



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 12, 2022 – 08:18 am GMT

PDB ID : 7P6J
Title : Crystal structure of glycosyl-enzyme intermediate of RBcel1 Y201F
Authors : Collet, L.; Dutoit, R.
Deposited on : 2021-07-16
Resolution : 1.75 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.27
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.27

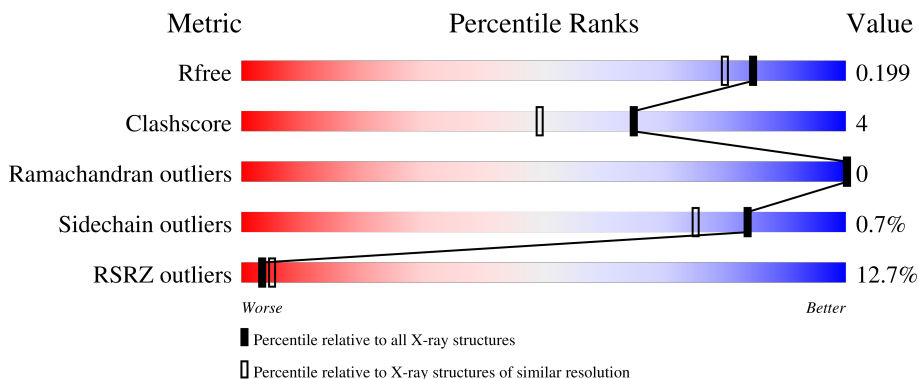
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.75 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	2340 (1.76-1.76)
Clashscore	141614	2466 (1.76-1.76)
Ramachandran outliers	138981	2437 (1.76-1.76)
Sidechain outliers	138945	2437 (1.76-1.76)
RSRZ outliers	127900	2298 (1.76-1.76)

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	321	
1	B	321	
1	C	321	
1	D	321	
2	E	4	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	F	2	 100%
3	G	2	 100%
3	K	2	 100%
4	H	6	 83% 17%
5	I	3	 100%
5	L	3	 33% 67%
6	J	4	 50% 50%

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 12223 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 Endoglucanase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	318	2706	1756	446	496	8	0	25	0
1	B	321	2703	1746	448	500	9	0	22	0
1	C	318	2664	1728	443	485	8	0	19	0
1	D	317	2689	1743	443	495	8	0	23	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	201	PHE	TYR	engineered mutation	UNP C1JI15
B	201	PHE	TYR	engineered mutation	UNP C1JI15
C	201	PHE	TYR	engineered mutation	UNP C1JI15
D	201	PHE	TYR	engineered mutation	UNP C1JI15

- Molecule 2 is an oligosaccharide called beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-alpha-D-glucopyranose.



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
			Total	C O			
2	E	4	44	24 20	0	0	0

- Molecule 3 is an oligosaccharide called beta-D-glucopyranose-(1-4)-beta-D-glucopyranose.



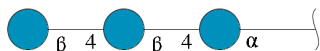
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
3	F	2	Total	C	O	0	0	0
			23	12	11			
3	G	2	Total	C	O	0	0	0
			23	12	11			
3	K	2	Total	C	O	0	0	0
			23	12	11			

- Molecule 4 is an oligosaccharide called beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-alpha-D-glucopyranose.



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
4	H	6	Total	C	O	0	0	0
			66	36	30			

- Molecule 5 is an oligosaccharide called beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-alpha-D-glucopyranose.



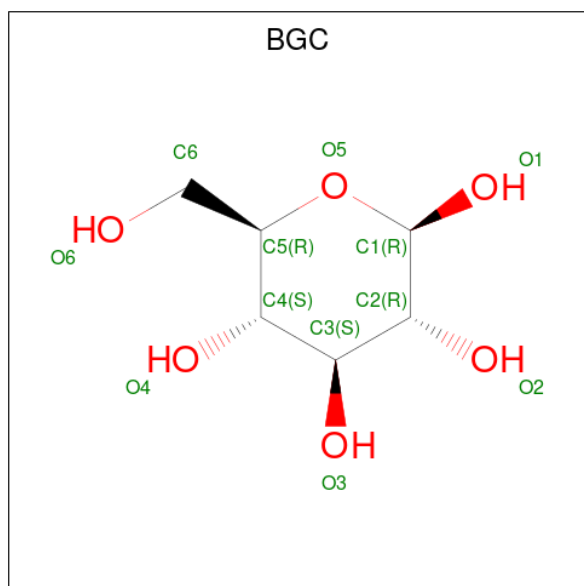
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
5	I	3	Total	C	O	0	0	0
			34	18	16			
5	L	3	Total	C	O	0	0	0
			33	18	15			

- Molecule 6 is an oligosaccharide called beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
6	J	4	Total	C	O	0	0	0
			45	24	21			

- Molecule 7 is beta-D-glucopyranose (three-letter code: BGC) (formula: C₆H₁₂O₆) (labeled as "Ligand of Interest" by depositor).



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

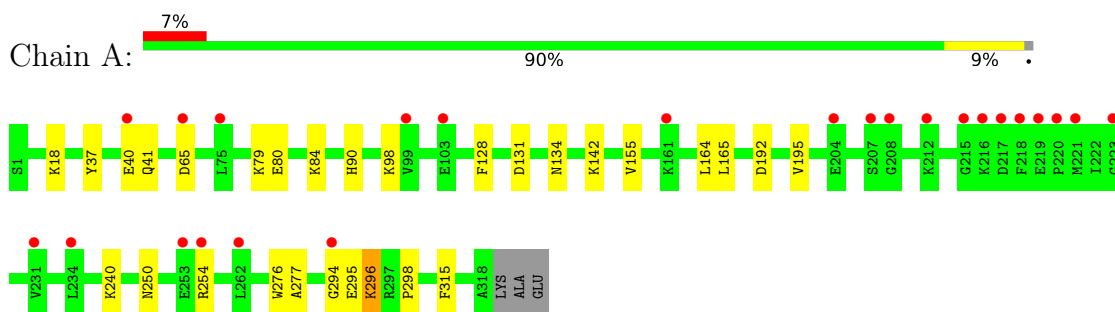
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	328	Total	O	0	0
			328	328		
8	B	309	Total	O	0	0
			309	309		
8	C	388	Total	O	0	0
			388	388		
8	D	134	Total	O	0	0
			134	134		

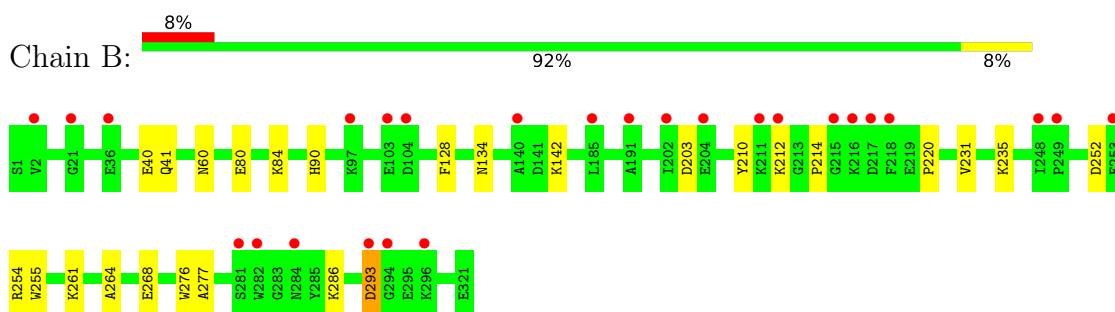
3 Residue-property plots [i](#)

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.

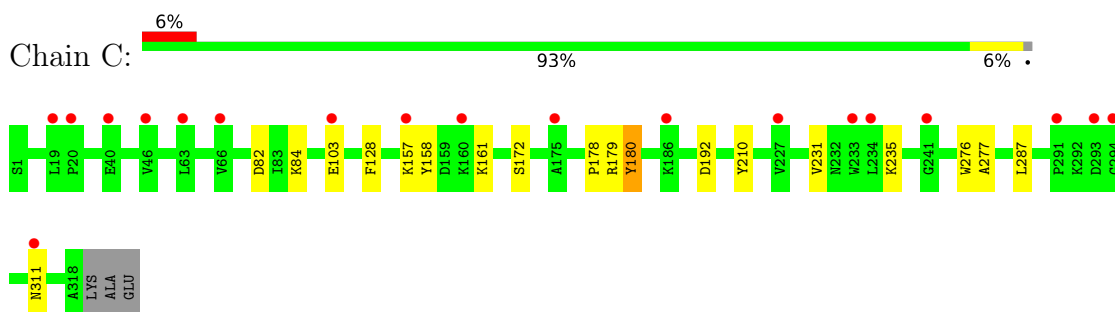
- Molecule 1: Endoglucanase



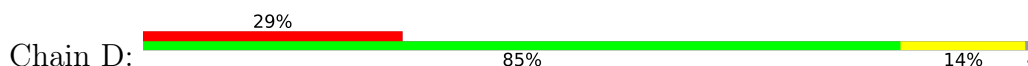
- Molecule 1: Endoglucanase

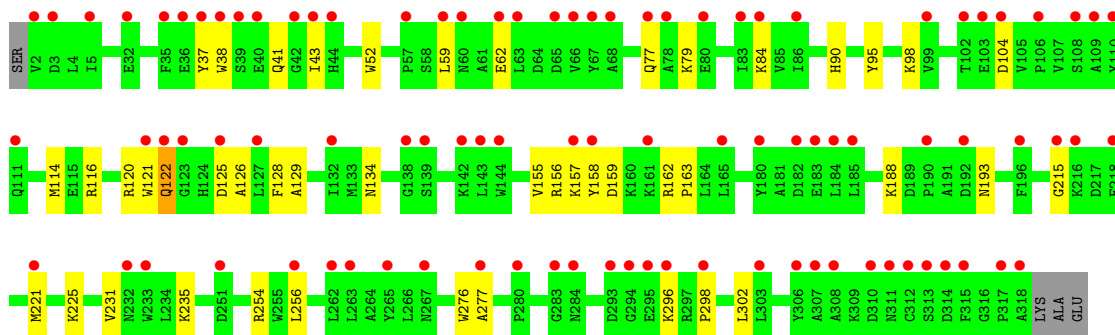


- Molecule 1: Endoglucanase



- Molecule 1: Endoglucanase





- Molecule 2: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-alpha-D-glucopyranose

Chain E: 100%

GLC1
BGC2
BGC3
BGC4

- Molecule 3: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain F: 100%

BGC1
BGC2

- Molecule 3: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain G: 100%

BGC1
BGC2

- Molecule 3: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain K: 100%

BGC1
BGC2

- Molecule 4: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-alpha-D-glucopyranose

Chain H: 83% 17%

GLC1
BGC2
BGC3
BGC4
BGC5
BGC6

- Molecule 5: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-alpha-D-glucopyranose

Chain I: 100%

GLC1
BGC2
BGC3

- Molecule 5: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-alpha-D-glucopyranose

Chain L:  33% 67%

GLC1
BGC2
BGC3

- Molecule 6: beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose-(1-4)-beta-D-glucopyranose

Chain J:  50% 50%

BGC1
BGC2
BGC3
BGC4

4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	88.56Å 90.54Å 89.68Å 90.00° 118.77° 90.00°	Depositor
Resolution (Å)	44.82 – 1.75 44.82 – 1.75	Depositor EDS
% Data completeness (in resolution range)	99.0 (44.82-1.75) 99.0 (44.82-1.75)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.40 (at 1.75Å)	Xtrriage
Refinement program	PHENIX 1.19.2	Depositor
R, R_{free}	0.172 , 0.202 0.169 , 0.199	Depositor DCC
R_{free} test set	6239 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	28.4	Xtrriage
Anisotropy	0.265	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.000 for -h-l,k,h 0.000 for l,k,-h-l 0.013 for h,-k,-h-l 0.012 for -h-l,-k,l 0.009 for l,-k,h	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	12223	wwPDB-VP
Average B, all atoms (Å ²)	38.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.05% of the height of the origin peak. No significant pseudotranslation is detected.*

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: GLC, BGC

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	0.31	0/2862	0.52	0/3862
1	B	0.30	0/2847	0.52	0/3844
1	C	0.35	1/2805 (0.0%)	0.54	0/3788
1	D	0.28	0/2842	0.49	0/3836
All	All	0.31	1/11356 (0.0%)	0.52	0/15330

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	103	GLU	CB-CG	-6.71	1.39	1.52

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2706	0	2721	28	0
1	B	2703	0	2690	17	0
1	C	2664	0	2675	14	0
1	D	2689	0	2688	33	0
2	E	44	0	37	0	0
3	F	23	0	21	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	G	23	0	21	0	0
3	K	23	0	21	0	0
4	H	66	0	55	1	0
5	I	34	0	30	0	0
5	L	33	0	27	0	0
6	J	45	0	39	0	0
7	D	11	0	10	0	0
8	A	328	0	0	12	0
8	B	309	0	0	6	0
8	C	388	0	0	6	0
8	D	134	0	0	8	0
All	All	12223	0	11035	91	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 4.

All (91) 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:162:ARG:N	8:D:801:HOH:O	1.99	0.95
1:A:192:ASP:OD1	8:A:501:HOH:O	1.94	0.84
1:D:193:ASN:OD1	8:D:802:HOH:O	2.00	0.79
1:A:254:ARG:NH2	8:A:503:HOH:O	2.07	0.78
1:D:122:GLN:NE2	1:D:158:TYR:O	2.18	0.77
1:C:180:TYR:OH	8:C:501:HOH:O	2.05	0.74
1:A:240[C]:LYS:HE2	1:A:315:PHE:HB2	1.68	0.73
1:B:293:ASP:HA	8:B:505:HOH:O	1.88	0.72
1:D:156:ARG:NH1	8:D:801:HOH:O	2.25	0.70
1:A:294:GLY:O	8:A:505:HOH:O	2.10	0.68
1:D:162:ARG:O	8:D:801:HOH:O	2.11	0.68
1:C:82[A]:ASP:OD2	8:C:502:HOH:O	2.13	0.66
1:D:62[A]:GLU:OE2	8:D:803:HOH:O	2.13	0.65
1:A:79[A]:LYS:NZ	8:A:502:HOH:O	1.97	0.65
1:D:193:ASN:ND2	8:D:807:HOH:O	2.25	0.65
1:C:311[B]:ASN:OD1	8:C:503:HOH:O	2.14	0.65
1:A:296:LYS:NZ	8:A:506:HOH:O	2.17	0.64
1:C:192:ASP:OD1	8:C:504:HOH:O	2.15	0.64
1:B:60:ASN:OD1	8:B:501:HOH:O	2.15	0.64
1:B:142[A]:LYS:HG2	8:B:617:HOH:O	1.98	0.64
1:D:62[A]:GLU:OE1	1:D:116:ARG:NH1	2.32	0.63
1:A:142[A]:LYS:HE3	8:A:774:HOH:O	1.99	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:296:LYS:HD3	1:A:296:LYS:H	1.65	0.61
1:A:18[B]:LYS:NZ	8:A:515:HOH:O	2.33	0.60
1:A:142[A]:LYS:NZ	8:A:516:HOH:O	2.33	0.60
1:A:84:LYS:HB3	1:A:128:PHE:HB2	1.85	0.59
1:D:129:ALA:HB2	1:D:163:PRO:HG2	1.83	0.58
1:D:84[A]:LYS:HB3	1:D:128:PHE:HB2	1.86	0.58
1:D:84[B]:LYS:HB3	1:D:128:PHE:HB2	1.85	0.58
1:A:79[A]:LYS:NZ	1:C:178:PRO:O	2.36	0.58
1:B:252:ASP:HB3	1:B:255:TRP:CD1	2.42	0.54
1:D:114:MET:HB3	1:D:155:VAL:HG23	1.91	0.51
1:D:215:GLY:O	1:D:254:ARG:NH1	2.44	0.51
1:B:142[B]:LYS:HG2	8:B:617:HOH:O	2.10	0.50
1:C:84:LYS:HB3	1:C:128:PHE:HB2	1.94	0.49
1:B:264:ALA:O	1:B:268[B]:GLU:HG3	2.12	0.49
1:B:40[B]:GLU:OE1	1:B:41:GLN:NE2	2.46	0.49
1:A:165[B]:LEU:HD23	1:A:195:VAL:HB	1.94	0.49
1:D:157:LYS:HD3	1:D:158:TYR:CE1	2.48	0.49
1:B:276:TRP:CD2	1:B:277:ALA:HB2	2.47	0.48
1:B:84:LYS:HB3	1:B:128:PHE:HB2	1.94	0.48
1:D:90:HIS:HA	1:D:134:ASN:HB3	1.96	0.48
1:D:231:VAL:O	1:D:235:LYS:HG2	2.14	0.48
1:A:276:TRP:CD2	1:A:277:ALA:HB2	2.48	0.48
1:D:79:LYS:HB2	1:D:126:ALA:HB2	1.96	0.48
1:D:77:GLN:NE2	8:D:806:HOH:O	2.22	0.47
1:A:131:ASP:HA	1:A:165[B]:LEU:HB2	1.96	0.47
1:B:214:PRO:HG2	1:B:254[A]:ARG:CZ	2.44	0.47
1:D:256:LEU:HD11	1:D:298:PRO:HB2	1.97	0.47
1:C:179:ARG:HG2	1:C:180:TYR:CE1	2.50	0.47
1:B:80[B]:GLU:HG3	8:B:515:HOH:O	2.15	0.46
1:A:296:LYS:H	1:A:296:LYS:CD	2.28	0.46
1:A:295:GLU:CD	8:A:508:HOH:O	2.53	0.46
1:C:276:TRP:CD2	1:C:277:ALA:HB2	2.51	0.46
1:A:90:HIS:HA	1:A:134:ASN:HB3	1.97	0.45
1:A:155:VAL:HG11	1:A:164:LEU:HD21	1.98	0.45
1:A:65[B]:ASP:CG	8:A:523:HOH:O	2.55	0.45
1:B:90:HIS:HA	1:B:134:ASN:HB3	1.98	0.45
1:D:98[A]:LYS:HD2	1:D:104:ASP:HB2	1.99	0.45
1:D:37:TYR:O	1:D:41:GLN:HG2	2.17	0.45
1:B:210:TYR:O	1:B:286:LYS:NZ	2.46	0.44
1:A:37:TYR:O	1:A:40[C]:GLU:HG2	2.17	0.44
1:C:231:VAL:O	1:C:235:LYS:HG3	2.16	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:221:MET:HB2	1:D:225[B]:LYS:HE2	1.98	0.44
1:A:98[B]:LYS:NZ	8:A:514:HOH:O	2.32	0.43
1:A:294:GLY:C	8:A:505:HOH:O	2.56	0.43
1:D:38:TRP:HE3	1:D:43:ILE:HD13	1.83	0.43
1:C:180:TYR:HE1	8:C:652:HOH:O	2.01	0.42
1:A:37:TYR:O	1:A:41:GLN:HG2	2.19	0.42
1:A:80:GLU:HB2	1:C:179:ARG:HB2	2.00	0.42
1:A:250:ASN:HB2	1:A:298:PRO:HD2	2.00	0.42
1:D:276:TRP:CD2	1:D:277:ALA:HB2	2.54	0.42
1:D:59:LEU:HD21	1:D:95:TYR:CD2	2.55	0.42
1:D:157:LYS:HD3	1:D:158:TYR:HE1	1.85	0.42
1:D:235:LYS:HE3	8:D:851:HOH:O	2.19	0.42
1:C:157[A]:LYS:HD3	1:C:158:TYR:CE2	2.55	0.42
1:C:161[B]:LYS:HD2	8:C:818:HOH:O	2.18	0.42
1:C:210:TYR:CD2	1:C:287[A]:LEU:HD21	2.55	0.41
1:D:122:GLN:HE22	1:D:159:ASP:HA	1.85	0.41
1:B:231:VAL:O	1:B:235:LYS:HG3	2.20	0.41
8:B:520:HOH:O	4:H:1:GLC:H61	2.19	0.41
1:D:52:TRP:CZ3	1:D:95:TYR:HB2	2.56	0.41
1:D:302:LEU:HD12	1:D:302:LEU:HA	1.96	0.41
1:B:203:ASP:HB3	1:B:210:TYR:CD1	2.55	0.41
1:B:286:LYS:HB2	1:B:286:LYS:HE3	1.87	0.41
1:D:120:ARG:HD3	1:D:121:TRP:CZ2	2.56	0.41
1:D:188[A]:LYS:HE2	1:D:188[A]:LYS:HB3	1.90	0.41
1:B:220:PRO:HB2	1:B:261:LYS:HE2	2.02	0.40
1:A:18[B]:LYS:HA	1:A:18[B]:LYS:HD2	1.81	0.40
1:A:240[B]:LYS:HD2	1:A:315:PHE:O	2.22	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	344/321 (107%)	338 (98%)	6 (2%)	0	100	100
1	B	341/321 (106%)	338 (99%)	3 (1%)	0	100	100
1	C	338/321 (105%)	331 (98%)	7 (2%)	0	100	100
1	D	341/321 (106%)	333 (98%)	8 (2%)	0	100	100
All	All	1364/1284 (106%)	1340 (98%)	24 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	290/264 (110%)	289 (100%)	1 (0%)	92	89
1	B	287/264 (109%)	284 (99%)	3 (1%)	76	63
1	C	284/264 (108%)	282 (99%)	2 (1%)	84	75
1	D	287/264 (109%)	285 (99%)	2 (1%)	84	75
All	All	1148/1056 (109%)	1140 (99%)	8 (1%)	84	75

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	296	LYS
1	B	212[A]	LYS
1	B	212[B]	LYS
1	B	293	ASP
1	C	172	SER
1	C	180	TYR
1	D	122	GLN
1	D	296	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	232	ASN
1	D	122	GLN

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](#)

26 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	GLC	E	1	2	11,11,12	1.28	2 (18%)	15,15,17	0.94	1 (6%)
2	BGC	E	2	2	11,11,12	1.63	2 (18%)	15,15,17	0.93	1 (6%)
2	BGC	E	3	2	11,11,12	2.29	3 (27%)	15,15,17	1.51	2 (13%)
2	BGC	E	4	2	11,11,12	1.73	1 (9%)	15,15,17	0.90	0
3	BGC	F	1	3	12,12,12	2.10	6 (50%)	17,17,17	1.02	0
3	BGC	F	2	3	11,11,12	1.58	2 (18%)	15,15,17	1.03	0
3	BGC	G	1	3	12,12,12	2.02	5 (41%)	17,17,17	0.94	0
3	BGC	G	2	3	11,11,12	1.61	2 (18%)	15,15,17	0.83	1 (6%)
4	GLC	H	1	4	11,11,12	2.65	6 (54%)	15,15,17	0.76	0
4	BGC	H	2	4	11,11,12	2.65	6 (54%)	15,15,17	0.89	0
4	BGC	H	3	4	11,11,12	1.76	3 (27%)	15,15,17	1.14	1 (6%)
4	BGC	H	4	4	11,11,12	1.51	3 (27%)	15,15,17	0.90	0
4	BGC	H	5	4	11,11,12	1.76	3 (27%)	15,15,17	1.85	4 (26%)
4	BGC	H	6	4	11,11,12	1.53	2 (18%)	15,15,17	0.78	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	GLC	I	1	5	12,12,12	2.07	6 (50%)	17,17,17	1.13	1 (5%)
5	BGC	I	2	5	11,11,12	2.43	5 (45%)	15,15,17	1.17	1 (6%)
5	BGC	I	3	5	11,11,12	2.52	5 (45%)	15,15,17	1.16	2 (13%)
6	BGC	J	1	6	12,12,12	1.92	5 (41%)	17,17,17	0.83	0
6	BGC	J	2	6	11,11,12	1.41	1 (9%)	15,15,17	1.70	3 (20%)
6	BGC	J	3	6	11,11,12	0.22	0	15,15,17	0.69	0
6	BGC	J	4	6	11,11,12	0.23	0	15,15,17	0.72	0
3	BGC	K	1	3	12,12,12	2.02	5 (41%)	17,17,17	0.99	0
3	BGC	K	2	3	11,11,12	1.68	2 (18%)	15,15,17	0.89	1 (6%)
5	GLC	L	1	5	11,11,12	2.45	6 (54%)	15,15,17	1.14	1 (6%)
5	BGC	L	2	5	11,11,12	2.48	5 (45%)	15,15,17	0.85	0
5	BGC	L	3	5	11,11,12	0.24	0	15,15,17	0.57	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GLC	E	1	2	-	0/2/19/22	0/1/1/1
2	BGC	E	2	2	-	0/2/19/22	0/1/1/1
2	BGC	E	3	2	-	0/2/19/22	0/1/1/1
2	BGC	E	4	2	-	0/2/19/22	0/1/1/1
3	BGC	F	1	3	-	0/2/22/22	0/1/1/1
3	BGC	F	2	3	-	1/2/19/22	0/1/1/1
3	BGC	G	1	3	-	2/2/22/22	0/1/1/1
3	BGC	G	2	3	-	0/2/19/22	0/1/1/1
4	GLC	H	1	4	-	0/2/19/22	0/1/1/1
4	BGC	H	2	4	-	0/2/19/22	0/1/1/1
4	BGC	H	3	4	-	0/2/19/22	0/1/1/1
4	BGC	H	4	4	-	0/2/19/22	0/1/1/1
4	BGC	H	5	4	-	2/2/19/22	0/1/1/1
4	BGC	H	6	4	-	0/2/19/22	0/1/1/1
5	GLC	I	1	5	-	0/2/22/22	0/1/1/1
5	BGC	I	2	5	-	0/2/19/22	0/1/1/1
5	BGC	I	3	5	-	0/2/19/22	0/1/1/1
6	BGC	J	1	6	-	0/2/22/22	0/1/1/1
6	BGC	J	2	6	-	0/2/19/22	0/1/1/1
6	BGC	J	3	6	-	0/2/19/22	0/1/1/1
6	BGC	J	4	6	-	0/2/19/22	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	BGC	K	1	3	-	2/2/22/22	0/1/1/1
3	BGC	K	2	3	-	0/2/19/22	0/1/1/1
5	GLC	L	1	5	-	0/2/19/22	0/1/1/1
5	BGC	L	2	5	-	0/2/19/22	0/1/1/1
5	BGC	L	3	5	-	0/2/19/22	0/1/1/1

All (86) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	H	2	BGC	O5-C5	5.40	1.54	1.43
4	H	1	GLC	O5-C5	5.29	1.54	1.43
2	E	4	BGC	O5-C1	5.03	1.51	1.43
5	L	2	BGC	O5-C5	4.93	1.53	1.43
5	I	2	BGC	O5-C5	4.66	1.52	1.43
2	E	3	BGC	O5-C5	4.61	1.52	1.43
5	L	1	GLC	O5-C5	4.60	1.52	1.43
5	I	3	BGC	C2-C3	-4.56	1.45	1.52
5	I	3	BGC	O5-C5	4.56	1.52	1.43
3	K	2	BGC	O5-C1	4.46	1.50	1.43
3	G	2	BGC	O5-C1	4.29	1.50	1.43
4	H	1	GLC	C2-C3	-4.16	1.46	1.52
2	E	2	BGC	O5-C1	4.01	1.50	1.43
3	F	2	BGC	O5-C1	3.96	1.50	1.43
3	F	1	BGC	O5-C5	3.95	1.53	1.44
4	H	6	BGC	O5-C1	3.74	1.49	1.43
5	I	1	GLC	O5-C5	3.74	1.53	1.44
3	G	1	BGC	O5-C5	3.73	1.53	1.44
4	H	2	BGC	C6-C5	-3.72	1.39	1.51
6	J	2	BGC	O5-C1	3.70	1.49	1.43
3	K	1	BGC	O5-C5	3.68	1.53	1.44
4	H	3	BGC	O5-C1	3.61	1.49	1.43
5	L	2	BGC	C2-C3	-3.54	1.47	1.52
5	L	1	GLC	O3-C3	3.46	1.51	1.43
5	I	2	BGC	C2-C3	-3.43	1.47	1.52
4	H	5	BGC	O5-C1	3.31	1.49	1.43
2	E	3	BGC	C2-C3	-3.27	1.47	1.52
5	L	1	GLC	C2-C3	-3.26	1.47	1.52
6	J	1	BGC	O5-C5	3.26	1.52	1.44
4	H	2	BGC	C2-C3	-3.24	1.47	1.52
4	H	5	BGC	O5-C5	3.17	1.49	1.43
4	H	4	BGC	O5-C1	3.14	1.48	1.43
5	I	1	GLC	O3-C3	3.13	1.50	1.43

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	H	3	BGC	O5-C5	3.05	1.49	1.43
3	F	1	BGC	O3-C3	2.97	1.50	1.43
5	I	2	BGC	O3-C3	2.96	1.49	1.43
4	H	1	GLC	C6-C5	-2.94	1.42	1.51
5	I	3	BGC	C6-C5	-2.93	1.42	1.51
5	L	2	BGC	C6-C5	-2.91	1.42	1.51
3	K	1	BGC	C6-C5	-2.88	1.42	1.51
5	I	3	BGC	O3-C3	2.87	1.49	1.43
5	L	2	BGC	O3-C3	2.82	1.49	1.43
3	G	1	BGC	C6-C5	-2.81	1.42	1.51
3	G	1	BGC	O3-C3	2.77	1.49	1.43
3	F	1	BGC	C6-C5	-2.75	1.42	1.51
5	I	2	BGC	C6-C5	-2.73	1.42	1.51
4	H	2	BGC	O3-C3	2.68	1.49	1.43
3	K	1	BGC	O3-C3	2.67	1.49	1.43
4	H	2	BGC	C4-C5	2.66	1.58	1.53
4	H	6	BGC	O5-C5	2.66	1.48	1.43
4	H	3	BGC	O4-C4	2.65	1.49	1.43
6	J	1	BGC	O3-C3	2.65	1.49	1.43
4	H	1	GLC	O2-C2	2.62	1.48	1.43
2	E	3	BGC	C6-C5	-2.62	1.43	1.51
6	J	1	BGC	O2-C2	2.60	1.49	1.43
5	I	2	BGC	O2-C2	2.58	1.48	1.43
3	F	1	BGC	C3-C2	-2.56	1.45	1.52
3	K	1	BGC	C3-C2	-2.56	1.45	1.52
4	H	1	GLC	O5-C1	2.53	1.47	1.43
6	J	1	BGC	C6-C5	-2.49	1.43	1.51
3	G	1	BGC	C3-C2	-2.46	1.46	1.52
3	F	2	BGC	O5-C5	2.46	1.48	1.43
3	G	1	BGC	O2-C2	2.39	1.48	1.43
3	F	1	BGC	O2-C2	2.39	1.48	1.43
5	I	1	GLC	C6-C5	-2.37	1.43	1.51
2	E	1	GLC	O5-C5	2.37	1.48	1.43
5	L	1	GLC	C6-C5	-2.33	1.44	1.51
6	J	1	BGC	C3-C2	-2.33	1.46	1.52
5	L	1	GLC	O2-C2	2.33	1.48	1.43
5	I	1	GLC	C4-C5	2.33	1.57	1.53
5	L	2	BGC	O2-C2	2.32	1.48	1.43
5	I	3	BGC	O2-C2	2.31	1.48	1.43
3	K	1	BGC	O2-C2	2.29	1.48	1.43
4	H	5	BGC	O4-C4	2.27	1.48	1.43
5	I	1	GLC	O2-C2	2.26	1.48	1.43

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	L	1	GLC	C4-C5	2.24	1.57	1.53
3	K	2	BGC	O5-C5	2.23	1.48	1.43
5	I	1	GLC	C3-C2	-2.19	1.46	1.52
4	H	4	BGC	O5-C5	2.17	1.47	1.43
3	F	1	BGC	C4-C5	2.16	1.57	1.53
4	H	2	BGC	C4-C3	-2.15	1.46	1.52
2	E	1	GLC	O5-C1	2.14	1.47	1.43
4	H	1	GLC	O3-C3	2.12	1.48	1.43
3	G	2	BGC	O5-C5	2.06	1.47	1.43
4	H	4	BGC	C2-C3	-2.02	1.49	1.52
2	E	2	BGC	C2-C3	-2.01	1.49	1.52

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	H	5	BGC	C1-O5-C5	4.19	117.86	112.19
6	J	2	BGC	O4-C4-C5	-3.72	100.05	109.30
4	H	5	BGC	O5-C5-C4	3.28	118.80	110.83
4	H	5	BGC	C3-C4-C5	3.18	115.92	110.24
2	E	3	BGC	C2-C3-C4	3.05	116.17	110.89
5	I	3	BGC	C1-O5-C5	2.60	115.72	112.19
5	I	3	BGC	C1-C2-C3	2.54	112.79	109.67
6	J	2	BGC	O4-C4-C3	2.38	115.84	110.35
4	H	5	BGC	C6-C5-C4	-2.35	107.50	113.00
4	H	3	BGC	C3-C4-C5	2.34	114.42	110.24
2	E	3	BGC	O5-C5-C6	2.20	110.65	107.20
5	I	1	GLC	C4-C3-C2	2.18	114.63	110.82
2	E	2	BGC	C1-C2-C3	2.16	112.32	109.67
3	G	2	BGC	C1-C2-C3	2.15	112.31	109.67
2	E	1	GLC	O4-C4-C5	-2.14	103.98	109.30
6	J	2	BGC	C2-C3-C4	2.10	114.53	110.89
5	I	2	BGC	O4-C4-C5	-2.09	104.10	109.30
3	K	2	BGC	C1-C2-C3	2.05	112.18	109.67
5	L	1	GLC	O5-C5-C6	2.05	110.41	107.20

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	G	1	BGC	O5-C5-C6-O6
4	H	5	BGC	O5-C5-C6-O6
3	G	1	BGC	C4-C5-C6-O6

Continued on next page...

Continued from previous page...

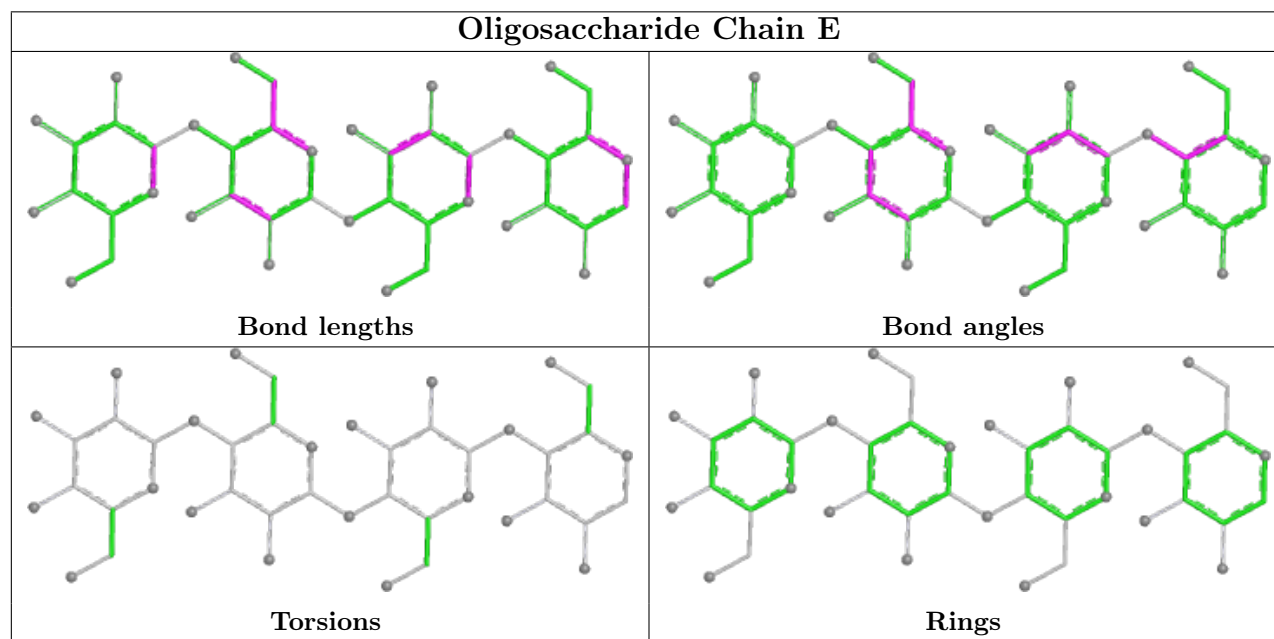
Mol	Chain	Res	Type	Atoms
4	H	5	BGC	C4-C5-C6-O6
3	K	1	BGC	C4-C5-C6-O6
3	F	2	BGC	O5-C5-C6-O6
3	K	1	BGC	O5-C5-C6-O6

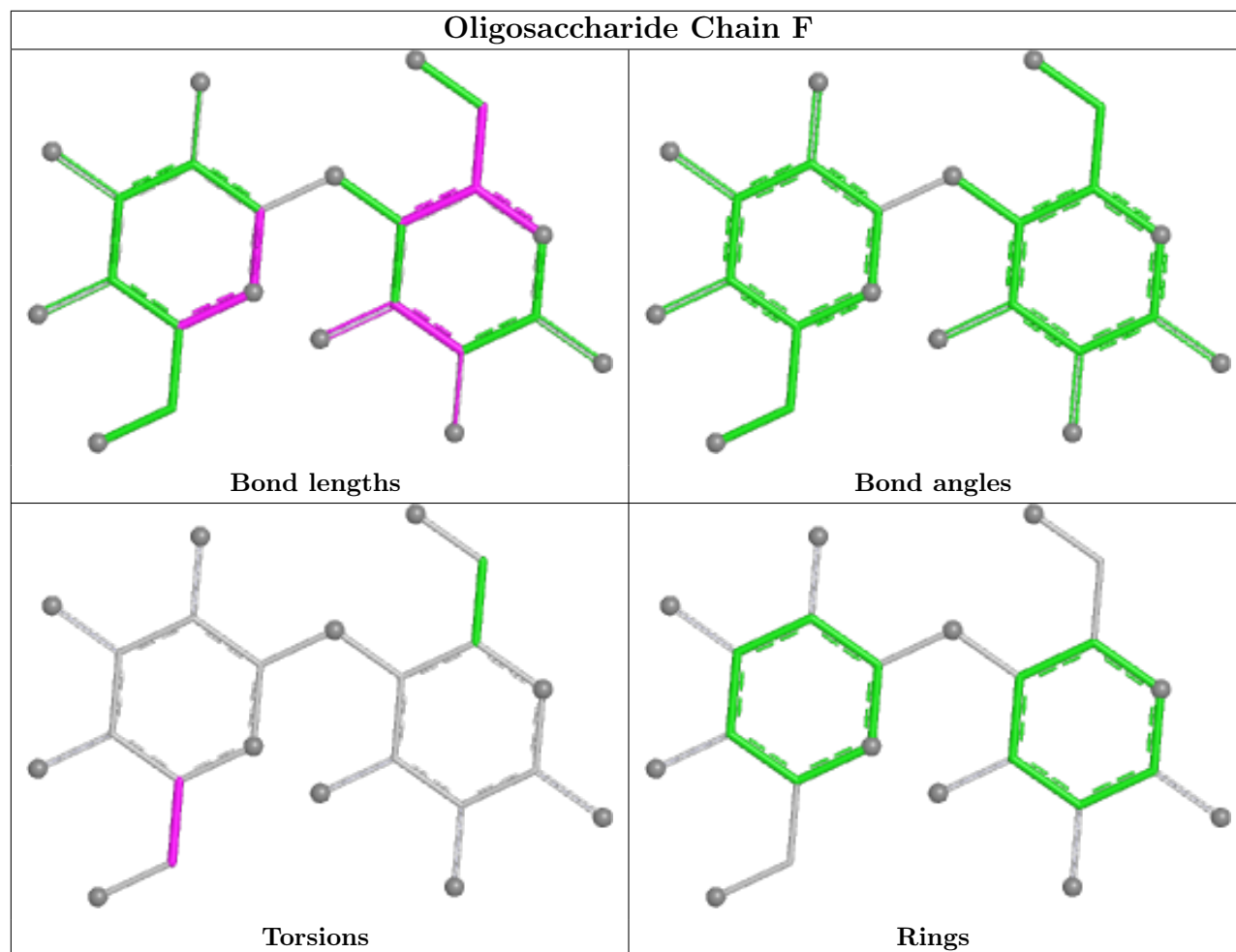
There are no ring outliers.

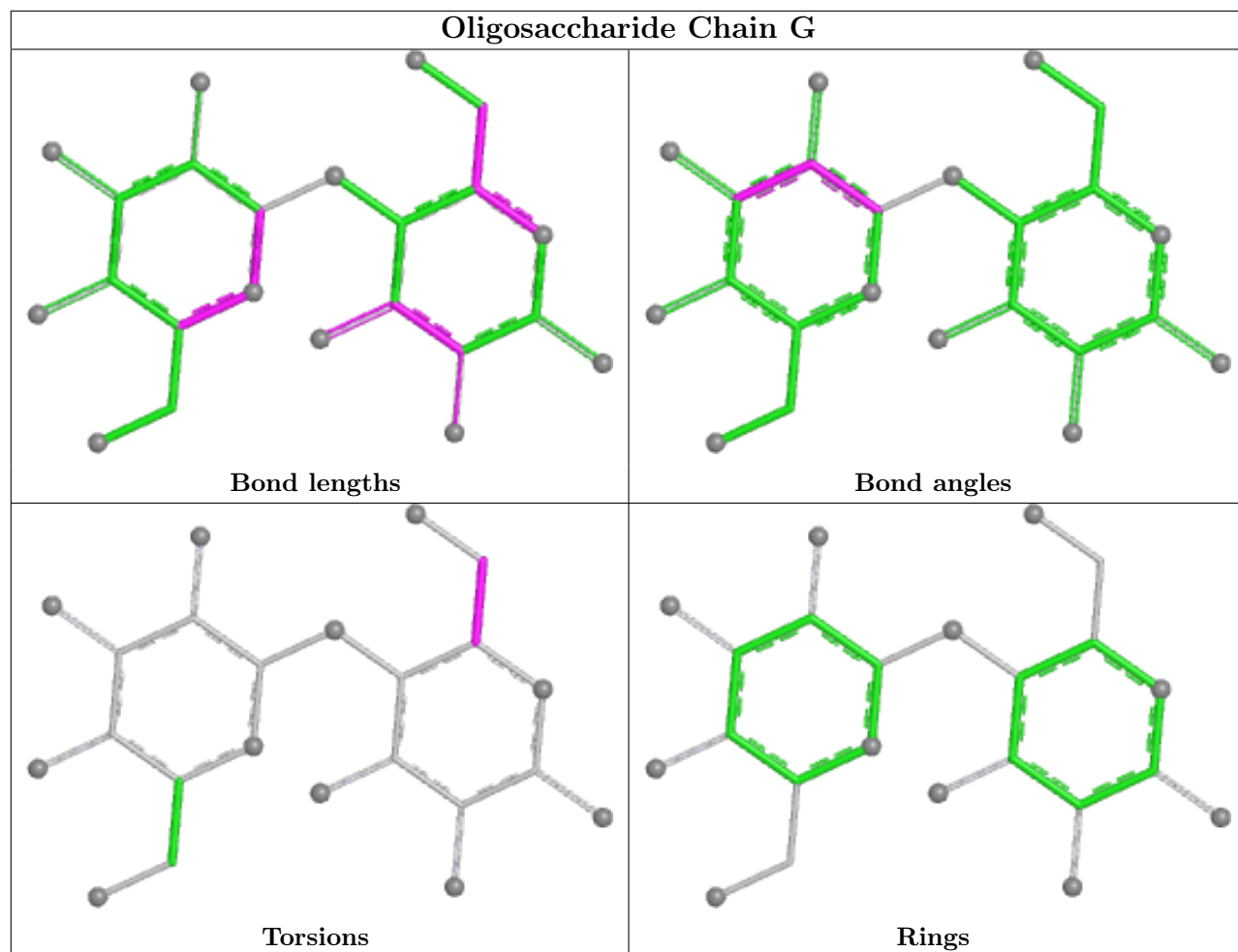
1 monomer is involved in 1 short contact:

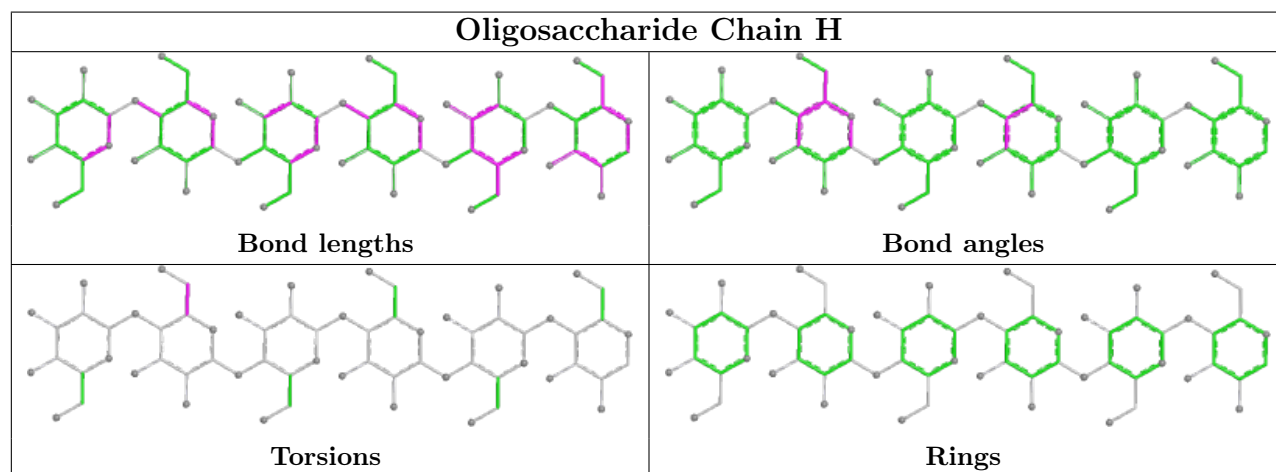
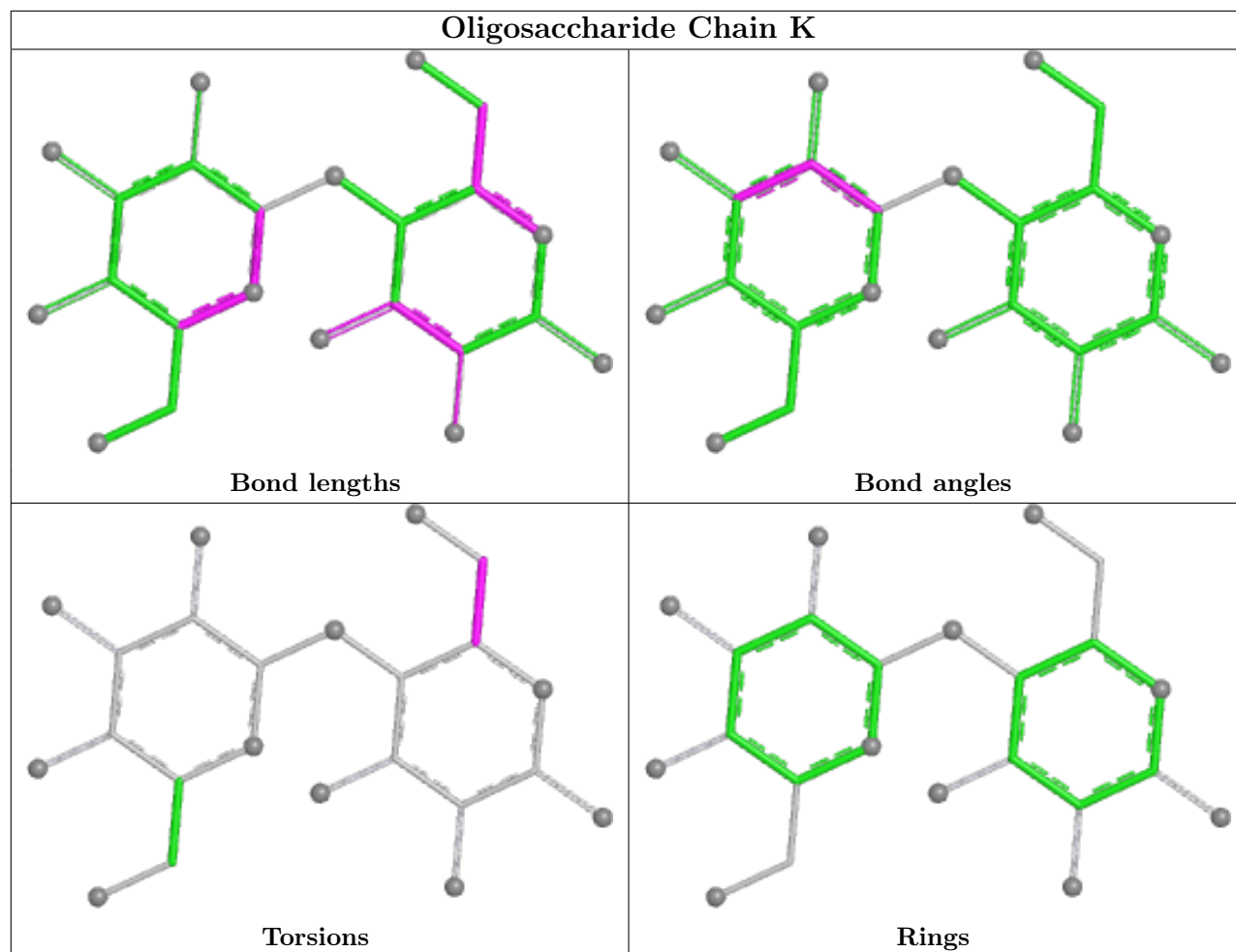
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	H	1	GLC	1	0

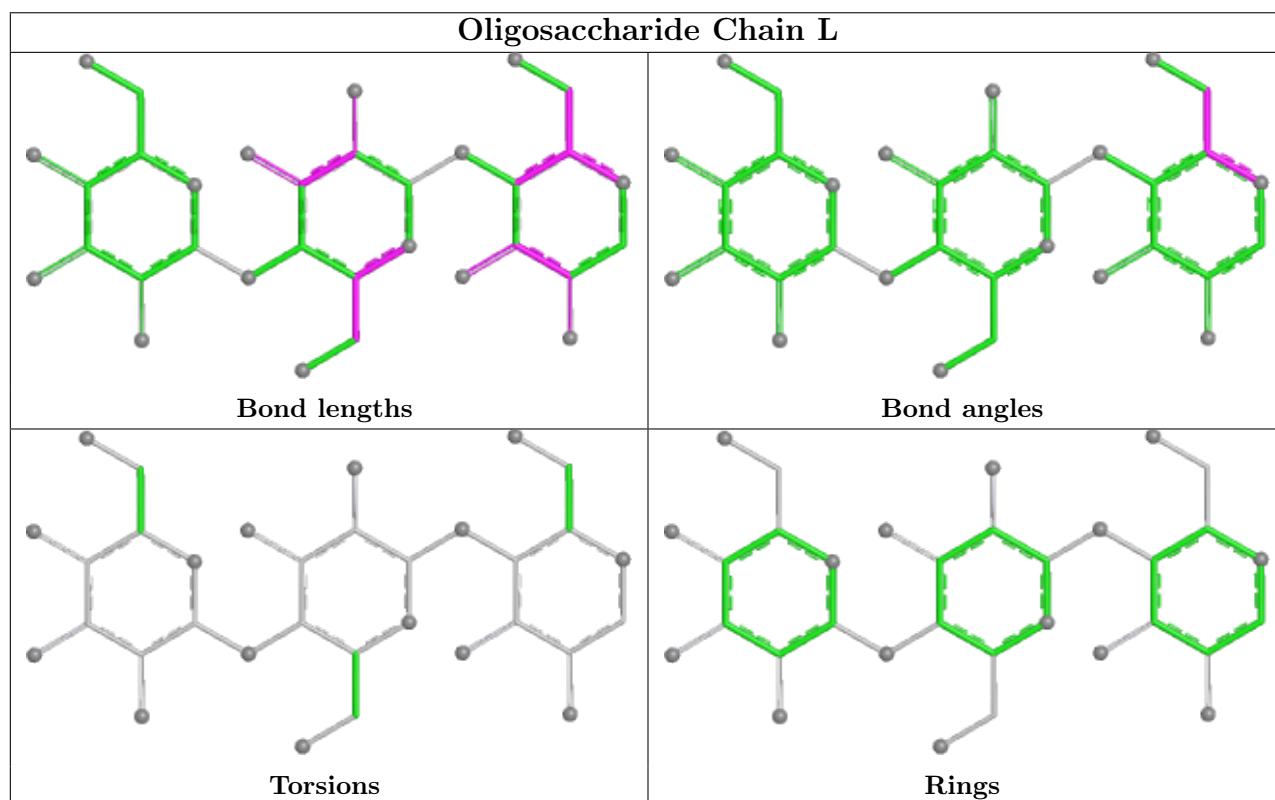
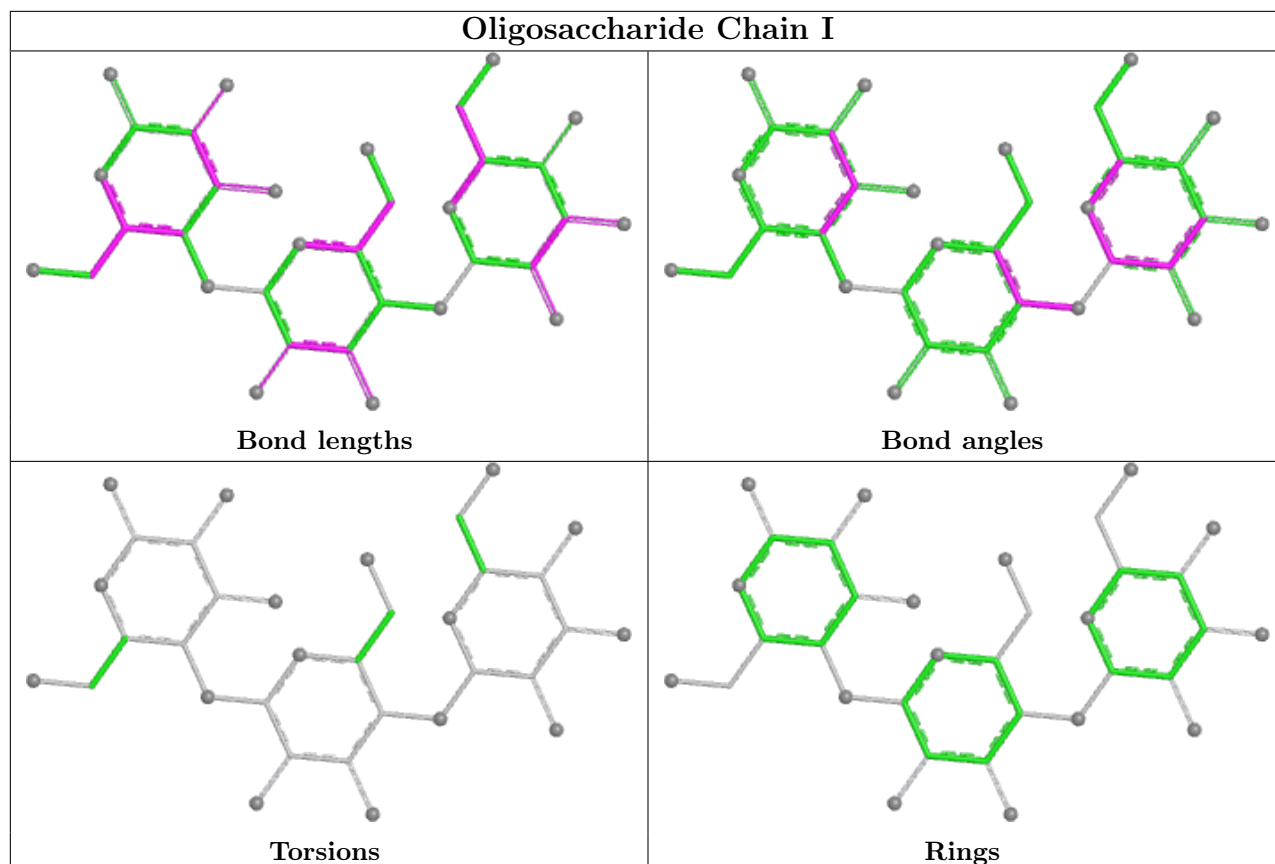
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

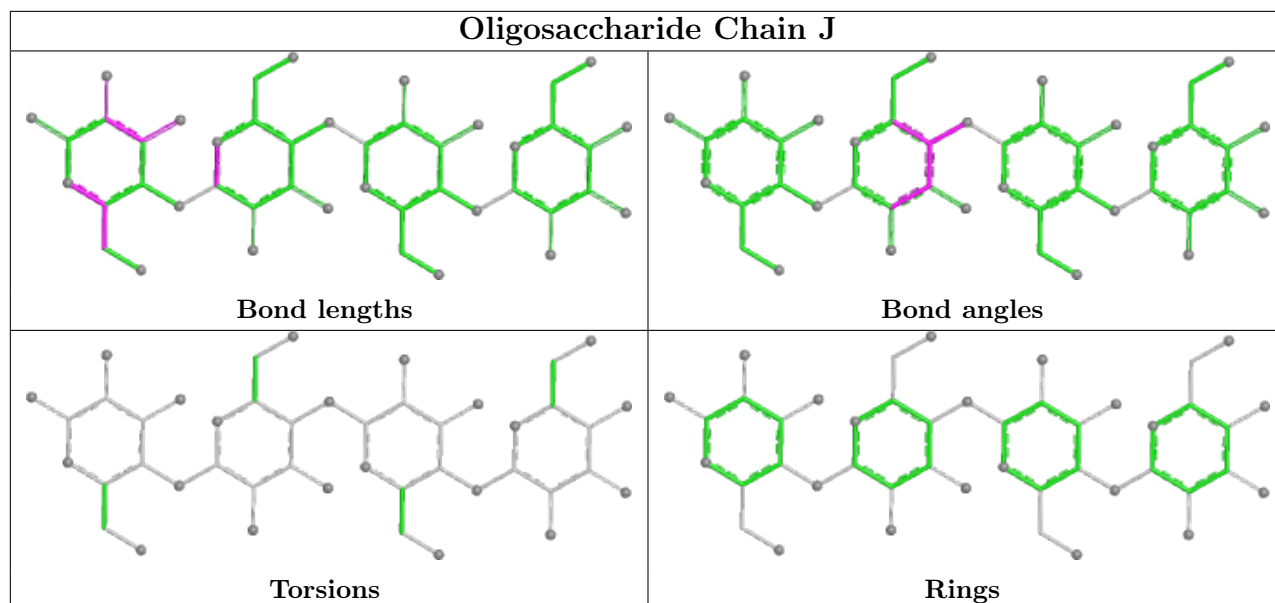












5.6 Ligand geometry [i](#)

1 ligand is 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$
7	BGC	D	401	-	11,11,12	0.24	0	15,15,17	0.66	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	BGC	D	401	-	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

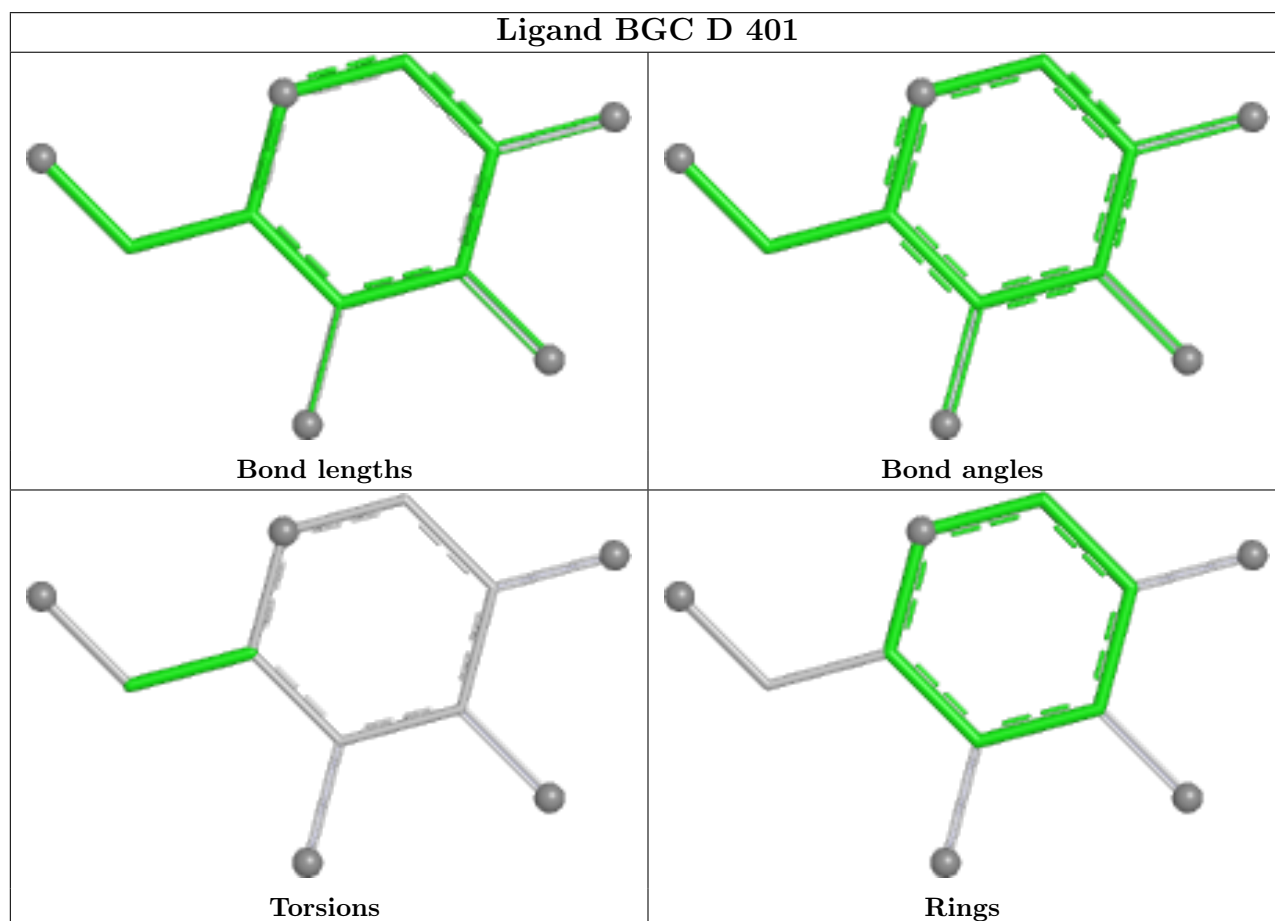
There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



5.7 Other polymers [i](#)

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	318/321 (99%)	0.92	24 (7%) 14 19	20, 31, 53, 83	0
1	B	321/321 (100%)	0.81	26 (8%) 12 16	20, 33, 50, 81	0
1	C	318/321 (99%)	0.72	19 (5%) 21 27	18, 29, 44, 58	0
1	D	317/321 (98%)	1.58	93 (29%) 0 0	28, 49, 71, 112	0
All	All	1274/1284 (99%)	1.01	162 (12%) 3 5	18, 34, 62, 112	0

All (162) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	315	PHE	10.8
1	D	294	GLY	9.4
1	D	313	SER	8.9
1	D	311	ASN	8.8
1	A	220	PRO	5.8
1	A	218	PHE	5.8
1	B	216	LYS	5.7
1	D	83	ILE	5.6
1	D	161[A]	LYS	5.5
1	D	303	LEU	5.3
1	A	216	LYS	5.3
1	A	217[A]	ASP	5.2
1	D	307	ALA	5.1
1	D	36[A]	GLU	5.1
1	D	139	SER	5.1
1	A	215	GLY	5.0
1	B	217	ASP	4.7
1	D	142[A]	LYS	4.6
1	D	312	CYS	4.5
1	D	106	PRO	4.4
1	D	180	TYR	4.4

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	284[A]	ASN	4.4
1	D	218	PHE	4.3
1	D	308	ALA	4.3
1	D	78	ALA	4.2
1	D	283	GLY	4.2
1	D	42	GLY	4.1
1	D	63	LEU	4.1
1	D	44	HIS	4.0
1	D	99	VAL	4.0
1	D	158	TYR	3.9
1	B	281	SER	3.9
1	B	215	GLY	3.9
1	C	311[A]	ASN	3.9
1	D	122	GLN	3.9
1	D	293[A]	ASP	3.9
1	D	40[A]	GLU	3.9
1	D	215	GLY	3.8
1	D	35	PHE	3.8
1	D	310	ASP	3.8
1	D	317	PRO	3.8
1	D	39[A]	SER	3.7
1	D	185	LEU	3.6
1	D	296	LYS	3.6
1	D	251	ASP	3.6
1	D	37	TYR	3.6
1	D	38	TRP	3.5
1	B	284[A]	ASN	3.5
1	B	97	LYS	3.5
1	C	103	GLU	3.4
1	C	157[A]	LYS	3.4
1	D	190	PRO	3.4
1	D	3[A]	ASP	3.3
1	A	294	GLY	3.3
1	A	219[A]	GLU	3.3
1	D	256	LEU	3.2
1	D	68	ALA	3.2
1	D	2	VAL	3.2
1	A	161[A]	LYS	3.2
1	D	216[A]	LYS	3.2
1	D	182	ASP	3.1
1	B	21	GLY	3.1
1	D	157	LYS	3.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	C	19	LEU	3.1
1	A	212[A]	LYS	3.1
1	C	293	ASP	3.1
1	C	40[A]	GLU	3.1
1	C	186[A]	LYS	3.0
1	A	65[A]	ASP	3.0
1	C	291	PRO	3.0
1	B	282	TRP	3.0
1	D	314	ASP	3.0
1	A	253[A]	GLU	3.0
1	D	108	SER	3.0
1	D	60	ASN	2.9
1	D	138	GLY	2.9
1	D	110	TYR	2.9
1	D	80	GLU	2.9
1	D	184	LEU	2.9
1	B	204	GLU	2.9
1	D	265	TYR	2.9
1	D	232	ASN	2.9
1	D	66	VAL	2.9
1	D	125[A]	ASP	2.8
1	A	75	LEU	2.8
1	B	185	LEU	2.8
1	C	66	VAL	2.8
1	B	253[A]	GLU	2.8
1	D	262	LEU	2.8
1	D	263	LEU	2.8
1	A	223	GLY	2.8
1	D	84[A]	LYS	2.8
1	D	192	ASP	2.7
1	D	86	ILE	2.7
1	C	46	VAL	2.7
1	D	121	TRP	2.7
1	D	298	PRO	2.7
1	C	175	ALA	2.6
1	A	221	MET	2.6
1	D	143	LEU	2.6
1	A	40[A]	GLU	2.6
1	B	294	GLY	2.6
1	C	294	GLY	2.6
1	D	233	TRP	2.6
1	D	43	ILE	2.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	36	GLU	2.6
1	A	208	GLY	2.6
1	D	277	ALA	2.6
1	D	295	GLU	2.6
1	D	111	GLN	2.6
1	C	160	LYS	2.5
1	A	204[A]	GLU	2.5
1	B	104[A]	ASP	2.5
1	B	103[A]	GLU	2.5
1	B	296[A]	LYS	2.5
1	B	248	ILE	2.5
1	C	241	GLY	2.5
1	B	249	PRO	2.4
1	B	2	VAL	2.4
1	B	218	PHE	2.4
1	D	5	ILE	2.4
1	B	211	LYS	2.4
1	A	231	VAL	2.4
1	A	99	VAL	2.4
1	D	109	ALA	2.4
1	D	221	MET	2.3
1	C	20	PRO	2.3
1	D	32[A]	GLU	2.3
1	C	63	LEU	2.3
1	B	202	ILE	2.3
1	D	77	GLN	2.3
1	D	183[A]	GLU	2.3
1	B	293	ASP	2.2
1	D	132	ILE	2.2
1	D	267	ASN	2.2
1	A	234	LEU	2.2
1	D	123	GLY	2.2
1	A	103	GLU	2.2
1	D	127	LEU	2.2
1	C	233	TRP	2.2
1	D	318	ALA	2.2
1	B	191	ALA	2.1
1	D	67	TYR	2.1
1	D	306	TYR	2.1
1	A	262	LEU	2.1
1	D	65	ASP	2.1
1	D	280	PRO	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	D	196	PHE	2.1
1	C	227[A]	VAL	2.1
1	B	140	ALA	2.1
1	C	234	LEU	2.1
1	D	59	LEU	2.1
1	D	62[A]	GLU	2.1
1	D	104	ASP	2.1
1	A	254	ARG	2.0
1	D	165	LEU	2.0
1	B	212[A]	LYS	2.0
1	A	207	SER	2.0
1	D	103[A]	GLU	2.0
1	D	102	THR	2.0
1	D	57	PRO	2.0
1	D	144	TRP	2.0

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

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

6.3 Carbohydrates [i](#)

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

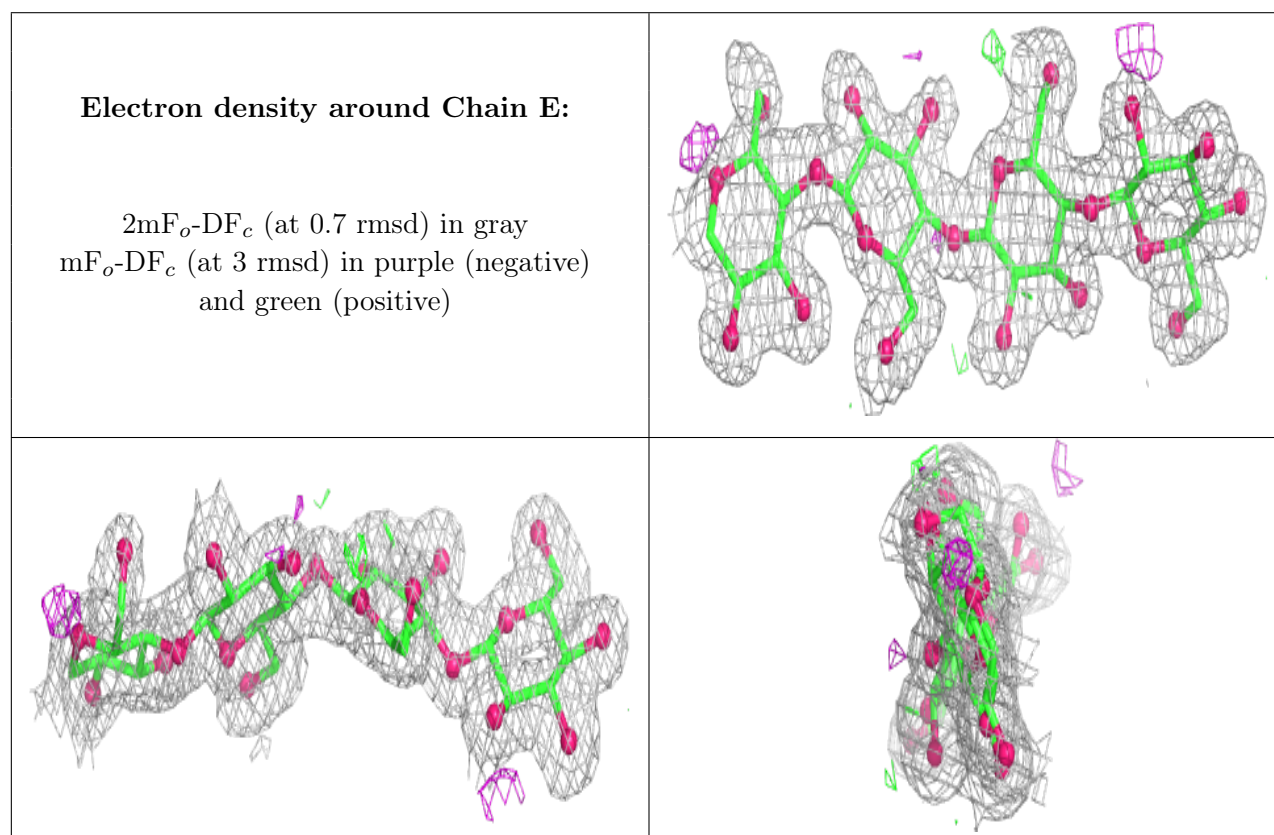
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	BGC	H	5	11/12	0.57	0.30	42,44,47,57	0
4	BGC	H	6	11/12	0.63	0.19	37,40,44,45	0
3	BGC	K	2	11/12	0.64	0.18	33,39,41,41	11
5	GLC	I	1	12/12	0.66	0.31	30,46,53,56	0
3	BGC	K	1	12/12	0.69	0.24	41,44,50,52	12
3	BGC	F	1	12/12	0.71	0.38	41,47,60,62	0
3	BGC	F	2	11/12	0.72	0.19	36,42,47,48	0
3	BGC	G	1	12/12	0.73	0.21	38,43,46,55	12
6	BGC	J	4	11/12	0.74	0.15	44,46,51,52	11
3	BGC	G	2	11/12	0.77	0.15	32,39,41,43	11
2	BGC	E	4	11/12	0.78	0.16	28,30,31,34	0
5	BGC	L	3	11/12	0.80	0.13	30,36,39,50	0
6	BGC	J	3	11/12	0.81	0.12	34,37,43,43	0

Continued on next page...

Continued from previous page...

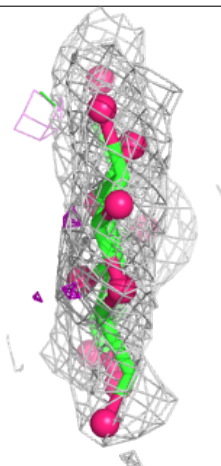
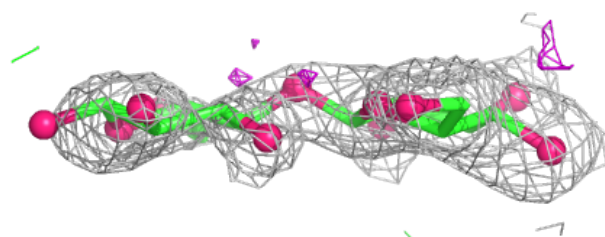
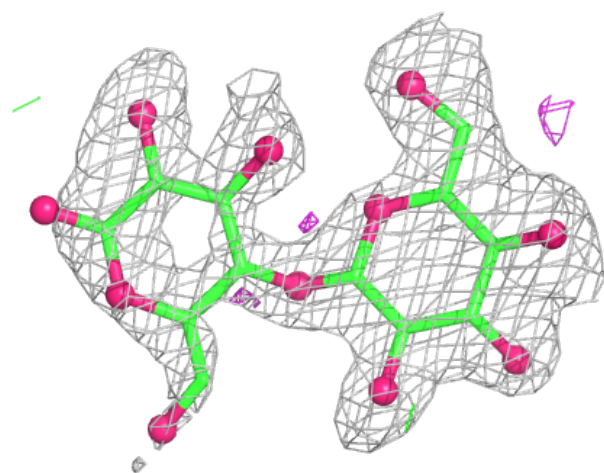
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	BGC	H	2	11/12	0.83	0.14	30,34,39,42	0
5	BGC	I	3	11/12	0.84	0.14	21,24,28,31	0
4	BGC	H	4	11/12	0.84	0.12	36,40,45,46	0
4	GLC	H	1	11/12	0.85	0.14	29,31,36,41	0
6	BGC	J	1	12/12	0.85	0.14	20,25,28,34	0
2	GLC	E	1	11/12	0.86	0.15	24,31,33,36	0
6	BGC	J	2	11/12	0.86	0.12	25,28,36,43	0
5	GLC	L	1	11/12	0.87	0.12	25,32,36,39	0
2	BGC	E	2	11/12	0.87	0.13	23,24,33,34	0
4	BGC	H	3	11/12	0.88	0.11	32,37,39,43	0
2	BGC	E	3	11/12	0.90	0.13	25,28,31,32	0
5	BGC	I	2	11/12	0.91	0.16	22,24,32,35	0
5	BGC	L	2	11/12	0.92	0.11	26,31,34,35	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.



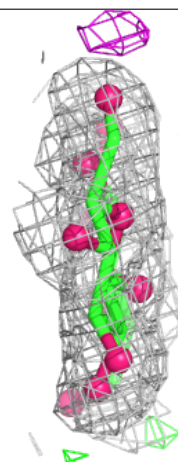
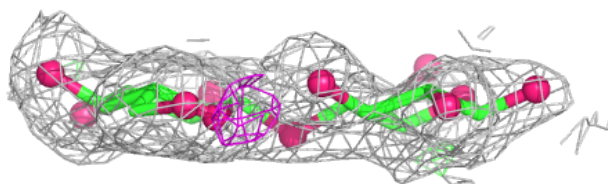
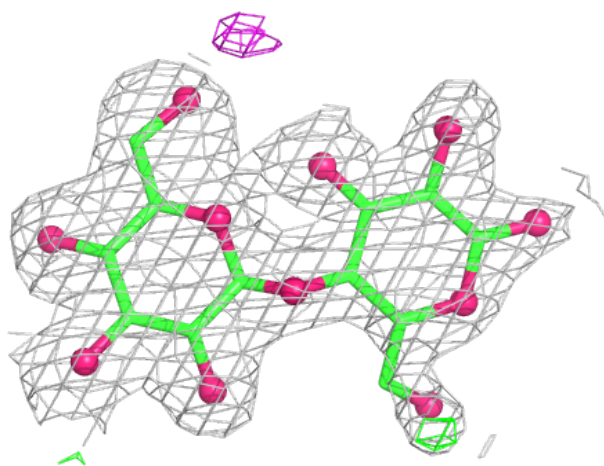
Electron density around Chain F:

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



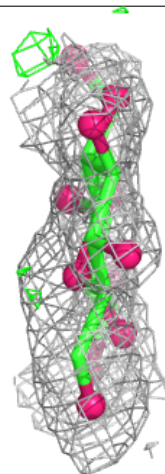
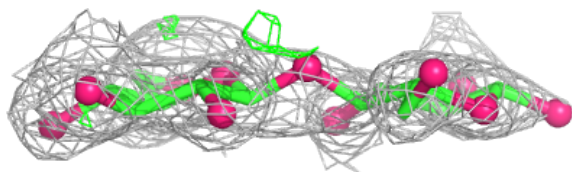
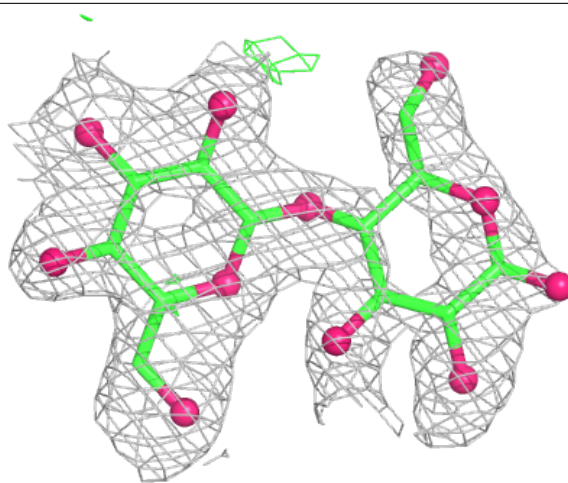
Electron density around Chain G:

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



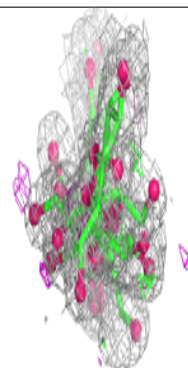
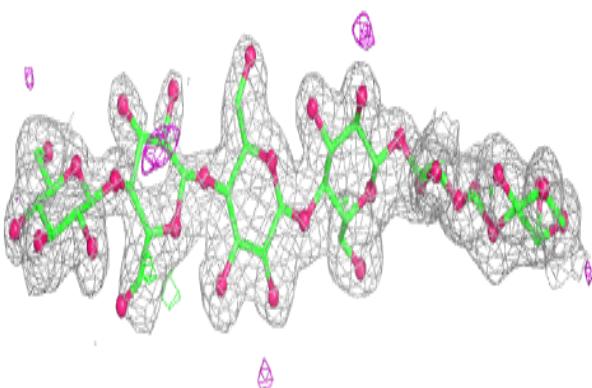
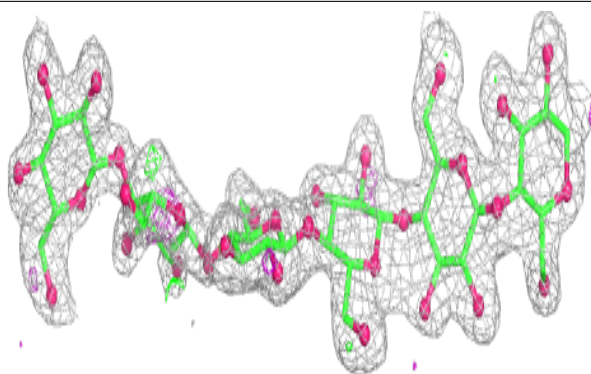
Electron density around Chain K:

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

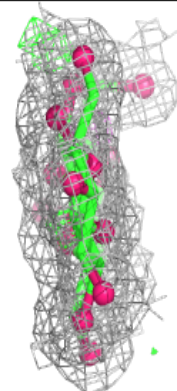
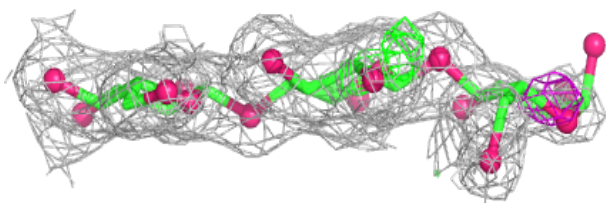
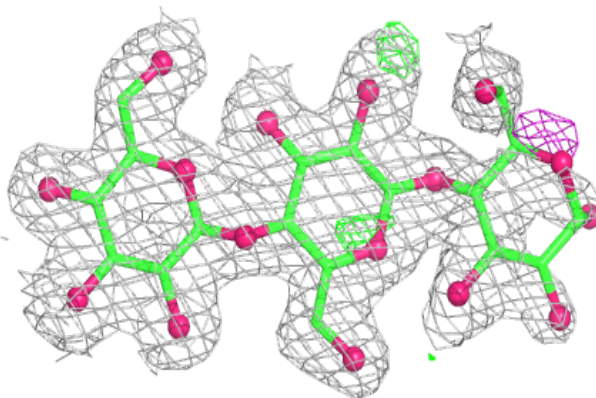


Electron density around Chain H:

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

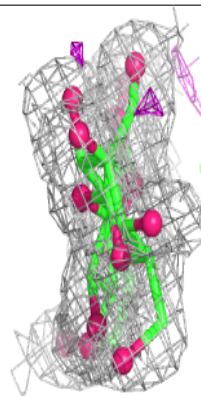
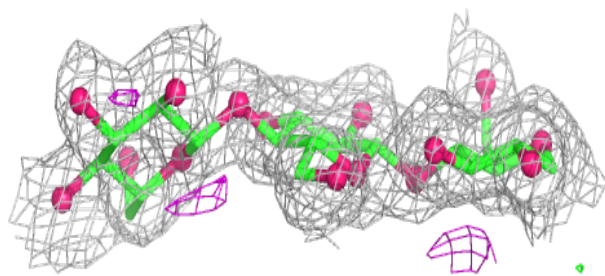
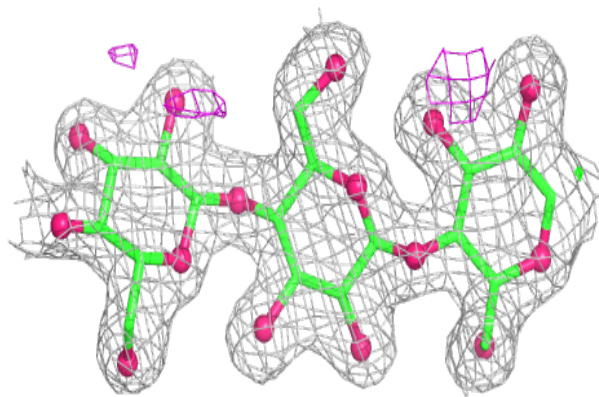
**Electron density around Chain I:**

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

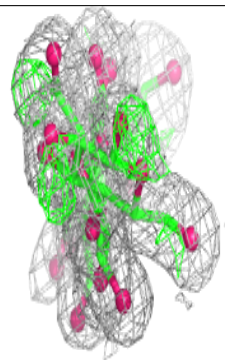
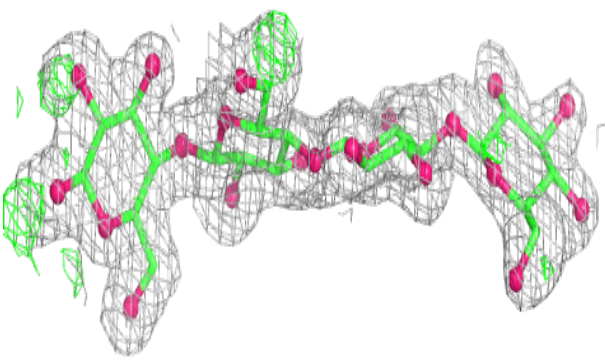
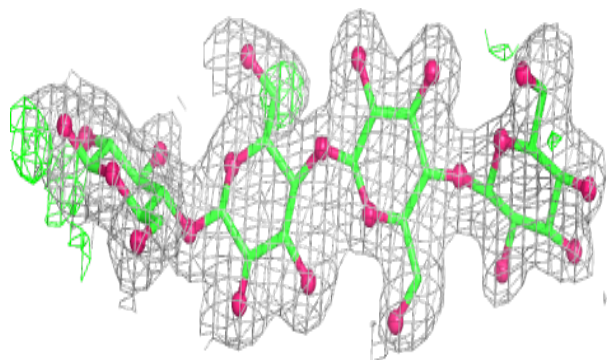


Electron density around Chain L:

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

**Electron density around Chain J:**

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

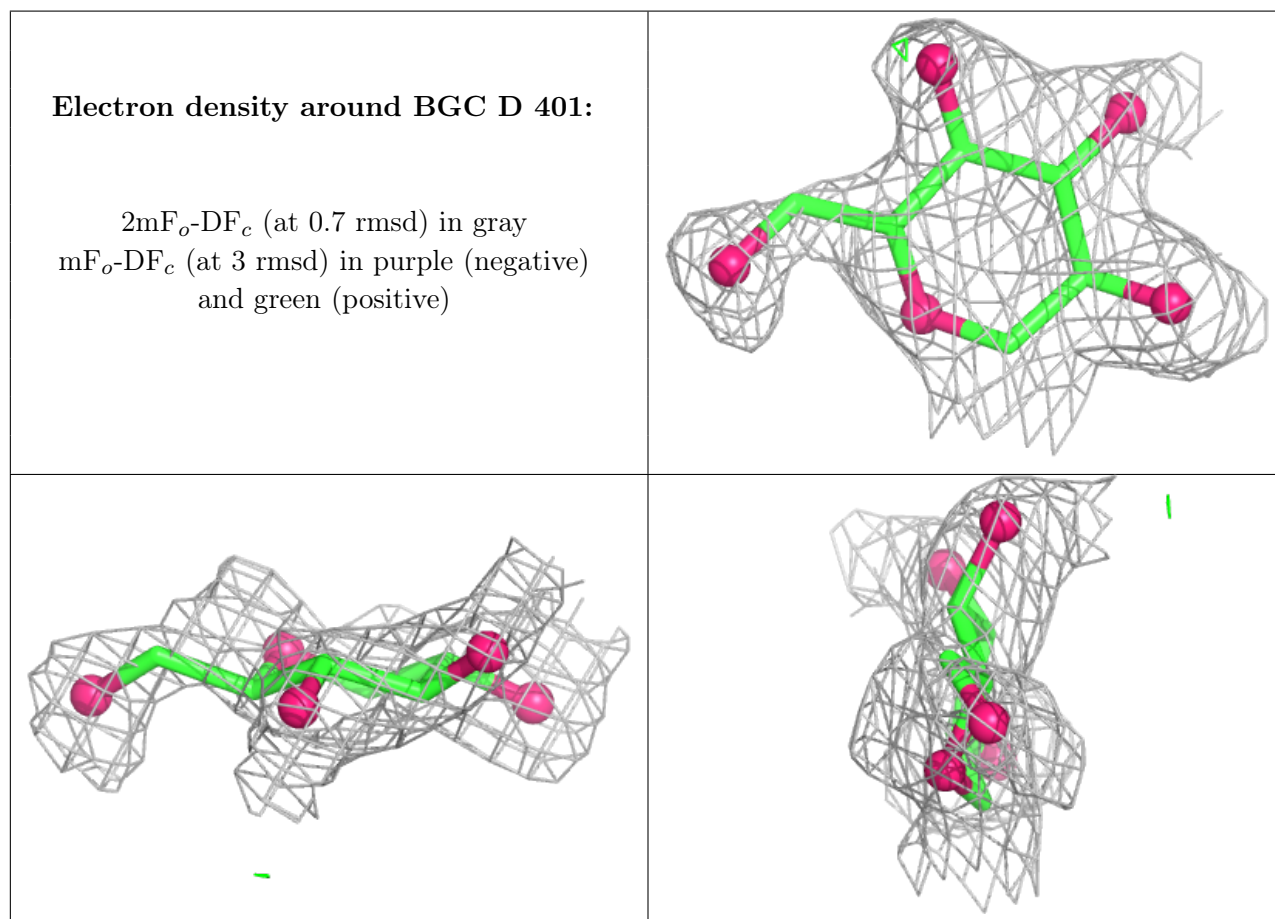


6.4 Ligands [i](#)

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
7	BGC	D	401	11/12	0.59	0.23	40,43,48,49	11

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



6.5 Other polymers [i](#)

There are no such residues in this entry.