Full wwPDB X-ray Structure Validation Report ⓘ

Jan 13, 2024 – 06:40 pm GMT

PDB ID	:	6RUV
Title	:	Structure of the SCIN stabilized C3bBb convertase bound to Properdin and a the non-inhibitory nanobody hFPNb1
Authors	:	Pedersen, D.V.; Andersen, G.R.
Deposited on	:	2019-05-29
Resolution	:	6.15 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:

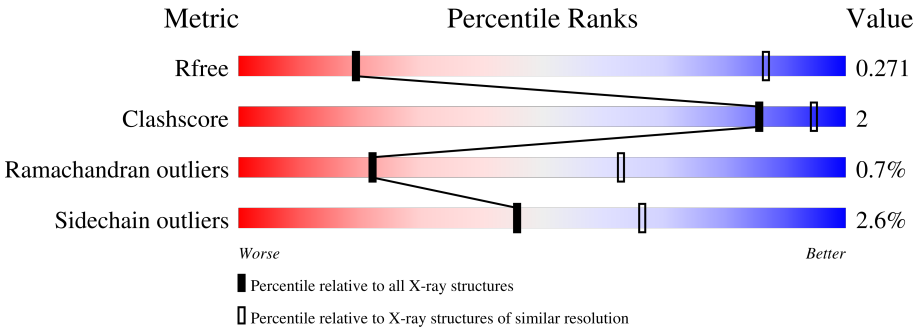
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 6.15 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	1003 (8.40-3.88)
Clashscore	141614	1052 (8.40-3.90)
Ramachandran outliers	138981	1000 (8.40-3.88)
Sidechain outliers	138945	1000 (8.40-3.84)

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 <=5%

Mol	Chain	Length	Quality of chain
1	R	131	89% 5% • 5%
1	S	131	93% • 5%
2	U	170	55% 6% 38%
2	X	170	82% 12% • •
3	V	221	81% 14% • •
3	Y	221	79% 15% • •
4	A	645	94% 6% •

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Mol	Chain	Length	Quality of chain
4	G	645	93% 7%
5	B	915	91% 9%
5	H	915	90% 9%
6	J	505	95% 5%
6	L	505	93% 7%
7	N	86	87% 10%
7	Q	86	91% 7%
8	C	2	100%
8	D	2	100%
8	F	2	100%
8	I	2	100%
8	K	2	100%
9	E	3	33% 67%
9	M	3	100%
10	O	2	50% 50%
10	P	2	50% 50%
10	T	2	100%
10	W	2	50% 50%
10	Z	2	100%
10	a	2	50% 50%
10	b	2	100%
10	c	2	50% 50%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
10	NAG	Z	1	X	-	-	-
10	NAG	b	1	X	-	-	-
9	FUC	E	3	X	-	-	-
9	NAG	M	1	X	-	-	-
9	FUC	M	3	X	-	-	-

2 Entry composition (i)

There are 12 unique types of molecules in this entry. The entry contains 41916 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 Nanobody hFPNb1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	R	124	Total	C	N	O	S	0	0	0
			951	588	172	187	4			
1	S	124	Total	C	N	O	S	0	0	0
			951	588	172	187	4			

- Molecule 2 is a protein called Properdin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	U	105	Total	C	N	O	S	0	0	0
			800	492	143	153	12			
2	X	163	Total	C	N	O	S	0	0	0
			1228	746	227	234	21			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
U	192	GLU	-	expression tag	UNP P27918
U	193	ASN	-	expression tag	UNP P27918
U	194	LEU	-	expression tag	UNP P27918
U	195	TYR	-	expression tag	UNP P27918
U	196	PHE	-	expression tag	UNP P27918
U	197	GLN	-	expression tag	UNP P27918
X	192	GLU	-	expression tag	UNP P27918
X	193	ASN	-	expression tag	UNP P27918
X	194	LEU	-	expression tag	UNP P27918
X	195	TYR	-	expression tag	UNP P27918
X	196	PHE	-	expression tag	UNP P27918
X	197	GLN	-	expression tag	UNP P27918

- Molecule 3 is a protein called Properdin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	V	215	Total	C	N	O	S	0	0	0
			1666	1030	313	301	22			
3	Y	215	Total	C	N	O	S	0	0	0
			1666	1030	313	301	22			

There are 14 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
V	255	GLY	-	expression tag	UNP P27918
V	470	GLU	-	expression tag	UNP P27918
V	471	ASN	-	expression tag	UNP P27918
V	472	LEU	-	expression tag	UNP P27918
V	473	TYR	-	expression tag	UNP P27918
V	474	PHE	-	expression tag	UNP P27918
V	475	GLN	-	expression tag	UNP P27918
Y	255	GLY	-	expression tag	UNP P27918
Y	470	GLU	-	expression tag	UNP P27918
Y	471	ASN	-	expression tag	UNP P27918
Y	472	LEU	-	expression tag	UNP P27918
Y	473	TYR	-	expression tag	UNP P27918
Y	474	PHE	-	expression tag	UNP P27918
Y	475	GLN	-	expression tag	UNP P27918

- Molecule 4 is a protein called Complement C3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	A	645	Total	C	N	O	S	0	0	0
			5025	3198	851	961	15			
4	G	645	Total	C	N	O	S	0	0	0
			5025	3198	851	961	15			

- Molecule 5 is a protein called Complement C3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	B	913	Total	C	N	O	S	0	0	0
			7293	4619	1228	1408	38			
5	H	913	Total	C	N	O	S	0	0	0
			7293	4619	1228	1408	38			

- Molecule 6 is a protein called Complement factor B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	J	505	Total	C	N	O	S	0	0	0
			4007	2546	689	752	20			
6	L	505	Total	C	N	O	S	0	0	0
			4007	2546	689	752	20			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
J	254	GLY	ASP	conflict	UNP P00751
J	674	ALA	SER	conflict	UNP P00751
L	254	GLY	ASP	conflict	UNP P00751
L	674	ALA	SER	conflict	UNP P00751

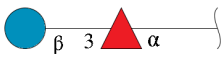
- Molecule 7 is a protein called Inhibitor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	N	84	Total	C	N	O	S	0	0	0
			683	432	111	138	2			
7	Q	84	Total	C	N	O	S	0	0	0
			683	432	111	138	2			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
N	0	GLY	ALA	conflict	UNP A0A0H2DUF0
Q	0	GLY	ALA	conflict	UNP A0A0H2DUF0

- Molecule 8 is an oligosaccharide called beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose.



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
8	C	2	Total	C	O	0	0	0
			21	12	9			
8	D	2	Total	C	O	0	0	0
			21	12	9			
8	F	2	Total	C	O	0	0	0
			21	12	9			
8	I	2	Total	C	O	0	0	0
			21	12	9			

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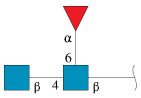
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
8	K	2	Total C O 21 12 9	0	0	0

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

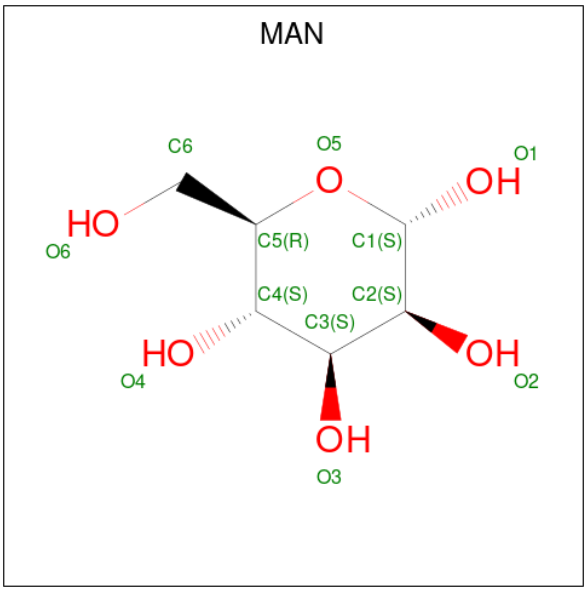


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
9	E	3	Total C N O 38 22 2 14	0	0	0
9	M	3	Total C N O 38 22 2 14	0	0	0

- Molecule 10 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
10	O	2	Total C N O 28 16 2 10	0	0	0
10	P	2	Total C N O 28 16 2 10	0	0	0
10	T	2	Total C N O 28 16 2 10	0	0	0
10	W	2	Total C N O 28 16 2 10	0	0	0
10	Z	2	Total C N O 28 16 2 10	0	0	0
10	a	2	Total C N O 28 16 2 10	0	0	0
10	b	2	Total C N O 28 16 2 10	0	0	0
10	c	2	Total C N O 28 16 2 10	0	0	0

- Molecule 11 is alpha-D-mannopyranose (three-letter code: MAN) (formula: $C_6H_{12}O_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
11	U	1	Total C O 11 6 5	0	0
11	U	1	Total C O 11 6 5	0	0
11	V	1	Total C O 11 6 5	0	0
11	V	1	Total C O 11 6 5	0	0
11	V	1	Total C O 11 6 5	0	0
11	V	1	Total C O 11 6 5	0	0
11	V	1	Total C O 11 6 5	0	0
11	V	1	Total C O 11 6 5	0	0
11	V	1	Total C O 11 6 5	0	0
11	X	1	Total C O 11 6 5	0	0
11	X	1	Total C O 11 6 5	0	0
11	X	1	Total C O 11 6 5	0	0
11	X	1	Total C O 11 6 5	0	0
11	X	1	Total C O 11 6 5	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
11	Y	1	Total C O 11 6 5	0	0
11	Y	1	Total C O 11 6 5	0	0
11	Y	1	Total C O 11 6 5	0	0
11	Y	1	Total C O 11 6 5	0	0
11	Y	1	Total C O 11 6 5	0	0
11	Y	1	Total C O 11 6 5	0	0
11	Y	1	Total C O 11 6 5	0	0

- Molecule 12 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

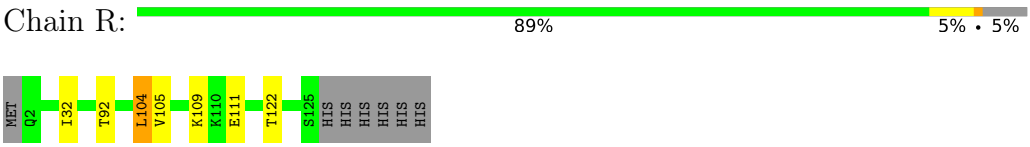
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
12	J	1	Total Mg 1 1	0	0
12	L	1	Total Mg 1 1	0	0

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. 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. 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.

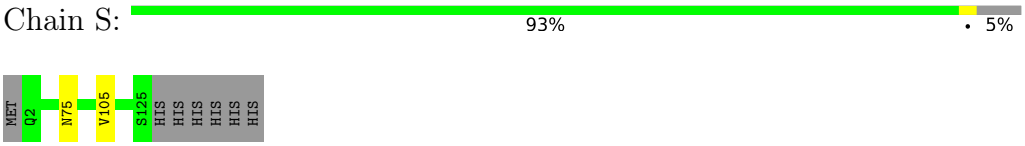
• Molecule 1: Nanobody hFPNb1

Chain R:



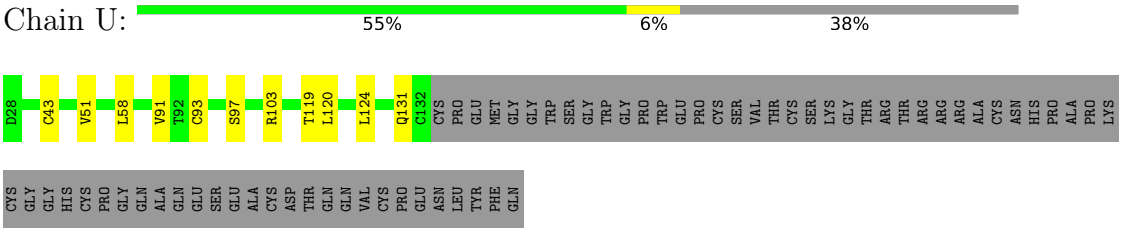
• Molecule 1: Nanobody hFPNb1

Chain S:



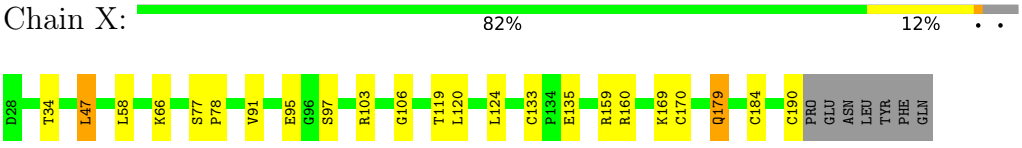
• Molecule 2: Properdin

Chain U:



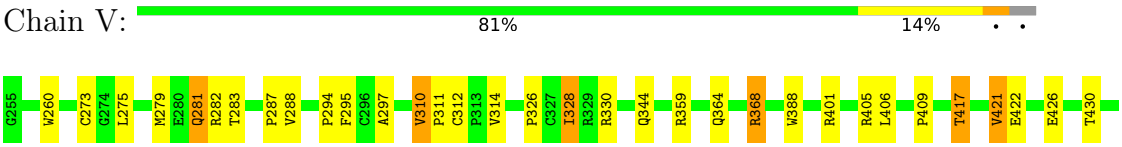
• Molecule 2: Properdin

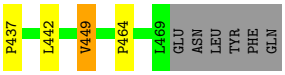
Chain X:



• Molecule 3: Properdin

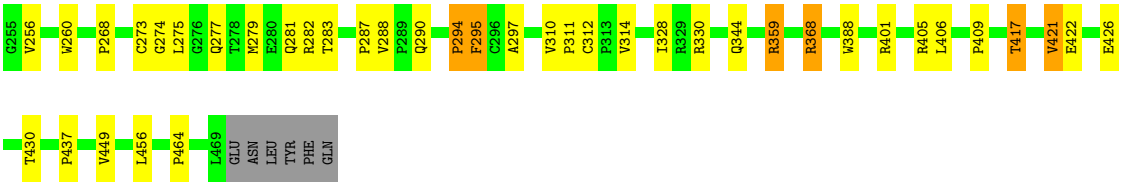
Chain V:





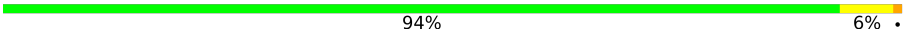
• Molecule 3: Properdin

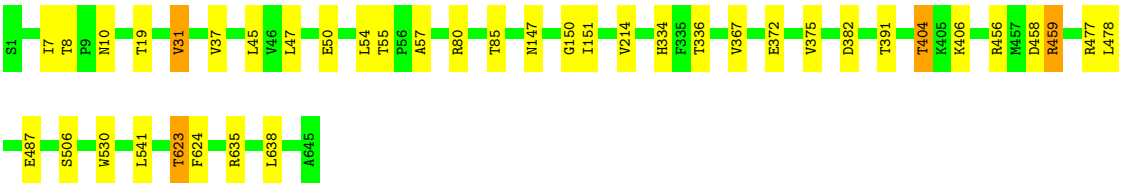
Chain Y:



• Molecule 4: Complement C3

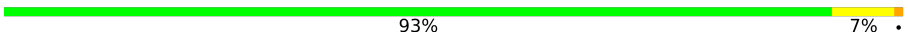
Chain A:

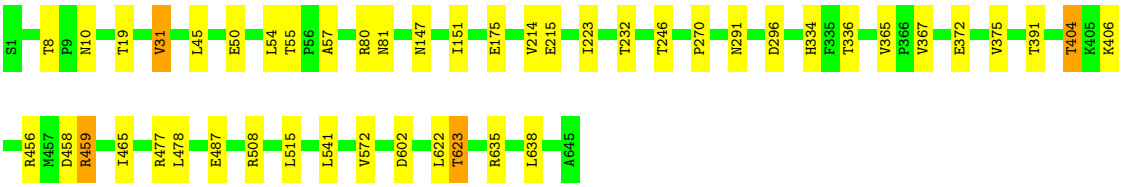




• Molecule 4: Complement C3

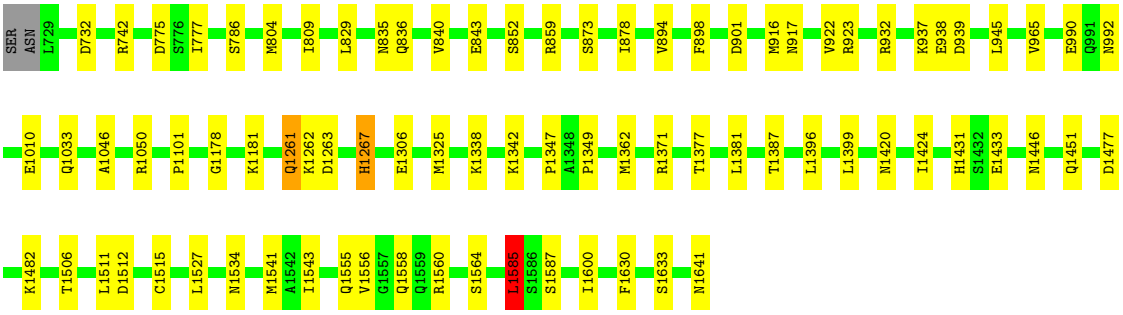
Chain G:





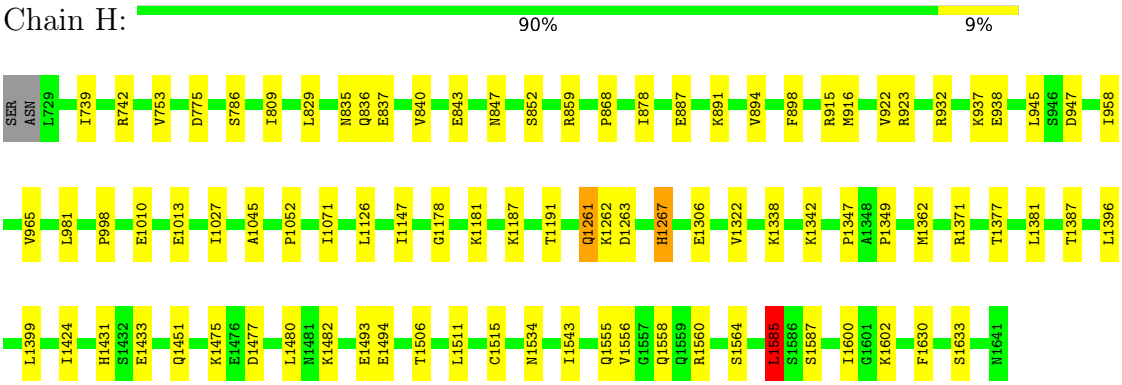
• Molecule 5: Complement C3

Chain B:



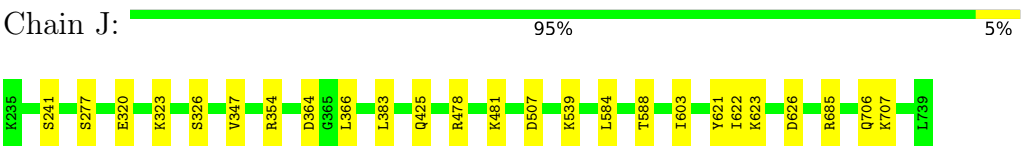
• Molecule 5: Complement C3

Chain H:



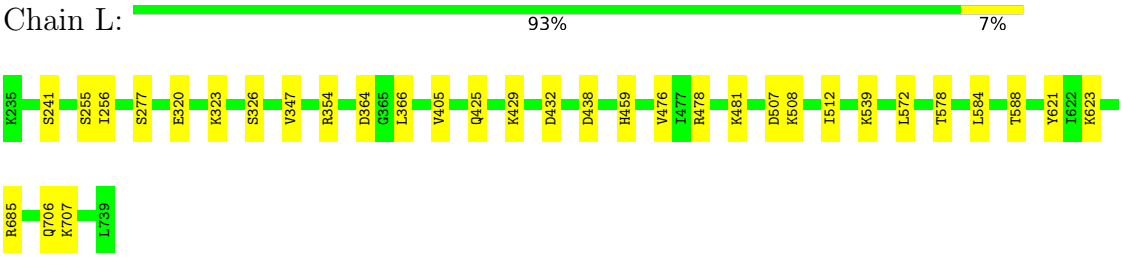
• Molecule 6: Complement factor B

Chain J:



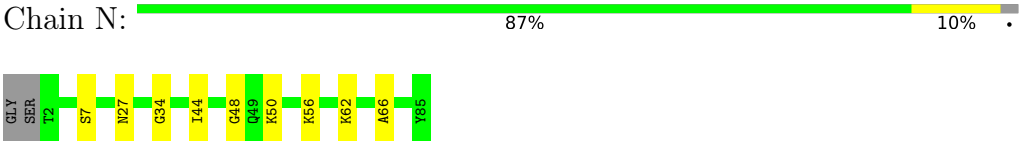
• Molecule 6: Complement factor B

Chain L:



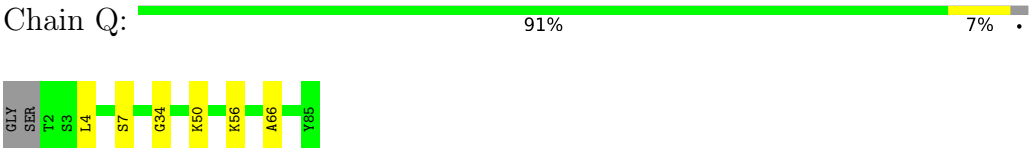
• Molecule 7: Inhibitor

Chain N:



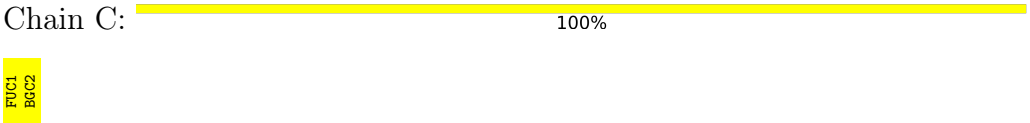
• Molecule 7: Inhibitor

Chain Q:



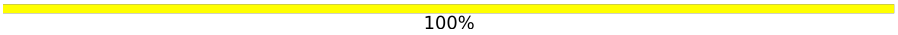
• Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain C:



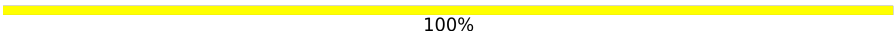
• Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain D:



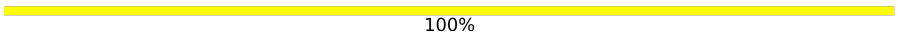
• Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain F:



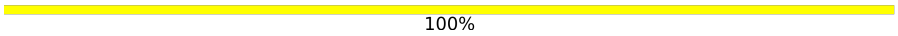
• Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain I:



• Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain K:

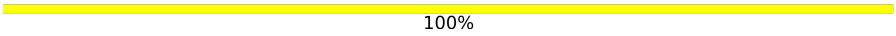


• Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:

• Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain M:



• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

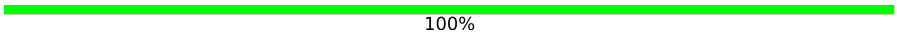
Chain O:

• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain P:

• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain T:

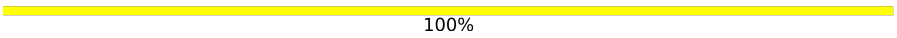


• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W:

• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:

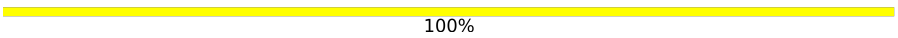


• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain a:

• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain b:



• Molecule 10: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain c:

NAG1
NAG2

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	123.99Å 354.03Å 367.84Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.82 – 6.15 49.82 – 6.15	Depositor EDS
% Data completeness (in resolution range)	99.6 (49.82-6.15) 99.8 (49.82-6.15)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.10 (at 6.15Å)	Xtriage
Refinement program	PHENIX (1.14_3260: ???)	Depositor
R, R_{free}	0.242 , 0.271 0.242 , 0.271	Depositor DCC
R_{free} test set	1990 reflections (5.18%)	wwPDB-VP
Wilson B-factor (Å^2)	436.1	Xtriage
Anisotropy	0.347	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.24 , 436.5	EDS
L-test for twinning[2]	$< \|L\| > = 0.41$, $< L^2 > = 0.24$	Xtriage
Estimated twinning fraction	0.030 for -h,l,k	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	41916	wwPDB-VP
Average B, all atoms (Å^2)	499.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.85% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, FUC, BGC, MAN, MG

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	R	0.30	0/967	0.57	0/1305
1	S	0.30	0/967	0.55	0/1305
2	U	0.28	0/819	0.56	0/1109
2	X	0.30	0/1261	0.58	1/1710 (0.1%)
3	V	0.33	0/1720	0.58	0/2342
3	Y	0.33	0/1720	0.60	0/2342
4	A	0.30	0/5127	0.57	0/6966
4	G	0.30	0/5126	0.57	0/6962
5	B	0.29	0/7439	0.55	1/10073 (0.0%)
5	H	0.30	0/7439	0.55	1/10073 (0.0%)
6	J	0.28	0/4095	0.51	0/5542
6	L	0.28	0/4095	0.52	0/5542
7	N	0.30	0/691	0.53	0/923
7	Q	0.29	0/691	0.52	0/923
All	All	0.30	0/42157	0.55	3/57117 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	1585	LEU	CA-CB-CG	7.02	131.45	115.30
5	H	1585	LEU	CA-CB-CG	6.33	129.86	115.30
2	X	47	LEU	CA-CB-CG	5.43	127.79	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	R	951	0	923	5	0
1	S	951	0	923	2	0
2	U	800	0	744	4	0
2	X	1228	0	1122	13	0
3	V	1666	0	1573	14	0
3	Y	1666	0	1572	17	0
4	A	5025	0	5084	17	0
4	G	5025	0	5084	21	0
5	B	7293	0	7217	35	0
5	H	7293	0	7217	38	0
6	J	4007	0	3994	14	0
6	L	4007	0	3994	19	0
7	N	683	0	697	6	0
7	Q	683	0	697	4	0
8	C	21	0	19	0	0
8	D	21	0	19	0	0
8	F	21	0	19	0	0
8	I	21	0	19	0	0
8	K	21	0	19	0	0
9	E	38	0	34	0	0
9	M	38	0	34	0	0
10	O	28	0	25	0	0
10	P	28	0	25	0	0
10	T	28	0	25	0	0
10	W	28	0	25	0	0
10	Z	28	0	25	0	0
10	a	28	0	25	0	0
10	b	28	0	25	0	0
10	c	28	0	25	0	0
11	U	22	0	20	0	0
11	V	77	0	70	0	0
11	X	55	0	50	1	0
11	Y	77	0	70	0	0
12	J	1	0	0	0	0
12	L	1	0	0	0	0
All	All	41916	0	41414	179	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

All (179) 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)
4:G:80:ARG:NE	5:H:1010:GLU:OE2	2.13	0.80
4:A:80:ARG:NE	5:B:1010:GLU:OE2	2.20	0.72
5:H:843:GLU:OE2	5:H:859:ARG:NH1	2.19	0.71
2:X:58:LEU:HB3	3:Y:311:PRO:HA	1.80	0.63
4:G:291:ASN:ND2	4:G:296:ASP:OD2	2.32	0.62
5:H:1045:ALA:HB2	5:H:1052:PRO:HA	1.82	0.61
4:G:367:VAL:HA	4:G:404:THR:HA	1.83	0.60
3:Y:388:TRP:HB3	3:Y:401:ARG:HD2	1.85	0.58
5:B:1585:LEU:HD22	5:B:1587:SER:H	1.68	0.58
4:A:367:VAL:HA	4:A:404:THR:HA	1.85	0.58
6:L:241:SER:O	6:L:354:ARG:NH2	2.36	0.58
3:V:388:TRP:HB3	3:V:401:ARG:HD2	1.86	0.57
2:X:58:LEU:HB2	3:Y:274:GLY:HA2	1.87	0.56
5:H:840:VAL:HG22	5:H:894:VAL:HG12	1.88	0.56
4:G:10:ASN:HD22	4:G:623:THR:HG23	1.71	0.56
6:J:241:SER:O	6:J:354:ARG:NH2	2.39	0.56
1:S:105:VAL:HG11	3:V:279:MET:HB3	1.88	0.56
6:L:277:SER:O	6:L:685:ARG:NH1	2.40	0.55
5:B:1387:THR:HG22	5:B:1451:GLN:H	1.71	0.55
6:L:584:LEU:HD13	6:L:588:THR:HG21	1.89	0.55
5:H:1585:LEU:HD22	5:H:1587:SER:H	1.72	0.55
5:B:923:ARG:NH1	5:B:938:GLU:OE2	2.40	0.54
2:X:159:ARG:NH2	11:X:208:MAN:O6	2.40	0.54
6:L:354:ARG:O	6:L:354:ARG:NH1	2.39	0.54
4:G:246:THR:HA	4:G:270:PRO:HA	1.89	0.53
5:H:742:ARG:HB3	5:H:775:ASP:HB3	1.90	0.53
5:B:809:ILE:N	5:B:901:ASP:OD2	2.35	0.53
5:B:873:SER:O	5:B:1420:ASN:ND2	2.41	0.53
1:R:105:VAL:HG11	3:Y:279:MET:HB3	1.91	0.52
5:B:1381:LEU:HB2	5:B:1424:ILE:HB	1.90	0.52
3:V:330:ARG:NH1	5:B:1512:ASP:OD2	2.43	0.52
6:J:584:LEU:HD13	6:J:588:THR:HG21	1.91	0.52
1:R:104:LEU:HD21	2:X:34:THR:HB	1.91	0.51
5:H:898:PHE:HB2	7:Q:50:LYS:HE2	1.92	0.51
6:L:320:GLU:HA	6:L:323:LYS:HB2	1.92	0.51
3:V:344:GLN:OE1	3:V:368:ARG:NH1	2.43	0.51
2:X:103:ARG:HH12	3:Y:464:PRO:HB2	1.75	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:B:1446:ASN:HB2	7:Q:4:LEU:HB2	1.93	0.51
1:S:75:ASN:ND2	3:V:281:GLN:OE1	2.43	0.51
5:B:1338:LYS:HA	5:B:1371:ARG:HB2	1.92	0.51
3:V:260:TRP:HB3	3:V:282:ARG:HD2	1.92	0.51
4:A:541:LEU:HD22	5:B:786:SER:HB3	1.93	0.51
6:L:425:GLN:HB2	7:N:34:GLY:HA3	1.93	0.50
5:H:1347:PRO:HA	5:H:1362:MET:HA	1.93	0.50
6:J:354:ARG:O	6:J:354:ARG:NH1	2.42	0.50
6:L:572:LEU:O	6:L:578:THR:OG1	2.29	0.50
1:R:32:ILE:HD11	3:Y:268:PRO:HG2	1.93	0.50
5:B:1511:LEU:HD13	5:B:1630:PHE:HB2	1.94	0.49
3:Y:260:TRP:HB3	3:Y:282:ARG:HD2	1.93	0.49
6:J:320:GLU:HA	6:J:323:LYS:HB2	1.93	0.49
3:Y:344:GLN:OE1	3:Y:368:ARG:NH1	2.45	0.49
4:A:10:ASN:HD22	4:A:623:THR:HG23	1.75	0.49
5:B:1564:SER:HB2	5:B:1600:ILE:HD12	1.95	0.49
4:G:478:LEU:HD21	4:G:622:LEU:HD21	1.94	0.49
6:J:425:GLN:HB2	7:Q:34:GLY:HA3	1.95	0.49
2:U:103:ARG:HH12	3:V:464:PRO:HB2	1.77	0.49
5:H:965:VAL:HB	5:H:1267:HIS:HB3	1.94	0.49
5:H:947:ASP:OD1	5:H:947:ASP:N	2.46	0.49
5:B:732:ASP:OD1	7:N:62:LYS:NZ	2.46	0.49
5:H:1126:LEU:HD11	5:H:1147:ILE:HG23	1.95	0.49
5:B:1347:PRO:HA	5:B:1362:MET:HA	1.95	0.49
5:H:1178:GLY:O	5:H:1181:LYS:NZ	2.45	0.48
6:J:621:TYR:O	6:J:623:LYS:NZ	2.38	0.48
5:B:923:ARG:NH2	5:B:939:ASP:O	2.43	0.48
5:B:777:ILE:HG23	5:B:804:MET:HA	1.95	0.48
5:B:809:ILE:HG23	5:B:829:LEU:HG	1.95	0.48
2:U:58:LEU:HB3	3:V:311:PRO:HA	1.95	0.48
5:H:1511:LEU:HD13	5:H:1630:PHE:HB2	1.95	0.48
5:B:843:GLU:OE2	5:B:859:ARG:NH1	2.36	0.48
2:X:47:LEU:HD21	3:Y:275:LEU:HB3	1.96	0.48
4:G:31:VAL:HG13	4:G:54:LEU:HB2	1.95	0.48
2:X:95:GLU:HB3	3:Y:456:LEU:HD12	1.96	0.48
4:G:81:ASN:ND2	5:H:1013:GLU:OE1	2.43	0.48
4:A:55:THR:HG22	4:A:57:ALA:H	1.79	0.47
5:B:1178:GLY:O	5:B:1181:LYS:NZ	2.46	0.47
5:H:1338:LYS:HA	5:H:1371:ARG:HB2	1.96	0.47
6:J:277:SER:O	6:J:685:ARG:NH1	2.47	0.47
6:L:478:ARG:NE	6:L:507:ASP:OD1	2.46	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:809:ILE:HG23	5:H:829:LEU:HG	1.96	0.47
5:H:1480:LEU:HD13	5:H:1493:GLU:HG3	1.96	0.47
2:X:47:LEU:O	3:Y:277:GLN:NE2	2.48	0.47
5:B:992:ASN:OD1	5:B:1033:GLN:NE2	2.47	0.47
5:B:1630:PHE:HA	5:B:1633:SER:HB3	1.96	0.47
5:H:1387:THR:HG22	5:H:1451:GLN:H	1.80	0.47
5:H:1477:ASP:OD1	5:H:1477:ASP:N	2.48	0.47
4:G:55:THR:HG22	4:G:57:ALA:H	1.80	0.47
5:H:1027:ILE:HG22	5:H:1071:ILE:HD13	1.97	0.46
4:A:635:ARG:NH2	4:A:638:LEU:O	2.48	0.46
3:Y:256:VAL:HB	3:Y:290:GLN:H	1.80	0.46
5:H:1396:LEU:HD23	5:H:1399:LEU:HD12	1.97	0.46
6:J:364:ASP:OD2	6:J:366:LEU:HB2	2.15	0.46
6:L:476:VAL:HG22	6:L:512:ILE:HG12	1.98	0.46
4:A:147:ASN:OD1	4:A:151:ILE:N	2.45	0.46
4:A:506:SER:HB2	4:A:530:TRP:HE1	1.80	0.46
5:H:837:GLU:HB3	5:H:868:PRO:HD3	1.97	0.46
2:X:66:LYS:HD2	2:X:66:LYS:HA	1.83	0.46
4:A:31:VAL:HG13	4:A:54:LEU:HB2	1.98	0.46
4:G:458:ASP:N	4:G:458:ASP:OD1	2.48	0.46
6:J:706:GLN:HG2	6:J:707:LYS:HG3	1.98	0.46
4:G:19:THR:HB	4:G:478:LEU:HB2	1.98	0.46
6:J:478:ARG:NE	6:J:507:ASP:OD1	2.48	0.46
2:X:97:SER:HB3	2:X:124:LEU:HD11	1.99	0.45
3:Y:409:PRO:HG3	3:Y:437:PRO:HB3	1.97	0.45
5:H:1475:LYS:HD3	5:H:1480:LEU:HD23	1.97	0.45
3:Y:417:THR:HG22	3:Y:426:GLU:HG2	1.98	0.45
3:V:442:LEU:HD23	3:V:449:VAL:HG11	1.97	0.45
5:B:852:SER:HB3	5:B:878:ILE:HG22	1.99	0.45
4:G:572:VAL:HG12	5:H:753:VAL:HG22	1.99	0.45
6:L:320:GLU:HG2	6:L:323:LYS:HD2	1.99	0.45
5:B:742:ARG:HB3	5:B:775:ASP:HB3	1.97	0.45
6:J:603:ILE:HB	6:J:622:ILE:HB	1.99	0.45
5:H:923:ARG:NH1	5:H:938:GLU:OE2	2.50	0.45
5:H:1187:LYS:O	5:H:1191:THR:OG1	2.28	0.45
3:V:417:THR:HG22	3:V:426:GLU:HG2	1.99	0.44
2:X:160:ARG:HG2	2:X:179:GLN:HB3	1.98	0.44
2:U:97:SER:HB3	2:U:124:LEU:HD11	1.99	0.44
5:H:1630:PHE:HA	5:H:1633:SER:HB3	1.99	0.44
5:B:965:VAL:HB	5:B:1267:HIS:HB3	1.99	0.44
1:R:109:LYS:NZ	1:R:111:GLU:O	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:852:SER:HB3	5:H:878:ILE:HG22	2.00	0.44
6:L:364:ASP:OD2	6:L:366:LEU:HB2	2.18	0.44
6:J:320:GLU:HG2	6:J:323:LYS:HD2	2.00	0.43
3:V:326:PRO:HB2	3:V:328:ILE:HD12	2.01	0.43
3:V:409:PRO:HG3	3:V:437:PRO:HB3	1.99	0.43
5:H:1381:LEU:HB2	5:H:1424:ILE:HB	2.00	0.43
4:A:458:ASP:OD1	4:A:458:ASP:N	2.52	0.43
4:G:465:ILE:HD11	4:G:515:LEU:HD22	1.99	0.43
3:Y:359:ARG:HE	3:Y:359:ARG:HB2	1.71	0.43
5:B:1477:ASP:OD1	5:B:1477:ASP:N	2.45	0.43
6:L:706:GLN:HG2	6:L:707:LYS:HG3	2.01	0.43
6:L:481:LYS:NZ	6:L:507:ASP:OD2	2.51	0.43
7:Q:50:LYS:HG2	7:Q:66:ALA:HB2	2.00	0.43
5:B:898:PHE:HB2	7:N:50:LYS:HE2	2.00	0.43
4:A:147:ASN:OD1	4:A:150:GLY:N	2.52	0.42
4:A:7:ILE:HG12	4:A:624:PHE:HD1	1.85	0.42
5:B:1050:ARG:NH2	5:B:1101:PRO:O	2.51	0.42
3:Y:330:ARG:HE	3:Y:330:ARG:HB2	1.73	0.42
5:H:739:ILE:HB	5:H:891:LYS:HD3	2.01	0.42
5:H:958:ILE:HG23	5:H:1322:VAL:HG22	2.00	0.42
5:B:1261:GLN:O	5:B:1263:ASP:N	2.53	0.42
7:N:50:LYS:HG2	7:N:66:ALA:HB2	2.01	0.42
4:A:382:ASP:OD1	4:A:382:ASP:N	2.53	0.42
6:L:432:ASP:HA	7:N:27:ASN:HD21	1.85	0.42
6:L:621:TYR:O	6:L:623:LYS:NZ	2.37	0.42
4:A:334:HIS:HB3	4:A:336:THR:HG23	2.01	0.42
5:B:840:VAL:HG22	5:B:894:VAL:HG12	2.01	0.42
5:B:1396:LEU:HD23	5:B:1399:LEU:HD12	2.02	0.42
5:B:1641:ASN:O	6:L:255:SER:N	2.53	0.42
5:H:1494:GLU:HB3	5:H:1602:LYS:HB3	2.02	0.42
6:L:256:ILE:HD12	6:L:405:VAL:HG23	2.02	0.41
2:X:77:SER:HA	2:X:78:PRO:HD3	1.93	0.41
4:A:37:VAL:HB	4:A:47:LEU:HB3	2.01	0.41
4:G:541:LEU:HD22	5:H:786:SER:HB3	2.01	0.41
1:R:92:THR:HG23	1:R:122:THR:HA	2.02	0.41
4:G:215:GLU:O	4:G:232:THR:N	2.47	0.41
2:U:51:VAL:HG11	3:V:275:LEU:HD21	2.02	0.41
4:G:334:HIS:HB3	4:G:336:THR:HG23	2.02	0.41
4:A:19:THR:HB	4:A:478:LEU:HB2	2.02	0.41
4:G:459:ARG:HE	4:G:459:ARG:HB2	1.69	0.41
4:G:508:ARG:NH1	4:G:602:ASP:OD2	2.34	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:H:1564:SER:HB2	5:H:1600:ILE:HD12	2.03	0.41
6:L:429:LYS:HG2	6:L:432:ASP:OD2	2.21	0.41
2:X:78:PRO:HA	2:X:106:GLY:HA3	2.03	0.41
4:G:175:GLU:O	5:H:915:ARG:NH2	2.53	0.41
6:J:626:ASP:N	6:J:626:ASP:OD1	2.54	0.41
6:L:438:ASP:OD2	6:L:459:HIS:HB2	2.21	0.41
5:B:1527:LEU:HA	5:B:1541:MET:HG2	2.03	0.41
4:G:635:ARG:NH2	4:G:638:LEU:O	2.54	0.41
5:H:981:LEU:HB3	5:H:998:PRO:HB2	2.02	0.41
3:V:310:VAL:HA	3:V:311:PRO:HD3	1.96	0.41
4:A:459:ARG:HE	4:A:459:ARG:HB2	1.71	0.41
5:B:917:ASN:HB3	5:B:1325:MET:HG3	2.02	0.41
5:B:990:GLU:OE2	5:B:1046:ALA:HB2	2.20	0.41
4:G:147:ASN:OD1	4:G:151:ILE:N	2.45	0.41
3:Y:294:PRO:HB2	3:Y:295:PHE:H	1.70	0.40
6:J:481:LYS:NZ	6:J:507:ASP:OD2	2.53	0.40
5:H:1261:GLN:O	5:H:1263:ASP:N	2.54	0.40
5:H:847:ASN:ND2	5:H:887:GLU:O	2.39	0.40
7:N:44:ILE:O	7:N:48:GLY:N	2.55	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	R	122/131 (93%)	122 (100%)	0	0	100 100
1	S	122/131 (93%)	122 (100%)	0	0	100 100
2	U	103/170 (61%)	94 (91%)	9 (9%)	0	100 100
2	X	161/170 (95%)	147 (91%)	13 (8%)	1 (1%)	25 66
3	V	213/221 (96%)	195 (92%)	12 (6%)	6 (3%)	5 30

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
3	Y	213/221 (96%)	193 (91%)	14 (7%)	6 (3%)	5 30
4	A	643/645 (100%)	623 (97%)	17 (3%)	3 (0%)	29 69
4	G	641/645 (99%)	621 (97%)	17 (3%)	3 (0%)	29 69
5	B	911/915 (100%)	859 (94%)	44 (5%)	8 (1%)	17 56
5	H	911/915 (100%)	858 (94%)	45 (5%)	8 (1%)	17 56
6	J	503/505 (100%)	478 (95%)	24 (5%)	1 (0%)	47 81
6	L	503/505 (100%)	479 (95%)	23 (5%)	1 (0%)	47 81
7	N	82/86 (95%)	81 (99%)	0	1 (1%)	13 50
7	Q	82/86 (95%)	81 (99%)	0	1 (1%)	13 50
All	All	5210/5346 (98%)	4953 (95%)	218 (4%)	39 (1%)	22 63

All (39) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	V	294	PRO
3	Y	294	PRO
5	B	1555	GLN
5	H	1349	PRO
6	J	326	SER
3	V	421	VAL
3	V	422	GLU
3	Y	421	VAL
3	Y	422	GLU
5	B	1262	LYS
5	B	1349	PRO
5	H	1262	LYS
5	H	1555	GLN
6	L	326	SER
7	Q	7	SER
3	V	288	VAL
3	Y	288	VAL
4	A	45	LEU
4	A	372	GLU
5	B	1534	ASN
4	G	45	LEU
4	G	372	GLU
5	H	1534	ASN
7	N	7	SER
3	V	297	ALA

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Mol	Chain	Res	Type
3	Y	297	ALA
5	B	932	ARG
5	B	1261	GLN
5	H	932	ARG
5	H	1261	GLN
5	H	1377	THR
2	X	170	CYS
3	Y	287	PRO
5	B	1377	THR
5	B	1556	VAL
5	H	1556	VAL
3	V	287	PRO
4	A	50	GLU
4	G	50	GLU

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	R	100/107 (94%)	99 (99%)	1 (1%)	76 86
1	S	100/107 (94%)	100 (100%)	0	100 100
2	U	88/141 (62%)	82 (93%)	6 (7%)	16 41
2	X	134/141 (95%)	125 (93%)	9 (7%)	16 41
3	V	184/190 (97%)	167 (91%)	17 (9%)	9 29
3	Y	184/190 (97%)	168 (91%)	16 (9%)	10 31
4	A	567/567 (100%)	554 (98%)	13 (2%)	50 70
4	G	567/567 (100%)	553 (98%)	14 (2%)	47 68
5	B	808/810 (100%)	790 (98%)	18 (2%)	52 71
5	H	808/810 (100%)	790 (98%)	18 (2%)	52 71
6	J	444/444 (100%)	441 (99%)	3 (1%)	84 90
6	L	444/444 (100%)	441 (99%)	3 (1%)	84 90
7	N	76/77 (99%)	75 (99%)	1 (1%)	69 82

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
7	Q	76/77 (99%)	75 (99%)	1 (1%)	69 82
All	All	4580/4672 (98%)	4460 (97%)	120 (3%)	46 66

All (120) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	R	104	LEU
2	U	43	CYS
2	U	91	VAL
2	U	93	CYS
2	U	119	THR
2	U	120	LEU
2	U	131	GLN
3	V	273	CYS
3	V	281	GLN
3	V	283	THR
3	V	295	PHE
3	V	310	VAL
3	V	312	CYS
3	V	314	VAL
3	V	328	ILE
3	V	359	ARG
3	V	364	GLN
3	V	368	ARG
3	V	405	ARG
3	V	406	LEU
3	V	417	THR
3	V	421	VAL
3	V	430	THR
3	V	449	VAL
2	X	91	VAL
2	X	119	THR
2	X	120	LEU
2	X	133	CYS
2	X	135	GLU
2	X	169	LYS
2	X	179	GLN
2	X	184	CYS
2	X	190	CYS
3	Y	273	CYS
3	Y	281	GLN
3	Y	283	THR

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Mol	Chain	Res	Type
3	Y	295	PHE
3	Y	310	VAL
3	Y	312	CYS
3	Y	314	VAL
3	Y	328	ILE
3	Y	359	ARG
3	Y	368	ARG
3	Y	405	ARG
3	Y	406	LEU
3	Y	417	THR
3	Y	421	VAL
3	Y	430	THR
3	Y	449	VAL
4	A	8	THR
4	A	31	VAL
4	A	85	THR
4	A	214	VAL
4	A	375	VAL
4	A	391	THR
4	A	404	THR
4	A	406	LYS
4	A	456	ARG
4	A	459	ARG
4	A	477	ARG
4	A	487	GLU
4	A	623	THR
5	B	835	ASN
5	B	836	GLN
5	B	916	MET
5	B	922	VAL
5	B	937	LYS
5	B	945	LEU
5	B	1267	HIS
5	B	1306	GLU
5	B	1342	LYS
5	B	1431	HIS
5	B	1433	GLU
5	B	1482	LYS
5	B	1506	THR
5	B	1515	CYS
5	B	1543	ILE
5	B	1558	GLN

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Mol	Chain	Res	Type
5	B	1560	ARG
5	B	1585	LEU
4	G	8	THR
4	G	31	VAL
4	G	214	VAL
4	G	223	ILE
4	G	365	VAL
4	G	375	VAL
4	G	391	THR
4	G	404	THR
4	G	406	LYS
4	G	456	ARG
4	G	459	ARG
4	G	477	ARG
4	G	487	GLU
4	G	623	THR
5	H	835	ASN
5	H	836	GLN
5	H	916	MET
5	H	922	VAL
5	H	937	LYS
5	H	945	LEU
5	H	1267	HIS
5	H	1306	GLU
5	H	1342	LYS
5	H	1431	HIS
5	H	1433	GLU
5	H	1482	LYS
5	H	1506	THR
5	H	1515	CYS
5	H	1543	ILE
5	H	1558	GLN
5	H	1560	ARG
5	H	1585	LEU
6	J	347	VAL
6	J	383	LEU
6	J	539	LYS
6	L	347	VAL
6	L	508	LYS
6	L	539	LYS
7	N	56	LYS
7	Q	56	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	S	75	ASN
4	A	10	ASN
4	G	10	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

32 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	$\#\|Z\| > 2$
8	FUC	C	1	2,8	10,10,11	1.04	0	14,14,16	1.06	1 (7%)
8	BGC	C	2	8	11,11,12	1.76	2 (18%)	15,15,17	1.21	2 (13%)
8	FUC	D	1	8,3	10,10,11	1.28	1 (10%)	14,14,16	1.22	3 (21%)
8	BGC	D	2	8	11,11,12	1.77	3 (27%)	15,15,17	1.11	0
9	NAG	E	1	9,3	14,14,15	0.97	2 (14%)	17,19,21	1.25	2 (11%)
9	NAG	E	2	9	14,14,15	1.57	1 (7%)	17,19,21	2.42	3 (17%)
9	FUC	E	3	9	10,10,11	1.02	0	14,14,16	0.84	0
8	FUC	F	1	2,8	10,10,11	1.14	1 (10%)	14,14,16	0.91	1 (7%)
8	BGC	F	2	8	11,11,12	1.79	2 (18%)	15,15,17	1.24	2 (13%)
8	FUC	I	1	2,8	10,10,11	1.33	1 (10%)	14,14,16	1.29	2 (14%)
8	BGC	I	2	8	11,11,12	1.79	2 (18%)	15,15,17	1.23	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
8	FUC	K	1	8,3	10,10,11	1.18	1 (10%)	14,14,16	1.18	2 (14%)
8	BGC	K	2	8	11,11,12	1.68	2 (18%)	15,15,17	0.94	1 (6%)
9	NAG	M	1	9,3	14,14,15	1.03	2 (14%)	17,19,21	1.48	2 (11%)
9	NAG	M	2	9	14,14,15	1.42	1 (7%)	17,19,21	2.44	3 (17%)
9	FUC	M	3	9	10,10,11	0.96	0	14,14,16	0.97	1 (7%)
10	NAG	O	1	10,4	14,14,15	0.58	0	17,19,21	0.64	0
10	NAG	O	2	10	14,14,15	0.72	1 (7%)	17,19,21	0.49	0
10	NAG	P	1	10,5	14,14,15	0.80	1 (7%)	17,19,21	0.83	1 (5%)
10	NAG	P	2	10	14,14,15	0.51	0	17,19,21	0.56	0
10	NAG	T	1	10,4	14,14,15	0.63	0	17,19,21	0.64	0
10	NAG	T	2	10	14,14,15	0.54	0	17,19,21	0.54	0
10	NAG	W	1	10,5	14,14,15	0.75	1 (7%)	17,19,21	0.73	0
10	NAG	W	2	10	14,14,15	0.59	0	17,19,21	0.58	0
10	NAG	Z	1	10,6	14,14,15	1.05	1 (7%)	17,19,21	1.95	5 (29%)
10	NAG	Z	2	10	14,14,15	1.61	2 (14%)	17,19,21	2.86	4 (23%)
10	NAG	a	1	10,6	14,14,15	1.54	2 (14%)	17,19,21	1.48	2 (11%)
10	NAG	a	2	10	14,14,15	0.45	0	17,19,21	0.61	0
10	NAG	b	1	10,6	14,14,15	1.05	1 (7%)	17,19,21	1.96	5 (29%)
10	NAG	b	2	10	14,14,15	1.64	2 (14%)	17,19,21	2.87	4 (23%)
10	NAG	c	1	10,6	14,14,15	1.47	2 (14%)	17,19,21	1.45	2 (11%)
10	NAG	c	2	10	14,14,15	0.46	0	17,19,21	0.62	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	FUC	C	1	2,8	-	-	0/1/1/1
8	BGC	C	2	8	-	0/2/19/22	0/1/1/1
8	FUC	D	1	8,3	-	-	0/1/1/1
8	BGC	D	2	8	-	1/2/19/22	0/1/1/1
9	NAG	E	1	9,3	-	3/6/23/26	0/1/1/1
9	NAG	E	2	9	-	5/6/23/26	0/1/1/1
9	FUC	E	3	9	1/1/4/5	-	0/1/1/1
8	FUC	F	1	2,8	-	-	0/1/1/1
8	BGC	F	2	8	-	0/2/19/22	0/1/1/1
8	FUC	I	1	2,8	-	-	0/1/1/1
8	BGC	I	2	8	-	2/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	FUC	K	1	8,3	-	-	0/1/1/1
8	BGC	K	2	8	-	1/2/19/22	0/1/1/1
9	NAG	M	1	9,3	1/1/5/7	3/6/23/26	0/1/1/1
9	NAG	M	2	9	-	5/6/23/26	0/1/1/1
9	FUC	M	3	9	1/1/4/5	-	0/1/1/1
10	NAG	O	1	10,4	-	2/6/23/26	0/1/1/1
10	NAG	O	2	10	-	2/6/23/26	0/1/1/1
10	NAG	P	1	10,5	-	1/6/23/26	0/1/1/1
10	NAG	P	2	10	-	2/6/23/26	0/1/1/1
10	NAG	T	1	10,4	-	2/6/23/26	0/1/1/1
10	NAG	T	2	10	-	2/6/23/26	0/1/1/1
10	NAG	W	1	10,5	-	0/6/23/26	0/1/1/1
10	NAG	W	2	10	-	2/6/23/26	0/1/1/1
10	NAG	Z	1	10,6	1/1/5/7	3/6/23/26	0/1/1/1
10	NAG	Z	2	10	-	3/6/23/26	0/1/1/1
10	NAG	a	1	10,6	-	4/6/23/26	0/1/1/1
10	NAG	a	2	10	-	4/6/23/26	0/1/1/1
10	NAG	b	1	10,6	1/1/5/7	3/6/23/26	0/1/1/1
10	NAG	b	2	10	-	3/6/23/26	0/1/1/1
10	NAG	c	1	10,6	-	4/6/23/26	0/1/1/1
10	NAG	c	2	10	-	4/6/23/26	0/1/1/1

All (34) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	b	2	NAG	O5-C1	5.31	1.52	1.43
10	Z	2	NAG	O5-C1	5.20	1.52	1.43
9	E	2	NAG	C1-C2	5.03	1.59	1.52
8	I	2	BGC	O5-C1	4.88	1.51	1.43
8	F	2	BGC	O5-C1	4.82	1.51	1.43
8	C	2	BGC	O5-C1	4.80	1.51	1.43
8	D	2	BGC	O5-C1	4.65	1.51	1.43
9	M	2	NAG	C1-C2	4.46	1.59	1.52
8	K	2	BGC	O5-C1	4.45	1.50	1.43
10	a	1	NAG	O5-C1	3.96	1.50	1.43
10	c	1	NAG	C1-C2	3.92	1.58	1.52
10	a	1	NAG	C1-C2	3.71	1.57	1.52
10	Z	1	NAG	C1-C2	3.45	1.57	1.52
10	b	1	NAG	C1-C2	3.42	1.57	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	c	1	NAG	O5-C1	3.36	1.49	1.43
9	M	1	NAG	O5-C1	2.83	1.48	1.43
8	D	1	FUC	C2-C3	2.77	1.56	1.52
8	I	1	FUC	C2-C3	2.54	1.56	1.52
10	P	1	NAG	C1-C2	2.52	1.56	1.52
8	K	1	FUC	C2-C3	2.40	1.56	1.52
8	D	2	BGC	O5-C5	2.33	1.48	1.43
8	F	2	BGC	O5-C5	2.30	1.48	1.43
9	E	1	NAG	O5-C1	2.28	1.47	1.43
9	E	1	NAG	C1-C2	2.28	1.55	1.52
8	I	2	BGC	O5-C5	2.24	1.48	1.43
8	F	1	FUC	C2-C3	2.24	1.55	1.52
10	b	2	NAG	C1-C2	2.20	1.55	1.52
9	M	1	NAG	C1-C2	2.20	1.55	1.52
8	D	2	BGC	C2-C3	-2.17	1.49	1.52
10	W	1	NAG	C1-C2	2.16	1.55	1.52
10	Z	2	NAG	C1-C2	2.12	1.55	1.52
8	K	2	BGC	O5-C5	2.08	1.47	1.43
10	O	2	NAG	C1-C2	2.05	1.55	1.52
8	C	2	BGC	O5-C5	2.03	1.47	1.43

All (49) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
10	Z	2	NAG	C2-N2-C7	8.83	135.48	122.90
10	b	2	NAG	C2-N2-C7	8.81	135.45	122.90
9	M	2	NAG	C2-N2-C7	8.59	135.14	122.90
9	E	2	NAG	C2-N2-C7	8.53	135.05	122.90
10	b	2	NAG	C1-O5-C5	6.06	120.41	112.19
10	Z	2	NAG	C1-O5-C5	6.02	120.36	112.19
9	M	1	NAG	C1-O5-C5	4.12	117.77	112.19
10	b	1	NAG	C2-N2-C7	4.06	128.69	122.90
10	Z	1	NAG	C2-N2-C7	3.97	128.56	122.90
10	a	1	NAG	C1-O5-C5	3.86	117.42	112.19
10	b	2	NAG	C1-C2-N2	3.65	116.73	110.49
10	Z	1	NAG	C1-C2-N2	3.61	116.65	110.49
10	c	1	NAG	C1-O5-C5	3.60	117.08	112.19
10	Z	2	NAG	C1-C2-N2	3.60	116.64	110.49
10	b	1	NAG	C1-C2-N2	3.59	116.61	110.49
9	M	1	NAG	C2-N2-C7	3.54	127.94	122.90
10	Z	1	NAG	C4-C3-C2	3.53	116.20	111.02
10	b	1	NAG	C4-C3-C2	3.50	116.15	111.02

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	E	1	NAG	C2-N2-C7	3.49	127.88	122.90
9	M	2	NAG	C1-C2-N2	3.48	116.44	110.49
9	E	2	NAG	C1-C2-N2	3.39	116.27	110.49
10	c	1	NAG	C4-C3-C2	3.08	115.54	111.02
10	b	1	NAG	C1-O5-C5	3.06	116.33	112.19
10	Z	1	NAG	C1-O5-C5	3.05	116.33	112.19
10	a	1	NAG	C4-C3-C2	3.01	115.43	111.02
8	I	2	BGC	C2-C3-C4	2.95	116.00	110.89
8	F	2	BGC	C1-C2-C3	2.86	113.18	109.67
8	I	1	FUC	O5-C5-C4	2.71	114.39	109.52
8	C	2	BGC	C2-C3-C4	2.68	115.54	110.89
8	C	1	FUC	C1-O5-C5	2.57	118.59	112.78
8	C	2	BGC	C1-C2-C3	2.53	112.77	109.67
9	E	2	NAG	C8-C7-N2	2.53	120.38	116.10
10	b	2	NAG	C8-C7-N2	2.53	120.38	116.10
10	Z	2	NAG	C8-C7-N2	2.52	120.37	116.10
9	M	2	NAG	C8-C7-N2	2.50	120.34	116.10
10	P	1	NAG	C2-N2-C7	2.46	126.41	122.90
8	D	1	FUC	C1-C2-C3	2.45	112.68	109.67
9	E	1	NAG	C1-O5-C5	2.43	115.48	112.19
8	D	1	FUC	C1-O5-C5	2.33	118.07	112.78
9	M	3	FUC	C1-O5-C5	2.31	118.02	112.78
8	K	1	FUC	C1-O5-C5	2.28	117.94	112.78
8	F	2	BGC	C2-C3-C4	2.26	114.81	110.89
8	K	1	FUC	C1-C2-C3	2.23	112.40	109.67
10	Z	1	NAG	C3-C4-C5	2.17	114.12	110.24
8	D	1	FUC	O5-C1-C2	2.15	114.09	110.77
10	b	1	NAG	C3-C4-C5	2.11	114.01	110.24
8	K	2	BGC	C2-C3-C4	2.10	114.53	110.89
8	F	1	FUC	C1-O5-C5	2.08	117.49	112.78
8	I	1	FUC	C1-O5-C5	2.07	117.47	112.78

All (5) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
9	E	3	FUC	C1
9	M	1	NAG	C1
9	M	3	FUC	C1
10	Z	1	NAG	C1
10	b	1	NAG	C1

All (61) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	a	1	NAG	O5-C5-C6-O6
10	c	1	NAG	O5-C5-C6-O6
9	E	2	NAG	C4-C5-C6-O6
9	M	2	NAG	C4-C5-C6-O6
10	a	1	NAG	C4-C5-C6-O6
10	c	2	NAG	O5-C5-C6-O6
10	c	1	NAG	C4-C5-C6-O6
9	E	1	NAG	C4-C5-C6-O6
10	O	1	NAG	O5-C5-C6-O6
10	T	1	NAG	O5-C5-C6-O6
10	a	2	NAG	O5-C5-C6-O6
9	M	1	NAG	C4-C5-C6-O6
10	b	1	NAG	O5-C5-C6-O6
10	a	2	NAG	C4-C5-C6-O6
10	Z	1	NAG	O5-C5-C6-O6
9	E	2	NAG	C8-C7-N2-C2
9	E	2	NAG	O7-C7-N2-C2
9	M	2	NAG	C8-C7-N2-C2
9	M	2	NAG	O7-C7-N2-C2
10	P	2	NAG	C8-C7-N2-C2
10	P	2	NAG	O7-C7-N2-C2
10	W	2	NAG	C8-C7-N2-C2
10	W	2	NAG	O7-C7-N2-C2
10	Z	2	NAG	C8-C7-N2-C2
10	Z	2	NAG	O7-C7-N2-C2
10	a	1	NAG	C8-C7-N2-C2
10	a	1	NAG	O7-C7-N2-C2
10	a	2	NAG	C8-C7-N2-C2
10	a	2	NAG	O7-C7-N2-C2
10	b	2	NAG	C8-C7-N2-C2
10	b	2	NAG	O7-C7-N2-C2
10	c	1	NAG	C8-C7-N2-C2
10	c	1	NAG	O7-C7-N2-C2
10	c	2	NAG	C8-C7-N2-C2
10	c	2	NAG	O7-C7-N2-C2
10	O	1	NAG	C4-C5-C6-O6
10	c	2	NAG	C4-C5-C6-O6
9	E	2	NAG	O5-C5-C6-O6
9	M	2	NAG	O5-C5-C6-O6
10	T	1	NAG	C4-C5-C6-O6
8	I	2	BGC	C4-C5-C6-O6
9	E	1	NAG	O5-C5-C6-O6
9	M	1	NAG	O5-C5-C6-O6

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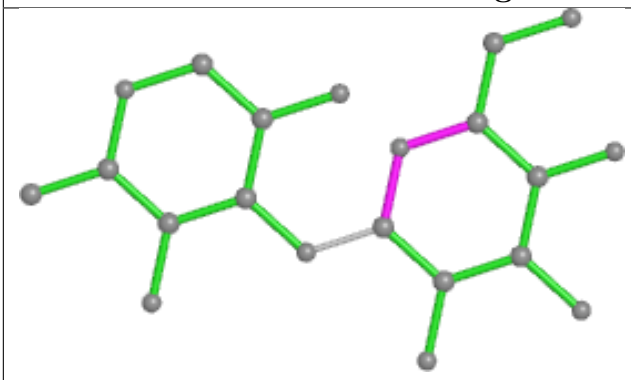
Mol	Chain	Res	Type	Atoms
10	O	2	NAG	O5-C5-C6-O6
8	I	2	BGC	O5-C5-C6-O6
10	O	2	NAG	C4-C5-C6-O6
10	b	1	NAG	C4-C5-C6-O6
10	T	2	NAG	O5-C5-C6-O6
10	Z	1	NAG	C4-C5-C6-O6
10	T	2	NAG	C4-C5-C6-O6
8	K	2	BGC	O5-C5-C6-O6
9	E	2	NAG	C3-C2-N2-C7
9	M	2	NAG	C3-C2-N2-C7
8	D	2	BGC	O5-C5-C6-O6
10	Z	1	NAG	C1-C2-N2-C7
10	b	1	NAG	C1-C2-N2-C7
9	E	1	NAG	C3-C2-N2-C7
9	M	1	NAG	C3-C2-N2-C7
10	P	1	NAG	C3-C2-N2-C7
10	Z	2	NAG	C3-C2-N2-C7
10	b	2	NAG	C3-C2-N2-C7

There are no ring outliers.

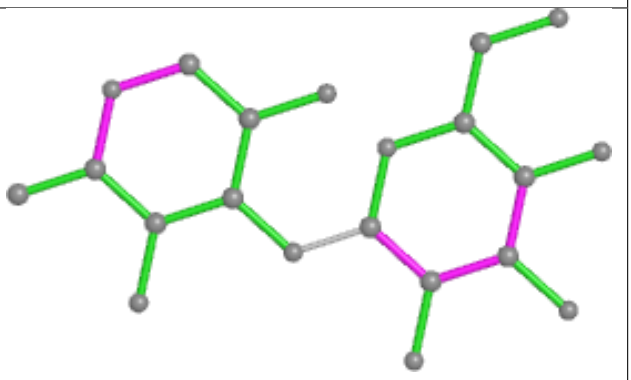
No monomer is involved in short contacts.

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

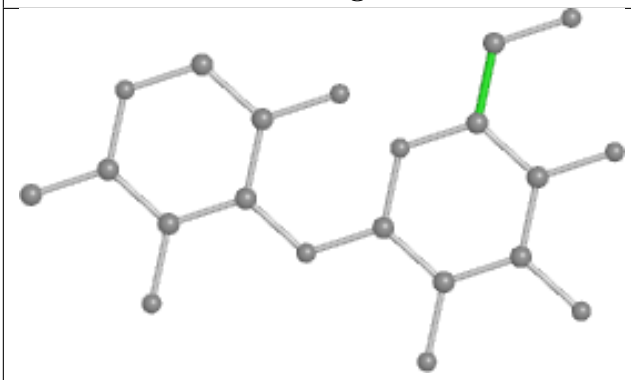
Oligosaccharide Chain C



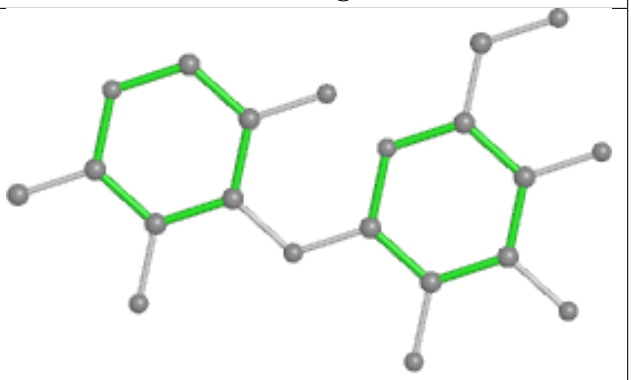
Bond lengths



Bond angles

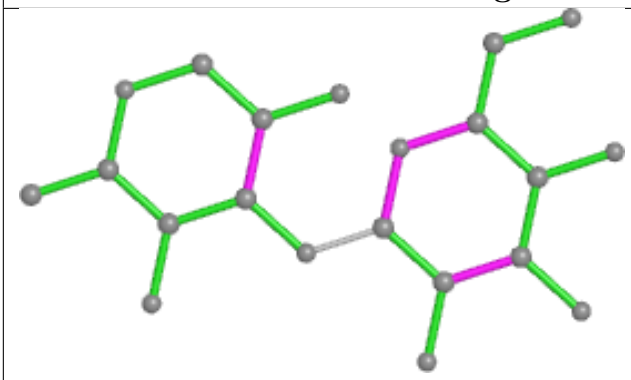


Torsions

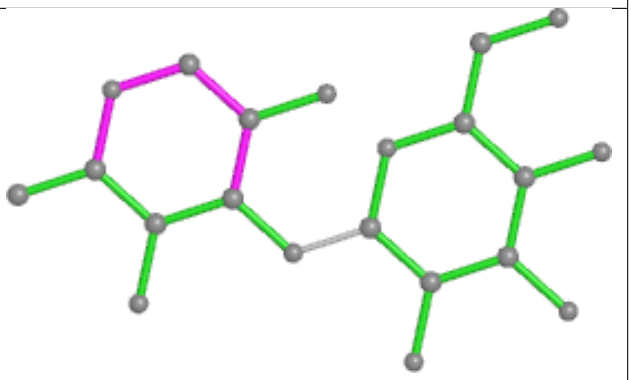


Rings

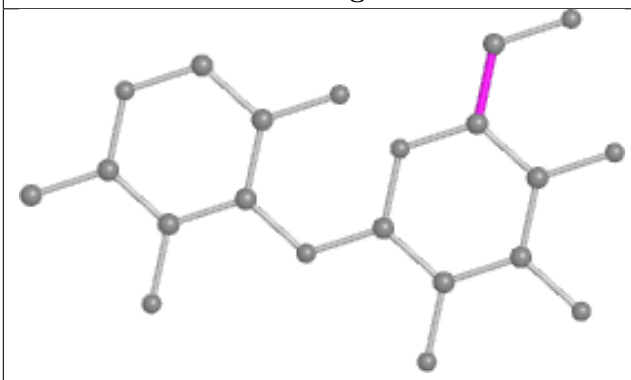
Oligosaccharide Chain D



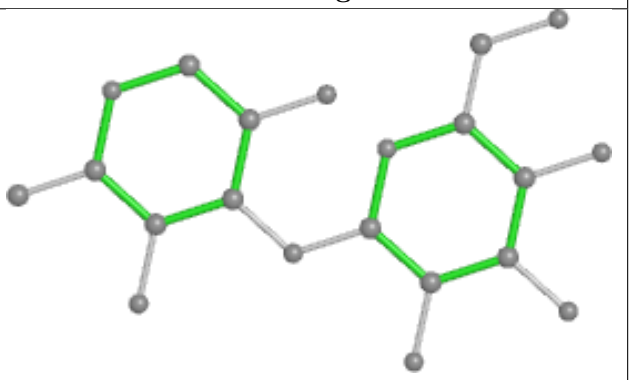
Bond lengths



Bond angles

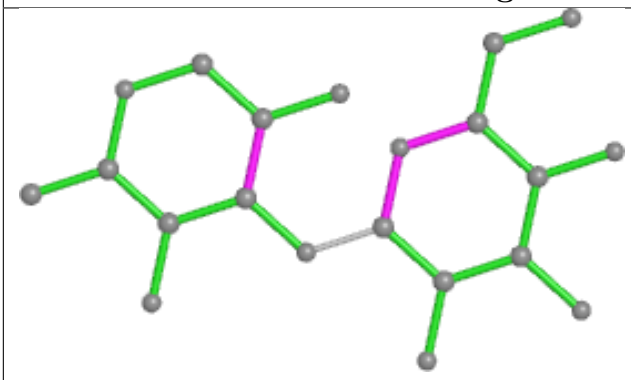


Torsions

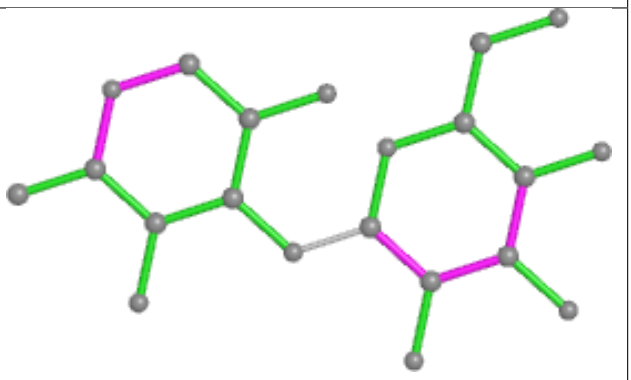


Rings

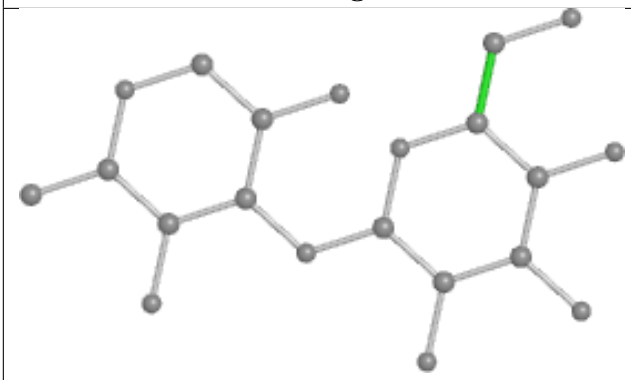
Oligosaccharide Chain F



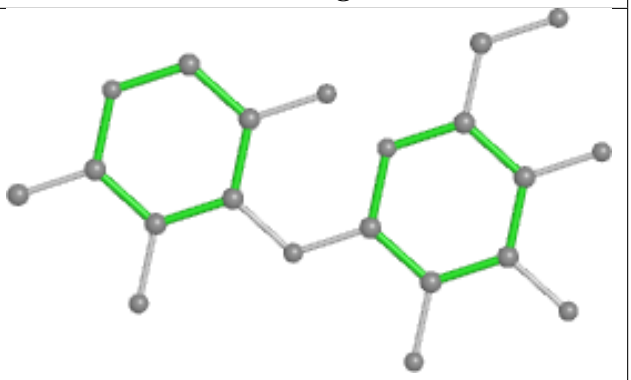
Bond lengths



Bond angles

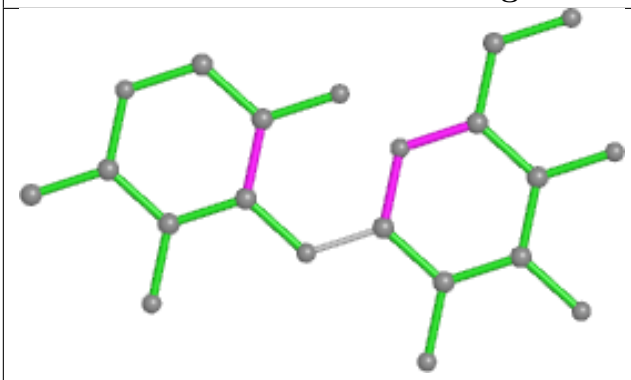


Torsions

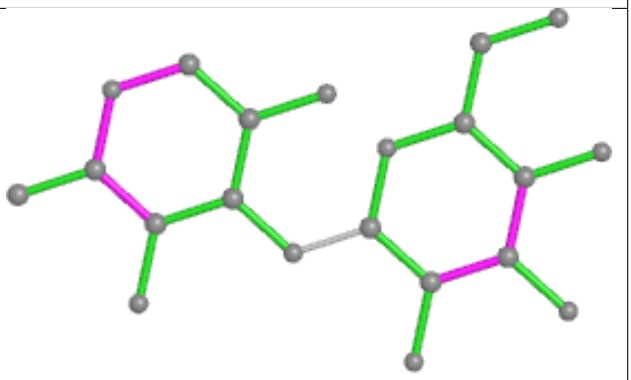


Rings

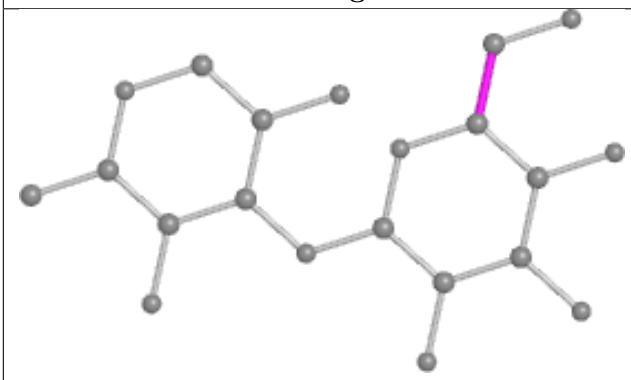
Oligosaccharide Chain I



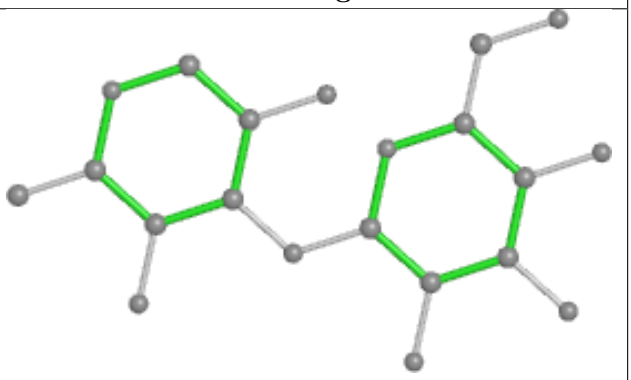
Bond lengths



Bond angles

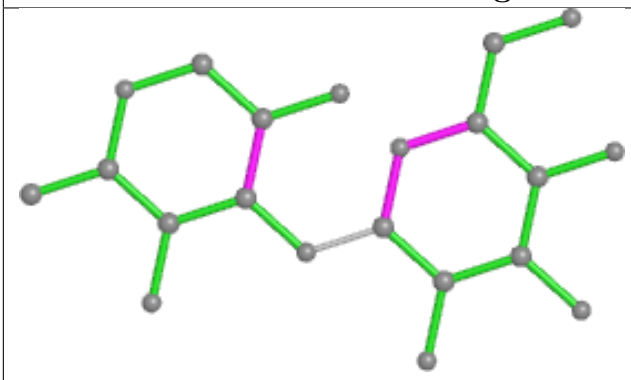


Torsions

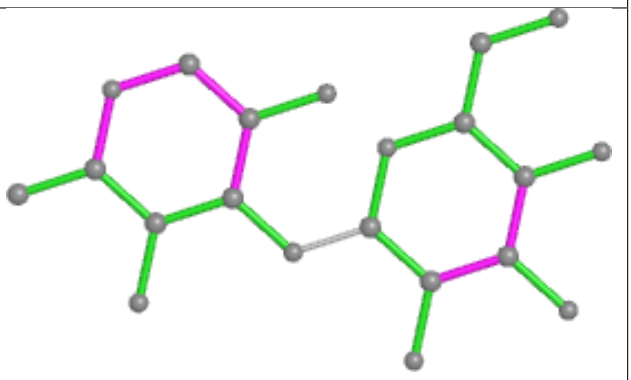


Rings

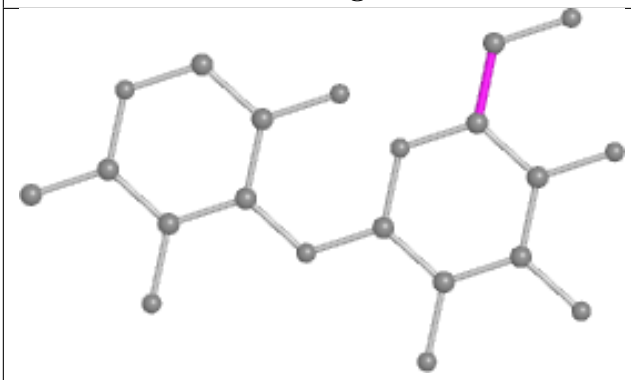
Oligosaccharide Chain K



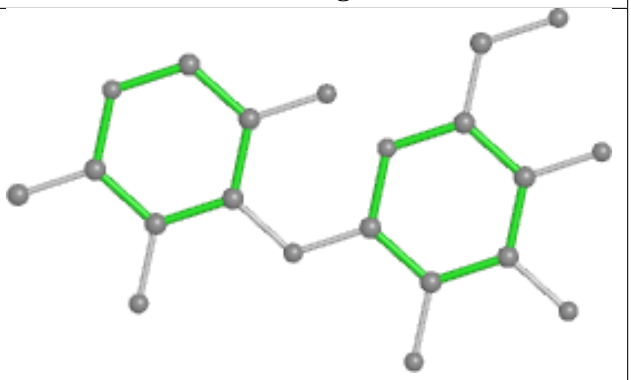
Bond lengths



Bond angles

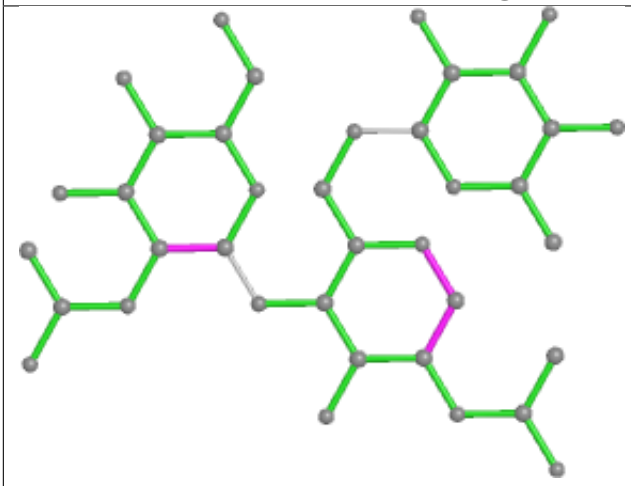


Torsions

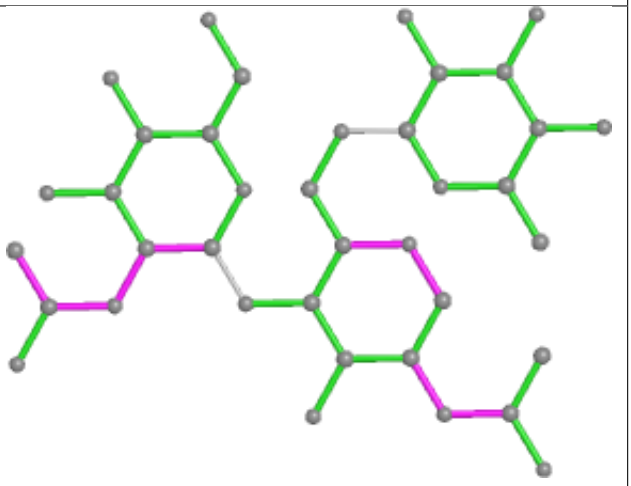


Rings

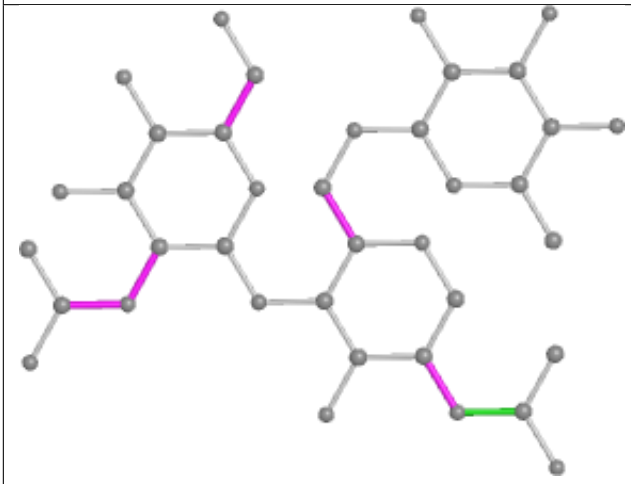
Oligosaccharide Chain E



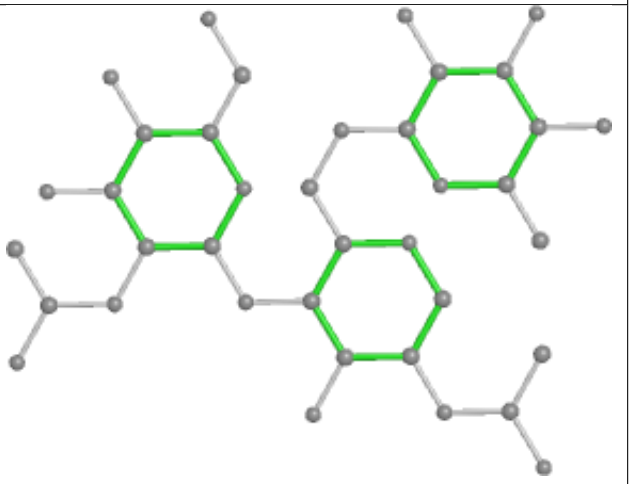
Bond lengths



Bond angles

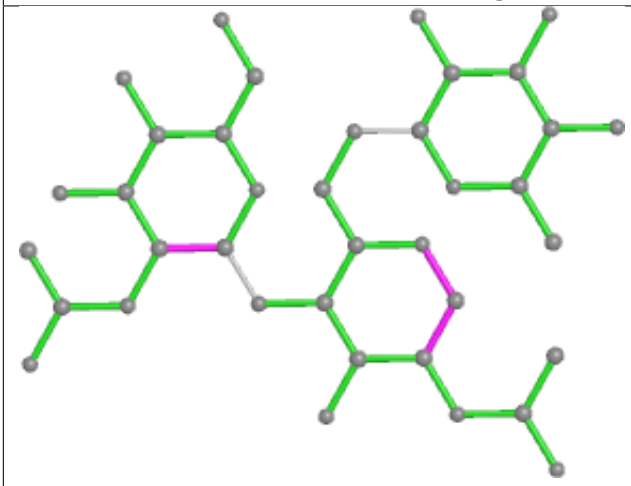


Torsions

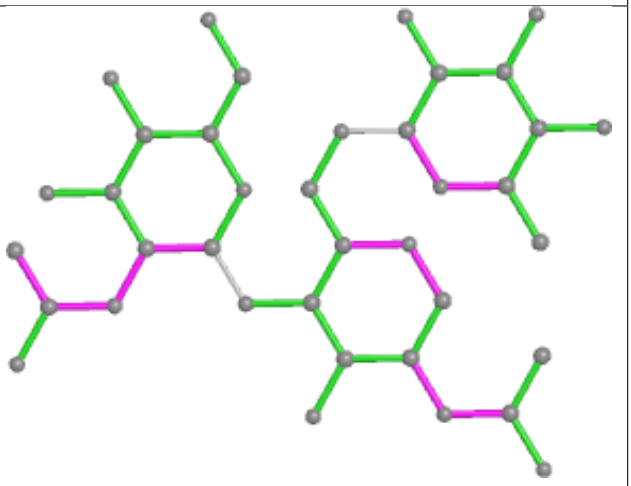


Rings

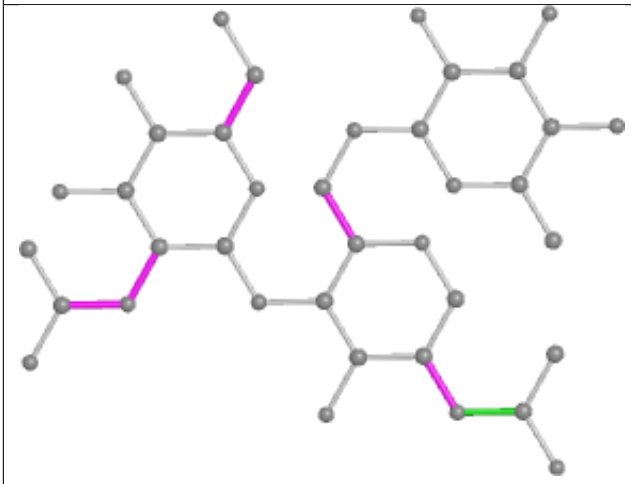
Oligosaccharide Chain M



Bond lengths



Bond angles



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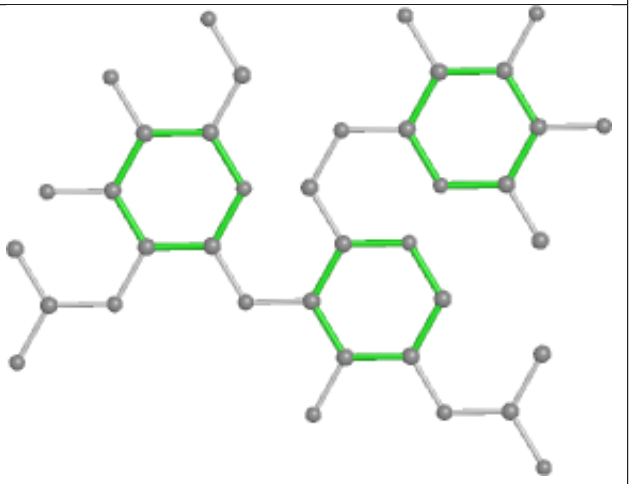
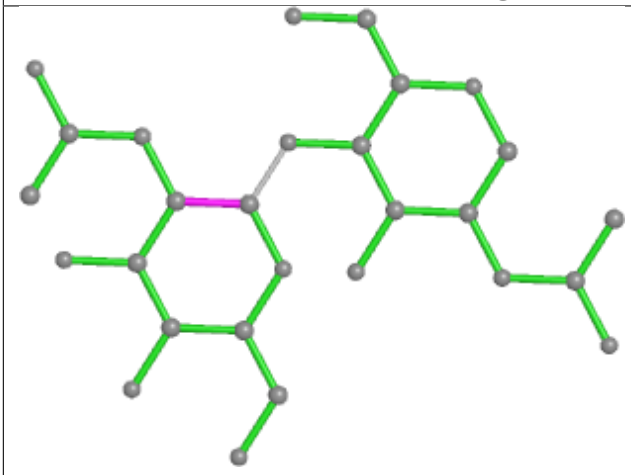
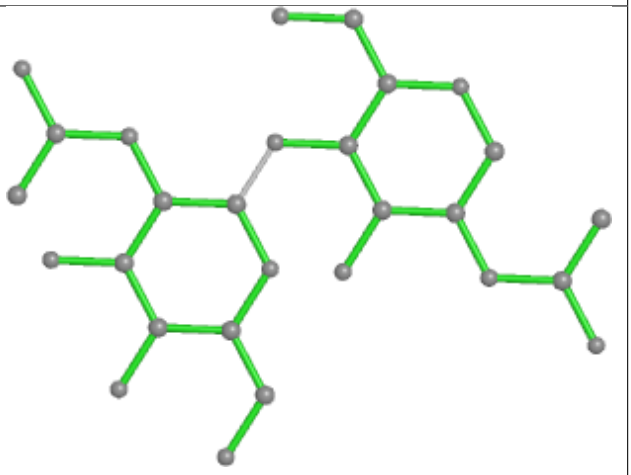


Rings

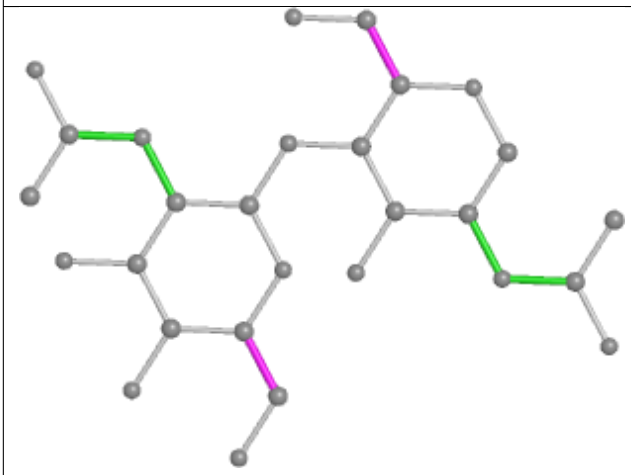
Oligosaccharide Chain O



Bond lengths



Bond angles



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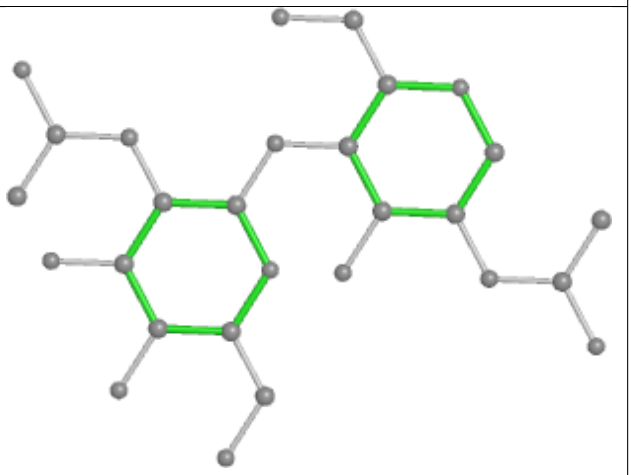
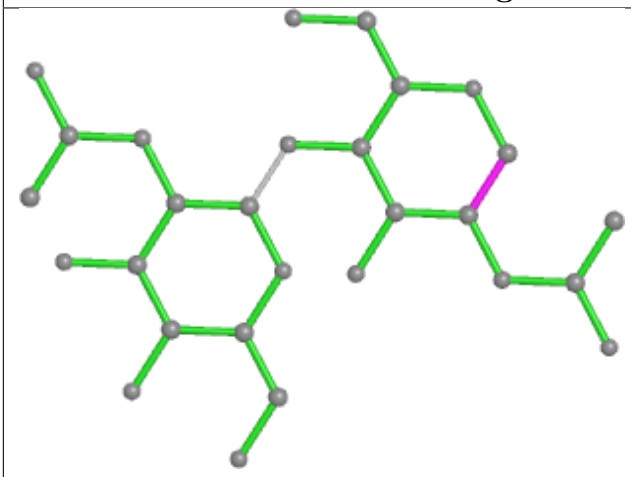
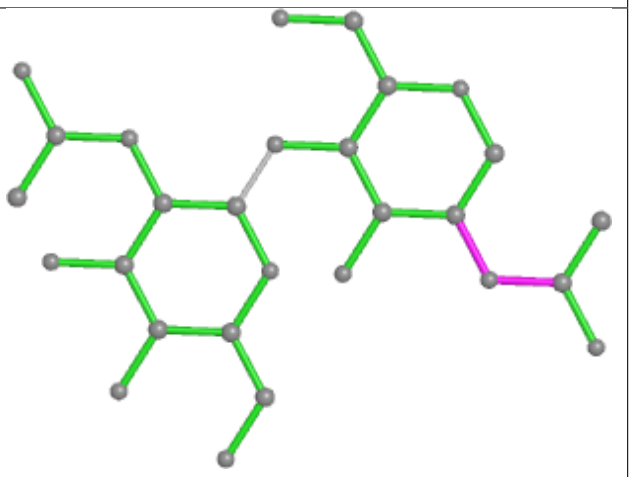


Rings

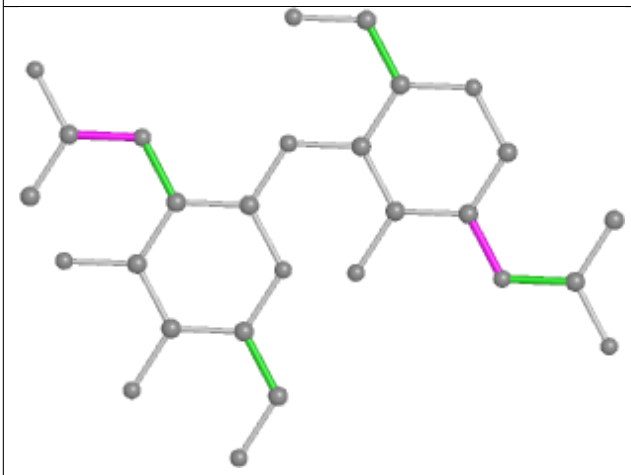
Oligosaccharide Chain P



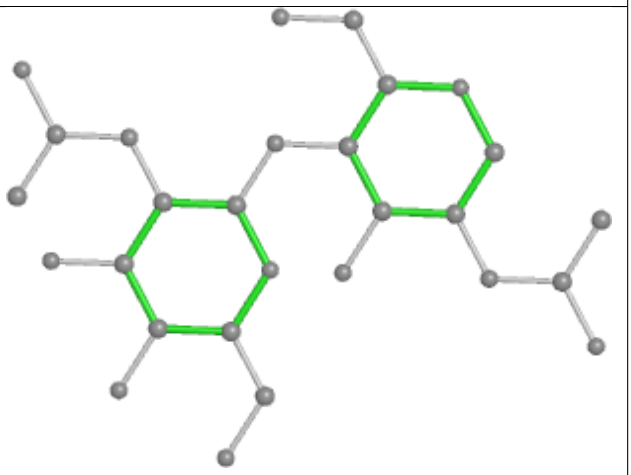
Bond lengths



Bond angles

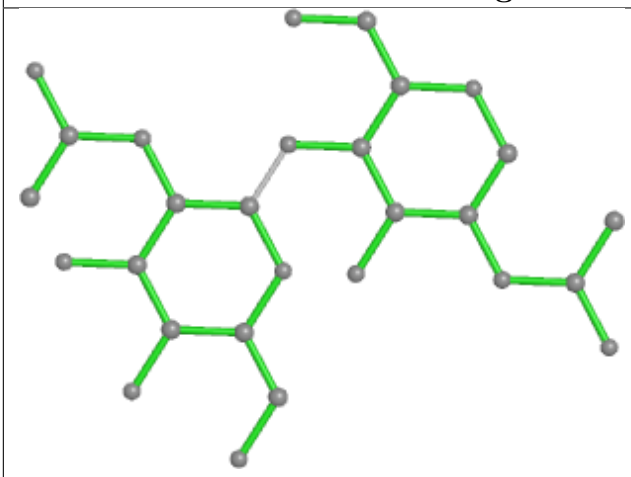


Torsions

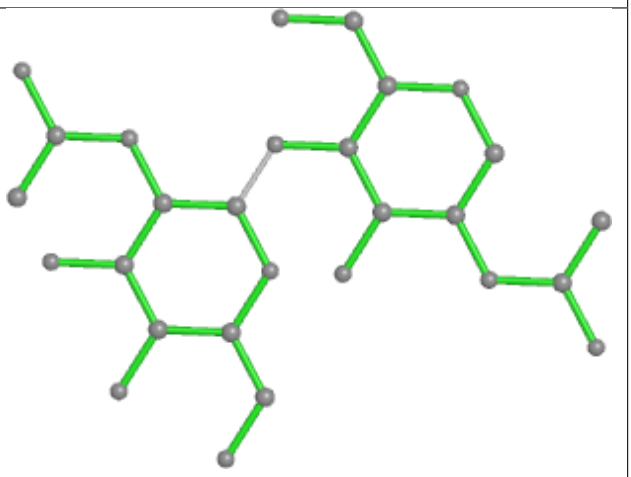


Rings

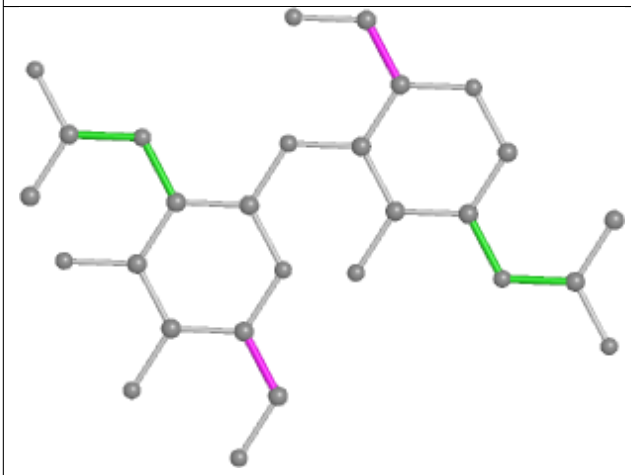
Oligosaccharide Chain T



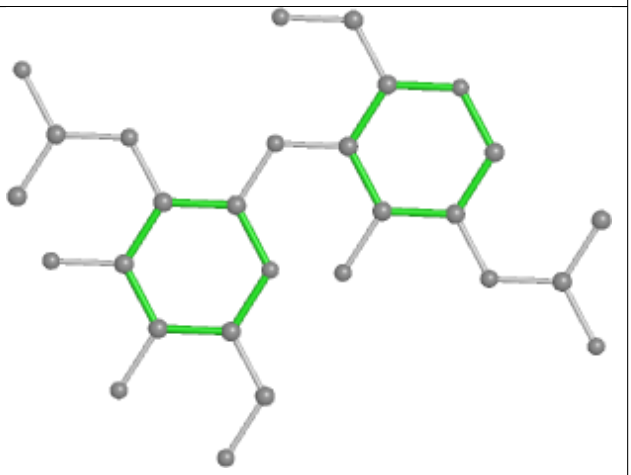
Bond lengths



Bond angles

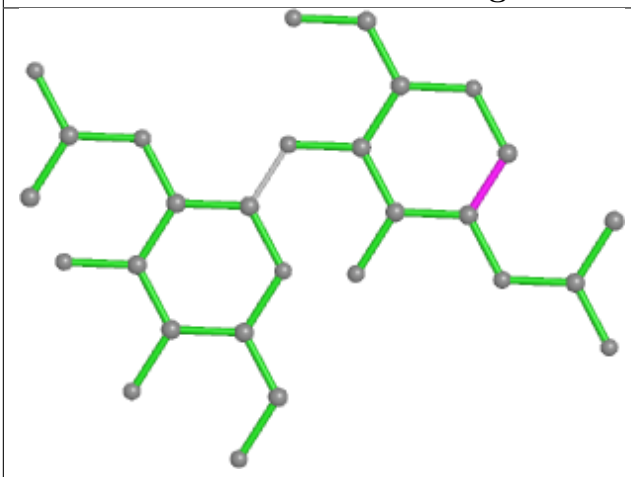


Torsions

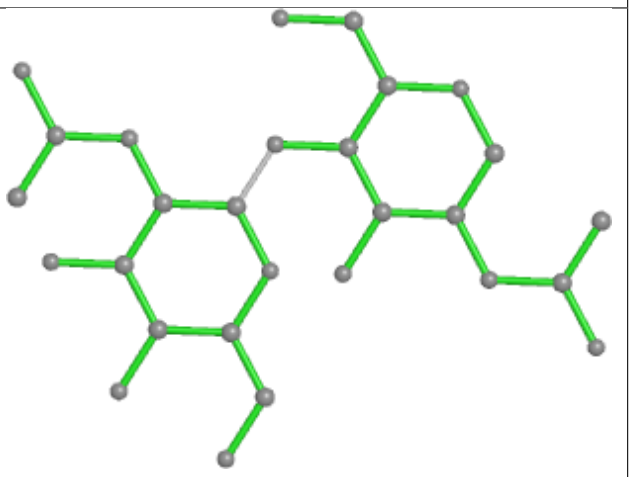


Rings

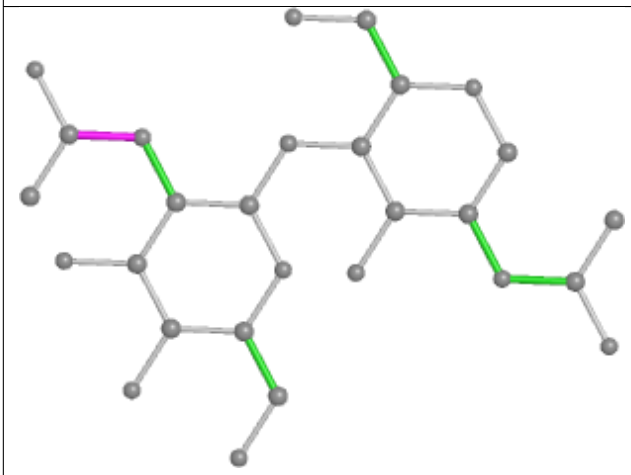
Oligosaccharide Chain W



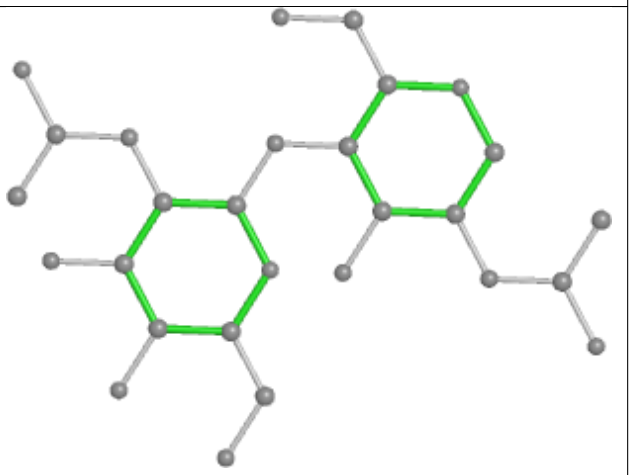
Bond lengths



Bond angles

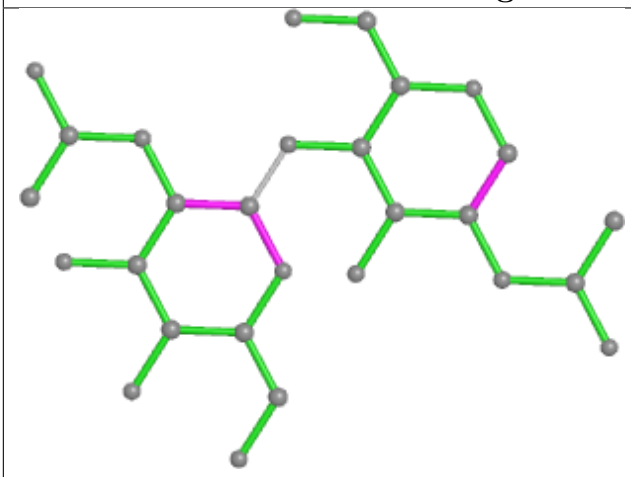


Torsions

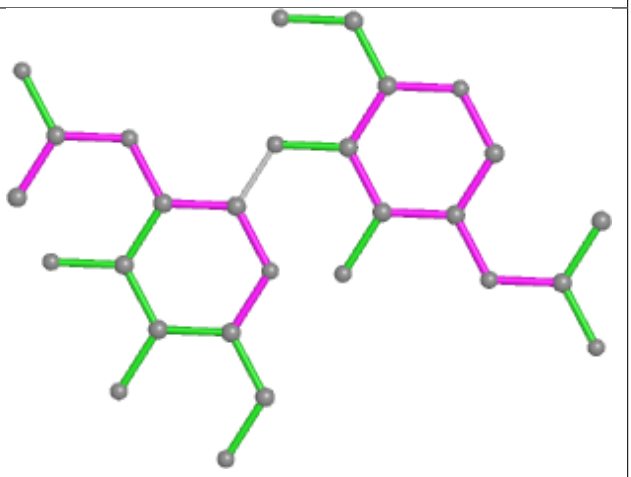


Rings

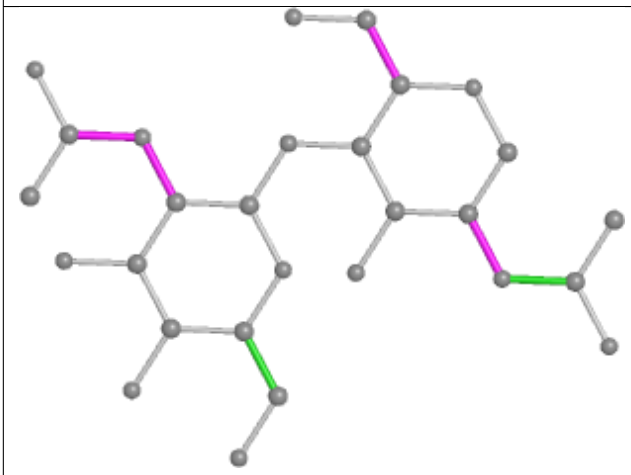
Oligosaccharide Chain Z



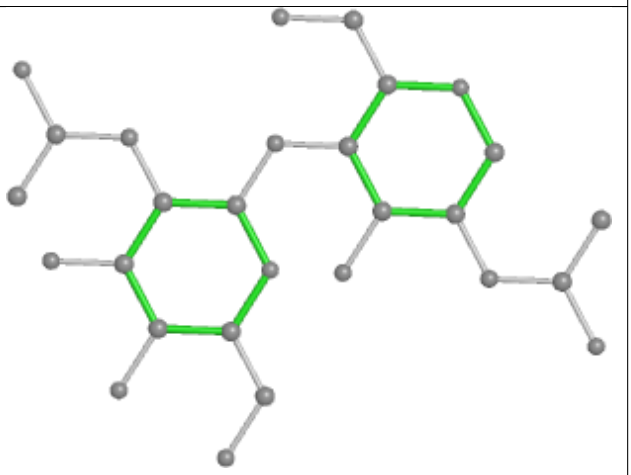
Bond lengths



Bond angles

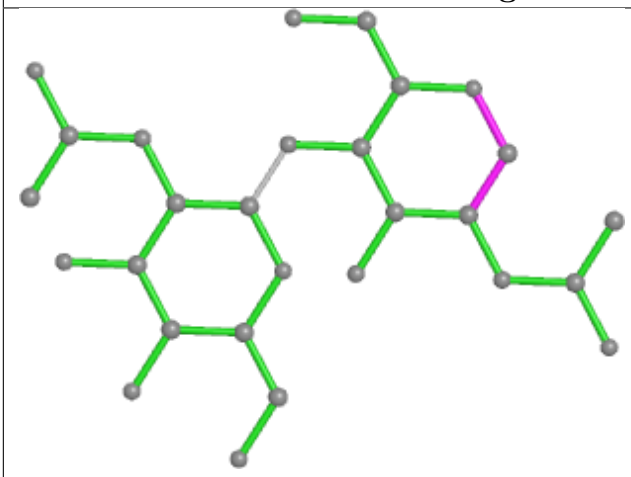


Torsions

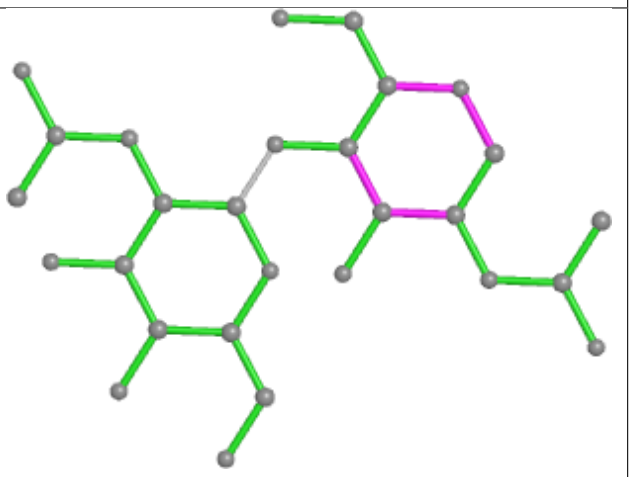


Rings

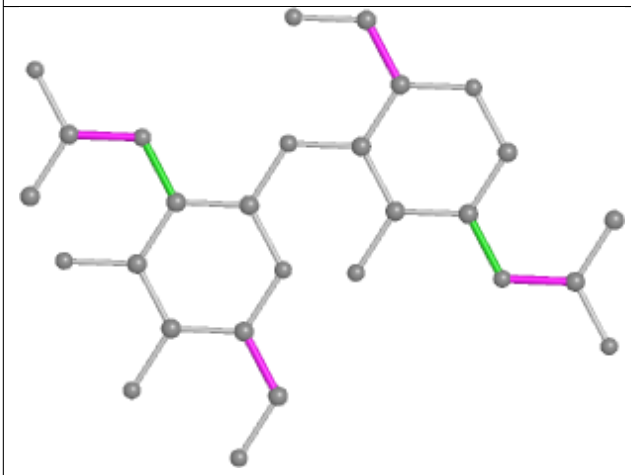
Oligosaccharide Chain a



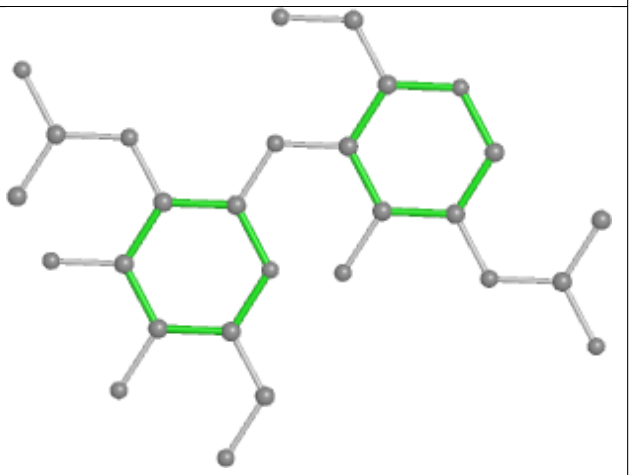
Bond lengths



Bond angles

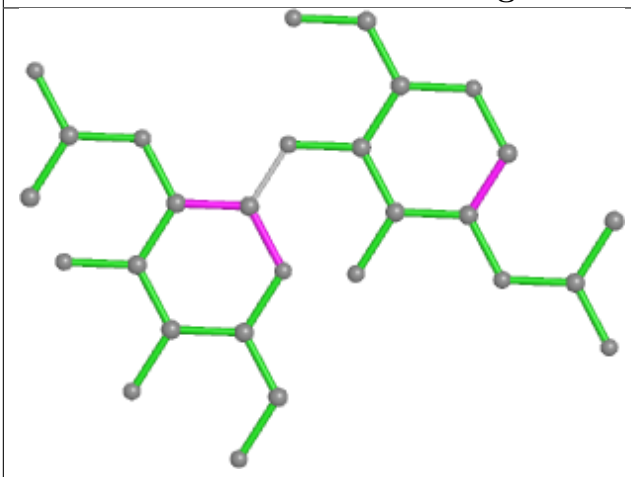


Torsions

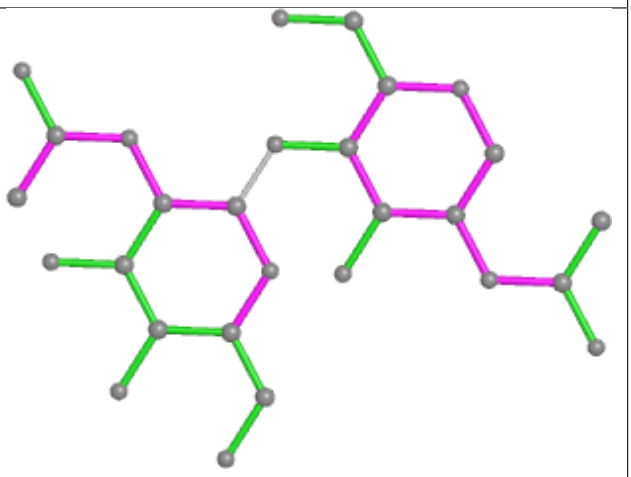


Rings

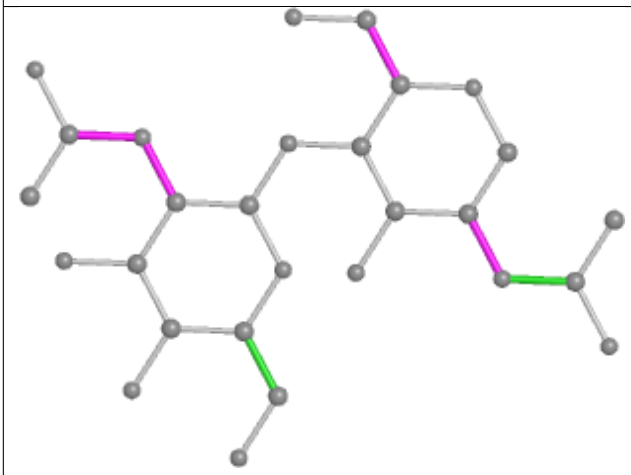
Oligosaccharide Chain b



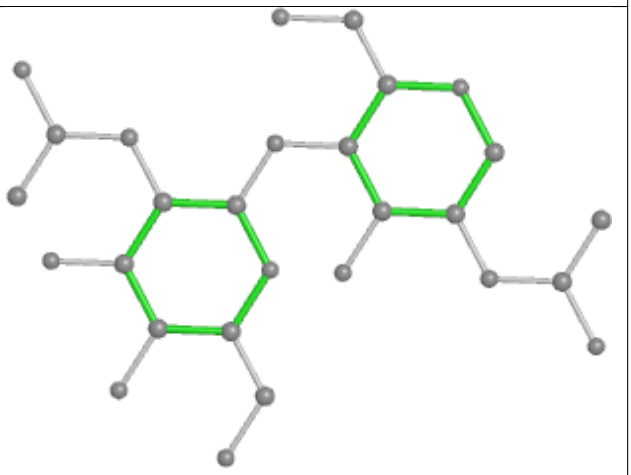
Bond lengths



Bond angles

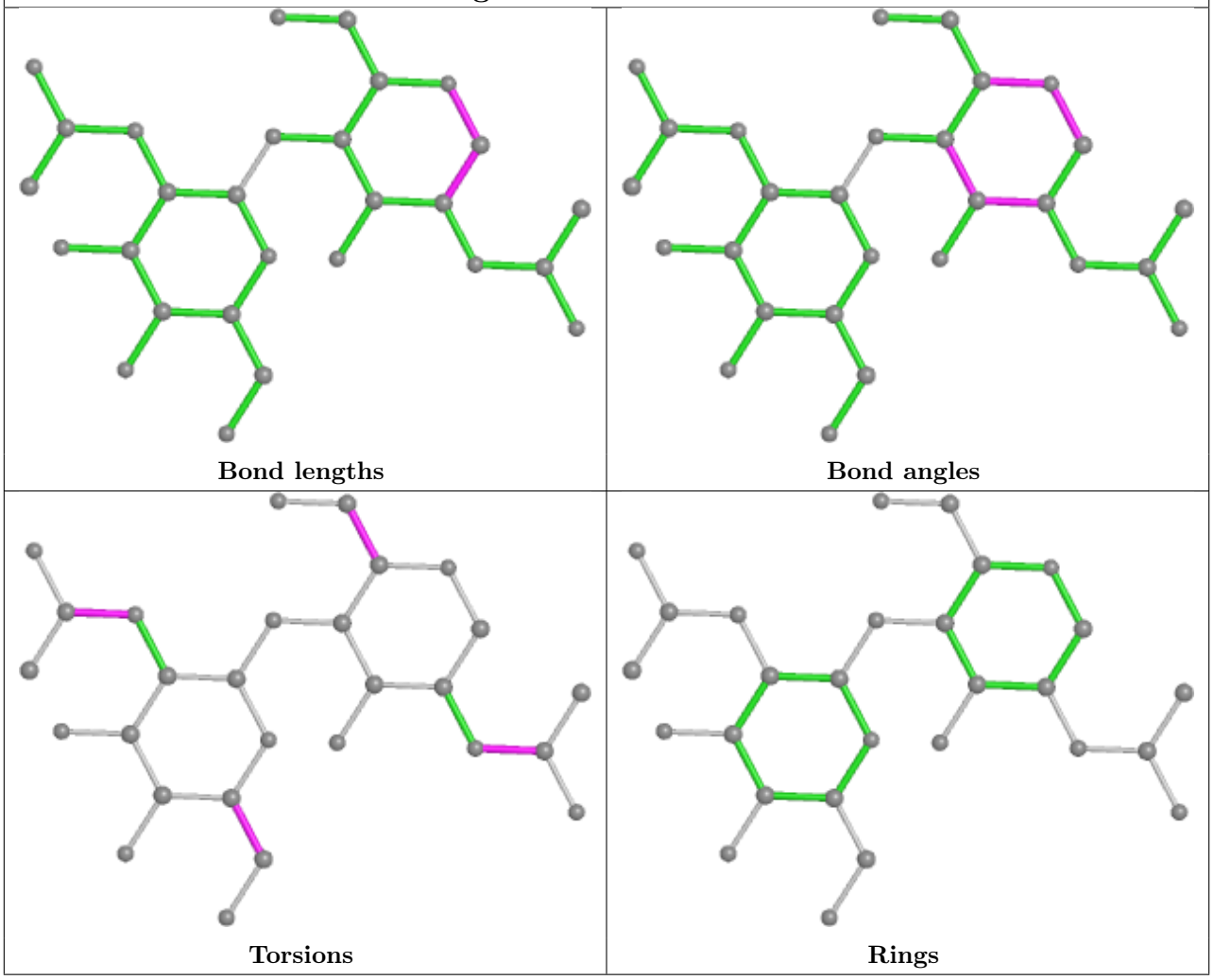


Torsions



Rings

Oligosaccharide Chain c



5.6 Ligand geometry (i)

Of 23 ligands modelled in this entry, 2 are monoatomic - leaving 21 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	$\#\|Z\| > 2$
11	MAN	Y	504	3	11,11,12	1.11	1 (9%)	15,15,17	1.81	2 (13%)
11	MAN	Y	505	3	11,11,12	1.21	1 (9%)	15,15,17	1.90	2 (13%)
11	MAN	Y	510	3	11,11,12	1.16	1 (9%)	15,15,17	1.84	4 (26%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
11	MAN	Y	511	3	11,11,12	1.30	2 (18%)	15,15,17	2.04	4 (26%)
11	MAN	Y	503	3	11,11,12	1.08	1 (9%)	15,15,17	1.85	4 (26%)
11	MAN	X	204	2	11,11,12	1.18	1 (9%)	15,15,17	1.77	2 (13%)
11	MAN	X	208	2	11,11,12	1.38	2 (18%)	15,15,17	1.42	3 (20%)
11	MAN	X	209	2	11,11,12	1.38	2 (18%)	15,15,17	1.59	3 (20%)
11	MAN	V	510	3	11,11,12	1.24	1 (9%)	15,15,17	1.90	3 (20%)
11	MAN	U	202	2	11,11,12	1.34	2 (18%)	15,15,17	1.76	2 (13%)
11	MAN	V	511	3	11,11,12	1.24	1 (9%)	15,15,17	2.03	4 (26%)
11	MAN	V	505	3	11,11,12	1.18	1 (9%)	15,15,17	2.32	3 (20%)
11	MAN	X	203	2	11,11,12	1.27	1 (9%)	15,15,17	1.70	2 (13%)
11	MAN	V	504	3	11,11,12	1.29	1 (9%)	15,15,17	1.97	4 (26%)
11	MAN	X	207	2	11,11,12	1.49	2 (18%)	15,15,17	1.27	3 (20%)
11	MAN	Y	512	3	11,11,12	1.24	1 (9%)	15,15,17	1.89	2 (13%)
11	MAN	Y	509	3	11,11,12	1.20	1 (9%)	15,15,17	1.93	4 (26%)
11	MAN	V	512	3	11,11,12	1.10	1 (9%)	15,15,17	1.88	2 (13%)
11	MAN	U	201	2	11,11,12	1.25	2 (18%)	15,15,17	2.01	4 (26%)
11	MAN	V	509	3	11,11,12	1.17	1 (9%)	15,15,17	1.89	3 (20%)
11	MAN	V	503	3	11,11,12	1.12	1 (9%)	15,15,17	1.75	2 (13%)

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
11	MAN	Y	504	3	-	1/2/19/22	0/1/1/1
11	MAN	Y	505	3	-	0/2/19/22	0/1/1/1
11	MAN	Y	510	3	-	0/2/19/22	0/1/1/1
11	MAN	Y	511	3	-	0/2/19/22	0/1/1/1
11	MAN	Y	503	3	-	0/2/19/22	0/1/1/1
11	MAN	X	204	2	-	0/2/19/22	0/1/1/1
11	MAN	X	208	2	-	0/2/19/22	0/1/1/1
11	MAN	X	209	2	-	0/2/19/22	0/1/1/1
11	MAN	V	510	3	-	0/2/19/22	0/1/1/1
11	MAN	U	202	2	-	0/2/19/22	0/1/1/1
11	MAN	V	511	3	-	0/2/19/22	0/1/1/1
11	MAN	V	505	3	-	0/2/19/22	0/1/1/1
11	MAN	X	203	2	-	0/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
11	MAN	V	504	3	-	1/2/19/22	0/1/1/1
11	MAN	X	207	2	-	0/2/19/22	0/1/1/1
11	MAN	Y	512	3	-	0/2/19/22	0/1/1/1
11	MAN	Y	509	3	-	0/2/19/22	0/1/1/1
11	MAN	V	512	3	-	0/2/19/22	0/1/1/1
11	MAN	U	201	2	-	0/2/19/22	0/1/1/1
11	MAN	V	509	3	-	0/2/19/22	0/1/1/1
11	MAN	V	503	3	-	0/2/19/22	0/1/1/1

All (27) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	X	209	MAN	O5-C5	3.15	1.49	1.43
11	V	504	MAN	O5-C5	2.87	1.49	1.43
11	X	203	MAN	O5-C5	2.79	1.49	1.43
11	Y	505	MAN	O5-C5	2.74	1.49	1.43
11	X	207	MAN	O5-C1	-2.72	1.39	1.43
11	Y	509	MAN	O5-C5	2.67	1.48	1.43
11	U	202	MAN	O5-C5	2.66	1.48	1.43
11	V	510	MAN	O5-C5	2.63	1.48	1.43
11	Y	510	MAN	O5-C5	2.59	1.48	1.43
11	X	208	MAN	O5-C5	2.56	1.48	1.43
11	V	509	MAN	O5-C5	2.54	1.48	1.43
11	X	207	MAN	C2-C3	2.53	1.56	1.52
11	X	204	MAN	O5-C5	2.45	1.48	1.43
11	Y	512	MAN	O5-C5	2.45	1.48	1.43
11	U	201	MAN	O5-C5	2.43	1.48	1.43
11	V	511	MAN	O5-C5	2.42	1.48	1.43
11	X	208	MAN	O5-C1	-2.42	1.39	1.43
11	Y	511	MAN	O5-C5	2.37	1.48	1.43
11	Y	504	MAN	O5-C5	2.34	1.48	1.43
11	V	505	MAN	O5-C5	2.27	1.48	1.43
11	Y	503	MAN	O5-C5	2.18	1.47	1.43
11	Y	511	MAN	O4-C4	-2.15	1.37	1.43
11	X	209	MAN	O5-C1	-2.07	1.40	1.43
11	V	503	MAN	O5-C5	2.03	1.47	1.43
11	U	202	MAN	O2-C2	-2.03	1.39	1.43
11	U	201	MAN	O4-C4	-2.02	1.38	1.43
11	V	512	MAN	O5-C5	2.01	1.47	1.43

All (62) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	U	201	MAN	C1-O5-C5	5.80	120.05	112.19
11	Y	512	MAN	C1-O5-C5	5.60	119.78	112.19
11	V	512	MAN	C1-O5-C5	5.60	119.77	112.19
11	V	505	MAN	C1-O5-C5	5.57	119.74	112.19
11	V	504	MAN	C1-O5-C5	5.47	119.60	112.19
11	V	511	MAN	C1-O5-C5	5.43	119.55	112.19
11	Y	509	MAN	C1-O5-C5	5.39	119.49	112.19
11	Y	505	MAN	C1-O5-C5	5.35	119.44	112.19
11	Y	504	MAN	C1-O5-C5	5.31	119.38	112.19
11	Y	511	MAN	C1-O5-C5	5.24	119.30	112.19
11	Y	503	MAN	C1-O5-C5	5.23	119.28	112.19
11	V	510	MAN	C1-O5-C5	5.20	119.24	112.19
11	V	509	MAN	C1-O5-C5	5.17	119.20	112.19
11	X	204	MAN	C1-O5-C5	4.88	118.81	112.19
11	Y	510	MAN	C1-O5-C5	4.86	118.78	112.19
11	V	503	MAN	C1-O5-C5	4.85	118.77	112.19
11	X	209	MAN	C1-O5-C5	4.78	118.67	112.19
11	X	203	MAN	C1-O5-C5	4.69	118.55	112.19
11	V	505	MAN	O2-C2-C3	-4.56	101.00	110.14
11	U	202	MAN	C1-O5-C5	4.53	118.33	112.19
11	X	208	MAN	C1-O5-C5	3.71	117.22	112.19
11	Y	505	MAN	O2-C2-C3	-3.38	103.36	110.14
11	U	201	MAN	O2-C2-C3	-3.36	103.42	110.14
11	V	505	MAN	O5-C1-C2	3.35	115.95	110.77
11	X	204	MAN	O2-C2-C3	-3.29	103.54	110.14
11	V	511	MAN	O2-C2-C3	-3.20	103.73	110.14
11	Y	511	MAN	O2-C2-C3	-3.06	104.01	110.14
11	V	510	MAN	O2-C2-C3	-2.99	104.15	110.14
11	U	202	MAN	O2-C2-C3	-2.94	104.26	110.14
11	X	203	MAN	O2-C2-C3	-2.90	104.34	110.14
11	Y	512	MAN	O2-C2-C3	-2.89	104.34	110.14
11	Y	510	MAN	O2-C2-C3	-2.70	104.74	110.14
11	X	207	MAN	C1-O5-C5	2.64	115.77	112.19
11	V	509	MAN	O2-C2-C3	-2.63	104.86	110.14
11	V	512	MAN	O2-C2-C3	-2.63	104.87	110.14
11	V	504	MAN	C1-C2-C3	2.53	112.78	109.67
11	Y	511	MAN	O5-C1-C2	2.51	114.65	110.77
11	Y	509	MAN	O2-C2-C3	-2.35	105.42	110.14
11	V	504	MAN	O2-C2-C3	-2.33	105.47	110.14
11	X	208	MAN	O2-C2-C3	-2.33	105.47	110.14
11	Y	509	MAN	C1-C2-C3	2.31	112.51	109.67
11	Y	511	MAN	C1-C2-C3	2.30	112.49	109.67
11	Y	510	MAN	O5-C1-C2	2.26	114.26	110.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
11	Y	509	MAN	O5-C1-C2	2.25	114.24	110.77
11	X	207	MAN	O2-C2-C3	-2.23	105.67	110.14
11	V	511	MAN	C1-C2-C3	2.23	112.40	109.67
11	V	510	MAN	O5-C1-C2	2.22	114.20	110.77
11	Y	503	MAN	O5-C1-C2	2.21	114.19	110.77
11	V	511	MAN	O5-C1-C2	2.20	114.17	110.77
11	X	207	MAN	C2-C3-C4	2.19	114.69	110.89
11	X	209	MAN	O5-C5-C6	2.16	110.59	107.20
11	Y	504	MAN	O2-C2-C3	-2.14	105.85	110.14
11	X	209	MAN	O2-C2-C3	-2.13	105.87	110.14
11	U	201	MAN	O4-C4-C3	-2.11	105.48	110.35
11	V	503	MAN	O2-C2-C3	-2.08	105.97	110.14
11	Y	510	MAN	C1-C2-C3	2.08	112.22	109.67
11	V	509	MAN	C1-C2-C3	2.07	112.22	109.67
11	Y	503	MAN	O2-C2-C3	-2.03	106.08	110.14
11	X	208	MAN	O5-C5-C6	2.03	110.38	107.20
11	V	504	MAN	O5-C1-C2	2.03	113.90	110.77
11	Y	503	MAN	C1-C2-C3	2.02	112.15	109.67
11	U	201	MAN	O5-C1-C2	2.00	113.86	110.77

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	V	504	MAN	C4-C5-C6-O6
11	Y	504	MAN	C4-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	X	208	MAN	1	0

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
4	G	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	G	68:ILE	C	69:PRO	N	3.37

6 Fit of model and data

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

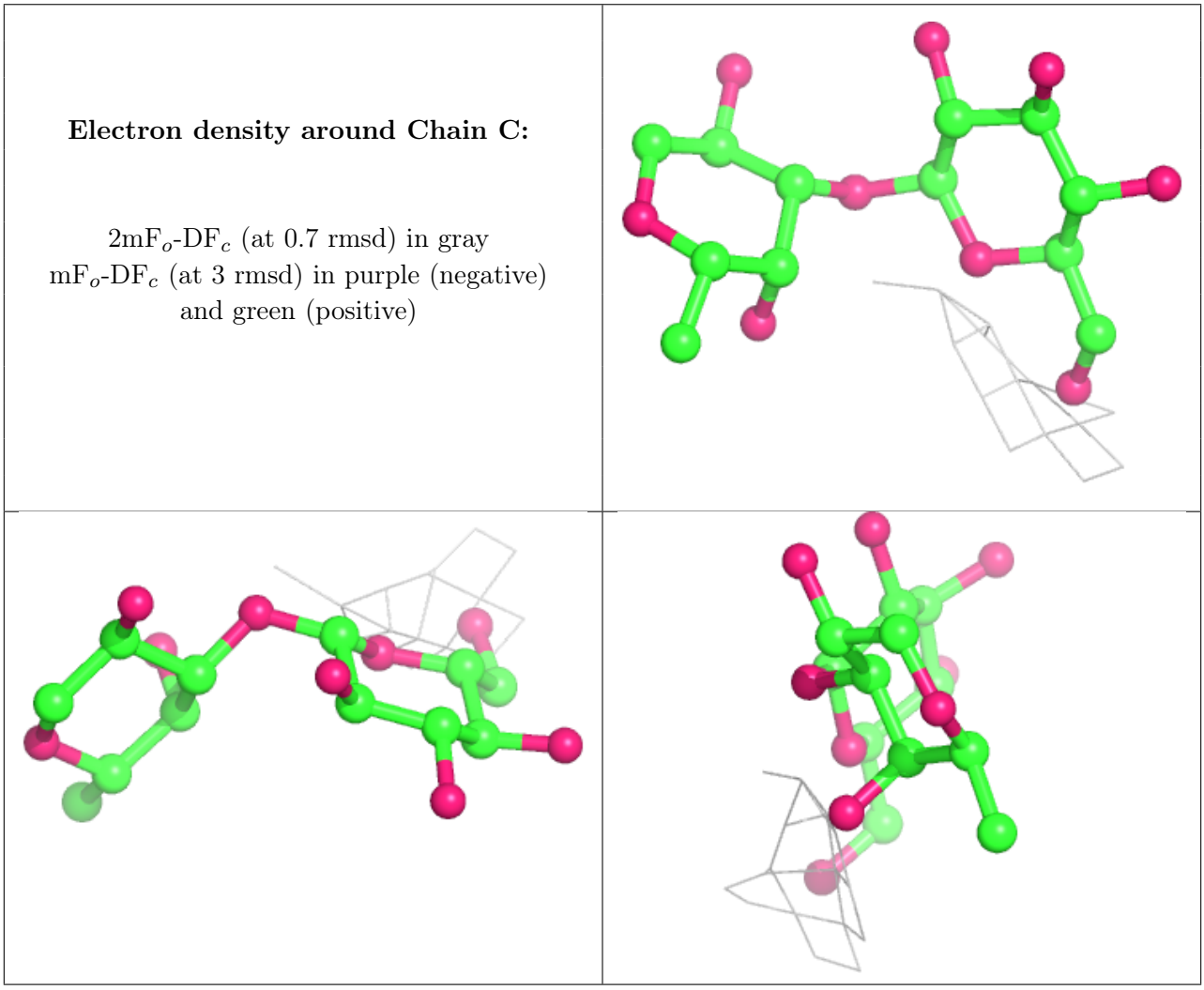
6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

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.

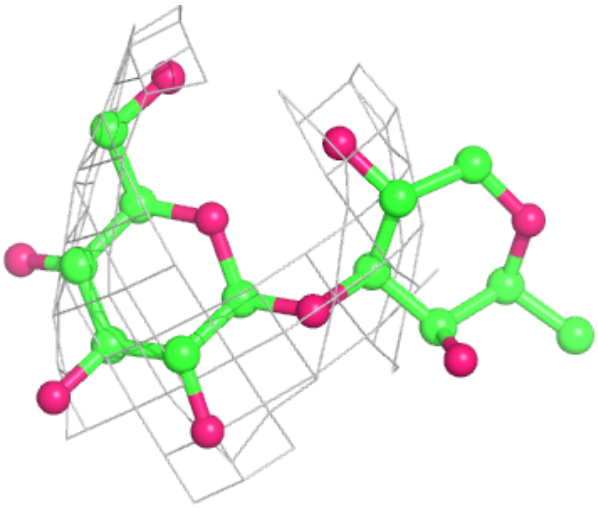
Electron density around Chain C:

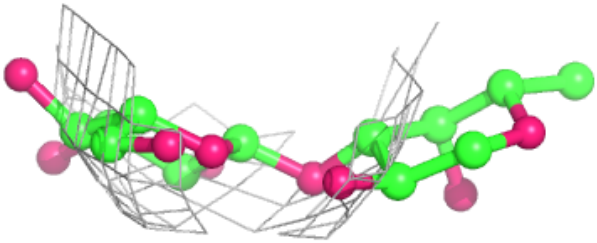
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

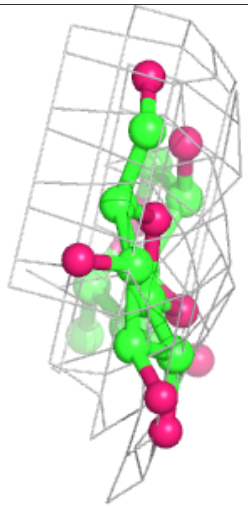


Electron density around Chain D:

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

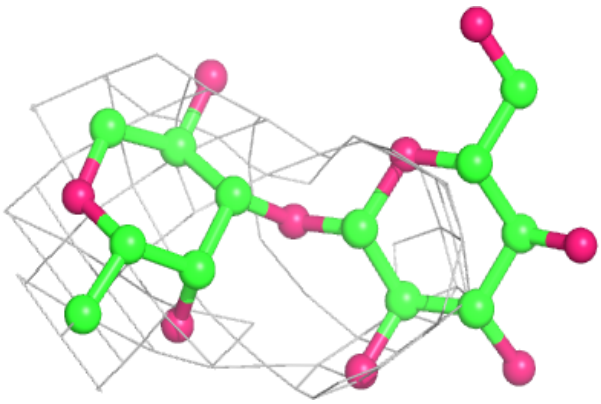


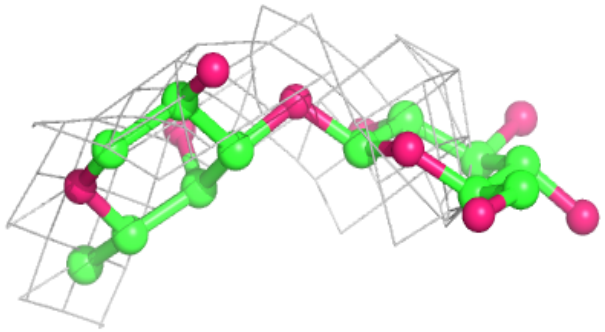


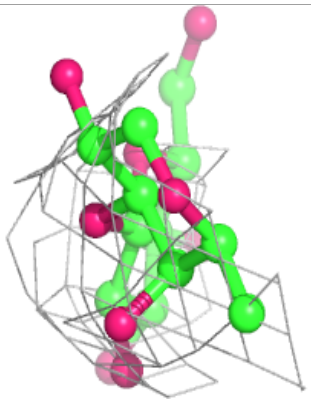


Electron density around Chain F:

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

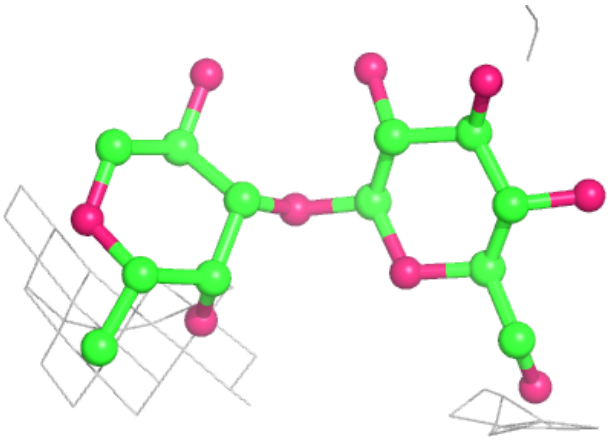


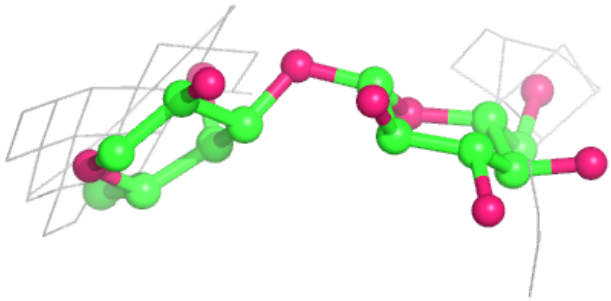


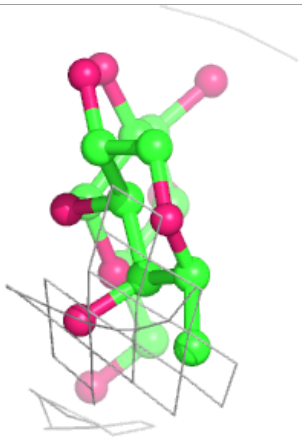


Electron density around Chain I:

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

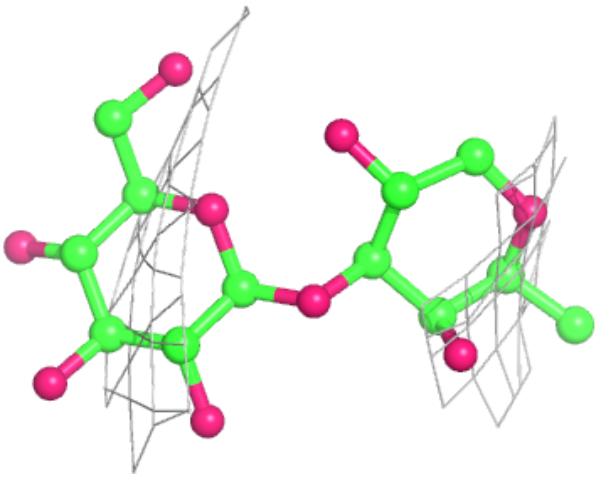


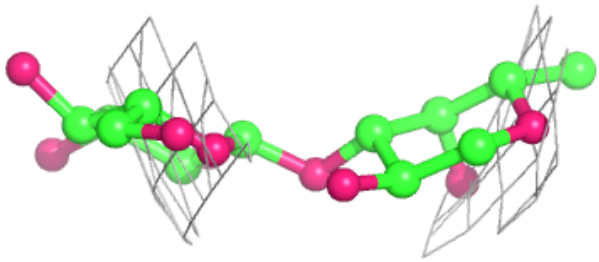


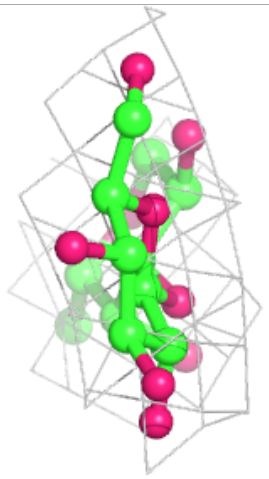


Electron density around Chain K:

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

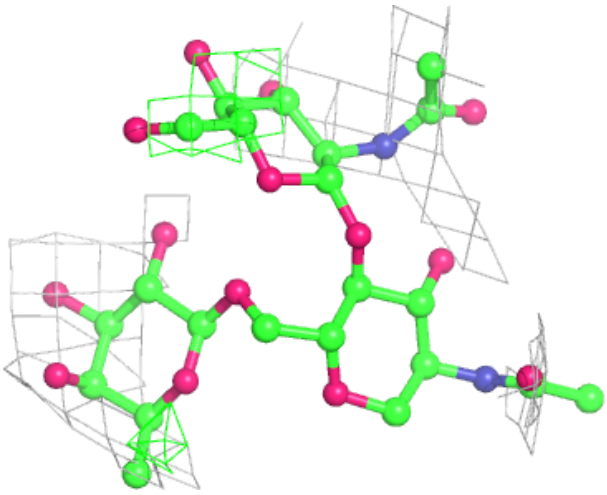


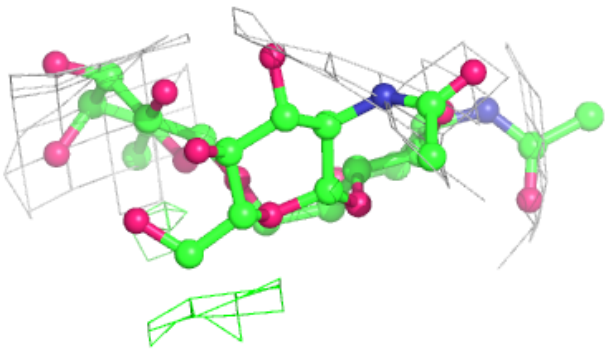


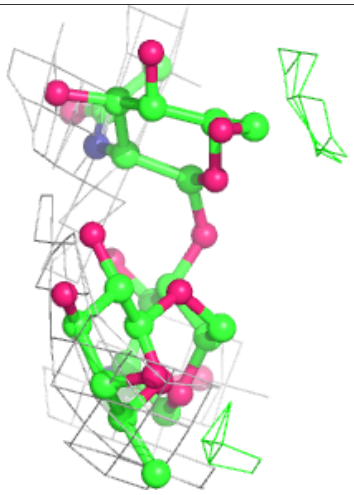


Electron density around Chain E:

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

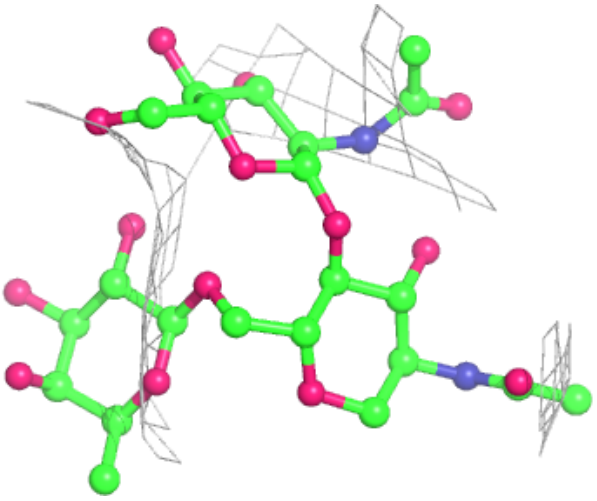


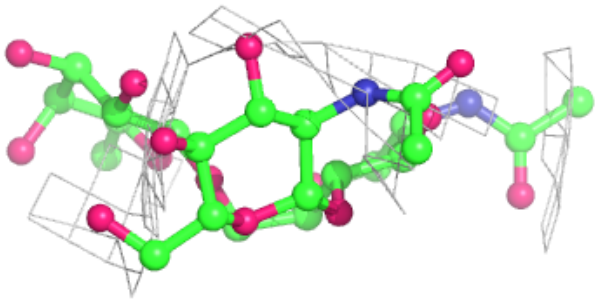


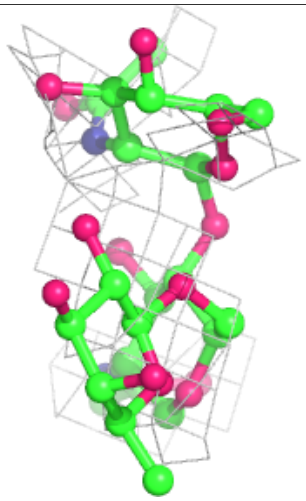


Electron density around Chain M:

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

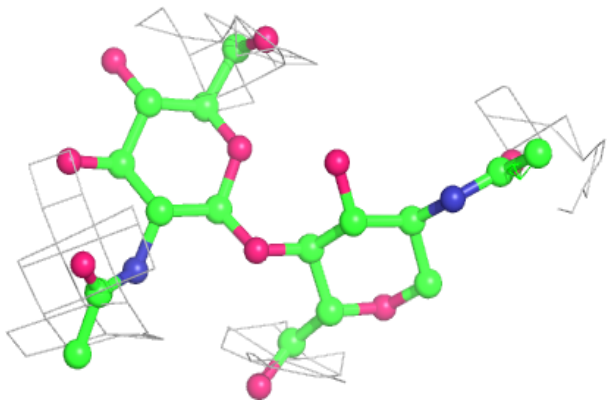


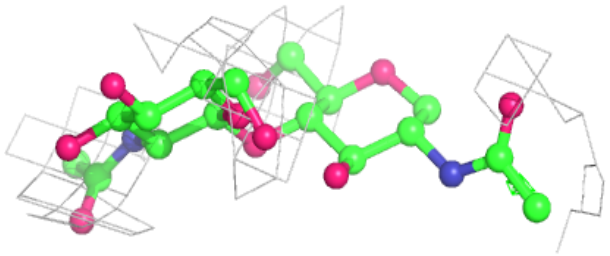


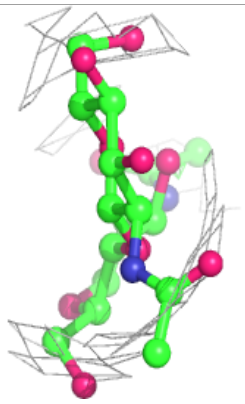


Electron density around Chain O:

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

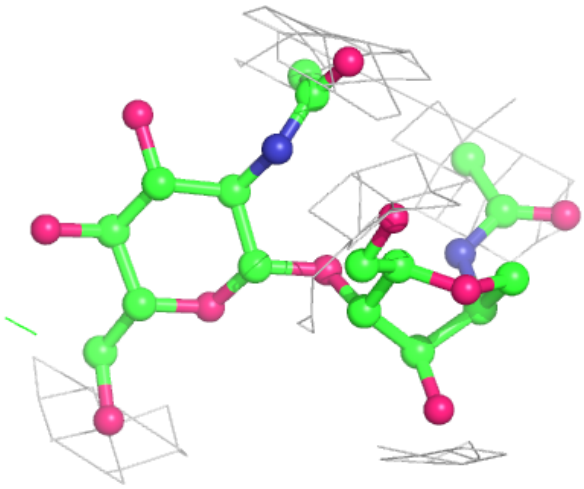


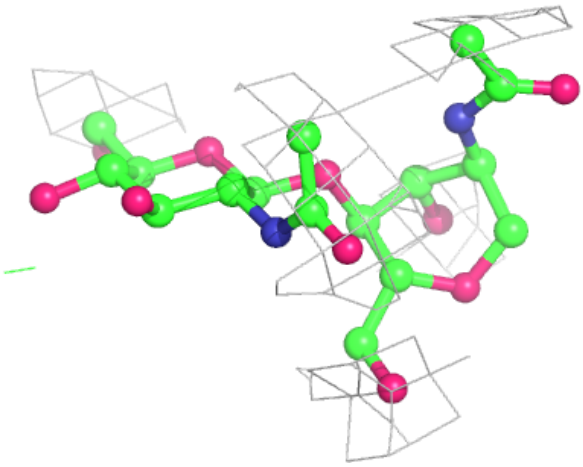


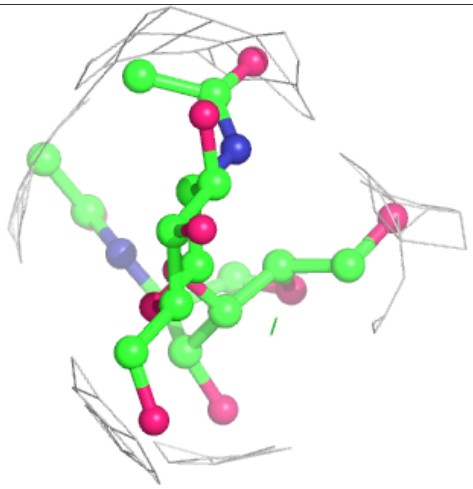


Electron density around Chain P:

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

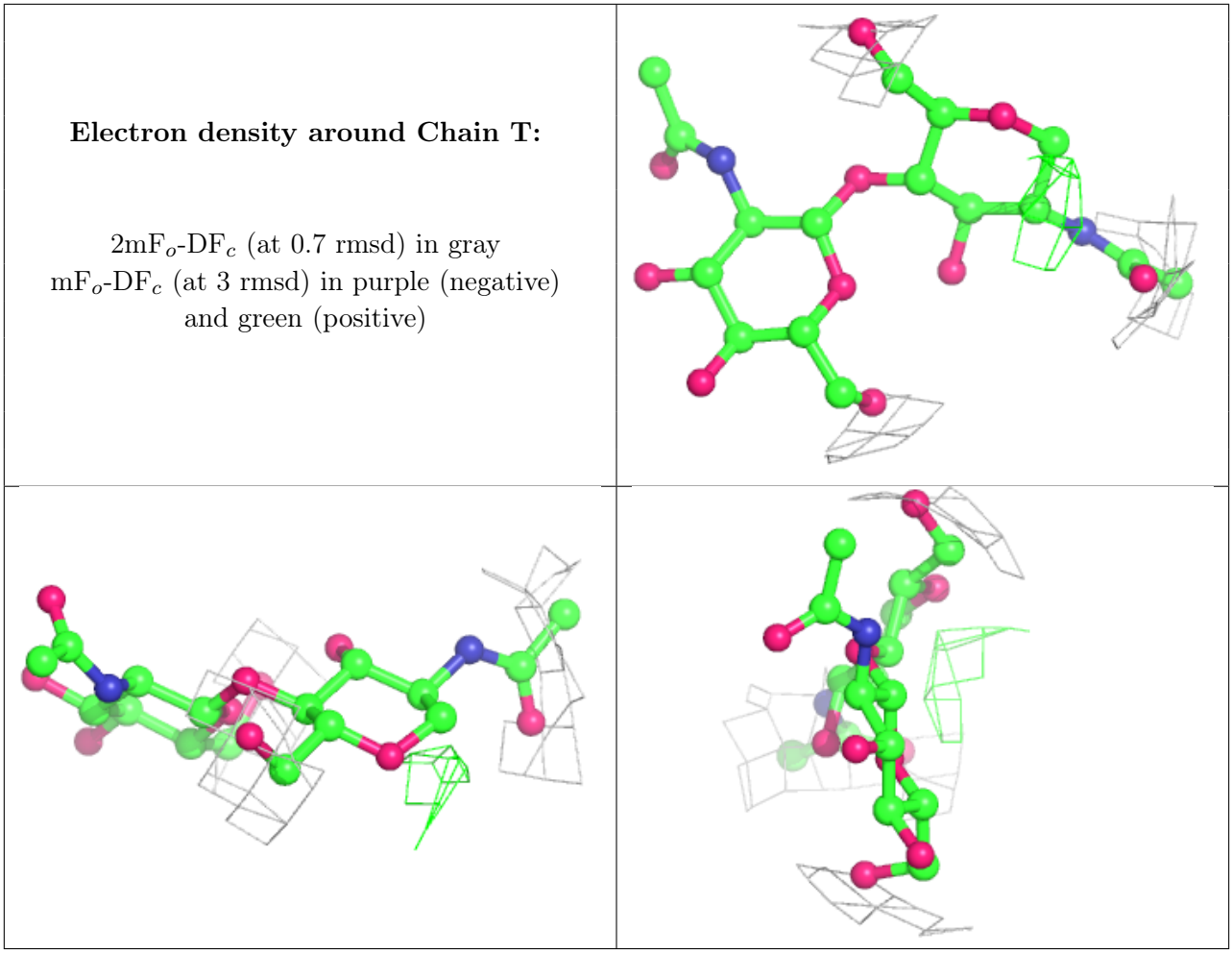






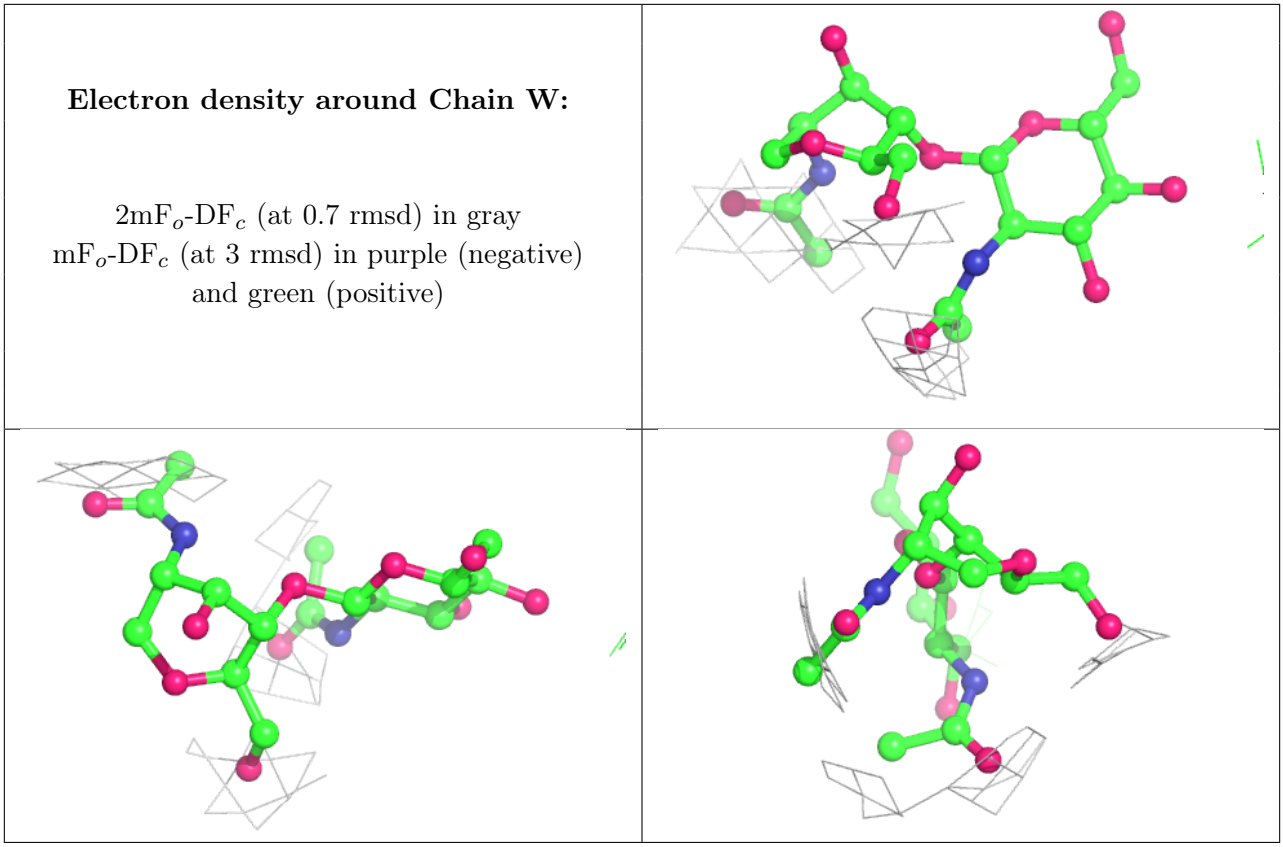
Electron density around Chain T:

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



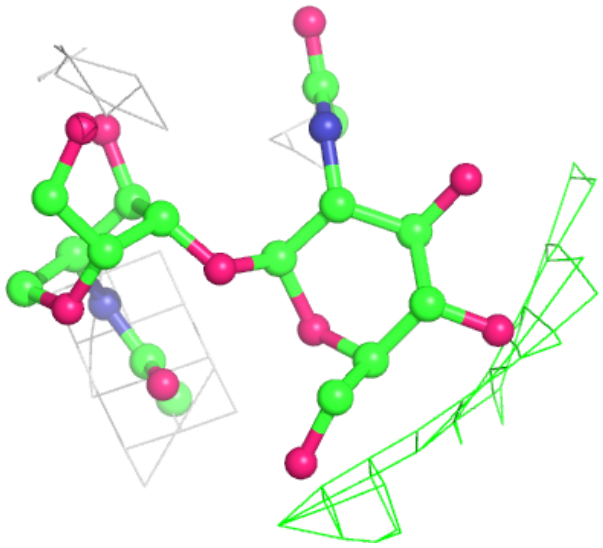
Electron density around Chain W:

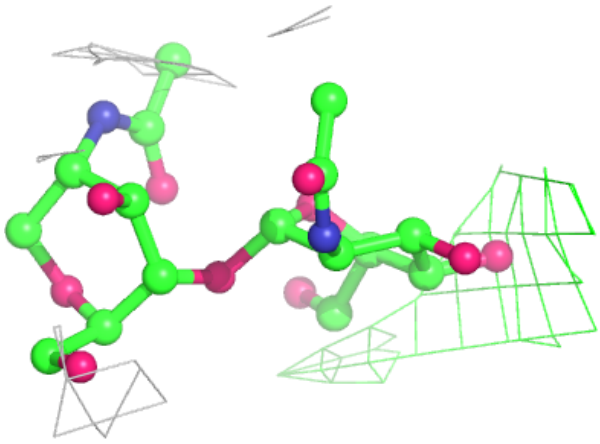
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

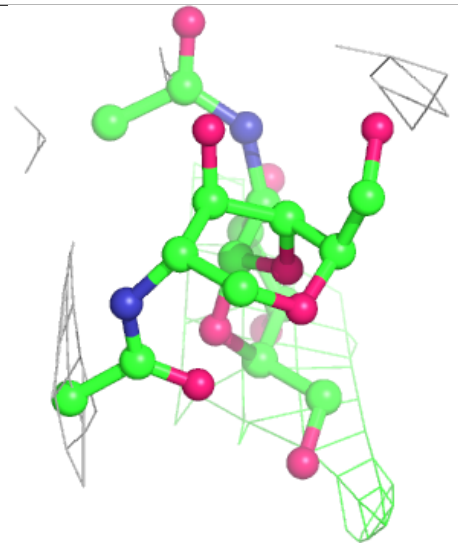


Electron density around Chain Z:

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

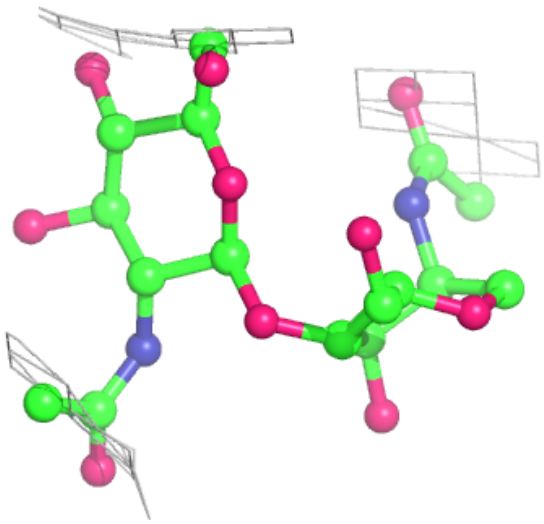


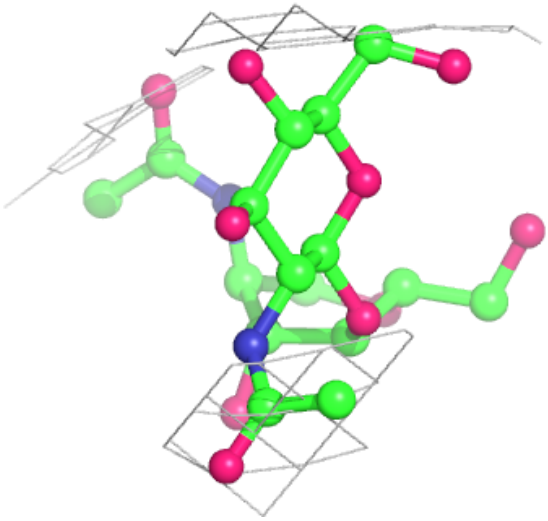




Electron density around Chain a:

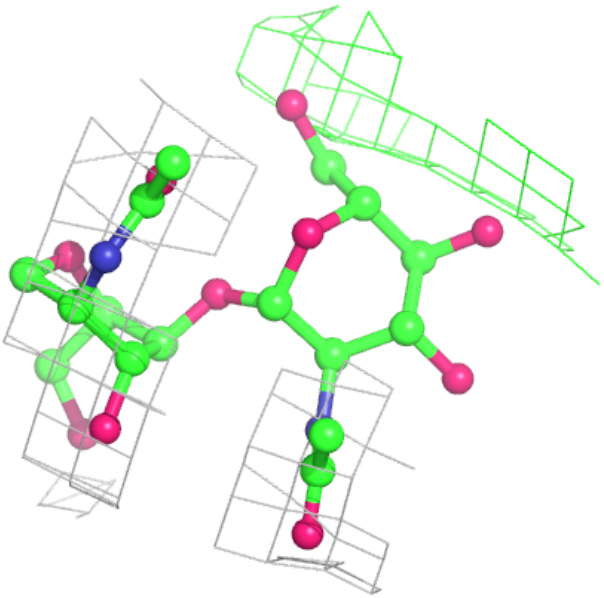
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

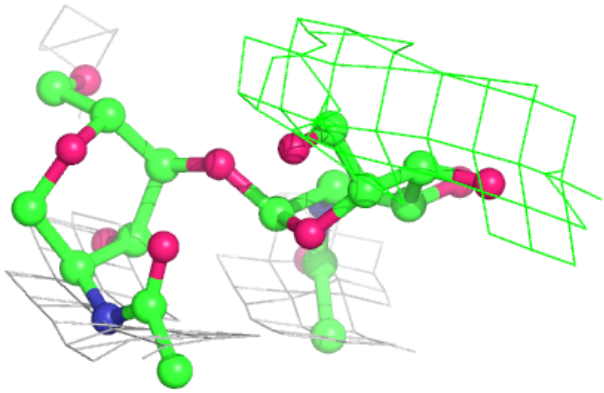


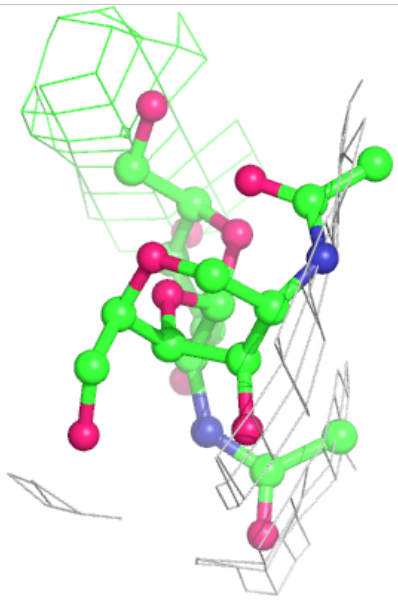


Electron density around Chain b:

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

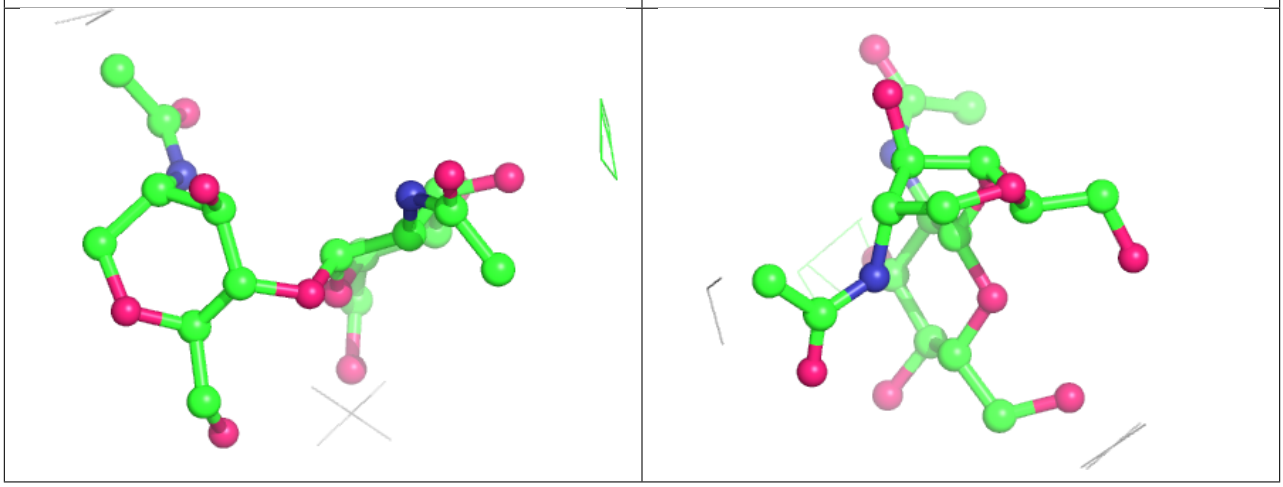






Electron density around Chain c:

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



6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.