



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 15, 2023 – 06:26 pm GMT

PDB ID : 8C3V
Title : SARS-CoV-2 Delta-RBD complexed with BA.2-13 Fab and C1 nanobody
Authors : Zhou, D.; Ren, J.; Stuart, D.I.
Deposited on : 2022-12-28
Resolution : 2.74 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.32.1
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) : 2.32.1

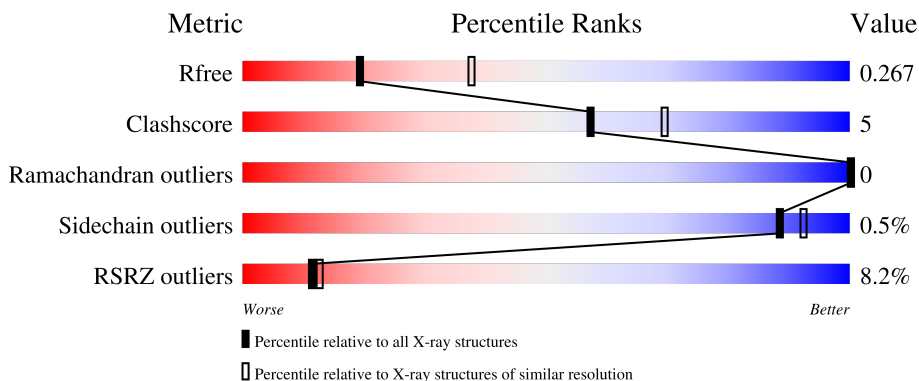
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.74 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	1271 (2.76-2.72)
Clashscore	141614	1322 (2.76-2.72)
Ramachandran outliers	138981	1297 (2.76-2.72)
Sidechain outliers	138945	1298 (2.76-2.72)
RSRZ outliers	127900	1243 (2.76-2.72)

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	231	
1	C	231	
1	H	231	
2	B	213	
2	D	213	

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Mol	Chain	Length	Quality of chain
2	L	213	<p>2% 90% 9%</p>
3	R	202	<p>3% 83% 14%</p>
3	X	202	<p>87% 11%</p>
3	Y	202	<p>2% 85% 12%</p>
4	I	131	<p>7% 89% 5% 5%</p>
4	J	131	<p>7% 90% 5% 5%</p>
4	K	131	<p>11% 86% 8% 5%</p>
5	E	5	<p>20% 80%</p>
6	F	4	<p>75% 25%</p>
7	G	5	<p>60% 40%</p>

2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 17807 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 BA.2-13 heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	H	223	Total 1679	C 1056	N 288	O 328	S 7	0	0	0
1	A	224	Total 1685	C 1059	N 289	O 330	S 7	0	0	0
1	C	221	Total 1668	C 1050	N 286	O 325	S 7	0	0	0

- Molecule 2 is a protein called BA.2-13 light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	L	212	Total 1618	C 1008	N 273	O 331	S 6	0	0	0
2	B	212	Total 1618	C 1008	N 273	O 331	S 6	0	0	0
2	D	212	Total 1618	C 1008	N 273	O 331	S 6	0	0	0

- Molecule 3 is a protein called Spike protein S1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	R	197	Total 1577	C 1008	N 271	O 290	S 8	0	0	0
3	X	197	Total 1577	C 1008	N 271	O 290	S 8	0	0	0
3	Y	197	Total 1577	C 1008	N 271	O 290	S 8	0	0	0

There are 27 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	327	HIS	-	expression tag	UNP P0DTC2
R	328	HIS	-	expression tag	UNP P0DTC2

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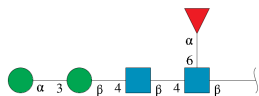
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Chain	Residue	Modelled	Actual	Comment	Reference
R	329	HIS	-	expression tag	UNP P0DTC2
R	330	HIS	-	expression tag	UNP P0DTC2
R	331	HIS	-	expression tag	UNP P0DTC2
R	332	HIS	-	expression tag	UNP P0DTC2
R	452	ARG	LEU	conflict	UNP P0DTC2
R	478	LYS	THR	conflict	UNP P0DTC2
R	527	LYS	PRO	conflict	UNP P0DTC2
X	327	HIS	-	expression tag	UNP P0DTC2
X	328	HIS	-	expression tag	UNP P0DTC2
X	329	HIS	-	expression tag	UNP P0DTC2
X	330	HIS	-	expression tag	UNP P0DTC2
X	331	HIS	-	expression tag	UNP P0DTC2
X	332	HIS	-	expression tag	UNP P0DTC2
X	452	ARG	LEU	conflict	UNP P0DTC2
X	478	LYS	THR	conflict	UNP P0DTC2
X	527	LYS	PRO	conflict	UNP P0DTC2
Y	327	HIS	-	expression tag	UNP P0DTC2
Y	328	HIS	-	expression tag	UNP P0DTC2
Y	329	HIS	-	expression tag	UNP P0DTC2
Y	330	HIS	-	expression tag	UNP P0DTC2
Y	331	HIS	-	expression tag	UNP P0DTC2
Y	332	HIS	-	expression tag	UNP P0DTC2
Y	452	ARG	LEU	conflict	UNP P0DTC2
Y	478	LYS	THR	conflict	UNP P0DTC2
Y	527	LYS	PRO	conflict	UNP P0DTC2

- Molecule 4 is a protein called Nanobody C1.

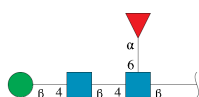
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace	
			Total	C	N	O				S
4	I	124	965	605	167	189	4	0	0	0
4	J	124	965	605	167	189	4	0	0	0
4	K	124	965	605	167	189	4	0	0	0

- Molecule 5 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-beta-D-mannopyranos e-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acet amido-2-deoxy-beta-D-glucopyranose.



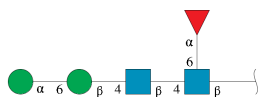
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
5	E	5	60	34	2	24	0	0	0

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
6	F	4	49	28	2	19	0	0	0

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose.



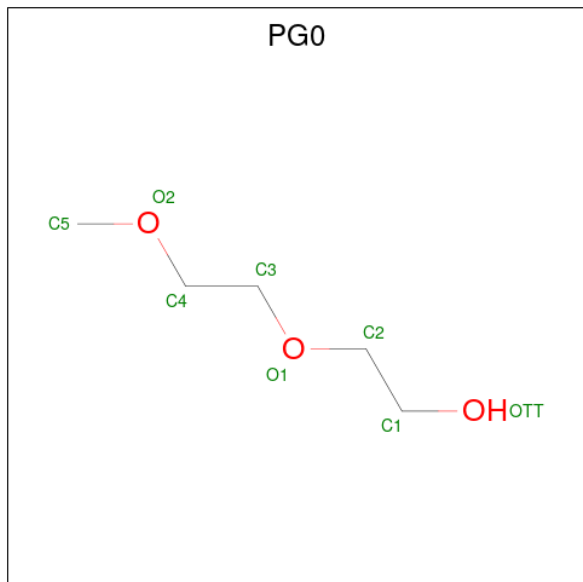
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
7	G	5	60	34	2	24	0	0	0

- Molecule 8 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



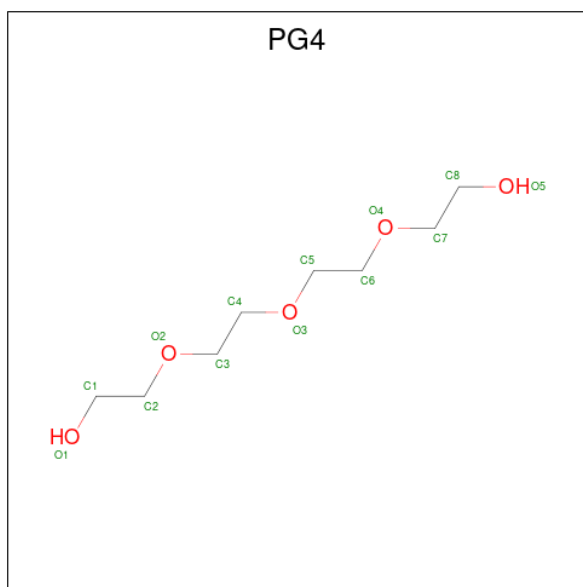
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	R	1	Total C O 6 3 3	0	0
8	R	1	Total C O 6 3 3	0	0
8	I	1	Total C O 6 3 3	0	0
8	I	1	Total C O 6 3 3	0	0
8	I	1	Total C O 6 3 3	0	0
8	X	1	Total C O 6 3 3	0	0
8	X	1	Total C O 6 3 3	0	0
8	J	1	Total C O 6 3 3	0	0
8	J	1	Total C O 6 3 3	0	0
8	Y	1	Total C O 6 3 3	0	0
8	Y	1	Total C O 6 3 3	0	0
8	K	1	Total C O 6 3 3	0	0
8	K	1	Total C O 6 3 3	0	0
8	A	1	Total C O 6 3 3	0	0

- Molecule 9 is 2-(2-METHOXYETHOXY)ETHANOL (three-letter code: PG0) (formula: $C_5H_{12}O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	R	1	Total	C	O	0	0
			8	5	3		
9	J	1	Total	C	O	0	0
			8	5	3		

- Molecule 10 is TETRAETHYLENE GLYCOL (three-letter code: PG4) (formula: $C_8H_{18}O_5$).

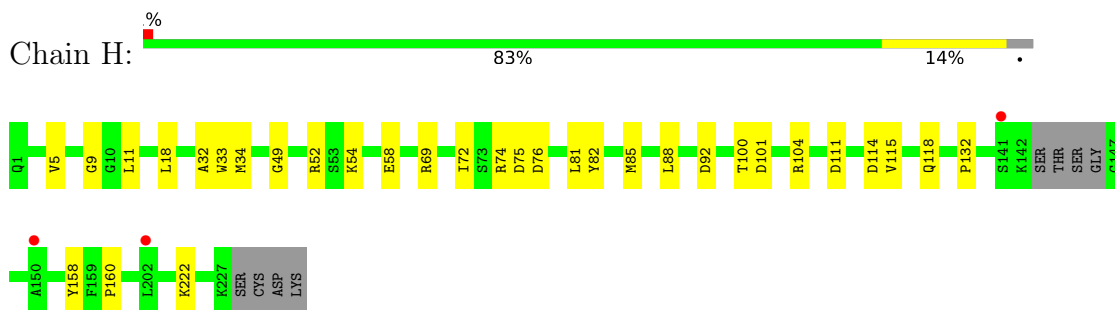


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	X	1	Total	C	O	0	0
			13	8	5		
10	Y	1	Total	C	O	0	0
			13	8	5		

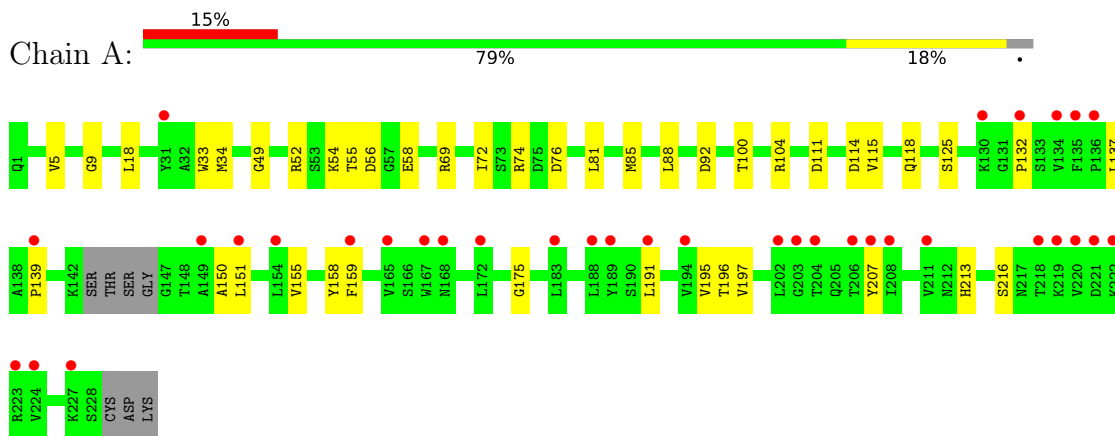
3 Residue-property plots [i](#)

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.

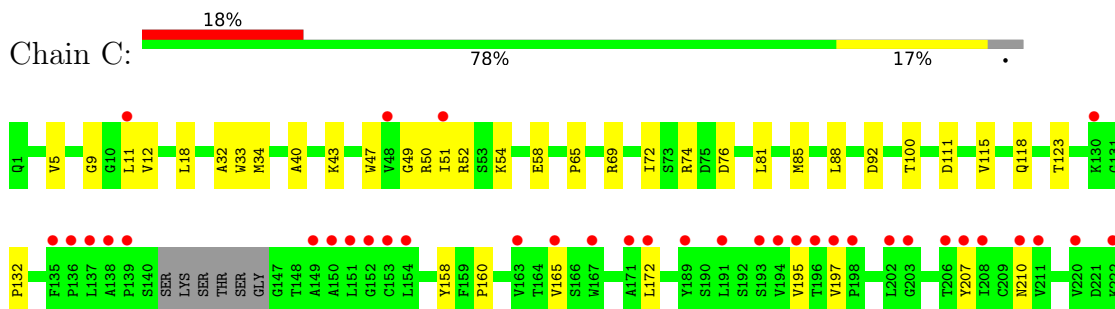
- Molecule 1: BA.2-13 heavy chain

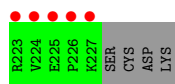


- Molecule 1: BA.2-13 heavy chain

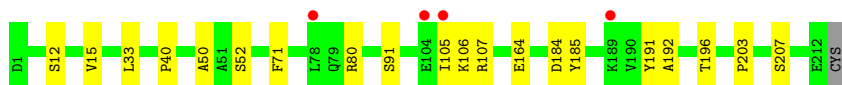
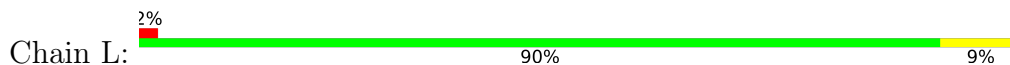


- Molecule 1: BA.2-13 heavy chain

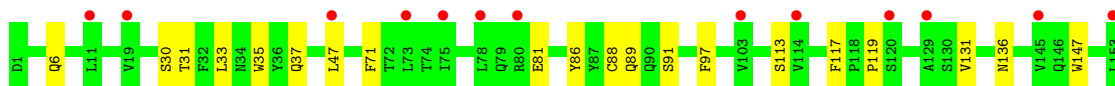
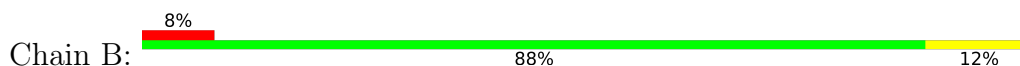




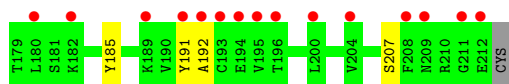
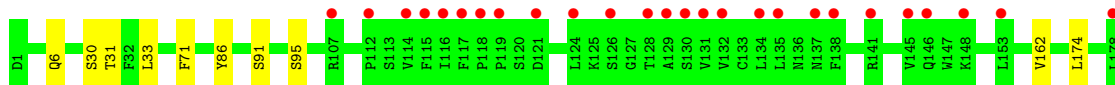
- Molecule 2: BA.2-13 light chain



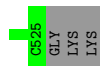
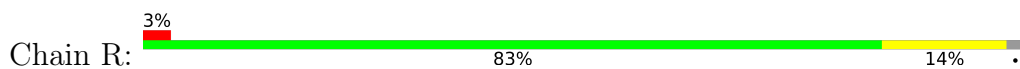
- Molecule 2: BA.2-13 light chain



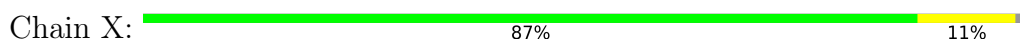
- Molecule 2: BA.2-13 light chain



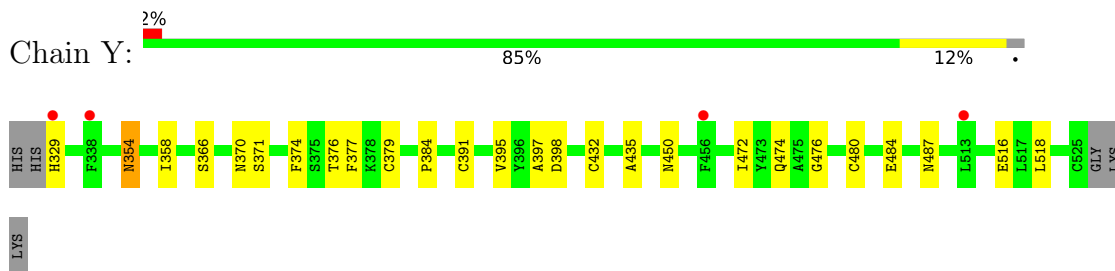
- Molecule 3: Spike protein S1



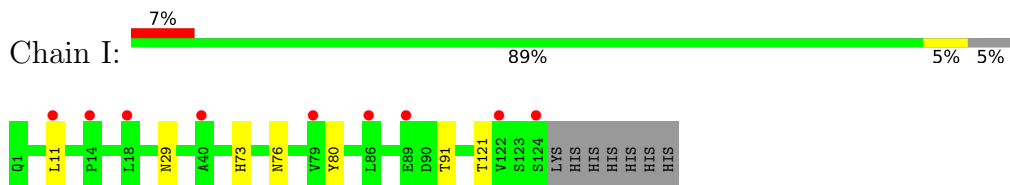
- Molecule 3: Spike protein S1



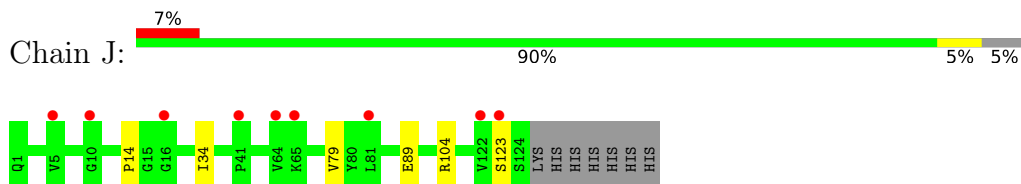
- Molecule 3: Spike protein S1



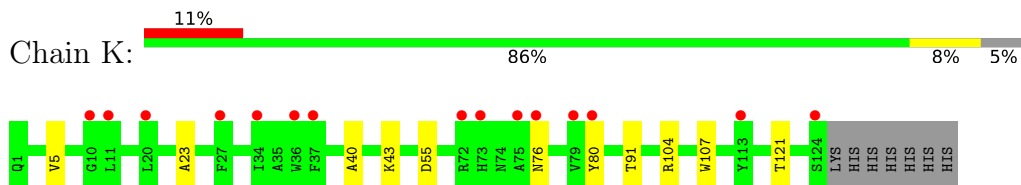
- Molecule 4: Nanobody C1



- Molecule 4: Nanobody C1



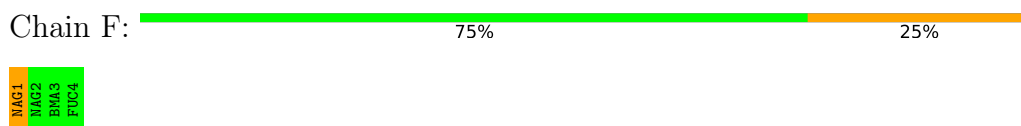
- Molecule 4: Nanobody C1



- Molecule 5: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose



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



- Molecule 7: alpha-D-mannopyranose-(1-6)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	105.92Å 160.82Å 172.46Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	66.87 – 2.74 80.41 – 2.74	Depositor EDS
% Data completeness (in resolution range)	99.8 (66.87-2.74) 99.9 (80.41-2.74)	Depositor EDS
R_{merge}	0.26	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.02 (at 2.73Å)	Xtrriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.216 , 0.258 0.224 , 0.267	Depositor DCC
R_{free} test set	3941 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å ²)	75.3	Xtrriage
Anisotropy	0.167	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 54.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	17807	wwPDB-VP
Average B, all atoms (Å ²)	93.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.53% 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: BMA, GOL, NAG, MAN, FUC, PG0, PG4

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	0.26	0/1725	0.53	0/2352
1	C	0.26	0/1708	0.53	0/2329
1	H	0.26	0/1719	0.52	0/2344
2	B	0.27	0/1650	0.52	0/2234
2	D	0.27	0/1650	0.52	0/2234
2	L	0.27	0/1650	0.53	0/2234
3	R	0.28	0/1624	0.51	0/2208
3	X	0.29	0/1624	0.50	0/2208
3	Y	0.29	0/1624	0.51	0/2208
4	I	0.28	0/990	0.54	0/1347
4	J	0.27	0/990	0.52	0/1347
4	K	0.28	0/990	0.52	0/1347
All	All	0.27	0/17944	0.52	0/24392

There are no bond length outliers.

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	1685	0	1637	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	1668	0	1625	26	0
1	H	1679	0	1632	19	0
2	B	1618	0	1575	14	0
2	D	1618	0	1575	10	0
2	L	1618	0	1575	11	0
3	R	1577	0	1485	18	0
3	X	1577	0	1485	15	0
3	Y	1577	0	1485	19	0
4	I	965	0	906	6	0
4	J	965	0	906	5	0
4	K	965	0	906	7	0
5	E	60	0	52	2	0
6	F	49	0	43	4	0
7	G	60	0	52	5	0
8	A	6	0	8	2	0
8	I	18	0	24	0	0
8	J	12	0	16	3	0
8	K	12	0	16	1	0
8	R	12	0	16	1	0
8	X	12	0	16	0	0
8	Y	12	0	16	1	0
9	J	8	0	12	0	0
9	R	8	0	12	1	0
10	X	13	0	18	4	0
10	Y	13	0	18	5	0
All	All	17807	0	17111	170	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 5.

All (170) 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:A:9:GLY:HA2	1:A:18:LEU:HD21	1.55	0.86
1:C:9:GLY:HA2	1:C:18:LEU:HD21	1.58	0.83
3:X:476:GLY:H	3:X:487:ASN:HB3	1.50	0.76
1:C:11:LEU:HD11	1:C:160:PRO:HG3	1.72	0.72
1:H:9:GLY:HA2	1:H:18:LEU:HD21	1.71	0.72
1:C:69:ARG:NH2	1:C:92:ASP:OD2	2.22	0.71
3:Y:476:GLY:H	3:Y:487:ASN:HB3	1.56	0.69
1:H:85:MET:HB3	1:H:88:LEU:HD21	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:X:518:LEU:HD13	3:Y:518:LEU:HD11	1.75	0.69
1:C:11:LEU:HD23	1:C:123:THR:HB	1.75	0.68
4:J:104:ARG:HH11	8:J:202:GOL:H12	1.59	0.68
2:L:15:VAL:HG22	2:L:105:ILE:HD11	1.76	0.67
2:L:12:SER:HB3	2:L:106:LYS:HE3	1.77	0.66
1:A:69:ARG:NH2	1:A:92:ASP:OD2	2.29	0.65
1:H:49:GLY:HA3	1:H:72:ILE:HD11	1.77	0.65
10:X:603:PG4:H41	6:F:1:NAG:HN2	1.63	0.64
10:Y:603:PG4:H42	7:G:1:NAG:HN2	1.64	0.63
1:C:49:GLY:HA3	1:C:72:ILE:HD11	1.82	0.61
1:C:132:PRO:HB3	1:C:158:TYR:HB3	1.82	0.61
3:X:376:THR:HB	3:X:435:ALA:HB3	1.83	0.61
1:H:132:PRO:HB3	1:H:158:TYR:HB3	1.83	0.60
3:X:357:ARG:NH1	3:Y:516:GLU:OE2	2.34	0.60
2:D:6:GLN:NE2	2:D:86:TYR:O	2.33	0.60
1:C:33:TRP:CH2	1:C:52:ARG:HD2	2.36	0.60
3:R:476:GLY:H	3:R:487:ASN:HB3	1.67	0.60
1:C:34:MET:HB3	1:C:81:LEU:HD22	1.84	0.59
4:I:76:ASN:ND2	4:I:80:TYR:OH	2.33	0.59
3:Y:376:THR:HB	3:Y:435:ALA:HB3	1.85	0.59
4:K:91:THR:HG23	4:K:121:THR:HA	1.85	0.58
1:A:34:MET:HB3	1:A:81:LEU:HD22	1.85	0.58
1:H:34:MET:HB3	1:H:81:LEU:HD22	1.85	0.58
2:L:80:ARG:HH12	2:L:107:ARG:HB3	1.67	0.58
3:Y:450:ASN:HB3	8:Y:602:GOL:H32	1.86	0.58
3:Y:358:ILE:HB	3:Y:395:VAL:HG13	1.85	0.58
3:X:358:ILE:HD11	3:X:397:ALA:HB2	1.85	0.57
4:J:104:ARG:NH1	8:J:202:GOL:H12	2.20	0.57
3:Y:472:ILE:HD12	3:Y:484:GLU:HG3	1.88	0.56
1:H:111:ASP:OD2	3:R:444:LYS:NZ	2.38	0.56
1:H:33:TRP:CH2	1:H:52:ARG:HD2	2.41	0.55
3:R:339:GLY:HA2	5:E:1:NAG:O7	2.05	0.55
1:A:132:PRO:HB3	1:A:158:TYR:HB3	1.88	0.55
2:D:185:TYR:O	2:D:191:TYR:OH	2.24	0.55
1:H:69:ARG:NH2	1:H:92:ASP:OD2	2.41	0.54
2:B:196:THR:HG22	2:B:203:PRO:HB3	1.90	0.54
1:A:54:LYS:HA	1:A:58:GLU:HB2	1.90	0.54
4:K:5:VAL:HB	4:K:23:ALA:HB3	1.89	0.54
2:L:192:ALA:HB2	2:L:207:SER:HB3	1.91	0.53
3:X:375:SER:HA	8:J:202:GOL:H11	1.91	0.53
1:A:49:GLY:HA3	1:A:72:ILE:HD11	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:33:TRP:CH2	1:A:52:ARG:HD2	2.43	0.53
2:B:119:PRO:HD3	2:B:131:VAL:HG22	1.91	0.52
1:C:5:VAL:HG13	1:C:118:GLN:HE22	1.75	0.52
4:I:11:LEU:CD2	4:I:121:THR:HB	2.39	0.51
2:L:40:PRO:HG3	2:L:164:GLU:HG2	1.92	0.51
3:R:450:ASN:HB3	8:R:601:GOL:H11	1.92	0.51
1:A:85:MET:HB3	1:A:88:LEU:HD21	1.92	0.51
1:H:54:LYS:HA	1:H:58:GLU:HB2	1.93	0.51
1:A:213:HIS:CE1	1:A:216:SER:HG	2.26	0.51
1:C:85:MET:HB3	1:C:88:LEU:HD21	1.93	0.51
3:R:358:ILE:HD11	3:R:397:ALA:HB2	1.93	0.50
1:A:74:ARG:HD3	1:A:76:ASP:OD1	2.11	0.50
3:Y:366:SER:O	3:Y:370:ASN:ND2	2.44	0.50
9:R:603:PG0:H42	5:E:1:NAG:HN2	1.74	0.50
2:B:192:ALA:HB2	2:B:207:SER:HB3	1.92	0.50
4:I:73:HIS:HB3	4:I:76:ASN:OD1	2.11	0.49
1:H:5:VAL:HG13	1:H:118:GLN:HE22	1.77	0.49
3:Y:379:CYS:SG	3:Y:384:PRO:HG3	2.53	0.49
1:C:47:TRP:CD2	2:D:95:SER:HB3	2.48	0.49
2:D:33:LEU:HD13	2:D:71:PHE:CD1	2.47	0.49
2:L:33:LEU:HD13	2:L:71:PHE:CG	2.48	0.48
3:Y:379:CYS:HA	3:Y:432:CYS:HA	1.96	0.48
2:D:192:ALA:HB2	2:D:207:SER:HB3	1.96	0.48
1:A:104:ARG:NH2	1:A:114:ASP:OD2	2.44	0.47
3:X:358:ILE:HB	3:X:395:VAL:HG13	1.96	0.47
1:C:33:TRP:CZ2	1:C:52:ARG:HD2	2.50	0.47
4:I:91:THR:HG23	4:I:121:THR:HA	1.95	0.47
10:Y:603:PG4:H51	7:G:1:NAG:HN2	1.78	0.47
1:C:100:THR:HG22	1:C:115:VAL:HB	1.95	0.47
2:L:185:TYR:O	2:L:191:TYR:OH	2.32	0.47
3:X:444:LYS:NZ	1:A:111:ASP:OD2	2.39	0.47
4:K:40:ALA:HB3	4:K:43:LYS:HB2	1.95	0.47
1:H:104:ARG:NH2	1:H:114:ASP:OD2	2.45	0.47
7:G:2:NAG:O3	7:G:4:MAN:H3	2.14	0.47
1:H:75:ASP:HB2	1:H:82:TYR:HE2	1.80	0.47
4:K:76:ASN:ND2	4:K:80:TYR:OH	2.44	0.47
1:A:111:ASP:HB2	2:B:91:SER:OG	2.15	0.47
3:R:519:HIS:O	3:Y:391:CYS:HA	2.15	0.46
2:B:33:LEU:HD13	2:B:71:PHE:CD1	2.51	0.46
4:J:34:ILE:HG13	4:J:79:VAL:HG21	1.96	0.46
3:R:379:CYS:HA	3:R:432:CYS:HA	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:Y:603:PG4:H32	10:Y:603:PG4:H11	1.71	0.46
1:A:197:VAL:HG11	1:A:207:TYR:CE1	2.50	0.46
3:X:379:CYS:SG	3:X:384:PRO:HG3	2.56	0.46
10:X:603:PG4:H52	10:X:603:PG4:H72	1.64	0.46
2:B:30:SER:OG	2:B:31:THR:N	2.47	0.46
3:R:518:LEU:HD22	3:X:518:LEU:HD21	1.97	0.45
2:B:113:SER:HB2	2:B:136:ASN:HB3	1.98	0.45
3:X:339:GLY:HA2	6:F:1:NAG:O7	2.16	0.45
4:I:11:LEU:HD23	4:I:121:THR:HB	1.98	0.45
1:H:100:THR:HG22	1:H:115:VAL:HB	1.97	0.45
1:A:175:GLY:O	1:A:195:VAL:HA	2.16	0.45
2:B:6:GLN:NE2	2:B:86:TYR:O	2.42	0.45
1:C:74:ARG:HD3	1:C:76:ASP:OD1	2.16	0.45
2:L:91:SER:O	2:L:91:SER:OG	2.31	0.45
3:R:431:GLY:HA2	3:R:515:PHE:CE2	2.52	0.45
2:L:196:THR:HG22	2:L:203:PRO:HB3	1.99	0.45
2:D:30:SER:OG	2:D:31:THR:N	2.49	0.45
4:K:107:TRP:CE2	8:K:202:GOL:H12	2.51	0.45
3:Y:358:ILE:HD11	3:Y:397:ALA:HB2	1.99	0.45
1:A:5:VAL:HG13	1:A:118:GLN:HE22	1.82	0.45
2:B:37:GLN:HB2	2:B:47:LEU:HD11	1.99	0.45
1:C:172:LEU:HD21	1:C:195:VAL:HG21	1.99	0.44
1:H:74:ARG:HD3	1:H:76:ASP:OD1	2.17	0.44
3:R:358:ILE:HB	3:R:395:VAL:HG13	2.00	0.44
3:Y:374:PHE:O	4:K:104:ARG:NH1	2.44	0.44
3:Y:474:GLN:HA	3:Y:480:CYS:SG	2.58	0.44
2:D:162:VAL:HG22	2:D:174:LEU:HD12	1.99	0.44
10:X:603:PG4:C4	6:F:1:NAG:HN2	2.30	0.44
3:X:429:PHE:HE1	3:X:514:SER:HB3	1.81	0.44
2:D:33:LEU:HD13	2:D:71:PHE:CG	2.53	0.44
2:B:81:GLU:OE1	2:B:81:GLU:N	2.37	0.44
3:X:474:GLN:HA	3:X:480:CYS:SG	2.58	0.43
1:C:54:LYS:HA	1:C:58:GLU:HB2	1.99	0.43
4:I:29:ASN:HD21	3:Y:329:HIS:CG	2.37	0.43
3:R:391:CYS:HA	3:X:519:HIS:O	2.18	0.43
10:Y:603:PG4:H42	7:G:1:NAG:H3	2.01	0.43
1:A:100:THR:HG22	1:A:115:VAL:HB	2.00	0.43
1:C:197:VAL:HG11	1:C:207:TYR:CE1	2.53	0.43
3:Y:354:ASN:O	3:Y:398:ASP:HA	2.19	0.43
1:C:65:PRO:O	1:C:69:ARG:NH1	2.51	0.43
3:R:429:PHE:HE1	3:R:514:SER:HB3	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:X:338:PHE:CE1	3:X:358:ILE:HD13	2.53	0.42
2:L:50:ALA:O	2:L:52:SER:N	2.51	0.42
3:Y:384:PRO:HD2	4:K:55:ASP:OD2	2.19	0.42
1:A:150:ALA:HB2	1:A:196:THR:HG22	2.01	0.42
1:C:40:ALA:HB3	1:C:43:LYS:HB2	2.00	0.42
7:G:1:NAG:H61	7:G:2:NAG:C7	2.50	0.42
1:H:32:ALA:O	1:H:74:ARG:NH2	2.41	0.42
3:R:366:SER:O	3:R:370:ASN:ND2	2.52	0.42
2:B:89:GLN:HB2	2:B:97:PHE:CD1	2.54	0.42
1:C:32:ALA:O	1:C:74:ARG:NH2	2.37	0.42
2:B:147:TRP:CE2	2:B:178:LEU:HB2	2.55	0.42
1:A:137:LEU:HB3	2:B:117:PHE:CD1	2.54	0.42
1:A:139:PRO:HD3	1:A:151:LEU:HB3	2.01	0.42
1:A:33:TRP:CZ2	1:A:52:ARG:HD2	2.55	0.42
2:B:35:TRP:CZ3	2:B:88:CYS:HB3	2.55	0.42
1:H:11:LEU:HB2	1:H:160:PRO:HG3	2.00	0.42
1:H:101:ASP:CG	1:H:111:ASP:H	2.23	0.42
1:A:55:THR:HB	8:A:301:GOL:H11	2.01	0.41
1:C:51:ILE:HD13	1:C:74:ARG:HB2	2.02	0.41
1:C:111:ASP:HB2	2:D:91:SER:OG	2.20	0.41
1:H:222:LYS:HD2	1:H:222:LYS:HA	1.91	0.41
1:H:33:TRP:CZ2	1:H:52:ARG:HD2	2.54	0.41
3:R:355:ARG:HD3	3:R:396:TYR:CD1	2.54	0.41
3:R:431:GLY:HA3	3:R:513:LEU:O	2.21	0.41
2:L:33:LEU:HD13	2:L:71:PHE:CD1	2.56	0.41
3:R:519:HIS:CD2	3:Y:395:VAL:HG12	2.55	0.41
4:J:89:GLU:H	4:J:89:GLU:HG3	1.61	0.41
3:R:379:CYS:SG	3:R:384:PRO:HG3	2.60	0.41
3:R:478:LYS:HA	3:R:478:LYS:HD3	1.87	0.41
3:Y:371:SER:OG	10:Y:603:PG4:H81	2.20	0.41
1:A:155:VAL:N	1:A:191:LEU:O	2.49	0.41
1:C:47:TRP:CG	2:D:95:SER:HB3	2.55	0.41
1:C:47:TRP:HZ2	1:C:50:ARG:HB3	1.85	0.40
1:C:165:VAL:HA	1:C:210:ASN:O	2.21	0.40
1:A:56:ASP:OD2	8:A:301:GOL:H12	2.21	0.40
1:A:125:SER:HB3	1:A:159:PHE:HZ	1.87	0.40
1:C:12:VAL:HG11	1:C:88:LEU:HD13	2.02	0.40
10:X:603:PG4:H41	6:F:1:NAG:N2	2.33	0.40
4:J:14:PRO:HD3	4:J:123:SER:O	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	220/231 (95%)	214 (97%)	6 (3%)	0	100	100
1	C	217/231 (94%)	212 (98%)	5 (2%)	0	100	100
1	H	219/231 (95%)	214 (98%)	5 (2%)	0	100	100
2	B	210/213 (99%)	201 (96%)	9 (4%)	0	100	100
2	D	210/213 (99%)	202 (96%)	8 (4%)	0	100	100
2	L	210/213 (99%)	201 (96%)	9 (4%)	0	100	100
3	R	195/202 (96%)	183 (94%)	12 (6%)	0	100	100
3	X	195/202 (96%)	183 (94%)	12 (6%)	0	100	100
3	Y	195/202 (96%)	187 (96%)	8 (4%)	0	100	100
4	I	122/131 (93%)	121 (99%)	1 (1%)	0	100	100
4	J	122/131 (93%)	121 (99%)	1 (1%)	0	100	100
4	K	122/131 (93%)	121 (99%)	1 (1%)	0	100	100
All	All	2237/2331 (96%)	2160 (97%)	77 (3%)	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	186/194 (96%)	186 (100%)	0	100	100
1	C	184/194 (95%)	184 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	H	185/194 (95%)	185 (100%)	0	100	100
2	B	185/186 (100%)	185 (100%)	0	100	100
2	D	185/186 (100%)	185 (100%)	0	100	100
2	L	185/186 (100%)	184 (100%)	1 (0%)	88	92
3	R	171/175 (98%)	166 (97%)	5 (3%)	42	62
3	X	171/175 (98%)	169 (99%)	2 (1%)	71	83
3	Y	171/175 (98%)	169 (99%)	2 (1%)	71	83
4	I	103/110 (94%)	103 (100%)	0	100	100
4	J	103/110 (94%)	103 (100%)	0	100	100
4	K	103/110 (94%)	103 (100%)	0	100	100
All	All	1932/1995 (97%)	1922 (100%)	10 (0%)	88	92

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

Mol	Chain	Res	Type
2	L	184	ASP
3	R	354	ASN
3	R	377	PHE
3	R	403	ARG
3	R	484	GLU
3	R	489	TYR
3	X	354	ASN
3	X	403	ARG
3	Y	354	ASN
3	Y	377	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
4	I	29	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

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
5	NAG	E	1	3,5	14,14,15	0.52	0	17,19,21	0.62	0
5	NAG	E	2	5	14,14,15	1.02	1 (7%)	17,19,21	0.99	2 (11%)
5	BMA	E	3	5	11,11,12	1.54	2 (18%)	15,15,17	1.53	3 (20%)
5	MAN	E	4	5	11,11,12	1.07	1 (9%)	15,15,17	1.21	2 (13%)
5	FUC	E	5	5	10,10,11	0.87	0	14,14,16	0.63	0
6	NAG	F	1	3,6	14,14,15	0.76	1 (7%)	17,19,21	0.49	0
6	NAG	F	2	6	14,14,15	0.49	0	17,19,21	0.46	0
6	BMA	F	3	6	11,11,12	1.05	0	15,15,17	0.90	0
6	FUC	F	4	6	10,10,11	0.90	0	14,14,16	0.69	0
7	NAG	G	1	3,7	14,14,15	0.75	1 (7%)	17,19,21	0.57	0
7	NAG	G	2	7	14,14,15	0.45	0	17,19,21	0.53	0
7	BMA	G	3	7	11,11,12	0.97	1 (9%)	15,15,17	1.41	3 (20%)
7	MAN	G	4	7	11,11,12	1.02	1 (9%)	15,15,17	1.15	2 (13%)
7	FUC	G	5	7	10,10,11	0.97	1 (10%)	14,14,16	0.63	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
5	NAG	E	1	3,5	-	0/6/23/26	0/1/1/1
5	NAG	E	2	5	-	2/6/23/26	0/1/1/1
5	BMA	E	3	5	-	0/2/19/22	0/1/1/1
5	MAN	E	4	5	-	0/2/19/22	0/1/1/1

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

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	2	NAG	O5-C1	-3.57	1.38	1.43
5	E	3	BMA	C4-C3	3.18	1.60	1.52
5	E	3	BMA	C4-C5	2.81	1.58	1.53
5	E	4	MAN	C1-C2	2.68	1.58	1.52
6	F	1	NAG	C1-C2	2.56	1.56	1.52
7	G	4	MAN	O5-C5	2.45	1.48	1.43
7	G	3	BMA	C4-C3	2.36	1.58	1.52
7	G	1	NAG	O5-C1	-2.34	1.40	1.43
7	G	5	FUC	C2-C3	2.09	1.55	1.52

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	E	3	BMA	C1-C2-C3	-3.61	105.23	109.67
5	E	4	MAN	C1-C2-C3	2.40	112.62	109.67
7	G	3	BMA	O6-C6-C5	-2.39	103.08	111.29
5	E	2	NAG	C3-C4-C5	2.36	114.44	110.24
7	G	3	BMA	C1-C2-C3	-2.36	106.77	109.67
7	G	4	MAN	C1-O5-C5	2.31	115.32	112.19
5	E	2	NAG	O4-C4-C3	-2.29	105.05	110.35
5	E	3	BMA	C3-C4-C5	2.14	114.06	110.24
5	E	4	MAN	O5-C1-C2	2.12	114.04	110.77
7	G	4	MAN	O2-C2-C1	2.07	113.39	109.15
7	G	3	BMA	O5-C1-C2	-2.06	107.59	110.77
5	E	3	BMA	O3-C3-C4	2.02	115.03	110.35

There are no chirality outliers.

All (8) torsion outliers are listed below:

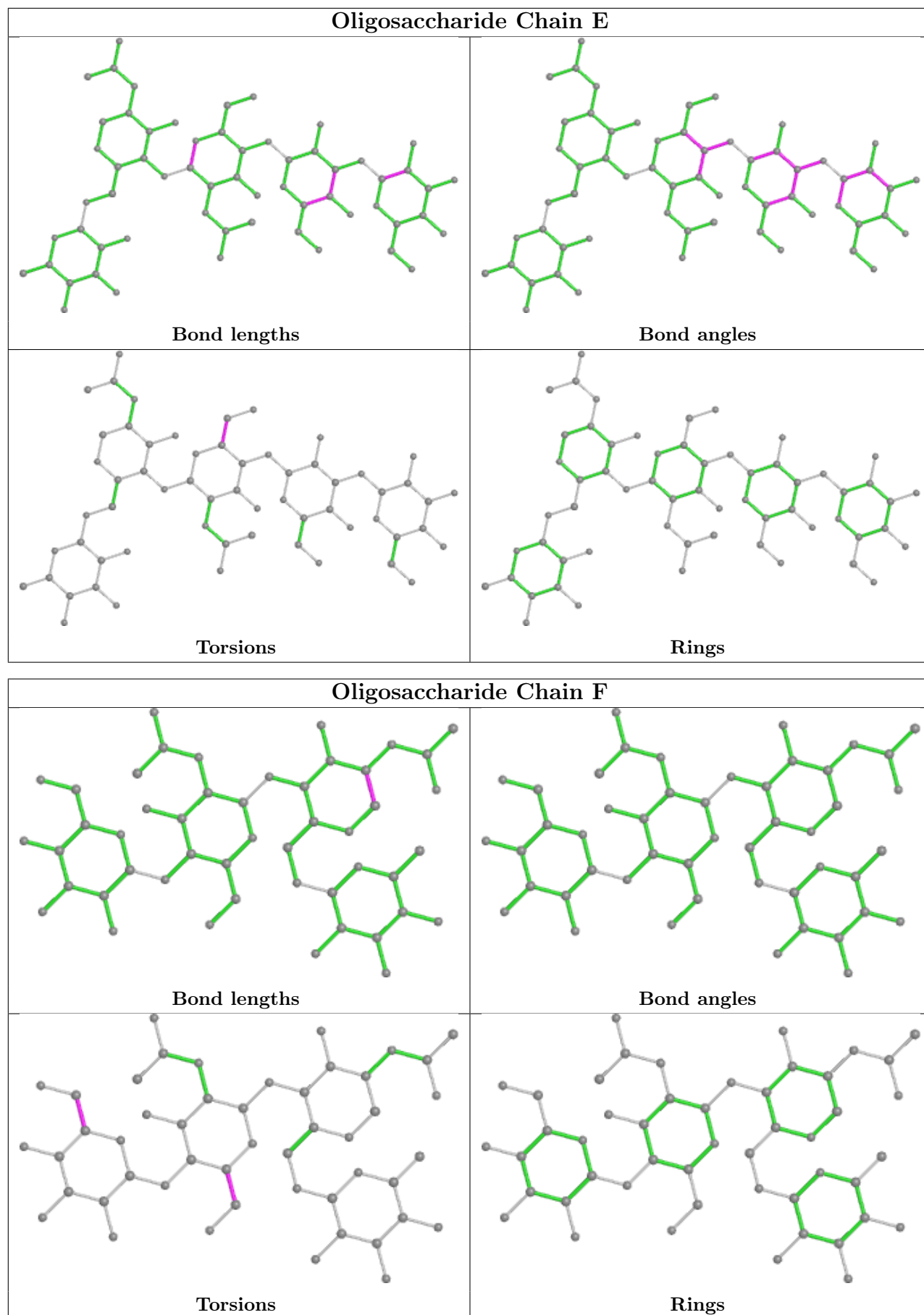
Mol	Chain	Res	Type	Atoms
5	E	2	NAG	O5-C5-C6-O6
5	E	2	NAG	C4-C5-C6-O6
7	G	2	NAG	O5-C5-C6-O6
7	G	2	NAG	C4-C5-C6-O6
6	F	2	NAG	O5-C5-C6-O6
6	F	2	NAG	C4-C5-C6-O6
6	F	3	BMA	C4-C5-C6-O6
6	F	3	BMA	O5-C5-C6-O6

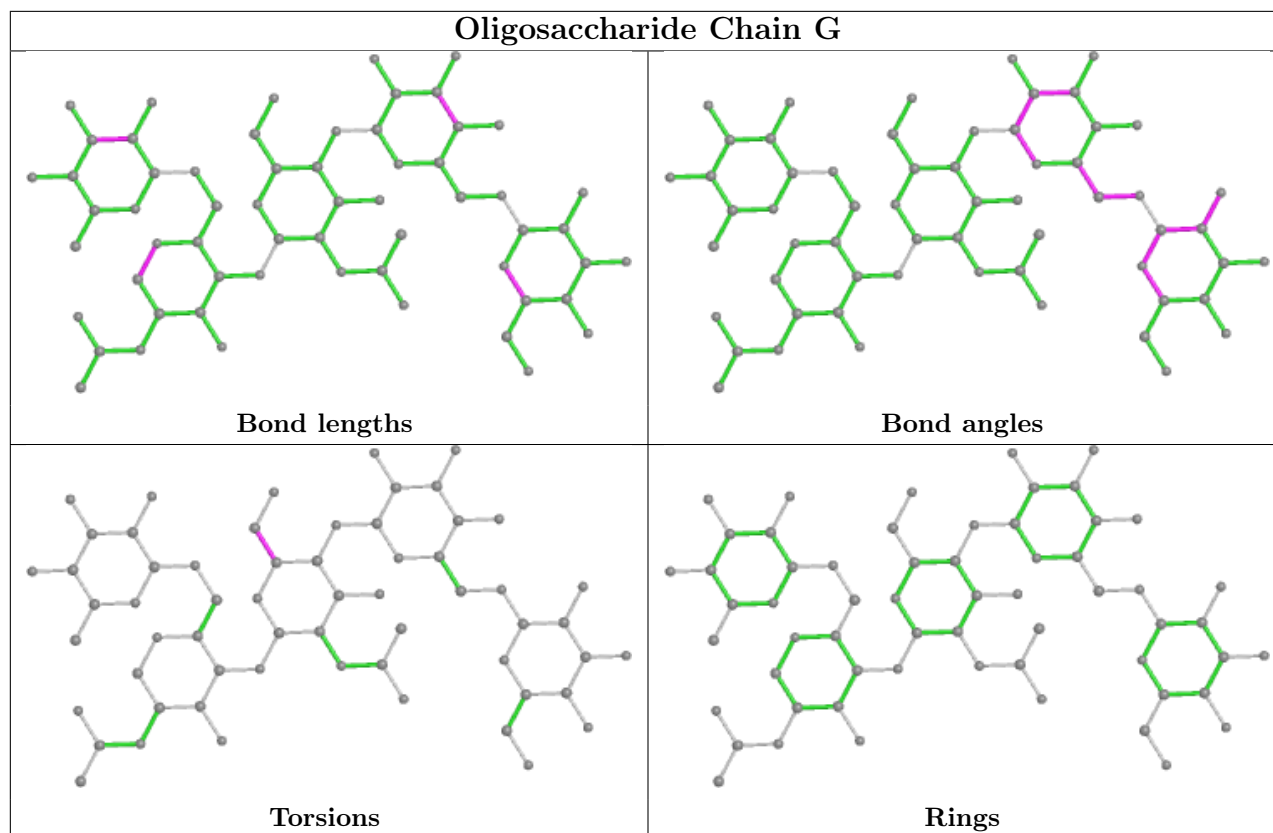
There are no ring outliers.

5 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	G	2	NAG	2	0
7	G	1	NAG	4	0
7	G	4	MAN	1	0
5	E	1	NAG	2	0
6	F	1	NAG	4	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](#)

18 ligands 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	$\# Z > 2$
8	GOL	I	201	-	5,5,5	0.65	0	5,5,5	1.06	0
8	GOL	J	201	-	5,5,5	0.62	0	5,5,5	1.07	0
10	PG4	X	603	-	12,12,12	0.20	0	11,11,11	0.70	0
8	GOL	R	601	-	5,5,5	0.76	0	5,5,5	1.12	0
8	GOL	K	202	-	5,5,5	0.64	0	5,5,5	1.08	0
8	GOL	A	301	-	5,5,5	0.92	0	5,5,5	1.14	0
9	PG0	R	603	-	7,7,7	0.27	0	6,6,6	0.23	0
9	PG0	J	203	-	7,7,7	0.27	0	6,6,6	0.20	0
10	PG4	Y	603	-	12,12,12	0.21	0	11,11,11	0.69	0
8	GOL	Y	602	-	5,5,5	0.72	0	5,5,5	1.10	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	GOL	I	202	-	5,5,5	0.67	0	5,5,5	1.05	0
8	GOL	X	602	-	5,5,5	0.61	0	5,5,5	1.08	0
8	GOL	K	201	-	5,5,5	0.58	0	5,5,5	1.13	0
8	GOL	J	202	-	5,5,5	0.72	0	5,5,5	1.05	0
8	GOL	I	203	-	5,5,5	0.63	0	5,5,5	1.16	1 (20%)
8	GOL	Y	601	-	5,5,5	0.57	0	5,5,5	1.07	0
8	GOL	X	601	-	5,5,5	0.77	0	5,5,5	1.11	1 (20%)
8	GOL	R	602	-	5,5,5	0.85	0	5,5,5	1.11	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
8	GOL	I	201	-	-	0/4/4/4	-
8	GOL	J	201	-	-	0/4/4/4	-
10	PG4	X	603	-	-	5/10/10/10	-
8	GOL	R	601	-	-	4/4/4/4	-
8	GOL	K	202	-	-	1/4/4/4	-
8	GOL	A	301	-	-	0/4/4/4	-
9	PG0	R	603	-	-	4/5/5/5	-
9	PG0	J	203	-	-	2/5/5/5	-
10	PG4	Y	603	-	-	8/10/10/10	-
8	GOL	Y	602	-	-	2/4/4/4	-
8	GOL	I	202	-	-	0/4/4/4	-
8	GOL	X	602	-	-	2/4/4/4	-
8	GOL	K	201	-	-	0/4/4/4	-
8	GOL	J	202	-	-	2/4/4/4	-
8	GOL	I	203	-	-	2/4/4/4	-
8	GOL	Y	601	-	-	2/4/4/4	-
8	GOL	X	601	-	-	4/4/4/4	-
8	GOL	R	602	-	-	0/4/4/4	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	I	203	GOL	C3-C2-C1	-2.11	103.48	111.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	X	601	GOL	C3-C2-C1	-2.01	103.88	111.70

There are no chirality outliers.

All (38) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	R	601	GOL	O1-C1-C2-C3
8	I	203	GOL	C1-C2-C3-O3
8	X	601	GOL	C1-C2-C3-O3
8	X	602	GOL	O1-C1-C2-C3
8	J	202	GOL	C1-C2-C3-O3
8	Y	601	GOL	O1-C1-C2-C3
8	Y	602	GOL	O1-C1-C2-C3
9	J	203	PG0	O1-C3-C4-O2
10	Y	603	PG4	O2-C3-C4-O3
8	X	601	GOL	O2-C2-C3-O3
9	R	603	PG0	OTT-C1-C2-O1
8	R	601	GOL	C1-C2-C3-O3
8	I	203	GOL	O2-C2-C3-O3
8	J	202	GOL	O2-C2-C3-O3
8	Y	601	GOL	O1-C1-C2-O2
8	Y	602	GOL	O1-C1-C2-O2
10	Y	603	PG4	O1-C1-C2-O2
10	X	603	PG4	O4-C7-C8-O5
10	Y	603	PG4	O4-C7-C8-O5
8	R	601	GOL	O1-C1-C2-O2
8	X	602	GOL	O1-C1-C2-O2
9	R	603	PG0	C1-C2-O1-C3
9	R	603	PG0	O1-C3-C4-O2
10	X	603	PG4	O1-C1-C2-O2
8	X	601	GOL	O1-C1-C2-O2
10	X	603	PG4	O2-C3-C4-O3
10	Y	603	PG4	C3-C4-O3-C5
10	Y	603	PG4	C6-C5-O3-C4
10	Y	603	PG4	C5-C6-O4-C7
10	Y	603	PG4	C1-C2-O2-C3
8	R	601	GOL	O2-C2-C3-O3
8	K	202	GOL	O1-C1-C2-O2
9	J	203	PG0	C3-C4-O2-C5
10	X	603	PG4	C4-C3-O2-C2
10	X	603	PG4	C5-C6-O4-C7
9	R	603	PG0	C4-C3-O1-C2

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Mol	Chain	Res	Type	Atoms
8	X	601	GOL	O1-C1-C2-C3
10	Y	603	PG4	C8-C7-O4-C6

There are no ring outliers.

8 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
10	X	603	PG4	4	0
8	R	601	GOL	1	0
8	K	202	GOL	1	0
8	A	301	GOL	2	0
9	R	603	PG0	1	0
10	Y	603	PG4	5	0
8	Y	602	GOL	1	0
8	J	202	GOL	3	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, 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	224/231 (96%)	0.88	35 (15%) 2 2	59, 105, 166, 180	0
1	C	221/231 (95%)	1.13	42 (19%) 1 1	62, 89, 162, 182	0
1	H	223/231 (96%)	0.33	3 (1%) 77 82	65, 86, 129, 180	0
2	B	212/213 (99%)	0.73	18 (8%) 10 12	65, 95, 143, 166	0
2	D	212/213 (99%)	1.03	41 (19%) 1 1	66, 116, 165, 198	0
2	L	212/213 (99%)	0.44	4 (1%) 66 73	66, 89, 114, 170	0
3	R	197/202 (97%)	0.47	6 (3%) 50 57	56, 70, 128, 190	0
3	X	197/202 (97%)	0.34	0 100 100	53, 65, 94, 114	0
3	Y	197/202 (97%)	0.43	4 (2%) 65 72	55, 68, 92, 124	0
4	I	124/131 (94%)	0.55	9 (7%) 15 17	66, 95, 132, 142	0
4	J	124/131 (94%)	0.61	9 (7%) 15 17	61, 99, 141, 175	0
4	K	124/131 (94%)	0.81	15 (12%) 4 4	71, 113, 147, 188	0
All	All	2267/2331 (97%)	0.65	186 (8%) 11 13	53, 86, 152, 198	0

All (186) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	207	TYR	10.4
1	C	208	ILE	8.4
1	C	224	VAL	8.0
1	A	167	TRP	7.8
1	A	224	VAL	7.6
1	C	151	LEU	7.2
1	C	197	VAL	6.8
1	C	223	ARG	6.8
1	C	225	GLU	6.4
1	C	206	THR	5.9
1	C	152	GLY	5.9

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Mol	Chain	Res	Type	RSRZ
1	C	220	VAL	5.8
1	C	154	LEU	5.7
2	D	193	CYS	5.5
2	D	192	ALA	5.3
1	C	202	LEU	5.2
1	A	204	THR	5.2
2	D	153	LEU	5.1
1	C	139	PRO	5.0
2	B	178	LEU	4.9
1	C	191	LEU	4.9
2	D	211	GLY	4.8
1	C	227	LYS	4.8
2	D	114	VAL	4.6
1	A	165	VAL	4.6
1	C	172	LEU	4.5
4	K	76	ASN	4.4
2	D	132	VAL	4.4
2	D	128	THR	4.4
1	C	153	CYS	4.4
1	C	137	LEU	4.4
2	B	80	ARG	4.3
2	D	119	PRO	4.3
1	A	222	LYS	4.3
1	C	135	PHE	4.3
1	A	208	ILE	4.3
4	K	72	ARG	4.3
2	D	180	LEU	4.2
2	D	118	PRO	4.2
2	D	124	LEU	4.2
2	D	200	LEU	4.2
2	D	146	GLN	4.2
4	I	122	VAL	4.2
4	K	75	ALA	4.2
4	J	5	VAL	4.2
2	D	209	ASN	4.1
1	C	150	ALA	4.1
2	D	194	GLU	4.1
1	A	221	ASP	4.0
1	A	211	VAL	4.0
2	D	115	PHE	4.0
2	B	180	LEU	3.9
4	K	73	HIS	3.9

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Mol	Chain	Res	Type	RSRZ
1	A	223	ARG	3.9
2	B	19	VAL	3.7
2	D	208	PHE	3.7
1	C	136	PRO	3.6
1	A	130	LYS	3.6
2	D	112	PRO	3.6
2	B	179	THR	3.5
1	A	227	LYS	3.5
2	D	117	PHE	3.5
1	A	189	TYR	3.5
4	K	124	SER	3.5
2	D	145	VAL	3.5
1	C	165	VAL	3.4
2	D	121	ASP	3.4
2	D	195	VAL	3.4
1	A	159	PHE	3.4
3	R	486	PHE	3.2
1	A	191	LEU	3.2
1	C	196	THR	3.2
1	C	222	LYS	3.2
1	A	135	PHE	3.1
2	B	129	ALA	3.1
1	A	220	VAL	3.1
1	A	188	LEU	3.1
4	K	11	LEU	3.1
1	A	172	LEU	3.0
2	D	131	VAL	3.0
2	B	212	GLU	3.0
1	A	151	LEU	3.0
1	C	193	SER	3.0
2	D	212	GLU	2.9
1	A	154	LEU	2.9
2	B	103	VAL	2.9
1	A	134	VAL	2.9
1	A	218	THR	2.8
1	A	207	TYR	2.8
1	A	219	LYS	2.8
1	A	132	PRO	2.8
4	J	10	GLY	2.8
3	Y	329	HIS	2.8
1	C	195	VAL	2.7
1	C	138	ALA	2.7

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Mol	Chain	Res	Type	RSRZ
2	D	204	VAL	2.6
2	D	148	LYS	2.6
1	A	136	PRO	2.6
1	C	226	PRO	2.6
2	D	182	LYS	2.6
3	R	478	LYS	2.6
4	K	10	GLY	2.6
1	C	149	ALA	2.6
2	B	153	LEU	2.6
1	H	141	SER	2.6
1	A	206	THR	2.5
4	J	81	LEU	2.5
4	I	86	LEU	2.5
1	C	171	ALA	2.5
1	C	203	GLY	2.5
1	C	130	LYS	2.5
4	K	80	TYR	2.5
2	D	189	LYS	2.5
4	J	16	GLY	2.5
1	C	11	LEU	2.5
2	L	105	ILE	2.5
2	D	135	LEU	2.5
4	K	79	VAL	2.5
1	C	189	TYR	2.5
3	R	481	ASN	2.5
2	D	129	ALA	2.4
2	B	47	LEU	2.4
1	C	167	TRP	2.4
4	K	20	LEU	2.4
1	A	194	VAL	2.4
4	I	40	ALA	2.3
2	D	116	ILE	2.3
1	A	149	ALA	2.3
2	B	73	LEU	2.3
1	C	198	PRO	2.3
1	C	163	VAL	2.3
2	D	107	ARG	2.3
4	I	11	LEU	2.3
1	C	51	ILE	2.3
1	C	211	VAL	2.3
2	D	191	TYR	2.2
4	K	27	PHE	2.2

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Mol	Chain	Res	Type	RSRZ
4	J	122	VAL	2.2
1	C	210	ASN	2.2
2	L	104	GLU	2.2
2	D	130	SER	2.2
4	K	36	TRP	2.2
3	Y	456	PHE	2.2
4	I	124	SER	2.2
2	L	78	LEU	2.2
2	D	196	THR	2.2
4	J	65	LYS	2.2
1	A	168	ASN	2.2
1	C	194	VAL	2.2
3	R	479	PRO	2.2
1	H	150	ALA	2.2
1	A	203	GLY	2.2
1	A	31	TYR	2.2
2	B	75	ILE	2.2
2	D	126	SER	2.1
4	K	113	TYR	2.1
1	A	183	LEU	2.1
2	B	11	LEU	2.1
4	I	14	PRO	2.1
3	R	489	TYR	2.1
4	J	123	SER	2.1
2	D	138	PHE	2.1
2	B	145	VAL	2.1
4	K	34	ILE	2.1
4	K	37	PHE	2.1
1	H	202	LEU	2.1
2	B	78	LEU	2.1
4	I	89	GLU	2.1
2	D	134	LEU	2.1
4	J	64	VAL	2.1
2	B	209	ASN	2.1
3	Y	338	PHE	2.1
2	B	114	VAL	2.1
4	I	18	LEU	2.1
4	J	41	PRO	2.1
2	B	120	SER	2.1
3	R	335	LEU	2.0
1	A	139	PRO	2.0
3	Y	513	LEU	2.0

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Mol	Chain	Res	Type	RSRZ
1	C	48	VAL	2.0
2	D	141	ARG	2.0
4	I	79	VAL	2.0
2	L	189	LYS	2.0
2	D	137	ASN	2.0
1	A	202	LEU	2.0
2	D	178	LEU	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](#)

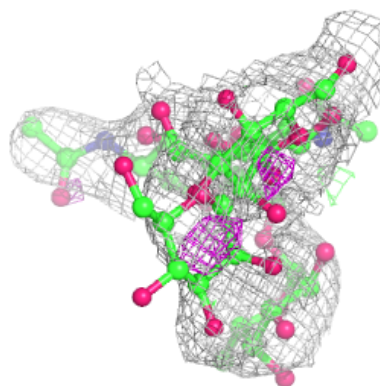
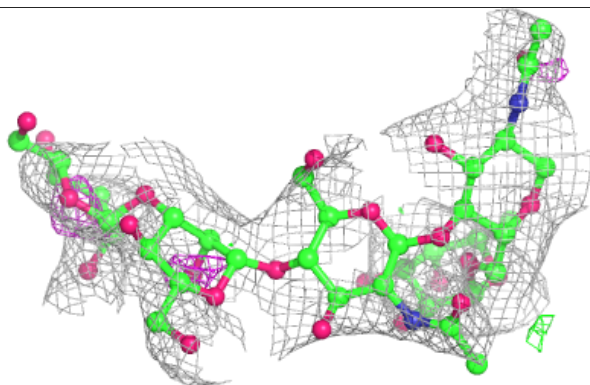
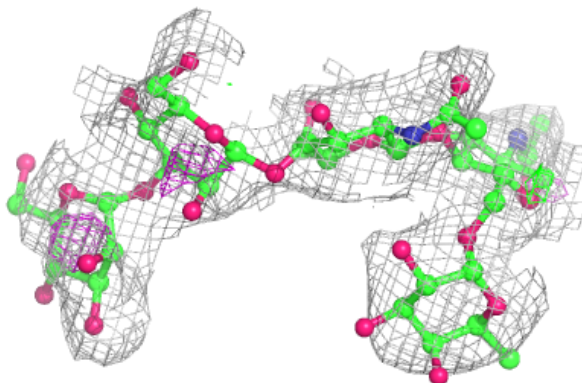
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
7	BMA	G	3	11/12	0.57	0.26	127,130,132,135	0
5	BMA	E	3	11/12	0.60	0.19	129,134,139,139	0
5	MAN	E	4	11/12	0.62	0.34	134,143,146,146	0
6	BMA	F	3	11/12	0.76	0.14	124,127,131,133	0
6	FUC	F	4	10/11	0.82	0.35	115,121,125,127	0
7	MAN	G	4	11/12	0.83	0.21	125,132,137,138	0
5	NAG	E	2	14/15	0.84	0.17	117,121,130,135	0
7	NAG	G	2	14/15	0.85	0.18	106,112,118,124	0
5	FUC	E	5	10/11	0.87	0.19	112,123,126,130	0
6	NAG	F	2	14/15	0.88	0.21	112,117,125,128	0
5	NAG	E	1	14/15	0.89	0.20	75,97,117,120	0
7	FUC	G	5	10/11	0.91	0.16	107,115,118,118	0
7	NAG	G	1	14/15	0.92	0.18	80,90,105,107	0
6	NAG	F	1	14/15	0.94	0.17	78,92,112,120	0

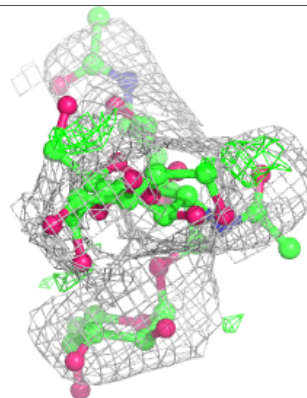
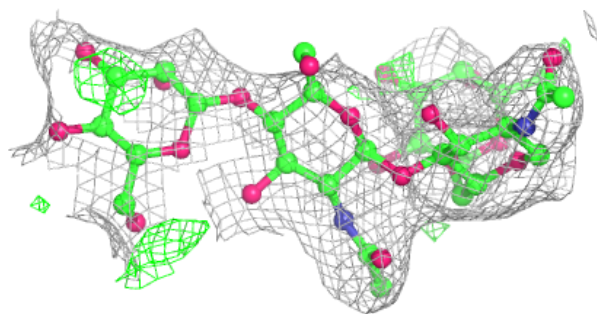
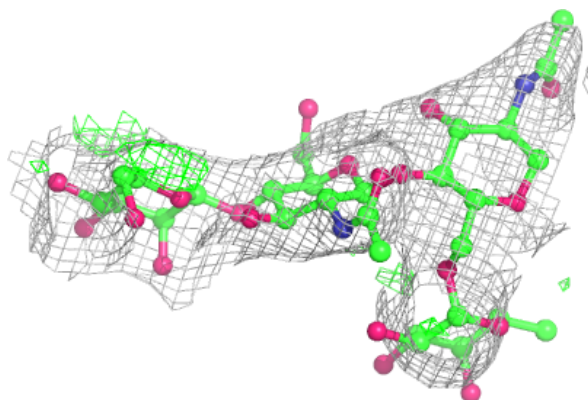
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

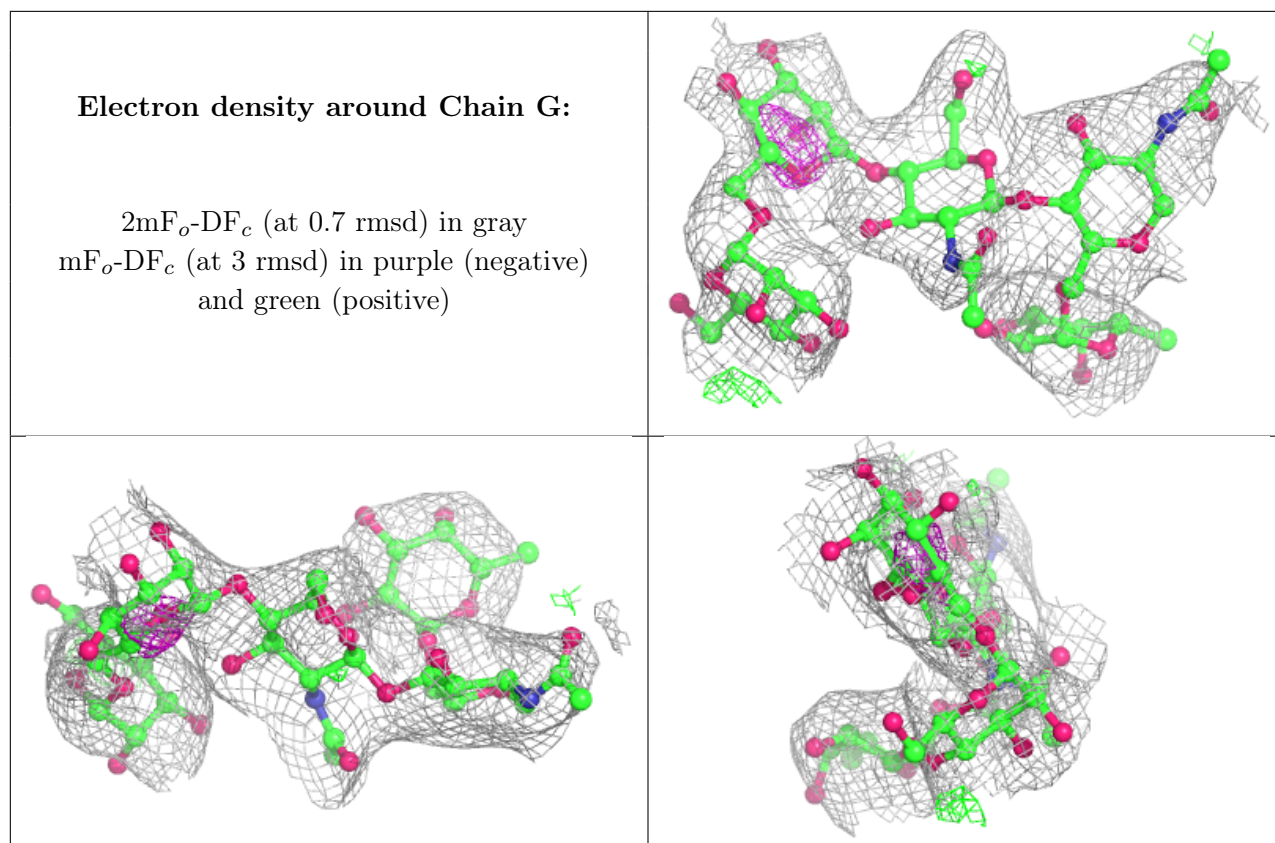
Electron density around Chain E:

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

**Electron density around Chain F:**

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





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
8	GOL	J	202	6/6	0.74	0.38	73,78,82,84	0
9	PG0	R	603	8/8	0.77	0.20	63,72,76,77	0
8	GOL	K	202	6/6	0.79	0.26	77,77,78,83	0
9	PG0	J	203	8/8	0.81	0.36	60,73,76,81	0
8	GOL	X	602	6/6	0.82	0.28	70,74,77,86	0
8	GOL	J	201	6/6	0.82	0.30	82,85,87,93	0
8	GOL	I	201	6/6	0.83	0.42	78,79,84,87	0
10	PG4	X	603	13/13	0.84	0.38	61,88,99,103	0
8	GOL	Y	601	6/6	0.88	0.23	61,69,70,71	0
8	GOL	R	602	6/6	0.88	0.24	64,69,70,71	0
8	GOL	A	301	6/6	0.88	0.45	65,69,76,90	0
10	PG4	Y	603	13/13	0.89	0.29	56,85,100,122	0
8	GOL	K	201	6/6	0.90	0.26	85,86,94,108	0
8	GOL	I	203	6/6	0.92	0.22	82,83,87,87	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
8	GOL	R	601	6/6	0.92	0.20	66,68,71,71	0
8	GOL	I	202	6/6	0.92	0.18	72,79,81,85	0
8	GOL	Y	602	6/6	0.94	0.23	63,64,67,74	0
8	GOL	X	601	6/6	0.94	0.26	61,63,66,70	0

6.5 Other polymers [i](#)

There are no such residues in this entry.