Full wwPDB X-ray Structure Validation Report

Oct 29, 2024 – 08:11 AM EDT

PDB ID	:	3SC7
Title	:	First crystal structure of an endo-inulinase, from Aspergillus ficuum: structural analysis and comparison with other GH32 enzymes.
Authors	:	Housen, I.; Pouyez, J.; Roussel, G.; Mayard, A.; Vandamme, A.M.; Wouters, J.; Michaux, C.
Deposited on	:	2011-06-07
Resolution	:	1.50 Å(reported)

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

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

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

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

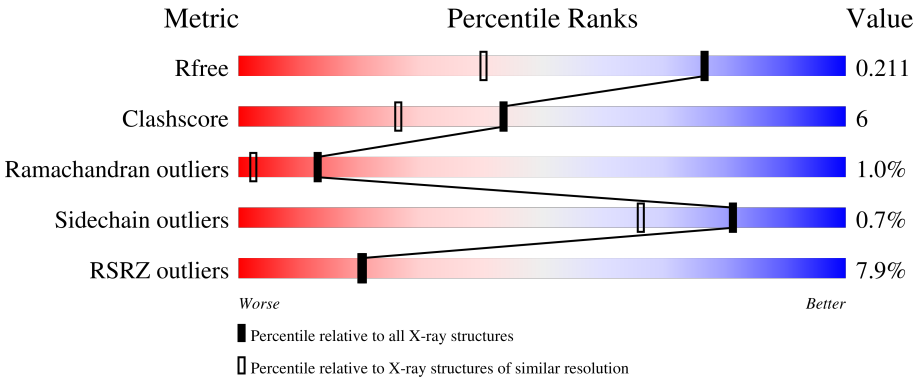
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 1.50 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}	164625	3717 (1.50-1.50)
Clashscore	180529	4048 (1.50-1.50)
Ramachandran outliers	177936	3970 (1.50-1.50)
Sidechain outliers	177891	3967 (1.50-1.50)
RSRZ outliers	164620	3718 (1.50-1.50)

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	X	516	8%, 86%, 8%
2	A	3	33%, 67%
3	B	3	33%, 67%

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
2	MAN	A	2	-	-	X	-

2 Entry composition (i)

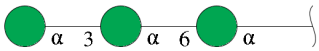
There are 5 unique types of molecules in this entry. The entry contains 4433 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Inulinase.

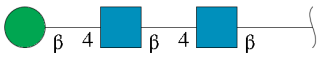
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	X	493	3756	2358	630	757	11	0	0	0

- Molecule 2 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-alpha-D-mannopyranose.



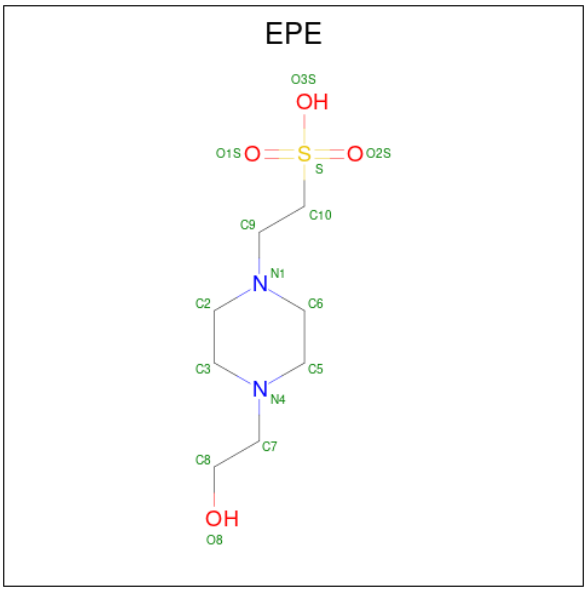
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	O				
2	A	3	33	18	15		0	0	0

- Molecule 3 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	B	3	37	21	2	14	0	0	0

- Molecule 4 is 4-(2-HYDROXYETHYL)-1-PIPERAZINE ETHANESULFONIC ACID (three-letter code: EPE) (formula: $C_8H_{18}N_2O_4S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	X	1	Total	C	N	O	S	0	0
			15	8	2	4	1		

- Molecule 5 is water.

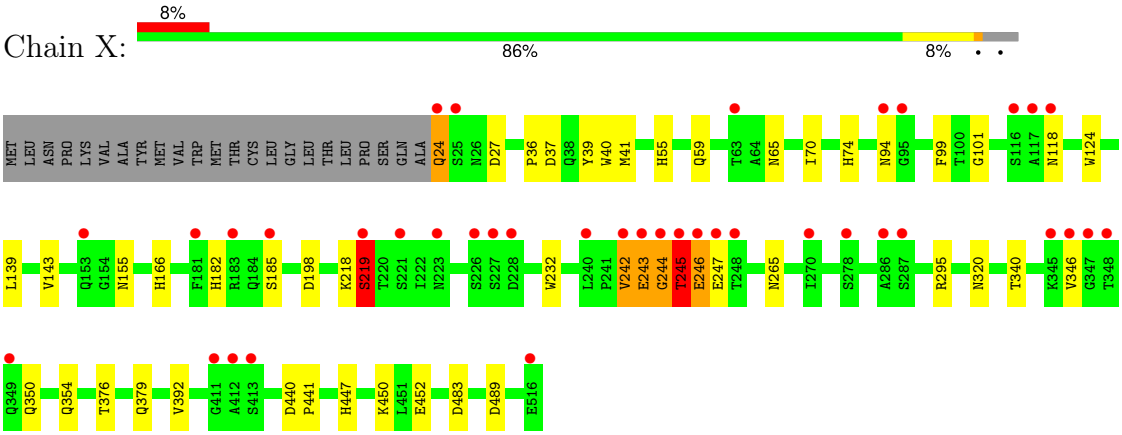
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	X	592	Total	O	0	0
			592	592		

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: Inulinase

Chain X:



• Molecule 2: alpha-D-mannopyranose-(1-3)-alpha-D-mannopyranose-(1-6)-alpha-D-mannopyranose

Chain A:

• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain B:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α, β, γ	95.09Å 95.09Å 130.56Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	47.57 – 1.50 47.57 – 1.50	Depositor EDS
% Data completeness (in resolution range)	100.0 (47.57-1.50) 99.5 (47.57-1.50)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.64 (at 1.50Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.189 , 0.211 0.190 , 0.211	Depositor DCC
R_{free} test set	5449 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	15.7	Xtriage
Anisotropy	0.030	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 32.9	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.022 for -h,-k,l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	4433	wwPDB-VP
Average B, all atoms (Å^2)	19.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.78% 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: MAN, NAG, EPE, BMA

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	X	0.53	0/3853	0.70	2/5269 (0.0%)

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
1	X	0	6

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	X	244	GLY	N-CA-C	-5.81	98.58	113.10
1	X	37	ASP	CB-CG-OD1	5.14	122.93	118.30

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	X	218	LYS	Peptide
1	X	24	GLN	Peptide
1	X	242	VAL	Peptide
1	X	243	GLU	Peptide
1	X	346	VAL	Peptide
1	X	94	ASN	Peptide

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	X	3756	0	3556	40	0
2	A	33	0	29	8	0
3	B	37	0	30	0	0
4	X	15	0	17	0	0
5	X	592	0	0	4	0
All	All	4433	0	3632	44	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 6.

All (44) 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:A:1:MAN:HO6	2:A:2:MAN:C1	1.68	1.04
1:X:243:GLU:HB3	1:X:244:GLY:HA3	1.56	0.85
1:X:376:THR:H	1:X:379:GLN:HE21	1.33	0.77
1:X:295:ARG:HH12	2:A:2:MAN:H3	1.54	0.72
2:A:1:MAN:H61	2:A:2:MAN:H2	1.71	0.71
1:X:139:LEU:H	1:X:155:ASN:HD21	1.39	0.71
1:X:447:HIS:HD2	1:X:483:ASP:OD2	1.74	0.70
1:X:24:GLN:O	1:X:489:ASP:OD2	2.10	0.70
1:X:55:HIS:HD2	1:X:74:HIS:NE2	1.95	0.64
2:A:1:MAN:C6	2:A:2:MAN:H2	2.28	0.62
1:X:242:VAL:O	1:X:243:GLU:HB2	2.00	0.62
2:A:1:MAN:O6	2:A:2:MAN:C2	2.49	0.61
1:X:198:ASP:O	1:X:219:SER:HB2	2.03	0.58
1:X:242:VAL:CG1	1:X:350:GLN:HE22	2.19	0.54
1:X:24:GLN:N	1:X:27:ASP:H	2.05	0.54
1:X:139:LEU:H	1:X:155:ASN:ND2	2.04	0.54
1:X:36:PRO:HG3	1:X:41:MET:HB3	1.90	0.53
1:X:219:SER:H	1:X:232:TRP:HH2	1.56	0.53
1:X:118:ASN:ND2	1:X:143:VAL:O	2.44	0.51
1:X:376:THR:H	1:X:379:GLN:NE2	2.05	0.51
1:X:243:GLU:HB3	1:X:244:GLY:CA	2.35	0.51
1:X:243:GLU:CB	1:X:244:GLY:HA3	2.34	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:X:55:HIS:HE1	5:X:642:HOH:O	1.94	0.50
1:X:441:PRO:HB2	2:A:1:MAN:H62	1.93	0.49
1:X:24:GLN:HB3	5:X:687:HOH:O	2.13	0.48
1:X:182:HIS:HD2	1:X:185:SER:OG	1.96	0.48
1:X:24:GLN:HA	1:X:24:GLN:OE1	2.13	0.48
1:X:24:GLN:NE2	5:X:947:HOH:O	2.47	0.48
1:X:242:VAL:O	1:X:242:VAL:HG12	2.15	0.46
1:X:440:ASP:OD1	2:A:2:MAN:O4	2.26	0.46
1:X:101:GLY:HA3	1:X:124:TRP:O	2.15	0.45
1:X:245:THR:C	1:X:247:GLU:H	2.20	0.44
1:X:450:LYS:HE3	1:X:452:GLU:OE2	2.16	0.44
1:X:295:ARG:NH1	2:A:2:MAN:H3	2.27	0.44
1:X:59:GLN:HE22	1:X:99:PHE:HA	1.82	0.44
1:X:59:GLN:NE2	1:X:70:ILE:HG21	2.33	0.44
1:X:24:GLN:O	1:X:24:GLN:HG3	2.18	0.43
1:X:340:THR:O	1:X:354:GLN:HA	2.19	0.43
1:X:166:HIS:HD2	5:X:781:HOH:O	2.01	0.43
1:X:244:GLY:C	1:X:246:GLU:H	2.23	0.41
1:X:265:ASN:H	1:X:265:ASN:HD22	1.69	0.41
1:X:447:HIS:CD2	1:X:483:ASP:OD2	2.64	0.41
1:X:242:VAL:CG1	1:X:350:GLN:NE2	2.82	0.41
1:X:40:TRP:CH2	1:X:65:ASN:HA	2.57	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	X	491/516 (95%)	468 (95%)	18 (4%)	5 (1%)	13 2

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	X	219	SER
1	X	245	THR
1	X	39	TYR
1	X	320	ASN
1	X	246	GLU

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	X	411/431 (95%)	408 (99%)	3 (1%)	81 66

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	X	219	SER
1	X	245	THR
1	X	392	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	X	55	HIS
1	X	59	GLN
1	X	155	ASN
1	X	166	HIS
1	X	182	HIS
1	X	265	ASN
1	X	293	ASN
1	X	325	ASN
1	X	350	GLN
1	X	355	GLN
1	X	379	GLN
1	X	415	GLN
1	X	447	HIS

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)

6 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	MAN	A	1	2	11,11,12	0.78	0	15,15,17	2.57	7 (46%)
2	MAN	A	2	2	11,11,12	0.78	0	15,15,17	2.47	8 (53%)
2	MAN	A	3	2	11,11,12	0.92	0	15,15,17	1.89	4 (26%)
3	NAG	B	1	3,1	14,14,15	0.52	0	17,19,21	0.66	0
3	NAG	B	2	3	14,14,15	0.54	0	17,19,21	1.13	1 (5%)
3	BMA	B	3	3	9,9,12	0.61	0	10,12,17	1.32	2 (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
2	MAN	A	1	2	-	0/2/19/22	0/1/1/1
2	MAN	A	2	2	-	1/2/19/22	0/1/1/1
2	MAN	A	3	2	-	0/2/19/22	0/1/1/1
3	NAG	B	1	3,1	-	0/6/23/26	0/1/1/1
3	NAG	B	2	3	-	0/6/23/26	0/1/1/1
3	BMA	B	3	3	-	-	0/1/1/1

There are no bond length outliers.

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1	MAN	C1-C2-C3	4.55	116.27	109.64
2	A	2	MAN	O4-C4-C3	-4.34	100.15	110.38
2	A	2	MAN	C2-C3-C4	4.32	118.46	110.86
2	A	1	MAN	C6-C5-C4	-3.97	103.26	113.02
2	A	1	MAN	C1-O5-C5	3.74	117.20	112.19
2	A	3	MAN	C1-O5-C5	3.73	117.19	112.19
2	A	3	MAN	C1-C2-C3	3.60	114.89	109.64
2	A	2	MAN	C1-O5-C5	-3.57	107.41	112.19
2	A	1	MAN	C3-C4-C5	3.51	116.60	110.23
2	A	3	MAN	O2-C2-C1	-3.44	101.34	109.22
2	A	1	MAN	O5-C5-C4	3.30	118.86	110.83
2	A	2	MAN	C3-C4-C5	3.21	116.05	110.23
2	A	1	MAN	C2-C3-C4	2.99	116.11	110.86
3	B	2	NAG	C4-C3-C2	2.68	114.95	111.02
3	B	3	BMA	C1-C2-C3	2.67	113.53	109.64
2	A	2	MAN	O6-C6-C5	-2.62	102.40	111.33
2	A	1	MAN	O3-C3-C2	2.57	115.30	110.05
2	A	2	MAN	O3-C3-C2	2.36	114.87	110.05
2	A	2	MAN	O2-C2-C1	2.34	114.57	109.22
2	A	3	MAN	C3-C4-C5	-2.13	106.36	110.23
2	A	2	MAN	C6-C5-C4	-2.08	107.90	113.02
3	B	3	BMA	C4-C3-C2	-2.03	108.51	110.92

There are no chirality outliers.

All (1) torsion outliers are listed below:

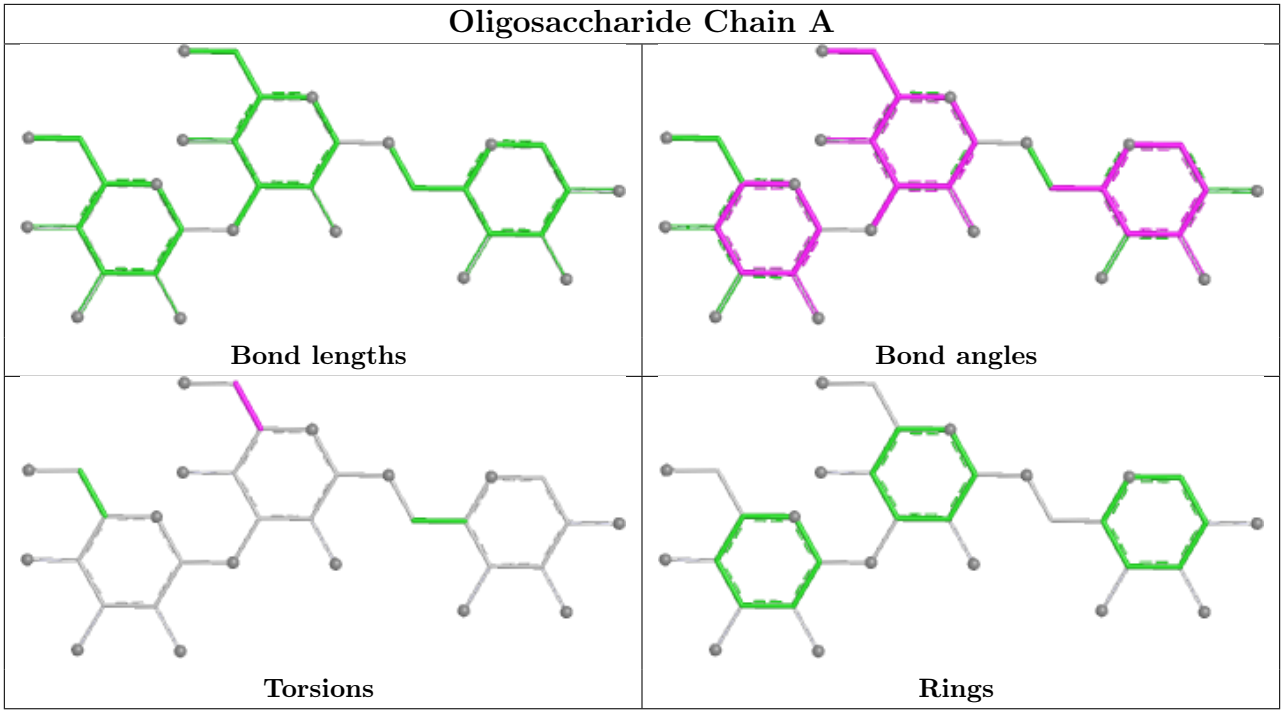
Mol	Chain	Res	Type	Atoms
2	A	2	MAN	C4-C5-C6-O6

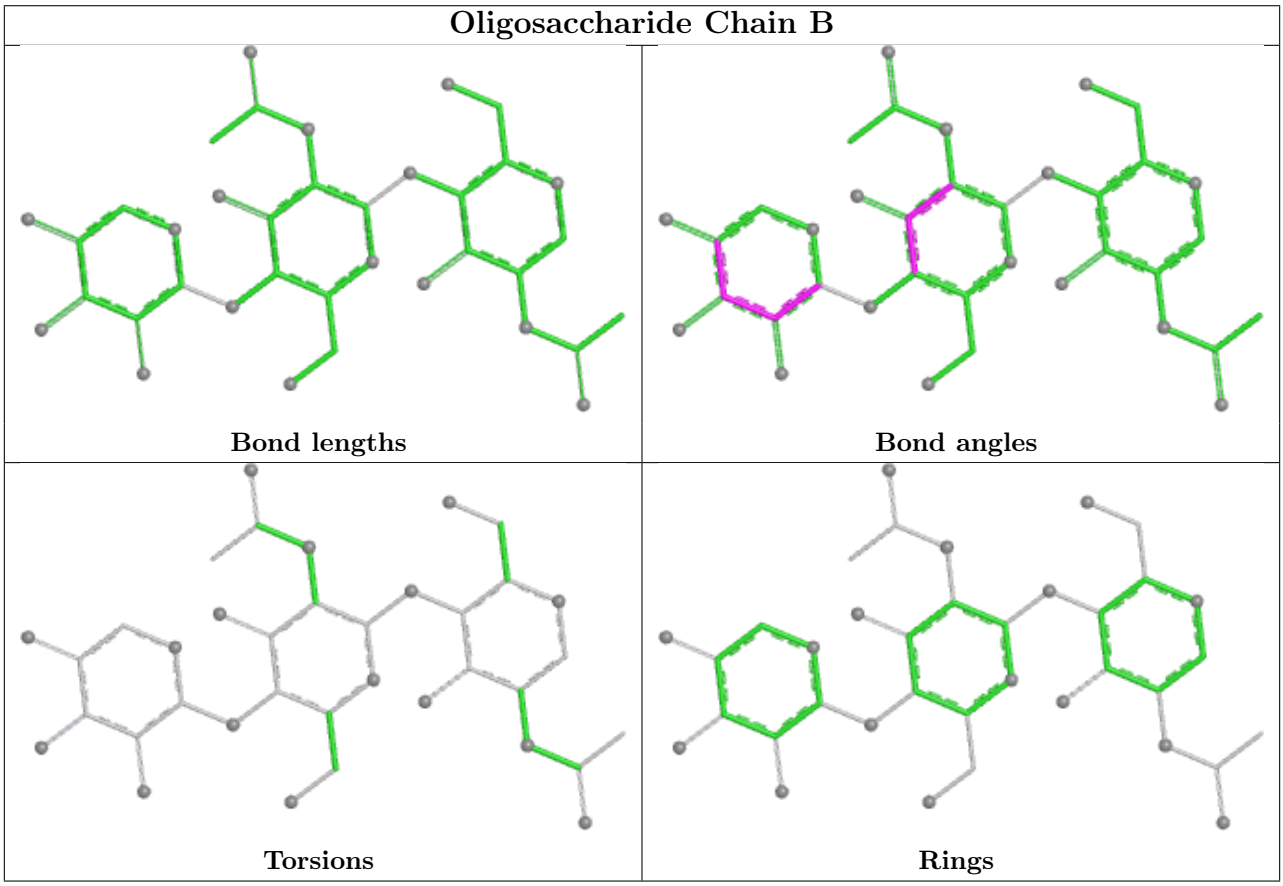
There are no ring outliers.

2 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1	MAN	5	0
2	A	2	MAN	7	0

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





5.6 Ligand geometry (i)

1 ligand is 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	EPE	X	520	-	15,15,15	0.85	1 (6%)	19,20,20	1.60	3 (15%)

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	EPE	X	520	-	-	1/9/19/19	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	X	520	EPE	C10-S	2.76	1.81	1.77

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	X	520	EPE	C5-N4-C3	4.38	118.28	108.84
4	X	520	EPE	C7-N4-C5	3.35	120.16	111.24
4	X	520	EPE	O3S-S-C10	2.47	110.83	106.00

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	X	520	EPE	C8-C7-N4-C5

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} 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	X	493/516 (95%)	0.39	39 (7%)	20 20	10, 16, 28, 58	0

All (39) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	X	244	GLY	11.0
1	X	346	VAL	7.0
1	X	243	GLU	5.4
1	X	245	THR	5.2
1	X	24	GLN	5.1
1	X	25	SER	5.1
1	X	349	GLN	4.9
1	X	516	GLU	4.7
1	X	348	THR	4.4
1	X	183	ARG	4.3
1	X	228	ASP	4.3
1	X	242	VAL	4.2
1	X	117	ALA	4.1
1	X	413	SER	4.1
1	X	412	ALA	3.8
1	X	227	SER	3.8
1	X	116	SER	3.7
1	X	247	GLU	3.3
1	X	347	GLY	3.2
1	X	219	SER	3.1
1	X	246	GLU	3.0
1	X	95	GLY	2.9
1	X	118	ASN	2.8
1	X	223	ASN	2.8
1	X	345	LYS	2.8
1	X	287	SER	2.6
1	X	411	GLY	2.6

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Mol	Chain	Res	Type	RSRZ
1	X	94	ASN	2.5
1	X	286	ALA	2.5
1	X	63	THR	2.4
1	X	278	SER	2.3
1	X	181	PHE	2.3
1	X	240	LEU	2.3
1	X	248	THR	2.2
1	X	153	GLN	2.1
1	X	270	ILE	2.1
1	X	226	SER	2.1
1	X	185	SER	2.0
1	X	221	SER	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)

SUGAR-RSR INFOmissingINFO

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, 95^{th} 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	EPE	X	520	15/15	0.87	0.14	22,26,28,28	0

6.5 Other polymers (i)

There are no such residues in this entry.