wwPDB X-ray Structure Validation Summary Report (i)

Mar 1, 2026 – 09:30 PM UTC

PDB ID	:	4N5Z / pdb_00004n5z
Title	:	Crystal structure of aerosol transmissible influenza H5 hemagglutinin mutant (N158D, N224K, Q226L and T318I) from the influenza virus A/Viet Nam/1203/2004 (H5N1)
Authors	:	Zhu, X.; Wilson, I.A.
Deposited on	:	2013-10-10
Resolution	:	2.95 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) 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 (1)) were used in the production of this report:

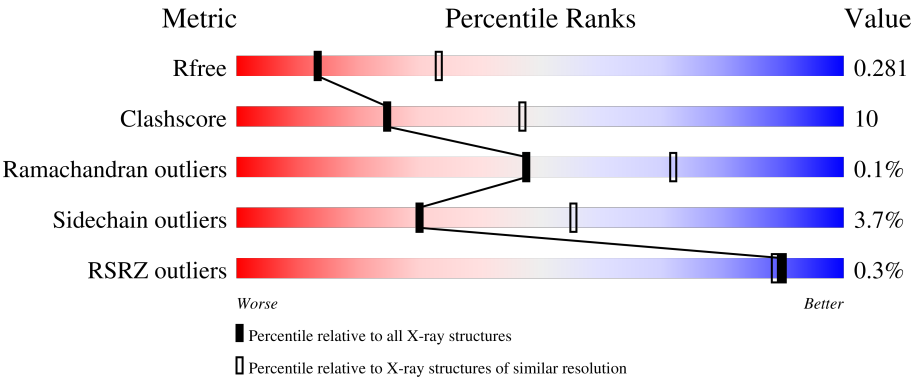
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

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 2.95 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}	180053	1130 (2.98-2.94)
Clashscore	190562	1157 (2.98-2.94)
Ramachandran outliers	187476	1101 (2.98-2.94)
Sidechain outliers	187428	1101 (2.98-2.94)
RSRZ outliers	180081	1130 (2.98-2.94)

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% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	334	71% 24%
1	C	334	71% 24%
1	E	334	71% 24%
1	G	334	74% 21%
1	I	334	67% 26%

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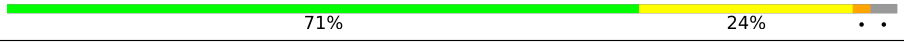
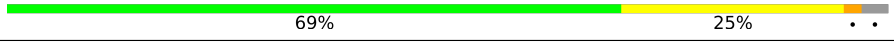
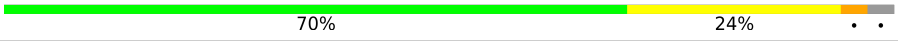
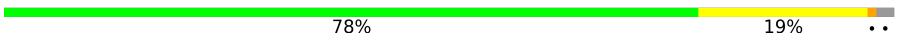
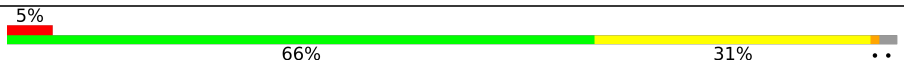
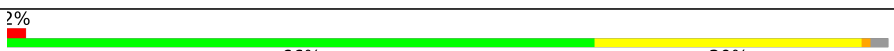
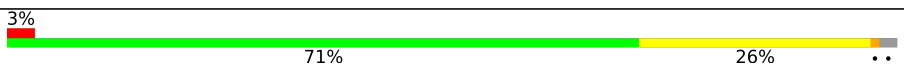
Mol	Chain	Length	Quality of chain
1	K	334	
1	M	334	
1	O	334	
1	Q	334	
1	S	334	
1	U	334	
1	W	334	
1	Y	334	
1	a	334	
1	c	334	
2	B	181	
2	D	181	
2	F	181	
2	H	181	
2	J	181	
2	L	181	
2	N	181	
2	P	181	
2	R	181	
2	T	181	
2	V	181	
2	X	181	
2	Z	181	
2	b	181	
2	d	181	

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Mol	Chain	Length	Quality of chain
3	e	3	33% 33% 33%
3	g	3	67% 33%
3	h	3	33% 67%
3	j	3	67% 33%
3	l	3	100%
3	n	3	33% 67%
3	o	3	33% 67%
3	p	3	33% 67%
3	r	3	33% 67%
3	t	3	33% 33% 33%
3	v	3	33% 67%
3	x	3	33% 67%
4	0	2	50% 50%
4	f	2	100%
4	i	2	100%
4	k	2	50% 50%
4	m	2	100%
4	q	2	100%
4	s	2	50% 50%
4	u	2	50% 50%
4	w	2	100%
4	y	2	100%
4	z	2	100%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 60979 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Hemagglutinin HA1 chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	C	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	E	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	G	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	I	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	K	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	M	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	O	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	Q	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	S	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	U	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	W	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	Y	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	a	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			
1	c	324	Total	C	N	O	S	0	1	0
			2574	1630	442	487	15			

There are 120 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	7	ALA	-	expression tag	UNP Q6DQ33
A	8	ASP	-	expression tag	UNP Q6DQ33
A	9	PRO	-	expression tag	UNP Q6DQ33
A	10	GLY	-	expression tag	UNP Q6DQ33
A	158	ASP	ASN	engineered mutation	UNP Q6DQ33
A	224	LYS	ASN	engineered mutation	UNP Q6DQ33
A	226	LEU	GLN	engineered mutation	UNP Q6DQ33
A	318	ILE	THR	engineered mutation	UNP Q6DQ33
C	7	ALA	-	expression tag	UNP Q6DQ33
C	8	ASP	-	expression tag	UNP Q6DQ33
C	9	PRO	-	expression tag	UNP Q6DQ33
C	10	GLY	-	expression tag	UNP Q6DQ33
C	158	ASP	ASN	engineered mutation	UNP Q6DQ33
C	224	LYS	ASN	engineered mutation	UNP Q6DQ33
C	226	LEU	GLN	engineered mutation	UNP Q6DQ33
C	318	ILE	THR	engineered mutation	UNP Q6DQ33
E	7	ALA	-	expression tag	UNP Q6DQ33
E	8	ASP	-	expression tag	UNP Q6DQ33
E	9	PRO	-	expression tag	UNP Q6DQ33
E	10	GLY	-	expression tag	UNP Q6DQ33
E	158	ASP	ASN	engineered mutation	UNP Q6DQ33
E	224	LYS	ASN	engineered mutation	UNP Q6DQ33
E	226	LEU	GLN	engineered mutation	UNP Q6DQ33
E	318	ILE	THR	engineered mutation	UNP Q6DQ33
G	7	ALA	-	expression tag	UNP Q6DQ33
G	8	ASP	-	expression tag	UNP Q6DQ33
G	9	PRO	-	expression tag	UNP Q6DQ33
G	10	GLY	-	expression tag	UNP Q6DQ33
G	158	ASP	ASN	engineered mutation	UNP Q6DQ33
G	224	LYS	ASN	engineered mutation	UNP Q6DQ33
G	226	LEU	GLN	engineered mutation	UNP Q6DQ33
G	318	ILE	THR	engineered mutation	UNP Q6DQ33
I	7	ALA	-	expression tag	UNP Q6DQ33
I	8	ASP	-	expression tag	UNP Q6DQ33
I	9	PRO	-	expression tag	UNP Q6DQ33
I	10	GLY	-	expression tag	UNP Q6DQ33
I	158	ASP	ASN	engineered mutation	UNP Q6DQ33
I	224	LYS	ASN	engineered mutation	UNP Q6DQ33
I	226	LEU	GLN	engineered mutation	UNP Q6DQ33
I	318	ILE	THR	engineered mutation	UNP Q6DQ33
K	7	ALA	-	expression tag	UNP Q6DQ33
K	8	ASP	-	expression tag	UNP Q6DQ33
K	9	PRO	-	expression tag	UNP Q6DQ33

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Chain	Residue	Modelled	Actual	Comment	Reference
K	10	GLY	-	expression tag	UNP Q6DQ33
K	158	ASP	ASN	engineered mutation	UNP Q6DQ33
K	224	LYS	ASN	engineered mutation	UNP Q6DQ33
K	226	LEU	GLN	engineered mutation	UNP Q6DQ33
K	318	ILE	THR	engineered mutation	UNP Q6DQ33
M	7	ALA	-	expression tag	UNP Q6DQ33
M	8	ASP	-	expression tag	UNP Q6DQ33
M	9	PRO	-	expression tag	UNP Q6DQ33
M	10	GLY	-	expression tag	UNP Q6DQ33
M	158	ASP	ASN	engineered mutation	UNP Q6DQ33
M	224	LYS	ASN	engineered mutation	UNP Q6DQ33
M	226	LEU	GLN	engineered mutation	UNP Q6DQ33
M	318	ILE	THR	engineered mutation	UNP Q6DQ33
O	7	ALA	-	expression tag	UNP Q6DQ33
O	8	ASP	-	expression tag	UNP Q6DQ33
O	9	PRO	-	expression tag	UNP Q6DQ33
O	10	GLY	-	expression tag	UNP Q6DQ33
O	158	ASP	ASN	engineered mutation	UNP Q6DQ33
O	224	LYS	ASN	engineered mutation	UNP Q6DQ33
O	226	LEU	GLN	engineered mutation	UNP Q6DQ33
O	318	ILE	THR	engineered mutation	UNP Q6DQ33
Q	7	ALA	-	expression tag	UNP Q6DQ33
Q	8	ASP	-	expression tag	UNP Q6DQ33
Q	9	PRO	-	expression tag	UNP Q6DQ33
Q	10	GLY	-	expression tag	UNP Q6DQ33
Q	158	ASP	ASN	engineered mutation	UNP Q6DQ33
Q	224	LYS	ASN	engineered mutation	UNP Q6DQ33
Q	226	LEU	GLN	engineered mutation	UNP Q6DQ33
Q	318	ILE	THR	engineered mutation	UNP Q6DQ33
S	7	ALA	-	expression tag	UNP Q6DQ33
S	8	ASP	-	expression tag	UNP Q6DQ33
S	9	PRO	-	expression tag	UNP Q6DQ33
S	10	GLY	-	expression tag	UNP Q6DQ33
S	158	ASP	ASN	engineered mutation	UNP Q6DQ33
S	224	LYS	ASN	engineered mutation	UNP Q6DQ33
S	226	LEU	GLN	engineered mutation	UNP Q6DQ33
S	318	ILE	THR	engineered mutation	UNP Q6DQ33
U	7	ALA	-	expression tag	UNP Q6DQ33
U	8	ASP	-	expression tag	UNP Q6DQ33
U	9	PRO	-	expression tag	UNP Q6DQ33
U	10	GLY	-	expression tag	UNP Q6DQ33
U	158	ASP	ASN	engineered mutation	UNP Q6DQ33

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Chain	Residue	Modelled	Actual	Comment	Reference
U	224	LYS	ASN	engineered mutation	UNP Q6DQ33
U	226	LEU	GLN	engineered mutation	UNP Q6DQ33
U	318	ILE	THR	engineered mutation	UNP Q6DQ33
W	7	ALA	-	expression tag	UNP Q6DQ33
W	8	ASP	-	expression tag	UNP Q6DQ33
W	9	PRO	-	expression tag	UNP Q6DQ33
W	10	GLY	-	expression tag	UNP Q6DQ33
W	158	ASP	ASN	engineered mutation	UNP Q6DQ33
W	224	LYS	ASN	engineered mutation	UNP Q6DQ33
W	226	LEU	GLN	engineered mutation	UNP Q6DQ33
W	318	ILE	THR	engineered mutation	UNP Q6DQ33
Y	7	ALA	-	expression tag	UNP Q6DQ33
Y	8	ASP	-	expression tag	UNP Q6DQ33
Y	9	PRO	-	expression tag	UNP Q6DQ33
Y	10	GLY	-	expression tag	UNP Q6DQ33
Y	158	ASP	ASN	engineered mutation	UNP Q6DQ33
Y	224	LYS	ASN	engineered mutation	UNP Q6DQ33
Y	226	LEU	GLN	engineered mutation	UNP Q6DQ33
Y	318	ILE	THR	engineered mutation	UNP Q6DQ33
a	7	ALA	-	expression tag	UNP Q6DQ33
a	8	ASP	-	expression tag	UNP Q6DQ33
a	9	PRO	-	expression tag	UNP Q6DQ33
a	10	GLY	-	expression tag	UNP Q6DQ33
a	158	ASP	ASN	engineered mutation	UNP Q6DQ33
a	224	LYS	ASN	engineered mutation	UNP Q6DQ33
a	226	LEU	GLN	engineered mutation	UNP Q6DQ33
a	318	ILE	THR	engineered mutation	UNP Q6DQ33
c	7	ALA	-	expression tag	UNP Q6DQ33
c	8	ASP	-	expression tag	UNP Q6DQ33
c	9	PRO	-	expression tag	UNP Q6DQ33
c	10	GLY	-	expression tag	UNP Q6DQ33
c	158	ASP	ASN	engineered mutation	UNP Q6DQ33
c	224	LYS	ASN	engineered mutation	UNP Q6DQ33
c	226	LEU	GLN	engineered mutation	UNP Q6DQ33
c	318	ILE	THR	engineered mutation	UNP Q6DQ33

- Molecule 2 is a protein called Hemagglutinin.

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

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	H	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	J	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	L	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	N	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	P	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	R	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	T	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	V	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	X	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	Z	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	b	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			
2	d	177	Total	C	N	O	S	0	0	0
			1433	889	251	285	8			

There are 105 discrepancies between the modelled and reference sequences:

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

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

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Chain	Residue	Modelled	Actual	Comment	Reference
P	181	ARG	-	expression tag	UNP Q6DQ33
R	175	SER	-	expression tag	UNP Q6DQ33
R	176	GLY	-	expression tag	UNP Q6DQ33
R	177	ARG	-	expression tag	UNP Q6DQ33
R	178	LEU	-	expression tag	UNP Q6DQ33
R	179	VAL	-	expression tag	UNP Q6DQ33
R	180	PRO	-	expression tag	UNP Q6DQ33
R	181	ARG	-	expression tag	UNP Q6DQ33
T	175	SER	-	expression tag	UNP Q6DQ33
T	176	GLY	-	expression tag	UNP Q6DQ33
T	177	ARG	-	expression tag	UNP Q6DQ33
T	178	LEU	-	expression tag	UNP Q6DQ33
T	179	VAL	-	expression tag	UNP Q6DQ33
T	180	PRO	-	expression tag	UNP Q6DQ33
T	181	ARG	-	expression tag	UNP Q6DQ33
V	175	SER	-	expression tag	UNP Q6DQ33
V	176	GLY	-	expression tag	UNP Q6DQ33
V	177	ARG	-	expression tag	UNP Q6DQ33
V	178	LEU	-	expression tag	UNP Q6DQ33
V	179	VAL	-	expression tag	UNP Q6DQ33
V	180	PRO	-	expression tag	UNP Q6DQ33
V	181	ARG	-	expression tag	UNP Q6DQ33
X	175	SER	-	expression tag	UNP Q6DQ33
X	176	GLY	-	expression tag	UNP Q6DQ33
X	177	ARG	-	expression tag	UNP Q6DQ33
X	178	LEU	-	expression tag	UNP Q6DQ33
X	179	VAL	-	expression tag	UNP Q6DQ33
X	180	PRO	-	expression tag	UNP Q6DQ33
X	181	ARG	-	expression tag	UNP Q6DQ33
Z	175	SER	-	expression tag	UNP Q6DQ33
Z	176	GLY	-	expression tag	UNP Q6DQ33
Z	177	ARG	-	expression tag	UNP Q6DQ33
Z	178	LEU	-	expression tag	UNP Q6DQ33
Z	179	VAL	-	expression tag	UNP Q6DQ33
Z	180	PRO	-	expression tag	UNP Q6DQ33
Z	181	ARG	-	expression tag	UNP Q6DQ33
b	175	SER	-	expression tag	UNP Q6DQ33
b	176	GLY	-	expression tag	UNP Q6DQ33
b	177	ARG	-	expression tag	UNP Q6DQ33
b	178	LEU	-	expression tag	UNP Q6DQ33
b	179	VAL	-	expression tag	UNP Q6DQ33
b	180	PRO	-	expression tag	UNP Q6DQ33

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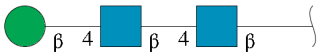
Continued from previous page...

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

- Molecule 3 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.

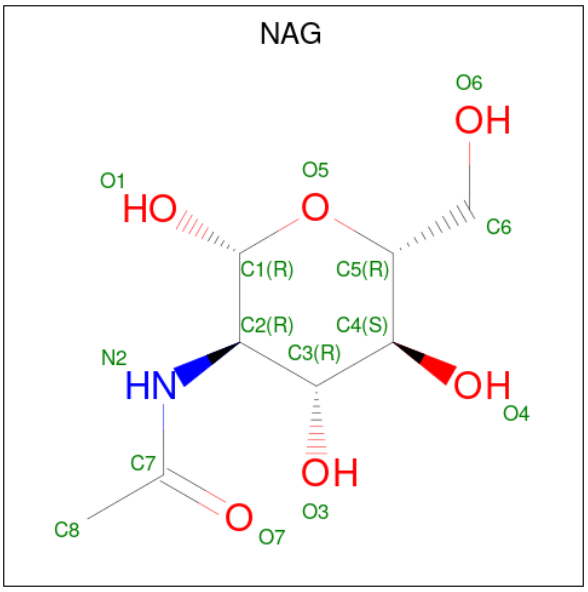


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
3	e	3	Total C N O 39 22 2 15	0	0	0
3	g	3	Total C N O 39 22 2 15	0	0	0
3	h	3	Total C N O 39 22 2 15	0	0	0
3	j	3	Total C N O 39 22 2 15	0	0	0
3	l	3	Total C N O 39 22 2 15	0	0	0
3	n	3	Total C N O 39 22 2 15	0	0	0
3	o	3	Total C N O 39 22 2 15	0	0	0
3	p	3	Total C N O 39 22 2 15	0	0	0
3	r	3	Total C N O 39 22 2 15	0	0	0
3	t	3	Total C N O 39 22 2 15	0	0	0
3	v	3	Total C N O 39 22 2 15	0	0	0
3	x	3	Total C N O 39 22 2 15	0	0	0

- Molecule 4 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
4	f	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	i	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	k	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	m	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	q	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	s	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	u	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	w	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	y	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	z	2	Total	C	N	O	0	0	0
			28	16	2	10			
4	0	2	Total	C	N	O	0	0	0
			28	16	2	10			

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



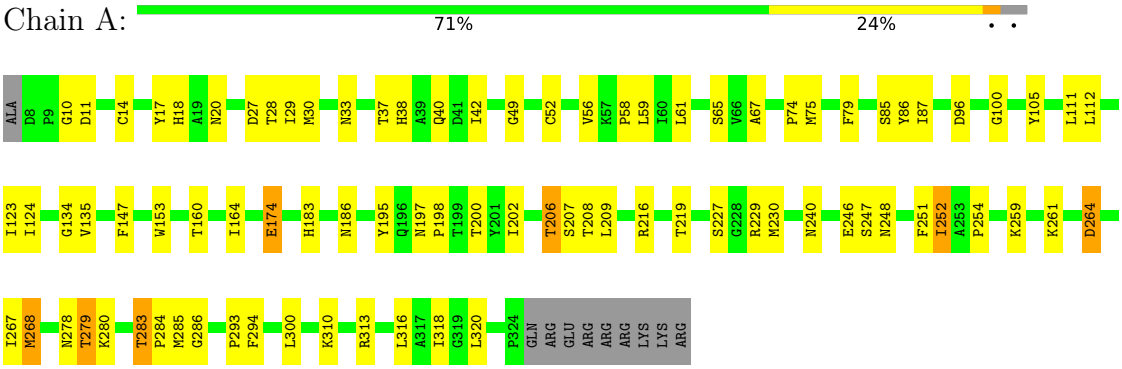
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	C	1	Total C N O 14 8 1 5	0	0
5	K	1	Total C N O 14 8 1 5	0	0
5	M	1	Total C N O 14 8 1 5	0	0
5	O	1	Total C N O 14 8 1 5	0	0
5	Y	1	Total C N O 14 8 1 5	0	0
5	a	1	Total C N O 14 8 1 5	0	0
5	c	1	Total C N O 14 8 1 5	0	0

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.

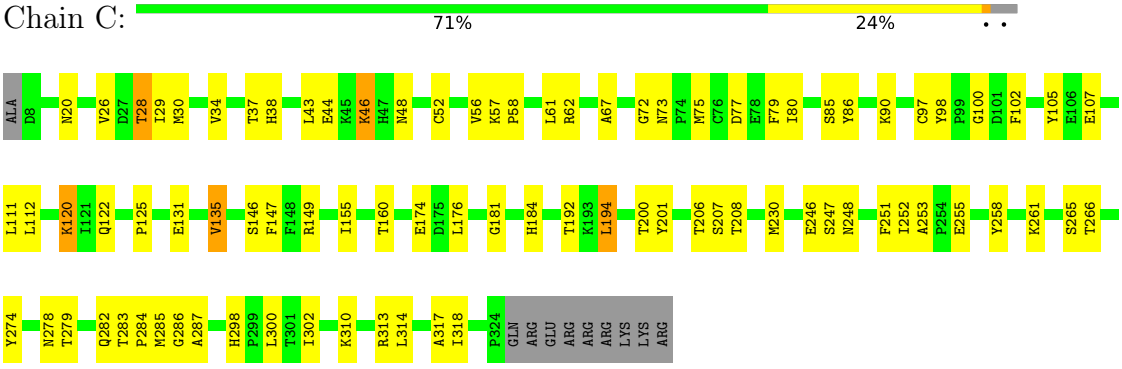
• Molecule 1: Hemagglutinin HA1 chain

Chain A:



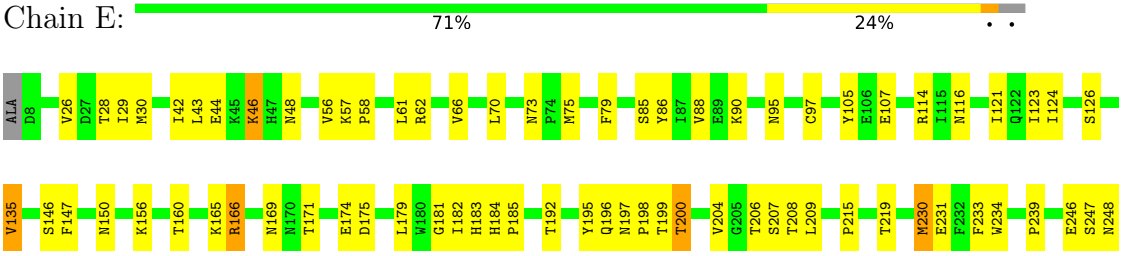
• Molecule 1: Hemagglutinin HA1 chain

Chain C:



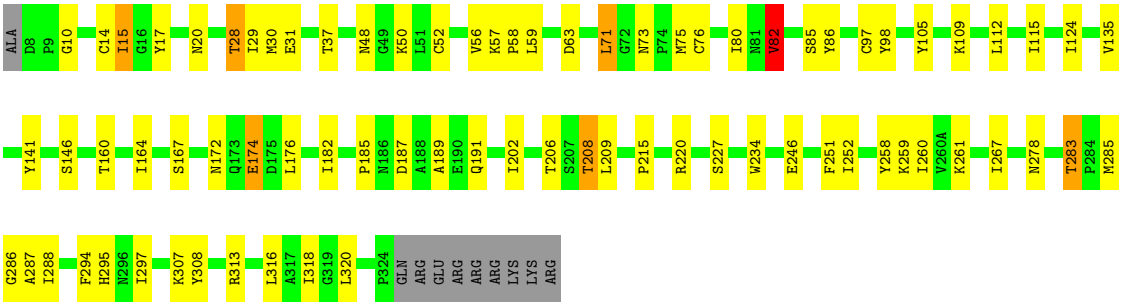
• Molecule 1: Hemagglutinin HA1 chain

Chain E:



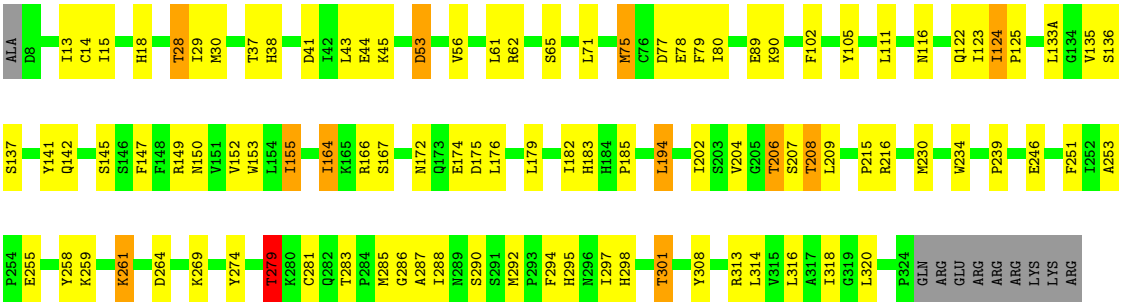
• Molecule 1: Hemagglutinin HA1 chain

Chain G:



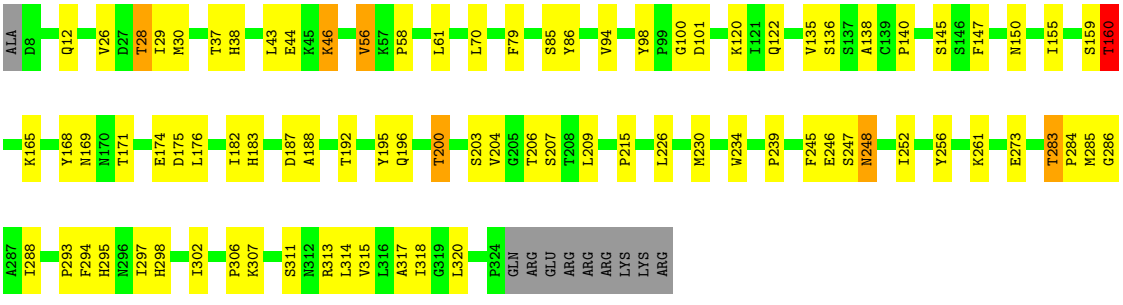
• Molecule 1: Hemagglutinin HA1 chain

Chain I:



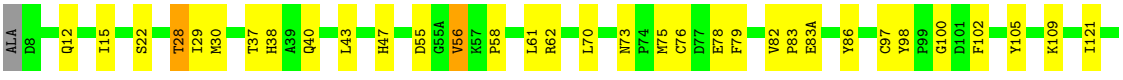
• Molecule 1: Hemagglutinin HA1 chain

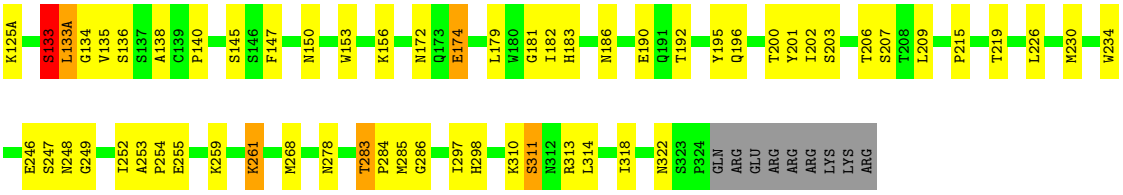
Chain K:



• Molecule 1: Hemagglutinin HA1 chain

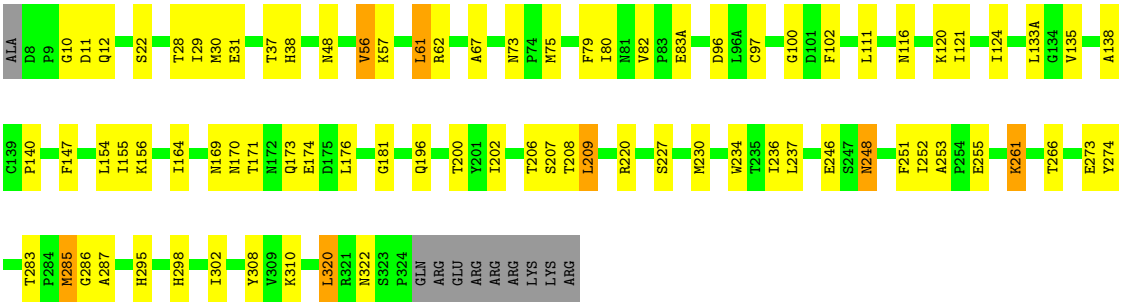
Chain M:





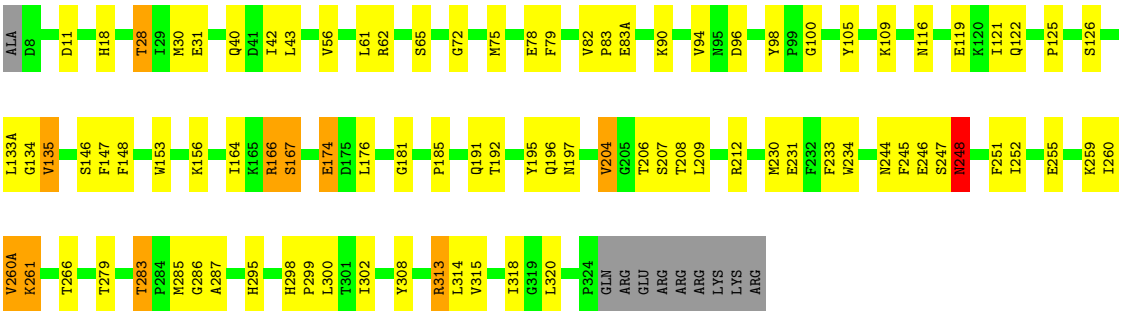
• Molecule 1: Hemagglutinin HA1 chain

Chain O:



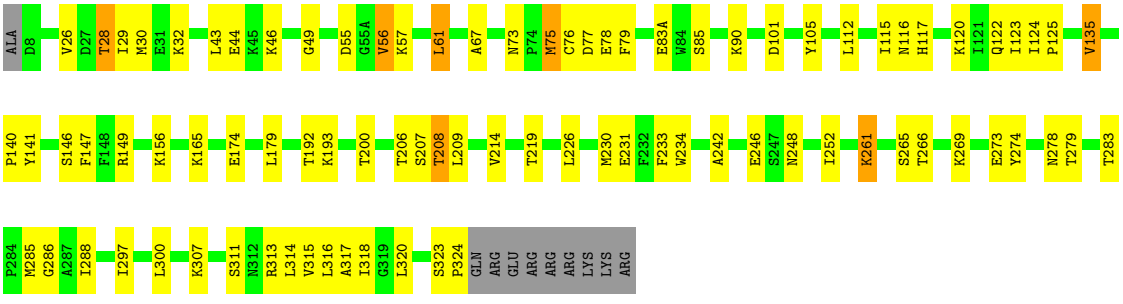
• Molecule 1: Hemagglutinin HA1 chain

Chain Q:



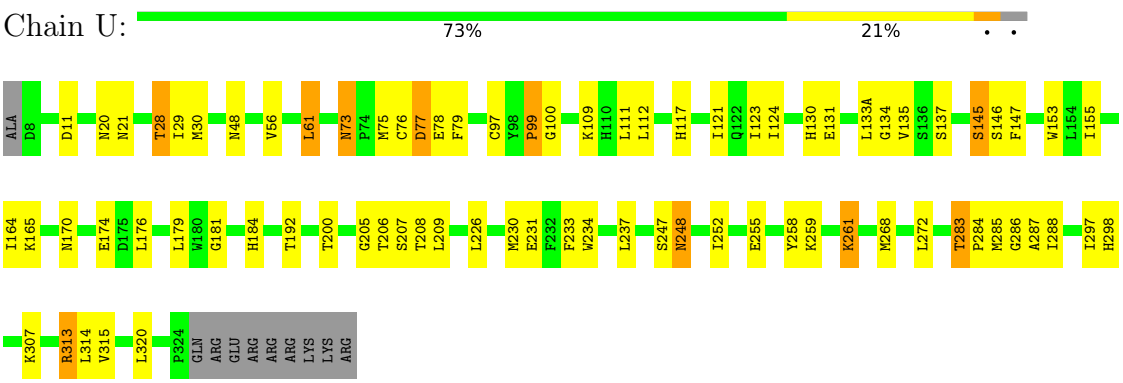
• Molecule 1: Hemagglutinin HA1 chain

Chain S:



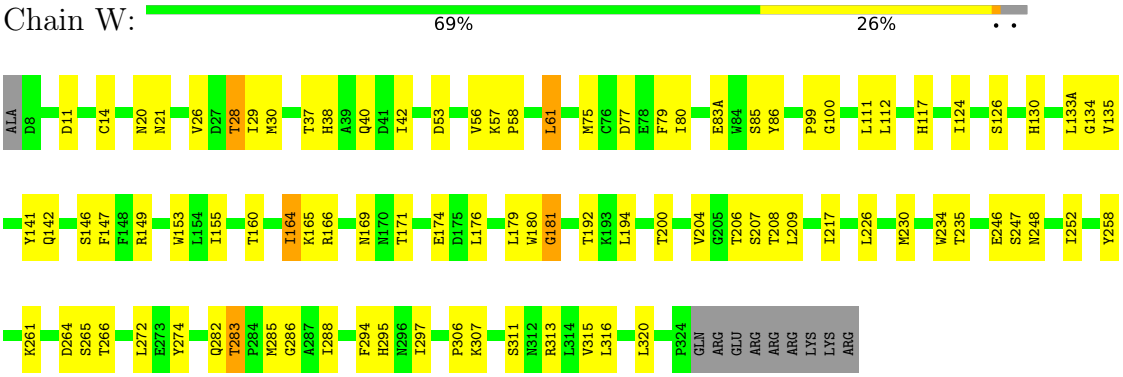
• Molecule 1: Hemagglutinin HA1 chain

Chain U:



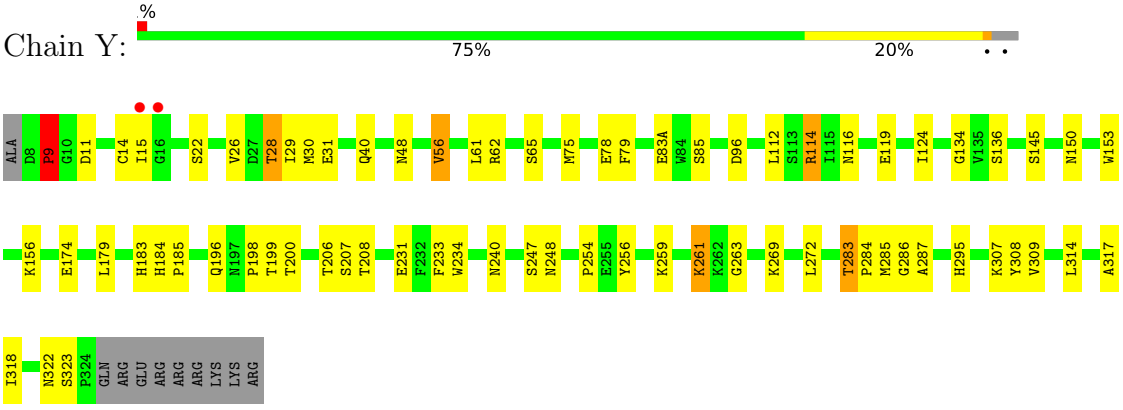
• Molecule 1: Hemagglutinin HA1 chain

Chain W:



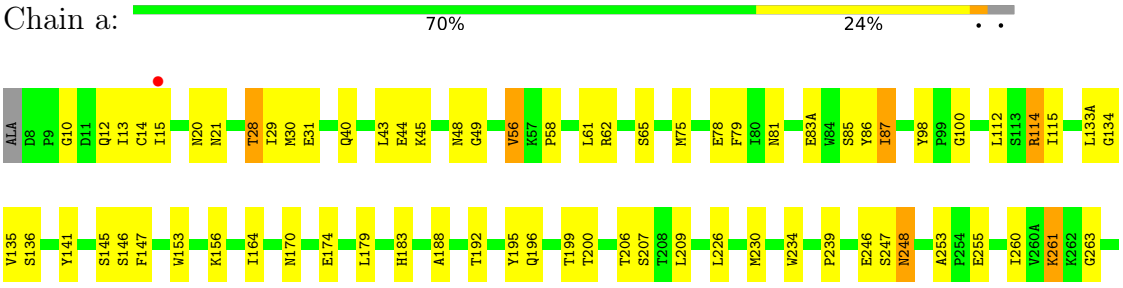
• Molecule 1: Hemagglutinin HA1 chain

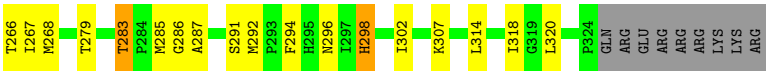
Chain Y:



• Molecule 1: Hemagglutinin HA1 chain

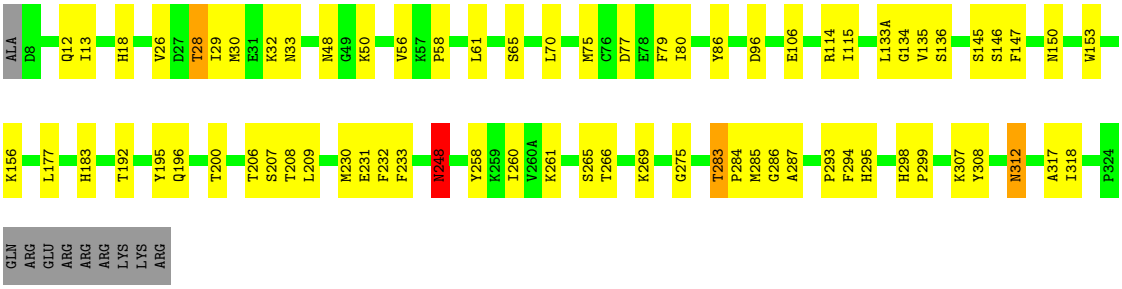
Chain a:





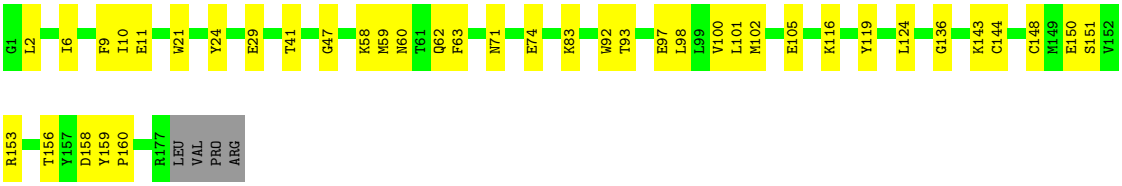
• Molecule 1: Hemagglutinin HA1 chain

Chain c:



• Molecule 2: Hemagglutinin

Chain B:

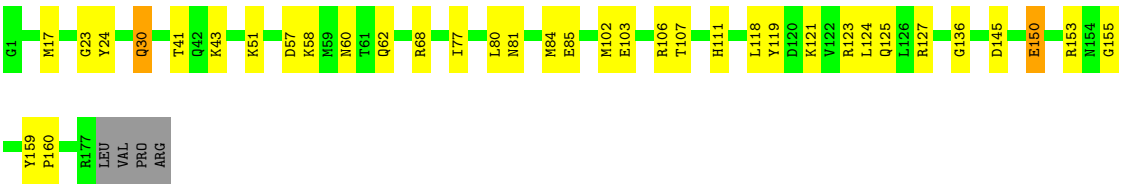


• Molecule 2: Hemagglutinin

Chain D:

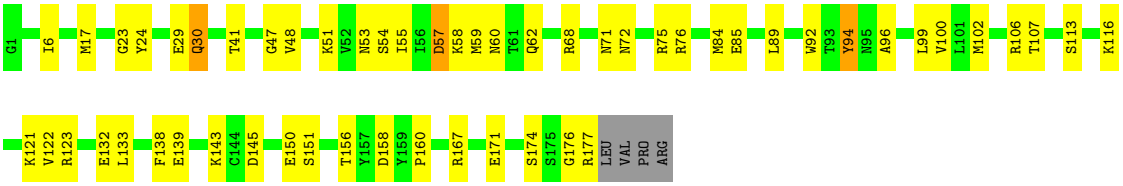
• Molecule 2: Hemagglutinin

Chain F:



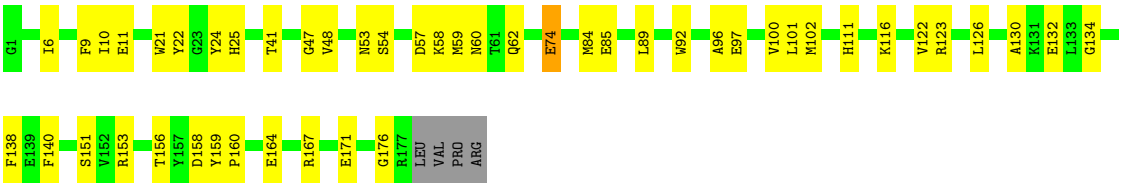
• Molecule 2: Hemagglutinin

Chain H:



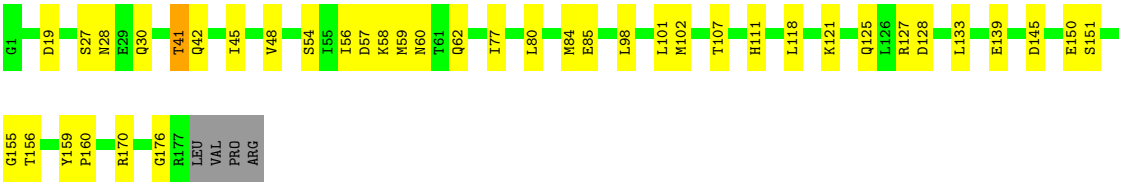
• Molecule 2: Hemagglutinin

Chain J:



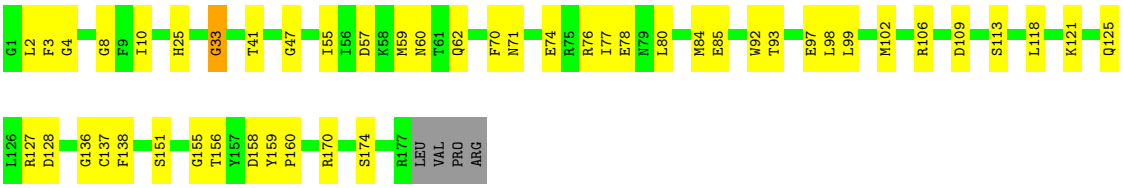
• Molecule 2: Hemagglutinin

Chain L:



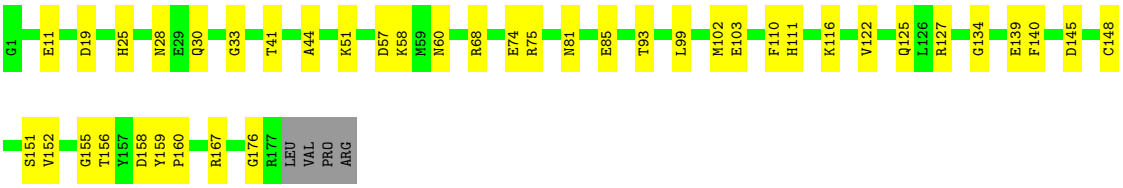
• Molecule 2: Hemagglutinin

Chain N:



• Molecule 2: Hemagglutinin

Chain P:

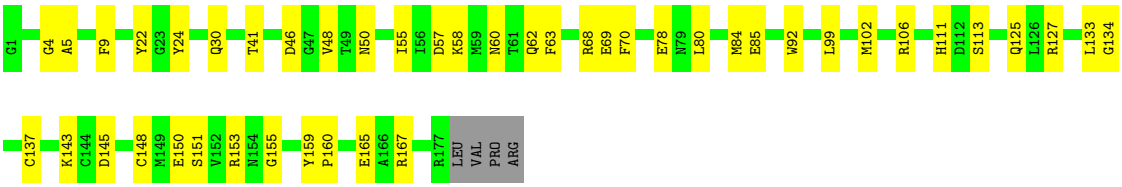


• Molecule 2: Hemagglutinin

Chain R:

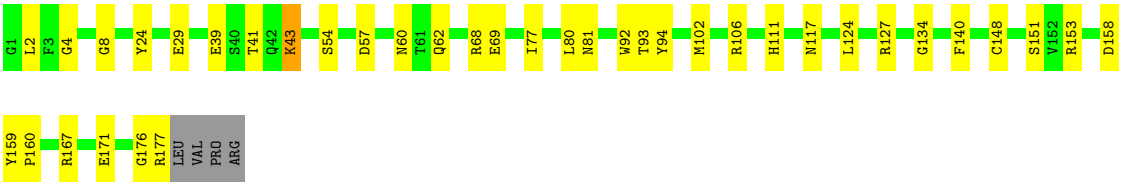
• Molecule 2: Hemagglutinin

Chain T:



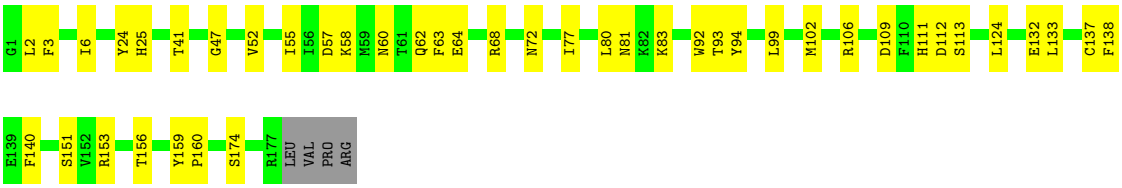
• Molecule 2: Hemagglutinin

Chain V:



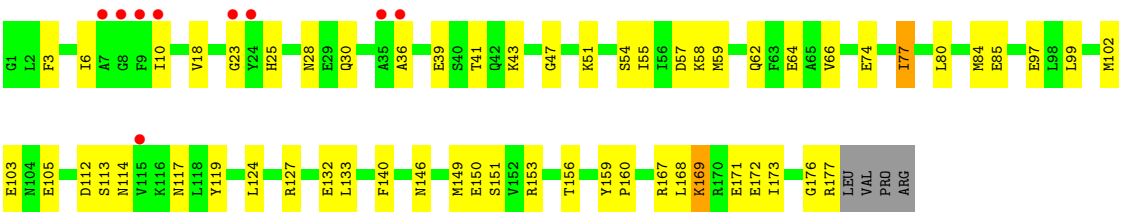
• Molecule 2: Hemagglutinin

Chain X:



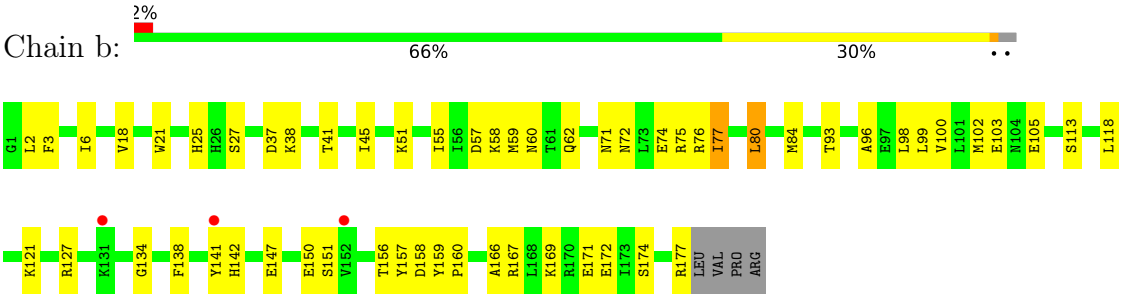
• Molecule 2: Hemagglutinin

Chain Z:



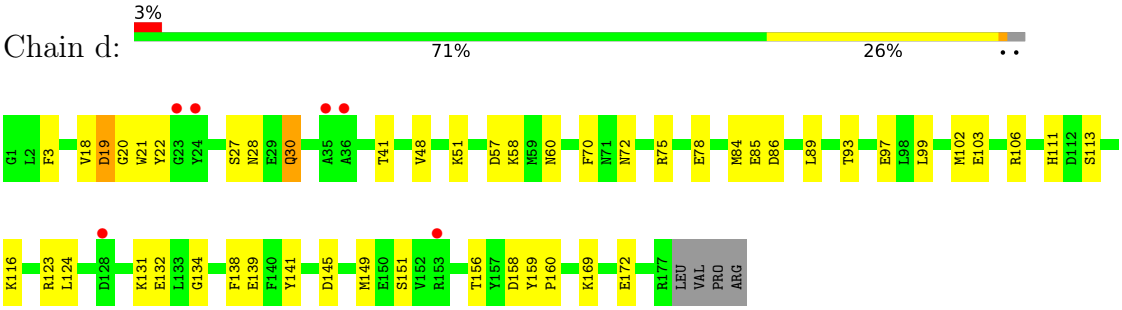
• Molecule 2: Hemagglutinin

Chain b:



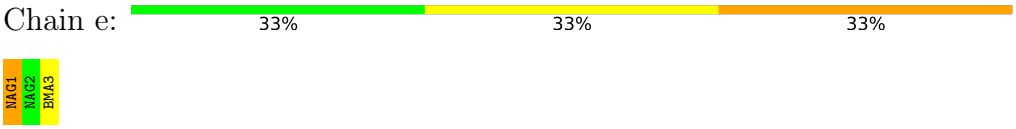
• Molecule 2: Hemagglutinin

Chain d:



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

Chain e:



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

Chain g:

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

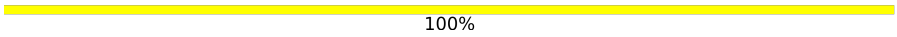
Chain h:

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

Chain j:

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

Chain l:



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

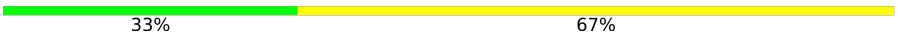
Chain n:

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

Chain o:

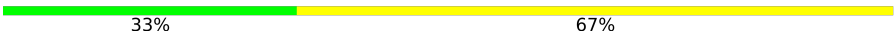
• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain p:



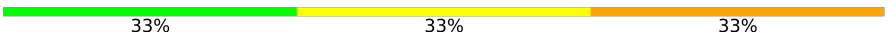
• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain r:



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

Chain t:

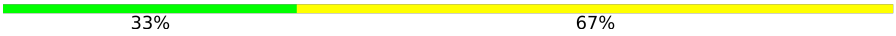


• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain v:

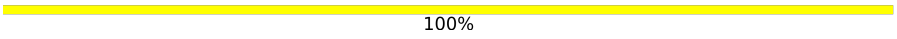
• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain x:



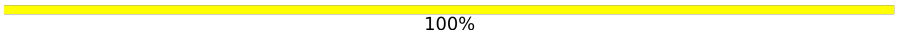
• Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain f:



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

Chain i:



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

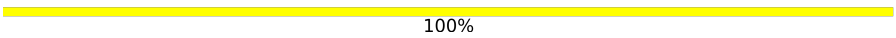
Chain k:

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

Chain m:

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

Chain q:



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

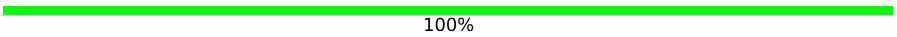
Chain s:

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

Chain u:

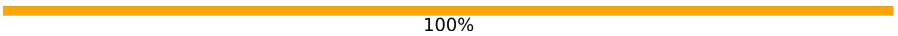
• Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain w:



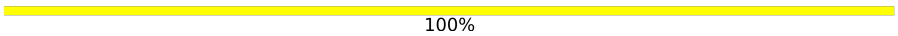
• Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain y:



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

Chain z:



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

Chain 0:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	117.24Å 118.94Å 273.41Å 88.43° 89.68° 60.26°	Depositor
Resolution (Å)	47.75 – 2.95 47.75 – 2.95	Depositor EDS
% Data completeness (in resolution range)	87.7 (47.75-2.95) 87.9 (47.75-2.95)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.13	Depositor
$< I/\sigma(I) >$ [1]	1.47 (at 2.96Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8.2_1309)	Depositor
R, R_{free}	0.233 , 0.281 0.235 , 0.281	Depositor DCC
R_{free} test set	11870 reflections (4.42%)	wwPDB-VP
Wilson B-factor (Å^2)	63.6	Xtriage
Anisotropy	0.326	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.26 , 36.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.29$	Xtriage
Estimated twinning fraction	0.013 for k,-h+k,l 0.013 for h-k,h,l 0.055 for -h+k,-h,l 0.055 for -k,h-k,l 0.067 for h,h-k,-l 0.027 for -k,-h,-l 0.012 for -h,-k,l 0.026 for -h+k,k,-l 0.017 for h-k,-k,-l 0.011 for -h,-h+k,-l 0.010 for k,h,-l	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	60979	wwPDB-VP
Average B, all atoms (Å^2)	91.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 15.14% 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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: BMA, NAG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.82	0/2640	1.14	4/3585 (0.1%)
1	C	0.72	0/2640	1.08	8/3585 (0.2%)
1	E	0.75	0/2640	1.10	6/3585 (0.2%)
1	G	0.83	0/2640	1.21	17/3585 (0.5%)
1	I	0.87	2/2640 (0.1%)	1.23	12/3585 (0.3%)
1	K	0.74	0/2640	1.07	5/3585 (0.1%)
1	M	0.81	0/2640	1.16	6/3585 (0.2%)
1	O	0.78	0/2640	1.11	13/3585 (0.4%)
1	Q	0.79	0/2640	1.12	6/3585 (0.2%)
1	S	0.72	0/2640	1.08	4/3585 (0.1%)
1	U	0.71	0/2640	1.07	12/3585 (0.3%)
1	W	0.71	0/2640	1.06	7/3585 (0.2%)
1	Y	0.58	0/2640	0.95	2/3585 (0.1%)
1	a	0.55	0/2640	0.94	7/3585 (0.2%)
1	c	0.57	0/2640	0.93	1/3585 (0.0%)
2	B	0.59	0/1460	0.97	1/1961 (0.1%)
2	D	0.49	0/1460	0.87	1/1961 (0.1%)
2	F	0.51	0/1460	0.87	1/1961 (0.1%)
2	H	0.59	0/1460	0.91	1/1961 (0.1%)
2	J	0.58	0/1460	0.96	3/1961 (0.2%)
2	L	0.51	0/1460	0.86	1/1961 (0.1%)
2	N	0.50	0/1460	0.93	2/1961 (0.1%)
2	P	0.52	0/1460	0.91	3/1961 (0.2%)
2	R	0.55	0/1460	0.88	1/1961 (0.1%)
2	T	0.49	0/1460	0.86	1/1961 (0.1%)
2	V	0.49	0/1460	0.91	1/1961 (0.1%)
2	X	0.49	0/1460	0.89	1/1961 (0.1%)
2	Z	0.44	0/1460	0.94	3/1961 (0.2%)
2	b	0.44	0/1460	0.90	2/1961 (0.1%)
2	d	0.45	0/1460	0.89	1/1961 (0.1%)
All	All	0.67	2/61500 (0.0%)	1.03	133/83190 (0.2%)

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	Y	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	I	152	VAL	CA-CB	5.57	1.61	1.54
1	I	279	THR	CA-C	-5.40	1.45	1.52

The worst 5 of 133 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	M	253	ALA	CA-C-N	-10.50	110.02	120.31
1	M	253	ALA	C-N-CA	-10.50	110.02	120.31
1	G	56	VAL	N-CA-C	8.57	121.48	108.71
1	G	82	VAL	N-CA-C	8.30	116.74	109.02
1	Y	9	PRO	CA-N-CD	-8.15	100.59	112.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	Y	9	PRO	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	2574	0	2525	58	0
1	C	2574	0	2525	59	0
1	E	2574	0	2525	58	0
1	G	2574	0	2525	45	0
1	I	2574	0	2525	62	0
1	K	2574	0	2525	60	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	M	2574	0	2525	59	0
1	O	2574	0	2524	47	0
1	Q	2574	0	2525	61	0
1	S	2574	0	2525	65	0
1	U	2574	0	2525	55	0
1	W	2574	0	2525	59	0
1	Y	2574	0	2525	48	0
1	a	2574	0	2526	60	0
1	c	2574	0	2525	49	0
2	B	1433	0	1340	32	0
2	D	1433	0	1340	26	0
2	F	1433	0	1340	24	0
2	H	1433	0	1340	43	0
2	J	1433	0	1340	41	0
2	L	1433	0	1340	30	0
2	N	1433	0	1340	36	0
2	P	1433	0	1340	26	0
2	R	1433	0	1340	23	0
2	T	1433	0	1340	34	0
2	V	1433	0	1340	28	0
2	X	1433	0	1340	30	0
2	Z	1433	0	1340	42	0
2	b	1433	0	1340	46	0
2	d	1433	0	1340	43	0
3	e	39	0	34	1	0
3	g	39	0	34	0	0
3	h	39	0	34	1	0
3	j	39	0	34	1	0
3	l	39	0	34	0	0
3	n	39	0	34	0	0
3	o	39	0	34	0	0
3	p	39	0	34	0	0
3	r	39	0	34	0	0
3	t	39	0	34	1	0
3	v	39	0	34	0	0
3	x	39	0	34	0	0
4	0	28	0	25	1	0
4	f	28	0	25	0	0
4	i	28	0	25	0	0
4	k	28	0	25	1	0
4	m	28	0	25	1	0
4	q	28	0	25	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	s	28	0	25	1	0
4	u	28	0	25	1	0
4	w	28	0	25	0	0
4	y	28	0	25	1	0
4	z	28	0	25	1	0
5	C	14	0	13	0	0
5	K	14	0	13	0	0
5	M	14	0	13	0	0
5	O	14	0	13	0	0
5	Y	14	0	13	1	0
5	a	14	0	13	0	0
5	c	14	0	13	0	0
All	All	60979	0	58749	1168	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 10.

The worst 5 of 1168 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:K:192:THR:HG21	1:S:192:THR:HG21	1.34	1.08
1:I:283:THR:HG22	1:I:285:MET:H	1.26	1.00
1:Q:283:THR:HG22	1:Q:285:MET:H	1.25	1.00
1:G:283:THR:HG22	1:G:285:MET:H	1.27	0.99
1:U:206:THR:HG22	1:U:208:THR:H	1.25	0.98

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	323/334 (97%)	301 (93%)	22 (7%)	0	100	100
1	C	323/334 (97%)	305 (94%)	18 (6%)	0	100	100
1	E	323/334 (97%)	302 (94%)	21 (6%)	0	100	100
1	G	323/334 (97%)	304 (94%)	19 (6%)	0	100	100
1	I	323/334 (97%)	301 (93%)	22 (7%)	0	100	100
1	K	323/334 (97%)	304 (94%)	19 (6%)	0	100	100
1	M	323/334 (97%)	301 (93%)	22 (7%)	0	100	100
1	O	323/334 (97%)	303 (94%)	19 (6%)	1 (0%)	36	59
1	Q	323/334 (97%)	300 (93%)	22 (7%)	1 (0%)	36	59
1	S	323/334 (97%)	299 (93%)	24 (7%)	0	100	100
1	U	323/334 (97%)	305 (94%)	16 (5%)	2 (1%)	21	45
1	W	323/334 (97%)	304 (94%)	19 (6%)	0	100	100
1	Y	323/334 (97%)	303 (94%)	20 (6%)	0	100	100
1	a	323/334 (97%)	299 (93%)	24 (7%)	0	100	100
1	c	323/334 (97%)	301 (93%)	21 (6%)	1 (0%)	36	59
2	B	175/181 (97%)	166 (95%)	8 (5%)	1 (1%)	21	45
2	D	175/181 (97%)	164 (94%)	11 (6%)	0	100	100
2	F	175/181 (97%)	164 (94%)	11 (6%)	0	100	100
2	H	175/181 (97%)	166 (95%)	9 (5%)	0	100	100
2	J	175/181 (97%)	165 (94%)	10 (6%)	0	100	100
2	L	175/181 (97%)	164 (94%)	10 (6%)	1 (1%)	21	45
2	N	175/181 (97%)	164 (94%)	11 (6%)	0	100	100
2	P	175/181 (97%)	165 (94%)	10 (6%)	0	100	100
2	R	175/181 (97%)	165 (94%)	10 (6%)	0	100	100
2	T	175/181 (97%)	166 (95%)	9 (5%)	0	100	100
2	V	175/181 (97%)	164 (94%)	11 (6%)	0	100	100
2	X	175/181 (97%)	164 (94%)	11 (6%)	0	100	100
2	Z	175/181 (97%)	164 (94%)	10 (6%)	1 (1%)	21	45
2	b	175/181 (97%)	165 (94%)	10 (6%)	0	100	100
2	d	175/181 (97%)	165 (94%)	10 (6%)	0	100	100
All	All	7470/7725 (97%)	7003 (94%)	459 (6%)	8 (0%)	48	72

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	U	77	ASP
1	O	248	ASN
1	Q	248	ASN
1	c	248	ASN
2	B	60	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	292/300 (97%)	276 (94%)	16 (6%)	19	43
1	C	292/300 (97%)	284 (97%)	8 (3%)	39	64
1	E	292/300 (97%)	279 (96%)	13 (4%)	24	50
1	G	292/300 (97%)	279 (96%)	13 (4%)	24	50
1	I	292/300 (97%)	272 (93%)	20 (7%)	14	35
1	K	292/300 (97%)	277 (95%)	15 (5%)	21	47
1	M	292/300 (97%)	279 (96%)	13 (4%)	24	50
1	O	292/300 (97%)	276 (94%)	16 (6%)	19	43
1	Q	292/300 (97%)	277 (95%)	15 (5%)	21	47
1	S	292/300 (97%)	280 (96%)	12 (4%)	27	53
1	U	292/300 (97%)	283 (97%)	9 (3%)	35	59
1	W	292/300 (97%)	281 (96%)	11 (4%)	29	55
1	Y	292/300 (97%)	284 (97%)	8 (3%)	39	64
1	a	292/300 (97%)	279 (96%)	13 (4%)	24	50
1	c	292/300 (97%)	284 (97%)	8 (3%)	39	64
2	B	151/155 (97%)	148 (98%)	3 (2%)	48	71
2	D	151/155 (97%)	148 (98%)	3 (2%)	48	71
2	F	151/155 (97%)	147 (97%)	4 (3%)	40	65
2	H	151/155 (97%)	146 (97%)	5 (3%)	33	58
2	J	151/155 (97%)	148 (98%)	3 (2%)	48	71

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	L	151/155 (97%)	149 (99%)	2 (1%)	61	78
2	N	151/155 (97%)	149 (99%)	2 (1%)	61	78
2	P	151/155 (97%)	146 (97%)	5 (3%)	33	58
2	R	151/155 (97%)	146 (97%)	5 (3%)	33	58
2	T	151/155 (97%)	148 (98%)	3 (2%)	48	71
2	V	151/155 (97%)	146 (97%)	5 (3%)	33	58
2	X	151/155 (97%)	148 (98%)	3 (2%)	48	71
2	Z	151/155 (97%)	145 (96%)	6 (4%)	28	53
2	b	151/155 (97%)	147 (97%)	4 (3%)	40	65
2	d	151/155 (97%)	146 (97%)	5 (3%)	33	58
All	All	6645/6825 (97%)	6397 (96%)	248 (4%)	30	55

5 of 248 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	Q	75	MET
2	R	94	TYR
1	U	111	LEU
2	R	50	ASN
2	Z	66	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 93 such sidechains are listed below:

Mol	Chain	Res	Type
1	a	38	HIS
2	L	42	GLN
1	a	278	ASN
2	D	42	GLN
2	N	62	GLN

5.3.3 RNA

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)

58 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	$\#\|Z\| > 2$
4	NAG	0	1	1,4	14,14,15	0.61	0	17,19,21	1.00	1 (5%)
4	NAG	0	2	4	14,14,15	0.43	0	17,19,21	0.44	0
3	NAG	e	1	3,1	14,14,15	1.10	1 (7%)	17,19,21	1.12	2 (11%)
3	NAG	e	2	3	14,14,15	0.31	0	17,19,21	0.52	0
3	BMA	e	3	3	11,11,12	1.64	3 (27%)	15,15,17	1.20	2 (13%)
4	NAG	f	1	1,4	14,14,15	0.99	1 (7%)	17,19,21	1.21	2 (11%)
4	NAG	f	2	4	14,14,15	1.48	2 (14%)	17,19,21	1.20	1 (5%)
3	NAG	g	1	3,1	14,14,15	0.36	0	17,19,21	0.58	0
3	NAG	g	2	3	14,14,15	0.57	0	17,19,21	0.65	0
3	BMA	g	3	3	11,11,12	2.12	5 (45%)	15,15,17	1.49	4 (26%)
3	NAG	h	1	3,1	14,14,15	0.66	1 (7%)	17,19,21	0.95	1 (5%)
3	NAG	h	2	3	14,14,15	1.23	1 (7%)	17,19,21	1.27	2 (11%)
3	BMA	h	3	3	11,11,12	1.57	1 (9%)	15,15,17	1.62	3 (20%)
4	NAG	i	1	1,4	14,14,15	1.19	1 (7%)	17,19,21	1.39	3 (17%)
4	NAG	i	2	4	14,14,15	0.71	1 (7%)	17,19,21	0.48	0
3	NAG	j	1	3,1	14,14,15	1.63	2 (14%)	17,19,21	1.36	2 (11%)
3	NAG	j	2	3	14,14,15	0.85	1 (7%)	17,19,21	0.80	0
3	BMA	j	3	3	11,11,12	1.97	5 (45%)	15,15,17	1.10	1 (6%)
4	NAG	k	1	1,4	14,14,15	1.24	1 (7%)	17,19,21	1.36	2 (11%)
4	NAG	k	2	4	14,14,15	0.65	0	17,19,21	0.41	0
3	NAG	l	1	3,1	14,14,15	1.40	1 (7%)	17,19,21	1.27	2 (11%)
3	NAG	l	2	3	14,14,15	0.99	1 (7%)	17,19,21	0.82	1 (5%)
3	BMA	l	3	3	11,11,12	2.38	4 (36%)	15,15,17	1.58	3 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	NAG	m	1	1,4	14,14,15	0.76	1 (7%)	17,19,21	1.12	2 (11%)
4	NAG	m	2	4	14,14,15	1.62	2 (14%)	17,19,21	0.90	1 (5%)
3	NAG	n	1	3,1	14,14,15	0.66	1 (7%)	17,19,21	0.71	0
3	NAG	n	2	3	14,14,15	0.43	0	17,19,21	0.80	0
3	BMA	n	3	3	11,11,12	2.23	5 (45%)	15,15,17	1.57	2 (13%)
3	NAG	o	1	3,1	14,14,15	0.62	0	17,19,21	0.70	0
3	NAG	o	2	3	14,14,15	0.94	1 (7%)	17,19,21	0.83	1 (5%)
3	BMA	o	3	3	11,11,12	1.97	3 (27%)	15,15,17	1.55	2 (13%)
3	NAG	p	1	3,1	14,14,15	0.38	0	17,19,21	0.91	1 (5%)
3	NAG	p	2	3	14,14,15	0.64	0	17,19,21	0.38	0
3	BMA	p	3	3	11,11,12	1.62	3 (27%)	15,15,17	1.32	2 (13%)
4	NAG	q	1	1,4	14,14,15	1.17	1 (7%)	17,19,21	1.13	2 (11%)
4	NAG	q	2	4	14,14,15	0.46	0	17,19,21	0.71	1 (5%)
3	NAG	r	1	3,1	14,14,15	0.60	1 (7%)	17,19,21	0.76	1 (5%)
3	NAG	r	2	3	14,14,15	0.23	0	17,19,21	0.54	0
3	BMA	r	3	3	11,11,12	0.70	0	15,15,17	1.78	4 (26%)
4	NAG	s	1	1,4	14,14,15	1.13	1 (7%)	17,19,21	1.00	1 (5%)
4	NAG	s	2	4	14,14,15	0.51	0	17,19,21	0.53	0
3	NAG	t	1	3,1	14,14,15	0.30	0	17,19,21	0.71	1 (5%)
3	NAG	t	2	3	14,14,15	0.48	0	17,19,21	0.84	0
3	BMA	t	3	3	11,11,12	1.90	2 (18%)	15,15,17	1.74	5 (33%)
4	NAG	u	1	1,4	14,14,15	0.55	0	17,19,21	0.71	0
4	NAG	u	2	4	14,14,15	1.54	3 (21%)	17,19,21	1.19	1 (5%)
3	NAG	v	1	3,1	14,14,15	0.42	0	17,19,21	0.57	0
3	NAG	v	2	3	14,14,15	1.49	2 (14%)	17,19,21	1.09	1 (5%)
3	BMA	v	3	3	11,11,12	1.16	0	15,15,17	1.68	2 (13%)
4	NAG	w	1	1,4	14,14,15	0.46	0	17,19,21	0.53	0
4	NAG	w	2	4	14,14,15	0.42	0	17,19,21	0.41	0
3	NAG	x	1	3,1	14,14,15	0.63	0	17,19,21	0.98	2 (11%)
3	NAG	x	2	3	14,14,15	0.59	0	17,19,21	0.94	1 (5%)
3	BMA	x	3	3	11,11,12	0.58	0	15,15,17	0.69	0
4	NAG	y	1	1,4	14,14,15	1.31	1 (7%)	17,19,21	1.40	2 (11%)
4	NAG	y	2	4	14,14,15	0.71	1 (7%)	17,19,21	0.72	0
4	NAG	z	1	1,4	14,14,15	0.38	0	17,19,21	0.41	0
4	NAG	z	2	4	14,14,15	0.35	0	17,19,21	0.52	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
4	NAG	0	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	0	2	4	-	2/6/23/26	0/1/1/1
3	NAG	e	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	e	2	3	-	0/6/23/26	0/1/1/1
3	BMA	e	3	3	-	0/2/19/22	0/1/1/1
4	NAG	f	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	f	2	4	-	2/6/23/26	0/1/1/1
3	NAG	g	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	g	2	3	-	1/6/23/26	0/1/1/1
3	BMA	g	3	3	-	0/2/19/22	0/1/1/1
3	NAG	h	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	h	2	3	-	2/6/23/26	0/1/1/1
3	BMA	h	3	3	-	0/2/19/22	0/1/1/1
4	NAG	i	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	i	2	4	-	2/6/23/26	0/1/1/1
3	NAG	j	1	3,1	-	1/6/23/26	0/1/1/1
3	NAG	j	2	3	-	0/6/23/26	0/1/1/1
3	BMA	j	3	3	-	0/2/19/22	0/1/1/1
4	NAG	k	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	k	2	4	-	0/6/23/26	0/1/1/1
3	NAG	l	1	3,1	-	2/6/23/26	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
4	NAG	m	1	1,4	-	1/6/23/26	0/1/1/1
4	NAG	m	2	4	-	0/6/23/26	0/1/1/1
3	NAG	n	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	n	2	3	-	0/6/23/26	0/1/1/1
3	BMA	n	3	3	-	0/2/19/22	0/1/1/1
3	NAG	o	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	o	2	3	-	2/6/23/26	0/1/1/1
3	BMA	o	3	3	-	2/2/19/22	0/1/1/1
3	NAG	p	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	p	2	3	-	1/6/23/26	0/1/1/1
3	BMA	p	3	3	-	2/2/19/22	0/1/1/1
4	NAG	q	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	q	2	4	-	0/6/23/26	0/1/1/1
3	NAG	r	1	3,1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	r	2	3	-	2/6/23/26	0/1/1/1
3	BMA	r	3	3	-	2/2/19/22	0/1/1/1
4	NAG	s	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	s	2	4	-	2/6/23/26	0/1/1/1
3	NAG	t	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	t	2	3	-	2/6/23/26	0/1/1/1
3	BMA	t	3	3	-	0/2/19/22	0/1/1/1
4	NAG	u	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	u	2	4	-	0/6/23/26	0/1/1/1
3	NAG	v	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	v	2	3	-	2/6/23/26	0/1/1/1
3	BMA	v	3	3	-	2/2/19/22	0/1/1/1
4	NAG	w	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	w	2	4	-	1/6/23/26	0/1/1/1
3	NAG	x	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	x	2	3	-	0/6/23/26	0/1/1/1
3	BMA	x	3	3	-	2/2/19/22	0/1/1/1
4	NAG	y	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	y	2	4	-	0/6/23/26	0/1/1/1
4	NAG	z	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	z	2	4	-	1/6/23/26	0/1/1/1

The worst 5 of 60 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	j	1	NAG	O5-C1	-5.52	1.34	1.43
3	v	2	NAG	O5-C1	-4.77	1.35	1.43
4	u	2	NAG	O5-C1	-4.71	1.35	1.43
3	l	1	NAG	O5-C1	-4.68	1.35	1.43
3	l	3	BMA	C4-C3	4.61	1.64	1.52

The worst 5 of 67 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	v	3	BMA	C1-O5-C5	4.91	118.76	112.19
4	f	2	NAG	C1-O5-C5	4.45	118.15	112.19
3	j	1	NAG	C4-C3-C2	4.25	117.25	111.02
3	r	3	BMA	C3-C4-C5	4.16	117.78	110.23
4	k	1	NAG	C3-C4-C5	3.99	117.46	110.23

There are no chirality outliers.

5 of 62 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	x	3	BMA	O5-C5-C6-O6
4	i	2	NAG	O5-C5-C6-O6
4	s	1	NAG	C4-C5-C6-O6
3	o	1	NAG	O5-C5-C6-O6
4	f	2	NAG	O5-C5-C6-O6

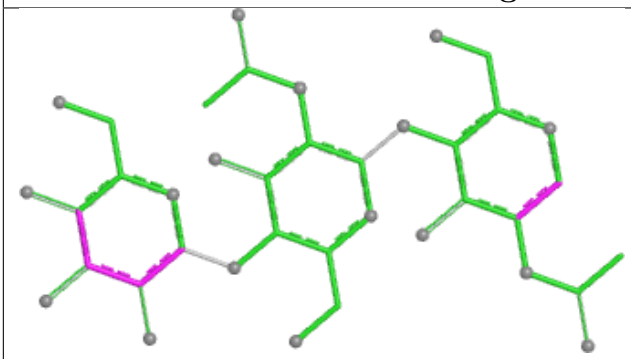
There are no ring outliers.

18 monomers are involved in 11 short contacts:

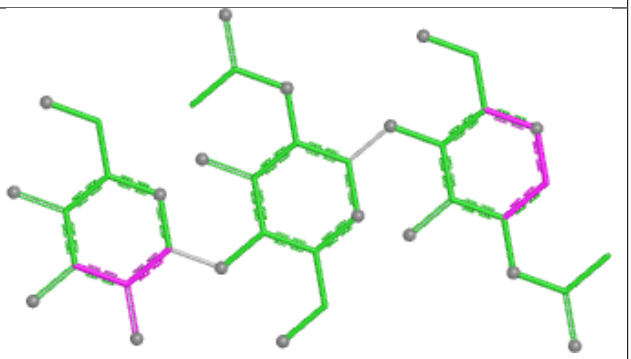
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	s	2	NAG	1	0
4	y	1	NAG	1	0
3	h	1	NAG	1	0
4	m	1	NAG	1	0
4	s	1	NAG	1	0
4	z	2	NAG	1	0
4	k	1	NAG	1	0
3	t	1	NAG	1	0
4	k	2	NAG	1	0
3	j	1	NAG	1	0
4	u	1	NAG	1	0
4	u	2	NAG	1	0
4	z	1	NAG	1	0
4	y	2	NAG	1	0
4	0	1	NAG	1	0
4	m	2	NAG	1	0
3	e	1	NAG	1	0
3	h	2	NAG	1	0

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

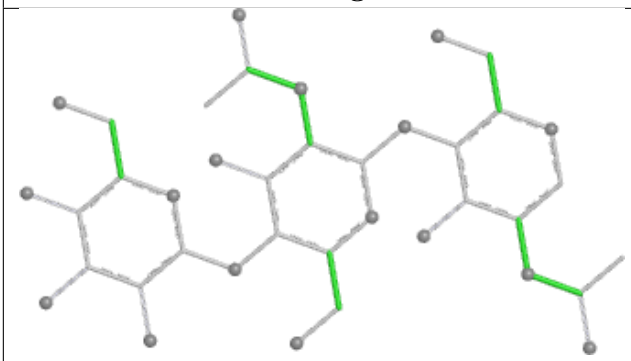
Oligosaccharide Chain e



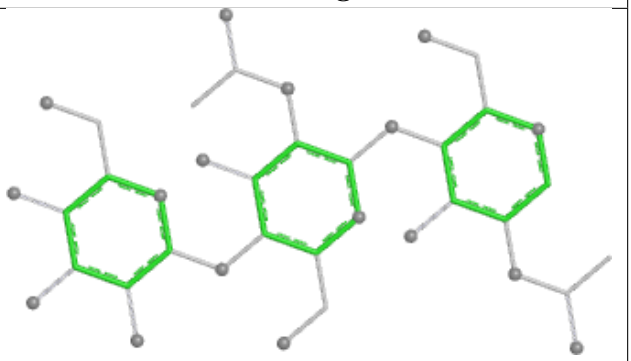
Bond lengths



Bond angles

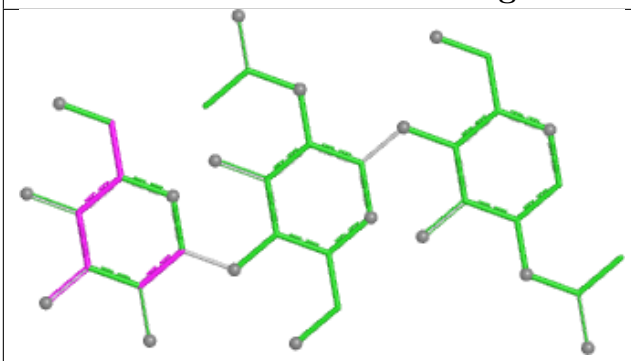


Torsions

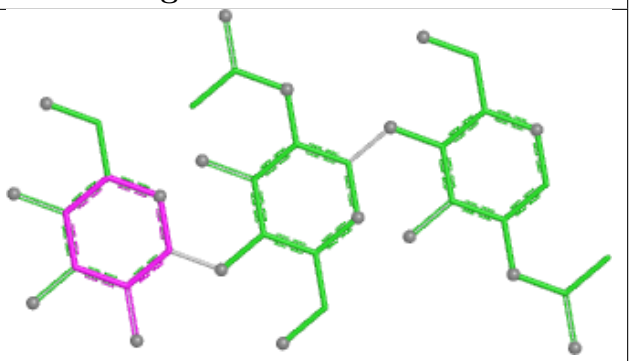


Rings

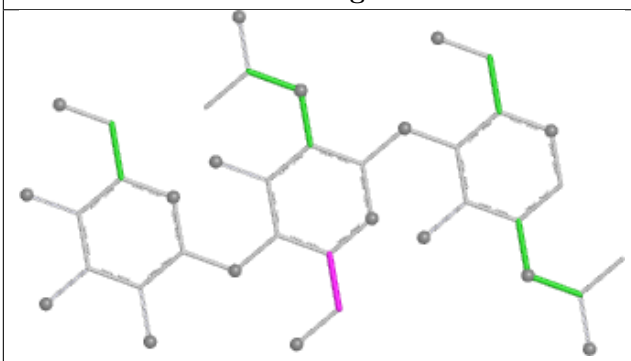
Oligosaccharide Chain g



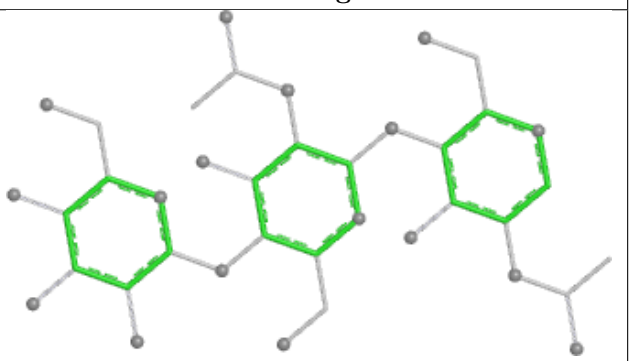
Bond lengths



Bond angles

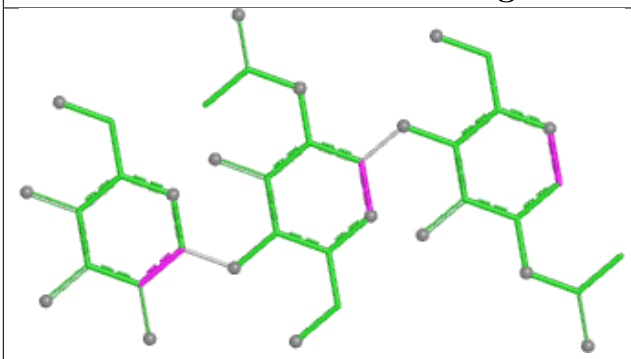


Torsions

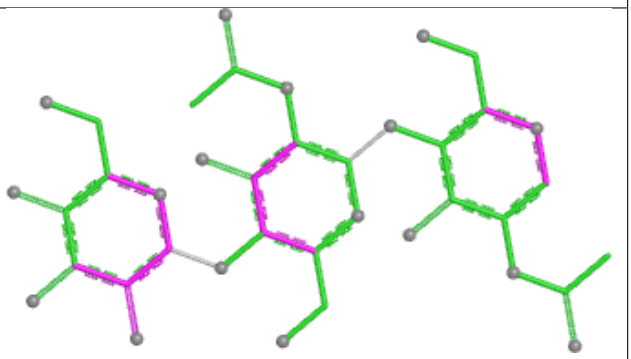


Rings

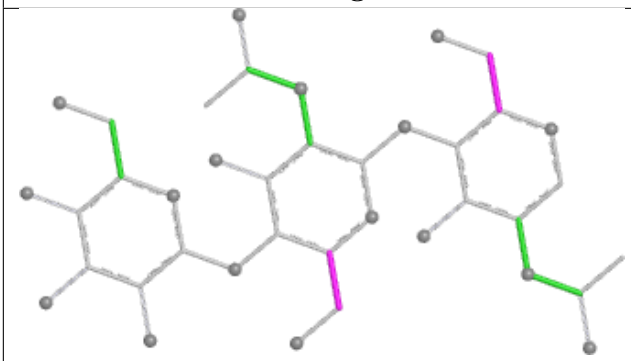
Oligosaccharide Chain h



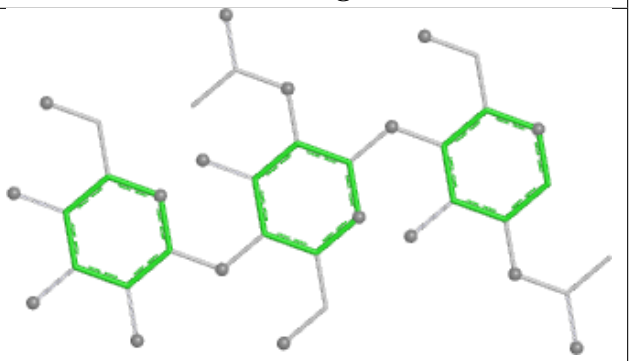
Bond lengths



Bond angles

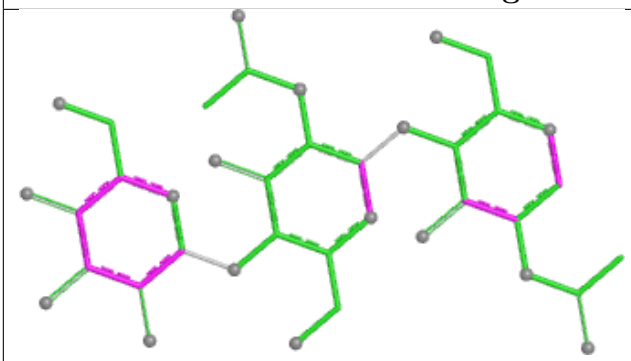


Torsions

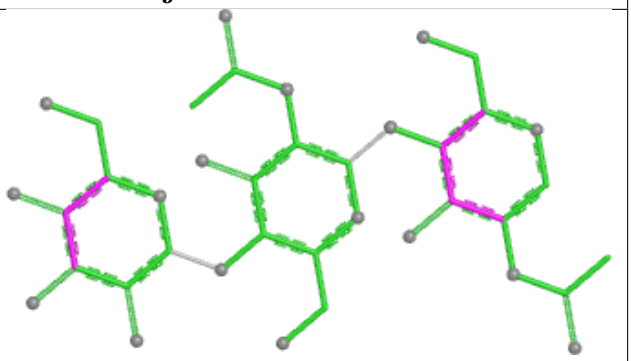


Rings

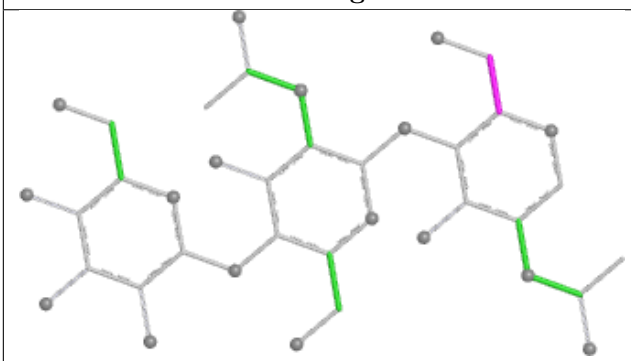
Oligosaccharide Chain j



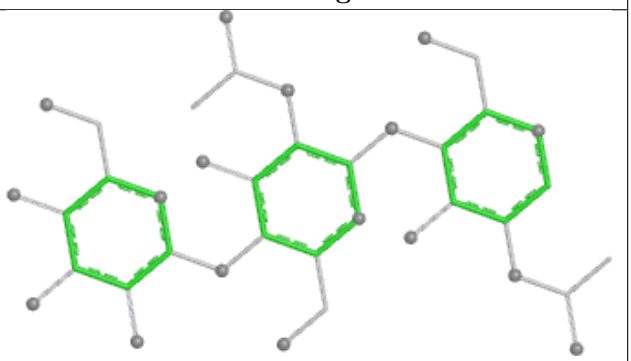
Bond lengths



Bond angles

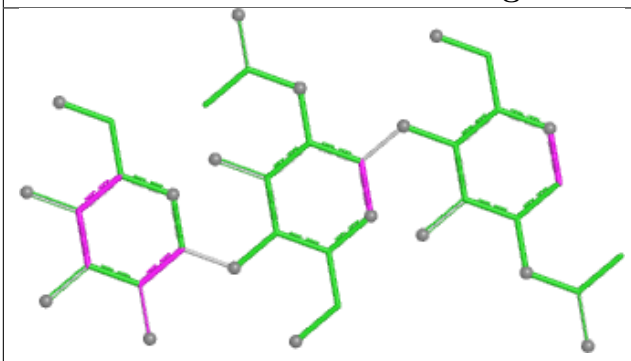


Torsions

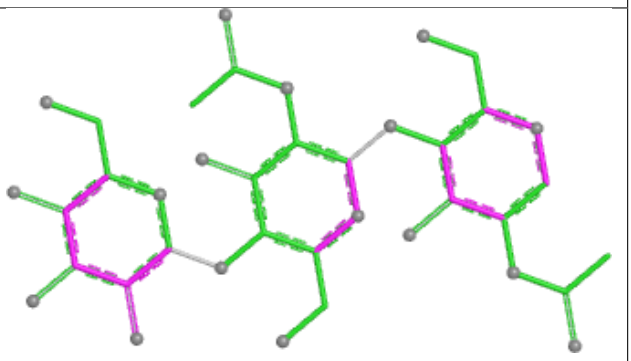


Rings

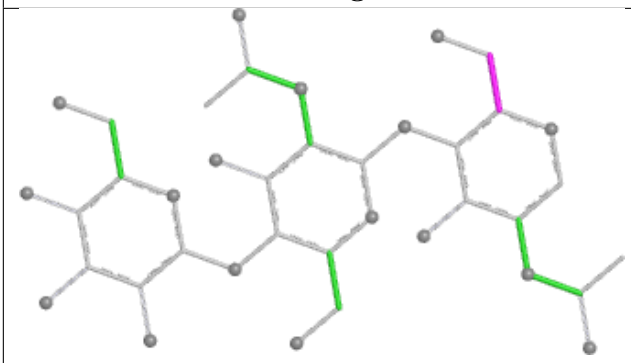
Oligosaccharide Chain l



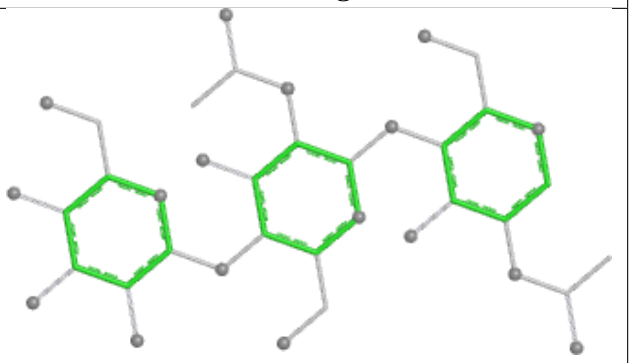
Bond lengths



Bond angles

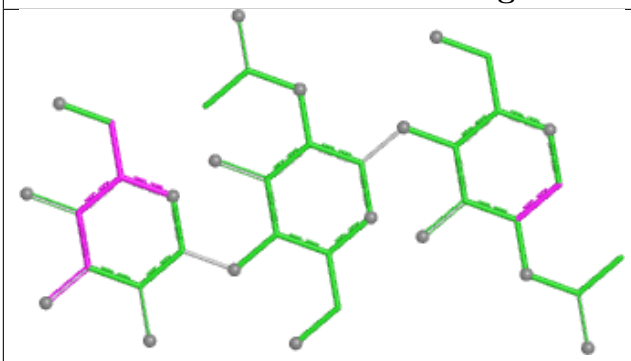


Torsions

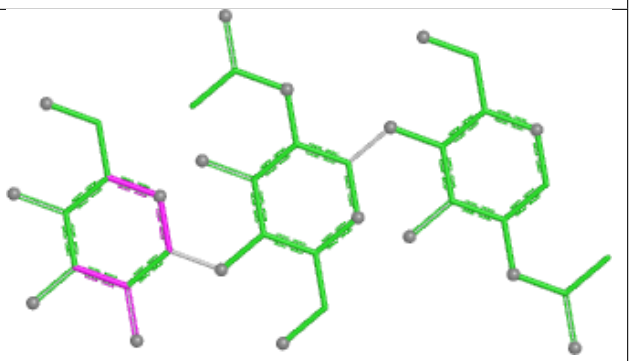


Rings

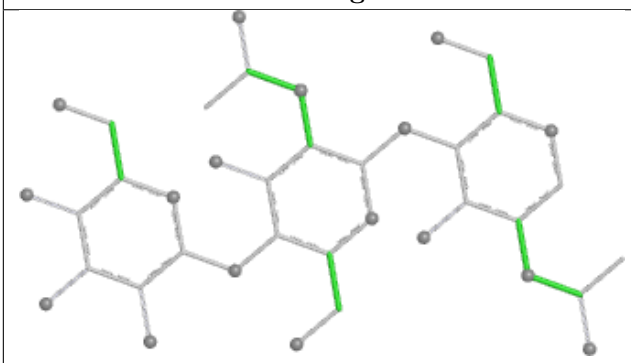
Oligosaccharide Chain n



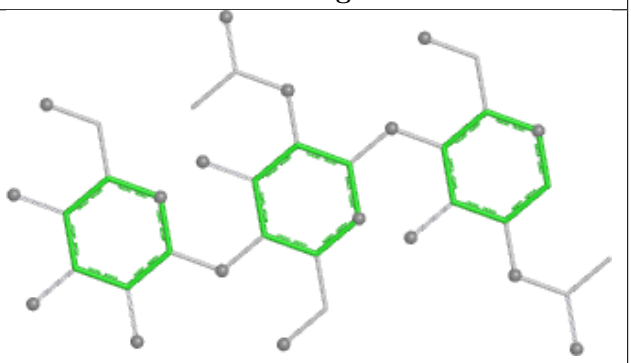
Bond lengths



Bond angles

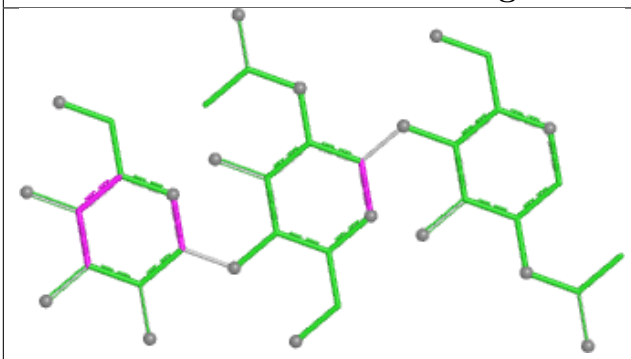


Torsions

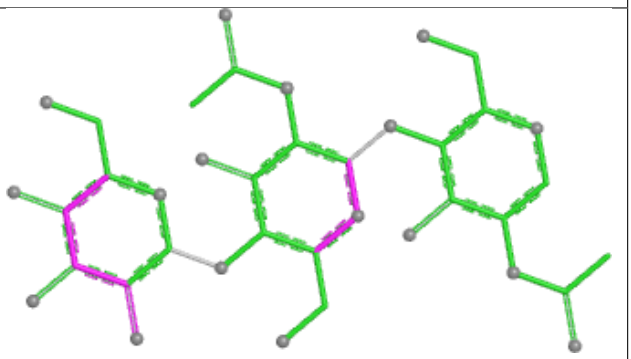


Rings

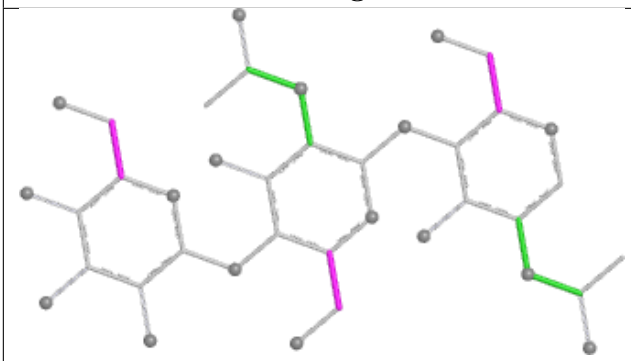
Oligosaccharide Chain o



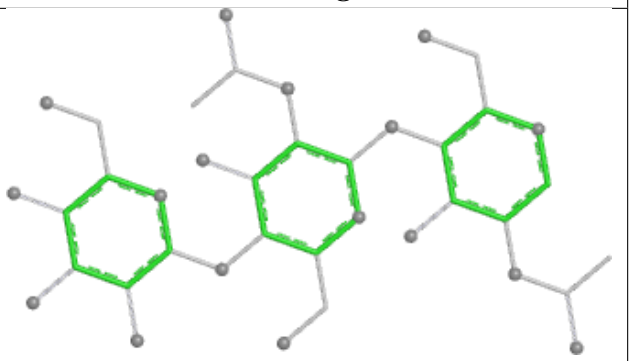
Bond lengths



Bond angles

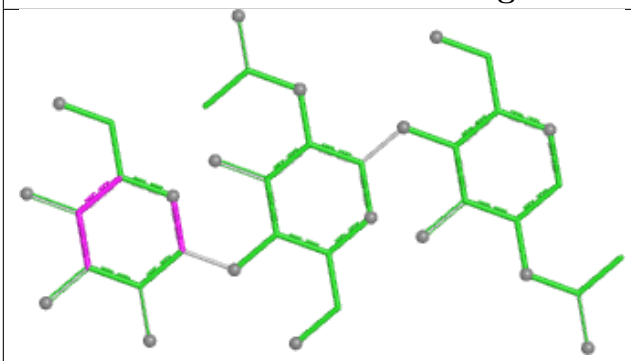


Torsions



Rings

Oligosaccharide Chain p



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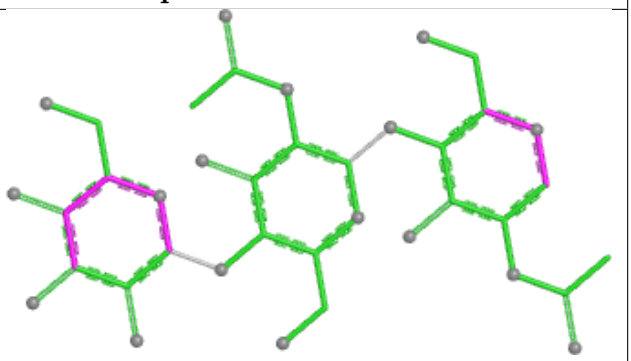
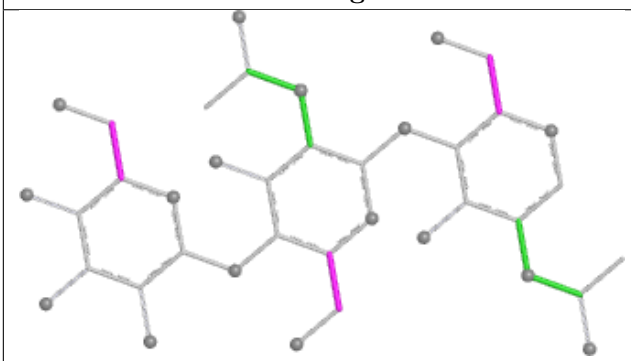


Bond angles



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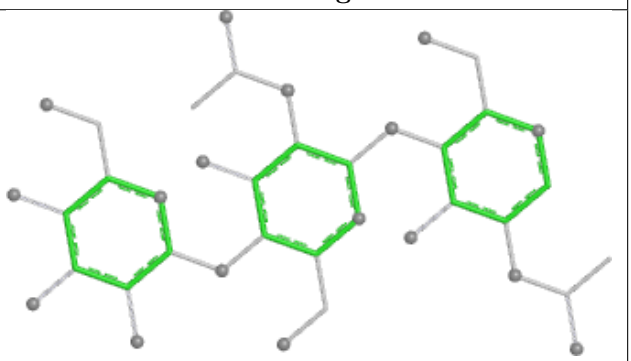
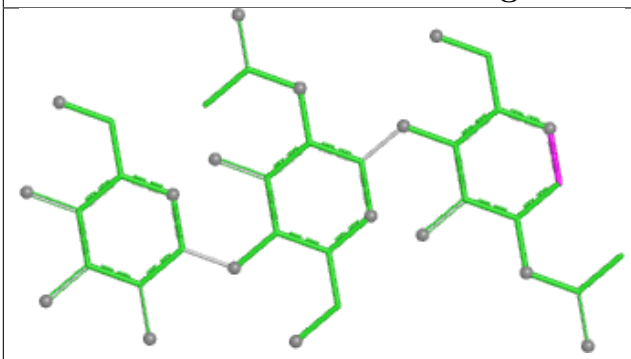


Rings

Oligosaccharide Chain r



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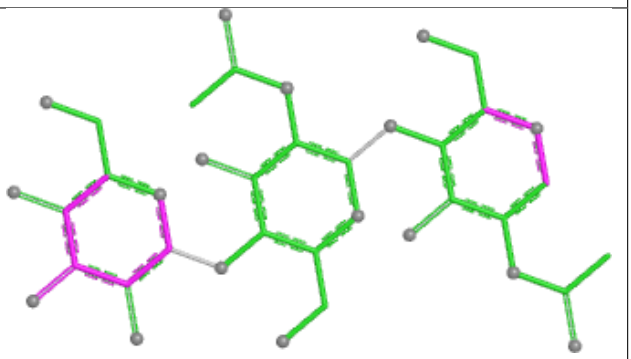

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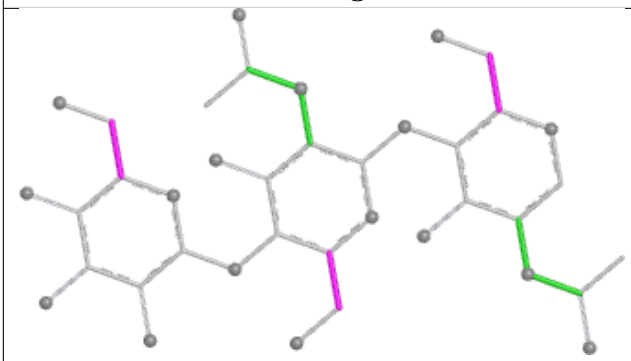

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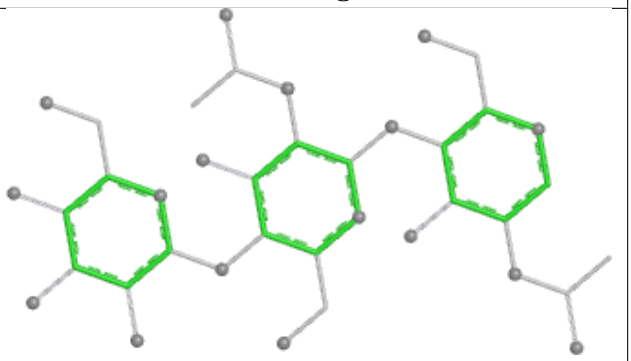
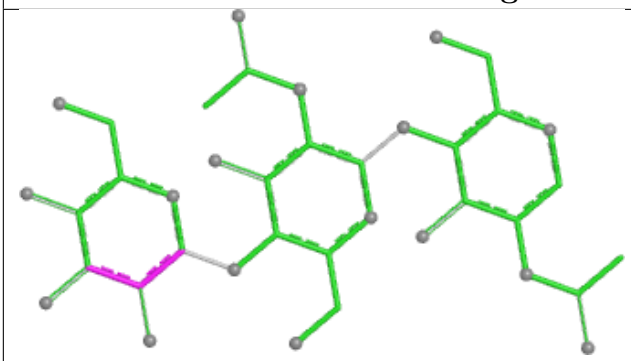


Rings

Oligosaccharide Chain t



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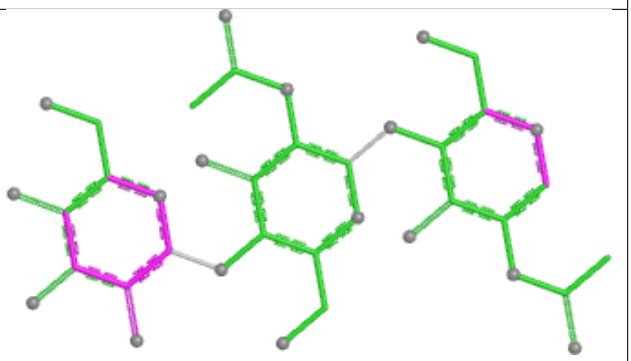

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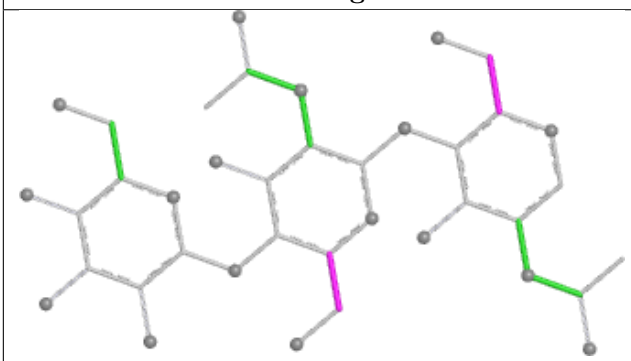

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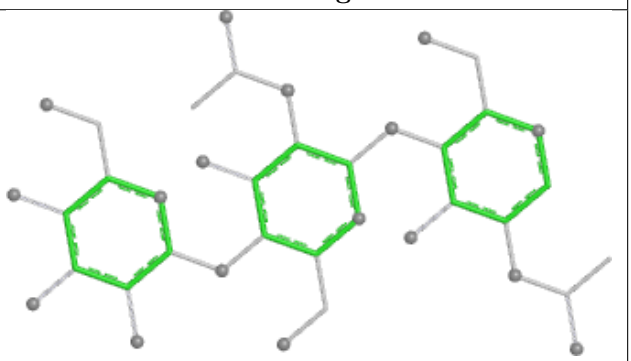
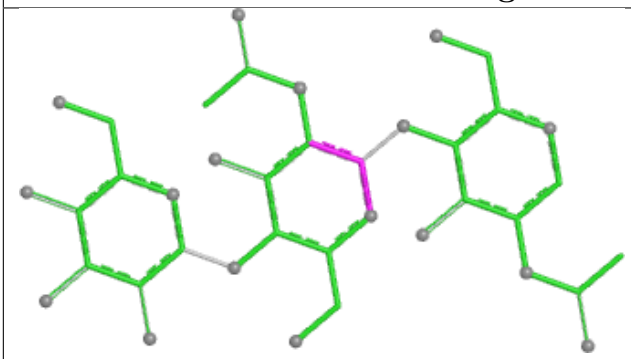


Rings

Oligosaccharide Chain v



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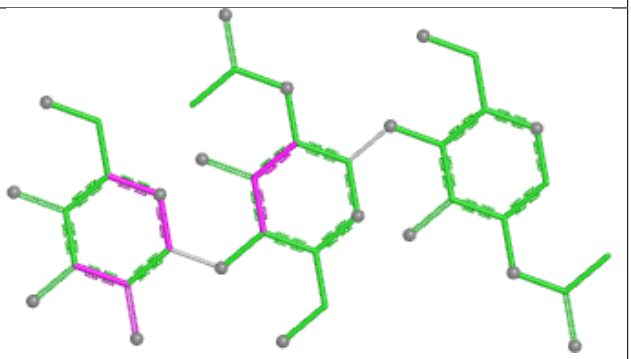

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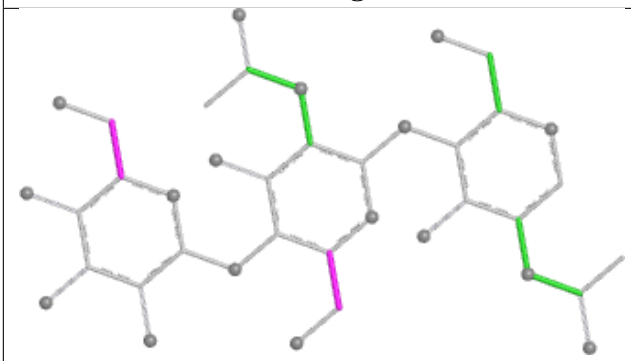

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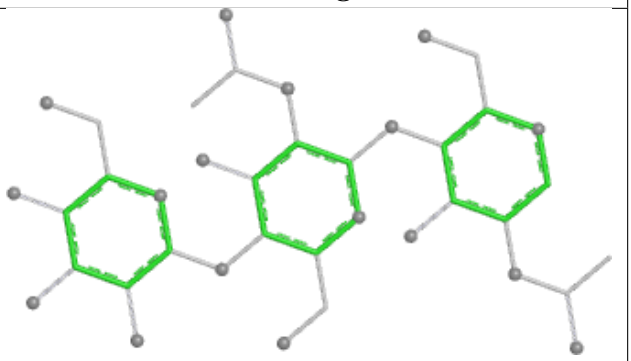
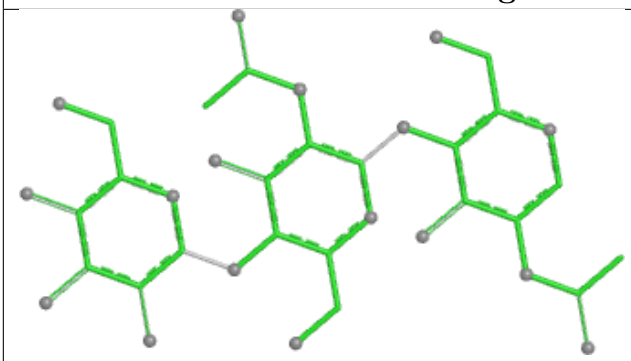


Rings

Oligosaccharide Chain x



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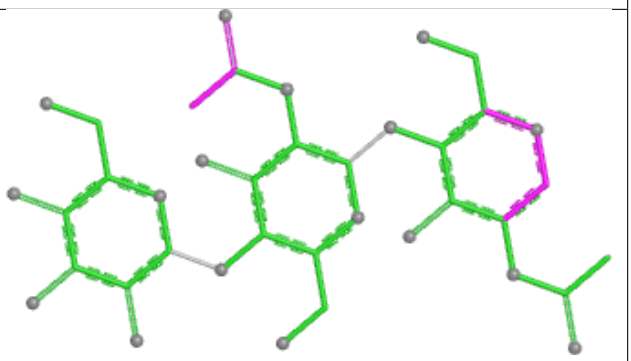

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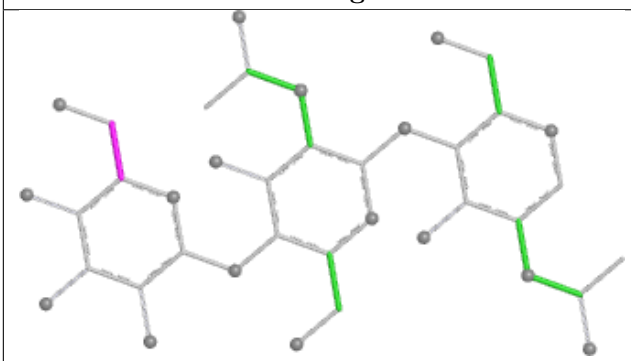

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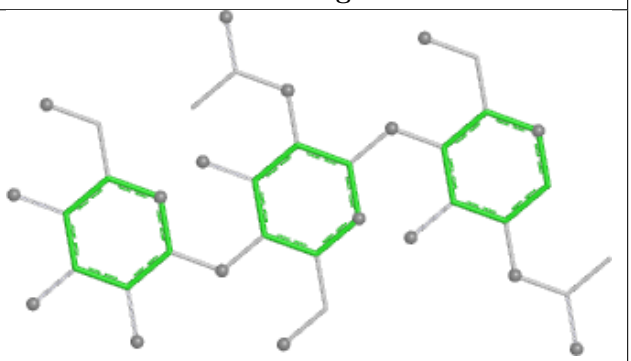
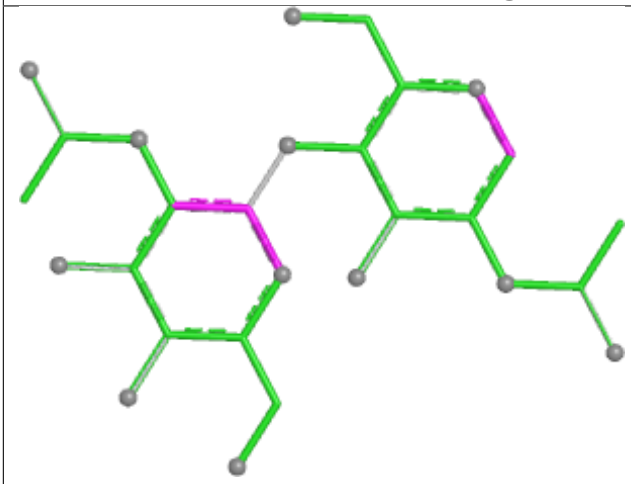


Rings

Oligosaccharide Chain f



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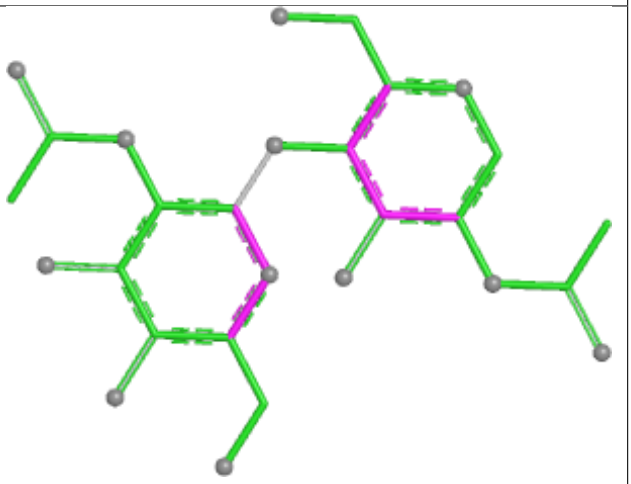

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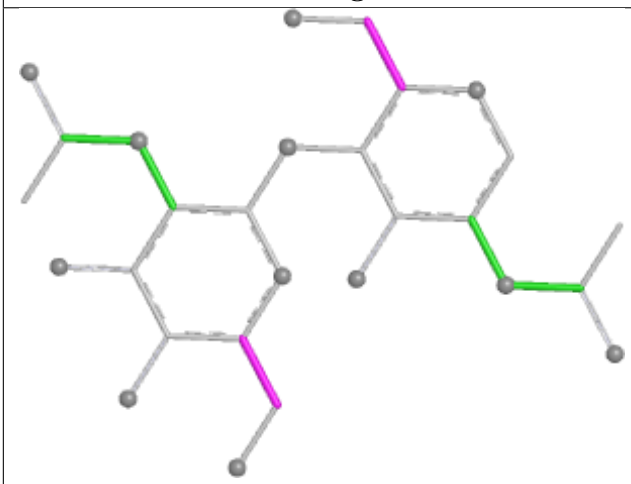

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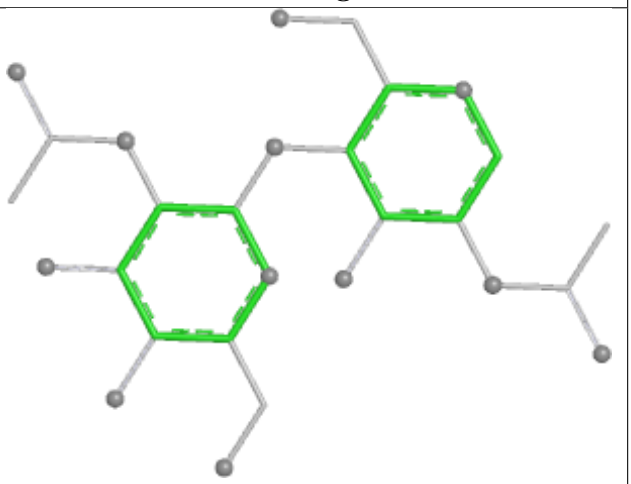
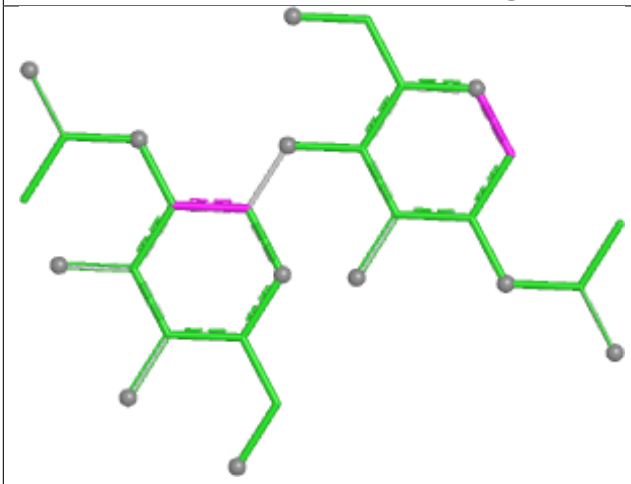


Rings

Oligosaccharide Chain i



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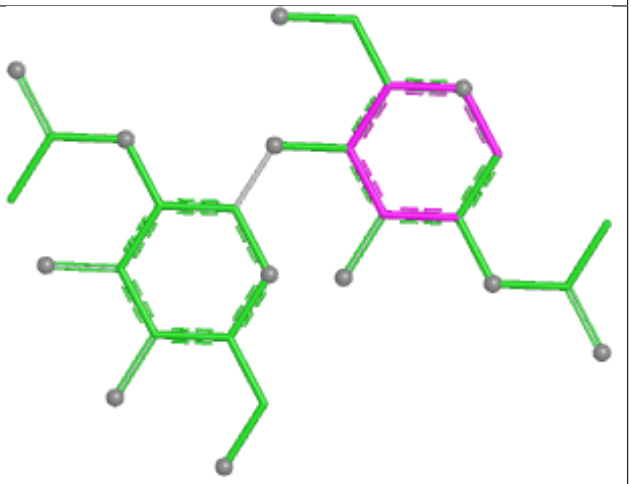

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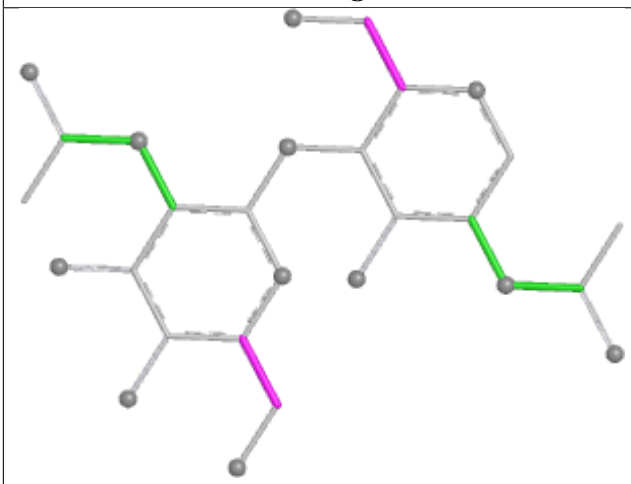

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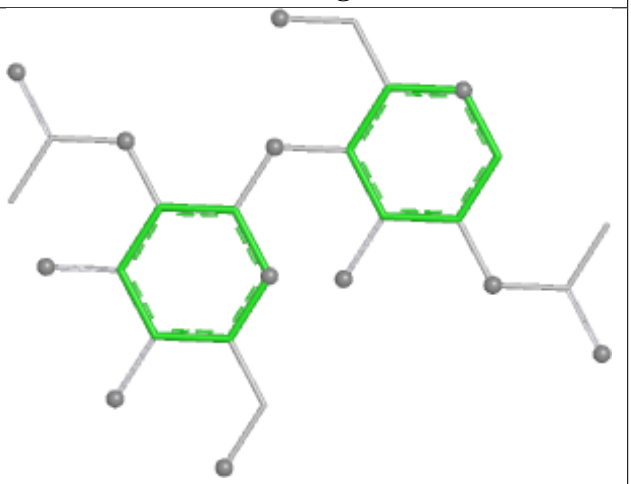
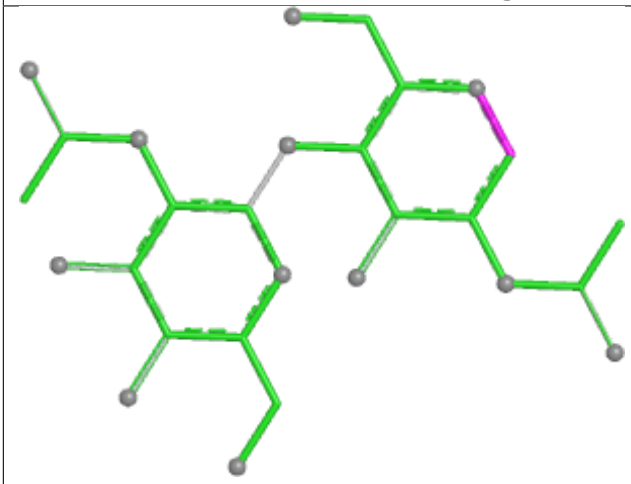


Rings

Oligosaccharide Chain k



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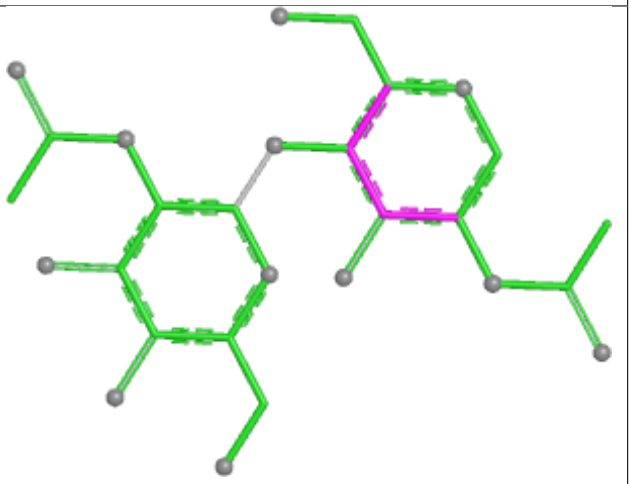

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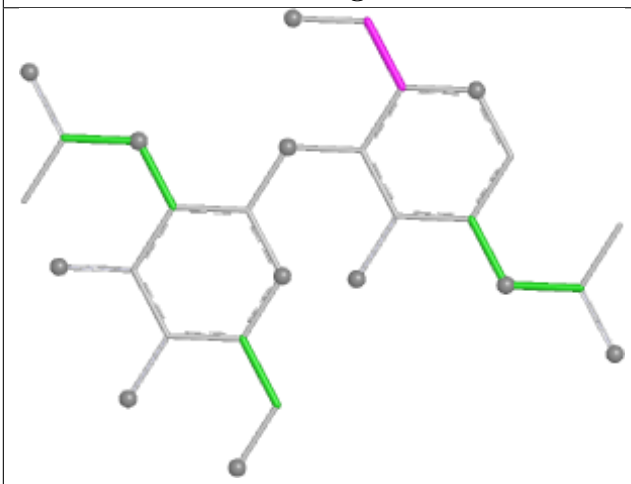

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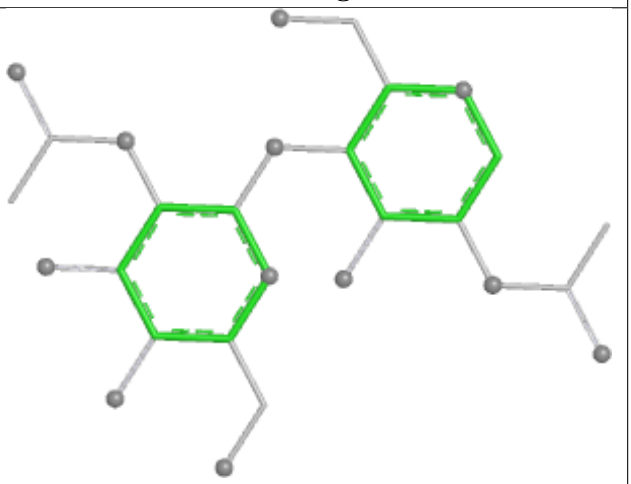
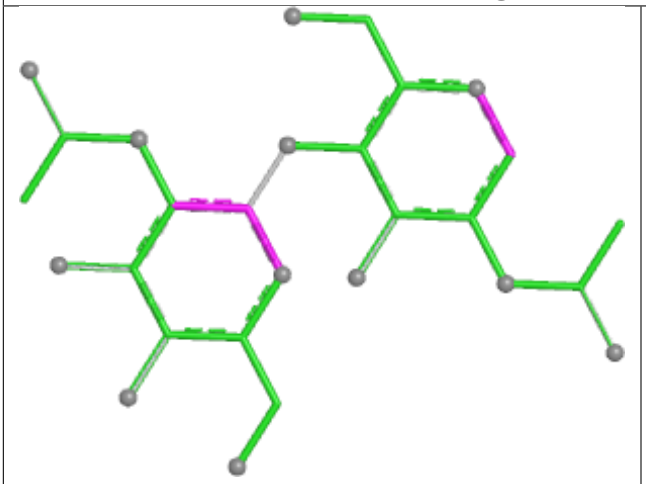


Rings

Oligosaccharide Chain m



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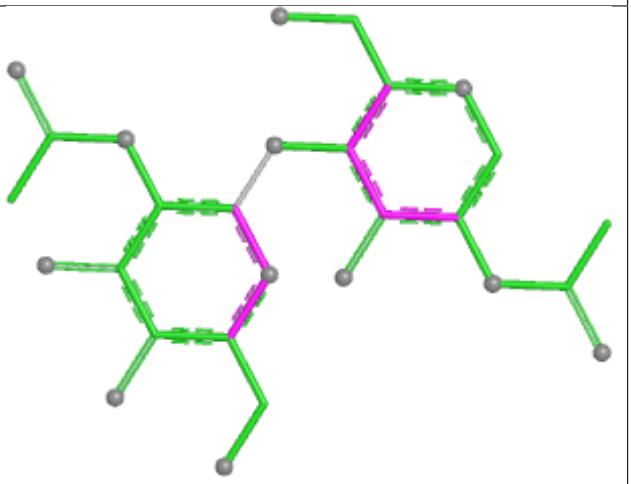

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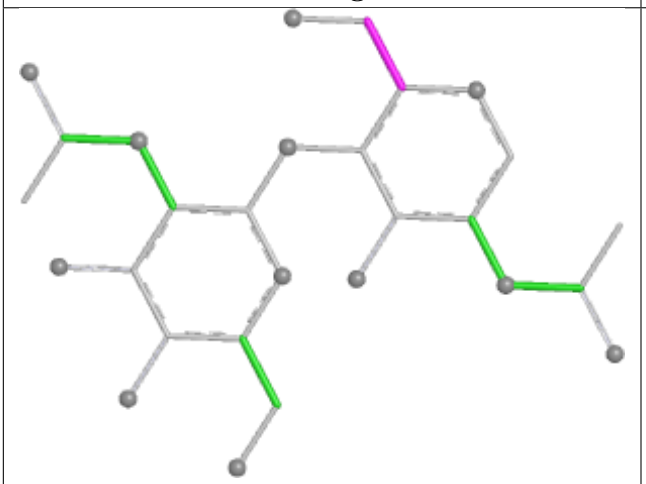

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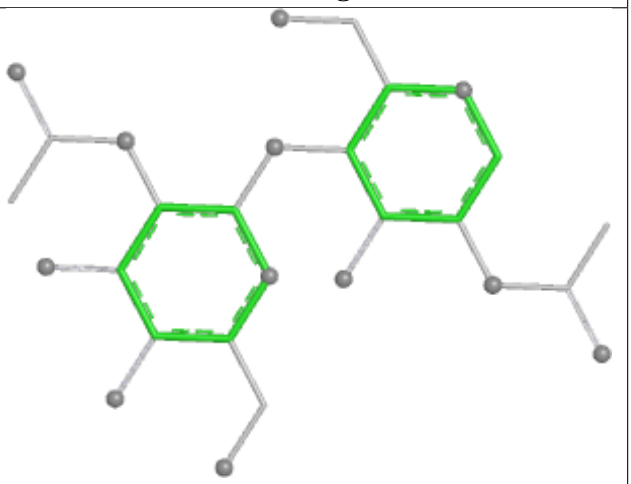
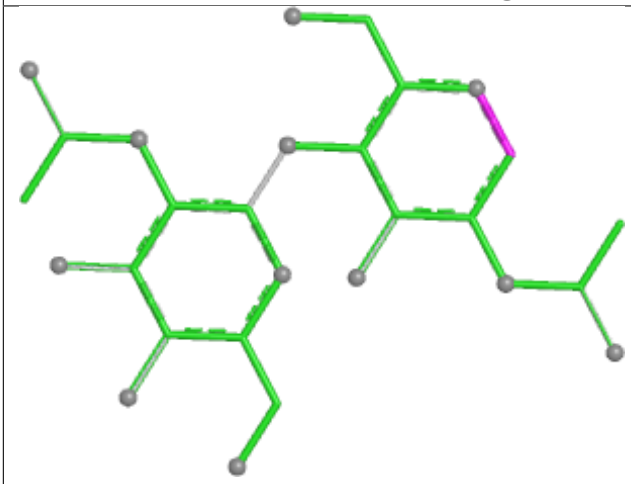


Rings

Oligosaccharide Chain q



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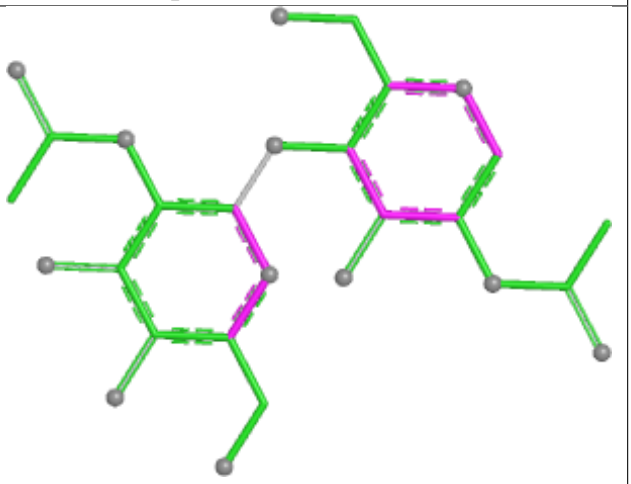

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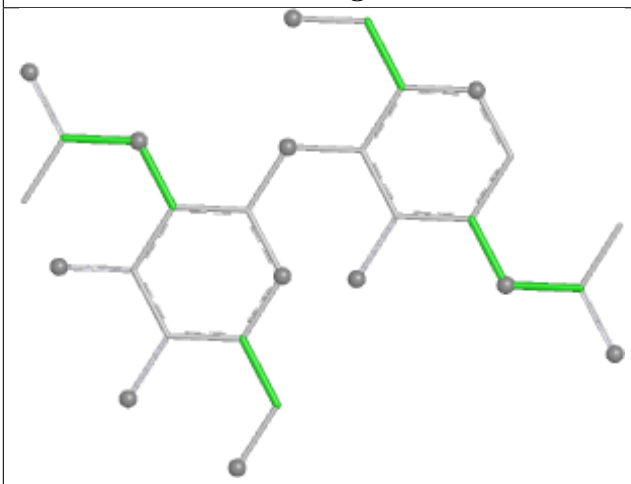

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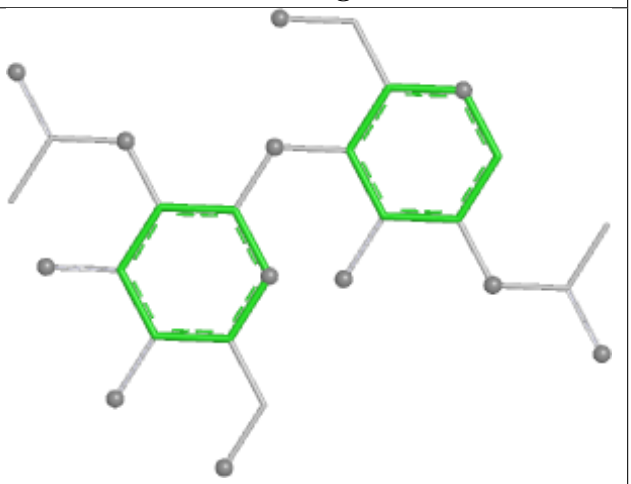
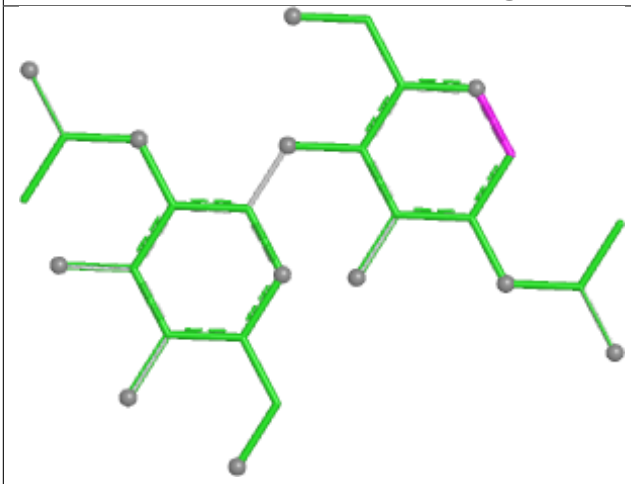


Rings

Oligosaccharide Chain s



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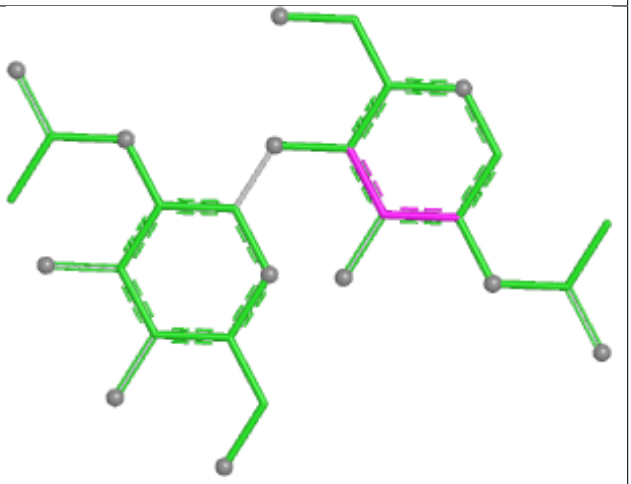

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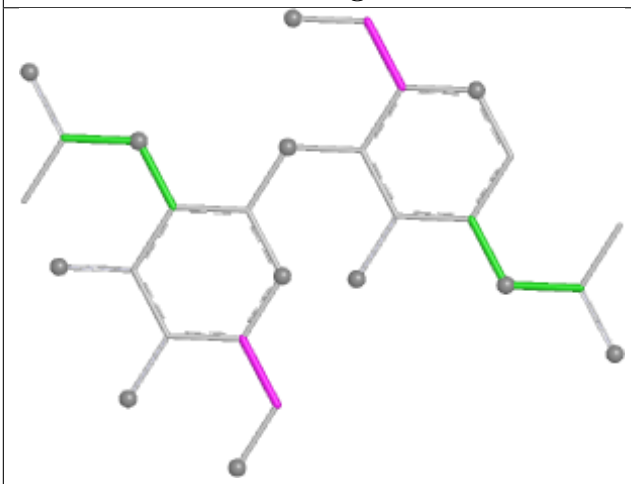

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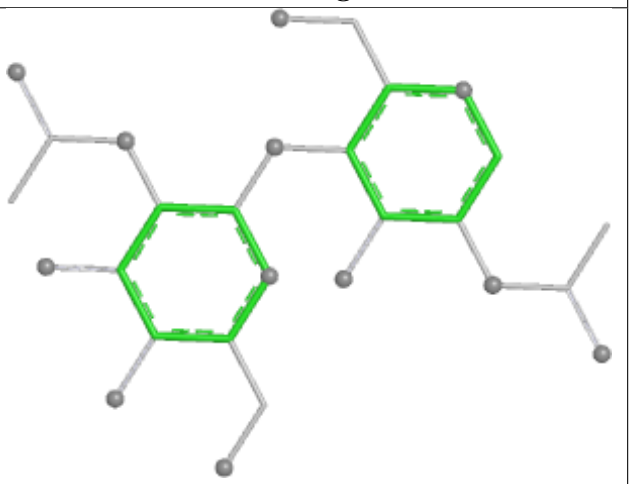
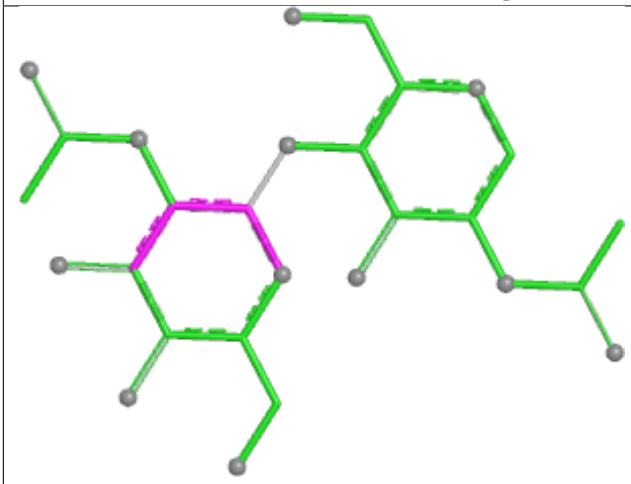


Rings

Oligosaccharide Chain u



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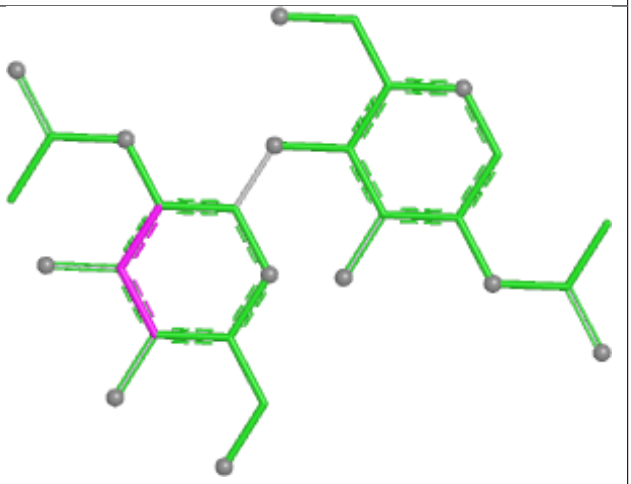

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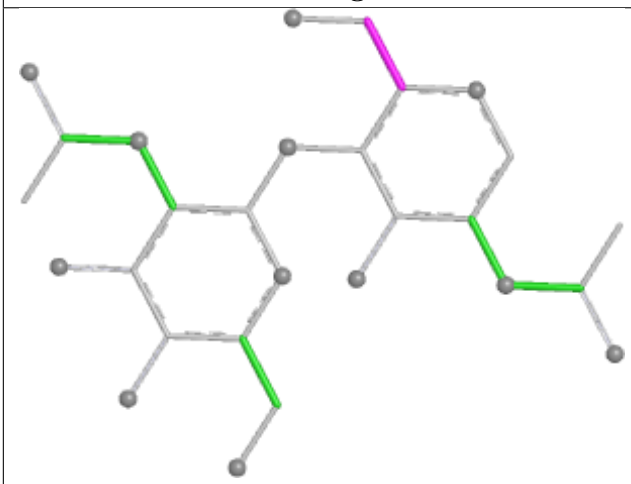

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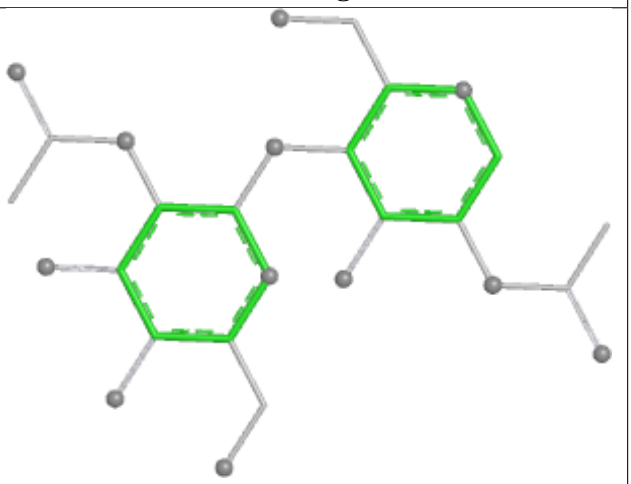
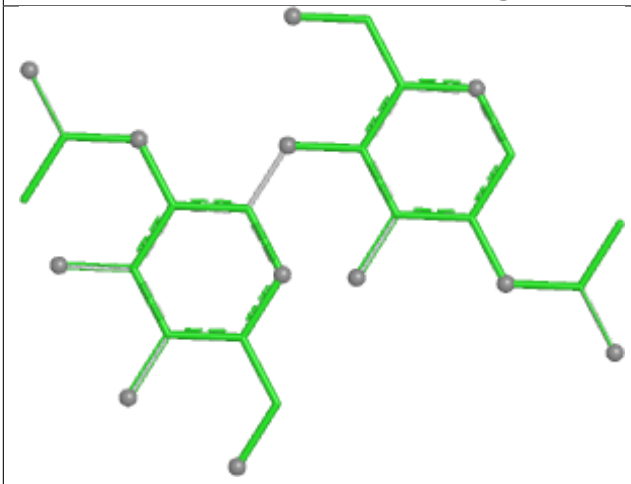


Rings

Oligosaccharide Chain w



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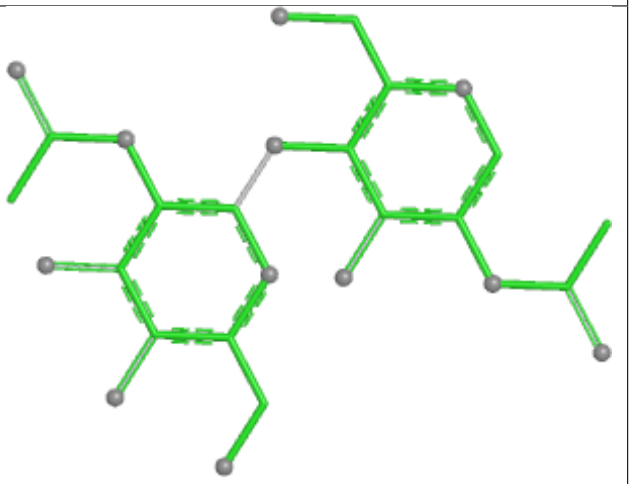
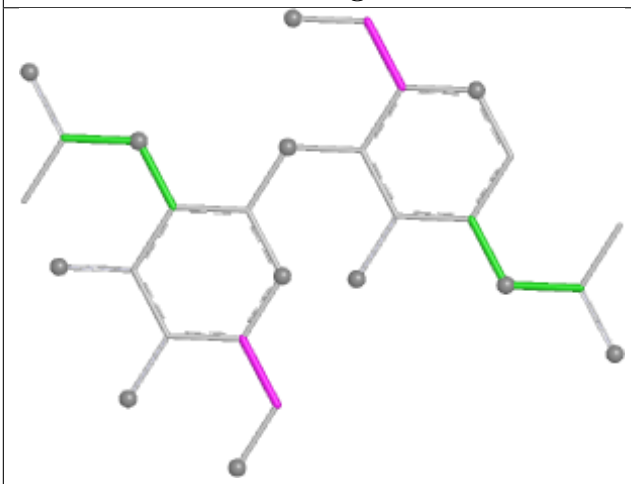


Bond angles



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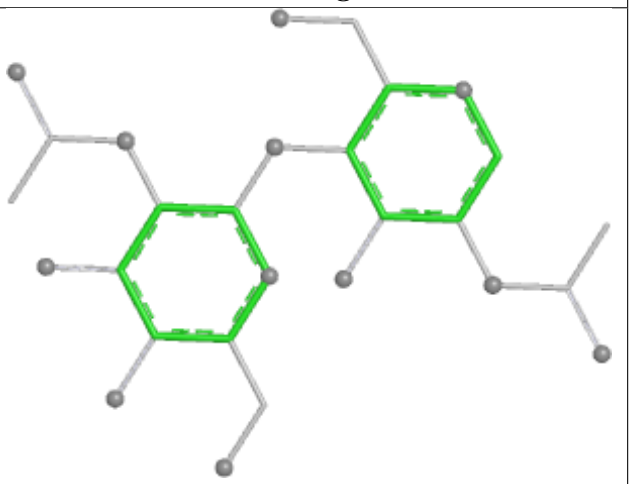
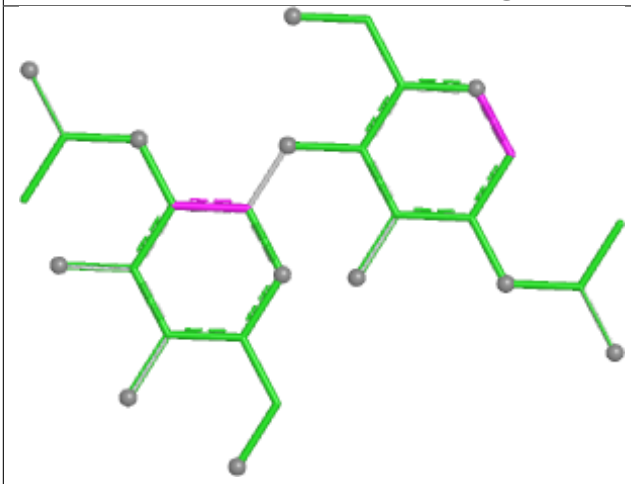


Rings

Oligosaccharide Chain y



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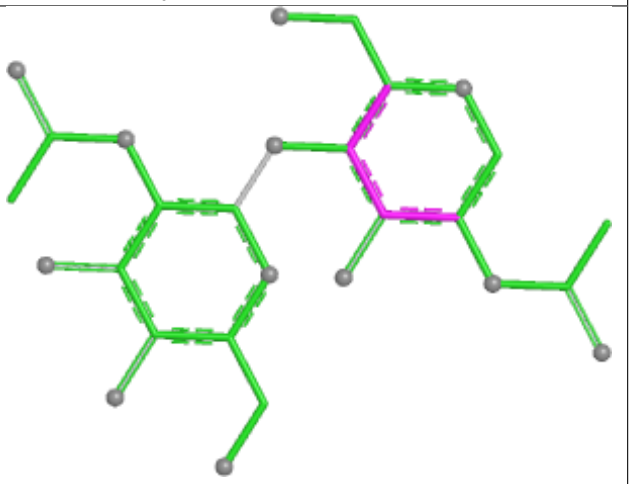
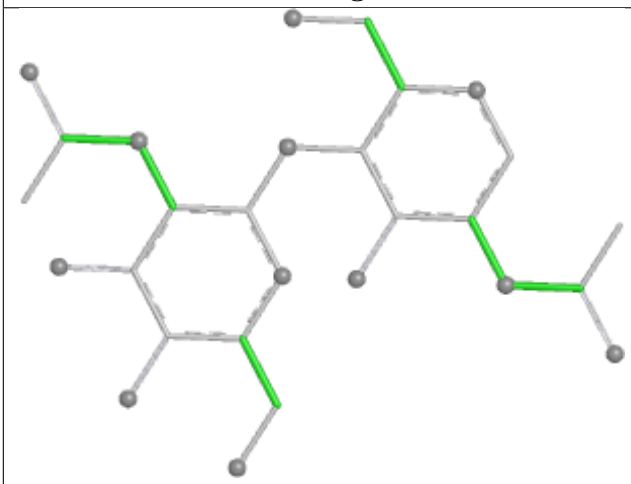


Bond angles



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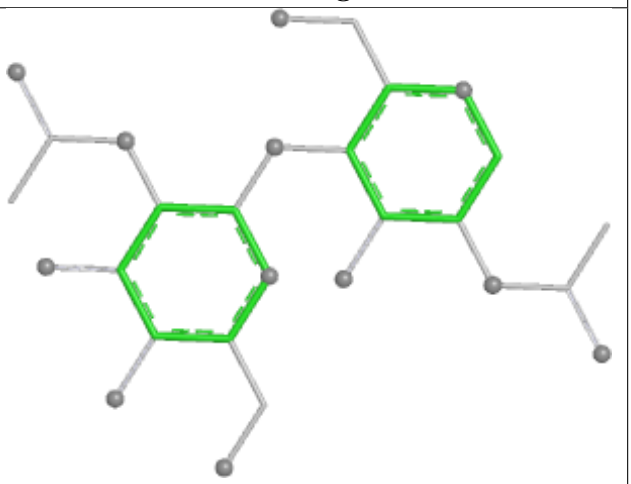
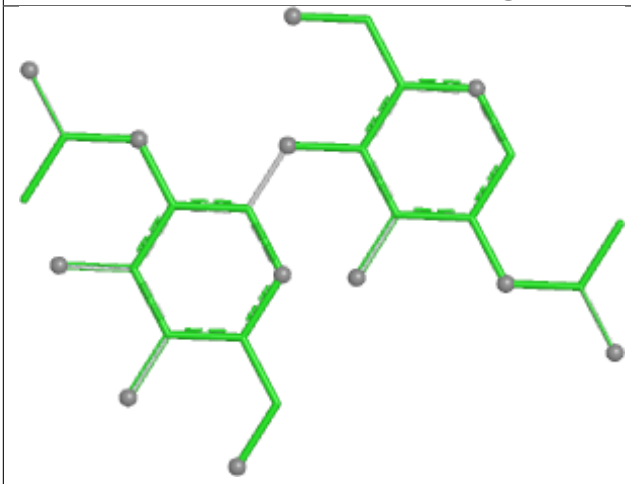
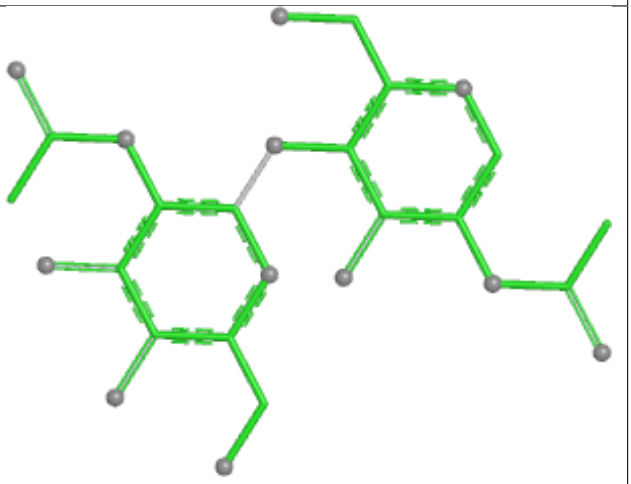


Rings

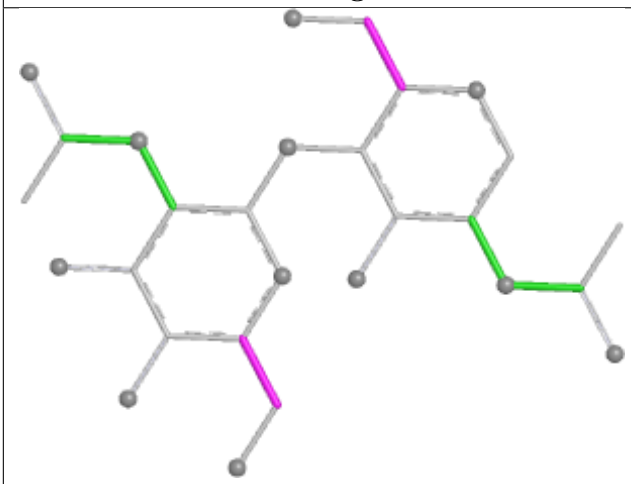
Oligosaccharide Chain z



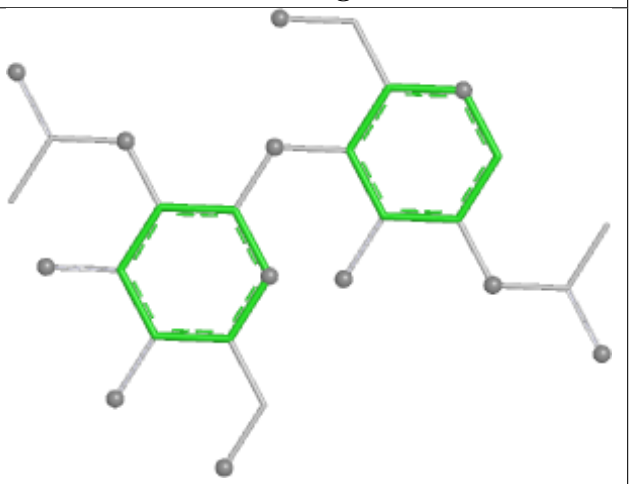
Bond lengths



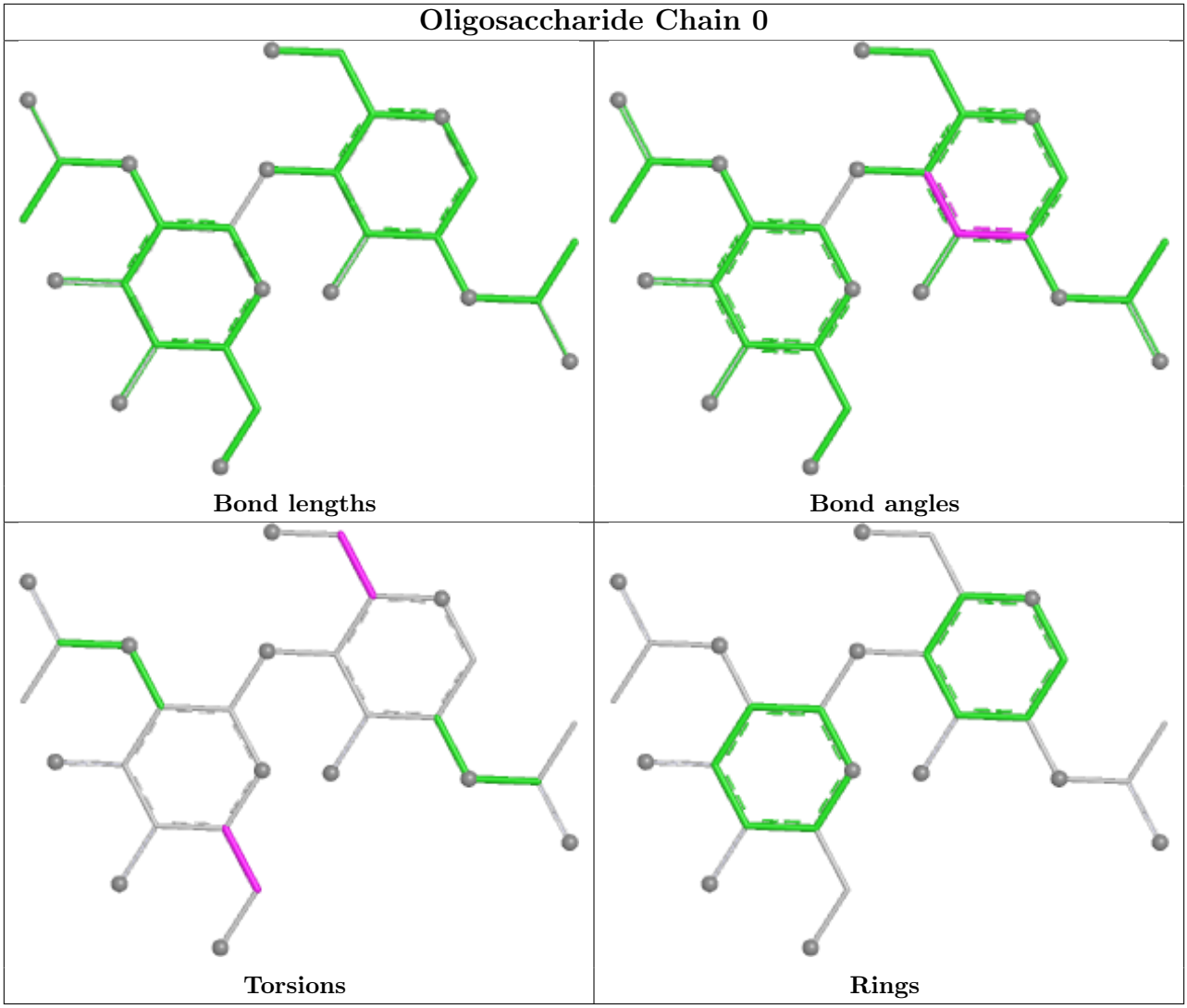
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

7 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
5	NAG	a	2001	1	14,14,15	0.60	0	17,19,21	0.68	1 (5%)
5	NAG	O	2006	1	14,14,15	1.00	1 (7%)	17,19,21	0.99	2 (11%)
5	NAG	M	2004	1	14,14,15	0.32	0	17,19,21	0.44	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	NAG	C	2004	1	14,14,15	0.88	1 (7%)	17,19,21	0.92	1 (5%)
5	NAG	Y	2001	1	14,14,15	0.37	0	17,19,21	0.98	1 (5%)
5	NAG	K	2004	1	14,14,15	0.65	0	17,19,21	0.58	0
5	NAG	c	2001	1	14,14,15	0.62	1 (7%)	17,19,21	0.61	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
5	NAG	a	2001	1	-	2/6/23/26	0/1/1/1
5	NAG	O	2006	1	-	2/6/23/26	0/1/1/1
5	NAG	M	2004	1	-	2/6/23/26	0/1/1/1
5	NAG	C	2004	1	-	0/6/23/26	0/1/1/1
5	NAG	Y	2001	1	-	0/6/23/26	0/1/1/1
5	NAG	K	2004	1	-	0/6/23/26	0/1/1/1
5	NAG	c	2001	1	-	0/6/23/26	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	O	2006	NAG	O5-C1	-2.90	1.38	1.43
5	C	2004	NAG	O5-C1	-2.43	1.39	1.43
5	c	2001	NAG	O5-C1	-2.09	1.40	1.43

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	Y	2001	NAG	C1-O5-C5	3.49	116.86	112.19
5	O	2006	NAG	C4-C3-C2	2.76	115.06	111.02
5	O	2006	NAG	C3-C4-C5	2.26	114.34	110.23
5	a	2001	NAG	C1-O5-C5	2.21	115.15	112.19
5	C	2004	NAG	C4-C3-C2	2.18	114.21	111.02

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	O	2006	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
5	a	2001	NAG	O5-C5-C6-O6
5	O	2006	NAG	O5-C5-C6-O6
5	a	2001	NAG	C4-C5-C6-O6
5	M	2004	NAG	C4-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	Y	2001	NAG	1	0

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, 95^{th} 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	324/334 (97%)	-1.49	0	100	100	32, 52, 86, 162	1 (0%)
1	C	324/334 (97%)	-1.46	0	100	100	38, 63, 122, 185	1 (0%)
1	E	324/334 (97%)	-1.49	0	100	100	36, 58, 115, 196	1 (0%)
1	G	324/334 (97%)	-1.53	0	100	100	28, 51, 91, 170	1 (0%)
1	I	324/334 (97%)	-1.55	0	100	100	27, 49, 93, 166	1 (0%)
1	K	324/334 (97%)	-1.40	0	100	100	37, 59, 112, 178	1 (0%)
1	M	324/334 (97%)	-1.47	0	100	100	28, 54, 113, 206	1 (0%)
1	O	324/334 (97%)	-1.45	0	100	100	32, 54, 116, 190	1 (0%)
1	Q	324/334 (97%)	-1.50	0	100	100	34, 53, 116, 181	1 (0%)
1	S	324/334 (97%)	-1.46	0	100	100	37, 62, 125, 177	1 (0%)
1	U	324/334 (97%)	-1.43	0	100	100	36, 66, 123, 186	1 (0%)
1	W	324/334 (97%)	-1.41	0	100	100	41, 64, 124, 183	1 (0%)
1	Y	324/334 (97%)	-1.27	2 (0%)	85	82	57, 83, 178, 247	1 (0%)
1	a	324/334 (97%)	-1.30	1 (0%)	90	88	59, 86, 197, 263	1 (0%)
1	c	324/334 (97%)	-1.29	0	100	100	55, 87, 180, 267	1 (0%)
2	B	177/181 (97%)	-1.29	0	100	100	36, 94, 134, 165	0
2	D	177/181 (97%)	-1.19	0	100	100	42, 124, 175, 199	0
2	F	177/181 (97%)	-1.17	0	100	100	45, 123, 173, 182	0
2	H	177/181 (97%)	-1.26	0	100	100	35, 97, 139, 151	0
2	J	177/181 (97%)	-1.35	0	100	100	36, 95, 136, 152	0
2	L	177/181 (97%)	-1.25	0	100	100	42, 122, 163, 171	0
2	N	177/181 (97%)	-1.17	0	100	100	37, 123, 176, 197	0
2	P	177/181 (97%)	-1.18	0	100	100	31, 120, 174, 185	0
2	R	177/181 (97%)	-1.14	0	100	100	42, 122, 189, 220	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
2	T	177/181 (97%)	-1.24	0	100	100	48, 123, 166, 184	0
2	V	177/181 (97%)	-1.11	0	100	100	45, 123, 167, 180	0
2	X	177/181 (97%)	-1.14	0	100	100	46, 123, 171, 182	0
2	Z	177/181 (97%)	-0.34	9 (5%)	33	28	68, 193, 265, 299	0
2	b	177/181 (97%)	-0.65	3 (1%)	69	62	74, 189, 251, 272	0
2	d	177/181 (97%)	-0.54	6 (3%)	48	41	68, 193, 239, 274	0
All	All	7515/7725 (97%)	-1.30	21 (0%)	90	88	27, 75, 185, 299	15 (0%)

The worst 5 of 21 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	Z	35	ALA	8.7
2	Z	23	GLY	7.6
1	Y	16	GLY	7.2
2	Z	9	PHE	7.0
2	d	36	ALA	6.1

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

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

6.3 Carbohydrates (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAG	e	1	14/15	-	-	49,69,79,82	0
3	NAG	e	2	14/15	-	-	59,82,94,97	0
3	BMA	e	3	11/12	-	-	81,83,101,101	0
3	NAG	g	1	14/15	-	-	70,89,102,112	0
3	NAG	g	2	14/15	-	-	98,106,110,110	0
3	BMA	g	3	11/12	-	-	48,70,90,94	0
3	NAG	h	1	14/15	-	-	74,93,116,124	0
3	NAG	h	2	14/15	-	-	103,121,127,128	0
3	BMA	h	3	11/12	-	-	74,81,103,103	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAG	j	1	14/15	-	-	57,65,73,85	0
3	NAG	j	2	14/15	-	-	49,63,83,84	0
3	BMA	j	3	11/12	-	-	63,85,93,95	0
3	NAG	l	1	14/15	-	-	50,58,78,80	0
3	NAG	l	2	14/15	-	-	44,57,67,71	0
3	BMA	l	3	11/12	-	-	56,83,91,91	0
3	NAG	n	1	14/15	-	-	56,78,99,101	0
3	NAG	n	2	14/15	-	-	81,97,102,102	0
3	BMA	n	3	11/12	-	-	67,77,85,86	0
3	NAG	o	1	14/15	-	-	50,58,79,79	0
3	NAG	o	2	14/15	-	-	76,91,113,128	0
3	BMA	o	3	11/12	-	-	105,121,134,135	0
3	NAG	p	1	14/15	-	-	58,72,90,97	0
3	NAG	p	2	14/15	-	-	83,102,117,123	0
3	BMA	p	3	11/12	-	-	119,127,132,132	0
3	NAG	r	1	14/15	-	-	52,67,75,77	0
3	NAG	r	2	14/15	-	-	67,88,103,115	0
3	BMA	r	3	11/12	-	-	116,120,126,127	0
3	NAG	t	1	14/15	-	-	57,81,97,97	0
3	NAG	t	2	14/15	-	-	87,110,127,135	0
3	BMA	t	3	11/12	-	-	110,125,137,139	0
3	NAG	v	1	14/15	-	-	59,71,87,99	0
3	NAG	v	2	14/15	-	-	89,104,121,126	0
3	BMA	v	3	11/12	-	-	114,127,131,133	0
3	NAG	x	1	14/15	-	-	64,71,80,92	0
3	NAG	x	2	14/15	-	-	77,96,107,119	0
3	BMA	x	3	11/12	-	-	113,124,130,135	0
4	NAG	f	1	14/15	-	-	93,112,119,119	0
4	NAG	f	2	14/15	-	-	112,122,129,132	0
4	NAG	i	1	14/15	-	-	112,124,125,126	0
4	NAG	i	2	14/15	-	-	106,128,134,134	0
4	NAG	k	1	14/15	-	-	102,107,113,114	0
4	NAG	k	2	14/15	-	-	106,120,127,128	0
4	NAG	m	1	14/15	-	-	89,94,103,109	0
4	NAG	m	2	14/15	-	-	111,117,124,133	0
4	NAG	q	1	14/15	-	-	123,134,139,143	0
4	NAG	q	2	14/15	-	-	117,139,146,146	0
4	NAG	s	1	14/15	-	-	101,118,133,146	0
4	NAG	s	2	14/15	-	-	120,148,158,161	0
4	NAG	u	1	14/15	-	-	128,150,163,163	0
4	NAG	u	2	14/15	-	-	150,164,166,166	0
4	NAG	w	1	14/15	-	-	130,142,151,153	0

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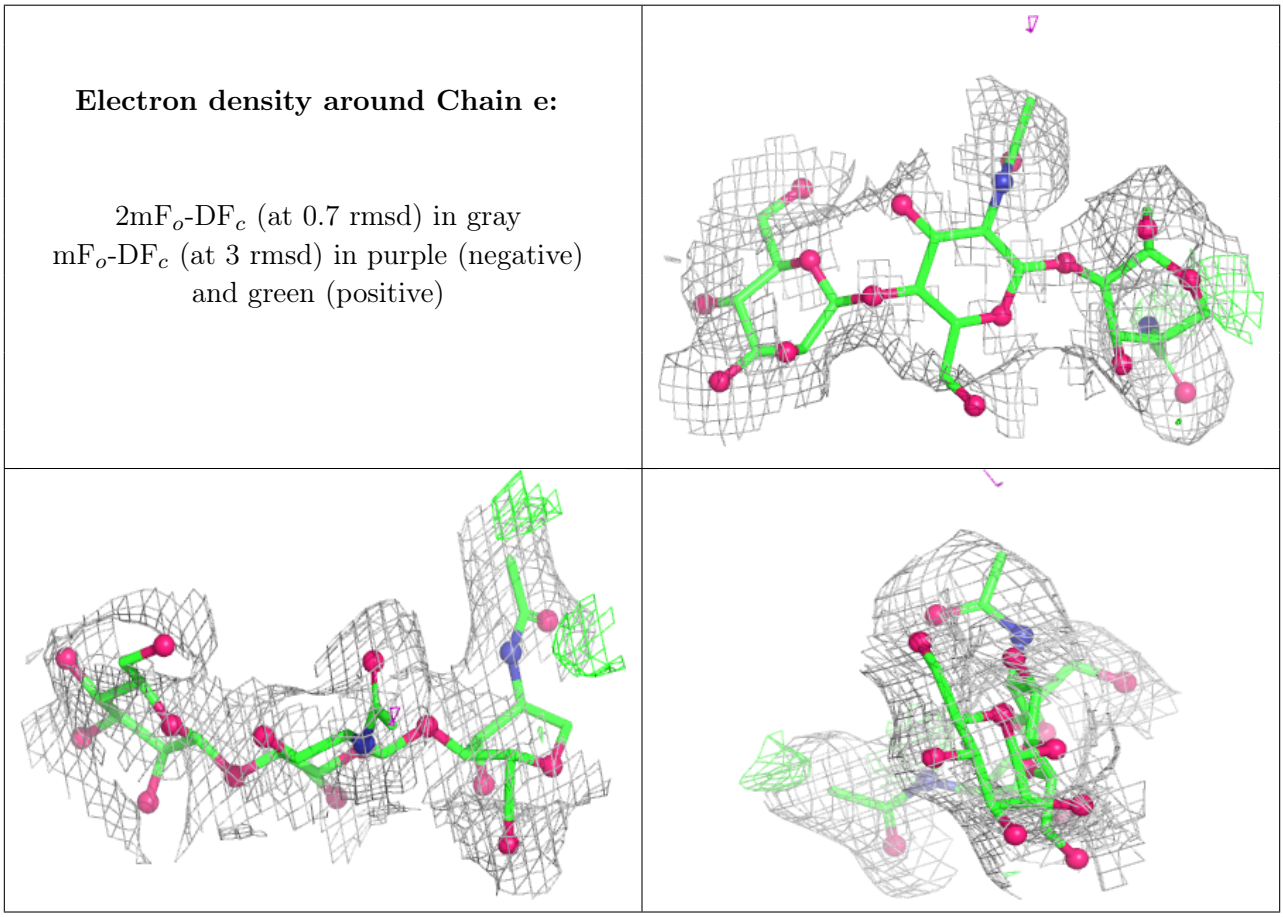
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	NAG	w	2	14/15	-	-	136,154,160,165	0
4	NAG	y	1	14/15	-	-	114,128,139,141	0
4	NAG	y	2	14/15	-	-	122,134,141,141	0
4	NAG	z	1	14/15	-	-	155,161,168,175	0
4	NAG	z	2	14/15	-	-	159,180,187,187	0
4	NAG	0	1	14/15	-	-	159,180,187,188	0
4	NAG	0	2	14/15	-	-	168,181,188,188	0

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

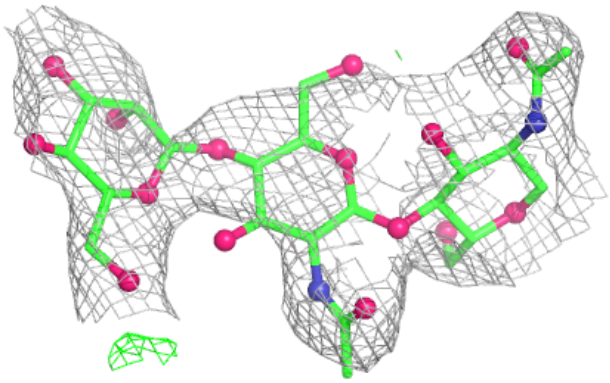
Electron density around Chain e:

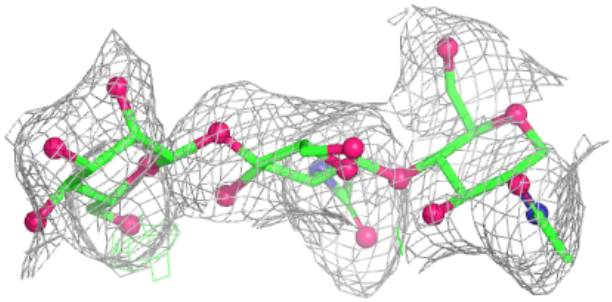
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

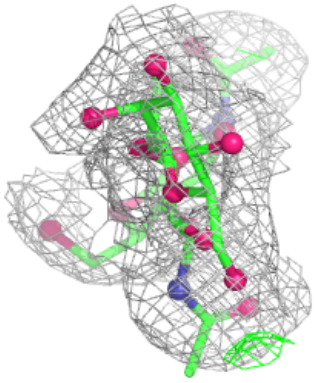


Electron density around Chain g:

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

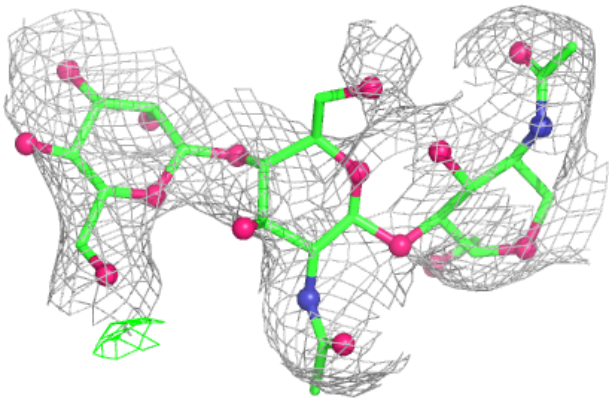


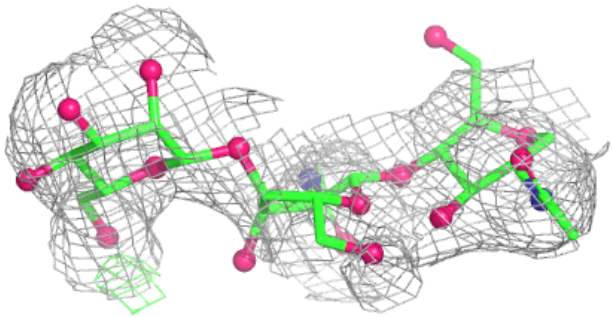


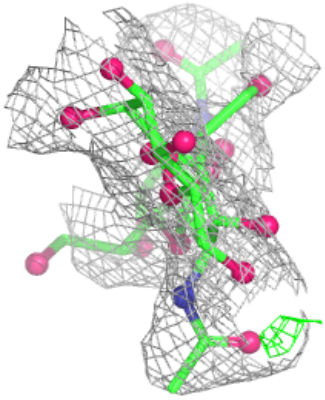


Electron density around Chain h:

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

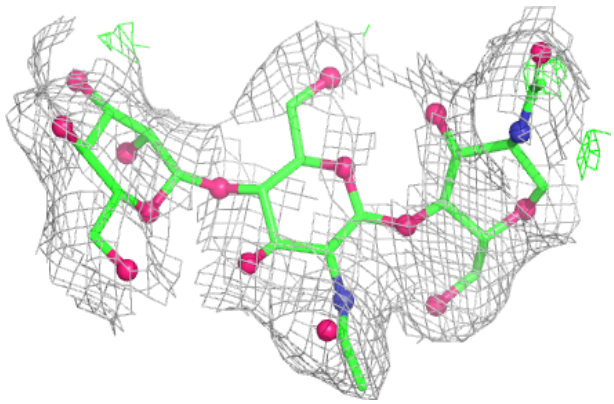


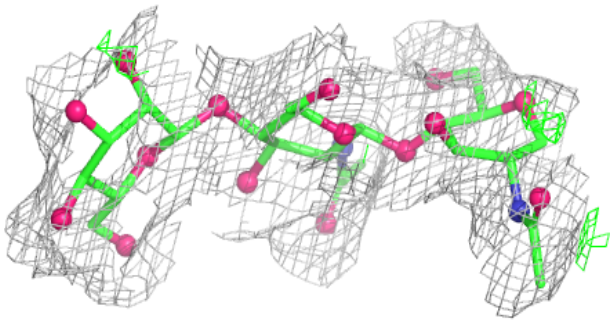


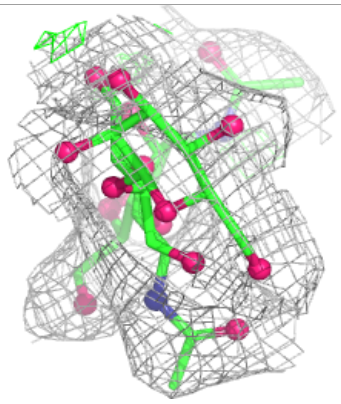


Electron density around Chain j:

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

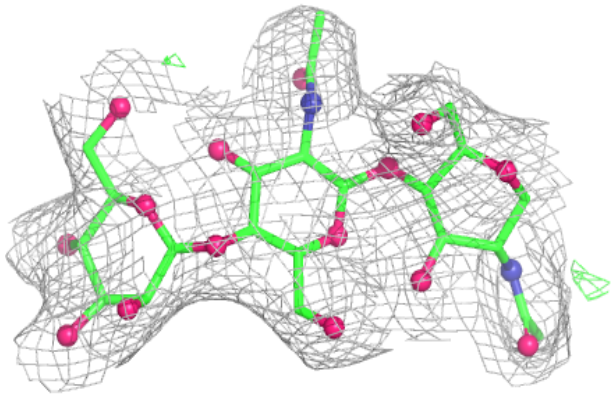


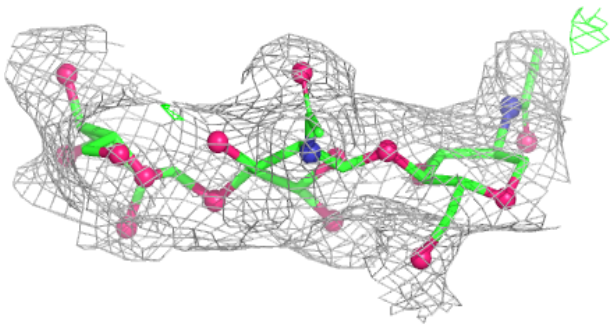


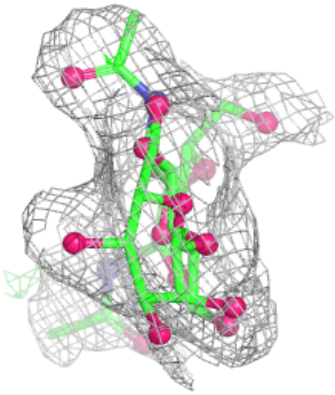


Electron density around Chain l:

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

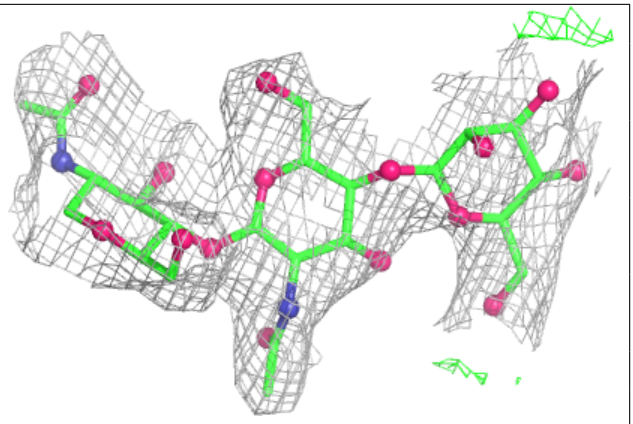


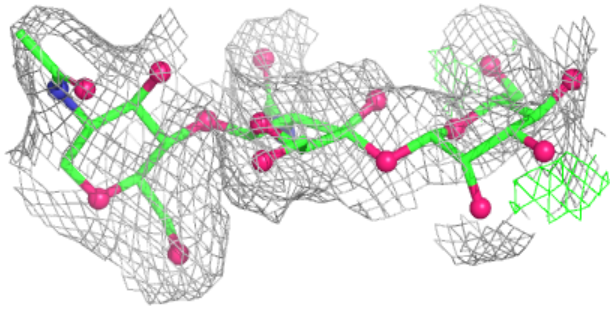


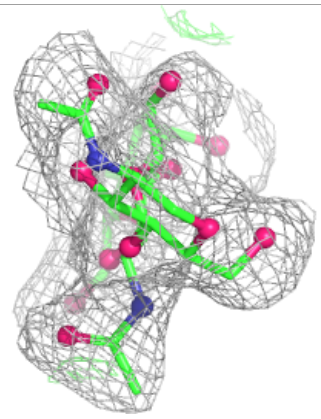


Electron density around Chain n:

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

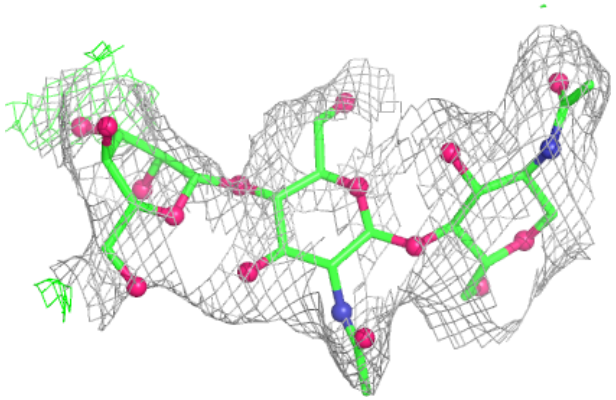


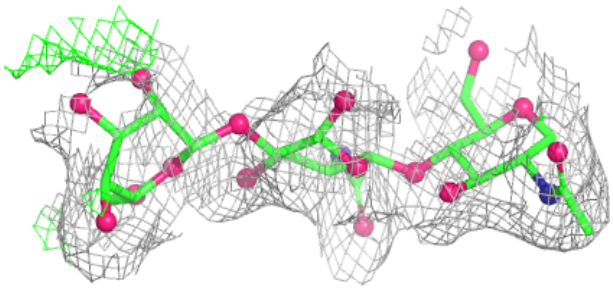


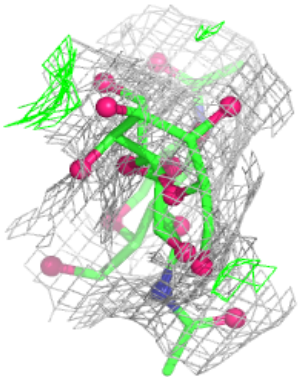


Electron density around Chain o:

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

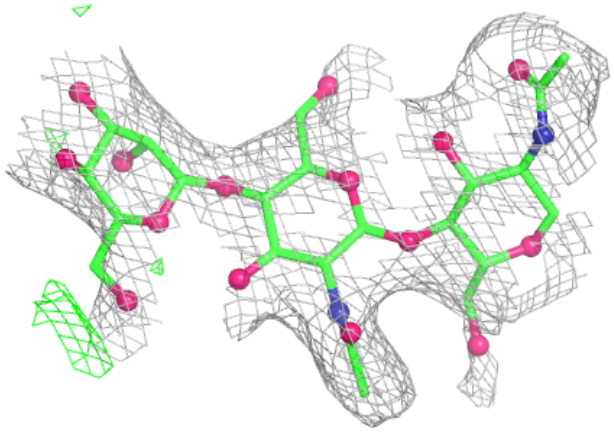


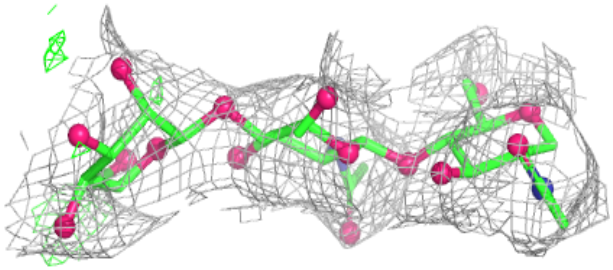


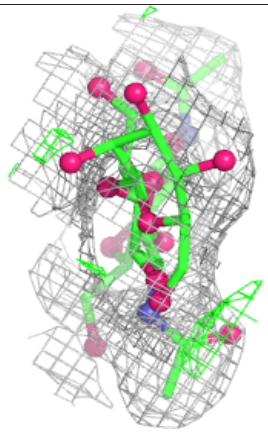


Electron density around Chain p:

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

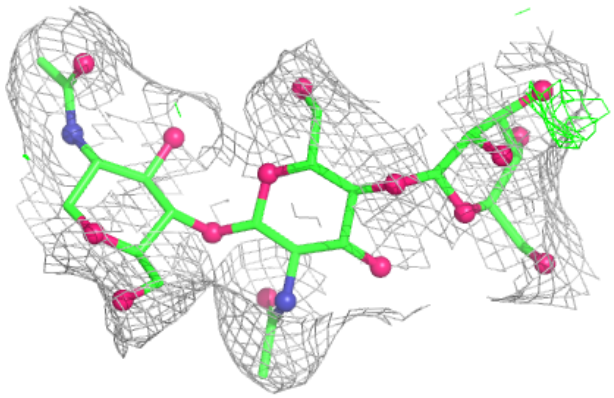


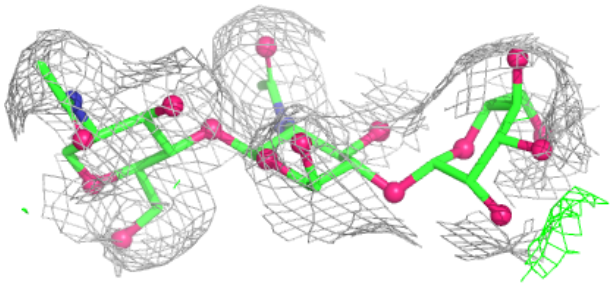


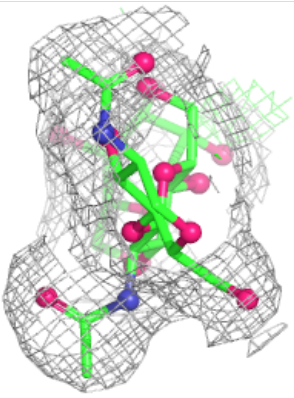


Electron density around Chain r:

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

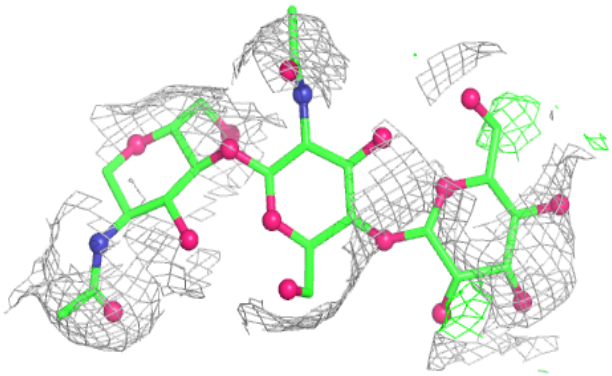


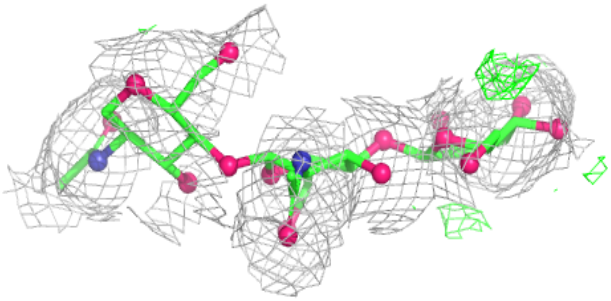


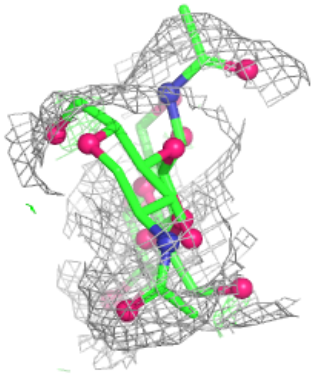


Electron density around Chain t:

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

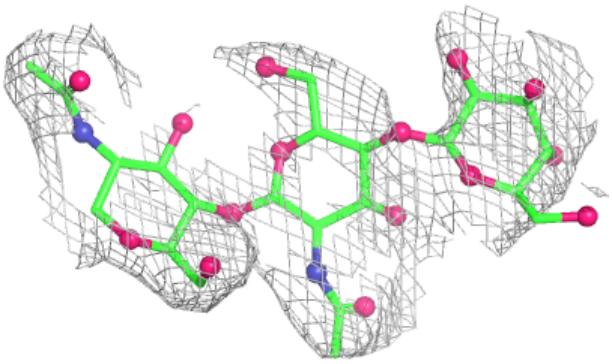


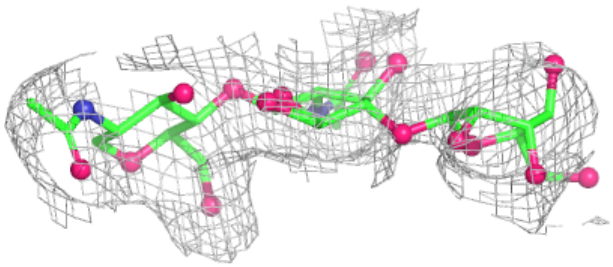


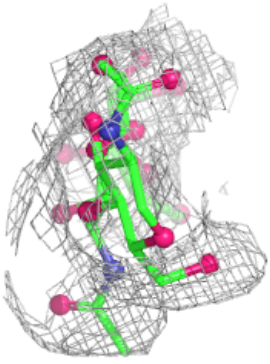


Electron density around Chain v:

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

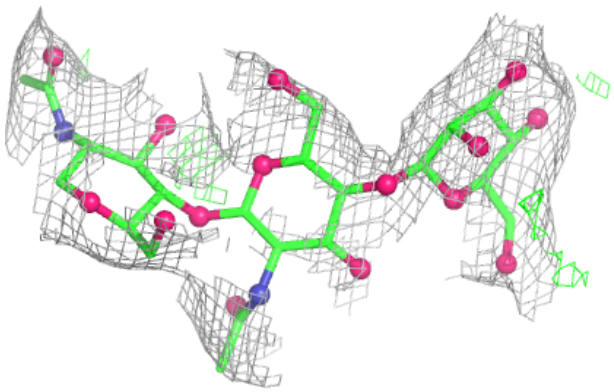


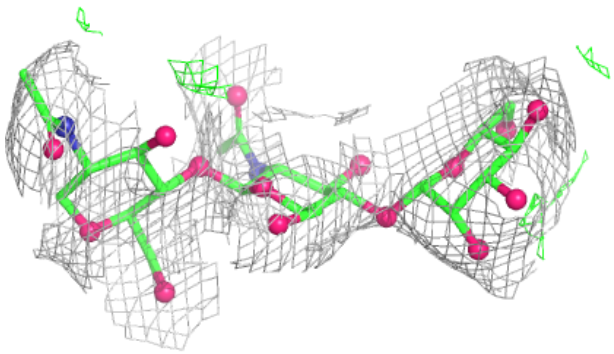


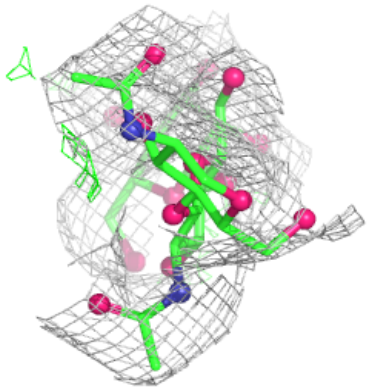


Electron density around Chain x:

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

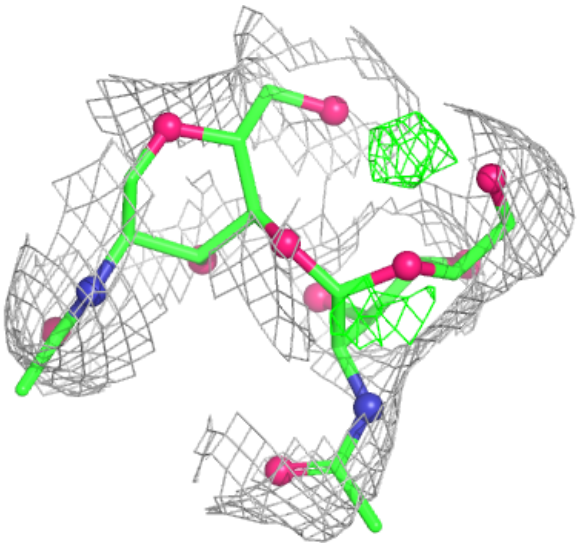


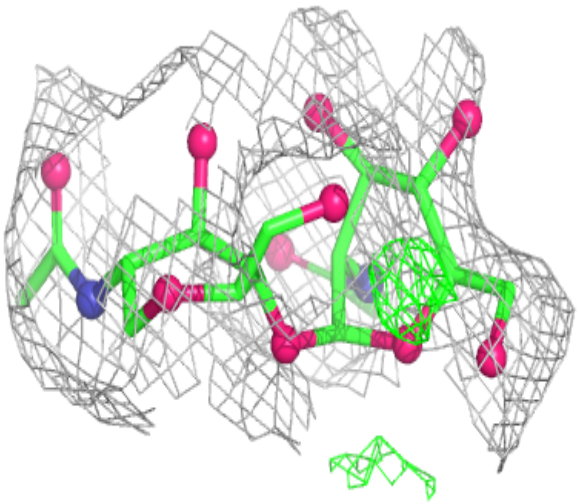


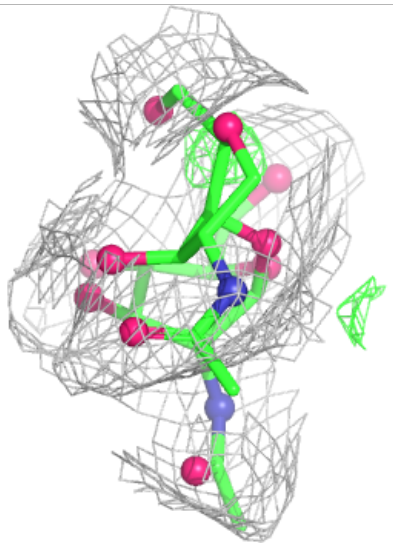


Electron density around Chain f:

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

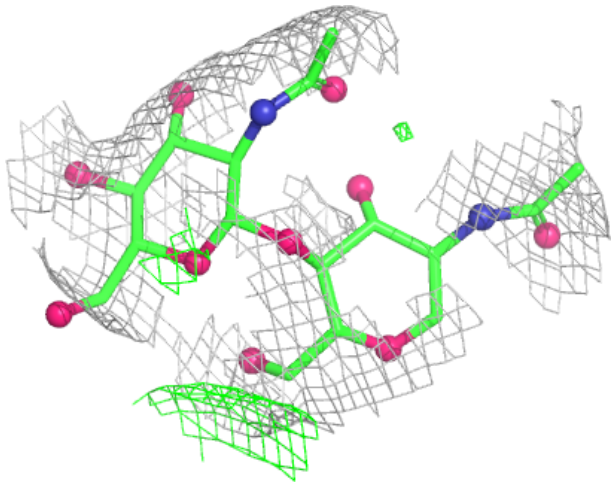


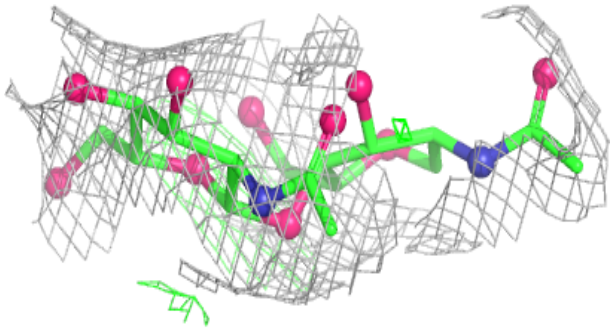


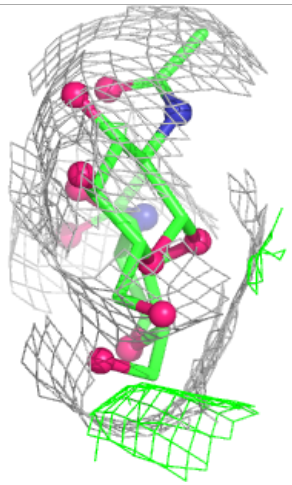


Electron density around Chain i:

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

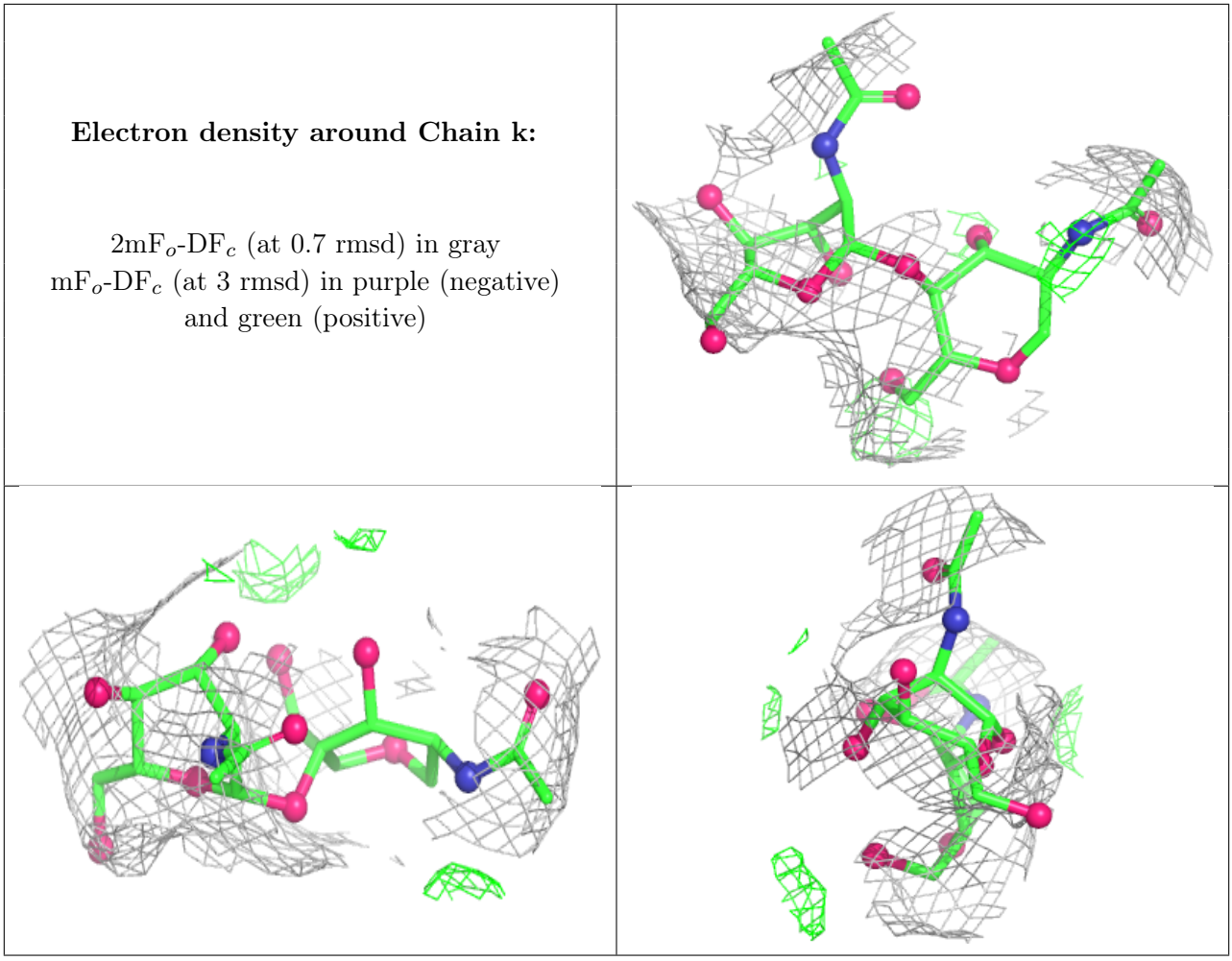






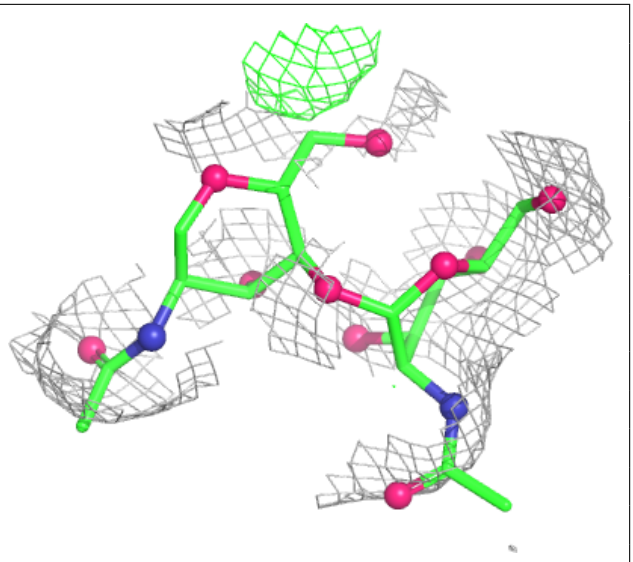
Electron density around Chain k:

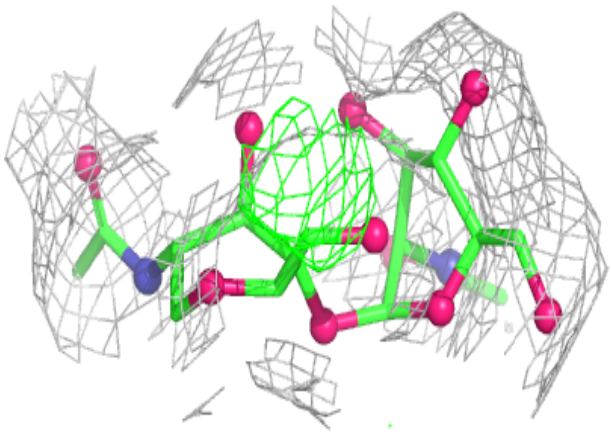
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

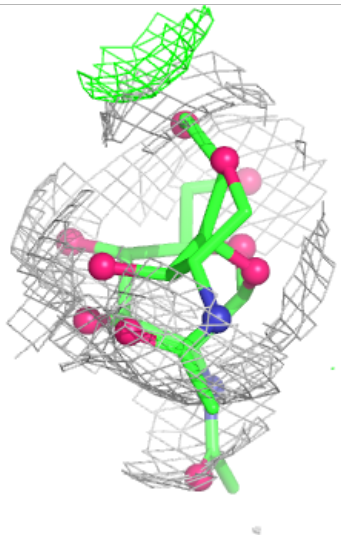


Electron density around Chain m:

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

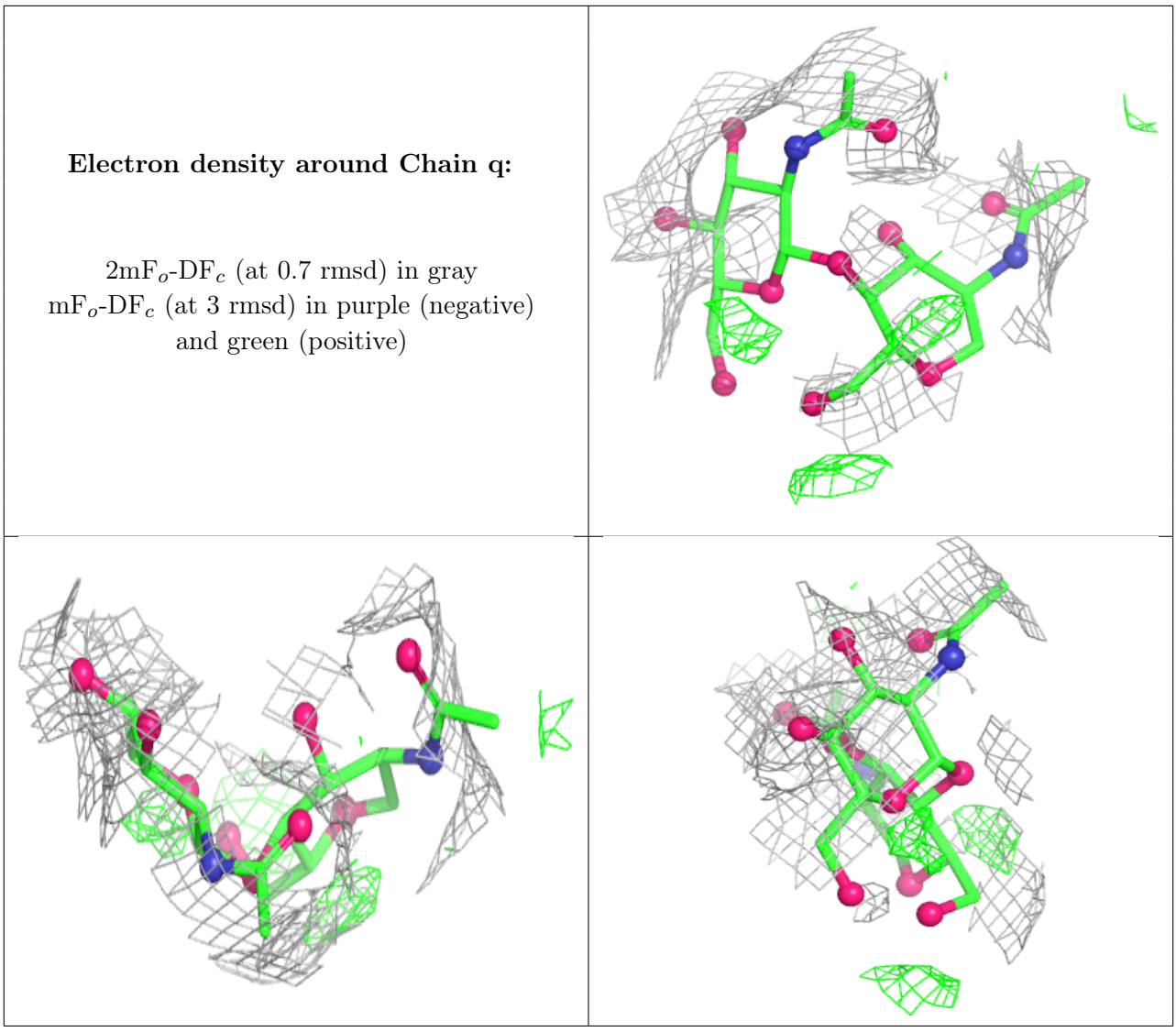






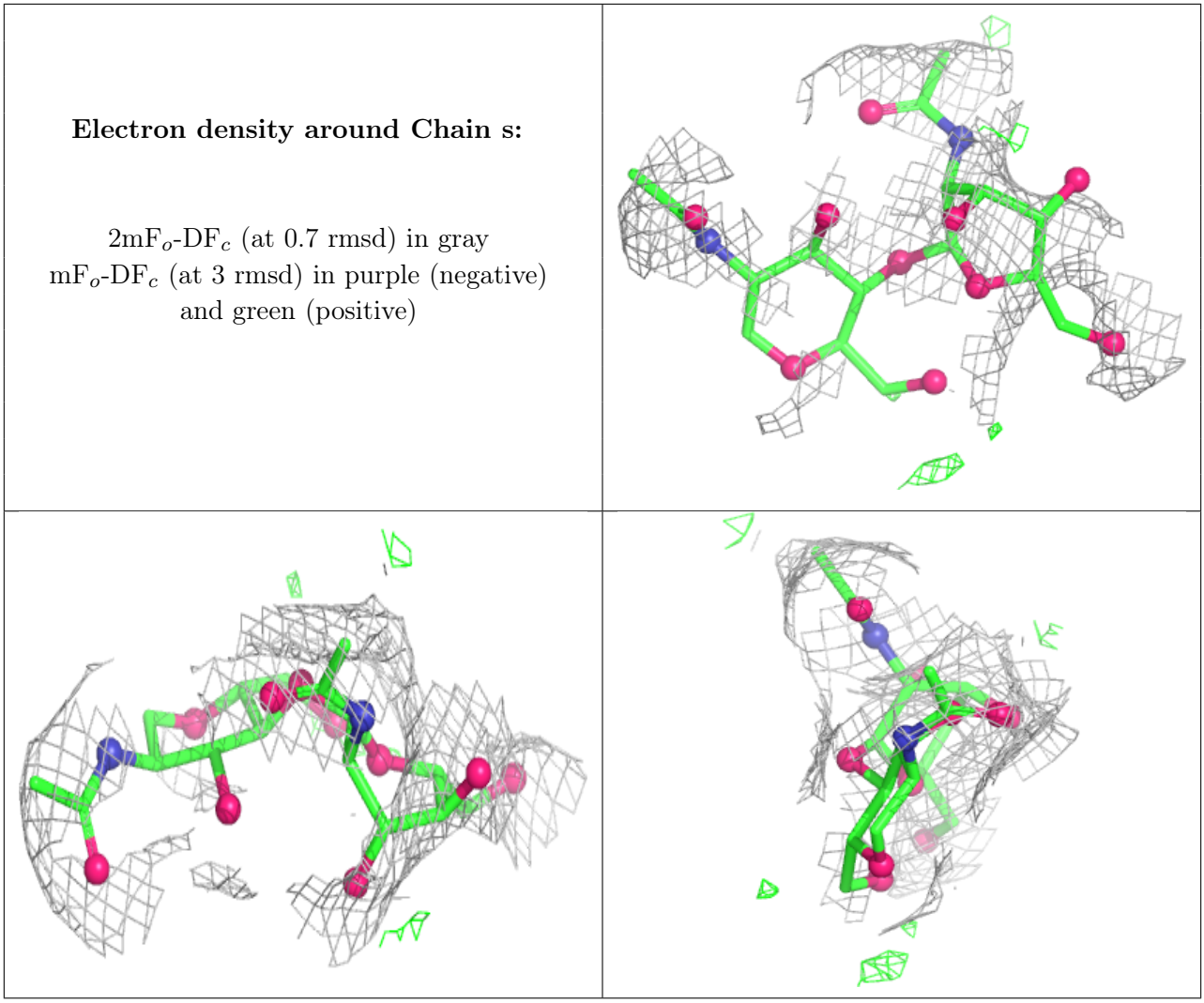
Electron density around Chain q:

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



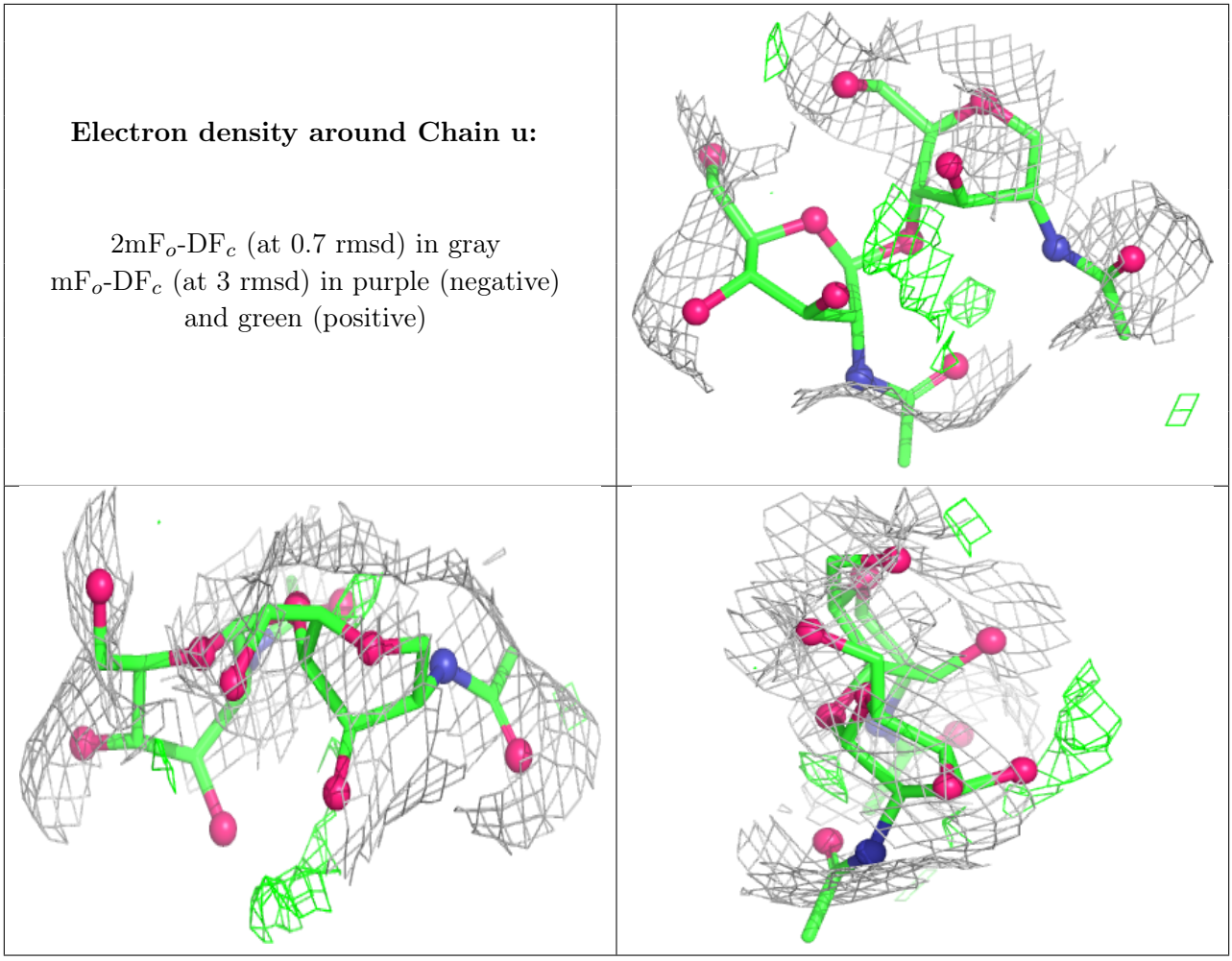
Electron density around Chain s:

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



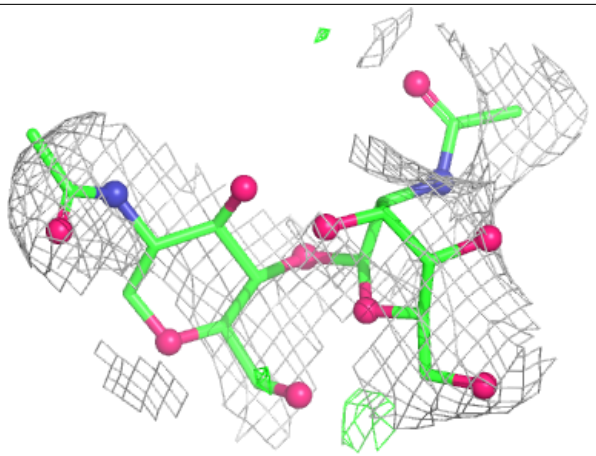
Electron density around Chain u:

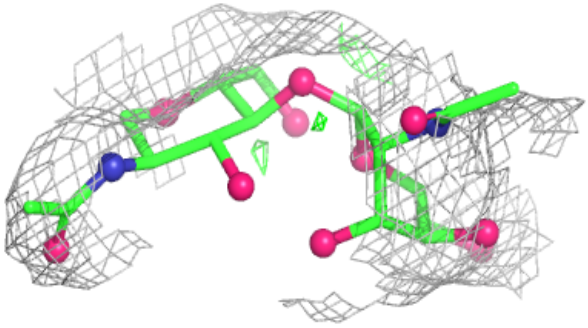
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

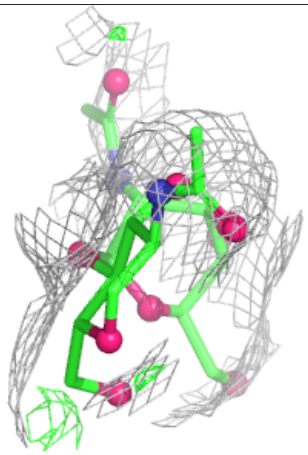


Electron density around Chain w:

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

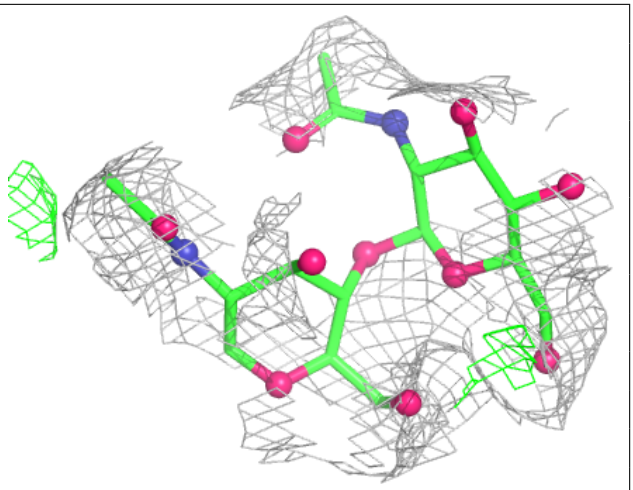


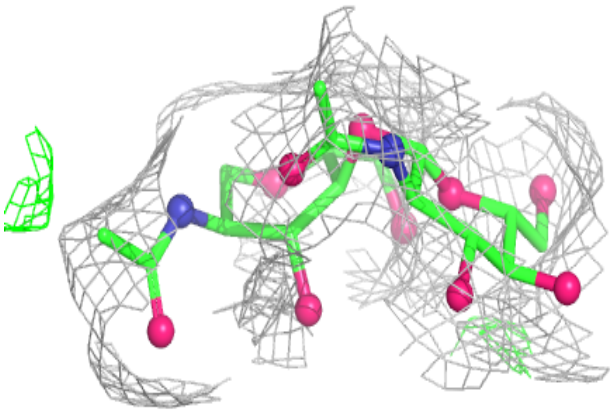


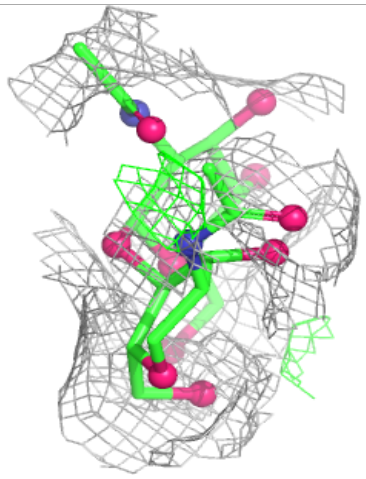


Electron density around Chain y:

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

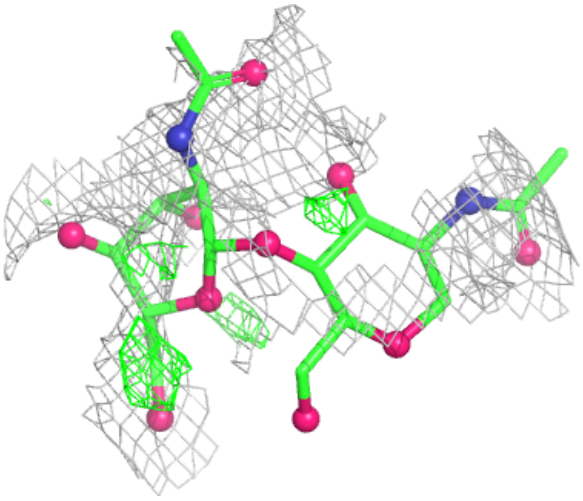


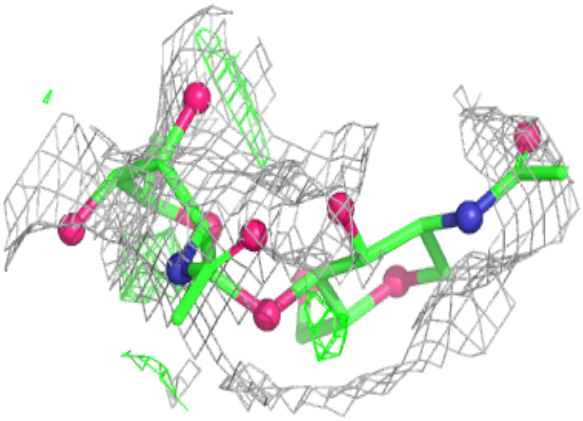


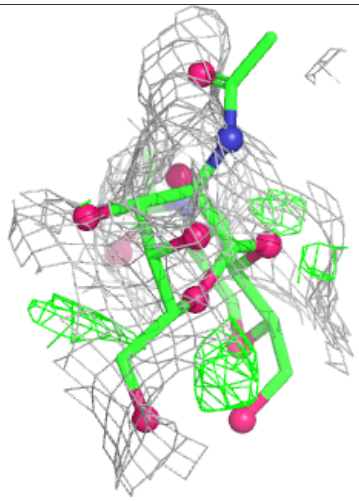


Electron density around Chain z:

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

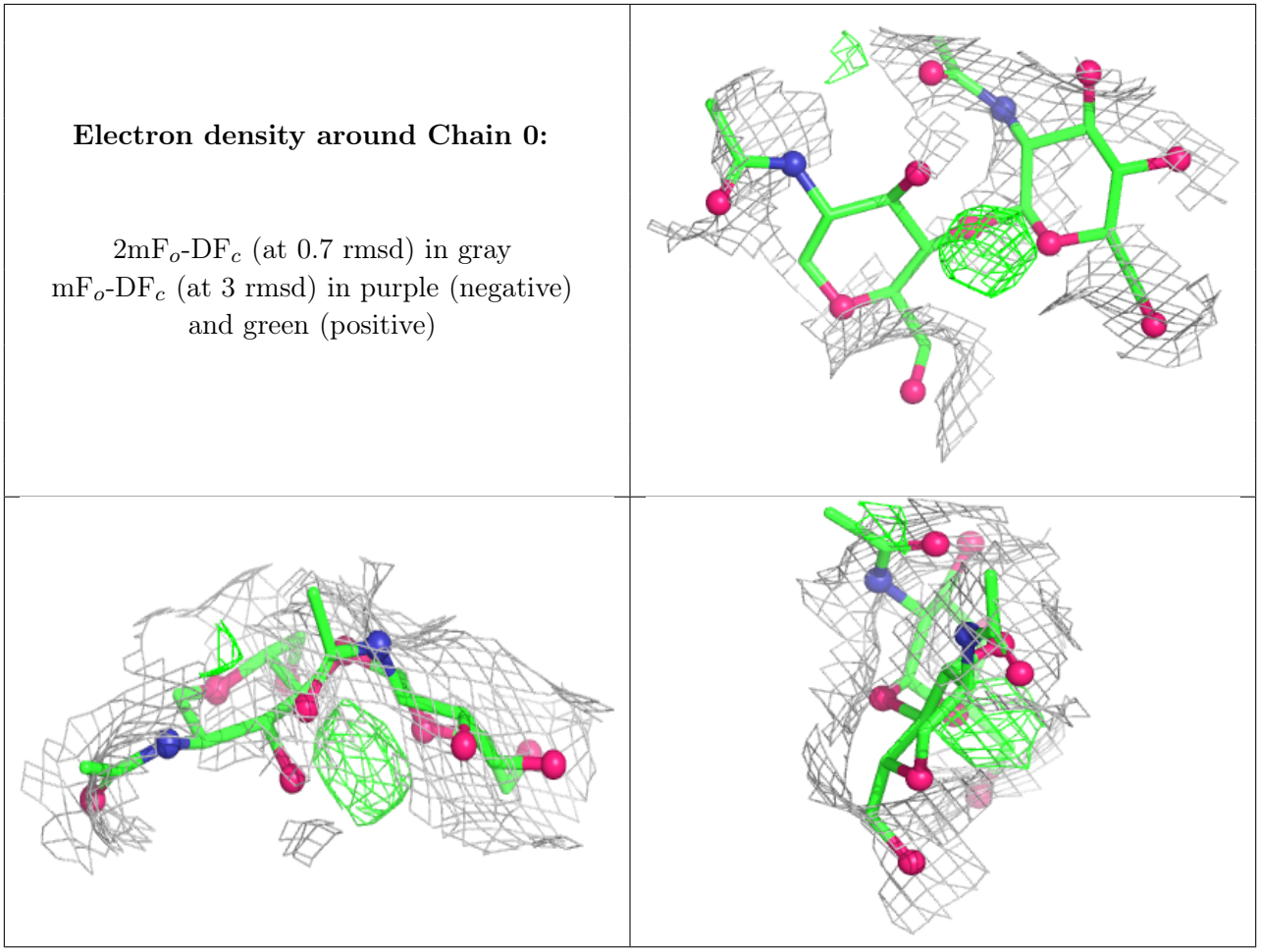






Electron density around Chain 0:

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



6.4 Ligands

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} 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
5	NAG	M	2004	14/15	0.95	0.04	119,135,154,161	0
5	NAG	K	2004	14/15	0.97	0.05	127,135,145,149	0
5	NAG	O	2006	14/15	0.97	0.06	96,105,117,126	0
5	NAG	C	2004	14/15	0.98	0.04	125,149,153,153	0
5	NAG	a	2001	14/15	0.98	0.04	92,112,119,128	0
5	NAG	Y	2001	14/15	0.99	0.04	75,93,108,120	0
5	NAG	c	2001	14/15	0.99	0.04	91,102,120,122	0

6.5 Other polymers

There are no such residues in this entry.