



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 1, 2026 – 03:57 PM UTC

PDB ID : 6N4D / pdb_00006n4d
Title : The crystal structure of neuramindase from A/canine/IL/11613/2015 (H3N2) influenza virus.
Authors : Yang, H.; Stevens, J.
Deposited on : 2018-11-19
Resolution : 1.80 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity	:	4-5-2 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

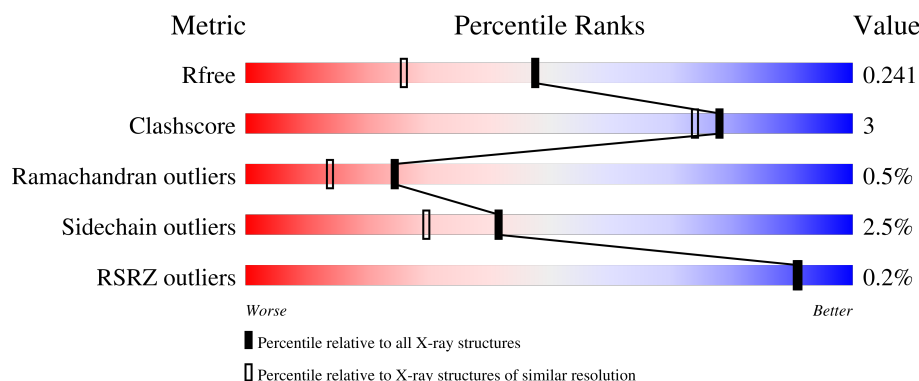
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

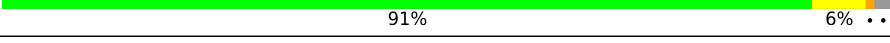
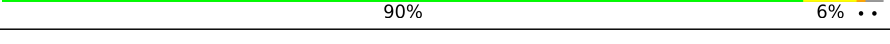
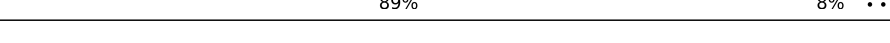
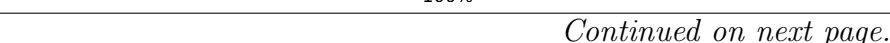
The reported resolution of this entry is 1.80 Å.

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.



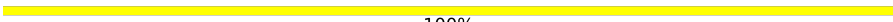
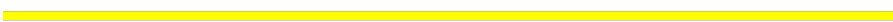
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	7662 (1.80-1.80)
Clashscore	190562	8479 (1.80-1.80)
Ramachandran outliers	187476	8391 (1.80-1.80)
Sidechain outliers	187428	8390 (1.80-1.80)
RSRZ outliers	180081	7663 (1.80-1.80)

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

Mol	Chain	Length	Quality of chain
1	A	397	 89% 7% ..
1	B	397	 91% 6% ..
1	C	397	 90% 6% ..
1	D	397	 89% 8% ..
2	E	2	 100%

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Mol	Chain	Length	Quality of chain
2	G	2	 100%
2	I	2	 100%
2	K	2	 100%
3	F	6	 100%
3	H	6	 67%  33%
3	J	6	 67%  33%
3	L	6	 100%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	NAG	K	1	X	-	-	-

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 12810 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 Neuraminidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	388	Total	C	N	O	S	0	1	0
			3017	1862	545	586	24			
1	B	388	Total	C	N	O	S	0	1	0
			3017	1862	545	586	24			
1	C	388	Total	C	N	O	S	0	1	0
			3017	1862	545	586	24			
1	D	388	Total	C	N	O	S	0	1	0
			3017	1862	545	586	24			

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	73	GLY	-	expression tag	UNP A0A0H3YBU9
A	74	SER	-	expression tag	UNP A0A0H3YBU9
A	75	GLY	-	expression tag	UNP A0A0H3YBU9
A	76	ASP	-	expression tag	UNP A0A0H3YBU9
A	77	SER	-	expression tag	UNP A0A0H3YBU9
A	78	GLY	-	expression tag	UNP A0A0H3YBU9
A	79	SER	-	expression tag	UNP A0A0H3YBU9
A	80	PRO	-	expression tag	UNP A0A0H3YBU9
A	81	GLY	-	expression tag	UNP A0A0H3YBU9
B	73	GLY	-	expression tag	UNP A0A0H3YBU9
B	74	SER	-	expression tag	UNP A0A0H3YBU9
B	75	GLY	-	expression tag	UNP A0A0H3YBU9
B	76	ASP	-	expression tag	UNP A0A0H3YBU9
B	77	SER	-	expression tag	UNP A0A0H3YBU9
B	78	GLY	-	expression tag	UNP A0A0H3YBU9
B	79	SER	-	expression tag	UNP A0A0H3YBU9
B	80	PRO	-	expression tag	UNP A0A0H3YBU9
B	81	GLY	-	expression tag	UNP A0A0H3YBU9
C	73	GLY	-	expression tag	UNP A0A0H3YBU9
C	74	SER	-	expression tag	UNP A0A0H3YBU9
C	75	GLY	-	expression tag	UNP A0A0H3YBU9

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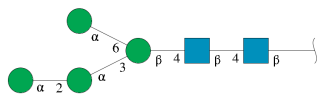
Chain	Residue	Modelled	Actual	Comment	Reference
C	76	ASP	-	expression tag	UNP A0A0H3YBU9
C	77	SER	-	expression tag	UNP A0A0H3YBU9
C	78	GLY	-	expression tag	UNP A0A0H3YBU9
C	79	SER	-	expression tag	UNP A0A0H3YBU9
C	80	PRO	-	expression tag	UNP A0A0H3YBU9
C	81	GLY	-	expression tag	UNP A0A0H3YBU9
D	73	GLY	-	expression tag	UNP A0A0H3YBU9
D	74	SER	-	expression tag	UNP A0A0H3YBU9
D	75	GLY	-	expression tag	UNP A0A0H3YBU9
D	76	ASP	-	expression tag	UNP A0A0H3YBU9
D	77	SER	-	expression tag	UNP A0A0H3YBU9
D	78	GLY	-	expression tag	UNP A0A0H3YBU9
D	79	SER	-	expression tag	UNP A0A0H3YBU9
D	80	PRO	-	expression tag	UNP A0A0H3YBU9
D	81	GLY	-	expression tag	UNP A0A0H3YBU9

- Molecule 2 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
2	E	2	Total	C	N	O	0	0	0
			28	16	2	10			
2	G	2	Total	C	N	O	0	0	0
			28	16	2	10			
2	I	2	Total	C	N	O	0	0	0
			28	16	2	10			
2	K	2	Total	C	N	O	0	0	0
			28	16	2	10			

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

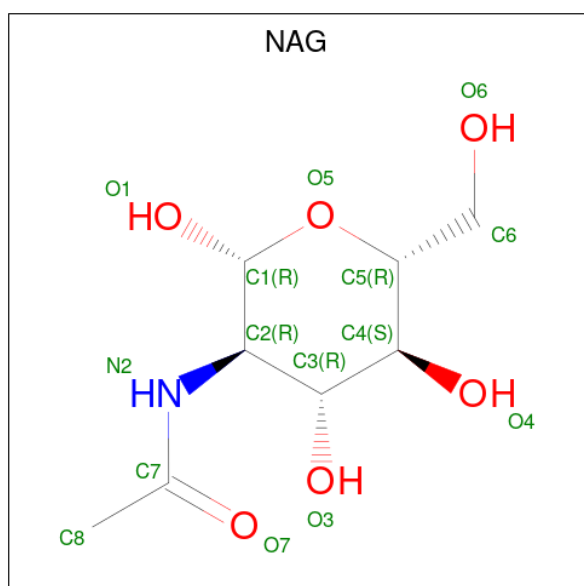


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	F	6	Total	C	N	O	0	0	0
			72	40	2	30			
3	H	6	Total	C	N	O	0	0	0
			72	40	2	30			
3	J	6	Total	C	N	O	0	0	0
			72	40	2	30			
3	L	6	Total	C	N	O	0	0	0
			72	40	2	30			

- Molecule 4 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Ca	0	0
			1	1		
4	B	1	Total	Ca	0	0
			1	1		
4	C	1	Total	Ca	0	0
			1	1		
4	D	1	Total	Ca	0	0
			1	1		

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	N	O	0	0
			14	8	1	5		

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

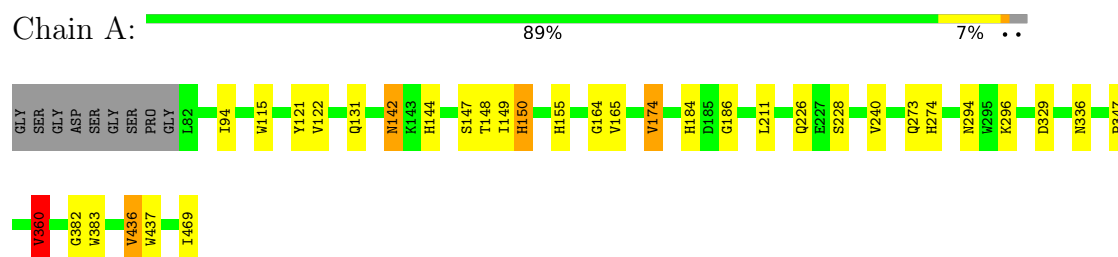
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	97	Total	O	0	0
			97	97		
6	B	40	Total	O	0	0
			40	40		
6	C	48	Total	O	0	0
			48	48		
6	D	97	Total	O	0	0
			97	97		

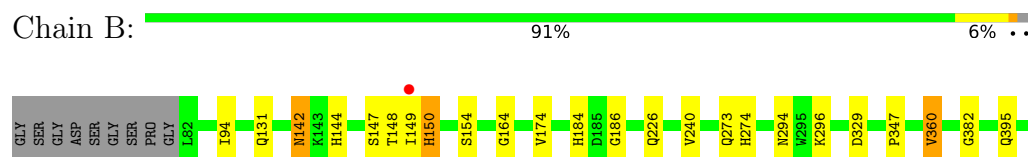
3 Residue-property plots

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

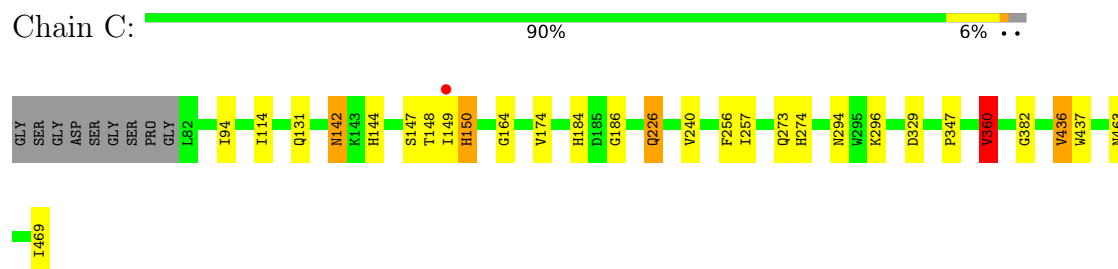
• Molecule 1: Neuraminidase



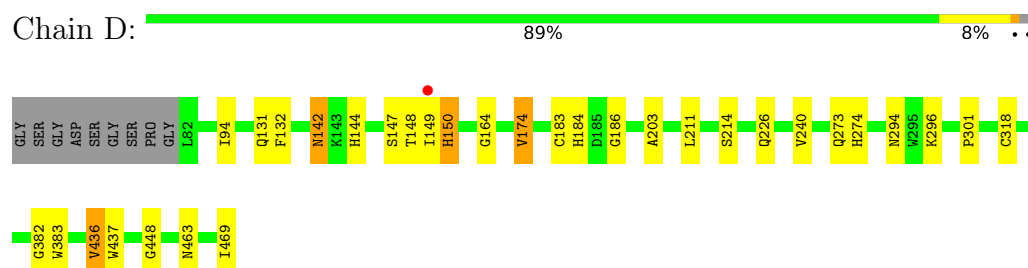
• Molecule 1: Neuraminidase



• Molecule 1: Neuraminidase



• Molecule 1: Neuraminidase

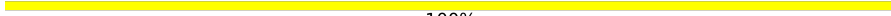


- Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:  100%

MAG1
MAG2

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

Chain G:  100%

MAG1
MAG2

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

Chain I:  100%

MAG1
MAG2

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

Chain K:  100%

MAG1
MAG2

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

Chain F:  100%

MAG1
MAG2
BMA3
MAN4
MAN5
MAN6

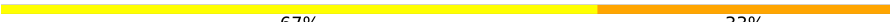
- Molecule 3: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain H:  67%  33%

MAG1
MAG2
BMA3
MAN4
MAN5
MAN6

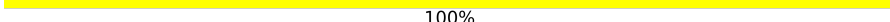
- Molecule 3: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

ido-2-deoxy-beta-D-glucopyranose

Chain J:  67% 33%

MAG1
MAG2
BMA3
MAN4
MAN5
MAN6

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

Chain L:  100%

MAG1
MAG2
BMA3
MAN4
MAN5
MAN6

4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	110.45Å 110.56Å 126.62Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.43 – 1.80 49.43 – 1.80	Depositor EDS
% Data completeness (in resolution range)	99.7 (49.43-1.80) 99.4 (49.43-1.80)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.51 (at 1.81Å)	Xtriage
Refinement program	REFMAC 5.8.0049	Depositor
R, R_{free}	0.210 , 0.238 0.216 , 0.241	Depositor DCC
R_{free} test set	7193 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	23.9	Xtriage
Anisotropy	0.170	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 15.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	0.467 for k,h,-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	12810	wwPDB-VP
Average B, all atoms (Å ²)	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 35.03 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 6.2179e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	1.28	6/3089 (0.2%)	1.06	3/4195 (0.1%)
1	B	1.07	2/3089 (0.1%)	1.00	1/4195 (0.0%)
1	C	1.05	1/3089 (0.0%)	0.99	3/4195 (0.1%)
1	D	1.29	7/3089 (0.2%)	1.06	2/4195 (0.0%)
All	All	1.18	16/12356 (0.1%)	1.03	9/16780 (0.1%)

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	174	VAL	CA-C	6.17	1.61	1.52
1	C	114	ILE	C-O	-6.04	1.18	1.24
1	D	318	CYS	N-CA	5.88	1.53	1.46
1	D	183	CYS	CA-C	-5.75	1.45	1.52
1	D	132	PHE	N-CA	-5.69	1.38	1.45
1	B	154	SER	CA-C	5.65	1.60	1.52
1	A	383	TRP	C-O	-5.65	1.16	1.24
1	A	115	TRP	C-O	5.51	1.30	1.23
1	D	174	VAL	CA-C	5.45	1.60	1.52
1	D	301	PRO	C-O	5.45	1.30	1.23
1	A	155	HIS	N-CA	5.32	1.53	1.46
1	B	395	GLN	C-O	5.27	1.29	1.23
1	A	122	VAL	N-CA	-5.26	1.40	1.46
1	D	448	GLY	CA-C	5.12	1.56	1.52
1	D	383	TRP	C-O	-5.11	1.17	1.24
1	A	165	VAL	CA-C	-5.03	1.49	1.53

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	436	VAL	N-CA-C	9.19	128.44	109.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	436	VAL	N-CA-C	9.18	128.44	109.34
1	B	436	VAL	N-CA-C	8.85	127.76	109.34
1	C	436	VAL	N-CA-C	8.71	127.46	109.34
1	D	360	VAL	CB-CA-C	-6.50	101.01	110.63
1	A	336	ASN	N-CA-C	5.91	120.11	113.02
1	A	360	VAL	CB-CA-C	-5.68	102.16	110.62
1	C	226	GLN	N-CA-C	5.35	117.19	111.36
1	C	360	VAL	CB-CA-C	-5.05	103.09	110.62

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	3017	0	2837	17	0
1	B	3017	0	2837	16	0
1	C	3017	0	2837	17	0
1	D	3017	0	2837	17	0
2	E	28	0	25	1	0
2	G	28	0	25	0	0
2	I	28	0	25	0	0
2	K	28	0	25	0	0
3	F	72	0	61	0	0
3	H	72	0	61	1	0
3	J	72	0	61	1	0
3	L	72	0	61	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
5	A	14	0	13	0	0
5	B	14	0	13	0	0
5	C	14	0	13	0	0
5	D	14	0	13	0	0
6	A	97	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	40	0	0	0	0
6	C	48	0	0	0	0
6	D	97	0	0	0	0
All	All	12810	0	11744	68	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 3.

All (68) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:226:GLN:HE21	1:D:240:VAL:H	1.34	0.75
1:A:226:GLN:HE21	1:A:240:VAL:H	1.35	0.73
1:A:144:HIS:HE2	1:D:463:ASN:H	1.38	0.72
1:B:144:HIS:HE2	1:C:463:ASN:H	1.40	0.70
1:C:226:GLN:HE21	1:C:240:VAL:H	1.40	0.69
1:B:226:GLN:HE21	1:B:240:VAL:H	1.40	0.69
1:D:360:VAL:CG2	1:D:382:GLY:C	2.70	0.65
1:D:147:SER:HG	1:D:150:HIS:CE1	2.16	0.64
1:A:274:HIS:HD2	1:A:294:ASN:H	1.46	0.63
1:D:360:VAL:HG23	1:D:382:GLY:C	2.24	0.63
1:C:147:SER:HG	1:C:150:HIS:CE1	2.17	0.62
1:A:360:VAL:CG2	1:A:382:GLY:C	2.72	0.62
1:A:360:VAL:HG23	1:A:382:GLY:C	2.26	0.61
1:B:147:SER:HG	1:B:150:HIS:CE1	2.18	0.60
1:B:274:HIS:HD2	1:B:294:ASN:H	1.50	0.60
1:A:147:SER:HG	1:A:150:HIS:CE1	2.21	0.59
1:C:360:VAL:CG2	1:C:382:GLY:C	2.78	0.57
1:C:274:HIS:HD2	1:C:294:ASN:H	1.52	0.56
1:B:360:VAL:CG2	1:B:382:GLY:C	2.79	0.56
1:C:131:GLN:NE2	1:C:164:GLY:H	2.04	0.55
1:C:131:GLN:HE21	1:C:164:GLY:H	1.53	0.55
1:D:274:HIS:HD2	1:D:294:ASN:H	1.54	0.55
1:C:360:VAL:HG23	1:C:382:GLY:C	2.31	0.55
1:A:274:HIS:CD2	1:A:294:ASN:H	2.25	0.55
1:B:131:GLN:NE2	1:B:164:GLY:H	2.05	0.55
1:B:131:GLN:HE21	1:B:164:GLY:H	1.54	0.54
1:A:184:HIS:CD2	1:A:186:GLY:H	2.25	0.54
1:B:360:VAL:HG23	1:B:382:GLY:C	2.31	0.54
1:C:273:GLN:HE22	1:C:296:LYS:NZ	2.05	0.54
1:D:131:GLN:HE21	1:D:164:GLY:H	1.56	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:131:GLN:NE2	1:A:164:GLY:H	2.08	0.52
1:A:436:VAL:O	1:A:469:ILE:C	2.52	0.52
1:B:273:GLN:HE22	1:B:296:LYS:NZ	2.07	0.52
1:B:436:VAL:O	1:B:469:ILE:C	2.52	0.52
1:C:436:VAL:O	1:C:469:ILE:C	2.53	0.51
1:A:142:ASN:HD22	1:A:144:HIS:H	1.58	0.51
1:A:273:GLN:HE22	1:A:296:LYS:NZ	2.09	0.51
1:D:436:VAL:O	1:D:469:ILE:C	2.54	0.51
1:D:274:HIS:CD2	1:D:294:ASN:H	2.28	0.51
1:D:273:GLN:HE22	1:D:296:LYS:NZ	2.09	0.51
1:D:131:GLN:NE2	1:D:164:GLY:H	2.08	0.50
1:A:131:GLN:HE21	1:A:164:GLY:H	1.58	0.50
1:D:184:HIS:CD2	1:D:186:GLY:H	2.29	0.50
1:B:274:HIS:CD2	1:B:294:ASN:H	2.28	0.50
1:C:142:ASN:HD22	1:C:144:HIS:H	1.58	0.50
1:B:142:ASN:HD22	1:B:144:HIS:H	1.59	0.49
1:D:142:ASN:HD22	1:D:144:HIS:H	1.59	0.49
1:C:274:HIS:CD2	1:C:294:ASN:H	2.32	0.47
1:C:184:HIS:CD2	1:C:186:GLY:H	2.33	0.47
1:B:184:HIS:CD2	1:B:186:GLY:H	2.32	0.47
3:J:3:BMA:C6	3:J:6:MAN:H5	2.45	0.46
1:A:184:HIS:HD2	1:A:186:GLY:H	1.62	0.45
1:A:142:ASN:ND2	1:A:144:HIS:H	2.17	0.43
1:B:147:SER:OG	1:B:150:HIS:CE1	2.72	0.43
1:C:273:GLN:HE22	1:C:296:LYS:HZ1	1.66	0.43
1:C:142:ASN:ND2	1:C:144:HIS:H	2.17	0.43
2:E:1:NAG:O3	2:E:2:NAG:O5	2.35	0.42
1:D:203:ALA:O	1:D:214:SER:HA	2.20	0.42
1:C:147:SER:OG	1:C:150:HIS:CE1	2.72	0.42
1:B:142:ASN:ND2	1:B:144:HIS:H	2.17	0.42
3:H:3:BMA:C6	3:H:6:MAN:H5	2.49	0.42
1:A:121:TYR:CG	1:A:228:SER:HA	2.55	0.41
1:B:142:ASN:HD22	1:B:142:ASN:C	2.29	0.41
1:D:147:SER:OG	1:D:150:HIS:CE1	2.72	0.41
1:C:256:PHE:C	1:C:257:ILE:HG13	2.46	0.41
1:A:147:SER:OG	1:A:150:HIS:CE1	2.73	0.41
1:D:142:ASN:ND2	1:D:144:HIS:H	2.18	0.41
1:D:184:HIS:HD2	1:D:186:GLY:H	1.69	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	387/397 (98%)	366 (95%)	19 (5%)	2 (0%)	24	14
1	B	387/397 (98%)	366 (95%)	19 (5%)	2 (0%)	24	14
1	C	387/397 (98%)	366 (95%)	19 (5%)	2 (0%)	24	14
1	D	387/397 (98%)	366 (95%)	19 (5%)	2 (0%)	24	14
All	All	1548/1588 (98%)	1464 (95%)	76 (5%)	8 (0%)	24	14

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	347	PRO
1	B	347	PRO
1	C	347	PRO
1	D	347	PRO
1	A	437	TRP
1	B	437	TRP
1	C	437	TRP
1	D	437	TRP

5.3.2 Protein sidechains

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	339/343 (99%)	330 (97%)	9 (3%)	39	27
1	B	339/343 (99%)	331 (98%)	8 (2%)	43	31

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	339/343 (99%)	331 (98%)	8 (2%)	43	31
1	D	339/343 (99%)	330 (97%)	9 (3%)	39	27
All	All	1356/1372 (99%)	1322 (98%)	34 (2%)	42	30

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	94	ILE
1	A	142	ASN
1	A	148	THR
1	A	149	ILE
1	A	150	HIS
1	A	174	VAL
1	A	211	LEU
1	A	329	ASP
1	A	360	VAL
1	B	94	ILE
1	B	142	ASN
1	B	148	THR
1	B	149	ILE
1	B	150	HIS
1	B	174	VAL
1	B	329	ASP
1	B	360	VAL
1	C	94	ILE
1	C	142	ASN
1	C	148	THR
1	C	149	ILE
1	C	150	HIS
1	C	174	VAL
1	C	329	ASP
1	C	360	VAL
1	D	94	ILE
1	D	142	ASN
1	D	148	THR
1	D	149	ILE
1	D	150	HIS
1	D	174	VAL
1	D	211	LEU
1	D	329	ASP
1	D	360	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (62) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	104	ASN
1	A	126	HIS
1	A	131	GLN
1	A	142	ASN
1	A	161	ASN
1	A	184	HIS
1	A	226	GLN
1	A	264	HIS
1	A	273	GLN
1	A	274	HIS
1	A	346	ASN
1	A	387	ASN
1	A	400	ASN
1	A	419	ASN
1	A	432	GLN
1	B	104	ASN
1	B	131	GLN
1	B	142	ASN
1	B	161	ASN
1	B	184	HIS
1	B	226	GLN
1	B	264	HIS
1	B	273	GLN
1	B	274	HIS
1	B	346	ASN
1	B	356	ASN
1	B	387	ASN
1	B	393	ASN
1	B	400	ASN
1	B	419	ASN
1	B	432	GLN
1	C	104	ASN
1	C	131	GLN
1	C	142	ASN
1	C	155	HIS
1	C	161	ASN
1	C	173	GLN
1	C	184	HIS
1	C	226	GLN
1	C	264	HIS
1	C	273	GLN

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Mol	Chain	Res	Type
1	C	274	HIS
1	C	387	ASN
1	C	400	ASN
1	C	419	ASN
1	C	432	GLN
1	D	104	ASN
1	D	126	HIS
1	D	131	GLN
1	D	142	ASN
1	D	161	ASN
1	D	173	GLN
1	D	184	HIS
1	D	226	GLN
1	D	264	HIS
1	D	273	GLN
1	D	274	HIS
1	D	346	ASN
1	D	387	ASN
1	D	400	ASN
1	D	419	ASN
1	D	432	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

32 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
3	MAN	F	4	3	11,11,12	1.37	2 (18%)	15,15,17	1.34	2 (13%)
5	NAG	B	504	1	14,14,15	0.52	0	17,19,21	1.24	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	MAN	H	5	3	11,11,12	0.73	0	15,15,17	2.23	6 (40%)
3	MAN	F	6	3	11,11,12	0.90	0	15,15,17	2.03	3 (20%)
2	NAG	E	2	2	14,14,15	0.60	0	17,19,21	1.29	2 (11%)
3	MAN	L	6	3	11,11,12	0.83	0	15,15,17	1.88	3 (20%)
3	MAN	F	5	3	11,11,12	1.32	1 (9%)	15,15,17	1.80	3 (20%)
2	NAG	G	2	2	14,14,15	0.52	0	17,19,21	1.00	1 (5%)
3	MAN	L	4	3	11,11,12	1.49	3 (27%)	15,15,17	1.59	5 (33%)
3	NAG	H	2	3	14,14,15	0.94	1 (7%)	17,19,21	1.69	5 (29%)
3	NAG	F	1	1,3	14,14,15	1.12	1 (7%)	17,19,21	1.61	3 (17%)
3	NAG	J	1	1,3	14,14,15	0.67	0	17,19,21	1.52	3 (17%)
3	MAN	J	5	3	11,11,12	0.63	0	15,15,17	2.45	7 (46%)
2	NAG	E	1	2,1	14,14,15	0.69	0	17,19,21	2.31	6 (35%)
3	MAN	J	4	3	11,11,12	0.82	0	15,15,17	1.48	2 (13%)
5	NAG	A	504	1	14,14,15	0.69	0	17,19,21	1.17	2 (11%)
2	NAG	G	1	2,1	14,14,15	0.94	1 (7%)	17,19,21	0.77	0
2	NAG	I	2	2	14,14,15	0.49	0	17,19,21	1.28	1 (5%)
3	NAG	L	1	1,3	14,14,15	1.12	1 (7%)	17,19,21	1.46	5 (29%)
3	NAG	L	2	3	14,14,15	1.09	2 (14%)	17,19,21	1.84	4 (23%)
2	NAG	K	2	2	14,14,15	0.58	0	17,19,21	1.35	1 (5%)
3	NAG	F	2	3	14,14,15	1.18	2 (14%)	17,19,21	1.89	4 (23%)
5	NAG	C	504	1	14,14,15	0.56	0	17,19,21	1.35	2 (11%)
2	NAG	I	1	2,1	14,14,15	0.99	1 (7%)	17,19,21	0.79	0
3	MAN	H	4	3	11,11,12	0.81	0	15,15,17	1.45	2 (13%)
3	MAN	H	6	3	11,11,12	0.95	0	15,15,17	1.43	3 (20%)
5	NAG	D	504	1	14,14,15	0.67	0	17,19,21	1.33	3 (17%)
2	NAG	K	1	2,1	14,14,15	0.66	0	17,19,21	2.66	5 (29%)
3	NAG	J	2	3	14,14,15	1.01	1 (7%)	17,19,21	2.03	7 (41%)
3	MAN	J	6	3	11,11,12	1.19	1 (9%)	15,15,17	1.69	3 (20%)
3	MAN	L	5	3	11,11,12	1.16	1 (9%)	15,15,17	1.70	3 (20%)
3	NAG	H	1	1,3	14,14,15	0.71	0	17,19,21	1.52	3 (17%)

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
3	MAN	F	4	3	-	0/2/19/22	0/1/1/1
5	NAG	B	504	1	-	2/6/23/26	0/1/1/1
3	MAN	H	5	3	-	2/2/19/22	0/1/1/1
3	MAN	F	6	3	-	2/2/19/22	0/1/1/1
2	NAG	E	2	2	-	0/6/23/26	0/1/1/1
3	MAN	L	6	3	-	2/2/19/22	0/1/1/1
3	MAN	F	5	3	-	0/2/19/22	0/1/1/1
2	NAG	G	2	2	-	0/6/23/26	0/1/1/1
3	MAN	L	4	3	-	0/2/19/22	0/1/1/1
3	NAG	H	2	3	-	0/6/23/26	0/1/1/1
3	NAG	F	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	J	1	1,3	-	0/6/23/26	0/1/1/1
3	MAN	J	5	3	-	1/2/19/22	0/1/1/1
2	NAG	E	1	2,1	-	0/6/23/26	0/1/1/1
3	MAN	J	4	3	-	0/2/19/22	0/1/1/1
5	NAG	A	504	1	-	0/6/23/26	0/1/1/1
2	NAG	G	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	I	2	2	-	0/6/23/26	0/1/1/1
3	NAG	L	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	L	2	3	-	0/6/23/26	0/1/1/1
2	NAG	K	2	2	-	1/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1
5	NAG	C	504	1	-	2/6/23/26	0/1/1/1
2	NAG	I	1	2,1	-	0/6/23/26	0/1/1/1
3	MAN	H	4	3	-	0/2/19/22	0/1/1/1
3	MAN	H	6	3	-	2/2/19/22	0/1/1/1
5	NAG	D	504	1	-	0/6/23/26	0/1/1/1
2	NAG	K	1	2,1	1/1/5/7	0/6/23/26	0/1/1/1
3	NAG	J	2	3	-	0/6/23/26	0/1/1/1
3	MAN	J	6	3	-	2/2/19/22	0/1/1/1
3	MAN	L	5	3	-	0/2/19/22	0/1/1/1
3	NAG	H	1	1,3	-	0/6/23/26	0/1/1/1

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	L	4	MAN	O5-C1	-3.60	1.37	1.43
3	F	4	MAN	O5-C1	-3.46	1.37	1.43
3	F	5	MAN	O5-C1	-3.32	1.38	1.43
2	I	1	NAG	O5-C1	-3.26	1.38	1.43
3	L	1	NAG	C1-C2	3.12	1.56	1.52
3	F	1	NAG	C1-C2	3.11	1.56	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	2	NAG	O5-C1	-2.86	1.38	1.43
2	G	1	NAG	O5-C1	-2.82	1.39	1.43
3	L	5	MAN	O5-C1	-2.63	1.39	1.43
3	J	6	MAN	C2-C3	2.61	1.56	1.52
3	J	2	NAG	C4-C5	2.56	1.58	1.53
3	L	2	NAG	O4-C4	-2.28	1.37	1.43
3	L	4	MAN	O3-C3	-2.24	1.37	1.43
3	F	2	NAG	C4-C3	-2.17	1.46	1.52
3	L	4	MAN	O5-C5	-2.11	1.39	1.43
3	F	4	MAN	O5-C5	-2.08	1.39	1.43
3	L	2	NAG	O5-C1	-2.02	1.40	1.43
3	H	2	NAG	O5-C1	-2.00	1.40	1.43

All (101) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	K	1	NAG	C1-O5-C5	6.62	121.05	112.19
2	K	1	NAG	O5-C1-C2	6.45	121.27	111.29
3	J	5	MAN	C1-O5-C5	6.43	120.81	112.19
2	E	1	NAG	C1-O5-C5	5.22	119.19	112.19
3	H	5	MAN	C1-O5-C5	5.19	119.14	112.19
3	L	2	NAG	O5-C1-C2	-5.12	103.37	111.29
3	F	2	NAG	O5-C1-C2	-4.85	103.79	111.29
3	L	6	MAN	C1-O5-C5	4.70	118.48	112.19
2	K	2	NAG	C1-C2-N2	-4.38	103.53	110.43
3	F	6	MAN	C1-O5-C5	4.31	117.96	112.19
3	F	6	MAN	O3-C3-C2	4.27	118.78	110.05
3	J	6	MAN	O5-C5-C6	4.26	115.94	107.66
2	E	1	NAG	O5-C1-C2	4.00	117.48	111.29
3	L	5	MAN	C1-O5-C5	4.00	117.54	112.19
3	F	5	MAN	C2-C3-C4	-3.75	104.26	110.86
2	E	2	NAG	C1-C2-N2	-3.72	104.57	110.43
2	E	1	NAG	O4-C4-C3	-3.71	101.63	110.38
3	H	2	NAG	O4-C4-C3	-3.68	101.69	110.38
3	H	4	MAN	C1-O5-C5	3.65	117.08	112.19
3	J	5	MAN	O5-C5-C4	3.64	119.69	110.83
3	J	2	NAG	O6-C6-C5	-3.64	98.94	111.33
3	H	6	MAN	O5-C5-C6	3.59	114.66	107.66
3	L	6	MAN	O3-C3-C2	3.58	117.35	110.05
2	I	2	NAG	C1-C2-N2	-3.54	104.86	110.43
2	K	1	NAG	O4-C4-C3	-3.44	102.26	110.38
3	F	5	MAN	C1-O5-C5	3.40	116.74	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	1	NAG	C1-C2-N2	-3.38	105.11	110.43
3	H	5	MAN	O5-C5-C4	3.38	119.05	110.83
3	J	4	MAN	C1-O5-C5	3.35	116.68	112.19
3	L	5	MAN	C2-C3-C4	-3.31	105.04	110.86
3	F	4	MAN	C1-O5-C5	3.31	116.62	112.19
3	J	1	NAG	O4-C4-C3	-3.31	102.58	110.38
3	L	4	MAN	C1-O5-C5	3.21	116.49	112.19
3	F	1	NAG	C1-O5-C5	3.20	116.47	112.19
3	F	2	NAG	C1-O5-C5	3.11	116.35	112.19
3	J	4	MAN	O5-C5-C6	2.98	113.46	107.66
3	H	1	NAG	O3-C3-C4	-2.93	103.48	110.38
3	J	2	NAG	C3-C4-C5	-2.87	105.03	110.23
5	B	504	NAG	O5-C1-C2	2.84	115.69	111.29
3	J	2	NAG	C6-C5-C4	2.84	119.99	113.02
3	H	5	MAN	O4-C4-C5	-2.79	102.46	109.32
5	B	504	NAG	C1-O5-C5	2.76	115.89	112.19
3	J	2	NAG	O4-C4-C3	-2.76	103.87	110.38
3	H	2	NAG	C8-C7-N2	2.76	120.69	116.12
3	L	1	NAG	C2-N2-C7	2.75	126.58	122.90
2	E	2	NAG	O4-C4-C5	2.74	116.08	109.32
3	H	1	NAG	O7-C7-C8	-2.73	117.20	122.05
5	C	504	NAG	C2-N2-C7	2.68	126.49	122.90
3	H	2	NAG	O7-C7-C8	-2.66	117.31	122.05
3	L	2	NAG	C1-O5-C5	2.61	115.68	112.19
5	D	504	NAG	C3-C4-C5	-2.60	105.52	110.23
3	L	5	MAN	C1-C2-C3	-2.57	105.90	109.64
3	J	1	NAG	C1-O5-C5	-2.56	108.75	112.19
3	H	5	MAN	C3-C4-C5	2.56	114.87	110.23
5	C	504	NAG	O5-C1-C2	2.56	115.25	111.29
3	F	1	NAG	O4-C4-C3	-2.56	104.35	110.38
5	D	504	NAG	O5-C5-C6	2.55	112.62	107.66
5	D	504	NAG	C1-C2-N2	-2.54	106.44	110.43
3	L	1	NAG	C1-O5-C5	2.53	115.58	112.19
3	F	1	NAG	C2-N2-C7	2.52	126.28	122.90
3	J	6	MAN	O5-C5-C4	-2.52	104.69	110.83
3	F	2	NAG	C2-N2-C7	2.48	126.22	122.90
3	F	5	MAN	C1-C2-C3	-2.47	106.05	109.64
3	F	2	NAG	O7-C7-C8	-2.42	117.74	122.05
3	J	5	MAN	O3-C3-C2	-2.41	105.14	110.05
2	K	1	NAG	O5-C5-C4	2.39	116.65	110.83
3	L	1	NAG	O4-C4-C3	-2.39	104.74	110.38
3	H	6	MAN	C1-O5-C5	-2.39	108.99	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	J	6	MAN	O3-C3-C2	2.38	114.90	110.05
3	J	5	MAN	O2-C2-C1	2.35	114.61	109.22
3	J	2	NAG	C8-C7-N2	2.34	120.00	116.12
3	L	6	MAN	O5-C5-C4	2.33	116.50	110.83
3	L	2	NAG	C2-N2-C7	2.28	125.96	122.90
3	F	4	MAN	O3-C3-C4	-2.28	105.00	110.38
3	L	2	NAG	C6-C5-C4	2.27	118.60	113.02
3	H	2	NAG	O6-C6-C5	-2.26	103.62	111.33
3	H	6	MAN	C6-C5-C4	2.23	118.49	113.02
3	H	5	MAN	O2-C2-C3	2.23	114.76	110.15
3	J	5	MAN	C3-C4-C5	2.22	114.25	110.23
2	K	1	NAG	C6-C5-C4	-2.21	107.60	113.02
3	J	2	NAG	O7-C7-C8	-2.20	118.13	122.05
3	J	5	MAN	O2-C2-C3	2.17	114.64	110.15
3	L	4	MAN	C2-C3-C4	-2.16	107.05	110.86
3	H	2	NAG	C3-C4-C5	-2.16	106.31	110.23
2	G	2	NAG	C1-C2-N2	-2.15	107.04	110.43
5	A	504	NAG	O5-C5-C6	2.15	111.85	107.66
3	L	4	MAN	O5-C5-C6	-2.14	103.49	107.66
3	L	4	MAN	O3-C3-C4	-2.14	105.34	110.38
3	H	1	NAG	O4-C4-C3	-2.14	105.34	110.38
5	A	504	NAG	C1-C2-N2	-2.13	107.08	110.43
3	L	4	MAN	O4-C4-C3	-2.11	105.40	110.38
3	J	1	NAG	O7-C7-C8	-2.11	118.30	122.05
3	L	1	NAG	O7-C7-C8	-2.10	118.31	122.05
3	J	2	NAG	O5-C5-C6	-2.10	103.58	107.66
2	E	1	NAG	C6-C5-C4	-2.09	107.89	113.02
3	L	1	NAG	C1-C2-N2	-2.08	107.16	110.43
2	E	1	NAG	O4-C4-C5	2.03	114.31	109.32
3	F	6	MAN	O4-C4-C3	-2.03	105.60	110.38
3	J	5	MAN	O4-C4-C5	-2.02	104.34	109.32
3	H	4	MAN	O5-C5-C6	2.01	111.58	107.66
3	H	5	MAN	C6-C5-C4	-2.01	108.10	113.02

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	K	1	NAG	C1

All (16) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	504	NAG	C4-C5-C6-O6
5	B	504	NAG	C4-C5-C6-O6
3	H	6	MAN	O5-C5-C6-O6
5	B	504	NAG	O5-C5-C6-O6
5	C	504	NAG	O5-C5-C6-O6
3	J	6	MAN	O5-C5-C6-O6
3	L	6	MAN	C4-C5-C6-O6
3	F	6	MAN	C4-C5-C6-O6
3	H	6	MAN	C4-C5-C6-O6
3	H	5	MAN	C4-C5-C6-O6
3	J	6	MAN	C4-C5-C6-O6
3	L	6	MAN	O5-C5-C6-O6
3	F	6	MAN	O5-C5-C6-O6
3	H	5	MAN	O5-C5-C6-O6
2	K	2	NAG	C4-C5-C6-O6
3	J	5	MAN	C4-C5-C6-O6

There are no ring outliers.

4 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	2	NAG	1	0
2	E	1	NAG	1	0
3	H	6	MAN	1	0
3	J	6	MAN	1	0

5.5 Carbohydrates [i](#)

32 monosaccharides are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	NAG	E	1	2,1	14,14,15	0.69	0	17,19,21	2.31	6 (35%)
2	NAG	E	2	2	14,14,15	0.60	0	17,19,21	1.29	2 (11%)
3	NAG	F	1	1,3	14,14,15	1.12	1 (7%)	17,19,21	1.61	3 (17%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	NAG	F	2	3	14,14,15	1.18	2 (14%)	17,19,21	1.89	4 (23%)
3	BMA	F	3	3	11,11,12	0.93	1 (9%)	15,15,17	0.99	1 (6%)
3	MAN	F	4	3	11,11,12	1.37	2 (18%)	15,15,17	1.34	2 (13%)
3	MAN	F	5	3	11,11,12	1.32	1 (9%)	15,15,17	1.80	3 (20%)
3	MAN	F	6	3	11,11,12	0.90	0	15,15,17	2.03	3 (20%)
2	NAG	G	1	2,1	14,14,15	0.94	1 (7%)	17,19,21	0.77	0
2	NAG	G	2	2	14,14,15	0.52	0	17,19,21	1.00	1 (5%)
3	NAG	H	1	1,3	14,14,15	0.71	0	17,19,21	1.52	3 (17%)
3	NAG	H	2	3	14,14,15	0.94	1 (7%)	17,19,21	1.69	5 (29%)
3	BMA	H	3	3	11,11,12	0.65	0	15,15,17	1.38	2 (13%)
3	MAN	H	4	3	11,11,12	0.81	0	15,15,17	1.45	2 (13%)
3	MAN	H	5	3	11,11,12	0.73	0	15,15,17	2.23	6 (40%)
3	MAN	H	6	3	11,11,12	0.95	0	15,15,17	1.43	3 (20%)
2	NAG	I	1	2,1	14,14,15	0.99	1 (7%)	17,19,21	0.79	0
2	NAG	I	2	2	14,14,15	0.49	0	17,19,21	1.28	1 (5%)
3	NAG	J	1	1,3	14,14,15	0.67	0	17,19,21	1.52	3 (17%)
3	NAG	J	2	3	14,14,15	1.01	1 (7%)	17,19,21	2.03	7 (41%)
3	BMA	J	3	3	11,11,12	0.45	0	15,15,17	1.30	2 (13%)
3	MAN	J	4	3	11,11,12	0.82	0	15,15,17	1.48	2 (13%)
3	MAN	J	5	3	11,11,12	0.63	0	15,15,17	2.45	7 (46%)
3	MAN	J	6	3	11,11,12	1.19	1 (9%)	15,15,17	1.69	3 (20%)
2	NAG	K	1	2,1	14,14,15	0.66	0	17,19,21	2.66	5 (29%)
2	NAG	K	2	2	14,14,15	0.58	0	17,19,21	1.35	1 (5%)
3	NAG	L	1	1,3	14,14,15	1.12	1 (7%)	17,19,21	1.46	5 (29%)
3	NAG	L	2	3	14,14,15	1.09	2 (14%)	17,19,21	1.84	4 (23%)
3	BMA	L	3	3	11,11,12	1.20	2 (18%)	15,15,17	1.13	1 (6%)
3	MAN	L	4	3	11,11,12	1.49	3 (27%)	15,15,17	1.59	5 (33%)
3	MAN	L	5	3	11,11,12	1.16	1 (9%)	15,15,17	1.70	3 (20%)
3	MAN	L	6	3	11,11,12	0.83	0	15,15,17	1.88	3 (20%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	E	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	E	2	2	-	0/6/23/26	0/1/1/1
3	NAG	F	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1
3	BMA	F	3	3	-	0/2/19/22	0/1/1/1
3	MAN	F	4	3	-	0/2/19/22	0/1/1/1
3	MAN	F	5	3	-	0/2/19/22	0/1/1/1
3	MAN	F	6	3	-	2/2/19/22	0/1/1/1
2	NAG	G	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	G	2	2	-	0/6/23/26	0/1/1/1
3	NAG	H	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	H	2	3	-	0/6/23/26	0/1/1/1
3	BMA	H	3	3	-	0/2/19/22	0/1/1/1
3	MAN	H	4	3	-	0/2/19/22	0/1/1/1
3	MAN	H	5	3	-	2/2/19/22	0/1/1/1
3	MAN	H	6	3	-	2/2/19/22	0/1/1/1
2	NAG	I	1	2,1	-	0/6/23/26	0/1/1/1
2	NAG	I	2	2	-	0/6/23/26	0/1/1/1
3	NAG	J	1	1,3	-	0/6/23/26	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
3	MAN	J	4	3	-	0/2/19/22	0/1/1/1
3	MAN	J	5	3	-	1/2/19/22	0/1/1/1
3	MAN	J	6	3	-	2/2/19/22	0/1/1/1
2	NAG	K	1	2,1	1/1/5/7	0/6/23/26	0/1/1/1
2	NAG	K	2	2	-	1/6/23/26	0/1/1/1
3	NAG	L	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	L	2	3	-	0/6/23/26	0/1/1/1
3	BMA	L	3	3	-	0/2/19/22	0/1/1/1
3	MAN	L	4	3	-	0/2/19/22	0/1/1/1
3	MAN	L	5	3	-	0/2/19/22	0/1/1/1
3	MAN	L	6	3	-	2/2/19/22	0/1/1/1

All (21) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	L	4	MAN	O5-C1	-3.60	1.37	1.43
3	F	4	MAN	O5-C1	-3.46	1.37	1.43
3	F	5	MAN	O5-C1	-3.32	1.38	1.43
2	I	1	NAG	O5-C1	-3.26	1.38	1.43
3	L	1	NAG	C1-C2	3.12	1.56	1.52
3	F	1	NAG	C1-C2	3.11	1.56	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	2	NAG	O5-C1	-2.86	1.38	1.43
3	F	3	BMA	O4-C4	2.82	1.49	1.43
2	G	1	NAG	O5-C1	-2.82	1.39	1.43
3	L	3	BMA	C2-C3	2.73	1.56	1.52
3	L	5	MAN	O5-C1	-2.63	1.39	1.43
3	J	6	MAN	C2-C3	2.61	1.56	1.52
3	J	2	NAG	C4-C5	2.56	1.58	1.53
3	L	2	NAG	O4-C4	-2.28	1.37	1.43
3	L	3	BMA	O4-C4	2.26	1.48	1.43
3	L	4	MAN	O3-C3	-2.24	1.37	1.43
3	F	2	NAG	C4-C3	-2.17	1.46	1.52
3	L	4	MAN	O5-C5	-2.11	1.39	1.43
3	F	4	MAN	O5-C5	-2.08	1.39	1.43
3	L	2	NAG	O5-C1	-2.02	1.40	1.43
3	H	2	NAG	O5-C1	-2.00	1.40	1.43

All (98) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	K	1	NAG	C1-O5-C5	6.62	121.05	112.19
2	K	1	NAG	O5-C1-C2	6.45	121.27	111.29
3	J	5	MAN	C1-O5-C5	6.43	120.81	112.19
2	E	1	NAG	C1-O5-C5	5.22	119.19	112.19
3	H	5	MAN	C1-O5-C5	5.19	119.14	112.19
3	L	2	NAG	O5-C1-C2	-5.12	103.37	111.29
3	F	2	NAG	O5-C1-C2	-4.85	103.79	111.29
3	L	6	MAN	C1-O5-C5	4.70	118.48	112.19
2	K	2	NAG	C1-C2-N2	-4.38	103.53	110.43
3	F	6	MAN	C1-O5-C5	4.31	117.96	112.19
3	F	6	MAN	O3-C3-C2	4.27	118.78	110.05
3	J	6	MAN	O5-C5-C6	4.26	115.94	107.66
2	E	1	NAG	O5-C1-C2	4.00	117.48	111.29
3	L	5	MAN	C1-O5-C5	4.00	117.54	112.19
3	F	5	MAN	C2-C3-C4	-3.75	104.26	110.86
2	E	2	NAG	C1-C2-N2	-3.72	104.57	110.43
2	E	1	NAG	O4-C4-C3	-3.71	101.63	110.38
3	H	2	NAG	O4-C4-C3	-3.68	101.69	110.38
3	L	3	BMA	C1-C2-C3	-3.68	104.28	109.64
3	H	4	MAN	C1-O5-C5	3.65	117.08	112.19
3	J	5	MAN	O5-C5-C4	3.64	119.69	110.83
3	J	2	NAG	O6-C6-C5	-3.64	98.94	111.33
3	H	6	MAN	O5-C5-C6	3.59	114.66	107.66

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	L	6	MAN	O3-C3-C2	3.58	117.35	110.05
2	I	2	NAG	C1-C2-N2	-3.54	104.86	110.43
2	K	1	NAG	O4-C4-C3	-3.44	102.26	110.38
3	F	5	MAN	C1-O5-C5	3.40	116.74	112.19
3	H	3	BMA	O2-C2-C1	3.39	116.98	109.22
2	E	1	NAG	C1-C2-N2	-3.38	105.11	110.43
3	H	5	MAN	O5-C5-C4	3.38	119.05	110.83
3	J	4	MAN	C1-O5-C5	3.35	116.68	112.19
3	L	5	MAN	C2-C3-C4	-3.31	105.04	110.86
3	F	4	MAN	C1-O5-C5	3.31	116.62	112.19
3	J	1	NAG	O4-C4-C3	-3.31	102.58	110.38
3	L	4	MAN	C1-O5-C5	3.21	116.49	112.19
3	F	1	NAG	C1-O5-C5	3.20	116.47	112.19
3	F	2	NAG	C1-O5-C5	3.11	116.35	112.19
3	J	4	MAN	O5-C5-C6	2.98	113.46	107.66
3	F	3	BMA	C1-C2-C3	-2.93	105.38	109.64
3	H	1	NAG	O3-C3-C4	-2.93	103.48	110.38
3	J	3	BMA	O2-C2-C1	2.91	115.89	109.22
3	J	2	NAG	C3-C4-C5	-2.87	105.03	110.23
3	J	2	NAG	C6-C5-C4	2.84	119.99	113.02
3	H	5	MAN	O4-C4-C5	-2.79	102.46	109.32
3	J	2	NAG	O4-C4-C3	-2.76	103.87	110.38
3	H	2	NAG	C8-C7-N2	2.76	120.69	116.12
3	L	1	NAG	C2-N2-C7	2.75	126.58	122.90
2	E	2	NAG	O4-C4-C5	2.74	116.08	109.32
3	H	1	NAG	O7-C7-C8	-2.73	117.20	122.05
3	H	2	NAG	O7-C7-C8	-2.66	117.31	122.05
3	L	2	NAG	C1-O5-C5	2.61	115.68	112.19
3	L	5	MAN	C1-C2-C3	-2.57	105.90	109.64
3	J	1	NAG	C1-O5-C5	-2.56	108.75	112.19
3	H	5	MAN	C3-C4-C5	2.56	114.87	110.23
3	F	1	NAG	O4-C4-C3	-2.56	104.35	110.38
3	L	1	NAG	C1-O5-C5	2.53	115.58	112.19
3	F	1	NAG	C2-N2-C7	2.52	126.28	122.90
3	J	6	MAN	O5-C5-C4	-2.52	104.69	110.83
3	F	2	NAG	C2-N2-C7	2.48	126.22	122.90
3	F	5	MAN	C1-C2-C3	-2.47	106.05	109.64
3	H	3	BMA	C6-C5-C4	-2.45	107.00	113.02
3	F	2	NAG	O7-C7-C8	-2.42	117.74	122.05
3	J	5	MAN	O3-C3-C2	-2.41	105.14	110.05
2	K	1	NAG	O5-C5-C4	2.39	116.65	110.83
3	L	1	NAG	O4-C4-C3	-2.39	104.74	110.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	6	MAN	C1-O5-C5	-2.39	108.99	112.19
3	J	6	MAN	O3-C3-C2	2.38	114.90	110.05
3	J	5	MAN	O2-C2-C1	2.35	114.61	109.22
3	J	2	NAG	C8-C7-N2	2.34	120.00	116.12
3	L	6	MAN	O5-C5-C4	2.33	116.50	110.83
3	L	2	NAG	C2-N2-C7	2.28	125.96	122.90
3	F	4	MAN	O3-C3-C4	-2.28	105.00	110.38
3	L	2	NAG	C6-C5-C4	2.27	118.60	113.02
3	H	2	NAG	O6-C6-C5	-2.26	103.62	111.33
3	H	6	MAN	C6-C5-C4	2.23	118.49	113.02
3	H	5	MAN	O2-C2-C3	2.23	114.76	110.15
3	J	5	MAN	C3-C4-C5	2.22	114.25	110.23
2	K	1	NAG	C6-C5-C4	-2.21	107.60	113.02
3	J	2	NAG	O7-C7-C8	-2.20	118.13	122.05
3	J	3	BMA	C6-C5-C4	-2.17	107.68	113.02
3	J	5	MAN	O2-C2-C3	2.17	114.64	110.15
3	L	4	MAN	C2-C3-C4	-2.16	107.05	110.86
3	H	2	NAG	C3-C4-C5	-2.16	106.31	110.23
2	G	2	NAG	C1-C2-N2	-2.15	107.04	110.43
3	L	4	MAN	O5-C5-C6	-2.14	103.49	107.66
3	L	4	MAN	O3-C3-C4	-2.14	105.34	110.38
3	H	1	NAG	O4-C4-C3	-2.14	105.34	110.38
3	L	4	MAN	O4-C4-C3	-2.11	105.40	110.38
3	J	1	NAG	O7-C7-C8	-2.11	118.30	122.05
3	L	1	NAG	O7-C7-C8	-2.10	118.31	122.05
3	J	2	NAG	O5-C5-C6	-2.10	103.58	107.66
2	E	1	NAG	C6-C5-C4	-2.09	107.89	113.02
3	L	1	NAG	C1-C2-N2	-2.08	107.16	110.43
2	E	1	NAG	O4-C4-C5	2.03	114.31	109.32
3	F	6	MAN	O4-C4-C3	-2.03	105.60	110.38
3	J	5	MAN	O4-C4-C5	-2.02	104.34	109.32
3	H	4	MAN	O5-C5-C6	2.01	111.58	107.66
3	H	5	MAN	C6-C5-C4	-2.01	108.10	113.02

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	K	1	NAG	C1

All (12) torsion outliers are listed below:

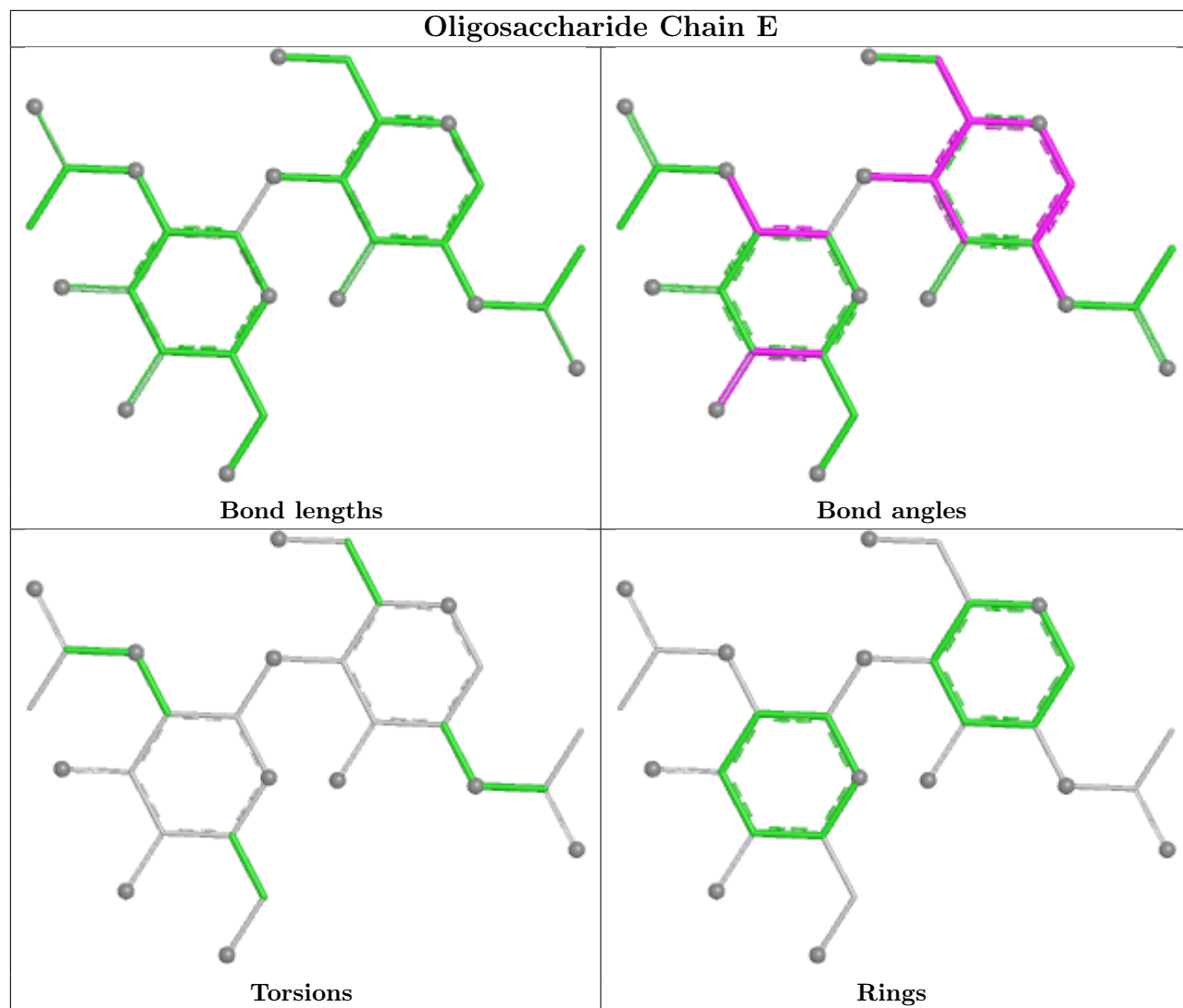
Mol	Chain	Res	Type	Atoms
3	H	6	MAN	O5-C5-C6-O6
3	J	6	MAN	O5-C5-C6-O6
3	L	6	MAN	C4-C5-C6-O6
3	F	6	MAN	C4-C5-C6-O6
3	H	6	MAN	C4-C5-C6-O6
3	H	5	MAN	C4-C5-C6-O6
3	J	6	MAN	C4-C5-C6-O6
3	L	6	MAN	O5-C5-C6-O6
3	F	6	MAN	O5-C5-C6-O6
3	H	5	MAN	O5-C5-C6-O6
2	K	2	NAG	C4-C5-C6-O6
3	J	5	MAN	C4-C5-C6-O6

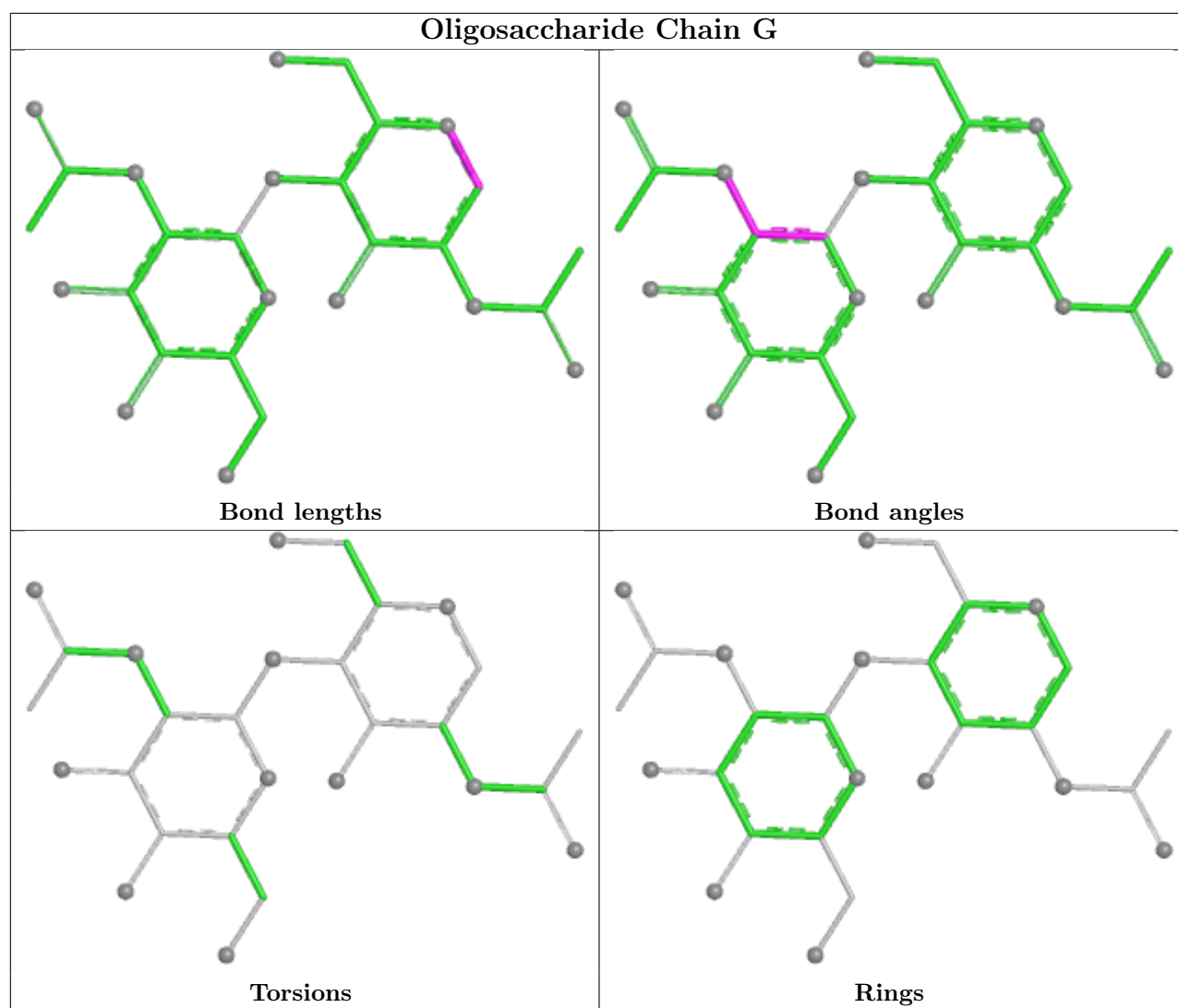
There are no ring outliers.

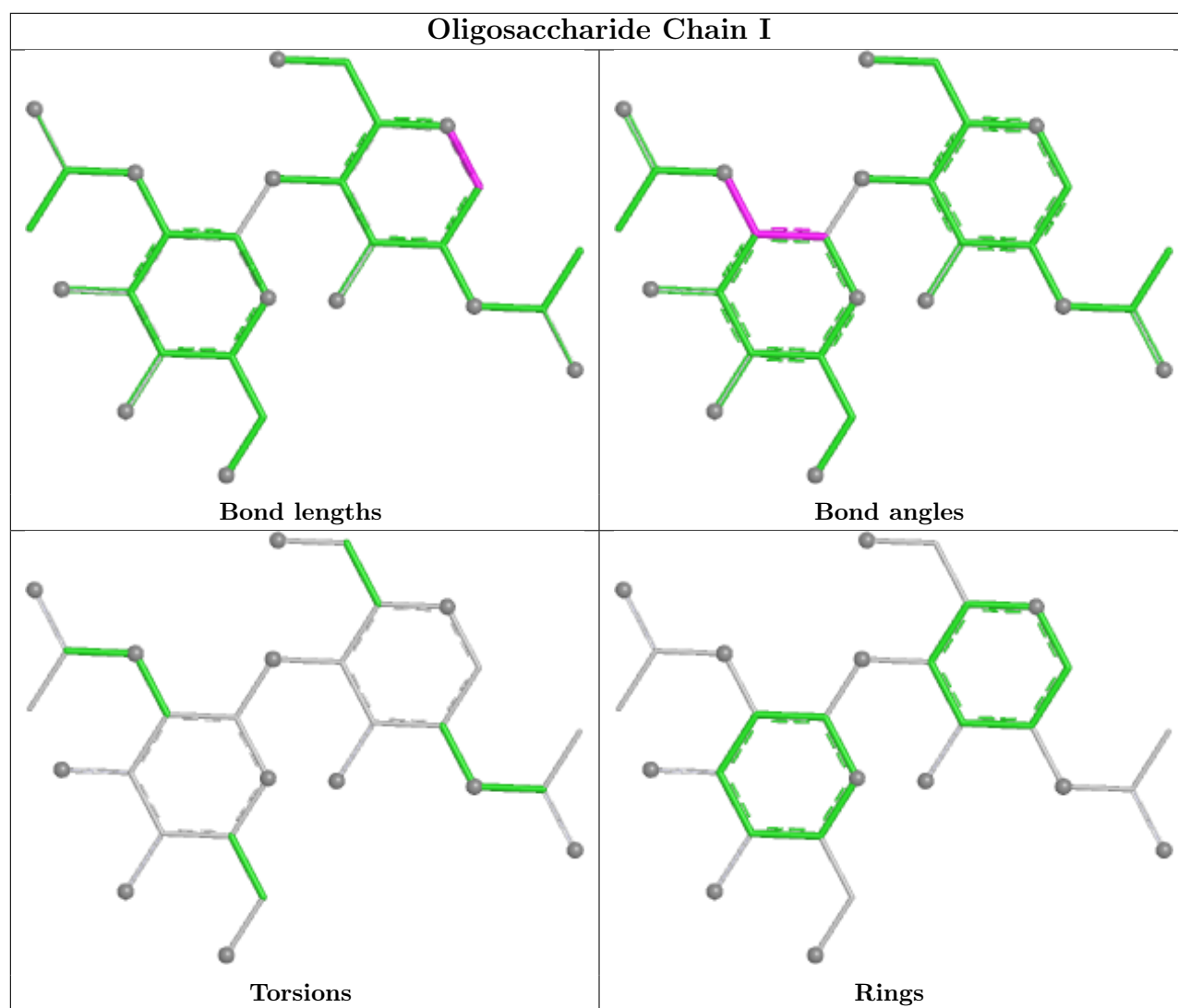
6 monomers are involved in 3 short contacts:

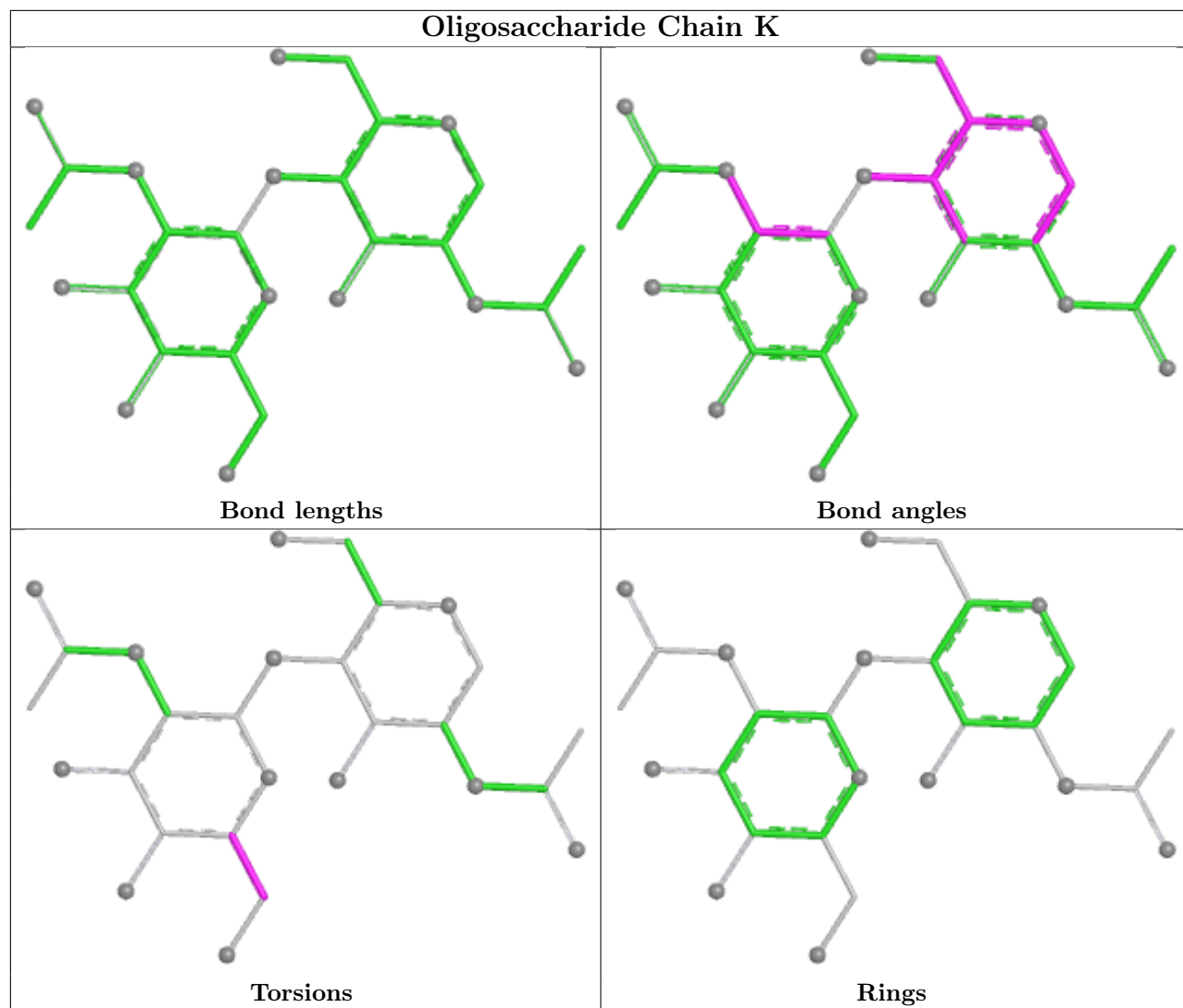
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	2	NAG	1	0
3	J	3	BMA	1	0
2	E	1	NAG	1	0
3	H	3	BMA	1	0
3	H	6	MAN	1	0
3	J	6	MAN	1	0

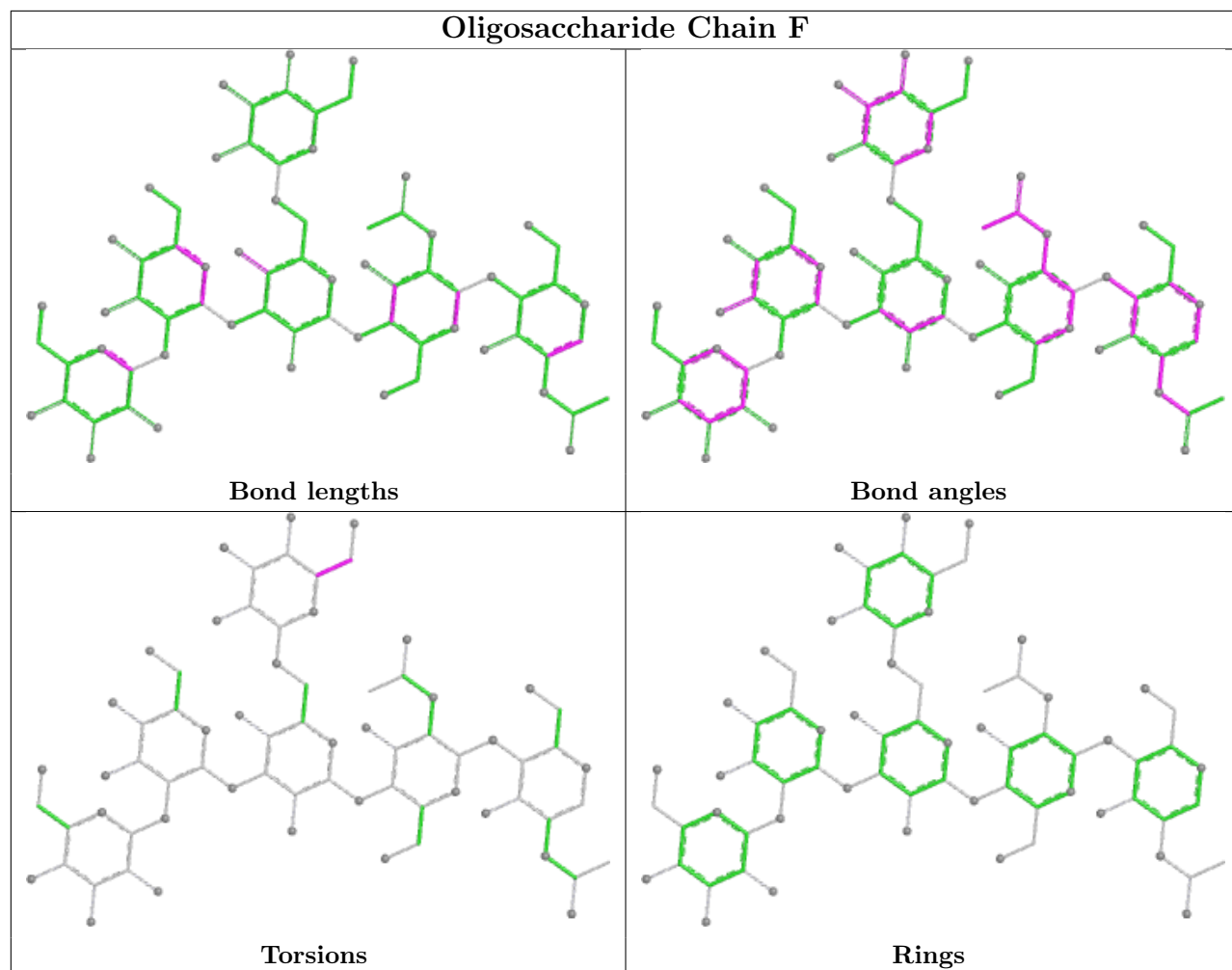
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.



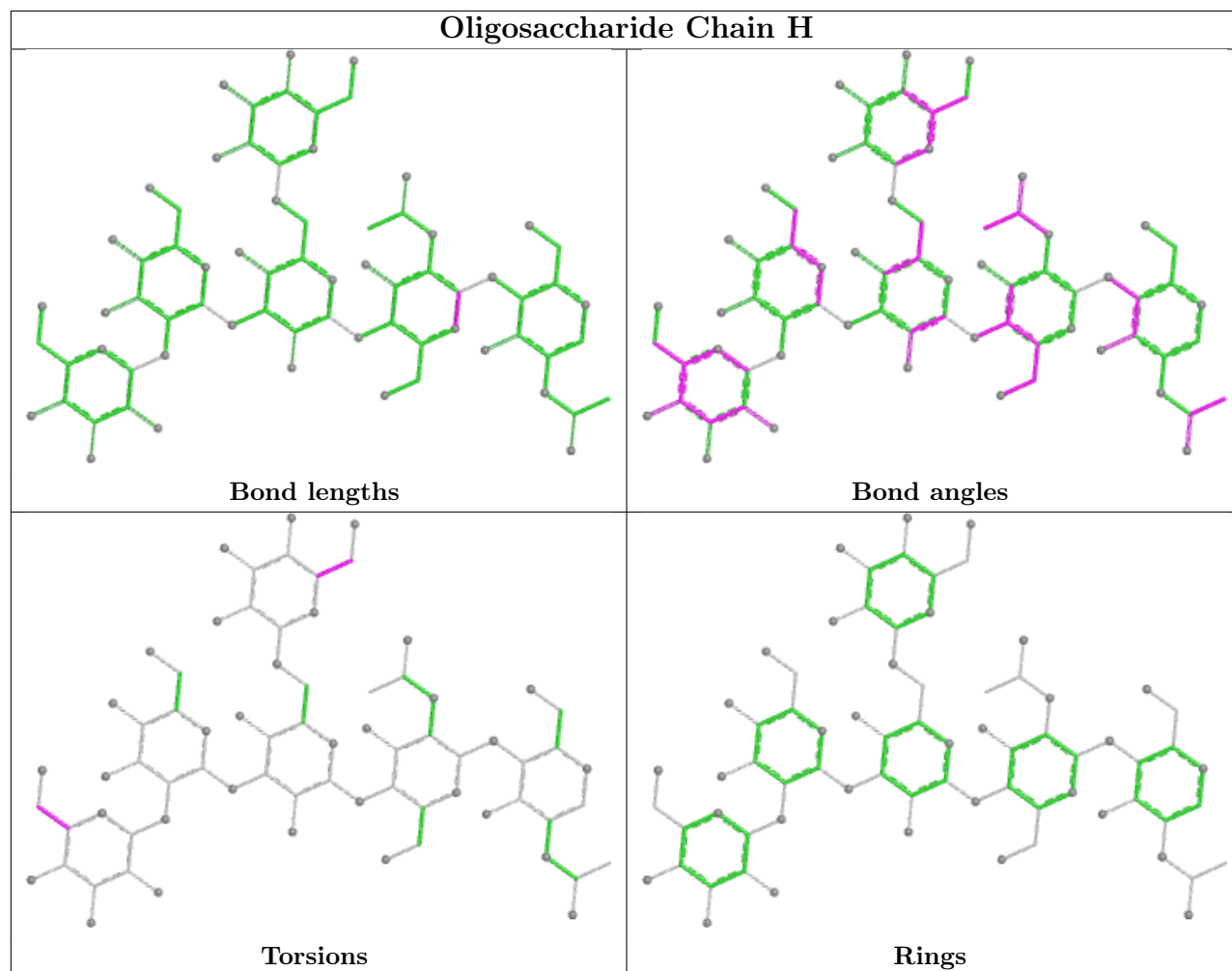




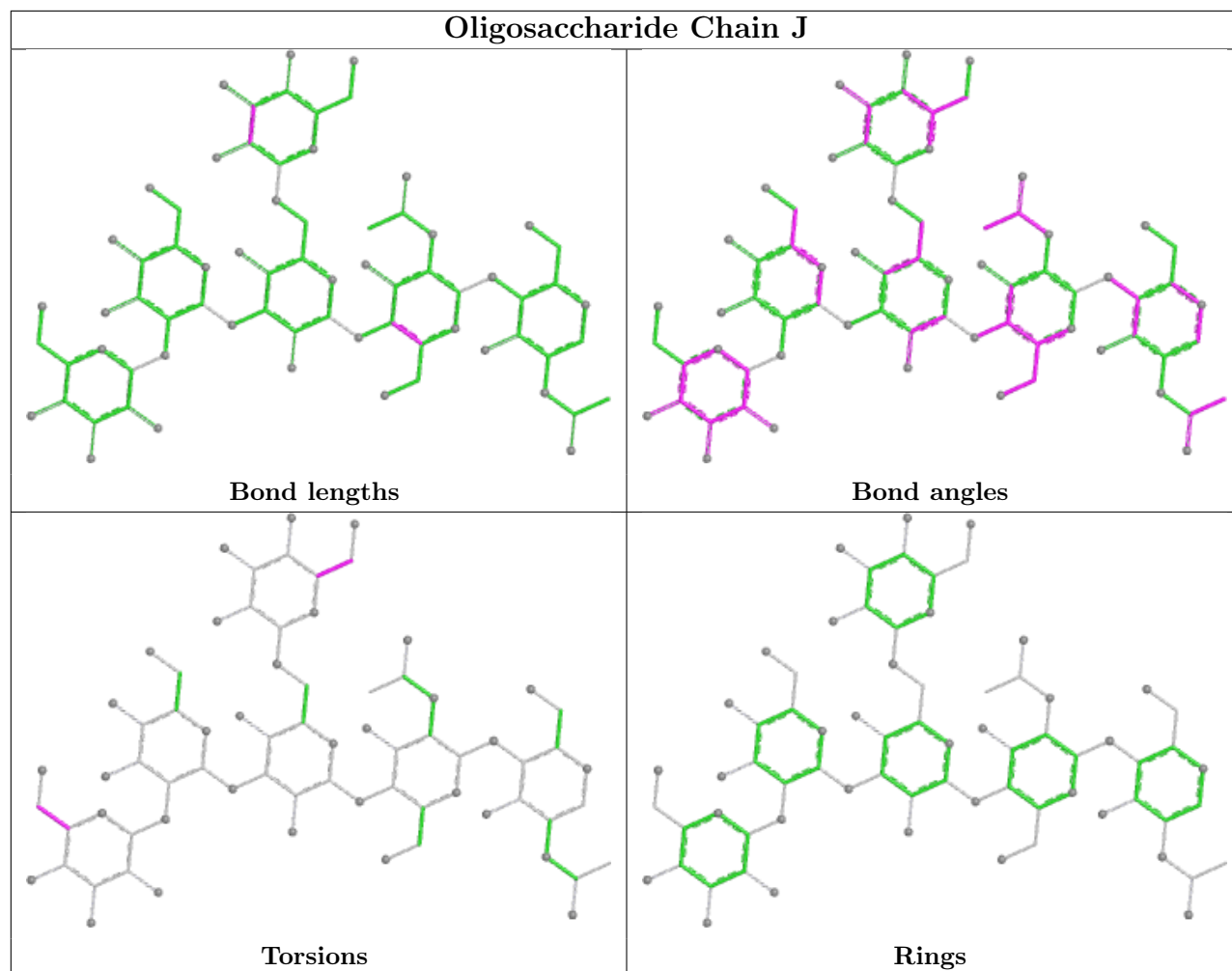


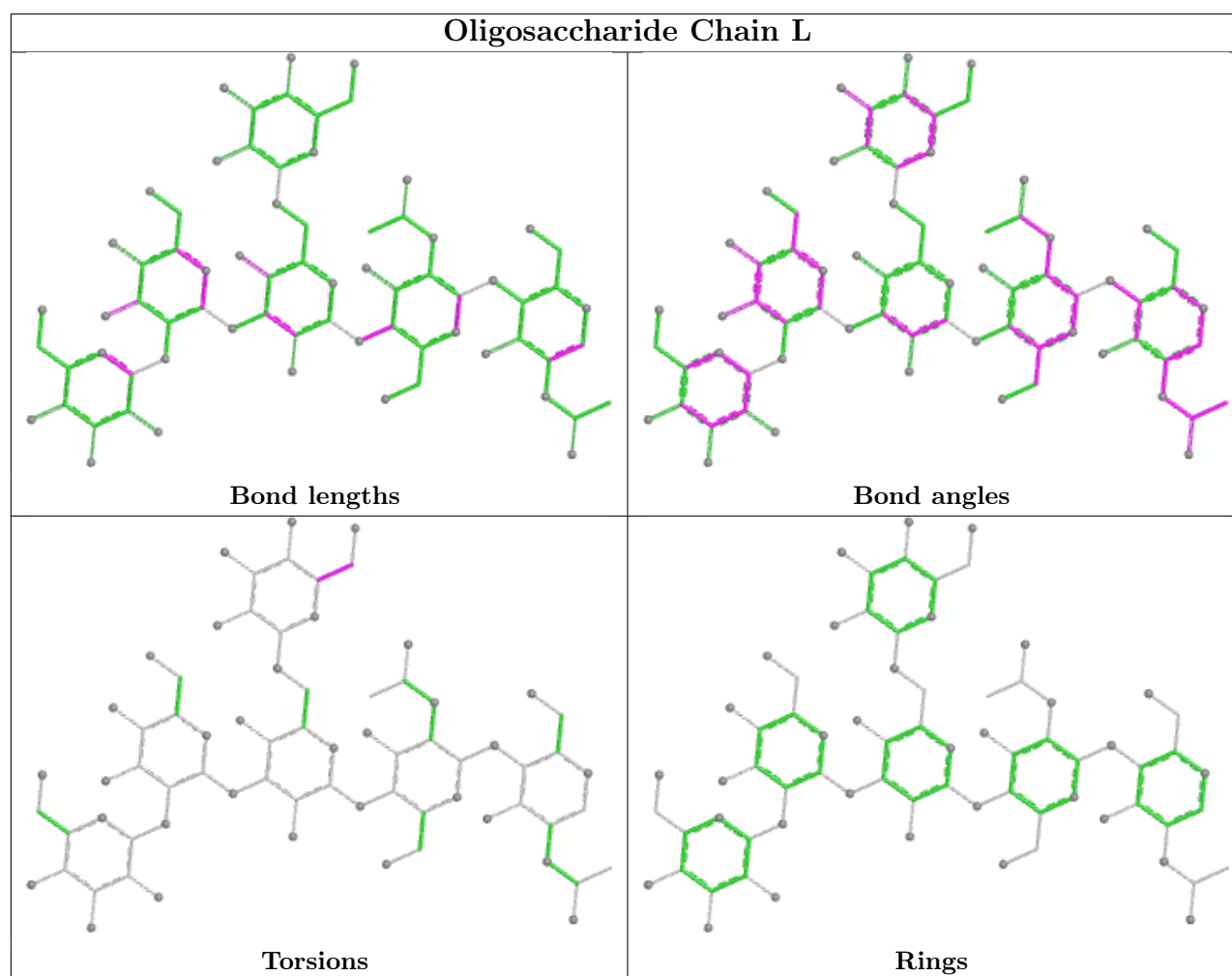


Oligosaccharide Chain H



Oligosaccharide Chain J





5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
5	NAG	C	504	1	14,14,15	0.56	0	17,19,21	1.35	2 (11%)
5	NAG	A	504	1	14,14,15	0.69	0	17,19,21	1.17	2 (11%)
5	NAG	D	504	1	14,14,15	0.67	0	17,19,21	1.33	3 (17%)
5	NAG	B	504	1	14,14,15	0.52	0	17,19,21	1.24	2 (11%)

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	C	504	1	-	2/6/23/26	0/1/1/1
5	NAG	A	504	1	-	0/6/23/26	0/1/1/1
5	NAG	D	504	1	-	0/6/23/26	0/1/1/1
5	NAG	B	504	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	504	NAG	O5-C1-C2	2.84	115.69	111.29
5	B	504	NAG	C1-O5-C5	2.76	115.89	112.19
5	C	504	NAG	C2-N2-C7	2.68	126.49	122.90
5	D	504	NAG	C3-C4-C5	-2.60	105.52	110.23
5	C	504	NAG	O5-C1-C2	2.56	115.25	111.29
5	D	504	NAG	O5-C5-C6	2.55	112.62	107.66
5	D	504	NAG	C1-C2-N2	-2.54	106.44	110.43
5	A	504	NAG	O5-C5-C6	2.15	111.85	107.66
5	A	504	NAG	C1-C2-N2	-2.13	107.08	110.43

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	504	NAG	C4-C5-C6-O6
5	B	504	NAG	C4-C5-C6-O6
5	B	504	NAG	O5-C5-C6-O6
5	C	504	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2		OWAB(Å ²)	Q<0.9
1	A	388/397 (97%)	-1.10	0	100 100	15, 23, 37, 91	1 (0%)
1	B	388/397 (97%)	-0.91	1 (0%)	90 90	19, 29, 43, 124	1 (0%)
1	C	388/397 (97%)	-0.98	1 (0%)	90 90	19, 29, 43, 118	1 (0%)
1	D	388/397 (97%)	-1.11	1 (0%)	90 90	15, 23, 36, 88	1 (0%)
All	All	1552/1588 (97%)	-1.03	3 (0%)	91 91	15, 27, 40, 124	4 (0%)

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	149	ILE	2.5
1	B	149	ILE	2.3
1	D	149	ILE	2.0

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

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	NAG	E	2	14/15	0.94	0.08	57,64,69,73	0
5	NAG	B	504	14/15	0.94	0.08	63,70,76,83	0
5	NAG	C	504	14/15	0.94	0.08	59,68,74,83	0
5	NAG	D	504	14/15	0.94	0.07	57,62,65,67	0
5	NAG	A	504	14/15	0.95	0.06	56,61,62,63	0
3	MAN	H	5	11/12	0.96	0.06	49,51,55,58	0
3	MAN	H	6	11/12	0.96	0.05	50,57,62,64	0
2	NAG	G	2	14/15	0.96	0.07	43,67,75,80	0
3	MAN	J	6	11/12	0.96	0.06	47,52,58,59	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	MAN	F	5	11/12	0.96	0.05	40,46,52,56	0
3	NAG	J	1	14/15	0.97	0.05	26,33,41,42	0
3	MAN	J	5	11/12	0.97	0.06	49,53,56,61	0
2	NAG	I	2	14/15	0.97	0.06	46,63,67,71	0
2	NAG	K	2	14/15	0.97	0.07	53,65,70,75	0
2	NAG	I	1	14/15	0.97	0.05	43,48,55,58	0
3	MAN	L	5	11/12	0.97	0.05	40,49,54,55	0
3	MAN	L	6	11/12	0.97	0.05	41,45,50,52	0
3	NAG	J	2	14/15	0.98	0.04	26,30,34,35	0
3	MAN	J	4	11/12	0.98	0.04	31,32,35,40	0
2	NAG	G	1	14/15	0.98	0.04	43,48,55,60	0
2	NAG	E	1	14/15	0.98	0.05	44,51,59,62	0
2	NAG	K	1	14/15	0.98	0.05	43,48,56,59	0
3	MAN	F	6	11/12	0.98	0.05	40,43,49,50	0
3	NAG	H	1	14/15	0.98	0.04	26,33,40,41	0
3	NAG	H	2	14/15	0.98	0.04	27,30,32,34	0
3	MAN	H	4	11/12	0.98	0.04	32,34,38,42	0
3	MAN	F	4	11/12	0.99	0.03	28,29,32,36	0
3	NAG	L	1	14/15	0.99	0.04	21,24,38,40	0
3	NAG	L	2	14/15	0.99	0.03	22,23,24,24	0
3	MAN	L	4	11/12	0.99	0.03	27,29,33,36	0
3	NAG	F	1	14/15	0.99	0.03	22,24,37,42	0
3	NAG	F	2	14/15	0.99	0.03	21,22,23,24	0

6.3 Carbohydrates

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($\text{\AA}^2$)	Q<0.9
2	NAG	E	2	14/15	0.94	0.08	57,64,69,73	0
2	NAG	G	2	14/15	0.96	0.07	43,67,75,80	0
3	MAN	F	5	11/12	0.96	0.05	40,46,52,56	0
3	MAN	H	5	11/12	0.96	0.06	49,51,55,58	0
3	MAN	H	6	11/12	0.96	0.05	50,57,62,64	0
3	MAN	J	6	11/12	0.96	0.06	47,52,58,59	0
2	NAG	I	2	14/15	0.97	0.06	46,63,67,71	0
2	NAG	K	2	14/15	0.97	0.07	53,65,70,75	0
3	NAG	J	1	14/15	0.97	0.05	26,33,41,42	0
3	MAN	J	5	11/12	0.97	0.06	49,53,56,61	0

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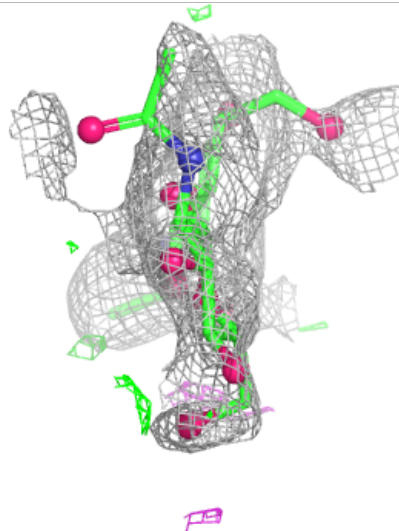
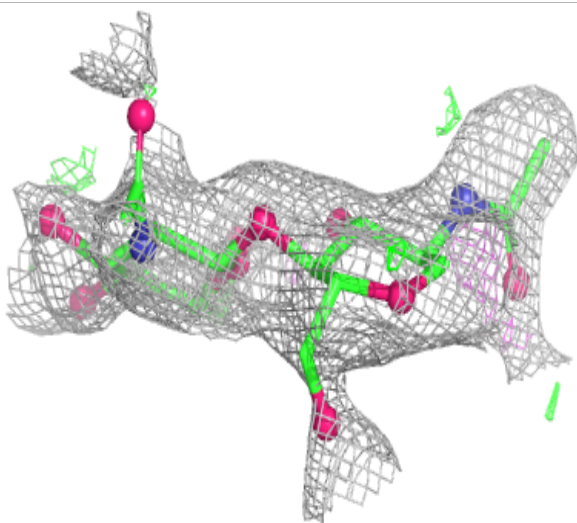
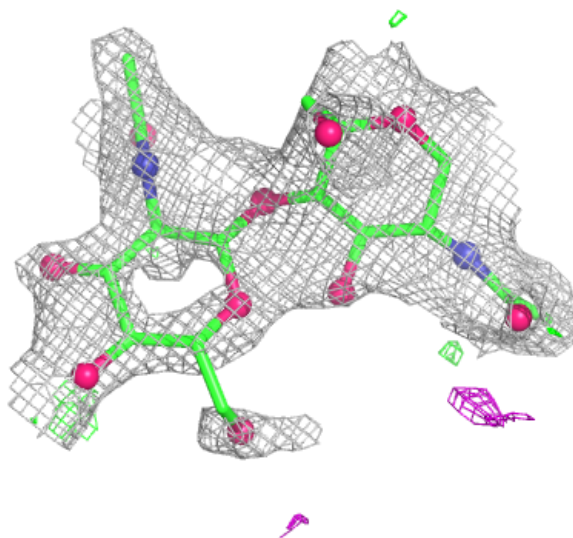
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	NAG	I	1	14/15	0.97	0.05	43,48,55,58	0
3	MAN	L	5	11/12	0.97	0.05	40,49,54,55	0
3	MAN	L	6	11/12	0.97	0.05	41,45,50,52	0
3	MAN	H	4	11/12	0.98	0.04	32,34,38,42	0
2	NAG	K	1	14/15	0.98	0.05	43,48,56,59	0
2	NAG	G	1	14/15	0.98	0.04	43,48,55,60	0
2	NAG	E	1	14/15	0.98	0.05	44,51,59,62	0
3	NAG	J	2	14/15	0.98	0.04	26,30,34,35	0
3	MAN	J	4	11/12	0.98	0.04	31,32,35,40	0
3	MAN	F	6	11/12	0.98	0.05	40,43,49,50	0
3	NAG	H	1	14/15	0.98	0.04	26,33,40,41	0
3	BMA	L	3	11/12	0.98	0.04	22,25,30,33	0
3	NAG	H	2	14/15	0.98	0.04	27,30,32,34	0
3	BMA	H	3	11/12	0.98	0.03	27,30,37,40	0
3	MAN	F	4	11/12	0.99	0.03	28,29,32,36	0
3	NAG	F	1	14/15	0.99	0.03	22,24,37,42	0
3	NAG	L	1	14/15	0.99	0.04	21,24,38,40	0
3	NAG	L	2	14/15	0.99	0.03	22,23,24,24	0
3	NAG	F	2	14/15	0.99	0.03	21,22,23,24	0
3	MAN	L	4	11/12	0.99	0.03	27,29,33,36	0
3	BMA	J	3	11/12	0.99	0.04	26,31,37,37	0
3	BMA	F	3	11/12	0.99	0.03	21,25,28,31	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.

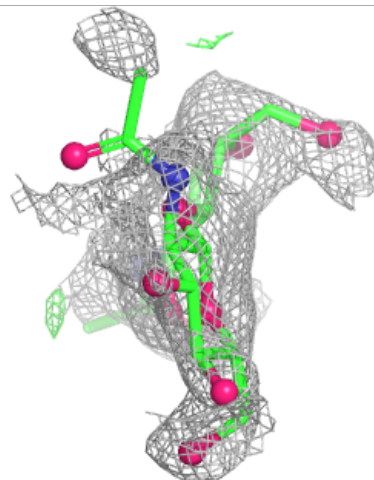
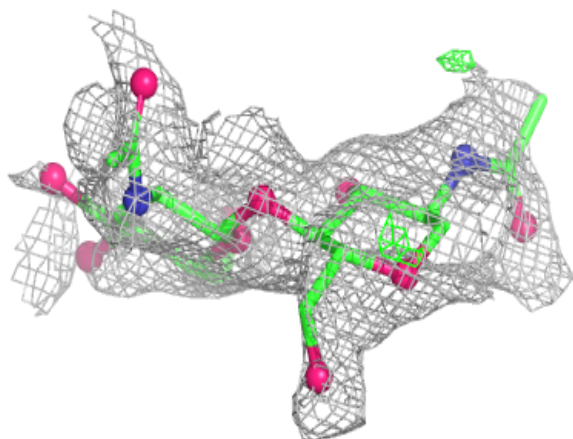
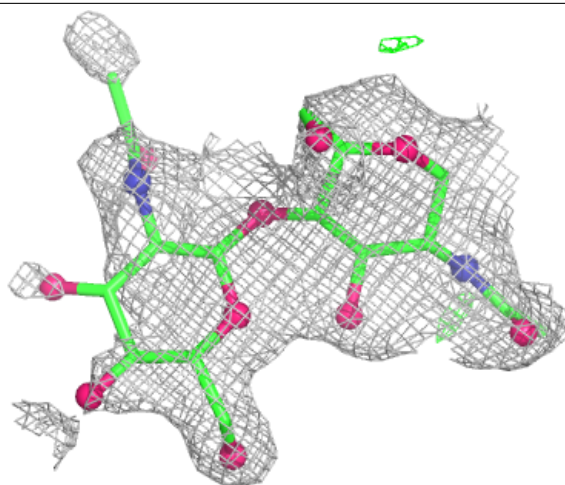
Electron density around Chain E:

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



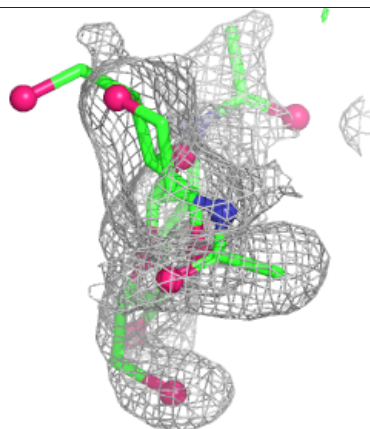
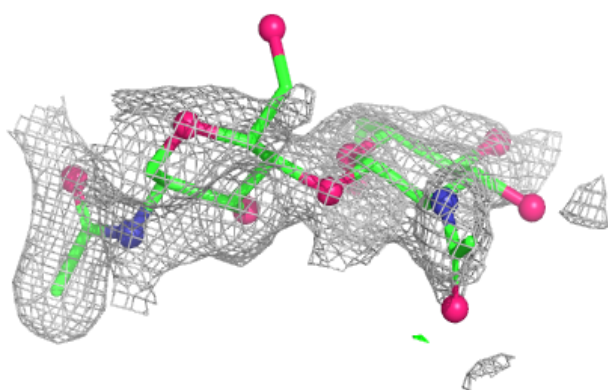
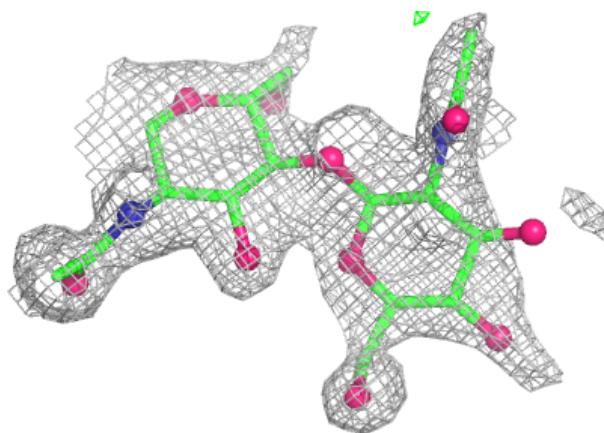
Electron density around Chain G:

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

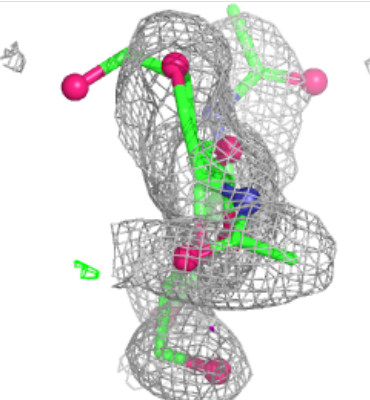
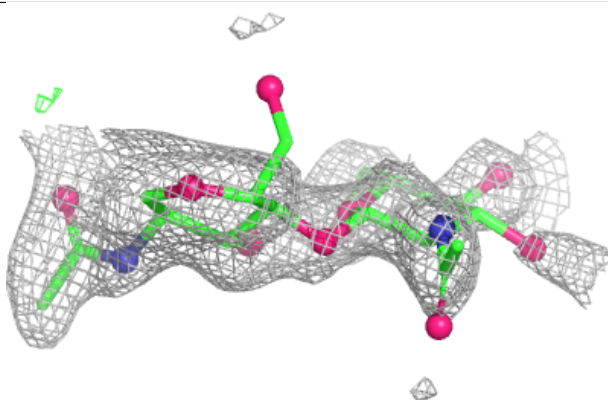
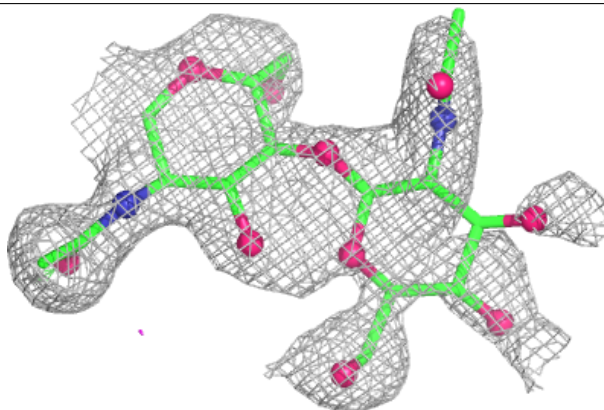


Electron density around Chain I:

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

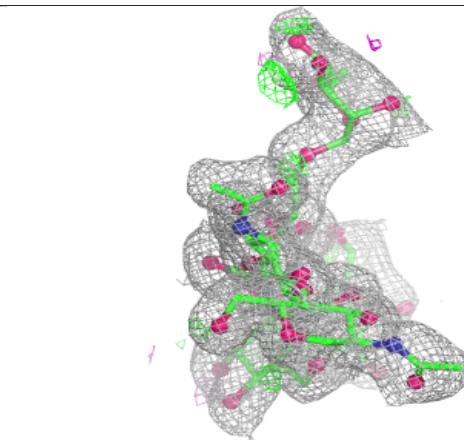
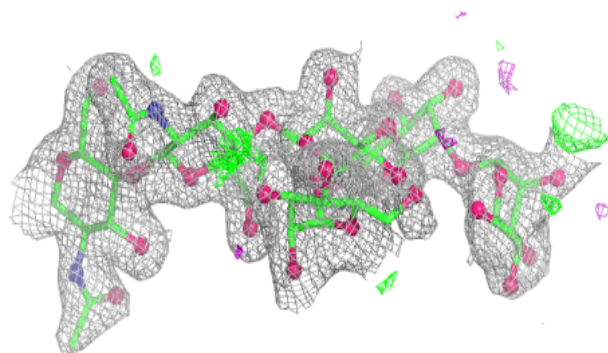
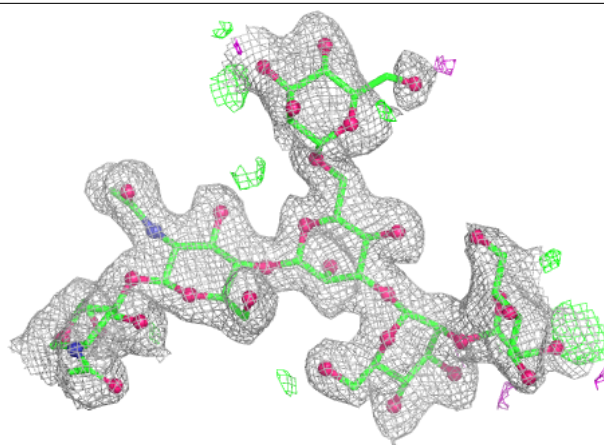
**Electron density around Chain K:**

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

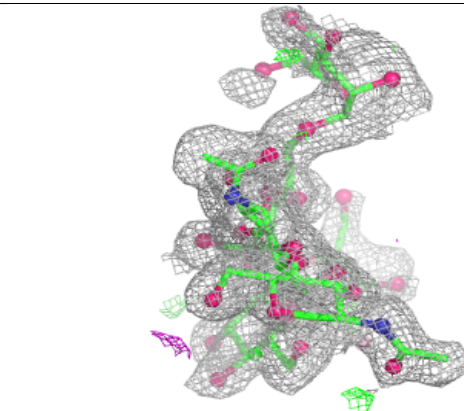
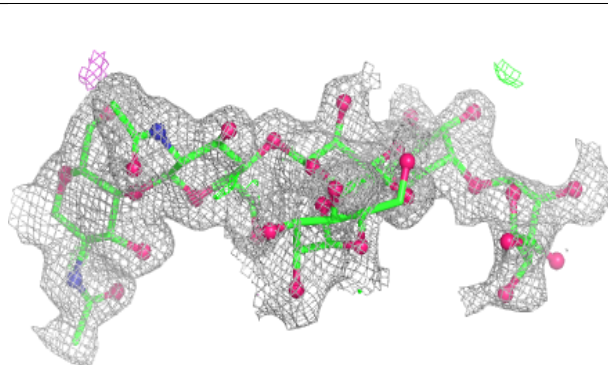
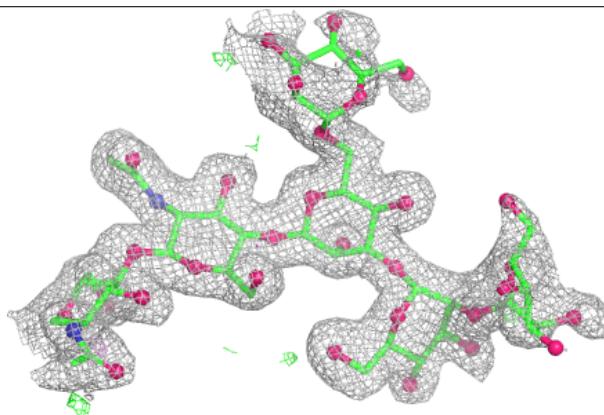


Electron density around Chain F:

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

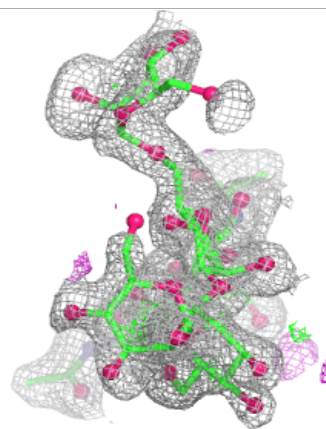
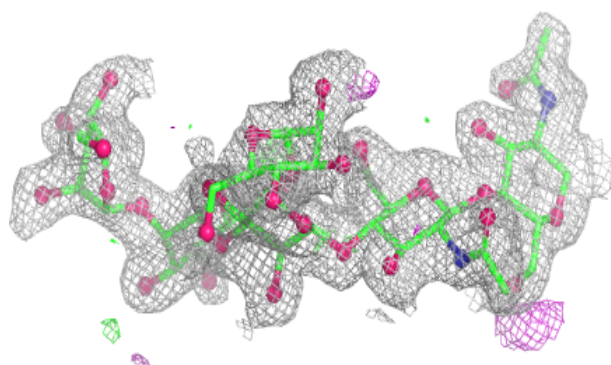
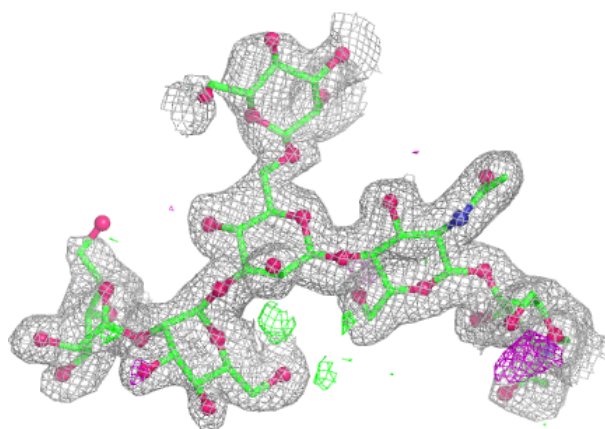
**Electron density around Chain H:**

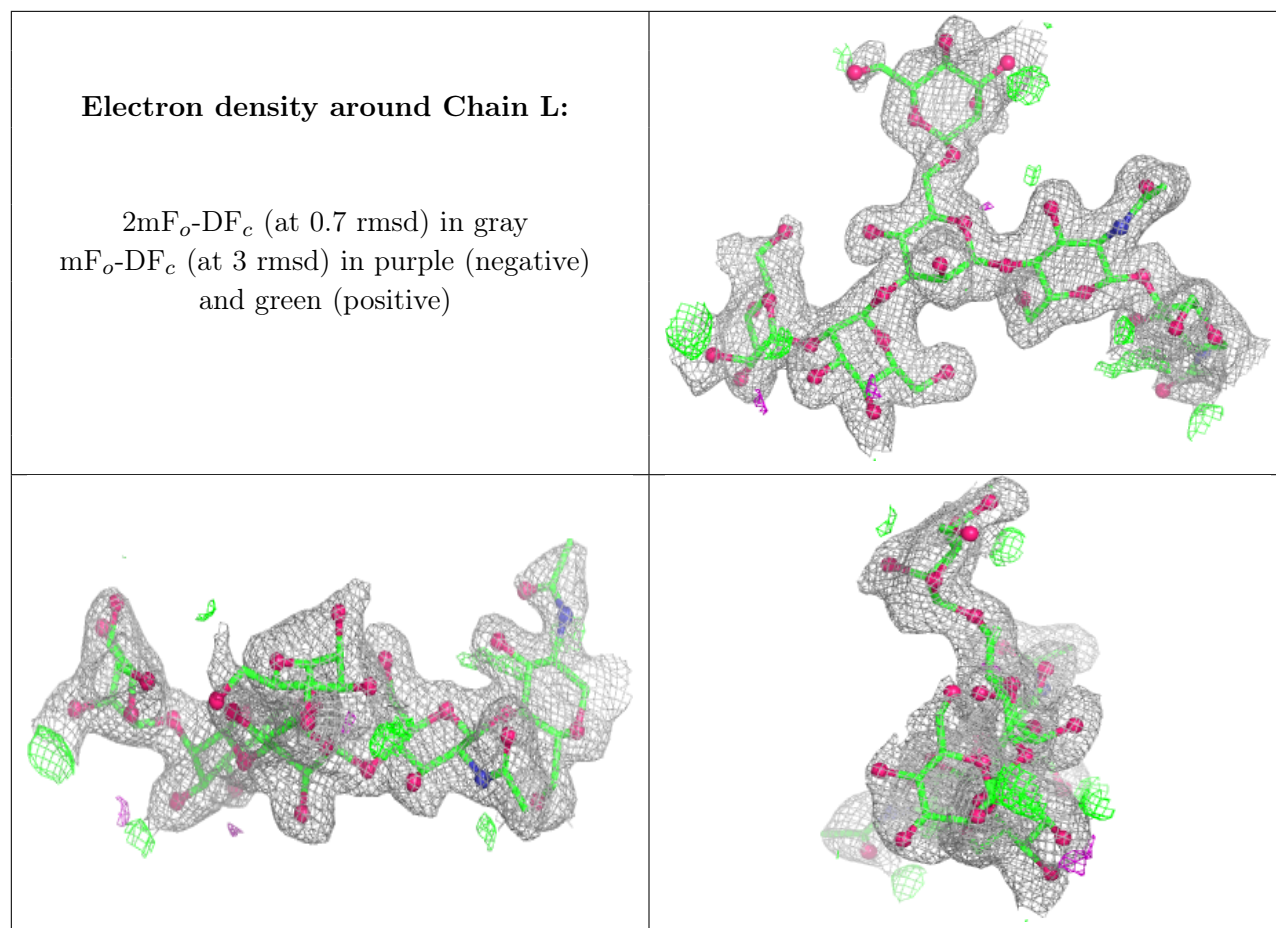
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



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)





6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
5	NAG	B	504	14/15	0.94	0.08	63,70,76,83	0
5	NAG	C	504	14/15	0.94	0.08	59,68,74,83	0
5	NAG	D	504	14/15	0.94	0.07	57,62,65,67	0
5	NAG	A	504	14/15	0.95	0.06	56,61,62,63	0
4	CA	A	501	1/1	1.00	0.04	24,24,24,24	0
4	CA	B	501	1/1	1.00	0.01	26,26,26,26	0
4	CA	C	501	1/1	1.00	0.01	26,26,26,26	0
4	CA	D	501	1/1	1.00	0.04	24,24,24,24	0

6.5 Other polymers [i](#)

There are no such residues in this entry.