



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 15, 2022 – 10:32 am BST

PDB ID : 7OIH
Title : Glycosylation in the crystal structure of neutrophil myeloperoxidase
Authors : Krawczyk, L.; Semwal, S.; Bouckaert, J.
Deposited on : 2021-05-11
Resolution : 2.60 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at <http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.29
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.29

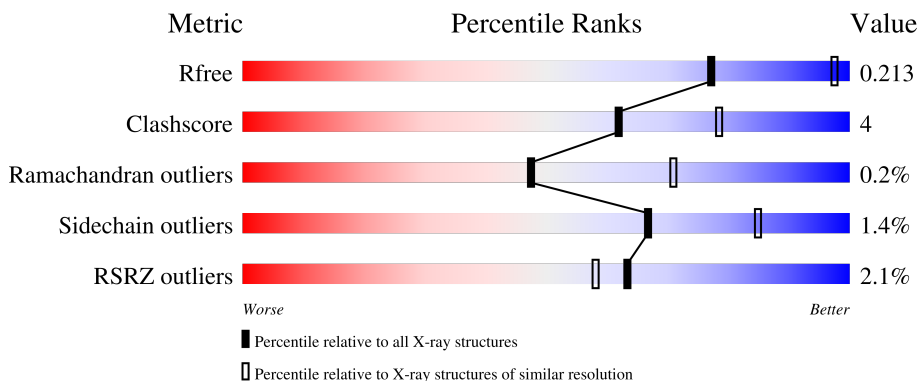
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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.



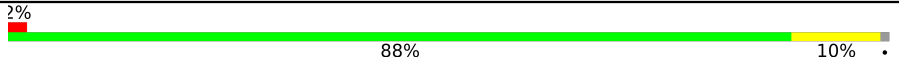
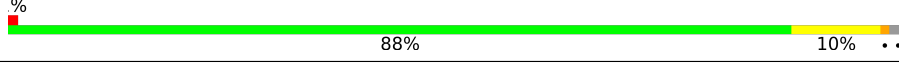
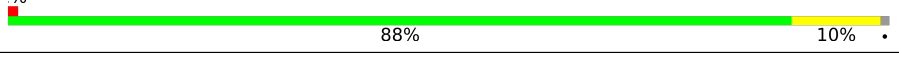

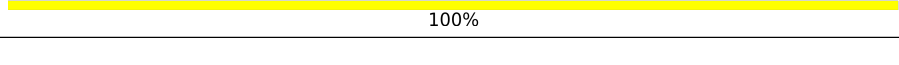
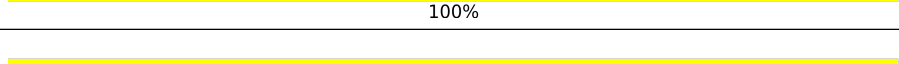
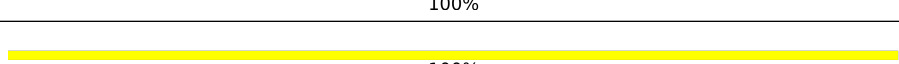
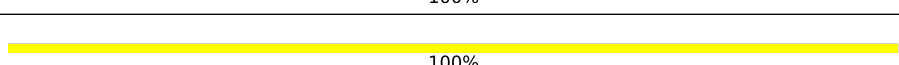
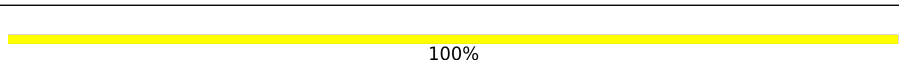
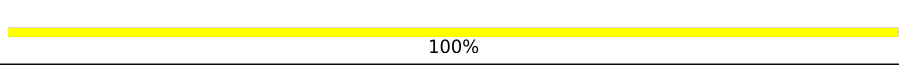
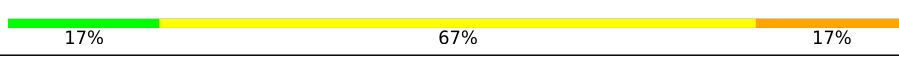
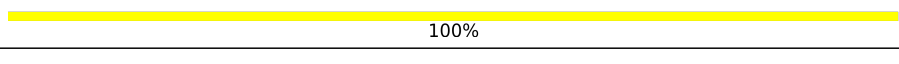
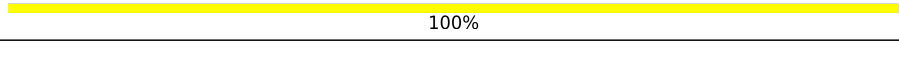
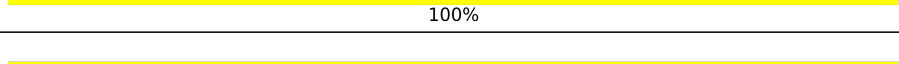
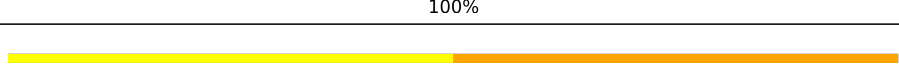
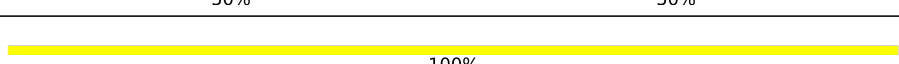
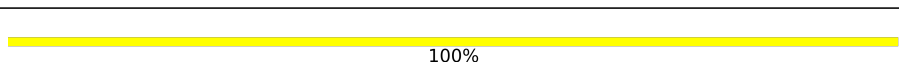
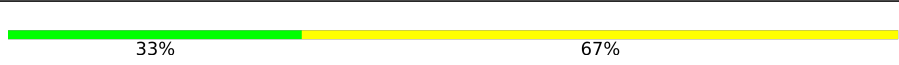
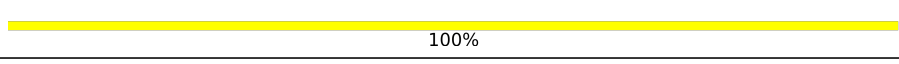
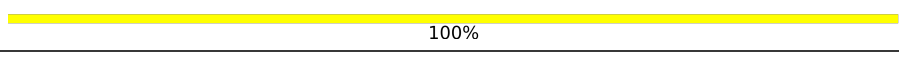
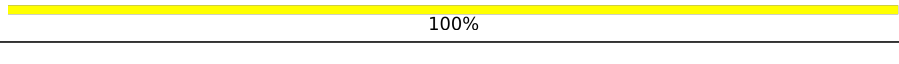

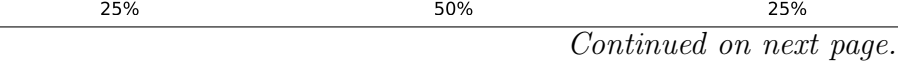


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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

Mol	Chain	Length	Quality of chain
1	A	579	 2% 89% 9% ..
1	B	579	 3% 88% 9% ..
1	C	579	 3% 88% 10% .
1	D	579	 2% 90% 8% ..
1	E	579	 3% 88% 10% .


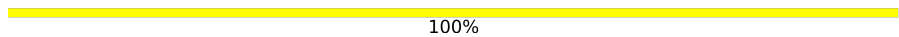
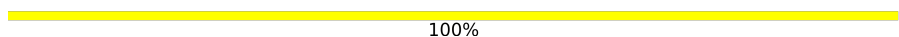
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Mol	Chain	Length	Quality of chain
1	F	579	 2% 88% 10%
1	G	579	 % 88% 10%
1	H	579	 % 88% 10%
2	I	3	 67% 33%
2	J	3	 100%
2	Y	3	 100%
2	b	3	 100%
2	e	3	 100%
3	L	7	 100%
3	c	7	 100%
3	g	7	 100%
4	K	6	 17% 67% 17%
4	R	6	 100%
5	M	2	 100%
5	O	2	 100%
5	S	2	 100%
5	V	2	 50% 50%
5	d	2	 100%
5	f	2	 100%
6	N	6	 33% 67%
6	Q	6	 100%
6	T	6	 100%
6	W	6	 100%
6	Z	6	 33% 50% 17%
7	P	4	 25% 50% 25%

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Mol	Chain	Length	Quality of chain
8	U	4	 50% 50%
8	X	4	 100%
9	a	6	 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
14	8PR	F	807	-	-	-	X
14	8PR	H	807	-	-	-	X
15	PO4	B	812	-	-	-	X
15	PO4	C	810	-	-	-	X
15	PO4	G	810	-	-	-	X
15	PO4	H	810	-	-	-	X
16	NAG	B	805	-	-	-	X
16	NAG	C	804	-	-	-	X
16	NAG	D	804	-	-	-	X
2	NAG	Y	2	X	-	-	-
4	NAG	R	2	X	-	-	-
5	NAG	S	2	X	-	-	-
5	NAG	d	1	-	-	-	X
5	NAG	d	2	-	-	-	X
7	NAG	P	1	X	-	-	-
7	NAG	P	2	X	-	-	-
8	MAN	X	4	-	-	-	X

2 Entry composition [i](#)

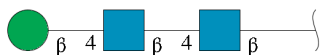
There are 17 unique types of molecules in this entry. The entry contains 41050 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Myeloperoxidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	573	Total 4592	C 2893	N 841	O 826	S 32	0	0	0
1	B	570	Total 4571	C 2881	N 835	O 823	S 32	0	0	0
1	C	570	Total 4577	C 2884	N 836	O 824	S 33	0	1	0
1	D	571	Total 4574	C 2883	N 836	O 823	S 32	0	0	0
1	E	572	Total 4589	C 2892	N 838	O 826	S 33	0	1	0
1	F	571	Total 4585	C 2888	N 840	O 825	S 32	0	1	0
1	G	569	Total 4562	C 2875	N 834	O 821	S 32	0	0	0
1	H	571	Total 4579	C 2887	N 836	O 823	S 33	0	1	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.



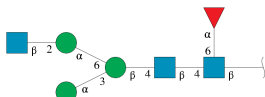
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	I	3	Total 39	C 22	N 2	O 15	0	0	0
2	J	3	Total 39	C 22	N 2	O 15	0	0	0
2	Y	3	Total 39	C 22	N 2	O 15	0	0	0
2	b	3	Total 39	C 22	N 2	O 15	0	0	0

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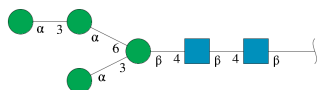
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	e	3	39	22	2	15	0	0	0

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	c	7	85	48	3	34	0	0	0
3	g	7	85	48	3	34	0	0	0
3	L	7	85	48	3	34	0	0	0

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



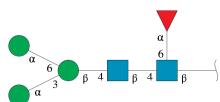
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
4	K	6	72	40	2	30	0	0	0
4	R	6	72	40	2	30	0	0	0

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



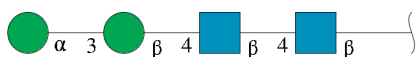
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	M	2	Total	C	N	O	0	0	0
			28	16	2	10			
5	O	2	Total	C	N	O	0	0	0
			28	16	2	10			
5	V	2	Total	C	N	O	0	0	0
			28	16	2	10			
5	d	2	Total	C	N	O	0	0	0
			28	16	2	10			
5	f	2	Total	C	N	O	0	0	0
			28	16	2	10			
5	S	2	Total	C	N	O	0	0	0
			28	16	2	10			

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
6	N	6	Total	C	N	O	0	0	0
			71	40	2	29			
6	Q	6	Total	C	N	O	0	0	0
			71	40	2	29			
6	T	6	Total	C	N	O	0	0	0
			71	40	2	29			
6	W	6	Total	C	N	O	0	0	0
			71	40	2	29			
6	Z	6	Total	C	N	O	0	0	0
			71	40	2	29			

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



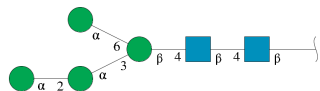
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
7	P	4	50	28	2	20	0	0	0

- Molecule 8 is an oligosaccharide called alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
8	U	4	50	28	2	20	0	0	0
8	X	4	50	28	2	20	0	0	0

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
9	a	6	72	40	2	30	0	0	0

- Molecule 10 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	5	Total	Cl	0	0
			5	5		
10	B	5	Total	Cl	0	0
			5	5		
10	C	4	Total	Cl	0	0
			4	4		
10	D	4	Total	Cl	0	0
			4	4		
10	E	4	Total	Cl	0	0
			4	4		

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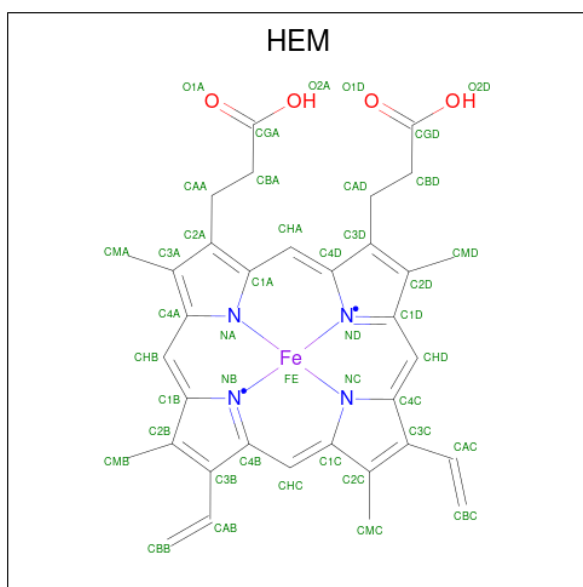
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	F	5	Total 5	Cl 5	0	0
10	G	5	Total 5	Cl 5	0	0
10	H	4	Total 4	Cl 4	0	0

- Molecule 11 is CALCIUM ION (three-letter code: CA) (formula: Ca).

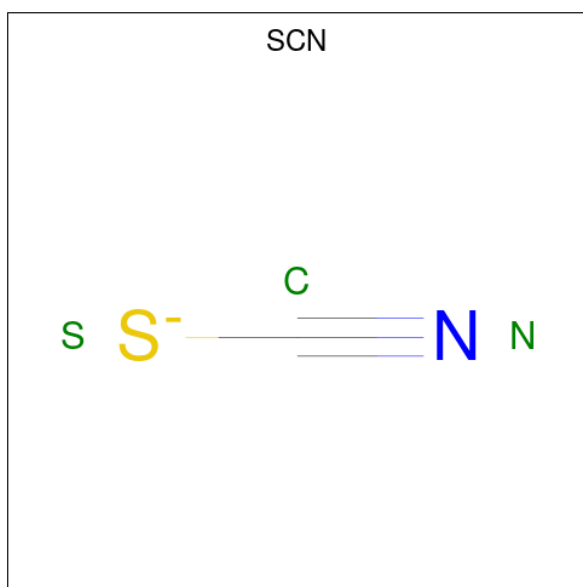
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	A	1	Total 1	Ca 1	0	0
11	B	1	Total 1	Ca 1	0	0
11	C	1	Total 1	Ca 1	0	0
11	D	1	Total 1	Ca 1	0	0
11	E	1	Total 1	Ca 1	0	0
11	F	1	Total 1	Ca 1	0	0
11	G	1	Total 1	Ca 1	0	0
11	H	1	Total 1	Ca 1	0	0

- Molecule 12 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: C₃₄H₃₂FeN₄O₄) (labeled as "Ligand of Interest" by depositor).



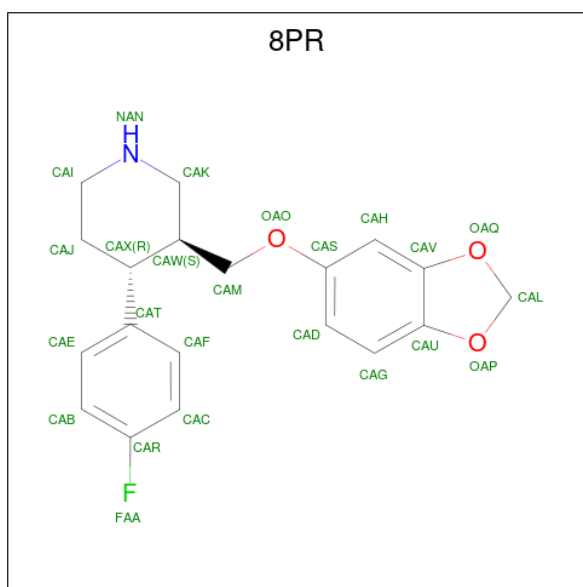
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	Fe	N			O
12	A	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
12	B	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
12	C	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
12	D	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
12	E	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
12	F	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
12	G	1	Total 43	C 34	Fe 1	N 4	O 4	0	0
12	H	1	Total 43	C 34	Fe 1	N 4	O 4	0	0

- Molecule 13 is THIOCYANATE ION (three-letter code: SCN) (formula: CNS).



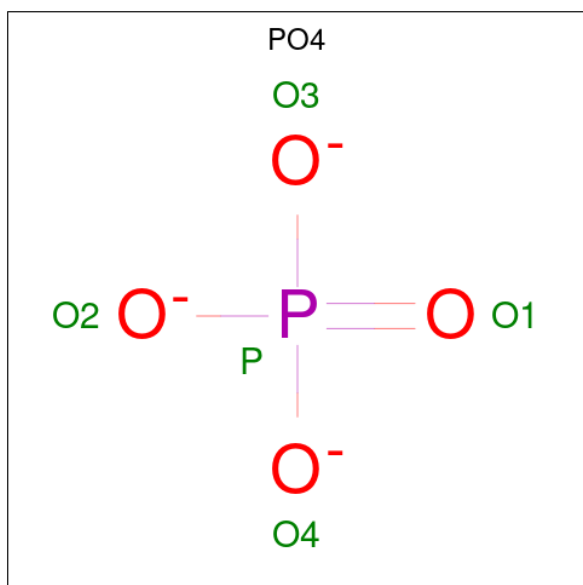
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
13	A	1	Total	C	N	S	0	0
			3	1	1	1		
13	B	1	Total	C	N	S	0	0
			3	1	1	1		
13	B	1	Total	C	N	S	0	0
			3	1	1	1		
13	C	1	Total	C	N	S	0	0
			3	1	1	1		
13	D	1	Total	C	N	S	0	0
			3	1	1	1		
13	D	1	Total	C	N	S	0	0
			3	1	1	1		
13	E	1	Total	C	N	S	0	0
			3	1	1	1		
13	F	1	Total	C	N	S	0	0
			3	1	1	1		
13	G	1	Total	C	N	S	0	0
			3	1	1	1		
13	H	1	Total	C	N	S	0	0
			3	1	1	1		

- Molecule 14 is Paroxetine (three-letter code: 8PR) (formula: C₁₉H₂₀FNO₃) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	F	N			O
14	A	1	24	19	1	1	3	0	0
14	D	1	24	19	1	1	3	0	0
14	F	1	24	19	1	1	3	0	0
14	H	1	24	19	1	1	3	0	0

- Molecule 15 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
15	A	1	Total	O	P	0	0
			5	4	1		
15	B	1	Total	O	P	0	0
			5	4	1		
15	B	1	Total	O	P	0	0
			5	4	1		
15	C	1	Total	O	P	0	0
			5	4	1		
15	C	1	Total	O	P	0	0
			5	4	1		
15	D	1	Total	O	P	0	0
			5	4	1		
15	D	1	Total	O	P	0	0
			5	4	1		
15	D	1	Total	O	P	0	0
			5	4	1		
15	E	1	Total	O	P	0	0
			5	4	1		
15	F	1	Total	O	P	0	0
			5	4	1		
15	G	1	Total	O	P	0	0
			5	4	1		
15	G	1	Total	O	P	0	0
			5	4	1		
15	H	1	Total	O	P	0	0
			5	4	1		
15	H	1	Total	O	P	0	0
			5	4	1		

- Molecule 16 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆) (labeled as "Ligand of Interest" by depositor).



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

- Molecule 17 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
17	A	355	Total	O	0	0
			355	355		
17	B	308	Total	O	0	0
			308	308		
17	C	258	Total	O	0	0
			258	258		
17	D	272	Total	O	0	0
			272	272		
17	E	288	Total	O	0	0
			288	288		
17	F	311	Total	O	0	0
			311	311		
17	G	324	Total	O	0	0
			324	324		

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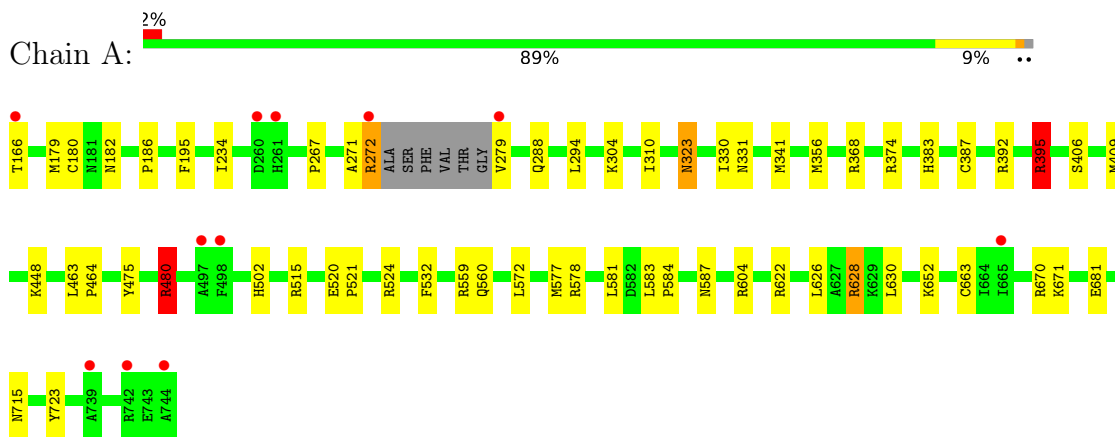
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
17	H	312	Total 312	O 312	0	0

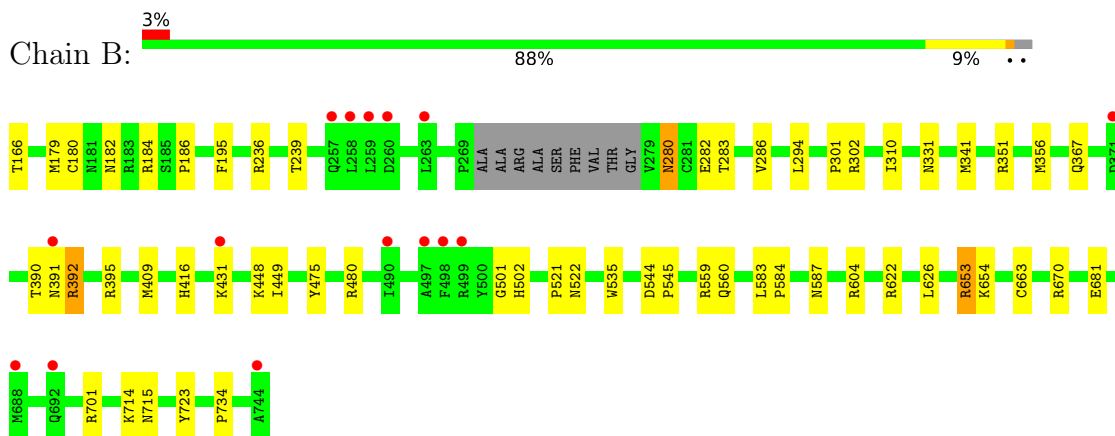
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

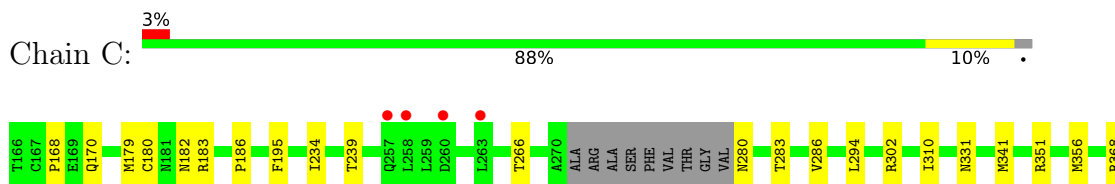
- Molecule 1: Myeloperoxidase

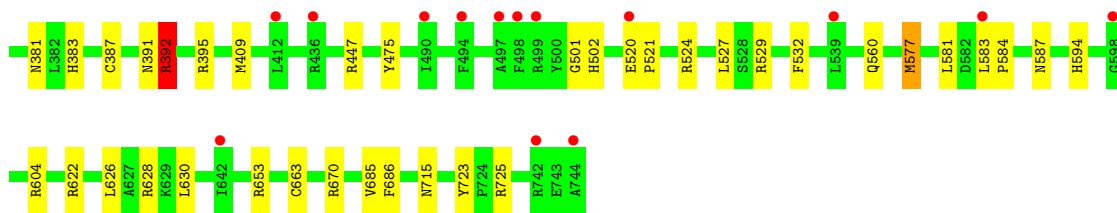


- Molecule 1: Myeloperoxidase

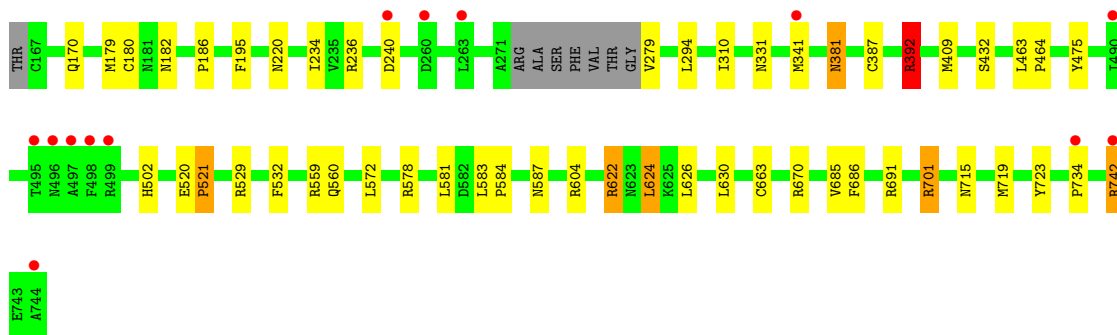
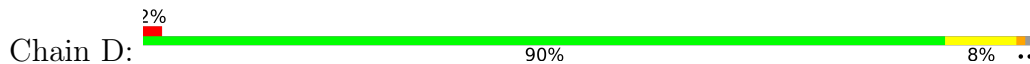


- Molecule 1: Myeloperoxidase

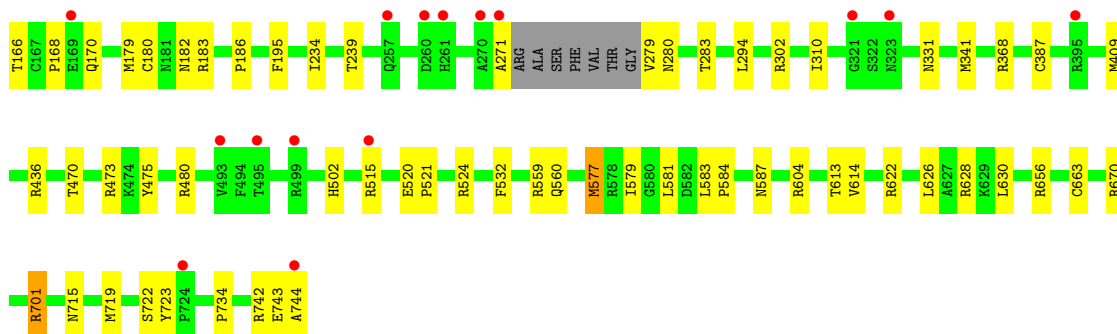
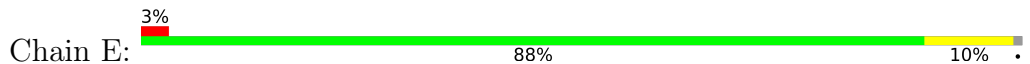




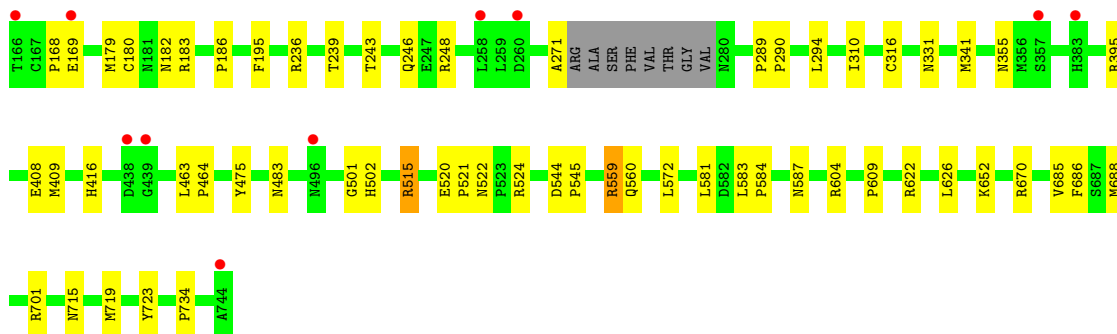
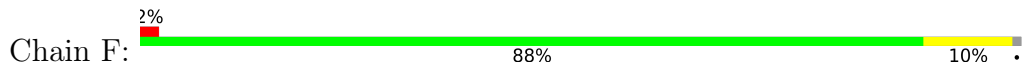
• Molecule 1: Myeloperoxidase




• Molecule 1: Myeloperoxidase

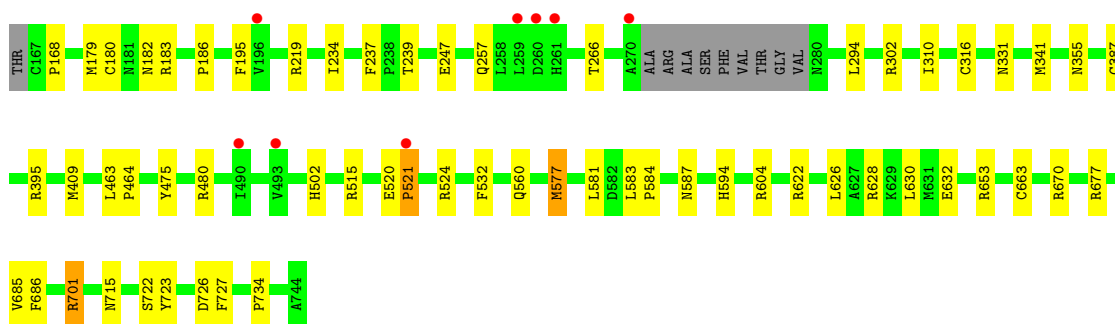


• Molecule 1: Myeloperoxidase




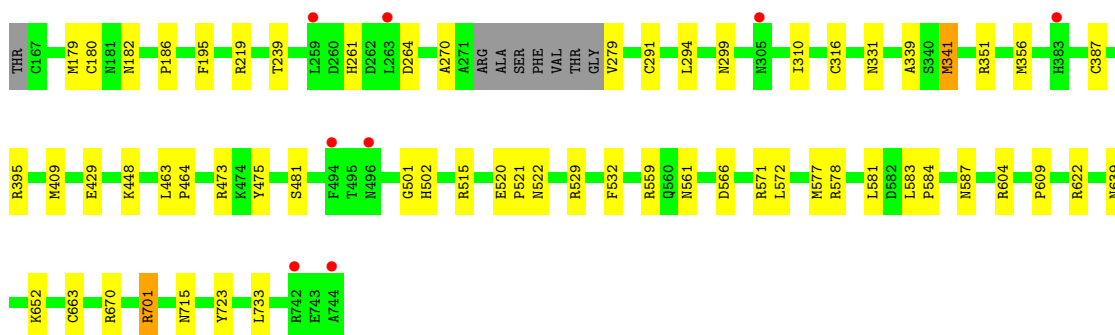
- Molecule 1: Myeloperoxidase

Chain G:  88% 10% ..



- Molecule 1: Myeloperoxidase

Chain H:  88% 10% .



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

Chain I:  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 J:  100%



- 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:  100%

MAG1
MAG2
BMA3

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

Chain b: 100%

MAG1
MAG2
BMA3

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

Chain e: 100%

MAG1
MAG2
BMA3

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

Chain c: 100%

MAG1
MAG2
BMA3
MAN4
MAG5
MANG
FUCT

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

Chain g: 100%

MAG1
MAG2
BMA3
MAN4
MAG5
MANG
FUCT

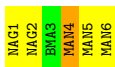
- Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-6)-[alpha-D-mannopyranose-(1-3)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain L: 100%

MAG1
MAG2
BMA3
MAN4
MAG5
MANG
FUCT

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

Chain K: 17% 67% 17%



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

Chain R:  100%



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

Chain M:  100%



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

Chain O:  100%



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

Chain V:  50% 50%



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

Chain d:  100%




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

Chain f:  100%




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

Chain S:  100%

MAG1
MAG2

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

Chain N:  33% 67%

MAG1
MAG2
BMA3
MAN4
MAN5
FUC6

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

Chain Q:  100%


MAG1
MAG2
BMA3
MAN4
MAN5
FUC6

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

Chain T:  100%


MAG1
MAG2
BMA3
MAN4
MAN5
FUC6

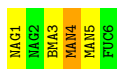
- Molecule 6: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W:  100%

MAG1
MAG2
BMA3
MAN4
MAN5
FUC6

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

Chain Z:  33% 50% 17%



- Molecule 7: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	155.91Å 144.63Å 236.45Å 90.00° 91.53° 90.00°	Depositor
Resolution (Å)	38.99 – 2.60 38.96 – 2.60	Depositor EDS
% Data completeness (in resolution range)	98.7 (38.99-2.60) 89.7 (38.96-2.60)	Depositor EDS
R_{merge}	0.16	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.36 (at 2.61Å)	Xtrriage
Refinement program	REFMAC 5.8.0349, PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.179 , 0.220 0.172 , 0.213	Depositor DCC
R_{free} test set	1826 reflections (1.27%)	wwPDB-VP
Wilson B-factor (Å ²)	50.0	Xtrriage
Anisotropy	0.222	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.098 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	41050	wwPDB-VP
Average B, all atoms (Å ²)	59.0	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.*

¹Intensities estimated from amplitudes.

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

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: CSO, PO4, CA, NAG, CL, BMA, 8PR, FUC, MAN, HEM, SCN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.40	0/4695	0.69	1/6373 (0.0%)
1	B	0.38	0/4674	0.69	1/6345 (0.0%)
1	C	0.37	0/4680	0.69	1/6352 (0.0%)
1	D	0.39	0/4677	0.69	1/6349 (0.0%)
1	E	0.38	0/4692	0.68	0/6369
1	F	0.38	0/4688	0.68	0/6363
1	G	0.39	0/4665	0.68	0/6332
1	H	0.38	0/4685	0.68	1/6359 (0.0%)
All	All	0.38	0/37456	0.68	5/50842 (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	A	0	12
1	B	0	11
1	C	0	14
1	D	0	10
1	E	0	14
1	F	0	10
1	G	0	12
1	H	0	11
All	All	0	94

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	323	ASN	CB-CA-C	-7.04	96.31	110.40
1	D	529	ARG	NE-CZ-NH2	-6.21	117.20	120.30
1	B	521	PRO	N-CA-CB	-5.63	96.41	102.60
1	C	447	ARG	NE-CZ-NH2	-5.41	117.59	120.30
1	H	701	ARG	CG-CD-NE	5.19	122.70	111.80

There are no chirality outliers.

All (94) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	368	ARG	Sidechain
1	A	395	ARG	Sidechain
1	A	480	ARG	Sidechain
1	A	515	ARG	Sidechain
1	A	520	GLU	Peptide
1	A	524	ARG	Sidechain
1	A	559	ARG	Sidechain
1	A	578	ARG	Sidechain
1	A	604	ARG	Sidechain
1	A	628	ARG	Sidechain
1	A	715	ASN	Peptide
1	A	723	TYR	Peptide
1	B	236	ARG	Sidechain
1	B	302	ARG	Sidechain
1	B	390	THR	Peptide
1	B	395	ARG	Sidechain
1	B	480	ARG	Sidechain
1	B	559	ARG	Sidechain
1	B	604	ARG	Sidechain
1	B	622	ARG	Sidechain
1	B	653	ARG	Sidechain
1	B	714	LYS	Peptide
1	B	723	TYR	Peptide
1	C	302	ARG	Sidechain
1	C	368	ARG	Sidechain
1	C	392	ARG	Sidechain
1	C	395	ARG	Sidechain
1	C	520	GLU	Peptide
1	C	524	ARG	Sidechain
1	C	529	ARG	Sidechain
1	C	604	ARG	Sidechain
1	C	622	ARG	Sidechain
1	C	628	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	C	653	ARG	Sidechain
1	C	715	ASN	Peptide
1	C	723	TYR	Peptide
1	C	725	ARG	Sidechain
1	D	236	ARG	Sidechain
1	D	392	ARG	Sidechain
1	D	520	GLU	Peptide
1	D	559	ARG	Sidechain
1	D	578	ARG	Sidechain
1	D	604	ARG	Sidechain
1	D	622	ARG	Sidechain
1	D	701	ARG	Sidechain
1	D	715	ASN	Peptide
1	D	723	TYR	Peptide
1	E	302	ARG	Sidechain
1	E	473	ARG	Sidechain
1	E	480	ARG	Sidechain
1	E	515	ARG	Sidechain
1	E	520	GLU	Peptide
1	E	524	ARG	Sidechain
1	E	559	ARG	Sidechain
1	E	604	ARG	Sidechain
1	E	622	ARG	Sidechain
1	E	628	ARG	Sidechain
1	E	656	ARG	Sidechain
1	E	701	ARG	Sidechain
1	E	715	ASN	Peptide
1	E	723	TYR	Peptide
1	F	236	ARG	Sidechain
1	F	248	ARG	Sidechain
1	F	395	ARG	Sidechain
1	F	515	ARG	Sidechain
1	F	520	GLU	Peptide
1	F	559	ARG	Sidechain
1	F	604	ARG	Sidechain
1	F	622	ARG	Sidechain
1	F	715	ASN	Peptide
1	F	723	TYR	Peptide
1	G	219	ARG	Sidechain
1	G	302	ARG	Sidechain
1	G	316	CSO	Mainchain
1	G	515	ARG	Sidechain

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Mol	Chain	Res	Type	Group
1	G	520	GLU	Peptide
1	G	524	ARG	Sidechain
1	G	604	ARG	Sidechain
1	G	622	ARG	Sidechain
1	G	653	ARG	Sidechain
1	G	701	ARG	Sidechain
1	G	715	ASN	Peptide
1	G	723	TYR	Peptide
1	H	219	ARG	Sidechain
1	H	270	ALA	Peptide
1	H	316	CSO	Mainchain
1	H	515	ARG	Sidechain
1	H	520	GLU	Peptide
1	H	529	ARG	Sidechain
1	H	559	ARG	Sidechain
1	H	578	ARG	Sidechain
1	H	604	ARG	Sidechain
1	H	715	ASN	Peptide
1	H	723	TYR	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	4592	0	4545	42	1
1	B	4571	0	4520	34	0
1	C	4577	0	4525	37	0
1	D	4574	0	4524	38	0
1	E	4589	0	4540	33	1
1	F	4585	0	4536	45	0
1	G	4562	0	4511	38	0
1	H	4579	0	4533	47	0
2	I	39	0	34	2	0
2	J	39	0	34	0	0
2	Y	39	0	34	0	0
2	b	39	0	34	0	0
2	e	39	0	34	0	0
3	L	85	0	73	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	c	85	0	73	0	0
3	g	85	0	73	0	0
4	K	72	0	61	0	1
4	R	72	0	61	0	0
5	M	28	0	25	0	0
5	O	28	0	25	0	0
5	S	28	0	25	0	0
5	V	28	0	25	1	0
5	d	28	0	25	0	0
5	f	28	0	25	0	0
6	N	71	0	61	1	0
6	Q	71	0	61	0	0
6	T	71	0	61	0	0
6	W	71	0	61	0	0
6	Z	71	0	61	4	0
7	P	50	0	42	6	0
8	U	50	0	43	1	0
8	X	50	0	43	1	0
9	a	72	0	61	0	0
10	A	5	0	0	0	0
10	B	5	0	0	0	0
10	C	4	0	0	0	0
10	D	4	0	0	0	0
10	E	4	0	0	0	0
10	F	5	0	0	0	0
10	G	5	0	0	0	0
10	H	4	0	0	0	0
11	A	1	0	0	0	0
11	B	1	0	0	0	0
11	C	1	0	0	0	0
11	D	1	0	0	0	0
11	E	1	0	0	0	0
11	F	1	0	0	0	0
11	G	1	0	0	0	0
11	H	1	0	0	0	0
12	A	43	0	30	8	0
12	B	43	0	30	10	0
12	C	43	0	30	8	0
12	D	43	0	30	7	0
12	E	43	0	30	6	0
12	F	43	0	30	10	0
12	G	43	0	30	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
12	H	43	0	30	9	0
13	A	3	0	0	0	0
13	B	6	0	0	0	0
13	C	3	0	0	0	0
13	D	6	0	0	0	0
13	E	3	0	0	0	0
13	F	3	0	0	0	0
13	G	3	0	0	0	0
13	H	3	0	0	0	0
14	A	24	0	20	0	0
14	D	24	0	20	1	0
14	F	24	0	20	0	0
14	H	24	0	20	0	0
15	A	5	0	0	0	0
15	B	10	0	0	0	0
15	C	10	0	0	0	0
15	D	15	0	0	0	0
15	E	5	0	0	0	0
15	F	5	0	0	0	0
15	G	10	0	0	1	0
15	H	10	0	0	1	0
16	B	28	0	26	1	0
16	C	28	0	26	0	0
16	D	14	0	13	0	0
17	A	355	0	0	12	0
17	B	308	0	0	11	1
17	C	258	0	0	4	0
17	D	272	0	0	7	1
17	E	288	0	0	7	0
17	F	311	0	0	14	0
17	G	324	0	0	11	1
17	H	312	0	0	17	0
All	All	41050	0	37774	326	3

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 4.

All (326) 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:F:483:ASN:ND2	6:Z:1:NAG:C1	1.75	1.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:391:ASN:HD21	7:P:1:NAG:C1	1.45	1.27
1:F:409:MET:SD	12:F:805:HEM:CBB	2.26	1.23
1:G:409:MET:SD	12:G:806:HEM:HBB1	1.80	1.22
1:E:239:THR:HG23	17:E:1076:HOH:O	1.39	1.21
1:F:408:GLU:OE2	12:F:805:HEM:CMB	1.88	1.21
1:F:409:MET:SD	12:F:805:HEM:HBB1	1.79	1.21
1:F:483:ASN:HD22	6:Z:1:NAG:C1	1.41	1.19
1:G:722:SER:O	17:G:901:HOH:O	1.60	1.19
1:D:409:MET:SD	12:D:805:HEM:HBB1	1.84	1.18
1:F:408:GLU:OE2	12:F:805:HEM:HMB1	1.39	1.18
1:A:409:MET:SD	12:A:805:HEM:CBB	2.33	1.16
1:A:409:MET:SD	12:A:805:HEM:HBB1	1.85	1.16
1:C:391:ASN:ND2	7:P:1:NAG:C1	2.10	1.15
1:B:409:MET:SD	12:B:807:HEM:HBB1	1.90	1.12
1:E:409:MET:SD	12:E:805:HEM:HBB1	1.91	1.09
1:G:409:MET:SD	12:G:806:HEM:CBB	2.43	1.06
1:D:409:MET:SD	12:D:805:HEM:CBB	2.45	1.04
1:E:409:MET:SD	12:E:805:HEM:CBB	2.50	1.00
1:B:409:MET:SD	12:B:807:HEM:CBB	2.51	0.99
1:C:409:MET:SD	12:C:806:HEM:HBB1	2.06	0.96
1:D:409:MET:CE	12:D:805:HEM:HBB1	1.95	0.94
1:F:483:ASN:HD21	6:Z:1:NAG:C1	1.66	0.94
1:B:409:MET:CE	12:B:807:HEM:HBB1	2.00	0.91
1:H:409:MET:SD	12:H:805:HEM:CBB	2.58	0.91
1:G:727:PHE:HD1	17:G:901:HOH:O	1.54	0.90
1:D:240:ASP:OD2	1:F:688:MET:HB3	1.71	0.89
1:F:408:GLU:OE2	12:F:805:HEM:HMB2	1.73	0.87
1:H:409:MET:SD	12:H:805:HEM:HBB1	2.15	0.87
1:E:271:ALA:HA	1:E:279:VAL:HG22	1.56	0.87
1:C:409:MET:SD	12:C:806:HEM:CBB	2.63	0.86
1:D:502:HIS:HD1	1:D:587:ASN:HD21	1.25	0.85
1:A:502:HIS:HD1	1:A:587:ASN:HD21	1.25	0.84
1:C:502:HIS:HD1	1:C:587:ASN:HD21	1.25	0.84
1:H:409:MET:CE	12:H:805:HEM:HBB1	2.08	0.84
1:B:502:HIS:HD1	1:B:587:ASN:HD21	1.25	0.84
1:F:409:MET:CE	12:F:805:HEM:HBB1	2.07	0.83
1:F:502:HIS:HD1	1:F:587:ASN:HD21	1.25	0.83
1:F:522:ASN:ND2	17:F:901:HOH:O	2.11	0.83
1:H:502:HIS:HD1	1:H:587:ASN:HD21	1.25	0.83
1:C:383:HIS:CG	1:H:473:ARG:HH21	1.98	0.82
1:E:502:HIS:HD1	1:E:587:ASN:HD21	1.25	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:521:PRO:HD2	17:G:1109:HOH:O	1.80	0.82
1:G:502:HIS:HD1	1:G:587:ASN:HD21	1.25	0.81
1:H:239:THR:HG23	17:H:988:HOH:O	1.82	0.80
1:H:733:LEU:HB2	17:H:902:HOH:O	1.81	0.80
1:H:571:ARG:HD2	17:H:1052:HOH:O	1.81	0.79
1:C:392:ARG:NH1	1:C:392:ARG:HB3	1.98	0.79
1:A:409:MET:SD	12:A:805:HEM:CAB	2.71	0.78
1:F:243:THR:OG1	1:F:559:ARG:NH2	2.17	0.76
1:E:742:ARG:NH1	17:E:902:HOH:O	2.22	0.72
1:F:524:ARG:HD3	17:F:1115:HOH:O	1.89	0.71
14:D:807:8PR:NAN	17:D:902:HOH:O	2.24	0.70
1:D:742:ARG:HD3	17:D:1107:HOH:O	1.91	0.69
1:A:409:MET:CE	12:A:805:HEM:HBB1	2.23	0.69
1:B:448:LYS:C	17:B:906:HOH:O	2.31	0.69
12:C:806:HEM:HBC2	12:C:806:HEM:HMC2	1.75	0.69
12:B:807:HEM:HBB2	12:B:807:HEM:HMB2	1.76	0.68
1:G:677:ARG:NH1	15:G:809:PO4:O3	2.26	0.68
1:H:339:ALA:HA	1:H:341:MET:HE2	1.76	0.67
1:C:391:ASN:CG	7:P:1:NAG:C1	2.60	0.67
1:A:406:SER:OG	17:A:901:HOH:O	2.13	0.67
1:H:639:ASN:O	17:H:901:HOH:O	2.13	0.67
1:C:392:ARG:HB3	1:C:392:ARG:HH11	1.60	0.66
1:H:701:ARG:NE	17:H:902:HOH:O	2.28	0.66
1:A:272:ARG:O	1:A:279:VAL:HG12	1.97	0.65
1:B:448:LYS:HG2	17:B:906:HOH:O	1.97	0.65
12:C:806:HEM:HHC	12:C:806:HEM:HBB2	1.77	0.65
8:U:2:NAG:H4	8:U:3:BMA:O2	1.96	0.65
1:C:283:THR:O	1:H:622:ARG:NH1	2.31	0.64
1:F:316:CSO:OD	17:F:902:HOH:O	2.12	0.64
1:G:726:ASP:N	17:G:901:HOH:O	1.93	0.64
1:G:237:PHE:O	17:G:902:HOH:O	2.15	0.64
12:G:806:HEM:HBB2	12:G:806:HEM:HHC	1.79	0.63
1:H:701:ARG:NH2	17:H:902:HOH:O	2.30	0.63
1:D:392:ARG:NH2	1:E:613:THR:HB	2.13	0.63
12:A:805:HEM:HBC2	12:A:805:HEM:HMC1	1.81	0.63
1:C:577:MET:HE1	1:C:581:LEU:HD21	1.81	0.62
1:E:436:ARG:HH22	1:E:744:ALA:CB	2.12	0.62
1:A:374:ARG:NH1	17:A:910:HOH:O	2.32	0.62
1:E:577:MET:HE1	1:E:581:LEU:HD21	1.82	0.62
1:G:409:MET:SD	12:G:806:HEM:CAB	2.87	0.62
1:A:356:MET:HG3	17:A:1155:HOH:O	1.99	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:577:MET:HE1	1:G:581:LEU:HD21	1.81	0.61
1:E:722:SER:OG	17:E:901:HOH:O	2.16	0.60
12:B:807:HEM:HBB2	12:B:807:HEM:CMB	2.32	0.60
1:H:701:ARG:CZ	17:H:902:HOH:O	2.50	0.60
1:B:653:ARG:HH12	1:B:654:LYS:HE3	1.67	0.59
1:F:409:MET:CE	12:F:805:HEM:CBB	2.76	0.59
1:A:182:ASN:O	1:A:186:PRO:HA	2.03	0.59
1:B:449:ILE:N	17:B:906:HOH:O	2.36	0.59
1:A:681:GLU:OE1	17:A:903:HOH:O	2.17	0.58
1:B:535:TRP:CH2	2:I:1:NAG:H83	2.38	0.58
1:D:182:ASN:O	1:D:186:PRO:HA	2.03	0.58
1:H:195:PHE:CE1	1:H:331:ASN:HB2	2.38	0.58
1:C:182:ASN:O	1:C:186:PRO:HA	2.03	0.58
12:E:805:HEM:HHC	12:E:805:HEM:HBB2	1.86	0.58
12:D:805:HEM:HMC1	12:D:805:HEM:HBC2	1.86	0.58
1:H:429:GLU:HG3	17:H:1089:HOH:O	2.04	0.58
12:D:805:HEM:HMB2	12:D:805:HEM:HBB2	1.86	0.58
1:A:448:LYS:O	17:A:902:HOH:O	2.17	0.57
1:H:182:ASN:O	1:H:186:PRO:HA	2.03	0.57
1:H:409:MET:CE	12:H:805:HEM:CBB	2.82	0.57
12:C:806:HEM:HBC2	12:C:806:HEM:CMC	2.34	0.57
1:E:182:ASN:O	1:E:186:PRO:HA	2.04	0.57
1:D:392:ARG:HG3	1:E:614:VAL:HG11	1.85	0.57
1:B:356:MET:HB2	17:B:1087:HOH:O	2.03	0.57
1:G:182:ASN:O	1:G:186:PRO:HA	2.04	0.57
1:B:182:ASN:O	1:B:186:PRO:HA	2.05	0.56
1:D:179:MET:HG3	17:D:1063:HOH:O	2.04	0.56
1:B:280:ASN:OD1	1:B:280:ASN:N	2.38	0.56
1:G:355:ASN:HB3	17:G:977:HOH:O	2.05	0.56
1:H:561:ASN:OD1	17:H:903:HOH:O	2.18	0.56
1:C:391:ASN:OD1	7:P:1:NAG:C1	2.54	0.56
1:F:182:ASN:O	1:F:186:PRO:HA	2.05	0.56
1:H:733:LEU:O	17:H:902:HOH:O	2.17	0.56
1:A:195:PHE:CE1	1:A:331:ASN:HB2	2.42	0.55
16:B:806:NAG:H4	17:B:1001:HOH:O	2.06	0.55
1:D:240:ASP:OD2	1:F:688:MET:CB	2.50	0.55
1:F:246:GLN:OE1	17:F:903:HOH:O	2.18	0.55
1:H:339:ALA:HA	1:H:341:MET:CE	2.37	0.55
1:A:392:ARG:HD2	1:G:628:ARG:HB3	1.89	0.54
1:C:356:MET:HG3	17:C:1068:HOH:O	2.06	0.54
1:D:409:MET:HE3	12:D:805:HEM:HBB1	1.85	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:F:805:HEM:HMC2	12:F:805:HEM:HBC2	1.90	0.53
1:D:234:ILE:HD13	1:D:630:LEU:HD23	1.89	0.53
1:H:566:ASP:N	17:H:911:HOH:O	2.40	0.53
1:E:409:MET:SD	12:E:805:HEM:CAB	2.97	0.53
1:H:279:VAL:HG23	1:H:291:CYS:SG	2.49	0.52
1:E:368:ARG:NH2	17:E:910:HOH:O	2.36	0.52
12:E:805:HEM:HMC1	12:E:805:HEM:HBC2	1.92	0.52
1:H:701:ARG:O	1:H:701:ARG:HD3	2.10	0.52
1:F:271:ALA:HB3	17:F:1086:HOH:O	2.10	0.52
1:H:409:MET:HE1	12:H:805:HEM:HBB1	1.92	0.52
1:B:195:PHE:CE1	1:B:331:ASN:HB2	2.45	0.52
1:C:383:HIS:CG	1:H:473:ARG:NH2	2.74	0.51
1:A:288:GLN:HG2	17:A:1032:HOH:O	2.10	0.51
1:C:280:ASN:N	17:C:912:HOH:O	2.43	0.51
1:F:169:GLU:N	17:F:904:HOH:O	2.43	0.50
1:F:355:ASN:HB3	17:F:951:HOH:O	2.11	0.50
1:B:409:MET:HE3	12:B:807:HEM:HBB1	1.89	0.50
1:C:391:ASN:ND2	7:P:1:NAG:O5	2.25	0.50
12:G:806:HEM:HBC2	12:G:806:HEM:HMC1	1.93	0.50
1:H:571:ARG:CD	17:H:1052:HOH:O	2.51	0.50
1:G:480:ARG:NH1	17:G:915:HOH:O	2.44	0.50
1:E:743:GLU:O	1:E:744:ALA:HB3	2.12	0.50
1:G:685:VAL:HG23	1:G:686:PHE:N	2.27	0.50
1:C:409:MET:SD	12:C:806:HEM:CAB	2.99	0.49
1:A:383:HIS:CE1	17:A:986:HOH:O	2.64	0.49
1:A:392:ARG:NH1	1:G:632:GLU:OE1	2.46	0.49
1:G:727:PHE:CD1	17:G:901:HOH:O	2.41	0.49
1:D:685:VAL:HG23	1:D:686:PHE:N	2.28	0.49
1:C:685:VAL:HG23	1:C:686:PHE:N	2.28	0.49
1:H:299:ASN:HB2	17:H:1013:HOH:O	2.12	0.49
1:B:653:ARG:NH1	1:B:654:LYS:HE3	2.27	0.48
1:F:195:PHE:CE1	1:F:331:ASN:HB2	2.47	0.48
1:E:195:PHE:CE1	1:E:331:ASN:HB2	2.48	0.48
1:F:239:THR:CG2	17:F:1034:HOH:O	2.60	0.48
17:F:1020:HOH:O	8:X:2:NAG:C6	2.61	0.48
12:B:807:HEM:HBC2	12:B:807:HEM:CMC	2.44	0.48
1:G:685:VAL:HG22	17:G:981:HOH:O	2.14	0.48
1:H:652:LYS:HD3	17:H:954:HOH:O	2.12	0.48
1:B:560:GLN:HB3	1:B:626:LEU:HD22	1.95	0.48
1:B:522:ASN:HA	17:B:1006:HOH:O	2.13	0.48
1:E:577:MET:HE3	1:E:577:MET:HB3	1.70	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:522:ASN:HA	17:H:934:HOH:O	2.13	0.47
1:F:239:THR:HG21	17:F:1034:HOH:O	2.15	0.47
1:A:304:LYS:CE	17:A:1139:HOH:O	2.61	0.47
1:B:286:VAL:HG11	1:F:609:PRO:HG2	1.95	0.47
1:C:560:GLN:HB3	1:C:626:LEU:HD22	1.96	0.47
1:D:624:LEU:HD23	1:D:624:LEU:O	2.15	0.47
1:B:681:GLU:OE1	17:B:901:HOH:O	2.20	0.47
1:A:395:ARG:HG2	1:A:395:ARG:HH11	1.79	0.46
1:F:416:HIS:HE1	17:F:1006:HOH:O	1.98	0.46
1:G:560:GLN:HB3	1:G:626:LEU:HD22	1.96	0.46
1:H:481:SER:HB2	17:H:959:HOH:O	2.14	0.46
1:E:560:GLN:HB3	1:E:626:LEU:HD22	1.96	0.46
1:F:685:VAL:HG23	1:F:686:PHE:N	2.29	0.46
1:A:234:ILE:HD13	1:A:630:LEU:HD23	1.96	0.46
1:B:535:TRP:HH2	2:I:1:NAG:H83	1.81	0.46
1:D:521:PRO:O	17:D:901:HOH:O	2.20	0.46
1:B:502:HIS:CE1	1:B:583:LEU:HD21	2.51	0.46
1:E:294:LEU:HB2	1:E:310:ILE:HB	1.98	0.46
1:E:577:MET:HE2	1:E:579:ILE:O	2.16	0.46
1:H:409:MET:SD	12:H:805:HEM:CAB	3.03	0.46
1:A:271:ALA:O	1:A:272:ARG:CD	2.64	0.45
1:D:691:ARG:HD3	17:D:938:HOH:O	2.15	0.45
1:H:264:ASP:OD2	12:H:805:HEM:O2D	2.34	0.45
1:F:583:LEU:HB3	1:F:584:PRO:HD3	1.99	0.45
1:H:502:HIS:CE1	1:H:583:LEU:HD21	2.52	0.45
1:B:416:HIS:HE1	17:B:1077:HOH:O	2.00	0.45
1:F:701:ARG:HD3	1:F:734:PRO:O	2.17	0.45
1:H:501:GLY:HA3	12:H:805:HEM:CBC	2.45	0.45
1:A:502:HIS:CE1	1:A:583:LEU:HD21	2.52	0.45
12:A:805:HEM:HBC2	12:A:805:HEM:CMC	2.47	0.45
1:G:577:MET:HE3	1:G:577:MET:HB3	1.72	0.45
1:B:583:LEU:HB3	1:B:584:PRO:HD3	1.98	0.45
1:F:179:MET:O	1:F:180:CYS:HB2	2.16	0.45
1:A:409:MET:SD	12:A:805:HEM:HAB	2.55	0.45
1:C:179[B]:MET:O	1:C:180:CYS:HB2	2.16	0.45
1:C:179[A]:MET:O	1:C:180:CYS:HB2	2.16	0.44
1:E:168:PRO:O	1:E:183:ARG:NH1	2.50	0.44
17:E:1164:HOH:O	5:V:2:NAG:H2	2.17	0.44
12:B:807:HEM:HBC2	12:B:807:HEM:HMC2	1.98	0.44
1:E:409:MET:CE	12:E:805:HEM:HBB1	2.47	0.44
1:E:502:HIS:CE1	1:E:583:LEU:HD21	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:560:GLN:HB3	1:F:626:LEU:HD22	1.99	0.44
1:G:234:ILE:HD13	1:G:630:LEU:HD23	1.99	0.44
1:G:247:GLU:OE1	17:G:904:HOH:O	2.21	0.44
1:B:701:ARG:HD3	1:B:734:PRO:O	2.18	0.44
1:D:583:LEU:HB3	1:D:584:PRO:HD3	1.98	0.44
1:G:701:ARG:HD3	1:G:734:PRO:O	2.17	0.44
1:A:267:PRO:HD2	1:A:330:ILE:O	2.18	0.44
1:D:179:MET:O	1:D:180:CYS:HB2	2.17	0.44
1:H:351:ARG:NH1	1:H:356[A]:MET:HE3	2.32	0.44
1:B:179:MET:O	1:B:180:CYS:HB2	2.17	0.44
1:D:195:PHE:CE1	1:D:331:ASN:HB2	2.52	0.44
1:G:266:THR:HG21	1:G:594:HIS:CE1	2.53	0.44
1:A:179:MET:O	1:A:180:CYS:HB2	2.17	0.44
1:A:480:ARG:HG3	1:A:480:ARG:HH11	1.82	0.44
17:E:1171:HOH:O	6:Z:4:MAN:H5	2.17	0.44
1:C:502:HIS:CE1	1:C:583:LEU:HD21	2.53	0.44
1:D:622:ARG:NH2	17:D:918:HOH:O	2.50	0.44
1:E:701:ARG:HD3	1:E:734:PRO:O	2.18	0.44
1:F:685:VAL:HG22	17:F:963:HOH:O	2.18	0.44
1:G:294:LEU:HB2	1:G:310:ILE:HB	1.99	0.44
1:G:583:LEU:HB3	1:G:584:PRO:HD3	1.99	0.44
1:A:480:ARG:HG3	1:A:480:ARG:NH1	2.34	0.43
1:G:475:TYR:O	1:G:670:ARG:HD2	2.18	0.43
1:H:583:LEU:HB3	1:H:584:PRO:HD3	2.00	0.43
1:C:195:PHE:CE1	1:C:331:ASN:HB2	2.54	0.43
1:D:294:LEU:HB2	1:D:310:ILE:HB	2.01	0.43
1:F:502:HIS:CE1	1:F:583:LEU:HD21	2.54	0.43
1:D:392:ARG:CG	1:E:614:VAL:CG1	2.97	0.43
1:F:168:PRO:O	1:F:183:ARG:NH1	2.51	0.43
1:A:356:MET:CG	17:A:1155:HOH:O	2.63	0.43
1:D:701:ARG:HD3	1:D:734:PRO:O	2.17	0.43
1:G:179:MET:O	1:G:180:CYS:HB2	2.17	0.43
1:D:240:ASP:HB3	17:D:994:HOH:O	2.19	0.43
1:A:480:ARG:NH1	1:A:480:ARG:CG	2.82	0.43
1:B:294:LEU:HB2	1:B:310:ILE:HB	2.00	0.43
1:C:286:VAL:HG11	1:H:609:PRO:HG2	1.99	0.43
1:C:577:MET:HE3	1:C:577:MET:HB3	1.76	0.43
1:D:502:HIS:CE1	1:D:583:LEU:HD21	2.54	0.43
1:G:257:GLN:HG3	12:G:806:HEM:C1C	2.53	0.43
1:C:475:TYR:O	1:C:670:ARG:HD2	2.19	0.43
1:G:168:PRO:O	1:G:183:ARG:NH1	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:168:PRO:O	1:C:183:ARG:NH1	2.51	0.43
1:A:583:LEU:HB3	1:A:584:PRO:HD3	2.00	0.43
1:B:301:PRO:HD3	17:B:913:HOH:O	2.18	0.43
1:E:179:MET:O	1:E:180:CYS:HB2	2.18	0.42
1:H:179:MET:O	1:H:180:CYS:HB2	2.18	0.42
1:H:261:HIS:HD2	17:H:994:HOH:O	2.01	0.42
1:D:381:ASN:OD1	1:D:381:ASN:O	2.37	0.42
1:F:475:TYR:O	1:F:670:ARG:HD2	2.19	0.42
1:G:195:PHE:CE1	1:G:331:ASN:HB2	2.54	0.42
1:G:502:HIS:CE1	1:G:583:LEU:HD21	2.53	0.42
1:G:726:ASP:CA	17:G:901:HOH:O	2.57	0.42
1:H:501:GLY:HA3	12:H:805:HEM:HBC2	2.00	0.42
1:B:184:ARG:O	17:B:902:HOH:O	2.21	0.42
1:B:409:MET:SD	12:B:807:HEM:CAB	3.05	0.42
1:C:583:LEU:HB3	1:C:584:PRO:HD3	2.00	0.42
1:E:475:TYR:O	1:E:670:ARG:HD2	2.19	0.42
1:B:282:GLU:HG2	1:B:283:THR:HG23	2.00	0.42
1:C:294:LEU:HB2	1:C:310:ILE:HB	2.01	0.42
1:C:501:GLY:HA3	12:C:806:HEM:CBC	2.50	0.42
1:E:583:LEU:HB3	1:E:584:PRO:HD3	2.01	0.42
1:F:294:LEU:HB2	1:F:310:ILE:HB	2.01	0.42
1:D:392:ARG:CG	1:E:614:VAL:HG11	2.50	0.42
1:D:475:TYR:O	1:D:670:ARG:HD2	2.20	0.42
1:G:685:VAL:CG2	1:G:686:PHE:N	2.82	0.42
1:C:266:THR:HG21	1:C:594:HIS:CE1	2.54	0.42
1:C:685:VAL:CG2	1:C:686:PHE:N	2.83	0.42
1:A:463:LEU:N	1:A:464:PRO:CD	2.83	0.42
1:A:475:TYR:O	1:A:670:ARG:HD2	2.20	0.42
1:D:560:GLN:HB3	1:D:626:LEU:HD22	2.01	0.42
7:P:3:BMA:H2	7:P:4:MAN:H5	2.00	0.42
1:D:392:ARG:N	1:D:392:ARG:HD2	2.35	0.41
1:D:463:LEU:N	1:D:464:PRO:CD	2.83	0.41
1:D:685:VAL:CG2	1:D:686:PHE:N	2.83	0.41
1:E:470:THR:HG22	17:E:1068:HOH:O	2.19	0.41
1:H:448:LYS:NZ	15:H:810:PO4:O1	2.52	0.41
1:A:560:GLN:HB3	1:A:626:LEU:HD22	2.01	0.41
1:B:501:GLY:HA3	12:B:807:HEM:CBC	2.50	0.41
1:F:416:HIS:CE1	17:F:1006:HOH:O	2.72	0.41
1:G:387:CYS:HA	1:G:532:PHE:O	2.20	0.41
1:A:409:MET:HE1	12:A:805:HEM:HBB1	1.99	0.41
1:C:381:ASN:OD1	17:C:901:HOH:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:409:MET:SD	12:D:805:HEM:CAB	3.04	0.41
1:G:463:LEU:N	1:G:464:PRO:CD	2.83	0.41
1:H:294:LEU:HB2	1:H:310:ILE:HB	2.01	0.41
1:A:294:LEU:HB2	1:A:310:ILE:HB	2.03	0.41
1:A:387:CYS:HA	1:A:532:PHE:O	2.20	0.41
1:D:392:ARG:HG3	1:E:614:VAL:CG1	2.50	0.41
1:E:387:CYS:HA	1:E:532:PHE:O	2.21	0.41
1:F:416:HIS:HD2	17:F:1041:HOH:O	2.03	0.41
1:F:685:VAL:CG2	1:F:686:PHE:N	2.84	0.41
12:G:806:HEM:HBB2	12:G:806:HEM:CHC	2.49	0.41
1:H:463:LEU:N	1:H:464:PRO:CD	2.83	0.41
1:C:356:MET:CG	17:C:1068:HOH:O	2.68	0.41
12:F:805:HEM:HBC2	12:F:805:HEM:CMC	2.49	0.41
1:F:463:LEU:N	1:F:464:PRO:CD	2.83	0.41
1:A:323:ASN:ND2	17:A:934:HOH:O	2.52	0.41
1:A:671:LYS:HE3	6:N:5:MAN:H61	2.03	0.41
1:D:387:CYS:HA	1:D:532:PHE:O	2.21	0.41
1:D:624:LEU:O	1:D:624:LEU:CD2	2.68	0.41
1:F:501:GLY:HA3	12:F:805:HEM:CBC	2.51	0.41
1:F:544:ASP:HB2	1:F:545:PRO:HD3	2.03	0.41
1:H:572:LEU:HB3	1:H:581:LEU:HB2	2.03	0.41
1:G:234:ILE:CD1	1:G:630:LEU:HD23	2.50	0.41
1:H:387:CYS:HA	1:H:532:PHE:O	2.21	0.41
1:H:475:TYR:O	1:H:670:ARG:HD2	2.21	0.41
1:A:234:ILE:CD1	1:A:630:LEU:HD23	2.51	0.40
1:B:544:ASP:HB2	1:B:545:PRO:HD3	2.03	0.40
1:C:387:CYS:HA	1:C:532:PHE:O	2.21	0.40
12:C:806:HEM:HMC2	12:C:806:HEM:CBC	2.48	0.40
1:B:367:GLN:NE2	17:B:905:HOH:O	2.35	0.40
1:B:475:TYR:O	1:B:670:ARG:HD2	2.21	0.40
1:D:572:LEU:HB3	1:D:581:LEU:HB2	2.03	0.40
1:C:234:ILE:HD13	1:C:630:LEU:HD23	2.02	0.40
1:E:234:ILE:HD13	1:E:630:LEU:HD23	2.03	0.40
1:F:289:PRO:HA	1:F:290:PRO:HA	1.90	0.40
1:F:572:LEU:HB3	1:F:581:LEU:HB2	2.04	0.40
1:A:304:LYS:HE2	17:A:1139:HOH:O	2.21	0.40
1:A:304:LYS:HE3	17:A:1139:HOH:O	2.19	0.40
1:A:572:LEU:HB3	1:A:581:LEU:HB2	2.04	0.40

All (3) 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)
17:D:1017:HOH:O	17:G:1117:HOH:O[3_555]	1.88	0.32
1:A:622:ARG:NH1	1:E:283:THR:O[3_545]	2.05	0.15
4:K:4:MAN:O6	17:B:1164:HOH:O[3_445]	2.19	0.01

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	568/579 (98%)	554 (98%)	13 (2%)	1 (0%)	47 71
1	B	565/579 (98%)	547 (97%)	15 (3%)	3 (0%)	29 52
1	C	566/579 (98%)	552 (98%)	13 (2%)	1 (0%)	47 71
1	D	566/579 (98%)	551 (97%)	14 (2%)	1 (0%)	47 71
1	E	568/579 (98%)	552 (97%)	14 (2%)	2 (0%)	34 57
1	F	567/579 (98%)	553 (98%)	13 (2%)	1 (0%)	47 71
1	G	564/579 (97%)	549 (97%)	14 (2%)	1 (0%)	47 71
1	H	567/579 (98%)	553 (98%)	13 (2%)	1 (0%)	47 71
All	All	4531/4632 (98%)	4411 (97%)	109 (2%)	11 (0%)	47 71

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	392	ARG
1	E	280	ASN
1	C	521	PRO
1	E	521	PRO
1	F	521	PRO
1	H	521	PRO
1	B	391	ASN
1	D	521	PRO
1	G	521	PRO
1	A	521	PRO

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Mol	Chain	Res	Type
1	B	715	ASN

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	502/506 (99%)	493 (98%)	9 (2%)	59 80
1	B	501/506 (99%)	493 (98%)	8 (2%)	62 82
1	C	501/506 (99%)	493 (98%)	8 (2%)	62 82
1	D	500/506 (99%)	489 (98%)	11 (2%)	52 76
1	E	502/506 (99%)	496 (99%)	6 (1%)	71 87
1	F	501/506 (99%)	497 (99%)	4 (1%)	81 92
1	G	499/506 (99%)	494 (99%)	5 (1%)	76 90
1	H	501/506 (99%)	497 (99%)	4 (1%)	81 92
All	All	4007/4048 (99%)	3952 (99%)	55 (1%)	67 85

All (55) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	166	THR
1	A	272	ARG
1	A	341	MET
1	A	395	ARG
1	A	480	ARG
1	A	577	MET
1	A	628	ARG
1	A	652	LYS
1	A	663	CYS
1	B	166	THR
1	B	239	THR
1	B	280	ASN
1	B	341	MET
1	B	351	ARG

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Mol	Chain	Res	Type
1	B	392	ARG
1	B	431	LYS
1	B	663	CYS
1	C	170	GLN
1	C	239	THR
1	C	341	MET
1	C	351	ARG
1	C	392	ARG
1	C	527	LEU
1	C	577	MET
1	C	663	CYS
1	D	170	GLN
1	D	220	ASN
1	D	279	VAL
1	D	341	MET
1	D	381	ASN
1	D	392	ARG
1	D	432	SER
1	D	624	LEU
1	D	663	CYS
1	D	719	MET
1	D	742	ARG
1	E	166	THR
1	E	170	GLN
1	E	341	MET
1	E	577	MET
1	E	663	CYS
1	E	719	MET
1	F	341	MET
1	F	515	ARG
1	F	652	LYS
1	F	719	MET
1	G	239	THR
1	G	341	MET
1	G	395	ARG
1	G	577	MET
1	G	663	CYS
1	H	341	MET
1	H	395	ARG
1	H	577	MET
1	H	663	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such

sidechains are listed below:

Mol	Chain	Res	Type
1	A	241	GLN
1	B	261	HIS
1	B	416	HIS
1	E	367	GLN
1	E	633	GLN
1	F	633	GLN
1	F	689	GLN
1	G	416	HIS
1	H	689	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

8 non-standard protein/DNA/RNA residues 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	$\# Z > 2$
1	CSO	D	316	1	3,6,7	0.88	0	0,6,8	-	-
1	CSO	F	316	1	3,6,7	1.19	0	0,6,8	-	-
1	CSO	G	316	1	3,6,7	1.08	0	0,6,8	-	-
1	CSO	A	316	1	3,6,7	1.13	0	0,6,8	-	-
1	CSO	H	316	1	3,6,7	1.03	0	0,6,8	-	-
1	CSO	B	316	1	3,6,7	0.67	0	0,6,8	-	-
1	CSO	C	316	1	3,6,7	0.84	0	0,6,8	-	-
1	CSO	E	316	1	3,6,7	0.79	0	0,6,8	-	-

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
1	CSO	D	316	1	-	0/1/5/7	-
1	CSO	F	316	1	-	0/1/5/7	-
1	CSO	G	316	1	-	0/1/5/7	-
1	CSO	A	316	1	-	0/1/5/7	-
1	CSO	H	316	1	-	0/1/5/7	-
1	CSO	B	316	1	-	0/1/5/7	-
1	CSO	C	316	1	-	0/1/5/7	-
1	CSO	E	316	1	-	0/1/5/7	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	F	316	CSO	1	0

5.5 Carbohydrates [i](#)

108 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	I	1	1,2	14,14,15	0.38	0	17,19,21	0.62	0
2	NAG	I	2	2	14,14,15	0.38	0	17,19,21	0.54	0
2	BMA	I	3	2	11,11,12	0.25	0	15,15,17	0.65	0
2	NAG	J	1	1,2	14,14,15	0.60	0	17,19,21	1.55	2 (11%)
2	NAG	J	2	2	14,14,15	0.91	0	17,19,21	1.05	2 (11%)
2	BMA	J	3	2	11,11,12	1.43	2 (18%)	15,15,17	1.48	2 (13%)
4	NAG	K	1	4,1	14,14,15	0.62	0	17,19,21	1.58	3 (17%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	NAG	K	2	4	14,14,15	1.21	1 (7%)	17,19,21	1.47	3 (17%)
4	BMA	K	3	4	11,11,12	0.65	0	15,15,17	0.84	0
4	MAN	K	4	4	11,11,12	0.42	0	15,15,17	1.64	3 (20%)
4	MAN	K	5	4	11,11,12	0.87	0	15,15,17	1.67	4 (26%)
4	MAN	K	6	4	11,11,12	1.25	1 (9%)	15,15,17	2.14	6 (40%)
3	NAG	L	1	1,3	14,14,15	0.82	0	17,19,21	1.47	2 (11%)
3	NAG	L	2	3	14,14,15	0.81	0	17,19,21	1.43	3 (17%)
3	BMA	L	3	3	11,11,12	0.58	0	15,15,17	1.94	2 (13%)
3	MAN	L	4	3	11,11,12	0.46	0	15,15,17	1.81	3 (20%)
3	NAG	L	5	3	14,14,15	1.28	2 (14%)	17,19,21	2.03	4 (23%)
3	MAN	L	6	3	11,11,12	0.93	1 (9%)	15,15,17	2.33	6 (40%)
3	FUC	L	7	3	10,10,11	0.65	0	14,14,16	1.88	4 (28%)
5	NAG	M	1	5,1	14,14,15	0.93	0	17,19,21	1.39	2 (11%)
5	NAG	M	2	5	14,14,15	1.11	1 (7%)	17,19,21	1.76	4 (23%)
6	NAG	N	1	6,1	14,14,15	0.93	1 (7%)	17,19,21	1.70	4 (23%)
6	NAG	N	2	6	14,14,15	0.39	0	17,19,21	0.54	0
6	BMA	N	3	6	11,11,12	0.43	0	15,15,17	1.12	1 (6%)
6	MAN	N	4	6	11,11,12	0.23	0	15,15,17	0.66	0
6	MAN	N	5	6	11,11,12	0.32	0	15,15,17	0.54	0
6	FUC	N	6	6	10,10,11	0.59	0	14,14,16	1.67	4 (28%)
5	NAG	O	1	5,1	14,14,15	0.65	0	17,19,21	1.52	3 (17%)
5	NAG	O	2	5	14,14,15	0.82	0	17,19,21	1.81	3 (17%)
7	NAG	P	1	7	14,14,15	3.06	1 (7%)	17,19,21	2.36	2 (11%)
7	NAG	P	2	7	14,14,15	0.40	0	17,19,21	0.52	0
7	BMA	P	3	7	11,11,12	0.35	0	15,15,17	0.76	0
7	MAN	P	4	7	11,11,12	0.23	0	15,15,17	0.62	0
6	NAG	Q	1	6,1	14,14,15	0.86	1 (7%)	17,19,21	1.56	3 (17%)
6	NAG	Q	2	6	14,14,15	0.69	0	17,19,21	1.39	3 (17%)
6	BMA	Q	3	6	11,11,12	0.92	0	15,15,17	1.69	5 (33%)
6	MAN	Q	4	6	11,11,12	0.93	0	15,15,17	2.29	6 (40%)
6	MAN	Q	5	6	11,11,12	1.48	2 (18%)	15,15,17	2.57	9 (60%)
6	FUC	Q	6	6	10,10,11	1.01	0	14,14,16	2.22	6 (42%)
4	NAG	R	1	4,1	14,14,15	1.55	1 (7%)	17,19,21	3.97	5 (29%)
4	NAG	R	2	4	14,14,15	1.15	2 (14%)	17,19,21	1.96	4 (23%)
4	BMA	R	3	4	11,11,12	0.96	1 (9%)	15,15,17	1.83	5 (33%)
4	MAN	R	4	4	11,11,12	1.27	2 (18%)	15,15,17	2.16	7 (46%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	MAN	R	5	4	11,11,12	1.13	1 (9%)	15,15,17	1.35	2 (13%)
4	MAN	R	6	4	11,11,12	0.94	1 (9%)	15,15,17	1.51	4 (26%)
5	NAG	S	1	5,1	14,14,15	1.52	1 (7%)	17,19,21	3.94	5 (29%)
5	NAG	S	2	5	14,14,15	0.81	1 (7%)	17,19,21	1.54	4 (23%)
6	NAG	T	1	6,1	14,14,15	0.70	0	17,19,21	1.51	3 (17%)
6	NAG	T	2	6	14,14,15	0.97	1 (7%)	17,19,21	1.53	3 (17%)
6	BMA	T	3	6	11,11,12	0.71	0	15,15,17	1.90	3 (20%)
6	MAN	T	4	6	11,11,12	0.72	0	15,15,17	1.74	3 (20%)
6	MAN	T	5	6	11,11,12	1.07	1 (9%)	15,15,17	2.16	3 (20%)
6	FUC	T	6	6	10,10,11	0.66	0	14,14,16	2.41	5 (35%)
8	NAG	U	1	8,1	14,14,15	0.86	0	17,19,21	1.70	5 (29%)
8	NAG	U	2	8	14,14,15	1.24	1 (7%)	17,19,21	2.24	7 (41%)
8	BMA	U	3	8	11,11,12	0.72	0	15,15,17	2.12	6 (40%)
8	MAN	U	4	8	11,11,12	1.33	2 (18%)	15,15,17	3.95	8 (53%)
5	NAG	V	1	5,1	14,14,15	0.87	0	17,19,21	1.70	3 (17%)
5	NAG	V	2	5	14,14,15	1.45	2 (14%)	17,19,21	3.10	5 (29%)
6	NAG	W	1	6,1	14,14,15	1.05	2 (14%)	17,19,21	1.66	4 (23%)
6	NAG	W	2	6	14,14,15	0.84	0	17,19,21	1.92	3 (17%)
6	BMA	W	3	6	11,11,12	0.60	0	15,15,17	1.18	1 (6%)
6	MAN	W	4	6	11,11,12	0.66	0	15,15,17	2.03	5 (33%)
6	MAN	W	5	6	11,11,12	0.86	0	15,15,17	1.66	4 (26%)
6	FUC	W	6	6	10,10,11	0.35	0	14,14,16	1.28	3 (21%)
8	NAG	X	1	8,1	14,14,15	0.65	0	17,19,21	1.44	4 (23%)
8	NAG	X	2	8	14,14,15	0.77	0	17,19,21	0.98	0
8	BMA	X	3	8	11,11,12	0.73	0	15,15,17	1.08	1 (6%)
8	MAN	X	4	8	11,11,12	1.00	1 (9%)	15,15,17	2.07	5 (33%)
2	NAG	Y	1	1,2	14,14,15	2.48	1 (7%)	17,19,21	2.71	3 (17%)
2	NAG	Y	2	2	14,14,15	0.67	0	17,19,21	2.44	9 (52%)
2	BMA	Y	3	2	11,11,12	1.21	0	15,15,17	1.36	2 (13%)
6	NAG	Z	1	6	14,14,15	0.39	0	17,19,21	0.64	0
6	NAG	Z	2	6	14,14,15	0.39	0	17,19,21	0.46	0
6	BMA	Z	3	6	11,11,12	0.90	0	15,15,17	2.33	4 (26%)
6	MAN	Z	4	6	11,11,12	0.78	0	15,15,17	1.77	4 (26%)
6	MAN	Z	5	6	11,11,12	0.56	0	15,15,17	1.48	3 (20%)
6	FUC	Z	6	6	10,10,11	0.34	0	14,14,16	0.36	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
9	NAG	a	1	1,9	14,14,15	0.83	0	17,19,21	1.69	5 (29%)
9	NAG	a	2	9	14,14,15	0.80	0	17,19,21	1.28	1 (5%)
9	BMA	a	3	9	11,11,12	0.49	0	15,15,17	1.75	4 (26%)
9	MAN	a	4	9	11,11,12	0.84	0	15,15,17	1.45	3 (20%)
9	MAN	a	5	9	11,11,12	0.96	0	15,15,17	1.47	3 (20%)
9	MAN	a	6	9	11,11,12	0.86	0	15,15,17	1.41	2 (13%)
2	NAG	b	1	1,2	14,14,15	0.64	0	17,19,21	1.74	4 (23%)
2	NAG	b	2	2	14,14,15	1.10	1 (7%)	17,19,21	1.64	3 (17%)
2	BMA	b	3	2	11,11,12	1.17	1 (9%)	15,15,17	1.24	1 (6%)
3	NAG	c	1	1,3	14,14,15	0.77	0	17,19,21	1.23	2 (11%)
3	NAG	c	2	3	14,14,15	0.69	0	17,19,21	1.48	5 (29%)
3	BMA	c	3	3	11,11,12	0.77	0	15,15,17	1.41	3 (20%)
3	MAN	c	4	3	11,11,12	0.92	0	15,15,17	1.83	4 (26%)
3	NAG	c	5	3	14,14,15	1.43	2 (14%)	17,19,21	2.43	7 (41%)
3	MAN	c	6	3	11,11,12	0.62	0	15,15,17	1.67	4 (26%)
3	FUC	c	7	3	10,10,11	0.76	1 (10%)	14,14,16	1.82	4 (28%)
5	NAG	d	1	5,1	14,14,15	0.79	0	17,19,21	1.47	3 (17%)
5	NAG	d	2	5	14,14,15	0.94	1 (7%)	17,19,21	1.47	3 (17%)
2	NAG	e	1	1,2	14,14,15	0.84	0	17,19,21	1.37	4 (23%)
2	NAG	e	2	2	14,14,15	0.72	0	17,19,21	1.27	3 (17%)
2	BMA	e	3	2	11,11,12	1.02	0	15,15,17	2.06	5 (33%)
5	NAG	f	1	5,1	14,14,15	0.80	0	17,19,21	1.69	4 (23%)
5	NAG	f	2	5	14,14,15	0.80	0	17,19,21	1.04	1 (5%)
3	NAG	g	1	1,3	14,14,15	0.61	0	17,19,21	1.21	2 (11%)
3	NAG	g	2	3	14,14,15	0.79	0	17,19,21	1.54	2 (11%)
3	BMA	g	3	3	11,11,12	0.74	0	15,15,17	1.11	1 (6%)
3	MAN	g	4	3	11,11,12	0.67	0	15,15,17	1.45	3 (20%)
3	NAG	g	5	3	14,14,15	1.29	1 (7%)	17,19,21	1.95	6 (35%)
3	MAN	g	6	3	11,11,12	0.62	0	15,15,17	1.75	4 (26%)
3	FUC	g	7	3	10,10,11	0.47	0	14,14,16	1.72	5 (35%)

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	I	1	1,2	-	3/6/23/26	0/1/1/1
2	NAG	I	2	2	-	1/6/23/26	0/1/1/1
2	BMA	I	3	2	-	0/2/19/22	0/1/1/1
2	NAG	J	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	J	2	2	-	0/6/23/26	0/1/1/1
2	BMA	J	3	2	-	0/2/19/22	0/1/1/1
4	NAG	K	1	4,1	-	1/6/23/26	0/1/1/1
4	NAG	K	2	4	-	2/6/23/26	0/1/1/1
4	BMA	K	3	4	-	2/2/19/22	0/1/1/1
4	MAN	K	4	4	-	2/2/19/22	0/1/1/1
4	MAN	K	5	4	-	0/2/19/22	0/1/1/1
4	MAN	K	6	4	-	2/2/19/22	0/1/1/1
3	NAG	L	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	L	2	3	-	0/6/23/26	0/1/1/1
3	BMA	L	3	3	-	0/2/19/22	0/1/1/1
3	MAN	L	4	3	-	2/2/19/22	0/1/1/1
3	NAG	L	5	3	-	2/6/23/26	0/1/1/1
3	MAN	L	6	3	-	2/2/19/22	0/1/1/1
3	FUC	L	7	3	-	-	0/1/1/1
5	NAG	M	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	M	2	5	-	2/6/23/26	0/1/1/1
6	NAG	N	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	N	2	6	-	0/6/23/26	0/1/1/1
6	BMA	N	3	6	-	0/2/19/22	0/1/1/1
6	MAN	N	4	6	-	0/2/19/22	0/1/1/1
6	MAN	N	5	6	-	0/2/19/22	0/1/1/1
6	FUC	N	6	6	-	-	0/1/1/1
5	NAG	O	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	O	2	5	-	2/6/23/26	0/1/1/1
7	NAG	P	1	7	1/1/5/7	0/6/23/26	0/1/1/1
7	NAG	P	2	7	1/1/5/7	0/6/23/26	0/1/1/1
7	BMA	P	3	7	-	1/2/19/22	0/1/1/1
7	MAN	P	4	7	-	0/2/19/22	0/1/1/1
6	NAG	Q	1	6,1	-	0/6/23/26	0/1/1/1
6	NAG	Q	2	6	-	0/6/23/26	0/1/1/1
6	BMA	Q	3	6	-	2/2/19/22	0/1/1/1
6	MAN	Q	4	6	-	2/2/19/22	0/1/1/1
6	MAN	Q	5	6	-	2/2/19/22	0/1/1/1
6	FUC	Q	6	6	-	-	0/1/1/1

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

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	a	1	1,9	-	2/6/23/26	0/1/1/1
9	NAG	a	2	9	-	2/6/23/26	0/1/1/1
9	BMA	a	3	9	-	1/2/19/22	0/1/1/1
9	MAN	a	4	9	-	2/2/19/22	0/1/1/1
9	MAN	a	5	9	-	0/2/19/22	0/1/1/1
9	MAN	a	6	9	-	1/2/19/22	0/1/1/1
2	NAG	b	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	b	2	2	-	2/6/23/26	0/1/1/1
2	BMA	b	3	2	-	2/2/19/22	0/1/1/1
3	NAG	c	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	c	2	3	-	0/6/23/26	0/1/1/1
3	BMA	c	3	3	-	0/2/19/22	0/1/1/1
3	MAN	c	4	3	-	0/2/19/22	0/1/1/1
3	NAG	c	5	3	-	3/6/23/26	0/1/1/1
3	MAN	c	6	3	-	2/2/19/22	0/1/1/1
3	FUC	c	7	3	-	-	0/1/1/1
5	NAG	d	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	d	2	5	-	2/6/23/26	0/1/1/1
2	NAG	e	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	e	2	2	-	2/6/23/26	0/1/1/1
2	BMA	e	3	2	-	0/2/19/22	0/1/1/1
5	NAG	f	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	f	2	5	-	2/6/23/26	0/1/1/1
3	NAG	g	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	g	2	3	-	2/6/23/26	0/1/1/1
3	BMA	g	3	3	-	0/2/19/22	0/1/1/1
3	MAN	g	4	3	-	2/2/19/22	0/1/1/1
3	NAG	g	5	3	-	2/6/23/26	0/1/1/1
3	MAN	g	6	3	-	0/2/19/22	0/1/1/1
3	FUC	g	7	3	-	-	0/1/1/1

All (41) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	P	1	NAG	O4-C4	-11.38	1.16	1.43
2	Y	1	NAG	O4-C4	-9.09	1.21	1.43
4	R	1	NAG	O4-C4	-5.30	1.30	1.43
5	S	1	NAG	O4-C4	-4.53	1.32	1.43
3	c	5	NAG	C1-C2	3.85	1.58	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	V	2	NAG	C2-N2	3.44	1.52	1.46
5	V	2	NAG	C1-C2	3.43	1.57	1.52
4	K	2	NAG	C1-C2	3.21	1.57	1.52
6	Q	5	MAN	C4-C3	3.09	1.60	1.52
6	N	1	NAG	C1-C2	2.82	1.56	1.52
3	g	5	NAG	C1-C2	2.73	1.56	1.52
8	U	4	MAN	C2-C3	2.72	1.56	1.52
8	U	2	NAG	O4-C4	2.70	1.49	1.43
4	R	6	MAN	C2-C3	2.54	1.56	1.52
6	T	2	NAG	C1-C2	2.47	1.56	1.52
4	K	6	MAN	C2-C3	2.46	1.56	1.52
4	R	3	BMA	C2-C3	2.40	1.56	1.52
2	b	2	NAG	C1-C2	2.40	1.55	1.52
5	M	2	NAG	C1-C2	2.37	1.55	1.52
6	T	5	MAN	C2-C3	2.36	1.56	1.52
3	c	5	NAG	O5-C1	2.34	1.47	1.43
4	R	2	NAG	O4-C4	2.34	1.48	1.43
3	L	6	MAN	O3-C3	2.30	1.48	1.43
2	J	3	BMA	O5-C1	2.29	1.47	1.43
5	S	2	NAG	C1-C2	2.26	1.55	1.52
8	U	4	MAN	C1-C2	2.25	1.57	1.52
2	b	3	BMA	C2-C3	2.25	1.55	1.52
4	R	2	NAG	C1-C2	2.25	1.55	1.52
8	X	4	MAN	C1-C2	2.23	1.57	1.52
6	W	1	NAG	O5-C1	-2.19	1.40	1.43
4	R	4	MAN	O5-C1	2.18	1.47	1.43
3	L	5	NAG	C2-N2	2.15	1.50	1.46
2	J	3	BMA	C1-C2	2.15	1.57	1.52
3	L	5	NAG	C4-C3	2.09	1.57	1.52
3	c	7	FUC	C1-C2	2.09	1.57	1.52
4	R	5	MAN	O5-C1	2.08	1.47	1.43
6	Q	5	MAN	O3-C3	2.06	1.47	1.43
5	d	2	NAG	C2-N2	2.03	1.49	1.46
6	W	1	NAG	O5-C5	-2.02	1.39	1.43
4	R	4	MAN	C2-C3	2.02	1.55	1.52
6	Q	1	NAG	C2-N2	-2.01	1.42	1.46

All (350) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	R	1	NAG	O4-C4-C3	-15.12	75.40	110.35
5	S	1	NAG	O4-C4-C3	-13.59	78.92	110.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	V	2	NAG	C1-C2-N2	9.43	126.60	110.49
2	Y	1	NAG	O4-C4-C3	-8.27	91.22	110.35
7	P	1	NAG	O4-C4-C3	8.24	129.40	110.35
8	U	4	MAN	O3-C3-C4	-8.01	91.84	110.35
5	V	2	NAG	C2-N2-C7	6.66	132.39	122.90
3	L	3	BMA	O3-C3-C2	-6.28	97.97	109.99
5	S	1	NAG	O4-C4-C5	6.26	124.83	109.30
8	U	4	MAN	C6-C5-C4	-6.11	98.70	113.00
6	Z	3	BMA	O3-C3-C2	-5.60	99.28	109.99
8	U	4	MAN	C1-O5-C5	5.44	119.56	112.19
6	Q	4	MAN	O5-C5-C6	5.43	115.72	107.20
2	Y	1	NAG	O4-C4-C5	-5.34	96.03	109.30
3	c	5	NAG	O3-C3-C2	5.29	120.41	109.47
8	U	4	MAN	O3-C3-C2	5.10	119.76	109.99
6	T	5	MAN	O2-C2-C3	5.02	120.19	110.14
8	U	4	MAN	O4-C4-C3	-4.75	99.36	110.35
3	L	5	NAG	C2-N2-C7	4.74	129.65	122.90
3	L	4	MAN	O4-C4-C3	-4.73	99.42	110.35
5	O	2	NAG	O5-C5-C6	4.69	114.56	107.20
2	e	3	BMA	O5-C5-C6	4.67	114.52	107.20
6	Z	3	BMA	O3-C3-C4	4.66	121.13	110.35
6	T	6	FUC	C1-C2-C3	4.65	115.38	109.67
4	K	6	MAN	O5-C5-C6	4.61	114.43	107.20
6	T	6	FUC	C6-C5-C4	-4.61	104.56	113.07
8	U	4	MAN	C1-C2-C3	4.54	115.25	109.67
3	L	6	MAN	O3-C3-C4	-4.49	99.98	110.35
8	U	2	NAG	C1-C2-N2	4.47	118.13	110.49
7	P	1	NAG	O4-C4-C5	4.46	120.37	109.30
5	d	2	NAG	C2-N2-C7	4.37	129.12	122.90
5	d	1	NAG	C1-C2-N2	4.37	117.94	110.49
6	T	3	BMA	O3-C3-C2	-4.36	101.64	109.99
3	L	6	MAN	O4-C4-C3	-4.35	100.28	110.35
6	T	5	MAN	C1-C2-C3	-4.32	104.36	109.67
2	Y	2	NAG	C4-C3-C2	-4.31	104.70	111.02
2	b	2	NAG	C1-C2-N2	4.30	117.83	110.49
6	Q	5	MAN	C1-O5-C5	-4.29	106.37	112.19
5	O	1	NAG	O5-C5-C6	-4.28	100.50	107.20
6	Q	6	FUC	O3-C3-C2	4.25	118.13	109.99
2	b	1	NAG	C1-C2-N2	-4.23	103.27	110.49
6	W	4	MAN	C1-C2-C3	-4.20	104.51	109.67
4	R	4	MAN	C1-O5-C5	4.11	117.76	112.19
3	L	1	NAG	C1-O5-C5	4.09	117.74	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	a	3	BMA	O3-C3-C2	-4.09	102.17	109.99
6	Q	5	MAN	O3-C3-C4	4.02	119.65	110.35
3	c	4	MAN	C1-C2-C3	-4.02	104.72	109.67
6	W	1	NAG	O5-C5-C6	-4.01	100.92	107.20
8	X	4	MAN	O5-C5-C6	3.99	113.46	107.20
3	c	5	NAG	C8-C7-N2	3.95	122.79	116.10
6	W	2	NAG	C1-O5-C5	3.93	117.52	112.19
8	U	3	BMA	O5-C5-C6	3.93	113.36	107.20
2	Y	2	NAG	C1-O5-C5	3.92	117.51	112.19
6	Z	4	MAN	C1-O5-C5	3.91	117.49	112.19
2	Y	2	NAG	O5-C5-C6	-3.91	101.08	107.20
9	a	4	MAN	O5-C5-C6	3.90	113.31	107.20
3	c	7	FUC	O2-C2-C1	3.90	117.12	109.15
6	Q	3	BMA	C1-O5-C5	3.88	117.45	112.19
8	U	4	MAN	O5-C1-C2	-3.82	104.87	110.77
2	Y	2	NAG	O5-C1-C2	-3.81	105.28	111.29
3	c	5	NAG	C2-N2-C7	3.80	128.32	122.90
4	R	2	NAG	O4-C4-C5	3.78	118.69	109.30
6	Q	1	NAG	O4-C4-C3	-3.76	101.66	110.35
4	R	3	BMA	O3-C3-C2	3.75	117.18	109.99
8	U	4	MAN	O4-C4-C5	3.74	118.57	109.30
6	T	3	BMA	C1-O5-C5	3.73	117.25	112.19
4	K	5	MAN	O5-C5-C6	3.71	113.02	107.20
3	L	5	NAG	O7-C7-N2	3.69	128.73	121.95
8	U	2	NAG	C2-N2-C7	3.68	128.15	122.90
5	V	1	NAG	C1-O5-C5	3.68	117.18	112.19
6	T	6	FUC	O2-C2-C3	-3.68	102.78	110.14
6	W	5	MAN	C1-C2-C3	-3.67	105.16	109.67
5	O	2	NAG	C2-N2-C7	3.65	128.10	122.90
2	J	3	BMA	O2-C2-C1	3.62	116.55	109.15
3	c	5	NAG	C4-C3-C2	-3.61	105.73	111.02
5	f	1	NAG	C1-C2-N2	-3.60	104.33	110.49
6	Q	6	FUC	O4-C4-C5	3.60	117.64	109.67
3	L	4	MAN	C1-O5-C5	3.60	117.06	112.19
3	g	5	NAG	C1-O5-C5	3.60	117.06	112.19
6	N	1	NAG	C1-O5-C5	3.59	117.05	112.19
5	M	2	NAG	O5-C5-C6	3.57	112.81	107.20
6	Z	3	BMA	O4-C4-C3	3.56	118.59	110.35
4	K	1	NAG	C3-C4-C5	-3.56	103.89	110.24
8	U	3	BMA	C1-C2-C3	3.55	114.03	109.67
2	J	1	NAG	C1-C2-N2	-3.55	104.43	110.49
8	X	4	MAN	C1-O5-C5	3.52	116.97	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	R	2	NAG	O5-C5-C6	3.52	112.72	107.20
4	R	2	NAG	C3-C4-C5	-3.49	104.01	110.24
9	a	5	MAN	C1-O5-C5	3.49	116.92	112.19
5	M	1	NAG	C1-O5-C5	3.48	116.91	112.19
6	T	1	NAG	C1-O5-C5	3.48	116.90	112.19
6	W	2	NAG	O4-C4-C5	-3.46	100.71	109.30
8	X	4	MAN	C1-C2-C3	3.46	113.92	109.67
6	W	2	NAG	C4-C3-C2	-3.45	105.96	111.02
4	K	2	NAG	O5-C5-C6	3.44	112.60	107.20
5	S	2	NAG	C6-C5-C4	3.42	121.02	113.00
3	g	7	FUC	O2-C2-C3	-3.42	103.28	110.14
3	g	2	NAG	O7-C7-N2	3.42	128.24	121.95
3	c	6	MAN	C6-C5-C4	3.41	120.98	113.00
3	g	6	MAN	O3-C3-C4	3.40	118.21	110.35
3	L	2	NAG	C4-C3-C2	-3.40	106.04	111.02
9	a	6	MAN	O5-C5-C6	3.39	112.53	107.20
5	M	2	NAG	O3-C3-C2	3.38	116.46	109.47
8	U	3	BMA	O5-C5-C4	-3.37	102.63	110.83
4	R	1	NAG	O4-C4-C5	3.37	117.67	109.30
6	Q	5	MAN	C3-C4-C5	3.33	116.18	110.24
6	T	4	MAN	C2-C3-C4	-3.32	105.16	110.89
5	V	2	NAG	C1-O5-C5	3.28	116.63	112.19
6	Q	5	MAN	C1-C2-C3	-3.25	105.67	109.67
8	U	2	NAG	C1-O5-C5	3.24	116.59	112.19
4	K	6	MAN	O3-C3-C4	3.24	117.83	110.35
4	R	4	MAN	O2-C2-C3	3.23	116.61	110.14
6	W	4	MAN	O5-C5-C4	-3.23	102.98	110.83
4	K	6	MAN	O3-C3-C2	3.22	116.17	109.99
3	g	6	MAN	O5-C5-C4	-3.18	103.08	110.83
5	f	1	NAG	C2-N2-C7	-3.18	118.38	122.90
3	g	5	NAG	C6-C5-C4	-3.17	105.57	113.00
4	R	3	BMA	O5-C5-C6	3.16	112.16	107.20
3	g	5	NAG	O5-C5-C6	3.16	112.15	107.20
5	V	1	NAG	O5-C1-C2	-3.15	106.31	111.29
6	T	5	MAN	O3-C3-C2	3.15	116.02	109.99
3	g	4	MAN	C1-O5-C5	3.14	116.45	112.19
6	T	4	MAN	O5-C5-C6	3.13	112.11	107.20
6	Q	1	NAG	O3-C3-C2	3.13	115.94	109.47
2	e	3	BMA	O3-C3-C4	3.13	117.58	110.35
2	Y	2	NAG	O4-C4-C5	3.12	117.05	109.30
8	U	2	NAG	C4-C3-C2	3.11	115.58	111.02
4	R	6	MAN	O5-C5-C6	3.11	112.08	107.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	e	3	BMA	C1-C2-C3	-3.09	105.87	109.67
3	L	7	FUC	C6-C5-C4	-3.09	107.37	113.07
4	R	3	BMA	O5-C1-C2	-3.09	106.01	110.77
3	c	6	MAN	O5-C5-C4	-3.07	103.36	110.83
6	Z	5	MAN	O5-C1-C2	-3.06	106.04	110.77
2	Y	3	BMA	O3-C3-C4	3.06	117.43	110.35
8	U	2	NAG	O7-C7-N2	3.06	127.57	121.95
6	Q	4	MAN	O3-C3-C4	3.04	117.39	110.35
8	X	4	MAN	O5-C5-C4	-3.04	103.44	110.83
8	X	1	NAG	C8-C7-N2	3.03	121.23	116.10
4	R	4	MAN	O5-C5-C6	3.03	111.95	107.20
4	R	2	NAG	C1-O5-C5	3.03	116.30	112.19
6	T	4	MAN	O3-C3-C4	3.02	117.33	110.35
8	U	1	NAG	C2-N2-C7	-3.02	118.61	122.90
6	Q	4	MAN	C6-C5-C4	3.02	120.07	113.00
9	a	1	NAG	C1-C2-N2	3.01	115.63	110.49
2	b	1	NAG	O5-C5-C6	-3.01	102.48	107.20
3	L	7	FUC	C3-C4-C5	-3.01	105.08	109.77
9	a	1	NAG	O4-C4-C3	-2.99	103.44	110.35
4	R	1	NAG	C1-O5-C5	2.99	116.24	112.19
6	T	6	FUC	O5-C5-C6	2.99	113.75	107.33
3	g	4	MAN	O5-C5-C6	2.99	111.88	107.20
3	L	6	MAN	O3-C3-C2	-2.98	104.28	109.99
6	T	2	NAG	C8-C7-N2	-2.98	111.06	116.10
3	g	5	NAG	O4-C4-C3	2.97	117.22	110.35
6	N	1	NAG	O3-C3-C2	2.97	115.60	109.47
5	S	2	NAG	C1-C2-N2	2.96	115.54	110.49
8	X	4	MAN	O2-C2-C1	2.96	115.20	109.15
6	W	4	MAN	C6-C5-C4	2.95	119.92	113.00
2	Y	2	NAG	C1-C2-N2	2.94	115.50	110.49
3	c	7	FUC	C2-C3-C4	-2.93	105.83	110.89
3	c	2	NAG	O3-C3-C4	2.92	117.11	110.35
3	L	6	MAN	C3-C4-C5	2.92	115.45	110.24
6	Q	4	MAN	O5-C5-C4	-2.91	103.74	110.83
6	Z	4	MAN	O5-C5-C6	2.91	111.76	107.20
4	K	1	NAG	C1-O5-C5	2.90	116.13	112.19
6	Q	2	NAG	O7-C7-N2	2.90	127.28	121.95
2	Y	1	NAG	C4-C3-C2	-2.90	106.78	111.02
4	K	6	MAN	C2-C3-C4	-2.89	105.89	110.89
3	L	6	MAN	C2-C3-C4	2.88	115.89	110.89
4	K	1	NAG	O5-C1-C2	-2.86	106.77	111.29
3	g	7	FUC	O2-C2-C1	2.84	114.96	109.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	Q	3	BMA	O3-C3-C2	-2.84	104.56	109.99
6	Q	5	MAN	O5-C1-C2	-2.83	106.40	110.77
6	W	3	BMA	O3-C3-C2	-2.83	104.58	109.99
4	K	6	MAN	O4-C4-C3	2.82	116.88	110.35
6	W	1	NAG	O5-C1-C2	-2.82	106.83	111.29
4	R	6	MAN	O2-C2-C3	2.82	115.79	110.14
8	U	3	BMA	O2-C2-C1	2.81	114.91	109.15
6	N	3	BMA	C1-O5-C5	2.81	116.00	112.19
6	Z	5	MAN	O5-C5-C6	2.79	111.58	107.20
3	g	4	MAN	O5-C1-C2	-2.79	106.47	110.77
4	R	4	MAN	O5-C5-C4	-2.78	104.05	110.83
6	T	3	BMA	O5-C1-C2	-2.78	106.48	110.77
4	R	4	MAN	O6-C6-C5	2.78	120.82	111.29
4	K	5	MAN	O4-C4-C5	2.78	116.19	109.30
6	Q	6	FUC	O2-C2-C3	-2.77	104.59	110.14
6	W	5	MAN	O4-C4-C3	-2.77	103.95	110.35
6	T	1	NAG	O5-C1-C2	-2.77	106.92	111.29
3	g	1	NAG	O4-C4-C5	-2.76	102.43	109.30
6	Q	5	MAN	O2-C2-C3	2.76	115.67	110.14
2	b	3	BMA	O2-C2-C1	2.75	114.77	109.15
8	U	1	NAG	C8-C7-N2	2.73	120.72	116.10
3	c	2	NAG	C4-C3-C2	-2.73	107.02	111.02
6	T	6	FUC	C2-C3-C4	-2.70	106.22	110.89
3	g	5	NAG	O4-C4-C5	-2.69	102.63	109.30
4	K	2	NAG	O5-C1-C2	-2.68	107.05	111.29
9	a	1	NAG	C4-C3-C2	-2.67	107.11	111.02
3	c	3	BMA	O4-C4-C5	-2.66	102.69	109.30
8	U	3	BMA	O4-C4-C5	2.66	115.90	109.30
4	K	4	MAN	O4-C4-C3	-2.66	104.20	110.35
9	a	5	MAN	O5-C1-C2	-2.66	106.67	110.77
3	c	4	MAN	O3-C3-C2	2.65	115.07	109.99
5	S	1	NAG	C6-C5-C4	2.64	119.19	113.00
3	g	6	MAN	C1-C2-C3	-2.64	106.42	109.67
5	M	2	NAG	C1-O5-C5	2.63	115.76	112.19
6	Q	2	NAG	C8-C7-N2	-2.62	111.66	116.10
2	e	2	NAG	O7-C7-N2	-2.62	117.13	121.95
5	M	2	NAG	C2-N2-C7	2.59	126.59	122.90
8	X	1	NAG	O7-C7-N2	-2.59	117.20	121.95
4	K	4	MAN	O5-C5-C6	-2.58	103.15	107.20
2	Y	2	NAG	O3-C3-C4	2.58	116.32	110.35
9	a	1	NAG	C3-C4-C5	2.57	114.83	110.24
4	R	6	MAN	O5-C1-C2	-2.56	106.81	110.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	a	2	NAG	C1-O5-C5	2.56	115.67	112.19
3	c	4	MAN	C1-O5-C5	2.56	115.66	112.19
5	S	2	NAG	O5-C5-C4	-2.55	104.63	110.83
6	N	6	FUC	O2-C2-C3	-2.55	105.03	110.14
3	L	6	MAN	O2-C2-C3	2.54	115.23	110.14
3	c	7	FUC	O4-C4-C3	-2.53	104.49	110.35
3	g	5	NAG	C2-N2-C7	2.53	126.50	122.90
8	U	3	BMA	O2-C2-C3	-2.51	105.11	110.14
8	U	1	NAG	C1-C2-N2	2.51	114.77	110.49
6	Z	4	MAN	O3-C3-C4	2.51	116.14	110.35
2	e	2	NAG	O4-C4-C5	2.50	115.51	109.30
6	W	5	MAN	O2-C2-C1	2.50	114.27	109.15
3	c	2	NAG	C8-C7-N2	-2.49	111.88	116.10
9	a	4	MAN	C1-C2-C3	-2.49	106.60	109.67
3	L	7	FUC	C2-C3-C4	-2.47	106.62	110.89
6	N	1	NAG	C2-N2-C7	2.47	126.41	122.90
5	f	2	NAG	C2-N2-C7	2.46	126.41	122.90
3	L	1	NAG	O4-C4-C3	-2.46	104.67	110.35
4	R	5	MAN	C1-O5-C5	2.45	115.52	112.19
3	g	7	FUC	O5-C5-C6	2.43	112.55	107.33
6	W	4	MAN	O4-C4-C5	2.43	115.32	109.30
5	O	1	NAG	O4-C4-C3	-2.43	104.74	110.35
5	S	1	NAG	O5-C5-C6	-2.41	103.42	107.20
3	c	4	MAN	O4-C4-C3	-2.40	104.80	110.35
3	c	5	NAG	C1-C2-N2	2.39	114.57	110.49
8	X	1	NAG	C2-N2-C7	-2.39	119.50	122.90
6	Q	5	MAN	O3-C3-C2	-2.38	105.44	109.99
6	Q	6	FUC	C3-C4-C5	-2.37	106.08	109.77
6	Q	3	BMA	O2-C2-C3	2.37	114.89	110.14
6	Q	2	NAG	C4-C3-C2	-2.37	107.55	111.02
3	g	7	FUC	O3-C3-C2	-2.37	105.46	109.99
6	W	5	MAN	O2-C2-C3	2.36	114.86	110.14
2	J	2	NAG	C1-C2-N2	2.35	114.51	110.49
6	T	2	NAG	O4-C4-C5	2.35	115.14	109.30
6	Z	5	MAN	O2-C2-C3	2.35	114.85	110.14
3	L	5	NAG	C4-C3-C2	2.34	114.45	111.02
2	e	1	NAG	O5-C5-C6	-2.33	103.55	107.20
9	a	3	BMA	C3-C4-C5	-2.33	106.08	110.24
3	c	3	BMA	C1-C2-C3	-2.32	106.82	109.67
4	R	4	MAN	C6-C5-C4	2.31	118.42	113.00
6	T	2	NAG	O3-C3-C2	2.31	114.25	109.47
6	N	6	FUC	O2-C2-C1	2.30	113.86	109.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	O	2	NAG	O7-C7-N2	2.30	126.19	121.95
3	g	2	NAG	O5-C5-C6	2.30	110.81	107.20
6	Q	4	MAN	C3-C4-C5	-2.30	106.14	110.24
6	N	6	FUC	C1-C2-C3	2.29	112.48	109.67
3	c	1	NAG	O5-C5-C6	-2.29	103.61	107.20
8	U	1	NAG	O5-C1-C2	-2.29	107.68	111.29
2	J	1	NAG	O6-C6-C5	-2.28	103.46	111.29
2	Y	3	BMA	C2-C3-C4	-2.28	106.95	110.89
3	L	2	NAG	C1-C2-N2	-2.27	106.61	110.49
2	b	2	NAG	O4-C4-C5	2.27	114.94	109.30
6	W	6	FUC	C1-C2-C3	-2.27	106.88	109.67
2	e	3	BMA	O5-C5-C4	-2.26	105.32	110.83
6	W	1	NAG	C1-O5-C5	2.26	115.26	112.19
3	c	6	MAN	C1-C2-C3	-2.26	106.89	109.67
6	Q	4	MAN	O4-C4-C3	2.26	115.57	110.35
5	S	1	NAG	O5-C1-C2	2.26	114.85	111.29
4	R	4	MAN	O4-C4-C3	-2.25	105.14	110.35
4	R	1	NAG	C3-C4-C5	-2.25	106.22	110.24
4	K	4	MAN	C1-O5-C5	2.25	115.24	112.19
6	N	1	NAG	O5-C1-C2	-2.25	107.74	111.29
5	O	1	NAG	C1-O5-C5	2.24	115.23	112.19
2	b	1	NAG	O3-C3-C4	-2.24	105.17	110.35
3	c	2	NAG	O7-C7-N2	2.24	126.07	121.95
4	R	1	NAG	C4-C3-C2	-2.23	107.74	111.02
3	L	5	NAG	C8-C7-N2	-2.23	112.33	116.10
5	V	1	NAG	O7-C7-N2	2.21	126.02	121.95
3	L	2	NAG	O3-C3-C2	2.21	114.04	109.47
2	Y	2	NAG	C8-C7-N2	2.21	119.83	116.10
6	W	1	NAG	O4-C4-C5	-2.20	103.83	109.30
8	U	2	NAG	O5-C1-C2	-2.20	107.81	111.29
3	g	1	NAG	C1-C2-N2	2.20	114.25	110.49
2	b	2	NAG	C4-C3-C2	-2.20	107.80	111.02
3	c	1	NAG	O5-C1-C2	-2.19	107.83	111.29
6	W	4	MAN	O5-C1-C2	2.19	114.15	110.77
3	c	5	NAG	O5-C5-C6	2.19	110.64	107.20
2	J	2	NAG	O3-C3-C2	-2.19	104.93	109.47
4	K	2	NAG	O3-C3-C4	-2.19	105.29	110.35
5	d	1	NAG	O3-C3-C4	2.18	115.40	110.35
4	R	3	BMA	C1-C2-C3	-2.18	106.98	109.67
3	L	3	BMA	O3-C3-C4	2.18	115.39	110.35
2	e	3	BMA	O2-C2-C1	2.18	113.61	109.15
9	a	5	MAN	O2-C2-C1	2.17	113.59	109.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	e	1	NAG	O7-C7-N2	-2.17	117.97	121.95
5	d	2	NAG	O7-C7-C8	-2.16	118.05	122.06
3	L	4	MAN	O5-C1-C2	-2.16	107.44	110.77
9	a	1	NAG	C8-C7-N2	2.15	119.74	116.10
2	e	1	NAG	C8-C7-N2	2.15	119.74	116.10
8	U	2	NAG	C8-C7-N2	-2.15	112.46	116.10
6	T	1	NAG	O4-C4-C3	-2.15	105.39	110.35
6	Q	3	BMA	C2-C3-C4	2.15	114.61	110.89
6	Q	5	MAN	O4-C4-C5	-2.14	103.98	109.30
9	a	3	BMA	O2-C2-C1	-2.13	104.79	109.15
8	U	1	NAG	O4-C4-C5	2.13	114.59	109.30
6	Q	6	FUC	O5-C5-C6	2.13	111.91	107.33
5	f	1	NAG	O7-C7-C8	2.12	126.00	122.06
5	S	2	NAG	O4-C4-C5	2.12	114.56	109.30
4	K	5	MAN	C3-C4-C5	-2.12	106.46	110.24
9	a	3	BMA	C1-C2-C3	2.12	112.27	109.67
8	X	1	NAG	C1-C2-N2	-2.12	106.88	110.49
5	f	1	NAG	C4-C3-C2	2.11	114.11	111.02
4	K	6	MAN	O2-C2-C3	2.11	114.36	110.14
6	N	6	FUC	C2-C3-C4	-2.09	107.27	110.89
3	L	7	FUC	O2-C2-C1	2.09	113.43	109.15
6	Z	3	BMA	C1-O5-C5	2.09	115.03	112.19
3	c	6	MAN	O2-C2-C1	2.09	113.42	109.15
4	K	5	MAN	C1-C2-C3	2.09	112.23	109.67
4	R	5	MAN	O5-C5-C6	2.08	110.47	107.20
3	g	3	BMA	O3-C3-C2	-2.08	106.02	109.99
9	a	6	MAN	C1-C2-C3	2.08	112.22	109.67
6	Q	1	NAG	O6-C6-C5	-2.07	104.18	111.29
5	V	2	NAG	O5-C5-C6	2.07	110.45	107.20
6	Z	4	MAN	C2-C3-C4	-2.07	107.32	110.89
4	R	3	BMA	O2-C2-C1	2.07	113.38	109.15
2	J	3	BMA	O4-C4-C3	-2.07	105.57	110.35
2	e	1	NAG	O5-C1-C2	2.06	114.54	111.29
9	a	4	MAN	C1-O5-C5	2.06	114.98	112.19
3	c	2	NAG	O4-C4-C5	-2.06	104.19	109.30
8	X	3	BMA	O5-C1-C2	-2.05	107.60	110.77
5	M	1	NAG	C8-C7-N2	2.05	119.57	116.10
2	Y	2	NAG	O7-C7-N2	-2.05	118.19	121.95
5	d	2	NAG	C8-C7-N2	2.05	119.56	116.10
4	R	6	MAN	O3-C3-C2	2.04	113.91	109.99
3	c	3	BMA	C6-C5-C4	-2.04	108.22	113.00
6	Q	5	MAN	O2-C2-C1	-2.04	104.97	109.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	d	1	NAG	C6-C5-C4	2.04	117.79	113.00
3	c	5	NAG	O7-C7-C8	-2.04	118.27	122.06
2	e	2	NAG	O7-C7-C8	2.02	125.82	122.06
6	W	6	FUC	O5-C5-C6	2.02	111.68	107.33
3	g	7	FUC	C3-C4-C5	2.02	112.92	109.77
2	b	1	NAG	C4-C3-C2	2.02	113.98	111.02
5	V	2	NAG	O5-C1-C2	-2.02	108.10	111.29
6	Q	6	FUC	O4-C4-C3	-2.02	105.68	110.35
3	g	6	MAN	O2-C2-C3	2.01	114.17	110.14
3	c	7	FUC	O2-C2-C3	-2.01	106.11	110.14
6	W	6	FUC	C6-C5-C4	-2.01	109.36	113.07
6	Q	3	BMA	O6-C6-C5	2.00	118.17	111.29

All (5) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	Y	2	NAG	C1
4	R	2	NAG	C1
5	S	2	NAG	C1
7	P	1	NAG	C4
7	P	2	NAG	C1

All (108) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	I	1	NAG	C8-C7-N2-C2
2	I	1	NAG	O7-C7-N2-C2
3	c	5	NAG	C3-C2-N2-C7
8	X	3	BMA	O5-C5-C6-O6
5	M	2	NAG	O5-C5-C6-O6
8	U	2	NAG	O5-C5-C6-O6
5	V	2	NAG	O5-C5-C6-O6
2	b	3	BMA	O5-C5-C6-O6
6	Q	5	MAN	O5-C5-C6-O6
4	R	4	MAN	C4-C5-C6-O6
2	b	2	NAG	O5-C5-C6-O6
3	g	5	NAG	O5-C5-C6-O6
2	J	1	NAG	C8-C7-N2-C2
5	O	1	NAG	O5-C5-C6-O6
5	S	2	NAG	O5-C5-C6-O6
4	K	2	NAG	O5-C5-C6-O6
5	M	2	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
8	U	2	NAG	C4-C5-C6-O6
4	K	4	MAN	O5-C5-C6-O6
4	R	4	MAN	O5-C5-C6-O6
5	d	1	NAG	O5-C5-C6-O6
9	a	2	NAG	O5-C5-C6-O6
5	V	2	NAG	C4-C5-C6-O6
3	L	4	MAN	O5-C5-C6-O6
6	Q	3	BMA	O5-C5-C6-O6
2	Y	2	NAG	O5-C5-C6-O6
2	b	3	BMA	C4-C5-C6-O6
6	Q	5	MAN	C4-C5-C6-O6
8	X	3	BMA	C4-C5-C6-O6
8	U	3	BMA	O5-C5-C6-O6
3	g	5	NAG	C4-C5-C6-O6
9	a	2	NAG	C4-C5-C6-O6
3	L	4	MAN	C4-C5-C6-O6
5	O	2	NAG	C4-C5-C6-O6
5	d	1	NAG	C4-C5-C6-O6
6	Q	3	BMA	C4-C5-C6-O6
5	O	2	NAG	O5-C5-C6-O6
5	f	2	NAG	O5-C5-C6-O6
2	b	2	NAG	C4-C5-C6-O6
2	Y	2	NAG	C8-C7-N2-C2
2	Y	2	NAG	O7-C7-N2-C2
3	c	5	NAG	C8-C7-N2-C2
3	c	5	NAG	O7-C7-N2-C2
2	Y	2	NAG	C4-C5-C6-O6
4	K	2	NAG	C4-C5-C6-O6
4	K	4	MAN	C4-C5-C6-O6
6	Z	4	MAN	O5-C5-C6-O6
5	f	2	NAG	C4-C5-C6-O6
3	L	6	MAN	O5-C5-C6-O6
3	L	5	NAG	O5-C5-C6-O6
8	X	2	NAG	O5-C5-C6-O6
5	O	1	NAG	C4-C5-C6-O6
3	L	6	MAN	C4-C5-C6-O6
9	a	1	NAG	O5-C5-C6-O6
9	a	1	NAG	C4-C5-C6-O6
3	L	5	NAG	C4-C5-C6-O6
4	K	3	BMA	O5-C5-C6-O6
3	g	4	MAN	C4-C5-C6-O6
8	U	1	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
6	Z	4	MAN	C4-C5-C6-O6
8	U	1	NAG	O5-C5-C6-O6
3	g	4	MAN	O5-C5-C6-O6
8	U	3	BMA	C4-C5-C6-O6
3	c	6	MAN	O5-C5-C6-O6
5	S	2	NAG	C4-C5-C6-O6
6	W	5	MAN	C4-C5-C6-O6
6	W	5	MAN	O5-C5-C6-O6
6	Q	4	MAN	C4-C5-C6-O6
8	X	4	MAN	C4-C5-C6-O6
5	f	1	NAG	C4-C5-C6-O6
2	J	1	NAG	O7-C7-N2-C2
3	g	2	NAG	C4-C5-C6-O6
9	a	6	MAN	O5-C5-C6-O6
3	c	6	MAN	C4-C5-C6-O6
2	I	2	NAG	O5-C5-C6-O6
4	K	6	MAN	C4-C5-C6-O6
2	I	1	NAG	C1-C2-N2-C7
6	T	1	NAG	C4-C5-C6-O6
7	P	3	BMA	O5-C5-C6-O6
5	d	2	NAG	O5-C5-C6-O6
3	g	2	NAG	O5-C5-C6-O6
6	Z	1	NAG	C3-C2-N2-C7
2	e	2	NAG	O5-C5-C6-O6
6	Z	1	NAG	C1-C2-N2-C7
6	Z	5	MAN	C4-C5-C6-O6
2	e	2	NAG	C4-C5-C6-O6
4	K	3	BMA	C4-C5-C6-O6
5	f	1	NAG	O5-C5-C6-O6
5	V	1	NAG	C4-C5-C6-O6
8	X	2	NAG	C4-C5-C6-O6
6	Q	4	MAN	O5-C5-C6-O6
9	a	3	BMA	O5-C5-C6-O6
5	M	1	NAG	C4-C5-C6-O6
5	V	2	NAG	C3-C2-N2-C7
5	d	2	NAG	C3-C2-N2-C7
9	a	4	MAN	C4-C5-C6-O6
6	Z	5	MAN	O5-C5-C6-O6
4	K	1	NAG	C4-C5-C6-O6
6	T	1	NAG	O5-C5-C6-O6
8	X	4	MAN	O5-C5-C6-O6
5	M	1	NAG	O5-C5-C6-O6

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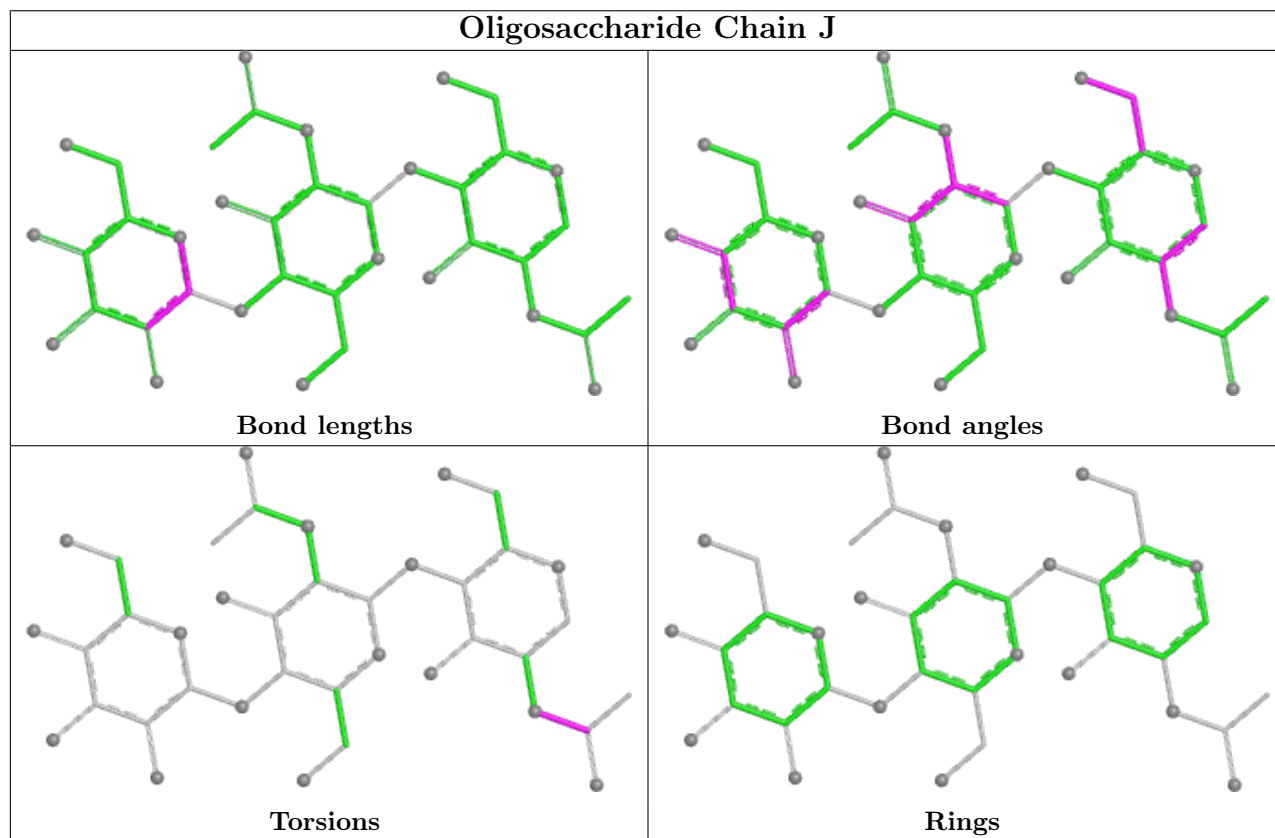
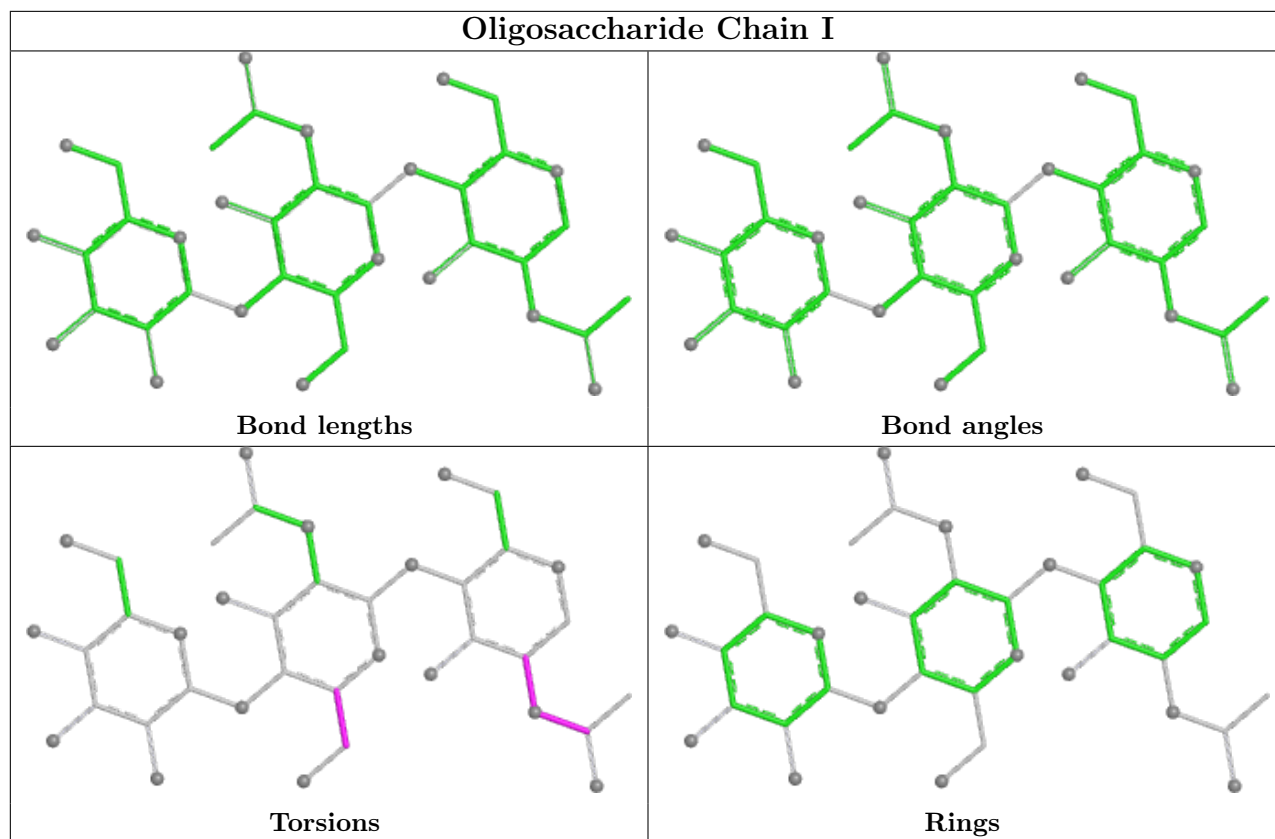
Mol	Chain	Res	Type	Atoms
4	R	2	NAG	C4-C5-C6-O6
4	K	6	MAN	O5-C5-C6-O6
6	W	2	NAG	O5-C5-C6-O6
6	W	1	NAG	C4-C5-C6-O6
9	a	4	MAN	O5-C5-C6-O6
4	R	3	BMA	O5-C5-C6-O6
5	S	1	NAG	C8-C7-N2-C2

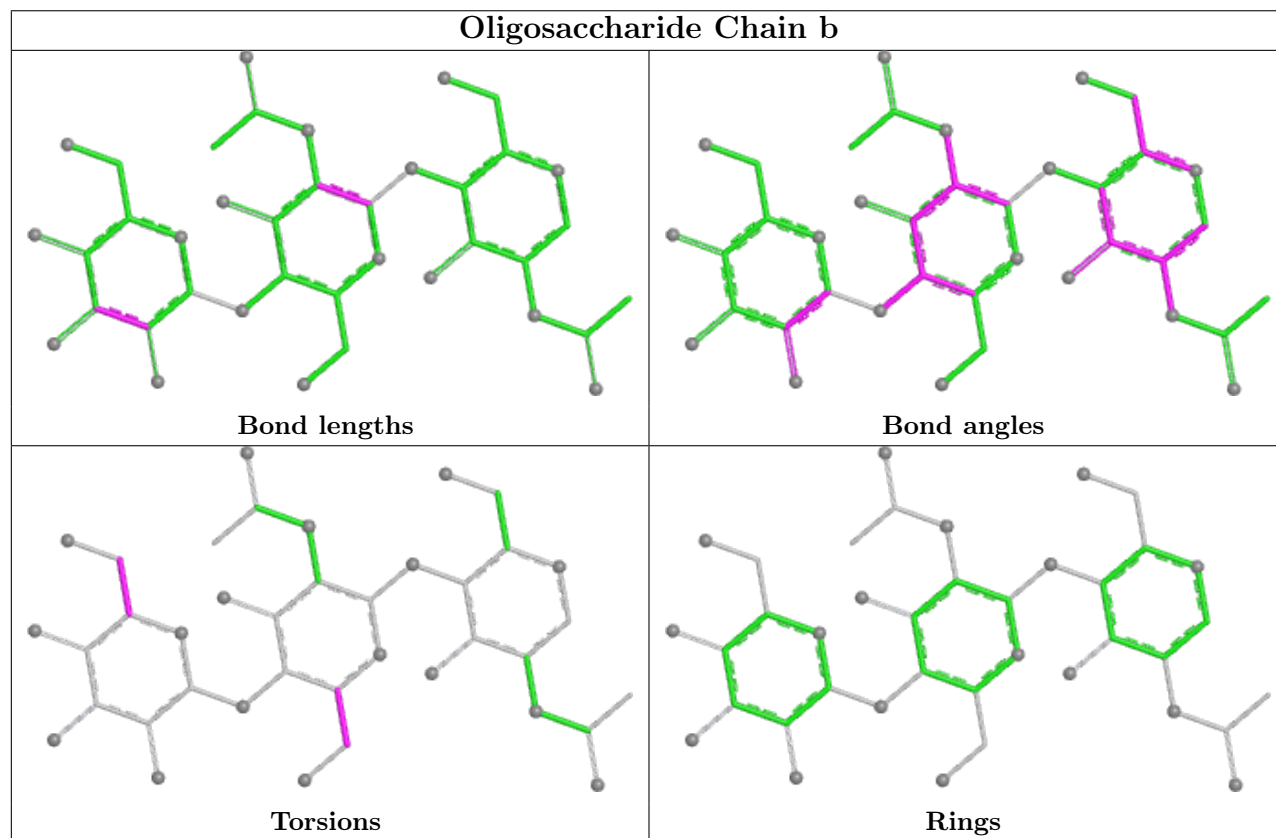
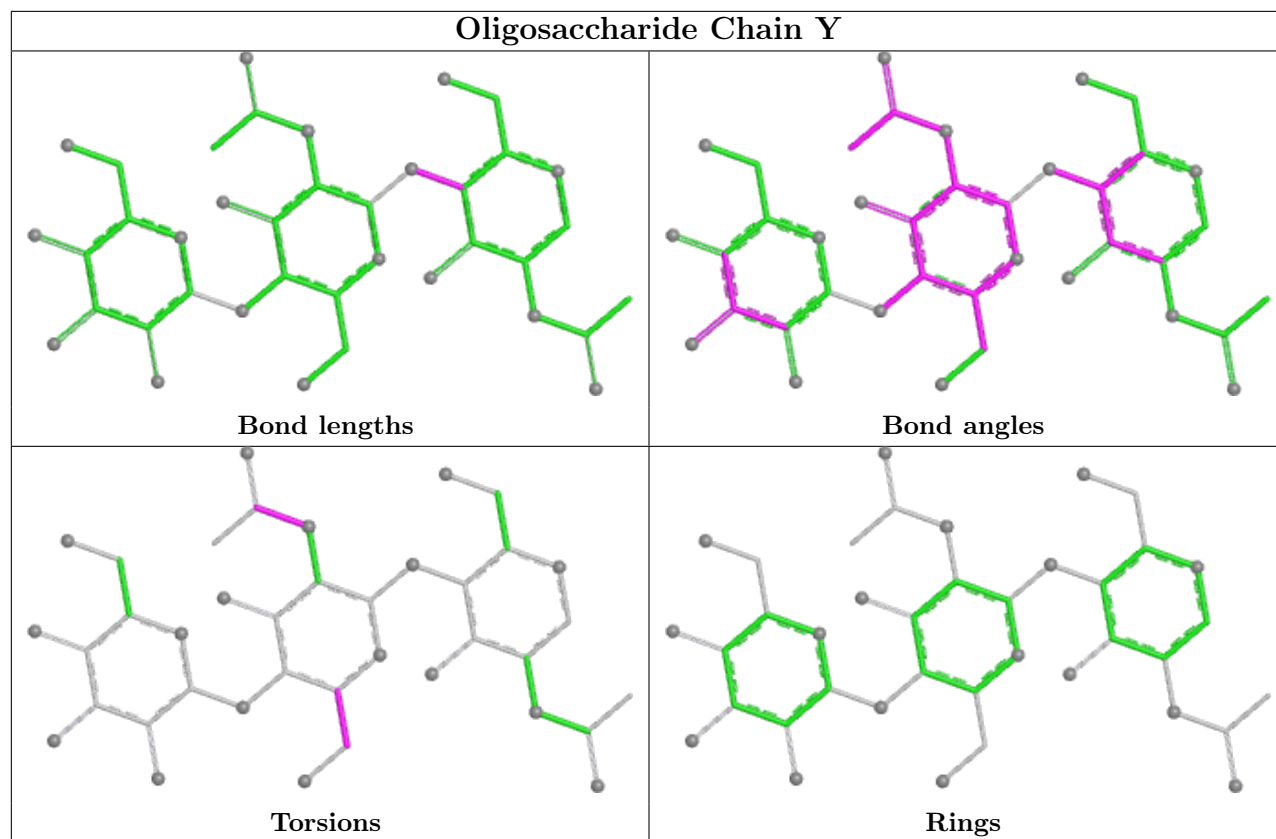
There are no ring outliers.

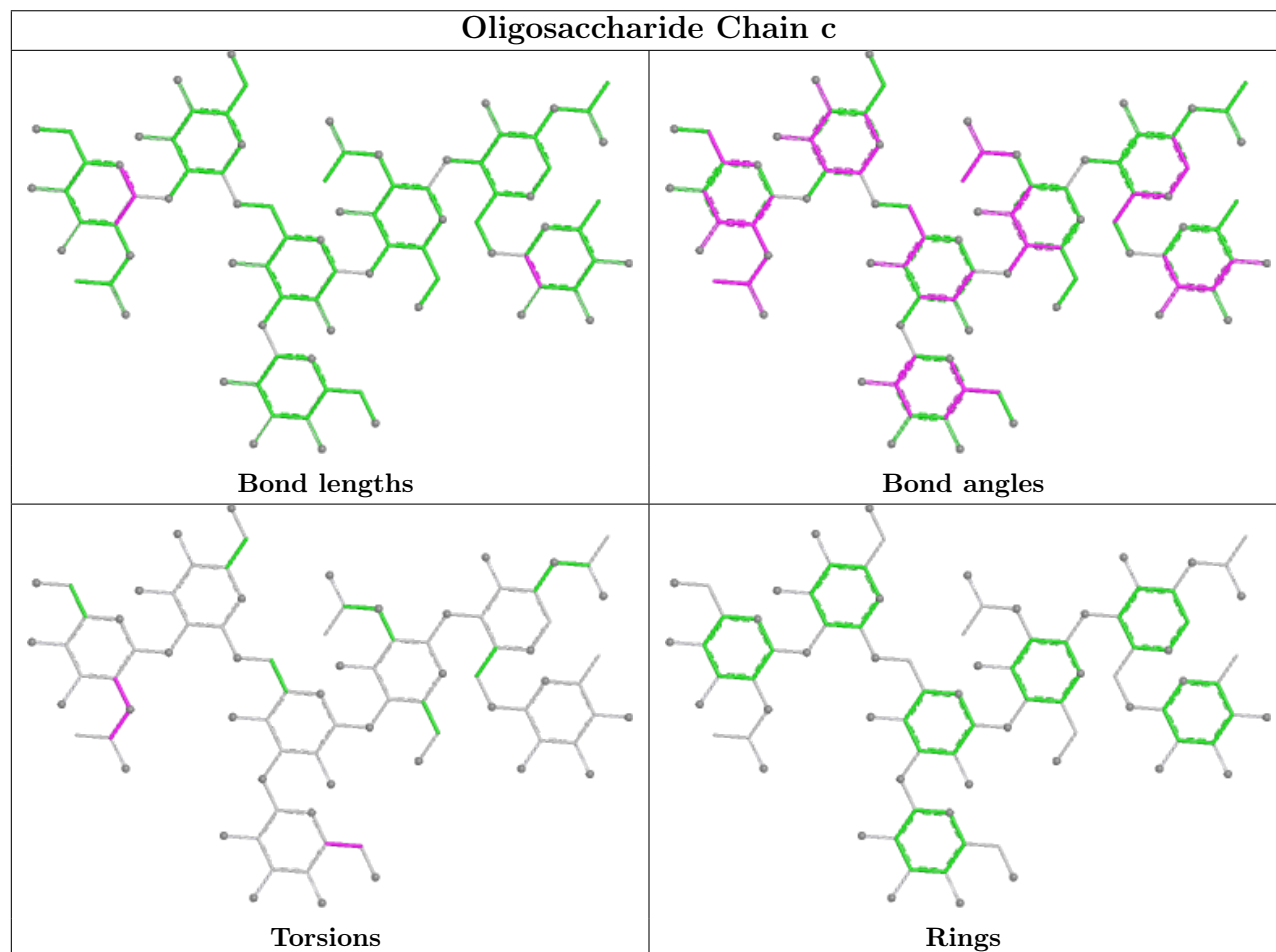
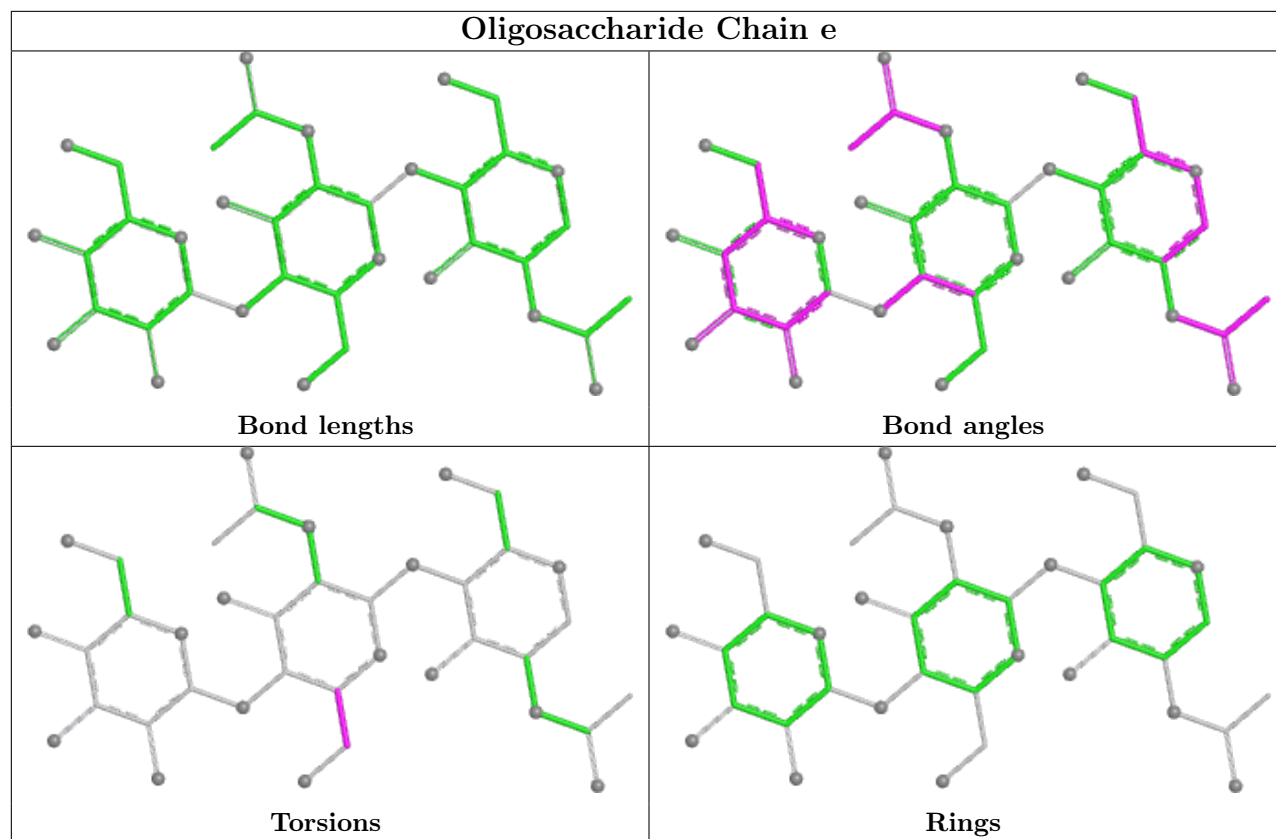
12 monomers are involved in 17 short contacts:

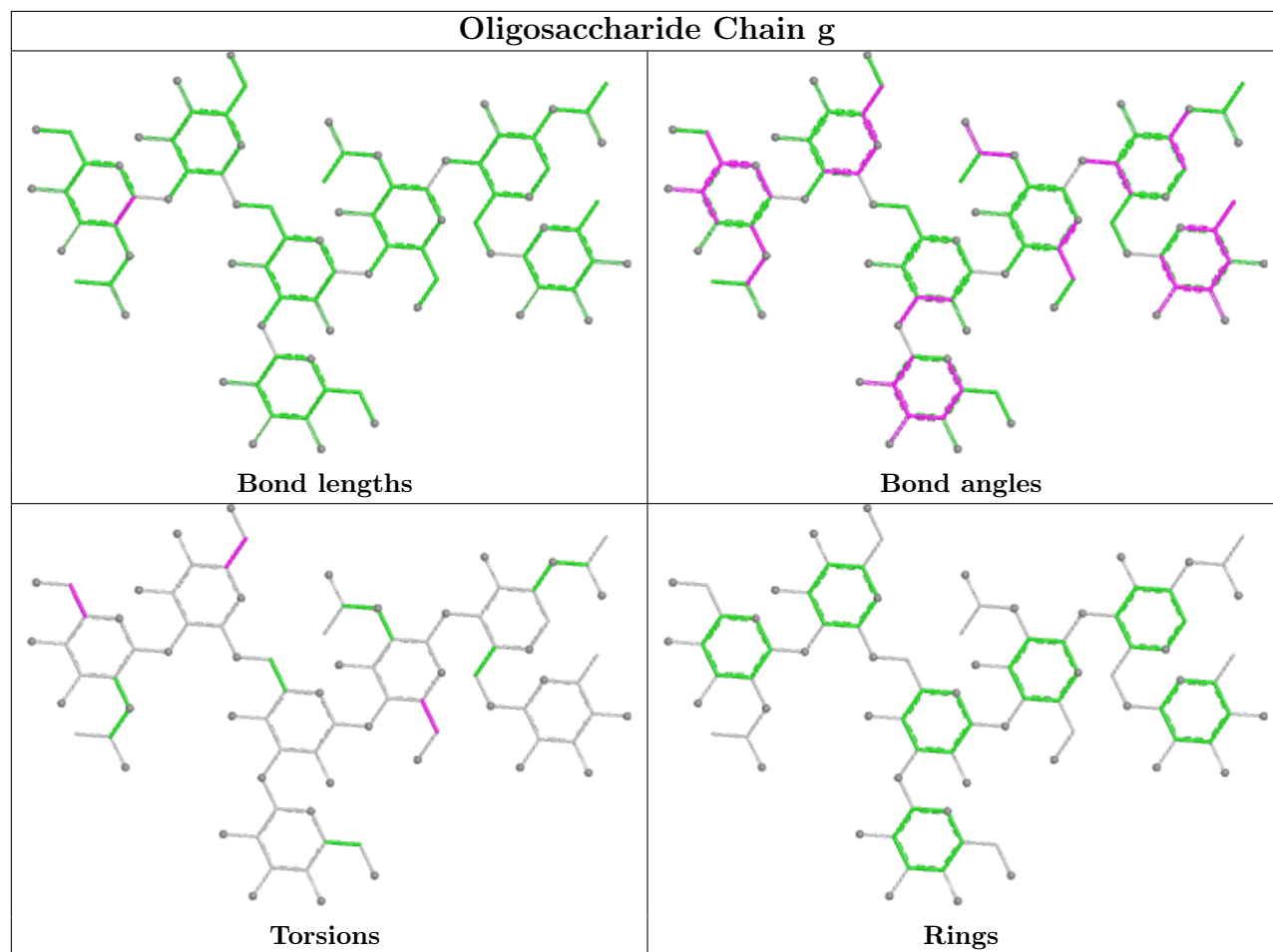
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	X	2	NAG	1	0
6	Z	4	MAN	1	0
7	P	3	BMA	1	0
7	P	4	MAN	1	0
4	K	4	MAN	0	1
6	N	5	MAN	1	0
2	I	1	NAG	2	0
8	U	3	BMA	1	0
6	Z	1	NAG	3	0
5	V	2	NAG	1	0
8	U	2	NAG	1	0
7	P	1	NAG	5	0

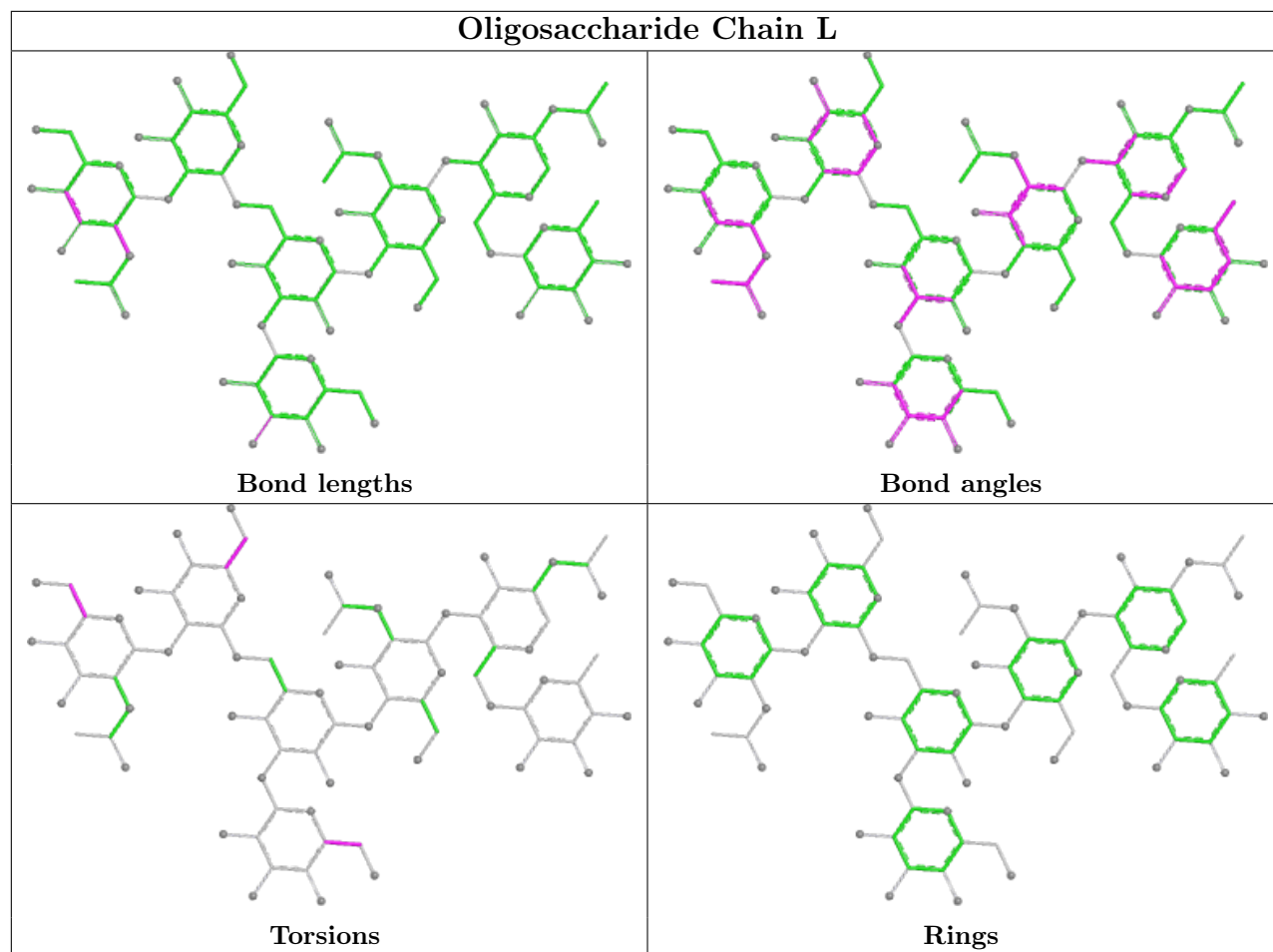
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

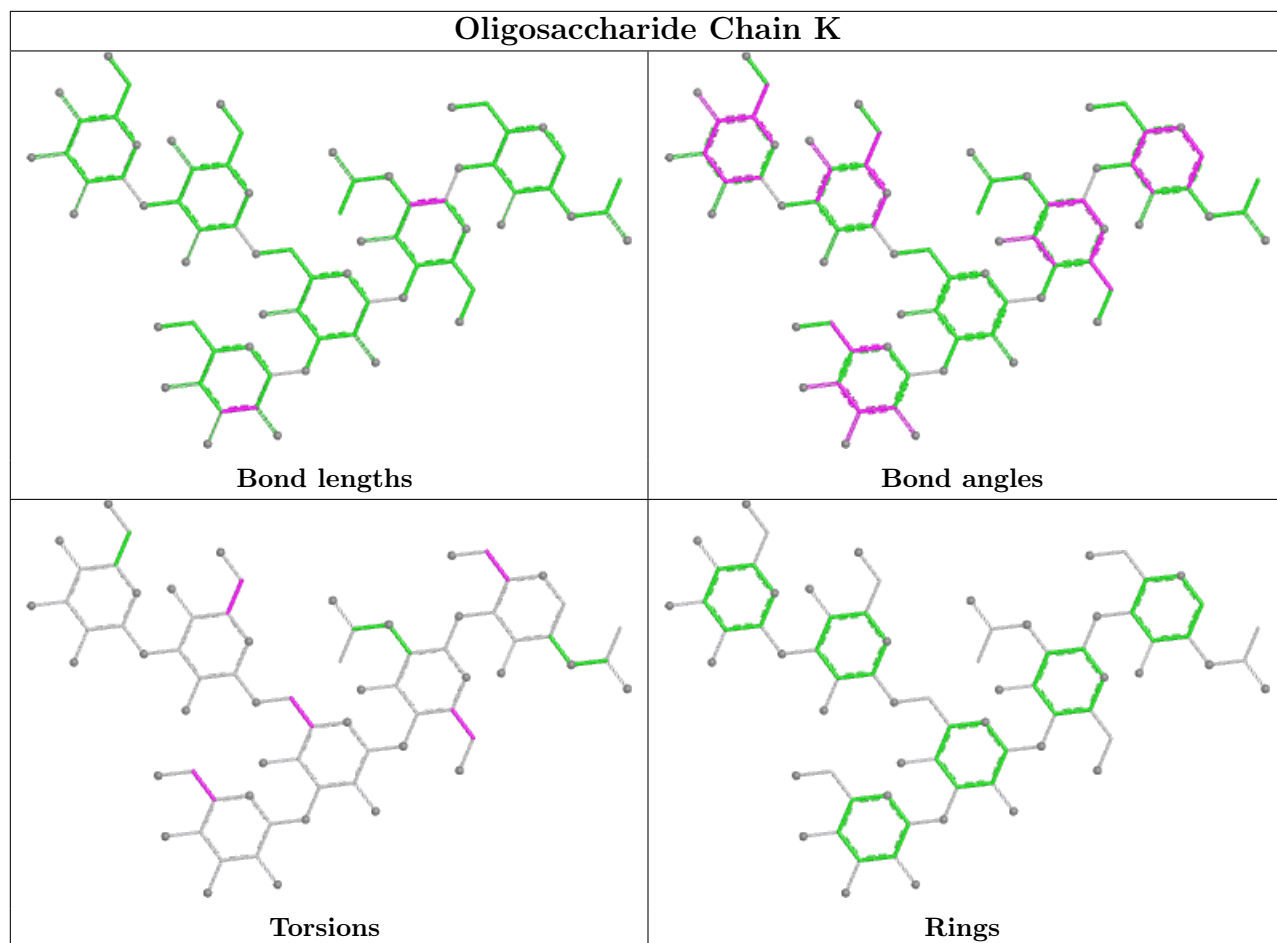


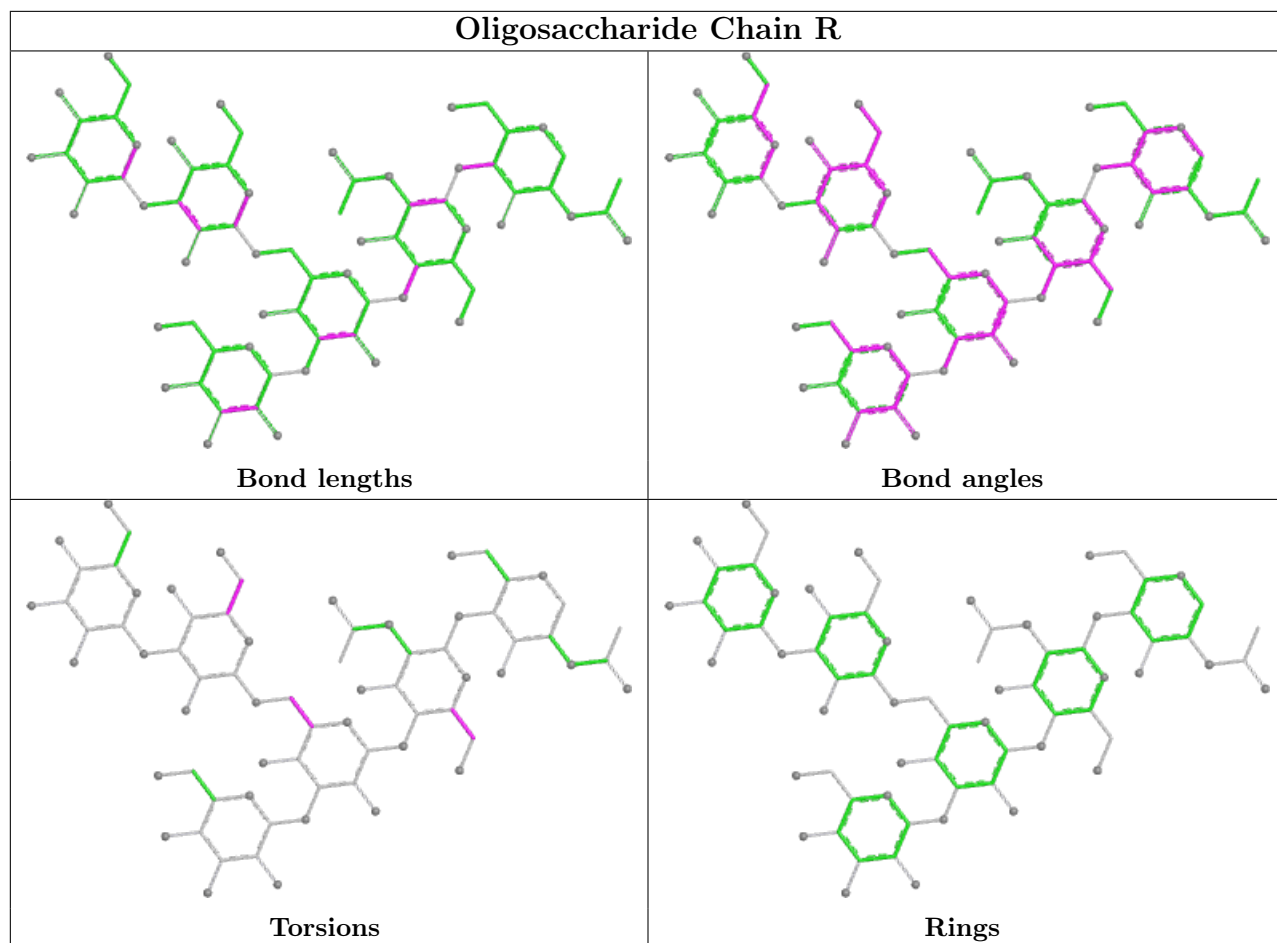


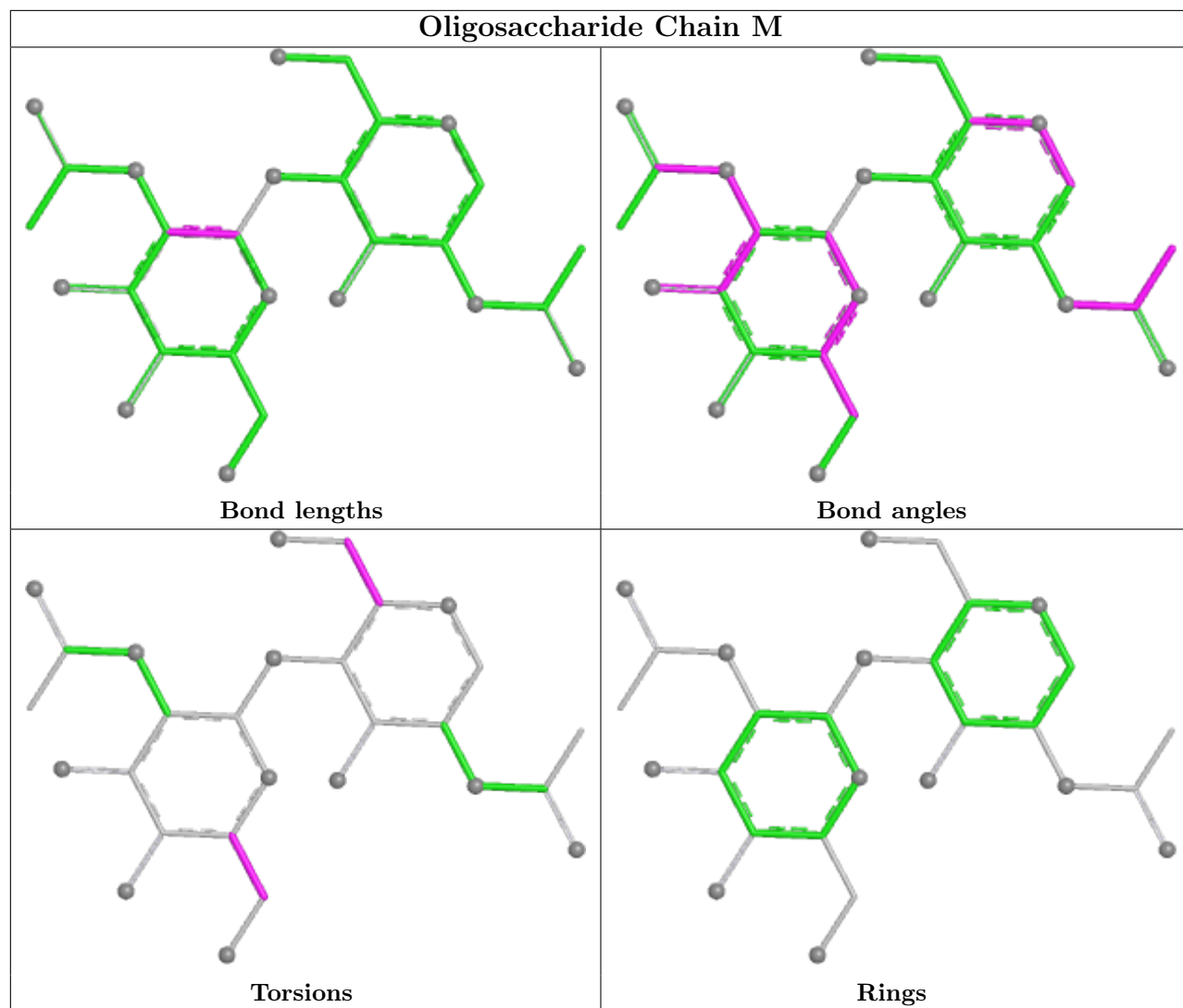


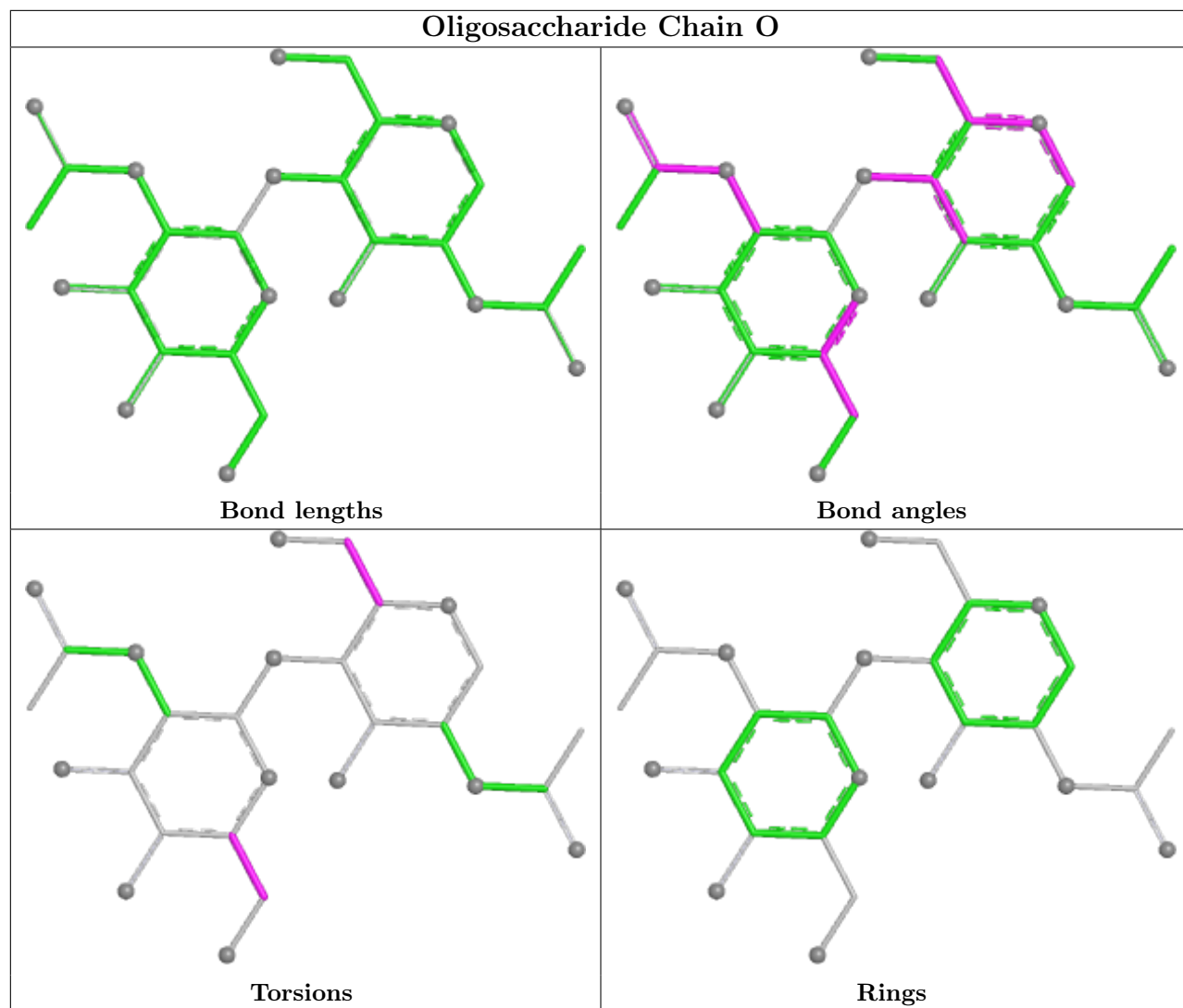


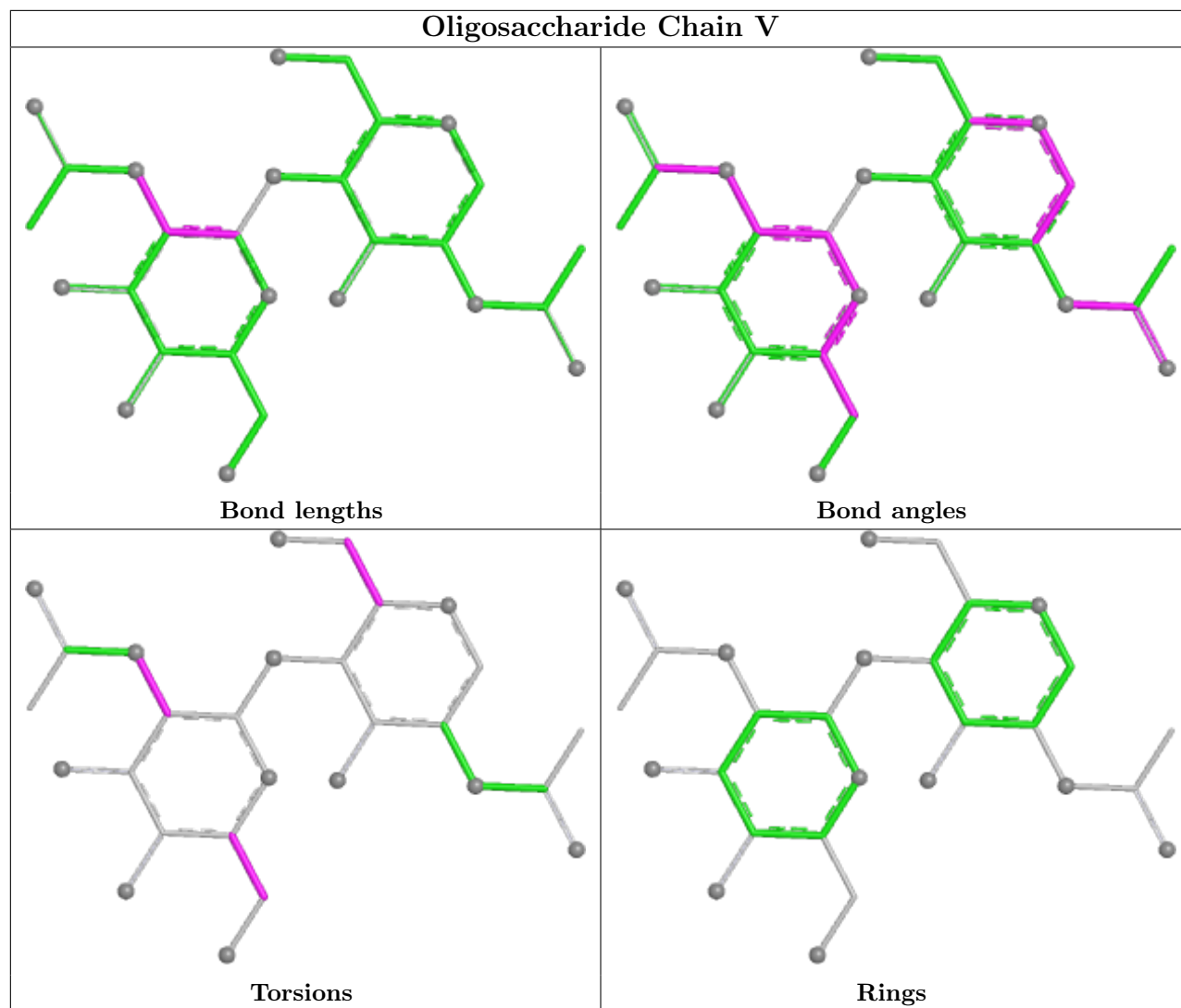


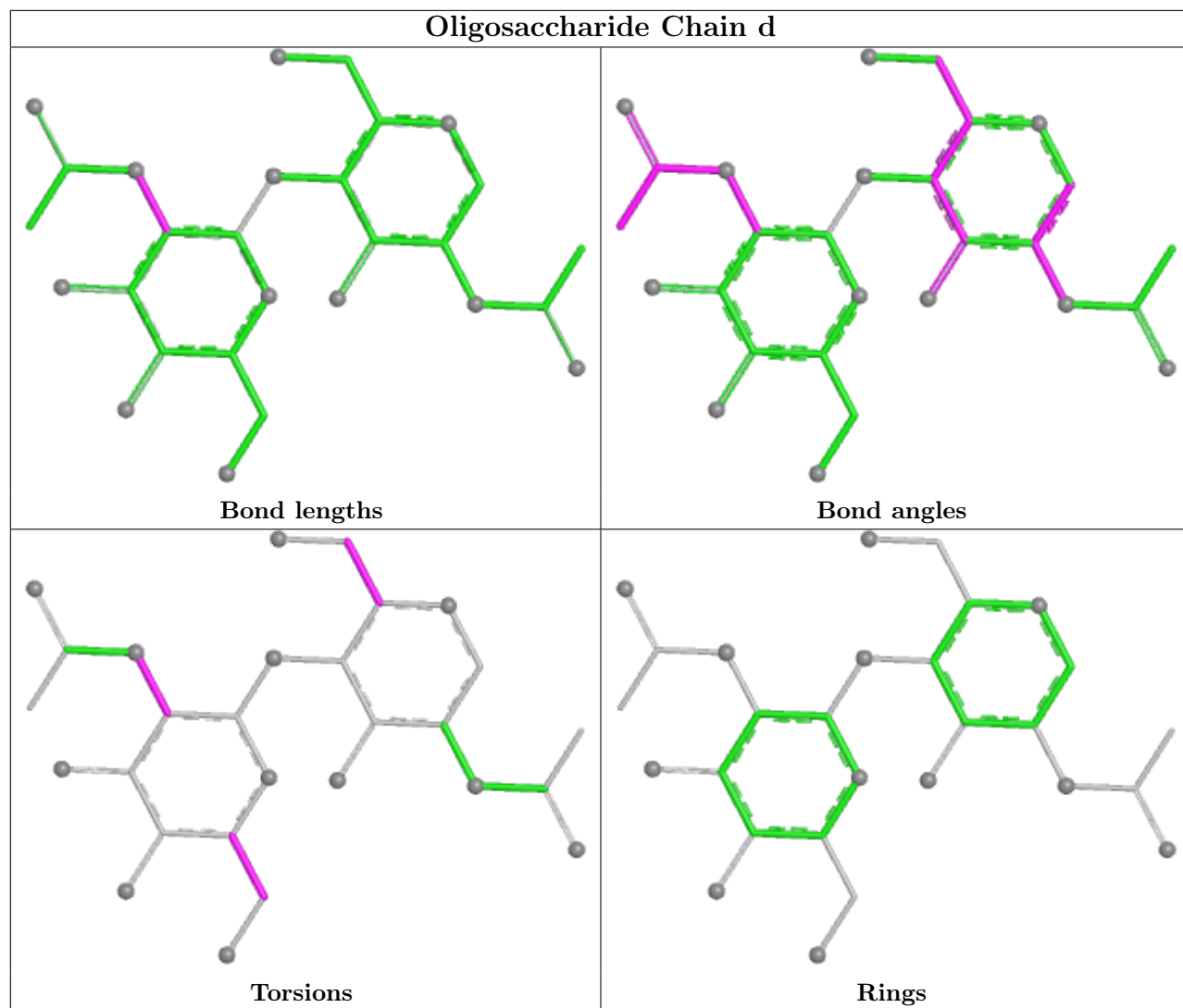


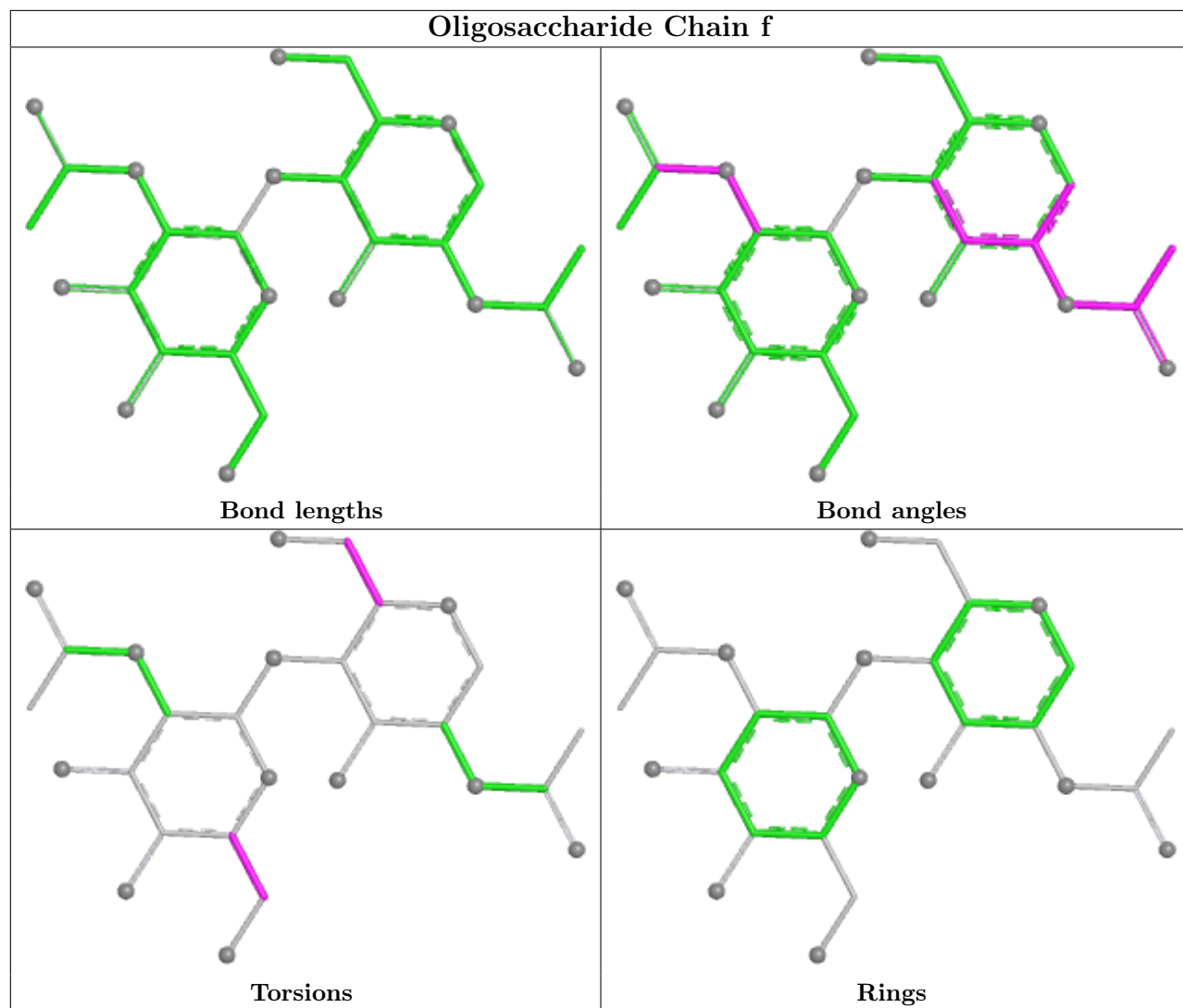


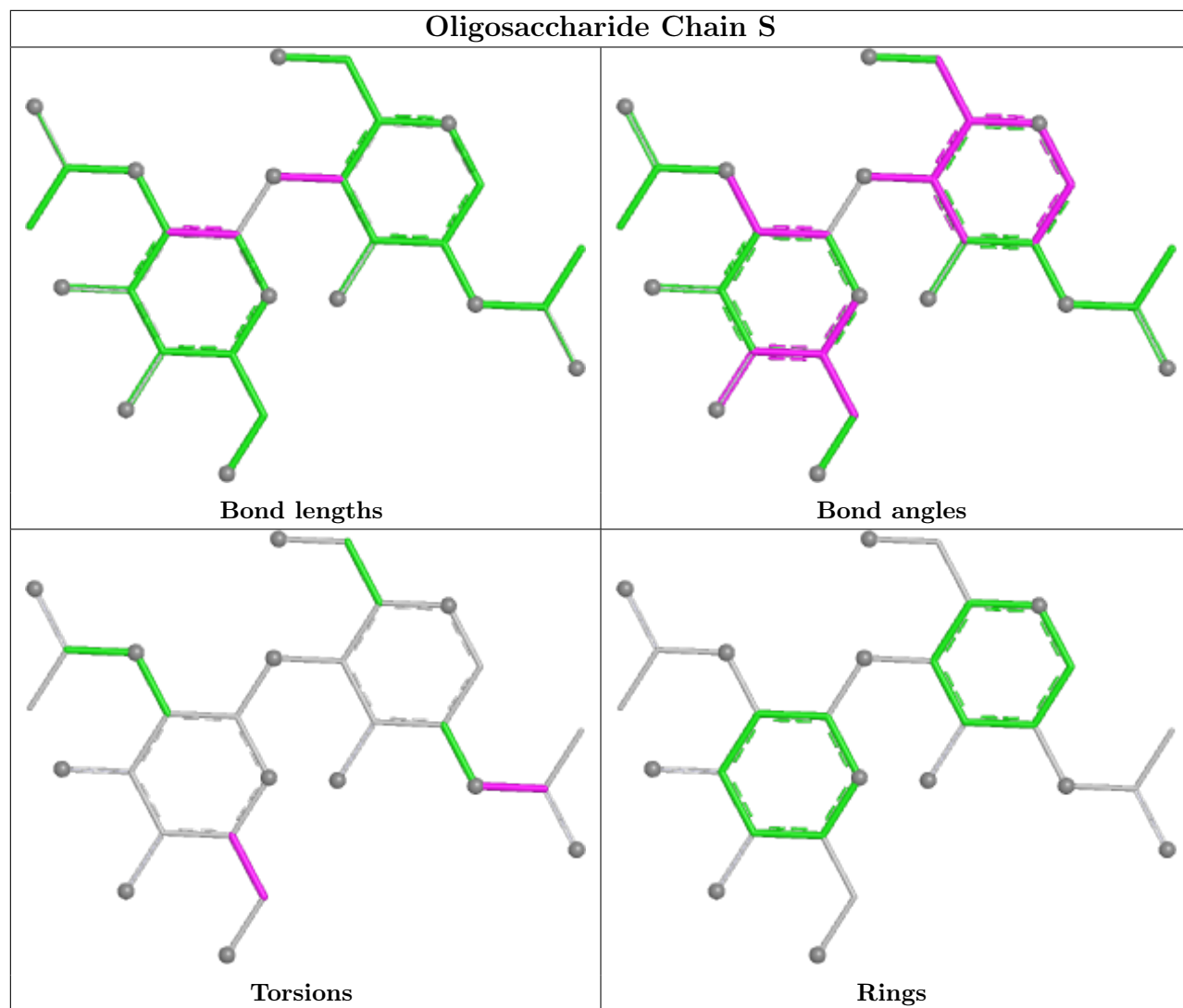


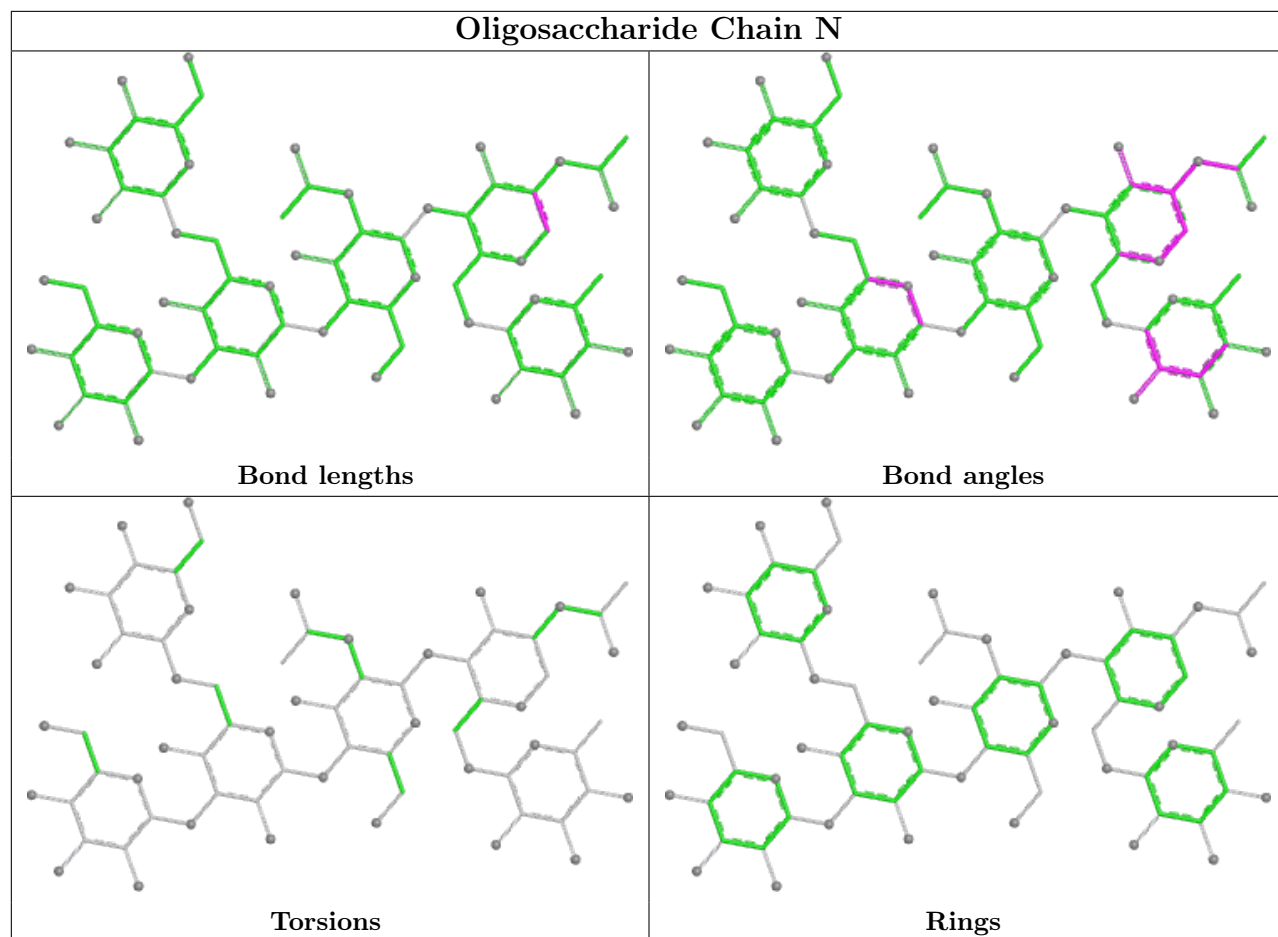


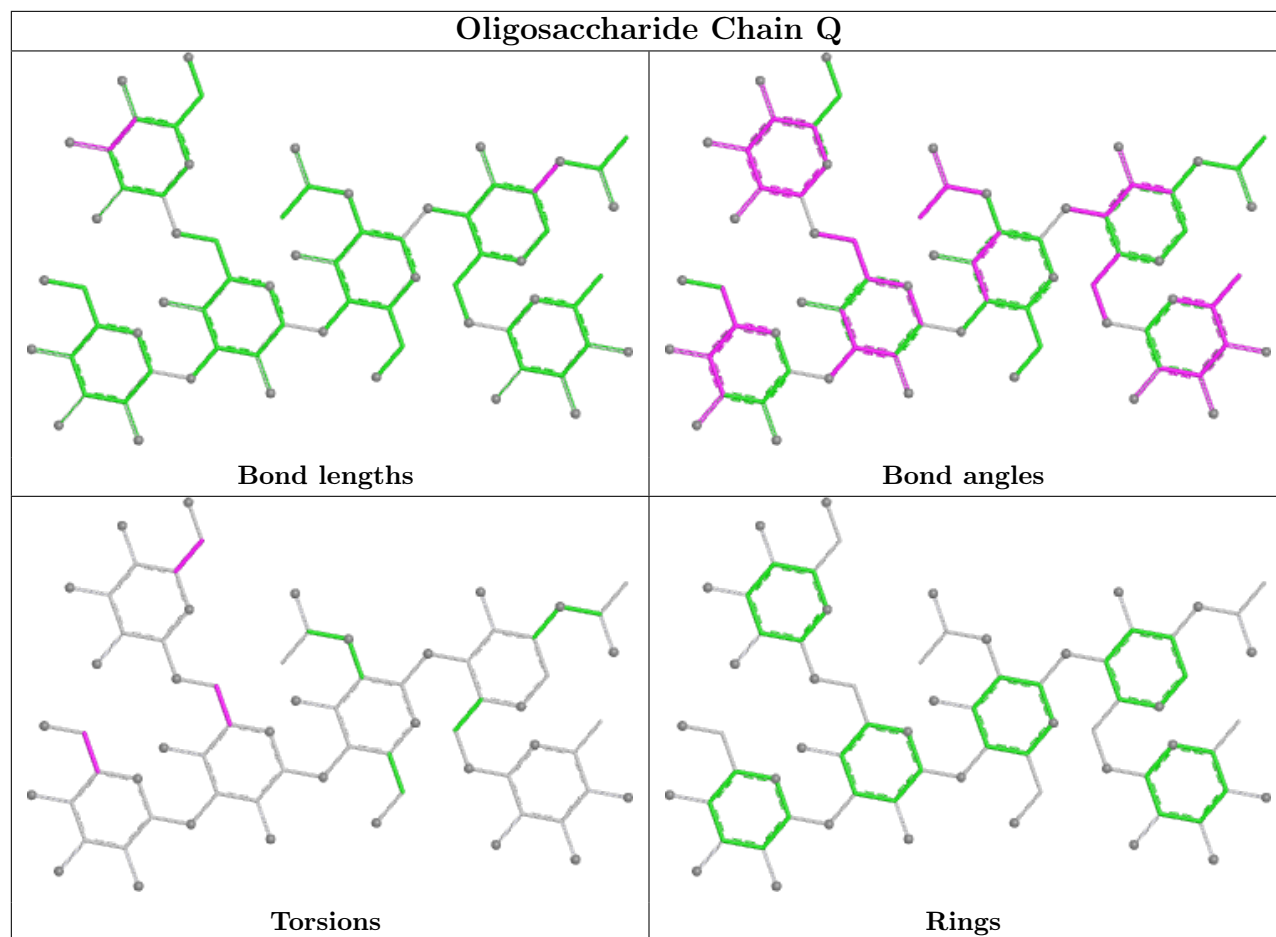


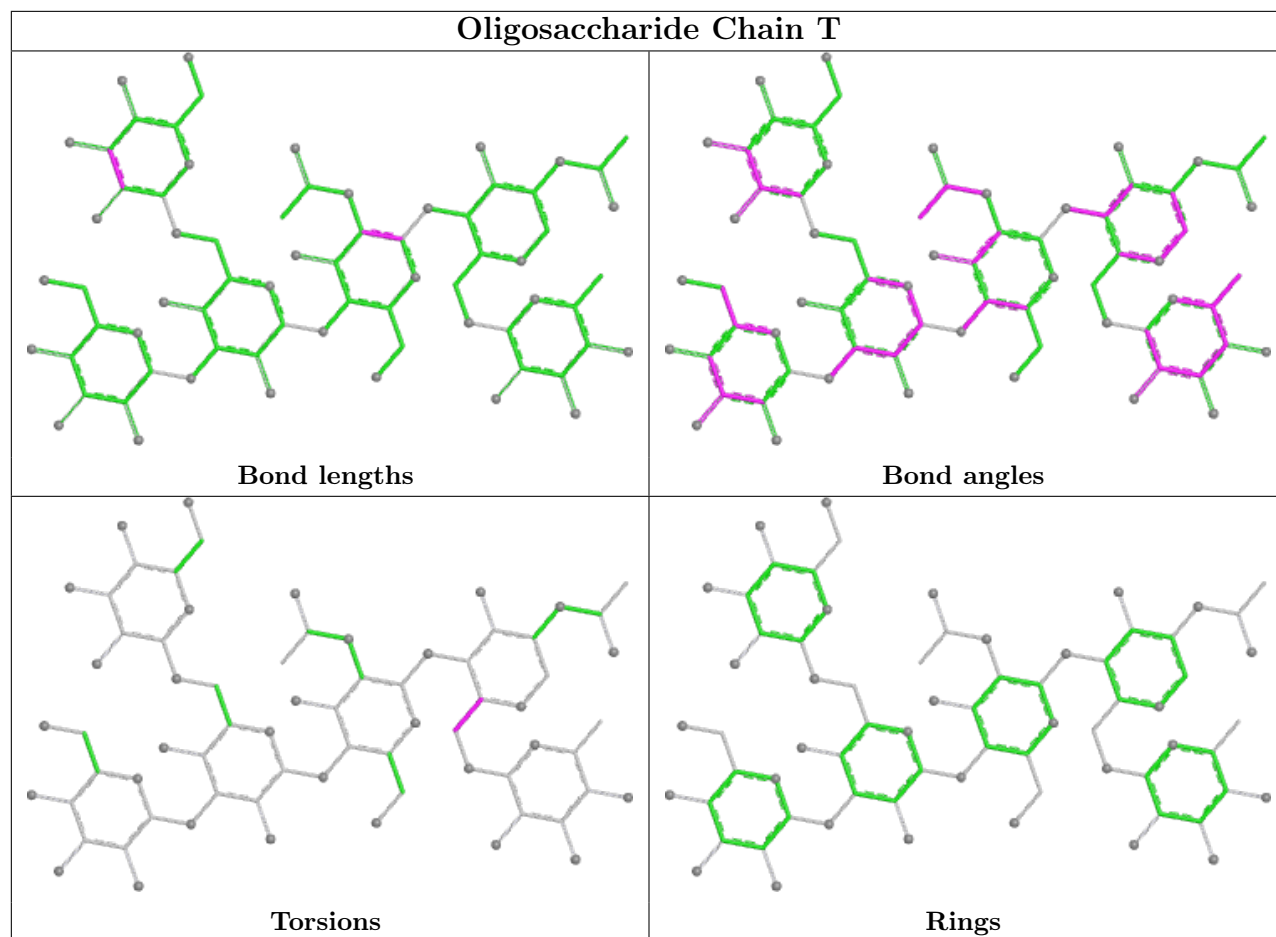


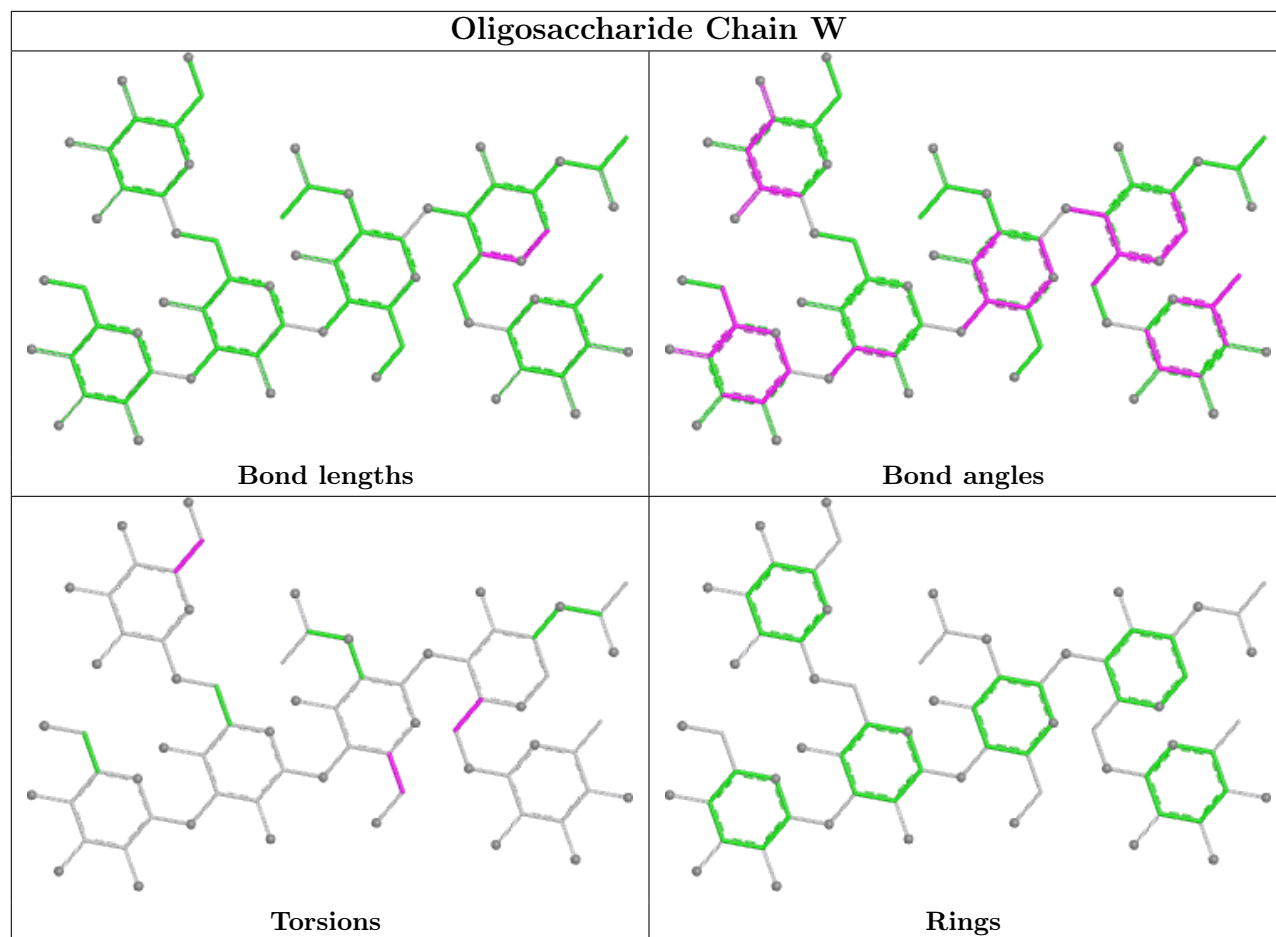


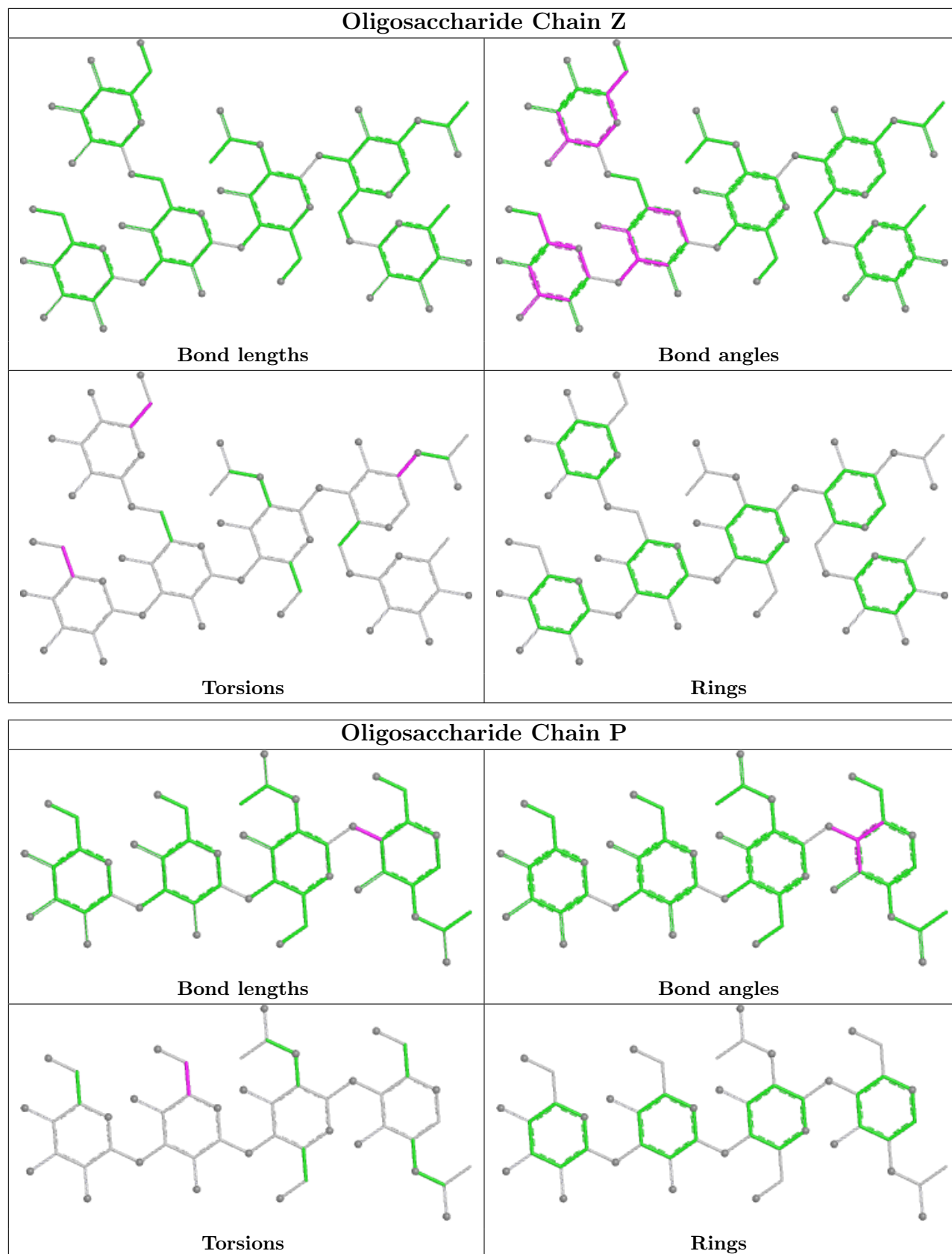


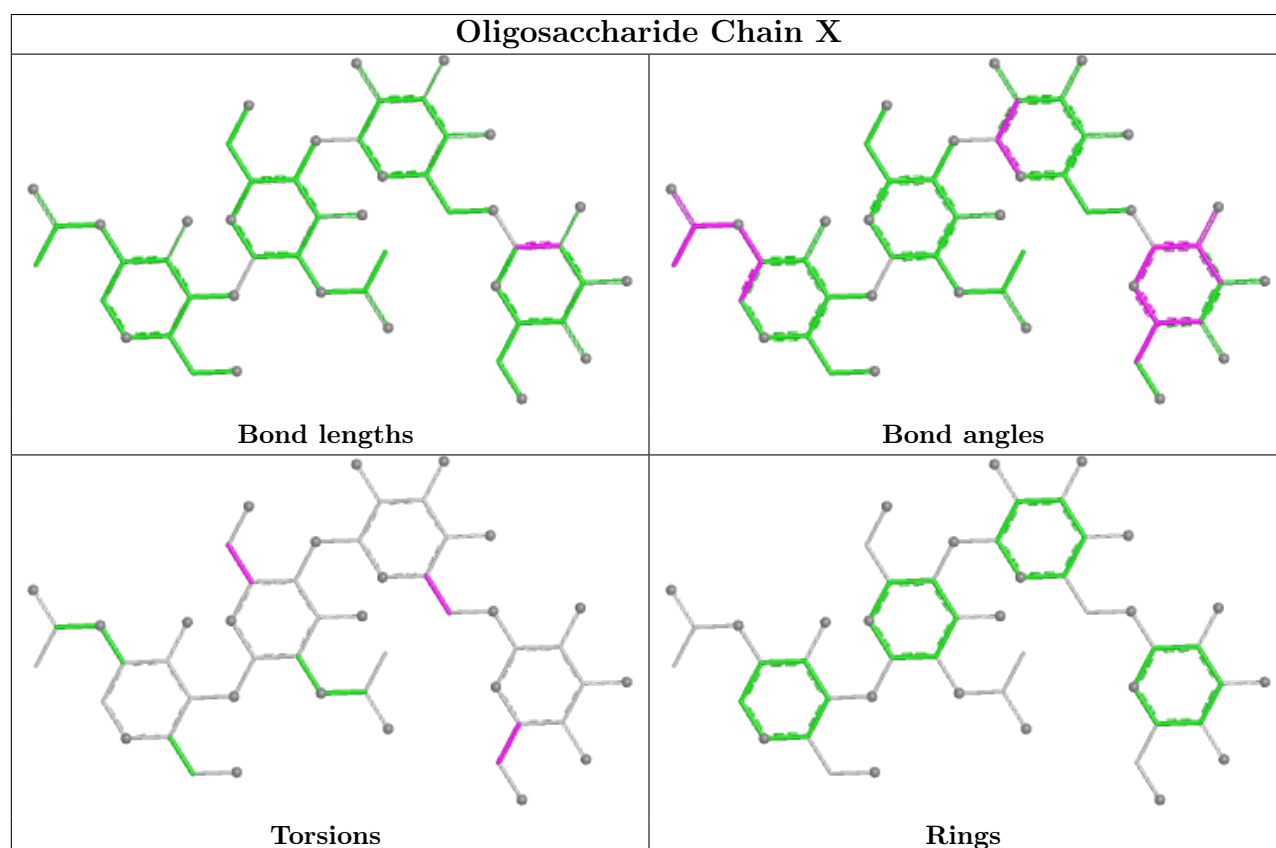
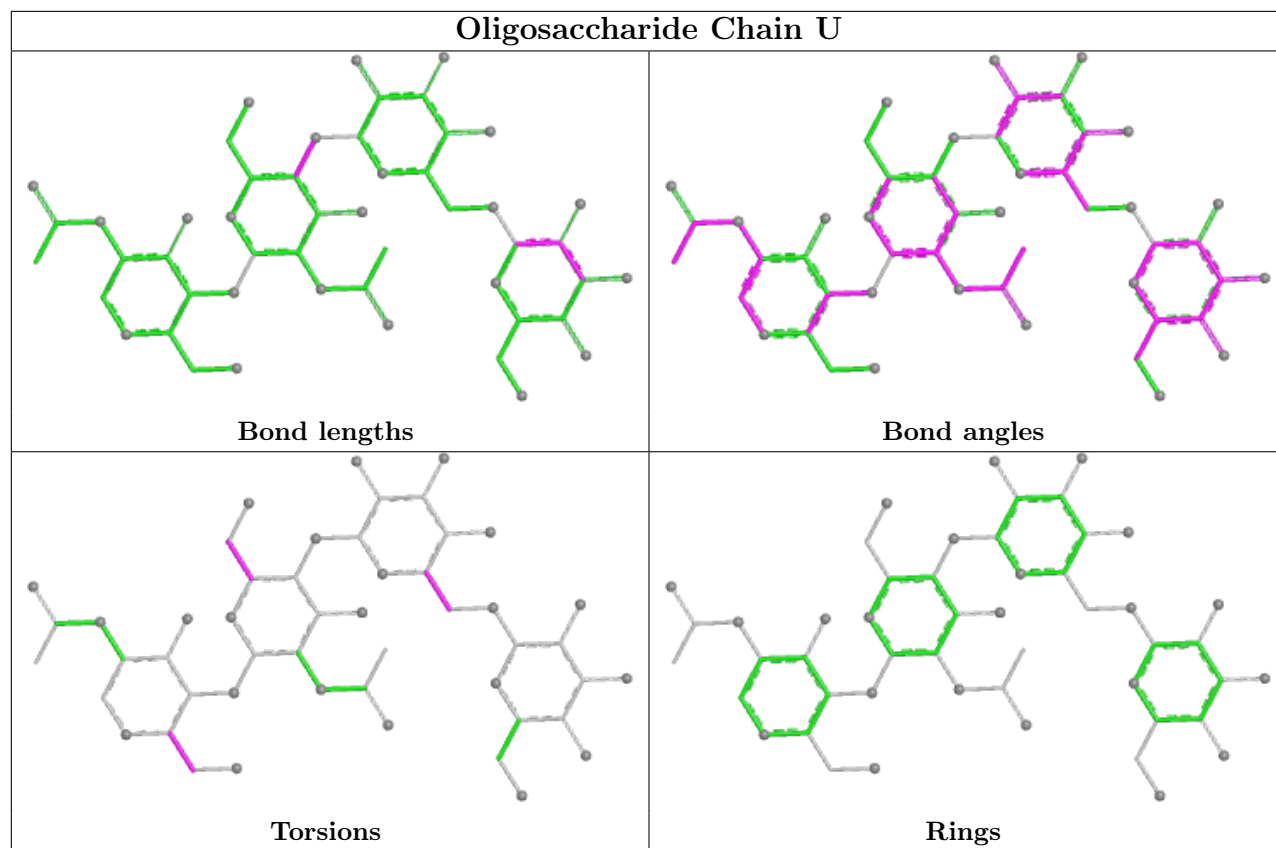


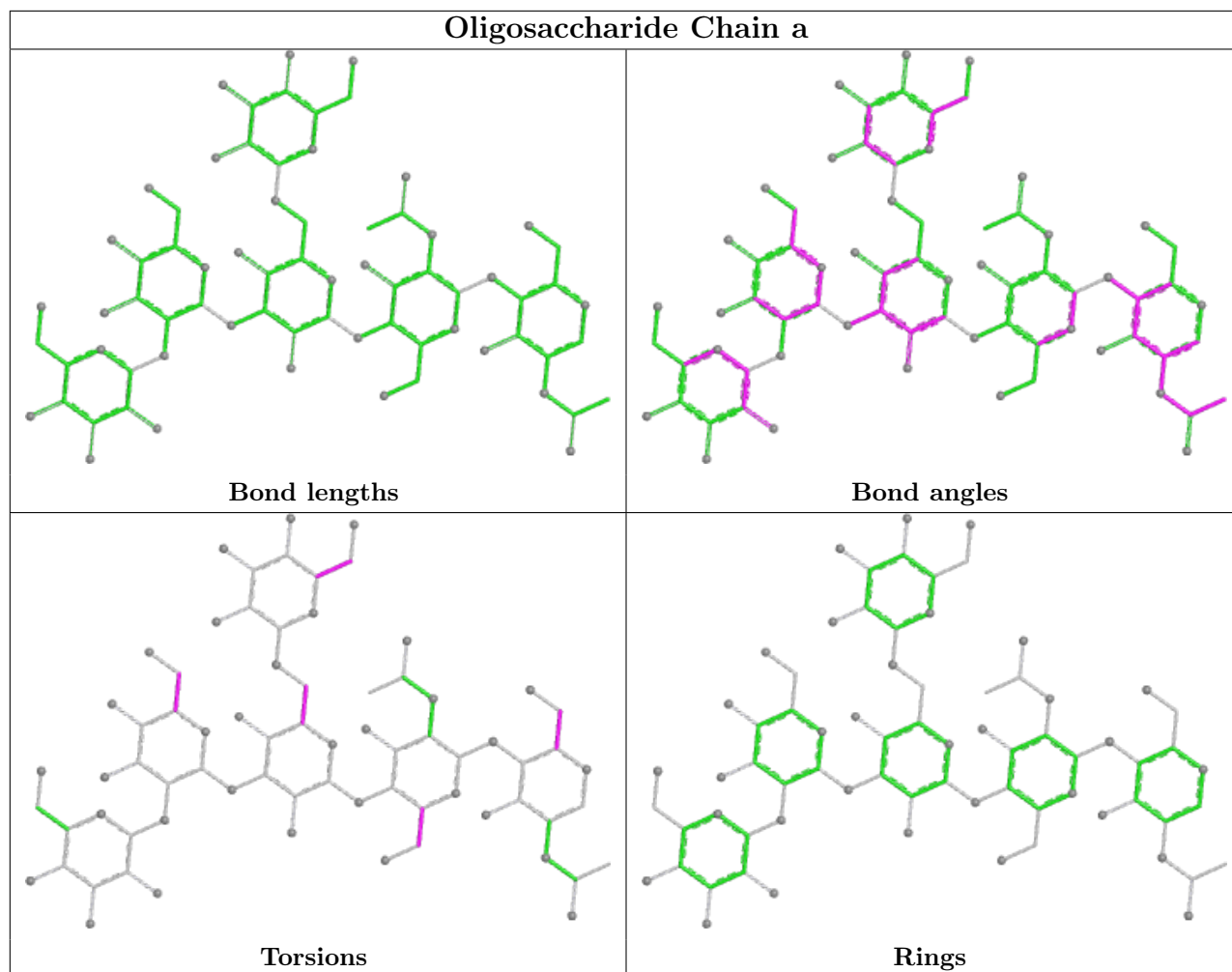












5.6 Ligand geometry [i](#)

Of 85 ligands modelled in this entry, 44 are monoatomic - leaving 41 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
13	SCN	G	807	-	1,2,2	1.21	0	0,1,1	-	-
13	SCN	C	807	-	1,2,2	0.82	0	0,1,1	-	-
15	PO4	D	812	-	4,4,4	0.77	0	6,6,6	0.42	0
12	HEM	G	806	1,17	41,50,50	1.47	7 (17%)	45,82,82	1.83	13 (28%)
16	NAG	C	805	1	14,14,15	1.63	3 (21%)	17,19,21	2.18	6 (35%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
12	HEM	D	805	1,17	41,50,50	1.50	8 (19%)	45,82,82	2.13	18 (40%)
12	HEM	F	805	1,17	41,50,50	1.42	7 (17%)	45,82,82	2.03	11 (24%)
14	8PR	H	807	-	26,27,27	0.40	0	33,37,37	0.50	0
14	8PR	A	807	-	26,27,27	0.48	0	33,37,37	1.00	2 (6%)
12	HEM	H	805	1,17	41,50,50	1.37	7 (17%)	45,82,82	1.95	14 (31%)
13	SCN	D	801	-	1,2,2	0.96	0	0,1,1	-	-
13	SCN	B	809	-	1,2,2	0.28	0	0,1,1	-	-
15	PO4	B	813	-	4,4,4	0.76	0	6,6,6	0.48	0
15	PO4	F	810	-	4,4,4	0.73	0	6,6,6	0.64	0
14	8PR	F	807	-	26,27,27	0.49	0	33,37,37	0.63	0
16	NAG	C	804	1	14,14,15	1.42	1 (7%)	17,19,21	1.93	4 (23%)
15	PO4	C	811	-	4,4,4	0.62	0	6,6,6	0.59	0
13	SCN	D	806	-	1,2,2	1.49	0	0,1,1	-	-
14	8PR	D	807	-	26,27,27	0.42	0	33,37,37	0.64	0
12	HEM	E	805	1,17	41,50,50	1.49	7 (17%)	45,82,82	1.98	16 (35%)
13	SCN	A	806	-	1,2,2	0.80	0	0,1,1	-	-
16	NAG	D	804	1	14,14,15	0.81	0	17,19,21	1.78	5 (29%)
15	PO4	A	810	-	4,4,4	0.68	0	6,6,6	0.46	0
13	SCN	H	806	-	1,2,2	0.56	0	0,1,1	-	-
15	PO4	H	810	-	4,4,4	0.63	0	6,6,6	0.54	0
16	NAG	B	805	1	14,14,15	1.32	2 (14%)	17,19,21	2.26	5 (29%)
15	PO4	E	808	-	4,4,4	0.72	0	6,6,6	0.47	0
13	SCN	E	806	-	1,2,2	0.60	0	0,1,1	-	-
15	PO4	B	812	-	4,4,4	0.77	0	6,6,6	0.48	0
12	HEM	C	806	1,17	41,50,50	1.41	5 (12%)	45,82,82	1.99	12 (26%)
15	PO4	C	810	-	4,4,4	0.86	0	6,6,6	0.38	0
15	PO4	D	811	-	4,4,4	1.12	1 (25%)	6,6,6	0.50	0
15	PO4	G	809	-	4,4,4	0.98	0	6,6,6	0.36	0
12	HEM	B	807	1,17	41,50,50	1.32	4 (9%)	45,82,82	2.20	16 (35%)
13	SCN	F	806	-	1,2,2	0.46	0	0,1,1	-	-
15	PO4	G	810	-	4,4,4	0.53	0	6,6,6	0.47	0
15	PO4	D	813	-	4,4,4	0.85	0	6,6,6	0.57	0
12	HEM	A	805	1,17	41,50,50	1.59	7 (17%)	45,82,82	1.74	15 (33%)
16	NAG	B	806	1	14,14,15	1.66	2 (14%)	17,19,21	2.87	6 (35%)
15	PO4	H	809	-	4,4,4	0.51	0	6,6,6	0.47	0
13	SCN	B	808	-	1,2,2	0.89	0	0,1,1	-	-

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
12	HEM	E	805	1,17	-	5/12/54/54	-
16	NAG	B	806	1	-	1/6/23/26	0/1/1/1
14	8PR	F	807	-	-	2/9/26/26	0/4/4/4
14	8PR	A	807	-	-	2/9/26/26	0/4/4/4
14	8PR	H	807	-	-	2/9/26/26	0/4/4/4
12	HEM	H	805	1,17	-	4/12/54/54	-
16	NAG	C	804	1	-	2/6/23/26	0/1/1/1
16	NAG	D	804	1	-	3/6/23/26	0/1/1/1
16	NAG	B	805	1	-	0/6/23/26	0/1/1/1
12	HEM	G	806	1,17	-	5/12/54/54	-
12	HEM	C	806	1,17	-	5/12/54/54	-
12	HEM	A	805	1,17	-	5/12/54/54	-
16	NAG	C	805	1	-	0/6/23/26	0/1/1/1
12	HEM	D	805	1,17	-	4/12/54/54	-
12	HEM	B	807	1,17	-	4/12/54/54	-
12	HEM	F	805	1,17	-	4/12/54/54	-
14	8PR	D	807	-	-	2/9/26/26	0/4/4/4

All (61) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
16	B	806	NAG	C1-C2	4.41	1.58	1.52
12	E	805	HEM	C1B-NB	-4.20	1.33	1.40
12	F	805	HEM	C4D-ND	-3.93	1.33	1.40
12	A	805	HEM	C3B-C4B	3.88	1.52	1.44
16	C	805	NAG	C1-C2	3.87	1.58	1.52
12	C	806	HEM	C1B-NB	-3.78	1.33	1.40
16	C	804	NAG	C1-C2	3.77	1.58	1.52
12	B	807	HEM	C1B-NB	-3.66	1.34	1.40
12	A	805	HEM	C1B-NB	-3.53	1.34	1.40
12	A	805	HEM	C4D-ND	-3.34	1.34	1.40
12	E	805	HEM	FE-NB	3.32	2.13	1.96
12	F	805	HEM	C1B-NB	-3.31	1.34	1.40
12	D	805	HEM	C4B-NB	-3.31	1.32	1.38
12	A	805	HEM	FE-NB	3.21	2.12	1.96
12	D	805	HEM	C1B-NB	-3.21	1.34	1.40
16	B	806	NAG	C2-N2	3.16	1.51	1.46
12	C	806	HEM	FE-NB	3.02	2.11	1.96

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	D	805	HEM	C1D-ND	-3.01	1.32	1.38
12	G	806	HEM	C1B-NB	-2.97	1.35	1.40
12	D	805	HEM	FE-NB	2.96	2.11	1.96
12	G	806	HEM	C3B-C4B	2.96	1.50	1.44
16	B	805	NAG	C2-N2	2.94	1.51	1.46
12	G	806	HEM	C4D-ND	-2.91	1.35	1.40
12	G	806	HEM	FE-NB	2.88	2.11	1.96
12	G	806	HEM	O2A-CGA	-2.87	1.21	1.30
12	H	805	HEM	C1B-NB	-2.74	1.35	1.40
12	B	807	HEM	FE-NB	2.72	2.10	1.96
12	H	805	HEM	FE-NB	2.72	2.10	1.96
12	F	805	HEM	FE-NB	2.68	2.10	1.96
12	G	806	HEM	C3C-C2C	2.62	1.44	1.40
12	E	805	HEM	C4D-C3D	2.58	1.49	1.45
12	H	805	HEM	C4D-ND	-2.54	1.35	1.40
12	E	805	HEM	C3B-C4B	2.54	1.50	1.44
12	E	805	HEM	CHA-C4D	2.54	1.41	1.35
12	D	805	HEM	C4D-ND	-2.50	1.36	1.40
12	D	805	HEM	CHA-C4D	2.45	1.41	1.35
12	C	806	HEM	CHB-C1B	2.42	1.41	1.35
12	F	805	HEM	CHB-C1B	2.34	1.41	1.35
12	A	805	HEM	C3D-C2D	-2.33	1.31	1.36
12	G	806	HEM	C1D-ND	-2.33	1.34	1.38
12	D	805	HEM	C4A-CHB	-2.27	1.34	1.41
16	C	805	NAG	O5-C1	2.23	1.47	1.43
12	H	805	HEM	CHB-C1B	2.20	1.40	1.35
12	H	805	HEM	C3B-C4B	2.19	1.49	1.44
16	C	805	NAG	C2-N2	2.17	1.50	1.46
16	B	805	NAG	C1-C2	2.15	1.55	1.52
12	E	805	HEM	C4A-CHB	-2.15	1.35	1.41
12	F	805	HEM	C3D-C2D	-2.13	1.32	1.36
12	A	805	HEM	C1D-ND	-2.13	1.34	1.38
12	F	805	HEM	CHA-C4D	2.13	1.40	1.35
12	H	805	HEM	C4D-C3D	2.11	1.48	1.45
12	H	805	HEM	C4B-NB	-2.10	1.34	1.38
12	E	805	HEM	CHD-C1D	-2.05	1.35	1.41
12	C	806	HEM	C1B-C2B	-2.05	1.40	1.44
12	B	807	HEM	O2D-CGD	-2.04	1.23	1.30
12	D	805	HEM	CBD-CAD	2.04	1.58	1.52
12	A	805	HEM	CHA-C4D	2.02	1.40	1.35
12	F	805	HEM	C1B-C2B	-2.02	1.40	1.44
12	B	807	HEM	CHA-C4D	2.00	1.40	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
15	D	811	PO4	P-O1	2.00	1.55	1.50
12	C	806	HEM	O1A-CGA	2.00	1.28	1.22

All (143) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	B	806	NAG	C1-C2-N2	7.27	122.90	110.49
16	B	806	NAG	C2-N2-C7	6.99	132.86	122.90
12	F	805	HEM	CHC-C4B-NB	6.36	131.34	124.43
12	B	807	HEM	CHC-C4B-NB	6.09	131.05	124.43
16	B	805	NAG	C2-N2-C7	5.17	130.27	122.90
12	B	807	HEM	C1B-NB-C4B	5.15	110.39	105.07
12	H	805	HEM	CHC-C4B-NB	5.07	129.93	124.43
12	F	805	HEM	C1B-NB-C4B	5.02	110.25	105.07
12	C	806	HEM	C1B-NB-C4B	4.90	110.13	105.07
16	B	805	NAG	O5-C5-C6	4.87	114.84	107.20
16	C	805	NAG	C1-C2-N2	4.81	118.71	110.49
12	C	806	HEM	CHB-C1B-NB	4.77	130.27	124.38
12	C	806	HEM	CBD-CAD-C3D	-4.65	99.71	112.63
12	H	805	HEM	C1B-NB-C4B	4.31	109.52	105.07
12	B	807	HEM	CHD-C1D-ND	4.24	129.04	124.43
16	D	804	NAG	O5-C5-C6	4.22	113.81	107.20
12	D	805	HEM	C1B-NB-C4B	4.15	109.36	105.07
16	C	804	NAG	C2-N2-C7	4.12	128.77	122.90
12	E	805	HEM	C1B-NB-C4B	4.02	109.22	105.07
12	E	805	HEM	C2C-C3C-C4C	-3.90	104.17	106.90
12	D	805	HEM	C3B-C2B-C1B	-3.90	103.59	106.49
12	B	807	HEM	CHB-C1B-NB	3.88	129.18	124.38
12	F	805	HEM	CHB-C1B-NB	3.83	129.12	124.38
12	F	805	HEM	CBA-CAA-C2A	-3.75	106.22	112.62
12	G	806	HEM	C1B-NB-C4B	3.74	108.94	105.07
12	G	806	HEM	CHB-C1B-NB	3.74	129.00	124.38
12	H	805	HEM	O2D-CGD-O1D	-3.71	114.06	123.30
12	E	805	HEM	CHB-C1B-NB	3.68	128.92	124.38
12	D	805	HEM	CHC-C4B-NB	3.65	128.40	124.43
12	B	807	HEM	CHA-C4D-ND	3.65	128.89	124.38
12	F	805	HEM	O2A-CGA-O1A	-3.64	114.22	123.30
12	D	805	HEM	O2D-CGD-CBD	3.62	125.66	114.03
12	C	806	HEM	CBA-CAA-C2A	-3.61	106.46	112.62
16	C	805	NAG	C1-O5-C5	3.60	117.07	112.19
12	E	805	HEM	CHD-C1D-C2D	-3.47	119.56	124.98
12	A	805	HEM	C1B-NB-C4B	3.46	108.65	105.07

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	E	805	HEM	O2D-CGD-O1D	-3.42	114.78	123.30
16	B	805	NAG	C1-C2-N2	3.38	116.27	110.49
12	G	806	HEM	CBD-CAD-C3D	-3.37	103.27	112.63
12	G	806	HEM	CAD-C3D-C4D	3.37	130.54	124.66
12	C	806	HEM	CMA-C3A-C4A	-3.34	123.34	128.46
12	D	805	HEM	CBA-CAA-C2A	-3.31	106.98	112.62
16	C	804	NAG	C1-C2-N2	3.27	116.07	110.49
12	B	807	HEM	O2D-CGD-O1D	-3.26	115.18	123.30
16	B	806	NAG	O7-C7-N2	3.20	127.84	121.95
12	G	806	HEM	O2A-CGA-O1A	-3.20	115.33	123.30
12	D	805	HEM	CHB-C1B-NB	3.19	128.33	124.38
12	D	805	HEM	O2D-CGD-O1D	-3.19	115.34	123.30
16	C	805	NAG	O3-C3-C2	3.17	116.03	109.47
12	H	805	HEM	CBD-CAD-C3D	-3.17	103.82	112.63
12	E	805	HEM	O2D-CGD-CBD	3.11	124.02	114.03
12	B	807	HEM	CBD-CAD-C3D	-3.10	104.01	112.63
12	C	806	HEM	CHC-C4B-NB	3.09	127.79	124.43
12	D	805	HEM	O2A-CGA-CBA	3.08	123.92	114.03
16	B	806	NAG	O7-C7-C8	-3.07	116.35	122.06
12	A	805	HEM	C4B-C3B-C2B	-3.07	104.68	107.11
16	C	804	NAG	C1-O5-C5	3.03	116.30	112.19
12	A	805	HEM	CBD-CAD-C3D	-3.03	104.21	112.63
12	E	805	HEM	C4B-CHC-C1C	3.02	126.54	122.56
12	G	806	HEM	CHD-C1D-ND	2.99	127.67	124.43
12	F	805	HEM	CBD-CAD-C3D	-2.98	104.36	112.63
12	D	805	HEM	CMA-C3A-C4A	-2.95	123.93	128.46
12	H	805	HEM	CHB-C1B-NB	2.95	128.03	124.38
16	D	804	NAG	C1-O5-C5	2.95	116.19	112.19
12	D	805	HEM	CMC-C2C-C3C	2.95	130.19	124.68
12	G	806	HEM	CMC-C2C-C3C	2.90	130.11	124.68
12	E	805	HEM	CHD-C1D-ND	2.89	127.58	124.43
16	D	804	NAG	C2-N2-C7	2.89	127.02	122.90
12	B	807	HEM	O2D-CGD-CBD	2.89	123.32	114.03
12	H	805	HEM	O2D-CGD-CBD	2.88	123.27	114.03
14	A	807	8PR	CAK-CAW-CAX	2.84	114.43	110.05
12	A	805	HEM	CHB-C1B-NB	2.83	127.88	124.38
12	A	805	HEM	O2D-CGD-O1D	-2.83	116.24	123.30
12	B	807	HEM	CBA-CAA-C2A	-2.82	107.81	112.62
12	E	805	HEM	CBD-CAD-C3D	-2.75	104.99	112.63
12	C	806	HEM	CHB-C1B-C2B	-2.69	119.27	126.72
12	B	807	HEM	CHA-C4D-C3D	-2.69	120.29	125.33
12	E	805	HEM	CHB-C1B-C2B	-2.68	119.31	126.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	D	805	HEM	CAD-CBD-CGD	2.68	119.37	113.60
12	E	805	HEM	CBA-CAA-C2A	-2.67	108.06	112.62
12	A	805	HEM	CAB-C3B-C2B	-2.67	119.81	128.60
16	B	806	NAG	O5-C5-C6	2.66	111.38	107.20
16	C	805	NAG	C2-N2-C7	2.66	126.69	122.90
12	G	806	HEM	CHB-C1B-C2B	-2.66	119.37	126.72
12	H	805	HEM	O2A-CGA-O1A	-2.65	116.70	123.30
12	A	805	HEM	O2A-CGA-O1A	-2.62	116.76	123.30
12	D	805	HEM	O2A-CGA-O1A	-2.62	116.76	123.30
12	B	807	HEM	C3B-C2B-C1B	-2.61	104.55	106.49
12	D	805	HEM	CHD-C1D-ND	2.61	127.27	124.43
12	E	805	HEM	CAB-C3B-C2B	-2.60	120.04	128.60
12	C	806	HEM	CAB-C3B-C2B	-2.59	120.07	128.60
12	D	805	HEM	CHB-C1B-C2B	-2.58	119.59	126.72
12	D	805	HEM	C4B-CHC-C1C	2.58	125.96	122.56
12	A	805	HEM	O2D-CGD-CBD	2.57	122.29	114.03
12	G	806	HEM	CHD-C1D-C2D	-2.57	120.96	124.98
12	B	807	HEM	C4B-C3B-C2B	2.55	109.14	107.11
12	E	805	HEM	CHC-C4B-C3B	2.54	128.46	124.57
16	C	805	NAG	O5-C5-C6	2.54	111.18	107.20
12	F	805	HEM	O2A-CGA-CBA	2.53	122.16	114.03
12	D	805	HEM	CAD-C3D-C4D	2.52	129.06	124.66
12	B	807	HEM	C4D-ND-C1D	2.51	107.66	105.07
12	H	805	HEM	C4A-C3A-C2A	2.51	108.74	107.00
16	C	804	NAG	O5-C5-C6	2.49	111.11	107.20
12	H	805	HEM	CMA-C3A-C4A	-2.49	124.64	128.46
12	B	807	HEM	CHB-C1B-C2B	-2.48	119.85	126.72
12	D	805	HEM	CMA-C3A-C2A	2.47	129.60	124.94
12	E	805	HEM	C2D-C1D-ND	2.47	112.84	109.88
12	B	807	HEM	O2A-CGA-CBA	2.43	121.85	114.03
12	G	806	HEM	O2D-CGD-O1D	-2.42	117.26	123.30
16	B	805	NAG	O5-C1-C2	2.41	115.10	111.29
12	F	805	HEM	CHD-C1D-ND	2.37	127.01	124.43
12	D	805	HEM	CBD-CAD-C3D	-2.37	106.04	112.63
12	A	805	HEM	CAB-C3B-C4B	2.37	135.50	124.47
12	C	806	HEM	CHA-C4D-ND	2.36	127.30	124.38
12	F	805	HEM	C3B-C2B-C1B	2.36	108.24	106.49
16	C	805	NAG	O5-C1-C2	-2.33	107.61	111.29
12	C	806	HEM	O2A-CGA-O1A	-2.33	117.49	123.30
12	B	807	HEM	CAD-CBD-CGD	2.33	118.61	113.60
12	H	805	HEM	CAD-CBD-CGD	2.31	118.58	113.60
12	G	806	HEM	CAB-C3B-C2B	-2.31	121.00	128.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	D	804	NAG	O3-C3-C2	2.30	114.23	109.47
12	H	805	HEM	CMC-C2C-C3C	2.30	128.98	124.68
12	H	805	HEM	C4C-CHD-C1D	2.27	125.55	122.56
12	H	805	HEM	CHD-C1D-ND	2.26	126.89	124.43
12	A	805	HEM	CHB-C1B-C2B	-2.23	120.55	126.72
12	C	806	HEM	CHA-C4D-C3D	-2.20	121.20	125.33
16	B	805	NAG	O5-C5-C4	-2.20	105.48	110.83
12	G	806	HEM	O2D-CGD-CBD	2.19	121.07	114.03
12	G	806	HEM	CAD-C3D-C2D	-2.17	123.83	127.88
12	A	805	HEM	O2A-CGA-CBA	2.17	121.00	114.03
12	A	805	HEM	C4C-CHD-C1D	2.16	125.40	122.56
12	H	805	HEM	CHB-C1B-C2B	-2.16	120.76	126.72
12	A	805	HEM	CHD-C1D-C2D	-2.13	121.64	124.98
16	B	806	NAG	O5-C5-C4	-2.12	105.66	110.83
12	C	806	HEM	O2D-CGD-CBD	2.12	120.85	114.03
12	A	805	HEM	CAD-CBD-CGD	2.11	118.15	113.60
12	E	805	HEM	O2A-CGA-CBA	2.11	120.80	114.03
14	A	807	8PR	CAM-CAW-CAX	-2.10	108.27	112.05
12	F	805	HEM	CMC-C2C-C3C	2.09	128.60	124.68
12	E	805	HEM	CAD-CBD-CGD	2.08	118.09	113.60
16	D	804	NAG	O5-C5-C4	-2.06	105.81	110.83
12	A	805	HEM	C2D-C1D-ND	2.06	112.35	109.88
12	F	805	HEM	CMD-C2D-C1D	2.00	128.09	125.04

There are no chirality outliers.

All (50) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
14	A	807	8PR	OAO-CAM-CAW-CAK
14	A	807	8PR	OAO-CAM-CAW-CAX
14	D	807	8PR	OAO-CAM-CAW-CAK
14	D	807	8PR	OAO-CAM-CAW-CAX
14	F	807	8PR	OAO-CAM-CAW-CAK
14	F	807	8PR	OAO-CAM-CAW-CAX
16	D	804	NAG	O5-C5-C6-O6
16	C	804	NAG	C4-C5-C6-O6
16	D	804	NAG	C4-C5-C6-O6
16	C	804	NAG	O5-C5-C6-O6
14	H	807	8PR	CAH-CAS-OAO-CAM
14	H	807	8PR	CAD-CAS-OAO-CAM
16	B	806	NAG	C3-C2-N2-C7
12	A	805	HEM	C4B-C3B-CAB-CBB

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Mol	Chain	Res	Type	Atoms
12	C	806	HEM	C4B-C3B-CAB-CBB
12	E	805	HEM	C4B-C3B-CAB-CBB
12	G	806	HEM	C4B-C3B-CAB-CBB
12	H	805	HEM	CAD-CBD-CGD-O2D
12	A	805	HEM	CAD-CBD-CGD-O2D
12	B	807	HEM	CAD-CBD-CGD-O2D
12	C	806	HEM	CAA-CBA-CGA-O1A
12	H	805	HEM	CAD-CBD-CGD-O1D
12	C	806	HEM	CAD-CBD-CGD-O2D
12	F	805	HEM	CAD-CBD-CGD-O2D
12	F	805	HEM	CAD-CBD-CGD-O1D
12	B	807	HEM	CAD-CBD-CGD-O1D
12	A	805	HEM	CAA-CBA-CGA-O1A
12	B	807	HEM	CAA-CBA-CGA-O1A
12	G	806	HEM	CAD-CBD-CGD-O1D
12	D	805	HEM	CAD-CBD-CGD-O1D
12	G	806	HEM	CAD-CBD-CGD-O2D
12	A	805	HEM	CAD-CBD-CGD-O1D
12	C	806	HEM	CAA-CBA-CGA-O2A
12	E	805	HEM	CAA-CBA-CGA-O1A
12	C	806	HEM	CAD-CBD-CGD-O1D
12	E	805	HEM	CAA-CBA-CGA-O2A
12	B	807	HEM	CAA-CBA-CGA-O2A
12	D	805	HEM	CAA-CBA-CGA-O1A
12	D	805	HEM	CAA-CBA-CGA-O2A
12	D	805	HEM	CAD-CBD-CGD-O2D
12	A	805	HEM	CAA-CBA-CGA-O2A
12	F	805	HEM	CAA-CBA-CGA-O1A
12	E	805	HEM	CAD-CBD-CGD-O2D
12	F	805	HEM	CAA-CBA-CGA-O2A
12	G	806	HEM	CAA-CBA-CGA-O2A
12	E	805	HEM	CAD-CBD-CGD-O1D
12	H	805	HEM	CAA-CBA-CGA-O1A
12	G	806	HEM	CAA-CBA-CGA-O1A
12	H	805	HEM	CAA-CBA-CGA-O2A
16	D	804	NAG	C3-C2-N2-C7

There are no ring outliers.

12 monomers are involved in 69 short contacts:

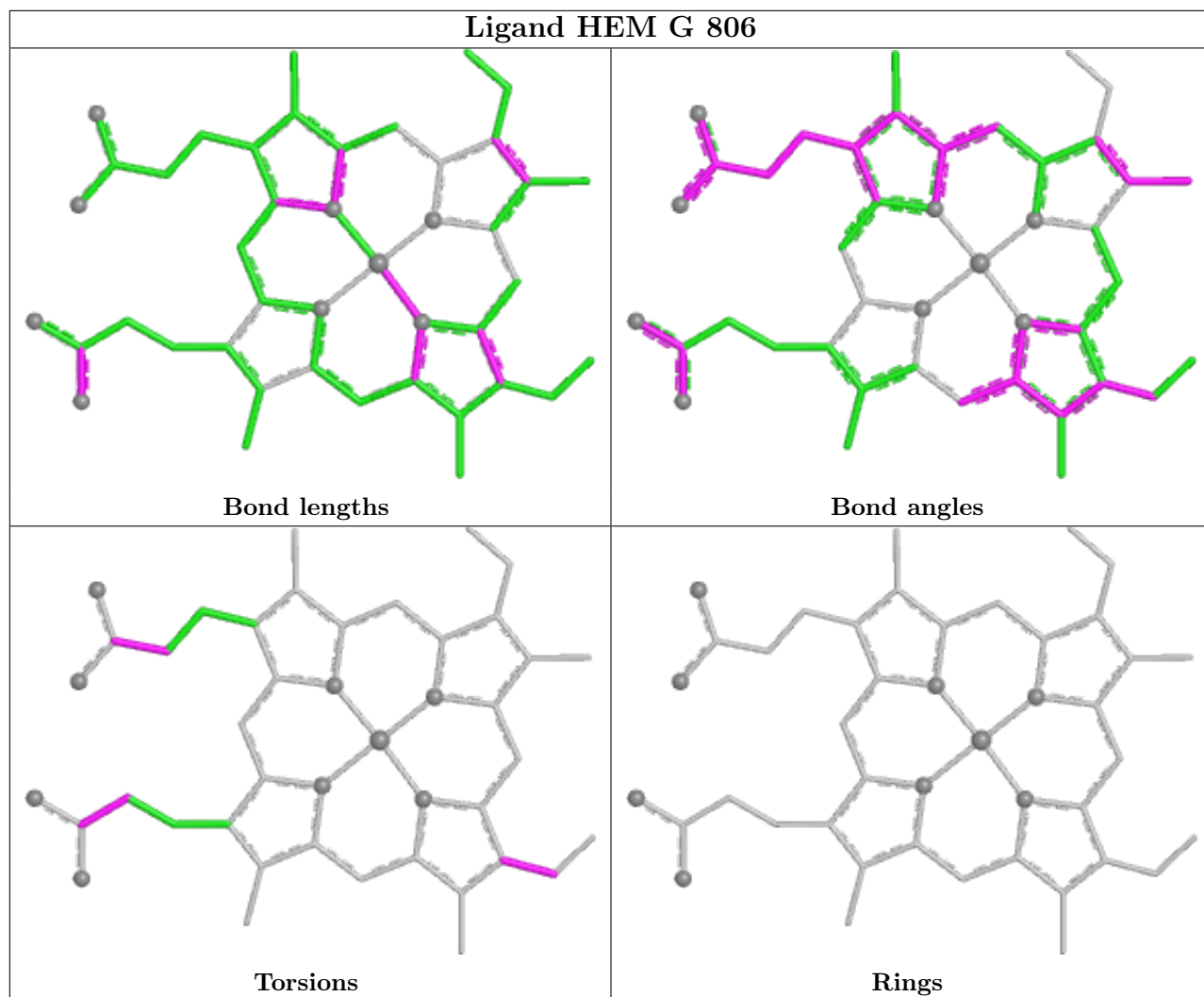
Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	G	806	HEM	7	0

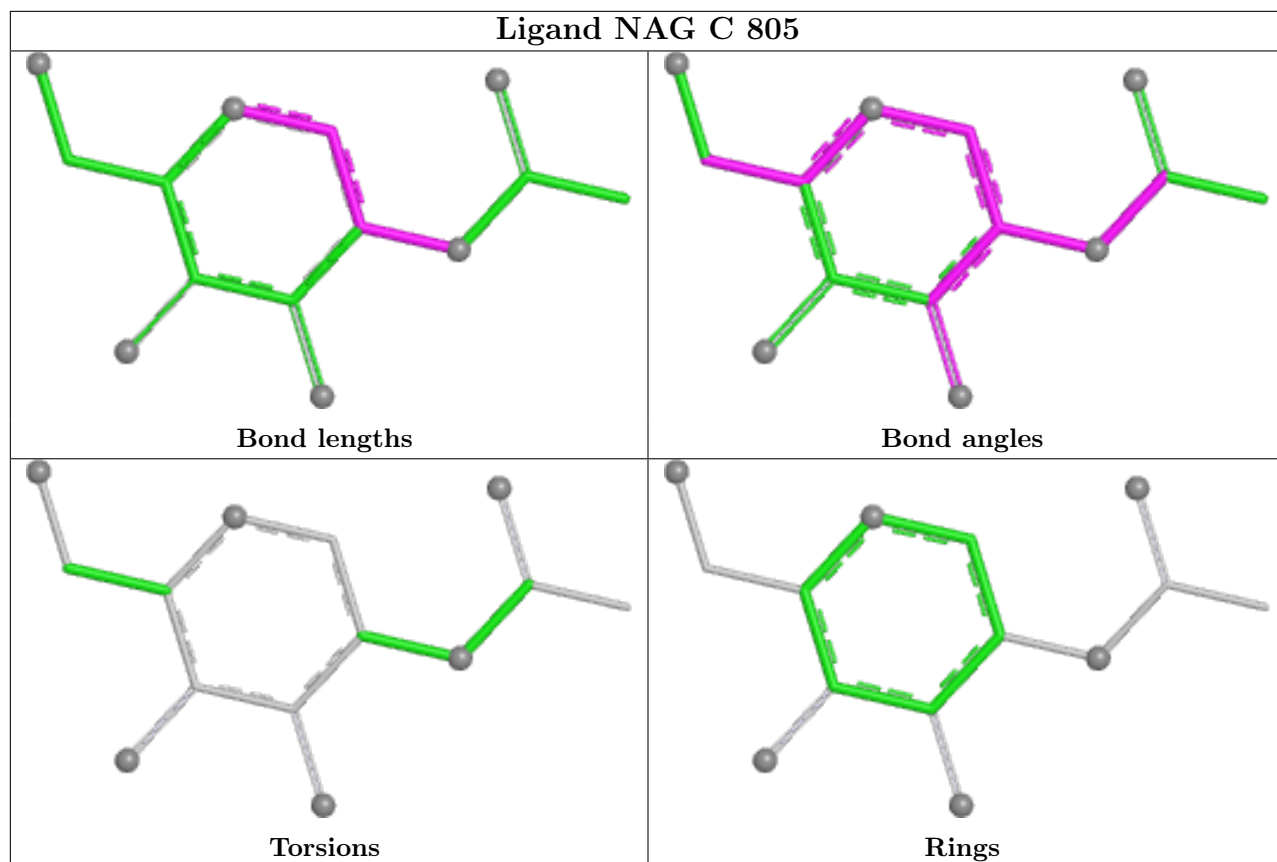
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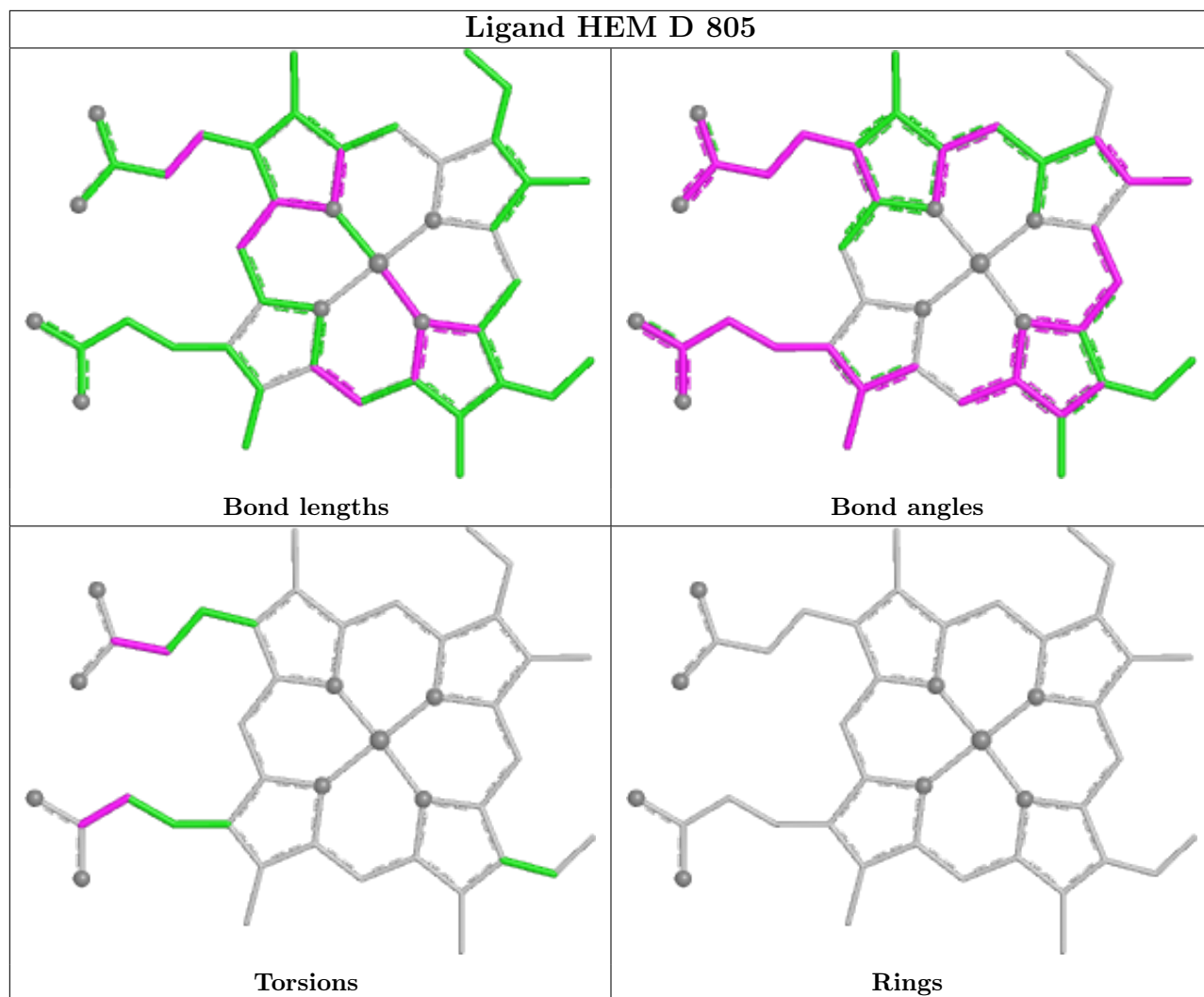
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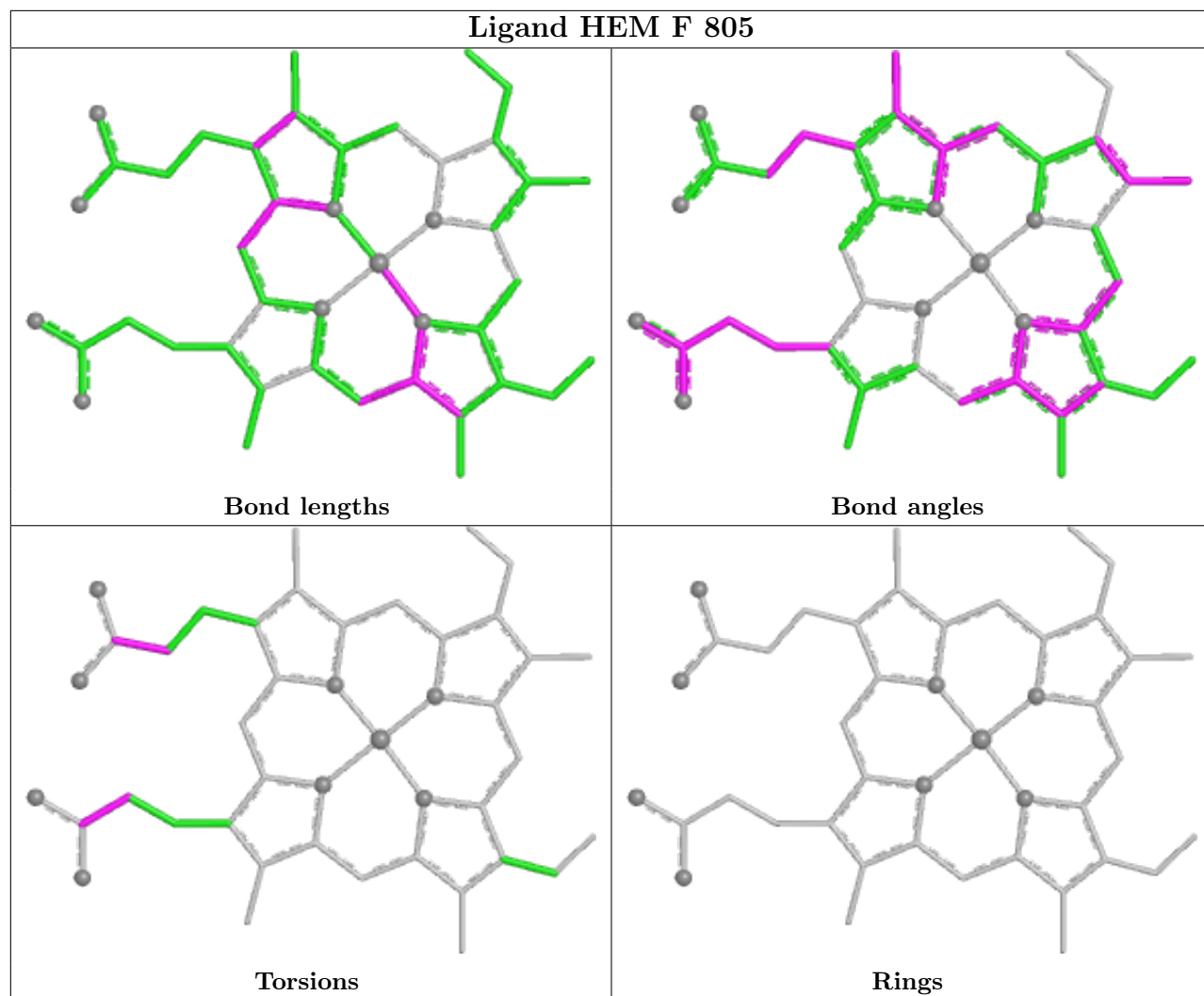
Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	D	805	HEM	7	0
12	F	805	HEM	10	0
12	H	805	HEM	9	0
14	D	807	8PR	1	0
12	E	805	HEM	6	0
15	H	810	PO4	1	0
12	C	806	HEM	8	0
15	G	809	PO4	1	0
12	B	807	HEM	10	0
12	A	805	HEM	8	0
16	B	806	NAG	1	0

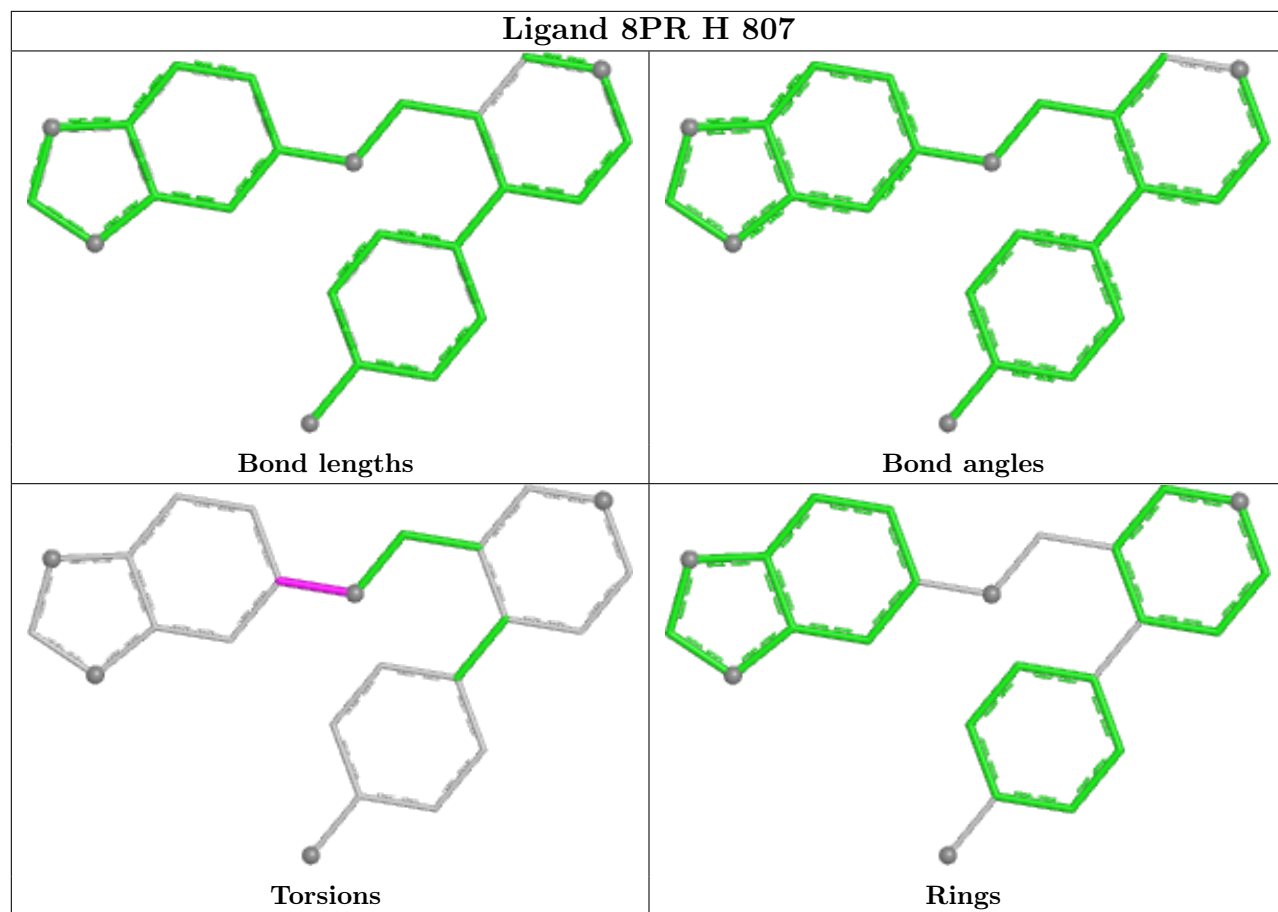
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

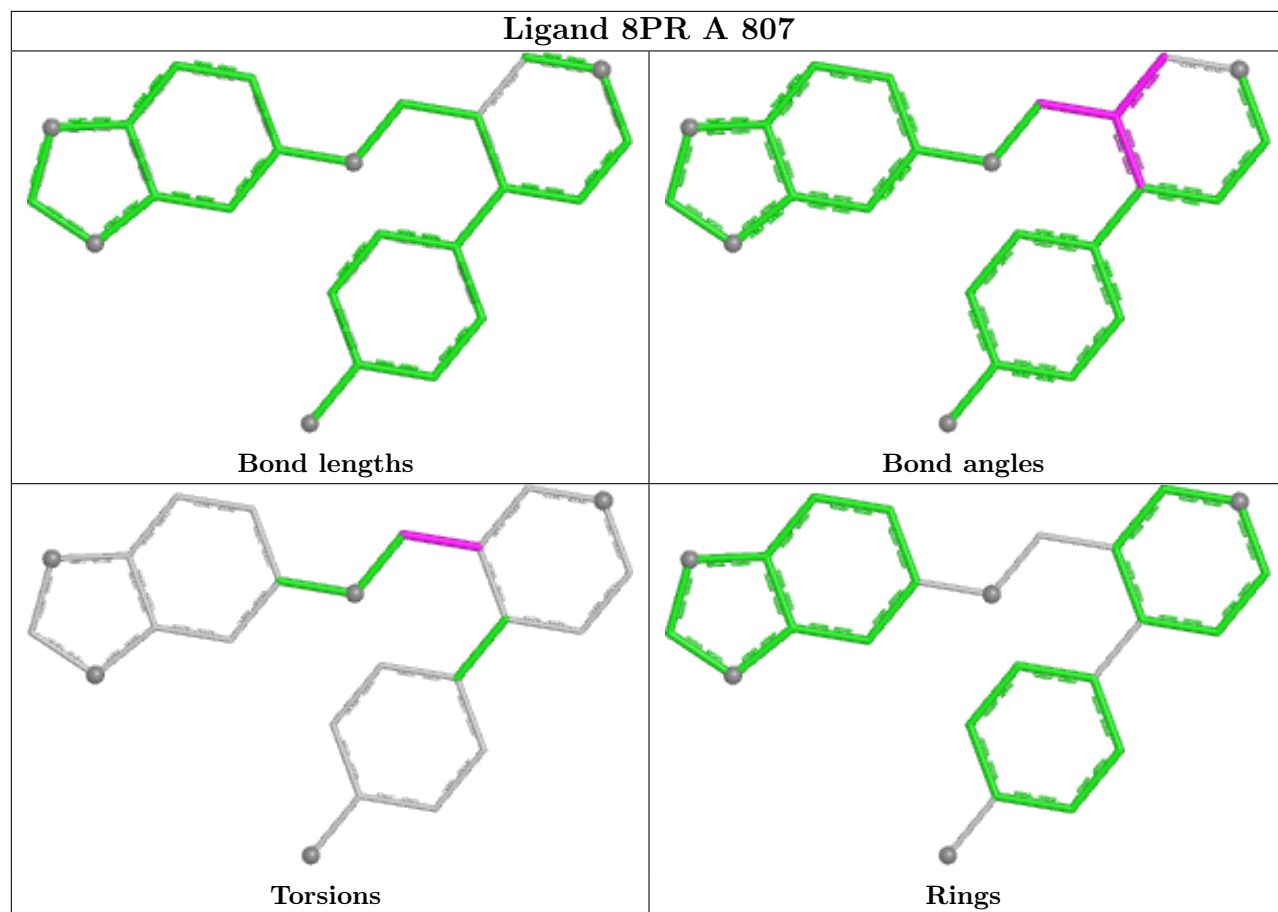


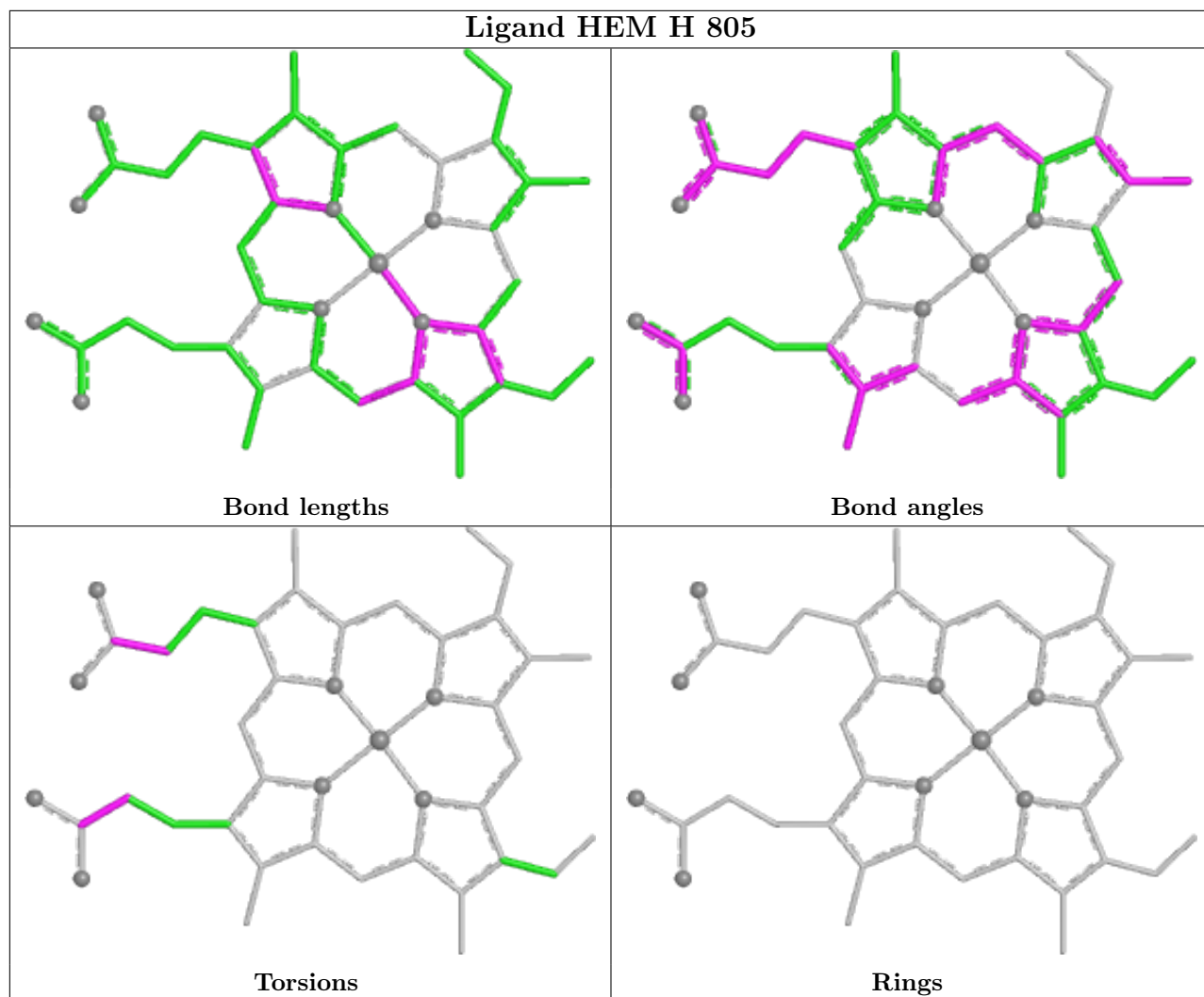


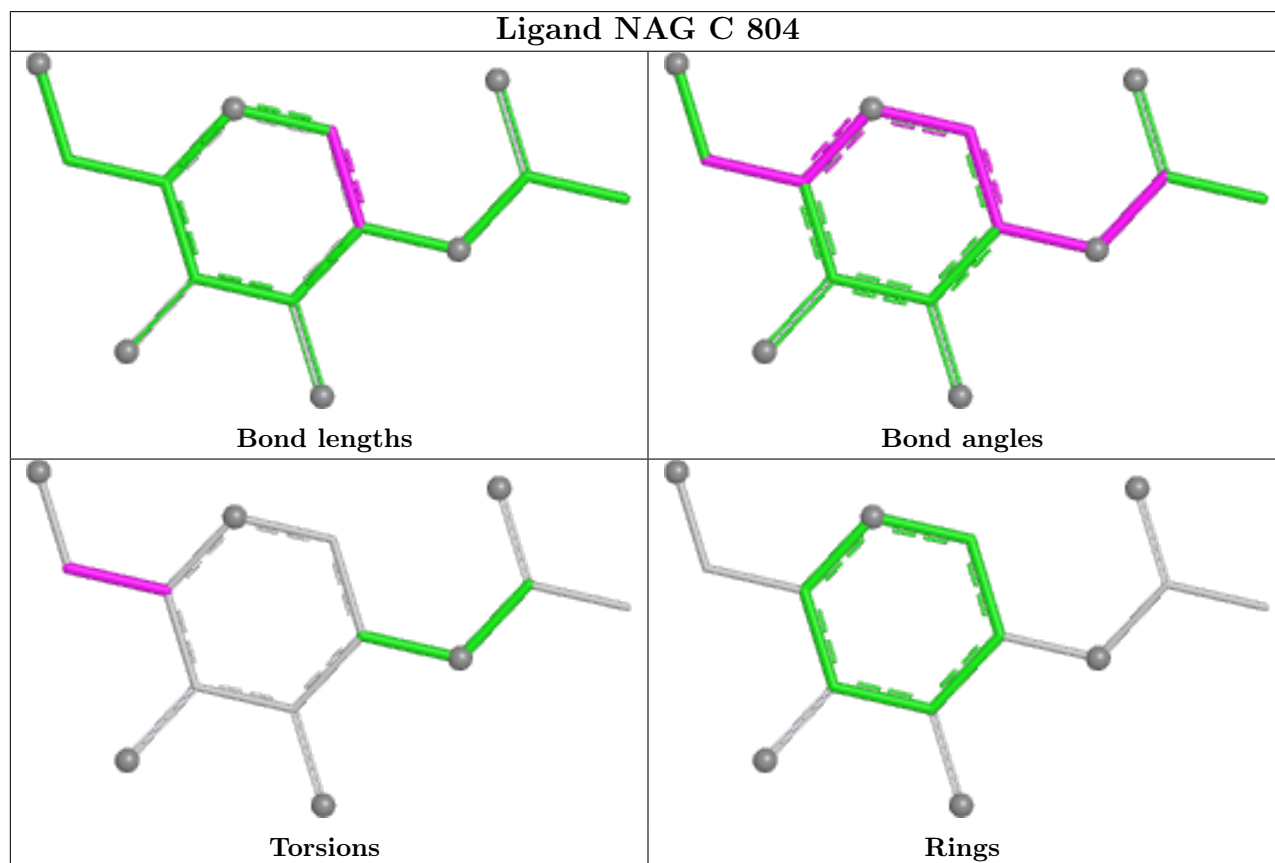
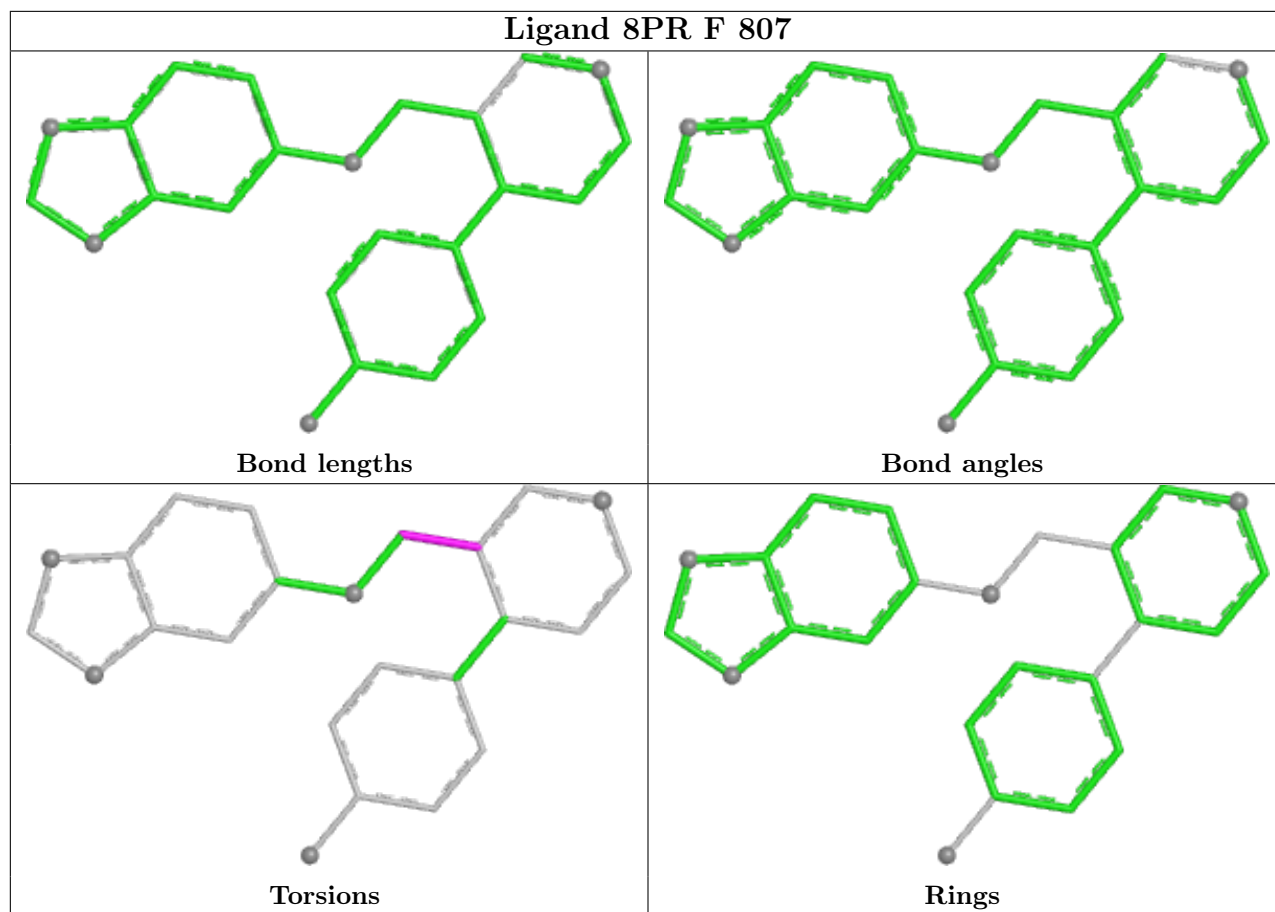


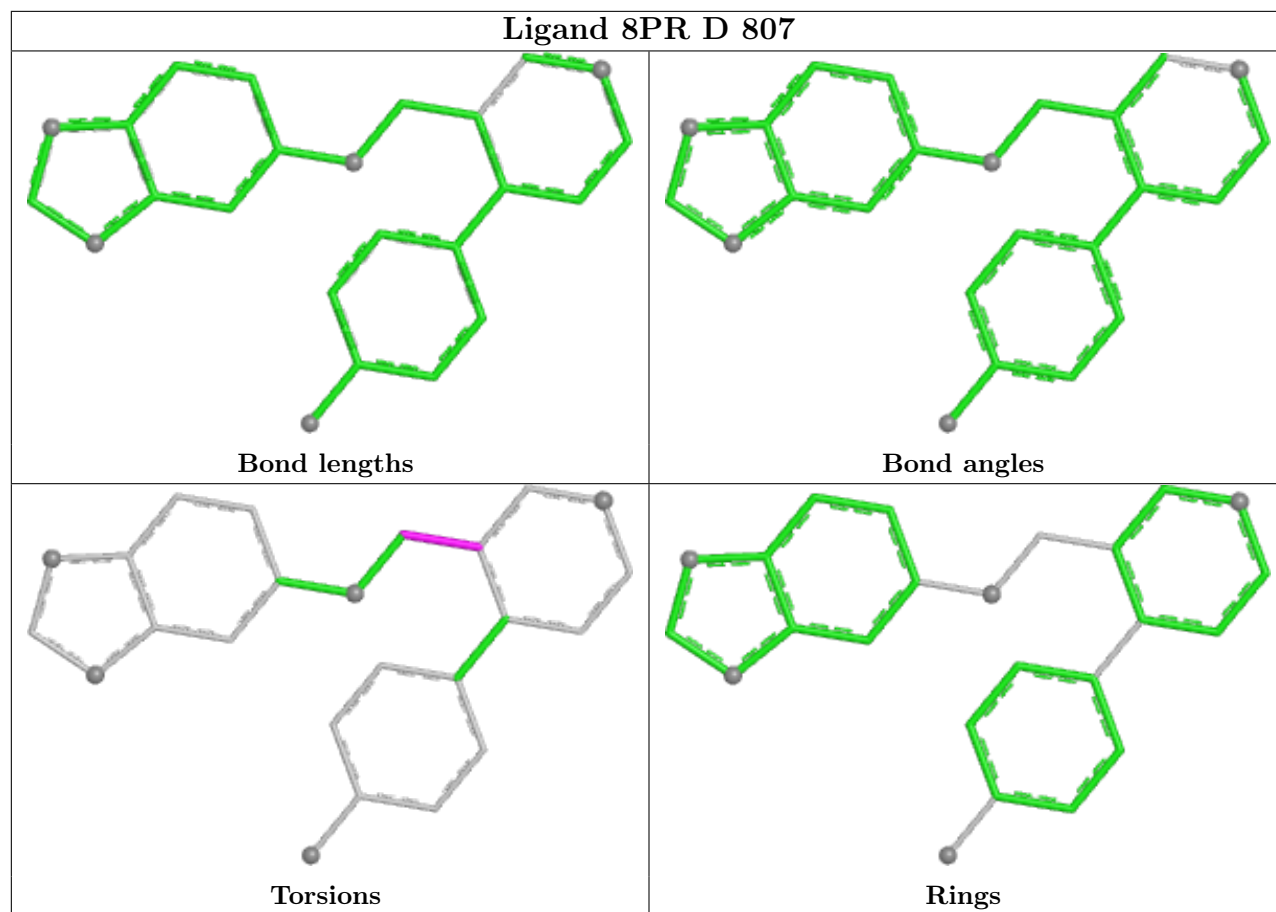


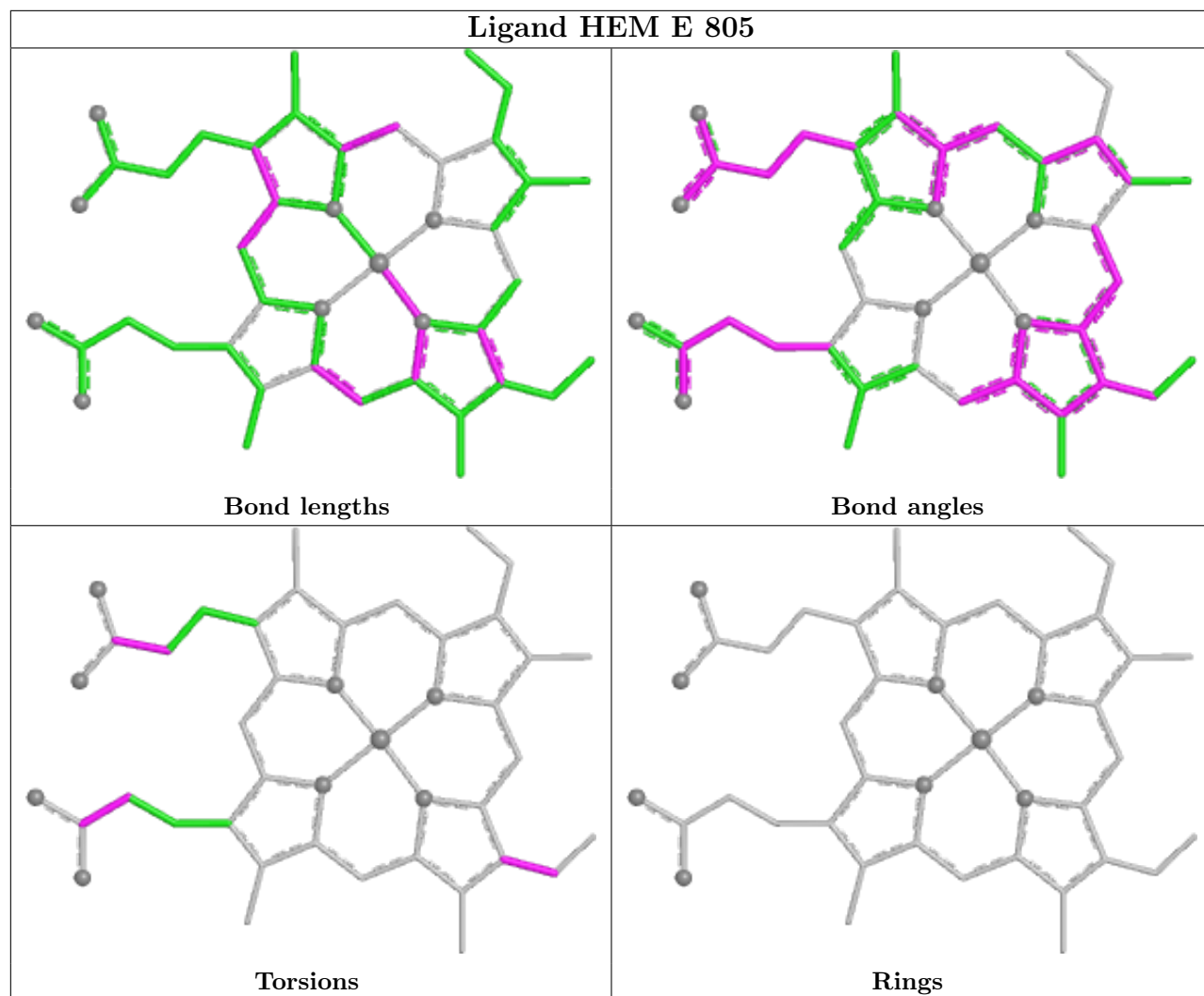


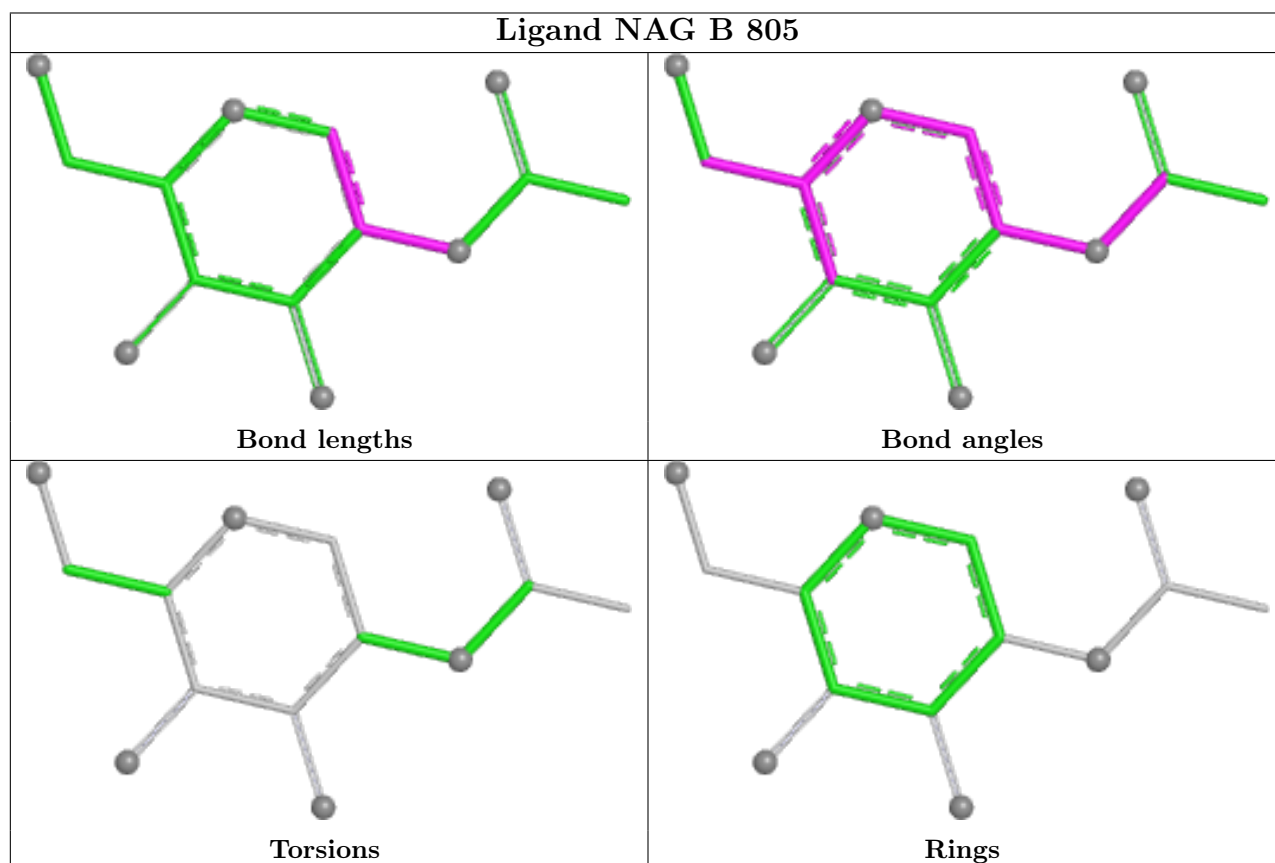
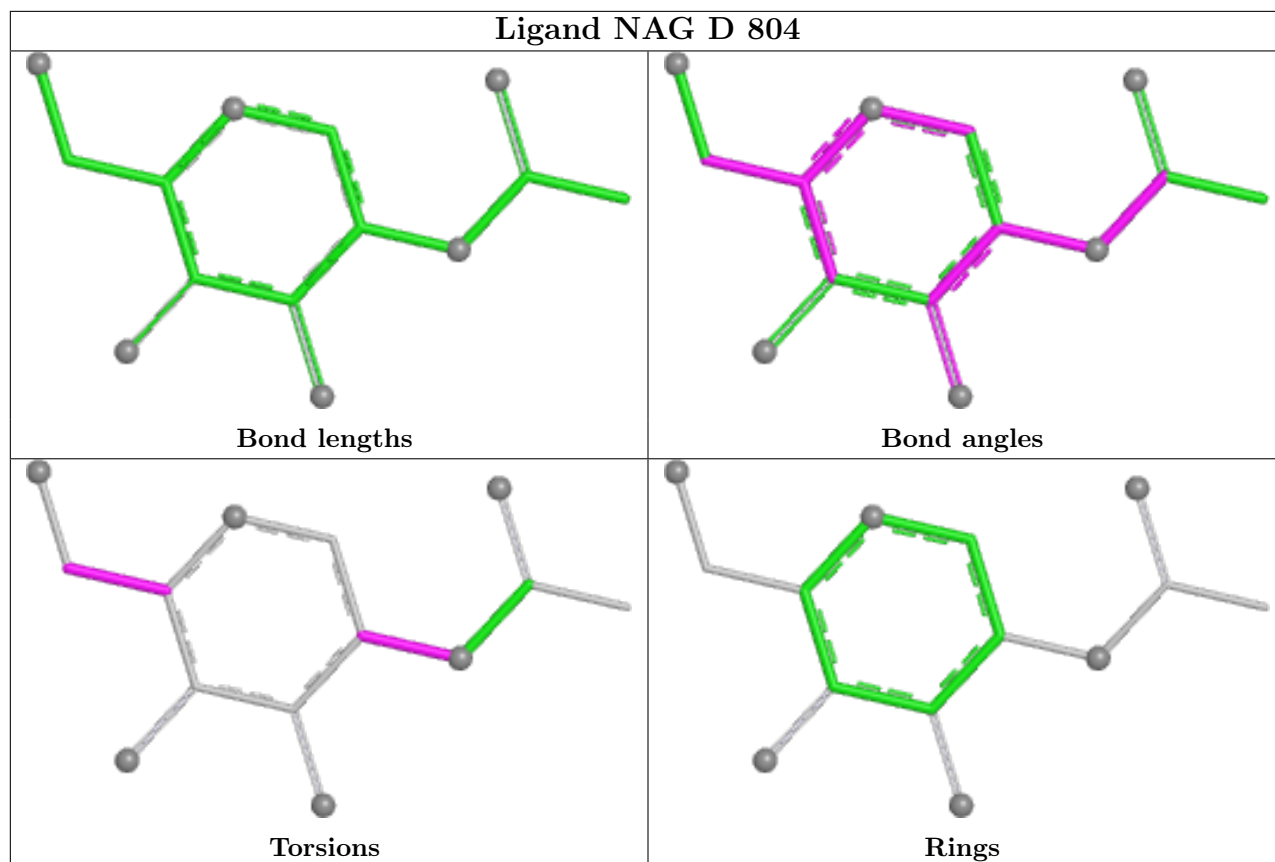


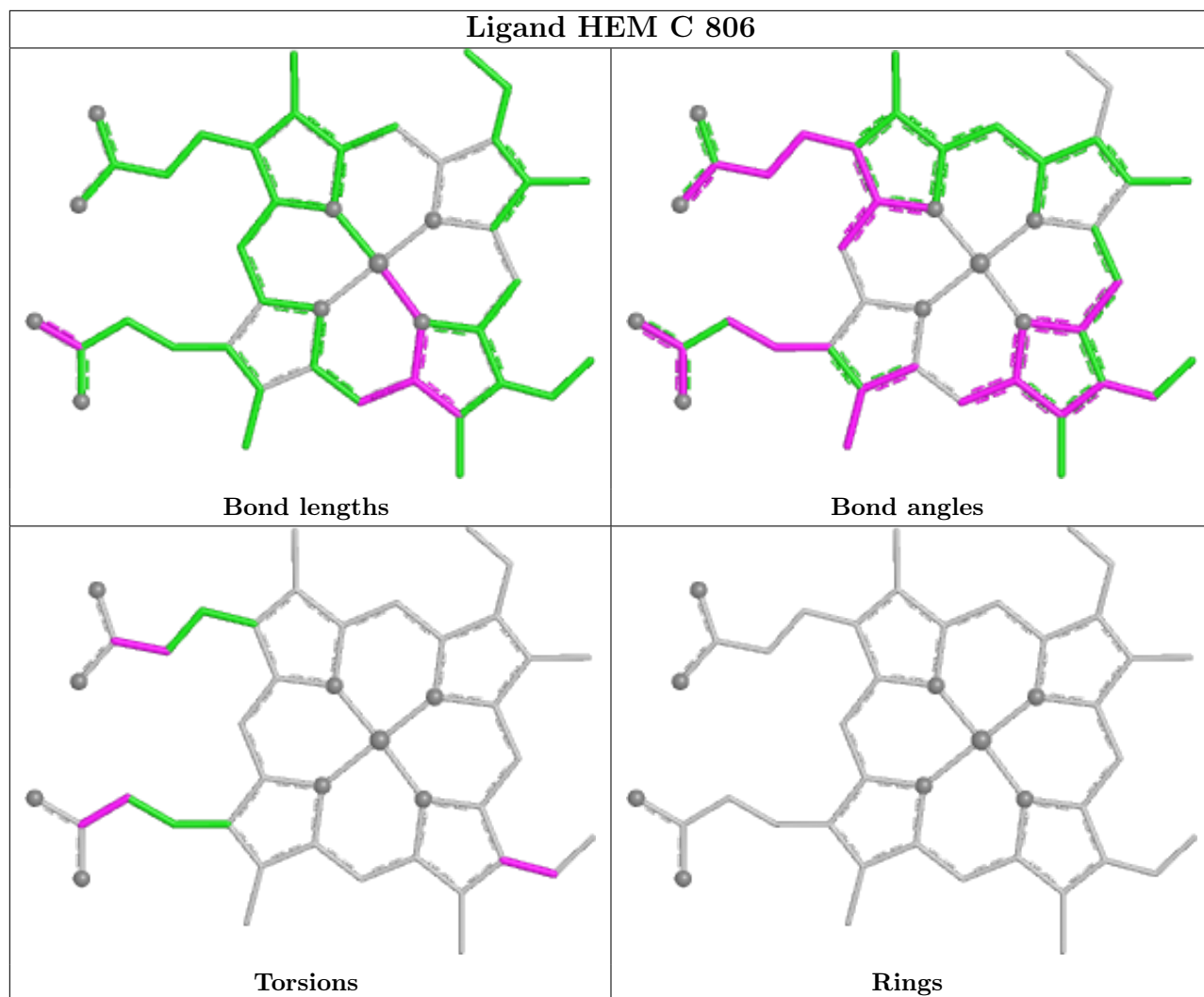


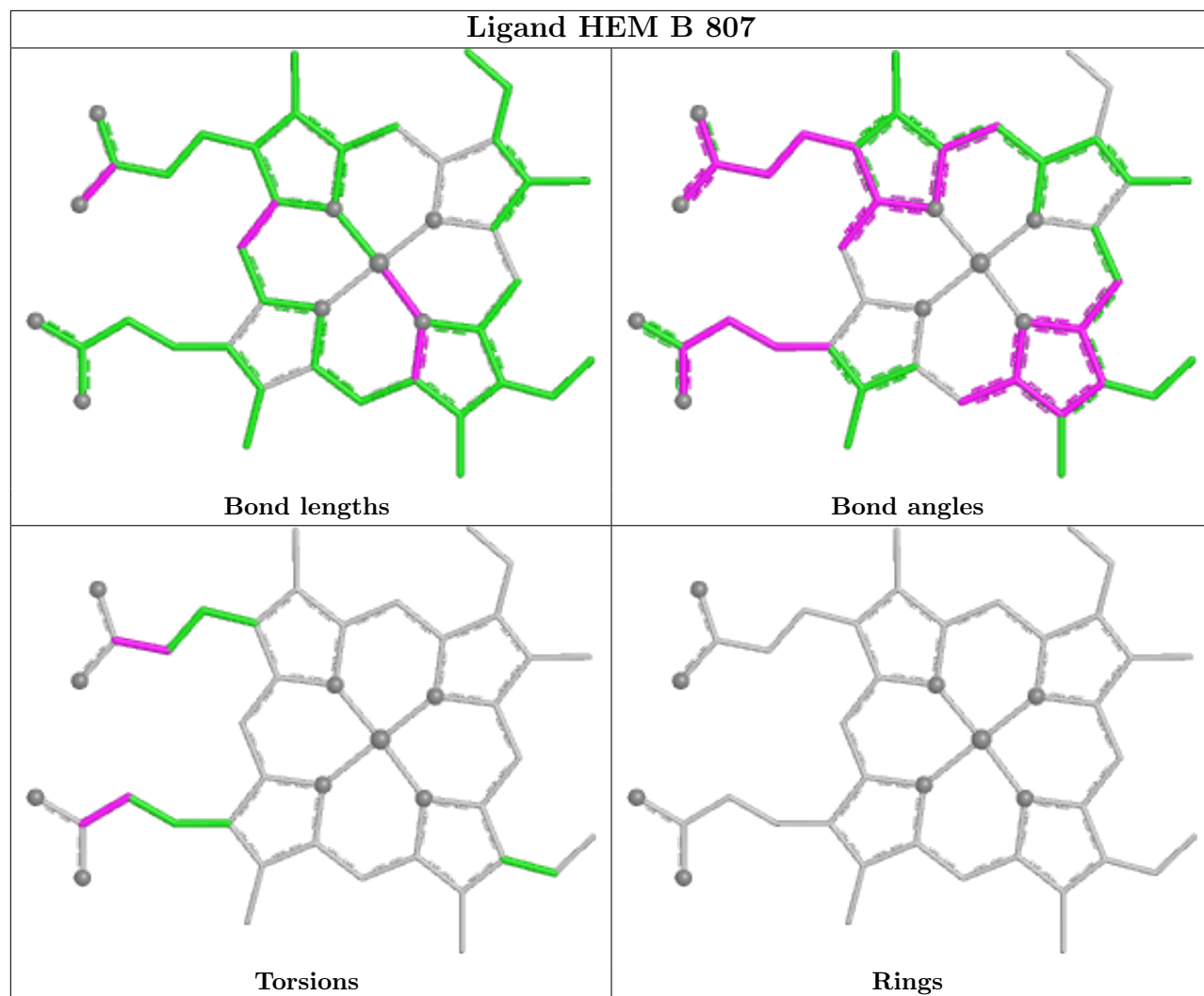


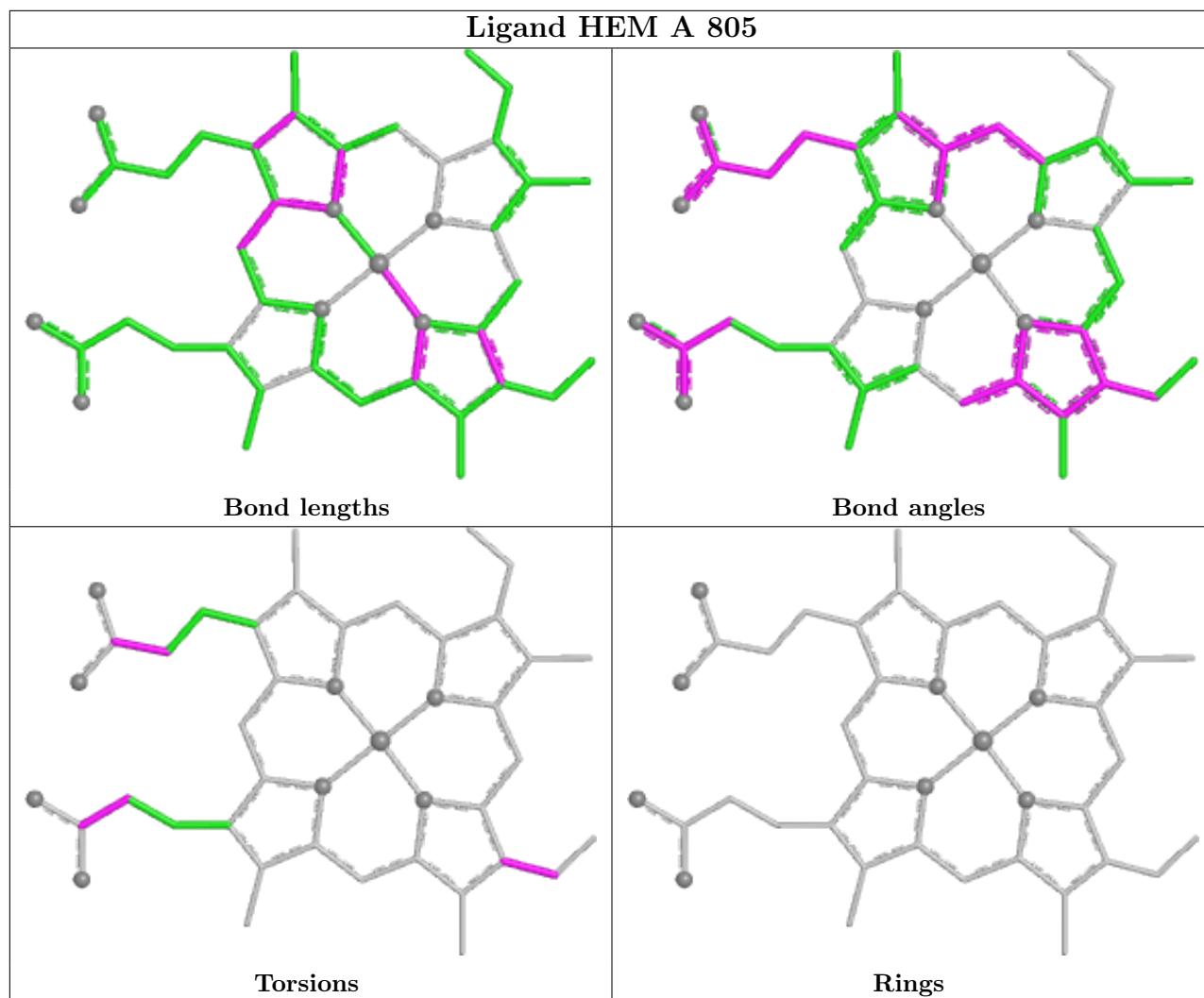


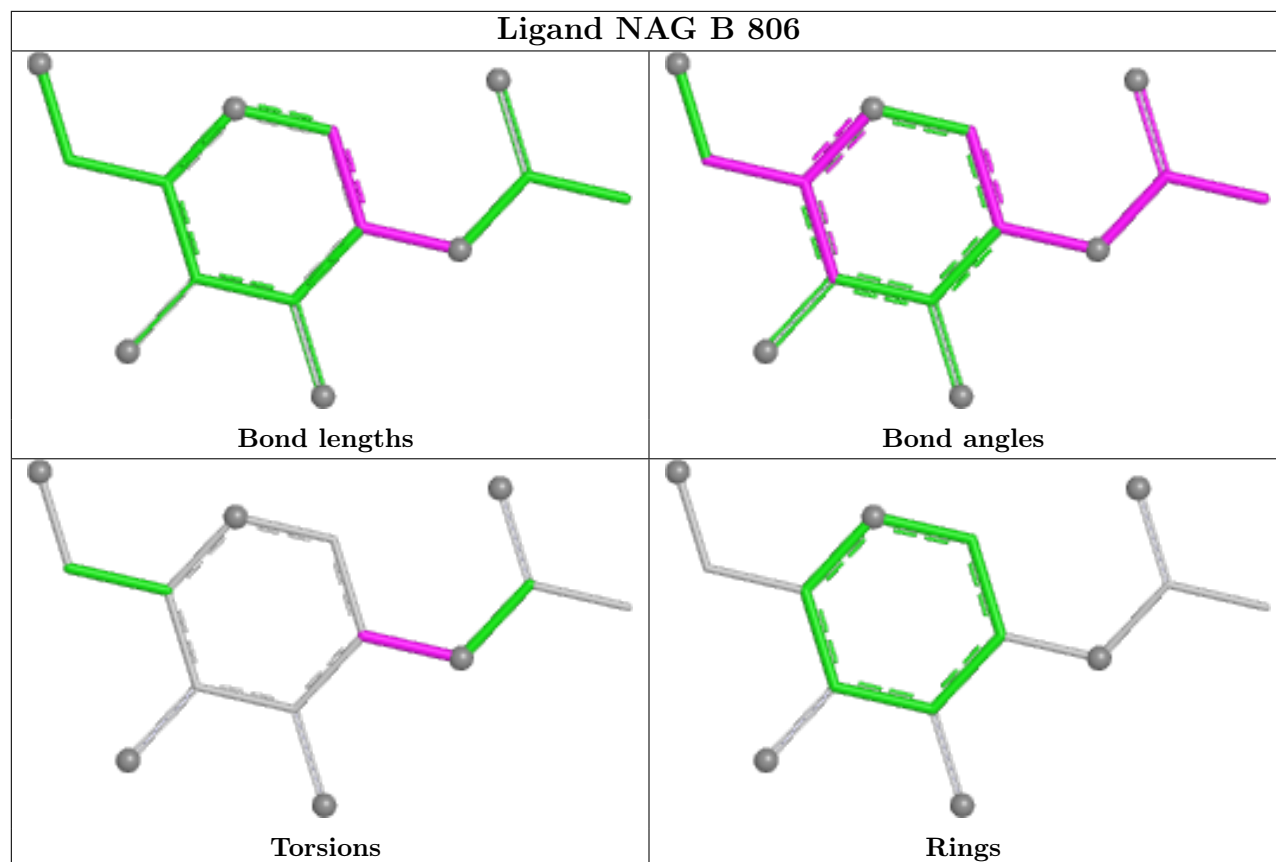












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	572/579 (98%)	-0.18	11 (1%) 66 62	33, 52, 83, 128	0
1	B	569/579 (98%)	-0.11	15 (2%) 56 50	34, 54, 85, 118	0
1	C	569/579 (98%)	-0.05	18 (3%) 47 40	36, 59, 91, 115	0
1	D	570/579 (98%)	-0.14	13 (2%) 60 54	36, 54, 84, 117	0
1	E	571/579 (98%)	-0.04	15 (2%) 56 50	37, 59, 93, 138	0
1	F	570/579 (98%)	-0.18	10 (1%) 68 64	38, 55, 86, 115	0
1	G	568/579 (98%)	-0.12	8 (1%) 75 71	34, 53, 84, 120	0
1	H	570/579 (98%)	-0.20	8 (1%) 75 71	35, 55, 85, 119	0
All	All	4559/4632 (98%)	-0.13	98 (2%) 63 58	33, 55, 87, 138	0

All (98) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	271	ALA	13.7
1	D	744	ALA	6.2
1	F	744	ALA	5.6
1	E	270	ALA	4.7
1	B	744	ALA	4.1
1	H	744	ALA	3.7
1	G	270	ALA	3.6
1	A	744	ALA	3.6
1	E	744	ALA	3.5
1	C	744	ALA	3.5
1	D	497	ALA	3.2
1	D	498	PHE	3.2
1	F	169	GLU	3.1
1	A	498	PHE	3.0
1	E	323	ASN	3.0
1	D	734	PRO	3.0

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Mol	Chain	Res	Type	RSRZ
1	F	439	GLY	2.9
1	E	169	GLU	2.9
1	E	515	ARG	2.8
1	E	321	GLY	2.7
1	E	724	PRO	2.7
1	D	496	ASN	2.7
1	G	490	ILE	2.7
1	E	495	THR	2.6
1	F	166	THR	2.6
1	A	742	ARG	2.6
1	H	494	PHE	2.6
1	B	263	LEU	2.6
1	B	431	LYS	2.6
1	H	263	LEU	2.6
1	F	496	ASN	2.5
1	B	258	LEU	2.5
1	G	261	HIS	2.5
1	C	436	ARG	2.5
1	F	438	ASP	2.5
1	H	742	ARG	2.4
1	D	495	THR	2.4
1	G	259	LEU	2.4
1	B	371	ASP	2.4
1	H	496	ASN	2.3
1	A	260	ASP	2.3
1	D	263	LEU	2.3
1	A	497	ALA	2.3
1	A	279	VAL	2.3
1	C	520	GLU	2.3
1	C	260	ASP	2.3
1	C	412	LEU	2.3
1	F	357	SER	2.3
1	C	497	ALA	2.3
1	B	499	ARG	2.3
1	C	539	LEU	2.3
1	E	261	HIS	2.3
1	B	692	GLN	2.3
1	D	240	ASP	2.3
1	C	598	GLY	2.2
1	G	521	PRO	2.2
1	H	383	HIS	2.2
1	A	272	ARG	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	497	ALA	2.2
1	C	494	PHE	2.2
1	B	391	ASN	2.2
1	C	583	LEU	2.2
1	B	260	ASP	2.2
1	E	493	VAL	2.2
1	E	395	ARG	2.2
1	C	257	GLN	2.2
1	E	257	GLN	2.2
1	A	665	ILE	2.2
1	G	196	VAL	2.2
1	C	258	LEU	2.2
1	C	499	ARG	2.1
1	B	259	LEU	2.1
1	E	260	ASP	2.1
1	C	490	ILE	2.1
1	C	642	ILE	2.1
1	E	499	ARG	2.1
1	F	258	LEU	2.1
1	H	305	ASN	2.1
1	D	499	ARG	2.1
1	B	688	MET	2.1
1	B	498	PHE	2.1
1	F	383	HIS	2.1
1	H	259	LEU	2.1
1	B	257	GLN	2.1
1	A	166	THR	2.1
1	C	498	PHE	2.1
1	G	260	ASP	2.1
1	B	490	ILE	2.0
1	D	490	ILE	2.0
1	A	739	ALA	2.0
1	D	260	ASP	2.0
1	D	341	MET	2.0
1	F	260	ASP	2.0
1	C	263	LEU	2.0
1	A	261	HIS	2.0
1	C	742	ARG	2.0
1	D	742	ARG	2.0
1	G	493	VAL	2.0

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

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
1	CSO	E	316	7/8	0.95	0.12	38,43,56,59	0
1	CSO	F	316	7/8	0.95	0.12	45,49,53,55	0
1	CSO	A	316	7/8	0.96	0.11	38,40,46,47	0
1	CSO	C	316	7/8	0.96	0.17	50,51,59,65	0
1	CSO	H	316	7/8	0.96	0.11	41,49,53,55	0
1	CSO	G	316	7/8	0.97	0.11	33,39,49,60	0
1	CSO	D	316	7/8	0.97	0.11	41,48,58,64	0
1	CSO	B	316	7/8	0.98	0.13	48,51,55,60	0

6.3 Carbohydrates [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	BMA	b	3	11/12	0.43	0.38	120,145,165,168	0
2	BMA	Y	3	11/12	0.64	0.34	101,144,163,169	0
8	BMA	X	3	11/12	0.67	0.27	111,137,163,164	0
2	BMA	e	3	11/12	0.69	0.35	92,132,143,150	0
5	NAG	d	2	14/15	0.70	0.65	85,106,116,118	14
5	NAG	d	1	14/15	0.70	0.54	86,113,123,125	14
4	MAN	K	6	11/12	0.71	0.22	84,108,121,125	0
8	MAN	X	4	11/12	0.71	0.49	110,139,148,169	0
3	NAG	c	5	14/15	0.75	0.35	60,70,75,79	14
2	NAG	b	2	14/15	0.75	0.38	77,119,139,159	0
2	NAG	Y	2	14/15	0.76	0.30	84,118,128,145	0
2	BMA	J	3	11/12	0.77	0.27	71,104,119,122	0
7	MAN	P	4	11/12	0.77	0.36	135,159,163,177	0
5	NAG	f	2	14/15	0.79	0.31	85,114,127,127	0
2	NAG	e	2	14/15	0.80	0.32	73,122,143,152	0
2	BMA	I	3	11/12	0.80	0.49	30,30,30,30	0
5	NAG	V	2	14/15	0.80	0.43	86,124,133,146	0
3	NAG	L	5	14/15	0.81	0.24	78,97,107,115	0
8	MAN	U	4	11/12	0.81	0.25	60,96,134,154	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
9	MAN	a	6	11/12	0.81	0.31	96,123,141,155	0
7	BMA	P	3	11/12	0.82	0.32	113,140,151,163	0
4	MAN	R	5	11/12	0.82	0.19	96,111,127,127	0
4	MAN	R	6	11/12	0.83	0.25	101,117,135,140	0
4	BMA	R	3	11/12	0.84	0.21	95,108,123,148	0
6	MAN	N	4	11/12	0.85	0.20	78,87,99,100	0
4	NAG	R	2	14/15	0.85	0.23	79,97,125,126	0
3	NAG	g	5	14/15	0.85	0.29	66,83,90,91	14
8	NAG	U	2	14/15	0.85	0.26	74,101,109,119	0
5	NAG	S	2	14/15	0.86	0.31	98,111,119,131	0
8	BMA	U	3	11/12	0.86	0.11	87,97,107,112	0
7	NAG	P	2	14/15	0.86	0.38	102,113,126,145	0
8	NAG	X	1	14/15	0.87	0.22	73,91,104,121	0
5	NAG	f	1	14/15	0.87	0.30	78,94,107,118	0
2	NAG	e	1	14/15	0.88	0.21	71,90,104,125	0
6	MAN	Q	5	11/12	0.88	0.20	52,64,76,81	0
4	MAN	R	4	11/12	0.88	0.16	75,93,98,122	0
9	MAN	a	4	11/12	0.88	0.14	86,91,99,100	0
5	NAG	M	2	14/15	0.88	0.40	78,114,126,148	0
7	NAG	P	1	14/15	0.89	0.27	90,95,105,112	0
3	MAN	L	6	11/12	0.89	0.20	76,90,97,109	0
2	NAG	I	2	14/15	0.90	0.46	30,30,30,30	0
5	NAG	O	2	14/15	0.90	0.31	84,115,128,129	0
6	BMA	Z	3	11/12	0.90	0.12	60,65,78,88	0
9	NAG	a	2	14/15	0.90	0.20	72,96,104,104	0
2	NAG	J	2	14/15	0.90	0.27	84,99,111,112	0
4	BMA	K	3	11/12	0.90	0.14	74,91,100,116	0
4	MAN	K	5	11/12	0.91	0.19	94,105,110,117	0
2	NAG	I	1	14/15	0.91	0.40	30,30,30,30	0
6	MAN	T	4	11/12	0.91	0.24	74,87,94,96	0
2	NAG	Y	1	14/15	0.91	0.22	74,85,95,113	0
8	NAG	X	2	14/15	0.91	0.26	80,118,142,155	0
4	MAN	K	4	11/12	0.92	0.13	66,82,89,89	0
6	MAN	N	5	11/12	0.92	0.12	30,30,30,30	0
5	NAG	S	1	14/15	0.92	0.21	69,76,88,104	0
5	NAG	V	1	14/15	0.92	0.21	76,98,104,106	0
6	MAN	W	4	11/12	0.92	0.18	83,98,104,120	0
6	FUC	Z	6	10/11	0.93	0.27	30,30,30,30	0
5	NAG	M	1	14/15	0.93	0.17	56,71,78,101	0
3	MAN	c	6	11/12	0.93	0.18	90,94,100,101	0
9	BMA	a	3	11/12	0.93	0.12	88,93,108,109	0
6	FUC	Q	6	10/11	0.93	0.16	54,62,65,66	0

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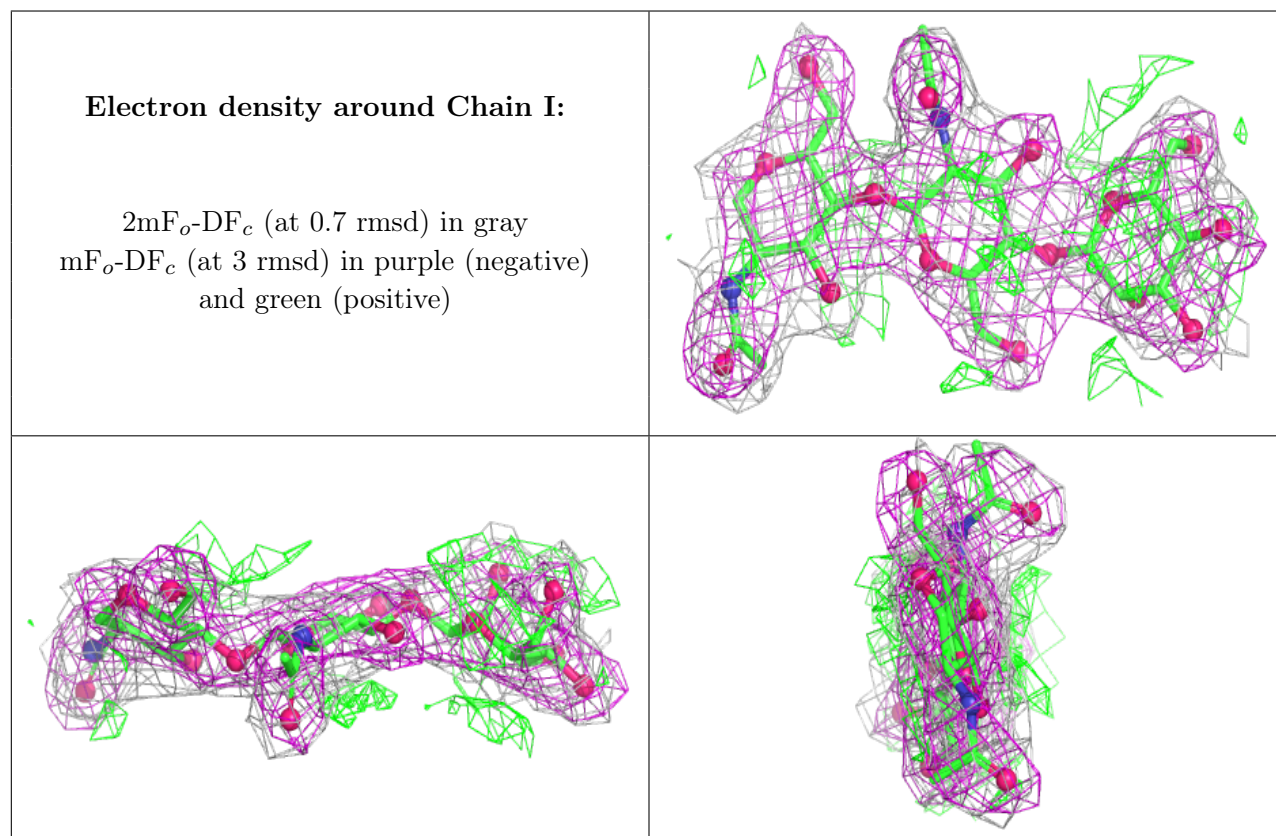
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
6	MAN	Z	4	11/12	0.93	0.25	81,87,91,95	0
6	MAN	Q	4	11/12	0.94	0.19	71,88,93,95	0
2	NAG	b	1	14/15	0.94	0.26	71,85,92,102	0
2	NAG	J	1	14/15	0.94	0.17	62,67,74,86	0
5	NAG	O	1	14/15	0.94	0.21	78,92,108,108	0
6	MAN	T	5	11/12	0.94	0.14	55,60,66,66	0
6	NAG	W	1	14/15	0.94	0.15	41,52,65,65	0
4	NAG	K	2	14/15	0.94	0.17	61,87,100,104	0
6	MAN	W	5	11/12	0.94	0.13	53,60,65,66	0
6	NAG	Z	1	14/15	0.94	0.12	45,52,64,70	0
6	NAG	Z	2	14/15	0.94	0.14	38,50,61,65	0
3	BMA	g	3	11/12	0.94	0.14	49,55,65,71	0
6	BMA	N	3	11/12	0.94	0.11	55,59,66,76	0
3	MAN	c	4	11/12	0.94	0.12	56,59,62,69	0
3	MAN	g	6	11/12	0.94	0.17	70,84,87,88	0
6	NAG	Q	1	14/15	0.95	0.13	45,52,58,64	0
6	NAG	Q	2	14/15	0.95	0.15	43,54,56,57	0
6	BMA	Q	3	11/12	0.95	0.09	50,55,61,65	0
4	NAG	R	1	14/15	0.95	0.15	59,77,84,89	0
9	NAG	a	1	14/15	0.95	0.16	55,69,80,89	0
3	BMA	L	3	11/12	0.95	0.09	56,60,69,83	0
3	FUC	c	7	10/11	0.95	0.11	56,63,65,66	0
6	BMA	T	3	11/12	0.95	0.09	57,64,69,81	0
9	MAN	a	5	11/12	0.95	0.13	67,74,80,80	0
6	FUC	N	6	10/11	0.95	0.11	61,64,67,72	0
6	MAN	Z	5	11/12	0.96	0.14	61,74,79,89	0
3	NAG	L	1	14/15	0.96	0.12	39,47,57,59	0
6	BMA	W	3	11/12	0.96	0.08	49,56,63,76	0
6	NAG	N	2	14/15	0.96	0.12	42,51,57,60	0
6	NAG	T	1	14/15	0.96	0.11	43,53,56,57	0
6	NAG	T	2	14/15	0.96	0.12	41,53,57,57	0
8	NAG	U	1	14/15	0.96	0.19	63,82,93,94	0
4	NAG	K	1	14/15	0.96	0.12	47,70,78,80	0
3	MAN	g	4	11/12	0.96	0.14	50,60,73,75	0
3	FUC	g	7	10/11	0.96	0.13	54,59,63,82	0
3	NAG	L	2	14/15	0.97	0.11	37,42,48,49	0
3	BMA	c	3	11/12	0.97	0.09	51,56,66,85	0
3	MAN	L	4	11/12	0.97	0.10	58,61,69,71	0
3	NAG	c	1	14/15	0.97	0.15	49,54,66,70	0
3	NAG	g	1	14/15	0.97	0.11	39,43,52,52	0
6	FUC	T	6	10/11	0.97	0.11	46,52,58,61	0
3	FUC	L	7	10/11	0.97	0.10	46,53,57,59	0

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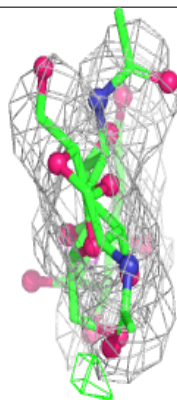
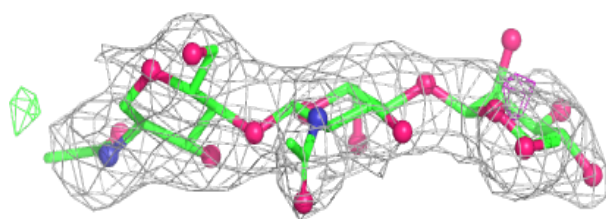
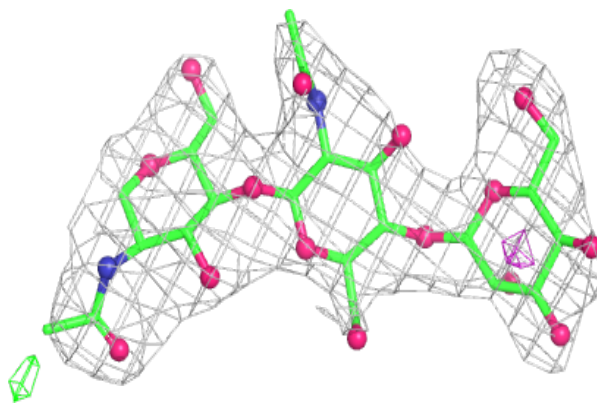
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
6	NAG	W	2	14/15	0.97	0.10	36,39,43,47	0
6	NAG	N	1	14/15	0.97	0.10	46,49,60,65	0
3	NAG	g	2	14/15	0.97	0.11	33,39,44,45	0
3	NAG	c	2	14/15	0.97	0.11	39,44,46,50	0
6	FUC	W	6	10/11	0.97	0.10	57,59,63,63	0

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.

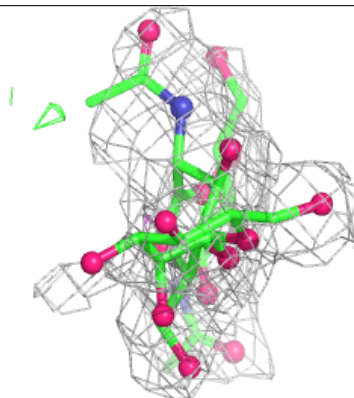
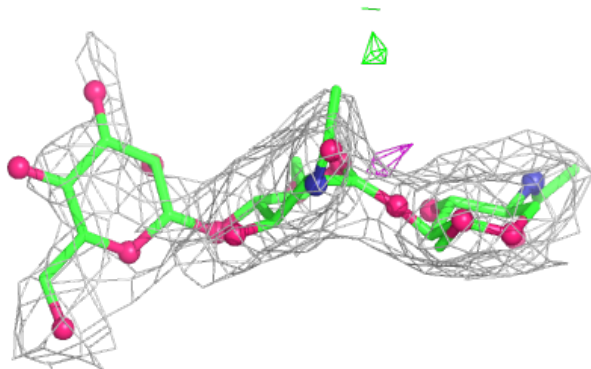
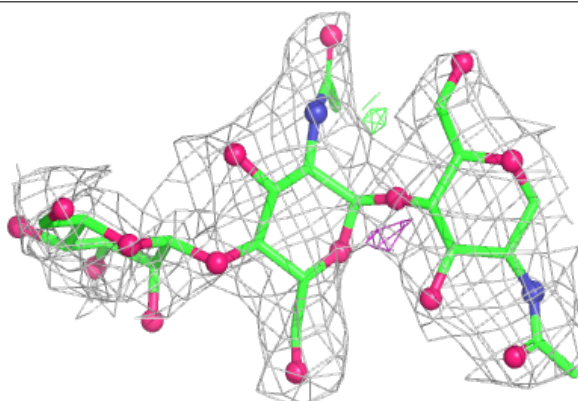


Electron density around Chain J:

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

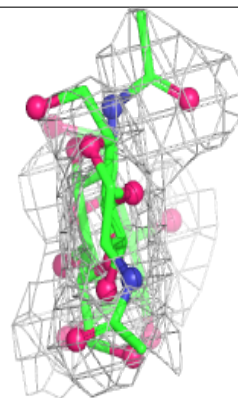
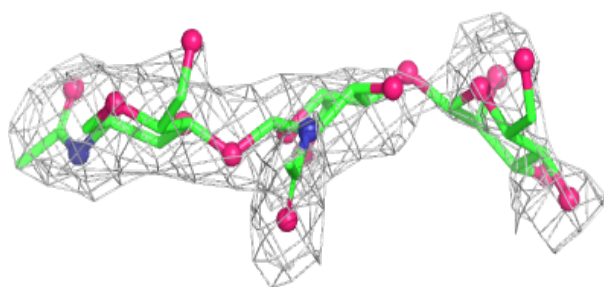
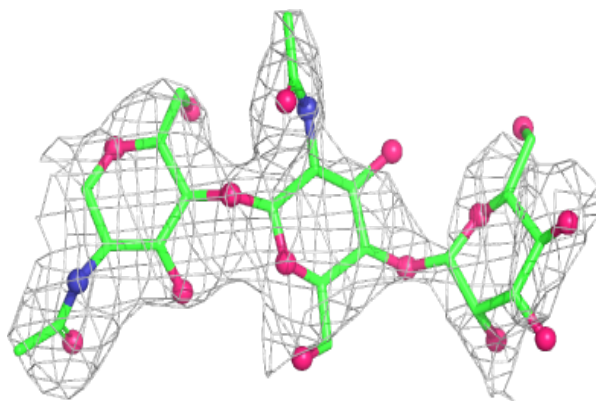
**Electron density around Chain Y:**

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

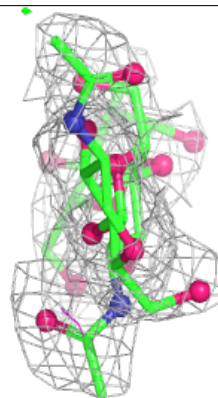
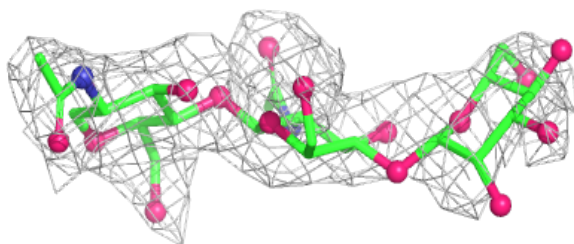
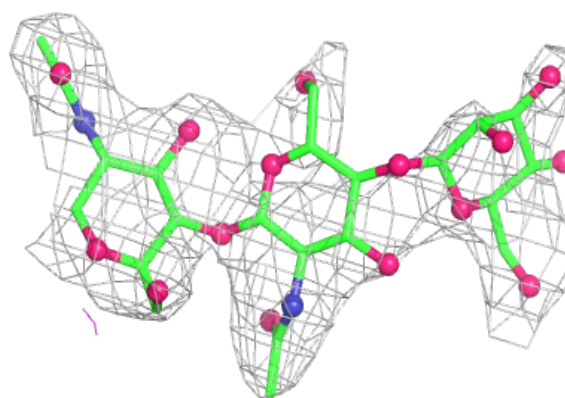


Electron density around Chain b:

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and green (positive)

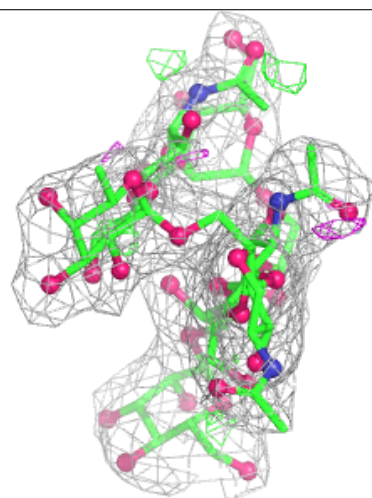
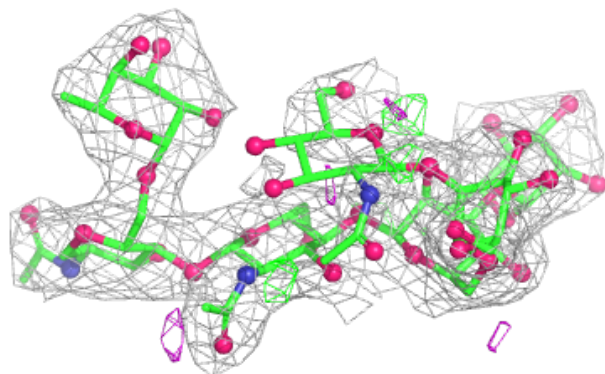
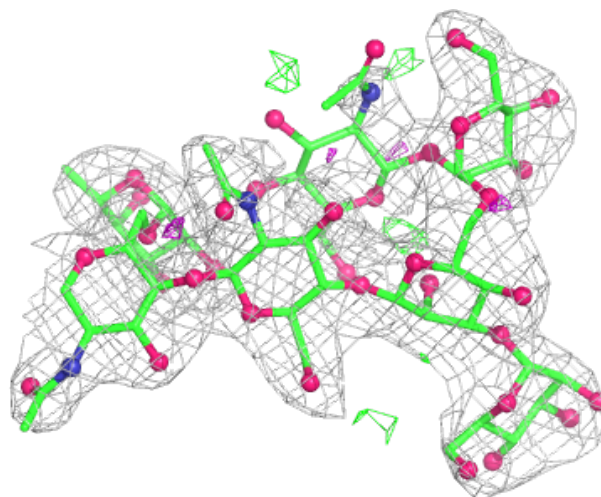
**Electron density around Chain e:**

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



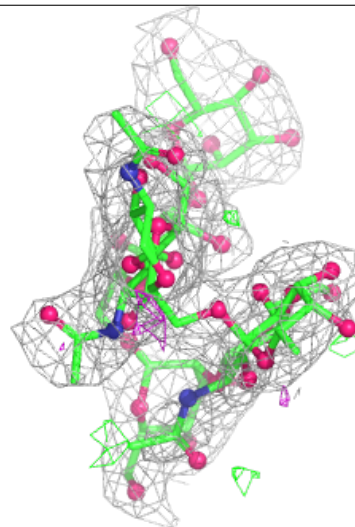
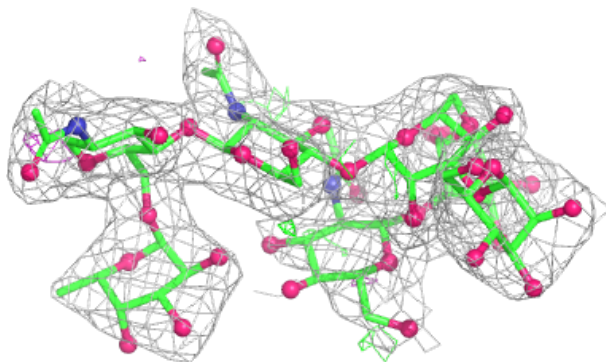
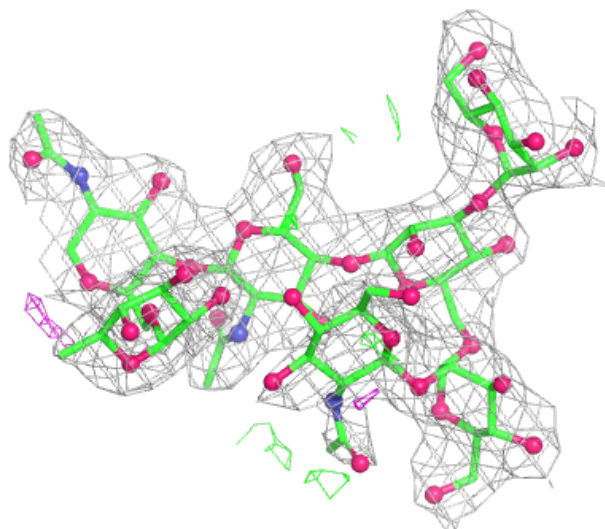
Electron density around Chain c:

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



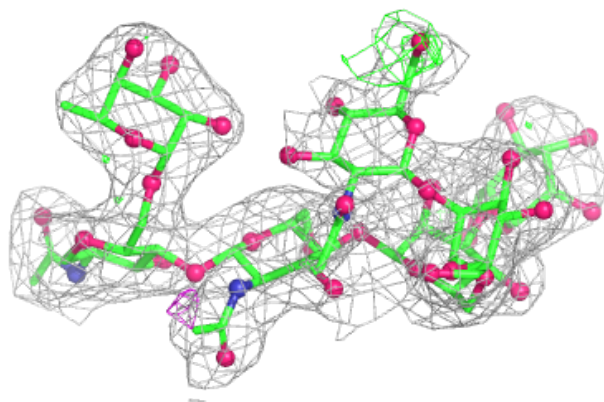
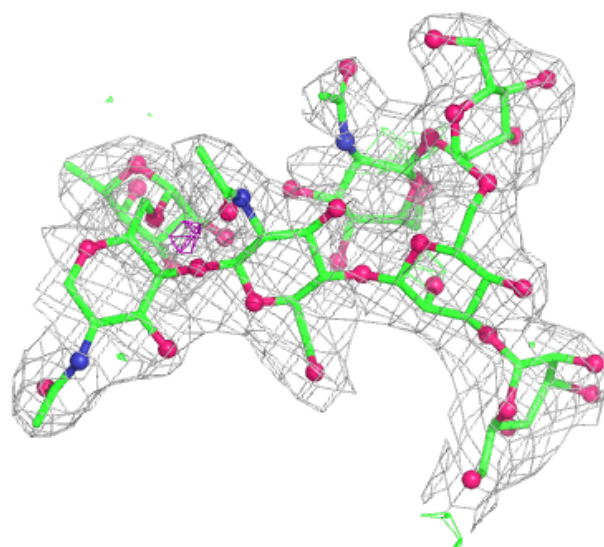
Electron density around Chain g:

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



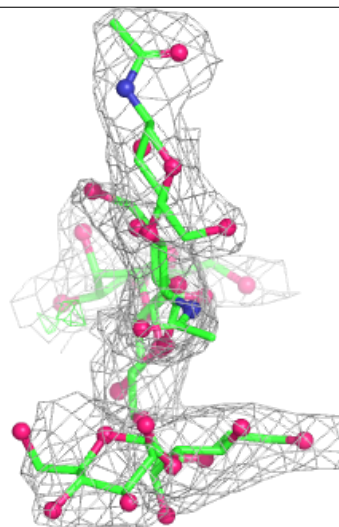
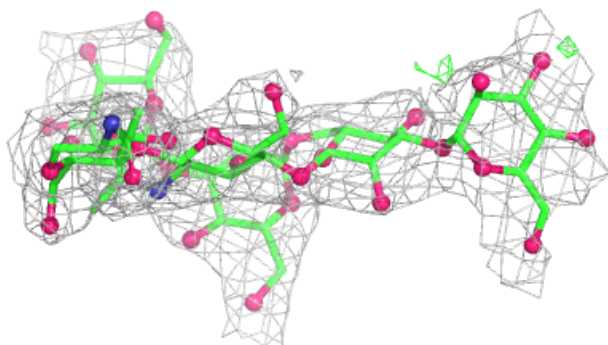
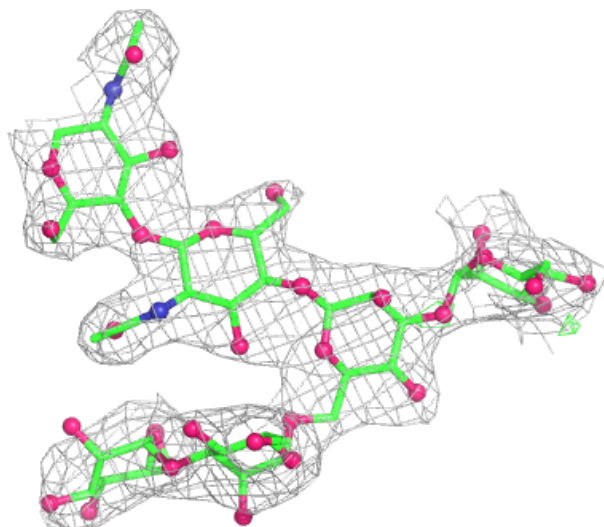
Electron density around Chain L:

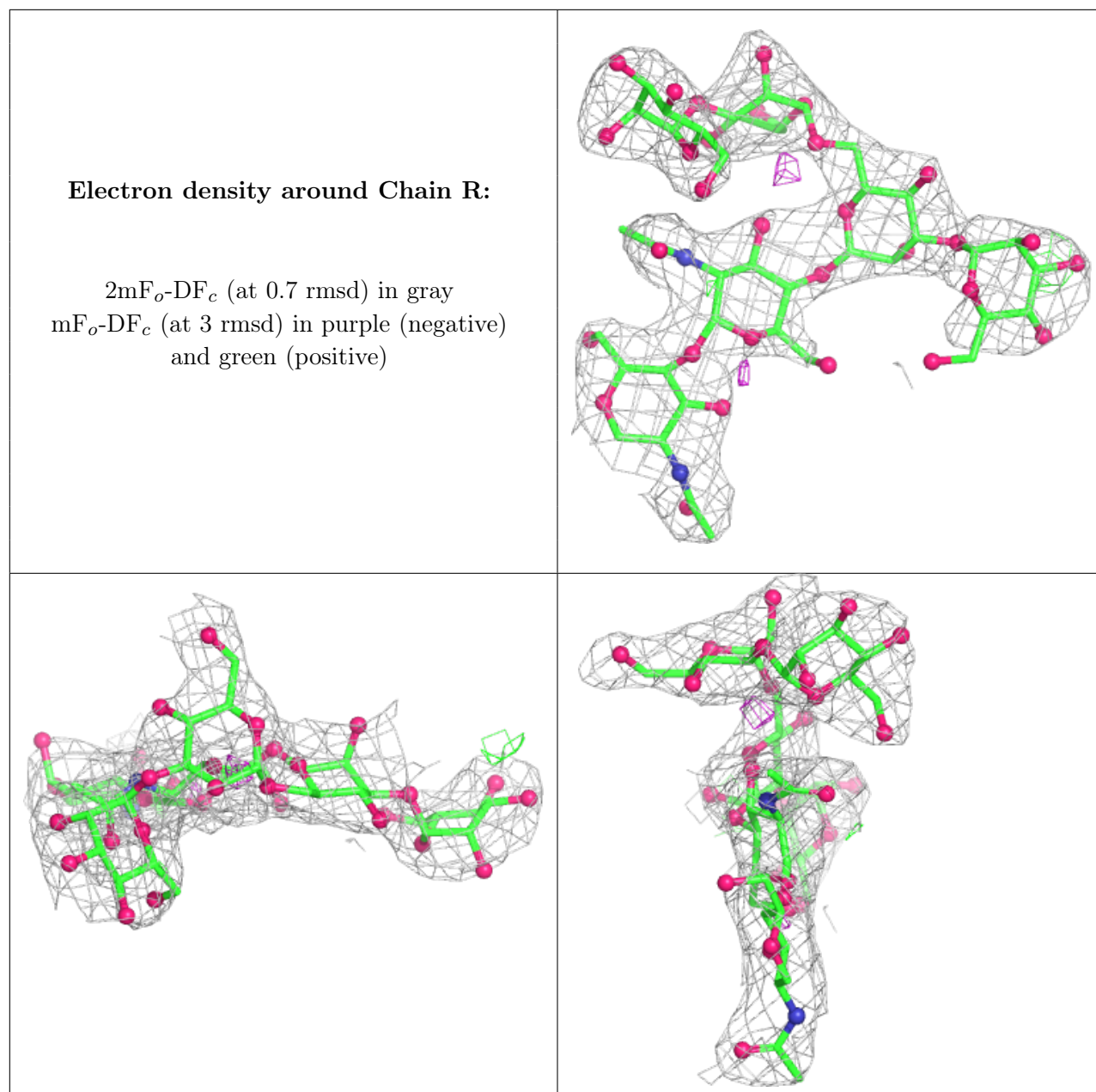
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around Chain K:

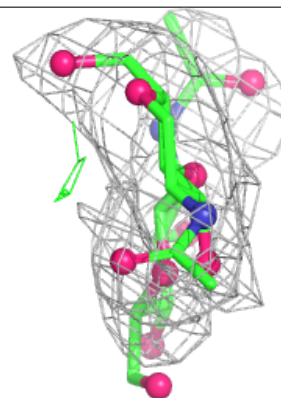
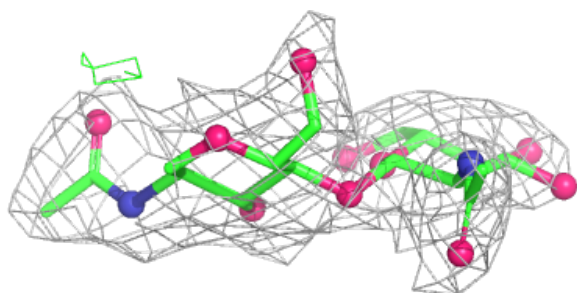
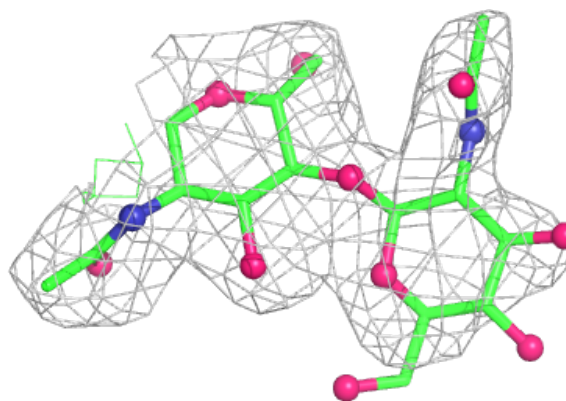
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



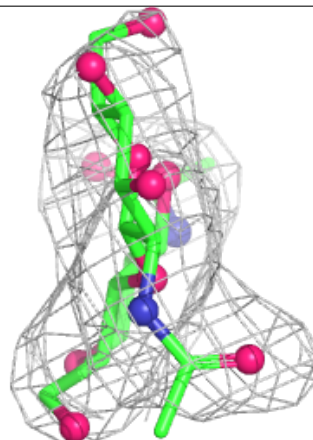
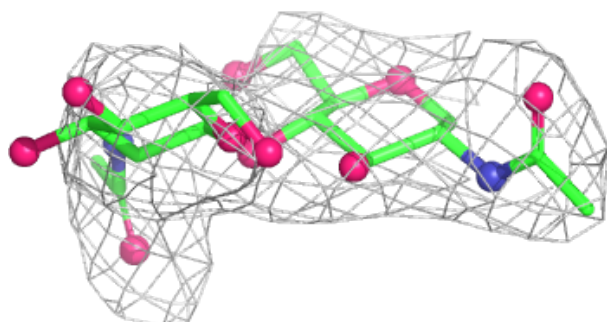
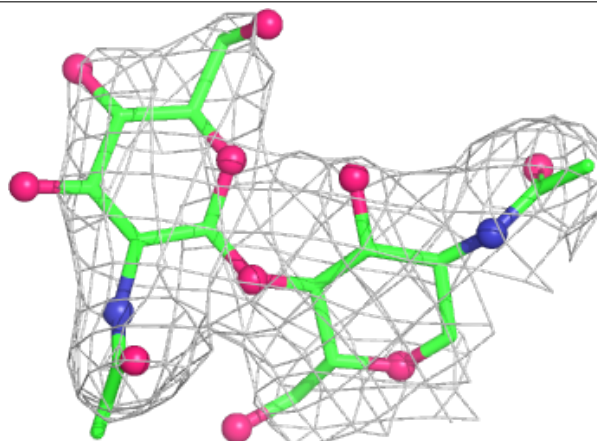


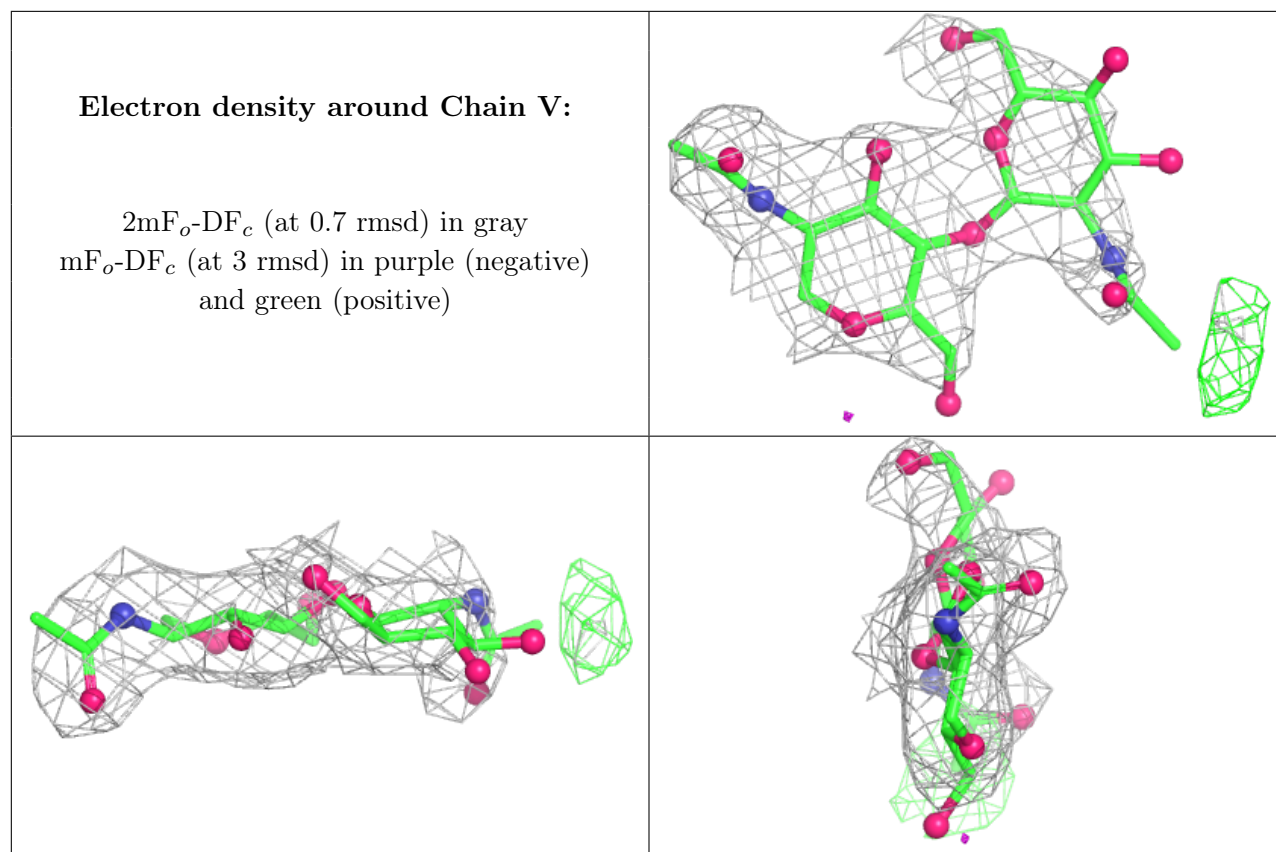
Electron density around Chain M:

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and green (positive)

**Electron density around Chain O:**

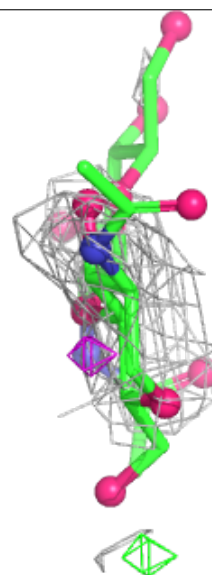
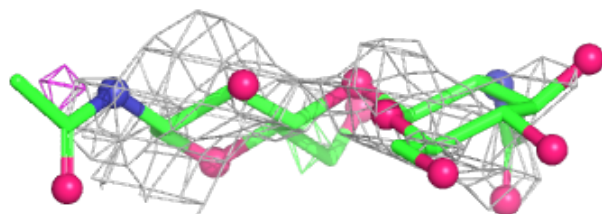
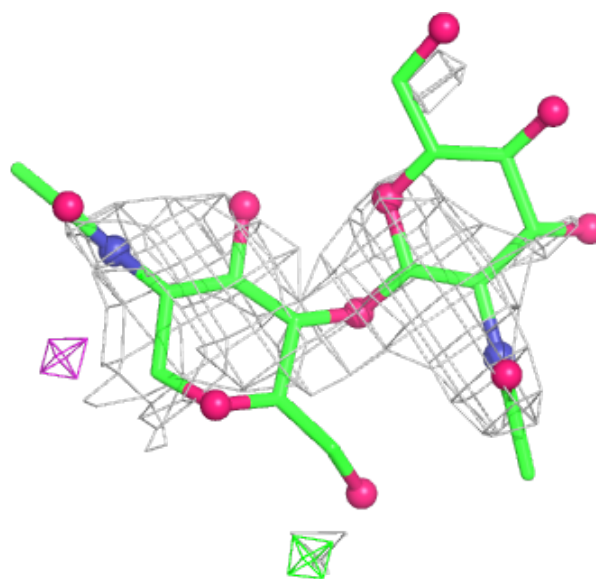
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

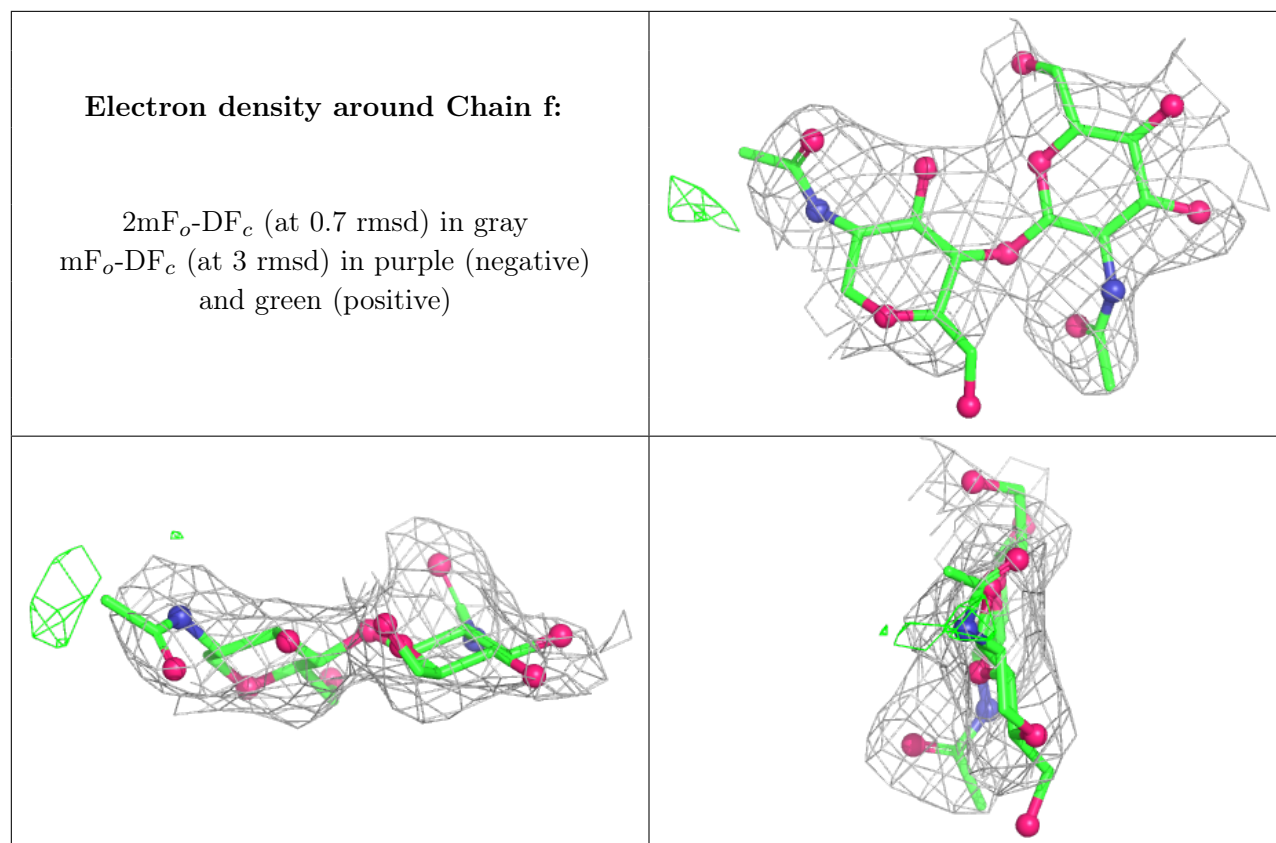




Electron density around Chain d:

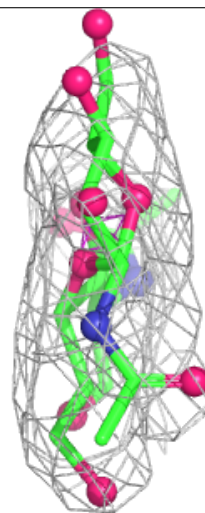
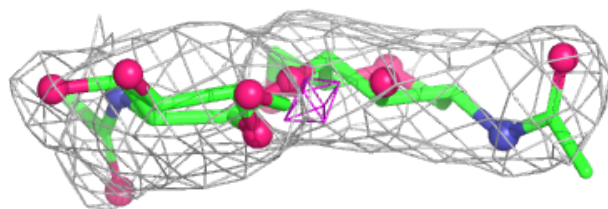
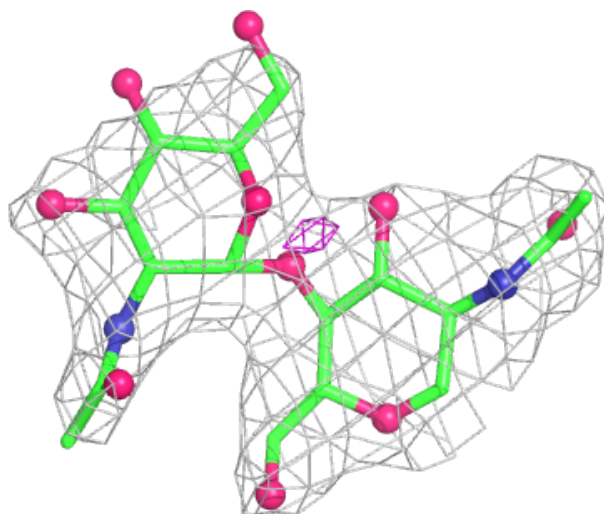
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





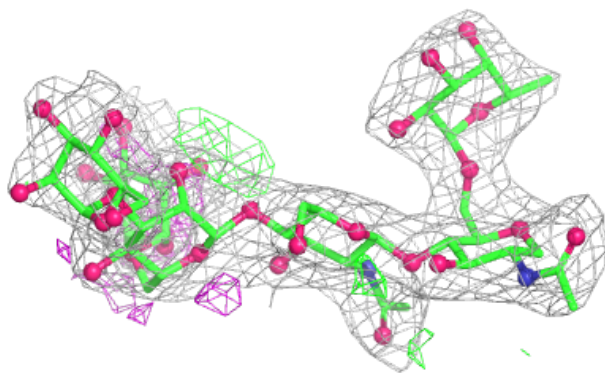
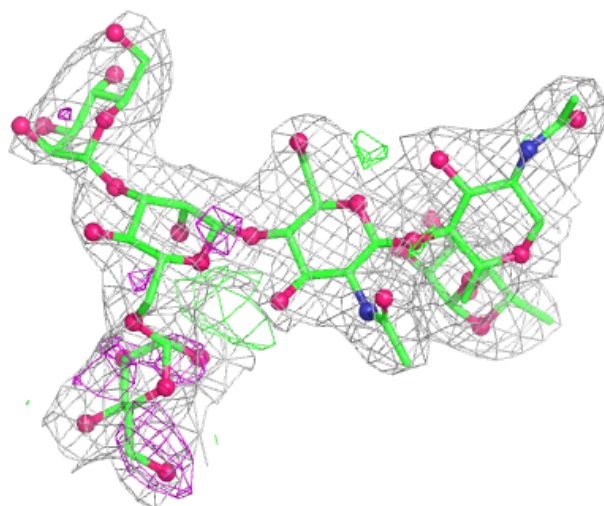
Electron density around Chain S:

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



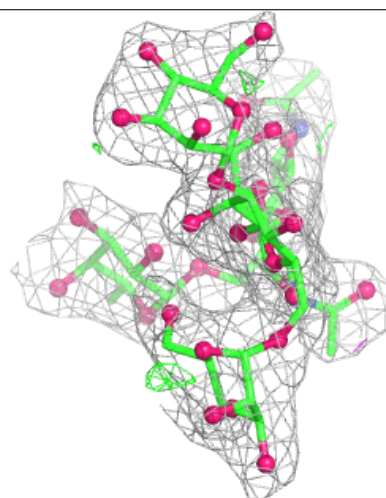
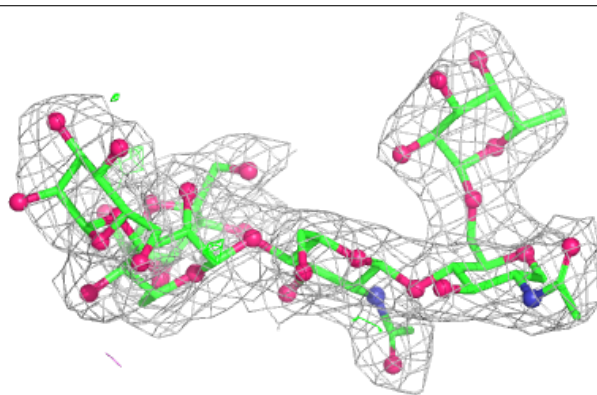
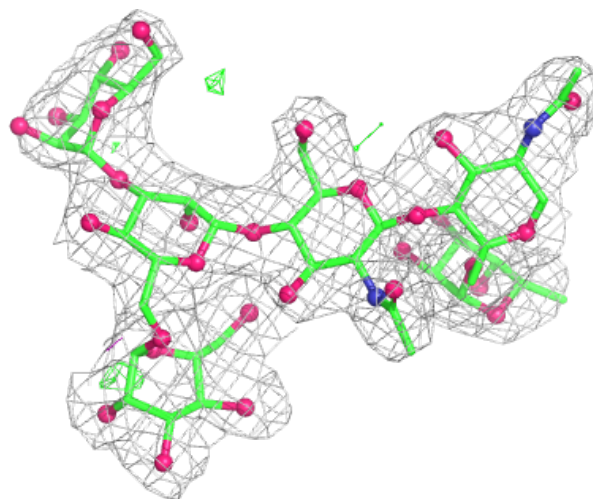
Electron density around Chain N:

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



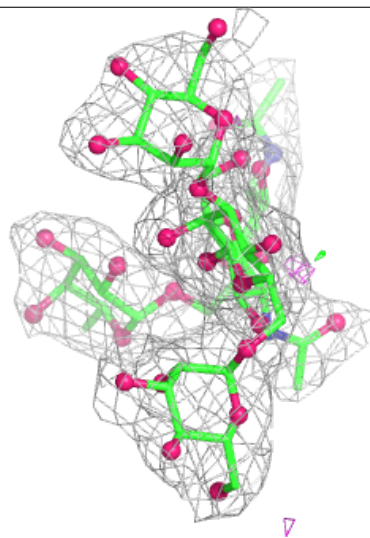
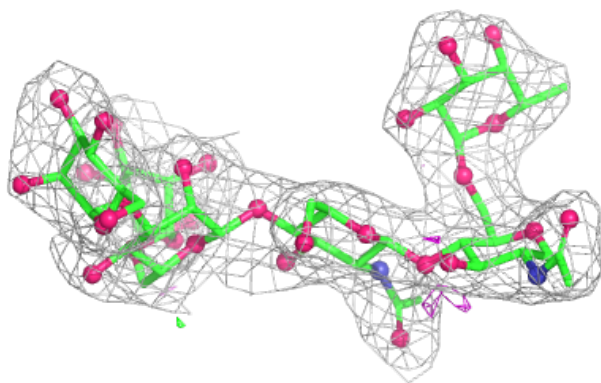
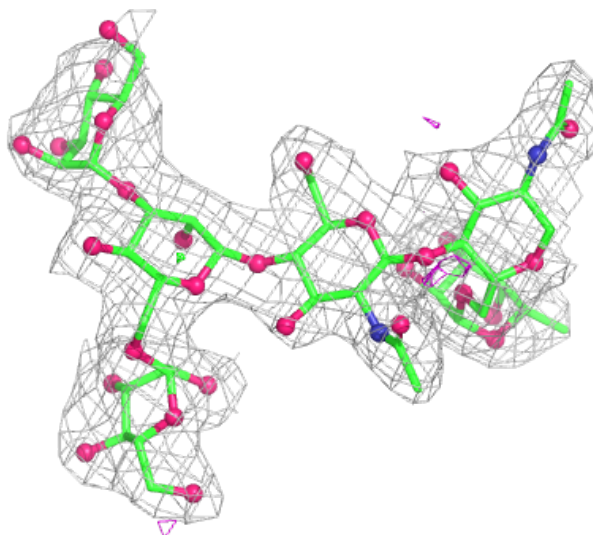
Electron density around Chain Q:

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



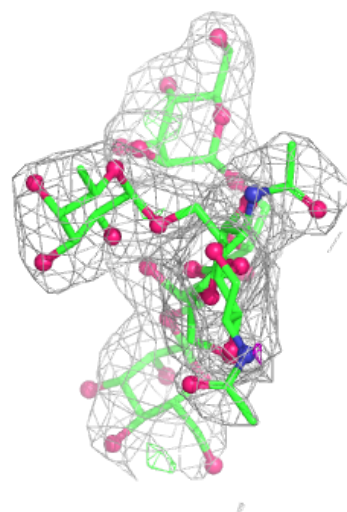
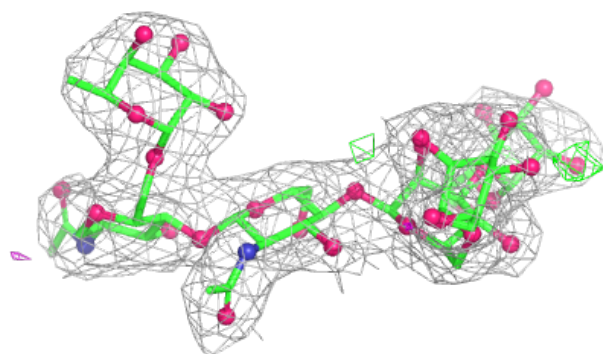
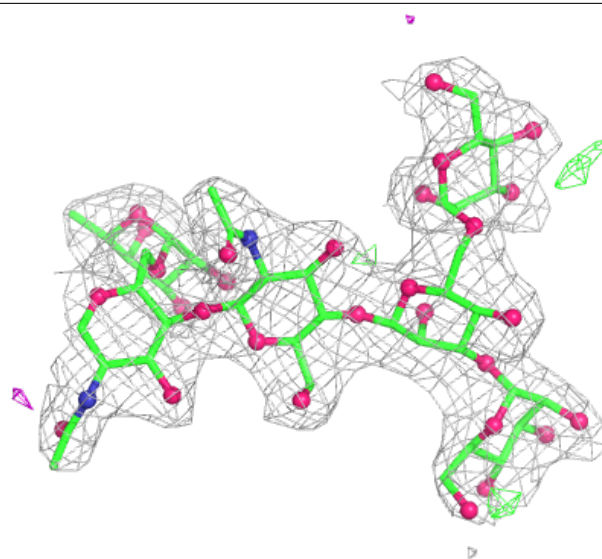
Electron density around Chain T:

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



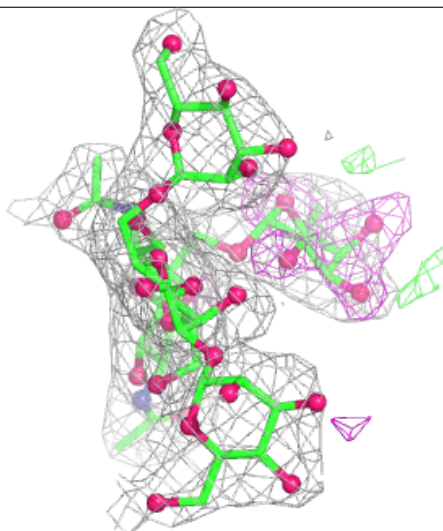
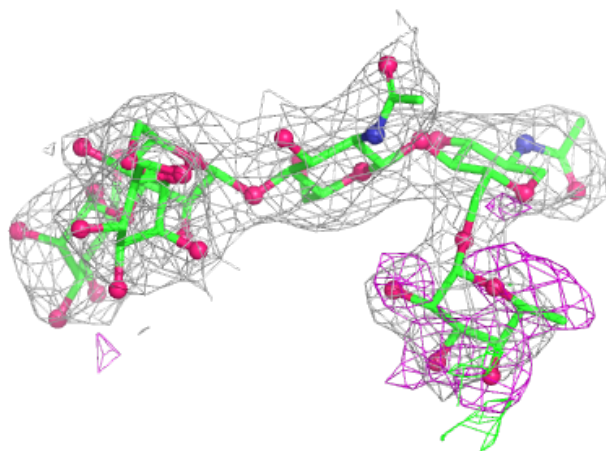
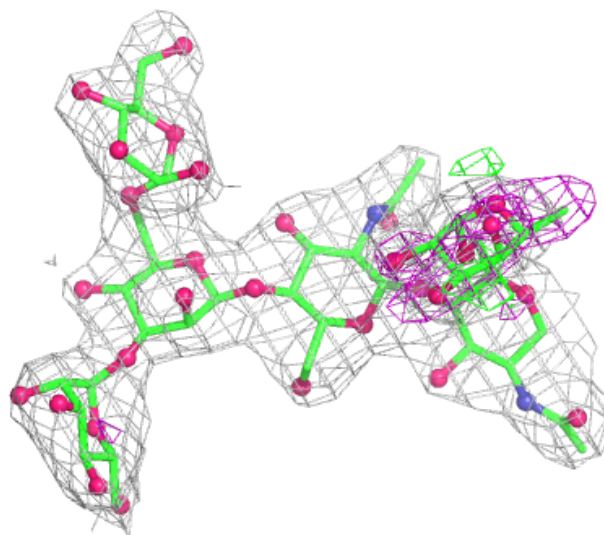
Electron density around Chain W:

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



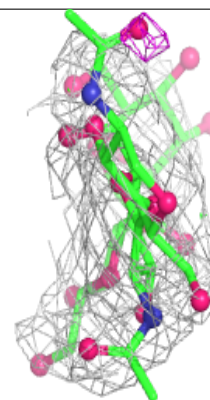
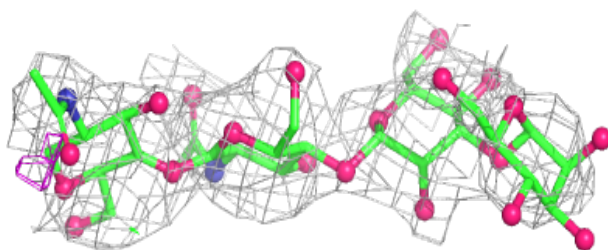
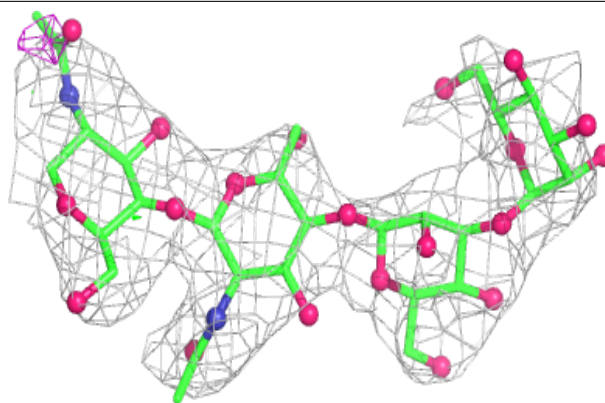
Electron density around Chain Z:

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

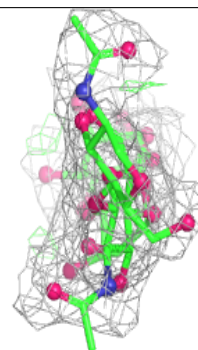
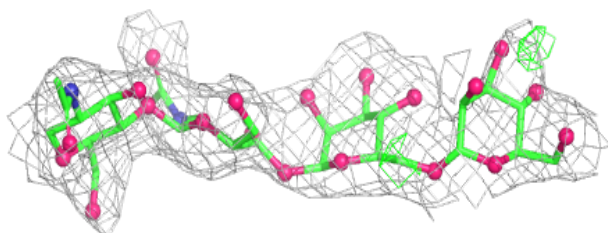
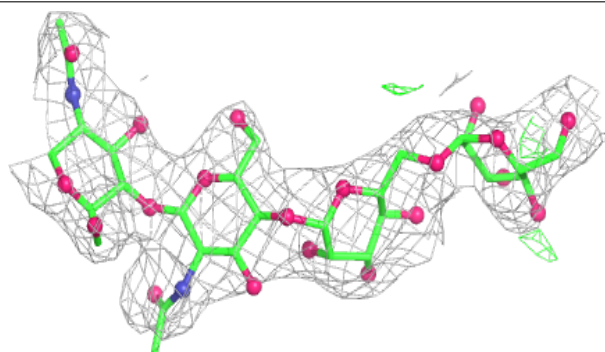


Electron density around Chain P:

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

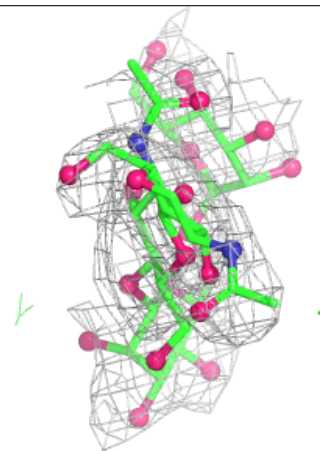
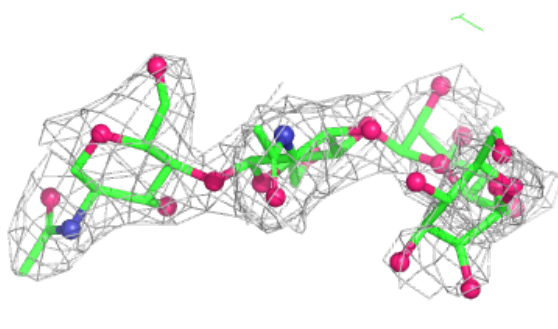
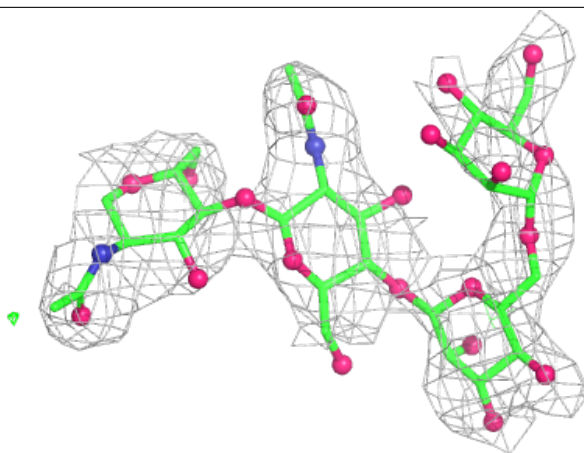
**Electron density around Chain U:**

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

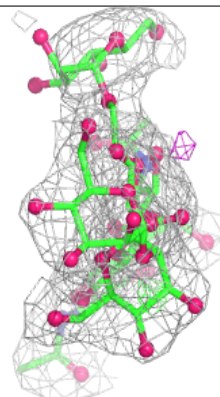
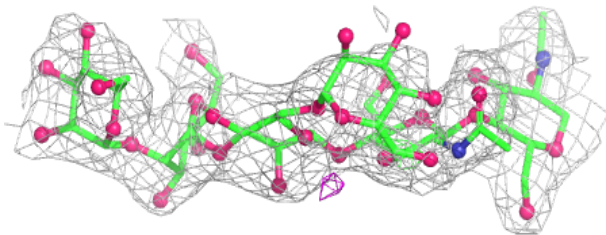
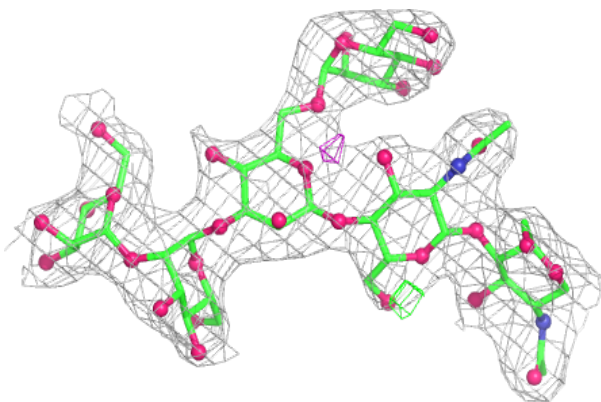


Electron density around Chain X:

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

**Electron density around Chain a:**

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



6.4 Ligands i

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
16	NAG	B	805	14/15	0.56	0.63	95,143,152,153	0
15	PO4	H	810	5/5	0.65	0.45	118,137,162,163	0
10	CL	B	810	1/1	0.67	0.18	78,78,78,78	0
15	PO4	B	813	5/5	0.68	0.34	115,116,121,136	0
16	NAG	C	805	14/15	0.68	0.31	93,130,139,147	0
14	8PR	F	807	24/24	0.70	0.43	76,103,112,115	24
14	8PR	H	807	24/24	0.71	0.43	76,87,102,106	24
16	NAG	C	804	14/15	0.72	0.53	99,139,147,149	0
15	PO4	G	810	5/5	0.73	0.55	133,148,154,166	0
14	8PR	D	807	24/24	0.74	0.36	79,107,126,134	24
16	NAG	B	806	14/15	0.75	0.27	86,122,138,141	0
15	PO4	C	810	5/5	0.76	0.52	102,128,135,137	0
15	PO4	B	812	5/5	0.78	0.46	116,123,139,140	0
14	8PR	A	807	24/24	0.79	0.27	77,93,110,117	0
16	NAG	D	804	14/15	0.79	0.43	75,91,96,102	14
15	PO4	D	811	5/5	0.81	0.25	93,98,111,112	0
15	PO4	F	810	5/5	0.87	0.28	78,100,112,114	0
15	PO4	G	809	5/5	0.87	0.37	107,107,131,141	0
15	PO4	E	808	5/5	0.87	0.31	100,101,114,140	0
15	PO4	D	812	5/5	0.89	0.31	91,92,118,120	0
15	PO4	D	813	5/5	0.89	0.34	94,97,120,124	0
10	CL	E	802	1/1	0.89	0.14	85,85,85,85	0
10	CL	C	802	1/1	0.90	0.18	93,93,93,93	0
10	CL	F	808	1/1	0.90	0.09	68,68,68,68	0
10	CL	G	803	1/1	0.91	0.12	75,75,75,75	0
13	SCN	B	809	3/3	0.91	0.42	62,62,75,86	0
13	SCN	D	806	3/3	0.91	0.26	53,53,70,72	0
15	PO4	A	810	5/5	0.91	0.30	113,116,126,142	0
10	CL	A	803	1/1	0.91	0.09	51,51,51,51	0
13	SCN	G	807	3/3	0.92	0.32	50,50,56,65	0
15	PO4	C	811	5/5	0.92	0.26	97,102,115,115	0
10	CL	C	809	1/1	0.92	0.14	58,58,58,58	0
13	SCN	B	808	3/3	0.92	0.37	62,62,71,77	0
13	SCN	E	806	3/3	0.92	0.45	64,64,67,73	0
13	SCN	F	806	3/3	0.93	0.27	69,69,71,79	0
13	SCN	C	807	3/3	0.93	0.31	74,74,75,82	0

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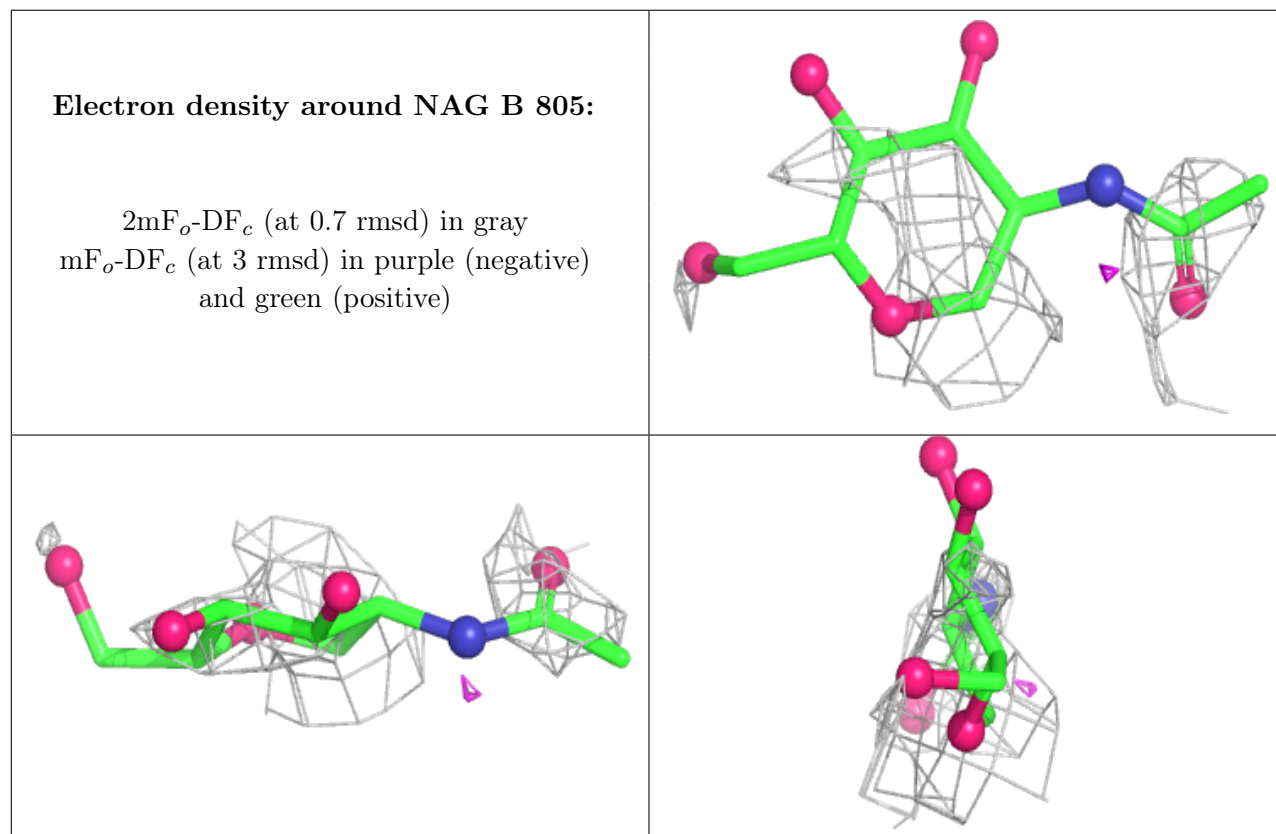
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
10	CL	B	811	1/1	0.94	0.09	60,60,60,60	0
15	PO4	H	809	5/5	0.94	0.38	91,94,111,128	0
10	CL	A	802	1/1	0.95	0.06	77,77,77,77	0
10	CL	C	808	1/1	0.95	0.14	69,69,69,69	0
10	CL	G	808	1/1	0.95	0.10	62,62,62,62	0
10	CL	H	802	1/1	0.95	0.08	61,61,61,61	0
10	CL	H	808	1/1	0.95	0.14	72,72,72,72	0
12	HEM	F	805	43/43	0.95	0.27	38,53,63,65	0
13	SCN	H	806	3/3	0.96	0.17	60,60,60,74	0
12	HEM	E	805	43/43	0.96	0.28	45,52,60,74	0
10	CL	E	807	1/1	0.96	0.12	65,65,65,65	0
12	HEM	H	805	43/43	0.96	0.26	41,52,59,75	0
13	SCN	A	806	3/3	0.96	0.28	76,76,77,83	0
10	CL	D	809	1/1	0.96	0.11	53,53,53,53	0
10	CL	E	803	1/1	0.96	0.18	62,62,62,62	0
11	CA	E	804	1/1	0.96	0.13	49,49,49,49	0
12	HEM	A	805	43/43	0.96	0.22	39,47,57,67	0
12	HEM	B	807	43/43	0.96	0.30	35,45,53,67	0
12	HEM	C	806	43/43	0.96	0.29	40,49,59,91	0
12	HEM	D	805	43/43	0.96	0.22	38,47,56,62	0
11	CA	A	804	1/1	0.97	0.15	41,41,41,41	0
10	CL	F	804	1/1	0.97	0.06	58,58,58,58	0
10	CL	D	810	1/1	0.97	0.13	54,54,54,54	0
10	CL	F	809	1/1	0.97	0.22	63,63,63,63	0
10	CL	G	801	1/1	0.97	0.11	54,54,54,54	0
10	CL	G	802	1/1	0.97	0.23	54,54,54,54	0
10	CL	A	808	1/1	0.97	0.06	62,62,62,62	0
10	CL	G	804	1/1	0.97	0.14	57,57,57,57	0
12	HEM	G	806	43/43	0.97	0.24	32,39,48,65	0
10	CL	D	802	1/1	0.97	0.07	56,56,56,56	0
10	CL	H	801	1/1	0.97	0.15	45,45,45,45	0
10	CL	A	809	1/1	0.97	0.12	51,51,51,51	0
10	CL	H	803	1/1	0.97	0.17	49,49,49,49	0
10	CL	F	802	1/1	0.97	0.12	49,49,49,49	0
10	CL	D	808	1/1	0.98	0.07	62,62,62,62	0
11	CA	C	803	1/1	0.98	0.14	54,54,54,54	0
11	CA	D	803	1/1	0.98	0.12	39,39,39,39	0
13	SCN	D	801	3/3	0.98	0.18	47,47,53,61	0
10	CL	B	802	1/1	0.98	0.11	54,54,54,54	0
11	CA	G	805	1/1	0.98	0.12	47,47,47,47	0
10	CL	B	803	1/1	0.98	0.11	51,51,51,51	1
10	CL	E	801	1/1	0.98	0.25	59,59,59,59	0

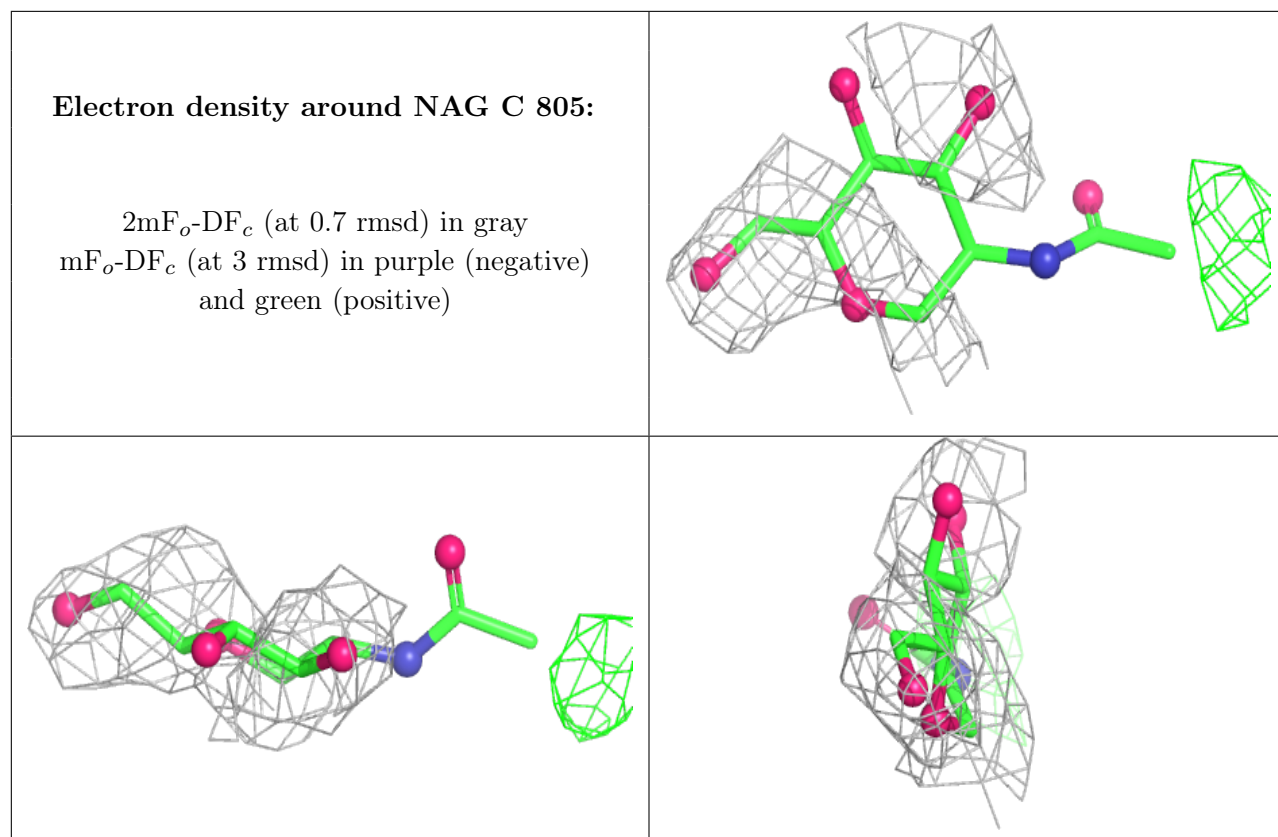
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
11	CA	H	804	1/1	0.99	0.18	40,40,40,40	0
11	CA	B	804	1/1	0.99	0.14	45,45,45,45	0
10	CL	B	801	1/1	0.99	0.20	50,50,50,50	0
10	CL	F	801	1/1	0.99	0.20	47,47,47,47	0
10	CL	C	801	1/1	0.99	0.24	50,50,50,50	0
11	CA	F	803	1/1	0.99	0.16	41,41,41,41	0
10	CL	A	801	1/1	0.99	0.20	43,43,43,43	0

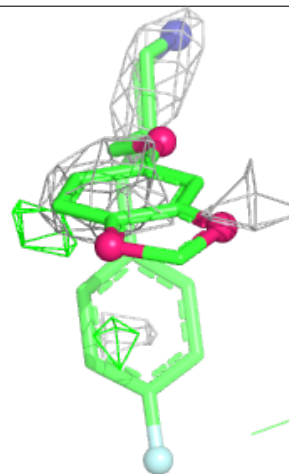
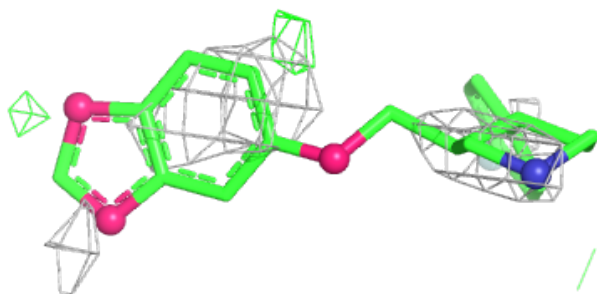
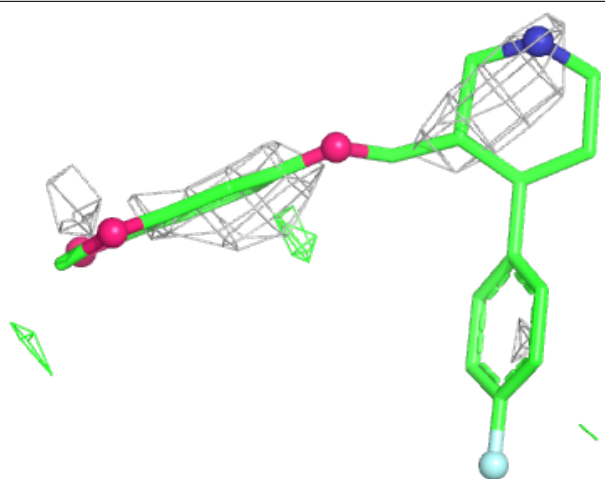
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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





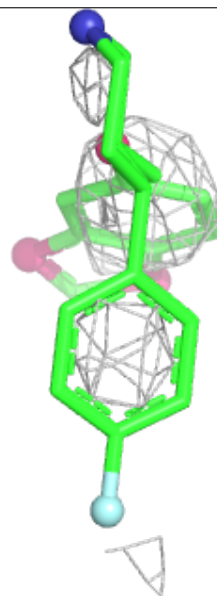
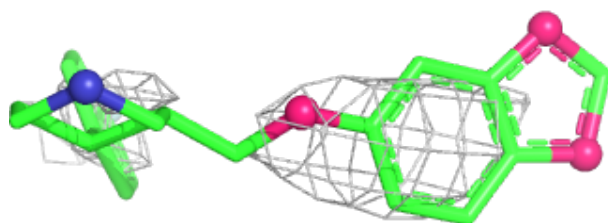
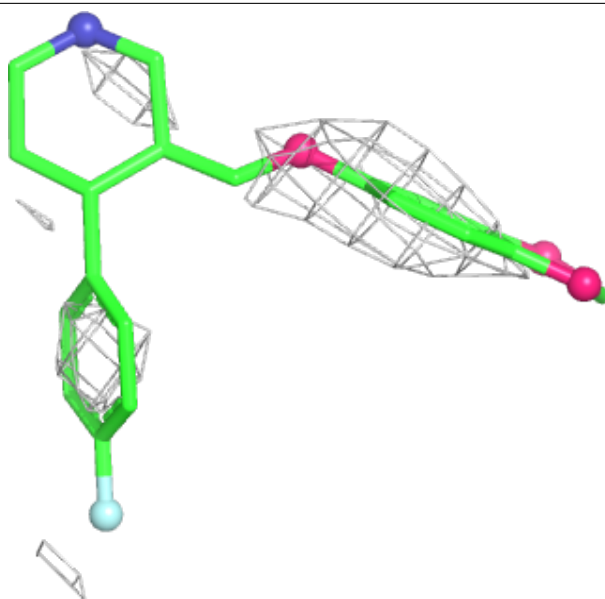
Electron density around 8PR F 807:

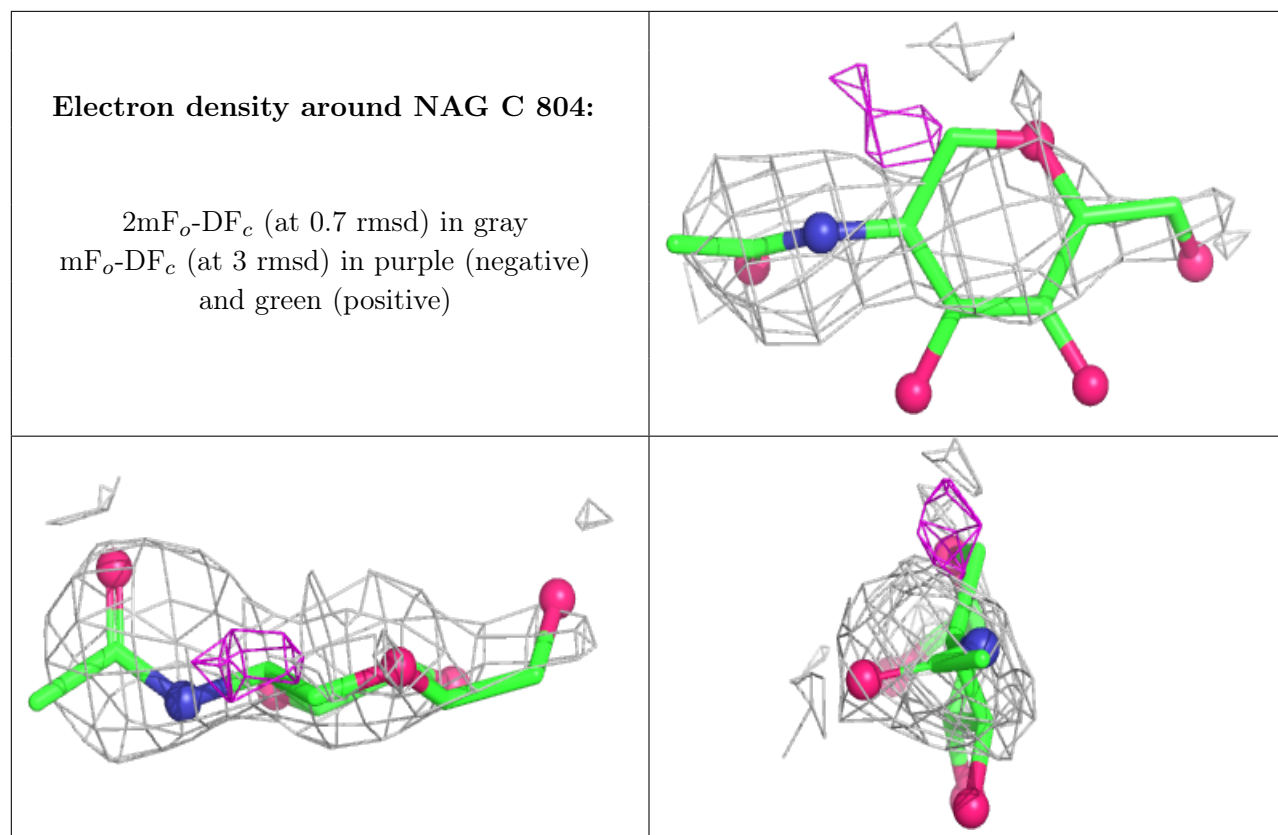
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around 8PR H 807:

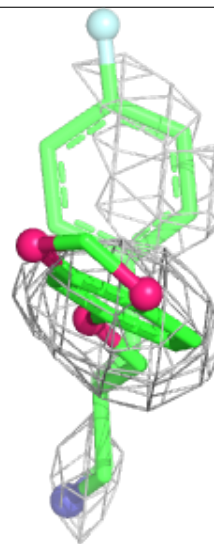
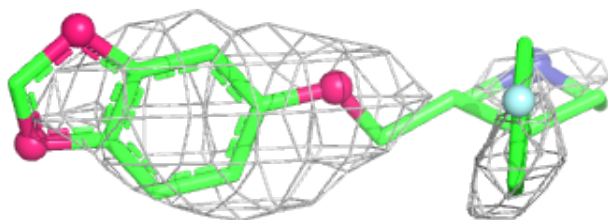
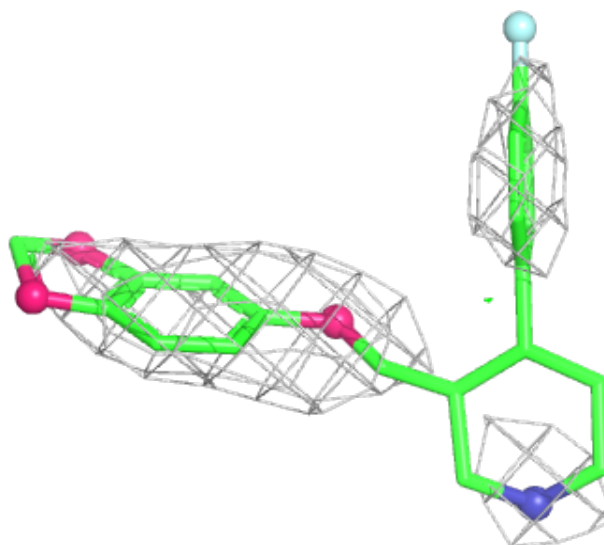
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

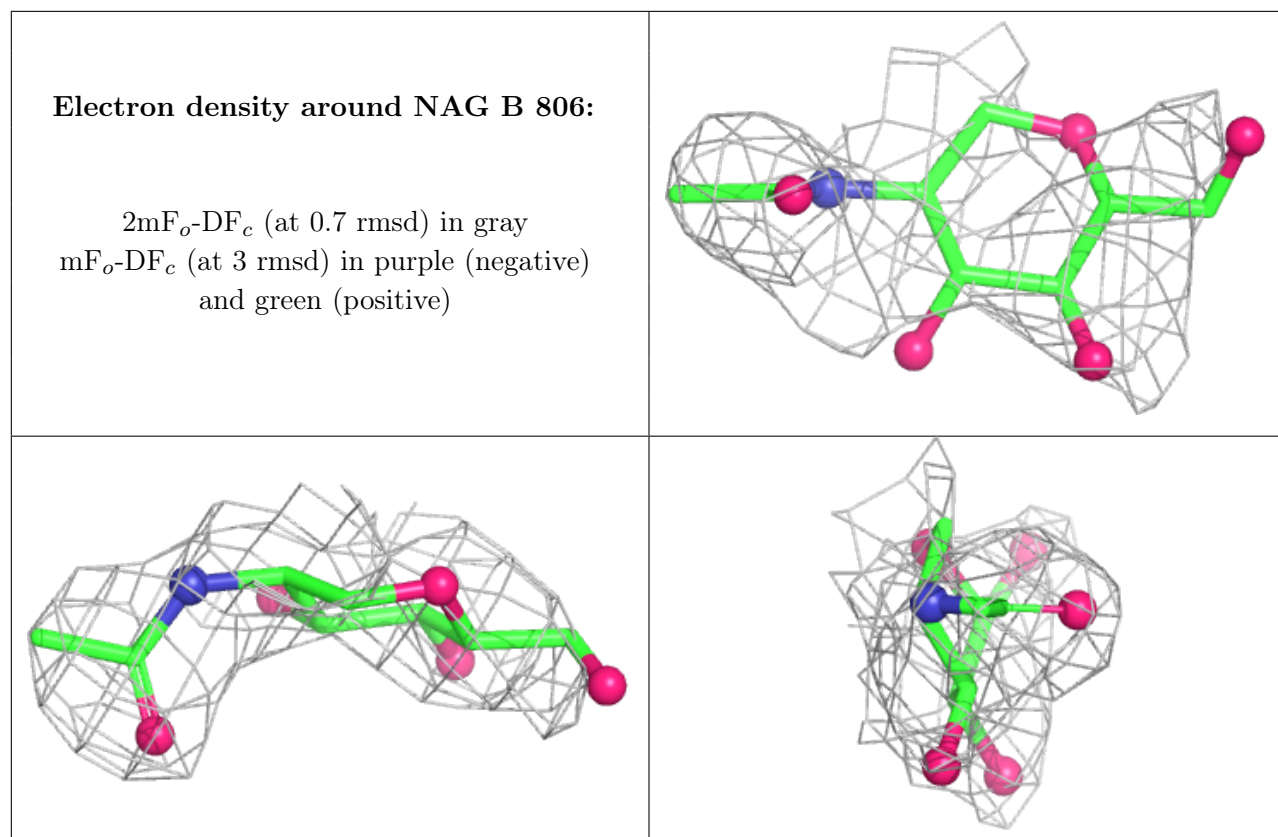




Electron density around 8PR D 807:

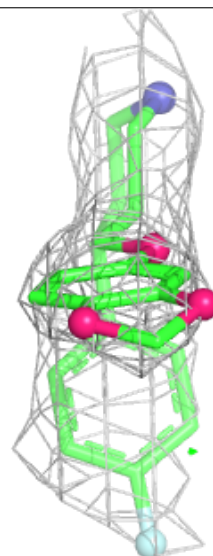
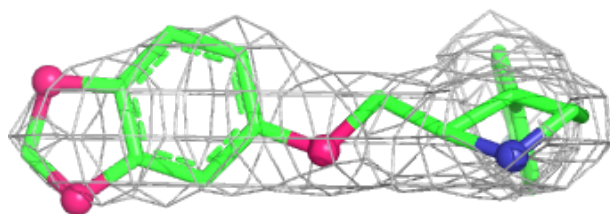
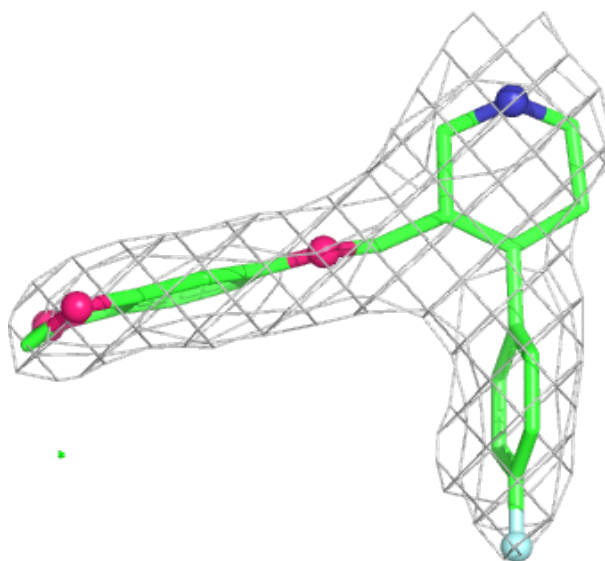
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

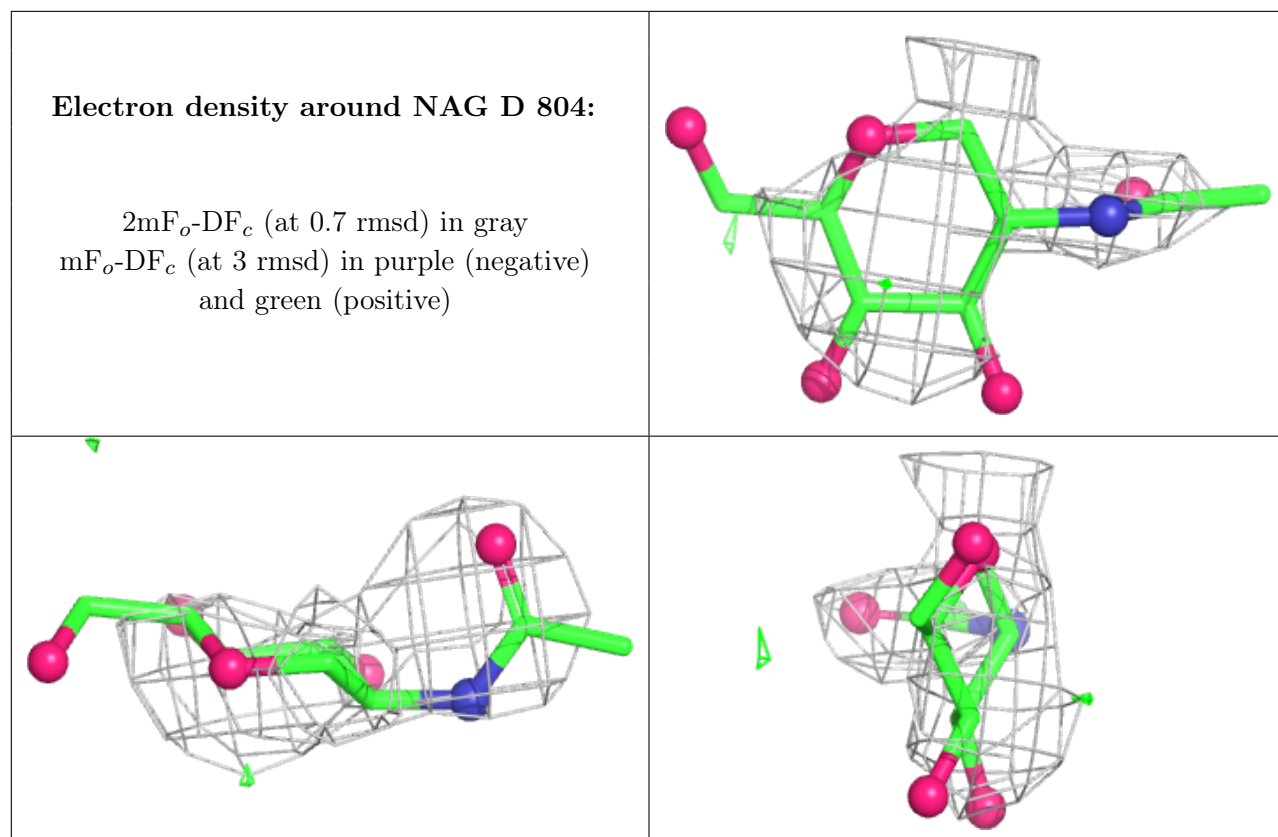




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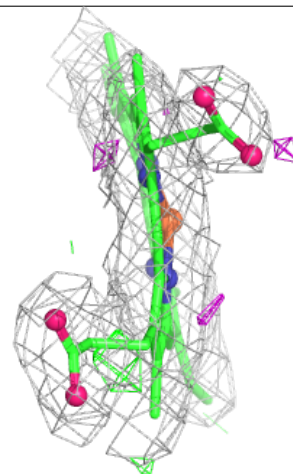
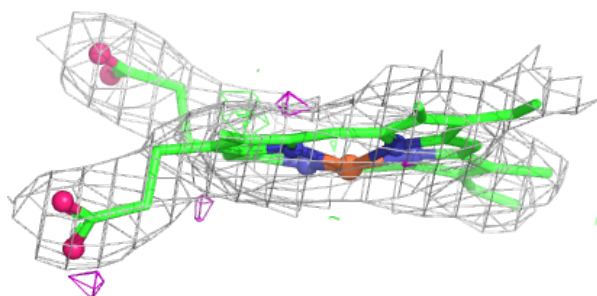
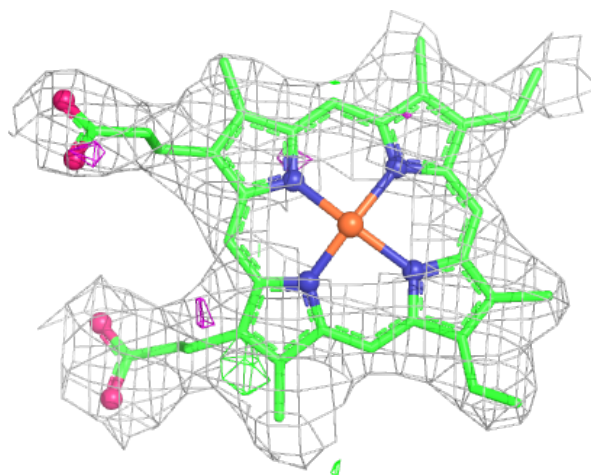
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





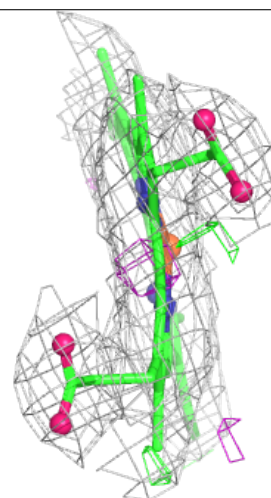
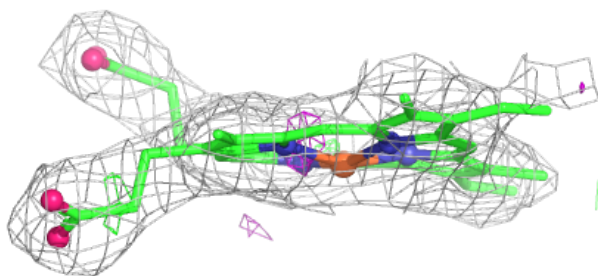
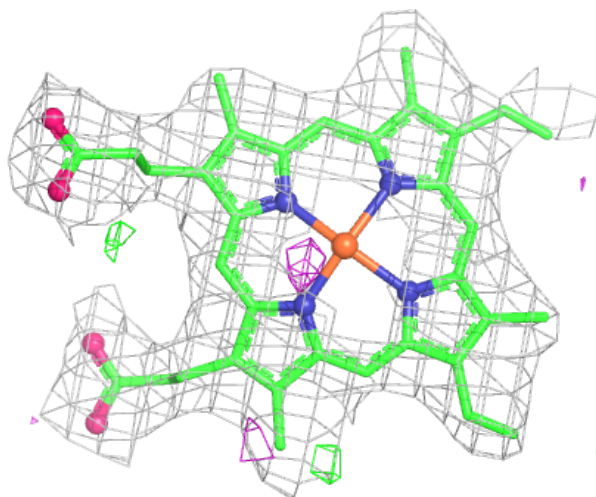
Electron density around HEM F 805:

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



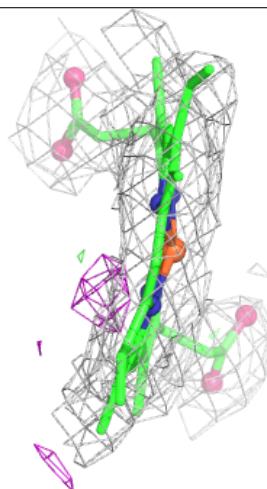
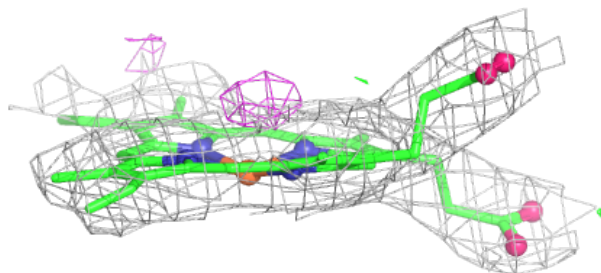
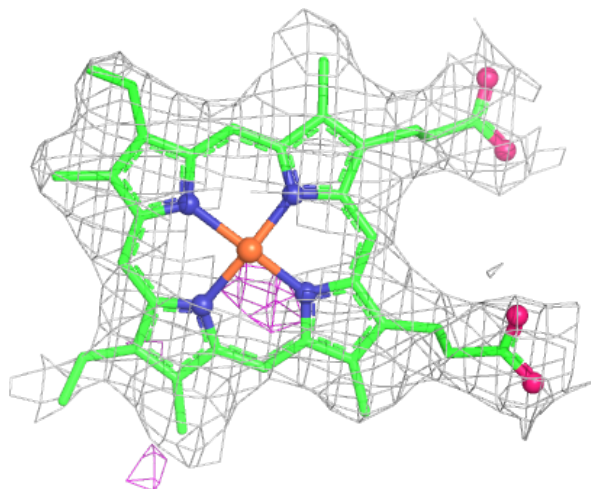
Electron density around HEM E 805:

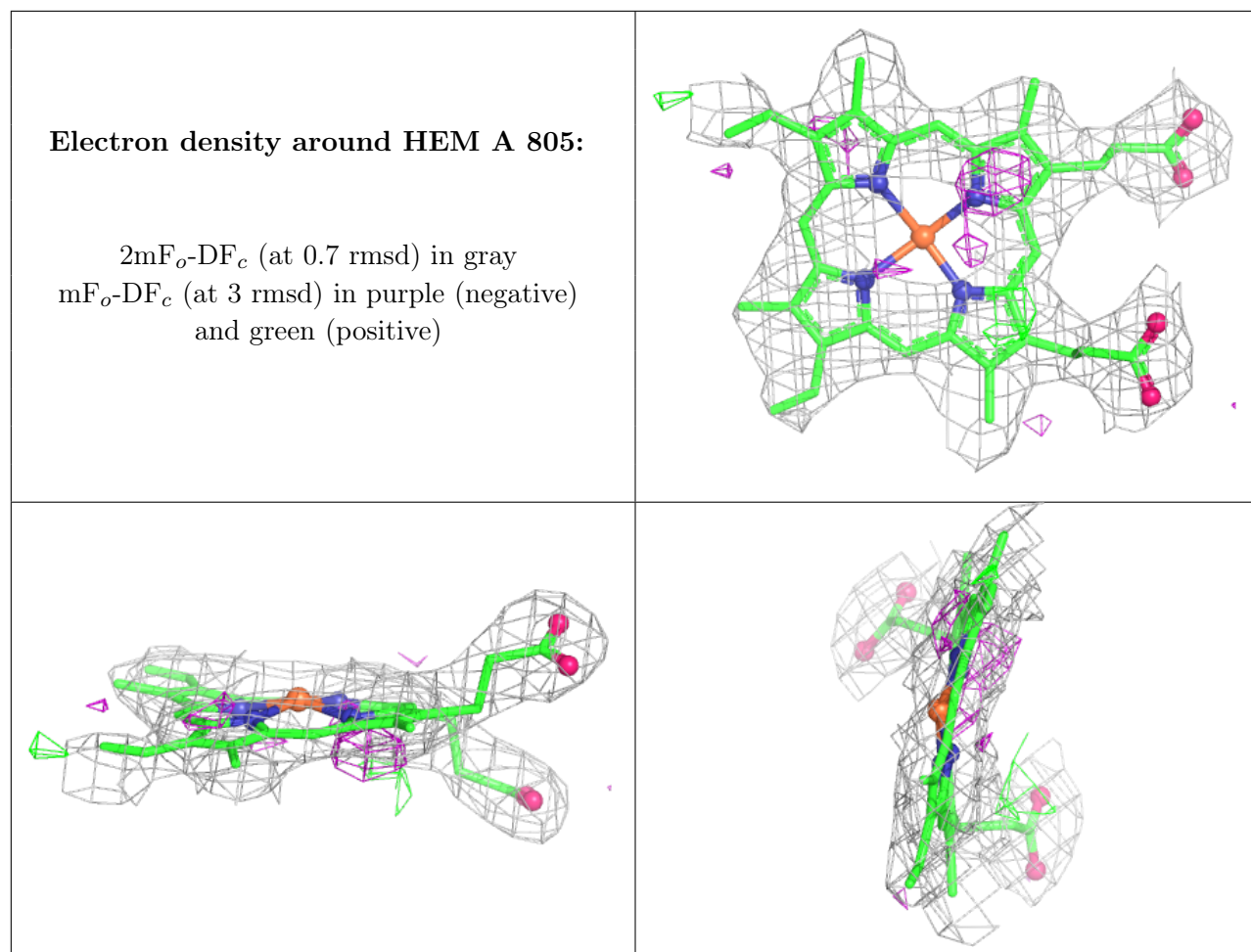
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEM H 805:

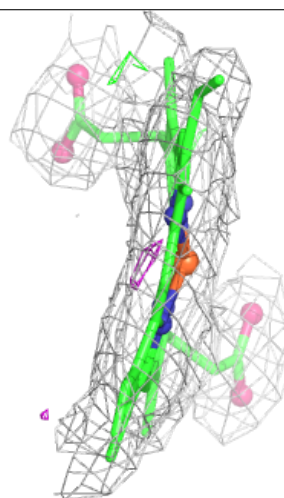
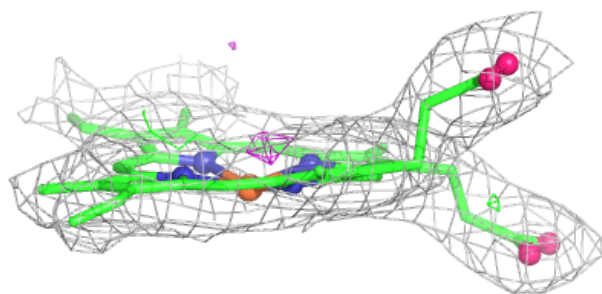
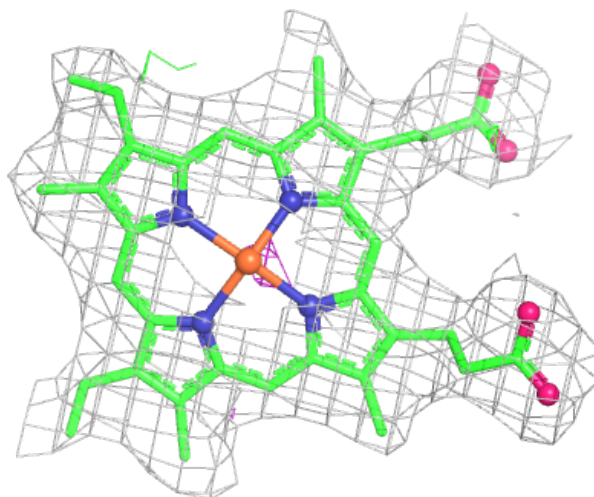
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





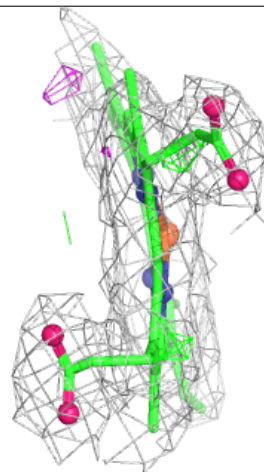
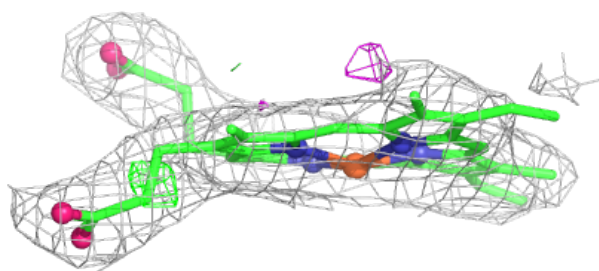
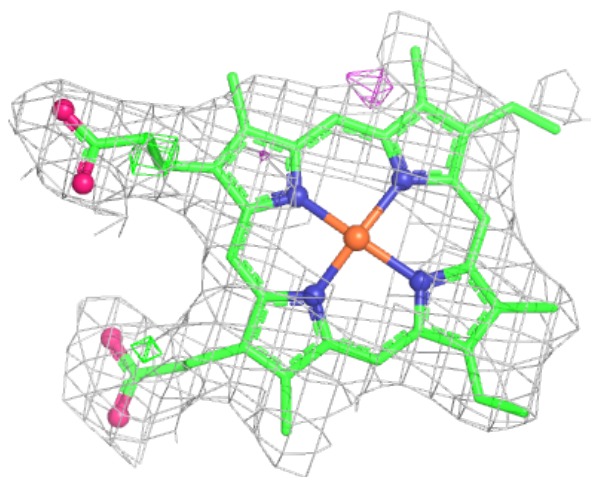
Electron density around HEM B 807:

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



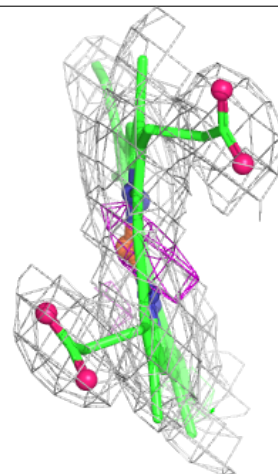
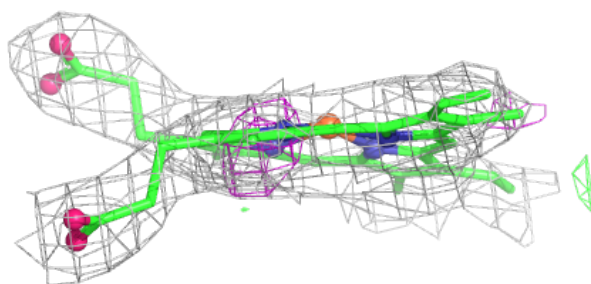
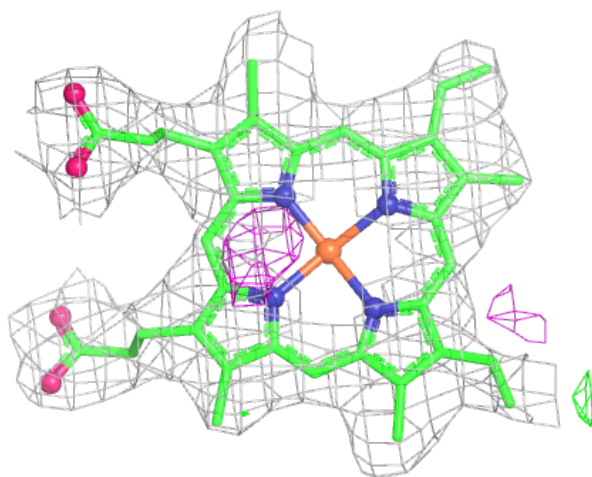
Electron density around HEM C 806:

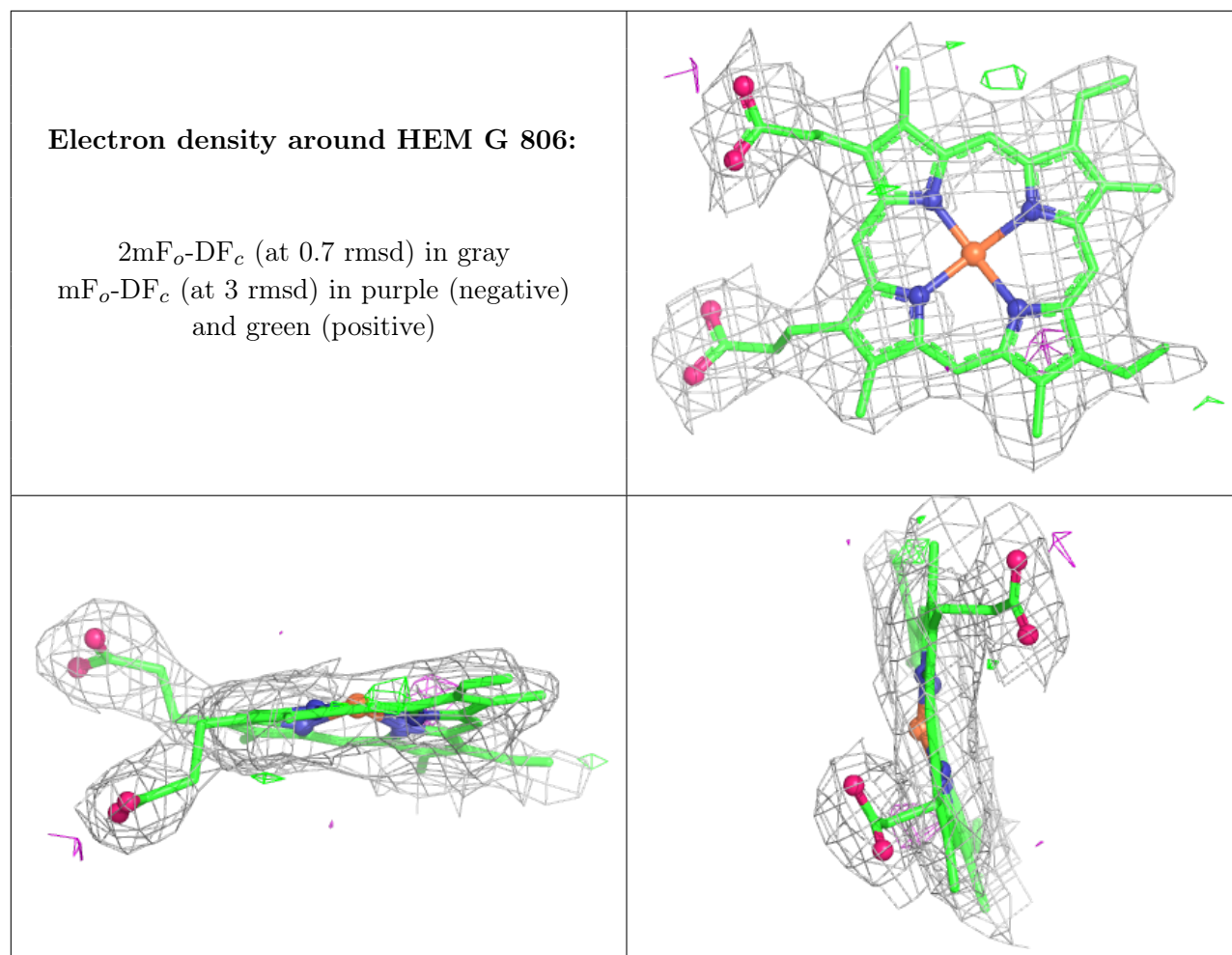
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around HEM D 805:

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





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

There are no such residues in this entry.