wwPDB X-ray Structure Validation Summary Report (i)

Jun 16, 2024 – 08:11 AM EDT

PDB ID	:	2J0Y
Title	:	L-ficolin complexed to b-1,3-D-glucan
Authors	:	Garlatti, V.; Gaboriaud, C.
Deposited on	:	2006-08-08
Resolution	:	2.35 Å(reported)

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

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

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

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

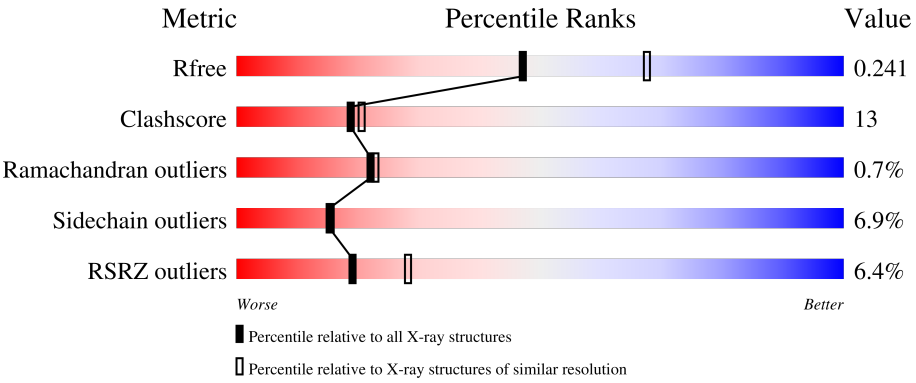
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.35 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1164 (2.36-2.36)
Clashscore	141614	1232 (2.36-2.36)
Ramachandran outliers	138981	1211 (2.36-2.36)
Sidechain outliers	138945	1212 (2.36-2.36)
RSRZ outliers	127900	1150 (2.36-2.36)

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	218	13% 58% 27% 11%
1	B	218	% 78% 19%
1	C	218	74% 22%
1	D	218	22% 61% 27% 5% 7%
1	E	218	78% 19%

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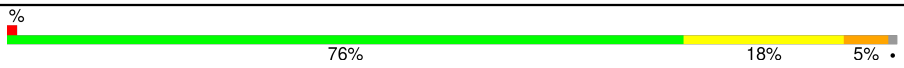
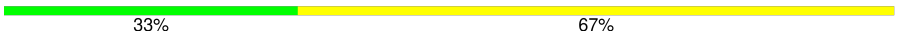
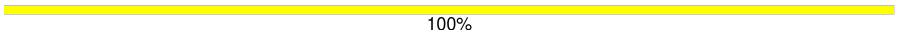
Mol	Chain	Length	Quality of chain
1	F	218	
2	G	3	
2	I	3	
3	H	4	
3	J	4	

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	BMA	G	3	-	-	-	X
7	BGC	F	1289	-	-	X	-

2 Entry composition (i)

There are 8 unique types of molecules in this entry. The entry contains 10651 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.

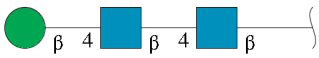
- Molecule 1 is a protein called FICOLIN-2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	193	Total	C	N	O	S	0	0	0
			1566	988	273	297	8			
1	B	218	Total	C	N	O	S	0	0	0
			1744	1096	307	332	9			
1	C	215	Total	C	N	O	S	0	0	0
			1723	1084	303	328	8			
1	D	202	Total	C	N	O	S	0	1	0
			1631	1024	288	310	9			
1	E	218	Total	C	N	O	S	0	0	0
			1744	1096	307	332	9			
1	F	215	Total	C	N	O	S	0	1	0
			1734	1093	304	329	8			

There are 12 discrepancies between the modelled and reference sequences:

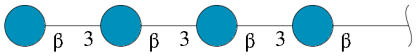
Chain	Residue	Modelled	Actual	Comment	Reference
A	168	THR	VAL	conflict	UNP Q15485
A	247	THR	VAL	conflict	UNP Q15485
B	168	THR	VAL	conflict	UNP Q15485
B	247	THR	VAL	conflict	UNP Q15485
C	168	THR	VAL	conflict	UNP Q15485
C	247	THR	VAL	conflict	UNP Q15485
D	168	THR	VAL	conflict	UNP Q15485
D	247	THR	VAL	conflict	UNP Q15485
E	168	THR	VAL	conflict	UNP Q15485
E	247	THR	VAL	conflict	UNP Q15485
F	168	THR	VAL	conflict	UNP Q15485
F	247	THR	VAL	conflict	UNP Q15485

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



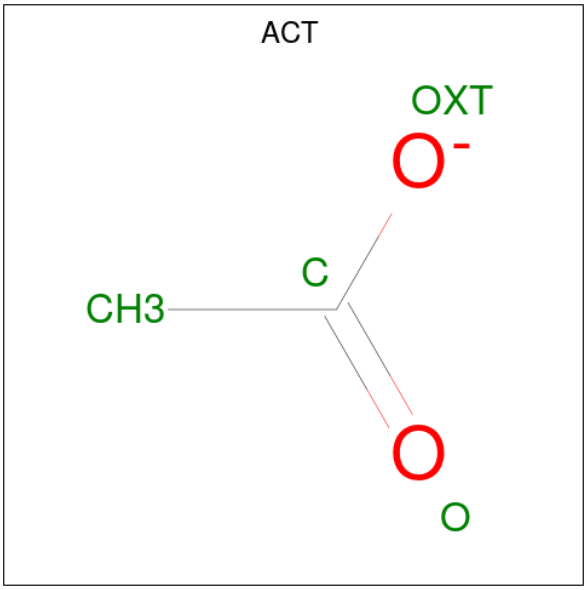
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
2	G	3	Total C N O 39 22 2 15	0	0	0
2	I	3	Total C N O 39 22 2 15	0	0	0

- Molecule 3 is an oligosaccharide called beta-D-glucopyranose-(1-3)-beta-D-glucopyranose-(1-3)-beta-D-glucopyranose-(1-3)-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
3	H	4	Total C O 44 24 20	0	0	0
3	J	4	Total C O 44 24 20	0	0	0

- Molecule 4 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).

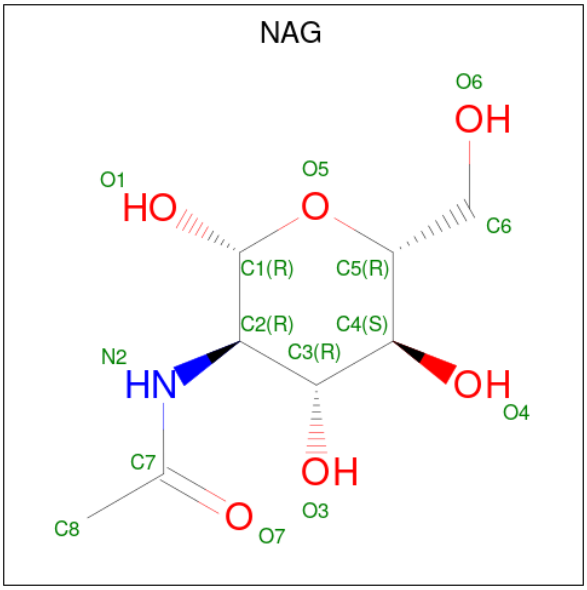


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	1	Total C O 4 2 2	0	0

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

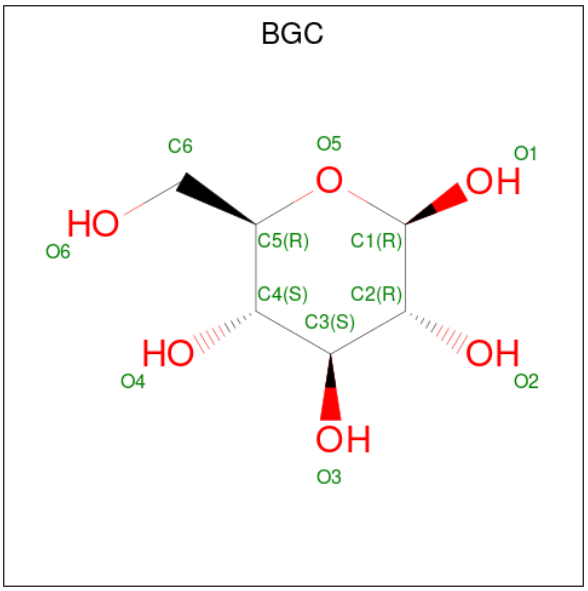
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total Ca 1 1	0	0
5	C	2	Total Ca 2 2	0	0
5	E	1	Total Ca 1 1	0	0
5	F	2	Total Ca 2 2	0	0

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



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

- Molecule 7 is beta-D-glucopyranose (three-letter code: BGC) (formula: $C_6H_{12}O_6$).



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

- Molecule 8 is water.

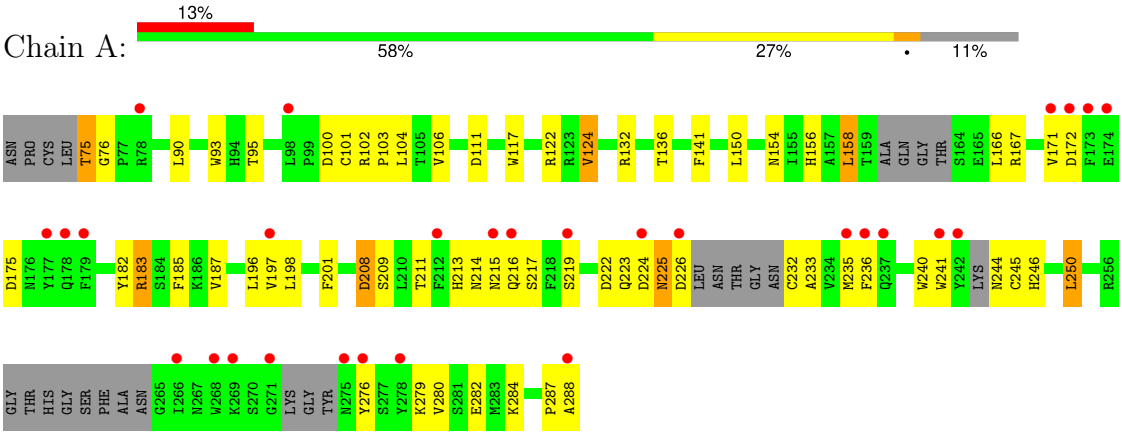
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	32	Total O 32 32	0	0
8	B	61	Total O 61 61	0	0
8	C	57	Total O 57 57	0	0
8	D	24	Total O 24 24	0	0
8	E	66	Total O 66 66	0	0
8	F	54	Total O 54 54	0	0

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.

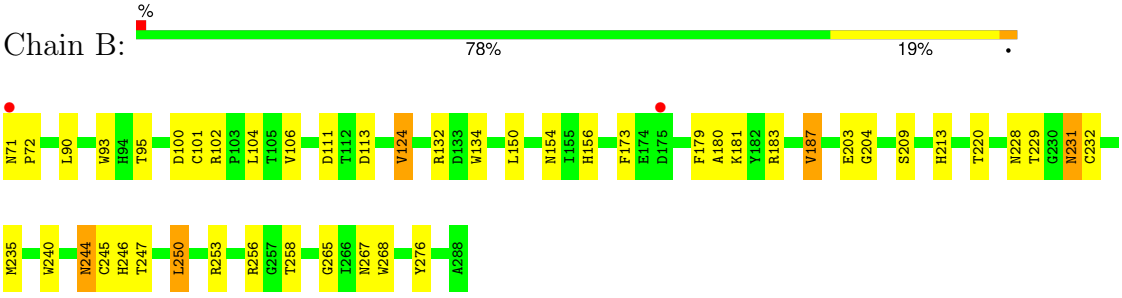
• Molecule 1: FICOLIN-2

Chain A:



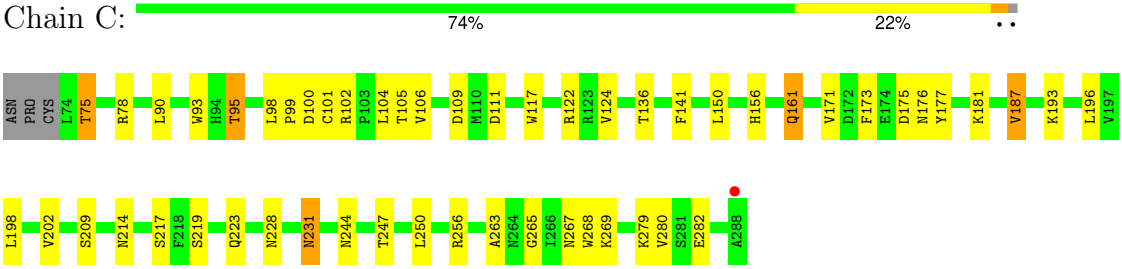
• Molecule 1: FICOLIN-2

Chain B:



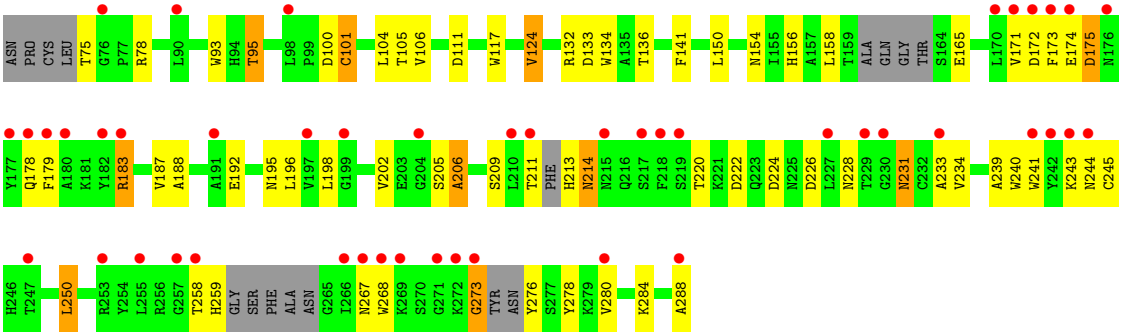
• Molecule 1: FICOLIN-2

Chain C:



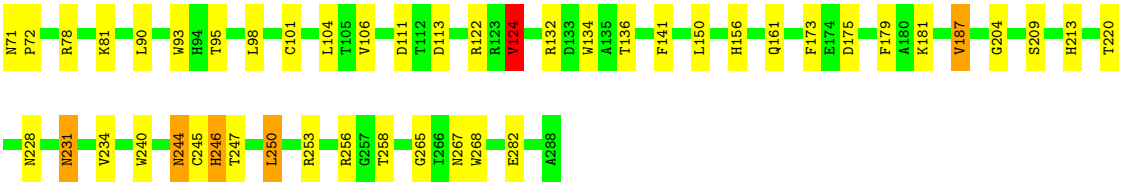
• Molecule 1: FICOLIN-2

Chain D:



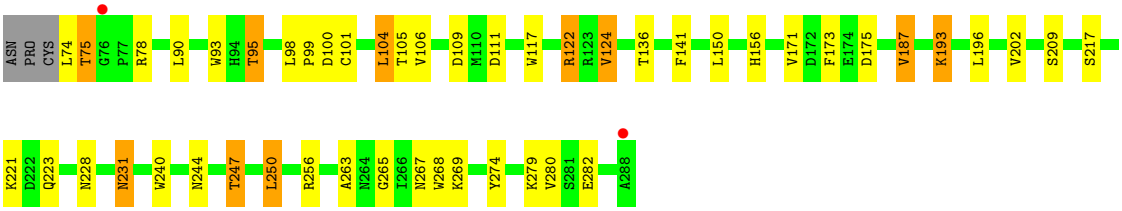
• Molecule 1: FICOLIN-2

Chain E:



• Molecule 1: FICOLIN-2

Chain F:

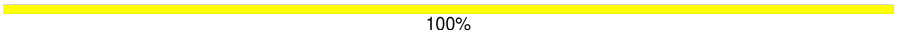


• Molecule 2: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:

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

Chain I:



• Molecule 3: beta-D-glucopyranose-(1-3)-beta-D-glucopyranose-(1-3)-beta-D-glucopyranose-(1-3)-beta-D-glucopyranose

Chain H:

• Molecule 3: beta-D-glucopyranose-(1-3)-beta-D-glucopyranose-(1-3)-beta-D-glucopyranose-(1-3)-beta-D-glucopyranose

Chain J:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 32	Depositor
Cell constants a, b, c, α, β, γ	96.08Å 96.08Å 140.98Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	19.95 – 2.35 19.95 – 2.35	Depositor EDS
% Data completeness (in resolution range)	100.0 (19.95-2.35) 98.8 (19.95-2.35)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.55 (at 2.35Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.196 , 0.242 0.196 , 0.241	Depositor DCC
R_{free} test set	2990 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	37.2	Xtriage
Anisotropy	0.291	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 41.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.028 for -h,-k,l 0.470 for h,-h-k,-l 0.029 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	10651	wwPDB-VP
Average B, all atoms (Å^2)	45.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.58% 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: CA, ACT, BGC, BMA, NAG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.57	1/1605 (0.1%)	0.60	1/2164 (0.0%)
1	B	0.54	0/1792	0.66	0/2425
1	C	0.53	0/1770	0.65	0/2394
1	D	0.70	1/1671 (0.1%)	0.56	0/2253
1	E	0.52	0/1792	0.65	0/2425
1	F	0.54	0/1782	0.66	0/2410
All	All	0.57	2/10412 (0.0%)	0.63	1/14071 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	273	GLY	C-O	21.08	1.57	1.23
1	A	208	ASP	CG-OD1	8.77	1.45	1.25

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	208	ASP	CB-CG-OD2	-5.43	113.42	118.30

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	1566	0	1441	55	0
1	B	1744	0	1611	31	1
1	C	1723	0	1595	37	0
1	D	1631	0	1510	64	1
1	E	1744	0	1611	33	0
1	F	1734	0	1603	32	0
2	G	39	0	34	0	0
2	I	39	0	34	0	0
3	H	44	0	37	6	0
3	J	44	0	37	7	0
4	B	4	0	3	0	0
5	B	1	0	0	0	0
5	C	2	0	0	0	0
5	E	1	0	0	0	0
5	F	2	0	0	0	0
6	C	14	0	13	0	0
6	F	14	0	13	0	0
7	F	11	0	10	8	0
8	A	32	0	0	12	0
8	B	61	0	0	7	0
8	C	57	0	0	6	0
8	D	24	0	0	24	0
8	E	66	0	0	9	0
8	F	54	0	0	3	0
All	All	10651	0	9552	260	1

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 13.

The worst 5 of 260 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:183:ARG:HG3	1:D:183:ARG:HH11	1.06	1.10
1:D:206:ALA:HB1	8:D:2022:HOH:O	1.57	1.05
7:F:1289:BGC:H6C1	7:F:1289:BGC:H2	1.45	0.98
1:D:220:THR:HG22	8:D:2018:HOH:O	1.63	0.98
1:B:71:ASN:N	1:B:72:PRO:HD3	1.83	0.94

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:183:ARG:NH1	1:D:288:ALA:O[3_455]	2.12	0.08

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	181/218 (83%)	162 (90%)	17 (9%)	2 (1%)	14	13
1	B	216/218 (99%)	205 (95%)	10 (5%)	1 (0%)	29	32
1	C	213/218 (98%)	199 (93%)	13 (6%)	1 (0%)	29	32
1	D	193/218 (88%)	171 (89%)	19 (10%)	3 (2%)	9	8
1	E	216/218 (99%)	203 (94%)	12 (6%)	1 (0%)	29	32
1	F	214/218 (98%)	201 (94%)	12 (6%)	1 (0%)	29	32
All	All	1233/1308 (94%)	1141 (92%)	83 (7%)	9 (1%)	22	23

5 of 9 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	225	ASN
1	D	206	ALA
1	D	195	ASN
1	A	124	VAL
1	B	124	VAL

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	165/183 (90%)	153 (93%)	12 (7%)	14	14
1	B	183/183 (100%)	172 (94%)	11 (6%)	19	21
1	C	180/183 (98%)	168 (93%)	12 (7%)	16	17
1	D	172/183 (94%)	160 (93%)	12 (7%)	15	15
1	E	183/183 (100%)	170 (93%)	13 (7%)	14	15
1	F	181/183 (99%)	167 (92%)	14 (8%)	13	12
All	All	1064/1098 (97%)	990 (93%)	74 (7%)	15	15

5 of 74 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	247	THR
1	F	231	ASN
1	E	258	THR
1	F	124	VAL
1	C	90	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 42 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	139	GLN
1	E	275	ASN
1	E	156	HIS
1	E	244	ASN
1	F	156	HIS

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)

14 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	G	1	2,1	14,14,15	0.83	0	17,19,21	1.15	1 (5%)
2	NAG	G	2	2	14,14,15	0.63	0	17,19,21	0.89	0
2	BMA	G	3	2	11,11,12	0.76	0	15,15,17	1.02	1 (6%)
3	BGC	H	1	3	11,11,12	0.80	0	15,15,17	1.42	4 (26%)
3	BGC	H	2	3	11,11,12	0.68	0	15,15,17	2.42	6 (40%)
3	BGC	H	3	3	11,11,12	0.59	0	15,15,17	1.46	2 (13%)
3	BGC	H	4	3	11,11,12	0.60	0	15,15,17	1.81	5 (33%)
2	NAG	I	1	2,1	14,14,15	0.76	0	17,19,21	1.28	2 (11%)
2	NAG	I	2	2	14,14,15	0.55	0	17,19,21	0.97	1 (5%)
2	BMA	I	3	2	11,11,12	0.42	0	15,15,17	2.05	3 (20%)
3	BGC	J	1	3	11,11,12	0.75	0	15,15,17	1.55	4 (26%)
3	BGC	J	2	3	11,11,12	0.68	0	15,15,17	2.33	5 (33%)
3	BGC	J	3	3	11,11,12	0.58	0	15,15,17	1.16	2 (13%)
3	BGC	J	4	3	11,11,12	0.62	0	15,15,17	1.58	2 (13%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	G	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	G	2	2	-	2/6/23/26	0/1/1/1
2	BMA	G	3	2	-	0/2/19/22	0/1/1/1
3	BGC	H	1	3	-	0/2/19/22	0/1/1/1
3	BGC	H	2	3	-	1/2/19/22	0/1/1/1
3	BGC	H	3	3	-	2/2/19/22	0/1/1/1
3	BGC	H	4	3	-	1/2/19/22	0/1/1/1
2	NAG	I	1	2,1	-	2/6/23/26	0/1/1/1
2	NAG	I	2	2	-	2/6/23/26	0/1/1/1
2	BMA	I	3	2	-	2/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	BGC	J	1	3	-	0/2/19/22	0/1/1/1
3	BGC	J	2	3	-	1/2/19/22	0/1/1/1
3	BGC	J	3	3	-	1/2/19/22	0/1/1/1
3	BGC	J	4	3	-	2/2/19/22	0/1/1/1

There are no bond length outliers.

The worst 5 of 38 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	I	3	BMA	C1-O5-C5	6.28	120.60	112.19
3	H	2	BGC	C1-O5-C5	5.64	119.75	112.19
3	J	2	BGC	C1-O5-C5	5.34	119.34	112.19
3	H	2	BGC	C2-C3-C4	-5.14	101.82	110.86
3	J	2	BGC	C2-C3-C4	-4.21	103.46	110.86

There are no chirality outliers.

5 of 18 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	I	3	BMA	O5-C5-C6-O6
3	J	4	BGC	O5-C5-C6-O6
2	G	2	NAG	C4-C5-C6-O6
2	G	2	NAG	O5-C5-C6-O6
3	J	4	BGC	C4-C5-C6-O6

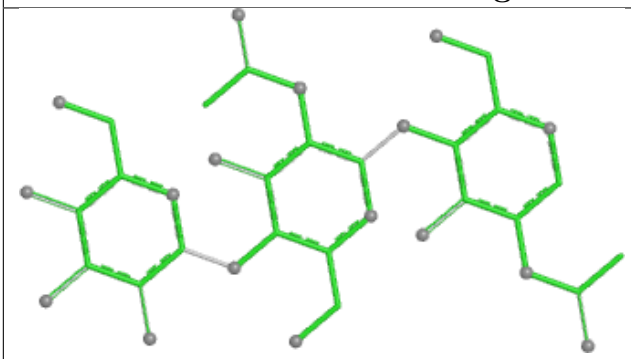
There are no ring outliers.

7 monomers are involved in 13 short contacts:

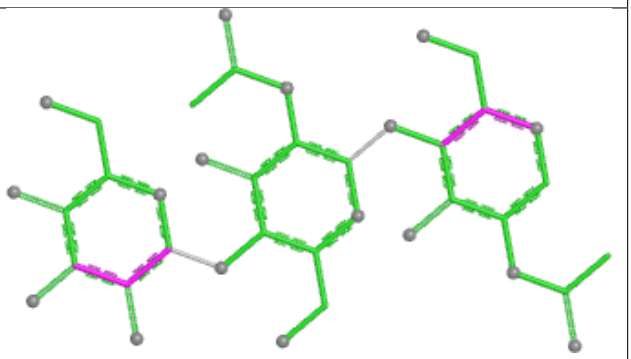
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	H	1	BGC	2	0
3	H	2	BGC	4	0
3	J	1	BGC	2	0
3	J	3	BGC	4	0
3	J	4	BGC	2	0
3	J	2	BGC	3	0
3	H	3	BGC	3	0

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

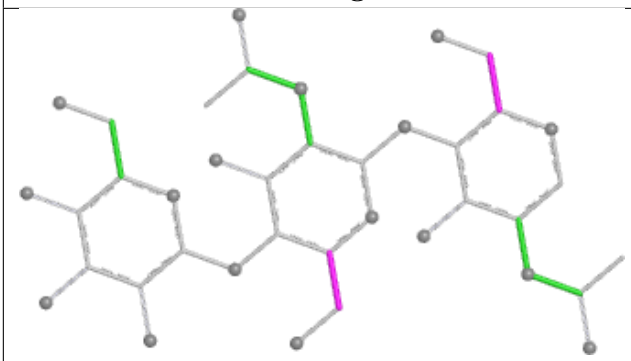
Oligosaccharide Chain G



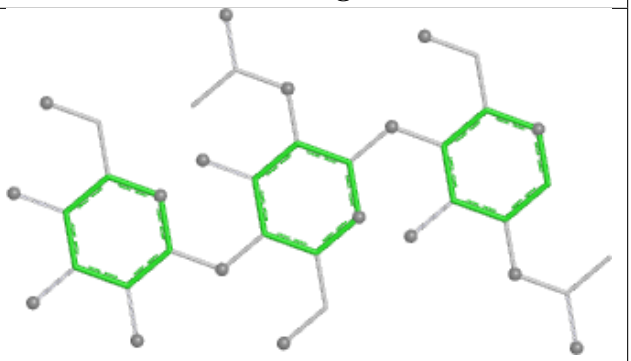
Bond lengths



Bond angles

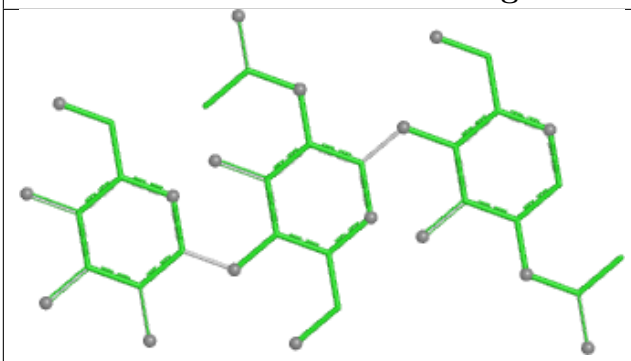


Torsions

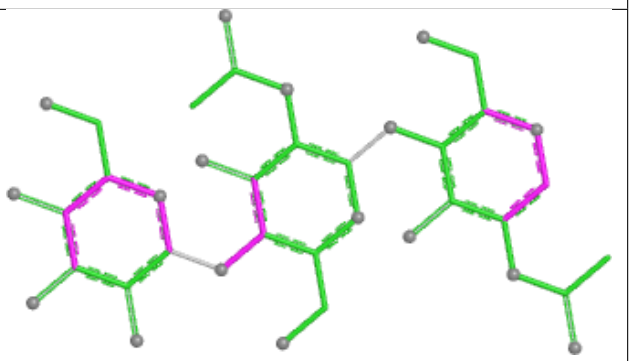


Rings

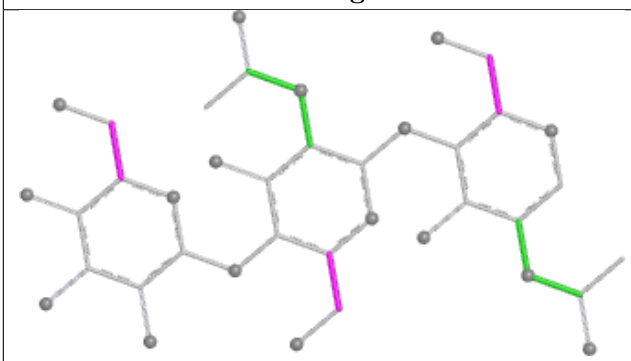
Oligosaccharide Chain I



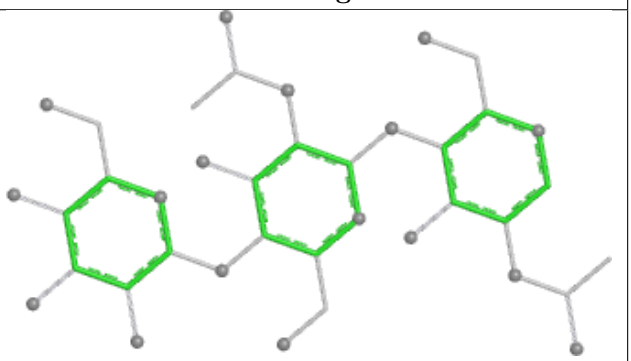
Bond lengths



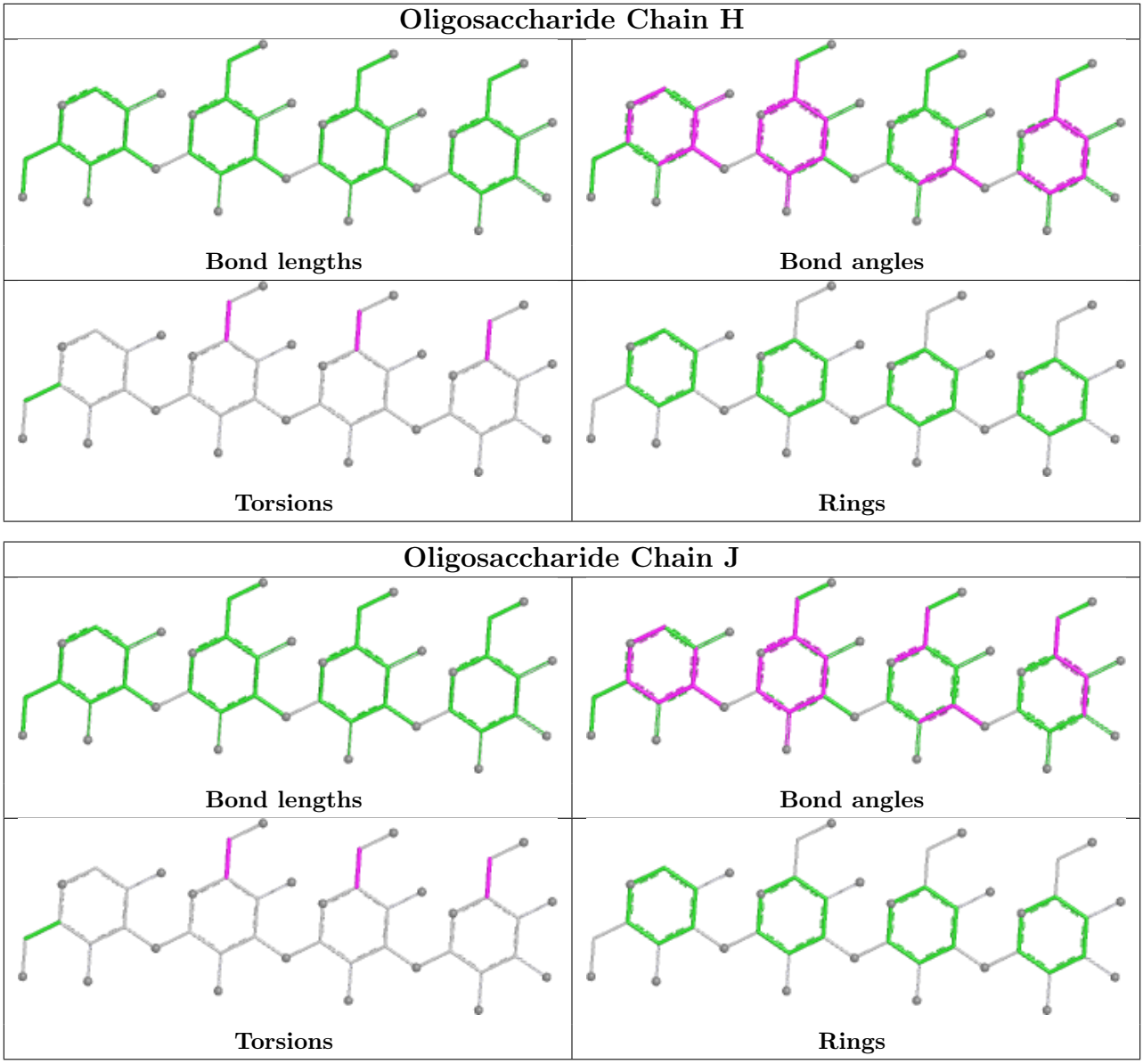
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

Of 10 ligands modelled in this entry, 6 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	$\#\|Z\| > 2$
4	ACT	B	1289	-	3,3,3	0.76	0	3,3,3	1.30	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
7	BGC	F	1289	-	11,11,12	0.53	0	15,15,17	1.20	1 (6%)
6	NAG	C	1295	1	14,14,15	0.64	0	17,19,21	0.70	0
6	NAG	F	1296	1	14,14,15	0.63	0	17,19,21	1.05	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
7	BGC	F	1289	-	-	1/2/19/22	0/1/1/1
6	NAG	C	1295	1	-	0/6/23/26	0/1/1/1
6	NAG	F	1296	1	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	F	1296	NAG	C4-C3-C2	2.31	114.40	111.02
7	F	1289	BGC	O4-C4-C5	2.19	114.73	109.32
6	F	1296	NAG	C2-N2-C7	-2.12	120.06	122.90

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	F	1289	BGC	C4-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	F	1289	BGC	8	0

5.7 Other polymers

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	193/218 (88%)	0.83	29 (15%) 2 3	42, 46, 56, 59	0
1	B	218/218 (100%)	-0.30	2 (0%) 84 90	38, 45, 54, 62	0
1	C	215/218 (98%)	-0.32	1 (0%) 91 95	39, 45, 56, 67	0
1	D	202/218 (92%)	1.03	47 (23%) 0 1	42, 45, 50, 53	0
1	E	218/218 (100%)	-0.31	0 100 100	38, 45, 54, 61	0
1	F	215/218 (98%)	-0.29	2 (0%) 84 90	39, 45, 55, 68	0
All	All	1261/1308 (96%)	0.08	81 (6%) 19 28	38, 45, 54, 68	0

The worst 5 of 81 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	212	PHE	4.9
1	D	268	TRP	4.8
1	D	227	LEU	4.8
1	D	174	GLU	4.6
1	D	229	THR	4.6

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

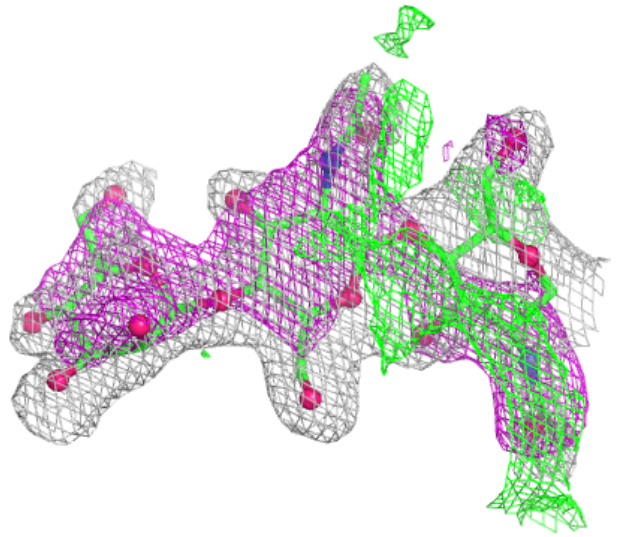
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

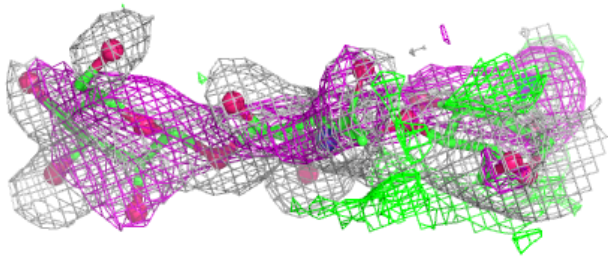
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	BMA	G	3	11/12	0.75	0.48	63,65,66,66	0
2	NAG	G	1	14/15	0.76	0.30	45,47,50,50	0
3	BGC	H	1	11/12	0.82	0.16	47,51,52,55	0
2	NAG	G	2	14/15	0.88	0.32	52,53,55,59	0
3	BGC	J	1	11/12	0.88	0.19	47,51,52,53	0
3	BGC	H	4	11/12	0.90	0.19	54,57,59,61	0
2	BMA	I	3	11/12	0.91	0.10	54,58,60,61	0
3	BGC	H	2	11/12	0.91	0.16	47,50,53,55	0
3	BGC	J	2	11/12	0.91	0.25	50,52,54,55	0
3	BGC	J	4	11/12	0.91	0.15	55,56,57,59	0
3	BGC	H	3	11/12	0.92	0.19	52,53,55,56	0
3	BGC	J	3	11/12	0.93	0.20	50,52,54,55	0
2	NAG	I	1	14/15	0.95	0.12	36,38,40,41	0
2	NAG	I	2	14/15	0.97	0.09	40,41,44,49	0

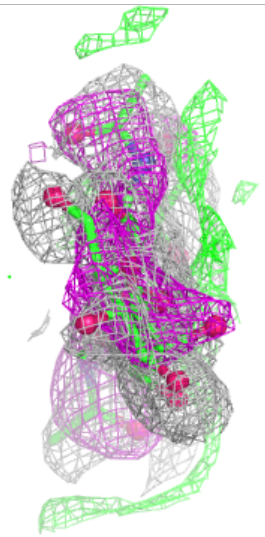
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around Chain G:

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

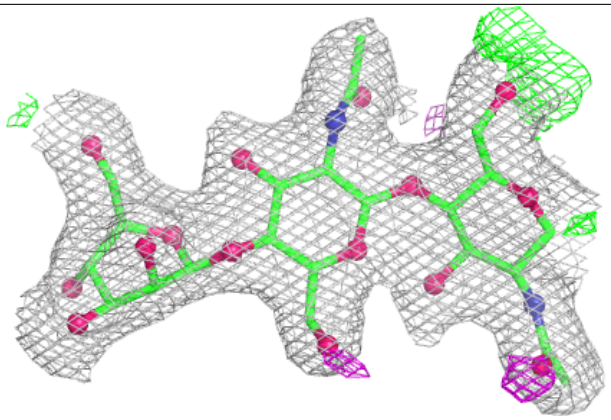


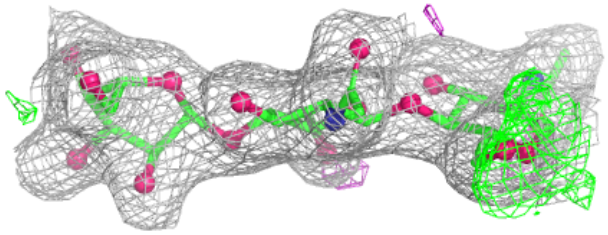


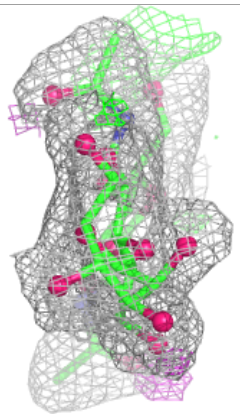


Electron density around Chain I:

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

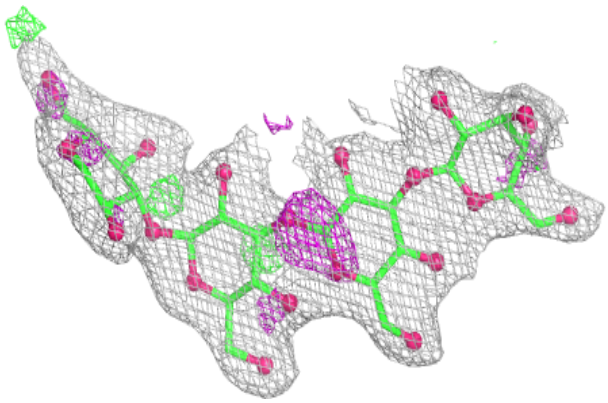


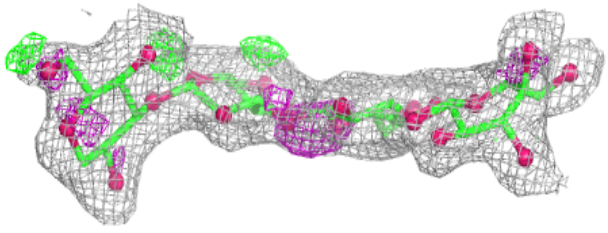


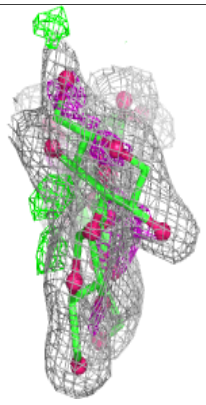


Electron density around Chain H:

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

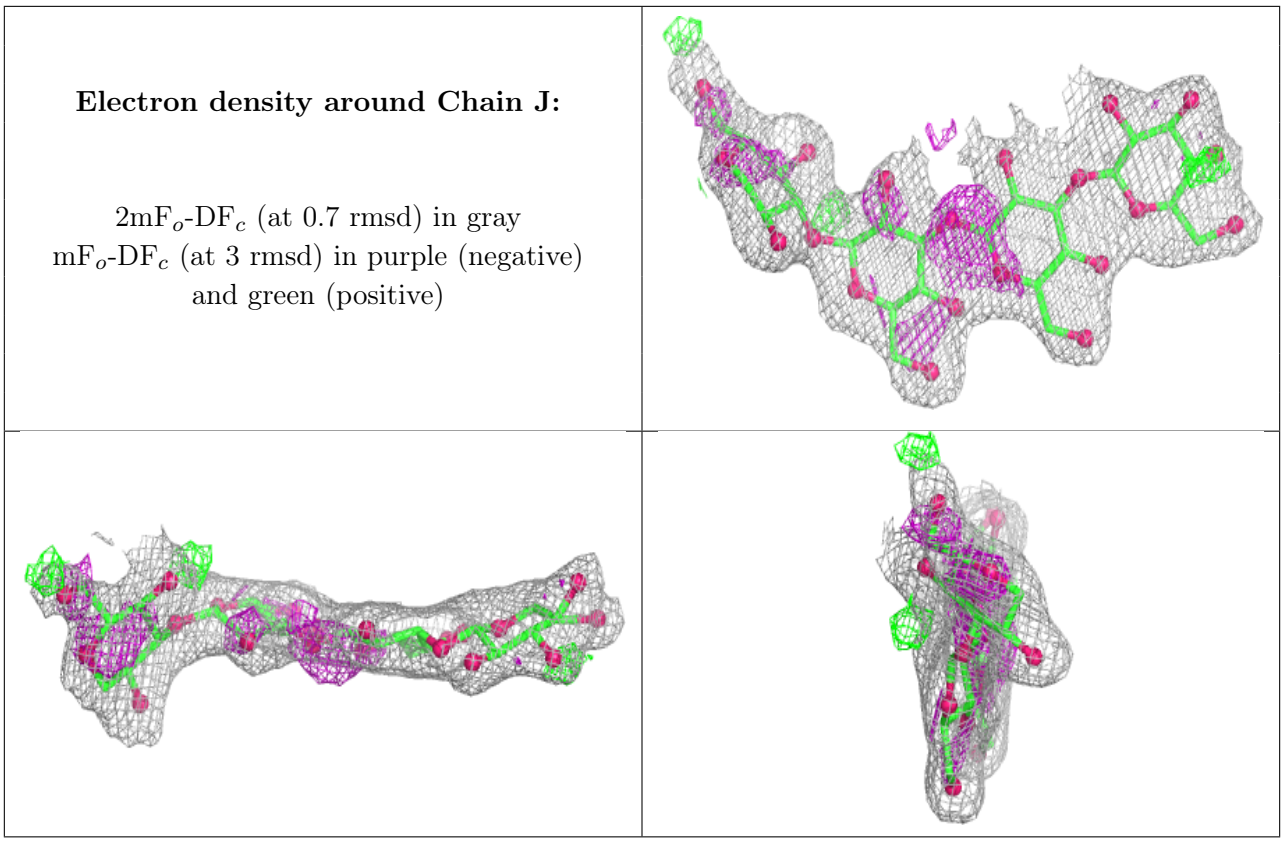






Electron density around Chain J:

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



6.4 Ligands

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
7	BGC	F	1289	11/12	0.81	0.24	70,76,77,78	0
6	NAG	C	1295	14/15	0.85	0.20	61,65,67,67	0
6	NAG	F	1296	14/15	0.89	0.24	62,65,68,68	0
5	CA	F	1295	1/1	0.95	0.05	48,48,48,48	0
5	CA	C	1294	1/1	0.98	0.03	46,46,46,46	0
5	CA	F	1294	1/1	0.98	0.04	38,38,38,38	0
4	ACT	B	1289	4/4	0.98	0.08	56,57,58,58	0
5	CA	E	1289	1/1	0.99	0.03	28,28,28,28	0
5	CA	C	1293	1/1	0.99	0.06	42,42,42,42	0
5	CA	B	1290	1/1	0.99	0.05	27,27,27,27	0

6.5 Other polymers

There are no such residues in this entry.