Full wwPDB X-ray Structure Validation Report ⓘ

Oct 29, 2024 – 05:16 PM EDT

PDB ID	:	4DHL
Title	:	Crystal structure of red kidney bean purple acid phosphatase in complex with Maybridge fragment MO07123
Authors	:	Feder, D.; Clayton, D.J.; Hussein, W.M.; Schenk, G.; McGeary, R.; Guddat, L.W.
Deposited on	:	2012-01-29
Resolution	:	2.30 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

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

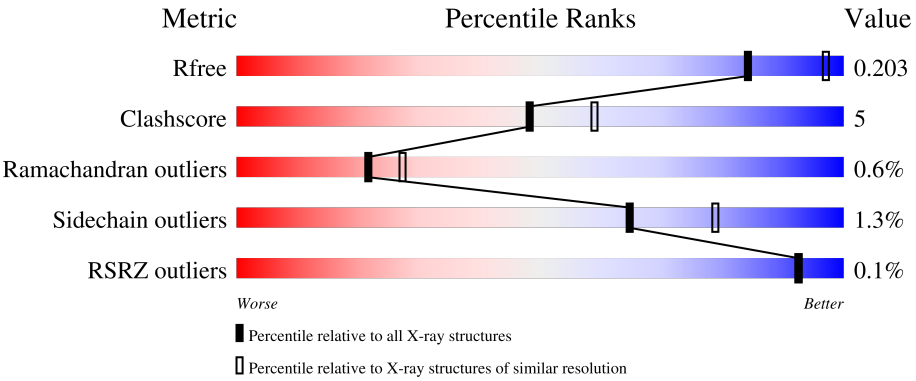
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 2.30 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}	164625	5963 (2.30-2.30)
Clashscore	180529	6698 (2.30-2.30)
Ramachandran outliers	177936	6640 (2.30-2.30)
Sidechain outliers	177891	6640 (2.30-2.30)
RSRZ outliers	164620	5963 (2.30-2.30)

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	426	87% 12%
1	B	426	85% 14% •
1	C	426	88% 11% •
1	D	426	86% 12% ••
2	E	3	33% 67%

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Mol	Chain	Length	Quality of chain
2	F	3	33% 33% 33%
2	G	3	33% 67%
2	I	3	33% 33% 33%
2	J	3	67% 33%
2	M	3	33% 67%
3	H	2	50% 50%
3	K	2	100%
3	L	2	50% 50%

2 Entry composition (i)

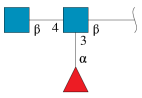
There are 11 unique types of molecules in this entry. The entry contains 16091 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Purple acid phosphatase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	424	Total	C	N	O	S	0	1	0
			3502	2248	610	634	10			
1	B	425	Total	C	N	O	S	0	3	0
			3524	2260	612	641	11			
1	D	423	Total	C	N	O	S	7	1	0
			3495	2245	607	633	10			
1	C	424	Total	C	N	O	S	0	1	0
			3499	2248	606	634	11			

- Molecule 2 is an oligosaccharide called alpha-L-fucopyranose-(1-3)-[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	3	Total	C	N	O	0	0	0
			38	22	2	14			
2	F	3	Total	C	N	O	0	0	0
			38	22	2	14			
2	G	3	Total	C	N	O	0	0	0
			38	22	2	14			
2	I	3	Total	C	N	O	0	0	0
			38	22	2	14			
2	J	3	Total	C	N	O	0	0	0
			38	22	2	14			
2	M	3	Total	C	N	O	0	0	0
			38	22	2	14			

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

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
3	H	2	Total C N O 24 14 1 9	0	0	0
3	K	2	Total C N O 24 14 1 9	0	0	0
3	L	2	Total C N O 24 14 1 9	0	0	0

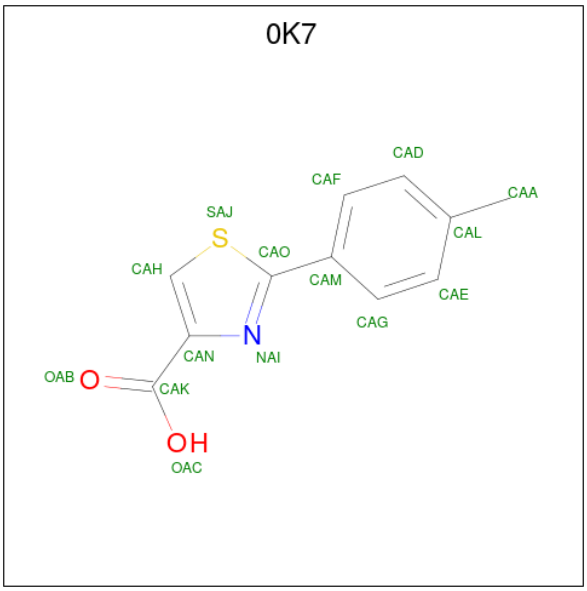
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 5 is FE (III) ION (three-letter code: FE) (formula: Fe).

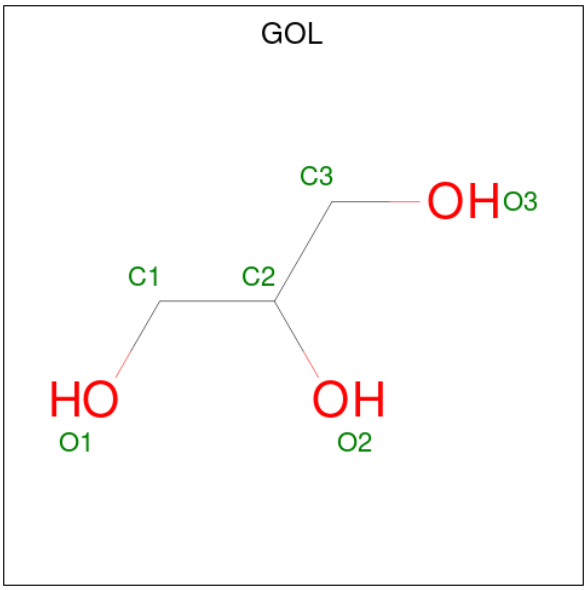
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total Fe 1 1	0	0
5	B	1	Total Fe 1 1	0	0
5	D	1	Total Fe 1 1	0	0
5	C	1	Total Fe 1 1	0	0

- Molecule 6 is 2-(4-methylphenyl)-1,3-thiazole-4-carboxylic acid (three-letter code: 0K7) (formula: $C_{11}H_9NO_2S$).



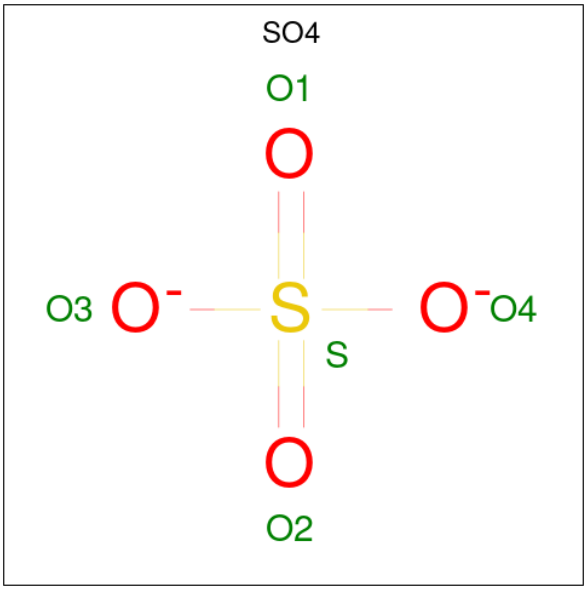
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
6	A	1	Total	C	N	O	S	0	0
			15	11	1	2	1		
6	B	1	Total	C	N	O	S	0	0
			15	11	1	2	1		
6	D	1	Total	C	N	O	S	0	0
			8	4	1	2	1		
6	C	1	Total	C	N	O	S	0	0
			15	11	1	2	1		

- Molecule 7 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



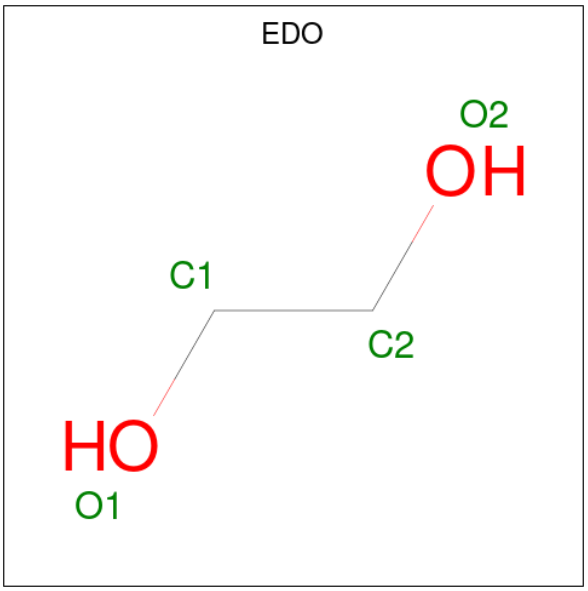
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total C O 6 3 3	0	0
7	D	1	Total C O 6 3 3	0	0
7	C	1	Total C O 6 3 3	0	0

- Molecule 8 is SULFATE ION (three-letter code: SO4) (formula: O_4S).



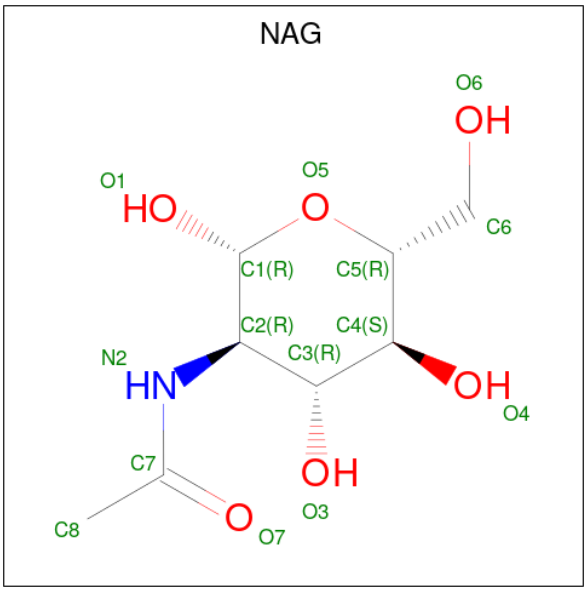
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	1	Total O S 5 4 1	0	0
8	A	1	Total O S 5 4 1	0	0
8	B	1	Total O S 5 4 1	0	0
8	D	1	Total O S 5 4 1	0	0
8	C	1	Total O S 5 4 1	0	0

- Molecule 9 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	A	1	Total	C	O	0	0
			4	2	2		
9	D	1	Total	C	O	0	0
			4	2	2		
9	D	1	Total	C	O	0	0
			4	2	2		
9	D	1	Total	C	O	0	0
			4	2	2		
9	D	1	Total	C	O	0	0
			4	2	2		
9	D	1	Total	C	O	0	0
			4	2	2		

- Molecule 10 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



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

- Molecule 11 is water.

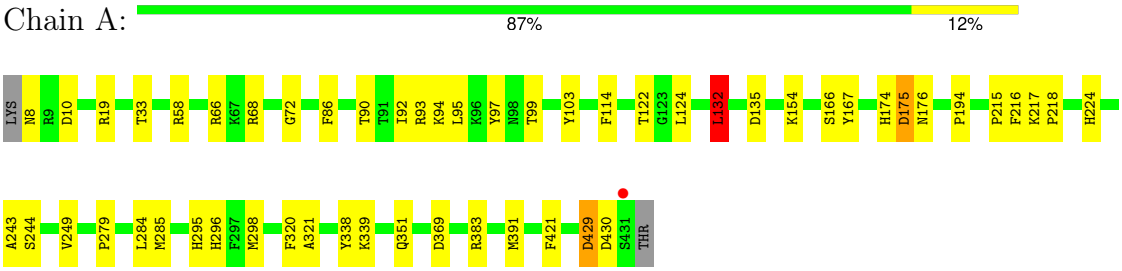
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
11	A	403	Total O 403 403	0	0
11	B	378	Total O 378 378	0	0
11	D	380	Total O 380 380	0	0
11	C	384	Total O 384 384	0	0

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.

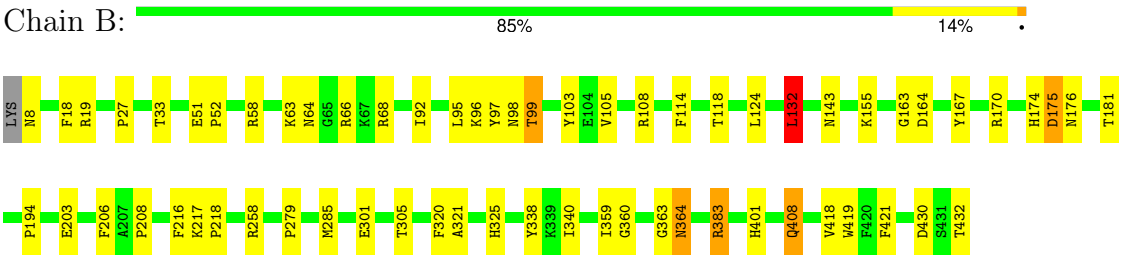
• Molecule 1: Purple acid phosphatase

Chain A:



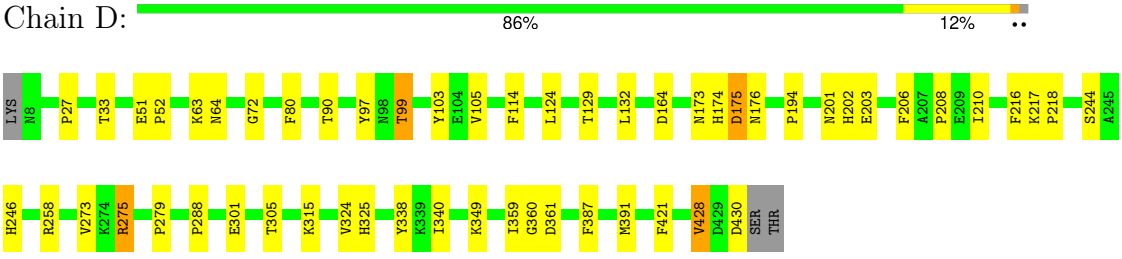
• Molecule 1: Purple acid phosphatase

Chain B:



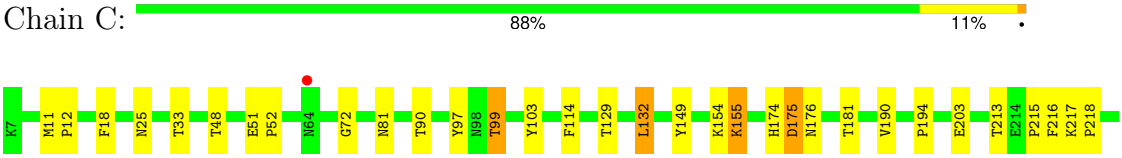
• Molecule 1: Purple acid phosphatase

Chain D:



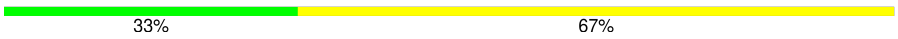
• Molecule 1: Purple acid phosphatase

Chain C:



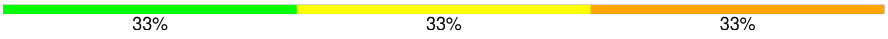
• Molecule 2: alpha-L-fucopyranose-(1-3)-[2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:



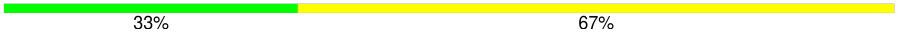
• Molecule 2: alpha-L-fucopyranose-(1-3)-[2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain F:



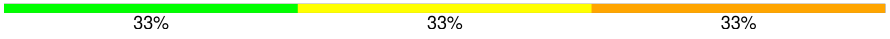
• Molecule 2: alpha-L-fucopyranose-(1-3)-[2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:



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

Chain I:

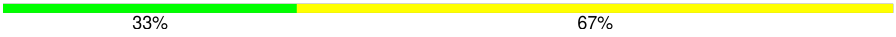


• Molecule 2: alpha-L-fucopyranose-(1-3)-[2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:

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

Chain M:



• Molecule 3: alpha-L-fucopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain H:

• Molecule 3: alpha-L-fucopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain K:

• Molecule 3: alpha-L-fucopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain L:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α, β, γ	126.10Å 126.10Å 297.98Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.82 – 2.30 19.82 – 2.30	Depositor EDS
% Data completeness (in resolution range)	94.1 (19.82-2.30) 93.9 (19.82-2.30)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.36 (at 2.30Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7_650)	Depositor
R, R_{free}	0.158 , 0.206 0.154 , 0.203	Depositor DCC
R_{free} test set	5774 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å^2)	25.5	Xtriage
Anisotropy	0.009	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 53.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.46$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	0.038 for -h,-k,l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	16091	wwPDB-VP
Average B, all atoms (Å^2)	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.30% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, FUC, NAG, 0K7, EDO, ZN, FE, GOL

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	0.38	0/3624	0.54	1/4927 (0.0%)
1	B	0.37	0/3643	0.52	2/4953 (0.0%)
1	C	0.38	0/3618	0.52	0/4919
1	D	0.38	0/3614	0.53	1/4915 (0.0%)
All	All	0.38	0/14499	0.53	4/19714 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	132	LEU	CA-CB-CG	-6.12	101.22	115.30
1	B	132	LEU	CA-CB-CG	-5.68	102.24	115.30
1	B	383	ARG	NE-CZ-NH1	5.32	122.96	120.30
1	D	275	ARG	NE-CZ-NH2	-5.26	117.67	120.30

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	3502	0	3321	38	0
1	B	3524	0	3334	42	0
1	C	3499	0	3312	35	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	3495	0	3310	36	0
2	E	38	0	34	0	0
2	F	38	0	34	2	0
2	G	38	0	34	0	0
2	I	38	0	34	1	0
2	J	38	0	34	0	0
2	M	38	0	34	0	0
3	H	24	0	22	0	0
3	K	24	0	22	0	0
3	L	24	0	22	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	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	0	0
6	A	15	0	8	3	0
6	B	15	0	8	5	0
6	C	15	0	8	2	0
6	D	8	0	1	1	0
7	A	6	0	8	0	0
7	C	6	0	8	0	0
7	D	6	0	8	1	0
8	A	10	0	0	1	0
8	B	5	0	0	0	0
8	C	5	0	0	0	0
8	D	5	0	0	0	0
9	A	4	0	6	0	0
9	D	20	0	30	4	0
10	A	14	0	13	0	0
10	B	28	0	26	1	0
10	C	28	0	26	0	0
10	D	28	0	26	0	0
11	A	403	0	0	3	0
11	B	378	0	0	3	0
11	C	384	0	0	2	0
11	D	380	0	0	4	0
All	All	16091	0	13723	153	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 5.

All (153) 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:173:ASN:H	9:D:510:EDO:H22	1.43	0.83
1:D:124:LEU:HD12	1:D:279:PRO:HG3	1.60	0.81
1:B:408[A]:GLN:HE21	1:B:408[A]:GLN:H	1.27	0.81
1:B:325:HIS:HE1	6:B:503:0K7:H8	1.50	0.77
1:A:217:LYS:HB3	1:A:218:PRO:HD3	1.67	0.75
1:A:124:LEU:HD12	1:A:279:PRO:HG3	1.70	0.73
1:A:339:LYS:HE3	11:A:878:HOH:O	1.90	0.69
1:B:325:HIS:CE1	6:B:503:0K7:H8	2.28	0.69
1:B:124:LEU:HD12	1:B:279:PRO:HG3	1.75	0.69
1:B:97:TYR:O	1:B:99:THR:HG22	1.94	0.66
1:D:217:LYS:HB3	1:D:218:PRO:HD3	1.79	0.64
1:C:391[B]:MET:HE2	11:C:926:HOH:O	1.98	0.64
1:A:132:LEU:HD22	1:A:320:PHE:CD1	2.33	0.63
1:A:92:ILE:CG2	1:A:95:LEU:HD21	2.30	0.62
1:A:68:ARG:NH1	8:A:505:SO4:O4	2.31	0.61
1:B:66:ARG:HD3	1:B:68:ARG:NH2	2.15	0.61
1:A:92:ILE:HG22	1:A:95:LEU:HD21	1.83	0.60
1:D:349:LYS:HG3	11:D:796:HOH:O	2.02	0.60
1:B:217:LYS:HB3	1:B:218:PRO:HD3	1.83	0.59
1:A:298:MET:HG2	1:D:340:ILE:HD11	1.84	0.59
1:D:174:HIS:O	1:D:175:ASP:C	2.40	0.59
1:C:325:HIS:CE1	6:C:503:0K7:H8	2.39	0.58
1:A:224:HIS:HD2	11:A:798:HOH:O	1.87	0.58
1:D:173:ASN:H	9:D:510:EDO:C2	2.15	0.58
1:D:301:GLU:O	1:D:305:THR:HG23	2.04	0.57
1:D:244:SER:HB2	1:D:279:PRO:HD2	1.86	0.57
1:C:149:TYR:HD1	1:C:391[B]:MET:HE1	1.70	0.56
1:D:275:ARG:NH2	1:D:315:LYS:O	2.30	0.56
1:C:174:HIS:O	1:C:175:ASP:C	2.46	0.54
1:A:174:HIS:O	1:A:175:ASP:C	2.46	0.54
1:A:338:TYR:CE2	9:D:508:EDO:H12	2.43	0.54
1:B:408[A]:GLN:HE21	1:B:408[A]:GLN:N	2.00	0.54
1:D:421:PHE:CD2	1:D:430:ASP:HB3	2.44	0.53
1:B:301:GLU:O	1:B:305:THR:HG23	2.09	0.53
1:C:155:LYS:C	1:C:155:LYS:HD3	2.30	0.52
1:D:338:TYR:CZ	1:D:340:ILE:HA	2.44	0.52
1:B:66:ARG:NH1	1:B:68:ARG:HH21	2.07	0.52
1:D:63:LYS:HE3	11:D:713:HOH:O	2.09	0.52
7:D:504:GOL:H32	11:D:975:HOH:O	2.10	0.52
1:D:288:PRO:HD2	11:D:687:HOH:O	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:258:ARG:HD3	11:B:714:HOH:O	2.10	0.52
1:B:206:PHE:CZ	1:B:208:PRO:HG3	2.45	0.51
1:C:154:LYS:HE3	1:C:403:SER:OG	2.10	0.51
1:A:33:THR:HA	1:A:194:PRO:HB3	1.93	0.51
1:C:325:HIS:HE1	6:C:503:0K7:H8	1.75	0.51
2:F:2:FUC:H61	2:F:3:NAG:H83	1.92	0.51
1:B:174:HIS:O	1:B:175:ASP:C	2.49	0.51
1:A:8:ASN:ND2	1:A:10:ASP:H	2.09	0.50
1:A:72:GLY:HA3	1:A:90:THR:OG1	2.11	0.50
1:A:103:TYR:CZ	1:A:114:PHE:HB2	2.46	0.50
6:B:503:0K7:CAL	1:C:258:ARG:HH12	2.25	0.50
1:C:72:GLY:HA3	1:C:90:THR:OG1	2.12	0.50
1:C:338:TYR:CZ	1:C:340:ILE:HA	2.46	0.50
1:B:8:ASN:N	11:B:918:HOH:O	2.45	0.50
1:A:8:ASN:HD21	1:A:10:ASP:HB2	1.77	0.50
1:C:217:LYS:HB3	1:C:218:PRO:HD3	1.93	0.50
1:B:163:GLY:O	1:B:164:ASP:HB2	2.12	0.50
1:D:27:PRO:HG2	1:D:105:VAL:HG23	1.94	0.49
1:B:27:PRO:HG2	1:B:105:VAL:HG23	1.95	0.49
1:C:426:TYR:N	1:C:427:PRO:HD3	2.27	0.48
1:A:421:PHE:CD2	1:A:430:ASP:HB3	2.48	0.48
1:B:96:LYS:HB2	1:B:99:THR:HG21	1.94	0.48
1:D:244:SER:O	1:D:279:PRO:HD2	2.12	0.48
1:D:129:THR:HG22	1:D:391:MET:HE3	1.96	0.48
1:A:103:TYR:CE1	1:A:114:PHE:HB2	2.48	0.48
1:D:421:PHE:CD2	1:D:428:VAL:HG22	2.49	0.48
1:C:301:GLU:O	1:C:305:THR:HG23	2.14	0.48
1:B:18:PHE:CE1	1:B:181:THR:HB	2.49	0.47
1:C:97:TYR:O	1:C:99:THR:HG22	2.14	0.47
1:A:285:MET:O	1:A:321:ALA:HA	2.14	0.47
1:D:164:ASP:OD2	1:D:202:HIS:HD2	1.98	0.47
1:B:33:THR:HA	1:B:194:PRO:HB3	1.97	0.46
1:C:11:MET:HA	1:C:12:PRO:HD3	1.83	0.46
2:F:2:FUC:C6	2:F:3:NAG:H83	2.45	0.46
1:A:296:HIS:HE1	6:A:503:0K7:H1	1.80	0.46
1:A:295:HIS:HD2	1:A:369:ASP:OD2	1.99	0.46
6:A:503:0K7:H2	1:D:258:ARG:HH12	1.80	0.46
1:B:103:TYR:CE2	1:B:114:PHE:HB2	2.50	0.46
1:D:325:HIS:HA	1:D:360:GLY:O	2.15	0.46
1:C:51:GLU:HB2	1:C:52:PRO:HD2	1.98	0.46
1:C:372:MET:SD	1:C:383:ARG:HD3	2.56	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:122:THR:HA	1:A:243:ALA:O	2.16	0.46
1:B:58:ARG:O	1:B:103:TYR:HA	2.16	0.46
1:A:244:SER:HB2	1:A:279:PRO:HD2	1.97	0.45
1:A:92:ILE:HG21	1:A:95:LEU:HD21	1.98	0.45
1:A:97:TYR:O	1:A:99:THR:HG23	2.17	0.45
1:A:93:ARG:HB2	1:A:94:LYS:HD2	1.98	0.45
1:B:338:TYR:CZ	1:B:340:ILE:HA	2.52	0.45
1:D:97:TYR:O	1:D:99:THR:CG2	2.65	0.45
1:C:103:TYR:CZ	1:C:114:PHE:HB2	2.51	0.45
1:C:33:THR:HA	1:C:194:PRO:HB3	1.98	0.45
1:D:201:ASN:ND2	6:D:503:0K7:OAC	2.45	0.44
1:B:132:LEU:HD22	1:B:320:PHE:CG	2.52	0.44
1:C:18:PHE:CD1	1:C:181:THR:HB	2.53	0.44
1:A:215:PRO:O	1:A:216:PHE:HB2	2.17	0.44
1:C:421:PHE:CD2	1:C:430:ASP:HB3	2.53	0.44
1:A:154:LYS:HB2	1:A:391:MET:HE2	1.98	0.44
1:C:371:ASN:ND2	11:C:854:HOH:O	2.49	0.44
1:C:25:ASN:OD1	1:C:48:THR:HB	2.16	0.44
1:B:143:ASN:HD22	10:B:508:NAG:H83	1.83	0.44
1:C:129:THR:HG22	1:C:391[A]:MET:SD	2.58	0.44
1:C:132:LEU:HD22	1:C:320:PHE:CG	2.52	0.44
1:A:132:LEU:CD2	1:A:320:PHE:CG	3.01	0.43
1:A:166:SER:O	1:A:167:TYR:HB2	2.18	0.43
1:B:359:ILE:O	1:B:359:ILE:HG13	2.18	0.43
1:B:285:MET:O	1:B:321:ALA:HA	2.17	0.43
1:C:203:GLU:O	1:C:216:PHE:HA	2.18	0.43
1:A:58:ARG:HA	1:A:68:ARG:O	2.18	0.43
1:D:203:GLU:O	1:D:216:PHE:HA	2.19	0.43
1:D:361:ASP:O	1:D:387:PHE:HA	2.19	0.43
1:B:103:TYR:CZ	1:B:114:PHE:HB2	2.54	0.43
1:B:132:LEU:HD22	1:B:320:PHE:CD1	2.53	0.43
1:D:201:ASN:ND2	9:D:507:EDO:H21	2.33	0.43
1:B:124:LEU:HD12	1:B:124:LEU:HA	1.86	0.43
1:D:97:TYR:O	1:D:99:THR:HG23	2.19	0.43
1:D:206:PHE:CZ	1:D:208:PRO:HG3	2.54	0.43
1:A:217:LYS:HB3	1:A:218:PRO:CD	2.45	0.42
6:B:503:0K7:CAD	1:C:258:ARG:HH22	2.32	0.42
1:B:92:ILE:CG2	1:B:95:LEU:HD21	2.50	0.42
1:B:96:LYS:O	1:B:99:THR:HG23	2.19	0.42
1:B:421:PHE:CD2	1:B:430:ASP:HB3	2.54	0.42
1:B:167:TYR:HD1	1:B:170:ARG:HD2	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:285:MET:O	1:C:321:ALA:HA	2.18	0.42
1:B:203:GLU:O	1:B:216:PHE:HA	2.19	0.42
1:B:401:HIS:HB2	1:B:419:TRP:CZ3	2.55	0.42
1:C:149:TYR:CD1	1:C:391[B]:MET:HE1	2.51	0.42
6:A:503:0K7:H2	1:D:258:ARG:NH1	2.35	0.42
1:A:86:PHE:HZ	1:C:81:ASN:HA	1.85	0.42
1:A:132:LEU:HD22	1:A:320:PHE:CG	2.55	0.42
1:B:98:ASN:HA	1:B:118:THR:O	2.19	0.41
1:B:418:VAL:HG23	1:B:432:THR:HG23	2.02	0.41
1:B:66:ARG:NH2	11:B:819:HOH:O	2.52	0.41
1:D:103:TYR:CZ	1:D:114:PHE:HB2	2.54	0.41
1:A:249:VAL:HG22	1:A:284:LEU:HD12	2.02	0.41
1:B:51:GLU:HB2	1:B:52:PRO:HD2	2.02	0.41
6:B:503:0K7:H4	1:C:258:ARG:NH1	2.35	0.41
1:D:51:GLU:HB2	1:D:52:PRO:HD2	2.03	0.41
1:D:80:PHE:CD1	1:D:210:ILE:HB	2.55	0.41
1:A:135:ASP:HB3	1:A:167:TYR:OH	2.20	0.41
1:D:72:GLY:HA3	1:D:90:THR:OG1	2.21	0.41
1:D:246:HIS:CE1	1:D:273:VAL:HG22	2.56	0.41
1:B:325:HIS:HA	1:B:360:GLY:O	2.21	0.41
1:C:213:THR:O	1:C:215:PRO:HD3	2.21	0.41
1:A:66:ARG:NH2	11:A:775:HOH:O	2.54	0.41
1:D:33:THR:HA	1:D:194:PRO:HB3	2.03	0.41
1:A:351:GLN:OE1	1:A:429:ASP:HA	2.21	0.41
1:C:103:TYR:CE1	1:C:114:PHE:HB2	2.55	0.41
1:B:363:GLY:O	1:B:364:ASN:C	2.59	0.40
1:C:154:LYS:O	1:C:155:LYS:CB	2.69	0.40
1:C:190:VAL:O	1:C:190:VAL:HG22	2.21	0.40
1:B:108:ARG:NH1	1:B:108:ARG:HB3	2.36	0.40
1:D:359:ILE:HG13	1:D:359:ILE:O	2.21	0.40
2:I:1:NAG:O4	2:I:2:FUC:H5	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	423/426 (99%)	402 (95%)	19 (4%)	2 (0%)	25	32
1	B	426/426 (100%)	402 (94%)	19 (4%)	5 (1%)	11	12
1	C	423/426 (99%)	395 (93%)	26 (6%)	2 (0%)	25	32
1	D	422/426 (99%)	401 (95%)	20 (5%)	1 (0%)	44	55
All	All	1694/1704 (99%)	1600 (94%)	84 (5%)	10 (1%)	22	27

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	175	ASP
1	B	64	ASN
1	B	175	ASP
1	D	175	ASP
1	C	175	ASP
1	A	429	ASP
1	B	63	LYS
1	B	155	LYS
1	B	364	ASN
1	C	155	LYS

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	374/375 (100%)	370 (99%)	4 (1%)	70	83
1	B	377/375 (100%)	370 (98%)	7 (2%)	52	69
1	C	373/375 (100%)	369 (99%)	4 (1%)	70	83
1	D	373/375 (100%)	366 (98%)	7 (2%)	52	69
All	All	1497/1500 (100%)	1475 (98%)	22 (2%)	65	76

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	19	ARG
1	A	132	LEU
1	A	176	ASN
1	A	383	ARG
1	B	19	ARG
1	B	99	THR
1	B	132	LEU
1	B	176	ASN
1	B	383	ARG
1	B	408[A]	GLN
1	B	408[B]	GLN
1	D	64	ASN
1	D	99	THR
1	D	132	LEU
1	D	176	ASN
1	D	324[A]	VAL
1	D	324[B]	VAL
1	D	428	VAL
1	C	99	THR
1	C	132	LEU
1	C	176	ASN
1	C	383	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	8	ASN
1	A	193	GLN
1	A	224	HIS
1	A	294	ASN
1	A	295	HIS
1	B	371	ASN
1	D	64	ASN
1	C	295	HIS
1	C	325	HIS
1	C	371	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

24 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	0.48	0	17,19,21	1.15	2 (11%)
2	FUC	E	2	2	10,10,11	0.65	0	14,14,16	0.54	0
2	NAG	E	3	2	14,14,15	0.48	0	17,19,21	1.13	2 (11%)
2	NAG	F	1	2,1	14,14,15	0.61	0	17,19,21	0.81	0
2	FUC	F	2	2	10,10,11	0.60	0	14,14,16	1.00	1 (7%)
2	NAG	F	3	2	14,14,15	0.51	0	17,19,21	0.76	0
2	NAG	G	1	2,1	14,14,15	0.57	0	17,19,21	1.12	2 (11%)
2	FUC	G	2	2	10,10,11	0.76	0	14,14,16	0.98	1 (7%)
2	NAG	G	3	2	14,14,15	0.57	0	17,19,21	0.81	0
3	NAG	H	1	3,1	14,14,15	0.57	0	17,19,21	0.96	1 (5%)
3	FUC	H	2	3	10,10,11	0.60	0	14,14,16	0.48	0
2	NAG	I	1	2,1	14,14,15	0.56	0	17,19,21	0.89	1 (5%)
2	FUC	I	2	2	10,10,11	0.75	0	14,14,16	0.76	0
2	NAG	I	3	2	14,14,15	0.50	0	17,19,21	0.68	0
2	NAG	J	1	2,1	14,14,15	0.64	0	17,19,21	0.71	0
2	FUC	J	2	2	10,10,11	0.65	0	14,14,16	0.53	0
2	NAG	J	3	2	14,14,15	0.59	0	17,19,21	1.08	1 (5%)
3	NAG	K	1	3,1	14,14,15	0.50	0	17,19,21	0.91	0
3	FUC	K	2	3	10,10,11	0.67	0	14,14,16	0.84	0
3	NAG	L	1	3,1	14,14,15	0.49	0	17,19,21	1.18	1 (5%)
3	FUC	L	2	3	10,10,11	0.64	0	14,14,16	0.55	0
2	NAG	M	1	2,1	14,14,15	0.60	0	17,19,21	1.23	2 (11%)
2	FUC	M	2	2	10,10,11	0.68	0	14,14,16	0.51	0
2	NAG	M	3	2	14,14,15	0.57	0	17,19,21	0.95	1 (5%)

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	-	2/6/23/26	0/1/1/1
2	FUC	E	2	2	-	-	0/1/1/1
2	NAG	E	3	2	-	0/6/23/26	0/1/1/1
2	NAG	F	1	2,1	-	0/6/23/26	0/1/1/1
2	FUC	F	2	2	-	-	0/1/1/1
2	NAG	F	3	2	-	4/6/23/26	0/1/1/1
2	NAG	G	1	2,1	-	0/6/23/26	0/1/1/1
2	FUC	G	2	2	-	-	0/1/1/1
2	NAG	G	3	2	-	0/6/23/26	0/1/1/1
3	NAG	H	1	3,1	-	0/6/23/26	0/1/1/1
3	FUC	H	2	3	-	-	0/1/1/1
2	NAG	I	1	2,1	-	0/6/23/26	0/1/1/1
2	FUC	I	2	2	-	-	0/1/1/1
2	NAG	I	3	2	-	0/6/23/26	0/1/1/1
2	NAG	J	1	2,1	-	0/6/23/26	0/1/1/1
2	FUC	J	2	2	-	-	0/1/1/1
2	NAG	J	3	2	-	2/6/23/26	0/1/1/1
3	NAG	K	1	3,1	-	2/6/23/26	0/1/1/1
3	FUC	K	2	3	-	-	0/1/1/1
3	NAG	L	1	3,1	-	2/6/23/26	0/1/1/1
3	FUC	L	2	3	-	-	0/1/1/1
2	NAG	M	1	2,1	-	0/6/23/26	0/1/1/1
2	FUC	M	2	2	-	-	0/1/1/1
2	NAG	M	3	2	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	M	1	NAG	C1-O5-C5	3.16	116.42	112.19
2	E	1	NAG	C2-N2-C7	-3.13	118.71	122.90
2	J	3	NAG	C2-N2-C7	-3.03	118.84	122.90
3	L	1	NAG	C1-O5-C5	2.96	116.16	112.19
2	M	1	NAG	C2-N2-C7	-2.95	118.94	122.90
2	E	3	NAG	O5-C1-C2	2.92	115.81	111.29
2	M	3	NAG	C2-N2-C7	-2.84	119.10	122.90
2	F	2	FUC	C2-C3-C4	-2.71	106.09	110.86

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	G	1	NAG	C4-C3-C2	-2.63	107.17	111.02
2	E	1	NAG	C1-O5-C5	2.53	115.58	112.19
2	E	3	NAG	C1-O5-C5	2.53	115.58	112.19
2	G	2	FUC	C1-C2-C3	2.46	113.22	109.64
2	I	1	NAG	C4-C3-C2	-2.41	107.48	111.02
2	G	1	NAG	C2-N2-C7	-2.19	119.97	122.90
3	H	1	NAG	C1-O5-C5	2.06	114.94	112.19

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	F	3	NAG	O5-C5-C6-O6
2	J	3	NAG	O5-C5-C6-O6
2	F	3	NAG	C4-C5-C6-O6
2	J	3	NAG	C4-C5-C6-O6
2	F	3	NAG	C8-C7-N2-C2
2	F	3	NAG	O7-C7-N2-C2
3	L	1	NAG	O5-C5-C6-O6
3	L	1	NAG	C4-C5-C6-O6
2	E	1	NAG	C1-C2-N2-C7
3	K	1	NAG	C8-C7-N2-C2
2	E	1	NAG	O5-C5-C6-O6
3	K	1	NAG	O7-C7-N2-C2

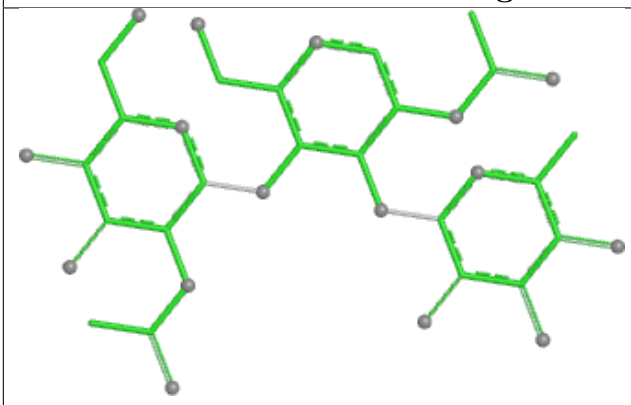
There are no ring outliers.

4 monomers are involved in 3 short contacts:

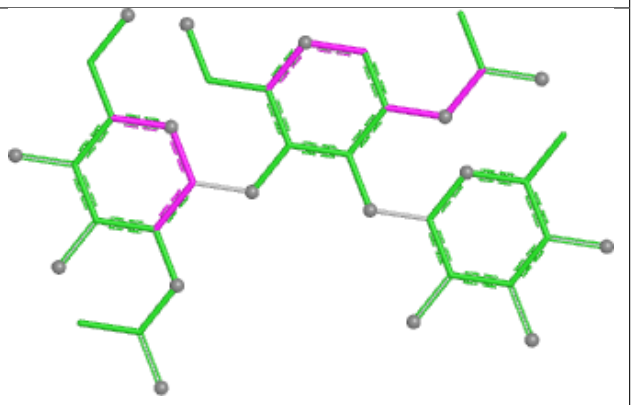
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	3	NAG	2	0
2	I	2	FUC	1	0
2	F	2	FUC	2	0
2	I	1	NAG	1	0

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

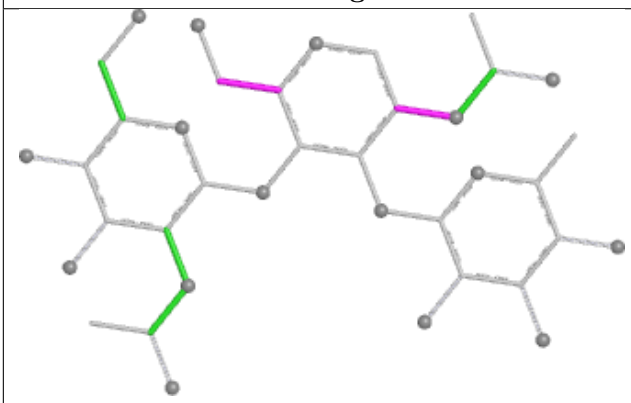
Oligosaccharide Chain E



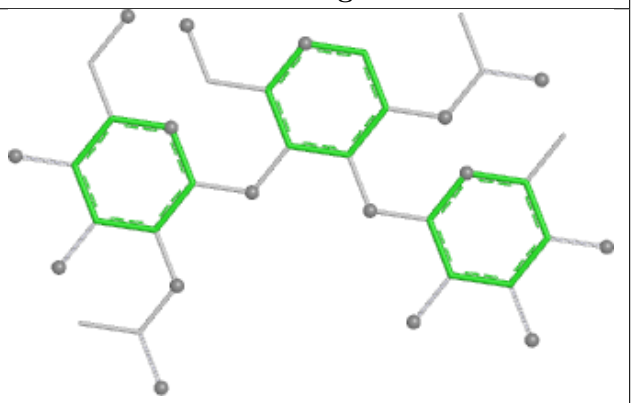
Bond lengths



Bond angles

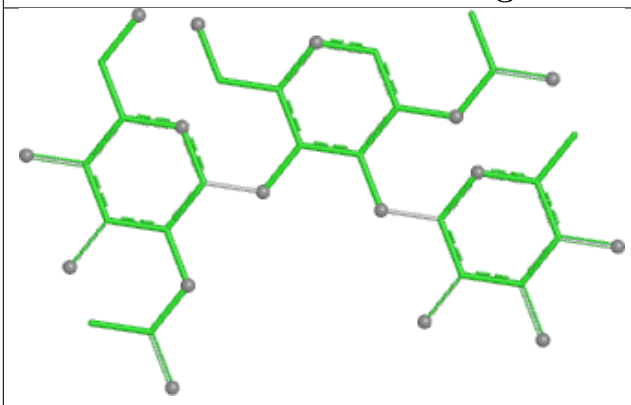


Torsions

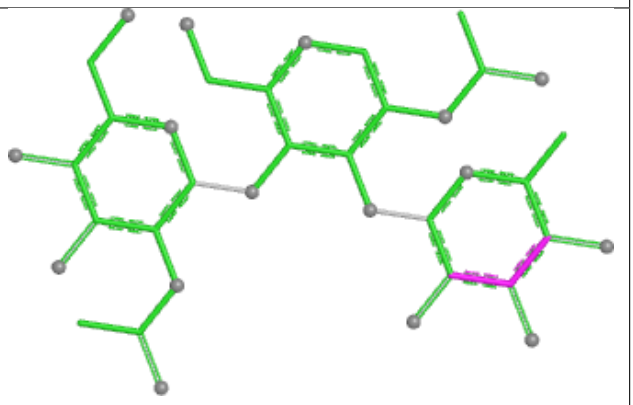


Rings

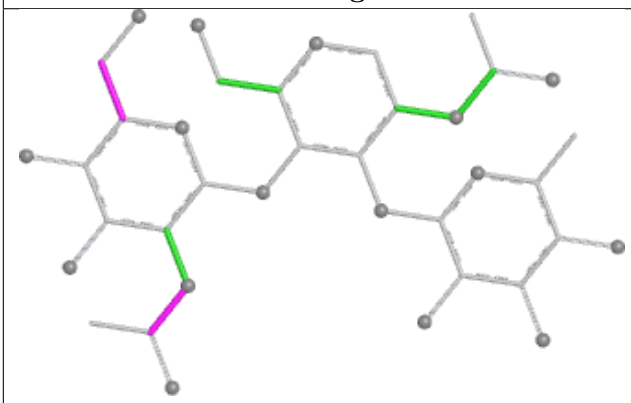
Oligosaccharide Chain F



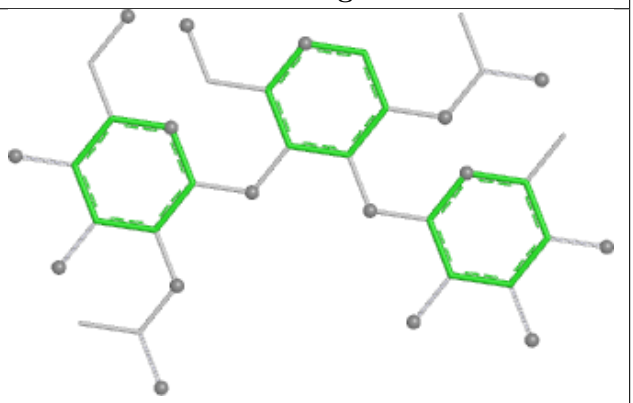
Bond lengths



Bond angles

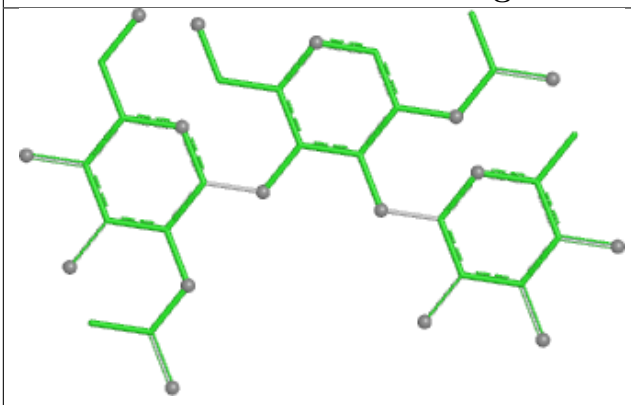


Torsions

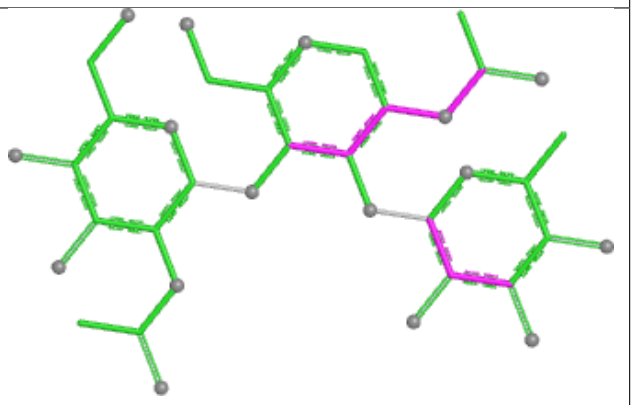


Rings

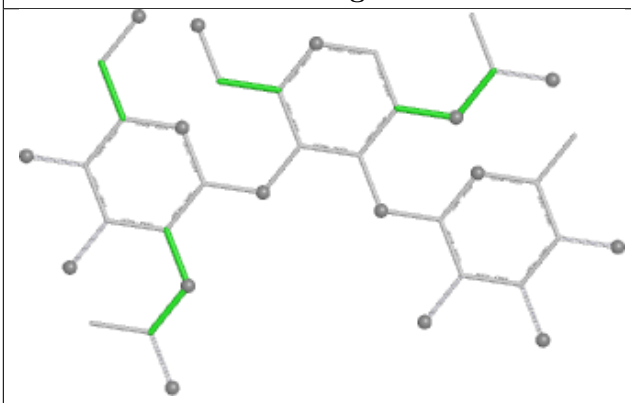
Oligosaccharide Chain G



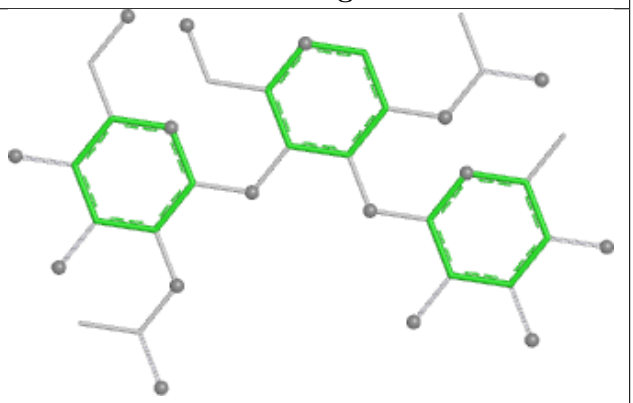
Bond lengths



Bond angles

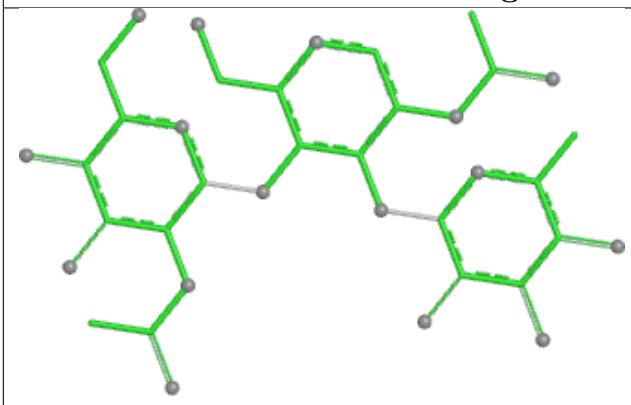


Torsions

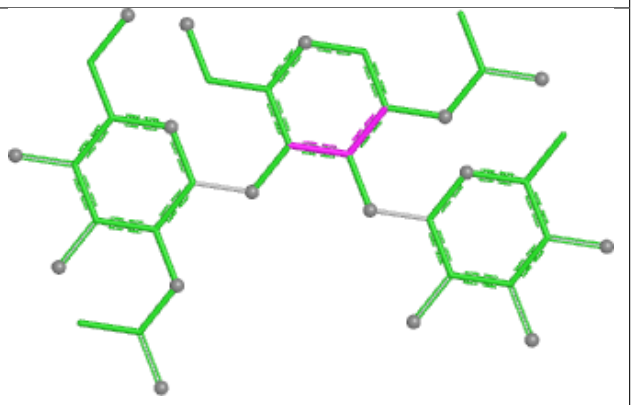


Rings

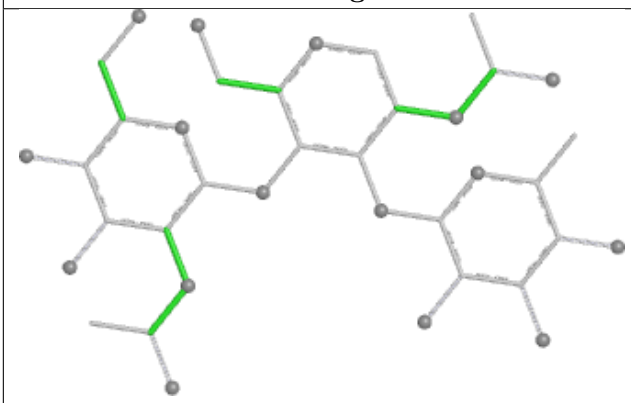
Oligosaccharide Chain I



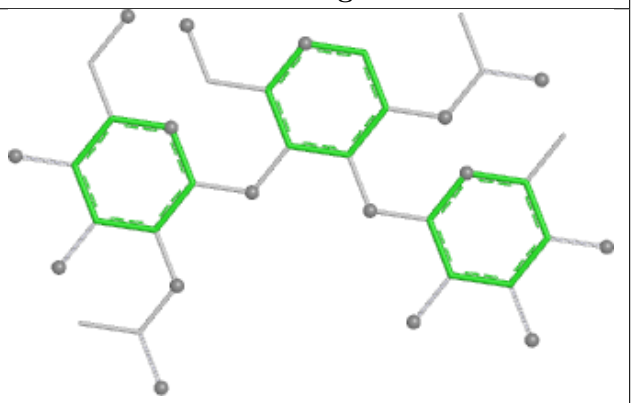
Bond lengths



Bond angles

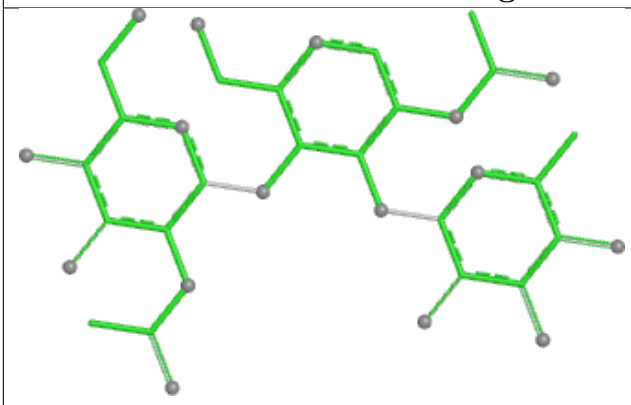


Torsions

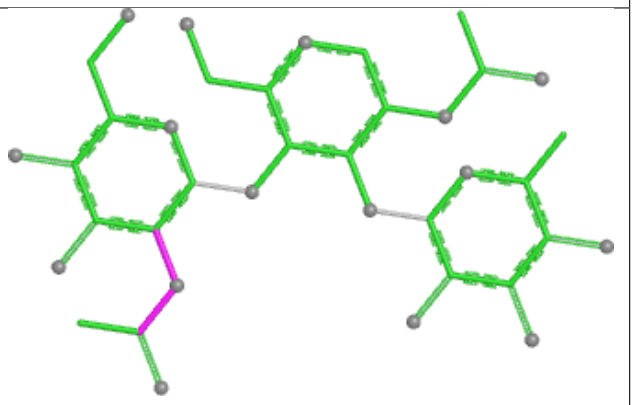


Rings

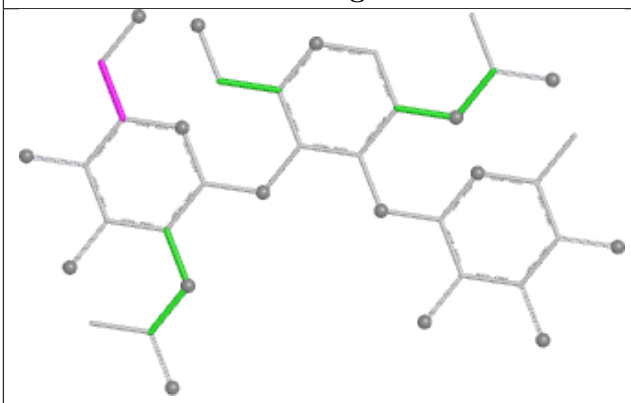
Oligosaccharide Chain J



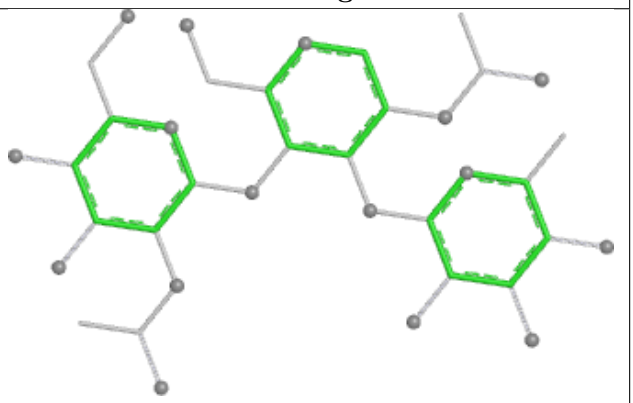
Bond lengths



Bond angles

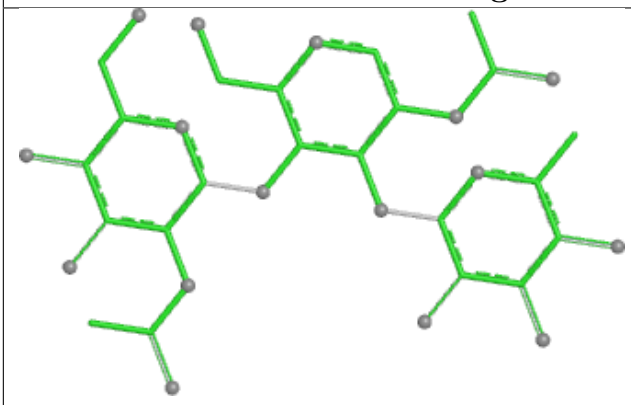


Torsions

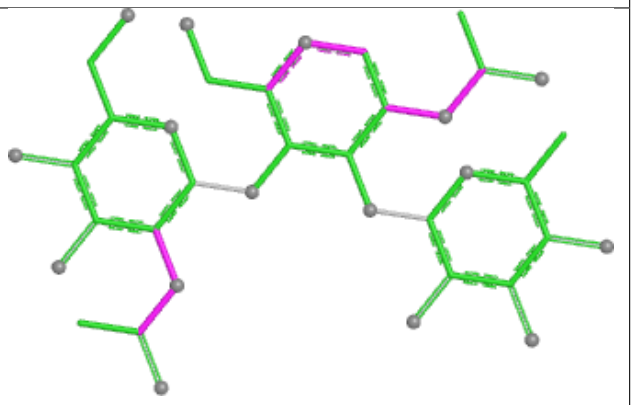


Rings

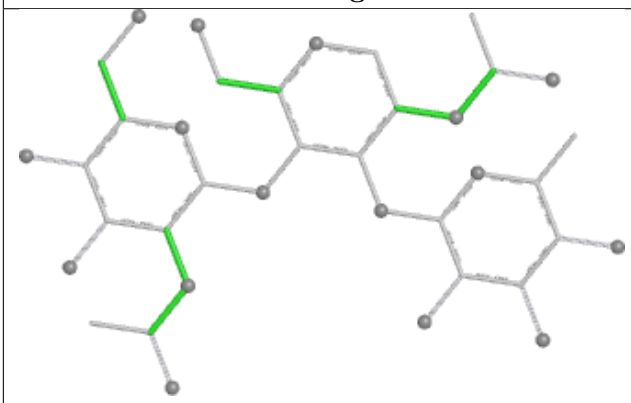
Oligosaccharide Chain M



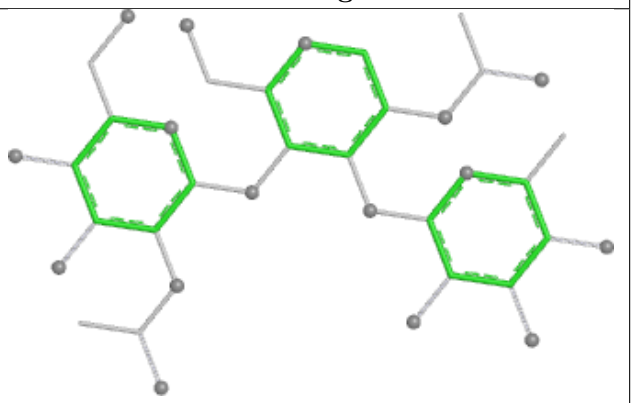
Bond lengths



Bond angles

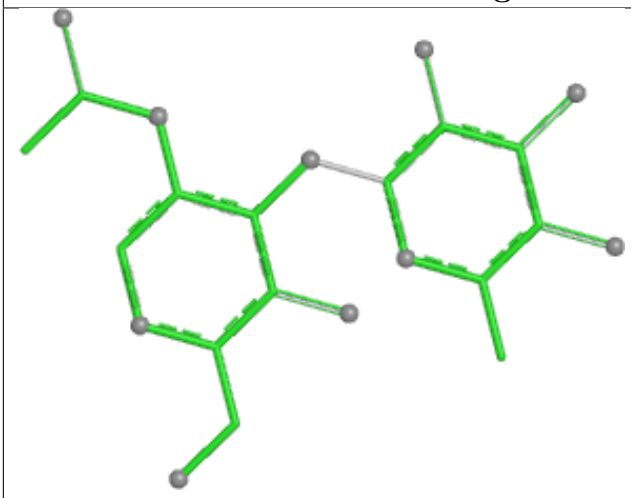


Torsions

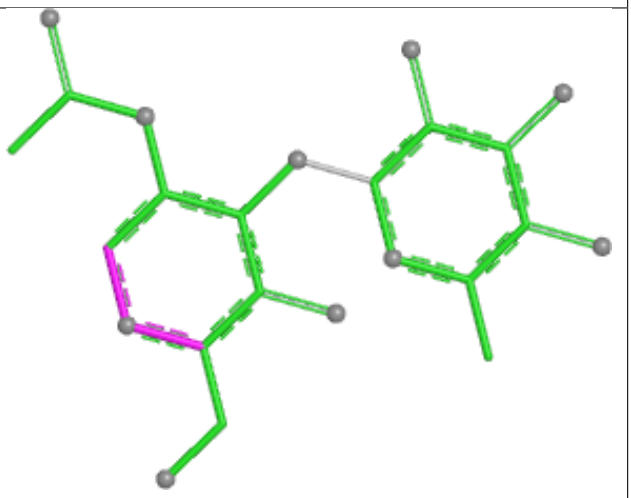


Rings

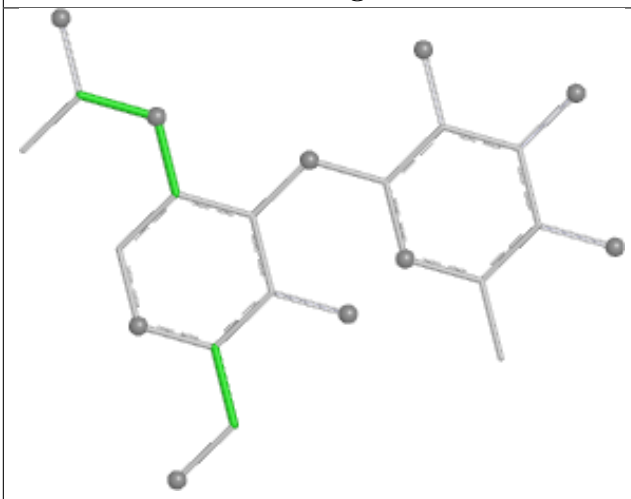
Oligosaccharide Chain H



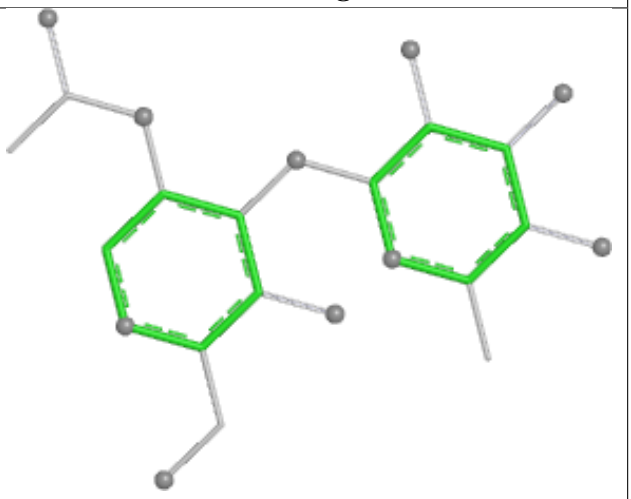
Bond lengths



Bond angles

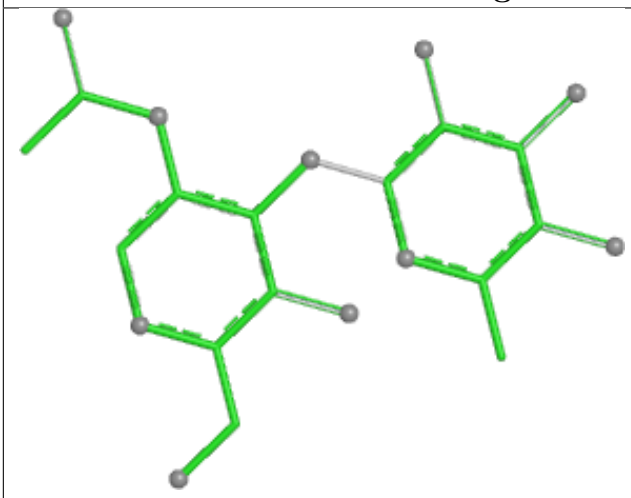


Torsions

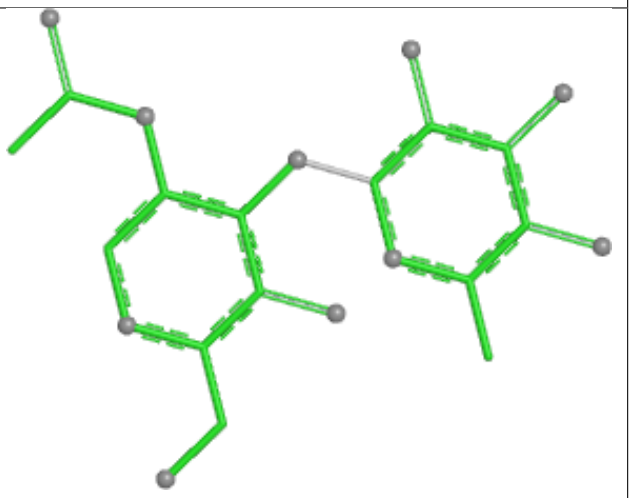


Rings

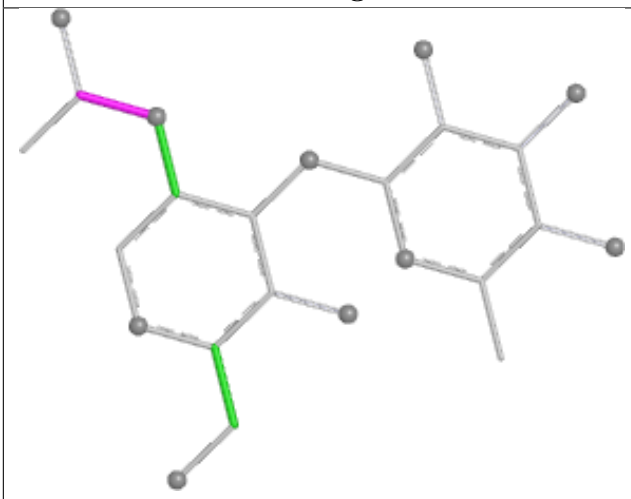
Oligosaccharide Chain K



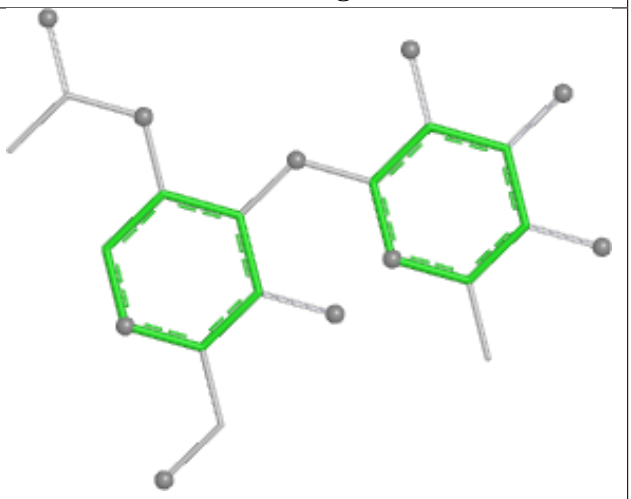
Bond lengths



Bond angles

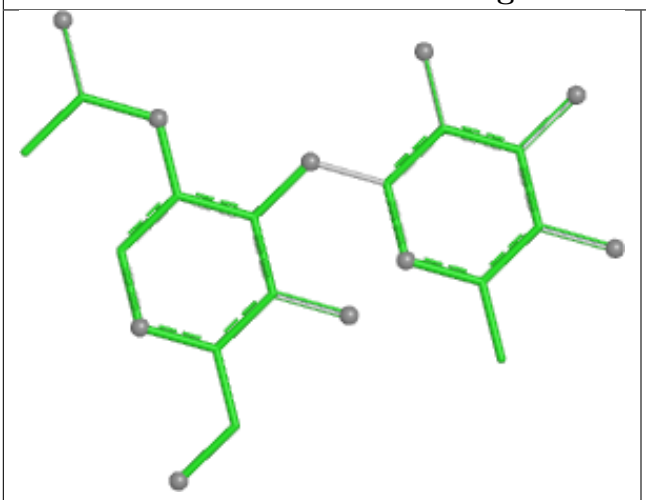


Torsions

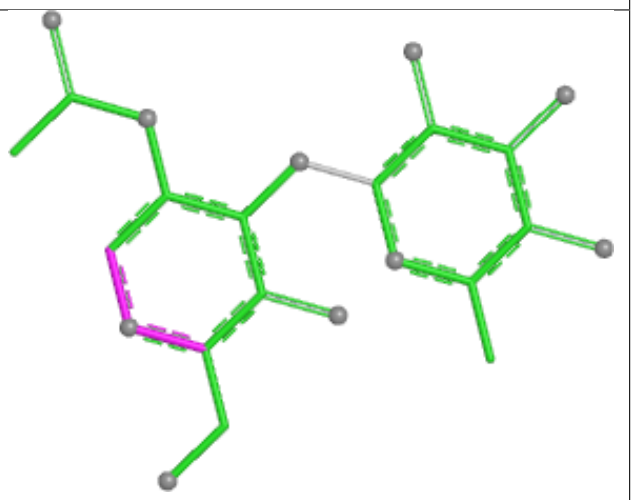


Rings

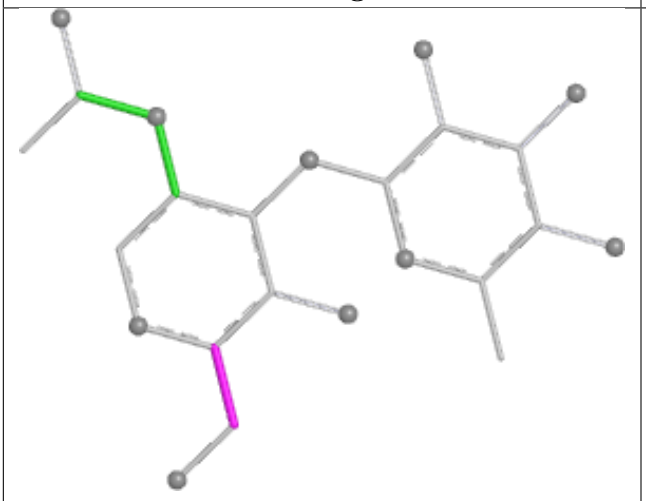
Oligosaccharide Chain L



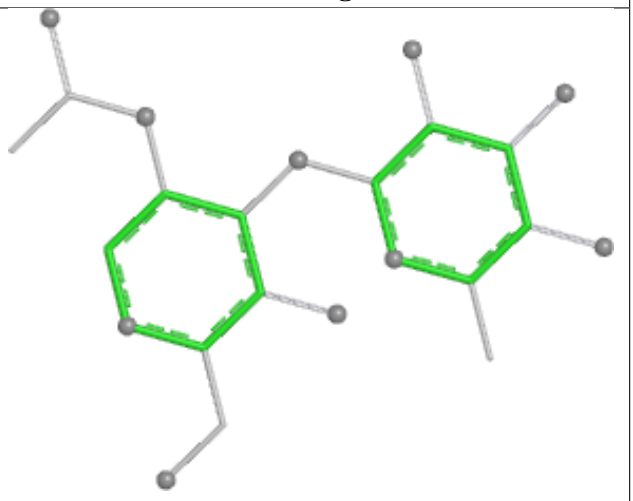
Bond lengths



Bond angles



Torsions



Rings

5.6 Ligand geometry

Of 33 ligands modelled in this entry, 8 are monoatomic - leaving 25 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	$\#\|Z\| > 2$
10	NAG	B	507	1	14,14,15	0.47	0	17,19,21	1.41	2 (11%)
6	0K7	B	503	5,4	14,16,16	1.14	2 (14%)	13,22,22	1.95	1 (7%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
7	GOL	A	504	-	5,5,5	0.38	0	5,5,5	0.23	0
10	NAG	B	508	1	14,14,15	0.53	0	17,19,21	0.63	0
6	0K7	C	503	5,4	14,16,16	1.10	2 (14%)	13,22,22	1.89	1 (7%)
6	0K7	A	503	5,4	14,16,16	1.32	3 (21%)	13,22,22	2.02	4 (30%)
9	EDO	D	508	-	3,3,3	0.55	0	2,2,2	0.16	0
9	EDO	A	507	-	3,3,3	0.48	0	2,2,2	0.44	0
10	NAG	C	512	1	14,14,15	0.64	0	17,19,21	1.02	1 (5%)
8	SO4	C	505	-	4,4,4	0.29	0	6,6,6	0.10	0
10	NAG	D	509	1	14,14,15	0.49	0	17,19,21	0.68	0
8	SO4	B	506	-	4,4,4	0.29	0	6,6,6	0.29	0
10	NAG	D	517	1	14,14,15	0.43	0	17,19,21	1.31	2 (11%)
9	EDO	D	510	-	3,3,3	0.52	0	2,2,2	0.28	0
8	SO4	A	506	-	4,4,4	0.32	0	6,6,6	0.15	0
9	EDO	D	511	-	3,3,3	0.47	0	2,2,2	0.31	0
7	GOL	D	504	-	5,5,5	0.30	0	5,5,5	0.47	0
8	SO4	D	505	-	4,4,4	0.29	0	6,6,6	0.22	0
8	SO4	A	505	-	4,4,4	0.26	0	6,6,6	0.20	0
9	EDO	D	506	-	3,3,3	0.51	0	2,2,2	0.43	0
6	0K7	D	503	5	5,8,16	1.10	0	6,10,22	2.86	2 (33%)
10	NAG	C	508	1	14,14,15	0.54	0	17,19,21	1.43	3 (17%)
7	GOL	C	504	-	5,5,5	0.39	0	5,5,5	0.37	0
9	EDO	D	507	-	3,3,3	0.46	0	2,2,2	0.36	0
10	NAG	A	508	1	14,14,15	0.50	0	17,19,21	0.78	1 (5%)

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
10	NAG	B	507	1	-	0/6/23/26	0/1/1/1
6	0K7	B	503	5,4	-	2/6/8/8	0/2/2/2
7	GOL	A	504	-	-	1/4/4/4	-
10	NAG	B	508	1	-	2/6/23/26	0/1/1/1
6	0K7	C	503	5,4	-	3/6/8/8	0/2/2/2
6	0K7	A	503	5,4	-	1/6/8/8	0/2/2/2
9	EDO	D	508	-	-	0/1/1/1	-
9	EDO	A	507	-	-	1/1/1/1	-
10	NAG	C	512	1	-	0/6/23/26	0/1/1/1
10	NAG	D	509	1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	NAG	D	517	1	-	0/6/23/26	0/1/1/1
9	EDO	D	510	-	-	0/1/1/1	-
9	EDO	D	511	-	-	1/1/1/1	-
7	GOL	D	504	-	-	2/4/4/4	-
9	EDO	D	506	-	-	1/1/1/1	-
6	0K7	D	503	5	-	2/2/4/8	0/1/1/2
10	NAG	C	508	1	-	2/6/23/26	0/1/1/1
7	GOL	C	504	-	-	0/4/4/4	-
9	EDO	D	507	-	-	0/1/1/1	-
10	NAG	A	508	1	-	2/6/23/26	0/1/1/1

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	503	0K7	CAO-NAI	3.22	1.36	1.31
6	A	503	0K7	CAO-SAJ	-2.70	1.70	1.73
6	B	503	0K7	CAO-NAI	2.50	1.35	1.31
6	C	503	0K7	CAO-NAI	2.41	1.34	1.31
6	C	503	0K7	CAO-SAJ	-2.33	1.70	1.73
6	B	503	0K7	OAC-CAK	-2.12	1.24	1.30
6	A	503	0K7	OAC-CAK	-2.01	1.24	1.30

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	D	503	0K7	CAN-CAH-SAJ	-6.01	104.48	111.83
6	A	503	0K7	CAN-CAH-SAJ	-5.79	104.68	111.79
6	B	503	0K7	CAN-CAH-SAJ	-5.74	104.74	111.79
6	C	503	0K7	CAN-CAH-SAJ	-5.37	105.20	111.79
10	B	507	NAG	C1-O5-C5	4.35	118.01	112.19
10	D	517	NAG	C1-O5-C5	3.58	116.98	112.19
10	C	508	NAG	C1-O5-C5	3.45	116.81	112.19
10	C	512	NAG	C2-N2-C7	-3.06	118.80	122.90
10	C	508	NAG	C4-C3-C2	-2.66	107.12	111.02
6	D	503	0K7	CAH-SAJ-CAO	2.55	97.57	92.37
10	D	517	NAG	C4-C3-C2	-2.54	107.30	111.02
6	A	503	0K7	CAH-CAN-CAK	-2.39	121.22	128.30
10	C	508	NAG	O3-C3-C2	2.29	114.16	109.40
10	B	507	NAG	C2-N2-C7	-2.26	119.87	122.90
10	A	508	NAG	C1-O5-C5	2.15	115.07	112.19
6	A	503	0K7	OAC-CAK-OAB	-2.05	118.94	123.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	A	503	0K7	OAC-CAK-CAN	2.05	119.57	114.71

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	503	0K7	OAB-CAK-CAN-NAI
6	B	503	0K7	OAB-CAK-CAN-NAI
6	B	503	0K7	OAB-CAK-CAN-CAH
6	D	503	0K7	OAB-CAK-CAN-NAI
6	C	503	0K7	CAF-CAM-CAO-NAI
6	C	503	0K7	CAG-CAM-CAO-NAI
6	C	503	0K7	OAB-CAK-CAN-NAI
10	B	508	NAG	C8-C7-N2-C2
10	B	508	NAG	O7-C7-N2-C2
10	C	508	NAG	C8-C7-N2-C2
10	C	508	NAG	O7-C7-N2-C2
7	D	504	GOL	O1-C1-C2-C3
10	D	509	NAG	C4-C5-C6-O6
10	D	509	NAG	O5-C5-C6-O6
6	D	503	0K7	OAB-CAK-CAN-CAH
7	D	504	GOL	O1-C1-C2-O2
9	A	507	EDO	O1-C1-C2-O2
10	A	508	NAG	C4-C5-C6-O6
9	D	506	EDO	O1-C1-C2-O2
9	D	511	EDO	O1-C1-C2-O2
10	A	508	NAG	O5-C5-C6-O6
7	A	504	GOL	O1-C1-C2-O2

There are no ring outliers.

10 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	503	0K7	5	0
10	B	508	NAG	1	0
6	C	503	0K7	2	0
6	A	503	0K7	3	0
9	D	508	EDO	1	0
9	D	510	EDO	2	0
7	D	504	GOL	1	0
8	A	505	SO4	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	D	503	0K7	1	0
9	D	507	EDO	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	424/426 (99%)	-1.04	1 (0%) 92 92	13, 21, 35, 52	1 (0%)
1	B	425/426 (99%)	-0.97	0 100 100	12, 24, 38, 69	3 (0%)
1	C	424/426 (99%)	-0.98	1 (0%) 92 92	12, 23, 38, 75	2 (0%)
1	D	422/426 (99%)	-0.99	0 100 100	16, 22, 36, 72	0
All	All	1695/1704 (99%)	-0.99	2 (0%) 92 92	12, 23, 37, 75	6 (0%)

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	64	ASN	3.4
1	A	431	SER	2.7

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

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

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, 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
3	FUC	K	2	10/11	0.72	0.17	68,79,84,85	0
3	NAG	K	1	14/15	0.75	0.16	42,68,74,84	0
2	FUC	E	2	10/11	0.80	0.14	55,63,69,69	0
2	NAG	F	3	14/15	0.81	0.12	45,55,61,66	0
2	NAG	E	3	14/15	0.84	0.12	45,55,59,60	0

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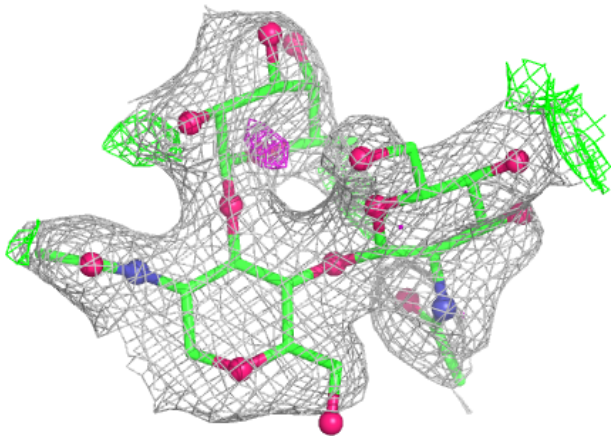
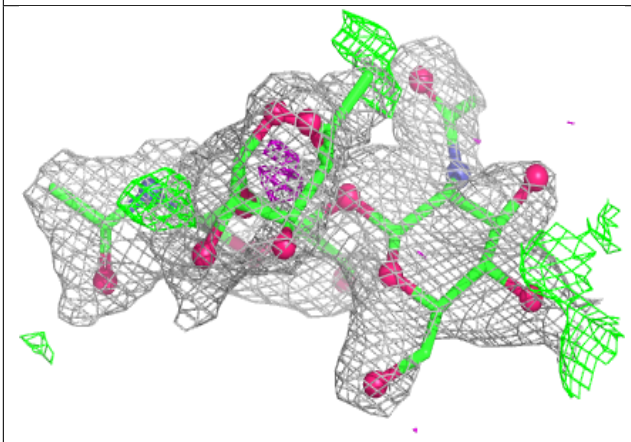
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	FUC	J	2	10/11	0.84	0.12	46,52,58,61	0
3	FUC	H	2	10/11	0.85	0.12	48,61,65,66	0
3	FUC	L	2	10/11	0.85	0.13	62,70,76,77	0
2	NAG	J	3	14/15	0.86	0.10	29,42,55,69	0
2	FUC	M	2	10/11	0.86	0.11	46,53,57,59	0
3	NAG	L	1	14/15	0.87	0.10	37,46,62,64	0
3	NAG	H	1	14/15	0.88	0.08	37,48,55,57	0
2	FUC	F	2	10/11	0.88	0.10	40,50,56,63	0
2	NAG	I	3	14/15	0.93	0.07	26,31,38,42	0
2	NAG	F	1	14/15	0.94	0.07	29,35,46,49	0
2	NAG	G	3	14/15	0.94	0.07	23,30,35,36	0
2	NAG	M	3	14/15	0.94	0.08	32,49,64,74	0
2	FUC	I	2	10/11	0.95	0.07	28,29,35,41	0
2	FUC	G	2	10/11	0.96	0.06	29,36,39,42	0
2	NAG	E	1	14/15	0.96	0.06	35,41,50,52	0
2	NAG	J	1	14/15	0.97	0.04	23,31,41,50	0
2	NAG	G	1	14/15	0.97	0.06	20,25,30,34	0
2	NAG	I	1	14/15	0.97	0.05	19,24,33,33	0
2	NAG	M	1	14/15	0.97	0.05	24,34,40,47	0

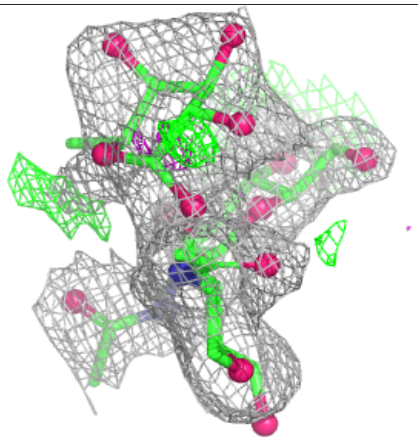
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

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)

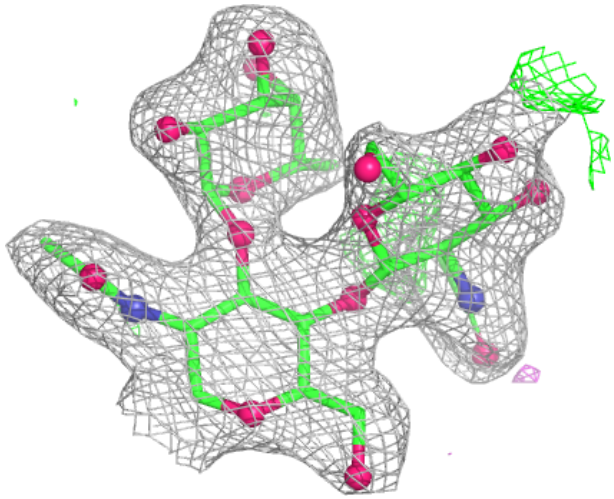


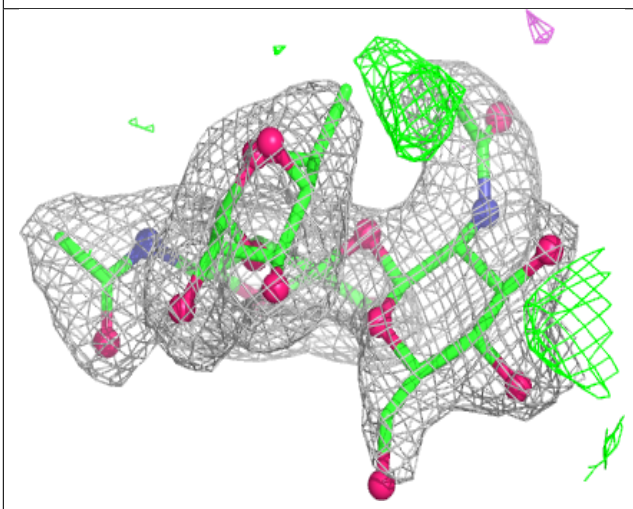


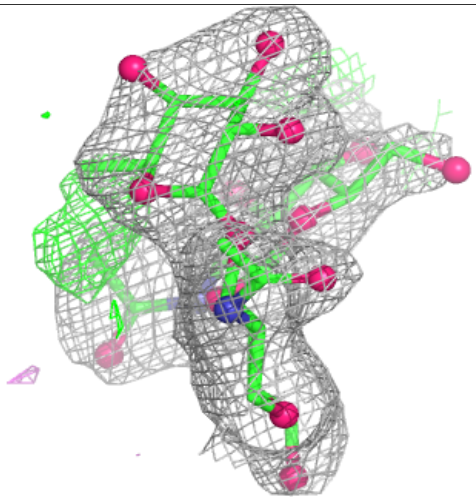


Electron density around Chain F:

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

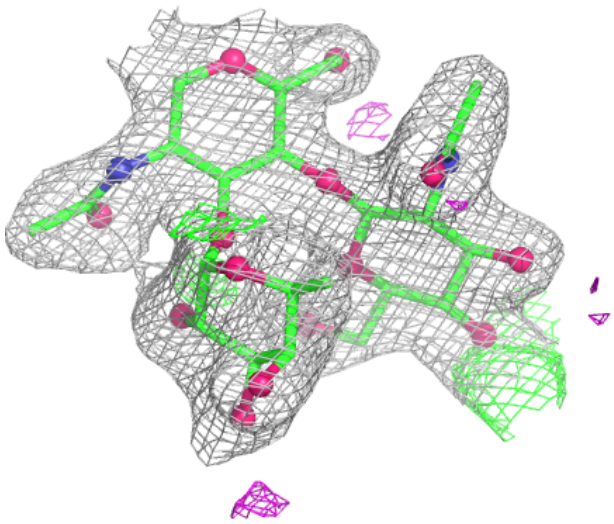


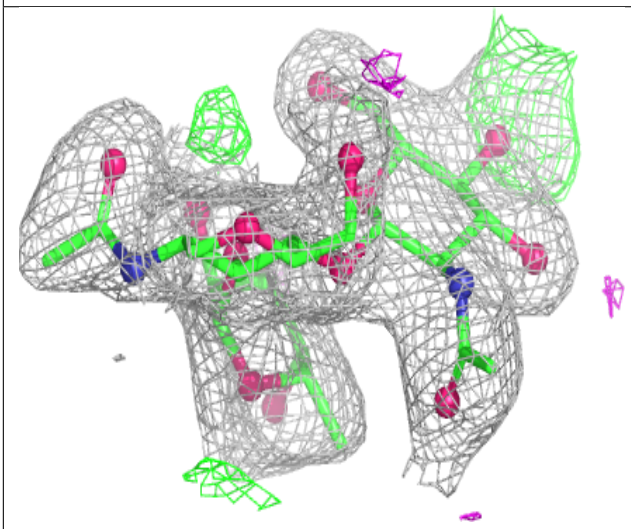


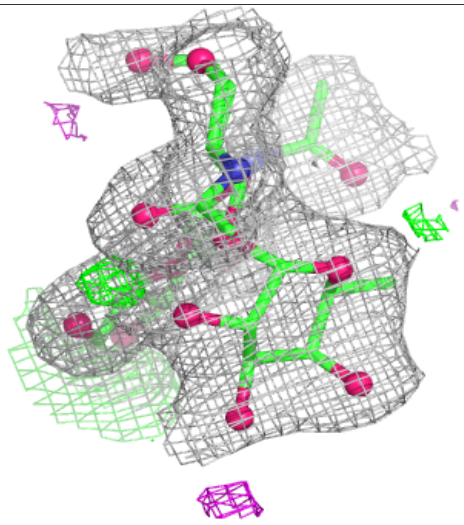


Electron density around Chain G:

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

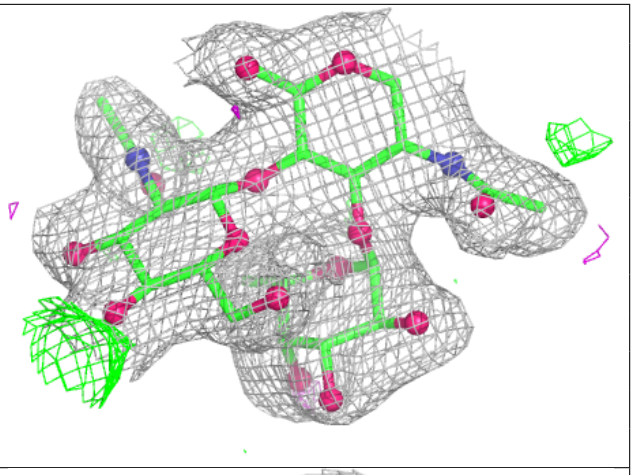


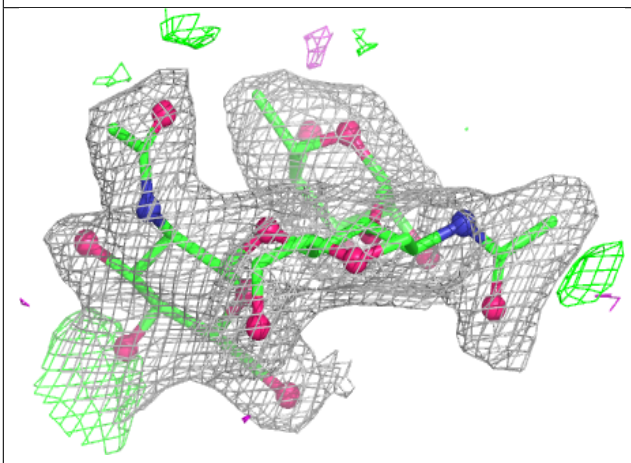


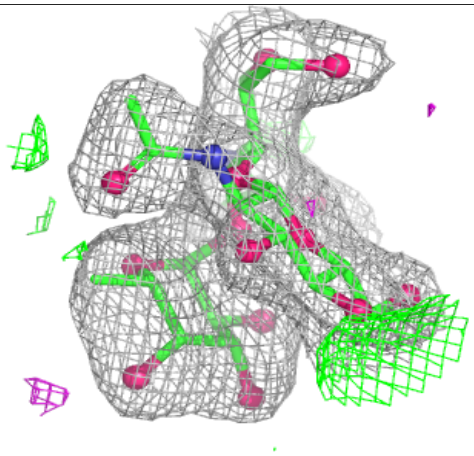


Electron density around Chain I:

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

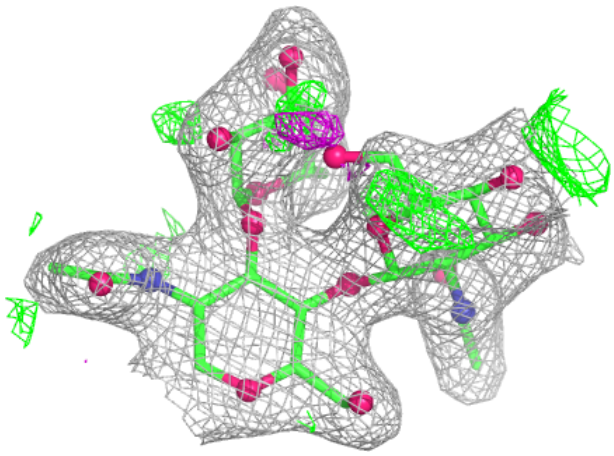


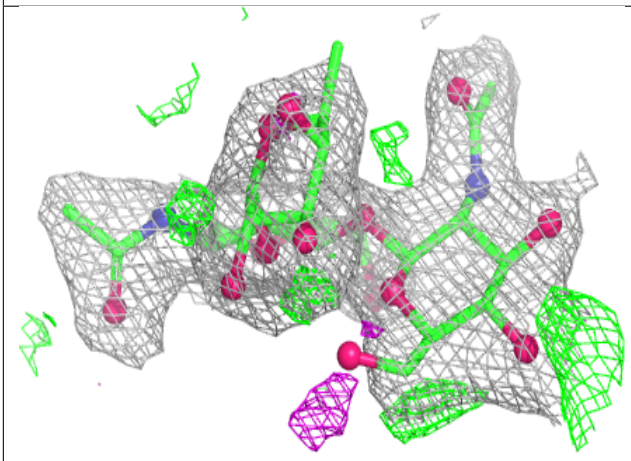


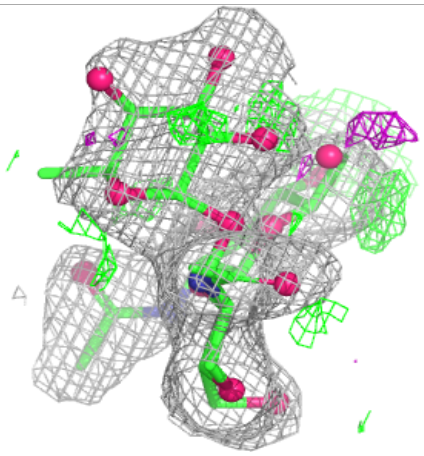


Electron density around Chain J:

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

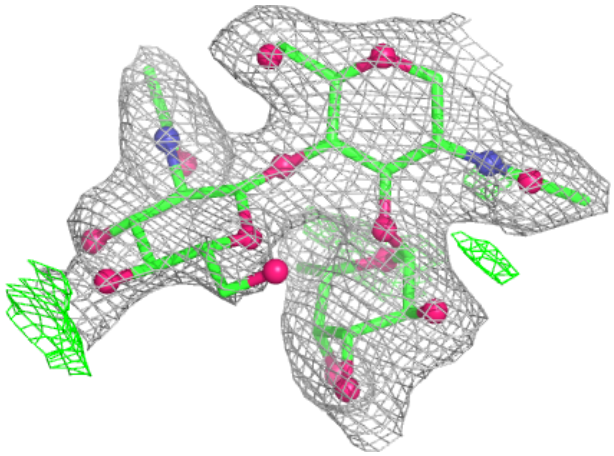


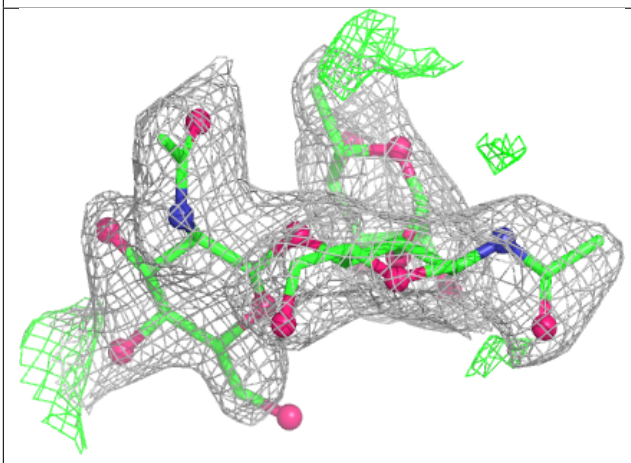


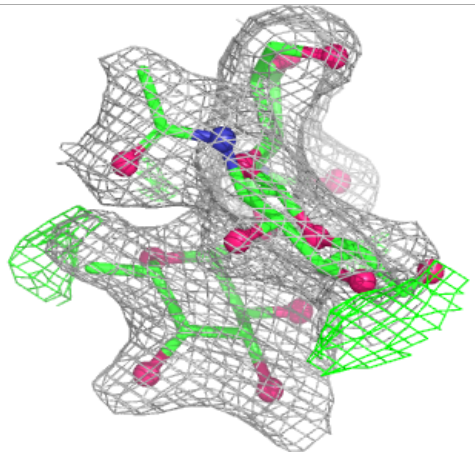


Electron density around Chain M:

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

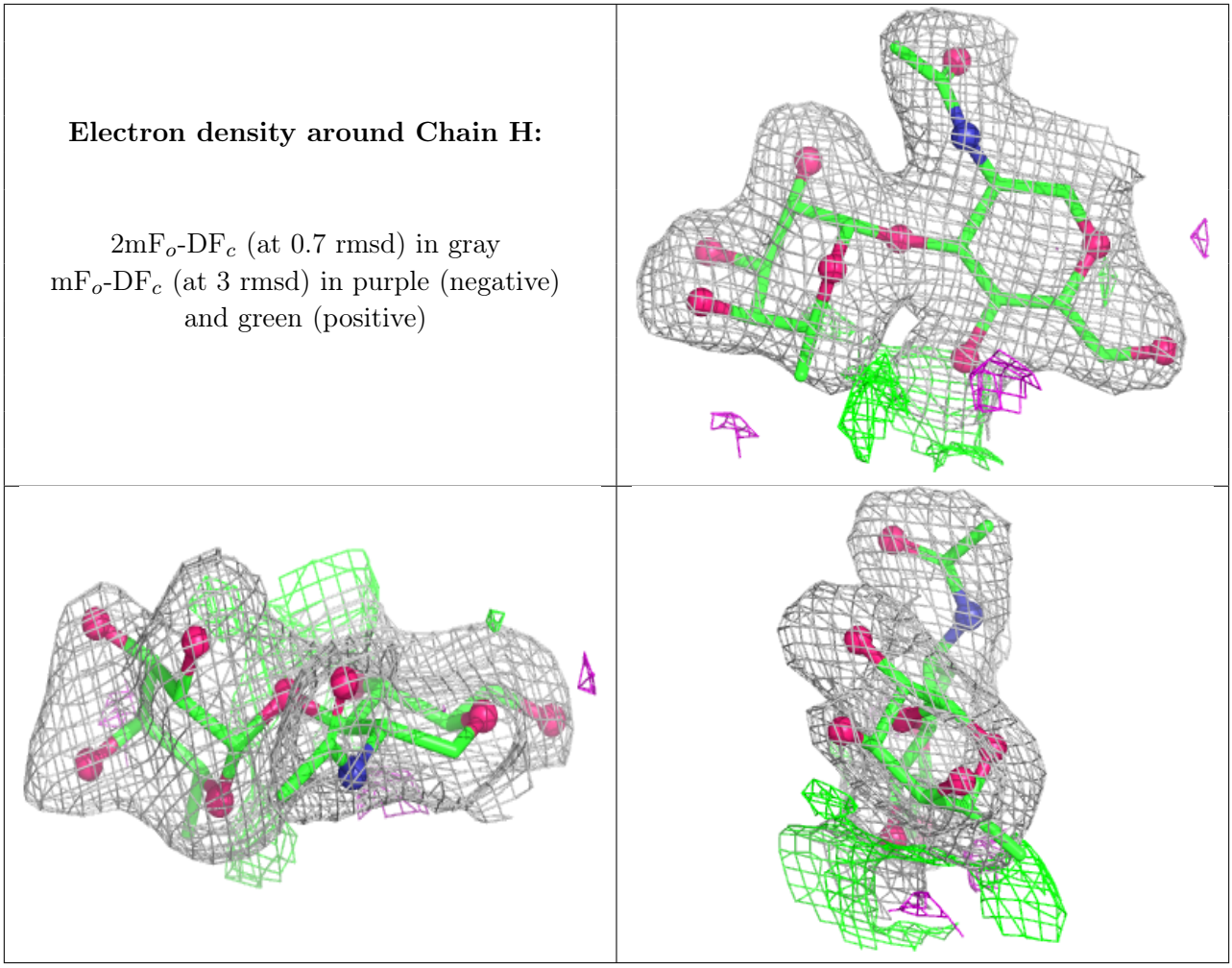






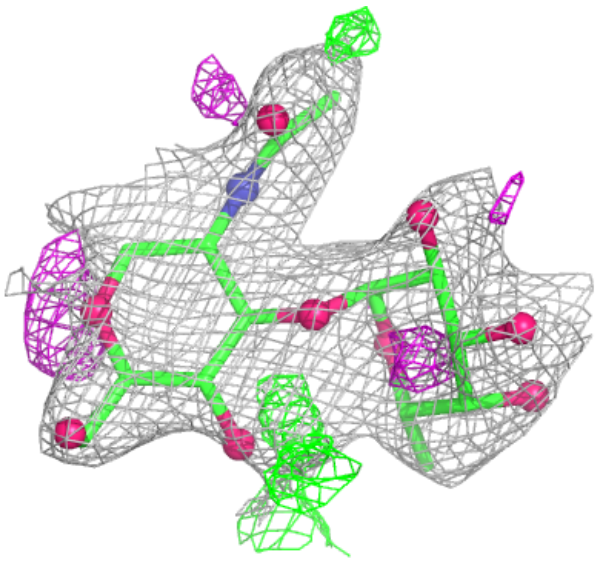
Electron density around Chain H:

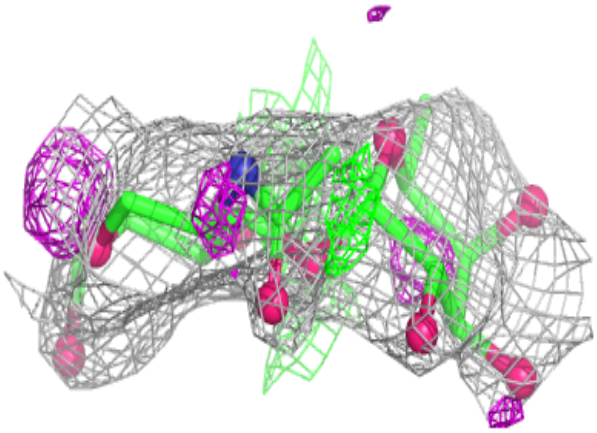
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

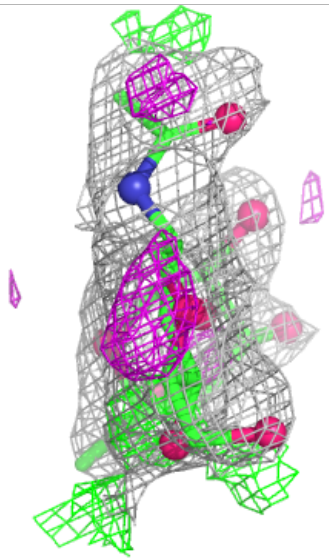


Electron density around Chain K:

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

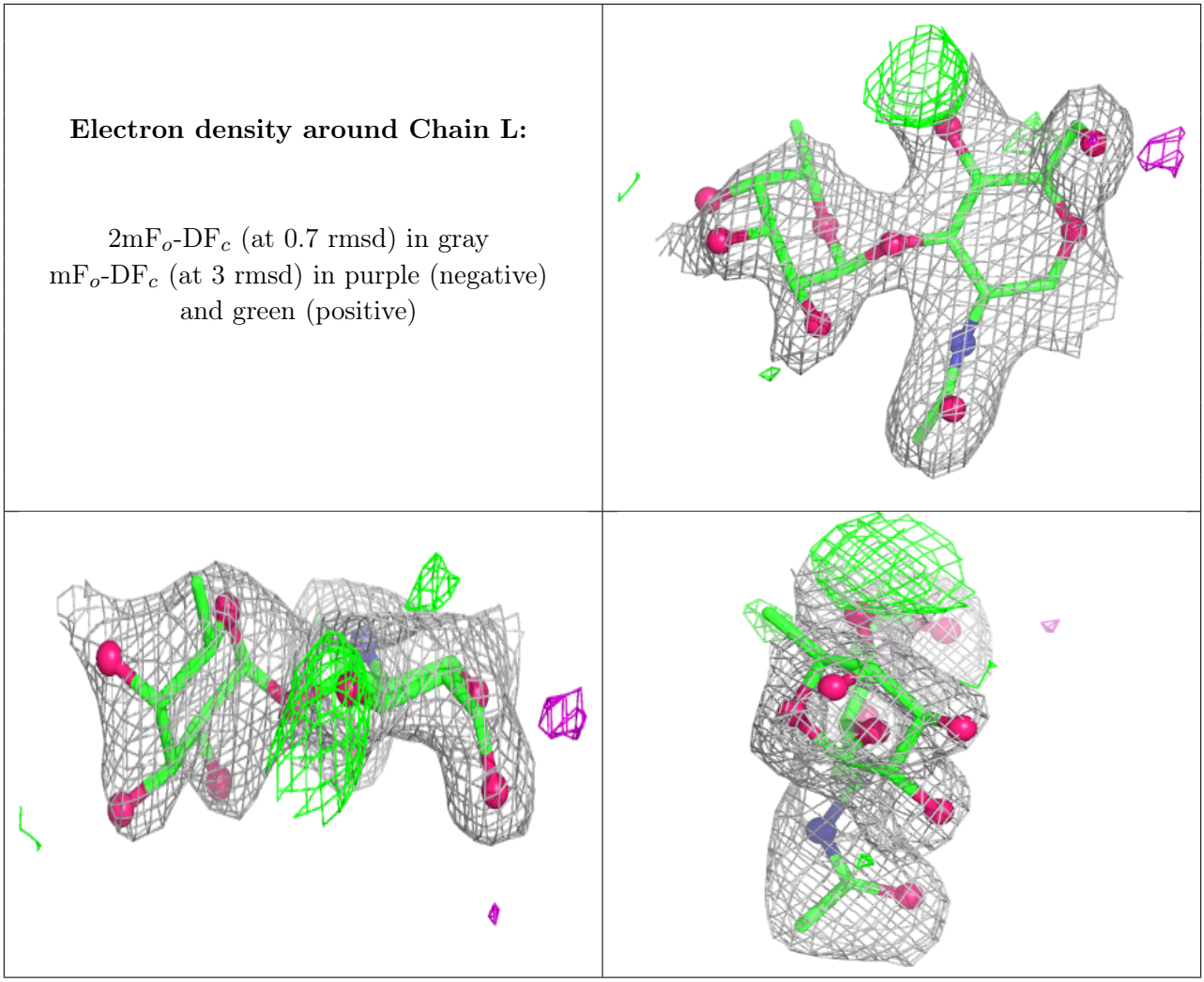






Electron density around Chain L:

$2mF_o$-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
9	EDO	D	510	4/4	0.81	0.14	36,40,44,52	0
6	0K7	C	503	15/15	0.83	0.19	33,61,78,78	0
6	0K7	A	503	15/15	0.83	0.17	28,57,70,77	0
10	NAG	C	508	14/15	0.83	0.10	38,42,51,52	0
8	SO4	C	505	5/5	0.85	0.10	58,63,88,95	0
6	0K7	B	503	15/15	0.86	0.16	28,55,70,74	0
6	0K7	D	503	8/15	0.86	0.13	26,40,50,83	0
10	NAG	B	507	14/15	0.87	0.09	33,41,45,47	0
8	SO4	B	506	5/5	0.88	0.12	40,47,60,79	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
7	GOL	D	504	6/6	0.88	0.12	29,39,43,50	0
9	EDO	D	508	4/4	0.88	0.13	30,33,34,38	0
9	EDO	A	507	4/4	0.90	0.09	30,33,36,37	0
10	NAG	D	517	14/15	0.90	0.08	39,44,48,54	0
9	EDO	D	506	4/4	0.90	0.10	31,32,33,37	0
8	SO4	D	505	5/5	0.94	0.15	30,51,55,57	0
10	NAG	B	508	14/15	0.94	0.06	23,34,40,47	0
9	EDO	D	507	4/4	0.94	0.10	33,33,35,35	0
10	NAG	A	508	14/15	0.94	0.07	16,29,33,42	0
8	SO4	A	506	5/5	0.95	0.13	38,40,55,62	0
10	NAG	D	509	14/15	0.95	0.06	23,29,37,39	0
9	EDO	D	511	4/4	0.96	0.08	28,33,37,39	0
10	NAG	C	512	14/15	0.96	0.06	23,29,37,40	0
7	GOL	C	504	6/6	0.98	0.05	21,23,25,26	0
8	SO4	A	505	5/5	0.99	0.04	29,30,36,43	0
5	FE	A	502	1/1	0.99	0.04	27,27,27,27	0
7	GOL	A	504	6/6	0.99	0.03	17,20,23,23	0
5	FE	B	502	1/1	1.00	0.02	21,21,21,21	1
5	FE	D	502	1/1	1.00	0.02	29,29,29,29	1
5	FE	C	502	1/1	1.00	0.03	28,28,28,28	1
4	ZN	B	501	1/1	1.00	0.03	27,27,27,27	0
4	ZN	D	501	1/1	1.00	0.01	23,23,23,23	1
4	ZN	C	501	1/1	1.00	0.03	30,30,30,30	0
4	ZN	A	501	1/1	1.00	0.02	28,28,28,28	0

6.5 Other polymers (i)

There are no such residues in this entry.