W O R L D W I D E

wwPDB

P R O T E I N   D A T A   B A N K

wwPDB X-ray Structure Validation Summary Report (i)

Jan 2, 2024 – 10:40 am GMT

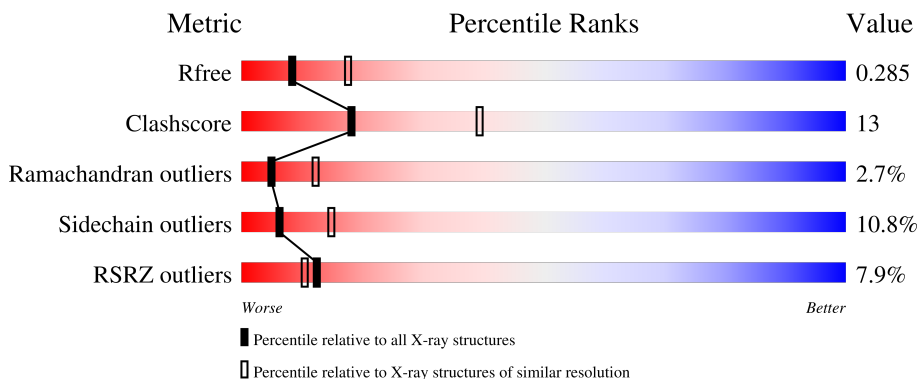|		
PDB ID	:	5HY9
Title	:	Glycosylated, disulfide-linked Knob-into-Hole Fc fragment
Authors	:	Kuglstatter, A.; Stihle, M.; Benz, J.
Deposited on	:	2016-02-01
Resolution	:	2.70 Å(reported)

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 2.70 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		0.285
Clashscore		13
Ramachandran outliers		2.7%
Sidechain outliers		10.8%
RSRZ outliers		7.9%

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	2808 (2.70-2.70)
Clashscore	141614	3122 (2.70-2.70)
Ramachandran outliers	138981	3069 (2.70-2.70)
Sidechain outliers	138945	3069 (2.70-2.70)
RSRZ outliers	127900	2737 (2.70-2.70)

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	227	% 69% 17% 5% 9%
2	B	227	13% 52% 28% 7% · 12%
3	C	9	78% 22%
4	D	6	67% 33%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	BMA	D	4	-	-	-	X

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 3470 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 Ig gamma-1 chain C region.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	207	Total 1665	C 1063	N 280	O 315	S 7	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	354	CYS	SER	engineered mutation	UNP P01857
A	366	TRP	THR	engineered mutation	UNP P01857

- Molecule 2 is a protein called Ig gamma-1 chain C region.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	200	Total 1582	C 1005	N 268	O 302	S 7	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	349	CYS	TYR	engineered mutation	UNP P01857
B	366	SER	THR	engineered mutation	UNP P01857
B	368	ALA	LEU	engineered mutation	UNP P01857
B	407	VAL	TYR	engineered mutation	UNP P01857

- Molecule 3 is an oligosaccharide called beta-D-galactopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-beta-D-mannopyranose-(1-6)-[2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-beta-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.
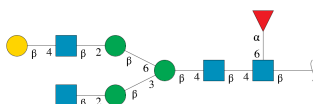
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	C	9	Total 110	C 62	N 4	O 44	0	0	0

- Molecule 4 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-beta-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.
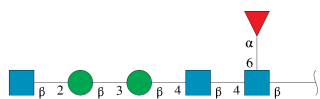
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	D	6	Total 74	C 42	N 3	O 29	0	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	34	Total 34	O 34	0	0
5	B	5	Total 5	O 5	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: Ig gamma-1 chain C region
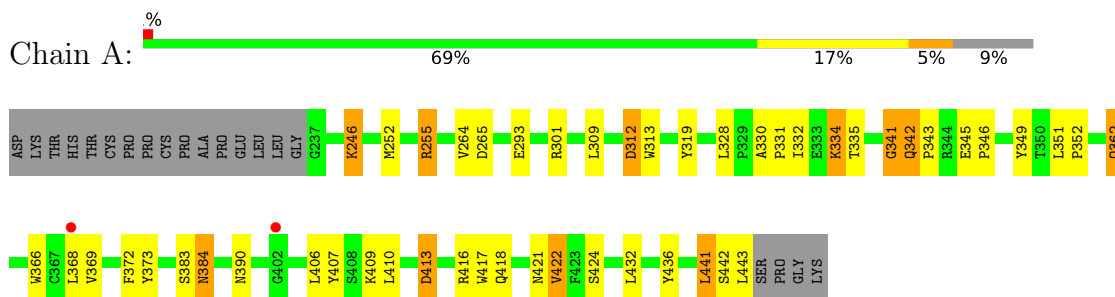
Chain A:

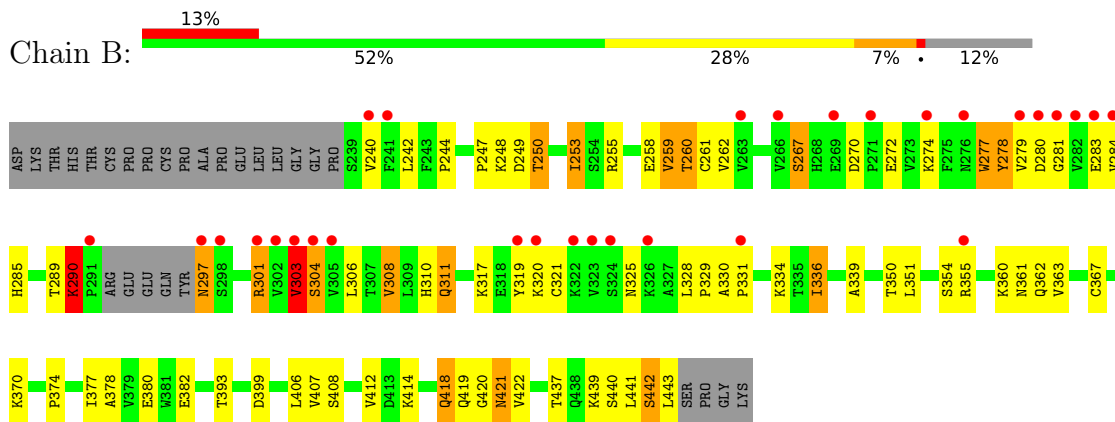

- Molecule 2: Ig gamma-1 chain C region

Chain B:

- Molecule 3: beta-D-galactopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-beta-D-mannopyranose-(1-6)-[2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-beta-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
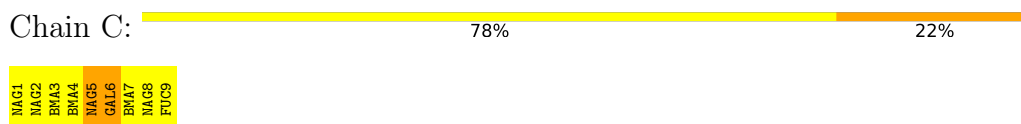
Chain C:

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

Chain D:

67% 33%

NAG1 NAG2 BMA3 BMA4 NAG5 FUC6

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 61 2 2	Depositor
Cell constants a, b, c, α, β, γ	151.81Å 151.81Å 113.87Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	45.59 – 2.70 45.55 – 2.70	Depositor EDS
% Data completeness (in resolution range)	99.6 (45.59-2.70) 99.8 (45.55-2.70)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.09	Depositor
$< I/\sigma(I) >$ [1]	1.18 (at 2.69Å)	Xtriage
Refinement program	REFMAC 5.7.0029	Depositor
R, R_{free}	0.212 , 0.272 0.225 , 0.285	Depositor DCC
R_{free} test set	1109 reflections (5.11%)	wwPDB-VP
Wilson B-factor (Å^2)	85.5	Xtriage
Anisotropy	0.118	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 55.5	EDS
L-test for twinning[2]	$< |L| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	3470	wwPDB-VP
Average B, all atoms (Å^2)	92.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.50% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: BMA, FUC, NAG, 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	0.86	0/1713	0.98	4/2335 (0.2%)
2	B	0.66	0/1623	0.81	0/2210
All	All	0.77	0/3336	0.90	4/4545 (0.1%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	301	ARG	NE-CZ-NH1	8.64	124.62	120.30
1	A	312	ASP	CB-CG-OD2	7.23	124.81	118.30
1	A	312	ASP	CB-CG-OD1	-5.74	113.13	118.30
1	A	334	LYS	CD-CE-NZ	-5.50	99.06	111.70

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1665	0	1627	33	0
2	B	1582	0	1559	59	0
3	C	110	0	94	3	0
4	D	74	0	64	2	0
5	A	34	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	B	5	0	0	0	0
All	All	3470	0	3344	91	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 13.

The worst 5 of 91 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:290:LYS:HE3	2:B:303:VAL:HG11	1.33	1.10
2:B:240:VAL:HG12	2:B:334:LYS:HG2	1.38	1.03
2:B:253:ILE:H	2:B:253:ILE:HD12	1.31	0.95
2:B:277:TRP:HZ2	2:B:304:SER:HG	1.18	0.87
2:B:267:SER:HB2	2:B:270:ASP:H	1.43	0.81

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	A	205/227 (90%)	191 (93%)	12 (6%)	2 (1%)	15	37
2	B	196/227 (86%)	178 (91%)	9 (5%)	9 (5%)	2	4
All	All	401/454 (88%)	369 (92%)	21 (5%)	11 (3%)	5	12

5 of 11 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	259	VAL
2	B	290	LYS
2	B	304	SER

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Mol	Chain	Res	Type
2	B	420	GLY
1	A	341	GLY

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	A	193/210 (92%)	182 (94%)	11 (6%)	20	44
2	B	186/209 (89%)	156 (84%)	30 (16%)	2	6
All	All	379/419 (90%)	338 (89%)	41 (11%)	6	15

5 of 41 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	317	LYS
2	B	418	GLN
2	B	336	ILE
2	B	370	LYS
2	B	437	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	362	GLN
2	B	285	HIS
2	B	310	HIS
2	B	311	GLN
2	B	421	ASN

5.3.3   RNA ⓘ

There are no RNA molecules in this entry.

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

8 non-standard protein/DNA/RNA residues 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	NAG	C	8	3	14,14,15	0.73	0	17,19,21	1.88	4 (23%)
4	NAG	D	2	4	14,14,15	1.14	2 (14%)	17,19,21	2.69	6 (35%)
3	NAG	C	5	3	14,14,15	1.15	1 (7%)	17,19,21	2.55	5 (29%)
4	NAG	D	5	4	14,14,15	0.69	1 (7%)	17,19,21	1.70	3 (17%)
3	GAL	C	6	3	11,11,12	1.16	2 (18%)	15,15,17	1.78	4 (26%)
3	NAG	C	1	3,1	14,14,15	0.65	0	17,19,21	1.46	2 (11%)
3	NAG	C	2	3	14,14,15	0.68	0	17,19,21	2.01	7 (41%)
4	NAG	D	1	4,2	14,14,15	0.65	0	17,19,21	1.90	5 (29%)

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	NAG	C	8	3	-	1/6/23/26	0/1/1/1
4	NAG	D	2	4	-	2/6/23/26	0/1/1/1
3	NAG	C	5	3	-	2/6/23/26	0/1/1/1
4	NAG	D	5	4	-	2/6/23/26	0/1/1/1
3	GAL	C	6	3	-	2/2/19/22	0/1/1/1
3	NAG	C	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	C	2	3	-	0/6/23/26	0/1/1/1
4	NAG	D	1	4,2	-	2/6/23/26	0/1/1/1

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	5	NAG	O5-C1	-3.19	1.38	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	2	NAG	C1-C2	2.27	1.55	1.52
4	D	2	NAG	C3-C2	2.17	1.57	1.52
3	C	6	GAL	C1-C2	2.08	1.56	1.52
4	D	5	NAG	C1-C2	2.03	1.55	1.52

The worst 5 of 36 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	2	NAG	C1-O5-C5	-7.18	102.47	112.19
3	C	5	NAG	C1-O5-C5	5.33	119.41	112.19
3	C	5	NAG	O5-C5-C6	5.16	115.29	107.20
3	C	2	NAG	C1-O5-C5	5.12	119.13	112.19
4	D	2	NAG	C2-N2-C7	5.11	130.18	122.90

There are no chirality outliers.

5 of 11 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	D	5	NAG	O5-C5-C6-O6
4	D	1	NAG	O5-C5-C6-O6
4	D	2	NAG	C4-C5-C6-O6
4	D	5	NAG	C4-C5-C6-O6
4	D	1	NAG	C4-C5-C6-O6

There are no ring outliers.

3 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	5	NAG	1	0
4	D	5	NAG	2	0
3	C	6	GAL	3	0

5.5 Carbohydrates ⓘ

15 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	NAG	C	1	3,1	14,14,15	0.65	0	17,19,21	1.46	2 (11%)
3	NAG	C	2	3	14,14,15	0.68	0	17,19,21	2.01	7 (41%)
3	BMA	C	3	3	11,11,12	0.47	0	15,15,17	2.75	7 (46%)
3	BMA	C	4	3	11,11,12	1.14	1 (9%)	15,15,17	4.72	6 (40%)
3	NAG	C	5	3	14,14,15	1.15	1 (7%)	17,19,21	2.55	5 (29%)
3	GAL	C	6	3	11,11,12	1.16	2 (18%)	15,15,17	1.78	4 (26%)
3	BMA	C	7	3	11,11,12	0.89	1 (9%)	15,15,17	2.13	3 (20%)
3	NAG	C	8	3	14,14,15	0.73	0	17,19,21	1.88	4 (23%)
3	FUC	C	9	3	10,10,11	1.08	1 (10%)	14,14,16	2.16	4 (28%)
4	NAG	D	1	4,2	14,14,15	0.65	0	17,19,21	1.90	5 (29%)
4	NAG	D	2	4	14,14,15	1.14	2 (14%)	17,19,21	2.69	6 (35%)
4	BMA	D	3	4	11,11,12	1.60	2 (18%)	15,15,17	2.61	6 (40%)
4	BMA	D	4	4	11,11,12	1.15	2 (18%)	15,15,17	2.10	7 (46%)
4	NAG	D	5	4	14,14,15	0.69	1 (7%)	17,19,21	1.70	3 (17%)
4	FUC	D	6	4	10,10,11	0.88	0	14,14,16	1.79	5 (35%)

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	NAG	C	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	C	2	3	-	0/6/23/26	0/1/1/1
3	BMA	C	3	3	-	2/2/19/22	0/1/1/1
3	BMA	C	4	3	-	0/2/19/22	0/1/1/1
3	NAG	C	5	3	-	2/6/23/26	0/1/1/1
3	GAL	C	6	3	-	2/2/19/22	0/1/1/1
3	BMA	C	7	3	-	1/2/19/22	0/1/1/1
3	NAG	C	8	3	-	1/6/23/26	0/1/1/1
3	FUC	C	9	3	-	-	0/1/1/1
4	NAG	D	1	4,2	-	2/6/23/26	0/1/1/1
4	NAG	D	2	4	-	2/6/23/26	0/1/1/1
4	BMA	D	3	4	-	2/2/19/22	0/1/1/1
4	BMA	D	4	4	-	2/2/19/22	0/1/1/1

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

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	3	BMA	C2-C3	3.20	1.57	1.52
3	C	5	NAG	O5-C1	-3.19	1.38	1.43
4	D	3	BMA	O3-C3	3.11	1.50	1.43
3	C	9	FUC	C2-C3	-3.09	1.48	1.52
4	D	4	BMA	C2-C3	2.79	1.56	1.52

The worst 5 of 74 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	4	BMA	C1-O5-C5	-14.02	93.19	112.19
3	C	4	BMA	C1-C2-C3	-10.33	96.97	109.67
4	D	2	NAG	C1-O5-C5	-7.18	102.47	112.19
3	C	3	BMA	C1-O5-C5	6.40	120.86	112.19
4	D	3	BMA	O3-C3-C2	6.13	121.73	109.99

There are no chirality outliers.

5 of 18 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	D	3	BMA	C4-C5-C6-O6
4	D	3	BMA	O5-C5-C6-O6
4	D	5	NAG	O5-C5-C6-O6
4	D	4	BMA	O5-C5-C6-O6
4	D	1	NAG	O5-C5-C6-O6

There are no ring outliers.

4 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	5	NAG	1	0
4	D	5	NAG	2	0
3	C	6	GAL	3	0
4	D	4	BMA	2	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 C	
Bond lengths	Bond angles
Torsions	Rings

Oligosaccharide Chain D	
Bond lengths	Bond angles
Torsions	Rings
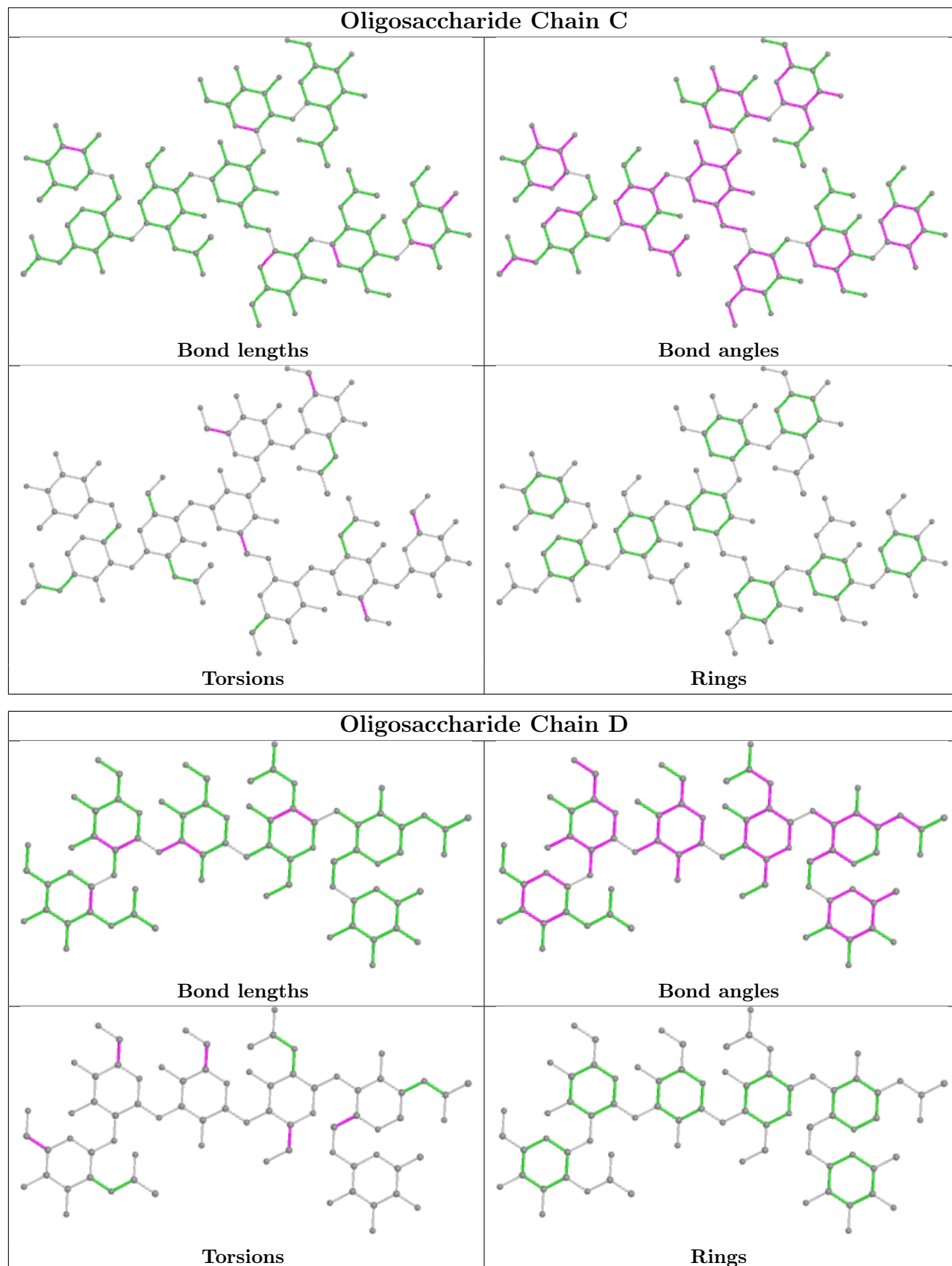
5.6 Ligand geometry ⓘ

There are no ligands in this entry.

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(Å^2)	Q<0.9
1	A	207/227 (91%)	0.10	2 (0%)	82	83	41, 63, 132, 176	0
2	B	200/227 (88%)	0.71	30 (15%)	2	1	59, 111, 161, 190	0
All	All	407/454 (89%)	0.40	32 (7%)	12	10	41, 90, 154, 190	0

The worst 5 of 32 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	302	VAL	7.0
2	B	324	SER	6.1
2	B	301	ARG	5.9
2	B	263	VAL	4.6
2	B	279	VAL	4.6

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

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	NAG	D	5	14/15	0.63	0.30	77,92,107,112	0
4	NAG	D	1	14/15	0.76	0.37	73,79,83,84	0
4	NAG	D	2	14/15	0.78	0.38	87,102,107,107	0
3	NAG	C	8	14/15	0.85	0.16	62,73,90,91	0
3	GAL	C	6	11/12	0.94	0.14	45,56,64,65	0
3	NAG	C	5	14/15	0.96	0.14	38,44,50,52	0
3	NAG	C	1	14/15	0.96	0.12	28,31,36,43	0
3	NAG	C	2	14/15	0.96	0.11	30,33,39,40	0

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
4	BMA	D	4	11/12	0.54	0.41	88,101,115,115	0
4	BMA	D	3	11/12	0.57	0.31	73,93,105,115	0
4	NAG	D	5	14/15	0.63	0.30	77,92,107,112	0
4	NAG	D	1	14/15	0.76	0.37	73,79,83,84	0
4	NAG	D	2	14/15	0.78	0.38	87,102,107,107	0
3	NAG	C	8	14/15	0.85	0.16	62,73,90,91	0
4	FUC	D	6	10/11	0.85	0.33	73,78,79,82	0
3	BMA	C	7	11/12	0.93	0.10	62,70,78,80	0
3	GAL	C	6	11/12	0.94	0.14	45,56,64,65	0
3	NAG	C	2	14/15	0.96	0.11	30,33,39,40	0
3	BMA	C	4	11/12	0.96	0.10	36,39,47,49	0
3	NAG	C	5	14/15	0.96	0.14	38,44,50,52	0
3	NAG	C	1	14/15	0.96	0.12	28,31,36,43	0
3	BMA	C	3	11/12	0.97	0.07	35,39,44,47	0
3	FUC	C	9	10/11	0.97	0.11	31,35,40,46	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 C:

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

Electron density around Chain D:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
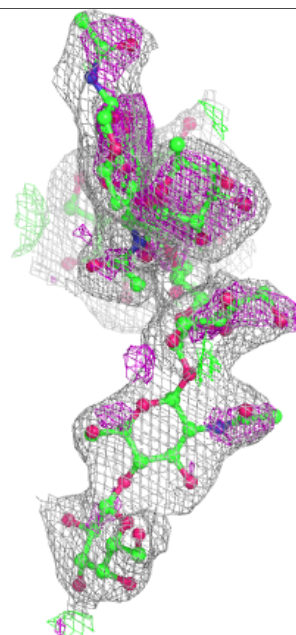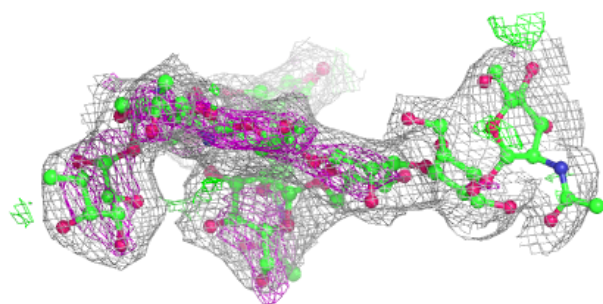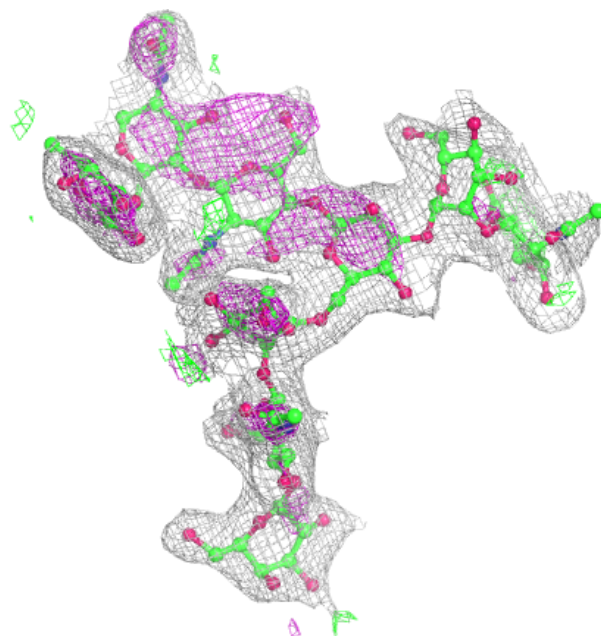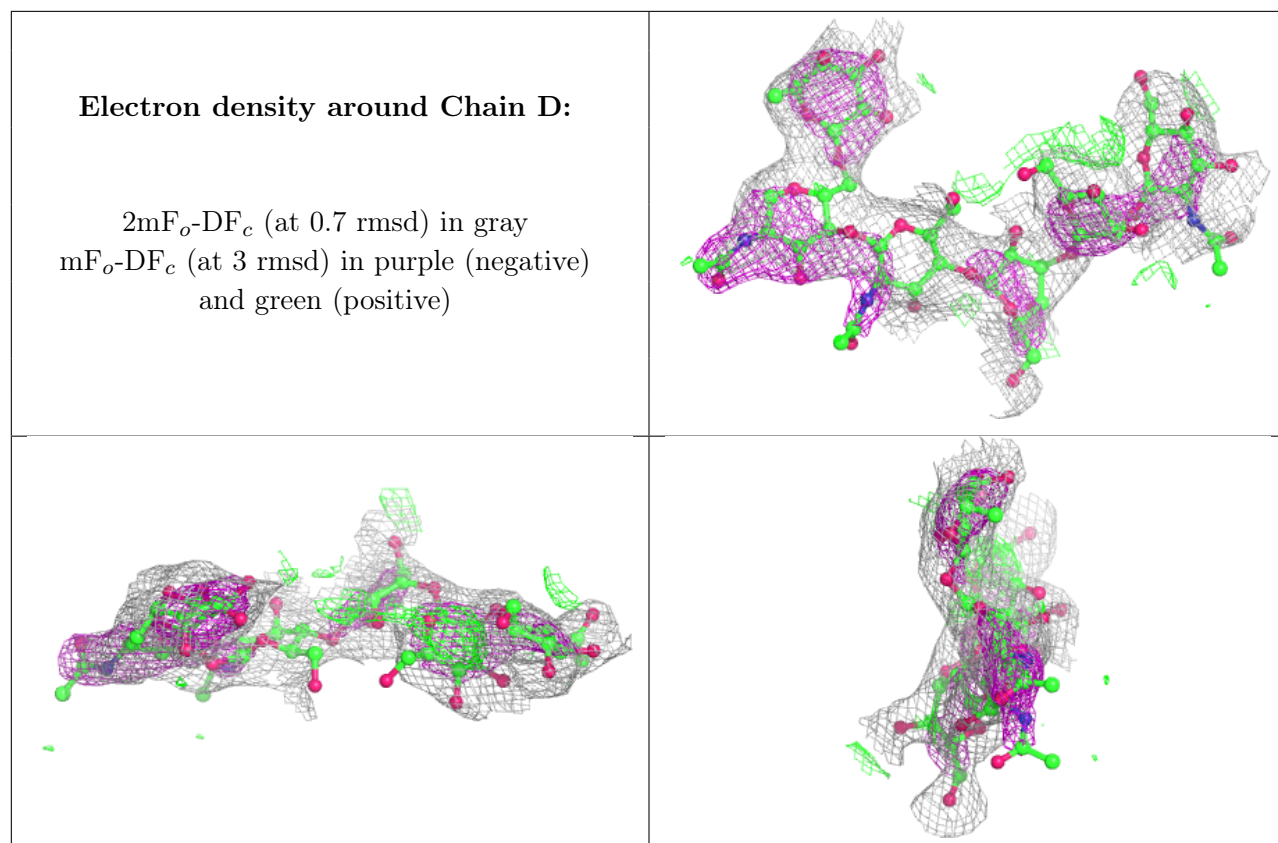
6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.