Full wwPDB X-ray Structure Validation Report (i)

Nov 21, 2023 – 02:55 AM JST

PDB ID	:	7EIR
Title	:	Crystal structure of chondroitin ABC lyase I in complex with chondroitin disaccharide 6S
Authors	:	Takashima, M.; Miyanaga, A.; Eguchi, T.
Deposited on	:	2021-03-31
Resolution	:	1.92 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

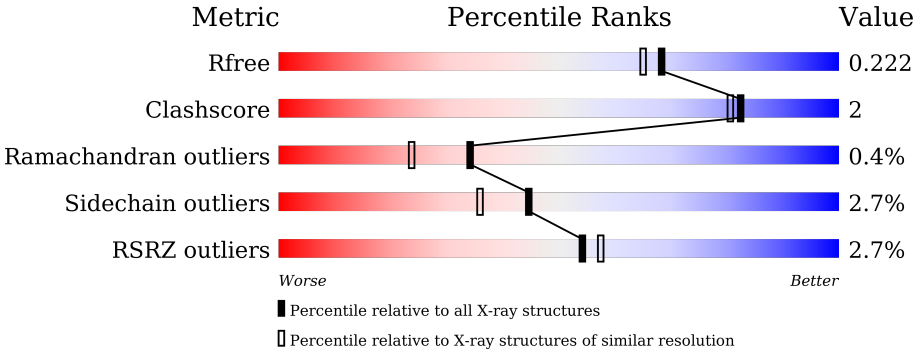
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.92 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	7937 (1.94-1.90)
Clashscore	141614	8644 (1.94-1.90)
Ramachandran outliers	138981	8530 (1.94-1.90)
Sidechain outliers	138945	8530 (1.94-1.90)
RSRZ outliers	127900	7793 (1.94-1.90)

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	1021	3% 86% 8% 5%
2	B	2	100%
2	C	2	50% 50%

2 Entry composition (i)

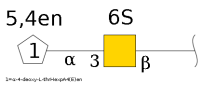
There are 5 unique types of molecules in this entry. The entry contains 8628 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Chondroitin sulfate ABC endolyase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	966	7736	4923	1320	1472	21	0	2	0

- Molecule 2 is an oligosaccharide called 4-deoxy-alpha-L-threo-hex-4-enopyranuronic acid-(1-3)-2-acetamido-2-deoxy-6-O-sulfo-beta-D-galactopyranose.

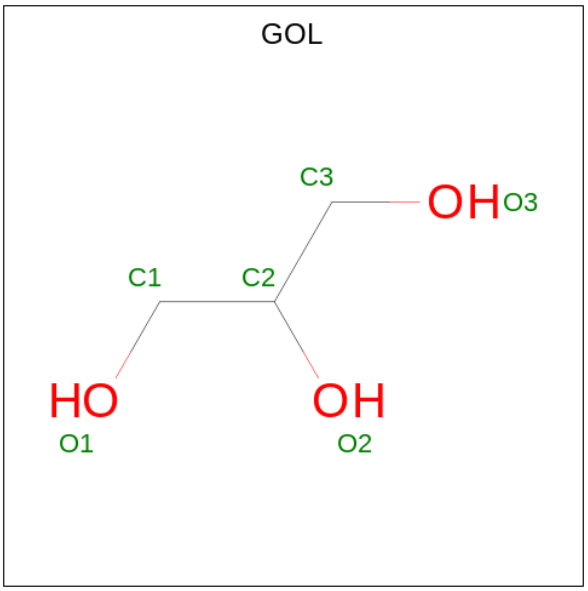


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	2	30	14	1	14	1	0	0	0
2	C	2	30	14	1	14	1	0	0	0

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Mg		
3	A	1	1	1	0	0

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



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

- Molecule 5 is water.

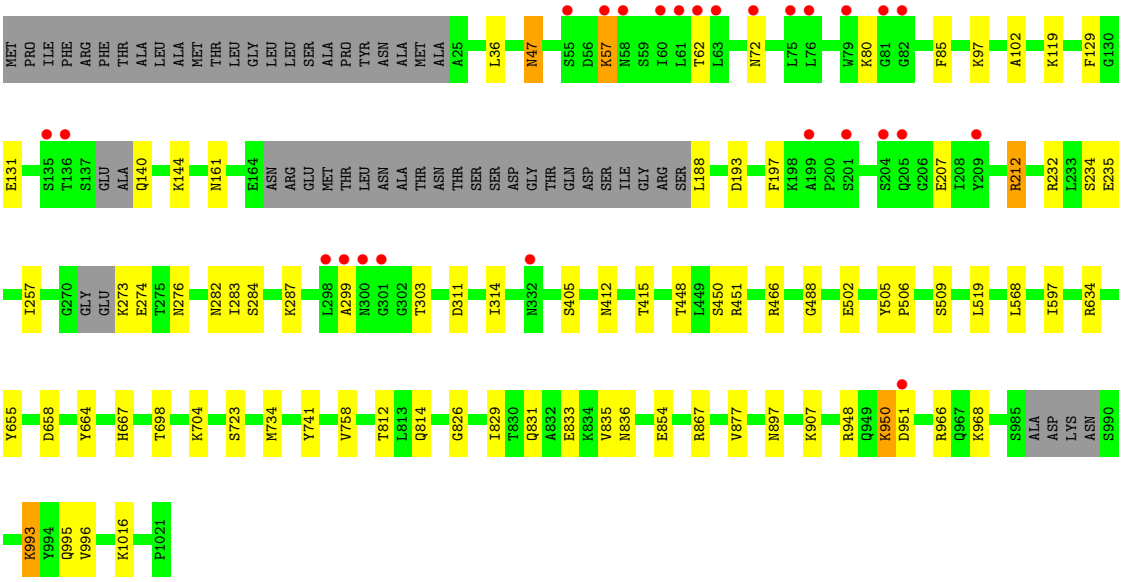
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
5	A	825	825	825	0	0

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.

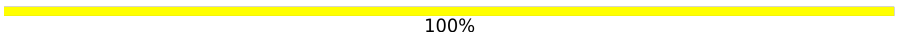
• Molecule 1: Chondroitin sulfate ABC endolyase

Chain A:



• Molecule 2: 4-deoxy-alpha-L-threo-hex-4-enopyranuronic acid-(1-3)-2-acetamido-2-deoxy-6-O-sulfo-beta-D-galactopyranose

Chain B:



• Molecule 2: 4-deoxy-alpha-L-threo-hex-4-enopyranuronic acid-(1-3)-2-acetamido-2-deoxy-6-O-sulfo-beta-D-galactopyranose

Chain C:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	49.32Å 94.78Å 229.50Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.13 – 1.92 49.08 – 1.92	Depositor EDS
% Data completeness (in resolution range)	100.0 (49.13-1.92) 100.0 (49.08-1.92)	Depositor EDS
R_{merge}	0.13	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.28 (at 1.92Å)	Xtriage
Refinement program	REFMAC 5.8.0238	Depositor
R, R_{free}	0.166 , 0.210 0.181 , 0.222	Depositor DCC
R_{free} test set	4243 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å^2)	21.2	Xtriage
Anisotropy	0.192	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 45.1	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	8628	wwPDB-VP
Average B, all atoms (Å^2)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.54% 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 (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: NG6, MG, GCD, GOL

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	0.84	4/7925 (0.1%)	0.95	4/10748 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	274	GLU	CD-OE1	-6.96	1.18	1.25
1	A	854	GLU	CD-OE1	6.10	1.32	1.25
1	A	831	GLN	C-O	5.59	1.33	1.23
1	A	235	GLU	CD-OE1	-5.52	1.19	1.25

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	634	ARG	NE-CZ-NH1	-9.95	115.33	120.30
1	A	207	GLU	CB-CA-C	5.54	121.49	110.40
1	A	948	ARG	NE-CZ-NH2	-5.54	117.53	120.30
1	A	1016	LYS	CB-CA-C	5.38	121.16	110.40

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	7736	0	7573	38	0
2	B	30	0	14	0	0
2	C	30	0	14	2	0
3	A	1	0	0	0	0
4	A	6	0	8	1	0
5	A	825	0	0	6	0
All	All	8628	0	7609	38	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 2.

All (38) 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:812:THR:HG22	1:A:836:ASN:HD22	1.56	0.71
1:A:303:THR:O	5:A:1301:HOH:O	2.12	0.67
1:A:995:GLN:NE2	1:A:996:VAL:O	2.27	0.65
1:A:212:ARG:O	1:A:212:ARG:HD2	1.97	0.64
1:A:993:LYS:N	1:A:993:LYS:HD2	2.15	0.61
1:A:568:LEU:HD23	1:A:597[B]:ILE:CD1	2.31	0.61
1:A:812:THR:HG22	1:A:836:ASN:ND2	2.17	0.60
1:A:276:ASN:ND2	2:C:1:NG6:O2S	2.36	0.57
1:A:282:ASN:OD1	1:A:284:SER:HB2	2.06	0.55
1:A:450:SER:HB2	1:A:519:LEU:HD11	1.89	0.54
1:A:448:THR:HG22	2:C:1:NG6:O1S	2.08	0.54
1:A:829:ILE:HD13	1:A:835:VAL:HG21	1.89	0.53
1:A:568:LEU:HD23	1:A:597[B]:ILE:HD11	1.94	0.50
1:A:283:ILE:HG22	1:A:287:LYS:HD2	1.94	0.49
1:A:968:LYS:NZ	5:A:1324:HOH:O	2.44	0.49
1:A:568:LEU:CD2	1:A:597[B]:ILE:HD11	2.43	0.48
1:A:415:THR:H	4:A:1202:GOL:H11	1.79	0.48
1:A:161:ASN:HB3	1:A:232:ARG:HD2	1.96	0.47
1:A:814:GLN:HB2	5:A:1315:HOH:O	2.15	0.45
1:A:257:ILE:HG21	1:A:466:ARG:HD2	1.99	0.45
1:A:85:PHE:CE2	1:A:197:PHE:HB2	2.51	0.45
1:A:488:GLY:O	1:A:502:GLU:HA	2.16	0.45
1:A:129:PHE:O	1:A:140:GLN:HB3	2.17	0.44
1:A:734:MET:HA	1:A:758:VAL:O	2.17	0.44
1:A:826:GLY:O	1:A:877:VAL:HA	2.18	0.44
1:A:907:LYS:HE2	5:A:1579:HOH:O	2.17	0.44
1:A:655:TYR:HB2	1:A:658:ASP:HB2	2.00	0.44
1:A:966:ARG:NH1	5:A:1345:HOH:O	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:57:LYS:HE2	1:A:57:LYS:H	1.83	0.43
1:A:131:GLU:HA	1:A:193:ASP:OD1	2.19	0.43
1:A:97:LYS:HG2	5:A:1884:HOH:O	2.19	0.42
1:A:311:ASP:O	1:A:314:ILE:HG12	2.20	0.41
1:A:597[A]:ILE:HD12	1:A:597[A]:ILE:HA	1.81	0.41
1:A:568:LEU:CD2	1:A:597[B]:ILE:CD1	2.99	0.41
1:A:506:PRO:HA	1:A:509:SER:OG	2.21	0.41
1:A:47:ASN:N	1:A:47:ASN:OD1	2.53	0.41
1:A:664:TYR:CE2	1:A:698:THR:HB	2.55	0.41
1:A:36:LEU:HD23	1:A:102:ALA:HB2	2.04	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	958/1021 (94%)	923 (96%)	31 (3%)	4 (0%)	34 24

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	299	ALA
1	A	723	SER
1	A	950	LYS
1	A	897	ASN

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	849/890 (95%)	826 (97%)	23 (3%)	44 36

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	47	ASN
1	A	57	LYS
1	A	62	THR
1	A	72	ASN
1	A	80	LYS
1	A	119	LYS
1	A	144	LYS
1	A	188	LEU
1	A	212	ARG
1	A	234	SER
1	A	273	LYS
1	A	405	SER
1	A	412	ASN
1	A	451	ARG
1	A	505	TYR
1	A	667	HIS
1	A	704	LYS
1	A	741	TYR
1	A	833	GLU
1	A	867	ARG
1	A	950	LYS
1	A	951	ASP
1	A	993	LYS

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	276	ASN
1	A	325	GLN
1	A	648	ASN
1	A	802	GLN
1	A	836	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)

4 monosaccharides are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	NG6	B	1	2	19,19,19	1.51	2 (10%)	26,28,28	2.30	8 (30%)
2	GCD	B	2	2	10,11,12	2.75	5 (50%)	13,15,17	2.57	4 (30%)
2	NG6	C	1	2	19,19,19	1.53	2 (10%)	26,28,28	4.49	15 (57%)
2	GCD	C	2	2	10,11,12	2.28	2 (20%)	13,15,17	1.53	3 (23%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NG6	B	1	2	-	4/10/30/30	0/1/1/1
2	GCD	B	2	2	-	0/4/17/20	0/1/1/1
2	NG6	C	1	2	-	5/10/30/30	0/1/1/1
2	GCD	C	2	2	-	2/4/17/20	0/1/1/1

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	2	GCD	O5-C5	6.45	1.46	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	2	GCD	O5-C5	6.29	1.46	1.37
2	C	1	NG6	O2S-S	5.16	1.67	1.45
2	B	1	NG6	O1S-S	5.14	1.67	1.45
2	B	2	GCD	O6B-C6	-2.93	1.22	1.30
2	B	2	GCD	C4-C5	2.91	1.37	1.33
2	B	2	GCD	O5-C1	-2.88	1.40	1.45
2	B	1	NG6	O2S-S	2.83	1.57	1.45
2	C	2	GCD	C5-C6	-2.38	1.42	1.48
2	C	1	NG6	C3-C2	2.18	1.57	1.53
2	B	2	GCD	C3-C4	2.05	1.53	1.50

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	1	NG6	C1-C2-C3	-12.93	92.92	110.54
2	C	1	NG6	C1-O5-C5	-9.23	96.25	113.66
2	C	1	NG6	O6-S-O2S	-9.03	79.51	106.88
2	C	1	NG6	O1-C1-C2	5.58	120.82	109.22
2	B	1	NG6	C1-C2-C3	-5.47	103.09	110.54
2	C	1	NG6	O2S-S-O1S	-5.08	91.82	112.22
2	B	2	GCD	C1-C2-C3	4.90	115.69	109.67
2	C	1	NG6	O3S-S-O2S	-4.70	92.14	108.49
2	B	1	NG6	O7-C7-N2	-4.62	113.46	121.95
2	B	1	NG6	O3S-S-O2S	4.54	124.28	108.49
2	B	2	GCD	O3-C3-C2	-4.39	101.80	109.42
2	C	1	NG6	O6-C6-C5	-4.33	99.54	107.62
2	C	1	NG6	O1-C1-O5	3.96	122.27	110.38
2	B	2	GCD	O6B-C6-O6A	-3.78	114.95	123.61
2	B	1	NG6	C8-C7-N2	3.78	122.50	116.10
2	C	1	NG6	O6-S-O1S	3.74	118.22	106.88
2	B	2	GCD	O6B-C6-C5	3.58	123.12	114.20
2	C	1	NG6	O5-C5-C4	3.31	115.70	109.69
2	C	1	NG6	O3S-S-O1S	3.24	119.75	108.49
2	B	1	NG6	C1-O5-C5	-3.22	107.58	113.66
2	C	1	NG6	O3-C3-C2	3.22	116.16	109.66
2	C	1	NG6	C3-C2-N2	3.22	116.69	110.62
2	C	2	GCD	O6A-C6-C5	-3.14	112.16	120.48
2	B	1	NG6	O3S-S-O1S	-3.06	97.86	108.49
2	C	2	GCD	O6B-C6-C5	2.71	120.97	114.20
2	C	1	NG6	O5-C1-C2	-2.48	107.02	109.52
2	C	1	NG6	O5-C5-C6	2.43	111.56	106.67
2	C	2	GCD	O5-C5-C6	2.35	115.05	111.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	1	NG6	O4-C4-C5	2.31	115.03	109.30
2	B	1	NG6	C1-C2-N2	-2.18	108.20	110.73

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1	NG6	C4-C5-C6-O6
2	C	1	NG6	C1-C2-N2-C7
2	C	1	NG6	C6-O6-S-O2S
2	C	1	NG6	C6-O6-S-O3S
2	B	1	NG6	C8-C7-N2-C2
2	B	1	NG6	O7-C7-N2-C2
2	C	2	GCD	O5-C5-C6-O6A
2	B	1	NG6	O5-C5-C6-O6
2	C	1	NG6	C6-O6-S-O1S
2	C	2	GCD	O5-C5-C6-O6B
2	C	1	NG6	C3-C2-N2-C7

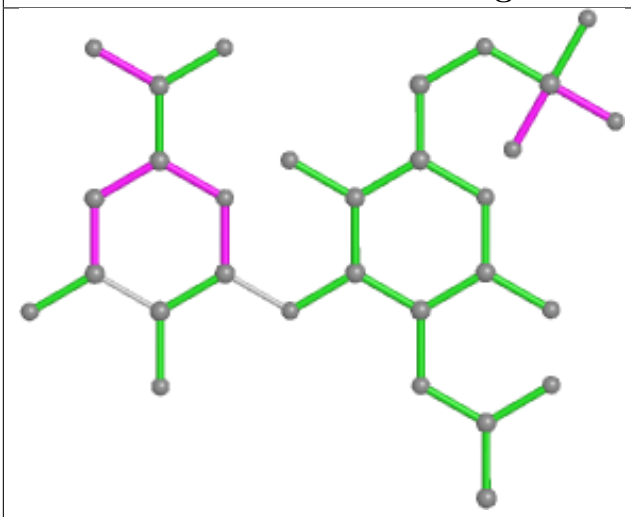
There are no ring outliers.

1 monomer is involved in 2 short contacts:

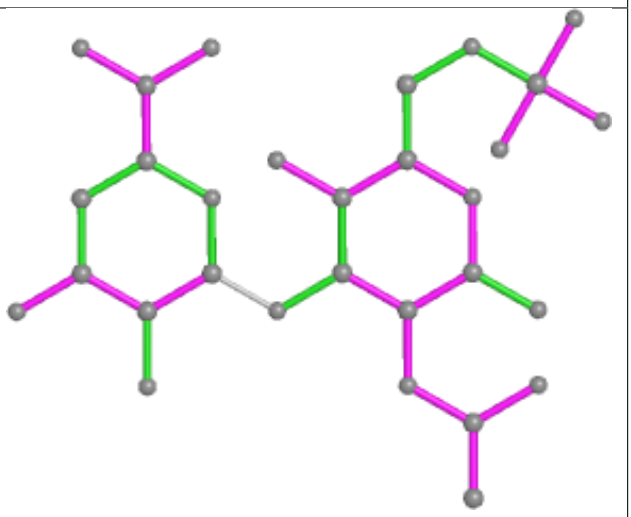
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	1	NG6	2	0

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

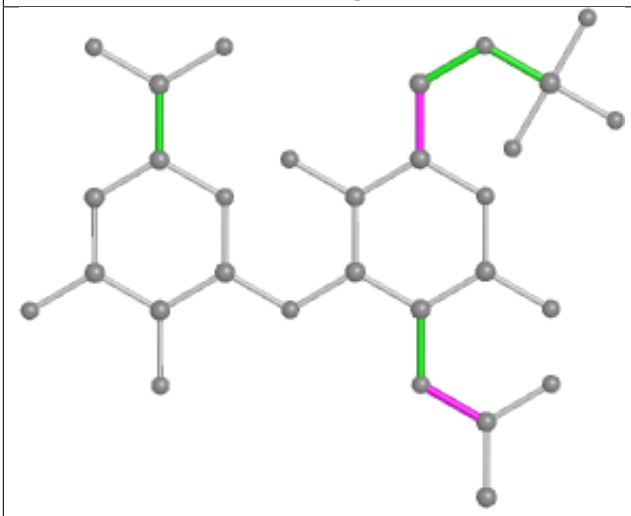
Oligosaccharide Chain B



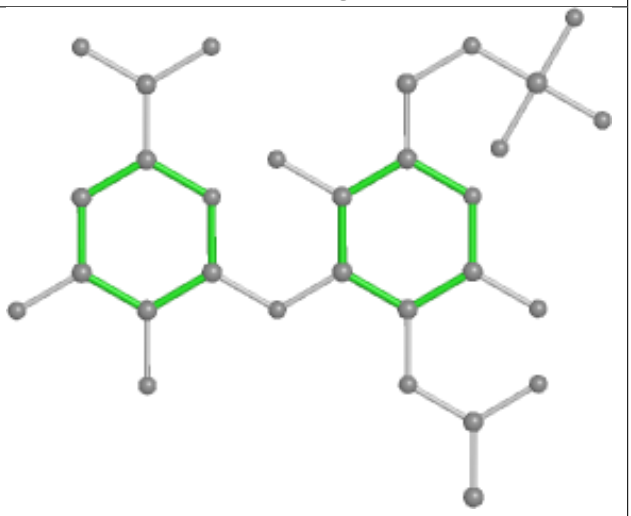
Bond lengths



Bond angles

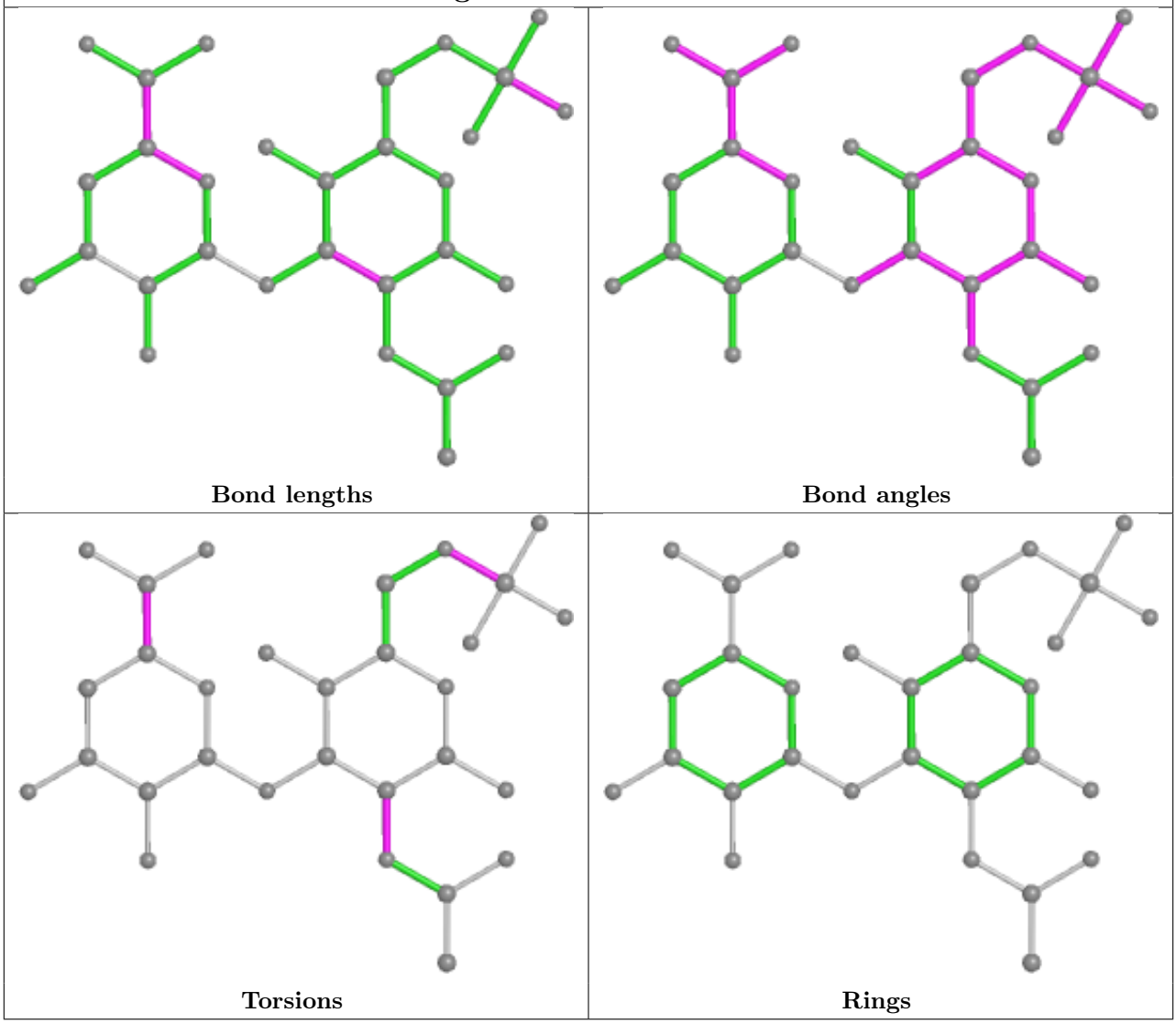


Torsions



Rings

Oligosaccharide Chain C



5.6 Ligand geometry (i)

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	GOL	A	1202	-	5,5,5	0.18	0	5,5,5	0.52	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
4	GOL	A	1202	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	1202	GOL	C1-C2-C3-O3
4	A	1202	GOL	O2-C2-C3-O3

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1202	GOL	1	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 (i)

6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	966/1021 (94%)	-0.07	26 (2%) 54 57	15, 27, 65, 90	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	299	ALA	5.6
1	A	81	GLY	3.8
1	A	135	SER	3.5
1	A	204	SER	3.1
1	A	79	TRP	3.1
1	A	75	LEU	2.8
1	A	301	GLY	2.8
1	A	136	THR	2.7
1	A	205	GLN	2.7
1	A	55	SER	2.7
1	A	300	ASN	2.6
1	A	63	LEU	2.5
1	A	82	GLY	2.5
1	A	332	ASN	2.4
1	A	76	LEU	2.3
1	A	951	ASP	2.3
1	A	201	SER	2.3
1	A	209	TYR	2.2
1	A	58	ASN	2.2
1	A	61	LEU	2.2
1	A	298	LEU	2.1
1	A	199	ALA	2.1
1	A	62	THR	2.1
1	A	60	ILE	2.1
1	A	72	ASN	2.0
1	A	57	LYS	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)

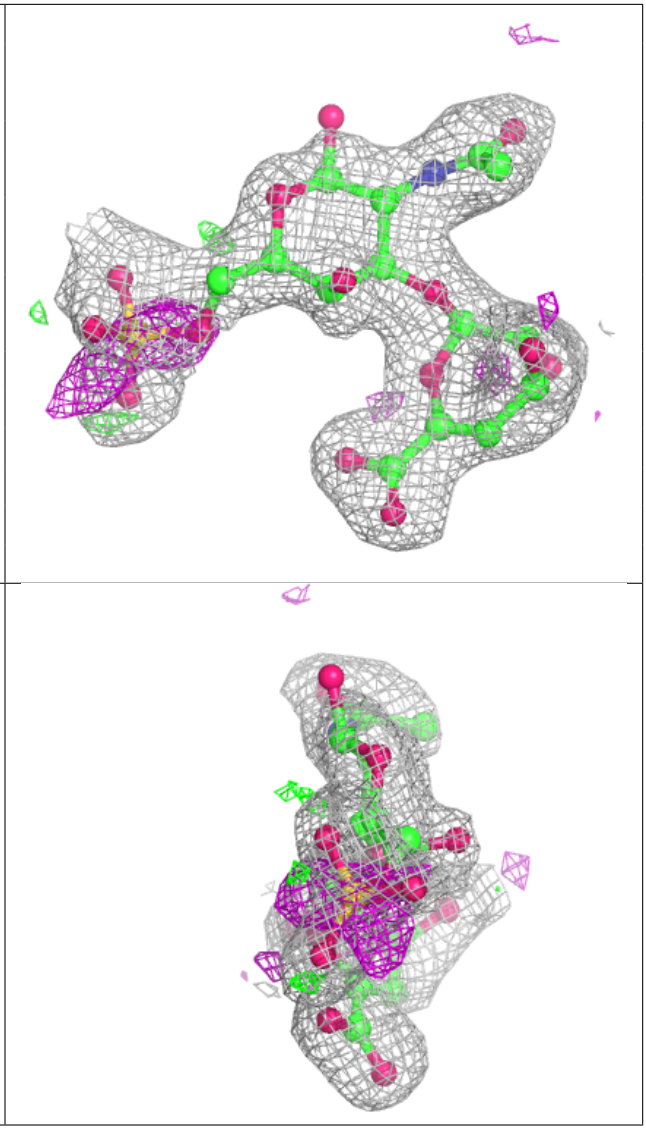
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	NG6	B	1	19/19	0.80	0.18	39,50,62,67	0
2	NG6	C	1	19/19	0.83	0.15	29,43,74,78	0
2	GCD	C	2	11/12	0.91	0.14	50,53,66,69	0
2	GCD	B	2	11/12	0.94	0.12	29,36,39,39	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.

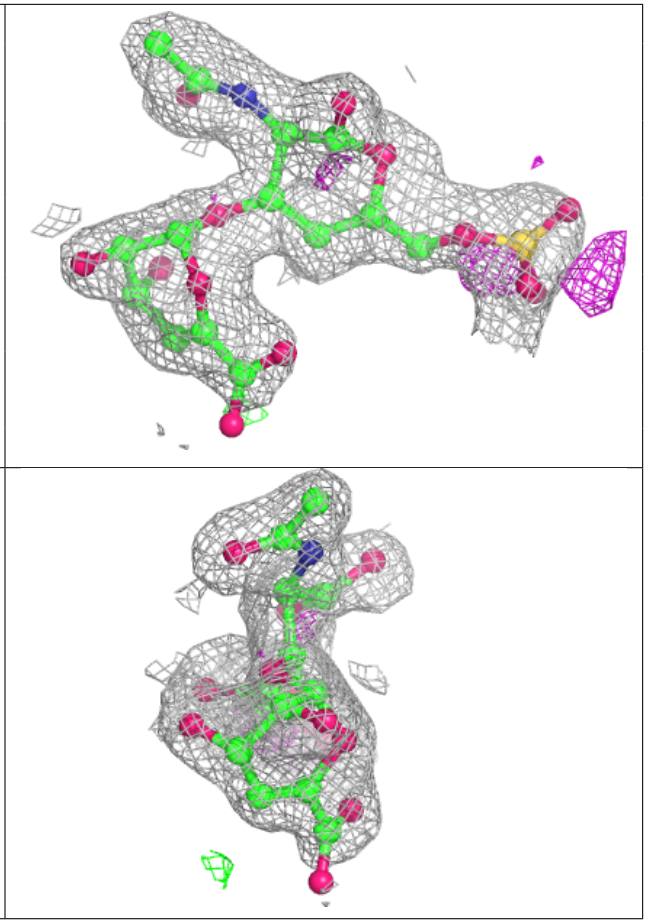
Electron density around Chain B:

$2mF_o$-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 C:

$2mF_o$-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	A	1202	6/6	0.73	0.22	51,58,62,63	0
3	MG	A	1201	1/1	0.92	0.14	48,48,48,48	0

6.5 Other polymers (i)

There are no such residues in this entry.