Full wwPDB X-ray Structure Validation Report (i)

Nov 4, 2024 – 02:19 am GMT

PDB ID	:	5ELE
Title	:	Cholera toxin El Tor B-pentamer in complex with A Lewis-y
Authors	:	Heggelund, J.E.; Burschowsky, D.; Krengel, U.
Deposited on	:	2015-11-04
Resolution	:	1.60 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 (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:

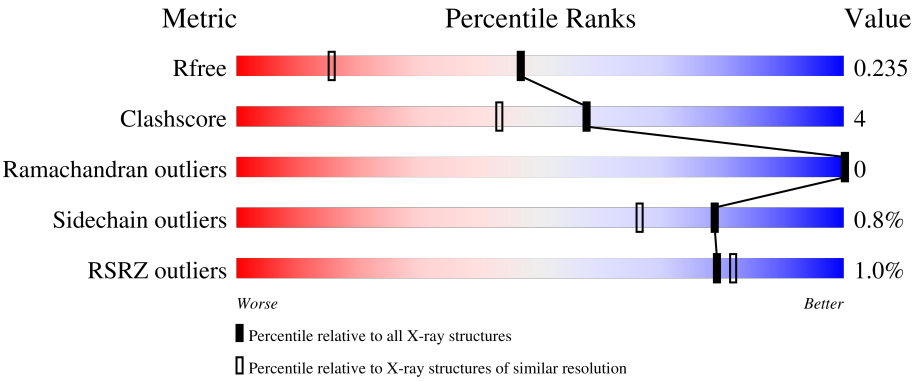
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, 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 1.60 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	4274 (1.60-1.60)
Clashscore	180529	4682 (1.60-1.60)
Ramachandran outliers	177936	4583 (1.60-1.60)
Sidechain outliers	177891	4582 (1.60-1.60)
RSRZ outliers	164620	4272 (1.60-1.60)

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	103	94% 6%
1	B	103	% 93% 7%
1	C	103	3% 92% 7%
1	D	103	96%
1	E	103	2% 99%

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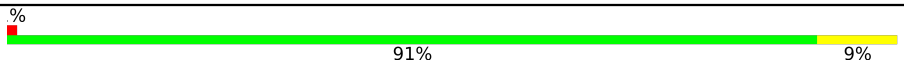
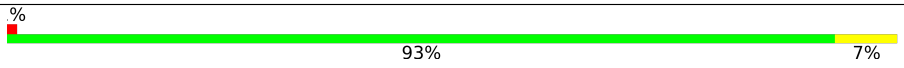
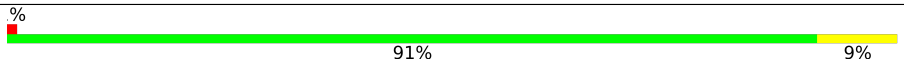
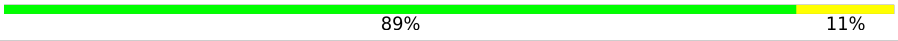
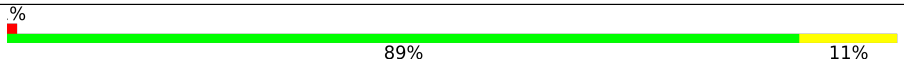
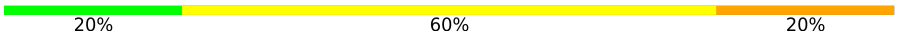
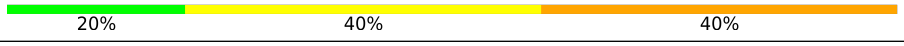
Mol	Chain	Length	Quality of chain
1	F	103	
1	G	103	
1	H	103	
1	I	103	
1	J	103	
2	K	5	
2	L	5	
2	M	5	

2 Entry composition

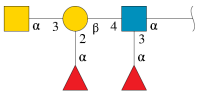
There are 8 unique types of molecules in this entry. The entry contains 9722 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Cholera enterotoxin subunit B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	103	Total	C	N	O	S	0	3	0
			831	526	141	158	6			
1	B	103	Total	C	N	O	S	0	3	0
			832	528	142	156	6			
1	C	103	Total	C	N	O	S	0	4	0
			837	533	142	156	6			
1	D	103	Total	C	N	O	S	0	5	0
			843	536	144	157	6			
1	E	103	Total	C	N	O	S	0	4	0
			834	528	141	159	6			
1	F	103	Total	C	N	O	S	0	2	0
			826	523	141	156	6			
1	G	103	Total	C	N	O	S	0	4	0
			833	528	140	159	6			
1	H	103	Total	C	N	O	S	0	4	0
			836	531	141	158	6			
1	I	103	Total	C	N	O	S	0	5	0
			843	536	144	157	6			
1	J	103	Total	C	N	O	S	0	3	0
			832	527	142	157	6			

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	K	5	Total	C	N	O	0	0	0
			60	34	2	24			

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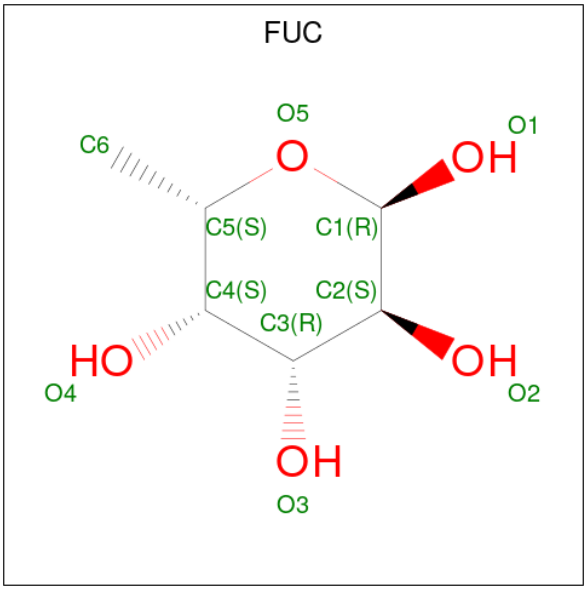
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
2	L	5	Total C N O 105 60 3 42	0	5	0
2	M	5	Total C N O 60 34 2 24	0	0	0

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	2	Total Ca 2 2	0	0
3	B	2	Total Ca 2 2	0	0
3	C	2	Total Ca 2 2	0	0
3	D	2	Total Ca 2 2	0	0
3	E	2	Total Ca 2 2	0	0

- Molecule 4 is alpha-L-fucopyranose (three-letter code: FUC) (formula: $C_6H_{12}O_5$).



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

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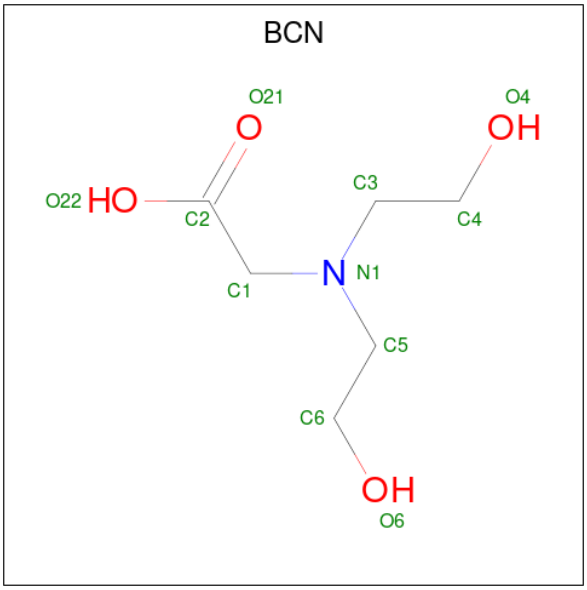
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	H	1	Total C O 11 6 5	0	0
4	I	1	Total C O 11 6 5	0	0

- Molecule 5 is BICINE (three-letter code: BCN) (formula: $C_6H_{13}NO_4$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C N O 11 6 1 4	0	0
5	A	1	Total C N O 11 6 1 4	0	0
5	B	1	Total C N O 11 6 1 4	0	0
5	B	1	Total C N O 11 6 1 4	0	0
5	C	1	Total C N O 11 6 1 4	0	0
5	C	1	Total C N O 11 6 1 4	0	0
5	D	1	Total C N O 11 6 1 4	0	0
5	D	1	Total C N O 11 6 1 4	0	0
5	E	1	Total C N O 11 6 1 4	0	0

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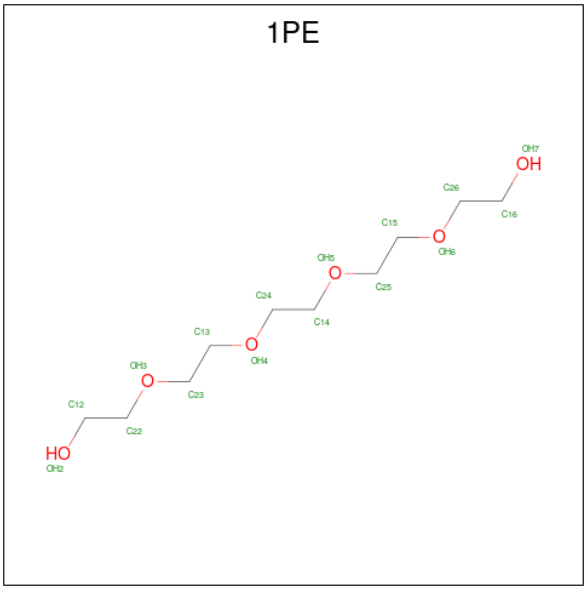
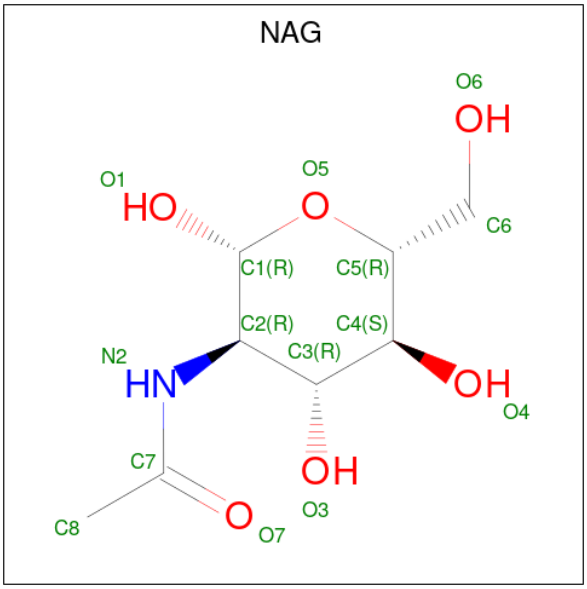
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	E	1	Total	C	N	O	0	0
			11	6	1	4		

- Molecule 6 is PENTAETHYLENE GLYCOL (three-letter code: 1PE) (formula: $C_{10}H_{22}O_6$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	F	1	Total	C	O	0	0
			16	10	6		

- Molecule 7 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	G	1	Total	C	N	O	0	1
			15	8	1	6		

- Molecule 8 is water.

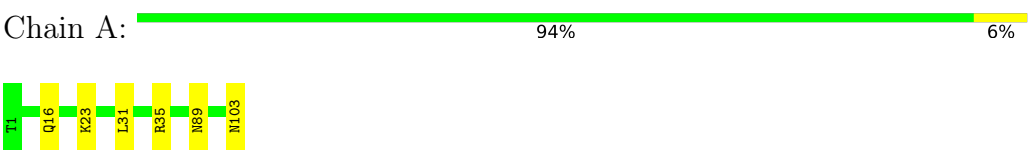
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	87	Total	O	0	0
			87	87		
8	B	67	Total	O	0	0
			67	67		
8	C	86	Total	O	0	0
			86	86		
8	D	92	Total	O	0	0
			92	92		
8	E	86	Total	O	0	1
			87	87		
8	F	121	Total	O	0	1
			122	122		
8	G	99	Total	O	0	1
			100	100		
8	H	104	Total	O	0	1
			105	105		
8	I	108	Total	O	0	1
			109	109		
8	J	100	Total	O	0	0
			100	100		

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.

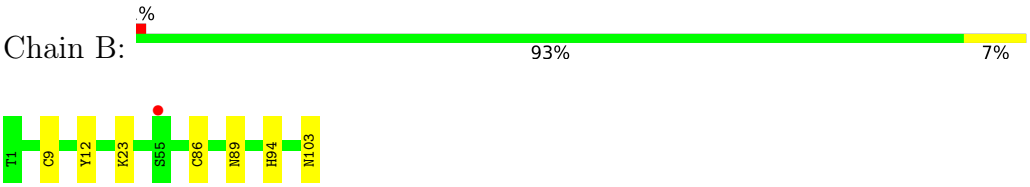
• Molecule 1: Cholera enterotoxin subunit B

Chain A:



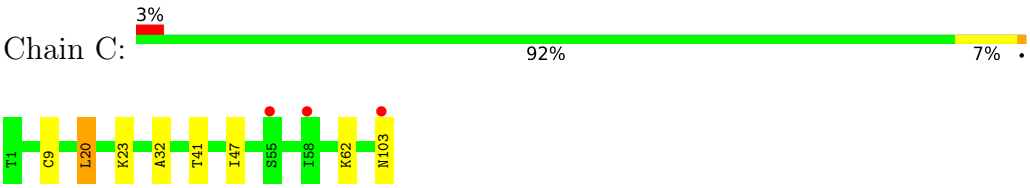
• Molecule 1: Cholera enterotoxin subunit B

Chain B:



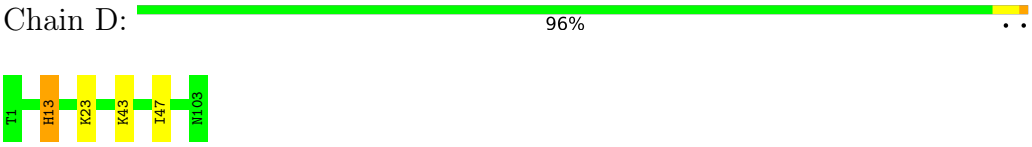
• Molecule 1: Cholera enterotoxin subunit B

Chain C:



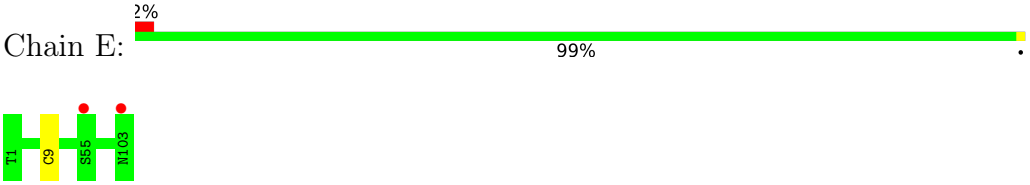
• Molecule 1: Cholera enterotoxin subunit B

Chain D:



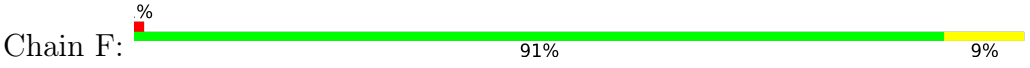
• Molecule 1: Cholera enterotoxin subunit B

Chain E:



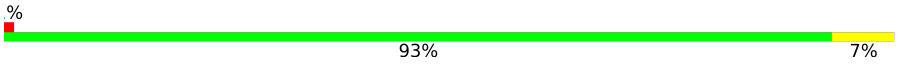
• Molecule 1: Cholera enterotoxin subunit B

Chain F:



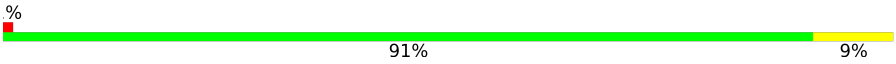
• Molecule 1: Cholera enterotoxin subunit B

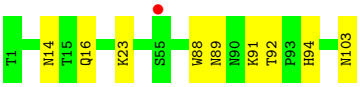
Chain G:



• Molecule 1: Cholera enterotoxin subunit B

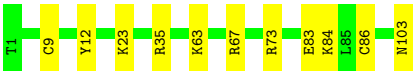
Chain H:





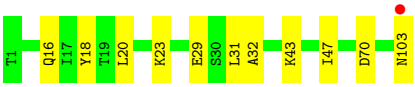
• Molecule 1: Cholera enterotoxin subunit B

Chain I:



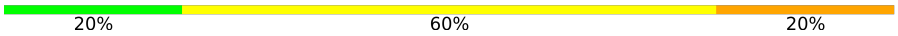
• Molecule 1: Cholera enterotoxin subunit B

Chain J:



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

Chain K:

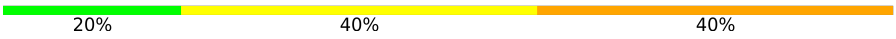


• Molecule 2: alpha-L-fucopyranose-(1-2)-[2-acetamido-2-deoxy-alpha-D-galactopyranose-(1-3)]beta-D-galactopyranose-(1-4)-[alpha-L-fucopyranose-(1-3)]2-acetamido-2-deoxy-alpha-D-glucopyranose

Chain L:

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

Chain M:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	63.54Å 82.97Å 196.56Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.14 – 1.60 49.14 – 1.60	Depositor EDS
% Data completeness (in resolution range)	99.2 (49.14-1.60) 99.2 (49.14-1.60)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.16 (at 1.60Å)	Xtriage
Refinement program	REFMAC 5.8.0135	Depositor
R, R_{free}	0.183 , 0.226 0.192 , 0.235	Depositor DCC
R_{free} test set	6822 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	16.8	Xtriage
Anisotropy	0.514	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 32.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	9722	wwPDB-VP
Average B, all atoms (Å^2)	22.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.09% 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: FUC, NAG, 1PE, BCN, NDG, CA, A2G, GAL

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	0.64	0/854	0.76	1/1152 (0.1%)
1	B	0.61	0/855	0.76	0/1152
1	C	0.73	0/863	0.85	1/1163 (0.1%)
1	D	0.67	0/873	0.82	0/1178
1	E	0.66	0/860	0.78	0/1160
1	F	0.75	0/846	0.83	1/1141 (0.1%)
1	G	0.75	0/859	0.82	1/1160 (0.1%)
1	H	0.70	0/862	0.79	0/1163
1	I	0.74	0/872	0.82	3/1174 (0.3%)
1	J	0.74	0/855	0.79	1/1153 (0.1%)
All	All	0.70	0/8599	0.80	8/11596 (0.1%)

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	I	35	ARG	NE-CZ-NH1	6.69	123.64	120.30
1	F	35	ARG	NE-CZ-NH1	6.65	123.63	120.30
1	C	20	LEU	CA-CB-CG	-5.95	101.61	115.30
1	I	73	ARG	NE-CZ-NH1	5.82	123.21	120.30
1	A	35	ARG	NE-CZ-NH1	5.46	123.03	120.30
1	G	67	ARG	NE-CZ-NH2	-5.24	117.68	120.30
1	I	35	ARG	NE-CZ-NH2	-5.12	117.74	120.30
1	J	20	LEU	CA-CB-CG	-5.06	103.66	115.30

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	831	0	845	9	0
1	B	832	0	854	7	0
1	C	837	0	865	4	0
1	D	843	0	868	3	0
1	E	834	0	850	1	0
1	F	826	0	841	10	0
1	G	833	0	848	6	0
1	H	836	0	856	7	0
1	I	843	0	873	14	0
1	J	832	0	849	18	0
2	K	60	0	50	1	0
2	L	105	0	89	5	0
2	M	60	0	50	5	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	C	2	0	0	0	0
3	D	2	0	0	0	0
3	E	2	0	0	0	0
4	A	11	0	12	0	0
4	F	11	0	12	0	0
4	H	11	0	12	0	0
4	I	11	0	12	0	0
5	A	22	0	20	0	0
5	B	22	0	20	2	0
5	C	22	0	20	0	0
5	D	22	0	20	0	0
5	E	22	0	20	0	0
6	F	16	0	22	0	0
7	G	15	0	8	2	0
8	A	87	0	0	2	0
8	B	67	0	0	3	0
8	C	86	0	0	1	0
8	D	92	0	0	2	0
8	E	87	0	0	1	0
8	F	122	0	0	5	1
8	G	100	0	0	3	0
8	H	105	0	0	2	1

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	I	109	0	0	1	0
8	J	100	0	0	5	0
All	All	9722	0	8916	74	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 4.

All (74) 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:I:23[A]:LYS:NZ	8:I:302:HOH:O	1.75	1.17
1:D:13[B]:HIS:CE1	8:D:301:HOH:O	1.98	1.14
1:D:13[B]:HIS:NE2	8:D:301:HOH:O	1.80	1.11
1:I:63[B]:LYS:HZ2	1:I:63[B]:LYS:HB2	1.06	1.10
1:J:23[B]:LYS:CE	8:J:307:HOH:O	2.04	1.04
1:I:63[B]:LYS:HB2	1:I:63[B]:LYS:NZ	1.76	0.97
1:I:63[B]:LYS:NZ	1:I:63[B]:LYS:CB	2.27	0.97
1:A:23[B]:LYS:HE3	1:J:103:ASN:OD1	1.66	0.94
1:J:16[B]:GLN:NE2	2:M:4:A2G:O7	2.02	0.93
1:I:63[B]:LYS:HZ2	1:I:63[B]:LYS:CB	1.85	0.89
1:E:9[B]:CYS:SG	8:E:377:HOH:O	2.29	0.89
1:J:23[B]:LYS:HE3	8:J:307:HOH:O	1.65	0.87
1:J:23[B]:LYS:HE2	8:J:307:HOH:O	1.68	0.86
1:F:14:ASN:OD1	8:F:301:HOH:O	1.98	0.80
2:L:2[B]:GAL:H3	2:L:4[B]:A2G:C5	2.18	0.73
8:G:301:HOH:O	2:L:1[A]:NDG:O1	2.07	0.73
1:H:16:GLN:HE21	1:H:89:ASN:HD22	1.40	0.69
1:G:51:GLU:OE2	8:G:302:HOH:O	2.11	0.67
1:C:23[A]:LYS:NZ	8:C:301:HOH:O	2.26	0.66
1:B:23[B]:LYS:NZ	8:B:301:HOH:O	2.26	0.63
1:F:23:LYS:NZ	8:F:302:HOH:O	2.31	0.62
1:I:63[B]:LYS:HZ3	1:I:63[B]:LYS:HB3	1.63	0.62
1:J:47:ILE:HD11	2:M:1:NDG:H8C2	1.81	0.61
1:A:103:ASN:HD21	1:J:23[B]:LYS:HE2	1.65	0.60
1:A:23[A]:LYS:NZ	8:A:302:HOH:O	2.35	0.59
1:H:16:GLN:NE2	1:H:89:ASN:HD22	2.04	0.56
1:F:9[B]:CYS:SG	8:F:396:HOH:O	2.57	0.55
1:B:23[A]:LYS:NZ	8:B:303:HOH:O	2.39	0.55
2:L:2[B]:GAL:H4	2:L:4[B]:A2G:O5	2.06	0.55
1:B:89:ASN:HA	1:B:94:HIS:CD2	2.42	0.55
1:I:9[B]:CYS:SG	1:I:86:CYS:SG	3.03	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:103:ASN:ND2	8:J:301:HOH:O	2.41	0.54
1:J:18:TYR:CE2	2:M:4:A2G:H8A	2.44	0.53
1:A:16:GLN:HE21	1:A:89:ASN:HD22	1.57	0.52
1:I:63[B]:LYS:CB	1:I:63[B]:LYS:HZ3	2.13	0.52
1:F:63[B]:LYS:HB3	1:F:63[B]:LYS:HZ2	1.76	0.51
1:C:103:ASN:HD21	1:H:23:LYS:HD3	1.76	0.51
1:F:63[B]:LYS:HB3	1:F:63[B]:LYS:NZ	2.26	0.50
2:L:2[B]:GAL:C3	2:L:4[B]:A2G:C5	2.89	0.49
1:F:103:ASN:ND2	8:F:303:HOH:O	2.46	0.49
1:J:43:LYS:HD3	8:J:340:HOH:O	2.14	0.48
1:H:103:ASN:ND2	8:H:304:HOH:O	2.47	0.47
1:D:47:ILE:HD11	2:K:1:NDG:H8C2	1.97	0.47
1:F:9[B]:CYS:SG	1:F:86:CYS:SG	3.12	0.46
1:F:63[B]:LYS:NZ	8:F:304:HOH:O	2.47	0.46
1:B:23[B]:LYS:CE	1:I:103:ASN:HD21	2.28	0.46
1:J:47:ILE:HD11	2:M:1:NDG:C8	2.44	0.46
1:G:47:ILE:HD11	7:G:206[B]:NAG:H83	1.98	0.46
1:A:23[B]:LYS:CE	1:J:103:ASN:OD1	2.51	0.46
1:I:67:ARG:NH1	1:J:70:ASP:OD1	2.41	0.45
1:B:12:TYR:CZ	1:C:32:ALA:HB1	2.52	0.44
8:G:315:HOH:O	1:H:92:THR:HG22	2.17	0.44
1:G:47:ILE:CD1	7:G:206[B]:NAG:H83	2.47	0.44
1:B:103:ASN:HD21	1:I:23[B]:LYS:HD3	1.83	0.43
1:I:12:TYR:CZ	1:J:32:ALA:HB1	2.53	0.43
1:H:91:LYS:O	1:H:94:HIS:HD2	2.01	0.43
1:G:74[B]:ILE:HD13	8:H:392:HOH:O	2.18	0.42
1:J:18:TYR:CD2	2:M:4:A2G:H8A	2.54	0.42
2:L:2[B]:GAL:C4	2:L:4[B]:A2G:O5	2.64	0.42
1:A:31:LEU:HD12	1:A:31:LEU:C	2.40	0.42
1:J:31:LEU:C	1:J:31:LEU:HD12	2.40	0.41
1:F:63[B]:LYS:NZ	1:F:63[B]:LYS:CB	2.84	0.41
1:I:67:ARG:HG2	1:J:29:GLU:OE2	2.20	0.41
1:A:103:ASN:HD21	1:J:23[B]:LYS:HD2	1.86	0.41
1:B:9[B]:CYS:SG	1:B:86:CYS:SG	3.19	0.41
1:A:103:ASN:HD22	5:B:201:BCN:C2	2.33	0.41
5:B:203:BCN:C6	8:B:304:HOH:O	2.68	0.41
1:F:88:TRP:CZ3	1:F:97:ALA:HB2	2.56	0.41
1:G:14:ASN:HB3	1:G:90:ASN:ND2	2.36	0.41
1:H:14:ASN:O	1:H:88:TRP:HA	2.20	0.40
1:A:16:GLN:NE2	8:A:307:HOH:O	2.53	0.40
1:G:14:ASN:HB3	1:G:90:ASN:HD22	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:83:GLU:HG2	1:I:84:LYS:HG3	2.03	0.40
1:C:41:THR:HG22	1:C:47:ILE:HG12	2.03	0.40

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)
8:F:383:HOH:O	8:H:323:HOH:O[3_454]	2.17	0.03

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	104/103 (101%)	103 (99%)	1 (1%)	0	100	100
1	B	104/103 (101%)	103 (99%)	1 (1%)	0	100	100
1	C	105/103 (102%)	103 (98%)	2 (2%)	0	100	100
1	D	106/103 (103%)	104 (98%)	2 (2%)	0	100	100
1	E	105/103 (102%)	104 (99%)	1 (1%)	0	100	100
1	F	103/103 (100%)	102 (99%)	1 (1%)	0	100	100
1	G	105/103 (102%)	104 (99%)	1 (1%)	0	100	100
1	H	105/103 (102%)	104 (99%)	1 (1%)	0	100	100
1	I	106/103 (103%)	105 (99%)	1 (1%)	0	100	100
1	J	104/103 (101%)	103 (99%)	1 (1%)	0	100	100
All	All	1047/1030 (102%)	1035 (99%)	12 (1%)	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	92/89 (103%)	92 (100%)	0	100 100
1	B	92/89 (103%)	92 (100%)	0	100 100
1	C	93/89 (104%)	89 (96%)	4 (4%)	25 7
1	D	94/89 (106%)	89 (95%)	5 (5%)	19 4
1	E	93/89 (104%)	93 (100%)	0	100 100
1	F	91/89 (102%)	91 (100%)	0	100 100
1	G	93/89 (104%)	92 (99%)	1 (1%)	70 53
1	H	93/89 (104%)	93 (100%)	0	100 100
1	I	94/89 (106%)	94 (100%)	0	100 100
1	J	92/89 (103%)	92 (100%)	0	100 100
All	All	927/890 (104%)	917 (99%)	10 (1%)	79 53

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	9[A]	CYS
1	C	9[B]	CYS
1	C	20	LEU
1	C	62	LYS
1	D	13[A]	HIS
1	D	13[B]	HIS
1	D	23	LYS
1	D	43[A]	LYS
1	D	43[B]	LYS
1	G	103	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	16	GLN

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Mol	Chain	Res	Type
1	B	94	HIS
1	C	94	HIS
1	E	94	HIS
1	F	94	HIS
1	F	103	ASN
1	G	14	ASN
1	G	16	GLN
1	G	90	ASN
1	G	103	ASN
1	H	16	GLN
1	H	94	HIS
1	H	103	ASN
1	I	3	GLN
1	I	94	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)

19 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	NDG	K	1	2	15,15,15	1.01	2 (13%)	21,21,21	1.79	2 (9%)
2	GAL	K	2	2	11,11,12	1.18	1 (9%)	15,15,17	1.26	2 (13%)
2	FUC	K	3	2	10,10,11	1.76	2 (20%)	14,14,16	0.56	0
2	A2G	K	4	2	14,14,15	1.51	1 (7%)	17,19,21	1.03	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	FUC	K	5	2	10,10,11	1.09	0	14,14,16	0.79	0
2	NDG	L	1[A]	2	15,15,15	1.16	1 (6%)	21,21,21	1.90	2 (9%)
2	GAL	L	2[A]	2	11,11,12	0.96	0	15,15,17	1.12	1 (6%)
2	GAL	L	2[B]	7,2	11,11,12	0.63	0	15,15,17	1.03	2 (13%)
2	FUC	L	3[A]	2	10,10,11	0.85	0	14,14,16	0.88	0
2	FUC	L	3[B]	2	10,10,11	0.59	0	14,14,16	1.05	0
2	A2G	L	4[A]	2	14,14,15	1.76	3 (21%)	17,19,21	1.53	3 (17%)
2	A2G	L	4[B]	2	14,14,15	1.32	2 (14%)	17,19,21	1.71	3 (17%)
2	FUC	L	5[A]	2	10,10,11	1.43	3 (30%)	14,14,16	0.84	0
2	FUC	L	5[B]	7	10,10,11	0.90	0	14,14,16	0.88	0
2	NDG	M	1	2	15,15,15	1.44	3 (20%)	21,21,21	1.85	3 (14%)
2	GAL	M	2	2	11,11,12	0.79	0	15,15,17	1.10	1 (6%)
2	FUC	M	3	2	10,10,11	0.99	0	14,14,16	0.84	0
2	A2G	M	4	2	14,14,15	1.73	4 (28%)	17,19,21	1.38	2 (11%)
2	FUC	M	5	2	10,10,11	1.33	2 (20%)	14,14,16	1.20	1 (7%)

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	NDG	K	1	2	-	0/6/26/26	0/1/1/1
2	GAL	K	2	2	-	0/2/19/22	0/1/1/1
2	FUC	K	3	2	-	-	0/1/1/1
2	A2G	K	4	2	-	3/6/23/26	0/1/1/1
2	FUC	K	5	2	-	-	0/1/1/1
2	NDG	L	1[A]	2	-	0/6/26/26	0/1/1/1
2	GAL	L	2[A]	2	-	1/2/19/22	0/1/1/1
2	GAL	L	2[B]	7,2	-	0/2/19/22	0/1/1/1
2	FUC	L	3[A]	2	-	-	0/1/1/1
2	FUC	L	3[B]	2	-	-	0/1/1/1
2	A2G	L	4[A]	2	-	2/6/23/26	0/1/1/1
2	A2G	L	4[B]	2	-	2/6/23/26	0/1/1/1
2	FUC	L	5[A]	2	-	-	0/1/1/1
2	FUC	L	5[B]	7	-	-	0/1/1/1
2	NDG	M	1	2	-	2/6/26/26	0/1/1/1
2	GAL	M	2	2	-	1/2/19/22	0/1/1/1
2	FUC	M	3	2	-	-	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	A2G	M	4	2	-	0/6/23/26	0/1/1/1
2	FUC	M	5	2	-	-	0/1/1/1

All (24) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	K	3	FUC	O5-C1	4.33	1.50	1.43
2	M	4	A2G	O5-C1	4.27	1.50	1.43
2	K	4	A2G	O5-C1	4.19	1.50	1.43
2	L	4[A]	A2G	O5-C5	3.79	1.51	1.43
2	L	4[A]	A2G	O5-C1	3.52	1.49	1.43
2	L	4[B]	A2G	O5-C1	3.27	1.48	1.43
2	M	4	A2G	O5-C5	2.86	1.49	1.43
2	M	1	NDG	C8-C7	2.81	1.56	1.50
2	M	1	NDG	O1-C1	2.67	1.48	1.39
2	M	1	NDG	C1-C2	2.53	1.56	1.52
2	K	1	NDG	O3-C3	2.34	1.48	1.43
2	L	5[A]	FUC	O3-C3	2.33	1.48	1.43
2	L	5[A]	FUC	C4-C5	2.33	1.58	1.52
2	L	1[A]	NDG	C4-C5	2.20	1.57	1.53
2	M	4	A2G	C3-C2	2.19	1.57	1.52
2	M	4	A2G	C8-C7	2.18	1.55	1.50
2	K	2	GAL	O4-C4	2.17	1.48	1.43
2	M	5	FUC	O5-C1	2.10	1.47	1.43
2	L	4[B]	A2G	C8-C7	2.06	1.54	1.50
2	L	4[A]	A2G	C8-C7	2.03	1.54	1.50
2	K	3	FUC	C2-C3	2.03	1.55	1.52
2	L	5[A]	FUC	C1-C2	2.02	1.56	1.52
2	M	5	FUC	C4-C5	2.02	1.57	1.52
2	K	1	NDG	O1-C1	2.01	1.46	1.39

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	L	1[A]	NDG	C1-C2-N2	-7.47	102.07	110.73
2	K	1	NDG	C1-C2-N2	-6.53	103.16	110.73
2	M	1	NDG	C1-C2-N2	-6.32	103.41	110.73
2	L	4[B]	A2G	C2-N2-C7	-4.62	116.32	122.90
2	L	4[B]	A2G	O5-C5-C6	3.98	113.44	107.20
2	L	4[A]	A2G	O5-C5-C6	3.34	112.44	107.20
2	L	4[A]	A2G	C2-N2-C7	-3.22	118.31	122.90
2	M	4	A2G	C2-N2-C7	-3.17	118.38	122.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	M	1	NDG	O3-C3-C4	-2.77	103.94	110.35
2	M	4	A2G	O5-C5-C6	2.65	111.36	107.20
2	K	1	NDG	O5-C1-C2	2.59	112.12	109.52
2	L	4[B]	A2G	C4-C3-C2	-2.49	107.37	111.02
2	L	4[A]	A2G	O5-C1-C2	-2.46	107.40	111.29
2	K	4	A2G	O5-C5-C6	2.41	110.98	107.20
2	M	1	NDG	O5-C1-C2	2.39	111.92	109.52
2	K	2	GAL	O3-C3-C2	-2.38	105.43	109.99
2	L	2[A]	GAL	O6-C6-C5	-2.37	103.16	111.29
2	M	2	GAL	C3-C4-C5	-2.27	106.18	110.24
2	M	5	FUC	O5-C5-C4	2.26	113.58	109.52
2	K	4	A2G	O6-C6-C5	-2.17	103.85	111.29
2	L	1[A]	NDG	O3-C3-C4	-2.08	105.53	110.35
2	L	2[B]	GAL	C3-C4-C5	-2.08	106.54	110.24
2	L	2[B]	GAL	C1-O5-C5	-2.07	109.39	112.19
2	K	2	GAL	C6-C5-C4	-2.05	108.20	113.00

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	K	4	A2G	O7-C7-N2-C2
2	K	4	A2G	C8-C7-N2-C2
2	L	4[A]	A2G	C4-C5-C6-O6
2	M	1	NDG	O5-C5-C6-O6
2	K	4	A2G	O5-C5-C6-O6
2	M	1	NDG	C4-C5-C6-O6
2	L	4[A]	A2G	O5-C5-C6-O6
2	L	2[A]	GAL	O5-C5-C6-O6
2	M	2	GAL	O5-C5-C6-O6
2	L	4[B]	A2G	C4-C5-C6-O6
2	L	4[B]	A2G	O5-C5-C6-O6

There are no ring outliers.

6 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	L	1[A]	NDG	1	0
2	K	1	NDG	1	0
2	L	2[B]	GAL	4	0
2	M	1	NDG	2	0

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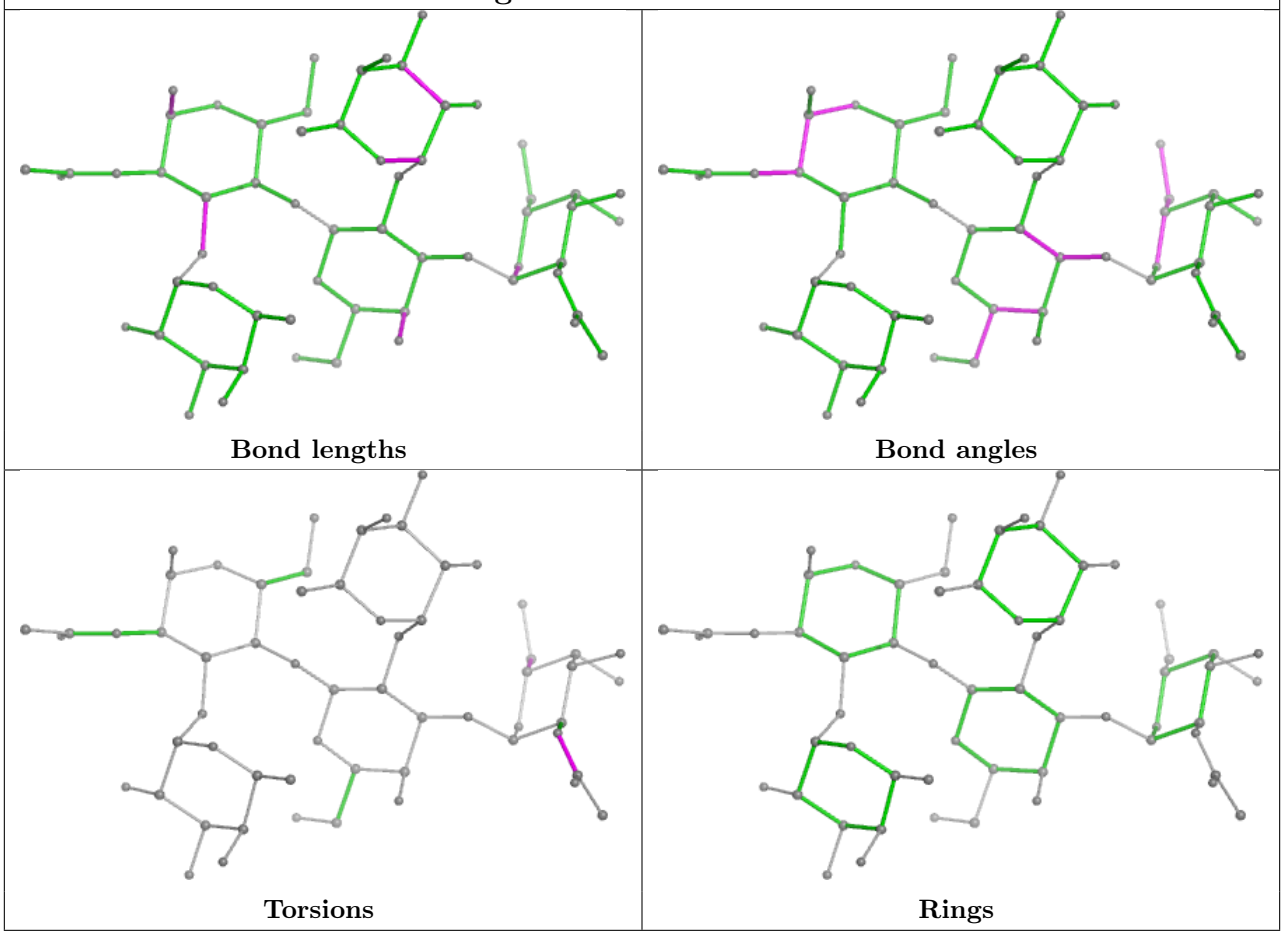
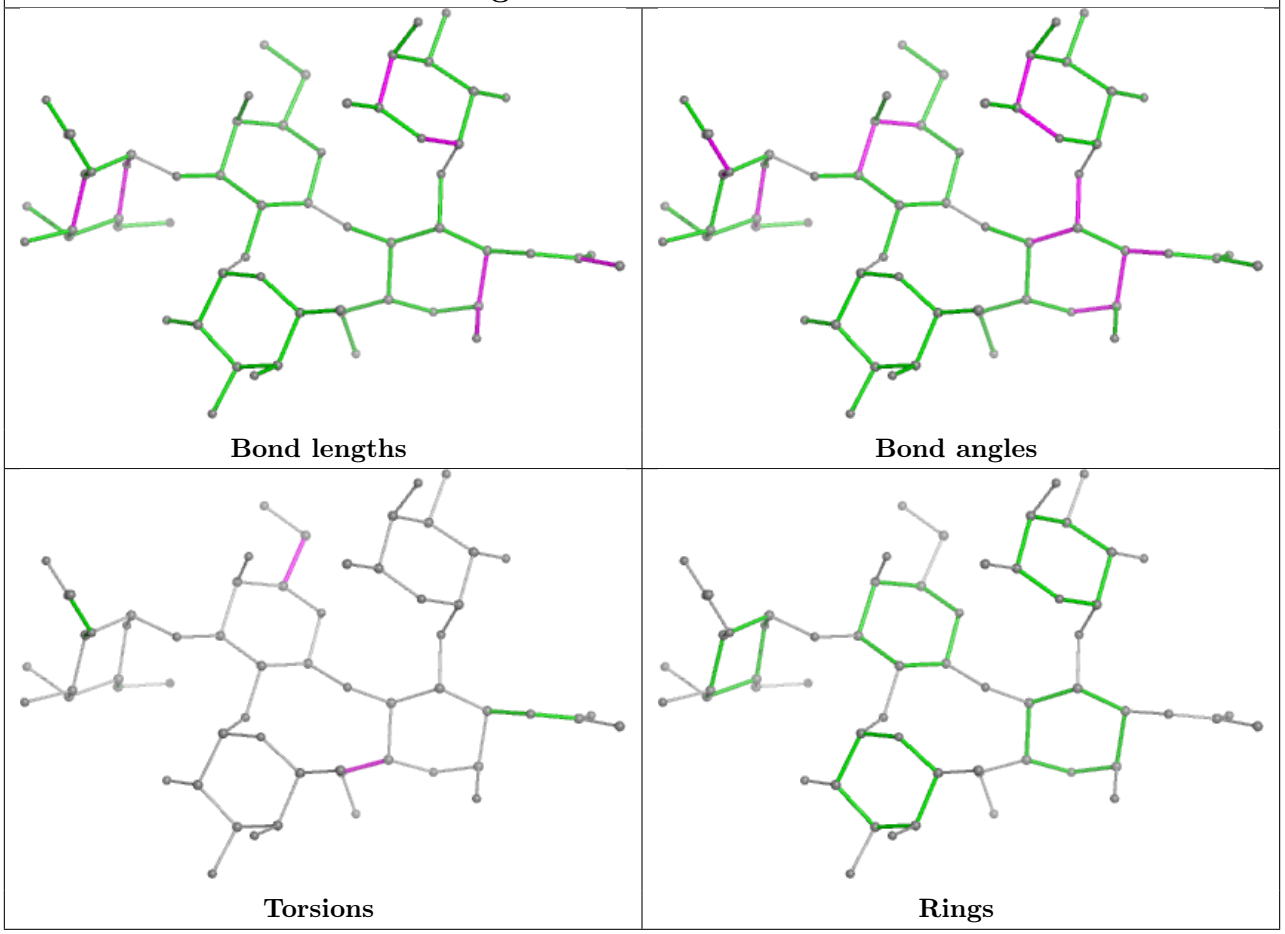
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	L	4[B]	A2G	4	0
2	M	4	A2G	3	0

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 K



Oligosaccharide Chain M



5.6 Ligand geometry (i)

Of 26 ligands modelled in this entry, 10 are monoatomic - leaving 16 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	FUC	A	202	-	11,11,11	1.43	2 (18%)	15,16,16	2.50	8 (53%)
5	BCN	B	201	3	10,10,10	0.76	0	11,11,11	2.60	5 (45%)
5	BCN	D	201	3	10,10,10	0.67	0	11,11,11	2.47	5 (45%)
4	FUC	H	201	-	11,11,11	0.83	0	15,16,16	1.35	4 (26%)
5	BCN	D	203	3	10,10,10	0.66	0	11,11,11	1.00	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	BCN	B	203	3	10,10,10	0.79	0	11,11,11	2.64	6 (54%)
7	NAG	G	206[B]	2	15,15,15	0.66	0	21,21,21	2.31	2 (9%)
5	BCN	A	203	3	10,10,10	0.76	0	11,11,11	2.59	3 (27%)
5	BCN	C	203	3	10,10,10	0.92	1 (10%)	11,11,11	0.89	0
5	BCN	A	205	3	10,10,10	1.01	0	11,11,11	2.60	5 (45%)
5	BCN	E	203	3	10,10,10	0.83	0	11,11,11	0.77	0
6	1PE	F	202	-	15,15,15	0.38	0	14,14,14	0.56	0
5	BCN	C	201	3	10,10,10	0.68	0	11,11,11	0.78	0
4	FUC	F	201	-	11,11,11	0.82	0	15,16,16	1.51	4 (26%)
4	FUC	I	201	-	11,11,11	1.02	1 (9%)	15,16,16	1.62	4 (26%)
5	BCN	E	201	3	10,10,10	0.82	0	11,11,11	2.46	4 (36%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	BCN	B	201	3	-	3/10/10/10	-
5	BCN	D	201	3	-	4/10/10/10	-
5	BCN	D	203	3	-	0/10/10/10	-
4	FUC	A	202	-	-	-	0/1/1/1
7	NAG	G	206[B]	2	-	0/6/26/26	0/1/1/1
5	BCN	B	203	3	-	4/10/10/10	-
4	FUC	H	201	-	-	-	0/1/1/1
5	BCN	A	203	3	-	4/10/10/10	-
5	BCN	C	203	3	-	0/10/10/10	-
5	BCN	A	205	3	-	5/10/10/10	-
5	BCN	E	203	3	-	1/10/10/10	-
6	1PE	F	202	-	-	2/13/13/13	-
5	BCN	C	201	3	-	0/10/10/10	-
4	FUC	F	201	-	-	-	0/1/1/1
4	FUC	I	201	-	-	-	0/1/1/1
5	BCN	E	201	3	-	3/10/10/10	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	202	FUC	C1-C2	3.02	1.59	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	202	FUC	O4-C4	2.24	1.48	1.43
5	C	203	BCN	O22-C2	-2.07	1.23	1.30
4	I	201	FUC	O1-C1	2.02	1.46	1.39

All (50) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	G	206[B]	NAG	C1-C2-N2	-7.37	102.19	110.73
7	G	206[B]	NAG	C1-O5-C5	-6.36	101.67	113.66
4	A	202	FUC	O4-C4-C5	5.60	122.08	109.67
5	A	203	BCN	C1-N1-C3	5.55	125.43	111.94
5	B	203	BCN	C1-N1-C3	5.42	125.12	111.94
5	A	205	BCN	C1-N1-C3	5.35	124.94	111.94
5	B	201	BCN	C1-N1-C3	4.89	123.82	111.94
5	A	203	BCN	C2-C1-N1	4.85	129.47	113.63
5	D	201	BCN	C1-N1-C3	4.76	123.52	111.94
5	E	201	BCN	C1-N1-C3	4.59	123.09	111.94
5	A	205	BCN	C2-C1-N1	4.58	128.58	113.63
5	D	201	BCN	C2-C1-N1	4.39	127.95	113.63
5	B	203	BCN	C2-C1-N1	4.24	127.49	113.63
5	B	201	BCN	C5-N1-C3	4.01	120.98	111.44
5	B	201	BCN	C2-C1-N1	3.83	126.13	113.63
5	A	203	BCN	C5-N1-C3	3.71	120.25	111.44
5	E	201	BCN	C1-N1-C5	3.62	120.75	111.94
4	A	202	FUC	O4-C4-C3	-3.28	102.75	110.35
5	B	201	BCN	O6-C6-C5	-3.17	98.05	111.19
4	A	202	FUC	O2-C2-C1	3.16	116.49	109.16
5	E	201	BCN	C2-C1-N1	3.16	123.95	113.63
5	D	201	BCN	C5-N1-C3	3.12	118.87	111.44
4	F	201	FUC	O4-C4-C3	-3.01	103.39	110.35
4	H	201	FUC	O4-C4-C3	-2.87	103.72	110.35
4	A	202	FUC	C3-C4-C5	-2.85	105.33	109.77
4	I	201	FUC	O3-C3-C2	2.75	116.72	110.35
4	A	202	FUC	O1-C1-C2	2.75	116.77	109.03
4	I	201	FUC	O3-C3-C4	-2.75	104.00	110.35
4	F	201	FUC	O5-C5-C4	2.69	114.34	109.52
5	E	201	BCN	C4-C3-N1	2.60	122.74	113.40
4	I	201	FUC	C3-C4-C5	2.58	113.80	109.77
4	A	202	FUC	O3-C3-C4	-2.56	104.43	110.35
5	B	203	BCN	C1-N1-C5	2.53	118.09	111.94
4	F	201	FUC	O4-C4-C5	2.51	115.22	109.67
5	A	205	BCN	C4-C3-N1	2.49	122.35	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	A	205	BCN	C5-N1-C3	2.45	117.27	111.44
5	B	203	BCN	C4-C3-N1	2.44	122.15	113.40
4	H	201	FUC	O5-C1-C2	2.42	114.60	110.28
4	A	202	FUC	O5-C5-C4	2.40	113.82	109.52
4	F	201	FUC	O5-C1-C2	2.30	114.39	110.28
5	D	201	BCN	C1-N1-C5	2.18	117.25	111.94
4	H	201	FUC	O4-C4-C5	2.18	114.49	109.67
5	B	201	BCN	C4-C3-N1	2.18	121.21	113.40
5	D	201	BCN	C4-C3-N1	2.17	121.20	113.40
4	I	201	FUC	O5-C5-C4	2.15	113.38	109.52
5	A	205	BCN	C1-N1-C5	2.12	117.10	111.94
4	H	201	FUC	O5-C5-C4	2.09	113.27	109.52
5	B	203	BCN	O21-C2-C1	-2.07	114.08	122.31
4	A	202	FUC	C1-C2-C3	2.03	114.53	110.31
5	B	203	BCN	C6-C5-N1	2.02	120.67	113.40

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	203	BCN	C4-C3-N1-C1
5	D	201	BCN	C4-C3-N1-C1
5	A	205	BCN	C4-C3-N1-C1
5	B	203	BCN	C4-C3-N1-C1
5	B	201	BCN	C4-C3-N1-C1
6	F	202	1PE	OH7-C16-C26-OH6
6	F	202	1PE	OH2-C12-C22-OH3
5	A	203	BCN	C6-C5-N1-C3
5	A	205	BCN	C2-C1-N1-C5
5	E	201	BCN	C4-C3-N1-C1
5	E	201	BCN	C2-C1-N1-C5
5	B	203	BCN	C2-C1-N1-C5
5	B	203	BCN	N1-C3-C4-O4
5	B	201	BCN	C2-C1-N1-C5
5	D	201	BCN	C2-C1-N1-C5
5	A	203	BCN	N1-C3-C4-O4
5	E	201	BCN	C6-C5-N1-C1
5	A	205	BCN	C2-C1-N1-C3
5	A	203	BCN	C2-C1-N1-C5
5	D	201	BCN	N1-C3-C4-O4
5	A	205	BCN	C6-C5-N1-C3
5	D	201	BCN	C6-C5-N1-C3

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Mol	Chain	Res	Type	Atoms
5	E	203	BCN	C2-C1-N1-C3
5	B	201	BCN	C6-C5-N1-C3
5	B	203	BCN	C6-C5-N1-C1
5	A	205	BCN	N1-C1-C2-O22

There are no ring outliers.

3 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	201	BCN	1	0
5	B	203	BCN	1	0
7	G	206[B]	NAG	2	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	103/103 (100%)	-0.10	0 100 100	11, 21, 35, 42	3 (2%)
1	B	103/103 (100%)	0.14	1 (0%) 79 82	12, 24, 39, 49	3 (2%)
1	C	103/103 (100%)	0.11	3 (2%) 54 54	8, 21, 42, 56	4 (3%)
1	D	103/103 (100%)	0.07	0 100 100	13, 21, 39, 52	5 (4%)
1	E	103/103 (100%)	-0.12	2 (1%) 66 68	10, 20, 36, 43	4 (3%)
1	F	103/103 (100%)	-0.58	1 (0%) 79 82	11, 14, 24, 39	2 (1%)
1	G	103/103 (100%)	-0.39	1 (0%) 79 82	7, 16, 27, 50	4 (3%)
1	H	103/103 (100%)	-0.34	1 (0%) 79 82	7, 16, 26, 36	4 (3%)
1	I	103/103 (100%)	-0.39	0 100 100	11, 16, 31, 38	5 (4%)
1	J	103/103 (100%)	-0.54	1 (0%) 79 82	9, 15, 25, 40	3 (2%)
All	All	1030/1030 (100%)	-0.21	10 (0%) 79 82	7, 19, 36, 56	37 (3%)

All (10) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	103	ASN	3.4
1	J	103	ASN	3.1
1	B	55	SER	3.0
1	C	55	SER	2.8
1	F	103	ASN	2.4
1	G	103	ASN	2.3
1	H	55	SER	2.1
1	E	103	ASN	2.1
1	C	58	ILE	2.1
1	E	55[A]	SER	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)

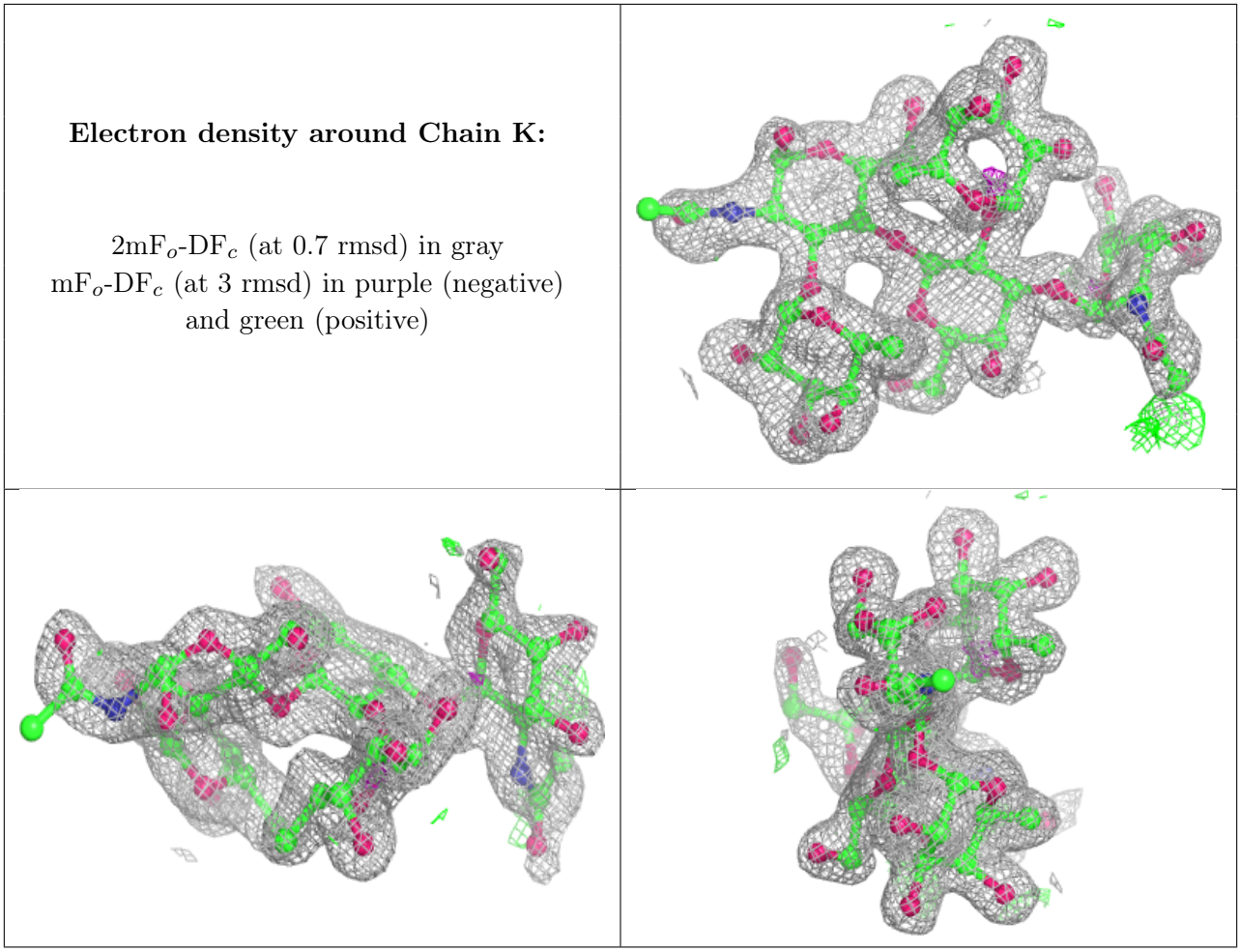
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' 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	A2G	L	4[A]	14/15	0.65	0.17	31,36,39,40	14
2	A2G	L	4[B]	14/15	0.65	0.17	29,31,32,35	14
2	A2G	M	4	14/15	0.76	0.13	31,38,41,43	0
2	A2G	K	4	14/15	0.80	0.13	36,39,42,50	0
2	NDG	M	1	15/15	0.82	0.12	29,38,45,46	0
2	FUC	M	3	10/11	0.86	0.11	31,34,37,37	0
2	GAL	K	2	11/12	0.90	0.10	26,30,31,33	0
2	FUC	M	5	10/11	0.90	0.10	21,24,28,30	0
2	GAL	M	2	11/12	0.91	0.08	30,32,34,35	0
2	FUC	K	3	10/11	0.91	0.09	23,25,26,27	0
2	NDG	L	1[A]	15/15	0.92	0.08	17,18,25,28	15
2	NDG	K	1	15/15	0.92	0.09	26,30,39,40	0
2	FUC	K	5	10/11	0.93	0.08	22,24,26,27	0
2	FUC	L	5[B]	10/11	0.94	0.07	19,21,23,25	10
2	FUC	L	5[A]	10/11	0.94	0.07	17,20,23,25	10
2	GAL	L	2[B]	11/12	0.96	0.06	18,20,21,23	11
2	FUC	L	3[A]	10/11	0.96	0.06	15,16,16,18	10
2	FUC	L	3[B]	10/11	0.96	0.06	20,20,21,22	10
2	GAL	L	2[A]	11/12	0.96	0.06	16,17,19,22	11

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.

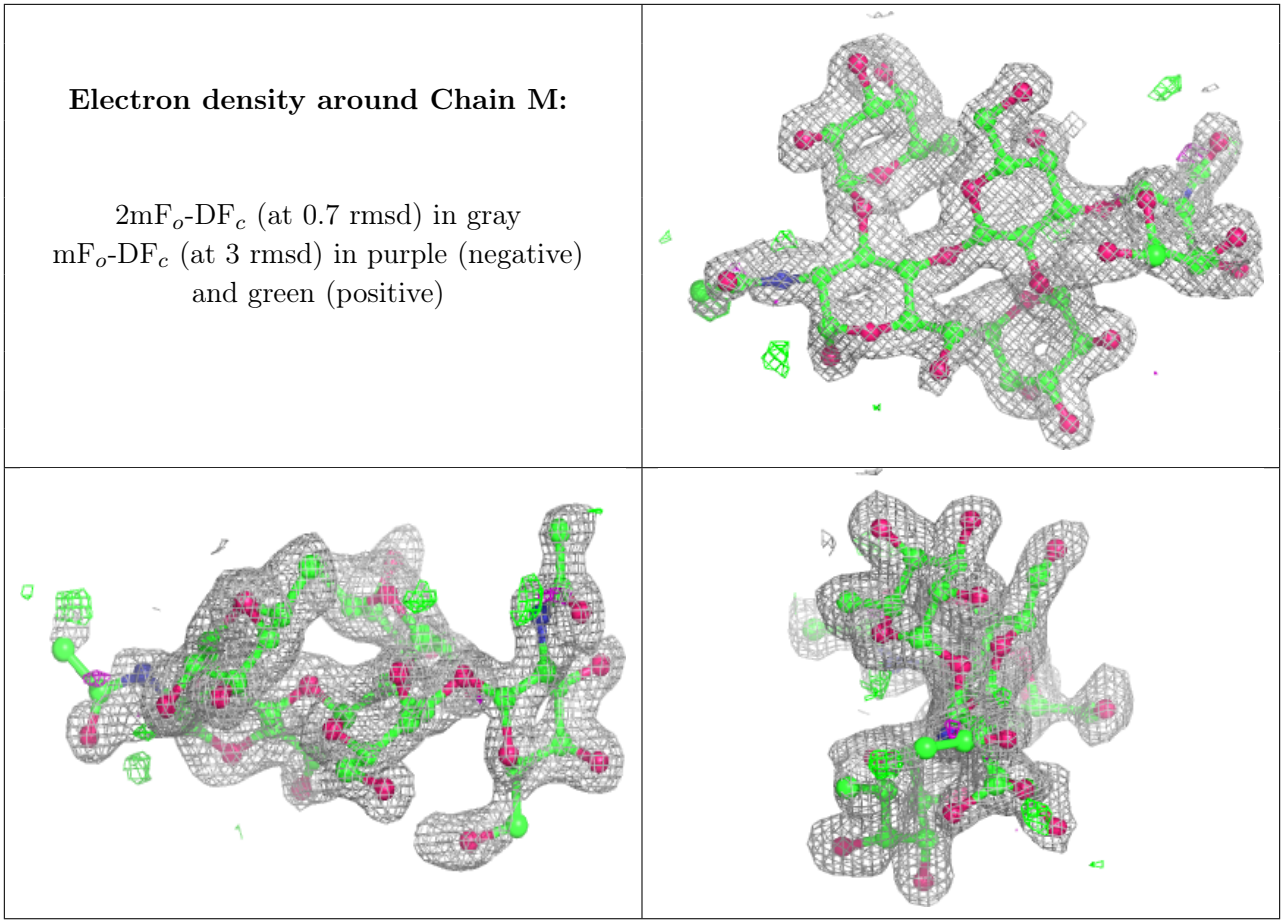
Electron density around Chain K:

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



Electron density around Chain M:

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



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
4	FUC	H	201	11/11	0.78	0.19	25,32,37,43	11
4	FUC	A	202	11/11	0.79	0.16	29,37,41,44	0
7	NAG	G	206[B]	15/15	0.80	0.11	21,22,27,27	15
4	FUC	F	201	11/11	0.85	0.13	21,28,34,37	11
6	1PE	F	202	16/16	0.88	0.12	34,38,42,45	0
5	BCN	B	201	11/11	0.91	0.10	19,23,24,25	0
4	FUC	I	201	11/11	0.93	0.07	21,23,27,28	0
5	BCN	A	203	11/11	0.93	0.09	18,23,25,26	0
5	BCN	A	205	11/11	0.93	0.08	16,22,27,29	0
5	BCN	B	203	11/11	0.94	0.08	19,25,31,33	0
5	BCN	E	201	11/11	0.95	0.07	19,23,27,27	0
5	BCN	E	203	11/11	0.95	0.08	17,21,29,29	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	BCN	C	203	11/11	0.95	0.07	16,20,25,25	0
5	BCN	D	201	11/11	0.95	0.08	15,24,26,28	0
5	BCN	C	201	11/11	0.96	0.07	18,21,22,23	0
5	BCN	D	203	11/11	0.98	0.05	17,21,24,24	0
3	CA	C	204	1/1	0.99	0.02	15,15,15,15	0
3	CA	E	202	1/1	0.99	0.02	13,13,13,13	0
3	CA	B	202	1/1	1.00	0.03	15,15,15,15	0
3	CA	B	204	1/1	1.00	0.04	13,13,13,13	0
3	CA	C	202	1/1	1.00	0.02	15,15,15,15	0
3	CA	A	201	1/1	1.00	0.02	14,14,14,14	0
3	CA	D	202	1/1	1.00	0.01	14,14,14,14	0
3	CA	D	204	1/1	1.00	0.02	14,14,14,14	0
3	CA	A	204	1/1	1.00	0.03	14,14,14,14	0
3	CA	E	204	1/1	1.00	0.02	14,14,14,14	0

6.5 Other polymers (i)

There are no such residues in this entry.