	34	0	0
7	Z	39	0	34	0	0
7	b	39	0	34	0	0
8	c	50	0	43	0	0
9	F	14	0	13	0	0
9	I	14	0	13	0	0
9	K	14	0	13	0	0
9	L	14	0	13	0	0
All	All	22784	0	21846	385	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 9.

The worst 5 of 385 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:C:283:THR:HG22	1:C:285:MET:H	1.30	0.96
1:A:283:THR:HG22	1:A:285:MET:H	1.36	0.89
1:E:37:THR:HG22	1:E:320:LEU:H	1.37	0.88
1:E:283:THR:HG22	1:E:285:MET:H	1.43	0.82
1:A:131:GLU:HB3	1:A:133(A):LEU:HD23	1.66	0.78

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	322/334 (96%)	304 (94%)	17 (5%)	1 (0%)	41	74
1	C	322/334 (96%)	303 (94%)	18 (6%)	1 (0%)	41	74
1	E	322/334 (96%)	304 (94%)	16 (5%)	2 (1%)	25	64
2	I	215/218 (99%)	194 (90%)	19 (9%)	2 (1%)	17	57
2	K	215/218 (99%)	197 (92%)	18 (8%)	0	100	100
2	L	215/218 (99%)	197 (92%)	18 (8%)	0	100	100
3	B	175/181 (97%)	170 (97%)	5 (3%)	0	100	100
3	D	175/181 (97%)	171 (98%)	3 (2%)	1 (1%)	25	64
3	F	175/181 (97%)	170 (97%)	5 (3%)	0	100	100
4	G	220/222 (99%)	189 (86%)	28 (13%)	3 (1%)	11	48
4	H	220/222 (99%)	190 (86%)	26 (12%)	4 (2%)	8	43
4	J	220/222 (99%)	192 (87%)	23 (10%)	5 (2%)	6	38
All	All	2796/2865 (98%)	2581 (92%)	196 (7%)	19 (1%)	22	62

5 of 19 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	323	SER
4	H	135	ASN
4	J	129	ALA
4	H	229	ASP
4	G	96	TYR

### 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	291/300 (97%)	279 (96%)	12 (4%)	30	64
1	C	291/300 (97%)	280 (96%)	11 (4%)	33	66

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	E	291/300 (97%)	282 (97%)	9 (3%)	40	71
2	I	190/191 (100%)	184 (97%)	6 (3%)	39	70
2	K	190/191 (100%)	179 (94%)	11 (6%)	20	55
2	L	190/191 (100%)	173 (91%)	17 (9%)	9	39
3	B	151/155 (97%)	148 (98%)	3 (2%)	55	79
3	D	151/155 (97%)	149 (99%)	2 (1%)	69	87
3	F	151/155 (97%)	149 (99%)	2 (1%)	69	87
4	G	193/193 (100%)	174 (90%)	19 (10%)	8	35
4	H	193/193 (100%)	177 (92%)	16 (8%)	11	41
4	J	193/193 (100%)	180 (93%)	13 (7%)	16	50
All	All	2475/2517 (98%)	2354 (95%)	121 (5%)	25	59

5 of 121 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	K	39	LYS
4	J	18	VAL
3	F	22	TYR
4	J	12	VAL
4	J	209	ASN

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	142	GLN
1	A	276	ASN
3	B	146	ASN
4	H	95	ASN
4	G	95	ASN

### 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](#)

48 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
5	NAG	M	1	5,1	14,14,15	0.31	0	17,19,21	0.64	1 (5%)
5	NAG	M	2	5	14,14,15	0.54	0	17,19,21	0.49	0
5	MAN	M	3	5	11,11,12	2.03	3 (27%)	15,15,17	1.84	4 (26%)
5	MAN	M	4	5	11,11,12	1.25	1 (9%)	15,15,17	1.46	2 (13%)
5	MAN	M	5	5	11,11,12	1.04	1 (9%)	15,15,17	0.95	0
6	NAG	N	1	6,1	14,14,15	0.21	0	17,19,21	0.41	0
6	NAG	N	2	6	14,14,15	0.21	0	17,19,21	0.37	0
6	NAG	O	1	6,1	14,14,15	0.64	0	17,19,21	0.57	0
6	NAG	O	2	6	14,14,15	0.54	0	17,19,21	0.42	0
6	NAG	P	1	6,1	14,14,15	0.35	0	17,19,21	0.43	0
6	NAG	P	2	6	14,14,15	0.54	0	17,19,21	0.44	0
7	NAG	Q	1	7,1	14,14,15	0.24	0	17,19,21	0.38	0
7	NAG	Q	2	7	14,14,15	0.42	0	17,19,21	0.44	0
7	MAN	Q	3	7	11,11,12	1.57	4 (36%)	15,15,17	1.69	4 (26%)
6	NAG	R	1	6,1	14,14,15	0.23	0	17,19,21	0.52	0
6	NAG	R	2	6	14,14,15	0.22	0	17,19,21	0.40	0
5	NAG	S	1	5,1	14,14,15	0.49	0	17,19,21	0.48	0
5	NAG	S	2	5	14,14,15	0.80	1 (7%)	17,19,21	0.76	0
5	MAN	S	3	5	11,11,12	1.94	4 (36%)	15,15,17	1.39	3 (20%)
5	MAN	S	4	5	11,11,12	1.51	2 (18%)	15,15,17	1.52	2 (13%)
5	MAN	S	5	5	11,11,12	1.64	2 (18%)	15,15,17	1.41	2 (13%)
6	NAG	T	1	6,1	14,14,15	0.23	0	17,19,21	0.41	0
6	NAG	T	2	6	14,14,15	0.21	0	17,19,21	0.35	0
6	NAG	U	1	6,1	14,14,15	0.35	0	17,19,21	0.35	0
6	NAG	U	2	6	14,14,15	0.63	0	17,19,21	0.56	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
6	NAG	V	1	6,1	14,14,15	0.33	0	17,19,21	0.52	0
6	NAG	V	2	6	14,14,15	0.26	0	17,19,21	0.36	0
6	NAG	W	1	6,1	14,14,15	0.35	0	17,19,21	0.33	0
6	NAG	W	2	6	14,14,15	0.20	0	17,19,21	0.39	0
5	NAG	X	1	5,1	14,14,15	0.33	0	17,19,21	0.50	0
5	NAG	X	2	5	14,14,15	0.89	1 (7%)	17,19,21	0.71	0
5	MAN	X	3	5	11,11,12	1.90	3 (27%)	15,15,17	1.80	3 (20%)
5	MAN	X	4	5	11,11,12	1.42	2 (18%)	15,15,17	1.46	3 (20%)
5	MAN	X	5	5	11,11,12	1.78	3 (27%)	15,15,17	1.75	3 (20%)
6	NAG	Y	1	6,1	14,14,15	0.71	1 (7%)	17,19,21	0.75	0
6	NAG	Y	2	6	14,14,15	1.22	1 (7%)	17,19,21	1.07	1 (5%)
7	NAG	Z	1	7,1	14,14,15	0.41	0	17,19,21	0.54	0
7	NAG	Z	2	7	14,14,15	0.37	0	17,19,21	0.50	0
7	MAN	Z	3	7	11,11,12	2.21	5 (45%)	15,15,17	2.15	2 (13%)
6	NAG	a	1	6,1	14,14,15	0.21	0	17,19,21	0.53	0
6	NAG	a	2	6	14,14,15	0.24	0	17,19,21	0.35	0
7	NAG	b	1	7,3	14,14,15	0.36	0	17,19,21	0.58	0
7	NAG	b	2	7	14,14,15	0.49	0	17,19,21	1.35	2 (11%)
7	MAN	b	3	7	11,11,12	1.89	2 (18%)	15,15,17	1.96	3 (20%)
8	NAG	c	1	3,8	14,14,15	0.43	0	17,19,21	0.53	0
8	NAG	c	2	8	14,14,15	0.46	0	17,19,21	1.05	1 (5%)
8	MAN	c	3	8	11,11,12	2.04	3 (27%)	15,15,17	2.16	5 (33%)
8	MAN	c	4	8	11,11,12	1.63	3 (27%)	15,15,17	1.12	1 (6%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	M	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	M	2	5	-	0/6/23/26	0/1/1/1
5	MAN	M	3	5	-	2/2/19/22	0/1/1/1
5	MAN	M	4	5	-	1/2/19/22	0/1/1/1
5	MAN	M	5	5	-	2/2/19/22	0/1/1/1
6	NAG	N	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	N	2	6	-	2/6/23/26	0/1/1/1
6	NAG	O	1	6,1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	O	2	6	-	2/6/23/26	0/1/1/1
6	NAG	P	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	P	2	6	-	2/6/23/26	0/1/1/1
7	NAG	Q	1	7,1	-	2/6/23/26	0/1/1/1
7	NAG	Q	2	7	-	2/6/23/26	0/1/1/1
7	MAN	Q	3	7	-	2/2/19/22	0/1/1/1
6	NAG	R	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	R	2	6	-	2/6/23/26	0/1/1/1
5	NAG	S	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	S	2	5	-	0/6/23/26	0/1/1/1
5	MAN	S	3	5	-	2/2/19/22	0/1/1/1
5	MAN	S	4	5	-	2/2/19/22	0/1/1/1
5	MAN	S	5	5	-	0/2/19/22	0/1/1/1
6	NAG	T	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	T	2	6	-	2/6/23/26	0/1/1/1
6	NAG	U	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	U	2	6	-	2/6/23/26	0/1/1/1
6	NAG	V	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	V	2	6	-	1/6/23/26	0/1/1/1
6	NAG	W	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	W	2	6	-	2/6/23/26	0/1/1/1
5	NAG	X	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	X	2	5	-	0/6/23/26	0/1/1/1
5	MAN	X	3	5	-	2/2/19/22	0/1/1/1
5	MAN	X	4	5	-	1/2/19/22	0/1/1/1
5	MAN	X	5	5	-	0/2/19/22	0/1/1/1
6	NAG	Y	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	Y	2	6	-	2/6/23/26	0/1/1/1
7	NAG	Z	1	7,1	-	0/6/23/26	0/1/1/1
7	NAG	Z	2	7	-	2/6/23/26	0/1/1/1
7	MAN	Z	3	7	-	0/2/19/22	0/1/1/1
6	NAG	a	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	a	2	6	-	2/6/23/26	0/1/1/1
7	NAG	b	1	7,3	-	0/6/23/26	0/1/1/1
7	NAG	b	2	7	-	2/6/23/26	0/1/1/1
7	MAN	b	3	7	-	2/2/19/22	0/1/1/1
8	NAG	c	1	3,8	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	NAG	c	2	8	-	2/6/23/26	0/1/1/1
8	MAN	c	3	8	-	1/2/19/22	0/1/1/1
8	MAN	c	4	8	-	0/2/19/22	0/1/1/1

The worst 5 of 42 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	M	3	MAN	C2-C3	4.41	1.59	1.52
6	Y	2	NAG	O5-C1	4.18	1.50	1.43
8	c	3	MAN	C1-C2	4.05	1.61	1.52
5	X	3	MAN	C2-C3	4.05	1.58	1.52
8	c	3	MAN	C2-C3	3.92	1.58	1.52

The worst 5 of 42 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	Z	3	MAN	C1-O5-C5	6.67	121.23	112.19
7	b	3	MAN	C1-O5-C5	5.36	119.45	112.19
8	c	3	MAN	C1-O5-C5	4.84	118.75	112.19
5	S	4	MAN	C1-O5-C5	4.68	118.53	112.19
7	b	2	NAG	C1-O5-C5	4.33	118.06	112.19

There are no chirality outliers.

5 of 62 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	Y	2	NAG	C4-C5-C6-O6
6	O	1	NAG	O5-C5-C6-O6
6	U	2	NAG	O5-C5-C6-O6
6	N	1	NAG	O5-C5-C6-O6
6	a	2	NAG	O5-C5-C6-O6

There are no ring outliers.

7 monomers are involved in 5 short contacts:

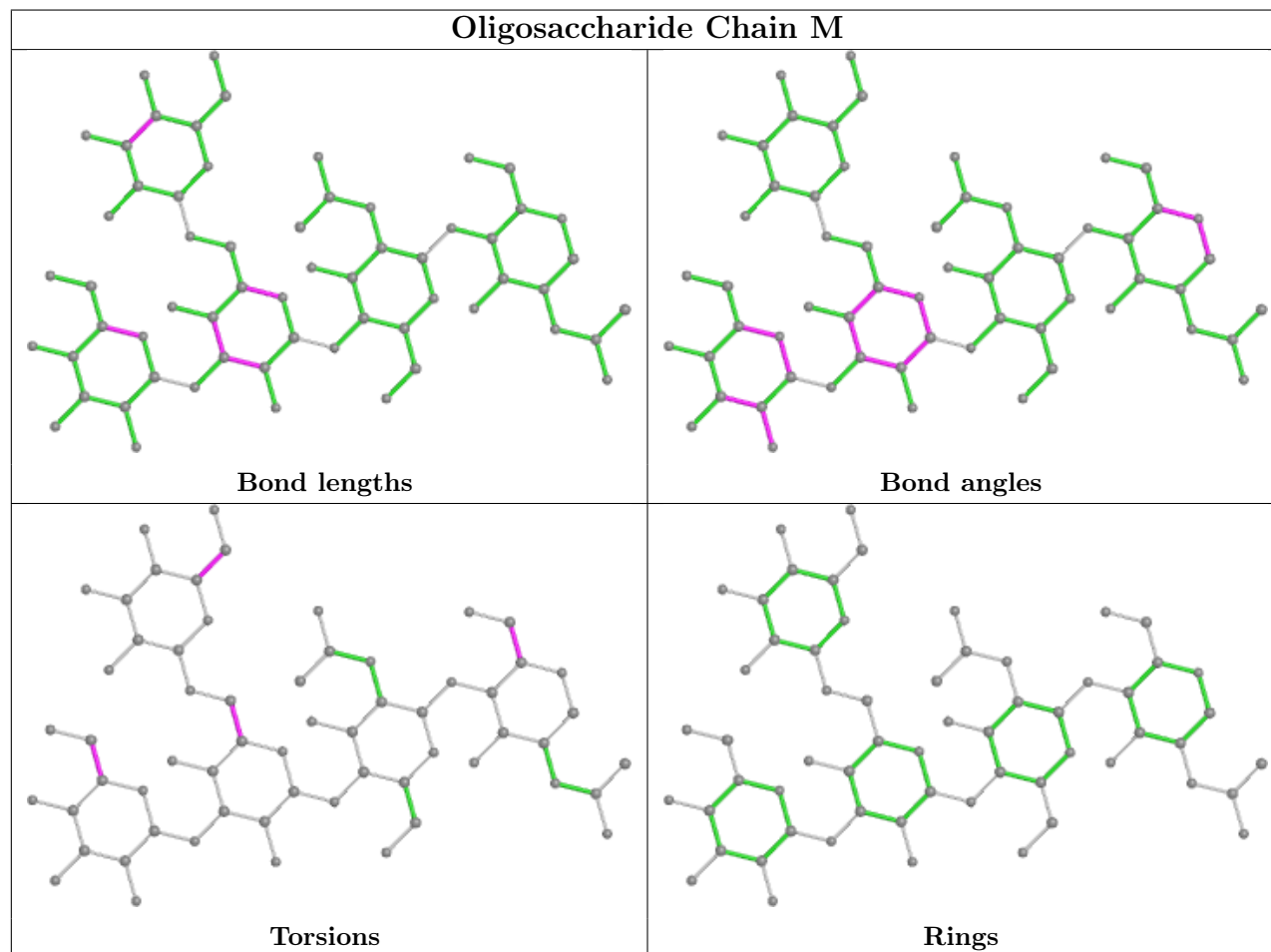
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	R	1	NAG	1	0
5	X	2	NAG	1	0
6	R	2	NAG	1	0
6	O	2	NAG	1	0
6	P	1	NAG	2	0

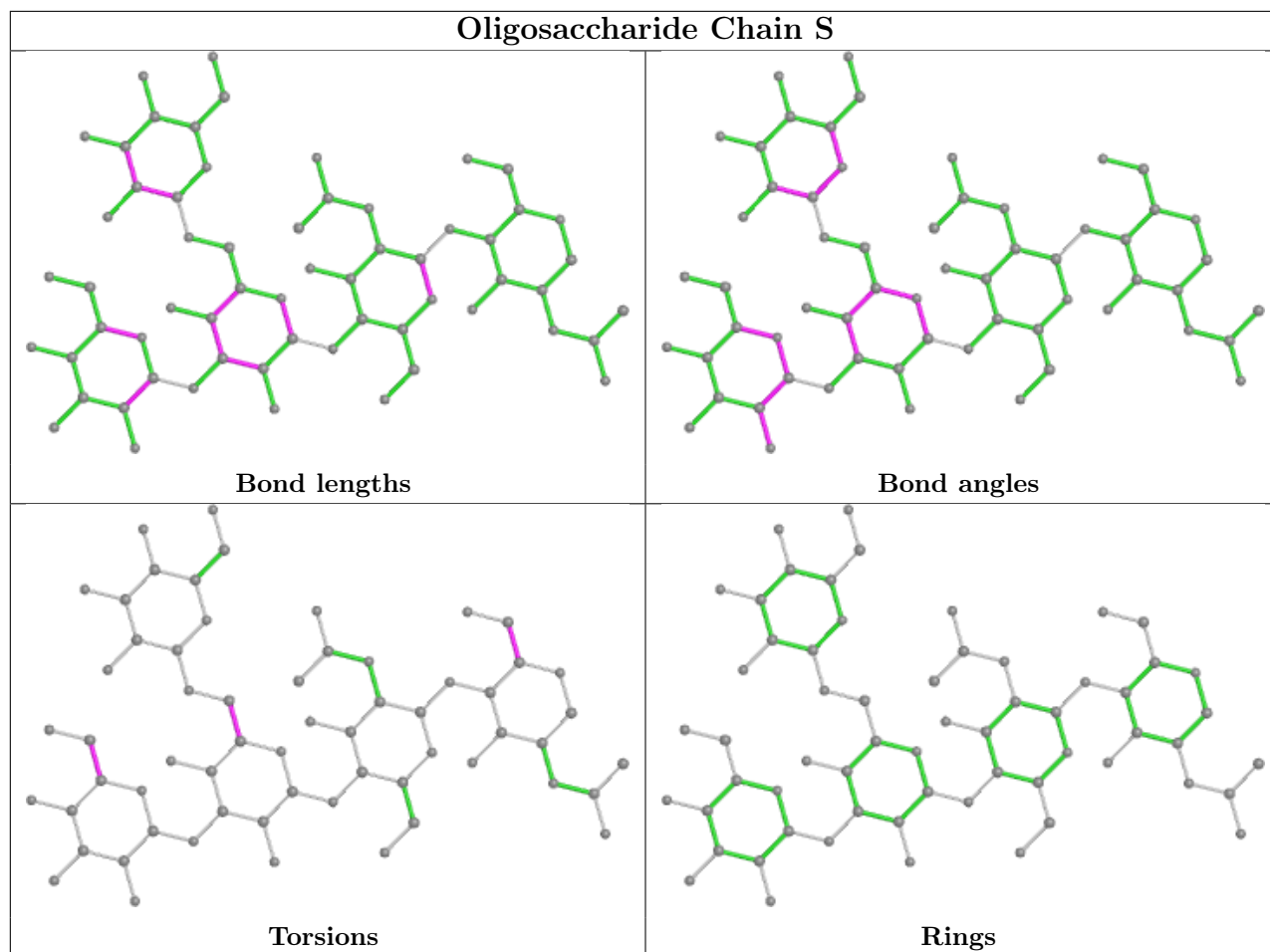
*Continued on next page...*

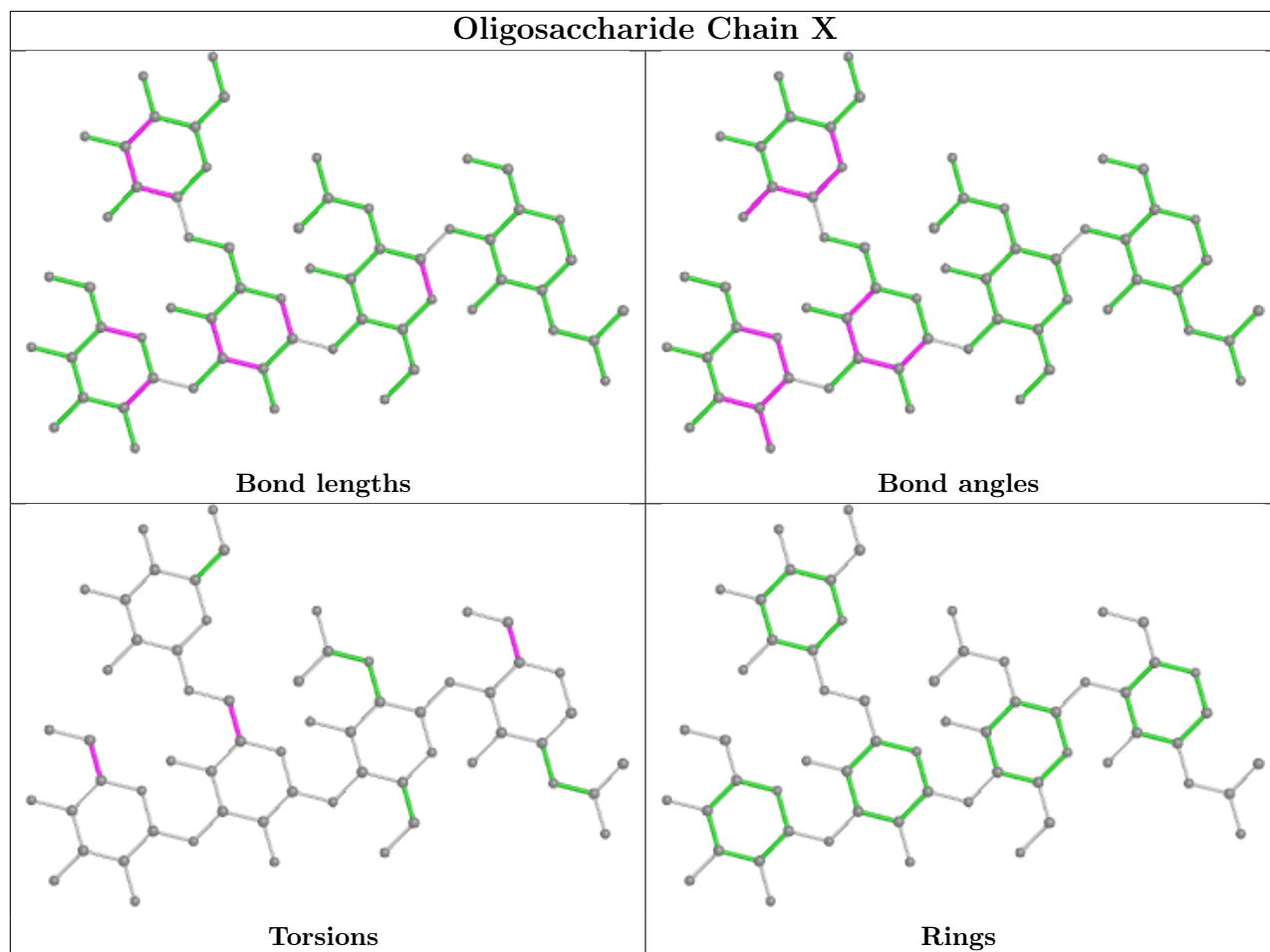
Continued from previous page...

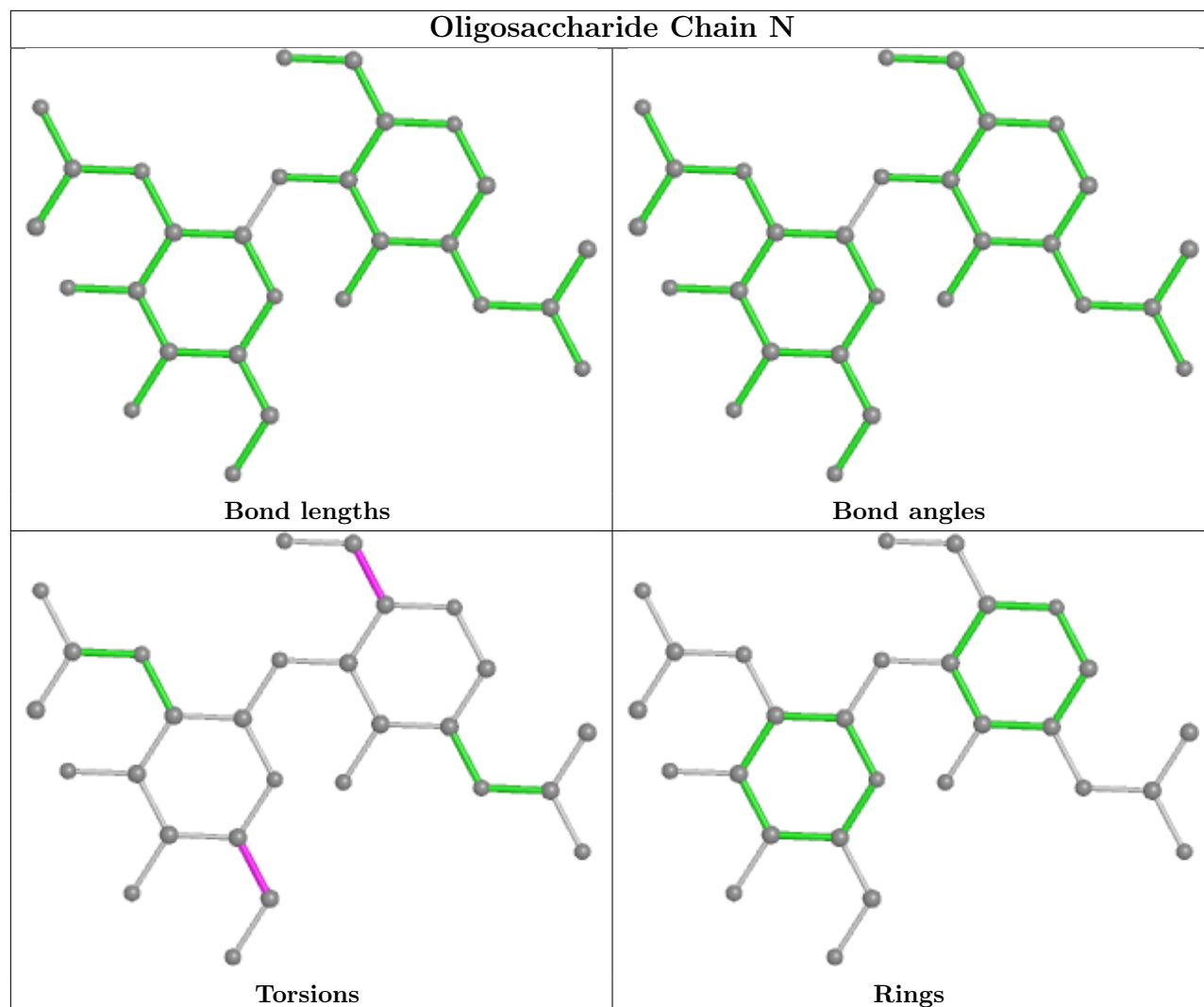
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	X	1	NAG	1	0
6	O	1	NAG	1	0

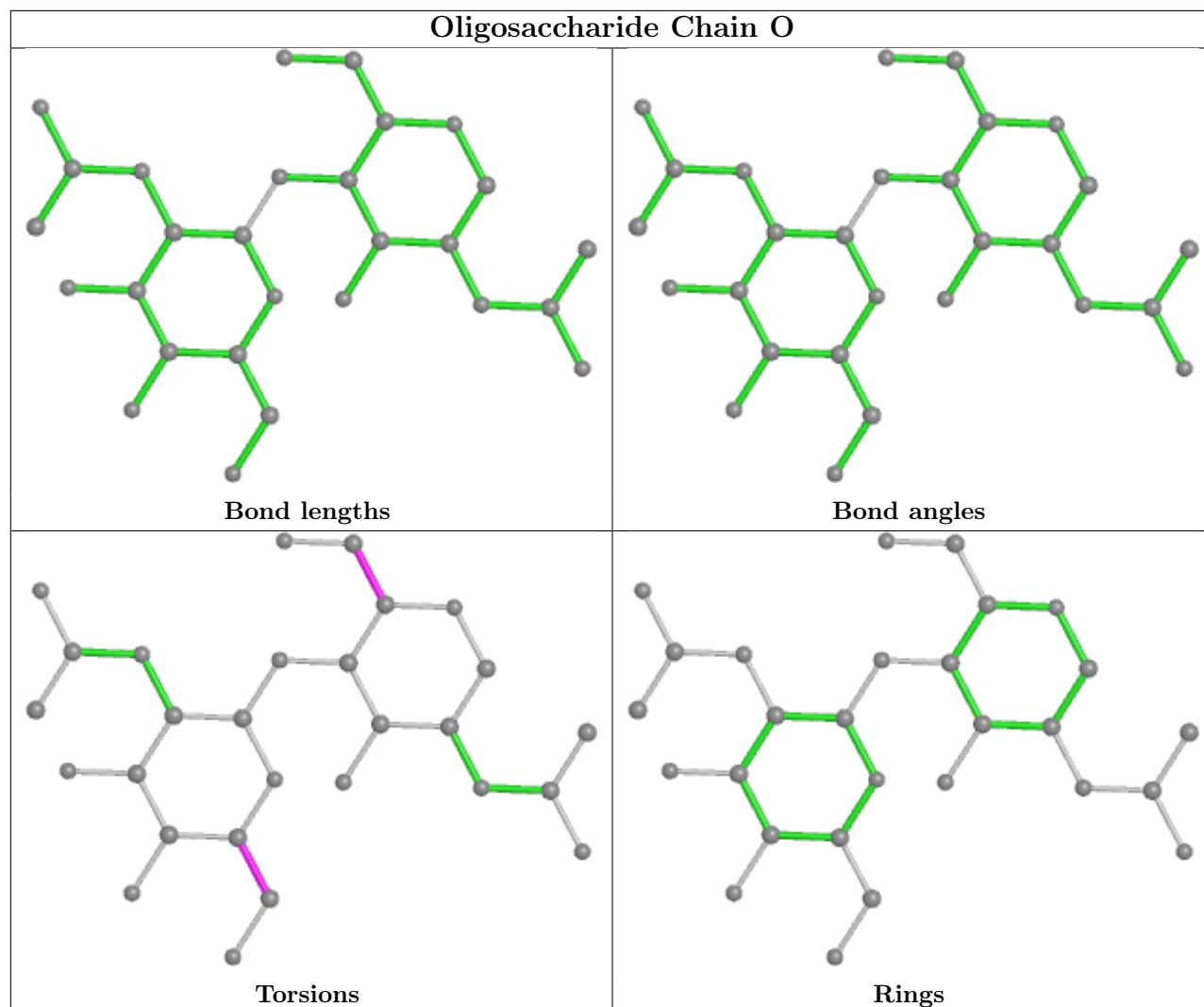
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

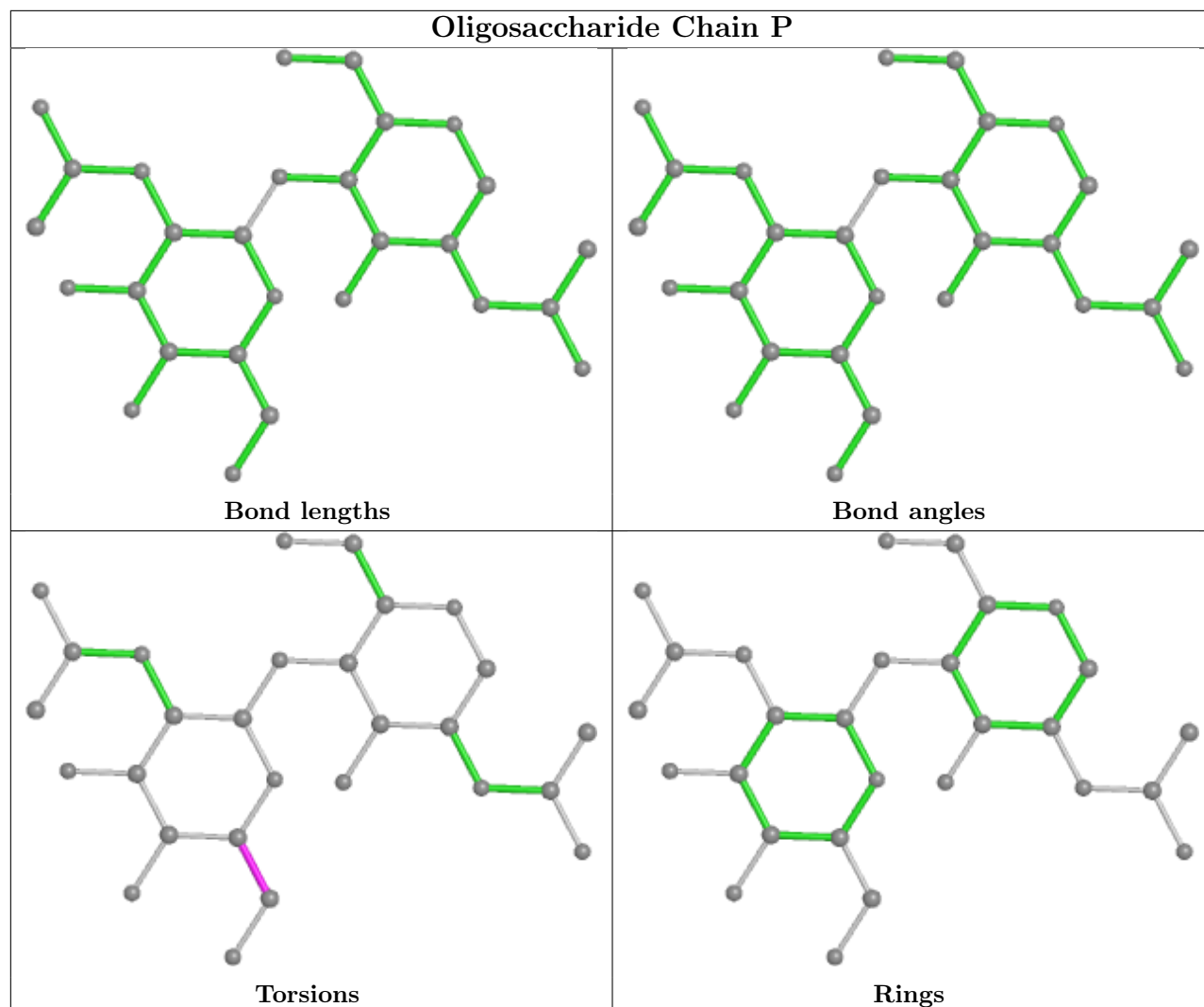


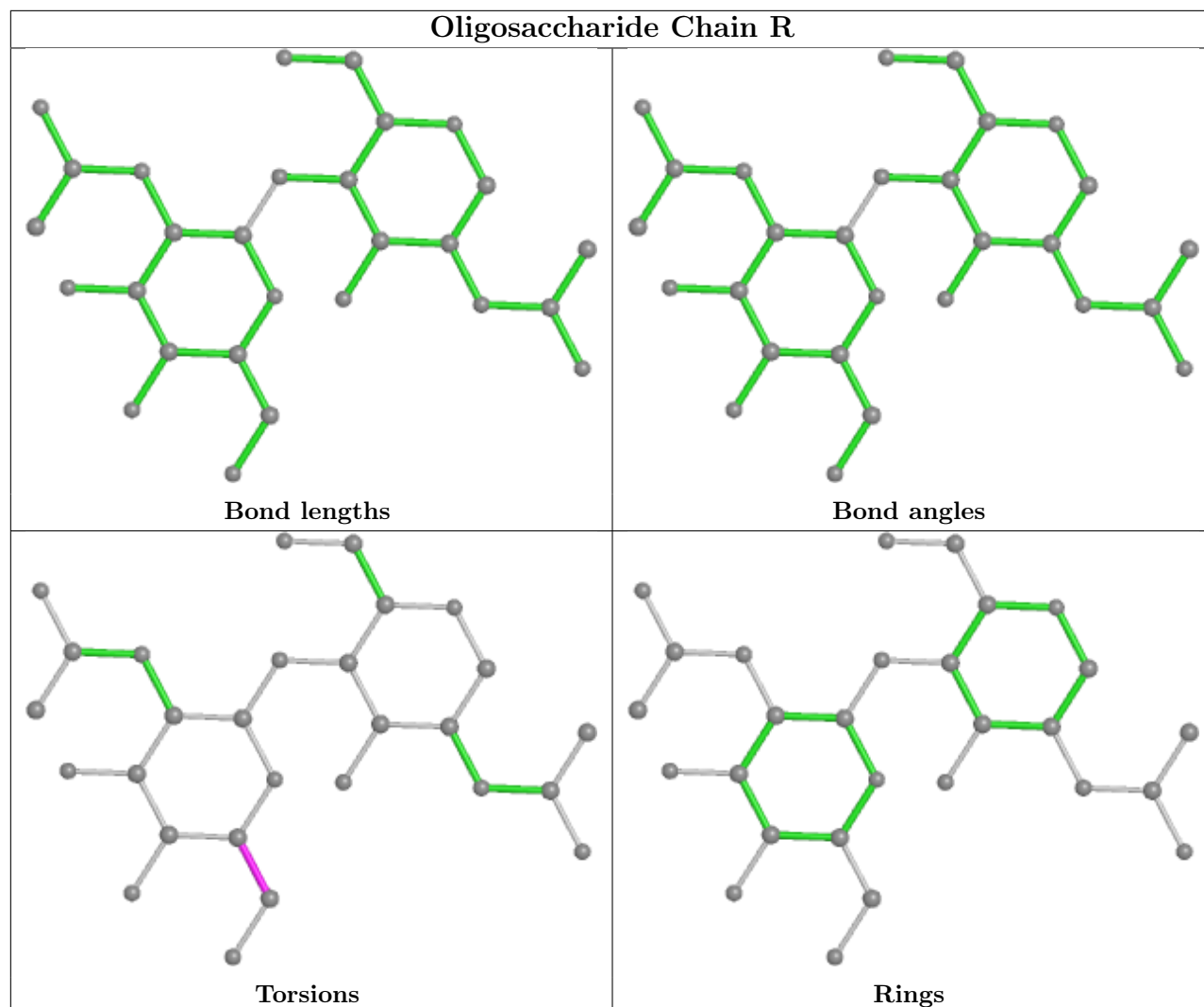




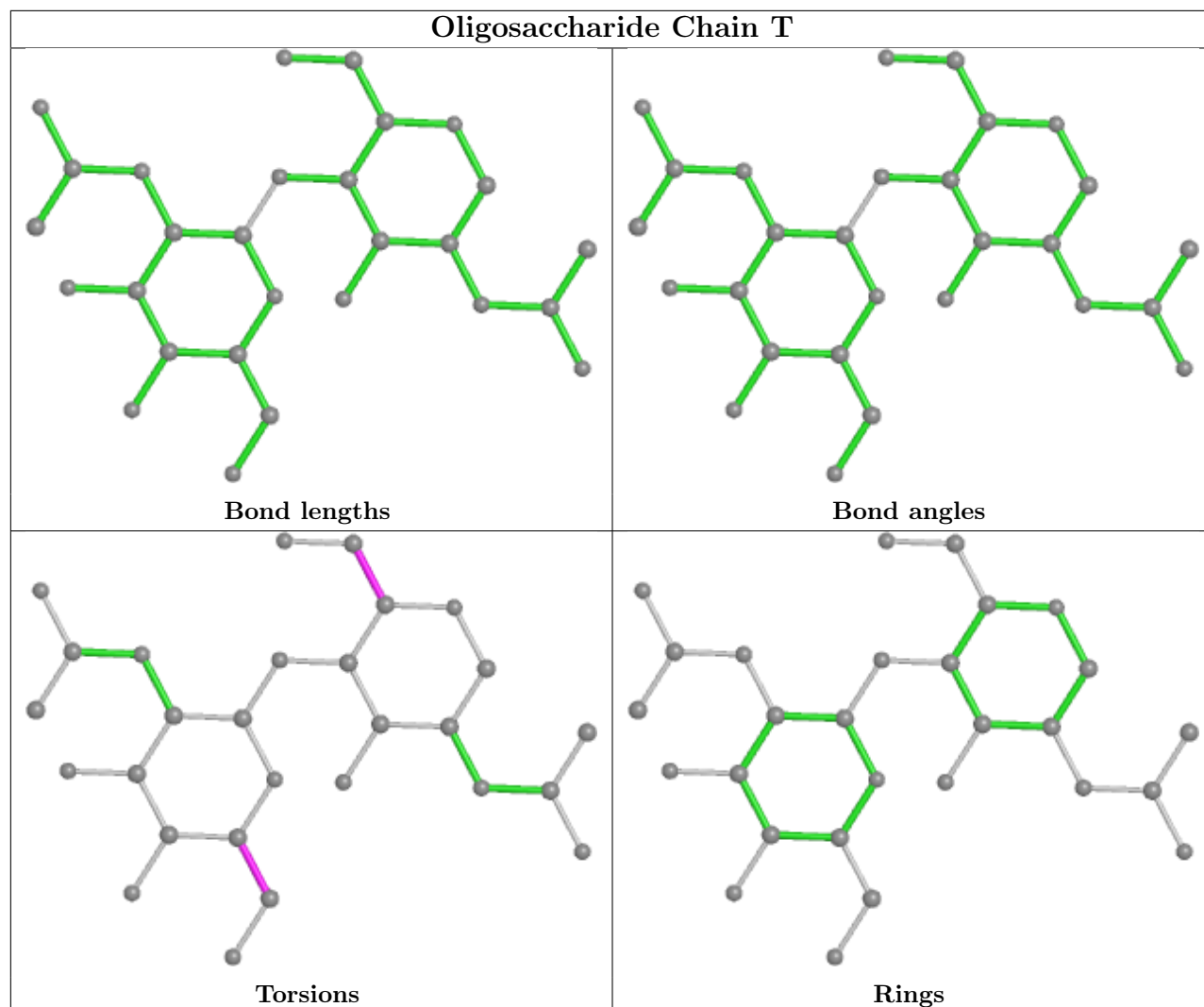


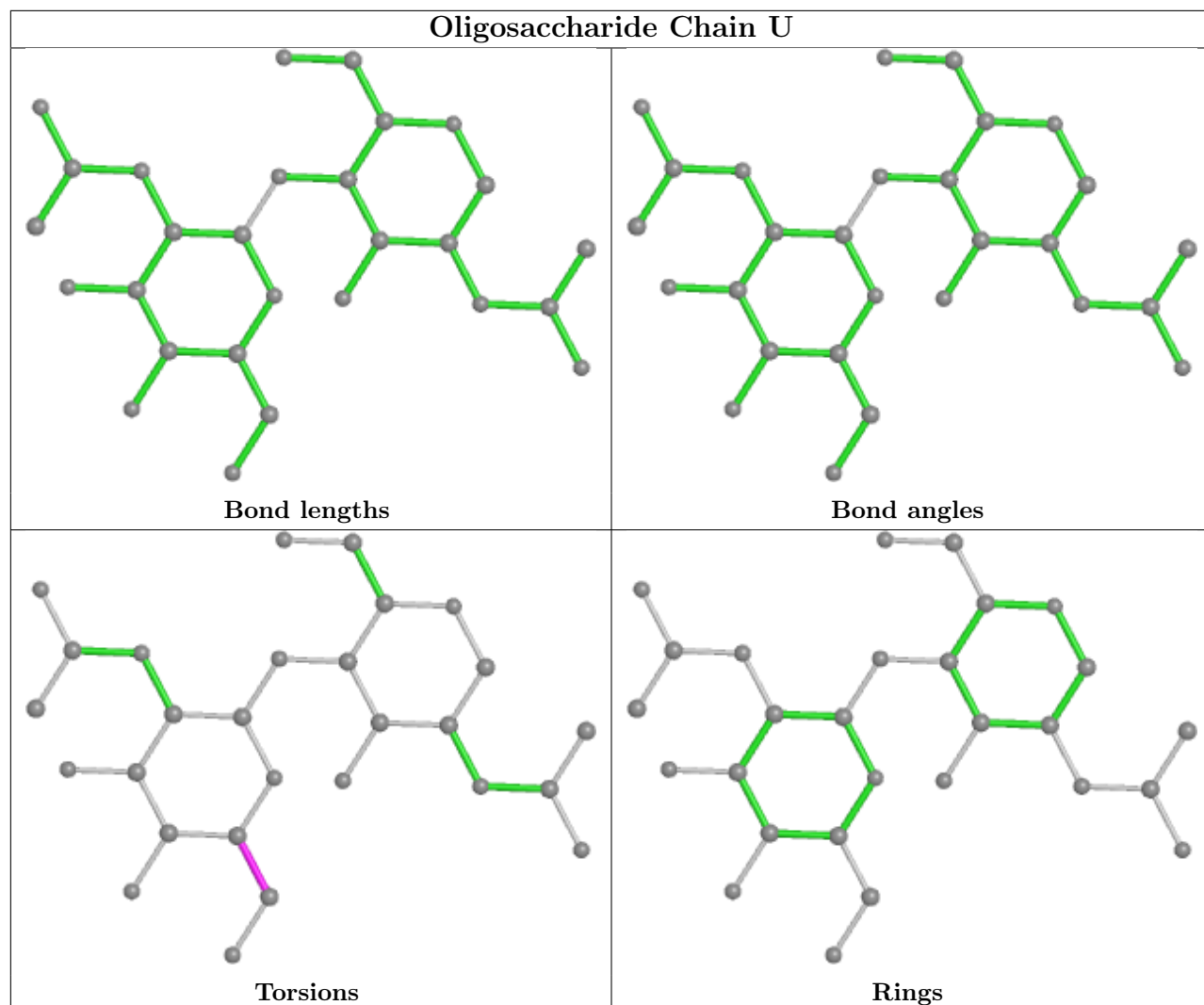


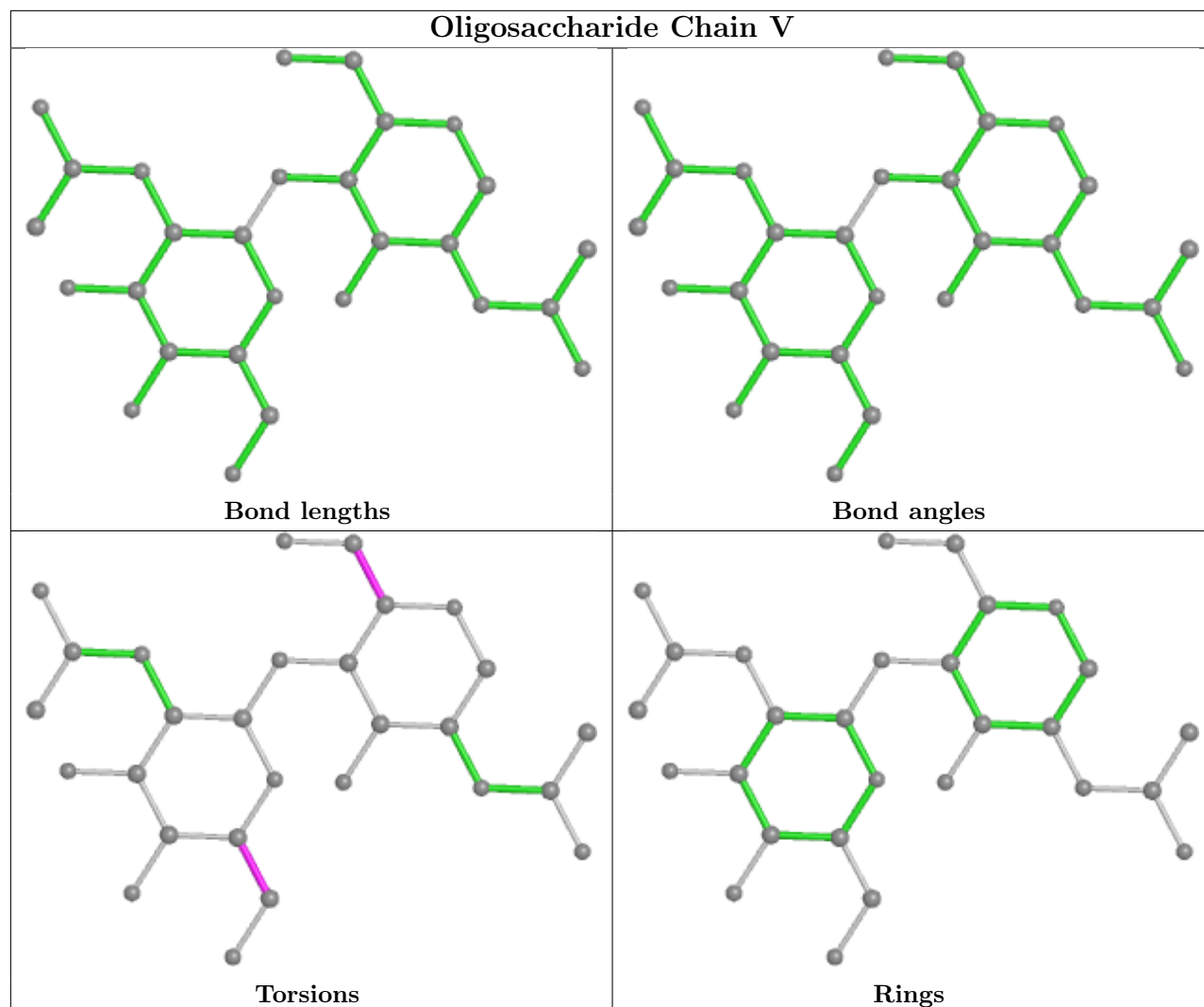


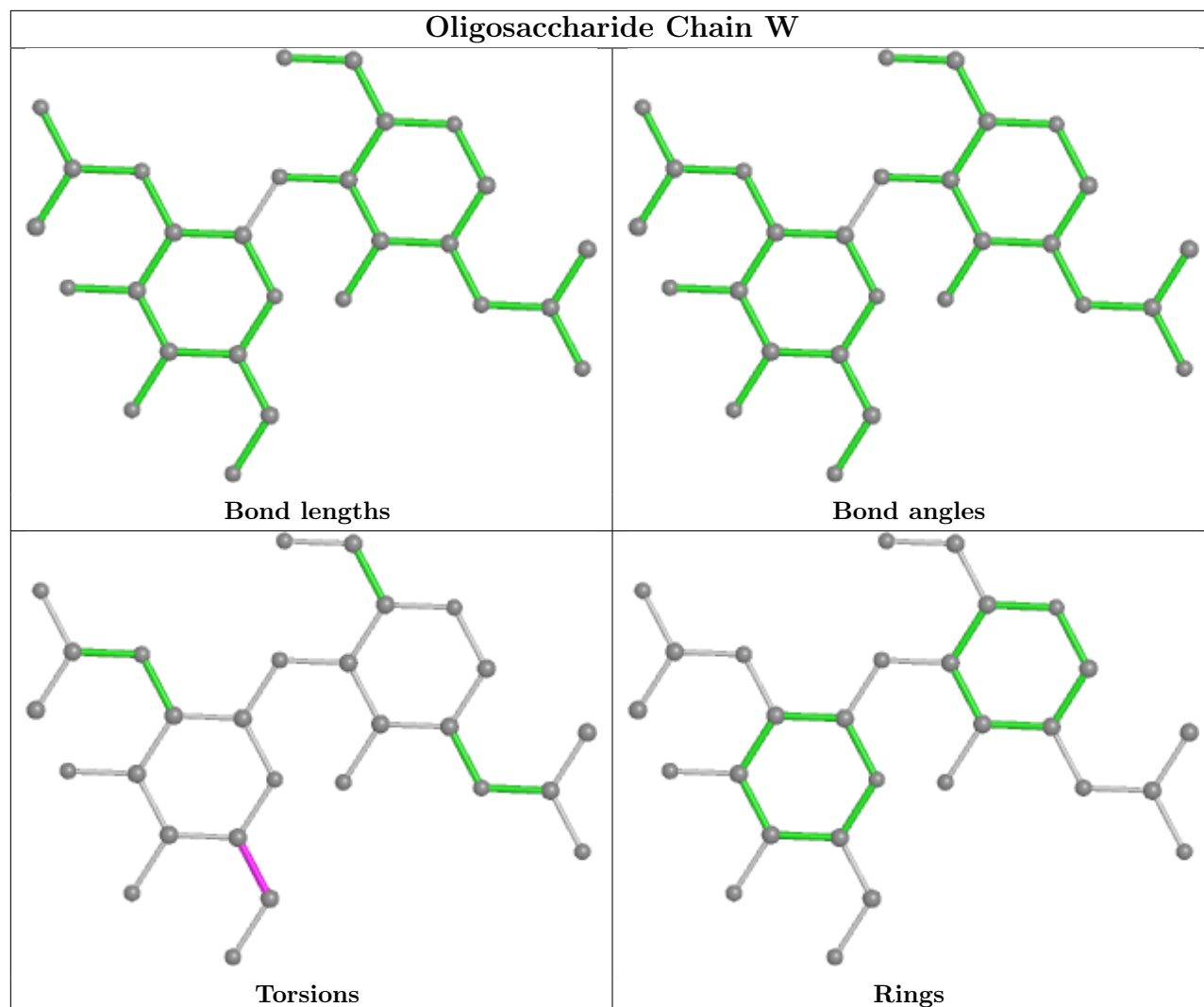


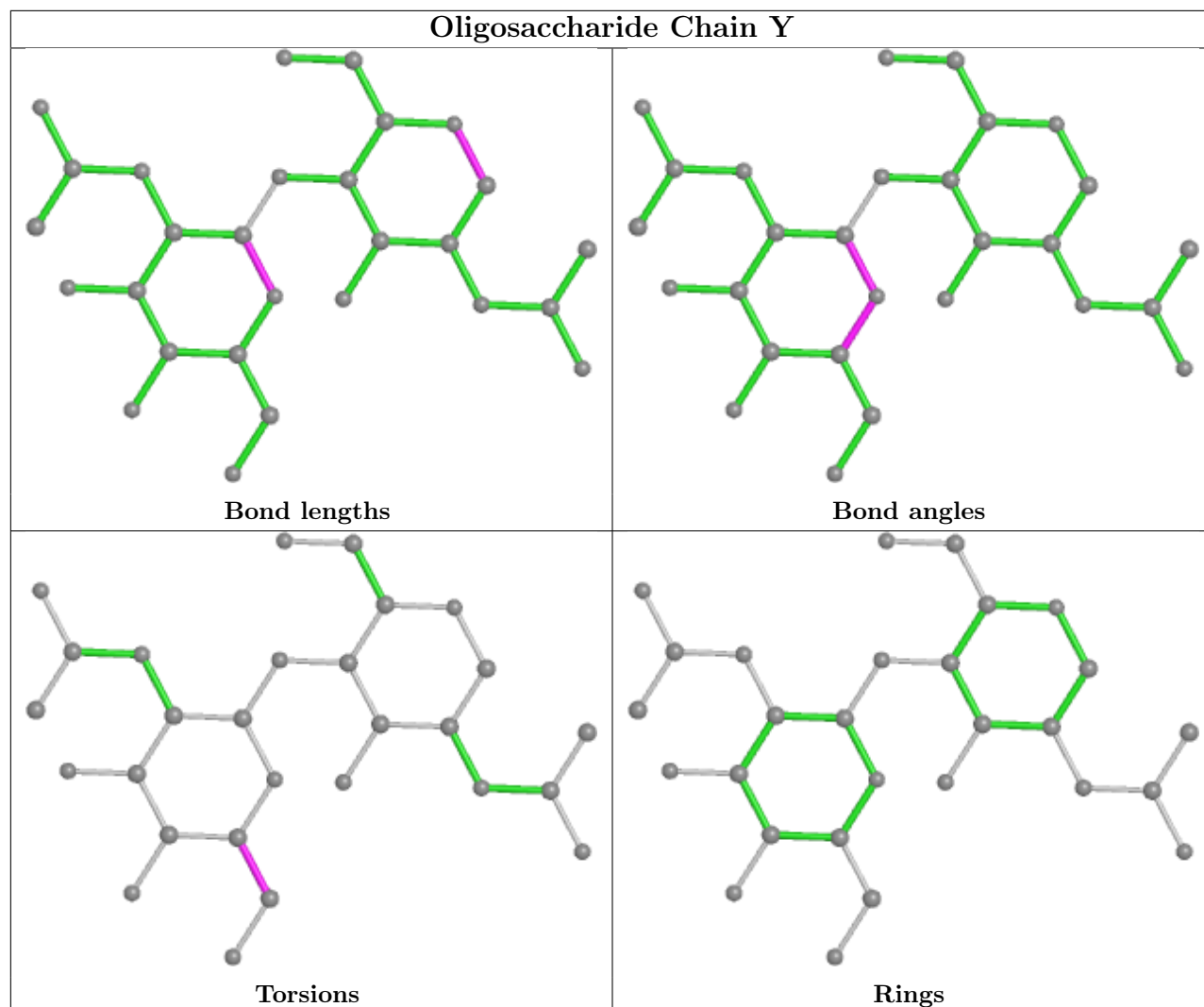


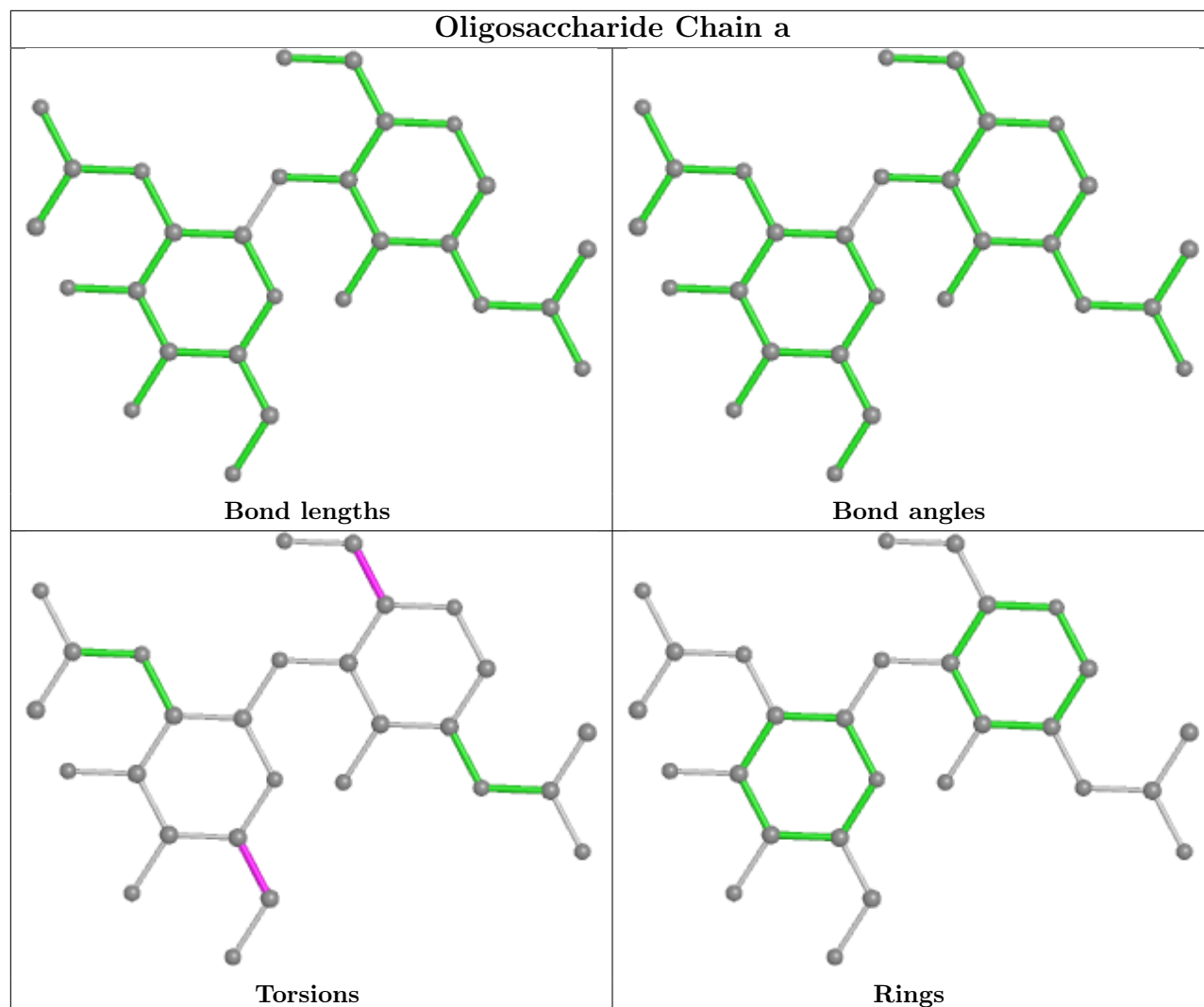


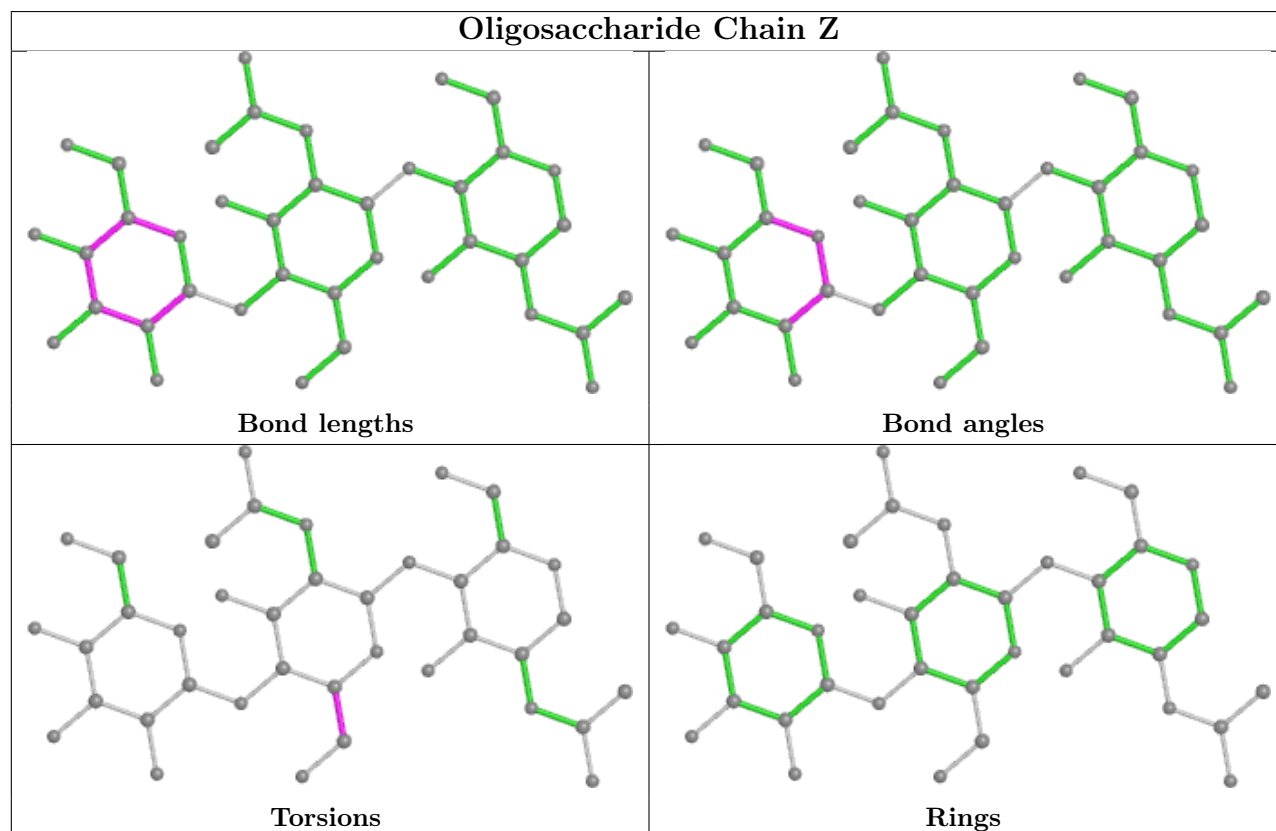
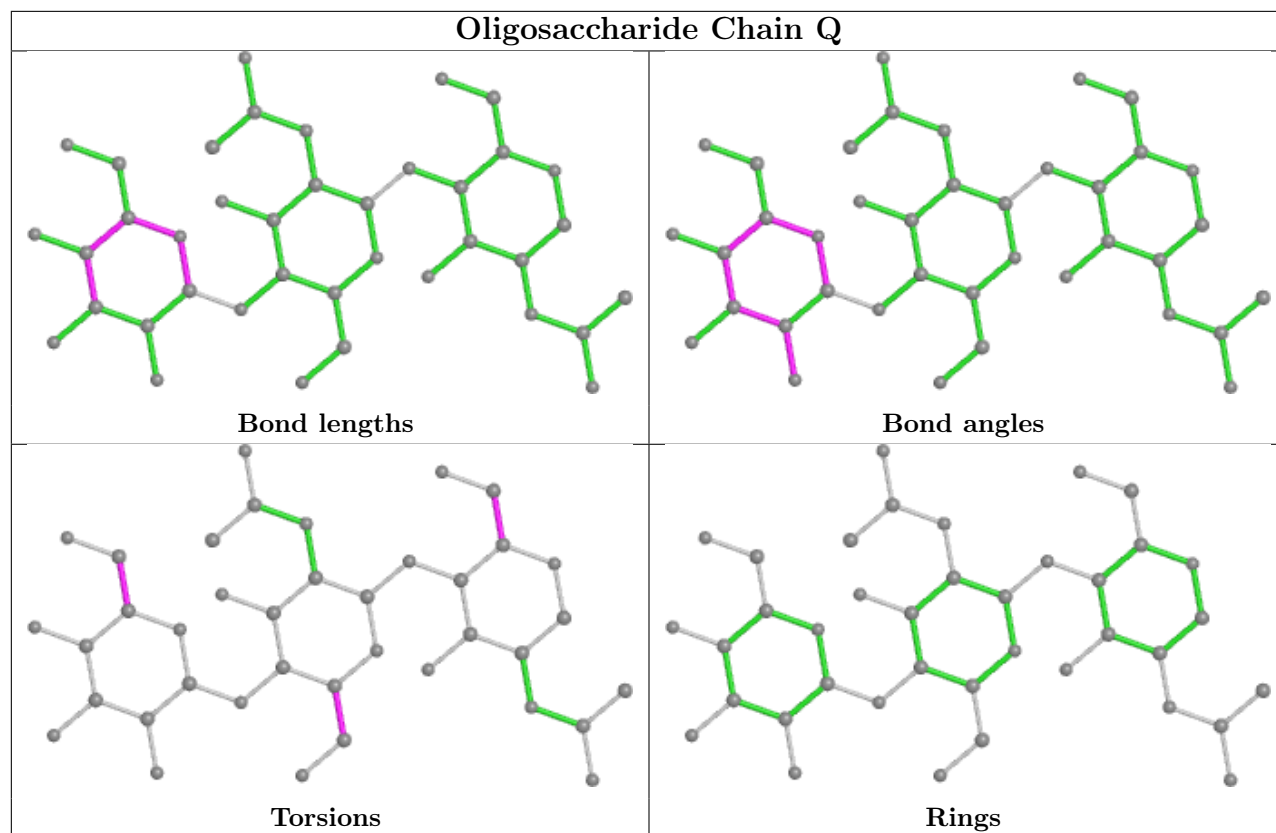


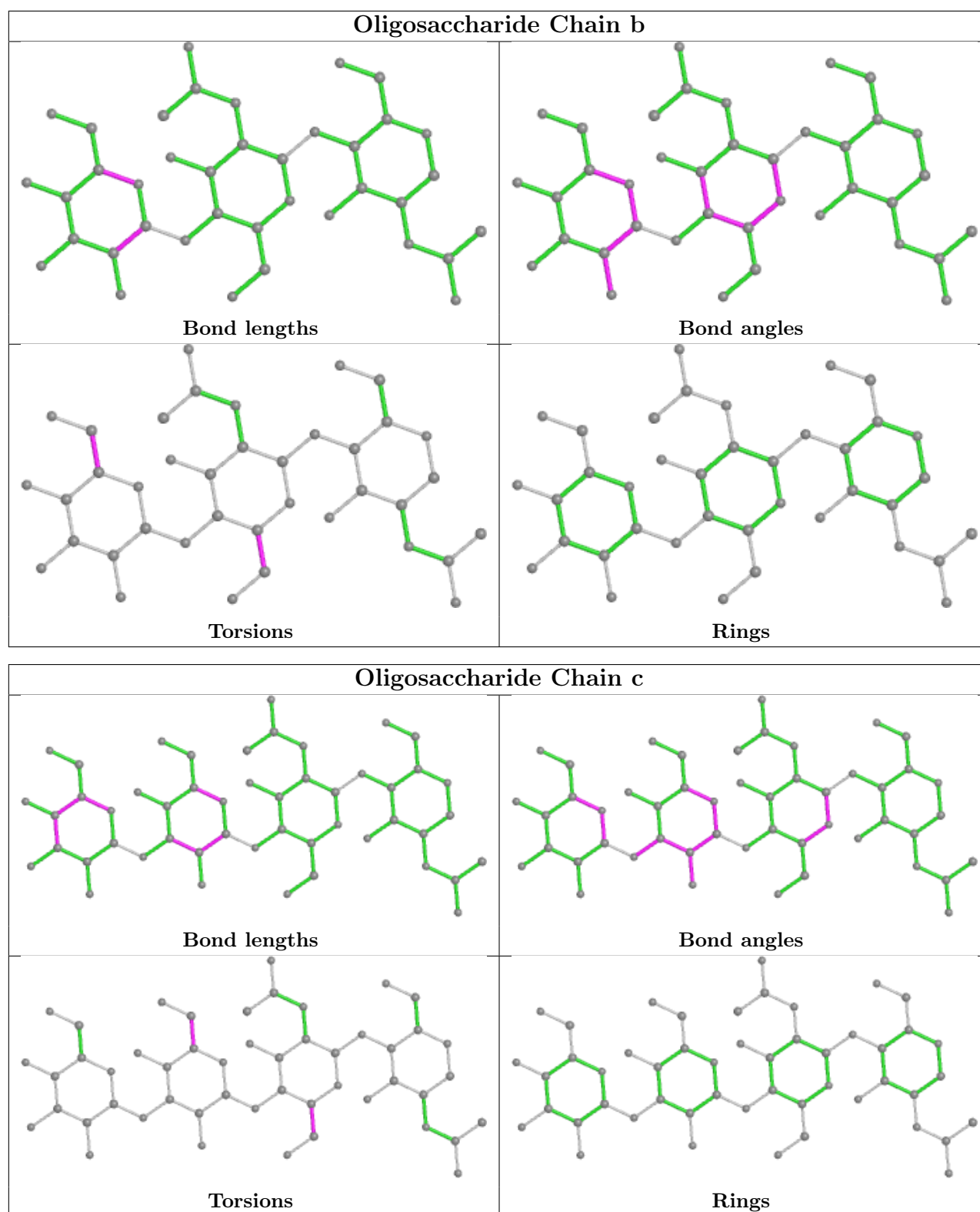












## 5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul



statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
9	NAG	K	701	2	14,14,15	0.32	0	17,19,21	0.41	0
9	NAG	L	701	2	14,14,15	0.49	0	17,19,21	0.44	0
9	NAG	I	701	2	14,14,15	0.45	0	17,19,21	0.41	0
9	NAG	F	2001	3	14,14,15	0.24	0	17,19,21	0.42	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	K	701	2	-	0/6/23/26	0/1/1/1
9	NAG	L	701	2	-	0/6/23/26	0/1/1/1
9	NAG	I	701	2	-	2/6/23/26	0/1/1/1
9	NAG	F	2001	3	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	I	701	NAG	O5-C5-C6-O6
9	I	701	NAG	C4-C5-C6-O6
9	F	2001	NAG	C4-C5-C6-O6
9	F	2001	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues

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	324/334 (97%)	-0.24	0 <a href="#">100</a> <a href="#">100</a>	104, 135, 164, 210	0
1	C	324/334 (97%)	-0.23	0 <a href="#">100</a> <a href="#">100</a>	107, 138, 165, 200	0
1	E	324/334 (97%)	-0.20	1 (0%) <a href="#">94</a> <a href="#">88</a>	97, 124, 151, 184	0
2	I	217/218 (99%)	-0.23	0 <a href="#">100</a> <a href="#">100</a>	119, 148, 175, 191	0
2	K	217/218 (99%)	-0.15	1 (0%) <a href="#">91</a> <a href="#">83</a>	130, 166, 184, 211	0
2	L	217/218 (99%)	-0.30	0 <a href="#">100</a> <a href="#">100</a>	96, 126, 150, 182	0
3	B	177/181 (97%)	-0.11	2 (1%) <a href="#">80</a> <a href="#">67</a>	98, 149, 207, 218	0
3	D	177/181 (97%)	-0.08	1 (0%) <a href="#">89</a> <a href="#">80</a>	101, 150, 192, 218	0
3	F	177/181 (97%)	-0.17	2 (1%) <a href="#">80</a> <a href="#">67</a>	103, 135, 172, 189	0
4	G	222/222 (100%)	-0.11	1 (0%) <a href="#">91</a> <a href="#">83</a>	104, 142, 186, 217	1 (0%)
4	H	222/222 (100%)	-0.23	1 (0%) <a href="#">91</a> <a href="#">83</a>	96, 126, 167, 203	1 (0%)
4	J	222/222 (100%)	-0.02	3 (1%) <a href="#">75</a> <a href="#">60</a>	131, 162, 212, 235	1 (0%)
All	All	2820/2865 (98%)	-0.18	12 (0%) <a href="#">92</a> <a href="#">86</a>	96, 140, 189, 235	3 (0%)

The worst 5 of 12 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	F	1	GLY	4.4
4	J	134	THR	4.2
4	H	134	THR	3.7
3	B	1	GLY	3.2
3	D	1	GLY	2.9

### 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.

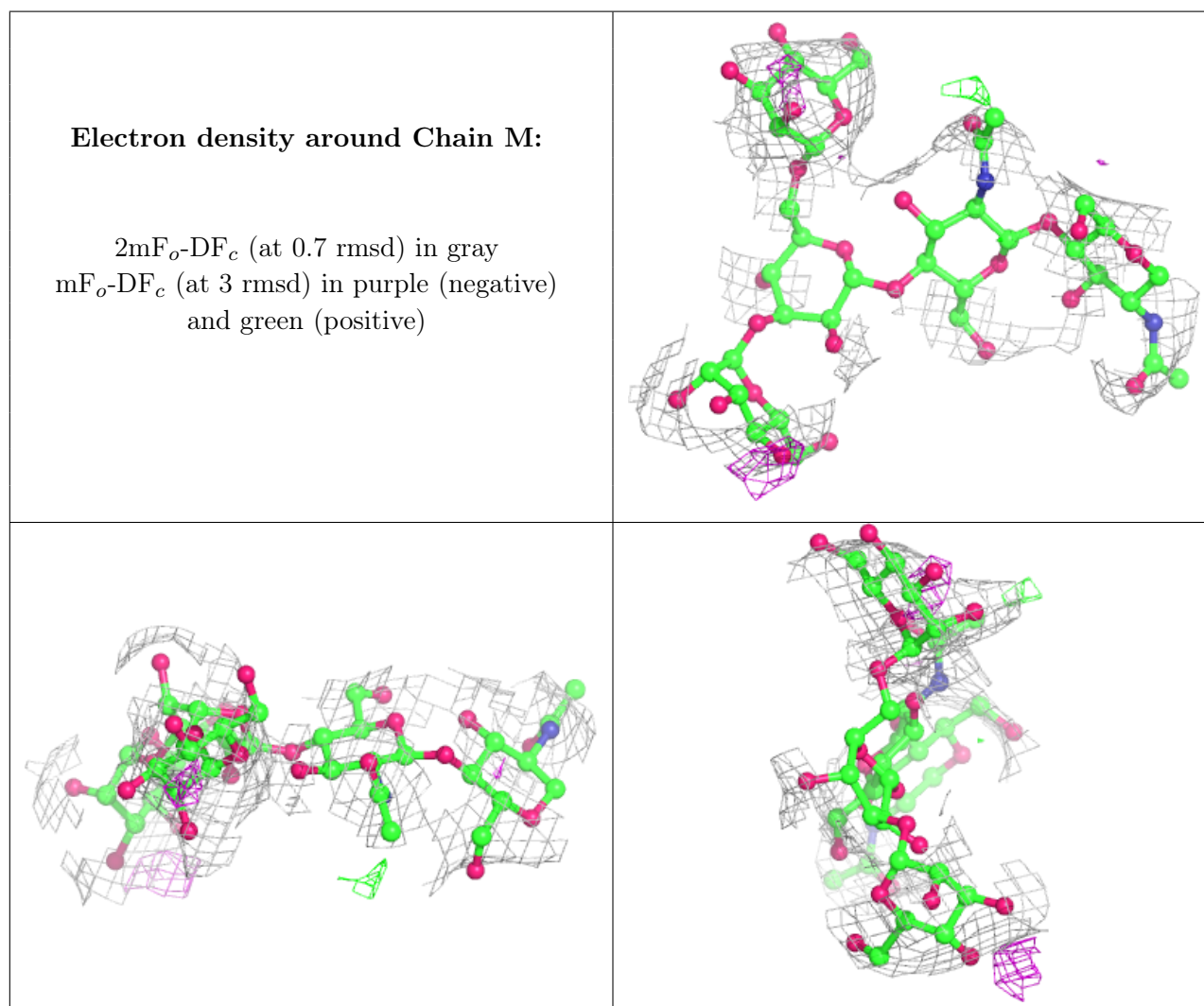
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
7	MAN	Q	3	11/12	0.39	0.36	223,230,239,242	0
7	MAN	b	3	11/12	0.44	0.49	209,241,248,248	0
6	NAG	a	2	14/15	0.51	0.68	193,218,224,224	0
5	MAN	S	3	11/12	0.65	0.33	219,234,242,243	0
7	NAG	Q	2	14/15	0.67	0.35	194,213,228,237	0
5	MAN	X	3	11/12	0.68	0.31	211,224,230,230	0
5	MAN	S	5	11/12	0.69	0.43	223,235,246,246	0
6	NAG	O	2	14/15	0.69	0.63	203,224,230,231	0
7	MAN	Z	3	11/12	0.70	0.31	184,206,217,217	0
6	NAG	U	2	14/15	0.72	0.53	151,188,191,192	0
6	NAG	V	2	14/15	0.73	0.51	195,215,220,220	0
5	MAN	M	5	11/12	0.73	0.53	222,237,239,240	0
5	MAN	M	3	11/12	0.73	0.33	227,235,241,241	0
5	MAN	X	5	11/12	0.75	0.52	204,228,234,234	0
6	NAG	U	1	14/15	0.76	0.40	162,185,195,196	0
8	MAN	c	3	11/12	0.76	0.37	211,229,240,243	0
6	NAG	W	2	14/15	0.78	0.43	197,212,219,219	0
5	MAN	S	4	11/12	0.80	0.41	211,234,241,242	0
7	NAG	b	2	14/15	0.80	0.59	222,239,247,247	0
6	NAG	O	1	14/15	0.81	0.36	195,214,225,228	0
7	NAG	Z	2	14/15	0.81	0.33	171,207,213,213	0
5	MAN	M	4	11/12	0.82	0.39	224,237,243,246	0
6	NAG	N	2	14/15	0.82	0.30	187,212,219,220	0
6	NAG	P	2	14/15	0.82	0.59	170,186,192,195	0
8	MAN	c	4	11/12	0.82	0.36	212,240,244,244	0
6	NAG	N	1	14/15	0.83	0.18	159,181,194,208	0
7	NAG	b	1	14/15	0.83	0.52	204,228,239,243	0
6	NAG	R	2	14/15	0.84	0.37	188,204,214,217	0
6	NAG	T	1	14/15	0.85	0.24	160,180,198,204	0
6	NAG	T	2	14/15	0.85	0.33	193,205,210,211	0
5	NAG	S	2	14/15	0.86	0.21	194,204,221,226	0
6	NAG	V	1	14/15	0.86	0.37	174,190,204,213	0
5	MAN	X	4	11/12	0.87	0.45	200,226,233,233	0
8	NAG	c	1	14/15	0.87	0.34	180,205,219,225	0
5	NAG	M	2	14/15	0.88	0.26	191,201,220,229	0
6	NAG	P	1	14/15	0.88	0.40	165,179,188,191	0

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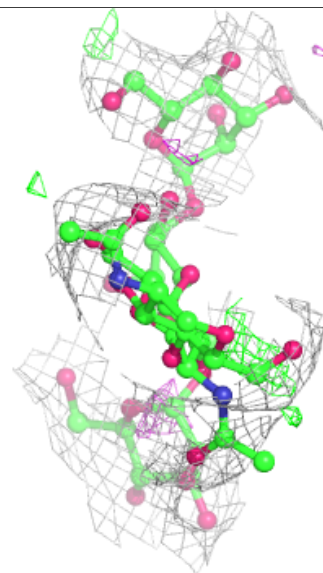
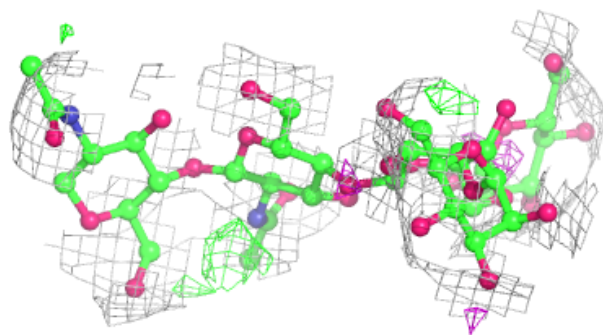
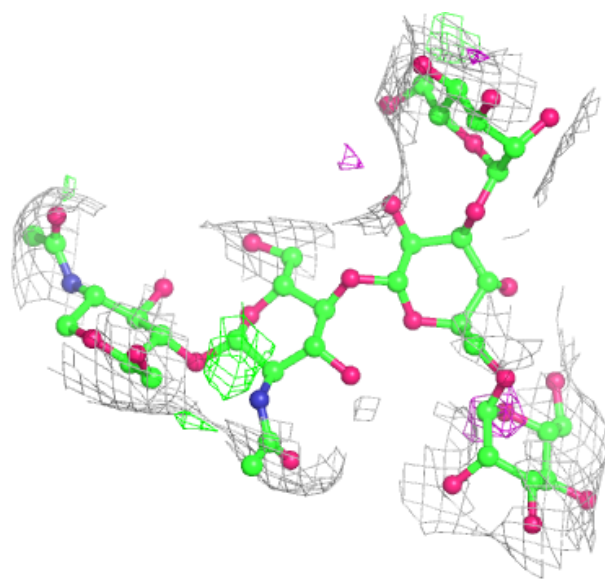
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
6	NAG	Y	2	14/15	0.88	0.29	180,202,209,209	0
8	NAG	c	2	14/15	0.88	0.45	209,229,235,236	0
6	NAG	a	1	14/15	0.88	0.37	159,190,199,208	0
5	NAG	X	2	14/15	0.88	0.21	178,190,204,214	0
5	NAG	X	1	14/15	0.90	0.16	140,152,166,170	0
6	NAG	R	1	14/15	0.90	0.13	160,170,187,197	0
5	NAG	M	1	14/15	0.92	0.20	142,165,185,186	0
7	NAG	Z	1	14/15	0.93	0.24	163,190,203,209	0
6	NAG	W	1	14/15	0.93	0.17	158,173,186,201	0
6	NAG	Y	1	14/15	0.94	0.19	155,174,183,197	0
5	NAG	S	1	14/15	0.94	0.16	137,158,177,194	0
7	NAG	Q	1	14/15	0.94	0.09	158,173,189,199	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.



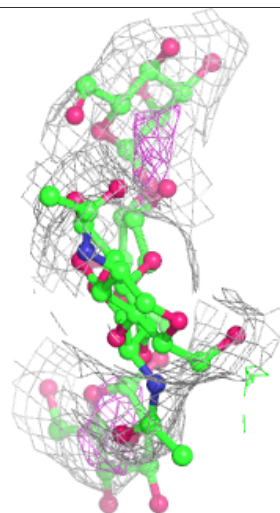
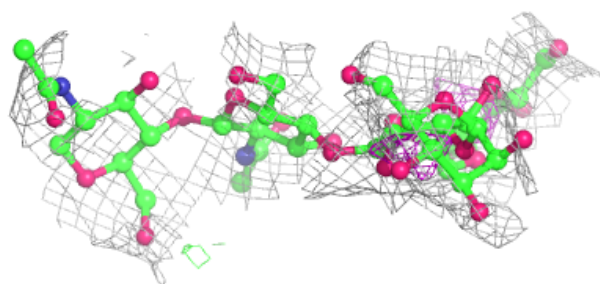
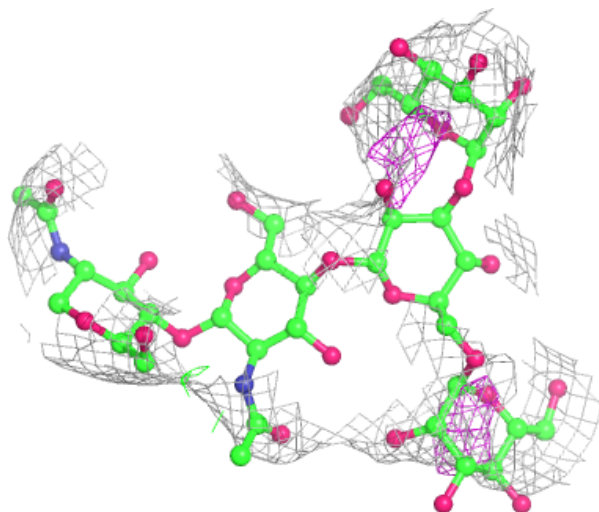
**Electron density around Chain S:**

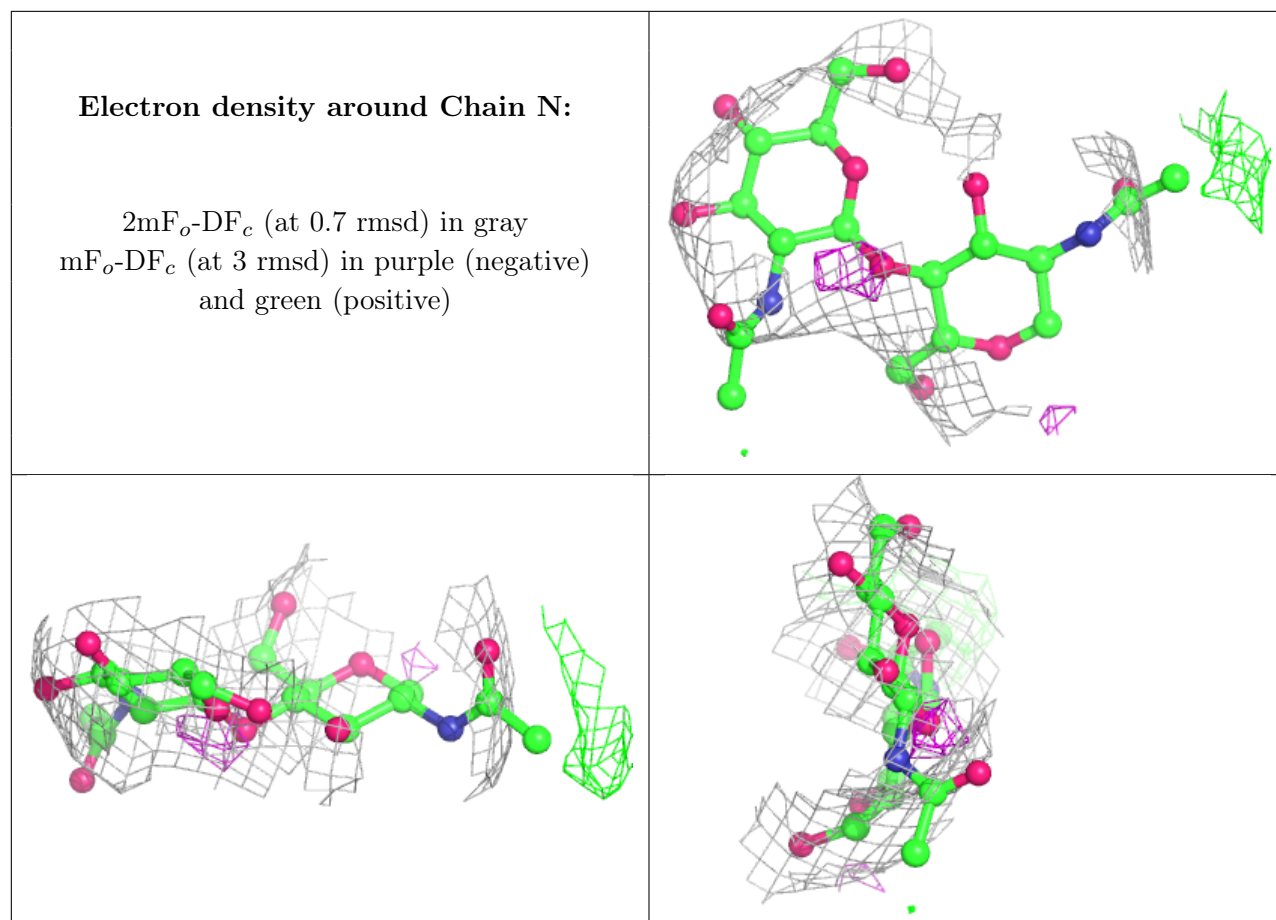
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around Chain X:**

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

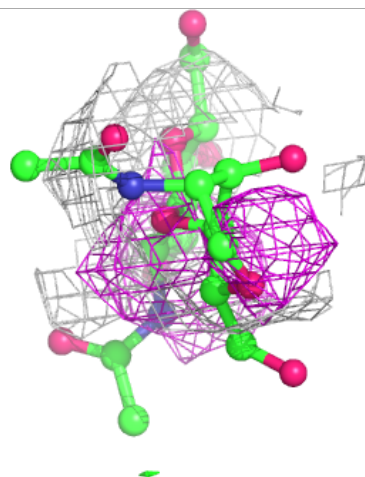
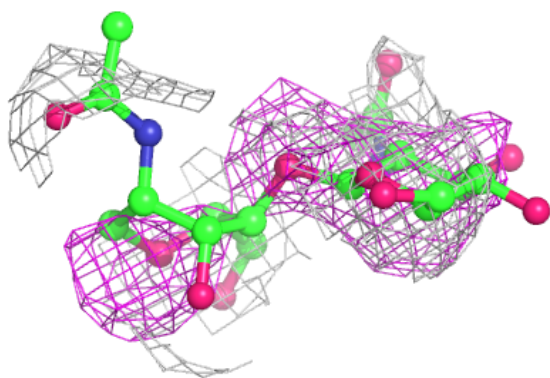
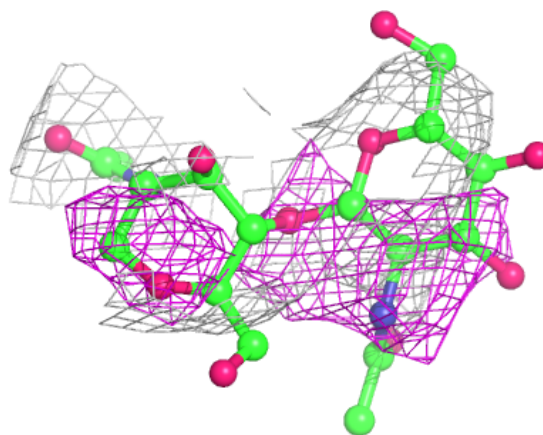






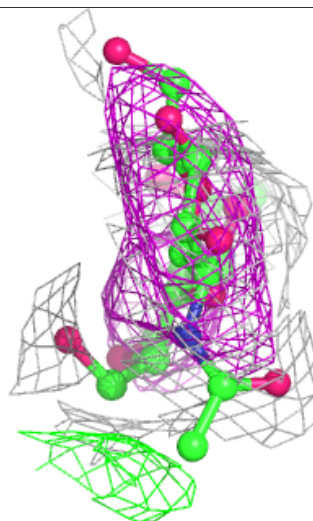
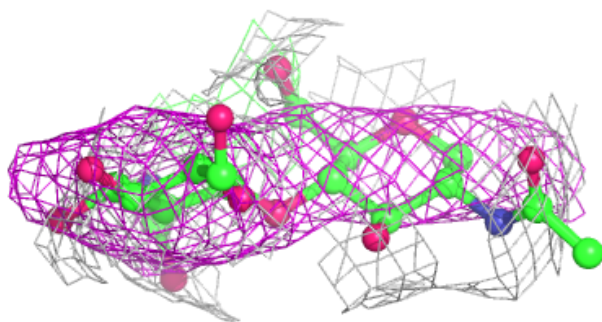
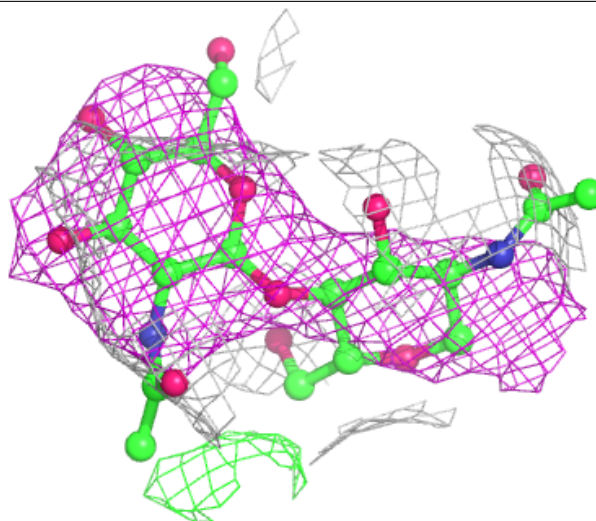
**Electron density around Chain O:**

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



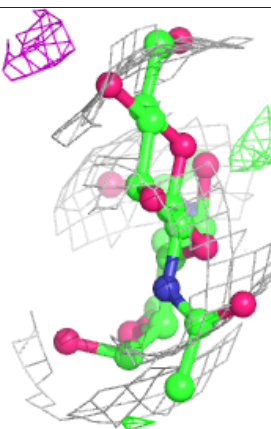
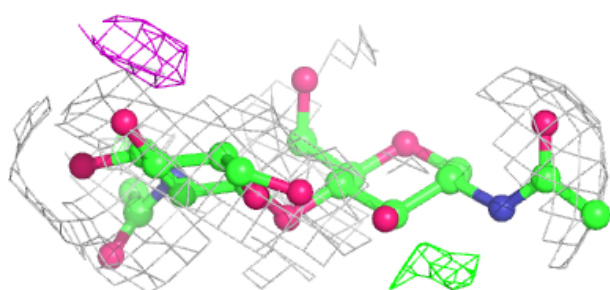
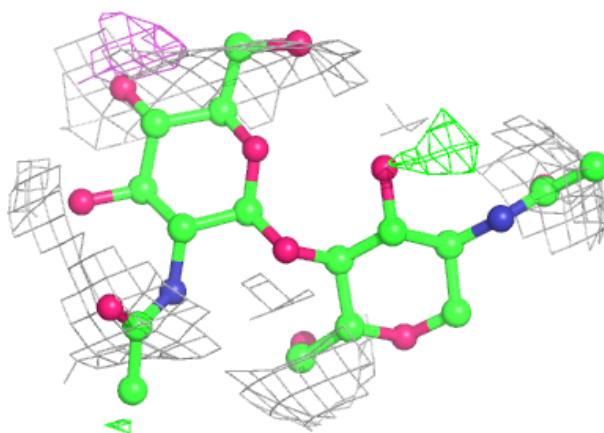
**Electron density around Chain P:**

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

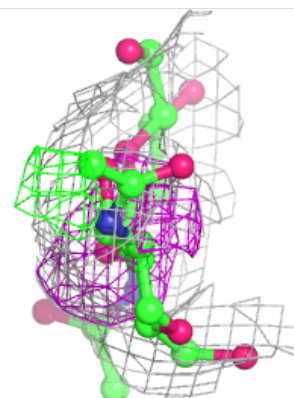
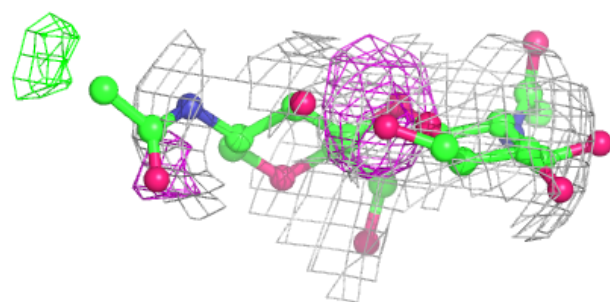
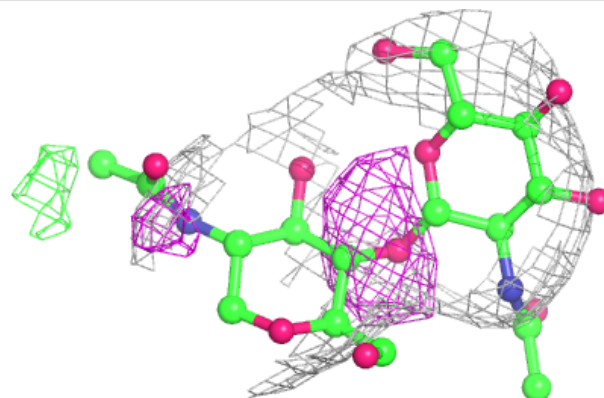


**Electron density around Chain R:**

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

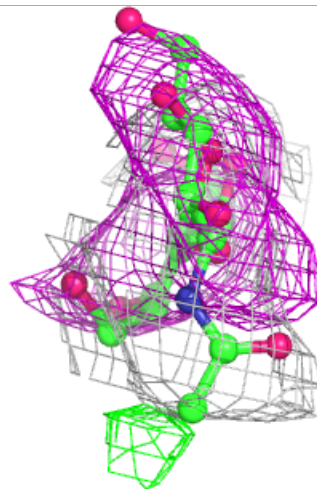
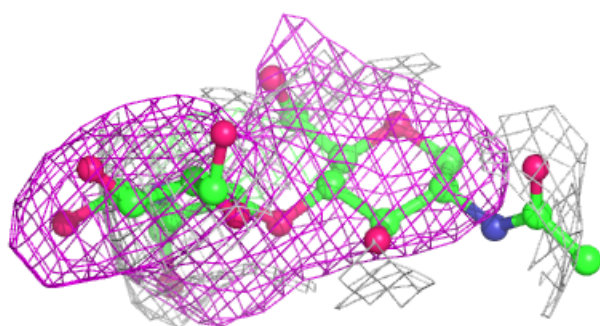
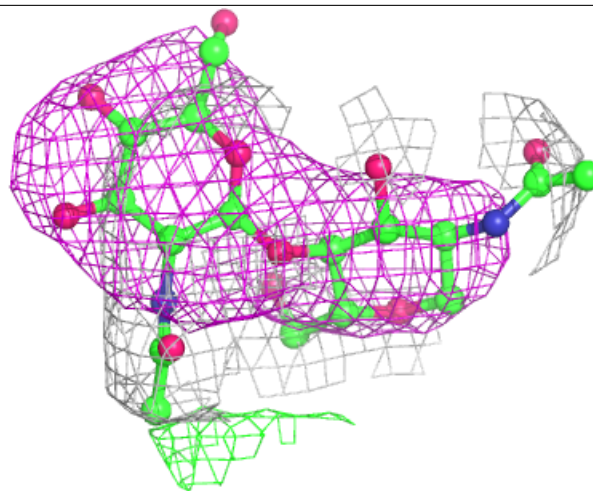
**Electron density around Chain T:**

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



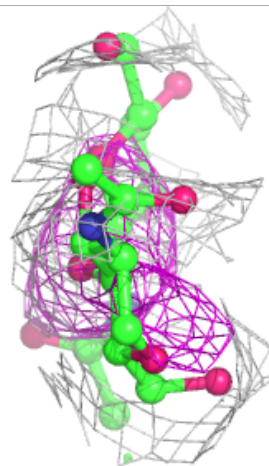
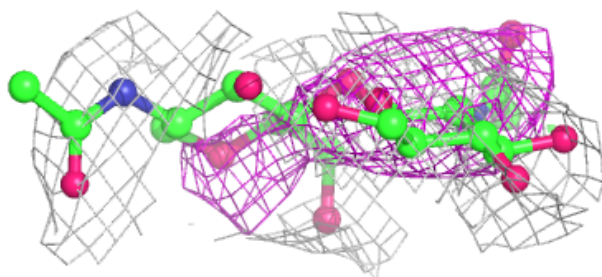
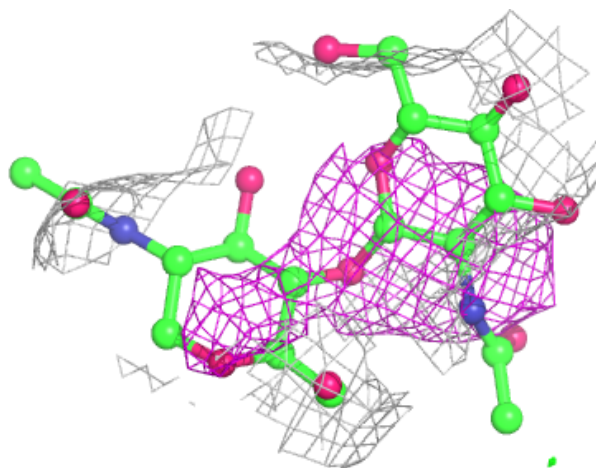
**Electron density around Chain U:**

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



**Electron density around Chain V:**

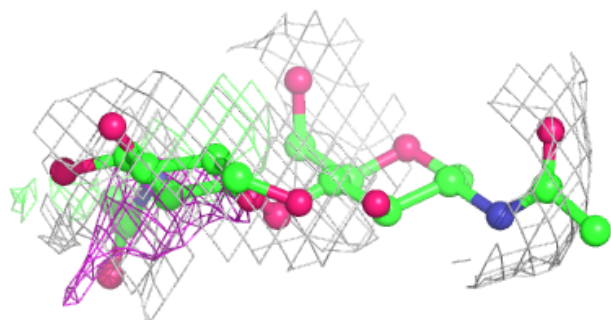
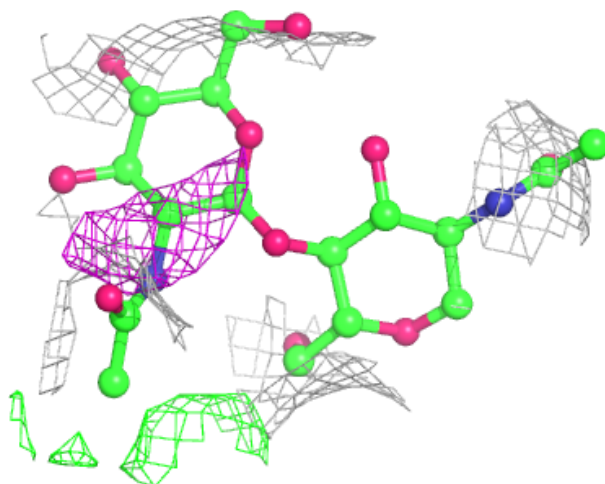
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)





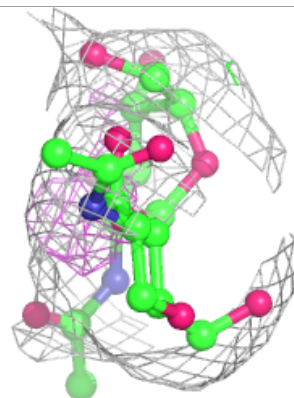
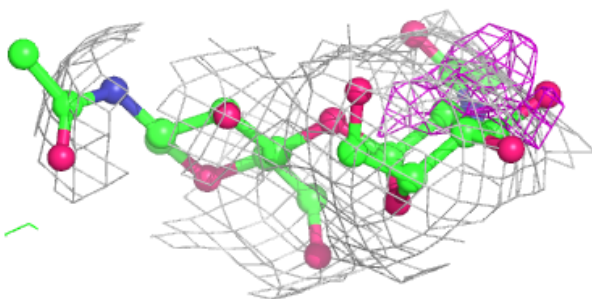
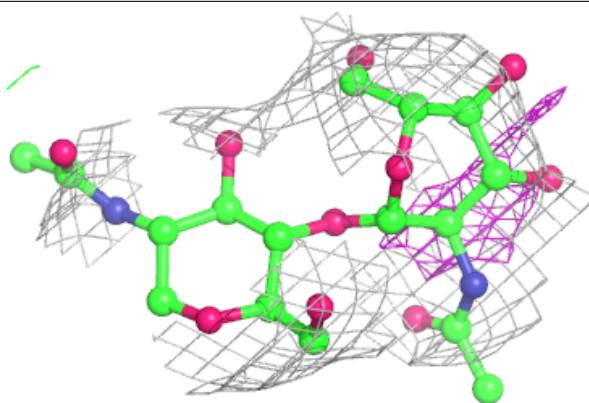
**Electron density around Chain W:**

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

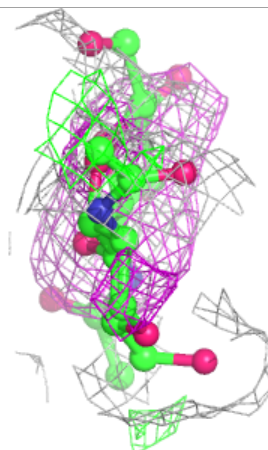
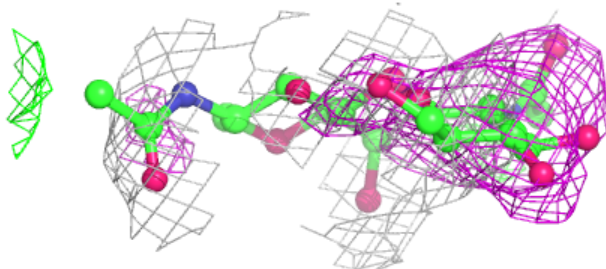
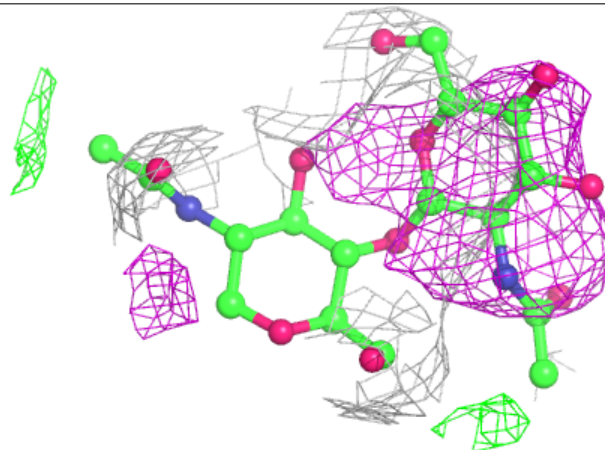


**Electron density around Chain Y:**

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

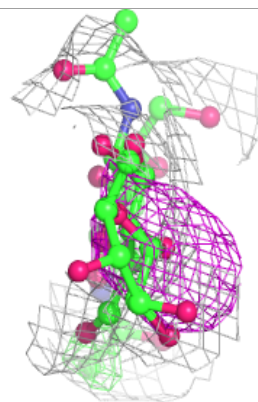
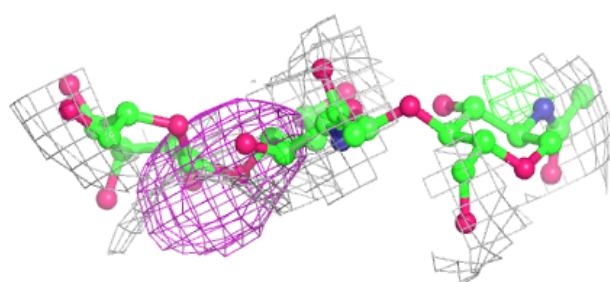
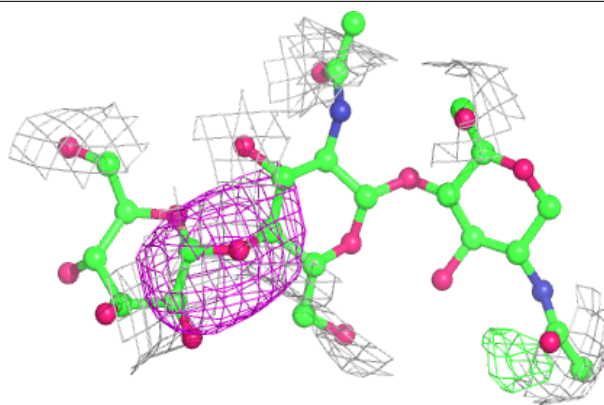
**Electron density around Chain a:**

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

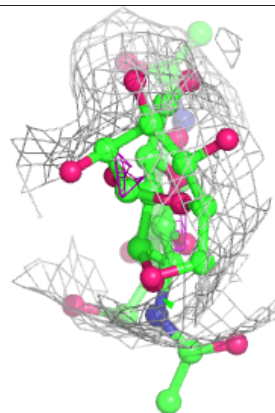
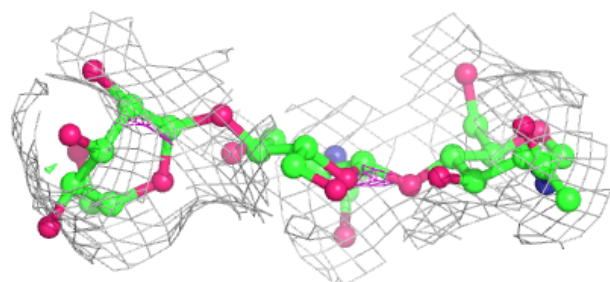
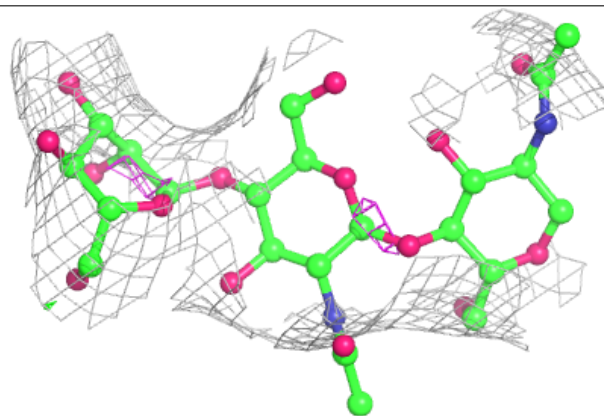


**Electron density around Chain Q:**

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

**Electron density around Chain Z:**

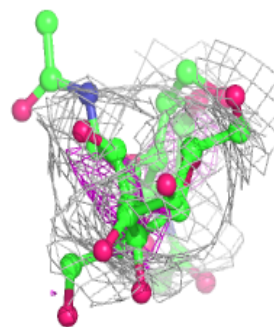
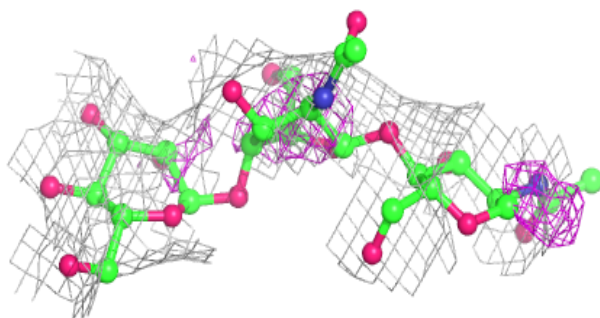
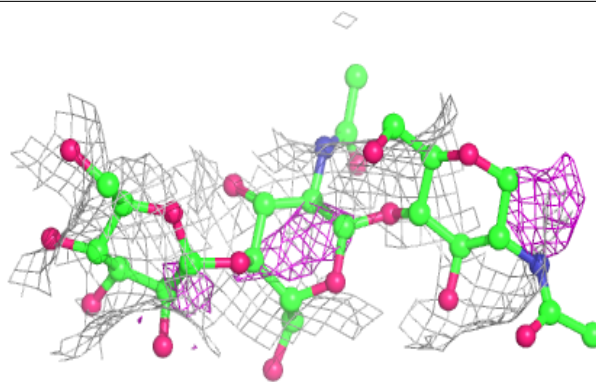
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



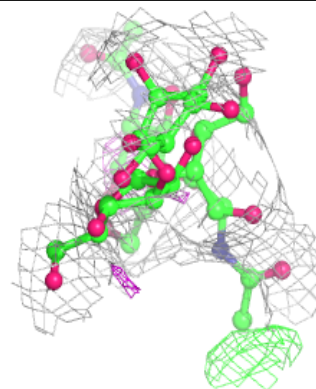
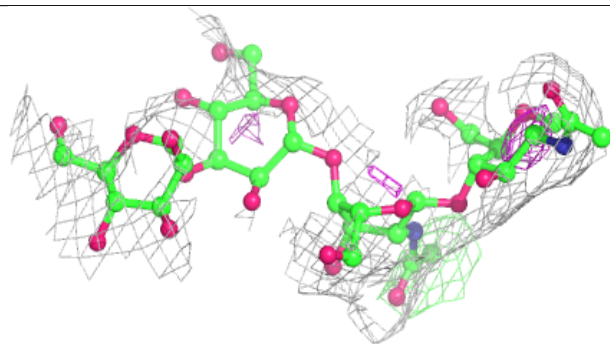
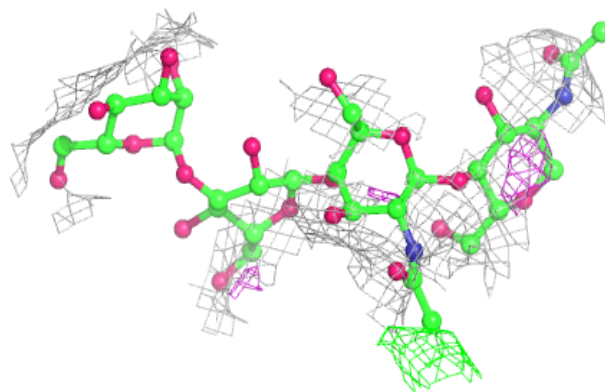


**Electron density around Chain b:**

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

**Electron density around Chain c:**

$2mF_o-DF_c$  (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, 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( $\text{\AA}^2$ )	Q<0.9
9	NAG	I	701	14/15	0.73	0.26	144,169,178,178	0
9	NAG	F	2001	14/15	0.74	0.48	156,174,183,184	0
9	NAG	L	701	14/15	0.85	0.14	137,155,163,171	0
9	NAG	K	701	14/15	0.87	0.19	158,172,178,179	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.