Full wwPDB X-ray Structure Validation Report ⓘ

Jun 12, 2024 – 11:35 PM EDT

PDB ID	:	3ZOA
Title	:	The structure of Trehalose Synthase (TreS) of Mycobacterium smegmatis in complex with acarbose
Authors	:	Caner, S.; Nguyen, N.; Aguda, A.; Zhang, R.; Pan, Y.T.; Withers, S.G.; Brayer, G.D.
Deposited on	:	2013-02-21
Resolution	:	1.85 Å(reported)

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

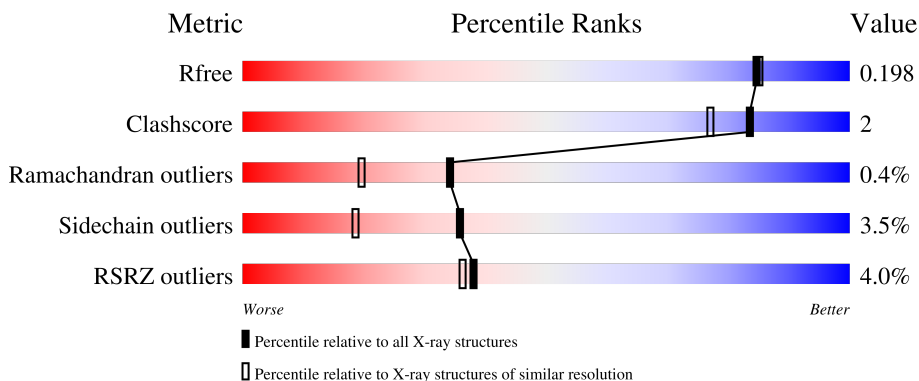|		
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.36.2
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1   Overall quality at a glance ⓘ

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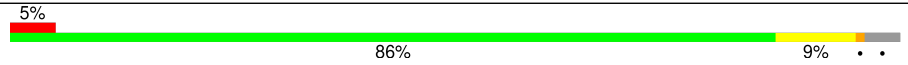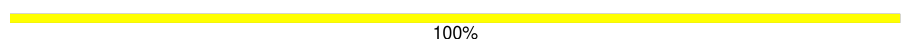*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.85 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		0.198
Clashscore		2
Ramachandran outliers		0.4%
Sidechain outliers		3.5%
RSRZ outliers		4.0%

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	2469 (1.86-1.86)
Clashscore	141614	2625 (1.86-1.86)
Ramachandran outliers	138981	2592 (1.86-1.86)
Sidechain outliers	138945	2592 (1.86-1.86)
RSRZ outliers	127900	2436 (1.86-1.86)

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	593	3% / 87% / 5% · 8%
1	B	593	5% / 86% / 9% · ·
2	C	3	100%

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:

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wwPDB
PROTEIN DATA BANK

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	GLC	C	1	-	-	-	X

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 10192 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 TREHALOSE SYNTHASE/AMYLASE TRES.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	548	Total 4515	C 2895	N 771	O 832	S 17	0	4	0
1	B	571	Total 4678	C 2994	N 803	O 864	S 17	0	2	0

- Molecule 2 is an oligosaccharide called 4,6-dideoxy-4-{[(1S,4R,5S,6S)-4,5,6-trihydroxy-3-(hy droxymethyl)cyclohex-2-en-1-yl]amino}-alpha-D-glucopyranose-(1-4)-alpha-D-glucopyranos e-(1-4)-alpha-D-glucopyranose.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	3	Total 44	C 25	N 1	O 18	0	0	0

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total 1	Ca 1	0	0
3	B	1	Total 1	Ca 1	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	4	Total 4	Cl 4	0	0
4	B	3	Total 3	Cl 3	0	0

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total 1	Mg 1	0	0
5	B	1	Total 1	Mg 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	478	Total 478	O 478	0	0
6	B	466	Total 466	O 466	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 a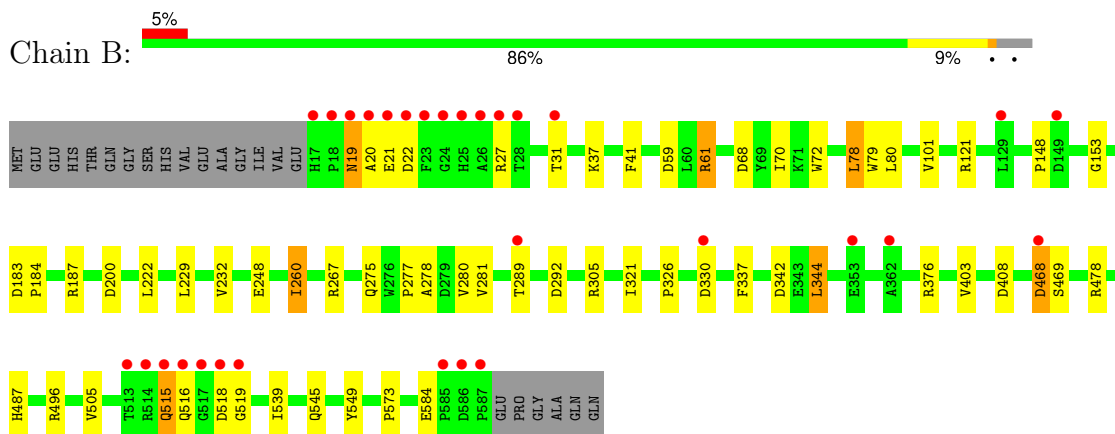nd red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: TREHALOSE SYNTHASE/AMYLASE TRES
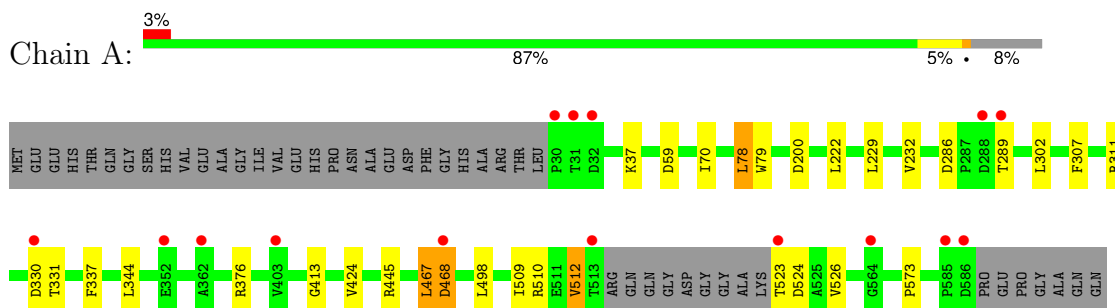
- Molecule 1: TREHALOSE SYNTHASE/AMYLASE TRES

- Molecule 2: 4,6-dideoxy-4-{[(1S,4R,5S,6S)-4,5,6-trihydroxy-3-(hydroxymethyl)cyclohex-2-en-1-yl]amino}-alpha-D-glucopyranose-(1-4)-alpha-D-glucopyranose-(1-4)-alpha-D-glucopyranose

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	I 41	Depositor
Cell constants a, b, c, α, β, γ	127.18Å 127.18Å 216.95Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.82 – 1.85 37.71 – 1.85	Depositor EDS
% Data completeness (in resolution range)	98.0 (34.82-1.85) 98.0 (37.71-1.85)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.98 (at 1.85Å)	Xtriage
Refinement program	PHENIX (PHENIX.REFINE: 1.8.1_1168)	Depositor
R, R_{free}	0.165 , 0.198 0.166 , 0.198	Depositor DCC
R_{free} test set	3600 reflections (2.52%)	wwPDB-VP
Wilson B-factor (Å^2)	27.1	Xtriage
Anisotropy	0.356	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 46.7	EDS
L-test for twinning[2]	$< |L| > = 0.49, < L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.025 for h,-k,-l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	10192	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 2.23% 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: GLC, CL, CA, AC1, MG

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	0.36	0/4667	0.54	0/6363
1	B	0.35	0/4831	0.55	0/6588
All	All	0.36	0/9498	0.55	0/12951

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 ⓘ

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	4515	0	4290	17	0
1	B	4678	0	4429	27	0
2	C	44	0	30	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	4	0	0	0	0
4	B	3	0	0	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
6	A	478	0	0	2	0
6	B	466	0	0	5	0
All	All	10192	0	8749	43	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 (43) 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:B:305:ARG:HG3	1:B:321:ILE:HG12	1.79	0.64
1:A:37:LYS:NZ	1:A:330:ASP:O	2.32	0.63
1:B:19:ASN:O	1:B:21:GLU:N	2.31	0.62
1:A:573:PRO:HG3	1:B:573:PRO:HG3	1.82	0.61
1:A:376[A]:ARG:HD2	1:A:413:GLY:O	2.03	0.59
1:B:289:THR:HG21	1:B:292:ASP:HB3	1.86	0.57
1:B:549:TYR:CE2	1:B:584:GLU:HG2	2.43	0.54
1:B:468:ASP:OD1	1:B:468:ASP:N	2.28	0.54
1:A:498:LEU:HD11	1:A:509:ILE:HG13	1.90	0.53
1:B:121[B]:ARG:NE	6:B:2125:HOH:O	2.36	0.53
1:B:275:GLN:HB2	1:B:280:VAL:HG12	1.90	0.53
1:A:70:ILE:HD13	1:A:78:LEU:HD11	1.93	0.51
1:A:232:VAL:HG22	6:A:2264:HOH:O	2.10	0.51
1:A:445:ARG:NE	6:A:2027:HOH:O	2.30	0.49
1:A:512:VAL:HG12	1:A:524:ASP:HB3	1.95	0.49
1:B:260:ILE:HD12	1:B:267:ARG:HB2	1.95	0.49
1:B:232:VAL:HG22	6:B:2234:HOH:O	2.12	0.48
1:B:37:LYS:NZ	1:B:330:ASP:O	2.40	0.47
1:A:286:ASP:O	1:A:289:THR:OG1	2.28	0.47
1:A:510:ARG:HB2	1:A:526:VAL:HG22	1.98	0.46
1:B:70:ILE:HD13	1:B:78:LEU:HD11	1.98	0.45
1:B:505:VAL:HB	1:B:539:ILE:HD12	1.99	0.45
1:A:307:PHE:O	1:A:311:ARG:HG2	2.17	0.45
1:A:468:ASP:OD1	1:A:468:ASP:N	2.38	0.45
1:B:248:GLU:CD	1:B:248:GLU:H	2.21	0.44
1:A:467:LEU:HD12	1:A:467:LEU:HA	1.88	0.44
1:B:19:ASN:O	1:B:19:ASN:ND2	2.42	0.43
1:B:277:PRO:O	1:B:281:VAL:HG23	2.18	0.43
1:B:487:HIS:HD2	6:B:2443:HOH:O	2.02	0.43
1:B:183:ASP:HA	1:B:184:PRO:HD3	1.84	0.43
1:A:79:TRP:CD1	1:A:79:TRP:C	2.93	0.42
1:B:72:TRP:CZ2	1:B:478:ARG:HD2	2.54	0.42
1:A:376[A]:ARG:HG3	1:A:424:VAL:HG12	2.00	0.42
1:B:79:TRP:CD1	1:B:79:TRP:C	2.93	0.42
1:B:41:PHE:HB2	1:B:403:VAL:HG22	2.01	0.42
1:B:61:ARG:NH1	6:B:2032:HOH:O	2.52	0.42
1:A:70:ILE:HG21	1:A:78:LEU:HD11	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:342:ASP:OD1	1:B:344:LEU:HB2	2.20	0.42
1:B:376:ARG:HD3	1:B:408:ASP:OD1	2.21	0.41
1:A:512:VAL:O	1:A:523:THR:N	2.53	0.41
1:B:61:ARG:NH2	6:B:2028:HOH:O	2.42	0.40
1:B:148:PRO:O	1:B:153:GLY:HA3	2.21	0.40
1:B:278:ALA:HA	1:B:326:PRO:HG2	2.04	0.40

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	548/593 (92%)	537 (98%)	11 (2%)	0	100	100
1	B	571/593 (96%)	558 (98%)	8 (1%)	5 (1%)	17	6
All	All	1119/1186 (94%)	1095 (98%)	19 (2%)	5 (0%)	34	19

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	516	GLN
1	B	518	ASP
1	B	515	GLN
1	B	519	GLY
1	B	20	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	A	483/512 (94%)	471 (98%)	12 (2%)	47	31
1	B	497/512 (97%)	475 (96%)	22 (4%)	28	12
All	All	980/1024 (96%)	946 (96%)	34 (4%)	36	18

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	59	ASP
1	A	78	LEU
1	A	200	ASP
1	A	222	LEU
1	A	229	LEU
1	A	302	LEU
1	A	331	THR
1	A	337	PHE
1	A	344	LEU
1	A	467	LEU
1	A	468	ASP
1	A	512	VAL
1	B	19	ASN
1	B	22	ASP
1	B	27	ARG
1	B	31	THR
1	B	59	ASP
1	B	61	ARG
1	B	68	ASP
1	B	78	LEU
1	B	80	LEU
1	B	101	VAL
1	B	187	ARG
1	B	200	ASP
1	B	222	LEU
1	B	229	LEU
1	B	260	ILE
1	B	337	PHE
1	B	344	LEU
1	B	468	ASP
1	B	469	SER
1	B	496	ARG
1	B	515	GLN

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Mol	Chain	Res	Type
1	B	545	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 ⓘ

3 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	GLC	C	1	2	12,12,12	1.52	2 (16%)	17,17,17	2.91	9 (52%)
2	GLC	C	2	2	11,11,12	1.92	4 (36%)	15,15,17	3.12	8 (53%)
2	AC1	C	3	2	21,22,23	1.67	6 (28%)	22,32,34	2.61	9 (40%)

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	GLC	C	1	2	-	2/2/22/22	0/1/1/1
2	GLC	C	2	2	-	0/2/19/22	0/1/1/1
2	AC1	C	3	2	-	0/6/43/46	0/2/2/2

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	2	GLC	C2-C3	3.95	1.58	1.52
2	C	3	AC1	C5-C4	3.46	1.63	1.53
2	C	2	GLC	C1-C2	3.09	1.59	1.52
2	C	1	GLC	C3-C2	2.94	1.60	1.52
2	C	3	AC1	C3-C4	2.86	1.58	1.53
2	C	3	AC1	C2-C3	2.52	1.56	1.52
2	C	3	AC1	O3B-C3B	-2.41	1.37	1.43
2	C	1	GLC	C1-C2	2.41	1.57	1.52
2	C	2	GLC	C4-C3	2.35	1.58	1.52
2	C	2	GLC	O2-C2	-2.19	1.38	1.43
2	C	3	AC1	C6-C5	2.10	1.56	1.51
2	C	3	AC1	C1-C2	2.07	1.57	1.52

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	3	AC1	C7B-C1B-N4A	7.01	120.99	110.68
2	C	2	GLC	C1-O5-C5	6.76	121.24	112.19
2	C	1	GLC	O4-C4-C5	6.31	124.86	109.32
2	C	3	AC1	O3B-C3B-C4A	4.98	119.50	109.64
2	C	3	AC1	O3-C3-C2	4.77	119.80	110.05
2	C	2	GLC	O4-C4-C3	4.76	121.59	110.38
2	C	1	GLC	C6-C5-C4	4.43	123.90	113.02
2	C	2	GLC	C2-C3-C4	4.13	118.13	110.86
2	C	1	GLC	C1-O5-C5	-4.13	105.66	113.65
2	C	1	GLC	O4-C4-C3	4.01	119.82	110.38
2	C	2	GLC	O3-C3-C2	3.60	117.41	110.05
2	C	3	AC1	C1-C2-C3	-3.60	104.41	109.64
2	C	1	GLC	O1-C1-C2	3.52	119.20	108.98
2	C	2	GLC	C1-C2-C3	-3.46	104.60	109.64
2	C	1	GLC	O2-C2-C3	-3.41	102.33	110.38
2	C	2	GLC	O5-C5-C6	3.37	114.23	107.66
2	C	2	GLC	C3-C4-C5	-2.90	104.97	110.23
2	C	1	GLC	C4-C3-C2	-2.90	105.75	110.83
2	C	3	AC1	C3B-C4A-C5B	2.79	116.05	111.67
2	C	3	AC1	O2-C2-C3	-2.78	104.40	110.15
2	C	1	GLC	O5-C5-C6	2.62	112.94	106.44
2	C	3	AC1	O2B-C2B-C1B	2.62	114.24	109.08
2	C	3	AC1	O2-C2-C1	-2.30	103.95	109.22
2	C	3	AC1	C2B-C3B-C4A	2.07	113.49	110.22
2	C	1	GLC	O3-C3-C4	2.04	115.17	110.38
2	C	2	GLC	C6-C5-C4	2.03	118.00	113.02

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	1	GLC	O5-C5-C6-O6
2	C	1	GLC	C4-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

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
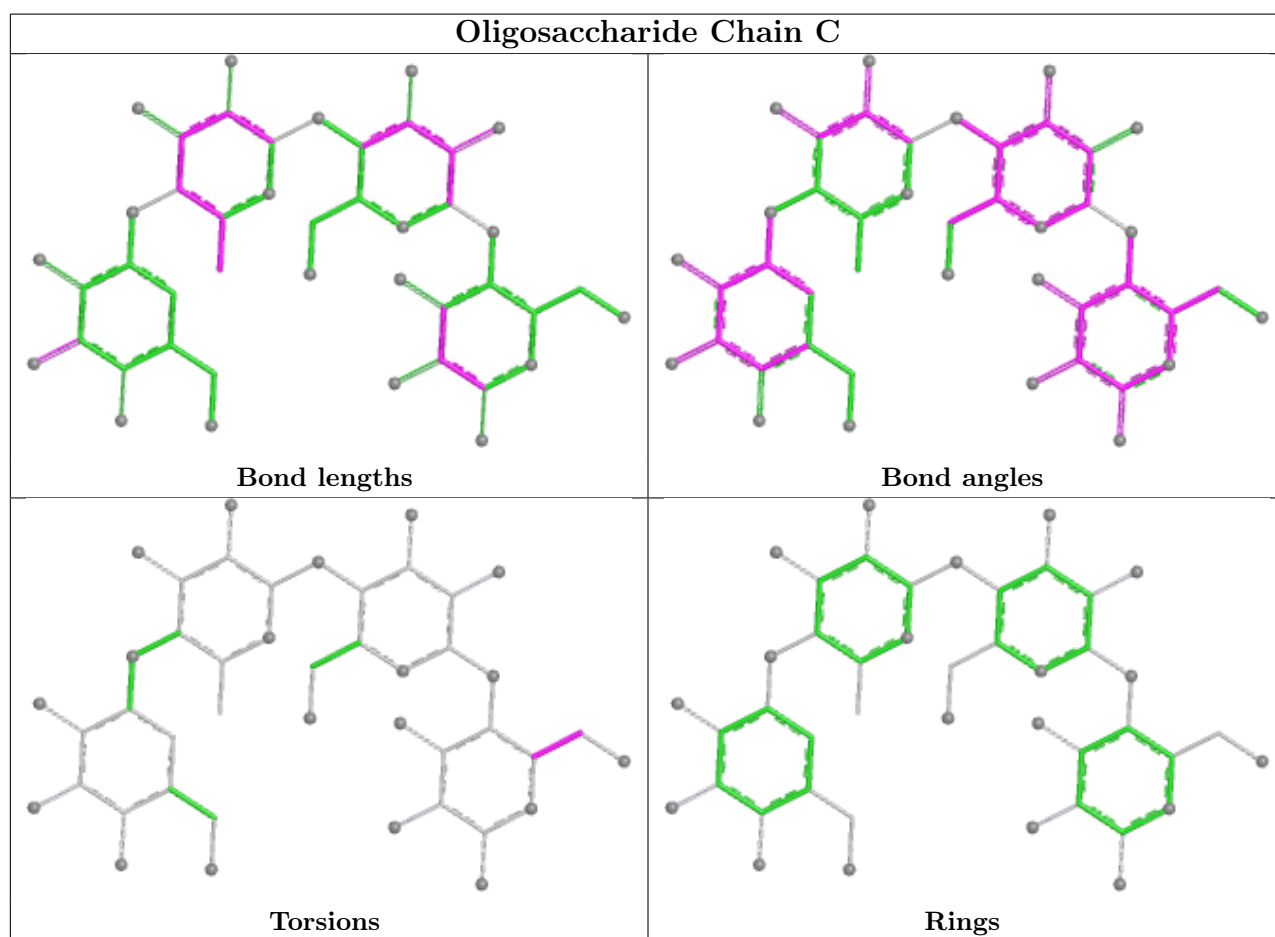
5.6 Ligand geometry ⓘ

Of 11 ligands modelled in this entry, 11 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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	548/593 (92%)	-0.15	15 (2%) 54	53	19, 30, 50, 85	0
1	B	571/593 (96%)	0.02	30 (5%) 26	25	20, 32, 53, 82	0
All	All	1119/1186 (94%)	-0.06	45 (4%) 38	36	19, 31, 51, 85	0

All (45) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	516	GLN	9.3
1	B	20	ALA	7.4
1	B	19	ASN	6.8
1	B	27	ARG	6.6
1	B	22	ASP	6.6
1	A	586	ASP	6.6
1	B	26	ALA	5.7
1	B	24	GLY	5.6
1	B	515	GLN	5.4
1	B	23	PHE	5.4
1	B	518	ASP	5.2
1	B	586	ASP	5.1
1	B	25	HIS	5.0
1	B	17	HIS	4.9
1	B	587	PRO	4.8
1	A	31	THR	4.7
1	A	523	THR	4.6
1	B	21	GLU	4.2
1	B	517	GLY	4.0
1	B	28	THR	3.9
1	B	514	ARG	3.8
1	A	288	ASP	3.6
1	A	585	PRO	3.6
1	B	18	PRO	3.5

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Mol	Chain	Res	Type	RSRZ
1	A	30	PRO	3.5
1	A	513	THR	3.3
1	B	513	THR	3.2
1	A	32	ASP	2.7
1	B	468	ASP	2.6
1	B	519	GLY	2.6
1	B	31	THR	2.5
1	A	403	VAL	2.5
1	B	330	ASP	2.5
1	A	330	ASP	2.4
1	B	149	ASP	2.4
1	A	468	ASP	2.3
1	A	289	THR	2.3
1	A	352	GLU	2.3
1	B	362	ALA	2.2
1	B	585	PRO	2.2
1	B	353	GLU	2.2
1	A	362	ALA	2.2
1	A	564	GLY	2.1
1	B	129	LEU	2.1
1	B	289	THR	2.0

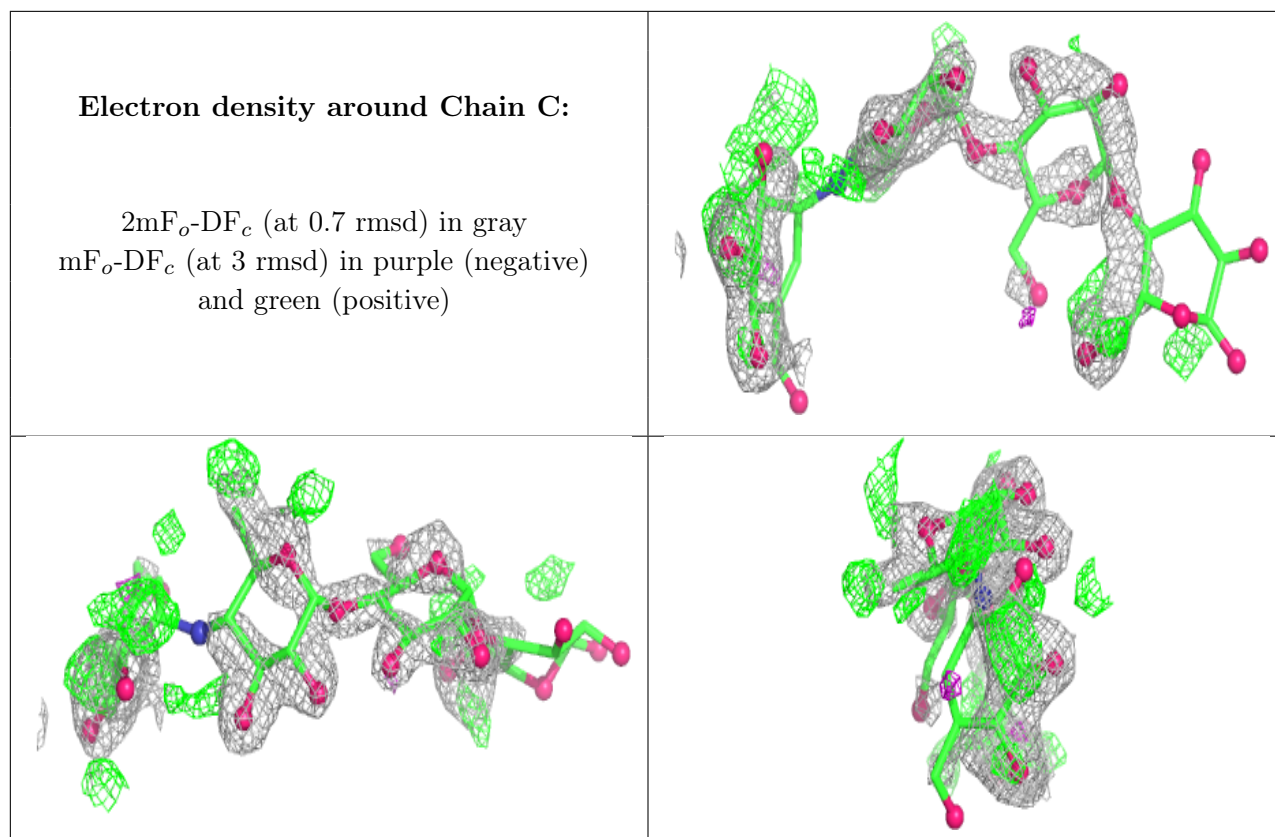## 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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
2	GLC	C	1	12/12	0.28	0.68	51,62,66,69	12
2	AC1	C	3	21/22	0.71	0.36	30,38,42,45	21
2	GLC	C	2	11/12	0.78	0.33	40,46,53,55	11

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

Electron density around Chain 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)

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	CL	A	1591	1/1	0.98	0.05	30,30,30,30	0
3	CA	B	1590	1/1	0.99	0.09	28,28,28,28	0
4	CL	A	1590	1/1	0.99	0.08	30,30,30,30	0
3	CA	A	1588	1/1	0.99	0.05	26,26,26,26	0
4	CL	A	1592	1/1	0.99	0.04	35,35,35,35	0
4	CL	B	1588	1/1	0.99	0.10	30,30,30,30	0
4	CL	B	1591	1/1	0.99	0.04	33,33,33,33	0
5	MG	B	1592	1/1	0.99	0.04	24,24,24,24	0
4	CL	A	1589	1/1	1.00	0.08	24,24,24,24	0
5	MG	A	1593	1/1	1.00	0.08	21,21,21,21	0
4	CL	B	1589	1/1	1.00	0.07	24,24,24,24	0

6.5 Other polymers ⓘ

There are no such residues in this entry.