WORLDWIDE PDB PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report (i)

Sep 12, 2023 – 08:05 AM EDT

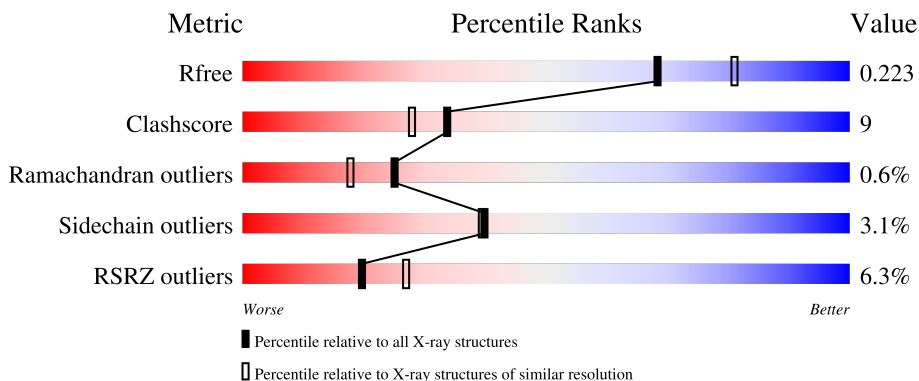|		
PDB ID	:	4ONT
Title	:	Ternary host recognition complex of complement factor H, C3d, and sialic acid
Authors	:	Blaum, B.S.; Stehle, T.S.
Deposited on	:	2014-01-29
Resolution	:	2.15 Å(reported)

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 2.15 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.
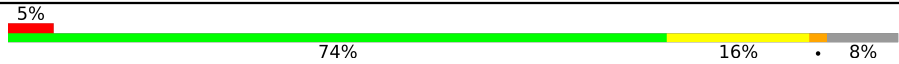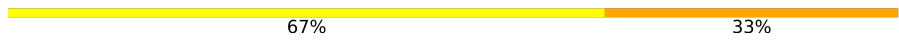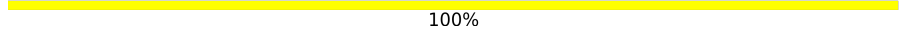
Metric	Percentile Ranks	Value
Rfree		0.223
Clashscore		9
Ramachandran outliers		0.6%
Sidechain outliers		3.1%
RSRZ outliers		6.3%

Worse ——— *Better*

▮ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1479 (2.16-2.16)
Clashscore	141614	1585 (2.16-2.16)
Ramachandran outliers	138981	1560 (2.16-2.16)
Sidechain outliers	138945	1559 (2.16-2.16)
RSRZ outliers	127900	1456 (2.16-2.16)

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	D	129	81% 17% •
1	E	129	3% 82% 16% •
1	F	129	43% 57% 35% • • •
2	A	317	% 81% 11% • 7%
2	B	317	75% 16% • 8%

Continued from previous page...

Mol	Chain	Length	Quality of chain
2	C	317	5% ... 74% ... 16% ... 8%
3	G	3	67% ... 33%
3	H	3	33% ... 67%
3	I	3	100%

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 10510 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 Complement factor H.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	F	124	Total	C	N	O	S	0	0	0
			944	595	164	176	9			
1	D	126	Total	C	N	O	S	0	0	0
			997	624	179	185	9			
1	E	126	Total	C	N	O	S	0	2	0
			1004	628	179	188	9			

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	1103	GLU	-	expression tag	UNP P08603
D	1104	ALA	-	expression tag	UNP P08603
D	1105	GLU	-	expression tag	UNP P08603
D	1106	PHE	-	expression tag	UNP P08603
E	1103	GLU	-	expression tag	UNP P08603
E	1104	ALA	-	expression tag	UNP P08603
E	1105	GLU	-	expression tag	UNP P08603
E	1106	PHE	-	expression tag	UNP P08603
F	1103	GLU	-	expression tag	UNP P08603
F	1104	ALA	-	expression tag	UNP P08603
F	1105	GLU	-	expression tag	UNP P08603
F	1106	PHE	-	expression tag	UNP P08603

- Molecule 2 is a protein called Complement C3d fragment.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	A	295	Total	C	N	O	S	0	3	0
			2356	1512	396	439	9			
2	B	292	Total	C	N	O	S	0	0	0
			2287	1468	380	430	9			
2	C	292	Total	C	N	O	S	0	0	0
			2262	1460	374	419	9			

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-6	GLY	-	expression tag	UNP P01024
A	-5	PRO	-	expression tag	UNP P01024
A	-4	LEU	-	expression tag	UNP P01024
A	-3	GLY	-	expression tag	UNP P01024
A	-2	SER	-	expression tag	UNP P01024
A	-1	PRO	-	expression tag	UNP P01024
A	0	GLU	-	expression tag	UNP P01024
A	1	PHE	-	expression tag	UNP P01024
A	2	ARG	-	expression tag	UNP P01024
A	17	ALA	CYS	engineered mutation	UNP P01024
B	-6	GLY	-	expression tag	UNP P01024
B	-5	PRO	-	expression tag	UNP P01024
B	-4	LEU	-	expression tag	UNP P01024
B	-3	GLY	-	expression tag	UNP P01024
B	-2	SER	-	expression tag	UNP P01024
B	-1	PRO	-	expression tag	UNP P01024
B	0	GLU	-	expression tag	UNP P01024
B	1	PHE	-	expression tag	UNP P01024
B	2	ARG	-	expression tag	UNP P01024
B	17	ALA	CYS	engineered mutation	UNP P01024
C	-6	GLY	-	expression tag	UNP P01024
C	-5	PRO	-	expression tag	UNP P01024
C	-4	LEU	-	expression tag	UNP P01024
C	-3	GLY	-	expression tag	UNP P01024
C	-2	SER	-	expression tag	UNP P01024
C	-1	PRO	-	expression tag	UNP P01024
C	0	GLU	-	expression tag	UNP P01024
C	1	PHE	-	expression tag	UNP P01024
C	2	ARG	-	expression tag	UNP P01024
C	17	ALA	CYS	engineered mutation	UNP P01024

- Molecule 3 is an oligosaccharide called N-acetyl-alpha-neuraminic acid-(2-3)-beta-D-galacto pyranose-(1-4)-beta-D-glucopyranose.
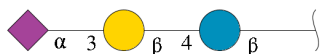
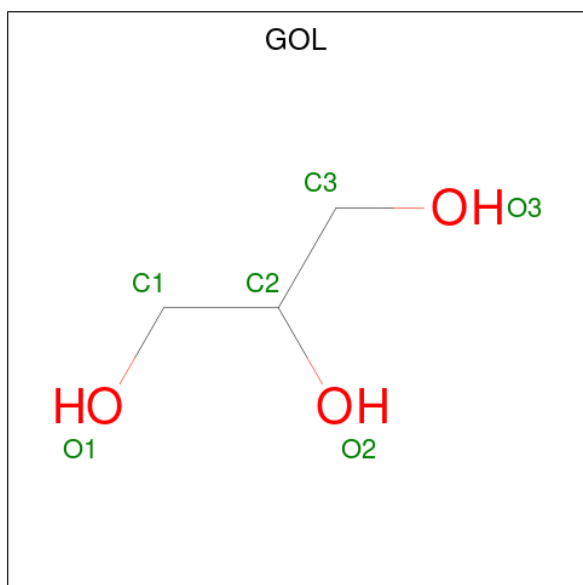| Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	G	3	Total	C	N	O	0	0	0
			43	23	1	19			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	H	3	Total 43	C 23	N 1	O 19	0	0	0
3	I	3	Total 43	C 23	N 1	O 19	0	0	0

- Molecule 4 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 6	C 3	O 3	0	0
4	B	1	Total 6	C 3	O 3	0	0
4	B	1	Total 6	C 3	O 3	0	0
4	B	1	Total 6	C 3	O 3	0	0
4	E	1	Total 6	C 3	O 3	0	0
4	C	1	Total 6	C 3	O 3	0	0
4	C	1	Total 6	C 3	O 3	0	0

- Molecule 5 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	F	5	Total 5	O 5	0	0
5	A	133	Total 133	O 133	0	0
5	D	85	Total 85	O 85	0	0
5	B	127	Total 127	O 127	0	0
5	E	59	Total 59	O 59	0	0
5	C	80	Total 80	O 80	0	0

3 Residue-property plots ⓘ

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.
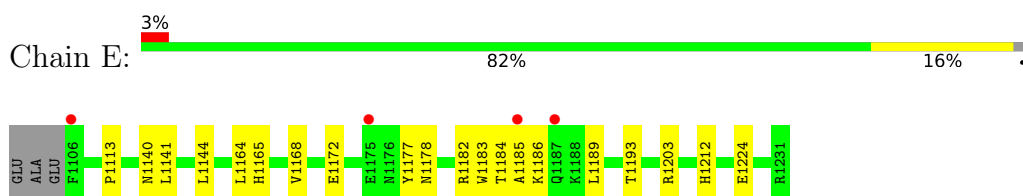
• Molecule 1: Complement factor H
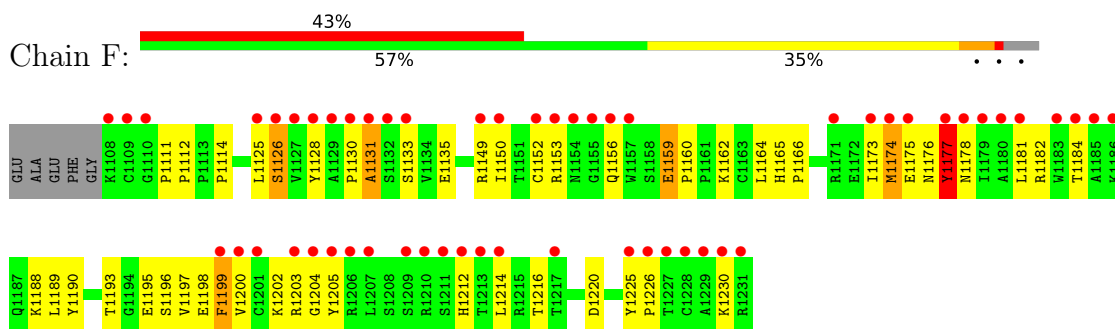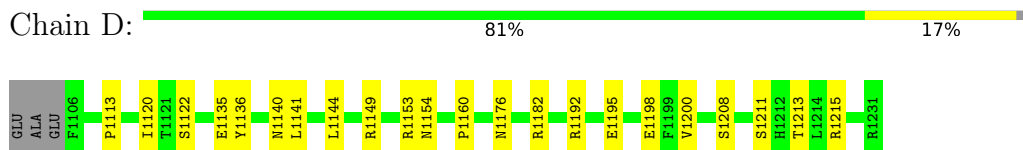
Chain F:

• Molecule 1: Complement factor H

Chain D:

• Molecule 1: Complement factor H

Chain E:

• Molecule 2: Complement C3d fragment
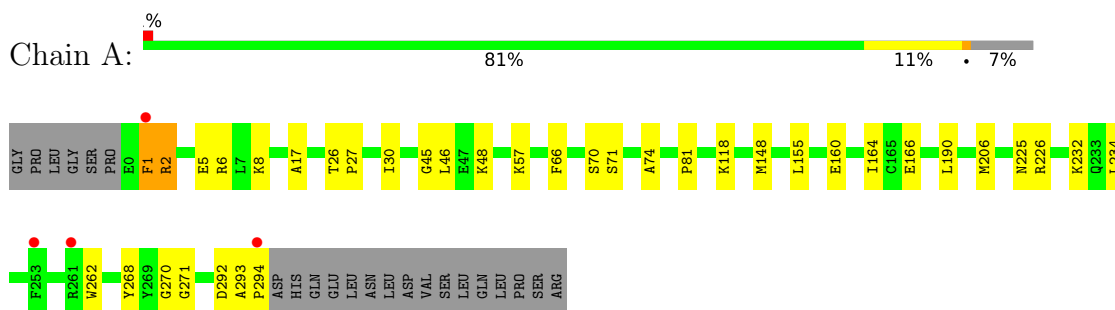
Chain A:

• Molecule 2: Complement C3d fragment
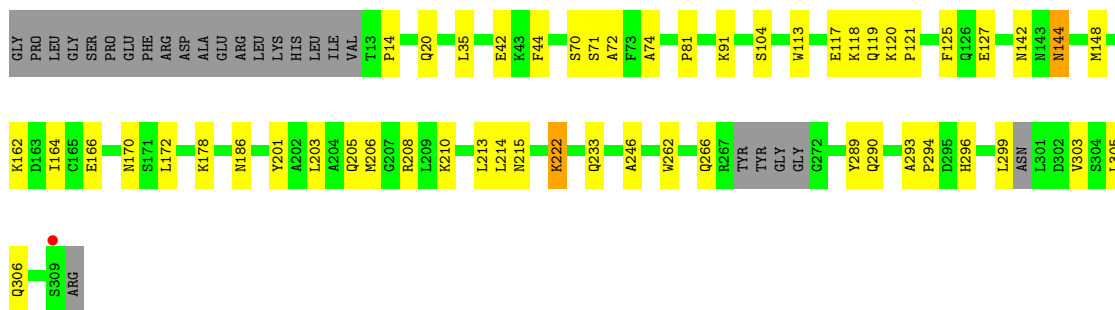
Chain B:

• Molecule 2: Complement C3d fragment

Chain C:
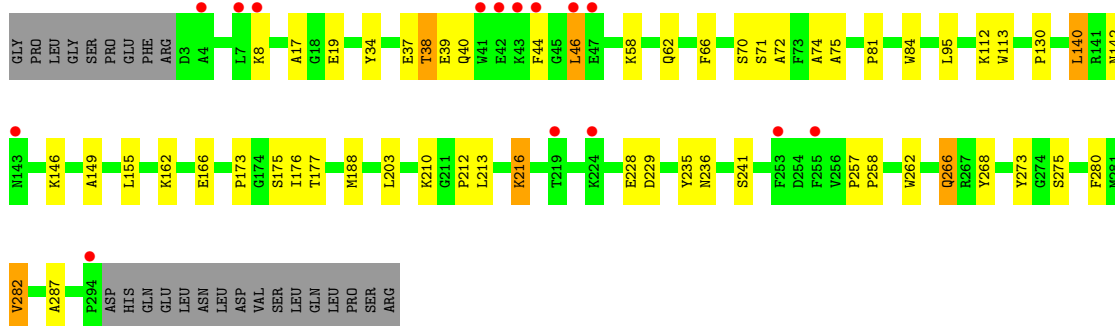
• Molecule 3: N-acetyl-alpha-neuraminic acid-(2-3)-beta-D-galactopyranose-(1-4)-beta-D-glucopyranose

Chain G:

• Molecule 3: N-acetyl-alpha-neuraminic acid-(2-3)-beta-D-galactopyranose-(1-4)-beta-D-glucopyranose

Chain H:

• Molecule 3: N-acetyl-alpha-neuraminic acid-(2-3)-beta-D-galactopyranose-(1-4)-beta-D-glucopyranose

Chain I:

4 Data and refinement statistics (i)

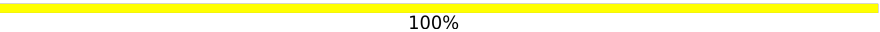| Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	75.46Å 82.54Å 85.75Å 112.50° 110.71° 99.98°	Depositor
Resolution (Å)	46.09 – 2.15 46.08 – 2.15	Depositor EDS
% Data completeness (in resolution range)	97.3 (46.09-2.15) 97.3 (46.08-2.15)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.45 (at 2.16Å)	Xtriage
Refinement program	REFMAC 5.8.0049	Depositor
R, R_{free}	0.172 , 0.223 0.173 , 0.223	Depositor DCC
R_{free} test set	4408 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	40.2	Xtriage
Anisotropy	0.399	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 49.0	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.013 for -h,-k,h+k+l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	10510	wwPDB-VP
Average B, all atoms (Å^2)	59.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.56% 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:
BGC, GOL, SIA, 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	D	0.63	0/1023	0.75	0/1388
1	E	0.63	0/1030	0.67	0/1400
1	F	0.47	0/970	0.68	0/1325
2	A	0.64	0/2406	0.74	0/3259
2	B	0.64	0/2333	0.75	0/3163
2	C	0.53	0/2311	0.67	0/3138
All	All	0.60	0/10073	0.71	0/13673

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if
the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected
by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a
sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	C	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	229	ASP	Peptide

5.2   Too-close contacts ⓘ

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

the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	997	0	961	15	0
1	E	1004	0	956	17	0
1	F	944	0	870	38	0
2	A	2356	0	2350	27	0
2	B	2287	0	2277	33	0
2	C	2262	0	2241	42	0
3	G	43	0	37	1	0
3	H	43	0	37	0	0
3	I	43	0	37	0	0
4	A	6	0	8	0	0
4	B	18	0	24	1	0
4	C	12	0	16	3	0
4	E	6	0	8	0	0
5	A	133	0	0	5	0
5	B	127	0	0	3	0
5	C	80	0	0	3	0
5	D	85	0	0	3	0
5	E	59	0	0	1	0
5	F	5	0	0	0	0
All	All	10510	0	9822	169	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 9.

The worst 5 of 169 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:E:1184:THR:HG22	1:E:1186:LYS:H	1.24	1.02
2:A:2:ARG:HG3	2:A:2:ARG:HH11	1.24	1.02
2:C:58:LYS:O	2:C:62:GLN:HG3	1.61	1.00
2:A:166[A]:GLU:HG3	5:A:570:HOH:O	1.73	0.86
2:C:188:MET:HE1	2:C:213:LEU:N	1.90	0.85

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	D	124/129 (96%)	121 (98%)	3 (2%)	0	100	100
1	E	126/129 (98%)	121 (96%)	5 (4%)	0	100	100
1	F	122/129 (95%)	107 (88%)	9 (7%)	6 (5%)	2	0
2	A	296/317 (93%)	288 (97%)	8 (3%)	0	100	100
2	B	286/317 (90%)	281 (98%)	5 (2%)	0	100	100
2	C	290/317 (92%)	272 (94%)	16 (6%)	2 (1%)	22	15
All	All	1244/1338 (93%)	1190 (96%)	46 (4%)	8 (1%)	25	18

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	1177	TYR
1	F	1212	HIS
1	F	1175	GLU
1	F	1202	LYS
1	F	1131	ALA

5.3.2 Protein sidechains ⓘ

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	D	110/115 (96%)	109 (99%)	1 (1%)	78	83
1	E	110/115 (96%)	108 (98%)	2 (2%)	59	63
1	F	99/115 (86%)	89 (90%)	10 (10%)	7	4

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	A	247/264 (94%)	243 (98%)	4 (2%)	62	67
2	B	242/264 (92%)	235 (97%)	7 (3%)	42	42
2	C	232/264 (88%)	224 (97%)	8 (3%)	37	35
All	All	1040/1137 (92%)	1008 (97%)	32 (3%)	40	39

5 of 32 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	C	175	SER
2	C	216	LYS
2	A	46	LEU
2	A	2	ARG
2	C	266	GLN

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

Mol	Chain	Res	Type
1	F	1165	HIS
2	B	170	ASN

5.3.3   RNA   ⓘ

There are no RNA molecules in this entry.

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

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

5.5   Carbohydrates   ⓘ

9 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
3	BGC	G	1	3	12,12,12	0.48	0	17,17,17	0.85	1 (5%)
3	GAL	G	2	3	11,11,12	0.56	0	15,15,17	1.22	2 (13%)
3	SIA	G	3	3	20,20,21	0.59	0	24,28,31	1.23	2 (8%)
3	BGC	H	1	3	12,12,12	0.52	0	17,17,17	0.51	0
3	GAL	H	2	3	11,11,12	0.53	0	15,15,17	1.57	4 (26%)
3	SIA	H	3	3	20,20,21	0.91	0	24,28,31	1.56	4 (16%)
3	BGC	I	1	3	12,12,12	0.59	0	17,17,17	0.97	2 (11%)
3	GAL	I	2	3	11,11,12	0.87	0	15,15,17	1.85	4 (26%)
3	SIA	I	3	3	20,20,21	0.70	0	24,28,31	1.08	2 (8%)

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
3	BGC	G	1	3	-	2/2/22/22	0/1/1/1
3	GAL	G	2	3	-	2/2/19/22	0/1/1/1
3	SIA	G	3	3	-	4/18/34/38	0/1/1/1
3	BGC	H	1	3	-	0/2/22/22	0/1/1/1
3	GAL	H	2	3	-	2/2/19/22	0/1/1/1
3	SIA	H	3	3	-	0/18/34/38	0/1/1/1
3	BGC	I	1	3	-	2/2/22/22	0/1/1/1
3	GAL	I	2	3	-	0/2/19/22	0/1/1/1
3	SIA	I	3	3	-	0/18/34/38	0/1/1/1

There are no bond length outliers.

The worst 5 of 21 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	H	3	SIA	C3-C4-C5	4.13	116.46	111.46
3	I	2	GAL	O5-C5-C6	3.96	113.41	107.20
3	H	2	GAL	O5-C5-C6	3.76	113.10	107.20
3	H	3	SIA	C4-C3-C2	3.31	115.75	109.81
3	I	2	GAL	O3-C3-C2	-2.81	104.61	109.99

There are no chirality outliers.

5 of 12 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	H	2	GAL	O5-C5-C6-O6
3	G	1	BGC	O5-C5-C6-O6
3	H	2	GAL	C4-C5-C6-O6
3	G	2	GAL	C4-C5-C6-O6
3	G	1	BGC	C4-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	3	SIA	1	0

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

Oligosaccharide Chain G

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain H

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain I

Bond lengths

Bond angles

Torsions

Rings
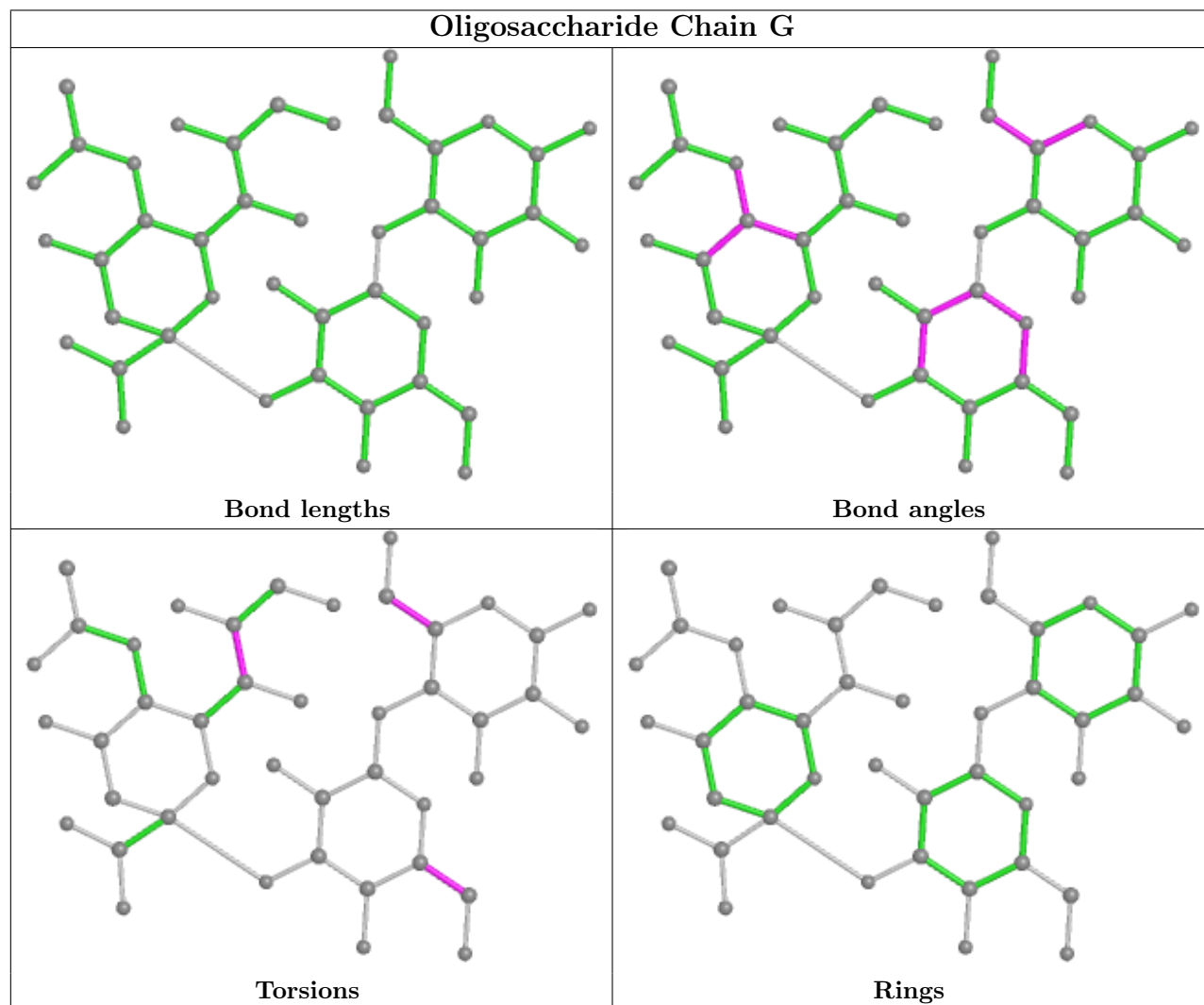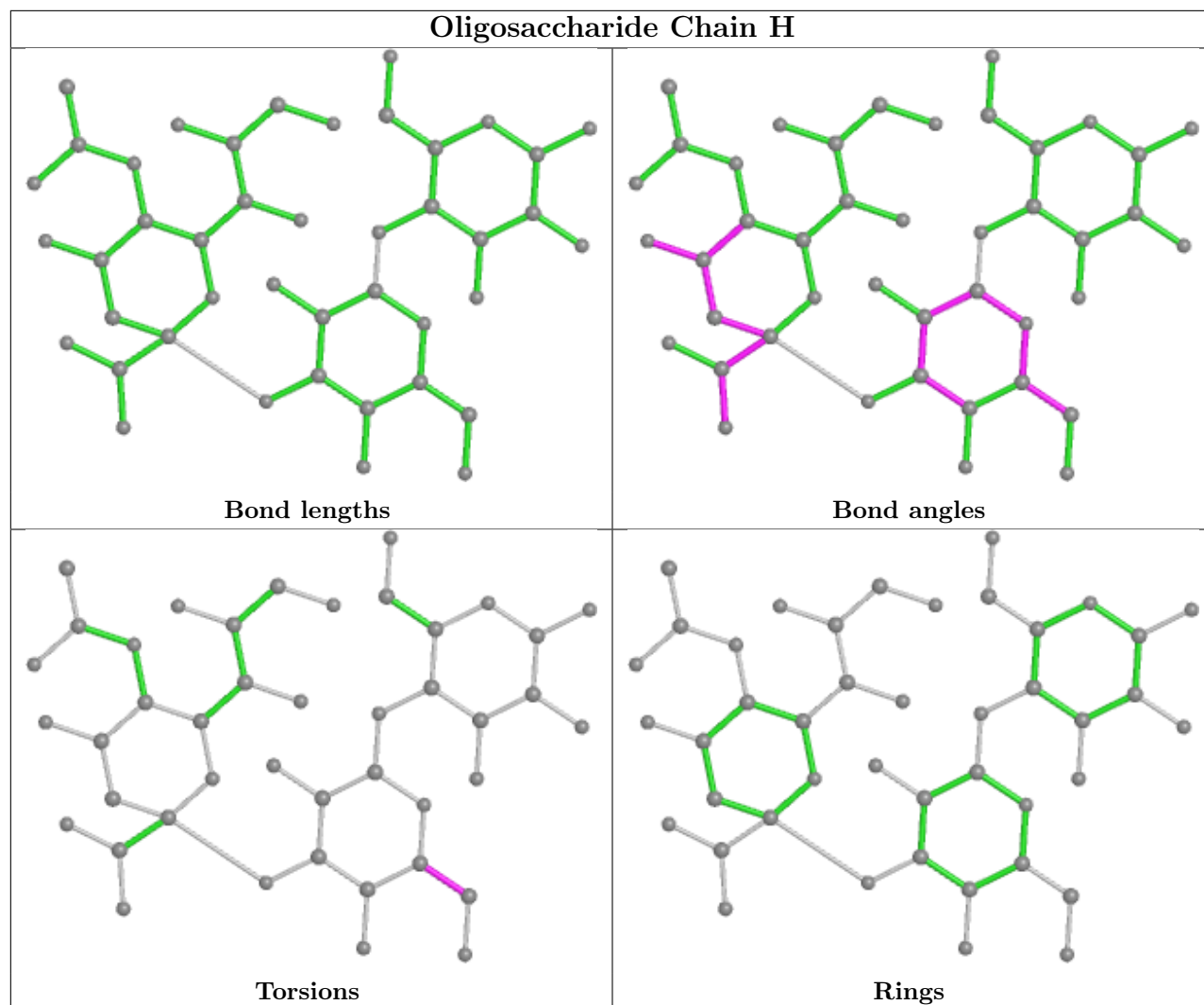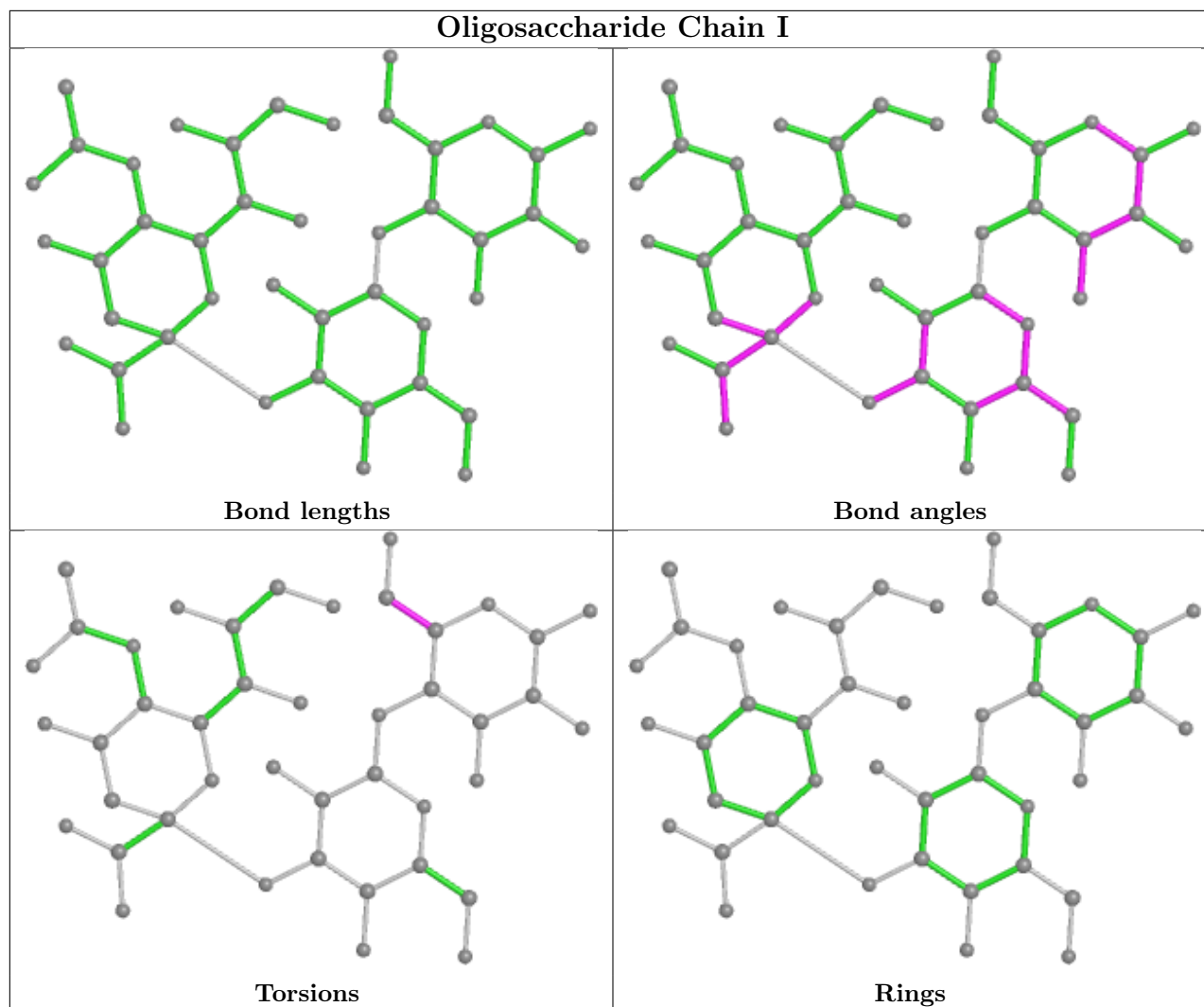
5.6 Ligand geometry ⓘ

7 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	$\#|Z| > 2$
4	GOL	C	401	-	5,5,5	0.31	0	5,5,5	0.30	0
4	GOL	A	401	-	5,5,5	0.84	0	5,5,5	2.04	1 (20%)
4	GOL	B	402	-	5,5,5	0.54	0	5,5,5	0.45	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	GOL	B	401	-	5,5,5	0.40	0	5,5,5	0.98	0
4	GOL	E	1304	-	5,5,5	0.39	0	5,5,5	0.31	0
4	GOL	B	403	-	5,5,5	0.32	0	5,5,5	0.49	0
4	GOL	C	402	-	5,5,5	0.67	0	5,5,5	1.41	1 (20%)

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
4	GOL	C	401	-	-	1/4/4/4	-
4	GOL	A	401	-	-	2/4/4/4	-
4	GOL	B	402	-	-	2/4/4/4	-
4	GOL	B	401	-	-	2/4/4/4	-
4	GOL	E	1304	-	-	2/4/4/4	-
4	GOL	B	403	-	-	4/4/4/4	-
4	GOL	C	402	-	-	2/4/4/4	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	401	GOL	C3-C2-C1	-4.28	95.07	111.70
4	C	402	GOL	C3-C2-C1	-2.79	100.86	111.70

There are no chirality outliers.

5 of 15 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	401	GOL	C1-C2-C3-O3
4	A	401	GOL	O2-C2-C3-O3
4	B	402	GOL	O1-C1-C2-C3
4	B	403	GOL	O1-C1-C2-C3
4	C	402	GOL	C1-C2-C3-O3

There are no ring outliers.

3 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	401	GOL	1	0
4	B	403	GOL	1	0
4	C	402	GOL	2	0

5.7   Other polymers ⓘ

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 ⓘ

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(Å²)	Q<0.9
1	D	126/129 (97%)	-0.20	0	100	100	34, 47, 78, 98	0
1	E	126/129 (97%)	-0.06	4 (3%)	47	56	38, 56, 92, 137	0
1	F	124/129 (96%)	1.69	55 (44%)	0	0	46, 96, 133, 149	0
2	A	295/317 (93%)	-0.12	4 (1%)	75	80	31, 44, 72, 124	0
2	B	292/317 (92%)	-0.12	1 (0%)	94	95	29, 48, 79, 112	0
2	C	292/317 (92%)	0.19	15 (5%)	28	36	37, 61, 106, 133	0
All	All	1255/1338 (93%)	0.13	79 (6%)	20	27	29, 53, 107, 149	0

The worst 5 of 79 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	1211	SER	6.9
1	F	1200	VAL	6.9
1	F	1201	CYS	6.2
1	E	1187	GLN	6.0
1	F	1230	LYS	5.9

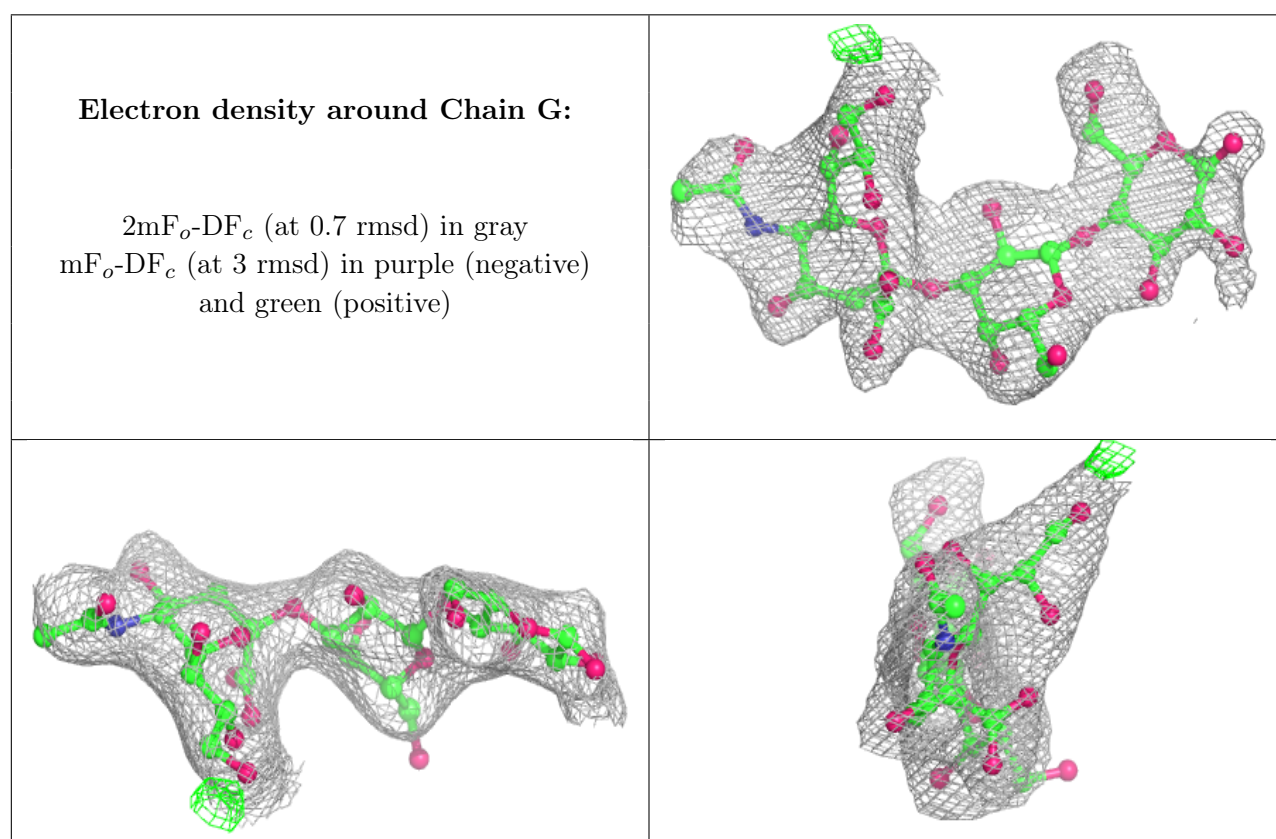## 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

6.3 Carbohydrates ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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
3	BGC	G	1	12/12	0.78	0.34	86,129,135,141	0
3	BGC	H	1	12/12	0.86	0.23	94,105,116,125	0
3	SIA	H	3	20/21	0.89	0.23	42,79,98,101	0
3	GAL	H	2	11/12	0.90	0.17	76,85,91,91	0
3	GAL	G	2	11/12	0.90	0.21	100,109,117,120	0
3	SIA	G	3	20/21	0.92	0.17	74,89,108,110	0
3	BGC	I	1	12/12	0.92	0.11	65,79,88,98	0
3	GAL	I	2	11/12	0.96	0.07	58,62,65,70	0
3	SIA	I	3	20/21	0.97	0.09	44,53,61,67	0

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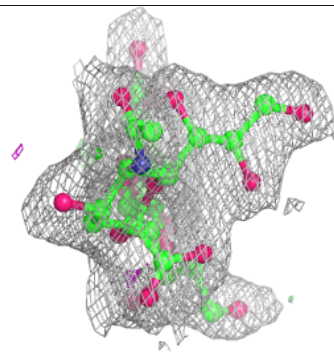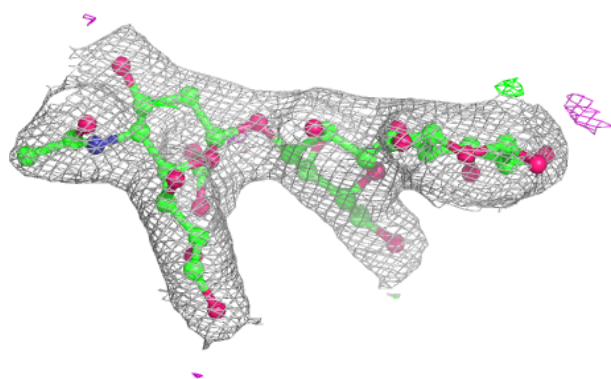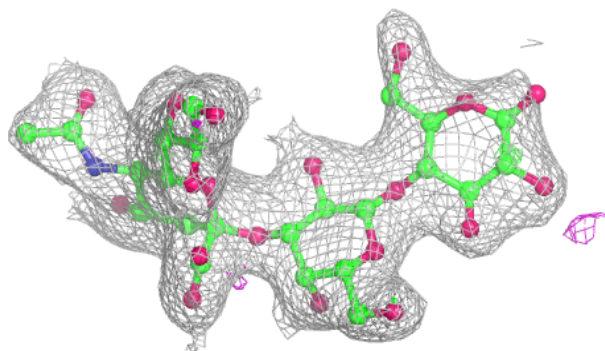

Electron density around Chain G:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around Chain H:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
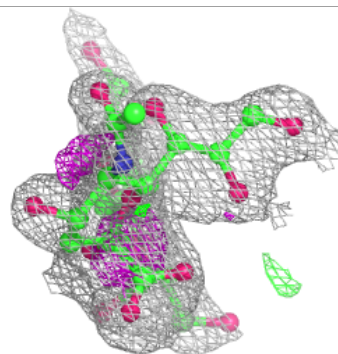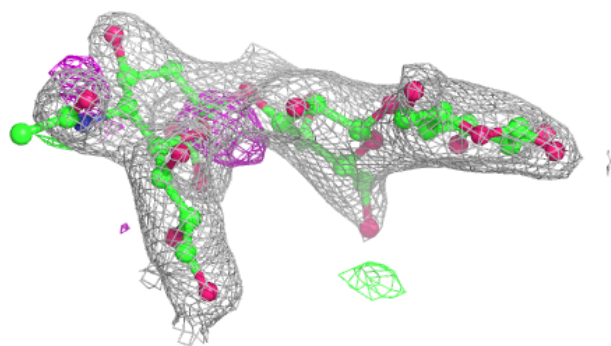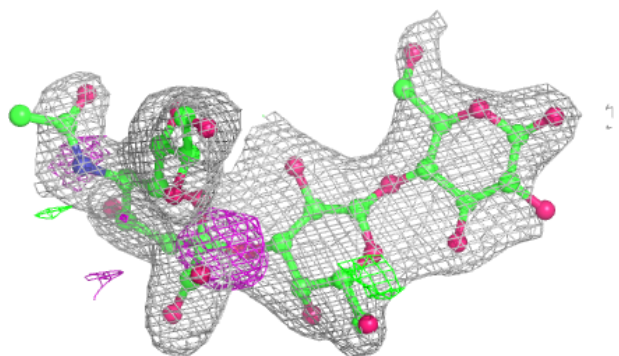
Electron density around Chain I:

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

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
4	GOL	C	401	6/6	0.82	0.25	69,90,102,105	0
4	GOL	E	1304	6/6	0.84	0.17	64,69,76,77	0
4	GOL	B	401	6/6	0.90	0.19	67,75,80,81	0
4	GOL	B	402	6/6	0.90	0.19	64,70,79,90	0
4	GOL	C	402	6/6	0.92	0.15	45,55,66,70	0
4	GOL	B	403	6/6	0.96	0.12	37,47,49,63	0
4	GOL	A	401	6/6	0.97	0.17	33,45,49,74	0

6.5 Other polymers (i)

There are no such residues in this entry.